Submersible Waste Water Pump

Ama-Drainer 80/100

Type Series Booklet

KSB

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Type Series Booklet Ama-Drainer 80/100

Contents

Building Services: Drainage

Drainage Pumps / Waste Water Pumps

Ama-Drainer 80/100

Main applications

- Drainage
- Disposal
- Drainage systems
- Lowering groundwater levels
- Maintaining groundwater levels
- Draining of pits, shafts, etc.
- Building site drainage
- Construction pit drainage
- Emergency pump in the event of flooding

Fluids handled

Standard design

- Chemically neutral waste water
- Slightly contaminated waste water
- Solid particles with a particle size of up to 12 mm

Variants B / BH

In addition to the standard design:

- Abrasive fluids
- Water containing sand

Operating data

Operating properties

Characteristic		Value
Flow rate	Q [m³/h]	≤ 130
	Q [l/s]	≤ 36
Head	H [m]	≤ 26
Fluid temperature	T [°C]	≤ +50 (continuous duty, standard)
		≤ +40 (continuous duty, variant B/BH)
		≤ +90 (short-time duty, ≤ 3 minutes)
Immersion depth	ET [m]	≤ 7 (standard)
		≤ 10 (variant B/BH)

Design details

Design

- Fully floodable submersible motor pump
- Close-coupled design
- Single-stage
- To EN 12050-2
- Vertical discharge nozzle
- With or without level control
- Wetted parts made of materials coated with anti-corrosive

Installation

- Vertical installation
- Wet-installed transportable model
- Wet-installed stationary model

Drive

- Surface-cooled three-phase motor
- DOL starting or star-delta starting
- Motor winding to IEC 60038
- Motor design to EN 60043 T1/IEC 34-1
- Thermal class B
- Enclosure IP68 (permanently submerged) to EN 60529 / IEC 529
- Integrated temperature switches

Shaft seal

- Pump end: 1 mechanical seal
- Drive end: 1 mechanical seal
- Liquid reservoir between the seals for cooling and lubrication

Impeller type

- Open multi-vane impeller

Bearings

- Maintenance-free
- Grease-packed rolling element bearings sealed for life

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Electrical connection

Ama-Drainer 80:

- Ready to be plugged in
- Power cable and CEE plug with phase inverter
- Phase sequence indicator
- Over-current trip

Ama-Drainer 100:

- Power cable with free cable ends
- Control unit available as an accessory

Standard design:

- 10-metre power cable

Variants B / BH

- 20 m power cable

Designation

Example: Ama-Drainer B 80-40 S

Designation key

Code	Description	
Ama-Drainer	Type series	
B	Design	
	B	Wear-resistant variant
	BH	Wear-resistant variant with impeller made of Norihard white cast iron
	-[1)]	Variant for waste water (standard design)
80	Nominal discharge nozzle diameter	
	80	80 mm
	100	100 mm
40	Motor rating [kW x 10]	
	40	4.0 kW
	75	7.5 kW
S	Float switch	
	S	With float switch
	N	Without float switch

Materials

Overview of available materials

Component	Standard material variant	Material variant B/BH
Pump casing	Grey cast iron EN-GJL-250 (EN-GJL-250)	Grey cast iron EN-GJL-250 (EN-GJL-250) with rubber insert
Suction cover	Steel, CK 45 N	
Pump foot	Polystyrene	
Impeller	Grey cast iron EN-GJL-250 (EN-GJL-250)	B: Grey cast iron EN-GJL-250 (EN-GJL-250) BH: Norihard NH 15 3 (G-X250CrMo153)
Profile joint, O-ring	Nitrile butadiene rubber	
Mechanical seal	Tungsten carbide	
Stator case, motor housing	Aluminium, plastic-coated	
Rotor shaft	Chrome steel (1.4021)	
Motor power cable	Polychloroprene rubber (CR)	
Float switch (float)	Polypropylene (PP)	-
Oil supply	Thin-bodied paraffin	

Product benefits

- Ready-to-connect, easy installation and commissioning
- Reliable shaft sealing by SiC/SiC mechanical seal with good dry-running characteristics, with oil reservoir
- Maintenance-free with grease-packed bearings sealed for life
- Suitable for handling water containing sand (variant B/BH)

Product information

Product information as per Regulation No. 1907/2006 (REACH)

For information as per chemicals Regulation (EC) No. 1907/2006 (REACH), see http://www.ksb.com/reach.

1) Blank

Certifications

Overview

Label	Effective in:
 Type Tested and Monitored www.tuv.com ID 0217007933	Europe

Overview of product features / selection tables

Overview of fluids handled

The table of fluids handled is a selection aid for different applications. It serves as guidance and is based on long-standing experience. The data are reference values and are not to be considered generally binding recommendations. They shall not be the basis for warranty claims. Please contact your nearest sales branch for in-depth advice.

Table of fluids handled
✗ = standard

Fluid handled	Temperature	Percentage	Material variant	
	[°C]	[%]	Standard	B/BH
Ammonium hydroxide NH_4OH	≤30	10	✗	-
Calcium hydroxide (milk of lime) $Ca(OH)_2$	≤30	-	-	✗
▪ Impeller made of grey cast iron	-	10	-	✗
▪ Impeller made of Norihard	-	25	-	✗
Calcium nitrate (acid-free) $Ca(NO_3)_2$	-	10	✗	-
Potassium carbonate	-		✗	-
Potassium hydroxide KOH	≤30	10	✗	-
Potassium nitrate (acid-free) KNO_3	-	10	✗	-
Magnesium sulphate (acid-free) $MgSO_4$	-	10	✗	-
Sodium hydroxide NaOH	≤30	10	✗	-
Sodium carbonate Na_2CO_3	-	10	✗	-
Sodium nitrate (acid-free)	-	-	✗	-
Sodium perborate	-	-	✗	-
Sodium sulphate (acid-free) Na_2SO_4	-	10	✗	-
Trisodium phosphate	-	-	✗	-
Washing machine lye	-	-	✗	-
Water				
▪ Drainage water	-	-	✗	✗
▪ Fire-fighting water	-	-	✗	✗
▪ Heating water	-	-	✗	-
▪ Boiler water	-	-	✗	-
▪ Cooling water	-	-	✗	-
▪ Stormwater	-	-	✗	✗
▪ Raw water	-	-	✗	✗
▪ Partly desalinated water	-	-	✗	-
Waste water containing solids	-	-	-	✗
Waste water containing abrasive sand	-	-	-	✗
▪ Impeller made of grey cast iron ≤ 2 g/l	-	-	-	✗
▪ Impeller made of Norihard ≤ 10 g/l	-	-	-	✗
Building site drainage	-	-	-	✗
Construction pit drainage	-	-	-	✗
Wash water in sugar mills	-	-	-	✗
Waste water containing dust/ash	-	-	-	✗
Lime water	-	-	-	✗
▪ Impeller made of Norihard ≤ 5 g/l	-	-	-	✗
Emergency pumping (floods)	-	-	-	✗

Special programme (upon request)

For improved fire protection in building services. Variant: power supply cables free from halogen and noxious substances

Technical data

Material variants Standard/B/BH

Size	Free passage	P_1	P_N	I_N 3~400 V	Power cable H07RN-F		Level control H07RN-F		Mat. No.	[kg]
	[mm]	[kW]	[kW]	[A]	[m]	[mm²]	[m]	[mm²]		
Standard variant										
80-40 N	12	5,10	4,00	8,5	10	7×1,5	-	-	29117702	59
80-40 S	12	5,10	4,00	8,5	10	7×1,5	0,5	3×1,0	29117703	59,5
100-75 N	12	9,10	7,50	Y Δ 15,4	2×10	7×1,5 and 4×1,5	-	-	29117706	93
100-75 S	12	9,10	7,50	Y Δ 15,4	2×10		10	3×1,0	29117707	94,5
B: wear-resistant variant										
B 80-40 N	12	5,10	4,00	8,5	20	7×1,5	-	-	29117722	65
B 80-40 S	12	5,10	4,00	8,5	20	7×1,5	0,5	3×1,0	29117723	65,5
B 100-75 N	12	9,10	7,50	Y Δ 15,4	2×20	7×1,5 and 4×1,5	-	-	29117726	106
B 100-75 S	12	9,10	7,50	Y Δ 15,4	2×20		20	3×1,0	29117727	109
BH: wear-resistant variant with impeller made of Norihard white cast iron										
BH 80-40 N	12	5,10	4,00	8,5	20	7×1,5	-	-	29127336	65
BH 80-40 S	12	5,10	4,00	8,5	20	7×1,5	0,5	3 × 1.0	29127337	65,5
BH 100-75 N	12	9,10	7,50	Y Δ 15.4	2×20	7×1,5 and 4×1,5	-	-	29127338	106
BH 100-75 S	12	9,10	7,50	Y Δ 15.4	2×20		20	3×1,0	29127339	109

Special connection elbow see pump accessories (⇨ Page 12)

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Characteristic curves

Ama-Drainer 80/100; n = 2800 rpm, multi-vane impeller

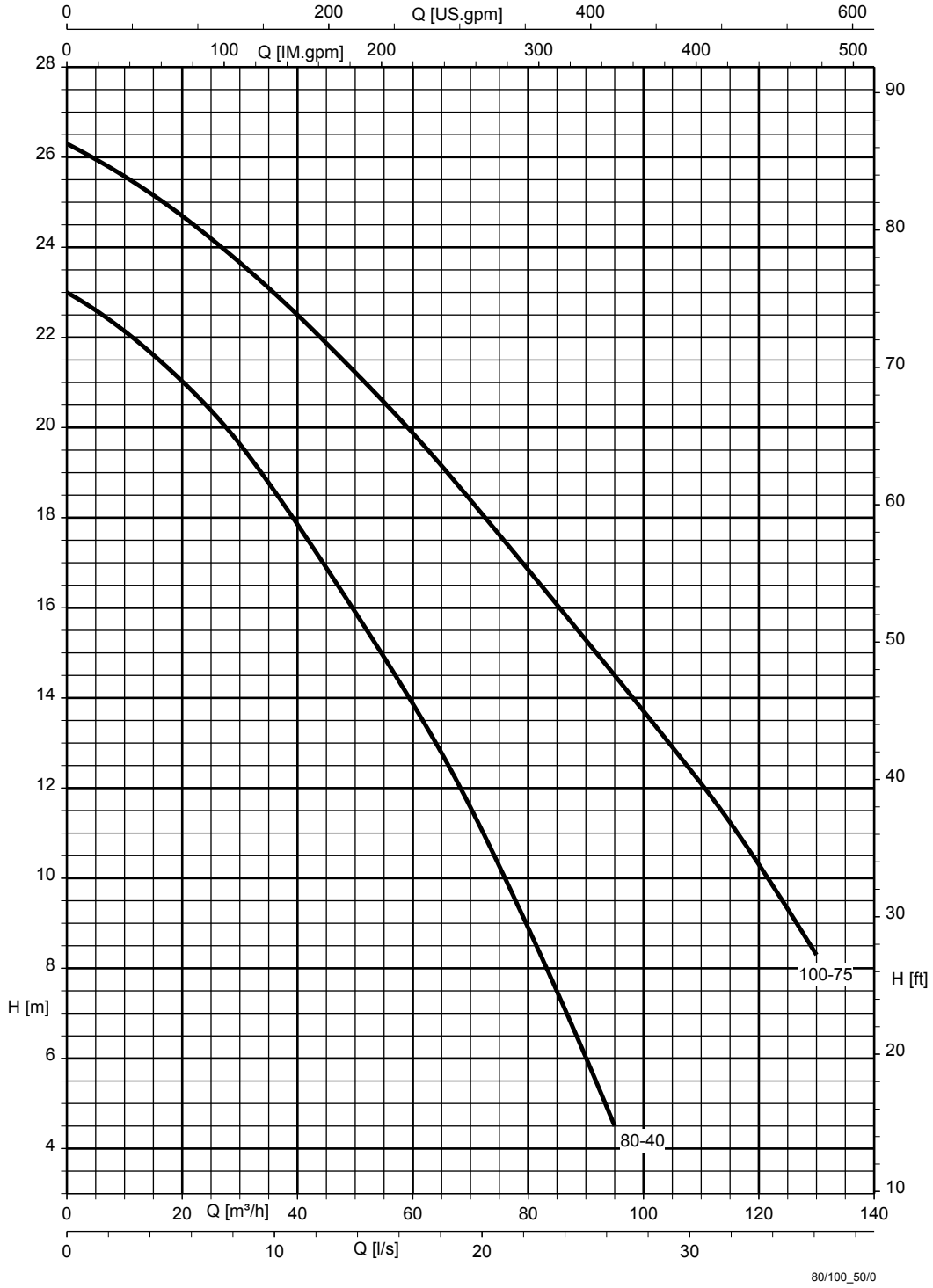
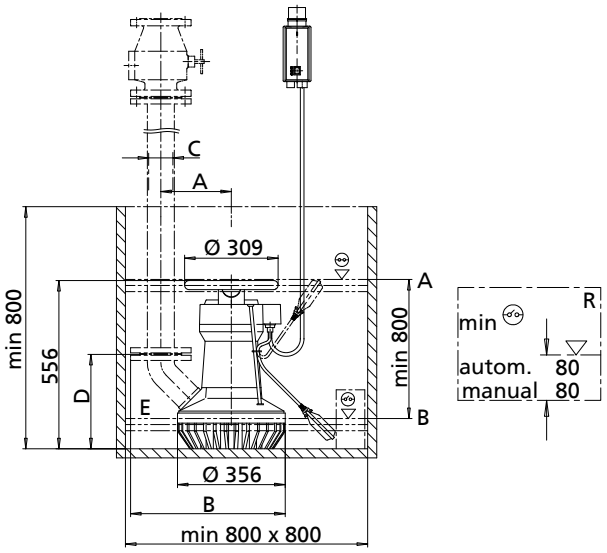


Fig. 1: Free passage: Ama-Drainer 80/100 = 12 mm
Performance tolerance to ISO 2548 Class C (water under standard conditions)

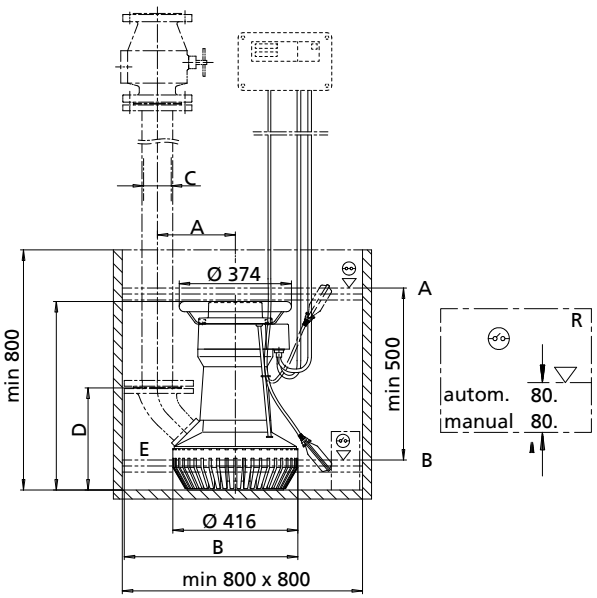
Dimensions and connections

Ama-Drainer 80/100

80 SD



100 SD



R	Residual water level	"A"	Start-up level
a)	Automatic	"B"	Stop level
b)	Manual	E	Vent hole

Dimensions

Connection	A		B		C		D	
	80	100	80	100	80	100	80	100
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
Rp 2 $^1/_2$	223	-	445	-	Rp 2 $^1/_2$	-	314	-
Rp 4	-	275	-	546	-	Rp 4	-	383
DN 80, PN 16	233	-	511	-	80	-	312	-
DN 100, PN 16	-	260	-	578	-	100	-	340

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Installation example of a dual-pump station

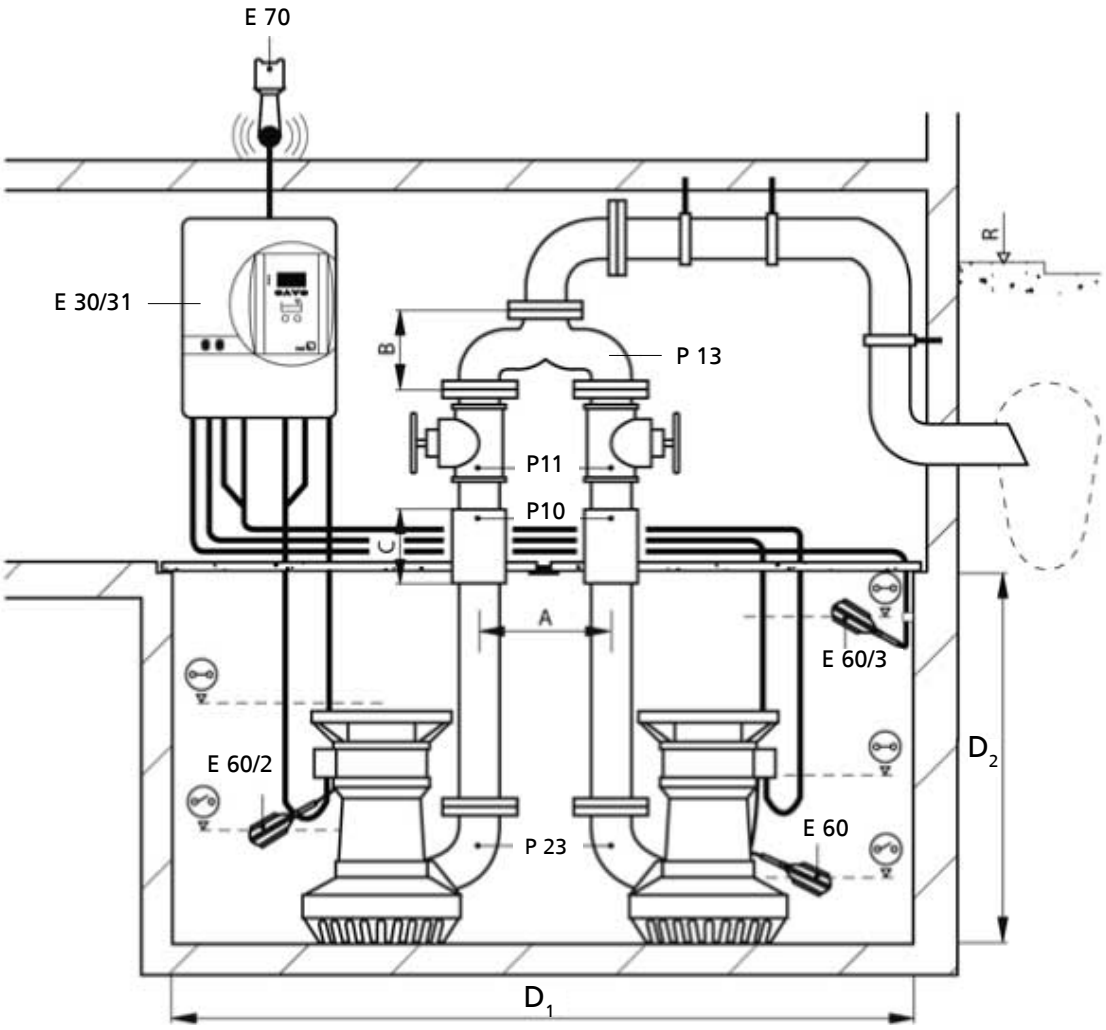

Fig. 2: Position of float switches in a dual-pump station

P 10	Check valves	E 60	Float switch, base load
P 11	Gate valves	E 60/2	Float switch, peak load
P 13	Y-pipe	E 60/3	Float switch, high water alert
P 23	Connection elbows	E 70	Horn
E 30/31	Control unit	R	Flood level

Dimensions

Size	A			B			C	D_1	D_2
	DN 65	DN 80	DN 100	DN 65	DN 80	DN 100			
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
80	325	350	-	230	260	-	260	1690 × 800	1000
100	-	-	325	-	-	295	300	1690 × 800	1000

Accessories

Pump accessories

Overview of pump accessories

Item	Description	Connection	Immersion depth	Ama-Drainer		Mat. No.	[kg]
			[m]	80	100		
P10 	Check valve Grey cast iron, full bore, lifting device, flanges drilled to DIN 2501, PN 16	DN 65	-	✗	-	48829253	13,74
		DN 80	-	✗	-	48829254	16,5
		DN 100	-	-	✗	48829255	20,9
P10 	Check valve (KSB's choice) Grey cast iron, full bore, lifting device, flanges drilled to DIN 2501, PN 16 (not for sewage lifting units)	DN 65	-	✗	-	01056711	16
		DN 80	-	✗	-	01056712	21
		DN 100	-	-	✗	01056713	30,9
P11 	Shut-off valve (KSB's choice) PN 10	DN 65	-	✗	-	01056707	17
		DN 80	-	✗	-	01056708	18,9
		DN 100	-	-	✗	01056709	22,5
P12 	Installation accessories for flange connection Consisting of: 4 or 8 hexagon head bolts with nuts and 1 sealing element	DN 65	-	✗	-	18072643	0,67
		DN 80	-	✗	✗	18072644	1
		DN 100	-	-	✗	18060163	1,4
P13 	Y-pipe For dual-pump sets, grey cast iron, with hexagon head bolts, nuts and gaskets; flanges drilled to DIN 2501	DN 65	-	✗	-	40000690	18,3
		DN 80	-	✗	-	48936065	25
		DN 100	-	-	✗	40000692	31
P23 	Connection elbow[2)] Grey cast iron, PN 16	IG Rp 2 1/2	-	✗	-	11150456	2,7
		DN 65	-	✗	-	11150457	5,8
		DN 80	-	✗	-	11150458	5,8
		IG Rp 4	-	-	✗	11150459	5
		DN 100	-	-	✗	11150869	8
P24 	Storz rigid coupling External thread to DIN ISO 228/1, aluminium alloy	B 75 / G 2 1/2	-	✗	-	00524371	0,4
		A - G 4	-	-	✗	00522546	1
P25 	Storz rigid coupling Flange connection to DIN 2501, PN 16, aluminium / steel	DN 65 / B 75	-	✗	-	18040148	3,5
		DN 80/B 75	-	✗	-	18072642	3,5
		DN 100/A 110	-	-	✗	18060162	5
P26 	Storz hose coupling Flange connection, aluminium alloy	B 75 (DIN 14322)	-	✗	-	00520454	0,7
		A 110 (DIN 14323)	-	-	✗	00522313	1,5
P27 	Hose clip DIN 3017, chrome steel	AL 70-90 B (DIN 3017)	-	✗	-	01063363	0,032
		AL 110 - 120 B	-	-	✗	00520853	0,1
P28 	Plastic hose DN 75, with integrated B couplings, DIN 14811	B 75, 20 m	-	✗	-	00522265	10
	Plastic hose DN 75, supplied by the metre, without couplings (max. 30 m), DIN 14811	B 75, per metre	-	✗	-	00540104	0,3
	Plastic hose DN 100, without couplings (max. 30 m), DIN 14811	Per metre	-	-	✗	00523966	0,5

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2) Must be specially ordered.

Control units / switchgear

Overview of control units and switchgear

Item	Description	400 V	Type	Ama-Drainer		Mat. No.	[kg]
				80	100		
E2 	Motor protection switchgear MSD Float switch Dimensions (H × W × D): 100 × 170 × 112 mm	✘	100.1	✘	-	19070119	1
E10 	LevelControl Basic 2 control unit for single-pump station Required in addition: 1 float switch or 4...20 mA sensor, optionally with master switch	✘	BC1 400 DFNO 100	✘	-	19073765	4,5
E12 	DOL starting, with manual-0-automatic selector switch, indicator lamps and control panel, high water alert, integrated alarm buzzer 85 dB(A), optional mains-independent alarm via rechargeable battery, operating hours counter / start-stop cycles per pump, voltage measurement, phase monitoring, pneumatic level measurement, indication of water level, volt-free contact for general fault message. Motor temperature warning (thermal circuit breaker) – self-acknowledging, motor leakage/moisture monitoring Dimensions (H × W × D): BC: 400 × 281 × 135 mm BS: 600 × 400 × 200 mm	✘	BS1 400 SFNO 180	-	✘	19073795	20
E31 	LevelControl Basic 2 control unit for dual-pump station Required in addition: 1 float switch or 4 - 20 mA sensor, optionally with master switch DOL starting, with manual-0-automatic selector switch, indicator lamps and control panel, high water alert, integrated alarm buzzer 85 dB(A), optional mains-independent alarm via rechargeable battery, operating hours counter/start-stop cycles per pump, voltage measurement, phase monitoring, pneumatic level measurement, indication of water level, volt-free contact for general fault message. Motor temperature warning (thermal circuit breaker) – with automatic reset/re-start function Motor leakage/moisture monitoring Dimensions (H × W × D): BC: 400 × 281 × 135 mm BS: 800 × 600 × 200 mm	✘	BC2 400 DFNO 100	✘	-	19073779	4,7
E32 		✘	BS2 400 SFNO 180	-	✘	19073837	30
Optional components for LevelControl Basic 2[3]							
O1 	Master switch for LevelControl Basic 2 BC, fitted 3-pole, 20 A, lockable	-	-	✘	-	01143084	0,2
O2 -	Control cabinet heating for type BS, fitted with 20 W thermostat	-	-	-	✘	19074269	0,3

Optional components are not EDI-compatible (configurable range)

LevelControl with float switch(es)

Single pump:

- At least 1 float switch for pump On/Off
- At least 2 float switches for pump On/Off and high water alert

Dual pump:

- At least 2 float switch for pump On/Off
- At least 3 float switches for pump On/Off and high water alert

3) Process optional components via KSB EasySelect, otherwise they might be supplied but not fitted.

Twin operation with two level switches at different levels

If two pumps are used in the same location, we recommend operating them via the LevelControl unit. This enables automatic alternating, peak load and stand-by operation. External alarm switchgear will not be required as LevelControl features an integrated alarm function.

Connection to the control station

With the exception of MSD, each control unit features a volt-free contact for transmitting the general fault message to the control station.
Optional components are not EDI-compatible (configurable range).

LevelControl Basic 2 control units

Symbols key

Symbol	Description
o	Optional
✗	Control unit feature
-	Not a control unit feature

Comparison of functions of single-pump stations and dual-pump stations

Feature	Single-pump station Float switches incl. 4-20 mA		Dual-pump station Float switches incl. 4-20 mA	
400 V: 6-10 A	BC1 400 $_{DFNO}$ 100	-	BC2 400 $_{DFNO}$ 100	-
400 V: 13-18 A	-	BS1 400 $_{SFNO}$ 180	-	BS2 400 $_{SFNO}$ 180
Functions				
Draining	✗	✗	✗	✗
Filling via float switch(es)	✗	✗	✗	✗
Stand-by pump: 1 pump redundant	-	-	✗	✗
Pump changeover after each start	-	-	✗	✗
Pump changeover in the case of a pump fault	-	-	✗	✗
Peak load operation function	-	-	✗	✗
Runtime limitation	✗	✗	✗	✗
OFF via after-run time	✗	✗	✗	✗
OFF via level	✗	✗	✗	✗
Functional check run after idle period	✗	✗	✗	✗
Display and operation				
7-segment display	✗	✗	✗	✗
Indication of water level	Switching points	Switching points	Switching points	Switching points
Operation/fault/pump running (displayed for each pump)	Multicolour LED	Multicolour LED	Multicolour LED	Multicolour LED
General fault (traffic light)	LED	LED	LED	LED
High water	LED	LED	LED	LED
Mains voltage	✗	✗	✗	✗
Operating hours of each pump	✗	✗	✗	✗
Operating hours of the system	-	-	-	-
Starts per pump	✗	✗	✗	✗
Rotary field recognition of mains power supply	✗	✗	✗	✗
Phase monitoring	✗	✗	✗	✗
Change of switching level	-	-	-	-
Housing H × W × D [mm], IP54				
Plastic 400 × 281 × 135	✗	-	✗	-
Sheet steel 400 × 300 × 155	-	✗	-	-
Sheet steel 800 × 600 × 200	-	-	-	✗
Built-in components				
Master switch (lockable)	o	✗	o	✗
Manual-0-automatic selector switch per pump	✗	✗	✗	✗
DOL starting	✗	-	✗	-
Star-delta starting	-	✗	-	✗
Motor protection				
Motor protection switch	✗	✗	✗	✗
Motor temperature warning input	✗	✗	✗	✗
Motor temperature alert input	✗	✗	✗	✗

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Feature	Single-pump station Float switches incl. 4-20 mA		Dual-pump station Float switches incl. 4-20 mA	
Pump				
Thermal circuit breaker/bimetal	✗	✗	✗	✗
Optional components				
Rechargeable battery for powering the device	o	o	o	o
Control cabinet heating, type BS	-	o	-	o
Alarm equipment				
1 free alarm input	✗	✗	✗	✗
1 digital input for high water alert	✗	✗	✗	✗
Volt-free contact (changeover contact) for general fault message / "in operation" message	✗	✗	✗	✗
Piezo buzzer 85 dB(A)	✗	✗	✗	✗
Horn / alarm combination / alarm strobe light 12 V DC	o	o	o	o
Inputs/outputs				
Inputs for float switches	4	4	4	4
4-20 mA analog input	✗	✗	✗	✗
Pneumatic pressure sensor	-	-	-	-
Bubbler control with compressor up to 2 metres of water	-	-	-	-
Remote acknowledgement	✗	✗	✗	✗
12 V DC connection for horn, etc.	✗	✗	✗	✗
Sensors				
Float switch (NO contact)	o	o	o	o
F1 leakage sensor	o	o	o	o
Tools				
KSB ServiceTool for Windows XP	o	o	o	o

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Alarm switchgears for pumps, non-ATEX-compliant

AS 0/AS 1/AS 2/AS 4/AS 5

	Item	Description	Mat. No.	[kg]
	E50	Alarm switchgear AS 0 with circuit breaker, acoustic signal transmitter with 85 dB(A), green equipment-on lamp Plastic housing, IP20, H × W × D = 140 × 80 × 57 [mm]. Use float switch, F1 leakage sensor (item E64), M1 alarm contactor or signal relay of control unit as contactor.	29128401	0,5
	E51	Alarm switchgear AS 2 With circuit breaker, acoustic signalling device with 85 dB(A), green equipment-on lamp, volt-free contact for hook-up to a control station Plastic housing, IP20, H × W × D = 140 × 80 × 57 [mm]. Use float switch, F1 leakage sensor (item E64) or signal relay of control unit as contactor.	29128422	0,5
	E52	Alarm switchgear AS 4 with circuit breaker, acoustic signal transmitter with 85 dB(A), green equipment-on lamp, volt-free contact for hook-up to a control station, self-charging power supply unit for 5 hours of operation in the event of a power failure Plastic housing, IP20, H × W × D = 140 × 80 × 57 [mm]. Use float switch (E60), F1 leakage sensor (item E64) or signal relay of control unit as contactor.	29128442	0,5
	E53	Alarm switchgear AS 5 Mains-independent, with self-charging power supply unit for 10 hours of operation in the event of a power failure, mains pilot LED, fault indicator light, acknowledgement button, volt-free contact for hook-up to a control station, ready for connection with 1.8 m power cable and plug. ISO housing, IP41, H × W × D = 190 × 165 × 75 [mm]. Use float switch (E60) or signal relay of control unit as contactor.	00530561	1,7
	E55	Alarm switchgear AS 1 In IP30 ISO plug housing, mains-independent, with self-charging power supply unit for 5 hours of operation in the event of a power failure, acoustic signal transmitter 70 dB(A) with circuit breaker and integrated signal transmitter with 3-meter power cable, max. 60 °C, not suitable for steam and condensate. 1. High water alert by suspending the sensor in a (pump) sump above the pump start-up point. 2. Water alarm signal at a water level of only 1 mm, by placing the sensor on the floor in areas with a flooding or leakage risk, e.g. the cellar or next to the washing machine in the kitchen or bathroom.	00533740	0,9

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Control unit / switchgear accessories

Control unit / switchgear accessories

Item	Description	Power cable length	Ama-Drainer		Mat. No.	[kg]
		[m]	80	100		
E60 	Float switch with free cable end Function: circuit closed in upper float position (NO contact) Float switch housing: polypropylene Fluid temperature: 70 °C max. Power cable: H07RN-F3G1	3	✗	✗	11037742	0,5
		5	✗	✗	11037743	0,8
		10	✗	✗	11037744	1,3
		15	✗	✗	11037745	1,8
		20	✗	✗	11037746	2,4
		25	✗	✗	11037747	2,9
		30	✗	✗	11037748	3,4
E61 	Float switch with free cable end, oil-resistant Function: circuit closed in upper float position (normally open contact) Float switch housing: polypropylene Fluid temperature: 70 °C max. Power cable: PUR 3×1.0 mm²	5	✗	✗	11037753	0,8
		10	✗	✗	11037754	1,2
		20	✗	✗	11037755	2
E62 	Float switch with free cable end[4)] Function: circuit open in upper float position (NC contact) Float switch housing: polypropylene Fluid temperature: 70 °C max. Power cable: H07RN-F3G1	5	✗	✗	11037756	0,8
		10	✗	✗	11037757	1,4
		20	✗	✗	11037758	2,6
E64 	F1 leakage sensor Contactor for alarm switchgears AS 0, AS 2, AS 4 or as alarm transmitter for LevelControl Basic 2 Alarm transmission options: ▪ High water alert by suspending the sensor in a (pump) sump above the pump start-up point. ▪ Warning at a water level of 1 mm in areas with a flooding or leakage risk (e.g. in the cellar or next to the washing machine in the kitchen or bathroom) Max. 40 °C, not suitable for steam and condensate. Dimensions [mm]: 52 × 21 × 20 (H × W × D)	3 m	✗	✗	19072366	0,2
E70 	Horn, 12 V DC, 105 dB, 150 mA, IP54 Suitable for indoor installation and outdoor installation. Protect against moisture.	0.45 m	✗	✗	01086547	0,1
E80 	Safety switch STECKMAT Trips in approx. 0.03 seconds, from approx. 0.03 A 230 V / 10 A	-	✗	✗	00534217	0,5
E90 	Rechargeable battery retrofit kit for LevelControl Basic 2, type BC For powering the electronics, float switches, level sensors, internal pressure sensor and the alarm equipment (buzzer, horn, alarm combination). For single-pump stations and dual-pump stations Scope of supply: 2 rechargeable batteries (6 V, 1.3 Ah) and charge controller	-	✗	-	19074194	0,8
E91 	Rechargeable battery retrofit kit for LevelControl Basic 2, type BS For powering the electronics, float switches, level sensors, internal pressure sensor and alarm equipment (buzzer, horn). For single-pump stations and dual-pump stations Scope of supply: 1 rechargeable battery (12 V, 1.2 Ah) and charge controller	-	-	✗	19074199	1

4) Not suitable for LevelControl Basic 2.

Exploded view and list of components

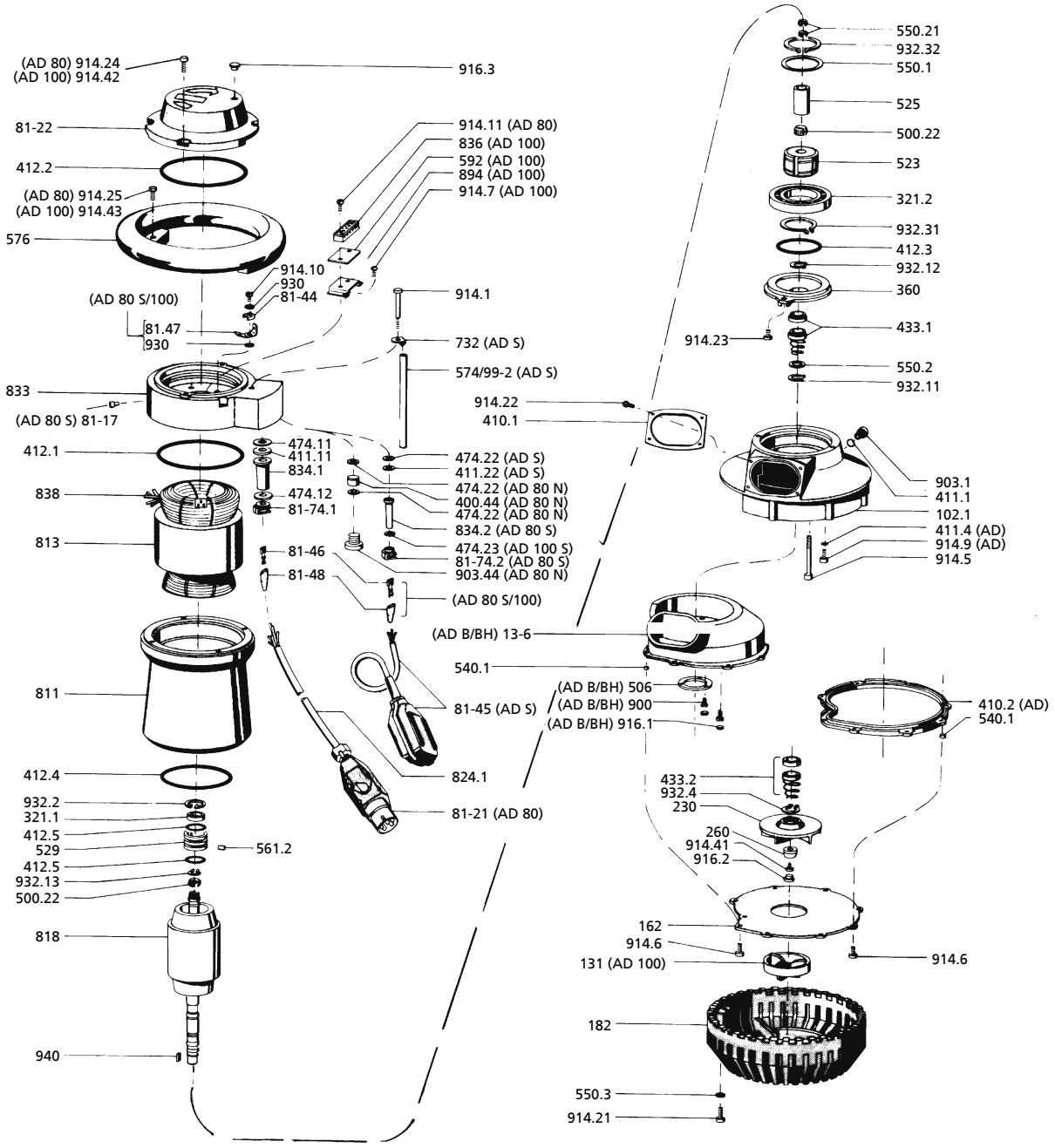

Fig. 3: Exploded view

List of components

Part No.	Description	Part No.	Description
102.1	Volute casing	732	Holder
13-6	Casing insert	81-17	End connector
131	Inlet ring	81-21	CEE motor protection plug
162	Suction cover	81-22	Terminal box cover
182	Pump foot	81-44	Terminal clamp
230	Impeller	81-45	Float switch
260	Impeller hub cap	81-46	Plug-in sleeve
321.1/.2	Deep groove ball bearing	81-47	Flat connector
360	Bearing cover	81-48	Coupling connector
400.44	Gasket	81-74.1/.2	Pressure screw
410.1/.2[5)]	Profile seal	811	Motor housing

5) Not for variants B / BH

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Part No.	Description	Part No.	Description
411.1/.4[5)]	Joint ring	813	Stator core pack
411.11/.22	Joint ring	818	Pump rotor
412.1-.5	O-ring	824.1	Cable
433.1/.2	Mechanical seal	833	Terminal box
474.11/.12	Thrust ring	834.1/.2	Cable gland
474.22/.23	Thrust ring	836	Terminal strip
500.21/.22	Tolerance ring	838	Temperature switch
506	Retaining ring	894	Mounting bracket
523	Shaft sleeve	900	Countersunk head screw
525	Spacer sleeve	903.1/.44	Screw plug
529	Bearing sleeve	914.1/.5/.6/.7/.9[5)]/.10/ .11/.21/.22/.23/.24/.25	Hexagon socket head cap screw
540.1	Bush	914.41/.42	Hexagon socket head cap screw
550.1	Support disc	914.43/.5	Hexagon socket head cap screw
550.2	Adjusting washer	916.1/.2/.3	Plug
550.3	Disc	930	Lock washer
561.2	Grooved pin	932.2/.4/.11/.12/.13/.31/.32	Circlip
574	Rod	940	Key
576	Handle	99-2	Holder
592	Shim		

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