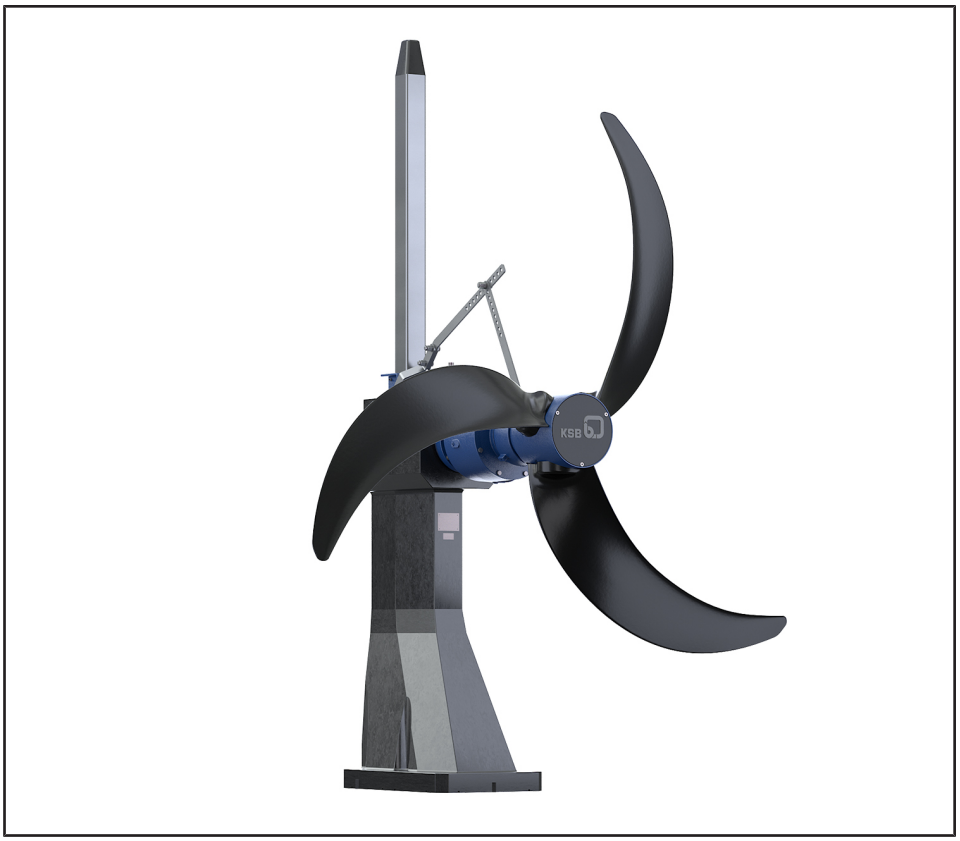
Submersible Mixer

AmaProp

Type Series Booklet



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Type Series Booklet AmaProp

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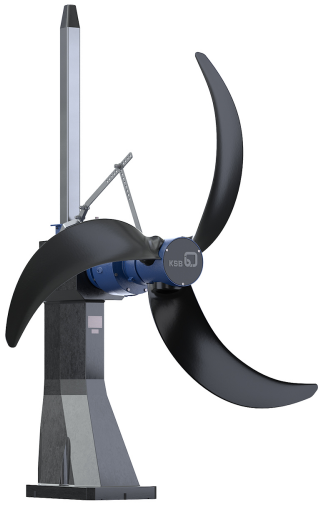

Main applications

Environmental engineering, particularly for handling municipal and industrial waste water and sludges. Circulating, keeping in suspension and inducing flow:

- In nitrification tanks and denitrification tanks
- In activated sludge tanks
- In sludge storage tanks

Operating data

Table 1: Operating properties

Characteristic		Value
Nominal diameter of axial propeller	D [mm]	800, 1000, 1200, 1400, 1800, 2200, 2500, 2600
Power	P [kW]	0,85 - 20
Installation depth	H [m]	≤ 12[1)]
Fluid temperature	T [°C]	≤ 40

Design details

Design

- Fully floodable submersible mixer
- Horizontal installation

Axial propeller

- Self-cleaning propeller ECB[2)] propeller
- Two- or three-blade design
- Backward inclined incidence edge

Drive

- Synchronous reluctance motor
  - Ultra-premium efficiency (IE5)[3)4)]
  - Operation on a PumpDrive R frequency inverter required
- Three-phase asynchronous squirrel-cage motor
  - Premium efficiency (IE3)
  - Suitable for frequency inverter operation
- Motors integrated in explosion-proof submersible mixers are supplied in Ex db IIB Gb type of protection. The optional oil sensor system is available in Ex ib IIB Gb type of protection.

Shaft seal

- Two bi-directional mechanical seals in tandem arrangement, resistant to fibres, with liquid reservoir
- Additional leakage chamber between the seat ring holder and the gear unit

Bearings

- Grease-packed rolling element bearings sealed for life in motor
- Oil-lubricated rolling element bearings in gear unit

Gear unit

- Spur gear with two and three stages
- Bearing life of 100.000 hours[5)]

Monitoring equipment

Various sensor packages are available for submersible mixer monitoring:

- **Basic**
  - Motor temperature monitoring (PTC thermistor)
  - Leakage sensor in the motor space
- **Basic+**
  - Motor temperature monitoring (PTC thermistor)
  - Motor temperature measurement (Pt100)
  - Leakage sensor in the motor space
  - Bearing temperature monitoring, motor end (Pt100)
  - Vibration monitoring
- **Premium**
  - Motor temperature monitoring (PTC thermistor)
  - Motor temperature measurement (Pt100)
  - Leakage sensor in the motor space
  - Bearing temperature monitoring, motor end (Pt100)
  - Vibration monitoring
  - Oil sensor for leakage chamber monitoring

1 Larger installation depths on request
2 ECB (EverCleanBlade) = self-cleaning blade contour
3 Comparable with IEC 60034
4 Deviation of energy efficiency class for some power ranges
5 Deviations with some versions possible

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The sensor information can optionally be evaluated via AmaControl using the live diagnosis function:

- Directly on site with the KSB INTspector app
- In additional external systems via ModBus

Designation

Example: AmaProp-A11B V 046-2603/054UHG -IE5

Table 2: Designation key

Code	Description	
AmaProp	Type series	
A11B	Generation code	
V	Axial propeller material	
	V	Composite material
046	Nominal speed of axial propeller [rpm]	
2603	Size (nominal axial propeller diameter/number of propeller blades[6]):	
	0802, 1002, 1202, 1402, 1403, 1802, 2200, 2203, 2500, 2603	
05	Motor size	
	Three-phase asynchronous motor:	0A, 0B, 01, 02, 03, 04, 05, 07, 11, 15, 22
	Synchronous reluctance motor:	0A, 0B, 01, 02, 03, 04, 05, 07, 15
4	Number of motor poles	
U	Motor version	
	U	Non-explosion-proof, for fluid temperatures of up to 40 °C
	Y	Explosion-proof Ⓔx II2G Ex db h IIB T4 Gb, for fluid temperatures of up to 40 °C
H	Design status	
	B	With three-phase asynchronous motor
	H	With synchronous reluctance motor
G	Casing material	
	G	Grey cast iron
IE5	Motor efficiency classification[7]	
	[8]	No efficiency classification
	IE3	Premium efficiency
	IE4	Super-premium efficiency
	IE5	Ultra-premium efficiency

Materials

Table 3: Overview of available materials

Part No.	Description	Material
811	Motor housing	EN-GJL-250
812	Motor housing cover	EN-GJL-250
870	Gear housing	EN-GJL-200
476	Mating ring carrier	EN-GJL-250
23-9	Axial propeller	Glass fibre reinforced epoxy resin[9]
433.01	Mechanical seal	SiC/carbon (gear side)
433.02		SiC/SiC (propeller side)
-	Propeller shaft	1.4122/1.4057
-	Elastomer seals	FKM
-	Bolts/screws	A4
-	Guide bracket	EN-GJL-250, plastic-lined (sizes 0802, 1002)

6 AmaProp 2602 = nominal axial propeller diameter 2600 mm, 2-blade design; AmaProp 2603 = nominal axial propeller diameter 2600 mm, 3-blade design

7 The IEC 60034-30 standard is not binding for submersible mixers. Efficiencies are calculated/determined by analogy with the measurement method specified in IEC 60034-2. The marking is used for submersible mixers that achieve efficiency levels similar to those of standardised motors acc. to the IEC 60034-30 standard.

8 Blank

9 The high-performance composite material consists of glass fibre reinforced epoxy resin, a metal hub insert and a protective gel coating which is resistant to abrasion and chemicals.

Part No.	Description	Material
-	Guide bracket	EN-GJS-400-15, plastic-lined (sizes 1202, 1402, 1403, 1802, 2202, 2203, 2602, 2603)

Table 4: Comparison of materials

EN	ASTM
EN-GJS-400-15	A 536 Class 60–40–18
EN-GJL-250	A 48 Class 40 B
1.4122	Similar to A 276 Type 440
FPM	FKM

Coating and preservation

Primer and top coat

Surface treatment:

- Blasted to SA 2 $^1/_2$ in acc. with DIN EN ISO 12944

Primer:

- Two-component epoxy resin zinc dust or zinc phosphate (synthetic resin basis), min. film thickness = 50 µm

Intermediate coat[10]:

- Two-component high-solid epoxy resin finish (RAL 5002), min. film thickness = 100 µm

Top coat:

- Two-component high-solid epoxy resin finish (RAL 5002), min. film thickness = 100 µm

Special coating

- Available on request (extra charge and a longer delivery period apply).

Product benefits

- Energy-efficient due to electric motor with efficiency levels comparable to those of standardised motors to IEC 60034-30 standard, available as synchronous reluctance motor with IE5 Ultra Premium Efficiency or three-phase asynchronous motor with IE3 Premium Efficiency
- Absolutely break-proof due to self-cleaning ECB propeller: blades made of glass fibre reinforced epoxy resin with protective gel coating in 2- or 3-blade design
- Maximum operating reliability thanks to 3-fold dynamic sealing system consisting of two mechanical seals and a lip seal.
- Perfectly protected by absolutely water-tight cable gland protecting the motor against moisture
- Motor monitored by temperature sensors to prevent it from overheating
- Stability and even longer service life of AmaRoc accessories made of the innovative NoriRoc material
- Leakage chamber between oil chamber and gear unit for high reliability
- Everything under control thanks to sensor monitoring and evaluation
- 16,000 operating hours without oil change[11]

Product information

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

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see https://www.ksb.com/en-global/company/corporate-responsibility/reach.

Acceptance tests and warranty

- Functional test
  Every submersible mixer undergoes functional testing in accordance with strict criteria.
- Quality is assured by means of an audited and certified quality assurance system to DIN EN ISO 9001.
- Special acceptance tests are available on request.

Warranty information

Our warranty is based on and exclusively applies to your specifications as documented in the data sheet of the submersible mixer, and covers the relevant physical properties. Any warranty claims beyond the aforementioned aspects, as well as any claims resulting from an excessive solids content in the plant, the formation of floating blankets as well as failure to produce a specific gas yield, shall be excluded. The correct positioning of the submersible mixers is crucial for the overall function of the equipment. KSB's warranty obligations shall not cover any damage that may occur as a result of incorrect mixer positioning, i. e. installing the mixer in a position not expressly approved by KSB. In addition, low-flow areas (flow separation) resulting from the tank geometry shall not be covered by our warranty. Furthermore, we shall not assume any liability if our submersible mixers are used in patented processes and/or in case of protected rights of third parties.

Unauthorised modifications, the mixer's use for fluids and operating conditions not specified in the purchase order, as well as the use of non-KSB installation parts without KSB's prior consent will result in the forfeiture of any and all claims for damages. The same applies to consequential damage (e.g. resultant process downtime).

Selection information

- The fluid properties specified in the data sheet of the submersible mixer provide the basis for selection and positioning of the equipment.
- Good mixing results and safe and reliable operation of the submersible mixers essentially depend on the position of the mixers in the tank and relative to each other. It is therefore imperative to position the submersible mixers as shown in KSB's general arrangement drawing. KSB shall not be held responsible for any damage resulting from mixer positions not expressly approved by KSB.
- The minimum submergence and maximum submergence must be complied with. The axial propeller must not be operated outside the fluid. Air-entraining vortices must be avoided. Always use level control equipment which trips the submersible mixer if the fill level drops below the minimum operating level.
- For servicing the submersible mixers, access openings and appropriate means of removal must be provided, so that the mixers can be lifted out of the filled tank at any time.

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10 Optional

11 At least every three years (lubricant change)

For this purpose, the minimum dimensions for removing the submersible mixers as specified in the type series booklet must be observed.

- In order to prevent any mechanical damage caused by the propeller, cable supports must be used for routing the power cable properly, i.e. without excessive slack.

Information about operation on a frequency inverter

- All submersible mixers are suitable for operation on a frequency inverter.
- Frequency inverter operation is mandatory for submersible mixers with synchronous reluctance motor.
- The permissible control range for asynchronous motors is 25 Hz to 50 Hz. A minimum frequency of 25 Hz is required for synchronous reluctance motors.
- In addition to any capacity reserves required for hydraulic reasons, a motor power reserve of 5 % must be provided for three-phase asynchronous motors when mixers are operated on frequency inverters.

Minimum level of fluid handled

The submersible mixer is operational when the fluid level is not lower than dimension W_T. This minimum level of the fluid handled must also be ensured during automatic operation.

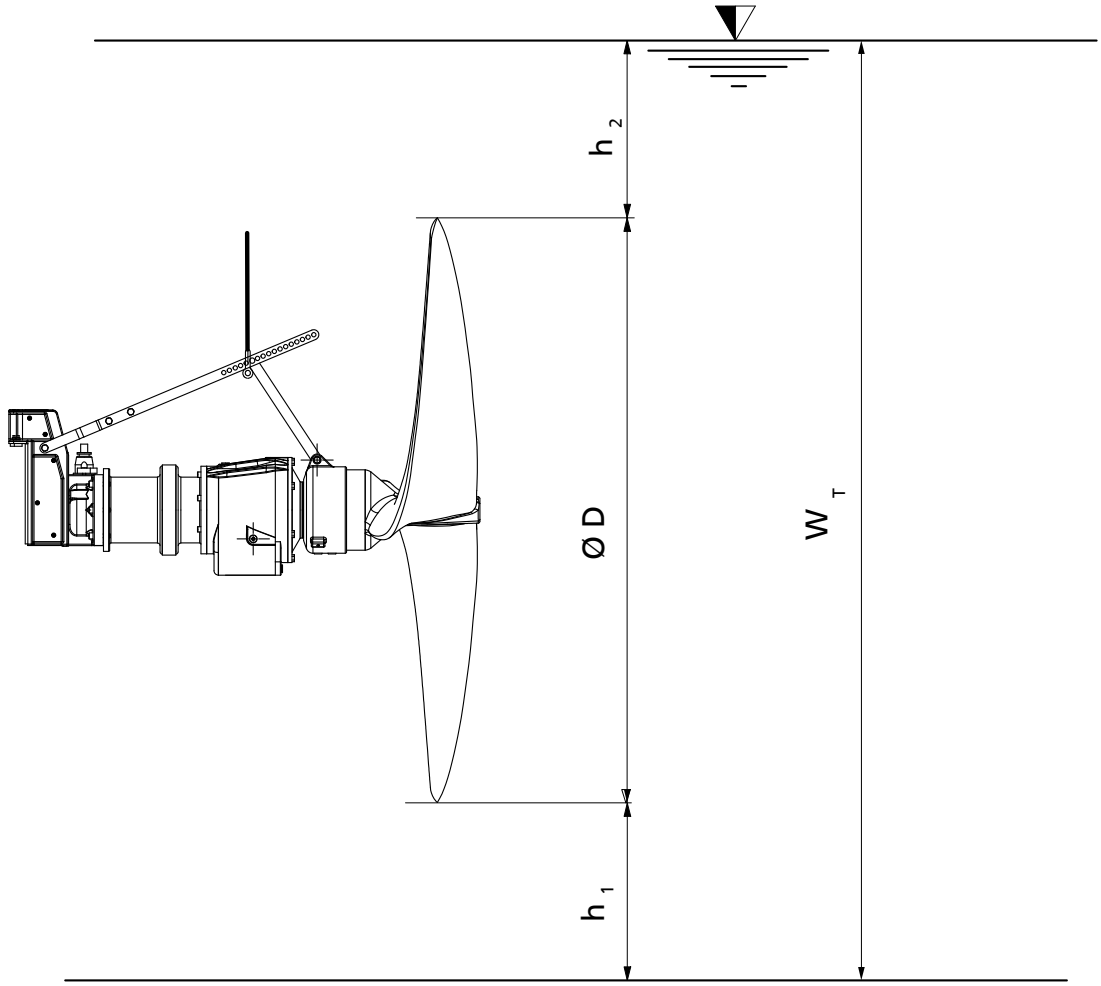

Fig. 1: Minimum level of fluid handled

During submersible mixer operation, the distance between the propeller tip and the fluid surface must not be less than h_2. Any distance smaller than h_2 must be approved by KSB in writing.
Please note that, even with a submergence of h_2, air-entraining vortices may still form, depending on the flow behaviour of the fluid handled. Rough running of the submersible mixer resulting from the formation of air-entraining vortices is not covered by our warranty.

Table 5: Minimum level of fluid handled

Nominal axial propeller diameter [mm]	h_1 [m]	h_2 [m]
800, 1000	0,3	0,75
1200, 1400, 1800, 2200, 2500, 2600	0,1	1

Overview of product features / selection tables

Performance data (400 V, 50 Hz, IE5 motor efficiency classification)

Table 6: Performance data (400 V, 50 Hz, IE5 motor efficiency classification)

Size	Propeller speed n_2 [rpm]	Motor rating P_N [kW]	Gear unit size
AmaProp-A11B V 112-0802/024UHG/YHG -IE5	112	2,20	SK872.1
AmaProp-A11B V 141-0802/054UHG/YHG -IE5	141	5,50	SK872.1
AmaProp-A11B V 169-0802/054UHG/YHG -IE5	169	7,50	SK872.1
AmaProp-A11B V 203-0802/154UHG/YHG -IE4	203	15,00	SK872.1
AmaProp-A11B V 141-1002/074UHG/YHG -IE5	141	7,50	SK872.1
AmaProp-A11B V 186-1002/154UHG/YHG -IE4	186	15,00	SK872.1
AmaProp-A11B V 047-1202/0A4UHG/YHG -IE5	47	0,85	SK873.1
AmaProp-A11B V 060-1202/014UHG/YHG -IE5	60	1,50	SK873.1
AmaProp-A11B V 070-1202/024UHG/YHG -IE5	70	2,20	SK873.1
AmaProp-A11B V 099-1202/054UHG/YHG -IE5	99	5,50	SK872.1
AmaProp-A11B V 109-1202/074UHG/YHG -IE5	109	7,50	SK872.1
AmaProp-A11B V 044-1402/0A4UHG/YHG -IE5	44	0,85	SK873.1
AmaProp-A11B V 052-1402/014UHG/YHG -IE5	52	1,50	SK873.1
AmaProp-A11B V 061-1402/024UHG/YHG -IE5	61	2,20	SK873.1
AmaProp-A11B V 078-1402/044UHG/YHG -IE5	78	4,00	SK872.1
AmaProp-A11B V 088-1402/054UHG/YHG -IE5	88	5,50	SK872.1
AmaProp-A11B V 096-1402/074UHG/YHG -IE5	96	7,50	SK872.1
AmaProp-A11B V 104-1402/074UHG/YHG -IE5	104	7,50	SK872.1
AmaProp-A11B V 054-1403/024UHG/YHG -IE5	54	2,20	SK873.1
AmaProp-A11B V 060-1403/034UHG/YHG -IE5	60	3,00	SK873.1
AmaProp-A11B V 066-1403/044UHG/YHG -IE5	66	4,00	SK873.1
AmaProp-A11B V 036-1802/0A4UHG/YHG -IE5	36	0,85	SK873.1
AmaProp-A11B V 045-1802/014UHG/YHG -IE5	45	1,50	SK873.1
AmaProp-A11B V 049-1802/024UHG/YHG -IE5	49	2,20	SK873.1
AmaProp-A11B V 059-1802/034UHG/YHG -IE5	59	3,00	SK873.1
AmaProp-A11B V 066-1802/044UHG/YHG -IE5	66	4,00	SK873.1
AmaProp-A11B V 070-1802/054UHG/YHG -IE5	70	5,50	SK873.1
AmaProp-A11B V 022-2200/0A4UHG/YHG -IE5	22	0,85	SK873.1
AmaProp-A11B V 026-2200/0B4UHG/YHG -IE5	26	1,10	SK873.1
AmaProp-A11B V 028-2200/014UHG/YHG -IE5	28	1,50	SK873.1
AmaProp-A11B V 031-2200/024UHG/YHG -IE5	31	2,20	SK873.1
AmaProp-A11B V 034-2200/034UHG/YHG -IE5	34	3,00	SK873.1
AmaProp-A11B V 040-2200/044UHG/YHG -IE5	40	4,00	SK873.1
AmaProp-A11B V 027-2203/0B4UHG/YHG -IE5	27	1,10	SK873.1
AmaProp-A11B V 032-2203/024UHG/YHG -IE5	32	2,20	SK873.1
AmaProp-A11B V 039-2203/034UHG/YHG -IE5	39	3,00	SK873.1
AmaProp-A11B V 043-2203/044UHG/YHG -IE5	43	4,00	SK873.1
AmaProp-A11B V 046-2203/054UHG/YHG -IE5	46	5,50	SK873.1
AmaProp-A11B V 051-2203/074UHG/YHG -IE5	51	7,50	SK973.1
AmaProp-A11B V 056-2203/074UHG/YHG -IE5	56	7,50	SK973.1
AmaProp-A11B V 019-2500/0A4UHG/YHG -IE5	19	0,85	SK873.1
AmaProp-A11B V 022-2500/0B4UHG/YHG -IE5	22	1,10	SK873.1
AmaProp-A11B V 025-2500/014UHG/YHG -IE5	25	1,50	SK873.1
AmaProp-A11B V 027-2500/024UHG/YHG -IE5	27	2,20	SK873.1
AmaProp-A11B V 032-2500/034UHG/YHG -IE5	32	3,00	SK873.1
AmaProp-A11B V 035-2500/044UHG/YHG -IE5	35	4,00	SK873.1
AmaProp-A11B V 027-2603/014UHG/YHG -IE5	27	1,50	SK873.1
AmaProp-A11B V 035-2603/034UHG/YHG -IE5	35	3,00	SK873.1
AmaProp-A11B V 039-2603/044UHG/YHG -IE5	39	4,00	SK873.1
AmaProp-A11B V 046-2603/054UHG/YHG -IE5	46	5,50	SK973.1
AmaProp-A11B V 049-2603/074UHG/YHG -IE5	49	7,50	SK973.1
AmaProp-A11B V 053-2603/074UHG/YHG -IE5	53	7,50	SK973.1

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Performance data (400 V, 50 Hz, IE3 motor efficiency classification)

Table 7: Performance data (400 V, 50 Hz, IE3 motor efficiency classification)

Designation	Propeller speed n_2	Motor rating P_N	Gear unit size
	[rpm]	[kW]	
AmaProp-A11B V 192-0802/114UBG/YBG -IE3	192	11,00	SP190 X
AmaProp-A11B V 212-0802/154UBG/YBG -IE3	212	15,00	SP190 X
AmaProp-A11B V 166-1002/114UBG/YBG -IE3	166	11,00	SP190 X
AmaProp-A11B V 174-1002/154UBG/YBG -IE3	174	15,00	SP190 X
AmaProp-A11B V 187-1002/154UBG/YBG -IE3	187	15,00	SP190 X
AmaProp-A11B V 192-1002/154UBG/YBG -IE3	192	15,00	SP190 X
AmaProp-A11B V 211-1002/224UBG/YBG -IE3	211	20,00	SP190 X
AmaProp-A11B V 052-1202/0B4UBG/YBG -IE3	52	1,30	SP189
AmaProp-A11B V 063-1202/014UBG/YBG -IE3	63	1,50	SP189
AmaProp-A11B V 071-1202/024UBG/YBG -IE3	71	2,20	SP189
AmaProp-A11B V 079-1202/034UBG/YBG -IE3	79	3,00	SP190
AmaProp-A11B V 085-1202/044UBG/YBG -IE3	85	4,00	SP190
AmaProp-A11B V 093-1202/054UBG/YBG -IE3	93	5,50	SP190
AmaProp-A11B V 101-1202/054UBG/YBG -IE3	101	5,50	SP190
AmaProp-A11B V 107-1202/074UBG/YBG -IE3	107	7,50	SP190
AmaProp-A11B V 049-1402/0B4UBG/YBG -IE3	49	1,30	SP189
AmaProp-A11B V 057-1402/014UBG/YBG -IE3	57	1,50	SP189
AmaProp-A11B V 066-1402/034UBG/YBG -IE3	66	3,00	SP190
AmaProp-A11B V 079-1402/044UBG/YBG -IE3	79	4,00	SP190
AmaProp-A11B V 086-1402/054UBG/YBG -IE3	86	5,50	SP190
AmaProp-A11B V 093-1402/074UBG/YBG -IE3	93	7,50	SP190
AmaProp-A11B V 100-1402/074UBG/YBG -IE3	100	7,50	SP190
AmaProp-A11B V 071-1403/054UBG/YBG -IE3	71	5,50	SP190 X
AmaProp-A11B V 044-1802/0B4UBG/YBG -IE3	44	1,30	SP189
AmaProp-A11B V 047-1802/014UBG/YBG -IE3	47	1,50	SP189
AmaProp-A11B V 050-1802/024UBG/YBG -IE3	50	2,20	SP189
AmaProp-A11B V 055-1802/034UBG/YBG -IE3	55	3,00	SP190 X
AmaProp-A11B V 059-1802/034UBG/YBG -IE3	59	3,00	SP190 X
AmaProp-A11B V 071-1802/054UBG/YBG -IE3	71	5,50	SP190 X
AmaProp-A11B V 080-1802/074UBG/YBG -IE3	80	7,50	SP190
AmaProp-A11B V 023-2200/0A4UBG/YBG -IE3	23	0,85	SP189
AmaProp-A11B V 029-2200/0B4UBG/YBG -IE3	29	1,30	SP189
AmaProp-A11B V 033-2200/024UBG/YBG -IE3	33	2,20	SP189
AmaProp-A11B V 035-2200/024UBG/YBG -IE3	35	2,20	SP190 X
AmaProp-A11B V 037-2200/034UBG/YBG -IE3	37	3,00	SP190 X
AmaProp-A11B V 041-2200/044UBG/YBG -IE3	41	4,00	SP190 X
AmaProp-A11B V 045-2200/054UBG/YBG -IE3	45	5,50	SP190 X
AmaProp-A11B V 052-2200/074UBG/YBG -IE3	52	7,50	SP190 X
AmaProp-A11B V 041-2203/044UBG/YBG -IE3	41	4,00	SP190 X
AmaProp-A11B V 022-2500/0B4UBG/YBG -IE3	22	1,30	SP189
AmaProp-A11B V 025-2500/014UBG/YBG -IE3	25	1,50	SP189
AmaProp-A11B V 029-2500/024UBG/YBG -IE3	29	2,20	SP189
AmaProp-A11B V 032-2500/034UBG/YBG -IE3	32	3,00	SP189
AmaProp-A11B V 035-2500/044UBG/YBG -IE3	35	4,00	SP190 X
AmaProp-A11B V 023-2603/0A4UBG/YBG -IE3	23	0,85	SP189
AmaProp-A11B V 041-2603/054UBG/YBG -IE3	41	5,50	SP190 X
AmaProp-A11B V 045-2603/054UBG/YBG -IE3	45	5,50	SP190X

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Standard variants and special variants

Table 8: Standard variants (⇨ Page 11) and special variants

Special variants (optional)	Notes
Mechanical seal with covered springs	Available for all sizes
Power cable > 10 m	Available for all sizes
Two-component epoxy resin coating, 250 µm	Available for all sizes
Additional operating manuals	Standard: 1 operating manual per submersible mixer
Customer-specific installation drawing	Available for all sizes
Flow simulation	Available for all sizes
Installation consultancy	Available for all sizes

For any versions not documented in this type series booklet or special versions, please contact KSB for technical details, prices and delivery periods.

Examples:

- Special coatings
- Special combination with propeller/gear unit/motor (e.g. for higher-viscosity fluids)
- Special installation parts
- Other power cable

AmaProp/PumpDrive R combinations

Table 9: Selection table

AmaProp ...	Material No. PumpDrive R			
	Mains voltage 380 V - 440 V		Mains voltage 441 V -4800 V	
	Control cabinet mounting (IP20)	Wall mounting (IP55)	Control cabinet mounting (IP20)	Wall mounting (IP55)
0A4_HG	48229680	48229681	48229682	48229683
0B4_HG	48229682	48229683	48229684	48229685
014_HG	48229684	48229685	48229686	48229687
024_HG	48229688	48229689	48229688	48229689
034_HG	48229690	48229691	48229690	48229691
044_HG	48229690	48229691	48229692	48229693
054_HG	48229694	48229695	48229694	48229695
074_HG	48229696	48229697	48229696	48229697
154_HG	48229700	48229701	48229700	48229701

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Technical data

Table 10: Technical data

Characteristic	Motor design	
	Three-phase asynchronous motor	Synchronous reluctance motor
Explosion protection		
Motor variant U	Non-explosion-proof	
Motor variant Y	⟨Ex⟩II2G Ex db h IIB T4 Gb	⟨Ex⟩II2G Ex db h IIB T4 Gb
Motor variant with oil sensor system	-	⟨Ex⟩II2G Ex db ib h IIB T4 Gb
Motor		
Starting method	DOL or star-delta (up to 4 kW: DOL only)	Frequency inverter, PumpDrive R
Voltage and frequency	400 V[12] 50 Hz	400 V[13] 50 Hz, with frequency inverter
	Suitable for frequency inverter operation	Operation on a frequency inverter required
Cooling	Cooled by surrounding fluid	
Immersion depth	Up to 12 m[14]	
Power cable		
Length	10 m, optional: 15 m, 20 m, 30 m, 40 m	
Cable entry	Absolutely water-tight	
Type	Rubber-sheathed cable S1BN8-F	Rubber-sheathed cable S07RC4N8-F
Bearings		
Motor	Rolling element bearings greased for life	
Gear unit	Oil-lubricated rolling element bearings	
Gear unit	Spur gear	
Sealing elements		
Elastomer seals	Viton (fluorocarbon rubber FKM)	
Shaft seal	Bellows-type mechanical seal[15]	
Monitoring equipment		
Sensor package	Basic (⇨ Page 4)	Basic+/Premium (⇨ Page 4)
Bearing temperature, fixed bearing	-	Pt100 temperature sensor
Vibration monitoring	-	Integrated in the sensor module
Winding temperature	PTC thermistor	PTC thermistor, Pt100 temperature sensor
Motor leakage	Leakage sensor in the motor space	
Mechanical seal leakage	-	Optional: leakage sensor in the leakage chamber
Coating	Two-component epoxy resin coating	
Permissible fluid temperature	40 °C	
Acceptance inspections/tests	To ISO 9001[16]	
Installation		
Stationary	AmaRoc or guide rail arrangement with retaining bracket	AmaRoc

12 Optional: 500 V and 690 V
13 Suitable for operation on power supply networks from 380 V to 500 V
14 Larger immersion depths on request
15 Optional: mechanical seal with covered spring
16 Optional: with test report 10204-2.2

Dimensions

AmaProp, size 0802 with synchronous reluctance motor

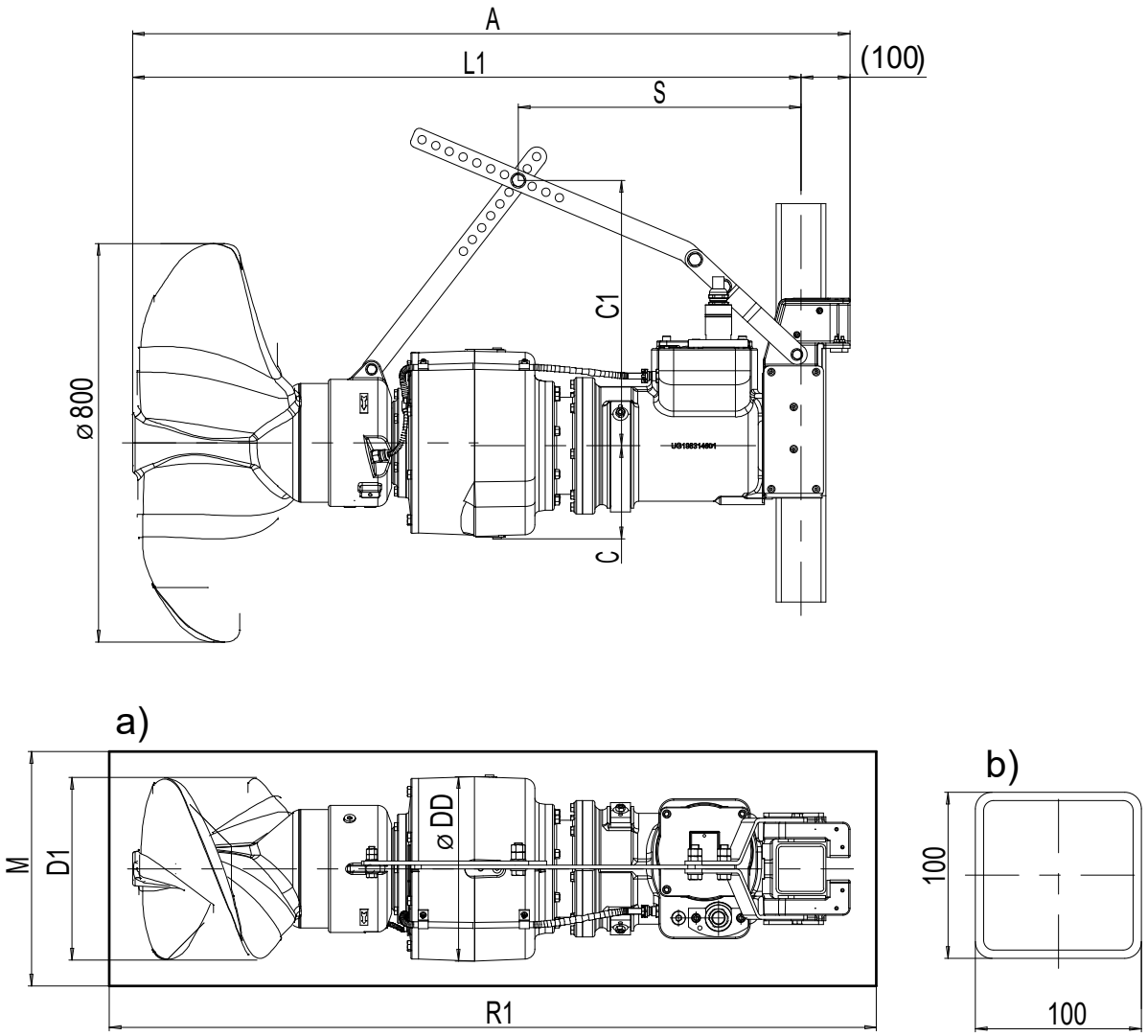

Fig. 2: AmaProp, size 0802 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 11: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	S	[kg]
	[mm]									
Amaprop-A11B V 112-0802/024UHG/YHG -IE5	1365	187	535	370	370	1265	470	1465	495	260
Amaprop-A11B V 141-0802/054UHG/YHG -IE5	1440	187	530	370	370	1340	470	1540	565	293
Amaprop-A11B V 169-0802/074UHG/YHG -IE5	1540	187	590	370	370	1440	470	1640	765	341
Amaprop-A11B V 203-0802/154UHG/YHG -IE4	1540	187	590	370	370	1440	470	1640	765	353

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AmaProp, size 1002 with synchronous reluctance motor

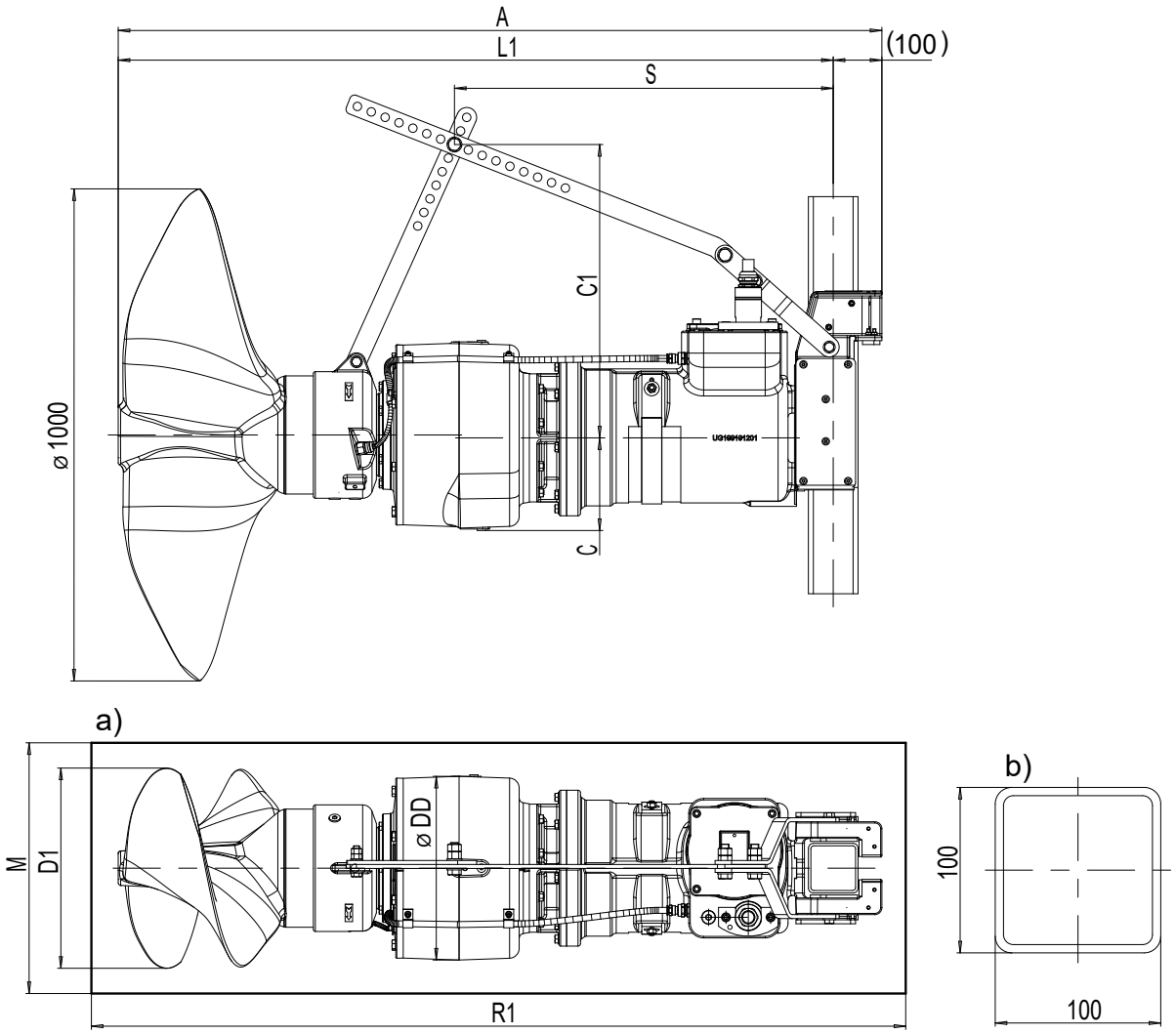

Fig. 3: AmaProp, size 1002 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 12: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 141-1002/074UHG/YHG -IE5	1540	187	590	370	405	1440	505	1640	765	347
AmaProp-A11B V 186-1002/154UHG/YHG -IE4	1540	187	590	370	405	1440	505	1640	765	360

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AmaProp, size 1202 with synchronous reluctance motor

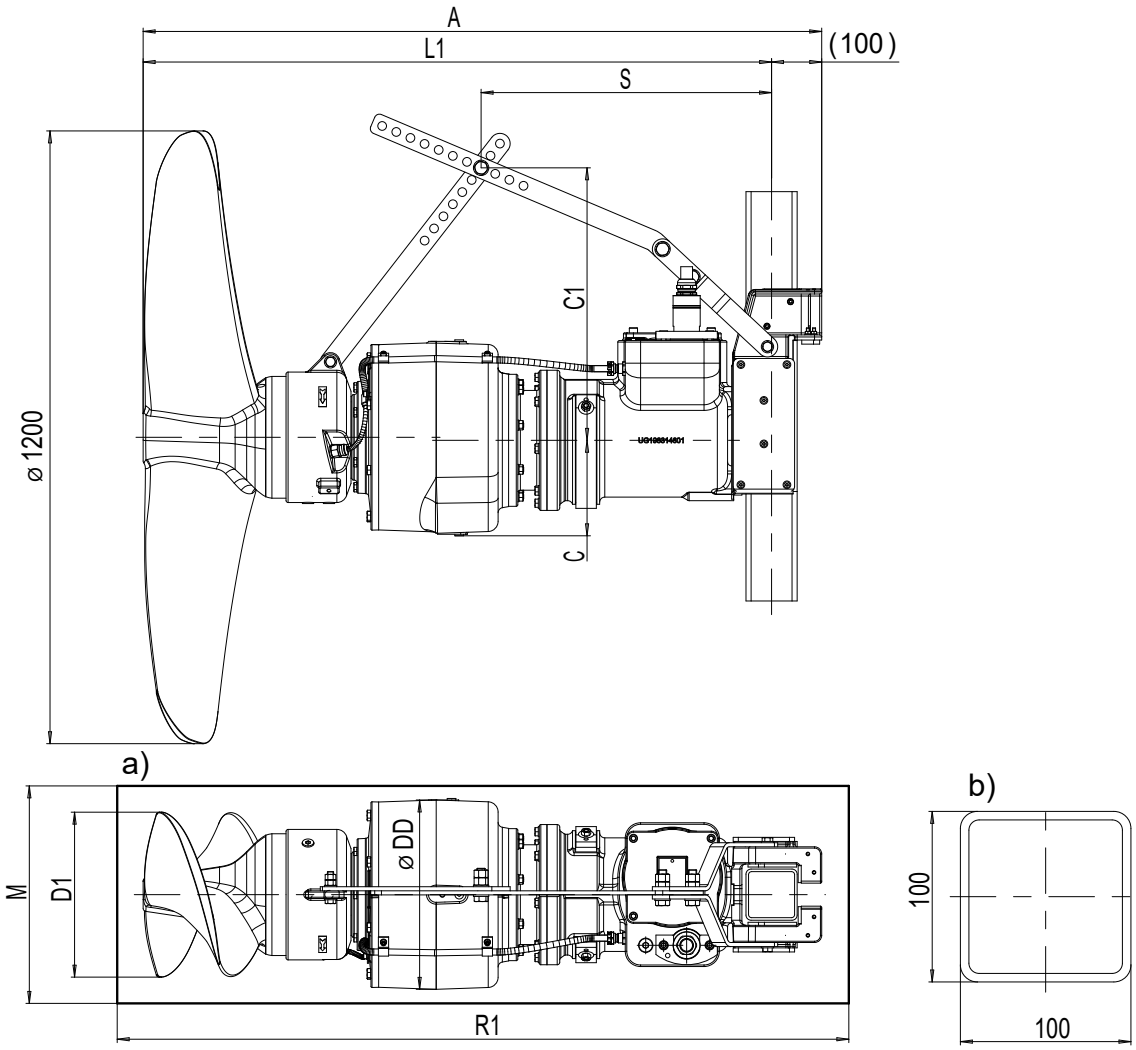

Fig. 4: AmaProp, size 1202 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 13: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 047-1202/0A4UHG/YHG -IE5	1250	187	535	370	325	1150	470	1350	495	252
AmaProp-A11B V 060-1202/014UHG/YHG -IE5	1250	187	535	370	325	1150	470	1350	495	252
AmaProp-A11B V 070-1202/024UHG/YHG -IE5	1250	187	535	370	325	1150	470	1350	495	252
AmaProp-A11B V 099-1202/054UHG/YHG -IE5	1330	187	535	370	325	1230	470	1430	565	281
AmaProp-A11B V 109-1202/074UHG/YHG -IE5	1425	187	590	370	325	1325	470	1525	765	329

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AmaProp, size 1402 with synchronous reluctance motor

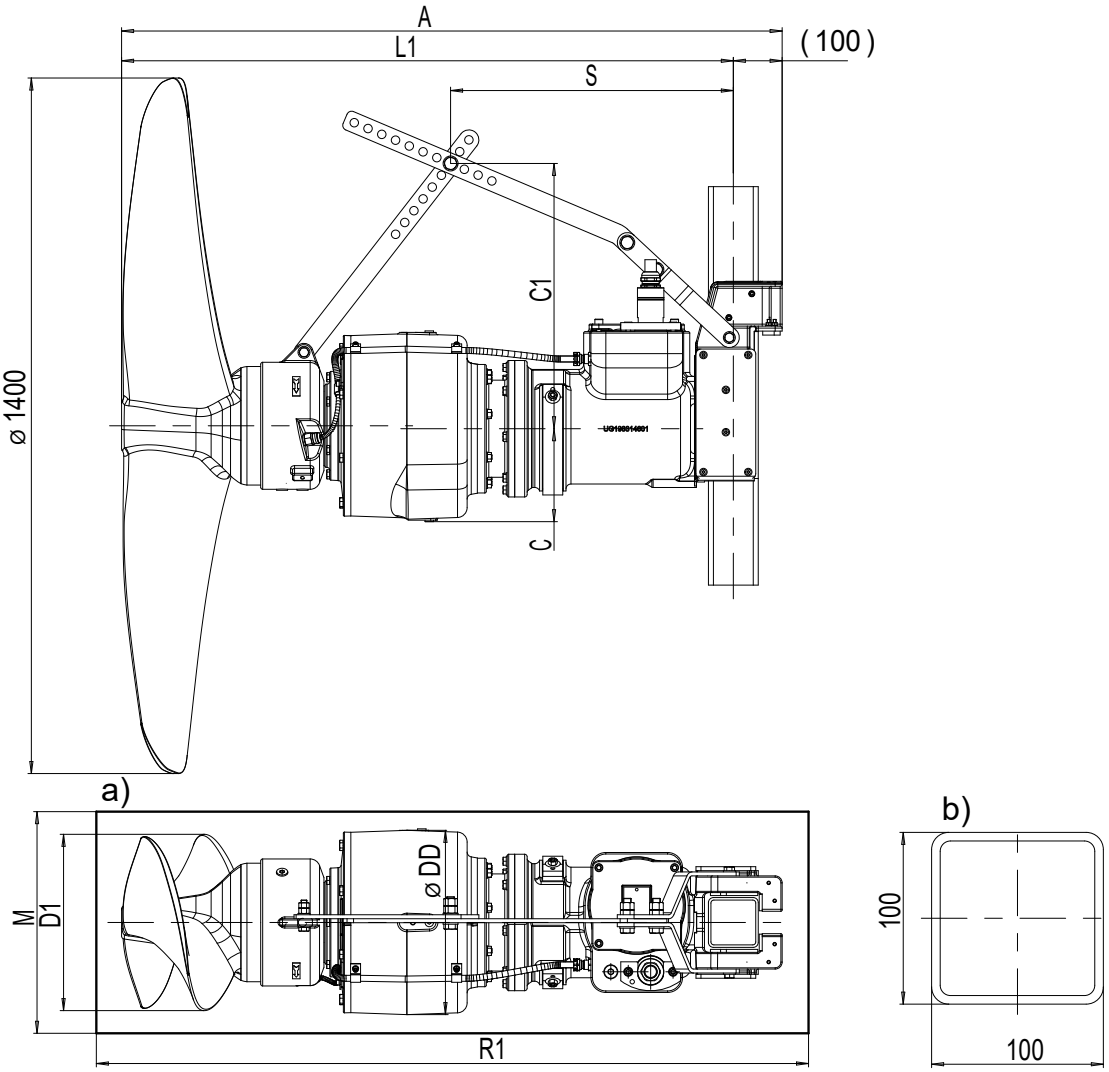

Fig. 5: AmaProp, size 1402 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 14: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 044-1402/0A4UHG/YHG -IE5	1250	187	535	370	345	1150	470	1350	495	253
AmaProp-A11B V 052-1402/014UHG/YHG -IE5	1250	187	535	370	345	1150	470	1350	495	253
AmaProp-A11B V 061-1402/024UHG/YHG -IE5	1250	187	535	370	345	1150	470	1350	495	253
AmaProp-A11B V 078-1402/044UHG/YHG -IE5	1330	187	535	370	345	1230	470	1430	565	278
AmaProp-A11B V 088-1402/054UHG/YHG -IE5	1330	187	535	370	345	1230	470	1430	565	282
AmaProp-A11B V 096-1402/074UHG/YHG -IE5	1425	187	590	370	345	1325	470	1525	765	330
AmaProp-A11B V 104-1402/074UHG/YHG -IE5	1425	187	590	370	345	1325	470	1525	765	330

AmaProp, size 1802 with synchronous reluctance motor

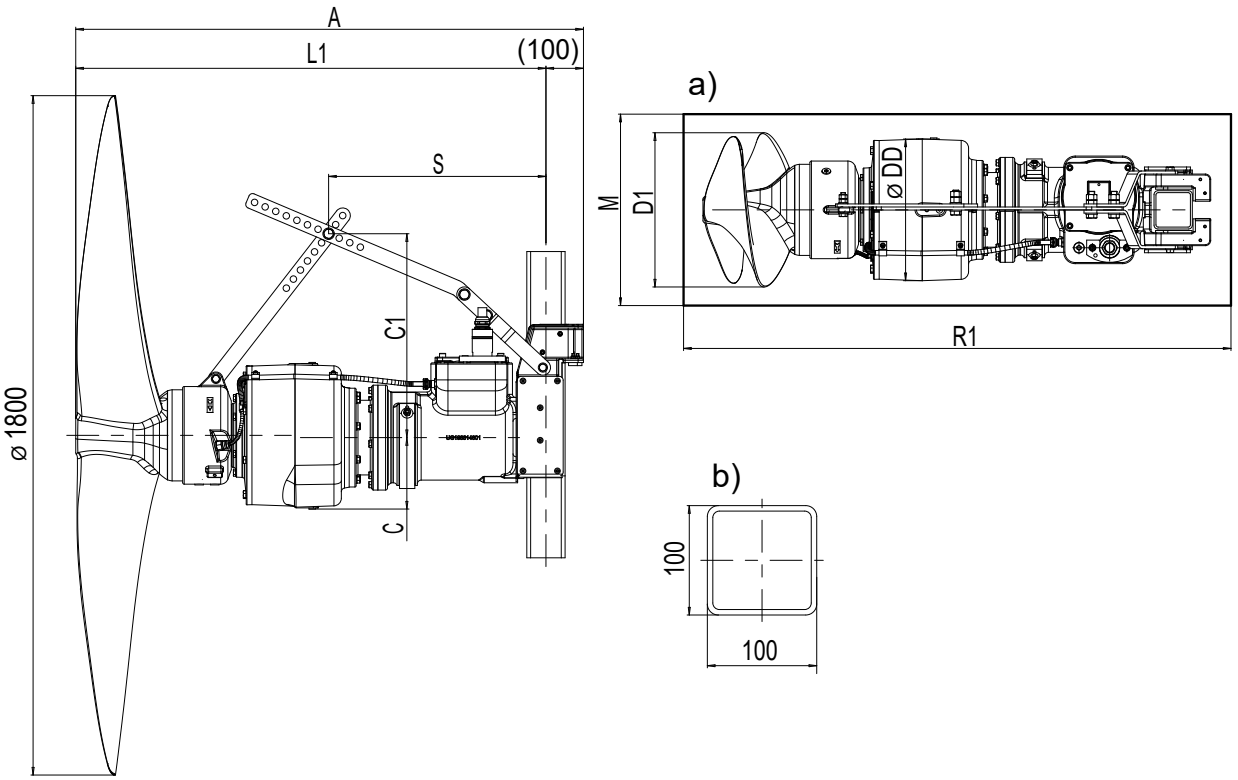

Fig. 6: AmaProp, size 1802 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 15: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 036-1802/0A4UHG/YHG -IE5	1250	187	535	370	400	1150	500	1350	495	255
AmaProp-A11B V 045-1802/014UHG/YHG -IE5	1250	187	535	370	400	1150	500	1350	495	255
AmaProp-A11B V 049-1802/024UHG/YHG -IE5	1250	187	535	370	400	1150	500	1350	495	255
AmaProp-A11B V 059-1802/034UHG/YHG -IE5	1330	187	535	370	400	1230	500	1430	565	283
AmaProp-A11B V 066-1802/044UHG/YHG -IE5	1330	187	535	370	400	1230	500	1430	565	283
AmaProp-A11B V 070-1802/054UHG/YHG -IE5	1330	187	535	370	400	1230	500	1430	565	288

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AmaProp, size 2200 with synchronous reluctance motor

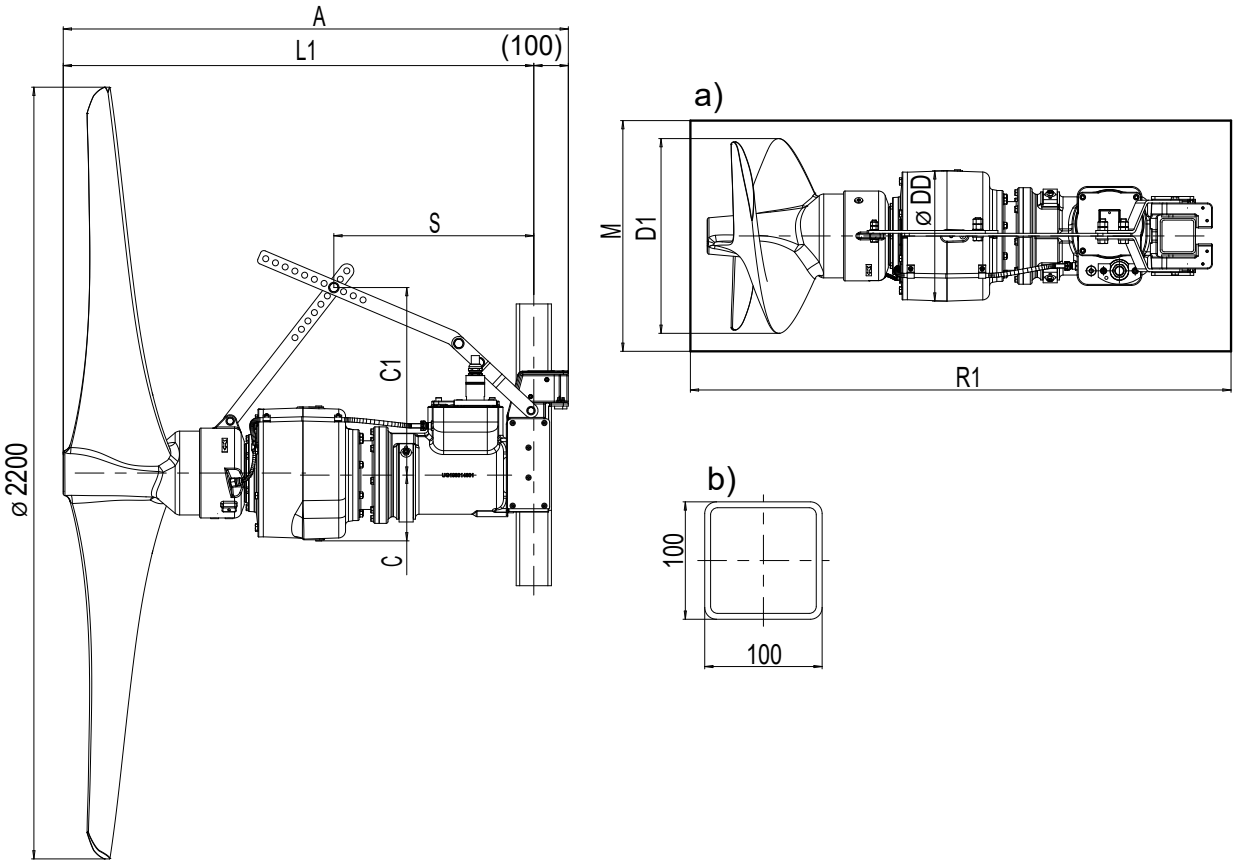

Fig. 7: AmaProp, size 2200 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 16: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 022-2200/0A4UHG/YHG -IE5	1360	187	535	370	555	1260	655	1460	495	269
AmaProp-A11B V 026-2200/0B4UHG/YHG -IE5	1360	187	535	370	555	1260	655	1460	495	269
AmaProp-A11B V 028-2200/014UHG/YHG -IE5	1360	187	535	370	555	1260	655	1460	495	269
AmaProp-A11B V 031-2200/024UHG/YHG -IE5	1360	187	535	370	555	1260	655	1460	495	269
AmaProp-A11B V 034-2200/034UHG/YHG -IE5	1435	187	535	370	555	1335	655	1535	565	296
AmaProp-A11B V 040-2200/044UHG/YHG -IE5	1435	187	535	370	555	1335	655	1535	565	296

AmaProp, size 2500 with synchronous reluctance motor

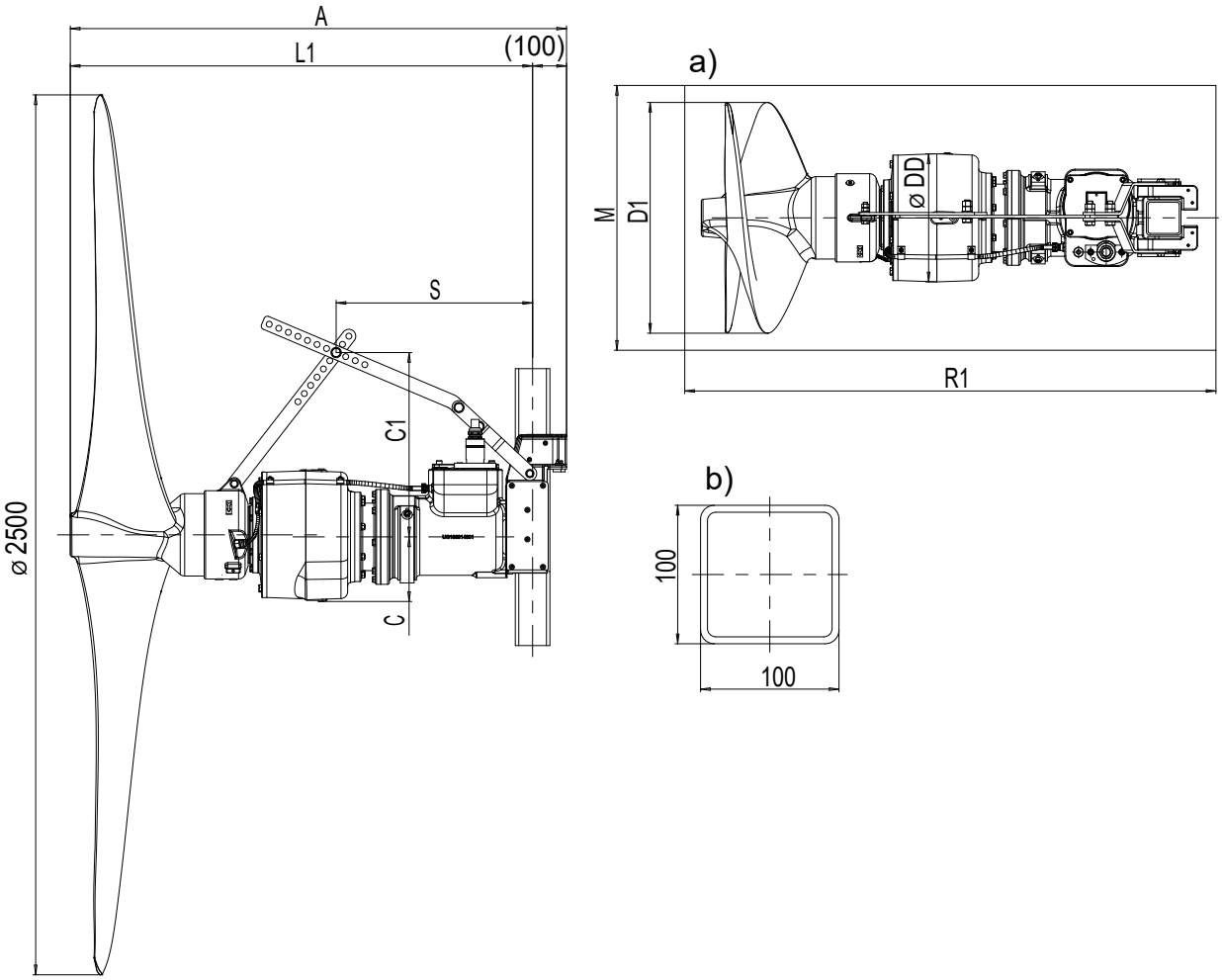

Fig. 8: AmaProp, size 2500 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 17: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 019-2500/0A4UHG/YHG -IE5	1360	187	535	370	560	1260	660	1460	495	269
AmaProp-A11B V 022-2500/0B4UHG/YHG -IE5	1360	187	535	370	560	1260	660	1460	495	269
AmaProp-A11B V 025-2500/014UHG/YHG -IE5	1360	187	535	370	560	1260	660	1460	495	269
AmaProp-A11B V 027-2500/024UHG/YHG -IE5	1360	187	535	370	560	1260	660	1460	495	269
AmaProp-A11B V 032-2500/034UHG/YHG -IE5	1435	187	535	370	560	1335	660	1535	565	296
AmaProp-A11B V 035-2500/044UHG/YHG -IE5	1435	187	535	370	560	1335	660	1535	565	296

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AmaProp, size 1403 with synchronous reluctance motor

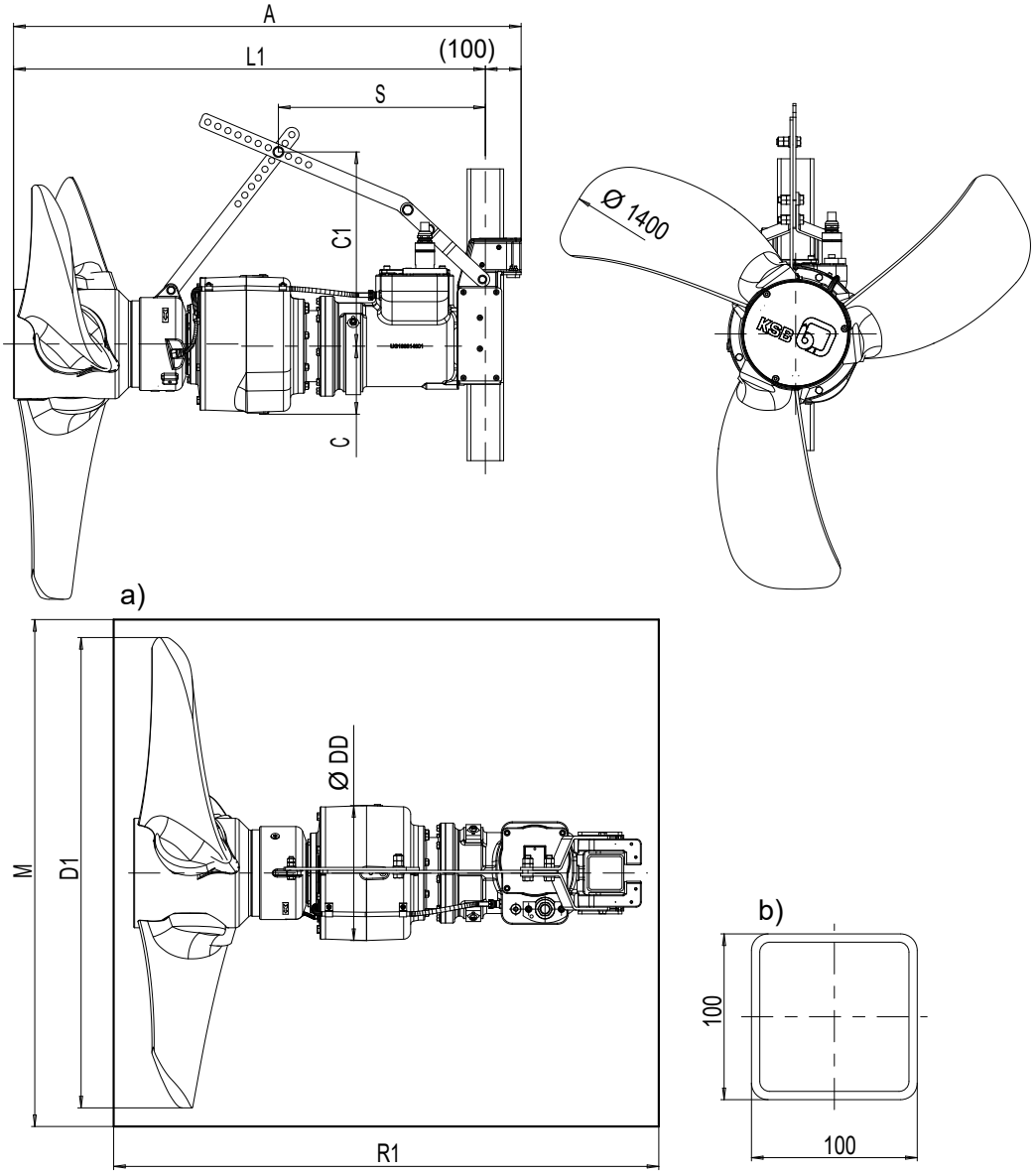

Fig. 9: AmaProp, size 1403 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 18: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 054-1403/024UHG/YHG -IE5	1315	187	535	370	1290	1215	1390	1415	495	310
AmaProp-A11B V 060-1403/034UHG/YHG -IE5	1395	187	535	370	1290	1295	1390	1495	565	337
AmaProp-A11B V 066-1403/044UHG/YHG -IE5	1395	187	535	370	1290	1295	1390	1495	565	337

AmaProp, size 2203 with synchronous reluctance motor

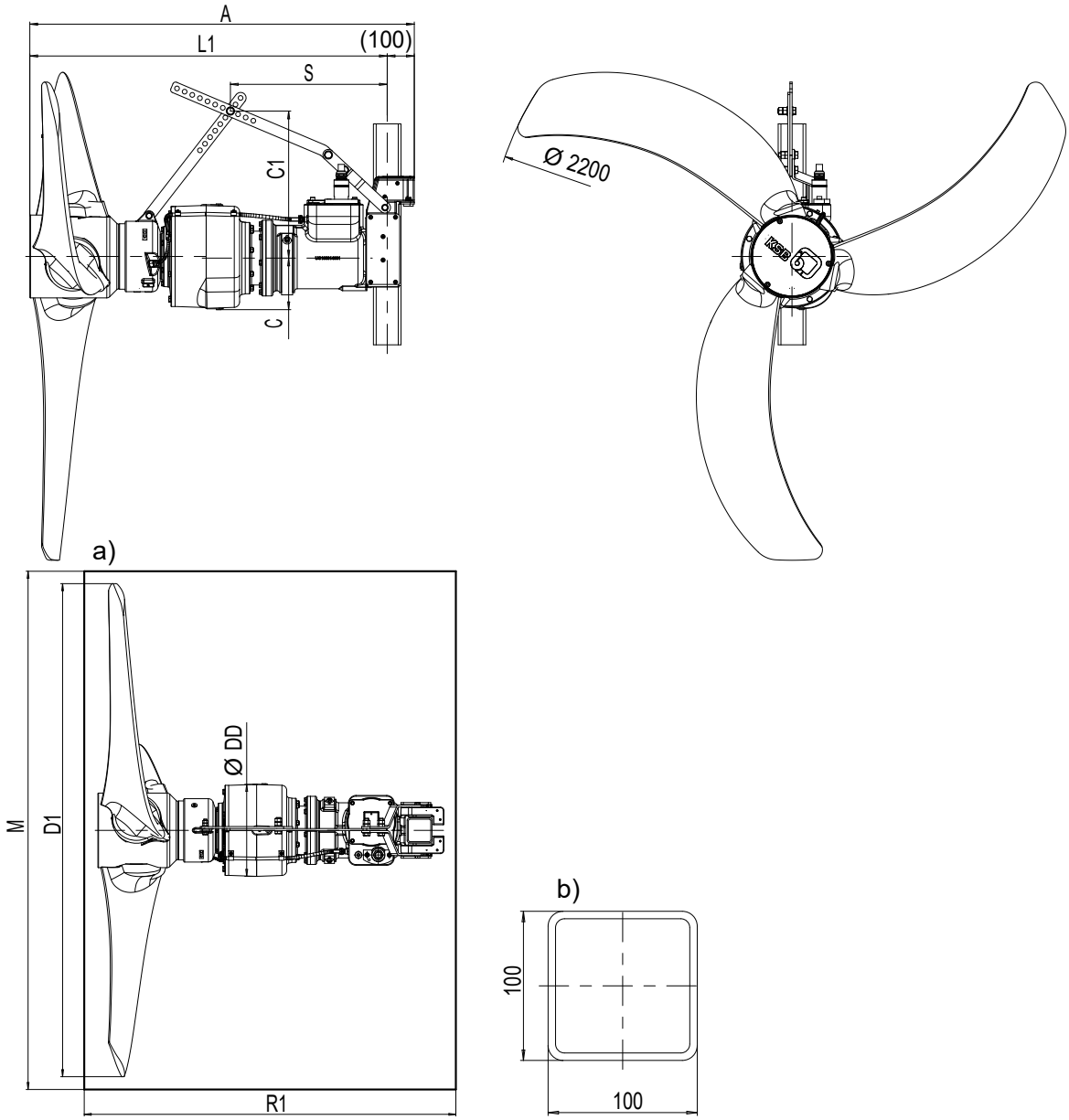

Fig. 10: AmaProp, size 2203 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 19: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 027-2203/0B4UHG/YHG -IE5	1315	187	535	370	1985	1215	2085	1415	495	316
AmaProp-A11B V 032-2203/024UHG/YHG -IE5	1315	187	535	370	1985	1215	2085	1415	495	316
AmaProp-A11B V 039-2203/034UHG/YHG -IE5	1395	187	535	370	1985	1295	2085	1495	565	343
AmaProp-A11B V 043-2203/044UHG/YHG -IE5	1395	187	535	370	1985	1295	2085	1495	565	343
AmaProp-A11B V 046-2203/054UHG/YHG -IE5	1395	187	535	370	1985	1295	2085	1495	565	343
AmaProp-A11B V 051-2203/074UHG/YHG -IE5	1520	214	565	400	1985	1420	2085	1620	765	423
AmaProp-A11B V 056-2203/074UHG/YHG -IE5	1520	214	565	400	1985	1420	2085	1620	765	423

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AmaProp, size 2603 with synchronous reluctance motor

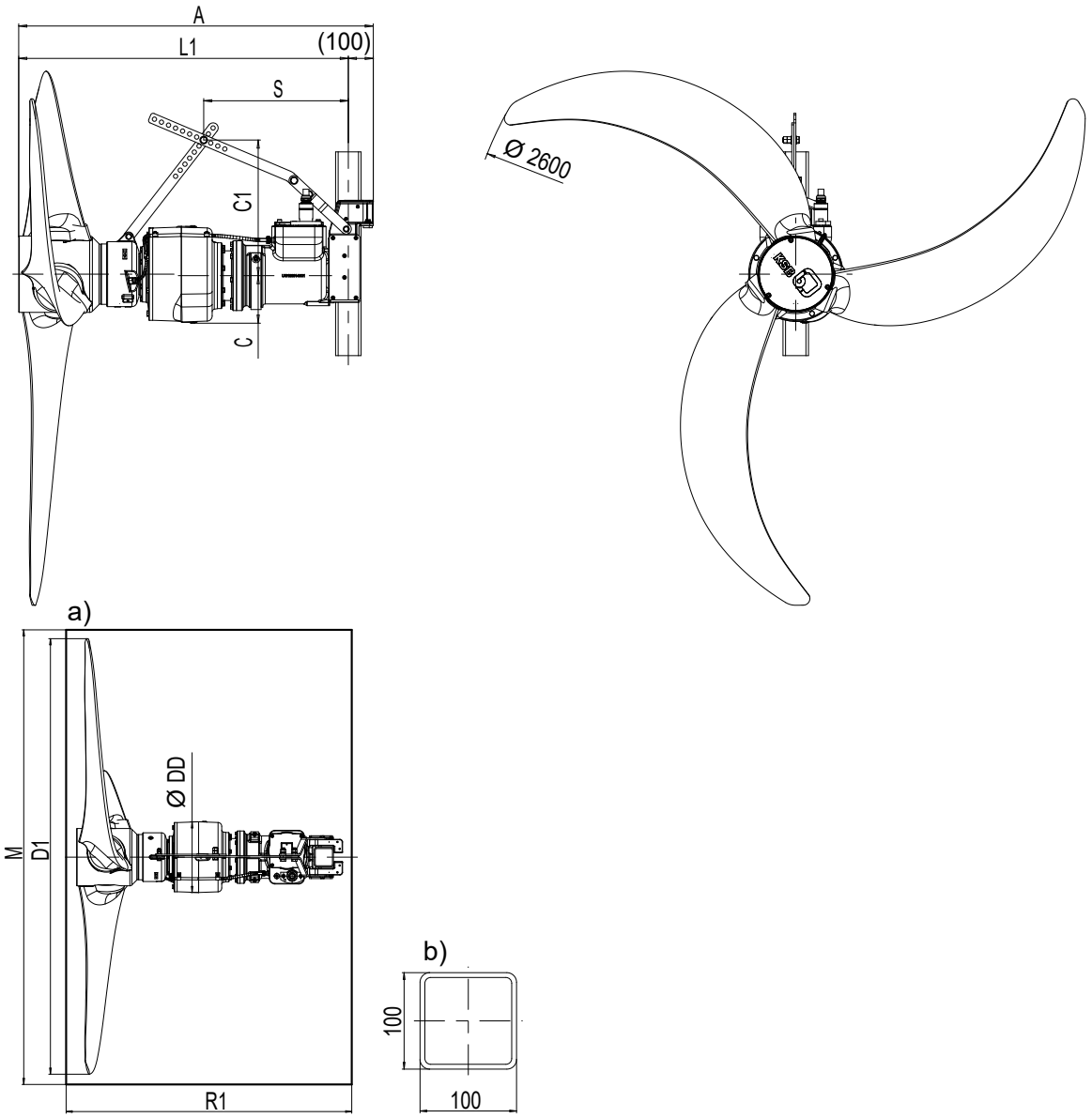

Fig. 11: AmaProp, size 2603 with synchronous reluctance motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 20: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 027-2603/014UHG/YHG -IE5	1315	187	535	370	2280	1215	2380	1415	495	321
AmaProp-A11B V 035-2603/034UHG/YHG -IE5	1395	187	535	370	2280	1295	2380	1495	565	348
AmaProp-A11B V 039-2603/044UHG/YHG -IE5	1395	187	535	370	2280	1295	2380	1495	565	348
AmaProp-A11B V 046-2603/054UHG/YHG -IE5	1420	214	520	400	2280	1320	2380	1520	575	385
AmaProp-A11B V 049-2603/074UHG/YHG -IE5	1520	214	565	400	2280	1420	2380	1620	765	428
AmaProp-A11B V 053-2603/074UHG/YHG -IE5	1520	214	565	400	2280	1420	2380	1620	765	428

AmaProp, size 0802 with three-phase asynchronous motor

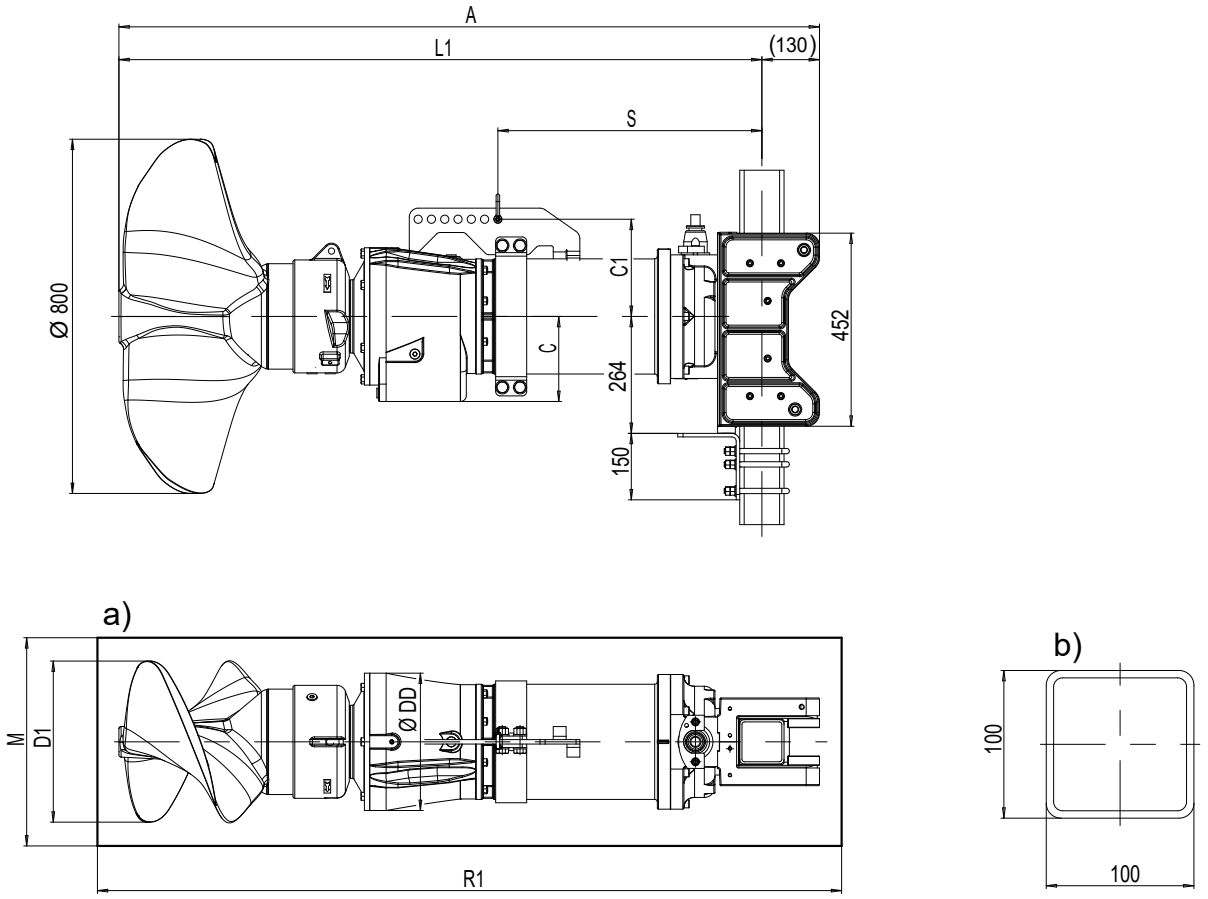

Fig. 12: AmaProp, size 0802 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 21: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	S	[kg]
	[mm]									
AmaProp-A11B V 192-0802/114UBG/YBG -IE3	1530	192	220	310	370	1400	470	1630	545	308
AmaProp-A11B V 212-0802/154UBG/YBG -IE3	1580	192	220	310	370	1450	470	1680	595	328

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AmaProp, size 1002 with three-phase asynchronous motor

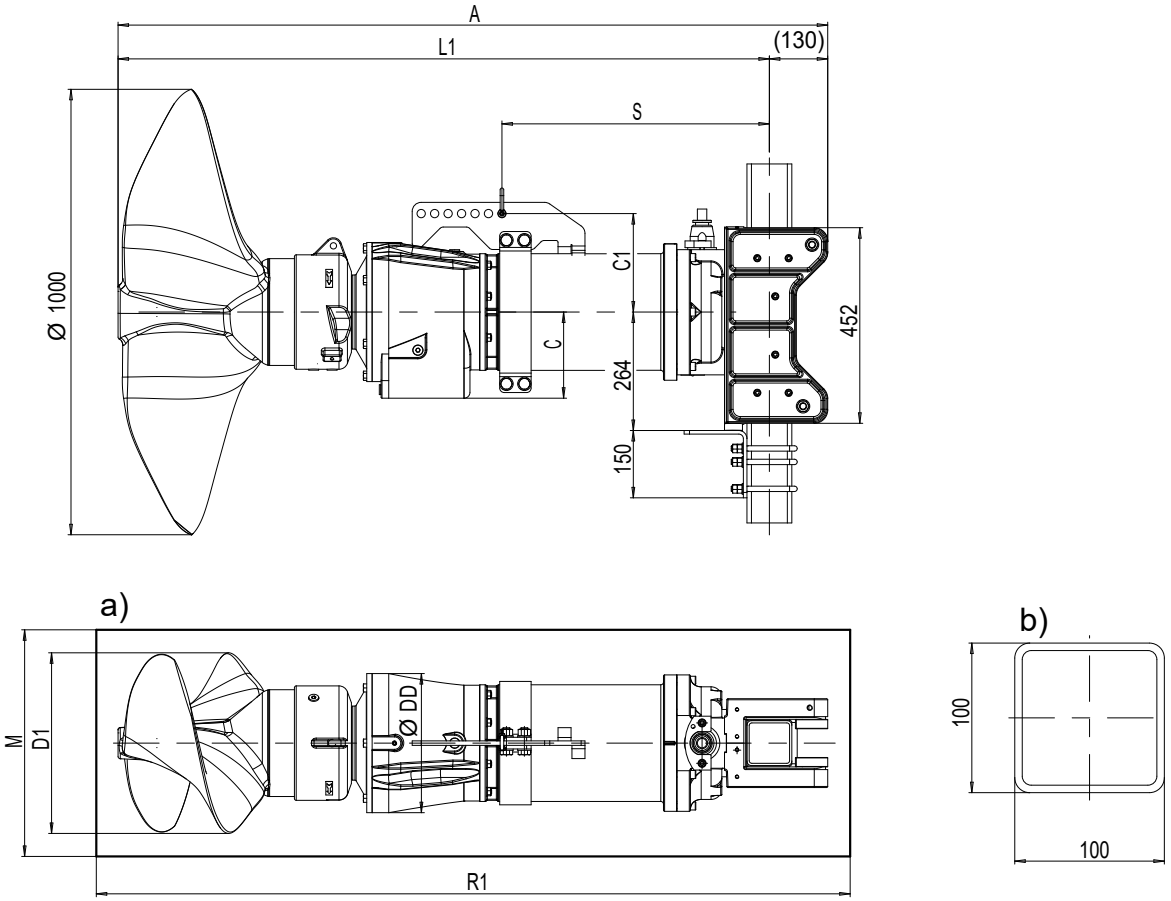

Fig. 13: AmaProp, size 1002 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 22: Dimensions

Size	A	C	C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 166-1002/114UBG/YBG -IE3	1530	192	220	310	405	1400	505	1630	545	314
AmaProp-A11B V 174-1002/154UBG/YBG -IE3	1580	192	220	310	405	1450	505	1680	595	334
AmaProp-A11B V 187-1002/154UBG/YBG -IE3	1580	192	220	310	405	1450	505	1680	595	334
AmaProp-A11B V 192-1002/154UBG/YBG -IE3	1580	192	220	310	405	1450	505	1680	595	334
AmaProp-A11B V 211-1002/224UBG/YBG	1580	192	220	310	405	1450	505	1680	595	334

AmaProp, size 1202 with three-phase asynchronous motor

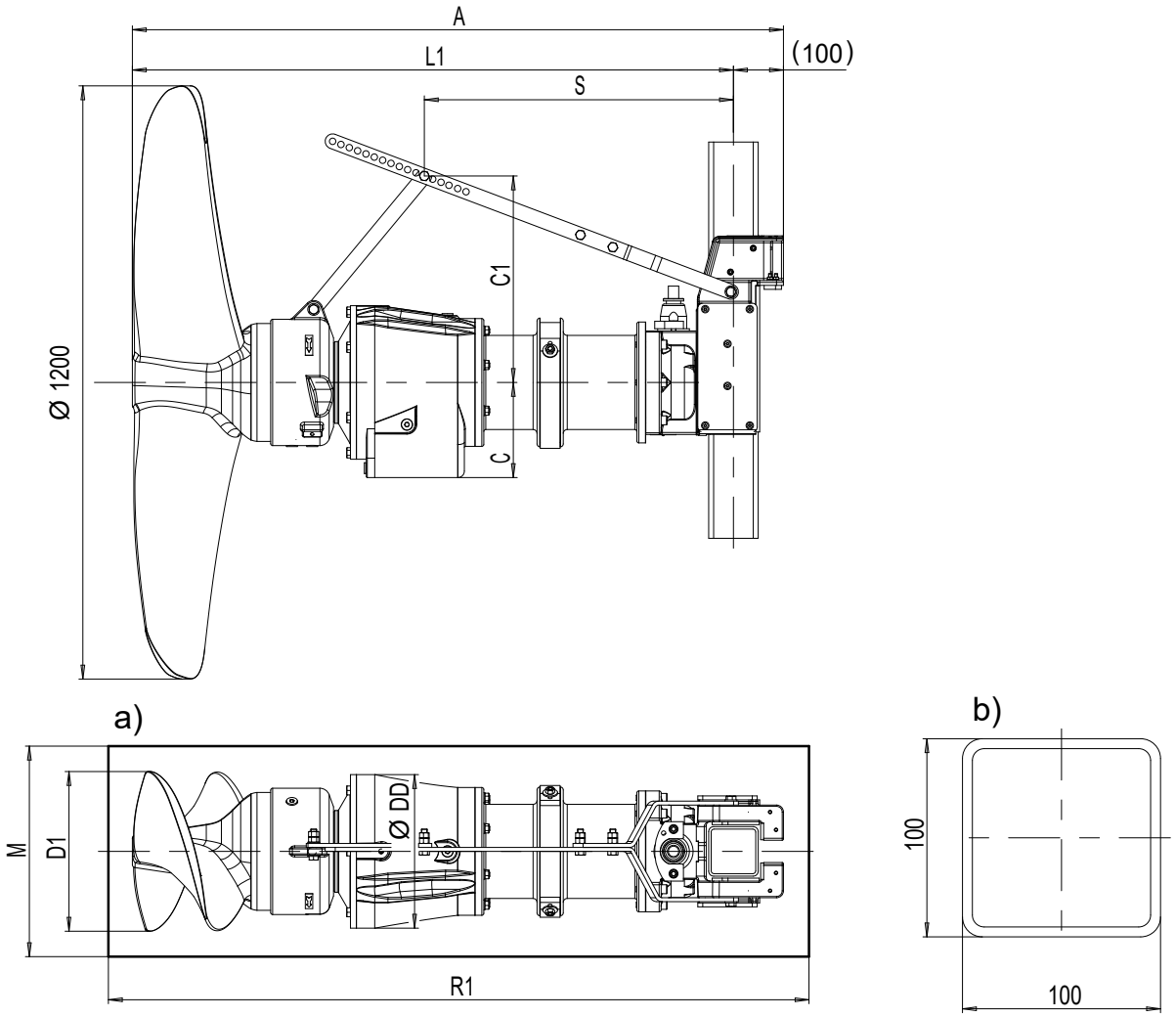

Fig. 14: AmaProp, size 1202 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 23: Dimensions

Size	A	C	~ C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 052-1202/0B4UBG/YBG -IE3	1220	159	465	258	325	1120	425	1320	605	176
AmaProp-A11B V 063-1202/014UBG/YBG -IE3	1220	159	465	258	325	1120	425	1320	605	176
AmaProp-A11B V 071-1202/024UBG/YBG -IE3	1275	159	465	258	325	1175	425	1375	605	203
AmaProp-A11B V 079-1202/034UBG/YBG -IE3	1315	192	415	310	325	1215	425	1415	625	221
AmaProp-A11B V 085-1202/044UBG/YBG -IE3	1315	192	415	310	325	1215	425	1415	625	221
AmaProp-A11B V 093-1202/054UBG/YBG -IE3	1390	192	405	310	325	1290	425	1490	640	282
AmaProp-A11B V 101-1202/054UBG/YBG -IE3	1390	192	405	310	325	1290	425	1490	640	282
AmaProp-A11B V 107-1202/074UBG/YBG -IE3	1390	192	405	310	325	1290	425	1490	640	282

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AmaProp, size 1402 with three-phase asynchronous motor

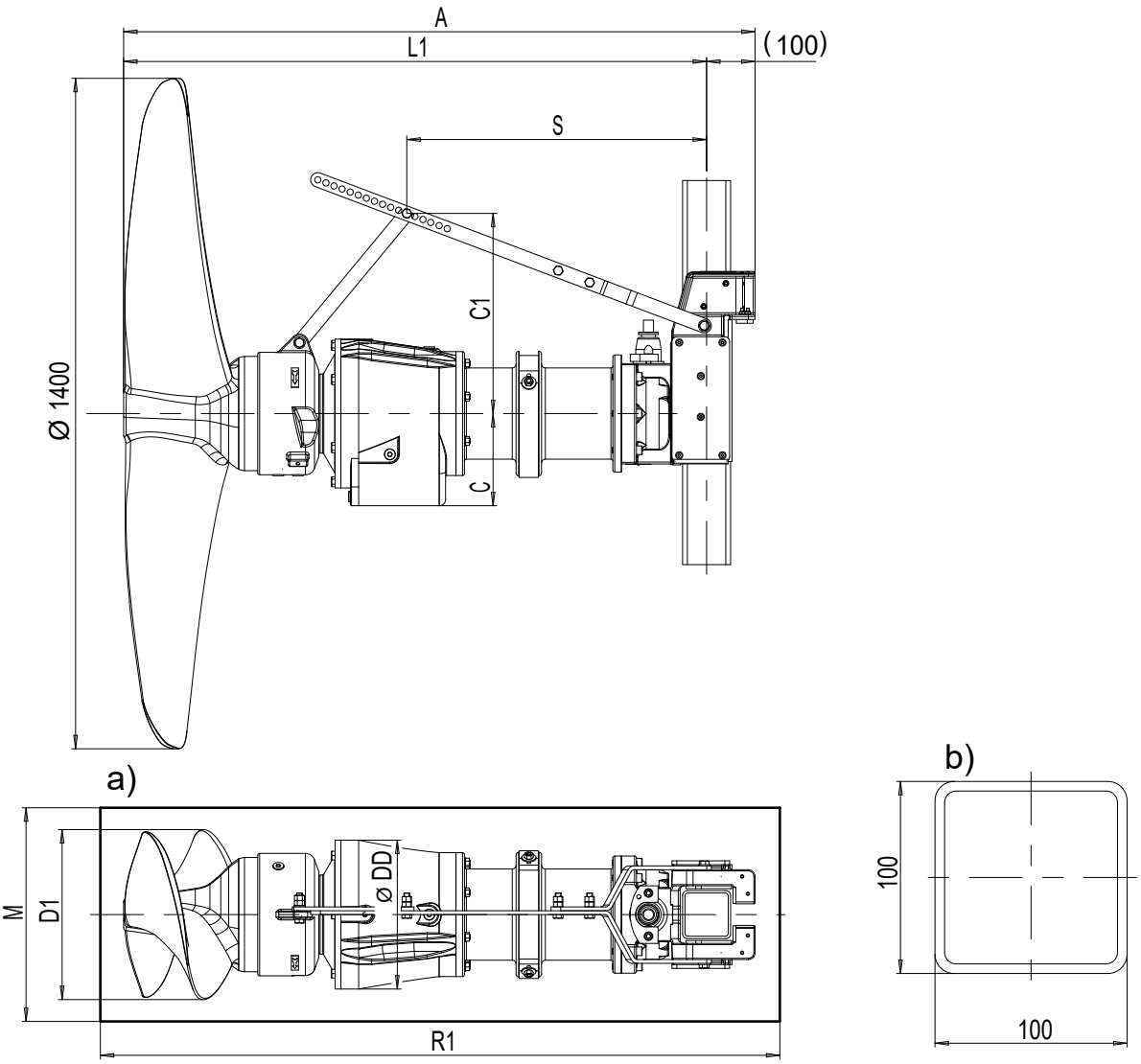

Fig. 15: AmaProp, size 1402 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 24: Dimensions

Size	A	C	~ C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 049-1402/0B4UBG/YBG -IE3	1220	159	465	258	345	1120	425	1320	605	177
AmaProp-A11B V 057-1402/014UBG/YBG -IE3	1220	159	465	258	345	1120	425	1320	605	177
AmaProp-A11B V 066-1402/034UBG/YBG -IE3	1315	192	415	310	345	1215	425	1415	625	222
AmaProp-A11B V 079-1402/044UBG/YBG -IE3	1315	192	415	310	345	1215	425	1415	625	222
AmaProp-A11B V 086-1402/054UBG/YBG -IE3	1390	192	405	310	345	1290	425	1490	640	283
AmaProp-A11B V 093-1402/074UBG/YBG -IE3	1390	192	405	310	345	1290	425	1490	640	283
AmaProp-A11B V 100-1402/074UBG/YBG -IE3	1390	192	405	310	345	1290	425	1490	640	283

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AmaProp, size 1802 with three-phase asynchronous motor

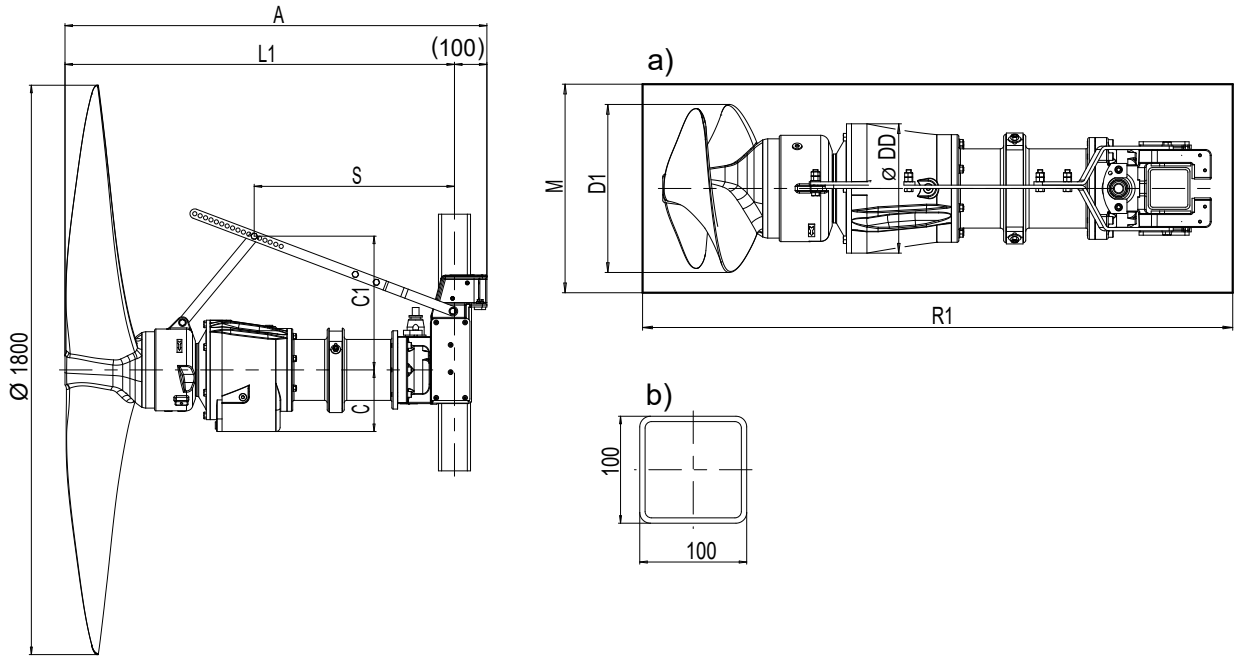

Fig. 16: AmaProp, size 1802 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 25: Dimensions

Size	A	C	~ C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 044-1802/0B4UBG/YBG -IE3	1220	159	465	258	400	1120	500	1320	605	179
AmaProp-A11B V 047-1802/014UBG/YBG -IE3	1220	159	465	258	400	1120	500	1320	605	179
AmaProp-A11B V 050-1802/024UBG/YBG -IE3	1275	159	465	258	400	1175	500	1375	605	206
AmaProp-A11B V 055-1802/034UBG/YBG -IE3	1315	192	415	310	400	1215	500	1415	625	224
AmaProp-A11B V 059-1802/034UBG/YBG -IE3	1315	192	415	310	400	1215	500	1415	625	224
AmaProp-A11B V 062-1802/044UBG/YBG -IE3	1315	192	415	310	400	1215	500	1415	625	224
AmaProp-A11B V 071-1802/054UBG/YBG -IE3	1390	192	405	310	400	1290	500	1490	640	286
AmaProp-A11B V 080-1802/074UBG/YBG -IE3	1390	192	405	310	400	1290	500	1490	640	286

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AmaProp, size 2200 with three-phase asynchronous motor

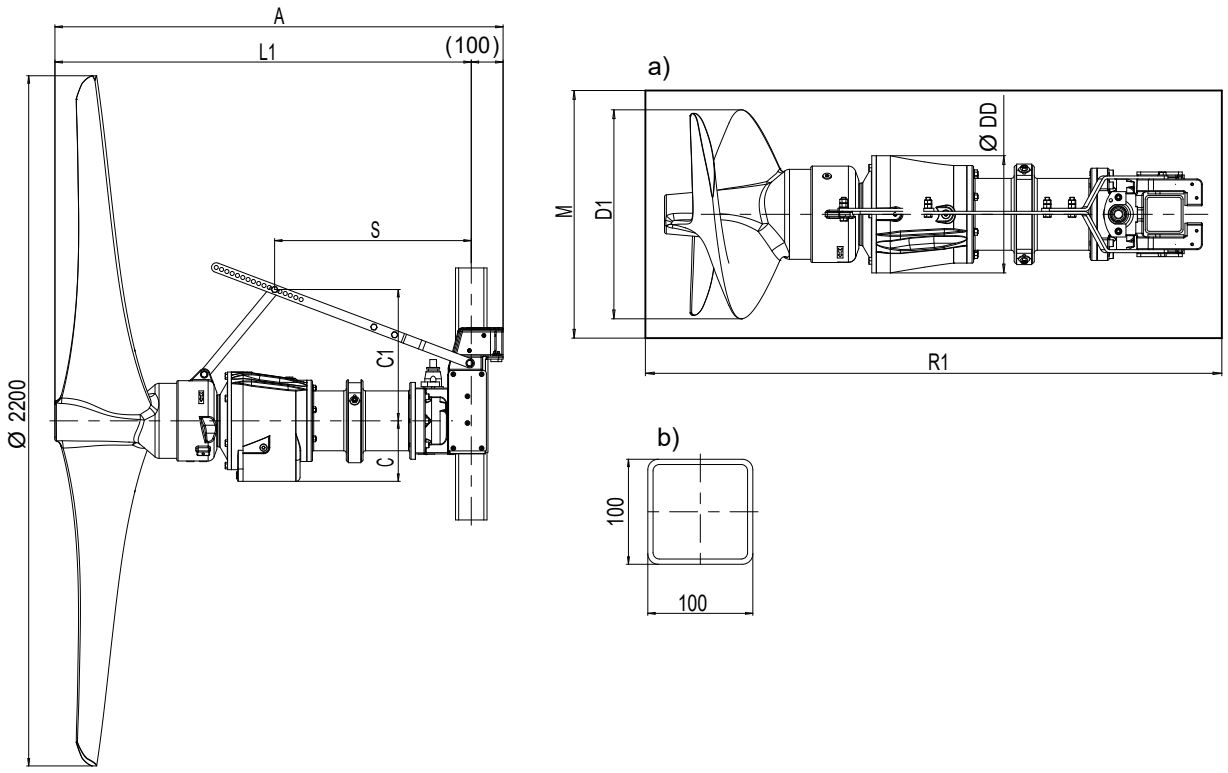

Fig. 17: AmaProp, size 2200 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 26: Dimensions

Size	A	C	~ C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 023-2200/0A4UBG/YBG -IE3	1330	159	465	258	555	1230	655	1430	605	192
AmaProp-A11B V 029-2200/0B4UBG/YBG -IE3	1330	159	465	258	555	1230	655	1430	605	192
AmaProp-A11B V 033-2200/024UBG/YBG -IE3	1385	159	465	258	555	1285	655	1485	605	220
AmaProp-A11B V 035-2200/024UBG/YBG -IE3	1425	192	415	310	555	1325	655	1525	625	237
AmaProp-A11B V 037-2200/034UBG/YBG -IE3	1425	192	415	310	555	1325	655	1525	625	237
AmaProp-A11B V 041-2200/044UBG/YBG -IE3	1425	192	415	310	555	1325	655	1525	625	237
AmaProp-A11B V 045-2200/054UBG/YBG -IE3	1500	192	405	310	555	1400	655	1600	640	300
AmaProp-A11B V 052-2200/074UBG/YBG -IE3	1500	192	405	310	555	1400	655	1600	640	300

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AmaProp, size 2500 with three-phase asynchronous motor

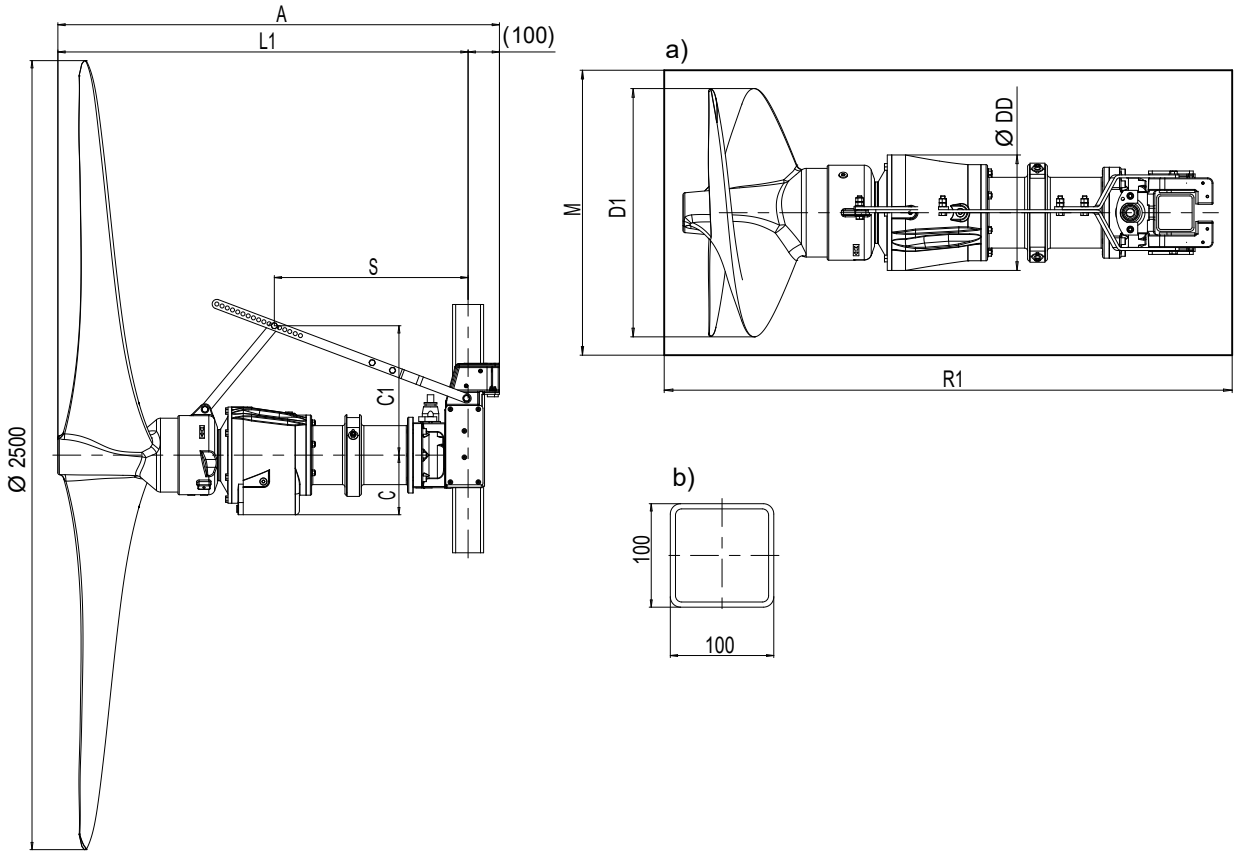

Fig. 18: AmaProp, size 2500 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 27: Dimensions

Size	A	C	~ C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 022-2500/0B4UBG/YBG -IE3	1330	159	465	258	560	1230	660	1430	605	192
AmaProp-A11B V 025-2500/014UBG/YBG -IE3	1330	159	465	258	560	1230	660	1430	605	192
AmaProp-A11B V 029-2500/024UBG/YBG -IE3	1425	192	415	310	560	1325	660	1525	625	220
AmaProp-A11B V 032-2500/034UBG/YBG -IE3	1425	192	415	310	560	1325	660	1525	625	237
AmaProp-A11B V 035-2500/044UBG/YBG -IE3	1425	192	415	310	560	1325	660	1525	625	237

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AmaProp, size 1403 with three-phase asynchronous motor

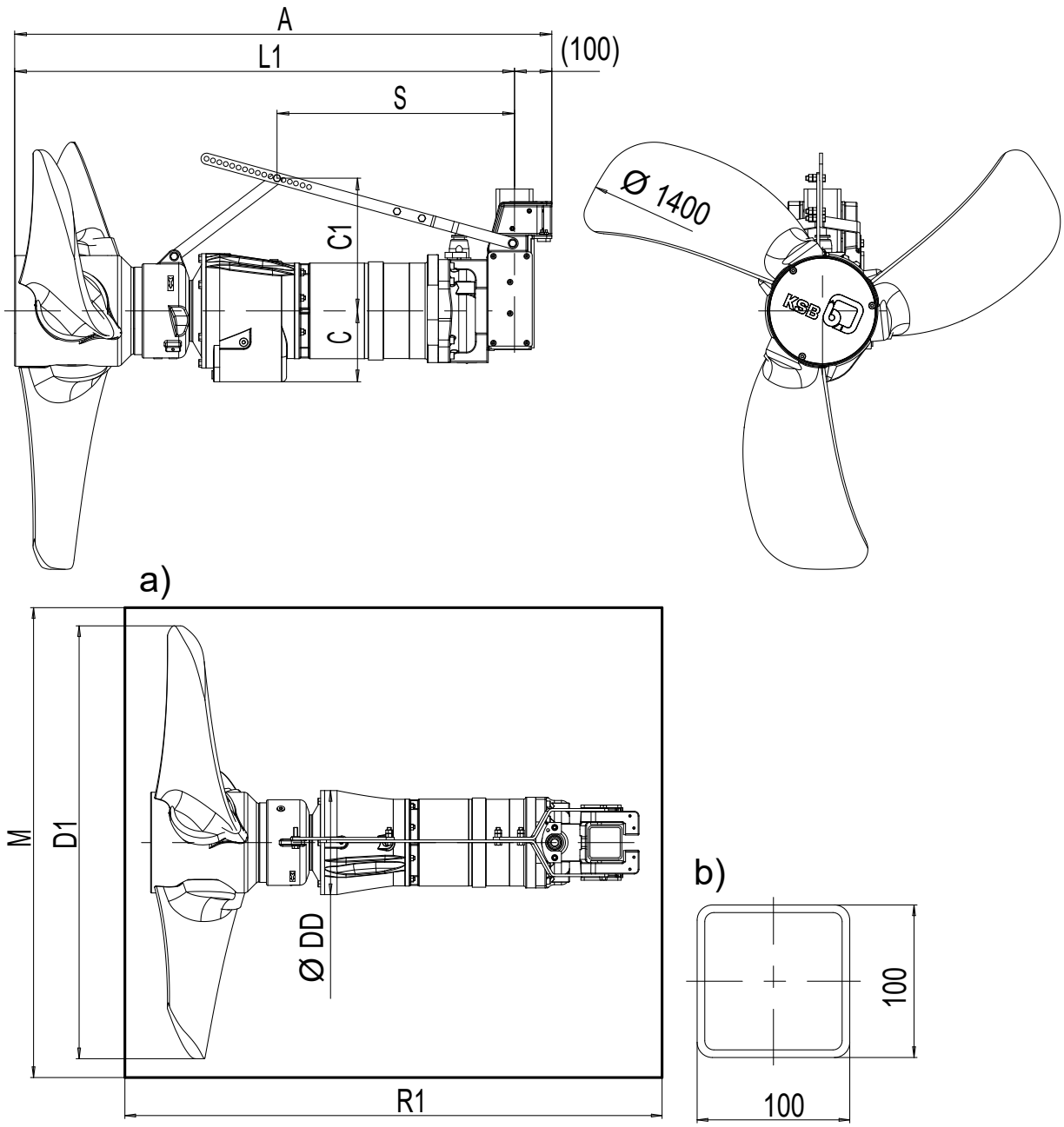

Fig. 19: AmaProp, size 1403 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 28: Dimensions

Size	A	C	~ C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 071-1403/054UBG/YBG -IE3	1455	192	405	310	1290	1355	1390	1555	640	340

AmaProp, size 2203 with three-phase asynchronous motor

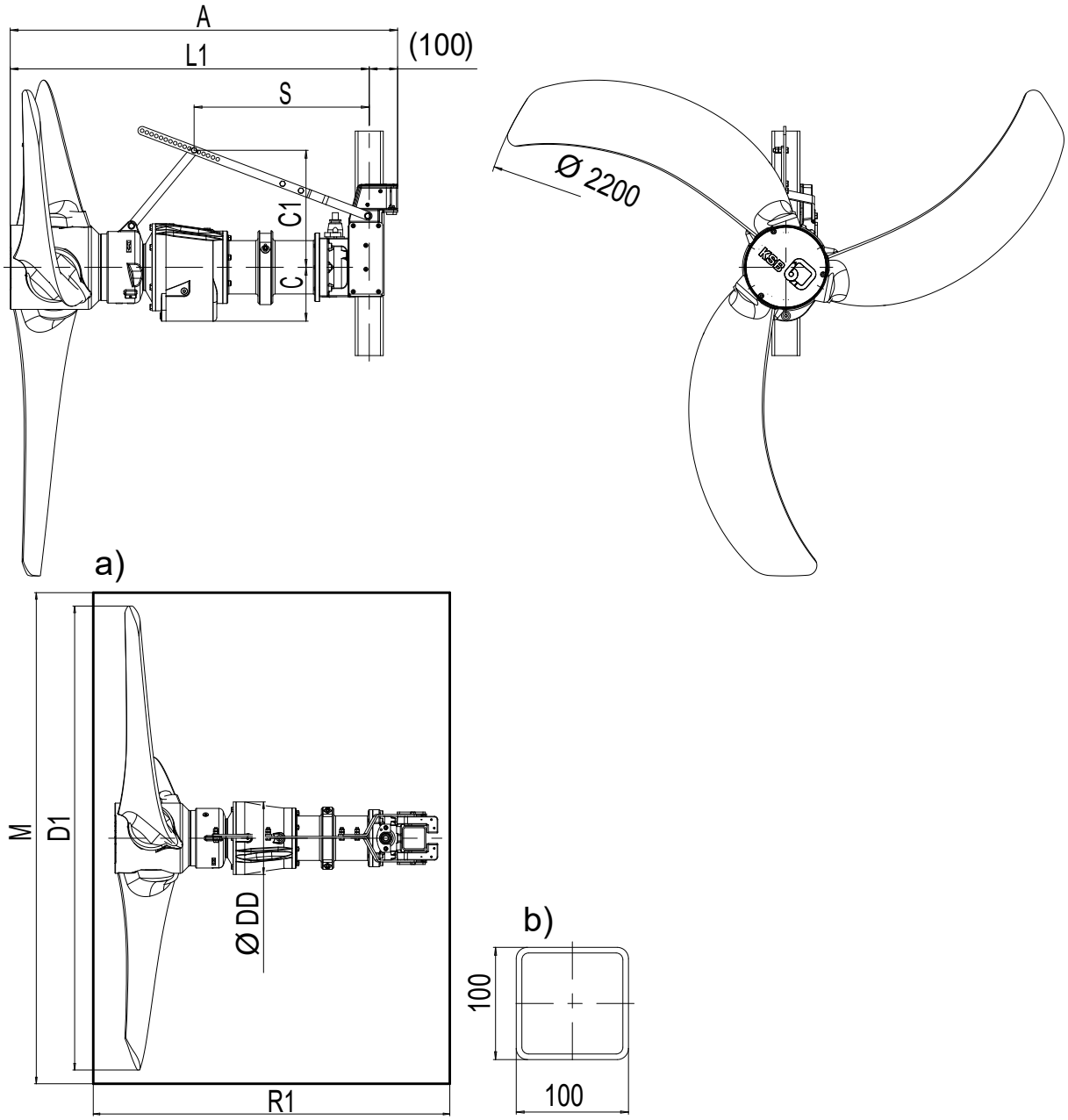

Fig. 20: AmaProp, size 2203 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 29: Dimensions

Size	A	C	~ C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 041-2203/044UBG/YBG -IE3	1380	192	415	310	1985	1280	2085	1480	625	285

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AmaProp, size 2603 with three-phase asynchronous motor

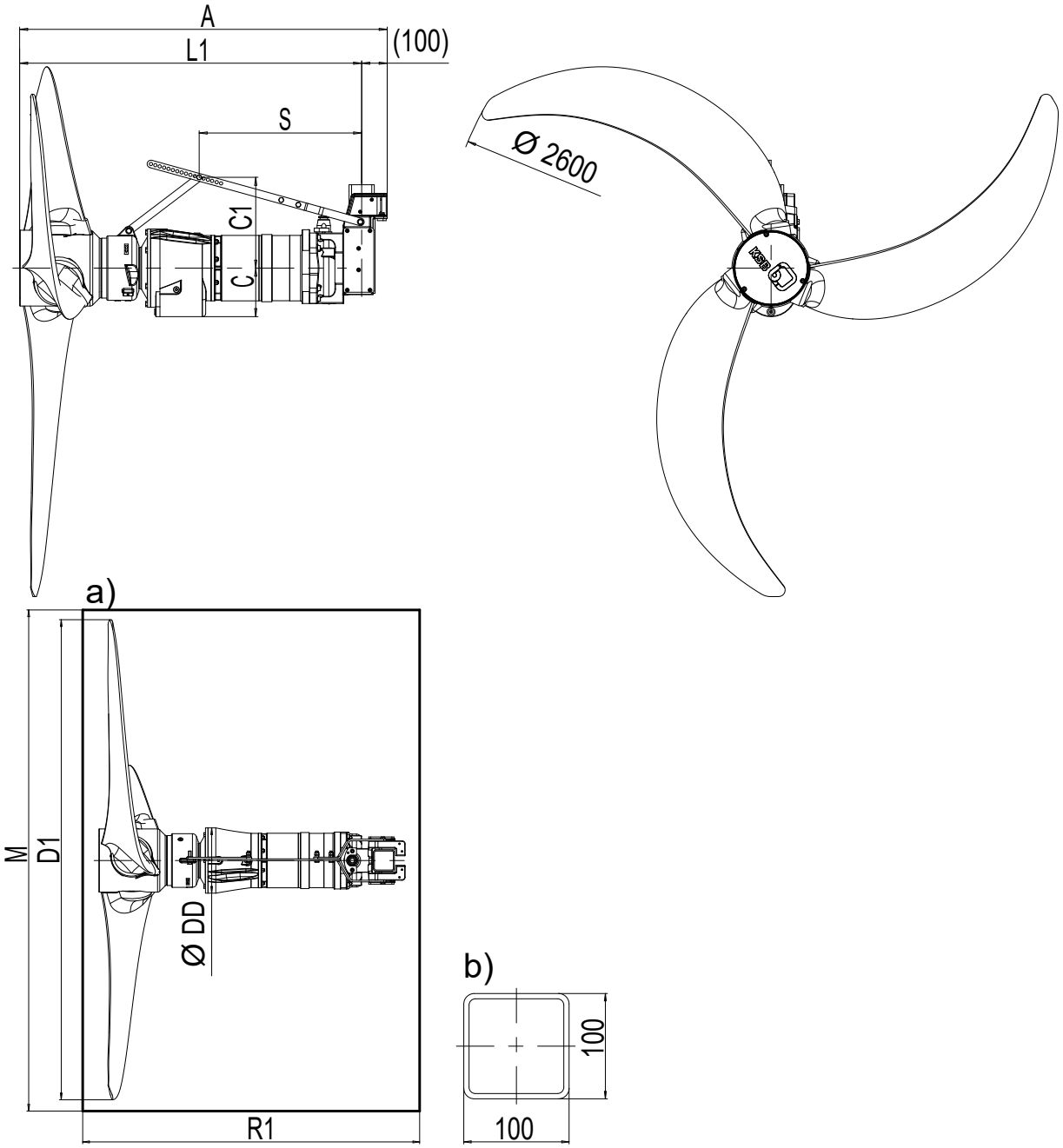


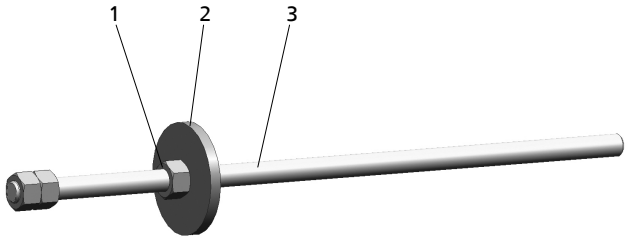
Fig. 21: AmaProp, size 2603 with three-phase asynchronous motor, dimensions in [mm]
a) Minimum dimensions of access opening
b) Square guide rail

Table 30: Dimensions

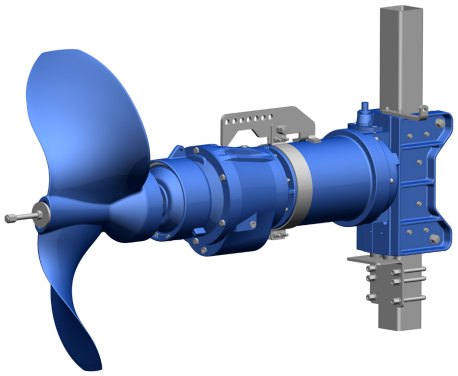
Size	A	C	~ C1	DD	D1	L1	M	R1	~ S	[kg]
	[mm]									
AmaProp-A11B V 023-2603/0A4UBG/YBG -IE3	1285	159	465	258	2280	1185	2380	1385	605	248
AmaProp-A11B V 041-2603/054UBG/YBG -IE3	1455	192	405	310	2280	1355	2380	1555	640	351
AmaProp-A11B V 045-2603/054UBG/YBG -IE3	1455	192	405	310	2280	1355	2380	1555	640	351

Accessories

Propeller fitting tool



Propeller fitting tool



Propeller with propeller fitting tool

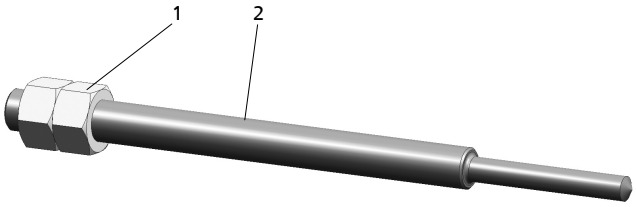
1	Nut
2	Disc
3	Fully threaded stud

The propeller fitting tool facilitates fitting the propeller on the submersible mixer shaft. The fully threaded stud (3) is screwed into the shaft, and the propeller and the disc (2) are placed on the shaft. The nut (1) is tightened up to the stop, pulling the propeller onto the shaft.

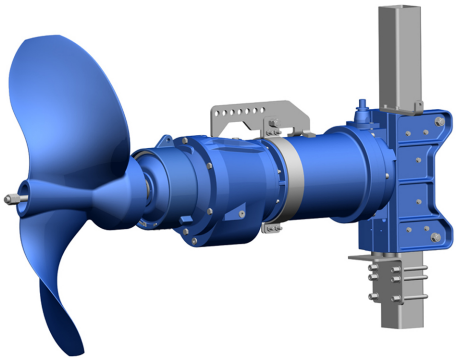
Table 31: Accessory: axial propeller fitting tool

Description	AmaProp size										Material	Mat. No.	[kg]
	0802	1002	1202	1402	1403	1802	2200	2203	2500	2603			
Propeller fitting tool	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	A4-70	01428379	1,22

Forcing screw



Forcing screw



Propeller with forcing screw

1	Nut
2	Fully threaded stud

The forcing screw facilitates dismantling and pulling the propeller off the submersible mixer shaft. The hexagon socket head cap screw with washer is removed and the fully threaded stud (2) is screwed into the propeller's forcing thread up to the stop using the nut (1), pulling the propeller smoothly off the shaft.

Table 32: Accessory: axial propeller forcing screw

Description	AmaProp size										Material	Mat. No.	[kg]
	0802	1002	1202	1402	1403	1802	2200	2203	2500	2603			
Forcing screw	-	-	✗	✗	✗	✗	-	-	-	-	A4-70	11306648	0,77
Forcing screw	✗	✗	-	-	-	-	✗	✗	✗	✗	A4-70	11306649	1,05

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Cable holder / carabine hook

Cable support

The cable support is used for supporting the power cable at the lifting rope or tank edge (one included in standard scope of supply; additional or spare cable supports available).

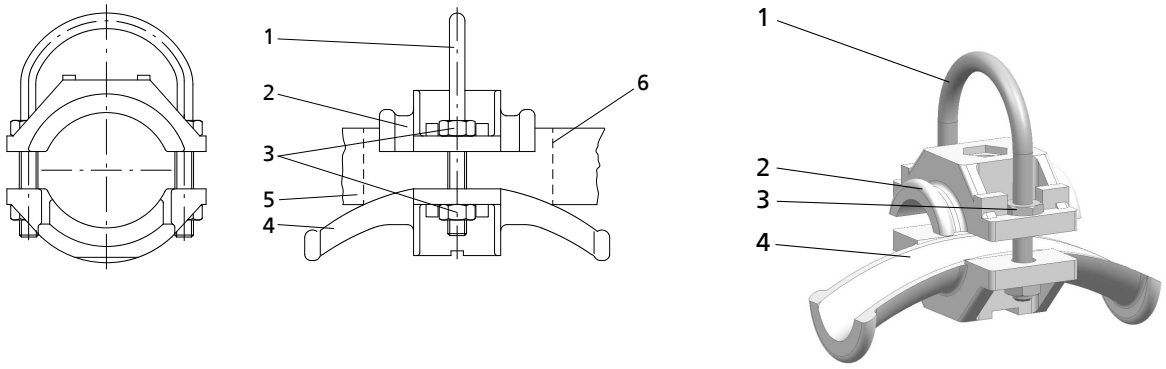


Illustration of cable support

1	Bail
2	Moulded part made of polypropylene
3	Hexagon nut made of A4
4	Moulded part made of polypropylene
5	Power cable with defined diameter[17)]
6	Rubber pad

For power cable diameters ≤ 10 or 17 mm respectively a rubber pad is inserted to make sure the cable is clamped properly.

Carabine hook

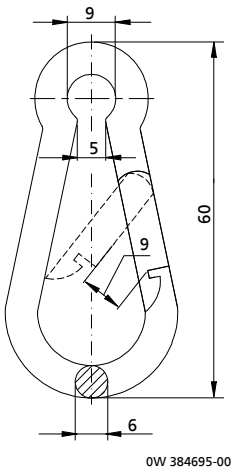


Fig. 22: Carabine hook dimensions [mm]

Table 33: Overview of cable supports/carabine hooks

Description	Can be used for motor size:											Material	Mat. No.	[kg]
	0A4	0B4	014	024	034	044	054	074	114	154	224			
Cable support, incl. carabine hooks	x[18)]	x[18)]	x[18)]	-	-	-	-	-	-	-	-	Cable support: plastic / A4, carabine hook: A4	19555522	0,06
Cable support, incl. carabine hooks	-	-	-	x[19)]	x[19)]	x[19)]	x[19)]	x[19)]	x[19)]	x[19)]	x[19)]	Cable support: plastic / A4, carabine hook: A4	19555523	0,09

17 Refer to the power cable data given in the motor catalogue.
18 Diameter of power cable Ø = 10 - 16 mm
19 Diameter of power cable: Ø = 17 - 25 mm

Related documents

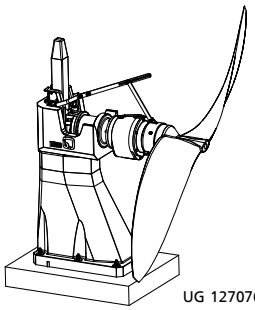
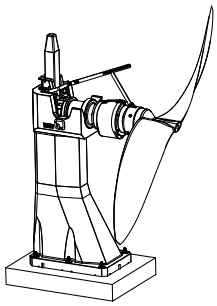
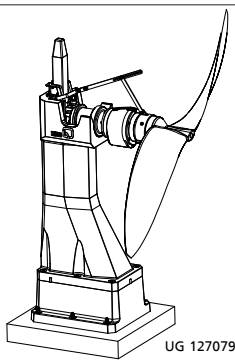
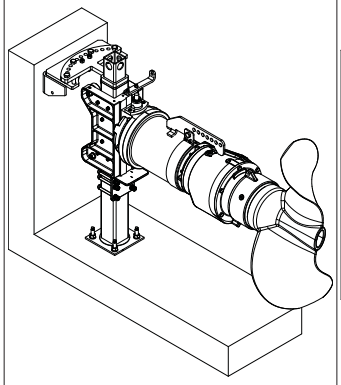
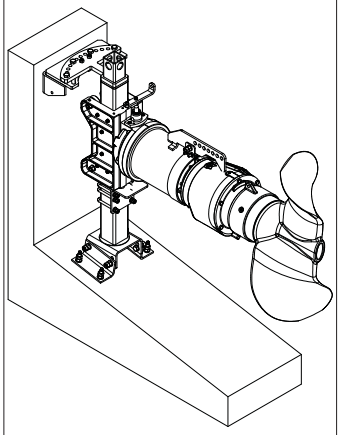
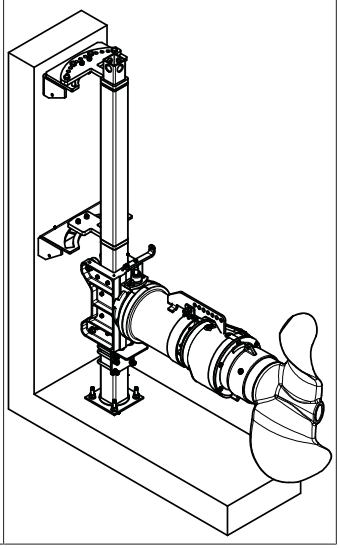
Table 34: Information/documents

Document	Reference number
Type series booklet AmaControl	2301.5
Type series booklet KSB Lifting Equipment	1596.5
Type series booklet PumpDrive R	4073.5

Installation parts

Overview of installation parts

Table 35: Overview of AmaProp installation parts

Accessories	Installation example		
AmaProp, sizes 0802, 1002 with synchronous reluctance motor and AmaProp, sizes 1202, 1402, 1403, 1802, 2200, 2203, 2500, 2603			
AmaRoc	Shaft centreline height = 1100 mm[20] (⇨ Page 35)	Shaft centreline height = 1450 mm (⇨ Page 35)	Shaft centreline height = 1800 mm (⇨ Page 35)
	 UG 1270769		 UG 1270793
AmaProp, sizes 0802, 1002 with three-phase asynchronous motor			
Guide rail arrangement with retaining bracket	Mounting on tank wall and horizontal tank floor (0°-0.5°) (⇨ Page 36)	Mounting on tank wall and sloping tank floor (0.5° - 10°) (⇨ Page 37)	Middle support for guide rail 100 x 100 x 5, for large installation depths (⇨ Page 38)
			

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20 Only for Amaprop 1202, 1402, 1403, 1802

AmaRoc

General assembly drawing showing individual components

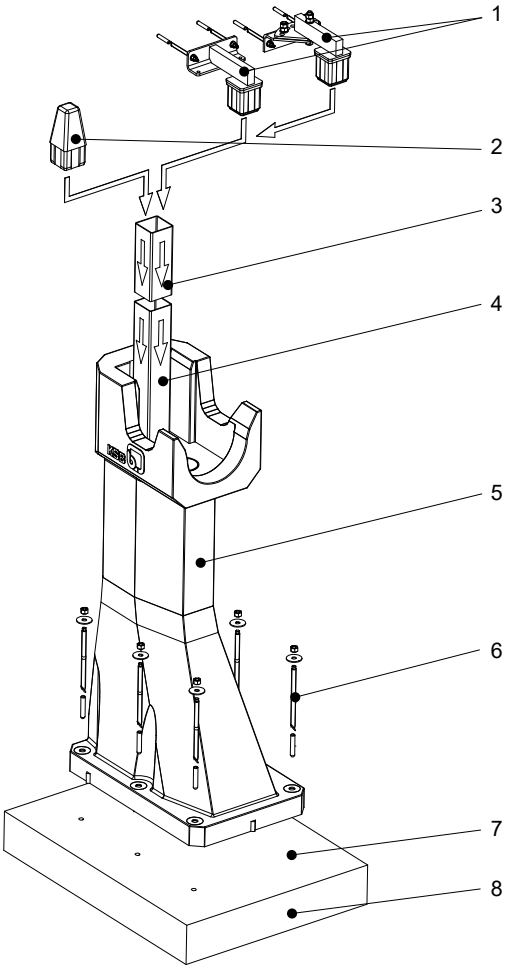

Fig. 23: General assembly drawing

1	Upper holder of square guide rail, set to 90° or with 45°, 60°, 75° swivelling options, for square guide rail lengths > 7 m
2	Insert sleeve made of polypropylene (PP), for square guide rail lengths < 7 m
3	Square guide rail extension, cross-section 100 mm × 100 mm × 3 mm or 100 mm × 100 mm × 5 mm (shown shortened)
4	Square guide rail, cross-section 100 mm × 100 mm × 3 mm or 100 mm × 100 mm × 5 mm (shown shortened)
5	AmaRoc submersible mixer stand
6	Chemical anchors M16 × 250 mm with mortar cartridges
7	Hole diameter 18 mm; hole depth 125 mm
8	Concrete floor, at least 160 mm thick

Design details

Design

- Monolithic submersible mixer stand made of NoriRoc cast polymer concrete
- Integrally cast metal bushes (for fastening the stand to the tank floor) and flexible locating bushes (for holding the square guide rail)

Fastening

- The submersible mixer stand is fastened on the tank floor with chemical anchors.

Square guide rail

- Cross-section: 100 x 100 mm
- Wall thickness:
  - 3 mm (for guide rail lengths < 9 m)
  - 5 mm (for guide rail lengths ≥ 9 m)
- Material 1.4301 or 1.4571

Installation types

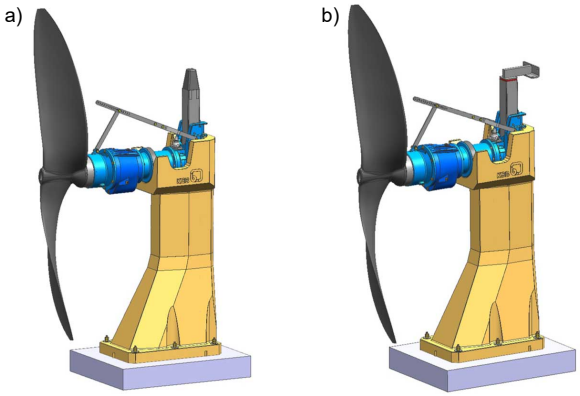

Fig. 24: Installation types
a) Free-standing, without upper holder (for square guide rails < 7 m)
b) With upper holder mounted on the tank wall or bridge (generally required for square guide rails ≥ 7 m, optional for square guide rails < 7 m)

AmaRoc accessories

AmaRoc is designed for stationary installation on a horizontal tank floor, free-standing or with upper guide rail holder.

Table 36: AmaRoc standard accessories

Description	Information	Material	Material No.	[kg]
Submersible mixer stand	Shaft centreline height of submersible mixer 1450 mm above the tank floor, incl. 6 chemical anchors	NoriRoc	01185967	410
Upper holder 90°	Additional holder for supporting the top end of the guide rail 100 x 100 x 3 mm, incl. 2 chemical anchors	1.4301	01189476	7,35
Upper holder 90°	Additional holder for supporting the top end of the guide rail 100 x 100 x 3 mm, incl. 2 chemical anchors	1.4571	01189497	7,35
Upper holder 45°/60°/75°	Additional holder for supporting the top end of the guide rail 100 x 100 x 3 mm, incl. 2 chemical anchors	1.4301	01189498	8,15
Upper holder 45°/60°/75°	Additional holder for supporting the top end of the guide rail 100 x 100 x 3 mm, incl. 2 chemical anchors	1.4571	01189499	8,15
Upper holder 90°	Additional holder for supporting the top end of the guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4301	01108429	7,35
Upper holder 90°	Additional holder for supporting the top end of the guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4571	01108430	7,35
Upper holder 45°/60°/75°	Additional holder for supporting the top end of the guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4301	01108431	8,15
Upper holder 45°/60°/75°	Additional holder for supporting the top end of the guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4571	01108432	8,15
Insert sleeve	Insert sleeve for guide rail 100 x 100 x 3 mm; for inserting the guide bracket onto the guide rail (only for free-standing models without upper holder)	PP (polypro-pylene)	11306484	0,8
Guide rail	(⇨ Page 39)			

Guide rail arrangement

For mounting at the top of the tank wall and on a horizontal tank floor (0° - 0.5°), level-adjustable and with horizontal swivelling option.

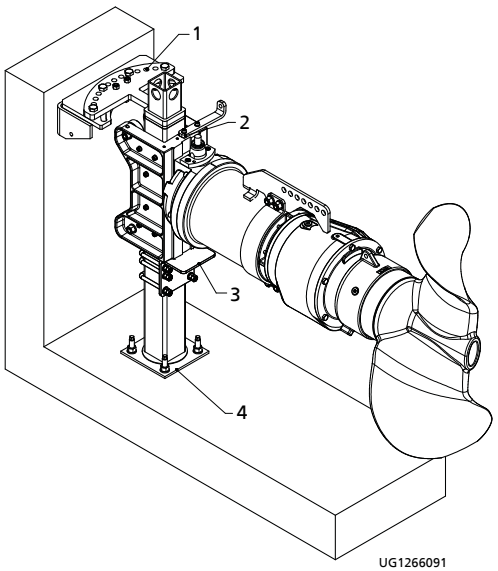

Fig. 25: Installation example: Amaprop mounted on tank wall and horizontal tank floor

1	Upper holder
2	Guide rail
3	Retaining bracket
4	Lower holder

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Table 37: Accessories 22 – Mounting on tank wall and horizontal tank floor

Description	Material	Mat. No.	[kg]
Upper holder for guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4301	01313458	23,23
Upper holder for guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4571	01313459	23,23
Guide rail	(⇨ Page 39)		
Retaining bracket for guide rail 100 x 100 x 5 mm	1.4301	01129810	3,5
Retaining bracket for guide rail 100 x 100 x 5 mm	1.4571	19202370	3,5
Lower holder for guide rail 100 x 100 x 5 mm, incl. 4 chemical anchors	1.4301	01118892	5,68
Lower holder for guide rail 100 x 100 x 5 mm, incl. 4 chemical anchors	1.4571	01118903	5,68

For mounting on tank wall and sloping tank floor (0.5° - 10°), level-adjustable and with horizontal swivelling option

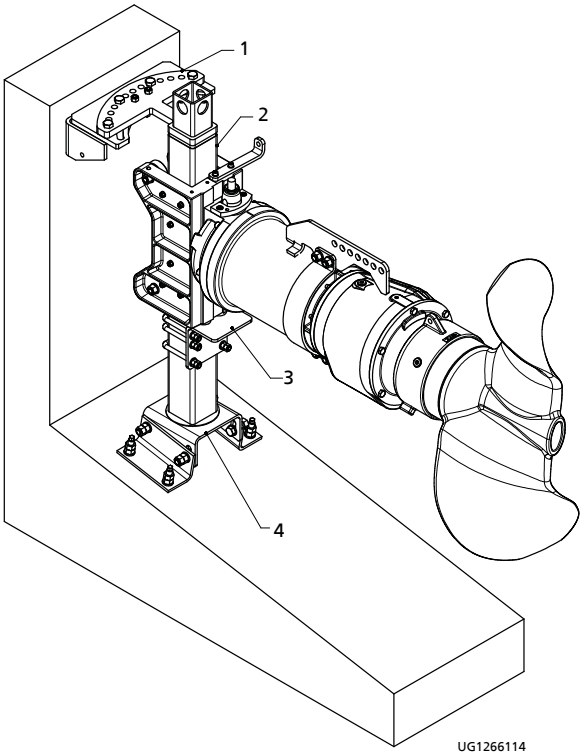

Fig. 26: Installation example: Amaprop mounted on sloping tank floor

1	Upper holder
2	Guide rail
3	Retaining bracket
4	Lower holder

Table 38: Accessories 22 – Mounting on tank wall and sloping tank floor

Description	Material	Mat. No.	[kg]
Upper holder for guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4301	01313458	23,23
Upper holder for guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4571	01313459	23,23
Guide rail	(⇨ Page 39)		
Retaining bracket for guide rail 100 x 100 x 5 mm	1.4301	01129810	3,5
Retaining bracket for guide rail 100 x 100 x 5 mm	1.4571	19202370	3,5
Lower holder for guide rail 100 x 100 x 5 mm, incl. 4 chemical anchors	1.4301	01118906	11,92
Lower holder for guide rail 100 x 100 x 5 mm, incl. 4 chemical anchors	1.4571	01118907	11,92

Middle support

Middle support for 100 x 100 x 5 mm guide rail for installation depths > 6 m

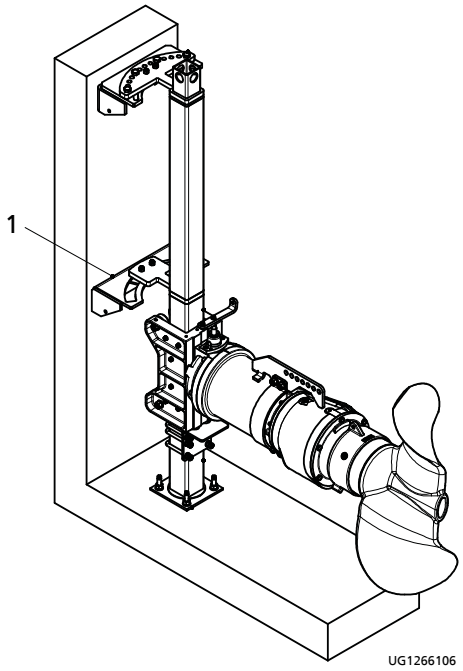

Fig. 27: Installation example: Amaprop, size 1002, mounted on tank edge and horizontal tank floor

1	Middle support

Table 39: Standard accessories 22 – Middle support for guide rail 100 x 100 x 5 mm, for installation depths > 6 m

Description	Material	Mat. No.	[kg]
Middle support for guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4301	01313462	19,26
Middle support for guide rail 100 x 100 x 5 mm, incl. 2 chemical anchors	1.4571	01313463	19,26

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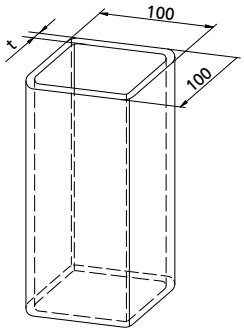
Guide rails

The guide rail length required depends on the water level. They are supplied in standard lengths of 3 m or 6 m. Free guide rail ends should not protrude more than 0.5 m from the water. If an optional guide rail holder is used to support the guide rail on the bridge, the guide rail length must be selected accordingly. If necessary, shorten the guide rails at the site. For larger installation depths, extend the guide rails by adding guide rail extensions of 3 m or 6 m length at the site. Welding and subsequent treatment must be performed at the site in accordance with the relevant regulations. To allow smooth lifting and lowering of the submersible pumps, grind the weld seam at the outside of the guide rail down to a max. projection of 0.5 mm.



t = 5 or 3 mm

UG 1145303

Square guide rail to DIN EN 10219-2

Table 40: Overview of guide rails

Description	AmaProp size										Material	Material No.	Weight [kg]
	0802	1002	1202	1402	1403	1802	2200	2203	2500	2603			
Guide rail 100 x 100 x 3, length: 3 m	-	-	✘	✘	✘	✘	-	-	-	-	1.4571	11302888	27,9
Guide rail 100 x 100 x 3, length: 6 m	-	-	✘	✘	✘	✘	✘	✘	✘	✘	1.4301	11302885	56
Guide rail 100 x 100 x 3, length: 6 m	-	-	✘	✘	✘	✘	✘	✘	✘	✘	1.4571	11302891	56
Guide rail 100 x 100 x 5, length: 3 m	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	1.4571	11304599	43,2
Guide rail 100 x 100 x 5, length: 6 m	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	1.4301	11304600	86,4
Guide rail 100 x 100 x 5, length: 6 m	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	1.4571	11304601	86,4

General assembly drawing with list of components

AmaProp, sizes 0802, 1002 with three-phase asynchronous motor

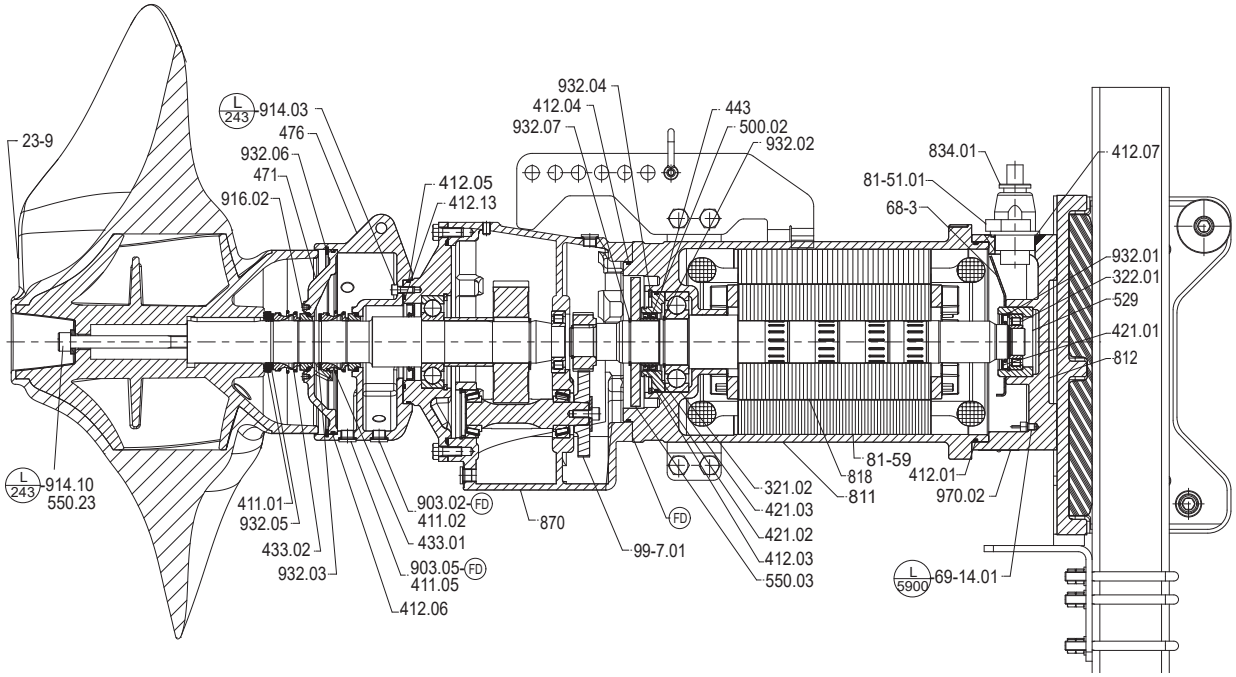


Fig. 28: General assembly drawing AmaProp, sizes 0802, 1002 with three-phase asynchronous motor

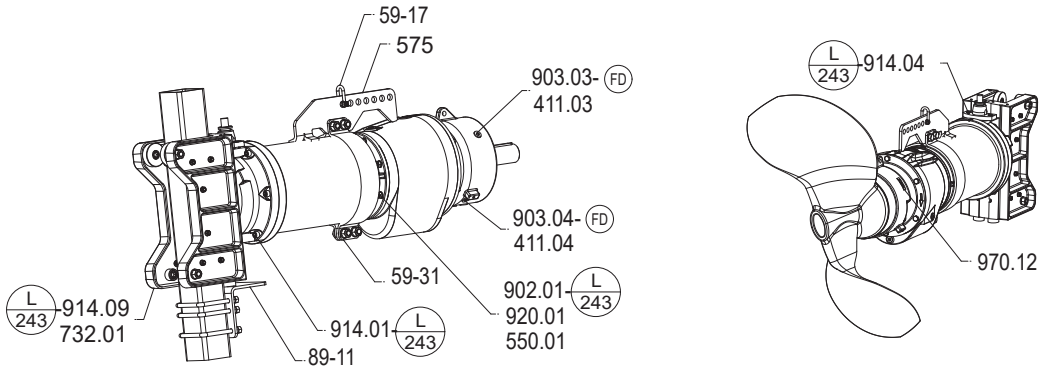


Fig. 29: External view

Table 41: Symbols key

Symbol	Description
FD	Always apply a **liquid sealant** (e.g. Hylomar SQ32M) to sealing surfaces marked with this symbol.
L 243	Always secure screwed connections marked with this symbol with **Loctite 243** .
L 5900	Always secure screwed connections marked with this symbol with **Loctite 5900** .

Table 42: List of components

Part No.	Description	Part No.	Description
23-9	Axial propeller	69-14.01	Leakage sensor
321.02	Radial ball bearing	732.01	Bracket
322.01	Radial roller bearing	81-51.01	Clamping element
411.01/.02/.03/.04/.05	Joint ring	81-59	Stator
412.01/.03/.04/.05/.06/.07/.13	O-ring	89-11	Retaining bracket
421.01/.02/.03	Lip seal	811	Motor housing
433.01	Mechanical seal (gear side)	812	Motor housing cover
433.02	Mechanical seal (propeller side)	818	Rotor
443	Seal insert	834.01	Cable gland
471	Seal cover	870	Gear unit
476	Mating ring carrier	99-7.01	Installation kit
59-31	Supporting clamp	902.01	Stud
59-17	Shackle	903.03/.02/.04/.05	Screw plug
500.02	Ring	914.01/.03/.04/.09/.10	Hexagon socket head cap screw
529	Bearing sleeve	916.02	Plug
550.01/.03/.23	Disc	920.01	Nut
575	Supporting strap	932.01/.02/.04/.05/.06/.07	Circlip
68-3	Cover plate	970.02	Label/plate

AmaProp, sizes 1202, 1402, 1403, 1802, 2200, 2203, 2500, 2603 with three-phase asynchronous motor

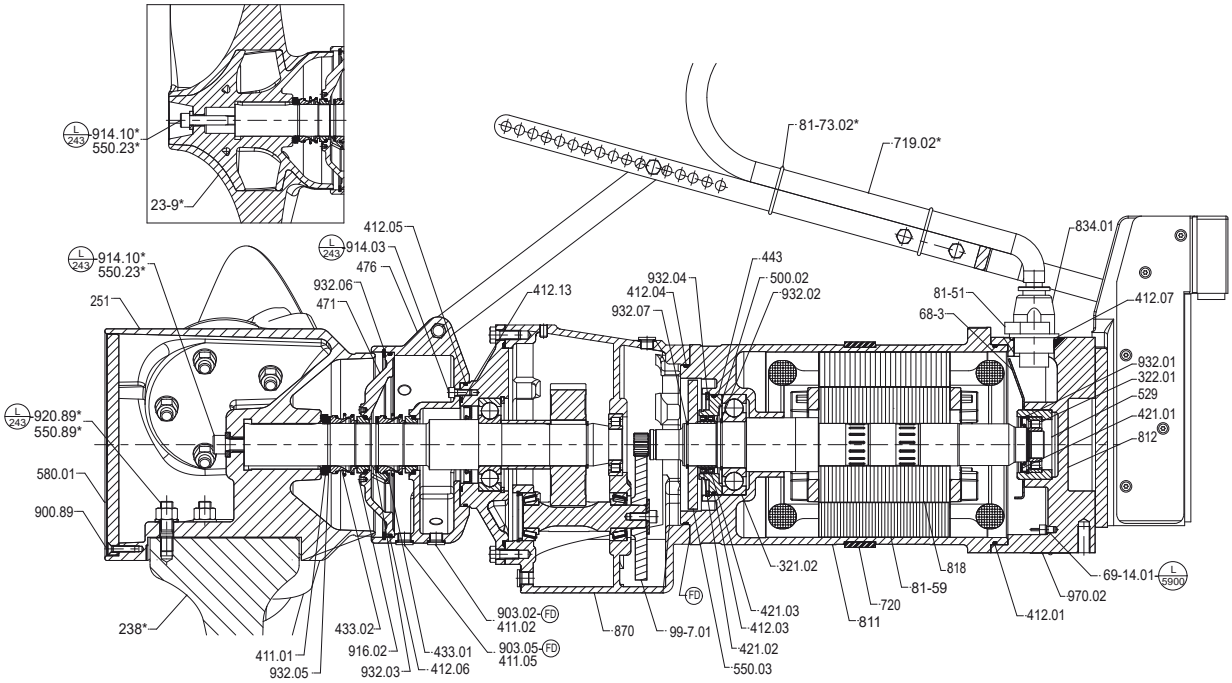


Fig. 30: General assembly drawing AmaProp, sizes 1202, 1402, 1403, 1802, 2200, 2203, 2500, 2603 three-phase asynchronous motor

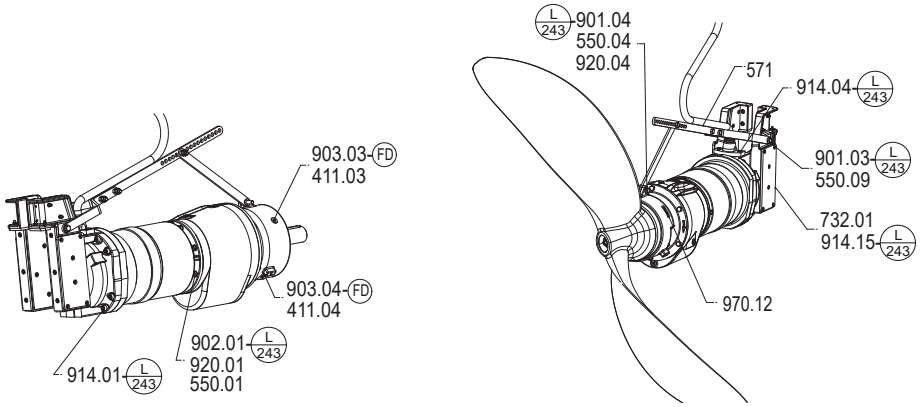


Fig. 31: External view

Table 43: Symbols key

Symbol	Description
*	To be assembled on site
FD	Always apply a **liquid sealant** (e.g. Hylomar SQ32M) to sealing surfaces marked with this symbol.
L 243	Always secure screwed connections marked with this symbol with **Loctite 243** .
L 5900	Always secure screwed connections marked with this symbol with **Loctite 5900** .

Table 44: List of components

Part No.	Description	Part No.	Designation
23-9	Axial propeller	720	Fitting
238	Blade, non-adjustable	732.01	Bracket
251	Impeller hub	81-51	Clamping element
321.02	Radial ball bearing	81-59	Stator
322.01	Radial roller bearing	81-73.02	Cable tie
411.01/.02/.03/.04/.05	Joint ring	811	Motor housing
412.01/.03/.04/.05/.06/ .07/.13	O-ring	812	Motor housing cover
421.01/.02/.03	Lip seal	818	Rotor
433.01	Mechanical seal (gear side)	834.01	Cable gland
433.02	Mechanical seal (propeller side)	870	Gear unit
443	Seal insert	99-7.01	Installation kit
471	Seal cover	900.89	Bolt/screw
476	Mating ring carrier	901.03/.04	Hexagon head bolt
500.02	Ring	902.01	Stud
529	Bearing sleeve	903.02/.03/.04/.05	Screw plug
550.01/.03/.04/.09/.23/ .89	Disc	914.01/.03/.04/.10/.15	Hexagon socket head cap screw
571	Lifting bail	916.02	Plug
580.01	Cap	920.01/.04/.89	Nut
68-3	Cover plate	932.01/.02/.03/.04/.05/ .06/.07	Circlip
69-14.01	Leakage sensor	970.02/.12	Label/plate
719.02	Flexible tube		

AmaProp with synchronous reluctance motor

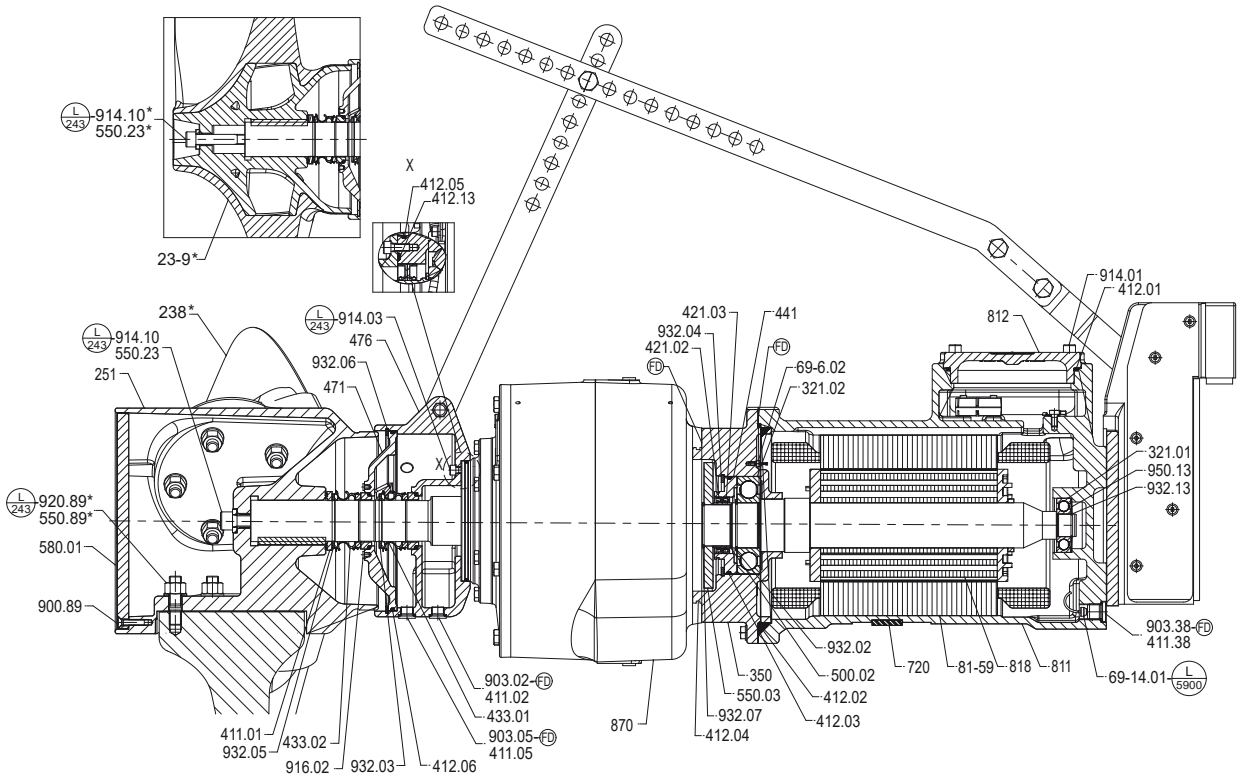


Fig. 32: General assembly drawing AmaProp with synchronous reluctance motor
* To be assembled on site

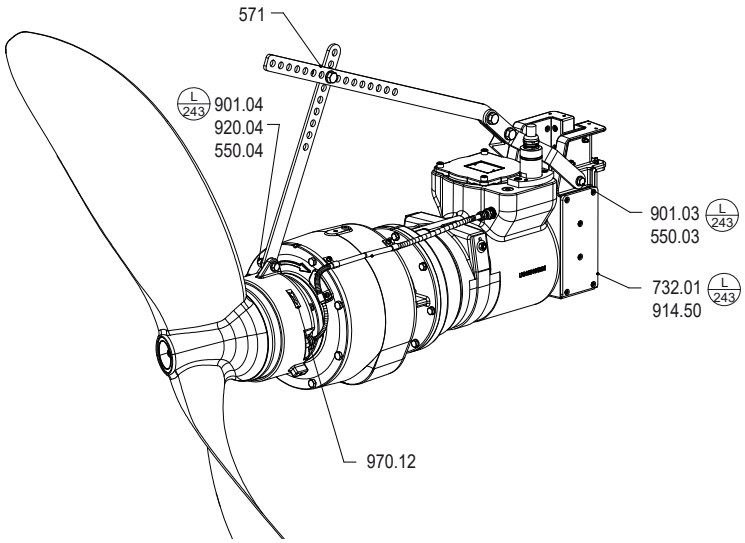


Fig. 33: External view 1

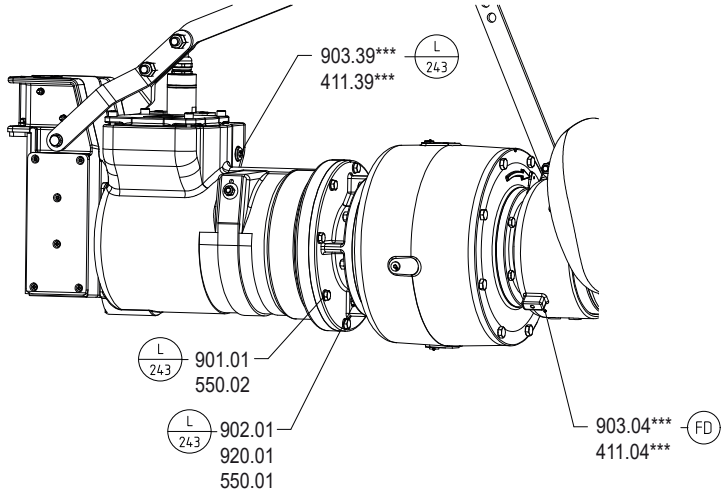


Fig. 34: External view 2
*** For version without oil sensor only (Basic+ sensor package)

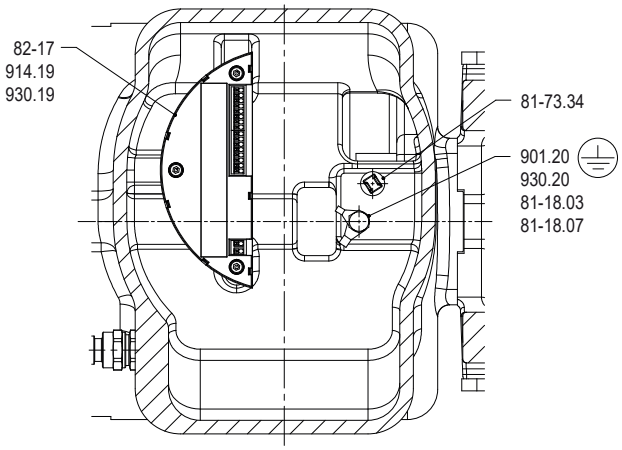


Fig. 35: Electrical connection 1

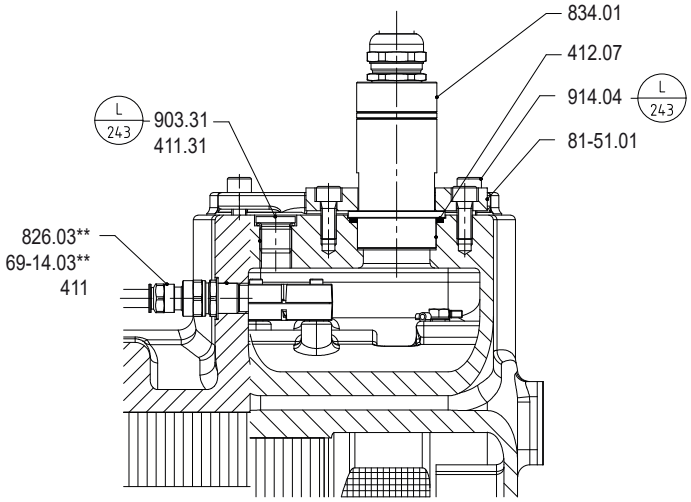


Fig. 36: Electrical connection 2
** For version with oil sensor only (Premium sensor package)

Table 45: Symbols key

Symbol	Description
FD	Always apply a **liquid sealant** (e.g. Hylomar SQ32M) to sealing surfaces marked with this symbol.
L 243	Always secure screwed connections marked with this symbol with **Loctite 243** .
L 5900	Always secure screwed connections marked with this symbol with **Loctite 5900** .

Table 46: List of components

Part No.	Designation	Part No.	Designation
23-9	Axial propeller	81-18.03/.07	Cable terminal
238	Blade, non-adjustable	81-51	Clamping element
251	Impeller hub	81-59	Stator
321.01/.02	Radial ball bearing	81-73.02/.34	Cable tie
350	Bearing housing	811	Motor housing
411.01/.02/.03/.04/.05/.31/.38/.39	Joint ring	82-17	Sensor module
412.01/.02/.03/.04/.05/.06/.07/.13	O-ring	812	Motor housing cover
421.02/.03	Lip seal	818	Rotor
433.01	Mechanical seal (gear end)	826.03	Cable gland
433.02	Mechanical seal (propeller end)	834.01	Cable gland
443	Seal insert	870	Gear unit
471	Seal cover	900.89	Bolt/screw
476	Mating ring carrier	901.01/.03/.04/.20	Hexagon head bolt
500.02	Ring	902.01/.19	Stud
520.19	Sleeve	903.02/.03/.04/.05/.31/.38/.39	Screw plug
550.01/.02/.03/.04/.09/.19/.23/.89	Disc	914.01/.03/.04/.10/.15/.19/.50	Hexagon socket head cap screw
571	Lifting bail	916.02	Plug
580.01	Cap	920.01/.04/.19/.89	Nut
69-14.01/.02/.03	Leakage sensor	930.19/.20	Lock washer
719.02	Flexible tube	932.02/.03/.04/.05/.06/.07/.13	Circlip
720	Fitting	950.13	Wave spring
732.01	Bracket	970.02-12	Label/plate

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Enquiry sheet

To:

KSB SE & Co. KGaA
Turmstraße 92
06110 Halle/Saale (Germany)
Tel.: +49 345 4826-4879/4680
Fax: +49 345 4826-5107

From:

Company name	
Contacts	
Street/number	
Post/zip code, city	
Country	
Phone	
Fax number	
Phone	
E-mail	

Project name

Mains frequency:

☐ 50 Hz
☐ 60 Hz

Mains voltage:

U [V]	

Fluid

Solids content:

[%]	

Temperature:

T [°F]	
T [°C]	

Density:

[lbs/inch]	
[kgm³]	

Viscosity (at shear rate):

[cp.]	
[mPas]	

Loss on ignition:

[%]	

Sludge index:

[ml/g]	

Explosion protection:

☐ Yes
☐ No

Type of fluid:

☐ Activated sludge
☐ Municipal sewage sludge (primary/secondary)
☐ Digested sludge
☐ Raw waste water
☐ Other:

Flow behaviour:

☐ Newtonian (e.g. water)
☐ Pseudoplastic (e.g. thickened sewage sludge)
☐ Thixotropic (z. B. dispersion paint)
☐ Other:

Thickening method:

☐ Not thickened
☐ Static
☐ Mechanical by centrifuge / screening drum

Application of polymers:

☐ Yes
☐ No

Lowering device and AmaRoc

Material of guide rail:

☐ 1.4301
☐ 1.4571

Lifting equipment (crane)

Material:

☐ 1.4301

Aeration

Aeration method:

☐ None
☐ Pipe diffusers
☐ Disc diffusers
☐ Ejector
☐ Surface rotor
☐ Brush aerator

Air supply:

[scfm]	
[m^3_N / h]	

Aerated area:

[ft²]	
[m²]	

Number of aerated zones:

n [quant-ity]	

Tank/reservoir

Material:

☐ Concrete
☐ Steel
☐ Stainless steel
☐ Plastic
☐ Steel, enamelled

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Coating:

Design:

☐ Covered
☐ Open

Tank geometry:

☐ Round
☐ Ring
☐ Square
☐ Rectangular
☐ Tank with circulating flow
With curved deflector plates:
☐ Yes ☐ No
☐ Tank with meandering flow:
With curved deflector plates:
☐ Yes ☐ No
☐ Other:

Dimensions

Length:

[ft]	
[m]	

Width:

[ft]	
[m]	

Diameter:

[ft]	
[m]	

Fill level:

[ft]	
[m]	

Tank depth:

[ft]	
[m]	

Miscellaneous:

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2024-01-16

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