

Submersible Motor

UMA-S

Type Series Booklet



Legal information/Copyright

Type Series Booklet UMA-S

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 SE & Co. KGaA, Frankenthal 16/02/2022

Contents

Drives	4
Submersible Motor.....	4
UMA-S.....	4
Main applications.....	4
Operating data.....	4
Description.....	4
Brief designation used in the product literature	5
Design details	5
Materials.....	5
UMA-S 150(E).....	5
UMA-S 200(D), UMA-S 250(D)	5
Coating and preservation	6
Starting method	6
Connection cable.....	6
Product benefits.....	6
Certifications	6
Overview of product features / selection tables	7
Technical data	7
Motor lead designs	8
Dimensions and connections	9
UMA-S 150(E).....	9
UMA-S 200(D).....	10
UMA-S 250(D).....	11
General drawings with list of components	12
UMA-S 150(E).....	12
UMA-S 200(D).....	15
UMA-S 250(D).....	18
Selection information	21
General information	21
Accessories	22
PumpDrive R.....	22
Main applications.....	22
General description.....	22
Designation	22
Technical data	22
Programme overview.....	23
Cable sealing set for output filter IP54.....	24
Output filter	26
du/dt output filter for PumpDrive R	26
Operating data.....	26
Dimensions	26
Sine output filter for PumpDrive R	29
Operating data.....	29
Dimensions	29

Drives
Submersible Motor
UMA-S

Main applications

- Driving submersible borehole pumps

Used for:

- General irrigation systems
- Spray irrigation systems
- Water extraction / water withdrawal
- Industrial water supply
- Lowering groundwater levels
- Fire-fighting systems
- Pressure boosting
- Mining
- Offshore technology and cavern applications

Operating data
Table 1: Operating properties

Characteristic		Value
Power	P _N [kW]	≤ 250
Fluid temperature	T [°C]	≤ 45
Type of current		3 ~ (VFD ¹)
Voltage	U [V]	400
Number of poles		4
Speed at f = 100 Hz	n [rpm]	3000

Description
Example: UMA-S 150 - 37 / 4 2 C E
Table 2: Designation key

Code	Description	
UMA-S	Motor type series, synchronous motor	
150	Nominal size [mm]	
	150	150 mm / 6"
	200	200 mm / 8"
	250	250 mm / 10"
37	Maximum rating [kW] for 100 Hz	
4	Number of poles	
2	Winding	
	1	J1 (PVC)
	2	J2 (VPE/XLPE)
C	Material variant	
	E	Stainless steel 1.4301
	C	Stainless steel 1.4571
	D	Duplex 1.4539
	G	Grey cast iron JL1030
E	Product generation	

¹ Variable Frequency Drive

Brief designation used in the product literature
Example: UMA-S 150(E)
Table 3: Designation key

Code	Description
UMA-S	Motor type series, synchronous motor
150	Nominal size [mm]
(E)	Product generation

Design details

- Vertical installation
- Angled installation³⁾

Design

- Interior (buried) permanent magnet synchronous motor (IPMSM)
- Filled with drinking water / anti-freeze mixture (1,2 propylene glycol) for ambient temperatures down to -30 °C
- Rubber expansion diaphragm for pressure equalisation
- Mechanical seal

Bearings

- Radial bearings and thrust bearings lubricated by the motor fill
- Thrust bearing with self-adjusting tilting pads for absorbing the axial thrust

Installation types

- Horizontal installation²⁾

Connections

UMA-S 150(E), UMA-S 200(D):

- To NEMA

UMA-S 250(D):

- To KSB

Materials
UMA-S 150(E)
Table 4: Overview of wetted materials per material variant
 Other material variants on request

Part No.	Description	Material variant		
		E	C	D
59-12	Diaphragm	EPDM		
81-59	Stator	1.4301	1.4571	1.4539
81-60	Diaphragm housing	1.4301	1.4404	-
100	Casing	1.4301	1.4571	1.4539
145	Adapter	1.4308	1.4408	1.4539
271	Sand guard	EPDM		
382.51	Bearing carrier (bottom)	1.4301	1.4571	1.4539
433	Mechanical seal	SiC / SiC		
818	Rotor	1.4462		
902	Grub screw	A2	A4	1.4539
903.51	Screw plug	A2	A4	1.4539
-	Screws, bolts and nuts	A4	A4	1.4539

UMA-S 200(D), UMA-S 250(D)
Table 5: Overview of wetted materials per material variant
 Other material variants on request

Part No.	Description	Material variant		
		G	C	D
59-12	Diaphragm	EPDM		
81-59	Stator with winding	1.4301	1.4571	1.4539
145	Adapter	EN-GJL-200	1.4408	1.4539
160.51	Cover (diaphragm)	1.4401 / 1.4571		1.4539

² Only for UMA-S 150(E), UMA-S 200(D) 75/42, UMA-S 200(D) 100/42 and UMA-S 250(D) 200/42

³ On request

Part No.	Description	Material variant		
		G	C	D
160.52	Cover (mechanical seal)	1.4308	1.4408	1.4539
271	Sand guard	EPDM		
354	Thrust bearing housing	EN-GJL-200	1.4408	1.4539
433	Mechanical seal	SiC / SiC		
818	Rotor (shaft or shaft stub)	1.4462		
-	Screws, bolts and nuts	A4		1.4539

Coating and preservation

- **UMA-S 200(D), UMA-S 250(D):**
 - Quality: epoxy resin base powder coating for drinking water applications
 - Film thickness: 250 to 350 µm
 - Colour: blue (RAL 5003)

Starting method

- Operation on a frequency inverter (only with output filter, observe the instructions in the operating manual of the frequency inverter).

Connection cable

- With either one or two power cables
- Flat or round cable
- With 1, 3 or 4 cores
- As motor lead and extension cable
- Motor lead of defined lengths
- Certified for drinking water applications

On request

- Shielded cable
- Special cable types
- Special lengths

Product benefits

- High efficiency reduces operating costs.
- Counter thrust bearing reliably absorbs negative axial thrust.
- Reliable pressure equalisation system for largest possible immersion depths
- Wear-resistant mechanical seal with sand thrower for a long service life

Certifications

Table 6: Overview

Label	Effective in:	Comment
	All countries	Certified quality management to ISO 9001
	France	Approved in accordance with the French drinking water regulation

Overview of product features / selection tables
Technical data

- Interior permanent magnet synchronous motor (IPMSM)
- 4 poles
- Start-up process: frequency inverter (VFD), sensorless control for IPMSM
- Wiring in the motor: Y
- Frequency of starts
 - UMA-S 150(E): ≤ 15/hour
 - UMA-S 200(D), UMA-S 250(D): ≤ 10/hour
- Standstill period: ≥ 1 minute
- Enclosure: IP68
- Earthing: internal

Table 7: 400 V, 100 Hz, 3 ~, n = 3000 rpm, VFD, v ≥ 0.2 m/s, v ≥ 0.5 m/s

Motor	P _N		T _{max}		n _N	η _{Motor} ⁴⁾			cos φ ⁴⁾	I _N ⁴⁾	Motor lead version	
			T _{0,5}	T _{0,2}		⁴ / ₄	³ / ₄	² / ₄	⁴ / ₄		VFD	VFD parallel
	[kW]	[hp]	[°C]	[°C]	[rpm]	[%]	[%]	[%]		[A]	[mm ²]	[mm ²]
UMA-S 150(E)												
7/42	4,0	5,4	45	40	3000	88,0	86,2	82,2	0,99	8,0	F4 × 4	F3/4 × 2,5 II
7/42	5,5	7,4	45	40	3000	89,2	88,2	85,5	0,99	10,0	F4 × 4	F3/4 × 2,5 II
7/42	7,5	10	45	40	3000	89,4	89,2	87,7	0,99	13,0	F4 × 4	F3/4 × 2,5 II
18/42	9,3	12,4	45	40	3000	91,1	89,7	86,6	0,99	18,0	F4 × 4	F3/4 × 2,5 II
18/42	11	14,7	45	40	3000	91,7	90,6	88,0	0,99	20,0	F4 × 4	F3/4 × 2,5 II
18/42	13	17,4	45	40	3000	92,1	91,3	89,3	0,99	23,0	F4 × 4	F3/4 × 2,5 II
18/42	15	20,1	45	40	3000	92,2	91,8	90,1	0,99	26,0	F4 × 4	F3/4 × 2,5 II
18/42	18,5	24,7	45	40	3000	92,2	92,2	91,1	0,99	32,0	F4 × 4	F3/4 × 2,5 II
37/42	22	29,4	45	40	3000	92,7	92,6	91,0	0,99	39,0	F4 × 6	F3/4 × 4 II
37/42	26	34,8	45	40	3000	92,4	92,7	91,8	0,99	46,0	F4 × 6	F3/4 × 4 II
37/42	30	40,2	45	40	3000	92,0	92,7	92,3	0,99	54,0	F4 × 6	F3/4 × 4 II
37/42	37	49,5	45	40	3000	90,9	92,2	92,7	0,99	72,0	-	F3/4 × 4 II
UMA-S 200(D)												
75/42	45	60	40	35	3000	93,3	92,8	91,0	0,96	74,0	F4 × 16	F3/4 × 16 II
75/42	55	74	40	35	3000	93,3	93,2	92,1	0,96	91,0	F4 × 16	F3/4 × 16 II
75/42	67	90	35	30	3000	93,0	93,3	92,8	0,96	113,0	F4 × 16	F3/4 × 16 II
75/42	75	100	35	30	3000	92,8	93,3	93,0	0,96	128,0	-	F3/4 × 16 II
100/42	83	110	35	30	3000	93,3	93,3	92,2	0,95	146,0	R4 × 25	F3/4 × 16 II
100/42	93	125	35	30	3000	93,1	93,3	92,6	0,95	163,0	R4 × 25	F3/4 × 16 II
100/42	100	135	30	25	3000	92,9	93,3	92,9	0,95	177,0	-	F3/4 × 16 II
130/42	110	145	35	30	3000	93,8	94,2	93,8	0,94	186,0	-	F3/4 × 16 II
130/42	130	175	30	25	3000	93,3	94,0	94,1	0,94	224,0	-	F3/4 × 16 II
150/42	110	145	40	35	3000	94,0	94,2	93,6	0,94	192,0	-	F3/4 × 16 II
150/42	130	175	35	30	3000	93,7	94,1	94,0	0,94	229,0	-	F3/4 × 16 II
150/42	150	200	30	25	3000	93,7	94,1	94,0	0,94	272,0	-	F3/4 × 25 II
UMA-S 250(D)												
200/42	185	241	35	30	3000	93,9	93,8	92,8	0,96	358,0	-	F3+R4 × 35 II
200/42	200	268	30	25	3000	93,8	93,9	93,1	0,96	389,0	-	F3+R4 × 35 II
250/42	230	308	35	30	3000	93,9	94,1	93,4	0,96	447,0	-	6 × R1 × 35 II + E ⁵⁾
250/42	250	335	30	25	3000	93,8	94,1	93,6	0,96	493,0	-	6 × R1 × 35 II + E ⁵⁾

3455.52/06-EN

⁴ The motor data has been determined using a frequency inverter reference system specified by KSB.

⁵ External earthing R1 × 35

Further motor parameters
Table 8: Technical data

Characteristic		UMA-S 150(E)			UMA-S 200(D)				UMA-S 250(D)	
		7/42	18/42	37/42	75/42	100/42	130/42	150/42	200/42	250/42
Back-EMF U_p 3000 rpm ⁶⁾	[V]	337	337	325	334	312	337	311	321	322
Winding resistance R_{s20} ⁷⁾	[Ω]	1,0	0,16	0,105	0,08	0,06	0,05	0,04	0,016	0,013
Phase resistance R_{UV20} ⁷⁾	[Ω]	2,0	0,32	0,21	0,16	0,12	0,1	0,08	0,032	0,026
D-axis inductance L_d	[mH]	13,5	6,3	4,5	1,9	1,58	1,2	1,05	0,7	0,5
Q-axis inductance L_q	[mH]	22,5	10	6,5	4,8	3,55	2,7	2,4	2,1	1,8

Motor lead designs
Table 9: Overview of available motor leads⁸⁾ per motor size

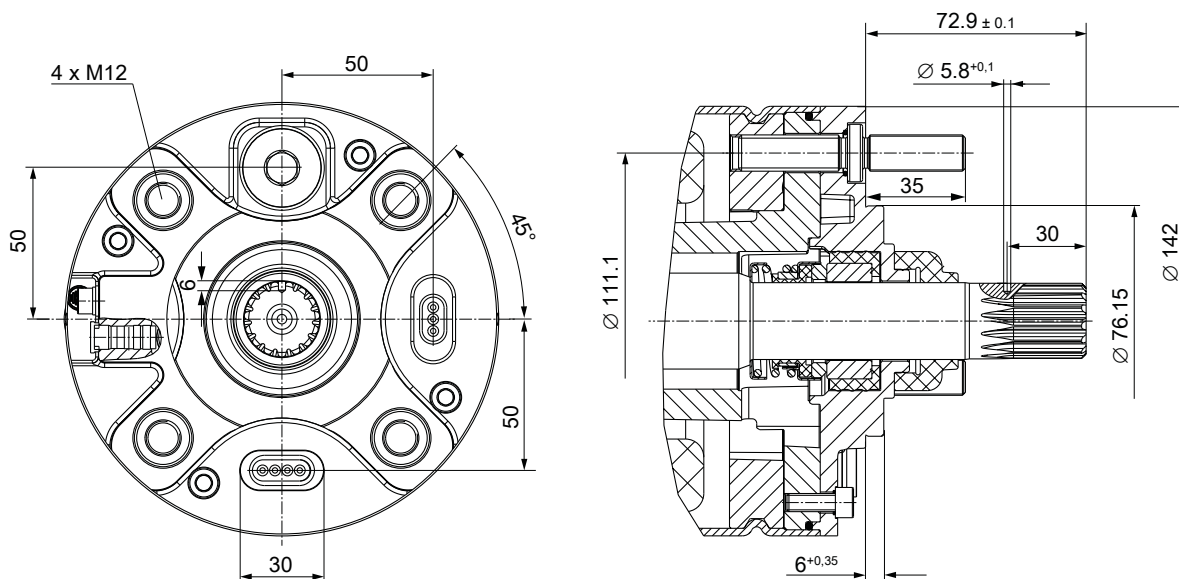
Design	Cable length ⁹⁾		Cable cross-section	Core cross-section [mm ²]						
	[m]			2,5	4,0	6,0	10	16	25	35
UMA-S 150(E)										
Flat	4			X	X	X	-	-	-	-
	4			X	X	X	-	-	-	-
Round	4			X	X	X	-	-	-	-
	4			X	X	X	-	-	-	-
UMA-S 200(D)										
Flat	6			-	-	X	X	X	-	-
	6			-	-	X	X	X	-	-
Round	6			-	-	X	X	X	X	-
	6			-	-	X	X	X	-	-
Round + flat	6			-	-	-	-	-	X	-
UMA-S 250(D)										
Flat	6			-	-	X	X	X	X	-
	6			-	-	X	X	X	X	-
Round	6			-	-	X	X	X	X	X
	6			-	-	X	X	X	X	X
	6			-	-	-	-	-	-	X
Round + flat	6			-	-	-	-	-	-	X
	6			-	-	X	X	X	X	X

⁶⁾ Back-EMF is also referred to as "counter-electromotive force ".

⁷⁾ Including motor lead

⁸⁾ For submerged operation only

⁹⁾ Special lengths on request

Dimensions and connections
UMA-S 150(E)

Fig. 1: UMA-S 150(E), dimensions [mm]
Table 10: UMA 150(E) dimensions, weights, moments of inertia

Motor	Diameter _{motor}		Length _{motor}		Weight _{motor}		Permissible axial thrust		Moment of inertia (without sleeve coupling)
	D _M		L _M		m _M ¹⁰⁾		F _{AX}		J
UMA-S 150(E)	[mm]	[inch]	[mm]	[inch]	[kg]	[lbs]	[kN]	[lbs]	[kg x m ²]
7/42	143	5,6344	655	25,8	41	90	16	3500	0,003
18/42	143	5,6344	809	31,9	56	124	16	3500	0,006
37/42	143	5,6344	971	38,2	72	159	28	6200	0,00925

¹⁰⁾ Including motor lead and water fill

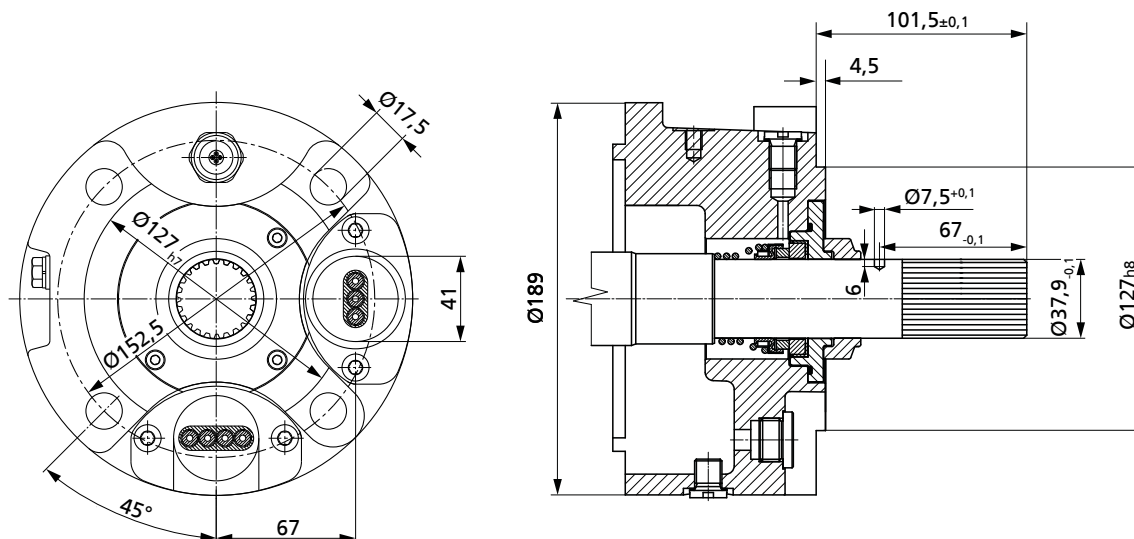
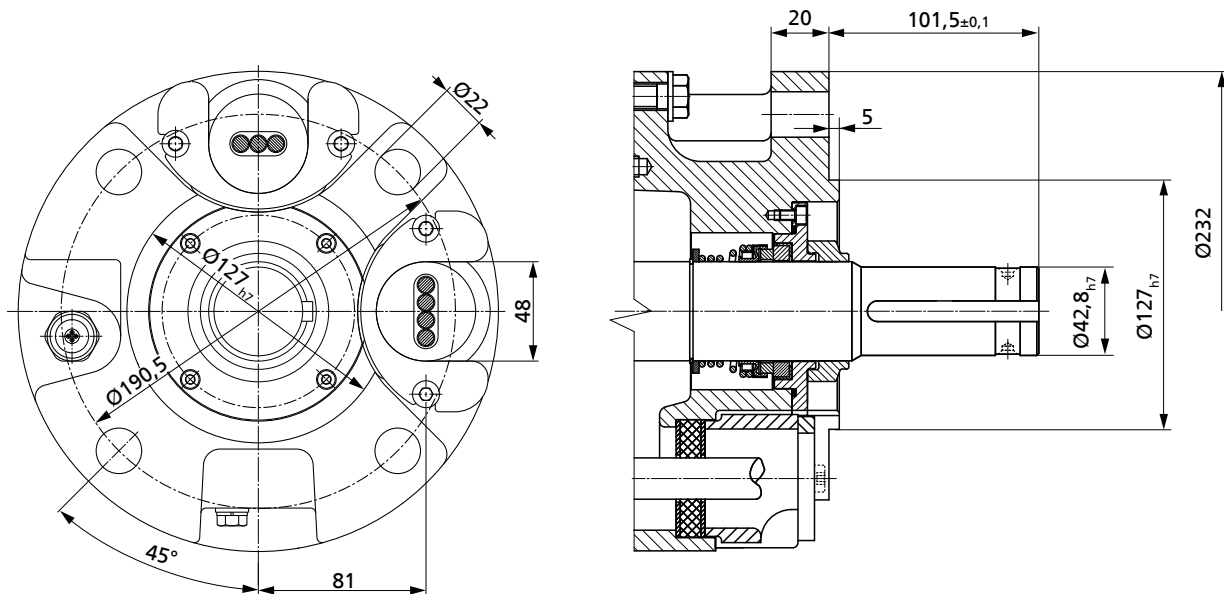
UMA-S 200(D)

Fig. 2: UMA-S 200(D); dimensions [mm]

Table 11: UMA-S 200(D); dimensions, weights, moments of inertia

Size	Diameter _{motor}		Length _{motor}		Weight _{motor}		Permissible axial thrust		Moment of inertia (without sleeve coupling)
	D _M		L _M		m _M ¹¹⁾		F _{AX}		J
UMA-S 200(D)	[mm]	[inch]	[mm]	[inch]	[kg]	[lbs]	[kN]	[lbs]	[kg x m ²]
75/42	189	7,447	1205	47,43	150	331	40	9000	0,0233
100/42	189	7,447	1316	51,80	169	373	40	9000	0,0277
130/42	189	7,447	1484	58,41	197	435	40	9000	0,0331
150/42	189	7,447	1594	61,40	215	474	40	9000	0,0389

¹¹ Including motor lead and water fill

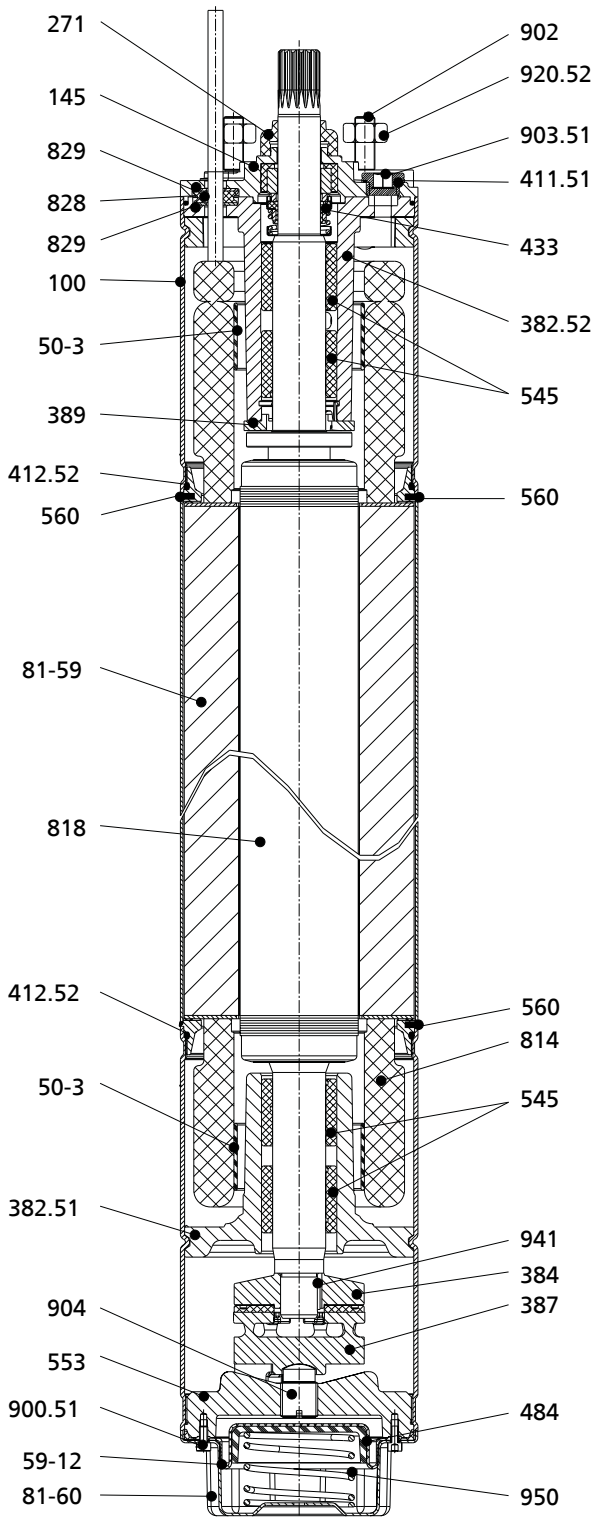
UMA-S 250(D)

Fig. 3: UMA-S 250(D); dimensions [mm]
Table 12: UMA-S 250(D); dimensions, weights, moments of inertia

Size	Diameter _{motor}		Length _{motor}		Weight _{motor}		Permissible axial thrust		Moment of inertia (without sleeve coupling)
	D _M		L _M		m _M ¹²⁾		F _{AX}		J
	[mm]	[inch]	[mm]	[inch]	[kg]	[lbs]	[kN]	[lbs]	[kg x m ²]
UMA-S 250(D)									
200/42	232	9,134	1659	65,30	299	660	60	13500	0,0796
250/42	232	9,134	1769	69,63	350	772	60	13500	0,0888

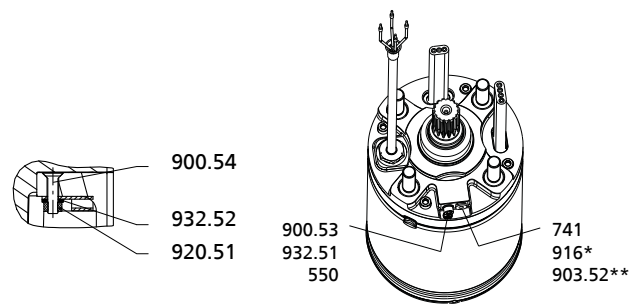
¹²⁾ Including motor lead and water fill

General drawings with list of components

UMA-S 150(E)

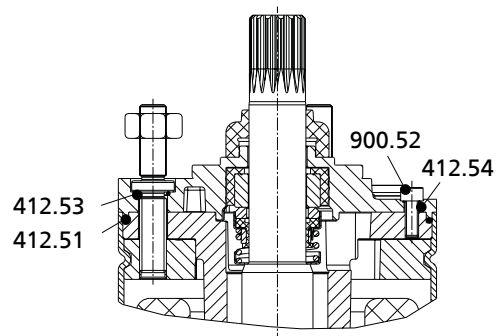


General assembly drawing, example UMA 150E > 30 kW

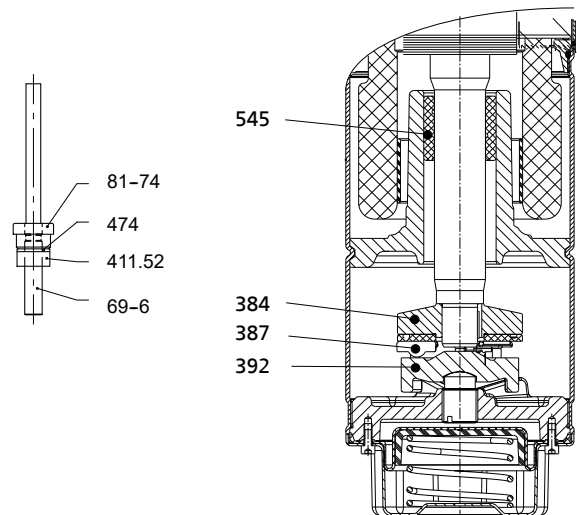


Fastening of earth conductor

Filler opening
* For material variant E
** For material variant C and D



Detailed view of the motor shaft of UMA 150E < 26 kW



Temperature sensor

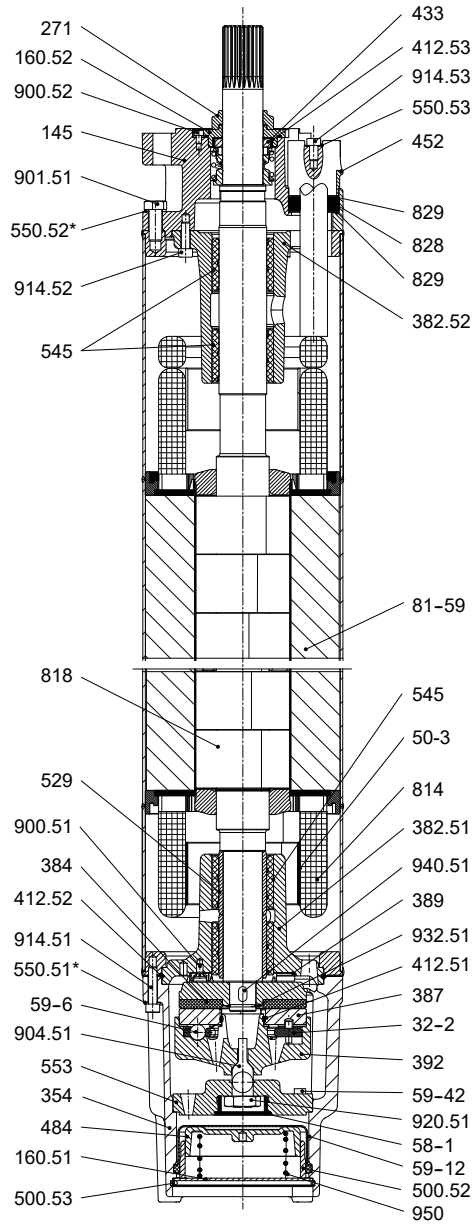
Detailed view of the thrust bearing of UMA 150E

Table 13: List of components of UMA 150(E), material variants E, C, D

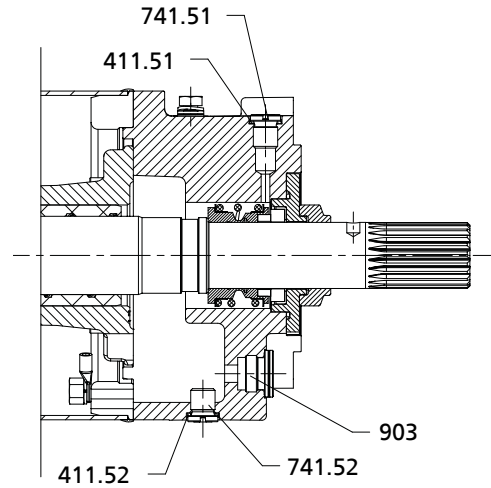
Qty/ motor	Part No.	Description	Scope of supply	Comment
1	100	Casing	-	-
1	145	Adapter	-	-
1	271	Sand guard	Kit 3	-
1	382.51	Bearing carrier (bottom)	-	-
1	382.52	Bearing carrier (top)	-	-
1	384	Thrust collar	Kit 1a: UMA-S 150(E) 18/42 Kit 1b: UMA-S 150(E) 37/42	-
3 or 6	387	Thrust bearing segment	Kit 1a: UMA-S 150(E) 18/42 Kit 1b: UMA-S 150(E) 37/42	-
1	389	Counter thrust bearing ring	Kit 1a: UMA-S 150(E) 18/42 Kit 1b: UMA-S 150(E) 37/42	-
1	392	Bearing segment carrier	Kit 1a: UMA-S 150(E) 18/42 Kit 1b: UMA-S 150(E) 37/42	-
1	411.51	Joint ring	Kit 3	-
1	411.52	Joint ring	Kit 7a (E, C), Kit 7b (D)	-
1	412.51	O-ring	Kit 3	-
2	412.52	O-ring	Kit 1a and 1b Kit 3	-
4	412.53	O-ring	Kit 3 Kit 4a (E, C), 4b (D)	-
4	412.54	O-ring	Kit 3 Kit 4a (E, C), 4b (D)	-
1	433	Mechanical seal	Kit 3	-
1	474	Thrust ring	Kit 7a (E, C), Kit 7b (D)	-
1	484	Spring plate	-	-
2	50-3	Backing ring	-	-
2 or 4	545	Bearing bush	Kit 2a: UMA-S 150(E) 18/42 Kit 2c: UMA-S 150(E) 37/42	Qty of 2/4 available as kit 2a/2c with bearing sleeve 529
1	550	Disc	Kit 4a (E, C), 4b (D)	-
1	553	Thrust insert	-	-
3	560	Pin	Kit 3 Kit 4a (E, C), 4b (D)	-
1	59-12	Diaphragm	Kit 3	-
1	69-6	Temperature sensor	Kit 7a (E, C), Kit 7b (D)	-
1	741	Valve (filling)	Kit 5	-
1	81-59	Stator	-	-
1	81-60	Diaphragm housing	-	-
1	81-74	Pressure screw	Kit 7a (E, C), Kit 7b (D)	-
1	814	Winding	-	-
1	818	Rotor	-	-
1 or 2	828	Cable grommet	Kit 6a, b, c, d, e	For versions with either one or two cables
2 or 4	829	Cable gland ring	Kit 6a, b, c, d, e	-
6	900.51	Bolt/screw	Kit 4a (E, C), 4b (D)	-
4	900.52	Bolt/screw	Kit 4a (E, C), 4b (D)	-
1	900.53	Bolt/screw	Kit 4a (E, C), 4b (D)	-
1	900.54	Bolt/screw	Kit 4a (E, C), 4b (D)	-
4	902	Stud	Kit 4a (E, C), 4b (D)	-
1	903.51	Screw plug	-	With integrated joint ring 411.51
1	903.52	Screw plug	Kit 5	Only in material variants C and D
1	904	Grub screw	Kit 1a and 1b	-
1	916	Plug	Kit 5	Only in material variant E
1	920.51	Nut	Kit 4a (E, C), 4b (D)	-
4	920.52	Nut	Kit 4a (E, C), 4b (D)	-
1	932.51	Circlip	Kit 4a (E, C), 4b (D)	Only in material variants E and C

Qty/ motor	Part No.	Description	Scope of supply	Comment
1	932.52	Circlip	Kit 4a (E, C), 4b (D)	-
1	941	Key	Kit 1a and 1b	-
1	950	Spring	-	-

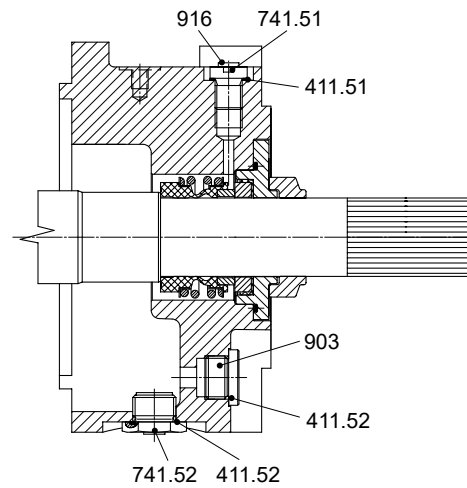
UMA-S 200(D)



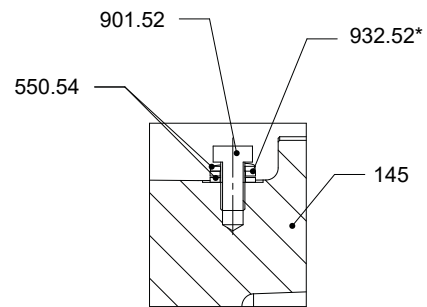
Sectional drawing UMA-S 200D
* Not for material variant D



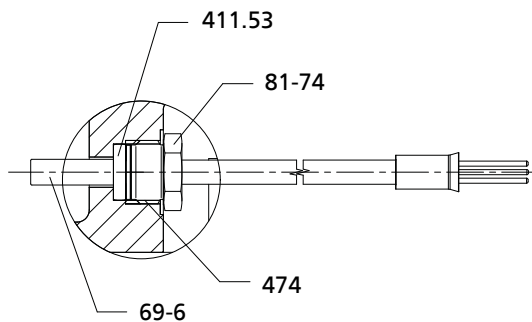
Connection, material variant G



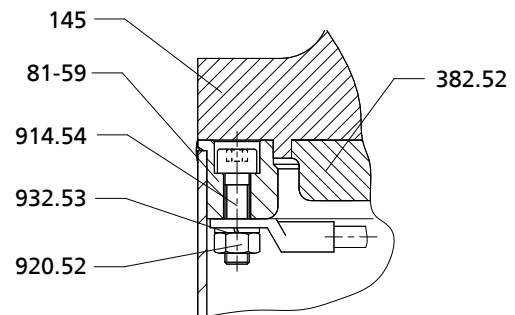
Connection, material variant C, D



Fastening of earth conductor, external



Pt100 resistance thermometer



Fastening of earth conductor, internal

3455.52/06-EN

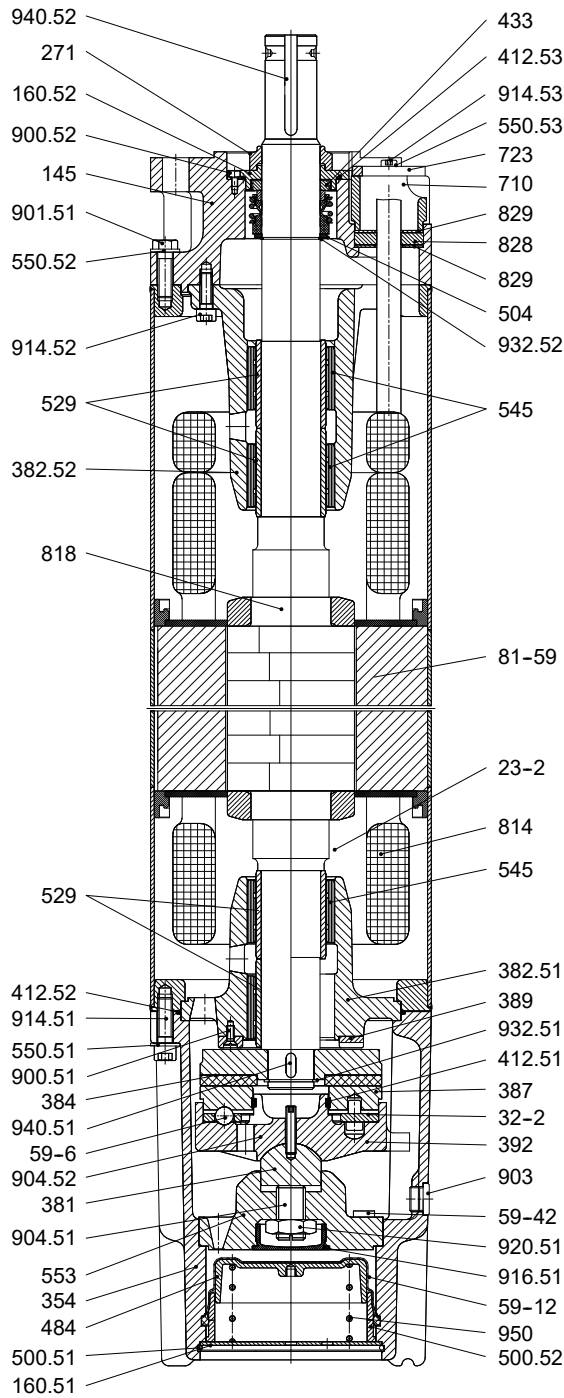
 Recommended spare parts: kit 1, kit 2 and kit 3

Table 14: List of components for UMA 200(D) in material variants G, C, D

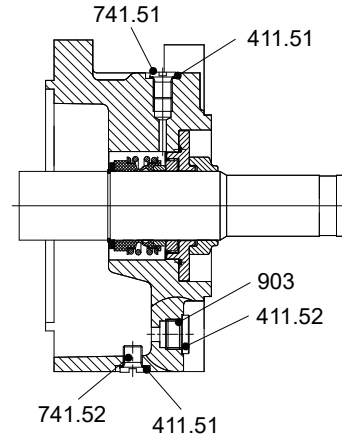
Qty/ motor	Part No.	Description	Scope of supply	Comment
1	145	Adapter	-	-
1	160.51	Cover (diaphragm)	-	-
1	160.52	Cover (mechanical seal)	Kit 3	-
1	271	Sand guard	Kit 3	-
1	32-2	Ball retainer	Kit 1	-
1	354	Thrust bearing housing	-	-
1	382.51	Bearing carrier (bottom)	-	-
1	382.52	Bearing carrier (top)	-	-
1	384	Thrust collar	Kit 1	-
6	387	Thrust bearing segment	Kit 1	-
1	389	Counter thrust bearing ring	Kit 4	-
1	392	Bearing segment carrier	Kit 1	-
1 or 2	411.51	Joint ring	Kit 3	1 joint ring for material variants C and D 2 joint rings for material variant G
2 or 3	411.52	Joint ring	Kit 8	2 joint rings for material variant G 3 joint rings for material variants C and D
1	411.53	Joint ring	Kit 3 / Kit 7a	For versions with temperature sensor only
1	412.51	O-ring	Kit 1	-
1	412.52	O-ring	Kit 3 / Kit 1	-
1	412.53	O-ring	Kit 3	-
1	433	Mechanical seal	Kit 3	-
1 or 2	452	Gland follower	Kit 6a, b, c, e, f	Qty. and design depending on cable(s)
1	474	Thrust ring	Kit 7a	For versions with temperature sensor only
1	484	Spring plate	-	-
2	50-3	Backing ring	-	-
1	58-1	Protecting plug	-	-
6	59-6	Ball	Kit 1	-
1	59-12	Diaphragm	Kit 3	-
1	59-42	Magnet	-	-
1	500.52	Ring	-	-
1	500.53	Ring	-	-
1	529	Bearing sleeve	Kit 2	-
3	545	Bearing bush	Kit 2	-
6	550.51	Disc	Kit 5	Not for material variant D
4	550.52	Disc	Kit 5	Not for material variant D
2 or 4	550.53	Disc	Kit 5 / Kit 6a, b, c, e, f	Qty. and design depending on cable(s)
2	550.54	Disc	Kit 5	-
1	553	Thrust insert	-	-
1	69-6	Temperature sensor	Kit 7a	For versions with temperature sensor only
1	741.51	Valve (ON)	Kit 8	Only for material variant G
1	741.52	Valve (OFF)	Kit 8	Only for material variant G
1	81-59	Stator with winding	-	-
1	81-74	Pressure screw	Kit 7a	For versions with temperature sensor only
1	814	Winding	-	-
1	818	Rotor (shaft end)	-	-
1 or 2	828	Cable grommet	Kit 6a, b, c, e, f	Qty. and design depending on cable(s)
3 or 6	829	Cable gland ring	Kit 6a, b, c, e, f	Qty. and design depending on cable(s)
2	900.51	Countersunk head screw	Kit 4	-
4	900.52	Hexagon socket head cap screw	Kit 3 / Kit 5	-
4	901.51	Hexagon head bolt	Kit 5	-
1	901.52	Hexagon head bolt	Kit 5	-
2	903	Screw plug	-	With integrated joint ring
1	904.51	Grub screw	Kit 1	-

Qty/ motor	Part No.	Description	Scope of supply	Comment
6	914.51	Hexagon socket head cap screw	Kit 5	-
4	914.52	Hexagon socket head cap screw	Kit 5	-
2 or 4	914.53	Hexagon socket head cap screw	Kit 5 / Kit 6a, b, c, e, f	Qty. and design depending on cable(s)
1	914.54	Hexagon socket head cap screw	Kit 5	-
1	916	Plug	-	Only for material variants C and D
1	920.51	Hexagon nut	Kit 1	-
1	932.51	Circlip	Kit 1	-
1	932.52	Circlip	Kit 5	Not for material variant D
1	932.53	Circlip	Kit 1	-
1	940.51	Key	Kit 1	-
1	950	Spring	-	-

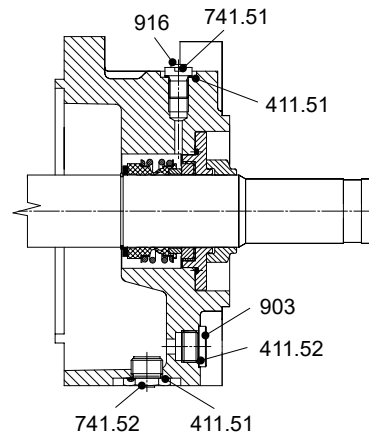
UMA-S 250(D)



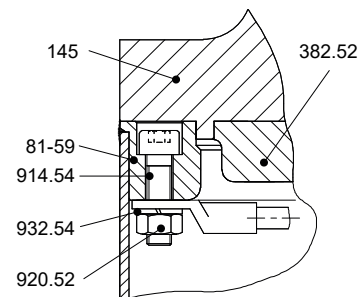
Sectional drawing UMA-S 250(D)



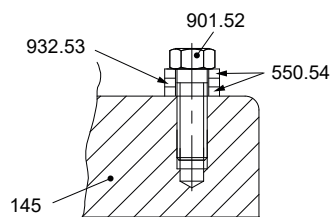
Connection, material variant G



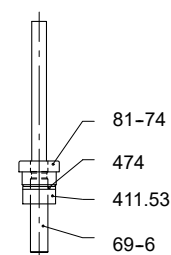
Connection, material variant C, D



Fastening of earth conductor, internal



Fastening of earth conductor, external



Pt100 resistance thermometer

Recommended spare parts: kit 1, kit 2 and kit 3

Table 15: List of components for UMA-S 250(D) in material variants G, C and D

Qty/ motor	Part No.	Description	Scope of supply	Comment
1	145	Adapter	-	-
1	160.51	Cover (diaphragm)	-	-
1	160.52	Cover (mechanical seal)	Kit 3	-
2	23-2	Auxiliary impeller	-	-
1	271	Sand guard	Kit 3	-
1	32-2	Ball retainer	Kit 1	-
1	354	Thrust bearing housing	-	-
1	381	Bearing cartridge	Kit 1	-
1	382.51	Bearing carrier (bottom)	-	-
1	382.52	Bearing carrier (top)	-	-
1	384	Thrust collar	Kit 1	-
6	387	Thrust bearing segment	Kit 1	-
1	389	Counter thrust bearing ring	Kit 4	-
1	392	Bearing segment carrier	Kit 1	-
1 or 2	411.51	Joint ring	Kit 3	1 joint ring for material variants C and D 2 joint rings for material variant G
2 or 3	411.52	Joint ring	Kit 3	2 joint rings for material variant G 3 joint rings for material variants C and D
1	411.53	Joint ring	Kit 3 / Kit 7a	For versions with temperature sensor only
1	412.51	O-ring	Kit 1	-
1	412.52	O-ring	Kit 3 / Kit 1	-
1	412.53	O-ring	Kit 3	-
1	433	Mechanical seal	Kit 3	-
1	474	Thrust ring	Kit 7a	For versions with temperature sensor only
1	484	Spring plate	-	-
6	59-6	Ball	Kit 1	-
1	59-12	Diaphragm	Kit 3	-
1	59-42	Magnet	-	-
1	500.51	Ring	-	-
1	500.52	Ring	-	-
1	504	Spacer ring	Kit 3	-
4	529	Bearing sleeve	Kit 2	-
4	545	Bearing bush	Kit 2	-
6	550.51	Disc	Kit 5	Not for material variant D
6	550.52	Disc	Kit 5	Not for material variant D
2 or 4	550.53	Disc	Kit 5 / Kit 6a, b, c, d, e, f, g, h, i	Qty. and design depending on cable(s)
2	550.54	Disc	Kit 5	-
1	553	Thrust insert	-	-
1	69-6	Temperature sensor	Kit 7a	For versions with temperature sensor only
1 or 2	710	Pipe	Kit 6a, b, c, d, e, f, g	Qty. and design depending on cable(s)
1 or 2	723	Flange	Kit 6a, b, c, d, e, f, g, h, i	Qty. and design depending on cable(s)
1	741.51	Valve (ON)	Kit 8	Only for material variant G
1	741.52	Valve (OFF)	Kit 8	Only for material variant G
1	81-59	Stator	-	-
1	81-74	Pressure screw	Kit 7a	For versions with temperature sensor only
1	814	Winding	-	-
1	818	Rotor	-	-
1 or 3	828	Cable grommet	Kit 6a, b, c, d, e, f, g, h, i	Qty. and design depending on cable(s)
3 or 6	829	Cable gland ring	Kit 6a, b, c, d, e, f, g, h, i	Qty. and design depending on cable(s)
3	900.51	Countersunk head screw	Kit 4	-
4	900.52	Hexagon socket head cap screw	Kit 3 / Kit 5	-
6	901.51	Hexagon head bolt	Kit 5	-
1	901.52	Hexagon head bolt	Kit 5	-
2	903	Screw plug	-	With integrated joint ring

Qty/ motor	Part No.	Description	Scope of supply	Comment
1	904.51	Grub screw	Kit 1	-
1	904.52	Grub screw	Kit 1	-
6	914.51	Hexagon socket head cap screw	Kit 5	-
4	914.52	Hexagon socket head cap screw	Kit 5	-
2 or 4	914.53	Hexagon socket head cap screw	Kit 5 / Kit 6a, b, c, d, e, f, g, h, i	Qty. and design depending on cable(s)
1	914.54	Hexagon socket head cap screw	Kit 5	-
1	916.51	Plug	-	-
-	916.52	Plug (valve)	-	Only for material variants C and D
1	920.51	Hexagon nut	Kit 1	-
1	920.52	Hexagon nut	Kit 5	-
1	932.51	Circlip	Kit 1	-
1	932.52	Circlip	Kit 3	Not for material variant D
1	932.53	Circlip	Kit 5	-
1	932.54	Circlip	Kit 5	-
1	940.51	Key	Kit 1	-
1	940.52	Key	-	-
1	950	Spring	-	-

Selection information

General information

- UMA-S submersible motors are exclusively operated on a frequency inverter. They cannot be operated directly on mains power.
- Frequency inverters used for interior permanent magnet synchronous motors (IPMSM) must meet special requirements.
Note that:
 - The particular motor design
 - Low moment of inertia
 - High output per size
 - Winding load
 - Installation conditions with long cables
 have to be taken into account.
- The control system works entirely without sensors. This means that the speed or rotor position cannot be determined by an external sensor, for example.
- For a 4-pole synchronous motor, a frequency of 100 Hz is required for a maximum speed of 3000 rpm. The frequency inverter and filter must be selected accordingly.
- The motor data documented by KSB have been determined using a frequency inverter reference system. This system comprises a frequency inverter with sine filter recommended by KSB as an accessory.
- If frequency inverters other than those recommended by KSB are used, the manufacturer of the frequency inverter must ensure that the special features of the UMA-S submersible motor are taken into account in the closed-loop and open-loop control processes used. Sub-optimal motor control, for example, can lead to a higher motor current, which can have a negative impact on the efficiency of the motor or system. This must be considered when selecting the system.

Maximum permissible run-up/run-down times

- The run-up time from standstill to the minimum frequency f_{\min} must not exceed 2 seconds.
- The run-down time must be limited to a maximum of 2 seconds.

Minimum frequency


- For vertical installation: 40 Hz
- For horizontal installation: 60 Hz

Maximum operating frequency

- The maximum operating frequency of 100 Hz must not be exceeded.
- Lower operating frequencies (< 100 Hz) can be agreed upon for specific orders. For more information, see name plate / order documentation

Maximum permissible rate of voltage rise and peak voltages

- Maximum rate of voltage rise: $du/dt \leq 500 \text{ V}/\mu\text{s}$
- Maximum peak voltages to earth: VPE/XLPE - insulation $\leq 800 \text{ V}$

 For information on the operation of submersible motors on frequency inverters, also refer to document No. 3400.0610.

Accessories

PumpDrive R



Main applications

Building services:

- Air-conditioning systems
- Heat generation / heat distribution
- Water supply systems

Designation

Example: PDRV R 000K55 C

Table 16: Designation key

Code	Description	
PDRV	PumpDrive type series	
R	R = Extended selection chart	
000K55	Power, e.g. 0.55 kW (0.75 hp)	
C	Installation type	
	C	Cabinet-mounted model
	W	Wall-mounted model

Technical data

Table 17: Technical data

Characteristic	Value
Mains data	
Input voltage V_{IN}	3~ 380...480 V ± 10 %
Input frequency f_{IN}	50 / 60 Hz +4% / -6 %
Start-ups	Maximum 1 x per 2 minutes
Motor connection	
Output voltage	0 - V_N
Output current	I_N at an ambient temperature of 40 °C Overload: 1.1 x I_N (1 minute / 10 minutes)
Output frequency	0...590 Hz, resolution 0.01 Hz
Performance	
Efficiency	4.0...7.5 kW: 97 % 11...45 kW: 98 %

Water:

- Water extraction / water withdrawal
- Water treatment / water conditioning
- Water distribution / water transport

Industry:

- Refrigeration / cooling distribution
- Heat generation / heat distribution
- Water treatment
- Fluid transport
- Cooling lubricant distribution
- Water extraction
- Service water supply

Waste water:

- Tank drainage
- Waste water transport

General description

Modular self-cooling frequency inverter that enables continuously variable speed control of asynchronous and synchronous reluctance motors by means of analog standard signals, a field bus or the control panel. As PumpDrive R is self-cooling, it can be mounted on the motor, on the wall or in a control cabinet. Up to six pumps can be controlled without needing an additional controller. PumpDrive R extends the power range of PumpDrive 2 up to a rated power of 400 kW (standard) / 1400 kW (on request).

Characteristic	Value
Ambient conditions	
In-service temperature	-10 °C...+50 °C (<+40 °C with power derating)
In-storage temperature	-25 °C...+70 °C
Altitude	3000 m (> 1000 m with power derating)
EMC	
Interference emissions	EN 61800-3, EN 61000-6-3/4, EN 55011, IEC 61800-3
Interference immunity	EN 61800-3, EN 61000-6-1/2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6
Communication	
RS 485	FC protocol / Modbus RTU
Inputs and outputs	
Digital input (DI)	6

3455.52/06-EN

Characteristic	Value
Analog input (AI)	2
Analog output (AO)	1x
Relay output	2x (changeover contact)
Enclosure	

Characteristic	Value
Enclosure	IP20 for cabinet-mounted version IP55 for wall-mounted version

For more information refer to the PumpDrive R type series booklet.

Programme overview

Table 18: Selection table of frequency inverters and filters

P _N		Frequency inverter			du/dt filter			Sine filter		
[kW]	[hp]	Enclosure	Mat.-No.	Designation	Enclosure	Mat.-No.	Designation	Enclosure	Mat.-No.	Designation
• UMA-S 150E 7/42										
4,0	5,4	IP20	48229690	PumpDrive R KSB202 004K00C	IP00	01664325	130B2835	IP00	01664341	130B2411
5,5	7,4	IP20	48229692	PumpDrive R KSB202 005K50C	IP00	01664325	130B2835	IP00	01664341	130B2411
7,5	10,0	IP20	48229694	PumpDrive R KSB202 007K50C	IP00	01664325	130B2835	IP00	01664342	130B2412
4,0	5,4	IP55	48229691	PumpDrive R KSB202 004K00W	IP54	01664338	130B2837	IP54	01664347	192H3025
5,5	7,4	IP55	48229693	PumpDrive R KSB202 005K50W	IP54	01664338	130B2837	IP54	01664347	192H3025
7,5	10,0	IP55	48229695	PumpDrive R KSB202 007K50W	IP54	01664338	130B2837	IP54	01664347	192H3025
• UMA-S 150(E) 18/42										
9,3	12,4	IP20	48229696	PumpDrive R KSB202 011K00C	IP00	01664325	130B2835	IP00	01664343	130B2413
11,0	14,7	IP20	48229696	PumpDrive R KSB202 011K00C	IP00	01664325	130B2835	IP00	01664343	130B2413
13,0	17,4	IP20	48229698	PumpDrive R KSB202 015K00C	IP00	01664325	130B2835	IP00	01664344	130B2281
15,0	20,1	IP20	48229698	PumpDrive R KSB202 015K00C	IP00	01664325	130B2835	IP00	01664344	130B2281
18,5	24,7	IP20	48229700	PumpDrive R KSB202 018K50C	IP00	01664326	130B2838	IP00	01664345	130B2282
9,3	12,4	IP55	48229697	PumpDrive R KSB202 011K00W	IP54	01664338	130B2837	IP54	01664348	192H3027
11,0	14,7	IP55	48229697	PumpDrive R KSB202 011K00W	IP54	01664338	130B2837	IP54	01664348	192H3027
13,0	17,4	IP55	48229699	PumpDrive R KSB202 015K00W	IP54	01664338	130B2837	IP54	01664349	192H3028
15,0	20,1	IP55	48229699	PumpDrive R KSB202 015K00W	IP54	01664338	130B2837	IP54	01664349	192H3028
18,5	24,7	IP55	48229701	PumpDrive R KSB202 018K50W	IP54	01664339	130B2840	IP54	01664350	192H3010
• UMA-S 150(E) 37/42										
22,0	29,4	IP20	48229702	PumpDrive R KSB202 022K00C	IP00	01664326	130B2838	IP00	01664345	130B2282
26,0	34,8	IP20	48229704	PumpDrive R KSB202 030K00C	IP00	01664326	130B2838	IP00	01664346	130B3179
30,0	40,2	IP20	48229704	PumpDrive R KSB202 030K00C	IP00	01664326	130B2838	IP00	01664346	130B3179
37,0	49,5	IP20	48229708	PumpDrive R KSB202 045K00C	IP00	01674691	130B2844	IP00	01664346	130B3179
22,0	29,4	IP55	48229703	PumpDrive R KSB202 022K00W	IP54	01664339	130B2840	IP54	01664351	192H3011
26,0	34,8	IP55	48229705	PumpDrive R KSB202 030K00W	IP54	01664340	130B2843	IP54	01664352	192H3035
30,0	40,2	IP55	48229705	PumpDrive R KSB202 030K00W	IP54	01664340	130B2843	IP54	01664352	192H3035
37,0	49,5	IP55	48229709	PumpDrive R KSB202 045K00W	IP54	01664340	130B2843	IP54	01674692	192H3037
• UMA-S 200(D) 75/42										
45,0	60,0	IP20	48229708	PumpDrive R KSB202 045K00C	IP00	01674691	130B2844	IP00	01664346	130B3179
55,0	74,0	IP20	48229710	PumpDrive R KSB202 055K00C	IP00	01674691	130B2844	IP00	01733111	130B3182
67,0	90,0	IP20	48229712	PumpDrive R KSB202 075K00C	IP00	01674691	130B2844	IP00	01733111	130B3182
75,0	100	IP20	48229714	PumpDrive R KSB202 090K00C	IP00	01733056	130B2847	IP00	01733112	130B3184
45,0	60,0	IP55	48229709	PumpDrive R KSB202 045K00W	IP54	01733108	130B2846	IP54	01674692	192H3037
55,0	74,0	IP55	48229711	PumpDrive R KSB202 055K00W	IP54	01733108	130B2846	IP54	01674692	192H3037
67,0	90,0	IP55	48229713	PumpDrive R KSB202 075K00W	IP54	01733108	130B2846	IP54	01674692	192H3037
75,0	100	IP55	48229715	PumpDrive R KSB202 090K00W	IP23	01733109	130B2848	IP23	01733115	130B9027
• UMA-S 200(D) 100/42										
75,0	100	IP20	48229714	PumpDrive R KSB202 090K00C	IP00	01733056	130B2847	IP00	01733112	130B3184
83,0	110	IP20	48229714	PumpDrive R KSB202 090K00C	IP00	01733056	130B2847	IP00	01733112	130B3184
93,0	125	IP20	48229716	PumpDrive R KSB202 110K00C	IP00	01733056	130B2847	IP00	01733112	130B3184
100	135	IP20	48229716	PumpDrive R KSB202 110K00C	IP00	01733056	130B2847	IP00	01733112	130B3184
75,0	100	IP55	48229715	PumpDrive R KSB202 090K00W	IP23	01733109	130B2848	IP23	01733115	130B9027
83,0	110	IP55	48229715	PumpDrive R KSB202 090K00W	IP23	01733109	130B2848	IP23	01733115	130B9027
93,0	125	IP55	48229717	PumpDrive R KSB202 110K00W	IP23	01733109	130B2848	IP23	01733115	130B9027
100	135	IP55	48229717	PumpDrive R KSB202 110K00W	IP23	01733109	130B2848	IP23	01733115	130B9027

P _N		Frequency inverter				du/dt filter			Sine filter		
[kW]	[hp]	Enclosure	Mat.-No.	Designation	Enclosure	Mat.-No.	Designation	Enclosure	Mat.-No.	Designation	
▪ UMA-S 200(D) 130/42											
110	145	IP20	01733781	PumpDrive R KSB202 132K00C	IP00	01733056	130B2847	IP00	01733113	130B3186	
130	175	IP20	01733783	PumpDrive R KSB202 160K00C	IP00	01733056	130B2847	IP00	01733113	130B3186	
110	145	IP54	01733782	PumpDrive R KSB202 132K00W	IP23	01733109	130B2848	IP23	01733116	130B3187	
130	175	IP54	01733784	PumpDrive R KSB202 160K00W	IP23	01733109	130B2848	IP23	01733116	130B3187	
▪ UMA-S 200(D) 150/42											
110	145	IP20	01733781	PumpDrive R KSB202 132K00C	IP00	01733056	130B2847	IP00	01733113	130B3186	
130	175	IP20	01733783	PumpDrive R KSB202 160K00C	IP00	01733056	130B2847	IP00	01733113	130B3186	
150	200	IP20	01733783	PumpDrive R KSB202 160K00C	IP00	01733107	130B2849	IP00	01733113	130B3186	
110	145	IP54	01733782	PumpDrive R KSB202 132K00W	IP23	01733109	130B2848	IP23	01733116	130B3187	
130	175	IP54	01733784	PumpDrive R KSB202 160K00W	IP23	01733109	130B2848	IP23	01733116	130B3187	
150	200	IP54	01733784	PumpDrive R KSB202 160K00W	IP23	01733110	130B2850	IP23	01733116	130B3187	
▪ UMA-S 250(D) 200/42											
185	244	IP20	01839750	PumpDrive R KSB202 200K00C	IP00	01733107	130B2849	IP00	01845293	130B3188	
200	264	IP20	01839789	PumpDrive R KSB202 250K00C	IP00	05146486	130B2851	IP00	05146604	130B3191	
185	244	IP54	01839790	PumpDrive R KSB202 200K00W	IP23	01733110	130B2850	IP23	01845295	130B3189	
200	264	IP54	01839792	PumpDrive R KSB202 250K00W	IP23	05146487	130B2852	IP23	05146605	130B3192	
▪ UMA-S 250(D) 250/42											
230	303	IP20	01839789	PumpDrive R KSB202 250K00C	IP00	05146486	130B2851	IP00	05146604	130B3191	
250	330	IP20	05117684	PumpDrive R KSB202 315K00C	IP00	05146488	130B2853	IP00	05146622	130B3193	
230	303	IP54	01839792	PumpDrive R KSB202 250K00W	IP23	05146487	130B2852	IP23	05146605	130B3192	
250	330	IP54	05117687	PumpDrive R KSB202 315K00W	IP23	05146597	130B2854	IP23	05146624	130B3194	

For output filter IP54, select a suitable cable sealing set in addition.

Cable sealing set for output filter IP54

- EMC cable gland with metric thread
- Brass, galvanically nickel-plated
- IP68 enclosure

Cable sealing set, comprising:

- Cable glands
- Nuts
- Reducers

2 sizes of each are contained in a cable sealing set.¹³⁾

Table 19: Selection table

Output filter IP54		Extension cable for drinking applications										Cable sealing set	Mat. No.
		Unshielded					Shielded ¹⁴⁾						
		Core cross-section [mm ²]											
Type	Description	4,0	6,0	10	16	25	35	50	6,0	16	35		
du/dt filter	130B2837	✗	✗	-	-	-	-	-	✗	-	-	Size 32 / No. 1	01674645
du/dt filter	130B2837	-	-	✗	-	-	-	-	-	-	-	Size 32 / No. 2	01674646
du/dt filter	130B2837	-	-	-	✗	-	-	-	-	✗	-	Size 40 / No. 1	01674654
du/dt filter	130B2840	✗	✗	-	-	-	-	-	✗	-	-	Size 32 / No. 3	01674655
du/dt filter	130B2840	-	-	✗	-	-	-	-	-	-	-	Size 32 / No. 4	01674697
du/dt filter	130B2840	-	-	-	✗	-	-	-	-	✗	-	Size 40 / No. 2	01674698
du/dt filter	130B2840	-	-	-	-	✗	-	-	-	-	✗	Size 50 / No. 1	01674699
du/dt filter	130B2843	-	-	✗	-	-	-	-	-	-	-	Size 40 / No. 3	01674700
du/dt filter	130B2843	-	-	-	✗	-	-	-	-	✗	-	Size 40 / No. 4	01674701

¹³ Other combinations on request.

¹⁴ Earth conductor arranged concentrically in the cable shield or separate earth conductor in the cable

Output filter IP54		Extension cable for drinking applications										Cable sealing set	Mat. No.
		Unshielded							Shielded ¹⁴⁾				
		Core cross-section [mm ²]											
Type	Description	4,0	6,0	10	16	25	35	50	6,0	16	35		
du/dt filter	130B2843	-	-	-	-	X	-	-	-	-	X	Size 50 / No. 2	01674702
du/dt filter	130B2843	-	-	-	-	-	X	X	-	-	-	Size 63 / No. 1	01674703
du/dt filter	130B2846	-	-	-	-	-	X	X	-	-	-	Size 63 / No. 1	01674703
Sine filter	192H3025	-	X	-	-	-	-	-	-	-	-	Size 32	¹⁵⁾
Sine filter	192H3027	-	-	X	-	-	-	-	-	-	-	Size 32 / No. 2	01674646
Sine filter	192H3028	-	-	-	X	-	-	-	-	X	-	Size 40 / No. 1	01674654
Sine filter	192H3010	-	-	-	-	X	-	-	-	-	X	Size 50 / No. 3	01674704
Sine filter	192H3011	-	-	-	X	-	-	-	-	-	-	Size 40	¹⁵⁾
Sine filter	192H3035	-	-	-	-	X	X	-	-	-	X	Size 50	¹⁵⁾
Sine filter	192H3037	-	-	-	-	X	X	-	-	-	X	Size 50	¹⁵⁾
Sine filter	192H3037	-	-	-	-	-	-	X	-	-	-	Size 63 / No. 2	01674652

¹⁵⁾ Cable sealing is included in the scope of supply of the filter as standard.

Output filter

du/dt output filter for PumpDrive R

- Output filter for cable lengths ≤ 150 m
- Enclosure IP00, IP 23 and IP54
- Optimised for minimum losses and reduction of high du/dt values and peak voltages

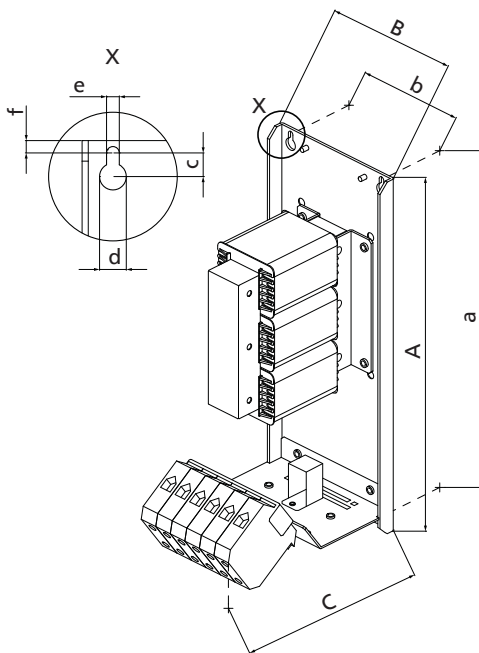
Operating data

Table 20: Operating properties

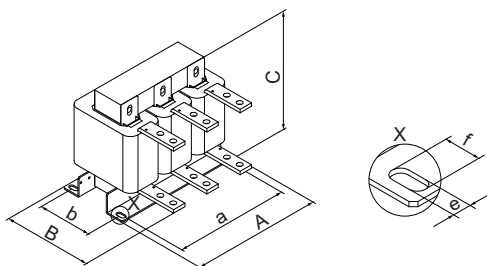
Characteristic		Value
Nominal voltage	Q [V]	3× 200...690
Maximum frequency	[Hz]	0...100
Switching frequency	[kHz]	(⇒ Page 26)
Ambient temperature	T [°C]	-10...+45
In-storage temperature	T [°C]	-25...+60
Transport temperature	T [°C]	-25...+70
Maximum altitude	[m]	1000 ¹⁶⁾

Dimensions

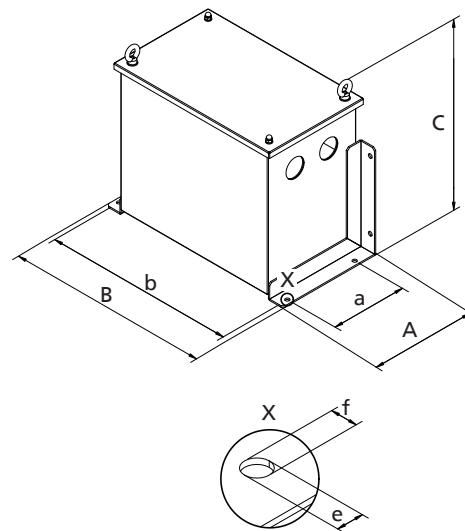
du/dt output filter



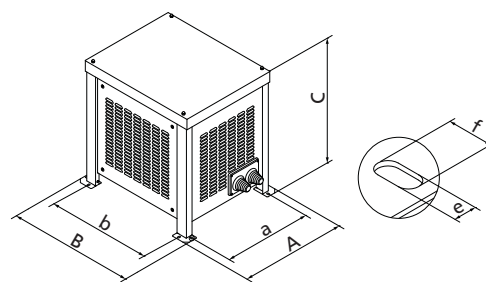
Wall-mounted model, IP00



Floor-mounted model, IP00



Floor-mounted model, IP54



Floor-mounted model, IP23

¹⁶⁾ Without power derating

du/dt output filter for size UMA-S 150(E)
Table 21: UMA-S 150(E), dimensions, information for connection

P _N		Enclosure	I _N ¹⁷⁾	Switching frequency	Dimensions								Weight	Connection		Cable sealing set	Mounting	
[kW]	[hp]				A	a	B	b	C	c	d	e		f	Cross-section			Tightening torque
		[A]	[kHz]	[mm]								[kg]	[mm ²]	[Nm]				
• 7/42																		
4,0	5,4	IP00	33	≤ 3	295	279	115	85	170	11,5	13	6,2	6,0	4,6	16	4/3	-	Wall
5,5	7,4	IP00	33	≤ 3	295	279	115	85	170	11,5	13	6,2	6,0	4,6	16	4/3	-	Wall
7,5	10	IP00	33	≤ 3	295	279	115	85	170	11,5	13	6,2	6,0	4,6	16	4/3	-	Wall
4,0	5,4	IP54	33	≤ 3	200	130	320	304	250	-	-	9,0	9,0	15,7	16	4/3	✗	Floor
5,5	7,4	IP54	33	≤ 3	200	130	320	304	250	-	-	9,0	9,0	15,7	16	4/3	✗	Floor
7,5	10	IP54	33	≤ 3	200	130	320	304	250	-	-	9,0	9,0	15,7	16	4/3	✗	Floor
• 18/42																		
9,3	12,4	IP00	33	≤ 3	295	279	115	85	170	11,5	13	6,2	6,0	4,6	16	4/3	-	Wall
11	14,7	IP00	33	≤ 3	295	279	115	85	170	11,5	13	6,2	6,0	4,6	16	4/3	-	Wall
13	17,4	IP00	33	≤ 3	295	279	115	85	170	11,5	13	6,2	6,0	4,6	16	4/3	-	Wall
15	20,1	IP00	33	≤ 3	295	279	115	85	170	11,5	13	6,2	6,0	4,6	16	4/3	-	Wall
18,5	24,7	IP00	68	≤ 3	395	379	155	125	220	11,5	13	6,2	6,0	12,7	50	6	-	Wall
9,3	12,4	IP54	34	≤ 3	200	130	320	304	250	-	-	9,0	9,0	15,7	16	4/3	✗	Floor
11	14,7	IP54	34	≤ 3	200	130	320	304	250	-	-	9,0	9,0	15,7	16	4/3	✗	Floor
13	17,4	IP54	34	≤ 3	200	130	320	304	250	-	-	9,0	9,0	15,7	16	4/3	✗	Floor
15	20,1	IP54	34	≤ 3	200	130	320	304	250	-	-	9,0	9,0	15,7	16	4/3	✗	Floor
18,5	24,7	IP54	56	≤ 3	230	160	420	400	355	-	-	9,0	9,0	39,8	50	6	✗	Floor
• 37/42																		
22	29,4	IP00	68	≤ 3	395	379	155	125	220	11,5	13	6,2	6,0	12,7	50	6	-	Wall
26	34,8	IP00	80	≤ 3	395	379	155	125	220	11,5	13	6,2	6,0	22,0	50	6	-	Wall
30	40,2	IP00	80	≤ 3	395	379	155	125	220	11,5	13	6,2	6,0	22,0	50	6	-	Wall
37	49,5	IP00	110	≤ 3	445	429	185	155	235	11,5	13	6,2	6,0	27,0	50	12/9	-	Wall
22	29,4	IP54	68	≤ 3	230	160	420	400	355	-	-	9,0	9,0	39,8	50	6	✗	Floor
26	34,8	IP54	68	≤ 3	230	160	420	400	355	-	-	9,0	9,0	39,8	50	6	✗	Floor
30	40,2	IP54	68	≤ 3	230	160	420	400	355	-	-	9,0	9,0	39,8	50	6	✗	Floor
37	49,5	IP54	80	≤ 3	275	200	470	446	460	-	-	11	14	59,6	50	6	✗	Floor

i For ✗, see cable sealing set for output filter IP54. (⇒ Page 24)

du/dt output filter for size UMA-S 200(D)
Table 22: UMA-S 200(D), dimensions, information for connection

P _N		Enclosure	I _N ¹⁸⁾	Switching frequency	Dimensions								Weight	Connection		Cable sealing set	Mounting	
[kW]	[hp]				A	a	B	b	C	c	d	e		f	Cross-section			Tightening torque
		[A]	[kHz]	[mm]								[kg]	[mm ²]	[Nm]				
• 75/42																		
45	60	IP00	133	≤ 3	445	429	185	155	235	11,5	13	6,2	6,0	27,0	95	12/9	-	Wall
55	74	IP00	133	≤ 3	445	429	185	155	235	11,5	13	6,2	6,0	27,0	95	12/9	-	Wall
67	90	IP00	133	≤ 3	445	429	185	155	235	11,5	13	6,2	6,0	27,0	95	12/9	-	Wall
75	100	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
45	60	IP54	133	≤ 3	275	200	470	446	460	-	-	11	14	61,8	95	12/9	✗	Floor
55	74	IP54	133	≤ 3	275	200	470	446	460	-	-	11	14	61,8	95	12/9	✗	Floor
67	90	IP54	133	≤ 3	275	200	470	446	460	-	-	11	14	61,8	95	12/9	✗	Floor

¹⁷ Filter nominal currents for 100 Hz

¹⁸ Filter nominal currents for 100 Hz

P _N		Enclosure	I _N ¹⁸⁾	Switching frequency	Dimensions								Weight	Connection		Cable sealing set	Mounting	
					A	a	B	b	C	c	d	e		f	Cross-section			Tightening torque
[kW]	[hp]		[A]	[kHz]	[mm]								[kg]	[mm ²]	[Nm]			
75	100	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
▪ 100/42																		
75	100	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
83	110	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
93	125	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
100	135	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
75	100	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
83	110	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
93	125	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
100	135	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
▪ 130/42																		
110	145	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
130	175	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
110	145	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
130	175	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
▪ 150/42																		
110	145	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
130	175	IP00	236	≤ 3	300	275	190	100	235	-	-	11	22	33,0	M10	18	-	Floor
150	200	IP00	360	≤ 3	300	275	250	125	235	-	-	11	22	36,0	2 × M10	30	-	Floor
110	145	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
130	175	IP23	236	≤ 3	425	325	700	660	620	-	-	13	17	64,5	M10	18	-	Floor
150	200	IP23	360	≤ 3	425	325	700	660	620	-	-	13	17	67,5	2 × M10	30	-	Floor

For **X**, see cable sealing set for output filter IP54. (⇒ Page 24)

du/dt output filter for size UMA-S 250(D)

Table 23: UMA-S 250(D), dimensions, information for connection

P _N		Enclosure	I _N ¹⁹⁾	Switching frequency	Dimensions								Weight	Connection		Cable sealing set	Mounting	
					A	a	B	b	C	c	d	e		f	Cross-section			Tightening torque
[kW]	[hp]		[A]	[kHz]	[mm]								[kg]	[mm ²]	[Nm]			
▪ 200/42																		
185	244	IP00	360	≤ 3	300	275	250	125	235	-	-	11	22	36,0	2 × M10	30	-	Floor
200	264	IP00	494	≤ 2	350	325	250	123	270	-	-	11	22	47,0	2 × M10	30	-	Floor
185	244	IP23	360	≤ 3	425	325	700	660	620	-	-	13	17	67,5	2 × M10	30	-	Floor
200	264	IP23	494	≤ 2	425	325	700	660	620	-	-	13	17	78,5	2 × M10	30	-	Floor
▪ 250/42																		
230	303	IP00	494	≤ 2	350	325	250	123	270	-	-	11	22	47,0	2 × M10	30	-	Floor
250	330	IP00	660	≤ 2	400	375	290	149	283	-	-	11	22	72,0	4 × M10	30	-	Floor
230	303	IP23	494	≤ 2	425	325	700	660	620	-	-	13	17	78,5	2 × M10	30	-	Floor
250	330	IP23	660	≤ 2	792	660,5	940	779	918	-	-	11	22	182,0	4 × M10	30	-	Floor

¹⁹ Filter nominal currents for 100 Hz

Sine output filter for PumpDrive R

- Output filter for cable lengths > 150 m to 300 m²⁰⁾
- Enclosure IP00, IP23 and IP54
- Optimised for minimal losses and protection against peak voltages
- Reduction of electromagnetic radiation by motor lead and other electromagnetic interferences

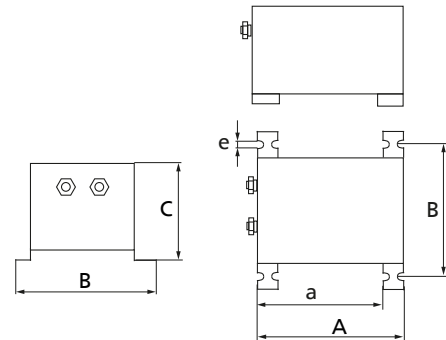
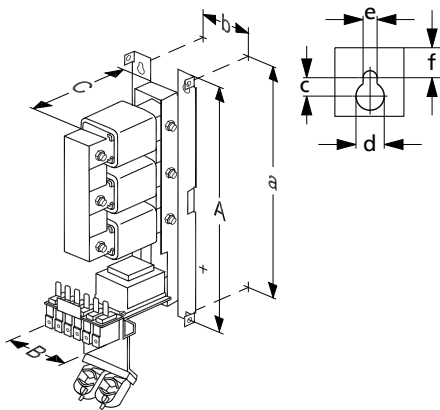
Operating data

Table 24: Operating properties

Characteristic		Value
Nominal voltage	Q [V]	3× 380...500
Maximum frequency	[Hz]	0...100
Switching frequency	[kHz]	(⇒ Page 29)
Maximum switching frequency	[kHz]	8 ²¹⁾
Ambient temperature	T [°C]	-10...+45
In-storage temperature	T [°C]	-25...+60
Transport temperature	T [°C]	-25...+70
Maximum altitude	[m]	1000 ²²⁾

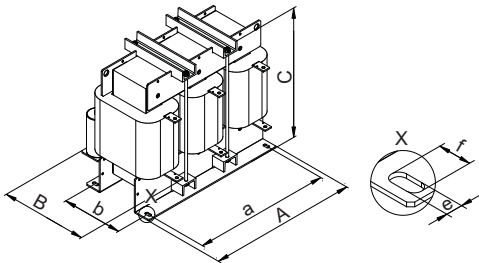
Dimensions

Sine output filter

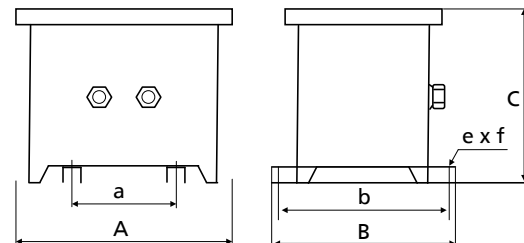


Wall-mounted model, IP54

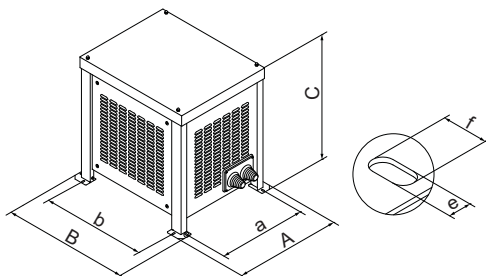
Wall-mounted model, IP00



Floor-mounted model, IP00



Floor-mounted model, IP54



Floor-mounted model, IP23

3455.52/06-EN

²⁰ Longer cable lengths on request.
²¹ Only for enclosure IP00
²² Without power derating

Sine output filter for size UMA-S 150(E)
Table 25: UMA-S 150(E), dimensions, information for connection

P _N		Enclosure	I _N ²³⁾	Switching frequency	Dimensions								Weight	Connection		Cable sealing set	Mounting	
					A	a	B	b	C	c	d	e		f	Cross-section			Tightening torque
[kW]	[hp]		[A]	[kHz]	[mm]								[kg]	[mm ²]	[Nm]			
• 7/42																		
4,0	5,4	IP00	13	≥ 5	268	257	130	90	205	8	11	6,5	6,5	7,8	4	0,6	-	Wall
5,5	7,4	IP00	13	≥ 5	268	257	130	90	205	8	11	6,5	6,5	7,8	4	0,6	-	Wall
7,5	10	IP00	18	≥ 4	330	312	150	120	260	12	19	9,0	9,0	14,4	16	2,0	-	Wall
4,0	5,4	IP54	17	5	600	550	460	430	215	-	-	9,0	-	29,0	10	1,8	✗	Wall
5,5	7,4	IP54	17	5	600	550	460	430	215	-	-	9,0	-	29,0	10	1,8	✗	Wall
7,5	10	IP54	17	5	600	550	460	430	215	-	-	9,0	-	29,0	10	1,8	✗	Wall
• 18/42																		
9,3	12,4	IP00	28,5	≥ 4	430	412	150	120	260	12	19	9,0	9,0	17,7	16	2,0	-	Wall
11	14,7	IP00	28,5	≥ 4	430	412	150	120	260	12	19	9,0	9,0	17,7	16	2,0	-	Wall
13	17,4	IP00	36	≥ 4	530	500	170	125	258	12	19	9,0	20	34,0	50	8,0	-	Wall
15	20,1	IP00	36	≥ 4	530	500	170	125	258	12	19	9,0	20	34,0	50	8,0	-	Wall
18,5	24,7	IP00	46,5	≥ 3	610	580	170	125	260	12	19	9,0	20	36,0	50	8,0	-	Wall
9,3	12,4	IP54	24,2	4	600	550	460	430	215	-	-	9,0	-	36,0	10	1,8	✗	Wall
11	14,7	IP54	24,2	4	600	550	460	430	215	-	-	9,0	-	36,0	10	1,8	✗	Wall
13	17,4	IP54	32	4	520	240	480	440	480	-	-	11	15	62,0	35	6,0	✗	Floor
15	20,1	IP54	32	4	520	240	480	440	480	-	-	11	15	62,0	35	6,0	✗	Floor
18,5	24,7	IP54	37,5	4	520	240	480	440	480	-	-	11	15	64,0	35	6,0	✗	Floor
• 37/42																		
22	29,4	IP00	46,5	≥ 3	610	580	170	125	260	12	19	9,0	20	36,0	50	8,0	-	Wall
26	34,8	IP00	86	≥ 3	520	-	470	400	334	175	-	13	26	95,0	50	6,0	-	Floor
30	40,2	IP00	86	≥ 3	520	-	470	400	334	175	-	13	26	95,0	50	6,0	-	Floor
37	49,5	IP00	86	≥ 3	520	-	470	400	334	175	-	13	26	95,0	50	6,0	-	Floor
22	29,4	IP54	46,2	4	520	240	480	440	480	-	-	11	15	74,0	50	6,0	✗	Floor
26	34,8	IP54	61	3	660	310	560	520	590	-	-	11	15	100	50	6,0	✗	Floor
30	40,2	IP54	61	3	660	310	560	520	590	-	-	11	15	100	50	6,0	✗	Floor
37	49,5	IP54	115	3	660	370	560	520	590	-	-	11	15	167	35...150 ²⁴⁾	30	✗	Floor

For ✗, see cable sealing set for output filter IP54. (⇒ Page 24)

Sine output filter for size UMA-S 200(D)
Table 26: UMA-S 200(D), dimensions, information for connection

P _N		Enclosure	I _N ²⁵⁾	Switching frequency	Dimensions								Weight	Connection		Cable sealing set	Mounting	
					A	a	B	b	C	c	d	e		f	Cross-section			Tightening torque
[kW]	[hp]		[A]	[kHz]	[mm]								[kg]	[mm ²]	[Nm]			
• 75/42																		
45	60	IP00	86	≥ 3	520	-	470	400	334	175	-	13	26	95,0	50	2,0 ... 6,0	-	Floor
55	74	IP00	135	≥ 3	580	-	470	400	311	150	-	13	26	127	95	12 ... 20	-	Floor
67	90	IP00	135	≥ 3	580	-	470	400	311	150	-	13	26	127	95	12 ... 20	-	Floor
75	100	IP00	195	≥ 3	520	-	500	450	350	200	-	13	26	197	1 × 10,5 ²⁶⁾	18	-	Floor
45	60	IP54	115	3	660	370	560	520	590	-	-	11	15	167	35 ... 150 ²⁴⁾	25 ... 30	✗	Floor

²³ Filter nominal currents for 100 Hz

²⁴ Ring lug terminal M12

²⁵ Filter nominal currents for 100 Hz

²⁶ Connection lug

P _N		Enclosure	I _N ²⁵⁾	Switching frequency	Dimensions									Weight	Connection		Cable sealing set	Mounting
					A	a	B	b	C	c	d	e	f		Cross-section	Tightening torque		
[kW]	[hp]		[A]	[kHz]	[mm]									[kg]	[mm ²]	[Nm]		
55	74	IP54	115	3	660	370	560	520	590	-	-	11	15	167	35 ... 150 ²⁴⁾	25 ... 30	X	Floor
67	90	IP54	115	3	660	370	560	520	590	-	-	11	15	167	35 ... 150 ²⁴⁾	25 ... 30	X	Floor
75	100	IP54	195	3	510	450	620	590	666	-	-	11	22	229	1 × Ø10,5 ²⁶⁾	18	-	Floor
▪ 100/42																		
75	100	IP00	195	≥ 3	520	-	500	450	350	200	-	13	26	197	1 × Ø10,5 ²⁶⁾	18	-	Floor
83	110	IP00	195	≥ 3	520	-	500	450	350	200	-	13	26	197	1 × Ø10,5 ²⁶⁾	18	-	Floor
93	125	IP00	195	≥ 3	520	-	500	450	350	200	-	13	26	197	1 × Ø10,5 ²⁶⁾	18	-	Floor
100	135	IP00	195	≥ 3	520	-	500	450	350	200	-	13	26	197	1 × Ø10,5 ²⁶⁾	18	-	Floor
75	100	IP23	195	3	510	450	620	590	666	-	-	11	22	229	1 × Ø10,5 ²⁶⁾	18	-	Floor
83	110	IP23	195	3	510	450	620	590	666	-	-	11	22	229	1 × Ø10,5 ²⁶⁾	18	-	Floor
93	125	IP23	195	3	510	450	620	590	666	-	-	11	22	229	1 × Ø10,5 ²⁶⁾	18	-	Floor
100	135	IP23	195	3	510	450	620	590	666	-	-	11	22	229	1 × Ø10,5 ²⁶⁾	18	-	Floor
▪ 130/42																		
110	145	IP00	308	≥ 3	520	-	500	450	400	250	-	13	26	260	2 × Ø13 ²⁶⁾	30	-	Floor
130	175	IP00	308	≥ 3	520	-	500	450	400	250	-	13	26	260	2 × Ø13 ²⁶⁾	30	-	Floor
110	145	IP23	308	≥ 3	918	898	904	779	792	661	-	11	22	370	2 × Ø13 ²⁶⁾	30	-	Floor
130	175	IP23	308	≥ 3	918	898	904	779	792	661	-	11	22	370	2 × Ø13 ²⁶⁾	30	-	Floor
▪ 150/42																		
110	145	IP00	308	≥ 3	520	-	500	450	400	250	-	13	26	260	2 × Ø13 ²⁶⁾	30	-	Floor
130	175	IP00	308	≥ 3	520	-	500	450	400	250	-	13	26	260	2 × Ø13 ²⁶⁾	30	-	Floor
150	200	IP00	308	≥ 3	520	-	500	450	400	250	-	13	26	260	2 × Ø13 ²⁶⁾	30	-	Floor
110	145	IP23	308	≥ 3	918	898	904	779	792	661	-	11	22	370	2 × Ø13 ²⁶⁾	30	-	Floor
130	175	IP23	308	≥ 3	918	898	904	779	792	661	-	11	22	370	2 × Ø13 ²⁶⁾	30	-	Floor
150	200	IP23	308	≥ 3	918	898	904	779	792	661	-	11	22	370	2 × Ø13 ²⁶⁾	30	-	Floor

For X, see cable sealing set for output filter IP54. (⇒ Page 24)

Sine output filter for size UMA-S 250(D)

Table 27: UMA-S 250(D), dimensions, information for connection

P _N		Enclosure	I _N ²⁷⁾	Switching frequency	Dimensions									Weight	Connection		Cable sealing set	Mounting
					A	a	B	b	C	c	d	e	f		Cross-section	Tightening torque		
[kW]	[hp]		[A]	[kHz]	[mm]									[kg]	[mm ²]	[Nm]		
▪ 200/42																		
185	244	IP00	383	≥ 3	520	-	500	450	400	250	-	13	26	265	2 × Ø13 ²⁸⁾	30	-	Floor
200	264	IP00	496	≥ 3	620	-	620	575	583	250	-	13	26	410	4 × Ø13 ²⁸⁾	30	-	Floor
185	244	IP23	383	≥ 3	1161	1141	1260	1099	991	860	-	11	22	425	2 × Ø13 ²⁸⁾	30	-	Floor
200	264	IP23	496	≥ 3	1161	1141	1260	1099	991	860	-	11	22	570	4 × Ø13 ²⁸⁾	30	-	Floor
▪ 250/42																		
230	303	IP00	496	≥ 3	620	-	620	575	583	250	-	13	26	410	4 × Ø13 ²⁸⁾	30	-	Floor
250	330	IP00	601	≥ 3	620	-	620	575	583	250	-	13	26	410	4 × Ø13 ²⁸⁾	30	-	Floor
230	303	IP23	496	≥ 3	1161	1141	1260	1099	991	860	-	11	22	570	4 × Ø13 ²⁸⁾	30	-	Floor
250	330	IP23	601	≥ 3	1161	1141	1260	1099	991	860	-	11	22	610	4 × Ø13 ²⁸⁾	30	-	Floor

²⁷ Filter nominal currents for 100 Hz

²⁸ Connection lug



KSB SE & Co. KGaA
Johann-Klein-Straße 9 • 67227 Frankenthal (Germany)
Tel. +49 6233 86-0
www.ksb.com