

TP, TPD, TPE, TPED, TPE2, TPE2 D, TPE3, TPE3 D

In-line circulator pumps

50 Hz



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9. TPE Series 2000 pumps



TM06 7382 3416 - TM06 7384 3416

Fig. 17 TPE Series 2000

Technical data

Flow rate:	Up to 340 m ³ /h
Head:	Up to 90 m
Liquid temperature:	-25 to +140 °C
Maximum operating pressure:	16 bar
Motor sizes (single-phase):	0.12 to 1.5 kW
Motor sizes (three-phase):	0.12 to 22 kW

Construction

TPE, TPED Series 2000 pumps are based on TP, TPD Series 200 and 300 pumps.

The main differences between the TP and the TPE Series 2000 pumps are the motor and the factory-fitted differential-pressure sensor.

The MGE motor of TPE Series 2000 pumps has a built-in frequency converter for continuous adjustment of the pressure to the flow rate. All pumps with 2-pole motors up to 11 kW and 4-pole motors up to 7.5 kW are fitted with Grundfos permanent-magnet MGE motors that have motor efficiency class IE5 according to IEC 60034-30-2.

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



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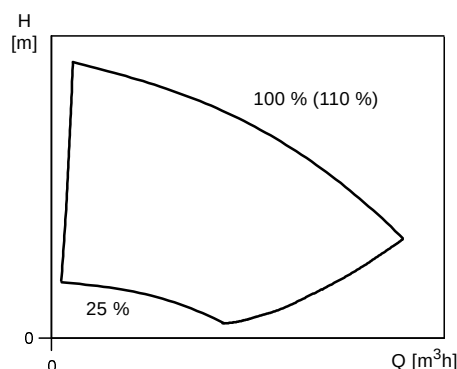
Fig. 18 Example of main display on a TPE Series 2000 with advanced control panel

For further information on construction and materials of the pumps, .

Applications

TPE Series 2000 pumps have integrated speed control for automatic adaptation of performance to current conditions.

The energy consumption is thus kept at a minimum. The pumps can operate at any duty point within the range between 25 and 100 % speed. In a part of the duty range, the pumps can operate at speeds up to 110 %.



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Fig. 19 Duty range of TPE Series 2000 pumps

The 100 % curve corresponds to the curve of a pump with a mains-operated motor.

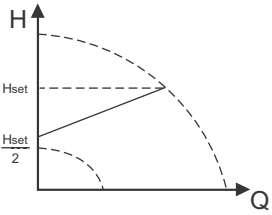
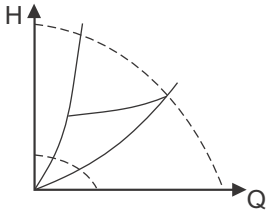
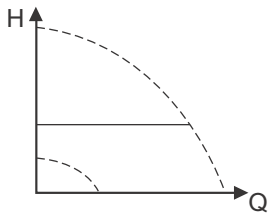
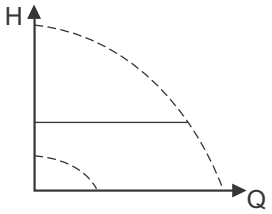
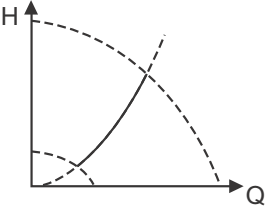
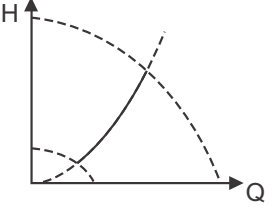
Depending on the application, the pumps offer energy savings, increased comfort or improved processing.

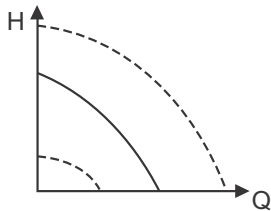
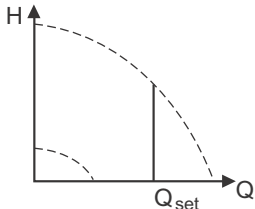
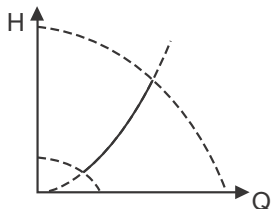
The pumps are suitable for applications requiring pressure control.

Proportional pressure

The pumps are factory-set to proportional pressure control. We recommend that you use proportional pressure control in systems with relatively large pressure losses, as it is the most economical control mode.

The charts below show possible control modes of the pumps in different applications.

System application	Select this control mode	Pump type
In systems with relatively large pressure losses in the distribution pipes and in air-conditioning and cooling systems. - Two-pipe heating systems with thermostatic valves and the following: - very long distribution pipes - strongly throttled pipe balancing valves - differential-pressure regulators - large pressure losses in those parts of the system through which the total quantity of water flows, for example boiler, heat exchanger and distribution pipe up to the first branching. - Primary circuit pumps in systems with large pressure losses in the primary circuit. - Air-conditioning systems with the following: - heat exchangers (fan coils) - cooling ceilings - cooling surfaces.	Proportional pressure 	All
In systems with relatively large pressure losses in the distribution pipes and in air-conditioning and cooling systems. - Two-pipe heating systems with thermostatic valves and the following: - very long distribution pipes - strongly throttled pipe balancing valves - differential-pressure regulators - large pressure losses in those parts of the system through which the total quantity of water flows, for example boiler, heat exchanger and distribution pipe up to the first branching. - Primary circuit pumps in systems with large pressure losses in the primary circuit. - Air-conditioning systems with the following: - heat exchangers (fan coils) - cooling ceilings - cooling surfaces.	Constant differential pressure with differential-pressure sensor located in the system 	0.12 - 11 kW, 2-pole 0.12 - 7.5 kW, 4-pole
In systems with relatively small pressure losses in the distribution pipes. - Two-pipe heating systems with thermostatic valves and the following: - sized for natural circulation - small pressure losses in those parts of the system through which the total quantity of water flows, for example boiler, heat exchanger and distribution pipe up to the first branching or modified to a high differential temperature between flow pipe and return pipe, for example district heating. - Underfloor heating systems with thermostatic valves. - One-pipe heating systems with thermostatic valves or pipe balancing valves. - Primary circuit pumps in systems with small pressure losses in the primary circuit.	Constant differential pressure 	All
In pressure boosting systems.	Constant pressure 	0.12 - 11 kW, 2-pole 0.12 - 7.5 kW, 4-pole
In systems with a fixed system characteristic. Examples: - one-pipe heating systems - boiler shunts - systems with three-way valves - domestic hot-water circulation.	Constant temperature 	0.12 - 11 kW, 2-pole 0.12 - 7.5 kW, 4-pole
	Constant differential temperature 	0.12 - 11 kW, 2-pole 0.12 - 7.5 kW, 4-pole

System application	Select this control mode	Pump type
If an external controller is installed, the pump is able to change from one constant curve to another, depending on the value of the external signal. The pump can also be set to operate according to the maximum or minimum curve: - Use the maximum curve mode in periods in which a maximum flow is required. This operating mode is for instance suitable for hot-water priority. - Use the minimum curve mode in periods in which a minimum flow is required.	Constant curve 	All
In systems requiring a constant flow, independently of pressure drop. Examples: - chillers for air-conditioning - heating surfaces - cooling surfaces.	Constant flow rate 	0.12 - 11 kW, 2-pole 0.12 - 7.5 kW, 4-pole
In systems requiring a constant tank level, independently of the flow rate. Examples: - process water tanks - boiler condensate tanks.	Constant level 	0.12 - 11 kW, 2-pole 0.12 - 7.5 kW, 4-pole
In systems with pumps operating in parallel. The multipump function enables the control of single-head pumps connected in parallel (two to four pumps) without the use of external controllers. The pumps in a multipump system communicate with each other via the wireless GENlair connection or the wired GENI connection.	"Assist" menu, "Multipump setup"	0.12 - 11 kW, 2-pole 0.12 - 7.5 kW, 4-pole

TPE, TPED pumps with extended performance range

Standard TPE, TPED pumps, 50 Hz, are able to operate in a range above the 100 % curve. .

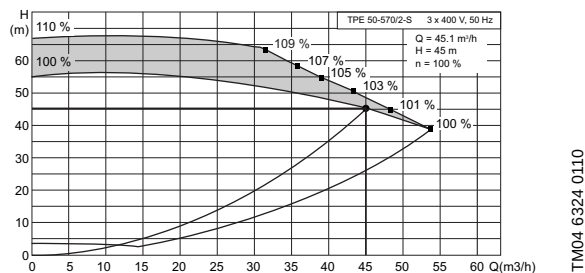


Fig. 20 TPE and TPED pumps with extended performance range

The extended range is provided by means of optimised software which uses the MGE motor in an optimum way. The result is that the pump is able to deliver higher head and flow with the same motor size.

The curve sheets in the TP data booklet only show the nominal 100 % QH curve.

Grundfos Product Center shows the extended performance range of the pumps.

Operating modes of twin-head pumps

The following operating modes are available for twin-head pumps:

Alternating operation

The two pumps run alternately for 24 operating hours. In case of fault in the operating pump, the other pump starts.

Standby operation

One pump is in constant operation. Every 24 operating hours the standby pump starts and runs for a short period to prevent it from seizing up. In case of fault in the operating pump, the standby pump starts.

In case of sensor fault, the operating pump switches to maximum operation.

Control options

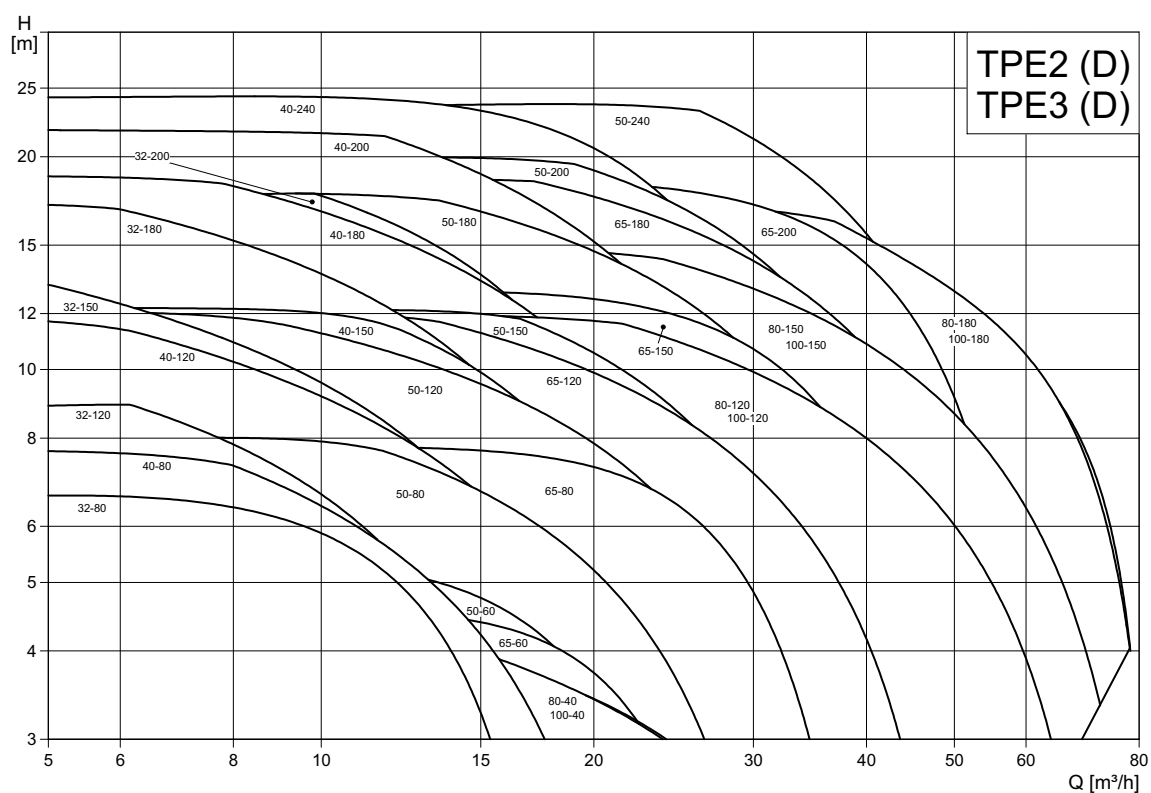
Communication with the pumps is possible via a central building management system, remote control (Grundfos GO) or control panel.

The purpose of controlling the pumps is to monitor and control the pressure, temperature, flow rate and liquid level of the system.

For further information on control options of the pumps,

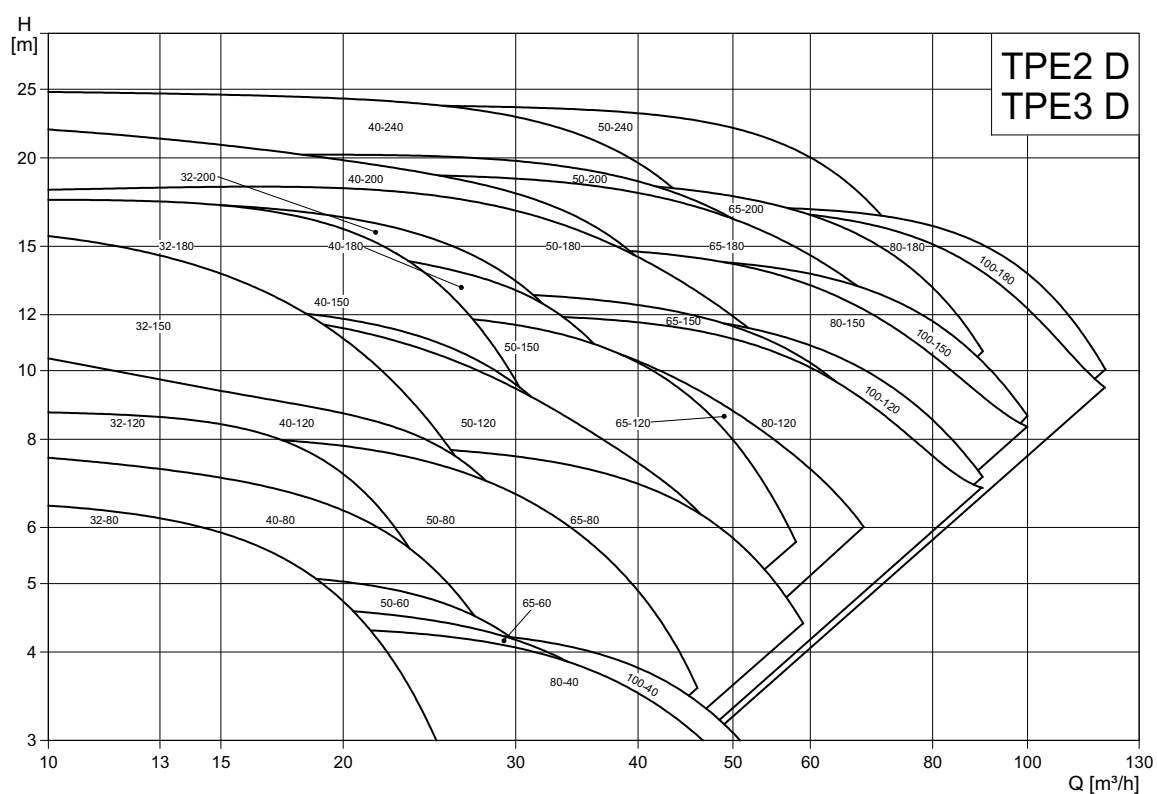
2. Performance range

Performance range, TPE2, TPE3, PN 6, 10, 16



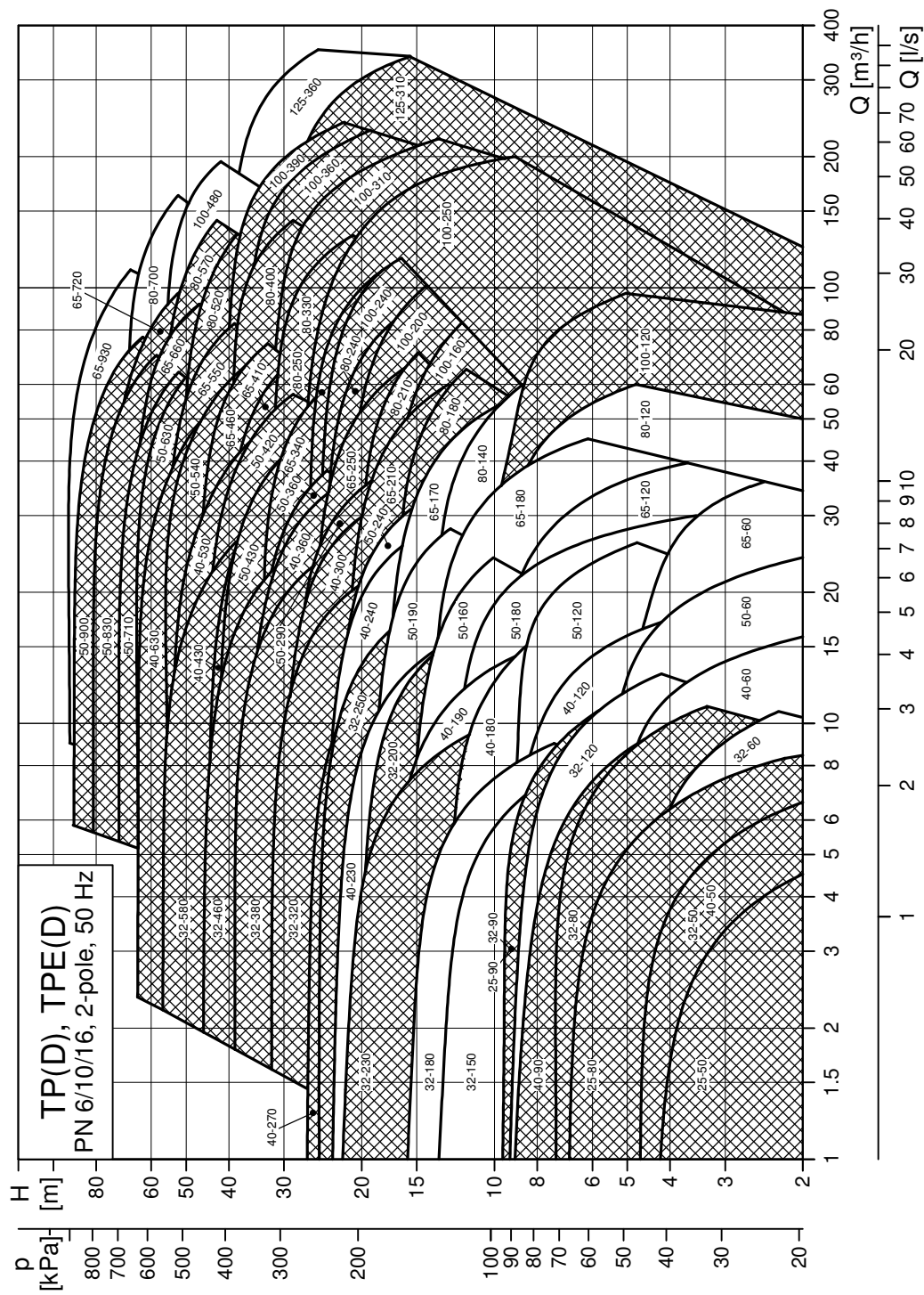
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Performance range, TPE2 D, TPE3 D, twin-head operation, PN 6, 10, 16



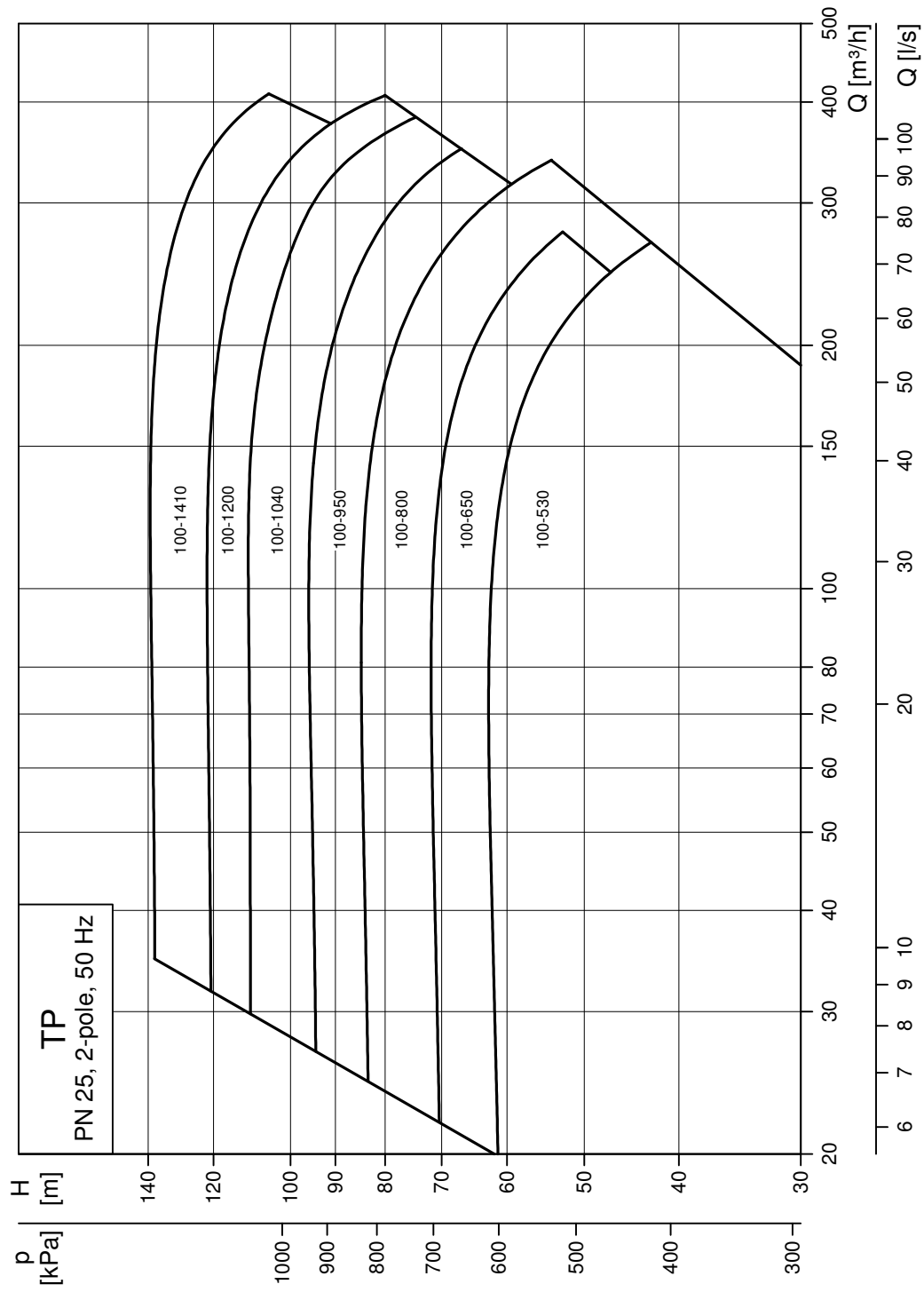
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Performance range, 2-pole, PN 6, 10, 16

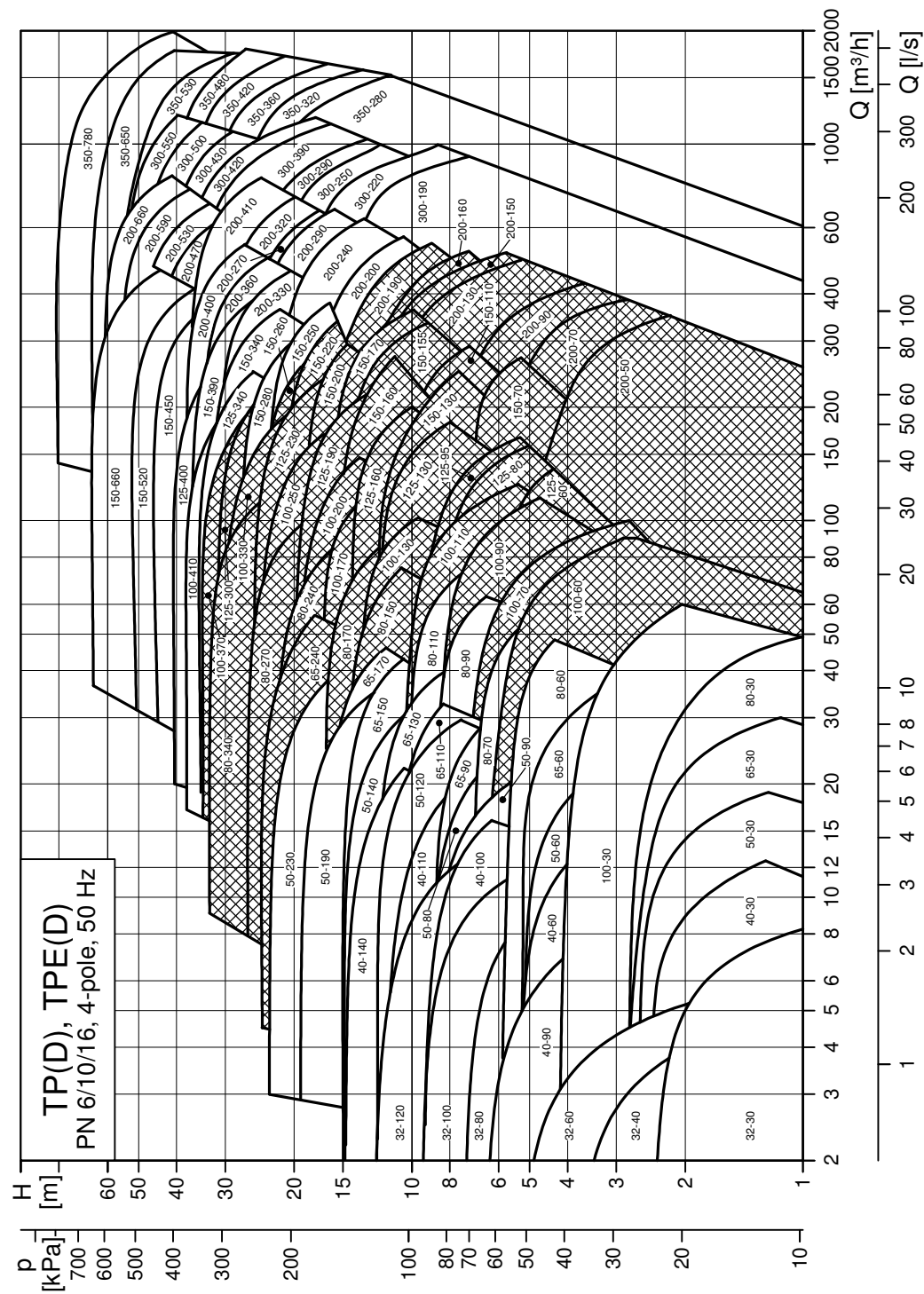


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Performance range, 2-pole, PN 25

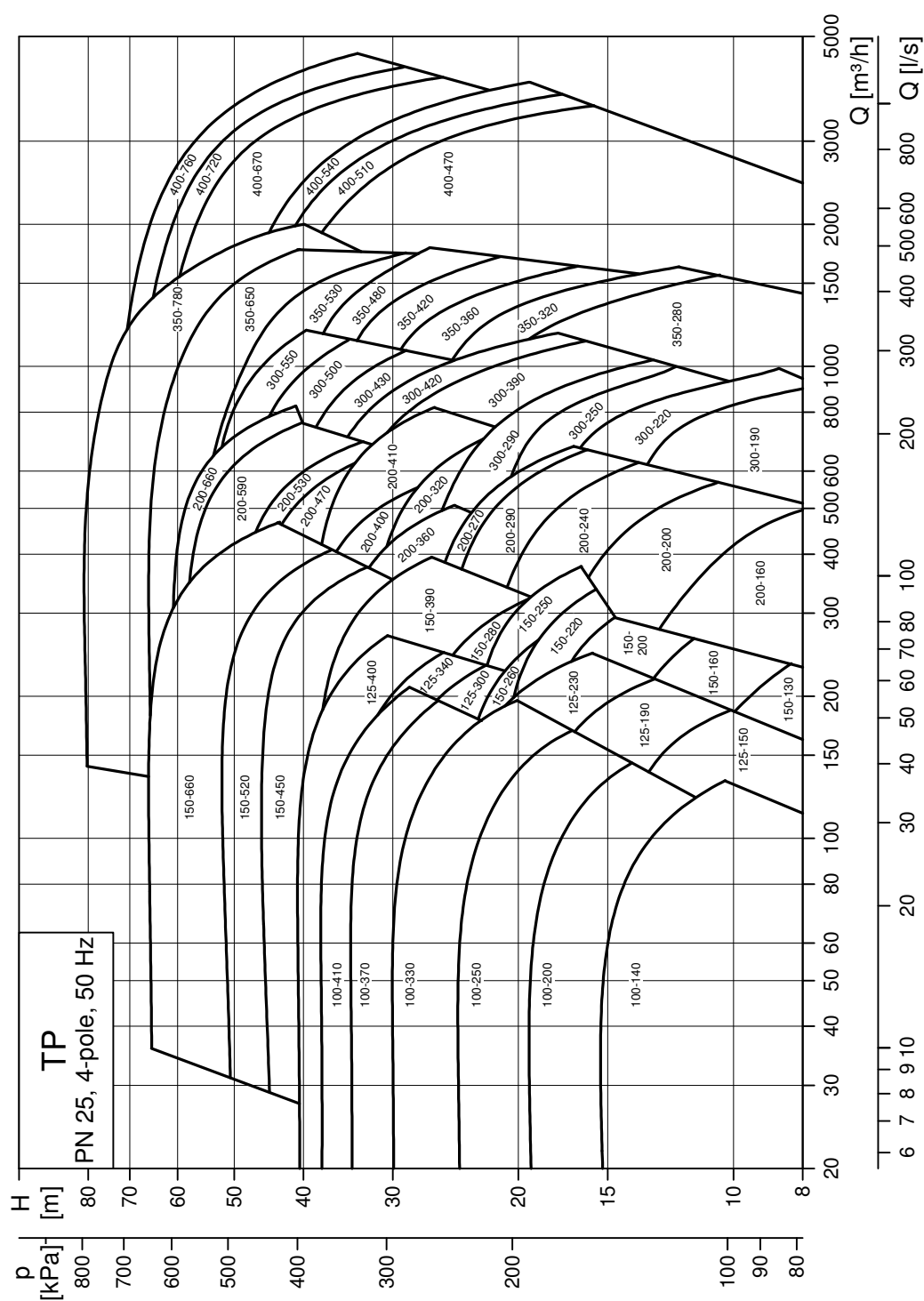


Performance range, 4-pole, PN 6, 10, 16

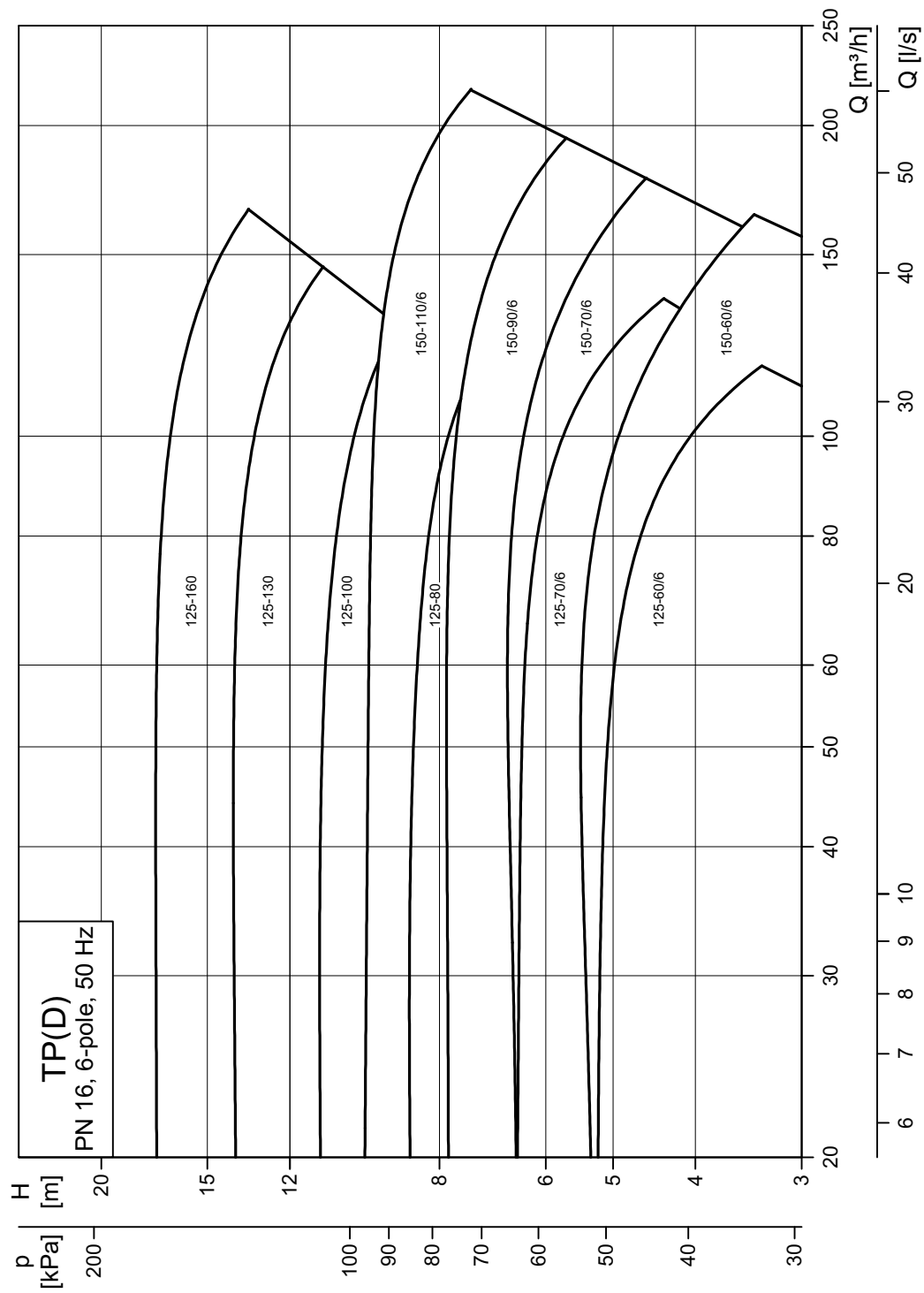


TM02 7551 4217

Performance range, 4-pole, PN 25



Performance range, 6-pole, PN 16



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