



Technical Specification

BS 2201.011, BS/DS 2201.320



2201.011/320 Technical specification

The 2201 is a submersible drainage pump for high delivery heads and large volumes. The pump is particularly suitable for demanding use within the mining and petrochemical industries.

The 2201 can pump liquids containing abrasive particles with a minimum of wear on the impeller and pump casing. The pump is compact and can be used in confined spaces.

The POLY-LIFE version, 2201.011/320-U is equipped with polyurethane lined wear parts for prolonged life especially for the pumping of highly abrasive liquids.

The pump is easy to install and can run unattended. Wear

parts can easily be adjusted or replaced to maintain full capacity even after heavy wear.

The 2201 is available in four versions:

LT = Low-head version with capacity up to 220 l/s.

MT = Medium-head version with capacity up to 150 l/s.

HT = High-head version for delivery heads up to 100 m.

The DS 2201.320, with vortex impeller, is also available in another version:

ST = Superhigh-head version for delivery heads up to 130 m.

For higher delivery heads, two or three pumps can be connected in series.

Applications

The 2201 is intended to be used for pumping water which may contain abrasive particles.

This pump is also available in an explosion-proof version, 2201.590.690, with the same high quality and performance as the 2201.011/320.

Liquid temperature: max 40°C (105°F).

Liquid density: max 1 100 kg/m³ (9,2 lb per US gal).

The pH of the pumped liquid: 6—11.

The pumped liquid may contain particles up to a size which corresponds to the openings in the strainer.

For other applications, contact your nearest Flygt representative for information.

Motor data

Motor type: Squirrel-cage 3-phase a.c. motor, insulation class F.

Frequency 50 Hz

Output: 37 kW

Speed: 2 900 rpm

Voltage V	Rated current A
220	117
230	112
380	67
400	65
415	62
440	59
500	51
550	47

Frequency 60 Hz

Output: 43 kW (58 hp)

Speed: 3 500 rpm

Voltage V	Rated current A
220	135
460	65
575	52

LT-version

Output: 30 kW

Speed: 1 465 rpm

Voltage V	Rated current A
220	108
230	98
380	62
400	56
415	54
440	54
500	45
550	45

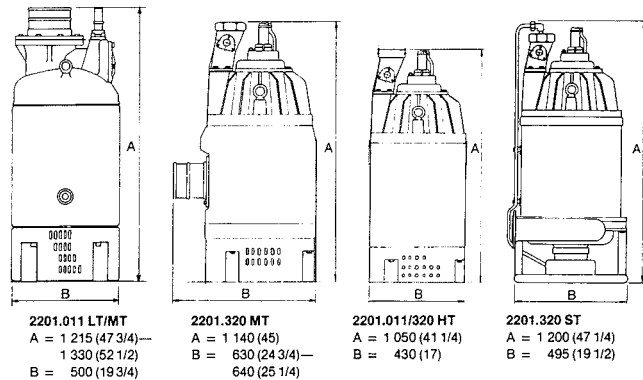
Output: 37 kW (50 hp)

Speed: 1 760 rpm

Voltage V	Rated current A
220	127
460	66
575	48
600	47

Dimensions and weights

All dimensions are in mm (in.)



* Depending on discharge connection.

Weights without motor cable:

	LT	HT	ST	MT
2201.011	285 kg (628 lb)	240 kg (530 lb)	—	280 kg (620 lb)
2201.320	—	350 kg (770 lb)	415 kg (915 lb)	445 kg (980 lb)

Discharge connection:

LT, MT: 6", 8", 6" BSP, 8" BSP, NPT6", NPT8"

HT: 4" BSP, 4—8 NPSM

ST: 40 mm (1 1/2") diam. Flange 165 mm (6 1/2") diam.

Materials

		DIN	BS	AISI		DIN	BS	AISI	
Casted parts 2201.011	Aluminium	1725	1490	ASTM	Impeller, ST	1) Cast iron	1635	2789	ASTM A536- 72 100-70-03
		G-AISI7 Mgwa	LM25	356.0			GGG70	SNG700/2	
Casted parts 2201.320	Cast iron	1691	1452: 1956	ASTM A	Wear parts, MT, HT	Nitrile rubber- or polyurethanelined	1694GGG	3468	D2
		GG25	Grade 17	48-64 No 40B			NiCr 20/2	AUS202	
Shaft	Stainless steel	17440 X20	970:4	420	LT	Polyurethanelined	1639	2789	ASTM A536- 72 100-70-03
		Cr 13	420s37				GGG70	SNG700/2	
Impeller, LT MT	Chromium-alloyed cast iron	G-X260	4844	ASTM 532—80	Wear ring, ST	1) Cast iron	1639	2789	ASTM A536- 72 100-70-03
		Cr 27	Grade 3E	Alloy 111 A			GGG70	SNG700/2	
Impeller, HT	1) Forged spring steel	17221	EN 47	6150	2) Ni-resist	NiCr 20/2	1694GGG	3468	D2
		50 Cr V4					NiCr 20/2	AUS202	
		2) Forged stainless steel	1.4571	A 12 Ti			316 Ti	4844	
3) Chromium-alloyed cast iron	Cr 27	Grade 3E	Alloy 111 A	4) Ni-hard 4	Pump casing, ST	Ni-hard 4	4844	ASTM Grade 20	ASTM A532-75 (I-D)
Seal surfaces	inner:	tungsten carbide—tungsten carbide							
		outer:	tungsten carbide—tungsten carbide						

DESIGN

1. Junction box

The junction box is completely sealed off from the surrounding liquid and from the motor unit.

2. Cooling

A built-in cooling system enables the pump to work continuously at its rated output regardless of whether the electric motor is above or below the surface of the liquid.

The pumped liquid is circulated from the pump casing up between the cooling jacket and the stator casing and removes heat generated by the motor.

Air between the outer casing and the stator casing is evacuated through a valve on the top part of the pump.

3. Motor

Flygt motors are tested according to IEC 34-1.

Motor insulation to Class F means a maximum working temperature of 155°C (310°F) and permits a temperature rise of 100°C (210°F).

The temperature rise in Flygt motors does not normally exceed 80°C (180°F). The insulation material is chosen with the greatest care, and most materials are classified as Class H (180°C, 360°F) materials or very close to Class H. This means an expected service life far beyond what is required for Class F by IEC 85.

4. Monitoring system

The stator incorporates three thermal switches connected in series.

The thermal switches open at 110°C (230°F).

5. Oil casing

The oil lubricates and cools the seals and acts as a buffer between the pumped liquid and the electric motor.

Pressure build-up within the oil casing is reduced by means of a built-in air volume.

6. Bearings

The lower bearing consists of two single-row angular contact ball bearings.

The upper bearing consists of one deepgroove ball bearing.

The pump bearings are designed for at least 15 000 hours of operation.

7. Shaft seals

The pump has two mechanical seals.

These seals work independently of each other and seal off the motor from the pump unit.

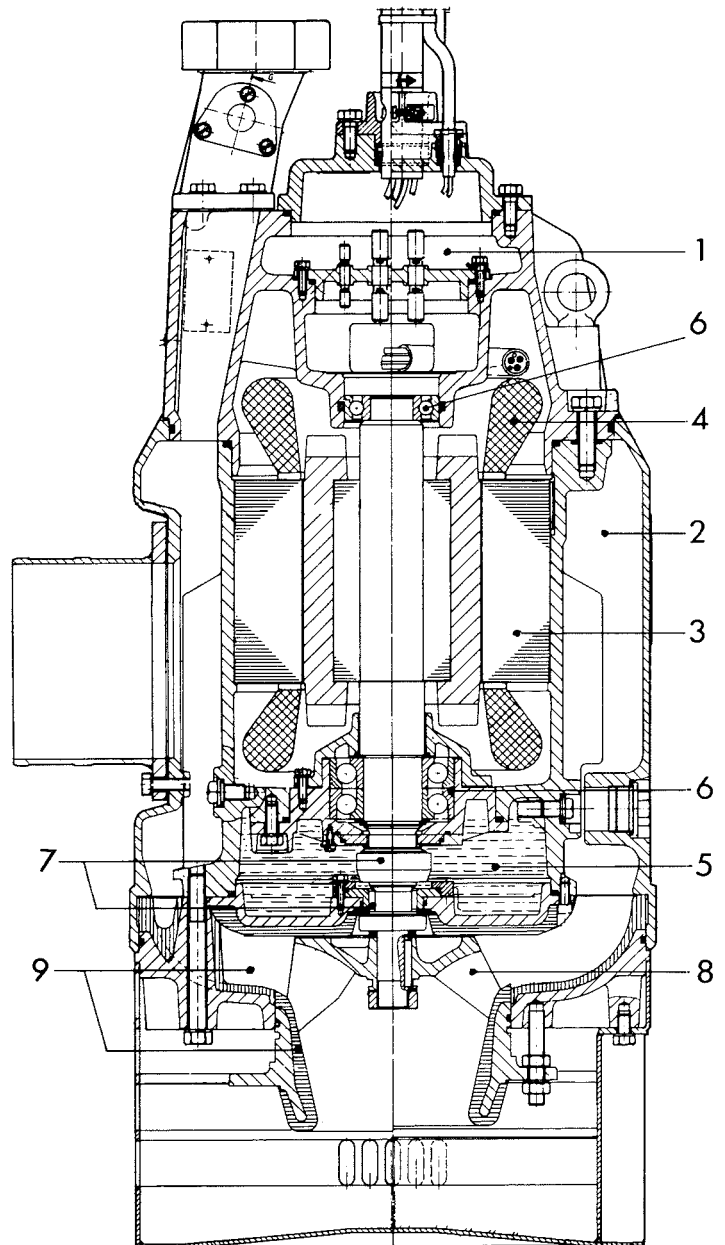
8. Impellers

The pump is available with the following types of impellers:

Mixed-flow impeller, LT and MT version

Radial-flow impeller, HT version

Vortex impeller, ST version



9. Wear parts

LT, MT and HT version

The pump's easily replaceable wear parts are rubber- or polyurethane-lined.

By means of a simple adjustment, the capacity of the pump can be maintained even in the face of heavy wear.

ST version

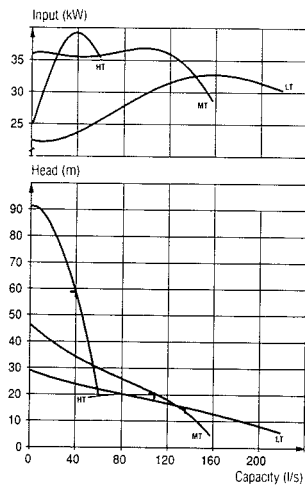
The impeller is surrounded by a replaceable wear ring.

The pump casing is made of a highly durable material, Ni hard 4.

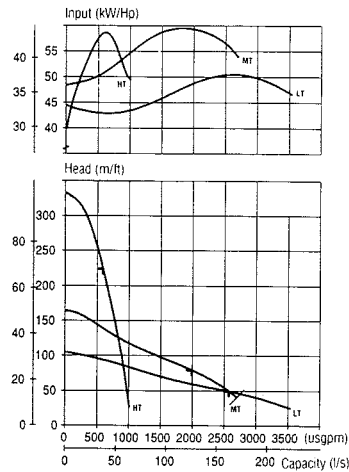
Adjustment of the impeller or the casing is therefore not necessary.

Performance curves

50 Hz LT*, MT, HT

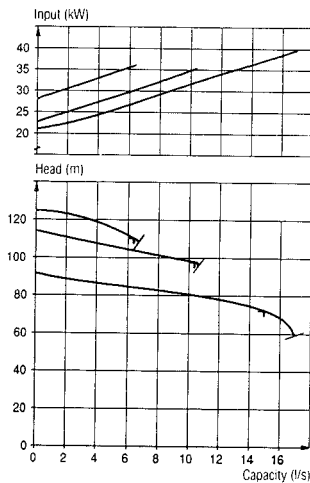


60 Hz LT*, MT, HT

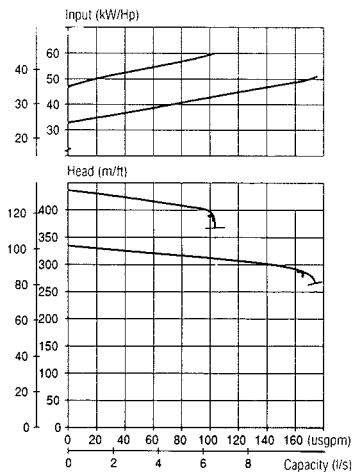


* only .011 version. ** only .320 version.

50 Hz ST**



60 Hz ST**



Accessories

Tandem operation

The delivery head can be increased by connecting two or three pumps in tandem. For this purpose, a tandem flange unit is available from Flygt.

Max. permissible operating pressure is 0.5 MPa for the LT version, 1.0 MPa for the MT and HT versions, and 1.5 MPa for the ST version.

The vertical distances between the pumps should be approximately equal. Contact Flygt for further information.

Start and control equipment

Flygt has suitable start and control equipment for the pump.

Zinc anode set

In order to reduce corrosion, the pump can be fitted with zinc anodes.



The manufacturer reserves the right to alter performance, specification or design without notice.