

AMD, AMG and AFG mixers and flowmakers

AMD 50/60 Hz DIN, AMG/AFG 50 Hz



AMD, AMG, AFG
Data booklet
Other languages
<http://net.grundfos.com/qr/i/96870001>

AMD, AMG and AFG mixers and flowmakers

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1. Introduction

1.1 General description

This data booklet deals with Grundfos mixers, types AMD and AMG, as well as flowmakers, type AFG.

Mixers



AMD.05 - 08 mixers

TM061080



TM085342

AMG mixer

The Grundfos range of horizontal AMD and AMG mixers is designed for mixing, that is homogenisation and suspension, of liquids of low to medium viscosity.

The range of mixers consists of the following types:

- AMD mixers with direct drive. Not available in Ex execution.
- AMG mixers with planetary gear drive. Only available in Ex execution.

Mixers are fitted with motors of 0.75 to 18.5 kW.

Flowmakers



TM085343



TM085341

AFG flowmakers

The Grundfos range of horizontal AFG flowmakers is designed for flowmaking, that is keeping the liquid moving, in liquids of low to medium viscosity. The flowmakers are suitable for use in large volumes.

AFG flowmakers have planetary gear drive. They are only available in Ex execution.

Flowmakers are fitted with motors of 1.5 to 7.5 kW.

1.2 Applications

Applications of AMG and AFG

The mixers and flowmakers are designed for mixing and flowmaking in the applications mentioned below.

Sewage treatment plants

- Pumping stations (stormwater tanks)
- tanks for biological treatment of activated sludge
- tanks for primary wastewater treatment
- tanks for secondary wastewater treatment
- tanks for digested sludge treatment
- sludge storage tanks
- sludge thickening tanks
- homogenisation tanks
- tanks for digesting processes
- tanks for degassing and lime storage.

Industry

- Pulp and paper industry
- paint and dyestuff industry
- chemical industry
- other industries working with homogenisation processes.

Agriculture

- Slurry tanks
- biogas plants.

Contact Grundfos for further information on other applications, such as the mixing of viscous liquids or mixing in explosive environments.

Applications of AMD

Grundfos AMD.05 - 08 is designed for mixing in the following applications:

- solid suspension and flushing in pumping stations
- mixing in small tanks, approximately Ø3.5 m, 2 × 4 m or 3 × 3 m.

1.3 Constructional features

AMG and AFG

- Strong axial gear in slim design for high hydrodynamic efficiency
- integrated overload and thermal protection
- integrated leak sensor
- cast-iron housing with epoxy protection
- self-cleaning high-efficiency propeller.

1.4 Operating mode

- Continuous operation when fully submerged
- intermittent operation with max. 15 starts per hour for AMD, and 20 starts per hour for AMG and AFG.

2. Identification

2.1 Type key of AMG and AFG

Example: AMG.15.55.342.Ex.5.1A.

Code	Description	Designation
A	AMG, AFG	Type range
M	Mixer	Version
F	Flowmaker	
G	Gear-driven	Drive
15	Code from type designation / 10 15 = 1.5 kW	Motor output power, P2
55	55 cm	Propeller diameter
[-]	All applications	Applications
B	Biology ¹⁾	
342	342 min ⁻¹	Propeller speed
Ex	Explosion-proof	Explosion protection
5	50 Hz	Frequency
0A	400 V, DOL	Supply voltage and starting method
1A	400 V, Y/D	
0B	400-415 V, DOL	
1B	400-415 V, Y/D	
0V	415 V, DOL	
1V	415 V, Y/D	
0Z	Special, DOL	
1Z	Special, Y/D	
[-]	First generation	Generation
A	Second generation	
B	Third generation	
[]	Pump in standard range	Customizing
Z	Custom-built pump	

¹⁾ Only for liquids with a dry solids content ≤ 1.5 %.

2.2 Type key of AMD

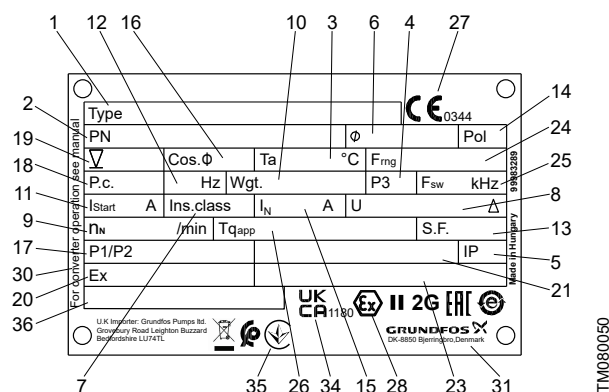
Example: AMD07.18.1430.T5.0BA

Code	Description	Designation
A	AMD	Type range
M	Mixer	Version
D	Direct driven	Drive
05	Code from type designation / 10 05 = 0.5 kW	Motor output power, P2
07	0.7 kW	
08	0.8 kW	
16	16 cm	Propeller diameter
18	18 cm	
1430	1430 min ⁻¹	Propeller speed
T	2" thread connection	Installation method
5	50 Hz	Frequency
6	60 Hz	
0B	3 × 400-415 V, Y	Voltage
0H	3 × 460 V, Y	
0K	3 × 380 V, DOL	
[]	First generation	Version
A	Second generation	
B	Third generation	
[.]	Pump in standard range	Customising
Z	Custom-built pump	

2.3 Nameplate of AMG, AFG

The nameplate is fitted to the motor housing. Nameplate details are required when ordering spare parts.

Fix the extra nameplate supplied with the product at installation site or production location, so data can be checked when necessary. Make sure nameplate is visible.



Nameplate of AMG, AFG

Pos.	Description
1	Type designation
2	Product number and serial number
3	Liquid temperature range
4	Production site
5	Enclosure class according to IEC
6	Propeller diameter
7	Insulation class
8	Rated voltage
9	Rated speed (propeller)
10	Weight
11	Starting current
12	Frequency
13	Safety factor
14	Number of poles
15	Rated current
16	Power factor
17	Motor power P1/P2
18	Production code
19	Maximum installation depth
20	Ex marking
21	Certificate number ATEX
23	Certificate number IEC Ex
24	Frequency range
25	Switching frequency
26	Torque application
27	Approval mark - CE with ATEX notified body number of production location
28	Approval mark - ATEX with ATEX equipment category
30	Reference to requirement of electric machines operated with converter
31	Manufacturer name and address

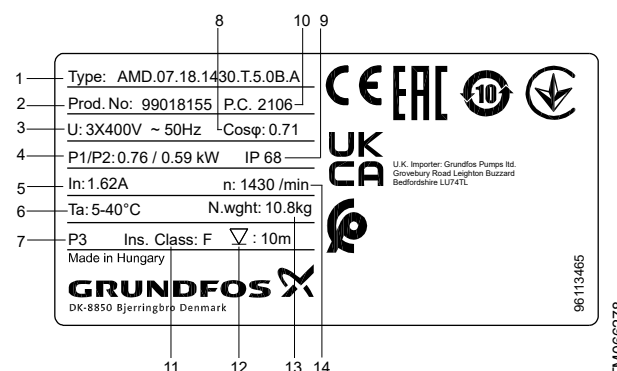
Pos.	Description
34	Approval mark - UKCA approved body number of production location
35	Approval mark - UA
36	Certificate number - UKEX

2) If a frequency converter is used.

2.4 Nameplate of AMD

The nameplate is fitted to the motor housing. Nameplate details are required when ordering spare parts.

Fix extra nameplate supplied with the product at installation site or production location, so data can be checked when necessary. Make sure that nameplate is visible.



Nameplate of AMD

Pos.	Description
1	Type designation
2	Product number
3	Supply voltage and frequency
4	Motor power input and output
5	Nominal current
6	Liquid temperature range
7	Place of production
8	Power factor
9	Enclosure class
10	Production code (YYWW)
11	Insulation class
12	Maximum installation depth
13	Net weight
14	Rated speed

3. Product description

3.1 Features of AMD

The below descriptions are related to the main components of the products. Product variants are available. See Variants.

Motor

The totally enclosed 4-pole, three-phase, 400 V, 50 or 60 Hz squirrel-cage induction motor is supplied as a complete unit. The motor is welded at the cable entry and manufactured in stainless material for optimum corrosion resistance. It is star-connected for direct-on-line starting.

The dielectric oil in the motor distributes and diverts the heat and prevents the ingress of moisture. The built-in thermal switch disconnects the motor at 100 °C and reconnects it after cooling. The motor must be protected against overload by an external motor-protective circuit breaker.

The motor is not designed for operation via a frequency converter.

Made of cast glass, the high-impact-resistant supply cable plug ensures efficient sealing.

Propeller

The propeller is made of highly wear-resistant polyamide and it is self-cleaning.

An operating time of 30 seconds will typically ensure suspension of solid particles.

Shaft seal

To prevent ingress of the surrounding liquid, the mixers have shaft seal(s), and possibly seal rings, fitted around the propeller shaft. To prevent the motor oil from mixing with the oil in the shaft seal housing or gearbox, the mixers also have a shaft seal or two seal rings between the shaft seal housing or gearbox and the motor.

Mixer/ flowmaker	Sealing against ingress of surrounding liquid	Sealing between shaft seal housing/gearbox and motor
AMD	Mechanical shaft seal made of SiC/SiC ³⁾	Carbon/Alox

³⁾ Silicon carbide

Shafts

AMD motor and gear shafts are made of stainless steel. See table below.

Shaft	AMD	
	DIN	AISI
Motor	1.4301	304
Gear	-	-

3.2 Features of AMG/AFG

The below descriptions are related to the main components of the products. Product variants are available. See Variants.

Motor

The motor is a 4- or 6-pole squirrel-cage induction motor. The stator is supported by two ball bearings.

Gearbox

The planetary gearbox is positioned between the motor and the propeller.

All flowmakers have a second gear stage.

The gearbox is oil-filled, and the gear wheels are hardened to ensure long life. See the installation and operating instructions for information on oil type, oil quality and oil change intervals.

The gearbox/shaft seal housing has a water-in-oil sensor connected to an external relay which can give an alarm or cut out the motor in case of water ingress.

Propeller

For the number of propeller blades on the various types of mixers and flowmakers, see Technical data.

Bearings

Motor: single-row ball bearings.

Gear: tapered roller bearings.

Shaft seal

To prevent ingress of the surrounding liquid, the mixers and flowmakers have shaft seal(s), and possibly seal rings, fitted around the propeller shaft. To prevent the motor oil from mixing with the oil in the shaft seal housing or gearbox, the mixers and flowmakers also have a shaft seal or two seal rings between the shaft seal housing or gearbox and the motor.

Mixer/ flowmaker	Sealing against ingress of surrounding liquid	Sealing between shaft seal housing/gearbox and motor
AMG, AFG Ex versions	Two lip seals and a mechanical shaft seal, tungsten carbide/tungsten carbide or SiC/SiC ⁴⁾	Mechanical shaft seal made of carbon/Alox

⁴⁾ Silicon carbide

Shafts

AMG and AFG motor and gear shafts are made of stainless steel. See table below.

Shaft	AMG, AFG	
	DIN	AISI
Motor	1.7147	5120
Gear	1.5714	-

3.3 Cable

3.3.1 Cable and cable entry

The watertight cable entry prevents moisture ingress down to a depth of 20 metres. The cable entry is sealed by a double set of elastomeric rubber with a clamping ring.

Products for Biogas application are delivered with a casted cable inlet.

3.3.2 Standard cables

The factory-fitted cable has six power wires to allow star-delta connection.

Cable type	Dimension	Outer diameter [mm]
Standard		
S1BN8-F 11G1.5	11 x 1.5 mm ²	17
S1BN8-F 11G2.5	11 x 2.5 mm ²	21
H07RN-F 7G4 + 4 x 1	7 x 4 mm ² + 4 x 1 mm ²	21
Biogas		
Power supply cable Lapp Ölflex FD Robust	7 x 4 mm ² + 4 x 1.5 mm ²	21
Screened cable		
H07RC4N8-F 7G4 + 4 x 1	7 x 4 mm ² + 4 x 1 mm ²	22.5

The cable type required for each product is stated in the tables in section Technical data.

3.4 Sensors

As standard, the mixer or flowmaker is supplied with the following:

- three thermal switches (PTO) or thermistors (PTC), one in each motor winding
- one water-in-oil sensor incorporated in the gearbox.

3.5 Starting methods

AMG

Continuous operation: Direct starting can be used for motors up to 2.5 kW.

Star-delta starting, soft starter or frequency converter is recommended for motors of 3.0 kW and up.

Intermittent operation: Star-delta starting, soft starter or frequency converter is recommended throughout the entire power range.

AFG

Flowmakers must be started via star-delta starting, soft starter or frequency converter.

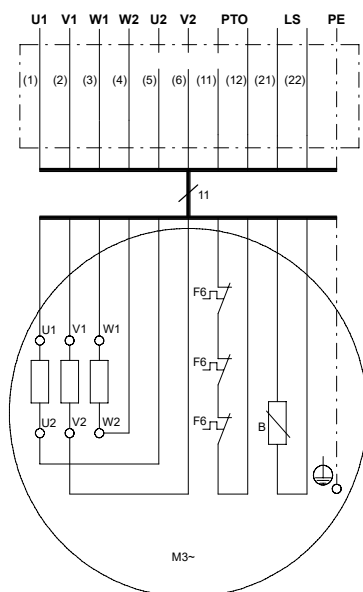
Standard cables

The factory-fitted cable has six power wires to allow star-delta connection.

Cable type	Dimension	Outer diameter [mm]
Standard		
S1BN8-F 11G1.5	11 x 1.5 mm ²	17
S1BN8-F 11G2.5	11 x 2.5 mm ²	21
H07RN-F 7G4 + 4 x 1	7 x 4 mm ² + 4 x 1 mm ²	21
Biogas		
Power supply cable Lapp Ölflex FD Robust	7 x 4 mm ² + 4 x 1.5 mm ²	21
Screened cable		
H07RC4N8-F 7G4 + 4 x 1	7 x 4 mm ² + 4 x 1 mm ²	22.5

The cable type required for each product is stated in the tables in section Technical data.

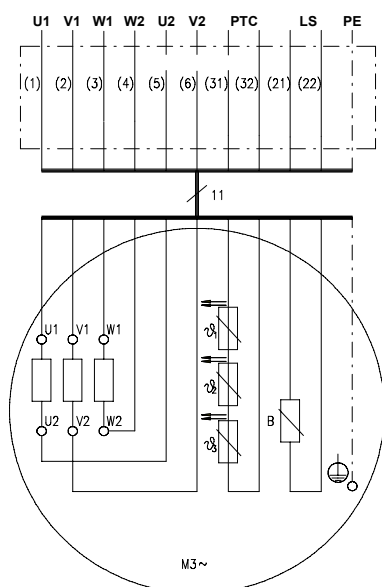
3.6 Wiring diagrams



TM024940

Wiring diagram, three thermal switches (PTO)

Terminals	Description
1, 2, 3, 4, 5, 6	Ends of the three stator windings (U1, U2, V1, V2, W1, W2)
11, 12	Thermal switches (F6)
21, 22	Leak sensor in gearbox (B) See section Water-in-oil sensor.



TM024932

Wiring diagram, three thermistors (PTC)

Terminals	Description
1, 2, 3, 4, 5, 6	Ends of the three stator windings (U1, U2, V1, V2, W1, W2)
31, 32	Thermistors (according to DIN 44081) (91, 92, 93)
21, 22	Leak sensor in gearbox See section Water-in-oil sensor.

3.7 Water-in-oil sensor

The gearbox is monitored for the ingress of water by a water-in-oil sensor incorporated in the gearbox or shaft seal housing as standard. Via an external relay, the sensor triggers an alarm signal and/or switches off the motor.

Connect the sensor to a leak detector relay. The relay must be a Grundfos ALR 20/A Ex relay, supplied as an optional accessory.

See section Accessories.



The water-in-oil sensor is an electronic component. Do not test the water-in-oil sensor with an ohmmeter or other measuring instruments.



For further information, see the installation and operating instructions of the ALR 20/A Ex.
<http://net.grundfos.com/qr/i/99421246>

3.8 Characteristics of mixed or moved liquids

pH value	4-10
Liquid temperature	5-40 °C
Maximum density	1060 kg/m ³
Maximum sludge index	125 ml/g
Maximum dynamic viscosity	500 mPas
Chloride content	≤ 200 mg/l (for stainless steel DIN 1.4301)
Chloride content	≤ 1000 mg/l (for stainless steel DIN 1.4404)

Mixers are suitable for applications involving sludge with a typical dry solids content (DS) as stated in the table below. Mixers are also suitable for a wide range of other applications involving similar liquids such as slurry and paper pulp.

Activated sludge	0.5 % DS
Selector zones	0.5 % DS
Anoxic zones	0.5 % DS
Bivalent zones	0.5 % DS
Anaerobic zones	0.5 % DS
Primary sludge	≤ 3 % DS
Secondary sludge	≤ 6 % DS
Digested sludge	≤ 8 % DS
Collection tank without screen	≤ 2 % DS
Collection tank with sand	≤ 2 % DS

3.9 Sound pressure level

The sound pressure level of the mixer or flowmaker is lower than 70 dB(A).

3.10 Explosion-proof variants

Use explosion-proof mixers and flowmakers in potentially explosive environments. The explosion classification is Ex de IIC T4 or Ex e ck ib IIC T3. In each individual case, the installation must be approved by the local authorities.

4. Selection of product

4.1 Ordering a mixer or flowmaker

Select most suitable from the below product groups:

- mixer or flowmaker.
- custom-built variations (option).
- accessories for mechanical installation. Adapters are available as accessories.
- electrical accessories, leak detector relay or frequency converter.

4.1.1 Standard mixer

This is an example of a standard AMG mixer:

- mixer
- 10 m cable
- paint, black, NCS 9000N, paint grade according to ISO 12944-2: 2017, durability: high, corrosivity category: Im2.
- thermal protection for all explosion-proof products: three thermistors (PTC), one in each motor winding
- one water-in-oil sensor incorporated in the gearbox.



In Grundfos Product Center, Grundfos-specific data can be found by entering the product number, e.g. 97746384.

4.1.2 Variants

If a longer cable is required, it is no longer a standard mixer or flowmaker. A list of variants can be found in section Variants.

4.1.3 Accessories

See section Accessories, for selection of the correct accessories.

Accessories are not fitted in factory.

4.1.4 Relay

The following leak detector relay can be selected:

- ALR 20/A Ex.

4.2 Selecting a mixer or flowmaker

When selecting mixers and flowmakers, you must consider many different parameters. To ensure optimum selection, contact Grundfos.

For advanced applications, we recommend to carry out CFD (Computer animated Flow Design) simulations. Please contact Grundfos.

5. Product range

5.1 Standard versions

5.1.1 AMD.05 - 08 mixers

Product designation	Permissible motor voltage [V]	Product number
		10 m cable
AMD.05.16.1450	3 x 400	99056116
AMD.07.18.1430	3 x 400	99018155
AMD.08.16.1690	3 X 380	99083810
AMD.08.16.1730	3 X 460	99056115

5.2 Explosion-proof versions

5.2.1 AMG mixers

Product designation	Permissible motor voltage [V]	Product number	
		10 m cable 80/80	10 m cable 100/100
AMG.15.55.342.Ex.5.1A	3 x 400 D	97746378	
AMG.22.64.338.Ex.5.1A	3 x 400 D	97746379	
AMG.30.64.340.Ex.5.1A	3 x 400 D	97746380	
AMG.40.71.335.Ex.5.1A	3 x 400 D	97746381	
AMG.55.73.345.Ex.5.1A	3 x 400 D		97746382
AMG.75.73.343.Ex.5.1A	3 x 400 D		97746383
AMG.110.84.343.Ex.5.1A	3 x 400 D		97746384
AMG.150.90.357.Ex.5.1A	3 x 400 D		97746385
AMG.185.91.357.Ex.5.1A	3 x 400 D		97746386

5.2.2 AFG flowmakers

Product designation	Permissible motor voltage [V]	Product number	
		10 m cable 100/100	10 m cable 120/120
AFG.15.130.79.Ex.5.1A.A	3 x 400 D	96257410	
AFG.22.130.78.Ex.5.1A.A	3 x 400 D	96257411	
AFG.30.130.95.Ex.5.1A.A	3 x 400 D	96257412	
AFG.40.130.94.Ex.5.1A.A	3 x 400 D	96257413	
AFG.13.180.30.Ex.5.1A.A	3 x 400 D	96257414	
AFG.18.180.34.Ex.5.1A.A	3 x 400 D	96257415	
AFG.24.180.39.Ex.5.1A.A	3 x 400 D	96257416	
AFG.37.180.46.Ex.5.1A.A	3 x 400 D	96257417	
AFG.15.230.23.Ex.5.1A.A	3 x 400 D	96257418	
AFG.22.230.26.Ex.5.1A.A	3 x 400 D	96257419	
AFG.30.230.30.Ex.5.1A.A	3 x 400 D	96257420	
AFG.40.230.34.Ex.5.1A.A	3 x 400 D	96257421	
AFG.30.260.34.Ex.5.1A.A	3 x 400 D		98510929
AFG.34.260.35.Ex.5.1A.A	3 x 400 D		98510930
AFG.40.260.38.Ex.5.1A.A	3 x 400 D		98510931
AFG.46.260.39.Ex.5.1A.A	3 x 400 D		98510932
AFG.55.260.42.Ex.5.1A.A	3 x 400 D		98510933
AFG.48.260.35.Ex.5.1A.A	3 x 400 D		98510934
AFG.58.260.38.Ex.5.1A.A	3 x 400 D		98510935
AFG.65.260.39.Ex.5.1A.A	3 x 400 D		98510936
AFG.75.260.41.Ex.5.1A.A	3 x 400 D		97746407

6. Variants

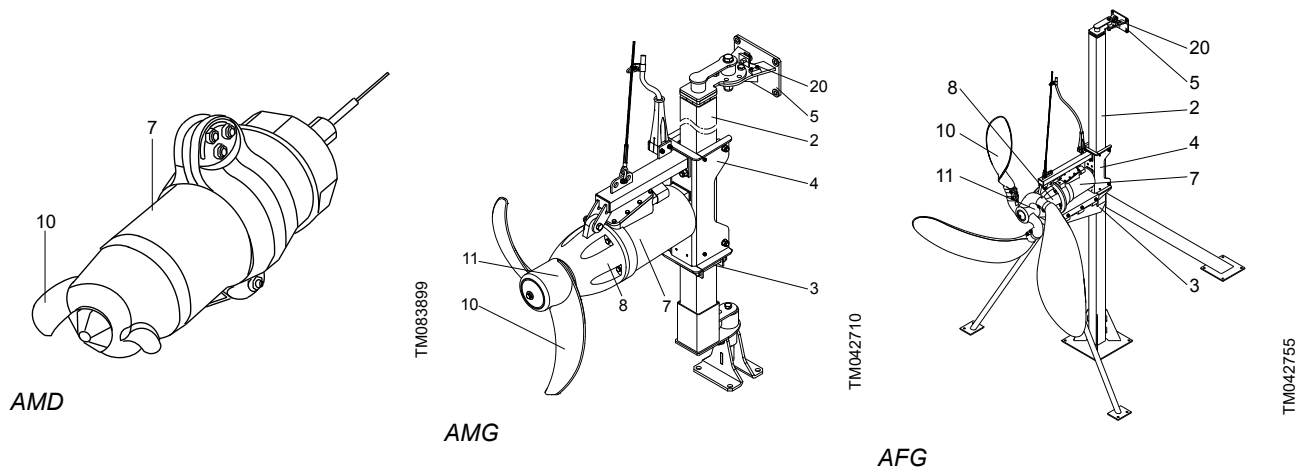
6.1 Variants

Motor					
Standard cable	Power supply cable	11 x 1.5 mm ² , D17	S1BN8-F 11G1.5	15 m	Contact Grundfos.
				25 m	
				35 m	
				50 m	
		11 x 2.5 mm ² , D21	S1BN8-F 11G2.5	15 m	
				25 m	
				35 m	
				50 m	
		7 x 4 mm ² + 4 x 1 mm ² , D21	H07RN-F 7G4 + 4 x 1	15 m	
				25 m	
				35 m	
				50 m	
Screened cable complete (cast in the cable entry)	Screened power supply cable	7 x 4 mm ² + 4 x 1 mm ² , D22.5	H07RC4N8-F 7G4 + 4 x 1	10 m	
				15 m	
				25 m	
				35 m	
Biogas cable complete (cast in the cable entry)	Power supply cable Lapp Ölflex FD Robust	7 x 4 mm ² + 4 x 1.5 mm ² , D21	TPE/TPE 7G4 + 4 x 1.5	50 m	
				10 m	
				15 m	
				25 m	

7. Construction

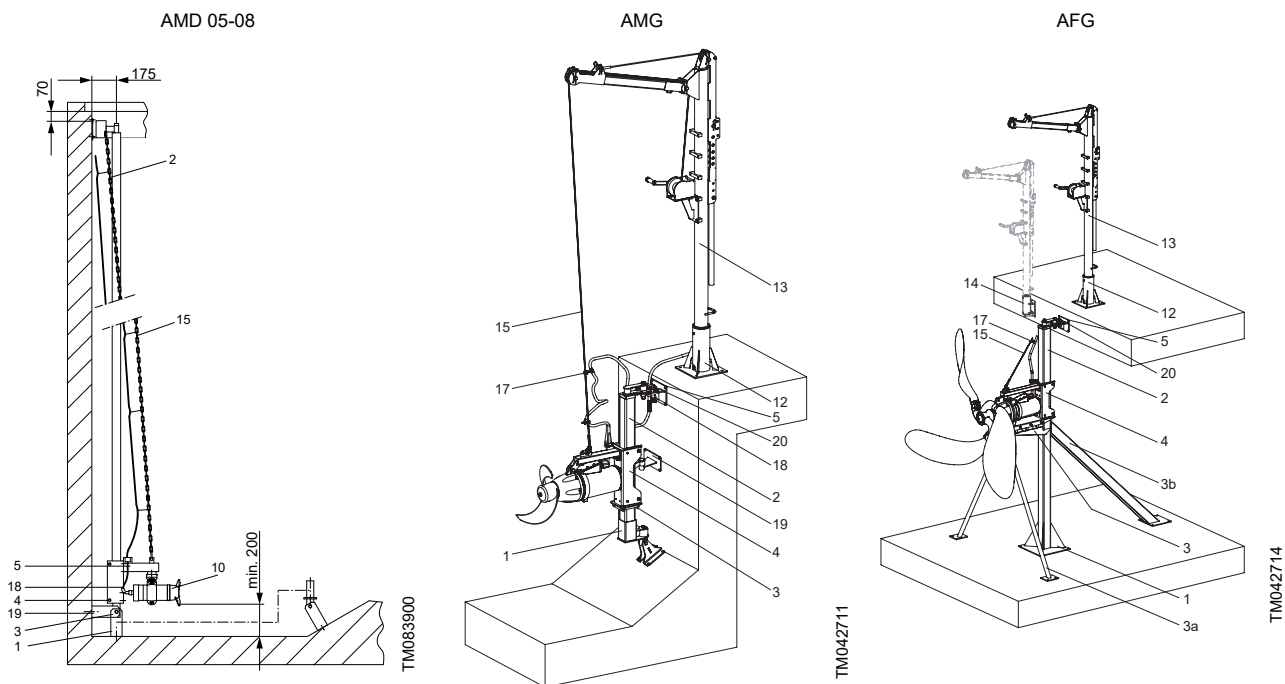
7.1 AMD, AMG and AFG

The position numbers in the following figures refer to section Material specification.



7.2 Installation

The position numbers in the following figures refer to section Material specification.



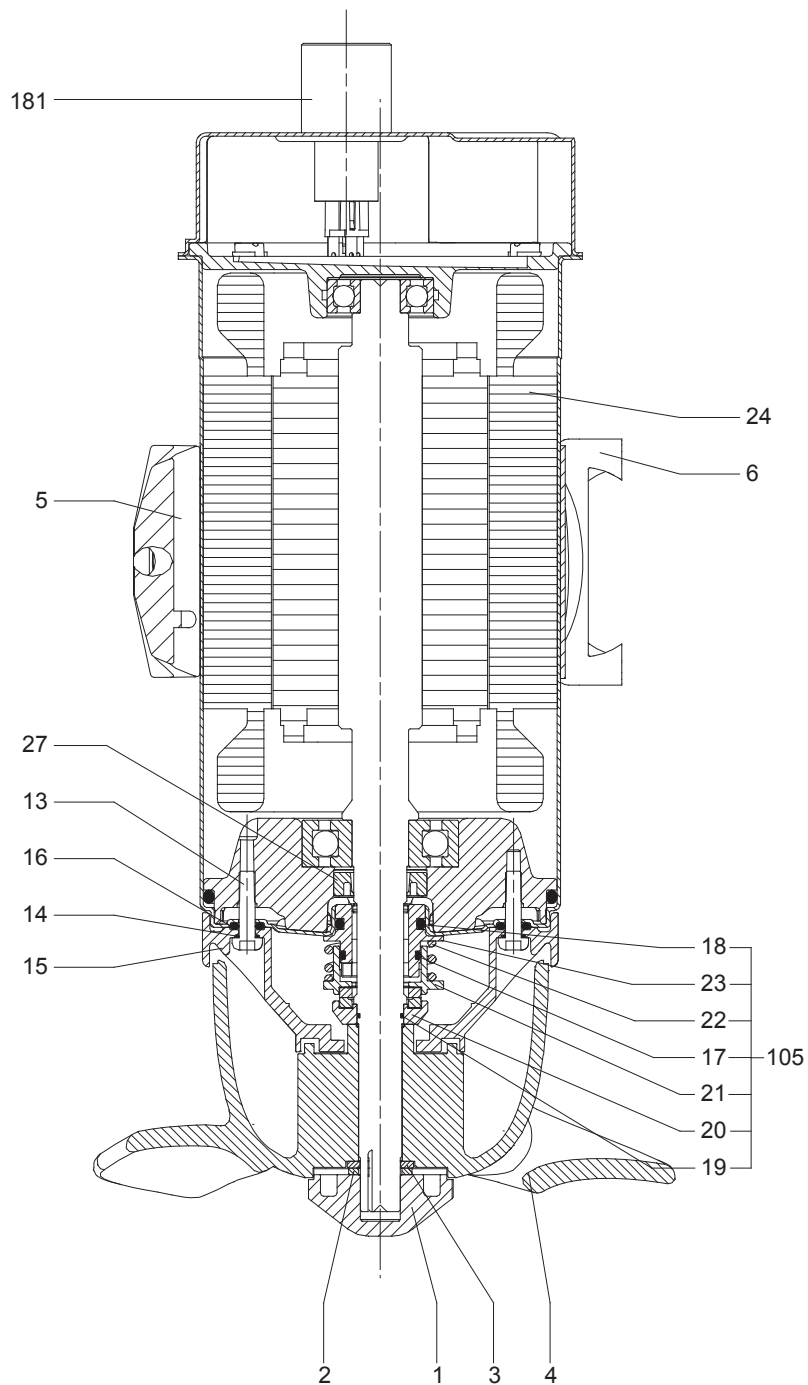
7.3 Material specification

The position numbers refer to figures AMD 05 - 08, AMG and AFG and Installation drawings.

Pos.	Component	Material	DIN/EN standard	AISI/ASTM	Mixer/flowmaker
1	Bottom fixation bracket/plate	Stainless steel	1.4301	304	All types
2	Column profile		1.4404	316 L	
3	Depth blocker				
3a	Front support leg	Stainless steel	1.4301	304	AMG, AFG
3b	Back support leg		1.4404	316 L	
4	Motor bracket	Stainless steel	1.4301 1.4404	304 316 L	All types
5	Top fixation bracket incl. safety wire	Stainless steel	1.4301 1.4404	304 316 L	All types
7	Motor housing	Stainless steel	EN1.4401	316	AMD
		Cast iron, grade 25 (EN-GJL-250)	EN-JL1040		AMG, AFG
8	Gear housing	Cast iron, grade 25 (EN-GJL-250)	EN-JL1040		AMG, AFG
		Stainless steel	1.4301	304	AMG
		Composite material, PA66, polyamide			AMD
10	Propeller	Polyurethane resin with cast-iron (EN-GJS-400-15) reinforcement	EN-JS1030		AFG.xx.130.xx AFG.xx.180.xx AFG.xx.230.xx AFG.xx.260.xx
		Stainless steel	1.4301	304	AMG AFG.xx.130.xx
11	Hub	Cast iron (EN-GJS-400-15)	EN-JS1030		AFG.xx.180.xx AFG.xx.230.xx AFG.xx.260.xx
12	Crane foot		1.4301 1.4404	304 316 L	All types
		Galvanised steel			
13	Crane with winch		1.4301 1.4404	304 316 L	All types
		Galvanised steel			
14	Crane foot for vertical installation		1.4301 1.4404	304 316 L	All types
		Galvanised steel			
15	Lifting wire, incl. wire clamp		1.4404	316 L	All types
17	Cable clamp		1.4404	316 L	All types
18	Cable sock incl. shackle				All types
19	Intermediate fixation bracket		1.4301	304	All types
20	Wire clamp (included in pos. 15 - lifting wire)				All types

7.4 Sectional drawings

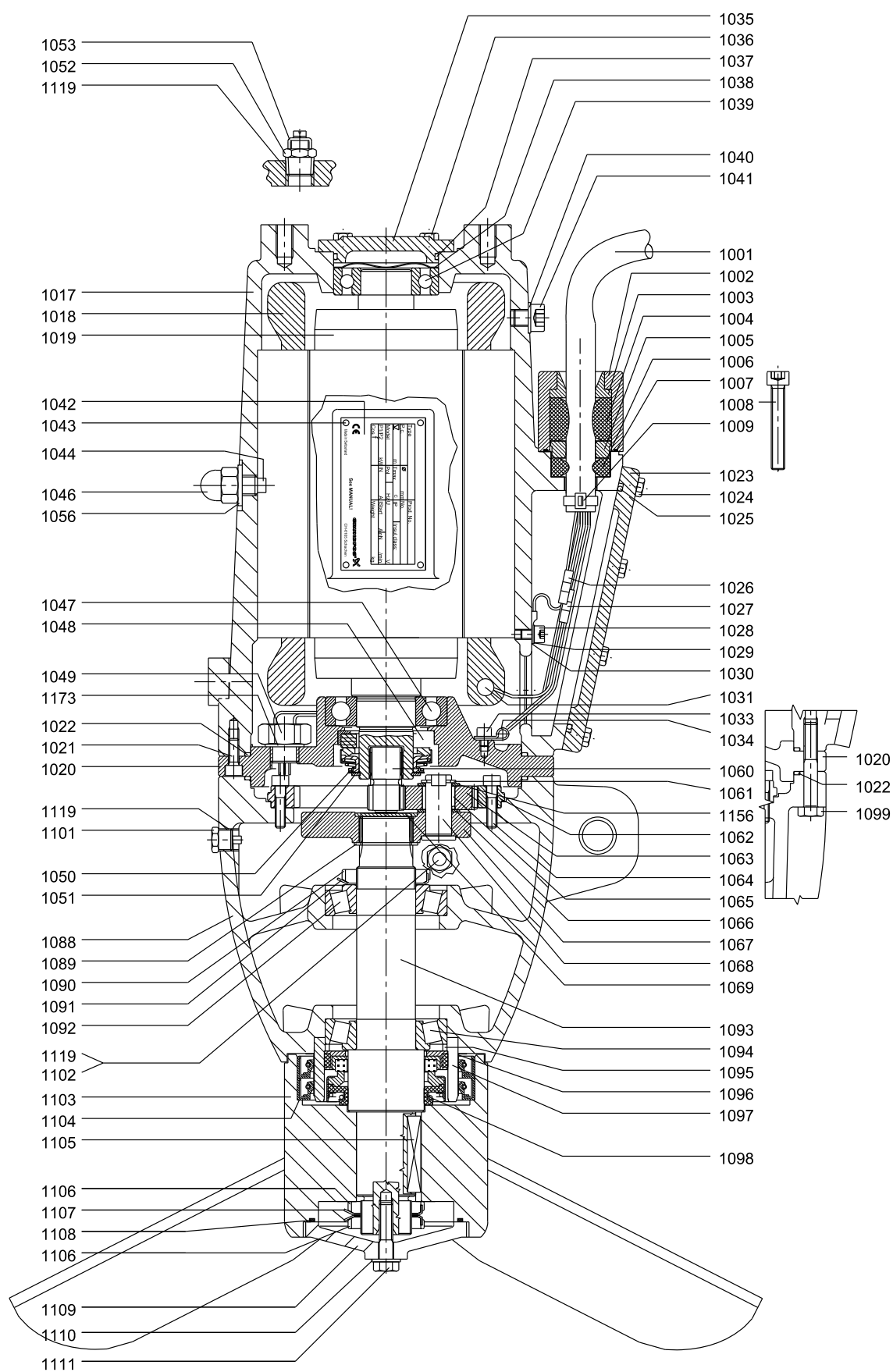
7.4.1 AMD 05 - 08



TM066354

Sectional drawing, AMD 05 - 08

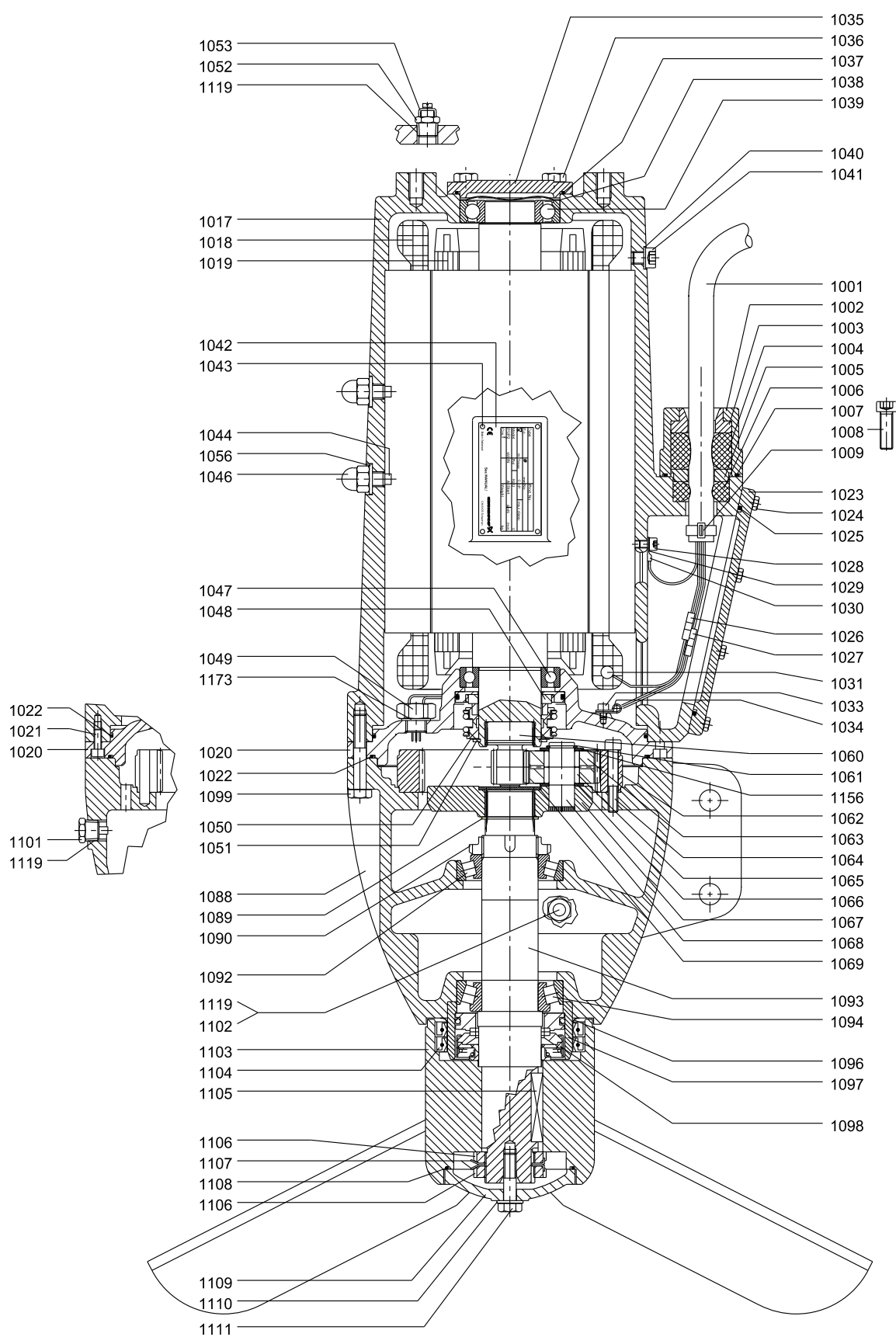
7.4.2 AMG 15.xx to AMG 40.xx, Ex version



Sectional drawing, AMG 15.xx to AMG 40.xx, Ex version

TM035491

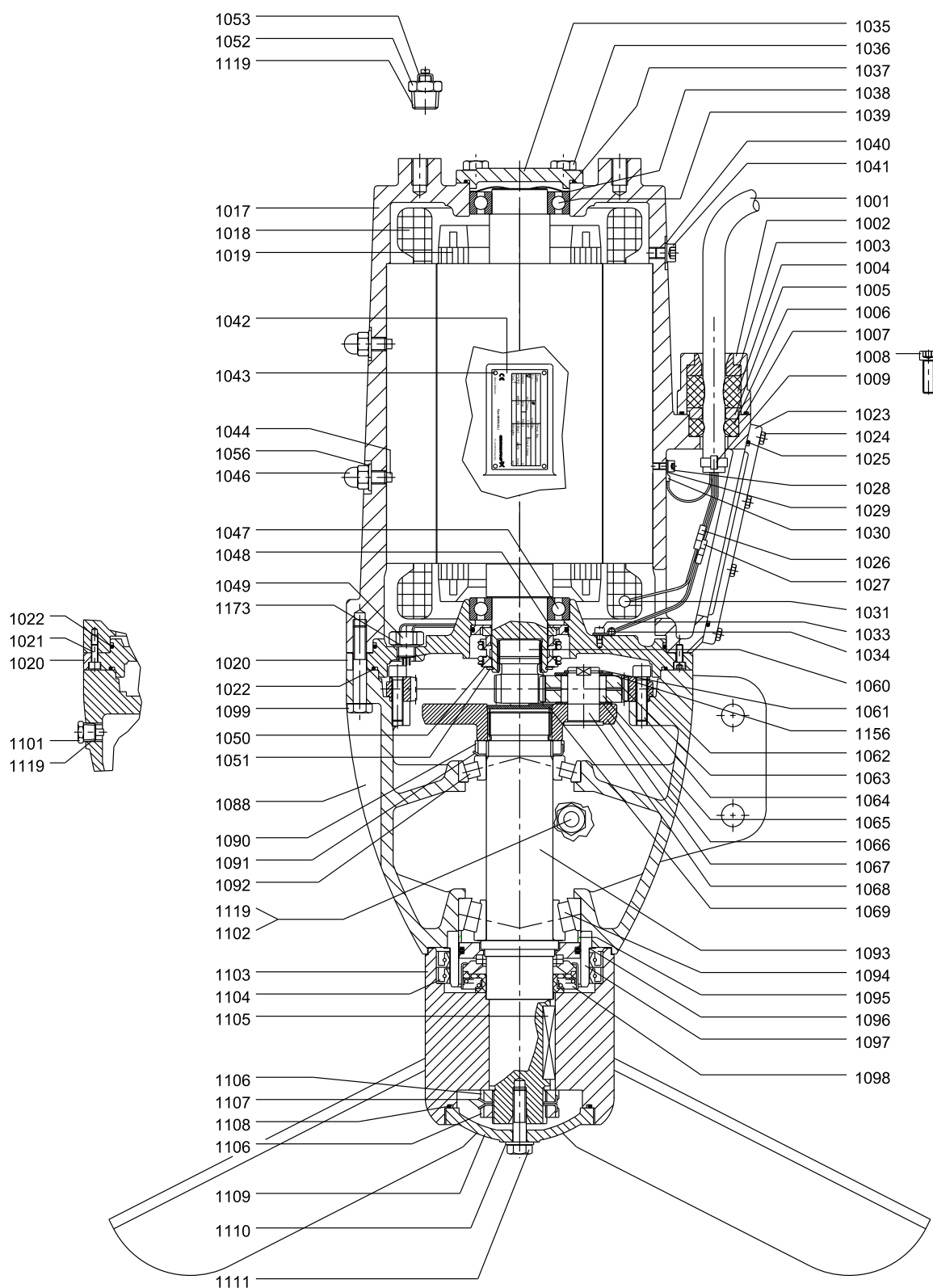
7.4.3 AMG 55.xx to AMG 110.xx, Ex version



TM035493

Sectional drawing, AMG 55.xx to AMG 110.xx, Ex version

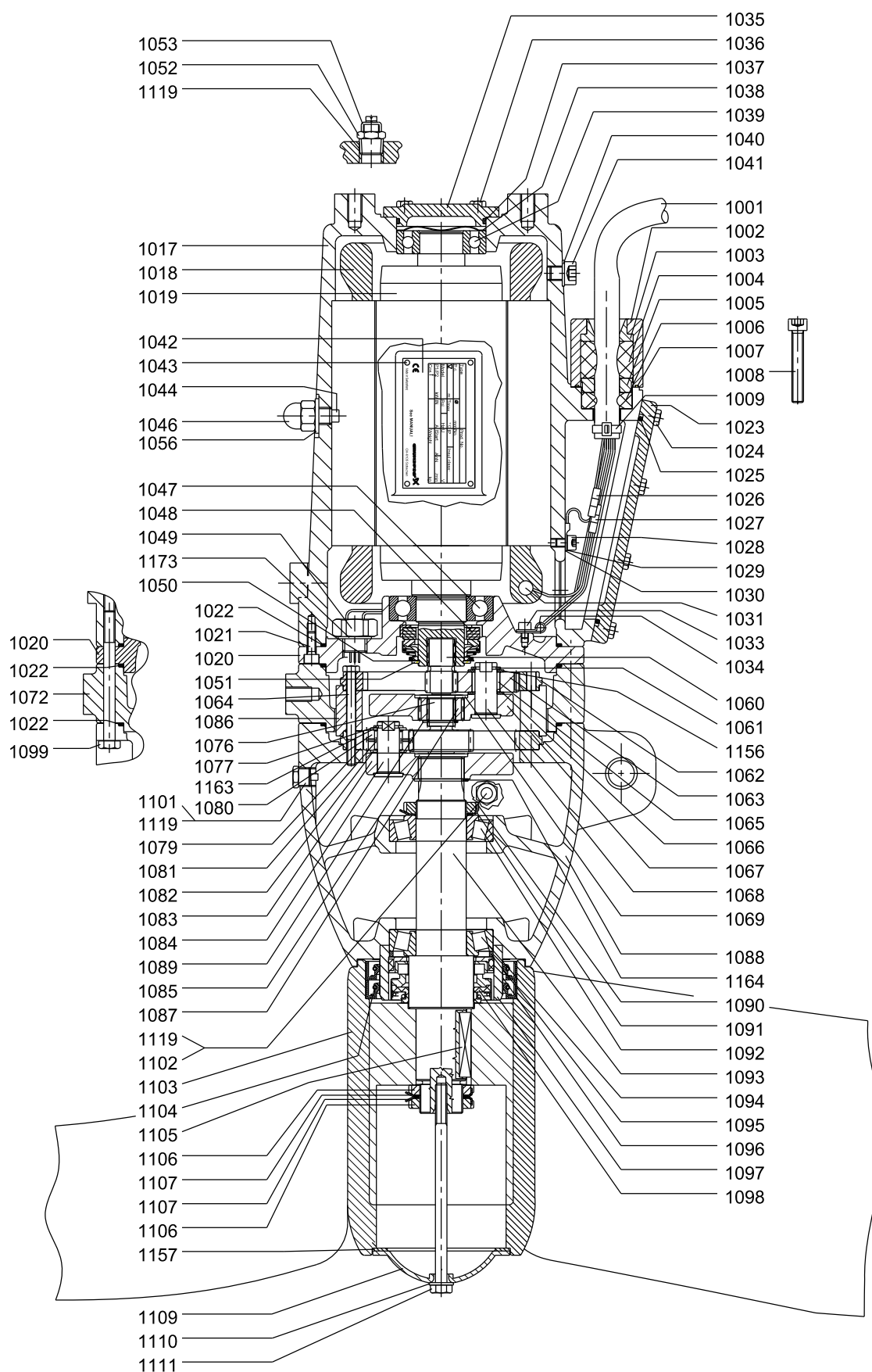
7.4.4 AMG 150.90.357 and AMG 185.91.357, Ex version



TM035496

Sectional drawing, AMG 150.90.357 and AMG 185.91.357, Ex version

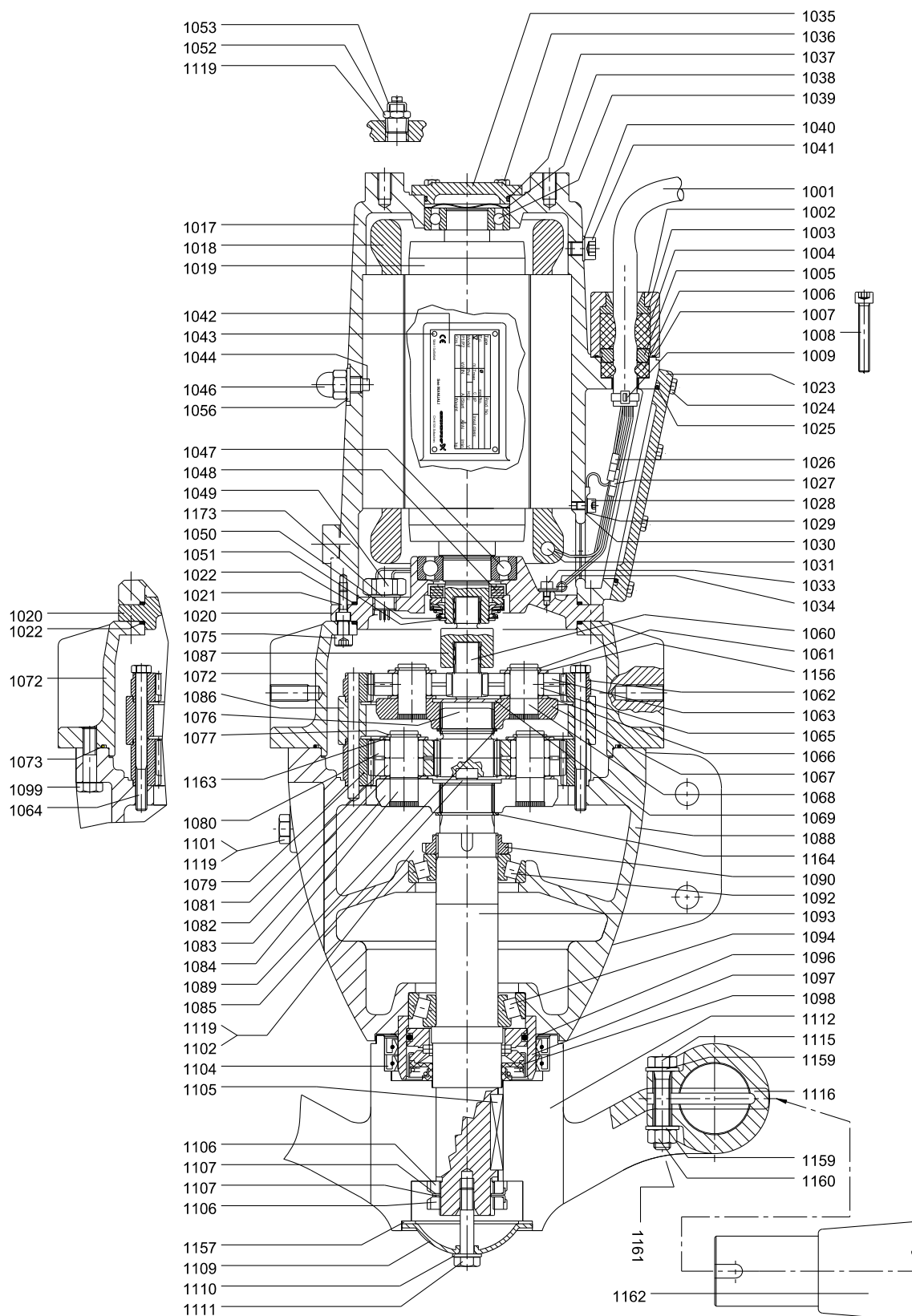
7.4.5 AFG xx.130.xx, Ex version



Sectional drawing, AFG xx.130.xx, Ex version

TM035492

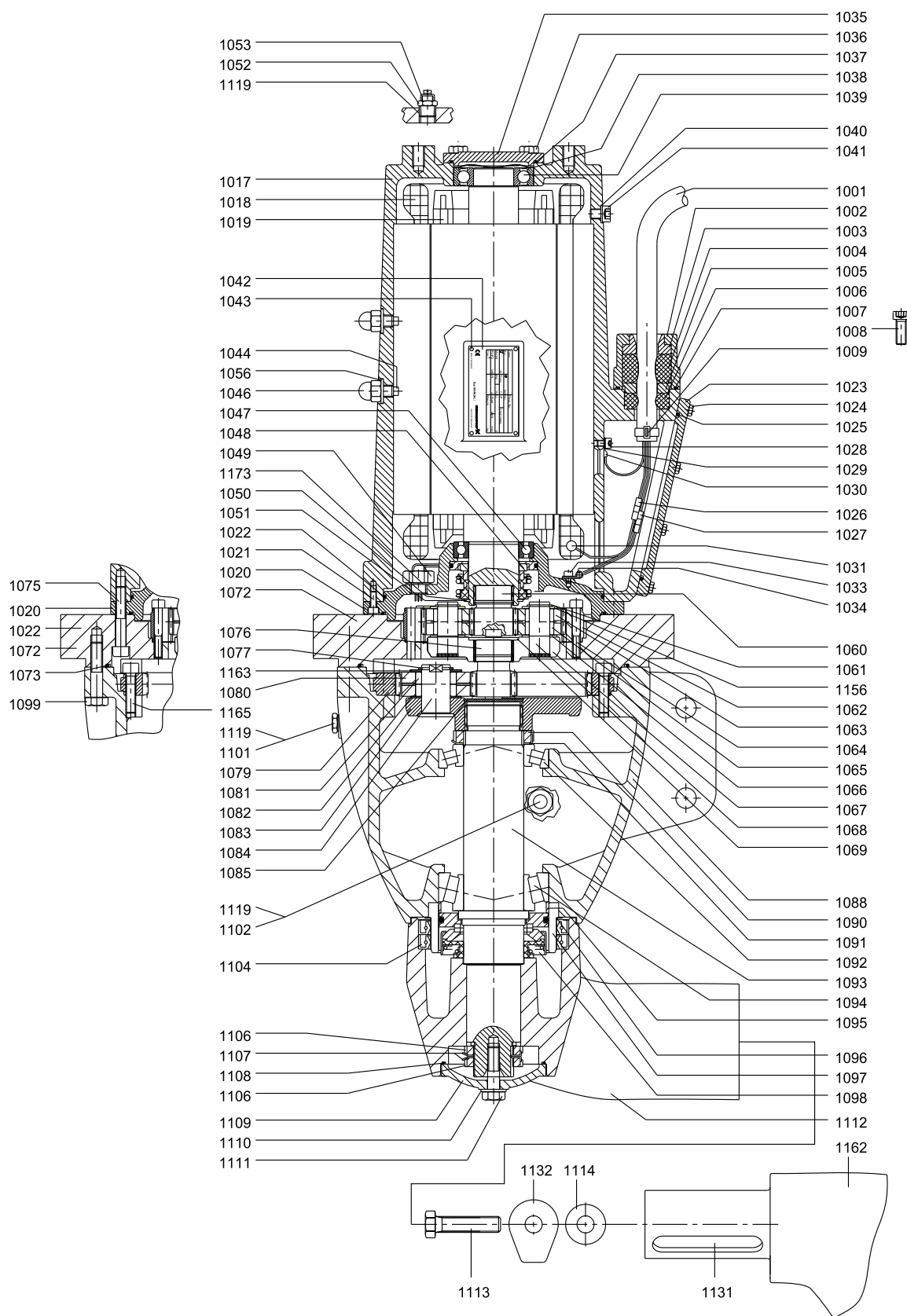
7.4.6 AFG xx.180.xx and AFG xx.230.xx, Ex version



Sectional drawing, AFG xx.180.xx and AFG xx.230.xx, Ex version

TM035494

7.4.7 AFG xx.260.xx. Ex version



TM049527

Sectional drawing. AFG xx.260.xx. Ex version

7.5 Position numbers and material specification

AMD 05 - 08

Pos.	Description	Material	DIN	AISI/ASTM
1	Hub screw	Stainless steel	1.4408	316
2	Spring washer, M12	Stainless steel	1.4301	304
3	Lock washer	Stainless steel	1.4401	316
4	Propeller	Composite material, PA66, polyamide		
5	Mounting clamp	Stainless steel	1.4401	316
6	Mounting bracket, 2" thread	Stainless steel	1.4408	316
13	Screw, M5 x 20	Stainless steel	1.4301	304
14	O-ring, 5 x 1	Rubber	NBR	
15	Seal cover	Composite material, PBT/PC, black		
16	O-ring, 4.8 x 2.5	Rubber	NBR	
17	O-ring, 21 x 2	Rubber	NBR	
18	O-ring, 21.8 x 3	Rubber	NBR	
19	O-ring, 12 x 1	Rubber	NBR	
20	Rotating shaft seal face	Stainless steel	1.4401	316
21	Stationary shaft seal seat	Stainless steel	1.4401	316
22	Spring for shaft seal	Stainless steel	1.4401	316
23	Seat of stationary shaft seal seat	Composite material, PPE/PS		
-	Primary seal faces	SiC/SiC		
24	Motor			
-	Shaft end	Stainless steel	1.4301	304
-	Outer sleeve, stator housing	Stainless steel	1.4401	316
181	Supply cable with plug	H07RN-F 4G1		

AMG, AFG

Pos.	Component	Material
1001	Cable	CPE (rubber)
1002	Cable flange	EN-GJL250/DIN 1.4404
1003	Cable guide	DIN 1.4301
1004	Cable sealing, large	Elastomer (70 Shore hardness)
1005	Thrust washer	DIN 1.4301
1006	Cable sealing, small	Elastomer (70 Shore hardness)
1007	O-ring	NBR
1008	Screw	DIN 1.4301/DIN 1.4401
1009	Cable relief	Zinc-plated steel
1017	Motor housing	EN-GJL250/DIN 1.4404
1018	Stator	Treated sheet metal/copper
1019	Rotor with shaft	Treated sheet metal/aluminium
1020	Motor flange	EN-GJL250/GK-AISI11Mg
1021	Screw	Zinc-plated steel
1022	O-ring	NBR
1023	Terminal box cover	EN-GJL250
1024	Screw	DIN 1.4301
1025	O-ring	NBR
1026	Cable joint	Tin-plated copper, PA-insulated
1027	Cable joint	Tin-plated copper, PA-insulated
1028	Screw	Zinc-plated steel/DIN 1.4401
1029	Lock washer	Zinc-plated spring steel/DIN 1.4401
1030	Cable shoe	Tin-plated copper
1031	PTC	
1033	Screw	Zinc-plated steel
1034	Cable clamp	
1035	Bearing cover	EN-GJL250

Pos.	Component	Material
1036	Screw	DIN 1.4301
1037	O-ring	NBR
1038	Compensation disc	DIN 1.0605
1039	Ball bearing	
1040	U-washer	Copper
1041	Screw	DIN 1.4301
1042	Nameplate	DIN 1.4301
1043	Rivet	DIN 1.4301 (INOX/INOX)
1044	Set screw	Plain steel 45H / DIN 1.4401
1046	Nut	DIN 1.4301/DIN 1.4401
1047	Ball bearing	
1048	Mechanical shaft seal	Carbon/Alox/NBR
1049	Water-in-oil sensor	Brass/epoxy resin
1050	Shim	Bright steel
1051	Circlip	Spring steel (DIN 1.7222)
1052	Plug	Brass (DIN 2.0220)
1053	Connection for protective earthing	Nickel-plated brass
1056	Seal washer	Copper
1060	Sun wheel	34CrMo4V (DIN 1.7220)
1061	Circlip	Spring steel (DIN 1.7222)
1062	Ring gear	34CrMo4V (DIN 1.7220)
1063	Planet gear	34CrMo4V (DIN 1.7220)
1064	Screw	Zinc-plated steel
1065	Roller	Roller bearing steel
1066	Washer	Ck45N (DIN 1.1191)
1067	Planet carrier	Ck45N (DIN 1.1191)
1068	Planet pin	Ck45N (DIN 1.1191)
1069	Cover	Ck45N (DIN 1.1191)

Pos.	Component	Material
1072	Housing	EN-GJL250
1073	O-ring	NBR
1075	Screw	Zinc-plated steel
1076	Sun wheel	34CrMo4V (DIN 1.7220)
1077	Circlip	Spring steel (DIN 1.7222)
1079	Ring gear	34CrMo4V (DIN 1.7220)
1080	Planet gear	34CrMo4V (DIN 1.7220)
1081	Roller	Roller bearing steel
1082	Washer	Ck45N (DIN 1.1191)
1083	Planet carrier	Ck45N (DIN 1.1191)
1084	Planet pin	Ck45N (DIN 1.1191)
1085	Cover	Ck45N (DIN 1.1191)
1086	Distance piece	34CrMo4V (DIN 1.7220)
1087	Gear coupling	20MnCr5/18NiCrMo5
1088	Gear housing	EN-GJL250
1089	Circlip	Spring steel (DIN 1.7222)
1090	Slotted nut	Bright steel
1091	Lock washer	Bright steel
1092	Tapered roller bearing	
1093	Gear shaft	16CrNi4 (DIN 1.5713)
1094	Tapered roller bearing	
1095	Intermediate ring	DIN 1.0570
1096	Wear sleeve	DIN 1.4300
1097	Wear ring	DIN 1.4301/Ceramic
1098	Mechanical shaft seal	Tungsten carbide/SiC-SiC
1099	Screw	DIN 1.4301
1101	Drain plug with magnet	Brass (DIN 2.0220)
1102	Plug	Brass (DIN 2.0220)
1103	Propeller	DIN 1.4301/DIN 1.4404/PA
1104	Lip seal	FKM
1105	Parallel key	Ck45/1.4401
1106	Slotted nut	Bright steel
1107	Lock washer	Bright steel
1108	O-ring	NBR
1109	Hub cover	EN-GJL250/DIN 1.4404/POM
1110	Washer	Brass (DIN 2.0220)
1111	Screw	DIN 1.4301/DIN 1.4401
1112	Hub	EN-GJS-400-15
1113	Screw	DIN 1.4301
1114	Washer	DIN 1.4301
1115	Screw	A4-80 (DIN 1.4404)
1116	Grooved pin	Bright steel
1119	PTFE tape	PTFE
1120	Screw-sealing paste	
1121	Sealing paste Curil K2	
1122	Gear oil	ISO VG 68/220
1131	Fit-in key	Ck45
1132	Blinds	DIN 1.4301
1156	Washer	Ck45N (DIN 1.1191)
1157	Gasket	NBR 70
1159	Washer	DIN 1.4401
1160	Nut	DIN 1.4401
1161	Screw	DIN 1.4401
1162	Propeller blade	Polyurethane resin
1163	Washer	Ck45N (DIN 1.1191)

Pos.	Component	Material
1164	Circlip	Spring steel (DIN 1.7222)
1165	Screw	Zinc-plated steel
1173	Seal washer	Copper

8. Positioning

8.1 Introduction

Correct positioning of mixers and flowmakers in the tanks of a wastewater treatment plant is extremely important to ensure high operational efficiency of the treatment process, the best possible equipment performance and long equipment life. The quality of even the best mixer or flowmaker can easily be thwarted by wrong positioning. The positioning rules described in this section do not cover all installation possibilities; in case of specific concerns or questions regarding the positioning of mixers or flowmakers at a specific site, please contact Grundfos.

When positioning mixers and flowmakers, the rules concerning minimum rear and sidewall clearance and minimum distance from the tank bottom or other objects have to be adhered to as the mixer, flowmaker or other equipment may otherwise be damaged.

8.2 Mixers

8.3 Positioning of mixers in general

Figure Principle sketch of positioning of mixers shows the positioning of mixers.

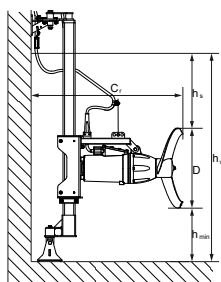
Explanation of variables:

$h_{\min}$	minimum distance between tank bottom and propeller tip
h_s	minimum distance between propeller tip and water surface
h_w	water depth
D	propeller diameter
C_r	minimum clearance between propeller tip and rear wall
d	inner diameter of the tank

Make sure to fulfill the following requirements:

$h_{\min}$	$\geq 0.5 \times D$
h_s	$\geq 1.0 \times D$
h_w	$\geq 2.5 \times D$
C_r	$\geq 1.5 \times D$

The clearance requirement (C_r) is usually met as the total length of the motor, motor bracket and top fixation bracket (mounted on the wall) normally exceeds $1.5 \times D$.



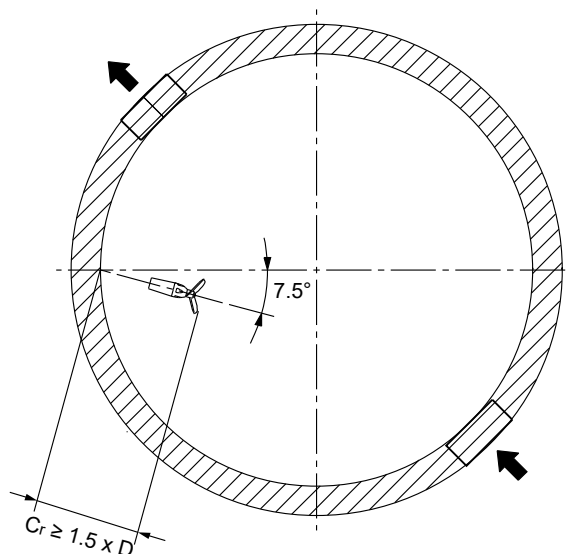
Principle sketch of positioning of mixers

Examples

8.3.1 Positioning of one mixer in a circular tank

The positioning rules shown in figs Mixing of liquid to prevent solids settling and Vortex circulation of liquid also apply to flowmakers.

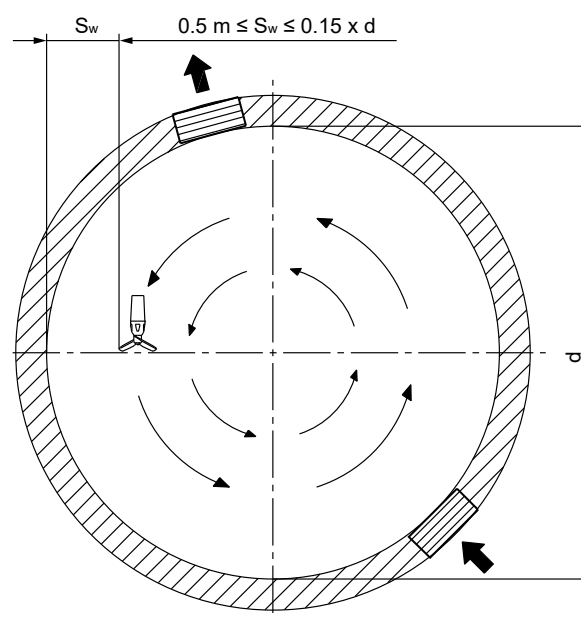
The mixer should be positioned as shown in fig. Mixing of liquid to prevent solids settling. This is done to ensure full effect and to create velocities that are distributed as evenly as possible. Settling is thus prevented as solids are mixed with the liquid.



TM055065

Mixing of liquid to prevent solids settling

If liquid circulation is required, the mixer should be positioned as shown in fig. Vortex circulation of liquid. Be aware that possible vortex formation at the centre of the tank may cause central bottom settling.



TM055066

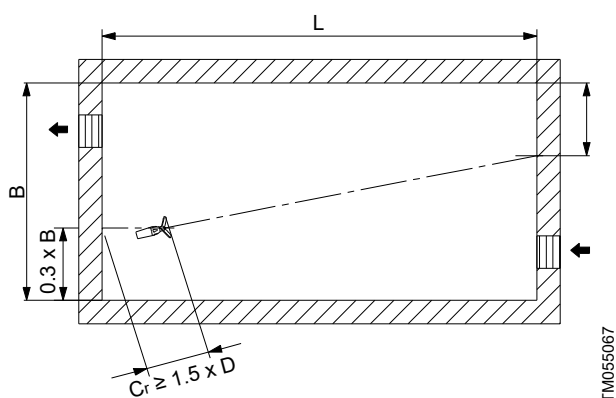
Vortex circulation of liquid

8.3.2 Positioning of one mixer in a rectangular tank

The positioning of a mixer in a rectangular tank depends on the ratio between the length (L) and width (B) of the tank ("tank ratio"). This will ensure full effect and create velocities that are distributed as evenly as possible. Settling is thus prevented as solids are mixed with the liquid.

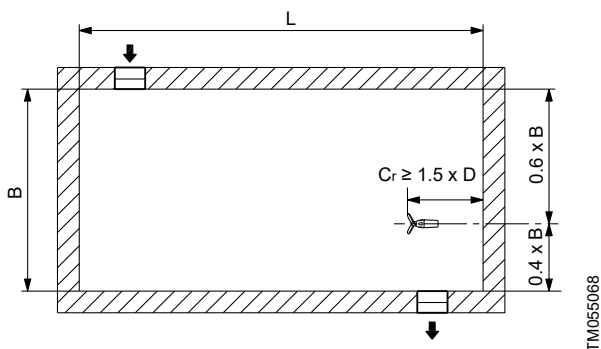
The positioning rules shown in figs Positioning of mixer if the ratio is $1.5 < L/B \leq 2.5$ and Positioning of mixer if the ratio is $1 < L/B \leq 2$ also apply to flowmakers.

If the tank ratio is $1.5 < L/B \leq 2.5$, the mixer must be positioned as shown in fig. Positioning of mixer if the ratio is $1.5 < L/B \leq 2.5$.



Positioning of mixer if the ratio is $1.5 < L/B \leq 2.5$

If the tank ratio is $1 < L/B \leq 2$, the mixer must be positioned as shown in fig. Positioning of mixer if the ratio is $1 < L/B \leq 2$.



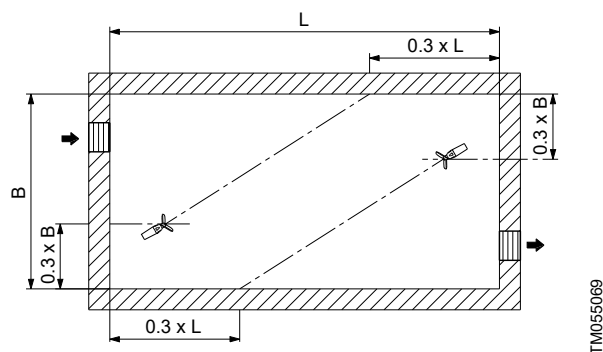
Positioning of mixer if the ratio is $1 < L/B \leq 2$

8.3.3 Positioning of two mixers in a rectangular tank

Use this method if two mixers are required in an installation.

The positioning rules shown in fig. Positioning of two mixers if tank ratio is $1.5 < L/B \leq 2.5$ also apply to flowmakers.

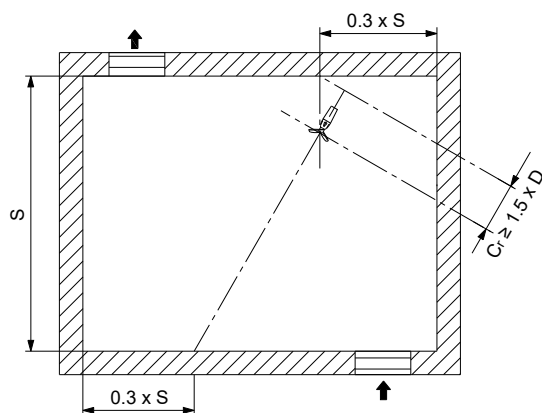
If the tank ratio is $1.5 < L/B \leq 2.5$, the mixers must be positioned as shown in fig. Positioning of two mixers if tank ratio is $1.5 < L/B \leq 2.5$.



Positioning of two mixers if tank ratio is $1.5 < L/B \leq 2.5$

8.3.4 Positioning of one mixer in a square tank

In square tanks all four sides (S) have the same length. In square tanks, the mixer must be positioned as shown in fig. *Positioning of mixer in a square tank*.

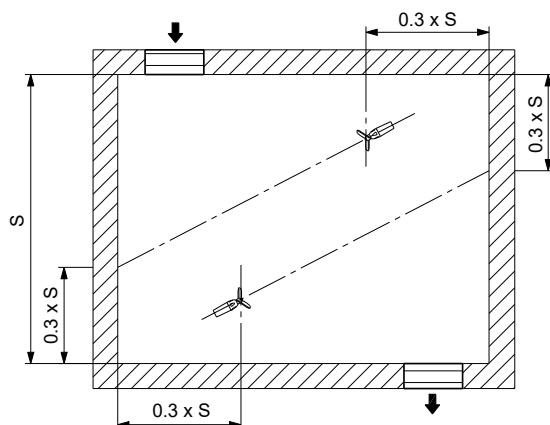


TM055070

Positioning of mixer in a square tank

8.3.5 Positioning of two mixers in a square tank

In square tanks, the mixers must be positioned as shown in fig. *Positioning of two mixers in a square tank*.



TM055071

Positioning of two mixers in a square tank

8.3.6 Positioning of one mixer in a deep tank

30 °/30 ° adapter

The 30 °/30 ° adapters are available for the AMD and AMG mixers and are used to angle the mixer upwards or downwards from 0 ° to 30 ° in steps of 10 ° for AMD and steps of 5 ° for AMG.

Definition of "deep tank"

Circular tank	$h_w \geq d$ (tank diameter)
Square tank	$h_w \geq S$ (tank side size)
Rectangular tank	$h_w \geq L$ (tank length)

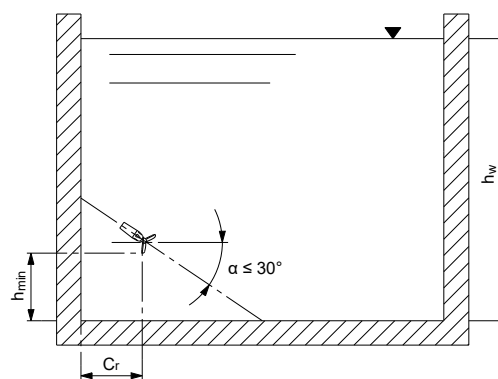
Positioning of one mixer in a deep tank

Mixer pointing downwards (fig. Mixer pointing downwards)

- $0.2 \times h_w \leq h_{min} \leq 0.3 \times h_w$

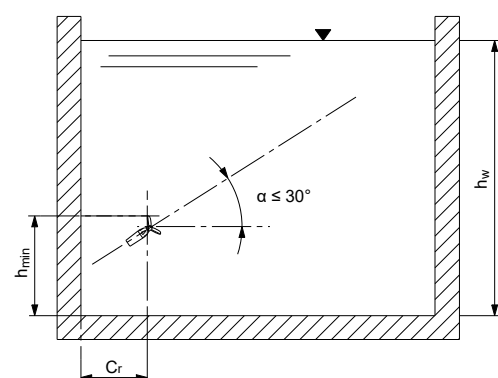
Mixer pointing upwards (fig. Mixer pointing upwards)

- $0.3 \times h_w \leq h_{min} \leq 0.5 \times h_w$



TM055072

Mixer pointing downwards



TM055073

Mixer pointing upwards

8.4 Flowmakers

8.5 Positioning of flowmakers in general

Figure Principle sketch of positioning of flowmakers shows the general positioning of flowmakers.

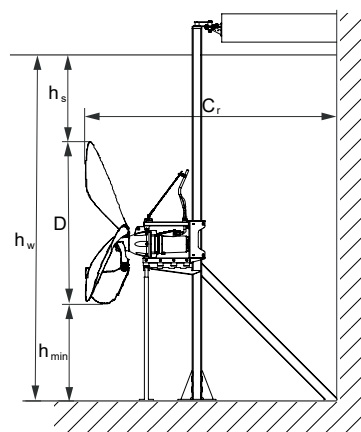
Explanation of variables:

$h_{\min}$	minimum distance between tank bottom and propeller tip
h_s	minimum distance between propeller tip and water surface
h_w	water depth
D	propeller diameter
C_r	minimum clearance between propeller tip and the rear wall

Make sure to fulfill the following requirements:

$h_{\min}$	$\geq 0.5 \text{ m}$
h_s	$\geq 0.75 \times D$
h_w	$\geq 0.5 \text{ m} + 1.75 \times D$
C_r	$\geq 2 \times D$

As regards the clearance requirement (C_r), flowmakers normally have to be mounted on a bridge or platform to obtain the required distance to the wall.



TM078836

Principle sketch of positioning of flowmakers

For positioning of flowmakers in circular, square or rectangular tanks, see positioning requirements for mixers.

8.5.1 Positioning of two or more flowmakers in parallel in a channel

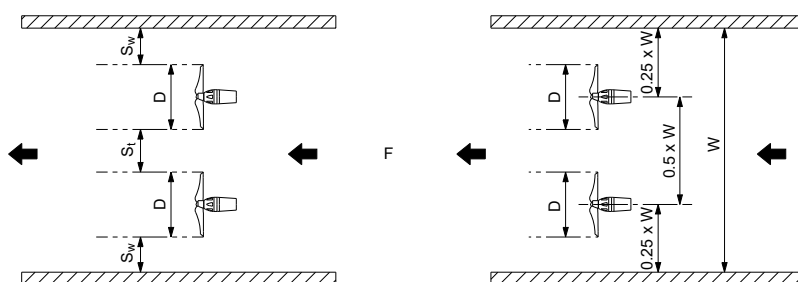
Positioning must be carried out according to fig. Positioning of two or more flowmakers in parallel in a channel.

Explanation of variables:

- S_w : minimum distance between propeller tip and channel wall
- S_t : minimum distance between contiguous propeller tips

The following requirements must be met:

- $S_w \geq 0.5 \text{ m}$
- $S_t \geq 0.5 \times D$



TM055074

Positioning of two or more flowmakers in parallel in a channel

Pos.	Description
F	Flow direction
D	Propeller diameter
W	Channel width

8.5.2 Positioning of flowmakers in aerated and non-aerated racetrack tanks

For racetrack tanks with channels with or without diffusers, follow the requirements shown in fig. Principle sketch of positioning of flowmakers in a racetrack tank when installing flowmakers. This is essential to avoid damage to the flowmakers and installation equipment caused by uneven velocities, turbulence and backflow. The flowmakers must be installed with sufficient distance from bends and obstacles in the tank.

The positioning requirements described for racetrack tanks also apply to serpentine tanks.

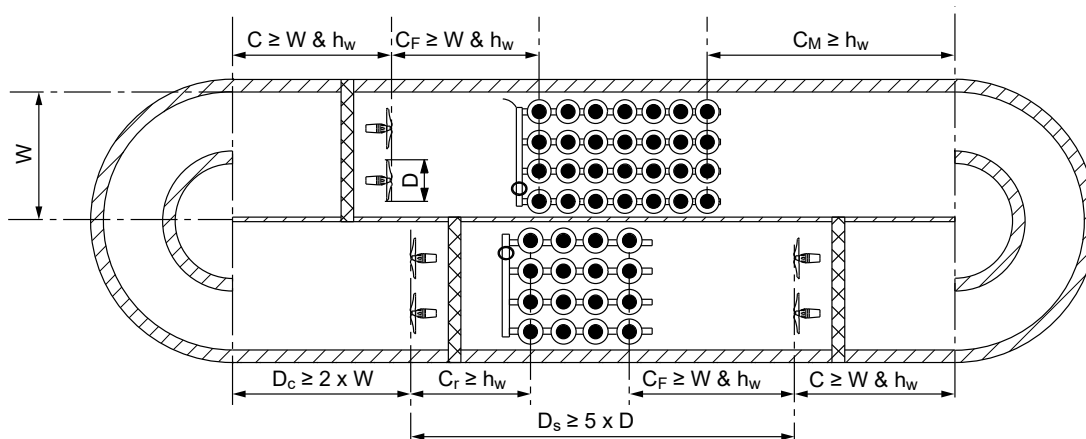
The requirements below take the flow direction into account:

- clearance requirement (C) between flowmakers and the end of the bend: $C \geq W$ or h_w (W = channel width and h_w = water depth, the larger to be used)
- clearance (C_F) between flowmakers and the first row of diffusers: $C_F \geq W$ or h_w (the larger to be used)

- minimum applicable distance (C_M) between the last row of diffusers and the beginning of the following bend: $C_M \geq h_w$
- clearance requirement (C_r) between flowmakers and the last row of diffusers, if any: $C_r \geq h_w$.

Explanation of variables:

D	propeller diameter
D_s	minimum front clearance between propeller tip and the next propeller tip if no other obstacles in between
D_c	minimum clearance between propeller and bend
h_w	channel depth



TM055075

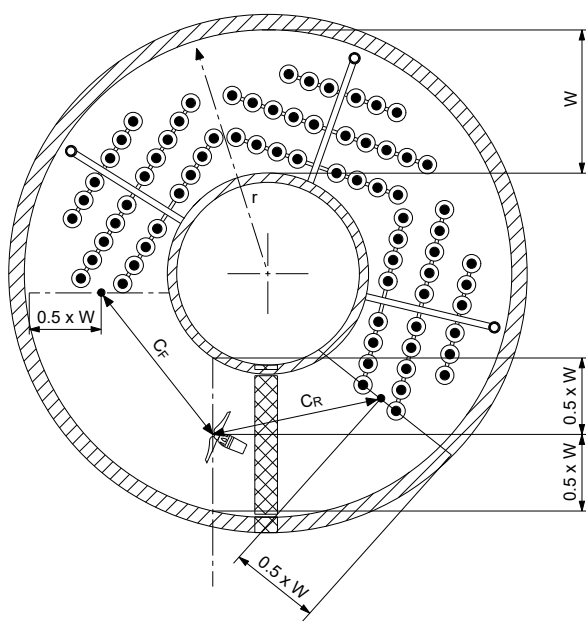
Principle sketch of positioning of flowmakers in a racetrack tank

8.5.3 Positioning of flowmakers in aerated and non-aerated ring-channel tanks

In a ring-channel tank with or without diffusers, meet the requirements shown in figs One flowmaker in a ring-channel tank and Two flowmakers in a ring-channel tank when installing flowmakers. The channel width and ring curvature must be taken into account when positioning the flowmaker to obtain satisfactory development of the flow and minimize velocity losses due to impact with the channel walls.

The requirements below take the flow direction into account:

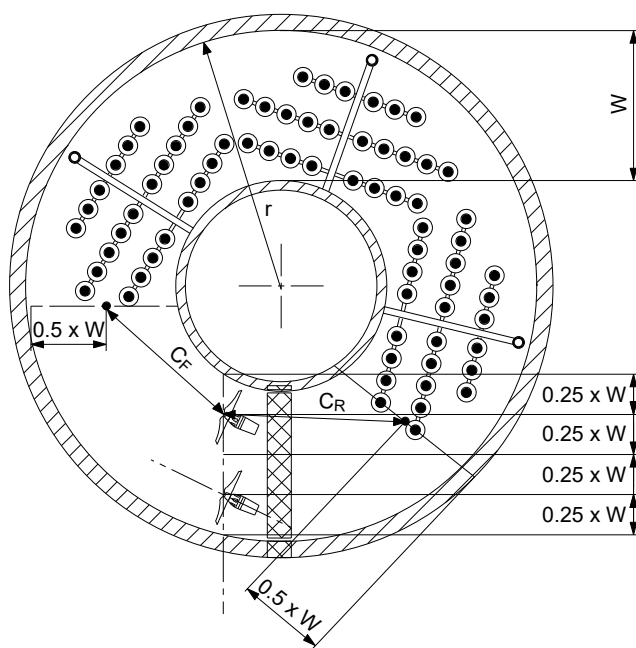
- Clearance (C_F) of the propeller closest to the first row of diffusers, measured as shown in figure below: $C_R \geq W$ or h_w (W = channel width and h_w = water depth, the larger to be used.)
- Clearance requirement (C_R) from the propeller closest to the last row of diffusers: $C_R \geq h_w$.
- If only one flowmaker is to be installed (figure One flowmaker in a ring-channel tank), it must be installed at the centre of the tank width ($0.5 \times W$). The centre line must be inclined towards the centre of the tank at an angle of between 7.5° and 22.5° .



TM055076

One flowmaker in a ring-channel tank

- If two flowmakers are to be installed (figure Two flowmakers in a ring-channel tank), the tank width must be divided in two, and each flowmaker must be installed at the centre of each half of the width ($0.25 \times W$). The centre line must be inclined towards the centre of the tank at an angle of between 7.5° and 22.5° .



TM055077

Two flowmakers in a ring-channel tank

9. Installation

9.1 AMD installation

The following accessories are available for AMD mixers:

- mixer bracket for pumping stations
- fixation bracket for suspended mounting
- tube for suspended mounting
- fixation bracket for wall mounting
- fixation bracket for floor mounting
- motor bracket for column profile tube mounting.

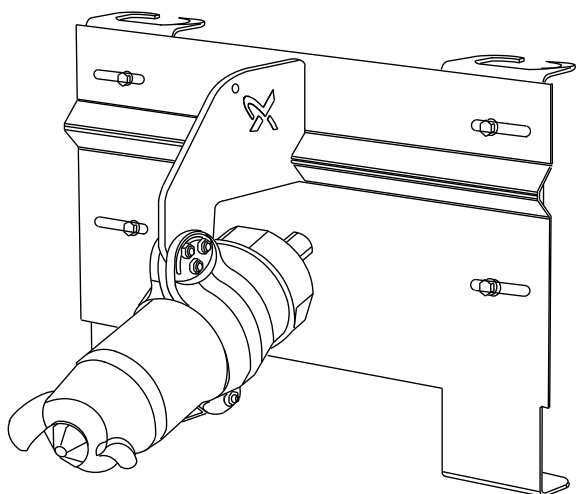
The AMD.05 - 08 mixer must be installed horizontally.

The maximum permissible inclination angle is $\pm 40^\circ$.

For the various types of installation accessories, see section Accessories.

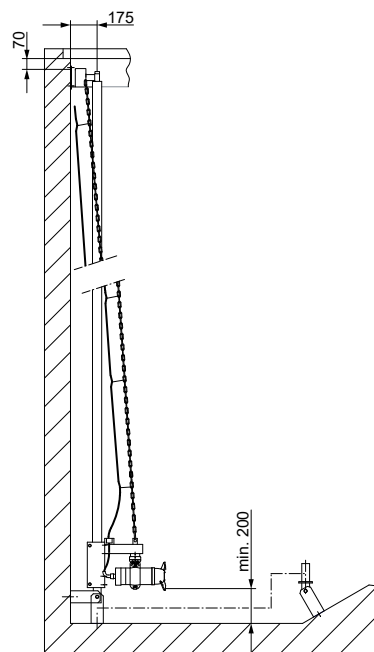
The accessories match the 2" threaded mounting bracket on the mounting clamp of the mixer.

AMD 05 - 08 installation drawings



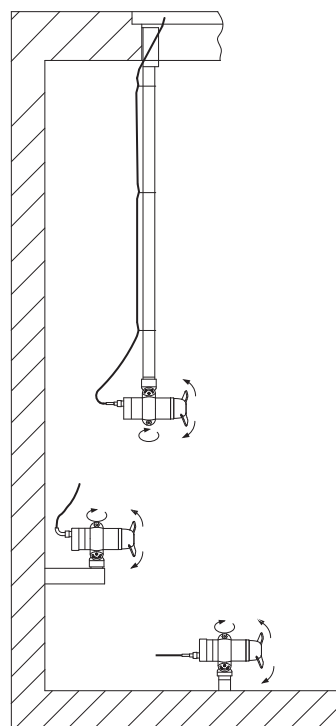
TM067596

Mixer bracket for pumping stations



TM066344

Column profile mounting

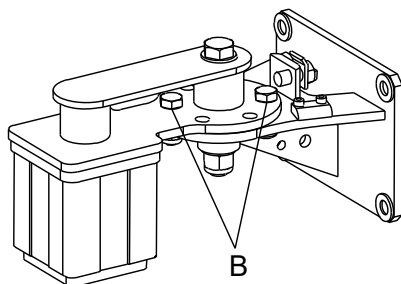


TM066343

Suspended mounting, wall mounting and floor mounting

9.2 Top fixation bracket

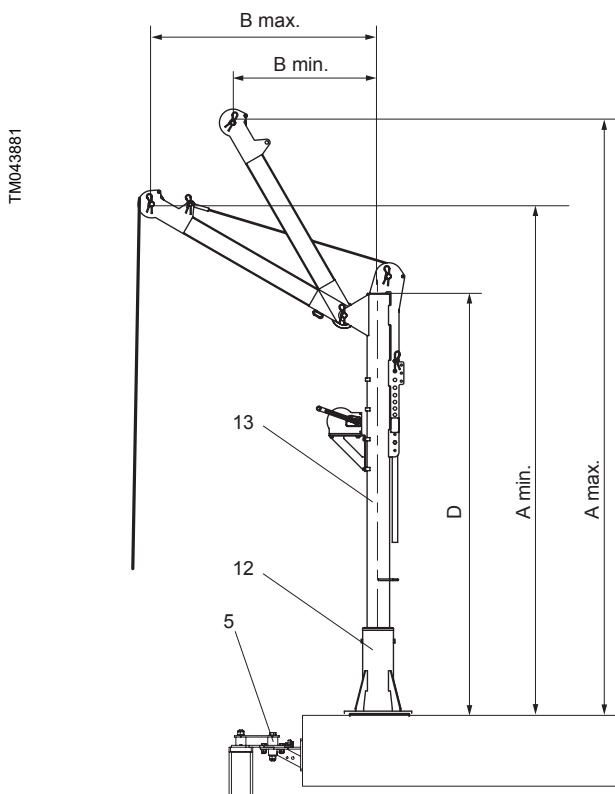
It is possible to adjust the angle of the top fixation bracket in steps of 7.5 ° by means of the two screws **B**.



Top fixation bracket

9.3 Crane

In order to select the right size of crane for a specific mixer or flowmaker, see section Selection guide for accessories. The crane can easily be lifted off the crane foot (pos. 12) if it needs to be used in another mixer or flowmaker installation.



Crane

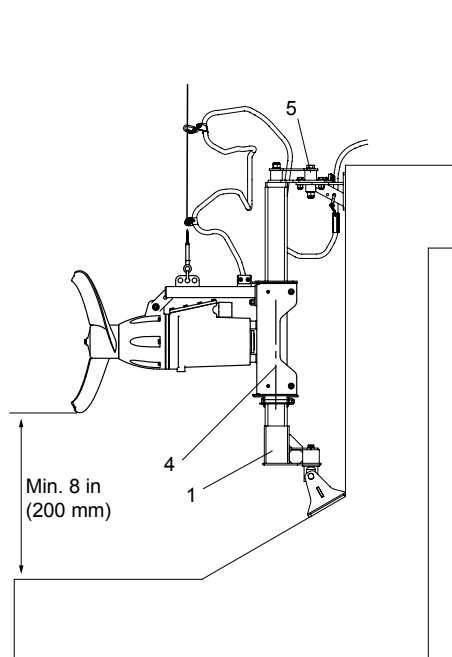
Crane type	A min. [mm]	A max. [mm]	B min. [mm]	B max. [mm]	D [mm]
S	2255	2911	405	1005	2130
M	2838	3521	654	1474	2286
L	2838	3521	654	1474	2280

Crane type	S	M	L
Wire	Ø4	Ø6	Ø7
Type of winch	6 AF	8 AF	12 AF
Maximum load [kg]	100	250	500
Total weight [kg]	35	61.2	76.5

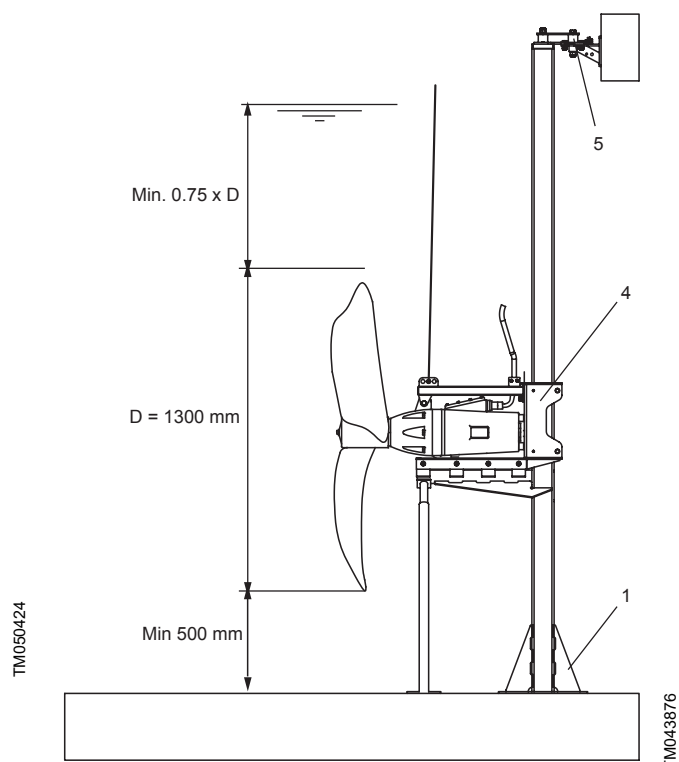
The position numbers in the following table refer to fig Crane.

Pos.	Description
1	Bottom fixation bracket
4	Motor bracket
5	Top fixation bracket
12	Crane foot
13	Crane with winch

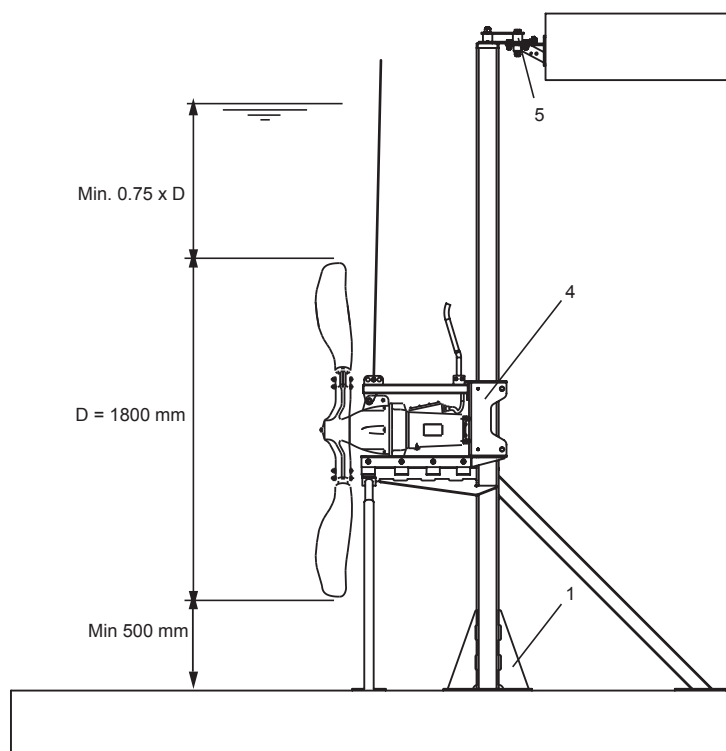
9.4 AMG, AFG installation drawings



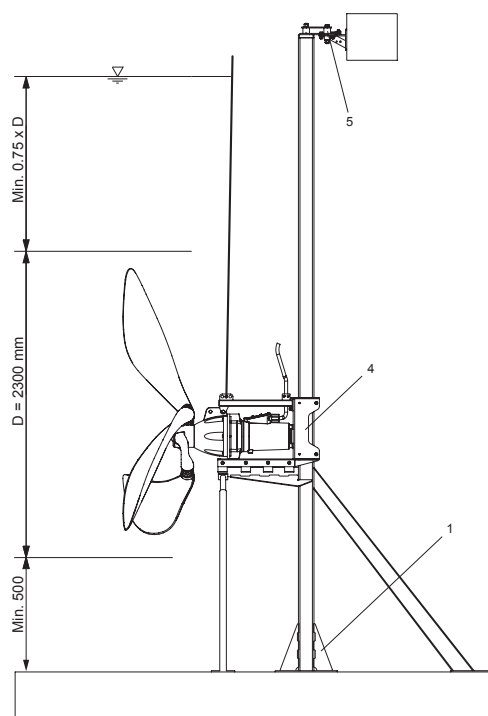
AMG(.Ex)



AFG.xx.130.xx(.Ex)

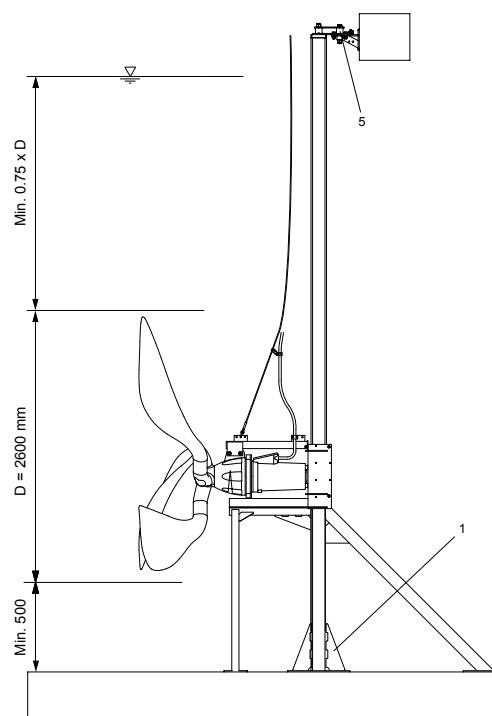


AFG.xx.180.xx(.Ex)



AFG.xx.230.xx(.Ex)

TM043879



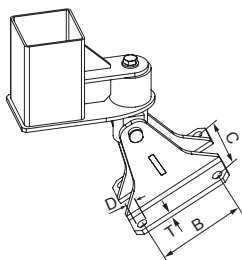
AFG.xx.260.xx(.Ex)

TM043931

9.5 Dimensions of accessories

These dimensions of accessories are related to the installation of the mixers and flowmakers.

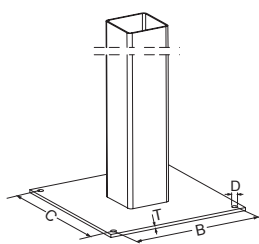
For further information on accessories, see section Accessories.



TM043897

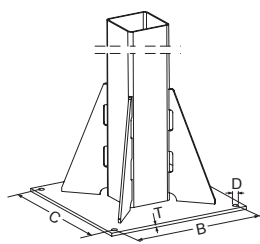
Bottom fixation bracket

Column profile	B [mm]	C [mm]	D [mm]	T [mm]
60 x 60				
80 x 80	130	115	15	8
100 x 100				



TM043928

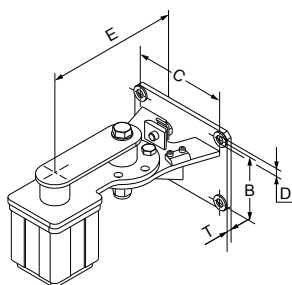
Bottom fixation plate - AFG.xx.130



TM043898

Bottom fixation plate - AFG.xx.180/230/260

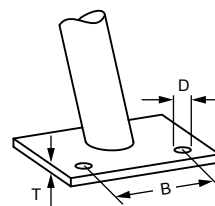
Flowmaker type	B [mm]	C [mm]	D [mm]	T [mm]
AFG.xx.130	210	210	15	8
AFG.xx.180/230/260	360	360	15	8



TM043899

Top fixation bracket

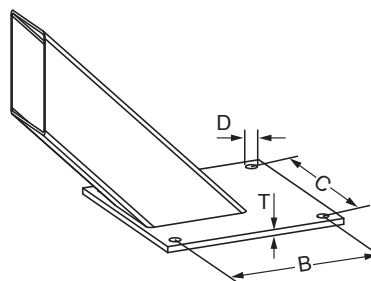
Column profile	B [mm]	C [mm]	D [mm]	E [mm]	T [mm]
60 x 60				240	
80 x 80				250	
100 x 100	110	160	15	261	8
120 x 120				261	



TM043900

Foot for front support leg

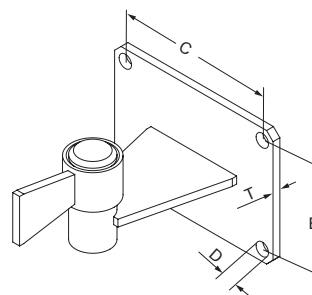
Flowmaker type	B [mm]	D [mm]	T [mm]
AFG.xx.130			
AFG.xx.180-230	100	15	8
AFG.xx.260			



TM043901

Foot for back support leg

Flowmaker type	B [mm]	C [mm]	D [mm]	T [mm]
AFG.xx.180-230	210	210	15	8
AFG.xx.260				



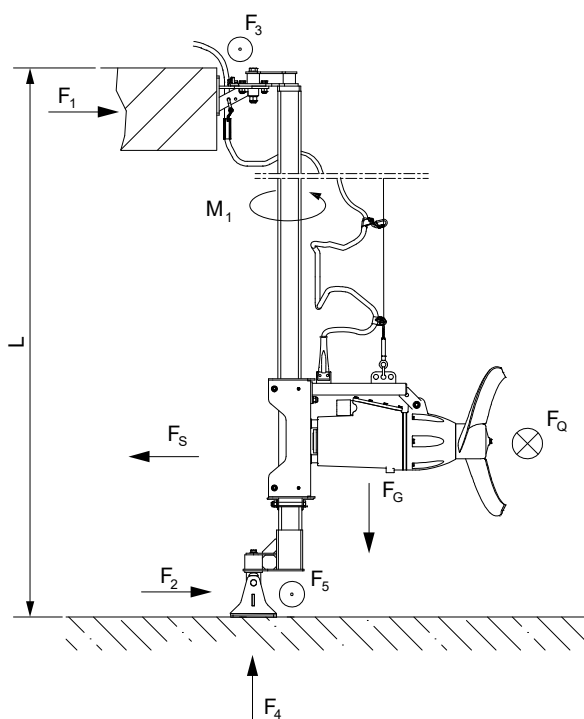
TM043903

Intermediate fixation bracket

B [mm]	C [mm]	D [mm]	T [mm]
110	160	15	8

9.6 Mechanical loads

9.6.1 AMG



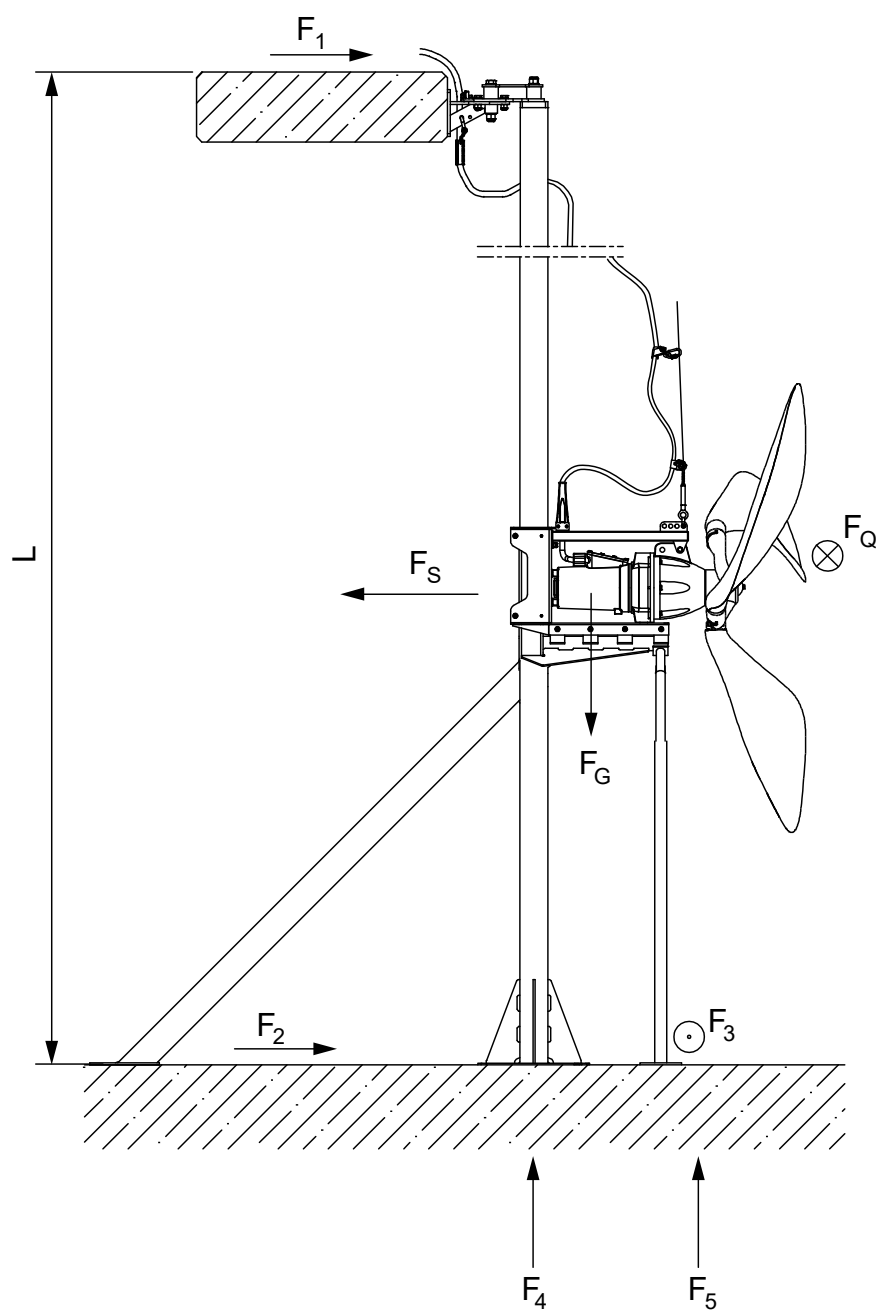
TM062774

Mechanical loads of AMG mixers

Symbol	Description
L	Total height
F_S	Thrust of the propeller
F_Q	Lateral force
F_G	Gravitational force
$F_1 \dots F_5$	Reactive force of the installation
M_1	Torque on the column profile

Mixer	L [m]	F _S [N]	F _Q [N]	F _G [N]	F ₁ [N]	F ₂ [N]	F ₃ [N]	F ₄ [N]	F ₅ [N]	M ₁ [Nm]
AMG.15.55.342.Ex	4	360	90	765	-45	405	12	1061	78	76
	6				-33	393	8	1208	82	
	8				-27	387	6	1356	84	
	10				-23	383	5	1504	85	
AMG.22.64.338.Ex	4	640	160	765	8	632	25	1061	135	137
	6				2	638	17	1208	143	
	8				-1	641	13	1356	147	
	10				-2	642	10	1504	150	
AMG.30.64.340.Ex	4	930	233	834	46	884	37	1129	196	203
	6				28	902	25	1277	208	
	8				18	912	18	1425	214	
	10				13	917	15	1573	218	
AMG.40.71.335.Ex	4	1140	285	834	101	1039	51	1129	234	252
	6				64	1076	34	1277	251	
	8				46	1094	25	1425	260	
	10				35	1105	20	1573	265	
AMG.55.73.345.Ex	4	1450	363	1628	22	1428	66	2002	296	404
	6				10	1440	44	2189	318	
	8				1	1449	33	2602	329	
	10				-3	1453	26	2845	336	
AMG.75.73.343.Ex	4	1920	480	1648	105	1815	88	2022	392	540
	6				66	1854	58	2209	422	
	8				42	1878	44	2621	436	
	10				31	1889	35	2865	445	
AMG.110.84.343.Ex	4	2560	640	1736	280	2280	134	2110	506	733
	6				182	2378	90	2297	550	
	8				130	2430	67	2710	573	
	10				101	2459	54	2953	586	
AMG.150.90.357.Ex	4	3140	785	2698	289	2851	177	3184	608	7017
	6				187	2953	118	3428	667	
	8				132	3008	88	3905	697	
	10				102	3038	71	4207	714	
AMG.185.91.357.Ex	4	3720	930	2747	421	3299	212	3233	718	1223
	6				275	3445	141	3477	789	
	8				198	3522	106	3954	824	
	10				155	3565	85	4256	845	

9.6.2 AFG



TM062775

Mechanical loads of flowmakers

Symbol	Description
L	Total height
F_S	Thrust of the propeller
F_Q	Lateral force
F_G	Gravitational force
$F_1 \dots F_5$	Reactive force of the installation

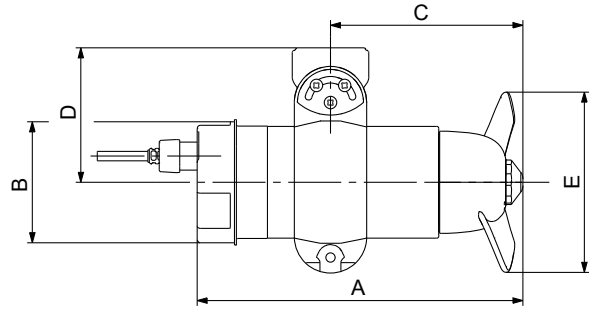
Flowmaker	L [m]	F _S [N]	F _Q [N]	F _G [N]	F ₁ [N]	F ₂ [N]	F ₃ [N]	F ₄ [N]	F ₅ [N]
AFG.15.130.79.Ex	4	1100	275	1001	424	676	275	739	749
	6				283	817		982	
	8				212	888		1225	
	10				170	930		1468	
AFG.22.130.78.Ex	4	1400	350	1001	564	836	350	534	953
	6				376	1024		778	
	8				282	1118		1021	
	10				226	1174		1264	
AFG.30.130.95.Ex	4	2016	504	1059	846	1170	504	174	1372
	6				564	1452		417	
	8				423	1593		661	
	10				339	1677		904	
AFG.40.130.94.Ex	4	2043	511	1059	859	1184	511	156	1390
	6				573	1470		399	
	8				429	1614		642	
	10				344	1699		886	
AFG.13.180.30.Ex	4	1075	269	1864	314	761	269	1504	846
	6				209	866		1748	
	8				157	918		1991	
	10				126	949		2234	
AFG.18.180.34.Ex	4	1419	355	1864	499	920	355	1234	1117
	6				333	1086		1477	
	8				250	1169		1720	
	10				200	1219		1964	
AFG.24.180.39.Ex	4	1891	473	1980	743	1148	473	941	1488
	6				495	1396		1184	
	8				371	1520		1427	
	10				297	1594		1671	
AFG.37.180.46.Ex	4	2450	613	1980	1044	1406	613	501	1928
	6				696	1754		744	
	8				522	1928		987	
	10				418	2032		1231	
AFG.15.230.23.Ex	4	1232	308	1962	482	750	308	1336	1112
	6				322	910		1580	
	8				241	991		1823	
	10				193	1039		2066	
AFG.22.230.26.Ex	4	1565	391	1962	688	877	391	1036	1413
	6				459	1106		1279	
	8				344	1221		1522	
	10				275	1290		1766	
AFG.30.230.30.Ex	4	2456	614	2286	1193	1263	614	555	2217
	6				795	1661		798	
	8				597	1859		1042	
	10				477	1979		1285	
AFG.40.230.34.Ex	4	2968	742	2286	1510	1458	742	93	2679
	6				1006	1962		336	
	8				755	2213		579	
	10				604	2364		823	
AFG.30.260.34.Ex	6	2990	748	3532	1000	1990	748	1673	2948
	8				750	2240		2036	
	10				600	2390		2399	

Flowmaker	L [m]	F _s [N]	F _Q [N]	F _G [N]	F ₁ [N]	F ₂ [N]	F ₃ [N]	F ₄ [N]	F ₅ [N]
AFG.34.260.35.Ex	6	3370	843	3532	1178	2192	843	1298	3323
	8				884	2486		1661	
	10				707	2663		2024	
AFG.40.260.38.Ex	6	3640	910	3532	1305	2335	910	1032	3589
	8				979	2661		1395	
	10				783	2857		1758	
AFG.46.260.39Ex.	6	4230	1058	3581	1576	2654	1058	499	4171
	8				1182	3048		862	
	10				945	3285		1225	
AFG.55.260.42.Ex	6	4470	1118	3581	1688	2782	1118	262	4408
	8				1266	3204		625	
	10				1013	3457		989	
AFG.48.260.35.Ex	6	4660	1165	4022	1727	2933	1165	516	4595
	8				1295	3365		879	
	10				1036	3624		1243	
AFG.58.260.38.Ex.	6	5410	1353	4022	2078	3332	1353	-223	5335
	8				1559	3851		140	
	10				1247	4163		503	
AFG.65.260.39.Ex	6	5710	1428	4022	2219	3491	1428	-519	5631
	8				1664	4046		-156	
	10				1331	4379		207	
AFG.75.260.41.Ex	6	6310	1578	4022	2500	3810	1578	-1111	6222
	8				1875	4435		-748	
	10				1500	4810		-384	

10. Technical data

10.1 AMD.05 - 08

10.1.1 Dimensions



TM030224

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight ⁵⁾ [kg]
AMD.05.16.1450	332	117	203	130	160	10.8
AMD.07.18.1430					180	
AMD.08.16.1690					160	
AMD.08.16.1730					160	

5) With motor bracket and 10 m cable. Weight of cable: 0.5 kg/m.

10.1.2 Physical data

Type	Propeller diameter [mm]	rpm [min ⁻¹]	Axial thrust [N]	Enclosure class	Maximum installation depth [m]	Cable type	Flow [m ³ /h]	Mean flow velocity [m/s]
AMD.05.16.1450	160	1450	60	IP68	10	H07RN-F 4G1	88	1.22
AMD.07.18.1430	180	1430	95	IP68	10		125	1.37
AMD.08.16.1690	160	1690	85	IP68	10	H07RN8-F	105	1.45
AMD.08.16.1730	160	1730	90	IP68	10	H07RN8-F	108	1.5

10.1.3 Electrical data

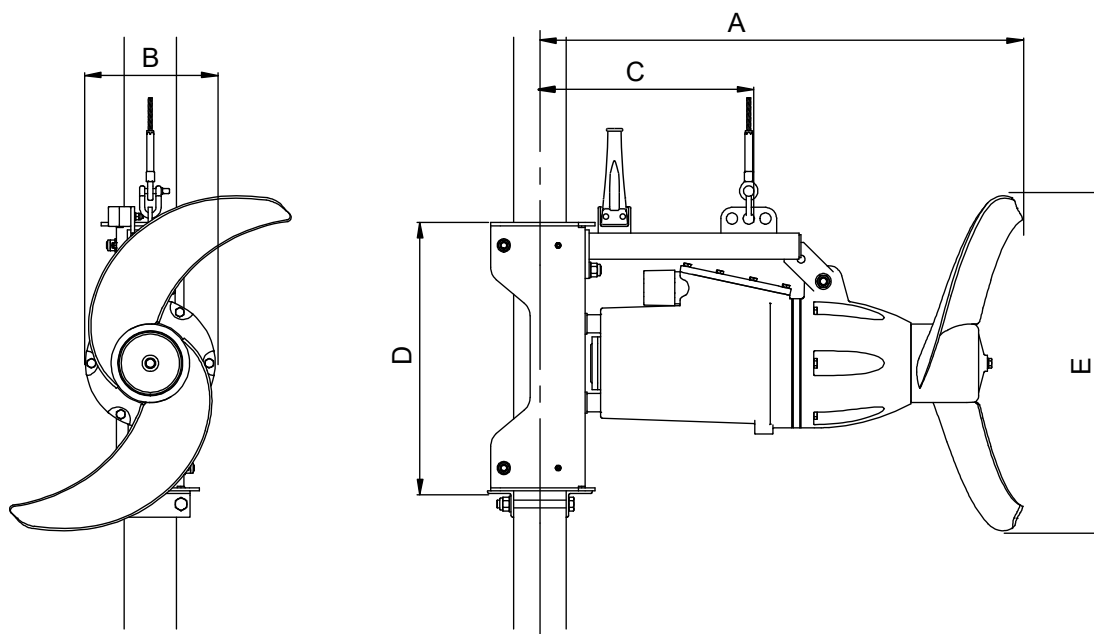
Type	P1 [kW]	P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Starting method	I _N [A]	I _{start} [A]	Cos φ 1/1
AMD.05.16.1450	0.56	0.42	4	5	3 x 400	DOL	1.44	9.3	0.58
AMD.07.18.1430	0.76	0.59	4	5	3 x 400	DOL	1.62	9.3	0.71
AMD.08.16.1690	0.79	0.62	4	5	3 x 380	DOL	1.52	9.3	0.84
AMD.08.16.1730	0.84	0.67	4	5	3 x 460	DOL	1.54	9.3	0.73

10.1.4 Liquid data

Liquid temperature	pH value	Maximum dynamic viscosity	Maximum density
5-40 °C	4-10	≤ 500 mPas	1060 kg/m ³

10.2 AMG, Ex version

10.2.1 Dimensions



TM024944

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight ⁶⁾ [kg]
AMG.15.55.342.Ex.	720	200	320	410	550	78
AMG.22.64.338.Ex.	735	200	320	410	635	78
AMG.30.64.340.Ex.	750	200	320	410	635	85
AMG.40.71.335.Ex.	760	200	320	410	710	85
AMG.55.73.345.Ex.	980	270	430	460	730	166
AMG.75.73.343.Ex.	990	270	430	460	730	168
AMG.110.84.343.Ex.	1010	270	430	460	840	177
AMG.150.90.357.Ex.	1160	315	430	460	900	275
AMG.185.91.357.Ex.	1180	315	430	460	910	280

⁶⁾ With motor bracket and 10 m cable. Weight of cable: 0.5 kg/m.

10.2.2 Physical data

Type	rpm [min ⁻¹]	Axial thrust [N]	Thrust to power ratio	Enclosure class	Maximum installation depth [m]	Cable type	Flow [m ³ /h]	Mean flow velocity [m/s]	Ex class
AMG.15.55.342.Ex.	342	555	0.310	IP68	20	S1BN8-F 11G1.5	924	1.08	ATEX II 2G Ex e ck ib IIC T3
AMG.22.64.338.Ex.	338	780	0.321				1265	1.11	
AMG.30.64.340.Ex.	340	1060	0.328				1475	1.29	
AMG.40.71.335.Ex.	335	1470	0.337				1942	1.36	
AMG.55.73.345.Ex.	345	1750	0.295			S1BN8-F 11G2.5	2179	1.45	
AMG.75.73.343.Ex.	343	2190	0.274				2437	1.62	
AMG.110.84.343.Ex.	343	3130	0.287			H07RN-F 7G4+4x1	3353	1.68	
AMG.150.90.357.Ex.	357	3760	0.263				3937	1.72	
AMG.185.91.357.Ex.	357	4350	0.247				4282	1.83	

10.2.3 Electrical data

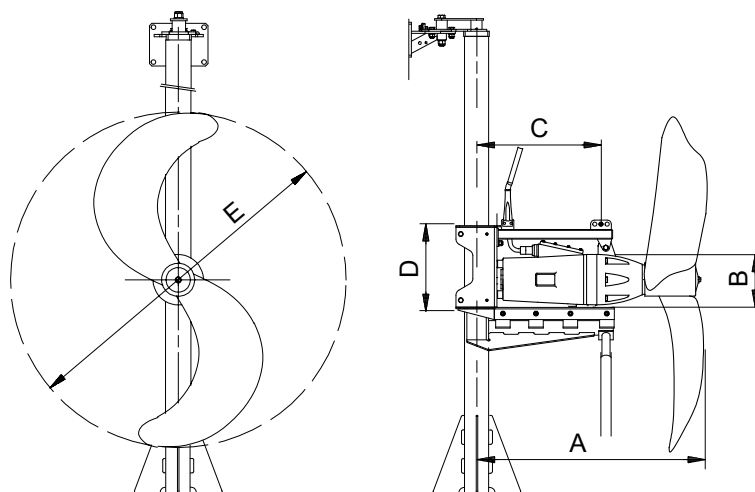
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Rated	Actual								
AMG.15.55.342.Ex.	2.1	1.8	1.5	4	9.8	3 x 400	S1, Delta	6.8	42	0.46
AMG.22.64.338.Ex.	2.9	2.4	2.2		14.6			7.5	42	0.60
AMG.30.64.340.Ex.	3.8	3.2	3.0		19.8			11.1	75.5	0.54
AMG.40.71.335.Ex.	5.0	4.4	4.0		26.7			12.1	75.5	0.65
AMG.55.73.345.Ex.	6.8	5.9	5.5		35.6			22.4	193	0.48
AMG.75.73.343.Ex.	9.1	8.0	7.5		48.7			23.7	193	0.59
AMG.110.84.343.Ex.	12.6	10.9	11.0		71.7			26.1	259	0.71
AMG.150.90.357.Ex.	16.6	14.3	15.0		97.8			34.0	284	0.71
AMG.185.91.357.Ex.	20.6	17.6	18.5		120.2			48.3	423	0.62

10.2.4 Liquid data

Liquid temperature	pH value	Maximum dynamic viscosity	Maximum density	Maximum dry solids content
5-40 °C	4-10	≤ 500 mPas	1060 kg/m ³	Up to 8 %

10.3 AFG.xx.130.xx. Ex version

10.3.1 Dimensions



TM026346

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight ⁷⁾ [kg]
AFG.15.130.79.Ex.	855	200	353	400	1340	102
AFG.22.130.78.Ex.	855	200	353	400	1340	102
AFG.30.130.95.Ex.	855	200	353	400	1340	108
AFG.40.130.94.Ex.	855	200	353	400	1340	108

7) With motor bracket and 10 m cable. Weight of cable: 0.5 kg/m.

10.3.2 Physical data

Type	rpm	Axial thrust	Thrust to power ratio	Enclosure class	Maximum installation depth	Cable type	Flow	Mean flow velocity	Ex class
	[min ⁻¹]	[N]			[m]		[m ³ /h]	[m/s]	
AFG.15.130.79.Ex.	79	1280	0.617	IP68	20	S1BN8-F 11G1.5	3420	0.67	ATEX II 2G Ex e ck ib IIC T3
AFG.22.130.78.Ex.	78	1480	0.600				3678	0.72	
AFG.30.130.95.Ex.	95	1880	0.611				4145	0.82	
AFG.40.130.94.Ex.	94	2120	0.527				4402	0.87	

10.3.3 Electrical data

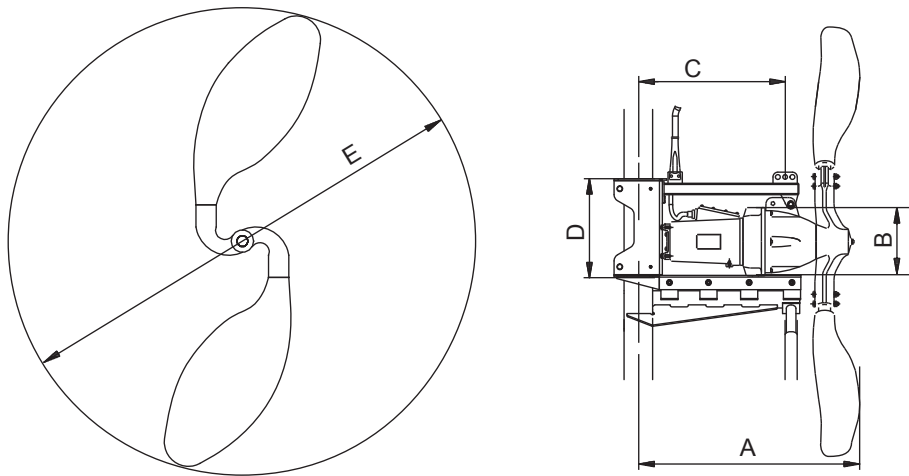
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Rated	Actual								
AFG.15.130.79.Ex.	2.1	2.1	1.5	4	9.9	3 x 400	S1, Delta	6.6	42	0.46
AFG.22.130.78.Ex.	2.9	2.5	2.2		14.7			7.2	42	0.6
AFG.30.130.95.Ex.	3.8	3.1	3.0		19.9			10.2	75.5	0.54
AFG.40.130.94.Ex.	5.0	4.0	4.0		26.8			11.1	75.5	0.65

10.3.4 Liquid data

Liquid temperature	pH value	Maximum dynamic viscosity	Maximum density	Maximum dry solids content
5-40 °C	4-10	≤ 500 mPas	1060 kg/m ³	1.5 %

10.4 AFG.xx.180.xx. Ex version

10.4.1 Dimensions



TM043959

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight ⁸⁾ [kg]
AFG.13.180.30.Ex.	1200	302	570	400	1800	190
AFG.18.180.34.Ex.						
AFG.24.180.39.Ex.						198
AFG.37.180.46.Ex.						

8) With motor bracket and 10 m cable. Weight of cable: 0.5 kg/m.

10.4.2 Physical data

Type	rpm [min ⁻¹]	Axial thrust [N]	Thrust to power ratio	Enclosure class	Maximum installation depth [m]	Cable type	Flow [m ³ /h]	Mean flow velocity [m/s]	Ex class
AFG.13.180.30.Ex.	30.2	1075	0.717	IP68	20	S1BN8-F 11G1.5	4210	0.46	ATEX II 2G Ex e ck ib IIC T3
AFG.18.180.34.Ex.	34.6	1419	0.674				4837	0.53	
AFG.24.180.39.Ex.	39.3	1891	0.651				5584	0.61	
AFG.37.180.46.Ex.	46.6	2612	0.568				6563	0.72	

10.4.3 Electrical data

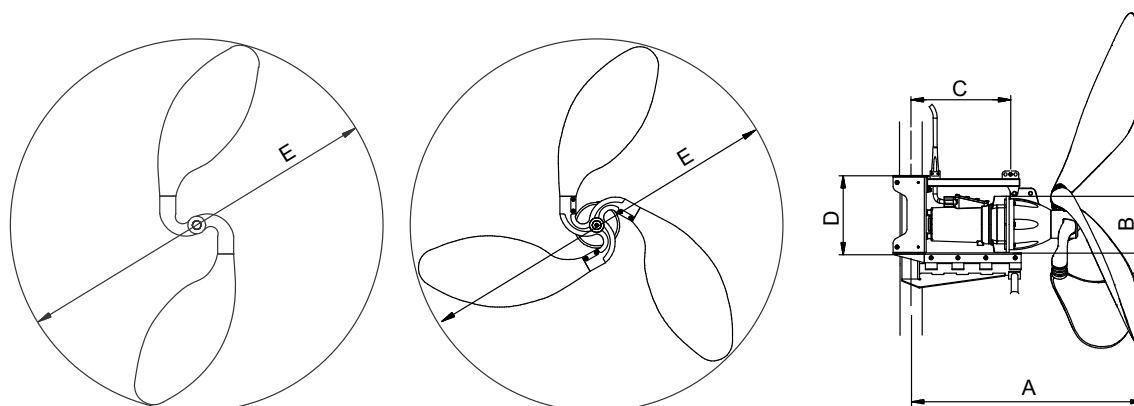
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
AFG.13.180.30.Ex.	Rated	Actual	1.3	4	8.5	3 x 400	S1, Delta	6.4	42	0.44
AFG.18.180.34.Ex.	2.4	2.1	1.8		12			6.9	42	0.54
AFG.24.180.39.Ex.	3.1	2.9	2.4		15.8			9.8	75.5	0.5
AFG.37.180.46.Ex.	4.6	4.6	3.7		24.8			10.8	75.5	0.62

10.4.4 Liquid data

Liquid temperature	pH value	Maximum dynamic viscosity	Maximum density	Maximum dry solids content
5-40 °C	4-10	≤ 500 mPas	1060 kg/m ³	1.5 %

10.5 AFG.xx.230.xx. Ex version

10.5.1 Dimensions



TM026345

AFG.15.230, AFG.22.230 2 blade and AFG.30.230, AFG.40.230 3 blade

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight ⁹⁾ [kg]
AFG.15.230.23.Ex.	1200	302	570	400	2300	200
AFG.22.230.26.Ex.						
AFG.30.230.30.Ex.						
AFG.40.230.34.Ex.						233

⁹⁾ With motor bracket and 10 m cable. Weight of cable: 0.5 kg/m.

10.5.2 Physical data

Type	rpm	Axial thrust	Thrust to power ratio	Enclosure class	Maximum installation depth	Cable type	Flow	Mean flow velocity	Ex class
	[min ⁻¹]	[N]			[m]		[m ³ /h]	[m/s]	
AFG.15.230.23.Ex.	23.2	1232	0.770	IP68	20	S1BN8-F 11G1.5	5759	0.39	ATEX II 2G Ex e ck ib IIC T3
AFG.22.230.26.Ex.	25.8	1565	0.711				6491	0.43	
AFG.30.230.30.Ex.	29.9	2456	0.743				8132	0.54	
AFG.40.230.34.Ex.	34.1	3144	0.698				9200	0.62	

10.5.3 Electrical data

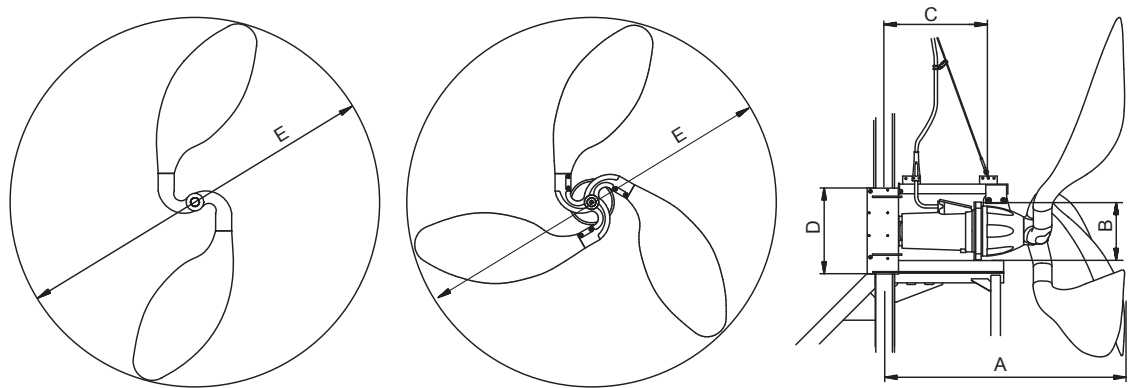
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Rated	Actual								
AFG.15.230.23.Ex.	2.1	1.6	1.5	6	14.8	3 x 400	S1, Delta	7.1	44.4	0.43
AFG.22.230.26.Ex.	2.9	2.2	2.2		21.9			7.7	44.4	0.54
AFG.30.230.30.Ex.	3.8	3.3	3	4	19.9			10.2	75.5	0.54
AFG.40.230.34.Ex.	5.0	4.5	4		26.8			11.1	75.5	0.65

10.5.4 Liquid data

Liquid temperature	pH value	Maximum dynamic viscosity	Maximum density	Maximum dry solids content
5-40 °C	4-10	≤ 500 mPas	1060 kg/m ³	1.5 %

10.6 AFG.xx.260.xx. Ex version

10.6.1 Dimensions



TM043957

AFG.xx.260.xx 2 blade and 3 blade versions

Type	Propeller version	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight ¹⁰⁾ [kg]
AFG.30.260.34.Ex	2-blade	1500	360	650	585	2600	360
AFG.34.260.35.Ex							
AFG.40.260.38.Ex							
AFG.46.260.39.Ex							
AFG.55.260.42.Ex							
AFG.48.260.35.Ex	3-blade	1500	360	680	585	2660	410
AFG.58.260.38.Ex							
AFG.65.260.39.Ex							
AFG.75.260.41.Ex							

¹⁰⁾ With motor bracket and 10 m cable. Weight of cable: 0.5 kg/m.

10.6.2 Physical data

Type	rpm	Axial thrust	Thrust to power ratio	Enclosure class	Maximum installation depth	Cable type	Flow	Mean flow velocity	Ex class
	[min ⁻¹]	[N]			[m]		[m ³ /h]	[m/s]	
AFG.30.260.34.Ex	33.8	3330	0.970	IP68	20	S1BN8-F 11G2.5	10704	0.56	ATEX II 2G Ex e ck ib IIC T3
AFG.34.260.35.Ex	35.2	3620	0.946				11160	0.58	
AFG.40.260.38.Ex	37.8	4170	0.889				11978	0.63	
AFG.46.260.39.Ex	39.1	4460	0.872				12387	0.65	
AFG.55.260.42.Ex	41.7	5080	0.828				13220	0.69	
AFG.48.260.35.Ex	35.1	4630	0.884				12912	0.65	
AFG.58.260.38.Ex	37.7	5340	0.831				13867	0.69	
AFG.65.260.39.Ex	38.8	5650	0.807				14264	0.71	
AFG.75.260.41.Ex	41.4	6440	0.757				15228	0.76	

10.6.3 Electrical data

Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Rated	Actual								
AFG.30.260.34.Ex	3.6	3.4	3.0	6	29.2	3 x 400	S1, Delta	9.8	83.4	0.56
AFG.34.260.35.Ex	4.0	3.8	3.4		33.2			10.2		0.60
AFG.40.260.38.Ex	4.7	4.7	4.0		39.3			11.2		0.65
AFG.46.260.39.Ex	5.3	5.1	4.6		45.0			13.3		0.60
AFG.55.260.42.Ex	6.3	6.1	5.5		54.1			14.2		0.66
AFG.48.260.35.Ex	5.5	5.2	4.8		47.0			13.5	107	0.61
AFG.58.260.38.Ex	6.6	6.4	5.8		57.2			14.6		0.67
AFG.65.260.39.Ex	7.4	7.0	6.5		64.4			15.1		0.71
AFG.75.260.41.Ex	8.6	8.5	7.5		74.8			17.3		0.74

10.6.4 Liquid data

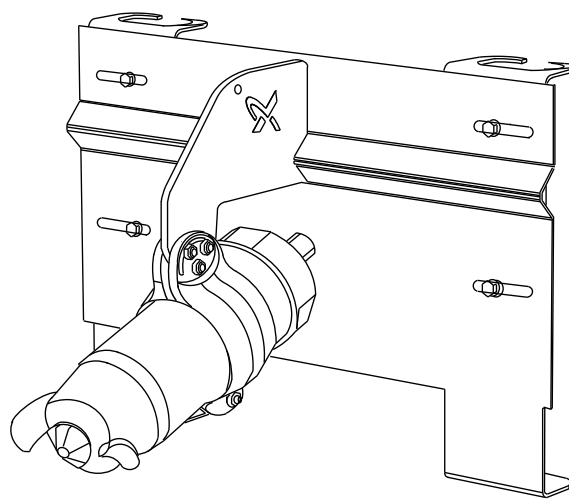
Liquid temperature	pH value	Maximum dynamic viscosity	Maximum density	Maximum dry solids content
5-40 °C	4-10	≤ 500 mPas	1060 kg/m ³	1.5 %

11. Accessories

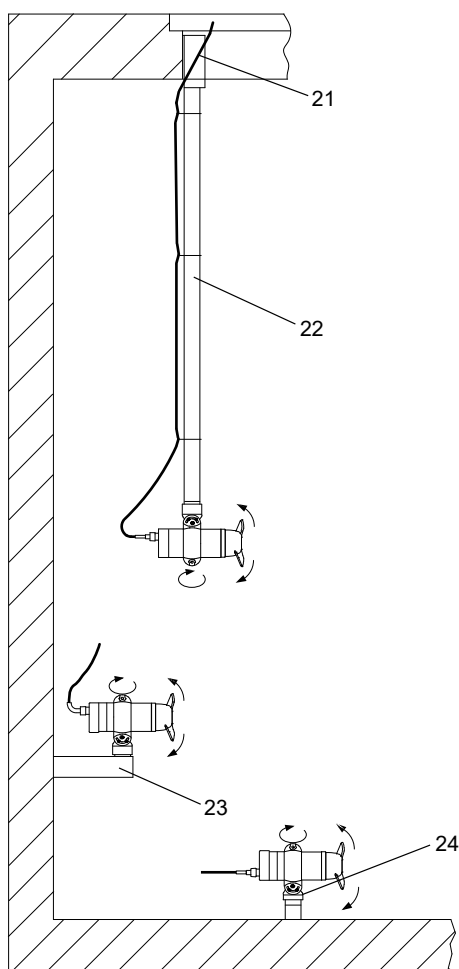
11.1 Accessories

Grundfos offers the following equipment for installation, inspection and service of mixers and flowmakers.

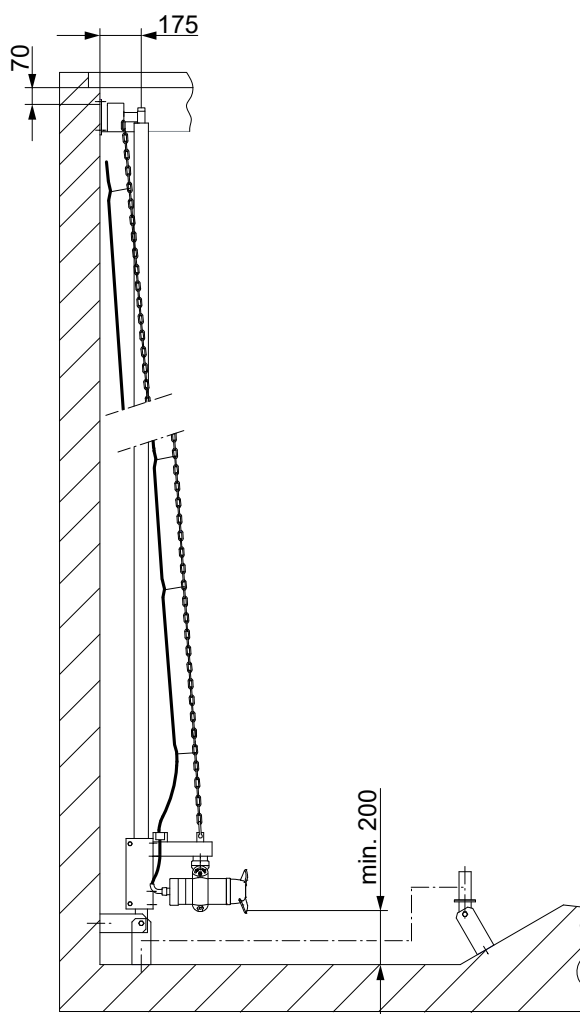
The position numbers in the list of accessories below refer to the positions in figs AMD.05-08, suspended, wall and floor mounting, AMG Installation and AFG installation.



TM067596

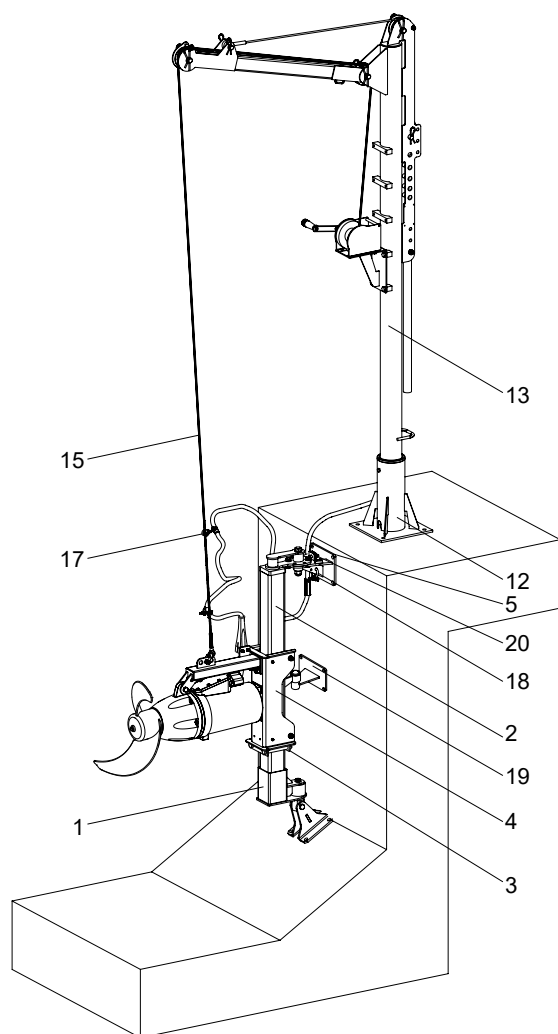


AMD.05 - 08, suspended, wall and floor mounting

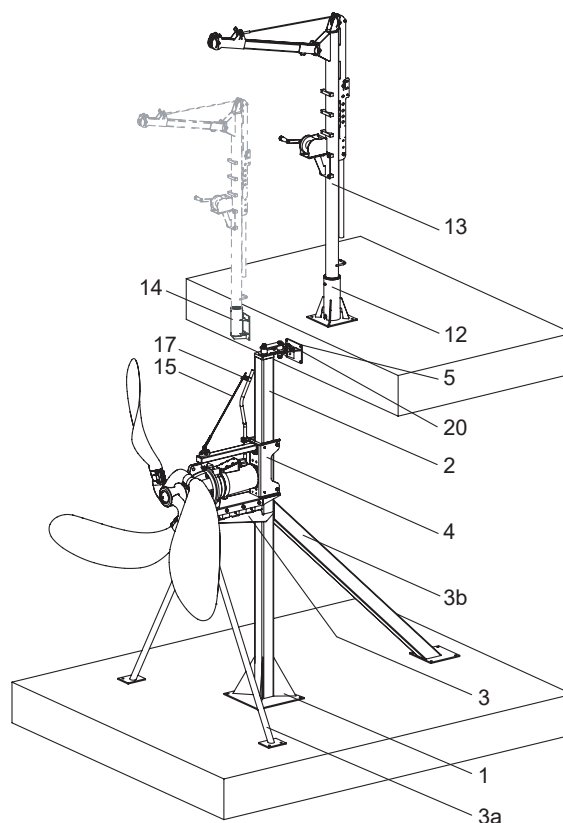


TM078838

TM066344



AMG installation



AFG installation

TM042714

11.2 Selection guide for accessories

Products	Column profile			Support legs ¹¹⁾		Crane type	Wire size	Cable clamp type
	< 6 m	< 10 m ¹²⁾	> 10 m	Front	Back			
AMD.05 - 08	60 x 60 x 3			No		S	D 4 mm	D10
AMG.15 - AMG.40	80 x 80 x 3			No		S	D 4 mm	D17
AMG.55 - AMG.110	100 x 100 x 3	100 x 100 x 4		No		M	D 6 mm	D20
AMG.150 - AMG.185	100 x 100 x 4	100 x 100 x 5		No		L	D 7 mm	D20
AFG.xx.130	100 x 100 x 4			Yes	No	M	D 6 mm	D17
AFG.xx.180	100 x 100 x 4			Yes	> 6 m	M	D 6 mm	D17
AFG.xx.230	100 x 100 x 4			Yes	> 6 m	M	D 6 mm	D17
AFG.xx.260	120 x 120 x 5			Yes	Yes	L	D 7 mm	D20

Please contact Grundfos

¹¹⁾ Additional legs required, depending on the tank depth.

¹²⁾ If the installation height is over 6 m, use either a bigger size column profile or an intermediate fixation bracket (only AMD and AMG). If this is not possible, please contact Grundfos for help.

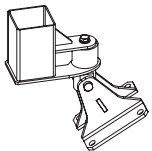
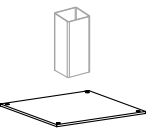
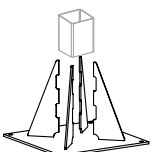
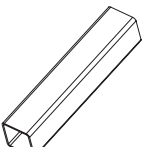
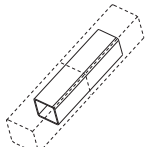
Column profiles adhere to EN 10219-2 standard.

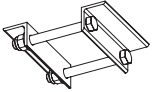
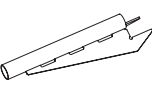
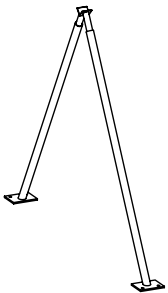
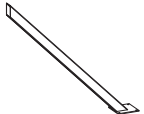
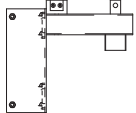
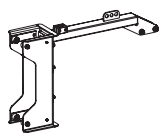
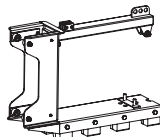


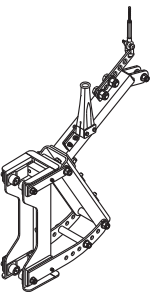
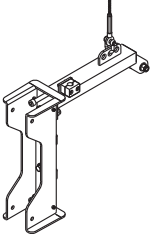
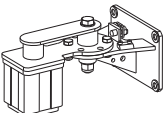
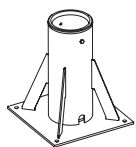
When shortening a column profile, the perpendicularity tolerance of the cutting edge is 0.4 mm.

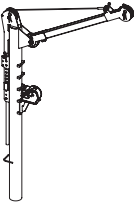
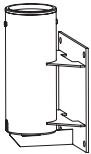
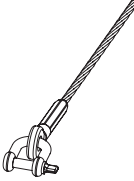
11.3 List of accessories

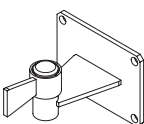
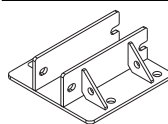
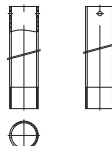
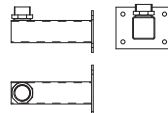
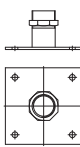
Position numbers refer to figs AMD.05-08, suspended, wall and floor mounting, AMG installation and AFG installation, Accessories and Accessories on the previous pages.

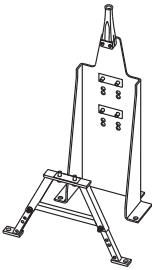
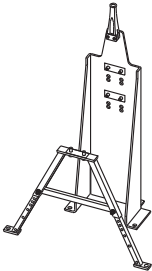
Accessory	Pos.	Description	Dimensions and product range	Material DIN/AISI	Product number
 TM043896	1	Bottom fixation bracket complete	60 x 60 mm column profile AMD.05 - 08	1.4301/304	95037099
				1.4404/316 L	95037100
			80 x 80 mm column profile AMG.15 - AMG.40	1.4301/304	95037101
				1.4404/316 L	95037102
			100 x 100 mm column profile AMG.55 - AMG.185	1.4301/304	95037103
 TM043954	1	Bottom fixation plate complete		1.4404/316 L	95037104
				1.4301/304	96489415
			AFG.xx.130	1.4404/316 L	96489416
 TM042717	1	Bottom fixation plate complete		1.4301/304	96489411
			AFG.xx.180/230/260	1.4404/316 L	96489414
 TM044005	2	Column profile	60 x 60 x 3 mm 6 m	1.4301/304	99381044
				1.4404/316 L	99381045
			80 x 80 x 3 mm 6 m	1.4301/304	99381046
				1.4404/316 L	99381047
			100 x 100 x 3 mm 6 m	1.4301/304	99381048
				1.4404/316 L	99381049
			100 x 100 x 4 mm 6 m	1.4301/304	99381050
				1.4404/316 L	99381051
			100 x 100 x 5 mm 6 m		99381052
				1.4404/316 L	
			120 x 120 x 5 mm 6 m	1.4301/304	99381054
			AFG.xx.260 only	1.4404/316 L	99381055
 TM049473		Connecting piece for column profile	60 x 60 x 3 mm 0.20 m	1.4301/304	95037960
				1.4404/316 L	95037962
			80 x 80 x 3 mm 0.20 m	1.4301/304	95037964
				1.4404/316 L	95037966
			100 x 100 x 3 mm 0.20 m	1.4301/304	95037968
				1.4404/316 L	95037970
			100 x 100 x 4 mm 0.20 m	1.4301/304	95037972
				1.4404/316 L	95037974
			100 x 100 x 5 mm 0.20 m	1.4301/304	95037976
				1.4404/316 L	95037978
			120 x 120 x 5 mm 0.20 m	1.4301/304	95037980
				1.4404/316 L	95037982

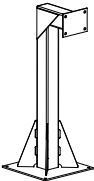
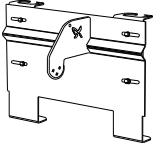
Accessory	Pos.	Description	Dimensions and product range	Material DIN/AISI	Product number
 TM044010	3	Depth blocker for clamping	60 x 60 mm column profile AMD 05-08	1.4301/304	95037105
				1.4404/316 L	95037106
			80 x 80 mm column profile AMG.15 - AMG.40	1.4301/304	95037107
				1.4404/316 L	95037108
			100 x 100 mm column profile AMG.55 - AMG.185	1.4301/304	95037109
 TM044009	3	Depth blocker		1.4404/316 L	95037110
			AFG.xx.130/180/230	1.4301/304	95037044
				1.4404/316 L	95037045
			AFG.xx.260	1.4301/304	95036467
				1.4404/316 L	95036468
 TM043644	3a	Two front support legs	AFG.xx.130	1.4301/304	96115262
				1.4404/316 L	96115263
			AFG.xx.180-230	1.4301/304	96115264
				1.4404/316 L	96115265
				1.4301/304	95036469
			AFG.xx.260	1.4404/316 L	95036470
 TM043643	3b	Back support leg	AFG.xx.180/230	1.4301/304	95036089
				1.4404/316 L	95036090
			AFG.xx.260	1.4301/304	95036471
 TM043663	4			1.4404/316 L	95036472
			AMD.05 - 08	1.4401/316	96115295
 TM044012	4	Motor bracket	80 x 80 mm column profile AMG.15-40	1.4301/304	95037071
				1.4404/316 L	95037072
			100 x 100 mm column profile AMG.15-40	1.4301/304	95037471
				1.4404/316 L	95037472
			100 x 100 mm column profile AMG.55-110	1.4301/304	95037073
				1.4404/316 L	95037074
			100 x 100 mm column profile AMG.150-185	1.4301/304	95037075
				1.4404/316 L	95037076
 TM044011	4		100 x 100 mm column profile AFG.xx.130	1.4301/304	95037077
				1.4404/316 L	95037078
			100 x 100 mm column profile AFG.xx.180/230	1.4301/304	95037079
				1.4404/316 L	95037080
			120 x 120 mm column profile AFG.xx.260	1.4301/304	95036347
				1.4404/316 L	95036424

Accessory	Pos.	Description	Dimensions and product range	Material DIN/AISI	Product number
 TM055099	4	Angle adjustable motor bracket for +/- 30 ° in steps of 5 °	50 x 50 mm column profile For AMG.15 to AMG.40.	1.4301/304	95038905
				1.4404/316 L	95038910
			60 x 60 mm column profile For AMG.15 to AMG.40.	1.4301/304	95038906
				1.4404/316 L	95038911
			80 x 80 mm column profile For AMG.15 to AMG.40.	1.4301/304	95038350
				1.4404/316 L	95038360
			100 x 100 mm column profile For AMG.15 to AMG.40.	1.4301/304	95038940
				1.4404/316 L	95038945
			100 x 100 mm column profile For AMG.55 to AMG.110	1.4301/304	95038370
				1.4404/316 L	95038380
 TM055096	4	Motor bracket adapter	100 x 100 mm column profile For AMG.150 to AMG.185.	1.4301/304	95038390
				1.4404/316 L	950383
			50 x 50 mm column profile For AMG.15 to AMG.40.	1.4301/304	95038219
				1.4404/316 L	95038220
			60 x 60 mm column profile For AMG.15 to AMG.40.	1.4301/304	95038317
				1.4404/316 L	95038319
 TM043881	5	Top fixation bracket complete incl. safety wire	70 x 70 mm column profile For AMG.15 to AMG.40.	1.4301/304	95038280
				1.4404/316 L	95038321
			60 x 60 mm column profile	1.4301/304	95037090
				1.4404/316 L	95037091
			80 x 80 mm column profile	1.4301/304	95037092
 TM044000	12	Crane foot		1.4404/316 L	95037093
			100 x 100 mm column profile	1.4301/304	95037094
				1.4404/316 L	95037095
			120 x 120 mm column profile	1.4301/304	96845665
				1.4404/316 L	95037150
			100 kg crane	1.4301/304	95036937
				1.4404/316 L	95037665
				Galvanised steel	95036948
			250 and 500 kg cranes	1.4301/304	95036908
				1.4404/316 L	95037685
				Galvanised steel	95036894

Accessory	Pos.	Description	Dimensions and product range	Material DIN/AISI	Product number
 TM043999	13	Crane with winch	6AF, 100 kg	1.4301/304	95036845
				1.4404/316 L	95037640
				Galvanised steel	95036930
			8AF, 250 kg	1.4301/304	95036900
				1.4404/316 L	95037670
				Galvanised steel	95036874
			12AF, 500 kg	1.4301/304	95036950
				1.4404/316 L	95037700
				Galvanised steel	95036975
 TM044001	14	Crane foot for vertical installation	100 kg crane	1.4301/304	95036979
				1.4404/316 L	95037695
				Galvanised steel	95036995
			250 and 500 kg cranes	1.4301/304	95036980
				1.4404/316 L	95037710
				Galvanised steel	95037000
 TM044002	15	Lifting wire	Ø4, 10 m easy mounting incl. Ø8 shackle and wire clamp	1.4404/316 L	95037142
			Ø4, 15 m easy mounting incl. Ø8 shackle and wire clamp	1.4404/316 L	95037143
			Ø6, 10 m easy mounting incl. Ø8 shackle and wire clamp	1.4404/316 L	95037144
			Ø6, 15 m easy mounting incl. Ø8 shackle and wire clamp	1.4404/316 L	95037145
			Ø7, 10 m easy mounting incl. Ø10 shackle and wire clamp	1.4404/316 L	95037146
			Ø7, 15 m easy mounting incl. Ø10 shackle and wire clamp	1.4404/316 L	95037147
			D10	1.4404/316 L	96565202
			D17	1.4404/316 L	96494352
			D20	1.4404/316 L	96494354
 TM044003	17	Cable clamp			
 TM043998	18	Cable sock, incl. shackle	Ø10	Synthetic material, 1.4404/316 L	95037141

Accessory	Pos.	Description	Dimensions and product range	Material DIN/AISI	Product number
 TM044004	19	Intermediate fixation bracket complete	for all profile sizes longer than 6 m	1.4301/304	95037148
				1.4404/316 L	95037149
 TM065590	21	Fixation bracket for suspended mounting	AMD.05 - 08	1.4404/316 L	95040132
 TM043665	22	Tube for suspended mounting	2" thread length 3 m AMD.05 - 08	1.4404/316 L	95040131
 TM043666	23	Fixation bracket for wall mounting	2" thread AMD.05 - 08	1.4404/316 L	96115291
 TM043667	24	Fixation base for floor mounting	AMD.05 - 08	1.4404/316 L	96115292

Accessory	Pos. Description	Dimensions and product range	Material DIN/AISI	Product number
 	Motor bracket complete for bottom fixation	AMG.15-40	1.4301/304	95039051
		max. propeller size Ø525	1.4404/316 L	95039052
		50 mm space to ground		
		AMG.15-40	1.4301/304	95039063
		min. propeller size Ø550	1.4404/316 L	95039065
		50 mm space to ground		
		AMG.15-40	1.4301/304	95039057
		max. propeller size Ø525	1.4404/316 L	95039058
		250 mm space to ground		
		AMG.15-40	1.4301/304	95039067
		min. propeller size Ø550	1.4404/316 L	95039068
		250 mm space to ground		
		AMG.55-110	1.4301/304	95039073
		max. propeller size Ø650	1.4404/316 L	95039074
		50 mm space to ground		
		AMG.55-110	1.4301/304	95039085
		min. propeller size Ø680	1.4404/316 L	95039086
		50 mm space to ground		
		AMG.55-110	1.4301/304	95039079
		max. propeller size Ø650	1.4404/316 L	95039080
		250 mm space to ground		
		AMG.55-110	1.4301/304	95039089
		min. propeller size Ø680	1.4404/316 L	95039090
		250 mm space to ground		
		AMG.150-185	1.4301/304	95039095
		max. propeller size Ø780	1.4404/316 L	95039096
		50 mm space to ground		
		AMG.150-185	1.4301/304	95039107
		min. propeller size Ø880	1.4404/316 L	95039108
		50 mm space to ground		
		AMG.150-185	1.4301/304	95039101
		max. propeller size Ø780	1.4404/316 L	95039102
		250 mm space to ground		
		AMG.150-185	1.4301/304	95039111
		min. propeller size Ø880	1.4404/316 L	95039112
		250 mm space to ground		

Accessory	Pos.	Description	Dimensions and product range	Material DIN/AISI	Product number
 TM049385		Support for top fixation		1.4301/304	95037404
				1.4404/316 L	95039149
 TM070971		ALR 20/A Ex relay for leak sensor, 230 V			99794613
 TM065361		Anchor bolt	M12 x 160 (1 anchor, 1 nut, 1 washer, 1 spring washer, 1 glue cartridge)	316	95036113
			M16 x 190 (1 anchor, 1 nut, 1 washer, 1 spring washer, 1 glue cartridge)	316	95037179
 TM083898		Mixer bracket	PS.S DN32 D1700 AMD.05-08	1.4301/304	99044262
			PS.S DN40 D1700, AMD.05-08	1.4301/304	99044290
			PS.S DN50 D1700, AMD.05-08	1.4301/304	99044296

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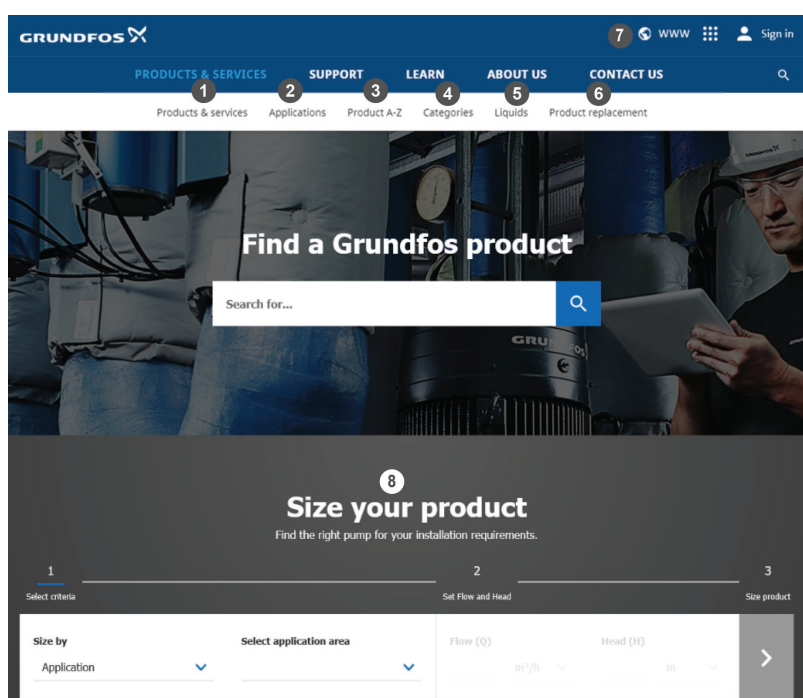
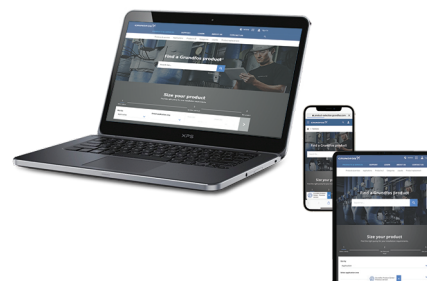
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Argentina

Bombas GRUNDFOS de Argentina S.A.
Ruta Panamericana km. 37.500 Industin
1619 - Garín Pcia. de B.A.
Tel.: +54-3327 414 444
Fax: +54-3327 45 3190

Australia

GRUNDFOS Pumps Pty. Ltd.
P.O. Box 2040
Regency Park
South Australia 5942
Tel.: +61-8-8461-4611
Fax: +61-8-8340-0155

Austria

GRUNDFOS Pumpen Vertrieb Ges.m.b.H.
Grundfosstraße 2
A-5082 Grödig/Salzburg
Tel.: +43-6246-883-0
Fax: +43-6246-883-30

Belgium

N.V. GRUNDFOS Bellux S.A.
Boomsesteenweg 81-83
B-2630 Aartselaar
Tel.: +32-3-870 7300
Fax: +32-3-870 7301

Bosnia and Herzegovina

GRUNDFOS Sarajevo
Zmaja od Bosne 7-7A
BiH-71000 Sarajevo
Tel.: +387 33 592 480
Fax: +387 33 590 465
www.ba.grundfos.com
E-mail: grundfos@bih.net.ba

Brazil

BOMBAS GRUNDFOS DO BRASIL
Av. Humberto de Alencar Castelo Branco,
630
CEP 09850 - 300
São Bernardo do Campo - SP
Tel.: +55-11 4393 5533
Fax: +55-11 4343 5015

Bulgaria

Grundfos Bulgaria EOOD
Slatina District
Iztocna Tangenta street no. 100
BG - 1592 Sofia
Tel.: +359 2 49 22 200
Fax: +359 2 49 22 201
E-mail: bulgaria@grundfos.bg

Canada

GRUNDFOS Canada inc.
2941 Brighton Road
Oakville, Ontario
L6H 6C9
Tel.: +1-905 829 9533
Fax: +1-905 829 9512

China

GRUNDFOS Pumps (Shanghai) Co. Ltd.
10F The Hub, No. 33 Suhong Road
Minhang District
Shanghai 201106 PRC
Tel.: +86 21 612 252 22
Fax: +86 21 612 253 33

Columbia

GRUNDFOS Colombia S.A.S.
Km 1.5 vía Siberia-Cota Conj. Potrero
Chico,
Parque Empresarial Arcos de Cota Bod.
1A.
Cota, Cundinamarca
Tel.: +57(1)-2913444
Fax: +57(1)-8764586

Croatia

GRUNDFOS CROATIA d.o.o.
Buzinski prilaz 38, Buzin
HR-10010 Zagreb
Tel.: +385 1 6595 400
Fax: +385 1 6595 499
www.hr.grundfos.com

Czech Republic

GRUNDFOS Sales Czechia and Slovakia
s.r.o.
Čajkovského 21
779 00 Olomouc
Tel.: +420-585-716 111

Denmark

GRUNDFOS DK A/S
Martin Bachs Vej 3
DK-8850 Bjerringbro
Tel.: +45-87 50 50 50
Fax: +45-87 50 51 51
E-mail: info_GDK@grundfos.com
www.grundfos.com/DK

Estonia

GRUNDFOS Pumps Eesti OÜ
Peterburi tee 92G
11415 Tallinn
Tel.: + 372 606 1690
Fax: + 372 606 1691

Finland

OY GRUNDFOS Pumput AB
Trukkikuja 1
FI-01360 Vantaa
Tel.: +358-(0) 207 889 500

France

Pompes GRUNDFOS Distribution S.A.
Parc d'Activités de Chesnes
57, rue de Malacombe
F-38290 St. Quentin Fallavier (Lyon)
Tel.: +33-4 74 82 15 15
Fax: +33-4 74 94 10 51

Germany

GRUNDFOS GMBH
Schlüterstr. 33
40699 Erkrath
Tel.: +49-(0) 211 929 69-0
Fax: +49-(0) 211 929 69-3799
E-mail: infoservice@grundfos.de
Service in Deutschland:
kundendienst@grundfos.de

Greece

GRUNDFOS Hellas A.E.B.E.
20th km. Athinon-Markopoulou Av.
P.O. Box 71
GR-19002 Peania
Tel.: +0030-210-66 83 400
Fax: +0030-210-66 46 273

Hong Kong

GRUNDFOS Pumps (Hong Kong) Ltd.
Unit 1, Ground floor, Siu Wai Industrial
Centre
29-33 Wing Hong Street & 68 King Lam
Street, Cheung Sha Wan
Kowloon
Tel.: +852-27861706 / 27861741
Fax: +852-27858664

Hungary

GRUNDFOS Hungária Kft.
Tópark u. 8
H-2045 Törökbálint
Tel.: +36-23 511 110
Fax: +36-23 511 111

India

GRUNDFOS Pumps India Private Limited
118 Old Mahabalipuram Road
Thoraiakkam
Chennai 600 097
Tel.: +91-44 2496 6800

Indonesia

PT GRUNDFOS Pompa
Graha intirub Lt. 2 & 3
Jln. Cililitan Besar No.454. Makasar,
Jakarta Timur
ID-Jakarta 13650
Tel.: +62 21-469-51900
Fax: +62 21-460 6910 / 460 6901

Ireland

GRUNDFOS (Ireland) Ltd.
Unit A, Merrywell Business Park
Ballymount Road Lower
Dublin 12
Tel.: +353-1-4089 800
Fax: +353-1-4089 830

Italy

GRUNDFOS Pompe Italia S.r.l.
Via Gran Sasso 4
I-20060 Truccazzano (Milano)
Tel.: +39-02-95838112
Fax: +39-02-95309290 / 95838461

Japan

GRUNDFOS Pumps K.K.
1-2-3, Shin-Miyakoda, Kita-ku
Hamamatsu
431-2103 Japan
Tel.: +81 53 428 4760
Fax: +81 53 428 5005

Kazakhstan

Grundfos Kazakhstan LLP
7' Kyz-Zhibek Str., Kok-Tobe micr.
KZ-050020 Almaty Kazakhstan
Tel.: +7 (727) 227-98-55/56

Korea

GRUNDFOS Pumps Korea Ltd.
6th Floor, Aju Building 679-5
Yeoksam-dong, Kangnam-ku, 135-916
Seoul, Korea
Tel.: +82-2-5317 600
Fax: +82-2-5633 725

Latvia

SIA GRUNDFOS Pumps Latvia
Deglava biznesa centrs
Augusta Deglava ielā 60
LV-1035, Rīga,
Tel.: + 371 714 9640, 7 149 641
Fax: + 371 914 9646

Lithuania

GRUNDFOS Pumps UAB
Smolensko g. 6
LT-03201 Vilnius
Tel.: + 370 52 395 430
Fax: + 370 52 395 431

Malaysia

GRUNDFOS Pumps Sdn. Bhd.
7 Jalan Peguam U1/25
Glenmarie industrial Park
40150 Shah Alam, Selangor
Tel.: +60-3-5569 2922
Fax: +60-3-5569 2866

Mexico

Bombas GRUNDFOS de México
S.A. de C.V.
Boulevard TLC No. 15
Parque industrial Stiva Aeropuerto
Apodaca, N.L. 66600
Tel.: +52-81-8144 4000
Fax: +52-81-8144 4010

Netherlands

GRUNDFOS Netherlands
Veluwezoom 35
1326 AE Almere
Postbus 22015
1302 CA ALMERE
Tel.: +31-88-478 6336
Fax: +31-88-478 6332
E-mail: info_gnl@grundfos.com

New Zealand

GRUNDFOS Pumps NZ Ltd.
17 Beatrice Tinsley Crescent
North Harbour Industrial Estate
Albany, Auckland
Tel.: +64-9-415 3240
Fax: +64-9-415 3250

Norway

GRUNDFOS Pumper A/S
Strømsveien 344
Postboks 235, Leirdal
N-1011 Oslo
Tel.: +47-22 90 47 00
Fax: +47-22 32 21 50

Poland

GRUNDFOS Pompy Sp. z o.o.
ul. Klonowa 23
Baranowo k. Poznania
PL-62-081 Przeźmierowo
Tel.: (+48-61) 650 13 00
Fax: (+48-61) 650 13 50

Portugal

Bombas GRUNDFOS Portugal, S.A.
Rua Calvet de Magalhães, 241
Apartado 1079
P-2770-153 Paço de Arcos
Tel.: +351-21-440 76 00
Fax: +351-21-440 76 90

Romania

GRUNDFOS Pompe România SRL
S-PARK BUSINESS CENTER, Clădirea
A2, etaj 2
Str. Tipografilor, Nr. 11-15, Sector 1, Cod
013714
Bucuresti, Romania
Tel.: 004 021 2004 100
E-mail: romania@grundfos.ro

Serbia

Grundfos Srbija d.o.o.
Omladinskih brigada 90b
11070 Novi Beograd
Tel.: +381 11 2258 740
Fax: +381 11 2281 769
www.rs.grundfos.com

Singapore

GRUNDFOS (Singapore) Pte. Ltd.
25 Jalan Tukang
Singapore 619264
Tel.: +65-6681 9688
Fax: +65-6681 9689

Slovakia

GRUNDFOS s.r.o.
Prievozská 4D 821 09 BRATISLAVA
Tel.: +421 2 5020 1426
sk.grundfos.com

Slovenia

GRUNDFOS LJUBLJANA, d.o.o.
Leskoškova 9e, 1122 Ljubljana
Tel.: +386 (0) 1 568 06 10
Fax: +386 (0) 1 568 06 19
E-mail: tehnika-si@grundfos.com

South Africa

GRUNDFOS (PTY) LTD
16 Lascelles Drive, Meadowbrook Estate
1609 Germiston, Johannesburg
Tel.: (+27) 10 248 6000
Fax: (+27) 10 248 6002
E-mail: lgradidge@grundfos.com

Spain

Bombas GRUNDFOS España S.A.
Camino de la Fuentecilla, s/n
E-28110 Algete (Madrid)
Tel.: +34-91-848 8800
Fax: +34-91-628 0465

Sweden

GRUNDFOS AB
Box 333 (Lunnagårdsgatan 6)
431 24 Mölndal
Tel.: +46 31 332 23 000
Fax: +46 31 331 94 60

Switzerland

GRUNDFOS Pumpen AG
Bruggacherstrasse 10
CH-8117 Fällanden/ZH
Tel.: +41-44-806 8111
Fax: +41-44-806 8115

Taiwan

GRUNDFOS Pumps (Taiwan) Ltd.
7 Floor, 219 Min-Chuan Road
Taichung, Taiwan, R.O.C.
Tel.: +886-4-2305 0868
Fax: +886-4-2305 0878

Thailand

GRUNDFOS (Thailand) Ltd.
92 Chaloem Phrakiat Rama 9 Road
Dokmai, Pravej, Bangkok 10250
Tel.: +66-2-725 8999
Fax: +66-2-725 8998

Turkey

GRUNDFOS POMPA San. ve Tic. Ltd. Sti.
Gebze Organize Sanayi Bölgesi
İhsan dede Caddesi
2. yol 200. Sokak No. 204
41490 Gebze/ Kocaeli
Tel.: +90 - 262-679 7979
Fax: +90 - 262-679 7905
E-mail: satis@grundfos.com

Ukraine

ТОВ "ГРУНДФОС УКРАЇНА"
Бізнес Центр Європа
Столицне шосе, 103
м. Київ, 03131, Україна
Tel.: (+38 044) 237 04 00
Fax: (+38 044) 237 04 01
E-mail: ukraine@grundfos.com

United Arab Emirates

GRUNDFOS Gulf Distribution
P.O. Box 16768
Jebel Ali Free Zone, Dubai
Tel.: +971 4 8815 136
Fax: +971 4 8815 136

United Kingdom

GRUNDFOS Pumps Ltd.
Grovebury Road
Leighton Buzzard/Beds. LU7 4TL
Tel.: +44-1525-850000
Fax: +44-1525-850011

U.S.A.

Global Headquarters for WU
856 Koomey Road
Brookshire, Texas 77423 USA
Phone: +1-630-236-5500

Uzbekistan

Grundfos Tashkent, Uzbekistan
The Representative Office of Grundfos
Kazakhstan in Uzbekistan
38a, Oybek street, Tashkent
Tel.: (+998) 71 150 3290 / 71 150 3291
Fax: (+998) 71 150 3292

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GRUNDFOS Holding A/S
Poul Due Jensens Vej 7
DK-8850 Bjerringbro
Tel: +45 87 50 14 00
www.grundfos.com

