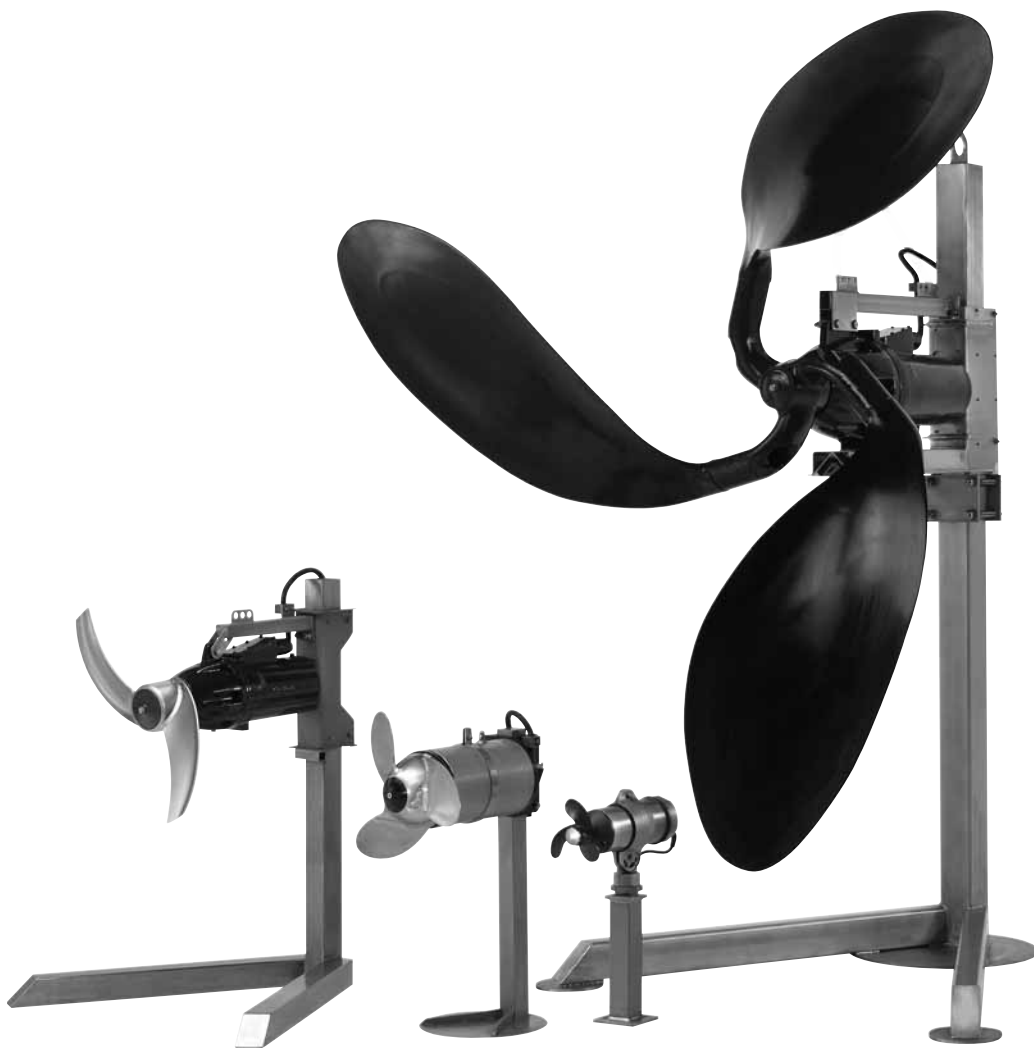


Mixers and flowmakers

AMD, AMG, AFG, 50 Hz



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Introduction

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

Mixers

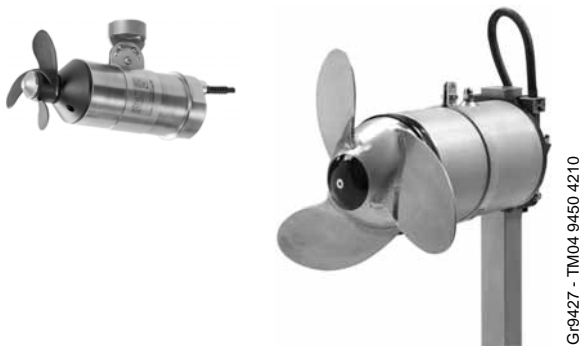


Fig. 1 AMD mixers



Fig. 2 AMG mixer

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

The range of mixers consists of the following types:

- AMD mixers with direct drive
- AMG mixers with planetary gear drive.

Mixers are fitted with motors of 0.75 to 18.5 kW.

Flowmakers



Fig. 3 AFG flowmakers

The Grundfos range of horizontal AFG flowmakers is designed for flowmaking, i.e. 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.

Flowmakers are fitted with motors of 1.5 to 7.5 kW.

Applications

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

Sewage treatment plants

- Pumping stations (storm water 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.

Please contact Grundfos Management A/S, Denmark, for further information on other applications, such as the mixing of viscous liquids or mixing in explosive environments.

Constructional features

AMD

- Integrated motor bracket
- motor housing made of stainless steel AISI 316
- protection ring between motor and hub
- self-cleaning propeller
- integrated overload and thermal protection
- integrated leak sensor
- double-acting shaft seal.

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.

Operating mode

- Continuous operation when fully submerged
- intermittent operation with max. 20 starts per hour.

Type key

Code	Example	A	M	G.	15.	55.	342.	Ex.	5.	1A.
Type range										
A	AMD, AMG, AFG									
Version										
M	Mixer									
F	Flowmaker									
Drive										
G	Gear-driven									
D	Direct-driven									
Motor output power, P2										
P2	Code from type designation/10 [kW]									
15	1.5 kW									
Propeller diameter										
55	55 cm									
Applications										
[-]	All applications									
B	Biology*									
Propeller speed										
342	342 min ⁻¹									
Explosion protection										
[-]	Non-explosion-proof									
Ex	Explosion-proof									
Frequency										
5	50 Hz									
6	60 Hz									
Supply voltage and starting method										
0A	400 V, DOL									
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									
Generation										
[-]	First generation									
A	Second generation									
B	Third generation									

* Only for liquids with a dry solids content ≤ 1.5 %

Nameplates

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

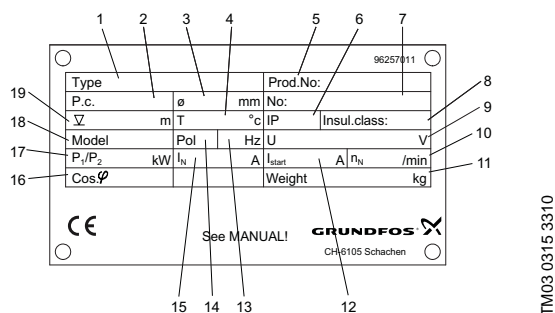


Fig. 4 Nameplate, standard version

Key to nameplate, standard version

Pos.	Description
1	Type designation
2	Production code
3	Propeller diameter
4	Liquid temperature range
5	Product number
6	Enclosure class according to IEC
7	Serial number
8	Insulation class
9	Rated voltage
10	Rated speed (propeller)
11	Weight
12	Starting current
13	Frequency
14	Number of poles
15	Rated current
16	Power factor
17	Motor power P1/P2
18	Model
19	Maximum installation depth

For reference purposes, the additional nameplate supplied with the mixer or flowmaker should be fixed in a visible position at the installation site.

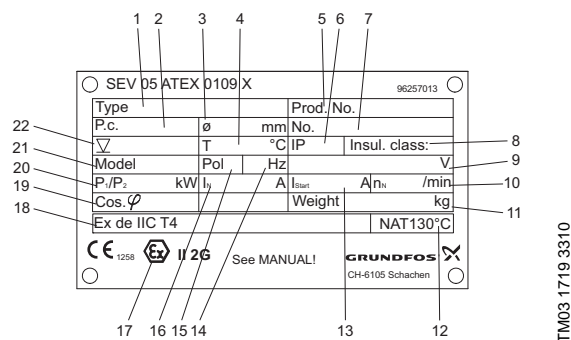


Fig. 5 Nameplate, explosion-proof direct-driven mixers

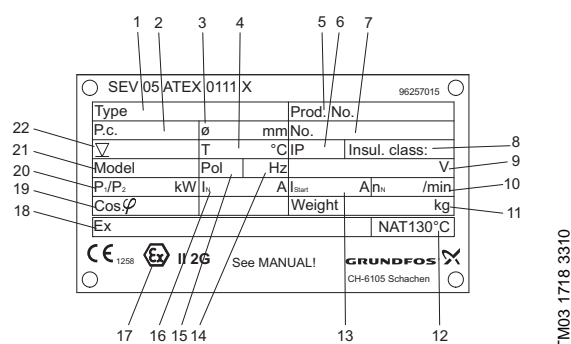


Fig. 6 Nameplate, explosion-proof gear-driven mixers and flowmakers

Key to nameplate, Ex versions

Pos.	Description
1	Type designation
2	Production code
3	Propeller diameter
4	Liquid temperature range
5	Product number
6	Enclosure class according to IEC
7	Serial number
8	Insulation class
9	Rated voltage
10	Rated speed (propeller)
11	Weight
12	Nominal response temperature (NRT)
13	Starting current
14	Frequency
15	Number of poles
16	Rated current
17	ATEX category
18	ATEX approval class
19	Power factor
20	Motor power P1/P2
21	Model
22	Maximum installation depth

Features

Motor

AMD 07.18.1410

The totally enclosed 4-pole, three-phase, 400 V, 50 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 means of 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.

AMD xx.45.xxx

The motor is an 8-pole squirrel-cage induction motor without oil. The non-drive end is made of PA12 (polyamide) and forms the motor bracket. It has an embedded cable entry.

The motor housing is made of stainless steel. A clamp around the motor is used for attachment of the lifting wire.

The drive end has two mechanical shaft seals in an oil-filled shaft seal housing.

AMG and AFG

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

The watertight cable entry prevents moisture ingress down to a depth of 20 metres.

Starting methods

AMD.xx.45.xxx and 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.

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 and an external relay which together can give an alarm or cut out the motor in case of water ingress.

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/gearbox, the mixers and flowmakers also have a shaft seal or two seal rings between the shaft seal housing/gearbox and the motor.

Mixer/ flowmaker	Sealing against ingress of surrounding liquid	Sealing between shaft seal housing/gearbox and motor	
AMD standard and Ex versions	V-ring, lip seal and mechanical shaft seal made of SiC/SiC	Carbon/SiC	Not relevant
AMG, AFG standard versions	Two lip seals and a mechanical shaft seal, tungsten carbide/ tungsten carbide or SiC/SiC	Lip seal	Lip seal
AMG, AFG Ex versions	Two lip seals and a mechanical shaft seal, tungsten carbide/ tungsten carbide or SiC/SiC	Mechanical shaft seal made of carbon/alox	

SiC: silicon carbide

Shafts

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

Shaft	AMD		AMG, AFG	
	DIN	AISI	DIN	AISI
Motor	1.4401	316	1.7147	5120
Gear	1.4401	316	1.5713	-

Propeller

For the number of propeller blades on the various types of mixers and flowmakers, see section *Technical data*, page 46.

Power supply cables

The specific cable can be found in the tables in section *Technical data*, page 46.

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

Cable entry

Elastomer 70 Shore-hardness.

Sensors

As standard, the pump 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.

Wiring diagrams

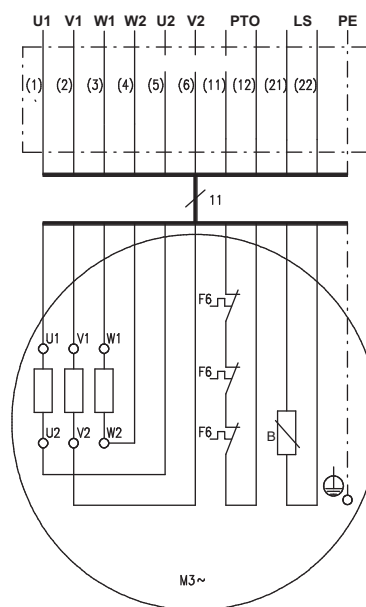


Fig. 7 Wiring diagram, three thermal switches (PTO)

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 <i>Water-in-oil sensor</i> , page 9.

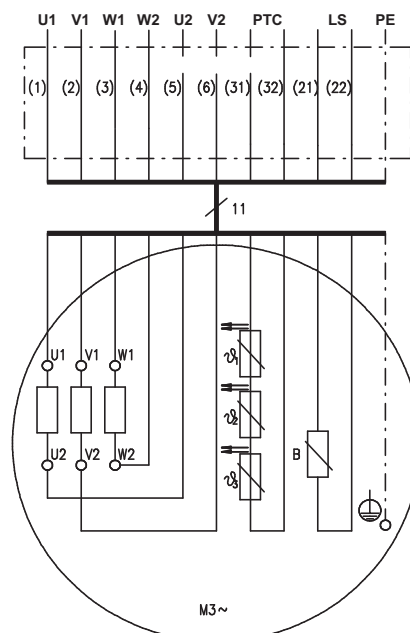


Fig. 8 Wiring diagram, three thermistors (PTC)

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) (θ1, θ2, θ3)
21, 22	Leak sensor in gearbox See section <i>Water-in-oil sensor</i> , page 9.

TM02 4940 2002

TM02 4932 2002

Water-in-oil sensor

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

We recommend you to connect the sensor to a relay. The relay must be a Grundfos ALR-20/A-Ex relay, supplied as an optional accessory. See section *Accessories*, page 59.

Note: Being an electronic component, the water-in-oil sensor must not be tested with an ohmmeter or other measuring instruments.

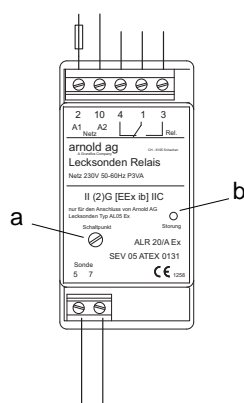


Fig. 9 ALR-20/A-Ex relay

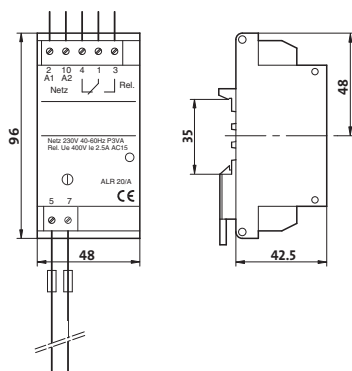


Fig. 10 Dimensions of ALR-20/A-Ex relay

Settings

The sensitivity of the ALR-20/A-Ex relay can be tested as follows:

1. Turn the adjusting screw **a** until the indicator light **b** of the relay is on.
2. Turn the adjusting screw in the opposite direction until the indicator light is off.
3. Turn the adjusting screw another 60 ° (in the same direction as under step 2).

Note: The maximum cable length between the relay and the mixer or flowmaker is 50 metres. An external alarm indicator, if any, must be connected to the potential-free output, terminals 1 and 3 or 4.

Mains supply, terminals 2 and 10	
Rated operating voltage	230 VAC
Permitted voltage tolerance	- 15 % to + 10 %
Frequency	50-60 Hz
Power input	Approx. 3 VA
Power transformer	According to VDE 0551, short-circuit-proof, VDE and SEV mark of conformity

Relay output, terminals 1, 3 and 4	
Maximum switching voltage	250 VAC/24 V DC
Maximum switching current	5 A
Maximum switching capacity	100 VA/100 W

For further information, see the data sheet for the ALR-20/A-Ex.

Applicable liquids

pH value	4 to 10
Liquid temperature	+5 to +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)

Sound pressure level

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

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.

TM03 2060 3505

TM02 8867 0904

Ordering a mixer or flowmaker

Few product numbers need to be selected to make the order complete:

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

Standard mixer

This is an example of what you get when you order a standard AMG mixer:

- mixer
- 10, 15 or 25 m cable (different product numbers for units with different cable lengths)
- paint, graphic grey, NCS8005-r-80b 350 µm thickness
- three thermal switches (PTO), one in each motor winding
- or three thermistors (PTC), one in each motor winding (explosion-proof versions only)
- one water-in-oil sensor incorporated in the gearbox.

Note: In WebCAPS, product-specific data can be found by entering the product number, e.g. 96496413.

See section *Further product documentation*, page 67.

Variants

If a longer cable or an explosion-proof version is required, it is no longer a standard mixer or flowmaker. A list of variants can be found in section *Variants*, page 15.

Accessories

See section *Accessories*, page 59, for selection of the correct accessories.

Note: Accessories are not fitted from factory.

Relay

The following leak detector relay can be selected:

- ALR-20/A-Ex.

Selection of mixers and flowmakers

When selecting mixers and flowmakers, many different parameters must be considered. In order to ensure the optimum selection, please contact Grundfos.

For advanced applications, it is recommended to carry out CFD (Computer animated Flow Design) simulations. Please contact Grundfos.

Standard versions

AMD.07.18.1410 mixer

Product designation	Permissible motor voltage [V]	Product number
		10 m cable
AMD.07.18.1410	3 x 400	96113491

AMD.xx.45.xx mixers

3 x 400 V

Product designation	Permissible motor voltage [V]	Product number					
		10 m cable 60/60	10 m cable 100/100	15 m cable 60/60	15 m cable 100/100	25 m cable 60/60	25 m cable 100/100
AMD.15.45B.710.5.0A.A ^{1 2}	3 x 400 Y	96496413	96562066	96563246	96563979	96696246	96696289
AMD.25.45B.690.5.0A.A ^{1 2}	3 x 400 Y	96496412	96562067	96563247	96563980	96696249	96696290
AMD.35.45B.705.5.1A.A ^{1 2}	3 x 400 D	96496411	96562068	96563248	96563981	95036310	96696329
AMD.45.45B.675.5.1A.A ^{1 2}	3 x 400 D	96560925	96562069	96563946	96563249	96696250	96696343
AMD.20.45.700.5.0A.A ²	3 x 400 Y	96560926	96562070	96563947	96563982	96696253	96696269
AMD.30.45.710.5.1A.A ²	3 x 400 D	96560927	96562071	96563949	96563983	96696252	96696271
AMD.40.45.695.5.1A.A ²	3 x 400 D	96560928	96562072	96563950	96563984	96696251	96696334

¹ Use these mixers only for watery liquids with a maximum dry solids content of 1.5 %.

² A motor bracket kit is available for AMD mixers as an accessory. The motor bracket fits column profile 50 x 50 mm.

AMD.xx.45.xx mixers

3 x 415 V

Product designation	Permissible motor voltage [V]	Product number			
		15 m cable 60/60	15 m cable 100/100	25 m cable 60/60	25 m cable 100/100
AMD.15.45B.710.5.0V.A ^{1 2}	3 x 415 Y	96696300	96696301	96696292	96696302
AMD.25.45B.690.5.0V.A ^{1 2}	3 x 415 Y	96696313	96696314	96696291	96696315
AMD.35.45B.705.5.1V.A ^{1 2}	3 x 415 D	96696325	96696327	96696330	96696331
AMD.45.45B.675.5.1V.A ^{1 2}	3 x 415 D	96696341	96696342	96696344	96696345
AMD.20.45700.5.0V.A ²	3 x 415 Y	96696288	96696297	96696270	96696298
AMD.30.45.710.5.1V.A ²	3 x 415 D	96696284	96696322	96696283	96696321
AMD.40.45.695.5.1V.A ²	3 x 415 D	96696337	96696338	96696335	96696336

¹ Use these mixers only for watery liquids with a maximum dry solids content of 1.5 %.

² A motor bracket kit is available for AMD mixers as an accessory. The motor bracket fits column profile 50 x 50 mm.

AMG mixers

Product designation	Permissible motor voltage [V]	Product number					
		10 m cable 80/80	10 m cable 100/100	15 m cable 80/80	15 m cable 100/100	25 m cable 80/80	25 m cable 100/100
AMG.15.55.339.5.0B	3 x 400-415 Y	97746351		97746360		97746369	
AMG.22.64.335.5.0B	3 x 400-415 Y	97746352		97746361		97746370	
AMG.30.64.336.5.1B	3 x 400-415 D	97746353		97746362		97746371	
AMG.40.71.330.5.1B	3 x 400-415 D	97746354		97746363		97746372	
AMG.55.73.342.5.1B	3 x 400-415 D		97746355		97746364		97746373
AMG.75.73.340.5.1B	3 x 400-415 D		97746356		97746365		97746374
AMG.110.84.340.5.1B	3 x 400-415 D		97746357		97746366		97746375
AMG.150.90.357.5.1B	3 x 400-415 D		97746358		97746367		97746376
AMG.185.91.356.5.1B	3 x 400-415 D		97746359		97746368		97746377

AFG flowmakers

Product designation	Permissible motor voltage [V]	Product number					
		10 m cable 100/100	10 m cable 120/120	15 m cable 100/100	15 m cable 120/120	25 m cable 100/100	25 m cable 120/120
AFG.15.130.76.5.0B.A	3 x 400-415 Y	96094852		96696125		96696152	
AFG.22.130.77.5.0B.A	3 x 400-415 Y	96094853		96696126		96696153	
AFG.30.130.92.5.1B.A	3 x 400-415 D	96094854		95035859		96696154	
AFG.40.130.93.5.1B.A	3 x 400-415 D	96094855		96696127		96696155	
AFG.13.180.30.5.0B.A	3 x 400-415 Y	96560917		96696128		96696157	
AFG.18.180.34.5.0B.A	3 x 400-415 Y	96560919		96696130		96696158	
AFG.24.180.39.5.1B.A	3 x 400-415 D	96560921		96696131		96696159	
AFG.37.180.46.5.1B.A	3 x 400-415 D	96560922		96696142		96696160	
AFG.15.230.22.5.0B.A	3 x 400-415 Y	96094856		96696143		96696147	
AFG.22.230.25.5.0B.A	3 x 400-415 Y	96094857		96696144		96696148	
AFG.30.230.29.5.1B.A	3 x 400-415 D	96094858		96696145		96696149	
AFG.40.230.35.5.1B.A	3 x 400-415 D	96094859		96696146		96696150	
AFG.60.260.43.5.1B.A	3 x 400-415 D		95035356		96746911		96746922
AFG.75.260.41.5.1B.A	3 x 400-415 D		95035375		96746923		96746924

Explosion-proof versions

AMD.xx.45.xx mixers

3 x 400 V

Product designation	Permissible motor voltage [V]	Product number					
		10 m cable 60/60	10 m cable 100/100	15 m cable 60/60	15 m cable 100/100	25 m cable 60/60	25 m cable 100/100
AMD.15.45B.710.Ex.5.0A.A ¹	3 x 400 Y	96560929	97746745	96563951	97746754	96696257	97746761
AMD.25.45B.690.Ex.5.0A.A ¹	3 x 400 Y	96560930	97746746	96563953	97746755	96696258	97746762
AMD.35.45B.705.Ex.5.1A.A ¹	3 x 400 D	96560931	97746747	96563954	97746756	96696260	97746763
AMD.45.45B.675.Ex.5.1A.A ¹	3 x 400 D	96560932	97746748	96563955	97746757	96696261	97746764
AMD.20.45.700.Ex.5.0A.A	3 x 400 Y	96560933	97746749	96563956	97746758	96696254	97746765
AMD.30.45.710.Ex.5.1A.A	3 x 400 D	96560934	97746751	96563957	97746759	96696255	97746766
AMD.40.45.695.Ex.5.1A.A	3 x 400 D	96560935	97746753	96563958	97746760	96696256	97746767

¹ Use these mixers only for watery liquids with a maximum dry solids content of 1.5 %.

AMD.xx.45.xx mixers

3 x 415 V

Product designation	Permissible motor voltage [V]	Product number			
		15 m cable 60/60	15 m cable 100/100	25 m cable 60/60	25 m cable 100/100
AMD.15.45B.710.Ex.5.0V.A ¹	3 x 415 Y	97746317	97746768	97746344	97746775
AMD.25.45B.690.Ex.5.0V.A ¹	3 x 415 Y	97746318	97746769	97746345	97746776
AMD.35.45B.705.Ex.5.1V.A ¹	3 x 415 D	97746319	97746770	97746346	97746777
AMD.45.45B.675.Ex.5.1V.A ¹	3 x 415 D	97746320	97746771	97746347	97746778
AMD.20.45.700.Ex.5.0V.A	3 x 415 Y	97746341	97746772	97746348	97746779
AMD.30.45.710.Ex.5.1V.A	3 x 415 D	97746342	97746773	97746349	97746780
AMD.40.45.695.Ex.5.1V.A	3 x 415 D	97746343	97746774	97746350	97746791

¹ Use these mixers only for watery liquids with a maximum dry solids content of 1.5 %.

AMG mixers

Product designation	Permissible motor voltage [V]	Product number					
		10 m cable 80/80	10 m cable 100/100	15 m cable 80/80	15 m cable 100/100	25 m cable 80/80	25 m cable 100/100
AMG.15.55.342.Ex.5.1A	3 x 400 D	97746378		97746387		97746396	
AMG.22.64.338.Ex.5.1A	3 x 400 D	97746379		97746388		97746397	
AMG.30.64.340.Ex.5.1A	3 x 400 D	97746380		97746389		97746398	
AMG.40.71.335.Ex.5.1A	3 x 400 D	97746381		97746390		97746399	
AMG.55.73.345.Ex.5.1A	3 x 400 D		97746382		97746391		97746400
AMG.75.73.343.Ex.5.1A	3 x 400 D		97746383		97746392		97746401
AMG.110.84.343.Ex.5.1A	3 x 400 D		97746384		97746393		97746402
AMG.150.90.357.Ex.5.1A	3 x 400 D		97746385		97746394		97746403
AMG.185.91.357.Ex.5.1A	3 x 400 D		97746386		97746395		97746404

AFG flowmakers

Product designation	Permissible motor voltage [V]	Product number					
		10 m cable 100/100	10 m cable 120/120	15 m cable 100/100	15 m cable 120/120	25 m cable 100/100	25 m cable 120/120
AFG.15.130.79.Ex.5.1A.A	3 x 400 D	96257410		96696161		96696162	
AFG.22.130.78.Ex.5.1A.A	3 x 400 D	96257411		96696163		96696164	
AFG.30.130.95.Ex.5.1A.A	3 x 400 D	96257412		96696165		96696166	
AFG.40.130.94.Ex.5.1A.A	3 x 400 D	96257413		96696167		96696168	
AFG.13.180.30.Ex.5.1A.A	3 x 400 D	96257414		96696169		96696170	
AFG.18.180.34.Ex.5.1A.A	3 x 400 D	96257415		96696171		96696172	
AFG.24.180.39.Ex.5.1A.A	3 x 400 D	96257416		96696173		96696174	
AFG.37.180.46.Ex.5.1A.A	3 x 400 D	96257417		96696175		96696176	
AFG.15.230.23.Ex.5.1A.A	3 x 400 D	96257418		96696178		96696179	
AFG.22.230.26.Ex.5.1A.A	3 x 400 D	96257419		96696180		96696181	
AFG.30.230.30.Ex.5.1A.A	3 x 400 D	96257420		96696182		96696183	
AFG.40.230.34.Ex.5.1A.A	3 x 400 D	96257421		96696184		96696185	
AFG.60.260.43.Ex.5.1A.A	3 x 400 D		97746406		97746408		97746410
AFG.75.260.41.Ex.5.1A.A	3 x 400 D		97746407		97746409		97746411

Variants

Motor					
Standard cable	Power supply cable	11 x 1.5 mm ² , D17	S1BN8-F 11G1.5	35 m	Contact Grundfos.
				50 m	Contact Grundfos.
		11 x 2.5 mm ² , D21	S1BN8-F 11G2.5	35 m	Contact Grundfos.
				50 m	Contact Grundfos.
Screened cable complete (cast in the cable entry)	Screened power supply cable	7 x 4 mm ² + 4 x 1 mm ² , D21	H07RN-F 7G4 + 4 x 1	35 m	Contact Grundfos.
				50m	Contact Grundfos.
		7 x 4 mm ² + 4 x 1 mm ² , D22.5	H07RC4N8-F 7G4 + 4 x 1	35 m	Contact Grundfos.
				50 m	Contact Grundfos.
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	35 m	Contact Grundfos.
				50 m	Contact Grundfos.
Thermal protection	Mixers (standard with PTO) Flowmakers (standard with PTC)	PTO or PTC, optional			
Coating					
Product coating	Motor/gear housing		Protection layer (different colours)	450 micron epoxy	
Propeller coating	Epoxy or stainless-steel propellers		Protection layer (different colours)	300 micron epoxy	
Tests					
Dry-testing motor certificate	Electrical and tightness	Contact Grundfos.			
Production certificate	Certificate of compliance with EN 10204 2.1	Contact Grundfos.			
Factory test certificate	Inspection and test certificate EN 10204 2.2	Contact Grundfos.			
Material					
AMG propellers		Stainless steel	AISI 316		
Accessories					
Vertically angled motor brackets	Upward/downward angle of mixers	Possible angles: +30 to -30 °			
Platform	Move installation 1 metre out from wall fixation	Galvanised steel			
Bottom fixation bracket	Mixers fixed directly at bottom, for example in rainwater tanks	AISI 304/AISI 316			
Others					
For special package	Batch packaging, hard/soft box, etc.	Contact Grundfos.			
For special nameplate		Contact Grundfos.			
Heavy-duty AMG mixers for special applications		Contact Grundfos.			

AMD, AMG and AFG

The position numbers in fig. 11 refer to section *Material specification*, page 17.

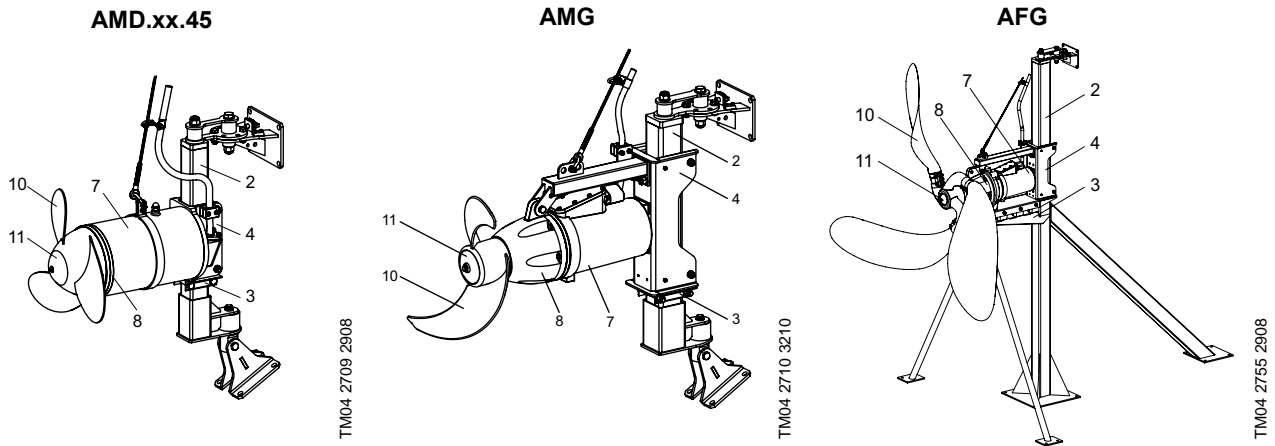


Fig. 11 Construction, AMD, AMG and AFG

Installation drawings

The position numbers in fig. 12 refer to section *Material specification*, page 17.

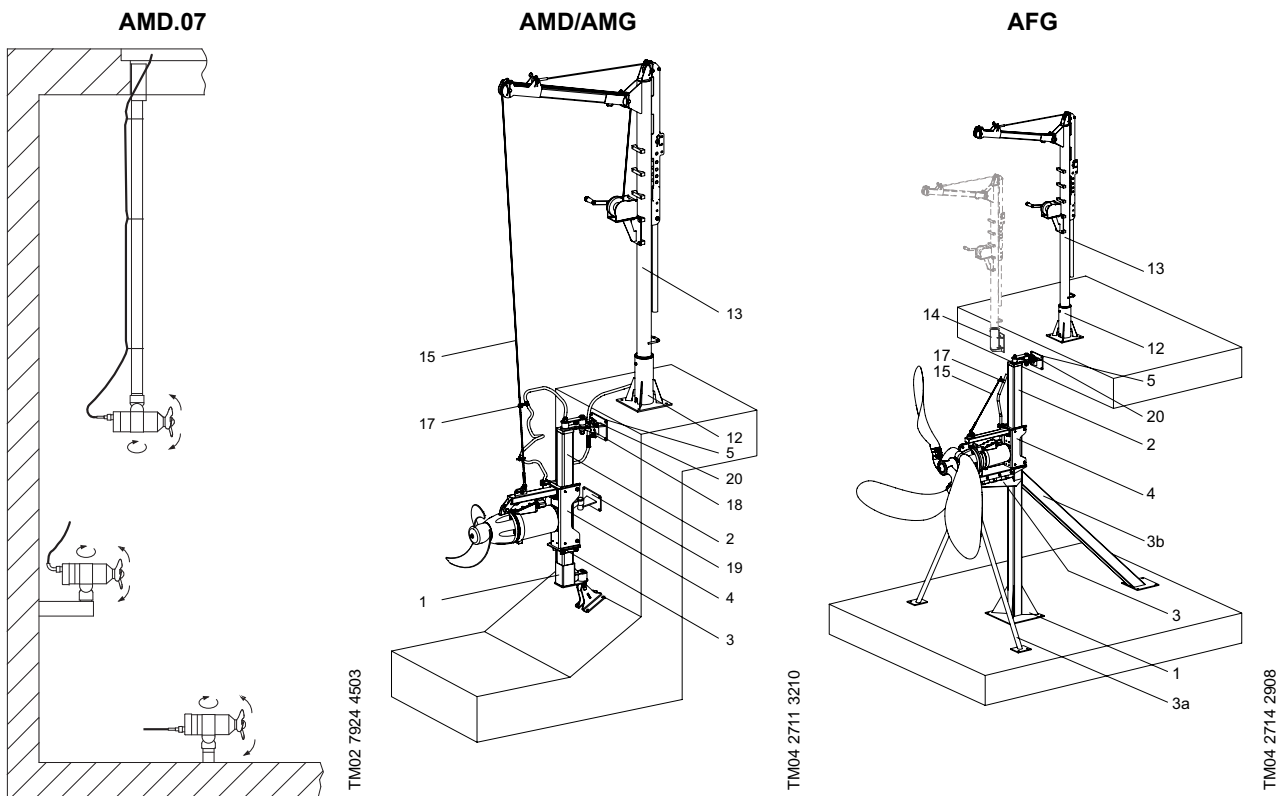


Fig. 12 Installation drawings, AMD, AMG and AFG

The installation type formerly known as "open installation" is no longer in the standard range.

Material specification

The position numbers refer to figs 11 and 12.

Pos.	Component	Material	DIN/EN standard	AISI/ASTM	Mixer/flowmaker
1	Bottom fixation bracket/plate				
2	Column profile	Stainless steel	1.4301	304	All types
3	Depth blocker		1.4404	316 L	
3a	Front support leg				
3b	Back support leg				
4	Motor bracket				
		Stainless steel	1.4301	304	AMG
		PA12	-	-	AMD
		Stainless steel	1.4404	316 L	AMD, Ex version
5	Top fixation bracket incl. safety wire	Stainless steel	1.4301	304	All types
			1.4404	316 L	
7	Motor housing	Cast iron, grade 25 (EN-GJL-250)	EN-JL1040		AMG AFG
		Stainless steel	1.4404	316 L	AMD
8	Sealing flange	POM (polyoxymethylene)			AMD
	Motor flange	Aluminium			AMD
	Protecting ring	POM (polyoxymethylene)			AMD
	Gear housing	Cast iron, grade 25 (EN-GJL-250)	EN-JL1040		AMG, AFG
10	Propeller	Ductile, moulded polyamide PA6	1.4301	304	AMG
			1.4404	316 L	AMD
			EN-JS1030		AFG.xx.130.xx AFG.xx.180.xx AFG.xx.230.xx AFG.xx.260.xx
11	Hub	Stainless steel	1.4301	304	AMG
			1.4404	316 L	AFG.xx.130.xx AMD
			EN-JS1030		AFG.xx.180.xx AFG.xx.230.xx AFG.xx.260.xx
12	Crane foot		1.4301	304	All types
			1.4404	316 L	
13	Crane with winch		Galvanised steel		All types
			1.4301	304	
14	Crane foot for vertical installation		1.4404	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

Sectional drawings

AMD 07.18.1410

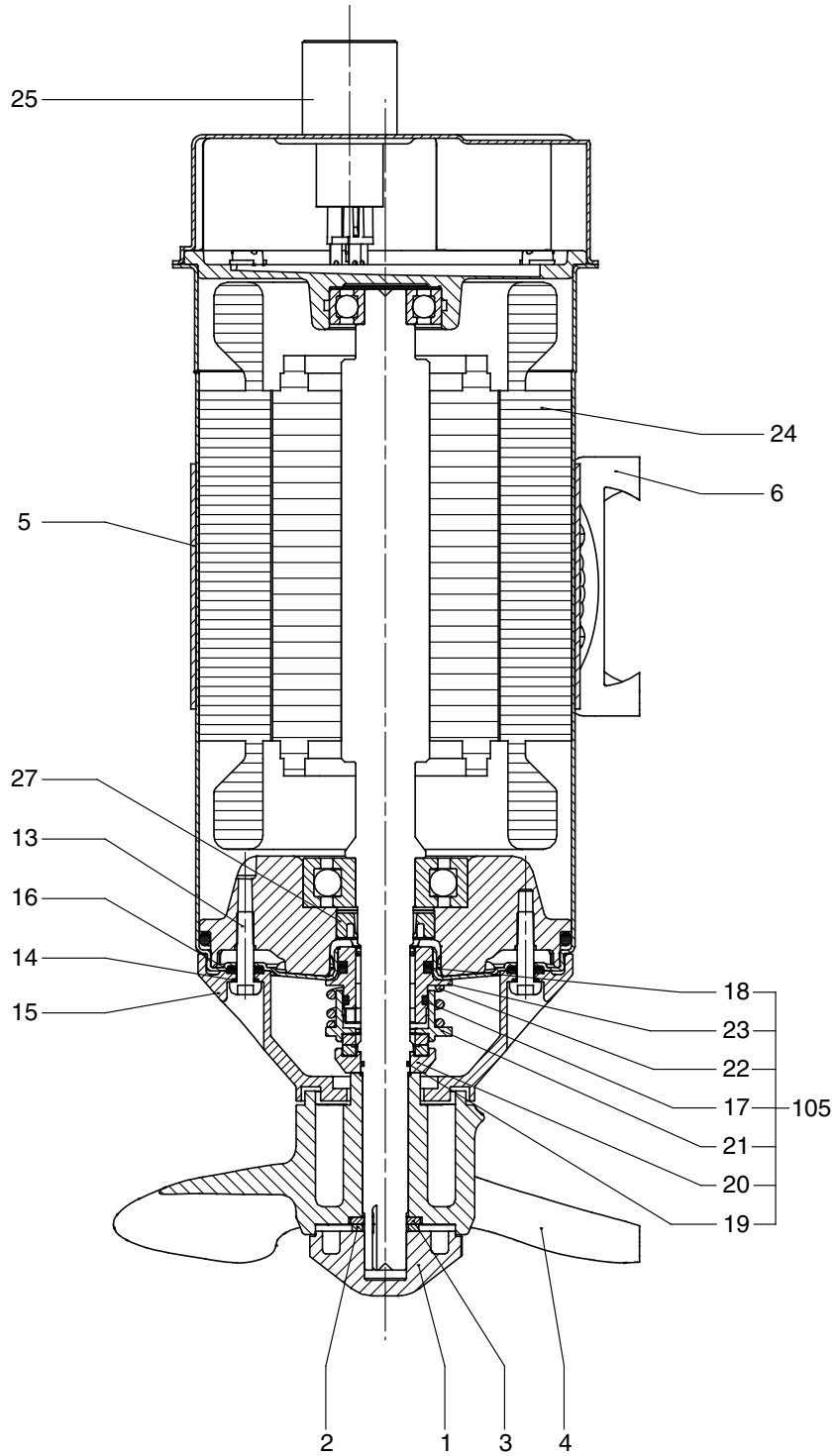


Fig. 13 Sectional drawing, AMD 07.18.1410

TM02 8015 4503

AMD xx.45

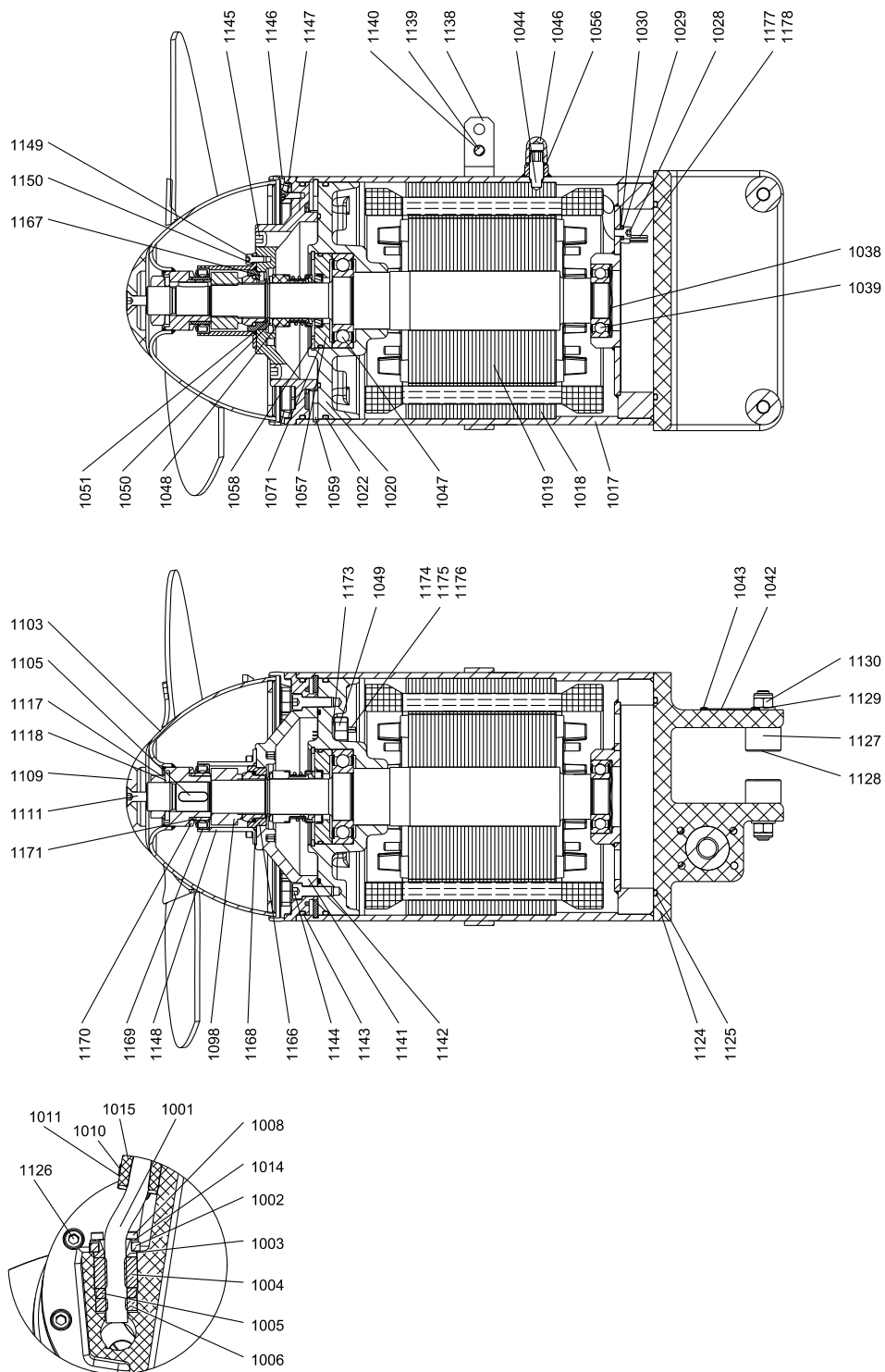


Fig. 14 Sectional drawings, AMD xx.45

TM03 0031 4210

AMD xx.45, Ex version

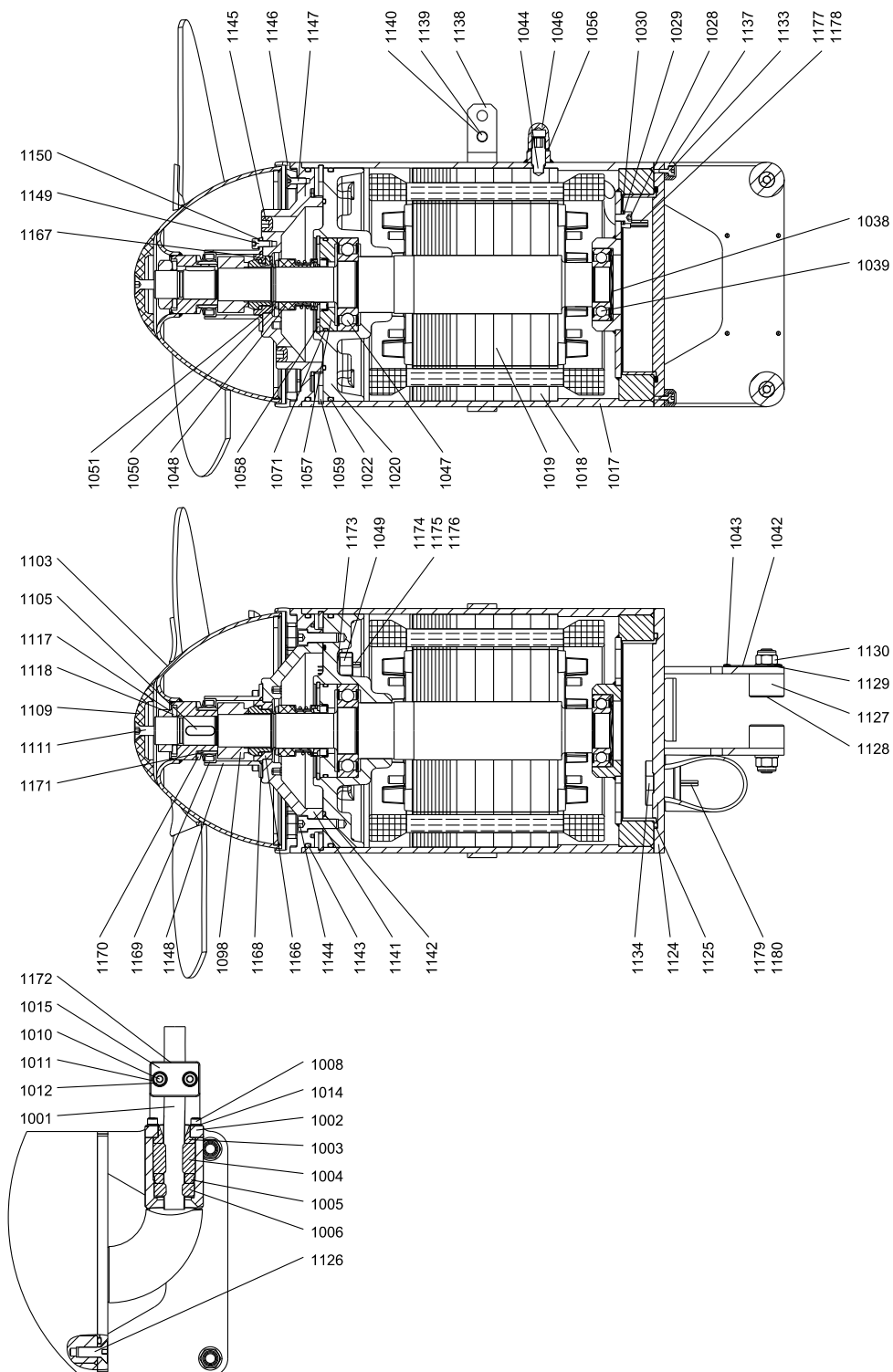


Fig. 15 Sectional drawings, AMD xx.45, Ex version

TM03 7506 4210

AMG 15.xx to AMG 40.xx

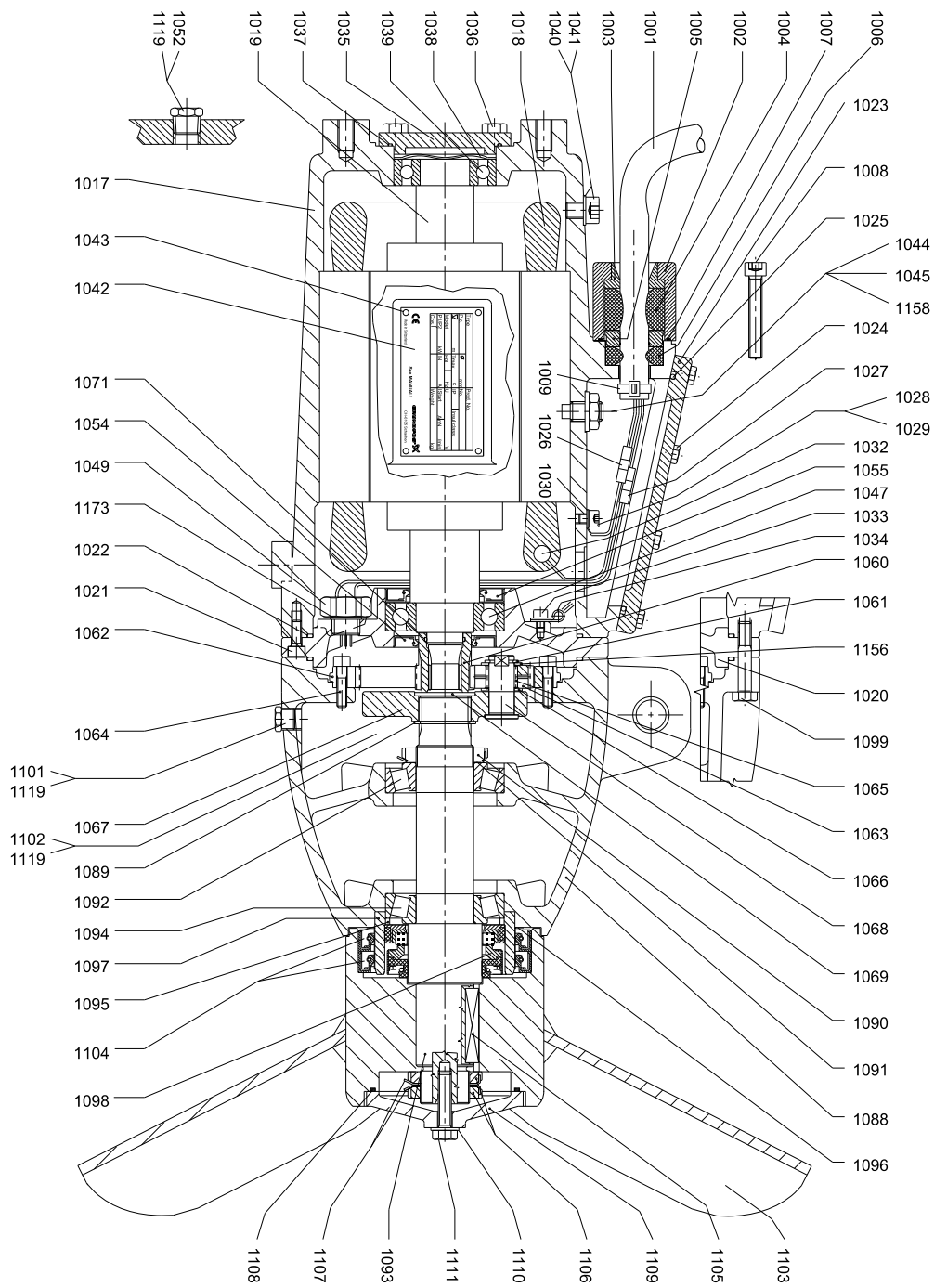


Fig. 16 Sectional drawing, AMG 15.xx to AMG 40.xx

TM03 5474 6210

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

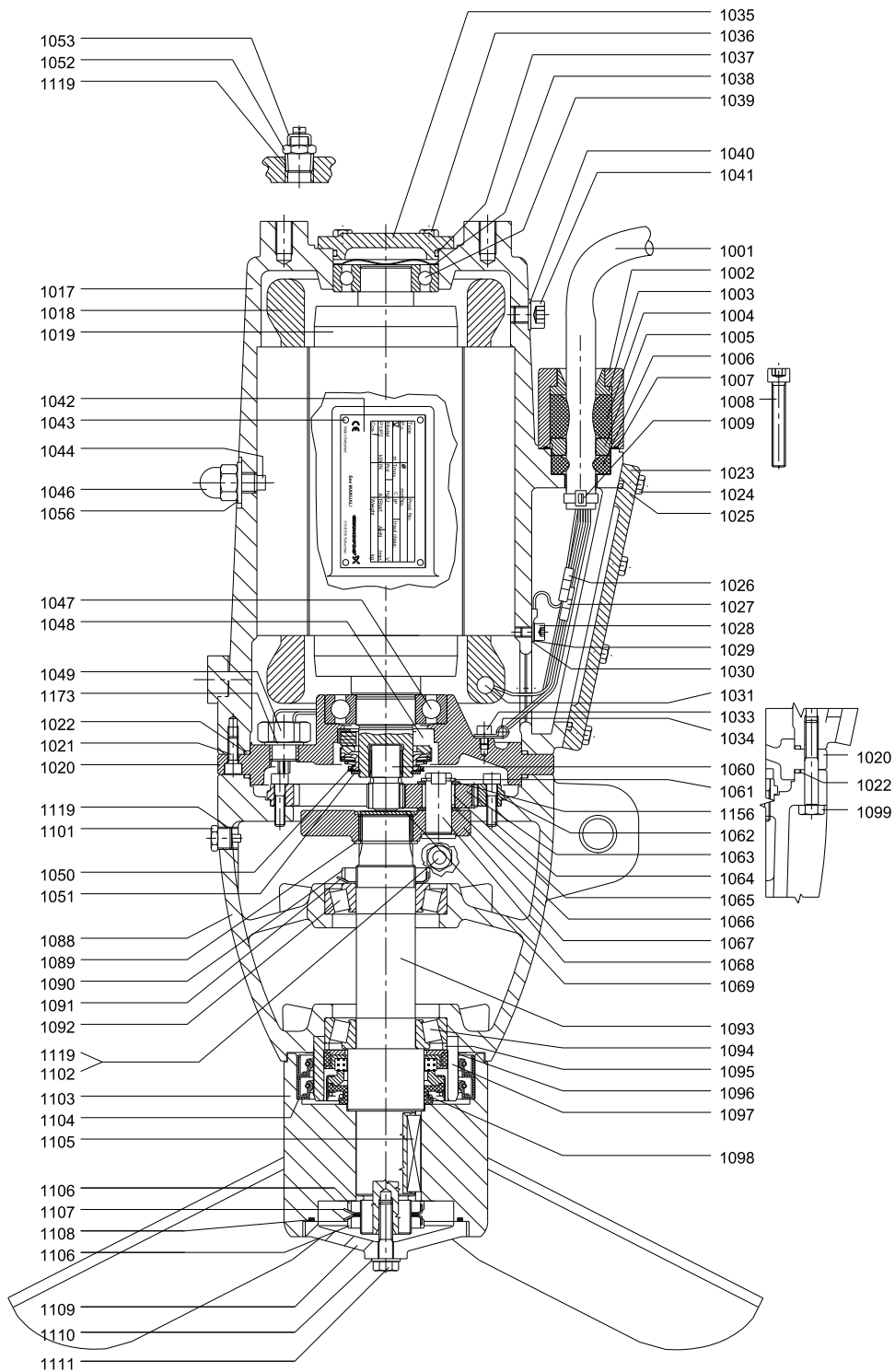


Fig. 17 Sectional drawing, AMG 15.xx to AMG 40.xx, Ex version

TM03 5491 4210

AMG 55.xx to AMG 110.xx

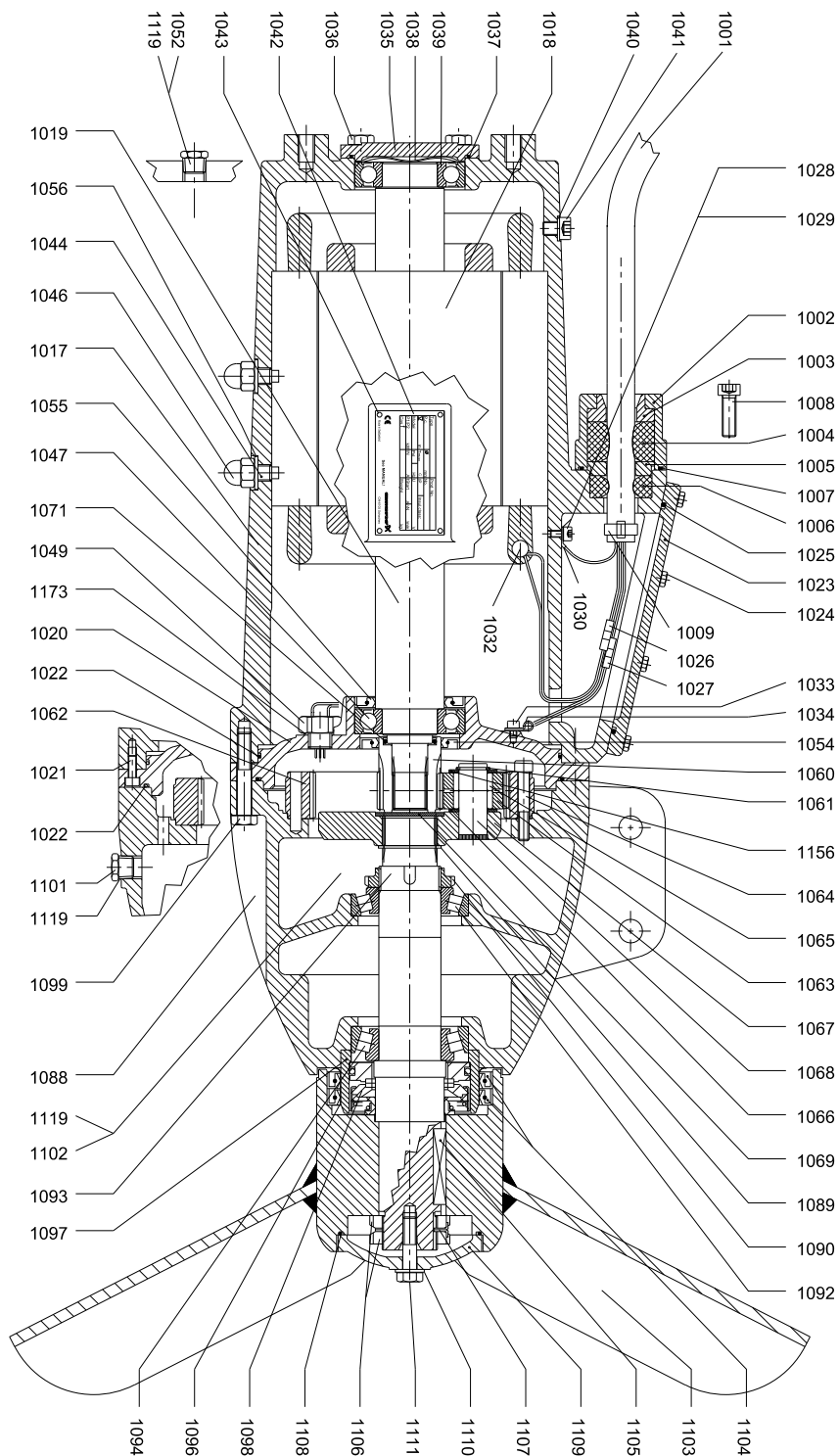


Fig. 18 Sectional drawing, AMG 55.xx to AMG 110.xx

1027 1481 4210

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

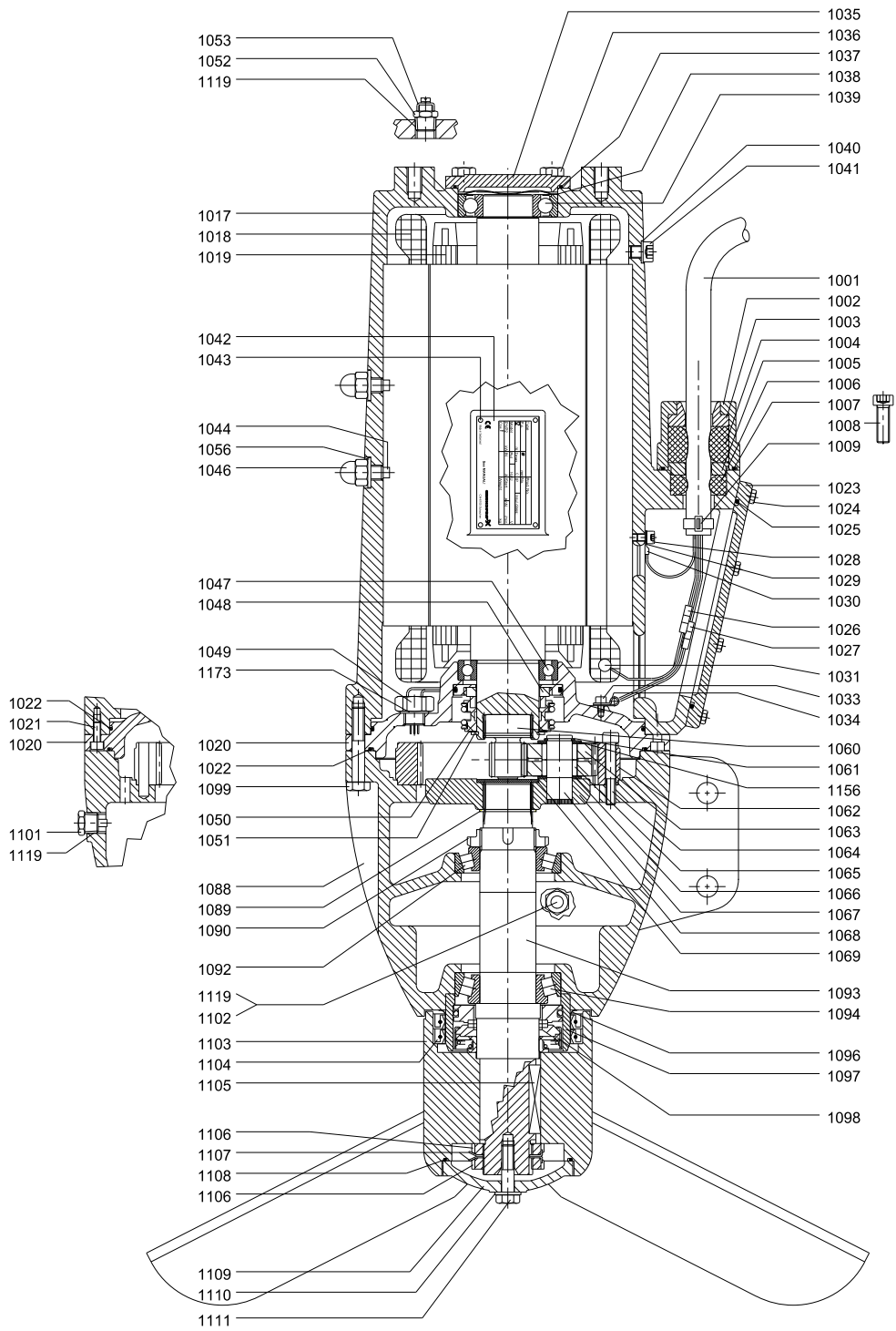


Fig. 19 Sectional drawing, AMG 55.xx to AMG 110.xx, Ex version

TM03 5493 4210

AMG 150.90.357 and AMG 185.91.356

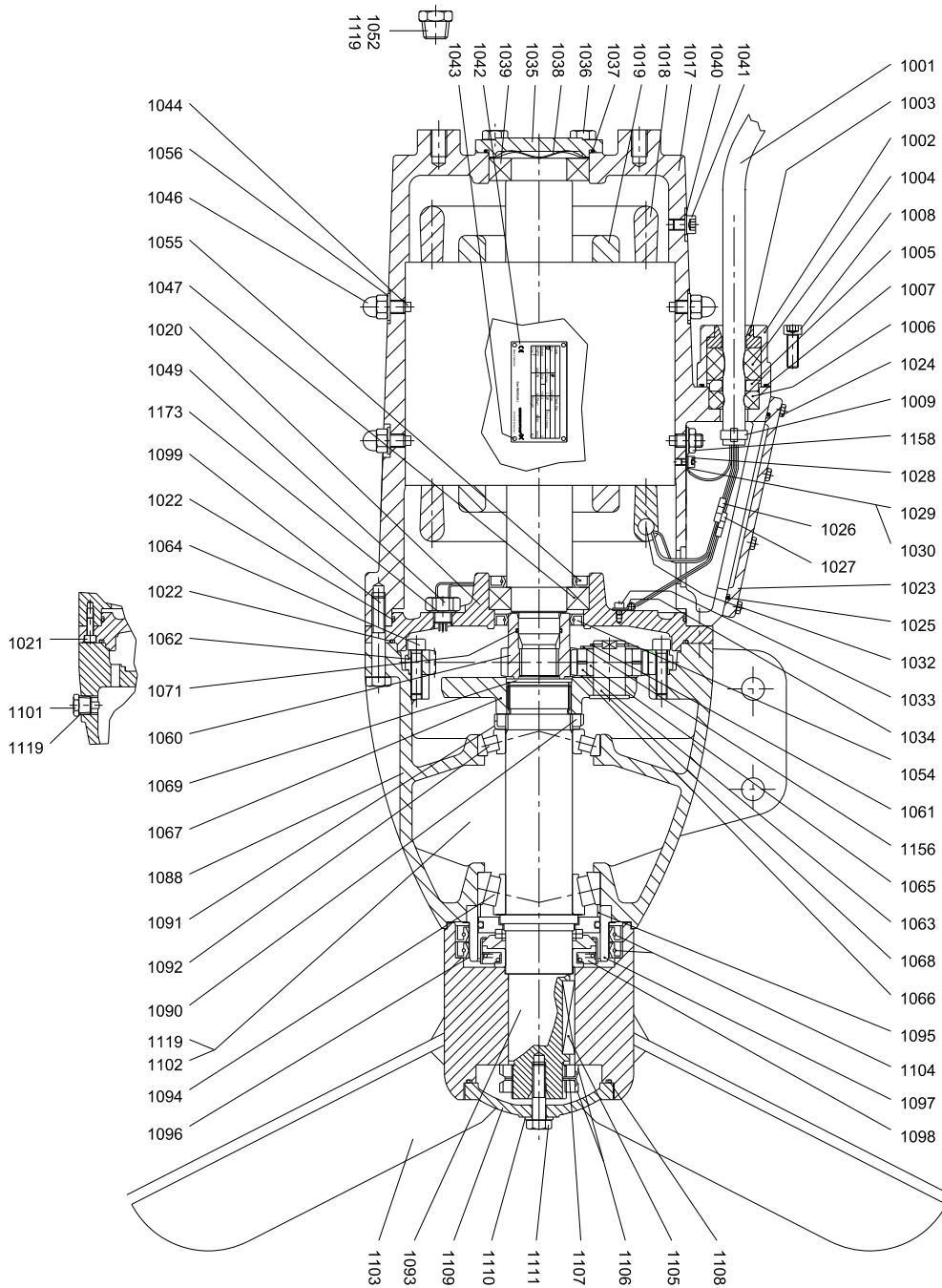


Fig. 20 Sectional drawing, AMG 150.90.357 and AMG 185.91.356

AMG 150.90.357 and AMG 185.91.357, Ex version

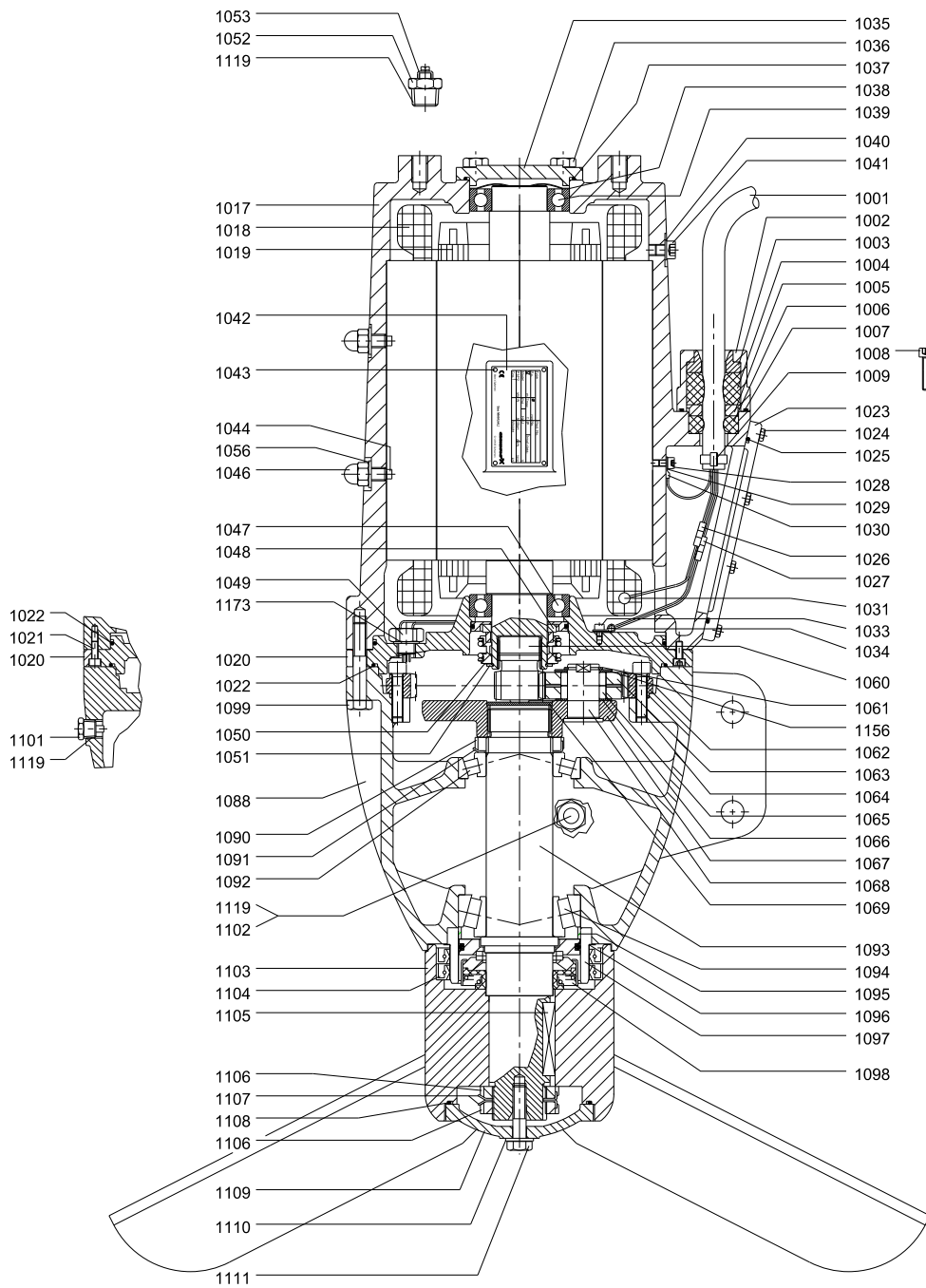


Fig. 21 Sectional drawing, AMG 150.90.357 and AMG 185.91.357, Ex version

TM03 5496 4210

AFG xx.130.xx

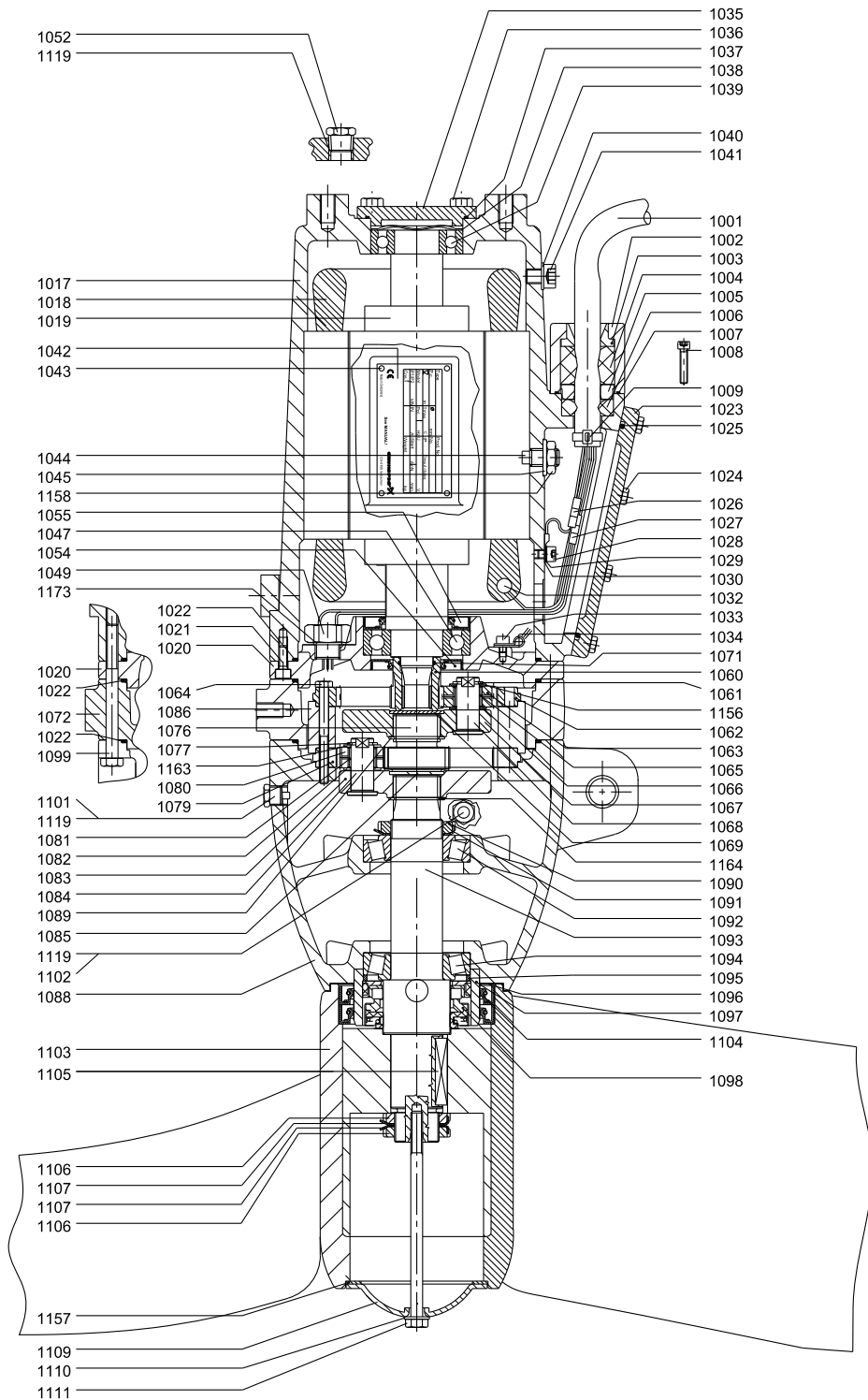


Fig. 22 Sectional drawing, AFG xx.130.xx

TM03 5480 4210

AFG xx.130.xx, Ex version

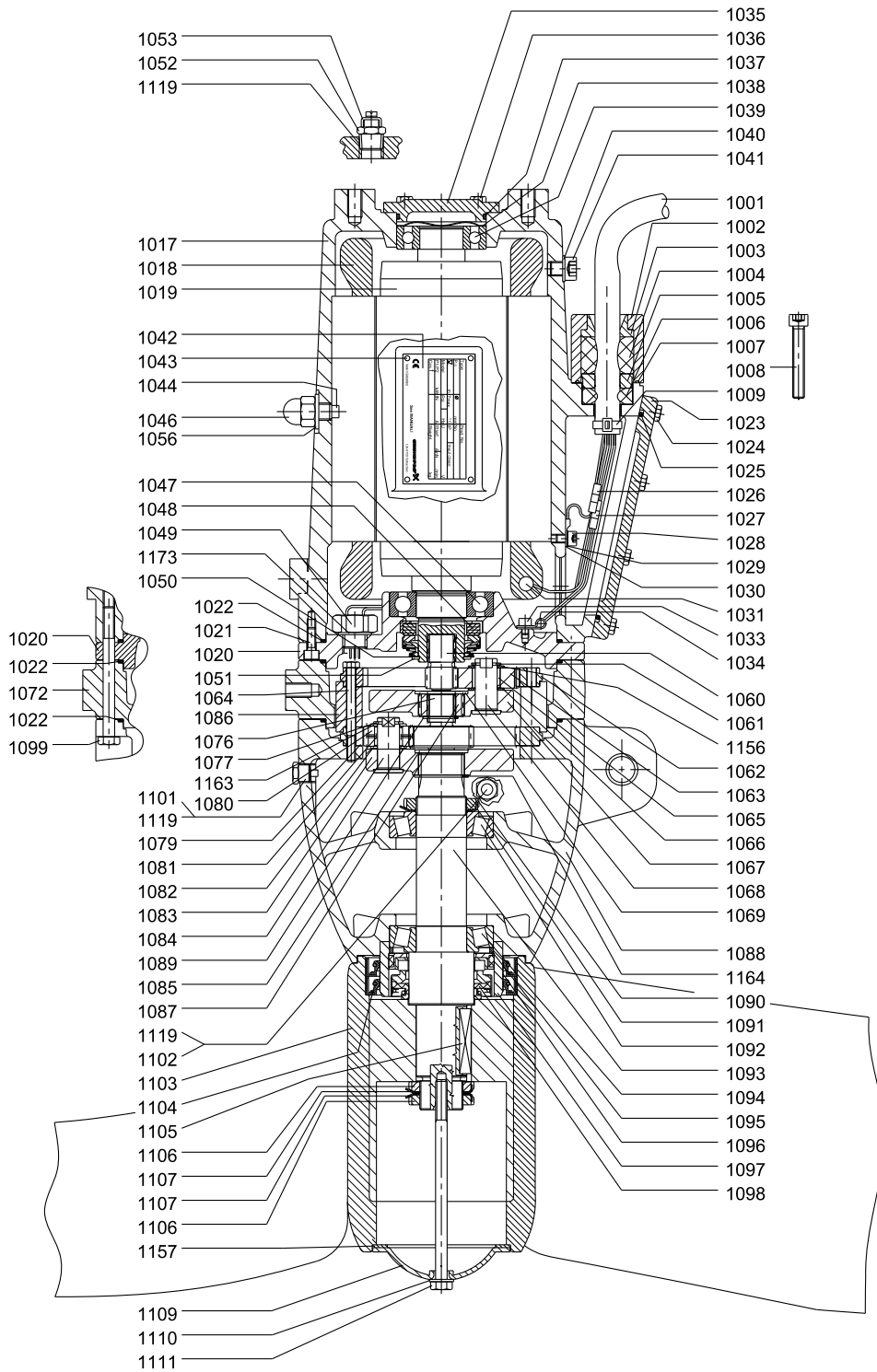


Fig. 23 Sectional drawing, AFG xx.130.xx, Ex version

TM03 5492 4210

AFG xx.180.xx and AFG xx.230.xx

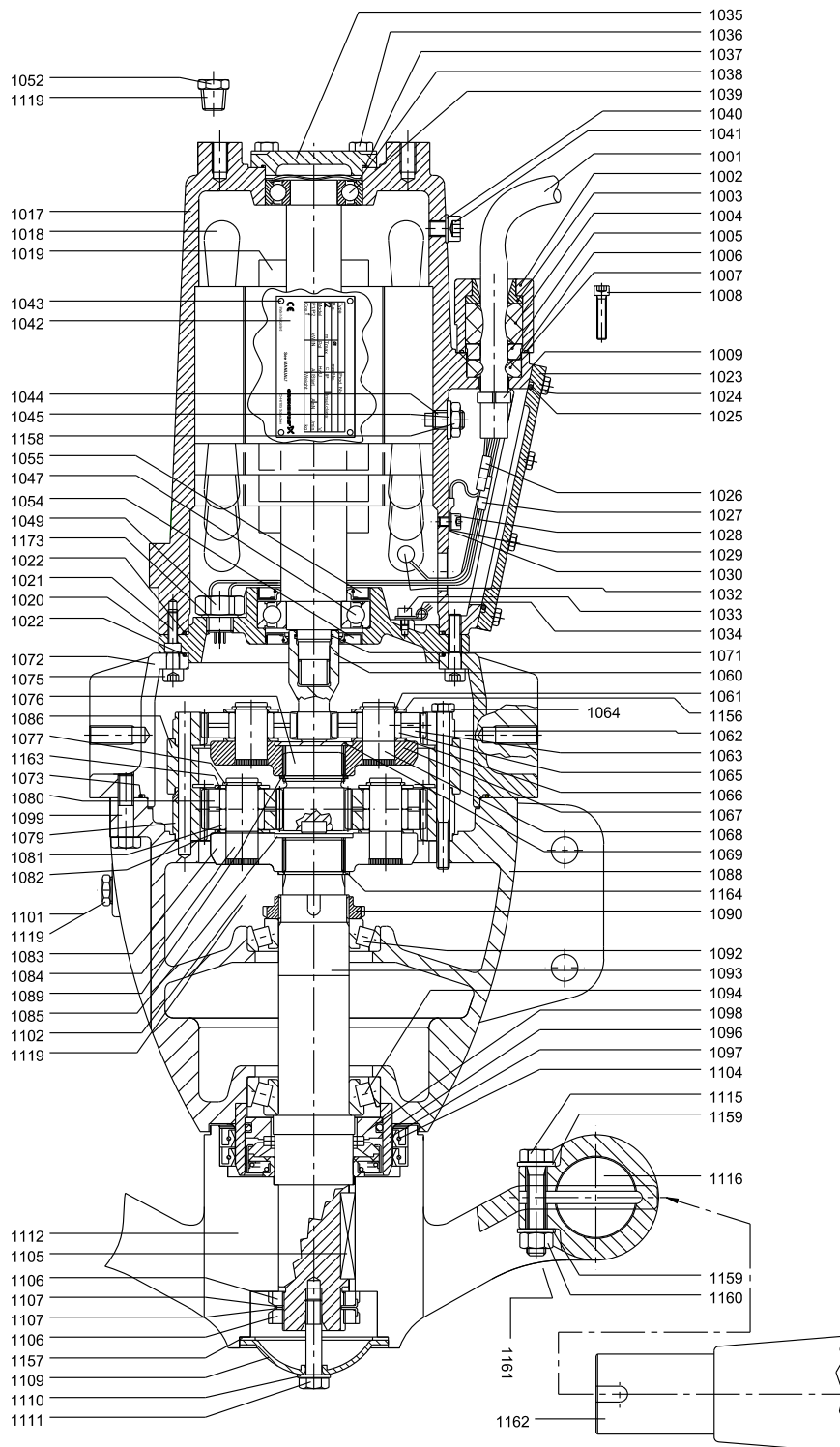


Fig. 24 Sectional drawing, AFG xx.180.xx and AFG xx.230.xx

TM03 54624210

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

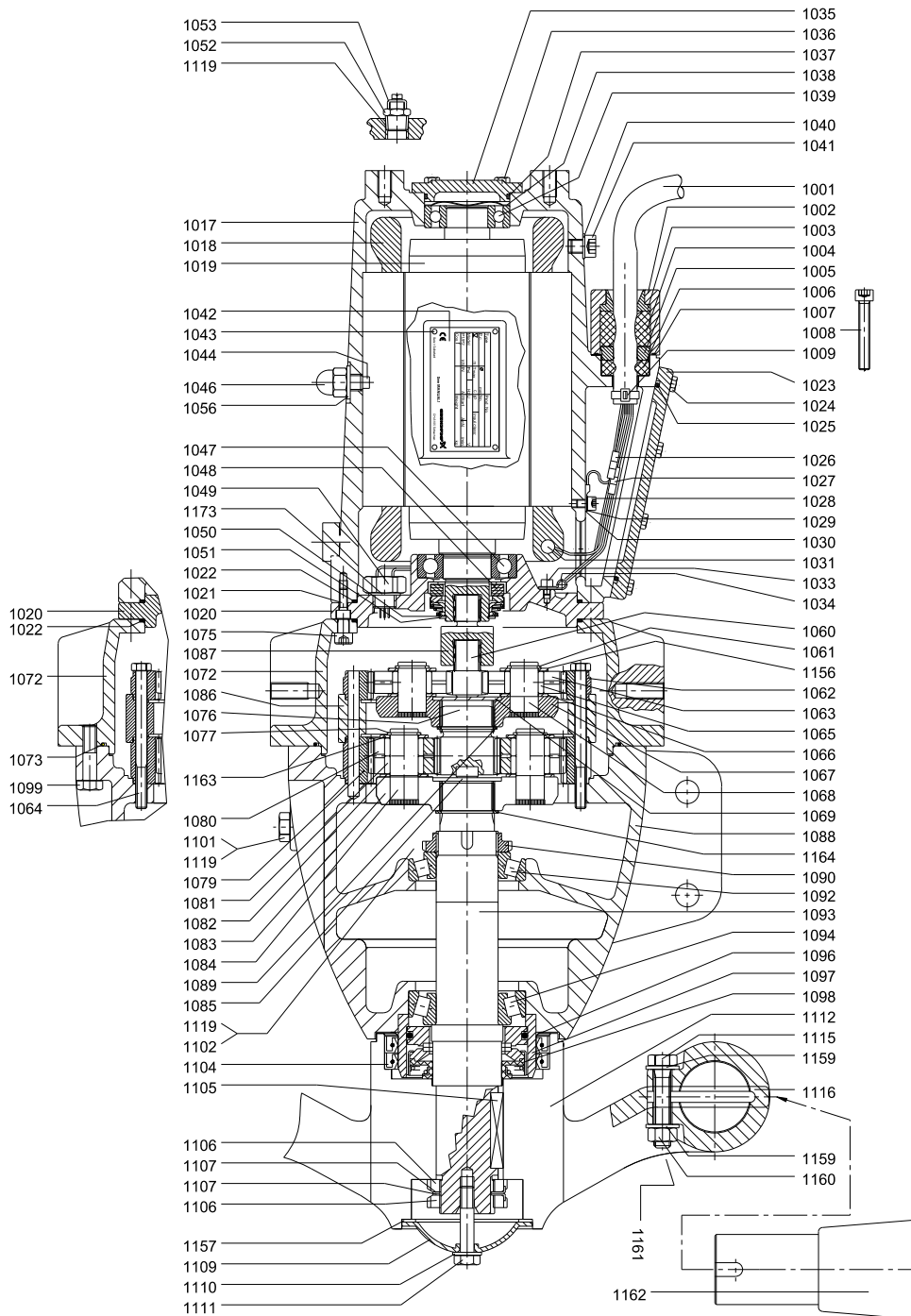


Fig. 25 Sectional drawing, AFG xx.180.xx. and AFG xx.230.xx., Ex version

TM03 5494 4210

AFG xx.260.xx

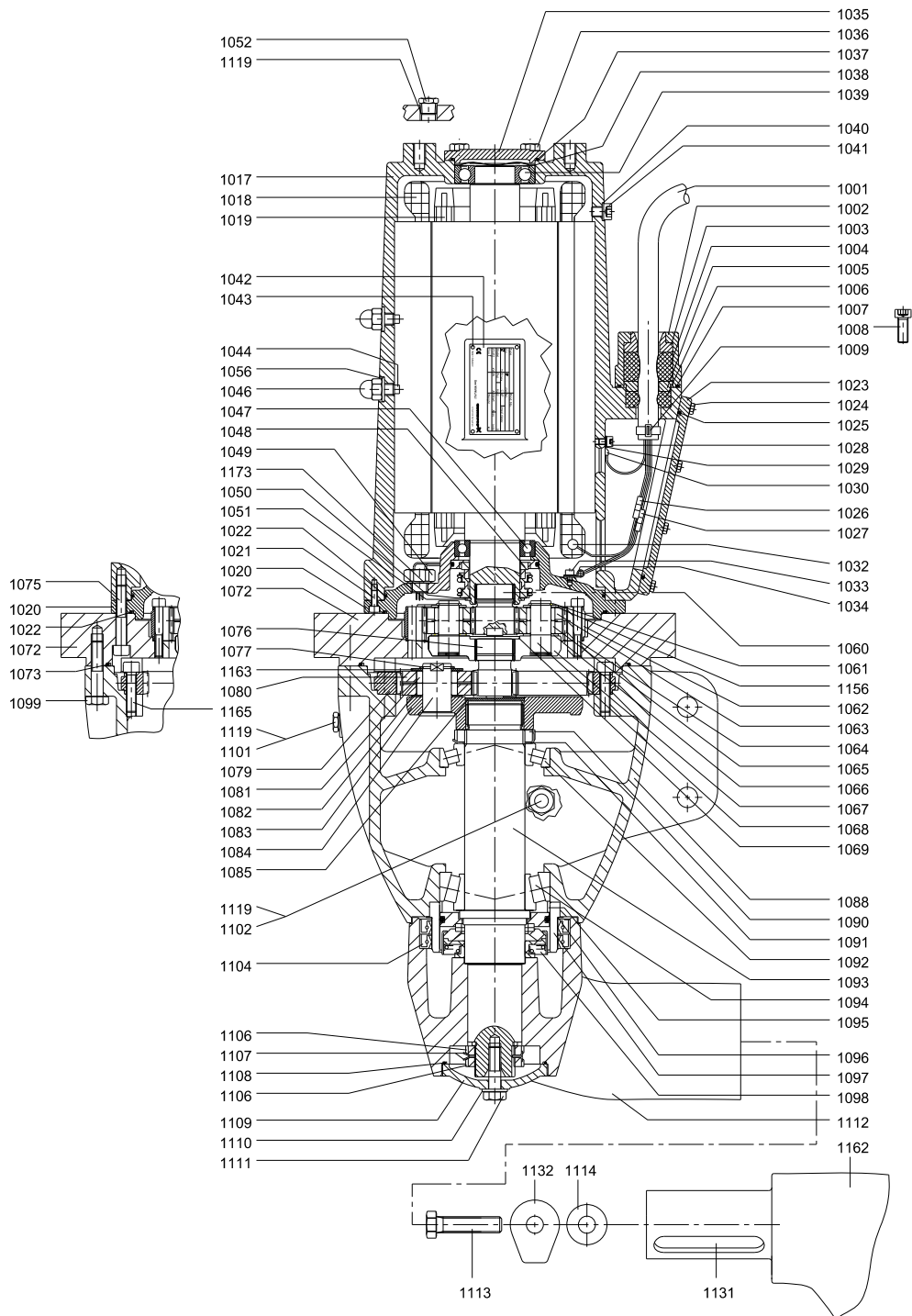


Fig. 26 Sectional drawing, AFG xx.260.xx

TM04 0190 4210

AFG xx.260.xx. Ex version

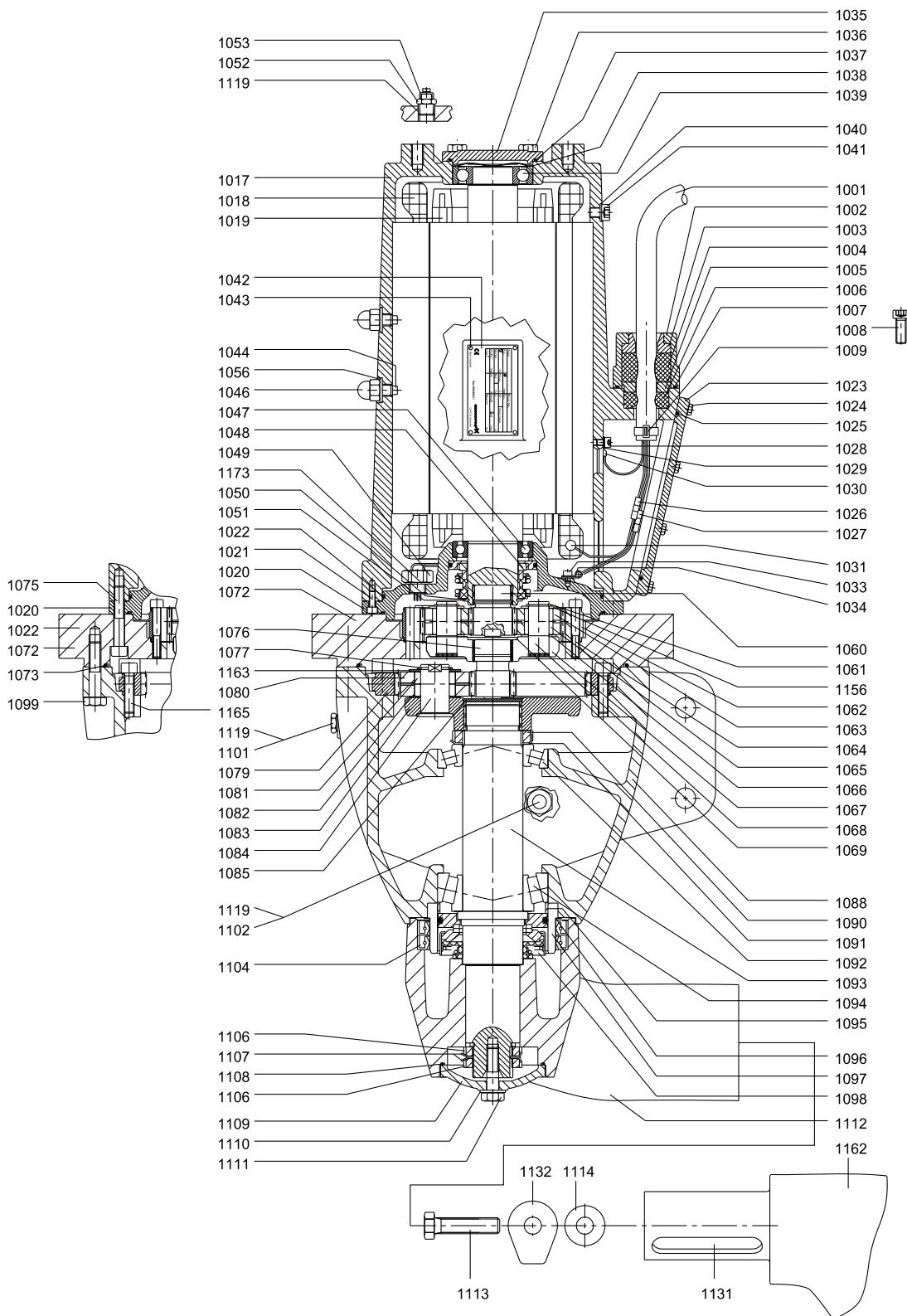


Fig. 27 Sectional drawing. AFG xx.260.xx, Ex version

TM04 9527 4410

Position numbers and material specification

AMD 07.18.1410

Pos.	Description	Material	DIN	AISI/ASTM
1	Hub screw	Stainless steel	1.4408	A 351
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	A 351
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	
105	20 Rotating shaft seal half	Stainless steel	1.4401	316
	21 Stationary shaft seal half	Stainless steel	1.4401	316
	22 Spring for shaft seal	Stainless steel	1.4401	316
	23 Seat of stationary shaft seal half	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
25	Supply cable with plug	H07RN-F 4G1		

AMD xx.45, 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
1010	Screw	DIN 1.4401
1011	Lock washer	DIN 1.4401
1012	Lock nut	DIN 1.4401
1014	Lock washer	DIN 1.4401
1015	Cable clamp	PP
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	
1032	PTO/PTC	
1033	Screw	Zinc-plated steel
1034	Cable clamp	
1035	Bearing cover	EN-GJL250
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	Zinc-plated steel/DIN 1.4401
1045	Spring washer	Zinc-plated spring steel
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
1054	Lip seal	NBR, AISI 1070/1090
1055	Lip seal	NBR, AISI 1070/1090
1056	Seal washer	Copper
1057	Intermediate ring	AISI1MgMn
1058	Circlip	Spring steel
1059	Circlip	Spring steel

Pos.	Component	Material
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)
1071	O-ring	NBR
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
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	Fit-in 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
1117	Nut	DIN 1.4401
1118	Lock washer	DIN 1.4401
1119	PTFE tape	PTFE
1120	Screw-sealing paste	
1121	Sealing paste Curil K2	
1122	Gear oil	ISO VG 68/220

Pos.	Component	Material
1123	Oil	Shell fluid 4600
1124	Guide flange	PA12/DIN 1.4404
1125	O-ring	NBR
1126	Screw	DIN 1.4401
1127	Guide roller	POM
1128	Countersunk screw	DIN 1.4401
1129	Washer	DIN 1.4401
1130	Lock nut	DIN 1.4401
1131	Fit-in key	Ck45
1132	Blinds	DIN 1.4301
1133	Screw	DIN 1.4401
1134	Lead-through (Ex)	Nickel-plated brass (II 2G EEx d II)
1137	Guide plate	POM
1138	Lifting bracket	DIN 1.4404
1139	Screw	DIN 1.4401
1140	Lock nut	DIN 1.4401
1141	Sealing flange	POM/POM-ELS
1142	O-ring	NBR
1143	O-ring	NBR
1144	Screw	DIN 1.4401
1145	Plug	Brass (DIN 2.0220)
1146	Protection ring	POM/POM-ELS
1147	Countersunk screw	DIN 1.4401
1148	Protection sleeve	DIN 1.4404
1149	Screw	DIN 1.4401
1150	Lock washer	DIN 1.4401
1156	Washer	Ck45N (DIN 1.1191)
1157	Gasket	NBR 70
1158	Nut	Zinc-plated steel
1159	Washer	DIN 1.4401
1160	Nut	DIN 1.4401
1161	Screw	DIN 1.4401
1162	Propeller blade	Baydur/EN-GJS-400-15
1163	Washer	Ck45N (DIN 1.1191)
1164	Circlip	Spring steel (DIN 1.7222)
1165	Screw	Zinc-plated steel
1166	Support ring	DIN 1.4301
1167	Split pin	DIN 1.4301
1168	O-ring	NBR
1169	Lip seal, B2	Metal
1170	V-ring	NBR
1171	INA ring	Bearing steel
1172	Distance plate	POM
1173	Seal washer	Copper
1174	Cable joint, 0.5 - 1.5 mm ²	Tin-plated brass
1175	Cable joint, 1.5 - 2.5 mm ²	Tin-plated brass
1176	Shrink hose	Polyolefin
1177	Cable joint	Tin-plated copper, PA-insulated
1178	Shrink hose	Polyolefin
1179	Cable joint	Tin-plated copper, PA-insulated
1180	Shrink hose	Polyolefin

General description

The correct positioning of mixers and flowmakers in the biological treatment zones of a wastewater treatment plant is very important for the efficient operation of the plant. Non-compliance with positioning principles and guidelines may cause low efficiency of the wastewater treatment process. Furthermore, non-compliance may create vibrations in the mixers or flowmakers resulting in wear or breakage.

Mixers

Positioning of mixers in general

The description of the positioning principles involves the use of a number of variables.

Variables:

H_{MIN} = Minimum height from the tank bottom to the propeller tip

H_{LIQUID} = Minimum height of the liquid above the bottom of the tank

D_{PROP} = Propeller diameter

L_{MIN} = The distance between the propeller tip and the wall behind the mixer.

The variables are used in these formulas:

$$H_{MIN} = 20 \text{ to } 40 \text{ cm}$$

$$H_{LIQUID} \geq H_{MIN} + 1.5 \times D_{PROP}$$

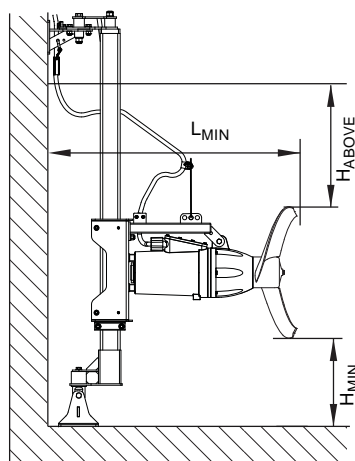
$$L_{MIN} \geq 1.5 \times D_{PROP}$$

Mixers should be submerged as deeply as possible, however, no deeper than the tip of the propeller blade is 20 to 40 cm above the bottom of the tank. See H_{MIN} in fig. 28.

The distance from the propeller tip to the surface of the liquid should be at least half the propeller diameter. This makes it possible to calculate the minimum height of the liquid above the bottom of the tank (H_{LIQUID}).

The distance (L_{MIN}) between the propeller tip and the wall behind the mixer must be at least one and a half time the propeller diameter. This is normally not a problem, as the length of the motor and motor bracket is usually more than one and a half time the propeller diameter.

Mixers should not be installed immediately after aeration zones in the tank, as air bubbles cause a strong reduction in mixer performance.



TM02 6239 3210

Fig. 28 Principle sketch of positioning of mixers

Positioning of mixers in circular tanks

A mixer in a circular tank should be positioned in such a way that the following is ensured:

- A steady, circulating flow preventing sedimentation of solids is generated. See fig. 29.
- Deposited solids, if any, are mixed with the liquid. See fig. 30.

d_1 = Diameter of circular tank.

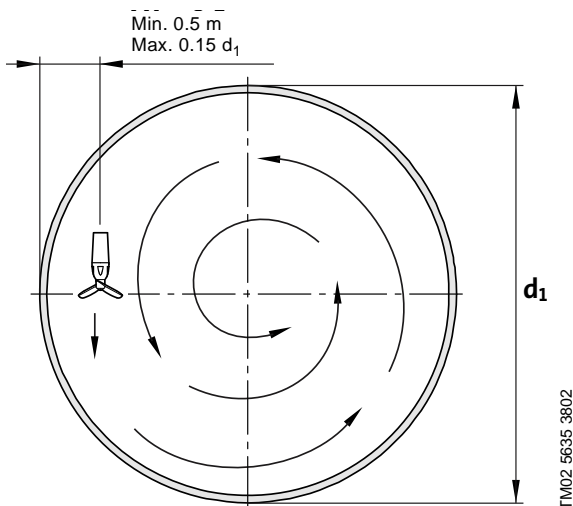


Fig. 29 Solids are kept suspended in the liquid of a circular tank

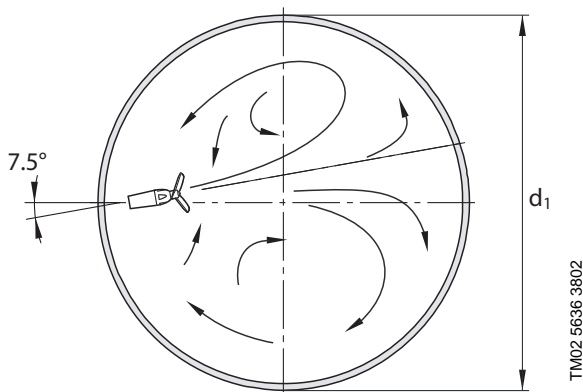


Fig. 30 Deposited solids are mixed with the liquid of a circular tank

Positioning of one mixer in a rectangular tank

A mixer in a rectangular tank should be positioned in such a way that the following is ensured:

- A steady, circulating flow preventing sedimentation of solids is generated. See fig. 31
- Deposited solids, if any, are mixed with the liquid. See fig. 32.

B = Width of rectangular tank.

L = Length of rectangular tank.

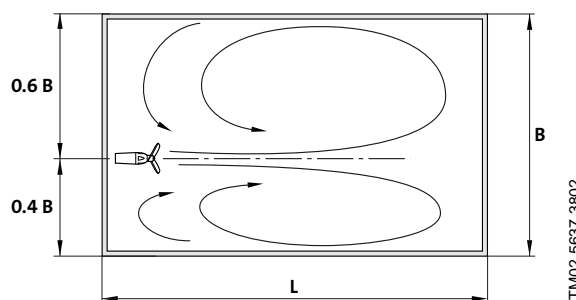


Fig. 31 Solids are kept suspended in the liquid of a rectangular tank

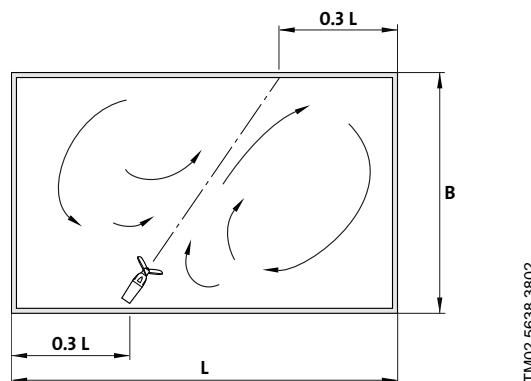


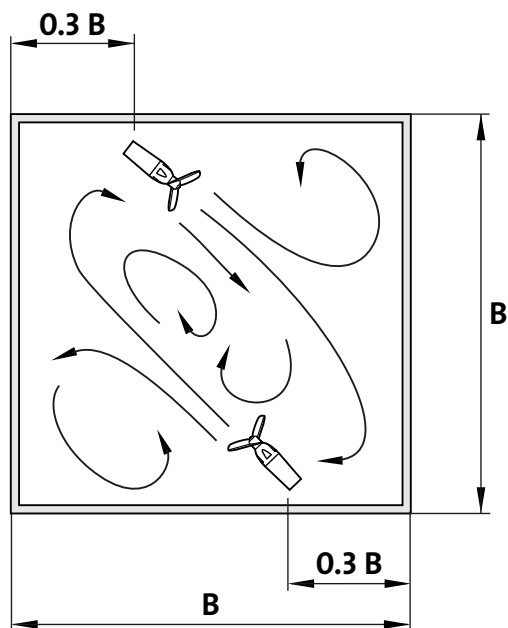
Fig. 32 Deposited solids are mixed with the liquid of a rectangular tank

Positioning of two or more mixers in square or rectangular tanks

Position two or more mixers in the same tank in such a way that the mixers do not generate opposite flows which may result in vibrations and loss of energy. See figs 33 and 34.

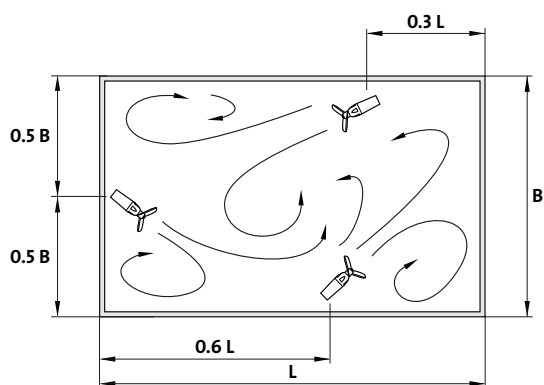
B = Sides of square tank and width of rectangular tank.

L = Length of rectangular tank.



TM02 5640 3802

Fig. 33 Positioning two or more mixers in a square tank



TM02 5639 3802

Fig. 34 Positioning two or more mixers in a rectangular tank

30°/30° adapter

The 30°/30° adapters are only for the AMD.xx.45.xxx mixers and are used to angle the mixer upwards or downwards from 0° to 30° in steps of 10°.

Flowmakers

Positioning of flowmakers in general

The description of the positioning principles involves the use of a number of variables.

Variables:

H_{MIN} = Minimum height from the tank bottom to the propeller tip

H_{ABOVE} = Height from propeller tip to the surface of the liquid

H_{LIQUID} = Minimum height of the liquid above the bottom of the tank

D_{PROP} = Propeller diameter

L_{MIN} = The distance between the propeller tip and the wall behind the flowmaker.

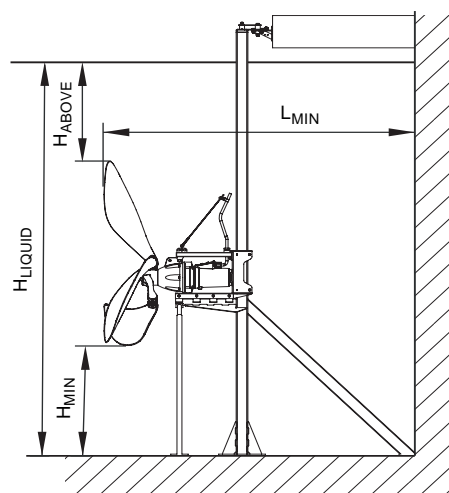
The variables are used in these formulas:

$$H_{MIN} \geq 0.4 \text{ to } 0.5 \text{ m}$$

$$H_{ABOVE} = 0.75 \times D_{PROP}$$

$$H_{LIQUID} \geq (0.4 \text{ to } 0.5) + 1.75 \times D_{PROP}$$

$$L_{MIN} \geq 2 \times D_{PROP}$$



TM02 5417 4708

Fig. 35 Principle sketch of positioning of flowmakers

The distance from the propeller tip to the surface of the liquid (H_{ABOVE}) is very important to prevent the flowmaker from generating vortices.

As a rule of thumb, the distance from the propeller tip to the liquid surface should be at least 75 % of the propeller diameter.

The minimum height (H_{MIN}) from the tank bottom to the propeller tip should be 0.4 to 0.5 metres. See fig. 35.

The minimum height of the liquid above the bottom of the tank (H_{LIQUID}) can be calculated from the formula above.

The distance (L_{MIN}) between the propeller tip and the wall behind the flowmaker must be at least be twice the propeller diameter:

Positioning of two or more flowmakers in parallel

Positioning of two or more flowmakers in parallel should be made according to the principles shown in fig. 36.

Variables:

S_{FM} = Minimum space between propeller tips

D_{PROP} = Propeller diameter

S_{WALL} = Minimum space between propeller tip and wall.

The variables are used in these formulas:

$$S_{FM} \geq 0.5 \times D_{PROP}$$

$$S_{WALL} \geq 0.5 \times m$$

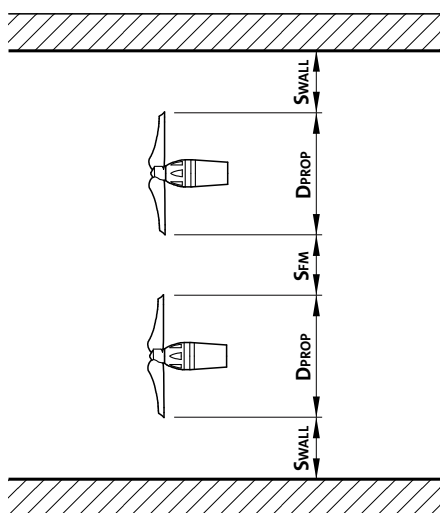


Fig. 36 Principle sketch of positioning of two or more flowmakers in parallel

TM02 5418 3202

Positioning of flowmakers in racetrack tanks

The description of the positioning principles involves the use of a number of variables.

Variables:

L_{RECT} = Rectangular length of the tank

L_1 = Length from the bend of the tank to the propeller

D_{PROP} = Propeller diameter

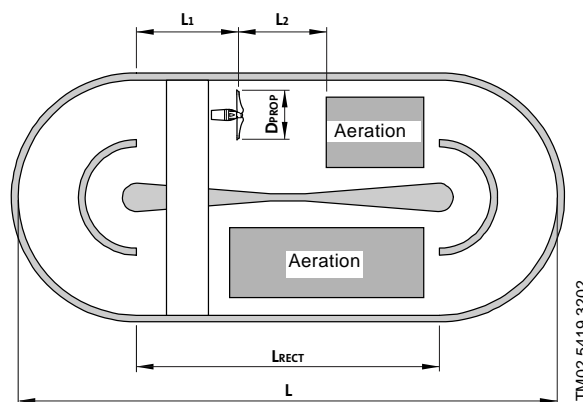
L_2 = Length required for a proper flow to develop in front of the flowmaker.

The variables are used in these formulas:

$$L_1 = 0.3 \text{ to } 0.5 \times L_{RECT}$$

$$L_1 \geq 2 \times D_{PROP}$$

$$L_2 \geq (2 \text{ to } 5) \times D_{PROP}$$



TM02 5419 3202

Fig. 37 Principle sketch of positioning of flowmaker in a racetrack tank

Follow these instructions when positioning a flowmaker in a racetrack tank:

Do not position the flowmaker immediately after the bend. Being very turbulent in this area, the flow will cause vibrations in the flowmaker.

Position the flowmaker at a distance from the bend corresponding to 30 to 50 % of the rectangular length (L_{RECT}) of the tank. See fig. 37.

The distance from the bend to the propeller should be at least twice the propeller diameter (D_{PROP}). This distance (L_1) allows the flow to stabilise after the bend.

The distance in front of the propeller to aeration areas (L_2) should be at least twice the propeller diameter.

The average flow velocity in a racetrack tank should be 0.25 to 0.30 m/s.

If this velocity is not reached, sedimentation may develop. If this velocity is exceeded, too much energy is used in the system.

Positioning of two flowmakers in racetrack tanks with asymmetrically positioned deflectors

In racetrack tanks, it is often observed that the flow velocity at the far end is higher than closer to the middle wall.

To reduce or eliminate this effect, we recommend to place deflectors asymmetrically in the tank. This creates a more homogenous flow, causing less vibrations in the flowmakers.

Position the deflectors asymmetrically according to the principles shown in fig. 38.

W = Distance from the middle wall to the outer wall of the tank.

Thus, the distances $0.54 W$ and $0.46 W$ mean 54 % and 46 %, respectively, of the distance W .

Position the flowmakers at a distance of $W/2$ from the outer and the middle walls. See fig. 38. The minimum space between propeller tip and wall should be 0.5 m.

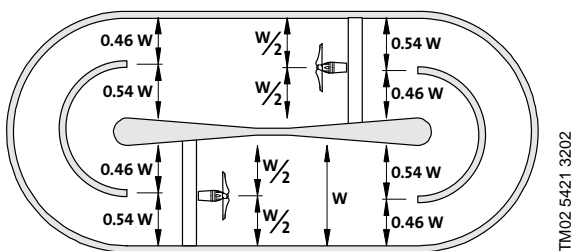


Fig. 38 Principle sketch of positioning of two flowmakers in a racetrack tank with asymmetrically positioned deflectors

Positioning of flowmakers in serpentine tanks

The description of the positioning principles involves the use of a number of variables.

Variables:

- L_1 = Length from the bend of the tank to the propeller
- L_{RECT} = Rectangular length of the tank
- $W_{CHANNEL}$ = Width between channel walls
- D_{PROP} = Propeller diameter
- S_{WALL} = Minimum space between propeller tip and wall.

The variables are used in these formulas:

$$L_1 = 0.5 \times L_{RECT}$$

$$D_{PROP} \leq W_{CHANNEL} - 2 \times S_{WALL}$$

$$S_{WALL} \geq 0.5 \text{ m}$$

Position flowmakers in serpentine tanks as illustrated in fig. 39.

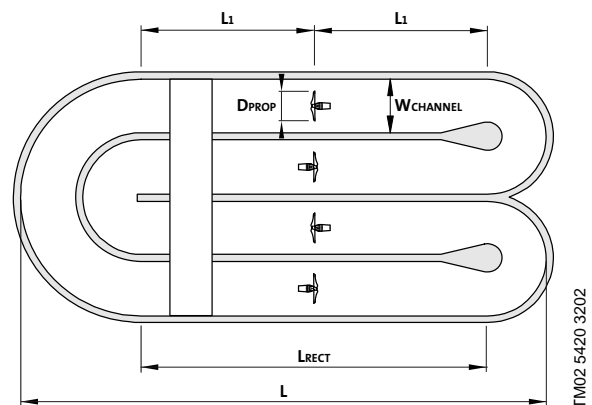


Fig. 39 Principle sketch of positioning of flowmakers in a serpentine tank

Position the flowmakers in the middle of the tank. The minimum space between propeller tip and wall should be 0.5 metres on either side of the flowmaker.

Positioning of flowmaker in circular tank

The description of the positioning principles involves the use of a number of variables.

Variables:

$R_{\text{FLOWMAKER}}$ = Distance from centre of tank to flowmaker

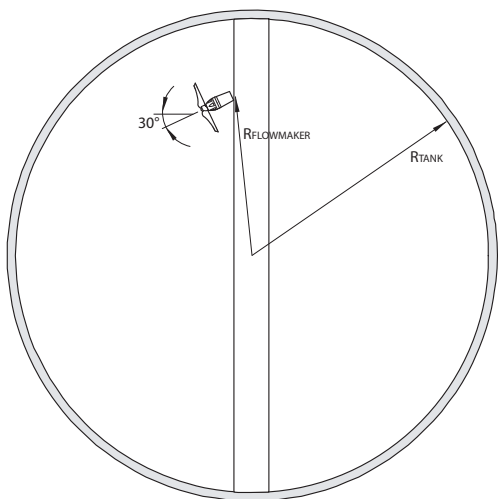
R_{TANK} = Radius of the tank

D_{PROP} = Propeller diameter.

The variables are used in these formulas:

$$R_{\text{FLOWMAKER}} = 0.7 \times R_{\text{TANK}}$$

$$D_{\text{PROP}} \leq 0.15 \times 2 \times R_{\text{TANK}}$$



TM02 5422 3202

Fig. 40 Principle of positioning of flowmaker in a circular tank

In circular tanks, the flowmaker should be positioned at a distance of $0.7 \times R_{\text{TANK}}$ from the middle of the tank. See fig. 40. Turn the flowmaker 30° towards the middle of the tank.

The propeller diameter must not exceed 15 % of the tank diameter.

Positioning of flowmaker in ring-channel tank

The description of the positioning principles involves the use of a number of variables.

Variables:

W_{CHANNEL} = Distance between channel walls

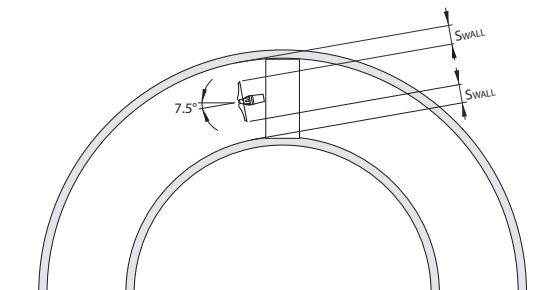
D_{PROP} = Propeller diameter

S_{WALL} = Minimum space between propeller tip and wall.

The variables are used in these formulas:

$$D_{\text{PROP}} \leq W_{\text{CHANNEL}} - 2 \times S_{\text{WALL}}$$

$$S_{\text{WALL}} \geq 0.5 \text{ m}$$



TM02 5423 3202

Fig. 41 Principle sketch of positioning of flowmaker in a ring-channel tank

In ring-channel tanks, the flowmaker should be positioned in the middle of the channel. See fig. 41. Turn the flowmaker 7.5° towards the middle of the channel.

The minimum space between propeller tip and channel wall should be 0.5 metres on either side of the flowmaker. See also fig. 39.

Installation

The AMD.07 mixer must be installed horizontally. The maximum permissible inclination angle is $\pm 40^\circ$.

The mixer is suitable for the following installation methods:

- column profile mounting
- suspended mounting
- wall mounting
- floor mounting.

See figs 42 and 43.

For the various types of installation accessories, see section *Accessories*, page 59.

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

Installation drawings, AMD 07

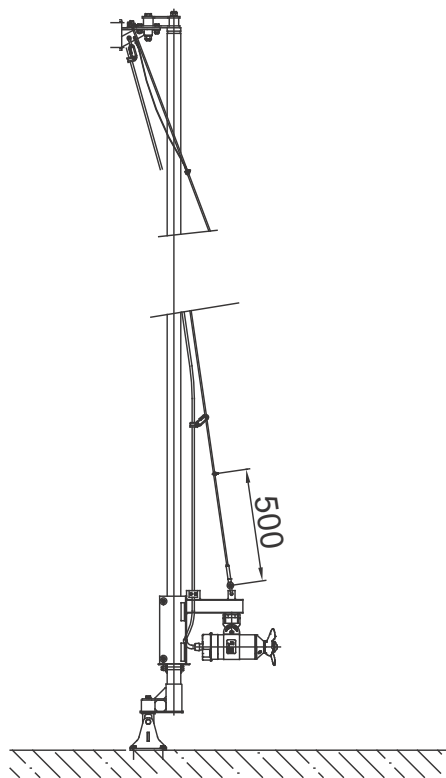


Fig. 42 Column profile mounting

TM04 9470 4310

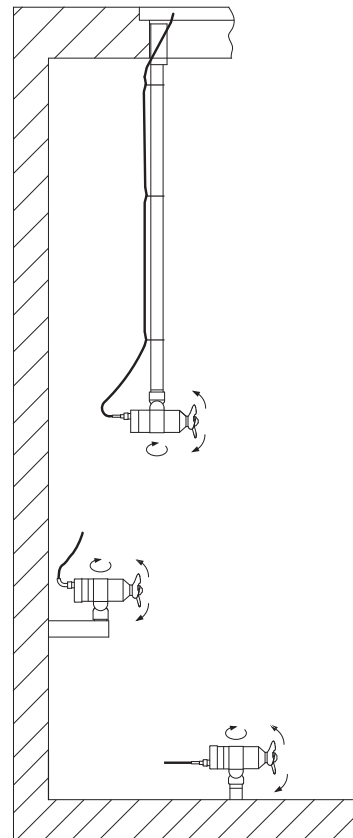


Fig. 43 Suspended mounting, wall mounting and floor mounting

TM02 7924 4503

Installation of AMD, AMG, AFG (.Ex)

The mixers and flowmakers should be submerged as deeply as possible, however, no deeper than the tip of the propeller blade is 20 to 40 cm (40 to 50 cm for AFG flowmakers) above the bottom of the tank.

The distance from the propeller tip to the surface of the liquid should be at least 75 % of the propeller diameter.

The distance between the propeller tip and the wall behind the mixer must be at least one and a half time the propeller diameter. For AFG flowmakers the distance must be at least twice the propeller diameter.

This is normally not a problem for mixers, as the length of the motor and motor bracket is usually more than one and a half time the propeller diameter. Flowmakers are normally installed on bridges, i.e. no wall right behind the flowmaker.

Mixers and flowmakers should not be installed immediately after aeration zones in the tank, as air bubbles cause a strong reduction in the flow-generating performance.

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**.

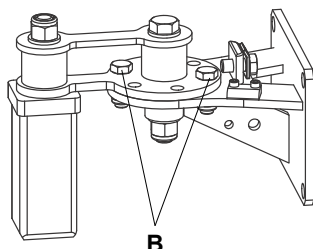
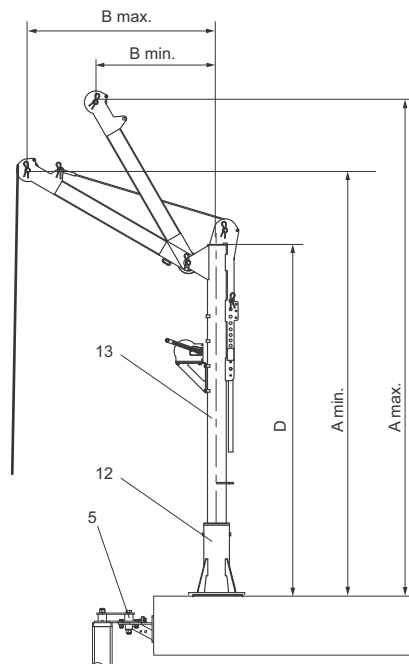


Fig. 44 Top fixation bracket

TM04 3881 0309

Crane

In order to select the right size of crane for a specific mixer or flowmaker, see section *Selection guide for accessories*, page 60. The crane can easily be lifted off the crane foot (pos. 12) if it needs to be used in another mixer or flowmaker installation.



TM04 3873 0309

Fig. 45 Crane

Crane type	A min. [mm]	A max. [mm]	B min. [mm]	B max. [mm]	D [mm]
S	2255	2911	251	1001	2130
M	2838	3521	350	1406	2286
L	2838	3521	350	1406	2280

Crane type	S	M	L
Wire	∅ 4	∅ 6	∅ 7
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 figs 45 and 46.

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

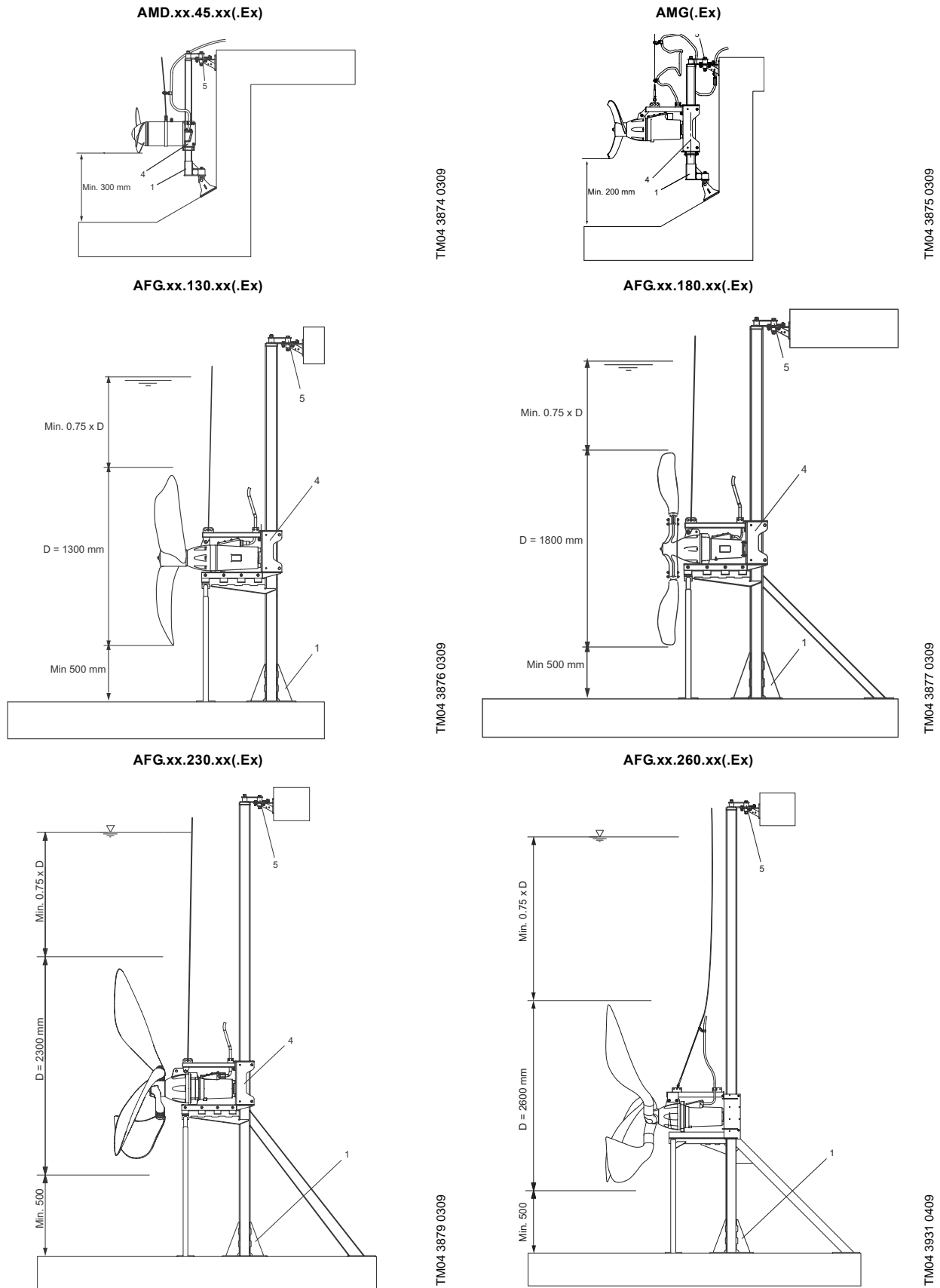
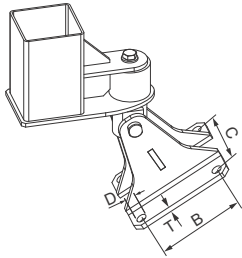


Fig. 46 Installation drawings

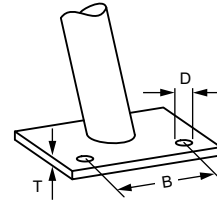
Dimensions, accessories



TM04 3897 0309

Fig. 47 Bottom fixation bracket

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



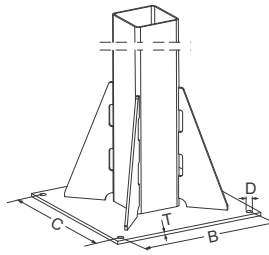
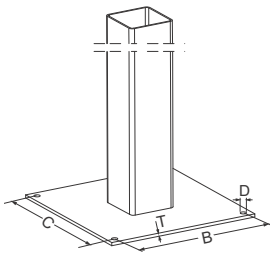
TM04 3900 0309

Fig. 50 Foot for front support leg

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

AFG.xx.130

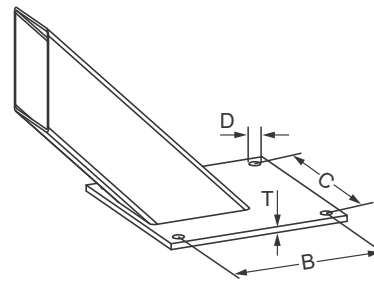
AFG.xx.180/230/260



TM04 3898 0309

Fig. 48 Bottom fixation plate

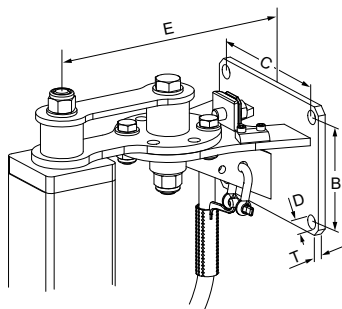
Flowmaker type	B [mm]	C [mm]	D [mm]	T [mm]
AFG.xx.130	210	210	15	8
AFG.xx.180/230/260	360	360	15	8



TM04 3901 0309

Fig. 51 Foot for back support leg

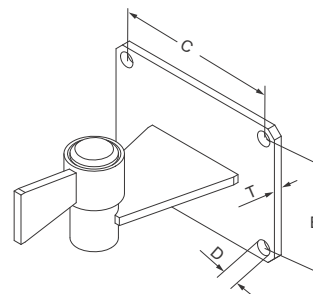
Flowmaker type	B [mm]	C [mm]	D [mm]	T [mm]
AFG.xx.180-230	210	210	15	8
AFG.xx.260				



TM04 3899 0309

Fig. 49 Top fixation bracket

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



TM04 3903 0309

Fig. 52 Intermediate fixation bracket

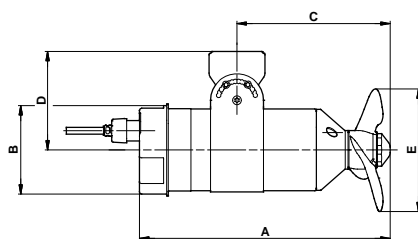
B [mm]	C [mm]	D [mm]	T [mm]
110	160	15	8

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

AMD.07.18.1410

Dimensions



TM03 0224 4504

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight [kg]
AMD.07.18.1410	332	117	203	130	180	10.5

Physical data

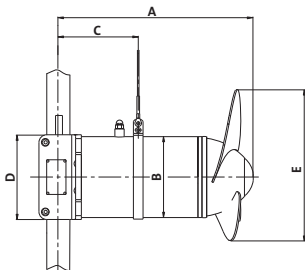
Type	Propeller diameter [mm]	rpm [min ⁻¹]	Axial thrust [N]	Enclosure class	Maximum installation depth [m]	Cable type	Flow [m ³ /h]	Mean flow velocity [m/s]
AMD.07.18.1410	180	1410	160	IP68	20	H07RN-F 4G1	231	2.6

Electrical data

Type	P1 [kW]	P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Starting method	I _N [A]	I _{start} [A]	η _{motor} 1/1 [%]	Cos φ 1/1	Moment of inertia [kgm ²]	Breakdown torque M _{max} [Nm]
AMD.07.18.1410	1.3	0.75	4	5	3 x 400	DOL	1.9	9.3	0.73	0.75	0.149	43

AMD.xx.45x.xxx, standard version

Dimensions



TM03 0283 4704

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [kg]
Column profile tube				60 x 60/100 x 100		
AMD.15.45B.710.	456	210	180	220/210	450	50
AMD.25.45B.690.	456	210	180	220/210	450	50
AMD.35.45B.705.	491	210	200	220/210	450	59
AMD.45.45B.675.	491	210	200	220/210	450	59
AMD.20.45.700.	456	210	180	220/210	450	50
AMD.30.45.710.	491	210	200	220/210	450	59
AMD.40.45.695.	491	210	200	220/210	450	59

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

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]
AMD.15.45B.710	710	434	0.207	IP68	20	S1BN8-F 11G1.5	669	1.17
AMD.25.45B.690	690	640	0.221				812	1.42
AMD.35.45B.705	705	814	0.166				916	1.60
AMD.45.45B.675	675	965	0.169				997	1.74
AMD.20.45.700	700	542	0.201				747	1.31
AMD.30.45.710	710	730	0.174				867	1.51
AMD.40.45.695	695	892	0.159				959	1.67

Electrical data

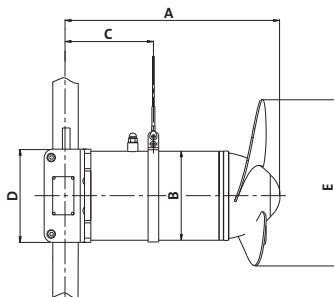
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AMD.15.45B.710	2.1	2.1	1.5	8	20.2	3 x 400-415	S1, Star	6.5	26.7	0.53
AMD.25.45B.690	3.3	2.9	2.5		34.7			8	26.7	0.69
AMD.35.45B.705	4.9	4.9	3.5		47.5	3 x 400-415	S1, Delta	12.4	45.8	0.65
AMD.45.45B.675	6.1	5.7	4.5		63.9			13	45.8	0.72
AMD.20.45.700	2.7	2.7	2.0		27.2	3 x 400-415	S1, Star	7.2	26.7	0.62
AMD.30.45.710	4.2	4.2	3.0		40.4	3 x 400-415	S1, Delta	11.5	45.8	0.61
AMD.40.45.695	5.6	5.6	4.0		55.1			12.8	45.8	0.68

Liquid data

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

AMD.xx.45x.xxx.Ex, Ex version

Dimensions



TM03 0283 4704

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [kg]
AMD.15.45B.710.Ex	456	210	180	210	450	50
AMD.25.45B.690.Ex	456	210	180	210	450	50
AMD.35.45B.705.Ex	491	210	200	210	450	59
AMD.45.45B.675.Ex	491	210	200	210	450	59
AMD.20.45.700.Ex	456	210	180	210	450	50
AMD.30.45.710.Ex	491	210	200	210	450	59
AMD.40.45.695.Ex	491	210	200	210	450	59

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

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]	
AMD.15.45B.710.Ex	710	434	0.207	IP68	20	S1BN8-F 11G1.5	669	1.17	ATEX II 2G Ex de IIC T4
AMD.25.45B.690.Ex	690	640	0.221				812	1.42	
AMD.35.45B.705.Ex	705	814	0.166				916	1.60	
AMD.45.45B.675.Ex	675	965	0.169				997	1.74	
AMD.20.45.700.Ex	700	542	0.201				747	1.31	
AMD.30.45.710.Ex	710	730	0.174				867	1.51	
AMD.40.45.695.Ex	695	892	0.159				959	1.67	

Electrical data

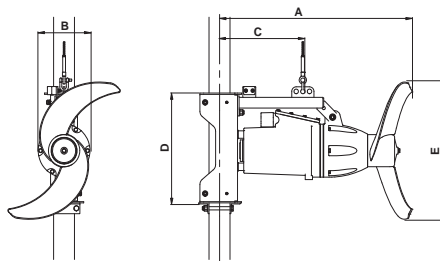
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AMD.15.45B.710.Ex	2.1	2.1	1.5	8	20.2	3 x 400	S1, Star	6.5	26.7	0.53
AMD.25.45B.690.Ex	3.3	2.9	2.5		34.7			8	26.7	0.69
AMD.35.45B.705.Ex	4.9	4.9	3.5		47.5	3 x 400	S1, Delta	12.4	45.8	0.65
AMD.45.45B.675.Ex	6.1	5.7	4.5		63.9			13	45.8	0.72
AMD.20.45.700.Ex	2.7	2.7	2.0		27.2	3 x 400	S1, Star	7.2	26.7	0.62
AMD.30.45.710.Ex	4.2	4.2	3.0		40.4	3 x 400	S1, Delta	11.5	45.8	0.61
AMD.40.45.695.Ex	5.6	5.6	4.0		55.1			12.8	45.8	0.68

Liquid data

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

AMG, standard version

Dimensions



TM02 4944 3210

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [kg]
AMG.15.55.339.	720	200	320	410	550	78
AMG.22.64.335.	735	200	320	410	635	78
AMG.30.64.336.	750	200	320	410	635	85
AMG.40.71.330.	760	200	320	410	710	85
AMG.55.73.342.	980	270	430	460	730	166
AMG.75.73.340.	990	270	430	460	730	168
AMG.110.84.340.	1010	270	430	460	840	177
AMG.150.90.357.	1160	315	430	460	900	275
AMG.185.91.356.	1180	315	430	460	910	280

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

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]	
AMG.15.55.339.	339	545	0.297	IP68	20	S1BN8-F 11G1.5	916	1.07	
AMG.22.64.335.	335	770	0.322				1257	1.10	
AMG.30.64.336.	336	1040	0.327				1461	1.28	
AMG.40.71.330.	330	1430	0.324				1915	1.34	
AMG.55.73.342.	342	1720	0.302			S1BN8-F 11G2.5	2160	1.43	
AMG.75.73.340.	340	2150	0.275				2415	1.60	
AMG.110.84.340.	340	3070	0.280				3320	1.66	
AMG.150.90.357.	357	3760	0.259				H07RN-F 7G4+4x1	3937	1.72
AMG.185.91.356.	356	4330	0.243					4272	1.82

Electrical data

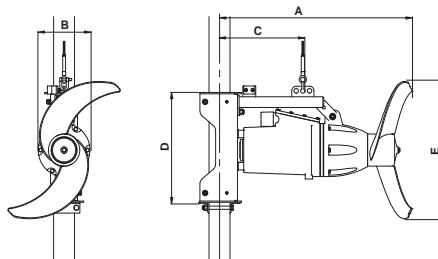
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AMG.15.55.339.	2.1	1.8	1.5	4	9.9	3 x 400-415	S1, Star	4.5	26	0.68
AMG.22.64.335.	3.1	2.4	2.2		14.7			5.8	26	0.77
AMG.30.64.336.	3.9	3.2	3.0		20.0			7.3	43	0.77
AMG.40.71.330.	5.2	4.4	4.0		27.1			9.1	43	0.82
AMG.55.73.342.	6.6	5.7	5.5		36.0	3 x 400-415	S1, Delta	13.5	94	0.74
AMG.75.73.340.	9.0	7.8	7.5		49.6			16.3	94	0.8
AMG.110.84.340.	13.1	11	11.0		72.2			23.3	125	0.81
AMG.150.90.357.	17.0	14.5	15.0		97.8			33	220	0.75
AMG.185.91.356.	21.3	17.8	18.5		121.4			39.4	220	0.78

Liquid data

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

AMG, Ex version

Dimensions



TM02 49/44 3210

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [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

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

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			2179	1.45		
AMG.75.73.343.Ex.	343	2190	0.274			2437	1.62		
AMG.110.84.343.Ex.	343	3130	0.287			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		

Electrical data

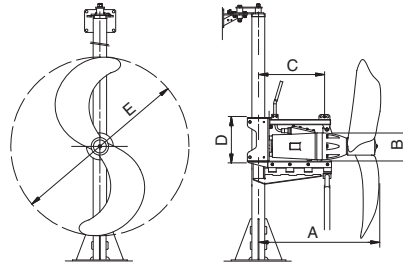
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AMG.15.55.342.Ex.	2.1	1.8	1.5	4	9.8	3 x 400	S1, Delta	6.8	42	0.46
AMG.22.64.338.Ex.	2.9	2.4	2.2		14.6			7.5	42	0.60
AMG.30.64.340.Ex.	3.8	3.2	3.0		19.8			11.1	75.5	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

Liquid data

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

AFG.xx.130.xx, standard version

Dimensions



TM02 6346 3408

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [kg]
AFG.15.130.76.	855	200	353	400	1340	100
AFG.22.130.77.	855	200	353	400	1340	100
AFG.30.130.92.	855	200	353	400	1340	105
AFG.40.130.93.	855	200	353	400	1340	105

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

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]
AFG.15.130.76.	79	1230	0.615	IP68	20	S1BN8-F 11G1.5	3353	0.66
AFG.22.130.77.	77	1667	0.667				3903	0.77
AFG.30.130.92.	95	2016	0.577				4292	0.85
AFG.40.130.93.	92	2109	0.555				4390	0.86

Electrical data

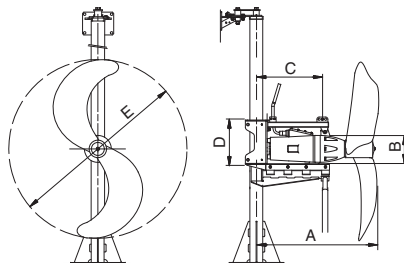
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AFG.15.130.76.	2.1	2.0	1.5	4	9.9	3 x 400-415	S1, Star	4.5	26	0.68
AFG.22.130.77.	3.1	2.5	2.2		14.7					
AFG.30.130.92.	3.9	3.5	3		20.0	3 x 400-415	S1, Delta	7.4	43	0.77
AFG.40.130.93.	5.2	3.8	4		27.1					

Liquid data

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

AFG.xx.130.xx.Ex, Ex version

Dimensions



TM02 6346 3408

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [kg]
AFG.15.130.79.Ex.	855	200	353	400	1340	100
AFG.22.130.78.Ex.	855	200	353	400	1340	100
AFG.30.130.95.Ex.	855	200	353	400	1340	105
AFG.40.130.94.Ex.	855	200	353	400	1340	105

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

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	1230	0.615	IP68	20	S1BN8-F 11G1.5	3353	0.66	ATEX II 2G Ex e ck ib IIC T3
AFG.22.130.78.Ex.	78	1667	0.693				3903	0.77	
AFG.30.130.95.Ex.	95	2016	0.593				4292	0.85	
AFG.40.130.94.Ex.	94	2109	0.570				4390	0.86	

Electrical data

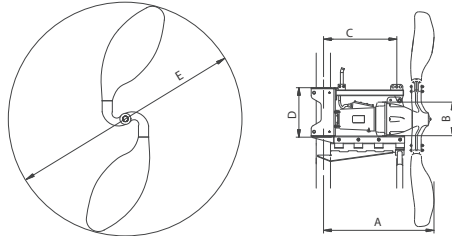
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AFG.15.130.79.Ex.	2.1	2.0	1.5	4	9.9	3 x 400	S1, Delta	6.6	42	0.46
AFG.22.130.78.Ex.	2.9	2.4	2.2		14.7			7.2	42	0.6
AFG.30.130.95.Ex.	3.8	3.4	3		19.9			10.2	75.5	0.54
AFG.40.130.94.Ex.	5.0	3.7	4		26.8			11.1	75.5	0.65

Liquid data

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

AFG.xx.180.xx, standard version

Dimensions



TMO4 3959 0509

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

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

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]
AFG.13.180.30.	29.6	1075	0.718	IP68	20	S1BN8-F 11G1.5	4210	0.46
AFG.18.180.34.	33.9	1419	0.646				4837	0.53
AFG.24.180.39.	39.0	1891	0.631				5584	0.61
AFG.37.180.46.	45.8	2612	0.544				6563	0.72

Electrical data

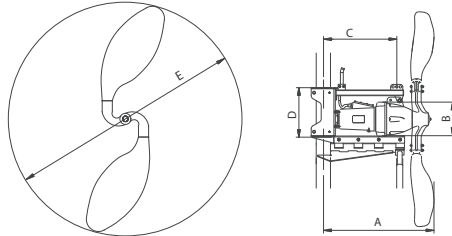
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AFG.13.180.30.	1.8	1.5	1.3	4	8.6	3 x 400-415	S1, Star	4.2	26	0.64
AFG.18.180.34.	2.5	2.2	1.8		12.0					
AFG.24.180.39.	3.2	3.0	2.4		15.8	3 x 400-415	S1, Delta	6.5	43	0.71
AFG.37.180.46.	4.8	4.8	3.7		24.9					

Liquid data

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

AFG.xx.180.xx.Ex, Ex version

Dimensions



TM02.6345.3408

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

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

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	

Electrical data

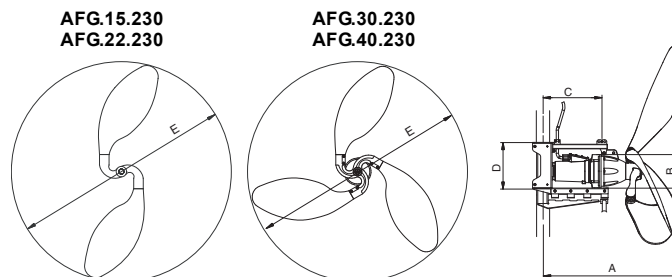
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AFG.13.180.30.Ex.	1.8	1.5	1.3	4	8.5	3 x 400	S1, Delta	6.4	42	0.44
AFG.18.180.34.Ex.	2.4	2.1	1.8		12			6.9	42	0.54
AFG.24.180.39.Ex.	3.1	2.9	2.4		15.8			9.8	75.5	0.5
AFG.37.180.46.Ex.	4.6	4.6	3.7		24.8			10.8	75.5	0.62

Liquid data

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

AFG.xx.230.xx, standard version

Dimensions



TM02 6345 0409

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [kg]
AFG.15.230.22.	1200	302	570	400	2300	200
AFG.22.230.25.						233
AFG.30.230.29.						
AFG.40.230.35.						

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

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]
AFG.15.230.22.	22.7	1232	0.771	IP68	20	S1BN8-F 11G1.5	5759	0.39
AFG.22.230.25.	25.6	1565	0.711				6491	0.43
AFG.30.230.29.	29.9	2456	0.723				8132	0.54
AFG.40.230.35.	34.1	3144	0.669				9200	0.62

Electrical data

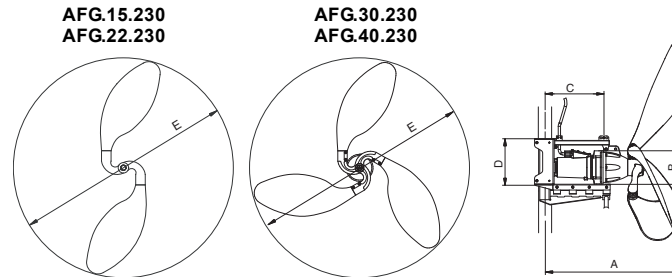
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AFG.15.230.22.	2.1	1.6	1.5	6	15.2	3 x 400-415	S1, Star	4.8	34	0.64
AFG.22.230.25.	2.9	2.2	2.2		22.8					
AFG.30.230.29.	3.9	3.4	3	4	20.0	3 x 400-415	S1, Delta	7.4	43	0.77
AFG.40.230.35.	5.2	4.7	4		27.1					

Liquid data

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

AFG.xx.230.xx.Ex, Ex version

Dimensions



TM02 6345 0409

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

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

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.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	

Electrical data

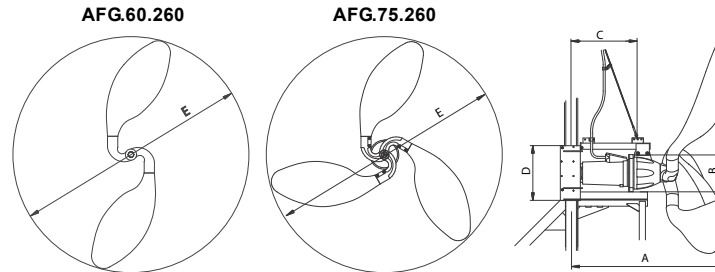
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AFG.15.230.23.Ex.	2.1	1.6	1.5	6	14.8	3 x 400	S1, Delta	7.1	44.4	0.43
AFG.22.230.26.Ex.	2.9	2.2	2.2		21.9			7.7	44.4	0.54
AFG.30.230.30.Ex.	3.8	3.3	3	4	19.9			10.2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

Liquid data

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

AFG.xx.260.xx, standard version

Dimensions



TM04 3957 0409

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [kg]
AFG.60.260.43.	1403	315	640	535	2600	345
AFG.75.260.41.	1500	315	680	535	2660	391

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

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]
AFG.60.260.43.	43.1	5672	0.810	IP68	20	S1BN8-F	13969	0.73
AFG.75.260.41.	41.3	6632	0.771			11G2.5	15454	0.77

Electrical data

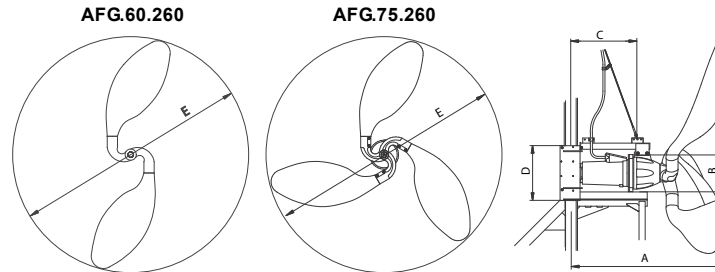
Type	P1 [kW]		P2 [kW]	Number of poles	Motor torque [Nm]	Voltage [V]	Operating mode	I _N [A]	I _{start} [A]	Cos φ 1/1
	Nominal	Actual								
AFG.60.260.43.	7	7.0	6	6	62.7	3 x 400-415	S1, Delta	14.1	83.4	0.75
AFG.75.260.41.	8.6	8.6	7.5		78.1			17.3	106.6	0.75

Liquid data

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

AFG.xx.260.xx.Ex, Ex version

Dimensions



TMO4 3957 0409

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Net weight* [kg]
AFG.60.260.43.Ex.	1403	315	640	535	2600	345
AFG.75.260.41.Ex.	1500	315	680	535	2660	391

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

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.60.260.43.Ex.	43.1	5672	0.810	IP68	20	S1BN8-F 11G2.5	13969	0.73	ATEX II 2G Ex e ck ib IIC T3
AFG.75.260.41.Ex.	41.3	6632	0.771						

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
	Nominal	Actual								
AFG.60.260.43.Ex.	7	7.0	6	6	62.7	3 x 400	S1, Delta	14.1	83.4	0.75
AFG.75.260.41.Ex.	8.6	8.6	7.5		78.1			17.3	106.6	0.75

Liquid data

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

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 53, 54 and 55.

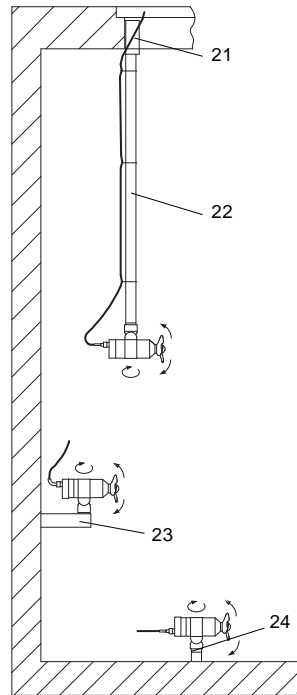


Fig. 53 AMD.07, suspended, wall and floor mounting

TM02 7924 4503

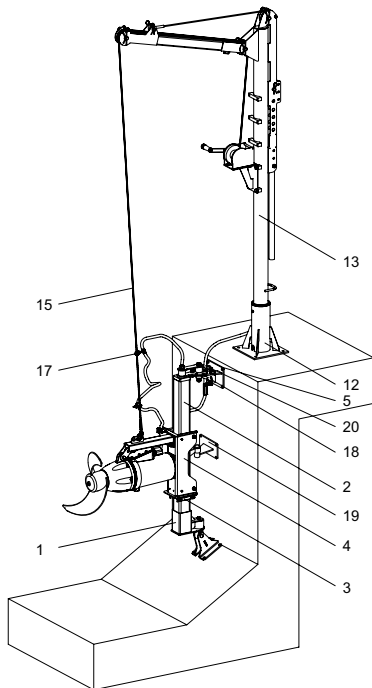


Fig. 54 AMD, AMG installation

TM04 2711 2908

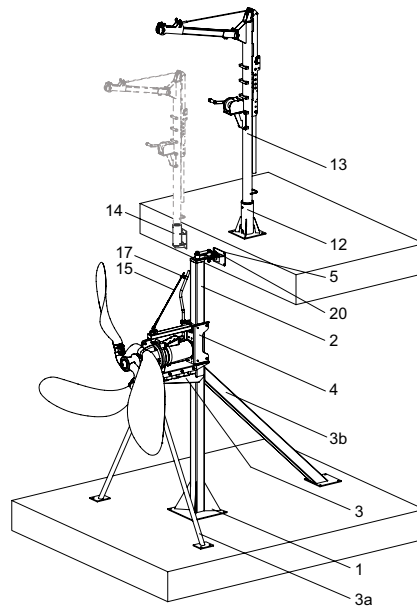


Fig. 55 AFG installation

TM04 2714 2908

Selection guide for accessories

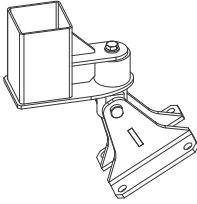
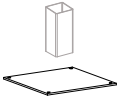
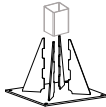
Products	Column profile			Support legs ²⁾		Crane type	Wire size	Cable clamp type
	< 6 m	< 10 m ¹⁾		> 10 m	Front			
AMD.07.18.1410	60 x 60 x 3		Please contact Grundfos	No		S	D 4 mm	D10
AMD.xx.45	60 x 60 x 3	100 x 100 x 3		No		S	D 4 mm	D17
AMG.15 - AMG.40	80 x 80 x 3			No		S	D 4 mm	D17
AMG.55 - AMG.110	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

¹⁾ 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.

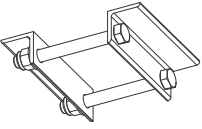
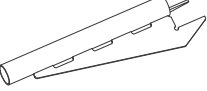
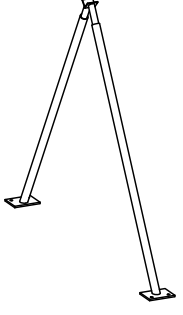

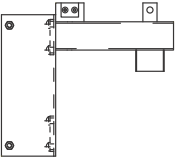
²⁾ Additional legs required, depending on the tank depth.

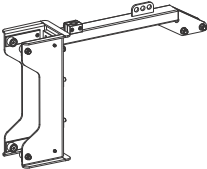
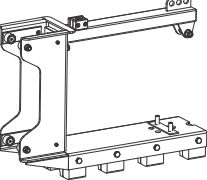
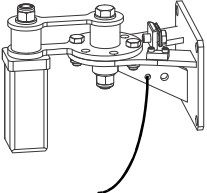
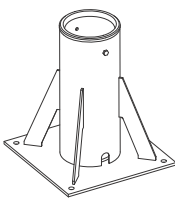
List of accessories

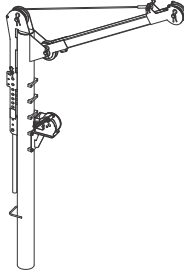
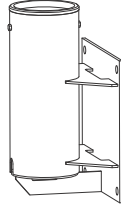
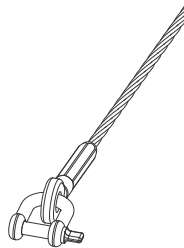

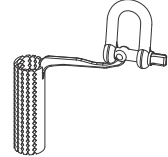
Position numbers refer to figs 53, 54 and 55 on the previous page.

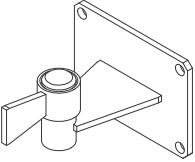
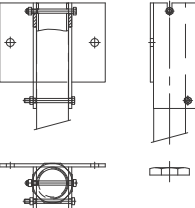
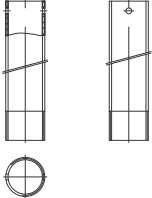
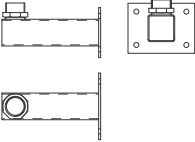
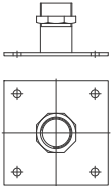
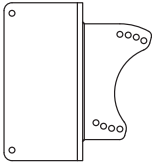
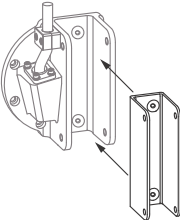
Accessory	Pos.	Description	Material DIN/AISI	Product number
	1	Bottom fixation bracket complete, for 60 x 60 mm column profile, AMD.07	1.4301/304	95037099
	1	Bottom fixation bracket complete, for 60 x 60 mm column profile, AMD.07	1.4404/316 L	95037100
	1	Bottom fixation bracket complete, for 60 x 60 mm column profile, AMD.xx.45	1.4301/304	95037099
	1	Bottom fixation bracket complete, for 60 x 60 mm column profile, AMD.xx.45	1.4404/316 L	95037100
	1	Bottom fixation bracket complete, for 80 x 80 mm column profile, AMG	1.4301/304	95037101
	1	Bottom fixation bracket complete, for 80 x 80 mm column profile, AMG	1.4404/316 L	95037102
	1	Bottom fixation bracket complete, for 100 x 100 mm column profile, AMG	1.4301/304	95037103
	1	Bottom fixation bracket complete, for 100 x 100 mm column profile, AMG	1.4404/316 L	95037104
	1	Bottom fixation plate complete, AFG.xx.130	1.4301/304	96489415
	1	Bottom fixation plate complete, AFG.xx.130	1.4404/316 L	96489416
	1	Bottom fixation plate complete, AFG.xx.180/230/260	1.4301/304	96489411
	1	Bottom fixation plate complete, AFG.xx.180/230/260	1.4404/316 L	96489414

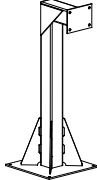

Accessory	Pos.	Description	Material DIN/AISI	Product number	
	2	Column profile, 60 x 60 x 3 mm, 1 m*	1.4301/304	96489420	
			1.4404/316 L	96489421	
	2	Column profile, 80 x 80 x 3 mm, 1 m*	1.4301/304	96489426	
			1.4404/316 L	96489427	
	2	Column profile, 100 x 100 x 3 mm, 1 m*	1.4301/304	96489429	
			1.4404/316 L	96489440	
	2	Column profile, 100 x 100 x 4 mm, 1 m*	1.4301/304	96489441	
			1.4404/316 L	96489442	
	2	Column profile, 100 x 100 x 5 mm, 1 m*	1.4301/304	96489443	
			1.4404/316 L	96489444	
	2	Column profile, 120 x 120 x 5 mm, 1 m*, AFG.xx.260 only	1.4301/304	96489445	
			1.4404/316 L	96489446	
	* The product numbers cover 1 m column profile. When ordering, please state the desired length.				
			Connecting piece for column profile, 60 x 60 x 3 mm, 0.20 m	1.4301/304	95037960
			1.4404/316 L	95037962	
		Connecting piece for column profile, 80 x 80 x 3 mm, 0.20 m	1.4301/304	95037964	
			1.4404/316 L	95037966	
		Connecting piece for column profile, 100 x 100 x 3 mm, 0.20 m	1.4301/304	95037968	
			1.4404/316 L	95037970	
		Connecting piece for column profile, 100 x 100 x 4 mm, 0.20 m	1.4301/304	95037972	
			1.4404/316 L	95037974	
		Connecting piece for column profile, 100 x 100 x 5 mm, 0.20 m	1.4301/304	95037976	
			1.4404/316 L	95037978	
		Connecting piece for column profile, 120 x 120 x 5 mm, 0.20 m	1.4301/304	95037980	
			1.4404/316 L	95037982	

Accessory	Pos.	Description	Material DIN/AISI	Product number
	3	Depth blocker for clamping, for 60 x 60 mm column profile, AMD AMG	1.4301/304	95037105
	3	Depth blocker for clamping, for 60 x 60 mm column profile, AMD AMG	1.4404/316 L	95037106
	3	Depth blocker for clamping, for 80 x 80 mm column profile, AMD AMG	1.4301/304	95037107
	3	Depth blocker for clamping, for 80 x 80 mm column profile, AMD AMG	1.4404/316 L	95037108
	3	Depth blocker for clamping, for 100 x 100 mm column profile, AMD AMG	1.4301/304	95037109
	3	Depth blocker for clamping, for 100 x 100 mm column profile, AMD AMG	1.4404/316 L	95037110
	3	Depth blocker, AFG.xx.130/180/230	1.4301/304	95037044
	3	Depth blocker, AFG.xx.130/180/230	1.4404/316 L	95037045
	3	Depth blocker, AFG.xx.260	1.4301/304	95036467
	3	Depth blocker, AFG.xx.260	1.4404/316 L	95036468
	3a	Two front support legs, AFG.xx.130	1.4301/304	96115262
	3a	Two front support legs, AFG.xx.130	1.4404/316 L	96115263
	3a	Two front support legs, AFG.xx.180-230	1.4301/304	96115264
	3a	Two front support legs, AFG.xx.180-230	1.4404/316 L	96115265
	3a	Two front support legs, AFG.xx.260	1.4301/304	95036469
	3a	Two front support legs, AFG.xx.260	1.4404/316 L	95036470
	3b	Back support leg, AFG.xx.180/230	1.4301/304	95036089
	3b	Back support leg, AFG.xx.180/230	1.4404/316	95036090
	3b	Back support leg, AFG.xx.260	1.4301/304	95036471
	3b	Back support leg, AFG.xx.260	1.4404/316 L	95036472
	4	Motor bracket, AMD.07	1.4401/316	96115295

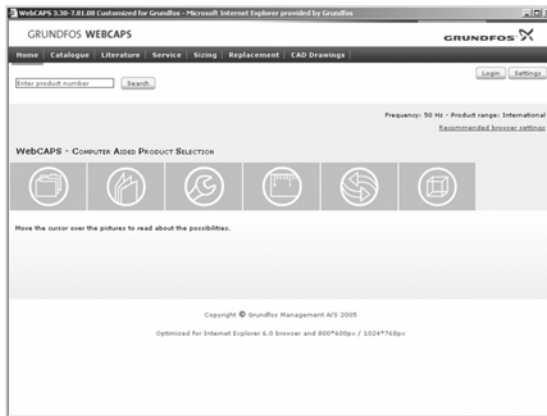
Accessory	Pos.	Description	Material DIN/AISI	Product number
	4	Motor bracket, for 80 x 80 mm column profile, AMG.15-40	1.4301/304	95037071
	4	Motor bracket, for 80 x 80 mm column profile, AMG.15-40	1.4404/316 L	95037072
	4	Motor bracket, for 100 x 100 mm column profile, AMG.15-40	1.4301/304	95037471
	4	Motor bracket, for 100 x 100 mm column profile, AMG.15-40	1.4404/316 L	95037472
	4	Motor bracket, for 100 x 100 mm column profile, AMG.55-110	1.4301/304	95037073
	4	Motor bracket, for 100 x 100 mm column profile, AMG.55-110	1.4404/316 L	95037074
	4	Motor bracket, for 100 x 100 mm column profile, AMG.150-185	1.4301/304	95037075
	4	Motor bracket, for 100 x 100 mm column profile, AMG.150-185	1.4404/316 L	95037076
		4	Motor bracket, for 100 x 100 mm column profile, AFG.xx.130	1.4301/304
4		Motor bracket, for 100 x 100 mm column profile, AFG.xx.130	1.4404/316 L	95037078
4		Motor bracket, for 100 x 100 mm column profile, AFG.xx.180/230	1.4301/304	95037079
4		Motor bracket, for 100 x 100 mm column profile, AFG.xx.180/230	1.4404/316 L	95037080
4		Motor bracket, for 120 x 120 mm column profile, AFG.xx.260	1.4301/304	95036347
4		Motor bracket, for 120 x 120 mm column profile, AFG.xx.260	1.4404/316 L	95036424
	5	Top fixation bracket complete incl. safety wire, for 60 x 60 mm column profile	1.4301/304	95037090
	5	Top fixation bracket complete incl. safety wire, for 60 x 60 mm column profile	1.4404/316 L	95037091
	5	Top fixation bracket complete incl. safety wire, for 80 x 80 mm column profile	1.4301/304	95037092
	5	Top fixation bracket complete incl. safety wire, for 80 x 80 mm column profile	1.4404/316 L	95037093
	5	Top fixation bracket complete incl. safety wire, for 100 x 100 mm column profile	1.4301/304	95037094
	5	Top fixation bracket complete incl. safety wire, for 100 x 100 mm column profile	1.4404/316 L	95037095
	5	Top fixation bracket complete incl. safety wire, for 120 x 120 mm column profile	1.4301/304	96845665
	12	Crane foot, for 100 kg crane	1.4301/304	95036937
	12	Crane foot, for 100 kg crane	1.4404/316 L	95037665
	12	Crane foot, for 100 kg crane	Galvanised steel	95036948
	12	Crane foot, for 250 and 500 kg cranes	1.4301/304	95036908
	12	Crane foot, for 250 and 500 kg cranes	1.4404/316 L	95037685
	12	Crane foot, for 250 and 500 kg cranes	Galvanised steel	95036894

Accessory	Pos.	Description	Material DIN/AISI	Product number
	13	Crane with winch 6AF, 100 kg	1.4301/304	95036845
	13	Crane with winch 6AF, 100 kg	1.4404/316 L	95037640
	13	Crane with winch 6AF, 100 kg	Galvanised steel	95036930
	13	Crane with winch 8AF, 250 kg	1.4301/304	95036900
	13	Crane with winch 8AF, 250 kg	1.4404/316 L	95037670
	13	Crane with winch 8AF, 250 kg	Galvanised steel	95036874
	13	Crane with winch 12AF, 500 kg	1.4301/304	95036950
	13	Crane with winch 12AF, 500 kg	1.4404/316 L	95037700
	13	Crane with winch 12AF, 500 kg	Galvanised steel	95036975
	14	Crane foot for vertical installation, for 100 kg crane	1.4301/304	95036979
	14	Crane foot for vertical installation, for 100 kg crane	1.4404/316 L	95037695
	14	Crane foot for vertical installation, for 100 kg crane	Galvanised steel	95036995
	14	Crane foot for vertical installation, for 250 and 500 kg cranes	1.4301/304	95036980
	14	Crane foot for vertical installation, for 250 and 500 kg cranes	1.4404/316 L	95037710
	14	Crane foot for vertical installation, for 250 and 500 kg cranes	Galvanised steel	95037000
	15	Lifting wire \varnothing 4, 10 m, easy mounting, incl. \varnothing 8 shackle and wire clamp	1.4404/316 L	95037142
	15	Lifting wire \varnothing 4, 15 m, easy mounting, incl. \varnothing 8 shackle and wire clamp	1.4404/316 L	95037143
	15	Lifting wire \varnothing 6, 10 m, easy mounting, incl. \varnothing 8 shackle and wire clamp	1.4404/316 L	95037144
	15	Lifting wire \varnothing 6, 15 m, easy mounting, incl. \varnothing 8 shackle and wire clamp	1.4404/316 L	95037145
	15	Lifting wire \varnothing 7, 10 m, easy mounting, incl. \varnothing 10 shackle and wire clamp	1.4404/316 L	95037146
	15	Lifting wire \varnothing 7, 15 m, easy mounting, incl. \varnothing 10 shackle and wire clamp	1.4404/316 L	95037147
	17	Cable clamp, D10	1.4404/316 L	96565202
	17	Cable clamp, D17	1.4404/316 L	96494352
	17	Cable clamp, D20	1.4404/316 L	96494354
	18	Cable sock, incl. shackle \varnothing 10	Synthetic material, 1.4404/316 L	95037141

Accessory	Pos. Description	Material DIN/AISI	Product number
	19 Intermediate fixation bracket complete, for all profile sizes longer than 6 m	1.4301/304	95037148
	19 Intermediate fixation bracket complete, for all profile sizes longer than 6 m	1.4404/316 L	95037149
	21 Fixation bracket for suspended mounting, AMD.07	1.4401/316	96115293
	22 Tube for suspended mounting, 2" thread, length 3 m, AMD.07	1.4401/316	96115294
	23 Fixation bracket for wall mounting, 2" thread, AMD.07	1.4401/316	96115291
	24 Fixation base for floor mounting, AMD.07	1.4401/316	96115292
	30 °/30 ° adapter for 60 x 60 mm column profile, AMD.xx.45.xx only	1.4404/316 L	95035395
	30 °/30 ° adapter for 100 x 100 mm column profile, AMD.xx.45.xx only	1.4404/316 L	95035405
	Adapter kit, for 50 x 50 mm column profile, AMD.xx.45.xx only	POM (polyoxymethylene)	95035657

Accessory	Pos. Description	Material DIN/AISI	Product number
	Support for top fixation	1.4301/304	95037404
	ALR-20/A-Ex relay for leak sensor, 230 V		96489569
	Anchor bolt, M12 x 160 (1 anchor, 1 nut, 1 washer, 1 spring washer, 1 glue cartridge)	316	95036113
	Anchor bolt, M16 x 190 (1 anchor, 1 nut, 1 washer, 1 spring washer, 1 glue cartridge)	316	95037179

WebCAPS

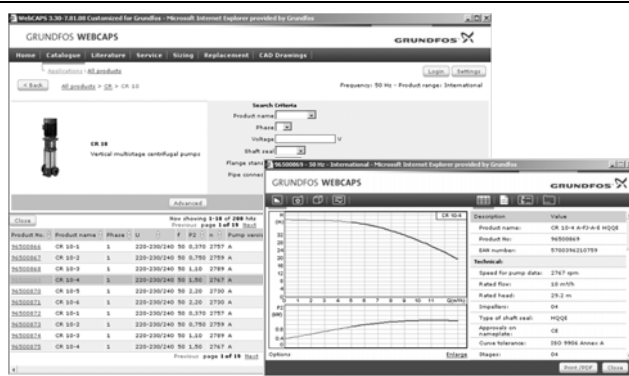


WebCAPS is a **Web-based Computer Aided Product Selection** program available on www.grundfos.com.

WebCAPS contains detailed information on more than 185,000 Grundfos products in more than 20 languages.

In WebCAPS, all information is divided into six sections:

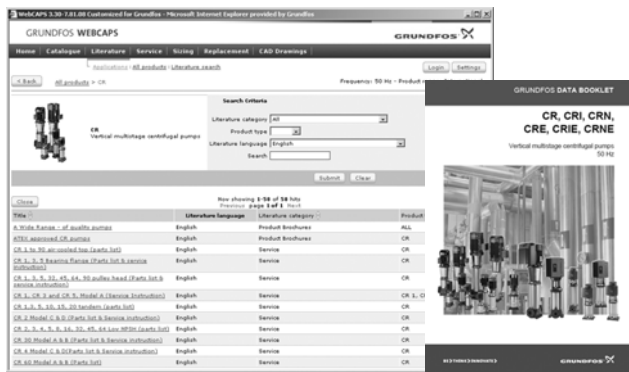
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

This section is based on fields of application and pump types, and contains

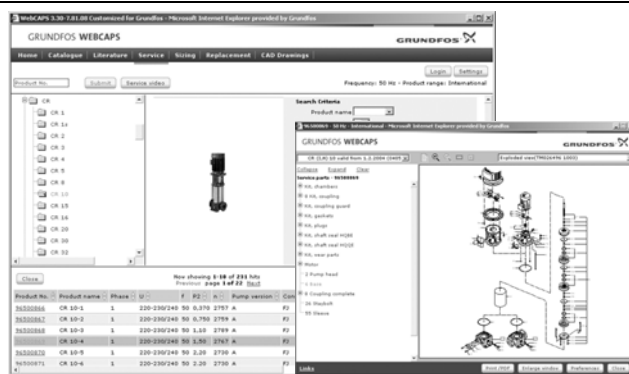
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

In this section you can access all the latest documents of a given pump, such as

- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.

Furthermore, this section contains service videos showing you how to replace service parts.



Sizing

This section is based on different fields of application and installation examples, and gives easy step-by-step instructions in how to

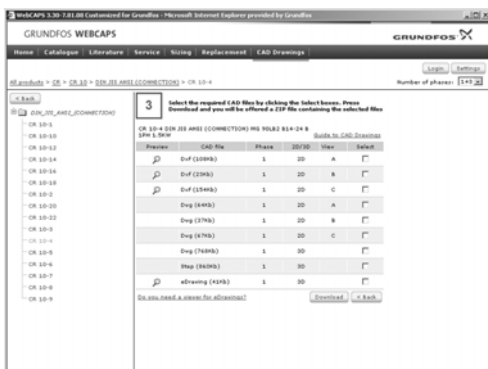
- select the most suitable and efficient pump for your installation
- carry out advanced calculations based on energy consumption, payback periods, load profiles, life cycle costs, etc.
- analyse your selected pump via the built-in life cycle cost tool
- determine the flow velocity in wastewater applications, etc.



Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump. The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

- 2-dimensional drawings:
- .dxf, wireframe drawings
 - .dwg, wireframe drawings.
- 3-dimensional drawings:
- .dwg, wireframe drawings (without surfaces)
 - .stp, solid drawings (with surfaces)
 - .eprt, E-drawings.

WinCAPS



Fig. 56 WinCAPS CD-ROM

WinCAPS is a **Windows-based Computer Aided Product Selection** program containing detailed information on more than 185,000 Grundfos products in more than 20 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no Internet connection is available.

WinCAPS is available on CD-ROM and updated once a year.

Subject to alterations.

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