6. TP Series 100 and 200 pumps

GrB2850 - Gr8261

Fig. 9 TP Series 100 and TP Series 200

Technical data

Flow rate:	Up to 90 m^3/h
Head:	Up to 27 m
Liquid temperature, TP Series 100:	-25 to +120 °C
Liquid temperature, TP Series 200:	-25 to +140 °C
Maximum operating pressure:	Up to 16 bar
Direction of rotation:	Counterclockwise

Construction

Grundfos TP Series 100 and Series 200 pumps are single-stage, close-coupled pumps with in-line inlet and outlet ports of identical diameter.

The pumps are fitted with a fan-cooled asynchronous motor. Motor and pump shafts are connected via a rigid two-part coupling.

TP Series 100 pumps with union connection are available as single-head, TP, pumps.

TP Series 200 pumps are available as single-head, TP, and twin-head, TPD, pumps.

TP Series 200 pumps have PN 6 or PN 10 flanges.

The pumps are fitted with an unbalanced mechanical shaft seal.

The pumps are of the top-pull-out design, that is you can remove the power head (motor, pump head and impeller) for maintenance or service while the pump housing remains in the pipes.

The twin-head pumps are designed with two parallel power heads. A flap valve in the common outlet port is opened by the flow of the pumped liquid and prevents backflow of liquid into the idle pump head.

As radial and axial forces are absorbed by the fixed bearing in the motor drive-end, the pump requires no bearing.

The pumps are fitted with high-efficiency motors.

Pumps with a bronze or stainless-steel pump housing are suitable for circulation of domestic hot water.

Materials

TP Series 100

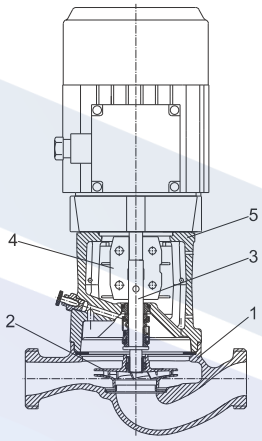

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Fig. 10 Sectional drawing of TP Series 100 with union connection

Material specification, Series 100

Pos.	Component	Material	EN/DIN
1	Pump housing	Cast iron EN-GJL-150, EN-GJL-200, stainless steel	EN-JL 1020 EN-JL 1030 1.4308
2	Impeller	Composite PES/PP 30 % GF	
3	Shaft	Stainless steel	1.4057
4	Coupling	Cast iron EN-GJL-400	0.7040
5	Pump head	Cast iron EN-GJL-200, stainless steel	EN-JL 1030 1.4308
	Secondary seals	EPDM	
	Rotating seal face	Silicon carbide	
	Stationary seat	Carbon (resin-impregnated), silicon carbide	

1. Pump data

Introduction

TP pumps are designed for applications such as:

- district heating systems
- heating systems
- air-conditioning systems
- district cooling systems
- water supply
- industrial processes
- industrial cooling.

The pumps are available with either mains-operated motors (TP and TPD) or electronically speed-controlled motors (TPE, TPED, TPE2, TPE2 D, TPE3, TPE3 D).

The pumps are all single-stage, in-line centrifugal pumps with mechanical shaft seal. The pumps are of the close-coupled type, that is the pump and the motor are separate units.

TP, mains-operated pumps

The TP range is divided into three groups based on their construction: TP Series 100, 200 and 300.

TP Series 100 with union or flange connection

Rp 1 (DN 25) to Rp 1 1/4 (DN 32) and motor sizes from 0.12 to 0.25 kW.

For further information, see page 27.

TP Series 200 with flange connection

DN 32 to DN 100 and motor sizes from 0.12 to 2.2 kW.

For further information, see page 27.

TP Series 300 with flange connection

We offer two versions:

- 16-bar version with DN 32 to DN 350 flanges and motor sizes from 0.25 to 315 kW
- 25-bar version with DN 100 to DN 400 flanges and motor sizes from 5 to 630 kW.

For further information, see page 29.

TPE, TPE2 and TPE3 speed-controlled pumps

We offer the following speed-controlled pumps which are based on the construction and choice of material of the TP pumps:

- TPE Series 1000 pumps
  without factory-fitted differential-pressure sensor.
- TPE Series 2000 pumps
  with factory-fitted differential-pressure sensor.
- TPE2 pumps
  without built-in differential-pressure sensor and temperature sensor.
- TPE3 pumps
  with built-in differential-pressure sensor and temperature sensor.

All pumps with 2-pole motors up to 11 kW and 4-pole motors up to 7.5 kW are fitted with Grundfos permanent-magnet MGE motors with motor efficiency class IE5 according to IEC 60034-30-2.

TPE Series 1000 pumps

The motors have a built-in frequency converter.

Via an external signal from a sensor or a controller, the pumps allow for any configuration and control method required, that is constant pressure, temperature or flow.

For further information, see page 32.

TPE Series 2000 pumps

The pumps have a factory-fitted differential-pressure sensor.

The pumps are factory-set to proportional-pressure control.

The motors have a built-in frequency converter for continuous adjustment of the pressure to the flow rate.

The range is recognised as a preset solution for quick and safe installation. Pumps fitted with 2-pole motors below 15 kW and 4-pole motors below 11 kW have a colour display for easy and intuitive pump setup and with full access to all functions.

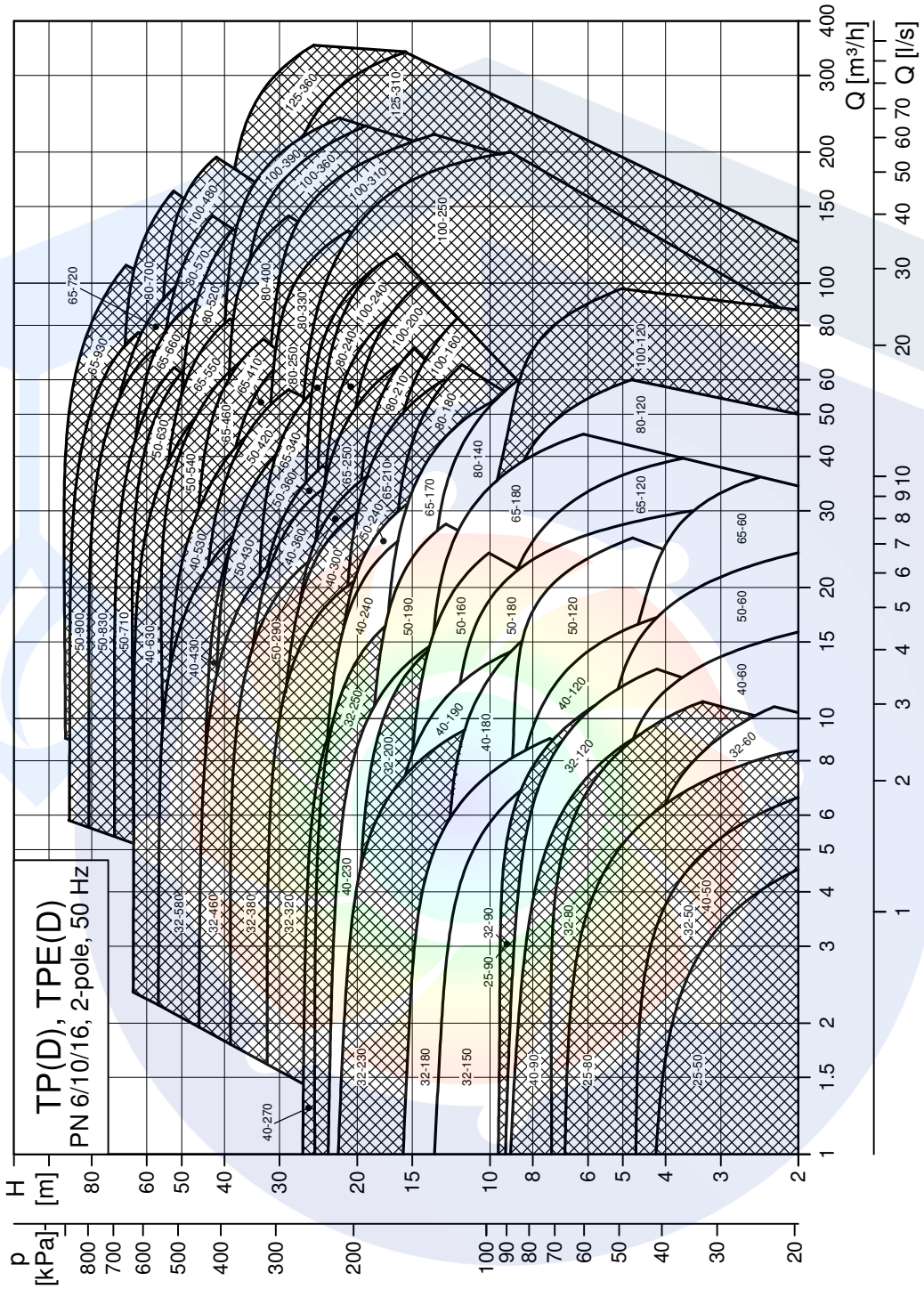
TM05 8893 2813

Fig. 1 Example of main display on a TPE Series 2000 with advanced control panel

For further information, see page 35.

Performance range, 2-pole, PN 6, 10, 16

See page 174 for performance curves.



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Note: All QH curves apply to single-head pumps. For further information about curve conditions, see page 160.
The hatched area shows the performance range of TPE pumps.

TP Series 200

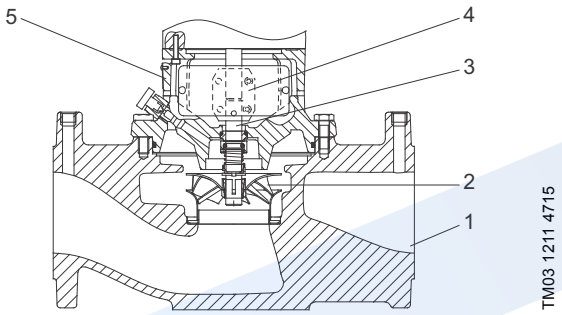


Fig. 11 Sectional drawing of TP Series 200 with flange connection

Material specification, Series 200

Pos.	Component	Material	EN/DIN
1	Pump housing	Cast iron EN-GJL-250, bronze CuSn10	EN-JL 1040 2.1093
2	Impeller	Stainless steel	1.4301
3	Shaft	Stainless steel	1.4305
4	Coupling	Cast iron EN-GJL-400	0.7040
5	Pump head	Cast iron EN-GJL-250, bronze	0.6025 2.1093
	Secondary seals	EPDM	
	Rotating seal face	Silicon carbide	
	Stationary seat	Carbon (resin-impregnated), silicon carbide	

Mechanical shaft seal

Two types of unbalanced mechanical shaft seal are available as standard:

- **BQBE**
  The BQBE shaft seal is a rubber bellows seal with silicon carbide/carbon seal faces and secondary seals of EPDM.
- **BQQE**
  The BQQE shaft seal is a rubber bellows seal with silicon carbide/silicon carbide seal faces and secondary seals of EPDM.

For more information about common pumped liquids with recommended shaft seals, see page 24.

Shaft seal specification

Unbalanced shaft seal	TP Series 100	Version KU according to EN 12756
	TP, TPD Series 200	Version NU according to EN 12756
Shaft diameter		12 and 16 mm
Rubber bellows		EPDM
Seal faces		Silicon carbide/carbon
		Silicon carbide/silicon carbide

Special shaft seals are available for partly conditioned water or other liquids containing abrasive or crystallising particles. See page 24.

Connections

TP Series 100 pumps with union connection have inlet and outlet union threads to ISO 228-1.

TP Series 200 pumps up to DN 65 are fitted with combination flanges PN 6 / PN 10. DN 80 or DN 100 pumps have either PN 6 or PN 10 flanges. You can connect all flanges to flanges in accordance with EN 1092-2 and ISO 7005-2.

Features and benefits

TP Series 100 and Series 200 pumps have these features and benefits:

Optimised hydraulics for high efficiency

– Reduced power consumption.

High-efficiency motors

– TP pumps are fitted with high-efficiency motors. High-efficiency motors offer reduced energy consumption. TP pumps are primarily fitted with motors that meet the legislative requirements of the EuP IE3 grade. For further information, see *Motors*, pages 125 to 130.

Top-pull-out design

– Easy dismantling in case of service.

In-line design

– Contrary to end-suction pumps, in-line pumps allow straight pipes and thus often reduce installation costs.

Pump housing and pump head are electrocoated to improve the corrosion resistance

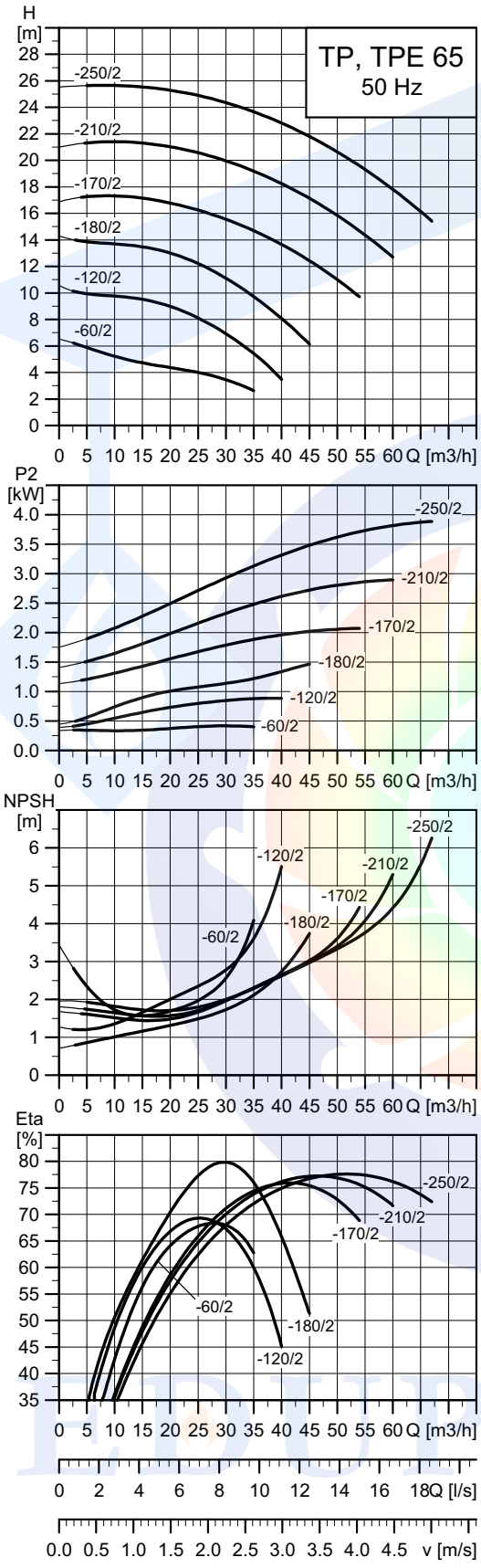
– Electrocoating includes:
1. Alkaline cleaning.
2. Pretreatment with zinc phosphate coating.
3. Cathodic electrocoating, epoxy.
4. Curing of paint film at 200 to 250 °C.

For low-temperature applications at a high humidity, Grundfos offers TP pumps with extra surface treatment to avoid corrosion. These pumps are available on request.

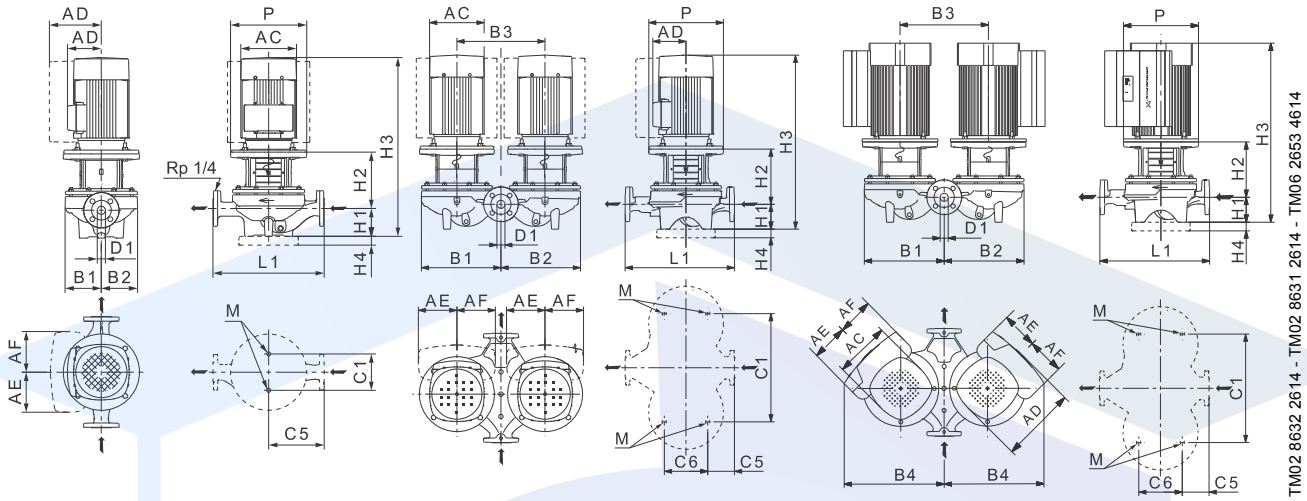
Stainless-steel impeller and neck ring

– Wear-free operation with high efficiency.

TP 65-XX/2



Note: All curves apply to single-head pumps. For further information, see page 160.



Technical data

TP 65			-60/2	-120/2	-180/2	-170/2	-210/2	-250/2
TPD			•	•	•	•	•	•
TPE			-	-	-	-	•	•
TPED			-	-	-	-	•	•
Series			200	200	200	300	300	300
IEC size	1~ TP		80	90	90	-	-	-
	3~ TP		71	80	90	90	100	112
	1~ TPE		-	-	-	-	-	-
	3~ TPE		-	-	-	-	100	112
P2	1~/3~ TP ★	[kW]	0.55/0.55	1.1/1.1	1.5/1.5	-/2.2	-/3	-/4
	1~/3~ TPE	[kW]	-	-	-	-	-/3	-/4
PN			PN 6/10	PN 6/10	PN 6/10	PN 16	PN 16	PN 16
T_{min};T_{max}		[°C]	[-25;140]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	65	65	65	65	65	65
AC	1~/3~ TP	[mm]	141/141	178/141	178/178	-/178	-/198	-/220
	1~/3~ TPE	[mm]	-	-	-	-	-/191	-/191
AD	1~/3~ TP	[mm]	133/109	139/109	139/110	-/110	-/120	-/134
	1~/3~ TPE	[mm]	-	-	-	-	-/201	-/201
AE	1~/3~ TPE	[mm]	-	-	-	-	-/146	-/146
AF	1~/3~ TPE	[mm]	-	-	-	-	-/146	-/146
P		[mm]	-	-	-	200	250	250
B1 ★★		[mm]	93/195	100/225	100/225	134/288	134/288	134/288
B2 ★★		[mm]	93/210	100/225	100/225	122/282	122/282	122/282
B3		[mm]	240	240	240	320	320	320
B4 ★★		[mm]	-	-	-	-	-/406	-/406
C1 ★★		[mm]	120/240	120/240	120/240	144/400	144/400	144/400
C5 ★★		[mm]	170/63	170/63	170/63	180/65	180/65	180/65
C6		[mm]	153	153	153	175	175	175
L1		[mm]	340	340	340	360	360	360
H1		[mm]	82	82	82	105	105	105
H2		[mm]	145	144	154	164	193	193
H3	1~/3~ TP	[mm]	468/418	517/532	557/507	-/590	-/633	-/670
	1~/3~ TPE	[mm]	-	-	-	-	-/631	-/631
H4		[mm]	-	-	-	-	-	-
M			M12	M12	M12	M16	M16	M16

★ TP, TPD pumps are primarily fitted with IE3 motors. See *Motor data* on page 125.

★★ The dimension before the slash applies to the single-head pump, and the dimension after the slash applies to the twin-head pump.

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