

Waste Water, Condensate and Heat Transfer
Liquid Pump

MK

Type Series Booklet



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Type Series Booklet MK

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Drainage / Waste Water

Waste Water, Condensate and Heat Transfer Fluid Pump

MK



Main applications

MK, MKA

- Automatic drainage of rooms at risk of flooding
- Drainage of collecting basins or pits
- Condensate return from non-pressurised tanks

MKY

- Condensate return systems
- Heating systems
- Heat transfer systems

Fluids handled

MK, MKA

- Grey water
- Oil
- Emulsions
- Aggressive fluids
- Condensate

MKY

- Condensate
- Heat transfer fluids below boiling point

Operating data

Operating properties

Characteristic		Value	
		MK, MKA	MKY
Flow rate	Q	2 to 36 m ³ /h (0.56 to 10 l/s)	
Head	H	Up to 19 m	
Operating temperature	t	-10 °C to +90 °C ¹⁾	Up to 200 °C ²⁾

Designation

MK A - B 20 - 1/ 100

Key to the designation

Code	Description
MK	Type series
A	Design
	³⁾ Pump without discharge pipe, without cover plate, with motor
A	Pump with square mounting/cover plate and discharge pipe, with motor
Y	Pump with round mounting/cover plate and flanged discharge pipe, with lantern, gland packing and motor
B	Casing material
	Grey cast iron
B	Tin bronze
C	Cast chrome nickel molybdenum steel
2	Pipe connection
	2 Rp 2
0	Design status
1	Power code (defines the impeller diameter)
	1 - 6
100	Installation depth [cm]
	100, 190, 280

Design details

Design

- Volute casing
- Vertical installation
- Rigid connection between pump and motor
- Single-stage

Drive

- KSB surface-cooled IEC frame three-phase current squirrel-cage motor
- 230 / 400 V
- Type of construction: V1
- IP55 enclosure
- Motors integrated in explosion-proof pump sets are supplied in Ex d IIB type of protection.

Shaft seal

MK, MKA:

- Vapour barrier

1) For versions with a bearing bush made of acrylonitrile butadiene rubber: up to 80 °C or temperature class T5 (EN 13463-1)

2) For water up to 110 °C

3) Blank

MKY:

- Gland packing

Impeller type

- Three-channel impeller

Bearings

Drive-end:

- Radial ball bearing
- Greased for life

Impeller end:

- Bearing bush
- Product-lubricated
- **Optional:** internal lubrication by the fluid handled, lubrication by an external fluid or by grease

Explosion protection

MK, MKA:

- Available⁴⁾

MKY:

- Unavailable

Materials

Overview of available materials

Description	Variant			
	MK, MKA	MK-B, MKA-B	MK-C, MKA-C	MKY
Casing / impeller	Grey cast iron	Tin bronze	Cast chrome nickel molybdenum steel	Grey cast iron
Shaft / coupling	Chrome steel	Chrome nickel molybdenum steel	Chrome nickel molybdenum steel	Chrome steel
Discharge pipe	Galvanised steel	Chrome nickel molybdenum steel	Chrome nickel molybdenum steel	Steel

Selection tables

Bearing bush depending on the type series

Pump	Bearing bush							
	Steel/polytetrafluoroethylene	Tin bronze	Grey cast iron	Acrylonitrile butadiene rubber	Fluoroelastomer	Polytetrafluoroethylene, glass fibre reinforced	Carbon, phenolic resin impregnated	Carbon, antimony impregnated
MK, MKA	X	■	■	■	■	-	-	-
MK-B, MKA-B	-	X	-	■	■	■	■	-
MK-C, MKA-C	-	-	-	■	■	■	X	-
MKY	-	-	-	■	■	-	-	X

- X Standard
- On request
- Unavailable

Bearing bush depending on material properties

Bearing bush	Gliding properties	Sand resistance	Dry running ability
Steel/polytetrafluoroethylene	Very good	Satisfactory	Good
Tin bronze	Good	Average	Poor
Grey cast iron	Average	Average	Low
Acrylonitrile butadiene rubber	Good	Good	Poor
Fluoroelastomer	Good	Good	Poor
Polytetrafluoroethylene, glass fibre reinforced	Good	Poor	Poor
Carbon, phenolic resin impregnated	Good	Poor	Low
Carbon, antimony impregnated	Good	Poor	Low

⁴⁾ For explosion-proof variants one of the optional lubrication types must be used for the bearing bush.

Lubrication options depending on the bearing bush

Bearing bush	Internal lubrication by fluid handled	Lubrication by external fluid	Grease lubrication
Steel/polytetrafluoroethylene	X	-	-
Tin bronze	X	X	X
Grey cast iron	X	X	X
Acrylonitrile butadiene rubber	X	X	-
Fluoroelastomer	X	X	-
Polytetrafluoroethylene, glass fibre reinforced	X	-	-
Carbon, phenolic resin impregnated	X	-	-
Carbon, antimony impregnated	-	-	-

Product benefits

- Fitted with a three-channel impeller for fluids containing solids of up to 18 mm
- Rod-actuated float switch for high temperatures and viscous fluids
- Flexible with support column for variable installation depths
- Integrated suction strainer prevents clogging.
- Durable with robust deep groove ball bearings

Technical data

MK, MKA designs without motor

Technical data

Size	MK		MKA	
	Product code	[kg]	Product code	[kg]
20-1/100	MK20-1/100GGN	34	MKA20-1/100GGN	62
20-1/190	MK20-1/190GGN	50	MKA20-1/190GGN	82
20-1/280	MK20-1/280GGN	66	MKA20-1/280GGN	102
20-2/100	MK20-2/100GGN	34	MKA20-2/100GGN	62
20-2/190	MK20-2/190GGN	50	MKA20-2/190GGN	82
20-2/280	MK20-2/280GGN	66	MKA20-2/280GGN	102
20-3/100	MK20-3/100GGN	35	MKA20-3/100GGN	63
20-3/190	MK20-3/190GGN	51	MKA20-3/190GGN	83
20-3/280	MK20-3/280GGN	67	MKA20-3/280GGN	103
20-4/100	MK20-4/100GGN	35	MKA20-4/100GGN	63
20-4/190	MK20-4/190GGN	51	MKA20-4/190GGN	83
20-4/280	MK20-4/280GGN	67	MKA20-4/280GGN	103
20-5/100	MK20-5/100GGN	34	MKA20-5/100GGN	62
20-5/190	MK20-5/190GGN	50	MKA20-5/190GGN	72
20-5/280	MK20-5/280GGN	66	MKA20-5/280GGN	102
20-6/100	MK20-6/100GGN	35	MKA20-6/100GGN	63
20-6/190	MK20-6/190GGN	51	MKA20-6/190GGN	83
20-6/280	MK20-6/280GGN	68	MKA20-6/280GGN	104

MK-B, MKA-B designs without motor

Technical data

Size	MK-B		MKA-B	
	Product code	[kg]	Product code	[kg]
20-1/100	MK20-1/100BN	40	MKA20-1/100BN	71
20-1/190	MK20-1/190BN	58	MKA20-1/190BN	94
20-1/280	MK20-1/280BN	76	MKA20-1/280BN	116
20-2/100	MK20-2/100BN	40	MKA20-2/100BN	71
20-2/190	MK20-2/190BN	58	MKA20-2/190BN	94
20-2/280	MK20-2/280BN	76	MKA20-2/280BN	116
20-3/100	MK20-3/100BN	41	MKA20-3/100BN	72
20-3/190	MK20-3/190BN	59	MKA20-3/190BN	95
20-3/280	MK20-3/280BN	77	MKA20-3/280BN	117
20-4/100	MK20-4/100BN	41	MKA20-4/100BN	72
20-4/190	MK20-4/190BN	59	MKA20-4/190BN	95
20-4/280	MK20-4/280BN	77	MKA20-4/280BN	117

Size	MK-B		MKA-B	
	Product code	[kg]	Product code	[kg]
20-5/100	MK20-5/100BN	40	MKA20-5/100BN	71
20-5/190	MK20-5/190BN	58	MKA20-5/190BN	94
20-5/280	MK20-5/280BN	76	MKA20-5/280BN	116
20-6/100	MK20-6/100BN	41	MKA20-6/100BN	68
20-6/190	MK20-6/190BN	59	MKA20-6/190BN	91
20-6/280	MK20-6/280BN	79	MKA20-6/280BN	113

MK-C, MKA-C designs without motor

Technical data

Size	MK-C		MKA-C	
	Product code	[kg]	Product code	[kg]
20-1/100	MK20-1/100CN	37	MKA20-1/100CN	69
20-1/190	MK20-1/190CN	54	MKA20-1/190CN	90
20-1/280	MK20-1/280CN	71	MKA20-1/280CN	110
20-2/100	MK20-2/100CN	37	MKA20-2/100CN	69
20-2/190	MK20-2/190CN	54	MKA20-2/190CN	90
20-2/280	MK20-2/280CN	71	MKA20-2/280CN	110
20-3/100	MK20-3/100CN	37	MKA20-3/100CN	67
20-3/190	MK20-3/190CN	54	MKA20-3/190CN	89
20-3/280	MK20-3/280CN	72	MKA20-3/280CN	111
20-4/100	MK20-4/100CN	37	MKA20-4/100CN	67
20-4/190	MK20-4/190CN	54	MKA20-4/190CN	89
20-4/280	MK20-4/280CN	72	MKA20-4/280CN	111
20-5/100	MK20-5/100CN	37	MKA20-5/100CN	67
20-5/190	MK20-5/190CN	54	MKA20-5/190CN	88
20-5/280	MK20-5/280CN	71	MKA20-5/280CN	110
20-6/100	MK20-6/100CN	38	MKA20-6/100CN	68
20-6/190	MK20-6/190CN	55	MKA20-6/190CN	89
20-6/280	MK20-6/280CN	73	MKA20-6/280CN	111

MKY design without motor

Technical data


Size	Product code	[kg]
20-1/100	MKY20-1/100GGN	72
20-1/190	MKY20-1/190GGN	92
20-1/280	MKY20-1/280GGN	112
20-2/100	MKY20-2/100GGN	72
20-2/190	MKY20-2/190GGN	92
20-2/280	MKY20-2/280GGN	112
20-3/100	MKY20-3/100GGN	73
20-3/190	MKY20-3/190GGN	93

Size	Product code	[kg]
20-3/280	MKY20-3/280GGN	113
20-4/100	MKY20-4/100GGN	72
20-4/190	MKY20-4/190GGN	92
20-4/280	MKY20-4/280GGN	112
20-5/100	MKY20-5/100GGN	73
20-5/190	MKY20-5/190GGN	93
20-5/280	MKY20-5/280GGN	114
20-6/100	MKY20-6/100GGN	71
20-6/190	MKY20-6/190GGN	91
20-6/280	MKY20-6/280GGN	112

Motors

Standard design V1, 400 V, 50 Hz, enclosure IP 55

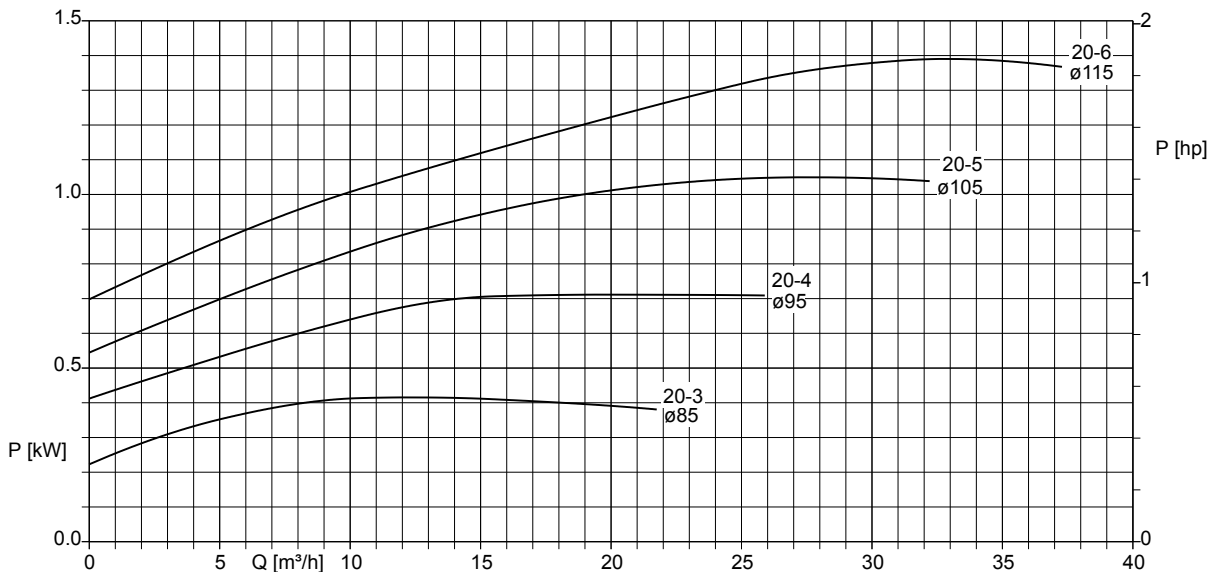
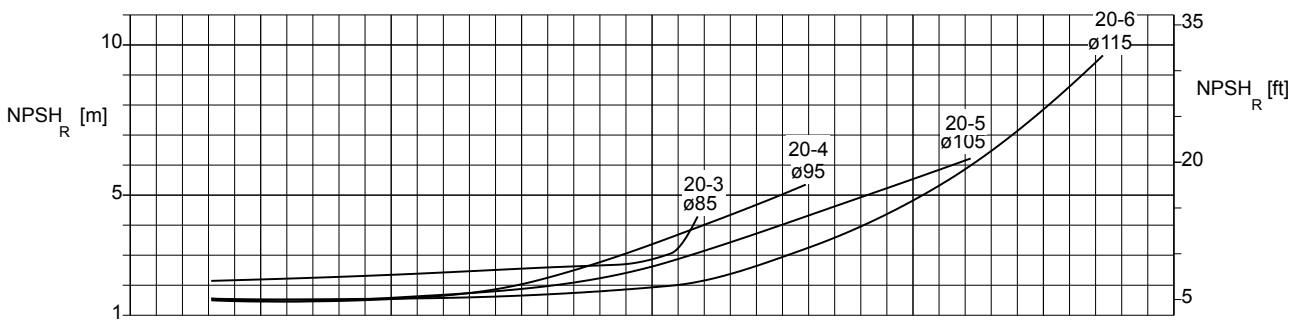
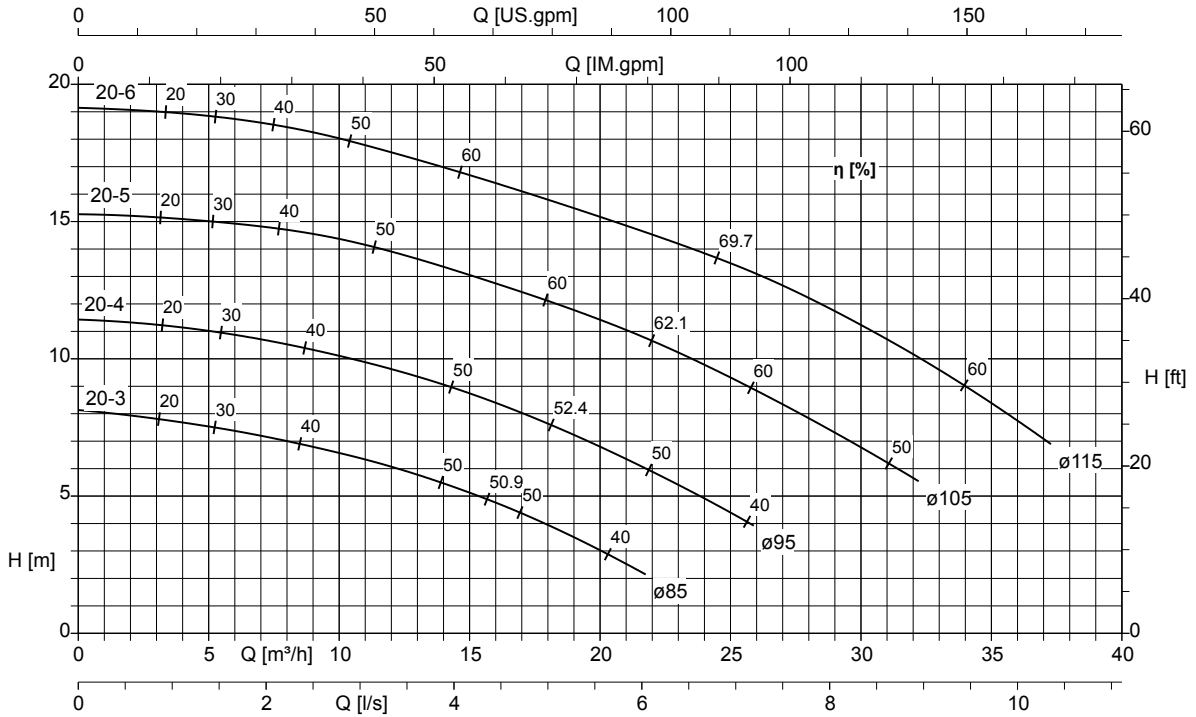
Size	Make	Number of poles	Efficiency class	P ₂ [kW]	I [A]	Mat. No.	[kg]
80	KSB	4	IE1	0,55	1,5	01053394	8.8
80	Siemens	4	IE1	0,55	1,5	01036172	8.8
80	KSB	4	IE2	0,75	1,8	01053395	10
80	Siemens	4	IE2	0,75	1,8	01036173	10
80	KSB	2	IE2	1,10	2,6	01149766	12
80	Siemens	2	IE2	1,10	2,6	01128516	12
90 S	KSB	2	IE2	1,50	3,4	01149911	15
90 S	Siemens	2	IE2	1,50	3,4	01128563	15
90 L	KSB	2	IE2	2,20	4,7	01149916	18
90 L	Siemens	2	IE2	2,20	4,7	01128517	12

 Motors for operation in potentially explosive atmospheres can also be ordered from KSB.

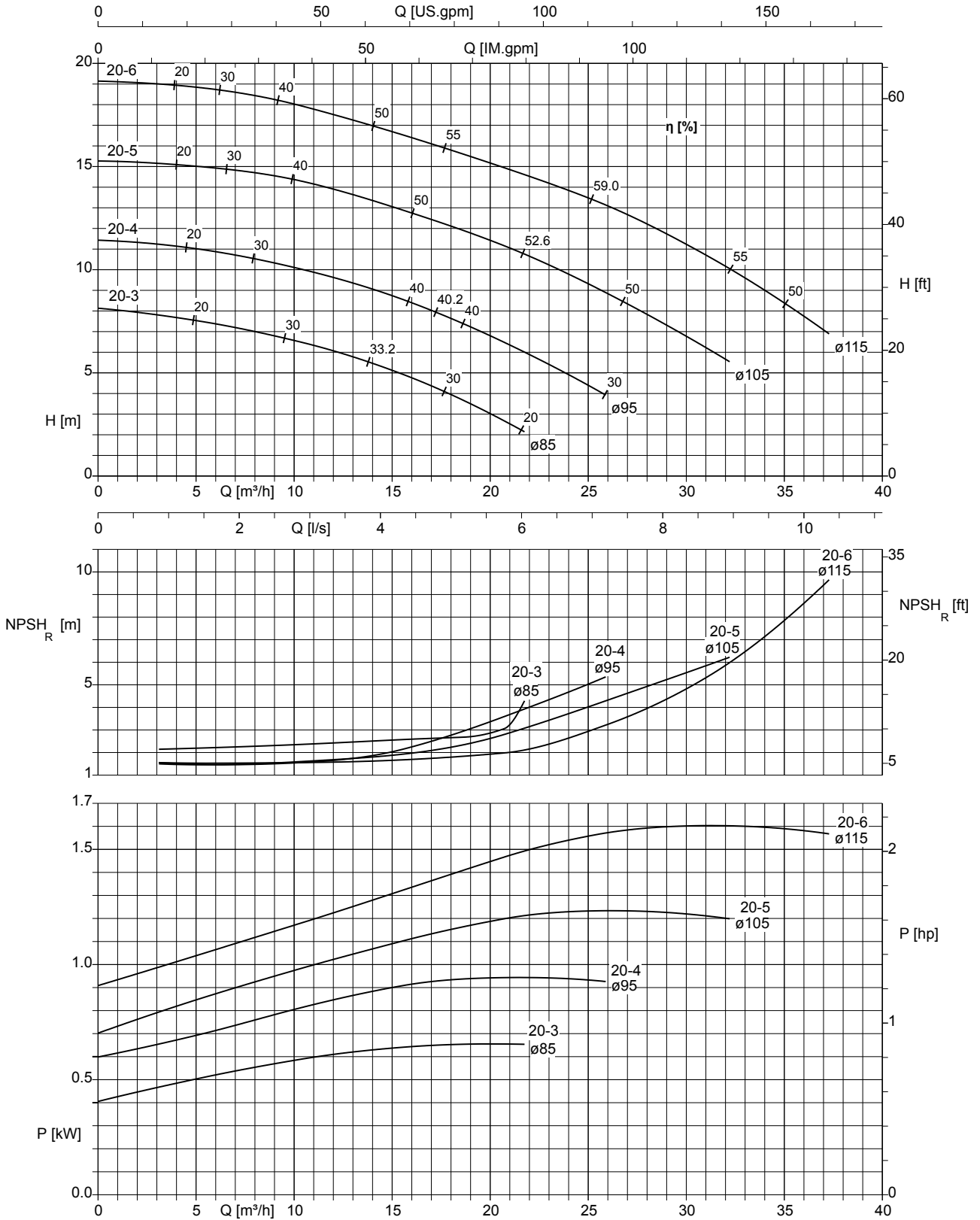
Characteristic curves

n = 2900 rpm

MK/MKA 20-3, 20-4, 20-5, 20-6; n = 2900 rpm

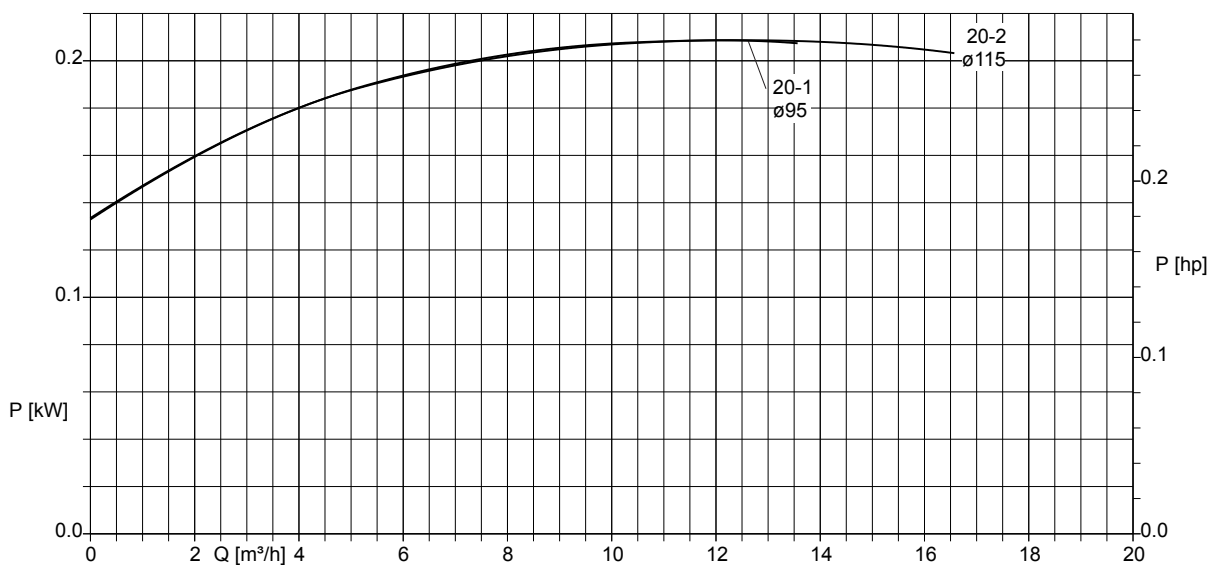
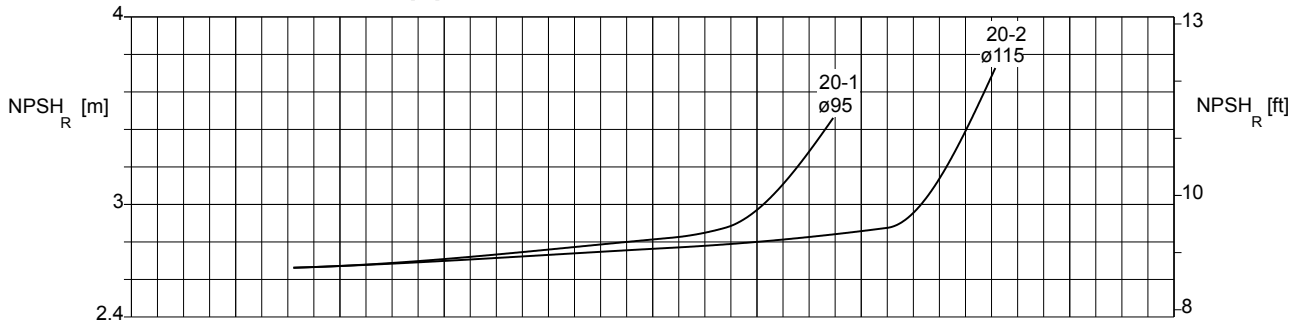
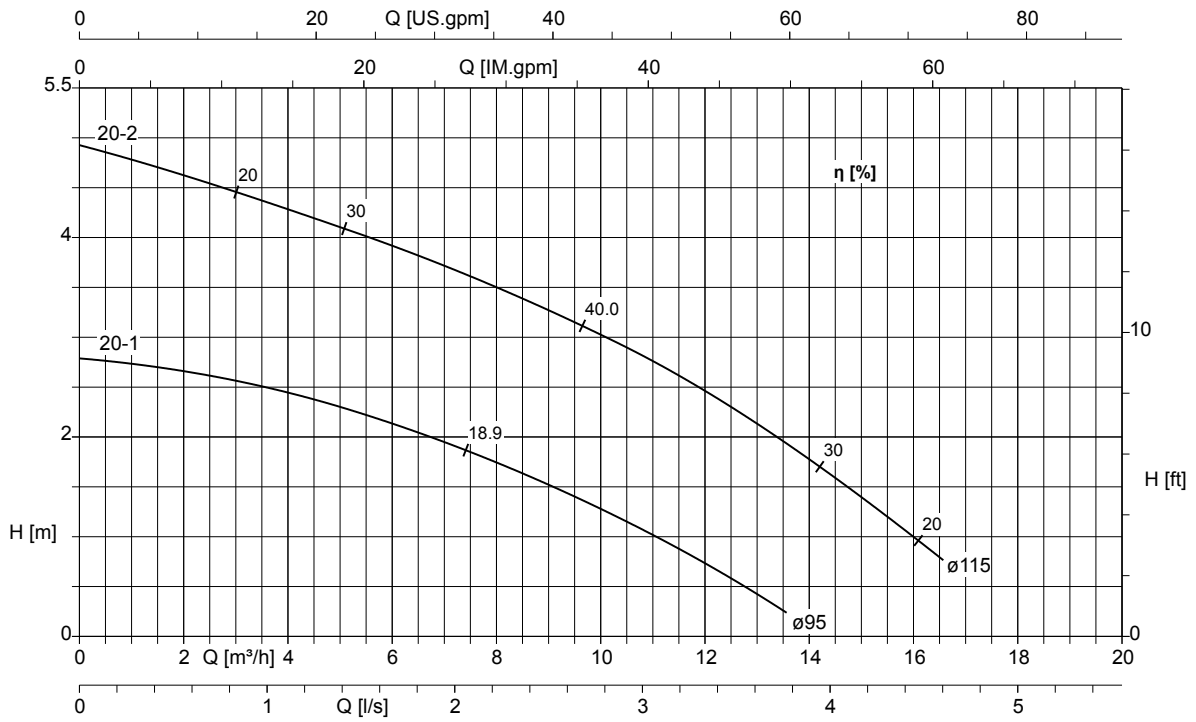


MKY 20-3, 20-4, 20-5, 20-6; n = 2900 rpm

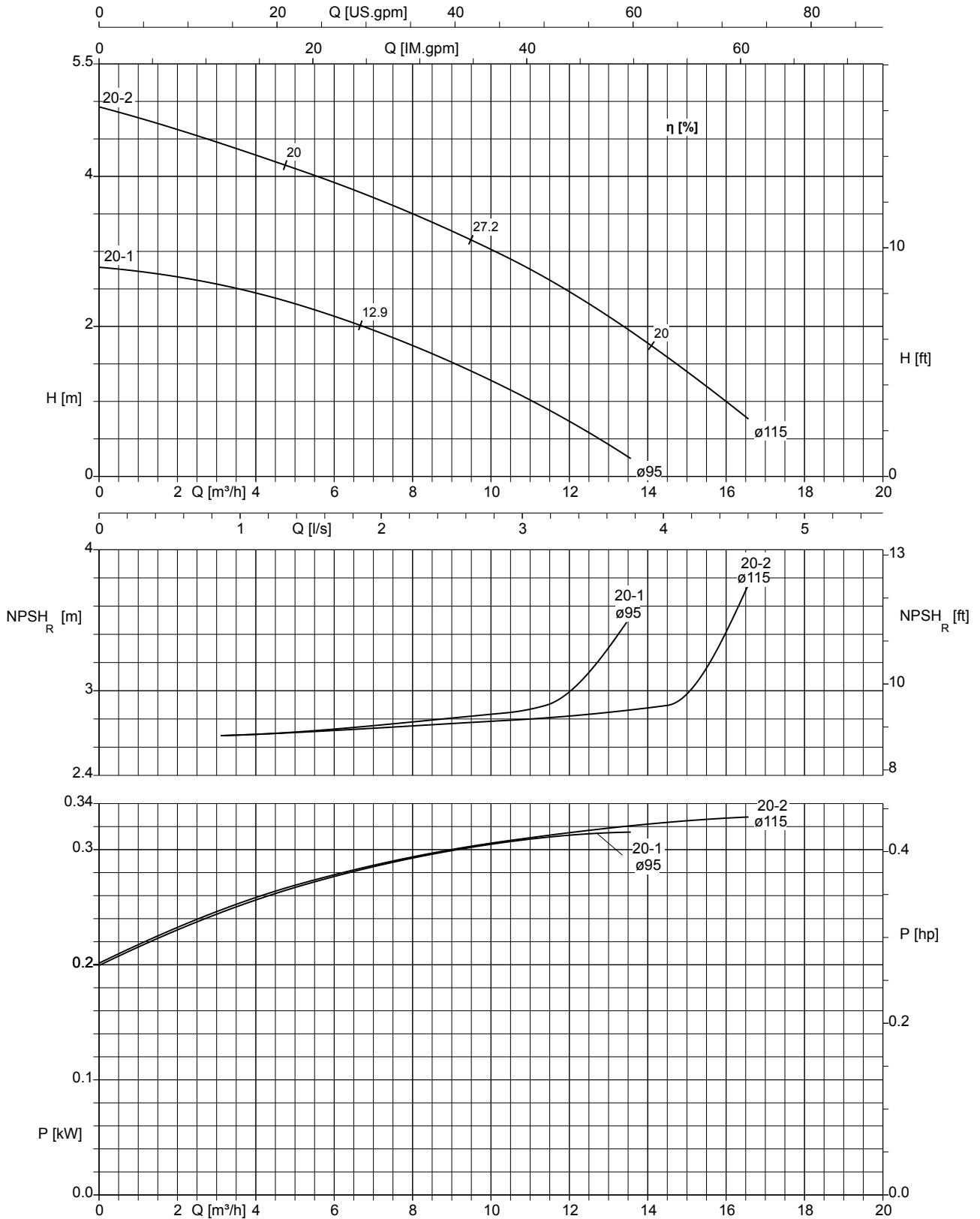


n = 1450 rpm

MK/MKA 20-1, 20-2; n = 1450 rpm

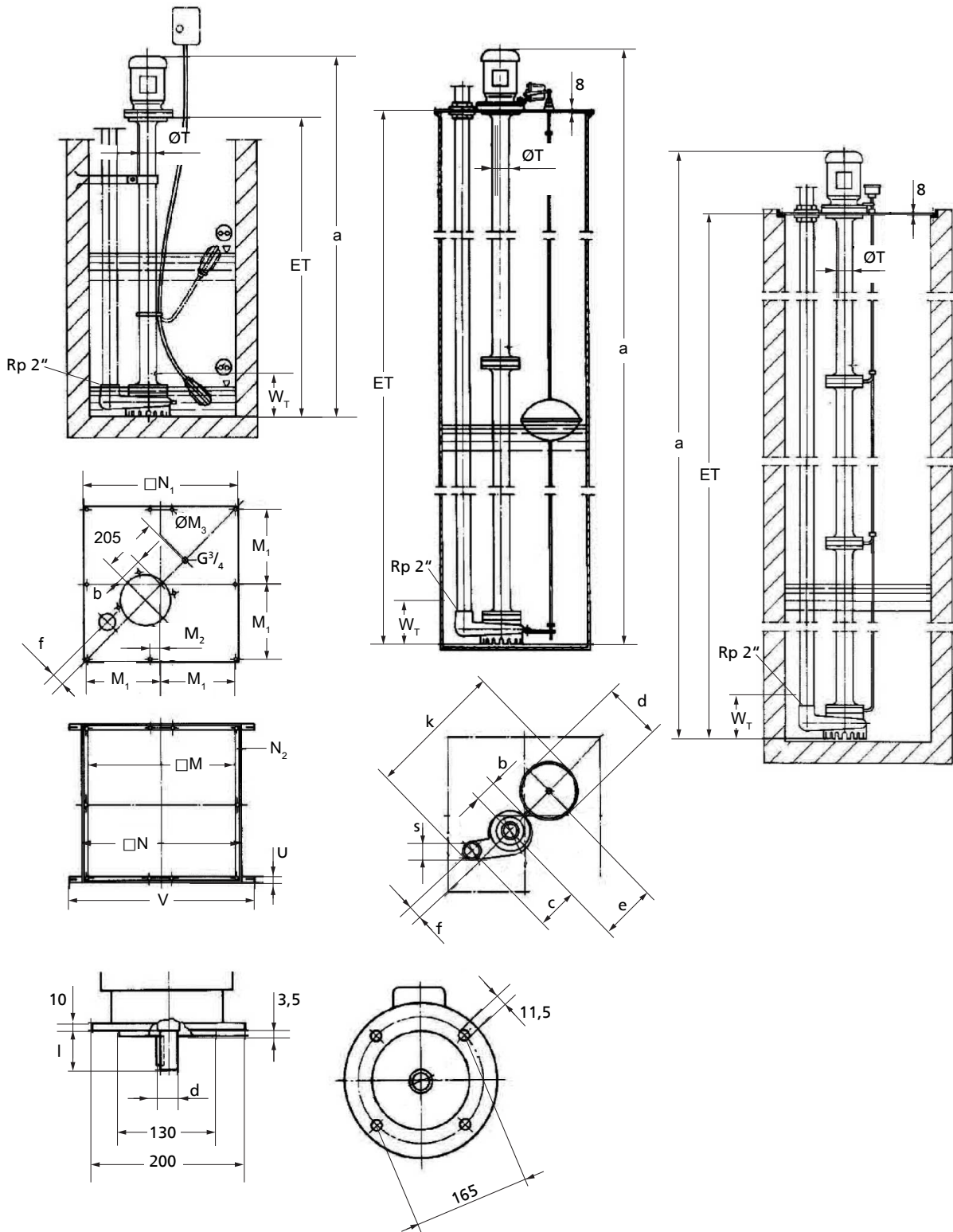


MKY 20-1, 20-2; n = 1450 rpm



Dimensions

MK/MKA



Dimensions

ET	Installation depth
W_T	Minimum level of fluid handled

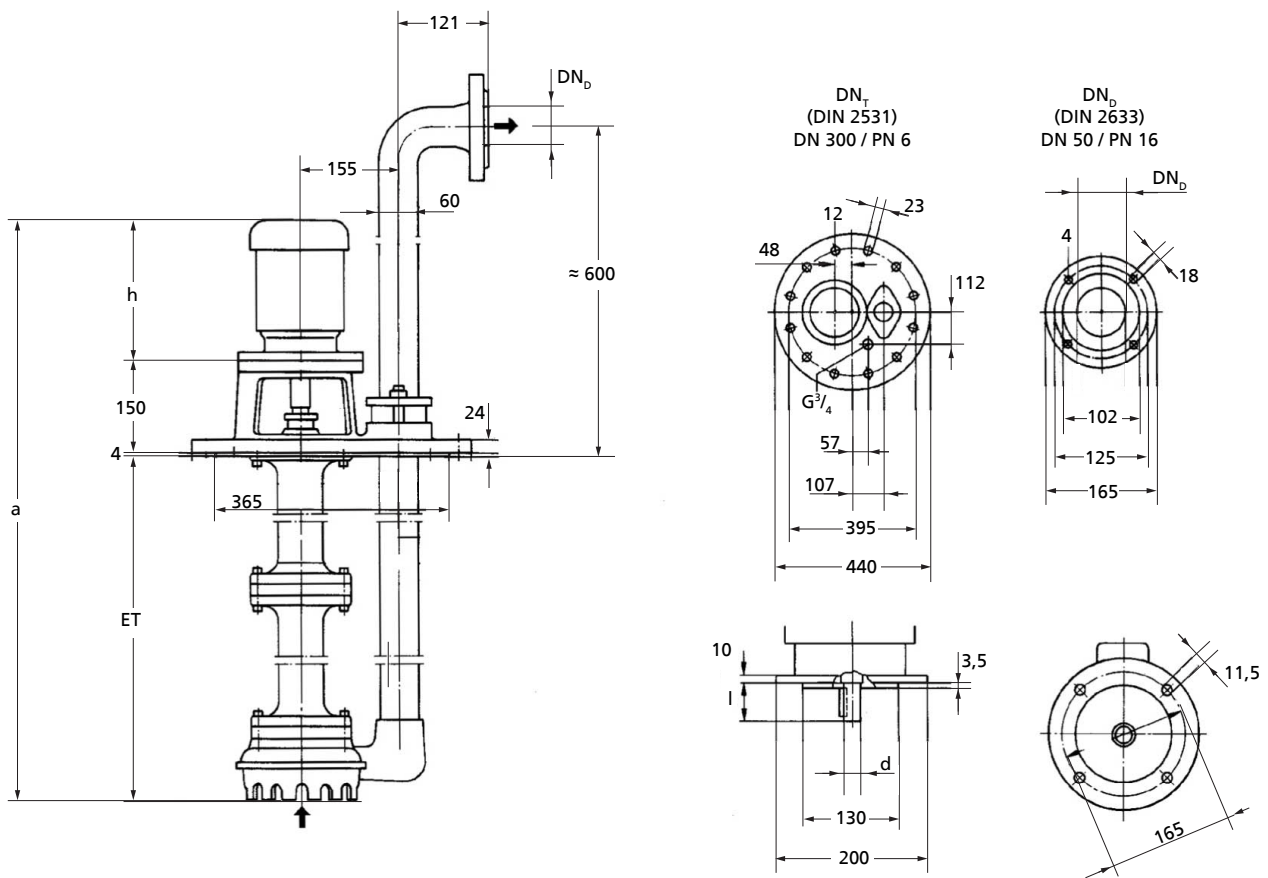
Dimensions [mm]

MK / MKA	ET	W _T	a	b	c	d	e	f	k	□M	M ₁	M ₂	ØM ₃	□N	□N ₁	N ₂	O	S	ØT	U	V
20-/100	1004	110	1271	65	155	240	205	46	520	500	263	33	10	560	550	30×20×4	8	65	71	20	660
20-/190	1911	110	2178	65	155	240	205	46	520	500	263	33	10	560	550	30×20×4	8	65	71	20	660
20-/280	2818	110	3085	65	155	240	205	46	520	500	263	33	10	560	550	30×20×4	8	65	71	20	660

Dimensions of the shaft stub from the motor [mm]

Motor	d	l
80	19	40
90 L	24	50
90 S	24	50

MKY



Dimensions

ET	Installation depth
----	--------------------

Dimensions [mm]

MKY	ET	a ⁵⁾	h ⁵⁾
20-1 - 4/100	1000	1381	227
20-1 - 4/190	1907	2288	227
20-1 - 4/280	2814	3195	227
20-5/100	1000	1397	243
20-5/190	1907	2304	243
20-5/280	2814	3211	243

⁵⁾ Dimension depends on the motor make

MKY	ET	a ⁵⁾	h ⁵⁾
20-6/100	1000	1422	268
20-6/190	1907	2399	268
20-6/280	2814	3236	268




Dimensions of the shaft stub from the motor [mm]

Motor	d	l
80	19	40
90 L	24	50
90 S	24	50

Accessories




Lubrication equipment (optional)

Technical data (⇒ Page 5)

	Description	MK, MKA, MKY				[kg]
		MK	MKA	MKY	...	
	Internal lubrication by fluid handled	-	-	-	20-/100	-
		X	X	-	20-/190	0.3
		X	X	-	20-/280	0.3
	Lubrication by external fluid	X	X	-	20-/100	0.5
		X	X	-	20-/190	0.6
		X	X	-	20-/280	0.7
	Grease lubrication device	X	X	-	20-/100	0.8
		X	X	-	20-/190	0.9
		X	X	-	20-/280	1

Pump accessories

Technical data

	Item	Description	Connection	Mat. No.	[kg]
	P10	RK swing check valve Plastic, EN 12 050-4, with internal thread ISO 7/1, full port and drain plug; cannot be used for pumped drainage	Rp 2	01009773	0.5
	P10	Swing check valve ISO 7/1, made of gunmetal (225 °C max.)	Rp 2	00430260	2.5
	P11	Socket gate valve CuZn PN 10-12 DIN 3352 With internal/internal thread and full port	Rp 2	00411503	1.1

⁵⁾ Dimension depends on the motor make

Float switch

Technical data

Item	Description	Type	MK			MKA			MKY			Mat. No.	[kg]
			20- /100	20- /190	20- /280	20- /100	20- /190	20- /280	20- /100	20- /190	20- /280		
E1	Magnetic float switch arrangement	MS 100	X	-	-	X	-	-	X	-	-	11178906	0.8
		MSA 100	X	-	-	X	-	-	X	-	-	11178907	0.8
		MS 190	-	X	-	-	X	-	-	X	-	11178910	1.5
		MSA 190	-	X	-	-	X	-	-	X	-	11178911	1.5
E2	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 (H 07 RN-F3G1)	5 m	X	X	X	X	X	X	-	-	-	11037743	0.8
		10 m	X	X	X	X	X	X	-	-	-	11037744	1.3
		20 m	X	X	X	X	X	X	-	-	-	11037746	2.4
E3	Rod-actuated float switch arrangement, C variant	Non-ATEX	X	-	-	X	-	-	-	-	-	01500977	3
			-	X	-	-	X	-	-	-	-	01500979	3
			-	-	X	-	-	X	-	-	-	01473543	3
		ATEX-compliant	X	-	-	X	-	-	-	-	-	01500978	3
			-	X	-	-	X	-	-	-	-	01500980	3
			-	-	X	-	-	X	-	-	-	01473544	3

Control units and switchgear

Technical data






Item	Description	Type	MK, MKA, MKY				MK, MKA		MKY		Mat. No.	[kg]
			20-1	20-2	20-3	20-4	20-5	20-6	20-5	20-6		
E5	Motor protection switchgear MSD	MSD 16.1	X	X	X	-	-	-	-	-	19070114	1
		MSD 25.1	-	-	-	X	X	-	-	-	19070115	1
		MSD 40.1	-	-	-	-	-	X	X	-	19070116	1
		MSD 60.1	-	-	-	-	-	-	-	X	19070117	1
E9	Switchgear for single-pump station	EDP 16.1	X	X	-	-	-	-	-	-	19070182	2
		EDP 25.1	-	-	X	X	-	-	-	-	19070091	1.7
		EDP 40.1	-	-	-	-	X	X	X	X	19070092	2
		EDP 60.1	-	-	-	-	-	X	-	X	19070093	2
E10	Switchgear for dual-pump station	DDP 16.1	X	X	-	-	-	-	-	-	19070164	9.3
		DDP 25.1	-	-	X	X	-	-	-	-	19070147	8.6
		DDP 40.1	-	-	-	-	X	X	X	X	19070148	9.3
		DDP 60.1	-	-	-	-	-	X	-	X	19070149	9.3
E11	Control unit for single-pump station LevelControl Basic 2	BC1 400 ^{DFNO} 016	X	X	-	-	-	-	-	-	19073761	4.5
		BC1 400 ^{DFNO} 025	-	-	X	X	-	-	-	-	19073762	4.5
		BC1 400 ^{DFNO} 040	-	-	-	-	X	X	X	X	19073763	4.5
		BC1 400 ^{DFNO} 063	-	-	-	-	-	X	-	X	19073764	4.5
	LevelControl Basic 2 control unit for single-pump station Level control via float switches (Model with PTC data analysis relay)	BS1 400 ^{DFNP} 016	X	X	-	-	-	-	-	-	6)	10
		BS1 400 ^{DFNP} 025	-	-	X	X	-	-	-	-	6)	10
		BS1 400 ^{DFNP} 040	-	-	-	-	X	X	X	X	6)	10
		BS1 400 ^{DFNP} 063	-	-	-	-	-	X	-	X	6)	10
E31	LevelControl Basic 2 control unit for dual-pump station	BC2 400 ^{DFNO} 016	X	X	-	-	-	-	-	-	19073775	4.7
		BC2 400 ^{DFNO} 025	-	-	X	X	-	-	-	-	19073776	4.7
		BC2 400 ^{DFNO} 040	-	-	-	-	X	X	X	X	19073777	4.7
		BC2 400 ^{DFNO} 063	-	-	-	-	-	X	-	X	19073778	4.7
	LevelControl Basic 2 control unit for dual-pump station Level control via float switches (Model with PTC data analysis relay)	BS2 400 ^{DFNP} 016	X	X	-	-	-	-	-	-	6)	14
		BS2 400 ^{DFNP} 025	-	-	X	X	-	-	-	-	6)	14
		BS2 400 ^{DFNP} 040	-	-	-	-	X	X	X	X	6)	14
		BS2 400 ^{DFNP} 063	-	-	-	-	-	X	-	X	6)	14

6) Variants must be processed via KSB EasySelect.

Alarm switchgears for pumps without ATEX

For MK/MKA/MKY 20-1/20-2/20-3/20-4/20-5/20-6:

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

	Item	Description	Mat. No.	[kg]
	E50	Alarm switchgear AS 0 with circuit breaker, piezoceramic signal transmitter, 85 dB(A) at a distance of 1 m and 4.1 kHz, green equipment-on lamp Plastic housing IP20, 140 x 80 x 57 mm. Use float switch, F 1 moisture 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, piezoceramic signal transmitter, 85 dB(A) at a distance of 1 m and 4.1 kHz, green equipment-on lamp, volt-free contact for hook-up to a control station. Plastic housing IP20, 140 x 80 x 57 mm. Use float switch, F 1 moisture sensor (item E64), or signal relay of control unit as contactor.	29128422	0.5
	E52	Alarm switchgear AS 4 with circuit breaker, piezoceramic signal transmitter, 85 dB(A) at a distance of 1 m and 4.1 kHz, green equipment-on lamp, volt-free contact for hook-up to a control station, self-charging power supply unit for 5 hours' operation in the event of power failure Plastic housing IP 20, 140 x 80 x 57 mm. Use float switch (E60), F 1 moisture 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' operation in the event of 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 cable and plug. ISO housing IP41, 190 x 165 x 75 mm. Use float switch (E60) or signal relay of control unit as contactor.	00530561	1.7
	E55	Alarm switchgear AS 1 in ISO plug housing IP30, mains-independent, with self-charging power supply unit for 5 hours' operation in the event of a power failure, acoustic signal 70 dB(A) with circuit breaker and integrated signal transmitter with 3-metre connection cable, max. 60 °C, not suitable for steam and condensate. 1. High-water alert by suspending the moisture sensor in a (pump) sump above the pump start-up level. 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.	00533740	0.9

LevelControl Basic 2

Technical data

Item	Description	Mat. No.	[kg]
O1	Master switch for LevelControl Basic 2, installed for type BC... 3-pole, 20 A, lockable	01143084	0.2
O10	Outdoor cabinet type 142 with integrated base for control unit BC Dimensions W x H x D [mm]: 320 x 1420 x 225	19071911	15
E90	Rechargeable battery retrofit kit for LevelControl Basic 2, for powering the electronics, the float switches or 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 2 nos. 6V, 1.3 Ah	19074194	0.8
O200	Signalling module for type BC	19075182	0.2

Control unit/switchgear accessories

Technical data

Item	Description	Type	Mat. No.	[kg]
E64	Horn, 12 V DC, 105 dB(A), 1.2 W		19072366	0.2
	Alarm combination, 12 V DC	E70-1-4-G3/8	01084031	0.1
E70	Alarm strobe light, 12 V DC		01086547	0.1

Item	Description	Type	Mat. No.	[kg]
E71	Alarm combination, 12 V DC		01139930	0.1
E72	Alarm strobe light, 12 V DC		01056355	0.3

General assembly drawings/exploded views with list of components

MK, MKA

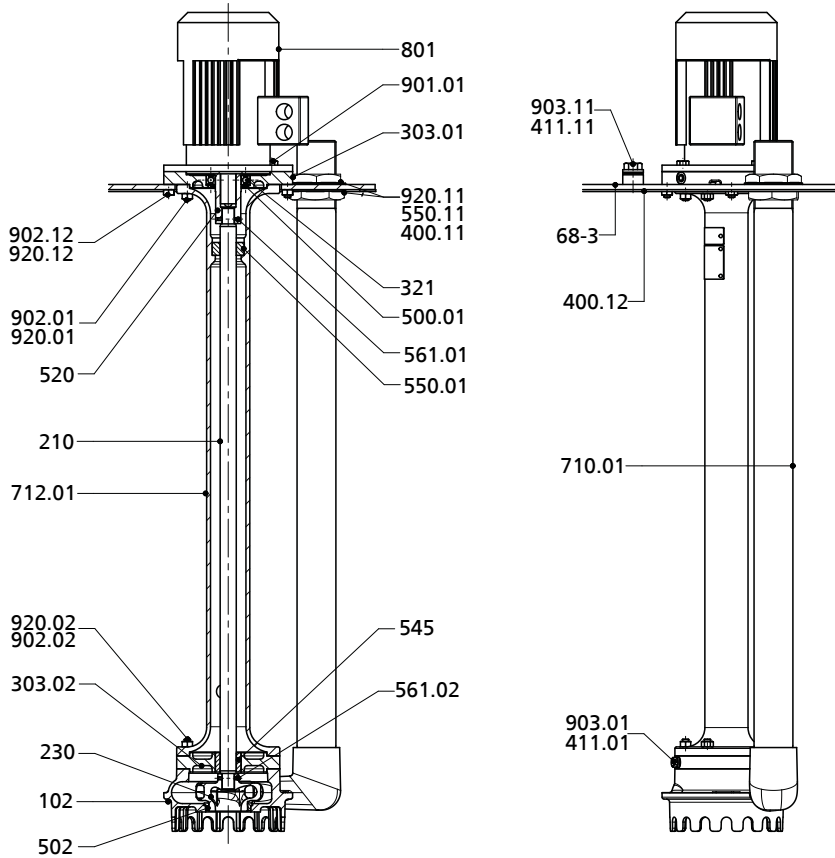


Illustration of MK, MKA - installation depth 1000 mm

List of components

Part No.	Description	Part No.	Description
102	Volute casing	545	Bearing bush
210	Shaft	550.01/.11	Disc
230	Impeller	561.01/.02	Grooved pin
303.01	Thrust and radial bearing	68-3	Cover plate
303.02	Thrust and radial bearing without vertical hole	710.01	Pipe
321	Radial ball bearing	712.01	Support column without hole
400.11/.12	Gasket	801	Flanged motor
411.01/.11	Joint ring	901.01	Hexagon head bolt
500.01	Ring	902.01/.02/.12	Stud
502	Casing wear ring	903.01/.11	Screw plug
520	Sleeve	920.01/.02/.11/.12	Nut

MK, MKA - grease-lubricated

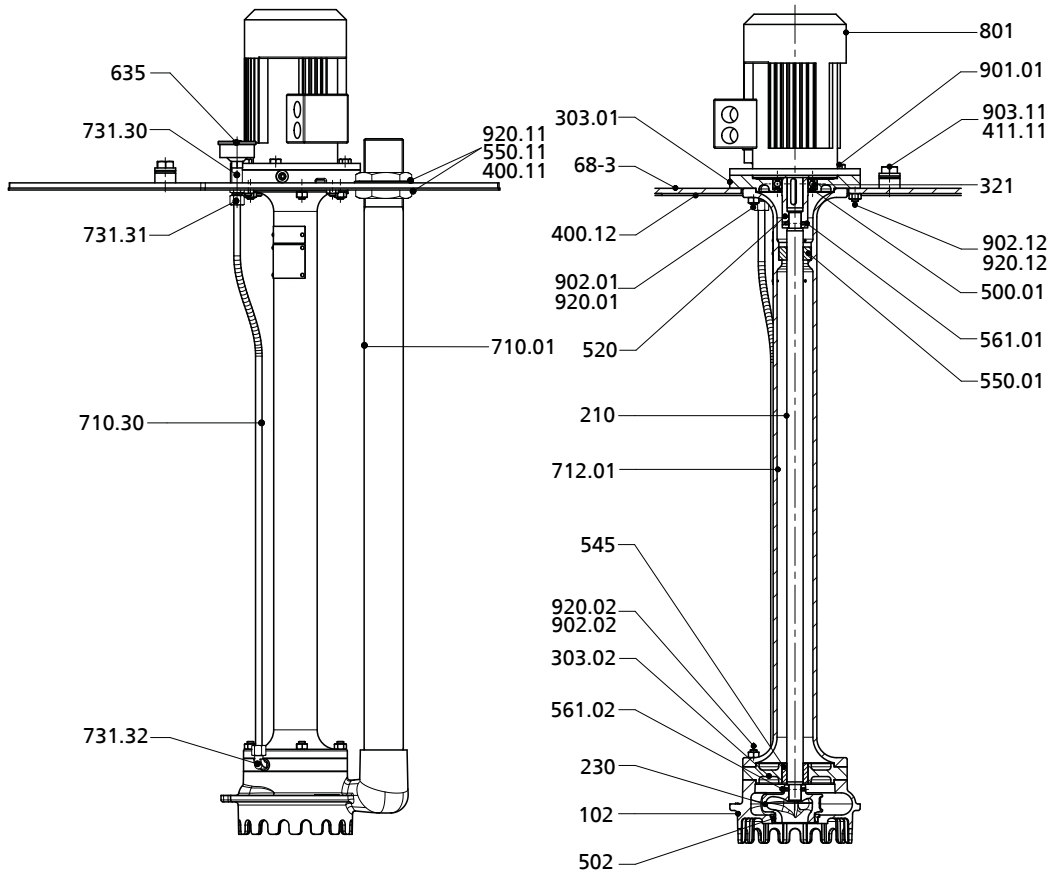


Illustration of MK, MKA - installation depth 1000 mm, grease-lubricated

List of components

Part No.	Description	Part No.	Description
102	Volute casing	635	Grease cup
210	Shaft	68-3	Cover plate
230	Impeller	710.01	Pipe
303.01	Thrust and radial bearing	710.30	Pipe
303.02	Thrust and radial bearing without vertical hole	712.01 ⁷⁾	Support column without hole
321	Radial ball bearing	731.30/.31/.32	Pipe union
400.11/.12	Gasket	801	Flanged motor
411.11	Joint ring	81-39	Clamp
500.01	Ring	81-45	Float switch
502	Casing wear ring	901.01	Hexagon head bolt
520	Sleeve	902.01/.02/.12	Stud
545	Bearing bush	903.11	Screw plug
550.01/.11	Disc	920.01/.02/.11/.12	Nut
561.01/.02	Grooved pin		

⁷⁾ Number of support columns 712 without hole, for installation depth ET: 1000 mm = 0; 1900 mm = 1; 2800 mm = 2

MK, MKA - internally lubricated by fluid handled

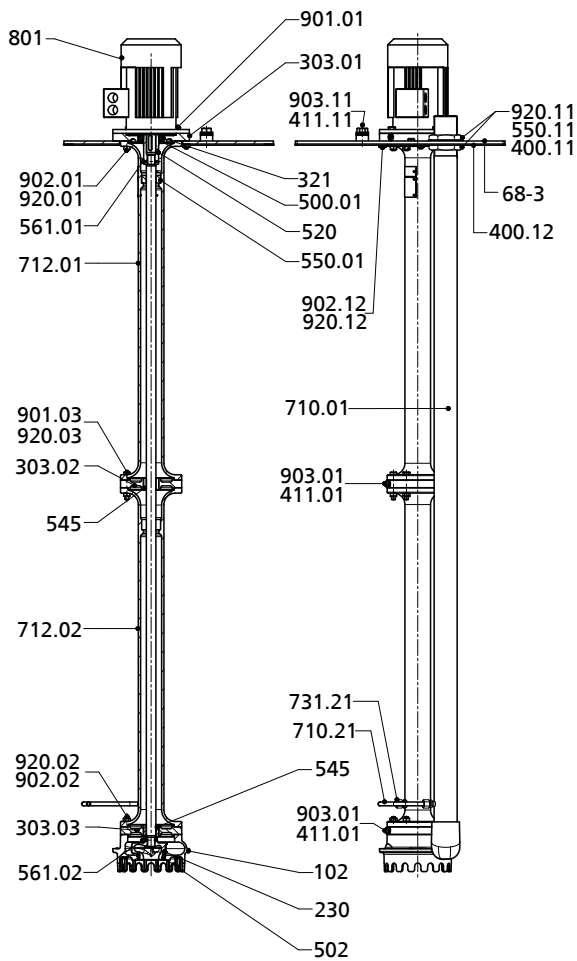


Illustration of MK, MKA - installation depth 1900 mm, internally lubricated by fluid handled

List of components

Part No.	Description	Part No.	Description
102	Volute casing	561.01/.02	Grooved pin
230	Impeller	68-3	Cover plate
303.01	Thrust and radial bearing	710.01/.21	Pipe
303.02	Thrust and radial bearing without vertical hole	712.01/.02 ^{B)}	Support column without hole
303.03	Thrust and radial bearing with vertical hole	731.21	Pipe union
321	Radial ball bearing	801	Flanged motor
400.11/.12	Gasket	900.46	Screw
411.01/.11	Joint ring	901.01/.03	Hexagon head bolt
500.01	Ring	902.01/.02/.12	Stud
502	Casing wear ring	903.01/.11	Screw plug
520	Sleeve	920.01/.02/.03/.11/.12	Nut
545	Bearing bush	933.01	Split pin
550.11	Disc	99-3	Set of accessories

^{B)} Number of support columns 712 without hole, for installation depth ET: 1000 mm = 0; 1900 mm = 1; 2800 mm = 2

MK, MKA - lubricated by an external fluid

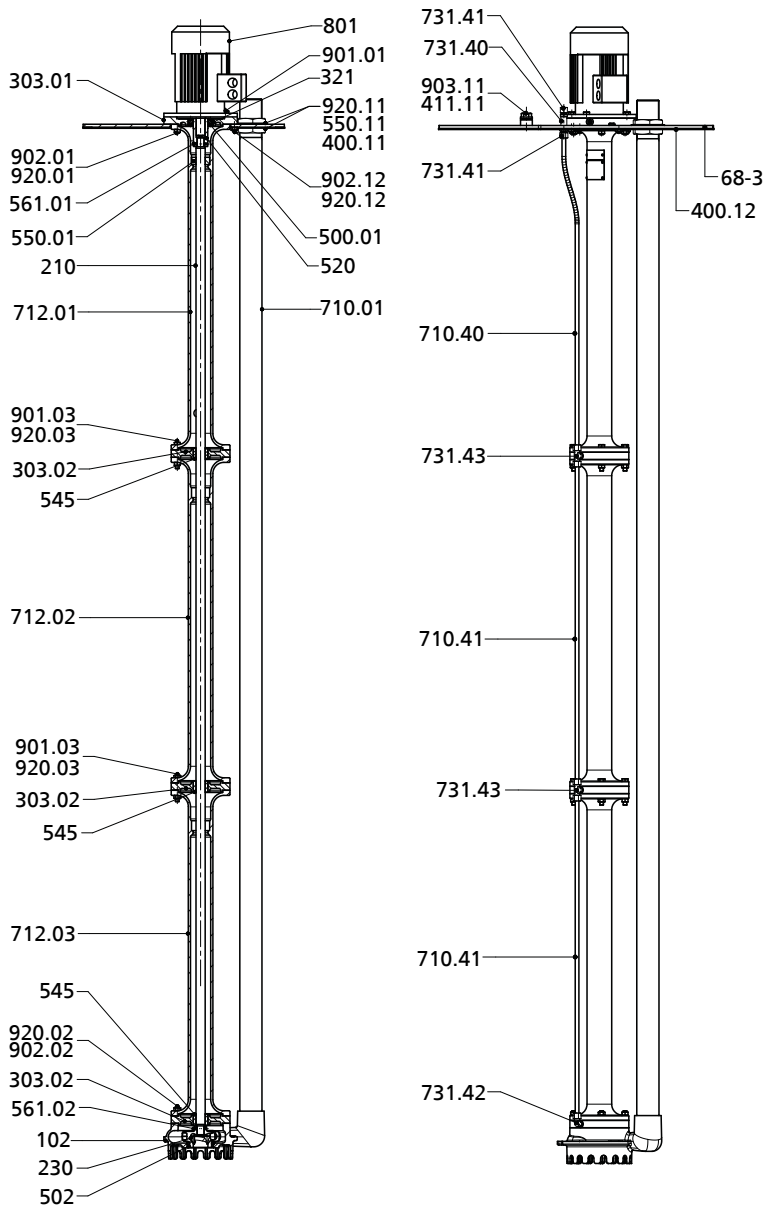


Illustration of MK, MKA - installation depth 2800 mm, lubricated by an external fluid

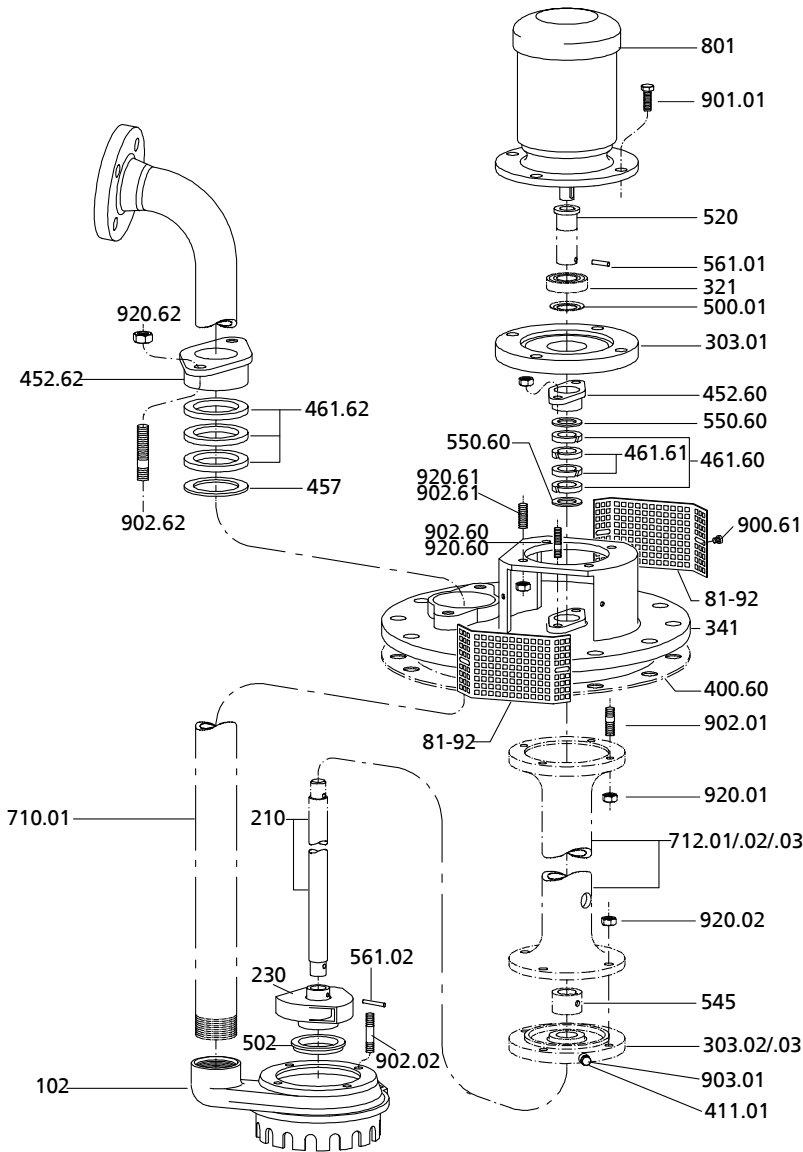
List of components

Part No.	Description	Part No.	Description
102	Volute casing	550.01.11	Disc
210	Shaft	561.01/02	Grooved pin
230	Impeller	68-3	Cover plate
303.01	Thrust and radial bearing	710.01/40/41	Pipe
303.02	Thrust and radial bearing without vertical hole	712.01/02/03 ⁹⁾	Support column without hole
321	Radial ball bearing	731.40/41/42/43	Pipe union
400.11/12	Gasket	801	Flanged motor
411.11	Joint ring	901.01/03	Hexagon head bolt
500.01	Ring	902.01/02/12	Stud
502	Casing wear ring	903.11	Screw plug

⁹⁾ Number of support columns 712 without hole, for installation depth ET: 1000 mm = 0; 1900 mm = 1; 2800 mm = 2

Part No.	Description	Part No.	Description
520	Sleeve	920.01/.02/.03/.11/.12	Nut
545	Bearing bush		

MKY



MKY

List of components

Part No.	Description	Part No.	Description
102	Volute casing	520	Sleeve
210	Shaft	545	Bearing bush
230	Impeller	550.60	Disc
303.01	Thrust and radial bearing	561.01/.02	Grooved pin
303.02	Thrust and radial bearing without vertical hole	710.01	Pipe
303.03	Thrust and radial bearing with vertical hole	712.01	Support column with hole
321	Radial ball bearing	712.02/.03	Support column without hole
341	Drive lantern	801	Flanged motor
400.60	Gasket	81-92	Cover plate
411.01	Joint ring	900.61	Screw

Part No.	Description	Part No.	Description
452.60/.62	Gland follower	901.01	Hexagon head bolt
457	Neck ring	902.01/.02/.60/.61/.62	Stud
461.60/.61/.62	Gland packing	903.01	Screw plug
500.01	Ring	920.01/.02/.60/.61/.62	Nut
502	Casing wear ring		



KSB Aktiengesellschaft

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

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

www.ksb.com

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