

### **Product Portfolio 2018**



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HGM-RO	69	RWCP / RWCN	39	
НРН	35			
HPK	35	Sewabloc	55	

66 40

### **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® 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.





Industry 4.0: we have experience with the future

Digital networking of production systems is one of the key challenges ahead. An expert in engineering with long-standing experience in developing Industry 4.0 solutions, KSB is your ideal partner to achieve:

- Resource efficiency and optimised use of materials
- 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



# FluidFuture®: the energy-saving concept for your system

Many systems do run reliably but they also use a lot more power than necessary. The solution: efficiency optimisation with FluidFuture® in four steps. We look at the entire hydraulic system to achieve maximum energy efficiency throughout the life cycle. The optimisation costs will pay for themselves within a short period through the high energy savings that can be made.

The process and its four steps are clearly defined – based on extensive expertise and experience. This systematic and targeted approach ensures maximum savings at minimum costs. Perfectly matching the hydraulic system, drive and automation products as well as the piping dimensions can result in savings of up to 60 %.

We reduce the operating costs of your system by combining our expert knowledge with smart products and services. This is our joint contribution towards an energy-efficient future.

More on FluidFuture®: www.ksb.com/fluidfuture



## **General Information**

ErP	ErP regulations stipulating new, stricter minimum efficiency values became effective at the start of 2015. Since then, only pumps and motors which satisfy the energy efficiency requirements of the European Union's ErP Directive may be placed on the market. For KSB's products this is child's play. They are so efficient, many actually exceed the values required since 2015 – some even those applicable from 2017 as per the ErP regulations.
Regional products	Not all depicted products are available for sale in every country. Products only available in individual regions are indicated accordingly. Please contact your sales representative for details.
Trademark rights	All trademarks or company logos shown in the catalogue are protected by trademark rights owned by KSB SE & Co. KGaA and/or a KSB Group company. The absence of the "®" symbol should not be interpreted to mean that the term is not a registered trademark.
Product illustrations	The products illustrated as examples may include options and accessories incurring a surcharge. Subject to modifications due to technical enhancements.

### **Pumps**

Design / Application	Type series	Page	FrP	Factory- automated	Automation available	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
Drinking water circulators, fixed speed	Calio-Therm S NC/NCV	30								
	Calio-Therm NC	30								
Drinking water circulators, variable speed	Calio-Therm S	30								
	Calio S	30								
Circulators, variable speed	Calio	31								
	Calio Z	31								
	Etaline L	31								
	Etaline DL	31								
	Etaline	32								
	Etaline Z	32								
In-line pumps	Etaline-R	32								
	ILN	32								
	ILNC	32								
	Megaline	33								
	Etanorm	33								
	Etanorm-R	33								
	Etabloc	33								
	Etachrom B	34								
Standardised / close-coupled pumps	Etachrom L	34								
	Etanorm V	34			_					
	Meganorm	34					-			
	Megabloc	34								
	HPK-L	35				_				
Het weter numer	HPH	35					-			
Hot water pumps		35								
	HPK				-					
	Etanorm SYT / RSY	35			-		_			
Hot water / thermal oil pumps	Etabloc SYT	35			_		_			
	Etaline SYT	36					_			
Standardised chemical pumps	MegaCPK	36								
	CPKN	36								
	Magnochem	37								
Seal-less pumps	Magnochem-Bloc	37								
	Etaseco / Etaseco-l	37								
	Etaseco RVP	37								
	RPH	37								
	RPHb / RPHd	38								
	RPH-V	38								
	RPHmdp	38								
	CTN	38								
Process pumps	CHTR	38								
Trocess pullips	CHTRa	39								
	CINCP / CINCN	39								
	INVCP	39								
	Estigia	39								
	RWCP / RWCN	39								
	WKTR	40								
	Hya-Rain / Hya-Rain N	41								
Rainwater harvesting systems	Hya-Rain Eco	41								

Design / Application	Type series	Page	ErP	Factory- automated	Automation available	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
	Emporia CP	41								
	Emporia MB	41								
	Emporia PD	41								
	Multi Eco	42								
Domestic water supply systems with automatic control unit / Swimming pool pumps	Multi Eco-Pro	42								
control diffe, swiffining poor pumps	Multi Eco-Top	42								
	Ixo N	42								
	Ixo-Pro	42								
	Filtra N	43								
	KSB Delta Compact	43								
	KSB Delta Solo EV	43								
	Hya-Solo D	43								
	Hya-Solo DSV	43								
	Hya-Solo D FL	44					-			
	Hya-Duo D FL	44								
	Hya-Solo D FL Compact	44		÷			-			
	Hya-Duo D FL Compact	44					-			
		45					-			
	Surpress Eco SE.2.B									
	Hya-Eco VP	44								
Pressure booster systems	Hyamat K	45		-						
	Hyamat V	45								
	Hyamat SVP	45								
	Hyamat SVP ECO	45		_						
	Surpress Eco SE.2.B VP	46								
	Surpresschrom SIC.2	46								
	Surpresschrom SIC.2 V	46								
	Surpresschrom SIC.2 SVP	46								
	Surpressbloc SB	46								
	Surpress Feu SFE	47								
	Surpress SP	47								
	Surpress SP VP	47								
	Ama-Drainer N	47								
	Ama-Drainer 4 / 5	47								
	Ama-Drainer 80, 100	48								
Drainage pumps / waste water pumps	Ama-Porter F / S	48								
	Rotex	48								
	MK / MKY	48								
	Amaclean	48			_					
	AmaDS <sup>3</sup>	49				_				
	Ama-Drainer-Box Mini	49			_	_				
	Ama-Drainer-Box	49								
	Evamatic-Box N	49		_						
	mini-Compacta	49		-						
Lifting units / pump stations	Compacta	50		-						
	CK 800 Pump Station	50		-						
	CK 1000 Pump Station	50								
	Ama-Porter CK Pump Station	50								
	SRP	50								
	SRL	51								
	SRS	51								
	Amarex N	52								
Cubanancible metananum:	Amarex KRT	52								
Submersible motor pumps	Amarex KRT (jacket cooling)	52								
	Amarex KRT (convection cooling)	52								

Design / Application	Type series	Page	ErP	Factory- automated	Automation available	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
	Amacan K	53								
Submersible pumps in discharge tubes	Amacan P	53								
	Amacan S	53								
	Amamix	54								
Mixers / agitators / tank cleaning units	Amaprop	54								
winers / agreators / tank cleaning units	Amajet	54								
	Amaline	54								
	Sewatec	55								
Dumps for solids laden fluids	Sewatec R	55								
Pumps for solids-laden fluids	Sewabloc	55								
	KWP / KWP-Bloc	55								
	WBC	56								
	LSA-S	56								
	LCC-M	56								
	LCC-R	56								
	TBC	56								
el.	LCV	57								
Slurry pumps	FGD	57								
	MHD	57								
	LHD	57								
	MDX	57								
	ZW	58								
	HVF	58								
	Etaprime L	59								
	Etaprime B	59								
Self-priming pumps	EZ B/L	59								
	AU	59								
	AU Monobloc	59								
	UPAchrom 100 CC	60								
	UPAchrom 100 CN	60								
	UPA 150C	60								
Submersible borehole pumps	UPA 200, 200B, 250C	60								
	UPA 300, 350	60								
	UPA-Z / UPA-R	61								
Deep-well turbine pumps	B-Pump									
	Comeo	62								
	Movitec H(S)I	62								
High-pressure pumps	Movitec	62								
	Movitec VCI	62								
	Multitec	62								
	Omega	63								
Axially split pumps	RDLO	63								
	RDLP	63								
	Vitachrom	63								
	Vitacast	64								
Hygienic pumps for the food, beverage and	Vitacast Bloc	64								
pharmaceutical industries	Vitaprime	64								
	Vitastage	64								
	Vitalobe	64								

Design / Application	Type series	Page	ErP	Factory- automated	Automation available	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
	CHTA / CHTC / CHTD	65								
	HGB / HGC / HGD	65								
	HGM	65								
	YNK	65								
D f	LUV / LUVA	65								
Pumps for power station conventional islands	WKTB	66								
	SEZ / SEZT / PHZ / PNZ	66								
	SNW / PNW	66								
	Beveron	66								
	SPY	66								
	RER	67								
	RSR	67								
	RUV	67								
	PSR	67								
D	RHD	67								
Pumps for nuclear power stations	LUV Nuclear	68								
	RHM	68								
	RVM	68								
	RHR	68								
	RVR	68								
	HGM-RO	69								
Pumps for desalination by reverse osmosis	Multitec-RO	69								
Positive displacement pumps	RC / RCV	69								
E. C.L.	EDS	69								
Fire-fighting systems	DU / EU	70								

### **Automation and drives**

Design / Application	Type series	Page	ErP	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
Automation and drives	KSB SuPremE	28	-					
Automation and drives	KSB UMA-S	28						
	Controlmatic E	71						
	Controlmatic E.2	71						
Control code	Cervomatic EDP.2	71						
Control units	LevelControl Basic 2	71						
	UPA Control	71						
	Hyatronic N	72						
W. 111	PumpDrive 2 / PumpDrive 2 Eco	28						
Variable speed system	PumpDrive R	28						
Monitoring and diagnosis	PumpMeter	29						
	Amacontrol	72						

	olio Thomas	Calio-Therm NC		Calio-Therm S	o cilco	Calio	Calio Z		Etaline L Etaline DL	Etaline	Etaline Z	taline-R	N	ILNC	Megaline	Etanorm	Etanorm-R	Etabloc	Etachrom B	Etachrom L	Etanorm v Maganorm	Megabloc	1						
Waste water with faeces		0				, <sub>U</sub>	0		ш	ш	ш	ш	= :	= -			ш	ш	ш	ш	u 2	: 2	1 1	_	_			_	_
Waste water with faeces  Waste water without faeces	eed	-	pea	$\vdash$	variable speed	+		sdwnd	-	+		$\dashv$	$\dashv$	-	sawna	-	Н		$\dashv$	+	+	+	+	+	+	++	+	+	+
Aggressive liquids	S	+-	sp	$\vdash$	g –	+	$\vdash$	a -	+	+	$\vdash$	$\dashv$	$\dashv$	-	_ \	_	$\vdash$	Н	$\dashv$	+	+	+	+	+	+	+	+	+	+
Inorganic liquids	× eq	+	ple	$\vdash$		+	$\vdash$	ne –	+	╁	$\vdash$	$\dashv$	$\dashv$	+	- b	5	Н	H	$\dashv$	$\dashv$	+	+	+	+	+	+	+	+	+
Activated sludge	S, fi	+	variable speed	$\vdash$	arie			In-line	+	+		$\dashv$	$\dashv$	-	_ g	5	$\vdash$		$\dashv$	+	+	+	+	+	+	++	+	+	+
Brackish water	ţ	+	, v	-	, s	+	$\vdash$	-	+	+	$\vdash$	$\dashv$			_				-	+	1		+	+	+	+	-	+	+
Service water	E -		circulators,		Circulators,	+						_	_		lose		_				+	+-	+-+	+	+	+	+	+	+
Distillate	Ė	┿	100		<u> </u>	+		-	+-	+-	Ε.	-	_	-		-			_	-	+	+	$\Box$	+	+	+	_	+	+
Slurries	Drinking water circulators, fixed speed	+	Ç	H	<del>نّ</del> ا	+	$\vdash$		+	+	$\vdash$	$\dashv$	$\dashv$	+	Standardised / close-coupled		$\vdash$	H	$\dashv$	+	+	+	+	+	+	$\forall$	+	+	+
Explosive liquids	Wa	+	Drinking water	$\vdash$		+	$\vdash$		+	+	$\Box$	$\dashv$	$\dashv$	$\dashv$	ard	5	Н	$\vdash$	$\dashv$	$\dashv$	+	+	+	+	+	$\forall$	+	+	+
Digested sludge	ing	+	W	$\vdash$		+			$\top$	+	Н	$\dashv$	$\dashv$	$\dashv$	but		$\Box$	$\vdash$	$\dashv$	$\dashv$	+	+	+	+	+	$\forall$	+	+	+
Solids (ore, sand, gravel, ash)	ž	+	ing	Н					+	+		$\dashv$	$\dashv$	$\top$	Sta		Н	H	$\dashv$	$\dashv$	$\top$	+	+	+	+	$\forall$	$\vdash$	+	+
Flammable liquids	۵	$\top$	rink	$\Box$		$\top$			$\top$	$\top$	$\Box$	H	$\dashv$	$\top$				П	$\dashv$	$\dashv$	$\top$	$\dagger$	$\Box$	+	+	$\forall$	$\top$	+	$\top$
River, lake and groundwater		$\top$	Δ	$\Box$		$\top$			$\top$	$\top$	П	$\Box$							$\dashv$	$\dashv$	$\top$	$^{\dagger}$	$\dagger \dagger$	$\top$	$\top$	$\sqcap$	$\top$	$\top$	$\top$
Liquefied gas		1		П						$\top$		$\Box$	$\dashv$	$\top$			$\Box$	П	$\dashv$	$\dashv$	$\top$	$\top$	$\dagger \dagger$	$\top$	$\top$	$\Box$	$\top$	$\top$	$\top$
Food and beverage production										$\top$			$\neg$				П			$\neg$		$\top$	$\Box$	$\top$		$\Box$		$\top$	$\top$
Gas-containing liquids																	П							$\neg$	$\top$				$\top$
Filtered water										Τ													П	$\top$	$\top$	$\Box$			
Geothermal water										Τ																П			
Harmful liquids																													
Toxic liquids				Ш																							$\perp$		$\perp$
High-temperature hot water								1		-				_								$\rightarrow$	_			Ш		$\perp$	$\perp$
Heating water		_			4			<u> </u>					-	<b>•</b>			П		_	4	_		$\sqcup$	_	$\perp$	Ш	_	$\perp$	$\perp$
Highly aggressive liquids		$\perp$		Ш					_	_			4	_		L	Ш		_	4	$\perp$	$\perp$	$\sqcup$	$\perp$	$\bot$	$\sqcup$	$\dashv$	4	$\perp$
Industrial service water		_						<u> </u>					-	•			П						$\sqcup$	$\perp$	$\perp$	$\sqcup$	_	$\perp$	$\bot$
Condensate	_	-		Ш	_	+			_	$\perp$	Н	$\Box$	4	4	4	L	Ш		_	$\dashv$	$\perp$	+	$\vdash$	+	+	$\sqcup$	$\dashv$	+	+
Corrosive liquids	_	+			-	-			_	+			4	_		$\vdash$			_	+	$\perp$	+	+	$\perp$	+	$\sqcup$	$\rightarrow$	+	+
Valuable liquids	_	+		Ш		_		_	+	+	H	$\dashv$	$\dashv$	_	_	L	Н	$\square$	-	$\dashv$	+	+	$\vdash$	+	+	+	+	+	+
Fuels	-	+	-	Ш	-	+		-	-	+	$\vdash$	$\dashv$	$\dashv$	_	4	$\vdash$	Н		$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	+	+	+
Coolants	_	+				_		-	_	+		$\dashv$	$\dashv$	_	_	$\vdash$	Н		_	+	_	+	$\vdash$	+	_	$\vdash$	+	+	+
Cooling lubricant	_	+_			-	+	╆		-	+	H	$\dashv$	_	_	_	L	$\vdash$	H	_	_	+	+	+	+	+	$\vdash$	+	+	+
Cooling water	_				-			<u> </u>					-		_	Ŀ			-	-	+	+	+	+	+	$\vdash$	+	+	+
Volatile liquids Fire-fighting water		+		$\vdash$		+	$\vdash$		+	+	$\vdash$	$\vdash$				L			$\dashv$	+	+		+	+	+	$\dashv$	+	+	+
Solvents		+		$\vdash$		+	$\vdash$		+	+	$\vdash$	$\dashv$	-	-	-				$\dashv$	+	+		++	+	+	$\vdash$	+	+	+
Seawater		+		$\vdash$		+			+	+	$\vdash$	$\dashv$					$\vdash$		$\dashv$	$\dashv$	+	+	+	+	+	$\forall$	+	+	+
Oils		+		$\vdash$		+			+	+	$\vdash$	$\dashv$	-	-				H			+	+	+	+	+	$\forall$	+	+	+
Organic liquids		+		Н		+			+	+		$\dashv$	$\dashv$	+					-	_	+	+	+	+	+	+	+	+	+
Pharmaceutical fluids		+		$\vdash$		+			$\top$	+	$\vdash$	$\dashv$	$\dashv$	$\dashv$			$\Box$	$\vdash$	$\dashv$	$\dashv$	+	+	+	+	+	$\forall$	+	+	+
Polymerising liquids		+		$\vdash$		+			$\top$	+	Н	$\vdash$	$\dashv$	$\dashv$			Н	H	$\dashv$	$\dashv$	+	$^{\dagger}$	$\dagger \dagger$	+	+	$\forall$	+	+	+
Rainwater / stormwater		$\top$		$\Box$					$\top$	$\top$		H	$\dashv$	$\top$			$\Box$	П	$\dashv$	$\dashv$	$\top$	$\dagger$	$\forall$	+	$\top$	$\forall$	$\top$	+	$\top$
Cleaning agents		$\top$		$\Box$		$\top$			$\top$	$\top$	П	$\Box$					П				T.			$\top$	+	$\Box$	$\top$	$\top$	$\top$
Raw sludge				П						$\top$		$\Box$	$\dashv$	$\top$			$\Box$	П	$\dashv$	$\dashv$	1	Ť	$\dagger \dagger$	$\top$		$\Box$	$\top$	$\top$	$\top$
Lubricants		1		$\Box$							П	П	7	$\neg$			$\Box$	П	$\neg$	$\dashv$	$\top$	$\top$	$\sqcap$	$\top$		$\sqcap$	$\top$	$\top$	1
Waste water																													
Swimming pool water		I								Ι															Ι	$\Box$			
Brine																						Ι			I				I
Feed water																													
Dipping paints																	$\Box$			_			$\square$		L	Ш	$\perp$	Ĺ	L
Drinking water								ı				Ш		•					•				$\Box$		$\perp$	Ш	$\perp$	$\perp$	$\perp$
Thermal oil		4		Ш		_	Ш		_	$\perp$	Ш	Щ	4	_			Ш	Щ	_	_	$\perp$	$\perp$	$\sqcup$	$\perp$	4	Ш	$\perp$	4	$\perp$
Hot water						• •		Į.									口							$\perp$	4	$\sqcup$	$\dashv$	4	$\perp$
Wash water																								$\bot$	$\perp$		$\perp$	$\perp$	$\perp$

		표	HPK		Etanorm SY I / KSY	Etaline SYT		MegaCPK	CPKN	Magnochem	Magnochem-Bloc	Etaseco / Etaseco-l	Etaseco RVP	КРН	RPHb / RPHd	RPH-V	RPHmdp	CTN	CHTR	CHTRa	CINCP / CINCN	Feticia	Esugia RWCP / RWCN	WKTR		Hya-Rain / Hya-Rain N	Hya-Rain Eco			
Waste water with faeces	Sd			bs			bs			Sal				Sa										T	S				$\top$	T
Waste water without faeces	Hot water pumps			sdund			chemical pumps			Seal-less pumps				Process pumps										_	Rainwater harvesting systems				$\perp$	
Aggressive liquids	r D	$\perp$		o lio	_		a p			SS D	•			SS p	$\rightarrow$	-	-		-	-	-			$\perp$	SS	_	Ш		$\perp$	$\perp$
Inorganic liquids	vate	$\perp$			_		ηij			<u>-</u>				90		•				•			1	$\perp$	ti u	L	Ш		$\perp$	$\perp$
Activated sludge	t	$\perp$	_	Hot water / thermal	4		her			>ea	╄		_		$\perp$	$\perp$	_	Ш	_	4	4	4		$\perp$	Ves	L	Ш	_	$\perp$	$\bot$
Brackish water	ĬĬ	$\perp$	-	‡	$\perp$		ed c							•		_	<u> </u>	Ш	_	$\dashv$	_			$\perp$	har	L	Ш	$\perp$	$\bot$	$\perp$
Service water		1		er/	_		Standardised			_				•			•	Ш	_	4			_	$\perp$	_te_	-		+	$\bot$	$\perp$
Distillate				wat	$\perp$		dar			-	•				+	+	_	Ш	4	4	4		4	$\perp$	- Ma	L	Ш	+	+	$\perp$
Slurries		+	-	j-	4		tan	Н			-		_		+	+	-	Н	_	4	4	+	+	+	ain	$\vdash$	Н	+	+	+
Explosive liquids	-	+	-	프	+	_	S	▣		-	-			-				Н	•	•	+	_	4		- "	_	Н	+	+	+
Digested sludge		+	-	-	+	+		$\vdash$	$\square$		-	$\vdash$	-		+	+	-	$\vdash \vdash$	$\dashv$	$\dashv$	+	+	+-	+	-	$\vdash$	$\vdash$	+	+	+
Solids (ore, sand, gravel, ash)		+	-	-	+	+				_	+					.   _	+	$\vdash \vdash$	_	_	_	+-			-	$\vdash$	$\vdash$	+	+	+
Flammable liquids River, lake and groundwater	$\vdash$	+	$\vdash$	-	+	+	-	-	-	_					-	-	-	Н	•	•	•	1	#	╀	-	$\vdash$	Н	+	+	+
Liquefied gas	+	+	-	╂	+	-	-	Н		_	$\vdash$				+	+		Н		_	+	+	+		-	$\vdash$	$\vdash$	+	+	+
Food and beverage production	$\vdash$	+	┢	-	+	+	-	Н			╁	$\vdash$	-		+	+	-	Н	-	-	+	+	+	╀	-	$\vdash$	Н	+	+	+
Gas-containing liquids		+		╂	+	+		П			$\vdash$		-		+	+	$\vdash$	Н		$\dashv$	+	+	+	+	-	$\vdash$	$\vdash$	+	+	+
Filtered water		+	$\vdash$	+ -	+	+		H			$\vdash$		-		+	+	$\vdash$			$\dashv$	+	+•	+	+	+ ,		$\vdash$	+	+	+
Geothermal water		+	$\vdash$	1	+	+		Н			$\vdash$	$\vdash$			+	+	$\vdash$	-	-	+	+	+	+	+	-		Н	+	+	+
Harmful liquids		+		-	+	+							П					Н			+	1	+	+	-		$\vdash$	+	+	+
Toxic liquids		+	$\vdash$		+	+	-		Ħ		Ħ		Ħ		_	_	+	Н		_	+			+	-		Н	+	+	+
High-temperature hot water											+=				+-	+=	⊢	Н	$\rightarrow$		$\top$	十	+	+			Н	+	+	+
Heating water		+-	<del>                                     </del>		_			F			+-				$\top$	$\top$	$\vdash$	Н	_	7	$\top$	$\top$	$\top$	$\top$			П	$\top$	+	+
Highly aggressive liquids		$\top$				$\top$						П								$\top$	$\top$	$\top$	$\top$	$\top$			П	$\top$	$\top$	$\top$
Industrial service water																Ť		П												$\top$
Condensate		ī			T											T				-	T	•	T				П			T
Corrosive liquids																														
Valuable liquids															1															
Fuels																				•									$\perp$	$\perp$
Coolants																							1						$\perp$	$\perp$
Cooling lubricant		$\perp$											Ш		$\perp$	╙		Ш						Ļ		L	Ш		$\perp$	Ļ
Cooling water					_						-				_	_		Ш		4			_	$\perp$		L			$\perp$	$\perp$
Volatile liquids		$\perp$			4													Ш	-	•	4	_	1			L	Ш		$\perp$	$\perp$
Fire-fighting water		_	_		4	$\perp$					_		$\sqcup$		$\perp$	$\perp$	_	Ш	$\downarrow$	4	4	4	$\perp$	$\perp$		L	Ш		4	$\perp$
Solvents		+			_	_		▣		-	-			•			-	Ш	•	•	-   -			-		L	Ш	$\perp$	+	$\perp$
Seawater		+	+		_	+					+				+	+	+	Н				4		$\rightarrow$	-	L	$\vdash$	+	+	+
Oils		.			•			Ŀ		-	-	-					-		-	-				+	-	$\vdash$	$\vdash$	+	+	+
Organic liquids	•	+		-	+	+			-		-				1		-		-	-		4	4	+	-	$\vdash$	$\vdash$	+	+	+
Pharmaceutical fluids Polymerising liquids		+	+	-	+	+		_			-	$\vdash$	+		+	+		$\vdash \vdash$	$\dashv$	+	+	+-	+	+	-	$\vdash$	$\vdash$	+	+	+
Rainwater / stormwater		+	-	-	+	+					-	$\vdash$	-		+	+			$\dashv$	+	+		$\rightarrow$	+	-	-		+	+	+
Cleaning agents		+	$\vdash$		•	+		-				•						-	$\dashv$	+		$\rightarrow$		+	-	F		+	+	+
Raw sludge		+	+		_					_	+-	_			+-		Ι-	Н	$\dashv$	+	-+-	+	+-	+	-		$\forall$	+	+	+
Lubricants		+			+	+						$\vdash$						H	$\dashv$	$\dashv$		+		+			$\forall$	+	+	+
Waste water		+	Ē		+	+					╁	$\Box$			+-	+-	┮	$\vdash$	$\dashv$	$\dashv$	+	+					$\forall$	+	+	+
Swimming pool water		$\top$			$\top$	$\top$					$\top$				$\top$	$\top$	$\top$	П	$\dashv$	$\dashv$	$\top$	+	+	T			$\Box$	+	+	+
Brine		$\top$				$\top$									$\top$	$\top$		П	$\dashv$	$\top$	T)		•	$\top$			П	$\top$	$\top$	1
Feed water																														
Dipping paints															I	I							I	Γ					I	I
Drinking water																				•				_					$\perp$	
Thermal oil			-			• •												Ш		_		_		L					$\perp$	$\perp$
Hot water						• •				•	-				$\perp$	$\perp$	_	Ш						$\perp$		L	Ш		$\perp$	$\perp$
Wash water																						4   6								

	Emporia CP	Emporia MB	Emporia PD	Multi Eco	Multi Eco-Pro	Multi Eco-Top	Nox	IXo Pro		KSB Delta Compact	KSB Delta Solo EV	Hya-Solo D	Hya-Solo DSV	Hya-Solo D FL	Hya-Duo D FL	nya-solo D rt. Compact Hya-Duo D Ft. Compact	Surpress Eco SE.2.B	Hya-Eco VP	Hyamat K	Hyamat V	Hyamat SVP	Hyamat SVP ECO	Surpress Eco SE.2.B VP	Surpresschrom SIC.2	Surpresschrom SIC.2 V	Surpresschrom SIC.2 SVP	Surpressbloc SB Surpress Feu SFE	Surpress SP	Surpress SP VP		
Waste water with faeces				_	_	_				-	_	_	_				1	_	Ė	Ė	Ť	_	υ, 	, 	U)	, ,	7	T .	T .	П	$\neg$
Waste water with facces	Domestic water supply systems with automatic control unit / Swimming pool pumps	+		$\Box$	$\dashv$	$\dashv$	$\dashv$	+	Pressure booster systems		Н	$\dashv$	$\dashv$	$\dashv$	+	+	+	+	Н	H	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	+	$\forall$	+
Aggressive liquids	D	+				$\dashv$	$\dashv$	$\top$	syst			$\dashv$		$\dashv$	+		+	+		$\vdash$			$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+		$\dashv$
Inorganic liquids	0	$\top$	$\vdash$	$\Box$	$\dashv$	$\dashv$	$\dashv$	$\top$	-te		П	$\dashv$	$\dashv$	$\top$	$\top$	$\top$	$^{\dagger}$	$\top$	П	П		$\neg$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\top$	+	+	П	+
Activated sludge	g gc	$\top$		П			$\top$	T	000				T	$\top$	$\top$		$^{\dagger}$					T		$\exists$	寸		$\top$	$\top$	$\top$	П	$\top$
Brackish water	声								e p					$\neg$			$\top$								$\neg$			$\top$		П	$\top$
Service water	Ē.								ssur								T											T			
Distillate	\$								Pre																			$\perp$			
Slurries	Init						$\perp$										Γ											$\perp$			
Explosive liquids	o lo																									Ţ					
Digested sludge	ntr						$\Box$							$\Box$			L							I		Ţ		Ţ	$\perp$		
Solids (ore, sand, gravel, ash)	00			Ш															$\Box$	Ш	Ш			$\Box$			$\perp$	$\perp$	$\perp$	Ш	$\perp$
Flammable liquids	ati	$\perp$	$\perp$	Ш	4	_	4	4				_	4	4	4	4	╄	_	Ш			_	_	4	4	4	4	$\perp$	$\perp$	Ш	$\perp$
River, lake and groundwater	ton	$\perp$	_	$\square$	_		$\perp$	$\perp$			Ш		$\dashv$	$\perp$	$\perp$	$\perp$	$\perp$	+	$\vdash$	Щ		_	$\dashv$	4	4	$\downarrow$	$\perp$	+	$\perp$	$\sqcup$	$\perp$
Liquefied gas	an	+	┝	$\square$	-	-	+	+	_	_		-	-	4	+	+	╀	+	Ш	Ш		$\dashv$	-	4	$\dashv$	4	+	+	$\vdash$	Н	+
Food and beverage production	手	+	╀		-	$\dashv$	$\dashv$	+	-	<u> </u>		$\dashv$	-	+	+	+	+	+	Ш	$\square$	-	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	Н	+
Gas-containing liquids	N SI	+	-		_	$\dashv$	$\perp$	4	_	<u> </u>		-	-	$\dashv$	+	+	$\perp$	-				-	$\dashv$	$\dashv$	$\dashv$	_	+	+	$\vdash$	$\square$	+
Filtered water	-tem	+	$\vdash$	Н	$\dashv$	$\dashv$	_	+	_	H		$\dashv$	-	+	+	+	+	+	H	$\vdash$		$\dashv$	$\dashv$	-	$\dashv$	$\dashv$	+	+	+	$\vdash$	+
Geothermal water	SS	+	$\vdash$		$\dashv$	$\dashv$	+	+	-	H		$\dashv$	$\dashv$	+	+	+	+	+	Н	$\square$		$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	$\vdash$	+
Harmful liquids	를_	+	╁	$\vdash$	$\dashv$	$\dashv$	+	+	-	-		-	-	+	+	+	+	+	H	$\vdash$		$\dashv$	-	$\dashv$	$\dashv$	$\dashv$	+	+	+	$\vdash$	+
Toxic liquids High-temperature hot water	ng —	+	$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	+	-	H		$\dashv$	-	+	+	+	+	+	Н	$\vdash$	-	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	$\vdash$	+
Heating water	te.	+	$\vdash$		$\dashv$	$\dashv$	$\dashv$	+	-	-		$\dashv$	$\dashv$	$\dashv$	+	+	+	+	Н	Н		$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	$\vdash$	+
Highly aggressive liquids	× =	+	╁	Н	$\dashv$	$\dashv$	+	+		H		$\dashv$	_	$\dashv$	+	+	+	+	Н	$\vdash$		$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	$\vdash$	+
Industrial service water	Stic	+	$\vdash$		$\dashv$	$\dashv$	$\dashv$	$\top$		Т				$\dashv$	+	+														$\Box$	+
Condensate	me	+				$\dashv$	$\dashv$	$\top$		⊢		$\exists$	_	$\dashv$	+		╁╴	╁	⊨		-	-	_	_	_	_	_	╫	╆		$\dashv$
Corrosive liquids	<u>۵</u> –	$\top$	$\vdash$	$\Box$	$\dashv$	$\dashv$	$\dashv$	$\top$			П	$\dashv$	$\dashv$	$\top$	$\top$	$\top$	$^{\dagger}$	$\top$	П	Н		$\neg$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\top$	$^{+}$	+	П	+
Valuable liquids		$\top$				T	$\top$	T				T	T	$\top$	$\top$		$^{\dagger}$		П			T	T	$\exists$	寸	T	$\top$	$\top$	$\top$	П	$\top$
Fuels							$\neg$							$\neg$			$\top$								$\neg$			$\top$		П	$\top$
Coolants																	$\top$					T			T					П	$\neg$
Cooling lubricant		Τ				T							T				T					T	T	T	一		T	$\top$		П	$\neg$
Cooling water		T				T											T							T	T			T		П	$\neg$
Volatile liquids																															
Fire-fighting water														-	- 1													1			
Solvents				Ш			Ţ						Ţ												I			$\perp$	$\perp$	Ш	
Seawater		$\perp$		Ш			_				Ш		$\perp$	$\perp$		$\perp$	$\perp$	_	Ш	Ш	Щ		$\perp$	_		4	$\perp$	$\perp$	$\perp$	Ш	
Oils		$\perp$	_	Ш	_		4	$\perp$		L	Ш	_	4	4	$\perp$	_	1	_	$\sqcup$	Ш			$\dashv$	4	4	$\downarrow$	$\perp$	$\perp$	4	Ш	_
Organic liquids		$\perp$	_	$\square$	_	_	$\perp$	4		_	Ш	_	$\dashv$	_	_	$\perp$	$\perp$	_	Ш	Ш		_	$\perp$	4	4	$\downarrow$	$\perp$	+	$\perp$	$\square$	_
Pharmaceutical fluids		+	-	$\square$	-	4	$\dashv$	+		_	$\vdash$	_	$\dashv$	+	+	+	+	+	$\vdash$	$\square$	$\Box$	4	$\dashv$	4	$\dashv$	+	+	+	+	$\vdash \vdash$	+
Polymerising liquids		+	+	$\square$	-	4	+	+		<u> </u>		_	_	+	+	+	+		<u> </u>			_	_	_	_	_	+	+	+	$\vdash$	+
Rainwater / stormwater		+	$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	+						+	+	+									-	-	+	┦		$\vdash$	+
Cleaning agents		+	+	$\vdash$	+	$\dashv$	+	+		-	$\vdash$	$\dashv$	+	+	+	+	+	+	$\vdash$	Н	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	+
Raw sludge Lubricants		+	$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	+			$\vdash$	$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	+
Waste water		+	+	$\vdash$	$\dashv$	$\dashv$	+	+			Н	$\dashv$	$\dashv$	+	+	+	+	+	Н	H	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	+	$\vdash$	+
Swimming pool water		+	$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	١.						+	+	+	+										+	+		$\vdash$	+
Brine		+	$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	+				-	_	+	+	+	+	+=			-	_	_	_	_	_	+	+	+-	$\vdash$	+
Feed water		+		$\Box$	$\dashv$	$\dashv$	$\dashv$	+			Н	$\dashv$	$\dashv$	$\dashv$	+	$\top$	+	+	Н	$\vdash$		$\dashv$	$\dashv$	$\dashv$	$\dashv$	+	+	+	+	$\Box$	+
Dipping paints		$\top$	T	П	$\dashv$	$\dashv$	$\dashv$	$\top$			П	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\top$	$\dagger$	$\top$	П	П		$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\top$	+	+	+	П	+
Drinking water							$\dashv$	$\top$						$\dashv$	$\top$	$\top$	ı			П										$\sqcap$	$\top$
Thermal oil		Ť	Ť	П	7		$\dashv$	$\top$			П	$\dashv$	$\dashv$	$\dashv$	$\top$		Ť	Ť	П	П		$\dashv$	$\dashv$	$\exists$	T	$\top$	$\top$	+		П	$\top$
		1	1	ш	$\dashv$	$\dashv$	$\rightarrow$	$\top$					$\rightarrow$	$\rightarrow$	-		1			$\vdash$					$\rightarrow$	$\dashv$	$\rightarrow$	$\neg$	1	$\Box$	$\top$
Hot water																															

	Ama-Drainar M	Ama-Drainer 4 / 5	Ama-Drainer 80, 100	Ama-Porter F / S	Rotex	MK / MKY	Amarlean	AmaDS <sup>3</sup>	Ama-Drainer-Box Mini	Ama-Drainer-Box	Evamatic-Box N	mini-Compacta	Compacta	CK 1000 Pump Station	Ama-Porter CK Pump Station	SRP	SRL	SK5	Amarex N	Amarex KRT	Amarex KRT (jacket cooling)	Amarex KRT (convection cooling)								
Waste water with faeces	bs					2	2 ■											S												Т
Waste water without faeces	Ę																	<b>■</b>   <u>Ĕ</u>												$\top$
Aggressive liquids	rp			П		ŧ	Sta											r			T									
Inorganic liquids	ate	T		П	T	2	Lilling units/ purnp stations		П									Submersible motor pumps				T					П			$\top$
Activated sludge	8			П		2												Ĕ									П			
Brackish water	ast					++	2											- Pigi												
Service water						2												ers												
Distillate	Sd	Ť	İ			2	ב		П	T			Ť			Ħ		ph			T			Ť					Ì	$\top$
Slurries	ğ		1			<u>‡</u>												Su		П		一								$\top$
Explosive liquids	Je E																				Ì									$\top$
Digested sludge	0)			П	$\neg$			$\top$	$\Box$	$\Box$	$\neg$	$\top$	$\top$	$\top$		$\sqcap$	$\top$						$\neg$	$\top$	$\top$		$\sqcap$	$\neg$		$\top$
Solids (ore, sand, gravel, ash)	rai			П	$\dashv$			$\top$	$\Box$	$\dashv$	T	$\top$	$\top$	$\top$		$\sqcap$	$\top$			П		$\dashv$	$\top$	$\top$	$\top$	1	$\sqcap$	$\dashv$	$\top$	$\top$
Flammable liquids		T		П	$\neg$			$\top$		$\Box$	$\neg$	$\top$				П	$\top$			П	$\exists$	$\dashv$	$\neg$	$\top$	$\top$	$\top$	П	$\dashv$		$\top$
River, lake and groundwater								$\top$	$\Box$	$\Box$	$\neg$	$\top$	$\top$	$\top$	$\top$	$\Box$	$\top$				$\neg$		$\neg$	$\top$	$\top$		$\sqcap$	$\neg$	$\top$	$\top$
Liquefied gas																					Ì									$\top$
Food and beverage production		Ť							П	T						Ħ					T	T		T						$\top$
Gas-containing liquids				П																										$\top$
Filtered water				П																										$\top$
Geothermal water				П																										
Harmful liquids																														$\top$
Toxic liquids																														T
High-temperature hot water																														
Heating water																														
Highly aggressive liquids																														
Industrial service water																														
Condensate																														$\perp$
Corrosive liquids																														$\perp$
Valuable liquids																														$\perp$
Fuels				Ш	4					_			_			Ш				Ш	_	_	_	_			Ш			$\perp$
Coolants							L																							$\perp$
Cooling lubricant				Ш	4		L									Ш						_		_						$\perp$
Cooling water				Ш	_											Ш					_		$\perp$	_						$\perp$
Volatile liquids		$\perp$	_	Ш				$\perp$	Ш			_	$\perp$	$\perp$		Ш				Ш				$\perp$		$\perp$	Ш			$\perp$
Fire-fighting water		4	_	Ш				$\perp$	Ш		_	4	$\perp$	$\perp$	$\perp$	Ш	$\perp$		L	Ш			$\perp$	$\perp$		$\perp$	Ш		$\perp$	$\perp$
Solvents		$\perp$	1	Ш	_			_	Ш	_	_	$\perp$	_	$\perp$	1	Ш	_		L	Ш		_		_		_	Ш	_	$\perp$	$\perp$
Seawater		$\perp$	$\perp$	Ш	_			$\perp$	Ш		_		•	$\perp$		Ш			▝			_	_	$\perp$		$\perp$	Ш	_	$\perp$	$\perp$
Oils		4	_	Ш	_ !			$\perp$	$\sqcup$	_	_	4		$\perp$	_	Ш	$\perp$		L	$\sqcup$		_	$\perp$	4	_	_	Ш	$\perp$	$\perp$	$\perp$
Organic liquids		$\perp$	_	Ш	4			$\perp$	$\sqcup$	_	4	4	$\perp$	$\perp$	_	$\sqcup$	$\perp$			$\sqcup$	_	4	$\perp$	$\perp$	$\perp$	$\perp$	$\sqcup$	_	$\perp$	$\perp$
Pharmaceutical fluids		4	_	$\sqcup$	4			$\perp$	$\sqcup$	_	4	4	$\perp$	$\perp$	-	$\sqcup$	$\perp$		L	$\sqcup$	_	4	$\perp$	$\perp$	_	-	$\sqcup$	_	$\perp$	+
Polymerising liquids		4	1	$\square$	_			$\perp$	$\sqcup$	_	_	$\perp$	4	$\perp$	$\vdash$	$\sqcup$	_		L	$\sqcup$	_	_	$\perp$	$\perp$	_	-	$\sqcup$	_	4	+
Rainwater / stormwater		4	+	Ш	$\perp$			$\perp$	$\vdash$	4	_	4	4	+	1	$\sqcup$	_		L		_		$\perp$	4	_	+	$\vdash$	_	4	$\bot$
Cleaning agents		+	+	Н	4			+	$\vdash$	4	4	$\perp$	4	+	-	$\vdash$	$\dashv$		L		_	_	+	4	$\perp$	+	$\vdash$	$\perp$	$\perp$	+
Raw sludge		+	+	$\vdash \vdash$	-			+		_	_	+	+	+	-	$\vdash \vdash$	$\dashv$		L			$\dashv$	+	+	+	+	$\vdash \vdash$	$\dashv$	-	+
Lubricants		+-	+-		_			+		_	_	_	_	+-	+	$\vdash$	_		Ŀ		_	_	+	+	+	+	$\vdash$	+	+	+
Waste water			-					-			$\rightarrow$	$\rightarrow$	$\rightarrow$		1				F				+	+	+	+	$\vdash$	+	+	+
Swimming pool water		+	+	$\vdash$	+			+	$\vdash$	$\dashv$	+	- 1	-	+	$\vdash$	$\vdash$	+	_	H		$\dashv$	$\dashv$	+	+	+	+	$\vdash$	+	+	+
Brine Feed water		+	+	$\vdash \vdash$	+			+	$\vdash$	$\dashv$	+	+	+	+	$\vdash$	$\vdash$	+		H		$\dashv$		+	+	+	+	$\vdash$	+	+	+
		+	+	$\vdash$	+			+	$\vdash$	-	+	+	+	+	-	$\vdash$	+			$\vdash$	$\dashv$	-	+	+	+		$\vdash$	+	+	+
Dipping paints		+	+	$\vdash$	+			+	$\vdash$	$\dashv$	+	+	+	+	$\vdash$	$\vdash$	+				$\dashv$	_	+	+	+	+	$\vdash \vdash$	+	+	+
Drinking water Thermal oil		+	+	$\vdash$				+	$\vdash$	-	+	+	+	+	$\vdash$	$\vdash$	+		H		$\dashv$	-	+	+	+	+	$\vdash$	+	+	+
Hot water		+	+	$\vdash$	+			+	$\vdash$	$\dashv$	+	+	+	+	$\vdash$	$\vdash$	+			$\vdash$	$\dashv$		+	+	+	+	$\vdash$	+	+	+
Wash water		+	+	$\vdash$	+			+	$\vdash$	$\dashv$	+	+	+	+	+	$\vdash$	+	-	Н	$\vdash$	$\dashv$	-	+	+	+	+	$\vdash$	+	+	+
vvasii watei				$\Box$						1																				

	V	Amacan P	Amacan S			_	Amajet		Sewatec		Sewabloc KWD / KWD Bloc	_	WBC	LSA-S	ILCC-M	LCC-R	TBC	FGD	МНД	댐	MDX	ZW		Etaprime L	Etaprime B	EZ B/L	AU	AU Monobloc		
Waste water with faeces	pes	+		units	$\rightarrow$	_		<u>i</u>	Ŀ	-		■ Sdu	L			_	$\perp$	-			4		Sdu		$\square$	_	_	+	+	$\perp$
Waste water without faeces	- t	+	$\vdash$			-		_ €	Ŀ				H			_	+	+		-	+	+	_ und			_		_	+	+
Aggressive liquids Inorganic liquids	arge	+	$\vdash$	ni.	$\vdash$	$\dashv$	+	-de		$\vdash$	-	<u>_</u> 5	-		-	-	+	+	Н	$\dashv$	+	+	ng	P		$\dashv$	-	-	+	+
Activated sludge	isch	1	$\vdash$	clea	$\vdash$	$\dashv$	١,	■ Re-la		$\vdash$		 NS	H		$\dashv$	$\dashv$	+	+			+	+	Self-priming pumps	Н	$\vdash$	$\dashv$	$\dashv$	+	+	+
Brackish water	- g	+	$\vdash$	¥	$\vdash$	$\dashv$	+		F	$\Box$	_	-	Н		$\dashv$	$\dashv$	+	+			+								+	+
Service water	i sd			/ta	$\Box$	$\dashv$	•	or s		$\Box$					$\dashv$	$\dashv$		$\dagger$			$\top$		Se	Ē		$\exists$	$\exists$	_	$\top$	$\top$
Distillate	E I	$\top$		ors	П		$\top$	ps f		П					$\exists$	$\neg$					$\top$			Г	П	$\Box$	$\Box$	$\top$		
Slurries				Mixers / agitators / tank cleaning				Pumps for solids-laden fluids									• •						ı							
Explosive liquids	rsibl	$\perp$		/ ag				_																						
Digested sludge	me			ers	П	$\Box$	$\perp$			П	•		L	Ш	Д	Ţ	$\perp$		Ш	Ţ	Ţ				Ш	$\Box$	$\perp$	$\perp$	$\perp$	L
Solids (ore, sand, gravel, ash)	qns		$\Box$	×	Ц	_[				Ш							• •				П				Ш	$\Box$	$\Box$	$\bot$		Ļ
Flammable liquids		$\bot$	$\vdash$		Щ	_	$\perp$		L	Ш	_	_	_		_	4	_	$\perp$		_	4	_			Ш	4	4	+	_	$\perp$
River, lake and groundwater		-	-		$\dashv$	+	+				-		L	$\square$	_	$\dashv$	+	+	Ш	$\dashv$	+	+				_		-	+	+
Liquefied gas  Food and beverage production		+	$\vdash$		$\dashv$	+	+		-	$\vdash$	+		-	$\vdash$	$\dashv$	+	+	+	$\vdash$	$\dashv$	+	+			$\vdash$	$\dashv$	$\dashv$	+	+	+
Gas-containing liquids		+	$\vdash$		$\vdash$	$\dashv$	+	-	$\vdash$	$\vdash$	١.		-	$\vdash$	$\dashv$	$\dashv$	+	+		+	+	-	-	Н	$\vdash$	$\dashv$	$\dashv$	+	+	+
Filtered water		+	$\vdash$		$\vdash$	-	+	_	$\vdash$	$\vdash$	-   -	-			$\dashv$	$\dashv$		+			+	-	-	Н	$\vdash$		$\dashv$	+	+	+
Geothermal water	_	+	$\vdash$		$\vdash$	$\dashv$	+	-	Н	$\vdash$	+	-			$\dashv$	$\dashv$	+	+	Н	$\dashv$	+	+	-	Н	$\vdash$	-	+	+	+	+
Harmful liquids		+			$\Box$	$\dashv$	$\dashv$			$\Box$					$\dashv$	$\dashv$		+			$\dashv$			Н	Н	$\dashv$	$\dashv$	+	+	+
Toxic liquids		$\top$	$\vdash$		П	$\neg$	$\top$			П	T			П	$\exists$	寸	$\top$	$\top$	П	$\neg$	$\top$	T		Г	П	$\exists$	$\top$	$\top$	$\top$	$\top$
High-temperature hot water																														
Heating water																														
Highly aggressive liquids		$\perp$			Щ	$\perp$	$\perp$			Ш					_	_	$\perp$	$\perp$	Ш	_	$\perp$				Ш	$\square$	$\dashv$	$\perp$	_	$\perp$
Industrial service water			▝			_	-	_	_				_		-	_	_	-			+	_	_		$\square$	$\dashv$	$\dashv$	+	_	+
Condensate		+	$\vdash$		$\vdash$	$\dashv$	+	4	$\vdash$	$\vdash$	+_		_		_	_	+	+		_	+	+	4			$\dashv$	$\dashv$	+	+	+
Corrosive liquids Valuable liquids		+			$\vdash$	$\dashv$	+	-	$\vdash$			_	$\vdash$			-	+	-			+	+	-	H	$\vdash$	$\dashv$	$\dashv$	+	+	+
Fuels		+	$\vdash$		$\vdash$	+	+	-	$\vdash$	Н	+	-	$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	+	Н	+	+	+	-	Н	H	+	+	+	+	+
Coolants	_	+	$\vdash$		$\vdash$	$\dashv$	$\dashv$					-			$\dashv$	$\dashv$		+			+	_	-	Н	H	$\dashv$	$\dashv$	+	+	+
Cooling lubricant		+	$\vdash$		H	$\dashv$	$\top$			$\Box$	$\top$			П	$\dashv$	$\dashv$		+			$\top$	$\top$		Н	П	$\dashv$	$\top$	+	_	$^{\dagger}$
Cooling water		$\top$	$\vdash$		П	$\neg$	$\top$		Г	$\Box$				П	$\exists$	$\dashv$	$\neg$	$\top$	П		$\top$					$\exists$				$\top$
Volatile liquids						_†																				$\Box$	$\Box$	_		
Fire-fighting water																													I	I
Solvents						Ţ				Ш			L	Ш					$\Box$	Ţ	I				П	$\Box$	$oldsymbol{\bot}$	$\bot$	$\perp$	Ĺ
Seawater	_	$\perp$	$\vdash$		Щ	4	$\perp$			$\sqcup$			L	Ш	4	_	$\perp$	$\perp$	Ш	$\dashv$	$\downarrow$	_			-			•	$\perp$	$\perp$
Oils		+	$\vdash$		$\sqcup$	+	+		-	$\square$	+		_	$\square$	_	$\dashv$	+	+	Ш	$\dashv$	+	+		•			$\dashv$	+	+	+
Organic liquids		+	$\vdash$		$\dashv$	+	+	4	-	$\vdash$	_		_	$\vdash$	$\dashv$	-	-	+	Н	-	+	+			$\vdash$	$\dashv$	$\dashv$	+	+	+
Pharmaceutical fluids Polymerising liquids		+	$\vdash$		$\vdash$	$\dashv$	+	-	-	$\vdash$	+		-	$\vdash$	$\dashv$	$\dashv$	+	+	$\vdash$	+	+	+		$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	+	+
Rainwater / stormwater		+			$\vdash$	+					_		$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	+	$\vdash$	$\dashv$	+	+		Н	$\vdash$	$\dashv$	$\dashv$	+	+	+
Cleaning agents		+	-		$\vdash$	+	-				-		-	$\vdash$	$\dashv$	$\dashv$	+	+	Н	$\dashv$	+	+				$\dashv$	+	+	+	+
Raw sludge		+			$\vdash$	$\dashv$	+							H	$\dashv$	$\dashv$	+	+	$\vdash$	$\dashv$	+	+		F		$\dashv$	+	+	+	+
Lubricants		$\top$	$\vdash$		$\sqcap$	$\dashv$	$\top$		Ē	$\Box$	$\top$			П	$\dashv$	$\dashv$	+	$\top$	П	$\dashv$	$\top$	$\top$		Г	П	$\dashv$	$\top$	+	+	+
Waste water	_	$\top$	П		$\sqcap$	$\dashv$	$\top$						Г	П					П	$\dashv$	1	•			П	$\dashv$			$\top$	
Swimming pool water																					j						二			I
Brine		T																									$\Box$		$\perp$	
Feed water						Ţ	T														I				П		$\Box$	$\perp$	Ţ	L
Dipping paints		$\perp$	$\perp$		Ц	4	$\perp$		_	$\sqcup$			_	Ш	Ц	4	$\perp$	$\perp$	Ш	4	$\perp$				Ш	$\sqcup$	$\dashv$	$\perp$	$\perp$	$\perp$
Drinking water					$\Box$	4	$\perp$			$\sqcup$	$\perp$		L	Ш	$\Box$	4	$\perp$	$\perp$	Ш	$\perp$	4	$\perp$					$\dashv$	$\perp$	$\perp$	$\perp$
Thermal oil		+	$\vdash$		$\vdash$	+	+		_	$\vdash \vdash$	+		_	$\vdash$	$\dashv$	$\dashv$	+	$\vdash$	$\vdash$	$\dashv$	+	+	-		$\vdash$	_	$\dashv$	+	+	+
Hot water Wash water	_	+	$\vdash$		$\vdash$	$\dashv$	+		$\vdash$	$\vdash$			-		$\dashv$	$\dashv$	+	+	$\vdash$	$\dashv$	+	-		$\vdash$	$\vdash$		$\dashv$	+	+	+

	1 441	UPAchrom 100 CC	UPA 150 C	UPA 200, 200B, 250C	UPA 300, 350	Ura-z / Ura-n	B-Pump		Comeo	Movitec H(S)I Movitec	Movitec VCI	Multitec	Omega	RDIO	RDLP		Vitachrom	Vitacast/Vitacast Bloc	Vitaprime	Vitastage Vitaloho	Vitalobe	CHTA / CHTC / CHTD	HGB / HGC / HGD	HGM	YNK	LUV / LUVA	WALIB SEZ / SEZT / PHZ / PNZ	SNW / PNW	Beveron	SPY
Waste water with faeces	bs		$\perp$			SQ		bs					bs			es					S									
Waste water without faeces	Submersible borehole pumps	_	$\bot$	Ш		Deep-well turbine pumps		High-pressure pumps		_	_	Ш	bnmps	_	_	industries	Ш	_	_	_	islands	L		Ш	$\sqcup$	_	_	_	L	
Aggressive liquids	e b	_	$\bot$	Ш	_	e	_	9 0		_	╄	Ш	split	_	$\perp$	nd		4	_	$\perp$			_	Ш	$\dashv$	4	4	$\bot$	$\perp$	$\bot$
Inorganic liquids	eho	_	+		_	id		ssn		-	-	Ш	ly sp	_	+	cali		-	_	+	conventional	H	-	$\square$	$\vdash$	+	+	+	+	+
Activated sludge Brackish water	bor	+	+	$\vdash$	-	_ =	-	ģ		+	+		<u></u>			and pharmaceutical	$\vdash$	$\dashv$	+	+	-len	H	-	$\vdash$	$\vdash$	+	+	+	+	+
Service water	- pe					- ×	H	lg lg	, <del>   </del>	+	+	H	٤			Jace	H	$\dashv$	$\dashv$	+	- lo	$\vdash$	$\vdash$	$\vdash$	$\vdash$	+	+			
Distillate	ersi	-	+-	-		- deb	_					Н	ľ	+	+-	arn		$\dashv$	$\dashv$	+				H	$\vdash$	+	+-	+-	۳	+-
Slurries	pu	+	+	П		ے				=+=	+-	П		$\top$		d p	H	$\dashv$	$\dashv$	$\top$	station	Н		H	$\vdash$	$\top$	+	+	$^{\dagger}$	+
Explosive liquids	S		$\top$	П	$\neg$						$\top$	П		$\top$	$\top$	anc		$\dashv$	$\top$	$\top$	er s			$\Box$	$\Box$	$\top$	$\top$	$\top$	T	+
Digested sludge																age					power	Г		П					T	$\top$
Solids (ore, sand, gravel, ash)																beverage					or p									
Flammable liquids		_	$\perp$	Ш			L		Ш	$\perp$	$\perp$	Ш		$\perp$	$\perp$		Ш	4	_	$\perp$	Pumps for	L		Ш	$\Box$	4	$\perp$		L	$\perp$
River, lake and groundwater	بالل									_	_		•		<u> </u>	food,	Ш	_	_	$\perp$	_ 5	L		Ш	$\sqcup$	_				
Liquefied gas	-	_	+		_		_			_	+			_	+	e fc	Ш	4	_	+	_	_	-	Ш	$\vdash$	+	+	+	$\perp$	$\perp$
Food and beverage production	+	_	+	Н	_		$\vdash$	-	$\vdash$	_	+	Ш		+	+	r the		•	-   '	4	-	L	-	$\vdash$	$\vdash$	+	+	+	+	+
Gas-containing liquids Filtered water	+	-	+	$\vdash$	+	-	$\vdash$			+	+		H	+	+	s for		$\dashv$	+	+	-	H	$\vdash$	$\vdash$	$\vdash$	+	+	+	+	+
Geothermal water	1 -	+	+	H	+	-	$\vdash$			+	+	Ħ		+	+	bumps	H	$\dashv$	+	+	-	H	┢	$\vdash$	$\vdash$	+	+	+	+	+
Harmful liquids			+	$\vdash$	_					+	+			+	+	nd :		$\dashv$	$\dashv$	+	-	H		$\vdash$	$\vdash$	+	+	+	+	+
Toxic liquids		+	+	$\Box$	$\dashv$					+	+	$\vdash$		+	+	Hygienic		$\dashv$	$\dashv$	+		H	$\vdash$	$\vdash$	$\dashv$	+	+	+	+	+
High-temperature hot water		$\top$	+	П	$\dashv$						$\top$					lygi	$\Box$	$\dashv$	$\top$	$\top$							$\top$	$\top$	T	+
Heating water		Ť		П						Ť			•			_		T				Г		П		T	Ť			T
Highly aggressive liquids																														oxdot
Industrial service water	<u>.</u>		<u> </u>															4	_			L		Ш	$\square$	4				
Condensate	-	_	$\bot$	Ш	_							◾		4				4	_	$\perp$			•				•	$\bot$	$\perp$	
Corrosive liquids	-	_	+		_					-	-	Ш	H	_	+			-	_	+	-	H	-	$\square$	$\vdash$	+	+	+	+	+
Valuable liquids Fuels	-	+	+	$\vdash$	$\dashv$		$\vdash$		$\vdash$	+	+		_	+	+		$\vdash$	$\dashv$	+	+	-	H	-	$\vdash$	$\vdash$	+	+	+	+	+
Coolants	+	+	+	$\vdash$	$\dashv$	-				+	+		-	+	+		$\vdash$	$\dashv$	$\dashv$	+	-	$\vdash$	$\vdash$	$\vdash$	$\dashv$	+	+	+	+	+
Cooling lubricant	┪	+	+	$\vdash$	$\dashv$	-				+		$\vdash$		+	+			$\dashv$	+	+	-	H		$\vdash$	$\dashv$	+	+	+	+	+
Cooling water	_										_	П					H	$\dashv$	$\dashv$	+		H	$\vdash$	$\vdash$	$\dashv$	+				
Volatile liquids		_	+-							_	1				+			$\dashv$	$\top$			H		H	$\vdash$	$\top$	+-	+	T	╁
Fire-fighting water															ı T		П	$\dashv$	$\top$	$\top$		Г		П	$\Box$	$\top$	$\top$	$\top$	T	$\top$
Solvents																														
Seawater																														
Oils													L	$\perp$			Ш			$\perp$		L		Ш	$\Box$		$\perp$	$\perp$	$\perp$	$\perp$
Organic liquids		_	$\bot$	Ш	_		L			_	$\perp$			$\perp$	$\perp$		Ш	4	_	_		L	_	Ш	$\dashv$	4	$\perp$	$\bot$	$\perp$	$\perp$
Pharmaceutical fluids		_	+	H	_					_	+	Ш	_	+	+			•	-		-	L	-	$\square$	$\vdash$	_	+	+	╀	+
Polymerising liquids Rainwater / stormwater		+	+	$\vdash$	+		-			+	+	$\vdash \mid$		+	+		$\vdash \vdash$	$\dashv$	+	+			-	$\vdash \vdash$	$\vdash$	+	+-		+	+
Cleaning agents		+	+	$\vdash$	+					+	+			+	+		$\vdash$	$\dashv$	+	+			$\vdash$	$\vdash$	$\dashv$	+	-	-		+
Raw sludge			+	$\vdash$	_					+	+			+	+			$\dashv$	$\dashv$	+	-	H		$\vdash$	$\vdash$	+	+	+	+	+
Lubricants			+															$\dashv$	$\dashv$					$\vdash$	$\vdash$	$\dashv$	+		t	+
Waste water			$\top$	П							$\dagger$	П		$\top$			П	T	$\top$			Г		П	$\Box$		$\top$		$^{\dagger}$	$\top$
Swimming pool water			I																_										İ	İ
Brine			I											Ι													$\perp$		Γ	
Feed water			$\perp$	П					Щ								Ш	Ţ				Ē				•	Ţ			$\perp$
Dipping paints		4	$\perp$	Ш	4		L			_	$\perp$	Ш		$\perp$	$\perp$		Щ	4	$\perp$	$\perp$		L	_	Ш	$\perp \downarrow$	4	$\perp$	$\perp$	$\perp$	$\perp$
Drinking water			•											1					-				-	$\sqcup$	$\dashv$	+	+	+	$\perp$	+
Thermal oil		+	+	$\vdash$	+				$\vdash$	+	+			+	+			$\dashv$	+	+		_	-	$\vdash$	$\dashv$	+	+	+	+	+
Hot water Wash water	-		+	$\vdash$	+		$\vdash$			-	-	뮈		• •	+		$\vdash$	+	+	+		$\vdash$	-	$\vdash$	$\dashv$	+	+	+	+	+
vvasii water		-   -								-   -	1 = 1			[						L				1 I	. 1					

		RER	RUV	PSR	RHD	LUV Nuclear	RHM	RVM	RHR	RVR	Og Won	Ou-Min	Multitec-RO		RC / RCV		EDS DU/EU		KSB SuPremE	KSB UMA-S	PumpDrive 2/PumpDrive 2 Eco	PumpDrive R		PumpMeter							
Waste water with faeces	SC		Т									Т		SC							<b>E</b> ■		si		$\top$					$\top$	$\top$
Waste water without faeces	tior							T			osmosis	$\top$		Ĕ		ten		Drives			system		diagnosis		丁				П		$\top$
Aggressive liquids	sta							T			OSF		T).	t D		SS			П	<b>-</b>	25		iag		$\Box$				П		$\top$
Inorganic liquids	power stations										Pumps for desalination by reverse			Positive displacement pumps		Fire-fighting systems					Variable speed		р								
Activated sludge	bo										eve			e l	- 1	ght					e sk		Monitoring and		$\Box$						
Brackish water	Pumps for nuclear	$\perp$									ا ۾			eg	9	- - - -					ap =		ri		$\perp$				Ш		$\perp$
Service water	<del>y</del>										o		_ :	8	i	= _			Ш		/arı		ito						Ш		$\perp$
Distillate	r									_	lati	$\perp$		Į į						_		$\rightarrow$	Jon		4				Ш		$\perp$
Slurries	s fc		$\perp$								<u>=</u> _	$\perp$		So							Ŀ	_	_		4				Ш		$\perp$
Explosive liquids	m m		$\perp$	$\perp$						_	des	$\perp$	_[	-											4	$\perp$	_	$\perp$	Ш	_	$\perp$
Digested sludge	Pu	_	$\perp$	_				_		_	وّ	$\perp$								_					4	$\perp$		$\perp$	$\sqcup$	_	$\perp$
Solids (ore, sand, gravel, ash)		$\perp$	_	_					$\Box$	_	sd	$\perp$	_									_			4				$\sqcup$	_	$\perp$
Flammable liquids		$\perp$	$\bot$	_	_			_	$\Box$	_	<u>ا</u> ر	$\perp$	_	-			4			4				_	4	_	_	$\perp$	$\vdash$	_	+
River, lake and groundwater	-	+	$\perp$	-				_	$\Box$	_	<u>-</u>	$\perp$	4	-	_	H	_			_		_		•	$\dashv$	_	_	-	$\vdash$	_	+
Liquefied gas		_	+	-				-	$\dashv$	4		+	_	-		H	_			-				_	$\dashv$	_	_	+	$\vdash$	+	+
Food and beverage production	-	-	+	+				-	$\dashv$		-	+	4	H	-	$\vdash$	-	-		$\dashv$	•			-	+	+	+	+	$\vdash$	+	+
Gas-containing liquids		+	+	+				$\dashv$	$\vdash$	$\dashv$		+	-	-	-	-	+	-		$\dashv$	-	+-		_	+	+	+	+	$\vdash$	+	+
Filtered water Geothermal water		+	+	+				$\dashv$	$\dashv$	-		+.	-1	-		H	-			-	-			-	+	+	+	+	$\vdash$	+	+
Harmful liquids	-	-	+	+				$\dashv$	$\dashv$	$\dashv$		+	-	-			+	-	Н	-		+		-	+	_	+	+	++	+	+
Toxic liquids		+	+	+	┢			$\dashv$	$\dashv$	$\dashv$		+	-	H	-	H	-			-				-	+	+	+	+	$\vdash$	+	+
High-temperature hot water		+	+	+				$\dashv$	$\dashv$	$\dashv$		+	$\dashv$	-		H	+			$\dashv$					+	+	+	+	$\vdash$	+	+
Heating water		+	+	+				$\dashv$	$\dashv$	$\dashv$		+	-	-			+	-		$\dashv$		_			+	+	+	+	$\vdash$	+	+
Highly aggressive liquids		+	+	+				$\dashv$	$\dashv$	$\dashv$		+	-	-			+			$\exists$				-	+	+	+	+	$\vdash$	$\dashv$	+
Industrial service water		_	+	+				$\dashv$	$\dashv$	$\dashv$		+	$\dashv$				+								+	+	+	+	+	+	+
Condensate		$\top$	+	+				$\dashv$	$\dashv$			+								$\exists$		_		_	$\top$	$\dashv$	+	$\dagger$	$\vdash$	$\top$	+
Corrosive liquids		$\neg$	$\dagger$	$\top$				$\neg$	$\dashv$			$^{\dagger}$								$\exists$		_		$\dashv$	$\top$	$\top$	$\top$	$\top$	$\Box$	$\top$	+
Valuable liquids		$\top$	$\top$	$\top$				$\neg$	$\Box$	$\exists$		$\top$										_			$\top$	$\top$		$\top$	$\Box$	$\top$	+
Fuels		$\neg$	$\top$	$\top$					$\Box$			$\top$													$\top$	$\top$			$\vdash$	$\top$	+
Coolants												$\top$													寸				$\Box$		+
Cooling lubricant			$\top$						$\Box$			$\top$													$\top$			$\top$	П	$\neg$	$\top$
Cooling water												$\top$							П						$\top$				П		$\top$
Volatile liquids								T				$\top$	T												丁			İ	П	T	$\top$
Fire-fighting water			Т																						$\Box$				П		$\top$
Solvents																															
Seawater																															
Oils			$\perp$																Ш												
Organic liquids																															$\perp$
Pharmaceutical fluids		_	$\perp$	_				_		_		$\perp$							Щ	_		$\perp$			4	$\perp$		$\perp$	$\sqcup$	_	$\perp$
Polymerising liquids			$\perp$							_		$\perp$								_					4				$\sqcup$	_	$\perp$
Rainwater / stormwater		$\perp$	$\perp$	-	_	<u> </u>		_	$\sqcup$	_		$\perp$	_				$\perp$			_				_	4	$\perp$	4	$\perp$	$\sqcup$	$\perp$	+
Cleaning agents		_	$\perp$	+	_			_	$\sqcup$	_		$\perp$					+			_				-	4	$\perp$	4	+	$\vdash$	4	+
Raw sludge		+	+	-	-	-		_	$\sqcup$	_		+	_				+			_				_	$\dashv$	+	+	+	$\vdash$	+	+
Lubricants		+	+	+	-	_		_	$\vdash$	$-\parallel$		+			-		+			-				_	+	+	4	+	$\vdash$	+	+
Waste water		+	+	+	-			$\dashv$	$\vdash$	$\dashv$		+		-	_		+			-				_	+	+	+	+	+	+	+
Swimming pool water		+	+	+	-	-		$\dashv$	$\vdash$	$-\parallel$		+	_				+			-		+-		-	+	+	+	+	+	+	+
Brine Feed water		+	+	+					$\vdash$	$-\parallel$	-	•	-		_		+			-				-	+	+	+	+	+	+	+
Feed water Dipping paints		+	+	+		$\vdash$			$\dashv$	$-\parallel$		+	-	-			+			-	ŀ			-	+	+	+	+	+	+	+
Dipping paints  Drinking water		+	+	+	$\vdash$	$\vdash$		$\dashv$	$\vdash$	$-\parallel$		+	-	-	-		+		H						+	+	+	+	+	+	+
Thermal oil		+	+	+	$\vdash$			$\dashv$	$\dashv$	$\dashv$		+			-		+			-1				-	+	+	+	+	+	+	+
Hot water		+	+	+	$\vdash$			$\dashv$	$\dashv$	$-\parallel$		+	-[				+			-					+	+	+	+	+	+	+
Wash water		+	+	+	$\vdash$			$\dashv$	$\dashv$	$\dashv$		+					$\top$					+			+	+	$\top$	+	+	+	+
					_					_																					

	Calio-Therm S NC/NCV	Calio-Therm NC		Calio-Therm S	Calio S	Calio	Calio Z		Etaline L	Etaline DL Ftaline	Etaline 7	Etaline-B	ILN	ILNC	Megaline		Etanorm	Etanorm-K	Etachrom B	Etachrom L	Etanorm V	Meganorm	Megabloc							
Aquaculture	eq		pa		eq			sdu		$\perp$	$\perp$					sdu		$\perp$							$\Box$				$\Box$	$\perp$
Spray irrigation Mining	l spe	+	e spe	$\dashv$	= sbe	+	┢	bumps	_	+	+	+	₽		-	D -	-	-			-			$\dashv$	+	_	+	$\vdash$	+	+
Irrigation	Drinking water circulators, fixed speed	$\top$	variable speed		Circulators, variable speed	+	$\vdash$	In-line	$\dashv$	+	$^{+}$	+		•	Н	Standardised / close-coupled							Н	$\dashv$	$\dashv$		+	$\Box$	+	+
Chemical industry	ors,				, var			흐		$\perp$	$\perp$					no		•							4		_	П	$\bot$	$\perp$
Dock facilities Drainage	nlat	+	circulators,	$\dashv$	ators –	+	$\vdash$	-	-	+	+	+	-		$\blacksquare$	lose	+	+	+	+	-			$\dashv$	+		+	$\vdash$	+	+
Pressure boosting	i di	+	cula			+			$\dashv$	+	+		+			ار ا	+	+	+			r		$\dashv$	+		+	$\vdash$	+	+
Sludge thickening	ater		r cir		<u>י</u> בֿ						İ					dise														工
Disposal	≥ M		Drinking water			$\perp$				$\perp$	1	_	$\perp$			ndar	4	_	$\perp$		_				$\dashv$		-		$\dashv$	$\perp$
Dewatering  Descaling units	ş	+	ng v	$-\parallel$		+	$\vdash$	-	$\dashv$	+	+	+	-			Star			-		₽			$\dashv$	+	-	+	$\vdash$	+	+
District heating		+	rinki													-			+	+				$\dashv$	+	_	+	$\Box$	+	+
Solids transport			۵								İ																			工
Fire-fighting systems		$\perp$				$\perp$	_		4	$\perp$	+	-	-			-	_		•	_	-			_	$\dashv$	_	-	$\square$	$\dashv$	$\bot$
Geothermal energy applications Drawdown of groundwater levels	-	+		-		+	╁	-	$\dashv$	+	+	+	+	-		-	-	-	+	+	-			$\dashv$	+	-	+	$\vdash$	+	+
Maintaining groundwater levels		$\top$				+	$\vdash$		$\dashv$	+	+					-	$\dashv$	+							+		+	$\Box$	+	+
Domestic water supply											I														工				$\Box$	工
Flood control / coast protection		$\vdash$				+	-		_	+	+	-	+			_	_	+	+	-				_	+	_	-	$\square$	$\dashv$	+
Homogenisation Industrial recirculation systems					١.					+					-	_		-			$\vdash$		Н	$\dashv$	+	+	+	$\vdash$	+	+
Nuclear power stations		╅				+-	Ī				+	+	_	T		-	_	7		<del>-</del>					$\top$				$\top$	+
Boiler feed applications					•		_				I							1							$\Box$				ightharpoons	$\perp$
Boiler recirculation		-			•				_	+	+	+	+-			_		_		_				$\dashv$	$\dashv$	_	+	$\square$	+	+
Waste water treatment plants Air-conditioning systems		-		H										F		-		H	H	_	-		Н	$\dashv$	+	_	+	H	+	+
Condensate transport		1					Ī			_						-				_		Ē			士					
Cooling circuits					•		•														+	•			$\perp$				$\perp$	$\perp$
Paint shops Food and beverage industry		+		-		+	$\vdash$	-		+						-		+						$\dashv$	+	-	+		+	+
Seawater desalination / reverse osmosis		+				+	$\vdash$		_		+	+		+	$\vdash$	-		-	_	<b> </b>	-			$\dashv$	+	$\dashv$	+	$\vdash$	+	+
Mixing																														
Offshore platforms		$\perp$		$\blacksquare$		_	_	-	_	$\perp$	$\perp$	-	-			_	_	4	+	-	-				+	_	-	$\sqcup$	+	$\perp$
Paper and pulp industry Petrochemical industry		+			$\vdash$	+	┢	-	+	+	+	+	+			-	+	+	+	+	-			$\dashv$	+	-	+	$\vdash$	+	+
Pharmaceutical industry		$\top$				+	$\vdash$	1	$\dashv$	$\top$	$^{+}$	+	$^{\dagger}$	Н		-	$\top$	$\top$	$\top$		$\vdash$				$\top$			H	$\top$	+
Pipelines and tank farms																									$\perp$				$\Box$	
Refineries		$\vdash$		$\sqcup$		+	$\vdash$		$\dashv$	+	+	+	+		Ш		+	+	+	+	-		Н	$\dashv$	$\dashv$	+	+	$\vdash \vdash$	+	+
Flue gas desulphurisation Rainwater harvesting				$\dashv$		+	$\vdash$		+	+	+	+	+	$\vdash$			+	+	+	+	+			$\dashv$	+	+	+	$\vdash$	+	+
Cleaning of stormwater tanks / storage sewers							İ															Ī			$\perp$				$\perp$	$\pm$
Recirculation		$\vdash$					F		Ţ	$\perp$	1	$\perp$					Ţ	4	$\perp$					J			F	$\coprod$	4	$\bot$
Dredging Shipbuilding		$\vdash$		$\dashv$		+	$\vdash$		+	+	+	+	-		Н	-	+	+	+	+	+	$\vdash$	Н	$\dashv$	+	+	+	$\vdash$	+	+
Sludge disposal		+		$\dashv$		+	$\vdash$		$\dashv$	+	+	+	1		$\vdash$		+	+	+	+	$\vdash$		$\vdash$	$\dashv$	+	+	+	$\vdash$	+	+
Sludge processing						I					I		I					I							士			口	士	工
Snow-making systems		$\vdash$		$\sqcup$		+	L			1	+	-	+	$\vdash$	Ш		_	4	-		-		Ц	$\Box$	$\perp$	_	-	$\square$	4	+
Heavy oil and coal upgrading Swimming pools		+		$\dashv$		+	$\vdash$		+	+	+	+			$\vdash$						$\vdash$		Н	$\dashv$	+	+	+	$\vdash$	+	+
Solar thermal energy systems		$\vdash$		$\forall$		-	-		+	+	+	$\dagger$	+	-	Н		-	+					Н	$\dashv$	+	+	+	$\forall$	+	+
Fountains		$\Box$				I			$\Box$	Ţ	T	T					$\downarrow$	Ţ	Ţ						丰		$\Box$	口	コ コ	工
Keeping in suspension Thermal oil circulation		$\vdash$		$\sqcup$		+	-		+	+	+	+	+	$\vdash$	Н	-	+	+	+	+	-		Н	$\dashv$	+	+	+	$\vdash \vdash$	+	+
Draining of pits, shafts, etc.		$\vdash$		$\dashv$		+	$\vdash$		+	+	+	+			$\dashv$		+	+	+	+	$\vdash$		Н	$\dashv$	+	+	+	H	+	+
Process engineering											$\perp$		Ī	Ĺ											士				$\perp$	士
Heat recovery systems							+					-					_	_		-		<u> </u>			4		+	$\Box$	4	+
Hot-water heating systems Washing plants					•	-	-										-				$\vdash$			$\dashv$	+	+	+	$\vdash$	+	+
Water treatment						$\dagger$				$\dagger$	$\dagger$	$\dagger$							-			Ē	_	$\exists$	+			$\vdash$	+	+
Water extraction										$\perp$	$\perp$		•	-		-	-	•	•	-	-				工			П	7	工
Water supply Sugar industry						+	-									-	- 1	-			-	•		$\dashv$	+	+	+	$\vdash$	+	+
Sugar industry																						1						Ш		

Applications																																	
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					Etanorm SYT / RSY							Magnochem-Bloc	Etaseco / Etaseco-l									_			_			Hya-Rain / Hya-Rain N					
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	_				ΣĽ	Etabloc SYT	2	Ğ	CPKN		ĕ	ĕ	8	Etaseco RVP			RPHb / RPHd	RPH-V RPHmdp			Б	<u>-</u>	۵	<u>a</u>	_	~		Rai	Hya-Rain Eco				
	HPK-L	HPH	Ŧ		au :	abl	5	edi	, Š		agı	agı	ase	ase		PH.	뮕	RPH-V RPHmd	Ę	CHTR	CHTRa	$\overline{2}$	INVCP	Estigia	Š	WKTR		-j-	-e/				
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Aquaculture	SC	П		SC	$\Box$		۲	3	Τ	SC					SC												SU						
Spray irrigation	E I			bumps			2			핕					핕												ten						
Mining	Hot water pumps	П		<u>p</u>	一					Seal-less pumps					Process pumps	T						T			T		Rainwater harvesting systems		İ	П		T	_
Irrigation	ate	$\Box$	$\neg$	io	$\neg$		chomical	2		les					ces									$\exists$			ng			$\Box$			_
Chemical industry	×	Ħ	$\neg$	Hot water / thermal	一		2			eal					Pro												esti			П			_
Dock facilities	오	$\Box$	$\neg$	her	$\dashv$	$\neg$			$\top$	Ň						$\dashv$	$\neg$		$\top$					$\neg$			arv					$\neg$	_
Drainage		$\Box$		=	$\dashv$		C+Darbaricon		$\top$							$\dashv$	$\neg$		+								ب		$\vdash$	П		$\neg$	_
Pressure boosting		+	$\neg$	ţe.	$\dashv$	$\dashv$	7		+		Н				-	$\dashv$	$\dashv$		+			-	_	_	-		ate				$\neg$		_
Sludge thickening		+	$\neg$	× -	$\dashv$	_	- 3	<u> </u>	+					$\vdash$	-	$\dashv$	$\dashv$	_	+	-		$\dashv$	$\dashv$	7	$\dashv$		Š	Н	$\vdash$	H	$\vdash$	$\dashv$	_
Disposal		+	$\dashv$	호	$\dashv$		+	<u> </u>	+	-	$\vdash$			$\vdash$	-	+	+	-	+			$\dashv$	$\dashv$	$\dashv$			Rai	H		$\vdash$	-	$\dashv$	—
	$\vdash$	+	-	_	$\dashv$	+	-  Ĭ	1	+	-	-		Н	$\vdash$	-	$\dashv$	+	-	+-		$\vdash$			-	=			Н	┢	$\vdash$	$\rightarrow$	$\dashv$	—
Dewatering	$\blacksquare$	+	_	-	$\dashv$	_	-	_	+	-	-			-	-	$\dashv$	_	-	-		$\square$	-	-	-	-			-	┢	$\vdash\vdash$	$\rightarrow$	-	
Descaling units		$\vdash$	-	-	$\dashv$		4	_	+		L				-	$\dashv$	$\dashv$		+			-	_	-	$\dashv$			H		$\square$	$\rightarrow$	-	
District heating	•	$\vdash$	┛		4	$\perp$	-				╚		耳			$\dashv$	4	+	+	$\vdash$	Ш	_	_	4	_	Щ		L	-	$\square$	$\dashv$	4	
Solids transport		$\sqcup$			_	$\perp$			1		L		Ш	Щ		_	_	$\perp$	_		Ш			_				L	_	Ш	4	_	
Fire-fighting systems		$\sqcup$							-			Ш	Ш	Ш					$\perp$		Ш			_		Ш				Ш	Щ	_	_
Geothermal energy applications																																	
Drawdown of groundwater levels																																	
Maintaining groundwater levels		П																	T														
Domestic water supply		П			一											$\neg$														П			
Flood control / coast protection (stormwater)		$\Box$		-	寸				$\top$							$\neg$			1					$\exists$	一								_
Homogenisation		$\Box$	$\neg$		$\dashv$				$\top$			П				$\dashv$	$\dashv$		$\top$		Н	$\neg$	$\neg$	$\dashv$	$\dashv$					П		$\dashv$	_
Industrial recirculation systems				-									П						+		П								$\vdash$	П		$\dashv$	_
Nuclear power stations			ī	-	_				+-						-	$\rightarrow$			+			-	-	_	_				$\vdash$	Н		$\dashv$	_
Boiler feed applications				-	$\dashv$				+	-	┢	F	Н			_	7		+			$\dashv$	$\dashv$	$\dashv$	$\dashv$				$\vdash$	$\vdash$	$\neg$	$\dashv$	_
Boiler recirculation				-	$\dashv$	$\dashv$	-		+		$\vdash$				-	$\dashv$	$\dashv$		+			$\dashv$	$\neg$	$\dashv$	$\dashv$				$\vdash$		$\vdash$	$\dashv$	_
Waste water treatment plants	- I	╀	-	-	$\dashv$	-	-		+		H				-	$\dashv$	$\dashv$		+				$\dashv$	_				Н	$\vdash$	$\vdash$	$\vdash$	$\dashv$	_
Air-conditioning systems		+	$\dashv$	-	$\dashv$	+	-		+	-	$\vdash$			П	-	$\dashv$	$\dashv$	-	+		Н	-	$\dashv$	$\dashv$	-			Н	$\vdash$	$\vdash$	$\dashv$	$\dashv$	—
		1_		-	$\dashv$	_	-	$\vdash$	+	-	$\vdash$		Ħ	Ħ	-		_				$\vdash$					_		H	$\vdash$	$\vdash$	$\dashv$	$\dashv$	—
Condensate transport			_	-	$\dashv$	_	-		+-	-	L	_	-			-	-		-			-	$\rightarrow$	$\rightarrow$	-	_		H	$\vdash$	$\vdash$	$\dashv$	$\dashv$	_
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Pipelines and tank farms		+	+	$\vdash$	$\dashv$				+	+				+	+		-			+-		$\dashv$	$\vdash$	$\dashv$	+	+	+	+	+	+
	+	+	╁	$\vdash$	$\dashv$	-	-		-	+	$\vdash$			+	+		$\vdash$	+	+	+		$\dashv$	$\vdash$	$\dashv$	+	+	+	+	+	+
Refineries	+	+	+	$\vdash$	$\dashv$	-	-	╢	-	+-	-			+	-		$\vdash \vdash$	-	-	+		_	$\vdash$	$\dashv$	+	+	+	+	+	+
Flue gas desulphurisation	-	+	-	$\vdash$	$\vdash$		_		$\perp$	+	-			+	-		$\vdash \vdash$	_	_	+		_	$\vdash$	$\dashv$	$\rightarrow$	+	+	+	+	+
Rainwater harvesting		$\perp$	$\perp$	Ш	Щ				$\perp$	$\perp$	_	Ш		$\perp$	4		$\sqcup$	$\perp$	_	$\perp$		لــــ	Щ	4	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	—
Cleaning of stormwater tanks / storage sewers		$\perp$	$\perp$	Ш	$\Box$					$\perp$		Ш		$\perp$			Ш	$\perp$	$\perp$	$\perp$			Ш	$\dashv$	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	_
Recirculation				Ш					$\perp$			Ш		$\perp$			Ш						Ш			$\perp$	$\perp$	$\perp$	$\perp$	$\perp$
Dredging		$\perp$	$\perp$		Ш				$\perp$	$\perp$	$\perp$			$\perp$			Ш	$\perp$	$\perp$	$\perp$			$\sqcup$				$\perp$			$\perp$
Shipbuilding																						7	LT	T			[			
Sludge disposal		$\top$	$\top$	П						Т				$\top$			П	$\top$		Т		$\neg$	$\sqcap$	$\neg$	$\top$	$\top$	$\top$	$\top$	$\top$	T
Sludge processing		$\top$	$\top$	П	$\sqcap$				$\top$	$\top$		$\Box$		$\top$			$\sqcap$	$\top$	$\top$	$\top$		$\neg$	$\sqcap$	$\dashv$	+	+	+	+	$\top$	
Snow-making systems		+							$\dashv$			П		+			$\vdash$					$\dashv$			$\dashv$	+	$\dashv$	+	+	+
Heavy oil and coal upgrading		+	+	⊢	7	-			$\dashv$	+				+	+		H	+	+	+		$\neg$	H	_	+	+	+	+	+	+
Swimming pools		+	+	$\vdash$	$\dashv$				-	+	$\vdash$			+	+		$\vdash$	+	+	+		$\dashv$	$\vdash$	$\dashv$	+	+	+	+	+	+
	+	+	+	$\vdash$	$\dashv$	+	-	╁	-	+	$\vdash$			+	+		$\vdash$	-	+	+		$\dashv$	$\vdash$	$\dashv$	-	_	+	+	+	+
Solar thermal energy systems		+	+-	-	-	-	-		+	-	₩			+	-		$\vdash \vdash$	+	+	+		_	$\vdash$	$\dashv$	'	-	+	+	+	+
Fountains	-	4	-		-	_	_	-	_	-	-		-	+	_		$\vdash \vdash$	_	+	+	-		$\vdash$	$\dashv$	$\rightarrow$	+	+	+	+	+
Keeping in suspension		$\perp$	_	Ш	$\Box$				4	$\perp$		Ш		$\perp$	_		Ш	$\perp$	_	-		لــــ	$\sqcup$	4	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	+
Thermal oil circulation		$\perp$	$\perp$	Ш	Щ				4	$\perp$	_	Ш		$\perp$	4		Щ		_	$\perp$		_	Ш	_	4	$\perp$	4	$\perp$	$\perp$	$\perp$
Draining of pits, shafts, etc.		$\perp$	$\perp$				L		$\perp$	$\perp$				$\perp$			Ш			$\perp$			$\sqcup$						$\perp$	$\perp$
Process engineering																						_ ]		[		_[				
Heat recovery systems		$\top$	Т	П					$\top$	T				T			$\Box$	$\top$		Т			$\Box$	$\neg$	$\top$	$\top$	$\top$	$\top$	$\top$	$\top$
Hot-water heating systems			$\top$	П	$\Box$				$\neg$	$\top$				$\neg$			П	$\neg$		$\top$		$\neg$	$\Box$	$\neg$	$\top$	$\top$	$\top$	$\top$	$\top$	
Washing plants		$\top$	$\top$	П	$\vdash$							Ħ		$\top$	$\top$		H	$\top$	$\top$	$\top$		$\neg$	$\sqcap$	$\dashv$	+	+	+	+	$\top$	$\top$
Water treatment	ш.							-			_	ī		1				+		+		$\dashv$	$\vdash$	+	+	+	+	+	+	+
Water treatment Water extraction				-	-		F		-	-   -	+			_				-	+-	+		_	$\vdash$	+	+	+	+.			
Water supply		۳	_	_	_		H				$\vdash$	Ħ				_	$\vdash$	+	+	+		_	$\vdash$	+	+	+	_	÷	_	
															- 1		. 1	- 1	- 1	1										a 1 🗯
Sugar industry		+-			$\dashv$					+-	$\vdash$		-	+	+=							$\neg$	$\vdash$	+	+	+	+	<del></del> -	╫	┯

**Overview of Applications** 

		RER	RSR	PSR	RHD	LUV Nuclear	RHM	RVM	RHR	RVR	HGM-RO	Multitec-RO		RC / RCV		EDS	DU / EU	KSB SuPremE	KSB UMA-S	O. Co. in C. Co. in C. C. C. C. C. C. C. C. C. C. C. C. C.	PumpDrive R		PumpMeter							
Aquaculture	Suc	_	4					Ш	_		SIS _	_	sdu	Ш	ms		_ 3	<b>€</b>	Ш	E 3		Sis		_					Ш	
Spray irrigation	power stations	$\dashv$	$\dashv$	_	-	-		Н	_		<u> </u>	$\perp$	sdwnd	Н	Fire-fighting systems	$\vdash$	_ :	6 2 2 1		Variable speed system		and diagnosis	-	4	_	$\vdash$	_	_	Н	—
Mining Irrigation	er st	$\dashv$	+	+	-	$\vdash$	-	H	$\dashv$	-	_ Se	+	ant I	Н	lg s	$\vdash$	-		H	ed s	-	dia	_	+	+	$\vdash$	_	-	$\vdash$	—
Chemical industry	OWe	$\dashv$	+					Н	$\dashv$	-	er.	+	displacement		jĘ.		-	H		spe		and	-	$\dashv$	+	++	_		$\vdash$	—
Dock facilities		$\dashv$	$\dashv$	+				Н	$\dashv$		<u> </u>	+	olac	Н	-fig	$\vdash$			Н	- lole	+			$\top$	+	$\forall$	$\dashv$		$\vdash$	_
Drainage	rcle	T	$\top$					П			2	$\top$	disp	П	Fire				П	aria		tor				$\Box$			П	_
Pressure boosting	Pumps for nuclear										atic		Positive (							>		Monitoring								
Sludge thickening	s fo	_	_					Ш		_	_ g	_	Posi					•	Ш			2				Ш			Ш	
Disposal	d Er	4	4	_				Ш	_		d Ge	-	_	Ш		$\perp$	_	•	Ш					4	_	$\vdash$	_		Н	
Dewatering Descaling units	4	$\dashv$	+	+	+	$\vdash$	-	Н	$\dashv$	- 4	卢 -	+		Н		$\vdash$	-	H	Н	_			_	+	+	$\vdash$	+	-	H	—
Descaing units District heating		$\dashv$	+	+	+	+		Н	+		Fumps for desailnation by reverse osmosis	+		Н		+	-	H	$\vdash$					+	+	$\vdash$	+	-	$\vdash$	—
Solids transport		$\dashv$	+	+	+	$\vdash$	$\vdash$	Н	+	_	2 -	+		Н		$\dashv$	-	ľ	Н	•	-		-	+	+	$\vdash$	+	+	$\vdash$	—
Fire-fighting systems		$\dashv$	$\dagger$	+	$\top$	$\vdash$		Н	+			$\dagger$		Н							+		$\dashv$	+	+	$\forall$	+	+	$\vdash$	—
Geothermal energy applications																														
Drawdown of groundwater levels														Ш															Ш	
Maintaining groundwater levels		4	$\perp$	_	-			Ш	_	_		$\perp$		Ш		$\perp$	_			_			•	4	_	$\sqcup$	_	_	Ш	_
Domestic water supply		$\dashv$	+	-	-	-		Н	$\dashv$	4	_	+		Н		$\vdash$	_							+	_	$\vdash$	$\perp$	-	$\vdash \vdash$	_
Flood control / coast protection (stormwater)  Homogenisation	-	$\dashv$	+	+	+	+	+	Н	-	-	$\parallel$	╁		Н		$\vdash$	-	H	Н	_			-	+	+	$\vdash$	+	-	Н	—
Industrial recirculation systems		$\dashv$	$\dashv$	+				Н	$\dashv$	$\dashv$		+		Н		$\vdash$	-	H	Н	_				+	+	$\vdash$	+	+	$\vdash$	—
Nuclear power stations												$\top$		П					Н		1		_	$\top$	$\top$	$\Box$	$\top$		H	_
Boiler feed applications																														
Boiler recirculation																														
Waste water treatment plants		4	_					Ш	_		L	$\perp$		Ш					Ш	_						Ш	_		Ш	_
Air-conditioning systems		$\dashv$	+	_	-			Н	_		_	+		Н		$\vdash$	_		Ш				-	-	_	$\vdash$	_	-	$\vdash \vdash$	—
Condensate transport Cooling circuits		$\dashv$	+	+	+	╁	$\vdash$	Н	+	-	$\parallel$	╁		Н		+	-	H	Н	_				+	+	$\vdash$	+	-	Н	—
Paint shops		$\dashv$	+	+		$\vdash$		Н	$\dashv$	$\dashv$		+		Н			-			_			-	+	+	+			$\vdash$	—
Food and beverage industry		$\dashv$	$\top$					Н	$\dashv$			$\dagger$		П		$\vdash$							$\dashv$	$\top$	$\top$	$\Box$	$\top$		H	_
Seawater desalination / reverse osmosis																														
Mixing																				1									П	
Offshore platforms		4	_		_	_		Ш	_	_		_				$\Box$	_		Ш		_			_	_	$\square$	_	_	Ш	
Paper and pulp industry	-	$\dashv$	-	-	-			Н	_	_		-		Н			_	•	Ш	-		-		-	-	$\vdash$	_		Н	_
Petrochemical industry Pharmaceutical industry	-	$\dashv$	+	+	+	$\vdash$	-	Н	+	-	$\vdash$	+		Н		+	-		Н	١.			$\dashv$	+	+	$\vdash$	_	-	$\vdash$	—
Pipelines and tank farms		$\dashv$	+	+				Н	$\dashv$			+				$\vdash$	-	-	Н	•	-			+	+	$\vdash$	+		$\vdash$	—
Refineries		$\dashv$	$\top$					Н	$\dashv$			+		Н		$\vdash$	-		Н					1	$\top$	$\Box$	$\top$		H	_
Flue gas desulphurisation		$\dashv$	$\dashv$					П	$\neg$			$\top$		П					П							$\Box$			П	_
Rainwater harvesting																				_										_
Cleaning of stormwater tanks / storage sewers		4	4	$\perp$	$\perp$	-	_	Ш	$\dashv$			$\perp$		Ш		$\sqcup$		•	Ш	_			_	$\perp$	_	$\sqcup$	$\perp$	_	Ш	
Recirculation		+	+	+	+	$\vdash$	$\vdash$	Н	+	-[		+		Н		$\vdash$	-[	Ľ	$\vdash \vdash$	•			$\dashv$	+	+	$\vdash$	+	+	$\vdash$	_
Dredging Shipbuilding		$\dashv$	+	+	+	$\vdash$	$\vdash$	Н	+	-						$\dashv$	-		$\vdash$		+		$\dashv$	+	+	$\vdash$	+	-	$\vdash$	_
Sludge disposal		+	+	+	+	+		Н	+			+				+			$\vdash$		+		$\dashv$	+	+	$\forall$	+	+	$\forall$	—
Sludge processing		$\dashv$	$\dagger$	$\top$	$\top$		$\vdash$	Н	$\dashv$			$^{\dagger}$		Н		$\vdash$			Н		$\top$		$\dashv$	$\top$	$\top$	$\forall$	$\top$		$\sqcap$	_
Snow-making systems																				•										_
Heavy oil and coal upgrading		$\prod$	$\bot$		Ļ	L	L	Ц	_[			Ļ				Щ			П				J			П	$\Box$		Щ	_
Swimming pools		4	+	+	+	-	-	Н	$\dashv$	_		$\perp$		H		$\vdash \vdash$	-[	•	$\square$					$\perp$	+	$\vdash \vdash$	$\perp$	-	$\sqcup$	_
Solar thermal energy systems Fountains		$\dashv$	+	+	+	$\vdash$	$\vdash$	Н	+	_		+		₽		$\vdash$	-							+	+	$\vdash\vdash$	+	-	$\vdash$	_
Keeping in suspension		$\dashv$	+	+	+	$\vdash$		Н	+			+		Н		$\dashv$							-	+	+	+	+	+	$\forall$	—
Thermal oil circulation		$\dashv$	$\dagger$	$\top$	$\top$	$\vdash$		H	+			$\dagger$		Н		$\dashv$		Ē	Н				$\dashv$	$\top$	$\dagger$	$\forall$	+		$\sqcap$	_
Draining of pits, shafts, etc.																														
Process engineering		Ţ	Ţ		Ĺ			Ц	I					П		П			П	_			J			П			Щ	_
Heat recovery systems		4	4	+	$\perp$	-	-	$\square$	$\dashv$			+		Н		$\vdash$	-	Ŀ	Ш	_			-	4	_	$\sqcup$	_	-	$\sqcup$	
Hot-water heating systems Washing plants		+	+	+	+	-	-	Н	+			+		Н		$\vdash$	-	H	Н					+	+	$\vdash$	+	+	$\vdash$	
Water treatment		$\dashv$	+	+	+	$\vdash$	$\vdash$	Н	+			+		Н		+		H		_				+	+	$\vdash$	+	+	$\vdash$	—
Water extraction		+	+	+				H	+			+		Н		$\dashv$		Ė						$\dashv$	+	$\forall$	$\dashv$		$\forall$	—
Water supply			İ		İ		L		J			İ																		_
Sugar industry																														_

### Drive, variable speed system and monitoring

#### KSB SuPremE



No. of pumps U [V]

PumpDrive / PumpDrive R only

#### ≤ 1 Description:

Power supply via IEC-compatible, sensorless, magnetless synchronous reluctance motor of efficiency class IE4/IE5 (super/ultra premium efficiency) to IEC TS 60034-30-2:2016 for operation on a KSB PumpDrive 2, PumpDrive 2 Eco or PumpDrive R variable speed system. Suitable for connection to three-phase 380-480 V mains (via PumpDrive). The motor mounting points comply with EN 50347 specifications to ensure compatibility with standardised IEC frame motor applications and full interchangeability with IE2 or IE3 standardised asynchronous motors. Envelope dimensions lie within the limits for IE2 / IE3 motors as recommended in DIN V 42673 (07-2011). The motor is controlled without rotor position sensors. The efficiency of the motor also exceeds 95 percent of nominal efficiency when the motor runs at 25 percent of its nominal power on a quadratic torque-speed curve. The motor is magnetless which means that, in particular, so-called rare earths are not used in production. Drive production is thus sustainable and environmentally friendly.



For use with dry-installed variable speed pumps which can be driven by standardised foot-mounted and/or flange-mounted motors.





#### KSB UMA-S



No. of pumps U [V]

PumpDrive R

Power supply via Permanent-magnet submersible synchronous motor, for operation on a KSB PumpDrive R variable speed system. Suitable for a three-phase 380 - 400 V mains. NEMA connections and identical outside diameters ensure full interchangeability with comparable 6" or 8" asynchronous motors. The motor is controlled without rotor position sensors. The motor efficiency is 5 - 12 % above that of asynchronous motors. Given the design and functionality the use of permanent magnets is essential.



Applications:

Exclusively for submersible borehole pumps in the range of 4 - 150 kW.

http://shop.ksb.com/catalog/k0/en/product/ES000003

#### PumpDrive 2 / PumpDrive 2 Eco





No. of pumps P [kW] U [V] Frequency inverter

3~380 - 480 1 per motor

55 Self-cooling variable speed system which allows the motor speed to be varied continuously by means of standard signals and a field bus. As PumpDrive is self-cooling, it can be mounted on the motor, on the wall or in a control cabinet. From two to six pumps can be controlled without needing an additional controller.



#### Applications:

Air-conditioning systems, heat generation, heat distribution, water supply systems, water extraction, water treatment, water distribution, water transport, refrigeration, cooling distribution, heat generation, heat distribution, fluid transport, cooling lubricant distribution, industrial water supply, tank drainage, waste water transport



#### **PumpDrive R**





No. of pumps P [kW] U [V] Frequency inverter

3~380 - 480

1 per motor

#### ≤ 6 Description:

55 PumpDrive R is a frequency inverter for wall or cabinet mounting designed for variable speed control and other control functions for asynchronous motors, synchronous reluctance motors like KSB SuPremE, or permanent magnet synchronous motors. PumpDrive R extends the power range of KSB PumpDrive up to a rated power of 110 kW as standard or up to 1.4 MW (on request).



#### Applications:

Air-conditioning systems, heat generation, heat distribution, water supply systems, water extraction, water treatment, water distribution, water transport, refrigeration, cooling distribution, heat generation, heat distribution, fluid transport, cooling lubricant distribution, industrial water supply, tank drainage, waste water transport

29 Automation

#### **PumpMeter**



No. of pumps U [V DC]

Description:

The PumpMeter device is designed for monitoring pump operation. It is an intelligent pressure transmitter for pumps, with on-site display of measured values and operating data. It records the load profile of the pump in order to indicate any potential for optimising energy efficiency and availability. The device comprises two pressure sensors and a display unit. PumpMeter is supplied completely assembled and parameterised for the pump it is used with. It is ready for operation as soon as the M12 plug connector is plugged



#### Applications:

Air-conditioning systems, cooling circuits, cooling lubricant distribution, heating systems, water treatment plants, water supply systems, water distribution systems, water transport systems, water extraction systems

### Drinking water circulators, fixed speed

#### Calio-Therm S NC/NCV



Q [m<sup>3</sup>/h]H [m] p [bar]

Data for 50 Hz operation

Also available for 60 Hz

1/2 - 3/4 Description:

≤ 0,7 Maintenance-free, high-efficiency glandless drinking water circulator pump, screw-ended, electric motor with multiple fixed speed levels, for use in drinking water supply systems. ≤ 10

Applications:

Drinking water circulation systems



http://shop.ksb.com/catalog/k0/en/product/ES000918

#### Calio-Therm NC



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

≤ 10 +2 - ≤ +65 ≤ 2800 Data for 50 Hz operation

3/4 - 1 Description:

 $\leq$  9 Maintenance-free, fixed speed glandless drinking water circulator pump, screw-ended, electric motor with multiple fixed speed levels, for use in drinking water supply systems and hot water supply systems.

Applications:

Drinking water supply systems, hot water supply systems and similar systems in industry and building services (e.g. cooling water recirculation)



http://shop.ksb.com/catalog/k0/en/product/ES000928

### Drinking water circulators, variable speed

#### Calio-Therm S



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

≤ 10 ≥ +2 - ≤ +65 ≤ 3000 Data for 50 Hz operation Also available for 60 Hz

≤ 3,5 Maintenance-free, high-efficiency variable speed glandless drinking water ≤ 6 circulator pump, screw-ended, electric motor and continuously variable differential pressure control for use in drinking water supply systems and hot water supply systems.

Applications:

Hot water supply, drinking water circulation systems and similar systems in industry and building services (e.g. cooling water recirculation).



http://shop.ksb.com/catalog/k0/en/product/ES000882

### Circulators, variable speed

#### Calio S



H [m] p [bar] T [°C] n [rpm]

Q [m<sup>3</sup>/h]

≤ 10  $+2 - \le +95$ ≤ 3000 Data for 50 Hz operation

Also available for 60 Hz

1/2 - 1 1/4 Description:

≤ 3,5 Maintenance-free high-efficiency screw-ended glandless pump with high-≤ 6 efficiency electric motor and continuously variable differential pressure control.

Applications:

Heating, ventilation, air-conditioning and heat recovery systems, cooling systems, industrial recirculation systems.





http://shop.ksb.com/catalog/k0/en/product/ES000881

31 **Pumps** 

#### Calio



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

1 1/2 - 2 Description: 32 - 100 ≤ 51

≥ -10 - ≤ +110

≤ 4500

≤ 16

≤ 4500

Maintenance-free high-efficiency flanged or screw-ended glandless pump with high-efficiency electric motor and continuously variable differential pressure control.

≤ 18 ≤ 16

Heating, ventilation, air-conditioning and heat recovery systems, cooling systems, industrial recirculation systems.





http://shop.ksb.com/catalog/k0/en/product/ES000881

#### Calio Z



Rp DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

≥ -10 - ≤ +110 Data for 50 Hz operation

Also available for 60 Hz

Data for 50 Hz operation Also available for 60 Hz

1 1/4 Description:

32 - 65 Maintenance-free high-efficiency flanged or screw-ended glandless pump in twin pump design with high-efficiency electric motor and continuously ≤ 70 variable differential pressure control. ≤ 18

Applications:

Heating, ventilation, air-conditioning and heat recovery systems, cooling systems, industrial recirculation systems.





http://shop.ksb.com/catalog/k0/en/product/ES000913

### In-line pumps

#### **Etaline L**



Rp DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≤ 21 ≤ 10 ≥ -15 - ≤ +120 Data for 50 Hz operation Also available for 60 Hz

1 - 1 1/4 Description:

32 - 80 Single-stage close-coupled in-line volute casing pump with common motor/ ≤ 95 pump shaft and uncooled mechanical seal.

Applications:

Heating systems, air-conditioning systems, cooling circuits, water supply systems (not approved for drinking water according to the German Environment Agency), service water supply systems, industrial recirculation systems, swimming pools





http://shop.ksb.com/catalog/k0/en/product/ES000925

#### **Etaline DL**



Rp DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≤ 150

 $\geq -15 - \leq +120$ Data for 50 Hz operation Also available for 60 Hz

1 1/4 Description:

32 - 80 Single-stage close-coupled in-line volute casing pump as twin pump, with common motor/pump shaft and uncooled mechanical seal

≤ 21

≤ 10

Heating systems, air-conditioning systems, cooling circuits, water supply systems (not approved for drinking water according to the German Environment Agency), service water supply systems, industrial recirculation systems





http://shop.ksb.com/catalog/k0/en/product/ES000926

#### **Etaline**



DN Q [m<sup>3</sup>/h] H [m] p [bar] T [°C]

≥ -30 - ≤ +140 Data for 50 Hz operation

Also available for 60 Hz

32 - 200 Description:

≤ 700 Single-stage volute casing pump in in-line design with standardised motor; ≤ 96 pump shaft and motor shaft are rigidly connected.

≤ 16 Applications:

Hot water heating, cooling circuits, air-conditioning, water supply systems, service water supply systems, industrial recirculation systems





http://shop.ksb.com/catalog/k0/en/product/ES000113

#### **Etaline Z**



DN Q [m³/h] H [m] p [bar] T [°C]

Data for 50 Hz operation Also available for 60 Hz 32 - 200 Description:

≤ 1095 Single-stage volute casing pump in in-line design as twin pump, with ≤ 38,5 standardised motor; pump shaft and motor shaft are rigidly connected.

Applications:

≤ 16

≤ 25

 $\geq -30 - \leq +140$ 

 $\geq$  -30 -  $\leq$  +140

Hot water heating, cooling circuits, air-conditioning, water supply systems, service water supply systems, industrial recirculation systems





http://shop.ksb.com/catalog/k0/en/product/ES000114

#### **Etaline-R**



DN Q [m<sup>3</sup>/h] H [m] p [bar] T [°C]

Data for 50 Hz operation Also available for 60 Hz

150 - 350 Description:

≤ 1900 Vertical close-coupled pump with volute casing in in-line design and ≤ 93 standardised motor

Applications:

Hot water heating, cooling circuits, air-conditioning, water supply systems, service water supply systems, industrial recirculation systems





http://shop.ksb.com/catalog/k0/en/product/ES000812

#### ILN



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

≤ 3100

Also available for 60 Hz

≤ 16 ≥ -20 - ≤ +70 ≤ 3000 Data for 50 Hz operation

65 - 400 Description:

Vertical in-line centrifugal pump with closed impeller and mechanical seal. ≤ 112 ILNS fitted with an auxiliary vacuum pump, ILNE with ejector. The back pullout design allows the impeller to be dismantled without removing the pipes and the motor. ATEX-compliant version available.

**Applications:** 

Hot-water heating systems, cooling circuits, air-conditioning systems, marine applications, water and service water supply systems, cleaning systems and industrial recirculation systems



Control unit http://shop.ksb.com/catalog/k0/en/product/ES000730

#### **ILNC**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

Data for 50 Hz operation Also available for 60 Hz

32 - 125 Description:

≤ 370 ≤ 112

≤ 16 ≥ -20 - ≤ +70

≤ 3000

Applications:

Vertical close-coupled centrifugal pump in in-line design, with electric motor, closed impeller and mechanical seal. ILNCS fitted with an auxiliary vacuum pump,  $\dot{\text{LNCE}}$  with ejector. Standardised IEC frame motor. ATEX-compliant version available.

Hot-water heating systems, cooling circuits, air-conditioning systems, marine applications, water and service water supply systems, cleaning systems and  $% \left( 1\right) =\left( 1\right) \left( 1\right)$ industrial recirculation systems.



http://shop.ksb.com/catalog/k0/en/product/ES000732

Control unit

33 **Pumps** 

#### Megaline

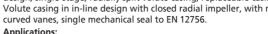


DN Q [m³/h] H [m] p [bar] T [°C]

≥ 0 - ≤ +90

#### 32 - 200 Description:

Volute casing pump for horizontal or vertical installation, in back pull-out design, single-stage, radially split volute casing, replaceable casing wear rings. Volute casing in in-line design with closed radial impeller, with multiply



Applications:

Heating circuits, water supply systems, air-conditioning systems, waste water, industrial recirculation systems





http://www.ksb.com.br/ksb-br-pt/pesquisa.php?\_q=megaline

### Standardised / close-coupled pumps

#### **Etanorm**



DN Q [m³/h] H [m] p [bar] T [°C]

Data for 50 Hz operation Also available for 60 Hz

≥ -30 - ≤ +140

#### 25 - 150 Description:

≤ 640 Volute casing pump, single-stage, ratings to EN 733, meets the requirements of the 2009/125/EC directive, radially split volute casing, volute casing with integrally cast pump feet, replaceable casing wear rings (optionally available for casings in material variant C), closed radial impeller with multiply curved vanes, single mechanical seals to EN 12756, double mechanical seals to EN 12756, shaft fitted with a replaceable shaft protecting sleeve in the shaft seal area.





#### Applications:

Pumping clean or aggressive liquids not chemically or mechanically aggressive to the pump materials in water supply systems, cooling water circuits, swimming pools, fire-fighting systems, irrigation systems, drainage systems, heating systems, air-conditioning systems, spray irrigation systems

#### **Etanorm-R**



DN Q [m³/h] H [m] p [bar]

≤ 1900 ≤ 101

< 16 ≥ -30 - ≤ +140

Data for 50 Hz operation Also available for 60 Hz

#### 125 - 300 Description:

Horizontal volute casing pump, single-stage (size 125-500 with two stages), long-coupled, in back pull-out design, with replaceable shaft sleeves / shaft protecting sleeves and casing wear rings. ATEX-compliant version available.



Water supply systems, spray irrigation systems, drainage systems, airconditioning systems, fire-fighting systems, irrigation systems, heating systems





#### **Etabloc**



DN Q [m³/h] H [m] p [bar] T [°C]

Data for 50 Hz operation Also available for 60 Hz

≥ -30 - ≤ +140

25 - 150 Description:

 $\leq$  660 Volute casing pump, single-stage, ratings to EN 733, meets the requirements of the 2009/125/EC directive, radially split volute casing (some volute casings with integrally cast pump feet), replaceable casing wear rings (optionally available for casings in material variant C), closed radial impeller with multiply curved vanes, single mechanical seals to EN 12756, double mechanical seals to EN 12756, shaft fitted with a replaceable shaft protecting sleeve in the shaft



Pumping clean or aggressive liquids not chemically or mechanically aggressive to the pump materials in water supply systems, cooling water circuits, swimming pools, fire-fighting systems, irrigation systems, drainage systems, heating systems, air-conditioning systems, spray irrigation systems



http://shop.ksb.com/catalog/k0/en/product/ES000107

#### **Etachrom B**



Q [m<sup>3</sup>/h] H [m] p [bar] T [°C]

≥ -30 - ≤ +110 Data for 50 Hz operation

Also available for 60 Hz

25 - 80 Description: ≤ 105

≤ 12

≤ 260 Horizontal single-stage close-coupled annular casing pump, with ratings and main dimensions to EN 733, with replaceable casing wear rings. ATEXcompliant version available.

Cleaning systems (bottle rinsing, crate washing, etc.), water treatment plants, water supply systems, fire-fighting systems, spray irrigation systems, irrigation systems, drainage systems, hot-water heating systems, air-conditioning systems, industrial washing plants, general industry, disposal of paint sludge, surface treatment





http://shop.ksb.com/catalog/k0/en/product/ES000066

#### **Etachrom L**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

< 105 ≥ -30 - ≤ +110 Data for 50 Hz operation

Also available for 60 Hz

25 - 80 Description:

≤ 260 Horizontal single-stage annular casing pump with ratings and main dimensions to EN 733, with replaceable casing wear rings. ATEX-compliant version available. ≤ 12

Applications:

Cleaning systems (bottle rinsing, crate washing, etc.), water treatment plants, water supply systems, fire-fighting systems, spray irrigation systems, irrigation systems, drainage systems, hot-water heating systems, air-conditioning systems, industrial washing plants, general industry, disposal of paint sludge, surface treatment





http://shop.ksb.com/catalog/k0/en/product/ES000065

#### **Etanorm V**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≥ -15 - ≤ +95 Data for 50 Hz operation Also available for 60 Hz

32 - 150 Description:

≤ 625 Single-stage volute casing pump for vertical installation in closed tanks under atmospheric pressure, with ratings to EN 733. Suitable for immersion depths of up to 2000 mm. ≤ 16

Applications:

Phosphating solutions, lubricating oil supply and sealing oil supply for turbines, generators, large compressors, large gear units



#### Meganorm



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

Data for 50 Hz operation

≥ -30 - ≤ +140 Also available for 60 Hz

≤ 162

≤ 16

25 - 200 Description:

≤ 1160 Horizontal, radially split volute casing pump in back pull-out design, with radial impeller, single-entry, single-stage, to DIN EN ISO 2858/ISO 5199. Available with cylindrical or conical shaft seal chamber.

Applications:

Water supply systems, dewatering systems, irrigation systems, sugar industry, alcohol industry, air-conditioning systems, building services systems, firefighting systems





http://www.ksb.com.br/ksb-br-pt/pesquisa.php?\_q=Meganorm

#### Megabloc



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

25 - 150 Description:

≤ 550 Volute casing pump for horizontal or vertical installation, back pull-out design, single-stage, radially split volute casing, flanged or screw-ended (optional), replaceable casing wear rings. Volute casing with closed radial ≤ 140 ≤ 16 impeller with multiply curved vanes, single mechanical seal to EN 12756. ≥ 0 - ≤ +90

Applications:

Water supply systems, irrigation systems, air-conditioning system, building services systems, hotels, shopping centres, etc., fire-fighting systems, cooling circuits, general industry





http://www.ksb.com.br/ksb-br-pt/pesquisa.php?\_q=Megabloc

#### Hot water pumps

#### **HPK-L**



DN Q [m³/h] H [m] ≤ 162 p [bar] ≤ 40 Data for 50 Hz operation

Also available for 60 Hz

25 - 250 Description:

≤ 1160 Horizontal radially split volute casing pump in back pull-out design to ISO 2858 / ISO 5199, single-stage, single-entry, with radial impeller. Equipped with heat barrier, seal chamber air-cooled by integrated fan impeller, no external cooling. ATEX-compliant version available.

#### Applications:

Pumping hot water and thermal oil in piping systems or tank systems, particularly in medium-sized and large hot-water heating systems, forced circulation boilers, district heating systems

http://shop.ksb.com/catalog/k0/en/product/ES000036



#### **HPK**



DN Q [m³/h] ≤ 185 H [m] p [bar] < 40 ≥ 0 - ≤ +400 T [°C] Data for 50 Hz operation

Also available for 60 Hz

150 - 400 Description:

≤ 4150 Horizontal radially split volute casing pump in back pull-out design, with radial impeller, single-entry, single-stage, to ISO 2858 / ISO 5199. Optional TRD type testing by TÜV. ATEX-compliant version available.

#### Applications:

Pumping hot water and thermal oil in piping systems or tank systems, particularly in medium-sized and large hot-water heating systems, forced circulation boilers, district heating systems



#### **HPH**



DN Q [m³/h] H [m] p [bar] T [°C]

≤ 2350 ≤ 225 ≤ 110  $\geq 0 - \leq +320$ 

Data for 50 Hz operation

Also available for 60 Hz

40 - 350 Description:

Horizontal radially split volute casing pump in back pull-out design, with centreline pump feet, with radial impeller, single-entry, single-stage. Optional TRD type testing by TÜV. ATEX-compliant version available.

#### Applications:

Pumping hot water in high-pressure hot water generation plants, as boiler feed or recirculation pump.



http://shop.ksb.com/catalog/k0/en/product/ES000037

### Hot water / thermal oil pumps

#### **Etanorm SYT / RSY**



DN Q [m³/h] H [m] p [bar] T [°C]

≥ -30 - ≤ +350 Data for 50 Hz operation

Also available for 60 Hz

25 - 300 Description:

Volute casing pump for horizontal installation, back pull-out design, singlestage, ratings and dimensions to EN 733, radially split volute casing, volute casing with integrally cast pump feet, replaceable casing wear rings, closed radial impeller with multiply curved vanes, single mechanical seal to EN 12756, double mechanical seal to EN 12756, drive-end bearings: rolling element bearings, pump-end bearings: plain bearings.



Applications:

Heat transfer systems, hot water recirculation

#### **Etabloc SYT**

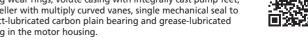


DN Q [m³/h] H [m] p [bar] T [°C] ≥ -30 - ≤ +350 Data for 50 Hz operation

Also available for 60 Hz

25 - 80 Description:

Volute casing pump for horizontal and vertical installation, back pull-out design, single-stage, with ratings to EN 733, radially split volute casing, replaceable casing wear rings, volute casing with integrally cast pump feet, closed radial impeller with multiply curved vanes, single mechanical seal to EN 12756, product-lubricated carbon plain bearing and grease-lubricated radial ball bearing in the motor housing.



Applications:

Heat transfer systems, hot water recirculation

http://shop.ksb.com/catalog/k0/en/product/ES000791



#### **Etaline SYT**



Q [m<sup>3</sup>/h] H [m] p [bar] T [°C]

≥ -30 - ≤ +350 Data for 50 Hz operation

Also available for 60 Hz

32 - 100 Description:

≤ 316 Single-stage volute casing pump in in-line design with standardised motor; ≤ 69 pump shaft and motor shaft are rigidly connected.

≤ 16 Applications:

Heat transfer systems, hot water recirculation



http://shop.ksb.com/catalog/k0/en/product/ES000789

### Standardised chemical pumps

#### **MegaCPK**



DN Q [m<sup>3</sup>/h] H [m] p [bar]

T [°C]

≤ 25  $\geq$  -40 -  $\leq$  +400

Data for 50 Hz operation Also available for 60 Hz

25 - 250 Description:

≤ 1160 Horizontal radially split volute casing pump in back pull-out design, with a 162 radial impeller, single-entry, single-stage, to DIN EN ISO 2858 / ISO 5199; also available as a variant with "wet" shaft and conical seal chamber. ATEXcompliant version available.

Applications:

Pumping aggressive liquids in the chemical and petrochemical industries and in refinery systems.

http://shop.ksb.com/catalog/k0/en/product/ES000861

#### **CPKN**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≥ -40 - ≤ +400 Data for 50 Hz operation Also available for 60 Hz

150 - 400 Description:

1160 - 4150 Horizontal radially split volute casing pump in back pull-out design, with 162 - 185 radial impeller, single-entry, single-stage, to ISO 2858 / ISO 5199. Also available as a variant with "wet" shaft, conical seal chamber and/or semiopen impeller (CPKNO). ATEX-compliant version available.

Applications:

≤ 25

Pumping aggressive liquids in the chemical and petrochemical industries, refinery systems, fire-fighting systems and for brine transport.



# **Seal-less pumps**

#### Magnochem



N	25 - 250
[m³/h]	≤ 1160
[m]	≤ 162
[bar]	≤ 40
[°C]	≥ -90 - ≤ +300

Data for 50 Hz operation

Also available for 60 Hz

#### 50 Description:

Horizontal, seal-less volute casing pump in back pull-out design, with magnetic drive, to DIN EN ISO 2858 / ISO 5199, with radial impeller, singleentry, single-stage. ATEX-compliant version available.

#### Applications:

Pumping aggressive, toxic, explosive, valuable, flammable, malodorous or harmful liquids in the chemical, petrochemical and general industries.



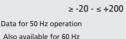
http://shop.ksb.com/catalog/k0/en/product/ES000046

#### Magnochem-Bloc



DN
Q [m³/h]
H [m]
p [bar]
T [°C]

≤ 162 ≤ 25



25 - 160 Description:

≤ 754 Horizontal, seal-less volute casing pump in close-coupled design, with magnetic drive, to DIN EN ISO 2858 / ISO 5199, with radial impeller, singleentry, single-stage. ATEX-compliant version available.

#### Applications:

Pumping aggressive, toxic, explosive, valuable, flammable, malodorous or harmful liquids in the chemical, petrochemical and general industries.



#### Etaseco / Etaseco-I



DN		
Q [m <sup>3</sup> /h]		
H [m]		
p [bar]		
T [°C]		

≤ 16

≥ -40 - < +140 Data for 50 Hz operation

#### 32 - 100 Description:

≤ 250 Horizontal or vertical seal-less volute casing pump in back pull-out design with fully enclosed canned motor, low noise emission, with radial impeller, single-stage, single-entry, casing connecting dimensions to EN 733.

Pumping aggressive, flammable, toxic, volatile or valuable liquids in the chemical and petrochemical industries, in environmental engineering and industrial applications.





#### Etaseco RVP



DN Q [m3/h] H [m] p [bar] T [°C]

≤ 25 ≤ 10 ≥ -40 - ≤ + 85 Data for 50 Hz operation

Also available for 60 Hz

Also available for 60 Hz

#### Description:

≤ 20 Horizontal or vertical seal-less volute casing pump in back pull-out design with fully enclosed canned motor, low noise emission, with radial impeller, single-stage, single-entry.

#### Applications:

Pumping toxic, volatile or valuable liquids in environmental engineering and industrial applications and as coolant pump in cooling systems. Transport vehicles, environmental engineering and industry; applications where low noise emission, smooth running or long service intervals are required.

http://shop.ksb.com/catalog/k0/en/product/ES000122



# **Process pumps**

#### **RPH**



DN Q [m³/h] H [m] p [bar] T [°C]

 $\geq -70 - \leq +450$ Data for 50 Hz operation

Also available for 60 Hz

≤ 270

≤ 110

≤ 4150 Horizontal radially split volute casing pump in back pull-out design, to API 610, ISO 13709 (heavy-duty), type OH2, with radial impeller, single-entry, single-stage, centreline pump feet; with inducer, if required. ATEX-compliant version available.

#### Applications:

Refineries, petrochemical and chemical industries, power stations, offshore and onshore processes.



#### RPHb / RPHd



DN Q [m<sup>3</sup>/h]< 450 H [m] p [bar] ≤ 100 T [°C] ≥ -80 - ≤ +450 Data for 50 Hz operation

Also available for 60 Hz

80 - 250 Description:

≤ 1500 Heavy-duty horizontal radially split between-bearings volute casing pump to API 610, ISO 13709 (heavy-duty), type BB2, with radial impellers, single- or double-entry, one- or two-stage design with centreline pump feet.

Refineries, petrochemical and chemical industries, offshore and onshore processes.

http://shop.ksb.com/catalog/k0/en/product/ES000041



#### **RPH-V**



25 - 80 / 40 - 150 Description: DN2 / DN3 Q [m³/h] H [m] p [bar] T [°C] ≥ -30 - ≤ +230 Data for 50 Hz operation Also available for 60 Hz

≤ 80 Vertical radially split volute casing pump to API 610 and ISO 13709 (heavy-≤ 160 duty), type VS4, with radial impeller, single-entry, single-stage.

≤ 35 Applications:

Refineries, petrochemical and chemical industries, offshore and onshore processes.



http://shop.ksb.com/catalog/k0/en/product/ES000880

#### **RPHmdp**



DN Q [m³/h] H [m] < 270 p [bar] ≤ 51 T [°C] ≥ -40 - ≤ +300 Data for 50 Hz operation

Also available for 60 Hz

25 - 100 Description:

≤ 300 Horizontal radially split volute casing pump in back pull-out design to API 685 (heavy-duty), with magnetic drive, single-stage, single-entry, with radial impeller, centreline pump feet; with inducer, if required. ATEX-compliant version available.



Refineries, petrochemical and chemical industries, power stations.



http://shop.ksb.com/catalog/k0/en/product/ES000884

#### **CTN**



DN Q [m³/h] H [m] p [bar] T [°C]

≤ 115 ≤ 16  $\geq 0 - \leq +300$ Data for 50 Hz operation Also available for 60 Hz

25 - 250 / 250 - 400 Description:

≤ 950 Radially split vertical shaft submersible pump with double volute casing for wet and dry installation, with radial impeller, single-entry, single-stage or double-stage; heatable model available. ATEX-compliant version available.

Applications:

For pumping chemically aggressive liquids, also slightly contaminated or with a low solids content, in the chemical and petrochemical industries.



http://shop.ksb.com/catalog/k0/en/product/ES000014

#### **CHTR**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

≤ 4000 ≤ 400 ≥ -60 - ≤ +450 ≤ 7000 Data for 50 Hz operation

Also available for 60 Hz Higher ratings possible upon request

50 - 300 Description:

≤ 1450 Horizontal high-pressure barrel-type pumps with radial impellers, single-entry and double-entry, multistage, with flanges or weld end nozzles to DIN, API 610 and ANSI.

Applications:

Refineries, petrochemical industry, steam generation, seawater injection in crude oil production (onshore and offshore)



#### **CHTRa**



N	80 - 300
(m³/h) [m³/h]	≤ 1200
l [m]	≤ 1550
[bar]	≤ 155
[°C]	≥ -40 - ≤ +205
[rpm]	≤ 6000
	Data for 50 Hz operation

Also available for 60 Hz

Horizontal, axially split multistage pump with double volute and impellers in back-to-back arrangement, in accordance with API 610, available in various sizes with different number of stages and material variants; a double-entry variant is available for applications with low NPSH values; easy to service and highly reliable

#### Applications:

Refineries, petrochemical industry, pipelines for crude oil and refinery products, water injection, steam generation in power stations and industrial

#### **CINCP / CINCN**



DN Q [m³/h] ≤ 780 H [m] ≤ 105 p [bar] ≤ 10 T [°C] ≥ -10 - ≤ +100 n [rpm] < 3000 Data for 50 Hz operation Also available for 60 Hz

#### 32 - 200 Description:

Vertical immersion pump in cantilever design for wet or dry installation. Semiopen impeller, pump shaft without guide bearings, supported by ball bearings in the upper section. Supplied with discharge pipe extending above the baseplate (CINCP) or without discharge pipe (CINCN). ATEX-compliant version available.

#### Applications:

Chemical and petrochemical industries, raw materials extraction and waste water management.

http://shop.ksb.com/catalog/k0/en/product/ES000718



#### **INVCP**



DN Q [m³/h] ≤ 1600 H [m] ≤ 116 p [bar] ≤ 10 T [°C] ≥ -10 - ≤ +100 n [rpm] < 3000 Data for 50 Hz operation Also available for 60 Hz

#### 32 - 300 Description:

Vertical immersion pump for wet or dry installation, available with closed or semi-open impeller. Supplied with discharge pipe extending above the baseplate (INVCP) or without discharge pipe (INVCN). ATEX-compliant version available.

#### Applications:

Pumping chemically aggressive, slightly contaminated or solids-laden fluids in the chemical and petrochemical industries



http://shop.ksb.com/catalog/k0/en/product/ES000737

## **Estigia**



DN Q [m³/h] ≤ 1160 H [m] ≤ 110 p [bar] ≤ 10 T [°C] > -30 - < +100 n [rpm] ≤ 3000 Data for 50 Hz operation

Also available for 60 Hz

#### 25 - 250 Description:

Vertical immersion pump for wet installation with closed impeller. Supplied with discharge pipe extending above the baseplate with DN according to norminal flow. Sealing by lip seal, single or double cartridge mechanical seal. ATEX-compliant version available.

#### Applications:

Pumping chemically aggressive, slightly contaminated or solids-laden fluids in the chemical and petrochemical industries.

#### **RWCP / RWCN**



Q [m³/h] H [m] ≤ 100 p [bar] ≤ 16 T [°C] ≥ -10 - ≤ +100 n [rpm] < 3000 Data for 50 Hz operation Also available for 60 Hz

#### 50 - 200 Description:

≤ 700 Process pump with free-flow impeller, semi-open or two-channel or threechannel impeller. Shaft sealed by mechanical seal or gland packing in accordance with various API pipework plans. Oil-lubricated bearings. ATEXcompliant version available.

#### Applications:

Refineries, chemical and petrochemical industries, steel works, descaling units, raw materials extraction, waste water management.



#### **WKTR**



DN Q [m³/h] H [m] p [bar] T [°C] n [rpm]

≤ 3000 Data for 50 Hz operation Also available for 60 Hz

40 - 150 Description:

≤ 400
 ≤ 500
 ≤ 51
 Applications:
 ≤ 400
 Vertical can-type ring-section pump. Type VS6 to API 610 and DIN ISO 13709, multistage, first-stage impeller designed as suction impeller, radial impellers.
 ATEX-compliant version available.
 Applications:

≥ -40 - ≤ +200 Applications:
Pumping condensate and other NPSH-critical products in industrial plants, particularly in refineries and petrochemical plants.



# Rainwater harvesting systems

#### Hya-Rain / Hya-Rain N



Q [m³/h] H [m] p [bar] ≤ 6 T [°C] Data for 50 Hz operation

1 Description:

≤ 4 Ready-to-connect package rainwater harvesting system in protective housing with automatic mains water back-up function if the rainwater storage tank is empty, with integrated dry running protection and demand-driven automatic pump control. Hya-Rain N version with analog level measurement in rainwater storage tank and integrated functional check run.



Rainwater harvesting and service water harvesting, irrigation and spray irrigation systems.

http://shop.ksb.com/catalog/k0/en/product/ES000256



#### **Hya-Rain Eco**



Q [m³/h] H [m] ≤ 43 p [bar] ≤ 6 ≥ 0 - ≤ +35 T [°C] Data for 50 Hz operation

1 Description:

≤ 4 Basic ready-to-connect package rainwater harvesting system with automatic mains water back-up function if the rainwater storage tank is empty, with integrated dry running protection and demand-driven automatic pump control.

#### Applications:

Rainwater harvesting and service water harvesting, irrigation and spray irrigation systems.

http://shop.ksb.com/catalog/k0/en/product/ES000600



# Domestic water supply / swimming pool pumps

## **Emporia CP**



Q [m<sup>3</sup>/h] H [m] p [bar] T [°C] n [rpm]

≤ 55 ≤ 8 ≥ 0 - ≤ +90 ≤ 2800 Data for 50 Hz operation

≤ 7,5 Single-stage centrifugal pump in close-coupled design, extremely quiet operation, for use in domestic, public and industrial applications

Spray irrigation systems, general irrigation systems, water supply systems



http://shop.ksb.com/catalog/k0/en/product/ES000921

### **Emporia MB**

Control unit



Rр Q [m<sup>3</sup>/h] H [m] p [bar] T [°C] n [rpm]

≤ 90 ≤ 10  $\geq 0 - \leq +90$ ≤ 2800 Data for 50 Hz operation

1 - 1 1/2 Description:

≤ 15 Multistage centrifugal pump, with 2 impellers, for use in public and industrial

Applications:

Spray irrigation systems, general irrigation systems, water supply systems



http://shop.ksb.com/catalog/k0/en/product/ES000922

#### **Emporia PD**

Control unit



Rр Q [m³/h] H [m] p [bar] T [°C]

≤ 8 > 0 - < +90≤ 2800

Data for 50 Hz operation

1 Description:

≤ 3 Peripheral impeller pump in close-coupled design for domestic applications ≤ 55 Applications:

Spray irrigation systems, general irrigation systems, water supply systems



Control unit

#### Multi Eco



Q [m<sup>3</sup>/h] H [m] p [bar] T [°C] n [rpm]

≤ 10

≥ +4 - ≤ +50

≤ 2800

1 - 1 1/4 Description:

≤ 8 Multistage self-priming centrifugal pump in close-coupled design.

≤ 54 Applications:

Single- or two-family houses, agricultural facilities, spray irrigation systems, irrigation systems and washing plants, water supply and rainwater harvesting



Cervomatic, Controlmatic

http://shop.ksb.com/catalog/k0/en/product/ES000085

#### Multi Eco-Pro

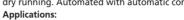


Q [m<sup>3</sup>/h] H [m] ≤ 10 p [bar] T [°C] ≥ +4 - < +50 n [rpm] ≤ 2800 Data for 50 Hz operation

Data for 50 Hz operation

1 - 1 1/4 Description:

≤8 Multistage self-priming centrifugal pump in close-coupled design, with power ≤ 54 cable, plug and Controlmatic E automatic control unit for starting and stopping the pump in line with consumer demand and protecting it against dry running. Automated with automatic control unit.



Single- or two-family houses, agricultural facilities, spray irrigation systems, irrigation systems and washing plants, water supply and rainwater harvesting.

http://shop.ksb.com/catalog/k0/en/product/ES000253



#### Multi Eco-Top



Q [m<sup>3</sup>/h] H [m] p [bar] T [°C] n [rpm]

 $\geq +4 - \leq +50$ ≤ 2800 Data for 50 Hz operation

1 - 1 1/4 Description:

≤ 8 Multistage self-priming centrifugal pump in close-coupled design incl. ≤ 54 accumulator with replaceable membrane in drinking water quality, total volume 20 or 50 litres, pressure switch for automatic pump operation and 1.5 ≤ 10 metre power cable with plug.

Applications:

Single- or two-family houses, agricultural facilities, spray irrigation systems, irrigation systems and washing plants, water supply and rainwater harvesting.



#### Ixo N



Q [m<sup>3</sup>/h]H [m] T [°C] n [rpm]

1 1/4 Description: ≥ +5 - ≤ +35

≤ 65 ≤ 2900

≤ 8 Multistage close-coupled centrifugal pump for fully or partly submerged operation (min. immersion depth 0.1 m), with low-level inlet, suction strainer with a max. mesh width of 2.0 mm.

Applications:

Water supply systems, spray irrigation systems, irrigation systems, washing plants, rainwater harvesting and water extraction from wells, reservoirs and rainwater storage tanks



Control unit, Cervomatic

http://shop.ksb.com/catalog/k0/en/product/ES000007

### **Ixo-Pro**



Q [m<sup>3</sup>/h] H [m] T [°C]  $\geq +5 - \leq +35$ Data for 50 Hz operation

Data for 50 Hz operation

Description:

 $\leq$  3,9 Multistage submersible borehole pump with integrated pressure switch, flow sensor and lift check valve. Electronic dry running protection with four consecutive start-up attempts; integrated capacitor. 15-metre H07 RNF power cable with plug included.



Rainwater harvesting, pressure boosting, water extraction, irrigation systems



#### Filtra N



Q [m³/h] H [m] p [bar] T [°C] ≥ +4 - ≤ +35 n [rpm]

Data for 50 Hz operation

Description:

≤ 36 Single-stage self-priming centrifugal pump in close-coupled design.

≤ 21 Applications:

≤ 2,5

≤ 2800

For pumping clean or slightly contaminated water, swimming pool water with a max. chlorine content of 0.3 %; ozonised swimming pool water with a max. salt content of 7 %.



http://shop.ksb.com/catalog/k0/en/product/ES000090

# **Pressure booster systems**

#### **KSB Delta Compact**



Q [m<sup>3</sup>/h] H [m] p [bar] ≤ 10 T [°C] ≥ 0 - ≤ +40 Data for 50 Hz and 60 Hz operation

1 / 1 1/2 Description:

≤ 20 Fully automatic, ready-to-connect package single-pump pressure booster system / dual-pump pressure booster system with variable speed system

Applications:

Domestic water supply, water supply systems, spray irrigation systems, general irrigation systems, service water systems, rainwater harvesting



http://shop.ksb.com/catalog/k0/en/product/ES000929

#### KSB Delta Solo EV



Rρ Q [m<sup>3</sup>/h] H [m] p [bar] T [°C]

≤ 50 ≤ 10  $\geq 0 - \leq +60$ Data for 50 Hz operation

1 1/4 Description:

≤ 6 Fully automatic package pressure booster system with one vertical highpressure pump and continuously variable speed adjustment. Design and function as per DIN 1988.

Applications:

Spray irrigation systems, irrigation systems, service water supply systems, domestic water supply, rainwater harvesting, water supply systems



http://shop.ksb.com/catalog/k0/en/product/ES000934

#### Hya-Solo D



Rp DN. Q [m³/h] H [m] ≤ 160 p [bar] ≤ 16 T [°C]  $\geq 0 - \leq +70$ Data for 50 Hz operation

Description:

100 Fully automatic package single-pump system with 8-litre membrane-type accumulator. The system is started and stopped as a function of pressure.

Applications:

Water supply systems for residential and office buildings, irrigation and spray irrigation, rainwater harvesting and service water supply systems in trade and industry.



http://shop.ksb.com/catalog/k0/en/product/ES000250

#### **Hya-Solo DSV**



Rp DN Q [m<sup>3</sup>/h] ≤ 110 ≤ 160 H [m] p [bar] ≤ 16 T [°C] ≥ 0 - ≤ +70 Data for 50 Hz operation

Description:

100 Fully automatic variable speed package single-pump system with PumpDrive 2 / PumpDrive 2 Eco. The system is started as a function of pressure and stopped as a function of flow.

Applications:

Water supply systems for residential and office buildings, irrigation and spray irrigation, rainwater harvesting and service water supply systems in trade and



#### Hya-Solo D FL



DN	100
Q [m³/h]	≤ 110
H [m]	≤ 160
p [bar]	≤ 16
T [°C]	≥ 0 - ≤ +70

Data for 50 Hz operation

1 Description:

Fully automatic package single-pump system. The system is started and stopped as a function of pressure. Design and function as per DIN 14462.

Fire-fighting systems to DIN 14462



## Hya-Duo DFL



Rp	2	D
DN	150	Fι
Q [m³/h]	≤ 110	0
H [m]	≤ 160	D
p [bar]	≤ 16	A Fi
T [°C]	≥ 0 - ≤ +70	-

Data for 50 Hz operation

fully automatic package dual-pump system consisting of one duty system and ne stand-by system to ensure system redundancy. Design and function as per DIN 14462.

Applications:

ire-fighting systems to DIN 14462



http://shop.ksb.com/catalog/k0/en/product/ES000710

http://shop.ksb.com/catalog/k0/en/product/ES000709

#### **Hya-Solo D FL Compact**





Data for 50 Hz operation

≤ 16 ≥ 0 - ≤ +70

Fully automatic ready-to-connect break tank package booster set for fire ≤ 48 fighting, comprising a single-pump system and break tank. The system is

50 - 80 Description:

started and stopped as a function of pressure. Design and function as per

DIN 14462. Applications:

Fire-fighting systems to DIN 14462



http://shop.ksb.com/catalog/k0/en/product/ES000821

#### Hya-Duo D FL Compact



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

 $\geq 0 - \leq +70$ Data for 50 Hz operation

50 - 80 Description:

≤ 48 Fully automatic, ready-to-connect break tank package booster set for fire fighting, comprising a dual-pump system and break tank. The system is started and stopped as a function of pressure. Design and function as per DIN ≤ 16

Applications:

Fire-fighting systems to DIN 14462



http://shop.ksb.com/catalog/k0/en/product/ES000820

#### Hya-Eco VP



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≤ 110 ≤ 16 ≥ 0 - ≤ +70 Data for 50 Hz operation

2 Description:

80 Fully automatic package pressure booster system with either 2 or 3 vertical ≥ 70 high-pressure pumps, and continuously variable speed adjustment of all pumps for fully electronic control of the required supply pressure, with two standard volt-free changeover contacts for fault indication. Design and function as per DIN 1988. Automated with BoosterControl.

Applications: Pressure boosting in residential buildings, hospitals, office buildings, hotels,

department stores, industry, etc.



#### **Hyamat K**



Rp		2
DN		250
Q [m <sup>3</sup> /h]		≤ 660
H [m]		≤ 160
p [bar]		≤ 16
T [°C]	;	≥ 0 - ≤ +70
	Data for 50 Hz operation	

#### Description:

Fully automatic package pressure booster system with 2 to 6 vertical highpressure pumps and fully electronic control to ensure the required supply pressure, with volt-free changeover contact for general fault indication and live-zero monitoring of the connected sensors, design and function to DIN 1988. Automated with BoosterControl.



Applications:

Pressure boosting in residential buildings, hospitals, office buildings, hotels, department stores, industry, etc.

http://shop.ksb.com/catalog/k0/en/product/ES000247

#### **Hyamat V**



DN Q [m³/h] ≤ 660 H [m] ≤ 160 p [bar] ≤ 16 T [°C] ≥ 0 - ≤ +70 Data for 50 Hz operation

#### 2 Description:

250 Fully automatic package pressure booster system with 2 to 6 vertical highpressure pumps and continuously variable speed adjustment of one pump; for fully electronic control of the required supply pressure. Design and function as per DIN 1988. Automated with BoosterControl.



Pressure boosting in residential buildings, hospitals, office buildings, hotels, department stores, industry, etc.



http://shop.ksb.com/catalog/k0/en/product/ES000417

## **Hyamat SVP**



Rр DN 250 ≤ 660 Q [m³/h] H [m] ≤ 160 p [bar] ≤ 16 PumpDrive. T [°C] ≥ 0 - ≤ +70 Data for 50 Hz operation

#### Description:

Fully automatic package pressure booster system with 2 to 6 vertical highpressure pumps and continuously variable speed adjustment of all pumps by PumpDrive; for fully electronic control of the required supply pressure. Design and function as per DIN 1988. Automated with BoosterControl and



Applications:

Pressure boosting in residential buildings, hospitals, office buildings, hotels, department stores, industry, etc.

#### **Hyamat SVP ECO**



Rр DN Q [m³/h] H [m] p [bar] ≤ 16 T [°C]  $\geq 0 - \leq +70$ Data for 50 Hz operation

#### Description:

Fully automatic package pressure booster system with 2 to 6 vertical highpressure pumps and continuously variable speed adjustment of all pumps by PumpDrive; for fully electronic control of the required supply pressure. Design and function as per DIN 1988. Automated with PumpDrive.



Pressure boosting in residential buildings, hospitals, office buildings, hotels, department stores, industry, etc.

http://shop.ksb.com/catalog/k0/en/product/ES000935



# **Surpress Eco SE.2.B**



DN Q [m<sup>3</sup>/h]≤ 70 H [m] p [bar] ≤ 16 T [°C] ≥ 0 - ≤ +70 Data for 50 Hz operation

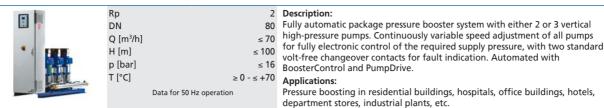
Fully automatic package pressure booster system with either 2 or 3 vertical high-pressure pumps, for fully electronic control to ensure the required supply pressure, with standard volt-free changeover contact for general fault indication and live-zero monitoring of the connected sensors. Automated with BoosterControl.



#### Applications:

Pressure boosting in residential buildings, hospitals, office buildings, hotels, department stores, industrial plants, etc.

#### Surpress Eco SE.2.B VP





#### **Surpresschrom SIC.2**



DN Q [m³/h] ≤ 160 H [m] p [bar] ≤ 16 T [°C] ≥ 0 - ≤ +70 Data for 50 Hz operation

2 Description:

250 Fully automatic package pressure booster system with 2 to 6 vertical high-≤ 660 pressure pumps, with fully electronic control system ensuring the required supply pressure, with standard volt-free changeover contact for general fault indication and live-zero monitoring of the connected sensors. Automated with BoosterControl.

Applications:

Pressure boosting in residential buildings, hospitals, office buildings, hotels, department stores, industrial plants, etc.

http://shop.ksb.com/catalog/k0/en/product/ES000439

http://shop.ksb.com/catalog/k0/en/product/ES000695

#### Surpresschrom SIC.2 V



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≤ 160 ≤ 16 Applications:  $\geq 0 - \leq +70$ 

2 Description:

250 Fully automatic package pressure booster system with 2 to 6 vertical high-≤ 660 pressure pumps. Continuously variable speed adjustment of one pump with PumpDrive for fully electronic control of the required supply pressure. Automated with BoosterControl and PumpDrive.

Pressure boosting in residential buildings, hospitals, office buildings, hotels,



department stores, industrial plants, etc. http://shop.ksb.com/catalog/k0/en/product/ES000702

#### Surpresschrom SIC.2 SVP



Rp DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] Data for 50 Hz operation

Data for 50 Hz operation

2 Description:

250 Fully automatic package pressure booster system with 2 to 6 vertical high-≤ 660 pressure pumps. Continuously variable speed adjustment of all pumps with PumpDrive for fully electronic control of the required supply pressure. Automated with BoosterControl and PumpDrive. ≤ 16 Applications:





 $\geq 0 - \leq +70$ Pressure boosting in residential buildings, hospitals, office buildings, hotels, department stores, industrial plants, etc.

http://shop.ksb.com/catalog/k0/en/product/ES000701

#### Surpressbloc SB



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≤ 16 > 0 - < +70Data for 50 Hz operation

≤ 640 Fully automatic package pressure booster system with two to four vertical high-pressure pumps and fully electronic control system ensuring the required supply pressure. Automated with PLC.

Applications:

Industry and other applications. For handling service water and cooling water not chemically or mechanically aggressive to the pump materials.

#### **Surpress Feu SFE**



Q [m³/h] Fully automatic pressure booster system with two horizontal close-coupled pumps (one pump on stand-by duty). Design complies with APSAD H [m] ≤ 76 regulation R5. Pressure-controlled starting and stopping. Automated with p [bar] BoosterControl. T [°C] ≥ 0 - ≤ +70

Applications:

Data for 50 Hz operation

Water supply and pressure boosting for wall hydrants, fire protection.

http://shop.ksb.com/catalog/k0/en/product/ES000441

#### **Surpress SP**



1 1/2 - 2 Description: . Q [m³/h] ≤ 36 Fully automatic package pressure booster system with either two or three vertical high-pressure pumps and fully electronic control unit ensuring the H [m] required supply pressure at the consumer installations. Design and functions p [bar] to EN 806-2. T [°C] ≥ 0 - ≤ +70 Applications:



Data for 50 Hz operation

Residential buildings, hospitals, office buildings, hotels, department stores, industrial plants, etc.

http://shop.ksb.com/catalog/k0/en/product/ES000886

#### **Surpress SP VP**



1 1/2 - 2 Description: Q [m³/h] ≤ 36 Fully automatic package pressure booster system with either two or three vertical high-pressure pumps. Continuously variable speed adjustment of all H [m] pumps for fully electronic control of the required supply pressure at the p [bar] ≤ 16 consumer installations. Design and function to DIN EN 806-2 and DIN 1988. T [°C]  $> 0 - \le +70$ Automated with BoosterControl. Data for 50 Hz operation



Applications: Residential buildings, hospitals, office buildings, hotels, department stores, industrial plants, etc.

http://shop.ksb.com/catalog/k0/en/product/ES000892

# Drainage pumps / waste water pumps

#### Ama-Drainer N



Q [m³/h] H [m]

1 1/4 - 1 1/2 Description:

≤ 16,5 Vertical single-stage fully floodable submersible motor pump in close-coupled ≤ 12 design, IP68, with or without level control, max. immersion depth: 2 m.

Applications:  $\geq 0 - \leq +50$ 

Automatic drainage of pits, shafts, yards and cellars at risk of flooding, lowering of surface water levels, drainage, drainage of underground passages, water extraction from rivers and reservoirs.



Control unit, LevelControl

http://shop.ksb.com/catalog/k0/en/product/ES000771

#### Ama-Drainer 4../5..



Rp Q [m³/h] H [m] T [°C]

1 1/2 - 2

Data for 50 Hz operation

Also available for 60 Hz

Data for 50 Hz operation

Also available for 60 Hz

≤ 50 ≤ 24

Description:

Vertical single-stage fully floodable submersible motor pumps in closecoupled design, IP68, with or without level control, max. immersion depth: > 0 - < +40



Automatic drainage of pits, shafts, yards and cellars at risk of flooding, lowering of surface water levels, drainage, drainage of underground passages, water extraction from rivers and reservoirs.



Control unit, LevelControl

#### Ama-Drainer 80, 100



DN Q [m<sup>3</sup>/h]H [m] T [°C]

Data for 50 Hz operation

Also available for 60 Hz

Data for 50 Hz operation

≥ 0 - ≤ +50

100 Vertical single-stage fully floodable submersible motor pump in close-coupled ≤ 130 design, IP68, with or without level control, max. immersion depth: 10 m.

≤ 26 Applications:

Automatic drainage of pits, shafts, yards and cellars at risk of flooding, lowering of surface water levels, drainage, drainage of underground passages, water extraction from rivers and reservoirs.



Control unit, LevelControl

http://shop.ksb.com/catalog/k0/en/product/ES000079

#### Ama-Porter F / S



Q [m<sup>3</sup>/h] H [m]

≤ 40 Vertical single-stage fully floodable submersible waste water pump in close-

≤ 16 coupled design (grey cast iron variant), non-explosion-proof.

Applications:

Handling waste water, especially waste water containing long fibres and solid substances, fluids containing gas/air, removing waste water from flooded rooms or surfaces



Control unit, LevelControl

http://shop.ksb.com/catalog/k0/en/product/ES000082

#### Rotex



Q [m³/h] H [m] T [°C] n [rpm] Inst. depth [m] ≥ 0 - ≤ +90 ≤ 2900

1 1/4 - 2 Description:

≤ 24 Vertical single-stage centrifugal pump with discharge to the top and parallel ≤ 14 with the pump shaft, pump base designed to act as suction strainer. Pump and motor are rigidly connected by a support column. Supplied ready to be plugged in, with 1.5-metre power cable and level switch.



Applications:

2 Description:

Automatic drainage of buildings, pits and tanks, lowering of surface water levels and drainage.

http://shop.ksb.com/catalog/k0/en/product/ES000012

#### MK / MKY



Rp DN Q [m³/h] H [m] T [°C] n [rpm]

50 Vertical submersible pump with three-channel impeller, volute casing ≥ -10 - ≤ +200 Inst. depth [m]

Data for 50 Hz operation Also available for 60 Hz

Data for 50 Hz operation

≤ 19

≤ 36 designed as inlet strainer. Applications: For pumping condensate and heat transfer fluids below boiling point, condensate return systems, primary and secondary heating circuits, for direct installation in heating tanks or heat exchangers in the secondary circuits of ≤ 2,8 heat transfer systems (MKY).



Control unit, LevelControl

http://shop.ksb.com/catalog/k0/en/product/ES000013

# Lifting units / pump stations

#### **Amaclean**



Q [m³/h] H [m] T [°C]

depending on

≤ 62 Self-cleaning tank insert for grouted installation in new concrete structures or in concrete structures in need of refurbishment. Designed to prevent soiling of the structure and clogging of the pumps by heavily waste or fibre loaded waste water. Suitable for pump stations emitting unpleasant odours and/or gases.



Applications:

Waste water disposal, rainwater disposal

#### AmaDS<sup>3</sup>



Q [m<sup>3</sup>/h]H [m] T [°C]

≤ 85 depending on pump

> Data for 50 Hz operation Also available for 60 Hz

#### ≤ 200 Description:

Waste water pump station with solids separation system. Indirect hydraulic transport of waste water, solids separators arranged upstream of the pumps, for maximum economic efficiency, operating reliability and ease of servicing.

Municipal and industrial waste water transport. Applications with special drainage requirements, e.g. hotels, hospitals, campgrounds, etc.



LevelControl

http://shop.ksb.com/catalog/k0/en/product/ES000858

#### Ama-Drainer-Box Mini



DN Q [m³/h] H [m] T [°C]

Data for 50 Hz operation

40 Description:

≤ 10 Reliable and compact waste water lifting unit in a modern design with activated carbon filter meeting hygiene requirements and with shower ≤ 6,5 connection as standard; complies with EN 12050-2

Applications:

Automatic disposal of waste water from washbasins, showers, washing machines and dishwashers. Use mini-Compacta sewage lifting unit for handling sewage from urinals and toilets.





#### **Ama-Drainer-Box**



Q [m³/h] H [m] T [°C]

Data for 50 Hz operation Also available for 60 Hz

40 - 50 Description:

≤ 46 Stable above-floor plastic collecting tank or impact-resistant underfloor plastic collecting tank, with floor drain and odour trap, both with Ama-Drainer submersible motor pump starting and stopping automatically and swing check valve



Automatic disposal of waste water from washbasins, showers, washing machines, garage driveways, basements and rooms prone to flooding





#### **Evamatic-Box N**





DN Q [m³/h] H [m] T [°C]

Data for 50 Hz operation

50 - 65 Description:

 $\leq$  40 Floodable lifting unit for domestic waste water, equipped with either one or two pumps of type Ama-Porter F (free-flow impeller) or Ama-Porter S (cutter)

Applications: ≤ +40

Disposal of domestic and municipal waste water occurring below the flood level



http://shop.ksb.com/catalog/k0/en/product/ES000430

#### mini-Compacta



DN Q [m³/h] H [m] T [°C]

> Data for 50 Hz operation Also available for 60 Hz

#### 32 - 100 Description:

≤ 36 Floodable single-pump sewage lifting unit or dual-pump sewage lifting unit for automatic disposal of domestic sewage and faeces in building sections ≤ 25 below the flood level.

Applications:

Basement flats, bars, basement party rooms and saunas, cinemas and theatres, department stores, hospitals, hotels, restaurants or schools.



#### Compacta



DN Q [m<sup>3</sup>/h] H [m] T [°C]

80 - 100 Description:

≤ 140 Floodable single-pump sewage lifting unit or dual-pump sewage lifting unit ≤ 24,5 for automatic disposal of waste water and faeces in buildings and building sections below the flood level.

Applications:

Basement flats, bars, basement party rooms and saunas, cinemas and theatres, department stores and hospitals, hotels, restaurants, schools, other public buildings, industrial facilities, underground train stations or for joint sewage disposal from rows of houses.

http://shop.ksb.com/catalog/k0/en/product/ES000260



#### **CK 800 Pump Station**



DN Q [m<sup>3</sup>/h] H [m] T [°C]

Data for 50 Hz operation

Data for 50 Hz operation

32 - 50 Description:

≤ 22 Single-pump or dual-pump station as ready-to-connect package system, with PE-LLD (polyethylene) collecting tank for buried installation. Equipped with either one or two submersible waste water pumps of type Amarex N S (explosion-proof or non-explosion-proof) or Ama-Porter (non-explosion-

Applications:

Drainage of buildings and premises, waste water disposal, premises renovation, joint sewage disposal for multiple residential units, pumped

http://shop.ksb.com/catalog/k0/en/product/ES000778

proof). Tank design to DIN 1986-100 and EN 752/EN 476.



#### **CK 1000 Pump Station**



DN Q [m<sup>3</sup>/h]H [m] T [°C]

Data for 50 Hz operation

50 - 65 Description:

 $\leq$  50 Single-pump or dual-pump station as ready-to-connect package system, with PE-LLD (polyethylene) collecting tank for buried installation. Equipped with either one or two submersible waste water pumps of type Amarex N < 39

(explosion-proof or non-explosion-proof) or Ama-Porter (non-explosionproof). Tank design to DIN 1986-100 and EN 752/EN 476.

Applications:

Drainage of buildings and premises, waste water disposal, premises renovation, joint sewage disposal for multiple residential units, pumped

http://shop.ksb.com/catalog/k0/en/product/ES000266



#### **Ama-Porter CK Pump Station**



DN Q [m<sup>3</sup>/h]H [m] T [°C]

Data for 50 Hz operation

50 - 65 Description:

 $\leq$  40 Single-pump or dual-pump station as ready-to-connect package system, with

PE-LLD (polyethylene) collecting tank for buried installation. Equipped with either one or two submersible waste water pumps of type Ama-Porter (non-

explosion-proof). Tank design to DIN 1986-100 and EN 752/EN 476.

Applications:

Drainage of buildings and premises, waste water disposal, premises renovation, joint sewage disposal for multiple residential units, pumped

http://shop.ksb.com/catalog/k0/en/product/ES000498



#### **SRP**



Q [m<sup>3</sup>/h]H [m] T [°C]

> Data for 50 Hz operation Also available for 60 Hz

50 - 150 Description:

 $\leq$  500 Single-pump or dual-pump station as ready-to-connect package system, with

fibreglass collecting tank for buried installation ≤ 75

Applications: ≤ +40

Premises renovation, disposal of domestic, municipal and industrial waste water, joint sewage disposal for multiple residential units



Control unit, LevelControl

#### **SRL**



DN Q [m³/h] H [m] T [°C]

Data for 50 Hz operation

65 - 150 Description:

≤ 300 Packaged pump station with tank made of glass fibre reinforced polyester, equipped with two Sewabloc pumps with a rating of 2.2 to 30 kW in dry installation, integrated valves and a control unit with frequency inverters. Pump operation is adjusted in line with flow rate demand, thus minimising energy costs. This maintenance-friendly pump station prevents intermediate storage of waste water and the related odour nuisance.

Applications:

Joint disposal of domestic, municipal and industrial waste water to the sewer system / sewage treatment plant

http://shop.ksb.com/catalog/k0/en/product/ES000856



51

#### SRS



DN Q [m³/h] H [m] T [°C]

> Data for 50 Hz operation Also available for 60 Hz

50 - 65 Description:

Packaged pump station with plastic tank for underfloor installation and two submersible waste water pumps mounted on duckfoot bends, with two guide systems Complete discharge line made of PVC with ball valves and ball non-return valves fitted in the tank.

Applications:

Rainwater disposal, waste water disposal from buildings, building sections, residential housing complexes, office blocks, campgrounds



LevelControl

# **Submersible motor pumps**

#### **Amarex N**



Control unit, LevelControl

H [m] T [°C]

Q [m<sup>3</sup>/h]

Data for 50 Hz operation Also available for 60 Hz 32 - 100 Description:

≤ 190 Vertical single-stage submersible motor pump for wet installation, with cutter (S), free-flow impeller (F) or diagonal single-vane impeller (D), stationary or ≤ 49 transportable version. Amarex N pumps are floodable, single-stage, single-

entry close-coupled pump sets which are not self-priming. ATEX-compliant

Applications:

Pumping waste water, especially untreated waste water containing long fibres and solid substances, fluids containing gas or air, and raw, activated and digested sludge; for dewatering and water extraction, drainage of rooms and areas at risk of flooding.

http://shop.ksb.com/catalog/k0/en/product/ES000507



#### **Amarex KRT**



Q [m<sup>3</sup>/h]H [m] T [°C] n [rpm]

Data for 50 Hz operation Also available for 60 Hz

40 - 700 Description:

≤ 10080 Vertical single-stage submersible motor pump in close-coupled design, with various impeller types, for wet installation, stationary or transportable version. ATEX-compliant version available. ≤ +60

Applications: ≤ 2900

Waste water management, service water supply systems, disposal, waste water treatment plants, sludge disposal



PumpDrive, Amacontrol, LevelControl

http://shop.ksb.com/catalog/k0/en/product/ES000092

#### Amarex KRT, with jacket cooling



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

Data for 50 Hz operation Also available for 60 Hz

100 - 700 Description:

≤ 10080 Vertical single-stage submersible motor pump in close-coupled design, with various impeller types, for wet or dry installation. ≤ 120 ≤ 10

Applications:

Pumping waste water in waste water management and industry, especially ≤ +40 untreated waste water containing long fibres and solid substances, fluids ≤ 1450 containing gas or air, and raw, activated and digested sludge.



PumpDrive, Amacontrol, LevelControl

#### Amarex KRT, with convection cooling



DN Q [m<sup>3</sup>/h] H [m] T [°C] n [rpm]

Data for 50 Hz operation Also available for 60 Hz

≤ 550 Horizontal or vertical single-stage submersible motor pump in close-coupled design, with various impeller types, for wet or dry installation, stationary or ≤ 25 transportable version, with energy-saving motor. ≤ +40

Applications: ≤ 1450

Pumping waste water in waste water management and industry, especially untreated waste water containing long fibres and solid substances, fluids containing gas or air, and raw, activated and digested sludge.



http://shop.ksb.com/catalog/k0/en/product/ES000092

PumpDrive, Amacontrol, LevelControl

# Submersible pumps in discharge tubes

#### Amacan K



DN 700 - 1400 Description: Q [m³/h] H [m] ≤ 30 T [°C]  $\geq 0 - \leq +40$ n [rpm] Data for 50 Hz operation

Also available for 60 Hz

≤ 5400 Wet-installed submersible motor pump for installation in discharge tubes, with channel impeller, single-stage, single-entry. ATEX-compliant version available.

#### Applications:

Pumping pre-cleaned chemically neutral waste water, industrial effluent, sewage, fluids not containing any stringy substances, pre-treated by screens and overflow sills; as waste water, mixed sewage and activated sludge pumps in waste water treatment plants, irrigation and drainage pumping stations.

http://shop.ksb.com/catalog/k0/en/product/ES000100



#### **Amacan P**

Amacontrol



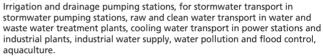
DN Q [m³/h] H [m] ≤ 12 T [°C]  $\geq 0 - \leq +40$ n [rpm] ≤ 1450 Data for 50 Hz operation

Also available for 60 Hz

500 - 1500 Description:

≤ 25200 Wet-installed submersible motor pump for installation in discharge tubes, with axial propeller in ECB design, single-stage, single-entry. ATEX-compliant version available.

#### Applications:





Amacontrol

http://shop.ksb.com/catalog/k0/en/product/ES000099

#### **Amacan S**



DN Q [m³/h] H [m] ≤ 40 T [°C] ≥ 0 - ≤ +40 n [rpm] ≤ 1450

Data for 50 Hz operation

Also available for 60 Hz

650 - 1300 Description:

≤ 10800 Wet-installed submersible motor pump for installation in discharge tubes, with mixed flow impeller, single-stage. ATEX-compliant version available.

#### Applications:

Pumping water not containing stringy material in irrigation and drainage pumping stations, general water supply systems, water pollution and flood control.



Amacontrol

# Mixers / agitators / tank cleaning units

Data for 50 Hz operation

Also available for 60 Hz

#### **Amamix**



Propeller Ø [mm] T [°C] n [rpm] Inst. depth [m]

200 - 600 Description:

≤ 1400

 $\geq$  0 -  $\leq$  +40 Horizontal submersible mixer with self-cleaning ECB propeller, close-coupled design, direct drive. ATEX-compliant version available.

Applications: ≤ 30

For handling municipal and industrial waste water and sludges in environmental engineering (also in biogas plants).



http://shop.ksb.com/catalog/k0/en/product/ES000268

#### **Amaprop**



Propeller Ø [mm] T [°C] n [rpm] Inst. depth [m] Also available for 60 Hz

1000 - 2500 Description: ≤ 109

 $\geq$  0 -  $\leq$  +45 Horizontal submersible mixer with self-cleaning ECB propeller, close-coupled design, with coaxial spur gear drive. ATEX-compliant version available.

In environmental engineering, particularly in municipal and industrial waste water and sludge treatment, for circulating, keeping in suspension and inducing flow in nitrification tanks and denitrification tanks, activated sludge tanks, biological phosphate elimination tanks, flocculation tanks and sludge storage tanks



#### **Amajet**



Q [m<sup>3</sup>/h]T [°C] n [rpm]

≥ +4 - ≤ +40

Data for 50 Hz operation

Also available for 60 Hz

100 - 150 Description:

 $\leq$  195 Stationary or portable unit with horizontally or vertically mounted submersible propulsive jet pump with non-clogging free-flow impeller. Motor ratings of 5.5 to 27 kW. Available variants: Amajet, SewerAmajet, SwingAmajet, MultiAmajet.

Applications:

Cleaning stormwater tanks and storage sewers.



http://shop.ksb.com/catalog/k0/en/product/ES000097

#### **Amaline**



DN Q [m<sup>3</sup>/h]H [m] T [°C]

 $\geq 0 - \leq +40$ ≤ 960

Data for 50 Hz operation

Also available for 60 Hz

300 - 800 Description:

≤ 5400 Wet-installed horizontal propeller pump with submersible motor, equipped with direct drive or spur gear, ECB propeller with three rigid, fibre-repellent blades, bolt-free connection to the discharge pipe. ATEX-compliant version available.

Applications:

Recirculating activated sludge in waste water treatment systems.



# **Pumps for solids-laden fluids**

#### **Sewatec**



PumpDrive, LevelControl

DN Q [m³/h] H [m] p [bar] T [°C] n [rpm]

Data for 50 Hz operation Also available for 60 Hz

Also available for 60 Hz

50 - 700 Description:

≤ 115

≤ 10

< 2900

≤ 10000 Volute casing pump for horizontal or vertical installation, with free-flow (F), single-channel (E), multi-channel (K) or diagonal single-vane impeller (D), discharge flange to DIN and ANSI standards. ATEX-compliant version available. ≤ +70

Applications:

Waste water transport, waste water disposal, waste water management, transport of contaminated surface water, sludge treatment

http://shop.ksb.com/catalog/k0/en/product/ES000068



#### Sewatec R



DN Q [m<sup>3</sup>/h] H [m] p [bar] T [°C]

Data for 50 Hz operation

Volute casing pump for horizontal or vertical installation, with free-flow (F) or ≤ 32400 multi-channel (K) impeller, discharge flange to DIN and ANSI standards.

Applications: ≤ 16

Waste water transport, waste water disposal, waste water management, transport of contaminated surface water

#### **Sewabloc**



DN Q [m<sup>3</sup>/h] H [m] p [bar] T [°C]

n [rpm] Data for 50 Hz operation Also available for 60 Hz

50 - 200 Description:

≤ 2900

Close-coupled volute casing pump for horizontal or vertical installation, with ≤ 10000 free-flow (F), multi-channel (K) or diagonal single-vane impeller (D), discharge ≤ 90 flange to DIN and ANSI standards. ATEX-compliant version available.

≤ +70

Waste water transport, waste water disposal, waste water management, transport of contaminated surface water, sludge treatment

PumpDrive, LevelControl

http://shop.ksb.com/catalog/k0/en/product/ES000069

#### KWP / KWP-Bloc



DN Q [m³/h] H [m] p [bar] T [°C] n [rpm]

40 - 900 ≤ 100 < 10 ≥ -40 - ≤ +140 ≤ 2900 Data for 50 Hz operation

Also available for 60 Hz

Description:

≤ 15000 Horizontal radially split volute casing pump in close-coupled or back pull-out design, single-stage, single-entry, available with various impeller types: channel impeller, open multi-channel impeller and free-flow impeller. ATEXcompliant version available.



Paper industry, cellulose industry, sugar industry, food industry, beverages industry, conventional fossil power plants, chemical industry, petrochemical industry, flue gas desulphurisation, coal upgrading plants, industrial waste water engineering, seawater desalination, reverse osmosis

http://shop.ksb.com/catalog/k0/en/product/ES000018



PumpDrive

## Slurry pumps

#### **WBC**



Q [m³/h]
H [m]
p [bar]
T [°C]

#### ≤ 13600 Description:

≤ 80 Patented design with state-of-the-art hydraulic and wear technologies for

high-pressure applications. The pump casing is designed to withstand

maximum stresses, e.g. during pressure surges. ≤ +120

Applications:

Ideal for the single-stage or multistage transport of ore and tailings and for dredging.

http://shop.ksb.com/catalog/k0/en/product/ES000227



#### LSA-S



	Q [m³/h
	H [m]
	p [bar]
•	T [°C]
ı	
ı	



≤ 90 Premium design white cast iron pump for long service life handling severe s 16 slurries. The maintenance-friendly single-wall construction and heavy section white cast iron wet end combined with the cartridge bearing assembly ≥ -20 - ≤ +120

provides maximum reliability and ease of maintenance.

Applications:

Ore and tailings transport, cyclone feed, dredging (dry-installed or submerged operation) and industrial processes.

http://shop.ksb.com/catalog/k0/en/product/ES000220



#### LCC-M



Q [m³/h]
H [m]
p [bar]
T [°C]

#### ≤ 3405 Description:

 $\leq$  90 The wetted pump end (casing, impeller and suction plate / liner) is made of white cast iron. Design optimised to permit easy dismantling and reassembly

≤ 16 for maintenance and inspections. ≤ +120

Applications:

Reliable pump for high heads and moderately corrosive slurries. Used in mine dewatering, ash and tailings transport and dredging.



#### LCC-R



Q [m³/h] H [m] p [bar] T [°C]

#### ≤ 2455 Description:

 $\leq$  42 Interchangeable rubber-lined or part-metal design allows adaptation of

existing pumps to new applications by simply exchanging the pump wet end. ≤ 16

Applications: ≤ +65

The pumps are suitable for moderate heads, fine particles and highly corrosive slurries.



http://shop.ksb.com/catalog/k0/en/product/ES000218

#### **TBC**



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

#### ≤ 18200 Description:

≤ 90 Horizontal high-pressure end-suction centrifugal pump offering maximum  $\leq$  55 resistance to wear and ease of maintenance. The conventional single-wall

design transfers stress loads from the wear plates to the casing covers in high-≤ +120 pressure applications. Pump components made of highly wear-resistant white

#### Applications:

High-head high-flow hydrotransport of tailings, dredged material, pipeline booster stations and other severe duties.



#### **LCV**



Q [m³/h] H [m] p [bar] T [°C]

≤ 2045 Description: ≤ 38

Rugged vertical shaft submersible pump with casing, impeller and suction plate / liner made of white cast iron, bearing assembly located out of product. ≤ 14 Replaceable wetted parts made of white cast iron or natural rubber.

Particularly suitable for use in industrial processes and for transporting tailings in mines and pits.



http://shop.ksb.com/catalog/k0/en/product/ES000016

#### **FGD**



Q [m³/h] H [m] p [bar] T [°C]

≤ 22700 Description: ≤ 17

≥ -20 - ≤ +120

≤ 45 High-flow / low-head white cast iron pump with single-wall casing and highefficiency impeller. Single-piece suction cover with integrated mounting

Applications:

Flue gas desulpurisation systems and process circuits



http://shop.ksb.com/catalog/k0/en/product/ES000231

#### **MHD**



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≤ 32000 Description:

≥ -20 - ≤ +120

≤ 28

≤ 80 Horizontal volute casing pump for high-volume hydrotransport of solids. For pumping slurries of large and very large particle sizes with a very good suction behaviour and high efficiency. Pump components made of white cast



Applications:

Ideal for pipeline pressure booster stations and severe mining duties. Highly suitable for loading and unloading duties on (cutter) suction dredgers.

http://shop.ksb.com/catalog/k0/en/product/ES000224

#### **LHD**



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≥ -20 - ≤ +120

≤ 17

≤ 16

≥ -20 - ≤ +120

≤ 21600 Description:

≤ 65 Horizontal volute casing pump for high-volume hydrotransport of solids. For pumping slurries of large and very large particle sizes with a very good suction behaviour and high efficiency. Used in low-pressure applications. Pump components made of white cast iron.

Applications:

Ideal for handling sand and gravel, on dredgers for land reclamation and as booster pumps.



http://shop.ksb.com/catalog/k0/en/product/ES000223

#### **MDX**



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≤ 90

≤ 14000 Description:

Pump designed with the latest technology from GIW. Superior wear properties and extremely long service life handling aggressive slurries.

Designed for SAG and ball mill discharge duties, cyclone feed, screen feed and other ore mining and treatment processes.



#### ZW



Q [m³/h] H [m] p [bar] T [°C]

≤ 400 Description:

Saturation:  $\leq$  35

Rugged vertical shaft submersible pump with casing, impeller and suction cover made of white cast iron, top and bottom impeller inlet. Bearings not exposed to fluid handled. Replaceable wetted components.

Applications:

Particularly suitable for pumping abrasive slurries, dewatering, floor clean-up and process applications.



http://shop.ksb.com/catalog/k0/en/product/ES000852

#### **HVF**



Q [m³/h] H [m] p [bar] T [°C]

≤ 8175 Description:

≤ 50 The pump provides continuous operation without shutdown or operator s 111 intervention. The new hydraulic design removes air from the impeller eye while the pump is running, and the pump can be retrofitted into any existing operation. ≤ +120

Applications:

For use in all froth pumping applications in the mineral processing and industrial minerals industries.





# **Self-priming pumps**

#### **Etaprime L**



DN Q [m³/h] H [m] p [bar] T [°C] H<sub>geo</sub> [m]

≥ -30 - ≤ +90

Data for 50 Hz operation

Also available for 60 Hz

25 - 125 Description:

≤ 85

≤ 10

≤ 180 Horizontal self-priming volute casing pump, single-stage, with open multivane impeller, from size 40-40-140 with bearing bracket, in back pull-out design, ATEX-compliant version available.

Applications:

Pumping clean, contaminated or aggressive fluids not containing abrasive substances and solids. For use in spray irrigation systems, service water systems, drainage, dewatering systems, fire-fighting systems, drawdown of groundwater levels, domestic water supply, air-conditioning systems, cooling circuits, swimming pools, water supply systems.

http://shop.ksb.com/catalog/k0/en/product/ES000120



#### **Etaprime B**



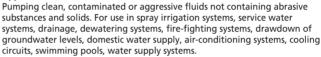
DN 25 - 100 Q [m³/h] H [m] p [bar] ≤ 10 T [°C] ≥ -30 - ≤ +90 Data for 50 Hz operation

Also available for 60 Hz

Description:

≤ 130 Horizontal self-priming volute casing pump, single-stage, with open multivane impeller, close-coupled; pump shaft and motor shaft rigidly connected; ATEX-compliant version available.

#### Applications:







EZ B/L



DN Q [m³/h] H [m] p [bar] T [°C] n [rpm]

≤ 21 ≤ 160 ≤ 16 ≥ -5 - ≤ +80 ≤ 1500 Data for 50 Hz operation Also available for 60 Hz

Self-priming multistage liquid ring pump in close-coupled (EZ B) or longcoupled (EZ L) design, with mechanical seal.

Boiler feed applications, sanitary hot water, hydrophore systems for fresh or seawater and fresh water pre-heating



#### AU



Q [m³/h] H [m] p [bar] T [°C]

< 600 ≤ 52 ≤ 10 ≥ -10 - ≤ +80

Data for 50 Hz operation

Also available for 60 Hz

Horizontal, self-priming centrifugal pump, open or semi-open impeller, adjusted via wear plate, with mechanical seal, ATEX-compliant version available.

#### Applications:

Pumping clean, contaminated and aggressive fluids also containing solids. In fresh water and seawater circuits, fire-fighting applications, as ballast and bilge pumps, and for drainage and waste water applications.

http://shop.ksb.com/catalog/k0/en/product/ES000750



### **AU Monobloc**



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

≥ -10 - ≤ +80 Data for 50 Hz operation Also available for 60 Hz

40 - 50 Description:

≤ 37

≤ 10

Horizontal, self-priming centrifugal pump in close-coupled design, open or semi-open impeller, adjusted via wear plate, with mechanical seal, driven by electric motors or internal combustion engines, ATEX-compliant version available.

#### Applications:

Pumping clean, contaminated and aggressive fluids also containing solids. In fresh water and seawater circuits, fire-fighting applications, as ballast and bilge pumps, and for drainage and waste water applications.



# Submersible borehole pumps

#### **UPAchrom 100 CN**



DN Q [m³/h] H [m] T [°C]

Pata for 50 Hz operation

Also available for 60 Hz

100 Description:

 $\leq$  22 Multistage centrifugal pump in shroud design made of stainless steel and plastic for well diameters of 100 mm (4 inches) and above, available with

single-phase AC motor or three-phase motor with motor lead. ≤ +30

Applications:

Domestic water supply, irrigation and spray irrigation, drawdown of groundwater levels, in fire-fighting systems, cooling circuits, fountains, pressure booster systems and air-conditioning systems. UPAchrom 100 CN is also suitable for drinking water applications to ACS.



Control unit, Cervomatic, UPA Control

http://shop.ksb.com/catalog/k0/en/product/ES000003

#### **UPAchrom 100 CC**



Q [m³/h] H [m]

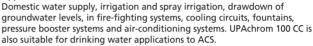
T [°C]

Data for 50 Hz operation Also available for 60 Hz 00 Description

 $\leq$  18 Multistage centrifugal pump in ring-section design made of stainless steel for well diameters of 100 mm (4 inches) and above, available with single-phase

AC motor or three-phase motor with motor lead.









Control unit, Cervomatic, UPA Control

http://shop.ksb.com/catalog/k0/en/product/ES000003

#### **UPA 150C**



DN Q [m³/h] H [m] T [°C]

Data for 50 Hz operation

Also available for 60 Hz

50 Description

 $\leq$  79 All-stainless steel single-stage or multistage centrifugal pump in ring-section

≤ 440 design for well diameters of 150 mm (6 inches) and above.

+50 Application

Spray irrigation systems, irrigation systems, drawdown of groundwater levels, domestic water supply, fountains, heat pump systems, water supply systems





PumpDrive, KSB UMA-S

http://shop.ksb.com/catalog/k0/en/product/ES000003

#### UPA 200, 200B, 250C



PumpDrive, KSB UMA-S

DN Q [m³/h] H [m] T [°C]

> Data for 50 Hz operation Also available for 60 Hz

200 - 250 Description:

≤ 330 Single-stage or multistage single-entry centrifugal pump in ring-section

≤ 460 design for vertical or horizontal installation. Optionally available with lift

check valve or connection branch.

#### Applications

Pumping clean or slightly contaminated water in general water supply, spray irrigation and irrigation, drawdown and maintenance of groundwater levels, fountains and pressure booster systems, mining, fire-fighting systems,



http://shop.ksb.com/catalog/k0/en/product/ES000003



#### **UPA 300, 350**



DN Q [m³/h] H [m] T [°C]

> Data for 50 Hz operation Also available for 60 Hz

300 - 350 Description:

 $\le$  840 Single-stage or multistage single-entry centrifugal pump in ring-section design for vertical or horizontal installation. Mixed flow hydraulic systems

+50 with impellers that can be turned down. Optionally available with lift check valve or connection branch.

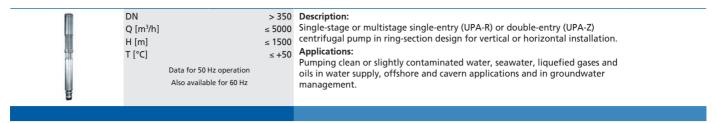


Pumping clean or slightly contaminated water in general water supply, spray irrigation and irrigation, drawdown and maintenance of groundwater levels, mining, fountains and fire-fighting systems, etc.



PumpDrive, KSB UMA-S

#### **UPA-Z / UPA-R**



# **Deep-well turbine pumps**

## **B-Pump**

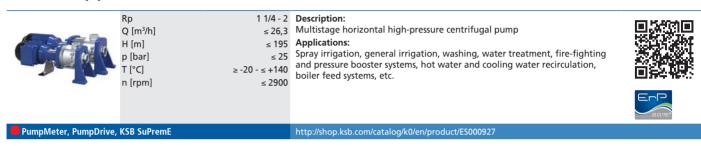
1	DN Q [m³/h] H [m] p [bar] T [°C] n [rpm]	≤ 2600 ≤ 160 ≤ 16	electric motor or diesel engine.  Applications:  Pumping clean water in agriculture, collection and irrigation, public water.	回光系统
			http://shop.ksb.com/catalog/k0/en/product/ES000909	

# **High-pressure pumps**

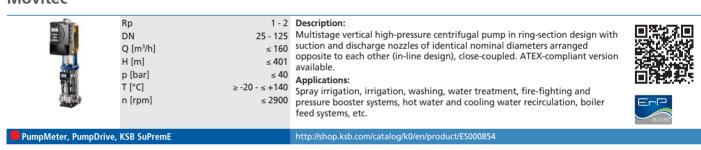
#### Comeo



#### Movitec H(S)I



#### **Movitec**



#### **Movitec VCI**



#### Multitec

	DN	32 - 250	Description:
	Q [m³/h]	≤ 1500	Multistage centrifugal pump in ring-section design. Horizontal installation in
	H [m]	≤ 1000	long-coupled or close-coupled design. Vertical installation in close-coupled
	p [bar]	≤ 100	long-coupled or close-coupled design. Vertical installation in close-coupled design or with universal joint shaft. With either one or two roller bearings. Axial or radial suction nozzle, radial discharge nozzle. Radial suction and
	T [°C]	≥ -10 - ≤ +200	discharge nozzles can be turned in steps of 90°. ATEX-compliant and ACS-
	n [rpm]	≤ 3500	compliant versions available.
			Applications: Water supply, drinking water supply, industry, pressure boosting, irrigation, power stations, heating systems, filtering systems, fire-fighting systems, reverse osmosis systems, snow-making systems and washing plants, and geothermal systems (re-injection of geothermal water into the aquifer).
PumpMeter, PumpDrive, KSB SuPremE			http://shop.ksb.com/catalog/k0/en/product/ES000214

# **Axially split pumps**

DN

#### **Omega**



Q [m³/h] ≤ 2880 H [m] ≤ 210 p [bar] T [°C] ≥ 0 - ≤ +140 n [rpm]

> Data for 50 Hz operation Also available for 60 Hz

≤ 25 < 2900

80 - 350 Description:

Single-stage axially split volute casing pump for horizontal or vertical installation, with double-entry radial impeller, mating flanges to DIN, EN or

Applications:

Pumping water with a low solids content, e.g. in waterworks, irrigation and drainage pumping stations, extraction duties in desalination systems, power stations, fire-fighting systems, shipbuilding, district heating or cooling.

PumpMeter, PumpDrive

http://shop.ksb.com/catalog/k0/en/product/ES000071

#### **RDLO**



350 - 700 Description: DN Q [m<sup>3</sup>/h] H [m] ≤ 290 p [bar] ≤ 30 T [°C] ≥ 0 - < +140 n [rpm] ≤ 1450 Data for 50 Hz operation

Also available for 60 Hz

≤ 10000 Single-stage axially split volute casing pump for horizontal or vertical installation, with double-entry radial impeller, mating flanges to DIN, EN or

Applications:

Pumping water with a low solids content, e.g. in waterworks, irrigation and drainage pumping stations, extraction duties in desalination systems, power stations, fire-fighting systems, shipbuilding, district heating or cooling.



PumpMeter, Frequency inverter

http://shop.ksb.com/catalog/k0/en/product/ES000170

#### **RDLP**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

n [rpm] Data for 50 Hz operation Also available for 60 Hz

350 - 1200 Description:

> Axially split volute casing pump for horizontal installation, with one, two or three stages and double-entry radial impeller, mating flanges to DIN, ISO or

Applications:

Pumping water with a low solids content, e.g. in waterworks and longdistance water supply.



Frequency inverter http://shop.ksb.com/catalog/k0/en/product/ES000171

≤ 18000

≤ 550

≤ 64

≤ 1450

≥ 0 - ≤ +80

# **Hygienic pumps**

#### **Vitachrom**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

 $\geq$  -30 -  $\leq$  +110 Data for 50 Hz operation Also available for 60 Hz

50 - 125 Description:

Service-friendly non-priming, close-coupled single-stage hygienic pump in back pull-out design. The pump features a semi-open impeller and electropolished surfaces. It is very easy to clean by CIP/SIP thanks to its almost complete lack of dead volume or narrow clearances. Its wetted components are made of 1.4404/1.4409 (AISI 316L/CF3M) stainless steel. Vitachrom is EHEDG-certified. All materials comply with FDA standards and EN 1935/2004. ATEX-compliant version available.

Applications:

Hygienic handling of fluids in the food, beverage and pharmaceutical industries and in the chemical industry.

http://shop.ksb.com/catalog/k0/en/product/ES000030

PumpMeter, PumpDrive, KSB SuPremE

#### Vitacast



Q [m<sup>3</sup>/h] H [m] p [bar] T [°C]

≤ 105 ≥ -20 - ≤ +140 Data for 50 Hz operation Also available for 60 Hz

Other ratings possible on request

32 - 200 Description:

≤ 540 Service-friendly volute casing pump with standardised motor. All wetted components are made of 1.4404/1.4409 (AISI 316L/CF3M) stainless steel. Designed with very little dead volume; open impeller, electropolished surface, excellent efficiency. Hygienic design for the highest requirements on cleanability (CIP/SIP-compatible), certified by the TNO Nutrition and Food Research Institute to EHEDG standards. All materials comply with FDA standards and EN 1935/2004. ATEX-compliant version available.



Applications:

Hygienic handling of fluids in the food, beverage and pharmaceutical industries as well as in the chemical industry.

PumpMeter, PumpDrive, KSB SuPremE

http://shop.ksb.com/catalog/k0/en/product/ES000785

#### Vitacast Bloc



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

Data for 50 Hz operation Also available for 60 Hz Other ratings possible on request

25 - 150 Description:

< 10

≤ 340 Service-friendly volute casing pump with standardised motor. All wetted components are made of 1.4404/1.4409 (AISI 316L/CF3M) stainless steel. Designed with very little dead volume; open impeller, electropolished surface, excellent efficiency. Hygienic design for the highest requirements on cleanability (CIP/SIP-compatible), certified by the TNO Nutrition and Food Research Institute to EHEDG standards. All materials comply with FDA standards and EN 1935/2004. Trolley available among other accessories. ATEXcompliant version available.



Applications:

Hygienic handling of fluids in the food, beverage and pharmaceutical industries and in the chemical industry

PumpMeter, PumpDrive, KSB SuPremE

http://shop.ksb.com/catalog/k0/en/product/ES000785

#### **Vitaprime**



DN O [m³/h] H [m] p [bar] T [°C] ≥ -20 - ≤ +100 Data for 50 Hz operation

Also available for 60 Hz

Other ratings possible on request

40 - 80 Description:

≤ 58 Service-friendly (self-priming) side channel pump in close-coupled design with a standardised motor. All wetted components are made of 1.4404/1.4409 (AISI 316L/CF3M) stainless steel. Hygienic design for the highest requirements on cleanability (CIP/SIP-compatible). All materials comply with FDA standards and EN 1935/2004. Trolley available among other accessories. ATEX-compliant version available.



Applications:

Hygienic handling of fluids in the food, beverage and pharmaceutical industries and in the chemical industry.

PumpDrive, KSB SuPremE

http://shop.ksb.com/catalog/k0/en/product/ES000787

#### Vitastage



Q [m³/h] H [m] p [bar] ≤ 16 T [°C] ≥ -20 - ≤ +140 Data for 50 Hz operation Also available for 60 Hz

Other ratings possible on request

≤ 12,5 Description:

Multistage centrifugal pump in close-coupled design for vertical or horizontal installation. All wetted components are made of 1.4401/1.4408 (AISI 316/ CF8M) stainless steel. Versatile, robust and especially energy-efficient. CIP/SIPcompatible. All materials comply with FDA standards and EN 1935/2004. Trolley also available among other accessories.



Applications:

Processes with hygienic requirements in the food and beverage industries and in the chemical industry.

http://shop.ksb.com/catalog/k0/en/product/ES000788

#### Vitalobe



Q [m³/h] H [m] ≤ 200 p [bar] ≤ 20 T [°C] ≥ -40 - ≤ +180 < 200000

> Data for 50 Hz operation Also available for 60 Hz Other ratings possible on request

#### 25 - 200 Description:

Sturdy rotary lobe pump in hygienic design, bi-directional operation possible, horizontal or vertical orientation of connections. Hygienic design, highly CIP/ SIP-compatible due to its almost complete lack of dead volume or narrow clearances. All wetted components made of 1.4404/1.4409 (AISI 316L/CF3M) stainless steel; various rotor types, shaft seals and process connections available. Installed as a pump set with geared standardised motor. Vitalobe is EHEDG-certified. The pump elastomers comply with FDA standards and EN 1935/2004. Accessories include trolley, heatable casing or casing cover and overpressure protection unit. ATEX-compliant version is available.



Hygienic and gentle handling of sensitive or high-viscosity fluids in the food, beverage and pharmaceutical industries, the chemical industry and general process engineering.



# Pumps for power station conventional islands

#### CHTA / CHTC / CHTD

n [rpm]



100 - 500 Description: ≤ 3700 Horizontal high-pressure barrel-type pumps with radial impellers, single-entry Q [m³/h] and double-entry, multistage, with flanges or weld end nozzles to DIN and H [m] ≤ 5300 p [bar] ≤ 560 Applications: T [°C] ≤ +210

Also available for 60 Hz

< 6750

≤ 7000

Higher ratings possible upon request

Also available for 60 Hz Higher ratings possible upon request



#### HGB / HGC / HGD



40 - 400 Description: Horizontal radially split ring-section pump with radial impellers, single-entry Q [m³/h] ≤ 2300 or double-entry, multistage. H [m] ≤ 5300 Applications: p [bar] ≤ 560 Pumping feed water and condensate in power stations and industrial plants, T [°C] ≤ +210

pressurised water generation for bark peeling and descaling units, snow guns,

Pumping feed water and condensate in power stations and industrial plants,

generation of pressurised water for bark peeling and descaling units.



http://shop.ksb.com/catalog/k0/en/product/ES000233

#### **HGM**



DN 25 - 125 Description: Horizontal radially split product-lubricated multistage ring-section pump with Q [m<sup>3</sup>/h]≤ 350 radial impellers, axial and radial single-entry inlet. H [m] ≤ 1400 Applications: p [bar] ≤ 140 Pumping feed water in power stations, boiler feed systems and condensate T [°C] ≤ +160 transport in industrial plants. n [rpm] ≤ 3600 Also available for 60 Hz



http://shop.ksb.com/catalog/k0/en/product/ES000236

#### **YNK**



DN 125 - 600 Description: Q [m<sup>3</sup>/h]≤ 4500 H [m] ≤ 370 p [bar] ≤ 40 T [°C] ≤ +210 ≤ 1800 n [rpm] Higher ratings possible upon request

Higher ratings possible upon request

Horizontal radially split single-stage double-entry boiler feed booster pump (booster system) with cast steel single or double volute casing.

Applications:

Pumping feed water in power stations and industrial plants.



http://shop.ksb.com/catalog/k0/en/product/ES000181

#### **LUV / LUVA**



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm] Data for 50 Hz operation

Also available for 60 Hz

≤ 7000

≤ 300

≤ 400

≤ +425

≤ 3600

Vertical spherical casing pump, radial impellers, single-entry, single- to threestage. Suitable for very high inlet pressures and temperatures. Integrated wet winding motor to VDE. Product-lubricated bearings, no need for oil supply systems. Design to TRD, ASME or IBR.

Applications:

Hot water recirculation in forced-circulation, forced-flow and combinedcirculation boilers for very high pressures and in solar power towers.



#### **WKTB**



DN Q [m<sup>3</sup>/h] H [m] p [bar] T [°C] n [rpm] Data for 50 Hz operation 150 - 300 Description:

Vertical can-type ring-section pump, underfloor installation on base frame, ≤ 1500 multistage, first-stage impeller designed as a double-entry suction impeller, < 370 radial impellers. Flanges to DIN or ANSI. ≤ 40

≤ +140

Pumping condensate in power stations and industrial plants. 1500



http://shop.ksb.com/catalog/k0/en/product/ES000506

#### SEZ / SEZT / PHZ / PNZ



Q [m³/h] H [m] T [°C] n [rpm]

Data for 50 Hz operation Also available for 60 Hz Higher ratings possible upon request

Also available for 60 Hz

≤ 80000 Description:

≤ 120 Vertical tubular casing pump with open mixed flow impeller (SEZ), mixed flow ≤ +40 propeller (PHZ) or axial propeller (PNZ), pump inlet with bellmouth or suction elbow, pull-out design available, discharge nozzle arranged above or below floor level, flanges to DIN or ANSI standards available.

Pumping raw, clean, service and cooling water in industry, water supply systems, power stations and seawater desalination plants.

http://shop.ksb.com/catalog/k0/en/product/ES000173



#### SNW / PNW



DN Q [m³/h] H [m] p [bar] T [°C] n [rpm]

≤ 1500 Data for 50 Hz operation Also available for 60 Hz Higher ratings possible upon request

350 - 800 Description:

≤ 9000 Vertical tubular casing pump with mixed flow impeller (SNW) or axial ≥ 50 propeller (PNW), single-stage, with maintenance-free Residur bearings, discharge nozzle arranged above or below floor level. ≤ 10

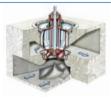
Applications: ≤ +60

Irrigation and drainage systems, stormwater pumping stations, pumping raw and clean water, water supply, cooling water.



http://shop.ksb.com/catalog/k0/en/product/ES000176

#### **Beveron**



Q [m<sup>3</sup>/s] H [m]

Data for 50 Hz operation Also available for 60 Hz Higher ratings possible upon request

> Data for 50 Hz operation Also available for 60 Hz

≤ 30 Description:

≤ 27 Concrete volute casing pump with mixed flow impeller, single-stage, with zero-maintenance lubricant-free Residur bearings

Coast protection and flood control, irrigation and drainage, low-lift pumping stations, reservoir filling, cooling water, raw and clean water.



http://shop.ksb.com/catalog/k0/en/product/ES000868

#### **SPY**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

350 - 1200 Description: ≤ 21600 Long-coupled volute casing pump, single-stage, in back pull-out design.

≤ 50 Applications:

≤ 10

≤ +105 ≤ 1480

Irrigation, drainage and water supply systems, for pumping condensate, cooling water, service water, etc.



Higher ratings possible upon request http://shop.ksb.com/catalog/k0/en/product/ES000422

# **Pumps for nuclear power stations**

n [rpm]

#### **RER**



DN  $\leq 800$ Q [m³/h]  $\leq 40000$ H [m]  $\leq 140$ p [bar]  $\leq 175$ T [°C]  $\leq +350$ 

Available for 50 Hz and 60 Hz Higher ratings possible upon request

≤ 800 Description:

Vertical, single-stage reactor coolant pump with forged circular casing plated on the inside, with diffuser, either with integrated pump thrust bearing or shaft supported by motor bearing.

Applications:

≤ 1800

Reactor coolant recirculation in nuclear power stations.



http://shop.ksb.com/catalog/k0/en/product/ES000144

#### **RSR**



 $\begin{array}{lll} DN & \leq 750 \\ Q \ [m^3/h] & \leq 24000 \\ H \ [m] & \leq 215 \\ p \ [bar] & \leq 175 \\ T \ [^{\circ}C] & \leq +350 \\ n \ [rpm] & \leq 1800 \\ \end{array}$ 

≤ 750 Description:

Vertical single-stage reactor coolant pump with cast or forged casing, shaft supported by motor bearing.

Applications:

Reactor coolant recirculation in nuclear power stations.



Available for 50 Hz and 60 Hz Higher ratings possible upon request

http://shop.ksb.com/catalog/k0/en/product/ES000146

#### **RUV**



 $\begin{array}{lll} DN & \leq 650 \\ Q \ [m^3/h] & \leq 22000 \\ H \ [m] & \leq 111 \\ p \ [bar] & \leq 155 \\ T \ [^{\circ}C] & \leq +350 \\ n \ [rpm] & \leq 1800 \\ & \\ Available \ for \ 50 \ Hz \ and \ 60 \ Hz \\ \end{array}$ 

Higher ratings possible upon request

≤ 650 Description:

Vertical, single-stage reactor coolant pump. Seal-less design with integrated wet rotor motor and integrated flywheel. Product-lubricated bearings, no oil supply systems required.

Applications:

Reactor coolant recirculation in generation III+ nuclear power stations.



http://shop.ksb.com/catalog/k0/en/product/ES000848

#### **PSR**



 $\begin{array}{lll} \text{DN} & \leq 600 \\ \text{Q } [\text{m}^3/\text{h}] & \leq 9000 \\ \text{H } [\text{m}] & \leq 45 \\ \text{p } [\text{bar}] & \leq 75 \\ \text{T } [^{\circ}\text{C}] & \leq +300 \\ \text{n } [\text{rpm}] & \leq 2000 \end{array}$ 

Higher ratings possible upon request

Description:

Vertical pump set integrated in the reactor containment floor, seal-less pump with leak-free, low-maintenance wet rotor motor.

Applications:

Reactor coolant recirculation in boiling water reactors.



http://shop.ksb.com/catalog/k0/en/product/ES000150

#### **RHD**



DN
Q [m³/h
H [m]
p [bar]
T [°C]
n [rpm]

DN 125 - 500 Q [m³/h] ≤ 6500 H [m] ≤ 1000

> Available for 50 Hz and 60 Hz Higher ratings possible upon request

125 - 500 Description:

Horizontal single-stage double-entry main feed water pump MFWP, cast or forged variant.

≤ 150 Applications:

≤ +210

≤ 6500

Applications:

Main feed water supply (MFWS) in steam generation systems of nuclear power stations.



#### **LUV Nuclear**



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C]

Data for 50 Hz operation Also available for 60 Hz

40 - 600 Description:

Vertical pump with integrated motor, single-entry, single- to three-stage. ≤ 7000 Suitable for very high inlet pressures and temperatures. Integrated wet ≤ 300 winding motor to VDE. Product-lubricated bearings, no oil supply systems ≤ 320

required. Design to ASME Section 3, KTA, etc. ≤ +430 Applications:

As reactor water clean-up pump in boiling water reactors, reactor coolant pump in boiling water and pressurised water reactors and recirculation pump in test facilities

http://shop.ksb.com/catalog/k0/en/product/ES000855



#### **RHM**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

> Available for 50 Hz and 60 Hz Higher ratings possible upon request

≤ 150 Description:

≤ 300 Horizontal multistage barrel pull-out pump.

≤ 2100 Applications:

Core flooding, emergency cooling and residual heat removal systems, ≤ 220 chemical and volume control systems, control rod drive systems, high-pressure ≤ +180 and medium-pressure safety injection systems, emergency feed water systems, < 8000

start-up and shut-down feed water systems, high-pressure charging.



http://shop.ksb.com/catalog/k0/en/product/ES000245

#### **RVM**



Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

≤ 6000 Available for 50 Hz and 60 Hz Higher ratings possible upon request

≤ 85 Description:

≤ 50 Vertical multistage barrel pull-out pump.

≤ 2000 Applications: ≤ 200

< +100

Core flooding, emergency cooling and residual heat removal systems, chemical and volume control systems, high-pressure and medium-pressure safety injection systems.



http://shop.ksb.com/catalog/k0/en/product/ES000243

#### **RHR**



DN Q [m<sup>3</sup>/h]H [m] p [bar] T [°C] n [rpm]

Available for 50 Hz and 60 Hz

≤ 500 Description:

≤ 6000 Horizontal annular casing pump with forged or cast pressure boundary and

≤ 190

Applications: ≤ 63

Core flooding, emergency cooling and residual heat removal systems, ancillary ≤ +200 systems, acid feed system and low-pressure injection system, component

cooling water systems.

http://shop.ksb.com/catalog/k0/en/product/ES000140



#### **RVR**



DN Q [m3/h] H [m] p [bar] T [°C] n [rpm] Available for 50 Hz and 60 Hz

≤ 500 Description:

≤ 6000 Vertical annular casing pump with forged or cast pressure boundary and

≤ 190

Applications: ≤ 63

Core flooding, emergency cooling and residual heat removal systems, ancillary ≤ +200 systems, acid feed system and low-pressure injection system, component cooling water systems.

# Pumps for desalination by reverse osmosis

#### **HGM-RO**



DN	65 - 250	Description:
Q [m³/h]		Horizontal radially split product-lubricated multistage ring-section pump wit
H [m]	≤ 950	radial impellers and plain bearings, axial and radial single-entry inlet. Duplex
p [bar]	≤ 120	stainless steel variant or super duplex stainless steel variant, also suitable for chilled water applications.
T [°C]	≥ 0 - ≤ +40	Applications:
		Applications.

High-pressure pump for RO seawater desalination systems

#### Multitec-RO



N	50 - 150		
Q [m³/h]	≤ 850		
l [m]	≤ 1000		
[bar]	≤ 100		
[°C]	≥ -10 - ≤ +45		
n [rpm]	≤ 3500		
Data for 50 Hz operation			

Also available for 60 Hz

Also available for 60 Hz

Description:

≤ 3600

Horizontal, multistage centrifugal pump in ring-section design. Axial suction nozzle. Discharge nozzle can be turned in steps of 90°. Closed radial impellers. Made of duplex or super-duplex stainless steel.

Applications:

High-pressure pump for RO seawater desalination systems and geothermal systems (re-injection of geothermal water into the aquifer).



PumpDrive, KSB SuPremE

http://shop.ksb.com/catalog/k0/en/product/ES000508

# Positive displacement pumps

n [rpm]

#### RC / RCV



N	20 - 100	
[m³/h]	≤ 78	
[m]	≤ 100	
[bar]	≤ 10	
[°C]	≥ +5 - ≤ +80	
[rpm]	≤ 1500	
	Data for 50 Hz operation	

Also available for 60 Hz

Helical gear pump, self-priming, with bypass valve, close-coupled design, for horizontal installation with baseplate or vertical installation. With mechanical

#### Applications:

Fuel feed, handling fuel, lubricating oil and viscous fluids, lubrication systems.



# Fire-fighting systems

#### **EDS**



DN
Q [m <sup>3</sup> /h]
H [m]
p [bar]
T [°C]
n [rpm]

Data for 50 Hz operation Also available for 60 Hz

32 - 300 Description:

≤ 140 ≤ 16

≥ +5 - ≤ +50 ≤ 3000

 $\leq$  840 Automatic fire-fighting system consisting of a jockey pump and one or several duty pumps, with electric motor or diesel engine. Includes manifold, valves, accessories and control unit. To EN 12845, CEA 4001, UNE-23500, NFPA-20, etc.

**Applications:** Office buildings, hotels, industry, shopping malls, etc.



## DU / EU



DN Q [m³/h] H [m] p [bar] T [°C] n [rpm]

≥ +5 - ≤ +50 Applications: ≤ 3000

Data for 50 Hz operation Also available for 60 Hz

32 - 350 Description:

≤ 2500 Automatic fire-fighting system consisting of pumps with electric motor or diesel engine and control unit. To EN 12845, CEA 4001, UNE-23500, NFPA-20, EM, etc. ≤ 25 FM, etc.

Office buildings, hotels, industry, shopping malls, etc.



71 Automation

#### **Control units**

#### **Controlmatic E**



No. of pumps U [V]

≤ 1 Description:

1~230 Automatic control unit for pressure-controlled starting, flow-controlled stopping and monitoring of a single pump

Applications:

In water supply systems in combination with Multi Eco, Ixo, UPA 100C.



http://shop.ksb.com/catalog/k0/en/product/ES000276

#### **Controlmatic E.2**



No. of pumps U [V]

≤ 1 Description:

1~230 Automatic control unit for pressure-controlled starting, flow-controlled stopping and monitoring of a single pump

In water supply systems in combination with Multi Eco, Ixo, UPA 100C.



http://shop.ksb.com/catalog/k0/en/product/ES000276

#### Cervomatic EDP.2



No. of pumps U [V]

1~230 / 3~400 Automatic control unit for pressure-controlled starting and either pressurecontrolled or flow-controlled stopping and monitoring of a single pump.



Use in water supply systems with pumps of the Multi Eco, Ixo, UPA 100C and UPA 150C type series with single-phase or three-phase motors.



http://shop.ksb.com/catalog/k0/en/product/ES000275

#### LevelControl Basic2



No. of pumps P [kW] U [V]

< 22 1~230 / 3~400

Higher ratings and other mains voltages available on request

Description:

Level control unit for controlling and protecting either one or two pumps. DOL starting up to 4 kW, star-delta starting up to 22 kW. Higher ratings on

#### Applications:

Tank drainage via float switches, digital switches, 4...20 mA, pneumatic (w/o compressor) or bubbler system in building services and waste water applications. Tank filling using float switches, digital switches or 4...20 mA in building services and water supply applications.

http://shop.ksb.com/catalog/k0/en/product/ES000603



#### **UPA Control**



No. of pumps P [kW]

1~230 / 3~400

≤ 1 Description:

The KSB switchgear is suitable for level control and protection of submersible borehole pumps, submersible motor pumps and dry-installed pumps with single-phase AC motors  $1\sim230~V$  or three-phase motors  $3\sim230~/$  400~V~/ 50 Hz. The motor is started DOL. Enclosure: IP56, dimensions:  $205\times255\times170~mm$  $(H \times W \times D)$ .



Irrigation and filling or draining tanks in water supply applications in combination with 4" and 6" pumps.



## **Hyatronic N**



 $\begin{array}{ll} \text{No. of pumps} & \leq 6 \\ \text{P [kW]} & 22 \\ \text{U [V]} & 3 \text{$\sim$400} \\ \text{Higher ratings and other mains voltages available} \end{array}$ 

on request

6 Description

22 Pump control system in control cabinet for cascade starting and stopping of 3-400 up to 6 pumps on the mains.

#### Applications:

For draining tanks and sumps in drainage and waste water disposal applications. For filling tanks in water supply applications. Level measurement via float switch or 4...20 mA sensor.



http://shop.ksb.com/catalog/k0/en/product/ES000303

# Monitoring and diagnosis

#### **Amacontrol**

No. of pumps Pump V [V AC]

≤ 1 Amacan 230

≤ 1 Description:

Amacan Monitoring system for submersible motor pumps, with tripping function.



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