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Etaprime L Etaseco / Etaseco-I Etaseco / Etaseco-I Etaseco RVP Eva-Clean Evamatic-Box N EZ B/L  FGD Filtra N  HGB / HGC / HGD HGM HGM-RO HK (Nikkiso-KSB) HPH	57 35 35 48 48 57 55 42 63 63 67 36 36 36 32	RHD RHM RHR Rio-Eco N Rio-Eco Therm N Rio-Eco Z N Riotherm Rio-Therm N Rotex RPH RPHb RPHmdp RPH-RO RPH-V RSR RUV	65 66 66 29 28 29 28 28 47 37 37 38 67 37 65 65		
Etaprime L Etaseco / Etaseco-I Etaseco RVP Eva-Clean Evamatic-Box N EZ B/L FGD Filtra N HGB / HGC / HGD HGM HGM-RO HK (Nikkiso-KSB) HPH HPK HPK	57 35 35 48 48 57 55 42 63 63 67 36 36 32 32 32	RHD RHM RHR Rio-Eco N Rio-Eco Therm N Rio-Eco Z N Riotherm Rio-Therm N Rotex RPH RPHb RPHmdp RPH-RO RPH-V RSR RUV RVM	65 66 66 29 28 29 28 28 47 37 37 37 38 67 37 65 65 66		
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### **Our tradition:**

## **Competence since 1871**

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

Partners achieve more together.

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

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



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

We assist our customers right through the product life cycle

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

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

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

- Maintenance inspection management
- Framework agreements such as TPM® Total Pump Management
- Efficiency analyses with the SES System Efficiency Service or PumpMeter
- Reverse engineering
- Inventory management
- 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.



## Saving energy has never been so easy

The clever interaction between the five modules of FluidFuture®, KSB's energy efficiency concept, ensures maximum efficiency for your pump system. Following the introduction of KSB's SuPremE® motors, FluidFuture® now features a new generation of motors that enable you to run your system more leanly than with any other pump drive.

#### FluidFuture® - five modules for greater efficiency

KSB uses the energy efficiency concept FluidFuture® to assess the entire hydraulic system. The objective: to increase overall efficiency. Following a comprehensive system analysis, KSB selects high-efficiency pumps, valves and motors to optimise the system and ensure maximum efficiency with demand-driven operation. This means maximum energy savings for you.

#### **Perfect combination**

Combining high-efficiency components reduces energy consumption and saves you real money. The interaction of KSB SuPremE® motor, PumpDrive variable speed system and PumpMeter is a case in point. While the operating pressure is continually measured by the intelligent PumpMeter pressure sensor, PumpDrive ensures it is adjusted to the actual demand. Especially in the low-flow range this plays an important role. It also reduces energy costs and wear on components. The savings achieved are further maximised by the exceptional efficiency of the KSB SuPremE® motor.















#### **General Information**

KSB's	FluidFuture®	energy	efficiency
conce	pt		



FluidFuture® is our comprehensive energy efficiency concept for your entire hydraulic system. Its aim is to improve your plant's efficiency. To make that reality, we've developed five interlocking modules. Together they enable us to identify and achieve savings right through the life cycle of your pumps and valves. You can maximise savings by optimising the overall efficiency of your plant, making it run more cost-effectively, efficiently and longer. FluidFuture® benefits your company, our environment and generations to come.

More information at www.ksb.de/fluidfuture

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.

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### **Pumps**

Design / Application	Type series	Page	FluidFuture®	ErP	Factory- automated	Automation available	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
Circulators / hot water service pumps, fixed speed	Riotherm	28				•				•	
Drinking water circulators, fixed speed	Calio-Therm S NC/NCV	28								•	
	Rio-Therm N	28									
Drinking water circulators, variable	Rio-Eco Therm N	28									
speed	Calio-Therm S	29									
	Calio S	29									
Circulators, variable speed	Calio	29								_	
	Rio-Eco N	29									
	Rio-Eco Z N	29									
	Etaline	30									
	Etaline Z	30									
In-line pumps	Etaline-R	30									
	ILN / ILNE / ILNS	30									
	ILNC / ILNCE / ILNCS	30									
	Etanorm	31									
	Etanorm-R	31									
Chandandia d / alasa savalad avasas	Etabloc	31									
Standardised / close-coupled pumps	Etachrom B	31									
	Etachrom L	32									
	Etanorm V	32									
	HPK-L	32									
Hot water pumps	HPH	32									
	HPK	32									
	Etanorm SYT / RSY	33									
Hot water / thermal oil pumps	Etabloc SYT	33									
	Etaline SYT	33									
Thermal oil pumps with magnetic drive	HX (Nikkiso-KSB)	34									
or canned motor	HY (Nikkiso-KSB)	34									
	MegaCPK	34									
Standardised chemical pumps	CPKN	34									
	Magnochem	35									
	Magnochem-Bloc	35									
	Etaseco / Etaseco-l	35									
	Etaseco / Etaseco-i	35									
	Secochem Ex	35								-	
	Secochem Ex K	36				_			_		
Cool loss numer-	Ecochem Non-Seal HN	36				-			-		
Seal-less pumps	Ecochem Non-Seal HT	36							_		
	Ecochem Non-Seal HP	36				-					
	Ecochem Non-Seal HS	36				_					
	HN (Nikkiso-KSB)	36									
	HT (Nikkiso-KSB)	36				_					
	HK (Nikkiso-KSB)	36				-					
	VN (Nikkiso-KSB)	37				-					
	DN (Nikkiso-KSB)	37									

Design / Application	Type series	Page	FluidFuture®	Er-P	Factory- automated	Automation available	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
	RPH	37									
	RPHb	37									
	RPH-V	37									
	RPHmdp	38									
	CTN	38									
Process pumps	API series (Nikkiso-KSB)	38									
	CHTR	38									
	CINCP / CINCN	38									
	INVCP / INVCN	39									
	RWCP / RWCN	39									
	WKTR	39									
	Hya-Rain / Hya-Rain N	40									
Rainwater harvesting systems	Hya-Rain Eco	40									
	Multi Eco	40									
	Multi Eco-Pro	40									
	Set 100	41									
Domestic water supply systems with	Multi Eco-Top	41								_	
automatic control unit / swimming pool pumps	Movitec VME	41								_	
poor purips	Ixo N	41									
	Ixo-Pro	41									
	Filtra N	42								$\overline{}$	
	Hya-Solo EV	42									
	Hya-Solo D	42								-	
	Hya-Solo DSV	42								$\overline{}$	
	Hya-Solo D FL	42								-	
	Hya-Duo D FL	43								-	
	Hya-Solo D FL Compact	43						_		-	
	Hya-Duo D FL Compact	43						-		_	
	Superbloc SBC.B	44								-	
	Surpress Eco SE.2.B	44								-	
	Hya-Eco VP	43								-	
Pressure booster systems	Hyamat K	43			-			-			
riessure booster systems	Hyamat V	44								-	
	Hyamat SVP	44								-	
	Surpress Eco SE.2.B VP	44								-	
	Surpresschrom SIC.2	45								-	
	Surpresschrom SIC.2 V	45								-	
	· ·										
	Surpresshlor SP	45 45			-					-	
	Surpress Four SEE				_					-	
	Surpress Feu SFE	45 46			-			_			
	Surpress SP VP									-	
	Surpress SP VP	46				_				-	
	Ama-Drainer N 301 – 358	46				-				-	
	Ama-Drainer 4 / 5	46								-	
Drainage pumps / waste water pumps	Ama-Drainer 80, 100	46				-				-	
	Ama-Porter F / S	47				_				_	
	Rotex	47						_		_	
	MK / MKY	47									

Design / Application	Type series	Page	FluidFuture®	ErP	Factory- automated	Automation available	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
	AmaDS <sup>3</sup>	47									
	Kondensat-Lift	47								_	
	Ama-Drainer-Box Mini	48									
	Ama-Drainer-Box	48									
	Evamatic-Box N	48									
Lifting units / pump stations	Eva-Clean	48									
	mini-Compacta	48									
	Compacta	49									
	CK 800 Pump Station	49									
	CK 1000 Pump Station	49					-				
	Ama-Porter CK Pump Station	49									
	SRP	49									
	Amarex N	50									
	Amarex N S 32	50									
Submersible motor pumps	Amarex KRT	50									
	Amarex KRT (jacket cooling)	50								_	
	Amarex KRT (convection cooling)	50									
	Amacan K	51									
Submersible pumps in discharge tubes	Amacan P	51									
	Amacan S	51									
	Amamix	52									
Mixers / agitators / tank cleaning units	Amaprop	52									
winxers / agitators / tank cleaning units	Amajet	52									
	Amaline	52									
	Sewatec	53									
Pumps for solids-laden fluids	Sewabloc	53									
	KWP / KWP-Bloc	53									
	WBC	54									
	LSA-S	54									
	LCC-M	54									
	LCC-R	54									
	TBC	54									
	LCV	55									
Slurry pumps	FGD	55									
	Mega	55									
	MHD	55									
	LHD	55									
	MDX	56									
	ZW	56									
	HVF	56									
	Etaprime L	57									
Self-priming pumps	Etaprime B	57									
•	EZ B/L	57									
	S 100D	58									
	UPA 100C	58									
	UPA 150C	58									
Submersible borehole pumps	UPA 200, 200B, 250C	58									
	UPA 300, 350	58									
	UPZ, BSX-BSF	59									
Deep-well turbine pumps	BEV	59									
	Comeo	60									
	Movitec	60									
High-pressure pumps	Movitec VCI	60									

Design / Application	Type series	Page	FluidFuture@	ErP	Factory- automated	Automation available	Water Transport and Treatment	Industry	Energy Conversion	Building Services	Solids Transport
	Omega	61									
Axially split pumps	RDLO	61									
	RDLP	61									
	Vitachrom	61									
	Vitacast	62									
Hygienic pumps for the food, beverage and pharmaceutical industries	Vitaprime	62									
and pharmaceutical madstries	Vitastage	62									
	Vitalobe	62									
	CHTA / CHTC / CHTD	63									
	HGB / HGC / HGD	63									
	HGM	63									
	YNK	63									
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islands	WKTB	64									
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	Beveron	64									
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### **Automation and drives**

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Automation and drives	KSB SuPremE	27							
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	Diothorm	Klotheriii	Calio-Therm S NC/NCV	Rio-Therm N	Dio Eco Thorm M	KIO-ECO I NETITI N Calio-Therm S		Calio S	Calio	Rio-Eco Z N		Etaline	Etaline Z	Etaline-R	ILN / ILNE / ILNS ILNC / ILNCE / ILNCS		Etanorm / Etanorm-R	Etabloc	Etachrom B	Etanorm V		HPK-L	НРН	HPK		Etanorm SYT / RSY	Etabloc SYT / Etaline SYT			
Waste water with faeces	- pa	7	5		- G		pe			$\perp$	bs					sd					bs		$\Box$		bs	$\Box$				$\perp$
Waste water without faeces	- 10	2	200		bec	$\perp$	bee	Ш	Щ	$\perp$	sdwnd	Щ	_			sdwnd	L		$\perp$		sdwnd		_		bumps	_	$\perp$	$\perp$	$\perp$	$\perp$
Aggressive liquids	ed s	9	, ב		e s		le s	Ш	$\vdash$		ер	Щ							$\perp$			_	_		oilp	$\dashv$		$\perp$	$\perp$	$\perp$
Inorganic liquids		_ixi	<u> </u>	;	variable speed		variable speed		$\vdash$	_	In-line I	Ш	_	_		close-coupled	_	$\perp$	$\perp$	_	Hot water		_			_	_	$\perp$	$\perp$	$\bot$
Activated sludge	- sd	_ \f	Š .				_ \a	Ш	$\vdash$	_	드	Ш	$\dashv$	_	_	9		$\perp$	$\perp$	_	- <del> </del>		$\dashv$	_	thermal	$\dashv$	$\perp$	$\perp$	$\perp$	$\perp$
Brackish water	ğ -	_ t	<u>a</u>	_	ors,	+	Circulators,	Н	$\vdash$	+		Н	$\dashv$	-		-Se-	-	-	+	+	إ¥¦	$\dashv$	$\dashv$		the -	$\dashv$	+	+	+	+
Service water  Distillate	e b		3		ı I	-	- lat	Н	$\vdash$	+			-			-   은				4	-	=	$\dashv$	_	er/	$\dashv$	+	+	+	+
	- <u>Š</u> -	- r	-	—,	[달]	+	- [ ]	Н	$\vdash$	+		Н	$\dashv$	+	+	ed	$\vdash$	$\dashv$	+	+	-	-	•	4	Hot water	$\dashv$	+	+	+	+
Slurries Explosive liquids	-   S   -	- t	200	-	er	+	-	$\vdash$	$\vdash$	+		Н	$\dashv$	+	+	gib	$\vdash$	$\dashv$	+	+	-	$\dashv$	$\dashv$	-	5	$\dashv$	+	+	+	+
Digested sludge	ate	- 2	<u>ה</u>		vat	+	۱	H	$\vdash$	+		Н	+	-	-	gal	$\vdash$	$\dashv$	+	-	1	$\dashv$	$\dashv$	-	Ť.	+	+	+	+	+
Solids (ore, sand, gravel, ash)		Drinking water circulators fixed speed	2		Drinking water circulators,	+		H	$\vdash$	+		$\vdash$	$\dashv$	$\dashv$	+	Standardised		$\dashv$	+	+		$\dashv$	$\dashv$			+	+	+	+	+
Flammable liquids	-   작		5		볼	+		H	$\vdash$	+		H	+	+	+	- 01	Н	$\dashv$	+	+		$\dashv$	$\dashv$	-		+	+	+	+	+
River, lake and groundwater	ors					+	1	Н	$\vdash$	+		Н	$\dashv$						+			$\dashv$	$\dashv$	-		$\dashv$	$\top$	+	+	+
Liquefied gas						+	1	Н	$\sqcap$	+		Н	$\dashv$	+			F	$\exists$	$\top$			$\neg$	$\dashv$			$\dashv$	$\top$	+	$\top$	+
Food and beverage production						$\top$		П		$\top$		П	$\neg$	1				П	$\top$			$\neg$	$\exists$			$\top$	十	$\top$	$\top$	$\top$
Gas-containing liquids						$\top$		П		$\top$		П	一					T	$\top$				T			$\top$	$\top$	$\top$	$\top$	$\top$
Filtered water						$\top$				Ť		П	$\neg$					T								$\exists$	$\top$	$\top$		$\top$
Harmful liquids						$\top$	1		П			П										П	$\Box$			$\neg$	$\exists$	$\top$		T
Toxic liquids												П														$\neg$				Т
High-temperature hot water																														
Heating water					Ŀ									- 1															$\perp$	$\perp$
Highly aggressive liquids								Ш	$\sqcup$			Щ																_		$\perp$
Industrial service water		4			Ŀ			Ш	$\vdash$				-									$\dashv$	_	_	-	$\dashv$	4	$\perp$	4	$\perp$
Condensate					L		-	Ш	$\vdash$	_		Щ	4	_	_		L	$\perp$	$\perp$	_			_	_	-	$\dashv$	$\dashv$	$\perp$	$\perp$	$\perp$
Corrosive liquids				_	_	—	-	Ш	$\vdash$	+		Ш	$\rightarrow$	_	_		_	$\perp$	$\perp$	+	-	$\rightarrow$	$\dashv$	_	-	$\dashv$	$\dashv$	+	+	$\perp$
Valuable liquids	_	4		_		+	-	Н	$\vdash$	+		Н	$\dashv$	_	_		L	$\dashv$	+	-	-	$\dashv$	$\dashv$	_		$\dashv$	+	+	+	+
Fuels						_	-	Ш	$\vdash$	+-		Н	$\dashv$	_	_		_	$\dashv$	+	-	-	-	$\dashv$	_		$\dashv$	+	+	+	+
Coolant					H	-	-	$\vdash$	$\vdash$	+		Н	$\dashv$	_	_		_	$\dashv$	_	-	-		$\dashv$	_		$\dashv$	+	+	+	+
Cooling lubricant	_	4		_	-	_	-	H	<del></del>			H	_	_	-	-	H	4	_	_	-	=	_	_		$\dashv$	+	+	+	+
Cooling water Volatile liquids		4		_	-	-	-						-	-   '			F		-	-	-	-	-	-		$\dashv$	+	+	+	+
Fire-fighting water	_	-	$\mathbb{H}$	-		+	-	$\vdash$	$\vdash$	+		Н	$\dashv$	٠.		-	H		+	+	-	$\dashv$	$\dashv$	-		+	+	+	+	+
Solvents		-		-		+	-	$\vdash$	$\vdash$	+		Н	$\dashv$	+		-	-	-	+	+	-	$\dashv$	$\dashv$	-		$\dashv$	+	+	+	+
Seawater						+	-	H	$\vdash$	+		H	+	٠			$\vdash$		+	+	-	$\dashv$	$\dashv$	-		+	+	+	+	+
Oils						+		H	$\vdash$	+		$\vdash$	$\dashv$	+	_	-		_			-		$\dashv$		-			+	+	+
Organic liquids						+		H	$\vdash$	+		H	$\dashv$	+	+		Ē	-		+			$\rightarrow$	7		7	_	+	+	+
Pharmaceutical fluids	_					+		$\vdash$	$\vdash$	+		H	$\dashv$	$\dashv$	$\top$			$\dashv$	+	+		_	$\dashv$	-		+	+	+	+	+
Polymerising liquids						+		$\vdash$	$\sqcap$	+		Н	$\dashv$	+	$\top$			$\vdash$	+	$\top$		$\dashv$	$\dashv$			+	+	+	+	+
Rainwater / stormwater						$\top$			$\sqcap$	$\top$		П	$\dashv$	$\top$				$\Box$	$\top$	$\top$		$\dashv$	$\dashv$			$\dashv$	$\top$	$\top$	$\top$	$\top$
Cleaning agents						$\top$		П		$\top$		П	$\dashv$	T <sub>1</sub>								$\neg$	$\exists$				$\top$	$\top$	$\top$	$\top$
Raw sludge						$\top$			$\Box$	$\top$		П	$\neg$	$\neg$				$\Box$	$\neg$				$\Box$			$\top$	$\top$	$\top$	$\top$	$\top$
Lubricants	_												$\neg$									$\Box$	$\Box$			$\neg$	$\top$	$\top$		$\top$
Waste water																										J		I	$\perp$	I
Swimming pool water																_														$\perp$
Brine									Ш			Ш										$\Box$							$\perp$	$\perp$
Feed water								П				Ш	$\Box$													Ţ			$\Box$	
Dipping paints								Ш				Ш						Щ		•		$\square$	[					$\perp$	$\perp$	$\perp$
Drinking water					Ŀ			Ш	$\vdash$	4			-	_ 1			-			4	-	$\square$			_	4	4	$\perp$	4	$\perp$
Thermal oil						+	-	Ш	$\vdash$	+		Ш	_	_	$\perp$		_	$\sqcup$	$\perp$	$\perp$			$\rightarrow$	_	_	$\overline{}$	-	$\perp$	$\perp$	4
Hot water			-					4 - 1						- 1														- 1		
Wash water			$\vdash$	_	•		-			-			-				<u> </u>	-	-+-		-	-	-	-1		-	-	+	+	+

	HX (Nikkiso-KSR)	HY (Nikkiso-KSB)		MegaCPK		Magnochem	Magnochem-Bloc	Etaseco / Etaseco-l	Etaseco RVP	Secochem Ex K	Ecochem Non-Seal HN	Ecochem Non-Seal HT	Ecochem Non-Seal HP	Ecochem Non-Seal HS	HN (Nikkiso-KSB)	HT (Nikkiso-KSB) HK (Nikkiso-KSB)	VN (Nikkiso-KSB)	DN (Nikkiso-KSB)		КРН	RPHb	RPH-V	КРишар	A PI series (Nikkiso-KSB)	CHTR	CINCP / CINCN			WKTR	
Waste water with faeces	or		bs		2	3							Ц						bs						$\perp$					
Waste water without faeces			_ >	Ш	Samina sal-leas	•			-		-		Щ	_	_				Process pumps		$\perp$	$\perp$	4		$\perp$					$\dashv$
Aggressive liquids	_ ba _■	_	a b		<b>■</b> 5	2 =							Ш	_					ss p	_			-			-				$\perp$
Inorganic liquids			Jic.	•	■ <u>ā</u>						-				- 1				эсе		-	- 1	- 1		1	1		Ш		$\perp$
Activated sludge	_ a _	+	her	$\vdash$					_	_	-			_	+	_	_	Ш	F.	_	4	_	_	_	+	+	+			+
Brackish water		+	- p				H	$\vdash$	_	+	$\vdash$	Ш	H	$\dashv$	+	_	_	Ш	-		+	$\dashv$	_	+	+	+	-	_		+
Service water		+	dise					-			-	L	$\vdash$	_	_	4			-	•	•		-	+	+		-			+
Distillate	Fic d		dar		-	-	•								-		•		-	$\dashv$	+	+	+	+	+	+	+	$\vdash$		+
Slurries Explosive liquids	au é		Standardised chemical					$\vdash$	-	+		•			<b>.</b>	-				•			-	+		+	+	$\vdash$		+
Digested sludge	maç	-   -	S			-	-	$\vdash$	+	-   -	+		-	-	<u>-   '</u>	-	-			-	-	-	+	+	+	+	+	$\vdash$		+
Solids (ore, sand, gravel, ash)	급	+		$\vdash$			$\vdash$	$\vdash$	+	+	+	$\vdash$	$\vdash$	$\dashv$	+	+	+	$\vdash$		$\dashv$	+	+	+	+	+	+	+			+
Flammable liquids	× ×							$\vdash$															+	+				-		+
River, lake and groundwater		╅		Ħ,			Ē	$\vdash$	+	+-	✝¯	Ē	H	7	+	+	+-	H		_	7	7	7	+	十	十二	十	Ħ	Ħ	+
Liquefied gas	Ind	T		П			П	П		$\top$	$\top$	П		1						寸	$\top$	1	-	T <sub>e</sub>		1	$\top$	П		$\top$
Food and beverage production	i <u>e</u>	T						П	$\top$				П	$\neg$	T						$\top$	$\neg$			$\top$		$\top$	П		$\top$
Gas-containing liquids	nal	Ť											П		T					Ì	T		T	İ		1	T			
Filtered water	Jerr																										Т			
Harmful liquids	⊨																										$\perp$			
Toxic liquids					_	•									<b>-</b>							<b>-</b>	•			1	$\perp$	Ш		$\perp$
High-temperature hot water						•		Ш			-			-	- 1						$\perp$	_	4			1	$\perp$	Ш		$\bot$
Heating water		+			4				_	_	_		Ш	_	$\perp$	_		Ш	-	_	$\perp$	$\perp$	_	_	$\bot$	$\perp$	$\perp$	Ш		$\perp$
Highly aggressive liquids	-					_	•		-			•							-	•	-		- 1		4	+	+	H		+
Industrial service water Condensate		+	-		-			$\vdash$	-	+	+	H	H	+	+	_	-	Н	-	-	+	+	٠.	+	+		-			+
Condensate Corrosive liquids	_				-			$\vdash$	-	+			H		٠.	-	-		-					#		_		Н		+
Valuable liquids	_		_		_	H				_									-	$\rightarrow$	$\rightarrow$	-	-	-	╀	+=	+-			+
Fuels		╁	-			H		$\exists$		-1-	Ħ	Ē	$\vdash$					Ħ	-	$\rightarrow$	$\rightarrow$	_	+			+	+	$\vdash$		+
Coolant	_	+									╫	H	$\Box$	_	_	1				_	_	_	_	+	+=	+		$\Box$		+
Cooling lubricant		Ť		$\Box$										$\dashv$	$\top$					T	十	$\dashv$		Ť	$\top$	1	$\top$	П		$\top$
Cooling water																					$\dashv$	1	<b>-</b>		$\top$			П		$\top$
Volatile liquids	_																						•					П		
Fire-fighting water		I																							I	I	I			
Solvents	_					•	•		•						- 1		•			•	•		•					-	Щ	$\perp$
Seawater	_				_			Ш			_	Щ		_	_	_	_	Ш			_	_	4	$\perp$		_		-		$\perp$
Oils			-		_	Ŀ				_	_		$\vdash$	_	_		•			-	-	<b>I</b>	1	-	-	_			$\square$	+
Organic liquids					4	-			-						- 1		•			•	-		<u> </u>							+
Pharmaceutical fluids		+		$\vdash$		-	Ļ	$\vdash$	+	+	+	H	$\vdash \vdash$	_	_+	_	+	$\vdash$		4	+	+	+	+	+	+	+	$\vdash$	$\vdash \vdash$	+
Polymerising liquids Rainwater / stormwater		+			-		-	$\vdash$	+	+		H	$\vdash \vdash$	•		-	+	$\vdash$		$\dashv$	+	4	┦.	-	+	+	+	$\vdash$		+
Rainwater / stormwater Cleaning agents		+				-			-	+		$\vdash$	$\vdash$	+,		+					+		_	+	+	+				+
Raw sludge		+					-		-   -	-   -	-	$\vdash$	$\vdash$	+	-		-			-	-		-	+	+	+	+			+
Lubricants		+						$\dashv$	+	+	+	Н	$\vdash$	+	+	+	+	$\vdash$			+		+	+	+	+			H	+
Waste water		+		<del>-</del> - -		ľ	_	$\vdash$	+	+	+	Н	$\vdash$	+	+	+	+	$\vdash$		-	_	-	+	+	+	+	+	Н		+
Swimming pool water		+		$\vdash$			Н	$\vdash$	+	$\top$	+	Н	$\vdash$	$\dashv$	+	+	+	Н		$\dashv$	+	+	+	+	+	+	+			+
Brine	_	$\top$													- 1					$\dashv$	$\top$	$\dagger$	$\dagger$	$\top$	+	+		$\forall$		+
Feed water		Ť		$\sqcap$			П	П	$\top$				П	$\dashv$	$\top$	$\top$		П		$\dashv$	$\top$	$\dagger$	$\top$	$\top$			_		Ħ	$\top$
Dipping paints		İ																												
Drinking water		I													- 1									I						
Thermal oil	_			Ш				Ш		_	-		$\rightarrow$	-	_										1		1			
Hot water	_					•	•		•		-				- 1	•		Ш		$\Box$	_[	_				_	$\perp$	$\sqcup$	Ш	$\perp$
Wash water									- 1											- 1	- 1	- 1	- 1							

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		Hya-Rain / Hya-Rain N	Hya-Rain Eco		MultiEco Set 100	MultiEco-Pro	MultiEco-Top	Movitec VME	Ixo N	Ixo Pro	Filtra N		Hya-Solo EV	Hya-Solo D	Hya-Solo DSV	Hya-Solo D FL	Hya-Duo D FL	Hya-solo D FL Compact	nya-Duo D re compact	Surpress Eco SE 2.8	Hva-Eco VP	7 40 100	Hyamat V		nyamat 3vr								
Waste water with faeces	ms			sdi								ms						I				Ţ			T		T	$\perp$		$\perp$			I
Waste water without faeces	Rainwater harvesting systems	[		sdwnd		1	L		Ш			booster systems	_]	[		$\perp$		1	1		L	1	1		1	1		$\perp$		$\perp$	$\sqcup$	Ļ	Ļ
Aggressive liquids	y sy	_	_	<u>-</u>	_	$\perp$	_	_		_		r sy	_		_	_	_	_	_		$\perp$	$\downarrow$	_	$\perp$	_	$\perp$	_	$\perp$	$\perp$	$\perp$	Ш	▙	Ļ
Inorganic liquids	ţi	_	_	000d		+	-	-		_	_	ste	_		_		_	_	_	_	$\perp$	$\downarrow$	_	$\perp$	+	_	_	+	-	$\vdash$	Ш	_	╄
Activated sludge	ves	_	4	swimming	_	+	-	-		_	_	000	_		_	_	_	_	_	_	$\perp$	+	_	+	$\perp$	+	+	+	+	$\vdash$	Ш	₩	╀
Brackish water	har	_	_	Ē _	_	_	+_	+		_	_	re	_		_	4	4	4	_	_	+	+	_	+	+	+	_	+	+	$\vdash$	Ш	╄	╀
Service water	e -	•	•	<u>₹</u> -				-		•	_	Pressure	$\dashv$		$\dashv$	4	$\perp$	+	+	+	+	+	4	+	+	+	+	+	$\perp$	$\vdash$	Ш	ــــ	╄
Distillate	vat	_		S	_	+	-	-	Н	-	_	Pre	$\dashv$	_	_	+	+	+	+	+	+	+	+	+	+	+	+	+	+	$\vdash$	Ш	₩	╄
Slurries	ain	$\dashv$	_	automatic control unit /	+	+	$\vdash$	-		_	_		_	_	_	_	+	+	+	+	+	+	+	+	+	+	+	+	+	$\perp$	$\vdash$	-	+
Explosive liquids	ď	$\dashv$	[-	6	+	+	-	-		_	_		_		_	_	+	+	+	+	+	+	-	+	+	+	+	+	+	$\perp$	$\vdash$	-	$\perp$
Digested sludge		$\dashv$		בַּל	+	+	+	-	$\vdash$	4	4		_		$\dashv$	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	$\vdash$	<del></del>	+
Solids (ore, sand, gravel, ash)		$\dashv$	_	8	+	+	$\vdash$	-	$\vdash$	4	$\dashv$		_	_	$\dashv$	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	$\vdash$	-	+
Flammable liquids	-	$\dashv$	- 1	atic	_	+	+	+	Н	$\dashv$	$\dashv$		$\dashv$	-	$\dashv$	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	$\vdash$	H	₩	╀
River, lake and groundwater	-	$\dashv$	-1	<u>ا</u> و	-	+	+	+	H	$\dashv$	$\dashv$		$\dashv$	_	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	H	₩	╀
Liquefied gas Food and beverage production	-	$\dashv$	-	aut	-	+	-	+		$\dashv$	$\dashv$		$\dashv$	-	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	$\vdash$	H	⊢	┾
Gas-containing liquids	┨	-		드 _	-	+	-	+		$\dashv$	$\dashv$				-	-	+	+	-	-	+	+	-	+	+	+	+	+	+	+	Н	₩	╁
Filtered water	┨╶├	-	-1	systems with	_	+	+	+		$\dashv$	$\dashv$		-		$\dashv$	$\dashv$	+	+	-	+	+	+	-	+	+	+	+	+	+	+	H	╁	╁
Harmful liquids	┨╟	$\dashv$	-	- E	+	+	+	+		$\dashv$	$\dashv$		$\dashv$	-	$\dashv$	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	H	╁	╁
Toxic liquids	┨	$\dashv$	-1	yst -	+	+	+	+	H	$\dashv$	$\dashv$		$\dashv$	-	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Н	₩	╁
High-temperature hot water	-	$\dashv$			+	+	+	+		$\dashv$	$\dashv$		$\dashv$		$\dashv$	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Н	₩	+
Heating water	┨	+	-	d dr	+	+	+	+	H	$\dashv$	$\dashv$		$\dashv$	$\dashv$	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Н	╁	+
Highly aggressive liquids	-	$\dashv$	-	Domestic water supply	+	+	+	+		$\dashv$	$\dashv$		$\dashv$		$\dashv$	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Н	$\vdash$	+
Industrial service water	-	$\dashv$	-	/ate		+	+			$\dashv$	$\dashv$					$\dashv$	+	+	١.			ф			+	+	+	+	+	+	Н	$\vdash$	+
Condensate	1 -	$\dashv$	٦.	≤ _ _	- -	+	+	┮		$\dashv$	$\dashv$		-	-	-	$\dashv$	+	+	+	╁	۳	۳	+	+	+	+	+	+	+	+	Н	╁	+
Corrosive liquids	1 -	$\dashv$	-1	est	+	+	+	+		$\dashv$	$\dashv$		$\dashv$	_	$\dashv$	$\dashv$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Н	$\vdash$	+
Valuable liquids	1 -	$\dashv$		<u>-</u> ق	+	+	+	+	$\vdash$	$\dashv$	$\dashv$		$\dashv$	$\neg$	$\dashv$	$\dashv$	+	+	+	+	$^{+}$	+	+	+	+	+	+	+	+	+	Н	$\vdash$	+
Fuels	1	$\dashv$	- (	ے د	$\dashv$	+	+	+	$\vdash$	$\dashv$	$\dashv$		$\dashv$	$\neg$	$\dashv$	$\dashv$	+	+	+	+	$^{+}$	$^{+}$	+	+	+	+	+	+	+	+	Н	$\vdash$	+
Coolant	1	$\dashv$	$\exists$			+				$\dashv$	$\exists$				$\dashv$	$\dashv$	+	+		+	$^{\dagger}$	$^{+}$		$^{+}$	+	+	+	+	+	+	Н	$\vdash$	+
Cooling lubricant	1			-		+	1	1		$\dashv$	$\exists$					$\dashv$	$\top$	$\dashv$			$^{\dagger}$	$^{\dagger}$		+	+	+	+	+	+	+	Н	$\vdash$	+
Cooling water	1	$\dashv$				1			П	$\dashv$	$\exists$		$\neg$	$\neg$	$\neg$	$\top$	$\top$	$\top$	$\top$		$^{\dagger}$	$^{\dagger}$	$\top$	$^{\dagger}$	$^{\dagger}$	$\top$	+	+	$\top$	$\top$	Н	$\vdash$	$^{\dagger}$
Volatile liquids	1	$\dashv$		1	$\top$	$\top$	T	T	П	$\dashv$	$\exists$		$\neg$	$\neg$	$\neg$	$\top$	$\top$	$\top$	$\top$	$\top$	$^{\dagger}$	$^{\dagger}$	$\top$	$^{\dagger}$	$^{\dagger}$	$\top$	+	+	$^{\dagger}$	$\top$	Н	$\vdash$	$^{\dagger}$
Fire-fighting water		$\dashv$			$\top$	$\top$	$\vdash$		П		$\exists$				$\dashv$				1	$\top$	$^{\dagger}$	$\dagger$	$\top$	+	$\dagger$	$\top$	$\top$	+	$\top$	$\top$	Н	$\top$	$\dagger$
Solvents		$\top$			$\top$	$\top$		Ť	П	$\neg$	$\exists$				$\dashv$	$\dashv$	Τ,	+	$\dagger$	$\top$	$^{\dagger}$	$\dagger$	$\top$	+	$\dagger$	$\dagger$	$\top$	+	$\top$	$\top$	Н	$\vdash$	$\dagger$
Seawater		$\top$			$\top$	$\top$	T	$\dagger$	$\Box$	$\dashv$	$\exists$		$\exists$		$\dashv$	$\dashv$	$\top$	$\top$	$\dagger$	$\top$	Ť	$\dagger$	T	$\dagger$	$\dagger$	$\dagger$	$\top$	+	$\top$	$\top$	П	$\Box$	$\dagger$
Oils		$\dashv$					$\vdash$	İ			$\exists$		$\exists$		$\dashv$	$\dashv$	$\dagger$	$\top$	$\dagger$		$\dagger$	$\dagger$		$\top$	$\dagger$	$\dagger$	$\top$	$\top$	$\top$				$\uparrow$
Organic liquids		$\dashv$			$\top$	$\top$		Ť			$\exists$				$\dashv$	T	$\uparrow$	$\top$	$\top$		$\dagger$	$\uparrow$	$\top$	$\top$	$\dagger$	$\dagger$	$\top$	$\top$	1		П		$\uparrow$
Pharmaceutical fluids		$\neg$					T			$\neg$	$\exists$		$\exists$		$\dashv$	$\neg$	$\top$	$\top$	$\top$		Τ	$\top$	T	$\top$	$\top$	1	$\top$	$\top$	$\top$		П		$\top$
Polymerising liquids																						j						I					Γ
Rainwater / stormwater																											I	I					
Cleaning agents																		$\perp$	I			I	I	I	I	I							
Raw sludge							L												╧		I	ſ	$\perp$	I	I			$\perp$					
Lubricants							L														Ĺ		$\Box$					L		$\perp$			Ĺ
Waste water									Ш												L						L.	$\perp$		$\perp$	$\square$	$\perp$	L
Swimming pool water						$\perp$	$\perp$		Ш								$\perp$					Ш		Ш	•		$\perp$	$\perp$	$\perp$	$\perp$	$\sqcup$	$\perp$	$\perp$
Brine						$\perp$			Ш									$\perp$	$\perp$			1		$\perp$	$\perp$		$\perp$	$\perp$	$\perp$	$\perp$	Ш	$\perp$	L
Feed water						$\perp$		_									$\perp$	$\perp$				1	1	$\perp$	$\perp$		$\perp$	$\perp$	$\perp$	$\perp$	$\sqcup$	$\perp$	L
Dipping paints		_			_	$\perp$	_									_		$\perp$	$\perp$		$\perp$	1	1	$\perp$	$\perp$	1	$\perp$	$\perp$	$\perp$	$\perp$	$\sqcup$	$\perp$	1
Drinking water		4						-	Ш		_					4	$\perp$	$\perp$				Ψ	4	Ш	1	$\perp$	$\perp$	4	$\perp$	$\perp$	Ш	$\vdash$	$\perp$
Thermal oil		4			_	$\perp$	_	_	Ш	_	_		_	_	_	4	4	$\perp$	_	_	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	4	$\perp$	$\perp$	$\sqcup$	$\vdash$	$\perp$
Hot water Wash water		$\dashv$			$\perp$	$\perp$	_	1	$\sqcup$	_	_		_	_	_	4	$\perp$	$\perp$	$\downarrow$	$\perp$	$\perp$	1	1	$\perp$	$\perp$	$\downarrow$	$\perp$	+	$\perp$	1	$\sqcup$	$\vdash$	4
						- 1	1	1	1													-1								1	1 4	1	1

	Surpress Eco SE.2.B VP	Surpresschrom SIC.2	Surpresschrom SIC.2 V	Surpresschrom SIC.2 SVP	Surpressbloc SB Surpress Fau SFF	Surpress SP	Surpress SP VP		Ama-Drainer N 301 – 358	Ama-Drainer 4 / 5	Ama-Drainer 80, 100	Ama-Porter F/S	notex MK / MKY		AmaDS <sup>3</sup>	Kondensat-Lift	Ama-Drainer-Box Mini Ama-Drainer-Box	Evamatic-Box N	Eva-Clean	mini-Compacta	Compacta	CK 800 Pump Station	CK 1000 Pump Station	Ama-Porter CK-Pumpstation	SRP		Amarex N	Amarex N S 32	Amarex KKI Amarex KBT (lacket cooling)	Amarex Not (convertion cooling)	Allidiea nai (volivectorii coviii.g)
Waste water with faeces	SC							25						SC												SC					
Waste water without faeces	ten			$\neg$				sdwnd						tiol												E I					•
Aggressive liquids	sys	İ		T			Ì	p	П	T				sta.	i									T		P	T	ı	•	T)	•
Inorganic liquids	Pressure booster systems	İ		T			İ	pumps / waste water		T				pump stations	İ			Ì			İ			İ		Submersible motor pumps	寸			İ	
Activated sludge	200			$\neg$				Š	П	$\neg$				bur											$\neg$	Ĕ					
Brackish water	q			$\neg$	$\top$			ste	П	$\neg$	$\neg$	$\top$											$\neg$		$\neg$	ble	$\neg$	1			
Service water	la la			$\neg$	$\top$			8				$\top$		units /											$\neg$	ersi					
Distillate	res			$\neg$	$\top$			ps /	П	$\neg$	$\top$	$\top$		J g			$\top$								$\neg$	E C	$\top$	$\top$	$\top$		
Slurries	-			$\dashv$	$\top$			Ę	П	$\neg$		$\top$		Lifting				T							$\neg$	Suk	$\top$	$\top$		T	$\top$
Explosive liquids		Ť	$\Box$	$\dashv$	$\top$		İ		П	$\neg$	$\top$	$\neg$	Ť			$\top$		Ť	П			$\neg$	$\dashv$	$\dashv$	$\exists$		$\top$	$\top$	$\neg$	$\top$	
Digested sludge		1	$\Box$	$\dashv$	$\top$			Drainage	П	$\dashv$	$\dashv$	$\top$	$\top$			$\dashv$	$\top$	$\top$				$\dashv$	7	$\dashv$	$\exists$						
Solids (ore, sand, gravel, ash)		1	$\sqcap$	$\dashv$	$\top$	$\top$	$\top$	ain	H	$\dashv$	$\dashv$	$\top$	$\top$			$\dashv$	$\top$	$\top$	П	H		$\dashv$	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+	$\top$	T	+
Flammable liquids			$\sqcap$	$\dashv$	$\top$	$\top$		۵	П	$\dashv$	$\top$	$\top$			$\dashv$	$\dashv$	$\top$	$\top$	П	$\Box$	$\dashv$	$\dashv$	7	$\dashv$	┪		$\dashv$	$\top$	$\top$	$\top$	$\top$
River, lake and groundwater				$\top$	$\top$	$\top$											$\top$				T	T	寸	T	$\neg$						
Liquefied gas		T		$\top$	$\top$	+	T		П	一	$\top$	$\top$					$\top$				T	T	寸	T	$\neg$		十	$\top$	$\top$	T	$\top$
Food and beverage production		T		寸	$\top$				П	寸		$\top$	T					T			T		$\neg$	T	$\neg$		寸	$\top$		T	$\top$
Gas-containing liquids		T		寸	$\top$	$\top$	T		П	$\neg$	$\top$	$\top$	T				$\top$	$\top$			T	$\neg$	$\exists$	T	$\neg$						
Filtered water		T		$\dashv$	$\top$				П	$\neg$		$\top$			T		$\top$	1			T	$\neg$	寸	T			$\top$	1			
Harmful liquids				$\dashv$	$\top$				П	$\neg$	$\top$	$\top$					$\top$	$\top$			T		寸	寸			$\top$	$\top$	$\top$	T	$\top$
Toxic liquids		T	П	$\top$	$\top$	$\top$	T		П	$\dashv$	$\top$	$\top$	$\top$			$\top$	$\top$	$\top$			$\neg$	T	$\dashv$	丁	$\neg$		$\neg$	$\top$	$\top$	T	$\top$
High-temperature hot water			П	$\neg$	$\top$				П	$\neg$															$\neg$		$\top$	$\top$		T	
Heating water		T	П	$\neg$	$\top$				П	一		$\top$	T					T			T			T	$\neg$		寸	$\top$		T	
Highly aggressive liquids		İ		$\neg$					П	一					Ì									T	$\neg$		$\exists$	$\top$		Ť	$\top$
Industrial service water											-				Î									Ì							
Condensate									П						Î	-											$\neg$	T			$\top$
Corrosive liquids				П																							П	П	•		$\top$
Valuable liquids																												$\Box$			
Fuels																												$\perp$			
Coolant																												$\perp$			$\perp$
Cooling lubricant																												$\Box$			
Cooling water																															4
Volatile liquids																											$\Box$	$\Box$			
Fire-fighting water						•																									
Solvents																												$\Box$			
Seawater			$\Box$						Ш	[		$\perp$							$\Box$				_[	_[							$\perp$
Oils									Ш																			$\perp$			$\perp$
Organic liquids					$\perp$				Ш																			$\perp$			$\perp$
Pharmaceutical fluids		$\perp$	Ш			$\perp$	$\perp$		Ш		$\perp$		$\perp$				$\perp$	$\perp$	Ш					$\perp$				$\perp$	$\perp$	$\perp$	$\perp$
Polymerising liquids			Ш		$\perp$	$\perp$			Ш			$\perp$					$\perp$	1				_	_	_			$\perp$	$\perp$		$\perp$	$\perp$
Rainwater / stormwater					$\perp$		-		Ш			$\perp$					$\perp$	1						_						1	1
Cleaning agents			Ц	_	$\perp$	_			Щ	_	$\perp$					$\perp$	$\perp$	1	Ш	Щ	ļ		_	_	_		_	$\perp$	$\perp$	_	$\perp$
Raw sludge				4	$\perp$	$\perp$	$\perp$		Щ	_	$\perp$	4	$\perp$			_	$\perp$	_				_	_	_	_					1	$\perp$
Lubricants			Ш	$\perp$	$\perp$	$\perp$			Щ	$\perp$	$\perp$	$\perp$				$\perp$	$\perp$	$\perp$	Ш	Ш		$\perp$	_	$\perp$	Ц		$\dashv$	$\perp$	$\perp$	$\perp$	$\perp$
Waste water		_	Ц	4	$\perp$	$\perp$	1					• •				1			$\perp$	$\rightarrow$	_		•	•				- 1		4	4
Swimming pool water					$\perp$	-			$\sqcup$	_	$\perp$	$\perp$	$\perp$			$\perp$	$\perp$	1				_	4	$\downarrow$	_		$\dashv$	4	$\perp$	$\perp$	$\bot$
Brine		_		_	$\perp$	_	1		Ш	_	_	$\perp$				_	_	_				_	_	_	Ц		4	_!		1	4
Feed water		_	Ш	4	_	$\perp$	_		Щ	4	_	4	_			_	$\perp$	_				_	_	_			4	4	$\perp$	-	4
Dipping paints		-	$\sqcup$	$\perp$	$\perp$	+	-		Щ	$\dashv$	$\perp$	$\perp$	$\perp$		_	$\perp$	$\perp$	+		$\square$	4	_	4	4	4		$\dashv$	$\perp$	$\perp$	4	+
Drinking water		-		<b>-</b>	•	-			Щ	$\dashv$	$\perp$	$\perp$	$\perp$		_	$\perp$	$\perp$	4	$\vdash$			4	4	$\dashv$	4		$\dashv$	با_	•	-	4
Thermal oil		-	$\sqcup$	$\perp$	$\perp$	$\perp$	1		Н	$\dashv$	$\perp$	$\perp$			_	$\perp$	$\perp$	$\perp$	$\vdash$	$\square$	_	_	4	4	4		$\dashv$	$\perp$	$\perp$	+	4
Hot water		+	$\vdash \vdash$	_	+	+	-		$\vdash \vdash$	_	+	+	+		_	$\perp$	+	+	$\vdash$			-	4	4	4	-	_	_	+	-	-
Wash water			Ш																										$\perp$		

	:	Amacan K Amacan P	Amacan S		Amamix	Amaprop	Amajet	Amaline		Sewatec	Sewabloc	KWP / KWP-Bloc		WBC	LSA-S	LCC-M / LCC-R	ا <u>ا</u>	EGD	Меда	MHD	움	MDX	ZW	HVF		Etaprime L	Etaprime B	EZ B/L						
Waste water with faeces	es			units			-		luids	-			bs												bs									_
Waste water without faeces	달	_	_		-			_	4			4	E L		4	_	_	$\perp$	$\perp$	$\perp$	┡			Ш	E		<u></u>		$\vdash$	Ш	Ш	$\dashv$	_	_
Aggressive liquids	ge	_	_	ing	Ш	_	_	4	len	_	_   1		2		•	-	4	$\perp$	$\perp$	_				Ш	g D		•		<u> </u>	Ш	$\vdash$	$\dashv$	_	_
Inorganic liquids		_	-	cleaning	Н	_	_	$\exists$	solids-laden	_	_	Ц,	Slurry pumps	_	$\dashv$	_	+	+	+	-	╀			Ш	Self-priming pumps	_	<u> </u>		$\vdash$	Ш	$\vdash$	$\dashv$	$\dashv$	_
Activated sludge Brackish water	disc	_	+	N N	Н	$\dashv$	$\dashv$	-	lids		•	-1	-	-	$\dashv$	_	+	+	+	+	-	-	-	Н	-pri	_	$\vdash$	_	$\vdash$	Н	$\vdash$	$\vdash$	$\dashv$	_
Service water		-		tan	Н	$\dashv$		$\dashv$	r so	$\dashv$	٠,	-	-	$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$			-	Self		$\vdash$	-	$\vdash$	$\vdash\vdash$	$\vdash$	$\dashv$	$\dashv$	_
Distillate	- SG -		+	rs/	Н	$\dashv$	-	$\dashv$	for	$\dashv$	+	-		$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$	$\vdash$	Н	٠,	_	$\vdash$	Н	$\vdash$	Н	Н	$\dashv$	$\dashv$	_
Slurries	립	+	+	ato	Н	$\dashv$	$\dashv$	$\dashv$	Pumps 1	$\dashv$	٦,		-			- 1								П			$\overline{}$		$\vdash$	Н	$\vdash$	$\vdash$	$\dashv$	_
Explosive liquids		+	$\top$	agitators / tank	П	$\dashv$	$\dashv$	$\dashv$	Pu	$\dashv$	Τ,			╗	7	+	+	†	T	Ť	Ť	Ē	Ī	H			Г	М		Н	$\sqcap$	$\dashv$	$\dashv$	_
Digested sludge	ersi				П																									П			$\neg$	_
Solids (ore, sand, gravel, ash)	mqı			Mixers /							Ţ١																							_
Flammable liquids				4	Ш													$\perp$													$\Box$			
River, lake and groundwater	_				Ш	_	_	_			<b>-</b>				_		$\perp$	$\perp$	$\perp$	╙				Ш			_		L	Ш	Ш	$\Box$		_
Liquefied gas		_	_		Ш	_	_	4		_	4		-		_	_	4	$\perp$	$\perp$	$\perp$	_			Ш			<u> </u>		<u> </u>	Ш	$\sqcup$	$\dashv$	_	_
Food and beverage production		_	_		Н	_	_	4		$\dashv$	_		-	_	4	_	+	+	+	-	┡			Ш			<u> </u>		$\vdash$	Ш	$\vdash$	$\dashv$	4	_
Gas-containing liquids		_	+		Н	-	-	$\dashv$			4	4	-	_	$\dashv$	_	+	+	+	+				Ш		_	<u> </u>	H	<u> </u>	Ш	$\vdash$	$\dashv$	_	_
Filtered water Harmful liquids	_	+	+		Н	$\dashv$	$\dashv$	$\dashv$	ŀ	$\dashv$	+	$\exists$	-	$\dashv$	$\dashv$	+	+	+	+	+	-	$\vdash$	-	Н		_	$\vdash$		$\vdash$	Н	$\vdash$	$\dashv$	$\dashv$	—
Toxic liquids		+	+		Н	$\dashv$	$\dashv$	$\dashv$	ŀ	$\dashv$	+	$\exists$	-	$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$	$\vdash$	Н		_	$\vdash$	H	$\vdash$	Н	$\vdash$	$\dashv$	$\dashv$	—
High-temperature hot water	_	+	+		Н	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+	$\exists$		$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$		Н		_	$\vdash$	Н	$\vdash$	Н	Н	$\dashv$	$\dashv$	_
Heating water		+	+		H	$\dashv$	$\dashv$	$\dashv$		$\dashv$	$\dashv$			_	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$		Н			$\vdash$		Н	Н	Н	$\dashv$	$\dashv$	_
Highly aggressive liquids			$\top$		H	$\dashv$	$\dashv$	┪		$\dashv$	$\top$		-		$\dashv$		$\top$	+	$\top$	$\top$									П	Н	П		$\neg$	_
Industrial service water					П	$\neg$		┪			Ti			T	一		1	$^{\dagger}$			T						Г			П	П		$\exists$	_
Condensate					П	$\neg$		╗							$\neg$			T											Г	П			$\neg$	_
Corrosive liquids																			ı															
Valuable liquids																																		
Fuels	_				Ш	_		_							_		4	$\perp$	$\perp$								_		$\vdash$	Ш	Ш	$\Box$	_	_
Coolant			_		Ш	_		4			_		-		_	_	_	$\perp$	$\perp$	_	┡						<u></u>		<u> </u>	Ш	Ш	_	$\Box$	_
Cooling lubricant		4	-		Н	_	4	4		$\dashv$	4	4	-	_	4	_	4	$\perp$	+	$\perp$	L			Ш			$\vdash$		$\vdash$	Ш	$\vdash$	$\dashv$	4	_
Cooling water		+	+	-	Н	$\dashv$	$\dashv$	$\dashv$		$\dashv$		4	-	-	$\dashv$	+	+	+	+	+	⊢			Н			<u> </u>	Н	$\vdash$	Н	$\vdash$	$\dashv$	$\dashv$	_
Volatile liquids Fire-fighting water		+	+		$\vdash$	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+	-		$\dashv$	+	+	+	+	+	+	$\vdash$	$\vdash$	$\vdash$	$\vdash$			$\vdash$	$\vdash$	$\vdash$	$\vdash\vdash$	$\vdash$	$\dashv$	$\dashv$	_
Solvents	_	+	+		$\vdash$	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+	-		$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$	$\vdash$	H			$\vdash$	$\vdash$	$\vdash$	$\vdash$	$\vdash$	$\dashv$	$\dashv$	_
Seawater	_	+	+		H	$\dashv$	$\dashv$	$\dashv$		$\dashv$	۲,			$\dashv$	$\dashv$	+	+	+	+	+	+	$\vdash$	$\vdash$	H				$\vdash$		$\vdash$	$\vdash$	$\dashv$	$\dashv$	_
Oils	_	+	+		H	$\dashv$	$\dashv$	$\dashv$		$\vdash$	+	-		$\dashv$	$\dashv$	_	+	+	+	+	$\vdash$	$\vdash$								$\forall$	$\Box$	$\dashv$	$\dashv$	_
Organic liquids		+			Н	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+			$\dashv$	$\dashv$	+	+	$^{\dagger}$	$\dagger$	$\dagger$	t	$\vdash$	$\vdash$	Н			Г	Н		$\vdash$	$\sqcap$	$\dashv$	$\dashv$	_
Pharmaceutical fluids		$\top$			П	$\dashv$	$\exists$	$\exists$		$\Box$	$\top$			$\dashv$	$\forall$	$\top$	$\top$	$^{\dagger}$	$\dagger$	$\dagger$	T	Т					Г	П	Г	П	$\Box$	$\neg$	$\dashv$	_
Polymerising liquids																		Ţ	Ī														$\exists$	_
Rainwater / stormwater																	I	I	I	I														_
Cleaning agents					Ш																						_			Ш	$\Box$			_
Raw sludge		$\perp$	_		Н	4	4	Ц		•	-	4		4	4	_	4	+	+	1	1	_		Ш			<u> </u>	$oxed{oxed}$	<u>_</u>	Ш	$\sqcup$	$\perp$	_	_
Lubricants	_	+	+		$\vdash$	_	4	4		4	_			$\dashv$	4	_	4	$\perp$	+	+	-	$\vdash$	<u> </u>	$\sqcup$			<u>—</u>	$\vdash$	<u> </u>	$\sqcup$	$\vdash \vdash$	$\dashv$	4	_
Waste water	_	+	+		$\vdash$	$\dashv$	4	4						$\dashv$	$\dashv$	-	-	+	-	+	$\vdash$			$\vdash$			<u> </u>	Н	-	$\vdash$	$\vdash$	$\dashv$	_	_
Swimming pool water	_	+	+		$\vdash$	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+.			$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$	$\vdash$	$\vdash$			$\vdash$	$\vdash$	$\vdash$	$\vdash\vdash$	$\vdash$	$\dashv$	$\dashv$	_
Brine Feed water	_	+	+		$\vdash$	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+	4		$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$	$\vdash$	$\vdash$			$\vdash$	•	$\vdash$	$\vdash$	$\vdash$	$\dashv$	$\dashv$	_
Dipping paints	_	-	+		H	$\dashv$	$\dashv$	$\dashv$		$\vdash$	+	-		$\dashv$	$\dashv$	-	+	+	+	+	+	$\vdash$	-							$\vdash$	$\vdash$	$\dashv$	$\dashv$	_
Drinking water					H	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+			$\dashv$	$\dashv$	+	+	+	+	+	$\vdash$	$\vdash$	$\vdash$	H				Н		H	$\vdash$	$\dashv$	$\dashv$	_
Thermal oil		+	+-		Н	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+			$\dashv$	$\dashv$	+	+	$^{+}$	$\dagger$	$\dagger$	$\vdash$	$\vdash$	$\vdash$	Н			Г	Н		$\vdash$	$\sqcap$	$\dashv$	$\dashv$	_
Hot water	_	$\top$			П	$\dashv$	$\dashv$	$\exists$		$\Box$	T,	1		$\dashv$	$\forall$	$\top$	$\top$	$\dagger$	$\dagger$	$\top$	T	Т					Г		Г	П	$\Box$	$\neg$	$\dashv$	_
Wash water							$\neg$			$\neg$	$\neg$			$\neg$		$\neg$	$\neg$		$\top$				Т				$\overline{}$		$\overline{}$	П	$\Box$	$\neg$	$\neg$	_

	2 100 P (11BA 100 C	J 100 E/ UPA 150 C	UPA 200, 200B, 250C	UPA 300, 350	UPZ, BSX-BSF	DEV.	DEV	Comeo	Movitec	Movitec VCI	Multitec		Omega	RDLO RDLP		Vitachrom	Vitacast	Vitaprime	Vitastage	Vitalobe	CHTA / CHTC / CHTD	HGB / HGC / HGD	HGM	YNK	LUV / LUVA	WKIB CEZ / CEZT / BUZ / BNZ	SNW / PNW	Beveron	SPY		
Waste water with faeces	SC					SC		SC							es					4	2										
Waste water without faeces	E L					sdwnd		sdwnd				sdwnd			stri						Islands										
Aggressive liquids	р					Р						t D			npu																
Inorganic liquids	lo					pin		High-pressure			_	split			i <u>=</u>	L	_		_		conventional		_	Ш					_		
Activated sludge	ore	$\perp$		Ш	_	ţ				_	_	<u>&gt;</u>	_		ıti		$\perp$		_			_	$\perp$	Ш		_	$\perp$	$\perp$	_		_
Brackish water	e p	$\perp$		$\sqcup$		<u>e</u>		<u> </u>	$\perp$	_	•				r Se		$\perp$	Ш	_			$\perp$	$\perp$	Ш	4	4	$\perp$	$\perp$	_		_
Service water	ldis		-			Š I		<u> </u>	$\bot$	$\rightarrow$	-4	_	•		L ma		╙	Ш	_			$\perp$	╙	Ш	4	_ !			-		<u> </u>
Distillate	ner	$\perp$	_	$\sqcup$	4	Deep-well turbine					•		$\perp$	$\perp$	har		_	Ш	_			$\perp$	$\vdash$	Ш	4	$\perp$	$\perp$	$\perp$	_	Ш	<u>—</u>
Slurries		+	_	$\vdash$	4	<u> </u>			+	_	4		$\dashv$	_	and pharmaceutical industries	_	$\vdash$	Н	_		station	$\perp$	$\vdash$	Н	_	+	+	+	$\vdash$	Н	<u>—</u>
Explosive liquids	S	+	-	$\vdash$	4				+	_	$\dashv$		+	_			-	$\square$	_			+	-	$\vdash$	_	_	+	+	+	$\vdash$	<u> </u>
Digested sludge		+	+	$\vdash$	-				+	_	$\dashv$		+	_	ade		+	$\square$	_		bower —	+	-	$\vdash$	_	+	+	+	+		<u> </u>
Solids (ore, sand, gravel, ash)		+	+	$\vdash$	-		-[		+	-	$\dashv$		+	+	beverage	<u> </u>	+	Н	-		5	+	$\vdash$	$\vdash$	+	+	+	+	+	$\vdash$	$\vdash$
Flammable liquids River, lake and groundwater			+-			-			+	$\dashv$	-	-			- Pe		+	$\vdash$	$\dashv$	- 3	Fumps for	+	+	Н	+	+-				Н	$\vdash$
Liquefied gas	•	-	-	-	-1	-	-		+	$\dashv$	-1	-	-		food,	1	+	Н	$\dashv$	-	<u></u>	+	+	Н	+	+	+	+	-	Н	$\vdash$
Food and beverage production		+	+	$\vdash$	$\dashv$	-	-	$\vdash$	+	-	$\dashv$	-	-	_	_9		1-			<b>-</b>	_	+	+	H	+	+	+	+	+		$\vdash$
Gas-containing liquids		+	+		$\dashv$	-	$\dashv$	$\vdash$	+	$\dashv$	$\dashv$	-	$\dashv$	+	the	-	╀	-	-	-		+	+	Н	$\dashv$	+	+	+	+		$\vdash$
Filtered water		+	1		$\dashv$		-		+	+		-	+	+	- jo		+	Н	$\dashv$	$\exists$		+	+	Н	+	+	+	+	+		
Harmful liquids	1 -	+		$\vdash$	$\exists$				+	$\dashv$	-1	-	$\dashv$	+	SQL		+	Н	$\dashv$			$\dagger$	+	Н	$\dashv$	+	+	+	+		$\overline{}$
Toxic liquids		+	$^{\dagger}$	$\vdash$	$\exists$				+		$\exists$	-	$\dashv$	$\top$			$\vdash$	Н	$\dashv$			$\top$	+	Н	$\dashv$	+	+	+	+		
High-temperature hot water		$\top$	T	Н						$\dashv$							$\top$	Н	$\dashv$							$\top$	$\top$	$\top$	$\top$	П	
Heating water		$\top$	T	П					$\top$	$\rightarrow$		-			Hygienic pumps for		$\top$	П	$\neg$			Т	Т	П	T	$\top$	$\top$	$\top$	T	П	
Highly aggressive liquids		Ť								T			i		Ž		T		T								T	Ť			
Industrial service water						1																									
Condensate															1																
Corrosive liquids		$\perp$									Ц										L			Ш		$\perp$	$\perp$				$\vdash$
Valuable liquids		$\perp$		Ш				L			_		_			L	$\perp$	Ш	_		L	$\perp$	╙	Ш	_	4	$\perp$	$\perp$	$\perp$		_
Fuels		$\perp$							$\perp$		_					L	_						_	Ш			_	_			_
Coolant		_	_		_	_	4			_	_	-	_			L	_		_		_		_				_	_	_		<u></u>
Cooling lubricant	-	+	$\perp$	$\vdash$	4	-	4	L	$\perp$	-	4	-	4	_	4	L	$\vdash$	Ш	_	4	L	+	$\vdash$	Ш	_	+	+	+	$\perp$		<u>—</u>
Cooling water	<u> </u>		-		-	-	4	4			_	-	•	-	-	L	$\vdash$	Н	$\dashv$	4	-	+	$\vdash$	Н	_				-	Н	<u> </u>
Volatile liquids	┨	+_	+		_			_	+	_	$\exists$	-	_	_	-	H	$\vdash$	Н	$\dashv$	4	_	+	$\vdash$	Н	_	+	+	+	+		<u> </u>
Fire-fighting water	-	┦	-		$\dashv$	-	4	H		$\overline{}$	-	-	-	-	-	H	$\vdash$	Н	$\dashv$	+	$\vdash$	+	$\vdash$	Н	+	+	+	+	+		—
Solvents Seawater	-	+				١,	-	$\vdash$	+	_		-	-			H	+	$\vdash$	$\dashv$	-	-	+	+	Н	$\dashv$	٠.			+		$\vdash$
Oils		+-	Ι-	-	-1	-	-	$\vdash$		-	1	-	-		•	H	+	$\vdash$	$\dashv$	$\dashv$		+	+	Н	$\dashv$	+	+-	+-	+		
Organic liquids		+		$\vdash$	$\exists$				+	$\dashv$	=	-	$\dashv$	+		H	+	Н	$\dashv$			$\dagger$	+	Н	$\dashv$	+	+	+	+		$\overline{}$
Pharmaceutical fluids		+		Н					+	$\dashv$	7		7									1	$\vdash$	П	$\dashv$	$\top$	+	+	$\top$		
Polymerising liquids		$\top$	$\top$	$\sqcap$	7				+	$\dashv$	$\exists$		$\dashv$	$\top$			╁					$^{\dagger}$	$\top$	П	$\top$	$\top$	$\top$	$\top$	$\top$	П	
Rainwater / stormwater		$\top$	T	П					$\dashv \dashv$	$\dashv$	$\exists$		$\dashv$	$\top$			$\top$	П	$\dashv$			$\dagger$	T	П	$\top$	1				П	
Cleaning agents		$\top$		П						$\dashv$	╗		$\dashv$					П	$\neg$			Ť		П	$\top$	$\neg$	$\top$				
Raw sludge													$\Box$									Ι					Ī	Ι	$\mathbf{I}^{-}$		
Lubricants		I																									Ι				
Waste water				П					$\perp \Box$				_[						I			Ĺ			T		ľ			$\Box$	$\vdash$
Swimming pool water		$\perp$	1	Ш	_				$\perp$	_	_[		4	_				Ш	_			$\perp$	$\perp$	Ш	_	_	$\perp$	1	_	Ш	<u>—</u>
Brine		$\perp$	_	$\sqcup$	4				$\perp$	_	4		$\perp$	_			_	Ш	_			1	_	Ш	4	_	$\perp$	$\perp$	_		<u>—</u>
Feed water		+	-	$\Box$	4				$\dashv$	_	•		•	_		_	1	Ш	_				-			_	+	+	-		<u> </u>
Dipping paints			+		4				+-	_			_	_		L	+		_			+	+	$\vdash$	+	+	+	+	+	$\vdash$	<u>—</u>
Drinking water	•				-	ļ.	4			-	-		-		4		-			-		+	$\vdash$	$\vdash$	+	+	+	+	+	Н	$\vdash$
Thermal oil Hot water		+	+	$\vdash$	-		-[]		+	$\dashv$		-	-	+	-	$\vdash$	+	Н	$\dashv$	-	-	+	+	Н	+	+	+	+	+	Н	$\vdash$
not water		+	+	$\vdash$	-		-		+		_		-	-	-	-		$\vdash$	$\dashv$			+	$\vdash$	$\vdash$	$\dashv$	+	+	+	+	$\vdash$	$\vdash$
Wash water		- 1		1 1										- 1					- 1							- 1					4

		(ER	RSR BID	SS	RHD	LUV Nuclear	RHM	N/W	RHR	RVR	Od Had	NF-RO	HGIM-RO	SALINO Pressure Center		RC / RCV		EDS DIL/EU		KSB SuPremE		rumpiweter								
Waste water with faeces		-			1	_	<u></u>	-	-					- 0								_		1		$\overline{}$			$\overline{}$	-
Waste water with races	ou	$\dashv$	+	+	╁	+	Н		Н		Sis –	+	+	+	sdwnd		ems	$\vdash$	Drives	Ħ	osis	++	+	+	+	+	+	$\dashv$	+	_
Aggressive liquids	tati	$\dashv$	+	+	+	$\vdash$	Н	-	Н	$\dashv$	ES –	+	+	+		-	yst	$\vdash$		H	ag .	+	+	+	+	+	+	+	+	-
Inorganic liquids	er s	+	+	+	╁		Н		Н	-	es –	+	+	+	ent		g S	$\vdash$	-	П	<u> </u>	+++	+	+	+	+	+	$\pm$	+	-
Activated sludge	power stations	$\dashv$	+	+			$\vdash$		Н	-	by reverse osmosis	+	+	+	displacement		Fire-fighting systems				Monitoring and diagnosis	+			+	_	+	$\vdash$	+	_
Brackish water		$\dashv$	+	+	+		Н		Н	$\dashv$	2				lace		fig				<u></u>	+++	+	+	+	+	+	$\dashv$	+	-
Service water	for nuclear	$\dashv$	+	+	+		Н		Н	-	ق.	+	+	╁	lisp		ire	$\vdash$		H	e l	•	+	+	+	+	+	$\dashv$	+	-
Distillate	ŭ	$\dashv$	+	+	+	$\vdash$	Н		Н	┥,	desalination	+	+	+			ш.	$\vdash$			ij		+	+	+	+	+	$\dashv$	+	-
Slurries	ō	$\dashv$	+	+	+		Н		Н	_	na.	+	+	+	Positive			$\vdash$			Š	+			+	+	+	$\vdash$	+	-
Explosive liquids	ps 1	$\dashv$	+	+	+		$\vdash$		Н	-	Sal	+	+	+	Pos			$\vdash$				+			+	+	+		+	-
Digested sludge	Pumps	$\dashv$	+	+			$\vdash$		Н	_	- g	+	+	+								+			+	_	+	$\vdash$	+	_
Solids (ore, sand, gravel, ash)	۵	+	+	+	$\top$	+	$\forall$		H	-	seawater	+	+	+				$\vdash$				+	+	+	+	+	+	$\dashv$	+	-
Flammable liquids		$\dashv$	+	+	+	$\vdash$	$\forall$	Н	$\vdash$		a Wij	+	+	$\top$				$\vdash$				+	+	+	$\forall$	+	+	$\dashv$	+	-
River, lake and groundwater		+	+	+	$\vdash$	$\vdash$	$\forall$	Н	$\vdash$		Se –	+	+	$\top$				$\vdash$				•	+	$\top$	$\forall$	+	+	$\dashv$	+	-
Liquefied gas		$\dashv$	$\top$	+	+		Н		Н		흐	+	+	$\top$		Н		$\vdash$				_	$\top$		+	$\top$	+	$\top$	$\top$	-
Food and beverage production		$\dashv$	$\top$	+	+		$\vdash$		Н	-	<u>g</u>	+	+	+		Н		$\vdash$				+	+		+	$\top$	+	$\vdash$	+	-
Gas-containing liquids		7	$\dashv$	+	1		$\vdash$		Н	_	Pumps tor	$\top$	+	1						H		$\dashv$			+	+	$\top$		+	_
Filtered water		$\dashv$	+	+			Н		Н	-1	-	+	+	+				$\vdash$							+	$\top$	+	$\vdash$	$\top$	_
Harmful liquids		$\dashv$	+	+	+		Н		Н	$\dashv$		+	+	+		H		$\vdash$		H		_	+	+	+	+	+	$\dashv$	+	-
Toxic liquids		$\dashv$	$\top$	+	+		Н		Н	$\exists$		+	+	$\top$		Н		$\vdash$				+	$\top$	+	+	$\top$	+	$\top$	$\top$	-
High-temperature hot water		$\dashv$	$\top$	$^{+}$	$\top$		Н		Н	$\exists$		$\top$	$\top$	$\top$		Н		$\vdash$				•	$\top$	$\top$	$\Box$	$\top$	+	$\dashv$	+	-
Heating water		$\exists$	$\top$	$\top$			Н		П			$\top$	$\top$	$\top$							_				$\Box$	$\top$	$\top$	$\top$	$\top$	-
Highly aggressive liquids		$\dashv$	$\top$				Н		П			$\top$	$\top$	$\top$												$\top$	$\top$	$\top$	$\top$	-
Industrial service water		$\dashv$	$\top$	$\top$	$\top$		Н		Н			$\top$	$\top$	$\top$										$\top$		$\dashv$	$\forall \exists$	$\dashv$	+	-
Condensate		$\dashv$	$\top$	$\top$	T		П		П			$\top$	$\top$	$\top$									$\top$			$\top$	$\top$	$\top$	$\top$	-
Corrosive liquids		寸	$\top$	$\top$	T	T	П		П			$\top$	$\top$	$\top$								$\dashv \dashv$		1	$\Box$	$\top$	$\top$		$\top$	_
Valuable liquids		$\neg$	$\top$	$\top$			П		П			$\top$	$\top$												$\Box$	$\top$	$\top$			-
Fuels		$\neg$	$\top$				П		П			$\top$	$\top$									11			$\Box$	$\top$	$\top$		$\top$	-
Coolant												$\top$	$\top$	T								11		T	$\Box$	$\top$	$\top$	$\Box$	T	-
Cooling lubricant		寸	$\top$	$\top$	$\top$		П		П			$\top$	$\top$	T										T			$\top$	$\Box$	$\top$	-
Cooling water	1	$\exists$	$\neg$				П					$\top$								П					$\Box$	$\top$	$\Box$			_
Volatile liquids		$\neg$	$\top$				П		П			$\top$	$\top$												$\Box$	$\top$	$\top$			-
Fire-fighting water			$\top$				П		П			$\top$	$\top$												$\Box$	$\top$	$\top$			-
Solvents			$\top$				П		П			$\top$	$\top$							П		11			$\Box$	$\top$	$\top$		$\top$	_
Seawater											ı													Ì						_
Oils			$\neg$																	П		•		Ī		$\top$	$\Box$	$\Box$		_
Organic liquids			_		Ι																						$\Box$			_
Pharmaceutical fluids												I	I																	_
Polymerising liquids				$\perp$								I																$\Box$		_
Rainwater / stormwater																									Ш			$\Box$		_
Cleaning agents																														_
Raw sludge				$\perp$								I	$oldsymbol{oldsymbol{oldsymbol{oldsymbol{\Box}}}$																	
Lubricants																														_
Waste water												$\perp$	$\perp$												П			$\Box$		_
Swimming pool water			$\Box$																									$oldsymbol{\bot}$		_
Brine						$\Box$										L												$oxed{J}$		_
Feed water		$\Box$	$\Box$			$\perp$						$\prod$													Ш			$\Box$		_
Dipping paints																														_
Drinking water																												$\Box$		_
Thermal oil			$\Box$																									$\Box$		_
Hot water							Ш		Ш																		Ш	$\Box$		
Wash water																														_

	Riotherm		Calio-Therm S NC/NCV	Kio-i nerm N	Rio-Eco Therm N	Calio-Therm S		Calio S	Callo Rio-Eco N	Rio-Eco Z N		Etaline	Etaline Z	Etaline-R	ILN / ILNE / ILNS ILNC / ILNCE / ILNCS		Etanorm / Etanorm-R	Etabloc	Etachrom B	Etanorm V		HPK-L	HPH	НРК		Etanorm SYT / RSY	Etabloc SYT / Etaline SYT			
Aquaculture	bed	speed	4	_ pag			bed	_		-	sdu	Ш		Щ		sdu	L				nps		П		sdu	$\dashv$	$\perp$	$\perp$	$\perp$	$\Box$
Spray irrigation Mining	fixed speed	sbe	+	variable speed	-	$\dashv$	variable speed	+	+	+	sdwnd	Н		$\vdash$		dwnd	-		-	-	sdwnd	$\vdash$	$\vdash$	-	sdwnd	$\dashv$	+	+	+	$\vdash$
Irrigation	ixed	fixed	+	aple			able	+	+	+	In-line	Н		$\vdash$		led					ter	Н	H	$\dashv$	i <u>e</u>	+	+	+	+	$\vdash$
Chemical industry				vari			vari			1	느					close-coupled					Hot water	П			thermal	寸	$\top$	$\top$	$\dagger$	$\vdash$
Dock facilities	un l	circulators,														Se-c					유				her	$\Box$	$\Box$			
Drainage	e b	<u>5</u>	4	circulators		_	Circulators,	_	$\perp$	1		Ш		Ш	_	_   e				$\perp$		Ш	Ш	_		$\dashv$	$\dashv$	$\perp$	$\perp$	L.
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		HX (Nikkiso-KSB)	HY (Nikkiso-KSB)		MegaCPK		Magnochem	Magnochem-Bloc	Etaseco / Etaseco-l	Etaseco RVP	Secochem Ex K	Ecochem Non-Seal HN	Ecochem Non-Seal HT	Ecochem Non-Seal HP	Ecochem Non-Seal HS	HN / BN / TN (Nikkiso-KSB)	HT / BT / TT (Nikkiso-KSB)	HK (Nikkiso-KSB)	DN (Nikkiso-KSB)		RPH	RPHb	RPH-V	RPHmdp	CTN ABI cories (Allabica Med)	API Series (NIKKISO-NJB) CHTR	NONIC ACNIC			WKTR		
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Waste water treatment plants			_ <u>.</u>				$\neg$	$\dashv$	1		$\exists$	-		$\neg$	$\dashv$	$\dashv$	1	$\top$	1	$\dashv$						+	+	+	$\top$	+	$^{\dagger}$	$^{\dagger}$
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Condensate transport			_ PO			П		$\neg$							$\neg$	$\dashv$	$\top$	$\dashv$	$\top$	T						$\top$	$\top$	$\top$	$\top$	$\top$	$^{\dagger}$	$^{\dagger}$
Cooling circuits																		丁						П	Г	$\top$	$\top$	$\top$			T	T
Paint shops									Ì																							I
Food and beverage industry																										$\perp$	$\perp$	$\perp$				I
Seawater desalination / reverse osmosis						Ш		_							_	4	_	4	4							$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	4
Mixing				L		Ш		_				_			_	4	4	4	4	4						$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	4
Off-shore platforms				L		Ш		_			_	-		_	_	_	4	$\perp$	4	4	_					$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	+	4
Paper and pulp industry	-		_				_	_			_	-			_	_	_	+	_	4						$\perp$	$\perp$	+	+	+	$\perp$	$\perp$
Petrochemical industry				_	-		_	_			$\dashv$	-		_	-	_	_	+	_	$\dashv$			_			+	+	+	+	+	+	+
Pharmaceutical industry			-	-	$\vdash$	Н	$\dashv$	$\dashv$	-	-	$\dashv$	-	-	$\dashv$	$\dashv$	$\dashv$	+	+	$\dashv$	$\dashv$	-		_	_		+	+	+	+	+	+	+
Pipelines and tank farms Refineries		+	-	-	$\vdash$	Н	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$		$\dashv$	$\dashv$	$\dashv$	+	+	+	+	+	$\dashv$			$\vdash$	$\vdash$	+	+	+	+	+	+	+
Flue gas desulphurisation		-	-		$\vdash$	Н	$\dashv$	$\dashv$	-	$\dashv$	$\dashv$		$\dashv$	$\dashv$	$\dashv$	+	+	+	+	+	$\dashv$				$\vdash$	+	+	+	+	+	+	+
Rainwater harvesting								$\dashv$			$\dashv$					+	+	+	+							+	+	+	+	+	+	+
Cleaning of stormwater tanks / storage sewers		_			<del>-</del>		_	$\dashv$	_	_	$\dashv$		-	_	_	+	+	+	$\dashv$	_	-	_	_	Ī		$\dagger$	+	+	+	+	+	+
Recirculation						П	$\neg$	$\dashv$			$\dashv$				$\dashv$	$\neg$	$\dagger$	$\dagger$	$\dashv$	$\top$	$\exists$					$\dagger$	+	+	$\top$	$\top$	$\dagger$	+
Dredging						П	$\Box$	$\neg$							$\exists$	$\dashv$		$\dashv$	$\top$							$\top$	$\top$	$\top$	$\top$	$\top$	T	Ť
Shipbuilding																		$\neg$	$\dashv$								$\top$			$\top$	T	T
Sludge disposal																										$\Box$	$\perp$					I
Sludge processing																										$\Box$		$\perp$				I
Snow-making systems																										$\perp$	$\perp$	$\perp$				1
Heavy oil and coal upgrading					_	Ш		_			_				_	_	_	4	4							$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$	1
Swimming pools			4		_	Ш	_	_	_	_		-	_	_	_	4	4	4	_	_						$\perp$	$\perp$	+	$\bot$	$\bot$	$\perp$	4
Solar thermal energy systems			4	-	-	Ш	_	$\dashv$	_		_	-		_	$\dashv$	+	_	+	4	4	_					+	+	+	+	+	$\perp$	+
Fountains		_	-	$\vdash$		Н	-	$\dashv$	_	-	$\dashv$	-	_	$\dashv$	$\dashv$	+	+	+	+	+	_					+	+	+	+	+	+	+
Keeping in suspension Thermal oil circulation				$\vdash$	$\vdash$		-	$\dashv$		$\dashv$	$\dashv$	-	-	$\dashv$	$\dashv$	+	+	+	+	+	-					+	+	+	+	+	+	+
Draining of pits, shafts, etc.					-	Н	$\dashv$	$\dashv$			$\dashv$			_	$\dashv$	-	+	+	+	+	-					+	+	+	+	+	+	+
Process engineering		-			$\vdash$	Н	$\dashv$	$\dashv$	+	$\dashv$	$\dashv$		$\dashv$	$\dashv$	$\dashv$	+	+	+	+	+	$\dashv$		_		$\vdash$	+	+	+	+	+	+	+
Heat recovery systems		_			$\vdash$	Н	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$		$\dashv$	$\dashv$	$\dashv$	+	+	+	$\dashv$	+	$\dashv$			$\vdash$	$\vdash$	+	+	+	+	+	+	+
Hot-water heating systems		$\dashv$				Н	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$		$\dashv$	$\dashv$	$\dashv$	$\dashv$	$^{+}$	$\top$	$\dagger$	$\dagger$	$\exists$			Т	Т	+	+	+	$\top$	$^{\dagger}$	$^{\dagger}$	+
Washing plants											$\exists$					$\dashv$	$\top$	$\top$	$\top$							$\top$	$\uparrow$	$\uparrow$	$\top$	T	$\dagger$	$\dagger$
Water treatment																										T					T	T
Water extraction																	J										Ι	I				Ţ
Water supply																	Ī										Γ	$\perp$	$\perp$	I	T	I
Sugar industry						ı —																		1	1	1						

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	Surpress Eco SE.2.B VP	Surpresschrom SIC.2	Surpresschrom SIC.2 V	Surpresschrom SIC.2 SVP	Surpressbloc SB	Surpress reu sre	Surpress SP VP		Ama-Drainer N 301 – 358	Ama-Drainer 4 / 5	Ama-Drainer 80, 100	Ama-Porter F / S	Rotex	MK / MKY	•	AmaDS³	Kondensat-Lift	Ama-Drainer-Box Mini	Ama-Drainer-Box	Eva-Clean	mini-Compacta	Compacta	CK 800 Pump Station	CK 1000 Pump Station	Ama-Porter CK Pump Station	SRP		Amarex N	Amarex N S 32	Amarex KRT	Amarex KRT (convection cooling)	/6
Aquaculture	ms_	$\perp$	Ш		4		$\perp$	sat	2		Ш			_	suc	_	_	4	4	_	L	L			_		sdu			_	4	$\perp$
Spray irrigation	systems				_	_	•	L n	_	-			-	_	atic		_	+	_	+	-	-			$\dashv$	-	unc		_	_	+	+
Mining Irrigation	ter sy					+		ere	-	-		_	-	$\dashv$	p st		$\dashv$	+	-	+	-	-			$\dashv$	$\dashv$	or		_			+
Chemical industry	oste	-	-	-	-	- -	-	water pumps		+	Н		-	$\dashv$	pump stations	_	$\dashv$	$\dashv$	+	+	$\vdash$	$\vdash$			$\dashv$	$\dashv$	not		-	_		-
Dock facilities	Pressure booster	+	$\vdash$	$\dashv$	$\dashv$			waste		$\vdash$	Н		Н	$\dashv$		7	$\dashv$	$\dashv$	$\top$		$\vdash$	$\vdash$	Н		$\dashv$	$\exists$	Submersible motor pumps	-	_		+	+
Drainage	Sure	$\top$	П		$\top$		$\top$	- ×	-			┪			units /		$\dashv$	$\dashv$	$\top$	$\top$	$\vdash$	Т	П		$\neg$		ersi					一.
Pressure boosting								/ samna							ng r												pmq					工
Sludge thickening	" _		Ш		$\perp$			_ m					Ш	_	Lifting		_	$\perp$	_	$\perp$							Su		_	$\perp$	$\perp$	$\perp$
Disposal		-	$\sqcup$		_		_	de r		-				┛	-		-	$\rightarrow$		-	•	-				┛			-	_		
Dewatering		+	$\vdash$		_	_	+	Drainage	-	-				_	-	_	$\dashv$	•	1	-	•	-				$\dashv$			-	_		
Descaling units District heating	_	+	$\vdash$	$\dashv$	+	+	+	Pra	-	$\vdash$	Н	-	$\vdash$	$\dashv$	-	$\dashv$	$\dashv$	+	+	+	$\vdash$	-	Н	$\dashv$	$\dashv$	$\dashv$			+	-	•	+
Solids transport		+	Н	$\dashv$	+	+	+	+	$\vdash$	$\vdash$	Н	_	Н	$\dashv$	-	$\dashv$	$\dashv$	+	+	+	╁	╁	H		$\dashv$	$\dashv$		$\dashv$	+	+	+	+
Fire-fighting systems		+	$\vdash$		1								$\dashv$	$\neg$	-			$\dashv$	+	+	+				$\dashv$	$\dashv$			$\dashv$	+	+	+
Drawdown of groundwater levels		T	П		$\top$						П		П	$\neg$			$\dashv$	$\dashv$		$\top$	$\vdash$	Т	П		T	$\exists$						一
Maintaining groundwater levels																																工
Domestic water supply	•				$\perp$			4	L		Ш		Щ	_			$\dashv$	$\perp$	$\perp$	$\perp$		╙			_				4	$\perp$	$\perp$	
Flood control / coast protection		+	$\vdash$	$\dashv$	$\dashv$	_	+	-	L	$\vdash$	Н		Н	_	-		$\dashv$	$\dashv$	_	+	╄	⊢	$\vdash$		$\dashv$	$\dashv$		$\dashv$	-		1	<u>-</u>
Homogenisation Industrial recirculation systems		+	$\vdash$	-	+	+	+	+	H	$\vdash$	Н	_	$\dashv$	$\dashv$	-	_	$\dashv$	+	+	+	┾	⊢	H		$\dashv$	$\dashv$		$\dashv$	+	+	+	+
Nuclear power stations		+	$\vdash$		-	+		+	$\vdash$	+	Н			$\dashv$	-		+	+	+	+	$\vdash$	╁			$\dashv$	$\dashv$			+	+	+	+
Boiler feed applications		1	$\vdash$		+	+		+					$\dashv$	$\dashv$	-			$\dashv$	+	+	$\vdash$	$\vdash$			$\dashv$	$\dashv$			+	+	+	+
Boiler recirculation		$^{\dagger}$	Н		$\top$		$\top$				П		П	$\exists$	-		$\dashv$	$\dashv$	$\top$	$\top$	$\vdash$		Н		$\exists$	$\exists$			$\dashv$	$\top$	$\top$	+
Waste water treatment plants																																重.
Air-conditioning systems																																I
Condensate transport		-	$\vdash$		_	_	$\perp$		L	-				◾	-			_	_	_		_				_			_	_	+	$\perp$
Cooling circuits Paint shops		-	$\vdash$		_	_		+	H	-			$\dashv$	$\dashv$	-		-	$\dashv$	_	+	-	┢			_	$\dashv$			_	_	+	+
Food and beverage industry		+	$\vdash$	$\dashv$	+	+	+	-	$\vdash$	+	Н			$\dashv$	-	_	$\dashv$	+	+	+	$\vdash$	$\vdash$	H		$\dashv$	$\dashv$			•		+	+
Seawater desalination / reverse osmosis		+	$\vdash$	$\dashv$	$\dashv$	+	+	-		$\vdash$	Н	Н	-	$\dashv$	-		$\dashv$	$\dashv$	+	+	$\vdash$	$\vdash$	Н		$\dashv$	$\dashv$		-	$\rightarrow$	_	ti	_
Mixing		T	П	$\Box$	$\top$						П		П	$\neg$			$\dashv$	$\top$	$\top$	$\top$	T	T	П						T	$\top$	T	+
Off-shore platforms					$\Box$																										$\perp$	$\Box$
Paper and pulp industry									L					_	_		_	_	_							_						1
Petrochemical industry		+	$\vdash$	_	+	_	+	4	H	-			Н	$\dashv$	-	_	$\dashv$	$\dashv$	_	+	$\vdash$	╀			$\dashv$	$\dashv$		_	_	+	+	+
Pharmaceutical industry Pipelines and tank farms		+	$\vdash$	$\dashv$	+	+	+	-	$\vdash$	$\vdash$	Н	-	Н	$\dashv$	-	$\dashv$	$\dashv$	+	+	+	$\vdash$	$\vdash$	H	$\dashv$	$\dashv$	$\dashv$	-	$\dashv$	$\dashv$	+	+	+
Refineries		+	Н	$\dashv$	+	+	+	+	$\vdash$	$\vdash$	Н	-	Н	$\dashv$	-	$\dashv$	$\dashv$	+	+	+	$\vdash$	╁	H	-	$\dashv$	$\dashv$		$\dashv$	+	+	+	+
Flue gas desulphurisation		+	$\vdash$		$\dashv$			+	H				Н	$\dashv$	-	$\neg$	$\dashv$	$\dashv$	$\top$		$\vdash$	$\vdash$			$\dashv$	$\dashv$			$\dashv$		1	_
Rainwater harvesting					$\top$			ī			П		П	╗			$\dashv$	$\top$		$\top$	$\vdash$	Т	П			$\neg$			T	$\top$	$\top$	$\top$
Cleaning of stormwater tanks / storage sewers																																
Recirculation		$\perp$	$\sqcup$		$\perp$	_	$\perp$		L	$\vdash$			Щ	_	-		$\dashv$	$\dashv$	4	$\perp$	┡	┡			_	_			4	$\perp$	$\perp$	$\perp$
Dredging Shipbuilding		+	$\vdash$	$\dashv$	+	+	+	-	-	$\vdash$	Н	$\vdash$	Н	$\dashv$		-	$\dashv$	+	+	+	$\vdash$	$\vdash$	H	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+	+	+	+
Sludge disposal		+	$\vdash$	$\dashv$	+	+	+			+	Н	$\dashv$	Н	$\dashv$		$\dashv$	$\dashv$	+	+	+	+	$\vdash$	Н	$\dashv$	$\dashv$	$\dashv$		$\dashv$	+	+	+	+
Sludge processing		t	$\vdash$	$\dashv$	$\dashv$	+	$^{+}$			+	H	$\vdash$	H	$\dashv$		$\dashv$	$\dashv$	+	+	+	T	H	Н	$\exists$	$\dashv$	$\dashv$						1
Snow-making systems																													_		ı	
Heavy oil and coal upgrading			$\Box$	$\Box$	$\bot$	T	T						П				$\Box$	$\Box$	Ţ										I	Ţ	Ţ	工
Swimming pools		$\perp$	Ш	4	$\dashv$	_	$\perp$			1	Ш	Щ	Щ	4		_	$\dashv$	$\perp$	4	+	-	_	$\vdash$		_	_			$\perp$	$\perp$	4	+
Solar thermal energy systems		+	$\vdash$	$\dashv$	+	+	+		-	-	Н	$\vdash$	Н	_		-	$\dashv$	+	+	+	$\vdash$	$\vdash$	H	$\vdash$	$\dashv$	$\dashv$		$\dashv$	+	+	+	+
Fountains Keeping in suspension		+	$\vdash$	$\dashv$	+	+	+		-	-	Н	$\vdash$	Н	$\dashv$			$\dashv$	+	+	+	$\vdash$	$\vdash$	Н		$\dashv$	$\dashv$			+	+	+	+
Thermal oil circulation		+	$\vdash$	$\dashv$	+	+	+				Н		Н	$\dashv$			$\dashv$	+	+	+	$\vdash$	$\vdash$	$\vdash$		$\dashv$	$\dashv$			+	+	+	+
Draining of pits, shafts, etc.		$\dagger$	$\Box$	$\dashv$	$\dagger$	$\dagger$	$^{\dagger}$							$\exists$			$\dashv$	$\top$	$\dagger$	$\top$	$\dagger$	$\vdash$	П	$\exists$	$\dashv$	$\dashv$			•	-	1	1
Process engineering																																$\Box$
Heat recovery systems			$\Box$	Д	$\bot$		$\perp$				П		Д			$\Box$	J	Ţ	Ţ				П	П	$\Box$	$\Box$			Ţ	Ţ	T	<del>_</del>
Hot-water heating systems		+	$\vdash$	4	_	4	+		-	-	Н		Н	_			$\dashv$	+	+	+	$\vdash$	-	$\vdash$		_	$\dashv$			_	_	+	_
Washing plants Water treatment						-		4	H					늰			$\dashv$	+	+	+	$\vdash$	$\vdash$	$\vdash$		-	$\dashv$			_	_		
Water treatment Water extraction		+	$\vdash$	$\dashv$	+	+	+		_		H			-		-	$\dashv$	+	+	+	$\vdash$	$\vdash$	$\vdash$		$\dashv$	$\dashv$			-	_		_
Water extraction  Water supply									F	Ť	H	_	H	$\dashv$		$\dashv$	$\dashv$	+	+	+	+	$\vdash$	Н	$\dashv$	$\dashv$	$\dashv$			-+	-		_
Sugar industry		Ţ	П				Ţ				П						_	$\top$	_							$\exists$			_	_	_	

Aguaguttura		Amacan K	-		Amamix	Amaprop	Amajet	Amaline	Sewatec / Sewabloc	KWP / KWP-Bloc		WBC	LSA-S	LCC-M / LCC-R	<b>TBC</b>	LCV	00 W	MHD	머	MDX	WZ			Francisco	Etaprime B	EZ B/L						
Aquaculture Spray irrigation	səqr	-	-	units	H	Н	+	-	Pumps for solids-laden fluids	╁	Slurry pumps	H	Н		$\dashv$	+	+	+	$\vdash$	Н	+	-	Self-priming pumps	+	+	+	+	+	+	+	+	+
Mining	Je tr	$\top$	+	J g c		H	$\dashv$	T.	ᄪ		bn /													$^{+}$	$^{+}$	$\dagger$	$\dagger$	+	+	+	+	+
Irrigation	Jarç	- 1		cleaning					lade		urr												oi _		I			ユ	$\perp$			
Chemical industry	disch			cle					ids-		S	L											prin_	1	4	•	$\exists$	$\perp$	$\perp$	$\perp$	$\perp$	$\perp$
Dock facilities	- ≘.	+	+	agitators / tank	Н	Н	4	4	los _	╆	-	H	Н		$\vdash$	_	+	+		$\vdash$	+	_ 4	-  -	+	+	$\dashv$	$\dashv$	+	+	+	+	$\vdash$
Drainage Pressure boosting	μps	+	+	rs / 1	Н	$\vdash$	+	-	_ وَ	-	-	H	Н	-	$\vdash$	+	+	+		$\vdash$	+	- '	^ -	+	+		+	+	+	+	+	$\vdash$
Sludge thickening	nd	+		tato		Н	$\dashv$	┪	m M	$^{\dagger}$	1	H	Н				$^{\dagger}$		T	$\Box$	$\dashv$		H	$^{\dagger}$	+	7	$\dagger$	+	+	+	+	+
Disposal	ible			agit					P								T								土		I	士	土	土		二
Dewatering	Submersible pumps in discharge tubes	•					Ţ			•	_		Ц		$\Box$			$\perp$		Ц	$\bot$			$\perp$	7	_	$\bot$	$\bot$	$\perp$	$\perp$	$\perp$	$\perp$
Descaling units District heating	ng	+	+	Mixers /	H	$\sqcup$	$\dashv$	4		-						-	+	-	•	$\dashv$	•	-[		+	+	$\dashv$	+	+	+	+	+	+
District heating Solids transport		+	+	-	$\vdash$	$\vdash$	+	-									+					-[		+	+	+	+	+	+	+	+	+
Fire-fighting systems		+	+		Н	H	+			T		Ē	H		_	-	Ť	_	f		_			+	+	+	+	+	+	+	+	+
Drawdown of groundwater levels		1					$\Box$																		I	ユ	コ	$\perp$	$\perp$	工	I	
Maintaining groundwater levels						Щ	1	_		1		L	Ц					1		Ц	1	_[		1	4	1	4	$\perp$	4	_	$\perp$	<u> </u>
Domestic water supply Flood control / coast protection	╢	+	+	-	H	Н	$\dashv$	4		+		H	Н		$\vdash$	-	+	+		$\vdash$	$\dashv$	4	H	+	+	+	+	+	+	+	+	$\vdash$
Homogenisation	╁	+	+			Н	$\dashv$	$\exists$		+	-	H	Н		$\dashv$	+	+	+		$\vdash$	$\dashv$	-	H	+	+	+	+	+	+	+	+	+
Industrial recirculation systems		$\top$	$\top$		F		$\dashv$	┪				Г	Н			$\top$	$^{\dagger}$	$\top$		Н	$\dashv$			$^{\dagger}$	$^{\dagger}$	+	$\top$	$\top$	+	+	$\top$	+
Nuclear power stations																									I			コ	ユ			
Boiler feed applications	-	_	_				$\downarrow$	4		_		L				_	_				_		L	4	_	•	$\dashv$	$\dashv$	$\perp$	$\bot$	$\perp$	$\perp$
Boiler recirculation  Waste water treatment plants	╢		_				+	-			-	H	Н		$\dashv$	+	+	+		$\vdash$	$\dashv$	4	ı.		-	-	+	+	+	+	+	$\vdash$
Air-conditioning systems	╁		-		-		$\dashv$	-	-	▝	-	H	Н		$\dashv$	+	+	+		$\vdash$	$\dashv$	-	ŀ	+	+	+	+	+	+	+	+	+
Condensate transport		$\top$	$\top$			Н	$\dashv$			T			Н			$\top$		$\top$		$\Box$	$\top$			$^{\dagger}$	$^{\dagger}$	$\top$	$\top$	$\top$	+	+	$\top$	+
Cooling circuits	_	1					$\Box$																		_	•	$\Box$	$\Box$	$\perp$	I	$\perp$	$\sqsubseteq$
Paint shops	-	_	_		L		$\dashv$	4	_	-	-	_				_	+	-			_	4	H		- 1-	•	$\dashv$	+	+	+	+	$\vdash$
Food and beverage industry Seawater desalination / reverse osmosis	╢	٠,			Н	Н	$\dashv$	$\dashv$			-	H	Н	-	$\vdash$	_	+	+		Н	+	$\exists$	ŀ	1	+	+	+	+	+	+	+	$\vdash$
Mixing		+	+-			H	$\top$	┪		Ť	-	Н	Н		$\vdash$	$\top$	$\dagger$	+		H	$\dashv$	-	H	$\dagger$	$^{+}$	$\dagger$	$\dagger$	+	+	+	+	+
Off-shore platforms																									I		$\exists$	コ	工	工		匚
Paper and pulp industry	-	_	_		Ш		4	4		•		L	Ш			_	_	_		Ш					4	$\downarrow$	$\dashv$	4	$\perp$	$\perp$	$\bot$	$\perp$
Petrochemical industry Pharmaceutical industry	-	_	_		H		_	4		+		L				_	+				_	4	-	+	+	$\dashv$	$\dashv$	+	+	-	+	$\vdash$
Pipelines and tank farms	╢	+	+		H	Н	+	$\exists$		╁		H	Н		$\dashv$	+	+	+		H	$\dashv$	+	H	+	+	+	+	+	+	+	+	+
Refineries		$\top$	+		Н	H	$\top$	┪		$^{+}$	-	Н	Н		$\vdash$	$\top$	$\dagger$	+		H	$\dashv$	-	H	$\dagger$	$^{\dagger}$	$\dagger$	$\dagger$	+	+	+	+	+
Flue gas desulphurisation																									I		$\exists$	コ	工	工		匚
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Snow-making systems Heavy oil and coal upgrading		+	+			$\vdash$	+	-					Н	$\dashv$		+	+	+	-	$\dashv$	+	-	-	+	+	+	+	+	+	+	+	+
Swimming pools		+	+		Н	$\vdash$	+			† <b>-</b>			H		$\dashv$	+	+	+		$\vdash$	+			+	+	+	+	+	+	+	+	+
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		S 100 D / UPA 100 C	UPA 150 C	UPA 200, 200B, 250C	UPA 300, 350	UPZ, BSX-BSF		BEV		Comeo	Movitec VCI	Multitec		Omega	RDLO	RDLP		Vitachrom	Vitacast	Vitastage	Vitalobe		CHTA / CHTC / CHTD	HGB / HGC / HGD	MBH	YNK	LUV / LUVA	WKTB	SEZ / SEZT / PHZ / PNZ	SNW / PNW	Beveron		
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Fire-fighting system:  Drawdown of groundwater level:		H		H	$\rightarrow$	╗			-	+	+	-		▣		$\dashv$	Hygienic pumps for the food,	+	+	+	+	٦	-	H	$\dashv$	+	+	+	+	+	+	+	+
Maintaining groundwater level		F			-				ŀ	$\top$		$\vdash$					۽	$\dashv$	$\top$					$\Box$	$\neg$	$\top$	$\dagger$	+	+	+	+		+
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Flood control / coast protection		L	┡			_	_	4	_	$\perp$	4	_		L		Щ	dur.	$\dashv$	$\perp$	$\perp$	_		L	Ш	_	$\dashv$	$\downarrow$	4	<b>-</b>	- 1	-	4	$\bot$
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Industrial recirculation system: Nuclear power station:		H				$\dashv$	-	$\exists$	ŀ	-   '		-		H		-	ieni	$\dashv$	+	+	+	-			$\dashv$		+				+	+	+
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Off-shore platform: Paper and pulp industry		H	$\vdash$			$\dashv$	-	$\exists$	-			$\vdash$		H	_	-	-	$\dashv$	+	+	+	-	H	$\vdash$	$\dashv$	+	+	+	+	+	+	+	+
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Swimming pool					П	$\Box$				$\bot$	$\perp$	$\vdash$		oxdot				$\bot$	$\bot$	$\perp$	$\perp$			Д	$\Box$	Ţ	7		$\perp$	$\bot$	$\bot$	$\perp$	Ŧ
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Washing plant				-		$\dashv$		-	_	_	-	Ē			_					-	+			$\forall$	$\dashv$	+	+	+	+	+	+	+	+
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Dock facilities		+		$\vdash$	$\dashv$	$\dashv$	+	+	+		$\dashv$	$\dashv$	$\dashv$	-	acen	figh	$\vdash$	-		g a	-	$\dashv$	+	+	+	$\vdash$	+	+	+
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Boiler feed applications	-	+				_	_	_	+			-	_	_	_		$\vdash$	-	Н			$\vdash$	_	_	_	$\square$	$\dashv$	+	+
Boiler recirculation Waste water treatment plants		+	$\vdash$	$\vdash$	$\dashv$	$\dashv$	+	+	+		$\dashv$	$\dashv$	$\dashv$	-			$\vdash$	-	Н			$\vdash$	+	+	+	$\vdash$	$\dashv$	+	+
Air-conditioning systems		+	$\vdash$	Н	$\dashv$	+	+	+	+		$\dashv$	$\dashv$	$\dashv$	$\dashv$	-		$\vdash$	-	H	-	•	$\dashv$	+	+	+	Н	+	+	+
Condensate transport		+	$\vdash$	Н	$\dashv$	+	+	+	+		$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\vdash$		$\vdash$	-	H	ŀ		$\vdash$	+	+	+	Н	+	+	+
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Food and beverage industry		$\top$			$\dashv$		$\top$		$\top$			$\dashv$	T									$\vdash$	$\top$	$\top$			$\top$	$\top$	+
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Pipelines and tank farms		$\bot$	Ш		_	_	4	_	$\perp$			4	_	_	-		$\vdash$		Н			$\sqcup$	_	$\perp$	_	Ш	$\dashv$	4	_
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Flue gas desulphurisation		+	$\vdash$	$\vdash$	$\dashv$	+	+	+	+		$\dashv$	$\dashv$	$\dashv$	-		-	$\vdash$	-		-	-	$\dashv$	+	+	+	Н	+	+	+
Rainwater harvesting Cleaning of stormwater tanks / storage sewers		+	$\vdash$	Н	+	+	+	+	+		$\dashv$	+	+	-			$\vdash$		H		+	$\vdash$	+	+	+	$\vdash$	+	+	+
Recirculation		+		Н	+	-	+	+	+		$\vdash$	+	+	-			$\vdash$				-	$\vdash$	+	+		+	+	+	+
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Sludge disposal		$\top$	Н	H	$\dashv$	+	+	+	+		$\forall$	$\dashv$	7	٦			$\vdash$		Н		$\top$	$\vdash$	+	+	+	$\vdash$	+	+	+
Sludge processing		$\top$	П	П	$\dashv$	$\top$	$\top$	$\top$	$\top$		$\dashv$	$\dashv$	$\dashv$				$\vdash$		Н			$\sqcap$	$\top$	$\top$	$\top$	П	$\dashv$	$\dashv$	$\top$
Snow-making systems		T	П	П	$\dashv$	$\top$	$\top$	$\top$	$\top$		П		$\top$				$\sqcap$				•	$\sqcap$	$\top$	$\top$		П	$\top$	$\top$	$\top$
Heavy oil and coal upgrading					$\neg$		$\neg$												П				T	$\top$				$\neg$	Ī
Swimming pools		I					I	$\perp$													•						$\Box$		
Solar thermal energy systems		Ţ	$\Box$	Ш	Ţ		_[		L			_[	_[				Щ		Ц			Щ			Ţ	Ш	$\perp$	$\Box$	<u> </u>
Fountains		$\perp$	$\vdash$	Ц	_	$\perp$	4	$\perp$	_		Ц	_	4	Ц			Щ		H			Щ	4	$\perp$	$\perp$	Ш	$\dashv$	4	4
Keeping in suspension		+	$\vdash$	Ш	_	_	+	+	$\perp$		Щ	_	4	4			$\vdash$				$\perp$	$\vdash$	4	$\perp$	+	$\vdash$	$\dashv$	4	+
Thermal oil circulation		+		Н	_	_	+	-	+			_	4	$\perp$			$\vdash$		H		_	$\vdash$	$\perp$	+		$\vdash$	$\dashv$	_	+
Draining of pits, shafts, etc.		+	$\vdash$	Н	-	+	+	+	+		$\square$	4	+	-			$\vdash$				+	$\dashv$	+	+	+	$\vdash$	+	+	+
Process engineering Heat recovery systems		+	$\vdash$	Н	$\dashv$	+	+	+	+		$\dashv$	$\dashv$	+	$\dashv$			$\vdash$		H			$\vdash$	+	+	+	$\vdash$	+	+	+
Hot-water heating systems		+	$\vdash$	$\vdash$	$\dashv$	+	+	+	+		$\dashv$	$\dashv$	+	$\dashv$			$\vdash \vdash$	-	H			$\vdash$	+	+	+	$\vdash$	+	+	+
Washing plants		+	$\vdash$	Н	+	+	+	+	+		$\dashv$	$\dashv$	+	$\dashv$			$\vdash$	-[]	H			$\vdash$	+	+	+	$\vdash$	+	+	+
Washing plants Water treatment		+	$\vdash$	Н	$\dashv$	+	+	+	+		$\dashv$	$\dashv$	+	$\dashv$			$\vdash$		H			$\vdash$	+	+	+	$\vdash$	+	+	+
Water extraction		+	$\Box$	Н	$\dashv$	$\dashv$	+		+			+	$\dashv$				$\vdash$		H			$\vdash$	+	+		$\Box$	+	+	+
Water supply		$\top$	Т	П	$\dashv$	$\top$	$\dagger$	$\top$	$\top$		П	$\dashv$	$\dashv$				$\vdash$				-	$\sqcap$	$\top$	$\dagger$		$\Box$	$\top$	$\top$	$\uparrow$
Sugar industry		$\top$	П	П	寸	$\top$	$\top$		$\top$			$\dashv$	$\dashv$				$\sqcap$					$\sqcap$	$\top$	$\uparrow$		П	$\top$	$\top$	$\top$
					_		_					_	_								-								

### Drive, variable speed system and monitoring

#### KSB SuPremE



No. of pumps Voltage [V]

max. 1 Power supply via PumpDrive only

#### Description:

IEC-compatible, sensorless, magnetless synchronous reluctance motor of efficiency class IE4 (super premium efficiency) to IEC/CD 60034-30 Ed. 2.0 (05-2011) for operation with the KSB PumpDrive S or KSB 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 indicators. 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.





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

http://shop.ksb.com/catalog/k0/en/product/ES000866

#### PumpDrive 2 / PumpDrive 2 Eco



P [kW] Frequency inverter

No. of pumps max. 6 Voltage [V] 3~380 - 480

#### Description:

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:

Cooling circuits, filters, water supply systems, heating, ventilation and airconditioning systems, spray irrigation systems, boiler feed systems, steam generation plants, process circuits, cooling lubricant supply systems, service water supply systems and other process engineering applications.

http://shop.ksb.com/catalog/k0/en/product/ES00091



#### **PumpMeter**



No. of pumps Voltage [V]

### 24 V DC

55

1 per motor

The PumpMeter device is an intelligent pressure transmitter for pumps, with on-site display of measured values and operating data. The device comprises two pressure sensors and a display unit. It records the load profile of the pump in order to indicate any potential for optimising energy efficiency and availability.



#### Applications:

For monitoring pump operation.



### Circulators / hot water service pumps, fixed speed

#### **Riotherm**



Rp 1 – 11/4
Q [m³/h] max. 10
H [m] max. 6
p [bar] max. 10
T [°C] -2 to +110

Also available for 60 Hz

Description:

Screw-ended glanded pump with mechanical seal and fixed speed.

Hot water supply, swimming pools, cooling circuits and industrial plants.



Switchgear

http://shop.ksb.com/catalog/k0/en/product/ES000131

### Drinking water circulators, fixed speed

#### Calio-Therm S NC/NCV



 $\begin{array}{lll} Rp & y_2-1 /\!\!\!\!/ \\ Q \ [m^3/h] & max. \ 0.7 \\ H \ [m] & max. \ 1 \\ p \ [bar] & max. \ 10 \\ T \ [^{\circ}C] & +5 \ to +65 \end{array}$ 

Suitable for 50 Hz and 60 Hz operation

Description:

Maintenance-free screw-ended glandless pump with 3 speed levels.

Applications:

Drinking water circulation systems



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

#### **Rio-Therm N**



 Rp / DN
 ½ - 1¼ / 40 - 80

 Q [m³/h]
 max. 50

 H [m]
 max. 9

 p [bar]
 max. 10

 T [°C]
 max. +80

 n [rpm]
 max. 2800

Description:

Maintenance-free screw-ended or flanged glandless pump, with up to four speed levels.

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/ES000132

### Drinking water circulators, variable speed

#### **Rio-Eco Therm N**



 Rp / DN
 1 - 1¼ / 32 - 80

 Q [m³/h]
 max. 38

 H [m]
 max. 12

 p [bar]
 max. 10

 T [°C]
 max. +80

 n [rpm]
 max. 3700

Description:

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

Applications:

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



29 **Pumps** 

#### Calio-Therm S



1 - 11/4 Q [m<sup>3</sup>/h]max. 3.5 H [m] max. 6 p [bar] max. 10 T [°C] max. +80 n [rpm] max. 3000

#### Description:

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

#### 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



 $\frac{1}{2} - \frac{1}{4}$ Q [m³/h] max. 3.5 H [m] max. 6 p [bar] max. 10 +5 to +95 T [°C] n [rpm] max. 3000

#### Description:

Maintenance-free high-efficiency screw-ended glandless pump with highefficiency electric motor and continuously variable differential pressure

#### Applications:

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







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

#### **Calio**



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

1 - 11/4 / 32 - 100 max. 70

max. 18 max. 16

-10 to +110 max. 3660

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

#### Applications:

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







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

#### Rio-Eco N



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

65 – 80 max. 65 max. 12 max. 10

#### Description:

Maintenance-free, flanged high-efficiency glandless pump with highefficiency electric motor with integrated motor protection and alarm relay (general fault message) 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/ES000493

#### Rio-Eco Z N



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

65 – 80 max. 56

max. 3550

-10 to +110

max. 12 max. 10 -10 to +110

Maintenance-free, flanged high-efficiency glandless twin pump with integrated motor protection and alarm relay (general fault message) and integrated frequency inverter for continuously variable differential pressure control.



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







### In-line pumps

#### **Etaline**



D	N
Q	[m³/h]
Н	[m]
р	[bar]
Т	[°C]



max. 16

-30 to +140

Description:

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

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





PumpMeter, PumpDrive, Switchgear, KSB SuPremE

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

#### **Etaline Z**



32 – 200

max. 1095 max. 38.5 max. 16 -30 to +140

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

#### Applications:

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





PumpMeter, PumpDrive, Switchgear, KSB SuPremE

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

#### **Etaline-R**



	DN
	Q [m <sup>3</sup>
	H [m]
	p [bai
	T [°C]
1	

/h]

#### 150 – 350 Description: max. 1900

max. 93

max. 25

-30 to +140

Vertical, close-coupled pump with volute casing in in-line design and standardised motor.

#### Applications:

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







PumpMeter, PumpDrive, Switchgear, KSB SuPremE

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

#### ILN / ILNE / ILNS



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

#### 65 - 400Description: max. 3100

max. 112

max. 16

-20 to +70

max. 3000

Vertical in-line centrifugal pump with closed impeller and mechanical seal. ILNS fitted with an auxiliary vacuum pump, ILNE with ejector. Back pull-out design allows the impeller to be dismantled without removing the pipes and the motor.



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



PumpDrive, Switchgear

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

#### ILNC / ILNCE / ILNCS



Q [m3/h] H [m] p [bar] T [°C] n [rpm]

max. 370 max. 112 max. 16 -20 to +70 max. 3000

#### Description:

Vertical close-coupled centrifugal pump in in-line design, with electric motor, closed impeller and mechanical seal. ILNCS fitted with an auxiliary vacuum pump, ILNCE with ejector. Standardised IEC frame motor.

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



PumpDrive, Switchgear

Pumps 31

### Standardised / close-coupled pumps

#### **Etanorm**



DN 25 – 150 Q [m<sup>3</sup>/h]max. 740 H [m] max. 160 p [bar] max. 16 T [°C] -30 to +140

#### Description:

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:

For pumping pure liquids not chemically or mechanically aggressive to the pump materials: water supply, cooling water, swimming pool water, firefighting systems, seawater, spray irrigation, fire-fighting water, irrigation, service water, cleaning agents, drinking water, brackish water, drainage, condensate, heating, air-conditioning, oils, hot water.

PumpMeter, PumpDrive, KSB SuPremE

http://shop.ksb.com/catalog/k0/en/product/ES000062

#### **Etanorm-R**



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

125 – 300 max. 1900 max. 102

max. 16 max. +140

#### 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.

#### Applications:

Spray irrigation, irrigation, drainage, district heating, water supply systems, heating and air-conditioning systems, condensate transport, swimming pools, fire-fighting systems, handling hot water, cooling water, fire-fighting water, oil, brine, drinking water, brackish water, service water, etc.





PumpMeter, PumpDrive, KSB SuPremE

http://shop.ksb.com/catalog/k0/en/product/ES000058

#### **Etabloc**



DN Q [m³/h] H [m] p [bar] T [°C]

25 – 150

max. 740 max. 160 max. 16 -30 to +140

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 seal area.







Spray irrigation, irrigation, drainage, water supply systems, heating and air-conditioning systems, condensate transport, swimming pools, handling hot water, cooling water, fire-fighting water, seawater, oil, brine, drinking water, cleaning agents, brackish water, service water, etc.



PumpMeter, PumpDrive, KSB SuPremE

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

#### **Etachrom B**



Q [m³/h] H [m] p [bar] T [°C]

max. 250 max. 105

max. 12

max. +110

**Description:** 

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

#### Applications:

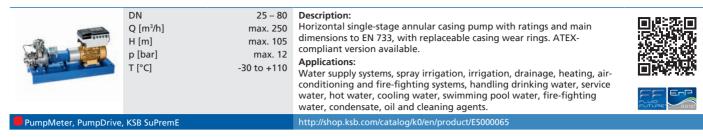
Spray irrigation, irrigation, drainage, water supply systems, heating, airconditioning and fire-fighting systems, condensate transport, swimming pools, handling hot water, cooling water, fire-fighting water, oil, drinking water, cleaning agents and service water.





PumpMeter, PumpDrive, KSB SuPremE

#### **Etachrom L**



#### **Etanorm V**



#### Hot water pumps

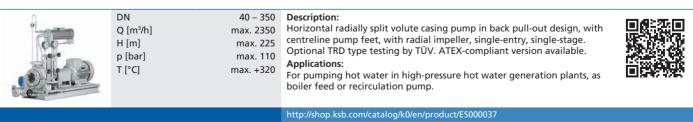
#### **HPK-L**

	DN Q [m³/h] H [m] p [bar] T [°C]	25 – 250 max. 1160 max. 162 max. 40 max. +240 / +400	Description: 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: For pumping hot water and thermal oil in piping or tank systems, particularly in medium-sized and large hot-water heating systems, forced circulation boilers, district heating systems, etc.	
PumpDrive, KSB SuPrem	E		http://shop.ksb.com/catalog/k0/en/product/ES000036	

#### **HPK**

	DN Q [m³/h] H [m] p [bar] T [°C]	150 – 400 max. 4150 max. 185 max. 40 max. +400	Description: 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: For pumping hot water and thermal oil in piping or tank systems, particularly in medium-sized and large hot-water heating systems, forced circulation boilers, district heating systems, etc.	
PumpDrive			http://shop.ksb.com/catalog/k0/en/product/ES000034	

#### **HPH**



Pumps 33

### Hot water / thermal oil pumps

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



PumpDrive, KSB SuPremE

DN	25 – 300
Q [m³/h]	max. 1900
H [m]	max. 102
o [bar]	max. 16
T [°C]	max. +350

Description:

Volute casing pump for horizontal installation, back pull-out design, single-stage, 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.



Heat transfer systems (DIN 4754, VDI 3033) or hot water recirculation.

http://shop.ksb.com/catalog/k0/en/product/ES000790



#### **Etabloc SYT**



PumpDrive, KSB SuPremE

ON	25 – 8
Q [m³/h]	max. 33
l [m]	max. 9
[bar]	max. 1
[°C]	max. +35

#### **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 (DIN 4754, VDI 3033) or hot water recirculation.

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

#### **Etaline SYT**



DN	32 – 100
Q [m³/h]	max. 316
H [m]	max. 101
p [bar]	max. 16
T [°C]	max. +350

#### Description:

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

#### Applications:

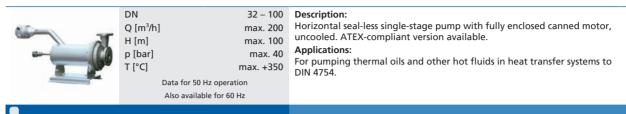
Heat transfer systems (DIN 4754, VDI 3033) or hot water recirculation.



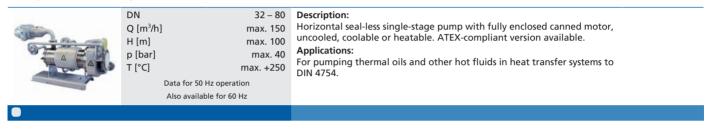
PumpDrive, KSB SuPremE

### Thermal oil pumps with magnetic drive or canned motor

#### HX (Nikkiso-KSB)

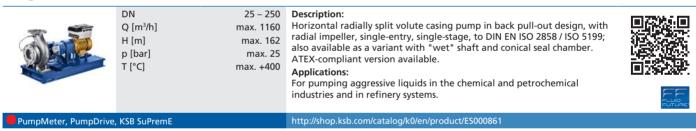


#### HY (Nikkiso-KSB)

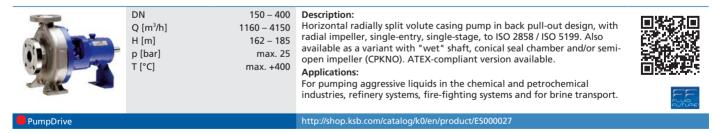


### Standardised chemical pumps

#### **MegaCPK**



#### **CPKN**



**Pumps** 35

### Seal-less pumps

#### Magnochem



ON	25 – 25
Q [m³/h]	max. 116
l [m]	max. 16
[bar]	max. 4
[°C]	-90 to +30

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:

For 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

PumpMeter, PumpDrive, KSB SuPremE



N	25 – 16
[m³/h]	max. 75
[m]	max. 16
[bar]	max. 2
[°C]	max. +20

#### Description:

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.

For pumping aggressive, toxic, explosive, valuable, flammable, malodorous or harmful liquids in the chemical, petrochemical and general





#### Etaseco / Etaseco-I

PumpMeter, PumpDrive



PumpMeter, PumpDrive

DN
Q [m³/h]
H [m]
p [bar]
T [°C]

#### 32 – 100 max. 250

max. 162

max. 16 max. +140

max. 20

max. 25

max. 10

max. + 85

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

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

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



### **Etaseco RVP**



DN		
Q	[m³/h]	
Н	[m]	
р	[bar]	
Т	[°C]	

#### 32

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:

For 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.



PumpMeter, PumpDrive

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

#### Secochem Ex



N	25 – 100
) [m³/h]	max. 300
l [m]	max. 150
[bar]	max. 25
[°C]	max. +130

Horizontal seal-less volute casing pump in back pull-out design with fully enclosed canned motor, low noise emission, with radial impeller, singlestage, single-entry, casing connecting dimensions to EN 22858 / ISO 2858. ATEX-compliant version available.

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



PumpDrive, Frequency inverter

#### Secochem Ex K



PumpDrive, Frequency inverter

DN 25 – 100 Q [m<sup>3</sup>/h]max. 300 H [m] max. 150 p [bar] max 25 T [°C] max. +400

Description:

Applications:

Horizontal seal-less volute casing pump in back pull-out design with fully enclosed canned motor, low noise emission, with radial impeller, singlestage, single-entry, casing connecting dimensions to EN 22858 / ISO 2858, with external cooler. ATEX-compliant version available.

For pumping aggressive, flammable, explosive, toxic, volatile or valuable



liquids in the chemical and petrochemical industries, in environmental engineering and industrial applications.

http://shop.ksb.com/catalog/k0/en/product/ES000105

#### Ecochem Non-Seal HN, HP, HT, HS



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

25 - 250max. 690

max. 236 max. 40 max. +400

Description:

Horizontal seal-less volute casing pump in back pull-out design with hermetically sealed canned motor, low-noise design, with radial impeller, single-stage, single-entry, casing connecting dimensions to EN 22858 / ISO 2858, available in standard chemical pump design (HN), with external cooler for hot (HT) or contaminated (HS) fluids, and with internal return line for handling liquefied gas (HP). ATEX-compliant and GOST-TRcompliant versions available.



For pumping aggressive, flammable and explosive liquids in the chemical and petrochemical industries and in refinery and heat transfer systems.

http://shop.ksb.com/catalog/de/de/product/ES000914 PumpDrive, Frequency inverter

max. 800

max. 200

max. 40

max. +180

#### HN (Nikkiso-KSB)



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

32 – 300 **Description:** 

Horizontal (HN) or vertical (BN / TN) seal-less single-stage pump with fully enclosed canned motor, uncooled, coolable or heatable. ATEX-compliant

Applications:

For pumping aggressive, flammable, explosive, toxic, volatile or valuable liquids in the chemical and petrochemical industries.

PumpDrive, Frequency inverter

#### HT (Nikkiso-KSB)



DN 32 – 300 Q [m³/h] max. 800 H [m] max. 200 p [bar] max. 40 T [°C] max. +400

Description:

Horizontal (HT) or vertical (BT / TT) seal-less single-stage pump with fully enclosed canned motor, coolable. ATEX-compliant version available.

For pumping aggressive, solids-laden, polymerising, flammable, explosive, toxic, volatile or valuable liquids and thermal oils in the chemical and petrochemical industries.

PumpDrive, Frequency inverter

#### HK (Nikkiso-KSB)



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

25 - 40max. 10

max. +150

max. 8400

max. 300 max. 40

Description:

Horizontal seal-less pump with fully enclosed canned motor, two-stage design in tandem arrangement. ATEX-compliant version available.

Applications:

For pumping aggressive, flammable, explosive, toxic, volatile or valuable liquids in the chemical and petrochemical industries. For low flow rates, high heads and low NPSHR.

PumpDrive, Frequency inverter

## VN (Nikkiso-KSB)



N	40 – 100
[m³/h]	max. 140
[m]	max. 450
[bar]	max. 40
[°C]	max. +180

#### Description:

Horizontal seal-less pump with fully enclosed canned motor, multistage. ATEX-compliant version available.

## Applications:

For pumping aggressive, flammable, explosive, toxic, volatile or valuable liquids in the chemical and petrochemical industries. For high pump heads

PumpDrive, Frequency inverter

Q

Н

р

## DN (Nikkiso-KSB)



DN	32 – 50
Q [m³/h]	max. 40
H [m]	max. 60
o [bar]	max. 40
Γ [°C]	max. +180

#### Description:

Horizontal seal-less pump with fully enclosed canned motor, single-stage, self-priming. ATEX-compliant version available.

#### Applications:

For pumping aggressive, flammable, explosive, toxic, volatile or valuable liquids in the chemical and petrochemical industries. Self-priming pump for draining tanks and unloading tank vehicles.

PumpDrive, Frequency inverter

# **Process pumps**

## **RPH**



DN	25 – 400
Q [m³/h]	max. 4150
H [m]	max. 270
p [bar]	max. 110
T [°C]	-70 to +450

Data for 50 Hz operation Also available for 60 Hz

#### Description

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.

http://shop.ksb.com/catalog/k0/en/product/ES000040



## **RPHb**



Data for 50 Hz operation
Also available for 60 Hz

#### Description:

Horizontal radially split volute casing pump in back pull-out design, to API 610, ISO 13709 (heavy-duty), type BB2, with radial impeller, single-entry, single-stage, back-to-back impeller arrangement, centreline pump feet.

## Applications:

Refineries, petrochemical and chemical industries, offshore and onshore processes

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



## **RPH-V**



DN2 / DN3 25 - 80 / 40 - 150
Q [m³/h] max. 80
H [m] max. 164
p [bar] max. 51
T [°C] -30 to +230

Data for 50 Hz operation

Also available for 60 Hz

#### Description:

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

## Applications:

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



## **RPHmdp**



DN 25 – 100 Q [m<sup>3</sup>/h]max. 300 H [m] max. 270 p [bar] max. 51 T [°C] -40 to +300 Data for 50 Hz operation

Also available for 60 Hz

Description:

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. ATEXcompliant version available.

#### Applications:

Refineries, petrochemical and chemical industries, power stations.





#### **CTN**



25-250 / 250-400 Q [m<sup>3</sup>/h]max. 950 H [m] max. 115 p [bar] max. 16 T [°C] max. +300 Data for 50 Hz operation

Available for 50 Hz and 60 Hz

Description:

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

## **API series (Nikkiso-KSB)**



 $1\frac{1}{2} - 6$ max. 360 Q [m<sup>3</sup>/h]H [m] max. 220 p [bar] max. 40 T [°C] max. +450 Data for 50 Hz operation

Also available for 60 Hz

Horizontal or vertical canned motor pump to API 685, single-stage, with centreline pump feet; with inducer, if required.

Applications:

HNP: for clean liquids; HTP: for hot fluids; HSP / HMP: for contaminated or polymerising fluids; HRP: for liquids with a steep vapour pressure curve such as liquefied gases.

## **CHTR**



DN 50 - 250 Q [m³/h] max. 1450 max. 4000 H [m] p [bar] max. 400 T [°C] max. +450 max. 7000 n [rpm]

Higher ratings possible upon request.

Data for 50 Hz operation Also available for 60 Hz

Description:

Horizontal high-pressure barrel-type pumps with radial impellers, singleentry 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).



### **CINCP / CINCN**



DN 32 – 200 Q [m<sup>3</sup>/h]max. 780 H [m] max. 105 p [bar] max. 10 T [°C] -10 to +100 max. 3000 n [rpm] Data for 50 Hz operation

Also suitable for 60 Hz operation

Description:

Vertical immersion pump in cantilever design for wet or dry installation. Semi-open 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). ATEXcompliant version available.



Applications:

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

## **INVCP / INVCN**



 $\begin{array}{ccc} DN & 32-300 \\ Q \ [m^3/h] & max. \ 1600 \\ H \ [m] & max. \ 116 \\ p \ [bar] & max. \ 10 \\ T \ [^{\circ}C] & -10 \ to \ +100 \\ n \ [rpm] & max. \ 3000 \end{array}$ 

Data for 50 Hz operation
Also suitable for 60 Hz operation

#### 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:

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

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



## **RWCP / RWCN**



DN 50 – 200
Q [m³/h] max. 700
H [m] max. 160
p [bar] max. 16
T [°C] -10 to +100
n [rpm] max. 3000

Data for 50 Hz operation
Also suitable for 60 Hz operation

#### Description:

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

#### Applications:

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





## **WKTR**



Data for 50 Hz operation
Also available for 60 Hz

#### Description:

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:

For pumping condensate and other NPSH-critical products in industrial plants, particularly in refineries and petrochemical plants.



# Rainwater harvesting systems

## Hya-Rain / Hya-Rain N



Rp	1
Q [m³/h]	max. 4
H [m]	max. 43
p [bar]	max. 6
T [°C]	max. +35
Data for EO Ha operation	

#### Description

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.



#### Applications:

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

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

## **Hya-Rain Eco**



Rp	1
Q [m³/h]	max. 4
H [m]	max. 43
p [bar]	max. 6
T [°C]	max. +35
Data for 50 Hz operation	

#### Description:

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 and service water harvesting, irrigation and spray irrigation systems.

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

# Domestic water supply / swimming pool pumps

## Multi Eco



)	
[m³/h]	
[m]	
[bar]	
[°C]	
[rpm]	

#### Description:

1 – 11/4

max. 8 max. 54

max. 10

max. +50 max. 2800 Multistage self-priming centrifugal pump in close-coupled design.

### Applications:

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



Cervomatic, Controlmatic

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

## Multi Eco-Pro



p	1 – 11⁄4
) [m³/h]	max. 8
l [m]	max. 54
[bar]	max. 10
[°C]	max. +50
[rpm]	max. 2800
Data for 50 Hz operation	

#### Description:

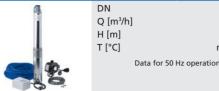
Multistage self-priming centrifugal pump in close-coupled design, with power cable, plug and Controlmatic E automatic control unit starting and stopping the pump in line with consumer demand and protecting it against dry running. Automated with automatic control unit.

## Applications:

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



#### **Set 100**



100 max. 6 max. 90 max. +30 Description:

Multistage centrifugal pump in shroud design made of stainless steel and plastic (\$ 100D) or in ring-section design made of stainless steel (UPA 100C) for well diameters of 100 mm and above, complete with drive, control system and lead in box.



Domestic water supply and general water supply, irrigation and spray irrigation, drawdown of groundwater levels, fire protection, cooling circuits, fountains, pressure booster and air-conditioning systems.

http://shop.ksb.com/catalog/k0/en/product/ES000535



## Multi Eco-Top



Rр 1 - 11/4 Q [m³/h] max. 8 H [m] max. 54 p [bar] max. 7 T [°C] max. +50 max. 2800 n [rpm] Data for 50 Hz operation

Description:

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



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

http://shop.ksb.com/catalog/k0/en/product/ES000254



#### **Movitec VME**



Rp 11/2  $Q [m^3/h]$ max. 9 H [m] max. 48 p [bar] max. 16 T [°C] max. +60 n [rpm] max. 2900 **Description:** 

Multistage vertical (horizontal installation upon request) high-pressure centrifugal pump with suction and discharge nozzles of identical nominal diameters arranged opposite to each other (in-line design).



Single- or two-family houses, agricultural facilities, spray irrigation, irrigation and washing plants, water supply and rainwater harvesting systems. Pressure boosting, hot water and cooling water recirculation and fire-fighting systems.





PumpMeter

http://shop.ksb.com/catalog/k0/en/product/ES000854

#### Ixo N



Switchgear, Cervomatic

11/4 Q [m³/h] max. 8 H [m] max 65 T [°C] max. +35 max. 2900 n [rpm]

#### Description:

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, irrigation and washing plants, rainwater harvesting systems and water extraction from wells, reservoirs and rainwater storage tanks.



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

# **Ixo-Pro**



Q [m<sup>3</sup>/h]max. 3.9 H [m] max. 60 T [°C] max. +35 Data for 50 Hz operation

## Description:

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 and irrigation.



### Filtra N



Q [m<sup>3</sup>/h]max. 36 H [m] max. 21 p [bar] max. 2.5 T [°C] max. +35 n [rpm] max. 2800 Data for 50 Hz operation

Description:

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

#### Applications:

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**

## Hya-Solo EV



Rp 11/4 Q [m<sup>3</sup>/h]max. 6 H [m] max. 50 p [bar] max. 10 T [°C] max. +60 Data for 50 Hz operation

Description:

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

#### Applications:

Residential buildings, hospitals, office buildings, hotels, department stores, industry, etc.



http://shop.ksb.com/catalog/k0/en/product/ES000883

## Hya-Solo D



Rp/DN 1 / 100 Q [m<sup>3</sup>/h]max. 110 H [m] max. 150 p [bar] max. 16 T [°C] max. +70 Data for 50 Hz operation

Description:

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

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 1 / 100 Q [m³/h] max. 110 H [m] max. 150 p [bar] max. 16 T [°C] max. +70 Data for 50 Hz operation

Description:

Fully automatic variable speed package single-pump system with magnetless high-efficiency KSB SuPremE-IE4 motor (to IEC/ CD 60034-30 Ed. 2) with PumpDrive. 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 industry.



http://shop.ksb.com/catalog/k0/en/product/ES000251

## Hya-Solo D FL



Rp / DN 1 / 100 Q [m<sup>3</sup>/h]max. 110 H [m] max. 150 p [bar] max. 16 T [°C] max. +70 Data for 50 Hz operation

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.

#### Applications:

Pressure boosting in fire protection systems to DIN 14462.



## Hya-Duo D FL



Rp / DN 2 / 150
Q [m³/h] max. 110
H [m] max. 150
p [bar] max. 16
T [°C] max. +70

Data for 50 Hz operation

**Description:** 

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

Applications:

Pressure boosting in fire protection systems to DIN 14462.

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



**Hya-Solo D FL Compact** 



DN 50 – 80
Q [m³/h] max. 48
H [m] max. 150
p [bar] max. 16
T [°C] max. +70

Description:

Fully automatic ready-to-connect break tank package booster set for fire fighting, comprising a single-pump system and break tank. The system is started and stopped as a function of pressure. Design and function as per DIN 14462.

Applications:

Fire-fighting applications to DIN 14462.



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

## **Hya-Duo D FL Compact**



DN 50 – 80
Q [m³/h] max. 48
H [m] max. 150
p [bar] max. 16
T [°C] max. +70

Data for 50 Hz operation

Description:

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 14462.



Fire-fighting applications to DIN 14462.



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

## Hya-Eco VP



 Rp / DN
 2 / 80

 Q [m³/h]
 max. 70

 H [m]
 max. 120

 p [bar]
 max. 16

 T [°C]
 max. +70

Data for 50 Hz operation

#### Description:

Fully automatic package pressure booster system, with either 2 or 3 vertical 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.



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

http://shop.ksb.com/catalog/k0/en/product/ES000596



## **Hyamat K**



Rp / DN 2 / 250
Q [m³/h] max. 660
H [m] max. 160
p [bar] max. 16
T [°C] max. +70
Data for 50 Hz operation

Description:

Fully automatic package pressure booster system, with 2 to 6 vertical high-pressure 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.



## **Hyamat V**



Rp / DN	2 / 250
Q [m³/h]	max. 660
H [m]	max. 150
o [bar]	max. 16
Γ [°C]	max. +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 one pump; for fully electronic control of the required supply pressure. Design and function as per 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/ES000417



## **Hyamat SVP**



Rp / DN	2 / 250
Q [m³/h]	max. 660
H [m]	max. 150
p [bar]	max. 16
T [°C]	max. +70
Data for 50	Hz operation

#### Description:

Fully automatic package pressure booster system with KSB SuPremE-IE4 motor and 2 to 6 vertical high-pressure 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 PumpDrive.

#### Applications:

Pressure boosting in residential buildings, hospitals, office buildings,

hotels, department stores, industry, etc.

http://shop.ksb.com/catalog/k0/en/product/ES000418



## Superbloc SBC.B



Rp	11/2
Q [m³/h]	max. 12
H [m]	max. 95
p [bar]	max. 10
T [°C]	max. +70
Data for 50 Hz operation	

## Description:

Fully automatic package pressure booster system, with one pump and 200-litre membrane-type accumulator. Pressure-controlled starting and

#### Applications:

Water supply in small multiple dwelling buildings, spray irrigation, rainwater harvesting.



http://shop.ksb.com/catalog/k0/en/product/ES000432

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

Q



p/DN	2/80
[m³/h]	max. 70
[m]	max. 100
[bar]	max. 16
[°C]	max. +70
Data for 50 Hz operation	

### Description:

Fully automatic package pressure booster system, with either 2 or 3 vertical high-pressure pumps, with 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.

http://shop.ksb.com/catalog/k0/en/product/ES000595

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



Rp / DN	2/80
Q [m³/h]	max. 70
H [m]	max. 120
p [bar]	max. 16
T [°C]	max. +70
Data for 50 Hz operation	

Fully automatic package pressure booster system with either 2 or 3 vertical high-pressure pumps. 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. Automated with BoosterControl and PumpDrive.

### Applications:

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



## **Surpresschrom SIC.2**



 Rp / DN
 2 / 250

 Q [m³/h]
 max. 660

 H [m]
 max. 160

 p [bar]
 max. 16

 T [°C]
 max. +70

Data for 50 Hz operation

Description:

Fully automatic package pressure booster system, with 2 to 6 vertical high-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



## Surpresschrom SIC.2 V



 Rp / DN
 2 / 250

 Q [m³/h]
 max. 660

 H [m]
 max. 150

 p [bar]
 max. 16

 T [°C]
 max. +70

Data for 50 Hz operation

Description:

Fully automatic package pressure booster system with 2 to 6 vertical highpressure 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 2 / 250
Q [m³/h] max. 660
H [m] max. 150
p [bar] max. 16
T [°C] max. +70
Data for 50 Hz operation

Description:

Fully automatic package pressure booster system with 2 to 6 vertical highpressure pumps. Continuously variable speed adjustment of all pumps 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/ES000701

## Surpressbloc SB



DN 100 – 200
Q [m³/h] max. 640
H [m] max. 160
p [bar] max. 16
T [°C] max. +70

Data for 50 Hz operation

Description:

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

## Applications:

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





Rp 2½
Q [m³/h] max. 40
H [m] max. 76
p [bar] max. 10
T [°C] max. +70
Data for 50 Hz operation

Description:

Fully automatic pressure booster system with two horizontal close-coupled pumps (one pump on stand-by duty). Design complies with APSAD regulation R5. Pressure-controlled starting and stopping. Automated with BoosterControl.

Applications:

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



## **Surpress SP**



<b>R</b> p	1½ – 2
Q [m³/h]	max. 36
H [m]	max. 70
[bar]	max. 16
Γ [°C]	max. +70
Data for 50 I	Hz operation

#### Description:

Fully automatic package pressure booster system with either two or three vertical high-pressure pumps and fully electronic control unit ensuring the required supply pressure at the consumer installations. Design and functions to EN 806-2.

#### Applications:

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





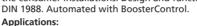
## Surpress SP VP



Rp	1½ – 2
Q [m³/h]	max. 36
H [m]	max. 70
p [bar]	max. 16
T [°C]	max. +70
Data for 50	Hz operation

#### Description:

Fully automatic package pressure booster system with either two or three vertical high-pressure pumps. Continuously variable speed adjustment of all pumps for fully electronic control of the required supply pressure at the consumer installations. Design and function to DIN EN 806-2 and



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 301 – 358



11/4 - 11/2
max. 16.5
max. 12
max. +50

Data for 50 Hz operation

Also available for 60 Hz

# Description:

Vertical single-stage fully floodable submersible motor pump in closecoupled design, IP68, with or without level control, max. immersion

## 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.



Switchgear, LevelControl

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

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



р	1½ – 2
[m³/h]	max. 50
[m]	max. 24
[°C]	max. +40
Data for 50	Hz operation

Also available for 60 Hz

Vertical single-stage fully floodable submersible motor pumps in closecoupled design, IP68, with or without level control, max. immersion depth: 7 m.

## 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.



Switchgear, LevelControl

http://shop.ksb.com/catalog/k0/en/product/ES000078

## Ama-Drainer 80, 100



,
Rp / DN
Q [m³/h]
H [m]
T [°C]

2½ / 100 max. 130 max. 26 max. +50 Data for 50 Hz operation

Also available for 60 Hz

#### Description:

Vertical single-stage fully floodable submersible motor pump in closecoupled design, IP68, with or without level control, max. immersion

#### 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.



Switchgear, LevelControl

#### Ama-Porter F / S



50 – 65 Q [m<sup>3</sup>/h]max. 40 H [m] max. 21 T [°C] max. +40

Data for 50 Hz operation

Description:

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



Switchgear, LevelControl

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

#### **Rotex**



 $1\frac{1}{4} - 2$ Q [m³/h] max. 24 H [m] max. 14 Inst. depth [m] max. 1.7 T [°C] max. +90 n [rpm] max. 2900 Data for 50 Hz operation

Description:

Vertical single-stage centrifugal pump with discharge to the top and parallel 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



Applications:

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

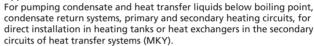


Rp/DN 2 / 50 Q [m<sup>3</sup>/h]max. 36 H [m] max. 19 Inst. depth [m] max. 2.8 T [°C] max. +200 n [rpm] max. 3500 Data for 50 Hz operation

Description:

Vertical submersible pump with three-channel impeller, volute casing designed as inlet strainer.







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

# Lifting units / pump stations

## AmaDS<sup>3</sup>



Q [m³/h] max. 200 H [m] max. 85 T [°C] depending on

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.



Higher ratings possible upon request

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

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

#### Kondensat-Lift



Q [m³/h] max. 0.35 H [m] max. 4.5 T [°C]

Data for 50 Hz operation

Description: Automatic condensate lifting unit.

Applications:

Fully automatic pumping of condensate generated below the flood level by condensing boilers, air-conditioning and cooling systems.



### Ama-Drainer-Box Mini



 $\begin{array}{ccc} DN & & 40 \\ Q \ [m^3/h] & max.10 \\ H \ [m] & max. \ 6.5 \\ T \ [^{\circ}C] & max. \ +35 \end{array}$ 

Data for 50 Hz operation

Description:

Reliable and compact waste water lifting unit in a modern design with activated carbon filter meeting hygiene requirements and with shower connection as standard. To EN 12050-2.

#### Applications:

Automatic drainage of washbasins, showers, washing machines, dishwashers, etc. Use mini-Compacta sewage lifting unit for handling sewage from urinals and toilets!

http://shop.ksb.com/catalog/k0/en/product/ES000862



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



DN 40 – 50
Q [m³/h] max. 46
H [m] max. 24
T [°C] max. +40
Data for 50 Hz operation

Description:

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.



Washbasins, showers, washing machines, garage driveways, basements and rooms at risk of flooding, etc.

http://shop.ksb.com/catalog/k0/en/product/ES000262



## **Evamatic-Box N**





DN 50 – 65
Q [m³/h] max. 40
H [m] max. 21
T [°C] max. +40
Data for 50 Hz operation

Description:

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).



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



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

#### **Eva-Clean**



Rp 11/4
Q [m³/h] max. 8
H [m] max. 7
T [°C] max. +50
Data for 50 Hz operation

Description:

Single-piece water-tight collecting tank made of PE-HD, equipped with Ama-Drainer N submersible motor pump with integrated float switch.

#### Applications:

Disposal of domestic waste water from septic tanks and/or sand filters. For pumping pre-screened domestic waste water.



http://shop.ksb.com/catalog/k0/en/product/ES000712

## mini-Compacta



DN 32 – 100
Q [m³/h] max. 36
H [m] max. 25
T [°C] max. +65

Description:

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

#### Applications:

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



## **Compacta**



 $\begin{array}{lll} DN & 80-100 \\ Q \ [m^3/h] & max. \ 140 \\ H \ [m] & max. \ 24 \\ T \ [^{\circ}C] & max. \ +65 \end{array}$ 

Data for 50 Hz operation

#### Description:

Floodable single-pump sewage lifting unit or dual-pump sewage lifting unit 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 32 – 50 Q [m³/h] max. 22 H [m] max. 49 T [°C] max. +40

Data for 50 Hz operation

Description:

Ready-to-connect package single-pump or dual-pump station 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-proof). Tank design to DIN 1986-100 and EN 752 / EN 476.



Building and property drainage, waste water disposal, property renovation, joint sewage disposal for multiple residential units, pumped drainage.

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



## **CK 1000 Pump Station**



DN 50 – 65
Q [m³/h] max. 50
H [m] max. 39
T [°C] max. +40

Description:

Ready-to-connect package single-pump or dual-pump station with PE-LLD (polyethylene) collecting tank for buried installation. Equipped with either one or two submersible waste water pumps of type Amarex N (explosion-proof or non-explosion-proof) or Ama-Porter (non-explosion-proof). Tank design to DIN 1986-100 and EN 752 /EN 476.



Building and property drainage, waste water disposal, property renovation, joint sewage disposal for multiple residential units, pumped drainage.



http://shop.ksb.com/catalog/k0/en/product/ES00026

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



DN 50 – 65
Q [m³/h] max. 40
H [m] max. 21
T [°C] max. +40
Data for 50 Hz operation

Description:

Ready-to-connect package single-pump or dual-pump station with PE-LLD (polyethylene) collecting tank for buried installation. With either one or two non-explosion-proof Ama-Porter submersible waste water pumps. Tank design to DIN 1986-100 and EN 752 /EN 476.



Building and property drainage, waste water disposal, property renovation, joint sewage disposal for multiple residential units, pumped drainage.



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

## **SRP**



DN Q [m³/h] H [m] T [°C] Description

50 – 150

max. 500

max. +40

max. 68

Ready-to-connect package single-pump or dual-pump station with fibreglass collecting tank for buried installation.

#### Applications

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



Switchgear

# Submersible motor pumps

## **Amarex N S32**



Switchgear, LevelControl

DN Q [m<sup>3</sup>/h]max. 16.5 H [m] max. 29.5 T [°C] max. +40

Data for 50 Hz operation

Vertical single-stage submersible motor pump for wet installation, stationary or transportable version. Amarex N pumps are floodable, single-stage, single-entry close-coupled pump sets which are not selfpriming. ATEX-compliant version available.

Applications:

Amarex N S 32-160 submersible motor pumps with cutter are used for pumping waste water in intermittent operation, domestic waste water, raw water, waste water containing faeces.

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



#### Amarex N



DN 50 – 100 Q [m³/h] max. 190 H [m] max. 49 T [°C] max. +60 Data for 50 Hz operation

Also available for 60 Hz

Vertical single-stage submersible motor pump for wet installation, stationary or transportable version. Amarex N pumps are floodable, single-stage, single-entry close-coupled pump sets which are not selfpriming. ATEX-compliant version available.



For 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



Switchgear, LevelControl

#### **Amarex KRT**



40 – 700 Q [m<sup>3</sup>/h]max. 10080 H [m] max. 120 T [°C] max. +60 n [rpm] max. 2900 Data for 50 Hz operation

Also available for 60 Hz

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.

Applications:

For pumping abrasive or aggressive waste water in water and waste water management, seawater desalination and industry, especially untreated waste water containing long fibres and solid substances, liquids containing gas or air, and raw, activated and digested sludge.



Amacontrol, LevelControl

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

## Amarex KRT, with jacket cooling



DN 100 - 700Q[m<sup>3</sup>/h]max. 10080 H [m] max. 120 p [bar] max. 10 T [°C] max. +40 n [rpm] max. 1450 Data for 50 Hz operation

Also available for 60 Hz

Description:

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

## Applications:

For 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



Amacontrol, LevelControl

## Amarex KRT, with convection cooling



80 – 200 DN Q [m³/h] max. 550 H [m] max 25 T [°C] max. +40 max. 1450 n [rpm] Data for 50 Hz operation

Also available for 60 Hz

Horizontal or vertical single-stage submersible motor pump in closecoupled design, with various impeller types, for wet or dry installation, stationary or transportable version, with energy-saving motor.

#### Applications:

For 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



Amacontrol, LevelControl

# Submersible pumps in discharge tubes

## Amacan K



DN 700 – 1400 Q [m³/h] max. 7200 H [m] max. 30 T [°C] max. +40 n [rpm] max. 980

> Data for 50 Hz operation Also available for 60 Hz

#### Description:

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

#### Applications:

For handling 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 500 – 1500 Q [m<sup>3</sup>/h]max. 25200 H [m] max. 12 T [°C] max. +40 n [rpm] max. 1450

Data for 50 Hz operation Also available for 60 Hz

#### Description:

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

#### Applications:

Irrigation and drainage pumping stations, for stormwater transport in stormwater pumping stations, raw and clean water transport in water and waste water treatment plants, cooling water transport in power stations and industrial plants, industrial water supply, water pollution and flood control, aquaculture.



Amacontrol

#### Amacan S



DN 650 - 1300 Q [m<sup>3</sup>/h]max. 10800 H [m] max. 40 T [°C] max. +30 n [rpm] max. 1450

> Data for 50 Hz operation Also available for 60 Hz

#### Description:

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

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



# Mixers / agitators / tank cleaning units

## **Amamix**



 Propeller Ø [mm]
 200 – 600

 Inst. depth [m]
 max. 30

 T [°C]
 max. +40

 n [rpm]
 max. 1400

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

Horizontal submersible mixer with self-cleaning ECB propeller, close-coupled design, direct drive. ATEX-compliant version available.

#### Applications

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

environmental engineering (also in biogas plants).



## **Amaprop**



Propeller Ø [mm] Inst. depth [m] T [°C] n [rpm] 1000 – 2500 max. 30 max. +40 max. 109 Description:

Horizontal submersible mixer with self-cleaning ECB propeller, close-coupled design, with coaxial spur gear drive. ATEX-compliant version available.

#### Applications:

Environmental engineering, particularly for handling municipal and industrial waste water and sludges. For circulating, keeping in suspension and inducing flow in nitrification and denitrification tanks, activated sludge tanks, mixing tanks, final storage tanks, biological phosphate elimination tanks, flocculation tanks and in biogas applications.

http://shop.ksb.com/catalog/k0/en/product/ES000271

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



## **Amajet**



DN 100 – 150 Q [m³/h] max. 195 T [°C] max. +40 n [rpm] max. 1450

> Data for 50 Hz operation Also available for 60 Hz

Description:

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:

For cleaning stormwater tanks and storage sewers.



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

## **Amaline**



DN 300 - 800
Q [m³/h] max. 5400
H [m] max. 2
T [°C] max. +40
n [rpm] max. 960

#### Description:

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:

For recirculating activated sludge in waste water treatment systems.



# **Pumps for solids-laden fluids**

## **Sewatec**



PumpDrive, LevelControl

N	50 – 700
) [m³/h]	max. 10000
l [m]	max. 115
[bar]	max. 10
[°C]	max. +70
[rpm]	max. 2900

#### Description:

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

#### Applications:

For pumping untreated sewage and waste water in waste water management and industry.

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



## **Sewabloc**



ON	50 – 200
Q [m³/h]	max. 1000
l [m]	max. 80
[bar]	max. 10
[°C]	max. +70
ı [rpm]	max. 2900

### Description:

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

#### Applications:

For pumping untreated sewage and waste water in waste water management and industry.





PumpDrive, LevelControl

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

## **KWP / KWP-Bloc**



ON	
Q [m³/h]	
H [m]	
[bar]	
[°C]	
rpm]	

40 – 900

max. 15000

-40 to +140 max. 2900

max. 100

max. 10

Horizontal radially split volute casing pump in close-coupled or back pullout design, single-stage, single-entry, available with various impeller types: channel impeller, open multi-channel impeller and free-flow impeller. ATEX-compliant version available.

For pumping pre-treated sewage, waste water, slurries without stringy material and pulps up to 5 % bone dry with a maximum density of

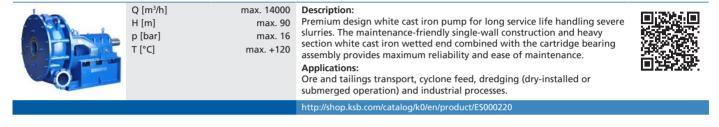


# **Slurry pumps**

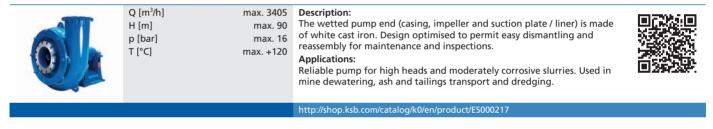
## **WBC**



## LSA-S



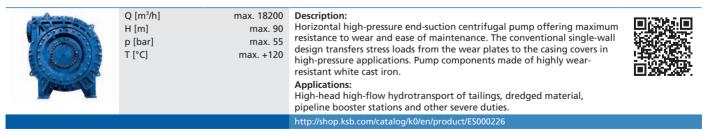
#### LCC-M



## LCC-R

0	Q [m³/h] H [m] p [bar] T [°C]	max. 2455 max. 42 max. 16 max. +65	Description: Interchangeable rubber-lined or part-metal design allows adaptation of existing pumps to new applications by simply exchanging the wetted pump end.  Applications: The pumps are suitable for moderate heads, fine particles and highly corrosive slurries.	
			http://shop.ksb.com/catalog/k0/en/product/ES000218	

### **TBC**



#### **LCV**



Q [m³/h] max. 2045 H [m] max. 38 p [bar] max. 14 T [°C] max. +120 Description:

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

Applications:

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

max. 22700 max. 45 max. 17 max. +120

Description:

High-flow / low-head white cast iron pump with single-wall casing and high-efficiency impeller. Single-piece suction cover with integrated mounting plate.

Applications:

Flue gas desulpurisation systems and process circuits.



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

## Mega



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

max. 45 max. 30

max. 24 max. +120

Horizontal end-suction volute casing pump with open three-vane impeller for handling solids-laden liquids.

Applications:

Low-volume hydrotransport of solids-laden liquids and abrasive slurries.



http://shop.ksb.com/catalog/k0/en/product/ES000229

## **MHD**



Q [m³/h] H [m] p [bar] T [°C]

max. 32000 max. 80 max. 28

max. +120

Description:

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 iron.

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]

max. 21600 max. 65

max. 17

max. +120

Description:

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.



## **MDX**



Q [m³/h] H [m] p [bar] T [°C]

max. 14000 max. 90 max. 16

max. +120

Description:

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

Applications:

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



http://shop.ksb.com/catalog/k0/en/product/ES000850

#### **ZW**



Q [m³/h] H [m] p [bar] T [°C]

max. 400

max. 35

max. 10 max. +120

Description:

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]

max. 8175

max. 35 max. 10 max. +120

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

Applications:

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



# **Self-priming pumps**

## **Etaprime L**



DN 25 – 125 Q [m<sup>3</sup>/h]max. 180 max. 85 H [m] p [bar] max. 10 T [°C] max. +90 Data for 50 Hz operation

Also available for 60 Hz

Horizontal self-priming volute casing pump in back pull-out design, single-stage, with open multi-vane impeller, long-coupled. ATEXcompliant version available.

#### Applications:

For pumping clean, contaminated or aggressive liquids not containing abrasive or solid substances.

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



## **Etaprime B**



DN 25 – 100 Q [m³/h] max. 130 H [m] max. 70 p [bar] max. 10 T [°C] -30 to +90 Data for 50 Hz operation

Also available for 60 Hz

Description:

Horizontal self-priming volute casing pump, single-stage, with open multi-vane impeller, close-coupled, pump shaft and motor shaft rigidly connected (BN). ATEX-compliant version available.

## Applications:

For pumping clean, contaminated or aggressive liquids not containing abrasive or solid substances.





## EZ B/L



25 – 50 Q [m³/h] max. 21 H [m] max. 160 p [bar] max. 16 T [°C] -5 to +80 max. 1500 n [rpm]

> 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.

### Applications:

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



# Submersible borehole pumps

## S 100D



Q [m<sup>3</sup>/h]max. 16 max. 300 H [m] T [°C]

> Data for 50 Hz operation Also available for 60 Hz

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.

#### Applications:

Domestic water supply, irrigation and spray irrigation, drawdown of groundwater levels, in fire-fighting systems, cooling circuits, fountains, pressure booster and air-conditioning systems.





Switchgear, Cervomatic

http://shop.ksb.com/catalog/k0/en/product/ES000563

#### **UPA 100C**

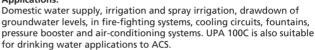


DN Q [m³/h] max. 15 H [m] max. 400 T [°C] max. +30 Data for 50 Hz operation

Also available for 60 Hz

Multistage centrifugal pump in ring-section design made of stainless steel for well diameters of 100 mm (4 inches) and above, available with singlephase AC motor or three-phase motor with motor lead.

#### Applications:







Switchgear, Cervomatic

## **UPA 150C**

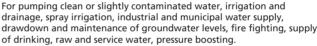


PumpDrive

DN 150 Q [m<sup>3</sup>/h]max. 79 max. 440 H [m] T [°C] max. +50

#### Description:

All-stainless steel single-stage or multistage centrifugal pump in ringsection design for well diameters of 150 mm (6 inches) and above.









## UPA 200, 200B, 250C



PumpDrive

DN Q [m<sup>3</sup>/h]H [m] T [°C]

200 - 250max. 330 max. 460

max. +50

Single-stage or multistage single-entry centrifugal pump in ring-section design for vertical or horizontal installation. Optionally available with lift check valve or connection branch.



For 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, firefighting systems, emergency water supply, etc.

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

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

## **UPA 300, 350**



PumpDrive

Q [m<sup>3</sup>/h]H [m] T [°C]

300 - 350

max. 840 max. 480 max. +50

#### Description:

Single-stage or multistage single-entry centrifugal pump in ring-section design for vertical or horizontal installation. Mixed flow hydraulic systems with impellers that can be turned down. Optionally available with lift check valve or connection branch.



For 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.



59

## **UPZ, BSX-BSF**



# **Deep-well turbine pumps**

## **BEV**

1	DN Q [m³/h] H [m] p [bar] T [°C] n [rpm]  Data for 50 Hz Also available	•	Description: Multistage deep-well turbine pump with closed impellers, column section with bearing assembly, shaft sleeve, shaft sealed by gland packing, driven by electric motor or diesel engine. ATEX-compliant version available.  Applications: For pumping clean water in agriculture, collection and irrigation, public water supply, industry, fire-fighting systems; main lubricating oil pump for diesel engines in shipbuilding (BEV-LO version).
			http://shop.ksb.com/catalog/k0/en/product/ES000716

# **High-pressure pumps**

## Comeo



/ DN	1 – 1¼ / 25 – 32
[m³/h]	max. 9
m]	max. 55
bar]	max. 10
°C]	-10 to +60
rpm]	max. 2900

Description:

Multistage, horizontal, close-coupled centrifugal pump

Applications

Water supply, small pressure booster systems, irrigation, cooling



Frequency inverter

http://shop.ksb.com/catalog/k0/en/product/ES000912

## **Movitec**



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

1 – 2 / 25 – 100 max. 113 max. 401 max. 40

max. 2900

Description:

Multistage vertical high-pressure centrifugal pump in ring-section design with suction and discharge nozzles of identical nominal diameters arranged opposite to each other (in-line design), close-coupled. ATEX-compliant version available.



Spray irrigation, irrigation, washing, water treatment, fire-fighting and pressure booster systems, hot water and cooling water recirculation, boiler feed systems, etc.





PumpMeter, PumpDrive, KSB SuPremE

http://shop.ksb.com/catalog/k0/en/product/ES000854

#### **Movitec VCI**





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

1¼ – 2 / 32 – 50 max. 23.8

> max. 249 max. 25 max. +120 max. 2900

Description:

Multistage vertical high-pressure immersion pump for installation on tanks or platforms.



Machine tools, industrial machine systems, condensate transport, paint shops.





PumpDrive, KSB SuPremE

http://shop.ksb.com/catalog/k0/en/product/ES000870

## Multitec





#### Description:

Applications:

Multistage centrifugal pump in ring-section design. Horizontal installation in 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 discharge nozzles can be turned in steps of 90°. ATEX-compliant and ACS-compliant versions available.





Water and drinking water supply systems, industry, pressure booster systems, irrigation systems, power stations, heating, filter, fire-fighting, reverse osmosis and snow-making systems, washing plants, etc.

# **Axially split pumps**

## **Omega**



DN 80 – 350
Q [m³/h] max. 2880
H [m] max. 210
p [bar] max. 25
T [°C] max. +140
n [rpm] max. 3500

Data for 50 Hz and 60 Hz operation Higher ratings possible upon request. Description:

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

#### Applications:

For 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.

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





PumpMeter, PumpDrive

**RDLO** 



> Data for 50 Hz and 60 Hz operation Higher ratings possible upon request.

PumpMeter, Frequency inverter

#### Description:

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

#### Applications:

For 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.

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



**RDLP** 



DN 350 – 1200
Q [m³/h] max. 18000
H [m] max. 550
p [bar] max. 64
T [°C] max. +80
n [rpm] max. 1800

Data for 50 Hz and 60 Hz operation Higher ratings possible upon request. 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 ANSI.

#### Applications:

For pumping water with a low solids content, e.g. in waterworks and long-distance water supply.



PumpMeter, Frequency inverter

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

# **Hygienic pumps**

## **Vitachrom**



DN 50 – 125
Q [m³/h] max. 340
H [m] max. 100
p [bar] max. 12
T [°C] max. +140

Data for 50 Hz operation Also available for 60 Hz

#### 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.



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

http://shop.ksb.com/catalog/k0/en/product/ES00003



PumpDrive, KSB SuPremE

## **Vitacast**



DN 25 – 150 Q [m³/h] max. 560 H [m] max. 100 p [bar] max. 10 T [°C] max. +140

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

Description:

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. ATEX-compliant version available.



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

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

PumpDrive

## **Vitaprime**



DN 40 - 80
Q [m³/h] max. 55
H [m] max. 45
p [bar] max.10
T [°C] max. +140

Data for 50 Hz operation

Also available for 60 Hz

Other ratings possible on request

Description:

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 of 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.

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



PumpDrive

## Vitastage



Q [m³/h] max. 40 H [m] max. 150 p [bar] max. 16 T [°C] max. +140

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

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/SIP-compatible. All materials comply with FDA standards and EN 1935/2004. Trolley also available among other accessories.

Applications:

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



PumpDrive

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

## Vitalobe



DN 25 – 200 (1" – 8")
Q [m³/h] max. 300
H [m] max. 200
p [bar] max. 30
T [°C] -40 to +200
Viscosity [cP] max. 200000

Data for 50 Hz operation

Also available for 60 Hz

Other ratings possible on request

#### 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.

http://shop.ksb.com/catalog/k0/en/product/ES000847



PumpDrive

# Pumps for power station conventional islands

## CHTA / CHTC / CHTD



DN 100 – 500
Q [m³/h] max. 3700
H [m] max. 5300
p [bar] max. 560
T [°C] max. +210
n [rpm] max. 6750

Also available for 60 Hz Higher ratings possible upon request. Description:

Horizontal high-pressure barrel-type pumps with radial impellers, singleentry and double-entry, multistage, with flanges or weld end nozzles to DIN and ANSI

#### Applications:

For 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/ES000239



#### HGB / HGC / HGD



DN 40 – 400
Q [m³/h] max. 2300
H [m] max. 5300
p [bar] max. 560
T [°C] max. +210
n [rpm] max. 7000

Also available for 60 Hz Higher ratings possible upon request. Description:

Horizontal radially split ring-section pump with radial impellers, singleentry or double-entry, multistage.

#### Applications:

For pumping feed water and condensate in power stations and industrial plants, pressurised water generation for bark peeling and descaling units, snow guns, etc.



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

#### **HGM**



DN 25 – 100
Q [m³/h] max. 274
H [m] max. 1400
p [bar] max. 140
T [°C] max. +160
n [rpm] max. 3600

Higher ratings possible upon request

Description:

Horizontal radially split product-lubricated multistage ring-section pump with radial impellers, axial and radial single-entry inlet.

#### Applications:

For pumping feed water in power stations, boiler feed systems and condensate transport in industrial plants.



## YNK



DN 125 – 600
Q [m³/h] max. 4500
H [m] max. 370
p [bar] max. 40
T [°C] max. +210
n [rpm] max. 1800
Higher ratings possible upon request.

Description:

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

#### Applications:

For pumping feed water in power stations and industrial plants.



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

## **LUV / LUVA**



DN 100 – 550
Q [m³/h] max. 7000
H [m] max. 300
p [bar] max. 350
T [°C] max. +380
n [rpm] max. 3600

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

Description:

Vertical spherical casing pump, radial impellers, single-entry, single- to three-stage. 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 combined-circulation boilers for very high pressures and in solar power towers.



#### **WKTB**



 $\begin{array}{lll} DN & 150-300 \\ Q \ [m^3/h] & max. \ 1500 \\ H \ [m] & max. \ 370 \\ p \ [bar] & max. \ 40 \\ T \ [^{\circ}C] & max. \ +140 \\ n \ [rpm] & 1500 \\ \end{array}$ 

Data for 50 Hz operation Higher ratings possible upon request. Description:

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

#### Applications:

For pumping condensate in power stations and industrial plants.



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

## SEZ / SEZT / PHZ / PNZ



Q [m³/h] max. 80000
H [m] max. 120
T [°C] max. +40
n [rpm] max. 980

Data for 50 Hz operation
Also available for 60 Hz

Higher ratings possible upon request.

Description:

Vertical tubular casing pump with open mixed flow impeller (SEZ), mixed flow 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.

Applications:

For 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 350 - 800
Q [m³/h] max. 9000
H [m] max. 50
p [bar] max. 10
T [°C] max. +60
n [rpm] max. 1500

rpm] max. 150

Data for 50 Hz operation

Also available for 60 Hz

Higher ratings possible upon request.

**Description:** 

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

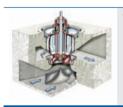


Irrigation and drainage systems, stormwater pumping stations, pumping raw and clean water, water supply, cooling water.



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

#### **Beveron**



Q [m³/h] H [m]

m] max. 27

Data for 50 Hz operation

Also available for 60 Hz

Higher ratings possible upon request.

Description:

max. 30

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

Applications:

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 350 – 1200
Q [m³/h] max. 21600
H [m] max. 50
p [bar] max. 10
T [°C] max. +105
n [rpm] max. 1480

Data for 50 Hz operation

Also available for 60 Hz

Higher ratings possible upon request

Description:

Long-coupled volute casing pump, single-stage, in back pull-out design. **Applications:** 

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



# **Pumps for nuclear power stations**

## **RER**



DN max. 800
Q [m³/h] max. 40000
H [m] max. 140
p [bar] max. 175
T [°C] max. +350
n [rpm] max. 1800
Available for 50 Hz and 60 Hz

Higher ratings possible upon request.

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:

Reactor coolant recirculation in nuclear power stations.



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

#### **RSR**



DN max. 750
Q [m³/h] max. 24000
H [m] max. 215
p [bar] max. 175
T [°C] max. +350
n [rpm] max. 1800

Available for 50 Hz and 60 Hz

Higher ratings possible upon request

Description:

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

Applications:

Reactor coolant recirculation in nuclear power stations.



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

## **RUV**



DN max. 650
Q [m³/h] max. 22000
H [m] max.111
p [bar] max. 155
T [°C] max. +350
n [rpm] max. 1800
Available for 50 Hz and 60 Hz

Higher ratings possible upon request

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.



Reactor coolant recirculation in generation III+ nuclear power stations.



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

## **PSR**



DN max. 600
Q [m³/h] max. 9000
H [m] max. 45
p [bar] max. 75
T [°C] max. +300
n [rpm] max. 2000

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 125 - 500
Q [m³/h] max. 6500
H [m] max. 1000
p [bar] max. 150
T [°C] max. +210
n [rpm] max. 6500

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

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

#### Applications:

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



## **LUV Nuclear**



DN 40 – 600
Q [m³/h] max. 7000
H [m] max. 300
p [bar] max. 320
T [°C] max. +430

Available for 50 Hz and 60 Hz

Higher ratings possible upon request.

Description:

Vertical pump with integrated motor, single-entry, single- to three-stage. Suitable for very high inlet pressures and temperatures. Integrated wet winding motor to VDE. Product-lubricated bearings, no oil supply systems required. Design to ASME Section 3, KTA, etc.

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 max. 150
Q [m³/h] max. 300
H [m] max. 2100
p [bar] max. 220
T [°C] max. +180
n [rpm] max. 8000

Higher ratings possible upon request.

Description:
Horizontal multistage barrel pull-out pump.

Applications:
Core flooding, emergency cooling and residual heat removal systems, chemical and volume control systems, control rod drive systems, high-pressure and medium-pressure safety injection systems, emergency feed water systems, start-up and shut-down feed water systems, high-pressure

charging

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



## **RVM**



DN max. 85
Q [m³/h] max. 50
H [m] max. 2000
p [bar] max. 200
T [°C] max. +100
n [rpm] max. 6000

Available for 50 Hz and 60 Hz

Higher ratings possible upon request.

Description:

Vertical multistage barrel pull-out pump.

Applications:

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 max. 500
Q [m³/h] max. 6000
H [m] max. 190
p [bar] max. 63
T [°C] max. +200
n [rpm] max. 3600

Description:

Horizontal annular casing pump with forged or cast pressure boundary and diffuser.

Applications:

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



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

## **RVR**



DN max. 500
Q [m³/h] max. 6000
H [m] max. 190
p [bar] max. 63
T [°C] max. +200
n [rpm] max. 3600

Description:

Vertical annular casing pump with forged or cast pressure boundary and diffuser.

Applications:

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



# Pumps for desalination by reverse osmosis

## **RPH-RO**



DN 100 - 350 Q [m<sup>3</sup>/h]max. 2500 H [m] max. 110 p [bar] max. 80 T [°C] max. +40

> Data for 50 Hz operation Also available for 60 Hz

Description:

Horizontal radially split volute casing pump for dry installation, made of super-duplex stainless steel.

Applications:

Booster pump for RO seawater desalination systems.



http://shop.ksb.com/catalog/k0/en/product/ES000570

## **HGM-RO**



DN 65 – 250 Q [m<sup>3</sup>/h]max. 1500 H [m] max. 950 p [bar] max. 120 T [°C] max. +40 max. 3600 n [rpm]

Also available for 60 Hz Higher ratings possible upon request. Description:

Horizontal radially split product-lubricated multistage ring-section pump with radial impellers and plain bearings, axial and radial single-entry inlet. Duplex stainless steel variant or super duplex stainless steel variant, also suitable for chilled water applications.



High-pressure pump for RO seawater desalination systems.



http://shop.ksb.com/catalog/k0/en/product/ES000237

#### Multitec-RO



DN 50 – 150 Q [m<sup>3</sup>/h]max. 850 H [m] max. 1000 max. 100 p [bar] T [°C] max. +45 n [rpm] max. 3500

Description:

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.



High-pressure pump for RO seawater desalination systems.





PumpDrive, KSB SuPremE

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

## Salino Pressure Center



Q [m³/h] 8.3 - 23p [bar] max. 80 T [°C] max. +50 n [rpm] max. 1750 Data for 50 Hz and 60 Hz operation

Description: Axial piston pump with integrated energy recovery device in forged duplex stainless steel. Product-lubricated (oil-free).

Seawater desalination by reverse osmosis (RO) for small and medium-sized systems.



# Positive displacement pumps

## RC / RCV



DN Q[m<sup>3</sup>/h]max. 78 H [m] max. 100 p [bar] max. 10 T [°C] +5 to +80 n [rpm] max. 1500 Data for 50 Hz operation

Also suitable for 60 Hz operation

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

Applications:

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



# Fire-fighting systems

#### **EDS**



DN 32 – 300 Q [m<sup>3</sup>/h]max. 840 H [m] max. 140 p [bar] max. 16 T [°C] +5 to +50 n [rpm] max. 3000 Data for 50 Hz operation

Also suitable for 60 Hz operation

Description:

Automatic fire-fighting system consisting of 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, FM, etc.

Applications:

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



http://shop.ksb.com/catalog/k0/en/product/ES000726

## DU / EU



DN 32 – 350 Q [m<sup>3</sup>/h]max. 2500 H [m] max. 150 p [bar] max. 25 T [°C] +5 to +50 n [rpm] max. 3000 Data for 50 Hz operation

Also suitable for 60 Hz operation

Description:

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, FM, etc.

Applications:

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



69 Automation

# **Control units**

## **Controlmatic E**



No. of pumps Voltage [V]

max. 1 1~230

Description: Automatic control unit for pressure-controlled starting, flow-controlled

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

stopping and monitoring of a single pump

Applications:

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

and \$ 100D.



**Controlmatic E.2** 



No. of pumps Voltage [V]

max. 1 1~230 Description:

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

Applications:

For water supply systems in combination with Multi Eco, Multichrom S, Ixo, UPA 100C, S 100D.



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

#### Cervomatic EDP.2



No. of pumps Voltage [V]

max. 1 1~230 / 3~400

Automatic control unit for pressure-controlled starting and either pressure-controlled or flow-controlled stopping and monitoring of a single pump.

Applications:

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



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

## LevelControl Basic 2



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

max. 22 1~230 / 3~400

max. 2

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

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] Voltage [V]

max. 1 1~230 / 3~400 **Description:** 

The control unit from KSB is suitable for level control and protection of submersible borehole pumps, submersible motor pumps and dry-installed pumps with single-phase AC motors 1~ 230 V or three-phase motors  $3\sim 230/400~V/50~Hz$ . The motor is started DOL. Enclosure: IP56, dimensions:  $205 \times 255 \times 170$  mm (H × W × D).

Applications:

Water supply systems in conjunction with UPA 100C, S 100D and UPA 150C.



## **Hyatronic N**



 No. of pumps
 max. 6

 P [kW]
 22

 Voltage [V]
 3~400

Higher ratings and other mains voltages available on request

Description:

Pump control system in control cabinet for cascade starting and stopping of 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 max. 1
Type Amacan
Voltage [V] 230 V AC

Description:

Monitoring system for submersible motor pumps, with tripping function.

# **Control system**

## **BOA-Systronic**



 No. of pumps
 max. 1

 PN
 6 / 10 / 16

 DN
 20 - 200

 Voltage [V]
 24 V AC

 T [°C]
 +20 to +120

Higher ratings possible upon request.

#### Description

Energy-saving system for the coordinated operation of pump and control valve. The system provides an all-in solution designed to access untapped hydraulic savings potential. Irrespective of the pump technology used, it allows savings of 50 % in pump electricity while also reducing primary energy costs thanks to lower return flow temperatures. The system can be combined with all control systems and pumps with a 0-10 V control input. Straightforward integration in automation systems with optional BACnet gateway.



Supply temperature control in HVAC installations with volume flow rates of 0.5 to 185 m³/h and temperature differentials of 3 to 30 K. Threaded (DN20) or flanged (DN25-DN200) line connections; suitable for upgrading installed systems and for new systems, for connection to all types of heat generators (boiler or district heating), all main feed manifolds, all control systems, all supply temperatures.









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