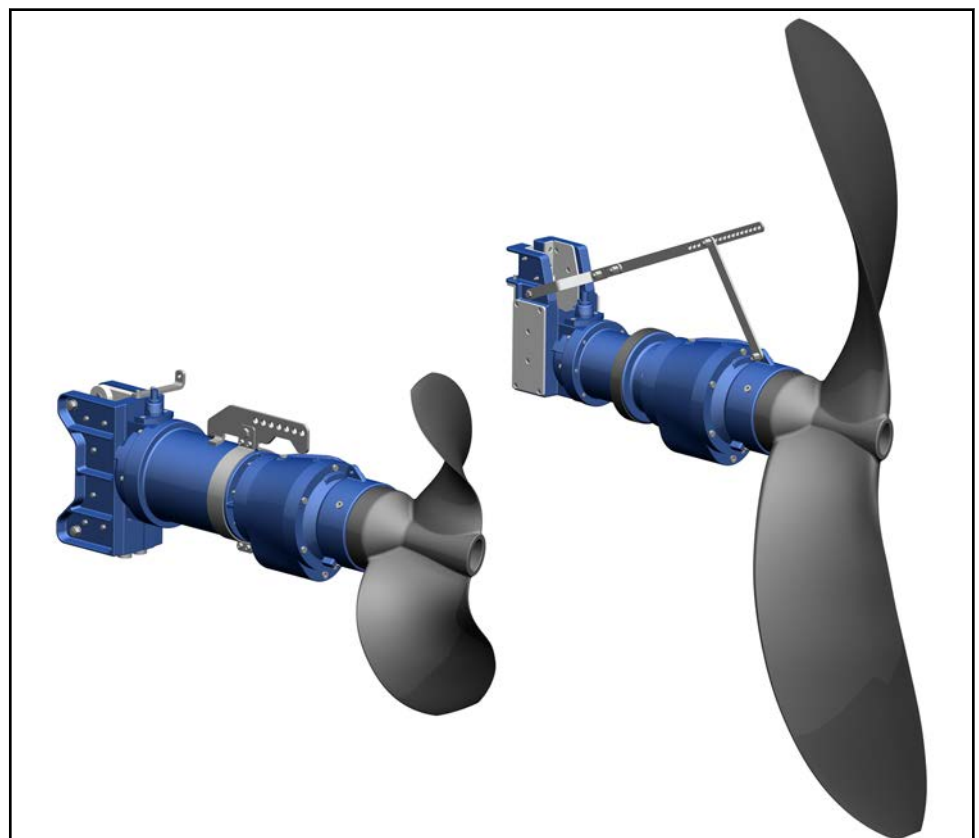


Submersible Mixer

Amaprop

for Waste Water Treatment Plants
60 Hz

Type Series Booklet



Legal information/Copyright

Type Series Booklet Amaprop

KSB Aktiengesellschaft

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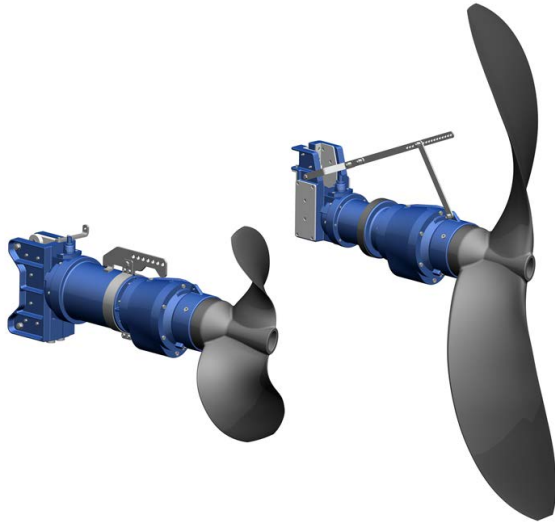
Contents

Waste Water	4
Submersible Mixer	4
Amaprop	4
Main applications	4
Operating data	4
Designation	4
Design details	4
Materials	5
Coating and preservation	5
Product advantages / customer benefits	5
Acceptance tests / warranties	5
Design and selection information	6
Minimum level of fluid handled	7
Standard and special designs	7
Technical data	8
Dimensions	11
Amaprop 1000	11
Amaprop 1200	12
Amaprop 1400	13
Amaprop 1600	14
Amaprop 1800	15
Amaprop 1801	16
Amaprop 2000	17
Amaprop 2001	18
Amaprop 2200	19
Amaprop 2500	20
Accessories	21
Propeller fitting tool	21
Forcing screw	21
Cable support / carabine hook	22
Lifting equipment	22
Installation parts	23
General assembly drawing with list of components	31
Amaprop 1000 with motors: 11 4, 16 4, 23 4	31
Amaprop 1200 - 2500 with motors: 1 4, 2 4, 3 4, 4 4, 5 4	32
Selection of Submersible Mixers	34

Waste Water

Submersible Mixer

Amaprop



Main applications

In environmental engineering, particularly for treating municipal and industrial waste water and sludges. For circulating, keeping in suspension and inducing flow:

- In nitrification and denitrification tanks
- In activated sludge tanks
- In biological phosphate elimination tanks
- In flocculation tanks
- In sludge tanks

Operating data

Overview of operating data

Characteristic			Value	
			Amaprop 1000	Amaprop 1200 ... 2500
Nominal propeller diameter	D	[inch]	40	48 - 100
		[mm]	1000	1200 - 2500
Power	P	[hp]	13 - 26	1.7 - 8.6
		[kW]	10 - 20	1.25 - 6.5
Installation depth	H	[ft]	Up to 36 ¹⁾	
		[m]	Up to 12 ¹⁾	
Operating temperature	t	[°F]	Up to 113	Up to 104
		[°C]	Up to 45	Up to 40

¹⁾ Larger installation depths on request

Designation

Example: Amaprop V 29-2500/2 4 UR G

Key to the designation

Code	Description
Amaprop	Type series
V	Propeller material
V	Composite material
46	Nominal propeller speed
2500	Size /nominal propeller diameter [mm]:
	1000
	1200
	1400
	1600
	1800
	1801
	2000
	2001
	2200
	2500
5	Motor size of Amaprop 1000
	11
	16
	23
	Motor size of Amaprop 1200 ... 2500
	1
	2
	3
	4
	5
4	Number of motor poles
UR	Motor version
	UR Standard design
	XR Explosion protection to NEC 500
G	Housing material
	G Grey cast iron

Design details

Design

- Fully flooded submersible mixer
- Horizontal installation

Propeller type

- Self-cleaning (ECB) propeller

Shaft seal

- Two bi-directional mechanical seals in tandem arrangement, with liquid supply chamber
- Additional leakage chamber between the mating ring holder and the gear unit

Bearings

- Grease-packed rolling elements bearings (sealed for life) in the motor
- Oil-lubricated rolling element bearings in the gear unit

Drive

- Three-phase asynchronous squirrel-cage motor

Variant with explosion protection to NEC 500: "Explosionproof for Class I, Division 1 Groups C and D, T3, hazardous (classified) locations".

- Stability and even longer service life with AmaRoc accessories made of the innovative NoriRoc material
- Leakage chamber between oil chamber and gear unit for high reliability
- Easy to install

Materials

Overview of available materials

Part No.	Component	G	
		Amaprop 1000	Amaprop 1200 ... 2500
811	Motor housing	A 48 Class 40 B	
812	Motor housing cover	A 48 Class 40 B	
870	Gear housing	A 48 Class 40 B	
476	Mating ring holder	A 48 Class 40 B	
23-9	Propeller	Glass fibre reinforced epoxy resin	
433.01	Mechanical seal	SiC/SiC	
433.02		SiC/SiC	
-	Propeller shaft	A 276 Type 440	
-	Elastomer seals	FPM	
-	Screws/bolts	A 276 Type 316 Ti	
-	Guide bracket	A 48 Class 40 B, plastic-lined	A 536 Class 60-40-18, plastic-lined

Glass fibre reinforced epoxy resin

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.

Comparison of materials

EN	ASTM
JS 1030	A 536 Class 60-40-18
JL 1040	A 48 Class 40 B
1.4122	Similar to A 276 Type 440
FPM	FKM

Coating and preservation

Primer and top coat

Surface treatment: SA 2 1/2 degree of cleanliness to DIN EN ISO 12944

Primer coat: 2-component epoxy resin zinc phosphate primer, min. film thickness = 1 1/2 mils [35 µm]

Top coat: 2-component high-solid epoxy resin top coat (RAL 5002), min. film thickness = 4 mils [100 µm]

Special coating

Available from the manufacturer on request (a surcharge and longer delivery time apply).

Product advantages / customer benefits

- Absolutely unbreakable propeller blades made of glass fibre reinforced epoxy resin with metal hub insert and protective gel coating
- Two bi-directional mechanical seals with oil reservoir filled with ecologically acceptable oil provide double safety
- Perfectly protected by absolutely water-tight cable gland protecting the motor against moisture
- Motor monitored by temperature sensors to prevent it from overheating

Acceptance tests / warranties

- Functional test
Every submersible mixer is subjected to a functional test to KSB standard ZN 56525.
- 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.

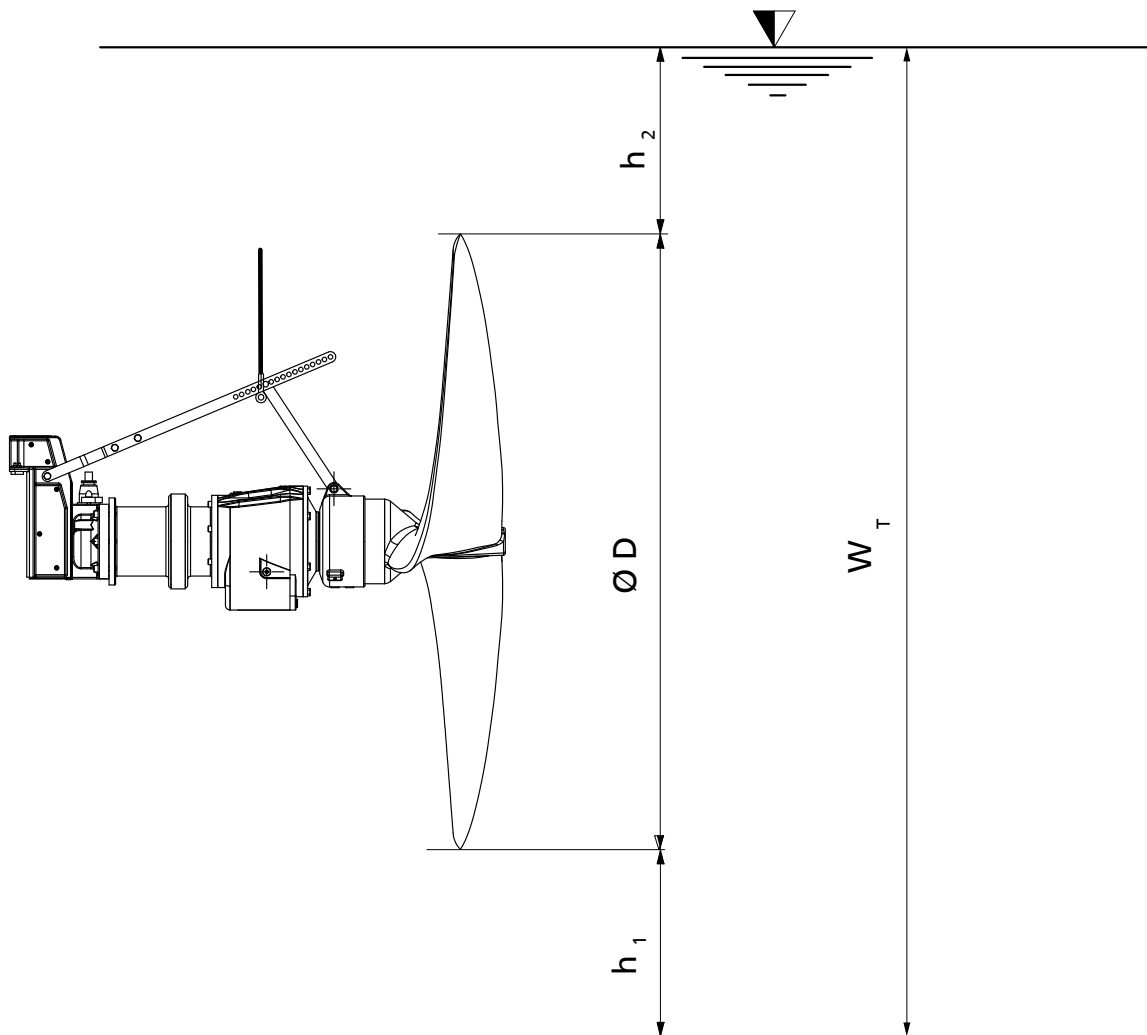
Design and selection information

- 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 and maximum submergence indicated in the data sheet of the submersible mixer must be complied with. The 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. For this purpose, the minimum dimensions for removing the submersible mixers as specified in the type series booklet must be observed.
- For higher fill levels, the guide rails of the Amaprop 1000 installation accessories must be secured against vibrations by means of a middle support fitted on site.
- 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 on frequency inverter operation

- All submersible mixers from KSB are suitable for frequency inverter operation.
- The permissible control range is 25-50 Hz.
- In addition to any capacity reserves required for hydraulic reasons, a motor power reserve of 5 % must be provided when mixers are operated via frequency inverters.

Minimum level of fluid handled



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.

During operation of the submersible mixer the general distance h_2 between the propeller tip and the water surface must be observed. Smaller h_2 distances are only permissible with KSB's written consent.

Please note that, even with a submergence of h_2 , air-entraining vortices may form, depending on the flow behavior of the fluid handled. Rough running of the submersible mixer resulting from the formation of air-entraining vortices is not covered by our warranty.

Minimum level of fluid handled

Size	h_1		h_2	
	[mm]	[inch]	[m]	[inch]
1000	8	0.2	30	0.75
1200 ... 2500	8	0.2	40	1

Standard and special designs

Standard and special designs

Option	Notes
Mechanical seal with covered springs	Available for all sizes
Power cable > 65 ft [20 m]	Available for all sizes
Leakage sensor in leakage chamber of mechanical seal	Available for all sizes of the UR version
Special voltage 575 V (design to CSA standard)	Available for all sizes
2-component epoxy resin coating 250 μ m	Available for all sizes
Additional operating manuals	Standard: 1 operating manual per pump set
Customer-specific installation drawing	Available for all sizes
Flow measurements	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 always contact KSB for technical details, prices and delivery periods.

Examples:

- Other voltages
- Special coatings
- Combinations with special motor/special propeller/special gear unit (e.g. for higher-viscosity fluids)
- Special installation parts
- Special cables
- Tank

Technical data

Technical data of material variant G

Feature	Material variant	
	Amaprop 1000	Amaprop 1200 ... 2500
Explosion protection		
Version UR	-	
Version XR	 Explosionproof Class I, Division 1, Groups C & D, T3	
Motor		
Starting method	DOL or star-delta (up to 4.2 hp [4 kW]: DOL only)	
Voltage and frequency	460 V ²⁾ 60 Hz ³⁾ , suitable for frequency inverter operation	
Cooling	Cooled by surrounding fluid	
Immersion depth	Up to 36 ft [12 m] ⁴⁾	
Power cable		
Length	30 ft [10 m] ⁵⁾	
Cable entry	Absolutely watertight	
Type	Rubber-sheathed cable S1BN8-F	
Bearings		
Motor	Grease-packed rolling element bearings sealed for life	
Gear unit	Oil-lubricated rolling element bearings	
Gear unit	Spur gear	
Sealing elements		
Elastomer seals	Viton (fluorocarbon rubber FPM)	
Shaft seal	Bellows-type mechanical seal ⁶⁾	
Monitoring equipment		
Winding temperature	PTC resistors	
Motor leakage	Leakage monitor inside the motor	
Mechanical seal leakage	Optional: UR version only - leakage monitor in the leakage chamber	
Coating		
Permissible fluid temperature	113 °F [45 °C]	104 °F [40 °C]
Acceptance tests	To ISO 9001 ⁷⁾	
Installation		
Stationary	Installation depth up to 36 ft [12 m] ⁸⁾	

-
- 2) Optional: 575 V
 3) Other voltages on request.
 4) Larger immersion depths on request
 5) Optional: 45 ft [15 m], 60 ft [20 m]; > 60 ft [20 m] on request
 6) Optional: Mechanical seal with covered spring
 7) Optional: with test report 10204-2.2
 8) Larger installation depths on request

Performance data (400 V, 50 Hz), material variant G

Size	Propeller speed n_2 [rpm]	Motor rating P_2		Gear unit size	Weight ⁹⁾	
		[hp]	[kW]		[lbs]	[kg]
Amaprop V 1000						
158-1000/11 4 URG / XRG	158	13	10	SP 190	719	327
175-1000/16 4 URG / XRG	175	20	15	SP 190	748	340
181-1000/16 4 URG / XRG	181	20	15	SP 190	748	340
190-1000/16 4 URG / XRG	190	20	15	SP 190	748	340
190-1000/23 4 URG / XRG	190	26	20	SP 190	772	351
200-1000/23 4 URG / XRG	200	26	20	SP 190	772	351
Amaprop V 1200						
110-1200/ 5 4 URG / XRG	110	8.6	6.41	SP 190	465	211
109-1200/ 4 4 URG / XRG	109	7.4	5.52	SP 190	461	209
102-1200/ 4 4 URG / XRG	102	6.0	4.47	SP 190	461	209
96-1200/ 4 4 URG / XRG	96	6.0	4.47	SP 190	461	209
88-1200/ 4 4 URG / XRG	88	6.0	4.47	SP 190	461	209
84-1200/ 3 4 URG / XRG	84	4.2	3.13	SP 189	377	171
82- 1200/ 2 4 URG / XRG	82	3.4	2.54	SP 189	373	169
78-1200/ 2 4 URG / XRG	78	2.7	2.01	SP 190	406	184
75-1200/ 2 4 URG / XRG	75	2.7	2.01	SP 189	373	169
72-1200/ 2 4 URG / XRG	72	2.2	1.64	SP 190	406	184
69- 1200/ 2 4 URG / XRG	69	2.2	1.64	SP 189	373	169
64-1200/ 1 4 URG / XRG	64	1.7	1.27	SP 190	399	181
59-1200/ 1 4 URG / XRG	59	1.7	1.27	SP 189	366	166
Amaprop V 1400						
102-1400/ 5 4 URG / XRG	102	8.6	6.41	SP 190	465	211
95-1400/ 4 4 URG / XRG	95	7.4	5.52	SP 190	461	209
87-1400/ 4 4 URG / XRG	87	6.0	4.47	SP 190	461	209
85-1400/ 4 4 URG / XRG	85	6.0	4.47	SP 190	461	209
79-1400/ 3 4 URG / XRG	79	4.2	3.13	SP 190	412	187
72-1400/ 3 4 URG / XRG	72	4.2	3.13	SP 190	412	187
67-1400/ 2 4 URG / XRG	67	2.7	2.01	SP 189	375	170
63-1400/ 2 4 URG / XRG	63	2.2	1.64	SP 189	375	170
56-1400/ 1 4 URG / XRG	56	1.7	1.27	SP 189	368	167
48-1400/ 1 4 URG / XRG	48	1.7	1.27	SP 189	368	167
Amaprop V 1600						
87-1600/ 5 4 URG / XRG	87	8.6	6.41	SP 190	467	212
86-1600/ 4 4 URG / XRG	86	7.4	5.52	SP 190	463	210
84-1600/ 4 4 URG / XRG	84	7.4	5.52	SP 190	463	210
80-1600/ 4 4 URG / XRG	80	6.0	4.47	SP 190	463	210
72-1600/ 3 4 URG / XRG	72	4.2	3.13	SP 189	379	172
65-1600/ 3 4 URG / XRG	65	4.2	3.13	SP 190	412	187
62-1600/ 2 4 URG / XRG	62	2.7	2.01	SP 189	375	170
57-1600/ 2 4 URG / XRG	57	2.2	1.64	SP 189	375	170
53-1600/ 2 4 URG / XRG	53	2.2	1.64	SP 189	375	170
52-1600/ 1 4 URG / XRG	52	1.7	1.27	SP 189	375	170
47-1600/ 1 4 URG / XRG	47	1.7	1.27	SP 189	368	167
43-1400/ 1 4 URG / XRG	43	1.7	1.27	SP 189	368	167
39-1400/ 1 4 URG / XRG	39	1.7	1.27	SP 189	368	167
Amaprop V 1800						
84-1800/ 5 4 URG / XRG	84	8.6	6.41	SP 190	470	213
79-1800/ 5 4 URG / XRG	79	8.6	6.41	SP 190	470	213
78-1800/ 4 4 URG / XRG	78	7.4	5.52	SP 190	465	211
71-1800/ 4 4 URG / XRG	71	6.0	4.47	SP 190	465	211
67-1800/ 4 4 URG / XRG	67	6.0	4.47	SP 190	465	211
64-1800/ 3 4 URG / XRG	64	4.2	3.13	SP 190	417	189
62-1800/ 3 4 URG / XRG	62	4.2	3.13	SP 189	384	174
61-1800/ 3 4 URG / XRG	61	4.2	3.13	SP 190	417	189
60-1800/ 2 4 URG / XRG	60	3.4	2.54	SP 190	412	187
56-1800/ 2 4 URG / XRG	56	3.4	2.54	SP 189	379	172
52-1800/ 2 4 URG / XRG	52	2.2	1.64	SP 189	379	172
47-1800/ 1 4 URG / XRG	47	1.7	1.27	SP 189	373	169
43-1800/ 1 4 URG / XRG	43	1.7	1.27	SP 189	373	169
39-1800/ 1 4 URG / XRG	39	1.7	1.27	SP 189	373	169
35-1800/ 1 4 URG / XRG	35	1.7	1.27	SP 189	373	169
Amaprop V 1801						
79-1801/ 5 4 URG / XRG	79	8.6	6.41	SP 190	470	213
71-1801/ 5 4 URG / XRG	71	8.6	6.41	SP 190	470	213

9) incl. guide bracket

Size	Propeller speed n_2 [rpm]	Motor rating P_2		Gear unit size	Weight ⁹⁾	
		[hp]	[kW]		[lbs]	[kg]
71-1801/ 44 URG / XRG	71	6.0	4.47	SP 190	466	211
67-1801/ 44 URG / XRG	67	6.0	4.47	SP 190	466	211
62-1801/ 34 URG / XRG	62	4.2	3.13	SP 189	384	174
61-1801/ 34 URG / XRG	61	4.2	3.13	SP 190	417	189
56-1801/ 24 URG / XRG	56	3.4	2.54	SP 189	380	172
52-1801/ 24 URG / XRG	52	2.7	2.01	SP 189	380	172
49-1801/ 24 URG / XRG	49	2.7	2.01	SP 190	413	187
48-1801/ 24 URG / XRG	48	2.2	1.64	SP 189	380	172
44-1801/ 14 URG / XRG	44	1.7	1.27	SP 190	406	184
42-1801/ 14 URG / XRG	42	1.7	1.27	SP 189	373	169
39-1801/ 14 URG / XRG	39	1.7	1.27	SP 189	373	169
35-1801/ 14 URG / XRG	35	1.7	1.27	SP 189	373	169
30-1801/ 14 URG / XRG	30	1.7	1.27	SP 189	373	169
Amaprop V 2000						
53-2000/ 5 4 URG / XRG	53	8.6	6.41	SP 190	503	228
50-2000/ 5 4 URG / XRG	50	8.6	6.41	SP 190	503	228
49-2000/ 4 4 URG / XRG	49	7.4	5.52	SP 190	498	226
48-2000/ 4 4 URG / XRG	48	6.0	4.47	SP 190	498	226
47-2000/ 4 4 URG / XRG	47	6.0	4.47	SP 190	498	226
46-2000/ 4 4 URG / XRG	46	6.0	4.47	SP 190	498	226
45-2000/ 4 4 URG / XRG	45	6.0	4.47	SP 190	498	226
42-2000/ 4 4 URG / XRG	42	6.0	4.47	SP 190	498	226
41-2000/ 3 4 URG / XRG	41	4.2	3.13	SP 190	448	203
39-2000/ 3 4 URG / XRG	39	4.2	3.13	SP 189	414	188
37-2000/ 2 4 URG / XRG	37	3.4	2.54	SP 190	445	202
35-2000/ 2 4 URG / XRG	35	2.7	2.01	SP 189	412	187
33-2000/ 2 4 URG / XRG	33	2.2	1.64	SP 190	445	202
30-2000/ 2 4 URG / XRG	30	2.2	1.64	SP 189	412	187
30-2000/ 1 4 URG / XRG	30	1.7	1.27	SP 189	406	184
29-2000/ 1 4 URG / XRG	29	1.7	1.27	SP 189	406	184
27-2000/ 1 4 URG / XRG	27	1.7	1.27	SP 189	406	184
Amaprop V 2001						
53-2001/ 54 URG / XRG	53	8.6	6.41	SP 190	503	228
50-2001/ 54 URG / XRG	50	8.6	6.41	SP 190	503	228
49-2001/ 44 URG / XRG	49	7.4	5.52	SP 190	498	226
48-2001/ 44 URG / XRG	48	7.4	5.52	SP 190	498	226
47-2001/ 44 URG / XRG	47	6.0	4.47	SP 190	498	226
42-2001/ 44 URG / XRG	42	6.0	4.47	SP 190	498	226
41-2001/ 34 URG / XRG	41	4.2	3.13	SP 190	448	203
39-2001/ 34 URG / XRG	39	4.2	3.13	SP 189	417	189
38-2001/ 24 URG / XRG	38	3.4	2.54	SP 189	412	187
37-2001/ 24 URG / XRG	37	3.4	2.54	SP 190	443	201
34-2001/ 24 URG / XRG	34	2.7	2.01	SP 189	412	187
33-2001/ 24 URG / XRG	33	2.2	1.64	SP 190	443	201
30-2001/ 14 URG / XRG	30	1.7	1.27	SP 189	406	184
29-2001/ 14 URG / XRG	29	1.7	1.27	SP 189	406	184
27-2001/ 14 URG / XRG	27	1.7	1.27	SP 189	406	184
Amaprop V 2200						
50-2200/ 5 4 URG / XRG	50	8.6	6.41	SP 190	503	228
48-2200/ 4 4 URG / XRG	48	7.4	5.52	SP 190	498	226
47-2200/ 4 4 URG / XRG	47	7.4	5.52	SP 190	498	226
46-2200/ 4 4 URG / XRG	46	7.4	5.52	SP 190	498	226
45-2200/ 4 4 URG / XRG	45	6.0	4.47	SP 190	498	226
42-2200/ 4 4 URG / XRG	42	6.0	4.47	SP 190	498	226
38-2200/ 3 4 URG / XRG	38	4.2	3.13	SP 189	417	189
37-2200/ 3 4 URG / XRG	37	4.2	3.13	SP 190	448	203
37-2200/ 2 4 URG / XRG	37	3.4	2.54	SP 190	443	201
34-2200/ 2 4 URG / XRG	34	2.7	2.01	SP 189	412	187
33-2200/ 2 4 URG / XRG	33	2.7	2.01	SP 190	443	201
30-2200/ 2 4 URG / XRG	30	2.2	1.64	SP 189	412	187
28-2200/ 1 4 URG / XRG	29	1.7	1.27	SP 189	406	184
27-2200/ 1 4 URG / XRG	27	1.7	1.27	SP 189	406	184
Amaprop V 2500						
46-2500/ 5 4 URG / XRG	46	8.6	6.41	SP 190	509	231
45-2500/ 5 4 URG / XRG	45	8.6	6.41	SP 190	509	231
45-2500/ 4 4 URG / XRG	45	7.4	5.52	SP 190	505	229
42-2500/ 4 4 URG / XRG	42	6.0	4.47	SP 190	505	229

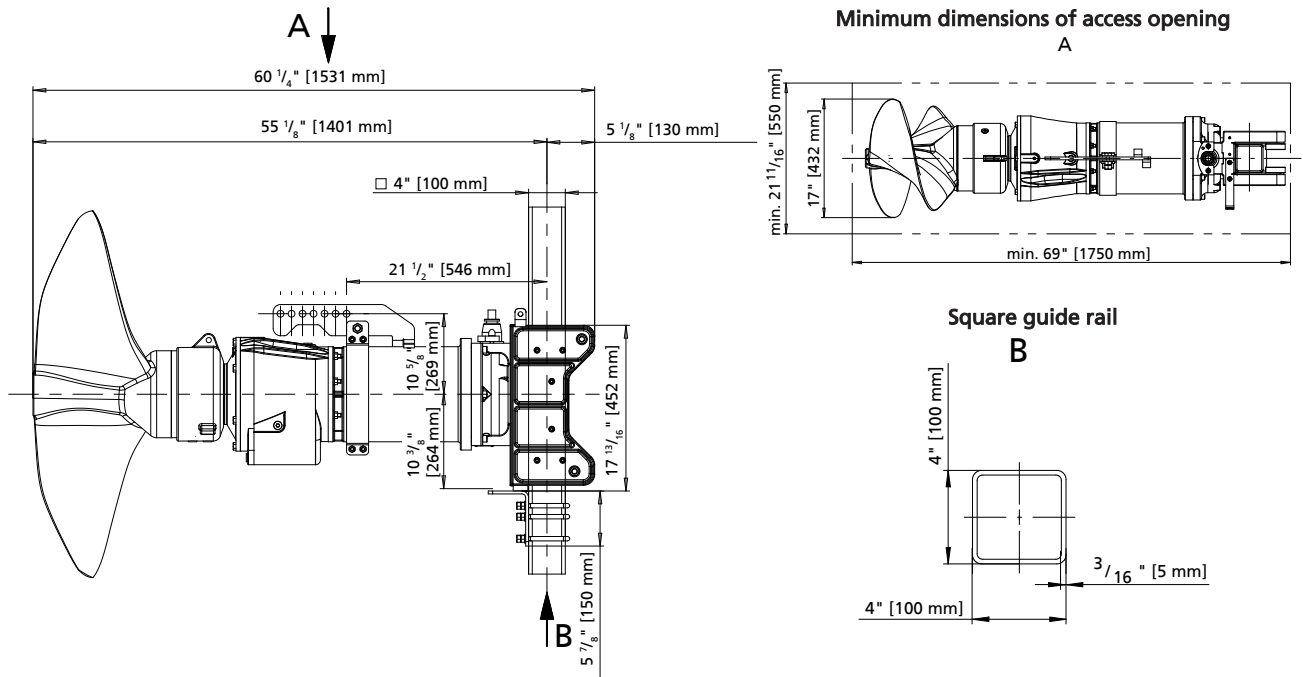
⁹⁾ incl. guide bracket

Size	Propeller speed n_2 [rpm]	Motor rating P_2		Gear unit size	Weight ⁹⁾	
		[hp]	[kW]		[lbs]	[kg]
37-2500/ 3 4 URG / XRG	37	4.2	3.13	SP 190	456	207
35-2500/ 3 4 URG / XRG	35	4.2	3.13	SP 189	423	192
34-2500/ 2 4 URG / XRG	34	3.4	2.54	SP 189	417	189
33-2500/ 2 4 URG / XRG	33	3.4	2.54	SP 190	452	205
30-2500/ 2 4 URG / XRG	30	2.7	2.01	SP 189	417	189
29-2500/ 2 4 URG / XRG	29	2.2	1.64	SP 189	417	189
27-2500/ 1 4 URG / XRG	27	1.7	1.27	SP 189	417	186

Dimensions

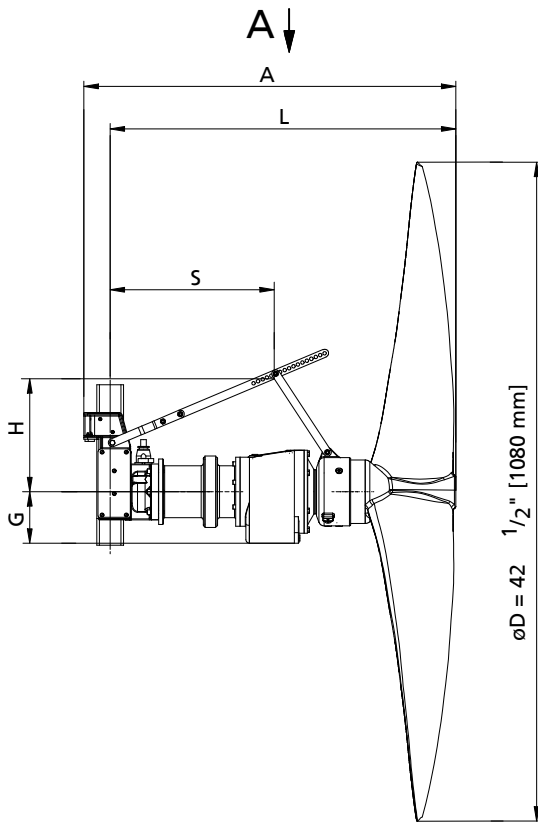
Amaprop 1000

Dimensions

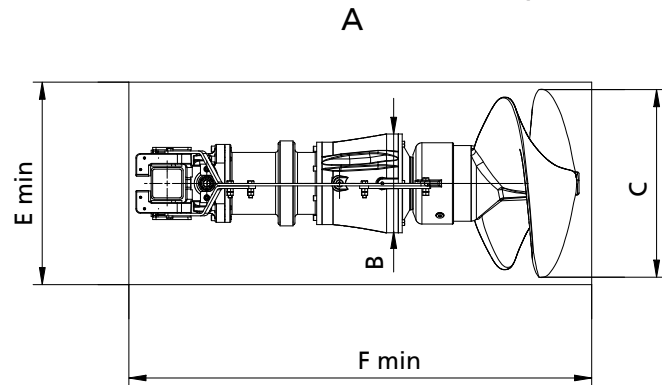


⁹⁾ incl. guide bracket

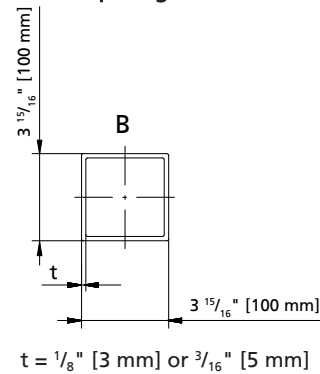
Amaprop 1200



Minimum dimensions of access opening



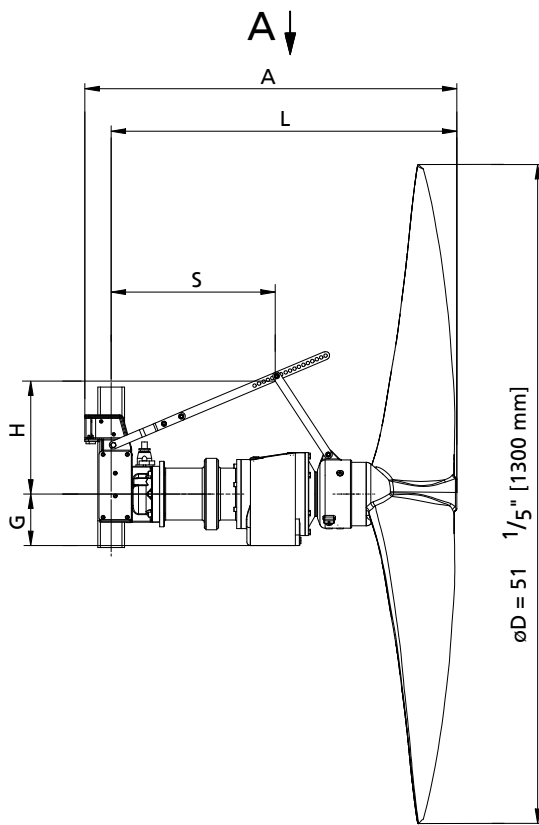
Square guide rail



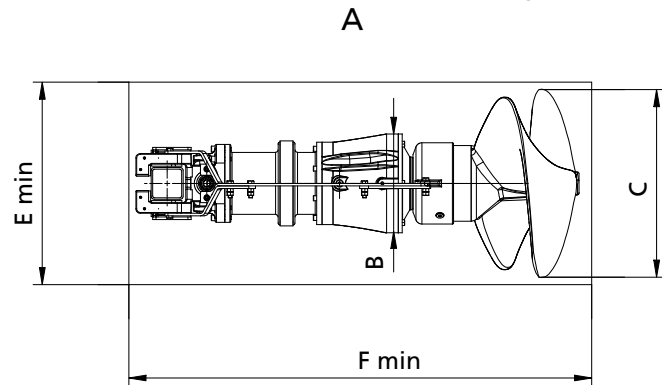
Dimensions

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110-1200/5 4 URG/XRG	49 1/8	1248	12 13/16	310	12 3/4	325	16 3/4	425	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
109-1200/4 4 URG/XRG	49 1/8	1248	12 13/16	310	12 3/4	325	16 3/4	425	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
102-1200/4 4 URG/XRG	49 1/8	1248	12 13/16	310	12 3/4	325	16 3/4	425	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
96-1200/4 4 URG/XRG	49 1/8	1248	12 13/16	310	12 3/4	325	16 3/4	425	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
88-1200/4 4 URG/XRG	49 1/8	1248	12 13/16	310	12 3/4	325	16 3/4	425	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
84-1200/3 4 URG/XRG	44 1/4	1124	10 3/16	258	12 3/4	325	16 3/4	425	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
82-1200/2 4 URG/XRG	44 1/4	1124	10 3/16	258	12 3/4	325	16 3/4	425	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
78-1200/2 4 URG/XRG	8 13/16	1165	12 3/16	310	12 3/4	325	16 3/4	425	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	29 1/2	750
75-1200/2 4 URG/XRG	44 1/4	1124	10 3/16	258	12 3/4	325	16 3/4	425	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
72-1200/2 4 URG/XRG	10 13/16	1165	12 3/16	310	12 3/4	325	16 3/4	425	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	29 1/2	750
69-1200/2 4 URG/XRG	44 1/4	1124	10 3/16	258	12 3/4	325	16 3/4	425	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
64-1200/1 4 URG/XRG	12 13/16	1165	12 3/16	310	12 3/4	325	16 3/4	425	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	29 1/2	750
59-1200/1 4 URG/XRG	44 1/4	1124	10 3/16	258	12 3/4	325	16 3/4	425	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650

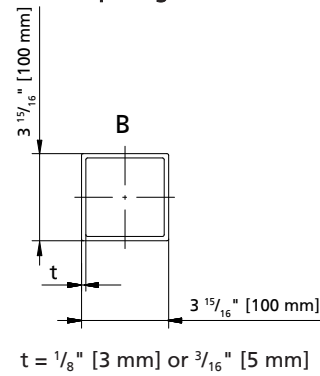
Amaprop 1400



Minimum dimensions of access opening



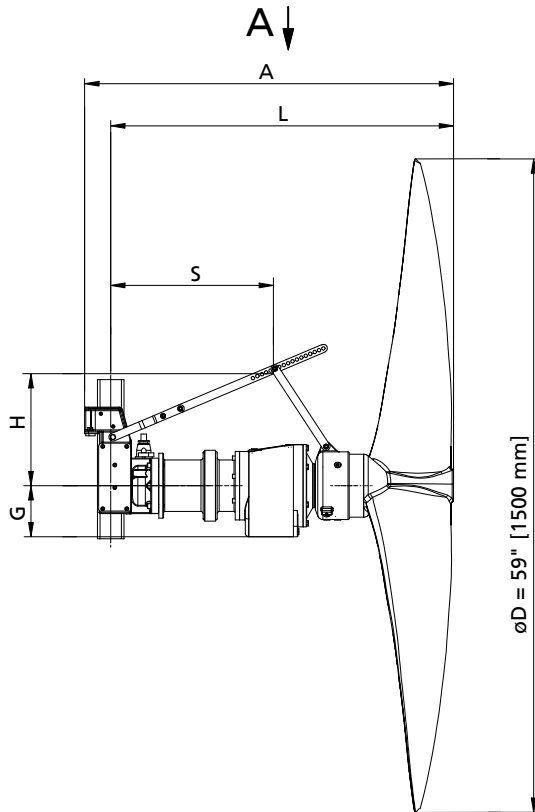
Square guide rail



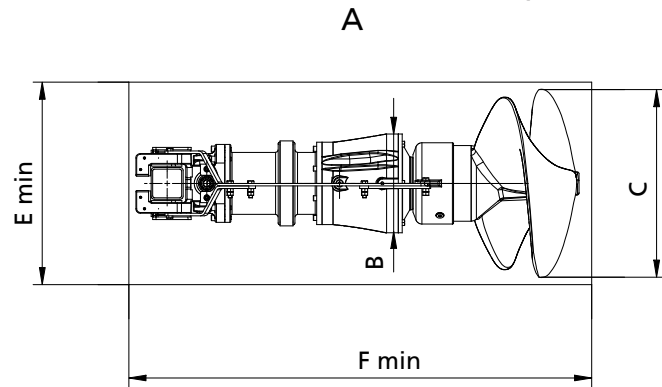
Dimensions

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102-1400/5 4 URG/XRG	49 1/8	1248	12 3/16	310	14	355	17 15/16	455	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
95-1400/4 4 URG/XRG	49 1/8	1248	12 3/16	310	14	355	17 15/16	455	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
87-1400/4 4 URG/XRG	49 1/8	1248	12 3/16	310	14	355	17 15/16	455	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
85-1400/4 4 URG/XRG	49 1/8	1248	12 3/16	310	14	355	17 15/16	455	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
79-1400/3 4 URG/XRG	45 13/16	1165	12 3/16	310	14	355	17 15/16	455	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	29 1/2	750
72-1400/3 4 URG/XRG	45 13/16	1165	12 3/16	310	14	355	17 15/16	455	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	29 1/2	750
67-1400/2 4 URG/XRG	44 1/4	1124	10 3/16	258	14	355	17 15/16	455	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
63-1400/2 4 URG/XRG	44 1/4	1124	10 3/16	258	14	355	17 15/16	455	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
56-1400/14 URG/XRG	44 1/4	1124	10 3/16	258	14	355	17 15/16	455	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
48-1400/ 14 URG/XRG	44 1/4	1124	10 3/16	258	14	355	17 15/16	455	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650

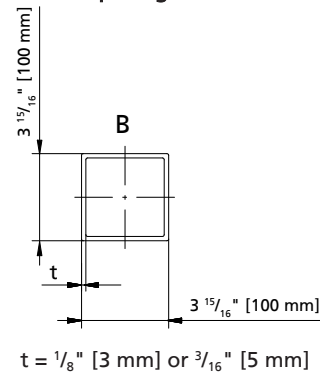
Amaprop 1600



Minimum dimensions of access opening



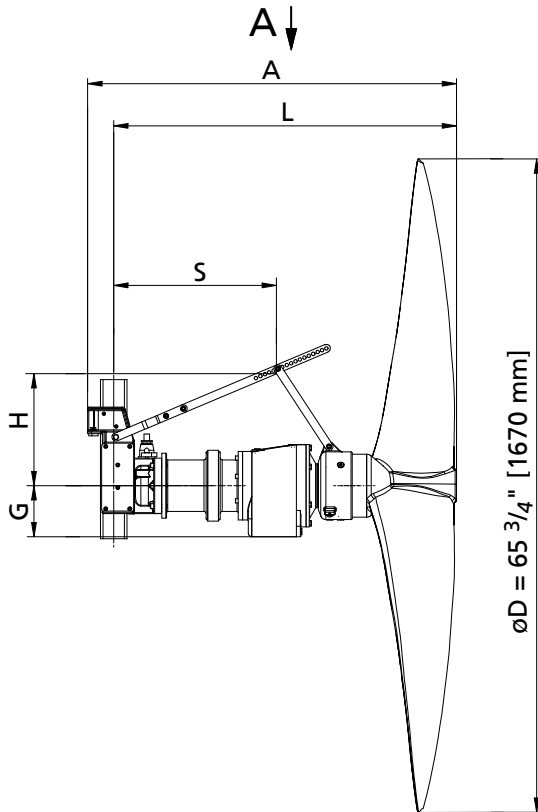
Square guide rail



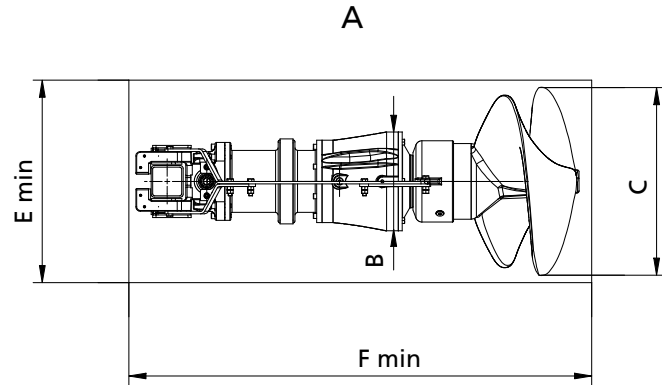
Dimensions

Size	A		B		C		E _{min}		F _{min}		G		H		L		S	
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87-1600/5 4 URG/XRG	49 1/8	1248	12 3/16	310	15 3/16	385	19 1/8	485	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
86-1600/4 4 URG/XRG	49 1/8	1248	12 3/16	310	15 3/16	385	19 1/8	485	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
84-1600/4 4 URG/XRG	49 1/8	1248	12 3/16	310	15 3/16	385	19 1/8	485	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
80-1600/4 4 URG/XRG	49 1/8	1248	12 3/16	310	15 3/16	385	19 1/8	485	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
72-1600/3 4 URG/XRG	44 1/4	1124	12 3/16	310	15 3/16	385	19 1/8	485	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
65-1600/3 4 URG/XRG	45 13/16	1165	12 3/16	310	15 3/16	385	19 1/8	485	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	26 3/4	680
62-1600/2 4 URG/XRG	44 1/4	1124	10 3/16	258	15 3/16	385	19 1/8	485	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
57-1600/2 4 URG/XRG	44 1/4	1124	10 3/16	258	15 3/16	385	19 1/8	485	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
53-1600/2 4 URG/XRG	44 1/4	1124	10 3/16	258	15 3/16	385	19 1/8	485	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
52-1600/1 4 URG/XRG	44 1/4	1124	10 3/16	258	15 3/16	385	19 1/8	485	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
47-1600/14 URG/XRG	44 1/4	1124	10 3/16	258	15 3/16	385	19 1/8	485	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
43-1400/14 URG/XRG	44 1/4	1124	10 3/16	258	15 3/16	385	19 1/8	485	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
39-1400/14 URG/XRG	44 1/4	1124	10 3/16	258	15 3/16	385	19 1/8	485	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650

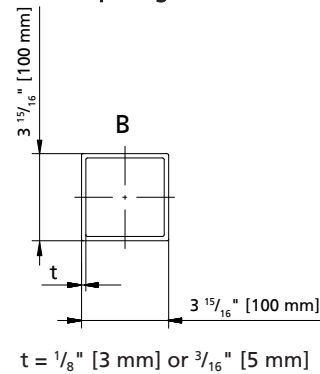
Amaprop 1800



Minimum dimensions of access opening



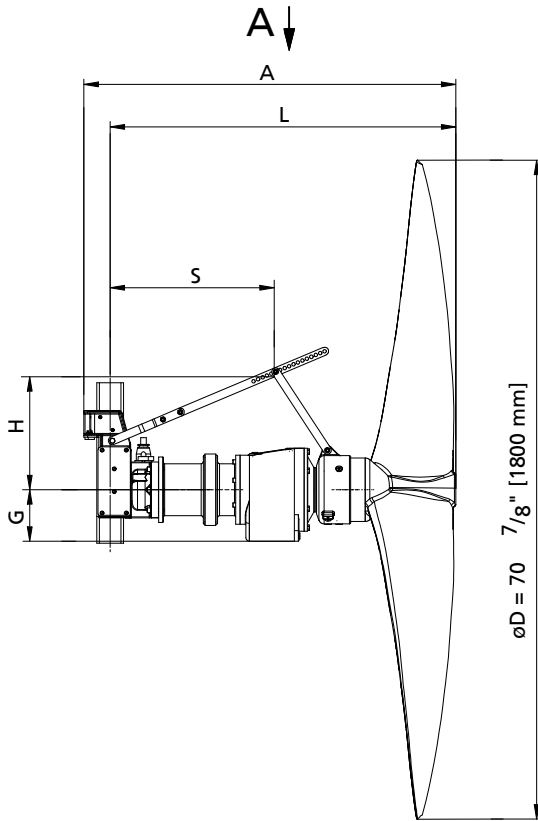
Square guide rail



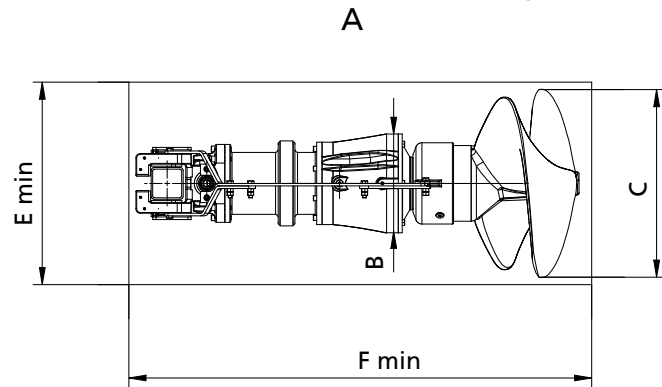
Dimensions

Size	A		B		C		E _{min}		F _{min}		G		H		L		S	
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84-1800/5 4 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 9/16	1177	30 11/16	780
79-1800/5 4 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 9/16	1177	30 11/16	780
78-1800/4 4 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 9/16	1177	30 11/16	780
71-1800/4 4 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 9/16	1177	30 11/16	780
67-1800/4 4 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 9/16	1177	30 11/16	780
64-1800/3 4 URG/XRG	45 13/16	1165	12 3/16	310	15 15/16	405	19 13/16	505	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	26 3/4	680
62-1800/3 4 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
61-1800/3 4 URG/XRG	45 13/16	1165	12 3/16	310	15 15/16	405	19 13/16	505	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	26 3/4	680
60-1800/2 4 URG/XRG	45 13/16	1165	12 3/16	310	15 15/16	405	19 13/16	505	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	26 3/4	680
56-1800/2 4 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
52-1800/2 4 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
47-1800/1 4 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
43-1800/1 4 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
39-1800/14 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
35-1800/14 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650

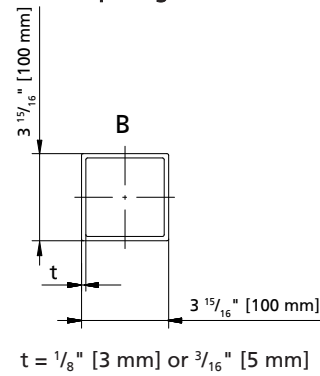
Amaprop 1801



Minimum dimensions of access opening



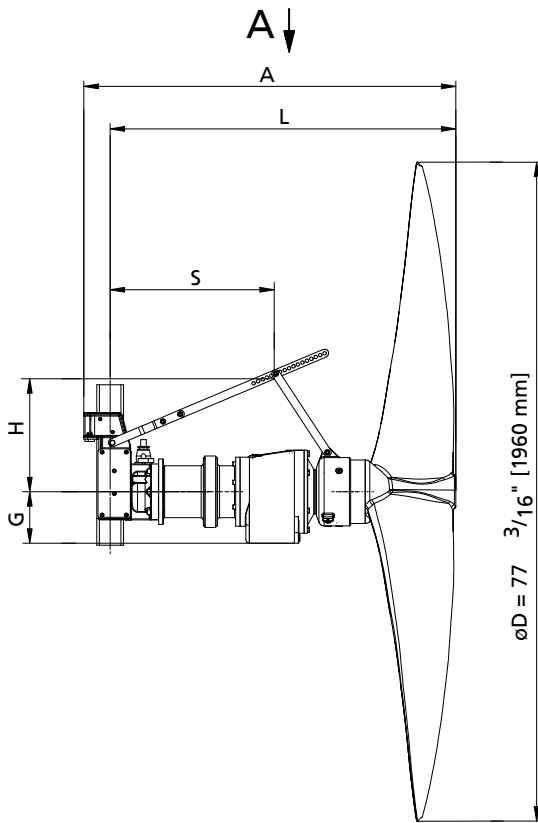
Square guide rail



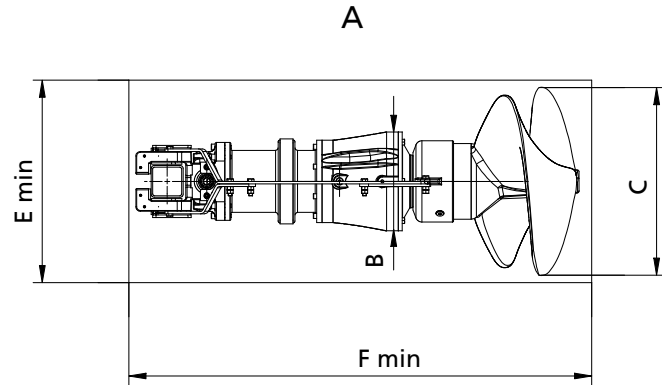
Dimensions

Size	A		B		C		E _{min}		F _{min}		G		H		L		S	
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79-1801/54 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
71-1801/54 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
71-1801/44 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
67-1801/44 URG/XRG	49 1/8	1248	12 3/16	310	15 15/16	405	19 13/16	505	53 1/8	1350	7 9/16	192	19 11/16	500	46 5/16	1177	30 11/16	780
62-1801/34 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
61-1801/34 URG/XRG	45 13/16	1165	12 3/16	310	15 15/16	405	19 13/16	505	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	26 3/4	680
56-1801/24 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
52-1801/24 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
49-1801/24 URG/XRG	45 13/16	1165	12 3/16	310	15 15/16	405	19 13/16	505	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	26 3/4	680
48-1801/24 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
44-1801/14 URG/XRG	45 13/16	1165	12 3/16	310	15 15/16	405	19 13/16	505	49 3/4	1265	7 9/16	192	19 11/16	500	43 1/16	1094	26 3/4	680
42-1801/14 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
39-1801/14 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
35-1801/14 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650
30-1801/14 URG/XRG	44 1/4	1124	10 3/16	258	15 15/16	405	19 13/16	505	48 1/4	1225	6 3/16	157.5	19 11/16	500	41 7/16	1053	25 9/16	650

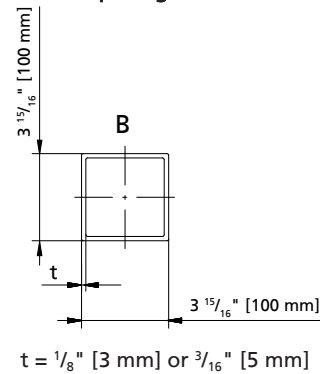
Amaprop 2000



Minimum dimensions of access opening



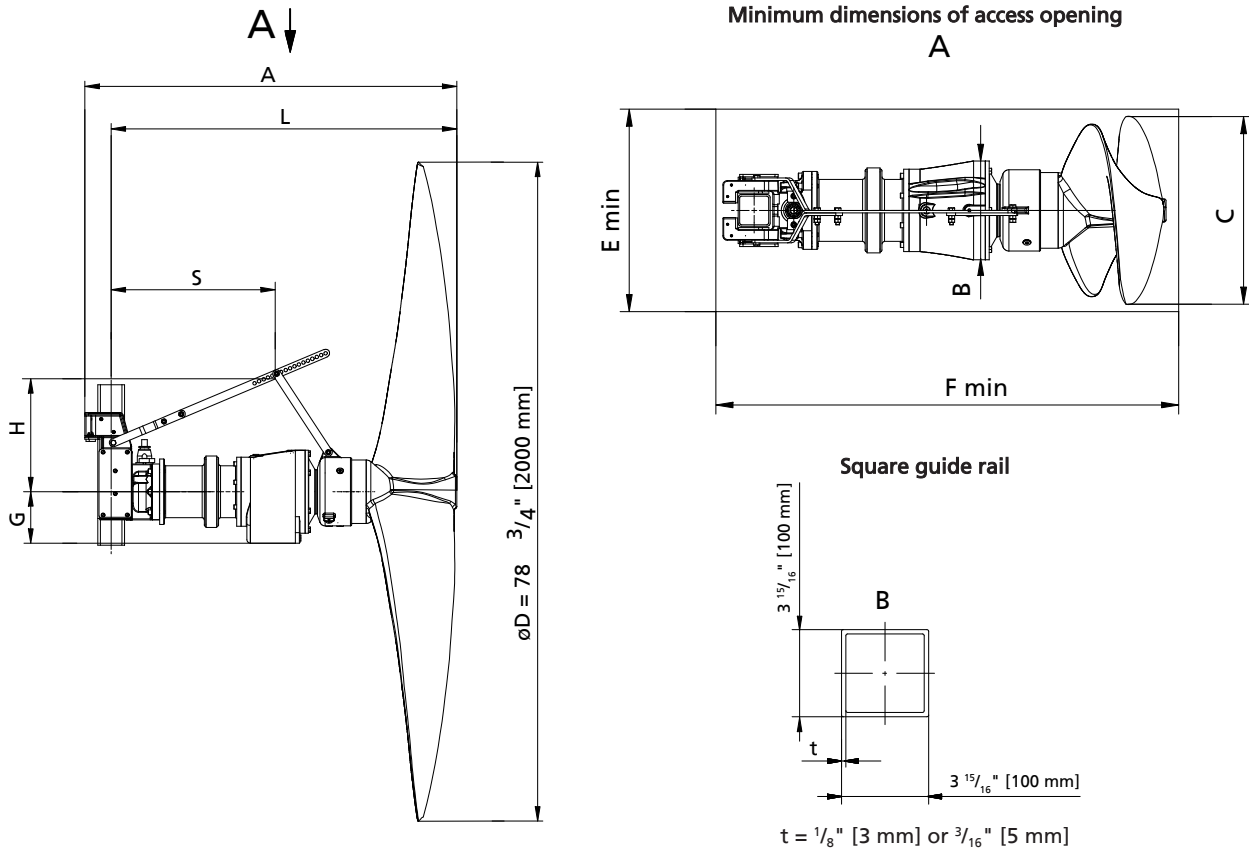
Square guide rail



Dimensions

Size	A		B		C		E _{min}		F _{min}		G		H		L		S	
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53-2000/5 4 URG/XRG	53 ⁷ / ₁₆	1358	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	54 ³ / ₄	1390	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	50 ¹¹ / ₁₆	1287	30 ¹¹ / ₁₆	780
50-2000/5 4 URG/XRG	53 ⁷ / ₁₆	1358	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	54 ³ / ₄	1390	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	50 ¹¹ / ₁₆	1287	30 ¹¹ / ₁₆	780
49-2000/4 4 URG/XRG	53 ⁷ / ₁₆	1358	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	54 ³ / ₄	1390	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	50 ¹¹ / ₁₆	1287	30 ¹¹ / ₁₆	780
48-2000/4 4 URG/XRG	53 ⁷ / ₁₆	1358	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	54 ³ / ₄	1390	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	50 ¹¹ / ₁₆	1287	30 ¹¹ / ₁₆	780
47-2000/4 4 URG/XRG	53 ⁷ / ₁₆	1358	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	54 ³ / ₄	1390	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	50 ¹¹ / ₁₆	1287	30 ¹¹ / ₁₆	780
46-2000/4 4 URG/XRG	53 ⁷ / ₁₆	1358	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	54 ³ / ₄	1390	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	50 ¹¹ / ₁₆	1287	30 ¹¹ / ₁₆	780
45-2000/4 4 URG/XRG	53 ⁷ / ₁₆	1358	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	54 ³ / ₄	1390	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	50 ¹¹ / ₁₆	1287	30 ¹¹ / ₁₆	780
42-2000/4 4 URG/XRG	53 ⁷ / ₁₆	1358	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	54 ³ / ₄	1390	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	50 ¹¹ / ₁₆	1287	30 ¹¹ / ₁₆	780
41-2000/3 4 URG/XRG	50 ³ / ₁₆	1275	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	51 ³ / ₈	1305	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	47 ³ / ₈	1204	26 ³ / ₄	680
39-2000/3 4 URG/XRG	48 ⁹ / ₁₆	1234	10 ³ / ₁₆	258	20 ¹ / ₆	510	24	610	49 ³ / ₄	1265	6 ³ / ₁₆	157.5	19 ¹¹ / ₁₆	500	45 ³ / ₄	1163	25 ⁹ / ₁₆	650
37-2000/2 4 URG/XRG	50 ³ / ₁₆	1275	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	51 ³ / ₈	1305	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	47 ³ / ₈	1204	26 ³ / ₄	680
35-2000/2 4 URG/XRG	48 ⁹ / ₁₆	1234	10 ³ / ₁₆	258	20 ¹ / ₆	510	24	610	49 ³ / ₄	1265	6 ³ / ₁₆	157.5	19 ¹¹ / ₁₆	500	45 ³ / ₄	1163	25 ⁹ / ₁₆	650
33-2000/2 4 URG/XRG	50 ³ / ₁₆	1275	12 ³ / ₁₆	310	20 ¹ / ₆	510	24	610	51 ³ / ₈	1305	7 ⁹ / ₁₆	192	19 ¹¹ / ₁₆	500	47 ³ / ₈	1204	26 ³ / ₄	680
30-2000/2 4 URG/XRG	48 ⁹ / ₁₆	1234	10 ³ / ₁₆	258	20 ¹ / ₆	510	24	610	49 ³ / ₄	1265	6 ³ / ₁₆	157.5	19 ¹¹ / ₁₆	500	45 ³ / ₄	1163	25 ⁹ / ₁₆	650
30-2000/1 4 URG/XRG	48 ⁹ / ₁₆	1234	10 ³ / ₁₆	258	20 ¹ / ₆	510	24	610	49 ³ / ₄	1265	6 ³ / ₁₆	157.5	19 ¹¹ / ₁₆	500	45 ³ / ₄	1163	25 ⁹ / ₁₆	650
29-2000/1 4 URG/XRG	48 ⁹ / ₁₆	1234	10 ³ / ₁₆	258	20 ¹ / ₆	510	24	610	49 ³ / ₄	1265	6 ³ / ₁₆	157.5	19 ¹¹ / ₁₆	500	45 ³ / ₄	1163	25 ⁹ / ₁₆	650
27-2000/1 4 URG/XRG	48 ⁹ / ₁₆	1234	10 ³ / ₁₆	258	20 ¹ / ₆	510	24	610	49 ³ / ₄	1265	6 ³ / ₁₆	157.5	19 ¹¹ / ₁₆	500	45 ³ / ₄	1163	25 ⁹ / ₁₆	650

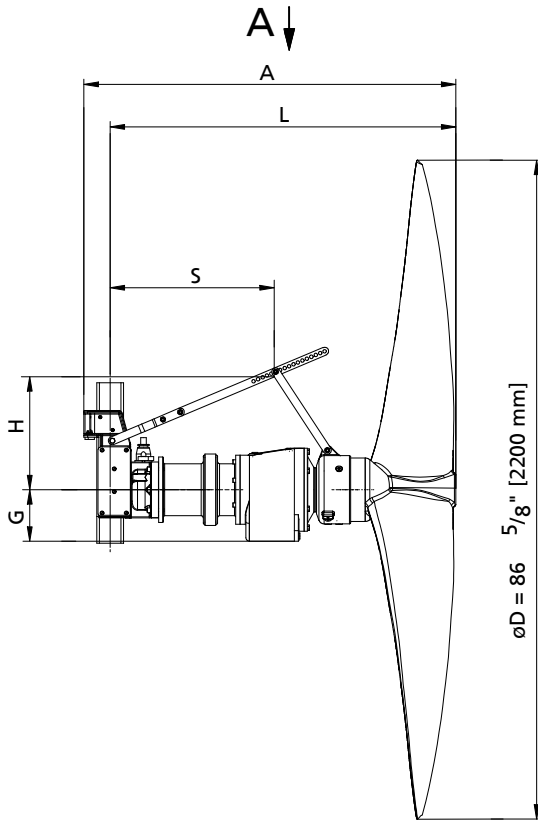
Amaprop 2001



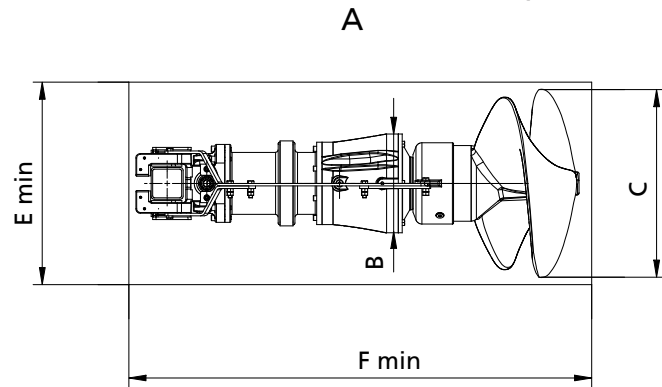
Dimensions

Size	A		B		C		E _{min}		F _{min}		G		H		L		S	
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53-2001/54 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 9/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
50-2001/54 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 9/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
49-2001/44 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 9/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
48-2001/44 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 9/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
47-2001/44 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 9/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
42-2001/44 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 9/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
41-2001/34 URG/XRG	50 3/16	1275	12 3/16	310	20 1/16	510	24	610	51 3/8	1305	7 9/16	192	19 11/16	500	47 3/8	1204	26 3/4	680
39-2001/34 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
38-2001/24 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
37-2001/24 URG/XRG	50 3/16	1275	12 3/16	310	20 1/16	510	24	610	51 3/8	1305	7 9/16	192	19 11/16	500	47 3/8	1204	26 3/4	680
34-2001/24 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
33-2001/24 URG/XRG	50 3/16	1275	12 3/16	310	20 1/16	510	24	610	51 3/8	1305	7 9/16	192	19 11/16	500	47 3/8	1204	26 3/4	680
30-2001/14 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	48 1/4	1225	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
29-2001/14 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	48 1/4	1225	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
27-2001/14 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	48 1/4	1225	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650

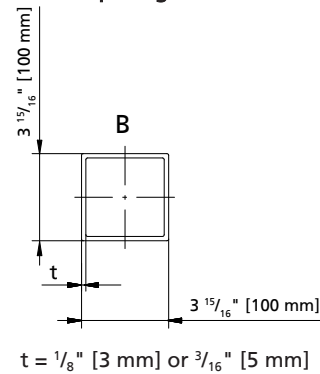
Amaprop 2200



Minimum dimensions of access opening



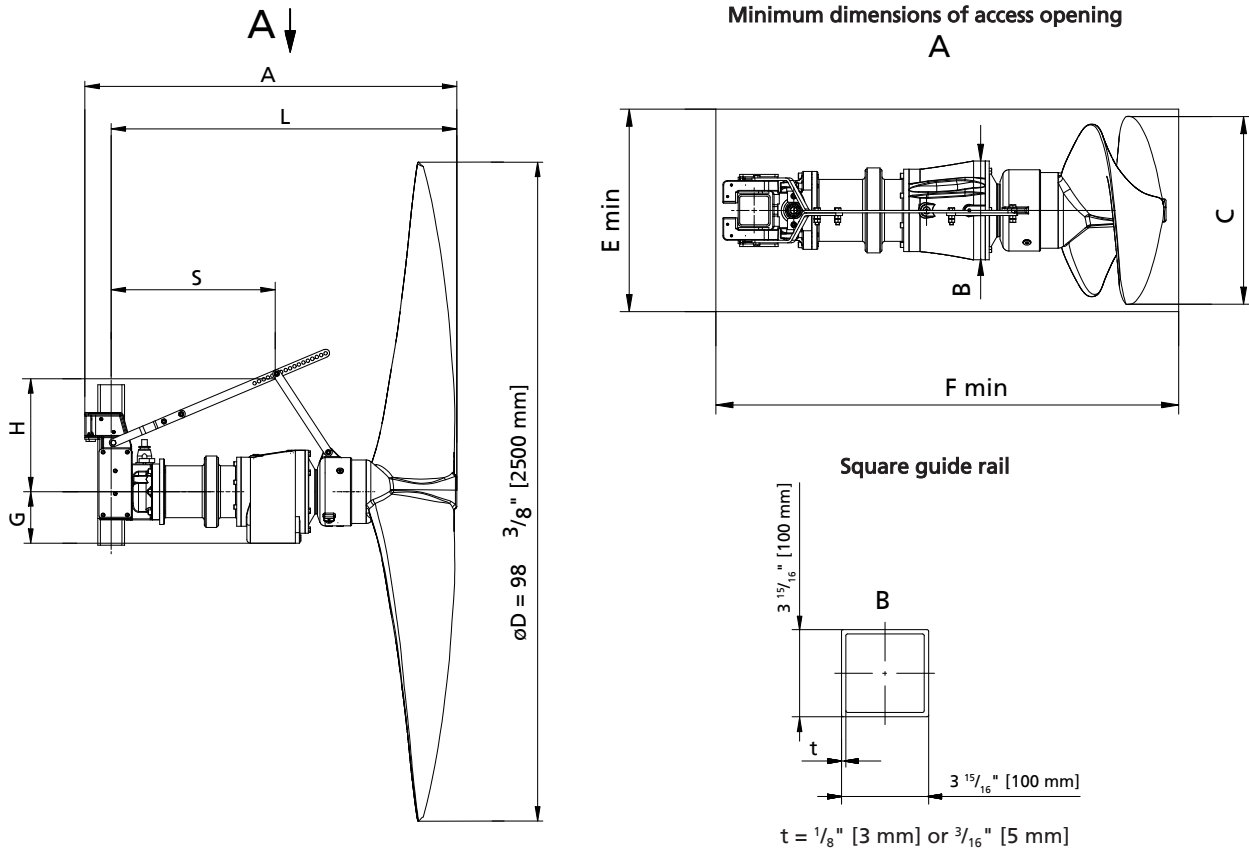
Square guide rail



Dimensions

Size	A		B		C		E _{min}		F _{min}		G		H		L		S	
	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
50-2200/5 4 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
48-2200/4 4 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
47-2200/4 4 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
46-2200/4 4 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
45-2200/4 4 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
42-2200/4 4 URG/XRG	53 7/16	1358	12 3/16	310	20 1/16	510	24	610	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
38-2200/3 4 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
37-2200/3 4 URG/XRG	50 3/16	1275	12 3/16	310	20 1/16	510	24	610	51 3/8	1305	7 1/16	192	19 11/16	500	47 3/8	1204	26 3/4	680
37-2200/2 4 URG/XRG	50 3/16	1275	12 3/16	310	20 1/16	510	24	610	49 3/4	1265	7 1/16	192	19 11/16	500	47 3/8	1204	26 3/4	680
34-2200/2 4 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	51 3/8	1305	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
33-2200/2 4 URG/XRG	50 3/16	1275	12 3/16	310	20 1/16	510	24	610	51 3/8	1305	7 1/16	192	19 11/16	500	47 3/8	1204	26 3/4	680
30-2200/2 4 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
28-2200/1 4 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
27-2200/1 4 URG/XRG	48 9/16	1234	10 3/16	258	20 1/16	510	24	610	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650

Amaprop 2500

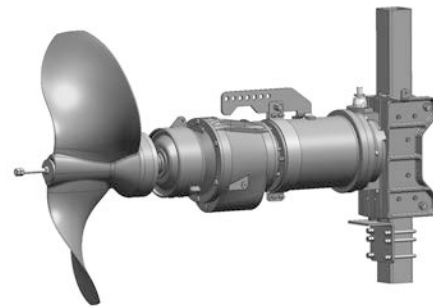
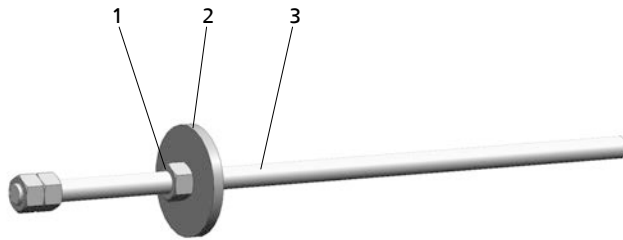


Dimensions

Size	A		B		C		E _{min}		F _{min}		G		H		L		S	
	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
46-2500/5 4 URG/XRG	53 7/16	1358	12 3/16	310	22 1/16	560	26	660	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
45-2500/5 4 URG/XRG	53 7/16	1358	12 3/16	310	22 1/16	560	26	660	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
45-2500/4 4 URG/XRG	53 7/16	1358	12 3/16	310	22 1/16	560	26	660	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
42-2500/4 4 URG/XRG	53 7/16	1358	12 3/16	310	22 1/16	560	26	660	54 3/4	1390	7 1/16	192	19 11/16	500	50 11/16	1287	30 11/16	780
37-2500/3 4 URG/XRG	50 3/16	1275	12 3/16	310	22 1/16	560	26	660	51 3/8	1305	7 1/16	192	19 11/16	500	47 3/8	1204	26 3/4	680
35-2500/3 4 URG/XRG	48 9/16	1234	10 3/16	258	22 1/16	560	26	660	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
34-2500/2 4 URG/XRG	48 9/16	1234	10 3/16	258	22 1/16	560	26	660	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
33-2500/2 4 URG/XRG	50 3/16	1275	12 3/16	310	22 1/16	560	26	660	51 3/8	1305	7 1/16	192	19 11/16	500	47 3/8	1204	26 3/4	680
30-2500/2 4 URG/XRG	48 9/16	1234	10 3/16	258	22 1/16	560	26	660	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
29-2500/2 4 URG/XRG	48 9/16	1234	10 3/16	258	22 1/16	560	26	660	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650
27-2500/1 4 URG/XRG	48 9/16	1234	10 3/16	258	22 1/16	560	26	660	49 3/4	1265	6 3/16	157.5	19 11/16	500	45 3/4	1163	25 9/16	650

Accessories

Propeller fitting tool



Propeller fitting tool

Propeller with propeller fitting tool

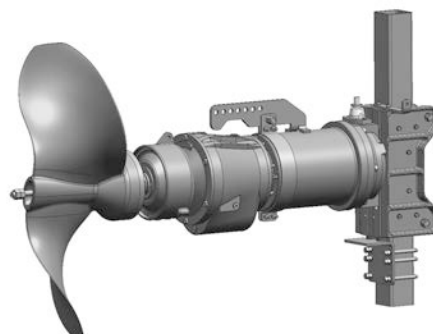
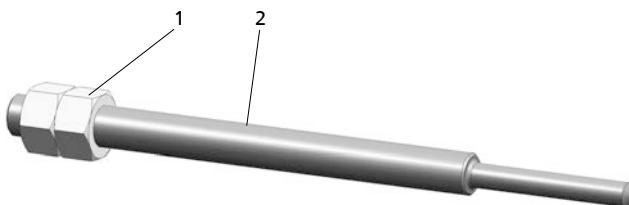
1	Hexagon nut
2	Disc
3	Threaded bolt

The propeller fitting tool facilitates mounting the propeller (23-9) on the shaft of the submersible mixer. Screw the threaded bolt into the shaft and position the propeller (23-9) on the shaft. Tighten the hexagon nut up to the stop to pull the propeller (23-9) onto the shaft.

Accessories: Propeller fitting tool

Description	Material	Material No.	[lbs]	[kg]
Propeller fitting tool for Amaprop 1000, Amaprop 1200 ... 2500	A 276 Type 316 Ti	01428379	2.69	1.22

Forcing screw



Forcing screw

Propeller with forcing screw

1	Hexagon nut
2	Forcing screw

The forcing screw facilitates dismantling. It helps remove the propeller (23-9) from the shaft of the submersible mixer. Remove the hexagon socket head cap screw (914.06) and disc (550.01) from the propeller. Screw the forcing screw into the forcing thread of the propeller (23-9) as far as it will go. The propeller (23-9) can now easily be pulled off the shaft.

Accessories: Forcing screw for the propeller

Description	Material	Material No.	[lbs]	[kg]
Forcing screw Amaprop 1200 ... 1801	A 276 Type 316 Ti	11306648	1.70	0.77
Forcing screw Amaprop 1000, Amaprop 2000 ... 2500	A 276 Type 316 Ti	11306649	2.31	1.05

Cable support / 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 optionally available).

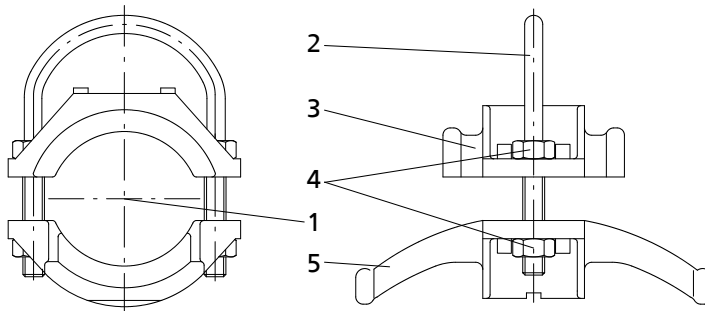
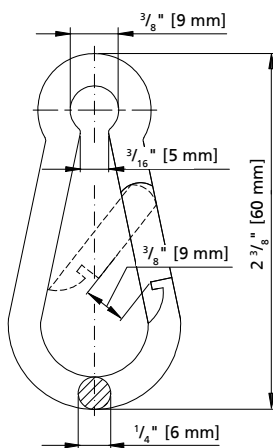


Illustration of cable support

1	Diameter of power cable ¹⁰⁾
2	U-bolt
3	Polypropylene
4	Hexagon nut made of A 276 type 316 Ti (A4)
5	Polypropylene

Carabine hook



0W 384695-00

Dimensions of carabine hook

Overview of cable supports/carabine hooks

Description	Suitable for	Material	Material No.	[lbs]	[kg]
Cable support, incl. carabine hook	Motor 1 4, 2 4, 3 4 for power cable diameters: D = 3/8" ... 5/8" [10 ... 16 mm])	Plastic / A 276 Type 316 Ti, carabine hook: A 276 Type 316 Ti	19555522	0.33	0.06
Cable support, incl. carabine hook	Motor 6 4, 11 4, 16 4, 23 4, 30 4, (power cable diameters: D = 1 1/16" ... 1" [17 ... 25 mm])	Plastic A 276 Type 316 Ti, carabine hook: A 276 Type 316 Ti	19555523	0.44	0.09

Lifting equipment

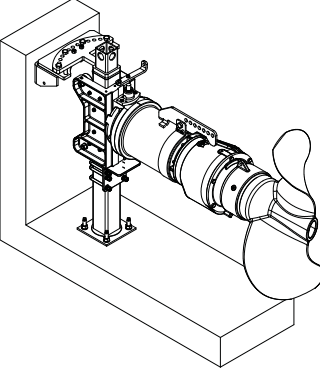
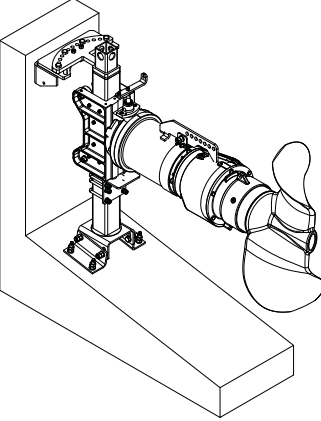
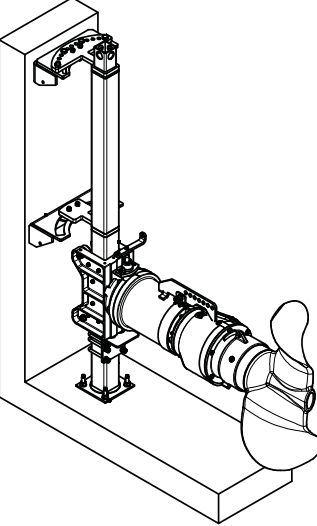
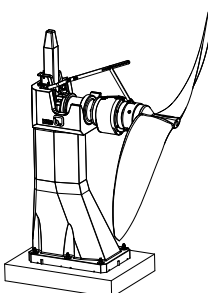
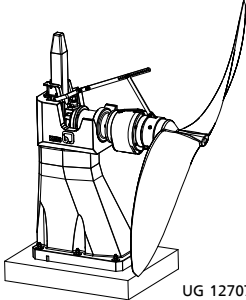
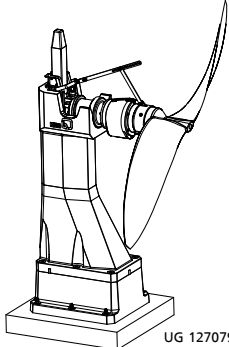
- See type series booklet "KSB Lifting Equipment" 1596.5/...

¹⁰⁾ Refer to the power cable data given in the motor catalog.

Installation parts

Overview of installation parts

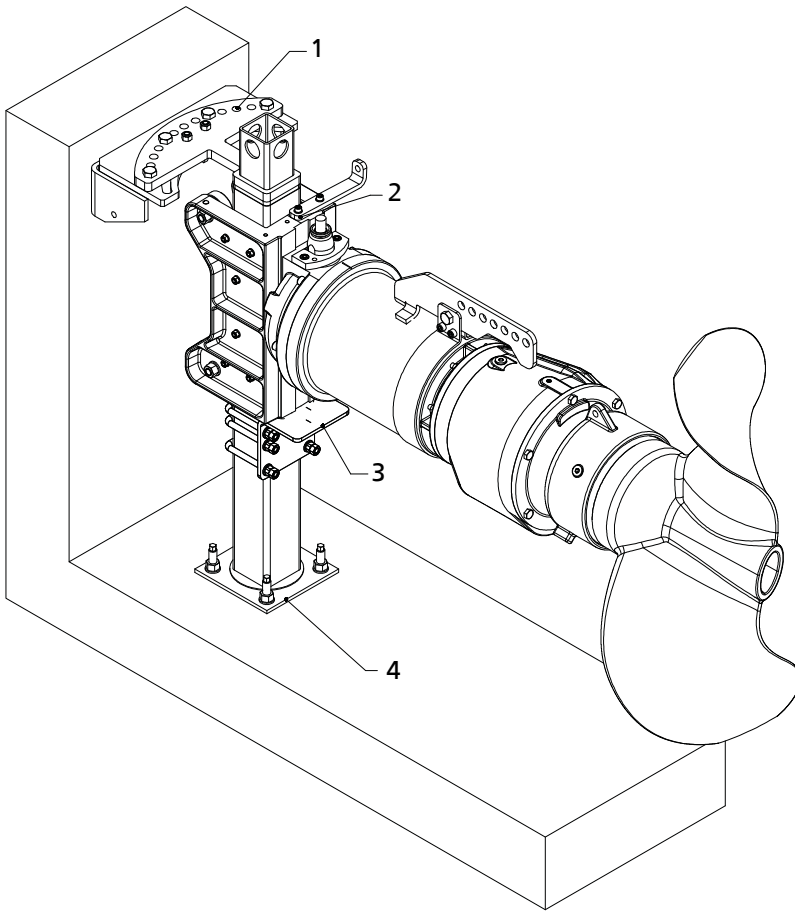
Overview of installation parts for Amaprop 1000 and Amaprop 1000 ... 2500

Accessories	Typical installation		
<p>Amaprop 1000 Accessories set 22</p>	<p>Mounting on tank wall and horizontal tank floor (0 - 0.5°) (⇒ Page 25)</p> 	<p>Mounting on tank wall and sloping tank floor (0.5° - 10°) (⇒ Page 24)</p> 	<p>Middle support for guide rail 4" x 4" x 3/16" [100 mm x 100 mm x 5 mm], for large installation depths (⇒ Page 26)</p> 
<p>Amaprop 1200 ... 2500 AmaRoc accessories</p>	<p>Shaft centerline height = 57 1/8" [1450 mm]</p> 		
<p>AmaRoc special accessories¹¹⁾</p>	<p>Shaft centerline height = 43 9/16" [1100 mm] (Amaprop 1200 ... 1801 only)</p>  <p>UG 1270769</p>		<p>Shaft centerline height = 70 7/8" [1800 mm]</p>  <p>UG 1270793</p>

11) On request

Accessories set 22 for Amaprop 1000

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



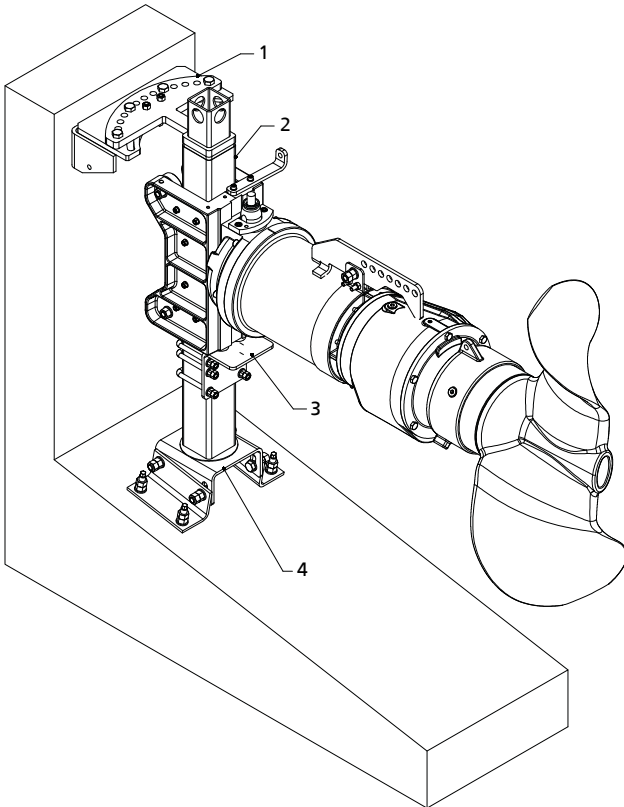
Installation example: Amaprop 1000 mounted on tank wall and horizontal tank floor

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

Accessories set 22 for mounting on tank wall and horizontal floor

Description	Material	Material No.	[lbs]	[kg]
Upper holder, incl. 2 chemical anchors	A 276 Type 304	01313458	44.7	23.23
Upper holder, incl. 2 chemical anchors	A 276 Type 316 Ti	01313459	44.7	23.23
Guide rail	(⇒ Page 30)			
Retaining bracket	A 276 Type 304	01129810	7.7	3.5
Retaining bracket	A 276 Type 316 Ti	19202370	7.7	3.5
Lower holder, incl. 4 chemical anchors	A 276 Type 304	01118892	12.5	5.68
Lower holder, incl. 4 chemical anchors	A 276 Type 316 Ti	01118903	12.5	5.68

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



Installation example: Amaprop 1000 mounted on sloping tank floor

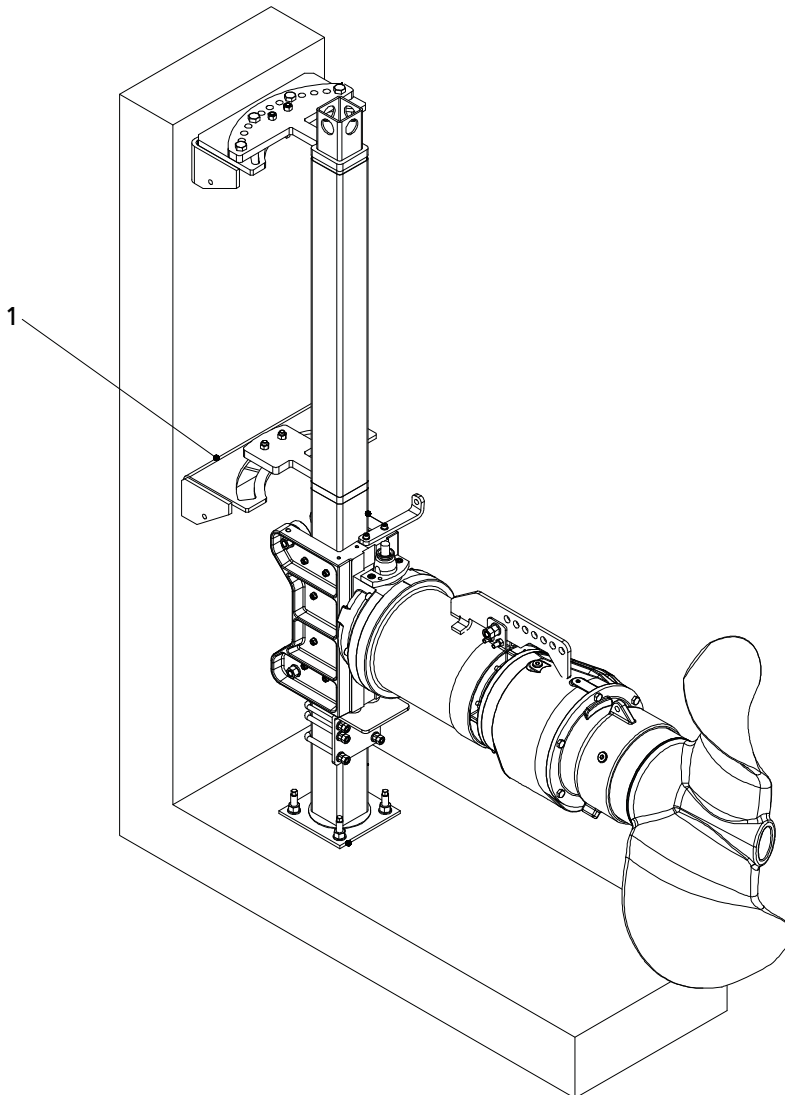
1	Upper holder	3	Retaining bracket
2	Guide rail	4	Lower holder

Accessories set 22 for mounting on tank wall and sloping floor

Description	Material	Material No.	[lbs]	[kg]
Upper holder, incl. 2 chemical anchors	A 276 Type 304	01313458	44.7	23.23
Upper holder, incl. 2 chemical anchors	A 276 Type 316 Ti	01313459	44.7	23.23
Guide rail	(⇒ Page 30)			
Retaining bracket	A 276 Type 304	01129810	7.7	3.5
Retaining bracket	A 276 Type 316 Ti	19202370	7.7	3.5
Lower holder, incl. 4 chemical anchors	A 276 Type 304	01118906	26.2	11.92
Lower holder, incl. 4 chemical anchors	A 276 Type 316 Ti	01118907	26.2	11.92

Middle support

Middle support for guide rail 4" x 4" x 3/16"
[100 mm x 100 mm x 5 mm] for large installation depths



Installation example: Amaprop 1000 mounted on tank edge and horizontal tank floor

1	Middle support
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Middle supports per submersible mixer

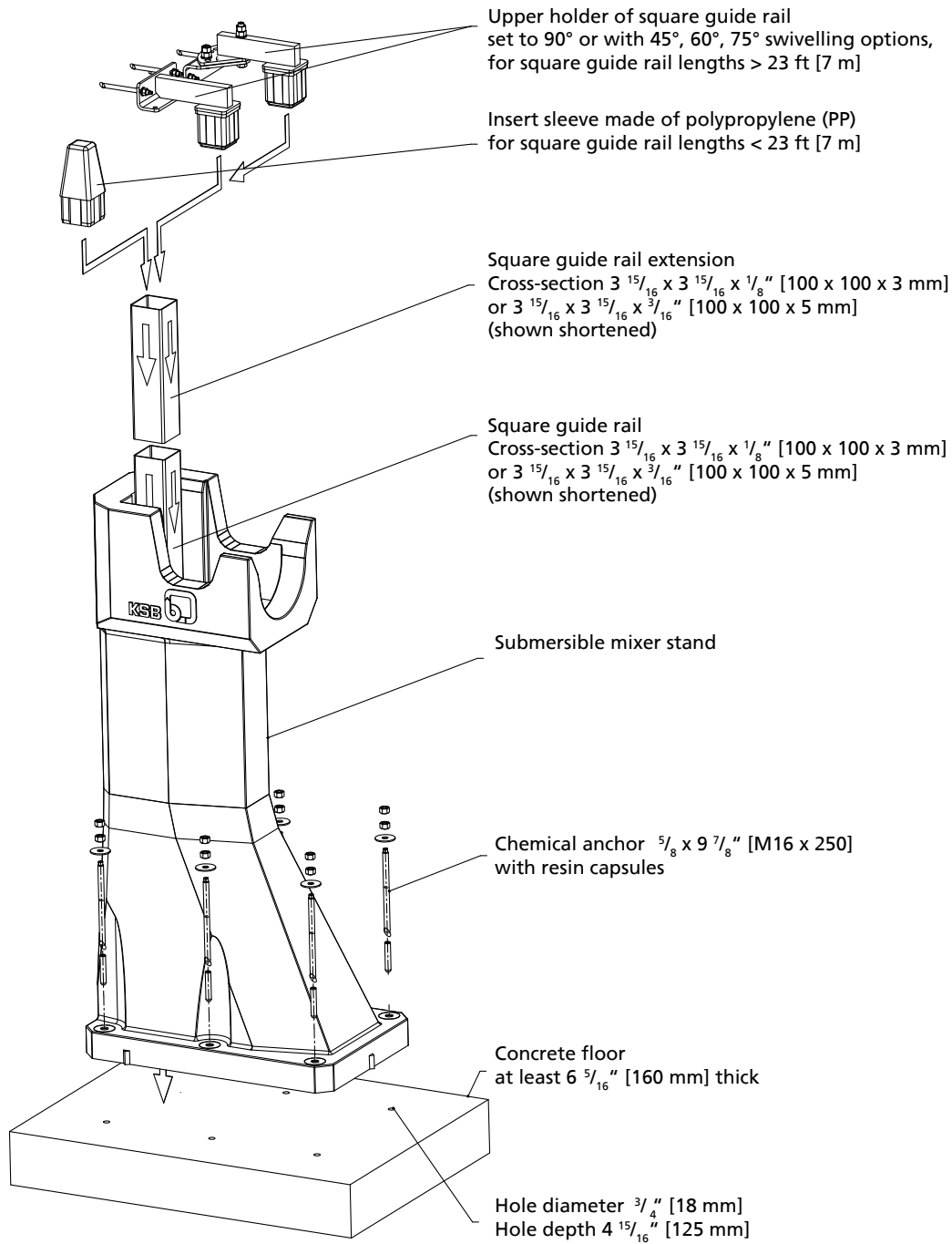
Submersible mixer	Middle support required
Amaprop ≤ 175-1000/ ...	From 26 ft [8 m]
Amaprop ≥ 181-1000/ ...	From 20 ft [6 m]

Standard accessories set 22 - Middle support for guide rail 4" x 4" x 3/16" [100 mm x 100 mm x 5 mm], for large installation depths

Description	Material	Material No.	[lbs]	[kg]
Middle support, incl. 2 chemical anchors	A 276 Type 304	01313462	42.5	19.26
Middle support, incl. 2 chemical anchors	A 276 Type 316 Ti	01313463	42.5	19.26

AmaRoc - accessories for Amaprop 1200 ... 2500

General assembly drawing showing individual components



General assembly drawing

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)

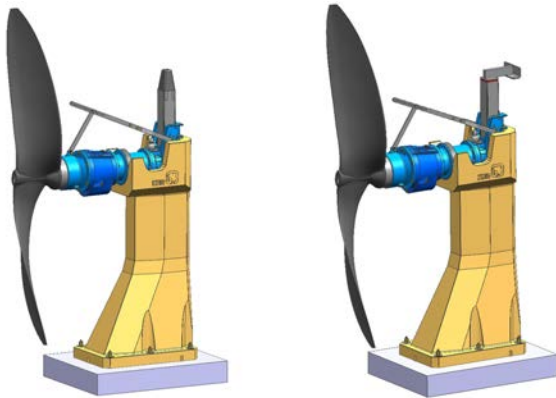
Fastening

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

Square guide rail

- Square guide rail, cross-section $3^{15/16} \times 3^{15/16}$ " [100 x 100 mm]; A 276 type 304 or A 276 type 316 Ti [material 1.4301 or 1.4571]
 - Wall thickness $1/8$ " [3 mm] (for square guide rail lengths < 30 ft [9 m])
 - Wall thickness $3/16$ " [5 mm] (for square guide rail lengths \geq 30 ft [9 m])

Installation



Installation variants

1. Free-standing, without upper holder (for square guide rails < 23 ft [7 m])
2. With upper holder mounted on the tank wall or bridge (generally required for square guide rails \geq 23 ft [7 m]; optional for square guide rail lengths < 23 ft [7 m])

AmaRoc

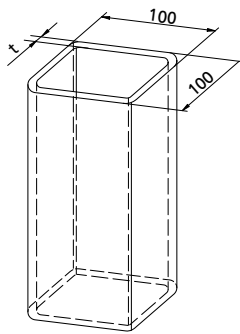
AmaRoc is designed for stationary installation on a horizontal tank floor, free-standing or with upper guide rail holder

AmaRoc standard accessories

Description	Description	Material	Material No.	[lbs]	[kg]
Submersible mixer stand	Shaft centerline height of submersible mixer 57 1/8" [1450 mm] above tank floor, incl. 6 chemical anchors	NoriRoc	01185967	880	410
Upper holder 90°	Additional holder for upper support of guide rail 3 15/16" x 3 15/16" x 1/8" [100 mm x 100 mm x 3 mm], incl. 2 chemical anchors	A 276 Type 304	01189476	15.4	7.35
Upper holder 90°	Additional holder for upper support of guide rail 3 15/16" x 3 15/16" x 1/8" [100 mm x 100 mm x 3 mm], incl. 2 chemical anchors	A 276 Type 316 Ti	01189497	15.4	7.35
Upper holder 45°/60°/75°	Additional holder for upper support of guide rail 3 15/16" x 3 15/16" x 1/8" [100 mm x 100 mm x 3 mm], incl. 2 chemical anchors	A 276 Type 316 Ti	01189498	17.2	8.15
Upper holder 45°/60°/75°	Additional holder for upper support of guide rail 3 15/16" x 3 15/16" x 1/8" [100 mm x 100 mm x 3 mm], incl. 2 chemical anchors	A 276 Type 316 Ti	01189499	17.2	8.15
Upper holder 90°	Additional holder for upper support of guide rail 3 15/16" x 3 15/16" x 3/16" [100 mm x 100 mm x 5 mm], incl. 2 chemical anchors	A 276 Type 304	01108429	15.4	7.35
Upper holder 90°	Additional holder for upper support of guide rail 3 15/16" x 3 15/16" x 3/16" [100 mm x 100 mm x 5 mm], incl. 2 chemical anchors	A 276 Type 316 Ti	01108430	15.4	7.35
Upper holder 45°/60°/75°	Additional holder for upper support of guide rail 3 15/16" x 3 15/16" x 3/16" [100 mm x 100 mm x 5 mm], incl. 2 chemical anchors	A 276 Type 304	01108431	17.2	8.15
Upper holder 45°/60°/75°	Additional holder for upper support of guide rail 3 15/16" x 3 15/16" x 3/16" [100 mm x 100 mm x 5 mm], incl. 2 chemical anchors	A 276 Type 316 Ti	01108432	17.2	8.15
Insert sleeve	Insert sleeve for guide rail 3 15/16" x 3 15/16" x 1/8" [100 mm x 100 mm x 3 mm]; for guiding the guide bracket onto the guide rail (free-standing installation without upper holder only)	PP (polypropylene)	11306484	1.8	0.8
Guide rail	(⇒ Page 30)				

Guide rails

The guide rail length required depends on the water level. Guide rails are supplied in standard lengths of 10 ft or 20 ft [3 m or 6 m]. Free guide rail ends should not protrude more than 20" [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. The guide rails must be shortened at the site as required. For larger installation depths, the guide rails must be extended by adding guide rail extensions with a length of 10 ft or 20 ft [3 m or 6 m]. 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 mixers, the weld seam at the outside of the guide rail must be ground down to a max. projection of 20" [0.5 mm].



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$t = 3/16"$ or $1/8"$ [5 mm or 3 mm]

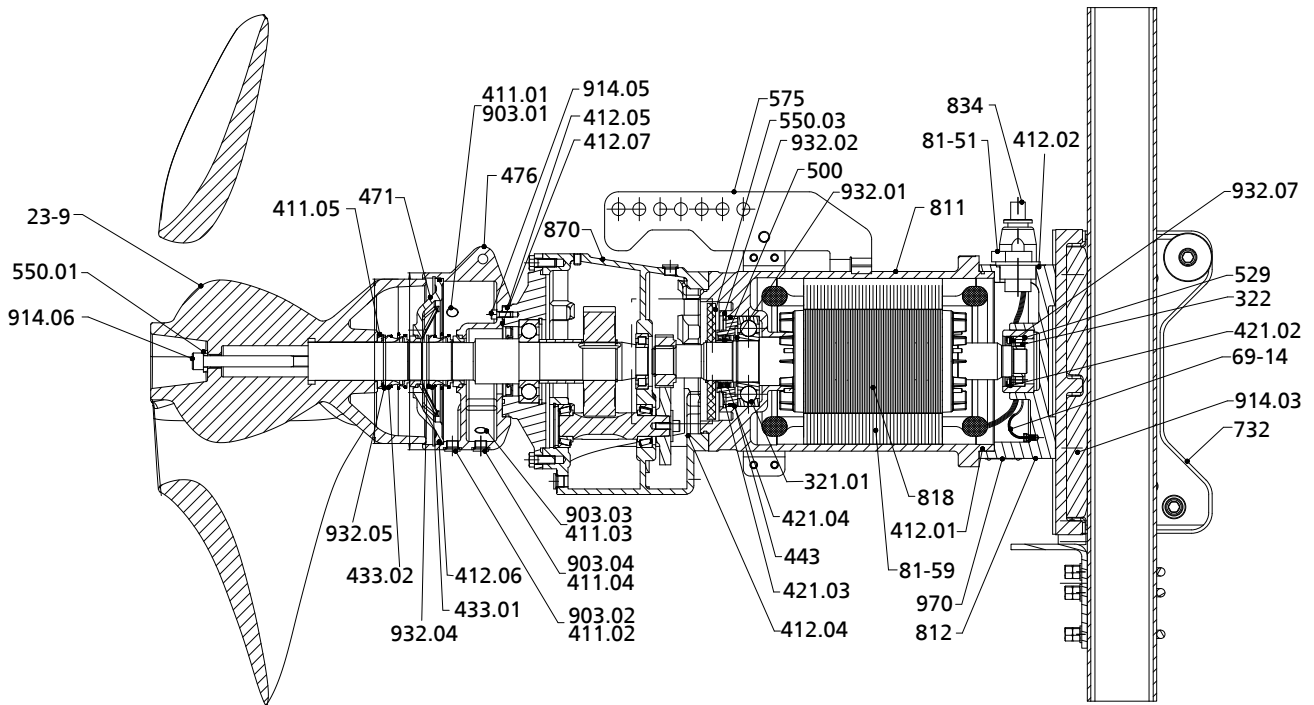
Square guide rail to DIN EN 10219-2

Overview of guide rails

Description	For size	Material	Material No.	[lbs]	[kg]
Guide rail $3 \frac{15}{16}" \times 3 \frac{15}{16}" \times \frac{1}{8}"$ [100 mm x 100 mm x 3 mm], length 10 ft [3 m]	Amaprop 1200 ... 1801	A 276 Type 304	11302882	59.4	27.9
Guide rail $3 \frac{15}{16}" \times 3 \frac{15}{16}" \times \frac{1}{8}"$ [100 mm x 100 mm x 3 mm], length 10 ft [3 m]	Amaprop 1200 ... 1801	A 276 Type 316 Ti	11302888	59.4	27.9
Guide rail $3 \frac{15}{16}" \times 3 \frac{15}{16}" \times \frac{1}{8}"$ [100 mm x 100 mm x 3 mm], length 20 ft [6 m]	Amaprop 1200 ... 2500	A 276 Type 304	11302885	118.8	56
Guide rail $3 \frac{15}{16}" \times 3 \frac{15}{16}" \times \frac{1}{8}"$ [100 mm x 100 mm x 3 mm], length 20 ft [6 m]	Amaprop 1200 ... 2500	A 276 Type 316 Ti	11302891	118.8	56
Guide rail $3 \frac{15}{16}" \times 3 \frac{15}{16}" \times \frac{3}{16}"$ [100 mm x 100 mm x 5 mm], length 10 ft [3 m]	Amaprop 1000 ... 2500	A 276 Type 304	11304598	95	43.2
Guide rail $3 \frac{15}{16}" \times 3 \frac{15}{16}" \times \frac{3}{16}"$ [100 mm x 100 mm x 5 mm], length 10 ft [3 m]	Amaprop 1000 ... 2500	A 276 Type 316 Ti	11304599	95	43.2
Guide rail $3 \frac{15}{16}" \times 3 \frac{15}{16}" \times \frac{3}{16}"$ [100 mm x 100 mm x 5 mm], length 20 ft [6 m]	Amaprop 1000 ... 2500	A 276 Type 304	11304600	190	86.4
Guide rail $3 \frac{15}{16}" \times 3 \frac{15}{16}" \times \frac{3}{16}"$ [100 mm x 100 mm x 5 mm], length 20 ft [6 m]	Amaprop 1000 ... 2500	A 276 Type 316 Ti	11304601	190	86.4

General assembly drawing with list of components

Amaprop 1000 with motors: 11 4, 16 4, 23 4

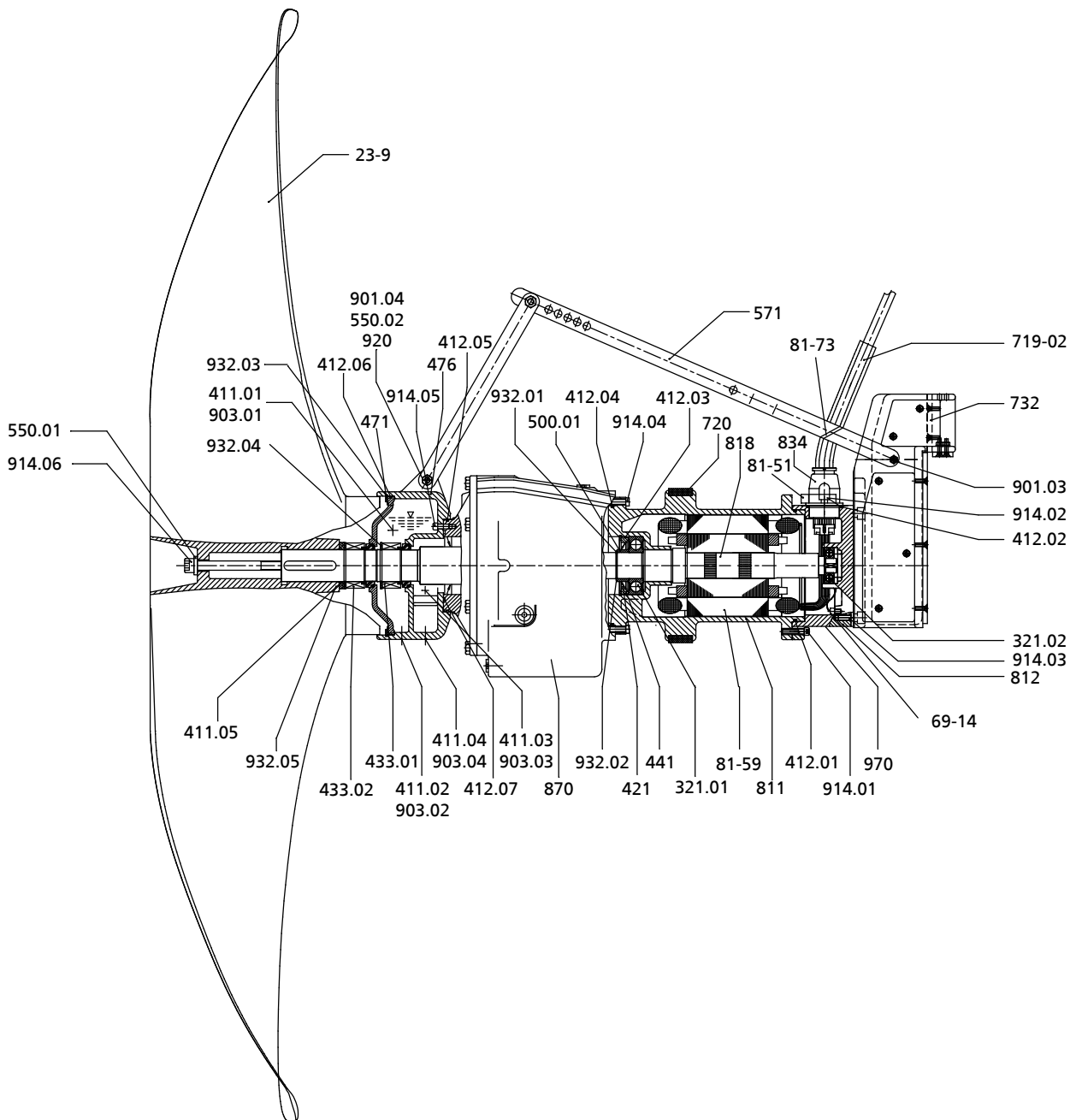


General assembly drawing of Amaprop 1000

List of components

Part No.	Description	Part No.	Description
23-9	Axial propeller	69-14	Leakage sensor
321	Radial ball bearing	719	Sheathing
322	Radial roller bearing	732	Guide bracket
411	Joint ring	81-51	Shim
412	O-ring	81-59	Stator
421	Lip seal	811	Motor housing
433.01	Gear-side mechanical seal	812	Motor housing cover
433.02	Propeller-side mechanical seal	818	Rotor
443	Seal insert	834	Cable gland
471	Seal cover	870	Gear unit
476	Mating ring holder	903	Screw plug
500	Ring	914	Hexagon socket head cap screw
529	Bearing sleeve	920	Nut
550	Disc	932	Circlip

Amaprop 1200 - 2500 with motors: 1 4, 2 4, 3 4, 4 4, 5 4



General assembly drawing of Amaprop 1200 - 2500 with motors: 1 4, 2 4, 3 4, 4 4, 5 4

List of components

Part No.	Description	Part No.	Description
23-9	Axial propeller	732	Guide bracket
321	Radial ball bearing	81-51	Shim
411	Joint ring	81-59	Stator
412	O-ring	81-73	Cable tie
421	Lip seal	811	Motor housing
433.01	Gear-side mechanical seal	812	Motor housing cover
433.02	Propeller-side mechanical seal	818	Rotor
441	Shaft seal housing	834	Cable gland
471	Seal cover	870	Gear unit
476	Mating ring holder	901	Hexagon head bolt

Part No.	Description	Part No.	Description
500	Ring	903	Screw plug
550	Disc	914	Hexagon socket head cap screw
571	Lifting bail	920	Nut
69-14	Leakage sensor	932	Circlip
719	Sheathing	970	Plate
720	Special part		



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