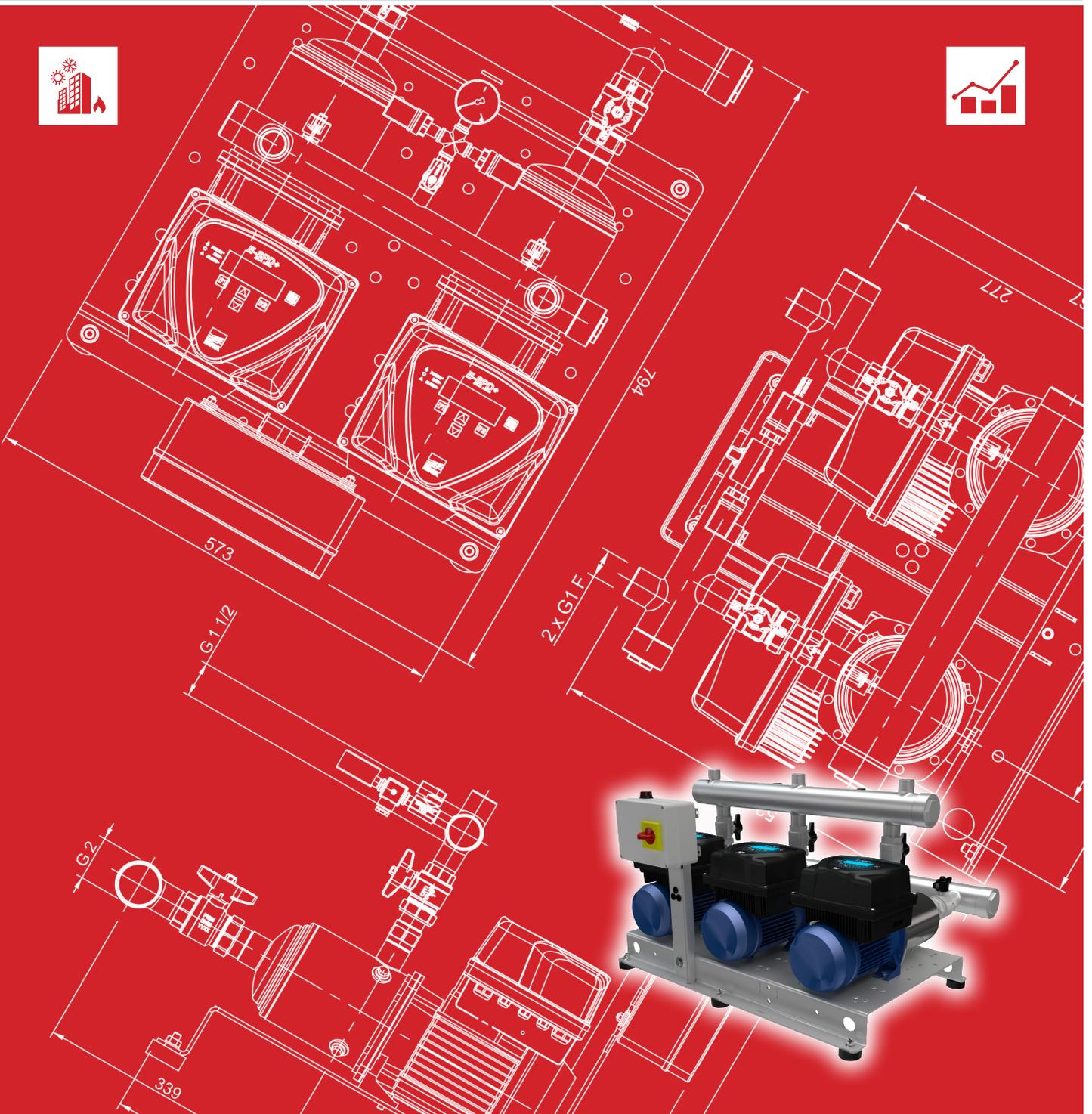


Looking ahead,
going beyond expectations
Ahead > Beyond



GPE MATRIX

Data Book 50Hz



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DEFINITION AND USE OF BOOSTER SETS

In situations in which a municipal water mains is lacking or insufficient for the proper operation of the services, one must install a pressurization unit to provide acceptable pressure and flow rates to even in the most unfavourable services. Booster sets are used wherever there is a need to increase the pressure, or to pressurise a water circuit. **EBARA GPE booster sets** are automatic systems with 2 or more pumps operating in parallel, designed to provide a simple and reliable solution to the most common requirements for maintenance of water supply pressure for apartment buildings, hotels, centres, offices and schools as well as providing auxiliary service in industrial and agricultural applications. They stand out for their robust construction, compact size, excellent efficiency and silent operation. GPE units are equipped for connection to membrane and air cushion autoclaves. They are controlled by pressure transmitter..

TYPICAL APPLICATIONS

INDUSTRY	BUILDING SERVICE	WATER SUPPLY
		

OPERATING CONDITIONS

EBARA GPE booster sets can be used, in their standard versions, for civil, industrial and agricultural applications, as follows:

- building service
- water lifting and handling
- A/C
- heating
- irrigation
- washing systems

The conveyed fluid must be: clean, potable, ground or mixed water, free of solid or fibrous suspensions and aggressive chemical substances.

The units must be installed under cover, protected from the weather and freezing.

- Conveyed water temperature (depending on pumps).
- Ambient operating temperature 0 - 40°C, no higher than 1000 m above sea level.
- Max relative humidity 50% at +40°C.

NB: The system available NPSH must be greater than the NPSH demanded from the pump. For applications with different technical specifications, uses and climatic conditions (type of vector fluid, marine and aggressive industrial conditions), please contact our sales network.

TESTS AND TRIALS

Before shipping, all EBARA booster sets are subject to hydraulic, mechanical and electrical testing.

MECHANICAL AND HYDRAULIC TESTS

- Pressure switch calibration (only if present)
- Pump direction of rotation
- Mechanical testing of moving parts and running noise (on each pump)
- Tightness test with delivery port closed and nameplate rating tests
- MANUAL trials (using button on control panel) for each pump
- AUTOMATIC trials (using switch on control panel) for unit

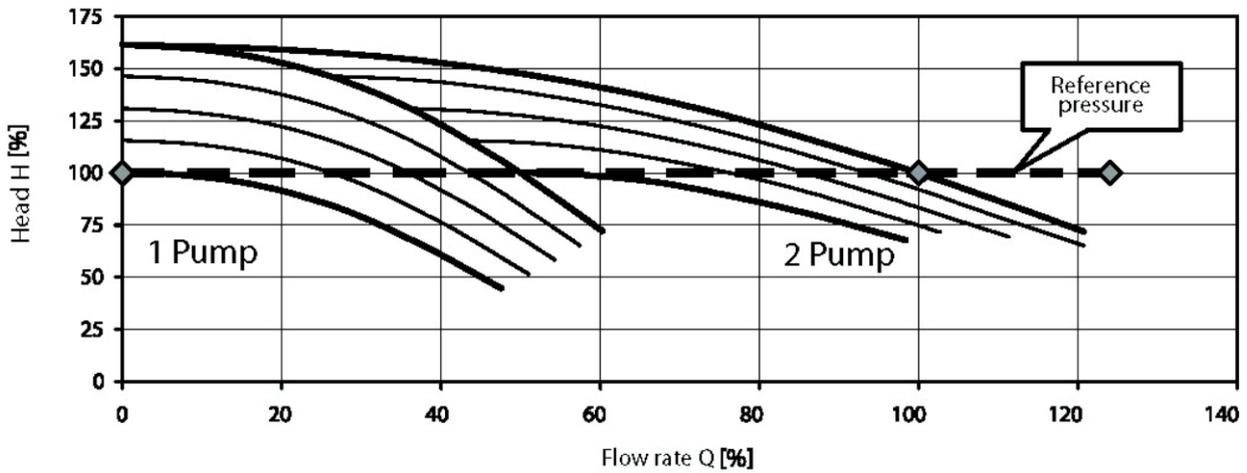
ELECTRICAL TESTS

- Earthing system continuity
- Applied voltage (dielectric rigidity)
- Insulation resistance

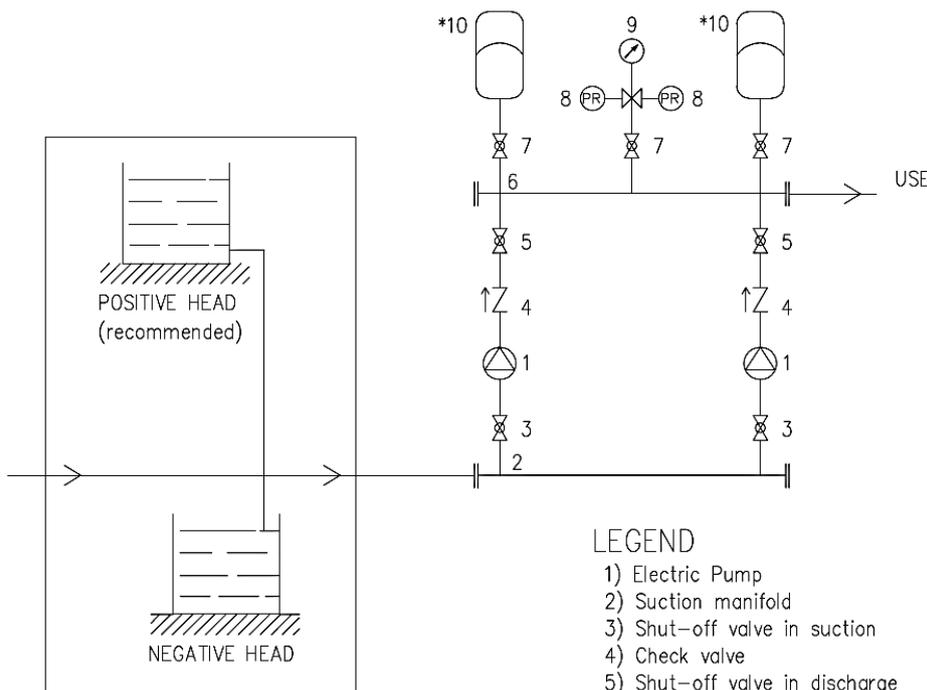
PRINCIPLE OF OPERATION OF GPE BOOSTER SETS WITH E-SPD+

GPE units with E-SPD+ are designed to operate with each pumps controlled by an INVERTER installed on board its motor. The system is controlled by an MASTER INVERTER in relation to the reference signal supply by a pressure transmitters (4 - 20 mA passive). As the system pressure varies, the MASTER pump varies its rotary speed to restore it to the setpoint. If the water demand exceeds the capacity of the pump, the second variable speed pump cuts in and, pump goes into regulation mode to maintain the pressure setpoint; this happens for all the pumps in the unit. If the water demand drops off, the pressure tends to increase and the latest pump gradually reduces its speed to restore the correct operating pressure. This results in the regulation of the speed of the other pumps, until they gradually turn off. Once the system pressure has been restored and the water demand is 0, the MASTER pump switches off automatically.

TWO PUMPS UNIT WITH CONSTANT PRESSURE REGULATION



GPE BOOSTER SET WATER CIRCUIT DIAGRAM



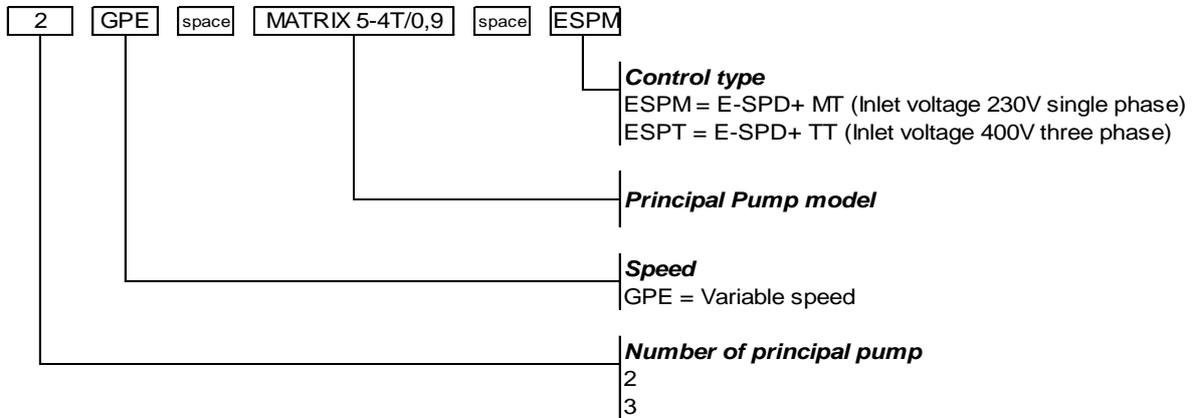
SUPPLY SYSTEM UPSTREAM FROM UNIT AT THE DISCRETION OF THE CUSTOMER OR THE SYSTEM DESIGNER.

LEGEND

- 1) Electric Pump
- 2) Suction manifold
- 3) Shut-off valve in suction
- 4) Check valve
- 5) Shut-off valve in discharge
- 6) Discharge manifold
- 7) Shut-off valve (Optional*)
- 8) Pump control/regulation pressure transmitter/pressure switch
- 9) Pressure gauge
- 10) Membrane vessel (Optional*)

TYPE KEY

2-3GPE MATRIX



NAME PLATE

 EBARA Pumps Europe S.p.A. - UK Branch Unit A, Park 34, Collet Way, Southmead, Didcot Oxfordshire OX11 7WB Phone +44 01395 439027 VAT.: 731 5424 56		CE UK CA EAC 
MADE IN U.K.		
BOOSTER UNIT		
TYPE	①	
P/N	②	
S/N	③	

- 1) "TYPE" booster model
- 2) "P/N" booster item number
- 3) "S/N" booster serial number

PRODUCT SPECIFICATIONS HYDRAULIC COMPONENTS AND CONTROL

BOOSTER SET							
MATRIX							
Operating range	Version		3	5	10	18	
	Nominal flow rate (m ³ /h)	Single pump		4.8	7.8	15.0	27.0
		2GPE		9.6	15.6	30.0	54.0
		3GPE		14.4	23.4	45	81
	Maximum working pressure			10 bar			
	Liquid temperature range			0 ÷ +85°C [1]			
	Ambient operating temperature (no higher than 1000 m above sea level)			0÷40°C			
Hydraulic components	Frame		Omega sheet Galvanized steel				
	Manifold suction / discharge		Threaded manifold AISI 304				
	Closing manifold		Threaded female cap AISI 304				
	Check valve		Threaded check valve Brass / NBR				
	Ball valve		Threaded ball valve Brass / PTFE				
Control	Pressure gauge		M3A-ABS 50/FR / plastic-copper alloy				
	Pressure transmitter		EN 10088-1.4301 (AISI 304) / 1.4404 (AISI 316L)				

[1] For optional version ask the temperature range to the sales department.

ELECTRIC PANEL

BOOSTER SET						
MATRIX						
Operating range	Version		3	5	10	18
	Nominal flow rate (m3/h)	Single pump	4.8	7.8	15.0	27.0
		2GPE	9.6	15.6	30.0	54.0
		3GPE	14.4	23.4	45	81
	E-SPD+	ESPDM single-phase supply inverter (up to 2.2 kW)				
ESPD _T three-phase supply inverter (up to 4.0 kW)						

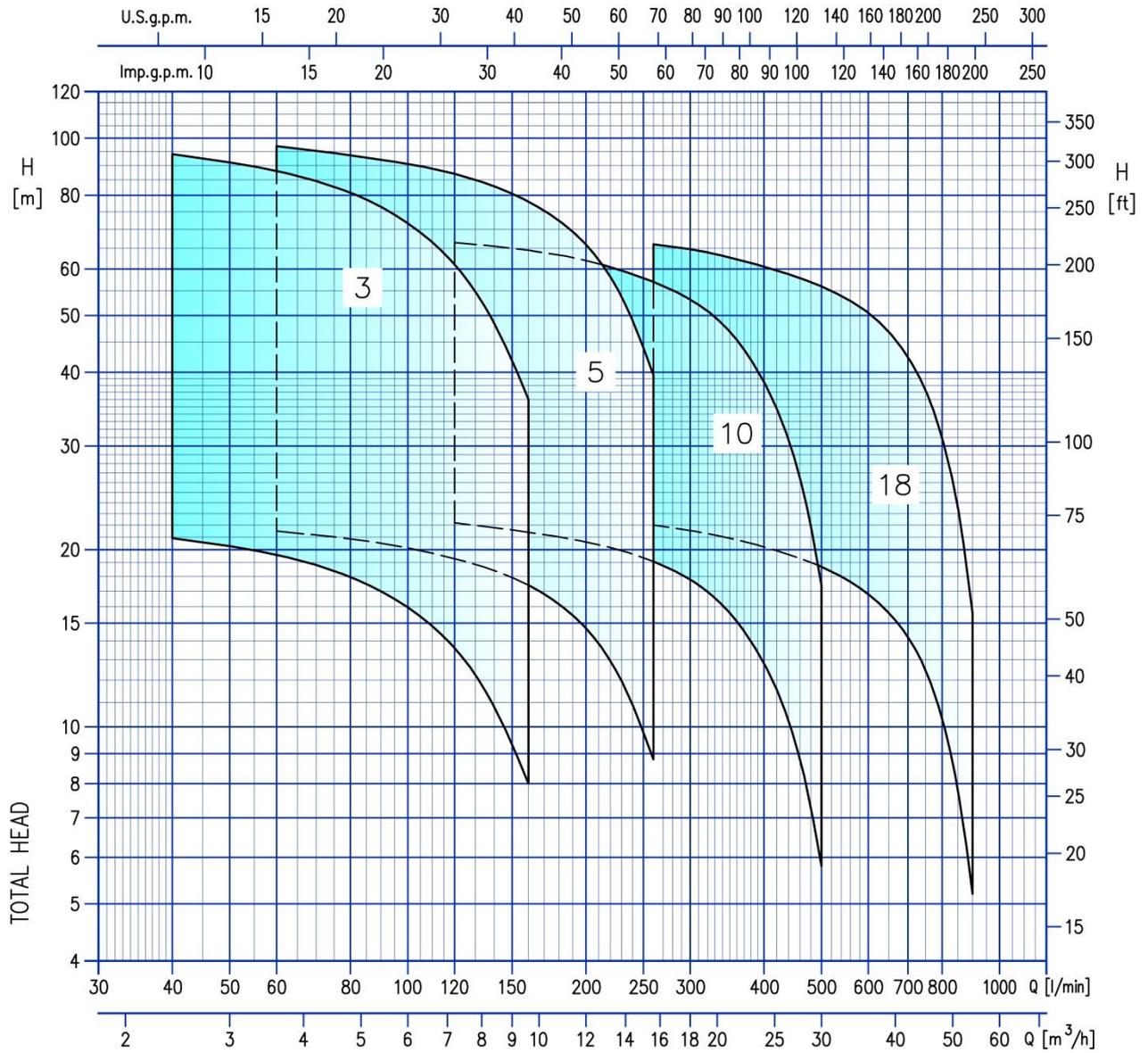
TECHNICAL PUMP DATA

PUMP					
MATRIX					
Operating range	Version	3	5	10	18
	Maximum working pressure	1 MPa (10 bar)			
	Liquid temperature range	-15°C to +85°C			
Liquid handled	Liquid type	Water, moderate aggressive solutions, glycol solutions, moderate viscous fluids			
Key components material	Casing	EN 1.4301 (AISI 304)			
	Impeller				
	Casing cover				
	Shaft seal	Ceramic/Carbon/EPDM			
	Shaft	EN 1.4301 (AISI 304) wet extension			
Bracket	EN AB-AISI11Cu2(Fe) (Die cast Aluminium)				
Pipe connection	Suction	G 1"	G 1" ¼	G 1" ½	G 2"
		UNI ISO 228			
	Discharge	G 1"	G 1" ¼	G 1" ½	
		UNI ISO 228			

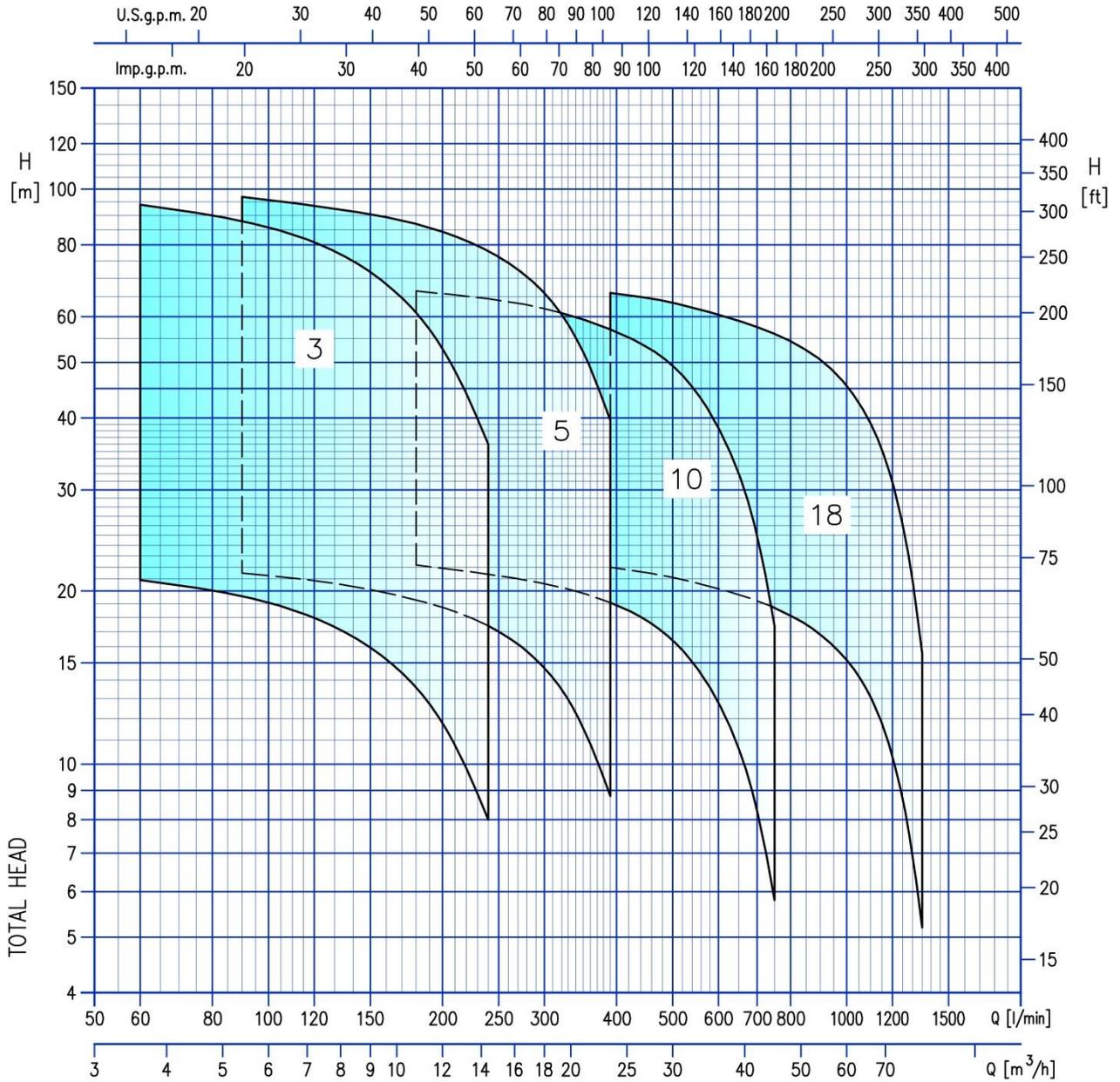
TECHNICAL MOTOR DATA

MOTOR MATRIX				
Power source	Frequency	50 Hz		
	Phase	Single-phase	Three-phase	
	Rotation speed	2850 min-1		
	Power rating	0.65 ÷ 2.2 kW	0.65 ÷ 4.0 kW	
		0.9 ÷ 3.0 HP	0.9 ÷ 5.5 HP	
Voltage	230 ± 10% V	230/400 ± 10%		
Type	Type	Electric - TEFC		
	Efficiency level	-	0.65 kW IE3 from 0.75 kW up to 4.0 kW	
	N° of poles	2		
	Protection degree	IP 55		
	Insulation class	F		
Others	Capacitor	Built in	-	
	Overload protection	Built in	Provided by the user	
	Casing Material	Aluminium		
	Motor support	Aluminium		

PERFORMANCE RANGE BOOSTER SET 2GPE MATRIX



BOOSTER SET 3GPE MATRIX



CURVE SPECIFICATION

The specifications below qualify the curves shown on the following pages.

Tolerances according to ISO 9906:2012 – Grade 3B.

The curves refer to effective speed of asynchronous motors at 50 Hz 2 poles

Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt).

The NPSH curve is an average curve obtained in the same conditions of performance curves.

During the pump selection, consider to get a safety margin of at least 0.5 m.

The continuous curves indicate the recommended working range. The dotted curve is only a guide.

In order to avoid the risk of over-heating, the pumps should not be used at a flow rate below 10% of best efficiency point. The performance curves refer to 2 pumps booster sets.

Symbols explanation:

- Q = volume flow rate
- H = total head
- P2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump
- 1 = one pump on work performance curve
- 2 = two pumps on work performance curve

Pressure drops of the booster's fittings are not considered

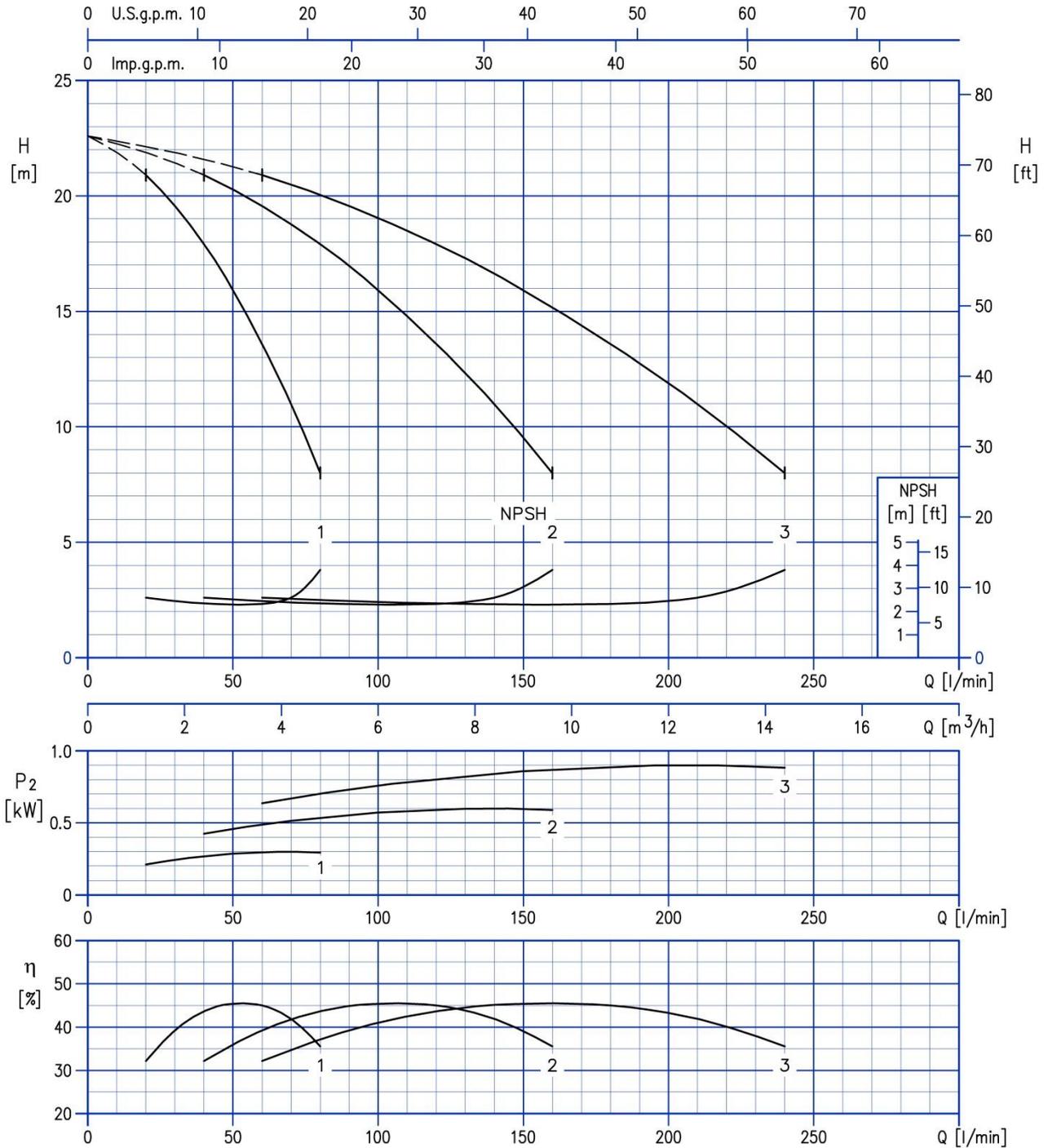
SELECTION CHART 2GPE MATRIX

Model	Motor		Maximum working pressure (MPa)	Q=Capacity																
	kW	HP		l/min	0	40	60	90	120	160	200	260	320	400	500	600	700	800	900	
				m ³ /h	0	2.4	3.6	5.4	7.2	9.6	12.0	15.6	19.2	24.0	30.0	36.0	42.0	48.0	54.0	
				H=Total manometric head in meters																
2GPE MATRIX 3-2/0.45	0.45+0.45	0.6+0.6	1.0	22.6	20.9	19.6	17	13.6	8	-	-	-	-	-	-	-	-	-	-	
2GPE MATRIX 3-3/0.65	0.65+0.65	0.9+0.9		33.9	31.4	29.3	25.5	20.4	12	-	-	-	-	-	-	-	-	-	-	
2GPE MATRIX 3-4/0.65	0.65+0.65	0.9+0.9		45.0	42.0	39.1	34.0	27.2	16.0	-	-	-	-	-	-	-	-	-	-	
2GPE MATRIX 3-5/0.75	0.75+0.75	1.0+1.0		56.5	52.5	49.0	42.5	34.0	20.0	-	-	-	-	-	-	-	-	-	-	
2GPE MATRIX 3-6/0.9	0.9+0.9	1.2+1.2		68.0	62.5	58.5	51.0	41.0	24.0	-	-	-	-	-	-	-	-	-	-	
2GPE MATRIX 3-7/1.3	1.3+1.3	1.8+1.8		79.0	73.0	68.5	59.5	47.5	28.0	-	-	-	-	-	-	-	-	-	-	
2GPE MATRIX 3-8/1.3	1.3+1.3	1.8+1.8		90.5	83.5	78.0	68.0	54.5	32.0	-	-	-	-	-	-	-	-	-	-	
2GPE MATRIX 3-9/1.5	1.5+1.5	2+2		102.0	94.0	88.0	76.5	61.0	36.0	-	-	-	-	-	-	-	-	-	-	
2GPE MATRIX 5-2/0.45	0.45+0.45	0.6+0.6		23.0	-	21.5	20.5	19.3	17.4	14.7	8.8	-	-	-	-	-	-	-	-	
2GPE MATRIX 5-3/0.65	0.65+0.65	0.9+0.9		34.5	-	32.3	30.7	29.0	26.0	22.0	13.2	-	-	-	-	-	-	-	-	
2GPE MATRIX 5-4/0.9	0.9+0.9	1.2+1.2		46.0	-	43.0	41.0	38.6	34.7	29.4	17.6	-	-	-	-	-	-	-	-	
2GPE MATRIX 5-5/1.3	1.3+1.3	1.8+1.8		57.5	-	54.0	51.0	48.5	43.5	36.7	22.0	-	-	-	-	-	-	-	-	
2GPE MATRIX 5-6/1.3	1.3+1.3	1.8+1.8		69.0	-	64.5	61.5	58.0	52.0	44.0	26.4	-	-	-	-	-	-	-	-	
2GPE MATRIX 5-7/1.5	1.5+1.5	2+2		80.5	-	75.5	72.0	67.5	61.0	51.5	30.8	-	-	-	-	-	-	-	-	
2GPE MATRIX 5-8/1.2	2.2+2.2	3+3		92.0	-	86.0	82.0	77.0	69.5	58.5	35.2	-	-	-	-	-	-	-	-	
2GPE MATRIX 5-9/2.2	2.2+2.2	3+3		104.0	-	97.0	92.0	87.0	78.0	66.0	39.6	-	-	-	-	-	-	-	-	
2GPE MATRIX 10-2/1.3	0.75+0.75	1.0+1.0	24.0	-	-	-	22.2	21.4	20.6	19.1	17.0	12.8	5.8	-	-	-	-	-		
2GPE MATRIX 10-3/1.3	1.3+1.3	1.8+1.8	36.0	-	-	-	33.3	32.1	30.9	28.6	25.5	19.3	8.7	-	-	-	-	-		
2GPE MATRIX 10-4/1.5	1.5+1.5	2.0+2.0	48.0	-	-	-	44.5	43.0	41.0	38.1	34.0	25.7	11.6	-	-	-	-	-		
2GPE MATRIX 10-5/2.2	2.2+2.2	3.0+3.0	60.0	-	-	-	55.5	53.5	51.5	47.5	42.5	32.1	14.5	-	-	-	-	-		
2GPE MATRIX 10-6/2.2	2.2+2.2	3.0+3.0	72.0	-	-	-	66.5	64.5	62.0	57.0	51.0	38.5	17.4	-	-	-	-	-		
2GPE MATRIX 18-2/1.5	1.5+1.5	2.0+2.0	24.2	-	-	-	-	-	-	22.0	21.3	20.2	18.7	16.8	14.2	10.3	5.2	-		
2GPE MATRIX 18-3/2.2	2.2+2.2	3.0+3.0	36.3	-	-	-	-	-	-	33.0	31.9	30.4	28.1	25.2	21.3	15.5	7.8	-		
2GPE MATRIX 18-4/3	3.0+3.0	4.0+4.0	48.5	-	-	-	-	-	-	44.0	42.5	40.5	37.4	33.6	28.4	20.6	10.4	-		
2GPE MATRIX 18-5/4	4+4	5.5+5.5	60.5	-	-	-	-	-	-	55.0	53.0	50.5	47.0	42.0	35.5	25.8	13.0	-		
2GPE MATRIX 18-6/4	4+4	5.5+5.5	72.5	-	-	-	-	-	-	66.0	64.0	60.5	56.0	50.5	42.5	30.9	15.6	-		

SELECTION CHART 3GPE MATRIX

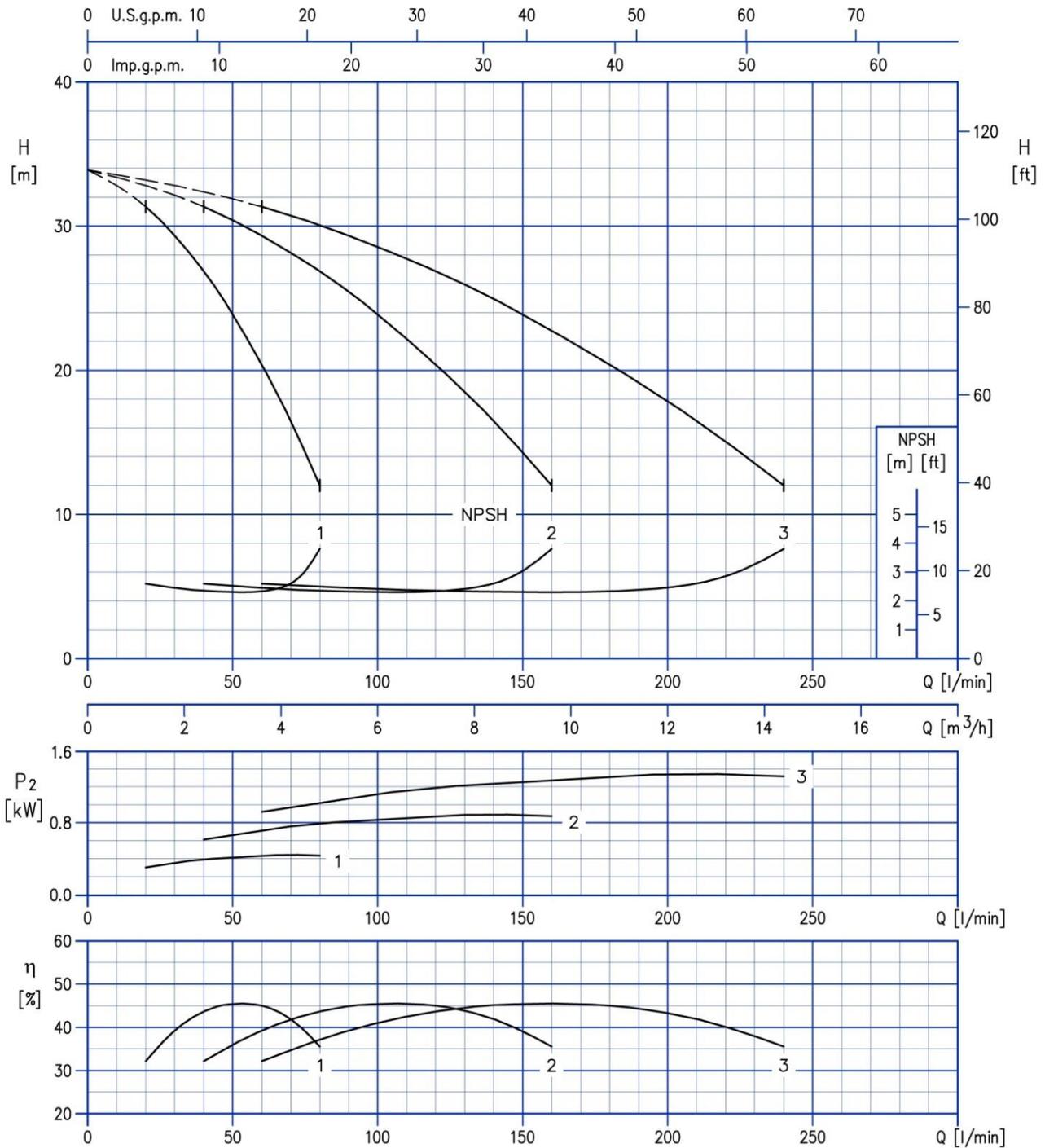
Model	Motor		Maximum working pressure (MPa)	Q=Capacity															
	kW	HP		l/min	0	60	90	135	180	240	300	390	480	600	750	900	1050	1200	1350
				m ³ /h	0	3.6	5.4	8.1	10.8	14.4	18.0	23.4	28.8	36.0	45.0	54.0	63.0	72.0	81.0
				H=Total manometric head in meters															
3GPE MATRIX 3-2/0.45	0.45+0.45+0.45	0.6+0.6+0.6	1.0	22.6	20.9	19.6	17	13.6	8	-	-	-	-	-	-	-	-	-	-
3GPE MATRIX 3-3/0.65	0.65+0.65+0.65	0.9+0.9+0.9		33.9	31.4	29.3	25.5	20.4	12	-	-	-	-	-	-	-	-	-	-
3GPE MATRIX 3-4/0.65	0.65+0.65+0.65	0.9+0.9+0.9		45.0	42.0	39.1	34.0	27.2	16.0	-	-	-	-	-	-	-	-	-	-
3GPE MATRIX 3-5/0.75	0.75+0.75+0.75	1.0+1.0+1.0		56.5	52.5	49.0	42.5	34.0	20.0	-	-	-	-	-	-	-	-	-	-
3GPE MATRIX 3-6/0.9	0.9+0.9+0.9	1.2+1.2+1.2		68.0	62.5	58.5	51.0	41.0	24.0	-	-	-	-	-	-	-	-	-	-
3GPE MATRIX 3-7/1.3	1.3+1.3+1.3	1.8+1.8+1.8		79.0	73.0	68.5	59.5	47.5	28.0	-	-	-	-	-	-	-	-	-	-
3GPE MATRIX 3-8/1.3	1.3+1.3+1.3	1.8+1.8+1.8		90.5	83.5	78.0	68.0	54.5	32.0	-	-	-	-	-	-	-	-	-	-
3GPE MATRIX 3-9/1.5	1.5+1.5+1.5	2+2+2		102.0	94.0	88.0	76.5	61.0	36.0	-	-	-	-	-	-	-	-	-	-
3GPE MATRIX 5-2/0.45	0.45+0.45+0.45	0.6+0.6+0.6		23.0	-	21.5	20.5	19.3	17.4	14.7	8.8	-	-	-	-	-	-	-	-
3GPE MATRIX 5-3/0.65	0.65+0.65+0.65	0.9+0.9+0.9		34.5	-	32.3	30.7	29.0	26.0	22.0	13.2	-	-	-	-	-	-	-	-
3GPE MATRIX 5-4/0.9	0.9+0.9+0.9	1.2+1.2+1.2		46.0	-	43.0	41.0	38.6	34.7	29.4	17.6	-	-	-	-	-	-	-	-
3GPE MATRIX 5-5/1.3	1.3+1.3+1.3	1.8+1.8+1.8		57.5	-	54.0	51.0	48.5	43.5	36.7	22.0	-	-	-	-	-	-	-	-
3GPE MATRIX 5-6/1.3	1.3+1.3+1.3	1.8+1.8+1.8		69.0	-	64.5	61.5	58.0	52.0	44.0	26.4	-	-	-	-	-	-	-	-
3GPE MATRIX 5-7/1.5	1.5+1.5+1.5	2+2+2		80.5	-	75.5	72.0	67.5	61.0	51.5	30.8	-	-	-	-	-	-	-	-
3GPE MATRIX 5-8/1.2	2.2+2.2+2.2	3+3+3		92.0	-	86.0	82.0	77.0	69.5	58.5	35.2	-	-	-	-	-	-	-	-
3GPE MATRIX 5-9/2.2	2.2+2.2+2.2	3+3+3		104.0	-	97.0	92.0	87.0	78.0	66.0	39.6	-	-	-	-	-	-	-	-
3GPE MATRIX 10-2/1.3	0.75+0.75+0.75	1.0+1.0+1.0	24.0	-	-	-	22.2	21.4	20.6	19.1	17.0	12.8	5.8	-	-	-	-	-	
3GPE MATRIX 10-3/1.3	1.3+1.3+1.3	1.8+1.8+1.8	36.0	-	-	-	33.3	32.1	30.9	28.6	25.5	19.3	8.7	-	-	-	-	-	
3GPE MATRIX 10-4/1.5	1.5+1.5+1.5	2+2+2	48.0	-	-	-	44.5	43.0	41.0	38.1	34.0	25.7	11.6	-	-	-	-	-	
3GPE MATRIX 10-5/2.2	2.2+2.2+2.2	3+3+3	60.0	-	-	-	55.5	53.5	51.5	47.5	42.5	32.1	14.5	-	-	-	-	-	
3GPE MATRIX 10-6/2.2	2.2+2.2+2.2	3+3+3	72.0	-	-	-	66.5	64.5	62.0	57.0	51.0	38.5	17.4	-	-	-	-	-	
3GPE MATRIX 18-2/1.5	1.5+1.5	2.0+2.0	24.2	-	-	-	-	-	-	22.0	21.3	20.2	18.7	16.8	14.2	10.3	5.2	-	
3GPE MATRIX 18-3/2.2	2.2+2.2+2.2	3+3+3	36.3	-	-	-	-	-	-	33.0	31.9	30.4	28.1	25.2	21.3	15.5	7.8	-	
3GPE MATRIX 18-4/3	3.0+3.0+3.0	4.0+4.0+4.0	48.5	-	-	-	-	-	-	44.0	42.5	40.5	37.4	33.6	28.4	20.6	10.4	-	
3GPE MATRIX 18-5/4	4+4+4	5.5+5.5+5.5	60.5	-	-	-	-	-	-	55.0	53.0	50.5	47.0	42.0	35.5	25.8	13.0	-	
3GPE MATRIX 18-6/4	4+4+4	5.5+5.5+5.5	72.5	-	-	-	-	-	-	66.0	64.0	60.5	56.0	50.5	42.5	30.9	15.6	-	

PERFORMANCE CURVE 2-3GPE 2-3GPE MATRIX 3-2T/0.45



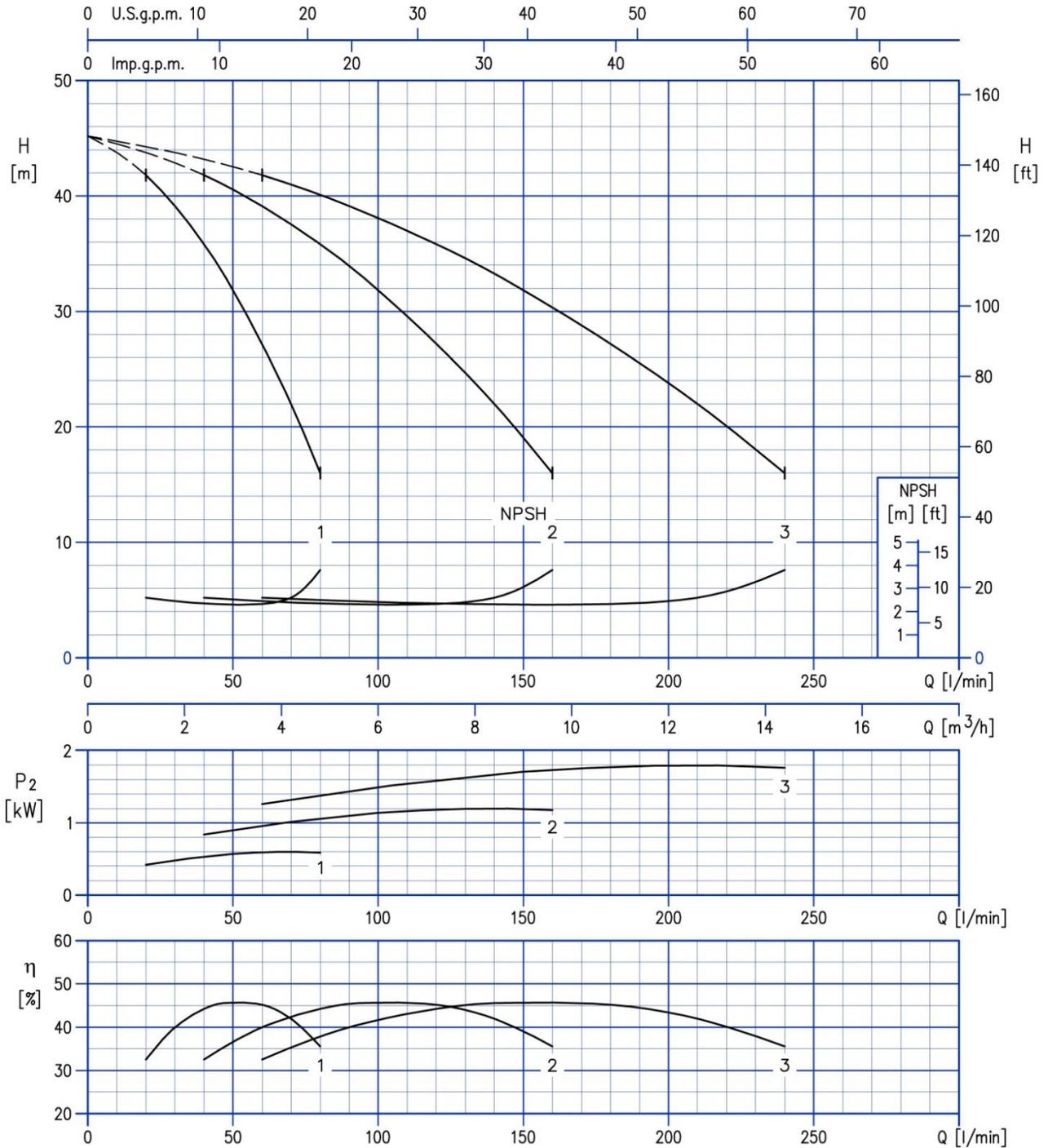
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 3-3T/0.65



Test standard: ISO 9906: 2012 - Grade 3B

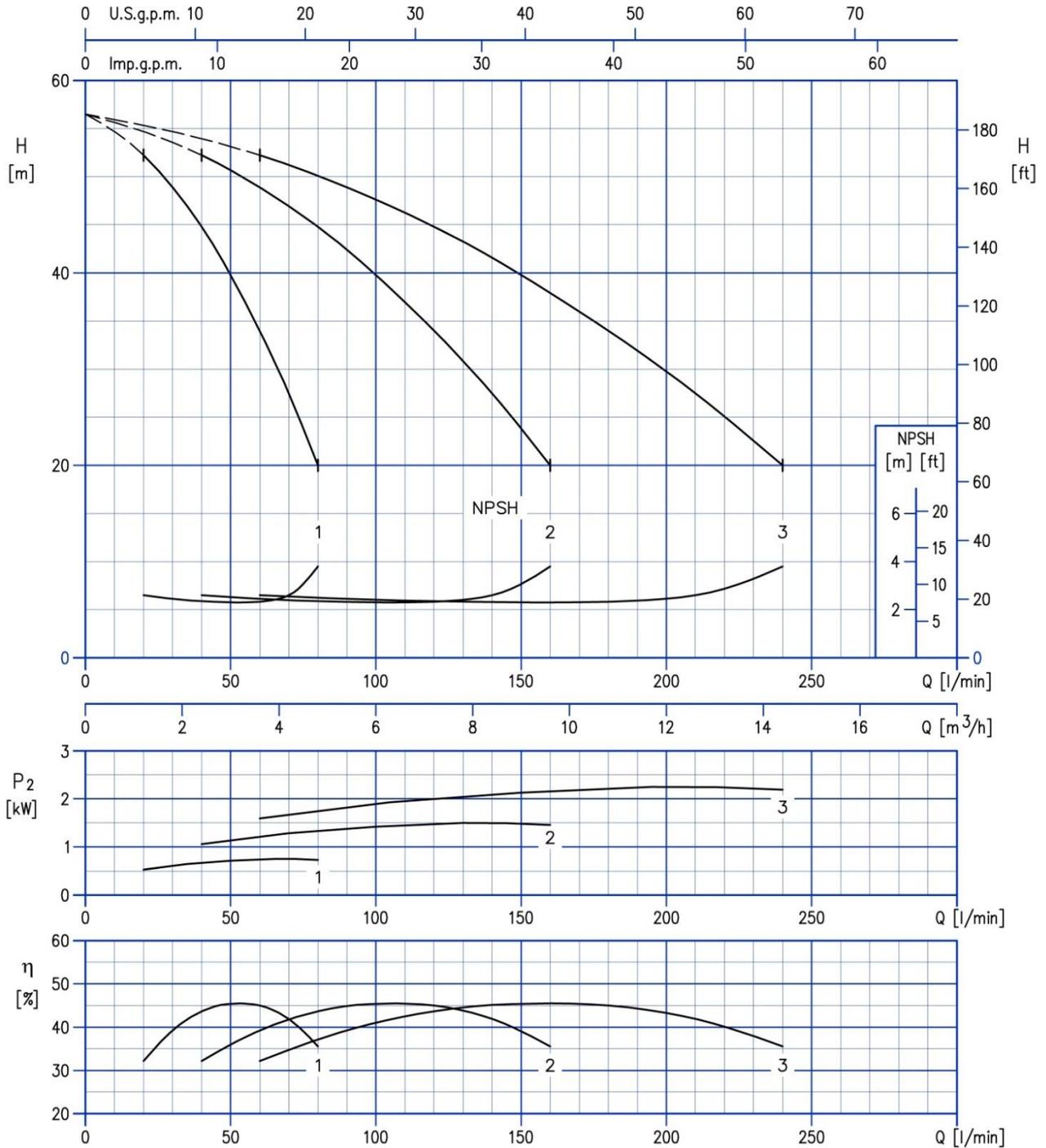
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Test standard: ISO 9906: 2012 - Grade 3B

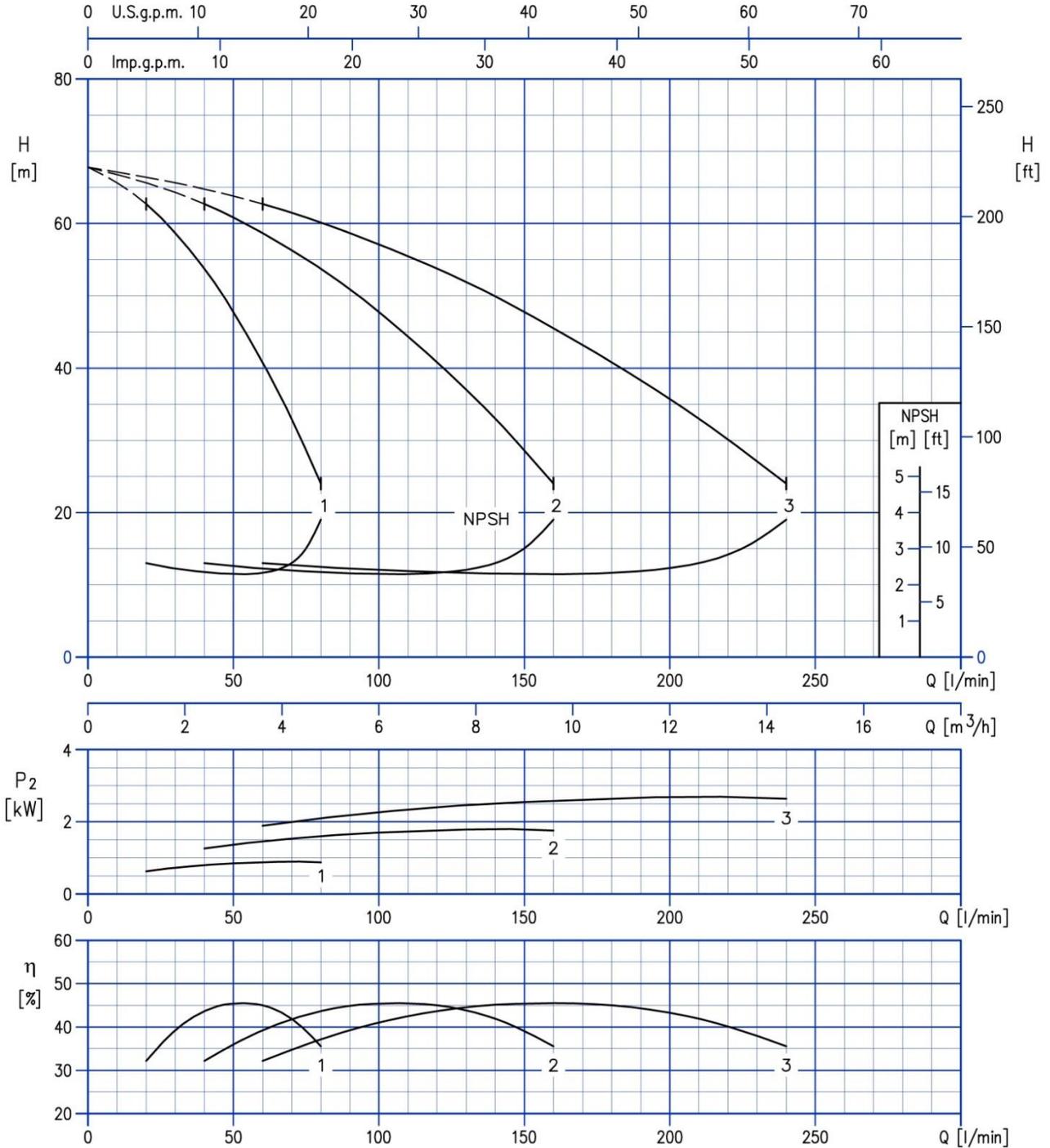
405

2-3GPE MATRIX 3-5T/0.75



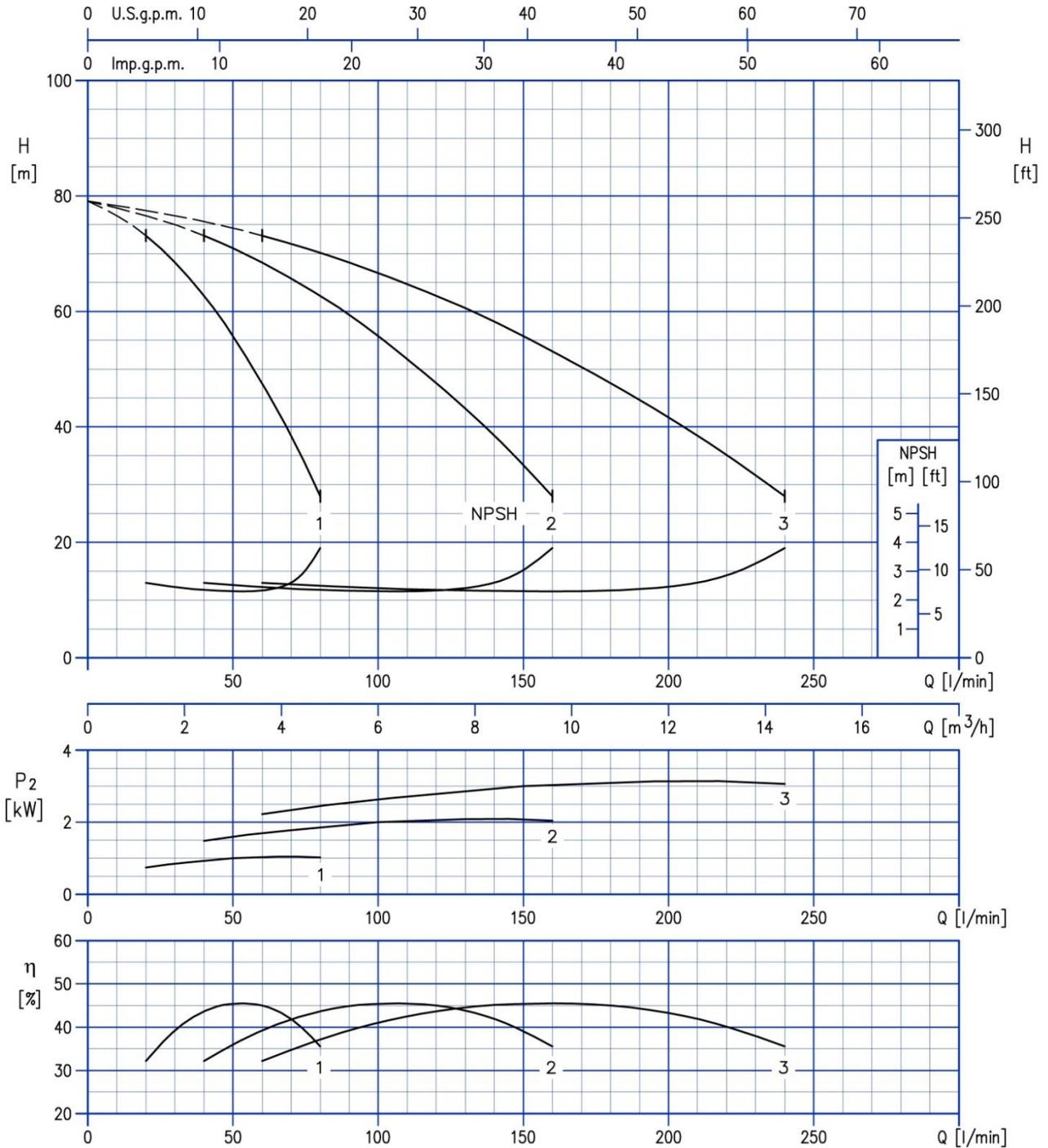
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 3-6T/0.9



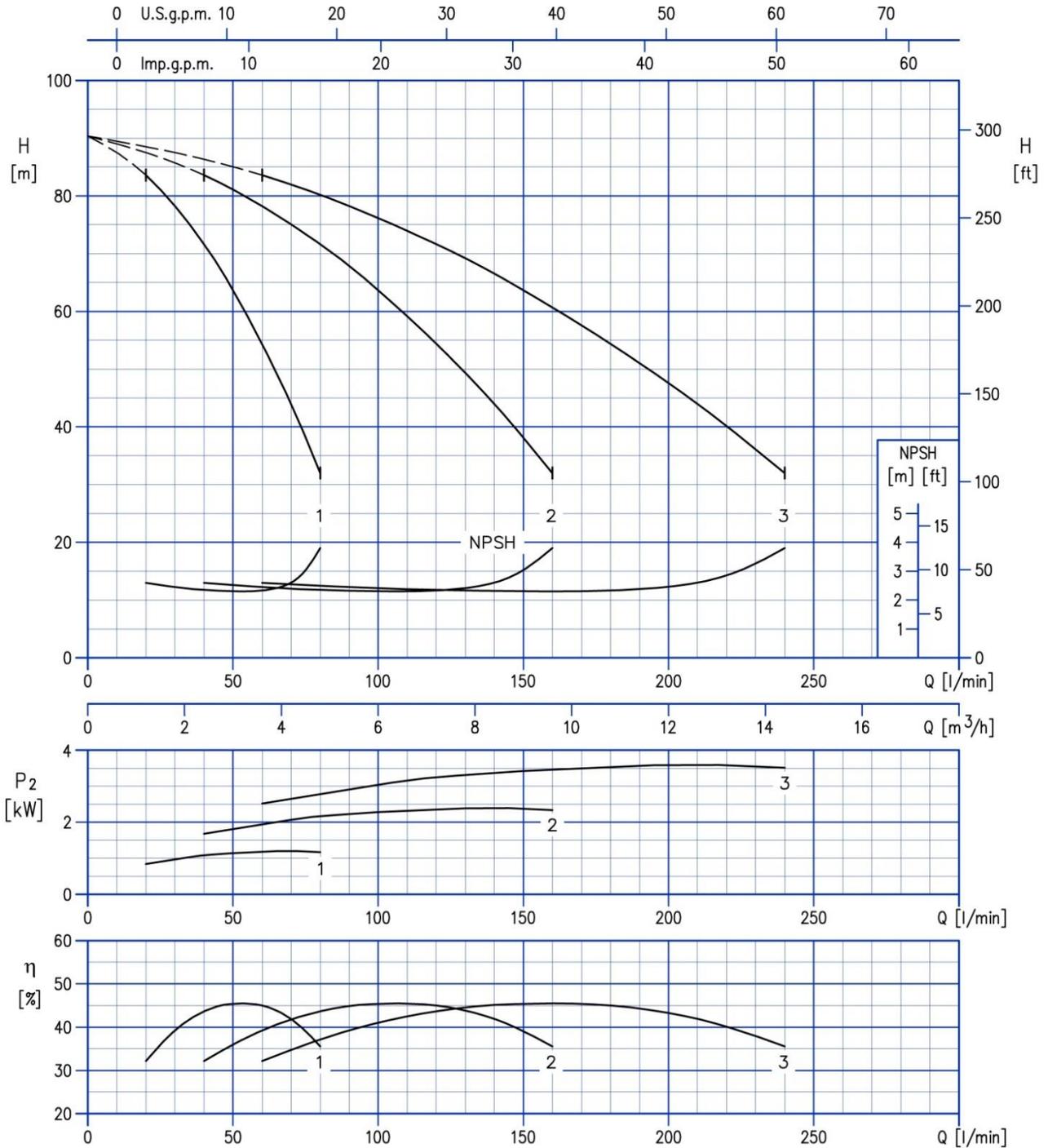
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 3-7T/1.3



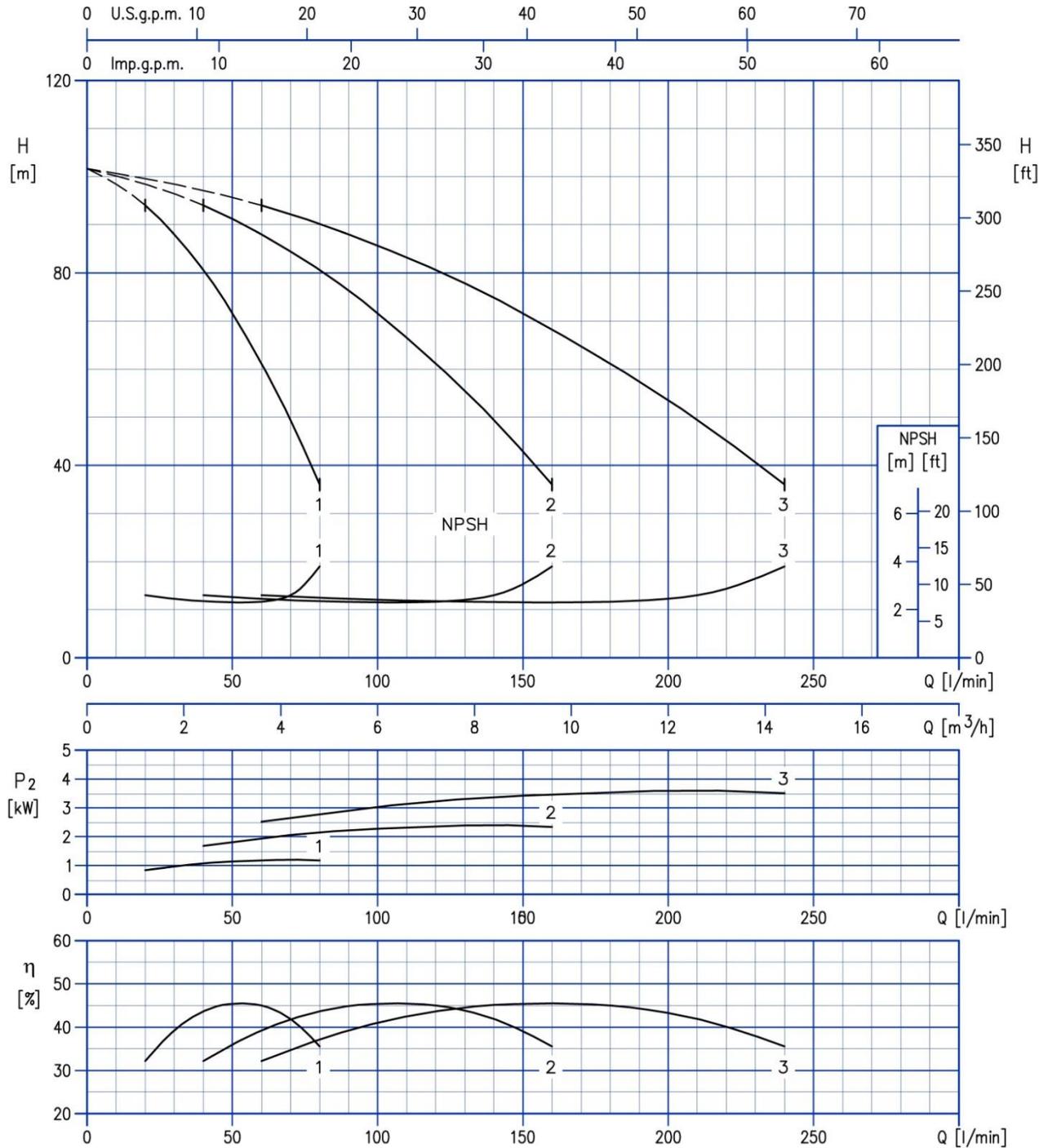
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 3-8T/1.3



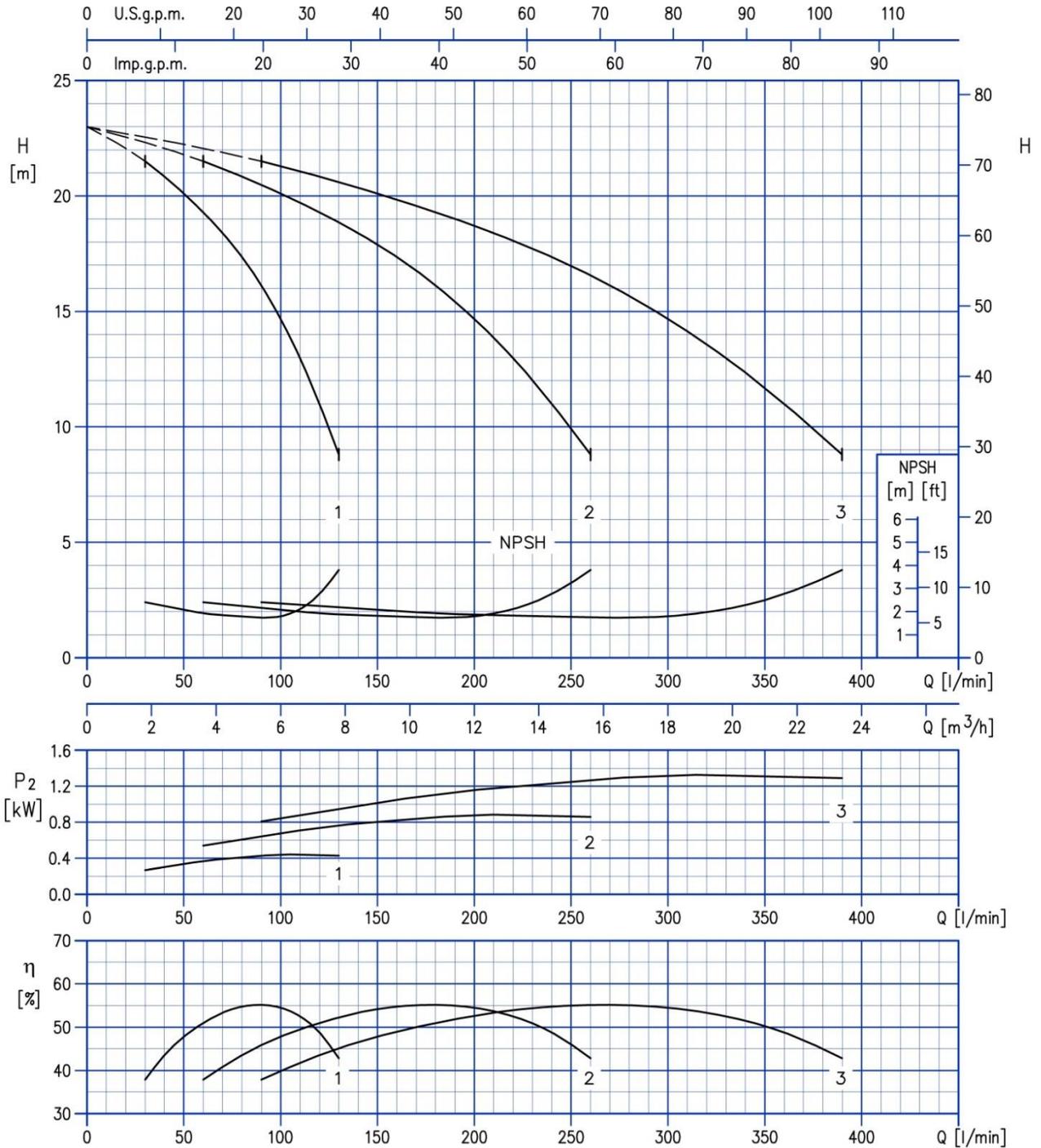
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 3-9T/1.5



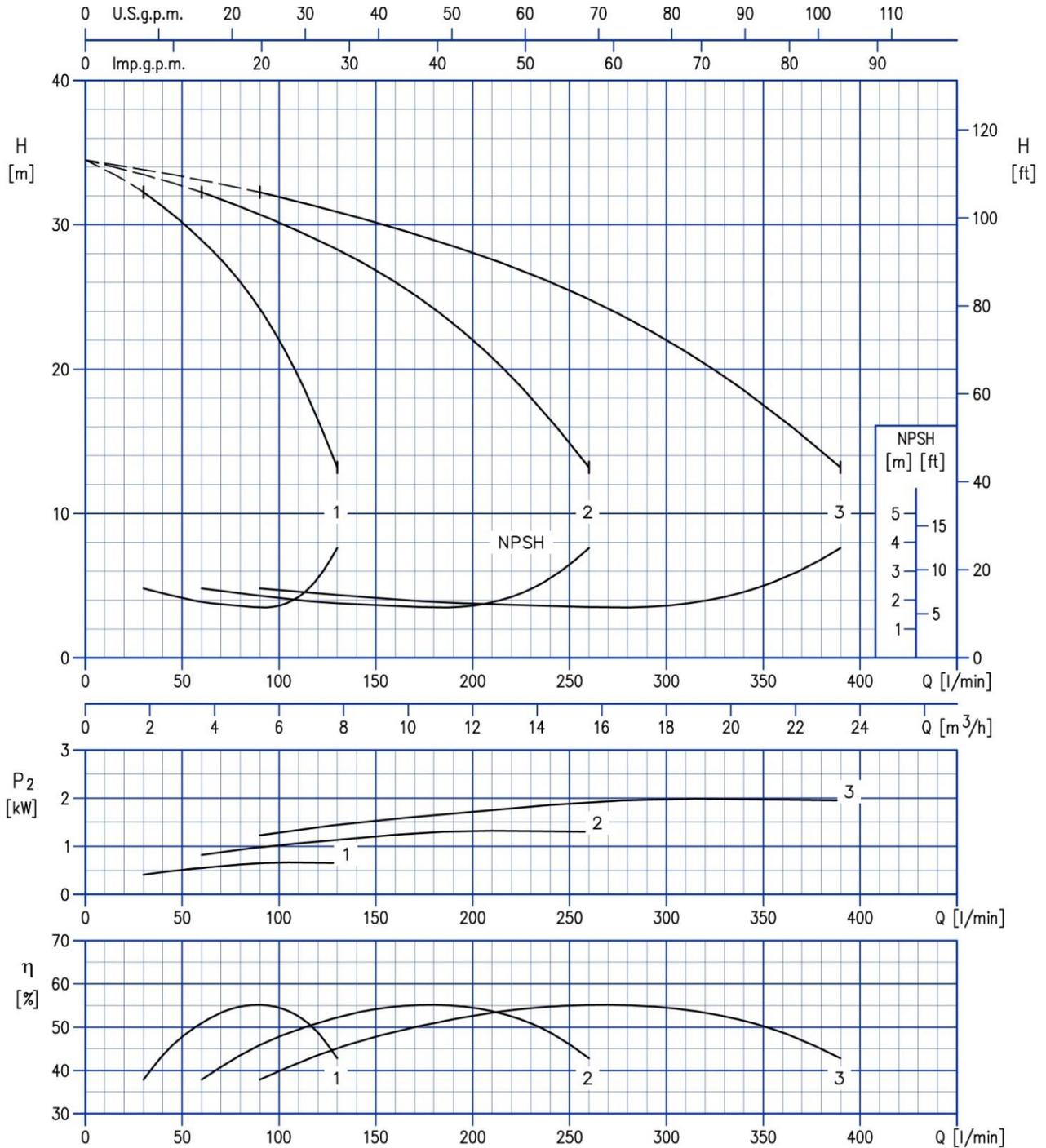
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 5-2T/0.45



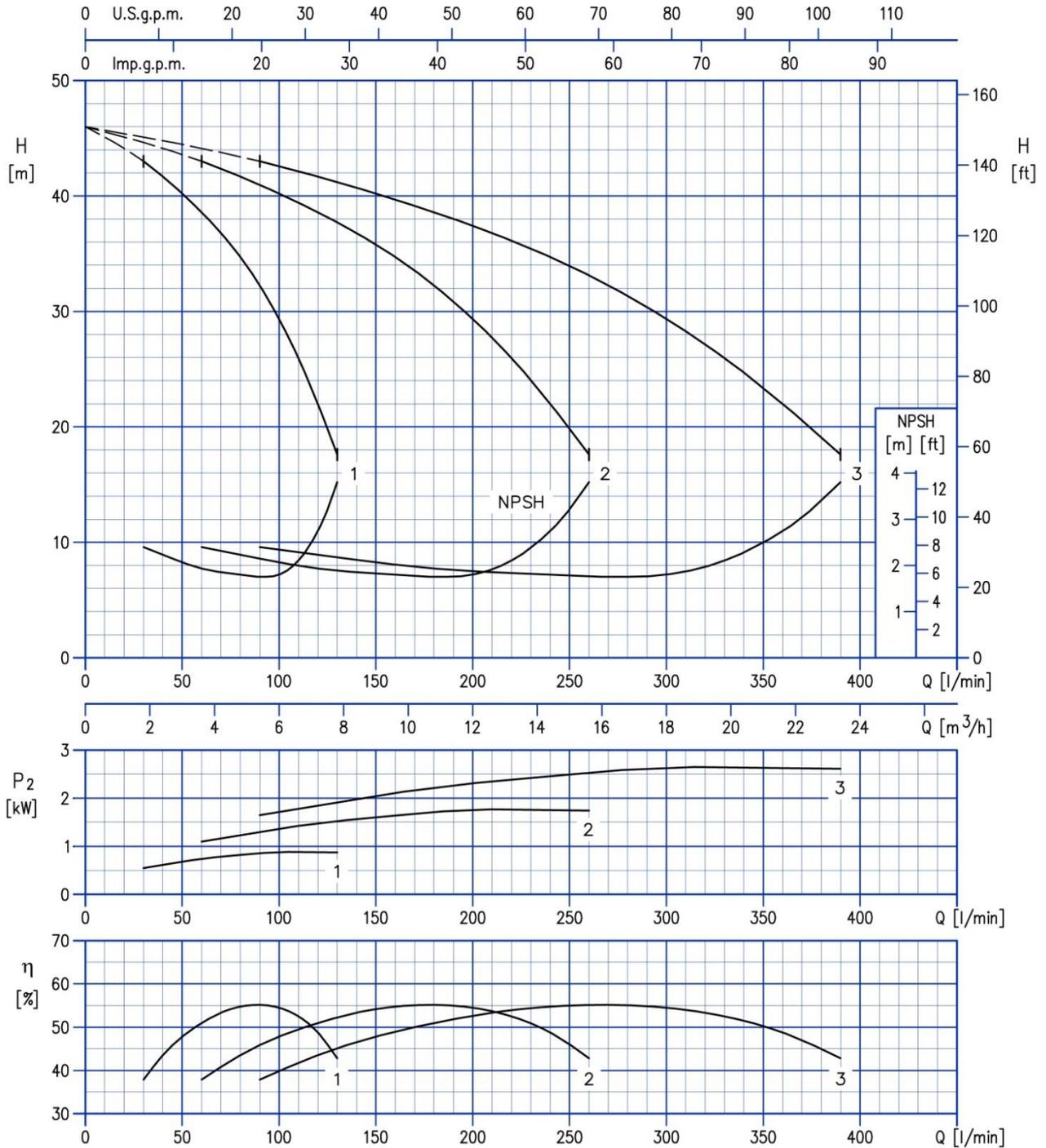
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 5-3T/0.65



Test standard: ISO 9906: 2012 - Grade 3B

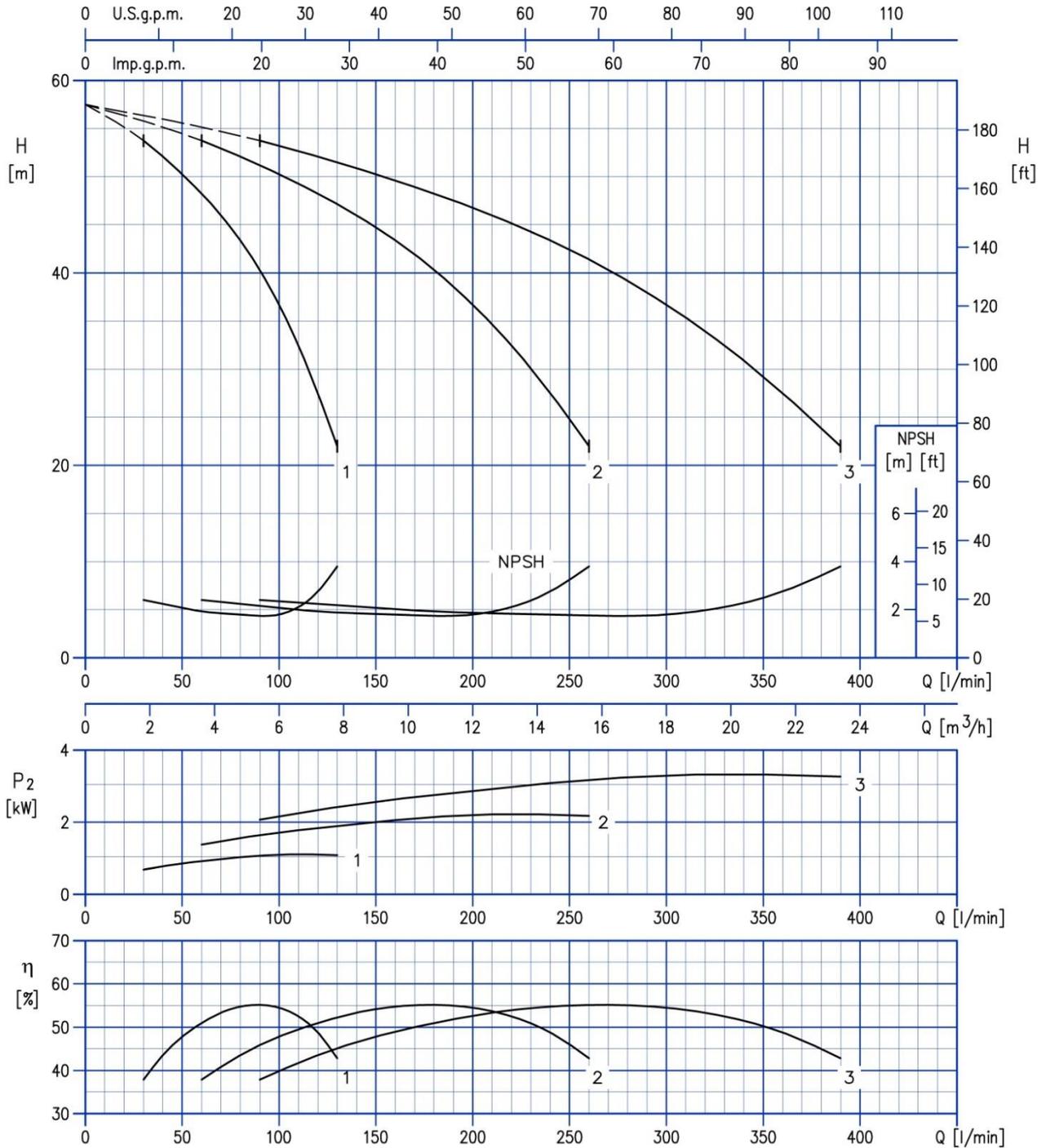
2-3GPE MATRIX 5-4T/0.9



Test standard: ISO 9906: 2012 - Grade 3B

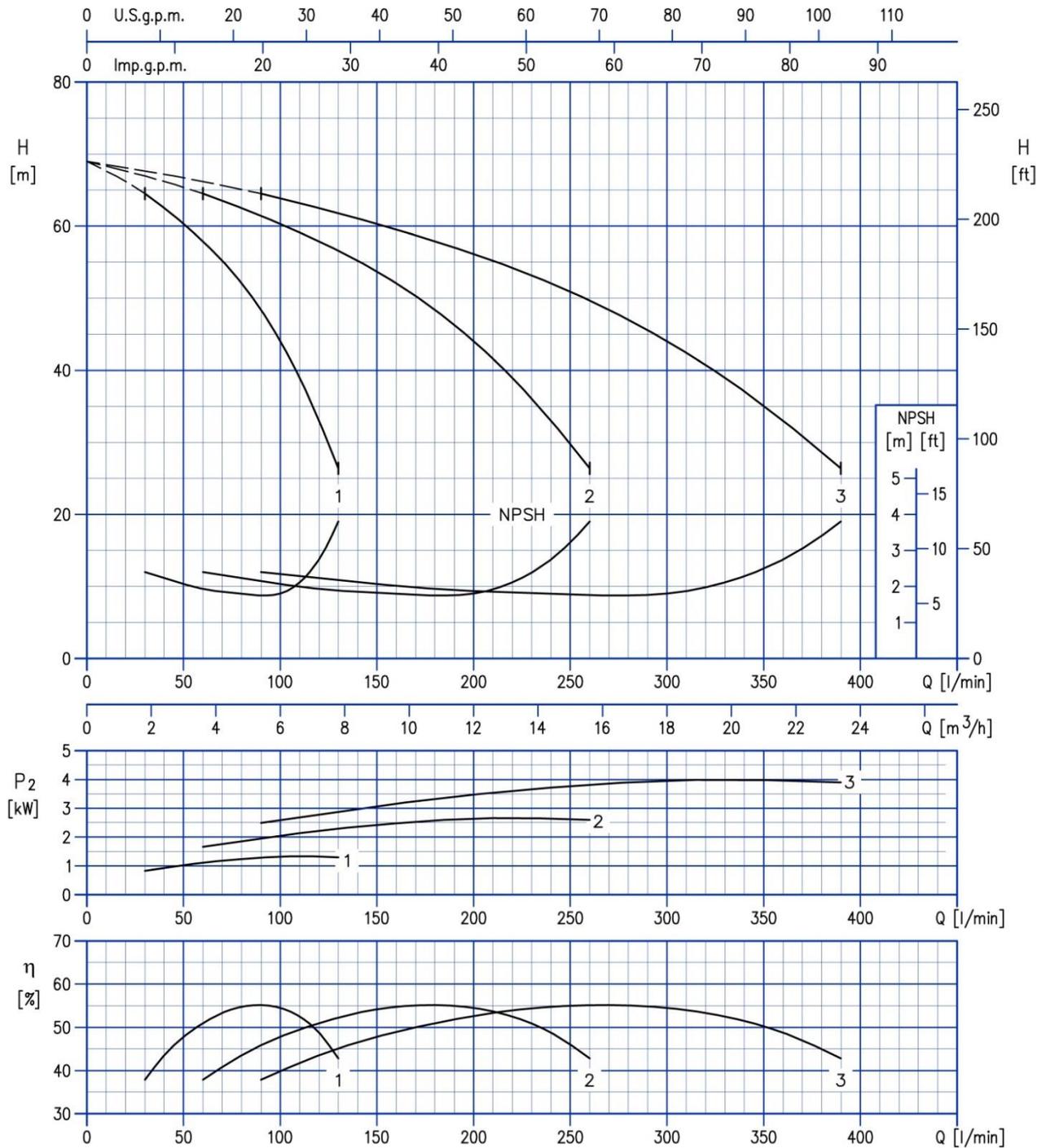
413

2-3GPE MATRIX 5-5T/1.3



Test standard: ISO 9906: 2012 - Grade 3B

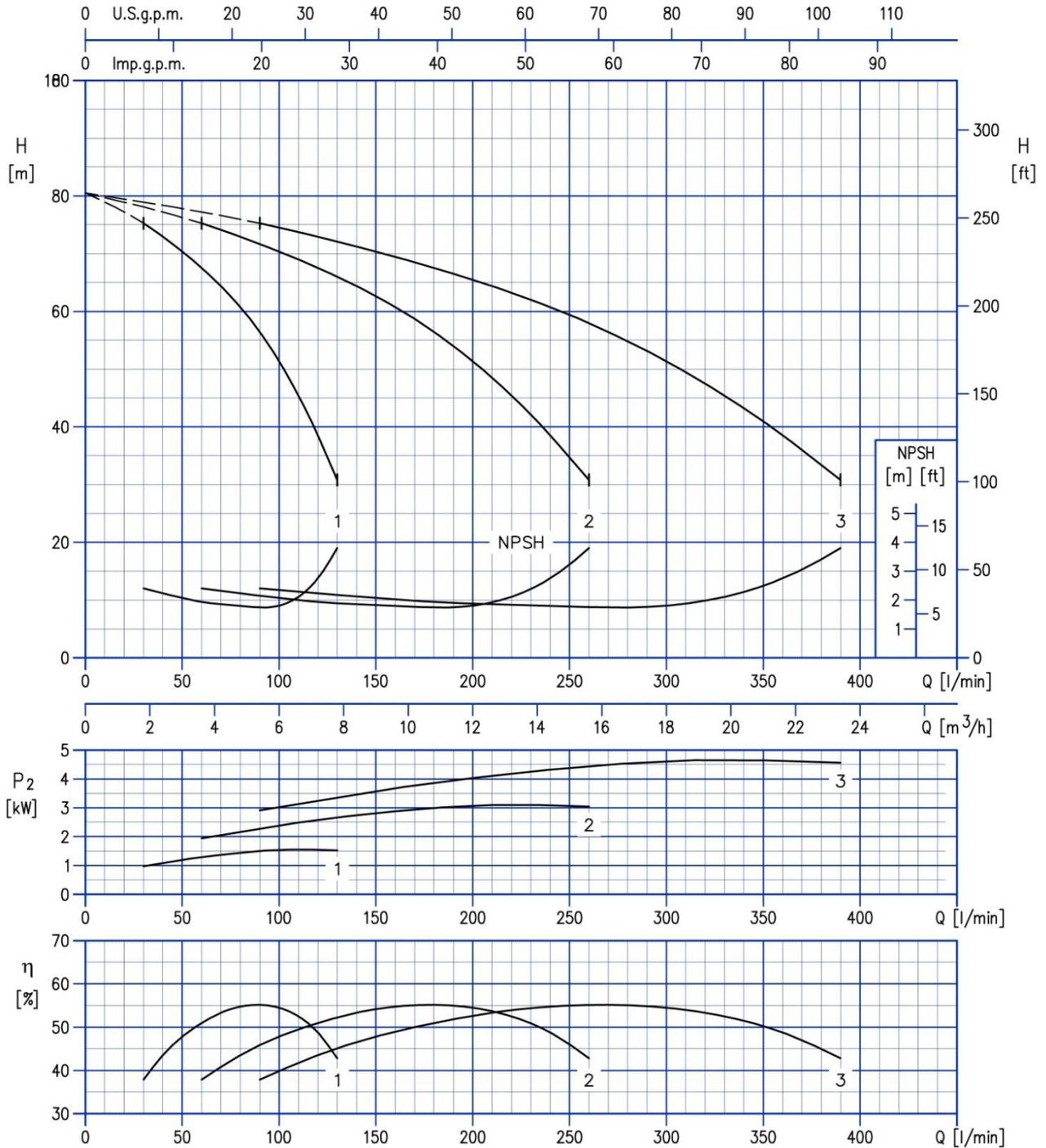
2-3GPE MATRIX 5-6T/1.3



Test standard: ISO 9906: 2012 - Grade 3B

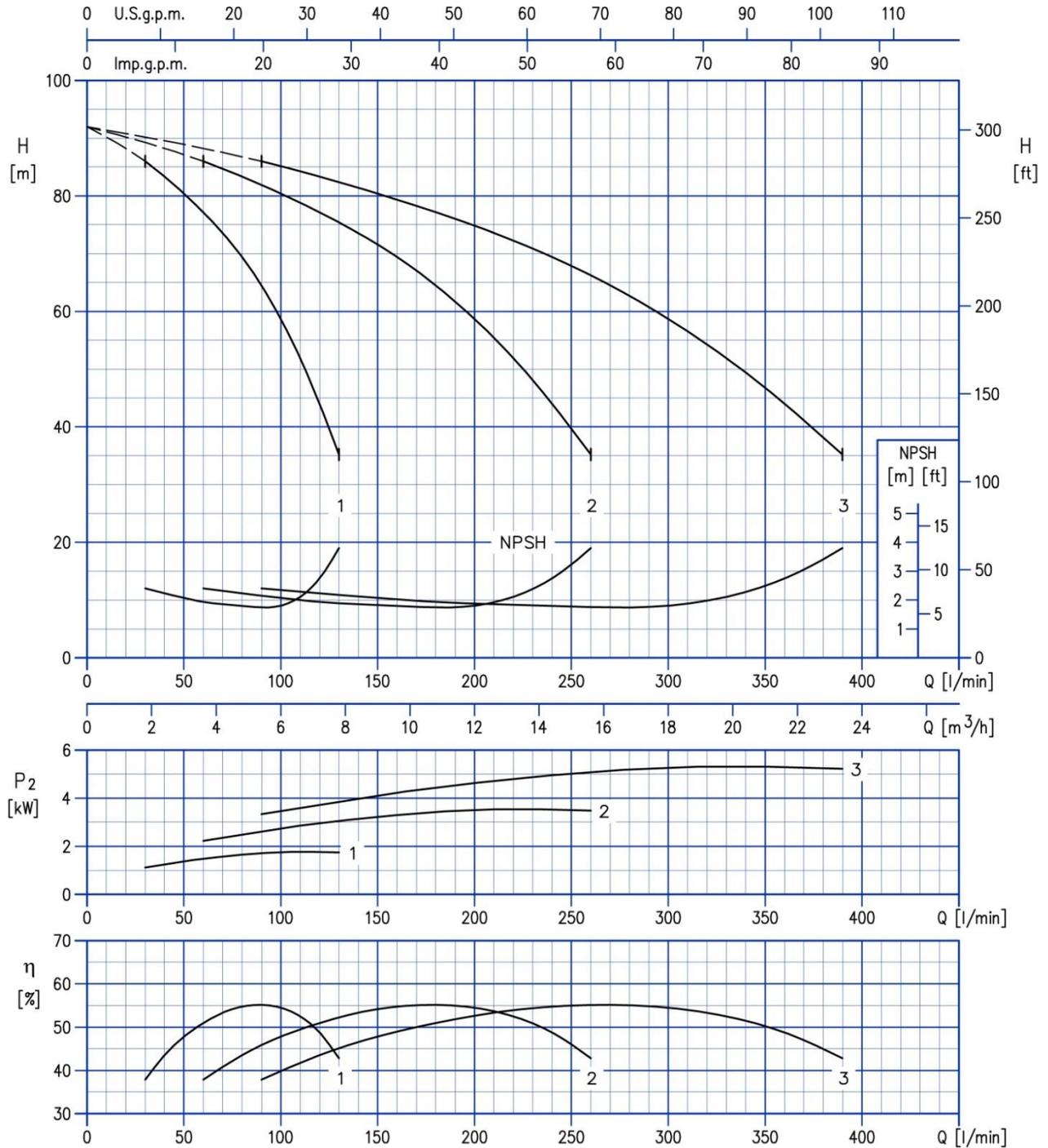
415

2-3GPE MATRIX 5-7T/1.5



Test standard: ISO 9906: 2012 - Grade 3B

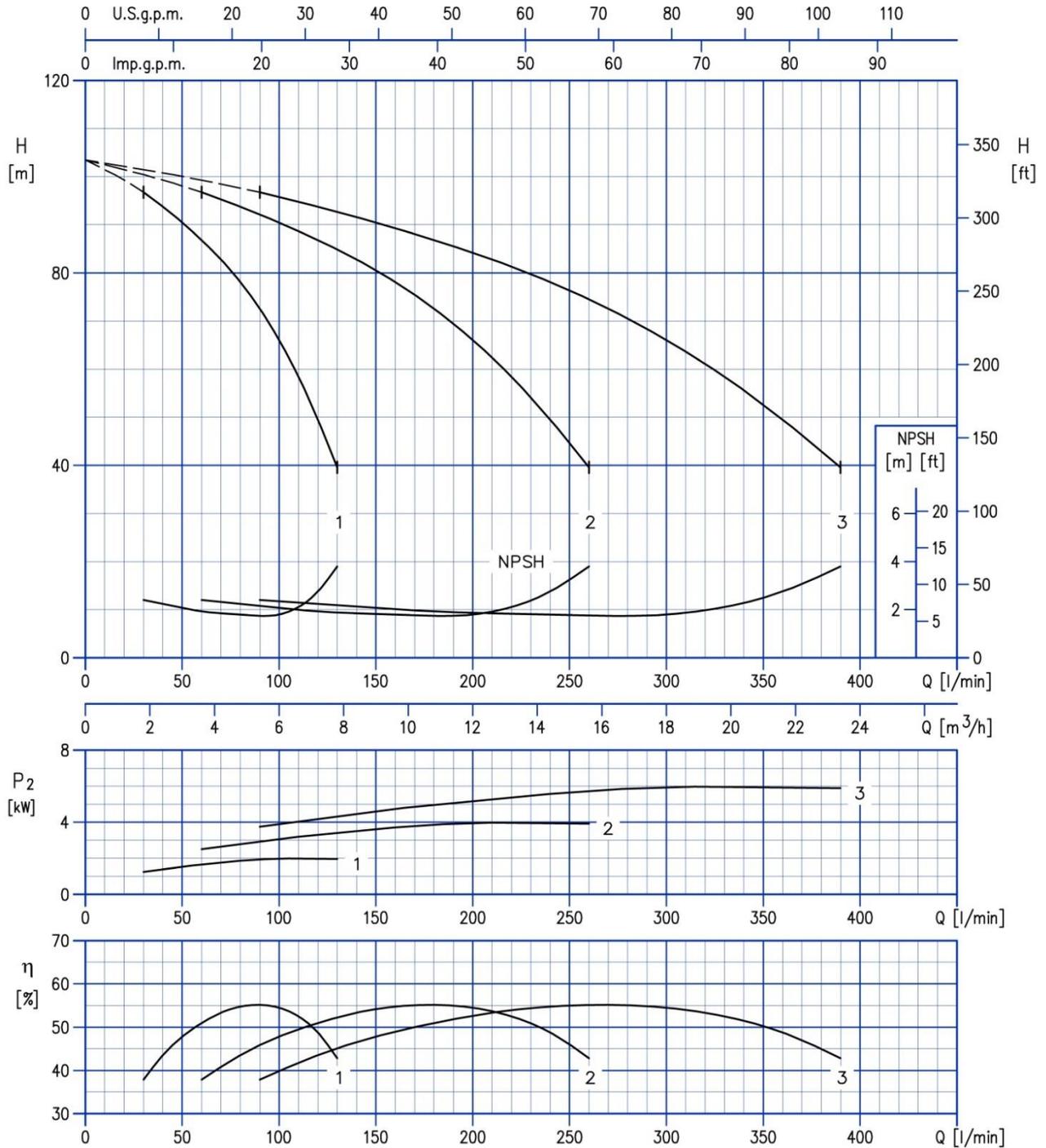
2-3GPE MATRIX 5-8T/2.2



Test standard: ISO 9906: 2012 - Grade 3B

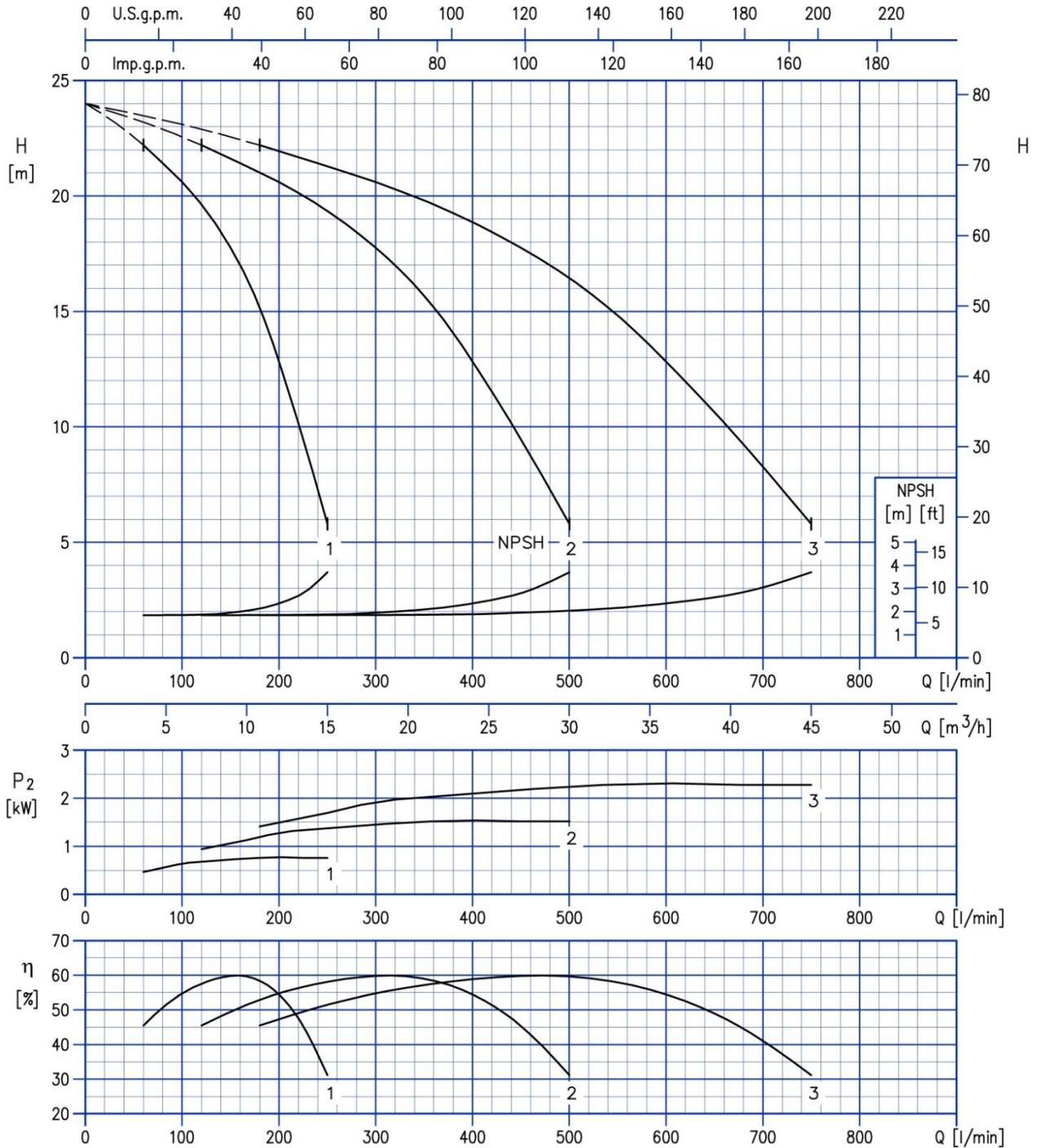
417

2-3GPE MATRIX 5-9T/2.2



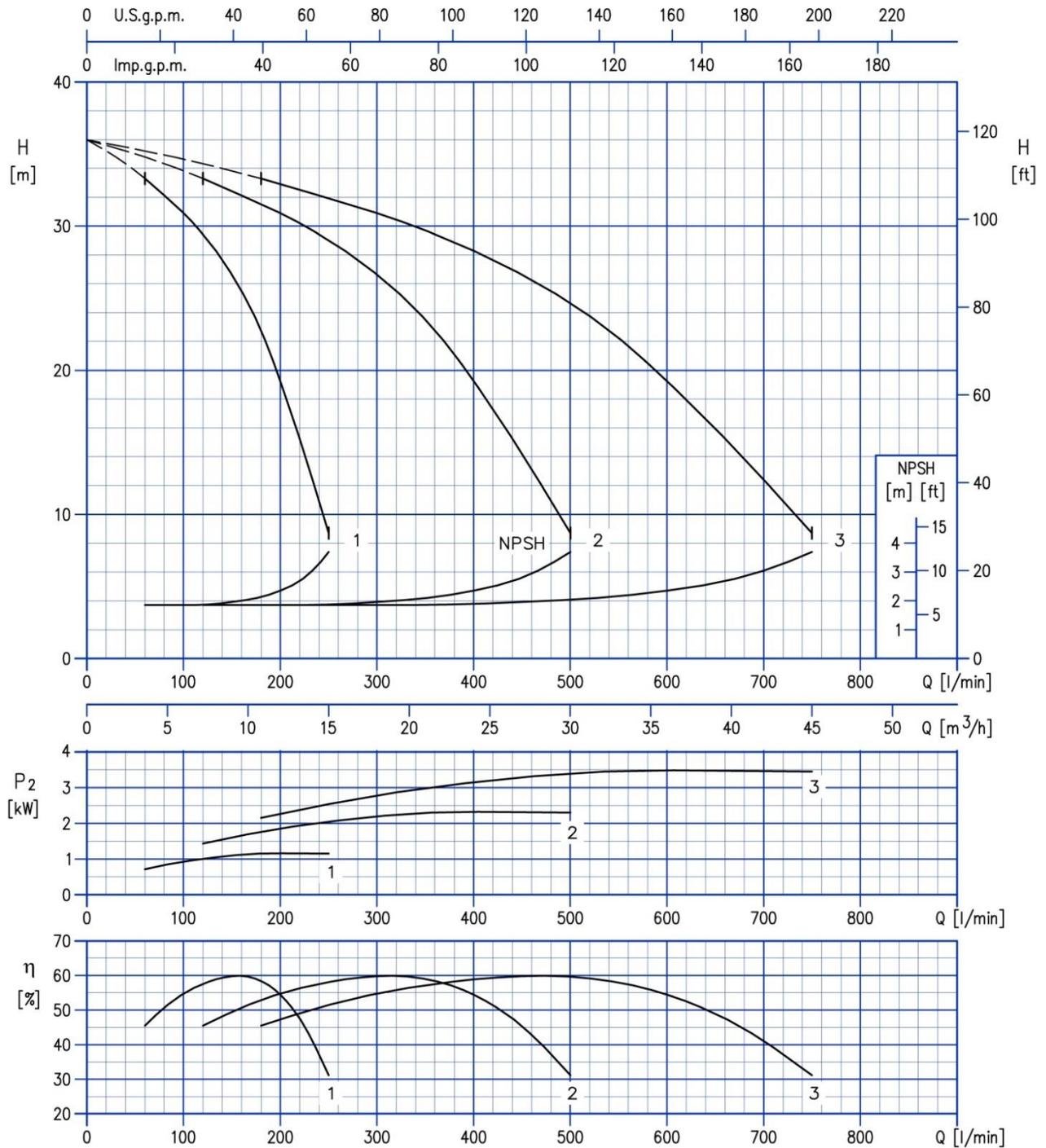
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 10-2T/0.75



Test standard: ISO 9906: 2012 - Grade 3B

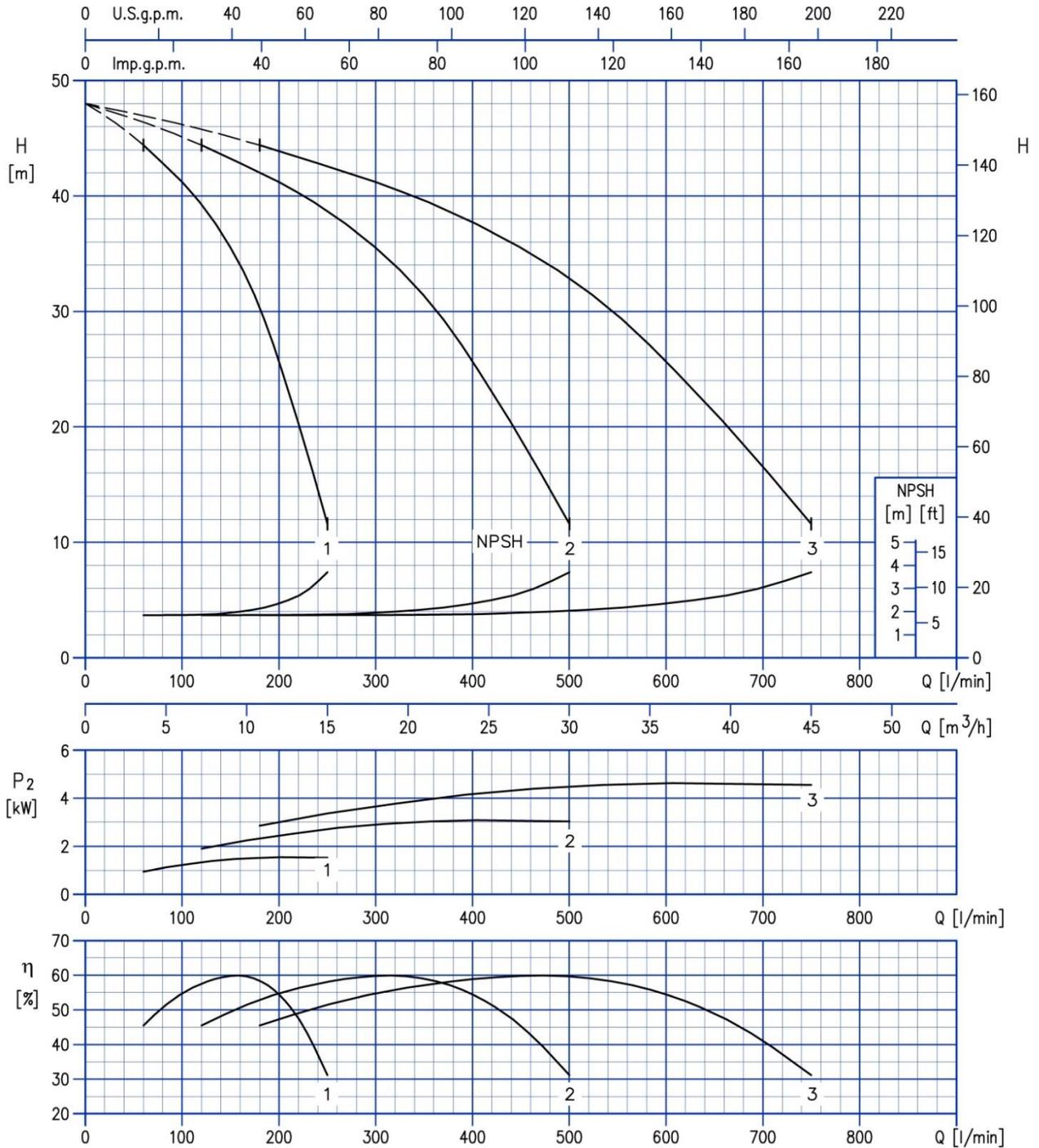
2-3GPE MATRIX 10-3T/1.3



Test standard: ISO 9906: 2012 - Grade 3B

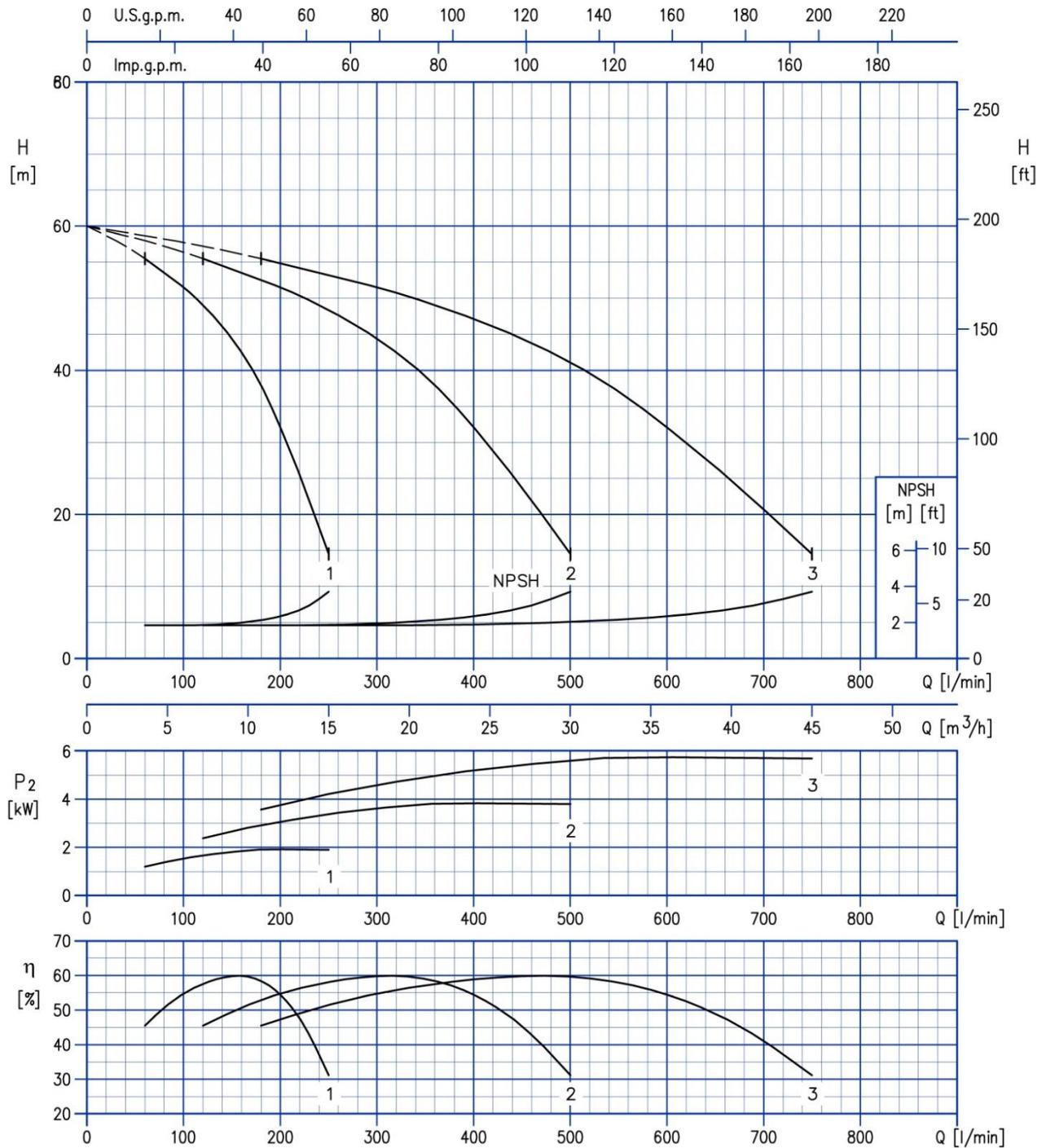
420

2-3GPE MATRIX 10-4T/1.5



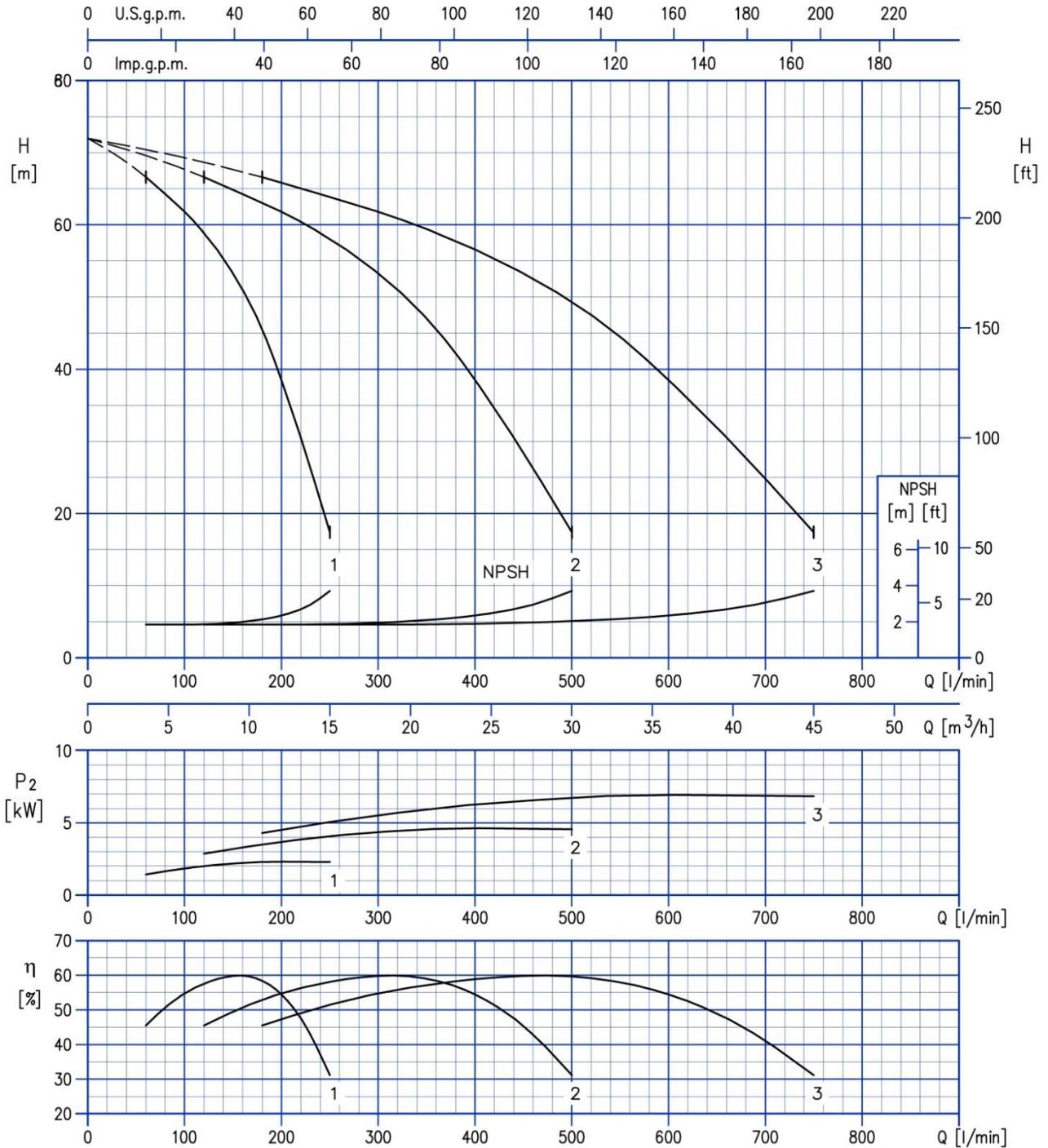
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 10-5T/2.2



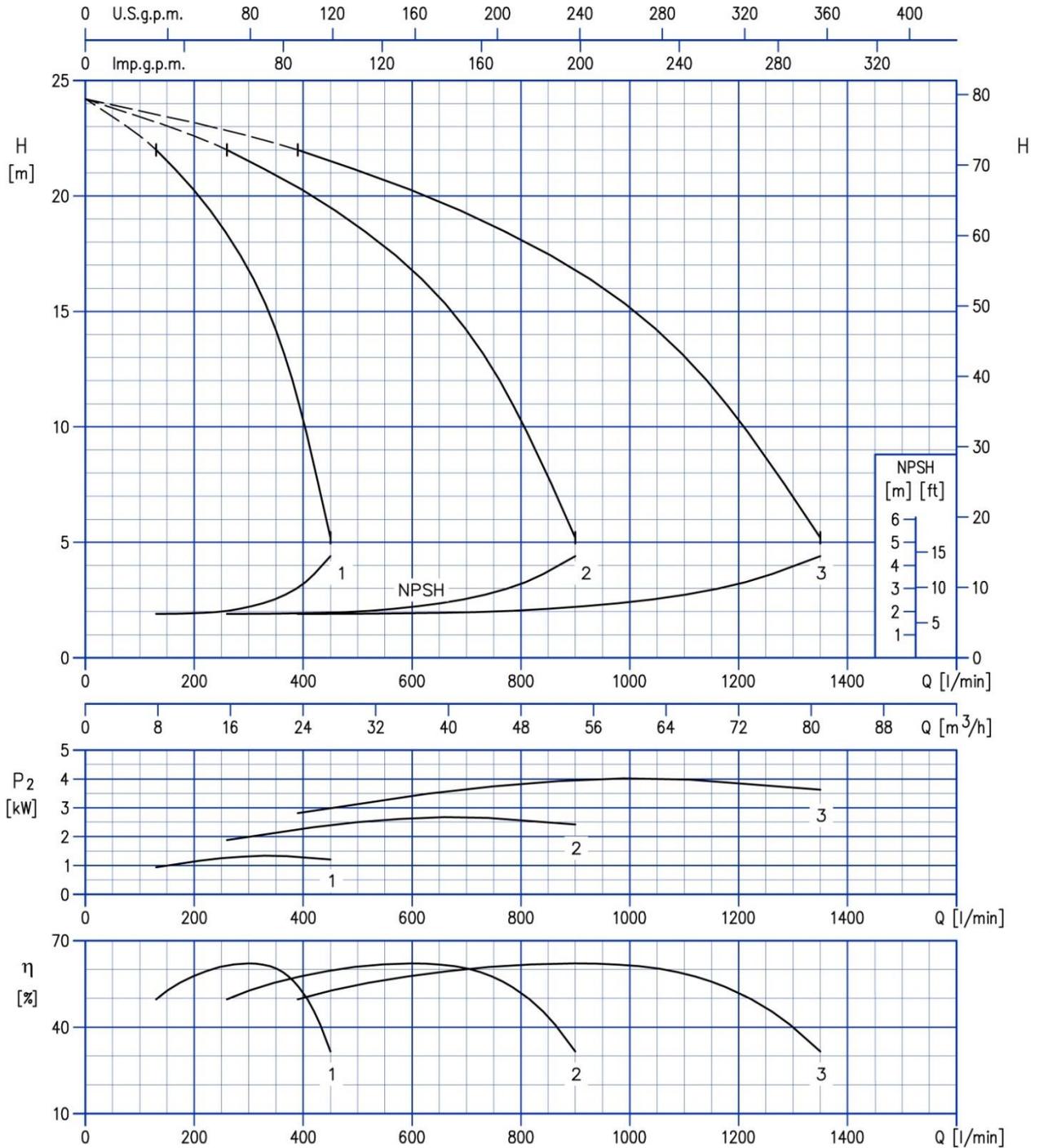
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 10-6T/2.2



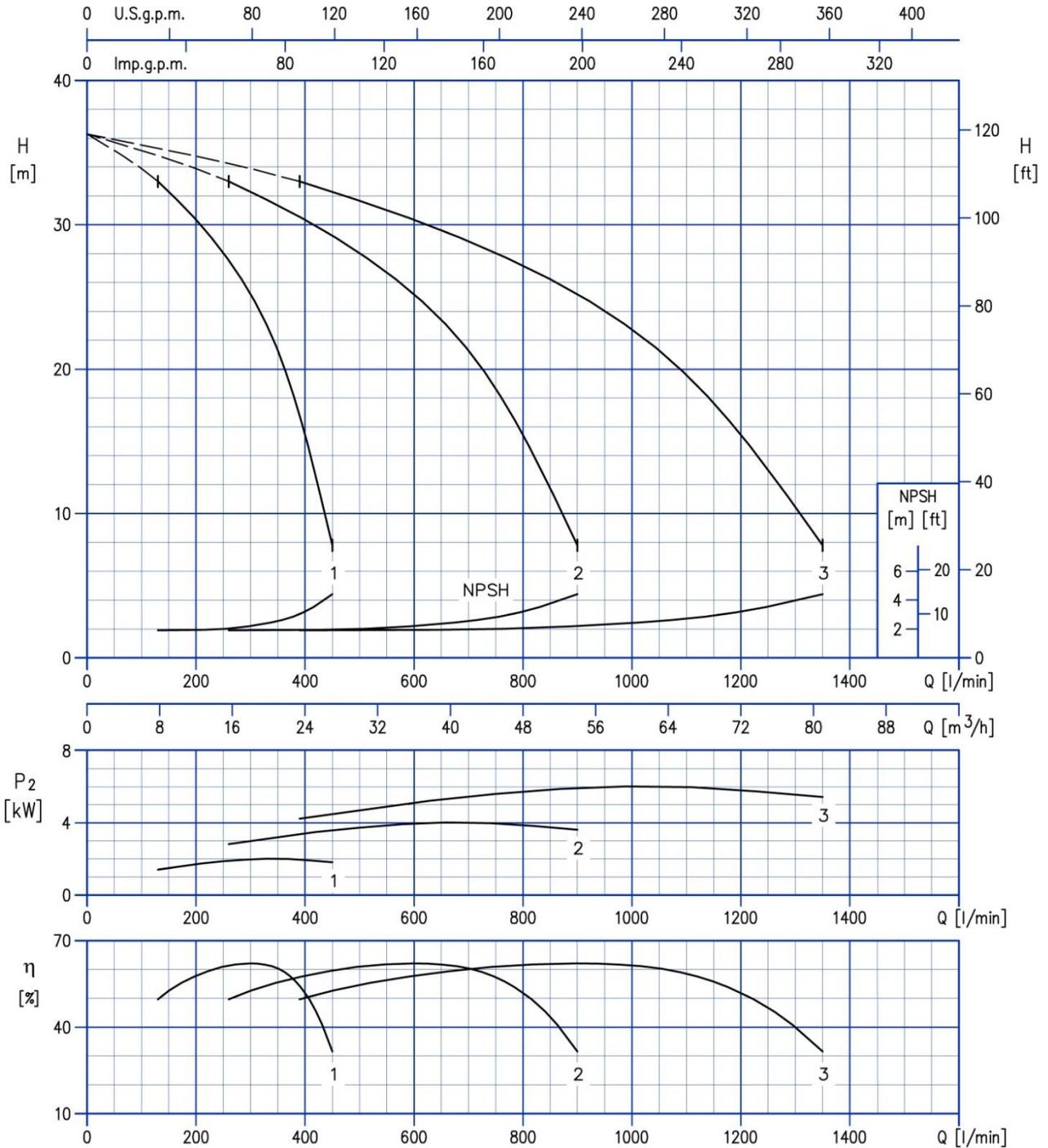
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 18-2T/1.5



Test standard: ISO 9906: 2012 - Grade 3B

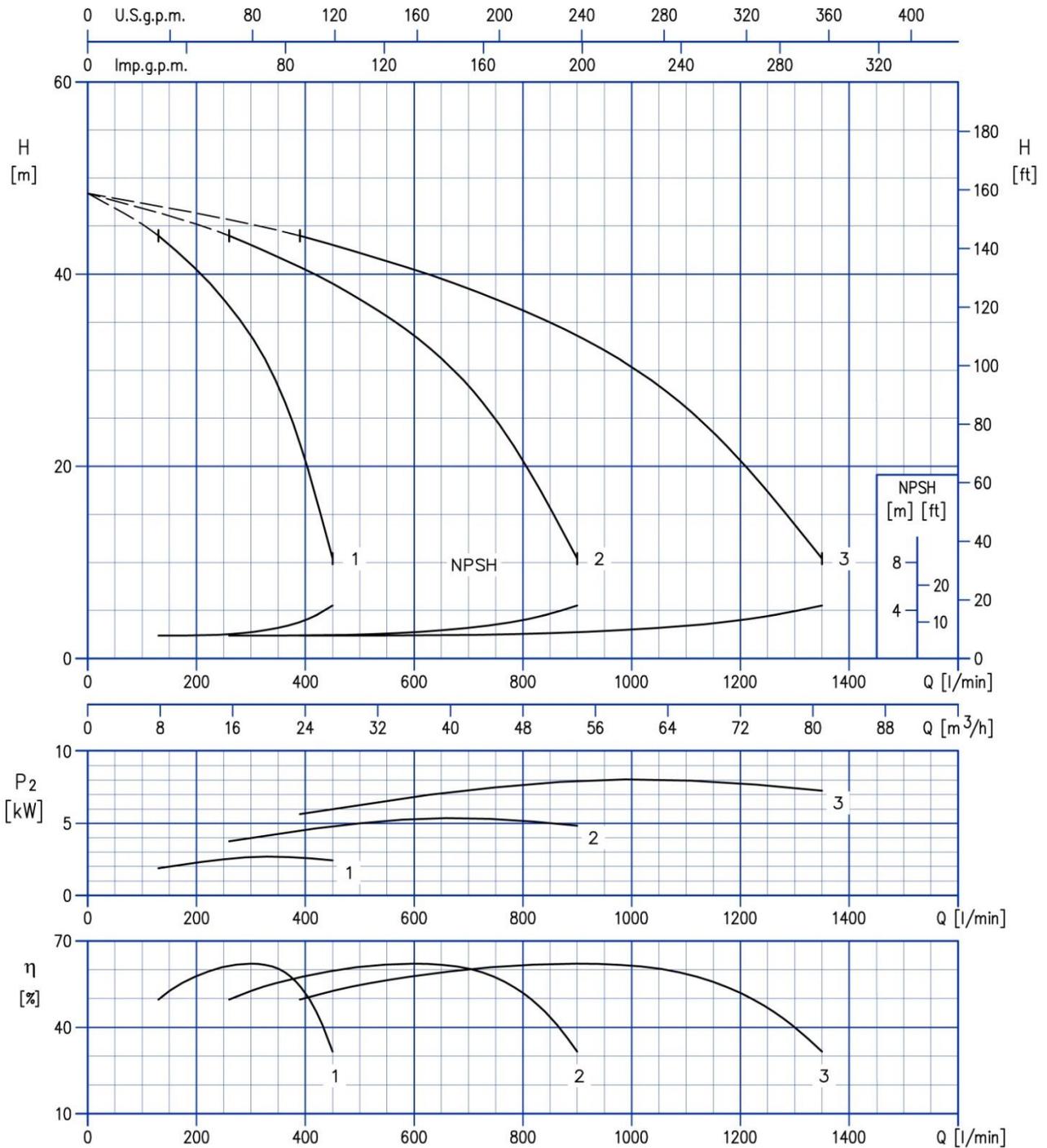
2-3GPE MATRIX 18-3T/2.2



Test standard: ISO 9906: 2012 - Grade 3B

425

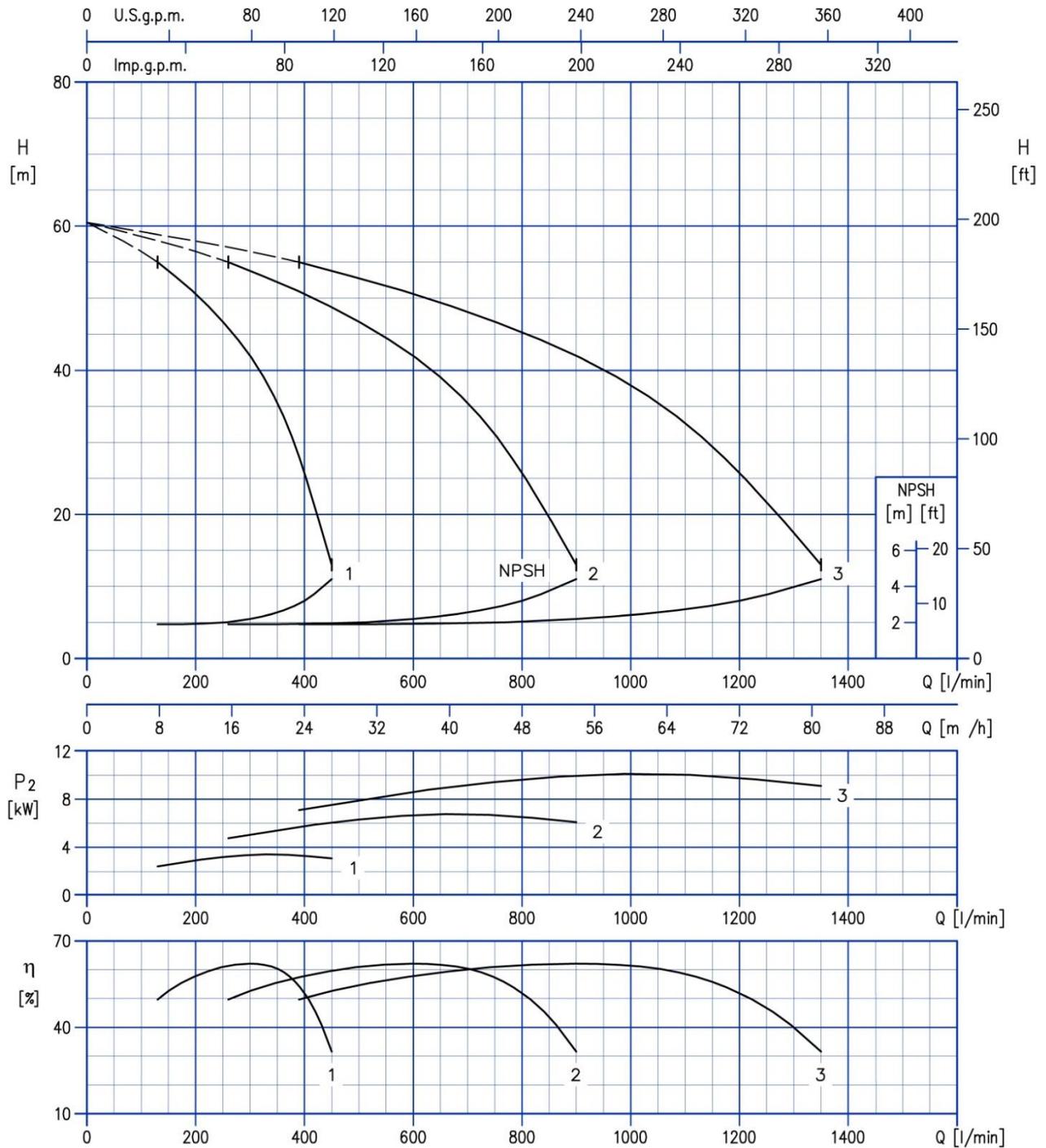
2-3GPE MATRIX 18-4T/3



Test standard: ISO 9906: 2012 - Grade 3B

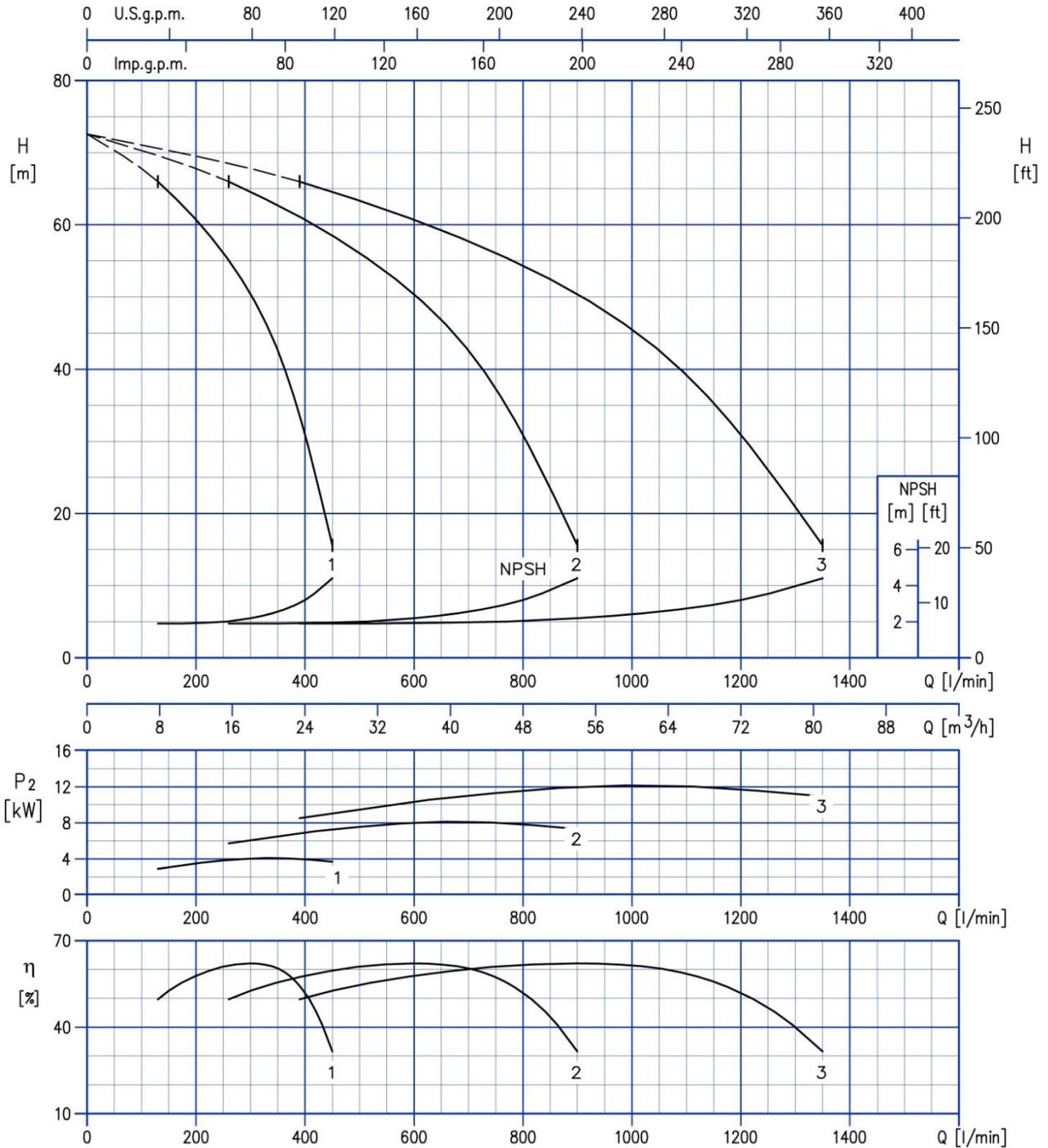
426

2-3GPE MATRIX 18-5T/4



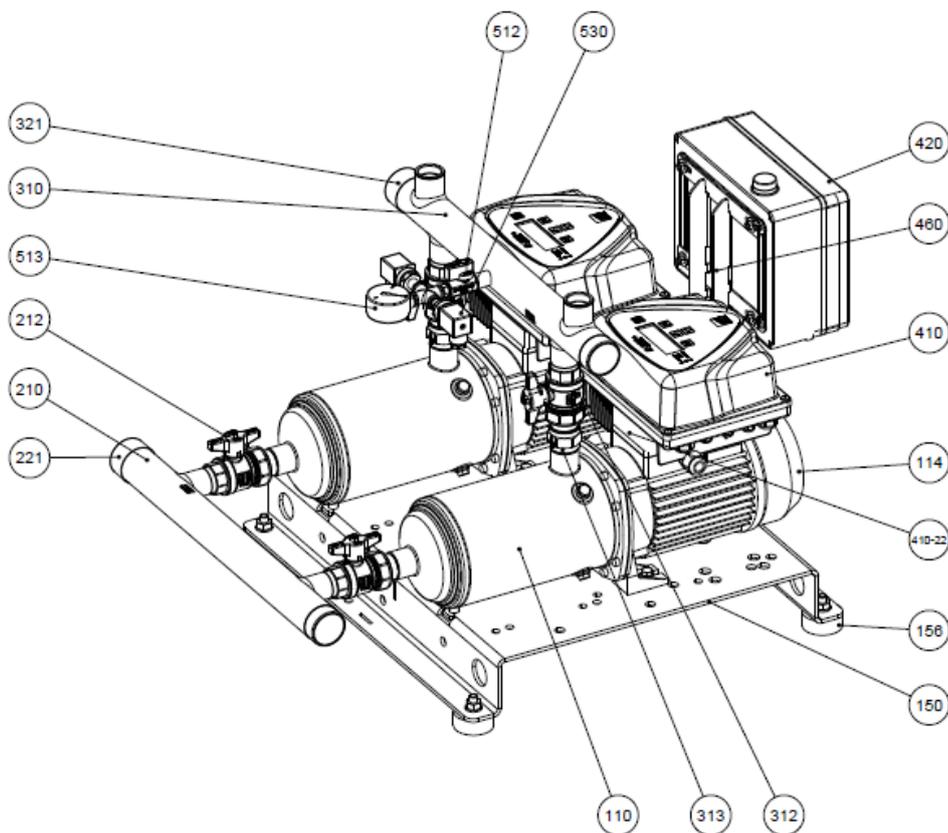
Test standard: ISO 9906: 2012 - Grade 3B

2-3GPE MATRIX 18-6T/4



Test standard: ISO 9906: 2012 - Grade 3B

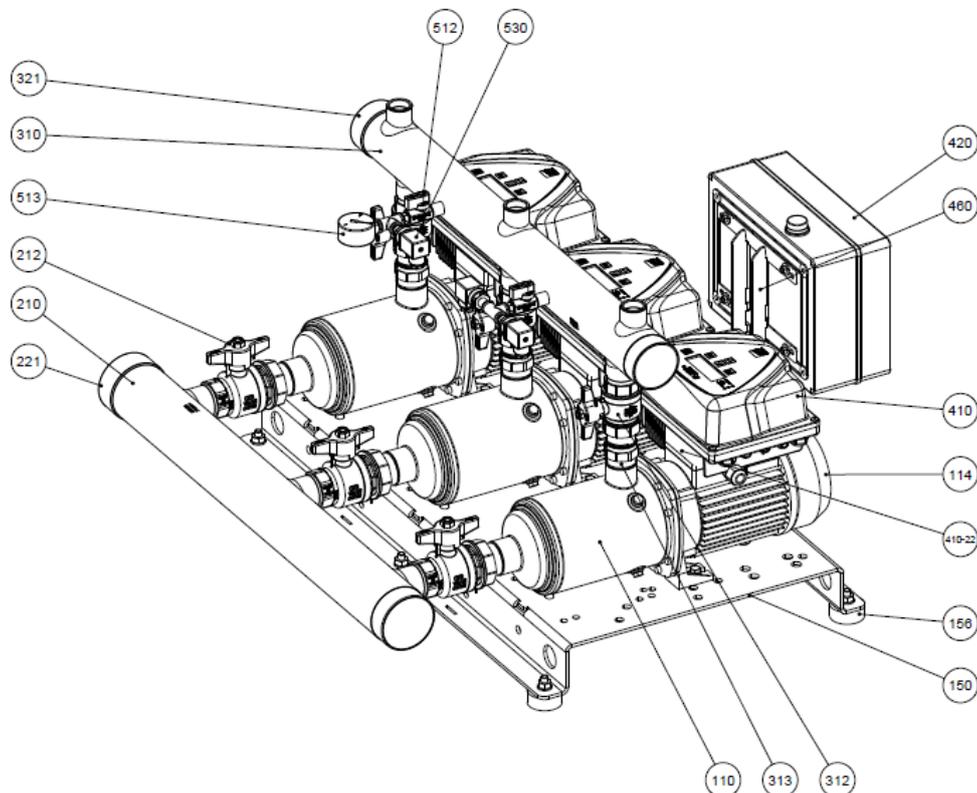
2GPE CONSTRUCTION EXTERNAL VIEW 2GPE MATRIX E-SPD+



CONSTRUCTION

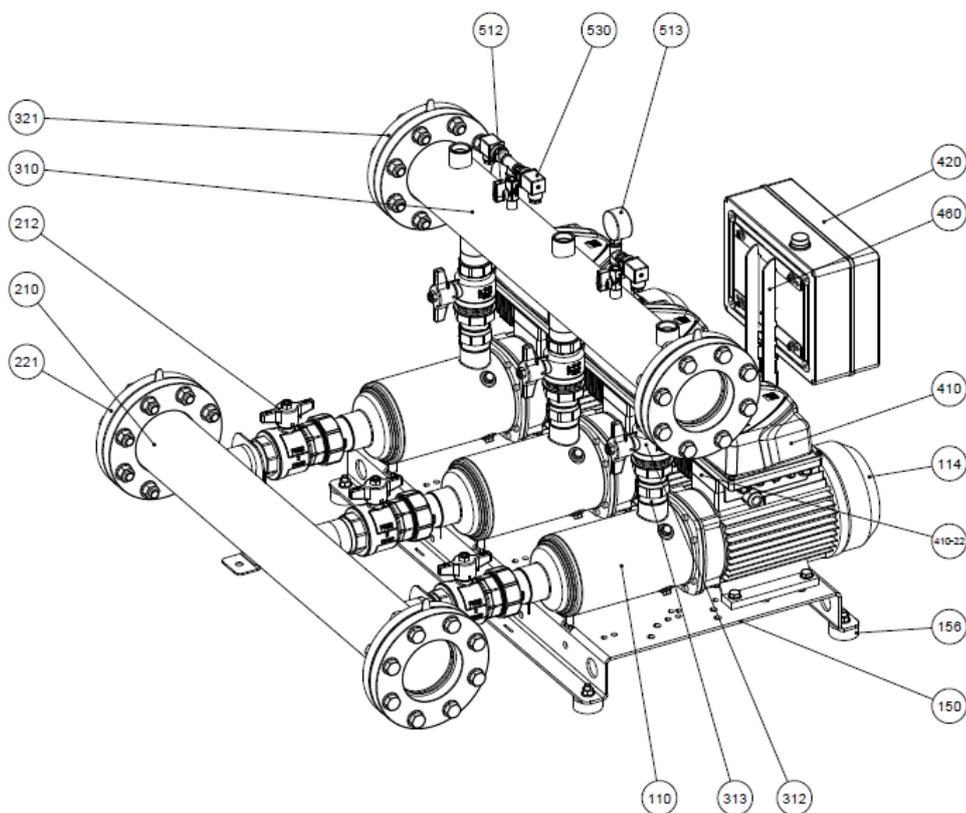
N°	PART NAME	MATERIAL	Quantity
110	Principal pump	-	2
114	Electric motor	-	2
150	Baseplate	Galvanized steel	1
156	Baseplate foot	SBR	4
210	Suction manifold	AISI 304	1
212	Union ball valve	Brass / P.T.F.E.	2
221	Threaded female cap	AISI 304	1
310	Discharge manifold	AISI 304	1
312	Union ball valve	Brass / P.T.F.E.	2
313	Check valve	Brass / NBR	2
321	Threaded female cap	AISI 304	1
410	E-SPD+	-	2
410-22	E-SPD+ adaptor	-	2
420	Protection panel	-	1
460	Protection panel frame	Galvanized steel	1
512	Ball valve	Brass / P.T.F.E.	1
513	Pressure gauge	Copper alloy / plastic	1
530	Pressure transmitter	-	2

3GPE CONSTRUCTION EXTERNAL VIEW 3GPE MATRIX 3-5-10 E-SPD+



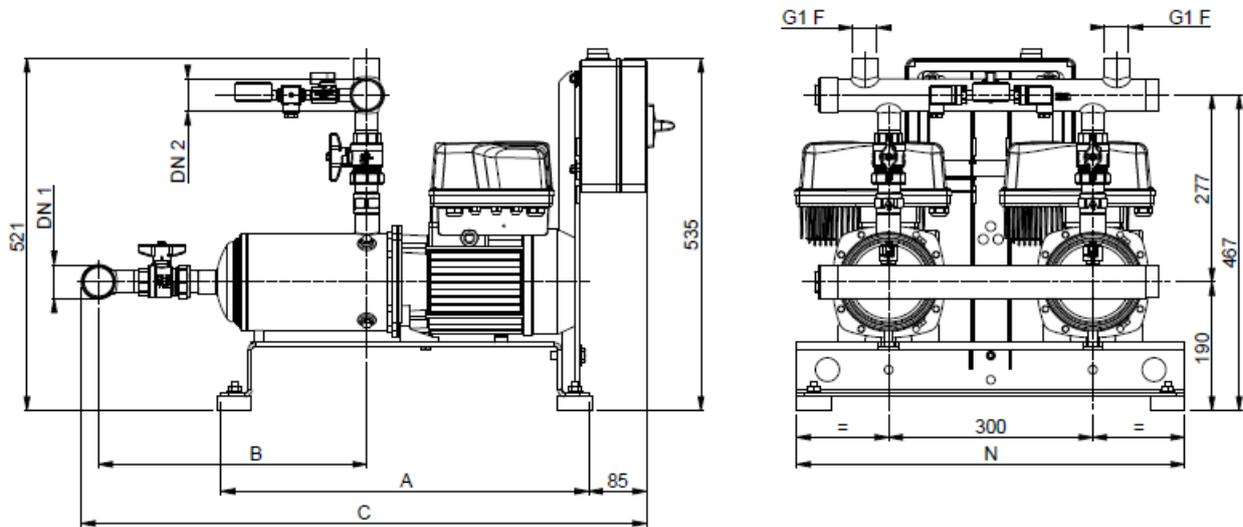
N°	PART NAME	MATERIAL	Quantity
110	Principal pump	-	3
114	Electric motor	-	3
150	Baseplate	Galvanized steel	1
156	Baseplate foot	SBR	6
210	Suction manifold	AISI 304	1
212	Union ball valve	Brass / P.T.F.E.	3
221	Threaded female cap	AISI 304	1
310	Discharge manifold	AISI 304	1
312	Union ball valve	Brass / P.T.F.E.	3
313	Check valve	Brass / NBR	3
321	Threaded female cap	AISI 304	1
410	E-SPD+	-	3
410-22	E-SPD+ adaptor	-	3
420	Protection panel	-	1
460	Protection panel frame	Galvanized steel	1
512	Ball valve	Brass / P.T.F.E.	2
513	Pressure gauge	Copper alloy / plastic	1
530	Pressure transmitter	-	3

EXTERNAL VIEW 3GPE MATRIX 18 E-SPD+



N°	PART NAME	MATERIAL	Quantity
110	Principal pump	-	3
114	Electric motor	-	3
150	Baseplate	Galvanized steel	1
156	Baseplate foot	SBR	6
210	Suction manifold	AISI 304	1
212	Union ball valve	Brass / P.T.F.E.	3
221	Threaded female cap	AISI 304	1
310	Discharge manifold	AISI 304	1
312	Union ball valve	Brass / P.T.F.E.	3
313	Check valve	Brass / NBR	3
321	Threaded female cap	AISI 304	1
410	E-SPD+	-	3
410-22	E-SPD+ adaptor	-	3
420	Protection panel	-	1
460	Protection panel frame	Galvanized steel	1
512	Ball valve	Brass / P.T.F.E.	2
513	Pressure gauge	Copper alloy / plastic	1
530	Pressure transmitter	-	3

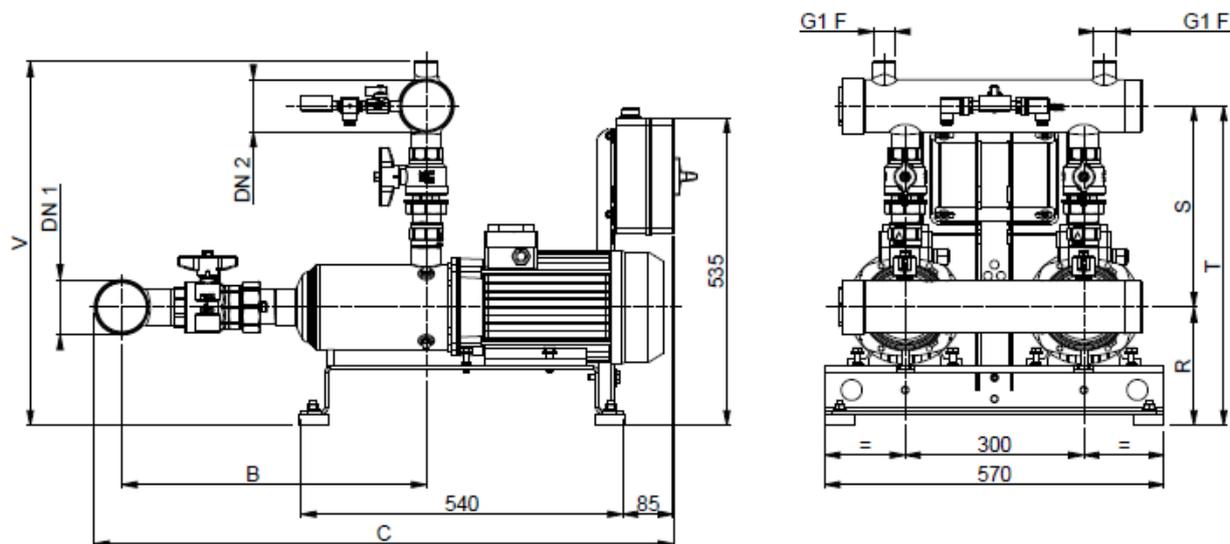
OVERALL DIMENSIONS 2GPE BOOSTER SET 2GPE MATRIX 3-5 E-SPD+



Booster Type	Dimensions [mm]						Weight [kg]
	DN1	DN2	A	B	C	N	
2GPE MATRIX 3-2T/0.45 ESPM	G1 1/2	G1 1/2	380	250	670	550	44
2GPE MATRIX 3-3T/0.65 ESPM	G1 1/2	G1 1/2	380	250	670	550	48
2GPE MATRIX 3-4T/0.65 ESPM	G1 1/2	G1 1/2	380	275	695	550	49
2GPE MATRIX 3-5T/0.75 ESPT(ESPM)	G1 1/2	G1 1/2	380	300	720	550	50
2GPE MATRIX 3-6T/0.9 ESPT(ESPM)	G1 1/2	G1 1/2	380	320	740	550	52
2GPE MATRIX 3-7T/1.3 ESPT(ESPM)	G1 1/2	G1 1/2	540	345	780	570	67
2GPE MATRIX 3-8T/1.3 ESPT(ESPM)	G1 1/2	G1 1/2	540	370	805	570	69
2GPE MATRIX 3-9T/1.5 ESPT(ESPM)	G1 1/2	G1 1/2	540	395	830	570	73
2GPE MATRIX 5-2T/0.45 ESPT(ESPM)	G2	G1 1/2	380	265	690	550	42
2GPE MATRIX 5-3T/0.65 ESPT(ESPM)	G2	G1 1/2	380	265	690	550	46
2GPE MATRIX 5-4T/0.9 ESPT(ESPM)	G2	G1 1/2	380	290	715	550	51
2GPE MATRIX 5-5T/1.3 ESPT(ESPM)	G2	G1 1/2	540	315	755	570	66
2GPE MATRIX 5-6T/1.3 ESPT(ESPM)	G2	G1 1/2	540	340	780	570	67
2GPE MATRIX 5-7T/1.5 ESPT(ESPM)	G2	G1 1/2	540	365	805	570	72
2GPE MATRIX 5-8T/2.2 ESPT(ESPM)	G2	G1 1/2	540	385	825	570	72
2GPE MATRIX 5-9T/2.2 ESPT(ESPM)	G2	G1 1/2	540	410	850	570	72

Approximate dimensions ± 20 mm.
The dimensions may change without notice.

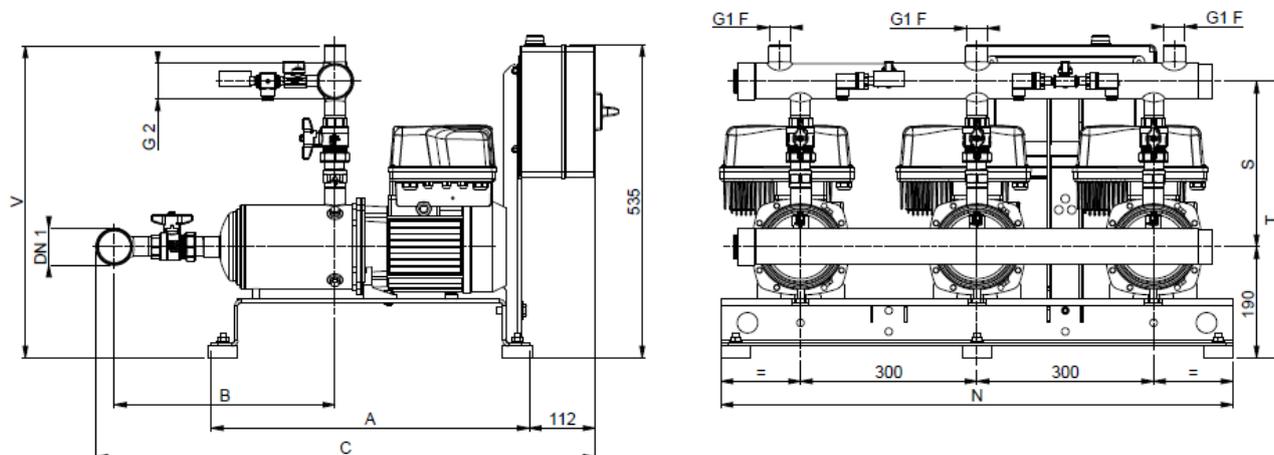
2GPE MATRIX 10-18 E-SPD+



Booster Type	Dimensions [mm]								Weight [kg]
	DN1	DN2	B	C	R	S	T	V	
2GPE MATRIX 10-2T/0.75 ESPT(ESPM)	G2 1/2	G2 1/2	315	770	190	310	500	570	60
2GPE MATRIX 10-3T/1.3 ESPT(ESPM)	G2 1/2	G2 1/2	315	770	190	310	500	570	66
2GPE MATRIX 10-4T/1.5 ESPT(ESPM)	G2 1/2	G2 1/2	345	800	190	310	500	570	74
2GPE MATRIX 10-5T/2.2 ESPT(ESPM)	G2 1/2	G2 1/2	375	830	190	310	500	570	75
2GPE MATRIX 10-6T/2.2 ESPT(ESPM)	G2 1/2	G2 1/2	405	860	190	310	500	570	76
2GPE MATRIX 18-2T/1.5 ESPT(ESPM)	G3	G3	400	860	200	340	540	615	67
2GPE MATRIX 18-3T/2.2 ESPT(ESPM)	G3	G3	400	860	200	340	540	615	69
2GPE MATRIX 18-4T/3.0 ESPT	G3	G3	435	895	200	340	540	615	81
2GPE MATRIX 18-5T/4.0 ESPT	G3	G3	475	935	200	340	540	615	99
2GPE MATRIX 18-6T/4.0 ESPT	G3	G3	510	970	200	340	540	615	101

Approximate dimensions ± 20 mm.
The dimensions may change without notice.

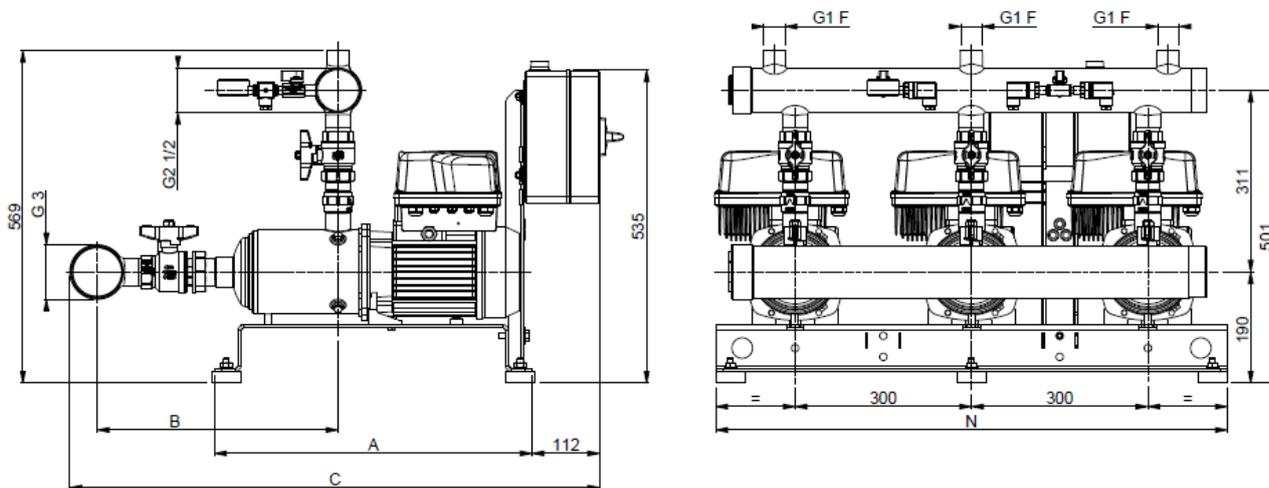
OVERALL DIMENSIONS 3GPE BOOSTER SET 3GPE MATRIX 3-5 E-SPD+



Booster Type	Dimensions [mm]								Weight [kg]
	DN1	A	B	C	N	S	T	V	
3GPE MATRIX 3-2T/0.45 ESPM	G2	380	250	720	850	285	475	535	66
3GPE MATRIX 3-3T/0.65 ESPM	G2	380	250	720	850	285	475	535	72
3GPE MATRIX 3-4T/0.65 ESPM	G2	380	275	745	850	285	475	535	74
3GPE MATRIX 3-5T/0.75 ESPT(ESPM)	G2	380	300	770	850	285	475	535	75
3GPE MATRIX 3-6T/0.9 ESPT(ESPM)	G2	380	325	795	850	285	475	535	78
3GPE MATRIX 3-7T/1.3 ESPT(ESPM)	G2	540	350	820	850	285	475	535	101
3GPE MATRIX 3-8T/1.3 ESPT(ESPM)	G2	540	375	845	870	285	475	535	104
3GPE MATRIX 3-9T/1.5 ESPT(ESPM)	G2	540	400	870	870	285	475	535	110
3GPE MATRIX 5-2T/0.45 ESPT(ESPM)	G2 1/2	380	275	725	850	280	470	530	63
3GPE MATRIX 5-3T/0.65 ESPT(ESPM)	G2 1/2	380	275	725	850	280	470	530	69
3GPE MATRIX 5-4T/0.9 ESPT(ESPM)	G2 1/2	380	300	750	850	280	470	530	77
3GPE MATRIX 5-5T/1.3 ESPT(ESPM)	G2 1/2	540	325	775	870	280	470	530	99
3GPE MATRIX 5-6T/1.3 ESPT(ESPM)	G2 1/2	540	350	800	870	280	470	530	101
3GPE MATRIX 5-7T/1.5 ESPT(ESPM)	G2 1/2	540	375	825	870	280	470	530	108
3GPE MATRIX 5-8T/2.2 ESPT(ESPM)	G2 1/2	540	395	845	870	280	470	530	108
3GPE MATRIX 5-9T/2.2 ESPT(ESPM)	G2 1/2	540	420	870	870	280	470	530	108

Approximate dimensions ± 20mm.
The dimensions may change without notice.

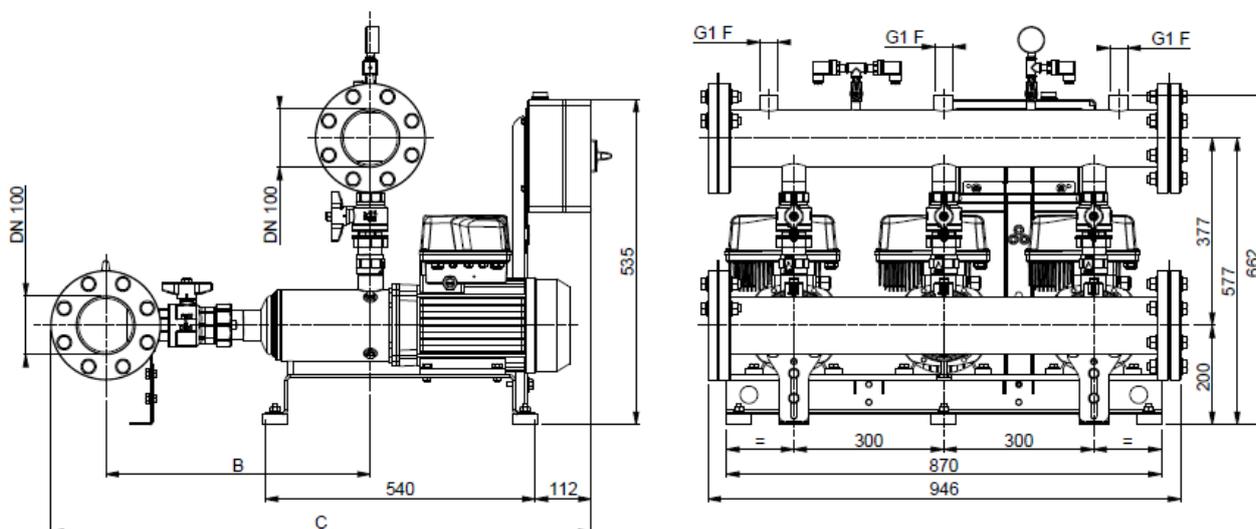
3GPE MATRIX 10 E-SPD+



Booster Type	Dimensions [mm]				Weight [kg]
	A	B	C	N	
3GPE MATRIX 10-2T/0.75 ESPT(ESPM)	380	320	810	850	90
3GPE MATRIX 10-3T/1.3 ESPT(ESPM)	540	320	810	870	99
3GPE MATRIX 10-4T/1.5 ESPT(ESPM)	540	350	840	870	111
3GPE MATRIX 10-5T/2.2 ESPT(ESPM)	540	380	870	870	113
3GPE MATRIX 10-6T/2.2 ESPT(ESPM)	540	410	900	870	114

Approximate dimensions ± 20 mm.
The dimensions may change without notice.

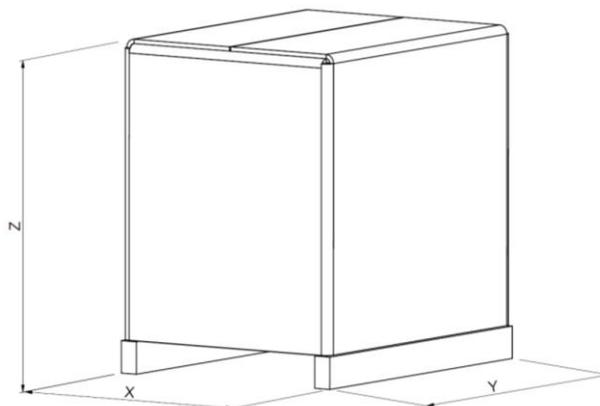
3GPE MATRIX 18 E-SPD+



Booster Type	Dimensions [mm]		Weight [kg]
	B	C	
3GPE MATRIX 18-2T/1.5 ESPT(ESPM)	420	970	150
3GPE MATRIX 18-3T/2.2 ESPT(ESPM)	420	970	153
3GPE MATRIX 18-4T/3.0 ESPT	455	1005	170
3GPE MATRIX 18-5T/4.0 ESPT	495	1045	198
3GPE MATRIX 18-6T/4.0 ESPT	530	1080	201

Approximate dimensions ± 20 mm.
The dimensions may change without notice.

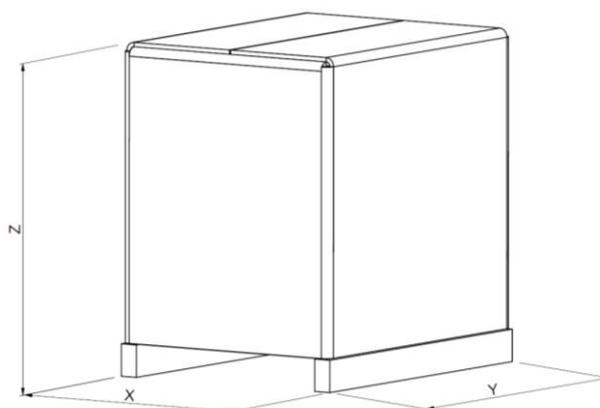
PACKING 2GPE MATRIX E-SPD+



Booster type	Overall dimensions packing			Booster+packing Weight [kg]
	X	Y	Z	
2GPE MATRIX 3-2T/0.45 ESPM	690	890	915	63
2GPE MATRIX 3-3T/0.65 ESPM	690	890	915	67
2GPE MATRIX 3-4T/0.65 ESPM	690	890	915	68
2GPE MATRIX 3-5T/0.75 ESPT(ESPM)	690	890	915	69
2GPE MATRIX 3-6T/0.9 ESPT(ESPM)	690	890	915	71
2GPE MATRIX 3-7T/1.3 ESPT(ESPM)	690	890	915	86
2GPE MATRIX 3-8T/1.3 ESPT(ESPM)	690	890	915	88
2GPE MATRIX 3-9T/1.5 ESPT(ESPM)	690	890	915	92
2GPE MATRIX 5-2T/0.45 ESPT(ESPM)	690	890	915	61
2GPE MATRIX 5-3T/0.65 ESPT(ESPM)	690	890	915	65
2GPE MATRIX 5-4T/0.9 ESPT(ESPM)	690	890	915	70
2GPE MATRIX 5-5T/1.3 ESPT(ESPM)	690	890	915	85
2GPE MATRIX 5-6T/1.3 ESPT(ESPM)	690	890	915	86
2GPE MATRIX 5-7T/2.2 ESPM	690	890	915	91
2GPE MATRIX 5-7T/1.5 ESPT	690	890	765	90
2GPE MATRIX 5-8T/2.2 ESPM	690	890	915	91
2GPE MATRIX 5-8T/2.2 ESPT	690	890	765	90
2GPE MATRIX 5-9T/2.2 ESPT(ESPM)	690	890	915	91
2GPE MATRIX 10-2T/0.75 ESPT(ESPM)	690	890	915	79
2GPE MATRIX 10-3T/1.3 ESPT(ESPM)	690	890	915	85
2GPE MATRIX 10-4T/1.5 ESPT(ESPM)	690	890	915	93
2GPE MATRIX 10-5T/2.2 ESPT(ESPM)	690	890	915	94
2GPE MATRIX 10-6T/2.2 ESPT(ESPM)	690	890	915	95
2GPE MATRIX 18-2T/1.5 ESPT	690	890	915	86
2GPE MATRIX 18-2T/1.5 ESPM	1230	830	1365	90
2GPE MATRIX 18-3T/2.2 ESPT(ESPM)	1230	830	1365	92
2GPE MATRIX 18-4T/3.0 ESPT	1230	830	1365	104
2GPE MATRIX 18-5T/4.0 ESPT	1230	830	1365	122
2GPE MATRIX 18-6T/4.0 ESPT	1230	830	1365	124

The dimensions may change without notice.

3GPE MATRIX E-SPD+



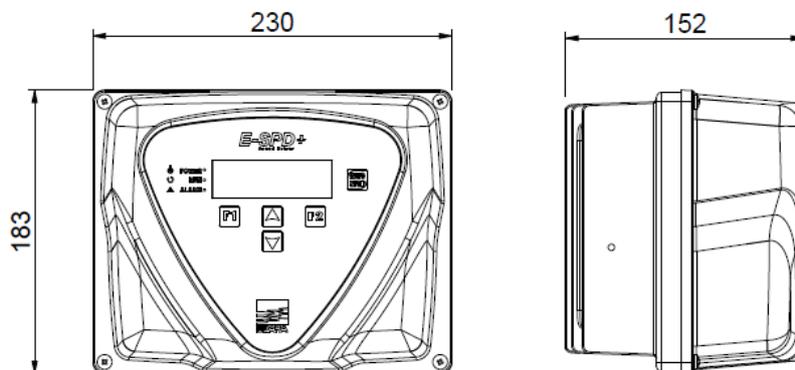
Booster type	Overall dimensions packing			Booster+packing Weight [kg]
	X	Y	Z	
3GPE MATRIX 3-2T/0.45 ESPM	1230	830	1365	89
3GPE MATRIX 3-3T/0.65 ESPM	1230	830	1365	95
3GPE MATRIX 3-4T/0.65 ESPM	1230	830	1365	97
3GPE MATRIX 3-5T/0.75 ESPT	1230	830	1365	98
3GPE MATRIX 3-6T/0.9 ESPM	1230	830	1365	101
3GPE MATRIX 3-6T/0.9 ESPT	1235	1135	1765	115
3GPE MATRIX 3-7T/1.3 ESPM	1230	830	1365	124
3GPE MATRIX 3-7T/1.3 ESPT	1235	1135	1765	138
3GPE MATRIX 3-8T/1.3 ESPT(ESPM)	1235	1135	1765	141
3GPE MATRIX 3-9T/1.5 ESPT(ESPM)	1235	1135	1765	147
3GPE MATRIX 5-2T/0.45 ESPT(ESPM)	1230	830	1365	86
3GPE MATRIX 5-3T/0.65 ESPT(ESPM)	1230	830	1365	92
3GPE MATRIX 5-4T/0.9 ESPT(ESPM)	1230	830	1365	100
3GPE MATRIX 5-5T/1.3 ESPM	1230	830	1365	122
3GPE MATRIX 5-5T/1.3 ESPM	1235	1135	1765	136
3GPE MATRIX 5-6T/1.3 ESPM	1230	830	1365	124
3GPE MATRIX 5-6T/1.3 ESPT	1235	1135	1765	138
3GPE MATRIX 5-7T/1.5 ESPT(ESPM)	1235	1135	1765	145
3GPE MATRIX 5-8T/2.2 ESPT(ESPM)	1235	1135	1765	145
3GPE MATRIX 5-9T/2.2 ESPT(ESPM)	1235	1135	1765	145
3GPE MATRIX 10-2T/0.75 ESPT(ESPM)	1230	830	1365	113
3GPE MATRIX 10-3T/1.3 ESPM	1230	830	1365	122
3GPE MATRIX 10-3T/1.3 ESPT	1235	1135	1765	136
3GPE MATRIX 10-4T/1.5 ESPT(ESPM)	1235	1135	1765	148
3GPE MATRIX 10-5T/2.2 ESPT(ESPM)	1235	1135	1765	150
3GPE MATRIX 10-6T/2.2 ESPT(ESPM)	1235	1135	1765	151
3GPE MATRIX 18-2T/1.5 ESPT	1235	1135	1765	187
3GPE MATRIX 18-2T/1.5 ESPM	1235	1135	1765	187
3GPE MATRIX 18-3T/2.2 ESPT(ESPM)	1235	1135	1765	190
3GPE MATRIX 18-4T/3.0 ESPT	1235	1135	1765	207
3GPE MATRIX 18-5T/4.0 ESPT	1235	1135	1765	235
3GPE MATRIX 18-6T/4.0 ESPT	1235	1135	1765	238

The dimensions may change without notice.

CONTROL PANEL VARIABLE SPEED E-SPD+ SPECIFICATION

On board electronic device for controlling electropumps, employing inverter technology. Starts and stops the pump and modulates the speed of the motor in relation to the water demand on the system, to maintain the operating pressure setting. Provides excellent comfort for the end user, significant energy savings and increased service life, the typical advantages of inverter controlled autoclave systems. E-SPD is an inverter that could be installed on the terminal box. It can be adapted on horizontal and vertical pumps. E-SPD can protect the system against overpressure, overcurrent, voltage fluctuation, dry run and water leak. The connection for this mode is made by communication line ON/OFF.

E-SPD+				
Power	Version	MT	TT	
	Power Voltage	Single-phase 230 V	Three-phase 400 V	
	Output Voltage (pump)	Three-phase 230 V	Three-phase 400 V	
	Output frequency	50 ÷ 60Hz		
	Maximum pump power	2.2 kW	4 kW	
	Max I in	20 A	12 A	
	Max I out	11 A	11 A	
Others	Pressure setpoint	0.5 ÷ 40 bar		
	Protection degree	IP 55		
	Ambient Temperature	-10 ÷ 40°C		
	Booster sets	2-3 pumps		
	Weight	2,7 Kg		
	Protection	Dry-running		
		Over/under voltage		
		Short-circuit		
Overload				
Overtemperature				
Directives	2014/35/EU (LVD), 2014/30/EU (EMC), 2011/65/EU (RoHS II)			



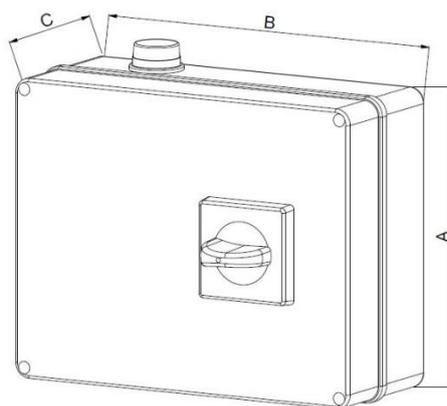
The dimensions may change without notice.

PROTECTION PANEL SPECIFICATION

Connection box for inverter :

- Connects the inverters with the power supply point.
- Equipped with circuit breakers on individual lines

Power source	Frequency	50/60 Hz	
	Phase	Single-phase	Three-phase
	Voltage	230 V ± 10%	400 V ± 10%
	Power	0.37 ÷ 2.2 kW	0.37 ÷ 11 kW
Others	Protection degree	IP 55	
	Ambient Temperature	-5°C + 40°C	
	Booster sets	2 - 3 pumps	
	Relative humidity	50% a 40°C MAX (90% a 20°C)	
	Max altitude	1000 m (a.s.l.)	
Directives	2014/35/EU (LVD), 2014/30/EU (EMC), 2011/65/EU (RoHS II), 2012/19EU (RAEE)		



Model	N° Pumps	Power [kW]	Dimensions A-B-C [mm]	Max Current [A]
PROT. IP55 2P-M 20A 1P+N UK	2	2x2.2	200x250x100	2x20
PROT. IP55 2P-M 16A		2x4	200x250x100	2x16
PROT. IP55 3P-M 20A 1P+N UK	3	3x2.2	230x310x130	3x20
PROT. IP55 3P-M 16A		3x4	230x310x130	3x16

The dimensions may change without notice.