

### **Product Portfolio 2018**



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# Our tradition: Competence since 1871

We have supplied generations of customers worldwide with pumps, valves, automation products and services. A company with that kind of experience knows that success is a process based on a stream of innovations. A process made possible by a close working alliance between developer and user, between production and practice.

Partners achieve more together. We do everything possible to ensure that our customers always have access to the ideal product and system solution. KSB is a loyal partner. And a strong one:

- Over 140 years' experience
- Present in more than 100 countries
- More than 16,000 employees
- More than 170 service centres worldwide
- Approximately 3,000 service specialists



# Single-source supplier: your partner for pumps, valves and service

We assist our customers right through the product life cycle

A comprehensive product range, short response times and tailored service and spare parts solutions – no other competitor offers a comparable range of products and services. In all phases of the product life cycle, we are on hand to ensure that our customers secure long-term value from their systems.

We offer our customers a variety of services and spare parts solutions around pumps, valves, and other rotating equipment – also for non-KSB products:

- Technical consultancy
- Installation and commissioning
- Services provided on-site and in our service centres
- Inspection and maintenance

- Maintenance inspection management
- Framework agreements such as TPM<sup>®</sup> Total Pump Management
- Efficiency analysis with SES System Efficiency Service or Pump Operation Check
- Reverse engineering
- Inventory management
- Retrofitting as an alternative to buying a new product
- Spare parts in manufacturer's quality
- On-site training sessions
- Refurbishment and decommissioning

Ready wherever you are: with a global service network and a 24-hour emergency service.



# Our mission: Certified quality assurance

First-class products and excellent service take top priority at KSB. To maintain this level of excellence, we have developed a modern quality management system with globally applicable guidelines. It is based on the Business Excellence model of the European Foundation for Quality Management, which already ensures improved quality management Europewide.

Our guidelines define uniform quality for all KSB locations and have helped us to optimise our manufacturing processes. The results are shorter delivery times and global availability of our products. These guidelines govern the way we act so comprehensively that even the competence of our consulting and the good value for money we offer are clearly stipulated. Like the 'Made in Germany' quality seal, we introduced internal certification as a sign of the highest quality: 'Made by KSB'.

#### Our five key goals:

- Maximum customer satisfaction: We do everything to fulfil our customers' wishes on time and in full.
- Fostering quality awareness: We put our quality commitment into daily practice – from executives to employees, whose qualifications and competence we foster through continuing training.
- **Prevention rather than cure:** We systematically analyse errors and prevent the causes.
- Improvement in quality: We continually optimise our processes in order to work more efficiently.
- Involvement of suppliers: We attach great importance to working together fairly and openly to achieve our shared goals.



As a signatory to the United Nations Global Compact, KSB is committed to endorsing the ten principles of the international community in the areas of human rights, labour standards, environmental protection and anticorruption.





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- Availability and operating reliability
- Flexibility through short-term reconfigurability
- Reduction of time to market

Increase your system's productivity already today with KSB's smart products and services: Use our intelligent technologies designed to communicate, such as PumpDrive and PumpMeter, to lay a foundation for your smart factory. Find out more about our future-driven solutions at www.ksb.com/industry40



## **KSB Trademarks**

Apart from the KSB umbrella brand, the following brand names identify quality products and services by the KSB Group:

# amri

#### **Butterfly valves**

Under the AMRI brand, KSB sells its butterfly valves. They are used in building services, industry, water engineering and power generation applications. AMRI products include pneumatic, hydraulic and electric valve actuators as well as control systems.

### Diaphragm valves

SIO®

Under the SISTO brand, KSB sells its diaphragm valves. They perform shut-off duties in building services, industrial, water management and power generation applications. Under this brand name, KSB offers special valves for sterile processes including biotech applications.



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### **General Information**

| Regional products | Not all depicted products are available for sale in every country. Products only<br>available in individual regions are indicated accordingly. Please contact your<br>sales representative for details.   |
|-------------------|---|
| Key to actuators  | <ul> <li>In the Products section from page 25 the symbol in conjunction with the relevant letter indicates the actuator type(s) available.</li> <li>m = manual (lever, handwheel, etc.)</li> <li>e = electric actuator</li> <li>p = pneumatic actuator</li> <li>h = hydraulic actuator</li> </ul> |
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### Valves

|  |                              |      | Automation | Water Transport<br>and Treatment | Industry | Energy<br>Conversion | Building<br>Services | Solids Transport | Pharmaceuticals/<br>Food |
|--|------------------------------|------|------------|----------------------------------|----------|----------------------|----------------------|------------------|--------------------------|
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|  | BOA-SuperCompact             | 25   |            |                                  |          |                      |                      |                  |                          |
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|  | BOA-H/HE/HV/HEV              | 26   |            |                                  |          |                      |                      |                  |                          |
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|  | NORI 40 ZYLB/ZYSB            | 26   |            |                                  |          |                      |                      |                  |                          |
|  | BOACHEM-ZXAB                 | 27   |            |                                  |          |                      |                      |                  |                          |
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|  | NORI 40 ZXLF/ZXSF            | 28   |            |                                  |          |                      |                      |                  |                          |
|  | NORI 160 ZXL/ZXS             | 28   |            |                                  |          |                      |                      |                  |                          |
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| Design/Application                          | Type series          | Page | Automation | Water Transport<br>and Treatment | Industry | Energy<br>Conversion | Building<br>Services | Solids Transport | Pharmaceuticals/<br>Food |
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|   | ECOLINE GTF 150-600  | 38   |            |                                  |          |                      |                      |                  |                          |
|   | ECOLINE GTF 800-2500 | 38   |            |                                  |          |                      |                      |                  |                          |
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|   | HERA-BDS             | 40   |            |                                  |          |                      |                      |                  |                          |
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|   | HERA-SH              | 40   |            |                                  |          |                      |                      |                  |                          |
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|   | SERIE 2000           | 45   |            |                                  |          |                      |                      |                  |                          |
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|   | ECOLINE SCF 150-600  | 45   |            |                                  |          |                      |                      |                  |                          |
|   | ECOLINE SCF 800-2500 | 46   |            |                                  |          |                      |                      |                  |                          |
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|   | SICCA 900-3600 SCC   | 46   |            |                                  |          |                      |                      |                  |                          |
|   | WADA SC 150          | 46   |            |                                  |          |                      |                      |                  |                          |
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|   |                                       |      | Automation | Water Transport<br>and Treatment | Industry | Energy<br>Conversion | Building<br>Services | Solids Transport | Pharmaceuticals/<br>Food |
|---|---------------------------------------|------|------------|----------------------------------|----------|----------------------|----------------------|------------------|--------------------------|
| Design/Application                        | Type series                           | Page | Auto       | Wat<br>and                       | Indu     | Enel                 | Build<br>Serv        | Solic            | Phai<br>Foot             |
|   | BOA-S                                 | 47   |            |                                  |          |                      |                      |                  | -                        |
| Strainers to DIN/EN                       | NORI 40 FSL/FSS                       | 48   |            |                                  |          |                      |                      |                  |                          |
|   | BOACHEM-FSA                           | 48   |            |                                  |          |                      |                      |                  |                          |
|   | ECOLINE FYC 150-600                   | 48   |            |                                  |          |                      |                      |                  |                          |
| Strainers to ANSI/ASME                    | ECOLINE FYF 800                       | 48   |            |                                  |          |                      |                      |                  |                          |
|   | BOAX-CBV13                            | 49   |            |                                  |          |                      |                      |                  |                          |
|   | BOAX-S/SF                             | 49   |            |                                  |          | _                    |                      |                  |                          |
|   | BOAX-S/SF Gaz                         | 49   |            |                                  |          |                      |                      |                  |                          |
|   | BOAX-B                                | 49   |            |                                  |          | _                    |                      |                  |                          |
|   | BOAX-B Gaz                            | 49   |            |                                  |          |                      |                      |                  |                          |
|   | BOAX-B APSAD                          | 50   |            |                                  |          |                      |                      |                  |                          |
| Centred-disc butterfly valves             | BOAX-B DVGW                           | 50   |            |                                  |          |                      |                      |                  |                          |
| -   | BOAX-B FM                             | 50   |            |                                  |          |                      |                      |                  |                          |
|   | ISORIA 10/16                          | 50   |            |                                  |          |                      |                      |                  |                          |
|   | ISORIA 20/25                          | 50   |            |                                  |          |                      |                      |                  |                          |
|   | ISORIA 20 UL                          | 51   |            |                                  |          |                      |                      |                  |                          |
|   | MAMMOUTH                              | 51   |            |                                  |          |                      |                      |                  |                          |
|   | KE                                    | 51   |            |                                  |          |                      |                      |                  |                          |
|   | APORIS                                | 51   |            |                                  |          |                      |                      |                  |                          |
|   | DANAÏS 150                            | 52   |            |                                  |          |                      |                      |                  |                          |
| Double-offset butterfly valves            | DANAÏS MTII                           | 52   |            |                                  | -        |                      |                      |                  |                          |
|   | DANAÏS TBTII                          | 52   |            |                                  | -        |                      |                      |                  |                          |
|   | TRIODIS 150                           | 52   |            |                                  | -        |                      |                      |                  |                          |
| Triple-offset butterfly valves            | TRIODIS 300                           | 53   |            |                                  | -        |                      |                      |                  |                          |
| mple offset buttering valves              | TRIODIS 600                           | 53   |            |                                  | -        | 1                    |                      |                  |                          |
| Butterfly valves for nuclear applications | CLOSSIA                               | 53   | -          |                                  |          |                      |                      |                  |                          |
| Combined butterfly/check valves           | DUALIS                                | 53   |            |                                  |          |                      |                      |                  |                          |
|   | MP-CI/MP-II                           | 55   |            |                                  |          |                      |                      |                  |                          |
| Single-piece ball valves                  | PROFIN-VT1                            | 54   |            |                                  |          |                      |                      |                  |                          |
|   | ECOLINE BLT 150-300                   | 54   |            |                                  | -        |                      |                      |                  |                          |
| Two-piece ball valves                     | PROFIN-VT2L                           | 54   |            |                                  | -        |                      |                      |                  |                          |
|   | ECOLINE BLC 1000                      | 55   |            |                                  | -        |                      |                      |                  |                          |
| Three-piece ball valves                   | PROFIN-SI3FIT/-SI3LIT                 | 55   |            |                                  | -        |                      |                      |                  |                          |
|   | PROFIN-VT3/-VT3L/-VT3F/-VT33L         | 55   |            |                                  | -        |                      | -                    |                  |                          |
| · · · · · · · · · · · · · · · · · · ·     | SISTO-KB                              | 55   |            |                                  | -        |                      | -                    |                  |                          |
|   | SISTO-KBS                             | 56   |            |                                  |          |                      |                      |                  |                          |
|   | SISTO-10                              | 56   |            |                                  |          |                      |                      |                  |                          |
|   | SISTO-10M                             | 56   |            |                                  |          | 100                  |                      |                  |                          |
| Coff asstal display we we have t          | SISTO-16                              | 56   |            |                                  |          |                      |                      |                  |                          |
| Soft-seated diaphragm valves to<br>DIN/EN | SISTO-16S                             | 56   |            |                                  |          |                      |                      |                  |                          |
|   | SISTO-16RGA                           | 57   |            |                                  | -        | -                    |                      |                  |                          |
|   | SISTO-16RGA<br>SISTO-16TWA/HWA/DLU    | 57   |            |                                  |          |                      |                      |                  |                          |
|   | SISTO-20                              | 57   |            | -                                |          |                      |                      |                  |                          |
|   | SISTO-20<br>SISTO-C                   | 57   |            |                                  |          |                      |                      |                  | -                        |
|   | SISTO-20NA                            | 57   |            | -                                |          | -                    |                      |                  |                          |
| Diaphragm valves for nuclear applications | · · · · · · · · · · · · · · · · · · · | 58   |            |                                  |          |                      |                      |                  |                          |
| Food water hunass values                  |                                       | 58   |            |                                  |          |                      |                      |                  |                          |
| Feed water bypass valves                  | ZJSVM/RJSVM                           | 58   |            |                                  |          | -                    |                      |                  |                          |
|   | ECOLINE GE1/GE2/GE3                   | 58   |            |                                  |          |                      |                      |                  |                          |

### Actuators

| Design/Application  | Type series                | Page | Water Transport<br>and Treatment | Industry | Energy<br>Conversion | Building<br>Services | Solids Transport | Pharmaceuticals/<br>Food |
|---------------------|----------------------------|------|----------------------------------|----------|----------------------|----------------------|------------------|--------------------------|
| Levers              | CR/CM                      | 60   |                                  |          |                      |                      |                  |                          |
| Levers              | S/SR/SP                    | 60   |                                  |          |                      |                      |                  |                          |
| Manual georbox      | MN                         | 60   |                                  |          |                      |                      |                  |                          |
| Manual gearbox      | MR                         | 60   |                                  |          |                      |                      |                  |                          |
|                     | ACTELEC (AUMA)             | 61   |                                  |          |                      |                      |                  |                          |
| Electric actuators  | ACTELEC (BERNARD CONTROLS) | 61   |                                  |          |                      |                      |                  |                          |
|                     | SISTO-LAE                  | 61   |                                  |          |                      |                      |                  |                          |
| Hydraulic actuators | HQ                         | 61   |                                  |          |                      |                      |                  |                          |
|                     | ACTAIR NG                  | 62   |                                  |          |                      |                      |                  |                          |
|                     | DYNACTAIR NG               | 62   |                                  |          |                      |                      |                  |                          |
| Pneumatic actuators | SISTO-LAD                  | 62   |                                  |          |                      |                      |                  |                          |
|                     | SISTO-LAP                  | 62   |                                  |          |                      |                      |                  |                          |
|                     | SISTO-C LAP                | 63   |                                  |          |                      |                      |                  |                          |
| Control accessories | RMD                        | 63   |                                  |          |                      |                      |                  |                          |

KSB offers a wide range of actuators. Just contact our specialists.

### **Automation**

| Design/Application       | Type series           | Page | Water Transport<br>and Treatment | Industry | Energy<br>Conversion | Building<br>Services | Solids Transport | Pharmaceuticals/<br>Food |
|--------------------------|-----------------------|------|----------------------------------|----------|----------------------|----------------------|------------------|--------------------------|
|                          | AMTROBOX              | 64   |                                  |          |                      |                      |                  |                          |
|                          | AMTROBOX EEx ia       | 64   |                                  |          |                      |                      |                  |                          |
|                          | AMTROBOX ATEX Zone 22 | 64   |                                  |          |                      |                      |                  |                          |
| Manitarian               | AMTROBOX F            | 64   |                                  |          |                      |                      |                  |                          |
| Monitoring               | AMTROBOX M            | 64   |                                  |          |                      |                      |                  |                          |
|                          | AMTROBOX R            | 65   |                                  |          |                      |                      |                  |                          |
|                          | AMTROBOX R EEx ia     | 65   |                                  |          |                      |                      |                  |                          |
|                          | AMTROBOX R Ex d       | 65   |                                  |          |                      |                      |                  |                          |
| ON/OFF valve controllers | AMTRONIC              | 65   |                                  |          |                      |                      |                  |                          |
| Positioners              | SMARTRONIC MA         | 66   |                                  |          |                      |                      |                  |                          |
| Positioners              | SMARTRONIC AS-i       | 66   |                                  |          |                      |                      |                  |                          |
| Intelligent positioners  | SMARTRONIC PC         | 66   |                                  |          |                      |                      |                  |                          |

### Fluids handled

|                                   |                                    | BOA-SuperCompact | BOA-Compact | BOA-Compact EKB<br>BOA-W |                                     | BOA-H      | BOA-H/HE/HV/HEV | NORI 40 ZXLBV/ZXSBV | NORI 40 ZXLB/ZXSB | NORI 40 ZYLB/ZYSB | BOACHEM-ZXAB |  | ECOLINE GLB 150-600 | ECOLINE GLB 800 |                   | NORI 40 ZXL/ZXS | NORI 40 ZXLF/ZXSF | NORI 160 ZXL/ZXS | NORI 160 ZXLF/ZXSF | NORI 320 ZXSV | NORI 500 ZXSV | <b>BOACHEM-ZXA</b> | ECOLINE VA 16 |  | SICCA 150-600 GLC | SICCA 900-2500 GLC | SICCA 800-4500 GLF | ECOLINE GLC 150-600 | ECOLINE GLF 150-600 | ECOLINE GLF 800-2500 | ECOLINE GLV 150-300 | <b>WADA GL 150</b> |                  |                    |   |
|-----------------------------------|------------------------------------|------------------|-------------|--------------------------|-------------------------------------|------------|-----------------|---------------------|-------------------|-------------------|--------------|--|---------------------|-----------------|-------------------|-----------------|-------------------|------------------|--------------------|---------------|---------------|--------------------|---------------|--|-------------------|--------------------|--------------------|---------------------|---------------------|----------------------|---------------------|--------------------|------------------|--------------------|---|
| Abrasive fluids                   | z                                  |                  |             |                          | z                                   |            |                 |                     |                   |                   |              | Ψ                                      |                     |                 | p                 |                 |                   |                  |                    |               |               |                    |               | p  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Waste water with faeces           | NE                                 |                  |             |                          | N                                   |            |                 |                     |                   |                   |              | AS [                                   |                     |                 | packing           |                 |                   |                  |                    |               |               |                    |               | S.   |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Waste water without faeces        | D                                  |                  |             |                          |                                     |            |                 |                     |                   |                   |              | IS                                     |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               | pa   |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Aggressive fluids                 | es to                              |                  |             |                          | es to                               |            |                 |                     |                   |                   |              | A -                                    |                     |                 | and               |                 |                   |                  |                    |               |               |                    |               | and  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Inorganic fluids                  | alve                               |                  |             |                          | alve                                |            |                 |                     |                   |                   |              | 5                                      |                     |                 | DIN/EN with gland |                 |                   |                  |                    |               |               |                    |               | <u>l</u> g                                   |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Activated sludge                  | le v                               |                  |             |                          | _ >                                 |            |                 |                     |                   |                   |              | Ke                                     |                     |                 | vith              |                 |                   |                  | _                  |               |               |                    |               | Ę  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Brackish water                    | lok                                |                  |             |                          |                                     |            |                 |                     |                   |                   |              | e < 9                                  |                     |                 | ź                 |                 |                   |                  |                    |               |               |                    |               | é  |                   |                    | _                  |                     |                     |                      |                     |                    |                  |                    |   |
| Service water                     | ed g                               |                  |             |                          | _ e                                 | ' <u> </u> | _               | _                   |                   | _                 | _            | g                                      | _                   | _               | IN/E              | _               | _                 | _                | _                  | _             | _             | _                  |               | 2S   |                   | _                  | _                  | _                   | _                   | _                    | _                   |                    |                  |                    |   |
| Steam                             | Soft-seated globe valves to DIN/EN |                  |             |                          | Bellows-type globe valves to DIN/EN |            |                 |                     |                   |                   | -            | Bellows-type globe valves to ANSI/ASME |                     |                 | to D              |                 |                   |                  | _                  | _             |               |                    |               | Globe valves to ANSI/ASME with gland packing |                   |                    |                    |                     |                     |                      |                     |                    |                  | $\left  - \right $ |   |
| Distillate<br>Explosive fluids    | ft-s                               |                  |             |                          | - SNO                               |            |                 |                     |                   |                   | _            | typ                                    |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               | A  | _                 |                    | _                  |                     |                     |                      |                     | <u> </u>           |                  | $\left  - \right $ |   |
| Digested sludge                   | Sot                                |                  |             |                          |                                     | _          |                 | -                   | -                 | -                 |              | -SV                                    | -                   | -               | Globe valves      | -               | -                 |                  | -                  | -             | -             | -                  |               | s to   | _                 |                    | _                  |                     |                     |                      | -                   | <u> </u>           |                  | $\left  - \right $ |   |
| Solids-laden fluids               |                                    | _                |             |                          | - "                                 | -          | -               |                     |                   |                   | - :          | el-                                    | $\neg$              | _               | oe v              | -               |                   | _                | _                  | _             | _             |                    |               | ke   | _                 |                    | _                  | _                   |                     | -                    | -                   | -                  | $ \vdash $       | $\vdash$           |   |
| Solids (ore, sand, gravel, ash)   |                                    |                  |             |                          | -                                   | ┢          | -               | -                   |                   | $\rightarrow$     | _            | صّ –                                   |                     | -               | lob               |                 |                   |                  | _                  |               | _             |                    |               | e < 6  | _                 | _                  | _                  |                     |                     | <u> </u>             | -                   | -                  |                  |                    | — |
| Flammable fluids                  |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              | -                                      |                     |                 | 0                 |                 |                   |                  |                    |               |               |                    |               | <u>q</u>                                     |                   | _                  | _                  |                     |                     | -                    | -                   | -                  |                  |                    | _ |
| River, lake and groundwater       |                                    |                  |             |                          | -                                   | F          | -               | -                   | -                 | -                 | -            | -                                      |                     | _               |                   | -               | _                 | _                | -                  | _             | _             | —                  |               | ט -  |                   |                    | _                  |                     |                     |                      |                     |                    |                  |                    |   |
| Liquefied gas                     |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              | -                                      |                     |                 |                   |                 |                   |                  | _                  |               | _             |                    | _             | ŀ  |                   | _                  | _                  |                     |                     |                      |                     |                    |                  |                    | — |
| Fluids containing gas             |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   | Π               | Π                 | Π                |                    |               |               | П                  |               | F  |                   |                    |                    |                     |                     |                      |                     | -                  |                  |                    |   |
| Gases                             |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   | F               | Ē                 | Ē                |                    |               |               | F                  |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Harmful fluids                    |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               | ŀ  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Toxic fluids                      |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               | ľ  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| High-temperature hot water        |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              | -                                      |                     |                 |                   | Π               |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Heating water                     |                                    |                  |             |                          | Ī                                   |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Highly aggressive fluids          |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  | $\square$          |   |
| Condensate                        |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Corrosive fluids                  |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Valuable fluids                   |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Fuels                             |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Cooling water                     |                                    |                  |             |                          | _                                   |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Highly volatile fluids            |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               | _  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Fire-fighting water               |                                    |                  |             |                          | _                                   |            |                 |                     |                   |                   |              | -                                      |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               | -  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Solvents                          |                                    |                  |             |                          | -                                   | -          | -               |                     |                   |                   |              | -                                      |                     | _               |                   |                 |                   |                  | _                  | _             |               |                    |               | -  |                   |                    |                    |                     |                     |                      |                     |                    | $\mid \mid \mid$ | $\left  - \right $ |   |
| Seawater                          |                                    |                  |             |                          | -                                   |            | _               | _                   | _                 | _                 | _            | -                                      | _                   | _               |                   | _               | _                 | _                | _                  | _             | _             | _                  | _             | -  | _                 |                    | _                  | _                   | _                   | _                    | _                   |                    |                  | $\left  - \right $ |   |
| Fluids containing mineral oils    |                                    |                  |             |                          | -                                   |            |                 |                     | Ŀ                 |                   | -            |  | -                   | -               |                   | 님               | 님                 |                  | 늼                  | -             | -             | 님                  |               | - F  |                   | _                  | -                  | -                   | -                   |                      |                     |                    |                  | $\left  - \right $ |   |
| Oils<br>Organic fluids            |                                    |                  |             | $\vdash$                 | -                                   |            |                 |                     |                   |                   |              | -                                      |                     | -               |                   |                 |                   |                  | -                  |               | -             |                    |               | -  |                   |                    |                    |                     |                     |                      |                     | -                  | $\vdash$         | $\left  - \right $ |   |
| Polymerising/crystallising fluids |                                    |                  |             |                          | -                                   | -          | -               | <u> </u>            |                   | $\rightarrow$     | -            | -                                      | $\neg$              | _               |                   |                 |                   |                  |                    |               |               |                    |               | -  | _                 | _                  | _                  |                     |                     |                      | -                   | <u> </u>           |                  | $\left  - \right $ |   |
| Radioactive fluids                |                                    |                  |             |                          | -                                   | -          | -               |                     |                   | _                 | _            | -                                      |                     |                 |                   |                 | -                 |                  | -                  | -             | -             |                    |               | ŀ  | _                 |                    | _                  |                     |                     |                      |                     | -                  |                  | $\vdash$           |   |
| Cleaning agents                   |                                    |                  |             | $\vdash$                 | -                                   | -          | -               | -                   |                   | -+                |              | -                                      |                     | _               |                   |                 |                   |                  | _                  |               | _             |                    |               | -  |                   |                    | _                  |                     |                     | -                    | -                   | -                  |                  | $\left  - \right $ |   |
| Raw sludge                        |                                    |                  |             | $\vdash$                 |                                     | ⊢          | -               |                     |                   | -                 |              |  |                     | -               |                   | $\square$       |                   |                  | _                  |               | _             |                    |               |  |                   |                    |                    |                     |                     | -                    | -                   | -                  |                  |                    |   |
| Lubricants                        |                                    |                  |             |                          |                                     |            | -               |                     |                   | $\rightarrow$     |              | -                                      |                     | -               |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    | _                   |                     |                      |                     | -                  |                  |                    |   |
| Grey water                        |                                    |                  |             | $\vdash$                 |                                     |            | -               |                     |                   | $\rightarrow$     | _            | -                                      |                     | -               |                   |                 | _                 |                  | -                  |               | _             |                    | _             | - H-   |                   |                    | T                  | _                   |                     | -                    |                     | -                  |                  |                    |   |
| Brine                             |                                    |                  |             |                          |                                     |            | 1               |                     |                   | $\neg$            |              |  |                     |                 |                   |                 | _                 |                  |                    |               |               |                    |               |  | -                 |                    | -                  |                     |                     |                      |                     |                    |                  |                    | _ |
| Feed water                        |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Dipping paints                    |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Drinking water                    |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Vacuum                            |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    | _ |
| Thermal oils                      |                                    |                  |             |                          |                                     |            |                 |                     |                   |                   |              |  |                     |                 |                   |                 |                   |                  |                    |               |               |                    |               |  |                   |                    |                    |                     |                     |                      |                     |                    |                  |                    |   |
| Wash water                        |                                    | ]                | ]           |                          |                                     |            |                 |                     | ]                 |                   |              |  | 1                   | 1               |                   |                 |                   | ΙĨ               | 1                  | I             |               |                    |               |  |                   | 1                  |                    |                     |                     |                      | _                   |                    | 11               | í I                |   |

|                                   |                                       | NUCA/-A/-ES, Types I, II, IV | ZYNB/ZYN | ZXNB | ZXNVB     |                                  | BOA-H Mat E | BOA-H Mat P |                   | BOA-CVE C/CS/W/IMS/EKB | BOA-CVE H | BOA-CVP H          |                        | <b>BOA-Control /BOA-Control IMS</b> | <b>BOA-Control SAR</b> |                                | CONDA-VLC |                          | CONDA-VRC        |                                      | CONDA-VSM |            | BOAVENT-AVF | BOAVENT-SVF | BOAVENT-SIF<br>BOAVENT-SVA |                                      | SISTO-VentNA |   | SISTO-KRVNA   |               |                |               |               |               |         |   |
|-----------------------------------|---------------------------------------|------------------------------|----------|------|-----------|----------------------------------|-------------|-------------|-------------------|------------------------|-----------|--------------------|------------------------|-------------------------------------|------------------------|--------------------------------|-----------|--------------------------|------------------|--------------------------------------|-----------|------------|-------------|-------------|----------------------------|--------------------------------------|--------------|---|---------------|---------------|----------------|---------------|---------------|---------------|---------|---|
| Abrasive fluids                   | SC                                    |                              |          |      |           | z                                |             |             | z                 |                        |           |                    | z                      |                                     |                        | z                              |           | z                        |                  | z                                    |           | SS         |             |             |                            | 2                                    | 2            |   | Τ             |               |                |               |               | Τ             |         | _ |
| Waste water with faeces           | tion                                  |                              |          |      |           | NE                               |             |             | DIN/EN            |                        |           |                    | DIN/EN                 |                                     |                        | NE                             |           | DIN/EN                   |                  | N                                    |           | Air valves |             |             |                            | ÷.                                   | 2            |   |               |               |                |               |               |               |         |   |
| Waste water without faeces        | lica                                  |                              |          |      |           | D                                |             |             | D                 |                        |           |                    | D                      |                                     |                        | D                              |           |                          |                  |                                      |           | ir <       |             |             |                            | lica                                 | 1            |   |               |               |                |               |               |               |         |   |
| Aggressive fluids                 | dde                                   |                              |          |      |           | s to                             |             |             | Control valves to |                        |           |                    | es to                  |                                     |                        | s to                           |           | s to                     |                  | s to                                 |           | ◄          |             |             |                            |                                      | 22           |   |               |               |                |               |               |               |         |   |
| Inorganic fluids                  | ar                                    |                              |          |      |           | alve                             |             |             | alve              |                        |           |                    | alve                   |                                     |                        | alve                           |           | alve                     |                  | alve                                 |           |            |             |             |                            | L.                                   | 5            |   |               |               |                |               |               |               |         |   |
| Activated sludge                  | rcle                                  |                              |          |      |           | e <                              |             |             |                   |                        |           |                    | ff v.                  |                                     |                        | ol vä                          |           | g<br>S                   |                  | g <                                  |           |            |             |             |                            |                                      |              |   |               |               |                |               |               |               |         |   |
| Brackish water                    | r n                                   |                              |          |      |           | qol                              |             |             | otro              |                        |           |                    | t-of                   |                                     |                        | htro                           |           | lcin                     |                  | nin                                  |           |            |             |             |                            | 2                                    | ÉL           |   |               |               |                |               |               |               |         |   |
| Service water                     | s fo                                  |                              |          |      |           | d g                              |             |             | Ö                 |                        |           |                    | shu                    | <u> </u>                            |                        | Ö                              |           | edu                      | $\square$        | stai                                 |           |            |             |             |                            | f                                    | 2            |   |               | $\downarrow$  | $\downarrow$   | $\square$     | $\square$     | $\perp$       | $\perp$ |   |
| Steam                             | Globe valves for nuclear applications |                              |          |      |           | Automated globe valves to DIN/EN |             |             |                   |                        |           |                    | and shut-off valves to | _                                   |                        | Level control valves to DIN/EN |           | Pressure reducing valves |                  | Pressure sustaining valves to DIN/EN |           |            |             |             |                            | Vent valves for nuclear annlications | <u>د</u>     |   |               | $\downarrow$  | $\downarrow$   | $\downarrow$  | $\downarrow$  | $\perp$       | _       |   |
| Distillate                        | s va                                  |                              | <u> </u> |      |           | mo                               |             | <u> </u>    |                   |                        | -         |                    | g al                   |                                     |                        | Le                             |           | ssur                     |                  | ure                                  |           |            |             |             |                            | c/ ,                                 | 2            |   | $\downarrow$  | $\downarrow$  | $ \rightarrow$ | $\downarrow$  | $\downarrow$  | $\rightarrow$ | $\perp$ | _ |
| Explosive fluids                  | obe                                   |                              |          |      |           | Aut                              |             |             | -                 |                        |           |                    | Balancing              |                                     |                        |                                |           | Pre                      |                  | ress                                 |           |            |             |             |                            | - Lue                                | <u> </u>     |   | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | _       | _ |
| Digested sludge                   | ש                                     |                              |          |      |           | -                                |             |             | -                 |                        |           |                    | alan                   |                                     |                        |                                |           |                          |                  | ā                                    |           |            |             |             |                            | _ ^                                  | -            |   | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ |         | _ |
| Solids-laden fluids               |                                       |                              |          |      |           |                                  | <u> </u>    | <u> </u>    |                   |                        | -         |                    | ä                      | <u> </u>                            |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | _                                    | -            | _ | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | +       | _ |
| Solids (ore, sand, gravel, ash)   |                                       |                              |          |      |           |                                  |             |             |                   | -                      | -         |                    |                        | <u> </u>                            |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    | -            | _ | +             | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | +             | +       |   |
| Flammable fluids                  |                                       |                              | -        |      |           |                                  | -           |             |                   | -                      | -         |                    |                        | -                                   |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    | -            | _ | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | +             | +       | _ |
| River, lake and groundwater       | -                                     |                              | -        |      |           |                                  |             |             |                   | -                      | -         |                    |                        | <u> </u>                            |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | _                                    | -            | _ | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | +       | _ |
| Liquefied gas                     | -                                     | _                            | -        |      |           |                                  |             | _           |                   |                        | -         |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    | -            | + | _             | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | +       | _ |
| Fluids containing gas             | -                                     | -                            | -        |      | H         |                                  |             |             | -                 |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             | _                          | -                                    | -            |   |               | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | +       | _ |
| Gases<br>Harmful fluids           |                                       | _                            |          |      |           |                                  | -           |             |                   |                        | ╎━        |                    |                        | -                                   |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    | -            |   | -             | $\rightarrow$ | $\rightarrow$  | +             | +             | +             | +       | _ |
| Toxic fluids                      |                                       |                              |          |      |           |                                  | <u> </u>    |             |                   |                        | -         |                    |                        | -                                   |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    | -            | + | +             | $\rightarrow$ | $\rightarrow$  | +             | +             | +             | +       | _ |
| High-temperature hot water        |                                       | -                            |          |      | Ħ         |                                  |             |             |                   |                        |           |                    |                        | -                                   |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    |              |   |               | +             | $\rightarrow$  | +             | +             | +             |         | - |
| Heating water                     | -                                     | -                            | -        |      |           |                                  |             |             |                   |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    |              |   |               | $\rightarrow$ | $\rightarrow$  | +             | +             | +             | +       | - |
| Highly aggressive fluids          | -                                     |                              | -        |      | _         |                                  | -           | -           | -                 | F                      | -         | -                  |                        | -                                   | -                      |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    | F            | + | -             | $\rightarrow$ | $\rightarrow$  | +             | +             | -             |         | - |
| Condensate                        | -                                     |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        | -                                   |                        |                                |           |                          |                  |                                      | _         |            |             |             |                            |                                      |              |   |               | $\rightarrow$ | -              | $\rightarrow$ | -             | -             |         | - |
| Corrosive fluids                  |                                       |                              |          |      |           |                                  | -           | -           |                   |                        | +-        | F                  |                        | -                                   |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              | + | -             | $\rightarrow$ | -              | $\rightarrow$ | +             | -             | -       | - |
| Valuable fluids                   |                                       |                              |          |      |           |                                  | -           |             |                   |                        | 1         |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              | + | +             | +             | $\neg$         | +             | +             | +             | +       |   |
| Fuels                             |                                       |                              |          |      |           |                                  |             |             |                   |                        | 1         |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              | + | +             | $\neg$        | $\neg$         | $\neg$        | $\neg$        |               | +       | - |
| Cooling water                     |                                       |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   |               | $\rightarrow$ | $\neg$         | $\neg$        | $\rightarrow$ | +             | +       | - |
| Volatile fluids                   | -                                     |                              |          |      |           |                                  | -           |             |                   |                        | $\vdash$  |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   | -             | $\rightarrow$ | $\neg$         | $\neg$        | +             | +             | -       |   |
| Fire-fighting water               |                                       |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   |               | $\neg$        | $\neg$         | $\neg$        | $\neg$        | -             | +       |   |
| Solvents                          |                                       |                              |          |      |           |                                  |             |             |                   |                        | 1         |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   | 1             | $\neg$        | $\neg$         | $\neg$        | $\neg$        |               | $\top$  |   |
| Seawater                          |                                       |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   |               |               |                |               |               |               |         | _ |
| Fluids containing mineral oils    |                                       |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   |               |               |                |               |               |               |         |   |
| Oils                              |                                       |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   |               |               |                |               |               |               |         |   |
| Organic fluids                    |                                       |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   |               |               |                |               |               |               |         |   |
| Polymerising/crystallising fluids |                                       |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   |               |               |                |               |               |               |         |   |
| Radioactive fluids                |                                       |                              |          |      |           |                                  |             |             |                   |                        |           |                    |                        | _                                   |                        |                                |           |                          | $\square$        |                                      |           |            |             |             |                            |                                      |              |   | $\downarrow$  | $\square$     | $\square$      | $\square$     | $\square$     | $\square$     |         |   |
| Cleaning agents                   |                                       |                              | -        |      |           |                                  | _           | <u> </u>    |                   | <u> </u> _             |           |                    |                        | <u> </u>                            |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   | $\downarrow$  | $\downarrow$  | $\downarrow$   | $\downarrow$  | $\downarrow$  | $\rightarrow$ | $\perp$ | _ |
| Raw sludge                        |                                       |                              | <u> </u> |      |           |                                  |             | _           |                   |                        | -         |                    |                        | <u> </u>                            |                        |                                |           |                          | $\square$        |                                      |           |            |             |             |                            | -                                    |              | _ | _             | $\downarrow$  | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | +       |   |
| Lubricants                        |                                       |                              | -        |      |           |                                  |             |             |                   | -                      |           |                    |                        | -                                   |                        |                                | _         |                          |                  |                                      | _         |            | _           | _           |                            | -                                    |              |   |               | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | +       | _ |
| Grey water                        |                                       |                              | -        |      |           |                                  | <u> </u>    | -           |                   | -                      | -         |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    |              |   |               | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | +       | _ |
| Brine                             |                                       |                              | -        |      |           |                                  | ╞           | -           |                   | -                      | -         |                    |                        |                                     |                        |                                |           |                          | $\mid \mid \mid$ |                                      |           |            |             |             |                            | -                                    |              | + | _             | $\rightarrow$ | $\rightarrow$  | $\dashv$      | $\rightarrow$ | $\rightarrow$ | +       | _ |
| Feed water                        |                                       |                              | -        |      |           |                                  |             |             |                   | -                      |           |                    |                        | <u> </u>                            |                        |                                |           |                          | $\mid \mid \mid$ |                                      |           |            |             |             |                            | -                                    |              | - |               | $\dashv$      | $\dashv$       | $\dashv$      | $\dashv$      | +             | +       |   |
| Dipping paints<br>Drinking water  |                                       |                              | -        |      | $\square$ |                                  | -           | -           |                   | ╞                      | -         | $\left  - \right $ |                        | -                                   | $\left  - \right $     |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              | + | +             | +             | $\dashv$       | +             | +             | +             | +       | _ |
| Vacuum                            |                                       |                              | -        |      |           |                                  | <u> </u>    | -           |                   |                        | -         |                    |                        | -                                   |                        |                                |           |                          |                  |                                      |           |            |             |             |                            | -                                    |              | + |               | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | +             | +       | _ |
| Thermal oils                      |                                       | -                            | -        |      | -         |                                  |             |             |                   | ⊢                      |           |                    |                        |                                     |                        |                                | _         |                          | -                |                                      |           |            | $\square$   |             |                            | -                                    |              |   |               | +             | $\rightarrow$  | +             | +             | +             | +       | _ |
| Wash water                        |                                       |                              | -        |      |           |                                  |             | -           |                   | ⊢                      | ╞═┙       |                    |                        | -                                   |                        |                                |           |                          | $\vdash$         |                                      |           |            |             |             |                            | -                                    |              |   |               | $\rightarrow$ | $\rightarrow$  | +             | +             | +             | +       | - |
| vvasii Waler                      |                                       |                              |          |      |           |                                  |             |             |                   |                        | 1         |                    |                        |                                     |                        |                                |           |                          |                  |                                      |           |            |             |             |                            |                                      |              |   | <u> </u>      |               |                |               |               |               |         |   |

|   | COBRA-SGP/SGO/SGF | COBRA-SMP | ECOLINE SP/SO | ECOLINE GT 40 | STAAL 40 AKD/AKDS | STAAL 100 AKD/AKDS<br>AKG-A/AKGS-A | ZTS      |                          | ECOLINE GTB 800 | ECOLINE GTC 150-600 | ECOLINE GTF 150-600 | ECOLINE GTF 800-2500 | ECOLINE GTV 150-300 | SICCA 150-600 GTC | SICCA 900-3600 GTC | SICCA 800-1500 GTF | WADA GT 150 |                                      | ZTN |      | TENA-DU | HFRA-RDS | HFRA-RHT   | HERA-SH |      | 221 | UGS |                      | BOA-RPL       | BOA-RFV        | BOA-RVK       | BOA-R         | NORI 40 RXL/RXS | NORI 160 RXL/RXS |
|---|-------------------|-----------|---------------|---------------|-------------------|------------------------------------|----------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------|-------------------|--------------------|--------------------|-------------|--------------------------------------|-----|------|---------|----------|------------|---------|------|-----|-----|----------------------|---------------|----------------|---------------|---------------|-----------------|------------------|
| Abrasive fluids   | 5                 |           |               |               |                   |                                    |          | Æ                        |                 |                     |                     |                      |                     |                   |                    |                    |             | suc                                  |     | Z -  | LIN I   |          |            |         | /es  |     |     |                      | $\square$     |                |               |               |                 |                  |
| Abrasive fluids<br>Waste water with faeces<br>Waste water without faeces<br>Aggressive fluids<br>Inorganic fluids<br>Activated sludge<br>Brackish water |                   |           |               | $\rightarrow$ | -+                | _                                  | -        | Gate valves to ANSI/ASME |                 | -                   | -                   | -                    |                     | -                 |                    |                    |             | atic                                 | _   |      |         |          |            |         | _ ~  | -   |     | DIN/EN               | $\rightarrow$ | $\rightarrow$  | +             | $\rightarrow$ | $\rightarrow$   |                  |
| Waste water without faeces  |                   |           |               | $\rightarrow$ | $\rightarrow$     |                                    |          | NSI                      | -               |                     |                     |                      | -                   |                   | -                  |                    |             | plic                                 | _   | 12   |         |          |            |         | lief |     |     | <u>-</u>             | +             | $\rightarrow$  | +             | +             | +               |                  |
| Aggressive fluids<br>Inorganic fluids   |                   |           |               | $\rightarrow$ | $\rightarrow$     |                                    | -        | A O                      |                 |                     | -                   | -                    | -                   |                   | -                  |                    |             | r ap                                 | _   | ves  | _ <     |          |            |         | L e  |     |     | ves                  | +             | $\rightarrow$  | +             | +             | +               |                  |
| Activated sludge  |                   | -         |               | -             |                   |                                    | -        | es t                     |                 | -                   | -                   | -                    | $\vdash$            | -                 | -                  | -                  | -           | lear                                 | _   | val  | + 101   |          |            |         | sure |     |     | Lift check valves to | +             | +              | +             | -             | +               |                  |
| Brackish water  |                   | -         |               | $\rightarrow$ | +                 |                                    | -        | /alv                     |                 | -                   | -                   | -                    |                     | +                 | -                  | -                  | -           | nu                                   | -   | ate  |         |          |            |         | res  | -   | - 7 | - cc                 | +             | +              | +             | +             | +               |                  |
| Service water   |                   |           |               | $\rightarrow$ | +                 |                                    | -        | te /                     |                 | -                   | -                   | -                    |                     |                   | -                  |                    | -           | for                                  |     | eg   | +0      |          |            |         |      | 2   | - 4 | 5                    |               | +              | +             | +             | +               |                  |
| Steam   |                   | -         |               |               |                   |                                    |          | Ga                       |                 |                     |                     |                      |                     |                   |                    |                    | -           | /es 1                                |     | (nif |         | רק<br>ה  |            |         | Bo   |     | - 4 | Ē                    | -             | +              |               |               |                 |                  |
| Distillate  |                   |           |               | $\uparrow$    |                   |                                    |          |                          |                 |                     |                     | 1                    |                     |                   |                    |                    |             | Gate valves for nuclear applications |     | -    |         | Í        | +          | 1       |      |     |     |                      | +             | +              | +             | $\uparrow$    | Ť               | —                |
| Explosive fluids  |                   |           |               |               |                   |                                    |          |                          |                 | 1                   | 1                   | 1                    |                     |                   |                    |                    | 1           | ate                                  |     | Ī    |         | 2        | 1          |         |      |     |     |                      | +             | 1              | +             | $\uparrow$    |                 |                  |
| Digested sludge   |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             | Ö                                    |     |      |         |          |            |         |      |     |     |                      |               |                |               |               |                 | _                |
| Solids-laden fluids   |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         | ī    |     |     |                      |               |                |               |               |                 | _                |
| Solids (ore, sand, gravel, ash)   |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      |               |                |               |               |                 |                  |
| Flammable fluids  |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      |               |                | !             |               |                 |                  |
| River, lake and groundwater   |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     | 1    |         |          |            |         |      |     |     | <u>'</u>             |               | $ \downarrow$  |               |               |                 |                  |
| Liquefied gas   |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      | $\perp$       | $ \rightarrow$ |               |               |                 |                  |
| Fluids containing gas   |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    | <u> </u>    |                                      |     |      | _       |          | _          |         | _    |     |     |                      | $\rightarrow$ | $\rightarrow$  | _ <u> </u> !  |               | <u> </u>        |                  |
| Gases   |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     | _    | _       |          | _          |         | _    |     |     | -                    | $\rightarrow$ | $\rightarrow$  |               |               |                 | <u> </u>         |
| Harmful fluids  | _                 |           |               |               |                   |                                    | _        |                          |                 | _                   | _                   | _                    |                     |                   |                    | _                  | <u> </u>    |                                      | _   | _    | _       |          |            | _       | _    |     | _   | -                    | $\rightarrow$ | $\rightarrow$  | -+            |               |                 | <u> </u>         |
| Toxic fluids  | -                 | _         |               | _             | _                 |                                    | -        |                          |                 | _                   | _                   |                      |                     | _                 |                    |                    | -           |                                      | -   | -    | _       | ┢        | _          | _       | _    |     | _   | -                    | +             | _              | _             | -+-           |                 | <u> </u>         |
| High-temperature hot water  | -                 |           | E             |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   | -                  |                    |             |                                      | -   | -    | _       | -        | _          | _       | -    | ŀ   |     | -                    |               | _              |               |               | <b>-</b>        | _                |
| Heating water<br>Highly aggressive fluids   | -                 |           |               |               | _                 |                                    | -        |                          |                 | -                   |                     | -                    | -                   |                   | -                  |                    | -           |                                      | _   | -    | -       | -        | _          | _       | -    | -   | _   | -                    |               |                |               |               | +               |                  |
| Condensate  | -                 | -         |               |               |                   |                                    | -        |                          | H               | -                   |                     | -                    | -                   |                   |                    |                    | -           |                                      | _   | -    | -       | ⊢        | +-         | -       | -    |     | _   |                      | +             | $\rightarrow$  | $\rightarrow$ |               |                 |                  |
| Concensate  | -                 |           |               | -             | -                 | _                                  | -        |                          | H               | -                   | -                   | -                    | -                   | -                 | -                  | -                  | -           |                                      | _   | -    | -       | -        |            |         | -    | -   | -   |                      | -             | -              |               | -             |                 |                  |
| Valuable fluids   |                   |           |               | $\rightarrow$ | +                 |                                    | -        |                          | F               | -                   | -                   | -                    | -                   | +                 | -                  | -                  | -           |                                      | -   |      |         |          |            |         | -    |     | -   |                      | -             | +              | $\neg$        |               |                 |                  |
| Fuels   |                   | -         |               | -             | +                 | _                                  | -        |                          | -               | -                   | -                   |                      | -                   | -                 |                    |                    | -           |                                      | -   | -    |         | ┢        | +          | +       | -    |     | -   |                      | +             | +              |               | =+            |                 | _                |
| Cooling water   |                   |           |               |               |                   |                                    | -        |                          |                 |                     |                     |                      | -                   |                   |                    |                    | -           |                                      |     |      |         |          | +          | +       |      |     | -   |                      |               |                |               | +             | +               |                  |
| Highly volatile fluids  | -                 | -         |               |               |                   |                                    | 1        |                          |                 |                     | -                   |                      |                     | -                 | -                  | -                  | -           |                                      | _   |      |         |          | 1          |         |      |     | -   | F                    |               | =+             |               |               |                 |                  |
| Fire-fighting water   |                   |           |               |               |                   |                                    | 1        |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          | 1          | 1       |      |     | -   |                      | +             | -              | +             | $\uparrow$    | +               | —                |
| Solvents  |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      | +             | $\neg$         | $\neg$        |               | +               | _                |
| Seawater  |                   |           |               |               |                   |                                    | 1        |                          |                 |                     | 1                   | 1                    |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      |               |                | $\neg$        |               |                 |                  |
| Fluids containing mineral oils  |                   |           |               |               |                   |                                    |          | 1                        |                 |                     |                     |                      |                     |                   |                    |                    |             | 1                                    |     |      |         |          |            |         |      |     |     |                      |               |                |               |               |                 |                  |
| Oils  |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      |               |                | 1             |               |                 |                  |
| Organic fluids  |                   |           | $\square$     |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      |               |                |               |               |                 |                  |
| Polymerising/crystallising fluids   |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      | $\downarrow$  | $\downarrow$   |               |               |                 |                  |
| Radioactive fluids  |                   |           |               |               |                   |                                    | <u> </u> |                          |                 |                     |                     |                      |                     |                   |                    | <u> </u>           | <u> </u>    |                                      |     | _    |         |          |            |         |      |     |     |                      | $\downarrow$  | $\rightarrow$  | $\rightarrow$ |               | $\rightarrow$   |                  |
| Cleaning agents   | -                 |           |               | _             | -+                |                                    | -        |                          | _               |                     | _                   | <u> </u>             | <u> </u>            |                   |                    |                    | <u> </u>    |                                      | _   |      | _       |          |            |         | _    |     | _   | -                    | $\rightarrow$ | $\rightarrow$  | $\rightarrow$ | $\rightarrow$ | $\rightarrow$   |                  |
| Raw sludge  | -                 |           |               | _             | -                 |                                    | -        | -                        | -               | _                   | _                   | -                    | _                   | _                 |                    | -                  | -           |                                      | _   | -    |         | ⊢        |            |         | -    | ┝   | _   | -                    | +             | +              | +             | +             | +               |                  |
| Lubricants<br>Grey water  |                   | <u> </u>  |               |               | _                 |                                    | -        |                          | -               | -                   | -                   | -                    | -                   |                   | -                  |                    | -           |                                      | _   |      |         | -        |            |         |      | -   | _   | -                    |               | $\rightarrow$  | +             | _             | +               |                  |
| Brine   |                   | -         |               | -             |                   | _                                  | -        | -                        |                 |                     |                     | -                    | -                   | -                 | -                  | -                  | -           | -                                    | _   | -    | -       |          |            |         | -    | -   | _   | ľ                    | -             | -              | +             | +             | _               |                  |
| Feed water  | -                 | -         | $\vdash$      |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    | -           |                                      | _   |      |         | ┢        | +          | +-      |      |     |     |                      | +             | +              |               |               | <b>_</b> +,     |                  |
| Dipping paints  | -                 |           | $\vdash$      | -+            | -+'               | -   -                              |          |                          |                 | -                   |                     |                      |                     | +-                |                    | +-                 |             |                                      | -   |      |         |          | +          | +-      |      | F   | -   |                      | +             | +              | -+'           | -             | -+'             | _                |
| Drinking water  |                   |           |               | +             | +                 |                                    |          |                          | -               |                     |                     | 1                    |                     |                   |                    |                    |             |                                      |     |      |         |          | +          | +       |      |     |     | T                    |               | +              | +             | +             | +               | _                |
| Vacuum  |                   |           |               | $\uparrow$    | +                 |                                    |          |                          |                 |                     |                     | 1                    |                     |                   |                    |                    |             |                                      |     |      |         |          | $\uparrow$ | 1       |      |     |     | F                    | +             | +              | +             | $\uparrow$    |                 | —                |
| Thermal oils  |                   |           |               |               |                   |                                    | 1        |                          |                 |                     |                     | 1                    |                     |                   |                    |                    |             |                                      |     |      |         |          |            | 1       |      |     |     |                      | $\uparrow$    | $\neg$         | Ţ             |               |                 | _                |
| Wash water  |                   |           |               |               |                   |                                    |          |                          |                 |                     |                     |                      |                     |                   |                    |                    |             |                                      |     |      |         |          |            |         |      |     |     |                      |               |                |               |               |                 |                  |

|                                   |                             | RGS | BOACHEM-RXA |                                | ECOLINE PTF 150-600 | ECOLINE PTF 800-2500 | SICCA 800-4500 PCF | WADA SC 150 |                               | NUCA/-A/-ES, Type V | RJN | RYN |                       | COBRA-SCBS | ECOLINE WT/WTI | STAAL 40 AKK/AKKS | STAAL 100 AKK/AKKS | AKR/AKRS | ZRS | SISTO-RSK/RSKS | SERIE 2000 |                           | ECOLINE SCC 150-600 | ECOLINE SCF 150-600 | ECOLINE SCF 800-2500 | ECOLINE SCV 150-300 | SICCA 150-600 SCC | SICCA 900-3600 SCC | <b>WADA SC 150</b> |   | SISTO-RSKNA | ZRN      |                                     | COBRA-TDC01/03 |           |          |
|-----------------------------------|-----------------------------|-----|-------------|--------------------------------|---------------------|----------------------|--------------------|-------------|-------------------------------|---------------------|-----|-----|-----------------------|------------|----------------|-------------------|--------------------|----------|-----|----------------|------------|---------------------------|---------------------|---------------------|----------------------|---------------------|-------------------|--------------------|--------------------|---|-------------|----------|-------------------------------------|----------------|-----------|----------|
| Abrasive fluids                   | z                           |     |             | ų                              |                     |                      |                    |             | su                            |                     |     |     | z                     |            |                |                   |                    |          |     |                |            | щ                         |                     |                     |                      |                     |                   |                    |                    | S   |             |          | z                                   |                |           |          |
| Waste water with faeces           | NE                          |     |             | ASN                            |                     |                      |                    |             | tio                           |                     |     |     | DIN/EN                |            |                |                   |                    |          |     |                |            | ASR<br>S                  |                     |                     |                      |                     |                   |                    |                    | tion  |             |          | N                                   |                |           |          |
| Waste water without faeces        | D                           |     |             | ISI//                          |                     |                      |                    |             | lica                          |                     |     |     |                       |            |                |                   |                    |          |     |                |            | ISI/                      |                     |                     |                      |                     |                   |                    |                    | lica  |             |          |                                     |                |           |          |
| Aggressive fluids                 | Lift check valves to DIN/EN |     |             | Lift check valves to ANSI/ASME |                     |                      |                    |             | applications                  |                     |     |     | Swing check valves to |            |                |                   |                    |          |     |                |            | check valves to ANSI/ASME |                     |                     |                      |                     |                   |                    |                    | Swing check valves for nuclear applications |             |          | Tilting disc check valves to DIN/EN |                |           |          |
| Inorganic fluids                  | alve                        |     |             | to                             |                     |                      |                    |             |                               |                     |     |     | alve                  |            |                |                   |                    |          |     |                |            | 5<br>2                    |                     |                     |                      |                     |                   |                    |                    | ar  |             |          | alve                                |                |           |          |
| Activated sludge                  | k v                         |     |             | lves                           |                     |                      |                    |             | lcle                          |                     |     |     | k <                   |            |                |                   |                    |          |     |                |            | Ves                       |                     |                     |                      |                     |                   |                    |                    | Icle  |             |          | k <                                 |                |           |          |
| Brackish water                    | hec                         |     |             | va                             |                     |                      |                    |             | r nu                          |                     |     |     | hec                   |            |                |                   |                    |          |     |                |            | va                        |                     |                     |                      |                     |                   |                    |                    | L L   |             |          | hec                                 |                |           |          |
| Service water                     | ft                          |     |             | eck                            |                     |                      |                    |             | ; fo                          |                     |     |     | و<br>م                |            |                |                   |                    |          |     | -              |            | eck                       |                     |                     |                      |                     |                   |                    |                    | fo  |             |          |                                     |                |           |          |
| Steam                             | ÷                           |     |             | tch                            |                     |                      |                    |             | Lift check valves for nuclear |                     |     |     | win                   |            |                |                   |                    |          |     |                |            | لې<br>بې                  |                     |                     |                      |                     |                   |                    |                    | Kei   |             |          | dig                                 |                |           |          |
| Distillate                        |                             |     |             | Ē                              |                     |                      |                    |             | va                            |                     |     |     | Ś                     |            |                |                   |                    |          |     |                |            | Swing                     |                     |                     |                      |                     |                   |                    |                    | Va  |             |          | ing                                 |                |           |          |
| Explosive fluids                  |                             |     |             |                                |                     |                      |                    |             | eck                           |                     |     |     |                       |            |                |                   |                    |          |     |                |            | Š                         |                     |                     |                      |                     |                   |                    |                    | eck   |             |          | Ē                                   |                |           |          |
| Digested sludge                   |                             |     |             |                                |                     |                      |                    |             | tch                           |                     |     |     |                       |            |                |                   |                    |          |     |                | _          |                           |                     |                     |                      |                     |                   |                    |                    | -S  |             |          |                                     |                |           |          |
| Solids-laden fluids               |                             |     |             |                                |                     |                      |                    |             | Eiff                          |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    | ing   |             |          |                                     |                |           |          |
| Solids (ore, sand, gravel, ash)   |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    | Š   |             |          |                                     |                |           |          |
| Flammable fluids                  |                             |     | Ц           |                                |                     |                      |                    |             |                               |                     | _   |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             | $\vdash$ |                                     |                |           |          |
| River, lake and groundwater       |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
| Liquefied gas                     |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
| Fluids containing gas             |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                | _          |                           | -                   |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
| Gases                             |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           | _        |
| Harmful fluids                    |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             | L        |                                     |                |           | _        |
| Toxic fluids                      |                             |     |             |                                |                     |                      |                    |             |                               |                     | _   |     |                       |            |                |                   |                    |          |     | -              |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
| High-temperature hot water        |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
| Heating water                     |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
| Highly aggressive fluids          |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
| Condensate                        |                             |     |             |                                |                     |                      |                    |             |                               |                     | _   |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             | ⊢        |                                     |                |           |          |
| Corrosive fluids                  |                             |     |             |                                |                     | $\vdash$             |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            | -                         |                     |                     |                      |                     |                   |                    | <u> </u>           |   |             | <u> </u> |                                     |                |           |          |
| Valuable fluids                   |                             |     | Ц           |                                |                     | $\vdash$             |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                | _          | -                         |                     |                     |                      |                     |                   |                    | <u> </u>           |   |             | <u> </u> |                                     |                |           |          |
| Fuels                             |                             |     |             |                                |                     |                      |                    |             |                               |                     | _   |     |                       |            |                |                   |                    |          |     |                | _          |                           |                     |                     |                      |                     |                   |                    | <u> </u>           |   |             | <u> </u> | - 1                                 |                |           |          |
| Cooling water                     |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            | -                         |                     |                     |                      |                     |                   |                    | <u> </u>           |   |             |          |                                     |                |           |          |
| Volatile fluids                   |                             |     |             |                                |                     |                      |                    |             |                               |                     | _   |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             | ⊢        |                                     |                |           |          |
| Fire-fighting water               |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          | -   |                | _          | -                         |                     |                     |                      |                     |                   |                    | <u> </u>           |   |             | <u> </u> |                                     |                |           |          |
| Solvents                          |                             |     |             |                                |                     |                      |                    |             |                               |                     | _   |     |                       |            |                |                   |                    |          |     |                |            | -                         |                     |                     |                      |                     |                   |                    |                    |   | _           |          | - 1                                 |                |           | <u> </u> |
| Seawater                          |                             |     |             |                                |                     |                      |                    |             |                               |                     | _   |     |                       |            |                |                   |                    |          |     | -              |            | -                         |                     |                     |                      |                     |                   |                    |                    |   |             |          | -                                   |                |           |          |
| Fluids containing mineral oils    |                             |     |             |                                |                     | <u> </u>             |                    |             |                               |                     | _   |     |                       | Ŀ          |                |                   |                    |          | _   |                |            | -                         | _                   | _                   | _                    | _                   |                   |                    | _                  |   | L_          |          |                                     |                | $\square$ | _        |
| Oils                              |                             |     |             |                                | _                   | <u> </u>             |                    |             |                               | -                   | _   |     |                       |            |                |                   |                    |          |     | _              |            |                           |                     |                     |                      |                     |                   |                    |                    |   | L           |          | -                                   |                |           |          |
| Organic fluids                    |                             |     |             |                                |                     | <u> </u>             |                    |             |                               |                     | _   |     |                       | <u> </u>   |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    | _                  |   | <u> </u>    | ⊢        |                                     |                | $\square$ | _        |
| Polymerising/crystallising fluids |                             |     |             |                                |                     | <u> </u>             |                    |             |                               |                     |     |     |                       | <u> </u>   |                |                   |                    |          |     | _              |            |                           |                     |                     |                      | _                   |                   |                    |                    |   | -           |          |                                     |                | $\square$ |          |
| Radioactive fluids                |                             |     |             |                                |                     | _                    | -                  |             |                               |                     |     |     |                       | <u> </u>   |                |                   |                    |          |     |                |            |                           |                     | _                   |                      |                     |                   |                    |                    |   |             |          |                                     |                | $\square$ |          |
| Cleaning agents                   |                             |     |             |                                |                     | <u> </u>             |                    |             |                               | -                   | _   |     |                       | <u> </u>   |                |                   |                    |          |     | -              | _          |                           | _                   | _                   |                      |                     |                   |                    | _                  |   | -           |          | -                                   |                | $\square$ |          |
| Raw sludge                        |                             |     |             |                                |                     | <u> </u>             |                    |             |                               |                     |     |     |                       | <u> </u>   |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    | <u> </u>           |   | <u> </u>    | <u> </u> |                                     |                | $\square$ | _        |
| Lubricants                        |                             |     | $\square$   |                                |                     | <u> </u>             |                    |             |                               | $\mid \mid$         | _   |     |                       | <u> </u>   |                |                   |                    |          |     |                |            |                           | _                   |                     |                      |                     |                   |                    | _                  |   | L_          | ⊢        |                                     |                | $\square$ | _        |
| Grey water                        |                             |     |             |                                |                     | <u> </u>             |                    |             |                               |                     | _   |     |                       | <u> </u>   |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    | <u> </u>           |   |             | ⊢        |                                     |                | $\square$ |          |
| Brine                             |                             |     |             |                                |                     | Ļ_                   |                    |             |                               |                     |     |     |                       | <u> </u>   |                |                   |                    |          |     |                |            |                           | _                   |                     | _                    | _                   |                   |                    | <u> </u>           |   | <u> </u>    | _        |                                     |                | $\square$ |          |
| Feed water                        |                             |     | Ц           |                                |                     |                      |                    |             |                               |                     |     |     |                       | <u> </u>   |                |                   | Ц                  |          |     | _              |            |                           |                     |                     |                      |                     | Ц                 |                    | _                  |   | <u> </u>    |          |                                     |                | $\square$ |          |
| Dipping paints                    |                             |     |             |                                |                     | <u> </u>             |                    |             |                               |                     | _   |     |                       | _          |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    | _                  |   | L_          | <u> </u> | -                                   |                | $\square$ |          |
| Drinking water                    |                             |     |             |                                |                     | <u> </u>             |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    | _                  |   | L_          | <u> </u> | -                                   |                | $\square$ |          |
| Vacuum                            |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
|                                   |                             |     |             |                                |                     | <u> </u>             |                    |             |                               |                     | _   |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    |                    |   |             |          |                                     |                |           |          |
| Thermal oils<br>Wash water        |                             |     |             |                                |                     |                      |                    |             |                               |                     |     |     |                       |            |                |                   |                    |          |     |                |            |                           |                     |                     |                      |                     |                   |                    | _                  |   |             |          |                                     |                |           |          |

|  |                     |          |                 |                    |                        | ECOLINE FYC 150-600 |                 |                               |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                |                |   |
|--|---------------------|----------|-----------------|--------------------|------------------------|---------------------|-----------------|-------------------------------|------------|-----------|---------------|-----------|--------------|--------------------|------------------|------------|--------------|----------|------------|---------------------------|----|--------------------------------|----------|------------|-------------|--------------|-------------------------------|-------------|-------------|-------------|---|----------|---------------------------------|----------------|----------------|---|
|  |                     |          | FSS             | SA                 |                        | 150                 | ECOLINE FYF 800 |                               | _          |           | iaz           |           | AD           | Ņ                  |                  |            |              |          |            |                           |    |                                |          |            | _           | _            |                               |             |             |             |   |          |                                 |                |                |   |
|  |                     |          | NORI 40 FSL/FSS | <b>BOACHEM-FSA</b> |                        | ξ                   | FΥF             |                               | BOAX-CBV13 | ΥS        | BOAX-S/SF Gaz |           | BOAX-B APSAD | <b>BOAX-B DVGW</b> | Ξ                | BOAX-B Gaz | ISORIA 10/16 |          |            | ISURIA 20 UL<br>MAMMOLITH |    |                                |          | 150        | danaïs mtii | DANAÏS TBTII |                               | TRIODIS 150 | TRIODIS 300 | 600         |   |          |                                 |                |                |   |
|  |                     | s        | 40              | EHE                |                        | ۳                   | INE             |                               | ۳<br>۲     | BOAX-S/SF | -S/:          | BOAX-B    | e.           | -B_                | <b>BOAX-B FM</b> | ę          | A 1          | - A      | i 7<br>( < |                           |    |                                | ŝ        | DANAÏS 150 | Aïs I       | ¶is ⁻        |                               | SIC         | SIC         | TRIODIS 600 |   | SIA      |                                 | S              |                |   |
|  |                     | BOA-S    | ORI             | OAC                |                        | 5                   | G               |                               | (À         | (A)       | (A)           | <b>B</b>  | (A)          | (A)                | (A)              | ð          | ORI          | 0<br>B   |            |                           |    |                                | APORIS   | AN         | AN          | AN           |                               | ß           | RIOI        | RIOI        |   | CLOSSIA  |                                 | DUALIS         |                |   |
|  |                     | ă        | ž               | ĕ                  |                        | ш                   | Ĕ               |                               | ă          | ă         | ă             | ă         | ĕ            | ă                  | ă                | ĕ          | -            | _        |            | ≏ ≥                       |    |                                |          | D          | ۵           | ۵            |                               | F           | F           | Ŧ           |   |          |                                 | ۵              |                |   |
| Abrasive fluids                                    | Strainers to DIN/EN | _        |                 |                    | Strainers to ANSI/ASME | _                   |                 | ves                           |            | -         |               | _         | -            |                    |                  | _          |              |          |            | _                         |    | Double-offset butterfly valves | -        | -          | -           | -            | riple-offset butterfly valves | _           |             | _           | Butterfly valves for nuclear applications |          | Combined butterfly/check valves | $\rightarrow$  | +              |   |
| Waste water with faeces Waste water without faeces | DIN                 | -        | -               | _                  | IIAS                   | -                   | -               | / va                          | -          | -         | -             |           | -            |                    | -                | -          | +            | +        | +          | _                         | +  |                                | -        | -          | -           | -            | / va                          | -           |             | -           | cati                                      | -        | c va                            | +              | -+             | — |
| Aggressive fluids                                  | to                  |          |                 |                    | ANS                    |                     | -               | erfly                         |            | -         |               | -         | +            | -                  |                  | $\vdash$   |              |          | ╈          |                           |    | Prfl                           |          |            |             | -            | erfly                         |             |             |             | ppli                                      | -        | heck                            | +              | +              |   |
| Inorganic fluids                                   | ners                |          |                 |                    | to /                   |                     |                 | Centred-disc butterfly valves |            | 1         |               | $\square$ | 1            |                    |                  |            |              |          | +          |                           |    | Ť                              |          | 1          | 1           |              | utte                          | F           | F           | -           | ar a                                      |          | ly/ch                           | +              | +              |   |
| Activated sludge                                   | train               |          |                 |                    | lers                   |                     |                 | sc b                          |            |           |               |           |              |                    |                  |            |              |          |            |                           |    | - + -                          | 2        |            |             |              | et b                          |             |             |             | clea                                      |          | erfl                            |                |                | _ |
| Brackish water                                     | 5                   |          |                 |                    | rain                   |                     |                 | di:                           |            |           |               |           |              |                    |                  |            |              |          |            |                           |    | ffse                           |          |            |             |              | offse                         |             |             |             | r nu                                      |          | outt                            |                |                |   |
| Service water                                      |                     |          |                 |                    | St                     |                     |                 | tree                          |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              | le-o                          |             |             |             | s fo                                      |          | ed I                            |                | $ \rightarrow$ |   |
| Steam  |                     |          |                 |                    |                        |                     |                 | Cen                           |            | <u> </u>  |               | _         |              |                    |                  |            |              |          | _          |                           |    |                                | 5        |            |             | _            | Trip                          |             |             |             | Ive                                       |          | lbin                            | $\rightarrow$  | $\rightarrow$  |   |
| Distillate<br>Explosive fluids                     |                     | -        | _               | _                  |                        | -                   | -               |                               | _          | -         | <u> </u>      | -         | -            |                    | -                | -          |              |          | +          | _                         |    | _                              | <u>ا</u> | -          | -           | -            |                               | -           |             | -           | y va                                      | <u> </u> | Com                             | $\rightarrow$  | $\rightarrow$  |   |
| Digested sludge                                    |                     | -        |                 |                    |                        | -                   |                 |                               | -          |           | -             | -         | -            | -                  | -                | -          | -            |          | +          | _                         |    | -                              | -        | +          |             |              |                               | -           | -           |             | erfl                                      | -        | Ŭ                               | $\rightarrow$  | $\rightarrow$  |   |
| Solids-laden fluids                                |                     |          |                 |                    |                        | -                   | -               |                               | ⊢          | -         | -             | ┢         | -            | -                  | -                | ┢          |              |          | ╞          | _                         |    |                                |          |            |             | -            |                               |             |             |             | Sutt                                      | -        |                                 |                | +              | — |
| Solids (ore, sand, gravel, ash)                    |                     | <b>—</b> | -               | -                  | -                      | -                   | -               |                               |            | -         | -             | -         | -            |                    | -                |            | 1-           | -        | -          |                           | -  |                                |          |            |             | -            |                               | Ē           | ī           |             |   |          |                                 | -              | +              | — |
| Flammable fluids                                   |                     |          |                 |                    |                        |                     |                 |                               |            | 1         |               | $\square$ | 1            |                    |                  |            | $\vdash$     | +        | ╈          |                           |    | ī                              |          |            |             |              |                               |             | <u> </u>    |             |   |          |                                 | +              | +              |   |
| River, lake and groundwater                        |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                |                |   |
| Liquefied gas                                      |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                |                |   |
| Fluids containing gas                              |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              | _        |            |                           |    | _                              |          |            |             |              |                               |             |             |             |   |          |                                 |                | $ \rightarrow$ |   |
| Gases  |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              | <u> </u> | _          |                           |    |                                | -        |            |             |              |                               |             |             |             |   |          |                                 | $ \rightarrow$ | $\rightarrow$  |   |
| Harmful fluids<br>Toxic fluids                     |                     | -        |                 | -                  |                        | -                   | <u> </u>        |                               | <u> </u>   | -         |               | -         | -            | -                  | -                | -          |              |          | +          |                           |    | _                              | -        |            |             | -            |                               | <u> </u>    |             | -           |   | <u> </u> |                                 | $\rightarrow$  | $\rightarrow$  |   |
| High-temperature hot water                         |                     |          | -               | H                  |                        |                     |                 |                               | -          |           | -             | -         | -            | -                  | -                | $\vdash$   |              |          | +          | _                         |    | -                              | -        |            |             |              |                               |             |             |             |   | <u> </u> |                                 | +              | $\rightarrow$  |   |
| Heating water                                      |                     | F        | -               | -                  |                        | -                   | -               |                               | -          |           | -             |           | -            |                    | -                | -          | +            | +-       | +          |                           | +- | -                              |          | -          | -           | -            |                               | -           | -           | -           |   | -        |                                 | $\rightarrow$  | +              |   |
| Highly aggressive fluids                           |                     | F        |                 |                    |                        |                     | -               |                               |            | -         | -             | 1         | $\vdash$     | -                  | -                | -          | ┢            | +        | ╈          |                           |    |                                |          |            | -           | -            |                               |             |             |             |   |          |                                 | +              | -              | — |
| Condensate   |                     |          |                 |                    |                        |                     |                 |                               |            |           |               | $\square$ |              |                    |                  |            |              | I.       |            |                           |    | ī                              |          |            |             |              |                               |             |             |             |   |          |                                 |                | +              | _ |
| Corrosive fluids                                   |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              | I        |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                |                |   |
| Valuable fluids                                    |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                | $\square$      |   |
| Fuels  |                     | _        |                 |                    |                        |                     |                 |                               |            |           | _             | _         |              |                    |                  |            | -            |          | -          |                           |    |                                | _        | _          |             |              |                               |             |             |             |   | _        |                                 | $\rightarrow$  | $\rightarrow$  |   |
| Cooling water<br>Volatile fluids                   |                     | -        | _               | _                  |                        | -                   |                 |                               |            |           | _             |           | -            |                    | -                | -          |              | _        | -          |                           | _  | _                              | Ŀ        |            | _           | _            |                               | -           |             | _           |   | _        |                                 | $\rightarrow$  | $\rightarrow$  |   |
| Fire-fighting water                                |                     | •        |                 |                    |                        | -                   |                 |                               | -          | -         | -             | -         |              | -                  |                  | -          |              | -        |            |                           |    | -                              | -        |            |             | -            |                               | -           |             |             |   | <u> </u> |                                 | +              | $\rightarrow$  |   |
| Solvents   |                     |          |                 | -                  |                        | -                   | -               |                               | -          | -         | -             | ┢         | -            | -                  |                  | -          | iF           |          |            |                           |    |                                |          | +          | -           | -            |                               | -           |             | -           |   | -        |                                 | +              | +              | — |
| Seawater   |                     |          |                 |                    |                        |                     | -               |                               |            | -         | -             | -         | 1            |                    | -                |            | F            | _        |            |                           | _  |                                |          | +          | -           | +            |                               |             |             | -           |   |          |                                 |                | +              | — |
| Fluids containing mineral oils                     |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  | $\vdash$   |              | _        | _          |                           |    | ī 🗌                            |          |            |             |              |                               |             |             |             |   |          |                                 | +              | +              |   |
| Oils   |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                |                | _ |
| Organic fluids                                     |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              |          | ſ          |                           |    | _                              |          |            |             |              |                               |             |             |             |   |          |                                 |                | _              | _ |
| Polymerising/crystallising fluids                  |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 | $ \rightarrow$ | $\rightarrow$  |   |
| Radioactive fluids                                 |                     | _        |                 |                    |                        | -                   |                 |                               | <u> </u>   | -         |               | _         | -            |                    |                  | -          |              |          | ┞          |                           | _  | _                              | -        |            |             | -            |                               | -           |             |             |   |          |                                 | $\rightarrow$  | $\rightarrow$  |   |
| Cleaning agents<br>Raw sludge                      |                     | -        |                 |                    |                        | -                   |                 |                               | -          | -         |               | -         | -            |                    |                  | -          |              |          | +          |                           |    | ┛                              |          |            | -           | -            |                               | -           |             |             |   | -        |                                 | $\rightarrow$  | $\rightarrow$  |   |
| Lubricants   |                     | -        | -               | -                  |                        | -                   | -               |                               | -          | -         | -             | $\vdash$  | -            | -                  | -                | -          | +            | +        | +          |                           | +  | -                              |          |            | +           | +            |                               | -           | -           | -           |   | -        |                                 | +              | +              | — |
| Grey water   |                     |          |                 | -                  |                        |                     | -               |                               |            | -         | -             | $\vdash$  | -            | -                  | -                |            |              |          | +          | $\neg$                    | +  |                                |          | ╞          | 1           | 1            |                               |             |             | -           |   |          |                                 |                | +              | — |
| Brine  |                     |          |                 |                    |                        |                     |                 |                               |            | 1         |               | $\square$ | 1            |                    | 1                | 1          |              | _        | ╈          |                           |    | ī                              |          |            | 1           |              |                               |             |             |             |   |          |                                 | +              | +              | _ |
| Feed water   |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                |                | _ |
| Dipping paints                                     |                     |          |                 |                    |                        |                     |                 |                               |            |           |               |           |              |                    |                  |            |              |          |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                | $\downarrow$   |   |
| Drinking water                                     |                     | _        |                 |                    |                        | <u> </u>            |                 |                               |            |           | _             |           | _            |                    | _                | _          |              | _        | <u> </u>   |                           | _  |                                |          | _          |             |              |                               | _           | _           | -           |   | _        |                                 |                | $\downarrow$   |   |
| Vacuum   |                     | F        |                 | -                  |                        | _                   | _               |                               |            | -         | -             | -         | -            | -                  | -                | -          |              |          | +          | _                         |    | 4                              | -        |            |             | _            |                               |             |             |             |   | <u> </u> |                                 | $\rightarrow$  | $\rightarrow$  |   |
| Thermal oils Wash water                            |                     | Ľ        |                 |                    |                        | -                   | -               |                               | <u> </u>   | -         | -             | -         | -            | -                  | -                | -          | +            |          | +          | _                         | +  | -                              | -        | ┦┛         |             | -            |                               | Ľ           |             |             |   | <u> </u> |                                 | $\rightarrow$  | +              |   |
| vvasn Water  |                     |          |                 |                    |                        |                     |                 |                               |            | 1         |               |           |              | 1                  |                  |            |              | 1        |            |                           |    |                                |          |            |             |              |                               |             |             |             |   |          |                                 |                |                |   |

|                                   |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               | _                               |          |   |            |               |               |             |                                     |                     |                 |                |   |
|-----------------------------------|-------------------|-------------|-------------------|----------------|---------------------|-------------|------------------|------------------|---------------|--------------|---------------|------------|----------------|--------------|-----------------------|----------|-----------|----------|-----------|---------------|-----------|---------------|---------------------------------|----------|---|------------|---------------|---------------|-------------|-------------------------------------|---------------------|-----------------|----------------|---|
|                                   |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           | -             | SISTO-101WA/HWA/DLU<br>SISTO-20 |          |   |            |               |               |             |                                     | -                   |                 |                |   |
|                                   |                   |             |                   |                | 0                   |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           | !             | ר                               |          |   |            |               |               |             |                                     | ECOLINE GE1/GE2/GE3 |                 |                |   |
|                                   |                   |             |                   |                | Ř                   |             |                  | 0                |               |              |               |            |                |              |                       |          |           |          |           |               |           | -             | 4                               |          |   |            |               |               |             |                                     | ž                   |                 |                |   |
|                                   |                   |             |                   |                | ECOLINE BLT 150-300 |             |                  | ECOLINE BLC 1000 |               |              |               |            |                |              |                       |          |           |          |           |               |           |               | È                               |          |   |            |               |               |             |                                     | E E                 |                 |                |   |
|                                   |                   |             |                   |                | Ξ                   | _           |                  | 5                | F             | L            | F             | _          | . u            |              |                       |          |           |          |           |               |           | 4             | 2                               |          |   |            | ₹             |               | Σ           |                                     | ž                   | -               |                |   |
|                                   |                   | ₹           | Ξ                 |                | 5                   | 12          |                  | ž                | З             | 3            | З             | μĒ         | 2 2            | μ            |                       |          | Ś         |          | 5         |               |           | 9             | 2                               |          |   |            | i i           |               | S           |                                     | B                   | Ŭ,              |                |   |
|                                   |                   | MP-CI/MP-II | <b>PROFIN-VT1</b> |                | ш                   | PROFIN-VT2L |                  | ш                | PROFIN-SI3FIT | PROFIN-SI3IT | PROFIN-SI3LIT | PROFIN-VT3 |                | PROFIN-VT33L |                       | 8        | SISTO-KBS | 2        | SISTO-10M | 9             | SISTO-16S |               |                                 | <u>,</u> | ,   | SISTO-20NA | SISTO-DrainNA |               | ZJSVM/RJSVM |                                     | ш                   | ECOLINE GE4     |                |   |
|                                   |                   | 5           | N.                |                | Ę                   | Ľ.          |                  | Ę                | Ľ.            | N.           | Ľ             |            |                |              |                       | SISTO-KB | ÷.        | SISTO-10 | 2         | SISTO-16      | 2.9       | 5             |                                 |          | 5   | 12         | 5 5           |               | È           |                                     | Ę                   | Ę               |                |   |
|                                   |                   | ¥           | ō                 |                | ō                   | ō           |                  | ō                | ō             | ō            | ō             | ōg         | $\overline{2}$ |              |                       | Ĕ        | Ĕ         | Ĕ        | Ĕ         | Ĕ             | Ĕ         |               | Ē                               | 5 5      |   | Ē          | i E           |               | S           |                                     | ō                   | ō               |                |   |
|                                   |                   | Σ           | F                 |                | Ш                   | H           |                  | Ш                | F             | PH           | H L           | H C        |                | 6 6          |                       | S        | S         | S        | S         | S             | S i       | 7             | 7 7                             | 1        | 5   | Ū          | 5             |               | 2           |                                     | Ш                   | Ш               |                |   |
| Abrasive fluids                   | s                 |             |                   | s              |                     |             | s                |                  |               |              |               |            |                |              | 7                     |          |           |          |           |               |           |               |                                 |          | s   |            |               | S             |             | s                                   |                     |                 |                | _ |
| Waste water with faeces           | valves            |             | -                 | valves         |                     |             | valves           |                  | -             |              |               |            |                |              | valves to DIN/EN      |          | -         | _        |           |               |           | +             |                                 | +        | 6   |            |               | bypass valves |             | i t                                 |                     |                 | -              | _ |
|                                   | ٧a                | -           | -                 | Va             |                     |             | ٧a               |                  |               |              | -             |            | +              |              | N                     |          | _         | _        |           | _             | _         | +             |                                 | _        | ati                                       | -          | +             | - S           | -           | .으                                  |                     |                 | $\rightarrow$  |   |
| Waste water without faeces        | all               |             |                   | all            |                     |             | all              |                  |               |              |               |            |                |              | 0                     |          |           |          |           | -             |           |               |                                 |          | _!: <u> </u>                              |            |               | SS            |             | - Lo                                |                     |                 | $\rightarrow$  |   |
| Aggressive fluids                 | 9                 |             |                   | 9              |                     |             | P a              |                  |               |              |               |            |                |              | s t                   |          |           |          |           |               |           |               |                                 |          | d   |            |               | ļğ            |             | ati                                 |                     |                 |                |   |
| Inorganic fluids                  | e<br>C            |             |                   | e<br>G         |                     |             | e<br>G           |                  |               |              |               |            |                |              | ≥<br>≥                |          |           |          |           |               |           |               |                                 |          | L C                                       |            |               | j.            |             | ibr                                 |                     |                 |                |   |
| Activated sludge                  | i ē               |             | 1                 | iq.            |                     |             | ē                |                  |               |              |               |            |                |              | Va                    |          |           |          |           |               |           |               |                                 |          | lei                                       |            | -             | te -          |             | <u>:</u> .                          |                     |                 |                | _ |
| Brackish water                    | Single-piece ball | -           | -                 | Two-piece ball |                     |             | Three-piece ball |                  |               |              |               |            |                |              | E                     |          | _         | Π        |           |               |           | +             |                                 |          | -  ž                                      |            |               | water         |             | ant                                 |                     | $\rightarrow$   | -              | - |
|                                   | <u>i</u>          | -           |                   | Γ              |                     | _           | Ē                | _                | _             | _            | _             | _          |                |              | rag                   |          |           |          | _         | -             |           | _             |                                 | _        |   |            |               | - 0           | -           | - p                                 |                     |                 | $\rightarrow$  |   |
| Service water                     | S                 |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              | hd                    |          |           |          |           |               |           |               |                                 | _        | _ 5                                       |            |               | Feed          |             | a                                   |                     | ┛               | $\rightarrow$  |   |
| Steam                             |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              | dia                   |          |           |          |           |               |           |               |                                 |          | Ne la |            |               |               |             | ы<br>Б                              |                     |                 |                |   |
| Distillate                        |                   |             |                   |                |                     |             |                  |                  |               |              | Τ             |            |                |              | Soft-seated diaphragm |          |           |          |           |               |           | T             |                                 |          | Diaphragm valves for nuclear applications |            |               |               |             | Expansion and anti-vibration joints |                     |                 |                |   |
| Explosive fluids                  |                   |             |                   |                |                     |             |                  |                  |               |              | $\neg$        |            |                |              | ate                   |          |           |          |           |               |           |               |                                 |          | Ē   |            | 1             |               |             | pal                                 |                     | $\rightarrow$   | $\neg$         | - |
| Digested sludge                   |                   |             | -                 |                |                     |             |                  |                  |               |              |               |            |                |              | Se                    |          |           |          |           |               |           | +             |                                 | +        | ag  | )<br>      | +             | -             |             | Ш                                   |                     | $\rightarrow$   | -              |   |
|                                   |                   | -           |                   |                |                     |             |                  |                  |               |              | $\rightarrow$ |            | _              |              | ÷                     |          |           |          |           |               | _         | +             | _                               | _        | <u>ا ج</u>                                |            |               | -             | -           | 1                                   | $\vdash$            | -               | $\rightarrow$  |   |
| Solids-laden fluids               |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              | Š                     |          |           |          |           |               |           |               |                                 |          | iac                                       | -          |               | _             |             |                                     |                     | $ \rightarrow $ | $ \rightarrow$ |   |
| Solids (ore, sand, gravel, ash)   |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                |   |
| Flammable fluids                  |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                |   |
| River, lake and groundwater       |                   |             |                   |                |                     | Π           |                  |                  | Π             |              |               |            |                |              |                       |          |           | Π        |           |               |           |               |                                 |          | -   |            | 1             |               |             |                                     |                     |                 |                | _ |
| Liquefied gas                     |                   | F           | -                 |                |                     | -           |                  | $\vdash$         | -             | -            | -             |            | +-             |              |                       |          | -         | -        |           | -             |           | -+-           |                                 | -        | -   | F          |               | -             |             | •                                   |                     | -               |                |   |
|                                   |                   |             |                   |                |                     |             |                  |                  |               |              | $\rightarrow$ |            |                | _            |                       |          |           | _        | _         | _             | _         | -             |                                 | _        | _   | -          | —             | -             | <u> </u>    | -                                   |                     | $\rightarrow$   | $\rightarrow$  |   |
| Fluids containing gas             |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 | _        | _   |            |               | -             |             |                                     |                     | $ \rightarrow $ | $\rightarrow$  | _ |
| Gases                             |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            | 1             |               |             |                                     |                     |                 |                |   |
| Harmful fluids                    |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            | 1             |               |             |                                     |                     |                 |                |   |
| Toxic fluids                      |                   |             | 1                 |                |                     |             |                  |                  |               |              | Ť             |            | Ť              |              |                       |          |           | Π        |           | ٦Ì            |           |               |                                 |          |   |            | 1             |               |             |                                     |                     |                 |                | _ |
| High-temperature hot water        |                   |             |                   |                |                     |             |                  |                  |               |              |               |            | +              |              |                       |          | _         | _        |           | _             |           |               |                                 |          | _   |            |               |               |             |                                     |                     |                 | -              |   |
|                                   |                   |             | -                 |                |                     |             |                  | -                |               |              |               |            | _              |              |                       |          |           |          |           | -             |           |               |                                 |          | -   |            | +             | -             | -           |                                     | $\vdash$            | -               | +              | _ |
| Heating water                     |                   |             | <u> </u>          |                |                     |             |                  |                  | Ш             |              |               |            | _              |              |                       |          |           |          |           | _             |           |               |                                 | _        | _   |            |               | -             |             | - 1                                 |                     |                 | $\rightarrow$  |   |
| Highly aggressive fluids          |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 | _        | _   |            |               | _             |             |                                     |                     |                 |                |   |
| Condensate                        |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                |   |
| Corrosive fluids                  |                   |             |                   |                |                     | Π           |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               | 1             |             | 1                                   |                     |                 |                | _ |
| Valuable fluids                   |                   |             | 1                 |                |                     |             |                  |                  |               |              |               |            | +              |              |                       |          |           |          |           |               |           | +             | +                               | -        | -   |            | +             |               |             |                                     |                     |                 | -              |   |
| Fuels                             |                   |             | -                 |                |                     |             |                  |                  |               |              | -             |            | _              |              |                       |          |           |          |           |               |           | +             |                                 |          | -   |            |               | -             |             |                                     | $\vdash$            |                 | +              |   |
|                                   |                   |             |                   |                |                     |             |                  |                  |               |              | $\rightarrow$ |            | _              |              |                       |          |           |          |           | $\rightarrow$ |           | +             |                                 | _        | _   |            | 4             | -             |             | -                                   |                     |                 | $\rightarrow$  |   |
| Cooling water                     |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                |   |
| Volatile fluids                   |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                |   |
| Fire-fighting water               |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            | I T           |               |             |                                     | $\square$           |                 |                |   |
| Solvents                          |                   |             | 1                 |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            | 1             | -             |             |                                     |                     |                 | -              | - |
| Seawater                          |                   |             | -                 |                |                     |             |                  |                  | -             | -            | -             |            |                |              |                       | H        |           | Ħ        |           |               |           |               |                                 | _        | -   | F          |               | -             |             |                                     | $\vdash$            |                 |                | _ |
|                                   |                   | -           |                   |                |                     |             |                  |                  |               |              | _             |            | _              |              |                       |          | -         | -        | _         | -             |           |               | _                               | _        | _   | -          |               | -             | <u> </u>    | -                                   |                     |                 | $\rightarrow$  |   |
| Fluids containing mineral oils    |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     | $\square$       |                |   |
| Oils                              |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                |   |
| Organic fluids                    |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               | ] ,           |             |                                     | $\square$           |                 |                |   |
| Polymerising/crystallising fluids |                   |             | <u> </u>          |                |                     |             |                  |                  |               |              | $\neg$        |            | +              | 1            |                       |          |           |          |           |               |           | +             |                                 |          |   |            | 1             |               |             |                                     |                     | $\neg$          | -              | - |
| Radioactive fluids                |                   | -           | -                 |                | $\vdash$            |             |                  |                  |               | $\vdash$     | -             |            | +              | +            |                       |          |           | -        |           |               | -+        | +             |                                 |          |   |            | +             | -             |             |                                     | $\vdash$            | $\rightarrow$   | +              | _ |
|                                   |                   |             | -                 |                | $\vdash$            |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               | _         | +             |                                 |          |   | H          | <b>'</b>      | -             | -           |                                     | $\vdash$            | $\rightarrow$   | +              |   |
| Cleaning agents                   |                   |             |                   |                |                     |             |                  |                  | Ц             |              |               |            |                |              |                       |          |           |          |           |               |           | $\rightarrow$ |                                 |          |   |            |               | _             | <u> </u>    | -                                   |                     | $ \rightarrow $ | $\rightarrow$  |   |
| Raw sludge                        |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     | $\square$       |                |   |
| Lubricants                        |                   |             |                   |                | ΙĨ                  |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           | Γ             |                                 |          |   |            |               |               |             |                                     |                     | T               |                |   |
| Grey water                        |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                | _ |
| Brine                             |                   | -           | 1                 |                | $\vdash$            | _           |                  |                  |               | $\vdash$     | $\rightarrow$ |            | +              | +            |                       |          |           |          | $\vdash$  |               |           | +             |                                 |          |   |            | -             | -             |             |                                     |                     | -               | +              | - |
|                                   |                   | F           | -                 |                | ╞╤┤                 |             |                  | ╞                |               | $\vdash$     | -             |            | +              |              |                       |          |           |          | $\vdash$  |               | -         | +             |                                 |          | -   |            | +             | -             | -           |                                     |                     |                 | +              |   |
| Feed water                        |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          | $\square$ |               |           |               |                                 | _        |   |            |               | -             |             |                                     |                     |                 | $\rightarrow$  | _ |
| Dipping paints                    |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       | Ш        |           |          |           |               |           |               |                                 |          |   |            | $\square$     |               |             |                                     |                     |                 |                |   |
| Drinking water                    |                   |             |                   |                |                     |             |                  |                  |               |              |               |            | T              |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                |   |
| Vacuum                            |                   |             |                   |                |                     |             |                  |                  |               |              | Ì             |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                | _ |
| Thermal oils                      |                   |             | 1                 |                |                     |             |                  |                  |               | $\vdash$     | $\neg$        |            | 1              | 1            |                       |          |           |          | $\square$ | $\neg$        | $\neg$    | 1             | 1                               |          |   |            | 1             | 1             |             |                                     |                     | $\rightarrow$   | +              | _ |
| Wash water                        |                   |             |                   |                | -                   |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           | +             | +                               | +        |   |            | +-            | -             |             |                                     | $\vdash$            | $\dashv$        | +              | _ |
|                                   |                   |             |                   |                |                     |             |                  |                  |               |              | -             | - 1        |                |              |                       |          |           |          |           |               | -         |               |                                 |          |   | _          |               |               |             |                                     |                     |                 |                |   |
|                                   |                   |             |                   |                |                     |             |                  |                  |               |              |               |            |                |              |                       |          |           |          |           |               |           |               |                                 |          |   |            |               |               |             |                                     |                     |                 |                |   |

| Spray irrigation z   | BOA-SuperCompact | BOA-Compact | BOA-Compact EKB |                                     |   | BOA-H/HE/HV/HEV | NORI 40 ZXLBV/ZXSBV | NORI 40 ZXLB/ZXSB | NORI 40 ZYLB/ZYSB<br>BOACHEM-ZXAB |                 | ECOLINE GLB 150-600 | ECOLINE GLB 800    | D            | NORI 40 ZXL/ZXS | NORI 40 ZXLF/ZXSF | NORI 160 ZXL/ZXS | NORI 160 ZXLF/ZXSF | NORI 320 ZXSV | NORI 500 ZXSV | BOACHEM-ZXA | ECOLINE VA 16 |  | SICCA 150-600 GLC | SICCA 900-2500 GLC | SICCA 800-4500 GLF | ECOLINE GLC 150-600 | ECOLINE GLF 150-600 | ECOLINE GLF 800-2500 | ECOLINE GLV 150-300 | WADA GL 150        |               |               |   |
|--|------------------|-------------|-----------------|-------------------------------------|---|-----------------|---------------------|-------------------|-----------------------------------|-----------------|---------------------|--------------------|--------------|-----------------|-------------------|------------------|--------------------|---------------|---------------|-------------|---------------|--|-------------------|--------------------|--------------------|---------------------|---------------------|----------------------|---------------------|--------------------|---------------|---------------|---|
| Spray irrigation<br>Mining<br>Irrigation<br>Chemical industry<br>Pressure boosting<br>Disposal<br>Drainage<br>Descaling units<br>Solids transport<br>Fire-fighting systems |                  | -           |                 | Bellows-type globe valves to DIN/EN |   |                 |                     |                   |                                   | ANSI/ASME       | -                   | -                  | packing      |                 |                   |                  |                    |               |               |             | -             | Globe valves to ANSI/ASME with gland packing |                   |                    |                    |                     |                     |                      |                     |                    |               | $\rightarrow$ |   |
| Irrigation   | 5                |             |                 |                                     |   |                 |                     |                   |                                   | SIVA            |                     |                    | pac          |                 |                   |                  |                    |               |               |             |               | pac  | _                 | _                  |                    |                     |                     |                      |                     |                    |               |               |   |
| Chemical industry  | 2 10             |             |                 | s to                                |   |                 |                     |                   |                                   | AN              |                     |                    | gland        |                 |                   |                  |                    |               |               |             |               | pu   |                   | _                  |                    |                     |                     |                      |                     |                    |               |               | _ |
| Pressure boosting  | alle             |             |                 | alve                                |   |                 |                     |                   |                                   | alobe valves to |                     |                    | gla          |                 |                   |                  |                    |               |               |             |               | gla  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Disposal   | e <              |             |                 | e võ                                |   |                 |                     |                   |                                   | Ves             |                     |                    | with         |                 |                   |                  |                    |               |               |             |               | /ith   |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Drainage   |                  |             |                 | lop                                 |   |                 |                     |                   |                                   | val             |                     |                    | ×<br>Z       |                 |                   |                  |                    |               |               |             |               | м<br>Ш                                       |                   |                    |                    |                     |                     | $\square$            |                     |                    |               |               |   |
| Descaling units  | a                |             |                 | e<br>d                              | ) |                 |                     |                   |                                   | be              |                     |                    | DIN/EN       |                 |                   |                  |                    |               |               |             |               | NS   |                   |                    |                    |                     |                     | Ш                    |                     |                    |               |               |   |
| District heating   |                  |             |                 |                                     |   |                 |                     |                   |                                   | a               |                     |                    | D            |                 |                   |                  |                    |               |               |             |               | SI/A   |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Solids transport   |                  | _           |                 | - No                                |   |                 |                     | _                 |                                   | Bellows-type    | -                   |                    | is to        |                 | _                 | _                |                    |               |               |             | _             | AN   |                   | _                  |                    |                     |                     | $\square$            |                     |                    |               |               |   |
| Fire-fighting systems  | ٥<br>            |             |                 |                                     |   |                 |                     | _                 |                                   | WS-1            | _                   |                    | Globe valves |                 |                   |                  | -                  |               |               |             | _             | s to   |                   | _                  |                    |                     | $\square$           | $\square$            |                     |                    |               | -             |   |
| Gas pipelines  | _                | -           |                 | _ ^                                 |   |                 |                     | _                 | _                                 | -               | -                   |                    | e <          |                 |                   |                  | -                  |               | _             |             | _             | lve  |                   |                    |                    |                     | $\mid \mid \mid$    | $\vdash$             |                     |                    | -             | $\rightarrow$ |   |
| Gas storage facilities<br>Maintaining groundwater levels   |                  | -           |                 | -                                   |   |                 |                     |                   |                                   | - m             | -                   | -                  | doli         |                 | _                 | -+               | $\rightarrow$      | $\rightarrow$ | -             |             | _             | e va   |                   |                    |                    |                     | $\left  - \right $  | $\left  - \right $   | $\vdash$            |                    | $\rightarrow$ | $\rightarrow$ |   |
| Domestic water supply  | -                | -           |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    | 6            |                 |                   |                  | $\rightarrow$      |               |               |             |               | go   | _                 | _                  |                    |                     |                     | $\vdash$             |                     |                    |               | $\rightarrow$ |   |
| HVAC systems   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  | $\rightarrow$      |               |               |             | -             | ច  | _                 | _                  |                    |                     | $\left  - \right $  | $\vdash$             |                     |                    |               | $\rightarrow$ |   |
| Homogenisation   | -                | -           |                 | -                                   | F | -               |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  | _                 | _                  |                    |                     |                     |                      |                     |                    |               |               |   |
| Industrial recirculation systems   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  | _                 |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Nuclear power stations   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   | _                  |                    |                     |                     |                      |                     |                    |               |               | _ |
| Boiler feed applications   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               | _ |
| Boiler recirculation   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Sewage treatment plants  |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Air-conditioning systems   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Condensate transport   |                  |             |                 | _                                   |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     | $\square$            |                     |                    |               |               |   |
| Fossil-fuelled power stations  |                  |             |                 | _                                   |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             | _             |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Cooling circuits   | -                | -           |                 | _                                   |   | _               |                     |                   |                                   | -               | -                   |                    |              |                 |                   | _                |                    | _             |               |             |               | -  |                   |                    |                    |                     | $\square$           | $\square$            |                     |                    |               | -+            |   |
| Paint shops<br>Food and beverages industries   | -                | -           |                 | -                                   |   |                 |                     | _                 |                                   |                 |                     |                    |              |                 |                   |                  | $\rightarrow$      | _             | _             |             | _             | ŀ  |                   |                    |                    |                     | $\left  - \right $  | $\vdash$             |                     |                    | -+            | $\rightarrow$ |   |
| Seawater desalination/reverse osmosis  |                  |             |                 | -                                   |   |                 |                     |                   |                                   |                 | F                   |                    |              |                 |                   | $\rightarrow$    | $\rightarrow$      | $\rightarrow$ | _             | -           | _             | ł  |                   |                    |                    |                     | ┝─┦                 | $\vdash$             | $\vdash$            |                    | $\rightarrow$ | $\rightarrow$ |   |
| Mixing   | -                | -           |                 | -                                   |   |                 |                     |                   |                                   | -               | -                   |                    |              |                 |                   |                  | $\rightarrow$      |               |               |             | _             |  | _                 | _                  |                    |                     |                     | $\vdash$             |                     |                    |               | $\rightarrow$ | — |
| Paper and pulp industry  |                  |             |                 | -                                   |   |                 |                     |                   |                                   | -               | -                   |                    |              |                 |                   |                  |                    |               |               |             | _             |  | _                 | _                  |                    |                     |                     | $\vdash$             | $\vdash$            |                    |               | $\rightarrow$ | — |
| Petrochemical industry   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              | -               |                   |                  |                    | -             | -             |             |               |  |                   |                    |                    | П                   |                     |                      |                     |                    |               | $\rightarrow$ | — |
| Pharmaceutical industry  |                  |             |                 |                                     |   | _               | _                   | _                 |                                   |                 | F                   | -                  |              | _               | _                 | -                | -                  | -             | -             |             |               | -  | -                 | -                  | _                  |                     | H                   |                      | F                   |                    |               |               | — |
| Pipelines and tank farms   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    | Π                   |                     |                      |                     |                    |               |               |   |
| Refineries   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               | _ |
| Flue gas desulphurisation  |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Rainwater harvesting   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Recirculation  |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     | $\square$           | Ш                    |                     |                    |               |               |   |
| Shipbuilding   | _                | <u> </u>    |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     | $\square$            |                     |                    |               |               |   |
| Sludge disposal  | -                |             |                 | _                                   |   |                 |                     |                   |                                   | -               | -                   |                    |              |                 |                   | -+               | -                  | _             |               |             | _             |  | _                 | _                  |                    |                     | $\left  - \right $  | $\mid \mid \mid$     |                     | $\left  - \right $ | -+            | $\rightarrow$ |   |
| Sludge processing  | -                | -           |                 | _                                   |   |                 |                     | _                 |                                   | -               | -                   | $\left  - \right $ |              |                 |                   |                  |                    | -             |               | _           | _             |  | _                 | _                  |                    |                     | $\vdash$            | $\vdash$             | $\vdash$            | $\left  - \right $ | _             | $\rightarrow$ |   |
| Snow-making systems  | -                | -           |                 | _                                   |   |                 |                     | -+                |                                   | -               |                     |                    |              |                 |                   |                  |                    | -             |               |             | _             |  | _                 | _                  |                    | _                   | $\vdash$            | $\vdash$             | $\vdash$            | $\left  - \right $ | _             | _             | — |
| Swimming pools<br>Keeping in suspension  | -                |             |                 | -                                   |   |                 |                     | $\rightarrow$     | _                                 | -               | -                   | $\left  - \right $ |              |                 |                   | -+               | $\rightarrow$      | -             |               |             | _             |  |                   |                    |                    |                     | $\left  - \right $  | $\vdash$             |                     | $\left  - \right $ | $\rightarrow$ | $\dashv$      |   |
| Thermal oil circulation  | -                | -           |                 | -                                   |   |                 |                     |                   |                                   |                 | -                   | $\left  - \right $ |              |                 |                   | -+               | -                  | $\neg$        |               |             | _             |  | _                 | _                  |                    |                     | $\left  - \right $  | $\vdash$             |                     |                    | -+            | $\dashv$      |   |
| Process engineering  | -                |             |                 | -                                   | H |                 |                     | -                 |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             | $\neg$        |  |                   |                    |                    |                     |                     |                      |                     |                    | $\dashv$      | $\dashv$      |   |
| Heat recovery systems  |                  |             |                 |                                     |   |                 | -                   | -                 |                                   |                 |                     |                    |              |                 |                   | _                | -                  | -             |               | -           | $\neg$        |  |                   | -                  | _                  | -                   |                     | -                    |                     |                    | $\dashv$      | $\dashv$      |   |
| Hot-water heating systems  |                  |             |                 |                                     |   |                 |                     | $\rightarrow$     |                                   |                 |                     |                    |              |                 |                   | $\neg$           | $\dashv$           | $\neg$        |               |             |               |  |                   |                    |                    |                     |                     | $\square$            |                     |                    | $\neg$        | $\neg$        | _ |
| Washing plants   | Ē                | <u> </u>    |                 |                                     |   |                 |                     | $\neg$            |                                   |                 |                     |                    |              |                 |                   | $\neg$           | $\neg$             | $\neg$        |               |             |               |  |                   |                    |                    |                     |                     | $\square$            |                     |                    | $\neg$        | $\neg$        |   |
| Water treatment  |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Water extraction   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Water supply   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |
| Sugar industry   |                  |             |                 |                                     |   |                 |                     |                   |                                   |                 |                     |                    |              |                 |                   |                  |                    |               |               |             |               |  |                   |                    |                    |                     |                     |                      |                     |                    |               |               |   |

|                                       |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   | ٨S                           |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
|---------------------------------------|---------------------------------------|------------------------------|----------|------|-----|---------------------------|-------------|-------------|--------------------------|------------------------|-----------|-----------|---|------------------------------|------------------------|-------------------------|-----------|------------------------------------|-----------|--------------------------------------|-----------|------------|--------------------|--------------------|--------------------|-------------|--------------------------------------|--------------|------------------------|---|---|---|---------------|---------------|----------------|---|
|                                       |                                       | _                            |          |      |     |                           |             |             |                          | ~                      |           |           |   | BOA-Control /BOA-Control IMS |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
|                                       |                                       | NUCA/-A/-ES, Types I, II, IV |          |      |     |                           |             |             |                          | BOA-CVE C/CS/W/IMS/EKB |           |           |   | 5                            |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
|                                       |                                       | Ξ,                           |          |      |     |                           |             |             |                          | S                      |           |           |   | -uo                          |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
|                                       |                                       | es                           |          |      |     |                           |             |             |                          | ≧                      |           |           |   | 9                            |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
|                                       |                                       | Уp                           |          |      |     |                           |             |             |                          | È                      |           |           |   | ð                            | Å                      |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
|                                       |                                       | E.                           |          |      |     |                           |             |             |                          | N.                     |           |           |   | ۳                            | S                      |                         |           |                                    |           |                                      | _         |            | 5                  | ۴                  | ш                  | ₹           |                                      | ≤            | ∢                      |   |   |   |               |               |                |   |
|                                       |                                       | ŝ                            | _        |      |     |                           | ä           | ы<br>Ц      |                          | ŭ                      | т         | т         |   | 5                            | 2                      |                         | Ч         |                                    | ñ         |                                      | S         |            | Ā                  | Ś                  | -S                 | ŝ           |                                      | Ē            | Ę                      |   |   |   |               |               |                |   |
|                                       |                                       | À                            | £        |      |     |                           | Ξï          | Ξ́          |                          | ų                      | 2         | ٩,        |   | , T                          | , ut                   |                         | Ņ         |                                    | Ž         |                                      | Š         |            | Ł                  | Ł                  | ż                  | ż           |                                      | /er          | ŝ                      |   |   |   |               |               |                |   |
|                                       |                                       | ¥                            | ZYNB/ZYN | ZXNB |     |                           | BOA-H Mat E | BOA-H Mat P |                          | Ģ                      | BOA-CVE H | BOA-CVP H |   | Ÿ                            | <b>BOA-Control SAR</b> |                         | CONDA-VLC |                                    | CONDA-VRC |                                      | CONDA-VSM |            | <b>BOAVENT-AVF</b> | <b>BOAVENT-SVF</b> | <b>BOAVENT-SIF</b> | BOAVENT-SVA |                                      | SISTO-VentNA | SISTO-KRVNA            |   |   |   |               |               |                |   |
|                                       |                                       | З                            | Ē.       | ZXNB |     |                           | ₹<br>0      | <b>₹</b>    |                          | A C                    | <b>∀</b>  | A C       |   | A                            | <b>A</b>               |                         | S         |                                    | N         |                                      | N         |            | A O                | A C                | ٩<br>٥             | ۲ð          |                                      | £            | £                      |   |   |   |               |               |                |   |
|                                       |                                       | z                            | Ñ        |      | 3   |                           | ĕ           | ă           |                          | ĕ                      | ă         | ă         |   | ĕ                            | ă                      |                         | Ŭ         |                                    | Ŭ         |                                      | Ŭ         |            | ă                  | ă                  | ĕ                  | ă           |                                      | S            | S                      |   |   |   |               |               |                |   |
| Spray irrigation                      | S                                     |                              |          |      | -   | z                         |             |             | z                        |                        |           |           | z                                       |                              |                        | z                       |           | z                                  |           | z                                    |           | es         |                    |                    |                    |             | SL                                   |              |                        |   |   |   |               |               |                |   |
| Mining                                | tiol                                  |                              |          |      |     | DIN/EN                    |             |             | ١                        |                        |           |           | Ň                                       |                              |                        | DIN/EN                  |           | N                                  |           | N                                    |           | Air valves |                    |                    |                    |             | tiol                                 |              |                        |   |   |   |               |               |                |   |
| Irrigation                            | ica                                   |                              |          |      | 2   | 5                         |             |             |                          |                        |           |           | ⊡                                       |                              |                        | Δ                       |           | Δ                                  |           | Δ                                    |           | ir <       |                    |                    |                    |             | ica                                  |              |                        |   |   |   |               |               | $\neg$         | _ |
| Chemical industry                     | ldd                                   |                              |          |      |     |                           |             |             | 5                        |                        |           |           | 5                                       |                              |                        | 5<br>2                  |           | 5                                  |           | 5                                    |           | Ā          |                    |                    |                    |             | ldd                                  |              |                        |   |   |   |               |               | -              | _ |
| Pressure boosting                     | r a                                   |                              |          |      |     | - ve                      |             |             | ves                      |                        |           | _         | Ves                                     | -                            | 1                      | ves                     |           | ves                                |           | Ves                                  |           |            | _                  |                    |                    |             | r a                                  |              |                        |   |   |   |               |               | $\neg$         | _ |
| Disposal                              | lea                                   |                              |          |      |     | - Val                     |             |             | val                      |                        |           |           | val                                     |                              | -                      | val                     |           | val                                |           | val                                  |           |            |                    |                    |                    |             | lea                                  |              |                        | - |   |   |               | $\rightarrow$ | -              | — |
| Disposal                              | Globe valves for nuclear applications |                              |          |      | - 1 | Automated globe valves to |             |             | Control valves to DIN/EN |                        |           |           | Balancing and shut-off valves to DIN/EN | -                            | -                      | Level control valves to |           | Pressure reducing valves to DIN/EN |           | Pressure sustaining valves to DIN/EN |           |            |                    |                    |                    |             | Vent valves for nuclear applications |              |                        | - | _ |   | $\rightarrow$ | $\rightarrow$ | +              | — |
| Descaling units                       | or 1                                  |                              |          |      |     | 6                         |             |             | b                        |                        |           |           | Ľ.                                      | -                            | -                      | brt                     | -         | uci                                | -         | ini                                  |           |            |                    |                    |                    | _           | - Lo                                 |              | $\vdash$               | _ |   |   | $\rightarrow$ | $\rightarrow$ | -+             | — |
|                                       | es f                                  |                              |          | _    | - 7 | 60                        | _           |             | ŭ                        |                        |           |           | Ŝ                                       | -                            | -                      | 5                       | -         | red                                | -         | lsta                                 |           |            |                    |                    |                    | _           | ss f                                 |              | $\left  - \right $     | _ |   |   | -             | -+            | $\rightarrow$  |   |
| District heating                      | al ve                                 |                              |          |      | _   |                           | _           |             | ł                        |                        |           |           | pu                                      | <u> </u>                     | -                      | eve                     | <u> </u>  | e                                  | -         | e SL                                 |           |            |                    |                    |                    | _           | alve                                 |              | $\vdash$               | _ |   |   | -+            | -+            | $\rightarrow$  |   |
| Solids Transport                      | N N                                   |                              |          |      | _   | <u> </u>                  |             |             | -                        |                        |           |           | ga                                      |                              | _                      | Ľ                       | <u> </u>  | ssu                                | <u> </u>  | nre                                  |           |            |                    |                    |                    | _           | t võ                                 |              |                        | _ |   |   |               | _             | $\rightarrow$  |   |
| Fire-fighting systems                 | p                                     |                              |          |      |     |                           |             |             |                          |                        |           |           | cin                                     |                              |                        |                         |           | Pre                                |           | ess                                  |           |            |                    |                    |                    | _           | ent                                  |              |                        | _ |   |   |               |               | $ \rightarrow$ |   |
| Gas pipelines                         | ซี                                    |                              |          |      |     |                           |             |             |                          |                        |           |           | lan                                     |                              |                        |                         |           |                                    |           | à                                    |           |            |                    |                    |                    |             | >                                    |              |                        |   |   |   |               |               |                |   |
| Gas storage facilities                |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           | Ba                                      |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Maintaining groundwater levels        |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Domestic water supply                 |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| HVAC systems                          |                                       |                              | Î        |      |     |                           |             |             | Ĩ                        |                        |           |           |   |                              |                        |                         |           |                                    |           | 1                                    |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Homogenisation                        |                                       |                              |          |      |     |                           |             |             | Ì                        |                        |           |           |   |                              |                        |                         |           |                                    |           | 1                                    |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Industrial recirculation systems      |                                       |                              |          |      |     |                           |             |             | Ì                        |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                | _ |
| Nuclear power stations                |                                       |                              |          |      |     | F                         |             |             | ŀ                        |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               | +              | — |
| Boiler feed applications              |                                       |                              |          |      |     |                           |             |             | ł                        |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            | _                  |                    |                    |             |                                      | _            |                        |   |   |   |               |               | +              |   |
| Boiler recirculation                  |                                       |                              |          |      |     |                           |             |             | ŀ                        |                        |           |           |   |                              | +                      |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        | - |   |   | $\rightarrow$ | $\rightarrow$ | +              |   |
| Waste water treatment plants          |                                       |                              |          |      | -   | H                         |             | -           | ł                        |                        | -         | -         |   | -                            | -                      |                         | -         |                                    | -         |                                      |           |            |                    |                    |                    |             |                                      |              |                        | - |   |   | $\rightarrow$ | $\rightarrow$ | +              | — |
| Air-conditioning systems              |                                       |                              |          |      |     |                           |             |             | ł                        | -                      | П         |           |   |                              |                        |                         | -         |                                    | -         |                                      |           |            | _                  |                    |                    | _           |                                      |              | $\left  - \right $     | _ |   |   | $\rightarrow$ | $\rightarrow$ | +              | — |
| Condensate transport                  |                                       |                              |          |      | -   | H                         |             | -           |                          | -                      |           | -         |   |                              | -                      |                         | -         |                                    | -         | ·                                    |           |            |                    |                    |                    | _           |                                      |              | $\vdash$               | _ |   |   | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  | — |
| · · ·                                 |                                       |                              |          |      | -   | -                         | -           | _           |                          |                        |           |           |   | -                            | -                      |                         | <u> </u>  |                                    | -         |                                      |           |            | _                  |                    |                    | _           |                                      |              | $\vdash$               | _ |   |   | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  |   |
| Fossil-fuelled power stations         |                                       |                              |          |      | _   |                           | _           | _           | }                        | _                      |           | _         |   | <u> </u>                     | -                      |                         | <u> </u>  |                                    | <u> </u>  |                                      |           |            |                    |                    |                    | _           |                                      |              | $\left  - \right $     | _ |   |   | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  |   |
| Cooling circuits                      |                                       |                              |          |      | _   | 4                         |             |             | -                        | -                      |           | _         |   | <u> </u>                     |                        |                         | <u> </u>  |                                    | <u> </u>  |                                      |           |            |                    |                    |                    | _           |                                      |              |                        | _ |   |   |               | -             | $\rightarrow$  |   |
| Paint shops                           |                                       |                              |          |      | _   |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              | $ \square$             |   |   |   |               |               | $\rightarrow$  |   |
| Food and beverages industries         |                                       |                              |          |      | _   |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              | $\square$              | _ |   |   |               |               | $ \rightarrow$ |   |
| Seawater desalination/reverse osmosis |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Mixing                                |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Paper and pulp industry               |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Petrochemical industry                |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Pharmaceutical industry               |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Pipelines and tank farms              |                                       |                              | Î        |      |     |                           |             |             | Ĩ                        |                        |           |           |   |                              |                        |                         |           |                                    |           | 1                                    |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Refineries                            |                                       | Î                            | Î        |      |     |                           |             |             | Î                        |                        |           |           |   |                              | 1                      |                         |           |                                    |           | 1                                    |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Flue gas desulphurisation             |                                       |                              |          |      |     |                           |             |             | Ì                        |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   | T             |               |                |   |
| Rainwater harvesting                  |                                       |                              |          |      |     |                           |             |             | Ì                        |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               | -              | _ |
| Recirculation                         |                                       |                              |          |      |     | F                         |             |             | ŀ                        |                        |           |           |   |                              | 1                      |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      | _            |                        |   |   |   |               |               | +              |   |
| Shipbuilding                          |                                       |                              |          |      |     | ŀ                         |             |             | ŀ                        |                        |           |           |   |                              | +                      |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        | - |   |   | $\rightarrow$ | $\rightarrow$ | +              |   |
| Sludge disposal                       |                                       |                              |          |      |     | F                         | -           |             | ł                        |                        |           | _         |   | -                            | -                      |                         |           |                                    |           |                                      |           |            | _                  |                    |                    |             |                                      |              |                        | - |   |   |               |               | +              | — |
| Sludge processing                     |                                       |                              |          |      |     | ŀ                         |             |             |                          |                        |           |           |   |                              | -                      |                         | -         |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        | - |   |   | $\rightarrow$ | $\rightarrow$ | -+             | — |
| Snow-making systems                   |                                       |                              |          |      |     |                           |             | -           | ŀ                        |                        |           | _         |   | -                            | -                      |                         | -         |                                    | -         |                                      |           |            | _                  |                    | _                  | _           |                                      | _            |                        | - | _ | _ | $\rightarrow$ | $\rightarrow$ | -              | — |
|                                       |                                       |                              |          |      | -   | -                         |             | _           | ł                        |                        |           | _         |   | -                            | -                      |                         | <u> </u>  |                                    | -         |                                      |           |            | _                  |                    | _                  | _           |                                      |              | $\vdash$               | _ |   |   | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  |   |
| Swimming pools                        |                                       |                              |          |      | _   | -                         | _           |             | }                        |                        |           |           |   | <u> </u>                     | -                      |                         | <u> </u>  |                                    | <u> </u>  |                                      |           |            |                    |                    |                    | _           |                                      |              | $\left  - \right $     | _ |   |   | $\rightarrow$ | $\rightarrow$ | $\rightarrow$  |   |
| Keeping in suspension                 |                                       |                              |          |      | _   | -                         | _           | _           | -                        |                        | _         | _         |   | <u> </u>                     | -                      |                         | <u> </u>  |                                    | -         |                                      |           |            |                    |                    |                    | _           |                                      |              | $\left  - \right $     | _ |   |   | -+            | -+            | $\rightarrow$  |   |
| Thermal oil circulation               |                                       |                              | _        |      | _   |                           |             |             |                          |                        |           | _         |   | _                            | _                      |                         | <u> </u>  |                                    | <u> </u>  |                                      |           |            | _                  |                    |                    |             |                                      |              | $\mid \downarrow \mid$ | _ |   |   | _             | _             | $\rightarrow$  |   |
| Process engineering                   |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              | _                      |                         | <u> </u>  |                                    | <u> </u>  |                                      |           |            |                    |                    |                    |             |                                      |              | $\square$              | _ |   |   | _             |               | $ \downarrow$  |   |
| Heat recovery systems                 |                                       |                              |          |      |     |                           |             |             |                          | _                      |           |           |   | _                            |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              | $\square$              |   |   |   |               |               |                |   |
| Hot-water heating systems             |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Washing plants                        |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Water treatment                       |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                |   |
| Water extraction                      |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               | $\neg$         |   |
| Water supply                          |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              | 1                      |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               | $\neg$         |   |
| Sugar industry                        |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              | 1                      |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   | $\neg$        | $\neg$        | +              |   |
| <b>_</b>                              |                                       |                              |          |      |     |                           |             |             |                          |                        |           |           |   |                              |                        |                         |           |                                    |           |                                      |           |            |                    |                    |                    |             |                                      |              |                        |   |   |   |               |               |                | _ |

| Spray instaction  |                       | COBRA-SGP/SGO/SGF | COBRA-SMP | ECOLINE SP/SO | ECOLINE GT 40 | STAAL 40 AKD/AKDS | STAAL 100 AKD/AKDS | AKG-A/AKGS-A | ZTS |                          | ECOLINE GTB 800 | ECOLINE GTC 150-600 | ECOLINE GTF 150-600 | ECOLINE GTF 800-2500 | ECOLINE GTV 150-300 | SICCA 150-600 GTC | SICCA 900-3600 GTC | SICCA 800-1500 GTF | WADA GT 150        |                                      | ZTN |                       | HERA-BD |                                | HERA-BDS      | HERA-BHT | HERA-SH |                             | NGS |                             | BOA-RPL            | BOA-RFV            | BOA-RVK   | BOA-R          | NORI 40 RXL/RXS | <b>NORI 160 RXL/RXS</b> |
|---|-----------------------|-------------------|-----------|---------------|---------------|-------------------|--------------------|--------------|-----|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------|-------------------|--------------------|--------------------|--------------------|--------------------------------------|-----|-----------------------|---------|--------------------------------|---------------|----------|---------|-----------------------------|-----|-----------------------------|--------------------|--------------------|-----------|----------------|-----------------|-------------------------|
| Spray irrigation<br>Mining  | Gate valves to DIN/EN | $\vdash$          | $\vdash$  | +             |               |                   |                    |              | -   | Gate valves to ANSI/ASME |                 | -                   | -                   | -                    |                     |                   |                    |                    |                    | Gate valves for nuclear applications |     | gate valves to DIN/EN |         | Knife gate valves to ANSI/ASME |               | -        |         | Body pressure relief valves |     | Lift check valves to DIN/EN | $\left  - \right $ | $\vdash$           | $\vdash$  | +              |                 |                         |
| Irrigation  |                       |                   | ┢         |               | +-            | 1                 | +-                 | -            |     | SILA                     |                 |                     |                     |                      |                     |                   |                    |                    |                    | icat                                 |     | D                     |         | SI/A                           | _             |          | _       | fva                         |     |                             |                    |                    |           | +              | -               | _                       |
| Chemical industry   | s to                  |                   | 1         | 1             | 1             |                   |                    |              |     | AN                       |                 |                     |                     | $\square$            |                     |                   |                    |                    |                    | ldd                                  |     | s to                  |         | AN                             |               |          |         | elie                        |     | s to                        |                    |                    |           |                |                 |                         |
| Pressure boosting   | Ive                   |                   |           |               |               |                   |                    |              |     | 5                        |                 |                     |                     |                      |                     |                   |                    |                    |                    | ar a                                 |     | Ive                   |         | 5                              |               |          | _       | rer                         |     | Ive                         |                    |                    |           |                |                 |                         |
| Disposal  | e va                  |                   |           |               |               |                   |                    |              |     | ves                      |                 |                     |                     |                      |                     |                   |                    |                    |                    | cle                                  |     | e va                  |         | ves                            |               |          |         | ssu                         |     | k va                        |                    |                    |           |                |                 |                         |
| Drainage  | ate                   |                   |           |               | 1             |                   |                    |              |     | val                      |                 |                     |                     |                      |                     |                   |                    |                    |                    | nu                                   |     | jate                  |         | val                            |               |          |         | pre                         |     | leck                        |                    |                    |           |                |                 |                         |
| Descaling units   |                       |                   |           | 1             |               |                   |                    |              |     | ate                      |                 |                     |                     |                      |                     |                   |                    |                    |                    | for                                  |     | fe                    |         | ate                            |               |          |         | Ъ                           |     | t<br>C                      | $\square$          | $\square$          |           |                |                 |                         |
| District heating  | 1                     |                   |           |               |               |                   |                    |              |     | Ö                        |                 |                     |                     |                      |                     |                   |                    |                    |                    | ves                                  |     | Knife                 |         | e g                            |               |          |         | B                           |     | Li-                         | $\square$          | $\square$          |           |                |                 |                         |
| Solids transport  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    | val                                  |     |                       |         | nif                            |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Fire-fighting systems   |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    | ate                                  |     |                       |         | ×                              |               |          |         |                             |     |                             |                    |                    |           |                |                 | _                       |
| Gas pipelines   |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    | Ö                                    |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Gas storage facilities  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Maintaining groundwater levels  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Domestic water supply   |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| HVAC systems  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Homogenisation  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    | $\square$          |           |                |                 |                         |
| Industrial recirculation systems  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    | $\square$          |           |                |                 |                         |
| Nuclear power stations  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     | _                 | _                  |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    | $\square$          |           |                |                 |                         |
| Boiler feed applications  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Boiler recirculation  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    | $\square$          |           | $ \rightarrow$ |                 |                         |
| Sewage treatment plants   |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           | $ \rightarrow$ |                 |                         |
| Air-conditioning systems  |                       |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          | _       |                             |     |                             |                    | $\square$          |           |                |                 |                         |
| Condensate transport  | - 1                   |                   | _         |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    | $\square$          | $\square$ |                |                 |                         |
| Fossil-fuelled power stations   | -                     |                   | _         |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   | ш                  |                    |                    |                                      |     |                       |         |                                |               |          | _       |                             |     |                             |                    | $\square$          |           | $\rightarrow$  |                 |                         |
| Cooling circuits  | - 1                   |                   |           |               |               |                   | _                  |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    | $\square$          | $\square$ | $ \rightarrow$ |                 |                         |
| Paint shops   | -                     |                   | -         | _             | -             | -                 |                    | _            |     |                          | _               | <u> </u>            |                     | _                    |                     |                   |                    |                    |                    |                                      |     |                       |         |                                | -+            |          | _       |                             |     |                             |                    | $\square$          | $\vdash$  | $\rightarrow$  |                 |                         |
| Food and beverages industries   | -                     |                   | _         | _             | _             | _                 | _                  | _            |     |                          |                 | <u> </u>            | <u> </u>            | _                    |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          | _       |                             |     |                             | $\square$          | $\square$          | $\vdash$  | $\rightarrow$  |                 |                         |
| Seawater desalination/reverse osmosis   | -                     |                   | -         | -             | -             | -                 | _                  | -            |     |                          | <u> </u>        | <u> </u>            | <u> </u>            | -                    | <u> </u>            |                   |                    |                    |                    |                                      |     |                       |         |                                | _             |          | _       |                             |     |                             |                    | $\square$          | $\vdash$  | _              | _               |                         |
| Mixing  | -                     | $\vdash$          | -         | -             | -             | -                 | _                  | _            | _   |                          | _               | _                   | _                   | -                    | _                   | _                 | _                  | _                  |                    |                                      |     |                       | _       |                                | $\rightarrow$ | _        | _       |                             | _   |                             |                    | $\vdash$           | $\vdash$  | $\rightarrow$  | _               | _                       |
| Paper and pulp industry   | -                     |                   | -         | -             |               |                   |                    |              |     |                          | _               |                     |                     |                      |                     |                   | Ē                  |                    |                    |                                      |     |                       |         |                                | -+            |          | -       |                             |     |                             |                    | $\square$          | $\vdash$  | $\rightarrow$  |                 | -                       |
| Petrochemical industry  | - 1                   |                   | _         |               |               |                   |                    |              |     |                          |                 |                     | _                   | _                    |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          | _       |                             |     |                             |                    | $\square$          | $\vdash$  | $\rightarrow$  |                 |                         |
| Pharmaceutical industry   | -                     |                   | -         | _             | -             | -                 |                    |              |     |                          |                 |                     |                     |                      | _                   |                   |                    |                    |                    |                                      |     |                       |         |                                | -+            |          | _       |                             |     |                             |                    | $\square$          | $\vdash$  | $\rightarrow$  |                 |                         |
| Pipelines and tank farms  | -                     | L-                | -         | -             | -             | -                 | _                  | -            | -   |                          | <u> </u>        |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                | -+            |          |         |                             |     |                             | $\square$          | $\square$          | $\vdash$  | $\rightarrow$  | _               |                         |
| Refineries  | -                     | <u> </u>          | -         | _             | -             | -                 | _                  | -            | -   |                          | _               | -                   | -                   | -                    |                     |                   |                    |                    |                    |                                      |     |                       |         |                                | -             | _        | _       |                             |     |                             | $\square$          | $\square$          | $\vdash$  | $\rightarrow$  | _               |                         |
| Flue gas desulphurisation   | -                     | $\vdash$          | -         | -             | $\vdash$      | -                 | -                  | -            | -   |                          | -               | -                   | -                   | -                    | <u> </u>            |                   |                    |                    |                    |                                      |     |                       | _       |                                | $\rightarrow$ |          |         |                             |     |                             |                    | $\vdash$           | $\vdash$  | $\rightarrow$  | _               |                         |
| Rainwater harvesting<br>Recirculation   | -                     | -                 | -         | -             | +             | -                 | -                  |              | -   |                          | -               | -                   | -                   | -                    |                     |                   |                    |                    |                    |                                      |     |                       |         |                                | $\rightarrow$ |          | _       |                             |     |                             | $\vdash$           | $\vdash$           | $\vdash$  | $\rightarrow$  | _               |                         |
| Shipbuilding  | -                     | $\vdash$          | +         | +             |               |                   |                    |              | -   |                          | -               | -                   | -                   | -                    | <u> </u>            |                   |                    |                    |                    |                                      |     |                       |         |                                | $\rightarrow$ |          | _       |                             |     |                             | $\left  - \right $ | $\left  - \right $ | $\vdash$  | $\rightarrow$  |                 |                         |
| Sludge disposal   |                       | -                 | +         | +             | -             | -                 | -                  |              | -   |                          | -               |                     | -                   | -                    |                     |                   |                    |                    |                    |                                      |     |                       |         |                                | $\rightarrow$ |          |         |                             |     |                             | $\left  - \right $ | $\vdash$           | $\vdash$  | $\rightarrow$  | -               | _                       |
| Sludge processing   | -                     |                   | +         | +             | +             | +                 | -                  | -            | -   |                          | -               |                     |                     | -                    |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             | $\vdash$           | $\vdash$           | $\vdash$  | $\rightarrow$  | _               |                         |
| Snow-making systems   |                       | $\vdash$          | +         | -             |               |                   |                    |              | -   |                          | -               | -                   | -                   | -                    |                     |                   |                    |                    |                    |                                      |     |                       |         |                                | $\rightarrow$ | -        | -       |                             |     |                             | $\left  - \right $ | $\vdash$           | $\vdash$  | $\rightarrow$  | -               |                         |
| Show-making systems<br>Swimming pools   |                       | -                 | +         | -             | -             | -                 | -                  | -            | -   | -                        |                 | -                   | -                   | -                    |                     |                   | -                  |                    |                    |                                      | _   |                       |         |                                |               | _        | _       |                             |     |                             | $\vdash$           | $\vdash$           | $\vdash$  | -              | -               |                         |
| Keeping in suspension   | _                     |                   | -         | -             | +             | +                 | -                  | -            | -   |                          |                 | -                   | -                   | -                    | -                   |                   | -                  |                    |                    |                                      |     |                       |         |                                | $\rightarrow$ |          | _       |                             |     |                             | $ \vdash $         | $\vdash$           | $\vdash$  | $\rightarrow$  | -               |                         |
|   |                       |                   | +         | +             |               |                   | +                  | $\vdash$     | -   |                          | -               |                     |                     |                      |                     |                   |                    |                    | $\left  - \right $ |                                      |     |                       |         |                                | -+            | $\dashv$ | _       |                             |     |                             | $\vdash$           | $\vdash$           | ┝─┼       |                | $\rightarrow$   |                         |
|   |                       |                   | +         | +             | _             | F                 | _                  |              |     |                          |                 | -                   | -                   | -                    |                     |                   | _                  |                    |                    |                                      |     |                       |         |                                | $\rightarrow$ | $\neg$   | _       |                             |     |                             | $\vdash$           | $\vdash$           |           |                |                 |                         |
| Thermal oil circulation   |                       |                   | 1         |               |               | -                 | ╎┛                 | ┤┛           | -   |                          |                 |                     | -                   | -                    | -                   |                   |                    |                    |                    |                                      |     |                       |         |                                | $\rightarrow$ | $\neg$   |         |                             |     |                             | $\vdash$           | $\vdash$           | $\vdash$  | -+             | -               |                         |
| Thermal oil circulation<br>Process engineering  |                       | $\vdash$          | 1         |               |               |                   |                    | 1            | 1   | -                        | <u> </u>        | <u> </u>            | <u> </u>            |                      | -                   |                   | -                  | -                  | $\vdash$           |                                      |     |                       | —       |                                | $\rightarrow$ | _        |         |                             |     |                             | 4 I                |                    |           |                |                 |                         |
| Thermal oil circulation<br>Process engineering<br>Heat recovery systems   |                       |                   |           |               | $\vdash$      | ┝                 |                    |              | 1   |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    | $\vdash$           |           |                | -               |                         |
| Thermal oil circulation<br>Process engineering<br>Heat recovery systems<br>Hot-water heating systems                                      |                       |                   |           |               |               |                   | -                  |              |     |                          | _               |                     | -                   | -                    | -                   |                   |                    |                    |                    |                                      |     |                       |         |                                | -             |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Thermal oil circulation<br>Process engineering<br>Heat recovery systems<br>Hot-water heating systems<br>Washing plants                    | -                     |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Thermal oil circulation<br>Process engineering<br>Heat recovery systems<br>Hot-water heating systems<br>Washing plants<br>Water treatment | -                     |                   |           |               |               |                   |                    |              |     |                          |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          |         |                             |     |                             |                    |                    |           |                |                 |                         |
| Thermal oil circulation<br>Process engineering<br>Heat recovery systems<br>Hot-water heating systems<br>Washing plants                    |                       |                   |           |               |               |                   |                    |              |     | -                        |                 |                     |                     |                      |                     |                   |                    |                    |                    |                                      |     |                       |         |                                |               |          | _       |                             |     |                             |                    |                    |           |                |                 |                         |

| Europeinsing in  |                             | RGS | BOACHEM-RXA |                                | ECOLINE PTF 150-600 | ECOLINE PTF 800-2500 | SICCA 800-4500 PCF | WADA SC 150 |                                       | NUCA/-A/-ES, Type V | RJN | RYN |                              | COBRA-SCBS | ECOLINE WT/WTI | STAAL 40 AKK/AKKS | STAAL 100 AKK/AKKS | AKR/AKRS | ZRS | SISTO-RSK/RSKS | SERIE 2000 |                                 | ECOLINE SCC 150-600 | ECOLINE SCF 150-600 | ECOLINE SCF 800-2500 | ECOLINE SCV 150-300 | SICCA 150-600 SCC | SICCA 900-3600 SCC | WADA SC 150 |   | SISTO-RSKNA | ZRN              |                             | COBRA-TDC01/03 |   |          |
|--|-----------------------------|-----|-------------|--------------------------------|---------------------|----------------------|--------------------|-------------|---------------------------------------|---------------------|-----|-----|------------------------------|------------|----------------|-------------------|--------------------|----------|-----|----------------|------------|---------------------------------|---------------------|---------------------|----------------------|---------------------|-------------------|--------------------|-------------|---|-------------|------------------|-----------------------------|----------------|---|----------|
| Spray irrigation<br>Mining   | Lift check valves to DIN/EN |     | -           | Lift check valves to ANSI/ASME | _                   |                      |                    |             | check valves for nuclear applications |                     |     |     | Swing check valves to DIN/EN | -          |                |                   |                    |          | -   | -              | -          | Swing check valves to ANSI/ASME |                     | _                   | -                    |                     |                   | ┝                  | -           | Swing check valves for nuclear applications | $\vdash$    | $\mid$           | disc check valves to DIN/EN |                |   | -        |
| Irrigation   | D                           | -   | -           | SI/A                           |                     |                      | -                  |             | icat                                  | -                   |     |     | D                            |            | -              | -                 | -                  | -        | -   | -              |            | SI/A                            |                     |                     | -                    |                     | -                 | +                  | -           | icat  |             |                  |                             |                |   | -        |
| Chemical industry  | s to                        |     |             | ANS                            |                     |                      |                    |             | Idd                                   |                     |     |     | s to                         |            |                |                   |                    |          |     |                |            | ANS                             |                     |                     |                      |                     |                   | $\square$          |             | Idd   |             |                  | s to                        |                | _ |          |
| Pressure boosting  | alve                        |     |             | to                             |                     |                      |                    |             | ar a                                  |                     |     |     | alve                         |            |                |                   |                    |          |     |                |            | to                              |                     |                     |                      |                     |                   |                    |             | ar a  |             |                  | alve                        |                |   |          |
| Disposal   | k <                         |     |             | lves                           |                     |                      |                    |             | ucle                                  |                     |     |     | k <                          |            |                |                   |                    |          |     |                |            | lves                            |                     |                     |                      |                     |                   | $\vdash$           |             | ncle  |             |                  | ×<br>×                      |                |   |          |
| Drainage   | chec                        | _   | _           | k va                           | _                   |                      | _                  |             | n n                                   |                     |     |     | chec                         |            |                | _                 |                    | _        |     |                |            | k va                            | _                   |                     |                      |                     |                   | <u> </u>           |             | r n   | $\vdash$    |                  | chec                        |                |   | _        |
| Descaling units<br>District heating                                    | iff                         | _   |             | hecl                           | -                   |                      |                    |             | es fo                                 |                     |     |     | ng c                         |            |                |                   |                    |          | -   | -              |            | hecl                            | <u> </u>            |                     |                      |                     |                   |                    | _           | es fo                                       | $\vdash$    |                  | isc o                       |                |   | <u> </u> |
| Solids Transport   |                             | _   |             | ft                             | -                   |                      |                    |             | alve                                  |                     |     |     | Swi                          | -          |                |                   | -                  | -        | -   | -              |            | lo gu                           | -                   |                     | -                    |                     | -                 | $\vdash$           | -           | alve  | $\vdash$    |                  | lg d                        |                | _ | -        |
| Fire-fighting systems  |                             | -   | -           |                                |                     | -                    |                    |             | <u>к</u>                              | -                   |     |     |                              | ⊢          | -              | -                 | -                  | $\vdash$ | +   |                | $\vdash$   | wir                             | -                   | -                   | -                    | -                   | -                 | +                  | -           | - ×   |             | $\vdash$         | Tilting (                   |                |   | -        |
| Gas pipelines  |                             | -   |             |                                |                     | -                    |                    |             | che                                   | -                   |     |     |                              | -          | -              | -                 | 1                  | $\vdash$ | 1   | 1              | 1          |                                 | -                   | -                   | 1                    |                     |                   | $\vdash$           |             | chei  |             | H                | F                           |                | _ | 1        |
| Gas storage facilities   |                             |     |             |                                |                     |                      |                    |             | Lift                                  |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             | ng  |             |                  |                             |                |   |          |
| Maintaining groundwater levels   |                             |     |             |                                |                     |                      |                    |             | _                                     |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             | Swi   |             |                  |                             |                |   |          |
| Domestic water supply  |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   | <u> </u>           |             |   |             |                  |                             |                |   | L        |
| HVAC systems   |                             |     |             |                                | L                   |                      |                    |             |                                       |                     |     |     |                              | L          | _              |                   |                    |          | _   | _              |            |                                 | _                   |                     |                      |                     |                   | _                  | _           |   | $\vdash$    |                  |                             |                |   | -        |
| Homogenisation<br>Industrial recirculation systems                     |                             | _   | -           |                                | -                   | -                    |                    |             |                                       |                     | -   |     |                              | -          |                |                   | <u> </u>           | -        | -   | -              |            |                                 |                     | _                   | -                    | -                   | -                 | ┢                  | -           | -   |             |                  |                             |                |   | -        |
| Nuclear power stations   |                             |     | -           |                                | -                   | -                    |                    | —           |                                       |                     |     |     |                              | -          | -              |                   |                    |          |     | -              |            |                                 | -                   | _                   | -                    | -                   | -                 | ┢                  | -           |   |             |                  |                             |                | _ | -        |
| Boiler feed applications   |                             |     | -           |                                | -                   |                      |                    |             |                                       | -                   |     |     |                              | ⊢          | -              | F                 | F                  | F        |     | -              | -          |                                 |                     |                     |                      |                     |                   |                    | -           |   | ⊢           |                  |                             |                | _ | -        |
| Boiler recirculation   |                             |     | -           |                                |                     | -                    |                    |             |                                       | -                   |     |     |                              |            | -              |                   |                    | Ē        | +-  | -              |            |                                 | -                   | -                   | -                    | -                   |                   |                    |             |   |             |                  |                             |                |   | -        |
| Waste water treatment plants   |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   | $\square$          |             |   |             |                  |                             |                | _ |          |
| Air-conditioning systems   |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             |   |             |                  |                             |                |   |          |
| Condensate transport   |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             |   |             |                  |                             |                |   |          |
| Fossil-fuelled power stations  |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             |   |             |                  |                             |                |   |          |
| Cooling circuits   |                             |     | _           |                                |                     | _                    |                    |             |                                       | _                   |     |     |                              | ⊢          |                |                   |                    | _        |     |                |            |                                 | <u> </u>            |                     |                      | _                   |                   | _                  |             |   | $\vdash$    |                  |                             |                |   | <u> </u> |
| Paint shops  |                             |     | <u> </u>    |                                | -                   | <u> </u>             |                    |             |                                       |                     |     |     |                              | -          | <u> </u>       |                   |                    | -        | -   |                |            |                                 | <u> </u>            |                     |                      |                     |                   | –                  | -           |   | $\vdash$    |                  |                             |                |   |          |
| Food and beverages industries<br>Seawater desalination/reverse osmosis |                             | _   | -           |                                |                     | _                    |                    |             |                                       | _                   |     |     |                              |            | -              |                   | -                  | -        | -   |                |            |                                 | -                   |                     | -                    | -                   | -                 | ⊢                  | -           |   | $\vdash$    |                  |                             |                |   | -        |
| Mixing   |                             | -   | -           |                                | -                   | -                    | <u> </u>           |             |                                       | <u> </u>            |     |     |                              | -          | -              | <u> </u>          | -                  | -        | -   | -              |            |                                 | -                   | _                   | -                    | -                   | -                 | +                  | -           | -   |             | -                |                             | -              | _ | -        |
| Paper and pulp industry  |                             |     |             | -                              | -                   | -                    |                    | -           |                                       | -                   |     |     |                              | -          |                |                   |                    |          |     |                |            | -                               | -                   | -                   | -                    |                     |                   |                    |             | •   | $\vdash$    |                  |                             |                | _ | -        |
| Petrochemical industry   |                             | Ē   |             |                                |                     |                      |                    | _           |                                       |                     |     |     |                              |            |                |                   |                    | -        |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             |   |             |                  |                             |                | _ | 1        |
| Pharmaceutical industry  |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   | $\square$          |             |   |             |                  |                             |                |   |          |
| Pipelines and tank farms   |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             |   |             |                  |                             |                |   |          |
| Refineries   |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             |   |             |                  |                             |                |   |          |
| Flue gas desulphurisation  |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   | ╞                  |             |   |             |                  |                             |                |   | L_       |
| Rainwater harvesting   |                             |     |             |                                | _                   |                      | -                  |             |                                       |                     |     |     |                              | L          |                |                   |                    |          | -   |                | _          |                                 |                     |                     | _                    |                     |                   | -                  |             |   | $\vdash$    |                  |                             |                |   | -        |
| Recirculation<br>Shipbuilding  |                             |     |             |                                | -                   | -                    |                    |             |                                       |                     | -   |     |                              | ⊢          | -              |                   |                    |          | -   | -              |            |                                 | -                   |                     | -                    | _                   |                   | ┢                  |             |   |             |                  |                             |                |   | -        |
| Sludge disposal  |                             | -   | -           |                                | -                   | -                    |                    |             |                                       | -                   |     |     |                              | ⊢          | -              |                   |                    |          | +   | +              | -          |                                 | -                   |                     | $\vdash$             | -                   | -                 | +                  | -           |   |             |                  |                             |                |   | -        |
| Sludge disposal  |                             | -   | -           |                                | -                   | -                    | -                  |             |                                       | -                   | -   |     |                              | ⊢          | -              | -                 | -                  | $\vdash$ | +   | -              | -          |                                 | -                   | -                   | -                    | -                   | -                 | +                  | -           |   |             | $\mid \mid \mid$ |                             |                | _ | -        |
| Snow-making systems  |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     | 1              |            |                                 | -                   |                     |                      |                     | 1                 | $\square$          |             |   |             |                  |                             |                | _ |          |
| Swimming pools   |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             |   |             |                  |                             |                |   |          |
| Keeping in suspension  |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   |                    |             |   |             |                  |                             |                |   |          |
| Thermal oil circulation  |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   | _                  |             |   |             |                  |                             |                |   | L        |
| Process engineering  |                             |     |             |                                | <u> </u>            |                      |                    |             |                                       | <u> </u>            |     |     |                              | L          | _              | -                 |                    |          |     |                |            |                                 | Ľ                   |                     |                      |                     |                   | _                  |             |   | $\vdash$    | $\square$        |                             | $\square$      |   | _        |
| Heat recovery systems<br>Hot-water heating systems                     |                             | _   | -           |                                | <u> </u>            | -                    |                    |             |                                       | <u> </u>            | -   |     |                              | -          |                |                   |                    | -        | -   | -              |            |                                 | <u> </u>            | _                   |                      |                     |                   |                    | -           | -   | $\vdash$    | $\vdash$         |                             |                |   | -        |
| Hot-water heating systems<br>Washing plants                            |                             | -   | -           |                                | -                   | -                    |                    | _           |                                       | -                   | -   |     |                              | -          |                |                   | -                  | -        | -   | -              |            |                                 |                     | -                   | -                    | -                   |                   | $\vdash$           | -           |   |             | $\mid$           |                             | $\square$      | _ | -        |
| Washing plants<br>Water treatment                                      |                             | -   | -           |                                |                     | -                    |                    |             |                                       | -                   | -   |     |                              |            | -              |                   | -                  | +        | -   |                |            |                                 | -                   | -                   | -                    | -                   | -                 | +                  | -           |   |             | $\mid \mid$      |                             |                |   | -        |
| Water extraction   |                             | -   |             |                                | F                   |                      |                    | $\square$   |                                       | -                   |     |     |                              | F          | -              |                   |                    | +        | +   | +-             |            |                                 | -                   | -                   | -                    | -                   |                   | +                  | -           |   |             |                  |                             | -              | _ | -        |
| Valer extraction i   |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            | 1              |                   | 1                  | 1        | 1   | _              |            |                                 | _                   |                     | <u> </u>             | <u> </u>            |                   | 1                  | 1           | 1   | <u> </u>    | <u> </u>         |                             |                |   | +        |
| Water extraction<br>Water supply                                       |                             |     |             |                                |                     |                      |                    |             |                                       |                     |     |     |                              |            |                |                   |                    |          |     |                |            |                                 |                     |                     |                      |                     |                   | Γ                  |             |   |             |                  |                             |                |   |          |

|                                       |                     |          |                    |                    |                        | 8                   |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
|---------------------------------------|---------------------|----------|--------------------|--------------------|------------------------|---------------------|-----------------|-------------------------------|------------|-----------|---------------|----------|--------------|-------------|-----------|------------|--------------|--------------|--------------------|----------|---|--------------------------------|---------------|------------|---------------|-------------|--------------------------------|----------------|-------------|-------------|---|--------------------|--------------------------|---------------|----------------|---|
|                                       |                     |          |                    |                    |                        | ECOLINE FYC 150-600 |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
|                                       |                     |          | ŝ                  |                    |                        | ß                   | 8               |                               |            |           | N             |          | ~            | _           |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
|                                       |                     |          | NORI 40 FSL/FSS    | <b>BOACHEM-FSA</b> |                        | 5                   | ECOLINE FYF 800 |                               | m          |           | BOAX-S/SF Gaz |          | BOAX-B APSAD | BOAX-B DVGW |           |            | 6            | ь            | _                  | т        |   |                                |               |            | _ ;           | =           |                                |                |             |             |   |                    |                          |               |                |   |
|                                       |                     |          | SL                 | ÷                  |                        | ž                   | ž               |                               | Ξ          | ш         | Ĕ             |          | S            | ž           | Σ         | az         | Ξ            | 2            | ∍                  | 5        |   |                                |               | 20         | Ē             |             |                                | 50             | 8           | 8           |   |                    |                          |               |                |   |
|                                       |                     |          | Ē                  | R                  |                        | i iii               | Ē               |                               | í<br>Í     | S/S       | S/S           | ~        | 4            | 2           | Ē         | 5          | 9            | 20           | 20                 | õ        |   |                                | -             | 5          | 2             |             |                                | 5              | ŝ           | 9           |   | ∢                  |                          |               |                |   |
|                                       |                     | Ś        | 4                  | £                  |                        | Ę                   | Ę               |                               | BOAX-CBV13 | BOAX-S/SF | ×             | BOAX-B   | ž            | ž           | BOAX-B FM | BOAX-B Gaz | ISORIA 10/16 | ISORIA 20/25 | SORIA 20 UL        | MAMMOUTH |   |                                | "SIS          | DANAÏS 150 | DANAÏS MTII   | DANAIS TBTI |                                | TRIODIS 150    | TRIODIS 300 | TRIODIS 600 |   | CLOSSIA            |                          | E             |                |   |
|                                       |                     | BOA-S    | R                  | Ā                  |                        | ō                   | ō               |                               | A          | A         | A             | A        | A            | A           | A         | A          | Я            | К            | ĸ                  | ₹        |   |                                | ō             | Z.         | Z             | z           |                                | <u>0</u>       | 0           | 0           |   | õ                  |                          | ₹             |                |   |
|                                       |                     | B        | ž                  | B                  |                        | Ш                   | Ш               |                               | B          | B         | B             | B        | B            | B           | B         | B          | <u>s</u>     | <u>s</u>     | <u>IS</u>          | Σ        | Ψ |                                | APORIS        | 2          | 2             | à           |                                | Ĕ              | Ë           | Η           |   | ป                  |                          | DUALIS        |                |   |
| Spray irrigation                      | -                   |          |                    |                    |                        |                     |                 | S                             |            |           | 1             |          |              |             | 1         | 1          |              | 1            |                    |          |   |                                |               |            |               |             | S                              |                |             |             | S   |                    | _                        |               |                | _ |
|                                       | l<br>E              |          |                    |                    | Σ                      |                     | -               | N                             |            | -         | -             | -        | -            | -           | -         | -          |              | -            |                    | _        |   | Ne la                          |               |            | -             | _           | valves                         |                |             |             | 6   |                    | valves                   |               | +              |   |
| Mining                                | Z                   | -        |                    |                    | AS                     |                     |                 | va                            | _          |           |               |          | -            |             | -         |            |              |              |                    | _        |   | Va                             | -             |            | -             | _           | va                             |                |             |             | ati                                       | $\vdash$           | va                       |               | $\rightarrow$  |   |
| Irrigation                            |                     |          |                    |                    | <b>I</b> SI,           |                     |                 | fl                            |            |           |               |          |              |             |           |            |              |              |                    |          |   | Ę                              |               |            |               |             | Ę                              |                |             |             | ie  |                    | 풍                        |               | $\rightarrow$  |   |
| Chemical industry                     | Strainers to DIN/EN |          |                    |                    | Strainers to ANSI/ASME |                     |                 | Centred-disc butterfly valves |            |           |               |          |              |             |           |            |              |              |                    |          |   | Double-offset butterfly valves |               |            |               |             | <b>Triple-offset butterfly</b> |                |             |             | ap A                                      |                    | Combined butterfly/check |               |                |   |
| Pressure boosting                     | hel                 |          |                    |                    | 5                      |                     |                 | H                             |            |           |               |          |              |             |           |            |              |              |                    |          |   | E                              |               |            |               |             | E                              |                |             |             | ar  |                    | X                        |               |                |   |
| Disposal                              | aii                 |          |                    |                    | ers                    |                     |                 | a<br>u                        |            |           |               | 1        |              |             | 1         |            |              | 1            |                    | _        | _ | t p                            |               |            |               |             | t<br>b                         |                |             |             | ie i                                      |                    | F                        |               | -              |   |
| Drainage                              | 2                   |          |                    |                    | in.                    |                     |                 | dis                           | -          |           | -             | 1        | -            |             | 1         | 1          | -            | -            |                    | _        | _ | fse                            |               |            |               |             | fse                            |                | -           |             | ž   |                    | ŧ                        |               | +              |   |
|                                       |                     | -        |                    |                    | tra                    |                     | -               | -b                            | <u> </u>   | <u> </u>  | -             |          |              | -           | -         | -          |              | -            | $\left  - \right $ | _        | _ | ę                              |               |            |               | -           | -of                            |                |             |             | - Z                                       | $\left  - \right $ | ā                        | -+            | +              |   |
| Descaling units                       |                     |          | -                  |                    | S                      |                     |                 | itre                          |            |           |               |          |              |             |           | -          |              |              |                    |          |   | -e                             |               |            |               |             | -e                             |                |             |             | s fo                                      |                    | ed                       |               | _              |   |
| District heating                      |                     |          |                    |                    |                        |                     |                 | le l                          |            |           |               |          |              |             |           |            |              |              |                    |          |   | <sup>d</sup>                   |               |            |               |             |                                |                |             |             | Š   |                    | oin                      |               |                |   |
| Solids Transport                      |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   | ă                              |               |            |               |             |                                |                |             |             | val                                       |                    | E                        |               |                |   |
| Fire-fighting systems                 | 1                   |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    | _        |   |                                |               |            |               |             | ĺ                              |                |             |             | $\leq$                                    |                    | ΰ                        |               | -              |   |
| Gas pipelines                         |                     |          | $\vdash$           |                    |                        | -                   | -               |                               | -          | -         |               | 1        | -            | -           |           |            | -            | 1            |                    |          | - |                                | $\rightarrow$ |            | +             | -           |                                | $\neg$         | -           |             | Butterfly valves for nuclear applications | $ \neg $           |                          | +             | +              |   |
|                                       | -                   |          |                    |                    |                        | -                   | -               |                               | <u> </u>   | -         | -             | -        | -            | -           | -         | -          | -            | -            |                    | _        |   |                                |               |            | _             | _           |                                |                | _           | _           | Ŧ   |                    |                          | $\rightarrow$ | $\rightarrow$  |   |
| Gas storage facilities                |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             | Ц           | ā   |                    |                          |               | $\rightarrow$  |   |
| Maintaining groundwater levels        |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Domestic water supply                 |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| HVAC systems                          | 1                   |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             | ĺ                              |                |             |             |   | $\square$          | Ì                        |               |                |   |
| Homogenisation                        |                     |          |                    |                    |                        |                     |                 |                               |            |           |               | 1        |              |             |           |            |              | 1            |                    | _        | - |                                | -             |            |               |             |                                |                |             | _           |   |                    |                          |               | +              |   |
|                                       |                     | -        |                    |                    |                        |                     | -               |                               | <u> </u>   | <u> </u>  | -             |          |              | -           | -         | -          |              | -            | $\left  - \right $ |          |   |                                |               | -          | _             | -           |                                |                |             | _           |   | $\left  - \right $ |                          |               | +              |   |
| Industrial recirculation systems      | -                   | -        |                    |                    |                        |                     | <u> </u>        |                               | <u> </u>   |           |               | -        | -            | _           | _         | <u> </u>   |              | <u> </u>     |                    | _        |   |                                | -             |            |               | _           |                                |                |             |             |   | $\left  - \right $ |                          | $\rightarrow$ | $\rightarrow$  |   |
| Nuclear power stations                |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             | ļ                              |                |             |             |   |                    |                          |               |                |   |
| Boiler feed applications              |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Boiler recirculation                  | 1                   |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             | ĺ                              |                |             |             |   |                    | ĺ                        |               |                |   |
| Waste water treatment plants          | 1                   |          |                    |                    |                        |                     |                 |                               |            |           |               |          | 1            | 1           | 1         | 1          |              | 1            |                    |          |   |                                |               |            |               |             | ľ                              |                |             |             |   |                    | Ì                        | T.            | +              |   |
| Air-conditioning systems              |                     | -        |                    |                    |                        |                     | -               |                               |            |           | -             |          | -            |             | -         | -          | -            |              |                    | _        | - |                                |               |            |               | -           |                                |                |             |             |   | $\vdash$           | ł                        | -             | +              |   |
|                                       | -                   | -        |                    |                    |                        |                     |                 |                               | -          |           |               |          | -            |             |           | -          | -            | -            |                    | _        |   |                                |               | -          | -             | _           |                                |                |             | _           |   | $\vdash$           |                          | _             | $\rightarrow$  |   |
| Condensate transport                  | -                   |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               | $ \rightarrow$ |   |
| Fossil-fuelled power stations         |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Cooling circuits                      |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             | ĺ                              |                |             |             |   |                    |                          |               |                |   |
| Paint shops                           | 1                   |          |                    |                    |                        |                     |                 |                               |            |           |               |          | 1            |             | 1         | 1          |              | 1            |                    |          |   |                                | -             |            |               |             | ľ                              |                |             |             |   |                    | ľ                        |               | +              |   |
| Food and beverages industries         |                     | -        |                    |                    |                        |                     | -               |                               | <u> </u>   | -         | -             | -        | -            | -           | -         | -          |              | -            | $\left  \right $   | _        | - |                                |               |            |               | -           |                                | $ \rightarrow$ |             |             |   | $\vdash$           |                          |               | +              |   |
|                                       |                     |          |                    | -                  |                        | <u> </u>            |                 |                               |            |           |               |          | -            | _           | -         | -          |              | _            |                    | _        | _ |                                | _             | -          |               | _           |                                |                |             |             |   | $\left  - \right $ |                          |               | $\rightarrow$  |   |
| Seawater desalination/reverse osmosis |                     |          |                    |                    |                        |                     |                 |                               |            |           |               | <u> </u> |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               | $\rightarrow$  |   |
| Mixing                                |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Paper and pulp industry               | -                   |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                | _ |
| Petrochemical industry                |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          | 1            |             | 1         |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               | $\neg$         | _ |
|                                       |                     | -        | -                  | -                  |                        | F                   | -               |                               | <u> </u>   | -         | -             | -        | -            | -           | ┢         | -          | -            | -            |                    | _        |   |                                | -+            | -          | -             | -           |                                | -              | -           | -           |   | $\vdash$           |                          | $\rightarrow$ | +              |   |
| Pharmaceutical industry               |                     | -        |                    |                    |                        |                     |                 |                               |            |           |               | -        |              | <u> </u>    | -         | -          |              |              |                    | _        | - |                                | -             |            |               |             |                                |                |             | _           |   | $\vdash$           | -                        | _             | $\rightarrow$  |   |
| Pipelines and tank farms              |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Refineries                            |                     |          |                    |                    |                        |                     |                 |                               | L          |           |               |          |              |             | L         |            | L            |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Flue gas desulphurisation             |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               | 1           |                                |                |             |             |   |                    |                          |               |                |   |
| Rainwater harvesting                  |                     |          |                    |                    |                        |                     |                 |                               | -          |           |               |          |              |             |           |            |              |              |                    | _        | _ |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               | -              | _ |
| Recirculation                         |                     |          |                    |                    |                        |                     | -               |                               | <u> </u>   | -         | -             | -        | -            | -           | -         | -          | -            | -            |                    | _        | - |                                |               |            |               | -           |                                | $\neg$         |             |             |   |                    |                          |               | +              |   |
|                                       |                     | -        |                    |                    |                        | -                   | -               |                               | <u> </u>   | -         | -             | -        | -            | -           | -         | -          | -            | -            | $\left  - \right $ | _        |   |                                | _             | _          | $\rightarrow$ |             |                                |                |             |             |   |                    |                          | $\rightarrow$ | $\rightarrow$  |   |
| Shipbuilding                          |                     |          |                    |                    |                        | <u> </u>            |                 |                               | <u> </u>   |           |               | _        | _            |             | _         | _          |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               | $\square$      |   |
| Sludge disposal                       |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Sludge processing                     |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Snow-making systems                   |                     |          |                    |                    |                        |                     |                 |                               |            |           | 1             | 1        |              | 1           | 1         | 1          | 1            | 1            |                    |          |   |                                |               |            | $\uparrow$    |             |                                |                |             |             |   |                    |                          | 1             | +              |   |
| Swimming pools                        |                     | -        |                    |                    |                        |                     | -               |                               | -          |           | -             |          | -            |             | 1         | 1          | 1            | -            |                    | _        |   |                                | $\rightarrow$ |            | +             | -           |                                | $\neg$         | _           |             |   | $\square$          |                          | +             | +              |   |
|                                       |                     |          | $\left  - \right $ |                    |                        | -                   | -               |                               | <u> </u>   |           |               | -        | -            |             | -         | -          | -            | -            | $\left  - \right $ | _        | - |                                | $\rightarrow$ |            | +             | _           |                                |                |             |             |   | $\vdash$           |                          | +             | +              |   |
| Keeping in suspension                 |                     | <u> </u> |                    |                    |                        | <u> </u>            | <u> </u>        |                               | <u> </u>   | <u> </u>  | -             | -        | _            | _           | -         | -          | -            | -            |                    |          |   |                                |               |            | _             |             |                                |                |             |             |   |                    |                          | -+            | $\rightarrow$  |   |
| Thermal oil circulation               |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Process engineering                   |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              | 1                  |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Heat recovery systems                 |                     |          |                    |                    |                        |                     |                 |                               |            |           |               | 1        |              |             |           |            |              |              |                    |          |   |                                |               | Ì          |               |             |                                |                |             |             |   |                    |                          |               | $\neg$         |   |
| Hot-water heating systems             |                     | -        |                    |                    |                        | <u> </u>            | 1               |                               | <u> </u>   |           | 1             |          | 1            |             | 1         | 1          | 1            | 1            |                    | _        | - |                                | $\neg$        |            |               |             |                                |                | Π           |             |   | $\square$          |                          | $\neg$        | +              |   |
|                                       |                     |          | $\vdash$           |                    |                        | -                   | -               |                               |            | -         | -             |          | -            | <u> </u>    | -         | -          |              |              | $\left  - \right $ | _        | _ |                                | $\rightarrow$ | -          | -             | _           |                                | -              | -           |             |   | $\vdash$           |                          | +             | +              |   |
| Washing plants                        |                     |          | $\mid \mid \mid$   |                    |                        |                     | -               |                               | -          |           |               |          | -            |             | -         |            |              |              | $\mid \mid$        | _        |   |                                | _             |            | -+            | _           |                                |                |             |             |   |                    |                          | $\rightarrow$ | $\rightarrow$  |   |
| Water treatment                       |                     |          |                    |                    |                        | <u> </u>            |                 |                               |            |           | <u> </u>      |          |              |             | 1         | _          |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               | $ \downarrow$  |   |
| Water extraction                      |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               |                |   |
| Water supply                          |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             |           |            |              |              |                    |          |   |                                |               |            | T             |             |                                |                |             |             |   |                    |                          |               | T              |   |
| Sugar industry                        |                     |          |                    |                    |                        |                     |                 |                               |            |           |               | 1        |              |             | 1         |            |              |              |                    |          |   |                                |               |            |               |             |                                |                |             |             |   |                    |                          |               | $\neg$         |   |
|                                       |                     |          |                    |                    |                        |                     |                 |                               |            |           |               |          |              |             | 1         |            |              |              |                    |          | - |                                |               | -          |               |             |                                |                |             |             |   |                    |                          |               |                | — |

| pheatens   |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             |                     |          |            |   |            |               |               |             |                |                     |                    |          |   |
|--|-------------------|-------------|------------|------------------------------|---------------------|-------------|-------------------------|------------------|---------------|--------------|---------------|------------------|-------------|-------------|--------------|--|----------|-----------|----------|-----------|----------|-----------|-------------|---------------------|----------|------------|---|------------|---------------|---------------|-------------|----------------|---------------------|--------------------|----------|---|
|  |                   | MP-CI/MP-II | PROFIN-VT1 |                              | ECOLINE BLT 150-300 | PROFIN-VT2L |                         | ECOLINE BLC 1000 | PROFIN-SI3FIT | PROFIN-SI3IT | PROFIN-SI3LIT | PROFIN-VT3       | PROFIN-VT3L | PROFIN-VT3F | PROFIN-VT33L |  | SISTO-KB | SISTO-KBS | SISTO-10 | SISTO-10M | SISTO-16 | SISTO-16S | SISTO-16RGA | SISTO-16TWA/HWA/DLU | SISTO-20 | SISTO-C    |   | SISTO-20NA | SISTO-DrainNA |               | ZJSVM/RJSVM |                | ECOLINE GE1/GE2/GE3 | ECOLINE GE4        |          |   |
|  |                   | ΜΡ          | PRO        |                              | С<br>Ш              | PRO         |                         | С<br>Ш           | PRO           | PRO          | PRO           | PRO              | PRO         | PRO         | PRO          |  | SIST     | SIST      | SIST     | SIST      | SIST     | SIST      | SIST        | SIST                | SIST     | SIST       |   | SIST       | SIST          |               | /SLZ        |                | С<br>Ш              | ВСO                |          |   |
| Spray irrigation   | es                |             |            | SS                           |                     |             | SS                      |                  |               |              |               |                  |             |             |              | z                                      |          |           |          |           |          |           |             |                     |          |            | SC  |            | <u> </u>      | SS            |             | ts             | -                   |                    |          | Т |
| Mining   | valves            |             |            | <b>Fwo-piece ball valves</b> |                     |             | Three-piece ball valves |                  |               |              |               |                  |             |             |              | Soft-seated diaphragm valves to DIN/EN |          |           |          |           |          |           |             |                     |          |            | Diaphragm valves for nuclear applications |            |               | bypass valves |             | joints         |                     |                    |          | T |
| Irrigation   |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             |                     |          |            | lica                                      |            |               | SS V          |             | onj            |                     |                    |          | Ι |
| Chemical industry  | Single-piece ball |             |            | e p;                         |                     |             | e bi                    |                  |               |              |               |                  |             |             |              | es to                                  |          |           |          |           |          |           |             |                     |          |            | app                                       |            |               | ypa           |             | anti-vibration |                     |                    |          |   |
| Pressure boosting  | iec               |             |            | iec                          |                     |             | iec                     |                  |               |              |               |                  |             |             |              | alve                                   |          |           |          |           |          |           |             |                     |          |            | ar  |            |               | r b           |             | vibi           |                     |                    |          |   |
| Disposal   | e-p               |             |            | d-0                          |                     |             | d-b                     |                  |               |              |               |                  |             |             |              | 2                                      |          | _         |          |           |          |           |             |                     |          |            | rcle                                      |            |               | water         |             | it:            |                     |                    |          |   |
| Drainage   | ngl               |             |            | ⊨≧                           |                     |             | hre                     |                  |               |              |               |                  |             |             |              | agr                                    |          |           |          |           |          |           |             |                     |          |            | r n                                       |            |               | ک<br>ح        |             | d a            |                     |                    |          |   |
| Descaling units  | S                 |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              | phr                                    |          |           |          |           |          |           |             |                     |          |            | s fo                                      |            |               | Feed          |             | and            |                     |                    | $\vdash$ | ┛ |
| District heating   |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              | dia                                    |          |           |          |           |          |           |             |                     |          |            | Ke  |            | $\vdash$      |               |             | Expansion      |                     |                    | $\vdash$ | 4 |
| Solids transport   |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              | ed                                     |          |           |          |           |          |           |             |                     |          |            | l Va                                      |            | $\vdash$      |               |             | ans            |                     |                    | $\vdash$ | ╡ |
| Fire-fighting systems  |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              | eat                                    |          |           |          |           |          |           |             |                     |          |            | gm  |            |               |               |             | dx             |                     |                    |          | _ |
| Gas pipelines  |                   |             | _          | _                            |                     |             |                         |                  |               |              |               |                  |             |             |              | ft-s                                   |          | _         |          |           |          |           |             |                     |          |            | hra                                       |            | ⊢             |               |             |                |                     |                    | <u> </u> | 4 |
| Gas storage facilities   |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              | S                                      |          | _         |          |           |          |           |             |                     |          |            | iap                                       |            | L             |               |             |                |                     |                    | <u> </u> | 4 |
| Maintaining groundwater levels   |                   |             |            |                              |                     | <u> </u>    |                         |                  |               |              |               |                  |             |             |              |  |          | _         |          |           |          |           |             |                     |          |            |   |            | <u> </u>      |               |             |                |                     |                    | <u> </u> | 4 |
| Domestic water supply  |                   | _           |            | -                            | _                   |             |                         |                  |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             |                     |          |            |   |            | <u> </u>      |               |             |                |                     |                    | ⊨        | _ |
| HVAC systems   |                   |             |            |                              | L                   |             |                         | <u> </u>         |               |              |               |                  |             |             |              |  |          | _         |          |           |          |           |             |                     |          |            |   |            | ⊢             |               |             |                |                     | $\square$          | <u> </u> | 4 |
| Homogenisation   |                   |             |            |                              |                     |             |                         |                  | <u> </u>      |              |               |                  |             |             |              |  |          |           |          |           |          |           |             |                     |          |            |   |            | <u> </u>      |               |             |                |                     | $\square$          | <u> </u> | 4 |
| Industrial recirculation systems                                       |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              |  |          | _         |          |           |          |           |             |                     |          |            |   |            | <u> </u>      |               |             |                |                     | $\square$          | <u> </u> | 4 |
| Nuclear power stations   |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             |                     |          |            |   |            |               |               |             |                |                     |                    | <u> </u> | 4 |
| Boiler feed applications   |                   |             |            | -                            | _                   | -           |                         |                  |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             |                     |          |            |   |            | $\vdash$      |               |             |                |                     | $\square$          | $\vdash$ | 4 |
| Boiler recirculation   |                   | <u> </u>    | -          | -                            | -                   | -           |                         | <u> </u>         |               |              |               |                  |             |             | _            |  | _        | _         | _        |           |          | <u> </u>  | <u> </u>    | <u> </u>            |          | -          |   | <u> </u>   | _             |               |             |                |                     |                    | _        | + |
| Sewage treatment plants  |                   |             | <u> </u>   | -                            | -                   | _           |                         | <u> </u>         |               |              |               |                  | _           | _           | _            |  |          | _         |          |           |          |           |             |                     |          | -          |   | <u> </u>   | _             |               |             |                |                     |                    | _        | + |
| Air-conditioning systems   |                   | -           |            | -                            | <u> </u>            |             |                         | -                |               |              |               |                  | _           |             | -            |  | _        | _         | _        |           | -        | -         |             |                     | -        | _          |   | _          | —             |               | $\square$   |                |                     |                    | ┣—       | ┽ |
| Condensate transport   |                   | _           | -          | -                            | -                   | -           |                         | -                |               |              |               |                  | _           |             | _            |  |          |           | _        |           |          |           | <u> </u>    | -                   |          |            |   | -          | ⊢             | •             | Ŀ           |                | <u> </u>            | $\left  - \right $ | ⊢        | + |
| Fossil-fuelled power stations  |                   |             | -          | -                            |                     | -           |                         |                  | _             |              | _             |                  | _           | _           | _            |  |          | _         | _        |           |          |           | _           | _                   |          | -          |   | <u> </u>   | ┢             |               |             |                | Ŀ                   |                    | ├        | + |
| Cooling circuits   |                   | -           |            | -                            | <u> </u>            |             |                         | <u> </u>         |               |              | -             |                  |             |             |              |  | _        |           | _        |           |          | -         |             |                     |          | -          |   | <u> </u>   |               | -             |             |                | -                   |                    | ┣─       | + |
| Paint shops  |                   | -           |            | -                            |                     |             |                         |                  |               |              |               |                  |             |             |              |  | -        | -         |          |           |          |           |             | -                   |          |            |   | -          |               |               | $\square$   |                |                     |                    | ├        | + |
| Food and beverages industries<br>Seawater desalination/reverse osmosis |                   | -           | -          | -                            |                     | -           |                         | -                |               |              |               |                  | _           |             | _            |  | _        | _         |          |           |          |           |             | -                   |          | -          |   | -          | ┢             | -             | $\square$   |                | -                   |                    | ├        | ┽ |
|  |                   |             | -          |                              | -                   | -           |                         | -                |               |              |               |                  | _           |             | _            |  |          | _         | _        |           |          |           |             | -                   |          |            |   | -          | ┢             |               | $\square$   |                |                     | $\left  - \right $ | ├        | ┽ |
| Mixing<br>Paper and pulp industry                                      |                   | -           |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             | -                   | -        | -          | -   | -          | ┢             | •             | $\square$   |                | <u> </u>            | $\left  - \right $ | ├        | ┽ |
| Petrochemical industry   |                   | -           |            |                              |                     |             |                         | H                |               |              | -             |                  | -           |             | -            |  |          | -         | =        |           | -        | H         | <u> </u>    | -                   | -        | -          |   | -          | ⊢             |               | $\vdash$    |                | -                   | $\left  - \right $ | ⊢        | + |
| Petrochemical industry<br>Pharmaceutical industry                      |                   | -           |            |                              | E                   | -           |                         | H                | -             |              |               | -                | _           |             | _            |  |          | -         |          |           |          |           | -           | -                   |          |            |   | -          | -             |               | $\vdash$    |                | -                   | $\left  - \right $ | $\vdash$ | + |
| Pipelines and tank farms   |                   | -           |            | -                            |                     |             |                         | H                |               |              |               |                  |             |             |              |  |          | _         |          |           |          | <u> </u>  | <u> </u>    | -                   |          |            |   | -          | ┢             |               | $\square$   |                | -                   | $\left  - \right $ | ⊢        | + |
| Pipelines and tank tarms<br>Refineries                                 |                   | -           | ┦┛         |                              |                     |             |                         |                  |               |              |               |                  | -           |             |              |  |          |           |          | $\vdash$  |          |           | <u> </u>    | -                   |          | -          |   | -          |               |               | $\vdash$    |                |                     | $\left  - \right $ | -        | + |
| Flue gas desulphurisation  |                   | -           | -          |                              |                     | -           |                         | -                | -             | $\vdash$     |               | $\vdash$         | _           |             | _            |  |          |           |          |           |          |           | -           | -                   |          |            |   | -          | -             |               | $\vdash$    |                |                     | $\left  - \right $ | 1        | ╉ |
| Rainwater harvesting   |                   |             |            |                              |                     |             |                         | -                |               |              |               |                  |             |             |              |  | -        | -         |          |           | -        |           |             |                     |          | -          |   |            | -             |               | $\square$   |                |                     | $\left  - \right $ | -        | + |
| Recirculation  |                   |             |            |                              | -                   | -           |                         | -                | -             | -            | -             |                  | -           | -           | -            |  |          | _         |          |           |          | -         | -           | -                   |          | -          |   | -          | -             |               | $\vdash$    |                | -                   | $\vdash$           | -        | + |
| Shipbuilding   |                   |             | $\vdash$   |                              | -                   | -           |                         | -                | -             |              |               | $\left  \right $ | _           |             | _            |  |          |           |          |           |          |           | -           |                     |          | -          |   | -          | +             |               | $\vdash$    |                |                     | $\vdash$           | $\vdash$ | + |
| Sludge disposal  |                   | -           | +          | -                            |                     | -           |                         | -                | -             |              |               |                  | _           |             |              |  |          | Ξ         | -        | -         | -        | -         | <u> </u>    | -                   | -        | -          |   | -          | -             |               | $\vdash$    |                |                     | $\vdash$           | -        | + |
| Sludge disposal  |                   |             | $\vdash$   |                              |                     | -           |                         | -                |               |              |               |                  | -           |             | $\neg$       |  |          |           |          |           | -        | -         | -           | -                   | -        | -          |   |            | -             |               | $\vdash$    |                | -                   |                    | -        | + |
| Snow-making systems  |                   |             |            |                              |                     |             |                         | -                |               |              | Π             |                  |             |             |              |  | -        | -         |          |           |          | -         | -           | -                   | -        | 1          |   |            | 1             |               | $\vdash$    |                | -                   |                    | -        | ╉ |
| Swimming pools   |                   |             | Ē          |                              |                     |             |                         |                  |               |              | Ħ             |                  | -           | _           | Ē            |  |          | -         |          |           | -        |           |             |                     | -        | -          |   |            | -             |               | $\vdash$    |                |                     |                    | -        | + |
| Keeping in suspension  |                   | -           | -          |                              |                     |             |                         |                  | -             | -            | -             | -                | -           | -           | -            |  |          |           |          |           |          | -         | -           | -                   | -        | -          |   |            | -             |               | $\vdash$    |                |                     |                    | -        | + |
| Thermal oil circulation  |                   |             | +          |                              |                     | -           |                         |                  |               |              |               |                  |             |             |              |  | -        | -         |          |           |          | -         |             | -                   |          | -          |   |            | -             |               | $\vdash$    |                |                     |                    | -        | ╉ |
| Process engineering  |                   |             |            |                              | Ē                   |             |                         |                  |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             |                     |          |            |   |            | 1             |               | $\vdash$    |                |                     |                    | -        | + |
| Heat recovery systems  |                   |             | Ē          |                              | F                   | -           |                         |                  | <u> </u>      | -            | _             |                  | -           |             | -            |  | _        | _         |          |           | -        | -         |             |                     | -        | <b>–</b>   |   |            | 1             |               | $\vdash$    |                |                     |                    | -        | ┥ |
| Hot-water heating systems  |                   |             | 1          |                              | F                   | 1           |                         |                  |               |              |               |                  |             |             |              |  |          | -         |          |           |          | -         |             |                     | 1        | -          |   |            | 1             |               | $\vdash$    |                |                     |                    | <u> </u> | + |
| Washing plants   |                   |             |            |                              |                     |             |                         | -                |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             | -                   | -        | 1          |   |            | 1             |               |             |                | Ē                   |                    | <u> </u> | + |
| Water treatment  |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  | _           |             |              |  |          |           |          |           |          |           |             | 1                   |          |            |   |            |               |               |             |                |                     | $\square$          |          | † |
|  |                   |             | <u> </u>   |                              |                     | <u> </u>    |                         |                  |               |              | -             |                  | ·           |             |              |  |          | ·         |          |           | Ē        | Ē         |             | 1                   | <u> </u> | $\uparrow$ |   |            |               |               |             |                |                     | $\square$          |          | + |
| Water extraction   |                   |             |            | -                            | <u> </u>            |             |                         |                  | -             |              | -             |                  | -           |             | _            |  |          | -         |          |           |          | 1         |             |                     | -        | 1          |   |            |               |               |             |                |                     | $\vdash$           | <u> </u> | + |
| Water extraction<br>Water supply                                       |                   |             |            |                              |                     |             |                         |                  |               |              |               |                  |             |             |              |  |          |           |          |           |          |           |             |                     |          |            |   |            |               |               | 1           |                |                     | Į I                | Į.       | 1 |

### Soft-seated globe valves to DIN/EN

### **BOA-SuperCompact**

|        | DN 20 - | <ul> <li>Description:</li> <li>Globe valve to DIN/EN with wafer-type body, super-compact DN face-to-face</li> <li>length to EN 558/94, slanted seat, bonnetless; with flange alignment holes for</li> <li>condensation feature as standard, position indicator, locking device, travel stop, soft main and back seat; maintenance-free, full insulation possible.</li> <li>Applications:</li> <li>Hot-water heating systems up to 120 °C. Air-conditioning systems. Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and cast iron. Other fluids on request.</li> </ul> |
|--------|---------|---|
| 🛑 e, m |         | http://shop.ksb.com/catalog/k0/en/product/ES000312  |

### **BOA-Compact**

|        | PN 6/1<br>DN 15 - 20<br>T <sub>min.</sub> [°C] ≥ -1<br>T <sub>max.</sub> [°C] ≤ +12 | Globe valve to DIN/EN with flanged ends, short face-to-face length to EN 558/14,<br>slanted seat, bonnetless, EPDM-encapsulated throttling plug, soft main and back |  |
|--------|---|---|--|
| 🛑 e, m |   | http://shop.ksb.com/catalog/k0/en/product/ES000310  |  |

### **BOA-Compact EKB**

|      | <ul> <li>seat, bonnetless, EPDM-encapsulated throttling plug, position indicator, locking device, travel stop, soft main and back seat; maintenance-free (PN 10 DVGW-approved).</li> <li>Applications:         Water supply systems, drinking water, air-conditioning systems. Cooling circuits. Suitable for installation in copper pipes as per installation instructions (operating manual). Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and the electrostatic plastic coating. Other fluids on request.     </li> </ul> |  |
|------|--|--|
| e, m | http://shop.ksb.com/catalog/k0/en/product/ES000311   |  |

#### **BOA-W**

|        | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 200 | Description:<br>Globe valve to DIN/EN with flanged ends, standard face-to-face length to EN 558/1,<br>slanted seat, bonnetless, EPDM-encapsulated throttling plug, soft main and back<br>seat, position indicator, locking device, travel stop, insulating cap with anti-<br>condensation feature; maintenance-free, full insulation possible.<br>Applications:<br>Hot-water heating systems up to 120 °C. Air-conditioning systems. Not suitable for<br>fluids containing mineral oils, steam or fluids liable to attack EPDM and cast iron.<br>Other fluids on request. |  |
|--------|--|----------|---|--|
| 🛑 e, m |  |          | http://shop.ksb.com/catalog/k0/en/product/ES000309  |  |

### Bellows-type globe valves to DIN/EN

#### **BOA-H**

|   | valva dasian yan lasa ala valva dissu ballavus nyatastad vuban valva is in fully anan |  |
|---|---|--|
| m | http://shop.ksb.com/catalog/k0/en/product/ES000328                                    |  |

#### **BOA-H/HE/HV/HEV**

|           | $\begin{array}{llllllllllllllllllllllllllllllllllll$ | Bellows-type globe valve to DIN/EN with flanged, butt weld or socket weld ends, with shut-off valve disc or throttling plug, seat/disc interface made of wear and corrected or solvemen picture to the solution of the solutio |
|-----------|--|--|
| 📕 e, m, p |  | http://shop.ksb.com/catalog/k0/en/product/ES000329   |

### NORI 40 ZXLBV/ZXSBV

| ĀĪ | DN 10 - 200 | Description:<br>Bellows-type globe valve to DIN/EN with flanged, butt weld or socket weld ends,<br>tapered shut-off valve disc or throttling plug, two-piece stem, integrated position<br>indicator, seat/disc interface made of wear and corrosion resistant chrome steel or<br>chrome nickel steel.<br>Applications:<br>In industrial plants, power stations, process engineering and shipbuilding. For<br>water and steam. Other non-aggressive fluids such as gas or oil on request. |
|----|-------------|--|
| m  |             | http://shop.ksb.com/catalog/k0/en/product/ES000334   |

### NORI 40 ZXLB/ZXSB

| ā.      | DN 10 - 200 | Description:<br>Bellows-type globe valve to DIN/EN with flanged, butt weld or socket weld ends,<br>tapered shut-off valve disc or throttling plug, two-piece stem, integrated position<br>indicator, seat/disc interface made of wear and corrosion resistant chrome steel or<br>chrome nickel steel.<br>Applications:<br>In industrial plants, power stations, process engineering and shipbuilding. For<br>water and steam. Other non-aggressive fluids such as gas or oil on request. |
|---------|-------------|--|
| e, m, p |             | http://shop.ksb.com/catalog/k0/en/product/ES000332   |

### NORI 40 ZYLB/ZYSB

|   | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 300 | Description:<br>Bellows-type globe valve to DIN/EN with flanged or butt weld ends, Y-valve,<br>replaceable throttling plug (up to DN 100) or shut-off valve disc (DN 125 and<br>above), single-piece non-rotating stem, position indicator, travel stop, locking<br>device; seat/disc interface made of wear and corrosion resistant chrome steel or<br>chrome nickel steel.<br>Applications:<br>In heat transfer systems, industrial plants, building services and shipbuilding. For<br>thermal oils, water, steam, gas and other non-aggressive fluids. Other fluids on<br>request. |  |
|---|--|----------|---|--|
| m |  |          | http://shop.ksb.com/catalog/k0/en/product/ES000521  |  |

### **BOACHEM-ZXAB**

|           | DN 15 - 4<br>Twin [°C] ≥ | <ul> <li>Description:</li> <li>Bellows-type globe valve to DIN/EN with flanged ends, body made of stainless steel, with replaceable on/off disc or throttling plug.</li> <li>Applications:</li> <li>Process engineering, industry, building services, food and beverages industries, for aggressive fluids. Other fluids on request.</li> </ul> |
|-----------|--------------------------|---|
| 📕 e, m, p |                          | http://shop.ksb.com/catalog/k0/en/product/ES000337  |

### Bellows-type globe valves to ANSI/ASME

#### ECOLINE GLB 150-600

|        | NPS [inch] 2 - 1 | <ul> <li>Description:</li> <li>Globe valve to ANSI/ASME with flanged ends, cast steel/stainless steel body, trim<br/>and bellows made of stainless steel, with bolted bonnet, outside screw and yoke,<br/>sealed by graphite gland packing and metal bellows, stainless steel/graphite<br/>gaskets.</li> <li>Applications:<br/>Petrochemical plants, chemical plants, power stations, process engineering and<br/>general industry; for thermal oil, steam, toxic and volatile fluids. Other<br/>applications on request.</li> </ul> |
|--------|------------------|--|
| 🛑 e, m |                  | http://shop.ksb.com/catalog/k0/en/product/ES000901   |

### **ECOLINE GLB 800**

| Ĩ    | NPS [inch]<br>T <sub>min.</sub> [°C] | <sup>1</sup> ⁄ <sub>2</sub> - 2<br>≥ 0<br>≤ +427 | Description:<br>Globe valve to ANSI/ASME, with threaded sockets (NPT) or socket weld ends (SW),<br>forged steel/stainless steel body, trim and bellows made of stainless steel, outside<br>screw and yoke, sealed by graphite gland packing and metal bellows, stainless<br>steel/graphite gaskets.<br>Applications:<br>Petrochemical plants, chemical plants, power stations, process engineering and<br>general industry; for thermal oil, steam, toxic and volatile fluids. Other<br>applications on request. |  |
|------|--------------------------------------|--|--|--|
| e, m |                                      |  | http://shop.ksb.com/catalog/k0/en/product/ES000902   |  |

### Globe valves to DIN/EN with gland packing

### NORI 40 ZXL/ZXS

| ĀĪ | T <sub>min.</sub> [°C] | 10 - 400 | <b>Description:</b><br>Globe valve to DIN/EN with flanged, butt weld or socket weld ends, with gland<br>packing, with shut-off valve disc or throttling plug, rotating stem, seat/disc<br>interface made of wear and corrosion resistant chrome steel or chrome nickel<br>steel.<br><b>Applications:</b><br>In industrial plants, power stations, process engineering and shipbuilding. For<br>water and steam. Other non-aggressive fluids such as gas or oil on request. |  |
|----|------------------------|----------|--|--|
| m  |                        |          | http://shop.ksb.com/catalog/k0/en/product/ES000339   |  |

#### NORI 40 ZXLF/ZXSF

|           | DN 10 200 | Description:<br>Globe valve to DIN/EN with flanged, butt weld or socket weld ends, with gland<br>packing, with shut-off valve disc or throttling plug, non-rotating stem, integrated<br>position indicator, seat/disc interface made of wear and corrosion resistant chrome<br>steel or chrome nickel steel.<br>Applications:<br>In industrial plants, power stations, process engineering and shipbuilding. For<br>water and steam. Other non-aggressive fluids such as gas or oil on request. |
|-----------|-----------|---|
| 📕 e, m, p |           | http://shop.ksb.com/catalog/k0/en/product/ES000341  |

#### NORI 160 ZXL/ZXS

| ĀĪ | interface mode of wear and connection resistant 17.0/ shreens steel on Stallite |
|----|---|
| m  | http://shop.ksb.com/catalog/k0/en/product/ES000343                              |

### NORI 160 ZXLF/ZXSF

|       | DN 10 - 200 | Description:<br>Globe valve to DIN/EN with flanged, butt weld or socket weld ends, with gland<br>packing, with shut-off valve disc or throttling plug, non-rotating stem, integrated<br>position indicator, seat/disc interface made of wear and corrosion resistant<br>17 % chrome steel or Stellite.<br>Applications:<br>In industrial plants, power stations, process engineering and shipbuilding. For<br>water and steam. Other non-aggressive fluids such as gas or oil on request. |
|-------|-------------|---|
| e m n |             | http://shop.ksb.com/catalog/k0/en/product/ES000345  |

#### NORI 320 ZXSV

| HE        | DN | 10 - 50 | <b>Description:</b><br>Globe valve to DIN/EN with flanged, butt weld or socket weld ends, gland packing, throttling plug, non-rotating stem, bayonet-type body/yoke joint, integrated position indicator, seat/disc interface made of Stellite.<br><b>Applications:</b><br>In industrial plants, power stations, process engineering and shipbuilding. For water and steam. Other non-aggressive fluids such as gas or oil on request. |  |
|-----------|----|---------|--|--|
| 📕 e, m, p |    |         | http://shop.ksb.com/catalog/k0/en/product/ES000347   |  |

#### NORI 500 ZXSV

|         | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 10 - 65 | manifian indicator cont/disc interface mands of Stallite |  |
|---------|--|---------|--|--|
| e, m, p |  |         | http://shop.ksb.com/catalog/k0/en/product/ES000350       |  |

#### **BOACHEM-ZXA**

|   | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 400<br>≥ -10<br>≤ +400 | <b>Description:</b><br>Globe valve to DIN/EN with flanged ends, body made of stainless steel, with gland packing, rotating stem, with on/off disc or throttling plug.<br><b>Applications:</b><br>Process engineering, industry, building services, food and beverages industries, for aggressive fluids. Other fluids on request. |  |
|---|--|-----------------------------|---|--|
| m |  |                             | http://shop.ksb.com/catalog/k0/en/product/ES000354  |  |

### **ECOLINE VA 16**

|               | P | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max</sub> [°C] | 15 - 250<br>≥ -10 | <b>Description:</b><br>Globe valve to DIN/EN with flanged ends, body made of cast iron, with gland<br>packing, rotating stem, with shut-off valve disc or throttling plug.<br><b>Applications:</b><br>District heating, domestic water supply, air-conditioning systems, cooling circuits,<br>high-temperature hot water heating systems, water supply. |  |
|---------------|---|---|-------------------|---|--|
| <b>—</b> e, m |   |   |                   | http://shop.ksb.com/catalog/k0/en/product/ES000673  |  |

### Globe valves to ANSI/ASME with gland packing

### ECOLINE GLC 150-600

|      | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 12<br>≥ 0 | Description:<br>Globe valve to ANSI/ASME with flanged ends, cast steel A216 WCB, Trim 8<br>(Stellite/13 % chrome steel) for Class 150/300/600, Trim 5 (Stellite/Stellite) for<br>Class 600, with bolted bonnet, outside screw and yoke, graphite gland packing,<br>stainless steel/graphite gaskets.<br>Applications:<br>Refineries, power stations, process engineering and general industrial applications;<br>water, steam, oil, gas. Other applications on request. |  |
|------|---|---------------|---|--|
| e. m |   |               | http://shop.ksb.com/catalog/k0/en/product/ES000775  |  |

### ECOLINE GLF 150-600

| A.     | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | <sup>1</sup> / <sub>2</sub> - 2<br>≥ 0 | <b>Description:</b><br>Globe valve to ANSI/ASME with flanged ends, forged steel A105, Trim 8<br>(Stellite/13 % chrome steel), with bolted bonnet, outside screw and yoke, graphite<br>gland packing, stainless steel/graphite gaskets, reduced bore.<br><b>Applications:</b><br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; for water, steam, gas, oil and other non-aggressive fluids. |  |
|--------|---|--|---|--|
| 🛑 e, m |   |  | http://shop.ksb.com/catalog/k0/en/product/ES000426  |  |

#### ECOLINE GLF 800-2500

| Ĩ    | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 1/2 - 2 | Description:<br>Globe valve to ANSI/ASME with threaded sockets (NPT), butt weld ends (BW) or<br>socket weld ends (SW), Trim 8 (Stellite/13 % chrome steel), with bolted bonnet<br>(Class 800) or welded bonnet (Class 1500 and 2500), outside screw and yoke,<br>graphite gland packing, stainless steel/graphite gaskets, available in carbon steel<br>and alloy steel.<br>Applications:<br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; for water, steam, gas, oil and other non-aggressive fluids. |  |
|------|---|---------|--|--|
| e, m |   |         | http://shop.ksb.com/catalog/k0/en/product/ES000796   |  |

|      | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | Description:<br>Globe valve to ANSI/ASME with flanged ends, cast steel A351 CF8/CF8M, Trim 2<br>(304/304) and Trim 10 (316/316) for Class 150/300, with bolted bonnet, outside<br>screw and yoke, integral seat, graphite gland packing, stainless steel/graphite<br>gaskets.<br>Applications:<br>Fine chemicals, food industry, general industry. For water, steam, gas and other<br>fluids. Other applications on request. |  |
|------|---|--|--|
| e, m |   | http://shop.ksb.com/catalog/k0/en/product/ES000584   |  |

#### SICCA 150-600 GLC

| 譱    | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 10 | <b>Description:</b><br>Globe valve to ANSI/ASME with flanged or butt weld ends, bolted bonnet, outside<br>screw and yoke. Rotating, rising stem, seat/disc interface made of 13 % chrome<br>steel, Stellite hard-faced; with graphite gasket and gland packing, available in<br>carbon steel, low-alloy steel and stainless steel.<br><b>Applications:</b><br>Refineries, power stations, general industry and process engineering. For water,<br>steam, oil, gas and non-aggressive fluids. Other applications on request. |  |
|------|---|--------|---|--|
| e. m |   |        | http://shop.ksb.com/catalog/k0/en/product/ES000484  |  |

### SICCA 900-2500 GLC

|        | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 8<br>> 0 | Description:<br>Globe valve to ANSI/ASME with butt weld ends, Y-pattern, pressure seal design,<br>outside screw and yoke, rising stem and non-rising handwheel, Stellite hard-faced<br>seat/disc interface and back seat, with graphite gasket and gland packing.<br>Available in carbon steel and alloy steel.<br>Applications:<br>Power stations, general industry and process engineering. For water, steam, oil,<br>gas and non-aggressive fluids. Other applications on request. |  |
|--------|---|--------------|---|--|
| 📕 e, m |   |              | http://shop.ksb.com/catalog/k0/en/product/ES000485  |  |

### SICCA 800-4500 GLF

| 3 6    | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 1/4 - 2 | Description:<br>Globe valve to ANSI/ASME with NPT (F) threaded ends or socket weld ends, bolted<br>bonnet (Class 800) or welded bonnet (Class 1500/2500/4500), outside screw and<br>yoke, Stellite hard-faced body seat, disc seating face made of Stellite hard-faced<br>13 % chrome steel, with graphite gasket and gland packing. Available in carbon<br>steel and alloy steel.<br>Applications:<br>Refineries, power stations, general industry and process engineering. For water,<br>steeam, oil, gas and non-aggressive fluids. Other applications on request. |  |
|--------|---|---------|---|--|
| 🛑 e, m |   |         | http://shop.ksb.com/catalog/k0/en/product/ES000480  |  |

#### **WADA GL 150**

| Natural gas liquefaction and other liquefied gases.           |              |
|---|--------------|
| e, m, p, h http://shop.ksb.com/catalog/k0/en/product/ES000901 | 📕 e, m, p, h |

### Globe valves for nuclear applications

### NUCA/-A/-ES, Types I, II, IV

|           | DN 10<br>T <sub>min.</sub> [°C] ≥ | <ul> <li>Description:</li> <li>Globe valve for nuclear applications, with butt weld or socket weld ends, gland packing or bellows, replaceable seat (NUCA-ES), straight-way pattern, made of steel, stainless steel or nickel.</li> <li>Applications:</li> <li>Reactor cooling, moderator, safety feed, feed water, live steam and cleaning systems.</li> </ul> |  |
|-----------|-----------------------------------|---|--|
| 📕 e, m, p |                                   | http://shop.ksb.com/catalog/k0/en/product/ES000452  |  |

### ZXNB

|         | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 65 - 300<br>≥ -29 | <b>Description:</b><br>Bellows-type globe valve for nuclear applications, with butt weld ends, designed<br>to meet safety-related requirements, in straight-way or angle pattern, or as two-<br>way valve, made of steel or stainless steel.<br><b>Applications:</b><br>Reactor cooling, moderator, safety feed, feed water, live steam and cleaning<br>systems. |  |
|---------|--|-------------------|--|--|
| e, m, p |  |                   | http://shop.ksb.com/catalog/k0/en/product/ES000458   |  |

#### ZXNVB

|   | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 4 - 25<br>≥ -29<br>≤ +365 | Description:<br>Globe valve for nuclear applications, with butt weld or socket weld ends, gland<br>packing or bellows, straight-way pattern, made of steel or stainless steel.<br>Applications:<br>Reactor cooling, moderator, safety feed, feed water, live steam and cleaning<br>systems. |  |
|---|--|---------------------------|---|--|
| m |  |                           | http://shop.ksb.com/catalog/k0/en/product/ES000457  |  |

### **ZYNB/ZYN**

| and the second second | DN 300 - 400 | <ul> <li>Description:</li> <li>Globe valve for nuclear applications, with butt weld ends, designed to meet safety-<br/>related requirements, with gland packing or bellows, Y-valve, made of cast<br/>stainless steel.</li> <li>Applications:<br/>Residual heat removal systems in nuclear applications</li> </ul> |
|-----------------------|--------------|--|
|                       |              | http://shap.ksh.com/catalog/k0/en/product/ES000331   |

### Automated globe valves to DIN/EN

#### **BOA-H Mat E**

|   | DN 20 - 15 | <ul> <li>Description:         <ul> <li>Automated globe valve to DIN/EN with flanged ends, with electric actuators and 3-point actuation, actuating forces from 2000 N to 14,000 N, stem sealed by maintenance-free PTFE V-packing (up to 250 °C) or graphite gland packing (up to 350 °C).</li> </ul> </li> <li>Applications:         <ul> <li>General industrial facilities, process engineering, plant engineering, cooling circuits, heating systems.</li> </ul> </li> </ul> |
|---|------------|---|
| e |            | http://shop.ksb.com/catalog/k0/en/product/ES000801  |

### **BOA-H Mat P**

| -        | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 20 - 150<br>> -10 | to 26,000 N, stem sealed by maintenance-free PTFE V-packing (up to 250 °C) or<br>graphite gland packing (up to 350 °C).<br><b>Applications:</b><br>General industrial facilities, process engineering, plant engineering, cooling<br>circuits, heating systems. |  |
|----------|--|-------------------|---|--|
| <b>p</b> |  |                   | http://shop.ksb.com/catalog/k0/en/product/ES000885  |  |

### Control valves to DIN/EN

### BOA-CVE C/CS/W/IMS/EKB

| ġ, i i i i | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 200 | Description:<br>Control valve to DIN/EN based on standard type series BOA-Compact, BOA-<br>SuperCompact, BOA-W, BOA-Compact EKB and BOA-Control IMS, bonnetless<br>pressure-retaining body, soft-seated. Leakage rate selectable from 0.05 % to drop-<br>tight at Kvs values between 6.3 and 700 m³/h and closing pressures of up to 16 bar.<br>With intelligent microprocessor-controlled and pre-set electric actuators providing<br>actuating forces from 1000 N to 14,000 N; electronic configuration of flow<br>characteristic, Kvs value, control signal and actuating time using PC tool or manual<br>parameterisation unit. Customised configuration can be implemented at the KSB<br>factory on request.<br>Applications:<br>Hot-water heating systems up to 120 °C. Venting and air-conditioning systems.<br>Water supply systems, drinking water. Not suitable for fluids containing mineral<br>oils, steam or fluids liable to attack EPDM and uncoated cast iron. Other fluids on<br>request. |  |
|------------|--|----------|--|--|
| e          |  |          | http://shop.ksb.com/catalog/k0/en/product/ES000326   |  |

#### **BOA-CVE H**

| 4 | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 200 | <b>Description:</b><br>Service-friendly control valve to DIN/EN with flanged ends, either with linear or equal-percentage control characteristic at Kvs values of 0.1 to 630 m <sup>3</sup> /h and closing pressures of up to 40 bar; all internal parts are easy to replace without special tools, including the reversible seat; noise level reduced by standard two-stage pressure reduction combining a parabolic plug and multi-hole cage; with electric actuator.<br><b>Applications:</b><br>General industrial facilities, process engineering, plant engineering, cooling circuits, heating systems. |  |
|---|--|----------|--|--|
| e |  |          | http://shop.ksb.com/catalog/k0/en/product/ES000772   |  |

### **BOA-CVP H**

|          | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 200<br>> -10 | <ul> <li>Description:<br/>Service-friendly control valve to DIN/EN with flanged ends, either with linear or equal-percentage control characteristic at Kvs values of 0.1 to 630 m<sup>3</sup>/h and closing pressures of up to 40 bar; all internal parts are easy to replace without special tools, including the reversible seat; noise level reduced by standard two-stage pressure reduction combining a parabolic plug and multi-hole cage; with pneumatic actuator.</li> <li>Applications:<br/>General industrial facilities, process engineering, plant engineering, cooling circuits, heating systems.</li> </ul> |  |
|----------|--|-------------------|---|--|
| <b>p</b> |  |                   | http://shop.ksb.com/catalog/k0/en/product/ES000662  |  |

### Balancing and shut-off valves to DIN/EN

### **BOA-Control/BOA-Control IMS**

|      | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 16<br>15 - 350<br>≥ -10<br>≤ +120 | <ul> <li>Description:</li> <li>BOA-Control IMS:</li> <li>Balancing valve to DIN/EN with flanged ends, bonnetless, throttling plug, scaled position indicator, travel stop and insulating cap with anti-condensation feature, maintenance-free; full insulation possible; with ultrasonic sensor system for measuring flow rate and temperature, sensors not in contact with fluid handled, constant measurement accuracy when combined with BOATRONIC MS or BOATRONIC MS-420, independent of minimum differential pressures.</li> <li>BOA-Control:</li> <li>Balancing valve to DIN/EN with flanged ends, bonnetless, throttling plug, scaled position indicator, travel stop and insulating cap with anti-condensation feature, maintenance-free; full insulation possible; suitable for measuring flow rate with ultrasonic sensors and for temperature measurement, sensors not in contact with fluid handled, constant measurement accuracy when combined with BOATRONIC MS, independent of minimum differential pressures.</li> <li>Applications:</li> <li>Hot-water heating systems up to 120 °C (BOA-Control). Air-conditioning and cooling systems, measurement valve (BOA-Control IMS). Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and uncoated cast iron.</li> </ul> |  |
|------|--|-----------------------------------|---|--|
| e, m |  |                                   | http://shop.ksb.com/catalog/k0/en/product/ES000323  |  |

### **BOA-Control SAR**

|                    | DN 10 - 50 | Description:<br>Balancing valve to DIN/EN with female screwed ends; differential pressure<br>measurement for flow metering with PFM 2000 measuring computer; digital travel<br>position indicator with 40 settings, locking device and travel stop, maintenance-<br>free.<br>Applications:<br>Hot-water heating systems up to 150 °C. Air-conditioning systems. Other fluids on<br>request. |
|--------------------|------------|---|
| <mark>, ●</mark> m |            | http://shop.ksb.com/catalog/k0/en/product/ES000324  |

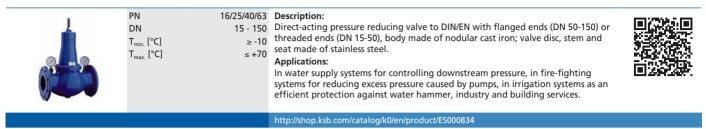
### Level control valves to DIN/EN

#### **CONDA-VLC**

|   | DN 25 - 30  | <ul> <li>Description:</li> <li>Float valve to DIN/EN for controlling maximum and minimum liquid levels in tanks,</li> <li>with flanged ends (DN 40-300) or threaded ends (DN 25-32), body made of nodular</li> <li>cast iron; valve disc, stem, float and seat made of stainless steel.</li> </ul> |
|---|-------------|--|
| ۲ | 118A. ¥ - * | Applications:<br>In water supply systems, industry and building services. For controlling water<br>levels.   |

### Pressure reducing valves to DIN/EN

### **CONDA-VRC**



### Pressure sustaining valves to DIN/EN

### **CONDA-VSM**

| DN 50 -<br>T <sub>min</sub> [°C] | <ul> <li>5/40 Description:</li> <li>150 Direct-acting pressure sustaining valve to DIN/EN with flanged ends, body made of nodular cast iron, valve disc, stem and seat made of stainless steel.</li> <li>+70 Applications:</li> <li>In water supply systems for controlling upstream pressure, in irrigation or firefighting systems, industry and building services.</li> </ul> |  |
|----------------------------------|--|--|
|                                  | http://shop.ksb.com/catalog/k0/en/product/ES000678   |  |

### Air valves to DIN/EN

### **BOAVENT-AVF**

| THE REAL | DN 50 - 30 | <ul> <li>Description:</li> <li>Automatic air valve with two floats and three functions. Flanged ends, body made of nodular cast iron, double-chamber design with ABS floats. The air valve ensures proper operation of the piping system, allowing the entry and discharge of large volumes of air and release of air pockets in working conditions.</li> <li>Applications:</li> <li>Water supply system, clean water, irrigation.</li> </ul> |  |
|----------|------------|---|--|
|          |            | http://shop.ksb.com/catalog/k0/en/product/ES000831  |  |

#### **BOAVENT-SIF**

|  | <ul> <li>Description:         <ul> <li>Automatic air valve with one float and three functions. With flanged ends</li> <li>(DN 25-300R) or threaded ends (DN 25-150), body made of stainless steel, single-chamber design with polypropylene float. The air valve ensures proper operation of the piping system, allowing the entry and discharge of large volumes of air and release of air pockets in working conditions.</li> </ul> </li> <li>Applications:         <ul> <li>Water supply system, clean water, irrigation.</li> </ul> </li> </ul> |
|--|---|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000832  |

#### **BOAVENT-SVA**

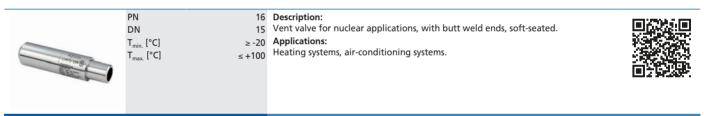
| Water supply, waste water, untreated waste water. |
|---|
|---|

#### **BOAVENT-SVF**

| jį | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | <ul> <li>(PN 16-40) or carbon steel (PN 64), single-chamber design with polypropylene float.<br/>The air valve ensures proper operation of the piping system, allowing the entry and discharge of large volumes of air and release of air pockets in working conditions.</li> <li>Applications:<br/>Water supply system, clean water, irrigation.</li> </ul> |  |
|----|--|--|--|
|    |  | http://shop.ksb.com/catalog/k0/en/product/ES000832   |  |

### Vent valves for nuclear applications

#### SISTO-VentNA



http://shop.ksb.com/catalog/k0/en/product/ES000842

#### SISTO-KRVNA

| DN 25 - 100<br>T <sub>min</sub> [°C] ≥ -20 | <ul> <li>Description:</li> <li>Vent valve for nuclear applications, with flanged or butt weld ends, soft-seated, with floating ball.</li> <li>Applications:</li> <li>Tank venting, drainage systems.</li> </ul> |
|--|---|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000839  |

### Gate valves to DIN/EN

#### COBRA-SGP/SGO/SGF

| 4                  | DN 25 - 600<br>T <sub>min</sub> [°C] ≥ -10 | Description:         Gate valve to DIN/EN with flanged ends, elastomer-coated wedge, bolted bonnet, rotating stem, inside screw, body made of nodular cast iron.         Applications:         Water supply and treatment systems, air-conditioning systems. |  |
|--------------------|--|--|--|
| <mark>e</mark> , m |  | http://shop.ksb.com/catalog/k0/en/product/ES000828   |  |

### **COBRA-SMP**

|      | DN 40 - 300 | Description:<br>Gate valve to DIN/EN with flanged ends, bolted bonnet, metal-seated, rotating<br>stem, inside screw, body and flexible wedge made of nodular cast iron, stem and<br>seats made of stainless steel.<br>Applications:<br>Water supply systems, heating systems, air-conditioning systems, general industry,<br>building services. |
|------|-------------|---|
| e, m |             | http://shop.ksb.com/catalog/k0/en/product/ES000829  |

### **ECOLINE SP/SO**

| Ă      | DN 40 - 600<br>T <sub>min</sub> [°C] ≥ -10 | Description:<br>Gate valve to DIN/EN with flanged ends, bolted bonnet, metal-seated, rotating<br>stem, inside screw, body made of cast iron, seats made of brass.<br>Applications:<br>Water supply systems, heating systems, air-conditioning systems, general industry,<br>water engineering, building services. |
|--------|--|---|
| 🛑 e, m |  | http://shop.ksb.com/catalog/k0/en/product/ES000654  |

### **ECOLINE GT 40**

|        | DN 50 - 80 | <ul> <li>Description:</li> <li>Gate valve to DIN/EN with flanged ends or butt weld ends, bolted bonnet, body</li> <li>made of cast steel, non-rotating stem, with flexible wedge, seat/disc interface</li> <li>made of wear and corrosion resistant 13 % chrome steel or Stellite.</li> <li>Applications:</li> <li>In industrial plants, process engineering and shipbuilding. For water and steam.</li> <li>Other non-aggressive fluids such as gas or oil on request.</li> </ul> |
|--------|------------|--|
| 📕 e, m |            | http://shop.ksb.com/catalog/k0/en/product/ES000676   |

### STAAL 40 AKD/AKDS

| <b>A</b> | DN 50 | <ul> <li>Description:<br/>Gate valve to DIN/EN with flanged or butt weld ends, bolted bonnet, body of forged or welded steel construction, non-rotating stem, split wedge with flexibly mounted discs for precise alignment with the body seats. Seat/disc interface made of wear and corrosion resistant 17 % chrome steel.</li> <li>Applications:<br/>In industrial plants, power stations, process engineering and shipbuilding. For water and steam. Other non-aggressive fluids such as gas or oil on request.</li> </ul> |
|----------|-------|--|
| e, m     |       | http://shop.ksb.com/catalog/k0/en/product/ES000469   |

## STAAL 100 AKD/AKDS

|           | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 50 - 500 | <b>Description:</b><br>Gate valve to DIN/EN with flanged or butt weld ends, bolted bonnet, body of forged or welded steel construction, non-rotating stem, split wedge with flexibly mounted discs for precise alignment with the body seats. Seat/disc interface made of wear and corrosion resistant 17 % chrome steel or Stellite.<br><b>Applications:</b><br>In industrial plants, power stations, process engineering and shipbuilding. For water and steam. Other non-aggressive fluids such as gas or oil on request. |  |
|-----------|--|----------|--|--|
| 📕 e, m, p |  |          | http://shop.ksb.com/catalog/k0/en/product/ES000369   |  |

#### AKG-A/AKGS-A

|           | DN 80 - 300 | <b>Description:</b><br>Gate valve to DIN/EN with flanged or butt weld ends, pressure seal design, body of<br>forged or welded construction, non-rotating stem, split wedge with flexibly<br>mounted discs for precise alignment with the body seats. Seat/disc interface made<br>of wear and corrosion resistant 17 % chrome steel or Stellite.<br><b>Applications:</b><br>In industrial plants, power stations, process engineering and shipbuilding. For<br>water and steam. Other non-aggressive fluids such as gas or oil on request. |  |
|-----------|-------------|---|--|
| 🛑 e, m, p |             | http://shop.ksb.com/catalog/k0/en/product/ES000371  |  |

ZTS

|           | $\begin{array}{llllllllllllllllllllllllllllllllllll$ | Gate valve to DIN/EN or ANSI/ASME, with butt weld ends, pressure seal design,<br>billet-forged body, seat/disc interface made of wear and corrosion resistant<br>Stellite, split wedge with flexibly mounted discs for precise alignment with the<br>body seats. |
|-----------|--|--|
| 🛑 e, m, p |  | http://shop.ksb.com/catalog/k0/en/product/ES000375   |

# Gate valves to ANSI/ASME

## **ECOLINE GTB 800**

| Ĩ            | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | ½ - 2 | Description:<br>Gate valve to ANSI/ASME, with threaded sockets (NPT) or socket weld ends (SW),<br>forged steel/stainless steel body, trim and bellows made of stainless steel, with<br>bolted bonnet, outside screw and yoke, sealed by graphite gland packing and<br>metal bellows, stainless steel/graphite gaskets.<br>Applications:<br>Petrochemical plants, chemical plants, power stations, process engineering and<br>general industry; for thermal oil, steam, toxic and volatile fluids. Other<br>applications on request. |  |
|--------------|---|-------|---|--|
| <b>e</b> , m |   |       | http://shop.ksb.com/catalog/k0/en/product/ES000903  |  |

## ECOLINE GTC 150-600

| T                  | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 36 | Description:<br>Gate valve to ANSI/ASME with flanged ends, cast steel A216 WCB, Trim 8<br>(Stellite/13 % chrome steel) for Class 150/300/600, Trim 5 (Stellite/Stellite) for<br>Class 600, with bolted bonnet, outside screw and yoke, non-rotating stem, flexible<br>wedge, graphite gland packing, stainless steel/graphite gaskets.<br>Applications:<br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; for water, steam, gas, oil and other non-aggressive fluids. |  |
|--------------------|---|--------|--|--|
| <mark>e</mark> , m |   |        | http://shop.ksb.com/catalog/k0/en/product/ES000774   |  |

|               | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 150 - 600<br>½ - 2<br>≥ 0<br>≤ +816 | <b>Description:</b><br>Gate valve to ANSI/ASME with flanged ends, forged steel A105, Trim 8<br>(Stellite/13 % chrome steel), with bolted bonnet, outside screw and yoke, non-<br>rotating stem, single-piece wedge, graphite gland packing, stainless steel/graphite<br>gaskets, reduced bore.<br><b>Applications:</b><br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; water, steam, gas, oil and other non-aggressive fluids. |  |
|---------------|---|-------------------------------------|---|--|
| 🛑 e, m        |   |                                     | http://shop.ksb.com/catalog/k0/en/product/ES000611  |  |
| ECOLINE GTF 8 | 00-2500<br>Class<br>NPS [inch]<br>T <sub>min</sub> [°C]                 | 800 - 2500<br>½ - 2<br>> 0          | <b>Description:</b><br>Gate valve to ANSI/ASME with threaded sockets (NPT), butt weld ends (BW) or socket weld ends (SW), Trim 8 (Stellite/13 % chrome steel), with bolted bonnet   |  |
|               | T <sub>min.</sub> [°C]  | ≤ +538                              | (Class 800) or welded bonnet (Class 1500 and 2500), outside screw and yoke, single-<br>piece wedge, graphite gland packing, stainless steel/graphite gaskets, available in<br>carbon steel and alloy steel.<br>Applications:<br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; water, steam, gas, oil and other non-aggressive fluids.   |  |
| 🗧 e, m        |   |                                     | http://shop.ksb.com/catalog/k0/en/product/ES000797  |  |
|               |   |                                     |   |  |

#### ECOLINE GTV 150-300

| T      | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | ½ - 12<br>≥ 0 | Description:<br>Gate valve to ANSI/ASME with flanged ends, cast steel A351 CF8/CF8M, Trim 2<br>(304/304) and Trim 10 (316/316) for Class 150/300, with bolted bonnet, outside<br>screw and yoke, non-rotating stem, flexible wedge, integral seat, graphite gland<br>packing, stainless steel/graphite gaskets.<br>Applications:<br>Fine chemicals, food industry, general industry; water, steam, gas and other fluids. |  |
|--------|---|---------------|--|--|
| 📕 e, m |   |               | http://shop.ksb.com/catalog/k0/en/product/ES000373   |  |

#### SICCA 150-600 GTC

|      | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 24<br>≥ 0 | Description:<br>Gate valve to ANSI/ASME with flanged or butt weld ends, bolted bonnet, outside<br>screw and yoke, flexible wedge, non-rotating rising stem and non-rising<br>handwheel, seat/disc interface made of 13 % chrome steel, Stellite hard-faced;<br>with graphite gasket and gland packing, available in carbon steel, low-alloy steel<br>and stainless steel.<br>Applications:<br>Power stations, general industry and process engineering. For water, steam, oil,<br>gas and non-aggressive fluids. Other applications on request. |  |
|------|---|---------------|---|--|
| e, m |   |               | http://shop.ksb.com/catalog/k0/en/product/ES000482  |  |

#### SICCA 900-3600 GTC

|                     | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 28 | <b>Description:</b><br>Gate valve to ANSI/ASME with butt weld ends, pressure seal design, split-wedge design, outside screw and yoke, rising stem and non-rising handwheel, Stellite hard-faced seat/disc interface and back seat, with graphite gasket and gland packing. Available in carbon steel and alloy steel.<br><b>Applications:</b><br>Power stations, general industry and process engineering. For water, steam, oil, gas and non-aggressive fluids. Other applications on request. |  |
|---------------------|---|--------|---|--|
| <mark>e</mark> e, m |   |        | http://shop.ksb.com/catalog/k0/en/product/ES000483  |  |

## SICCA 800-1500 GTF

|             | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] |                                   |  |  |
|-------------|---|-----------------------------------|--|--|
| 📒 e, m      |   |                                   | http://shop.ksb.com/catalog/k0/en/product/ES000479 |  |
| WADA GT 150 |   |                                   |  |  |
|             | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 150<br>1 - 12<br>≥ -196<br>≤ +100 |  |  |

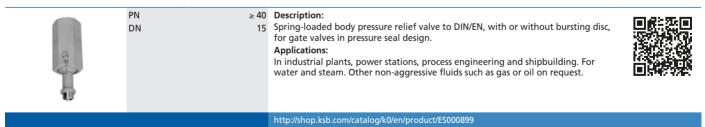
|              | Applications:<br>Natural gas liquefaction and other liquefied gases. |
|--------------|--|
| 🛑 e, m, p, h | http://shop.ksb.com/catalog/k0/en/product/ES000888                   |

# Gate valves for nuclear applications

| ZTN                                   |   |          |  |  |
|---------------------------------------|---|----------|--|--|
| e e e e e e e e e e e e e e e e e e e | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max</sub> [°C] | 80 - 700 | design made of steel or steinlass steel            |  |
| e, m, p                               |   |          | http://shop.ksb.com/catalog/k0/en/product/ES000456 |  |

# Body pressure relief valves

UGS



# Knife gate valves to DIN/EN

#### **HERA-BD**



# Knife gate valves to ANSI/ASME

#### **HERA-BDS**

| 0         | handwheel  |  |
|-----------|--|--|
| 🛑 e, m, p | http://shop.ksb.com/catalog/k0/en/product/E5000895 |  |

#### **HERA-BHT**

| <b>B</b> | <ul> <li>Description:</li> <li>Knife gate valve to ANSI/ASME, semi-lug body made of carbon steel or stainless steel, two-piece body, bi-directional, with gland packing, through-going blade, rising stem, non-rising handwheel, robust yoke for actuator mounting as standard. Applications:</li> <li>Primarily in mining for handling slurries and high-density fluids; excellent flow characteristic due to through-going blade; also in pulp applications and water applications. Other fluids on request.</li> </ul> |
|----------|---|
| e, m, p  | http://shop.ksb.com/catalog/k0/en/product/ES000891  |

#### **HERA-SH**

|           | Class<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 50 - 1000<br>≥ -10<br>≤ +180 | <b>Description:</b><br>Knife gate valve to ANSI/ASME with full-lug body made of carbon steel or stainless steel, single-piece body, uni-directional, with gland packing, rising stem, non-rising handwheel.<br><b>Applications:</b><br>In industrial and waste water engineering, pulp and paper industry, food and beverages industry, chemical industry. For water, waste water and solids-laden fluids. Other fluids on request. |  |
|-----------|---|------------------------------|---|--|
| 📕 e, m, p |   |                              | http://shop.ksb.com/catalog/k0/en/product/ES000844  |  |

# Lift check valves to DIN/EN

## **BOA-RPL**

| DN 25 - 4 | <ul> <li>Description:</li> <li>Ball check valve to DIN/EN with flanged or female/female-threaded ends, made of nodular cast iron, NBR-coated ball, bolted cover, suitable for installation in vertical or horizontal pipes.</li> <li>Applications:</li> <li>Water supply and treatment systems, waste water.</li> </ul> |  |
|-----------|---|--|
|           | http://shop.ksb.com/catalog/k0/en/product/ES000635  |  |

#### **BOA-RFV**

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | ≥ -10 | Nozzle check valve to DIN/EN with flanged ends, Venturi-type body, max. flow velocity 2.5 m/s. Body made of cast iron, check disc made of brass and cast iron, check disc made of brass and cast iron, |
|--|-------|--|
|  |       | http://shop.ksh.com/catalog/k0/en/product/ES000653   |

#### **BOA-RVK**

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 200 | Description:<br>Lift check valve to DIN/EN with wafer-type body, centring aided by the body shape,<br>shut-off by spring-loaded plate or valve disc guided by three stainless steel guiding<br>pins. Low-noise designs with plastic plate (DN 15-100) or valve disc with O-ring<br>(DN 125-200), maintenance-free.<br>Applications:<br>Industrial plants and heating systems, liquids and gases, hot-water heating<br>systems, high-temperature hot water heating systems, heat transfer systems. Any<br>limits given in the technical codes must be complied with. Not suitable for fluids<br>liable to attack the materials used. Other fluids on request. |  |
|--|----------|--|--|
|  |          | http://shop.ksb.com/catalog/k0/en/product/ES000357   |  |

#### **BOA-R**

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 350<br>≥ -10 | <b>Description:</b><br>Lift check valve to DIN/EN with flanged ends, spring-loaded valve disc,<br>maintenance-free.<br><b>Applications:</b><br>Hot-water heating systems, high-temperature hot water heating systems, heat<br>transfer systems. General steam applications in building services and industry.<br>Other fluids on request. |  |
|--|-------------------|---|--|
|  |                   | http://shop.ksb.com/catalog/k0/en/product/ES000356  |  |

#### **NORI 40 RXL/RXS**

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max</sub> [°C] | 10 - 300<br>≥ -10 | <b>Description:</b><br>Lift check valve to DIN/EN, with flanged, butt weld or socket weld ends, check disc with closing spring, seat/disc interface made of wear and corrosion resistant chrome steel or chrome nickel steel.<br><b>Applications:</b><br>In industrial plants, power stations, process engineering and shipbuilding. For water and steam. Other non-aggressive fluids such as gas or oil on request. |  |
|---|-------------------|--|--|
|   |                   | http://shop.ksb.com/catalog/k0/en/product/ES000358   |  |

#### NORI 160 RXL/RXS

| (7)         | PN 63 - 10<br>DN 10 - 20<br>T <sub>min.</sub> [°C] ≥ -<br>T <sub>max.</sub> [°C] ≤ +59 | with closing spring, seat/disc interface made of wear and corrosion resistant |  |
|-------------|--|---|--|
|             |  | http://shop.ksb.com/catalog/k0/en/product/ES000360                            |  |
| RGS         |  |   |  |
|             | PN 250 - 50<br>DN 10 - 1<br>T <sub>min.</sub> [°C] ≥ -<br>T <sub>max.</sub> [°C] ≤ +50 | disc with closing spring, pressure seal design, Hastelloy-faced body seats.   |  |
|             |  | http://shop.ksb.com/catalog/k0/en/product/ES000364                            |  |
| BOACHEM-RXA | ι  |   |  |
|             | PN 10 - 4<br>DN 15 - 4<br>$T_{min.} [°C] \ge - 7$<br>$T_{max.} [°C] \le +40$           | disc with closing spring, lapped seat/disc interface.                         |  |

http://shop.ksb.com/catalog/k0/en/product/ES000366

# Lift check valves to ANSI/ASME

#### ECOLINE PTF 150-600

| Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 1/2 - 7 | <b>Description:</b><br>Lift check valve to ANSI/ASME with flanged ends, forged steel A105, Trim 8<br>(Stellite/13 % chrome steel), reduced bore, with bolted cover, spring-loaded valve<br>disc.<br><b>Applications:</b><br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; for water, steam, gas, oil and other non-aggressive fluids. |  |
|---|---------|---|--|
|   |         | http://shop.ksb.com/catalog/k0/en/product/ES000424  |  |

## **ECOLINE PTF 800-2500**

| Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 1/ 2 | Description:<br>Lift check valve to ANSI/ASME with threaded sockets (NPT), butt weld ends (BW) or<br>socket weld ends (SW), Trim 8 (Stellite/13 % chrome steel), with bolted cover (Class<br>800) or welded cover (Class 1500 and 2500), spring-loaded valve disc, available in<br>carbon steel and alloy steel.<br>Applications:<br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; for water, steam, gas, oil and other non-aggressive fluids. |
|---|------|--|
|   |      | http://shop.ksb.com/catalog/k0/en/product/ES000374   |

## SICCA 800-4500 PCF

| Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 1⁄4 - 2<br>> 0 | Description:<br>Lift check valve to ANSI/ASME with NPT (F) threaded ends or socket weld ends,<br>with spring-loaded valve disc, bolted cover (Class 800) or welded cover<br>(Class 1500/2500/4500), Stellite hard-faced body seat, disc seating face made of<br>Stellite hard-faced 13 % chrome steel, with graphite gasket. Available in carbon<br>steel and alloy steel.<br>Applications:<br>Refineries, power stations, general industry and process engineering. For water,<br>steeam, oil, gas and non-aggressive fluids. Other applications on request. |  |
|---|----------------|---|--|
|   |                | http://shop.ksb.com/catalog/k0/en/product/ES000481  |  |

#### WADA SC 150

| NPS [inch] ½ - | <ul> <li>Description:</li> <li>Swing check valve / lift check valve to ANSI/ASME with flanged, butt weld or socket</li> <li>weld ends, made of cast steel A351 CF3M/CF8/CF8M, bolted cover, dash-pot</li> <li>function, graphite or stainless steel/graphite gaskets.</li> <li>Applications:</li> <li>Natural gas liquefaction and other liquefied gases.</li> </ul> |
|----------------|--|
|                | http://shop.ksb.com/catalog/k0/en/product/ES000890   |

# Lift check valves for nuclear applications

## NUCA/-A/-ES, Type V

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 10 - 50<br>≥ -29<br>< +365 | <b>Description:</b><br>Lift check valve for nuclear applications, with butt weld ends, replaceable seat<br>(NUCA-ES), straight-way pattern, made of steel or stainless steel.<br><b>Applications:</b><br>Feed water and live steam systems. |  |
|--|----------------------------|---|--|
|  |                            | http://shop.ksb.com/catalog/k0/en/product/ES000455  |  |

## RJN

| DN 80 - 600<br>T <sub>min</sub> [°C] ≥ -29 | <b>Description:</b><br>Damped lift check valve for nuclear applications, with butt weld ends, individually<br>selectable damping characteristic, made of steel or stainless steel.<br><b>Applications:</b><br>Feed water and live steam systems. |  |
|--|--|--|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000459   |  |

RYN

| and the second s | DN 65 - 300<br>T <sub>min</sub> [°C] ≥ -29 | <b>Description:</b><br>Combined lift check/shut-off valve for nuclear applications, with butt weld ends, Y-<br>pattern, with gland packing or bellows, made of steel or stainless steel.<br><b>Applications:</b><br>Feed water and live steam systems. |  |
|--|--|--|--|
|  |  | http://chop.ksh.com/catalog/k0/en/product/ES000333   |  |

# Swing check valves to DIN/EN

#### **COBRA-SCBS**

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 50 - 300 | Applications:<br>Water supply, treatment and distribution systems, waste water, irrigation, drinking<br>water, seawater, air, gas, oil. |  |
|--|----------|---|--|
|  |          | http://shop.ksb.com/catalog/k0/en/product/ES000827  |  |

## **ECOLINE WT/WTI**

| DN 50 - 300<br>T <sub>min</sub> [°C] ≥ -10 | Description:<br>Swing check valve to DIN/EN with wafer-type body; body and valve disc made of<br>carbon steel (WT) or stainless steel (WTI), O-ring made of Viton.<br>Applications:<br>Irrigation systems, district heating, domestic water supply, sewage treatment<br>plants, air-conditioning systems, cooling circuits, water supply systems. |
|--|---|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000638  |

## **STAAL 40 AKK/AKKS**

| DN 8<br>T <sub>min.</sub> [°C] | 30 - 400 | <ul> <li>Description:</li> <li>Swing check valve to DIN/EN with flanged or butt weld ends, bolted cover, internally mounted hinge pin, body of welded steel construction, seat/disc interface made of wear and corrosion resistant 17 % chrome steel.</li> <li>Applications:</li> <li>In industrial plants, power stations, process engineering and shipbuilding. For water and steam. Other non-aggressive fluids such as gas or oil on request.</li> </ul> |
|--------------------------------|----------|--|
|                                |          | http://shap.ksh.com/catalog/k0/en/product/ES000471   |

#### **STAAL 100 AKK/AKKS**

|  | DN<br>T <sub>min.</sub> [°C] | 80 - 400<br>> -10 | <b>Description:</b><br>Swing check valve to DIN/EN with flanged or butt weld ends, bolted cover,<br>internally mounted hinge pin, body of forged or welded steel construction, seat/<br>disc interface made of wear and corrosion resistant 17 % chrome steel or Stellite.<br><b>Applications:</b><br>In industrial plants, power stations, process engineering and shipbuilding. For<br>water and steam. Other non-aggressive fluids such as gas or oil on request. |  |
|--|------------------------------|-------------------|--|--|
|--|------------------------------|-------------------|--|--|

#### http://shop.ksb.com/catalog/k0/en/product/ES000391

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 80 - 300 | interation of the second construction and the second distance devices of the second seco |  |
|--|----------|--|--|
|  |          | http://shop.ksb.com/catalog/k0/en/product/ES000394   |  |

#### ZRS

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 50 - 800 | <b>Description:</b><br>Swing check valve to DIN/EN, with butt weld ends, pressure seal design, internally<br>mounted hinge pin, billet-forged body; seat/disc interface made of wear and<br>corrosion resistant Stellite.<br><b>Applications:</b><br>In industrial plants, power stations, process engineering and shipbuilding. For<br>water and steam. Other non-aggressive fluids such as gas or oil on request. |  |
|--|----------|---|--|
|  |          | http://shap.ksh.com/catalog/k0/en/product/ES000396  |  |

## SISTO-RSK/RSKS

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 25 - 300<br>≥ -20 | Description:<br>Swing check valve to DIN/EN with flanged ends, body with or without lining, soft-<br>seated, no dead volumes, straight-way pattern, full bore, slanted seat, static<br>sealing to atmosphere; with soft rubber encapsulated pre-loaded valve disc<br>featuring short travel to closure.<br>Applications:<br>In building services, industrial plants and power stations; suitable for drinking<br>water, service water, from fluids handled in the food and beverages industry to<br>abrasive and aggressive products in chemical and process engineering. |  |
|--|-------------------|---|--|
|  |                   | http://shap.ksh.com/catalog/k0/en/product/ES000397  |  |

## **SERIE 2000**

| PN 16<br>Class 150/3<br>DN 50 - (<br>T <sub>min.</sub> [°C] ≥ -<br>T <sub>max.</sub> [°C] ≤ + | Dual-plate check valve with single-piece, wafer-type body made of lamellar<br>graphite cast iron, nodular cast iron, steel, stainless steel or copper aluminium<br>alloy, metal/elastomer-seated or metal/metal-seated, maintenance-free,<br>connections to EN. ASME or JIS. |
|---|--|
|   | http://shop.ksb.com/catalog/k0/en/product/ES000393   |

# Swing check valves to ANSI/ASME

## ECOLINE SCC 150-600

| Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 24 | graphite gaskets.<br><b>Applications:</b><br>Refineries, power stations, process engineering and general industry; water, steam,<br>oil, gas. Other applications on request. |  |
|---|--------|--|--|
|   |        | http://shop.ksb.com/catalog/k0/en/product/ES000776   |  |

#### ECOLINE SCF 150-600

| Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | ½ - 2<br>≥ 0 | <b>Description:</b><br>Swing check valve to ANSI/ASME with flanged ends, forged steel A105, Trim 8<br>(Stellite/13 % chrome steel), reduced bore, with bolted cover, internally mounted<br>hinge pin.<br><b>Applications:</b><br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; for water, steam, gas, oil and other non-aggressive fluids. |  |
|---|--------------|--|--|
|   |              | http://shop.ksb.com/catalog/k0/en/product/ES000799   |  |

#### **ECOLINE SCF 800-2500**

|                | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 800 - 2500<br>½ - 2<br>≥ 0<br>≤ +538 | Description:<br>Swing check valve to ANSI/ASME with threaded sockets (NPT), butt weld ends (BW)<br>or socket weld ends (SW), Trim 8 (Stellite/13 % chrome steel), with bolted cover<br>(Class 800) or welded cover (Class 1500 and 2500), internally mounted hinge pin,<br>available in carbon steel and alloy steel.<br>Applications:<br>Industrial applications, power stations, process engineering, refineries, oil and<br>marine applications; for water, steam, gas, oil and other non-aggressive fluids. |  |
|----------------|---|--------------------------------------|---|--|
| ECOLINE SCV 15 | 60-300  |                                      | http://shop.ksb.com/catalog/k0/en/product/E5000798  |  |
|                | Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 150 - 300<br>½ - 12<br>≥ 0<br>≤ +816 | Swing check valve to ANSI/ASME with flanged ends, cast steel A351 CF8/CF8M,<br>Trim 2 (304/304) and Trim 10 (316/316) for Class 150/300, with bolted cover,   |  |

#### SICCA 150-600 SCC

|  | NPS [inch]<br>T <sub>min.</sub> [°C] | 2 - 24 | <b>Description:</b><br>Swing check valve to ANSI/ASME with flanged or butt weld ends, bolted cover, internally mounted hinge pin. Bigger sizes with anti-slam/dash pot arrangement (optional), graphite gasket. Seat/disc interface made of 13 % chrome steel, Stellite hard-faced. Available in carbon steel, low-alloy steel and stainless steel.<br><b>Applications:</b><br>Power stations, general industry and process engineering. For water, steam, oil, gas and non-aggressive fluids. Other applications on request. |  |
|--|--------------------------------------|--------|---|--|
|--|--------------------------------------|--------|---|--|

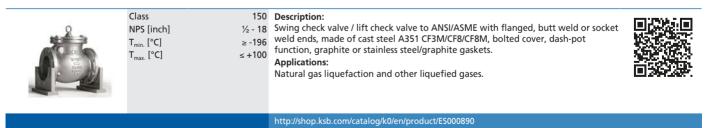
#### http://shop.ksb.com/catalog/k0/en/product/ES000486

http://shop.ksb.com/catalog/k0/en/product/ES000335

#### SICCA 900-3600 SCC

| Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 28<br>> 0 | <b>Description:</b><br>Swing check valve to ANSI/ASME with butt weld ends, pressure seal design,<br>internally mounted hinge pin, Stellite hard-faced seat/disc interface, with graphite<br>gasket. Available in carbon steel and alloy steel.<br><b>Applications:</b><br>Power stations, general industry and process engineering. For water, steam, oil,<br>gas and non-aggressive fluids. Other applications on request. |  |
|---|---------------|---|--|
|   |               | http://shop.ksb.com/catalog/k0/en/product/ES000487  |  |

#### **WADA SC 150**



# Swing check valves for nuclear applications

#### SISTO-RSKNA

|      | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 16<br>25 - 300<br>≥ -20<br>≤ +100 | dead volumes, straight-way pattern, full bore, slanted seat, static sealing to                 |  |
|------|--|-----------------------------------|--|--|
|      |  |                                   | http://shop.ksb.com/catalog/k0/en/product/ES000838   |  |
| ZRN  |  |                                   |  |  |
| .980 | PN<br>DN   | ≤ 320<br>50 - 600                 | Description:<br>Swing check valve for nuclear applications, with butt weld ends, bolted cover, |  |

# PN \$320 Description: DN 50 - 600 Swing check valve for nuclear applications, with butt weld ends, bolted cover, internally mounted hinge pin, forged body made of steel or stainless steel. Applications: Tmax. [°C] \$4360 Applications: Safety feed, feed water, live steam and condensate systems. http://shop.ksb.com/catalog/k0/en/product/E5000399

# Tilting disc check valves to DIN/EN

#### COBRA-TDC01/03

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 100 - 2200 | <b>Description:</b><br>Tilting disc check valve to DIN/EN with flanged ends, with lever and<br>counterweight/hydraulic damper, body and valve disc made of nodular cast iron,<br>body seats made of stainless steel.<br><b>Applications:</b><br>Water supply systems |  |
|--|------------|--|--|
|  |            | http://shop.ksb.com/catalog/k0/en/product/ES000830   |  |

# **Strainers to DIN/EN**

**BOA-S** 

| PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 400<br>> -10 | Description:<br>Strainer to DIN/EN with flanged ends, with standard or fine screen; all nominal<br>sizes with drain plug in the cover.<br>Applications:<br>Hot-water heating systems, high-temperature hot water heating systems, heat<br>transfer systems. General steam applications in building services and industry.<br>Other fluids on request. |
|--|-------------------|---|
|  |                   | http://shop.ksb.com/catalog/k0/en/product/ES000401  |

| DN 15 - | <ul> <li>40 Description:</li> <li>51 Strainer to DIN/EN with flanged or butt weld ends, body made of cast steel, with standard or fine screen; all nominal sizes with drain plug in the cover, optional magnetic inserts.</li> <li>Applications:</li> <li>In heat transfer systems, industrial plants, building services and shipbuilding. For thermal oils, water, steam, gas and other non-aggressive fluids. Other fluids on request.</li> </ul> |
|---------|---|
|         | http://shop.ksb.com/catalog/k0/en/product/ES000523  |

#### **BOACHEM-FSA**

| T <sub>min</sub> [°C] | 15 - 400<br>≥ -10 | Description:         Strainer to DIN/EN with flanged ends, body made of stainless steel, with standard or fine screen; all nominal sizes with drain plug in the cover.         Applications:         Process engineering, industry, building services, food and beverages industries, for aggressive fluids. Other fluids on request. |  |
|-----------------------|-------------------|---|--|
|                       |                   | http://shop.ksb.com/catalog/k0/en/product/ES000402  |  |

# Strainers to ANSI/ASME

## ECOLINE FYC 150-600

| Class<br>NPS [inch]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 2 - 12<br>≥ 0 | <b>Description:</b><br>Strainer to ANSI/ASME with flanged ends, Y-pattern, bolted cover, cast steel A216 WCB, screen made of stainless steel 304, mesh width 1.5 mm.<br><b>Applications:</b><br>Refineries, power stations, process engineering and general industrial applications; water, steam, gas, oil. Other applications on request. |  |
|---|---------------|---|--|
|---|---------------|---|--|

#### http://shop.ksb.com/catalog/k0/en/product/ES000665

#### **ECOLINE FYF 800**

| NPS [inch] ½ - | <ul> <li>Description:</li> <li>Strainer to ANSI/ASME with threaded sockets (NPT) or socket weld ends (SW), Y-<br/>pattern, with bolted cover, forged steel A105, screen made of stainless steel 304.</li> <li>Mesh width 0.8 to 0.9 mm.</li> <li>Applications:</li> <li>Industrial applications, power stations, process engineering, refineries, oil and<br/>marine applications; for water, steam, gas, oil and other non-aggressive fluids.</li> </ul> |
|----------------|---|
|                | http://shop.ksh.com/catalog/k0/ep/product/ES000666  |

# Centred-disc butterfly valves

## **BOAX-CBV13**

|           | TOTAL A AND A A |
|-----------|---|
| 📕 e, m, p | http://shop.ksb.com/catalog/k0/en/product/ES000825  |

#### **BOAX-S/SF**

| Ch -                    | DN 20-          | <ul> <li>Description:</li> <li>Centred-disc butterfly valve for building services, with heat barrier and elastomer</li> <li>liner (EPDM XU or Nitrile K), with lever, manual gearbox or electric actuator; semi-</li> <li>lug body (T2) or full-lug body (T4) suitable for downstream dismantling and dead-</li> <li>end service. Valve disc made of stainless steel 1.4308, connections to EN.</li> <li>Applications:</li> <li>Heating, ventilation, air-conditioning systems, for drinking water.</li> </ul> |
|-------------------------|-----------------|--|
| e, m, p + AMTROBOX/AMTR | ONIC/SMARTRONIC | http://shop.ksb.com/catalog/k0/en/product/ES000388   |

## BOAX-S/SF Gaz

|   | DN 20 - 600 | <b>Description:</b><br>Centred-disc butterfly valve for gas lines, with elastomer liner (epichlorohydrin EG),<br>with yellow lever; semi-lug body (T2), full-lug body (T4). Valve disc made of<br>stainless steel 1.4308, connections to EN.<br><b>Applications:</b><br>Gas lines |  |
|---|-------------|---|--|
| m |             | http://shop.ksb.com/catalog/k0/en/product/E5000388  |  |

## **BOAX-B**

|                       | DN 40 - 100<br>T <sub>min.</sub> [°C] ≥ - <sup>7</sup><br>T <sub>max.</sub> [°C] ≤ +13 | <ul> <li>Description:</li> <li>Centred-disc butterfly valve, sealed by elastomer liner (EPDM XC or Nitrile K), with lever, manual gearbox, pneumatic or electric actuator; wafer-type body (T1), semilug body (T2), full-lug body (T4) or U-section body with flat faces (T5). Body types T2, T4 and T5 are suitable for downstream dismantling and dead-end service. Valve disc made of nodular cast iron or stainless steel. Connections to EN, ASME or JIS.</li> <li>Applications:</li> <li>Engineering contractors. General water circuits, heating oil, oil. Shut-off and control duties in water management for water supply, water treatment, drainage and irrigation.</li> </ul> |
|-----------------------|--|--|
| e, m, p + AMTROBOX/AM | ITRONIC/SMARTRONIC   | http://shop.ksb.com/catalog/k0/en/product/ES000573   |

#### **BOAX-B** Gaz

|   | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 40 - 300<br>≥ -20<br>≤ +90 | Description:<br>Centred-disc butterfly valve, sealed by elastomer liner (epichlorohydrin EG or<br>Nitrile K), with lever; semi-lug body (T2) or full-lug body (T4), valve disc made of<br>nodular cast iron. Connections to EN.<br>Applications:<br>Gas pipes to NF ROB.GAZ N°095.00 |  |
|---|--|----------------------------|--|--|
| m |  |                            | http://shop.ksb.com/catalog/k0/en/product/ES000574   |  |

#### **BOAX-B APSAD**

|   | DN 40 - 300 | <b>Description:</b><br>Centred-disc butterfly valve, sealed by elastomer liner (EPDM XC), with manual gearbox to APSAD; semi-lug body (T2) suitable for downstream dismantling, valve disc made of nodular cast iron. Connections to EN.<br><b>Applications:</b><br>Fire protection |  |
|---|-------------|---|--|
| m |             | http://shop.ksb.com/catalog/k0/en/product/ES000867  |  |

## **BOAX-B DVGW**

|   | DN 40 - 300 | <b>Description:</b><br>Centred-disc butterfly valve, sealed by elastomer liner (epichlorohydrin), with<br>lever; semi-lug body (T2) or full-lug body (T4), valve disc made of nodular cast iron<br>or stainless steel. Connections to EN.<br><b>Applications:</b><br>Gas lines and biogas plants. |  |
|---|-------------|---|--|
| m |             | http://shop.ksb.com/catalog/k0/en/product/ES000574  |  |

## **BOAX-B FM**

|          | DN 40 - 300 | <b>Description:</b><br>Centred-disc butterfly valve, sealed by elastomer liner (EPDM XC), with manual gearbox to FM; semi-lug body (T2) suitable for downstream dismantling, valve disc made of nodular cast iron or stainless steel. Connections to EN.<br><b>Applications:</b><br>Fire protection |  |
|----------|-------------|---|--|
| <b>m</b> |             | http://shop.ksb.com/catalog/k0/en/product/ES000904  |  |

#### **ISORIA 10/16**

|                            | DN 40 - 1000       | <b>Description:</b><br>Centred-disc butterfly valve, sealed by elastomer liner, with lever or manual gearbox, pneumatic, electric or hydraulic actuator. Wafer-type body (T1), semi-lug body (T2), full-lug body (T4) or U-section body with flat faces (T5). Body types T2 and T4 are suitable for downstream dismantling and dead-end service with counterflange. Connections to EN, ASME, JIS.<br><b>Applications:</b><br>Shut-off and control duties in all industrial and energy sectors. |  |
|----------------------------|--------------------|--|--|
| 📕 e, m, h, p + AMTROBOX/AN | ITRONIC/SMARTRONIC | http://shop.ksb.com/catalog/k0/en/product/ES000377   |  |

#### **ISORIA 20/25**

| ٢   | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 22 1000 | <b>Description:</b><br>Centred-disc butterfly valve, sealed by elastomer liner, with lever or manual gearbox, pneumatic, electric or hydraulic actuator. Semi-lug body (T2), full-lug body (T4) or U-section body with flat faces (T5). Body types T2, T4 and T5 are suitable for downstream dismantling and dead-end service with counterflange. Connections to EN, ASME, JIS.<br><b>Applications:</b><br>Shut-off and control duties in all industrial and energy sectors. |  |
|---|--|---------|--|--|
| e, m, h, p + AMTROBOX/AMTRONIC/SMARTRONIC |  |         | http://shop.ksb.com/catalog/k0/en/product/ES000379   |  |

## **ISORIA 20 UL**

| 0                  | DN 40 - 700 | dismontling and doad and convice with counterflange Connections to EN ASME |  |
|--------------------|-------------|--|--|
| <mark>, ●</mark> m |             | http://shop.ksb.com/catalog/k0/en/product/ES000379                         |  |

## MAMMOUTH

| KQ.                    | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | ≥ 0 | Centred-disc butterfly valve, sealed by elastomer liner, with manual gearbox, electric, hydraulic or counterweight actuator, U-section body with flat faces (T5), |  |
|------------------------|--|-----|---|--|
| e, m, p + AMTROBOX/AMT | RONIC/SMARTRC  | NIC | http://shop.ksb.com/catalog/k0/en/product/ES000382  |  |

## KE

| 8                       | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 40 - 600<br>≥ -20<br>≤ +200 | Centred-disc butterfly valve with PFA liner for the chemical industry. With lever, manual gearbox, pneumatic or electric actuator. With wafer-type body (T1), full- |  |
|-------------------------|--|-----------------------------|---|--|
| e, m, h, p + AMTROBOX/A | MTRONIC/SMARTRONIC   |                             | http://shop.ksb.com/catalog/k0/en/product/ES000380  |  |

# Double-offset butterfly valves

## **APORIS**

|           | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 100 - 2000 | <b>Description:</b><br>Double-offset butterfly valve with epoxy coating. Perfect shut-off in either flow direction. Flanged ends to EN standards, body and valve disc made of nodular cast iron.<br><b>Applications:</b><br>Shut-off or control duties; drinking water, seawater, air, water engineering. |  |
|-----------|--|------------|---|--|
| 📕 e, m, p |  |            | http://shop.ksb.com/catalog/k0/en/product/ES000930  |  |

# DANAÏS 150

Valves

|                          | PN ≤ 25<br>Class 150<br>DN 50 - 1200<br>$T_{min.}$ [°C] ≥ -50<br>$T_{max.}$ [°C] ≤ +260 | seat or elastomer seat (FKM [VITON R] or NBR [Nitrile]). Lever or manual gearbox,<br>pneumatic, electric or hydraulic actuator. Body made of nodular cast iron, cast<br>steel, stainless steel, aluminium bronze or duplex stainless steel (254 SMO). Wafer- |  |
|--------------------------|---|--|--|
| e, m, h, p + AMTROBOX/AM | TRONIC/SMARTRONIC   | http://shop.ksb.com/catalog/k0/en/product/ES000427   |  |

## DANAÏS MTII

|                          |                    | 0 Double-offset butterfly valve with plastomer seat or metal seat (fire-safe), without |
|--------------------------|--------------------|--|
| e, m, h, p + AMTROBOX/AN | ITRONIC/SMARTRONIC | http://shop.ksb.com/catalog/k0/en/product/ES000381                                     |

## DANAÏS TBTII

|                          | Class 150<br>DN 50 - 1200 | <ul> <li>Description:</li> <li>Double-offset butterfly valve for cryogenic applications; full-lug body (T4), flanged body (T7) with flat or raised faces, or body with butt weld ends made of stainless steel to ASME Class 150, JIS, fire-safe design. On request degreased for oxygen service. Manual gearbox, pneumatic, electric or hydraulic actuator.</li> <li>Applications:</li> <li>Natural gas liquefaction, onshore and offshore plants. All liquefied gases.</li> </ul> |
|--------------------------|---------------------------|--|
| e, m, h, p + AMTROBOX/AM | ITRONIC/SMARTRONIC        | http://shop.ksb.com/catalog/k0/en/product/ES000815   |

# **Triple-offset butterfly valves**

#### **TRIODIS 150**

|                          |                    | actuator. Body made of steel or stainless steel, full-lug body (T4), flanged body (T7) with flat or raised faces body with butt weld ends (BWSE). Body types T4 and T7 |  |
|--------------------------|--------------------|--|--|
| e, m, h, p + AMTROBOX/AM | ITRONIC/SMARTRONIC | http://shop.ksb.com/catalog/k0/en/product/E5000816   |  |

#### **TRIODIS 300**

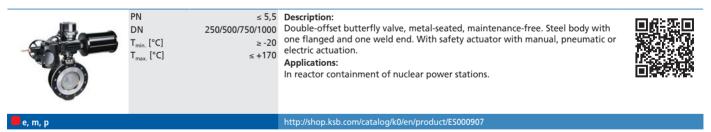
|                       | Class         300           DN         80 - 1200           T <sub>min.</sub> [°C]         ≥ -196 | actuates Dedu seeds of steel or steipless steel full lus body (TA) flavored body (T7) |  |
|-----------------------|--|---|--|
| m, p + AMTROBOX/AMTRO | ONIC/SMARTRONIC  | http://shop.ksb.com/catalog/k0/en/product/ES000817                                    |  |

#### **TRIODIS 600**

| Ċ                     | PN ≤ 100<br>Class 600<br>DN 150 - 1000<br>$T_{min}$ [°C] ≥ -196<br>$T_{max}$ [°C] ≤ +450 | maintenance-free, with lever or manual gearbox, pneumatic, electric or hydraulic<br>actuator. Body made of steel or stainless steel, full-lug body (T4), flanged body (T7)<br>with flat or raised faces. Body types T4 and T7 can be used for dead-end service. |  |
|-----------------------|--|---|--|
| m, p + AMTROBOX/AMTRO | NIC/SMARTRONIC   | http://shop.ksb.com/catalog/k0/en/product/ES000818  |  |

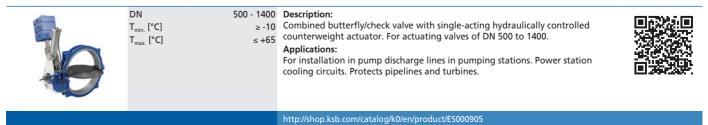
# Butterfly valves for nuclear applications

#### **CLOSSIA**



# Combined butterfly/check valve

#### DUALIS



# Single-piece ball valves

#### MP-CI/MP-II

|                     | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 150<br>≥ -10 | <b>Description:</b><br>Ball valve to DIN/EN with wafer-type body made of Kanigen-treated carbon steel<br>(MP/CI) or stainless steel (MP/II), stainless steel ball, PTFE/graphite seat.<br><b>Applications:</b><br>Irrigation and fire-fighting systems, domestic water supply, air-conditioning<br>systems, cooling circuits, water supply systems. |  |
|---------------------|--|-------------------|---|--|
| m, p + AMTROBOX/AMT | RONIC  |                   | http://shop.ksb.com/catalog/k0/en/product/ES000625  |  |

#### **PROFIN-VT1**

|   | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | ≥ -10 | Description:<br>Ball valve to ANSI/ASME with threaded ends (BSP), single-piece body, reduced<br>bore, solid ball, blowout-proof stem, body made of stainless steel.<br>Applications:<br>In spray irrigation systems, general irrigation systems, fire-fighting systems, air-<br>conditioning systems, paint shops, snow-making systems, washing plants, water<br>supply systems, mining, pressure boosting, chemical industry, process engineering,<br>paper and pulp industry, domestic water supply, heating, ventilation and air-<br>conditioning applications. For cleaning agents, condensate, cooling water,<br>corrosive fluids, drinking water, fire-fighting water, lubricants, oil, river water,<br>seawater, groundwater, service water, wash water and solvents. |  |
|---|--|-------|--|--|
| m |  |       | http://shop.ksb.com/catalog/k0/en/product/ES000894   |  |

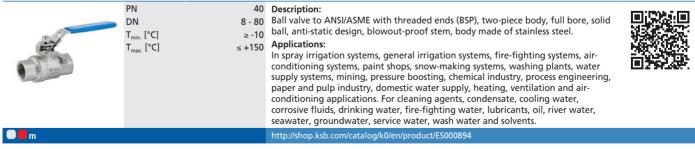
# **Two-piece ball valves**

#### ECOLINE BLT 150-300

|           | Class<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 300<br>> -10 | Description:<br>Ball valve to ANSI/ASME with flanged ends, two-piece body, full bore, floating ball,<br>plastomer sealing (also in fire-safe design).<br>Applications:<br>General industry, power stations, chemical industry, petrochemical industry and all<br>related branches of industry, paper industry, food industry and pharmaceutical<br>industry. |  |
|-----------|---|-------------------|--|--|
| 📕 e, m, p |   |                   | http://shop.ksb.com/catalog/k0/en/product/ES000795   |  |

#### **PROFIN-VT2L**





# Three-piece ball valves

## **ECOLINE BLC 1000**

|                     | Class<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 8 - 100<br>≥ -10 | Description:<br>Ball valve to ANSI/ASME with threaded ends (NPT), butt weld or socket weld ends,<br>three-piece body, full bore, floating ball. Plastomer sealing (also in fire-safe<br>design).<br>Applications:<br>General industry, power stations, chemical industry, petrochemical industry and all<br>related branches of industry, paper industry, food industry and pharmaceutical<br>industry. |  |
|---------------------|---|------------------|---|--|
| <mark>e</mark> m, p |   |                  | http://shop.ksb.com/catalog/k0/en/product/ES000794  |  |

## PROFIN-SI3FIT/-SI3IT/-SI3LIT

|                  | DN 15 - 100 | <ul> <li>Description:</li> <li>Ball valve to ANSI/ASME with flanged ends, threaded ends (BSP) or long butt weld<br/>ends, three-piece body, full bore, solid ball, top flange to ISO 5211, anti-static<br/>design, blowout-proof stem, spring-loaded stem seal, body made of stainless steel.</li> <li>Applications:</li> <li>In spray irrigation systems, general irrigation systems, fire-fighting systems, air-<br/>conditioning systems, paint shops, snow-making systems, washing plants, water<br/>supply systems, mining, pressure boosting, chemical industry, process engineering,<br/>paper and pulp industry, domestic water supply, heating, ventilation and air-<br/>conditioning applications. For cleaning agents, condensate, cooling water,<br/>corrosive fluids, drinking water, fire-fighting water, lubricants, oil, river water,<br/>seawater, groundwater, service water, wash water and solvents.</li> </ul> |  |
|------------------|-------------|---|--|
| <b>— — m</b> , p |             | http://shop.ksb.com/catalog/k0/en/product/ES000893  |  |

## PROFIN-VT3/-VT3L/-VT3F/-VT33L

|            | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max</sub> [°C] | 16/40<br>8 - 100<br>≥ -10<br>≤ +150 | Description:<br>Ball valve to ANSI/ASME with flanged ends, threaded ends (BSP) or long butt weld<br>ends, three-piece body, full bore, solid ball, blowout-proof stem, body made of<br>stainless steel.<br>Applications:<br>In spray irrigation systems, general irrigation systems, fire-fighting systems, air-<br>conditioning systems, paint shops, snow-making systems, washing plants, water<br>supply systems, mining, pressure boosting, chemical industry, process engineering,<br>paper and pulp industry, domestic water supply, heating, ventilation and air-<br>conditioning applications. For cleaning agents, condensate, cooling water,<br>corrosive fluids, drinking water, fire-fighting water, lubricants, oil, river water,<br>seawater, groundwater, service water, wash water and solvents. |  |
|------------|---|-------------------------------------|--|--|
| <b>—</b> m |   |                                     | http://shop.ksb.com/catalog/k0/en/product/ES000894   |  |

# Soft-seated diaphragm valves to DIN/EN

#### SISTO-KB

|         | <br>indicates with integrated stars protection. DN 125 to DN 200 with threaded hugh |
|---------|---|
| e, m, p | http://shop.ksb.com/catalog/k0/en/product/ES000314                                  |

## SISTO-KBS

|           | without lining position indicator with integrated stop protection DN 125 to |  |
|-----------|---|--|
| 🛑 e, m, p | http://shop.ksb.com/catalog/k0/en/product/ES000526                          |  |

## SISTO-10

| Ŷ         | PN<br>DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 15 - 300 | Diaphragm valve to DIN/EN with flanged ends; shut-off and sealing to atmosphere<br>by spiral-supported diaphragm (DN 65 and above); body with or without lining, |  |
|-----------|--|----------|--|--|
| 📕 e, m, p |  |          | http://shop.ksb.com/catalog/k0/en/product/ES000315   |  |

# SISTO-10M

|           | with integrated stem protection. All moving parts are separated from the fluid by the diaphragm. Maintenance-free.<br>Applications:<br>In industrial and chemical plants, in process engineering. Suitable for service water, air, oil, abrasive and aggressive fluids. |
|-----------|---|
| 📕 e, m, p | http://shop.ksb.com/catalog/k0/en/product/ES000513  |

## SISTO-16

|                       | DN 15 - 200 | <ul> <li>Description:</li> <li>Diaphragm valve to DIN/EN with flanged ends; shut-off and sealing to atmosphere by completely enclosed spiral-supported diaphragm; body with or without lining, position indicator with integrated stem protection. All moving parts are separated from the fluid by the diaphragm. Maintenance-free.</li> <li>Applications:</li> <li>In building services, industrial plants and power stations; suitable for drinking water, service water, air, oil, technical gases; from fluids handled in the food and beverages industry to abrasive and aggressive products in chemical and process engineering.</li> </ul> |
|-----------------------|-------------|--|
| <mark>e</mark> , m, p |             | http://shop.ksb.com/catalog/k0/en/product/ES000316   |

## SISTO-16S

|           | PN<br>DN 15 - 2<br>T <sub>min.</sub> [°C] ≥<br>T <sub>max.</sub> [°C] ≤ +1 | body with or without lining, position indicator with integrated stom protection |  |
|-----------|--|---|--|
| 🧧 e, m, p |  | http://shop.ksb.com/catalog/k0/en/product/ES000514                              |  |

#### SISTO-16RGA

| Ro ref   | acc. to test W 270, in compliance with KTW recommendations (use of elastomers in<br>drinking water applications); shut-off and sealing to atmosphere by completely<br>enclosed diaphragm; position indicator with integrated stem protection. All<br>moving parts are separated from the fluid by the diaphragm. Maintenance-free.<br>Applications:<br>Drinking water, particularly drinking water installations to DIN 1988, seawater, all<br>service water qualities. |
|----------|---|
| <b>m</b> | http://shop.ksb.com/catalog/k0/en/product/ES000319  |

#### SISTO-16TWA/HWA/DLU

|           | PN 16<br>DN 15 - 200<br>T <sub>min.</sub> [°C] ≥ -10<br>T <sub>max.</sub> [°C] ≤ +140 | Diaphragm valve to DIN/EN with flanged ends, for drinking water installations to<br>DIN 1988, DIN-DVGW-approved for water acc. to test W 270, in compliance with<br>KTW recommendations (use of elastomers in drinking water applications); shut-off<br>and sealing to atmosphere by completely enclosed diaphragm; position indicator<br>with integrated stem protection. All moving parts are separated from the fluid by<br>the diaphragm. Maintenance-free.<br><b>Applications:</b><br>SISTO-16TWA (drinking water up to 90 °C): drinking water, particularly drinking<br>water installations to DIN 1988, water containing chlorine, seawater, etc.<br>SISTO-16HWA (hot water up to 140 °C): all service water qualities. SISTO-16 DLU<br>(compressed air up to 90 °C): compressed air with oil content, oils and technical<br>gases. |
|-----------|---|--|
| 📕 e, m, p |   | http://shop.ksb.com/catalog/k0/en/product/ES000318   |

#### SISTO-20

|           | DN 15 - 200 | <ul> <li>Description:</li> <li>Diaphragm valve to DIN/EN with flanged ends; shut-off and sealing to atmosphere by completely enclosed spiral-supported diaphragm; body with or without lining, position indicator with integrated stem protection. All moving parts are separated from the fluid by the diaphragm. Maintenance-free.</li> <li>Applications:</li> <li>In building services, industrial plants and power stations; suitable for drinking water, service water, air, oil, technical gases; from fluids handled in the food and beverages industry to abrasive and aggressive products in chemical and process engineering.</li> </ul> |
|-----------|-------------|--|
| 📕 e, m, p |             | http://shop.ksb.com/catalog/k0/en/product/ES000317   |

#### SISTO-C

|               | DN 6 - 100 | <ul> <li>Description:</li> <li>Diaphragm valve with butt weld ends or clamps; in straight-way, Y or T pattern, or as a multi-port valve; shut-off and sealing to atmosphere by completely enclosed diaphragm. No dead volumes, suitable for sterilisation, SIP/CIP-compliant design, visual position indicator. All moving parts are separated from the fluid by the diaphragm. Maintenance-free.</li> <li>Applications:</li> <li>Biotechnology, pharmaceutical industry, sterile processes, food and beverages industry.</li> </ul> |
|---------------|------------|--|
| <b>—</b> m, p |            | http://shop.ksb.com/catalog/k0/en/product/ES000320   |

# Diaphragm valves for nuclear applications

#### SISTO-20NA

|           | DN<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | 8 - 150<br>≥ -20<br>≤ +100 | Diaphragm valve for nuclear applications, with butt weld ends; shut-off and<br>sealing to atmosphere by completely enclosed spiral-supported diaphragm. All<br>moving parts are separated from the fluid by the diaphragm. Maintenance-free.<br><b>Applications:</b><br>Cleaning systems, condensate and cooling water systems, waste water systems,<br>auxiliary systems. |  |
|-----------|--|----------------------------|--|--|
| 📕 e, m, p |  |                            | http://shop.ksb.com/catalog/k0/en/product/ES000840   |  |

## SISTO-DrainNA

|          | <ul> <li>Description:</li> <li>Diaphragm valve for nuclear applications, with butt weld ends; shut-off and</li> <li>sealing to atmosphere by completely enclosed spiral-supported diaphragm. All</li> <li>moving parts are separated from the fluid by the diaphragm. Maintenance-free.</li> <li>Applications:</li> <li>Heating systems, air-conditioning systems, auxiliary systems.</li> </ul> |
|----------|--|
| <b>m</b> | http://shop.ksb.com/catalog/k0/en/product/ES000841   |

# Feed water bypass valves

#### ZJSVM/RJSVM

| Ā                     | Feed water bypass valve to DIN/EN with butt weld ends, pressure seal design,<br>billet-forged body, Z or T pattern, seat/disc interface made of wear and corrosion |
|-----------------------|--|
| <mark>e</mark> , m, p |  |

# **Expansion and anti-vibration joints**

#### ECOLINE GE1/GE2/GE3

| DN 15 - 30<br>T <sub>min</sub> [°C] ≥ -10 | <ul> <li>Description:</li> <li>Expansion joint to DIN/EN with flanged or threaded ends, made of EPDM<br/>elastomer or NBR, flanges made of nickel-coated carbon steel.</li> <li>Applications:</li> <li>Irrigation, domestic water supply, air-conditioning systems, cooling circuits, food<br/>and beverages industry, water treatment, water supply.</li> </ul> |  |
|---|--|--|
|   | http://shop.ksb.com/catalog/k0/en/product/ES000687   |  |

## **ECOLINE GE4**

| 0 | T <sub>min</sub> [°C] ≥ | <ul> <li>Description:</li> <li>Anti-vibration joint to DIN/EN, body made of EPDM, flanges to EN standards.</li> <li>Applications:</li> <li>Irrigation, domestic water supply, air-conditioning systems, cooling circuits, food and beverages industry, water treatment, water supply.</li> </ul> |  |
|---|-------------------------|--|--|
|   |                         | http://shop.ksb.com/catalog/k0/en/product/ES000681   |  |

## Levers

#### CR/CM

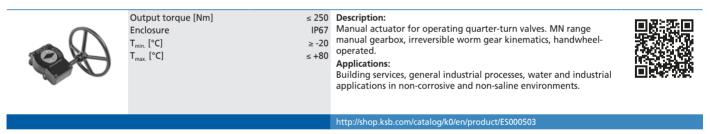
|  | <ul> <li>Description:         <ul> <li>Lever made of ductile cast iron. CR type series: locks in 10 positions (open, closed and 8 evenly spaced intermediate positions) and CM type series: same as CR, with special coating.</li> <li>Applications:</li></ul></li></ul> |
|--|--|
|  |  |
|  | http://shop.ksb.com/catalog/k0/en/product/ES000501   |

#### S/SR/SP

| 11111. K - 3 | <ul> <li>Description:</li> <li>Lever made of light metal alloy; type series S: locks in limit positions (open and closed), type series SR: locks in 9 positions (open, closed and 7 evenly spaced intermediate positions), type series SP: locks in any position.</li> <li>Applications:</li> <li>All applications in water, energy and industrial engineering.</li> </ul> |  |
|--------------|--|--|
|              | http://shop.ksh.com/catalog/k0/en/product/ES000501   |  |

# Manual gearboxes

#### MN



MR

|          | Output torque [Nm] $\leq 16000$ EnclosureIP67/IP68 $T_{min.} [°C]$ $\geq -50$ $T_{max.} [°C]$ $\leq +80$ | Heavy-duty manual actuator for operating quarter-turn valves. MR<br>range manual gearbox, irreversible worm gear or patented AMRI<br>yoke kinematics. Handwheel-operated as standard. Models MR 400<br>to 1600 can be fitted with actuators. Options include alternative<br>operating mechanisms, limit switch boxes, low-temperature version,<br>etc.<br>Applications:<br>Building services, industry and process engineering, water and<br>waste water management, energy, petroleum and natural gas,<br>mining, dredgers and shipbuilding. |
|----------|--|---|
| AMTROBOX |  | http://shop.ksb.com/catalog/k0/en/product/ES000502  |

## **Electric actuators**

## **ACTELEC (BERNARD CONTROLS)**



| Quarter-turn actuator<br>Multi-turn actuator<br>Enclosure<br>Output torque [Nm] | EZ4 - SQ120<br>31 - 800<br>IP67<br>≤ 8000 | <b>Description:</b><br>Electric actuators by BERNARD CONTROLS for direct mounting on<br>quarter-turn valves (actuator flange to ISO 5211) or with a manual<br>gearbox of the MR type series (actuator flange to ISO 5210). Power<br>supply: single-phase AC, three-phase or direct current. Torque<br>switch, travel stop and limit switch box as standard. For on/off or<br>control duties. Integrated local control or remote control.<br><b>Applications:</b><br>All applications in water engineering, energy and industrial<br>engineering. |  |
|---|---|--|--|
|   |   | http://shop.ksb.com/catalog/k0/en/product/ES000407   |  |

#### **ACTELEC (AUMA)**



| Ð | Quarter-turn actuator<br>Multi-turn actuator<br>Enclosure<br>Output torque [Nm] | SQ 05.2 - SQ 12<br>31 - 1600<br>IP67<br>≤ 16000 | Electric actuators by AUMA for direct mounting on quarter-turn valves (actuator flange to ISO 5211) or with a manual gearbox of the MR type series (actuator flange to ISO 5210). Power supply: |  |
|---|---|---|---|--|
|   |   |   | http://shop.ksb.com/catalog/k0/en/product/ES000407  |  |

#### SISTO-LAE



| Туре                |
|---------------------|
| Multi-turn actuator |
| Enclosure           |
| Output torque [Nm]  |
|                     |

#### AUMA Description: Multi-turn actuators for valves with rising stem, max. closing force 60,000 N, configurable as a function of flow characteristics and valve travel; open/closed position feedback; factory-mounted. Applications:

Building services, industry, power stations, food industry, chemical industry.

http://shop.ksb.com/catalog/k0/en/product/ES000405

# Hydraulic actuators

HQ

|          | Output torque [Nm]<br>Enclosure<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | ≤ 55000<br>IP68<br>-45<br>+100 | spring) for mounting on quarter-turn valves (butterfly valves or ball |  |
|----------|---|--------------------------------|---|--|
| AMTROBOX |   |                                | http://shop.ksb.com/catalog/k0/en/product/ES000924                    |  |

# **Pneumatic actuators**

## **ACTAIR NG**

|                       | at a control pressure of 6<br>bar<br>Enclosure IP68<br>$T_{min}$ . [°C] $\geq$ -50 | end or flat end. Force transmission via scotch-voke kinematics |  |
|-----------------------|--|--|--|
| AMTROBOX, AMTRONIC, S | MARTRONIC  | http://shop.ksb.com/catalog/k0/en/product/ES000411             |  |

#### **DYNACTAIR NG**

|                       | Output torque [Nm] $\leq$ 4000at a control pressure of 6barEnclosureIP68 $T_{min.} [°C]$ $\geq$ -50 $T_{max.} [°C]$ $\leq$ +80 | Single-acting pneumatic actuator for mounting on quarter-turn<br>valves (butterfly valves or ball valves). Actuator flange to ISO 5211.<br>Control pressure up to 8 bar. Mounts on valve stems with square<br>end or flat end. Force transmission via scotch-yoke kinematics<br>provides output torques of up to 4000 Nm which are ideal for |
|-----------------------|--|--|
| AMTROBOX, AMTRONIC, S | MARTRONIC  | http://shop.ksb.com/catalog/k0/en/product/ES000412   |

#### SISTO-LAD

| 4 | Control air pressure [bar]<br>Closing force [N] | ≤ 6<br>≤ 20000 | Description:<br>Diaphragm actuator in compact design for mounting on valves with<br>a linear stem movement (globe, diaphragm and gate valves).<br>Available in single-acting spring-to-close or spring-to-open design,<br>or double-acting air-to-open/air-to-close design; suitable for<br>mounting limit switches or positioners to suit customer<br>requirements, factory-mounted. Settings are adjusted during factory<br>test run.<br>Applications:<br>In building services, industrial plants, power stations; suitable for<br>abrasive and aggressive products such as service water, waste water,<br>acids, alkaline solutions, sludges and suspensions. |  |
|---|---|----------------|--|--|
|   |   |                | http://shop.ksb.com/catalog/k0/en/product/ES000805   |  |

#### SISTO-LAP

| Ţ | Control air pressure [bar] ≤ 1<br>Closing force [N] ≤ 25000 | <ul> <li>Piston actuator in heavy-duty design for mounting on valves with a linear stem movement (globe, diaphragm and gate valves). Mounting flange to DIN/ISO 5210, available in single-acting spring-to-close or spring-to-open design, or double-acting air-to-open/air-to-close design; suitable for mounting limit switches or positioners to suit customer requirements, factory-mounted. Settings are adjusted during factory test run.</li> <li>Applications:         <ul> <li>In building services, industrial plants, power stations, the food and beverages industries and the chemical industry. The pneumatic actuators can also be used in potentially explosive atmospheres.</li> </ul> </li> </ul> |
|---|---|---|
|   |   | http://shop.ksb.com/catalog/k0/en/product/ES000409  |

## SISTO-C LAP



## **Actuator accessories**

| Enclosure<br>T <sub>min.</sub> [°C]<br>T <sub>max</sub> [°C] | <b>Description:</b><br>Manual override using a declutchable gear operator with<br>handwheel for mounting on ACTAIR NG double-acting pneumatic<br>actuators, DYNACTAIR NG single-acting pneumatic actuators and<br>HQ single-acting or double-acting hydraulic actuators. The manual<br>override is fitted between the valve and the actuator. The manual<br>override has priority over the pneumatic or hydraulic actuator and is<br>locked either in clutched or declutched position using the locking<br>device.<br><b>Applications:</b><br>All applications in water, energy and industrial engineering. |  |
|--|---|--|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000906  |  |

# Monitoring

#### AMTROBOX

| Enclosure         IP67           T <sub>min.</sub> [°C]         ≥ -20           T <sub>max.</sub> [°C]         ≤ +80 | <b>Description:</b><br>Multi-functional AMTROBOX limit switch box. For open/closed<br>position signalling via mechanical limit switches or proximity<br>sensors. AMTROBOX (R1149) mounts on MR manual gearboxes,<br>ACTAIR NG pneumatic actuators and HQ hydraulic actuators.<br><b>Applications:</b><br>All applications in water engineering, building services and energy<br>engineering. |  |
|--|--|--|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000463   |  |

## AMTROBOX EEx ia

| Enclosure<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | ≥ -20 | <b>Description:</b><br>Multi-functional AMTROBOX limit switch box. For open/closed<br>position signalling via mechanical limit switches or proximity<br>sensors. AMTROBOX EEx ia (R1172): intrinsically safe version for<br>potentially explosive atmospheres.<br><b>Applications:</b><br>All applications in water engineering, building services and energy<br>engineering. |  |
|---|-------|---|--|
|   |       | http://shop.ksb.com/catalog/k0/en/product/ES000463  |  |

#### AMTROBOX ATEX Zone 22

|  | Description:<br>Multi-functional AMTROBOX limit switch box. For open/closed<br>position signalling via mechanical limit switches or proximity<br>sensors. AMTROBOX ATEX (X1140, X1149): ATEX-compliant version<br>for potentially explosive dust atmospheres (Zone 22).<br>Applications:<br>All applications in water engineering, building services and energy<br>engineering. |
|--|---|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000463  |

#### **AMTROBOX F**

| Enclosure<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | <b>Description:</b><br>Amtrobox F is a limit switch box specially designed for levers and all ISO 5211 actuators for signalling open or closed position via Proximity sensors. It can be used with S or C levers and ACTAIR NG / DYNACTAIR NG pneumatic actuators. Thanks to its key feature, a particularly low height (< 5 mm), it can be mounted between any valve and actuator with ISO 5211 interface.<br><b>Applications:</b><br>All applications in water engineering, building services and energy engineering. |  |
|---|---|--|
|   | http://shop.ksb.com/catalog/k0/en/product/ES000463  |  |

#### **AMTROBOX M**

| Enclosure<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | > -20 | <b>Description:</b><br>Limit switch box specially designed for manual actuation. For open/<br>closed position signalling via mechanical limit switches or proximity<br>sensors. AMTROBOX M mounts on the S series of quarter-turn levers<br>(R1020) and manual gearbox types MA 12 and MA 25 (R1021).<br><b>Applications:</b><br>All applications in water engineering, building services and energy<br>engineering. |  |
|---|-------|--|--|
|   |       | http://shop.ksb.com/catalog/k0/en/product/ES000463   |  |

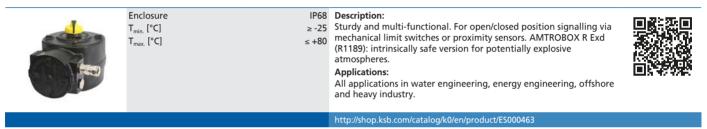
## AMTROBOX R

| T[°C] ≥ -45 | Description:<br>Sturdy and multi-functional. For open/closed position signalling via<br>mechanical limit switches or proximity sensors. AMTROBOX R<br>(R1187) mounts on MR manual gearboxes, ACTAIR NG pneumatic<br>actuators, HQ hydraulic actuators and any actuators with VDI/VDE<br>interface.<br>Applications:<br>All applications in water engineering, energy engineering, offshore<br>and heavy industry. |  |
|-------------|---|--|
|             | http://shop.ksb.com/catalog/k0/en/product/ES000463  |  |

## AMTROBOX R EEx ia

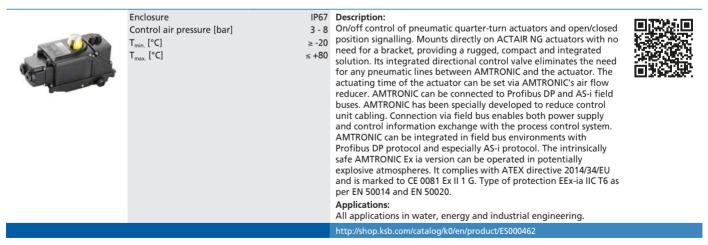
|  | <ul> <li>Description:</li> <li>Sturdy and multi-functional. For open/closed position signalling via mechanical limit switches or proximity sensors. AMTROBOX R EEx ia (R11188): intrinsically safe version for explosive atmospheres (Zones 0 + 20).</li> <li>Applications:</li> <li>All applications in water engineering, energy engineering, offshore and heavy industry.</li> </ul> |
|--|---|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000463  |

#### AMTROBOX R Ex d



# **ON/OFF valve controllers**

#### AMTRONIC





# Positioners

#### **SMARTRONIC MA**

| Enclosure<br>Control air pressure [bar]<br>T <sub>min.</sub> [°C]<br>T <sub>max.</sub> [°C] | IP67<br>2 - 7<br>≥ -20<br>≤ +80 | SMARTRONIC MA (R1310) is an electro-pneumatic digital positioner<br>powered via the 4-20 mA signal. Mounts on ACTAIR NG/DYNACTAIR<br>NG actuators with direct compressed air supply, or on any type of<br>quarter-turn actuator with VDI/VDE 3845 interface and linear<br>actuators with NAMUR interface. SMARTRONIC MA reduces<br>investment, commissioning and operating costs as the unit<br>consumes no air while idle.<br><b>Applications:</b><br>All applications in water, energy and industrial engineering. |  |
|---|---------------------------------|--|--|
|   |                                 | http://shop.ksb.com/catalog/k0/en/product/ES000461   |  |

#### **SMARTRONIC AS-i**

| EnclosureIP67Control air pressure [bar] $3 - 8$ $T_{min.}$ [°C] $\geq -20$ $T_{max.}$ [°C] $\leq +80$ | SMARTRONIC AS-i is an electro-pneumatic digital positioner for connection to an AS-i field bus. Certified by AS International. |
|---|--|
|   | http://shop.ksb.com/catalog/k0/en/product/ES000874   |

# Intelligent positioners

#### **SMARTRONIC PC**

|  | control unit represents the latest in open-loop and closed-loop<br>control technology for valves. The unit attaches directly to ACTAIR<br>NG or DYNACTAIR NG actuators with no need for a bracket or<br>external piping, providing a rugged, compact and integrated<br>solution. SMARTRONIC PC offers four functions: programmable<br>curves for valve opening and closing, intelligent positioning, process<br>monitoring and control. SMARTRONIC PC is PC programmable and<br>can be connected to a Profibus DP field bus.<br>Applications:<br>All applications in water, energy and industrial engineering. |
|--|--|
|  | http://shop.ksb.com/catalog/k0/en/product/ES000873   |

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