

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

In-line circulator pumps

50 Hz



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10. TPE2



TM06 7378 3416 - TM06 7379 3416

Fig. 21 TPE2 and TPE2 D pumps

Technical data

Flow rate:	Up to 120 m ³ /h
Head:	Up to 25 m
Liquid temperature:	-25 to +120 °C (140 °C for a short period)
Maximum operating pressure:	16 bar
Motor sizes, single-phase:	0.25 to 1.5 kW
Motor sizes, three-phase:	0.25 to 2.2 kW

Construction

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

The permanent-magnet motor has a built-in frequency converter for continuous adjustment of the pressure to the flow rate. All pumps 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 are available as single-head, TPE2, and twin-head, TPE2 D, pumps.

The pumps have PN 6, PN 10 or PN 16 flanges.

The pumps are fitted with an unbalanced mechanical shaft seal.

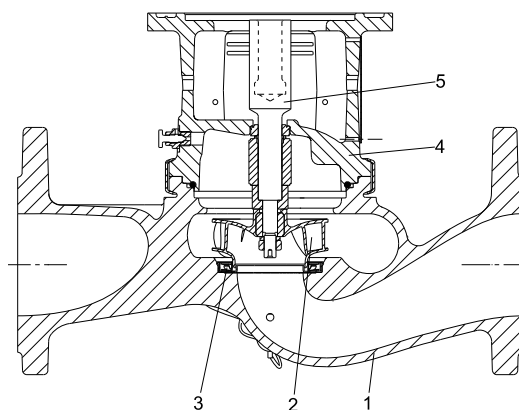
The power head (motor, pump head and impeller) and pump housing are held together by a specially designed clamp. The clamp allows for fast repositioning of the pump housing and fast service of the pump.

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

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

Pumps with stainless-steel pump housing, version I, are suitable for circulation of domestic hot water.

Materials



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Fig. 22 Sectional drawing of a TPE2 pump

Material specification

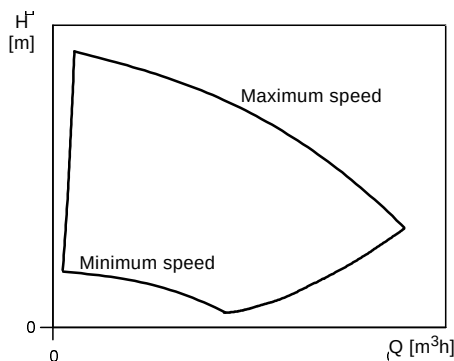
Pos.	Component	Material	EN/DIN
1	Pump housing	Cast iron EN-GJL-250 Stainless steel	EN1561 EN 1.4308
2	Impeller	Composite PES-GF30	
3	Neck ring	Stainless steel	EN 1.4404
4	Pump head/motor stool	Cast iron EN-GJL-250 Stainless steel	EN1561 EN 1.4308
	Secondary seals	EPDM	
	Rotating seal face	Silicon carbide	
	Stationary seat	Carbon (resin-impregnated) Silicon carbide	
5	Stub shaft	Stainless steel	EN 1.4404

Applications

The 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 minimum and maximum speed.



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Fig. 23 Duty range of TPE2

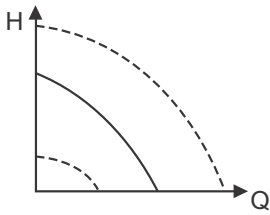
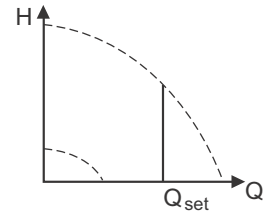
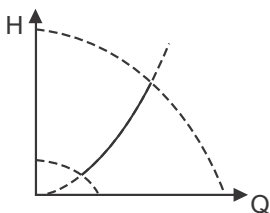
Depending on the application, the pumps offer energy savings, increased comfort or improved processing.

The pumps can be fitted with sensor types meeting the requirements mentioned in section [28. Accessories](#).

Constant curve

The pumps are factory-set to constant-curve control mode.

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.	Constant differential-pressure with differential pressure sensor located in the system	All
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	All
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 and constant differential temperature	All

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, like an uncontrolled pump: - 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. This operating mode is for instance suitable for manual night setback instead of automatic night setback.	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 	All
In systems requiring a constant tank level, independently of the flow rate. Examples: - process water tanks - boiler condensate tanks.	Constant level 	All
In systems with pumps operating in parallel. The multipump function enables the control of single-head pumps connected in parallel (two to four pumps) and twin-head pumps without the use of external controllers. The pumps in a multipump system communicate with each other via the wireless GENIair connection or the wired GENI connection.	"Assist" menu "Multipump setup"	All

Multipump system

The multipump function enables the control of single-head pumps connected in parallel or twin-head 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.

You set a multipump system via a selected pump, that is the master pump which is the first selected pump.

If you configure two pumps in the system with an outlet-pressure sensor, both pumps can function as master pumps and take over the master pump function if the other fails. This provides additional redundancy in the multipump system.

You can connect all Grundfos pumps with a wireless GENlair connection to the multipump system.

The multipump functions are described in the following sections.

Alternating operation

Alternating operation functions as a duty-standby operating mode and is possible with two pumps of same size and type connected in parallel. The main purpose of the function is to ensure an even amount of running hours and to ensure that the standby pump takes over if the running pump stops due to an alarm. Each pump requires a non-return valve in series with the pump.

You can choose between two alternating operation modes:

- Alternating operation, time
Pump changeover to the other is based on time.
- Alternating operation, energy
Pump changeover to the other is based on energy consumption.
If the duty pump fails, the other pump takes over automatically.
Only one pump is operating at a time. The change from one pump to the other depends on time or energy. If a pump fails, the other pump takes over automatically.

Pump system:

- Twin-head pump.
- Two single-head pumps connected in parallel.
The pumps must be of the same type and size.
Each pump requires a non-return valve in series with the pump.

Backup operation

Backup operation is possible with two pumps of same size and type connected in parallel. Each pump requires a non-return valve in series with the pump.

One pump is operating continuously. The backup pump is operated for a short time each day to prevent seizing up. If the duty pump stops due to a fault, the backup pump starts automatically.

Pump system:

- Twin-head pump.
- Two single-head pumps connected in parallel.
The pumps must be of the same type and size.
Each pump requires a non-return valve in series with the pump.

Cascade operation

Cascade operation ensures that the pump performance is automatically adapted to the consumption by switching pumps on or off. The system thus runs as energy-efficiently as possible with a constant pressure and a limited number of pumps.

When a twin-head pump is running in constant-pressure control mode, the second pump head starts at 90 % and stops at 50 % performance.

All pumps in operation will run at equal speed. Pump changeover is automatic and depends on energy, operating hours and fault.

Pump system:

- Twin-head pump.
- Two to four single-head pumps connected in parallel. The pumps must be of the same type and size. Each pump requires a non-return valve in series with the pump.

Set the control mode to "Const. pressure" or "Const. curve".

Control options

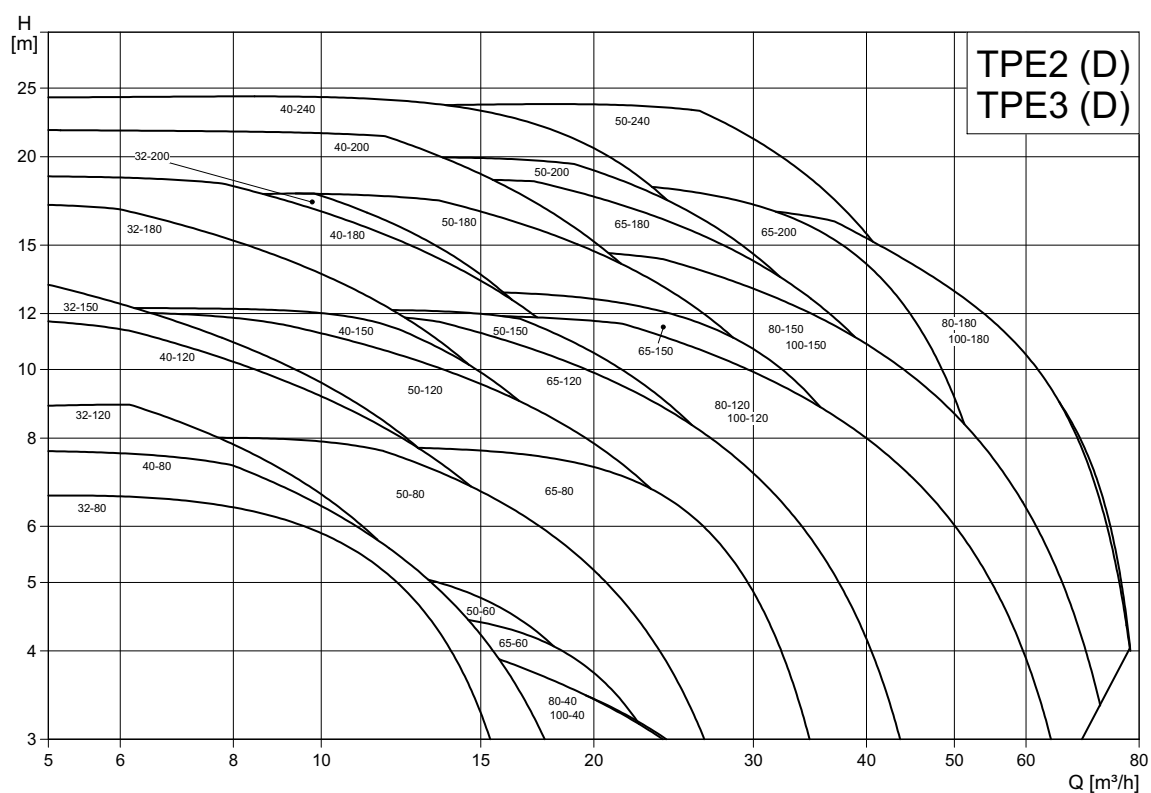
Communication with the pumps is possible via a central building management system, Grundfos GO or control panel.

The purpose of controlling TPE2 pumps is to monitor and control the pressure, temperature, flow rate and liquid level of the system.

For further information on control options of TPE2 pumps, see page [105](#).

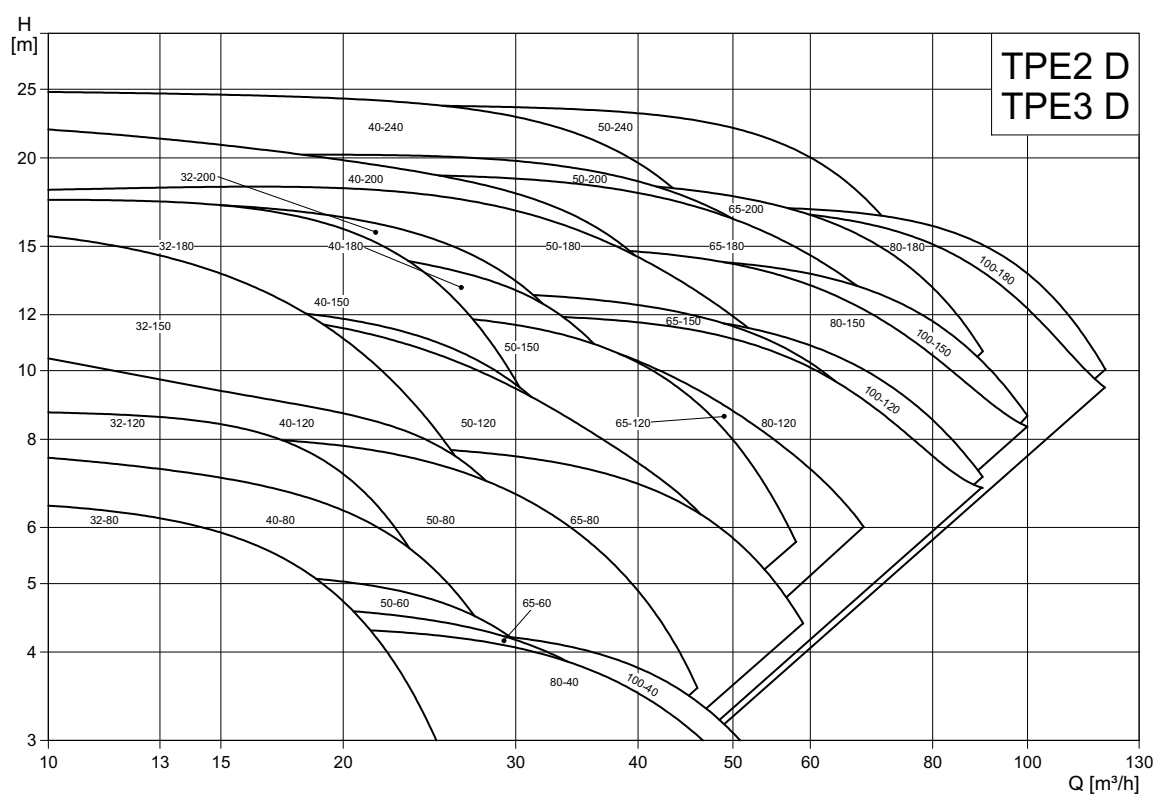
2. Performance range

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



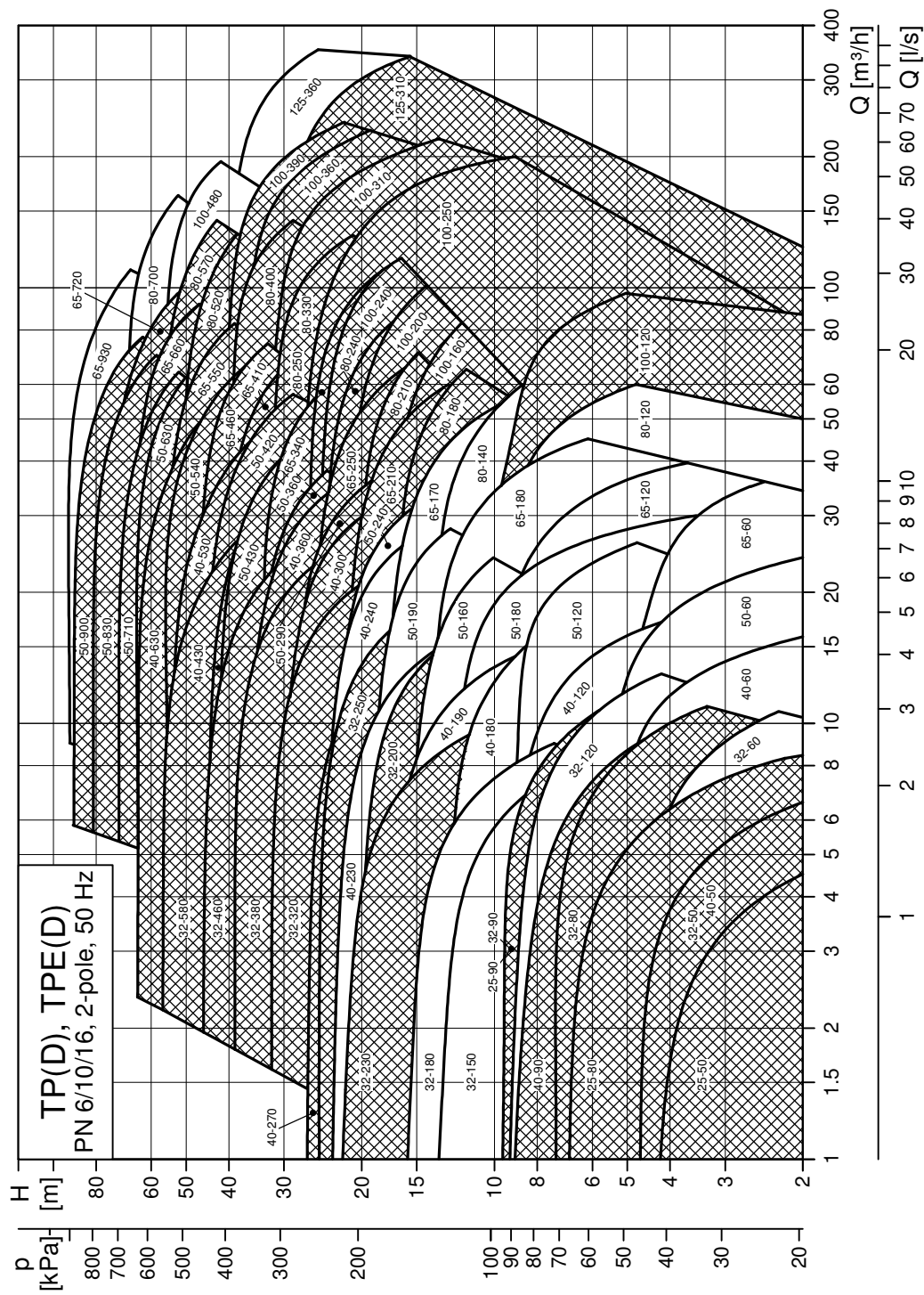
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Performance range, TPE2 D, TPE3 D, twin-head operation, PN 6, 10, 16



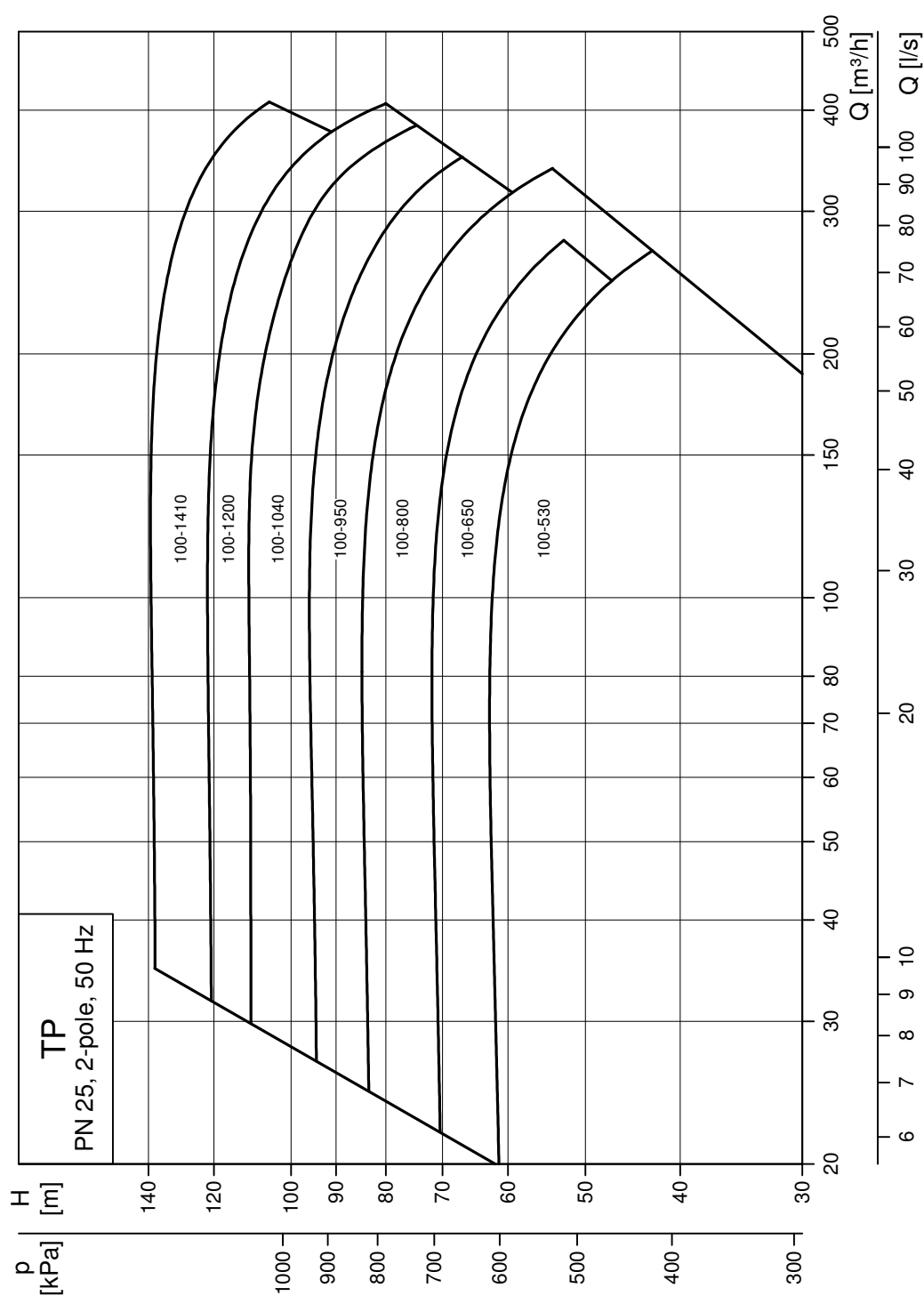
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Performance range, 2-pole, PN 6, 10, 16

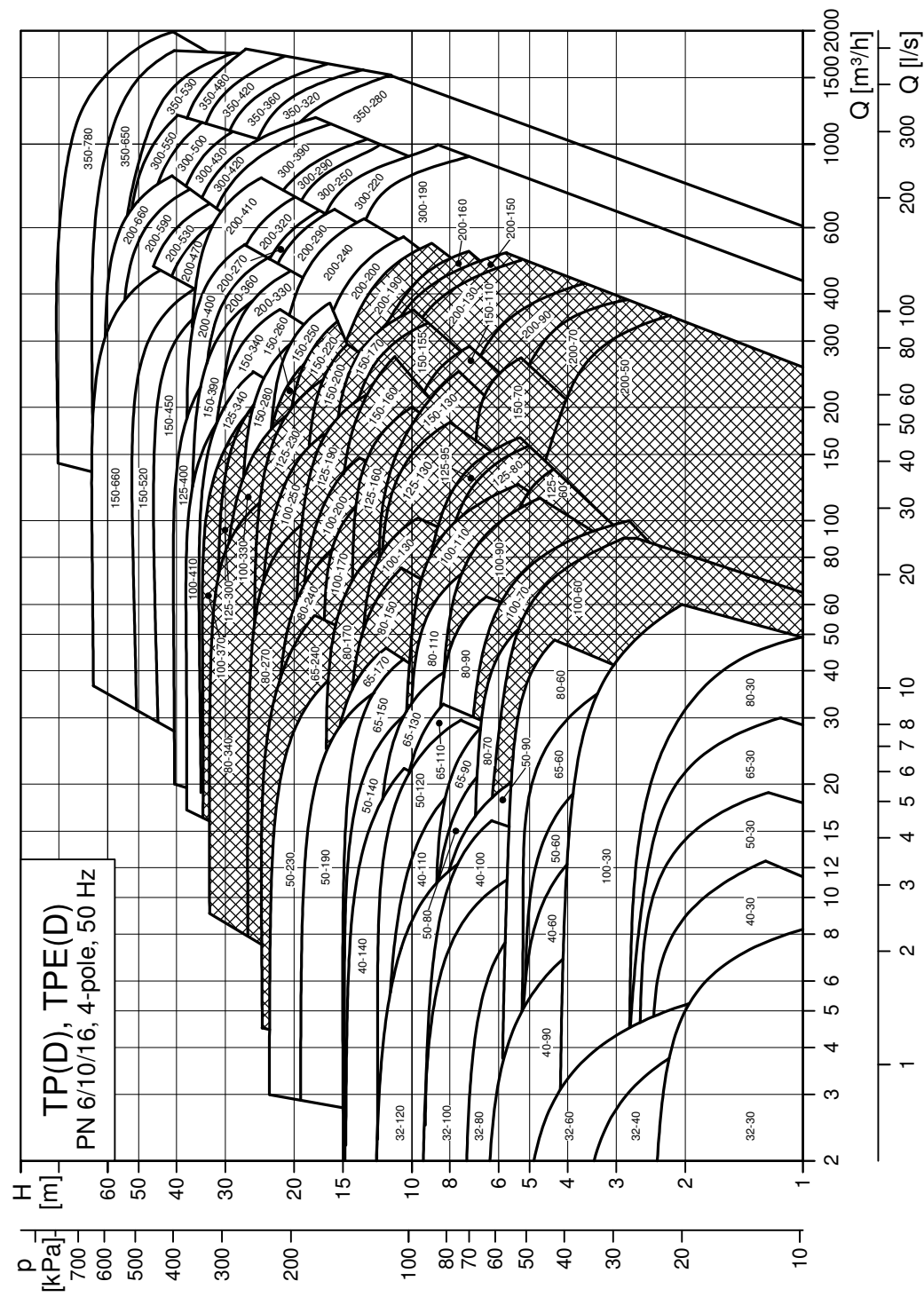


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Performance range, 2-pole, PN 25

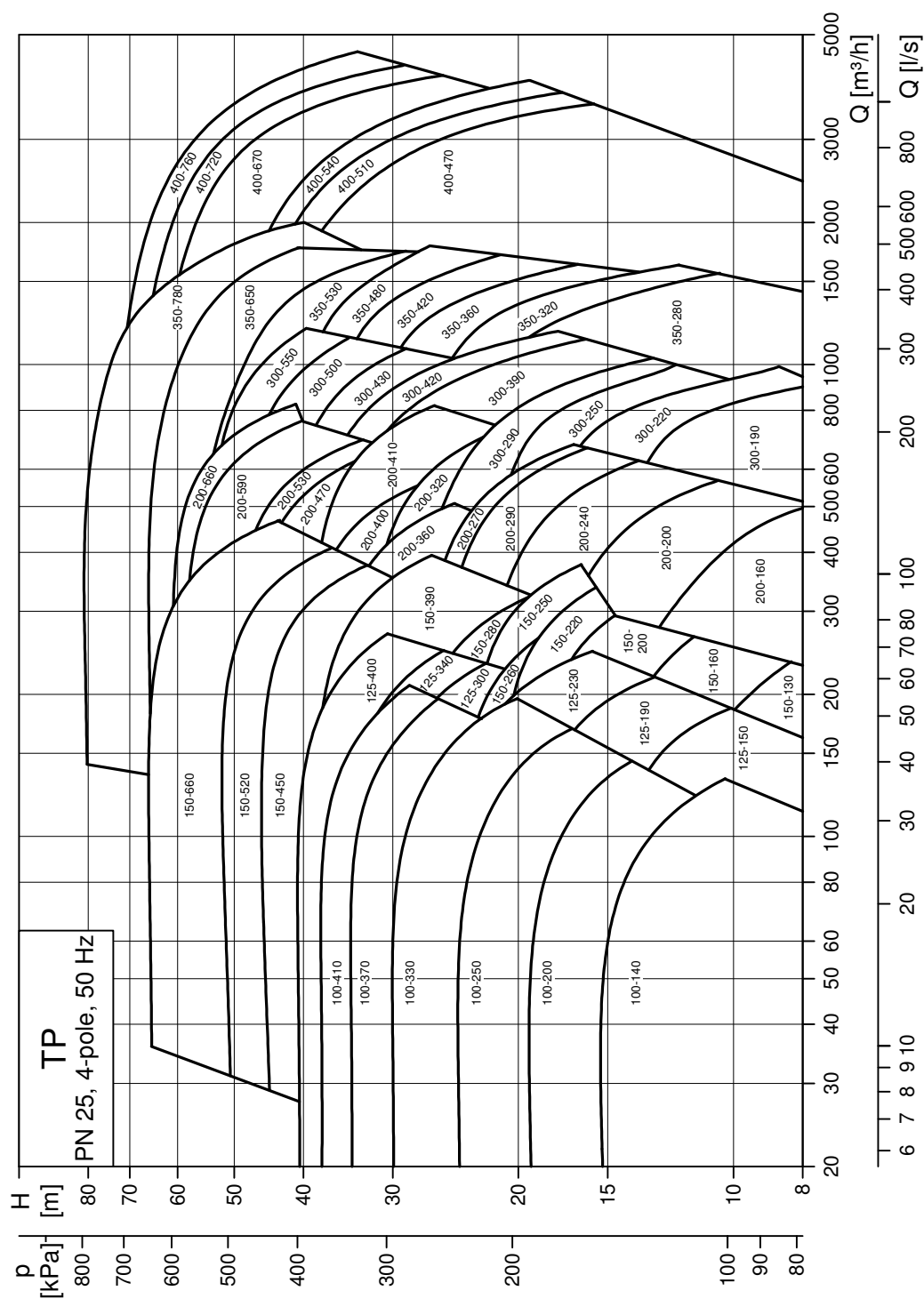


Performance range, 4-pole, PN 6, 10, 16

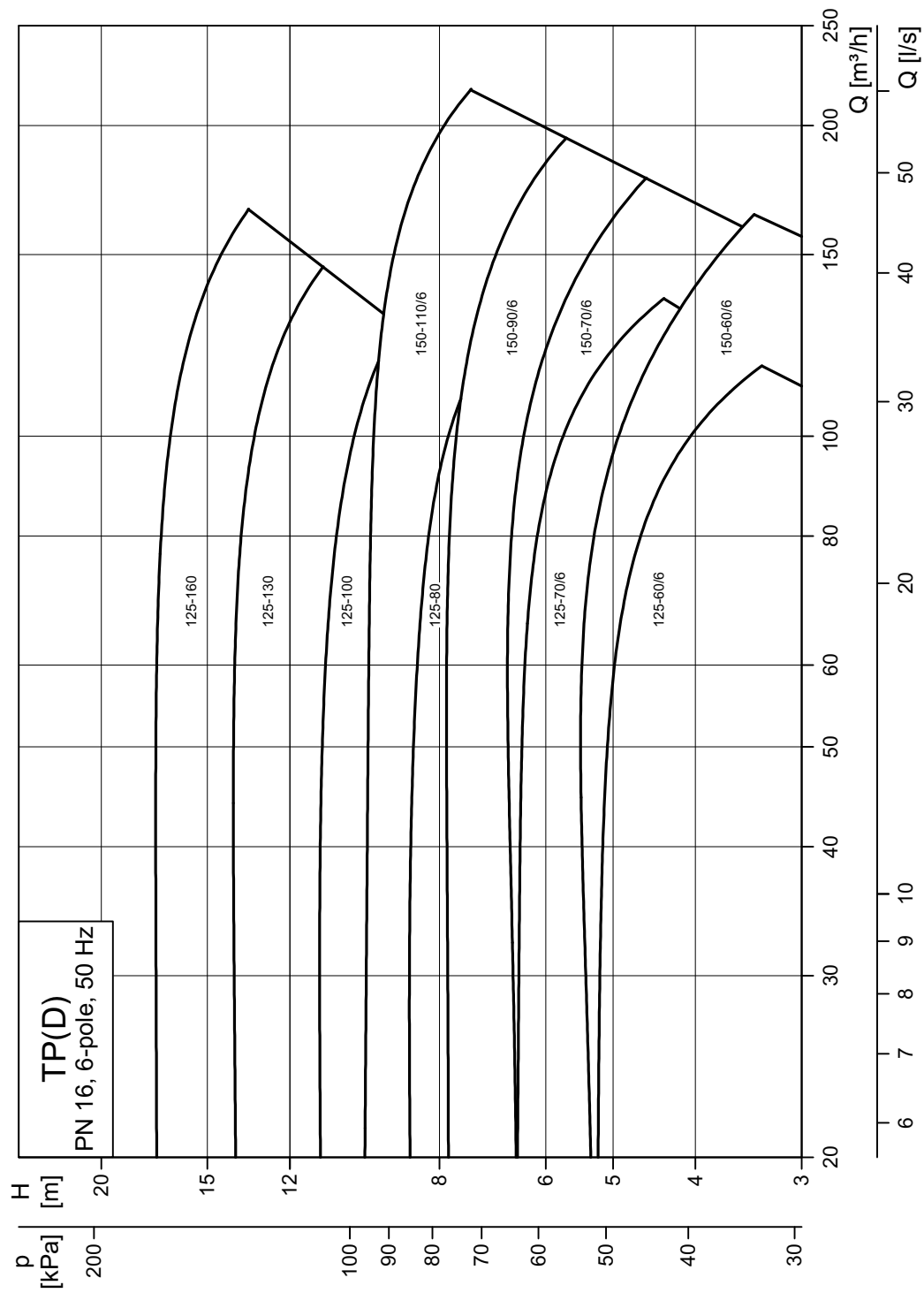


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Performance range, 4-pole, PN 25



Performance range, 6-pole, PN 16



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