

Submersible Waste Water Pump

Ama-Drainer 4../5..

Type Series Booklet



Legal information/Copyright

Type Series Booklet Ama-Drainer 4../5..

All rights reserved. The contents provided herein must neither be distributed, copied, reproduced, edited or processed for any other purpose, nor otherwise transmitted, published or made available to a third party without the manufacturer's express written consent.

Subject to technical modification without prior notice.

© KSB Aktiengesellschaft, Frankenthal 08.01.2016

Contents

Building Services: Drainage	4
Drainage Pumps/Waste Water Pumps	4
Ama-Drainer 4./5.	4
Main applications	4
Fluids handled	4
Operating data	4
Designation	4
Design details	4
Materials	5
Product benefits	6
Certifications	6
Programme overview / selection tables	7
Technical data	9
Characteristic curves	11
Dimensions	13
Accessories	18
General assembly drawings with list of components	32

Building Services: Drainage

Drainage Pumps/Waste Water Pumps

Ama-Drainer 4../5..



Main applications

- Drainage
- Disposal
- Drainage systems
- Lowering groundwater levels
- Maintaining groundwater levels

Fluids handled

- Slightly contaminated water
- Waste water containing long fibres and stringy material
- Seawater
- Swimming-pool water
- Brackish water
- Oil emulsions and cutting oils
- Waste water containing oil

Operating data

Operating properties

Characteristic	Value	
Flow rate	Q [m ³ /h]	≤ 50
	Q [l/s]	≤ 14
Head	H [m]	≤ 24
Fluid temperature	T [°C]	≤ 40 (in continuous operation)
		≤ 90 (max. 3 minutes)
Immersion depth	ET [m]	≤ 7

1) Blank

Designation

Example: Ama-Drainer A 4 22 S D / 10 K

Designation key

Code	Description
Ama-Drainer	Type series
A	Material
A	Design for waste water
C	Variant for aggressive water
R	Variant for water containing oil and oil emulsions
4	Discharge nozzle DN
4	~4 cm (G 1 1/2)
5	~5 cm (G 2)
22	Motor rating [kW x 10]
05	0.55 kW
07	0.75 kW
11	1.1 kW
15	1.5 kW
22	2.2 kW
S	Float switch
S	With float switch
N	Without float switch
D	Motor
D	Three-phase motor
E	Single-phase AC
10	Free passage [mm]
10	10 mm
11	11 mm
35	35 mm
K	Cooling jacket
K	With cooling jacket
-1)	Without cooling jacket

Design details

Design

- Fully floodable submersible motor pump
- Close-coupled design
- Vertical installation
- Single-stage
- To EN 12050-2
- Vertical discharge nozzle
- With or without level control

Installation types

- Stationary installation
- Transportable models

Drive

- Motor winding to IEC 60038
- Motor design to EN 60043 T1/IEC 34-1
- Thermal class F
- DOL starting
- Enclosure: IP68 (permanently submerged) to EN 60529 / IEC 529

Optional:

Ama-Drainer /10 and /35 NE/SE

- Single-phase AC motor

- Integrated temperature switch
- 10-metre power cable
- Shock-proof plug

Ama-Drainer /10, /11 and /35 SD

- Three-phase motor
- Integrated temperature switch
- 10-metre power cable
- CEE plug (3L+PE+N) incl. motor contactor and phase inverter

Ama-Drainer /10, /11 and /35 ND

- Three-phase motor
- Integrated temperature switch
- 10-metre power cable with free cable end and protective cap

Shaft seal

- Pump end: 1 bi-directional mechanical seal
- Drive end: 1 shaft seal ring
- A lubricant reservoir in-between the seal elements ensures cooling and lubrication.

Impeller type

- Open multi-channel impeller
- Free-flow impeller

Bearings

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

Materials

Material variant A

Pump section	4..../10	4..../35	5..../10 K	522../11
Pump casing	Chrome nickel steel (1.4301)			Grey cast iron EN-GJL-250
Suction cover	Chrome nickel steel (1.4301)			Grey cast iron EN-GJL-250
Volute	Acrylonitrile butadiene styrene copolymer (ABS)			
Impeller	Polyamide (PA)			
Foot	Polypropylene (PP)	Chrome nickel steel (1.4301)	Polypropylene (PP)	Polyethylene (PE)
O-rings	Acrylonitrile butadiene rubber (NBR)			
Mechanical seal	Silicon carbide (SiC/SiC)			
Stator case	Chrome nickel steel (1.4301)			
Rotor shaft	Chrome steel (1.4021)			
Motor power cable	Polychloroprene rubber (CR)			
Float	Polypropylene (PP)			
Cooling jacket	-	-	Polyoxymethylene (POM)	-
Oil supply	Liquid paraffin (environmentally friendly)			

Material variant C

Pump section	4..../35	5..../10 K	522../11
Pump casing	Chrome nickel molybdenum steel (1.4401)		Chrome nickel molybdenum cast steel (1.4408)
Suction cover	Chrome nickel molybdenum steel (1.4401)		Chrome nickel molybdenum cast steel (1.4408)
Volute	Acrylonitrile butadiene styrene copolymer (ABS)		
Impeller	Polyamide (PA)		
Foot	Polypropylene (PP)		Polyethylene (PE)
O-rings	Acrylonitrile butadiene rubber (NBR)		
Mechanical seal	Silicon carbide (SiC/SiC)		

Pump section	4..../35	5..../10 K	522../11
Stator case	Chrome nickel molybdenum steel (1.4401)		
Rotor shaft	Chrome nickel molybdenum steel (1.4571)		
Motor power cable	Polychloroprene rubber (CR)		
Float	Polypropylene (PP)		
Cooling jacket	-	Polyoxymethylene (POM)	-
Oil supply	Liquid paraffin (environmentally friendly)		

Material variant R


Pump section	5..../10 K	522../11
Pump casing	Chrome nickel steel (1.4301)	Grey cast iron EN-GJL-250
Suction cover	Chrome nickel steel (1.4301)	Grey cast iron EN-GJL-250
Volute	Acrylonitrile butadiene styrene copolymer (ABS)	-
Impeller	Polyamide (PA)	
Foot	Polypropylene (PP)	
O-rings	Fluorocarbon rubber (FPM)	
Mechanical seal	Silicon carbide (SiC/SiC)	
Stator case	Chrome nickel steel (1.4301)	
Rotor shaft	Chrome steel (1.4021)	
Motor power cable	Polyurethane (PUR)	
Float	Polypropylene (PP)	
Cooling jacket	Polyoxymethylene (POM)	-
Oil supply	Liquid paraffin (environmentally friendly)	

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 bearings grease-packed for life

Certifications

Overview

Label	Effective in:	Note
	Europe	All pump sizes

Programme overview / selection tables

Selection table

The table listing fluids handled is a selection tool for drainage duties. It should be used for orientation and is based on KSB's many years of experience. The data are reference values and should not be considered to be generally binding recommendations. They shall not be the basis for warranty claims. Please contact your nearest KSB sales branch and/or our technical departments for in-depth advice.

Table of fluids handled

Fluids handled	Temperature [°C]	Percentage [%]	Material variant				
			A		C		R
			Free passage [mm]				
			10/11	35	10/11	35	10/11
Ammonium chloride NH ₄ Cl	-	10	-	-	X	-	-
Ammonium hydroxide NH ₄ OH	≤ 30	10	X	X	-	-	-
Aluminium sulphate Al ₂ (SO ₄) ₃	≤ 40	10	-	-	X	-	-
Antifrogen-water mixture	-	-	X	X	-	-	-
Ethylene glycol	-	-	X	X	-	-	-
Alkaline cleaning agents	-	-	-	-	2)	2)	-
Barium nitrate	-	-	X	X	-	-	-
Drilling emulsion	-	-	-	-	-	-	X
Brackish water	-	-	-	-	X	X	-
Calcium hydroxide Ca(OH) ₂	≤ 30	5	X	X	-	-	-
Calcium chloride CaCl ₂	≤ 25	5	-	-	X	X	-
Calcium nitrate Ca(NO ₃) ₂	-	10	X	X	-	-	-
Deionised water	-	-	X	X	-	-	-
Landfill leachate	-	-	-	-	2)	2)	-
Disinfecting lye	-	-	-	-	2)	2)	-
Iron(II) nitrate Fe(NO ₃) ₂	-	5	-	-	X	-	-
Iron(II) sulphate Fe(SO ₄)	-	5	-	-	X	-	-
Photographic developers	-	-	-	-	2)	-	-
Vinegar	-	-	-	-	X	-	-
Degreaser	-	-	-	-	2)	2)	-
Liquid fertiliser	-	-	-	-	X	X	-
Antifreeze	-	-	X	X	-	-	-
Fibrous material	-	-	-	X	-	X	-
Fruit juice	-	-	-	-	X	X	-
Galvanic baths	-	-	-	-	2)	2)	-
Fermentation juice	-	-	-	-	-	X	-
Glycol	-	-	X	X	-	-	-
Potassium carbonate	-	-	X	X	-	-	-
Potassium chloride KCl	≤ 20	3	-	-	X	-	-
Potassium hydroxide KOH	≤ 30	10	X	X	-	-	-
Potassium nitrate KNO ₃	-	10	X	X	-	-	-
Calcium hydroxide (lime water) Ca(OH) ₂	≤ 30	5	X	X	-	X	-
Condensate (from condensing boiler applications)	-	-	-	-	2)	-	-
Lab waste water	-	-	-	-	2)	2)	-
Lemonades	-	-	-	-	X	-	-
Magnesium chloride MgCl ₂	≤ 20	3	-	-	X	-	-
Magnesium sulphate MgSO ₄	-	10	X	X	-	-	-
Milk	-	10	X	X	-	-	-
Lactic acids	-	5	-	-	X	-	-
Whey	-	-	-	-	X	-	-
Sodium chloride NaCl	≤ 20	3	-	-	X	-	-

2) Please contact KSB and provide the relevant analysis as well as the data on temperature and mode of operation

Fluids handled	Temperature [°C]	Percentage [%]	Material variant				
			A		C		R
			Free passage [mm]				
			10/11	35	10/11	35	10/11
Sodium hydroxide NaOH	≤ 30	10	X	X	-	-	-
Sodium carbonate Na ₂ CO ₃	-	10	X	X	-	-	-
Sodium nitrate	-	-	X	X	-	-	-
Sodium perborate	-	-	X	X	-	-	-
Sodium sulphate Na ₂ SO ₄	-	10	X	X	-	-	-

Table of fluids handled

Fluids handled	Temperature [°C]	pH value	Material variant				
			A		C		R
			Free passage [mm]				
			10/11	35	10/11	35	10/11
Oil-water emulsion	-	-	-	-	-	-	X
Osmosis	-	-	-	-	-	-	-
▪ Raw water (containing salt/chloride)	-	-	-	-	2)	2)	-
▪ Permeate (low salt content)	-	-	-	-	X	X	-
Paraffin oil	-	-	-	-	-	-	X
Rapeseed oil	-	-	-	-	-	-	X
Cleaning/washing lye	≤ 40	≤ 12	-	-	X	X	-
Acids, diluted	≤ 20	≥ 5	-	-	X	X	-
Silicone oil	-	-	-	-	-	-	X
Silage leachate	-	-	-	-	X	X	-
Soy-bean oil	-	-	X	X	-	-	X
Edible vinegar	-	-	-	-	X	-	-
Edible oil	-	-	-	-	-	-	X
Cutting oil	-	-	-	-	-	-	X
Trisodium phosphate	-	-	X	X	-	-	-
Vaseline	-	-	X	X	-	-	-
Washing machine lye	-	-	X	X	X	X	-
Lye for metal cleaning	-	-	-	-	2)	2)	-
Water	-	-	-	-	-	-	-
▪ Drainage water	-	-	X	X	-	-	-
▪ Fire-fighting water	-	-	X	X	-	-	-
▪ Heating water	-	-	X	X	-	-	-
▪ Boiler water	-	-	X	X	-	-	-
▪ Cooling water	-	-	X	X	-	-	-
▪ Seawater	≤15	-	-	-	X	X	-
▪ Raw water	-	-	-	-	2)	2)	-
▪ Salt water	-	-	-	-	2)	2)	-
▪ Swimming pool water (DIN 19643)	-	-	-	-	X	X	-
▪ Partly desalinated water	-	-	X	X	-	-	-
▪ Fully desalinated water	-	-	-	-	X	X	-
Waste water	-	-	-	-	-	-	-
▪ Electroplating shops	-	-	-	-	2)	2)	-
▪ Bottle/crate/keg washing	-	-	-	-	X	X	-
▪ Beverage industry, breweries	-	-	-	-	X	X	-
▪ Dairies, winegrowers' cooperatives	-	-	-	-	X	X	-
▪ Emergency pumping (floods)	-	-	-	X	-	X	-
▪ Containing salt (from fish-processing plants)	-	-	-	-	-	X	-
▪ Sea and river water	-	-	-	X	-	X	-
▪ Car repair shops, car washes	-	-	-	-	-	-	X
▪ Petrol stations	-	-	-	-	-	-	X
▪ Pit drainage (raffinates)	-	-	-	-	-	-	X
▪ Pit drainage (chemically aggressive substances)	-	-	-	-	X	X	-
▪ Wash water containing long fibres and stringy material	-	-	-	X	-	X	-
Citric acid	≤ 10	-	-	-	X	-	-

Technical data

Material variant A

Designation	Nominal diameter	Free passage	P ₁	P ₂	1~	3~	Power cable		Level control	Mat. No.	[kg]
					220 -	380 -	10 m				
					240 V	415 V	H 07RN-F6G1	H 07RN-F3G1			
	[mm]	[kW]	[kW]	~I _N	~I _N			H 07RN-F3G1			
					[A]	[A]			[m]		
Ama-Drainer - variant A for waste water (standard variant), particle size 10 mm, without cooling jacket											
A 405 NE/10	G 1 1/2	10	0,90	0,55	4,10	-	-	X	-	29128651	12.2
A 405 SE/10	G 1 1/2	10	0,90	0,55	4,10	-	-	X	0,5	29128650	12.7
A 405 ND/10	G 1 1/2	10	0,76	0,55	-	1,70	X	-	-	29128652	13.8
A 405 SD/10	G 1 1/2	10	0,76	0,55	-	1,70	X	-	10	29128742	15.1
A 407 NE/10	G 1 1/2	10	1,26	0,75	5,50	-	-	X	-	29128654	12.2
A 407 SE/10	G 1 1/2	10	1,26	0,75	5,50	-	-	X	0,5	29128653	12.7
A 407 ND/10	G 1 1/2	10	1,01	0,75	-	1,90	X	-	-	29128655	13.8
A 407 SD/10	G 1 1/2	10	1,01	0,75	-	1,90	X	-	10	29128743	15.1
A 411 NE/10	G 1 1/2	10	1,45	1,10	6,55	-	-	X	-	29128657	14.5
A 411 SE/10	G 1 1/2	10	1,45	1,10	6,55	-	-	X	0,5	29128656	15
A 411 ND/10	G 1 1/2	10	1,54	1,10	-	2,50	X	-	-	29128658	13.8
A 411 SD/10	G 1 1/2	10	1,54	1,10	-	2,50	X	-	10	29128744	15.1
A 415 NE/10	G 1 1/2	10	2,07	1,50	8,95	-	-	X	-	29128660	14.5
A 415 SE/10	G 1 1/2	10	2,07	1,50	8,95	-	-	X	0,5	29128659	15
A 415 ND/10	G 1 1/2	10	1,88	1,50	-	3,60	X	-	-	29128661	15.6
A 415 SD/10	G 1 1/2	10	1,88	1,50	-	3,60	X	-	10	29128745	16.9
A 422 ND/10	G 1 1/2	10	2,90	2,20	-	4,80	X	-	-	29128662	15.6
A 422 SD/10	G 1 1/2	10	2,90	2,20	-	4,80	X	-	10	29128746	16.9
Ama-Drainer - variant A for waste water (standard variant), particle size 11 mm, without cooling jacket											
A 522 ND/11	G 2	11	2,90	2,20	-	4,80	X	-	-	29128865	25
A 522 SD/11	G 2	11	2,90	2,20	-	4,80	X	-	10	29128866	27
Ama-Drainer - variant A for waste water (standard variant), particle size 35 mm, without cooling jacket											
A 405 NE/35	G 1 1/2	35	0,90	0,55	4,10	-	-	X	-	29128677	13.2
A 405 SE/35	G 1 1/2	35	0,90	0,55	4,10	-	-	X	0,5	29128676	13.7
A 405 ND/35	G 1 1/2	35	0,76	0,55	-	1,70	X	-	-	29128678	14.8
A 405 SD/35	G 1 1/2	35	0,76	0,55	-	1,70	X	-	10	29128752	16.1
A 411 NE/35	G 1 1/2	35	1,45	1,10	6,55	-	-	X	-	29128680	15.5
A 411 SE/35	G 1 1/2	35	1,45	1,10	6,55	-	-	X	0,5	29128679	16
A 411 ND/35	G 1 1/2	35	1,54	1,10	-	2,50	X	-	-	29128681	14.8
A 411 SD/35	G 1 1/2	35	1,54	1,10	-	2,50	X	-	10	29128753	16.1
A 422 ND/35	G 1 1/2	35	2,90	2,20	-	4,80	X	-	-	29128682	16.6
A 422 SD/35	G 1 1/2	35	2,90	2,20	-	4,80	X	-	10	29128754	17.9
Ama-Drainer - variant A for waste water (standard variant), particle size 10 mm, with cooling jacket											
A 505 NE/10K	G 2	10	0,90	0,55	4,10	-	-	X	-	29128664	14.2
A 505 SE/10K	G 2	10	0,90	0,55	4,10	-	-	X	0,5	29128663	14.7
A 505 ND/10K	G 2	10	0,76	0,55	-	1,70	X	-	-	29128665	15.8
A 505 SD/10K	G 2	10	0,76	0,55	-	1,70	X	-	10	29128747	17.1
A 507 NE/10K	G 2	10	1,26	0,75	5,50	-	-	X	-	29128667	14.2
A 507 SE/10K	G 2	10	1,26	0,75	5,50	-	-	X	0,5	29128666	14.7
A 507 ND/10K	G 2	10	1,01	0,75	-	1,90	X	-	-	29128668	15.8
A 507 SD/10K	G 2	10	1,01	0,75	-	1,90	X	-	10	29128748	17.1
A 511 NE/10K	G 2	10	1,45	1,10	6,55	-	-	X	-	29128670	16.5
A 511 SE/10K	G 2	10	1,45	1,10	6,55	-	-	X	0,5	29128669	17
A 511 ND/10K	G 2	10	1,54	1,10	-	2,50	X	-	-	29128671	15.8
A 511 SD/10K	G 2	10	1,54	1,10	-	2,50	X	-	10	29128749	17.1
A 515 NE/10K	G 2	10	2,07	1,50	8,95	-	-	X	-	29128673	16.5
A 515 SE/10K	G 2	10	2,07	1,50	8,95	-	-	X	0,5	29128672	17
A 515 ND/10K	G 2	10	1,88	1,50	-	3,60	X	-	-	29128674	17.6
A 515 SD/10K	G 2	10	1,88	1,50	-	3,60	X	-	10	29128750	18.9
A 522 ND/10K	G 2	10	2,90	2,20	-	4,80	X	-	-	29128675	17.6
A 522 SD/10K	G 2	10	2,90	2,20	-	4,80	X	-	10	29128751	18.9

Material variant C

Designation	Nominal diameter	Free passage	P ₁	P ₂	1~	3~	Power cable		Level control	Mat. No.	[kg]
					220 -	380 -	10 m				
					240 V	415 V	H 07RN-F6G1	H 07RN-F3G1			
	[mm]	[kW]	[kW]	~I _N	~I _N			H 07RN-F3G1			
					[A]	[A]			[m]		
Ama-Drainer – variant C for aggressive water, particle size 10 mm, with cooling jacket											
C 505 NE/10K	G 2	10	0,90	0,55	4,10	-	-	X	-	29128697	14.2
C 505 SE/10K	G 2	10	0,90	0,55	4,10	-	-	X	0,5	29128696	14.7
C 505 ND/10K	G 2	10	0,76	0,55	-	1,70	X	-	-	29128698	15.3
C 505 SD/10K	G 2	10	0,76	0,55	-	1,70	X	-	10	29128755	17.1

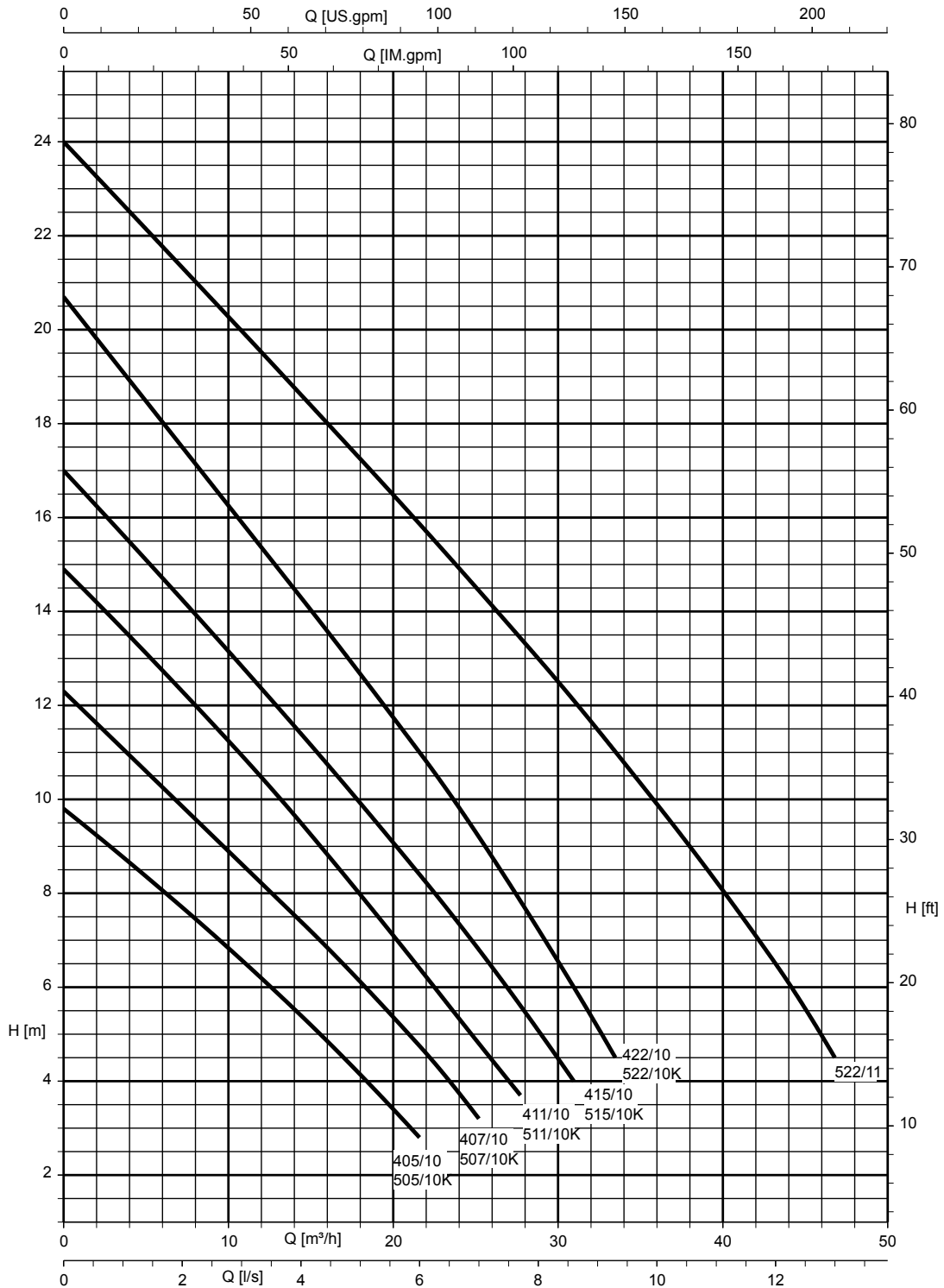
Designation	Nominal diameter	Free passage [mm]	P ₁ [kW]	P ₂ [kW]	1~ 220 - 240 V	3~ 380 - 415 V	Power cable 10 m		Level control	Mat. No.	[kg]
					~I _N	~I _N	H 07RN-F6G1	H 07RN-F3G1	H 07RN-F3G1		
					[A]	[A]			[m]		
C 507 NE/10K	G 2	10	1,26	0,75	5,50	-	-	X	-	29128700	14.2
C 507 SE/10K	G 2	10	1,26	0,75	5,50	-	-	X	0,5	29128699	14.7
C 507 ND/10K	G 2	10	1,01	0,75	-	1,90	X	-	-	29128701	15.3
C 507 SD/10K	G 2	10	1,01	0,75	-	1,90	X	-	10	29128756	17.1
C 511 NE/10K	G 2	10	1,45	1,10	6,55	-	-	X	-	29128703	16.5
C 511 SE/10K	G 2	10	1,45	1,10	6,55	-	-	X	0,5	29128702	17
C 511 ND/10K	G 2	10	1,54	1,10	-	2,50	X	-	-	29128704	15.3
C 511 SD/10K	G 2	10	1,54	1,10	-	2,50	X	-	10	29128757	17.1
C 515 NE/10K	G 2	10	2,07	1,50	8,95	-	-	X	-	29128706	16.5
C 515 SE/10K	G 2	10	2,07	1,50	8,95	-	-	X	0,5	29128705	17
C 515 ND/10K	G 2	10	1,88	1,50	-	3,60	X	-	-	29128707	17.6
C 515 SD/10K	G 2	10	1,88	1,50	-	3,60	X	-	10	29128758	19.5
C 522 ND/10K	G 2	10	2,90	2,20	-	4,80	X	-	-	29128708	17.7
C 522 SD/10K	G 2	10	2,90	2,20	-	4,80	X	-	10	29128759	19.6
Ama-Drainer – variant C for aggressive water, particle size 11 mm, without cooling jacket											
C 522 ND/11	G 2	11	2,90	2,20	-	4,80	X	-	-	29128693	23.5
C 522 SD/11	G 2	11	2,90	2,20	-	4,80	X	-	10	29128694	25.5
Ama-Drainer – variant C for aggressive water, particle size 35 mm, without cooling jacket											
C 405 NE/35	G 1 1/2	35	0,90	0,55	4,10	-	-	X	-	29128683	15.3
C 405 SE/35	G 1 1/2	35	0,90	0,55	4,10	-	-	X	0,5	29128684	15.8
C 405 ND/35	G 1 1/2	35	0,76	0,55	-	1,70	X	-	-	29128685	16.5
C 405 SD/35	G 1 1/2	35	0,76	0,55	-	1,70	X	-	10	29128686	18.2
C 411 NE/35	G 1 1/2	35	1,45	1,10	6,55	-	-	X	-	29128687	17.6
C 411 SE/35	G 1 1/2	35	1,45	1,10	6,55	-	-	X	0,5	29128688	18.1
C 411 ND/35	G 1 1/2	35	1,54	1,10	-	2,50	X	-	-	29128689	16.5
C 411 SD/35	G 1 1/2	35	1,54	1,10	-	2,50	X	-	10	29128690	18.3
C 422 ND/35	G 1 1/2	35	2,90	2,20	-	4,80	X	-	-	29128691	19
C 422 SD/35	G 1 1/2	35	2,90	2,20	-	4,80	X	-	10	29128692	20.8

Material variant R

Designation	Nominal diameter	Free passage [mm]	P ₁ [kW]	P ₂ [kW]	1~ 220 - 240 V	3~ 380 - 415 V	Power cable 10 m		Level control	Mat. No.	[kg]
					~I _N	~I _N	PUR 6x1	PUR 3x1	PUR 3x1		
					[A]	[A]			[m]		
Ama-Drainer – variant R for water containing oil / oil emulsions, particle size 10 mm, with cooling jacket											
R 505 NE/10K	G 2	10	0,90	0,55	4,10	-	-	X	-	29128723	14.2
R 505 SE/10K	G 2	10	0,90	0,55	4,10	-	-	X	0,5	29128722	14.7
R 505 ND/10K	G 2	10	0,76	0,55	-	1,70	X	-	-	29128724	15.3
R 505 SD/10K	G 2	10	0,76	0,55	-	1,70	X	-	10	29128760	17.1
R 507 NE/10K	G 2	10	1,26	0,75	5,50	-	-	X	-	29128726	14.2
R 507 SE/10K	G 2	10	1,26	0,75	5,50	-	-	X	0,5	29128725	14.7
R 507 ND/10K	G 2	10	1,01	0,75	-	1,90	X	-	-	29128727	15.3
R 507 SD/10K	G 2	10	1,01	0,75	-	1,90	X	-	10	29128761	17.1
R 511 NE/10K	G 2	10	1,45	1,10	6,55	-	-	X	-	29128729	16.5
R 511 SE/10K	G 2	10	1,45	1,10	6,55	-	-	X	0,5	29128728	17
R 511 ND/10K	G 2	10	1,54	1,10	-	2,50	X	-	-	29128730	15.3
R 511 SD/10K	G 2	10	1,54	1,10	-	2,50	X	-	10	29128762	17.1
R 515 NE/10K	G 2	10	2,07	1,50	8,95	-	-	X	-	29128732	16.5
R 515 SE/10K	G 2	10	2,07	1,50	8,95	-	-	X	0,5	29128731	17
R 515 ND/10K	G 2	10	1,88	1,50	-	3,60	X	-	-	29128733	17.6
R 515 SD/10K	G 2	10	1,88	1,50	-	3,60	X	-	10	29128763	19.5
R 522 ND/10K	G 2	10	2,90	2,20	-	4,80	X	-	-	29128734	17.7
R 522 SD/10K	G 2	10	2,90	2,20	-	4,80	X	-	10	29128764	19.6
Ama-Drainer – variant R for water containing oil / oil emulsions, particle size 11 mm, without cooling jacket											
R 522 ND/11	G 2	11	2,90	2,20	-	4,80	X	-	-	29128867	23.5
R 522 SD/11	G 2	11	2,90	2,20	-	4,80	X	-	10	29128868	25.5

Characteristic curves

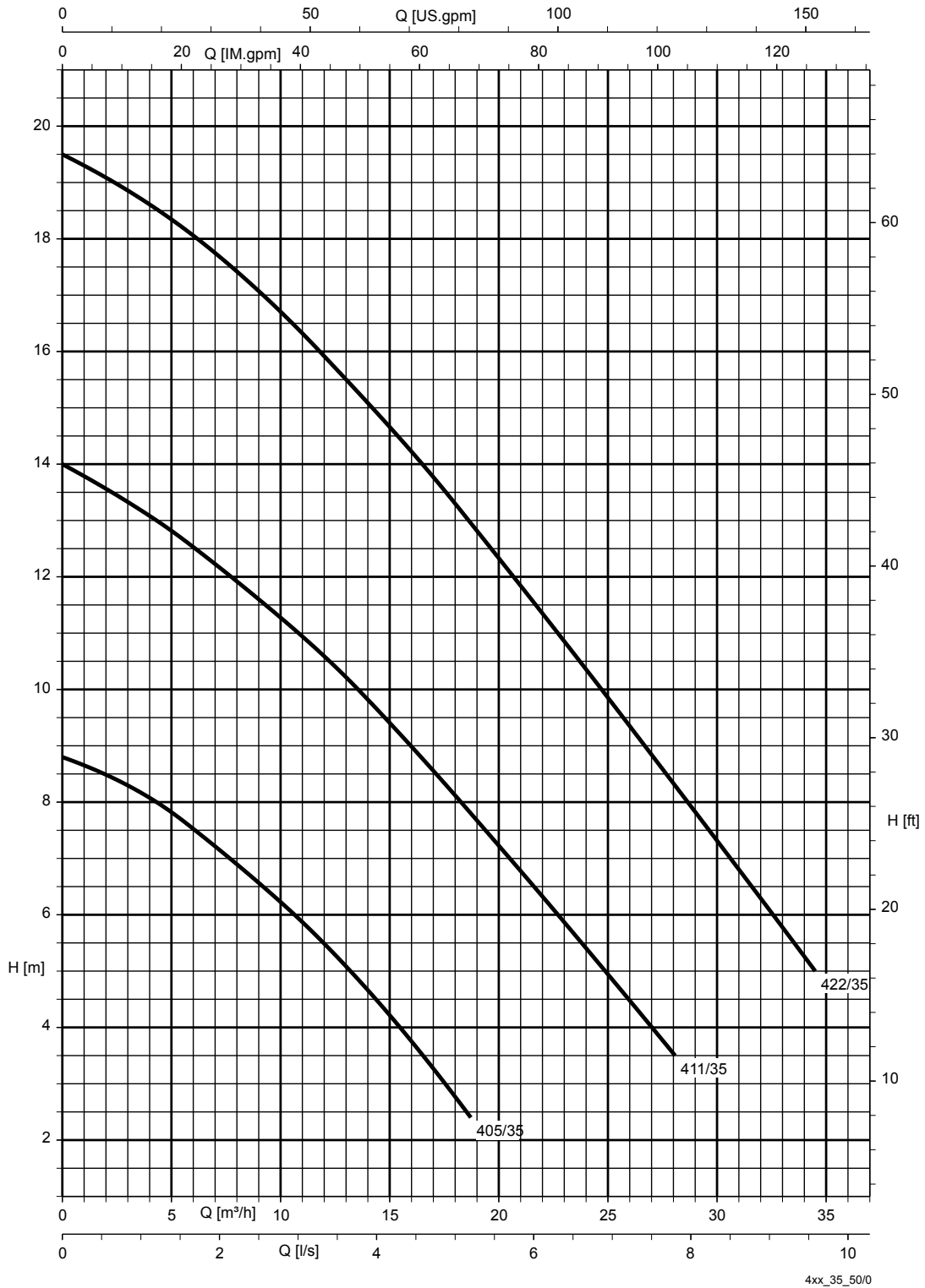
Ama-Drainer 4../5..; n = 2800 rpm; multi-vane impeller



Free passage: 405/407/411/415/422/505/507/511/515 = 10 mm, 522 = 11 mm

Performance tolerance to ISO 2548 Class C (water under standard conditions)

Ama-Drainer 4..; n = 2800 rpm; F impeller



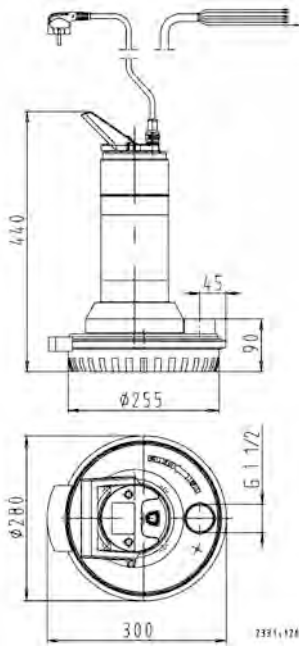
Free passage: 405/411/422 = 35 mm

Performance tolerance to ISO 2548 Class C (water under standard conditions)

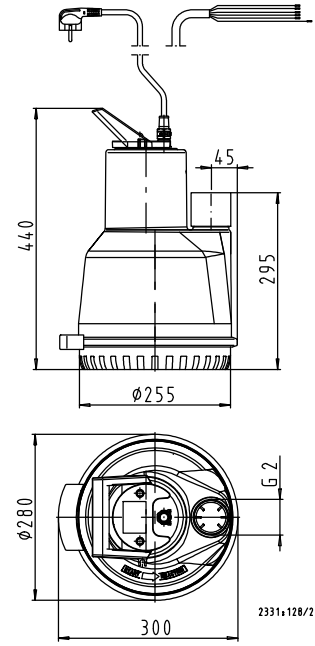
Dimensions

Outline drawings

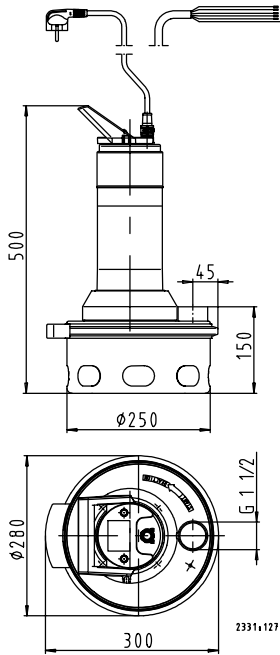
4../10 without cooling jacket



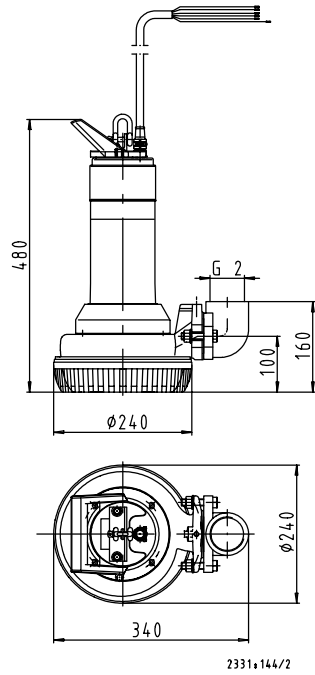
5../10K with cooling jacket



4../35 without cooling jacket

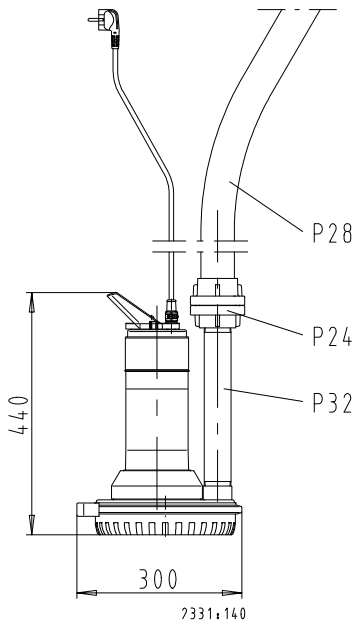


522/11 without cooling jacket

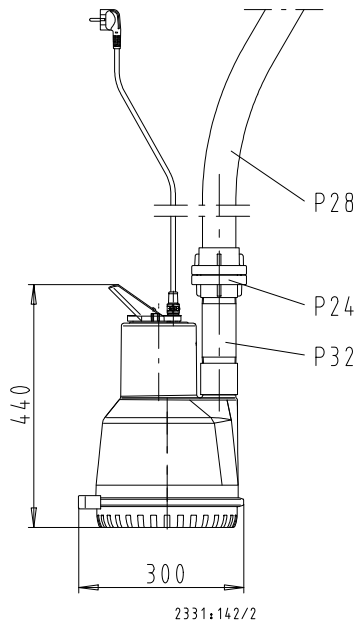


Examples of transportable models

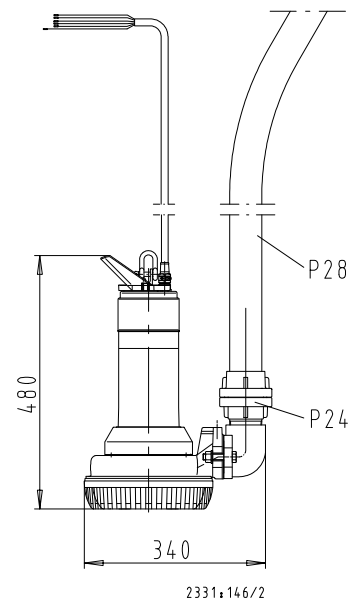
4.. NE/10 without cooling jacket



5.. NE/10 K with cooling jacket



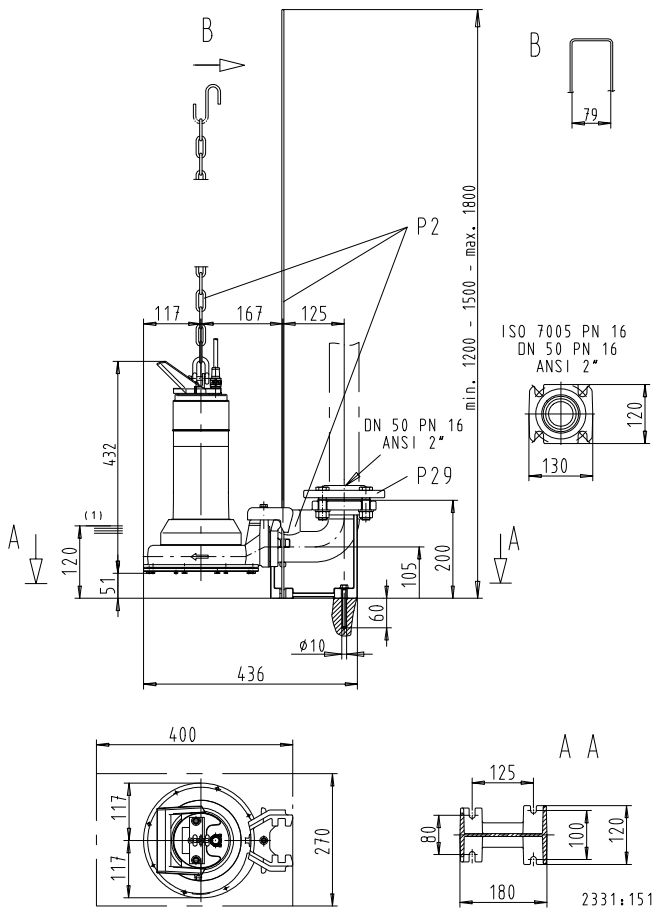
522 ND/11 without cooling jacket



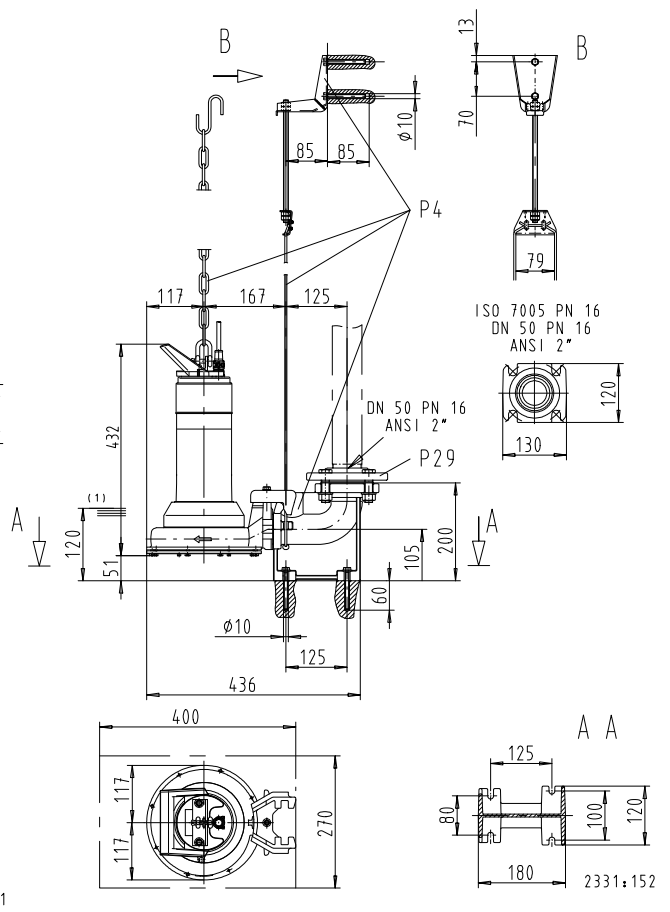
P 24	Storz rigid coupling
P 28	Plastic hose
P 32	Pipe extension

Examples of stationary installation

522 ND/11 with guide hoop



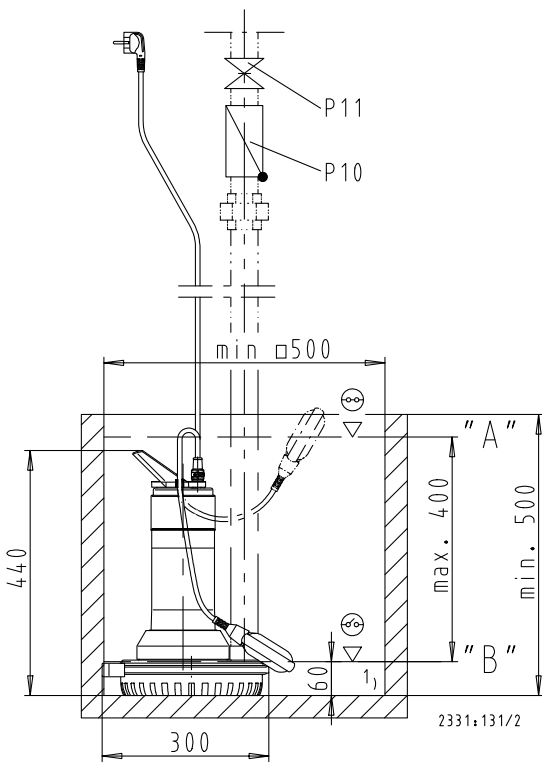
522 ND/11 with guide wire



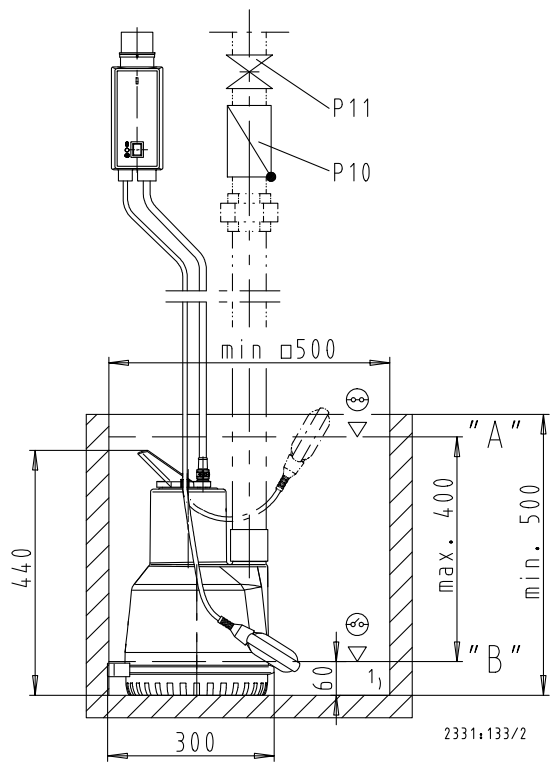
1)	Lowest switch-off point for automatic operation
P 2	Guide hoop arrangement
P 4	Guide wire arrangement
P 29	Threaded flange

Outline drawings of single pumps

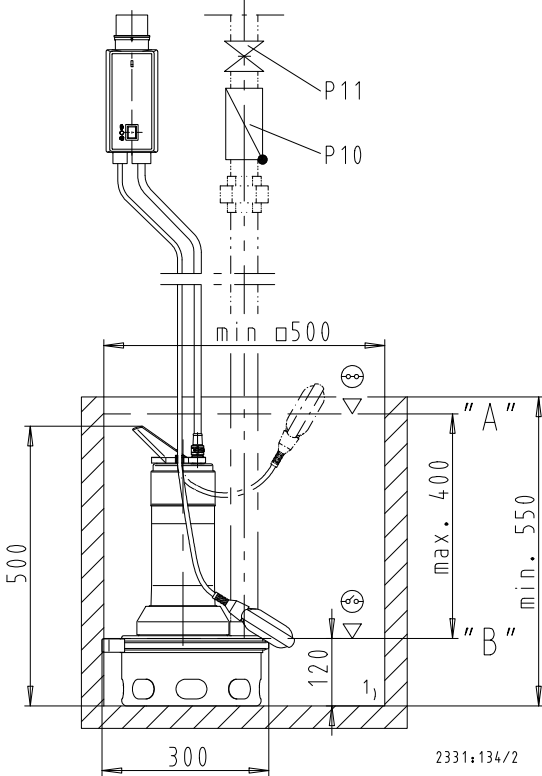
4..SE/10 without cooling jacket



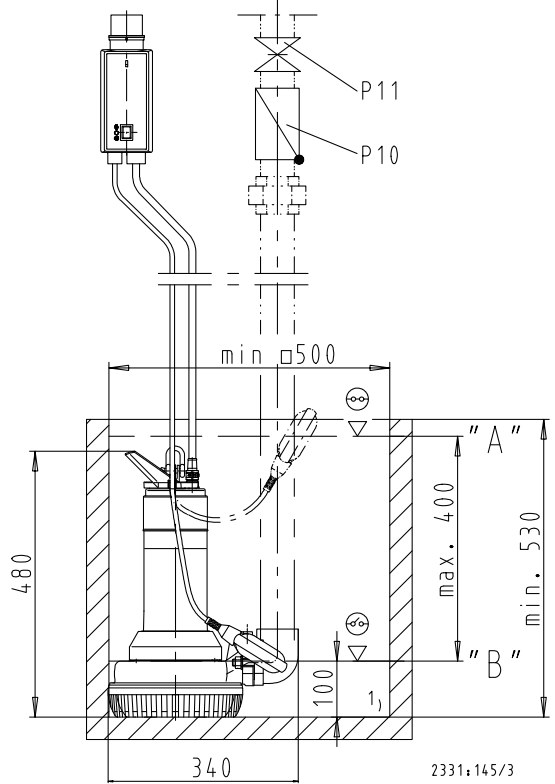
5..SD/10 K with cooling jacket



4..SD/35 without cooling jacket



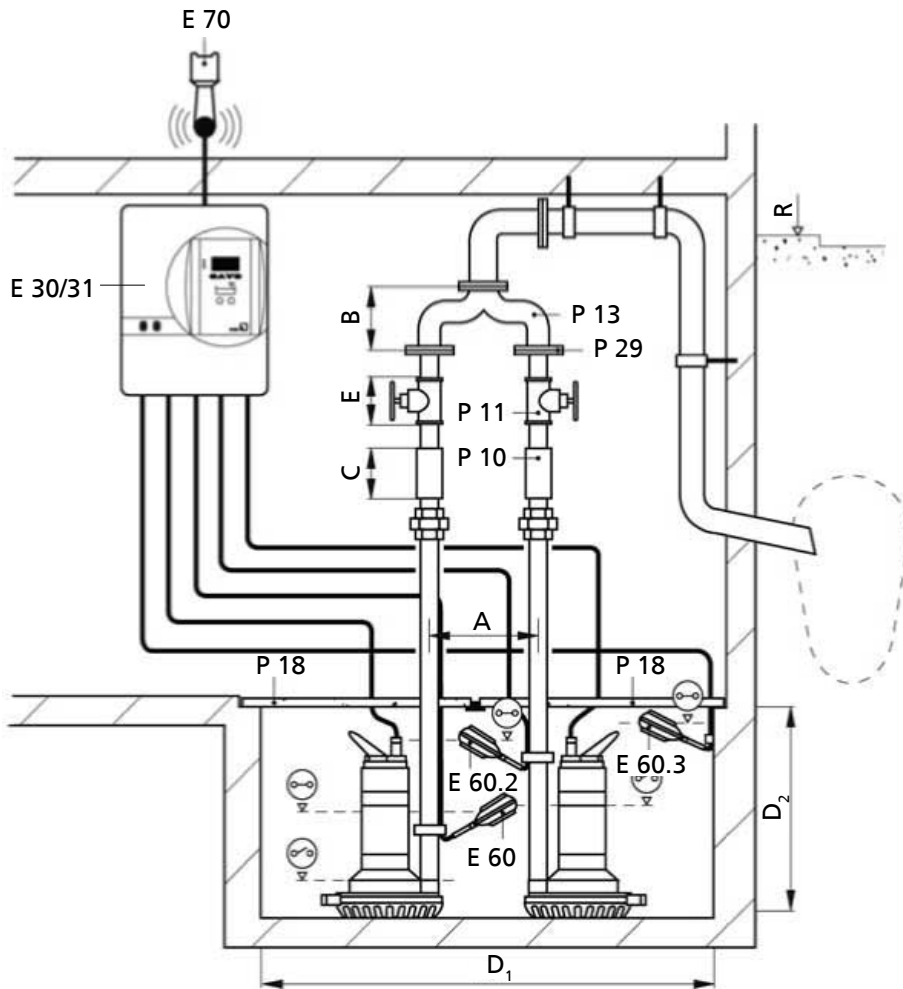
522 SD/11 without cooling jacket



1)	Residual water level
P 10	Swing check valve
P 11	Gate valve

Typical arrangement of dual-pump station

405 ... 422 NE/ND / 505 ... 522 NE/ND



P 10	Swing check valve
P 11	Gate valve
P 13	Y-pipe
P 18	Cover plate
P 29	Threaded flange
E 30/31	Control unit
E 60	Float switch, base load
E 60/2	Float switch, peak load
E 60/3	Float switch, high water alert
E 70	Horn
R	Flood level











Dimensions table [mm]

	A	B	C	D ₁	D ₂	E
4../10	275	190	130	1060 x 500	500	55
4../35	275	190	130	1060 x 500	550	60
5../10 K	300	210	130	1060 x 500	500	55
522/11	300	210	130	1060 x 500	550	55





Accessories
Pump accessories

Item	Description	Connection/ immersion depth	Ama-Drainer ³⁾				Mat. No.	[kg]	
			4../10	4../35	5../10K	522/11			
	Installation parts for stationary wet installation (guide hoop arrangement) Grey cast iron, consisting of: DN 50 flanged duckfoot bend, guide hoop, claw with stainless steel screws/bolts	1,5 m	-	-	-	X	39020769	11	
		1,8 m	-	-	-	X	39020770	12	
		2,1 m	-	-	-	X	39020771	13	
		Flange adapter, grey cast iron (must be ordered separately)	DN 50	-	-	-	X	19075508	4.2
	Installation parts for stationary wet installation (guide wire installation) Grey cast iron, consisting of: flanged duckfoot bend, suspension bracket, mounting bracket, 10 m guide wire, claw with stainless steel screws/bolts	4,5 m	-	-	-	X	39021023	14.3	
			Flange adapter, grey cast iron (must be ordered separately)		-	-	-	X	19075508
	Installation parts for stationary pump sets, material variant C, stainless steel 1.4571/1.4571								
		Installation parts for stationary wet installation (guide wire installation) Consisting of: duckfoot bend, suspension bracket, mounting bracket, 10 m guide wire, screws/bolts and anchor bolts	Et 4,5 m	-	-	-	X	19552258	11.83 3
		Claw incl. flange adapter DN 50 (must be ordered separately)		-	-	-	X	19075509	4.2
	Chain 1.0038+Z, hook 1.4571 and shackle 1.4401 Stainless steel chain Stainless steel chain Stainless steel chain Polypropylene lifting rope, material variant C	2 m, B5 x 35	-	-	-	X	19141819	1.5	
		5 m, B5/6	-	-	-	X	19141820	2.8	
		2 m, DIN 766 - 4 x 16	-	-	-	X	01236267	0.9	
		3 m, DIN 766 - 4 x 16	-	-	-	X	01236268	1.089	
		5 m, DIN 766 - 4 x 16	-	-	-	X	01236269	1.688	
	Flange for pipe coupling PN 10, at the flanged elbow, mating dimensions to PN 16	DN 50/R2	-	-	-	X	19551111	1.2	
	RK swing check valve Plastic, EN 12 050-4, with internal/internal thread ISO 7/1, full port and drain plug For additional parts see P32 and P33	Rp 1 1/4	(X)	-	(X)	-	01009771	0.1	
		Rp 1 1/2	X	X	(X)	-	01009772	0.25	
		Rp 2	(X)	(X)	X	X	01009773	0.5	
		Lift check valve, stainless steel (1.4401) For additional parts see P32 and P33	Rp 1 1/4	(X)	-	(X)	-	01084936	2.1
			Rp 1 1/2	X	X	(X)	-	01084935	2.2
			Rp 2	(X)	(X)	X	X	01084937	0.444
	Socket gate valve CuZn PN 16 with internal/internal thread and full port For additional parts see P32 and P33	Rp 1 1/4	(X)	-	(X)	-	01014219	0.627	
		Rp 1 1/2	X	X	(X)	-	00411502	0.8	
		Rp 2	(X)	(X)	X	X	00411503	1.287	
	Ball valve Stainless steel (1.4408), PN 10	Rp 1 1/4	(X)	-	(X)	-	01067465	1.213	
		Rp 1 1/2	X	X	(X)	-	01087276	1.821	
		Rp 2	(X)	(X)	X	X	01064013	2.1	
	Y-pipe for dual-pump sets, with external thread, galvanised steel For additional parts see P32 and P33	Rp 1 1/4	(X)	-	-	-	18040311	4.1	

3) (x) = increasing or reducing adapters are required for these nominal diameters

Item	Description	Connection/ immersion depth	Ama-Drainer ³⁾				Mat. No.	[kg]
			4../10	4../35	5../10K	522/11		
	Y-pipes for dual-pump stations, grey cast iron, with hexagon head bolts, nuts and gaskets; flanges drilled to DIN 2501	DN 40	X	X	(X)	-	40000688	10.6
		DN 50	(X)	(X)	X	X	40000689	13.5
	Additional part - see P29							
	P18 Cover plate, steel Tread-proof, split, with profile joints and angle iron mounting frame (type A 560) for 500 x 500 mm pits (Dual-pump stations with P13 Y-pipe are equipped with 2 cover plates next to each other.)	Rp 1 1/4	X	X	X	X	18075627	13
	P21 A 25 B drain hose set Comprising: rigid coupling with external thread, 6 m plastic hose DN 25, rapid-action hose coupling Rp 1 1/4, (free passage 21 mm)	Rp 1 1/4	(X)	-	(X)	-	18079719	3
		C 42	-	-	-	-	42209411	1.7
	Additional part - see P32							
	P22 Hose connection set Consisting of: 1 hose nozzle with external thread (PVC), 1 hose clamp (CrNiMo steel) For additional parts see P32 and P33	C 52-G 1 1/2	X	X	-	-	19072025	0.2
		C 52-G 2	-	-	X	(X)	18040259	0.2
		B 75-G 2	-	-	X	(X)	18040205	0.2
	P24 Storz rigid coupling with internal thread to DIN ISO 228/1 Aluminium alloy, for required piping components see P32	C-G 1 1/2	X	X	-	-	01002463	0.3
		C-G 2	-	-	X	X	00520120	0.3
		B-G 1 1/2	X	X	-	-	01062591	0.1
		B-G 2	-	-	X	X	00133084	0.4
	Storz rigid coupling with external thread to DIN ISO 228/1 Aluminium alloy	C 52/G 2 A	-	-	-	X	00524370	0.2
	P26 Storz hose coupling, aluminium alloy	C 52 (DIN 14321)	X	X	-	-	00524551	0.3
		B 75 (DIN 14322)	-	-	X	X	00520454	0.7
	P27 Hose clip DIN 3017, chrome steel	AL 40-60 C (DIN 3017)	X	X	-	-	00114522	0.01
		AL 70-90 B (DIN 3017)	-	-	X	X	01063363	0.032
	P28 Plastic hose DN 40, with integrated C couplings, DIN 14811	C 42-5 m	X	X	X	X	01062592	1.7
		C 42-10 m	X	X	X	X	01062593	2.8
		C 42-20 m	X	X	X	X	01062594	5
	Plastic hose DN 50, DIN 14811, with integrated C couplings	C 52	X	X	X	X	00522262	2.3
		C 52	X	X	X	X	00522263	4.2
		C 52	X	X	X	X	00522264	5.7
	Plastic hose DN 75, with integrated B couplings, DIN 14811	B 75-20 m	-	X	X	X	00522265	10
		B 75 per m	-	X	X	X	00540104	0.3
	P29 Threaded flange for Y-pipe (P13), internal thread	DN 40/Rp 1 1/2	X	X	(X)	(X)	00260478	1.8
		DN 50/Rp 2	(X)	(X)	X	X	00260479	2.5
	Threaded flange for guide hoop arrangement (P2) and guide wire arrangement (P4)	DN 50/Rp 2	-	-	-	X	19551353	2
	Consisting of: flange, 4 hexagon head bolts with nuts and washers and 1 sealing element							
	P32 Nominal diameter reduction, reducer DN 32 EN 10242, galvanised steel, external/internal thread for A 25 B drain hose set (P21)	AG R 1 1/2 / IG Rp 1 1/4	(X)	-	-	-	00240679	0.2
		AG R 2 / IG Rp 1 1/4	-	-	(X)	-	00240680	0.4
	Hexagon nipple for Storz rigid coupling C (P24), EN 10242	R 1 1/2	X	X	-	-	00240874	0.5
	Galvanised steel, external/external thread							
	Hexagon nipple for Storz rigid coupling C and B (P24) and for hose connection set (P22)	R 2	-	-	-	X	00240876	0.6
	Galvanised steel, external/external thread							

³⁾ (x) = increasing or reducing adapters are required for these nominal diameters

	Item	Description	Connection/ immersion depth	Ama-Drainer ³⁾				Mat. No.	[kg]	
				4../10	4../35	5../10K	522/11			
		Pipe extension for Storz rigid coupling B (P24) 1.4401, external/external thread	AG 1 1/2 / AG R 1 1/2 x 310	x	x	-	-	11037771	1	
		Pipe extension for Storz rigid coupling C and B (P24) Galvanised steel, external/external thread	AG 2 / AG R 2 x 150	-	-	x		00250494	0.6	
	P33	Nominal diameter reduction, reducer DN 32	AG R 1 1/2 / IG Rp 1 1/4	(x)	-	-	-	00240679	0.2	
				AG R 2 / IG Rp 1 1/4	-	-	(x)	(x)	00240680	0.4
			Nominal diameter reduction, reducer DN 40	AG R 2 / IG Rp 1 1/2	-	-	(x)	(x)	00240686	0.5
		Nominal diameter increase, socket DN 50, EN 10242, galvanised steel For additional parts see P32 and P33	AG R 1 1/2 / IG Rp 2	(x)	(x)	-	-	00241778	0.38	
			Nominal diameter increase, socket DN 65, EN 10242, galvanised steel For additional parts see P32 and P33	IG Rp 2 / IG Rp 2 1/2	-	-	(x)	(x)	40982361	1.3
	P35	Cooling jacket retrofit kit Consisting of: cooling jacket, connection socket with internal thread Rp2 and two O-rings, to retrofit Ama- Drainer 4../10 to the same design, Ama-Drainer 5../10 K Important: The piping of pumps already installed must be adjusted accordingly.		x	-	-	-	18040775	0.5	

³⁾ (x) = increasing or reducing adapters are required for these nominal diameters

Control units and switchgear

Valid for all countries except France

Item	Description	230 V	400 V	Type	Current min - max [A]	Ama-Drainer										Mat. No.	[kg]	
						1~					3~							
						.05 .E	.07 .E	.11 .E	.15 .E	.05 .D	.07 .D	.11 .D	.15 .D	.22 .D	522/11			
	E 1	Motor protection switchgear MSE	X	-	MSE 60.1	4,0 - 6,0	X	X	-	-	-	-	-	-	-	-	19070138	1
		With integrated motor protection relay, manual-0-automatic selector switch and motor contactor, operation and fault indicator lamps	X	-	MSE 80.1	5,5 - 8,0	-	-	X	-	-	-	-	-	-	-	19070139	1
		Dimensions (W x H x D) 100 x 170 x 112 mm	X	-	MSE 100.1	8,0 - 11,5	-	-	-	X	-	-	-	-	-	-	19070140	1
	E2	Motor protection switchgear MSD	-	X	MSD 16.1	1,2 - 1,8	-	-	-	-	X	-	-	-	-	-	19070114	1
		Float switch	-	X	MSD 25.1	1,8 - 2,6	-	-	-	-	X	X	-	-	-	-	19070115	1
		With integrated motor protection relay, manual-0-automatic selector switch and motor contactor, operation and fault indicator lamps	-	X	MSD 40.1	2,5 - 4,0	-	-	-	-	-	-	X	-	-	-	19070116	1
		Dimensions (W x H x D) 100 x 170 x 112 mm	-	X	MSD 60.1	3,7 - 5,5	-	-	-	-	-	-	-	X	X	-	19070117	1
	E 3	CEE motor protection plug, type Hyper ⁴⁾ 3/N/PE 16 A, IP X4 Phase inverter, contactor up to 4 kW, manual-0-automatic selector switch, connections for three-phase motor, thermal circuit breaker and float switch	-	X	Hyper CEE		-	-	-	-	X	X	X	X	X	X	18040512	0.8
	E 4	Multi-functional plug, type Hyper, with motor protection relay	-	X	Hyper 18.1	1,2 - 1,8	-	-	-	-	X	-	-	-	-	-	19071490	1
		3/N/PE 16 A, IP X4, phase inverter, motor monitoring, contactor up to 4 kW, motor protection relay, manual-0-automatic selector switch, reset key, indicator lamps for direction of rotation, operation and fault, connections for three-phase motor, thermal circuit breaker and float switch	-	X	Hyper 26.1	1,8 - 2,6	-	-	-	-	X	X	-	-	-	-	19071491	1
			-	X	Hyper 37.1	2,6 - 3,7	-	-	-	-	-	-	X	-	-	-	19071492	1
			-	X	Hyper 55.1	3,7 - 5,5	-	-	-	-	-	-	-	X	X	-	19071493	1
	E10	LevelControl Basic 2 control unit for single-pump station, IP54	X	-	BC1 230 DFNO 100	Up to 10	X	X	X	X	-	-	-	-	-	-	19073760	4.5
	E11	DOL starting, with manual-0-automatic selector switch, indicator lamps and control panel, high water alert, integrated alarm buzzer 85 dB(A), operating hours counter/start-stop cycles per pump, voltage measurement, phase monitoring, indication of water level, volt-free contact for general fault message, motor temperature warning (thermal circuit breaker) – self-acknowledging; motor leakage/	-	X	BC1 400 DFNO 025	1,6 - 2,5	-	-	-	-	X	X	-	-	-	-	19073762	4.5
			-	X	BC1 400 DFNO 040	2,5 - 4,0	-	-	-	-	-	-	X	X	-	-	-	19073763

⁴⁾ Required for Ama-Drainer ND only

Item	Description	230 V	400 V	Type	Current min - max [A]	Ama-Drainer										Mat. No.	[kg]	
						1~				3~								
						.05 .E	.07 .E	.11 .E	.15 .E	.05 .D	.07 .D	.11 .D	.15 .D	.22 .D	522/11			
	moisture monitoring, optional mains-independent alarm via rechargeable battery For float switch or 4...20 mA sensor, optional master switch, 400 x 281 x 135 mm 400 V variant with motor protecting switch 230 V variant with external socket	-	X	BC1 400 DFNO 063	4,0 - 6,3	-	-	-	-	-	-	-	-	-	X	X	19073764	4.5
	LevelControl Basic 2 control unit for dual-pump station, IP 54 Peak load operation, stand-by pump, DOL starting, with manual-0-automatic selector switch, indicator lamps and control panel, high water alert, integrated alarm buzzer 85 dB(A), operating hours counter/start-stop cycles per pump: Voltage measurement, phase monitoring, volt-free contact for general fault message Optional mains-independent alarm via rechargeable battery with charging unit (E90) For float switch or 4...20 mA sensor, optional master switch, 400 x 281 x 135 mm 400 V variant: with motor protection switch 230 V variant: with external socket	X	-	BC2 230 DFNO 100	Up to 10	X	X	X	X	-	-	-	-	-	-	-	19073774	4.7
		-	X	BC2 400 DFNO 025	1,6 - 2,5	-	-	-	-	X	X	-	-	-	-	-	19073776	4.7
		-	X	BC2 400 DFNO 040	2,5 - 4,0	-	-	-	-	-	-	X	X	-	-	-	19073777	4.7
		-	X	BC2 400 DFNO 063	4,0 - 6,3	-	-	-	-	-	-	-	-	-	X	X	19073778	4.7
Optional components for LevelControl ⁵⁾																		
O1	Master switch for LevelControl Basic 2, installed for type BC... 3-pole, 20 A, lockable	-	-			X	X	X	X	X	X	X	X	X	X	X	01143084	0.2

Optional components are not EDI-compatible (configurable range)

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

Operation with mini control system

For operation with mini control systems, separate float switches and appropriate cable lengths must be ordered with Ama-Drainer 405 NE to 415 NE or 505 NE to 515 NE since the float switch directly mounted on the S variant cannot be connected to the mini control system.

LevelControl with float switches:

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:

Dual-pump operation with two level switches at different levels

Two pumps installed in the same installation location should be operated via the LevelControl unit. This control unit 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 MSE, MSD and Hyper, each control unit features a volt-free contact for transmitting the general fault message to the control station.

⁵⁾ Optional components must be processed via EasySelect, otherwise they will be supplied with the unit but not fitted.

LevelControl Basic 2 control units

 Valid for all countries except France.

Feature	Single-pump station Float switch(es) incl. 4...20 mA	Dual-pump station Float switch(es) incl. 4...20 mA
230 V: 6.0 - 10 A	BC1 230 _{DFNO} 100	BC2 230 _{DFNO} 100
400 V: 1.6 - 2.5 A	BC1 400 _{DFNO} 25	BC2 400 _{DFNO} 25
400 V: 2.5 - 4.0 A	BC1 400 _{DFNO} 40	BC2 400 _{DFNO} 40
400 V: 4.0 - 6.3 A	BC1 400 _{DFNO} 63	BC2 400 _{DFNO} 63
Functions		
Tank drainage	X	X
Tank filling via float switch	X	X
Stand-by pump: 1 pump redundant	-	X
Automatic pump changeover after every start	-	X
Automatic pump changeover in the case of a pump fault	-	X
Peak load operation function	-	X
Runtime limitation	X	X
OFF via after-run time	X	X
OFF via level	X	X
Operation check run after idle period	X	X
Alert memory	-	-
Display and operation		
7-segment display	X	X
Indication of water level	Switching points	Switching points
For each pump: operation/fault/pump running	Multicolour LED	Multicolour LED
General fault (traffic light)	LED	LED
High water	LED	LED
Mains voltage	X	X
Mains frequency	-	-
Motor current per pump	-	-
Operating hours of each pump	X	X
Operating hours of the system	-	-
Starts per pump	X	X
Effective power per pump	-	-
Rotary field recognition of mains power supply	X	X
Phase monitoring	X	X
Change of switching level via control panel	-	-
Housing H x W x D, IP 54		
Plastic 361 x 278 x 120	X	X
Sheet steel 400 x 300 x 155	-	-
Sheet steel 600 x 400 x 200	-	-
Built-in components		
Master switch (lockable)	o	o
Manual-0-automatic selector switch per pump	X	X
DOL starting	X	X
Star-delta starting	-	-
Shockproof socket 230 V	For 230 V	For 230 V
Motor protection		
Fuse per pump	For 230 V	FFFFor 230 V
Motor protection switch per pump (overcurrent and short-circuit protection)	For 400 VF	For 400 V
Motor temperature warning input - self-acknowledging	X	X
Motor temperature alert input - manual acknowledgement	X	X
Pump		
Thermal circuit breaker (TCB) / bimetal switch per pump	400 V: brought out	400 V: brought out
Optional Components		
Rechargeable battery for powering the electronics, sensors, alarm equipment	o	o
Alarm equipment		
1 free alarm input	X	X
1 digital high water alert input (e.g. for float switch)	X	X
Volt-free contact (changeover contact) for general fault/operation message	X	X
Piezo buzzer 85 dB(A)	X	X
Horn 105 dB(A) / alarm combination / alarm strobe light 12 V DC	o	o

Feature	Single-pump station Float switch(es) incl. 4...20 mA	Dual-pump station Float switch(es) incl. 4...20 mA
Inputs/outputs		
Inputs for float switches	4	4
4...20 mA analog input	X	X
Integrated pneumatic pressure sensor up to 3 metres of water - up to 10 metres on request	-	-
Bubbler system with compressor up to 2 metres of water	-	-
Remote acknowledgement	X	X
12 V DC connection for horn, alarm combination, alarm strobe light	X	X
Sensors		
Float switch (NO contact)	o	o
F1 moisture sensor	o	o
Tools		
KSB ServiceTool for Windows XP	o	o

Key to the symbols

Symbol	Description
o	Optional
X	Available
-	Not available

Control units and switchgear

Only valid for France!

Item	Description	230 V	400 V	Type	Current min - max [A]	Ama-Drainer										Mat. No.	[kg]
						1~					3~						
						.05.E	.07.E	.11.E	.15.E	.05.D	.07.D	.11.D	.15.D	.22.D	522/11		
	LevelControl Basic 2 control unit for single-pump station, IP 54 In compliance with NF C 15-100	X	-	BC1 230 DFNM 040 02	2,5 - 4,0	X	X	-	-	-	-	-	-	-	-	19073873	4.5
	DOL starting With manual-0-automatic selector switch,	X	-	BC1 230 DFNM 100 02	6,3 - 10,0	-	-	X	X	-	-	-	-	-	-	19073875	4.5
	indicator lamps and control panel High water alert	-	X	BC1 400 DFNO 025 02	1,6 - 2,5	-	-	-	-	X	X	-	-	-	-	19073877	4.5
	Integrated alarm buzzer, 85 dB(A) Operating hours counter / counter for start-stop cycles per pump	-	X	BC1 400 DFNO 040 02	2,5 - 4,0	-	-	-	-	-	-	X	X	-	-	19073878	4.5
	Voltage measurement, phase monitoring Volt-free contact for general fault message Optional mains-independent alarm via rechargeable battery Master switch 361 x 278 x 120 mm Float switch or 4..20 mA sensor	-	X	BC1 400 DFNO 063 02	4,0 - 6,3	-	-	-	-	-	-	-	-	X	X	19073879	4.5
	LevelControl Basic 2 control unit for dual-pump station, IP54 In compliance with NF C 15-100	X	-	BC2 230 DFNM 040 02	2,5 - 4,0	X	X	-	-	-	-	-	-	-	-	19073883	4.7
	Peak load operation function DOL starting With manual-0-automatic selector switch	X	-	BC2 230 DFNM 100 02	6,3 - 10,0	-	-	X	X	-	-	-	-	-	-	19073885	4.7
	indicator lamps and control panel High water alert	-	X	BC2 400 DFNO 025 02	1,6 - 2,5	-	-	-	-	X	X	-	-	-	-	19073887	4.7
	Integrated alarm buzzer, 85 dB(A) Operating hours counter / counter for start-stop cycles per pump	-	X	BC2 400 DFNO 040 02	2,5 - 4,0	-	-	-	-	-	-	X	X	-	-	19073888	4.7
	Voltage measurement, phase monitoring Volt-free contact for general fault message Optional mains-independent alarm via rechargeable battery Master switch 361 x 278 x 120 mm Float switch or 4..20 mA sensor	-	X	BC2 400 DFNO 063 02	4,0 - 6,3	-	-	-	-	-	-	-	-	X	X	19073889	4.7
	CEE motor protection plug, type Hyper ⁶⁾ 3/N/PE 16 A, IP X4 Phase inverter, contactor up to 4 kW, manual-0-automatic selector switch, connections for three-phase motor, thermal circuit breaker and float switch	-	X	Hyper CEE		-	-	-	-	X	X	X	X	X	X	18040512	0.8
	Multi-functional plug, type Hyper, with motor protection relay	-	X	Hyper 18.1	1,2 - 1,8	-	-	-	-	X	-	-	-	-	-	19071490	1
	3/N/PE 16 A, IP X4, phase inverter, motor monitoring, contactor up to 4 kW, motor protection relay,	-	X	Hyper 26.1	1,8 - 2,6	-	-	-	-	-	X	X	-	-	-	19071491	1

⁶⁾ Required for Ama-Drainer ND only

Item	Description	230 V	400 V	Type	Current min - max [A]	Ama-Drainer										Mat. No.	[kg]
						1~				3~							
						.05 .E	.07 .E	.11 .E	.15 .E	.05 .D	.07 .D	.11 .D	.15 .D	.22 .D	522/11		
	manual-0-automatic selector switch, reset key, indicator lamps for direction of rotation, operation and fault, connections for three-phase motor, thermal circuit breaker and float switch	-	X	Hyper 37.1	2,6 - 3,7	-	-	-	-	-	-	-	X	-	-	19071492	1
		-	X	Hyper 55.1	3,7 - 5,5	-	-	-	-	-	-	-	-	X	X	19071493	1

Optional components are not EDI-compatible (configurable range)

Operation with mini control system

For operation with mini control systems, separate float switches and appropriate cable lengths must be ordered with Ama-Drainer 405 NE to 415 NE or 505 NE to 515 NE since the float switch directly mounted on the S variant cannot be connected to the mini control system.

LevelControl with float switches:

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

Dual-pump operation with two level switches at different levels

Two pumps installed in the same installation location should be operated via the LevelControl unit. This control unit 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 MSE, MSD and Hyper, each control unit features a volt-free contact for transmitting the general fault message to the control station.

LevelControl Basic 2 control units

Only valid for France!

Feature	Single-pump station Float switch(es) incl. 4...20 mA	Dual-pump station Float switch(es) incl. 4...20 mA
230 V: 2.5 - 4.0 A	BC1 230 ^{DFNM} 040 02	BC2 230 ^{DFNM} 040 02
230 V: 6.0 - 10.0 A	BC1 230 ^{DFNM} 100 02	BC2 230 ^{DFNM} 100 02
400 V: 1.6 - 2.5 A	BC1 400 ^{DFNO} 025 02	BC2 400 ^{DFNO} 025 02
400 V: 2.5 - 4.0 A	BC1 400 ^{DFNO} 040 02	BC2 400 ^{DFNO} 040 02
400 V: 4.0 - 6.3 A	BC1 400 ^{DFNO} 063 02	BC2 400 ^{DFNO} 063 02
Functions		
Tank drainage	X	X
Tank filling via float switch	X	X
Stand-by pump: 1 pump redundant	-	X
Automatic pump changeover after every start	-	X
Automatic pump changeover in the case of a pump fault	-	X




Feature	Single-pump station Float switch(es) incl. 4...20 mA	Dual-pump station Float switch(es) incl. 4...20 mA
Peak load operation function	-	X
Runtime limitation	X	X
OFF via after-run time	X	X
OFF via level	X	X
Operation check run after idle period	X	X
Alert memory	-	-
Display and operation		
7-segment display	X	X
Indication of water level	Switching points	Switching points
For each pump: operation/fault/pump running	Multicolour LED	Multicolour LED
General fault (traffic light)	LED	LED
High water	LED	LED
Mains voltage	X	X
Mains frequency	-	-
Motor current per pump	-	-
Operating hours of each pump	X	X
Operating hours of the system	-	-
Starts per pump	X	X
Effective power per pump	-	-
Rotary field recognition of mains power supply	X	X
Phase monitoring	X	X
Change of switching level via control panel	-	-
Housing H x W x D, IP 54		
Plastic 361 x 278 x 120	X	X
Sheet steel 400 x 300 x 155	-	-
Sheet steel 600 x 400 x 200	-	-
Built-in components		
Master switch (lockable)	X	X
Manual-0-automatic selector switch per pump	X	X
DOL starting	X	X
Star-delta starting	-	-
Shockproof socket 230 V	For 230 V	For 230 V
Motor protection		
Fuse per pump	For 230 V	For 230 V
Motor protection switch per pump (overcurrent and short-circuit protection)	For 400 V	For 400 V
Motor temperature warning input - self-acknowledging	X	X
Motor temperature alert input - manual acknowledgement	X	X
Pump		
Thermal circuit breaker (TCB) / bimetal switch per pump	400 V: brought out	400 V: brought out
Optional Components		
Rechargeable battery for powering the electronics, sensors, alarm equipment	o	o
Alarm equipment		
1 free alarm input	X	X
1 digital high water alert input (e.g. for float switch)	X	X
Volt-free contact (changeover contact) for general fault/operation message	X	X
Piezo buzzer 85 dB(A)	X	X
Horn 105 dB(A) / alarm combination / alarm strobe light 12 V DC	o	o
Inputs/outputs		
Inputs for float switches	4	4
4...20 mA analog input	X	X
Integrated pneumatic pressure sensor up to 3 metres of water - up to 10 metres on request	-	-
Bubbler system with compressor up to 2 metres of water	-	-
Remote acknowledgement	X	X
12 V DC connection for horn, alarm combination, alarm strobe light	X	X
Sensors		
Float switch (NO contact)	o	o
F1 moisture sensor	o	o

Feature	Single-pump station Float switch(es) incl. 4...20 mA	Dual-pump station Float switch(es) incl. 4...20 mA
Tools		
KSB ServiceTool for Windows XP	o	o

Key to the symbols

Symbol	Description
o	Optional
x	Available
-	Not available



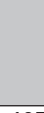
Alarm switchgear

Item	Description	Ama-Drainer										Mat. No.	[kg]		
		1~					3~								
		.05.E	.07.E	.11.E	.15.E	.05.D	.07.D	.11.D	.15.D	.22.D	522/11				
	<p>Alarm switchgear</p> <p>With circuit breaker, acoustic signal transmitter with 85 dB(A), green equipment-on lamp</p> <p>Plastic housing IP 20, 140 x 80 x 57 mm. Use float switch, F1 moisture sensor (item E 64) or signal relay of control unit as contactor.</p>														
E50	<p>AS 0 Buzzer/switching input</p> <p>Mains-dependent</p>	X	X	X	X	X	X	X	X	X	X	X	X	29128401	0.5
E51	<p>AS 2 Buzzer/switching input, Mains-dependent with volt-free signalling contact</p>	X	X	X	X	X	X	X	X	X	X	X	X	29128422	0.5
E52	<p>AS 4 Buzzer/switching input, Mains-independent with volt-free signalling contact/battery buffer</p>	X	X	X	X	X	X	X	X	X	X	X	X	29128442	0.5
	<p>E53 AS 5 Alarm equipment (e.g. horn), Volt-free contact/battery buffer</p> <p>230 V ~/ 12 V = 5 VA</p> <p>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, horn-off push button, volt-free contact for hook-up to a control station, ready for connection with 1.8 m connection cable and plug.</p> <p>ISO housing IP41, 190 x 165 x 75 mm. Use float switch (E60) or signal relay of control unit as contactor.</p>	X	X	X	X	X	X	X	X	X	X	X	X	00530561	1.7
	<p>E55 AS 1 Buzzer/moisture sensor</p> <p>230 V ~/ 9 V = 1,5 VA</p> <p>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-metre connection cable, max. 60 °C, not suitable for steam and condensate.</p> <p>Alarm transmission options:</p> <ol style="list-style-type: none"> 1. High water alert by suspending the moisture 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 contactor on the floor of rooms at risk of flooding, e.g. the cellar or next to the washing machine in the kitchen or bathroom. 	X	X	X	X	X	X	X	X	X	X	X	X	00533740	0.9

Control unit/switchgear accessories

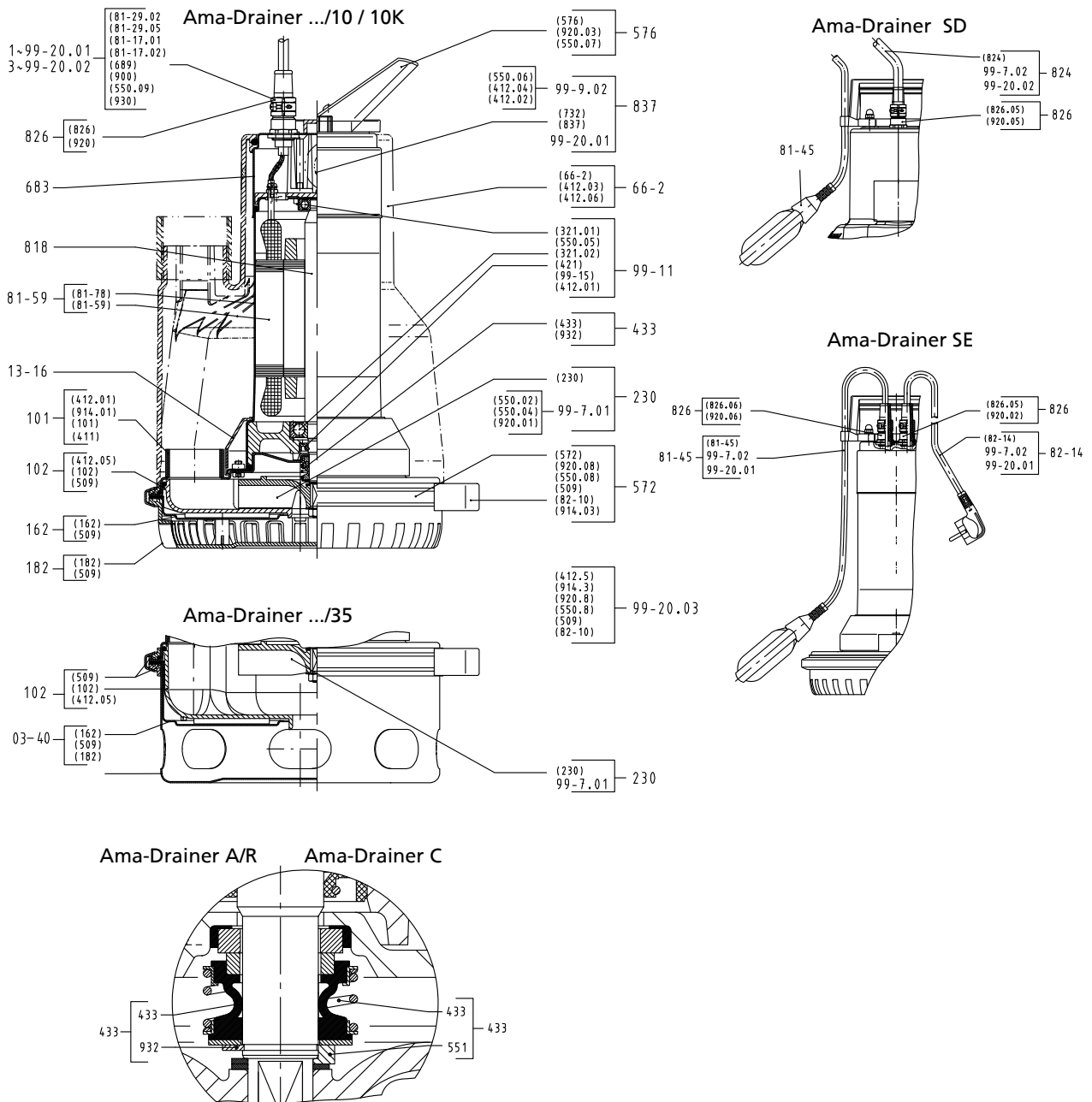
	Item	Description		Ama-Drainer										Mat. No.	[kg]		
				1~					3~								
				.05.E	.07.E	.11.E	.15.E	.05.D	.07.D	.11.D	.15.D	.22.D	522/11				
	E60	Float switch with free cable end (NO contact) Switch housing made of polypropylene (max. fluid temperature 70 °C), circuit closed in upper float position, connection cable (H07RN-F3G1) 230 V AC or 24 V AC/DC, 8 A max., 20 mA min. Circuit closed in upper float position Power cable (H 07 RN-F3G1)	3 m	X	X	X	X	X	X	X	X	X	X	X	11037742	0.5	
			5 m	X	X	X	X	X	X	X	X	X	X	X	11037743	0.8	
			10 m	X	X	X	X	X	X	X	X	X	X	X	11037744	1.3	
			15 m	X	X	X	X	X	X	X	X	X	X	X	11037745	1.8	
			20 m	X	X	X	X	X	X	X	X	X	X	X	11037746	2.4	
			25 m	X	X	X	X	X	X	X	X	X	X	X	11037747	2.9	
			30 m	X	X	X	X	X	X	X	X	X	X	X	11037748	3.4	
	E61	Float switch with free cable end, oil-resistant (NO contact) Circuit closed in upper float position (PUR 3 x 1)	5 m	X	X	X	X	X	X	X	X	X	X	11037753	0.8		
			10 m	X	X	X	X	X	X	X	X	X	X	11037754	1.2		
			20 m	X	X	X	X	X	X	X	X	X	X	X	11037755	2	
	E62	Float switch with free cable end (NC contact) ⁷⁾ Circuit open in upper float position (H07RN-F 3G1)	5 m	X	X	X	X	X	X	X	X	X	X	11037756	0.8		
			10 m	X	X	X	X	X	X	X	X	X	X	11037757	1.4		
			20 m	X	X	X	X	X	X	X	X	X	X	X	11037758	2.6	
		Float switch for filling, with shockproof plug (NO contact), circuit closed in upper float position, 230 V AC, 50 Hz, max. 8 A (H 07 RN-F3G1)	3 m	X	X	X	-	-	-	-	-	-	-	11037749	1.1		
			5 m	X	X	X	-	-	-	-	-	-	-	-	11037750	1.3	
			10 m	X	X	X	-	-	-	-	-	-	-	-	11037751	1.6	
			20 m	X	X	X	-	-	-	-	-	-	-	-	11037752	2.7	
		Float switch for filling, with shockproof plug (NC contact), circuit open in upper float position, 230 V AC, 50 Hz, max. 8 A (H 07 RN-F3G1)	3 m	X	X	X	-	-	-	-	-	-	-	-	11037759	0.6	
			5 m	X	X	X	-	-	-	-	-	-	-	-	-	11037760	0.9
			10 m	X	X	X	-	-	-	-	-	-	-	-	-	11037761	1.5
			20 m	X	X	X	-	-	-	-	-	-	-	-	-	11037762	2.7
	E64	Leakage sensor F 1 As contactor for alarm switchgears AS 0, AS 2 or AS 4, with 3-metre connection cable, max. 40 °C, not suitable for steam and condensate. Possible applications for alarm transmission: 1. High water alert by suspending the moisture sensor in a (pump) sump above the pump start-up point. 2. Water alarm signal at a water level of only 1 mm (!) in areas at risk of flooding in the cellar or next to the washing machine in the kitchen or bathroom. Dimensions: (H mm x W mm x D mm) 52 x 21 x 20	3 m	X	X	X	X	X	X	X	X	X	X	19072366	0.2		
	E65	Open pressure bell set - pneumatic and bubbler control with polyamide tube 8 x 1 mm	10 m	X	X	X	X	X	X	X	X	X	X	19071721	1.2		
			20 m	X	X	X	X	X	X	X	X	X	X	19071837	2		
	E66	Closed pressure bell set - pneumatic with polyamide tube 8 x 3 mm	10 m	X	X	X	X	X	X	X	X	X	X	19071722	3.5		

⁷⁾ Not suitable for LevelControl

	Item	Description	Ama-Drainer										Mat. No.	[kg]		
			1~					3~								
			.05.E	.07.E	.11.E	.15.E	.05.D	.07.D	.11.D	.15.D	.22.D	522/11				
	E70	 Horn, 12 V DC, 105 dB, 150 mA, IP54, with 0.45 m connection cable For indoor and outdoor installation, to be mounted in a position where it is protected from direct rain		X	X	X	X	X	X	X	X	X	X	X	01086547	0.1
	E80	 Safety switch STECKMAT Tripping in approx. 0.03 s even in the event of minor and harmless leakage currents as low as approx. 0.03 A 230 V / 10 A		X	X	X	X	-	-	-	-	-	-	-	00534217	0.5
	E90	 Rechargeable battery retrofit kit for LevelControl Basic 2. Powers the electronics, float switches, level sensor(s) or the internal pressure sensor and the alarm equipment (buzzer, horn, alarm combination), for single-pump and dual-pump stations.	For type BC, includes 2 rechargeable batteries 6 V, 1.3 Ah and charging unit	X	X	X	X	X	X	X	X	X	X	X	19074194	0.8

General assembly drawings with list of components

General assembly drawing Ama-Drainer .../10, .../10K, .../35

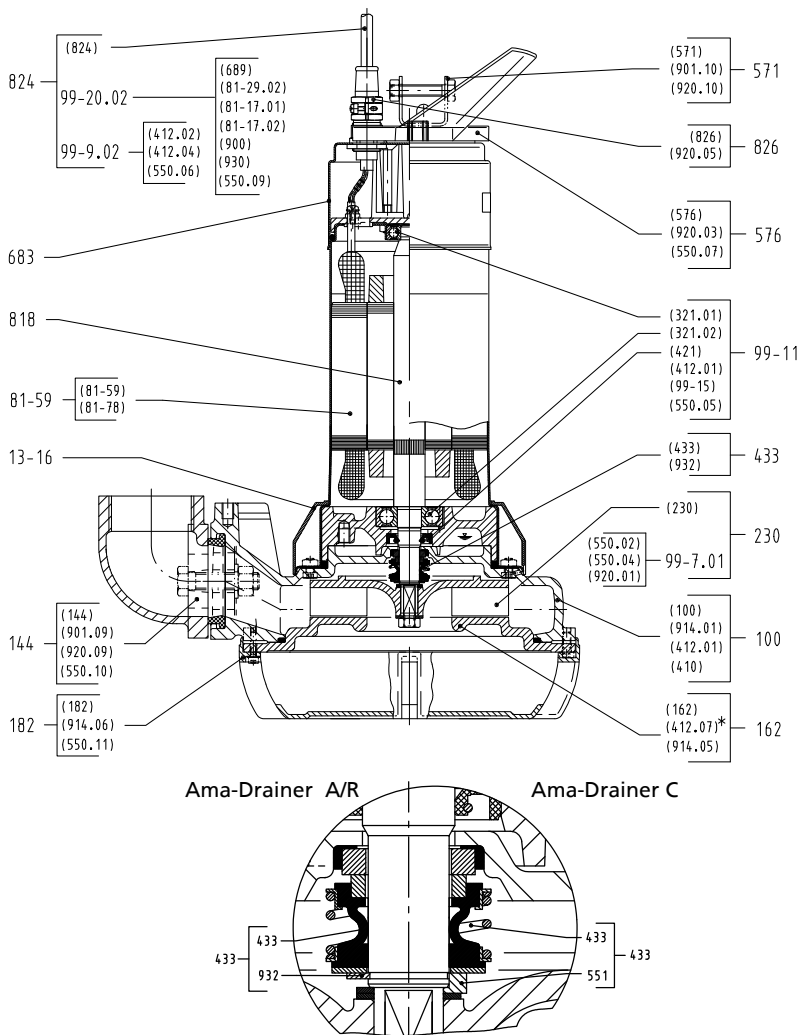


General assembly drawing of Ama-Drainer .../10, .../10K, .../35

Part No.	Description	Comprises:
03-40	Foot/suction cover assembly (for .../35)	Suction cover 162, foot 182, intermediate ring 509
101	Pump casing, complete	Pump casing 101, joint ring 411, O-ring 412.01, hexagon socket head cap screw 914.01
102	Volute casing	Volute casing 102, O-ring 412.05, intermediate ring 509
13-16	Protective casing	Protective casing 13-16
162	Suction cover	Suction cover 162, intermediate ring 509

Part No.	Description	Comprises:
182	Foot	Foot 182, intermediate ring 509
230	Impeller, complete	Impeller 230, impeller installation kit 99-7.01
433	Mechanical seal, complete	Mechanical seal 433, spacer disc 551 (only for variant C), circlip 932
572	Clamp, complete	Clamp 572, hexagon socket head cap screw 914.03, nut 920.08, disc 550.08, intermediate ring 509, cover strip 82-10
576	Handle, complete	Handle 576, cap nut 920.03, disc 550.07, plate 970
66-2	Cooling jacket, set of accessories	Cooling jacket 66-2, O-ring 412.03, O-ring 412.06
683	Hood	Hood 683
81-45	Float switch (single-phase units)	Float switch 6 A / 0.5 m, float switch 10 A / 0.5 m, installation kit for hood 99-7.02, repair kit for cable (single-phase) 99-20.01
81-45	Float switch (three-phase units)	Float switch 6 A / 10 m
81-59	Stator, complete	Stator 81-59; stator case 81-78
818	Rotor	Rotor 818
82-14	Cable with plug (single-phase units)	Cable with plug 3 x 1, 10m; installation kit for hood 99-7.02, repair kit for cable (single-phase) 99-20.01
824	Cable (for three-phase units)	Cable 6 x 1 10 m 824, installation kit for hood 99-7.02, repair kit 99-20.02
826	Cable gland	Cable gland 826, nut (M20 x 1.5) 920.05
837	Capacitor (single-phase units only)	Capacitor 837, capacitor holder 732, installation kit for hood 99-7.02, cable repair kit (single-phase) 99-20.01
99-7.01	Impeller installation kit	Adjusting washer 550.02, disc 550.04, nut 920.01
99-7.02	Installation kit for hood	O-ring 412.02, O-ring 412.04, disc 550.06
99-11	Bearings	Deep-groove ball bearing 321.01, deep-groove ball bearing 321.02, shaft seal ring 421, O-ring 412.01, lubricating oil 99-15, disc 550.05
99-20.01/02	Cable repair kit	Insulation tube 689, terminal 81-29.02, end connector 81-17.01, end connector 81-17.02, screw 900, serrated lockwasher 930, disc 550.09
99-20.03	Hydraulic system repair kit	O-ring 412.05, hexagon socket head cap screw 914.03, nut 920.08, disc 550.08, intermediate ring 509, cover strip 82-10

General assembly drawing Ama-Drainer 522/11



General assembly drawing of Ama-Drainer 522/11

Part No.	Description	Comprises:
100	Casing, complete	Casing 100, hexagon socket head cap screw 914.01, O-ring 412.01, profile seal 410
144	Discharge elbow, complete	Discharge elbow, hexagon head bolt 901.09, nut 920.09, disc 550.10
13-16	Protective casing	Protective casing 13-16
162	Suction cover	Suction cover 162, hexagon socket head cap screw 914.05
182	Foot	Foot 182, hexagon socket head cap screw 914.06, disc 550.11
230	Impeller, complete	Impeller 230, impeller installation kit 99-7.01
433	Mechanical seal, complete	Mechanical seal 433, spacer disc 551 (for variant C only), circlip 932
571	Bracket, complete	Bracket 571, hexagon head bolt 901.10, hexagon nut 920.10
576	Handle, complete	Handle 576, cap nut 920.03, disc 550.07
683	Hood	Hood 683
81-45	Float switch (three-phase units)	Float switch 6 A / 10 m
81-59	Stator, complete	Stator 81-59; stator case 81-78
818	Rotor	Rotor 818
824	Cable (three-phase units)	Cable 6 x 1 10 m 824, installation kit for hood 99-7.02, repair kit 99-20.02
826	Cable gland	Cable gland 826, nut (M20 x 1.5) 920.05
99-7.01	Impeller installation kit	Adjusting washer 550.02, disc 550.04, nut 920.01
99-7.02	Installation kit for hood	O-ring 412.02, O-ring 412.04, disc 550.06
99-11	Bearings	Deep-groove ball bearing 321.01, deep-groove ball bearing 321.02, shaft seal ring 421, O-ring 412.01, lubricating oil 99-15, disc 550.05

Part No.	Description	Comprises:
99-20.02	Cable repair kit	Insulation tube 689, terminal 81-29.02, end connector 81-17.01, end connector 81-17.02, screw 900, serrated lockwasher 930, disc 550.09
99-20.03	Hydraulic system repair kit	O-ring 412.05, hexagon socket head cap screw 914.03, nut 920.08, disc 550.08, intermediate ring 509, cover strip 82-10



KSB Aktiengesellschaft

67225 Frankenthal • Johann-Klein-Str. 9 • 67227 Frankenthal (Germany)

Tel. +49 6233 86-0 • Fax +49 6233 86-3401

www.ksb.com

08.01.2016

2331.53/09-EN