ATAC Solutions Ltd is a leading environmental engineering company based in Maidstone, United Kingdom.

ATAC Solutions is known for its state-of-the-art liquid collection fleet and its expertise in providing bespoke turnkey wastewater process solutions.

With a focus on sustainability and accreditation in ISO 9001 & ISO 14001, the company serves domestic and industrial clients across the South-East and London.

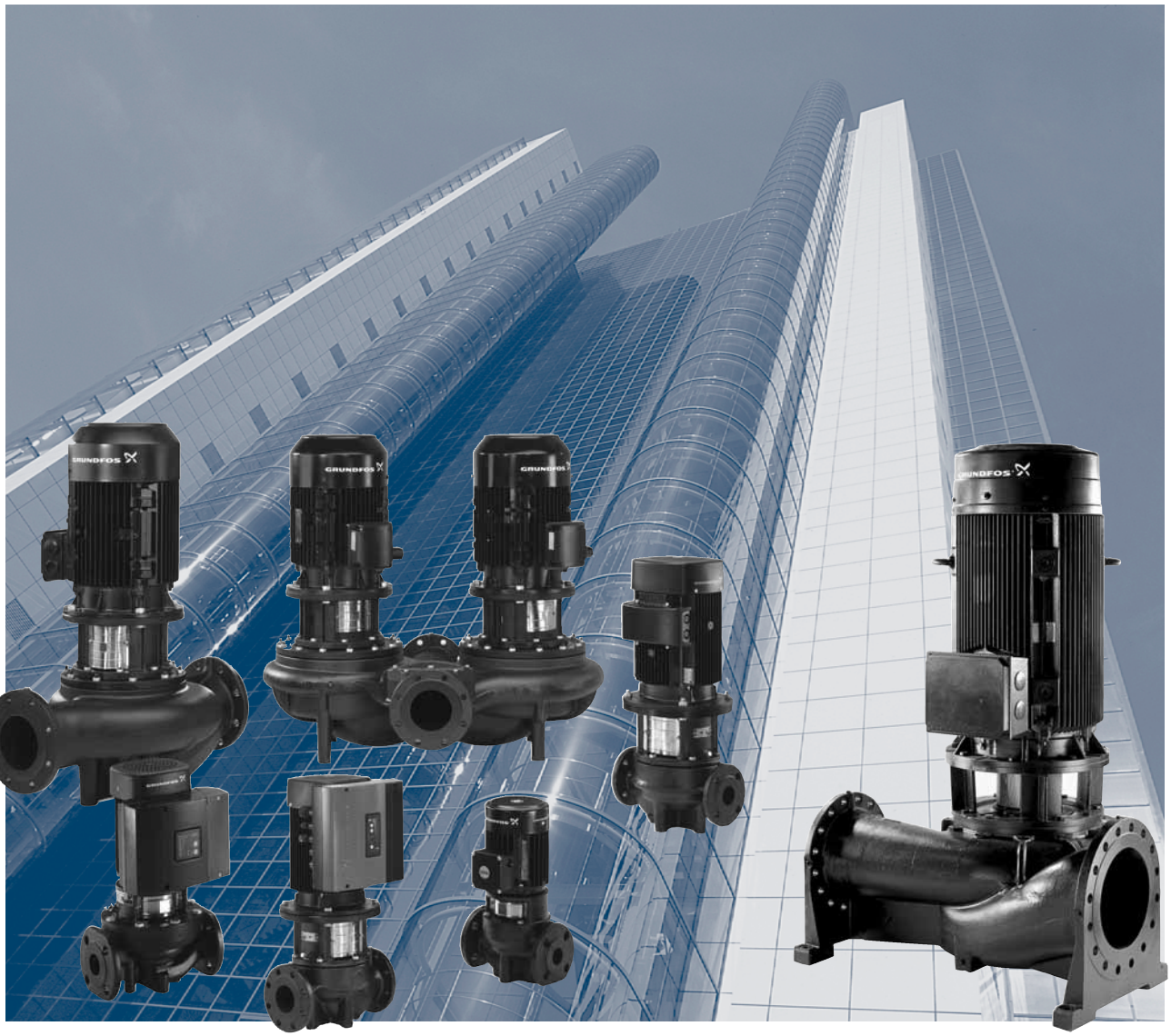
ATAC Solutions Ltd,
Unit A9, Loc 8 Business Park, Ashford Road,
Hollingbourne, Maidstone, England, ME17 1WR

atacsolutions.com
01622 882400

GRUNDFOS **DATA BOOKLET**

TP, TPD, TPE

In-line circulator pumps
60 Hz



BE > THINK > INNOVATE >

GRUNDFOS

Contents

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Accessories

Minimum inlet pressure - NPSH

Further product documentation

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.

Most of the pumps are available with either standard motors (TP and TPD) or electronically speed-controlled motors (TPE).

The pumps are all single-stage, in-line centrifugal pumps with standard motor and mechanical shaft seal. The pumps are of the close-coupled type, i.e. pump and motor are separate units. Consequently, the pumps are less sensitive to impurities in the pumped liquid than similar pumps of the canned rotor type.

TP pumps – uncontrolled pumps

The TP range is divided into the following four groups based on their construction: TP Series 100, 200, 300 and 400 pumps.

TP Series 200 with flange connection

DN 32 to DN 100 and motor sizes from 0.12 to 3 kW.

For further information, see page 20.

TP Series 300 with flange connection

DN 32 to DN 200 and motor sizes from 0.55 to 55 kW.

For further information, see page 22.

TP Series 400 with flange connection

Grundfos offers two TP Series 400 versions:

- 10 bar version with DN 150 to DN 250 flange and motor sizes from 37 to 132 kW.
- 25 bar version with DN 100 to DN 250 and motor sizes from 7.5 to 315 kW.

For further information about TP Series 400 pumps, see page 24.

TPE pumps – speed-controlled pumps

Based on the construction and choice of material of TP pumps, Grundfos offers speed-controlled TPE Series 1000 pumps.

TPE Series 1000 pumps

The difference between the TP and the TPE Series 1000 pump range is the motor. The motors of TPE Series 1000 pumps have built-in frequency converter.

Via an external signal (from a sensor or a controller), TPE Series 1000 pumps allow for any configuration and control method required: Constant pressure, constant temperature or constant flow.
Note: TPE Series 1000 pumps are delivered without a differential-pressure sensor.

TPE Series 1000 pumps are based on TP Series 200 and 300 pumps. The pump materials are the same as those of the TP pump range.

For further information, see page 26.

Why select a TPE pump?

A TPE pump with electronic, speed-controlled adaptation of performance offers these obvious benefits:

- energy savings
- increased comfort
- control and monitoring of the pump performance
- communication with the pump.

ATEX-approved TP pumps

On request, Grundfos offers TP and TPD pumps with ATEX-approval.

All ATEX-approved TP pumps are in accordance with Council directive 94/9/EC (Group II, category 3).

High-efficiency motors

TP pumps are fitted with high-efficiency motors.

2- and 4-pole TP pumps with motor sizes from 1.1 to 90 kW are fitted with high-efficiency motors (EFF1). EFF1 is the highest efficiency class defined by CEMEP.

Pump data

Type key

Example	TP	E	D	65	-120	/2	-A	-F	-A	-AUUE

Pump range

Electronically speed controlled pump Series 1000

Twin-head pump

Nominal diameter of suction and discharge ports (DN)

Maximum head [dm]

Pole number

Code for pump version:
A = Basic version
I = PN 6 flange
X = Special version

Code for pipework connection:
F = DIN flange
O = Union

Code for materials:
A = Basic version
Z = Bronze pump housing and motor stool
B = Bronze impeller

Code for shaft seal
(incl. other plastic and rubber components in the pump except the neck ring)

Codes for shaft seal

Example	B	B	U	E

Grundfos type designation
A = O-ring seal with fixed seal driver
B = Rubber bellows seal
D = O-ring seal, balanced
G = Bellows seal with reduced seal faces
R = O-ring seal with reduced seal faces

Material of rotating face
A = Carbon, antimony-impregnated
B = Carbon, synthetic resin-impregnated
Q = Silicon carbide
U = Tungsten carbide

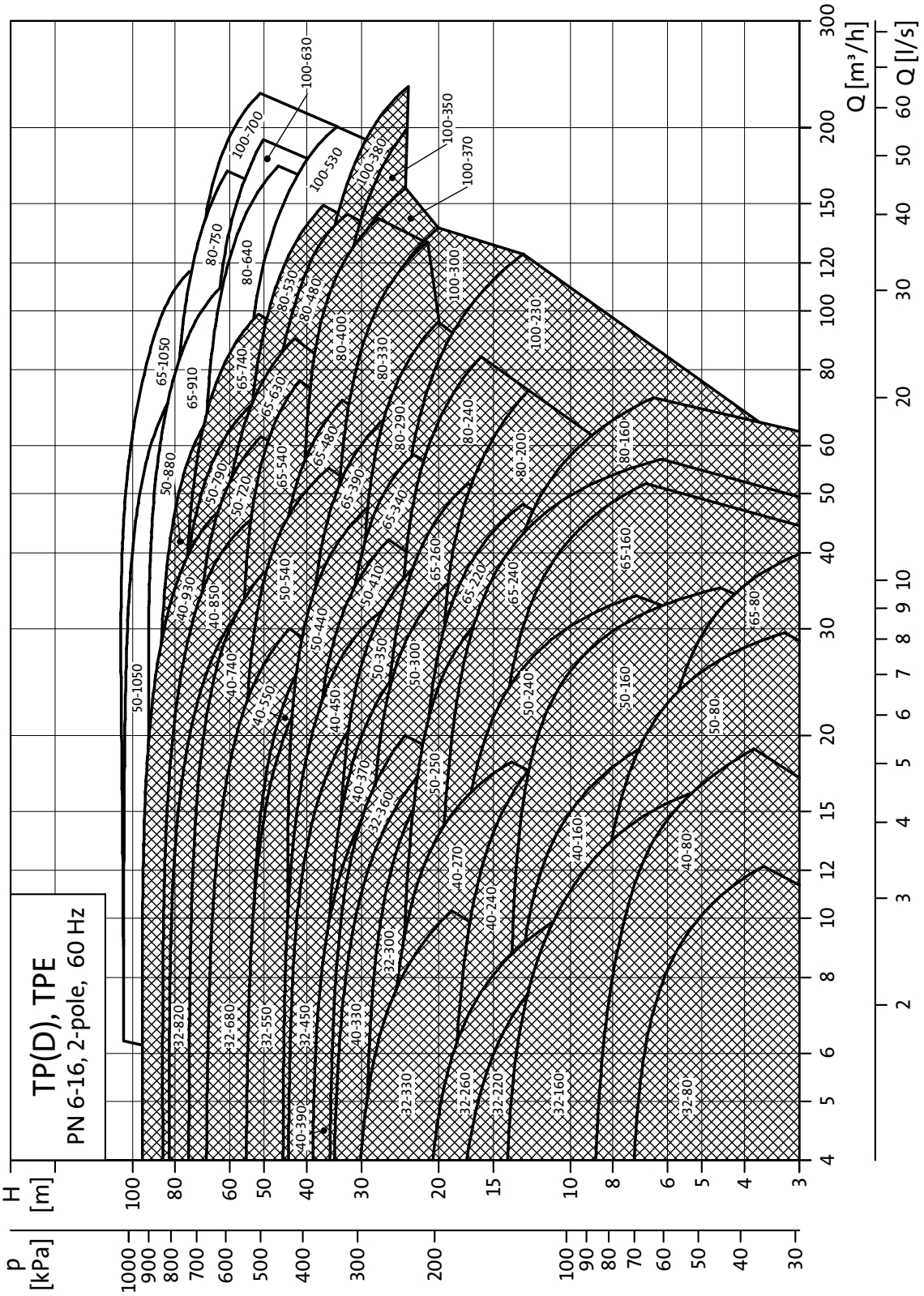
Material of stationary seat
B = Carbon, synthetic resin-impregnated
Q = Silicon carbide
U = Tungsten carbide

Material of secondary seal
E = EPDM
P = NBR rubber
V = FKM

Performance range

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

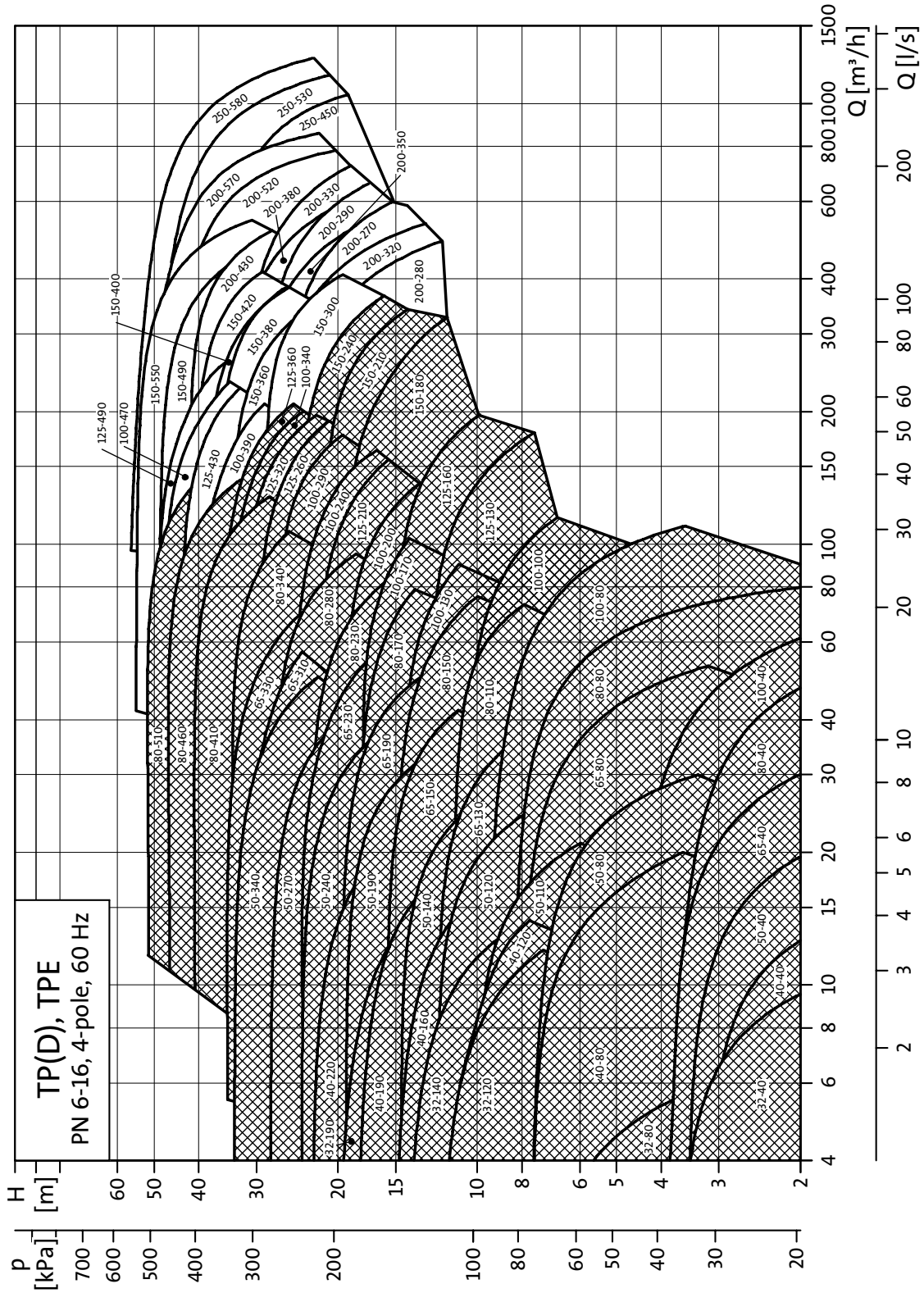
(See page 42 for performance curves)



Note: All QH curves apply to single-head pumps. For further information about curve conditions, see page 40.
The hatched area shows the performance range of TPE pumps.

Performance range, 4-pole, PN 6/10/16

(See page 58 for performance curves)

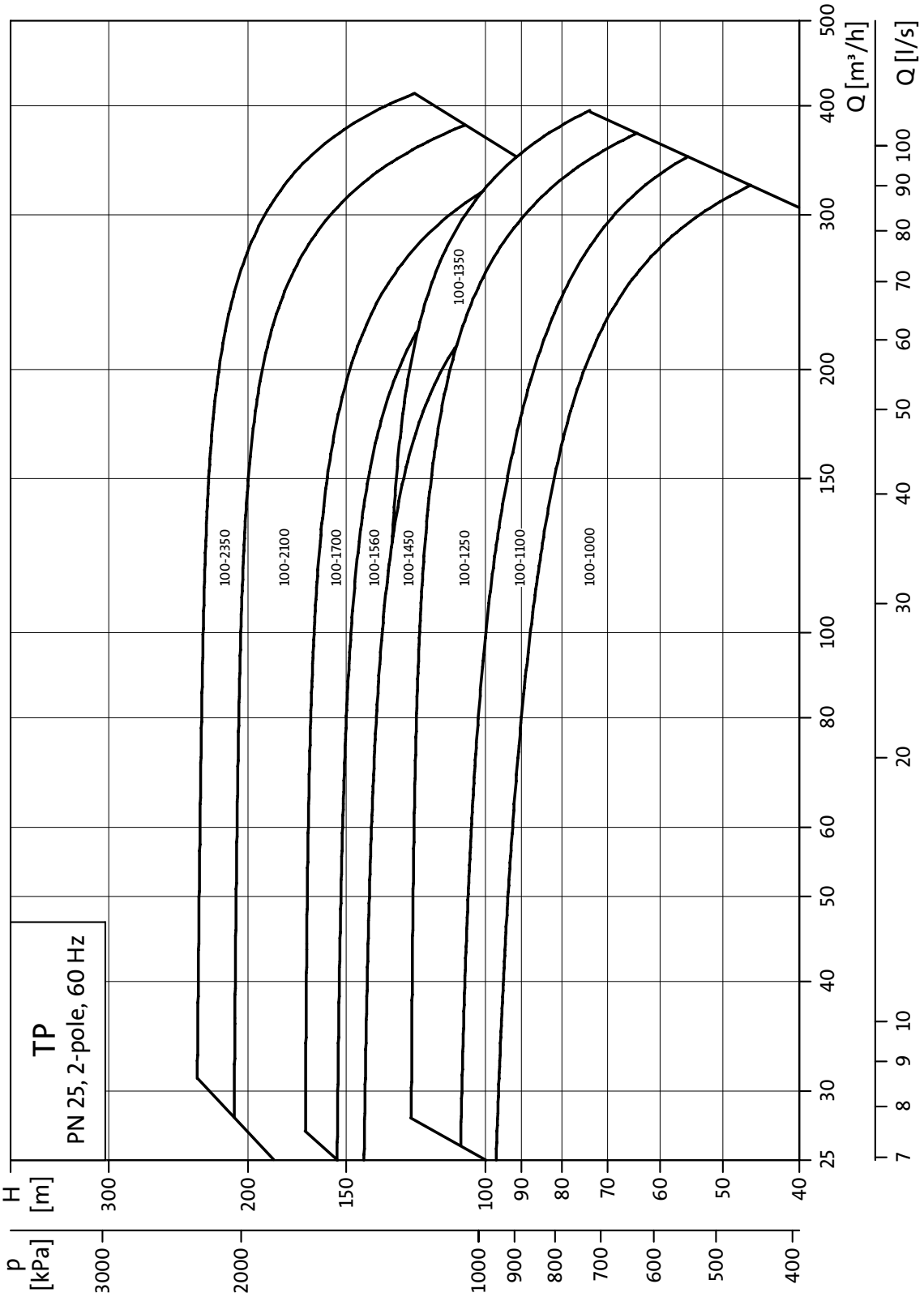


Note: All QH curves apply to single-head pumps. For further information about curve conditions, see page 40.
The hatched area shows the performance range of TPE pumps.

Performance range

Performance range, 2-pole, PN 25

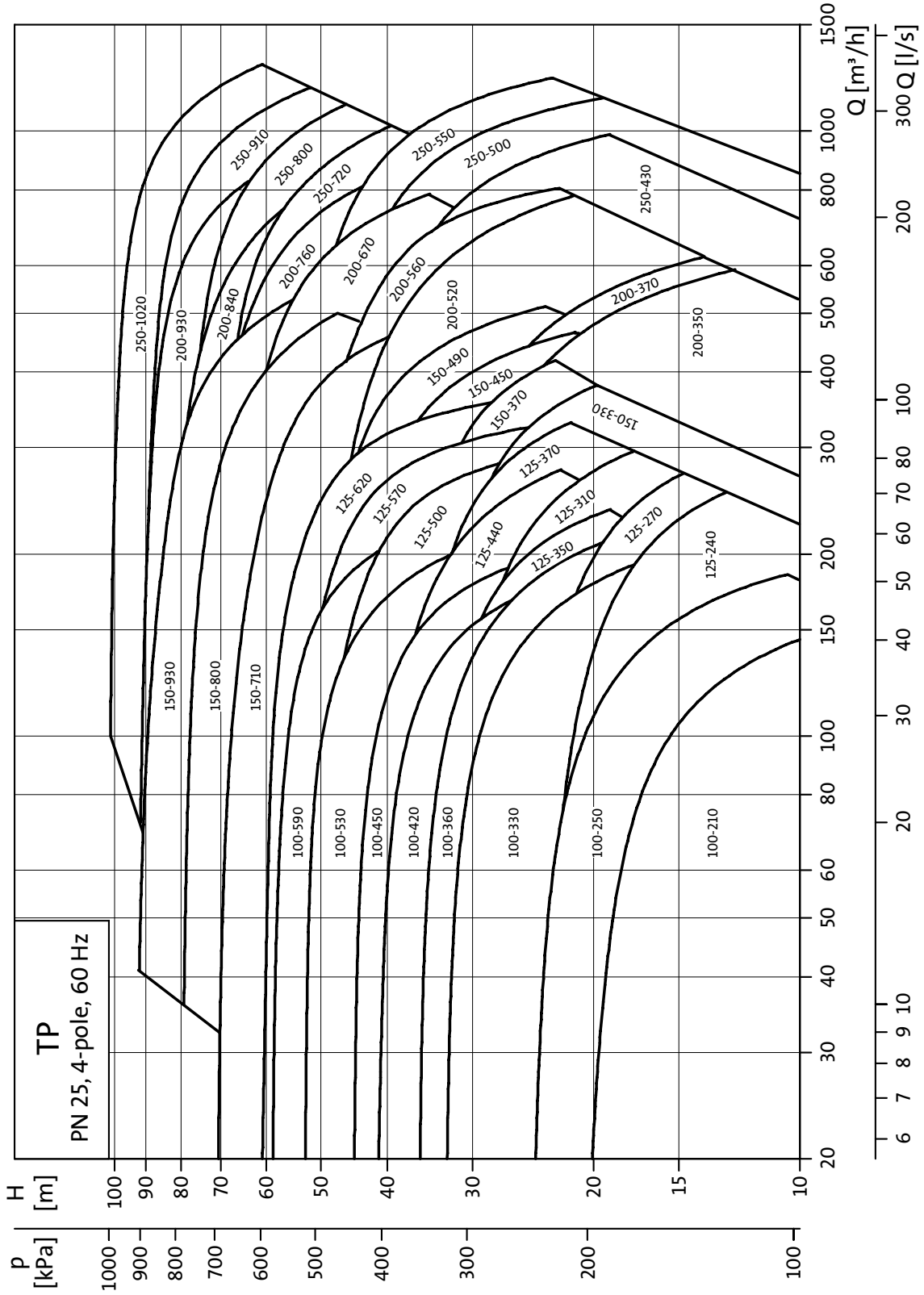
(See page 84 for performance curves)



Performance range

Performance range, 4-pole, PN 25

(See page 86 for performance curves)



TM02 7003 0805

Product range, 2-pole, PN 6/10/16

Pump type		Design			Shaft seal							Pressure stage				Materials							Standard motor				Electronically speed controlled motor	
																Pump housing			Impeller				Voltage [V]				Voltage [V]	
	TPE Series 1000[1]	TP Series 200	TP Series 300	TP Series 400	BUBE	AUUE	RUUE	BAQE	BQQE	GQQE	DBUE	PN 6/10 combination flange	PN 10	PN 16	PN 25	Cast iron EN-GJL-250	Nodular cast iron EN-GJS-400-18	Bronze	Stainless steel	Cast iron	Nodular cast iron EN-GJS-400-15	Bronze	3 x 220-255 ΔV/ 3 x 380-440 YV	3 x 220-277 ΔV/ 3 x 380-480 YV	3 x 380-480 ΔV	3 x 380-480 ΔV/ 3 x 660-690 YV[2]	3 x 380-415 V	3 x 380-480 V
																							P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]
TP 32-80/2		●			●	●	●					●				●		●	●				0.37					
TP 32-160/2		●			●	●	●					●				●		●	●				0.55					
TP 32-220/2		●			●	●	●					●				●		●	●				0.75					
TP 32-260/2		●			●	●	●					●				●		●	●					1.1				
TP 32-330/2		●			●	●	●					●				●		●	●					1.5				
TP, TPD 32-300/2	●		●					●	●	●				●		●				●		●		2.2	2.2			2.2
TP, TPD 32-360/2	●		●					●	●	●				●		●				●		●		3.0	3.0			3.0
TP, TPD 32-450/2	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 32-550/2	●		●					●	●	●				●		●				●		●		5.5	5.5			5.5
TP, TPD 32-680/2	●		●					●	●	●				●		●				●		●		7.5	7.5			7.5
TP, TPD 32-820/2	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP 40-80/2		●			●	●	●					●				●		●	●				0.55					
TP 40-160/2		●			●	●	●					●				●		●	●				0.75					
TP 40-240/2		●			●	●	●					●				●		●	●					1.1				
TP 40-270/2		●			●	●	●							●		●		●	●					1.5				
TP 40-330/2		●			●	●	●							●		●		●	●					2.2				
TP 40-390/2		●			●	●	●							●		●		●	●					3.0				
TP, TPD 40-370/2	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 40-450/2	●		●					●	●	●				●		●				●		●		5.5	5.5			5.5
TP, TPD 40-550/2	●		●					●	●	●				●		●				●		●		7.5	7.5			7.5
TP, TPD 40-740/2	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP, TPD 40-850/2	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 40-930/2	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	
TP 50-80/2		●			●	●	●					●				●		●	●				0.55					
TP 50-160/2		●			●	●	●					●				●		●	●					1.1				
TP 50-240/2		●			●	●	●					●				●		●	●					1.5				
TP, TPD 50-250/2	●		●					●	●	●				●		●				●		●		2.2	2.2			2.2
TP, TPD 50-300/2	●		●					●	●	●				●		●				●		●		3.0	3.0			3.0
TP, TPD 50-350/2	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 50-410/2	●		●					●	●	●				●		●				●		●		5.5	5.5			5.5
TP, TPD 50-440/2	●		●					●	●	●				●		●				●		●		7.5	7.5			7.5
TP, TPD 50-540/2	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP, TPD 50-720/2	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 50-790/2	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	
TP, TPD 50-880/2	●		●					●	●	●				●		●				●		●		22.0		22.0	22.0	
TP, TPD 50-1050/2			●					●	●	●				●		●				●		●		30.0		30.0		
TP 65-80/2		●			●	●	●					●				●		●	●					1.1				
TP 65-160/2		●			●	●	●					●				●		●	●					1.5				
TP 65-240/2		●			●	●	●					●				●		●	●					2.2				
TP, TPD 65-220/2	●		●					●	●	●				●		●				●		●		3.0	3.0			3.0
TP, TPD 65-260/2	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 65-340/2	●		●					●	●	●				●		●				●		●		5.5	5.5			5.5
TP, TPD 65-390/2	●		●					●	●	●				●		●				●		●		7.5	7.5			7.5
TP, TPD 65-480/2	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP, TPD 65-540/2	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 65-630/2	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	
TP, TPD 65-740/2	●		●					●	●	●				●		●				●		●		22.0		22.0	22.0	
TP, TPD 65-910/2			●					●	●	●				●		●				●		●		30.0		30.0		

Product range

Pump type	TPE Series 1000[1]	Design			Shaft seal							Pressure stage				Materials							Standard motor				Electronically speed controlled motor	
																Pump housing			Impeller				Voltage [V]				Voltage [V]	
		TP Series 200	TP Series 300	TP Series 400	BUBE	AUUE	RUUE	BAQE	BQQE	GQQE	DBUE	PN 6/10 combination flange	PN 10	PN 16	PN 25	Cast iron EN-GJL-250	Nodular cast iron EN-GJS-400-18	Bronze	Stainless steel	Cast iron	Nodular cast iron EN-GJS-400-15	Bronze	3 x 220-255 ΔV/ 3 x 380-440 YV	3 x 220-277 ΔV/ 3 x 380-480 YV	3 x 380-480 ΔV	3 x 380-480 ΔV/ 3 x 660-690 YV[2]	3 x 380-415 V	3 x 380-480 V
		P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]																							
TP, TPD 65-1050/2			●					●	●	●				●		●				●		●		37.0		37.0		
TP 80-160/2		●			●	●	●					●				●		●	●					3.0				
TP, TPD 80-200/2	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 80-240/2	●		●					●	●	●				●		●				●		●		5.5	5.5			5.5
TP, TPD 80-290/2	●		●					●	●	●				●		●				●		●		7.5	7.5			7.5
TP, TPD 80-330/2	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP, TPD 80-400/2	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 80-480/2	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	
TP, TPD 80-530/2	●		●					●	●	●				●		●				●		●		22.0		22.0	22.0	
TP, TPD 80-640/2			●					●	●	●				●		●				●		●		30.0		30.0		
TP, TPD 80-750/2			●					●	●	●				●		●				●		●		37.0		37.0		
TP, TPD 100-230/2	●		●					●	●	●				●		●				●		●		7.5	7.5			7.5
TP, TPD 100-300/2	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP, TPD 100-370/2	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 100-350/2	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	
TP, TPD 100-380/2	●		●					●	●	●				●		●				●		●		22.0		22.0	22.0	
TP, TPD 100-530/2			●					●	●	●				●		●				●		●		30.0		30.0		
TP, TPD 100-630/2			●					●	●	●				●		●				●		●		37.0		37.0		
TP, TPD 100-700/2			●					●	●	●				●		●				●		●		45.0		45.0		

● Standard

1 TPE pumps are not available in twin-head versions.

2 2-pole motors above 7.5 kW can be operated at 3 x 660-690 YV. Smaller motor sizes cannot.

Product range, 4-pole, PN 6/10/16

Pump type	TPE Series 1000[1]	Design			Shaft seal							Pressure stage				Materials							Standard motor				Electronically speed controlled motor	
																Pump housing			Impeller				Voltage [V]				Voltage [V]	
		TP Series 200	TP Series 300	TP Series 400	BUBE	AUUE	RUUE	BAQE	BQQE	GQQE	DBUE	PN 6/10 combination flange	PN 10	PN 16	PN 25	Cast iron EN-GJL-250	Nodular cast iron EN-GJS-400-18	Bronze	Stainless steel	Cast iron	Nodular cast iron EN-GJS-400-15	Bronze	3 x 220-255 ΔV/ 3 x 380-440 YV	3 x 220-277 ΔV/ 3 x 380-480 YV	3 x 380-480 ΔV	3 x 380-480 ΔV/ 3 x 660-690 YV(2	3 x 380-415 V	3 x 380-480 V
		P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]																						
TP 32-40/4		●			●	●	●					●	●			●			●				0.12					
TP 32-80/4		●			●	●	●					●	●			●			●				0.25					
TP, TPD 32-120/4			●					●	●	●				●		●				●		●	0.55					
TP, TPD 32-140/4			●					●	●	●				●		●				●		●	0.75					
TP, TPD 32-190/4	●		●					●	●	●				●		●				●		●		1.1				1.1
TP 40-40/4		●			●	●	●					●	●			●			●				0.25					
TP 40-80/4		●			●	●	●					●	●			●			●				0.55					
TP, TPD 40-120/4			●					●	●	●				●		●				●		●	0.75					
TP, TPD 40-160/4	●		●					●	●	●				●		●				●		●		1.1				1.1
TP, TPD 40-190/4	●		●					●	●	●				●		●				●		●		1.5				1.5
TP, TPD 40-220/4	●		●					●	●	●				●		●				●		●		2.2	2.2			2.2
TP 50-40/4		●			●	●	●					●	●			●			●				0.25					
TP 50-80/4		●			●	●	●					●	●			●			●				0.55					
TP, TPD 50-110/4			●					●	●	●				●		●				●		●	0.75					
TP, TPD 50-120/4	●		●					●	●	●				●		●				●		●		1.1				1.1
TP, TPD 50-140/4	●		●					●	●	●				●		●				●		●		1.5				1.5
TP, TPD 50-190/4	●		●					●	●	●				●		●				●		●		2.2	2.2			2.2
TP, TPD 50-240/4	●		●					●	●	●				●		●				●		●		3.0	3.0			3.0
TP, TPD 50-270/4	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 50-340/4	●		●					●	●	●				●		●				●		●		5.5		5.5	5.5	
TP 65-40/4		●			●	●	●					●	●			●			●				0.37					
TP 65-80/4		●			●	●	●					●	●			●			●					1.1				
TP, TPD 65-130/4	●		●					●	●	●				●		●				●		●		1.5				1.5
TP, TPD 65-150/4	●		●					●	●	●				●		●				●		●		2.2	2.2			2.2
TP, TPD 65-190/4	●		●					●	●	●				●		●				●		●		3.0	3.0			3.0
TP, TPD 65-230/4	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 65-310/4	●		●					●	●	●				●		●				●		●		5.5		5.5	5.5	
TP, TPD 65-330/4	●		●					●	●	●				●		●				●		●		7.5		7.5	7.5	
TP 80-40/4		●			●	●	●					●	●			●			●				0.75					
TP 80-80/4		●			●	●	●					●	●			●			●					1.5				1.5
TP, TPD 80-110/4	●		●					●	●	●				●		●				●		●		2.2	2.2			2.2
TP, TPD 80-150/4	●		●					●	●	●				●		●				●		●		3.0	3.0			3.0
TP, TPD 80-170/4	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 80-230/4	●		●					●	●	●				●		●				●		●		5.5		5.5	5.5	
TP, TPD 80-280/4	●		●					●	●	●				●		●				●		●		7.5		7.5	7.5	
TP, TPD 80-340/4	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP, TPD 80-410/4	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 80-460/4	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	
TP, TPD 80-510/4	●		●					●	●	●				●		●				●		●		22.0		22.0	22.0	
TP 100-40/4		●			●	●	●					●	●			●			●					1.1				1.1
TP 100-80/4		●			●	●	●					●	●			●			●					2.2				2.2
TP, TPD 100-100/4	●		●					●	●	●				●		●				●		●		3.0	3.0			3.0
TP, TPD 100-130/4	●		●					●	●	●				●		●				●		●		4.0	4.0			4.0
TP, TPD 100-170/4	●		●					●	●	●				●		●				●		●		5.5		5.5	5.5	
TP, TPD 100-200/4	●		●					●	●	●				●		●				●		●		7.5		7.5	7.5	
TP, TPD 100-240/4	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP, TPD 100-290/4	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 100-340/4	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	

Product range

Pump type	TPE Series 1000[1]	Design			Shaft seal							Pressure stage				Materials							Standard motor				Electronically speed controlled motor	
																Pump housing			Impeller				Voltage [V]				Voltage [V]	
		TP Series 200	TP Series 300	TP Series 400	BUBE	AUUE	RUUE	BAQE	BQQE	GQQE	DBUE	PN 6/10 combination flange	PN 10	PN 16	PN 25	Cast iron EN-GJL-250	Nodular cast iron EN-GJS-400-18	Bronze	Stainless steel	Cast iron	Nodular cast iron EN-GJS-400-15	Bronze	3 x 220-255 ΔV/ 3 x 380-440 YV	3 x 220-277 ΔV/ 3 x 380-480 YV	3 x 380-480 ΔV	3 x 380-480 ΔV/ 3 x 660-690 YV[2]	3 x 380-415 V	3 x 380-480 V
																							P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]
TP, TPD 100-390/4	●		●					●	●	●				●		●				●		●		22.0		22.0	22.0	
TP, TPD 100-470/4			●					●	●	●				●		●				●		●		30.0		30.0		
TP, TPD 125-130/4	●		●					●	●	●				●		●				●		●		5.5		5.5	5.5	
TP, TPD 125-160/4	●		●					●	●	●				●		●				●		●		7.5		7.5	7.5	
TP, TPD 125-210/4	●		●					●	●	●				●		●				●		●		11.0		11.0	11.0	
TP, TPD 125-260/4	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 125-320/4	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	
TP, TPD 125-360/4	●		●					●	●	●				●		●				●		●		22.0		22.0	22.0	
TP, TPD 125-430/4			●					●	●	●				●		●				●		●		30.0		30.0		
TP, TPD 125-490/4			●					●	●	●				●		●				●		●		37.0		37.0		
TP, TPD 150-180/4	●		●					●	●	●				●		●				●		●		15.0		15.0	15.0	
TP, TPD 150-210/4	●		●					●	●	●				●		●				●		●		18.5		18.5	18.5	
TP, TPD 150-240/4	●		●					●	●	●				●		●				●		●		22.0		22.0	22.0	
TP, TPD 150-300/4			●					●	●	●				●		●				●		●		30.0				
TP 150-360/4			●					●	●	●				●		●				●						30.0		
TP 150-380/4				●				●	●	●			●			●				●		●				37.0		
TP 150-400/4			●					●	●	●				●		●				●						37.0		
TP 150-420/4				●				●	●	●			●			●				●		●				45.0		
TP 150-490/4				●				●	●	●			●			●				●		●				55.0		
TP 150-550/4				●				●	●	●			●			●				●		●				75.0		
TP 200-270/4			●					●	●	●				●		●				●						37.0		
TP 200-280/4				●				●	●	●			●			●				●		●				30.0		
TP 200-290/4			●					●	●	●				●		●				●						45.0		
TP 200-320/4				●				●	●	●			●			●				●		●				37.0		
TP 200-330/4			●					●	●	●				●		●				●						55.0		
TP 200-350/4				●				●	●	●			●			●				●		●				45.0		
TP 200-380/4				●				●	●	●			●			●				●		●				55.0		
TP 200-430/4			●					●	●	●				●		●				●						55.0		
TP 200-520/4				●				●	●	●			●			●				●		●				75.0		
TP 200-570/4				●				●	●	●			●			●				●		●				90.0		
TP 250-450/4				●				●	●	●			●			●				●		●				90.0		
TP 250-530/4				●				●	●	●			●			●				●		●				110.0		
TP 250-580/4				●				●	●	●			●			●				●		●				132.0		

● Standard

1 TPE pumps are not available in twin-head versions.

2 4-pole motors above 4 kW can be operated at 3 x 660-690 YV. Smaller motor sizes cannot.

Product range, 2-pole, PN 25

Pump type	TPE Series 1000[1]	Design			Shaft seal							Pressure stage				Materials							Standard motor				Electronically speed controlled motor	
																Pump housing			Impeller				Voltage [V]				Voltage [V]	
		TP Series 200	TP Series 300	TP Series 400	BUBE	AUUE	RUUE	BAQE	BQQE	GQQE	DBUE	PN 6/10 combination flange	PN 10	PN 16	PN 25	Cast iron EN-GJL-250	Nodular cast iron EN-GJS-400-18	Bronze	Stainless steel	Cast iron	Nodular cast iron EN- GJS-400-15	Bronze	3 x 220-255 ΔV/ 3 x 380-440 YV	3 x 220-277 ΔV/ 3 x 380-480 YV	3 x 380-480 ΔV	3 x 380-480 ΔV/ 3 x 660-690 YV	3 x 380-415 V	3 x 380-480 V
		P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]
TP 100-1000/2				●							●				●		●				●	●				75.0		
TP 100-1100/2				●							●				●		●				●	●				90.0		
TP 100-1250/2				●							●				●		●				●	●				110.0		
TP 100-1350/2				●							●				●		●				●	●				132.0		
TP 100-1450/2				●							●				●		●				●	●				110.0		
TP 100-1560/2				●							●				●		●				●	●				132.0		
TP 100-1700/2				●							●				●		●				●	●				160.0		
TP 100-2100/2				●							●				●		●				●	●				20.00		
TP 100-2350/2				●							●				●		●				●	●				250.0		

● Standard

Product range, 4-pole, PN 25

Pump type	TTPE Series 1000[1]	Design			Shaft seal							Pressure stage				Materials							Standard motor				Electronically speed controlled motor	
																Pump housing			Impeller				Voltage [V]				Voltage [V]	
		TP Series 200	TP Series 300	TP Series 400	BUBE	AUUE	RUUE	BAQE	BQQE	GQQE	DBUE	PN 6/10 combination flange	PN 10	PN 16	PN 25	Cast iron EN-GJL-250	Nodular cast iron EN-GJS-400-18	Bronze	Stainless steel	Cast iron	Nodular cast iron EN- GJS-400-15	Bronze	3 x 220-255 ΔV/ 3 x 380-440 YV	3 x 220-277 ΔV/ 3 x 380-480 YV	3 x 380-480 ΔV	3 x 380-480 ΔV/ 3 x 660-690 YV	3 x 380-415 V	3 x 380-480 V
		P_2 [kW]	P_2 [kW]	P_2 [kW]	P_2 [kW]																							
TP 100-210/4				●							●				●		●					●	●				7.5		
TP 100-250/4				●							●				●		●					●	●				11.0		
TP 100-330/4				●							●				●		●					●	●				15.0		
TP 100-360/4				●							●				●		●					●	●				18.5		
TP 100-420/4				●							●				●		●					●	●				18.5		
TP 100-450/4				●							●				●		●					●	●				22.0		
TP 100-530/4				●							●				●		●					●	●				30.0		
TP 100-590/4				●							●				●		●					●	●				37.0		
TP 125-240/4				●							●				●		●					●	●				15.0		
TP 125-270/4				●							●				●		●					●	●				18.5		
TP 125-310/4				●							●				●		●					●	●				22.0		
TP 125-370/4				●							●				●		●					●	●				30.0		
TP 125-350/4				●							●				●		●					●	●				22.0		
TP 125-440/4				●							●				●		●					●	●				30.0		
TP 125-500/4				●							●				●		●					●	●				37.0		
TP 125-570/4				●							●				●		●					●	●				45.0		
TP 125-620/4				●							●				●		●					●	●				55.0		
TP 150-330/4				●							●				●		●					●	●				30.0		
TP 150-370/4				●							●				●		●					●	●				37.0		
TP 150-450/4				●							●				●		●					●	●				45.0		
TP 150-490/4				●							●				●		●					●	●				55.0		
TP 150-710/4				●							●				●		●					●	●				90.0		
TP 150-800/4				●							●				●		●					●	●				110.0		
TP 150-930/4				●							●				●		●					●	●				132.0		
TP 200-350/4				●							●				●		●					●	●				45.0		
TP 200-370/4				●							●				●		●					●	●				55.0		
TP 200-520/4				●							●				●		●					●	●				75.0		
TP 200-560/4				●							●				●		●					●	●				90.0		
TP 200-670/4				●							●				●		●					●	●				110.0		
TP 200-760/4				●							●				●		●					●	●				132.0		
TP 200-840/4				●							●				●		●					●	●				160.0		
TP 200-930/4				●							●				●		●					●	●				200.0		
TP 250-430/4				●							●				●		●					●	●				90.0		
TP 250-500/4				●							●				●		●					●	●				110.0		
TP 250-550/4				●							●				●		●					●	●				132.0		
TP 250-720/4				●							●				●		●					●	●				160.0		
TP 250-800/4				●							●				●		●					●	●				200.0		
TP 250-910/4				●							●				●		●					●	●				250.0		
TP 250-1020/4				●							●				●		●					●	●				315.0		

● Standard

Operating conditions

Pressure conditions

System and test pressures

Pressure	System pressure		Test pressure	
	[bar]	[MPa]	[bar]	[MPa]
PN 6	6	0.6	10	1.0
PN 6 / PN 10	10	1.0	16	1.6
PN 16	16	1.6	24	2.4
PN 25	25	2.5	38	3.8

Sound pressure level

Motor [kW]	Max. sound pressure level [dB(A)] - ISO 3743	
	Three-phase motors	
	2-pole	4-pole
0.12	-	-
0.25	-	45
0.37	57	45
0.55	56	45
0.75	57	49
1.1	63	53
1.5	64	53
2.2	65	55
3.0	64	55
4.0	68	57
5.5	67	62
7.5	73	62
11.0	70	66
15.0	70	66
18.5	70	63
22.0	70	63
30.0	71	65
37.0	71	65
45.0	75	65
55.0	75	68
75.0	77	71
90.0	77	71
110.0	81	75
132.0	81	75
160.0	81	75
200.0	81	75
250.0	86	77
315.0	-	77

The audible noise from TP pumps is primarily noise from the motor fan. The selection of TPE pumps will reduce the noise at partial load, as the motor, and consequently, the motor fan runs at a lower speed. Possible flow noise from control valves is also reduced at partial load in the case of the TPE pump.

Ambient temperature

MG – EFF1-motors: 1.1-11 kW motors, 2-pole 1.1-4 kW, 4-pole	–30 to +60°C
Siemens – EFF1-motors: 15-90 kW motors, 2-pole 5.5-90 kW motors, 4-pole	–30 to +55°C
Other motor sizes:	–30 to +40°C
Storage:	Down to –30°C

If the ambient temperature exceeds above maximum values or if the motor is located more than 1000 metres above sea level, the motor output (P2) must be reduced due to the low density and consequent low cooling effect of the air. In such cases, it may be necessary to use an oversize motor with a higher rated output.

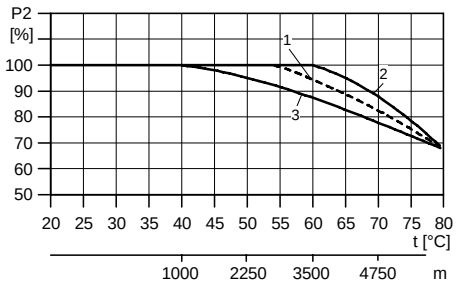


Fig. 1 Relationship between motor output (P_2) and altitude

Key

Pos	Description
1	Siemens – EFF1-motors: 15-90 kW motors, 2-pole 5.5-90 kW motors, 4-pole
2	MG – EFF1-motors: 1.1-11 kW motors, 2-pole 1.1-4 kW, 4-pole
3	Other motor sizes

Pumped liquids

Thin, clean, non-aggressive and non-explosive liquids, not containing solid particles or fibres that may mechanically or chemically attack the pump, please see "List of pumped liquids" page 18.

Examples of liquids:

- central heating system water (the water should meet the requirements of accepted standards on water quality in heating systems)
- cooling liquids
- domestic hot water
- industrial liquids
- softened water.

If glycol or another antifreeze agent is added to the pumped liquid, the pump must have a shaft seal of the type RUUE or GQQE.

The pumping of liquids with densities or kinematic viscosities higher than those of water can cause

- a considerable pressure drop
- a drop in the hydraulic performance
- a rise in the power consumption.

In these situations, equip the pump with an oversize motor. If in doubt, contact Grundfos.

If the water contains mineral oils or chemicals, or if other liquids than water are pumped, the O-rings should be chosen accordingly.

Liquid temperature

Liquid temperature: –25°C to +150°C.

Please note that shaft seals operating close to their maximum temperature will require regular maintenance, i.e. replacement.

Pump type	Shaft seal	Temperature
TP Series 100	BUBE	0°C to +110°C
	BQQE	0°C to +90°C
	GQQE	–25°C to +90°C
TP Series 200	BUBE	0°C to +140°C
	AUUE	0°C to +90°C
	RUUE	–25°C to +90°C
TP Series 300	BAQE	0°C to +120°C (140°C) [1]
	BQQE	0°C to +90°C
	GQQE	–25°C to +90°C
TP Series 400, 10 bar version	BAQE	0°C to +120°C
	BQQE	0°C to +90°C
	GQQE	–25°C to +90°C
TP Series 400, 25 bar version	DBUE	0°C to +150°C [2]

1) TP Series 300 pumps are designed for a maximum operating temperature of 140°C. For operation above 120°C, an alternative shaft seal is to be selected. Contact Grundfos.

2) At +120 to +150°C, the maximum operating pressure ≤23 bar.

Depending on the type of cast iron used and the pump application, the maximum liquid temperature may be limited by local regulations and laws.

List of pumped liquids

Grundfos TP and TPD pumps are designed for circulation systems with constant flow; TPE pumps for systems with variable flow.

Thanks to their design, the pumps can be used in a wider liquid temperature range than pumps of the canned rotor type.

A number of typical liquids are listed below.

Other pump versions may be used, but we consider the ones stated in the list to be the best choices.

The list is intended as a general guide only, and it cannot replace actual testing of the pumped liquids and pump materials under specific working conditions. If in doubt, contact Grundfos.

Use the list with some caution, as factors such as

- concentration of the pumped liquid
- liquid temperature or
- pressure

may affect the chemical resistance of a specific pump version.

Legend

A	May contain additives or impurities that may cause shaft seal problems.
B	The density and/or viscosity differ from those of water. Consider this when calculating motor and pump performance.
C	The liquid must be oxygen-free (anaerobic).
D	Risk of crystallisation/precipitation in shaft seal.
E	Insoluble in water.
F	The shaft seal rubber parts must be replaced with FKM rubber.
G	Bronze housing/impeller required.
H	Risk of formation of ice on the standby pump. (The risk only applies to TP, TPE Series 200 pumps).

Pumped liquids	Notes	Additional information	Shaft seal				
			TP Series 100	TP Series 200	TP Series 300	TP Series 400 PN 10	TP Series 400 PN 25
Water							
Groundwater		<+90°C	BQQE	AUUE	BQQE	BAQE	DBUE
		>+90°C	BUBE	BUBE	BAQE[1)] BBQE[3)]		
Boiler-feed water		<+120°C	BUBE[4)]	BUBE	BAQE	BAQE	DBUE
		+120°C to +140°C		BUBE	BQBE[3)]		DBUE
District heating water		<+120°C	BUBE	BUBE	BAQE	BAQE	DBUE
Condensate		<+90°C	BQQE	AUUE	BQQE	BAQE	DBUE
		>+90°C	BUBE	BUBE	BAQE		
Softened water	C	<+90°C	BQQE	AUUE	BQQE	BAQE	DBUE
		>+90°C	BUBE	BUBE	BAQE		
Brackish water	G	pH>6.5, +40°C, 1000 ppm Cl^-	BUBE BQQE	BUBE AUUE	BQQE	BQQE	DBUE
Coolants							
Ethylene glycol	B, D, H	+50°C, 50%	BQQE GQQE	AUUE RUUE	BAQE[2)] BQQE GQQE	GQQE	DQQE[3)]
Glycerine (glycerol)	B, D, H	+50°C, 50%	BQQE GQQE	AUUE RUUE	BQQE GQQE	GQQE	DQQE[3)]
Potassium acetate	B, D, C, H	+50°C, 50%	BQQE GQQE	AUUE RUUE	BQQE GQQE	GQQE	DQQE[3)]
Potassium formate	B, D, C, H	+50°C, 50%	BQQE GQQE	AUUE RUUE	BQQE GQQE	GQQE	DQQE[3)]
Propylene glycol	B, D, H		BQQE GQQE	AUUE RUUE	BAQE[2)] BQQE GQQE	GQQE	DQQE[3)]
Brine-sodium chloride	B, D, C, H	+5°C, 30%	BQQE GQQE	AUUE RUUE	BQQE GQQE	GQQE	DQQE[3)]
Synthetic oils							
Silicone oil	B, E		BUBE BQQE	BUBE AUUE	BAQE BQQE	BAQE	DBUE

(To be continued)

Pumped liquids

Pumped liquids	Notes	Additional information	Shaft seal				
			TP Series 100	TP Series 200	TP Series 300	TP Series 400 PN 10	TP Series 400 PN 25
Vegetable oils							
Corn oil	B, F, E		BUBV[3] BQQV[3]	BUBV[3] AUUV[3]	BAQV[3] BQQV[3]	BAQV[3]	DBUV[3]
Olive oil	B, F, E	<+80°C	BUBV[3] BQQV[3]	BUBV[3] AUUV[3]	BAQV[3] BQQV[3]	BAQV[3]	DBUV[3]
Peanut oil	B, F, E		BUBV[3] BQQV[3]	BUBV[3] AUUV[3]	BAQV[3] BQQV[3]	BAQV[3]	DBUV[3]
Rape seed oil	D, B, F, E		BUBV[3] BQQV[3]	BUBV[3] AUUV[3]	BAQV[3] BQQV[3]	BAQV[3]	DBUV[3]
Soya bean oil	B, F, E		BUBV[3] BQQV[3]	BUBV[3] AUUV[3]	BAQV[3] BQQV[3]	BAQV[3]	DBUV[3]
Cleaning agents							
Soap (salts of fatty acids)	A, E, (F)	<+80°C	BQQE (BQQV)[3]	AUUE (AUUV)[3]	BQQE (BQQV)[3]	GQQE	DQQE[3]
Alkaline degreasing agent	A, E, (F)	<+80°C	BQQE (BQQV)[3]	AUUE (AUUV)[3]	BQQE (BQQV)[3]	GQQE	DQQE[3]
Oxidants							
Hydrogen peroxide		<+40°C, <2%	BUBE BQQE	BUBE AUUE	BQQE	BQQV[3]	DQQE[3]
Salts							
Ammonium bicarbonate	A	<+20°C, <15%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Calcium acetate	A, B	<+20°C, <30%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Potassium bicarbonate	A	<+20°C, <20%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Potassium carbonate	A	<+20°C, <20%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Potassium permanganate	A	<+20°C, <10%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Potassium sulphate	A	<+20°C, <20%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium acetate	A	<+20°C, <100%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium bicarbonate	A	<+20°C, <2%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium carbonate	A	<+20°C, <20%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium nitrate	A	<+20°C, <40%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium nitrite	A	<+20°C, <40%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium phosphate (di)	A	<+100°C, <30%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium phosphate (tri)	A	<+90°C, <20%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium sulphate	A	<+20°C, <20%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium sulphite	A	<+20°C, <1%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Alkalis							
Ammonium hydroxide		<+100°C, <30%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Calcium hydroxide	A	<+100°C, <10%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Potassium hydroxide	A	<+20°C, <20%	BQQE	AUUE	BQQE	GQQE	DQQE[3]
Sodium hydroxide	A	<+40°C, <20%	BQQE	AUUE	BQQE	GQQE	DQQE[3]

(1 BAQE must **not** be used for potable water. For potable water, Grundfos recommends a BBQE shaft seal.

(2 BAQE can be used in air-condition applications at temperatures above 0°C.

(3 The shaft seal is not standard, but available on request.

(4 Maximum +110°C.

GR8261

Fig. 2 TP Series 200

Technical data

Flow rate:	up to 90 m^3/h
Head:	up to 27 m
Liquid temperature:	–25 to +140 °C
Max. operating pressure:	up to 16 bar
Direction of rotation:	Counter-clockwise

Construction

Grundfos TP Series 200 pumps are single-stage, close-coupled pumps with inline suction and discharge ports of identical diameter.

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

TP Series 200 pumps are available as single-head (TP) and twin-head (TPD) models.

TP Series 200 pumps have flange connection and are equipped with PN 6 or PN 10 flanges.

The pumps are equipped with an unbalanced mechanical shaft seal.

The pumps are of the top-pull-out design, i.e. the power head (motor, pump head and impeller) can be removed for maintenance or service while the pump housing remains in the pipework.

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

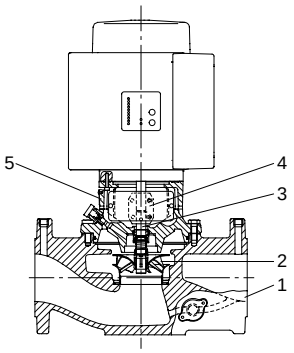
As radial and axial forces are absorbed by the fixed bearing in the motor drive-end, the pump requires no bearing.

TP and TPD Series 200 pumps are equipped with high-efficiency motors.

Pumps with bronze pump housing (version B) are suitable circulation of domestic hot water.

Materials

TP, TPE Series 200



TM03 1211 1405

Fig. 3 Sectional drawing of a TPE Series 200 (flanged model)

Material specification Series 200

Pos.	Component	Material	EN/DIN
1	Pump housing	Cast iron EN-GJL-250, bronze CuSn10	0.6020 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	Tungsten carbide	
	Stationary seat	Carbon (synthetic resin-impregnated) silicon carbide	

Mechanical shaft seal

Three types of unbalanced mechanical shaft seals are available as standard:

- **BUBE**
  The BUBE shaft seal is a Grundfos rubber bellows seal with tungsten carbide/carbon seal faces and secondary seals of EPDM.
- **RUUE/GQQE**
  The RUUE shaft seal is a Grundfos O-ring seal with reduced tungsten carbide/tungsten carbide seal faces and secondary seals of EPDM.
  The GQQE shaft seal is a Grundfos rubber bellows seal with reduced seal faces and silicon carbide/silicon carbide seal faces and secondary seals of EPDM.
- **AUUE/BQQE**
  The AUUE shaft seal is a Grundfos O-ring seal with fixed seal driver, tungsten carbide/tungsten carbide seal faces and secondary seals of EPDM.
  The BQQE shaft seal is a Grundfos rubber bellows seal with silicon carbide/silicon carbide seal faces and secondary seals of EPDM.

Information on a selection of common pumped liquids with recommended shaft seals is shown on page 18.

Shaft seal specification

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

Special shaft seals are available for partly conditioned water or other liquids containing abrasive or crystallising particles. See page 18.

Connections

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

Features and benefits

TP Series 200 pumps have the following product 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.
  2-pole and 4-pole TP pumps from 1.1 kW and above have EFF1 motors fitted.

Top-pull-out design

- easy dismantling in case of service.

In-line design

- contrary to end-suction pumps, in-line pumps allow a straight pipework and thus often reduced installation costs.

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

- Electrocoating includes:

  1. Alkaline cleaning
  2. Pre-treatment with zinc phosphate coating
  3. Cathodic electrocoating (epoxy)
  4. Curing of paint film at 200-250°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.

GR8259

Fig. 4 TP Series 300

Technical data

Flow rate:	up to 850 m^3/h
Head:	up to 93 m
Liquid temperature:	–25 to +140 °C
Max. operating pressure:	16 bar
Direction of rotation:	Clockwise

Construction

Grundfos TP, TPD Series 300 pumps are single-stage, close-coupled pumps with in-line suction and discharge ports of identical diameter.

The pumps are equipped with a fan-cooled asynchronous motor. Motor and pump shafts are connected via a rigid sleeve coupling.

Most TP Series 300 pumps are available as single-head (TP) and twin-head (TPD) models.

TP Series 300 pumps have flange connection and are equipped with PN 16 flanges.

The pumps are equipped with an unbalanced mechanical shaft seal.

The pumps are of the top-pull-out design, i.e. the power head (motor, pump head and/or motor stool and impeller) can be removed for maintenance or service while the pump housing remains in the pipework.

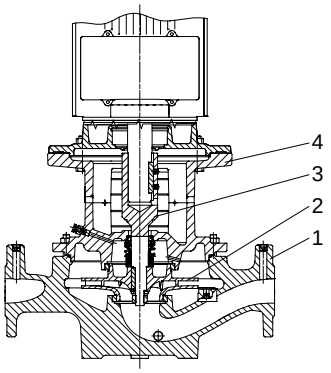
The twin-head pumps are designed with two parallel power heads. A non-return flap valve in the common discharge port is opened by the flow of the pumped liquid and prevents backflow of liquid into the idle pump head.

As radial and axial forces are absorbed by the fixed bearing in the motor drive-end, the pump requires no bearing.
The impeller is hydraulically balanced to minimize axial forces.

TP, TPD, TPE Series 300 pumps are equipped with high-efficiency motors.

TP Series 300 pumps with bronze impeller are suitable for pumping brine.

Materials



TM03 1212 1405

Fig. 5 Sectional drawing of TP Series 300

Material specification

Pos.	Component	Material	EN/DIN
1	Pump housing	Cast iron EN-GJL-250	EN-JL 1040
2	Impeller	Cast iron EN-GJL-200, bronze CuSn5Zn5Pb	EN-JL 1030 2.1096.01
3	Shaft/sleeve coupling	Steel/stainless steel	
4	Pump head/ motor stool	Cast iron EN-GJL-250	EN-JL 1040
	Secondary seals	EPDM	
	Rotating seal face	Metal-impregnated carbon, silicon carbide	
	Stationary seat	Silicon carbide	

Mechanical shaft seal

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

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

Information on a selection of common pumped liquids with recommended shaft seals is shown on page 18.

Shaft seal specification

Unbalanced shaft seal	version NU according to EN 12756
Shaft diameter	28, 38, 48 and 55 mm
Rubber bellows	EPDM
Seal faces	Carbon/silicon carbide
	Silicon carbide/silicon carbide

Special shaft seals are available for partly conditioned water or other liquids containing abrasive or crystallising particles. See page 18.

Connections

TP, TPD Series 300 pumps are equipped with PN 16 flanges. All dimensions are according to ISO 7005-2 or EN 1092-2.

Features and benefits

TP Series 300 pumps have the following 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.
  2-pole and 4-pole TP pumps from 1.1 kW to 90 kW have EFF1 motors fitted.

Top-pull-out design

- easy dismantling in case of service.

In-line design

- contrary to end-suction pumps, in-line pumps allow a straight pipework and thus often reduced installation costs.

Motor-pump shaft with sleeve coupling

- Stable and quiet operation.
- Easy dismantling in case of service.

Hydraulically and mechanically balanced impeller

- The impeller is hydraulically and mechanically balanced to increase the life of motor bearings and shaft seal.

Pump housing and motor stool are electrocoated to improve the corrosion resistance

- Electrocoating includes:

  1. Alkaline cleaning
  2. Pre-treatment with zinc phosphate coating
  3. Cathodic electrocoating (epoxy)
  4. Curing of paint film at 200-250°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.

TPE - pumps with built-in frequency converter

- 2-pole and 4-pole TP pumps from 1.1 to 22 kW are available as TPE pumps with built-in frequency converter. For further information, see page 10.

GR7539

Fig. 6 TP Series 400

Technical data

Flow rate:	PN 10 version:	up to 1230 m^3/h
	PN 25 version:	up to 4500 m^3/h
Head:	PN 10 version:	up to 55 m
	PN 25 version:	up to 170 m
Liquid temperature:		
	PN 10 version:	–25 to +120°C
	PN 25 version:	0 to +150°C★

★From +120 to +150°C, max. 23 bar

Max. operating pressure:

10 bar version:	10 bar
25 bar version:	25 bar

Direction of rotation: Clockwise

Construction

Grundfos TP Series 400 pumps are single-stage, close-coupled pumps with in-line suction and discharge ports.

The pumps are equipped with a fan-cooled asynchronous motor. Motor and pump shafts are connected via a rigid flange coupling.

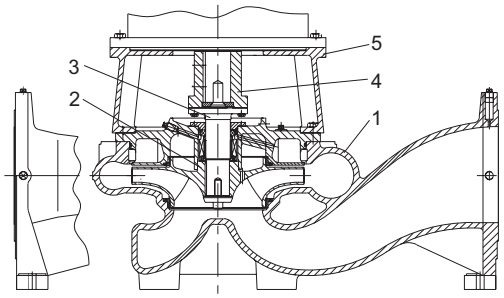
TP Series 400 pumps are available as single-head (TP) models. All TP Series 400 pumps have flange connection PN 10 or PN 25. The largest pumps have DN 400, PN 40 discharge flanges and a maximum operating pressure of 25 bar.

The pumps are equipped with an unbalanced mechanical shaft seal.

The pumps are of the top-pull-out design, i.e. the power head (motor, motor stool, pump head and impeller) can be removed for maintenance or service while the pump housing remains in the pipework. As radial and axial forces are absorbed by the fixed bearing in the motor drive-end, the pump requires no bearing.

TP Series 400 pumps are equipped with high-efficiency motors.

Materials



TM02 8492 0204

Fig. 7 Sectional drawing of TP Series 400

Material specification

TP Series 400, PN 10

Pos.	Component	Material	EN/DIN
1	Pump housing	Cast iron EN-GJL-250	EN-JL1040
2	Impeller	Ductile cast iron EN-GJS-400	EN-JL1030
		Bronze	2.1096.01
3	Pump shaft	Stainless steel	1.4436
4	Coupling	Cast iron EN-GJL-250	EN-JL1040
5	Motor stool	Cast iron EN-GJL-250	EN-JL1040
	Secondary seals	EPDM rubber	
	Rotating seal face	Carbon, metal-impregnated Silicon carbide	
	Stationary seat	Silicon carbide	

TP Series 400, PN 25

Pos.	Component	Material	EN/DIN
1	Pump housing	Ductile cast iron EN-GJS-400-18 (A-LT)	EN-JS1020
2	Impeller	Ductile cast iron EN-GJS-400	EN-JS1030
		Bronze	2.1096.01
3	Pump shaft	Stainless steel	1.4436
4	Coupling	Cast iron EN-GJL-250	EN-JL1040
5	Motor stool	Cast iron EN-GJL-250	EN-JL1040
	Secondary seals	EPDM rubber	
	Rotating seal face	Carbon, synthetic resin-impregated	
	Stationary seat	Tungsten carbide	

Mechanical shaft seal

For 10 bar versions, the following three types of unbalanced mechanical shaft seals are available as standard:

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

For 25 bar versions, the following mechanical shaft seal is available as standard:

- **DBUE**
  The DBUE shaft seal is a Grundfos balanced O-ring seal with carbon/tungsten carbide seal faces and secondary seals of EPDM.

Information on a selection of common pumped liquids with recommended shaft seals is shown on page 18.

Special shaft seals are available for partly conditioned water or other liquids containing abrasive or crystallising particles. See page 18.

Connections

TP Series 400 pumps are the only TP pumps with suction and discharge ports of different diameters. The suction port is one dimension larger than the discharge port in order to obtain a low inlet velocity. This reduces risk of cavitation and noise.

From DN 100 to DN 300 TP Series 400 pumps have flanges according to ISO 7005-2 or EN 1092-2.

Features and benefits

TP Series 400 pumps have the following 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.
  2-pole and 4-pole pumps from 4 kW to 90 kW have EFF1 motors fitted.

Top-pull-out design

- easy dismantling in case of service.

In-line design

- contrary to end-suction pumps, in-line pumps allow a straight pipework and thus often reduced installation costs.

Motor-pump shaft with flanged coupling

- stable and quiet operation
- easy dismantling in case of service.

Supported flange connection

- The pump housing have flange connections with integrated feet in order to stabilize the pump.

Surface treatment

TP Series 400 pumps are given the following surface treatment:

Pump type	Electrocoating	Spray painting
TP Series 400 (from DN 100 to DN 300)	x	x
TP Series 400 (DN 400)		2x

Electrocoating includes:

1. Alkaline cleaning
2. Pre-treatment with zinc phosphate coating
3. Cathodic electrocoating (epoxy)
4. Curing of paint film at 200-250°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.

TPE Series 1000 pumps

TM03 0503 0105

Fig. 8 TPE Series 1000

Technical data

Flow rate:	up to 380m^3/h
Head:	up to 90 m
Liquid temperature:	–25 up to +140°C
Max. operating pressure:	16 bar
Motor sizes (three-phase):	1.1 to 22 kW

Construction

TPE Series 1000 pumps are based on TP Series 200 and 300 pumps.

The main difference between the TP and the TPE Series 1000 pump range is the motor. The motor of TPE Series 1000 pumps a has built-in frequency converter for continuous adjustment of the pressure to the flow rate.

TPE Series 1000 pumps are suitable for applications where the pressure, temperature, flow rate or another parameter is to be controlled on the basis of signals from a sensor at some point in the system.

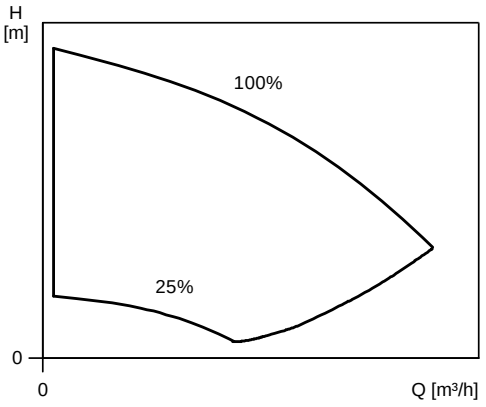
Note: TPE Series 1000 pumps are **not** fitted with a sensor from factory.

For further information on construction and materials of TPE Series 1000 pumps, see page 20 to 23.

Applications

TPE Series 1000 pumps have integrated speed control for automatic adaptation of performance to current conditions.
This ensures that the energy consumption is kept at a minimum.

TPE pumps can operate in any duty point in the range between 25% and 100% speed.



TM01 4916 1099

Fig. 9 Duty range of TPE Series 1000 pumps

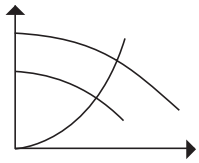
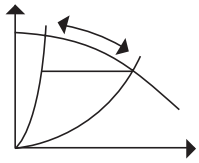
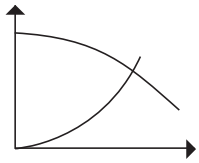
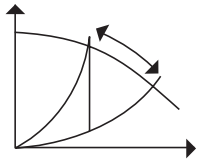
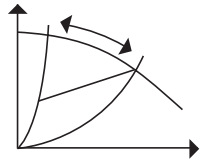
In the QH-chart the 100%-curve corresponds to the curve for a pump fitted with a standard fixed speed motor.

Depending on the nature of the application, TPE Series 1000 pumps offer energy-savings, increased comfort or improved processing.

The pumps can be fitted with sensor types meeting the requirements mentioned in the data booklet titled ‘Grundfos E-pumps’.

TPE Series 1000 pumps

The charts below show possible control modes of TPE Series 1000 pumps in different applications.

Control mode	Application
Constant curve	
	Single-pipe heating system Systems with three-way valves Heating and cooling surfaces Chiller pumps
Constant differential pressure	
	Systems with two-way valves (Sensor is needed)
Temperature control	
	Single-pipe heating system Systems with three-way valves Cooling towers Chiller pumps Domestic hot water recirculation (Sensor is needed)
Constant flow	
	Heating and cooling surfaces Cooling towers Flow filters (Sensor is needed)
Proportional differential pressure (measured)	
	System with two-way valves (Differential pressure sensor is located in the system)

Control options

Communication with TPE Series 1000 pumps is possible via

- a central building management system
- remote control (Grundfos R100) or
- a control panel.

The purpose of controlling a TPE Series 1000 pump is to monitor and control the pressure, temperature, flow and liquid level of the system.

For further information about control options of TPE pumps, see page 28.

Communication with TPE pumps

Communication with TPE pumps is possible via a central building management system, remote control (Grundfos R100) or control panel.

Central building management system

The operator can communicate with a TPE pump at a distance. Communication can take place via a central building management system allowing the operator to monitor and change control modes and setpoint settings.

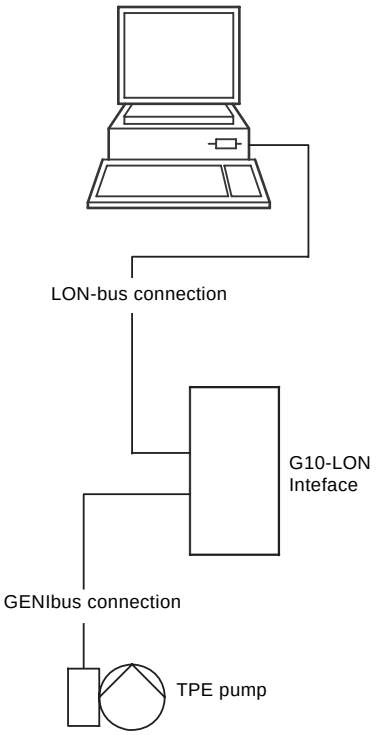


Fig. 10 Structure of a central building management system

Remote control

The R100 remote control produced by Grundfos is available as an accessory.

The operator can communicate with the TPE pump by pointing the IR-signal transmitter at the control panel of the terminal box.

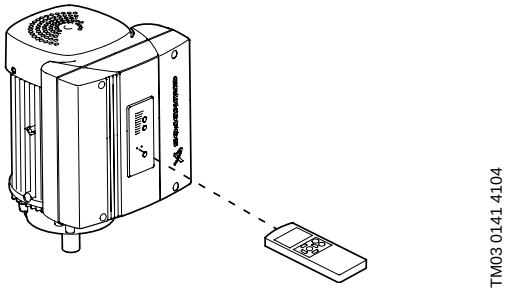


Fig. 11 R100 remote control

The operator can monitor and change control modes and settings of the TPE pump via the R100 display.

Control panel

The operator can change the setpoint settings manually on the control panel of the TPE pump terminal box.

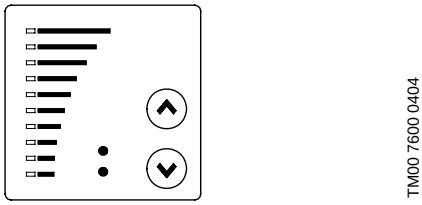


Fig. 12 Control panel of a TPE pump

Speed regulation of TPE pumps

Affinity equations

Normally, TPE pumps are used in applications characterised by a **variable** flow. Consequently, it is not possible to select a pump that is constantly operating at its optimum efficiency.

In order to achieve optimum operating economy, the pump should be selected at the flow rate at the duty point close to the optimum efficiency (eta) for most operating hours.

Between the min. and max. performance curves, TPE pumps have an infinite number of performance curves each representing a specific speed. It may therefore not be possible to select a duty point close to the max. curve.

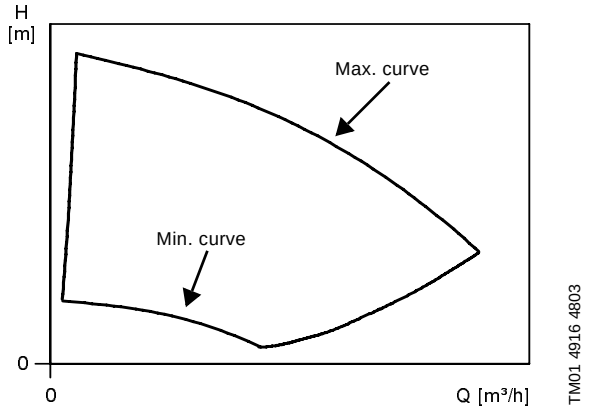


Fig. 13 Min. and max. performance curves

In situations where it is not possible to select a duty point close to the max. curve, use the affinity equations below. The head (H), the flow rate (Q) and the input power (P) are the appropriate variables you need for calculating the motor speed (n).

Note: The approximated formulas apply on condition that the system characteristic remains unchanged for n_n and n_x, and that it is based on the formula $H = k \times Q^2$ where k is a constant.

The power equation implies that the pump efficiency is unchanged at the two speeds. In practice this is **not** quite correct.

Finally, it is worth noting that the efficiency of the frequency converter and the motor **must** be taken into account if a precise calculation of the power saving resulting from a reduction of the pump speed is wanted.

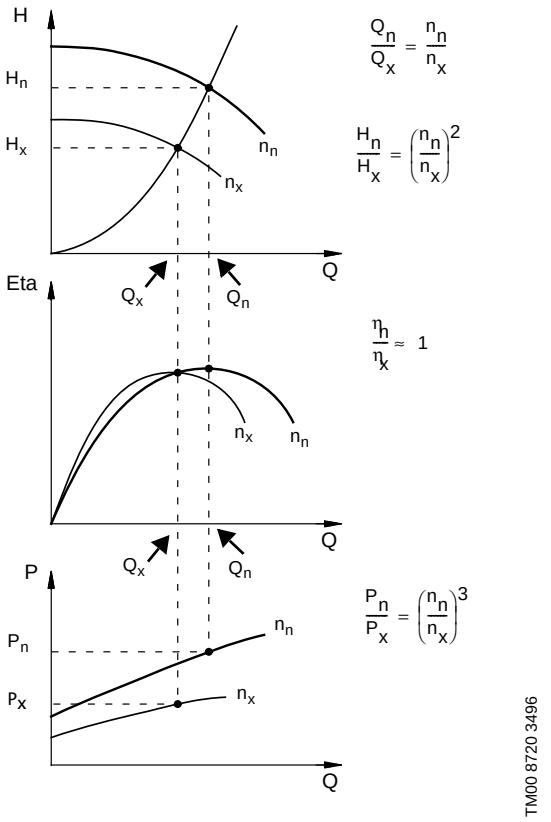


Fig. 14 Affinity equations

Legend

H_n	Rated head in metres
H_x	Current head in metres
Q_n	Rated flow rate in m^3/h
Q_x	Current flow rate in m^3/h
n_n	Rated motor speed in min^{-1}
n_x	Current motor speed in min^{-1}
η_h	Rated efficiency in %
η_x	Current efficiency in %

WinCAPS and WebCAPS

WinCAPS and WebCAPS are selection programs offered by Grundfos.

The two programs make it possible to calculate the specific duty point and energy consumption of a TPE pump.

When you enter the dimensions of the pump, WinCAPS and WebCAPS can calculate the exact duty point and energy consumption. For further information, see page 114.

Motor

The motor fitted on TP pumps is a totally enclosed, fan-cooled standard motor with main dimensions to IEC and DIN standards. Electrical tolerances to IEC 34.

Mounting designation

Pump type	Mounting designation - IEC 34-7
TP Series 100 TP Series 200	IM 3601 (IM B 14) /IM 3611 (IM V 18)
TP Series 300	IM 3601 (IM B 14) /IM 3611 (IM V 18) IM 3001 (IM B 5) /IM 3011 (IM V 1)
TP Series 400	IM 3001 (IM B 5) /IM 3011 (IM V 1)

Relative humidity: Max. 95%
Enclosure class: IP 55
Insulation class: F, to IEC 85
Ambient temperature: Max. +55°C (EFF1 motors)
Max. +40°C (other motor sizes)
Min. –30°C.

If the pump is installed in humid locations, open the lowest drain hole in the motor. This will reduce the motor enclosure class to IP 44.

Motor range

kW	Standard motors		Electronic speed controlled motors	
	2-pole	4-pole	2-pole	4-pole
0.25		MG		
0.37	MG			
0.55				
0.75				
1.1				MGE
1.5				
2.2			MGE	
3.0				
4.0				
5.5				
7.5				MMGE
11.0		Siemens	MMGE	
15.0	Siemens			
18.5				
22.0				
30.0				
37.0				
45.0				
55.0				
75.0				
90.0				
110.0				
132.0				
160.0				
200.0				
250.0				
315.0				

MG and MGE are Grundfos motor brands.
Siemens and MMGE are sourced high-quality motor brands.
The grey-shaded areas indicate non-available motors.

High-efficiency motors

TP pumps are fitted with high-efficiency motors.

TP, TPD pumps with 2- and 4-pole three-phase motors from 1.1 to 90 kW are equipped with EFF1 motors.

TPE pumps with three-phase motors, 2-pole from 1.1 to 7.5 kW and 4-pole from 1.1 to 4.0 kW, are equipped with motors equivalent to EFF1.

EFF1 is the highest efficiency class defined by CEMEP (European Committee of Manufactures of Electrica Machines and Power Electronics).

Motor protection

MG/Siemens

Three-phase motors must be connected to a motor starter.

All three-phase standard motors can be connected to an external frequency converter.

If you connect a frequency converter the motor insulation system will often be overloaded, and the motor will be more noisy than in normal operation. In addition, large motors will be exposed to bearing currents caused by the frequency converter.

If you operate the motor via a frequency converter, considered the following:

- In 2-, 4- and 6-pole motors of 75 kW (frame size 250) and upwards, isolate one of the motor bearings electrically to prevent damaging currents from passing through the motor bearings.
- If you have noise-sensitive applications, you can reduce the motor noise by fitting a dU/dt filter between the motor and the frequency converter.
  In particularly noise-sensitive applications, we recommend you to fit a sinusoidal filter.
- The length of the cable between motor and frequency converter affects the motor load. Therefore, check that the cable length meets the specifications laid down by the frequency converter supplier.
- For supply voltages between 500 and 690 V, fit either a dU/dt filter to reduce voltage peaks or use a motor with reinforced insulation.
- For supply voltages of 690 V, use a motor with reinforced insulation and fit a dU/dt filter.

MGE/MMGE

MGE, MMGE motors with built-in frequency converter do not require protection by a motor-protective circuit breaker.

Motor data

Electrical data, standard motors

Electrical data, 2-pole — 3 x 220-255/380-440 V

Motor [kW]	$I_{1/1}$ [A]	Cos φ 1/1	η[%]	n [min^{-1}]	$\frac{I_{Start}}{I_{1/1}}$
0.37	1.5-1.44/0.87-0.83	0.85-0.76	78-79	3410-3470	5.5-6.5
0.55	2.15-2.05/1.25-1.2	0.85-0.76	80.5-82	3390-3460	5-6
0.75	2.85-2.7/1.65-1.55	0.86-0.78	82-84	3400-3470	6-7.4

Electrical data, 2-pole — 3 x 220-277/380-480 V

Motor [kW]	$I_{1/1}$ [A]	Cos φ 1/1	η[%]	n [min^{-1}]	$\frac{I_{Start}}{I_{1/1}}$
1.1	4.15-3.55/ 2.40-2.05	0.90-0.81	81-83	3470-3530	6-8.8
1.5	5.35-4.7/ 3.10-2.7	0.90-0.81	84-85	3470-3530	7.8-10.5
2.2	7.70-6.35/ 4.45-3.7	0.91-0.85	84-87	3470-3530	7.8-11
3.0	10.2-8.65/ 5.9-5	0.91-0.84	87.5-88.5	3490-3540	8.6-13
4.0	13.6-11.8/ 7.8-6.8	0.90-0.82	88-89.5	3510-3540	10.2-15
5.5	18.8-16.4/ 10.8-9.45	0.90-0.82	89-89	3510-3540	10-14.6
7.5	25.5-23.2/ 14.8-13.4	0.90-0.79	89-89.5	3490-3530	9.3-13
11.0	35.5/20	0.94	88.7	3510	6.4
15.0	46.5/27	0.94	89.9	3510	6.8
18.5	56/32.5	0.94	91	3540	6.5
22.0	69/40	0.92	91.5	3530	6.7
30.0	93/54	0.91	92.6	3550	6.7
37.0	114/66	0.91	93.3	3540	6.6
45.0	140/81	0.9	94.3	3550	5.7

Electrical data, 2-pole — 3 x 380-480/660-690 V

Motor [kW]	$I_{1/1}$ [A]	Cos φ 1/1	η[%]	n [min^{-1}]	$\frac{I_{Start}}{I_{1/1}}$
2.2	4.45-3.7	0.91-0.85	84-87	3470-3530	7.8-11
3.0	5.9-5	0.91-0.84	87.5-88.5	3490-3540	8.6-13
4.0	7.8-6.8	0.9-0.82	88-89.5	3510-3540	10.2-15
5.5	10.8-9.45	0.9-0.82	89-89	3510-3540	10-14.6
7.5	14.8-13.4	0.9-0.79	89-89.5	3490-3530	9.3-13
11.0	20/11.6	0.94	88.7	3510	6.4
15.0	27/15.6	0.94	89.9	3510	6.8
18.5	32.5/18.8	0.94	91	3510	6.5
22.0	40/23	0.92	91.5	3530	6.7
30.0	54/31	0.91	92.6	3350	6.7
37.0	66/38	0.91	93.3	3540	6.6
45.0	81/46.5	0.9	94.3	3550	5.7
55.0	97/56	0.91	94.6	3570	5.4
75.0	134/77	0.9	94.8	3570	5.5
90.0	160/92	0.9	95.2	3570	5.9
110.0	192/111	0.91	95.2	3580	5.4
132.0	230/134	0.91	95.3	3580	5.6
160.0	275/158	0.92	95.8	3580	5.5
200.0	345/198	0.92	95.9	3580	5.3
250.0	415	0.90	96.2	3579	7

Electrical data, 4-pole — 3 x 220-255/380-440 V

Motor [kW]	$I_{1/1}$ [A]	Cos φ 1/1	η[%]	n [min^{-1}]	$\frac{I_{Start}}{I_{1/1}}$
0.12	0.37	-	-	-	-
0.25	1.21/0.7	0.8-0.69	71-72	1680-1720	4-4.7
0.37	1.72/0.99	0.82-0.72	73-74	1680-1720	4-4.7
0.55	2.4/1.4	0.83-0.75	77-80	1660-1710	3.9-4.5
0.75	3.1/1.8	0.84-0.76	77-81	1660-1710	3.9-4.7

Electrical data, 4-pole — 3 x 220-277/380-480 V

Motor [kW]	$I_{1/1}$ [A]	Cos φ 1/1	η[%]	n [min^{-1}]	$\frac{I_{Start}}{I_{1/1}}$
1.1	4.5-3.8/2.6-2.2	0.8-0.75	81.0	1705-1730	6.2
1.5	6.1-5.2/3.5-3.3	0.8-0.75	82.2	1705-1730	6.5
2.2	9.4-7.9/5.4-4.6	0.75-0.7	83.5	1730-1755	6.1
3.0	11.7-9.9/6.8-5.7	0.81-0.76	84.5	1720-1740	6.4
4.0	15.3-13/8.8-7.5	0.81-0.76	85.3	1730-1755	6.2
5.5	19-16.1/11-9.3	0.86-0.79	88.2	1730-1760	6
7.5	15-12.5/8.7-8.7	0.86-0.8	88.6	1725-1760	6
11.0	36/20.8	0.89	90.5	1750	6.2
15.0	49.5/28.5	0.89	90.9	1750	6.2
18.5	60/35.5	0.88	91.7	1760	7.2
22.0	71/41	0.88	92.3	1760	7.6

Electrical data, 4-pole — 3 x 380-480/660-690 V

Motor [kW]	$I_{1/1}$ [A]	Cos φ 1/1	η[%]	n [min^{-1}]	$\frac{I_{Start}}{I_{1/1}}$
2.2	5.4-4.6/3.1-3.2	0.75-0.7	83.5	1730-1755	6.1
3.0	6.8-5.7/3.9-4	0.81-0.76	84.5	1720-1740	6.4
4.0	8.8-7.5/5.1-5.2	0.81-0.76	85.3	1730-1755	6.2
5.5	11-9.3/6.4-6.4	0.86-0.79	88.2	1730-1760	6
7.5	15-12.5/8.7-8.7	0.86-0.8	88.6	1725-1760	6
11.0	20.8/12	0.89	90.5	1750	6.1
15.0	28.5/16.6	0.89	90.9	1750	6.2
18.5	34.5/20	0.88	91.7	1760	7.2
22.0	41/23.6	0.88	92.3	1760	7.6
30.0	55/31.5	0.9	92.1	1760	6.8
37.0	69/39.5	0.87	93.8	1770	5.0
45.0	83/48	0.87	94.2	1770	5.1
55.0	100/58	0.88	94.9	1770	5.5
75.0	136/79	0.88	94.8	1770	5.0
90.0	164/94	0.88	95.1	1780	5.5
110.0	198/114	0.88	95.6	1780	5.2
132.0	236/136	0.88	95.8	1780	5.3
160.0	285/164	0.89	96.0	1780	5.4
200.0	355/206	0.89	96.1	1780	5.5
250.0	425	0.88	96	1788	6.5
315.0	540	0.88	96.3	1788	6.8

Electrical data, motors with built-in frequency converter

Electrical data, 2-pole **3x380-480 V, 2900 min^{-1}**

Motor [kW]	$I_{1/1}$ [A]
0.75	2.0-1.8
1.1	2.6-2.3
1.5	3.3-2.7
2.2	4.6-3.8
3.0	6.2-5.0
4.0	8.1-6.6
5.5	11.0-8.8
7.5	15.0-12.0

Electrical data, 2-pole **3x380-415 V, 2900 min^{-1}**

Motor [kW]	$I_{1/1}$ [A]
11.0	21.4
15.0	28.0
18.5	34.0
22.0	42.0

Electrical data, 4-pole **3x380-480 V, 1450 min^{-1}**

Motor [kW]	$I_{1/1}$ [A]
0.75	1.8-1.9
1.1	2.5-2.2
1.5	3.3-2.9
2.2	4.6-3.8
3.0	6.2-5.0
4.0	8.1-6.6

Electrical data, 4-pole **3x380-415 V, 1450 min^{-1}**

Motor [kW]	$I_{1/1}$ [A]
5.5	11.3-10.5
7.5	14.7
11.0	21.7
15.0	28.5
18.5	34.7
22.0	41.0

Mechanical installation

TP, TPD, TPE pumps up to 11 kW can be installed in horizontal and vertical pipes.

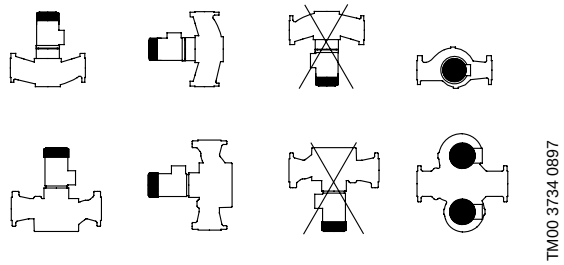


Fig. 15 Installation of motor sizes up to 11 kW

TP, TPD, TPE pumps from 11 kW and upwards can only be installed in horizontal pipes.

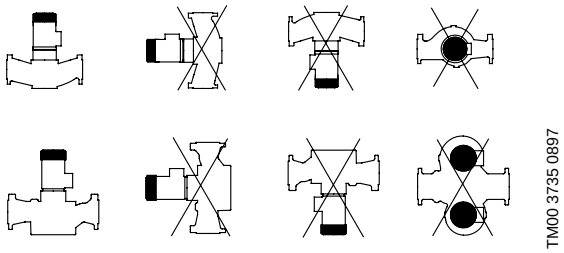


Fig. 16 Installation of motor sizes from 11 kW and upwards

Note: The motor must never point downwards.

Install the pumps in such a way that strain from the pipework is not transferred to the pump housing.

Pumps with motors up to 11 kW may be suspended direct in the pipes, provided the pipework can support the pump. If not, install the pump on a mounting bracket or base plate.

Pumps with motors larger than 11 kW can only be installed in horizontal pipes with the motor placed in vertical position. Always install the pump on an even and rigid foundation.

When installing a twin-head pump in a horizontal pipe and with horizontal shaft, fit the upper pump housing with an automatic air vent.

Twin-head pump housings have two Rp 1/4 tappings (TP Series 200) or four Rp 1/8 tappings (TP Series 300) for mounting of automatic air vents.

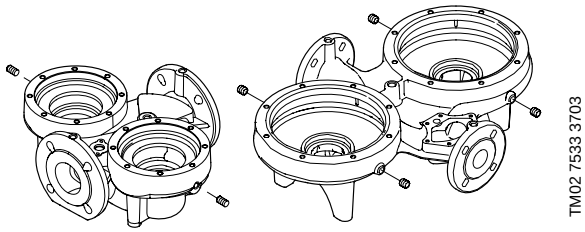


Fig. 17 Tappings for mounting of automatic air vents in TP Series 200 and TP Series 300

For further information about identification of TP Series 200 and TP Series 300 models, see page 20 to 22.

Cooling

To ensure sufficient cooling of motor and electronics, observe the following:

- Place the pump in such a way that sufficient cooling is ensured.
- Make sure that the temperature of the cooling air does not exceed +40°C.
- Keep the motor cooling fins, holes in fan cover and fan blades clean.
- Make sure the frequency for the motor is at least 6 Hz (12% of maximum speed).

Condensation cover for TPE pumps

When installing TPE pumps outdoors, provide the motor with a suitable cover to avoid condensation on the electronic components and to protect the pump and motor against the direct effects of the elements.

When mounting the condensation cover on top of the motor, make sure to leave enough space for the air to cool the motor.

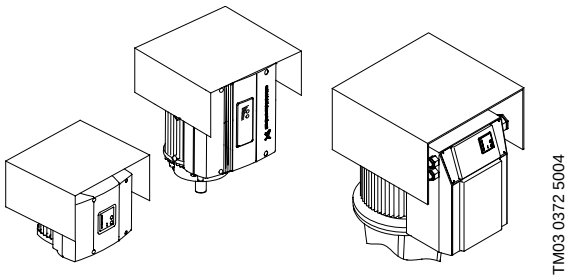


Fig. 18 MGE and MMGE motors with condensation cover

Elimination of noise and vibrations

In order to achieve optimum operation and minimum noise and vibration, consider vibration dampening of the pump. Generally, always consider this for pumps with motors above 11 kW. Smaller motor sizes, however, may also cause undesirable noise and vibration.

Noise and vibration are generated by the revolutions of the motor and pump and by the flow in pipes and fittings. The effect on the environment is subjective and depends on correct installation and the state of the remaining system.

Elimination of noise and vibrations is best achieved by means of a concrete foundation, vibration dampers and expansion joints.

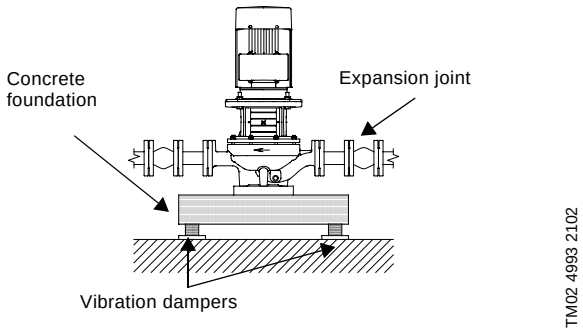


Fig. 19 Foundation of TP pump

Concrete foundation

Install the pump on a plane and rigid concrete foundation. This is the optimum solution for vibration dampening. As a rule of thumb, the weight of a concrete foundation should be 1.5 times the pump weight.

Vibration dampers

To prevent the transmission of vibrations to buildings, we recommend you to isolate the pump foundation from building parts by means of vibration dampers.

The selection of the right vibration damper requires the following data:

- forces transmitted through the damper
- motor speed considering speed control, if any
- required dampening in % (suggested value is 70%).

Which is the right damper varies from installation to installation, and a wrong damper may increase the vibration level. Vibration dampers should therefore be sized by the supplier.

If you install the pump on a foundation with vibration dampers, always fit expansion joints on the pump flanges. This is important to prevent the pump from "hanging" in the flanges.

Expansion joints

Install expansion joints to

- absorb expansions/contractions in the pipework caused by changing liquid temperature
- reduce mechanical strains in connection with pressure surges in the pipework
- isolate mechanical structure-borne noise in the pipework (only rubber bellows expansion joints).

Note: Do not install expansion joints to compensate for inaccuracies in the pipework such as centre displacement of flanges.

Fit expansion joints at a distance of minimum 1 to 1½ times the nominal flange diameter away from the pump on the suction as well as on the discharge side. This will prevent the development of turbulence in the expansion joints, resulting in better suction conditions and a minimum pressure loss on the pressure side. At high water velocities (> 5 m/s) we recommend you to install larger expansion joints corresponding to the pipework.

The illustration below shows examples of rubber bellows expansion joints with or without limit rods.

Fig. 20 Examples of rubber bellows expansion joints

Expansion joints with limit rods can be used to reduce the effects of the expansion/contraction forces on the pipework. We always recommend expansion joints with limit rods for flanges larger than DN 100.

Anchor the pipes in such a way that they do not stress the expansion joints and the pump. Follow the supplier's instructions and pass them on to advisers or pipe installers.

The illustration below shows an example of a metal bellows expansion joint with limit rods.

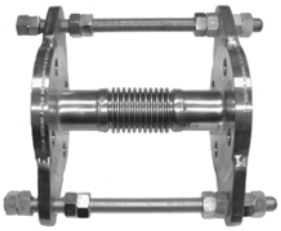


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Fig. 21 Example of metal expansion joint

Due to the risk of rupture of the rubber bellows, metal bellows expansion joints may be preferred at temperatures above +100°C combined with high pressure.

Terminal box positions

TP single-head pumps

As standard, the terminal boxes of TP and TPE pumps are mounted in position 9 o'clock.
The possible terminal box positions are shown below.

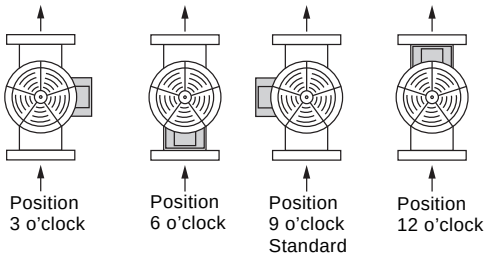

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Fig. 22 Possible terminal box positions

Note: Due to the motor construction the terminal boxes of some TP pumps with motor sizes above 250 kW are mounted in position 10.30.

TPD twin-head pumps

As standard, the terminal boxes of all TPD pumps are mounted in position 12 o'clock, see above.

Electrical installation

Electrical connection

Carry out electrical connection and protection in accordance with local regulations.

- The pump must be connected to an external mains switch with a minimum contact gap of 3 mm in all poles.
- Electronically speed-controlled pumps must always be correctly earthed.
  Note: The 4.0 - 22 kW motors must be connected to especially reliable/sturdy earth connections to avoid earth leakage currents above 3.5 mA.
- Three-phase standard motors must be connected to a motor-protective circuit breaker.
- Motors as from 3 kW incorporate thermistors (PTC). The thermistors are designed according to DIN 44 082.
- When the pump is switched on via the mains, the pump will start after approx. 5 seconds.

Note: Carry out the mains connection of the pump as shown in the diagram inside the terminal box cover.

Do not start the pump until it has been filled with liquid and vented.

Protection

Protection against fault currents

If the pump is connected to an electric installation where an earth leakage circuit breaker (ELCB) is used as additional protection, the earth leakage circuit breaker must be marked with the following symbols.

- Three-phase:

  The earth leakage circuit breaker **must** trip out when earth fault currents with DC content (pulsating DC) and smooth DC earth fault currents occur.

Protection against voltage peaks

If you use speed controllers or frequency converters of other makes than Grundfos, you may have the following problems:

- increased motor noise
- detrimental voltage peaks
- additional motor losses.

Pumps with voltage peaks exceeding 650 V (maximum value) must therefore be protected. The voltage increase rate dU/dt must not exceed 500 Vµs. Noise and detrimental voltage peaks can be prevented by fitting an LC filter between the speed controller and the motor.

Communication cables for TPE

Use screened cables (min. 0.5 mm^2) for external on/off switch, digital input, sensor and setpoint signals. The screens of the cables should be connected to frame at both ends.

The screen of the cable must have good frame connection which must be as close as possible to the terminals.

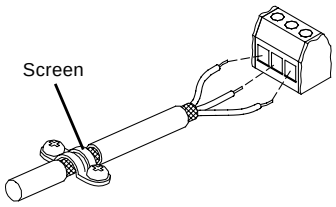


Fig. 23 External start/stop cable connection of TPE

Use a screened 2-core cable for the bus connection. Connect the screen to terminal Y at both ends.

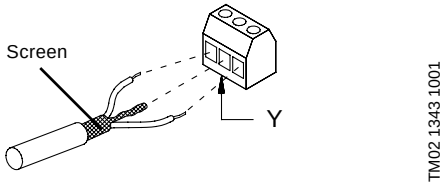


Fig. 24 Bus connection of TPE

Other connections, TPE

See the wiring diagrams for instructions on how to connect external potential-free contacts for start/stop and digital function, external setpoint signal and fault signal.

Connect the wires to the following terminal groups:

Group 1: Inputs (external start/stop, digital function, setpoint and sensor signals, terminals 1-9 and bus connection, A, Y, B).

All inputs are separated from the mains conducting parts by reinforced insulation.

Group 2: Output (signal relay).

The output, terminals C, NO and NC, are galvanically separated from other circuits. Therefore, the supply voltage or protective extra-low voltage can be connected to the output as desired.

Group 3: Mains supply.

Note:

- As a precaution, separate the wires from each other by reinforced insulation in their entire lengths.
- If no external on/off switch is connected, maintain the connection across terminals 2 and 3.

Wiring diagram, three-phase, 2.2 - 7.5 kW, 2-pole and 1.1 - 5.5 kW, 4-pole

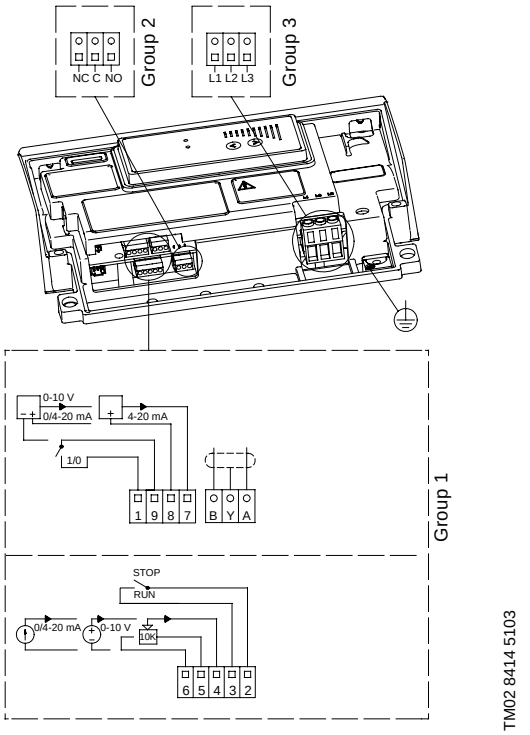


Fig. 25 Wiring diagram, three-phase TPE pumps

Wiring diagram, three-phase, 11 - 22 kW, 2-pole and 7.5 - 22 kW, 4-pole

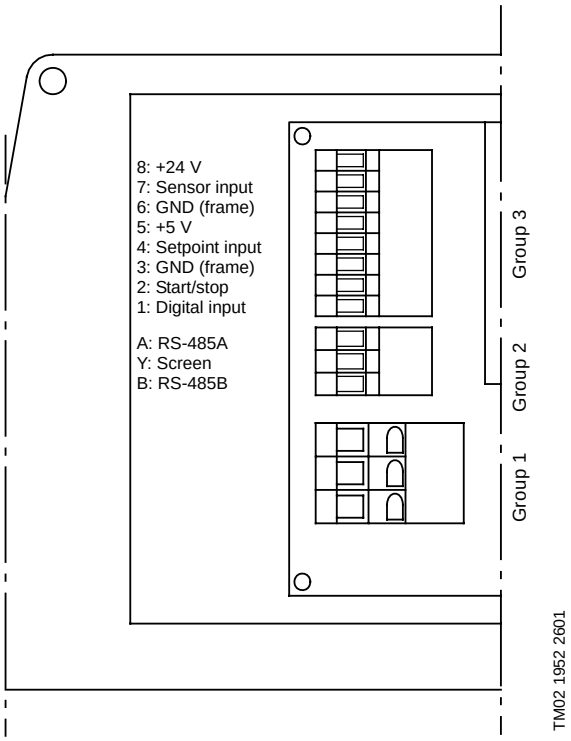
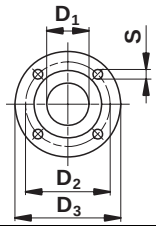


Fig. 26 Wiring diagram, three-phase TPE pumps

Flanges for TP pumps

Flange dimensions

PN 6 and PN 10 flanges



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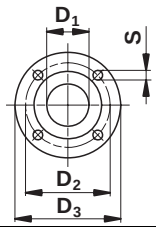
	EN 1092-2 PN 6 (0.6 MPa) Nominal diameter (DN)						EN 1092-2 PN 10 (1.0 MPa) Nominal diameter (DN)									
	32	40	50	65	80	100	32	40	50	65	80	100	125	150	200	250
D_1	32	40	50	65	80	100	32	40	50	65	80	100	125	150	200	250
D_2	90	100	110	130	150	170	100	110	125	145	160	180	210	240	295	350
D_3	120	130	140	160	190	210	140	150	165	185	200	220	250	285	340	395
S	4x14	4x14	4x14	4x14	4x19	4x19	4x19	4x19	4x19	4x19	8x19	8x19	8x19	8x23	8x23	12x23

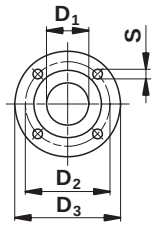
PN 16 and PN 25 flanges



TM02 7720 3803

	EN 1092-2 PN 16 (1.6 MPa) Nominal diameter (DN)									EN 1092-2 PN 25 (2.5 MPa) Nominal diameter (DN)							
	32	40	50	65	80	100	125	150	200	65	80	100	125	150	200	250	300
D_1	32	40	50	65	80	100	125	150	200	65	80	100	125	150	200	250	300
D_2	100	110	125	145	160	180	210	240	295	145	160	190	220	250	310	370	430
D_3	140	150	165	185	200	220	250	285	340	185	200	235	270	300	360	425	485
S	4x19	4x19	4x19	4x19	8x19	8x19	8x19	8x23	12x23	8x19	8x19	8x23	8x28	8x28	12x28	12x31	16x31

PN 40 flanges

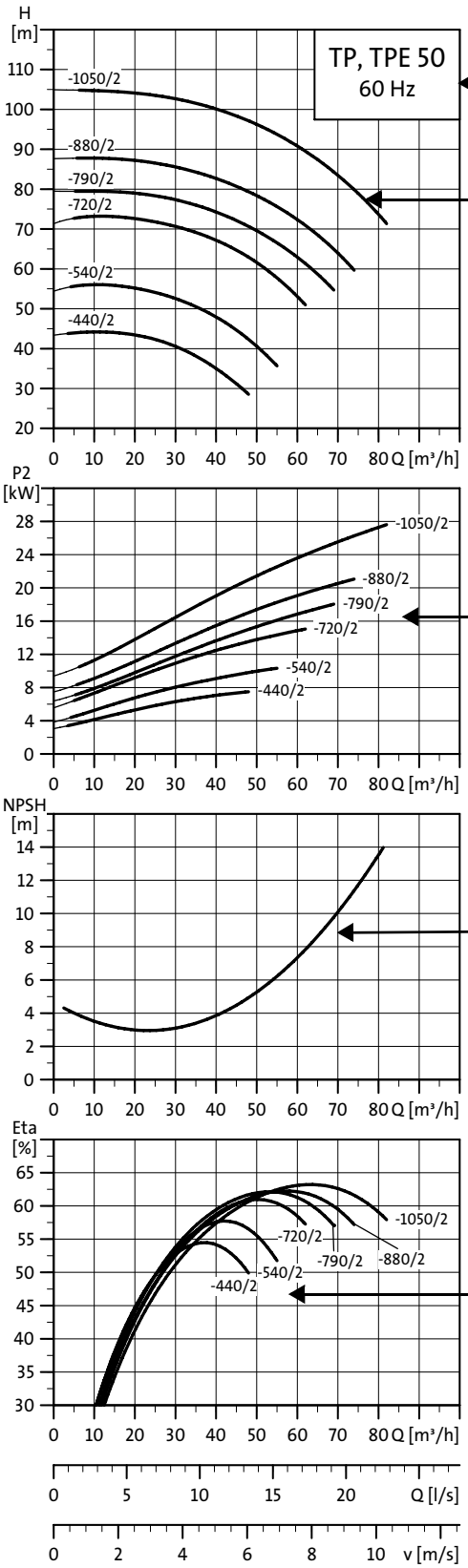


TM02 7720 3803

	EN/DIN 2635 PN 40 (4.0 MPa) Nominal diameter (DN)	
	400	500
D_1	400	500
D_2	585	585
D_3	660	660
S	16x42	20x42

Curve charts

How to read the curve charts



Pump type and frequency

QH curve for the individual single-head pump.

The **bold** curve indicates the **recommended** performance range.

The power curve indicates pump input power [P_2].

The NPSH(3%) curve shows the required net positive suction head (NPSH) to ensure that the pump head is not reduced by more than 3%. The available system pressure at the pump inlet must be according to the NPSH(3%) curve + a safety margin of at least 0.5 m.

The eta curve shows the pump efficiency.

TM02 5039 0504

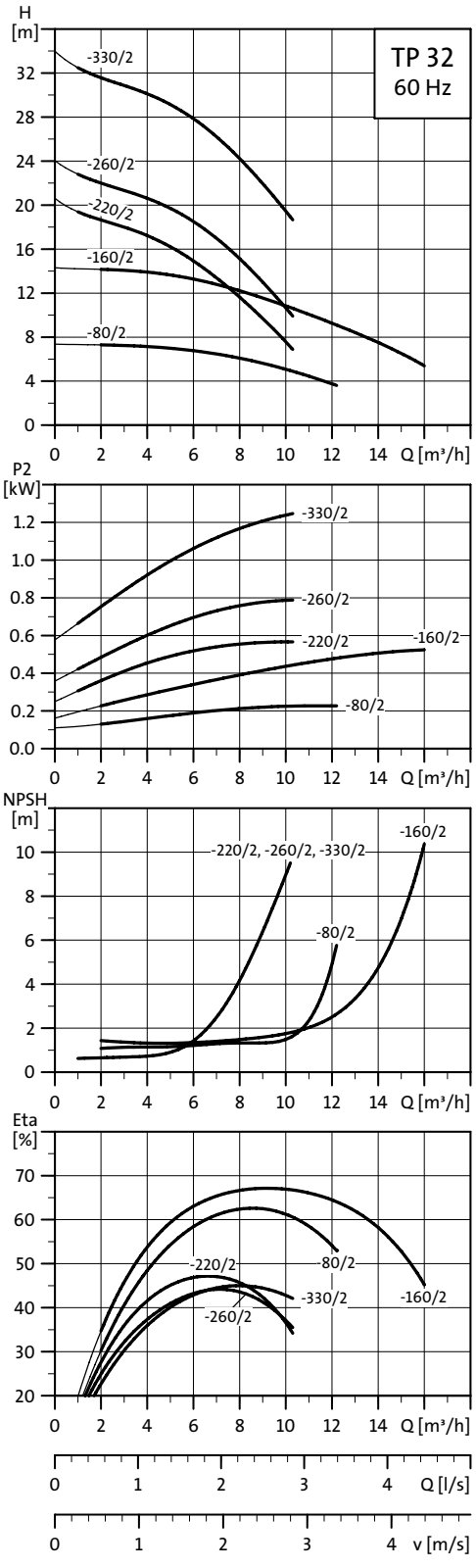
Curve conditions

The guidelines below apply to the curves shown on the following pages:

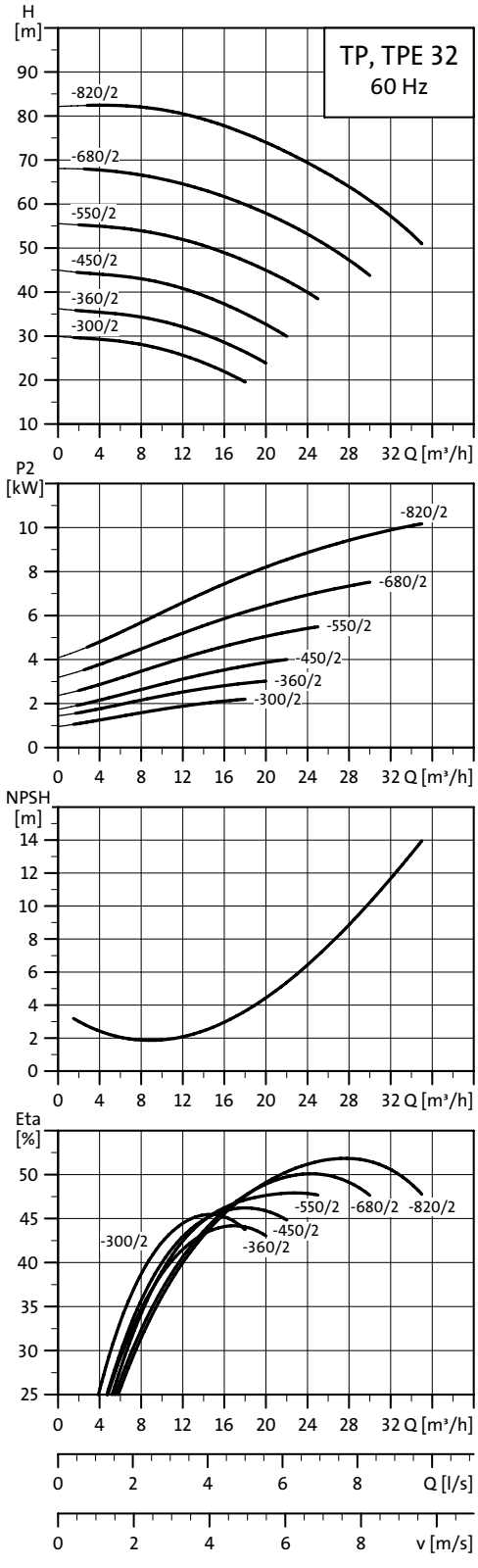
1. Tolerances to ISO 9906, Annex A.
2. The curves apply to the performance of **single-head three-phase pumps.** For other pump versions, please see the exact curves in WinCAPS or WebCAPS. For other pump versions, the performance may differ for the following reasons:
   - The valve in twin-head pumps may cause losses.
   Note: Grundfos does not recommend continuous parallel operation of twin-head pumps due to the increased flow in the pump. A too high flow results in noisy operation, increased wear of the impeller due to cavitation, etc.
3. QH curves of the individual single-head pumps are shown with expected speed of a three-phase standard motor. For further information, see the tables of technical data on the following pages.
4. Curves of TPE Series 1000 pumps are shown as max. curves (100% curves) only. Please refer to WinCAPS for the exact curves.
5. Measurements have been made with airless water at a temperature of +20°C.
6. The curves apply to a kinematic viscosity of $\upsilon = 1\ mm^2/s$ (1 cSt).
7. Due to the risk overheating, the pump must not run constantly below the minimum flow rate indicated by the bold curves.
8. If the pumped liquid density and/or viscosity are higher than those of water, it may be necessary to use a motor with a higher performance.

TP, TPD, TPE 2-pole, PN 6/10/16

TP, TPD, TPE 32-XX/2



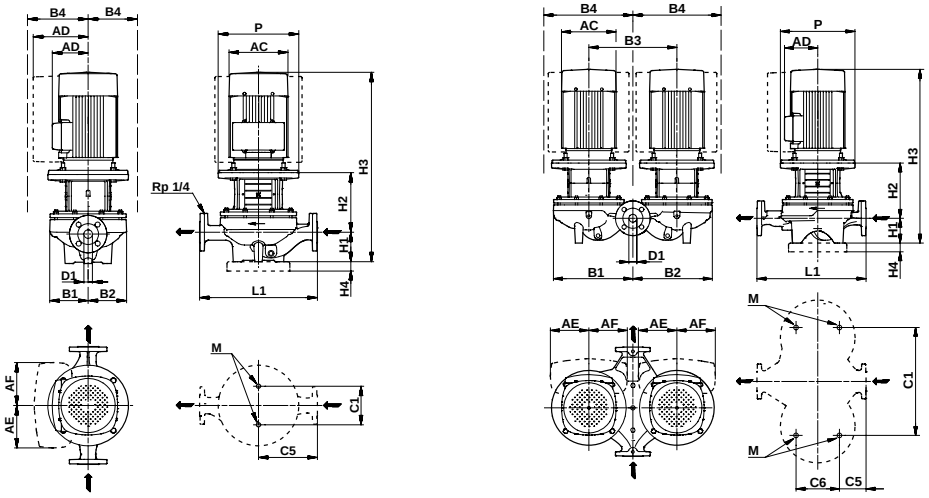
TM02 5034 0504



TM02 5035 0504

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data



TM02 8632 5004 - TM02 8631 5004

Technical data

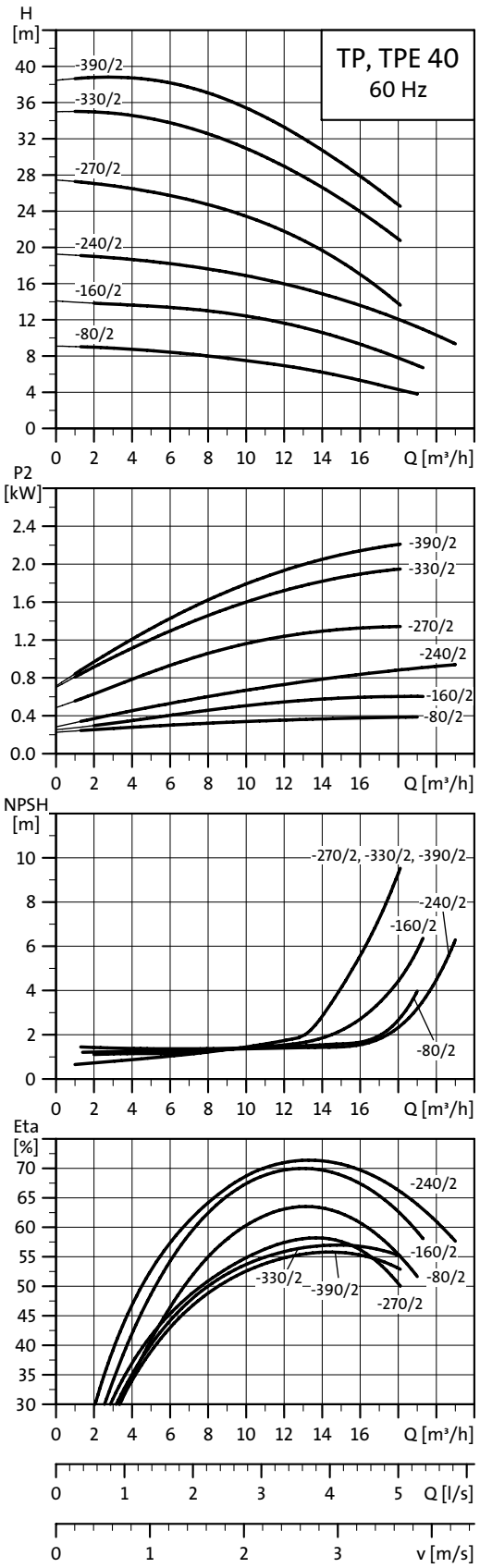
TP 32			-80/2	-160/2	-220/2	-260/2	-330/2	-300/2	-360/2	-450/2	-550/2	-680/2	-820/2
TPD			-	-	-	-	-	●	●	●	●	●	●
TPE			-	-	-	-	-	●	●	●	●	●	●
TPED			-	-	-	-	-	-	-	-	-	-	-
Series			200	200	200	200	200	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-	-	-	-
	3-phase TP		71	71	80	90	90	90	100	112	132	132	160
	1-phase TPE		-	-	-	-	-	-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	90	100	112	132	132	160
P2	1-/3-phase TP*	[kW]	-/0.37	-/0.55	-/0.75	-/1.1	-/1.5	-/2.2	-/3	-/4	-/5.5	-/7.5	-/11
	1-/3-phase TPE	[kW]	-/-	-/-	-/-	-/-	-/-	-/2.2	-/3	-/4	-/5.5	-/7.5	-/11
PN			PN6/10	PN6/10	PN6/10	PN6/10	PN6/10	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;140]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	32	32	32	32	32	32	32	32	32	32	32
AC	1-/3-phase TP	[mm]	-/142	-/142	-/142	-/142	-/178	-/178	-/198	-/220	-/220	-/220	-/260
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/-	-/178	-/178	-/198	-/220	-/220	-/258
AD	1-/3-phase TP	[mm]	-/109	-/109	-/109	-/109	-/110	-/110	-/120	-/134	-/134	-/134	-/172
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/-	-/167	-/167	-/177	-/188	-/188	-/389
AE	1-/3-phase TPE	[mm]	-	-	-	-	-	132	132	132	145	145	148
AF	1-/3-phase TPE	[mm]	-	-	-	-	-	132	132	132	145	145	148
P		[mm]	-	-	-	-	-	200	250	250	300	300	350
B1**		[mm]	75/-	75/-	102/-	102/-	102/-	144/321	144/321	144/321	144/321	144/321	144/321
B2**		[mm]	75/-	75/-	102/-	102/-	102/-	144/321	144/321	144/321	144/321	144/321	144/321
B3		[mm]	-	-	-	-	-	355	355	355	355	355	355
B4**	TP	[mm]	109/-	109/-	109/-	109/-	110/-	144/321	144/321	144/321	150/328	150/328	175/353
	TPE	[mm]	-/-	-/-	-/-	-/-	-/-	167/-	167/-	177/-	188/-	188/-	389/-
C1**		[mm]	80/-	80/-	80/-	80/-	80/-	144/435	144/435	144/435	144/435	144/435	144/435
C5**		[mm]	110	110	140	140	140	220/46	220/46	220/46	220/46	220/46	220/46
C6		[mm]	-	-	-	-	-	175	175	175	175	175	175
L1		[mm]	220	220	280	280	280	440	440	440	440	440	440
H1		[mm]	68	68	79	79	79	100	100	100	100	100	100
H2		[mm]	125	125	137	137	147	156	184	184	223	223	253
H3	1-/3-phase TP	[mm]	-/395	-/395	-/447	-/497	-/507	-/577	-/619	-/656	-/714	-/714	-/817
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/-	-/537	-/605	-/619	-/695	-/711	-/802
H4		[mm]	-	-	-	-	-	-	-	-	-	-	35
M			M12	M12	M12	M12	M12	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

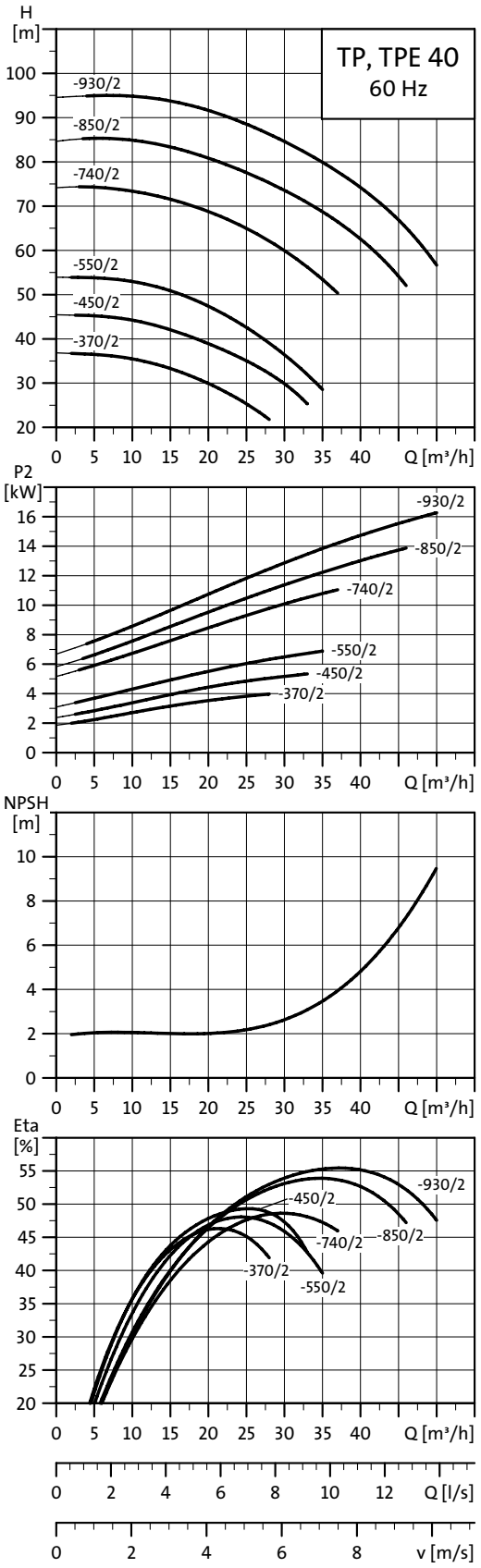
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 40-XX/2



TM02 5036 0504

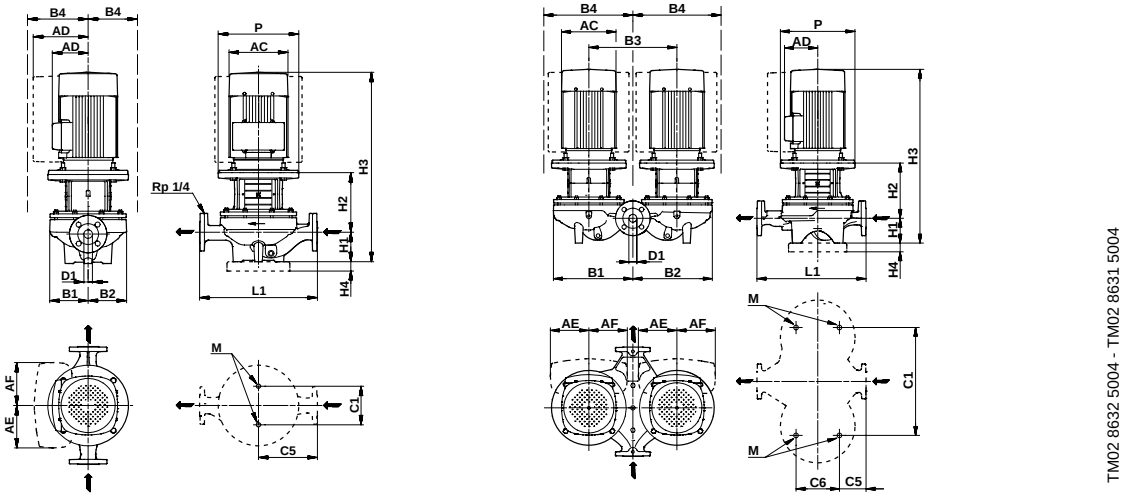


TM02 5037 0504

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data

DN 40
2-pole, PN 6/10/16



TM02 8632 5004 - TM02 8631 5004

Technical data

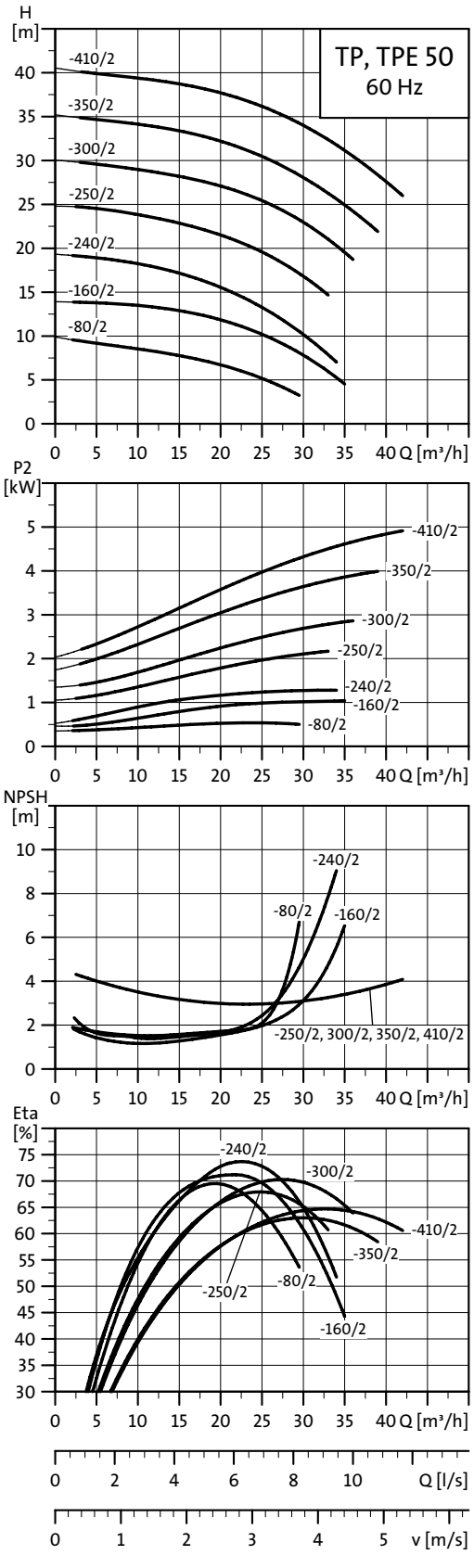
TP 40			-80/2	-160/2	-240/2	-270/2	-330/2	-390/2	-370/2	-450/2	-550/2	-740/2	-850/2	-930/2
TPD			-	-	-	-	-	-	●	●	●	●	●	●
TPE			-	-	-	-	-	-	●	●	●	●	●	●
TPED			-	-	-	-	-	-	-	-	-	-	-	-
Series			200	200	200	200	200	200	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-	-	-	-	-
	3-phase TP		71	80	90	90	90	100	112	132	132	160	160	160
	1-phase TPE		-	-	-	-	-	-	-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	-	112	132	132	160	160	160
P2	1-/3-phase TP*	[kW]	-/0.55	-/0.75	-/1.1	-/1.5	-/2.2	-/3	-/4	-/5.5	-/7.5	-/11	-/15	-/18.5
	1-/3-phase TPE	[kW]	-/-	-/-	-/-	-/-	-/-	-/-	-/4	-/5.5	-/7.5	-/11	-/15	-/18.5
PN			PN 6/10	PN 6/10	PN 6/10	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;140]	[-25;140]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	40	40	40	40	40	40	40	40	40	40	40	40
AC	1-/3-phase TP	[mm]	-/142	-/142	-/142	-/178	-/178	-/178	-/220	-/220	-/220	-/260	-/335	-/335
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/-	-/-	-/198	-/220	-/220	-/258	-/313	-/313
AD	1-/3-phase TP	[mm]	-/109	-/109	-/109	-/110	-/110	-/110	-/134	-/134	-/134	-/172	-/241	-/241
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/-	-/-	-/177	-/188	-/188	-/389	-/417	-/417
AE	1-/3-phase TPE	[mm]	-	-	-	-	-	-	132	145	145	148	148	148
AF	1-/3-phase TPE	[mm]	-	-	-	-	-	-	132	145	145	148	148	148
P		[mm]	-	-	-	-	-	-	250	300	300	350	350	350
B1**		[mm]	85/-	75/-	101/-	102/-	102/-	102/-	149/325	149/325	149/325	149/325	149/325	149/325
B2**		[mm]	75/-	75/-	101/-	102/-	102/-	102/-	144/321	144/321	144/321	144/321	144/321	144/321
B3		[mm]	-	-	-	-	-	-	355	355	355	355	355	355
B4**	TP	[mm]	109/-	109/-	109/-	110/-	110/-	110/-	149/325	150/328	150/328	175/353	241/353	241/353
	TPE	[mm]	-/-	-/-	-/-	-/-	-/-	-/-	177/-	188/-	188/-	389/-	417/-	417/-
C1**		[mm]	120/-	80/-	80/-	120/-	120/-	120/-	144/435	144/435	144/435	144/435	144/435	144/435
C5**		[mm]	125	125	125	160	160	160	220/108	220/108	220/108	220/108	220/108	220/108
C6		[mm]	-	-	-	-	-	-	175	175	175	175	175	175
L1		[mm]	250	250	250	320	320	320	440	440	440	440	440	440
H1		[mm]	67	67	68	68	68	68	110	110	110	110	110	110
H2		[mm]	132	139	144	150	150	160	186	225	225	255	255	255
H3	1-/3-phase TP	[mm]	-/390	-/437	-/493	-/500	-/540	-/564	-/668	-/726	-/726	-/829	-/868	-/912
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/-	-/-	-/631	-/707	-/723	-/814	-/826	-/864
H4		[mm]	-	-	-	-	-	-	-	-	-	35	35	35
M			M12	M12	M12	M12	M12	M12	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

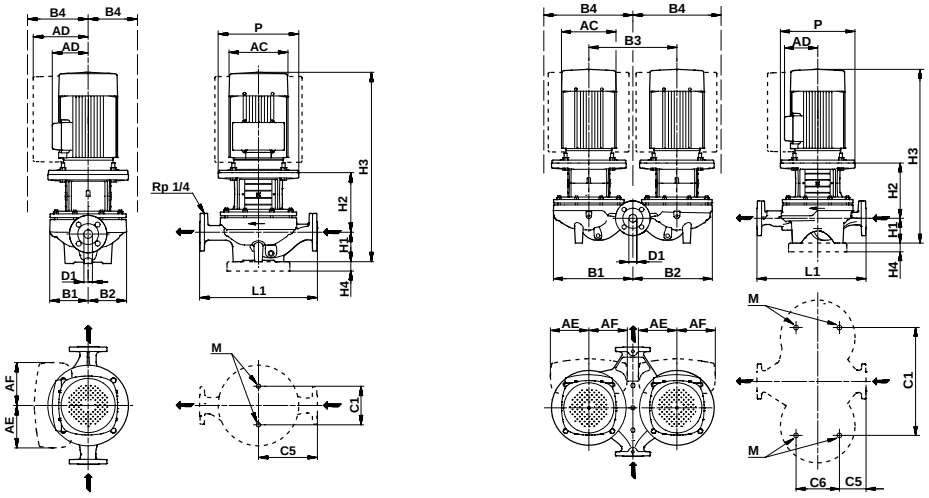
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 50-XX/2



Note: All QH-curves apply to single-head pumps. For further information, see page 40.



TM02 8632 5004 - TM02 8631 5004

Technical data

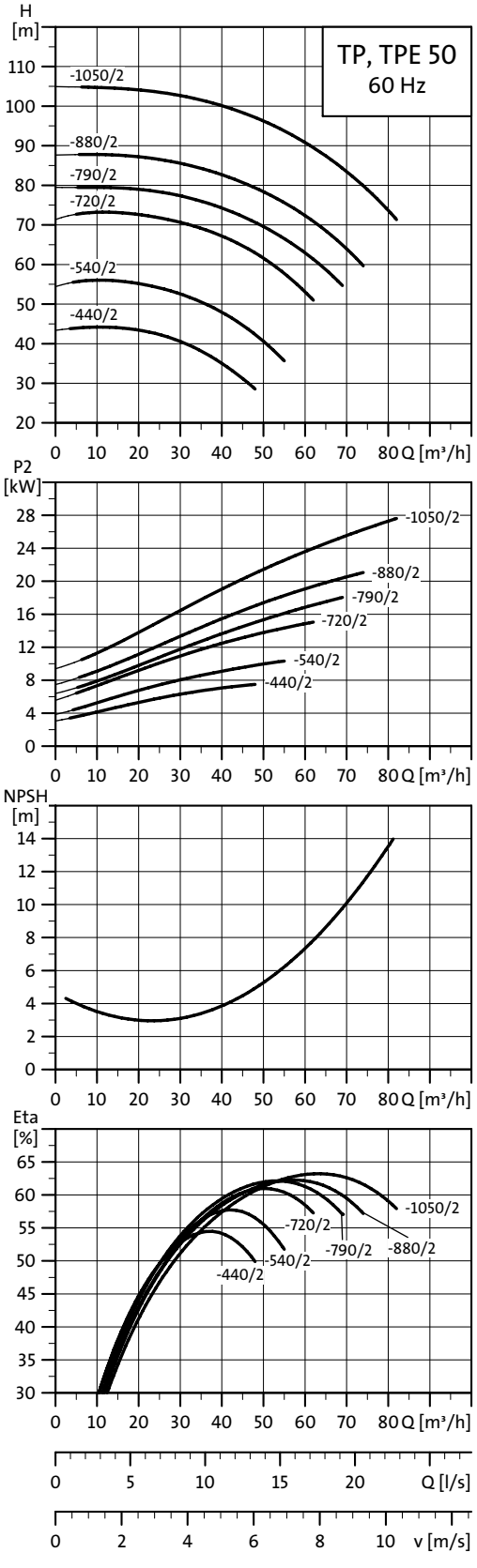
TP 50			-80/2	-160/2	-240/2	-250/2	-300/2	-350/2	-410/2
TPD			-	-	-	●	●	●	●
TPE			-	-	-	●	●	●	●
TPED			-	-	-	-	-	-	-
Series			200	200	200	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-
	3-phase TP		71	90	90	90	100	112	132
	1-phase TPE		-	-	-	-	-	-	-
	3-phase TPE		-	-	-	90	100	112	132
P2	1-/3-phase TP*	[kW]	-/0.55	-/1.1	-/1.5	-/2.2	-/3	-/4	-/5.5
	1-/3-phase TPE	[kW]	-/-	-/-	-/-	-/2.2	-/3	-/4	-/5.5
PN			PN6/10	PN 6/10	PN 6/10	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	50	50	50	50	50	50	50
AC	1-/3-phase TP	[mm]	-/142	-/142	-/175	-/178	-/198	-/220	-/220
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/178	-/178	-/198	-/220
AD	1-/3-phase TP	[mm]	-/109	-/109	-/110	-/110	-/120	-/134	-/134
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/167	-/167	-/177	-/188
AE	1-/3-phase TPE	[mm]	-	-	-	132	132	132	145
AF	1-/3-phase TPE	[mm]	-	-	-	132	132	132	145
P		[mm]	-	-	-	200	250	250	300
B1**		[mm]	95/-	100/-	100/-	117/252	117/252	133/290	133/290
B2**		[mm]	83/-	100/-	100/-	117/252	117/252	119/284	119/284
B3		[mm]	-	-	-	270	270	320	320
B4**	TP	[mm]	109/-	109/-	110/-	117/252	125/260	134/290	150/310
	TPE	[mm]	-/-	-/-	-/-	167/-	167/-	177/-	188/-
C1**		[mm]	120/-	120/-	120/-	144/350	144/350	144/400	144/400
C5**		[mm]	140	140	140	170/60	170/60	170/52	170/52
C6		[mm]	-	-	-	175	175	175	175
L1		[mm]	280	280	280	340	340	340	340
H1		[mm]	75	75	75	115	115	115	115
H2		[mm]	137	135	145	152	180	189	228
H3	1-/3-phase TP	[mm]	-/403	-/491	-/501	-/588	-/630	-/676	-/734
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/548	-/616	-/639	-/715
H4		[mm]	-	-	-	-	-	-	-
M			M12	M12	M12	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

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

Performance curves

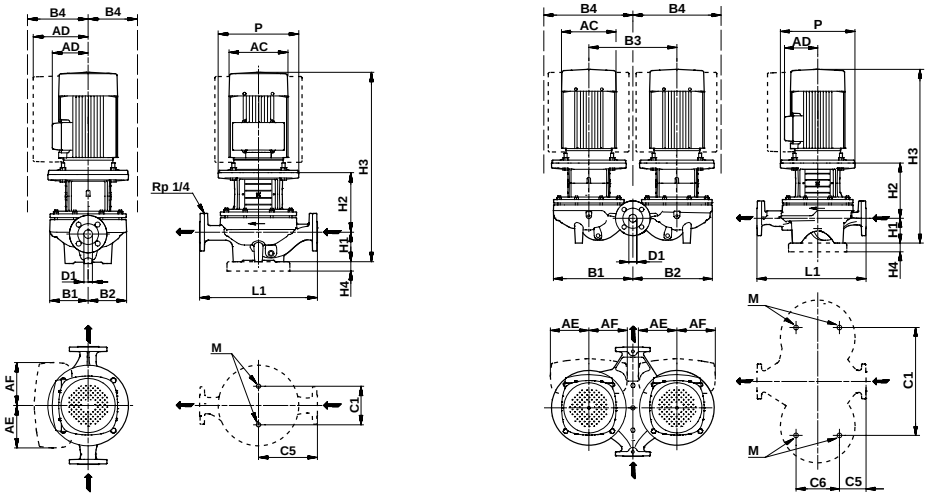
TP, TPD, TPE 50-XX/2



TM02 5039 0504

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data



TM02 8632 5004 - TM02 8631 5004

Technical data

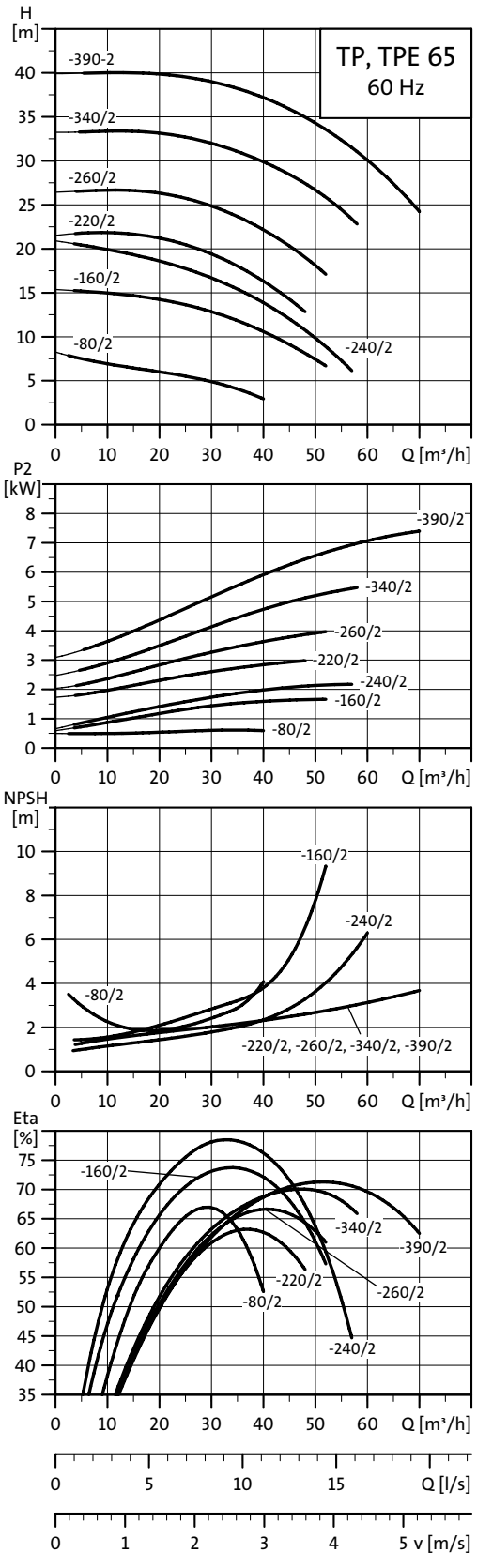
TP 50			**-440/2**	**-540/2**	**-720/2**	**-790/2**	**-880/2**	**-1050/2**
TPD			●	●	●	●	●	●
TPE			●	●	●	●	●	-
TPED			-	-	-	-	-	-
Series			300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-
	3-phase TP		132	160	160	160	180	200
	1-phase TPE		-	-	-	-	-	-
	3-phase TPE		132	160	160	160	180	-
P2	1-/3-phase TP*	[kW]	-/7.5	-/11	-/15	-/18.5	-/22	-/30
	1-/3-phase TPE	[kW]	-/7.5	-/11	-/15	-/18.5	-/22	-/-
PN			PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	50	50	50	50	50	50
AC	1-/3-phase TP	[mm]	-/220	-/260	-/335	-/335	-/366	-/405
	1-/3-phase TPE	[mm]	-/220	-/258	-/313	-/313	-/350	-/-
AD	1-/3-phase TP	[mm]	-/134	-/172	-/241	-/241	-/285	-/327
	1-/3-phase TPE	[mm]	-/188	-/389	-/417	-/417	-/439	-/-
AE	1-/3-phase TPE	[mm]	145	148	148	148	164	-
AF	1-/3-phase TPE	[mm]	145	148	148	148	164	-
P		[mm]	300	350	350	350	350	400
B1**		[mm]	180/386	180/386	180/386	180/386	180/386	180/386
B2**		[mm]	164/379	164/379	164/379	164/379	164/379	164/379
B3		[mm]	420	420	420	420	420	420
B4**	TP	[mm]	180/386	180/386	241/386	241/386	285/393	327/413
	TPE	[mm]	188/-	389/-	417/-	417/-	439/-	-/-
C1**		[mm]	144/500	144/500	144/500	144/500	144/500	144/500
C5**		[mm]	220/123	220/123	220/123	220/123	220/123	220/123
C6		[mm]	175	175	175	175	175	175
L1		[mm]	440	440	440	440	440	440
H1		[mm]	115	115	115	115	115	115
H2		[mm]	234	264	264	264	264	264
H3	1-/3-phase TP	[mm]	-/740	-/843	-/882	-/926	-/981	-/1048
	1-/3-phase TPE	[mm]	-/737	-/828	-/840	-/878	-/904	-/-
H4		[mm]	-	35	35	35	35	35
M			M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

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

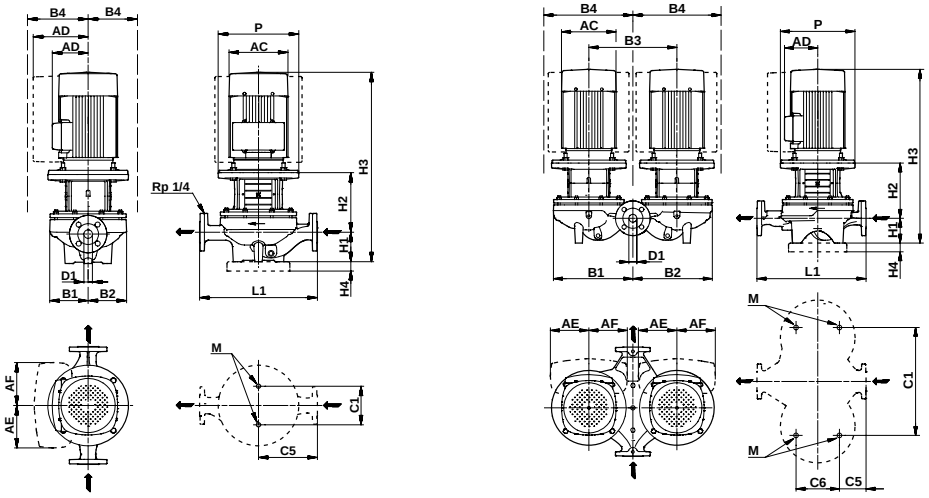
Performance curves

TP, TPD, TPE 65-XX/2



TM02 5040 0504

Note: All QH-curves apply to single-head pumps. For further information, see page 40.



TM02 8632 5004 - TM02 8631 5004

Technical data

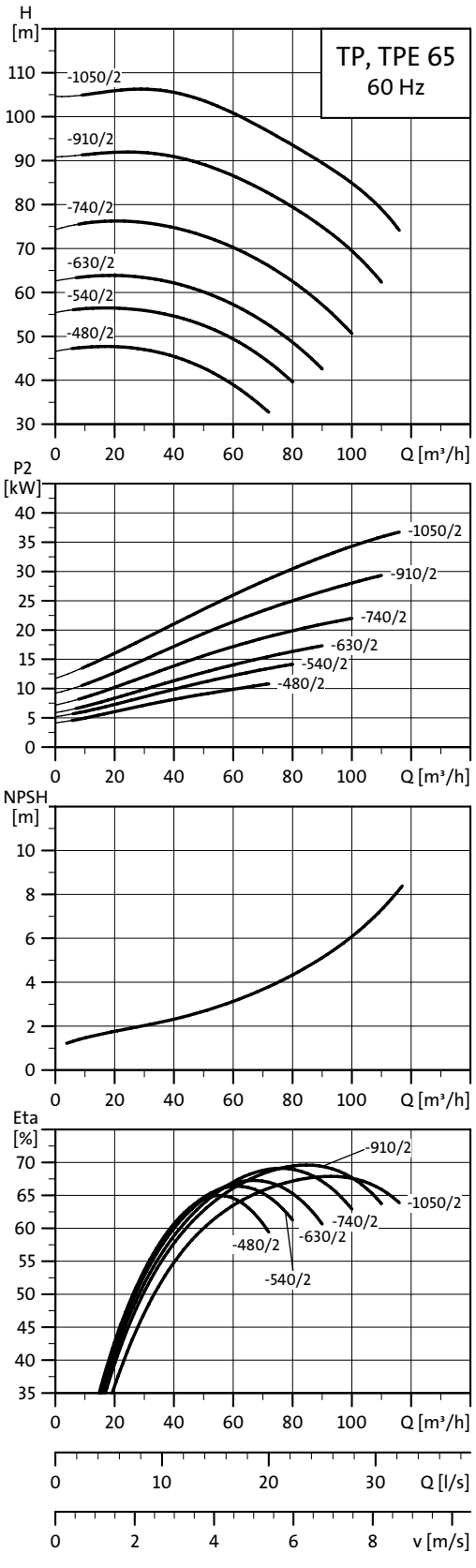
TP 65			-80/2	-160/2	-240/2	-220/2	-260/2	-340/2	-390/2
TPD			-	-	-	●	●	●	●
TPE			-	-	-	●	●	●	●
TPED			-	-	-	-	-	-	-
Series			200	200	200	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-
	3-phase TP		90	90	90	100	112	132	132
	1-phase TPE		-	-	-	-	-	-	-
	3-phase TPE		-	-	-	100	112	132	132
P2	1-/3-phase TP*	[kW]	-/1.1	-/1.5	-/2.2	-/3	-/4	-/5.5	-/7.5
	1-/3-phase TPE	[kW]	-/-	-/-	-/-	-/3	-/4	-/5.5	-/7.5
PN			PN6/10	PN6/10	PN6/10	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	65	65	65	65	65	65	65
AC	1-/3-phase TP	[mm]	-/142	-/175	-/175	-/198	-/220	-/220	-/220
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/178	-/198	-/220	-/220
AD	1-/3-phase TP	[mm]	-/109	-/110	-/110	-/120	-/134	-/134	-/134
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/167	-/177	-/188	-/188
AE	1-/3-phase TPE	[mm]	-	-	-	132	132	145	145
AF	1-/3-phase TPE	[mm]	-	-	-	132	132	145	145
P		[mm]	-	-	-	250	250	300	300
B1**		[mm]	93/-	100/-	100/-	142/298	142/298	142/298	142/298
B2**		[mm]	93/-	100/-	100/-	124/290	124/290	124/290	124/290
B3		[mm]	-	-	-	320	320	320	320
B4**	TP	[mm]	109/-	110/-	110/-	142/298	142/298	150/310	150/310
	TPE	[mm]	-/-	-/-	-/-	167/-	177/-	188/-	188/-
C1**		[mm]	120/-	120/-	120/-	144/400	144/400	144/400	144/400
C5**		[mm]	170	170	170	180/65	180/65	180/65	180/65
C6		[mm]	-	-	-	175	175	175	175
L1		[mm]	340	340	340	360	360	360	360
H1		[mm]	82	82	82	105	105	105	105
H2		[mm]	156	154	154	201	201	239	239
H3	1-/3-phase TP	[mm]	-/519	-/517	-/557	-/641	-/678	-/735	-/735
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-//627	-//641	-/716	-/732
H4		[mm]	-	-	-	-	-	-	-
M			M12	M12	M12	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

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

Performance curves

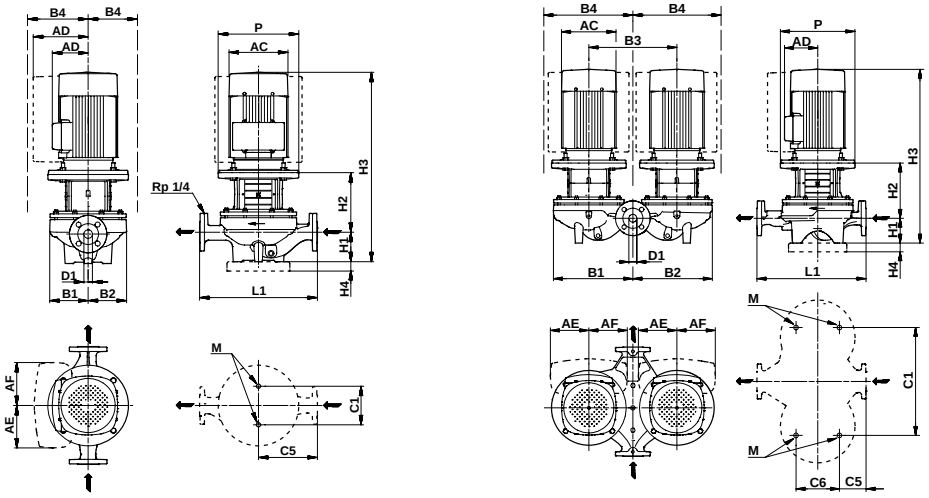
TP, TPD, TPE 65-XX/2



TM02 5041 0504

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data



TM02 8632 5004 - TM02 8631 5004

Technical data

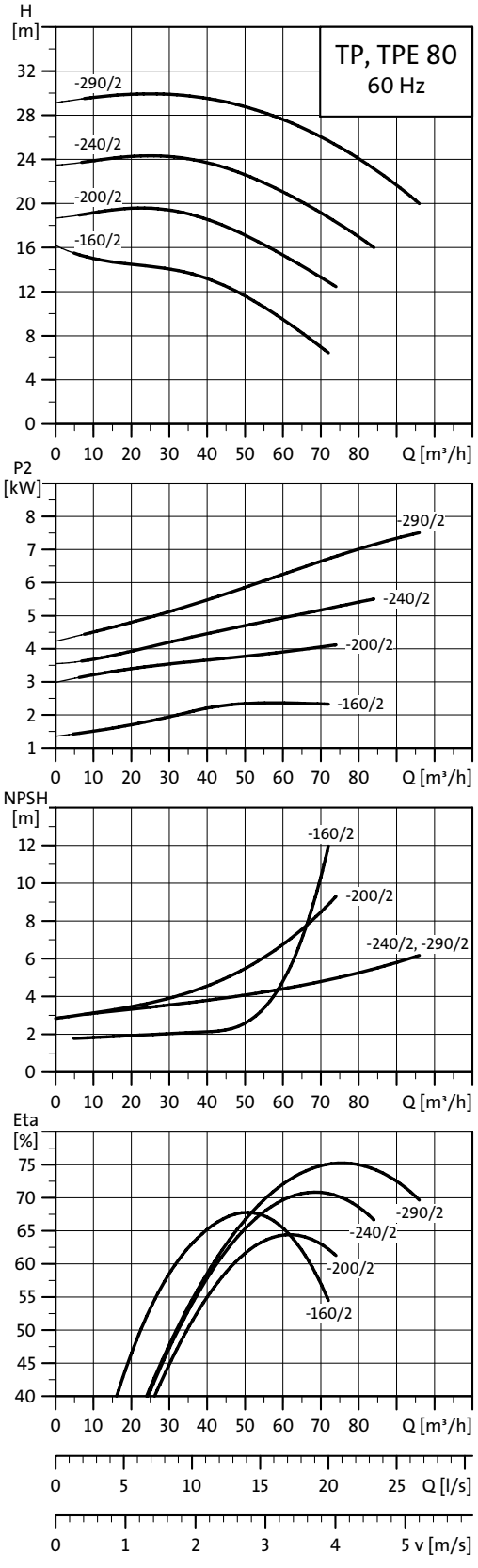
TP 65			-480/2	-540/2	-630/2	-740/2	-910/2	-1050/2
TPD			●	●	●	●	●	●
TPE			●	●	●	●	-	-
TPED			-	-	-	-	-	-
Series			300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-
	3-phase TP		160	160	160	180	200	200
	1-phase TPE		-	-	-	-	-	-
	3-phase TPE		160	160	160	180	-	-
P2	1-/3-phase TP*	[kW]	-/11	-/15	-/18.5	-/22	-/30	-/37
	1-/3-phase TPE	[kW]	-/11	-/15	-/18.5	-/22	-/-	-/-
PN			PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	65	65	65	65	65	65
AC	1-/3-phase TP	[mm]	-/260	-/335	-/335	-/366	-/405	-/405
	1-/3-phase TPE	[mm]	-/258	-/313	-/313	-/350	-/-	-/-
AD	1-/3-phase TP	[mm]	-/172	-/241	-/241	-/285	-/327	-/327
	1-/3-phase TPE	[mm]	-/389	-/417	-/417	-/439	-/-	-/-
AE	1-/3-phase TPE	[mm]	148	148	148	164	-	-
AF	1-/3-phase TPE	[mm]	148	148	148	164	-	-
P		[mm]	350	350	350	350	400	400
B1**		[mm]	178/349	178/349	178/349	178/349	178/349	178/349
B2**		[mm]	164/383	164/383	164/383	164/383	164/383	164/383
B3		[mm]	440	440	440	440	440	440
B4**	TP	[mm]	178/395	241/395	241/395	285/403	327/423	327/423
	TPE	[mm]	389/-	417/-	417/-	439/-	-/-	-/-
C1**		[mm]	144/520	144/520	144/520	144/520	144/520	144/520
C5**		[mm]	238/111	238/111	238/111	238/111	238/111	238/111
C6		[mm]	175	175	175	175	175	175
L1		[mm]	475	475	475	475	475	475
H1		[mm]	125	125	125	125	125	125
H2		[mm]	263	263	263	263	263	263
H3	1-/3-phase TP	[mm]	-/852	-/891	-/935	-/990	-/1057	-/1057
	1-/3-phase TPE	[mm]	-/837	-/849	-/887	-/913	-/-	-/-
H4		[mm]	35	35	35	35	35	35
M			M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

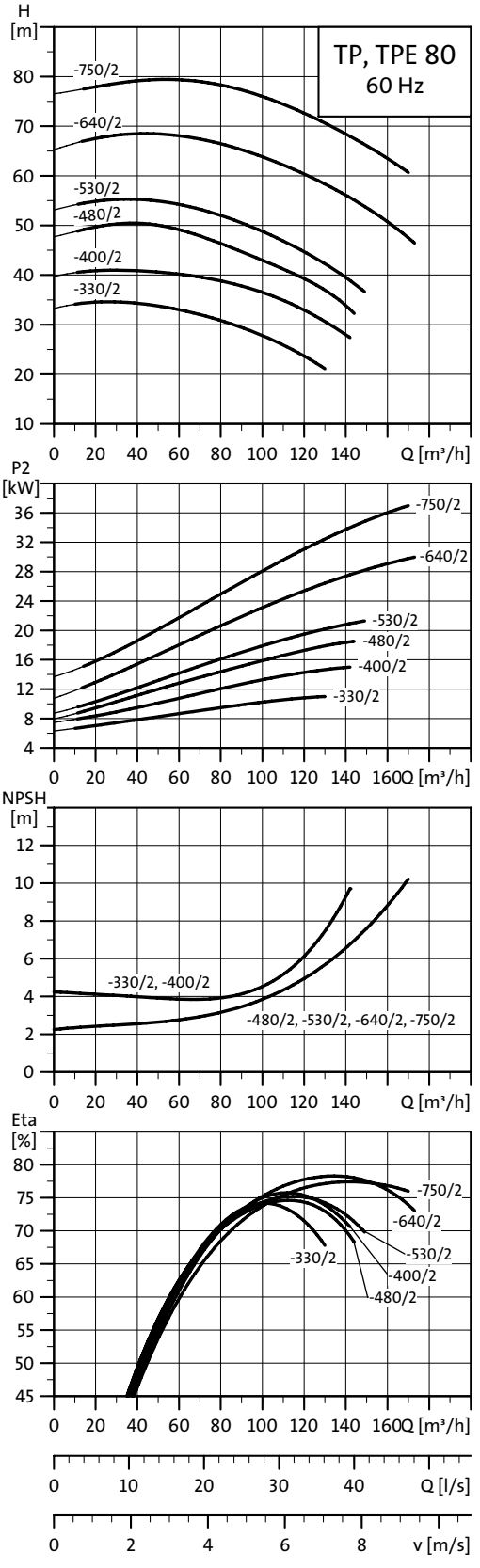
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 80-XX/2



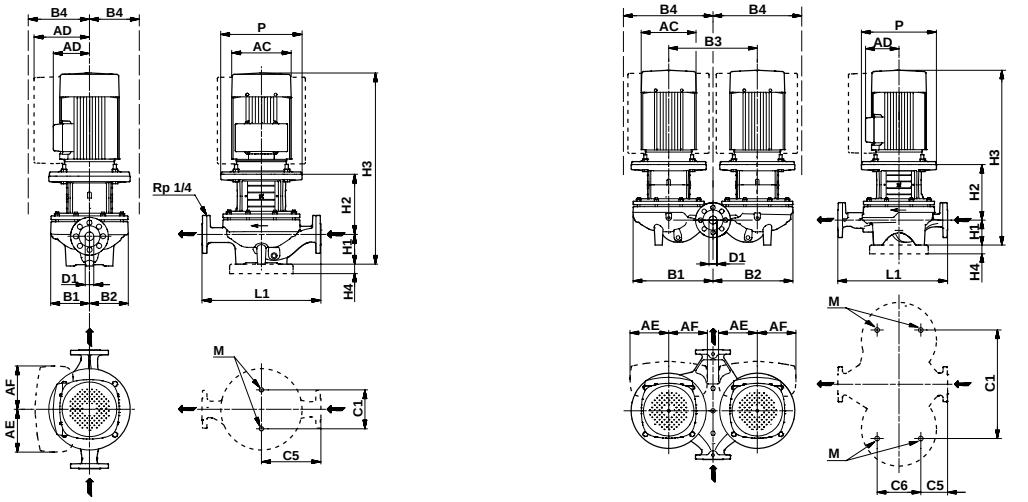
TM02 5042 1604



TM02 8769 1604

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data



TM03 5348 3406 - TM03 5348 3406

Technical data

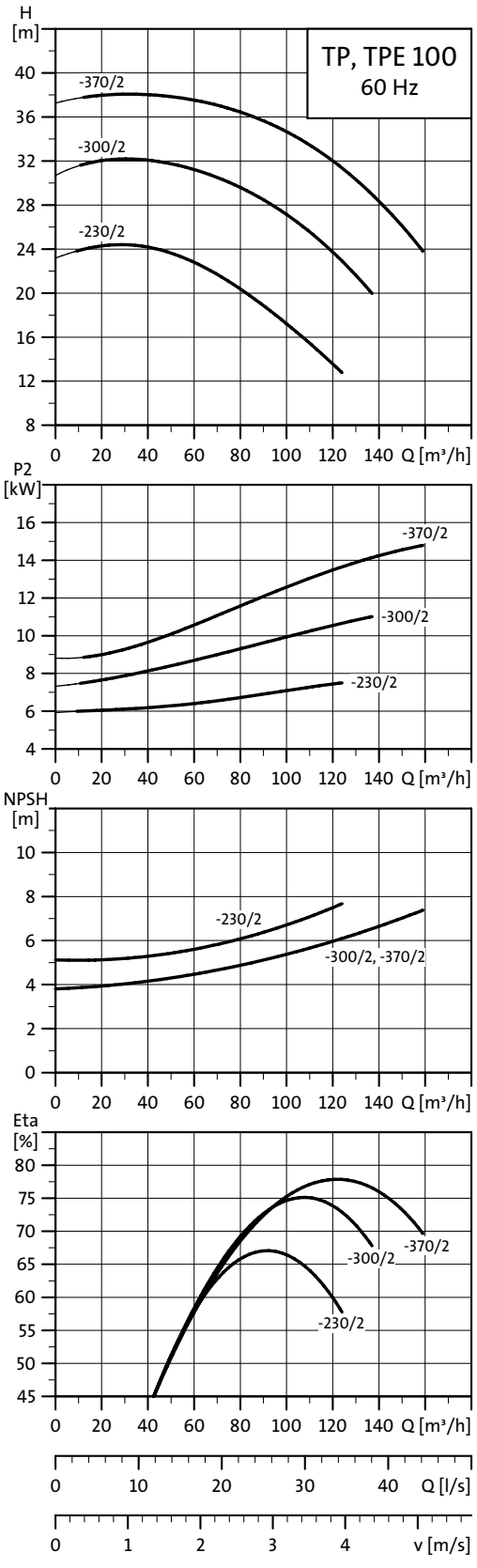
TP 80			**-160/2**	**-200/2**	**-240/2**	**-290/2**	**-330/2**	**-400/2**	**-480/2**	**-530/2**	**-640/2**	**-750/2**
TPD			-	●	●	●	●	●	●	●	●	●
TPE			-	●	●	●	●	●	●	●	-	-
TPED			-	-	-	-	-	-	-	-	-	-
Series			200	300	300	300	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-	-	-
	3-phase TP		100	112	132	132	160	160	160	180	200	200
	1-phase TPE		-	-	-	-	-	-	-	-	-	-
	3-phase TPE		-	112	132	132	160	160	160	180	-	-
P2	1-/3-phase TP*	[kW]	-/3	-/4	-/5.5	-/7.5	-/11	-/15	-/18.5	-/22	-/30	-/37
	1-/3-phase TPE	[kW]	-/-	-/4	-/5.5	-/7.5	-/11	-/15	-/18.5	-/22	-/-	-/-
PN			PN 6/PN 10	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	80	80	80	80	80	80	80	80	80	80
AC	1-/3-phase TP	[mm]	-/175	-/220	-/220	-/220	-/260	-/320	-/335	-/366	-/405	-/405
	1-/3-phase TPE	[mm]	-/-	-/198	-/220	-/220	-/258	-/313	-/313	-/350	-/-	-/-
AD	1-/3-phase TP	[mm]	-/110	-/134	-/134	-/134	-/172	-/197	-/241	-/285	-/327	-/327
	1-/3-phase TPE	[mm]	-/-	-/177	-/188	-/188	-/389	-/417	-/417	-/439	-/-	-/-
AE	1-/3-phase TPE	[mm]	-	132	145	145	148	148	148	164	-	-
AF	1-/3-phase TPE	[mm]	-	132	145	145	148	148	148	164	-	-
P		[mm]	-	250	300	300	350	350	350	350	400	400
B1**		[mm]	125/-	125/260	125/260	125/260	144/366	144/366	162/416	162/416	162/416	162/416
B2**		[mm]	100/-	133/290	133/290	133/290	176/354	176/354	187/405	187/405	187/405	187/405
B3		[mm]	-	340	340	340	400	400	470	470	470	470
B4**	TP	[mm]	110/-	134/295	150/320	150/320	176/375	197/375	241/416	285/418	327/438	327/438
	TPE	[mm]	-/-	177/-	188/-	188/-	389/-	417/-	417/-	439/-	-/-	-/-
C1**		[mm]	160/-	144/420	144/420	144/420	144/480	144/480	144/550	144/550	144/550	144/550
C5**		[mm]	180	180/78	180/78	180/78	220/93	220/93	250/133	250/133	250/133	250/133
C6		[mm]	-	175	175	175	175	175	175	175	175	175
L1		[mm]	360	360	360	360	440	440	500	500	500	500
H1		[mm]	97	105	105	105	115	115	115	115	115	115
H2		[mm]	174	204	243	243	273	273	273	273	273	273
H3	1-/3-phase TP	[mm]	-/606	-/681	-/739	-/739	-/852	-/866	-/935	-/990	-/1057	-/1057
	1-/3-phase TPE	[mm]	-/-	-/644	-/720	-/720	-/837	-/849	-/887	-/913	-/-	-/-
H4		[mm]	-	-	-	-	35	35	35	35	35	35
M			M16	M16	M16	M16	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

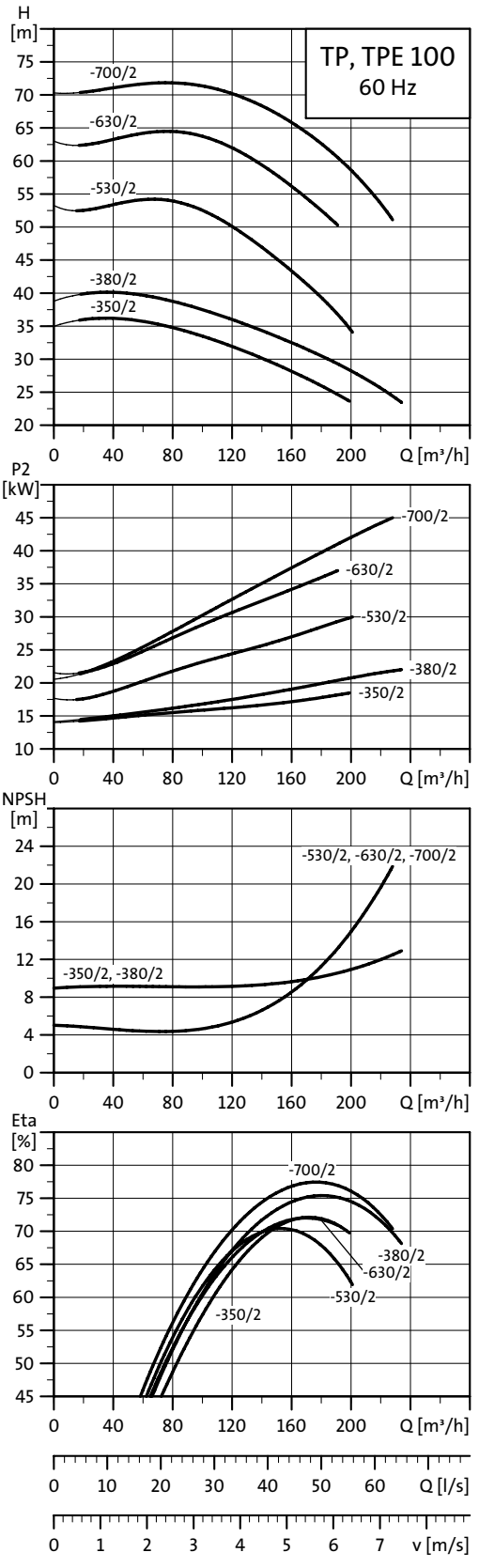
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 100-XX/2



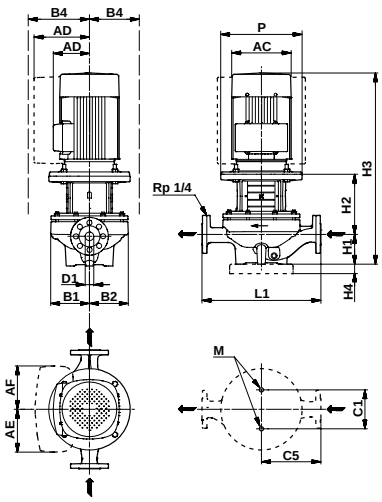
TM02 8770 1604

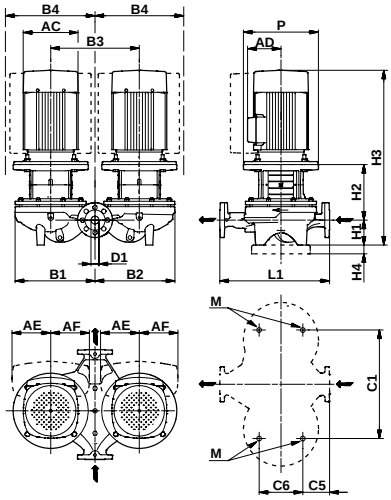


TM02 8771 1604

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data





TM03 5348 3406 - TM03 5349 3406

Technical data

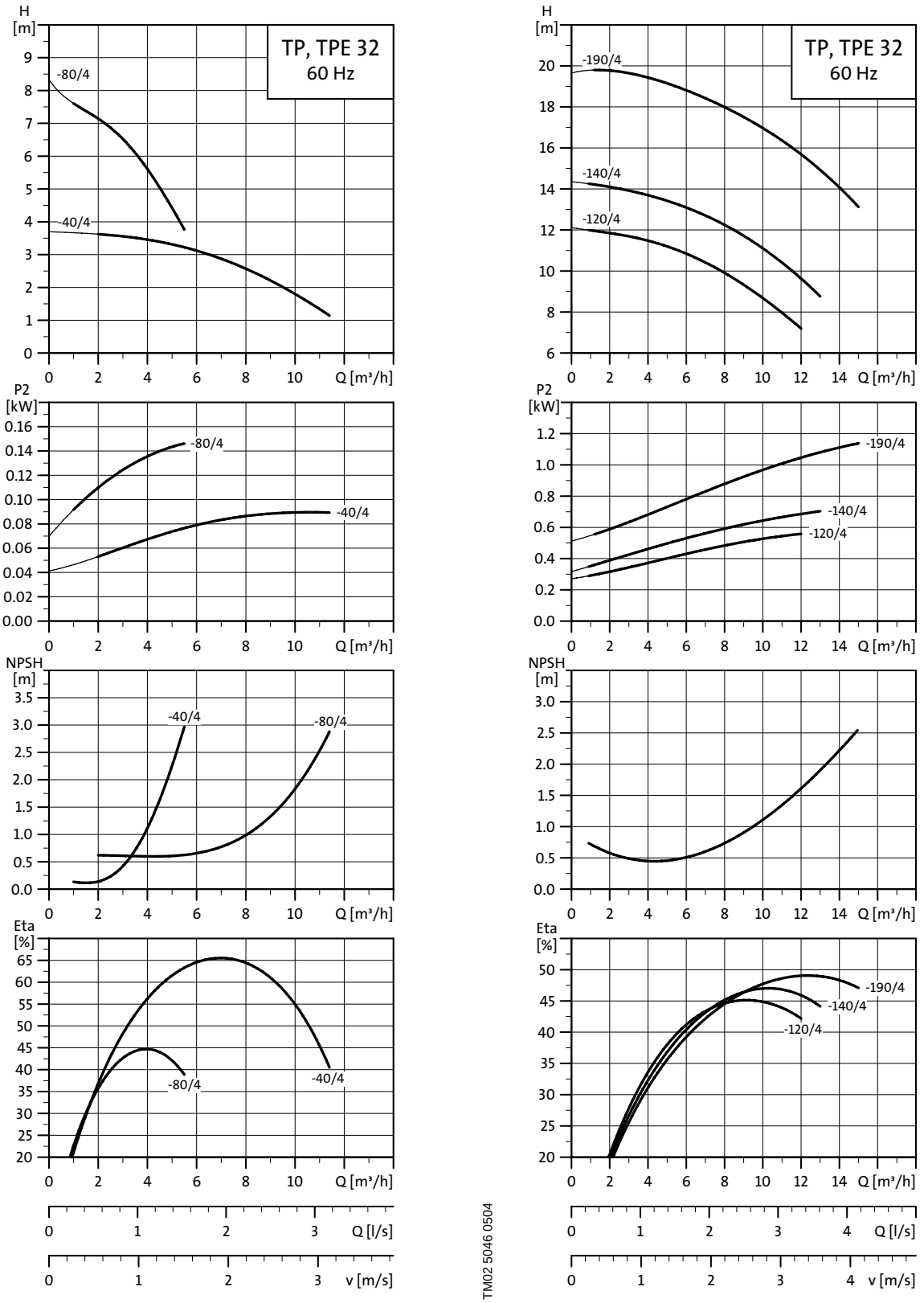
TP 100			-230/2	-300/2	-370/2	-350/2	-380/2	-530/2	-630/2	-700/2
TPD			●	●	●	●	●	●	●	●
TPE			●	●	●	●	●	-	-	-
TPED			-	-	-	-	-	-	-	-
Series			300	300	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-
	3-phase TP		132	160	160	160	180	200	200	225
	1-phase TPE		-	-	-	-	-	-	-	-
	3-phase TPE		132	160	160	160	180	-	-	-
P2	1-/3-phase TP*	[kW]	-/7.5	-/11	-/15	-/18.5	-/22	-/30	-/37	-/45
	1-/3-phase TPE	[kW]	-/7.5	-/11	-/15	-/18.5	-/22	-/-	-/-	-/-
PN			PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	100	100	100	100	100	100	100	100
AC	1-/3-phase TP	[mm]	-/220	-/260	-/320	-/320	-/363	-/402	-/402	-/442
	1-/3-phase TPE	[mm]	-/220	-/258	-/313	-/313	-/350	-/-	-/-	-/-
AD	1-/3-phase TP	[mm]	-/134	-/172	-/197	-/197	-/258	-/305	-/305	-/325
	1-/3-phase TPE	[mm]	-/188	-/389	-/417	-/417	-/439	-/-	-/-	-/-
AE	1-/3-phase TPE	[mm]	145	148	148	148	164	-	-	-
AF	1-/3-phase TPE	[mm]	145	148	148	148	164	-	-	-
P		[mm]	300	350	350	350	350	400	400	450
B1**		[mm]	124/347	124/347	124/347	151/414	151/414	173/443	173/443	173/443
B2**		[mm]	156/332	156/332	156/332	190/395	190/395	201/429	201/429	201/429
B3		[mm]	400	400	400	470	470	500	500	500
B4**	TP	[mm]	156/350	175/375	197/375	197/414	258/417	305/451	305/451	325/475
	TPE	[mm]	188/-	389/-	417/-	417/-	439/-	-/-	-/-	-/-
C1**		[mm]	144/480	144/480	144/480	230/550	230/550	230/550	230/550	230/550
C5**		[mm]	250/104	250/104	250/104	275/110	275/110	275/110	275/110	275/110
C6		[mm]	175	175	175	230	230	230	230	230
L1		[mm]	500	500	500	550	550	550	550	550
H1		[mm]	140	140	140	140	140	140	140	140
H2		[mm]	245	275	275	270	270	307	307	337
H3	1-/3-phase TP	[mm]	-/776	-/879	-/893	-/928	-/1012	-/1106	-/1106	-/1186
	1-/3-phase TPE	[mm]	-/757	-/864	-/876	-/909	-/935	-/-	-/-	-/-
H4		[mm]	-	35	35	35	35	35	35	35
M			M16	M16	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

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

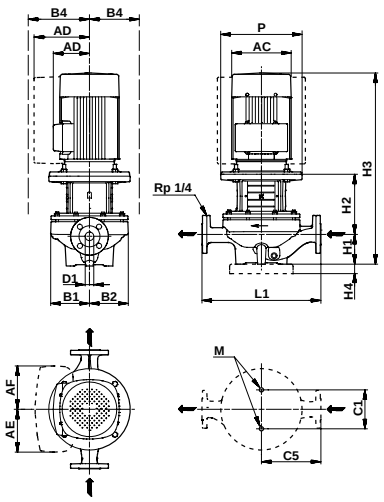
TP, TPD, TPE, 4-pole, PN 6/10/16

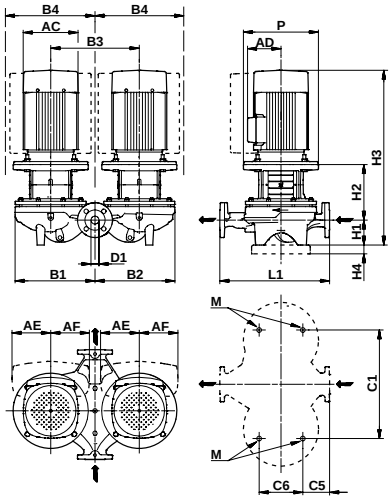
TP, TPD, TPE 32-XXX/4



Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data





TM02 8632 5004 - TM02 8631 5004

Technical data

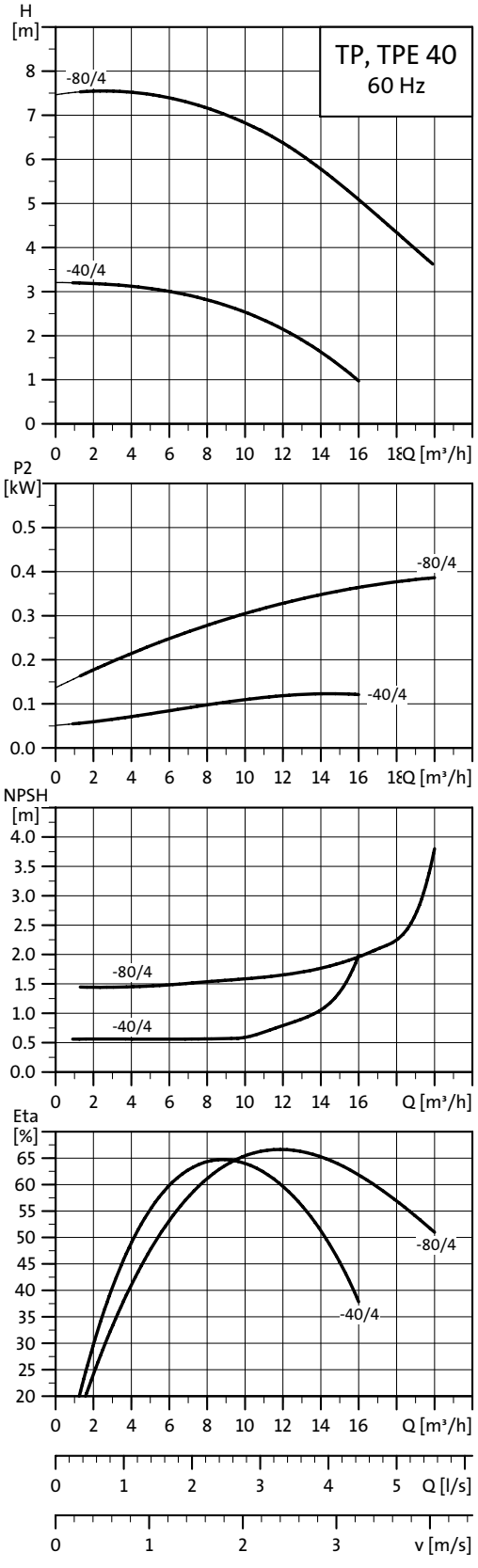
TP 32			-40/4	-80/4	-120/4	-140/4	-190/4
TPD			●	●	●	●	●
TPE			-	-	-	-	●
TPED			-	-	-	-	-
Series			200	200	300	300	300
IEC size	1-phase TP		-	-	-	-	-
	3-phase TP		71	71	80	80	90
	1-phase TPE		-	-	-	-	-
	3-phase TPE		-	-	-	-	90
P2	1-/3-phase TP*	[kW]	-/0.12	-/0.25	-/0.55	-/0.75	-/1.1
	1-/3-phase TPE	[kW]	-/-	-/-	-/-	-/-	-/1.1
PN			PN6/10	PN6/10	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	32	32	32	32	32
AC	1-/3-phase TP	[mm]	-/128	-/125	-/141	-/141	-/178
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/178
AD	1-/3-phase TP	[mm]	-/387	-/395	-/109	-/109	-/110
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/167
AE	1-/3-phase TPE	[mm]	-	-	-	-	132
AF	1-/3-phase TPE	[mm]	-	-	-	-	132
P		[mm]	-	-	200	200	200
B1**		[mm]	75/-	102/-	144/321	144/321	144/321
B2**		[mm]	75/-	102/-	144/321	144/321	144/321
B3		[mm]	-	-	355	355	355
B4**	TP	[mm]	387/-	395/-	144/321	144/321	144/321
	TPE	[mm]	-/-	-/-	-/-	-/-	167/-
C1**		[mm]	80/-	80/-	144/435	144/435	144/435
C5**		[mm]	110	140	220/46	220/46	220/46
C6		[mm]	-	-	175	175	175
L1		[mm]	220	280	440	440	440
H1		[mm]	68	79	100	100	100
H2		[mm]	142	137	156	156	156
H3	1-/3-phase TP	[mm]	-/401	-/407	-/487	-/487	-/537
	1-/3-phase TPE	[mm]	-/-	-/-	-/-	-/-	-/537
H4		[mm]	-	-	-	-	-
M			M12	M12	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

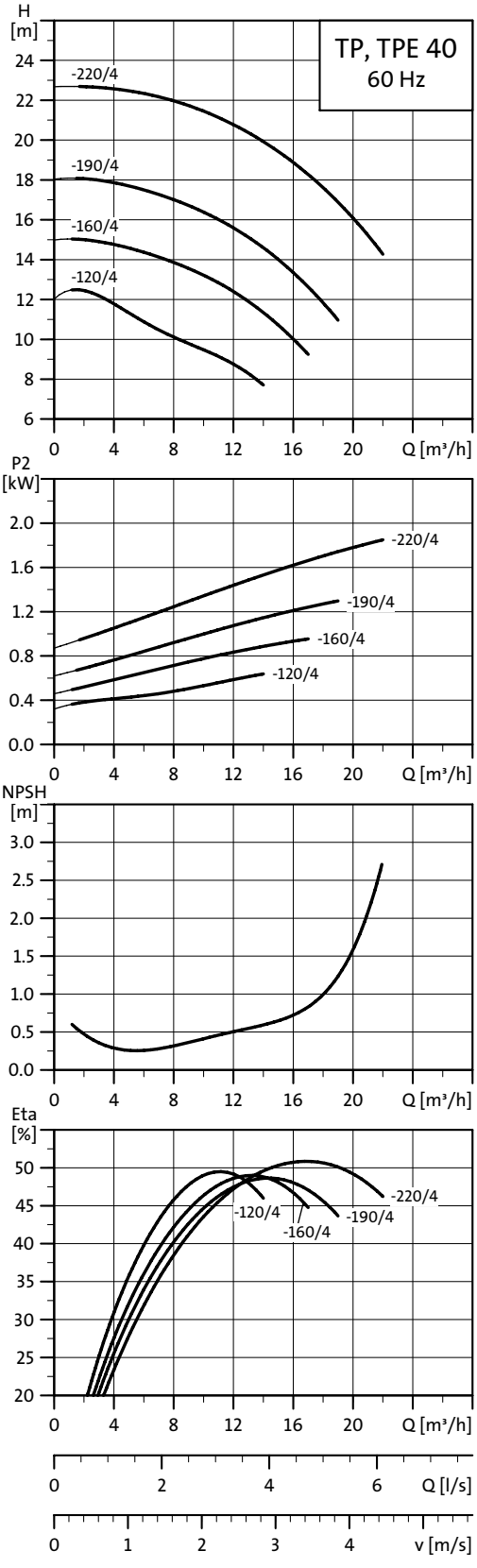
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 40-XXX/4



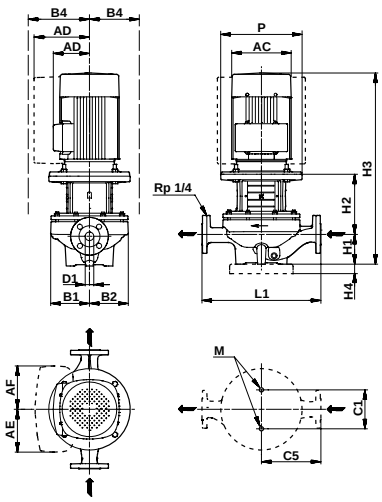
TM02 5048 0504

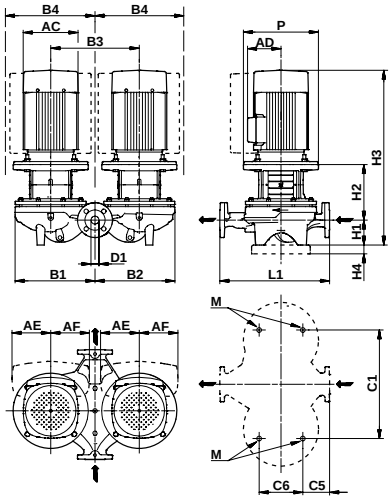


TM02 5049 0504

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data





TM02 8632 5004 - TM02 8631 5004

Technical data

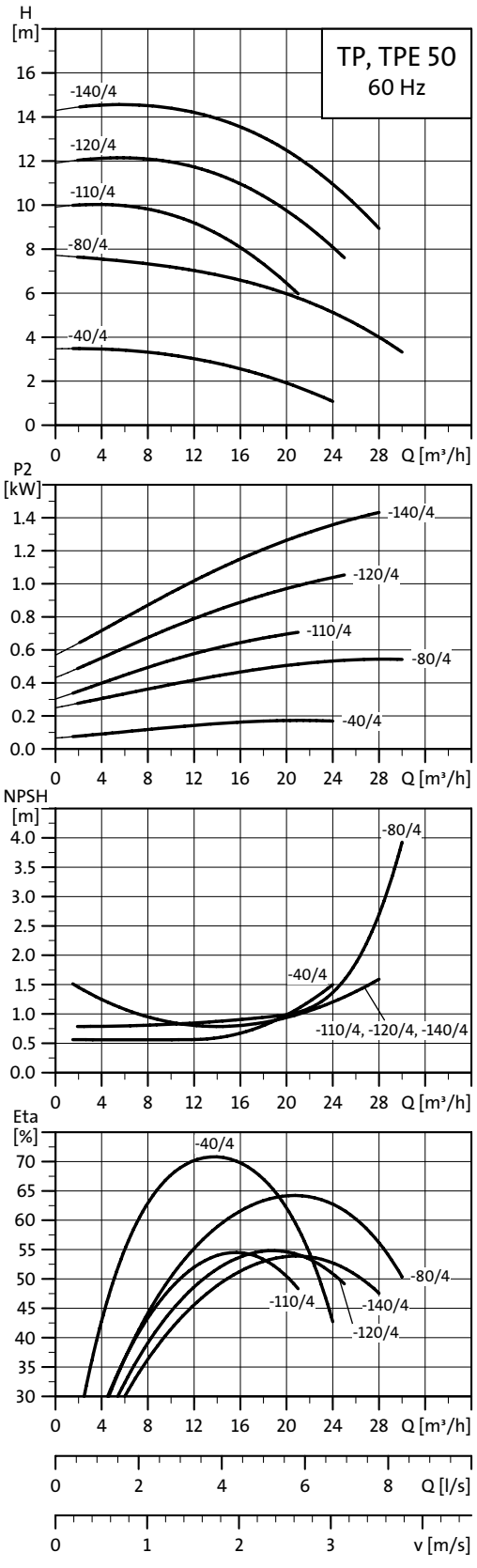
TP 40			-40/4	-80/4	-120/4	-160/4	-190/4	-220/4
TPD			●	●	●	●	●	●
TPE			-	-	●	●	●	●
TPED			-	-	-	-	-	-
Series			200	200	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-
	3-phase TP		71	80	80	90	90	100
	1-phase TPE		-	-	-	-	-	-
	3-phase TPE		-	-	80	90	90	100
P2	1-/3-phase TP*	[kW]	-/0.25	-/0.55	-/0.75	-/1.1	-/1.5	-/2.2
	1-/3-phase TPE	[kW]	-/-	-/-	-/0.75	-/1.1	-/1.5	-/2.2
PN			PN 6/10	PN 6/10	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	40	40	40	40	40	40
AC	1-/3-phase TP	[mm]	-/142	-/142	-/141	-/178	-/178	-/198
	1-/3-phase TPE	[mm]	-/-	-/-	-/141	-/178	-/178	-/178
AD	1-/3-phase TP	[mm]	-/109	-/109	-/109	-/110	-/110	-/120
	1-/3-phase TPE	[mm]	-/-	-/-	-/140	-/167	-/167	-/167
AE	1-/3-phase TPE	[mm]	-	-	105	132	132	132
AF	1-/3-phase TPE	[mm]	-	-	105	132	132	132
P		[mm]	-	-	200	200	200	250
B1**		[mm]	85/-	100/-	149/325	149/325	149/325	149/325
B2**		[mm]	75/-	100/-	144/321	144/321	144/321	144/321
B3		[mm]	-	-	355	355	355	355
B4**	TP	[mm]	109/-	109/-	149/325	149/325	149/325	149/325
	TPE	[mm]	-/-	-/-	149/-	167/-	167/-	167/-
C1**		[mm]	120/-	120/-	144/435	144/435	144/435	144/435
C5**		[mm]	125	125	220/108	220/108	220/108	220/108
C6		[mm]	-	-	175	175	175	175
L1		[mm]	250	250	440	440	440	440
H1		[mm]	67	75	110	110	110	110
H2		[mm]	132	135	158	158	158	186
H3	1-/3-phase TP	[mm]	-/390	-/441	-/499	-/549	-/589	-/631
	1-/3-phase TPE	[mm]	-/-	-/-	-/519	-/549	-/549	-/617
H4		[mm]	-	-	-	-	-	-
M			M12	M12	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

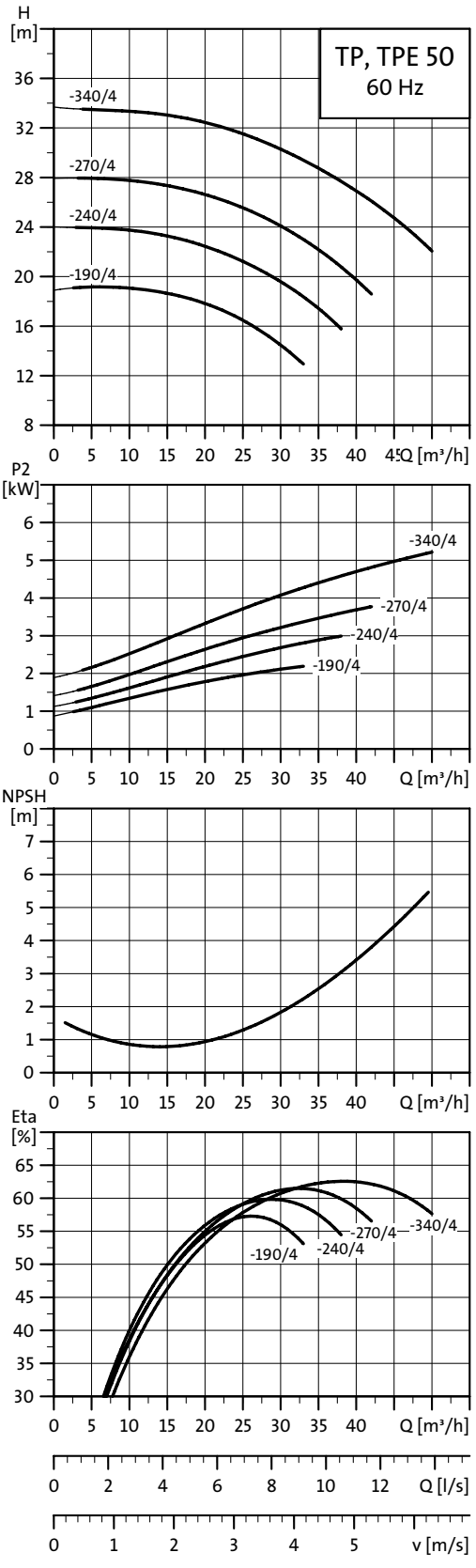
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 50-XXX/4



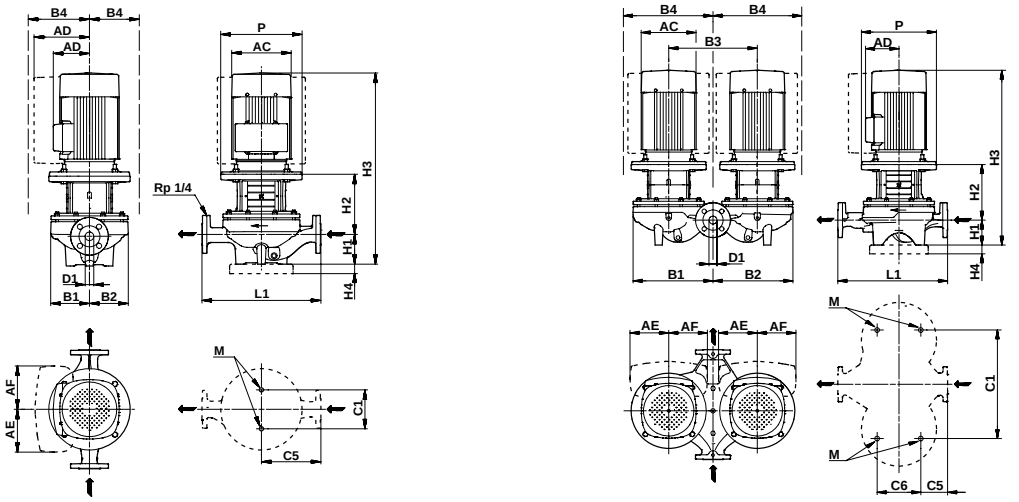
TM02 5050 0504



TM02 5051 0504

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data



TM02 8632 5004 - TM02 8631 5004

Technical data

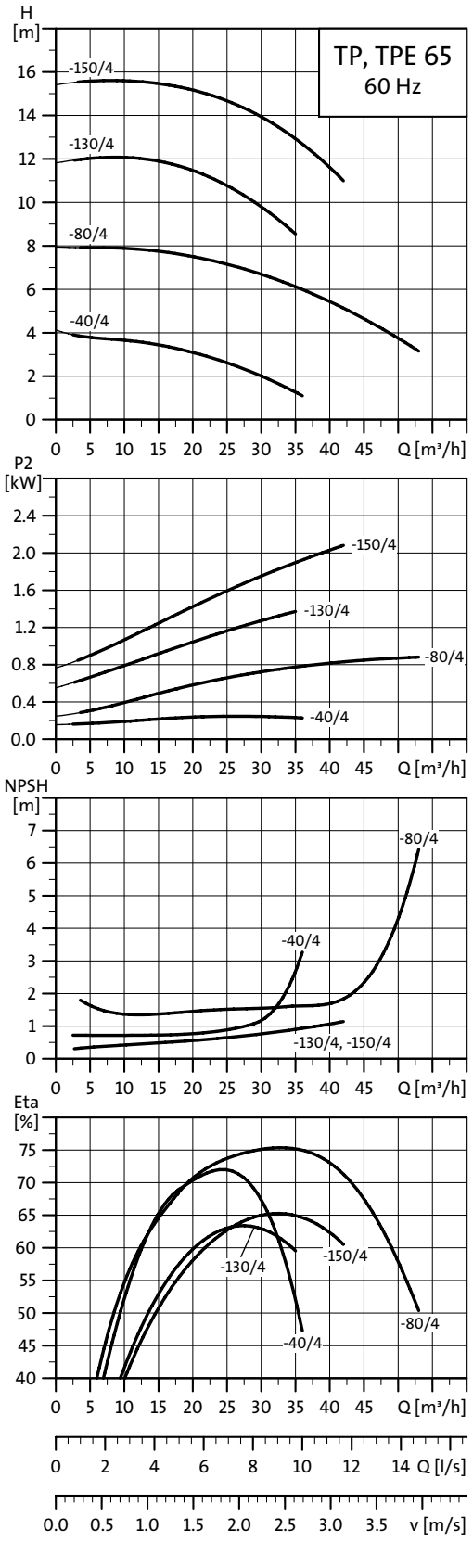
TP 50			-40/4	-80/4	-110/4	-120/4	-140/4	-190/4	-240/4	-270/4	-340/4
TPD			●	●	●	●	●	●	●	●	●
TPE			-	-	●	●	●	●	●	●	●
TPED			-	-	-	-	-	-	-	-	-
Series			200	200	300	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-	-
	3-phase TP		71	80	80	90	90	100	100	112	132
	1-phase TPE		-	-	-	-	-	-	-	-	-
	3-phase TPE		-	-	80	90	90	100	100	112	132
P2	1-/3-phase TP*	[kW]	-/0.25	-/0.55	-/0.75	-/1.1	-/1.5	-/2.2	-/3	-/4	-/5.5
	1-/3-phase TPE	[kW]	-/-	-/-	-/0.75	-/1.1	-/1.5	-/2.2	-/3	-/4	-/5.5
PN			PN 6/10	PN 6/10	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	50	50	50	50	50	50	50	50	50
AC	1-/3-phase TP	[mm]	-/142	-/142	-/141	-/178	-/178	-/198	-/198	-/220	-/220
	1-/3-phase TPE	[mm]	-/-	-/-	-/141	-/178	-/178	-/178	-/178	-/198	-/220
AD	1-/3-phase TP	[mm]	-/109	-/109	-/109	-/110	-/110	-/120	-/120	-/134	-/134
	1-/3-phase TPE	[mm]	-/-	-/-	-/140	-/167	-/167	-/167	-/167	-/177	-/188
AE	1-/3-phase TPE	[mm]	-	-	105	132	132	132	132	132	145
AF	1-/3-phase TPE	[mm]	-	-	105	132	132	132	132	132	145
P		[mm]	-	-	200	200	200	250	250	250	300
B1**		[mm]	90/-	110/-	180/386	180/386	180/386	180/386	180/386	180/386	180/386
B2**		[mm]	75/-	100/-	164/379	164/379	164/379	164/379	164/379	164/379	164/379
B3		[mm]	-	-	420	420	420	420	420	420	420
B4**	TP	[mm]	109/-	109/-	180/386	180/386	180/386	180/386	180/386	180/386	180/386
	TPE	[mm]	-/-	-/-	-/-	180/-	180/-	180/-	180/-	180/-	188/-
C1**		[mm]	120/-	120/-	144/500	144/500	144/500	144/500	144/500	144/500	144/500
C5**		[mm]	140	140	220/123	220/123	220/123	220/123	220/123	220/123	220/123
C6		[mm]	-	-	175	175	175	175	175	175	175
L1		[mm]	280	280	440	440	440	440	440	440	440
H1		[mm]	82	82	115	115	115	115	115	115	115
H2		[mm]	136	140	167	167	167	195	195	195	234
H3	1-/3-phase TP	[mm]	-/409	-/453	-/513	-/563	-/563	-/645	-/645	-/682	-/740
	1-/3-phase TPE	[mm]	-/-	-/-	-/533	-/563	-/563	-/631	-/631	-/645	-/721
H4		[mm]	-	-	-	-	-	-	-	-	-
M			M12	M12	M16	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

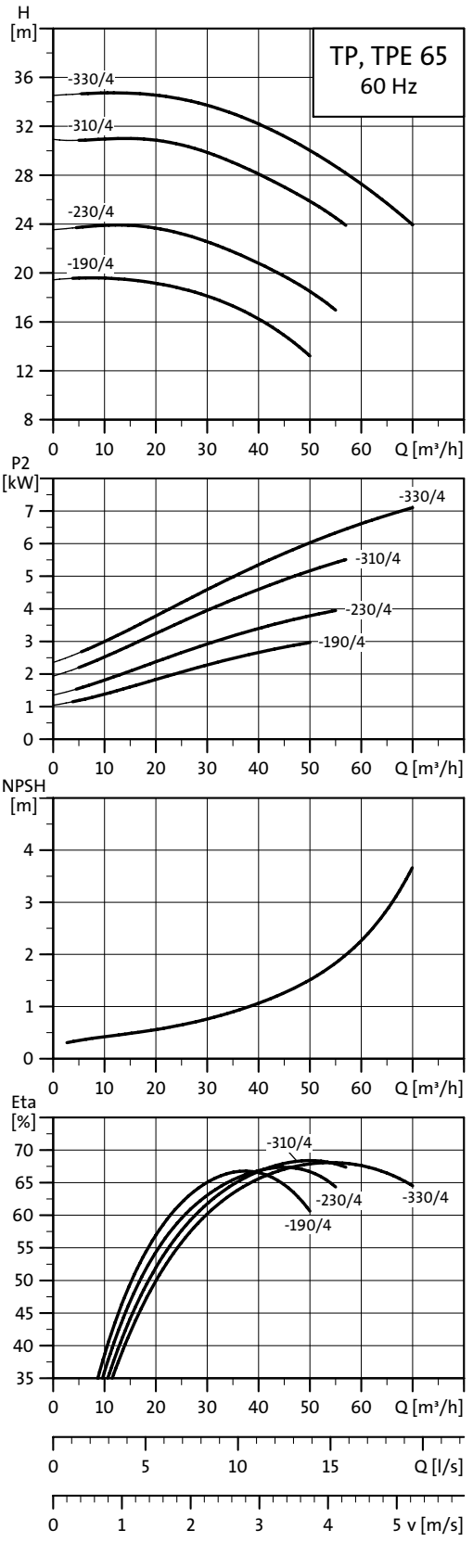
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 65-XXX/4



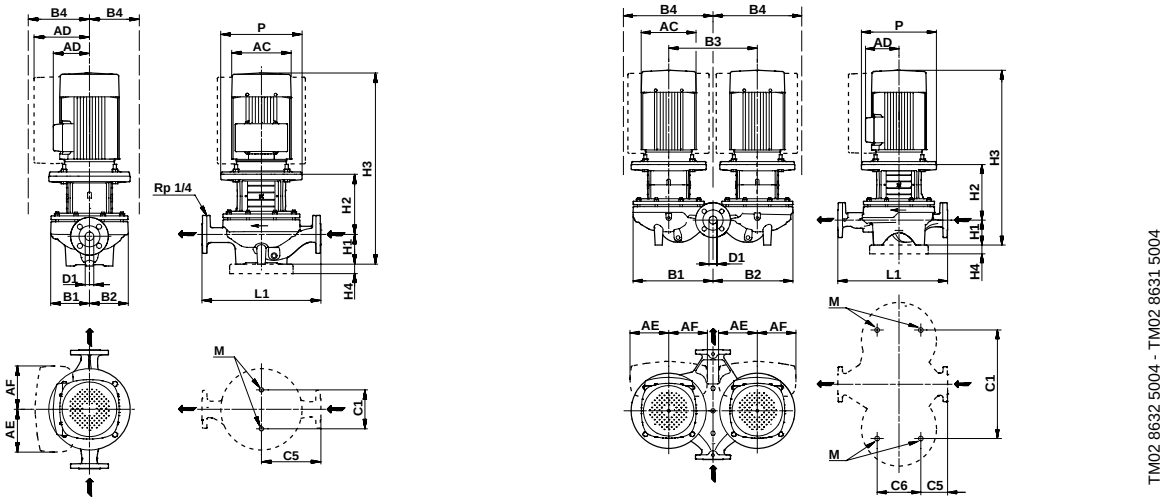
TM02 5052 0504



TM02 5053 0504

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data



TM02 8632 5004 - TM02 8631 5004

Technical data

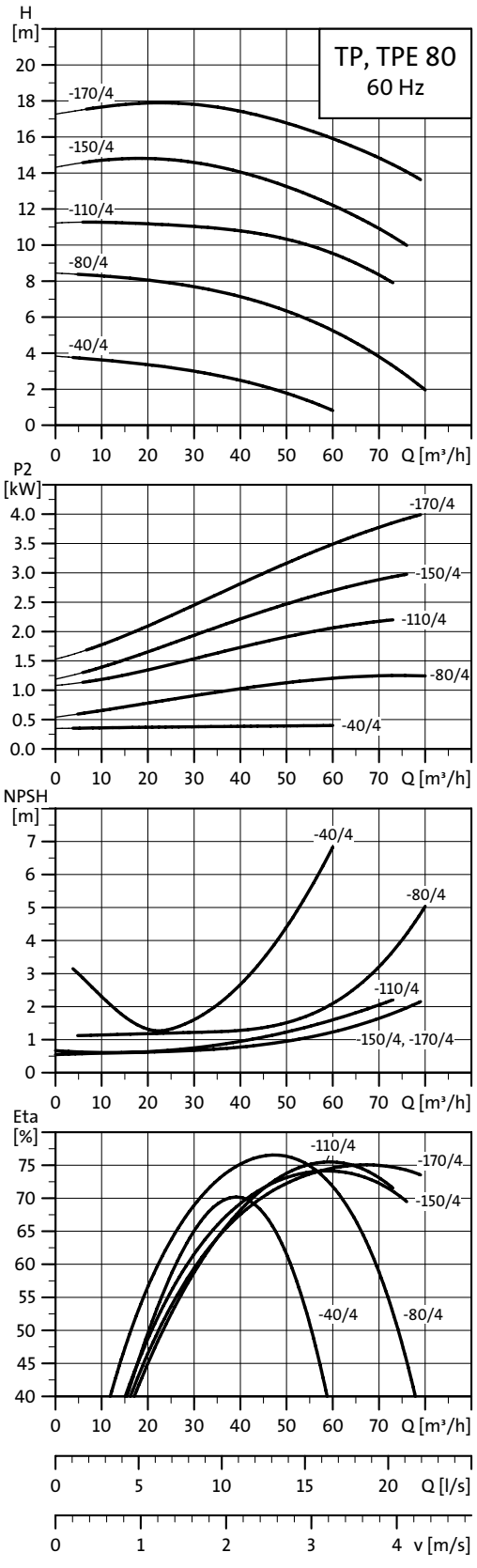
TP 65			-40/4	-80/4	-130/4	-150/4	-190/4	-230/4	-310/4	-330/4
TPD			●	●	●	●	●	●	●	●
TPE			-	-	●	●	●	●	●	●
TPED			-	-	-	-	-	-	-	-
Series			200	200	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-
	3-phase TP		71	90	90	100	100	112	132	132
	1-phase TPE		-	-	-	-	-	-	-	-
	3-phase TPE		-	-	90	100	100	112	132	160
P2	1-/3-phase TP*	[kW]	-/0.37	-/1.1	-/1.5	-/2.2	-/3	-/4	-/5.5	-/7.5
	1-/3-phase TPE	[kW]	-/-	-/-	-/1.5	-/2.2	-/3	-/4	-/5.5	-/7.5
PN			PN 6/10	PN 6/10	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	65	65	65	65	65	65	65	65
AC	1-/3-phase TP	[mm]	-/142	-/175	-/178	-/198	-/198	-/220	-/276	-/276
	1-/3-phase TPE	[mm]	-/-	-/-	-/178	-/178	-/178	-/198	-/220	-/258
AD	1-/3-phase TP	[mm]	-/109	-/110	-/110	-/120	-/120	-/134	-/198	-/198
	1-/3-phase TPE	[mm]	-/-	-/-	-/167	-/167	-/167	-/177	-/188	-/389
AE	1-/3-phase TPE	[mm]	-	-	132	132	132	132	145	148
AF	1-/3-phase TPE	[mm]	-	-	132	132	132	132	145	148
P		[mm]	-	-	200	250	250	250	300	300
B1**		[mm]	125/-	125/-	178/349	178/349	178/349	178/349	178/349	178/349
B2**		[mm]	100/-	100/-	164/383	164/383	164/383	164/383	164/383	164/383
B3		[mm]	-	-	440	440	440	440	440	440
B4**	TP	[mm]	109/-	110/-	178/383	178/383	178/383	178/383	198/383	198/383
	TPE	[mm]	-/-	-/-	178/-	178/-	178/-	178/-	188/-	389/-
C1**		[mm]	160/-	160/-	144/520	144/520	144/520	144/520	144/520	144/520
C5**		[mm]	170	170	238/111	238/111	238/111	238/111	238/111	238/111
C6		[mm]	-	-	175	175	175	175	175	175
L1		[mm]	340	340	475	475	475	475	475	475
H1		[mm]	97	97	125	125	125	125	125	125
H2		[mm]	136	158	166	194	194	194	233	233
H3	1-/3-phase TP	[mm]	-/424	-/536	-/612	-/654	-/654	-/691	-/777	-/815
	1-/3-phase TPE	[mm]	-/-	-/-	-/572	-/640	-/640	-/654	-/730	-/837
H4		[mm]	-	-	-	-	-	-	-	35
M			M16	M16	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

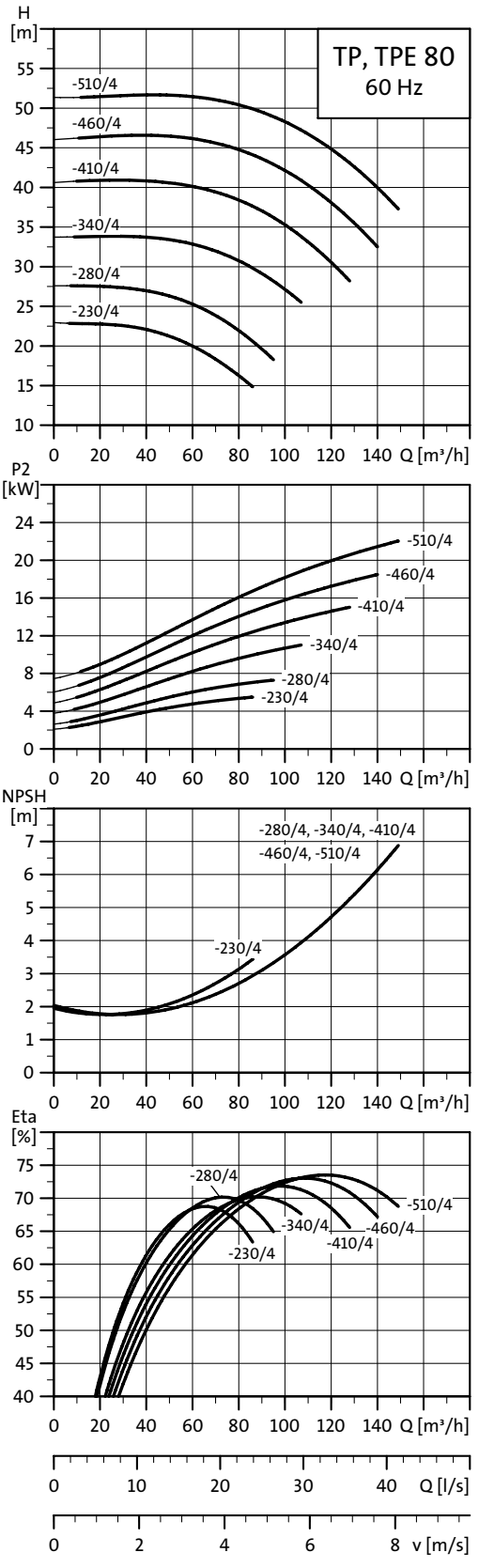
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 80-XXX/4



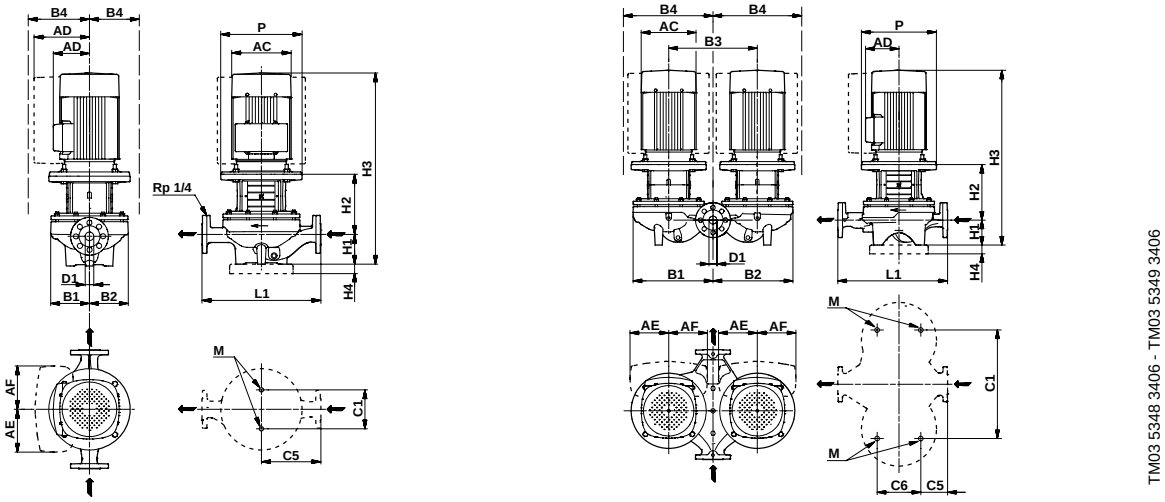
TM02 5054 1604



TM02 8772 1604

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data



TM03 5348 3406 - TM03 5349 3406

Technical data

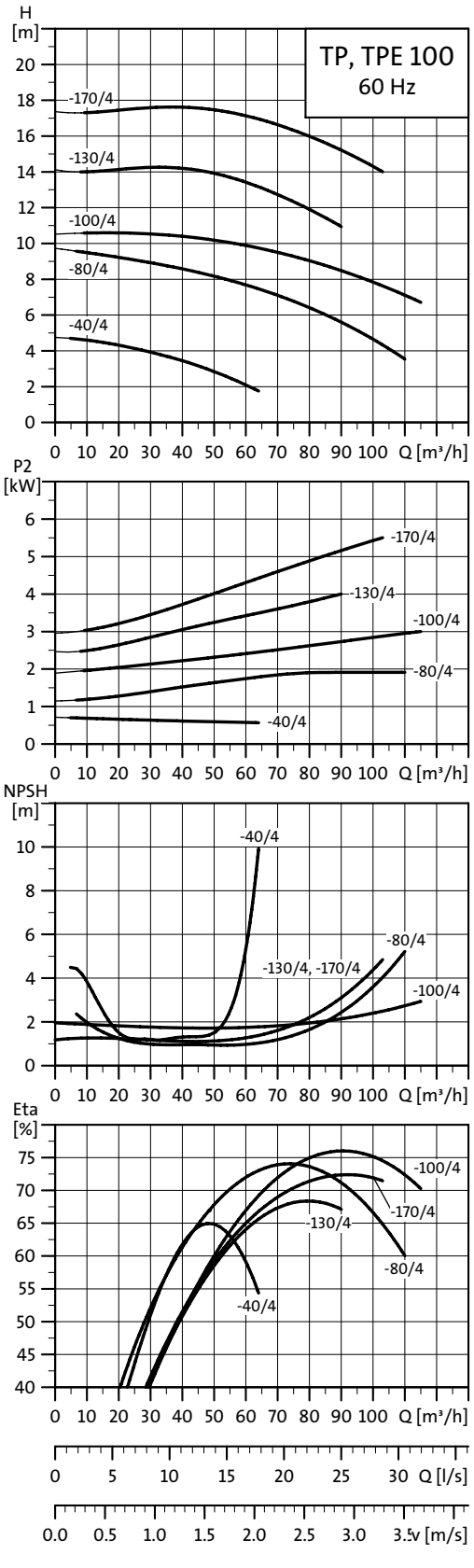
TP 80			**-40/4**	**-80/4**	**-110/4**	**-150/4**	**-170/4**	**-230/4**	**-280/4**	**-340/4**	**-410/4**	**-460/4**	**-510/4**
TPD			●	●	●	●	●	●	●	●	●	●	●
TPE			-	-	●	●	●	●	●	●	●	●	●
TPED			-	-	-	-	-	-	-	-	-	-	-
Series			200	200	300	300	300	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-	-	-	-
	3-phase TP		80	90	100	100	112	132	132	160	160	180	180
	1-phase TPE		-	-	-	-	-	-	-	-	-	-	-
	3-phase TPE		-	-	100	112	112	132	160	160	160	180	180
P2	1-/3-phase TP*	[kW]	-/0.75	-/1.5	-/2.2	-/3	-/4	-/5.5	-/7.5	-/11	-/15	-/18.5	-/22
	1-/3-phase TPE	[kW]	-/-	-/-	-/2.2	-/3	-/4	-/5.5	-/7.5	-/11	-/15	-/18.5	-/22
PN			PN 6/PN 10	PN 6/PN 10	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	80	80	80	80	80	80	80	80	80	80	80
AC	1-/3-phase TP	[mm]	-/142	-/175	-/198	-/198	-/220	-/276	-/276	-/320	-/320	-/363	-/363
	1-/3-phase TPE	[mm]	-/-	-/-	-/178	-/198	-/198	-/220	-/258	-/258	-/313	-/313	-/350
AD	1-/3-phase TP	[mm]	-/109	-/110	-/120	-/120	-/134	-/198	-/198	-/197	-/197	-/258	-/258
	1-/3-phase TPE	[mm]	-/-	-/-	-/167	-/177	-/177	-/188	-/389	-/389	-/417	-/417	-/439
AE	1-/3-phase TPE	[mm]	-	-	132	132	132	145	148	148	148	164	164
AF	1-/3-phase TPE	[mm]	-	-	132	132	132	145	148	148	148	164	164
P		[mm]	-	-	250	250	250	300	300	350	350	350	350
B1**		[mm]	130/-	135/-	144/366	162/416	162/416	226/491	226/491	226/491	226/491	226/491	226/491
B2**		[mm]	100/-	100/-	176/354	187/405	187/405	243/480	243/480	243/480	243/480	243/480	243/480
B3		[mm]	-	-	400	470	470	470	470	470	470	470	470
B4**	TP	[mm]	109/-	110/-	176/366	187/416	187/416	243/491	243/491	243/491	243/491	258/491	258/491
	TPE	[mm]	-/-	-/-	176/-	187/-	187/-	243/-	389/-	389/-	417/-	417/-	439/-
C1**		[mm]	160/-	160/-	144/480	144/550	144/550	230/550	230/550	230/550	230/550	230/550	230/550
C5**		[mm]	180	180	220/93	250/133	250/133	310/105	310/105	310/105	310/105	310/105	310/105
C6		[mm]	-	-	175	175	175	350	350	350	350	350	350
L1		[mm]	360	360	440	500	500	620	620	620	620	620	620
H1		[mm]	107	107	115	115	115	140	140	140	140	140	140
H2		[mm]	175	164	204	204	204	273	273	303	303	303	303
H3	1-/3-phase TP	[mm]	-/513	-/592	-/654	-/654	-/691	-/833	-/871	-/921	-/961	-/1045	-/1045
	1-/3-phase TPE	[mm]	-/-	-/-	-/640	-/654	-/654	-/785	-/892	-/892	-/942	-/942	-/968
H4		[mm]	-	-	-	-	-	-	35	35	35	35	35
M			M16	M16	M16	M16	M16	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

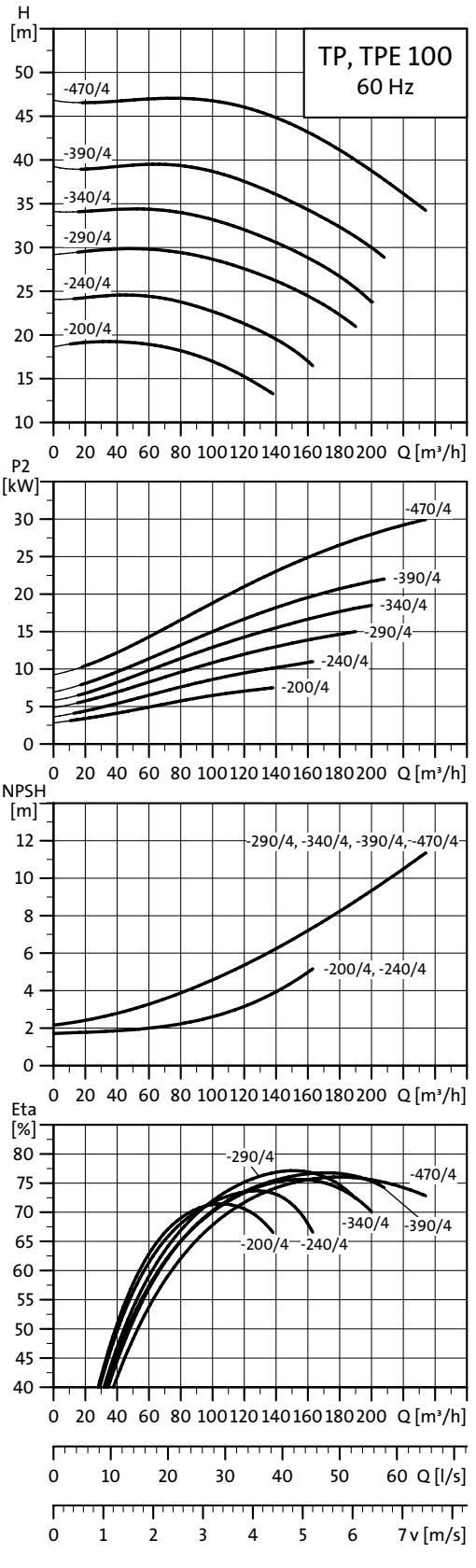
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 100-XXX/4



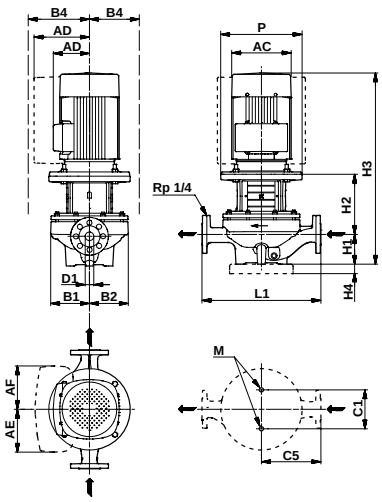
TM02 5055 1604

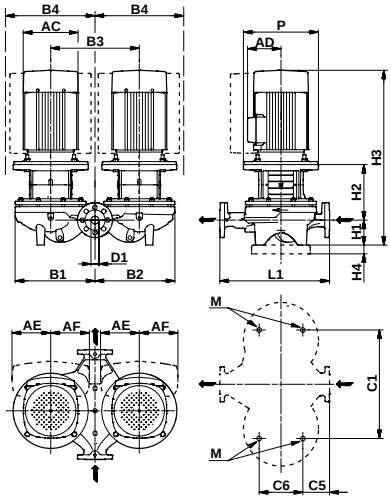


TM02 8773 1604

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data





TM03 5348 3406 - TM03 5349 3406

Technical data

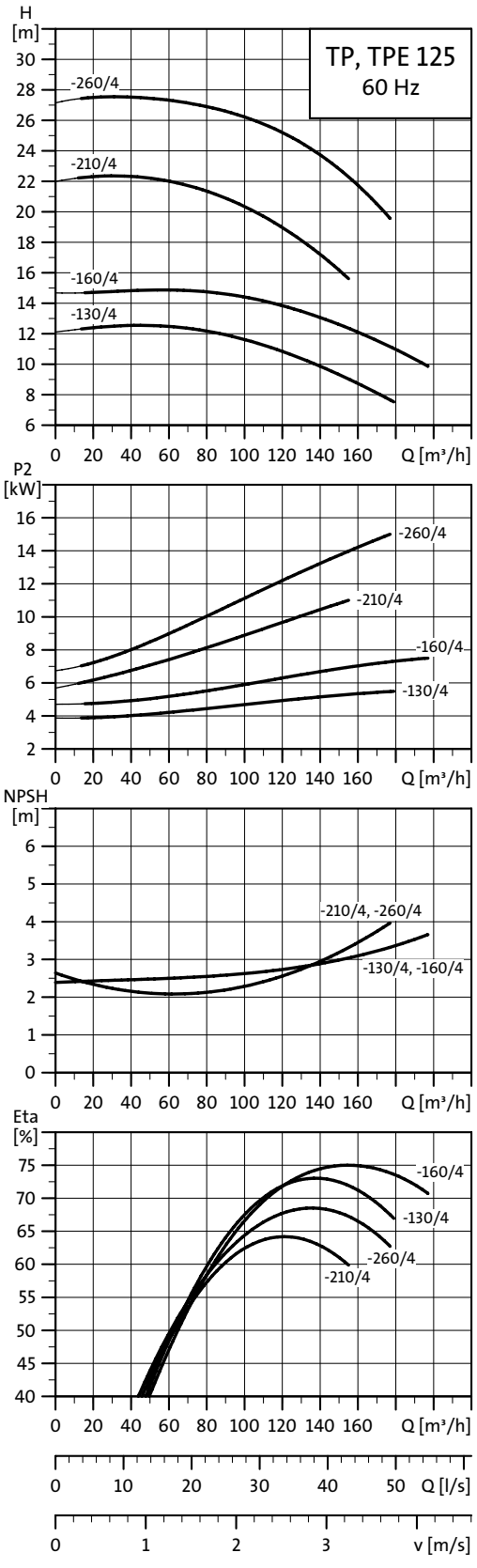
TP 100			-40/4	-80/4	-100/4	-130/4	-170/4	-200/4	-240/4	-290/4	-340/4	-390/4	-470/4
TPD			●	●	●	●	●	●	●	●	●	●	●
TPE			-	-	●	●	●	●	●	●	●	●	-
TPED			-	-	-	-	-	-	-	-	-	-	-
Series			200	200	300	300	300	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-	-	-	-
	3-phase TP		90	100	100	112	132	132	160	160	180	180	200
	1-phase TPE		-	-	-	-	-	-	-	-	-	-	-
	3-phase TPE		-	-	112	112	132	160	160	160	180	180	-
P2	1-/3-phase TP*	[kW]	-/1.1	-/2.2	-/3	-/4	-/5.5	-/7.5	-/11	-/15	-/18.5	-/22	-/30
	1-/3-phase TPE	[kW]	-/-	-/-	-/3	-/4	-/5.5	-/7.5	-/11	-/15	-/18.5	-/22	-/-
PN			PN6/PN 10	PN 6/PN 10	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;140]	[-25;140]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	100	100	100	100	100	100	100	100	100	100	100
AC	1-/3-phase TP	[mm]	-/175	-/175	-/198	-/220	-/276	-/267	-/320	-/320	-/363	-/363	-/402
	1-/3-phase TPE	[mm]	-/-	-/-	-/198	-/198	-/220	-/258	-/258	-/313	-/313	-/350	-/-
AD	1-/3-phase TP	[mm]	-/110	-/110	-/120	-/134	-/198	-/167	-/197	-/197	-/258	-/258	-/305
	1-/3-phase TPE	[mm]	-/-	-/-	-/177	-/177	-/188	-/389	-/389	-/417	-/417	-/439	-/-
AE	1-/3-phase TPE	[mm]	-	-	132	132	145	148	148	148	164	164	-
AF	1-/3-phase TPE	[mm]	-	-	132	132	145	148	148	148	164	164	-
P		[mm]	-	-	250	250	300	300	350	350	350	350	400
B1**		[mm]	174/-	174/-	151/414	173/443	173/443	249/579	249/579	249/579	249/579	249/579	249/579
B2**		[mm]	120/-	120/-	190/395	201/429	201/429	290/561	290/561	290/561	290/561	290/561	290/561
B3		[mm]	-	-	470	500	500	600	600	600	600	600	600
B4**	TP	[mm]	110/-	110/-	190/414	201/443	201/443	290/579	290/579	290/579	290/579	290/579	305/579
	TPE	[mm]	-/-	-/-	190/-	201/-	201/-	389/-	389/-	417/-	417/-	439/-	-/-
C1**		[mm]	200/-	200/-	230/550	230/550	230/550	230/680	230/680	230/680	230/680	230/680	230/680
C5**		[mm]	225	225	275/110	275/110	275/110	335/110	335/110	335/110	335/110	335/110	335/110
C6		[mm]	-	-	230	230	230	350	350	350	350	350	350
L1		[mm]	450	450	550	550	550	670	670	670	670	670	670
H1		[mm]	122	122	140	140	140	175	175	175	175	175	175
H2		[mm]	183	193	201	261	277	254	308	308	308	308	308
H3	1-/3-phase TP	[mm]	-/585	-/650	-/676	-/773	-/837	-/840	-/961	-/1001	-/1085	-/1085	-/1142
	1-/3-phase TPE	[mm]	-/-	-/-	-/676	-/736	-/789	-/908	-/932	-/982	-/982	-/1008	-/-
H4		[mm]	-	-	-	-	-	-	35	35	35	35	35
M			M16	M16	M16	M16	M16	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

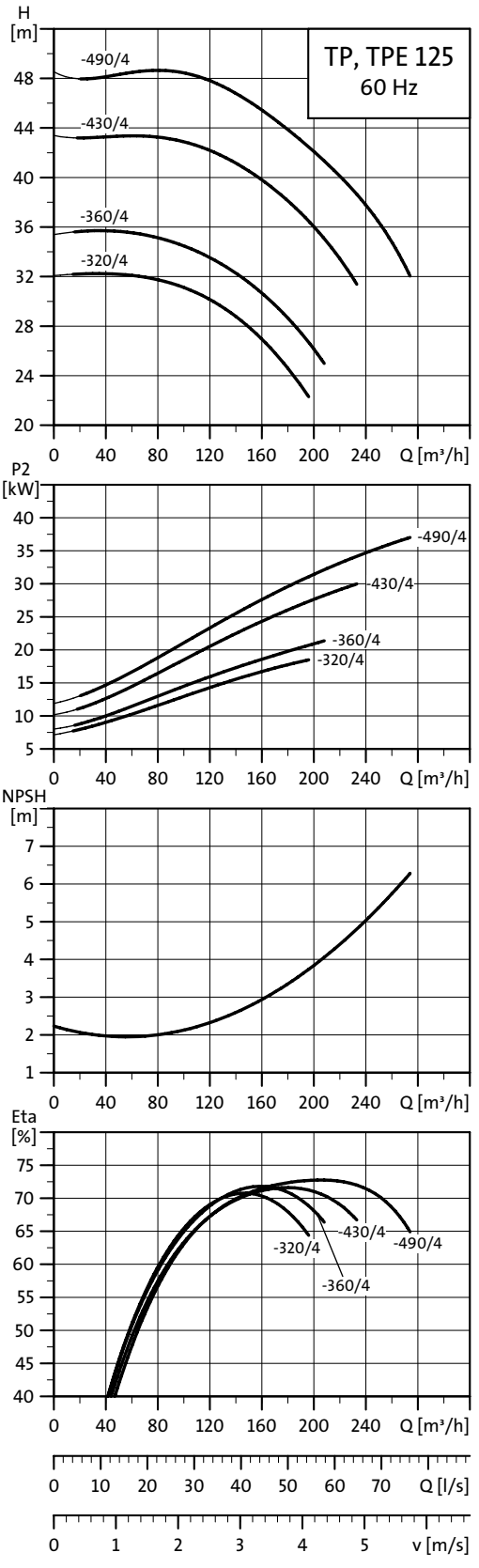
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 125-XXX/4



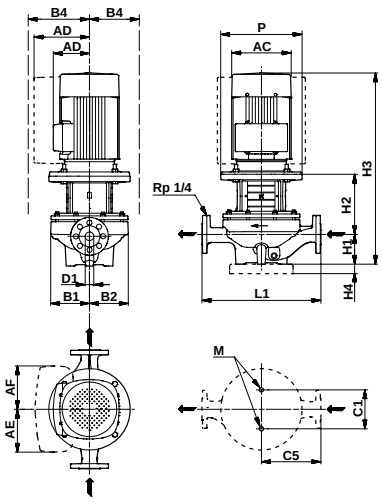
TM02 8774 1604

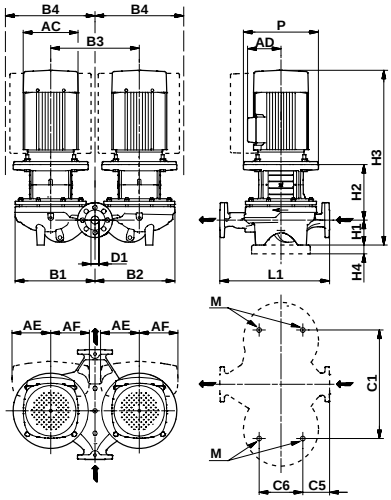


TM02 8775 1604

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data





TM03 5348 3406 - TM03 5349 3406

Technical data

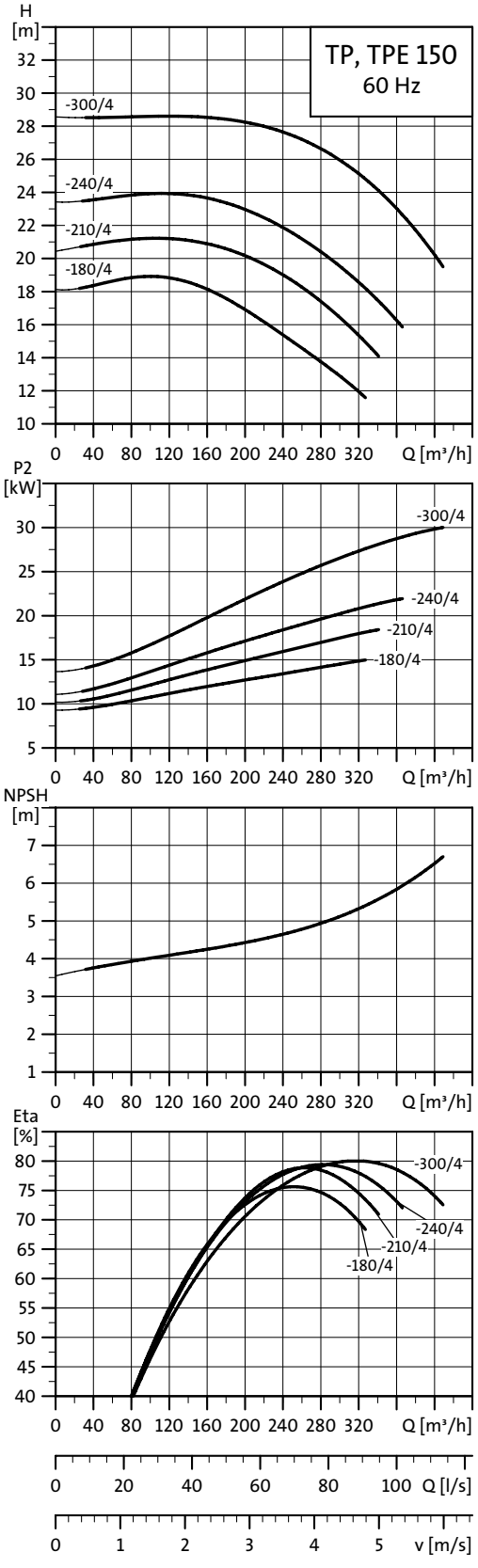
TP 125			-130/4	-160/4	-210/4	-260/4	-320/4	-360/4	-430/4	-490/4
TPD			●	●	●	●	●	●	●	●
TPE			●	●	●	●	●	●	-	-
TPED			-	-	-	-	-	-	-	-
Series			300	300	300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-	-	-
	3-phase TP		132	132	160	160	180	180	200	225
	1-phase TPE		-	-	-	-	-	-	-	-
	3-phase TPE		132	160	160	160	180	180	-	-
P2	1-/3-phase TP*	[kW]	-/5.5	-/7.5	-/11	-/15	-/18.5	-/22	-/30	-/37
	1-/3-phase TPE	[kW]	-/5.5	-/7.5	-/11	-/15	-/18.5	-/22	-/-	-/-
PN			PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	125	125	125	125	125	125	125	125
AC	1-/3-phase TP	[mm]	-/276	-/276	-/320	-/320	-/363	-/363	-/402	-/442
	1-/3-phase TPE	[mm]	-/220	-/258	-/258	-/313	-/313	-/350	-/-	-/-
AD	1-/3-phase TP	[mm]	-/198	-/198	-/197	-/197	-/258	-/258	-/305	-/325
	1-/3-phase TPE	[mm]	-/188	-/389	-/389	-/417	-/417	-/439	-/-	-/-
AE	1-/3-phase TPE	[mm]	145	148	148	148	164	164	-	-
AF	1-/3-phase TPE	[mm]	145	148	148	148	164	164	-	-
P		[mm]	300	300	350	350	350	350	400	450
B1**		[mm]	202/537	202/537	243/566	243/566	243/566	243/566	243/566	243/566
B2**		[mm]	250/518	250/518	271/552	271/552	271/552	271/552	271/552	271/552
B3		[mm]	600	600	600	600	600	600	600	600
B4**	TP	[mm]	250/537	250/537	271/566	271/566	271/566	271/566	305/566	325/566
	TPE	[mm]	250/-	389/-	389/-	417/-	417/-	439/-	-/-	-/-
C1**		[mm]	230/680	230/680	230/680	230/680	230/680	230/680	230/680	230/680
C5**		[mm]	310/84	310/84	400/175	400/175	400/175	400/175	400/175	400/175
C6		[mm]	300	300	350	350	350	350	350	350
L1		[mm]	620	620	800	800	800	800	800	800
H1		[mm]	215	215	215	215	215	215	215	215
H2		[mm]	283	283	318	318	318	318	318	348
H3	1-/3-phase TP	[mm]	-/917	-/955	-/1011	-/1051	-/1135	-/1135	-/1192	-/1212
	1-/3-phase TPE	[mm]	-/870	-/989	-/982	-/1032	-/1032	-/1058	-/-	-/-
H4		[mm]	-	35	35	35	35	35	35	35
M			M16	M16	M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

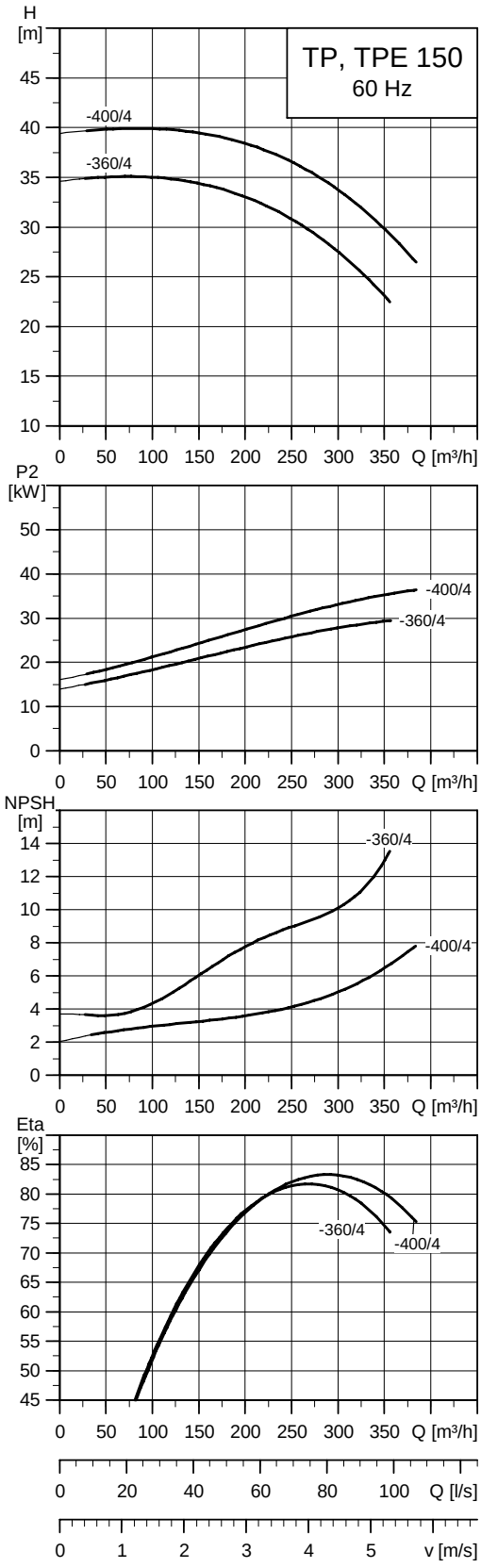
★★ The dimension before the slash applies to the single-head pump and the dimension after the slash applies to the twin-head pump.

Performance curves

TP, TPD, TPE 150-XXX/4



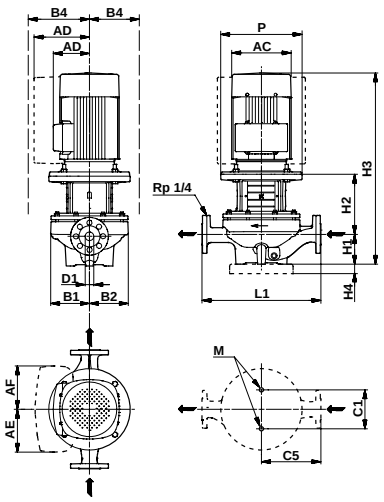
TM02 8776 1604

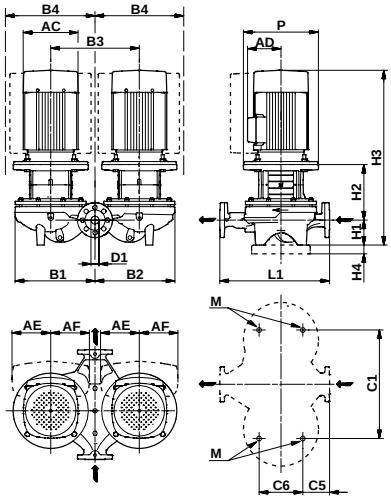


TM03 4652 4006

Note: All QH-curves apply to single-head pumps. For further information, see page 40.

Technical data





TM03 5348 3406 - TM03 5349 3406

Technical data

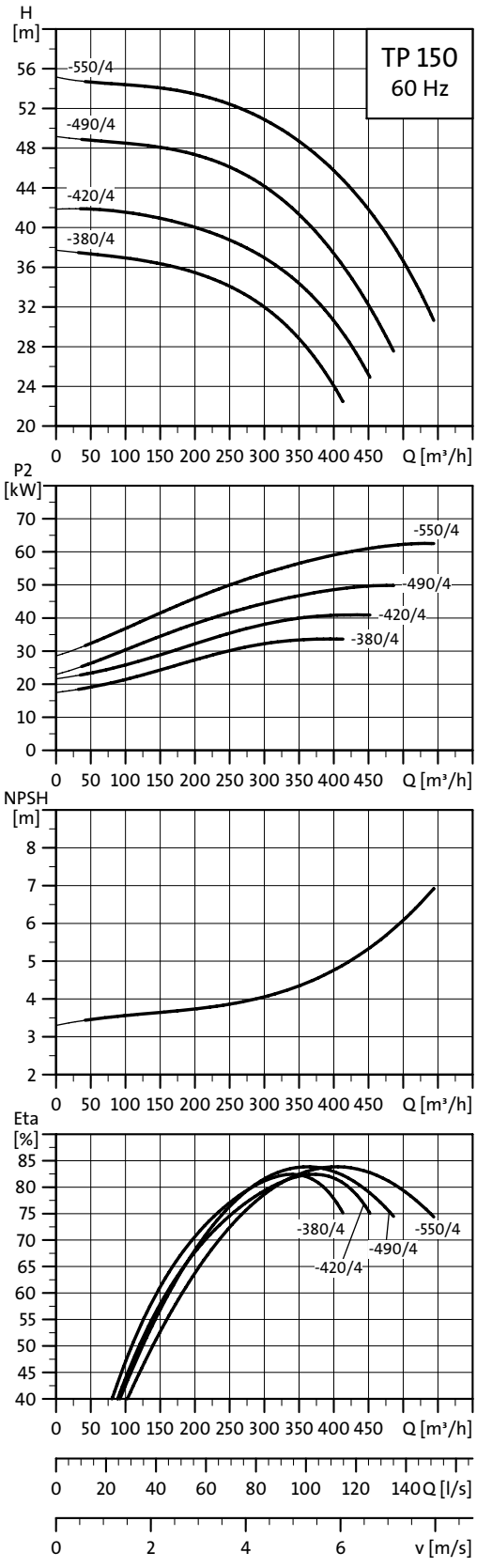
TP 150			-180/4	-210/4	-240/4	-300/4	-360/4	-400/4
TPD			●	●	●	●	-	-
TPE			●	●	●	-	-	-
TPED			-	-	-	-	-	-
Series			300	300	300	300	300	300
IEC size	1-phase TP		-	-	-	-	-	-
	3-phase TP		160	180	180	200	200	225
	1-phase TPE		-	-	-	-	-	-
	3-phase TPE		160	180	180	-	-	-
P2	1-/3-phase TP*	[kW]	-/15	-/18.5	-/22	-/30	-/30	-/37
	1-/3-phase TPE	[kW]	-/15	-/18.5	-/22	-/-	-/-	-/-
PN			PN 16	PN 16	PN 16	PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	150	150	150	150	150	150
AC	1-/3-phase TP	[mm]	-/320	-/363	-/363	-/402	-/402	-/442
	1-/3-phase TPE	[mm]	-/313	-/313	-/350	-/-	-/-	-/-
AD	1-/3-phase TP	[mm]	-/197	-/258	-/258	-/305	-/305	-/325
	1-/3-phase TPE	[mm]	-/417	-/417	-/439	-/-	-/-	-/-
AE	1-/3-phase TPE	[mm]	148	164	164	-	-	-
AF	1-/3-phase TPE	[mm]	148	164	164	-	-	-
P		[mm]	350	350	350	400	400	450
B1**		[mm]	237/583	237/583	237/583	237/583	293/-	293/-
B2**		[mm]	296/553	296/553	296/553	296/553	248/-	248/-
B3		[mm]	600	600	600	600	-	-
B4**	TP	[mm]	296/583	296/583	296/583	305/583	305/-	325/-
	TPE	[mm]	417/-	417/-	439/-	-/-	-/-	-/-
C1**		[mm]	230/680	230/680	230/680	230/680	350/-	350/-
C5**		[mm]	400/153	400/153	400/153	400/153	400/-	400/-
C6		[mm]	350	350	350	350	-	-
L1		[mm]	800	800	800	800	800	800
H1		[mm]	215	215	215	215	185	185
H2		[mm]	321	321	321	321	319	349
H3	1-/3-phase TP	[mm]	-/1055	-/1139	-/1139	-/1195	-/1162	-/1183
	1-/3-phase TPE	[mm]	-/1036	-/1036	-/1062	-/-	-/-	-/-
H4		[mm]	35	35	36	35	50	50
M			M16	M16	M16	M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

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

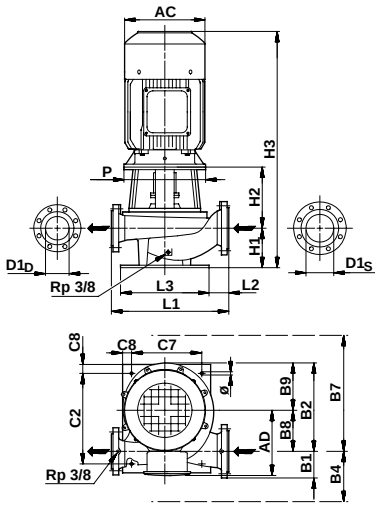
Performance curves

TP 150-XXX/4



TM02 6823 0504

Technical data



TM02 8349 5003

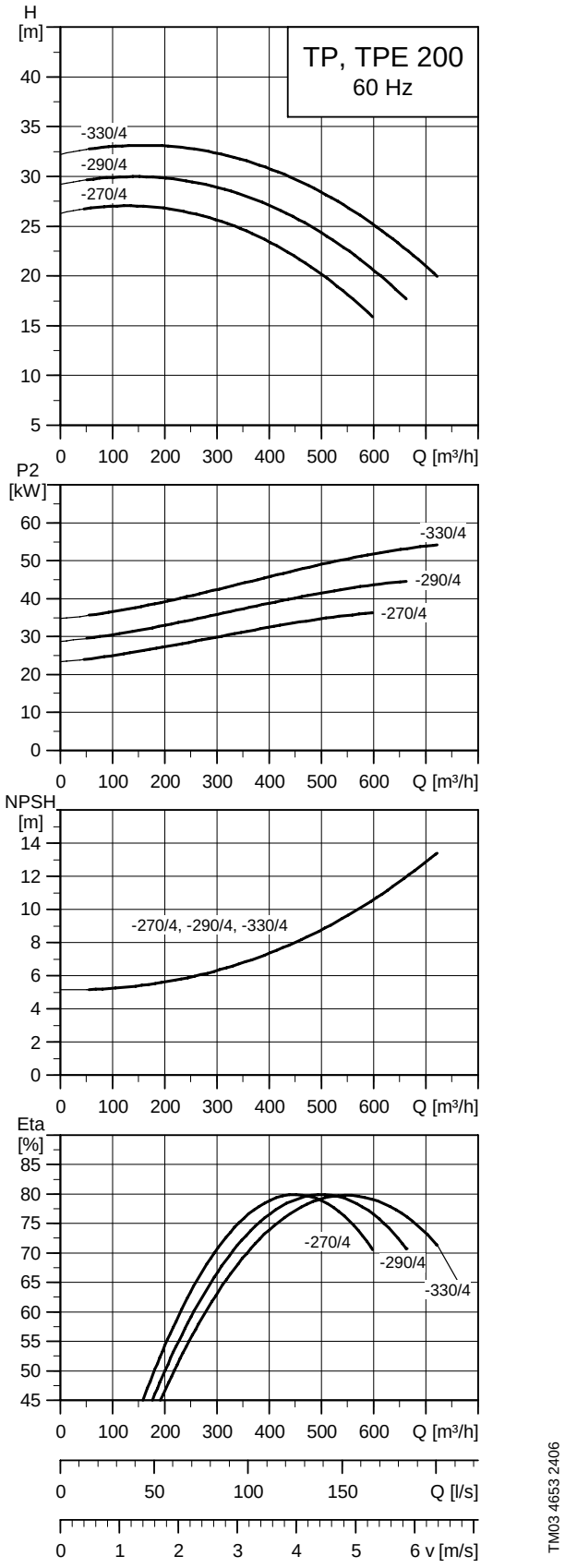
Technical data

TP 150			-380/4	-420/4	-490/4	-550/4
TPD			-	-	-	-
TPE			-	-	-	-
TPED			-	-	-	-
Series			400	400	400	400
IEC size	1-phase TP		-	-	-	-
	3-phase TP		225 S	225 M	250 M	280 S
	1-phase TPE		-	-	-	-
	3-phase TPE		-	-	-	-
$P2^{\star}$		[kW]	37	45	55	75
PN			10	10	10	10
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
$D1_D/D1_S$		[mm]	200/250	200/250	200/250	200/250
AC		[mm]	442	442	495	555
AD		[mm]	325	325	392	432
P		[mm]	550	550	550	550
B1		[mm]	198	198	198	198
B2		[mm]	555	555	555	555
B4		[mm]	198	198	198	198
B7		[mm]	573	573	573	573
B8		[mm]	260	260	260	260
B9		[mm]	295	295	295	295
C2		[mm]	525	525	525	525
C7		[mm]	460	460	460	460
C8		[mm]	50	50	50	50
Ø		[mm]	20	20	20	20
L1		[mm]	830	830	830	830
L2		[mm]	170	170	170	170
L3		[mm]	560	560	560	560
H1		[mm]	260	260	260	260
H2		[mm]	338	338	338	338
H3		[mm]	1247	1307	1415	1418

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF 1 motors as standard.

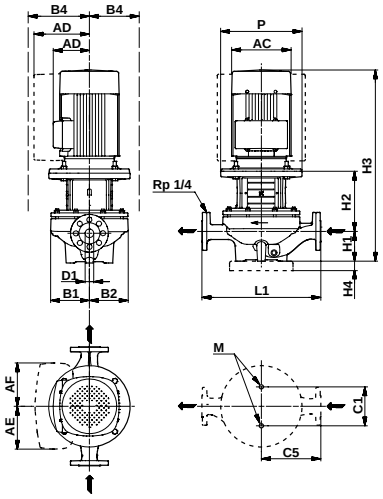
Performance curves

TP 200-XXX/4



TM03 4653 2406

Technical data



TM03 5348 3406

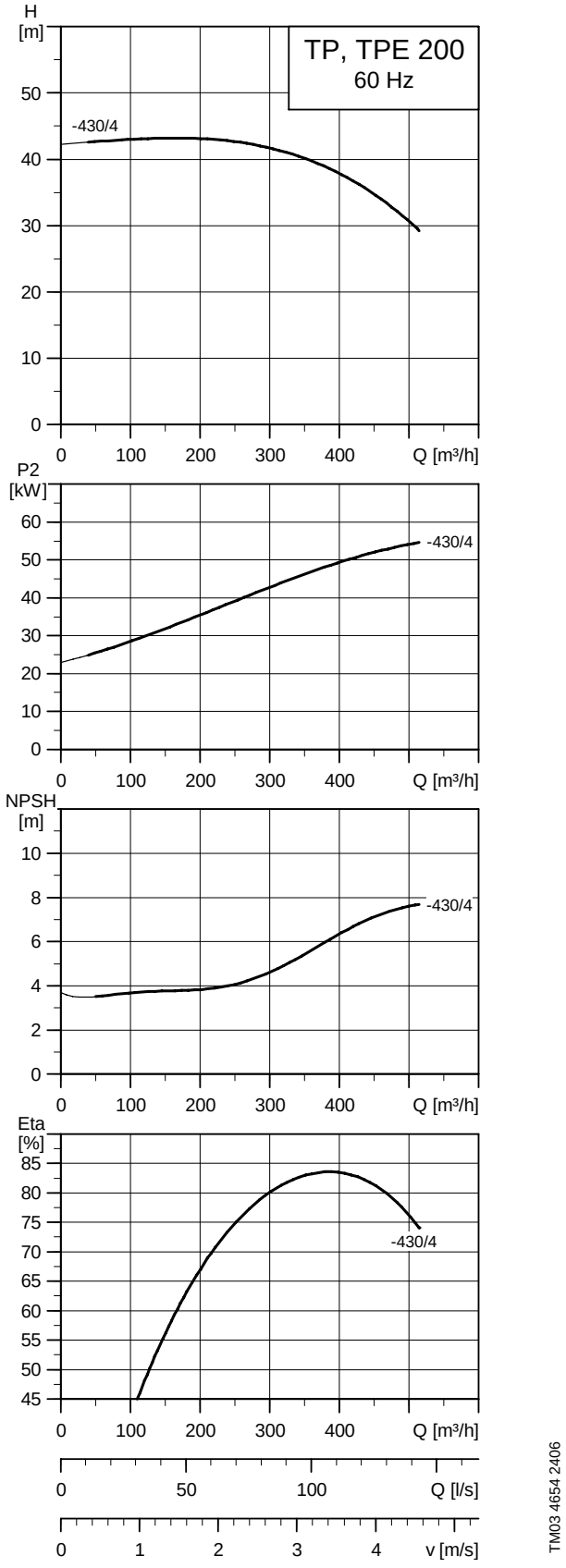
Technical data

TP 200			-270/4	-290/4	-330/4
TPD			-	-	-
TPE			-	-	-
TPED			-	-	-
Series			300	300	300
IEC size	1-phase TP		-	-	-
	3-phase TP		225	225	250
	1-phase TPE		-	-	-
	3-phase TPE		-	-	-
P2	1-/3-phase TP*	[kW]	-/37	-/45	-/55
	1-/3-phase TPE	[kW]	-/-	-/-	-/-
PN			PN 16	PN 16	PN 16
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]
D1		[mm]	200	200	200
AC	1-/3-phase TP	[mm]	-/442	-/442	-/495
	1-/3-phase TPE	[mm]	-/-	-/-	-/-
AD	1-/3-phase TP	[mm]	-/325	-/325	-/392
	1-/3-phase TPE	[mm]	-/-	-/-	-/-
AE	1-/3-phase TPE	[mm]	-	-	-
AF	1-/3-phase TPE	[mm]	-	-	-
P		[mm]	450	450	550
B1**		[mm]	343/-	343/-	343/-
B2**		[mm]	279/-	279/-	279/-
B3		[mm]	-	-	-
B4**	TP	[mm]	343/-	343/-	392/-
	TPE	[mm]	-/-	-/-	-/-
C1**		[mm]	400/-	400/-	400/-
C5**		[mm]	450/-	450/-	450/-
C6		[mm]	-	-	-
L1		[mm]	900	900	900
H1		[mm]	245	245	245
H2		[mm]	364	364	364
H3	1-/3-phase TP	[mm]	-/1258	-/1318	-/1426
	1-/3-phase TPE	[mm]	-/-	-/-	-/-
H4		[mm]	50	50	50
M			M16	M16	M16

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

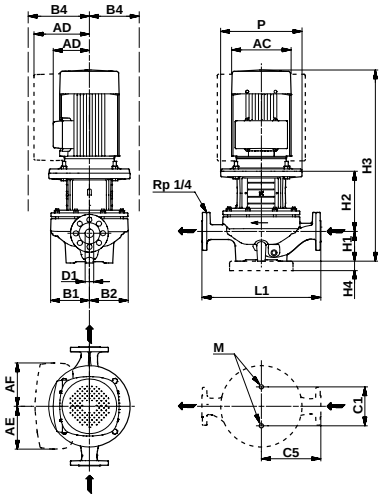
Performance curves

TP 200-XXX/4



TM03 4654 2406

Technical data



TM03 5348 3406

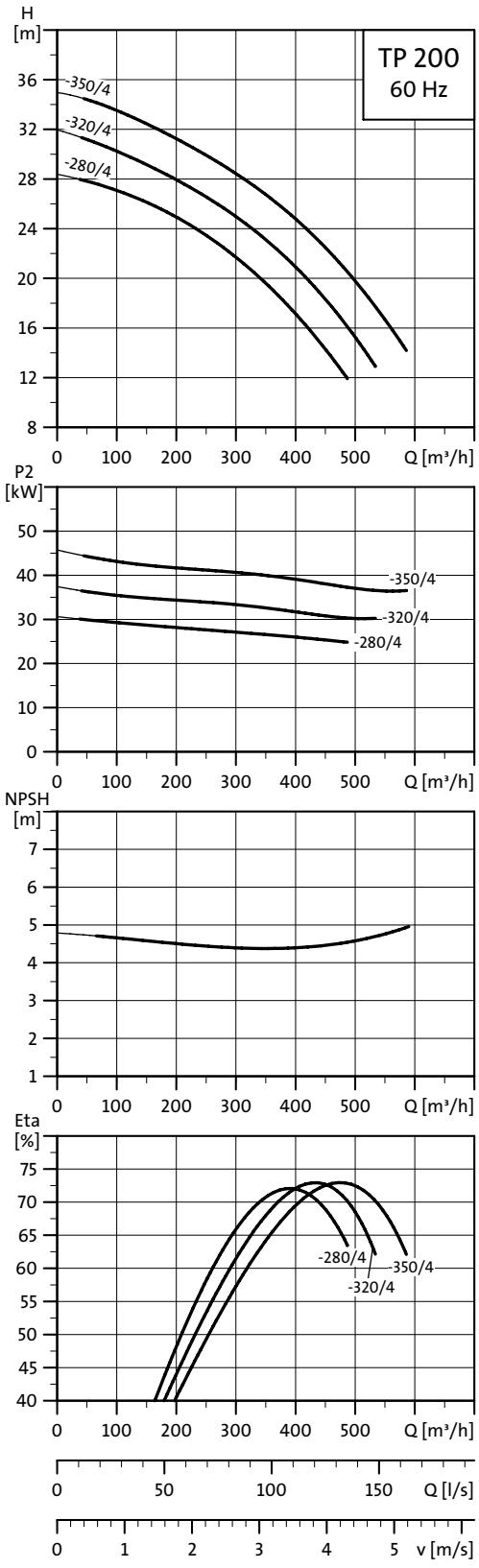
Technical data

TP 200			**-430/4**
TPD			-
TPE			-
TPED			-
Series			300
IEC size	1-phase TP		-
	3-phase TP		250
	1-phase TPE		-
	3-phase TPE		-
P2	1-/3-phase TP*	[kW]	-/55
	1-/3-phase TPE	[kW]	-/-
PN			PN 16
T_{min} ; T_{max}		[°C]	[-25;120]
D1		[mm]	200
AC	1-/3-phase TP	[mm]	-/495
	1-/3-phase TPE	[mm]	-/-
AD	1-/3-phase TP	[mm]	-/392
	1-/3-phase TPE	[mm]	-/-
AE	1-/3-phase TPE	[mm]	-
AF	1-/3-phase TPE	[mm]	-
P		[mm]	550
B1**		[mm]	368/-
B2**		[mm]	313/-
B3		[mm]	-
B4**	TP	[mm]	392/-
	TPE	[mm]	-/-
C1**		[mm]	400/-
C5**		[mm]	500/-
C6		[mm]	-
L1		[mm]	1000
H1		[mm]	245
H2		[mm]	382
H3	1-/3-phase TP	[mm]	-/1444
	1-/3-phase TPE	[mm]	-/-
H4		[mm]	50
M			M16

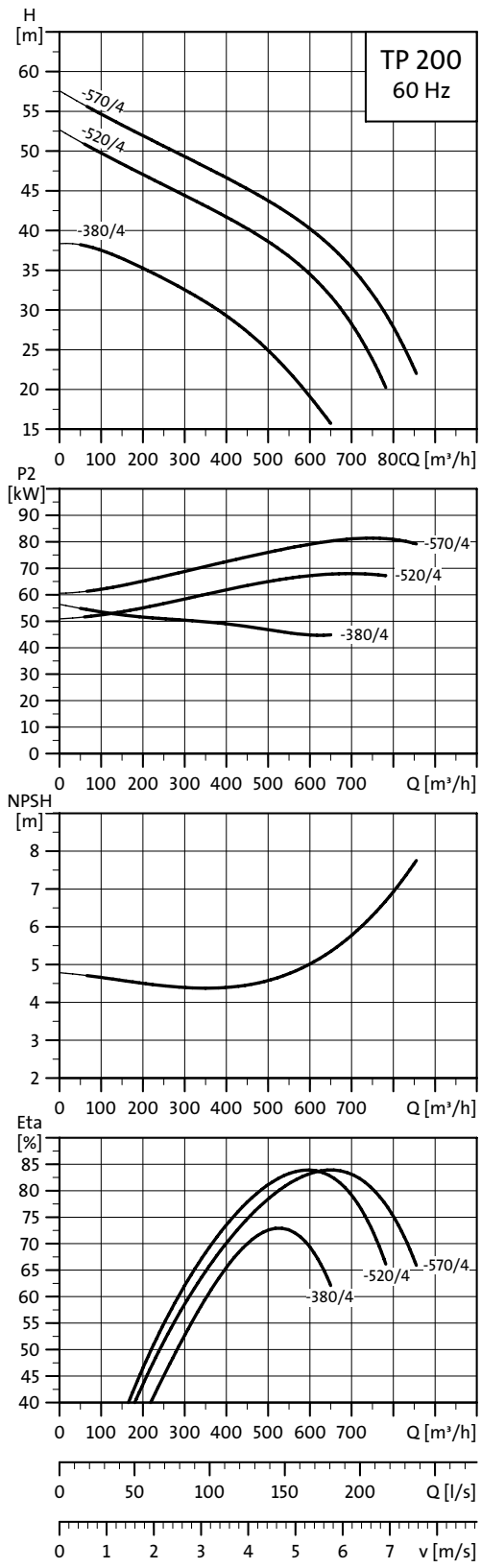
★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

Performance curves

TP 200-XXX/4

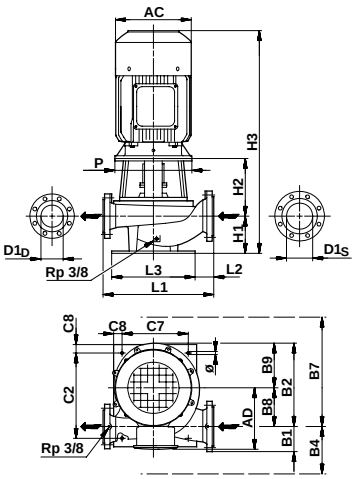


TM02 6824 0504



TM02 6825 0504

Technical data



TM02 8349 5003

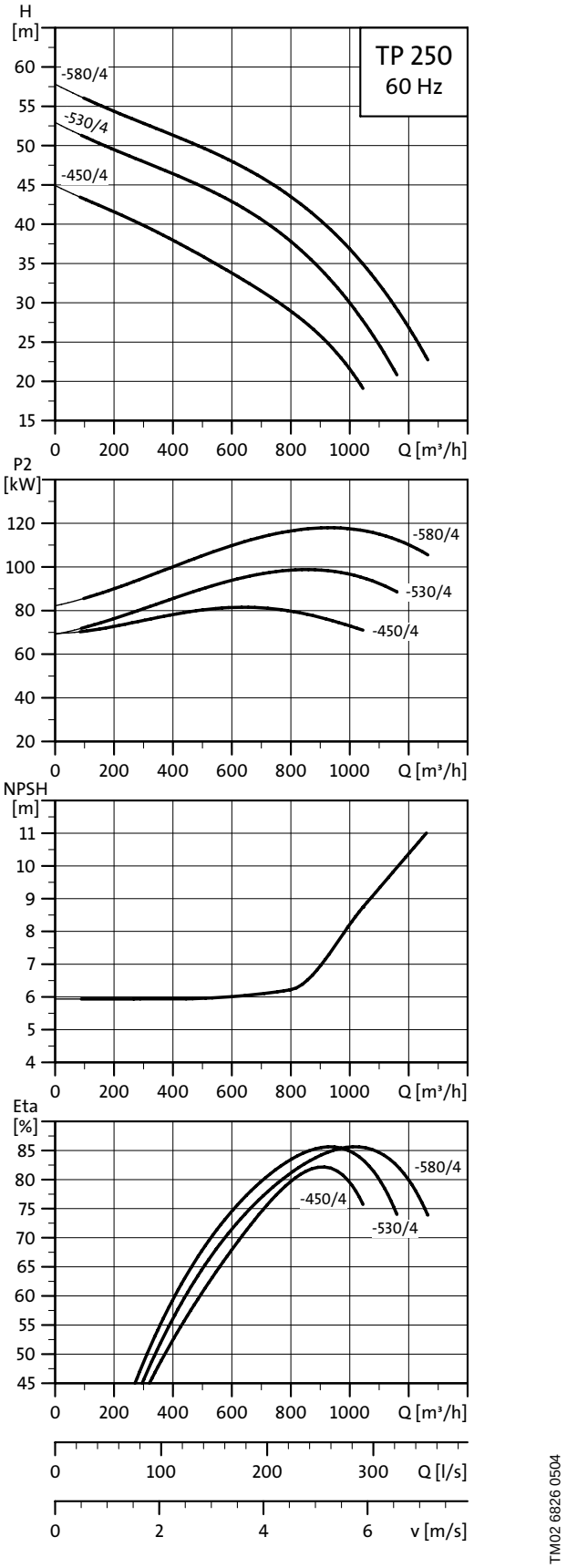
Technical data

TP 200			-280/4	-320/4	-350/4	-380/4	-520/4	-570/4
TPD			-	-	-	-	-	-
TPE			-	-	-	-	-	-
TPED			-	-	-	-	-	-
Series			400	400	400	400	400	400
IEC size	1-phase TP		-	-	-	-	-	-
	3-phase TP		200 L	225 S	225 M	250 M	280 S	280 M
	1-phase TPE		-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	-
$P2^{\star}$		[kW]	30	37	45	55	75	90
PN			10	10	10	10	10	10
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]	[-25;120]
$D1_D/D1_S$		[mm]	200/250	200/250	200/250	200/250	200/250	200/250
AC		[mm]	402	442	442	495	555	555
AD		[mm]	305	325	325	392	432	432
P		[mm]	450	550	550	550	550	550
B1		[mm]	198	198	198	198	198	198
B2		[mm]	555	555	555	555	555	555
B4		[mm]	198	198	198	198	198	198
B7		[mm]	573	573	573	573	573	573
B8		[mm]	260	260	260	260	260	260
B9		[mm]	295	295	295	295	295	295
C2		[mm]	525	525	525	525	525	525
C7		[mm]	460	460	460	460	460	460
C8		[mm]	50	50	50	50	50	50
Ø		[mm]	20	20	20	20	20	20
L1		[mm]	830	830	830	830	830	830
L2		[mm]	170	170	170	170	170	170
L3		[mm]	560	560	560	560	560	560
H1		[mm]	260	260	260	260	260	260
H2		[mm]	308	338	338	338	338	338
H3		[mm]	1227	1247	1307	1415	1418	1528

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF1 motors as standard.

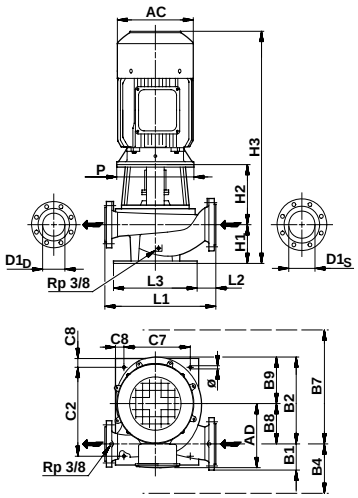
Performance curves

TP 250-XXX/4



TM02 6826 0504

Technical data



TM02 8349 5004

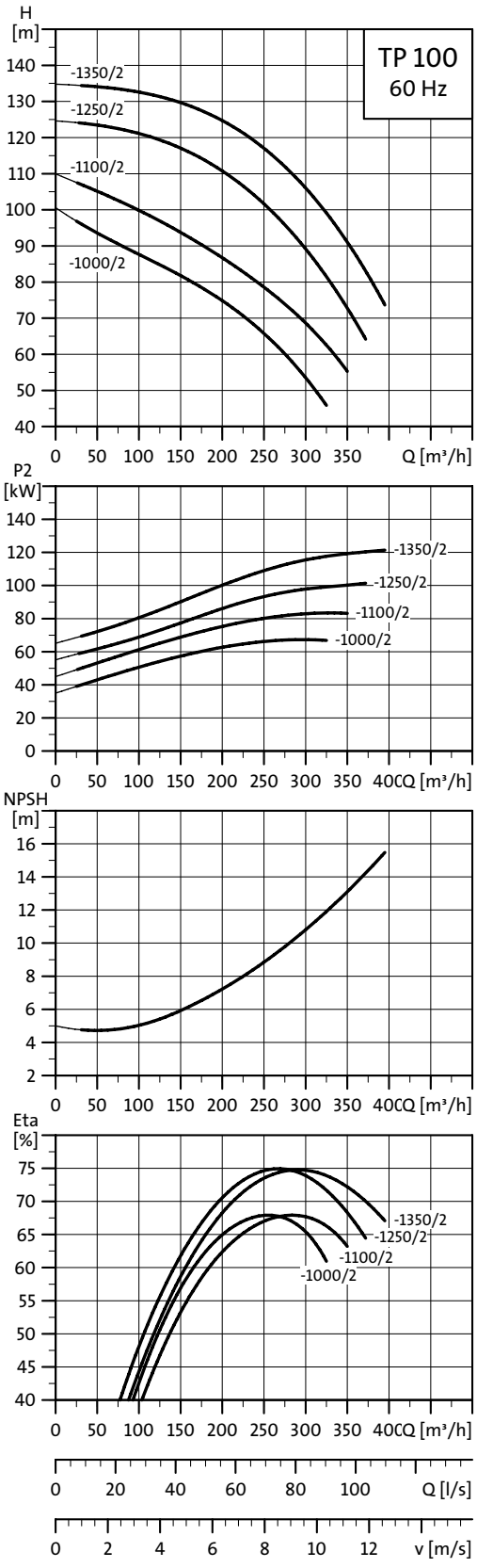
Technical data

TP 250			-450/4	-530/4	-580/4
TPD			-	-	-
TPE			-	-	-
TPED			-	-	-
Series			400	400	400
IEC size	1-phase TP		-	-	-
	3-phase TP		280 M	315 S	315 M
	1-phase TPE		-	-	-
	3-phase TPE		-	-	-
P_2★		[kW]	90	110	132
PN			10	10	10
T_{min} ; T_{max}		[°C]	[-25;120]	[-25;120]	[-25;120]
$D1_D/D1_S$		[mm]	250/300	250/300	250/300
AC		[mm]	555	610	610
AD		[mm]	432	495	495
P		[mm]	550	660	660
B1		[mm]	223	223	223
B2		[mm]	635	635	635
B4		[mm]	223	223	223
B7		[mm]	647	647	647
B8		[mm]	300	300	300
B9		[mm]	335	335	335
C2		[mm]	580	580	580
C7		[mm]	520	520	520
C8		[mm]	50	50	50
Ø		[mm]	20	20	20
L1		[mm]	950	950	950
L2		[mm]	190	190	190
L3		[mm]	620	620	620
H1		[mm]	310	310	310
H2		[mm]	368	398	398
H3		[mm]	1608	1640	1800

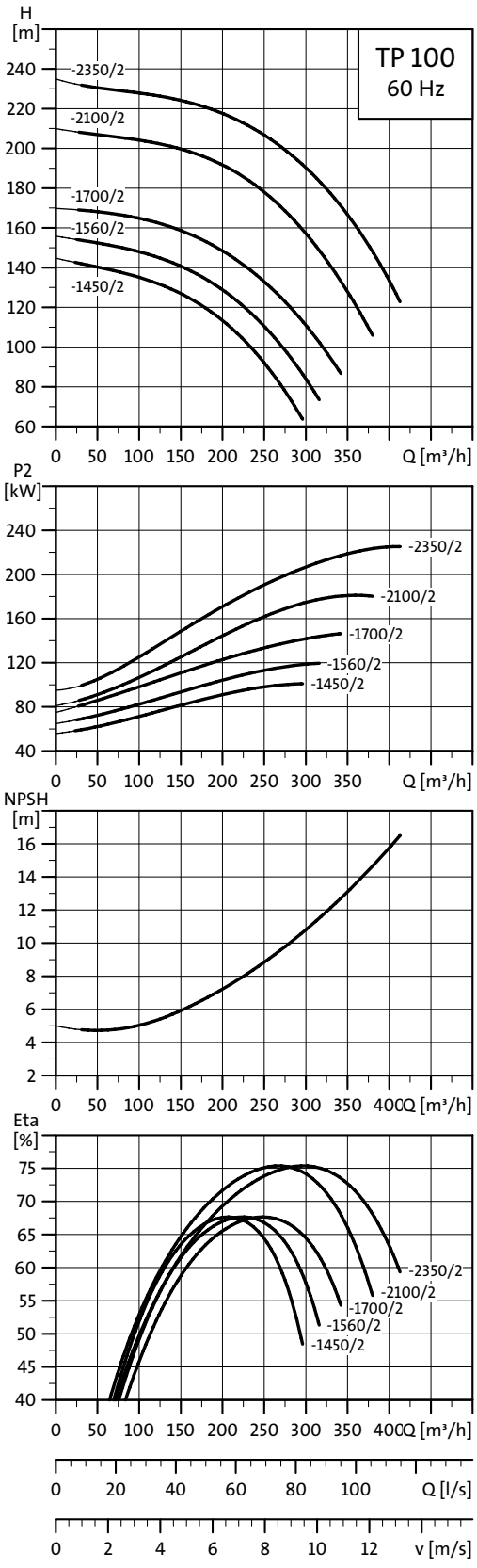
★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF 1 motors as standard.

TP, 2-pole, PN 25

TP 100-XXX/2

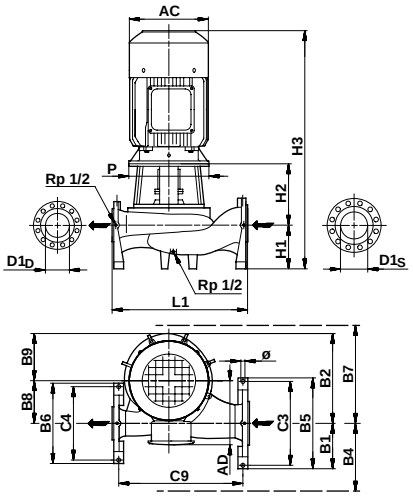


TM02 6853 0504



TTM02 6854 0504

Technical data



TM02 8350 5004

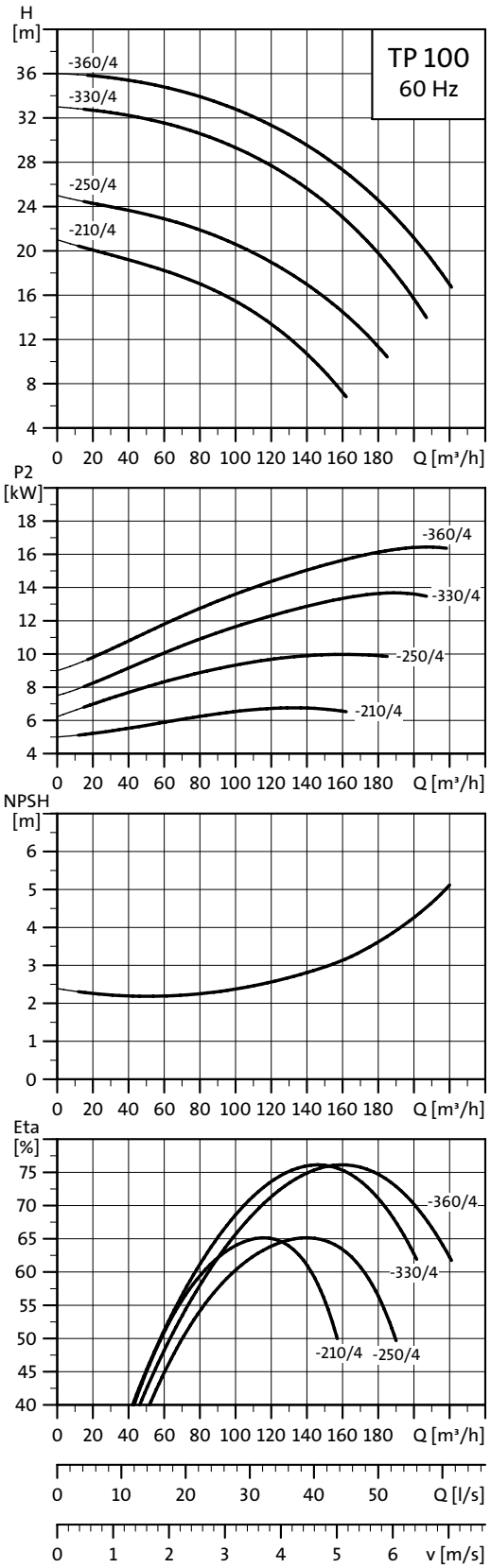
Technical data

TP 100			-1000/2	-1100/2	-1250/2	-1350/2	-1450/2	-1560/2	-1700/2	-2100/2	-2350/2
TPD			-	-	-	-	-	-	-	-	-
TPE			-	-	-	-	-	-	-	-	-
TPED			-	-	-	-	-	-	-	-	-
Series			400	400	400	400	400	400	400	400	400
IEC size	1-phase TP		-	-	-	-	-	-	-	-	-
	3-phase TP		280 S	280 M	315 S	315 M	315 S	315 M	315 L	315 L	315
	1-phase TPE		-	-	-	-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	-	-	-	-
$P2^{\star}$		[kW]	75	90	110	132	110	132	160	200	250
PN			25	25	25	25	25	25	25	25	25
T_{min} ; T_{max}		[°C]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]
$D1_D/D1_S$		[mm]	100/125	100/125	100/125	100/125	100/125	100/125	100/125	100/125	100/125
AC		[mm]	555	555	610	610	610	610	610	610	710
AD		[mm]	432	432	495	495	495	495	495	495	690
P		[mm]	550	550	660	660	800	800	800	800	800
B1		[mm]	180	180	180	180	180	180	180	180	180
B2		[mm]	407	407	407	407	425	425	425	425	425
B4		[mm]	227	227	320	320	312	312	312	312	490
B5		[mm]	360	360	360	360	360	360	360	360	360
B6		[mm]	335	335	335	335	335	335	335	335	335
B7		[mm]	467	467	522	522	600	600	600	600	600
B8		[mm]	192	192	192	192	200	200	200	200	200
B9		[mm]	215	215	215	215	225	225	225	225	225
C3		[mm]	320	320	320	320	320	320	320	320	320
C4		[mm]	295	295	295	295	295	295	295	295	295
C9		[mm]	489	489	489	489	606	606	606	606	606
Ø		[mm]	20	20	20	20	20	20	20	20	20
L1		[mm]	543	543	543	543	660	660	660	660	660
H1		[mm]	160	160	160	160	170	170	170	170	170
H2		[mm]	315	315	336	336	303	303	303	303	303
H3		[mm]	1295	1405	1428	1588	1405	1565	1565	1705	1703

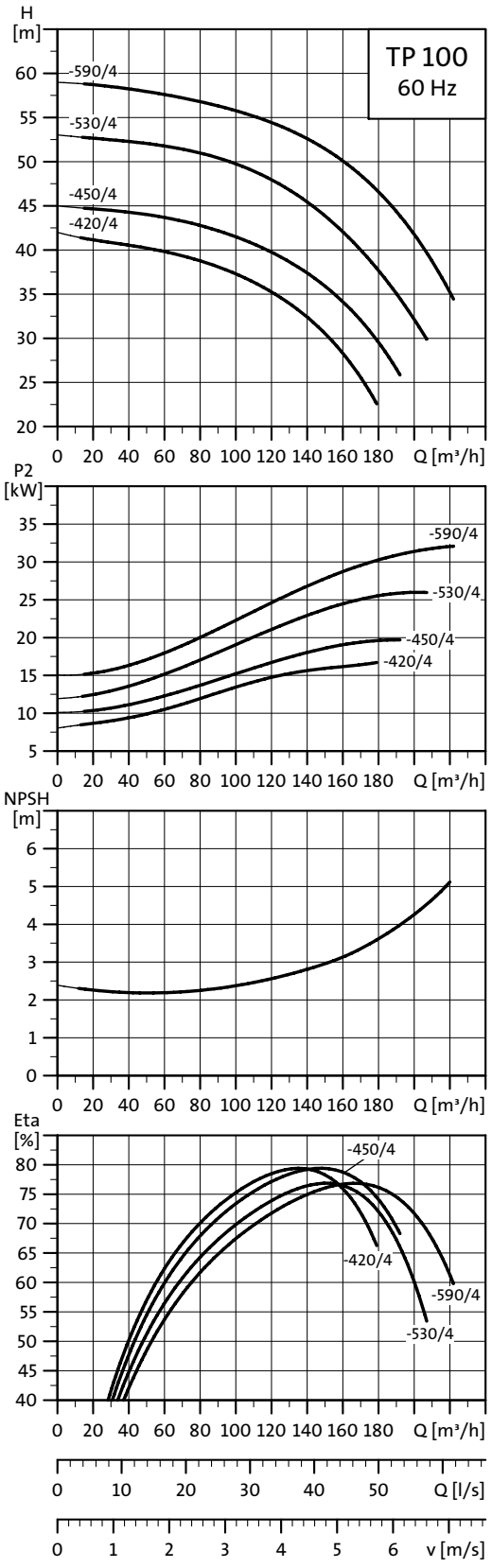
★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF 1 motors as standard.

TP, 4-pole, PN 25

TP 100-XXX/4

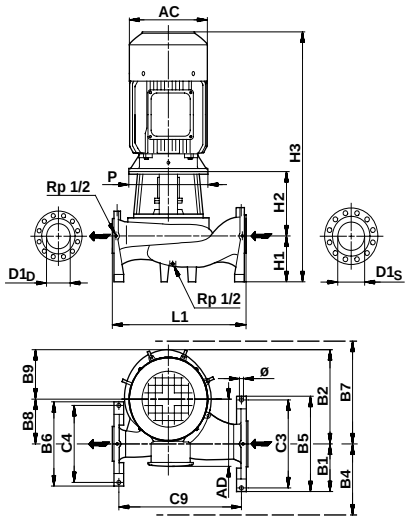


TM02 6858 0504



TM02 6859 0504

Technical data



TM02 8350 5004

Technical data

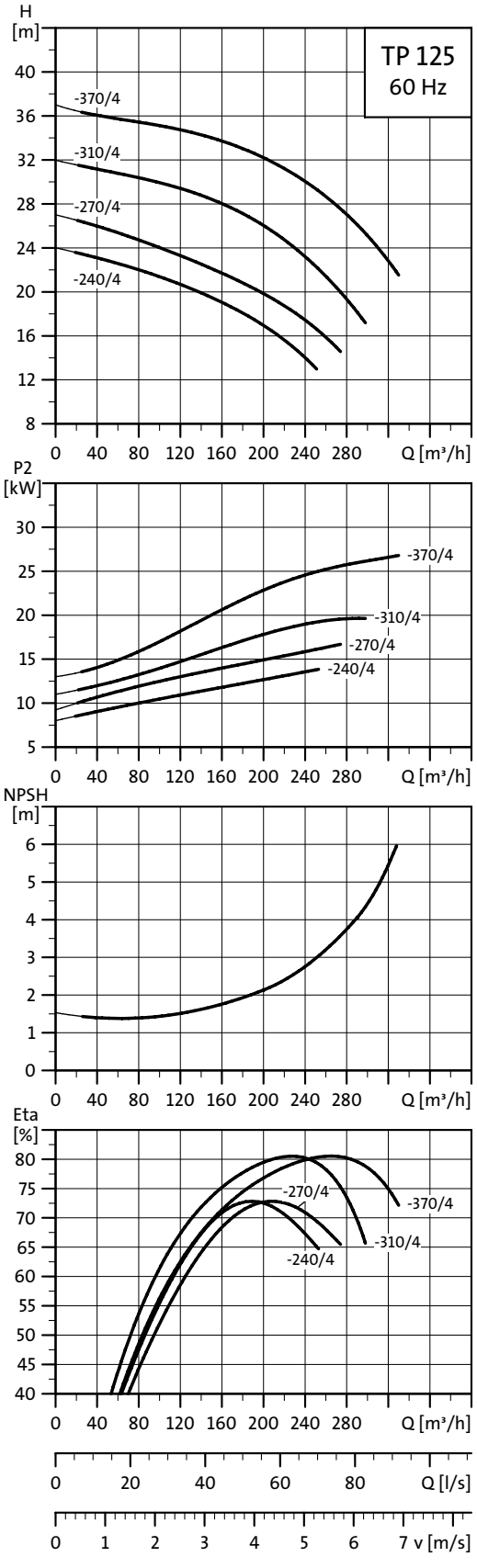
TP 100			-210/4	-250/4	-330/4	-360/4	-420/4	-450/4	-530/4	-590/4
TPD			-	-	-	-	-	-	-	-
TPE			-	-	-	-	-	-	-	-
TPED			-	-	-	-	-	-	-	-
Series			400	400	400	400	400	400	400	400
IEC size	1-phase TP		-	-	-	-	-	-	-	-
	3-phase TP		132 M	160 M	160 L	180 M	180 M	180 L	200 L	225 S
	1-phase TPE		-	-	-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	-	-	-
$P2^{\star}$		[kW]	7.5	11	15	18.5	18.5	22	30	37
PN			25	25	25	25	25	25	25	25
T_{min} ; T_{max}		[°C]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]
$D1_D/D1_S$		[mm]	100/125	100/125	100/125	100/125	100/125	100/125	100/125	100/125
AC		[mm]	267	320	320	363	363	363	402	442
AD		[mm]	167	197	197	258	258	258	305	325
P		[mm]	400	400	400	400	450	450	450	550
B1		[mm]	180	180	180	180	180	180	180	180
B2		[mm]	407	407	407	407	425	425	425	425
B4		[mm]	180	180	180	180	180	180	180	180
B5		[mm]	360	360	360	360	360	360	360	360
B6		[mm]	335	335	335	335	335	335	335	335
B7		[mm]	401	401	401	401	429	429	429	475
B8		[mm]	192	192	192	192	200	200	200	200
B9		[mm]	225	225	225	225	225	225	225	225
C3		[mm]	320	320	320	320	320	320	320	320
C4		[mm]	295	295	295	295	295	295	295	295
C9		[mm]	489	489	489	489	606	606	606	606
Ø		[mm]	20	20	20	20	20	20	20	20
L1		[mm]	543	543	543	543	660	660	660	660
H1		[mm]	160	160	160	160	170	170	170	170
H2		[mm]	285	285	285	285	270	270	270	300
H3		[mm]	855	923	963	1047	1042	1042	1099	1119

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

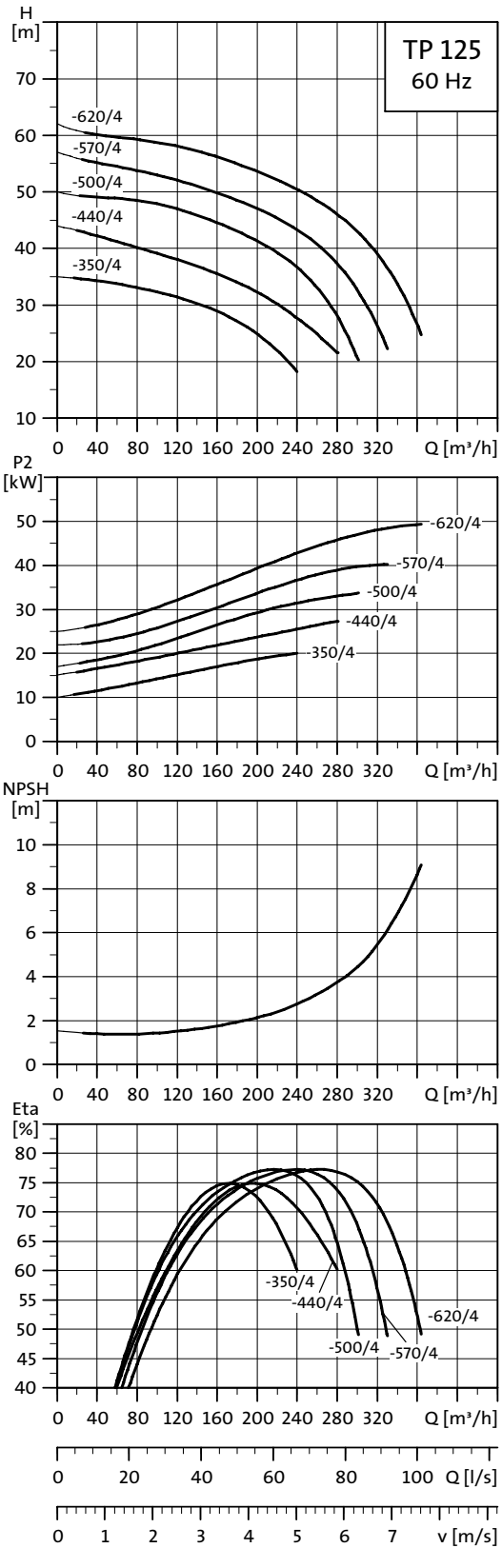
Performance curves

DN 125
4-pole, PN 25

TP 125-XXX/4

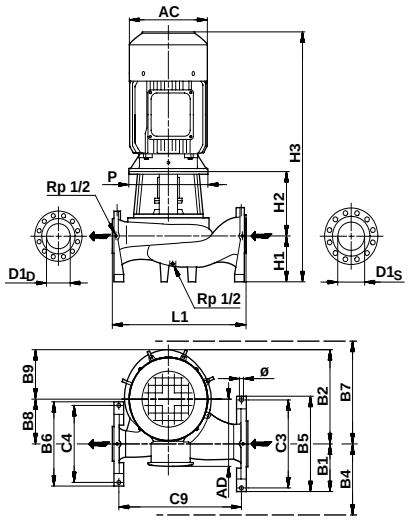


TM02 6860 0504



TM02 6861 0504

Technical data



TM02 8350 5004

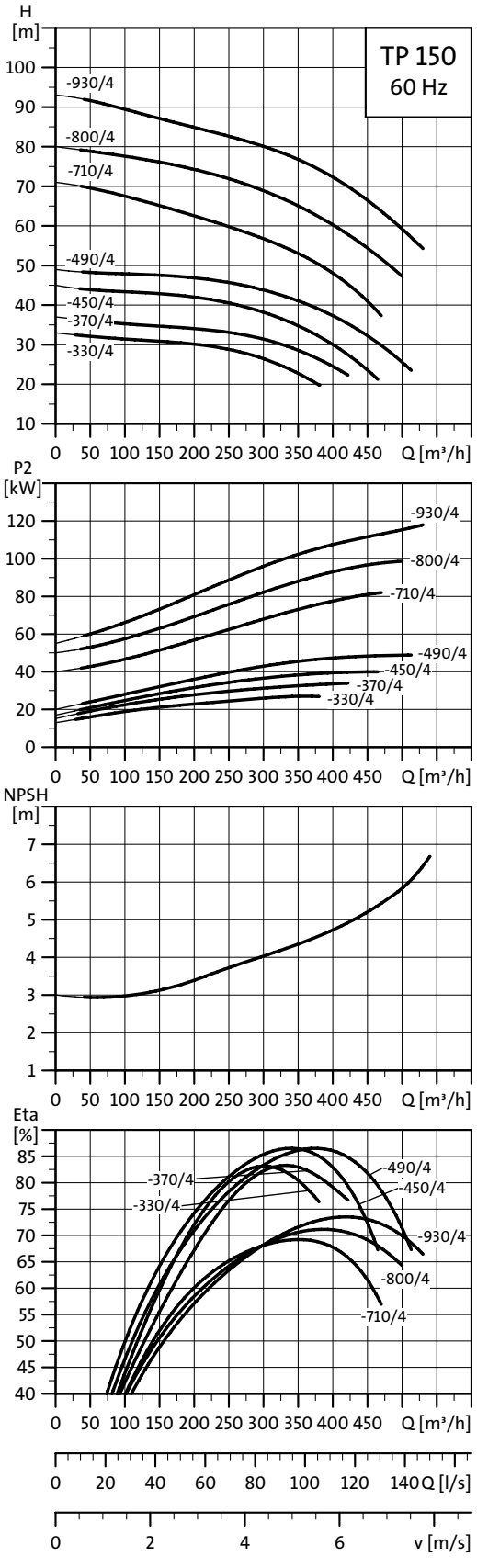
Technical data

TP 125			-240/4	-270/4	-310/4	-370/4	-350/4	-440/4	-500/4	-570/4	-620/4
TPD			-	-	-	-	-	-	-	-	-
TPE			-	-	-	-	-	-	-	-	-
TPED			-	-	-	-	-	-	-	-	-
Series			400	400	400	400	400	400	400	400	400
IEC size	1-phase TP		-	-	-	-	-	-	-	-	-
	3-phase TP		160 L	180 M	180 L	200 L	180 L	200 L	225 S	225 M	250 M
	1-phase TPE		-	-	-	-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	-	-	-	-
$P2^{\star}$		[kW]	15	18.5	22	30	22	30	37	45	55
PN			25	25	25	25	25	25	25	25	25
T_{min} ; T_{max}		[°C]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]
$D1_D/D1_S$		[mm]	125/150	125/150	125/150	125/150	125/150	125/150	125/150	125/150	125/150
AC		[mm]	320	363	363	402	363	402	442	442	495
AD		[mm]	197	258	258	305	258	305	325	325	392
P		[mm]	400	400	400	400	450	450	550	550	550
B1		[mm]	200	200	200	200	200	200	200	200	200
B2		[mm]	430	430	430	430	451	451	451	451	451
B4		[mm]	200	200	200	200	200	200	200	200	200
B5		[mm]	400	400	400	400	400	400	400	400	400
B6		[mm]	360	360	360	360	360	360	360	360	360
B7		[mm]	423	423	423	423	468	467	499	499	499
B8		[mm]	200	200	200	200	224	224	224	224	224
B9		[mm]	230	230	230	230	227	227	227	227	227
C3		[mm]	360	360	360	360	360	360	360	360	360
C4		[mm]	320	320	320	320	320	320	320	320	320
C9		[mm]	536	536	536	536	606	606	606	606	606
Ø		[mm]	20	20	20	20	20	20	20	20	20
L1		[mm]	590	590	590	590	660	660	660	660	660
H1		[mm]	185	185	185	185	180	180	180	180	180
H2		[mm]	287	287	287	287	283	283	313	313	313
H3		[mm]	990	1074	1074	1131	1065	1121	1142	1202	1310

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

Performance curves

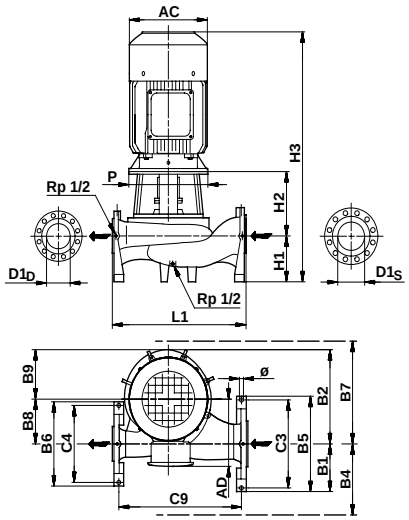
TP 150-XXX/4



M02 6863 0504

Technical data

DN 150
4-pole, PN 25



TM02 8350 5004

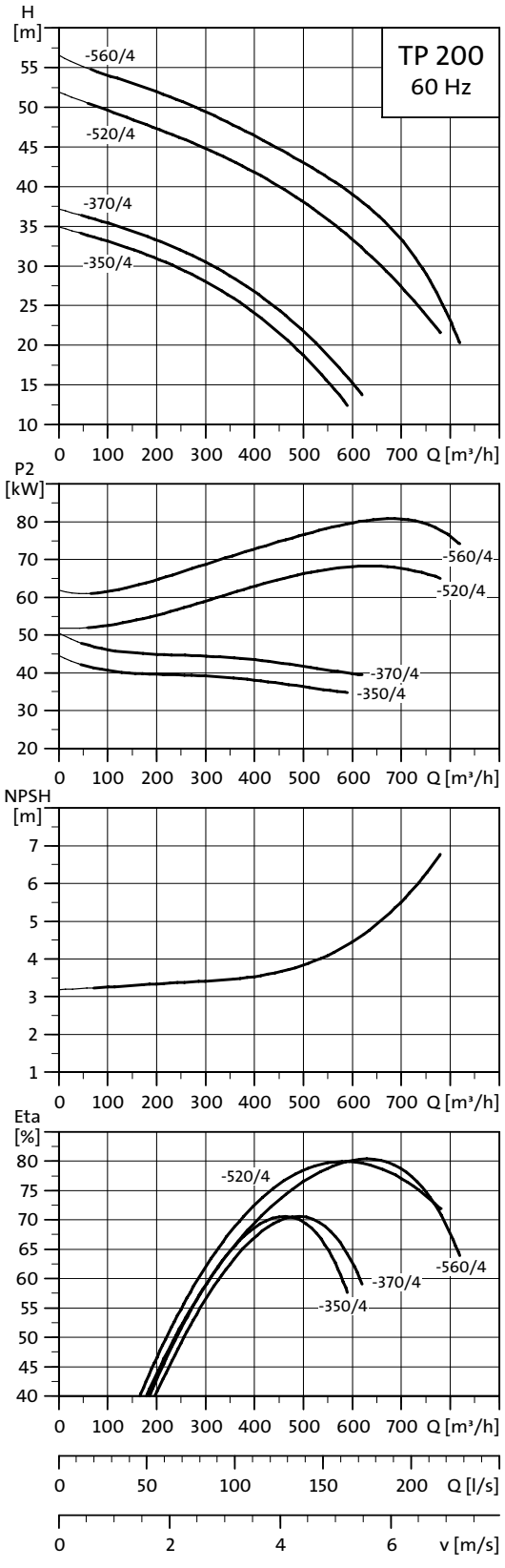
Technical data

TP 150			-330/4	-370/4	-450/4	-490/4	-710/4	-800/4	-930/4
TPD			-	-	-	-	-	-	-
TPE			-	-	-	-	-	-	-
TPED			-	-	-	-	-	-	-
Series			400	400	400	400	400	400	400
IEC size	1-phase TP		-	-	-	-	-	-	-
	3-phase TP		200 L	225 S	225 M	250 M	280 M	315 S	315 M
	1-phase TPE		-	-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	-	-
$P2^{\star}$		[kW]	30	37	45	55	90	110	132
PN			25	25	25	25	25	25	25
T_{min} ; T_{max}		[°C]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]
$D1_D/D1_S$		[mm]	150/200	150/200	150/200	150/200	150/200	150/200	150/200
AC		[mm]	402	442	442	495	555	610	610
AD		[mm]	305	325	325	392	432	495	495
P		[mm]	450	550	550	550	550	660	660
B1		[mm]	230	230	230	230	235	235	235
B2		[mm]	504	504	504	504	575	575	575
B4		[mm]	230	230	230	230	235	252	252
B5		[mm]	460	460	460	460	470	470	470
B6		[mm]	400	400	400	400	410	410	410
B7		[mm]	518	518	518	518	584	590	590
B8		[mm]	229	229	229	229	260	260	260
B9		[mm]	275	275	275	275	315	315	315
C3		[mm]	420	420	420	420	420	420	420
C4		[mm]	360	360	360	360	360	360	360
C9		[mm]	676	676	676	676	823	823	823
Ø		[mm]	20	20	20	20	20	20	20
L1		[mm]	740	740	740	740	900	900	900
H1		[mm]	225	225	225	225	250	250	250
H2		[mm]	293	323	323	323	325	355	355
H3		[mm]	1177	1197	1257	1365	1505	1537	1697

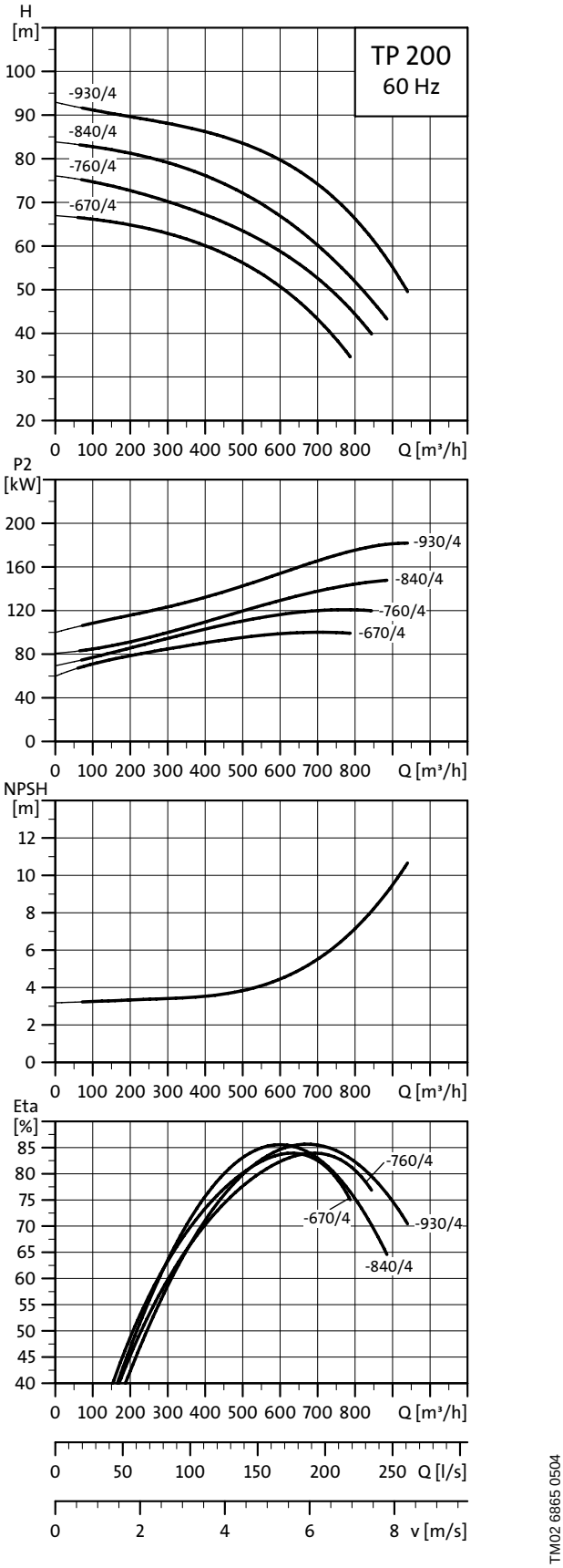
★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

Performance curves

TP 200-XXX/4

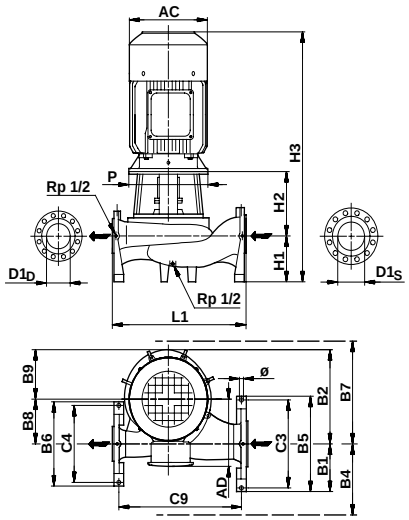


TM02 6864 0504



TM02 6865 0504

Technical data



TM02 8350 5004

Technical data

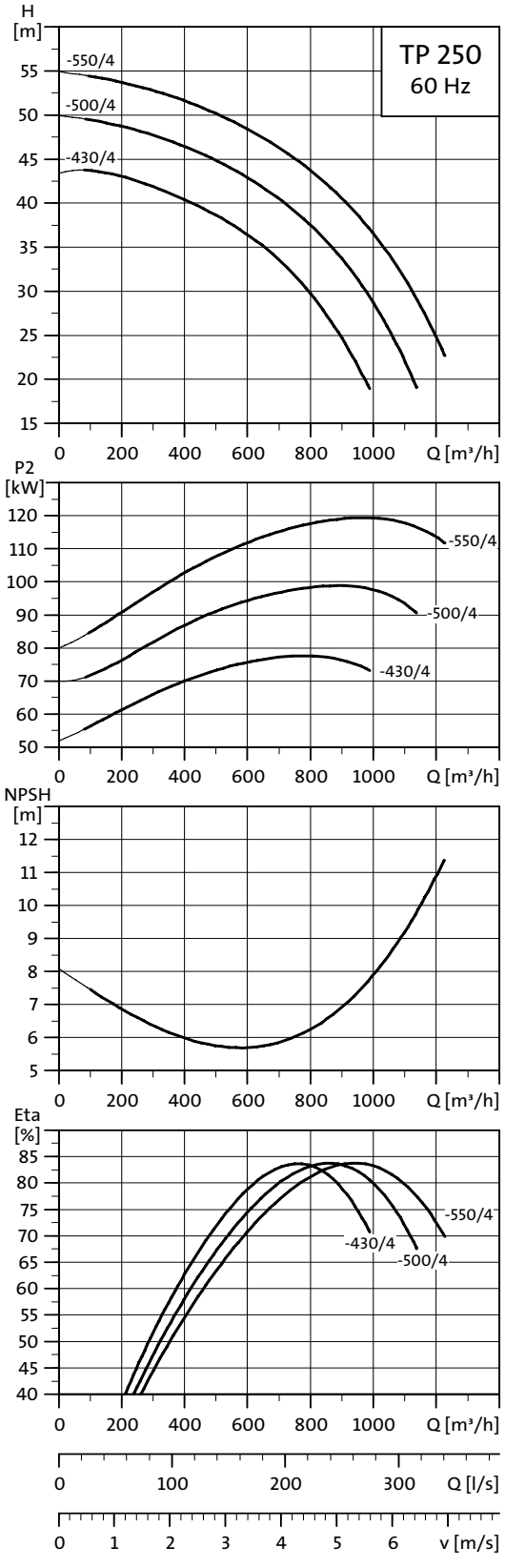
TP 200			-350/4	-370/4	-520/4	-560/4	-670/4	-760/4	-840/4	-930/4
TPD			-	-	-	-	-	-	-	-
TPE			-	-	-	-	-	-	-	-
TPED			-	-	-	-	-	-	-	-
Series			400	400	400	400	400	400	400	400
IEC size	1-phase TP		-	-	-	-	-	-	-	-
	3-phase TP		225 M	250 M	280 S	280 M	315 S	315 M	315 M	315 L
	1-phase TPE		-	-	-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	-	-	-
$P2^{\star}$		[kW]	45	55	75	90	110	132	160	200
PN			25	25	25	25	25	25	25	25
T_{min} ; T_{max}		[°C]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]
$D1_D/D1_S$		[mm]	200/250	200/250	200/250	200/250	200/250	200/250	200/250	200/250
AC		[mm]	442	495	555	555	610	610	610	610
AD		[mm]	325	392	432	432	495	495	495	495
P		[mm]	450	550	550	550	660	660	660	660
B1		[mm]	260	260	260	260	268	268	268	268
B2		[mm]	560	560	560	560	640	640	640	640
B4		[mm]	260	260	260	260	268	268	268	268
B5		[mm]	520	520	520	520	535	535	535	535
B6		[mm]	460	460	460	460	470	470	470	470
B7		[mm]	572	572	573	573	645	645	645	645
B8		[mm]	260	260	260	260	300	300	300	300
B9		[mm]	300	300	300	300	340	340	340	340
C3		[mm]	480	480	480	480	485	485	485	485
C4		[mm]	420	420	420	420	420	420	420	420
C9		[mm]	766	766	766	766	1013	1013	1013	1013
Ø		[mm]	20	20	20	20	20	20	20	20
L1		[mm]	830	830	830	830	1100	1100	1100	1100
H1		[mm]	250	250	250	250	290	290	290	290
H2		[mm]	308	338	338	338	357	357	357	357
H3		[mm]	1267	1405	1408	1518	1579	1739	1739	1879

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

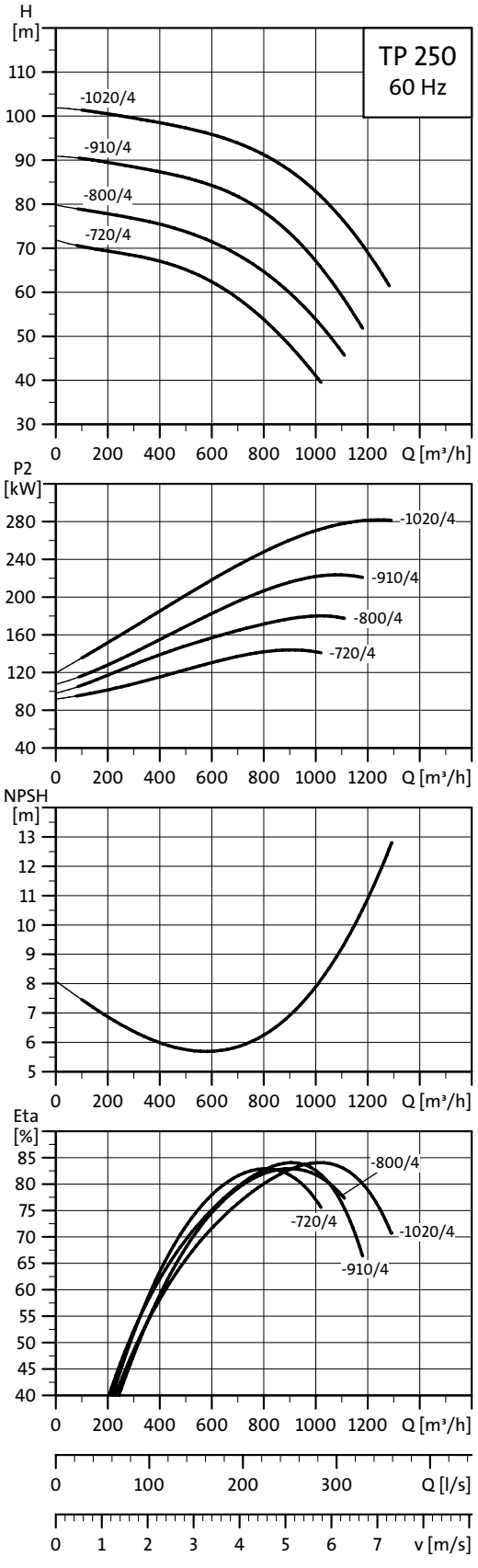
Performance curves

DN 250
4-pole, PN 25

TP 250-XXX/4

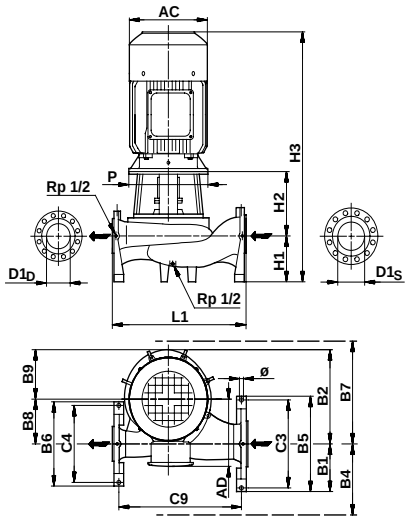


TM02 6866 0504



TM02 6867 0504

Technical data



TM02 8350 5004

Technical data

TP 250			-430/4	-500/4	-550/4	-720/4	-800/4	-910/4	-1020/4
TPD			-	-	-	-	-	-	-
TPE			-	-	-	-	-	-	-
TPED			-	-	-	-	-	-	-
Series			400	400	400	400	400	400	400
IEC size	1-phase TP		-	-	-	-	-	-	-
	3-phase TP		280 M	315 S	315 M	315 M	315 L	315	315
	1-phase TPE		-	-	-	-	-	-	-
	3-phase TPE		-	-	-	-	-	-	-
$P2^{\star}$		[kW]	90	110	132	160	200	250	315
PN			25	25	25	25	25	25	25
T_{min} ; T_{max}		[°C]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]	[0;150]
$D1_D/D1_S$		[mm]	250/300	250/300	250/300	250/300	250/300	250/300	250/300
AC		[mm]	555	610	610	610	610	710	710
AD		[mm]	432	495	495	495	495	690	690
P		[mm]	550	660	660	660	660	800	800
B1		[mm]	303	303	303	303	303	303	303
B2		[mm]	650	650	650	700	700	700	700
B4		[mm]	303	303	303	303	303	360	360
B5		[mm]	605	605	605	605	605	605	605
B6		[mm]	540	540	540	540	540	540	540
B7		[mm]	647	647	647	720	720	730	730
B8		[mm]	300	300	300	330	330	330	330
B9		[mm]	350	350	350	370	370	370	370
C3		[mm]	550	550	550	550	550	550	550
C4		[mm]	485	485	485	485	485	485	485
C9		[mm]	855	855	855	1106	1106	1106	1106
Ø		[mm]	24	24	24	24	24	24	24
L1		[mm]	950	950	950	1200	1200	1200	1200
H1		[mm]	300	300	300	350	350	350	350
H2		[mm]	368	398	398	373	373	413	413
H3		[mm]	1598	1630	1790	1815	1955	1993	1993

★ 2- and 4-pole TP and TPD pumps from 1.1 to 90 kW are fitted with EFF I motors as standard.

Weights and shipping volume

TP, TPD, TPE, 2-pole, PN 6/10/16

Pump type	Connection		Weights				Shipping volume [m^3] ★	
	$D1_D$	$D1_S$	Net [kg] ★		Gross [kg] ★			
			TP/TPD	TPE	TP/TPD	TPE	TP/TPD	TPE
TP 32-80/2	DN 32	DN 32	17.4	-	18.4	-	0.04	-
TP 32-160/2	DN 32	DN 32	19.7	-	20.7	-	0.04	-
TP 32-220/2	DN 32	DN 32	24.7	-	27.9	-	0.06	-
TP 32-260/2	DN 32	DN 32	26.0	-	29.2	-	0.06	-
TP 32-330/2	DN 32	DN 32	32.6	-	35.8	-	0.06	-
TP, TPD 32-300/2	DN 32	DN 32	58.5/118.0	63.8	64.9/135.0	70.5	0.2176/0.3912	0.2176/-
TP, TPD 32-360/2	DN 32	DN 32	69.8/125.0	71.6	76.2/142.0	78.3	0.2176/0.4584	0.2176/-
TP, TPD 32-450/2	DN 32	DN 32	74.8/150.0	77.9	81.2/167.0	84.6	0.2176/0.4584	0.2176/-
TP, TPD 32-550/2	DN 32	DN 32	89.7/180.0	94.2	104.9/197.0	112.8	0.2176/0.4584	0.2176/-
TP, TPD 32-680/2	DN 32	DN 32	91.7/184.0	95.9	107.0/201.0	114.5	0.2176/0.4584	0.2176/-
TP, TPD 32-820/2	DN 32	DN 32	140.0/283.0	177	157.0/313.0	198	0.7248/0.6507	-
TP 40-80/2	DN 40	DN 40	19.4	-	21.8	-	0.04	-
TP 40-160/2	DN 40	DN 40	21.8	-	25.0	-	0.06	-
TP 40-240/2	DN 40	DN 40	26.1	-	29.3	-	0.06	-
TP 40-270/2	DN 40	DN 40	38.9	-	42.1	-	0.06	-
TP 40-330/2	DN 40	DN 40	40.9	-	44.1	-	0.06	-
TP 40-390/2	DN 40	DN 40	46.7	-	49.9	-	0.06	-
TP, TPD 40-370/2	DN 40	DN 40	74.8/153.0	77.9	81.2/183.0	84.6	0.2176/0.6507	0.2176/-
TP, TPD 40-450/2	DN 40	DN 40	89.6/183.0	94.1	104.8/200.0	112.7	0.2176/0.3912	0.2176/-
TP, TPD 40-550/2	DN 40	DN 40	91.4/187.0	95.5	106.6/204.0	114.1	0.2176/0.3912	0.2176/-
TP, TPD 40-740/2	DN 40	DN 40	139.8/286.0	177	156.8/316.0	198	0.7248/0.6507	0.7248/-
TP, TPD 40-850/2	DN 40	DN 40	151.2/309.0	194	168.2/339.0	215	0.7248/0.6507	0.7248/-
TP, TPD 40-930/2	DN 40	DN 40	161.4/329.0	237	178.4/359.0	259	0.7248/0.6507	0.7248/-
TP 50-80/2	DN 50	DN 50	24.0	-	26.5	-	0.04	-
TP 50-160/2	DN 50	DN 50	28.8	-	31.2	-	0.06	-
TP 50-240/2	DN 50	DN 50	35.0	-	38.5	-	0.15	-
TP, TPD 50-250/2	DN 50	DN 50	53.8/109.0	59.1	59.1/126.0	64.6	0.184/0.4584	0.184/-
TP, TPD 50-300/2	DN 50	DN 50	65.1/116.0	66.9	70.4/133.0	72.4	0.184/0.4584	0.184/-
TP, TPD 50-350/2	DN 50	DN 50	71.1/144.0	74.1	76.3/161.0	79.6	0.184/0.4584	0.184/-
TP, TPD 50-410/2	DN 50	DN 50	85.8/174.0	90.4	101.1/191.0	108.9	0.184/0.4584	0.184/-
TP, TPD 50-440/2	DN 50	DN 50	99.6/204.0	103.7	114.8/224.0	122.3	0.2176/0.5184	0.2176/-
TP, TPD 50-540/2	DN 50	DN 50	147.2/302.0	184	164.2/332.0	206	0.7248/0.6507	0.7248/-
TP, TPD 50-720/2	DN 50	DN 50	158.6/324.0	201	175.6/354.0	223	0.7248/0.6507	0.7248/-
TP, TPD 50-790/2	DN 50	DN 50	168.6/345.0	245	185.6/375.0	266	0.7248/0.6507	0.7248/-
TP, TPD 50-880/2	DN 50	DN 50	197.8/403.0	276	216.4/453.0	297	0.7248/1.524	0.7248/-
TP, TPD 50-1050/2	DN 50	DN 50	288.3/585.0	70.7	306.9/635.0	76.3	0.7248/1.524	
TP 65-80/2	DN 65	DN 65	29.2	-	32.4	-	0.06/1.524	-
TP 65-160/2	DN 65	DN 65	37.7	-	41.2	-	0.08	-
TP 65-240/2	DN 65	DN 65	39.8	-	43.3	-	0.08	-
TP, TPD 65-220/2	DN 65	DN 65	69.0/124.0	77	74.2/141.0	82.6	0.184/0.4584	0.184/-
TP, TPD 65-260/2	DN 65	DN 65	74.0/149.0	93.3	79.2/166.0	111.9	0.184/0.2632	0.184/-
TP, TPD 65-340/2	DN 65	DN 65	88.8/179.0	94.6	104.0/196.0	113.2	0.184/0.2632	0.184/-
TP, TPD 65-390/2	DN 65	DN 65	90.5/182.0	186	105.7/199.0	208	0.184/0.4584	0.184/-
TP, TPD 65-480/2	DN 65	DN 65	148.9/309.0	203	165.9/339.0	225	0.7248/0.6507	0.7248/-
TP, TPD 65-540/2	DN 65	DN 65	160.2/331.0	246	177.2/361.0	268	0.7248/0.6507	0.7248/-
TP, TPD 65-630/2	DN 65	DN 65	170.3/352.0	277	187.3/382.0	299	0.7248/0.6507	0.7248/-
TP, TPD 65-740/2	DN 65	DN 65	199.3/410.0	-	217.9/460.0	-	0.7248/1.524	-
TP, TPD 65-910/2	DN 65	DN 65	289.8/591.0	-	308.4/641.0	-	0.7248/1.524	-
TP, TPD 65-1050/2	DN 65	DN 65	310.7/632.0	-	329.3/682.0	-	0.7248/1.524	-
TP 80-160/2	DN 80	DN 80	52.2	-	57.8	-	0.15	-
TP, TPD 80-200/2	DN 80	DN 80	78.0/157.0	80.8	90.0/174.0	94.5	0.184/0.4584	0.7248/-
TP, TPD 80-240/2	DN 80	DN 80	93.0/187.0	97.4	105.0/204.0	118.5	0.184/0.4584	0.7248/-
TP, TPD 80-290/2	DN 80	DN 80	95.0/191.0	98.7	107.0/208.0	119.8	0.184/0.4584	0.7248/-
TP, TPD 80-330/2	DN 80	DN 80	151.0/307.0	186.8	172.0/337.0	208.2	0.7248/1.524	0.7248/-

Weights and shipping volume

Pump type	Connection		Weights				Shipping volume [m^3] ★	
	$D1_D$	$D1_S$	Net [kg] ★		Gross [kg] ★			
			TP/TPD	TPE	TP/TPD	TPE	TP/TPD	TPE
TP, TPD 80-400/2	DN 80	DN 80	162.0/329.0	204.1	182.0/359.0	225.3	0.7248/1.524	0.7248/-
TP, TPD 80-480/2	DN 80	DN 80	178.0/351.0	253.2	199.0/381.0	274.7	0.7248/1.524	0.7248/-
TP, TPD 80-530/2	DN 80	DN 80	207.0/409.0	284.3	228.0/459.0	305.5	0.7248/1.524	0.7248/-
TP, TPD 80-640/2	DN 80	DN 80	304.0/603.0	-	325.0/634.0	-	0.7248/1.524	-
TP, TPD 80-750/2	DN 80	DN 80	318.0/630.0	-	338.0/662.0	-	0.7248/1.524	-
TP, TPD 100-230/2	DN 100	DN 100	110.0/230.0	113.6	124.0/280.0	135.6	0.7248/1.524	0.7248/-
TP, TPD 100-300/2	DN 100	DN 100	155.0/319.0	191.4	177.0/369.0	213.4	0.7248/1.524	0.7248/-
TP, TPD 100-370/2	DN 100	DN 100	168.0/344.0	210.1	190.0/394.0	231.5	0.9696/1.524	0.9696/-
TP, TPD 100-350/2	DN 100	DN 100	200.0/394.0	274.7	201.0/445.0	276.2	0.7248/1.524	0.7248/-
TP, TPD 100-380/2	DN 100	DN 100	230.0/455.0	306.8	231.0/505.0	308.1	0.9696/1.524	0.9696/-
TP, TPD 100-530/2	DN 100	DN 100	334.0/665.0	-	375.0/723.0	-	0.7973/1.800	
TP, TPD 100-630/2	DN 100	DN 100	354.0/706.0	-	396.0/763.0	-	0.7973/1.800	
TP, TPD 100-700/2	DN 100	DN 100	443.0/884.0	-	459.0/897.0	-	0.7973/1.800	

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

TP, TPD, TPE, 4-pole, PN 6/10/16

Pump type	Connection		Weights				Shipping volume [m^3] ★	
	$D1_D$	$D1_S$	Net [kg] ★		Gross [kg] ★			
			TP/TPD	TPE	TP/TPD	TPE	TP/TPD	TPE
TP 32-40/4	DN 32	DN 32	26.2	-	29.2	-	0.04	-
TP 32-80/4	DN 32	DN 32	26.2	-	29.2	-	0.04	-
TP, TPD 32-120/4	DN 32	DN 32	46.4/94.0	-	52.5/111.0	-	0.1632/0.3912	-
TP, TPD 32-140/4	DN 32	DN 32	47.9/97.0	-	53.9/114.0	-	0.1632/0.3912	-
TP, TPD 32-190/4	DN 32	DN 32	53.8/116.0	97	59.9/134.0	103.8	0.2176/0.3912	0.2176/-
TP 40-40/4	DN 40	DN 40	20.0	-	22.4	-	0.04	-
TP 40-80/4	DN 40	DN 40	25.7	-	28.9	-	0.06	-
TP, TPD 40-120/4	DN 40	DN 40	47.8/99.0	-	53.8/116.0	-	0.1632/0.4584	-
TP, TPD 40-160/4	DN 40	DN 40	53.8/119.0	63.8	59.9/149.0	70.5	0.2176/0.4584	0.2176/-
TP, TPD 40-190/4	DN 40	DN 40	56.1/126.0	65	62.2/143.0	71.7	0.1632/0.4584	0.2176/-
TP, TPD 40-220/4	DN 40	DN 40	63.0/136.0	74.5	69.4/153.0	81.2	0.2176/0.4584	0.2176/-
TP 50-40/4	DN 50	DN 50	22.6	-	25.0	-	0.04	-
TP 50-80/4	DN 50	DN 50	27.3	-	30.8	-	0.06	-
TP, TPD 50-110/4	DN 50	DN 50	55.9/117.0	-	61.9/136.0	-	0.16/0.497	-
TP, TPD 50-120/4	DN 50	DN 50	62.1/136.0	72	68.1/156.0	78.8	0.2176/0.5184	0.2176/-
TP, TPD 50-140/4	DN 50	DN 50	64.3/143.0	73.1	70.3/162.0	79.9	0.2176/0.5184	0.2176/-
TP, TPD 50-190/4	DN 50	DN 50	71.1/154.0	82.5	77.5/173.0	89.3	0.2176/0.5184	0.2176/-
TP, TPD 50-240/4	DN 50	DN 50	75.9/159.0	79.9	82.3/178.0	86.7	0.2176/0.5184	0.2176/-
TP, TPD 50-270/4	DN 50	DN 50	80.0/198.0	99	86.4/217.0	105.8	0.2176/0.5184	0.2176/-
TP, TPD 50-340/4	DN 50	DN 50	112.1/230.0	105.4	127.4/250.0	123.9	0.2176/0.5184	0.7248/-
TP 65-40/4	DN 65	DN 65	32.7	-	35.9	-	0.06	-
TP 65-80/4	DN 65	DN 65	41.2	-	44.7	-	0.08	-
TP, TPD 65-130/4	DN 65	DN 65	66.0/150.0	74.8	72.0/167.0	81.6	0.2176/0.4584	0.2176/-
TP, TPD 65-150/4	DN 65	DN 65	72.9/160.0	84.3	79.3/177.0	91.1	0.2176/0.4584	0.2176/-
TP, TPD 65-190/4	DN 65	DN 65	77.4/165.0	81.4	83.8/182.0	88.2	0.2176/0.4584	0.2176/-
TP, TPD 65-230/4	DN 65	DN 65	81.6/204.0	100.7	88.0/221.0	107.4	0.2176/0.4584	0.2176/-
TP, TPD 65-310/4	DN 65	DN 65	113.3/237.0	106.5	130.3/267.0	125.1	0.7248/0.4584	0.7248/-
TP, TPD 65-330/4	DN 65	DN 65	124.1/258.0	200	141.1/288.0	221	0.7248/0.6507	-
TP 80-40/4	DN 80	DN 80	41.1	-	44.6	-	0.08	-
TP 80-80/4	DN 80	DN 80	45.8	-	49.3	-	0.08	-
TP, TPD 80-110/4	DN 80	DN 80	76.0/159.0	84.5	89.0/176.0	98.7	0.2176/0.4584	0.2176/-
TP, TPD 80-150/4	DN 80	DN 80	90.0/177.0	93.3	104.0/196.0	107.5	0.2176/0.5184	0.7248/-
TP, TPD 80-170/4	DN 80	DN 80	103.0/203.0	106.4	117.0/223.0	120.6	0.2176/0.6507	0.7248/-
TP, TPD 80-230/4	DN 80	DN 80	182.0/369.0	174.7	184.0/419.0	177.2	0.9696/1.524	0.9696/-
TP, TPD 80-280/4	DN 80	DN 80	192.0/390.0	269.7	194.0/440.0	272.2	0.9696/1.524	0.9696/-
TP, TPD 80-340/4	DN 80	DN 80	225.0/452.0	271.3	227.0/502.0	273.8	0.9696/1.524	0.9696/-
TP, TPD 80-410/4	DN 80	DN 80	240.0/474.0	288.5	242.0/525.0	308.2	0.9696/1.524	0.9696/-
TP, TPD 80-460/4	DN 80	DN 80	269.0/532.0	322.4	271.0/564.0	340.1	0.9696/1.524	0.9696/-

Weights and shipping volume

Pump type	Connection		Weights				Shipping volume [m^3] ★	
	$D1_D$	$D1_S$	Net [kg] ★		Gross [kg] ★			
			TP/TPD	TPE	TP/TPD	TPE	TP/TPD	TPE
TP, TPD 80-510/4	DN 80	DN 80	282.0/566.0	359.3	284.0/598.0	377	0.9696/1.524	0.9696/-
TP 100-40/4	DN 100	DN 100	54.0	-	59.6	-	0.151	-
TP 100-80/4	DN 100	DN 100	61.5	-	67.8	-	0.191	-
TP, TPD 100-100/4	DN 100	DN 100	110.0/222.0	113.9	113.0/272.0	116.1	0.7248/1.524	0.9696/-
TP, TPD 100-130/4	DN 100	DN 100	142.0/286.0	144.9	144.0/337.0	147.1	0.7248/1.524	0.9696/-
TP, TPD 100-170/4	DN 100	DN 100	157.0/316.0	149.7	158.0/367.0	151.9	0.7248/1.524	0.9696/-
TP, TPD 100-200/4	DN 100	DN 100	232.0/484.0	309.3	234.0/534.0	329.1	0.9696/1.524	0.9696/-
TP, TPD 100-240/4	DN 100	DN 100	264.0/544.0	309.8	266.0/594.0	326.6	0.9696/1.524	0.9696/-
TP, TPD 100-290/4	DN 100	DN 100	275.0/567.0	323.5	278.0/617.0	343.2	0.9696/1.524	0.9696/-
TP, TPD 100-340/4	DN 100	DN 100	304.0/624.0	357.3	346.0/674.0	377.1	0.9696/1.524	0.9696/-
TP, TPD 100-390/4	DN 100	DN 100	315.0/646.0	392.1	332.0/678.0	409.9	0.9696/1.524	0.9696/-
TP, TPD 100-470/4	DN 100	DN 100	415.0/846.0	-	432.0/859.0	-	0.9696/1.800	-
TP, TPD 125-130/4	DN 125	DN 125	203.0/432.0	195.7	223.0/482.0	215.7	0.9696/1.524	0.9696/-
TP, TPD 125-160/4	DN 125	DN 125	213.0/454.0	290.9	234.0/504.0	310.9	0.9696/1.524	0.9696/-
TP, TPD 125-210/4	DN 125	DN 125	288.0/580.0	333.9	308.0/630.0	353.9	0.9696/1.524	0.9696/-
TP, TPD 125-260/4	DN 125	DN 125	305.0/614.0	352.8	325.0/664.0	372.8	0.9696/1.524	0.9696/-
TP, TPD 125-320/4	DN 125	DN 125	331.0/665.0	383.5	351.0/723.0	403.5	0.9696/1.800	0.9696/-
TP, TPD 125-360/4	DN 125	DN 125	641.0/686.0	418.1	362.0/744.0	438.1	0.9696/1.800	0.9696/-
TP, TPD 125-430/4	DN 125	DN 125	439.0/883.0	-	460.0/940.0	-	1.524/1.800	-
TP, TPD 125-490/4	DN 125	DN 125	509.0/1021.0	-	509.0/1035.0	-	1.524/1.800	-
TP, TPD 150-180/4	DN 150	DN 150	321.0/641.0	369.1	341.0/692.0	389	0.9696/1.524	0.9696/-
TP, TPD 150-210/4	DN 150	DN 150	351.0/701.0	403.9	371.0/758.0	423.7	0.9696/1.800	0.9696/-
TP, TPD 150-240/4	DN 150	DN 150	361.0/722.0	-	382.0/779.0	-	0.9696/1.800	0.9696/-
TP, TPD 150-300/4	DN 150	DN 150	460.0/919.0	-	480.0/976.0	-	1.524/1.800	
TP 150-360/4	DN 150	DN 150	531.0	-	704.0	-	2.3	-
TP 150-380/4	DN 150	DN 150	520.0		675.0		2.3	
TP 150-400/4	DN 150	DN 150	633.0	-	806.0	-	2.3	-
TP 150-420/4	DN 150	DN 150	560.0	-	715.0	-	2.3	-
TP 150-490/4	DN 150	DN 150	690.0	-	845.0	-	2.3	-
TP 150-550/4	DN 150	DN 150	805.0	-	990.0	-	3.1	-
TP 200-270/4	DN 200	DN 200	706.0	-	879.0	-	2.3	-
TP 200-280/4	DN 200	DN 200	469.0	-	624.0	-	2.3	-
TP 200-290/4	DN 200	DN 200	747.0	-	920.0	-	2.3	-
TP 200-320/4	DN 200	DN 200	560.0	-	715.0	-	2.3	-
TP 200-330/4	DN 200	DN 200	897.0	-	1100.0	-	3.1	-
TP 200-350/4	DN 200	DN 200	600.0	-	755.0	-	2.3	-
TP 200-380/4	DN 200	DN 200	730.0	-	915.0	-	3.1	-
TP 200-430/4	DN 200	DN 200	963.0	-	1166.0	-	3.1	-
TP 200-520/4	DN 200	DN 200	845.0	-	1030.0	-	3.1	-
TP 200-570/4	DN 200	DN 200	945.0	-	1130.0	-	3.1	-
TP 250-450/4	DN 250	DN 300	1035.0	-	1220.0	-	3.1	-
TP 250-530/4	DN 250	DN 300	1170.0	-	1390.0	-	4.57	-
TP 250-580/4	DN 250	DN 300	1325.0	-	1545.0	-	4.57	-

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

TP, 2-pole, PN 25

Pump type	Connection		Weights		Shipping volume [m^3]
	$D1_D$	$D1_S$	Net [kg]	Gross [kg]	
TP 100-1000/2	DN 100	DN 125	690.0	875.0	3.13
TP 100-1100/2	DN 100	DN 125	775.0	960.0	3.13
TP 100-1250/2	DN 100	DN 125	950.0	1135.0	3.13
TP 100-1350/2	DN 100	DN 125	1075.0	1260.0	3.13
TP 100-1450/2	DN 100	DN 125	1015.0	1200.0	3.13
TP 100-1560/2	DN 100	DN 125	1140.0	1325.0	3.13
TP 100-1700/2	DN 100	DN 125	1280.0	1500.0	4.57
TP 100-2100/2	DN 100	DN 125	1470.0	1690.0	4.57
TP 100-2350/2	DN 100	DN 125	1525.0	1745.0	4.57

Weights and shipping volume

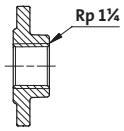
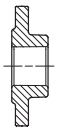
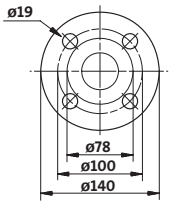
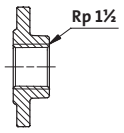
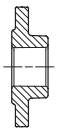
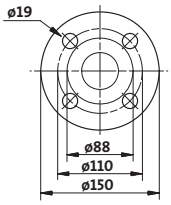
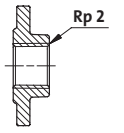
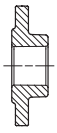
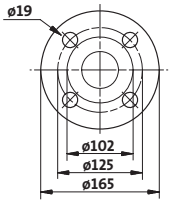
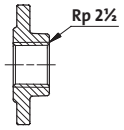
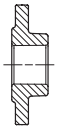
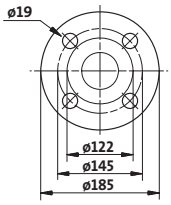
TP, 4-pole, PN 25

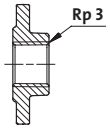
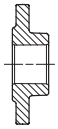
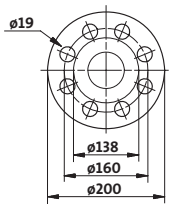
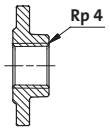
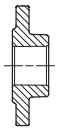
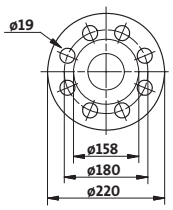
Pump type	Connection		Weights		Shipping volume [m^3]
	$D1_D$	$D1_S$	Net [kg]	Gross [kg]	
TP 100-210/4	DN 100	DN 125	225.0	255.0	0.72
TP 100-250/4	DN 100	DN 125	241.0	271.0	0.72
TP 100-330/4	DN 100	DN 125	267.0	297.0	0.72
TP 100-360/4	DN 100	DN 125	286.0	316.0	0.72
TP 100-420/4	DN 100	DN 125	351.0	384.0	0.70
TP 100-450/4	DN 100	DN 125	371.0	404.0	0.70
TP 100-530/4	DN 100	DN 125	424.0	457.0	0.70
TP 100-590/4	DN 100	DN 125	515.0	670.0	2.29
TP 125-240/4	DN 125	DN 150	287.0	320.0	0.70
TP 125-270/4	DN 125	DN 150	306.0	339.0	0.70
TP 125-310/4	DN 125	DN 150	326.0	359.0	0.70
TP 125-370/4	DN 125	DN 150	379.0	412.0	0.70
TP 125-350/4	DN 125	DN 150	391.0	424.0	0.70
TP 125-440/4	DN 125	DN 150	444.0	599.0	2.29
TP 125-500/4	DN 125	DN 150	535.0	690.0	2.29
TP 125-570/4	DN 125	DN 150	575.0	730.0	2.29
TP 125-620/4	DN 125	DN 150	705.0	860.0	2.29
TP 150-330/4	DN 150	DN 200	484.0	639.0	2.29
TP 150-370/4	DN 150	DN 200	575.0	730.0	2.29
TP 150-450/4	DN 150	DN 200	615.0	770.0	2.29
TP 150-490/4	DN 150	DN 200	745.0	930.0	3.13
TP 150-710/4	DN 150	DN 200	1000.0	1185.0	3.13
TP 150-800/4	DN 150	DN 200	1135.0	1320.0	3.13
TP 150-930/4	DN 150	DN 200	1290.0	1510.0	4.57
TP 200-350/4	DN 200	DN 250	670.0	825.0	2.29
TP 200-370/4	DN 200	DN 250	800.0	985.0	3.13
TP 200-520/4	DN 200	DN 250	915.0	1100.0	3.13
TP 200-560/4	DN 200	DN 250	1015.0	1200.0	3.13
TP 200-670/4	DN 200	DN 250	1210.0	1430.0	4.57
TP 200-760/4	DN 200	DN 250	1365.0	1585.0	4.57
TP 200-840/4	DN 200	DN 250	1505.0	1725.0	4.57
TP 200-930/4	DN 200	DN 250	1705.0	1925.0	4.57
TP 250-430/4	DN 250	DN 300	1125.0	1310.0	3.13
TP 250-500/4	DN 250	DN 300	1260.0	1445.0	3.13
TP 250-550/4	DN 250	DN 300	1415.0	1635.0	4.57
TP 250-720/4	DN 250	DN 300	1655.0	1875.0	4.57
TP 250-800/4	DN 250	DN 300	1855.0	2165.0	5.88
TP 250-910/4	DN 250	DN 300	1850.0	2160.0	5.88
TP 250-1020/4	DN 250	DN 300	2050.0	2360.0	5.88

Counter flanges

Cast iron pumps

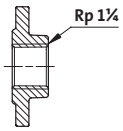
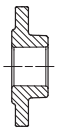
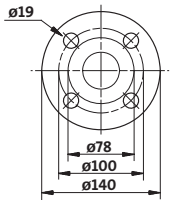
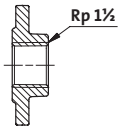
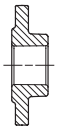
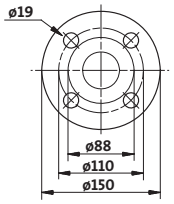
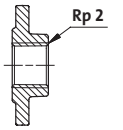
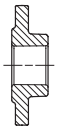
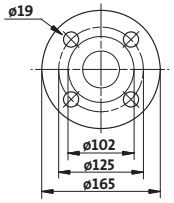
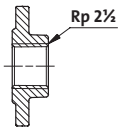
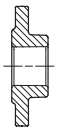
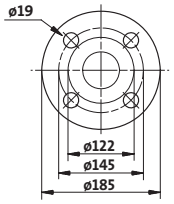
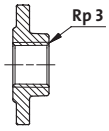
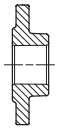
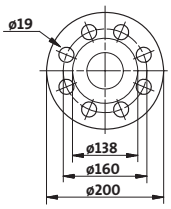
A flange kit consists of two steel flanges, two gaskets of asbestos-free material IT 200, and the requisite number of bolts.

Counter flange				Pump type	Description	Rated pressure	Pipework connection	Product number
 Threaded	 For welding		TM03 0478 5204	**TP, TPE 32 TPD 32**	Threaded	10 bar, EN 1092-2	Rp 1¼	539703
					For welding	10 bar, EN 1092-2	32 mm, nominal	539704
 Threaded	 For welding		TM03 0479 5204	**TP, TPE 40 TPD 40**	Threaded	10 bar, EN 1092-2	Rp 1½	539701
					For welding	10 bar, EN 1092-2	40 mm, nominal	539702
					Threaded	16 bar, EN 1092-2	Rp 1½	539701
					For welding	16 bar, EN 1092-2	40 mm, nominal	539702
 Threaded	 For welding		TM03 0480 5204	**TP, TPE 50 TPD 50**	Threaded	10 bar, EN 1092-2	Rp 2	549801
					For welding	10 bar, EN 1092-2	50 mm, nominal	549802
					Threaded	16 bar, EN 1092-2	Rp 2	549801
 Threaded	 For welding		TM03 0481 5204	**TP, TPE 65 TPD 65**	For welding	16 bar, EN 1092-2	50 mm, nominal	549802
					Threaded	10 bar, EN 1092-2	Rp 2½	559801
					For welding	10 bar, EN 1092-2	65 mm, nominal	559802

Counter flange			Pump type	Description	Rated pressure	Pipework connection	Product number
 Threaded	 For welding	 TM03 0482 5204	**TP, TPE 80 TPD 80**	Threaded	6 bar, EN 1092-2	Rp 3	569902
				For welding	6 bar, EN 1092-2	80 mm, nominal	569901
				Threaded	10 bar, EN 1092-2	Rp 3	569802
				For welding	10 bar, EN 1092-2	80 mm, nominal	569801
				Threaded	16 bar, EN 1092-2	Rp 3	569802
				For welding	16 bar, EN 1092-2	80 mm, nominal	569801
 Threaded	 For welding	 TM03 0483 5204	**TP, TPE 100 TPD 100**	Threaded	6 bar, EN 1092-2	Rp 4	579901
				For welding	6 bar, EN 1092-2	100 mm, nominal	579902
				Threaded	10 bar, EN 1092-2	Rp 4	579801
				For welding	10 bar, EN 1092-2	100 mm, nominal	579802
				Threaded	16 bar, EN 1092-2	Rp 4	579801
				For welding	16 bar, EN 1092-2	100 mm, nominal	579802

Bronze pumps

A flange kit consists of two bronze flanges, two gaskets of asbestos-free material IT 200, and the requisite number of bolts.

Counter flange				Pump type	Description	Rated pressure	Pipework connection	Product number
 Threaded	 For welding		TM03 0478 5204	**TP, TPE 32 B**	Threaded	10 bar, EN 1092-2	Rp 1¼	96427029
					For welding	10 bar, EN 1092-2	32 mm, nominal	96427030
 Threaded	 For welding		TM03 0479 5204	**TP, TPE 40 B**	Threaded	10 bar, EN 1092-2	Rp 1½	539711
					For welding	10 bar, EN 1092-2	40 mm, nominal	539712
					Threaded	16 bar, EN 1092-2	Rp 1½	539711
					For welding	16 bar, EN 1092-2	40 mm, nominal	539712
 Threaded	 For welding		TM03 0480 5204	**TP, TPE 50 B**	Threaded	10 bar, EN 1092-2	Rp 2	549811
 Threaded	 For welding		TM03 0481 5204		For welding	10 bar, EN 1092-2	50 mm, nominal	549812
				TP, TPE 65 B	Threaded	10 bar, EN 1092-2	Rp 2½	559811
					For welding	10 bar, EN 1092-2	65 mm, nominal	559812
 Threaded	 For welding		TM03 0482 5204	**TP, TPE 80 B**	Threaded	6 bar, EN 1092-2	Rp 3	96405735
					For welding	6 bar, EN 1092-2	80 mm, nominal	569911

Accessories

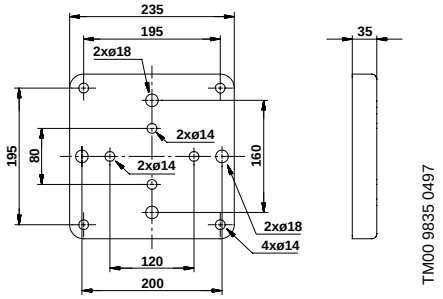
Base plates

TP Series 200

Pump type	Hexagon head screws	Product no.
TP 32 TP 40 TP 50 TP 65-80/2, 65-160/2, 65-240/2	2 x M12 x 20 mm	96405915
TP 65-40/4, 65-80/4 TP 80 TP 100	2 x M16 x 30 mm	96405914

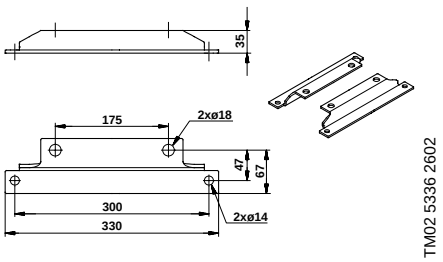
TP, TPE Series 300

Pump type	Hexagon head screws	Product no.
TP, TPE 32 TP, TPE 40 TP, TPE 50 TP, TPE 65 TP, TPE 80 TP, TPE 100 TP, TPE 125 TP, TPE 150	2 x M16 x 30 mm	00485031

Drawing	Product number
	96405915 96405914 00485031

TPD Series 300

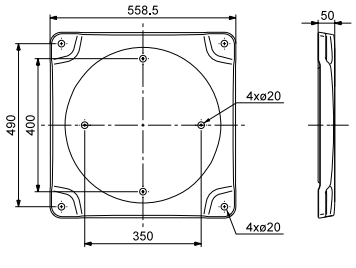
Pump type	Hexagon head screws	Product no.
TPD 32 TPD 40 TPD 50 TPD 65	4 x M16 x 30 mm	96489381

Drawing	Product number
	96489381

Note: Base plates are supplied as standard with TP/TPD pumps with 11 kW motors and above.

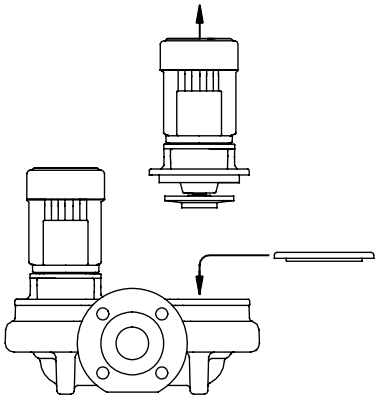
TP, TPE series 300

Pump type	Hexagon head screws	Product number
TP 150 TP 200	M16 x 35 mm	96306581

Drawing	Product number
	96306581

Blanking flanges

Normally used with twin-head pumps.



TM00 6360 3495

TPD 2-pole

Pump type	96495694	96495695	96495696	96525962	96525963	96525964
TPD 32-300/2		●				
TPD 32-360/2		●				
TPD 32-450/2		●				
TPD 32-550/2		●				
TPD 32-680/2		●				
TPD 32-820/2		●				
TPD 40-370/2		●				
TPD 40-450/2		●				
TPD 40-550/2		●				
TPD 40-740/2		●				
TPD 40-850/2		●				
TPD 40-930/2		●				
TPD 50-250/2	●					
TPD 50-300/2	●					
TPD 50-350/2	●					
TPD 50-410/2	●					
TPD 50-440/2			●			
TPD 50-540/2			●			
TPD 50-720/2			●			
TPD 50-790/2			●			
TPD 50-880/2			●			
TPD 50-1050/2			●			
TPD 65-220/2	●					
TPD 65-260/2	●					
TPD 65-340/2	●					
TPD 65-390/2	●					
TPD 65-480/2			●			
TPD 65-540/2			●			
TPD 65-630/2			●			
TPD 65-740/2			●			
TPD 65-910/2			●			
TPD 65-1050/2			●			
TPD 80-200/2	●					
TPD 80-240/2	●					
TPD 80-290/2	●					
TPD 80-330/2	●					
TPD 80-400/2	●					
TPD 80-480/2		●				
TPD 80-530/2		●				

Pump type	96495694	96495695	96495696	96525962	96525963	96525964
TPD 80-640/2		●				
TPD 80-750/2		●				
TPD 100-230/2	●					
TPD 100-300/2	●					
TPD 100-370/2	●					
TPD 100-350/2	●					
TPD 100-380/2	●					
TPD 100-530/2	●					
TPD 100-630/2				●		
TPD 100-700/2				●		

TPD, TPED 4-pole

Pump type	96495694	96495695	96495696	96525962	96525963	96525964
TPD 32-120/4		●				
TPD 32-140/4		●				
TPD 32-190/4		●				
TPD 40-120/4		●				
TPD 40-160/4		●				
TPD 40-190/4		●				
TPD 40-220/4		●				
TPD 50-110/4			●			
TPD 50-120/4			●			
TPD 50-140/4			●			
TPD 50-190/4			●			
TPD 50-240/4			●			
TPD 50-270/4			●			
TPD 50-340/4			●			
TPD 65-130/4			●			
TPD 65-150/4			●			
TPD 65-190/4			●			
TPD 65-230/4			●			
TPD 65-310/4			●			
TPD 65-330/4			●			
TPD 80-110/4	●					
TPD 80-150/4		●				
TPD 80-170/4		●				
TPD 80-230/4						●
TPD 80-280/4						●
TPD 80-340/4						●
TPD 80-410/4						●
TPD 80-460/4						●
TPD 80-510/4						●
TPD 100-100/4	●					
TPD 100-130/4				●		
TPD 100-170/4				●		
TPD 100-200/4						●
TPD 100-240/4						●
TPD 100-290/4						●
TPD 100-340/4						●
TPD 100-390/4						●
TPD 100-470/4						●
TPD 125-130/4				●		
TPD 125-160/4				●		
TPD 125-210/4						●
TPD 125-260/4						●
TPD 125-320/4						●
TPD 125-360/4						●
TPD 125-430/4						●
TPD 125-490/4						●
TPD 150-180/4					●	
TPD 150-210/4					●	
TPD 150-240/4					●	
TPD 150-300/4					●	

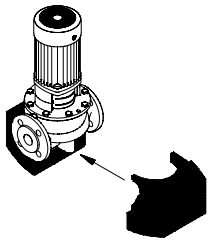
Insulating kits

Insulating kits are only available for TP Series 200 pumps. An insulating kit consists of two or three insulating covers made of expanded polypropylene (EPP).

The insulating kit is tailored to the individual pump model and has an insulating thickness corresponding to the nominal diameter of the pump.

The thermal conductivity of EPP is very low (0.04 W/m°C), i.e. the insulating property is very good.

The insulating kit encloses the entire pump housing.



TM00 8095 2496

Fig. 27 Insulating kit

Product numbers of insulating kits

Single-head TP Series 200 pumps	
Pump type	**Product no.**
TP 32-40/4	96405880
TP 32-80/2	96405873
TP 32-80/4	96405880
TP 32-160/2	96405880
TP 32-220/2	96472051
TP 32-260/2	96472051
TP 32-330/2	96472051
TP 40-40/4	96405874
TP 40-80/2	96405876
TP 40-80/4	96405875
TP 40-160/2	96405877
TP 40-240/2	96405878
TP 40-270/2	96472052
TP 40-330/2	96472052
TP 40-390/2	96472052
TP 50-40/4	96405879
TP 50-80/2	96405881
TP 50-80/4	96405880
TP 50-160/2	96405882
TP 50-240/2	96405883
TP 65-40/4	96405884
TP 65-80/2	96405886
TP 65-80/4	96405885
TP 65-160/2	96405887
TP 65-240/2	96405888
TP 80-40/4	96405889
TP 80-80/4	96405890
TP 80-160/2	96405891
TP 100-40/4	96405892
TP 100-80/4	96405892

Sensors

Accessory	Type	Supplier	Measuring range	Product number
Flowmeter	SITRANS F M MAGFLO MAG 5100 W	Siemens	1 - 5 m^3/h (DN 25)	ID8285
Flowmeter	SITRANS F M MAGFLO MAG 5100 W	Siemens	3 - 10 m^3/h (DN 40)	ID8286
Flowmeter	SITRANS F M MAGFLO MAG 5100 W	Siemens	6 - 30 m^3/h (DN 65)	ID8287
Flowmeter	SITRANS F M MAGFLO MAG 5100 W	Siemens	20 - 75 m^3/h (DN 100)	ID8288
Temperature sensor	TTA (0) 25	Carlo Gavazzi	0°C to +25°C	96432591
Temperature sensor	TTA (-25) 25	Carlo Gavazzi	–25°C to +25°C	96430194
Temperature sensor	TTA (50) 100	Carlo Gavazzi	50°C to +100°C	96432592
Temperature sensor	TTA (0) 150	Carlo Gavazzi	0°C to +150°C	96430195
Accessory for temperature sensor. All with ½ RG connection.	Protecting tube ø9 x 50 mm	Carlo Gavazzi		96430201
	Protecting tube ø9 x 100 mm	Carlo Gavazzi		96430202
	Cutting ring bush	Carlo Gavazzi		96430203
Temperature sensor, ambient temperature	WR 52	tmg (DK: Plesner)	–50°C to +50°C	ID8295
Differential temperature sensor	ETSD	Honsberg	0°C to +20°C	96409362
Differential temperature sensor	ETSD	Honsberg	0°C to +50°C	96409363

Note: All sensors have 4-20 mA output signal.

Sensors for boosting applications

Danfoss pressure sensor kit	Pressure range	Product number
• Connection: G ½ A (DIN 16288 - B6kt) • Electrical connection: plug (DIN 43650)	0 - 2.5 bar	96478188
	0 - 4 bar	91072075
	0 - 6 bar	91072076
	0 - 10 bar	91072077
	0 - 16 bar	91072078
• Pressure sensor type MBS 3000, with 2 m screened cable Connection: G ¼ A (DIN 16288 - B6kt) • 5 cable clips (black) • Fitting instructions PT (00400212)	0 - 2.5 bar	405159
	0 - 4 bar	405160
	0 - 6 bar	405161
	0 - 10 bar	405162
	0 - 16 bar	405163

Sensors for circulation applications

Grundfos differential pressure sensor, DPI	Pressure range	Product number
• 1 sensor incl. 0.9 m screened cable (7/16" connections) • 1 original DPI bracket (for wall mounting) • 1 Grundfos bracket (for mounting on motor) • 2 M4 screws for mounting of sensor on bracket • 1 M6 screw (self-cutting) for mounting on MGE 90/100 • 1 M8 screw (self-cutting) for mounting on MGE 112/132 • 1 M10 screw (self-cutting) for mounting on MMGE 160 • 1 M12 screw (self-cutting) for mounting on MMGE 180 • 3 capillary tubes (short/long) • 2 fittings (1/4" - 7/16") • 5 cable clips (black) • Installation and operating instructions • Service kit instruction	0 - 0.6 bar	96611522
	0 - 1.0 bar	96611523
	0 - 1.6 bar	96611524
	0 - 2.5 bar	96611525
	0 - 4.0 bar	96611526
	0 - 6.0 bar	96611527
	0 - 10 bar	96611550

Select the differential pressure sensor so that the maximum pressure of the sensor is higher than the maximum differential pressure of the pump.

Potentiometer

Potentiometer for setpoint setting and start/stop of the pump.

Product	Product number
External potentiometer with cabinet for wall mounting.	625468

R100

R100 is used for wireless communication. Communication takes place by means of infrared light.

Product	Product number
R100	625333

G10-LON interface

The G10-LON interface is used in connection with data transmission between a Locally Operating Network (LON) and electronically controlled Grundfos pumps applying the Grundfos bus-protocol GENIbus.

Product	Product number
G10-LON interface	00605726

EMC filter

MMGE motors comply with the limits of EN 61800-3 (emission) for use in second environments (industrial areas), unrestricted distribution, corresponding to CISPR11, group 2, class A.

If MMGE motors (7.5-22 kW) are equipped with an external EMC filter, they comply with the limits for first environments (residential areas), unrestricted distribution, corresponding to CISPR11, group 1, class B.

TM02 9198 1203

Fig. 28 EMC filter

The EMC filter is available as a complete kit ready for installation.

EMC kit	Product number
• EMC filter in IP 54 aluminium cabinet • Accessories for connection to motor terminal box: - 1 reducer from M40 x 1.5 to M32 x 1.5 - 1 EMC nut M40 x 1.5 - 1 EMC cable gland M32 x 1.5 - Installation and operating instructions	96478309

Minimum inlet pressure - NPSH

To ensure optimum and noiseless operation we recommend the minimum inlet pressure values shown on page 111 to 113.

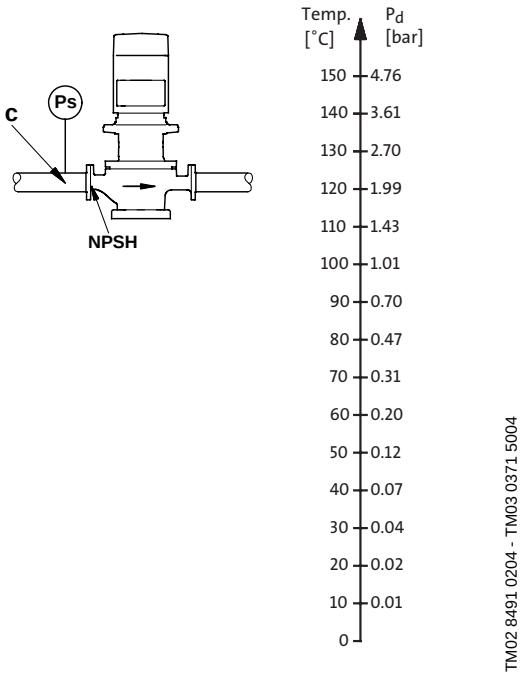
A minimum inlet pressure is required to avoid pressure drop that may cause cavitation.

The minimum inlet pressure (P_s) in bar can be calculated using the following formula.

Note: Calculation of the minimum inlet pressure should be based on the maximum required flow.

$$p_s \geq (NPSH_R + H_s) \times \rho \times g - \left(\frac{1}{2} \times \rho \times c^2\right) - p_b + p_d$$

P_s	=	Minimum inlet pressure in bar.
$NPSH_R$	=	The required Net Positive Suction Head in metres head. (To be read from the NPSH curve at the highest flow the pump will be delivering).
H_s	=	Safety margin = minimum 0.5 metres head. **Note:** A safety margin of 0.5 metres prevents pressure drop.
r	=	Density of the pumped liquid measured in kg/m^3.
g	=	Gravitational acceleration measured in m/s. For estimated calculations use the value 9.81 m/s^2.
c	=	Flow velocity of the pumped liquid at the pressure gauge. Insert the flow velocity as the unit [m/s]. (See individual curve charts from page 39).
p_b	=	Barometric pressure in bar. (Set the barometric pressure to 0.97 bar) **Note:** Only occasionally is the pressure as high as 1 bar; also this value is at sea level.
P_d	=	Vapour pressure in bar. (See Table 29 on page 110).



TM02 8491 0204 - TM03 0371 5004

Fig. 29 Minimum inlet pressure

Minimum inlet pressure - NPSH

TP, TPD 2-pole, PN 6/10/16

Pump type	p [bar]					
	20°C	60°C	90°C	110°C	120°C	140°C
TP 32-80/2	0.4	0.4	0.4	1.2	1.7	3.4
TP 32-160/2	0.4	0.6	1.1	1.9	2.4	4.1
TP 32-220/2	0.7	0.9	1.4	2.2	2.7	4.4
TP 32-260/2	0.7	0.9	1.4	2.2	2.7	4.4
TP 32-330/2	0.7	0.9	1.4	2.2	2.7	4.4
TP, TPD 32-300/2	0.1	0.1	0.1	0.7	1.2	2.8
TP, TPD 32-360/2	0.1	0.1	0.1	0.7	1.2	2.8
TP, TPD 32-450/2	0.1	0.1	0.1	0.7	1.2	2.8
TP, TPD 32-550/2	0.1	0.1	0.1	0.7	1.2	2.9
TP, TPD 32-680/2	0.1	0.1	0.1	0.8	1.4	3.1
TP, TPD 32-820/2	0.5	0.7	1.2	1.9	2.5	4.1
TP 40-80/2	0.1	0.3	0.8	1.6	2.1	3.8
TP 40-160/2	0.1	0.2	0.7	1.5	2.0	3.7
TP 40-240/2	0.4	0.6	1.1	1.9	2.4	4.1
TP 40-270/2	0.7	0.9	1.4	2.2	2.7	4.4
TP 40-330/2	0.7	0.9	1.4	2.2	2.7	4.4
TP 40-390/2	0.7	0.9	1.4	2.2	2.7	4.4
TP, TPD 40-370/2	0.1	0.1	0.1	0.8	1.3	2.9
TP, TPD 40-450/2	0.1	0.1	0.1	0.8	1.4	3.0
TP, TPD 40-550/2	0.1	0.1	0.1	0.8	1.4	3.0
TP, TPD 40-740/2	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 40-850/2	0.1	0.1	0.6	1.3	1.9	3.5
TP, TPD 40-930/2	0.3	0.5	1.0	1.7	2.3	3.9
TP 50-80/2	0.1	0.1	0.6	1.4	1.9	3.6
TP 50-160/2	0.4	0.6	1.1	1.9	2.4	4.1
TP 50-240/2	0.3	0.5	1.0	1.8	2.3	4.0
TP, TPD 50-250/2	0.1	0.1	0.2	1.0	1.5	3.1
TP, TPD 50-300/2	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 50-350/2	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 50-410/2	0.1	0.1	0.4	1.1	1.6	3.3
TP, TPD 50-440/2	0.1	0.1	0.5	1.2	1.8	3.4
TP, TPD 50-540/2	0.1	0.2	0.7	1.4	2.0	3.6
TP, TPD 50-720/2	0.1	0.3	0.8	1.6	2.1	3.7
TP, TPD 50-790/2	0.5	0.7	1.2	1.9	2.5	4.1
TP, TPD 50-880/2	0.8	1.0	1.5	2.2	2.8	4.4
TP 50-1050/2	1.1	1.3	1.8	2.5	3.1	4.7
TP 65-80/2	0.6	0.8	1.3	2.1	2.6	4.3
TP 65-160/2	1.1	1.3	1.8	2.6	3.1	4.8
TP 65-240/2	0.9	1.1	1.6	2.4	2.9	4.6
TP, TPD 65-220/2	0.1	0.1	0.2	0.9	1.4	3.1
TP, TPD 65-260/2	0.1	0.1	0.2	0.9	1.5	3.1
TP, TPD 65-340/2	0.1	0.1	0.2	1.0	1.5	3.1
TP, TPD 65-390/2	0.1	0.1	0.3	1.0	1.5	3.2
TP, TPD 65-480/2	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 65-540/2	0.1	0.1	0.3	1.1	1.6	3.2
TP, TPD 65-630/2	0.1	0.1	0.4	1.1	1.7	3.3
TP, TPD 65-740/2	0.1	0.1	0.6	1.3	1.9	3.5
TP 65-910/2	0.1	0.2	0.7	1.5	2.0	3.6
TP 65-1050/2	0.1	0.2	0.7	1.5	2.0	3.6

Pump type	p [bar]					
	20°C	60°C	90°C	110°C	120°C	140°C
TP 80-160/2	2.1	2.3	2.8	3.6	4.1	5.8
TP, TPD 80-200/2	0.5	0.7	1.2	1.9	2.5	4.1
TP, TPD 80-240/2	0.1	0.2	0.7	1.4	2.0	3.6
TP, TPD 80-290/2	0.1	0.3	0.8	1.5	2.1	3.7
TP, TPD 80-330/2	0.2	0.4	0.9	1.7	2.2	3.8
TP, TPD 80-400/2	0.6	0.8	1.3	2.1	2.6	4.2
TP, TPD 80-480/2	0.1	0.3	0.8	1.5	2.1	3.7
TP, TPD 80-530/2	0.2	0.4	0.9	1.6	2.1	3.8
TP, TPD 80-640/2	0.6	0.8	1.3	2.0	2.6	4.2
TP, TPD 80-750/2	0.6	0.8	1.3	2.0	2.6	4.2
TP, TPD 100-230/2	0.4	0.6	1.1	1.9	2.4	4.0
TP, TPD 100-300/2	0.2	0.4	0.9	1.6	2.2	3.8
TP, TPD 100-370/2	0.3	0.5	1.0	1.7	2.3	3.9
TP, TPD 100-350/2	0.9	1.1	1.6	2.3	2.9	4.5
TP, TPD 100-380/2	1.2	1.4	1.9	2.6	3.2	4.8
TP, TPD 100-530/2	1.7	1.9	2.4	3.2	3.7	5.3
TP, TPD 100-630/2	1.4	1.6	2.1	2.8	3.3	5.0
TP, TPD 100-700/2	3.0	3.2	3.7	4.4	5.0	6.6

Minimum inlet pressure - NPSH

TP, TPD 4-pole, PN 6/10/16

Pump type	p [bar]					
	20°C	60°C	90°C	110°C	120°C	140°C
TP 32-40/4	0.1	0.1	0.1	0.9	1.4	3.1
TP 32-80/4	0.1	0.1	0.5	1.3	1.8	3.5
TP, TPD 32-120/4	0.1	0.1	0.1	0.7	1.3	2.9
TP, TPD 32-140/4	0.1	0.1	0.1	0.7	1.3	2.9
TP, TPD 32-190/4	0.1	0.1	0.1	0.8	1.4	3.0
TP 40-40/4	0.1	0.1	0.3	1.1	1.6	3.3
TP 40-80/4	0.1	0.1	0.2	1.0	1.5	3.2
TP, TPD 40-120/4	0.1	0.1	0.1	0.5	1.1	2.7
TP, TPD 40-160/4	0.1	0.1	0.1	0.6	1.2	2.8
TP, TPD 40-190/4	0.1	0.1	0.1	0.7	1.2	2.8
TP, TPD 40-220/4	0.1	0.1	0.2	0.9	1.4	3.1
TP 50-40/4	0.1	0.1	0.3	1.1	1.6	3.3
TP 50-80/4	0.1	0.1	0.3	1.1	1.6	3.3
TP, TPD 50-110/4	0.1	0.1	0.1	0.6	1.2	2.8
TP, TPD 50-120/4	0.1	0.1	0.1	0.7	1.2	2.8
TP, TPD 50-140/4	0.1	0.1	0.1	0.7	1.3	2.9
TP, TPD 50-190/4	0.1	0.1	0.1	0.8	1.4	3.0
TP, TPD 50-240/4	0.1	0.1	0.2	0.9	1.5	3.1
TP, TPD 50-270/4	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 50-340/4	0.1	0.2	0.7	1.4	2.0	3.6
TP 65-40/4	0.4	0.6	1.1	1.9	2.4	4.1
TP 65-80/4	0.7	0.9	1.4	2.2	2.7	4.4
TP, TPD 65-130/4	0.1	0.1	0.1	0.6	1.2	2.8
TP, TPD 65-150/4	0.1	0.1	0.1	0.6	1.2	2.8
TP, TPD 65-190/4	0.1	0.1	0.1	0.6	1.2	2.8
TP, TPD 65-230/4	0.1	0.1	0.1	0.7	1.3	2.9
TP, TPD 65-310/4	0.1	0.1	0.1	0.7	1.3	2.9
TP, TPD 65-330/4	0.1	0.1	0.1	0.3	0.8	2.5
TP 80-40/4	1.5	1.7	2.2	3.0	3.5	5.2
TP 80-80/4	1.6	1.8	2.3	3.1	3.6	5.3
TP, TPD 80-110/4	0.1	0.1	0.1	0.8	1.4	3.0
TP, TPD 80-150/4	0.1	0.1	0.1	0.8	1.3	2.9
TP, TPD 80-170/4	0.1	0.1	0.1	0.8	1.3	3.0
TP, TPD 80-230/4	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 80-280/4	0.1	0.1	0.2	1.0	1.5	3.1
TP, TPD 80-340/4	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 80-410/4	0.1	0.1	0.5	1.2	1.8	3.4
TP, TPD 80-460/4	0.1	0.1	0.6	1.3	1.9	3.5
TP, TPD 80-510/4	0.1	0.2	0.7	1.5	2.0	3.6
TP 100-40/4	1.4	1.6	2.1	2.9	3.4	5.1
TP, TPD 100-100/4	0.1	0.1	0.2	0.9	1.5	3.1
TP, TPD 100-130/4	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 100-170/4	0.1	0.1	0.6	1.3	1.9	3.5
TP, TPD 100-200/4	0.1	0.1	0.4	1.1	1.7	3.3
TP, TPD 100-240/4	0.1	0.1	0.6	1.3	1.9	3.5
TP, TPD 100-290/4	0.5	0.7	1.2	2.0	2.5	4.1
TP, TPD 100-340/4	0.6	0.8	1.3	2.0	2.6	4.2
TP, TPD 100-390/4	0.7	0.9	1.4	2.1	2.7	4.3
TP, TPD 100-470/4	0.9	1.1	1.6	2.3	2.9	4.5
TP 100-600/4	0.1	0.1	0.1	0.8	1.4	3.1
TP, TPD 125-130/4	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 125-160/4	0.1	0.1	0.3	1.1	1.6	3.2
TP, TPD 125-210/4	0.1	0.1	0.3	1.0	1.6	3.2
TP, TPD 125-260/4	0.1	0.1	0.4	1.2	1.7	3.3
TP, TPD 125-320/4	0.1	0.1	0.3	1.1	1.6	3.2
TP, TPD 125-360/4	0.1	0.1	0.4	1.1	1.7	3.3
TP, TPD 125-430/4	0.1	0.1	0.5	1.3	1.8	3.4
TP, TPD 125-490/4	0.1	0.3	0.8	1.5	2.1	3.7
TP, TPD 150-180/4	0.1	0.2	0.7	1.4	1.9	3.6
TP, TPD 150-210/4	0.1	0.2	0.7	1.4	2.0	3.6
TP, TPD 150-240/4	0.1	0.2	0.7	1.5	2.0	3.6
TP, TPD 150-300/4	0.1	0.3	0.8	1.5	2.1	3.7
TP 150-360/4	1.4	1.6	2.1	2.9	3.4	5.1
TP 150-380/4	0.7	0.9	1.4	2.2	2.7	4.4
TP 150-400/4	0.2	0.4	0.9	1.7	2.2	3.9
TP 150-420/4	0.7	0.9	1.4	2.2	2.7	4.4
TP 150-490/4	0.7	0.9	1.4	2.2	2.7	4.4
TP 150-550/4	0.7	0.9	1.4	2.2	2.7	4.4
TP 200-270/4	2.4	2.6	3.1	3.9	4.4	6.1
TP 200-280/4	0.4	0.6	1.1	1.8	2.4	4.1
TP 200-290/4	2.3	2.5	3.0	3.7	4.3	6.0
TP 200-320/4	0.4	0.6	1.1	1.8	2.4	4.1
TP 200-330/4	2.1	2.3	2.8	3.5	4.1	5.8
TP 200-350/4	0.4	0.6	1.1	1.8	2.4	4.1
TP 200-380/4	0.9	1.1	1.6	2.3	2.9	4.6
TP 200-430/4	2.5	2.7	3.2	4.0	4.5	6.2
TP 200-520/4	0.8	1.0	1.5	2.3	2.8	4.5
TP 200-570/4	0.8	1.0	1.5	2.3	2.8	4.5
TP 250-450/4	1.5	1.7	2.2	2.9	3.5	5.2
TP 250-530/4	1.5	1.7	2.2	2.9	3.5	5.2
TP 250-580/4	1.4	1.6	2.1	2.9	3.4	5.1

TP Series 400, 2-pole, PN 25

Pump type	p [bar]					
	20°C	60°C	90°C	110°C	120°C	140°C
TP 100-1000/2	0.5	0.7	1.2	1.9	2.5	4.2
TP 100-1100/2	0.4	0.6	1.1	1.9	2.4	4.1
TP 100-1250/2	0.4	0.6	1.1	1.8	2.4	4.1
TP 100-1350/2	0.3	0.5	1.0	1.8	2.3	4.0
TP 100-1450/2	0.6	0.8	1.3	2.1	2.6	4.3
TP 100-1560/2	0.6	0.8	1.3	2.0	2.6	4.3
TP 100-1700/2	0.5	0.7	1.2	2.0	2.5	4.2
TP 100-2100/2	0.5	0.7	1.2	1.9	2.5	4.2
TP 100-2350/2	0.4	0.6	1.1	1.8	2.4	4.1

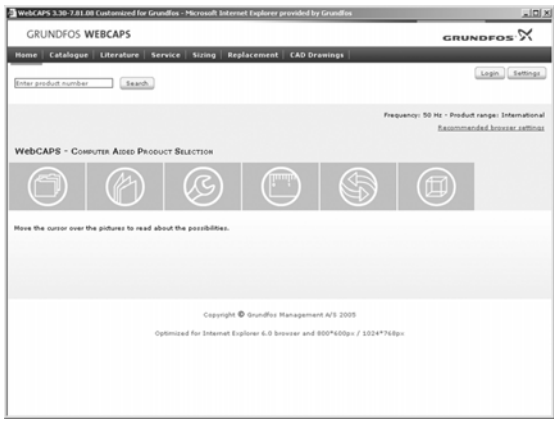
Minimum inlet pressure - NPSH

TP Series 400, 4-pole, PN 25

Pump type	p [bar]					
	20°C	60°C	90°C	110°C	120°C	140°C
TP 100-210/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 100-250/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 100-330/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 100-360/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 100-420/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 100-450/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 100-530/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 100-590/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 125-240/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 125-270/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 125-310/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 125-370/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 125-350/4	0.1	0.2	0.7	1.5	2.0	3.7
TP 125-440/4	0.1	0.2	0.7	1.5	2.0	3.7
TP 125-500/4	0.1	0.2	0.7	1.4	2.0	3.7
TP 125-570/4	0.1	0.2	0.7	1.4	2.0	3.7
TP 125-620/4	0.1	0.1	0.6	1.4	1.9	3.6
TP 150-330/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 150-370/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 150-450/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 150-490/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 150-710/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 150-800/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 150-930/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 200-220/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 200-250/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 200-310/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 200-350/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 200-370/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 200-520/4	0.1	0.1	0.1	0.8	1.4	3.1
TP 200-560/4	0.1	0.1	0.6	1.3	1.9	3.6
TP 200-670/4	0.2	0.4	0.9	1.7	2.2	3.9
TP 200-760/4	0.2	0.4	0.9	1.6	2.2	3.9
TP 200-840/4	0.2	0.4	0.9	1.6	2.2	3.9
TP 200-930/4	0.2	0.4	0.9	1.6	2.2	3.9
TP 250-430/4	0.3	0.5	1.0	1.7	2.3	4.0
TP 250-500/4	0.2	0.4	0.9	1.7	2.2	3.9
TP 250-550/4	0.2	0.4	0.9	1.7	2.2	3.9
TP 250-720/4	0.4	0.6	1.1	1.8	2.4	4.1
TP 250-800/4	0.4	0.6	1.1	1.8	2.4	4.1
TP 250-910/4	0.4	0.6	1.1	1.8	2.4	4.1
TP 250-1020/4	0.4	0.6	1.1	1.8	2.4	4.1

Further product documentation

WebCAPS

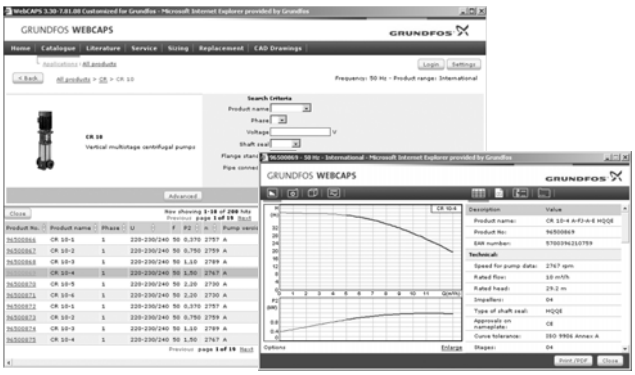


WebCAPS is a **Web**-based **C**omputer **A**ided **P**roduct **S**election program available on www.grundfos.com.

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

In WebCAPS, all information is divided into 6 sections:

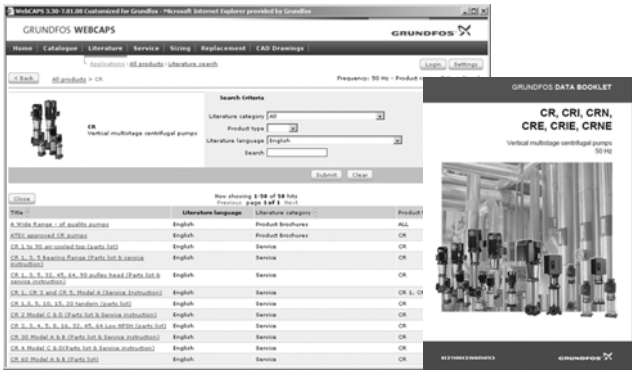
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

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

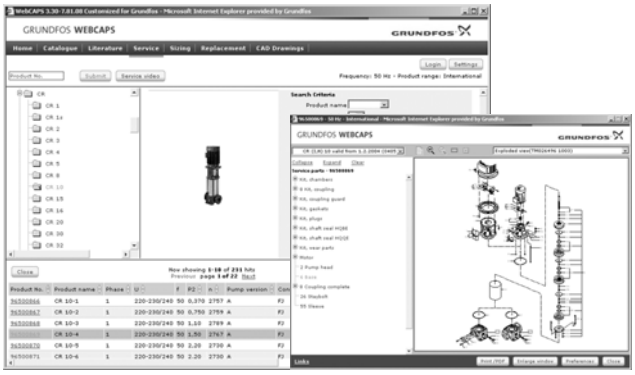
- technical data
- curves (QH, Eta, P1, P2, etc) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



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, etc.



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.

Further product documentation

Sizing

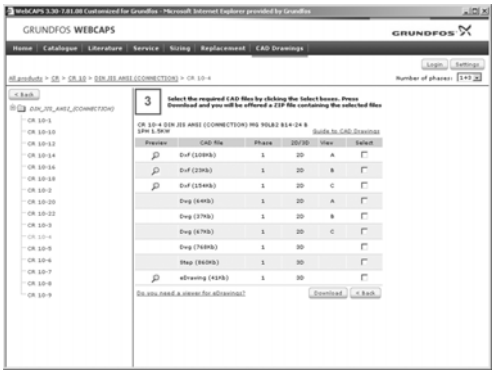
This section is based on different fields of application and installation examples, and gives easy step-by-step instructions in how to

- 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. 30 WinCAPS CD-ROM

WinCAPS is a **Win**dows-based **C**omputer **A**ided **P**roduct **S**election 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.

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Subject to alterations.

GRUNDFOS A/S . DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00

www.grundfos.com

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