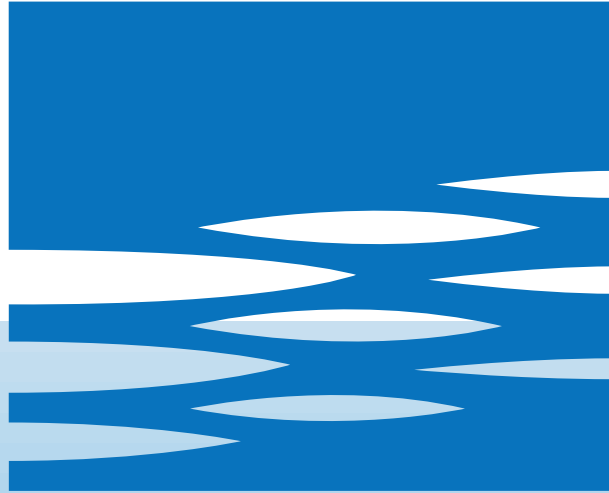




EBARA

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SPECIFICATION

50Hz

Rev. N

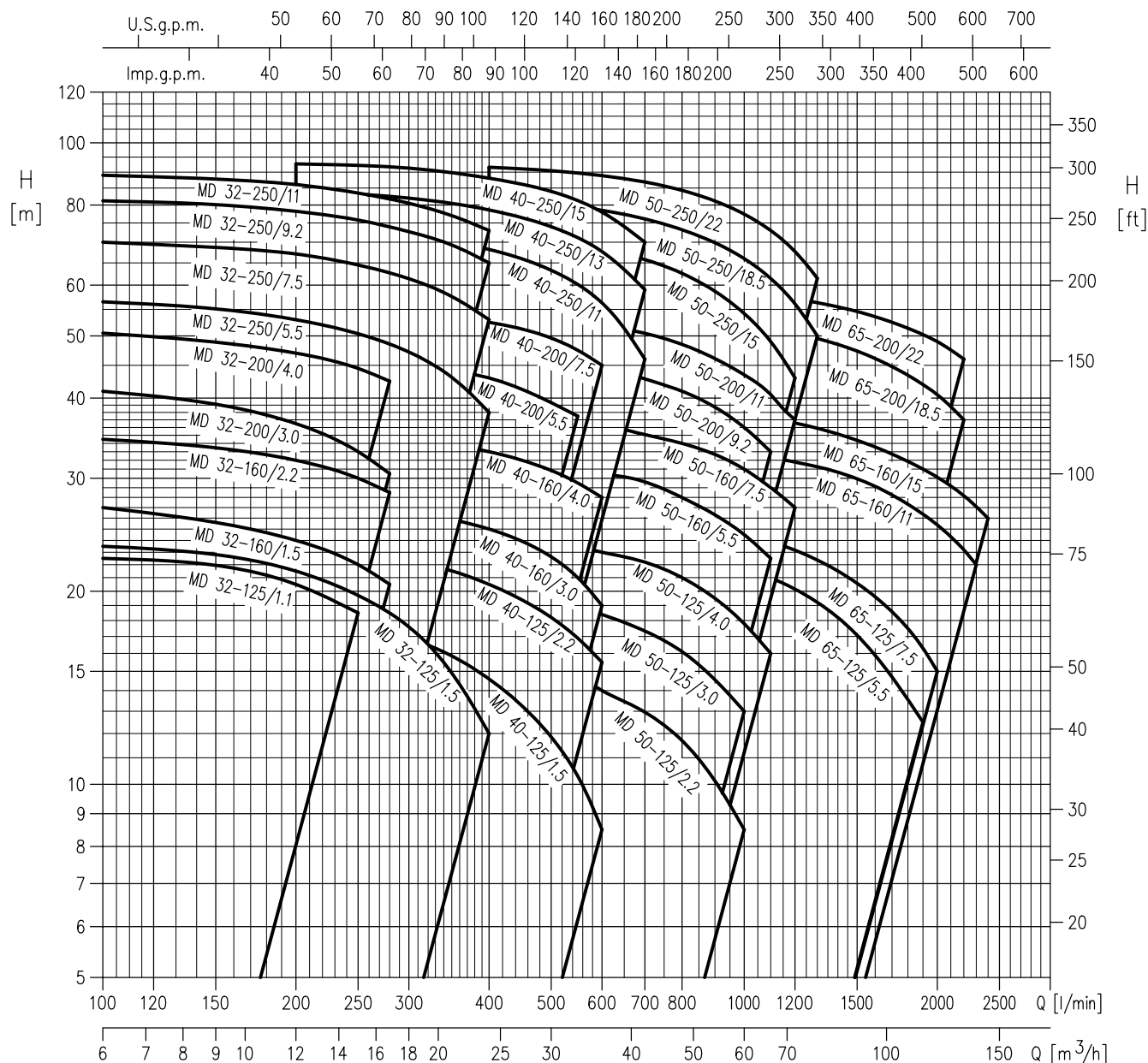
PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -5 max. +90 max. +110 (H-HS-HW-HSW) max. +120 (E)
Maximum working pressure [MPa]		1
Flange		UNI 2236
Counterflange (On request)		UNI 2247
Construction	Impeller	Closed centrifugal type
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction	Flange to DIN 2532 (50 mm - 65 mm - 80 mm)
	Discharge	Flange to DIN 2532 (32 mm - 40 mm - 50 mm - 65 mm)
Material	Casing	Cast iron
	Impeller	Cast iron/AISI 304 (see application page 301)
	Shaft seal	Ceramic/Carbon/NBR (for MD)
		Ceramic/Carbon/FPM (for MDH)
		SiC/SiC/FPM (for MDHS)
		Tungsten Carbide/Tungsten Carbide/FPM (for MDHW) Carbon/Ceramic/EPDM VBEGF (for MDE) * SiC/Tungsten Carbide/FPM (for MDHSW)
	Shaft	AISI 304 (part in contact with liquid)
	Bracket	Cast iron
Applicable standard of test		ISO 9906 - Annex A
MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 640/2009)	-	IE2 from 1.1 kW up to 22 kW
No. of Poles	2	
Rotation speed [min-1]	≈2900	
Insulation Class	F	
Protection degree (CEI EN 60034-5)	IP 55	
Power rating [kW]	1.1 ÷ 2.2	1.1 ÷ 22
	[HP]	1.5 ÷ 30
Frequency [Hz]	50	
Voltage [V]	230 ±10%	230/400 ±10% (up to 4 kW) 400/690 ±10% (5.5 kW and above)
	Capacitor	Built in
Over load protection	Built in	Provided by the user
Casing material	Aluminium	
Base material/motor support	Aluminium / Steel	
Dimensions of cable entry	PG 13.5 - PG 16 - PG 21 (see dimensions pages 400-401)	

* not for 32-160; 40-160; 50-160; 65-125.

SELECTION CHART

50Hz

Rev. N



SELECTION CHART

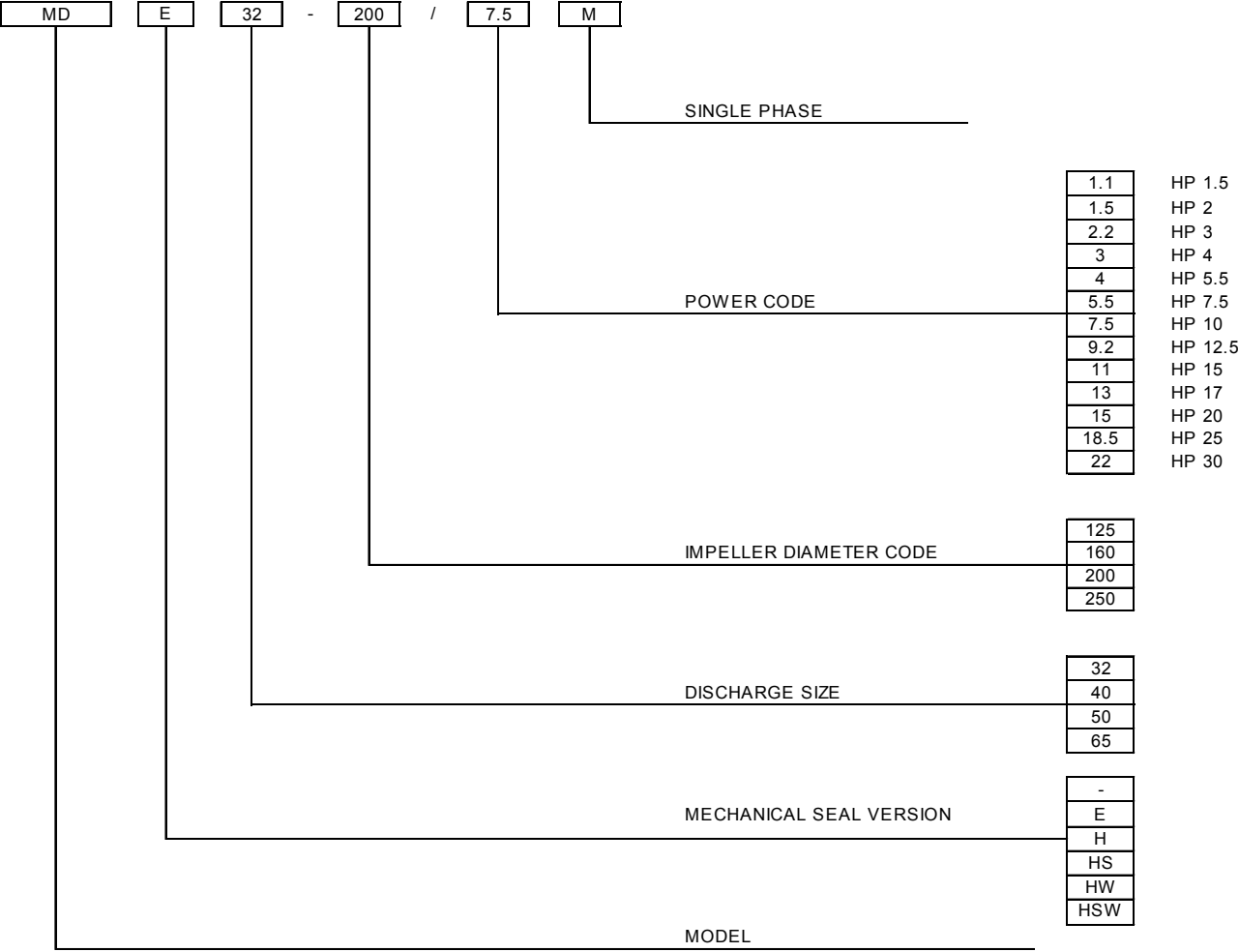
50Hz

Rev. N

Pump Type	Power		Q=Capacity																								
			l/min	0	100	200	250	280	320	400	550	600	667	700	800	1000	1100	1150	1200	1300	1400	1900	2000	2200	2300	2400	
	[kW]	[HP]	m³/h	0	6	12	15	17	19	24	33	36	40	42	48	60	66	69	72	78	84	114	120	132	138	144	
	H=Total manometric head in meters																										
MD 32-125/1.1 (M)	1.1	1.5	23	22.5	20.5	18.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-125/1.5 (M)	1.5	2	24	23.5	21.5	19.7	18.5	16.6	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-160/1.5 (M)	1.5	2	28	27	24	22	20.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-160/2.2 (M)	2.2	3	35.5	34.5	32	30	28.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-200/3.0	3	4	43	41	36.5	33	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-200/4.0	4	5.5	52	50.5	47	44.5	42.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-250/5.5	5.5	7.5	58	56.5	53	50.4	48.6	45.7	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-250/7.5	7.5	10	71.5	70	67.1	64.5	62.7	60	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-250/9.2	9.2	12.5	82.5	81.2	78.2	75.8	74	71.4	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 32-250/11	11	15	91	89	86	84	82	79	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-125/1.5 (M)	1.5	2	20	19.5	18.4	17.7	17.2	16.5	14.6	10.3	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-125/2.2 (M)	2.2	3	25.5	25	23.5	23	22.5	22	20.5	16.9	15.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-160/3.0	3	4	31.5	30.5	29	28	27.5	26.5	25	21	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-160/4.0	4	5.5	39	38	36.5	36	35.5	35	33	29.5	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-200/5.5	5.5	7.5	48.5	48	47	46	45.5	44.5	42.5	37.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-200/7.5	7.5	10	58	57.5	56.5	55.5	55	54.5	52.5	47.5	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-250/11	11	15	75	-	74	73	72.2	71	68.2	60.1	56.3	49.8	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-250/13	13	17.5	85.1	-	84	83.2	82.5	81.4	78.6	71.1	67.7	62.1	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 40-250/15	15	20	93.8	-	92.7	92.1	91.7	90.8	88.1	81.2	78	72.9	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 50-125/2.2 (M)	2.2	3	17.5	-	-	-	-	-	16	14.8	14.3	13.5	13.1	11.7	8.5	-	-	-	-	-	-	-	-	-	-	-	-
MD 50-125/3.0	3	4	21	-	-	-	-	-	19.5	18.6	18.2	17.6	17.3	16.1	13	-	-	-	-	-	-	-	-	-	-	-	-
MD 50-125/4.0	4	5.5	25.5	-	-	-	-	-	24	23	23	22	21.7	21	17.8	16	-	-	-	-	-	-	-	-	-	-	-
MD 50-160/5.5	5.5	7.5	33.5	-	-	-	-	-	32.5	31	30.5	30	29.6	28	24.5	22.5	-	-	-	-	-	-	-	-	-	-	-
MD 50-160/7.5	7.5	10	39	-	-	-	-	-	38	37	36.5	35.5	35.1	34	31	29	28	27	-	-	-	-	-	-	-	-	-
MD 50-200/9.2	9.2	12.5	50	-	-	-	-	-	48	46	45	44	43.4	41	36	33	-	-	-	-	-	-	-	-	-	-	-
MD 50-200/11	11	15	56	-	-	-	-	-	54.5	53	52	51	50.4	48.5	43.5	40.5	39	37	-	-	-	-	-	-	-	-	-
MD 50-250/15	15	20	72.8	-	-	-	-	-	71.2	69.2	68.2	66.6	65.7	62.6	54.2	49	46.1	43	-	-	-	-	-	-	-	-	-
MD 50-250/18.5	18.5	25	82.8	-	-	-	-	-	81.5	79.5	78.5	77	76.1	73.2	66	61.4	58.9	56.1	50	-	-	-	-	-	-	-	-
MD 50-250/22	22	30	93	-	-	-	-	-	91.6	89.7	88.9	87.6	86.9	84.3	77.4	73	70.4	67.7	61.5	-	-	-	-	-	-	-	-
MD 65-125/5.5	5.5	7.5	24	-	-	-	-	-	-	-	-	23.2	23	22.9	22.5	21.5	20.50	20.50	20	19.1	18.2	12.5	-	-	-	-	-
MD 65-125/7.5	7.5	10	27.5	-	-	-	-	-	-	-	-	26.5	26	25.8	25.5	24.5	24	23.5	23	22.2	21.5	16.3	15	-	-	-	-
MD 65-160/11	11	15	34.5	-	-	-	-	-	-	-	-	-	34	33.9	33.5	33	32.5	32	32	31.4	30.5	26.5	25.5	23	22	-	-
MD 65-160/15	15	20	39	-	-	-	-	-	-	-	-	-	-	-	38	37.5	37	36.5	36.5	35.9	35	31	30.5	28.5	27	26	-
MD 65-200/18.5	18.5	25	55	-	-	-	-	-	-	-	-	-	-	-	53.5	52.5	51.5	51	50.5	49.5	48.5	42	40.5	37	-	-	-
MD 65-200/22	22	30	61	-	-	-	-	-	-	-	-	-	-	-	59.5	58.5	58	57.5	57	56.2	55.5	50	49	46	-	-	-

The performances of single-phase and three-phase are the same

TYPE KEY:



PERFORMANCE CURVE SPECIFICATIONS

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

Tolerances according to ISO 9906 Annex A

The curves refer to effective speed of asynchronous motors at 60 Hz

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.

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.

Symbols explanation:

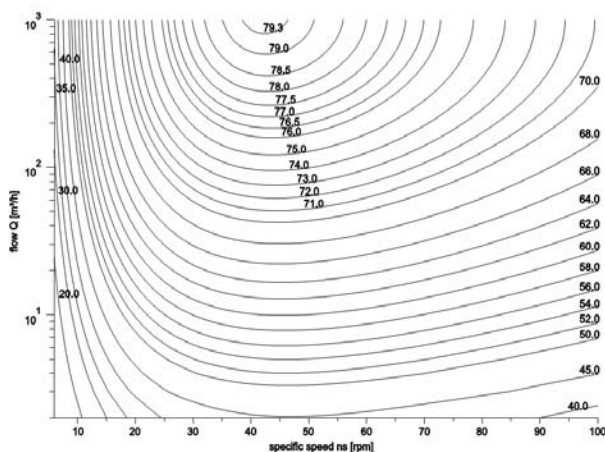
- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump
- MEI = minimum efficiency index

The minimum efficiency index (MEI) is a measure of the quality of a pump size in respect to its mean efficiency. The minimum efficiency index is based on the hydraulic efficiency and on the head at the best efficiency point.

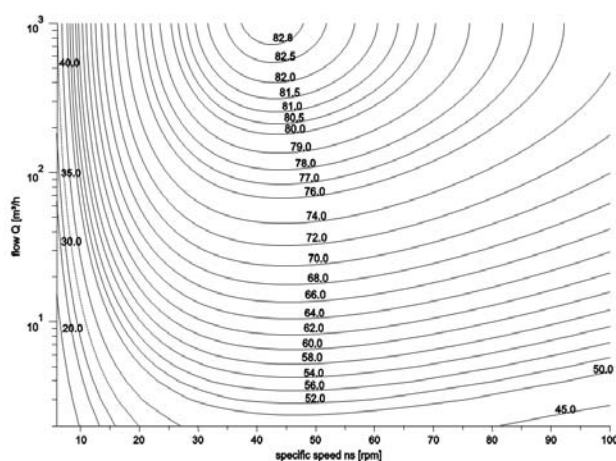
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

The operation of these water pumps with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.

MEI = 0.4 for Multistage Vertical 2900rpm

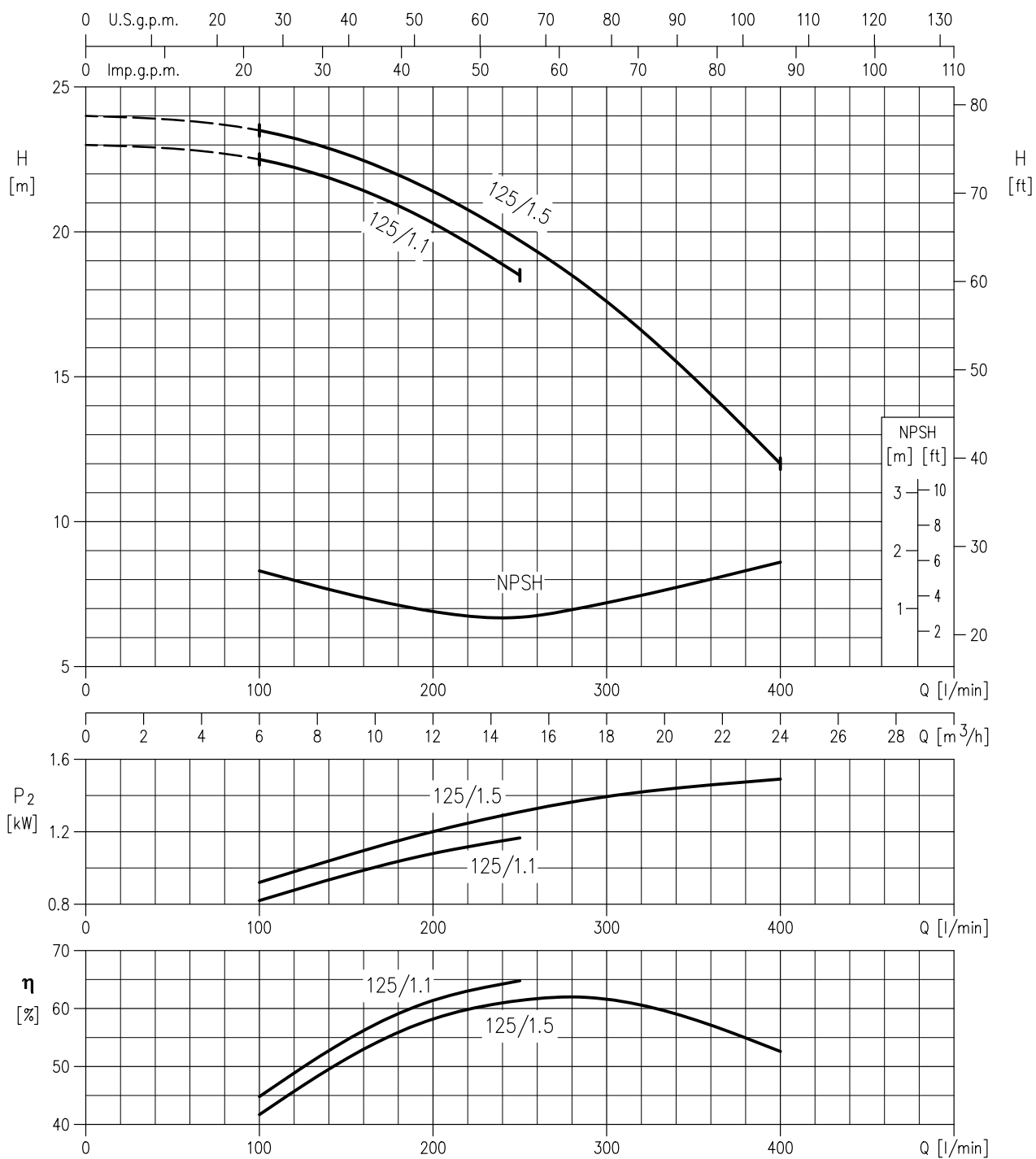


MEI=0.7 for Multistage Vertical 2900 rpm



MD 32-125/1.1 (1.1 kW) MEI > 0.40 – Impeller diameter = 131 mm

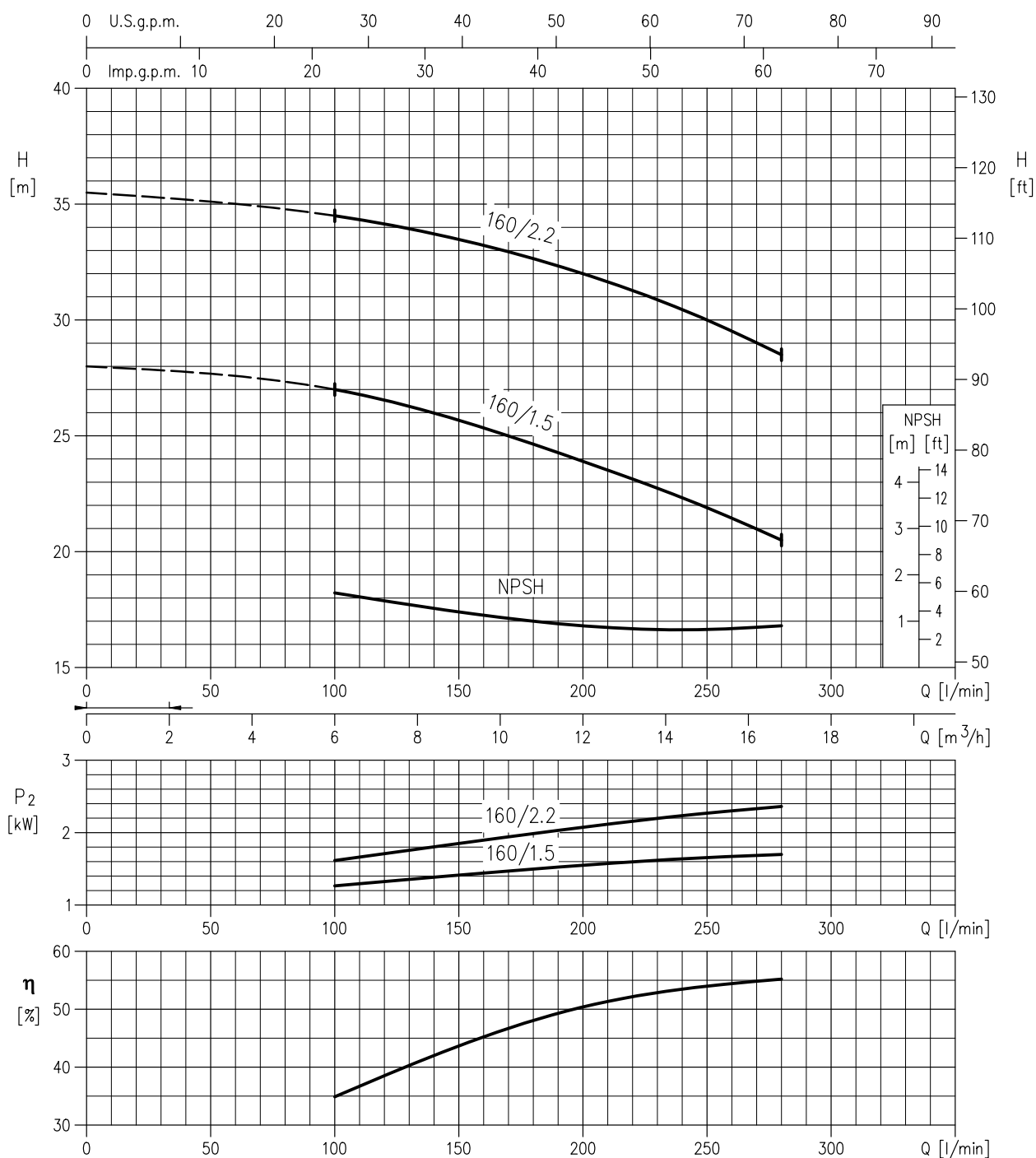
MD 32-125/1.5 (1.5 kW) MEI > 0.40 – Impeller diameter = 134 mm



Rotation speed $\approx 2900 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

MD 32-160/1.5 (1.5 kW) MEI > 0.40 – Impeller diameter = 148 mm

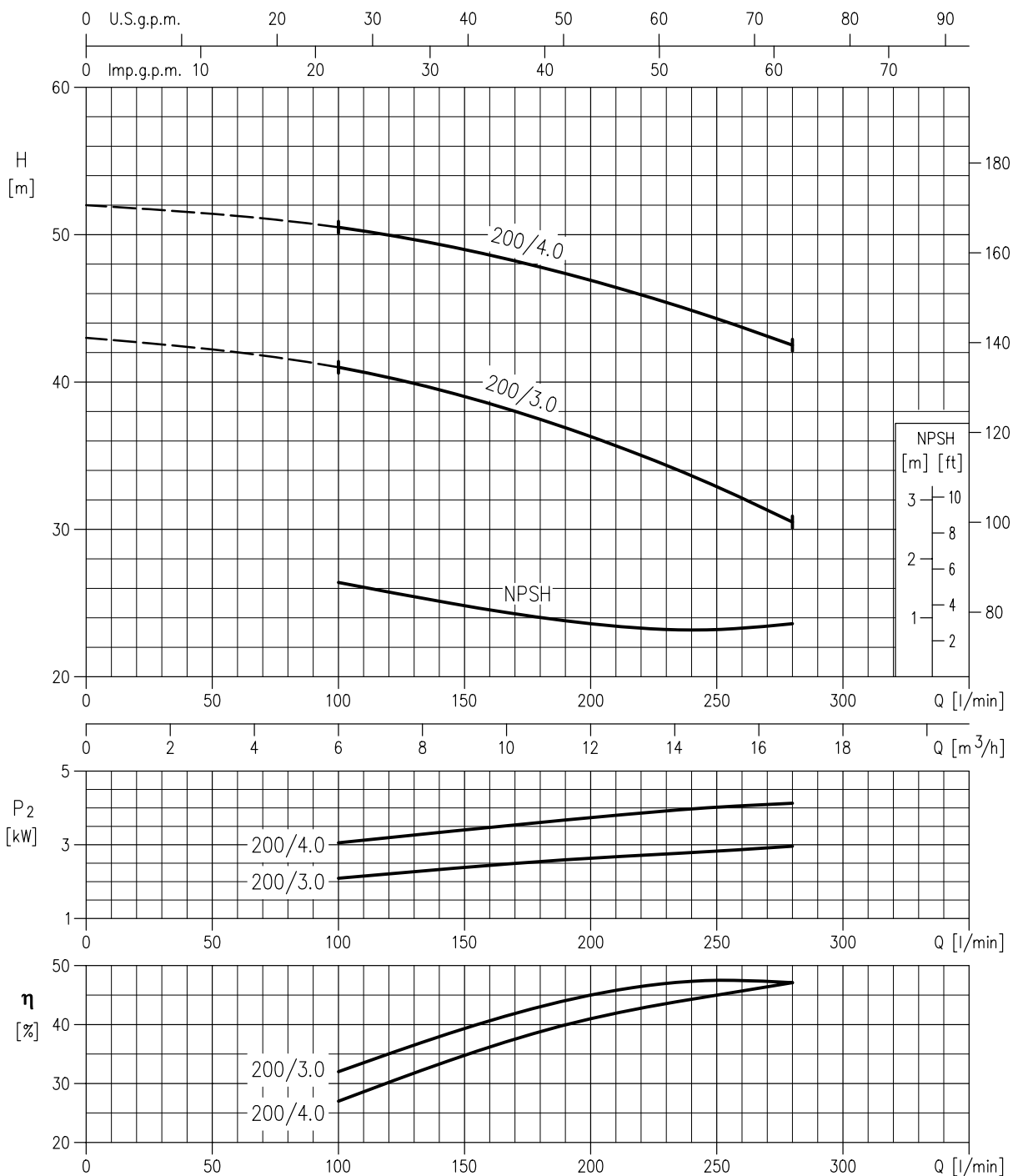
MD 32-160/2.2 (2.2 kW) MEI > 0.40 – Impeller diameter = 163 mm



Rotation speed $\approx 2900 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

MD 32-200/3.0 (3.0 kW) MEI > 0.40 – Impeller diameter = 180 mm

MD 32-200/4.0 (4.0 kW) MEI > 0.40 – Impeller diameter = 195 mm



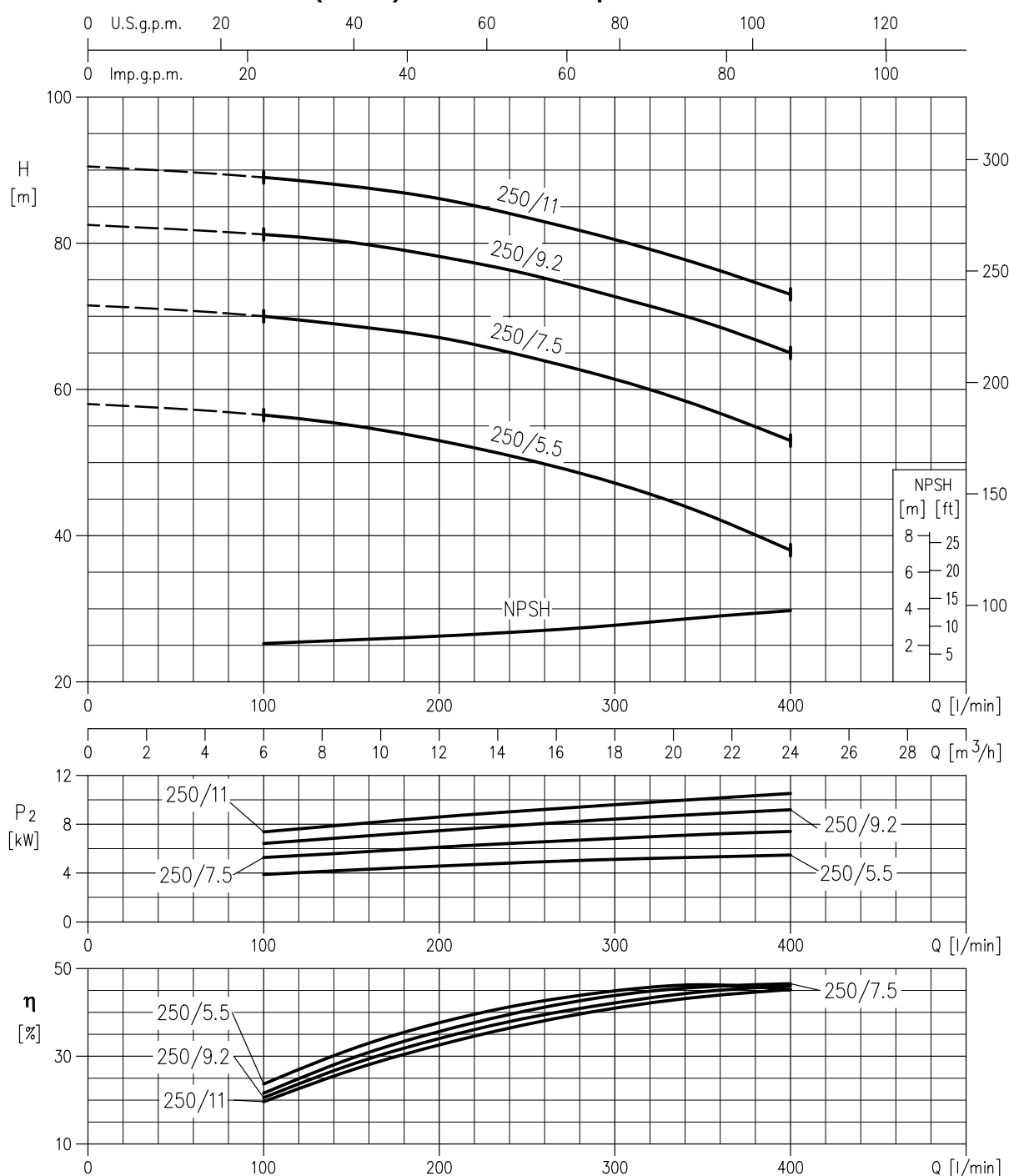
Rotation speed $\approx 2900 \text{ min}^{-1}$
Test standard: ISO 9906 – Annex A

MD 32-250/5.5 (5.5 kW) MEI > 0.70 – Impeller diameter = 218 mm

MD 32-250/7.5 (7.5 kW) MEI > 0.70 – Impeller diameter = 240 mm

MD 32-250/9.2 (9.2 kW) MEI > 0.70 – Impeller diameter = 254 mm

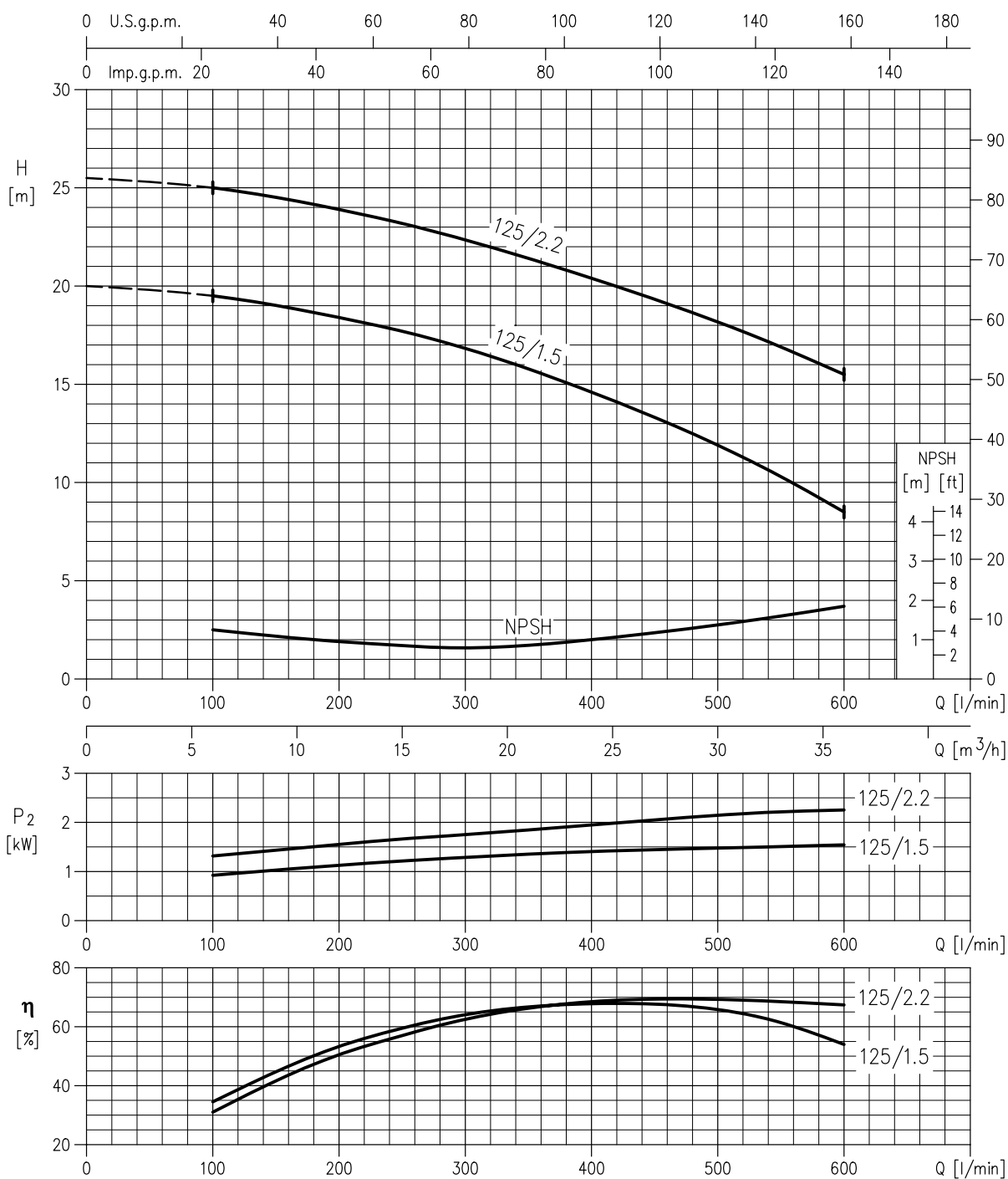
MD 32-250/11 (11 kW) MEI > 0.70 – Impeller diameter = 265 mm



Rotation speed $\approx 2900 \text{ min}^{-1}$
Test standard: ISO 9906 – Annex A

MD 40-125/1.5 (1.5 kW) MEI > 0.40 – Impeller diameter = 126 mm

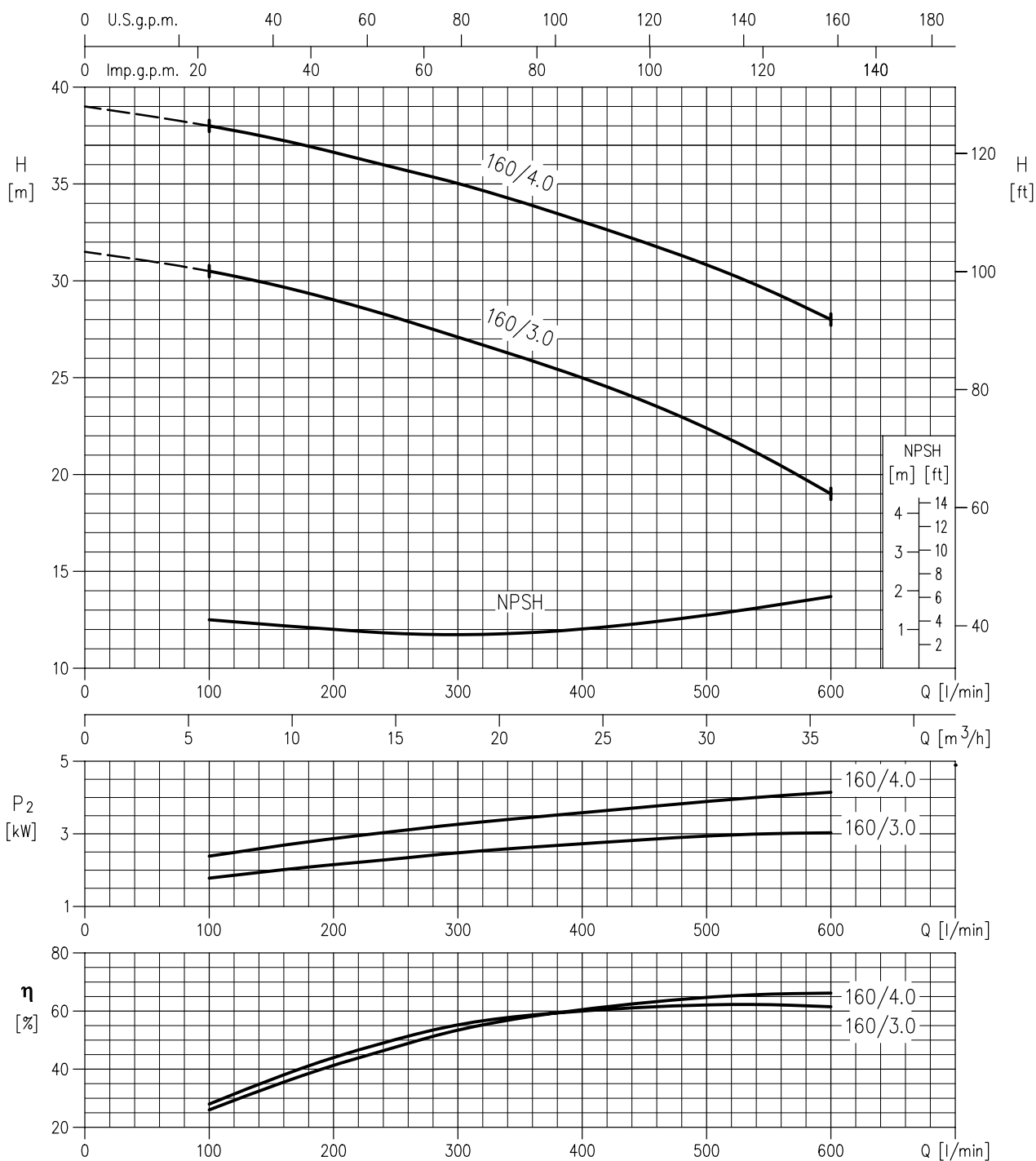
MD 40-125/2.2 (2.2 kW) MEI > 0.40 – Impeller diameter = 138 mm



Rotation speed $\approx 2900 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

MD 40-160/3.0 (3.0 kW) MEI > 0.20 – Impeller diameter = 154.5 mm

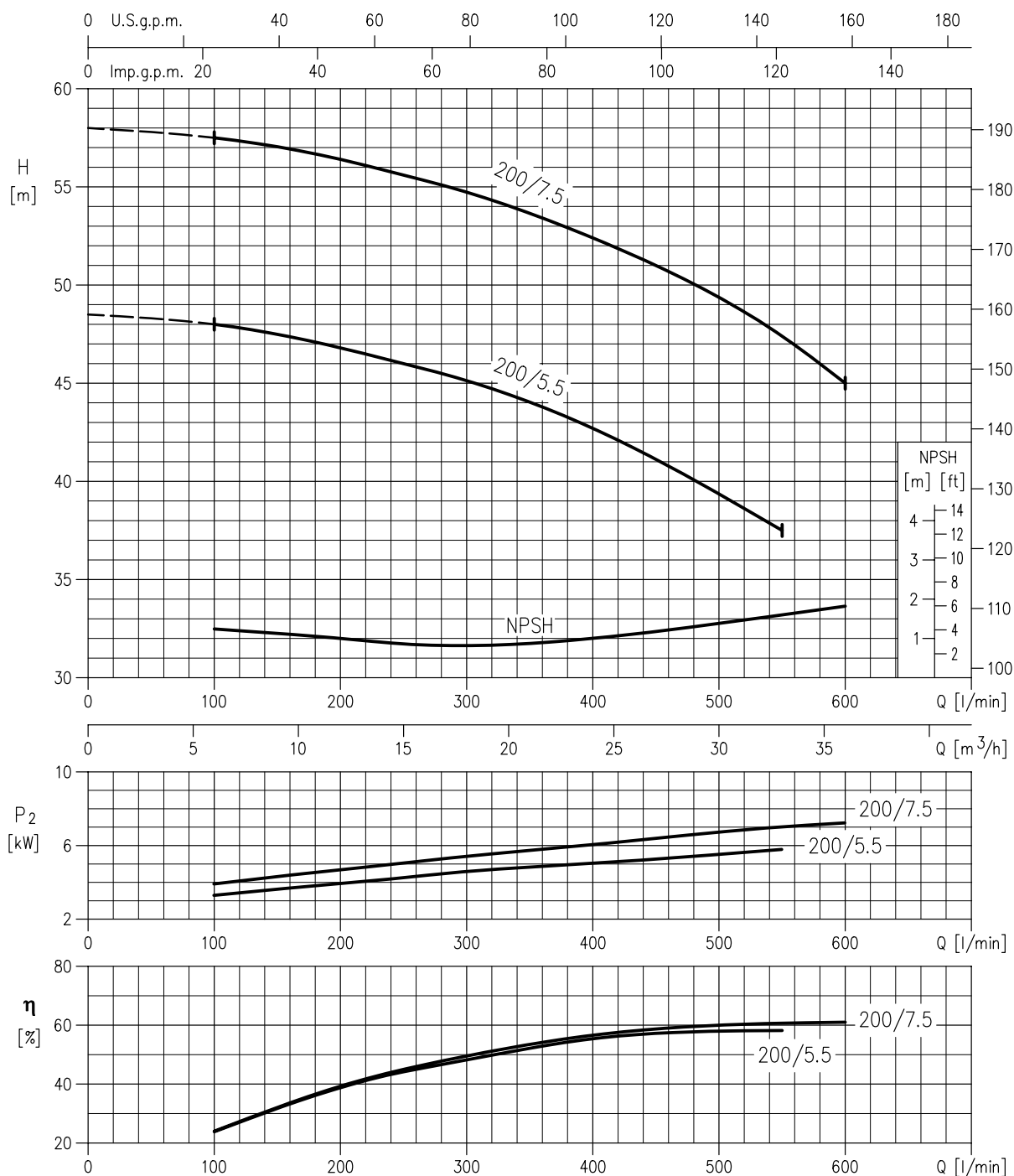
MD 40-160/4.0 (4.0 kW) MEI > 0.20 – Impeller diameter = 168 mm



Rotation speed $\approx 2900 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

MD 40-200/5.5 (5.5 kW) MEI > 0.30 – Impeller diameter = 187 mm

MD 40-200/7.5 (7.5 kW) MEI > 0.30 – Impeller diameter = 203 mm

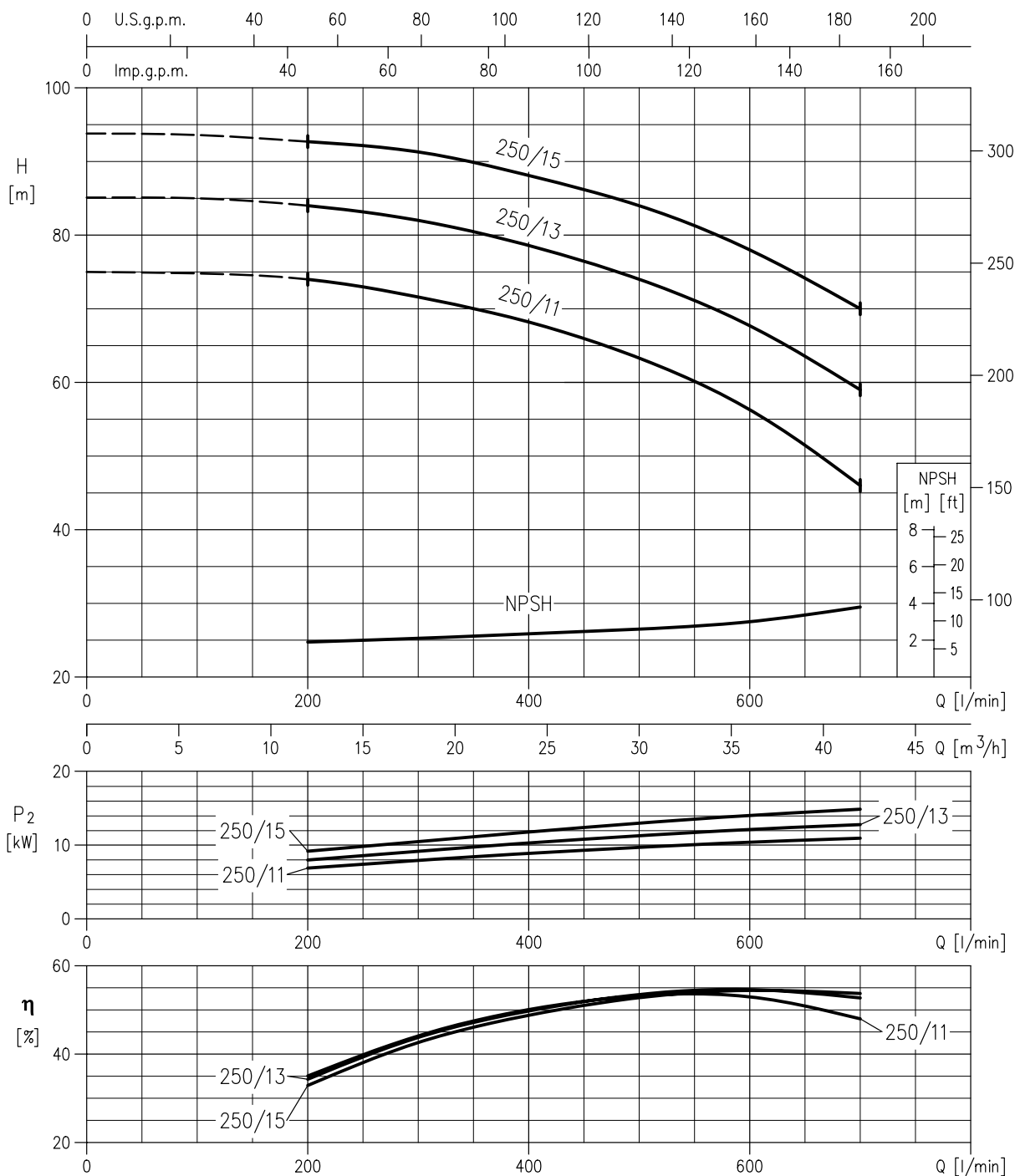


Rotation speed $\approx 2900 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

MD 40-250/11 (11 kW) MEI > 0.70 – Impeller diameter = 236 mm

MD 40-250/13 (13 kW) MEI > 0.70 – Impeller diameter = 248 mm

MD 40-250/15 (15 kW) MEI > 0.70 – Impeller diameter = 259 mm

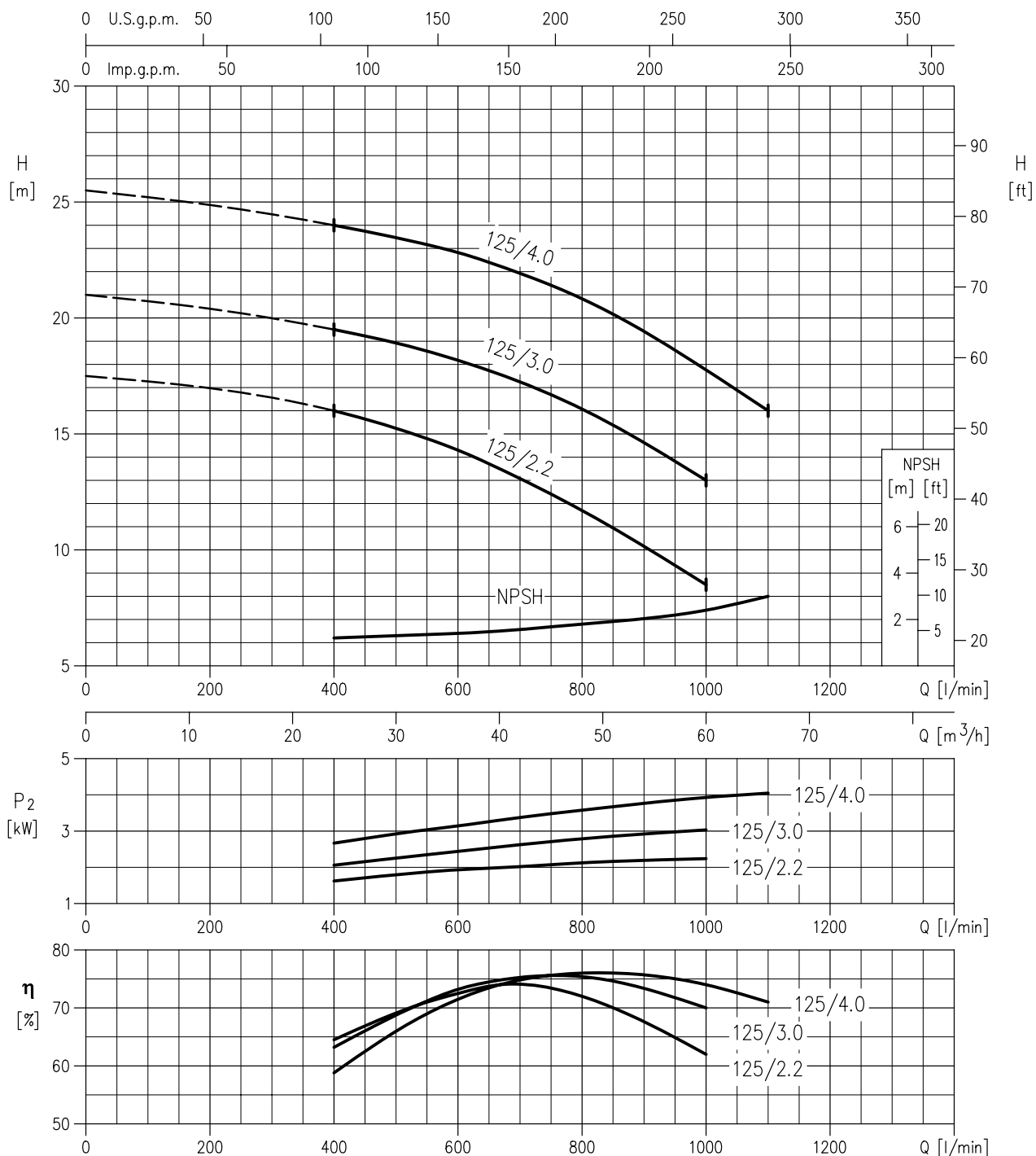


Rotation speed $\approx 2900 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

MD 50-125/2.2 (2.2 kW) MEI > 0.60 – Impeller diameter = 117 mm

MD 50-125/3.0 (3.0 kW) MEI > 0.60 – Impeller diameter = 125 mm

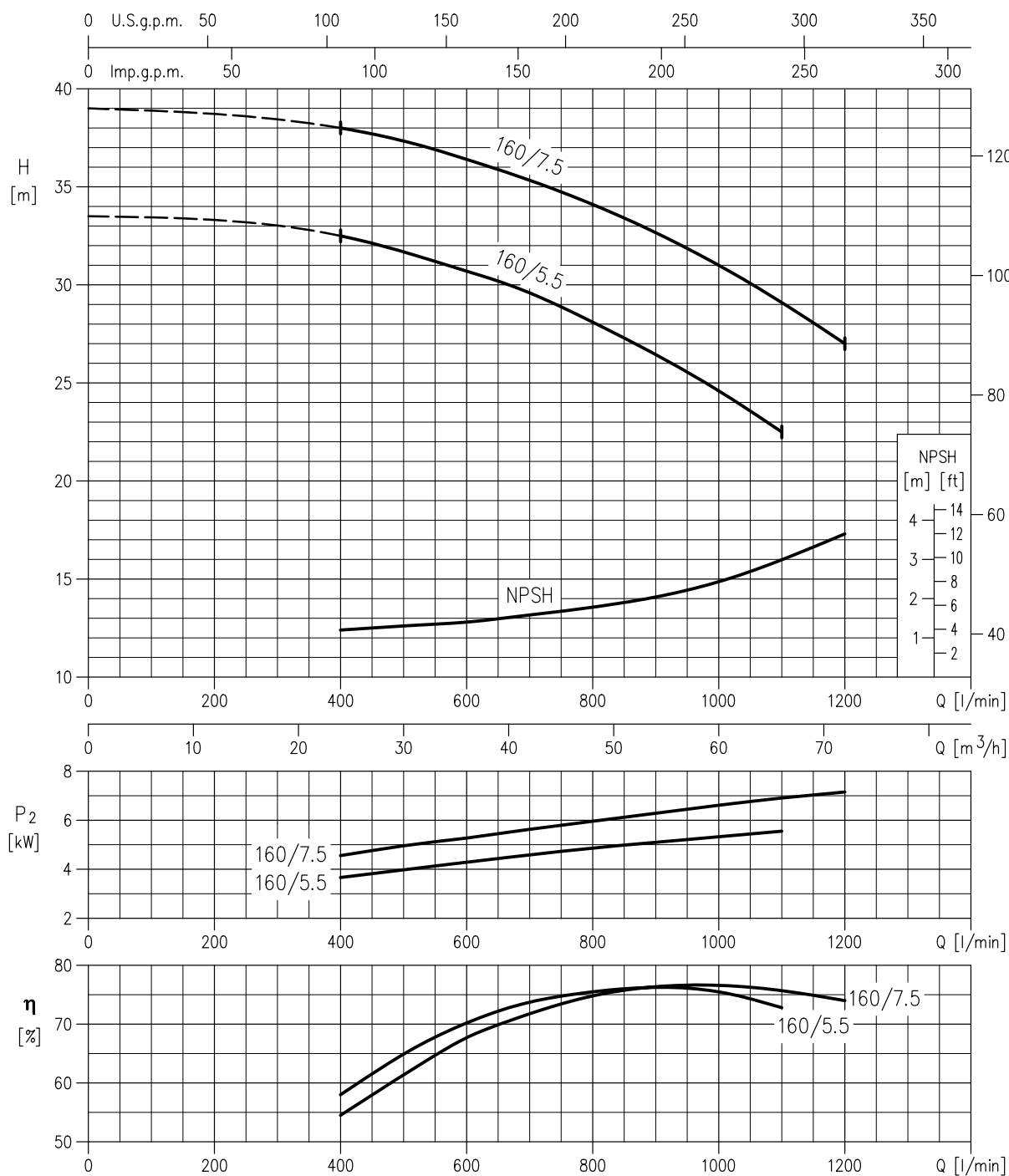
MD 50-125/4.0 (4.0 kW) MEI > 0.60 – Impeller diameter = 135 mm



Rotation speed $\approx 2900 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

MD 50-160/5.5 (5.5 kW) MEI > 0.70 – Impeller diameter = 155 mm

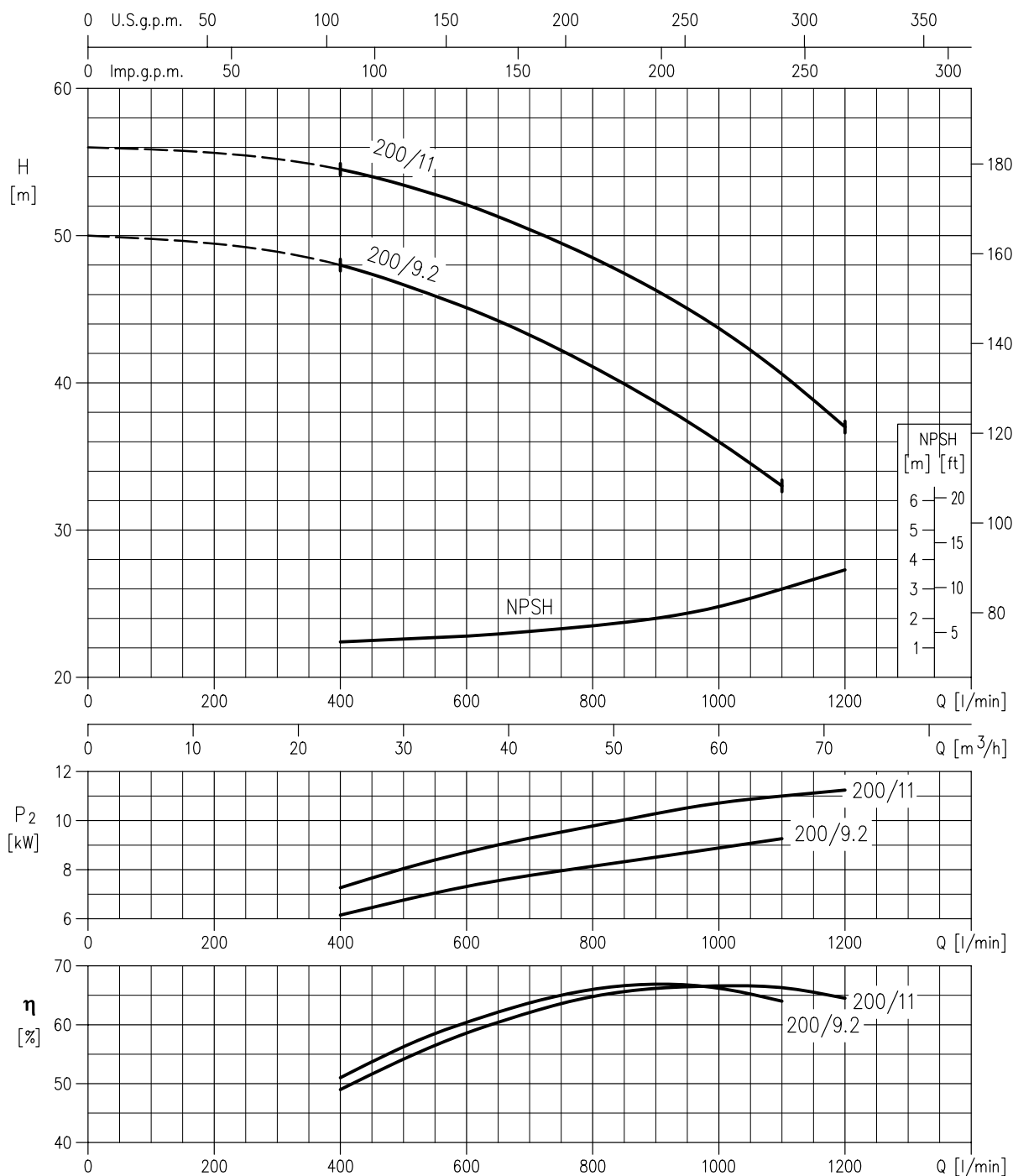
MD 50-160/7.5 (7.5 kW) MEI > 0.70 – Impeller diameter = 166 mm



Rotation speed ≈ 2900 min⁻¹
 Test standard: ISO 9906 – Annex A

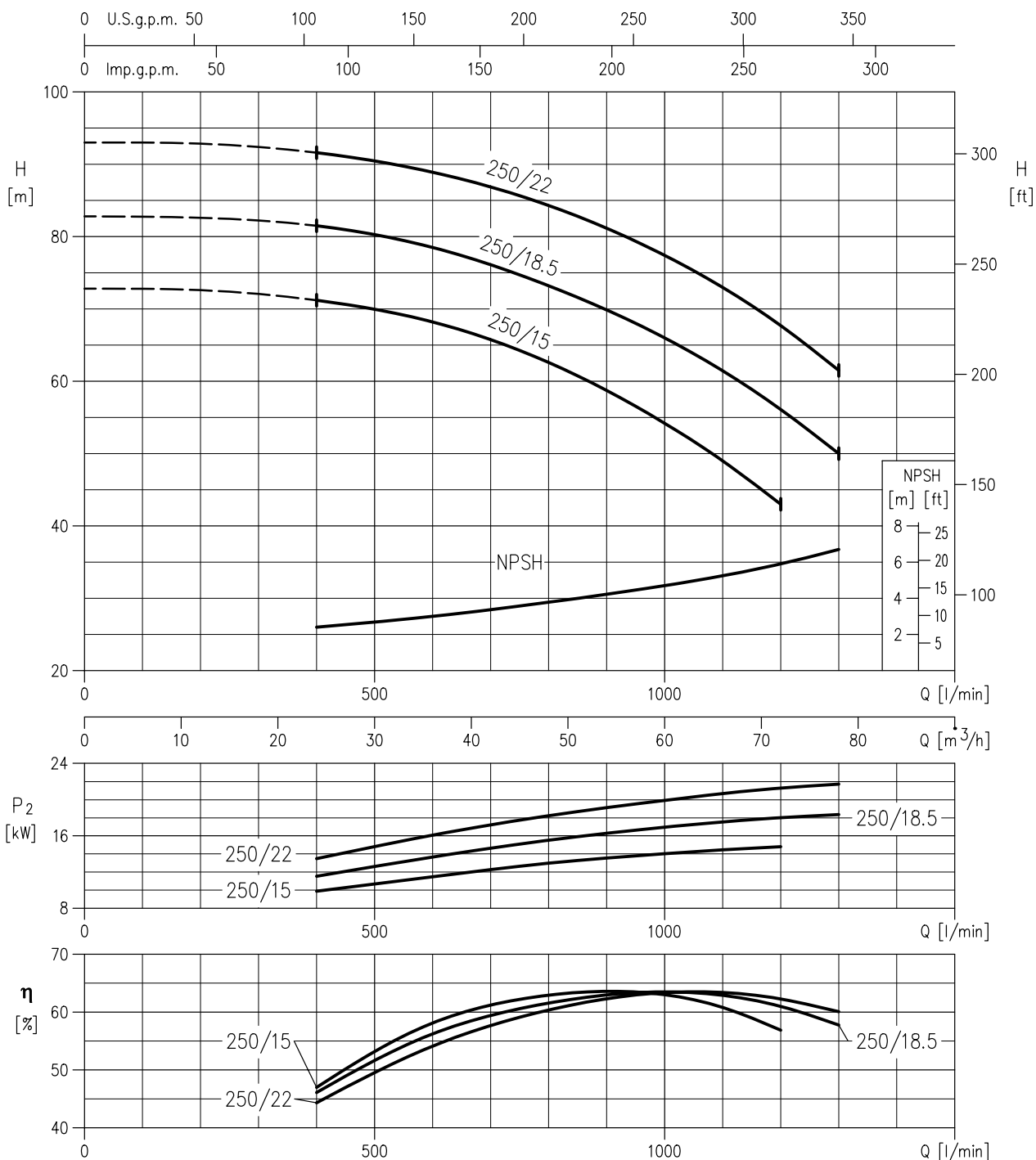
MD 50-200/9.2 (9.2 kW) MEI > 0.70 – Impeller diameter = 191 mm

MD 50-200/11 (11 kW) MEI > 0.70 – Impeller diameter = 200 mm



Rotation speed ≈ 2900 min⁻¹
 Test standard: ISO 9906 – Annex A

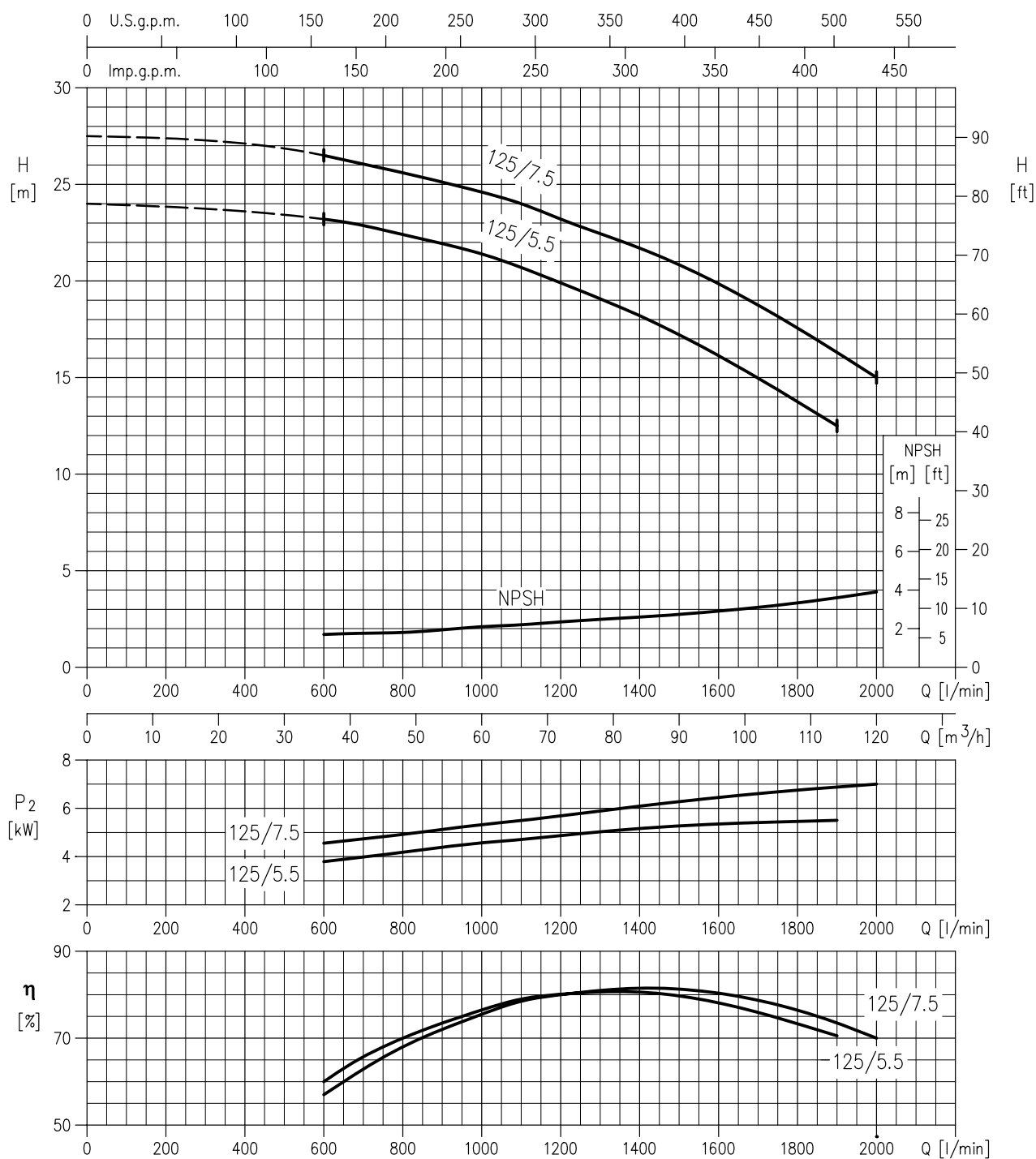
MD 50-250/15 (15 kW) MEI > 0.40 – Impeller diameter = 234 mm
 MD 50-250/18.5 (18.5 kW) MEI > 0.40 – Impeller diameter = 248 mm
 MD 50-250/22 (22 kW) MEI > 0.40 – Impeller diameter = 261 mm



Rotation speed ≈ 2900 min⁻¹
 Test standard: ISO 9906 – Annex A

MD 65-125/5.5 (5.5 kW) MEI > 0.70 – Impeller diameter = 135 mm

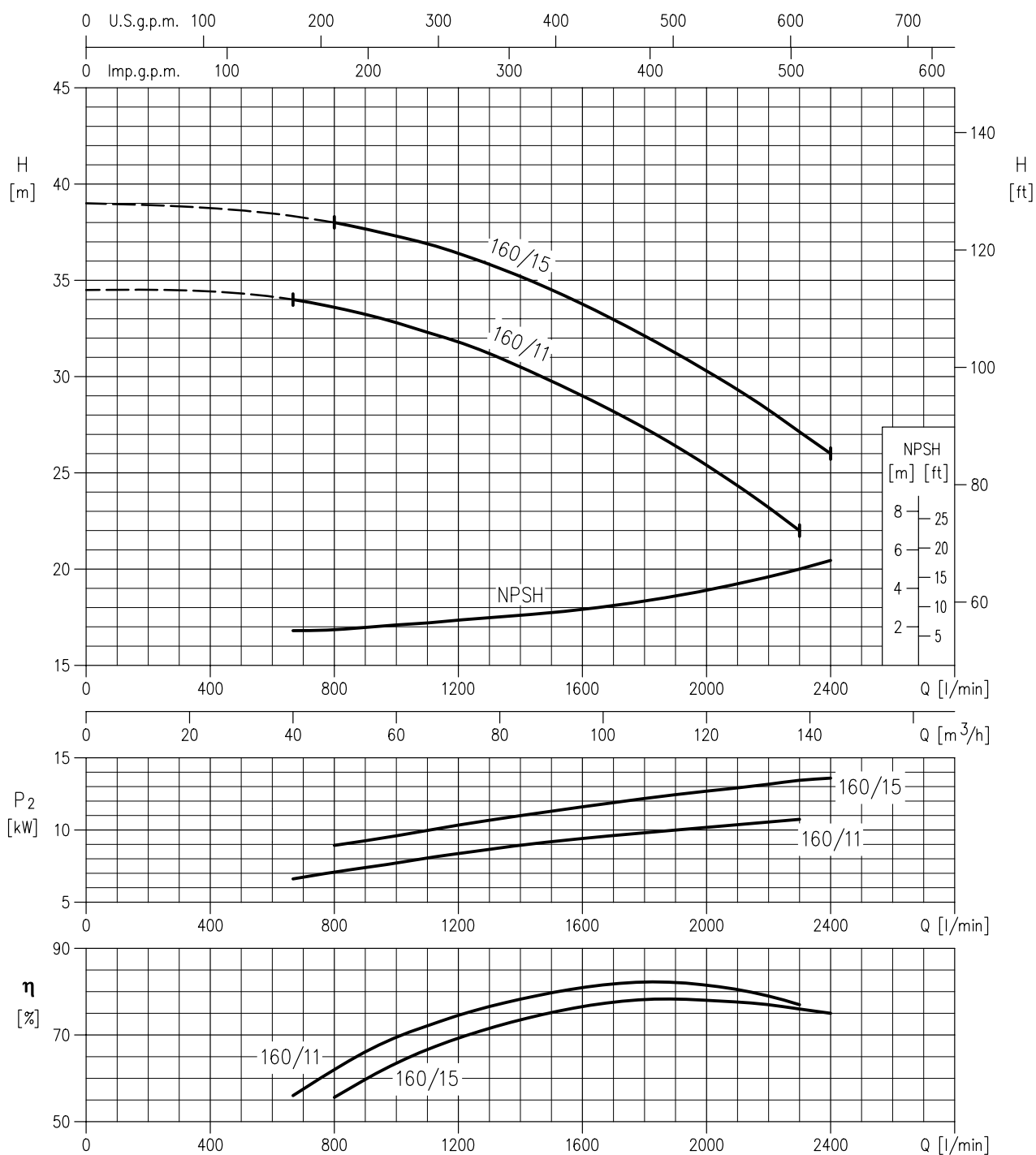
MD 65-125/7.5 (7.5 kW) MEI > 0.70 – Impeller diameter = 142 mm



Rotation speed ≈ 2900 min⁻¹
 Test standard: ISO 9906 – Annex A

MD 65-160/11 (11 kW) MEI > 0.40 – Impeller diameter = 161.5 mm

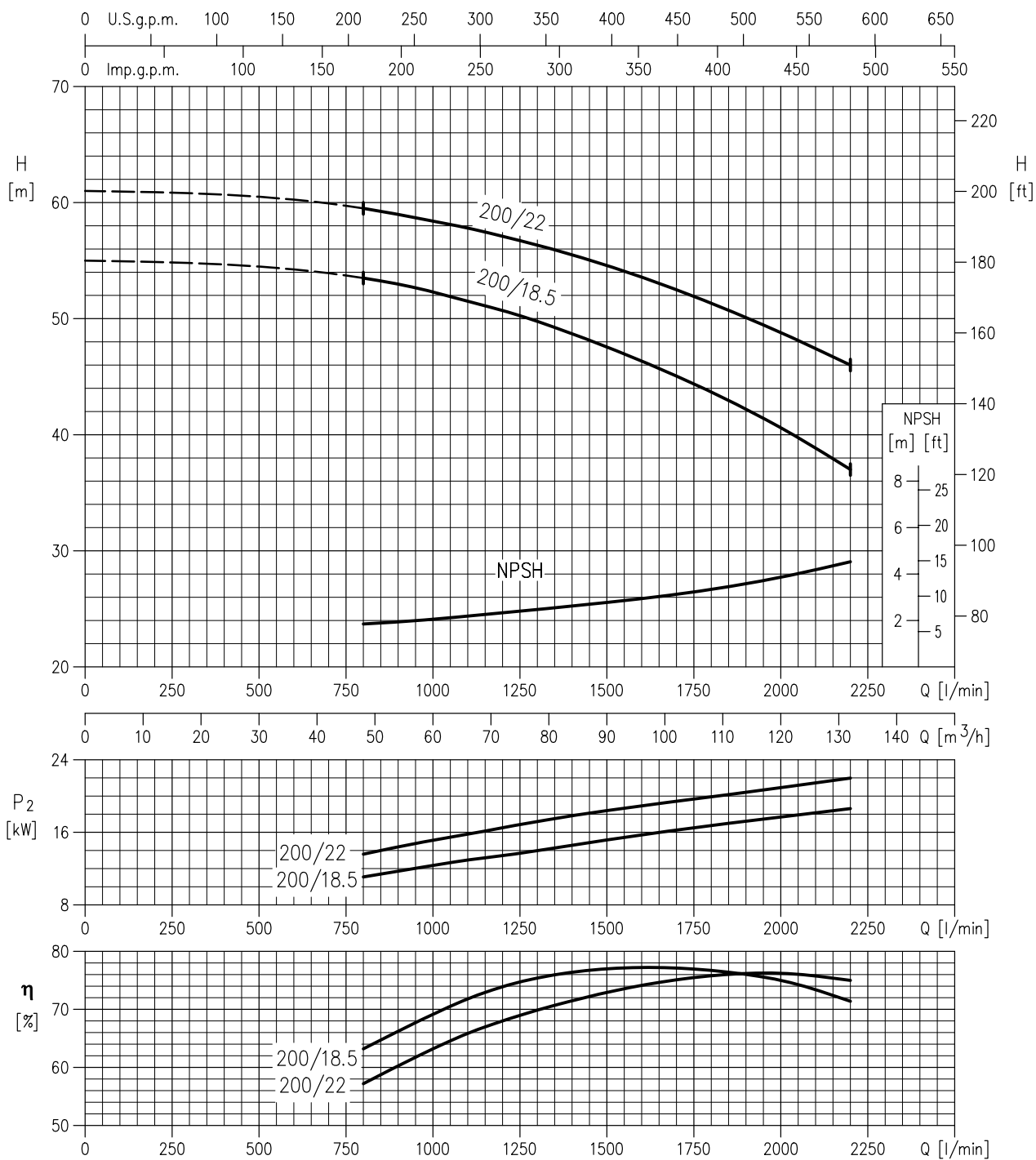
MD 65-160/15 (15 kW) MEI > 0.40 – Impeller diameter = 169 mm



Rotation speed ≈ 2900 min⁻¹
 Test standard: ISO 9906 – Annex A

MD 65-200/18.5 (18.5 kW) MEI > 0.40 – Impeller diameter = 196 mm

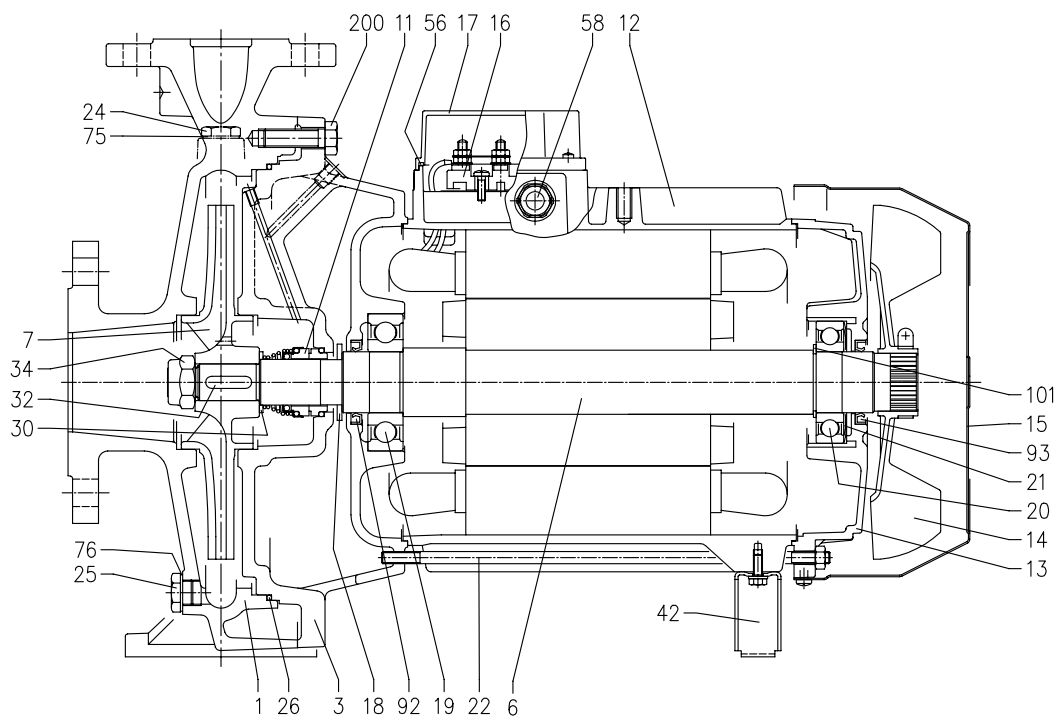
MD 65-200/22 (22 kW) MEI > 0.40 – Impeller diameter = 206 mm



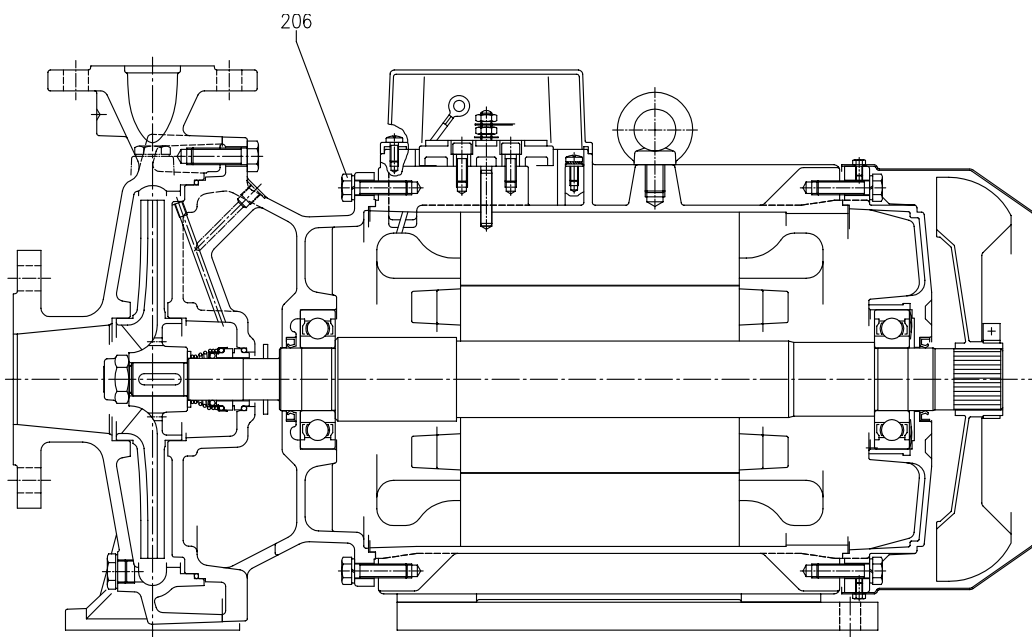
Rotation speed ≈ 2900 min⁻¹
 Test standard: ISO 9906 – Annex A

SECTIONAL VIEW DRAWING

UP TO 13 kW



15 kW AND ABOVE (NO 65-160/15)



SECTIONAL VIEW TABLE

N°	PART NAME	MATERIAL	DIMENSIONS	STANDARD	N. FOR 1 UNIT
1	Casing	Cast iron EN-GJL-200-EN 1561			1
3	Motor bracket	Cast iron EN-GJL-200-EN 1561			1
6	Shaft with rotor	AISI 304 (Part in contact with liquid)			1
7	Impeller	Md xx-125, Md xx-160, Md xx-200 Md xx-250	Cast iron EN-GJL-200-EN 1561 AISI 304		1
11	Mechanical seal [3]	Carbon/Ceramic/NBR			1
12	Motor frame with stator	-			1
13	Motor cover	Aluminium			1
14	Fan	PP			1
15	Fan cover	Fe P04 Galvanized			1
16	Terminal box	-			1
17	Terminal box cover	Plastic [1] - Aluminium [2]			1
18	Splash ring	Up to 7.5 kW 9.2 kW and above	NBR	40x21.5x3 50x29.5x3	EPE DRAWING 1
19	Pump side ball bearing	-	See table p.302		1
20	Fan side ball bearing	-	See table p.302		1
21	Adjusting ring	Steel C70			1
22	Tie rod	Up to 13 kW and MD 65-160/15	Fe 42 Galvanized	EPE DRAWING	4
	Screw	15kW and above	Gv. steel 8.8 strenght class ISO 898/1	UNI 5739	
24	Priming plug	Brass		EPE DRAWING	1
25	Drain plug	Brass		EPE DRAWING	1
26	O-ring	Md xx-125 Md xx-160 Md xx-200 Md xx-250	NBR [4]	147x3,53 176x3,53 220x3,53 277x3,53	EPE DRAWING 1
30	Spacer	AISI 304	22,5x26,9x2,5 (up to 7,5kW) 30,5x40x2,5 (9,2 kW and above)	EPE DRAWING	1
32	Key	AISI 316	6x6x25 (up to 7,5kW) 8x7x30 (9,2 kW and above)	UNI 6604	1
34	Impeller nut	AISI 304	M16x1,5 (up to 7,5kW) M20x1,5 (9,2 kW and above)	UNI 7474	1
42	Foot	Fe P04		EPE DRAWING	1
56	Box gasket	NBR			1
58	Cable entry[2]	-			1
75	Washer	Aluminium	Ø 17 - G3/8		1
76	Washer	Aluminium	Ø 17 - G3/8		1
85*	Kit counterflange	Flange Screw for flange Gasket	Galvanized steel AISI 304 EPDM	See table p.306 M16x55 See table p.306	EPE DRAWING UNI 5737 2
92	Lip seal	Up to 3 kW From 4 to 7,5 kW From 9,2 to 13 kW and 65-160/15 From 15 to 22 kW	-	25x40x7 30x47x7 40x55x7 45x60x7	DIN 3760 without spring 1
93	Lip seal	Up to 4 kW From 5,5 to 7,5 kW From 9,2 to 13 kW and 65-160/15 From 15 to 22 kW	-	25x40x7 30x47x7 40x55x7 45x60x7	DIN 3760 without spring 1
101	Snap ring (only for 9,2-11-13 kW)	Carbon tool steels TC 80	Ø 40	UNI 7435	1
200	Screw	Md xx-125 Md xx-160 Md xx-200 Md xx-250	Gv. steel 8.8 strenght class ISO 898/1	M8x30 M10x35 M12x40	UNI 5739 8 10 12 12
206	Screw	From 15kW and above (no 65-160/15)	Gv. steel 8.8 strenght class ISO 898/1	M10x40	UNI 5739 4

[1] Only for single-phase

[2] Only for three-phase

[3] See constructions mechanical seal p. 303

*On request

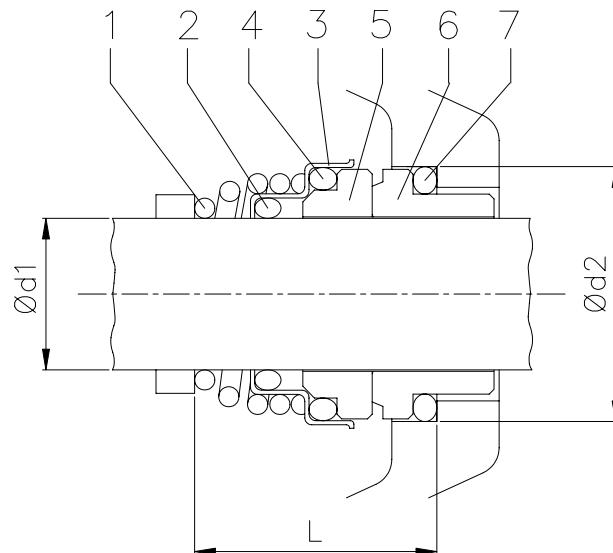
[4] FPM for H-HS-HW-HSW version

EPDM for E version

BEARINGS

Pump type	Ball Bearing	
	Pump side	Fan side
MD 32-125/1.1 (M)	6205 2RSH	6205 2RSH
MD 32-125/1.5 (M)		
MD 32-160/1.5 (M)		
MD 32-160/2.2 (M)		
MD 32-200/3.0	6206 2RS1	6205 2RSH
MD 32-200/4.0		
MD 32-250/5.5		
MD 32-250/7.5	6306 2RS1	6206 2RS1
MD 32-250/9.2		
MD 32-250/11		
MD 40-125/1.5 (M)	6205 2RSH	6205 2RSH
MD 40-125/2.2 (M)		
MD 40-160/3.0		
MD 40-160/4.0		
MD 40-200/5.5	6306 2RS1	6206 2RS1
MD 40-200/7.5		
MD 40-250/11		
MD 40-250/13	6308 2RS1	6208 2RS1
MD 40-250/15		
MD 50-125/2.2 (M)		
MD 50-125/3.0	6205 2RSH	6205 2RSH
MD 50-125/4.0		
MD 50-160/5.5		
MD 50-160/7.5	6306 2RS1	6206 2RS1
MD 50-200/9.2		
MD 50-200/11		
MD 50-250/15	6308 2RS1	6208 2RS1
MD 50-250/18,5		
MD 50-250/22		
MD 65-125/5.5	6309 2RS1	6309 2RS1
MD 65-125/7.5		
MD 65-160/11		
MD 65-160/15	6306 2RS1	6206 2RS1
MD 65-200/18.5		
MD 65-200/22		

MECHANICAL SEAL



Pump type	Dimensions mm			Pump type	Dimensions mm		
	Ø d1	Ø d2	L		Ø d1	Ø d2	L
MD 32-125/1.1 (M)	22	37	37.5	MD 40-250/15	30	45	42.5
MD 32-125/1.5 (M)				MD 50-125/2.2 (M)	22	37	37.5
MD 32-160/1.5 (M)				MD 50-125/3.0	22	37	37.5
MD 32-160/2.2 (M)				MD 50-125/4.0			
MD 32-200/3.0				MD 50-160/5.5			
MD 32-200/4.0				MD 50-160/7.5	30	45	42.5
MD 32-250/5.5				MD 50-200/9.2			
MD 32-250/7.5	30	45	42.5	MD 50-200/11			
MD 32-250/9.2				MD 50-250/15	22	37	37.5
MD 32-250/11				MD 50-250/18,5			
MD 40-125/1.5 (M)	22	37	37.5	MD 50-250/22	30	45	42.5
MD 40-125/2.2 (M)				MD 65-125/5.5			
MD 40-160/3.0				MD 65-125/7.5			
MD 40-160/4.0				MD 65-160/11			
MD 40-200/5.5				MD 65-160/15			
MD 40-200/7.5				MD 65-200/18.5			
MD 40-200/7.6	22	37	37.5	MD 65-200/22	22	37	37.5
MD 40-200/7.7	22	37	37.5	MD 65-200/18,5			
MD 40-250/11	30	45	42.5	MD 65-200/22			
MD 40-250/13							

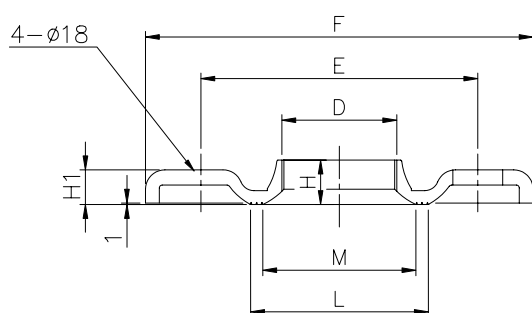
REF	PART NAME	Standard version (MD)	MATERIAL				
			(MDH)	(MDHS)	Optional (MDHW)	(MDE) [1]	(HSW)
1	Self driving spring	AISI 316	AISI 316	AISI 316	AISI 316	AISI 316	AISI 316
2	O Ring	NBR	FPM	FPM	FPM	EPDM	FPM
3	Frame	AISI 304	AISI 304/AISI 316*	AISI 316	AISI 316	AISI 304	AISI 316
4	O Ring	NBR	FPM	FPM	FPM	EPDM	FPM
5	Rotary seal ring	Ceramic	Ceramic	SiC	Tung. carbide	Ceramic	Tung. carbide
6	Stationary seal ring	Carbon graphite	Carbon graphite	SiC	Tung. carbide	Carbon graphite	Tung. carbide
7	O Ring	NBR	FPM	FPM	FPM	EPDM	FPM

* Only for Ø 30

[1] not for 32-160; 40-160; 50-160; 65-125.

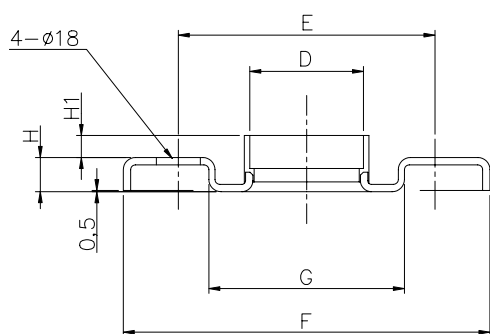
FITTINGS

ZINKED STEEL COUNTER FLANGE (STANDARD)



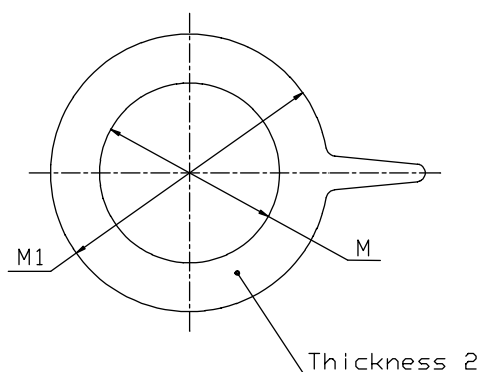
DIN	D	E	F	H	H1	L	M
32	G 1 1/4	100	140	15	11.5	67	50
40	G 1 1/2	110	150	17.5	11.5	72	58
50	G 2	125	165	19	15	89	70
65	G 2 1/2	145	185	23	14	104	88
80	G 3	160	200	24	16	117.5	100

AISI 304-AISI 316L COUNTER FLANGE (ON REQUEST)



DIN	D	E	F	G	H	H1
32	G 1 1/4	100	140	76	14	15.5
40	G 1 1/2	110	150	81	14	15.5
50	G 2	125	165	96	16	18
65	G 2 1/2	145	185	116	16	24
80	G3	160	200	134	18	24

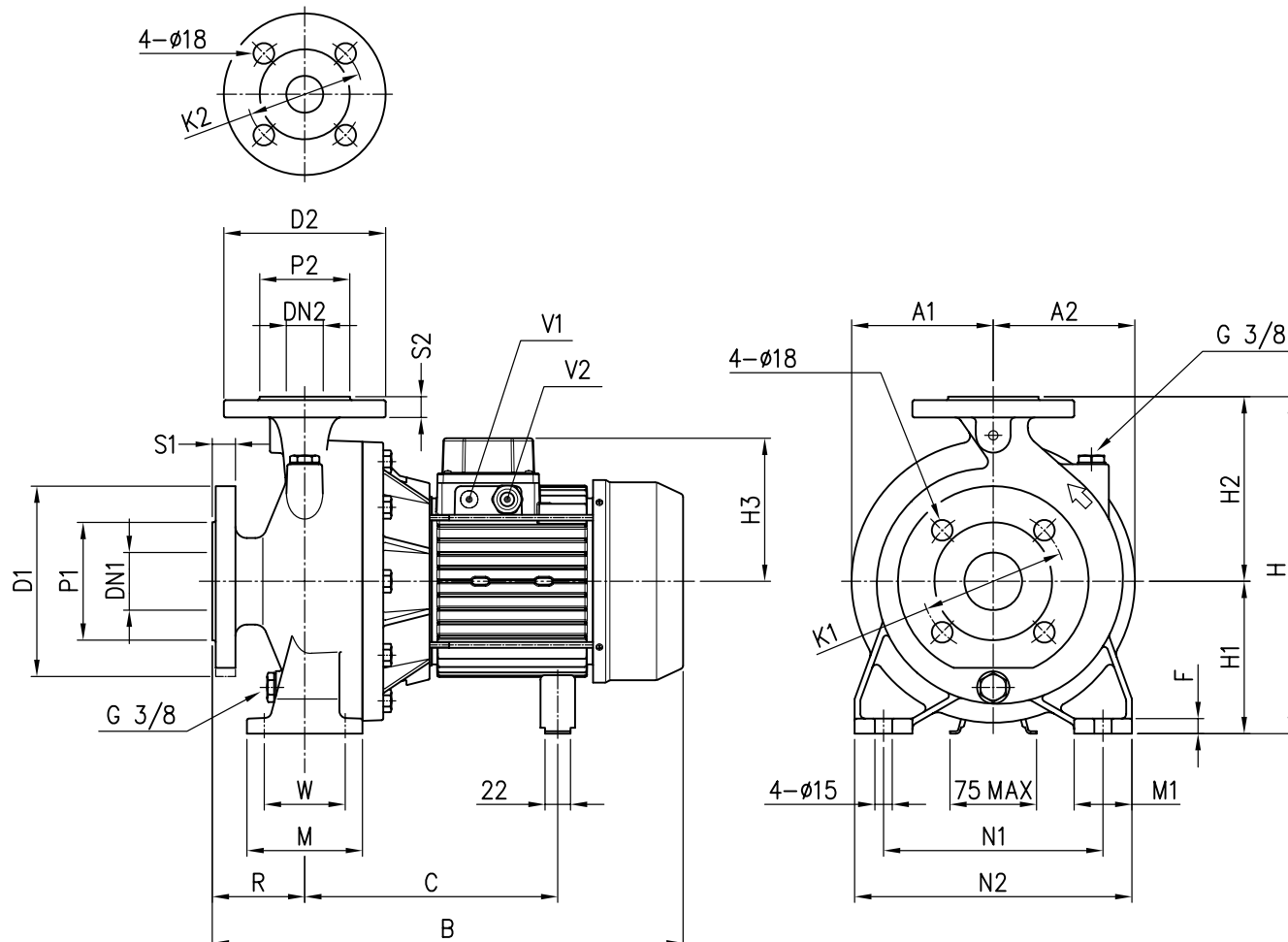
GASKET



DIN	M	M1
32	38	82
40	50	93
50	60	107
65	80	125
80	90	140

Material : EPDM version for standard
FPM version for hot water maximum 110°C

PUMP

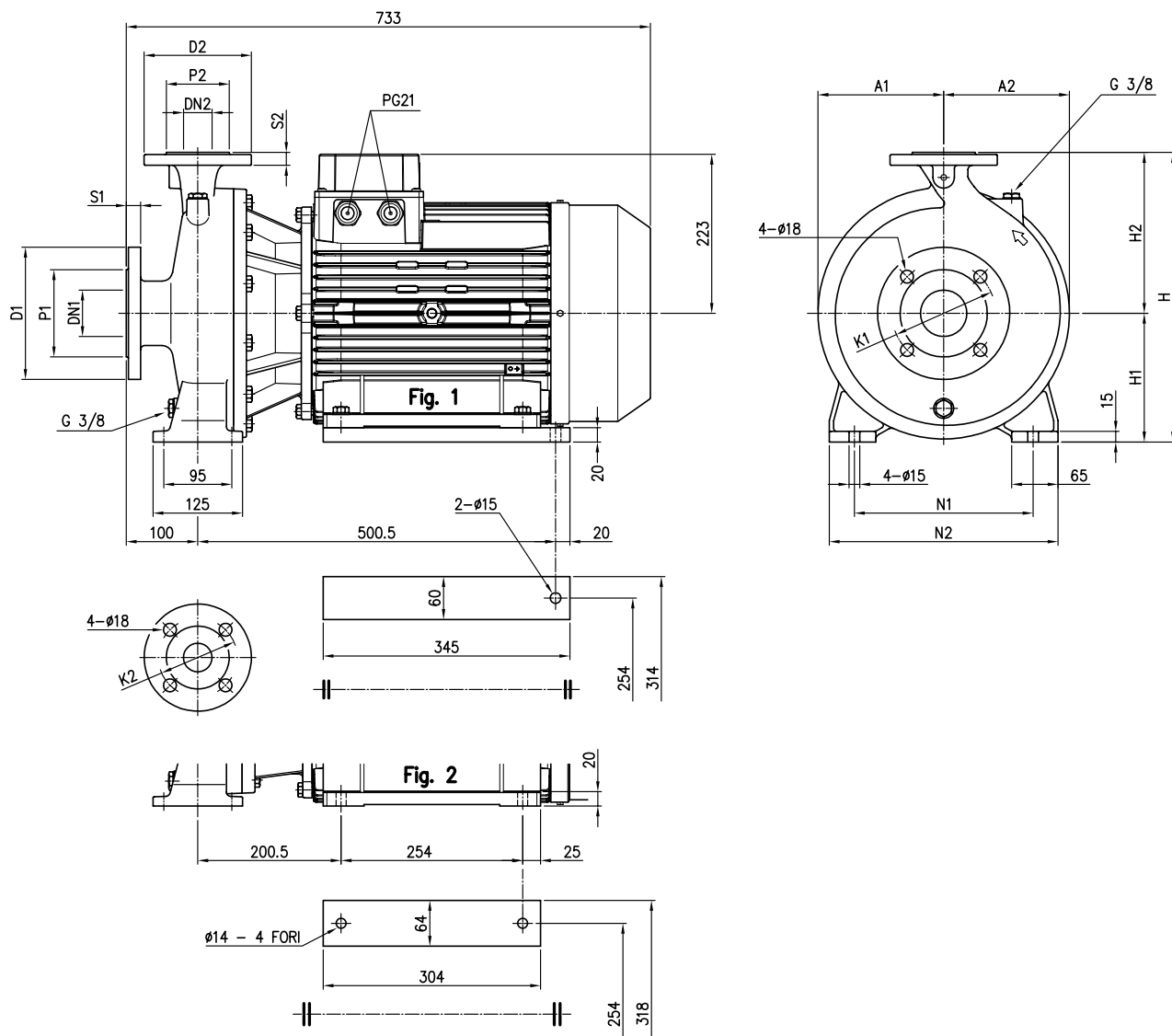


Model	Dimensions (mm)																												Weight [kgf]					
	Ø DN1	Ø P1	Ø K1	Ø D1	S1	Ø DN2	Ø P2	Ø K2	Ø D2	S2	H	H1	H2	H3	[1~]	[3~]	R	W	M	M1	N1	N2	A1	A2	[1~]	[3~]	C	[3~]	F	V1	[1~]	V2	[3~]	[1~]
MD 32-125/1.1 (M)	50	102	125	165	20	32	78	100	140	18	252	112	140	141	124	80	70	100	50	140	190	104	104	408	408	219+230	219+230	13	-	-	M20x1.5	PG 13.5	27.6	32
MD 32-125/1.5 (M)	50	102	125	165	20	32	78	100	140	18	252	112	140	141	124	80	70	100	50	140	190	104	104	408	408	219+230	219+230	13	-	-	M20x1.5	PG 13.5	28.3	32.8
MD 32-160/1.5 (M)	50	102	125	165	20	32	78	100	140	18	292	132	160	141	124	80	70	100	50	190	240	123	123	408	408	219+230	219+230	13	-	-	M20x1.5	PG 13.5	31.5	37.5
MD 32-160/2.2 (M)	50	102	125	165	20	32	78	100	140	18	292	132	160	141	124	80	70	100	50	190	240	123	123	408	433	219+230	244+255	13	-	-	M20x1.5	PG 13.5	35.4	38.8
MD 32-200/3.0	50	102	125	165	20	32	78	100	140	18	340	160	180	-	124	80	70	100	50	190	240	144	144	-	471	-	244+255	13	-	-	-	PG 13.5	-	46.4
MD 32-200/4.0	50	102	125	165	20	32	78	100	140	18	340	160	180	-	141	80	70	100	50	190	240	144	144	-	494	-	253	13	-	-	-	PG 16	-	56.2
MD 32-250/5.5	50	102	125	165	20	32	78	100	140	18	405	180	225	-	150	100	95	125	65	250	320	176	176	-	539	-	275	15	PG 13.5	-	PG 16	-	74.2	
MD 32-250/7.5	50	102	125	165	20	32	78	100	140	18	405	180	225	-	150	100	95	125	65	250	320	176	176	-	537	-	275	15	PG 13.5	-	PG 16	-	74.6	
MD 32-250/9.2	50	102	125	165	20	32	78	100	140	18	405	180	225	-	178	100	95	125	65	250	320	176	176	-	589	-	354	15	PG 13.5	-	PG 21	-	94.5	
MD 32-250/11	50	102	125	165	20	32	78	100	140	18	405	180	225	-	178	100	95	125	65	250	320	176	176	-	589	-	354	15	PG 13.5	-	PG 21	-	95	
MD 40-125/1.5 (M)	65	122	145	185	20	40	88	110	150	18	252	112	140	141	124	80	70	100	50	160	210	104	111	408	408	219+230	219+230	13	-	-	M20x1.5	PG 13.5	28.9	33.4
MD 40-125/2.2 (M)	65	122	145	185	20	40	88	110	150	18	252	112	140	141	124	80	70	100	50	160	210	104	111	408	433	219+230	244+255	13	-	-	M20x1.5	PG 13.5	31.9	35.3
MD 40-160/3.0	65	122	145	185	20	40	88	110	150	18	292	132	160	-	124	80	70	100	50	190	240	123	123	-	471	-	244+255	13	-	-	-	PG 13.5	-	41.3
MD 40-160/4.0	65	122	145	185	20	40	88	110	150	18	292	132	160	-	141	80	70	100	50	190	240	123	123	-	494	-	253	13	-	-	-	PG 16	-	51.4
MD 40-200/5.5	65	122	145	185	20	40	88	110	150	18	340	160	180	-	150	100	70	100	50	212	265	144	144	-	539	-	275	13	PG 13.5	-	PG 16	-	64	
MD 40-200/7.5	65	122	145	185	20	40	88	110	150	18	340	160	180	-	150	100	70	100	50	212	265	144	144	-	537	-	275	13	PG 13.5	-	PG 16	-	68.5	
MD 40-250/11	65	122	145	185	20	40	88	110	150	18	405	180	225	-	178	100	95	125	65	250	320	176	176	-	589	-	354	15	PG 13.5	-	PG 21	-	98	
MD 50-125/2.2 (M)	65	122	145	185	20	50	102	125	165	20	292	132	160	141	124	100	70	100	50	190	240	104	124	428	453	219+230	244+255	13	-	-	M20x1.5	PG 13.5	34	37.4
MD 50-125/3.0	65	122	145	185	20	50	102	125	165	20	292	132	160	-	124	100	70	100	50	190	240	104	124	-	491	-	244+255	13	-	-	-	PG 13.5	-	38.3
MD 50-125/4.0	65	122	145	185	20	50	102	125	165	20	292	132	160	-	141	100	70	100	50	190	240	104	124	-	514	-	253	13	-	-	-	PG 16	-	48
MD 50-160/5.5	65	122	145	185	20	50	102	125	165	20	340	160	180	-	150	100	70	100	50	212	265	123	136	-	539	-	275	13	PG 13.5	-	PG 16	-	61	
MD 50-160/7.5	65	122	145	185	20	50	102	125	165	20	340	160	180	-	150	100	70	100	50	212	265	123	136	-	537	-	275	13	PG 13.5	-	PG 16	-	69	
MD 50-200/9.2	65	122	145	185	20	50	102	125	165	20	360	160	200	-	178	100	70	100	50	212	265	144	154	-	589	-	354	13	PG 13.5	-	PG 21	-	84	
MD 50-200/11	65	122	145	185	20	50	102	125	165	20	360	160	200	-	178	100	70	100	50	212	265	144	154	-	589	-	354	13	PG 13.5	-	PG 21	-	88.5	
MD 65-125/5.5	80	138	160	200	22	65	122	145	185	20	340	160	180	-	150	100	95	125	65	212	280	123	139	-	539	-	275	13	PG 13.5	-	PG 16	-	62	
MD 65-125/7.5	80	138	160	200	22	65	122	145	185	20	340	160	180	-	150	100	95	125	65	212	280	123	139	-	537	-	275	13	PG 13.5	-	PG 16	-	67	
MD 65-160/11	80	138	160	200	22	65	122	145	185	20	360	160	200	-	178	100	95	125	65	212	280	144	154	-	589	-	354	13	PG 13.5	-	PG 21	-	94	

[1] Only for three phase

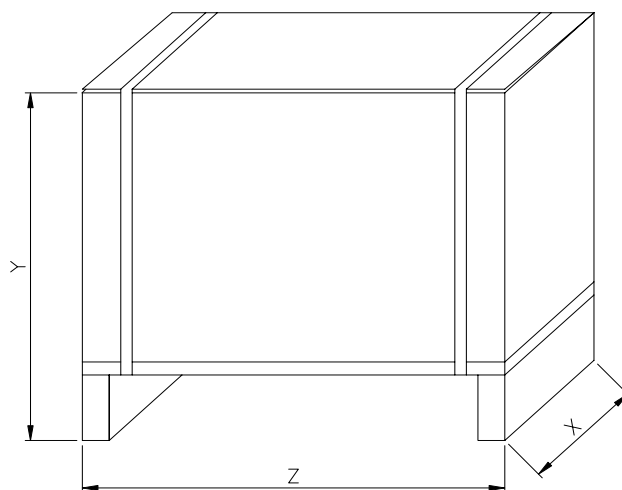
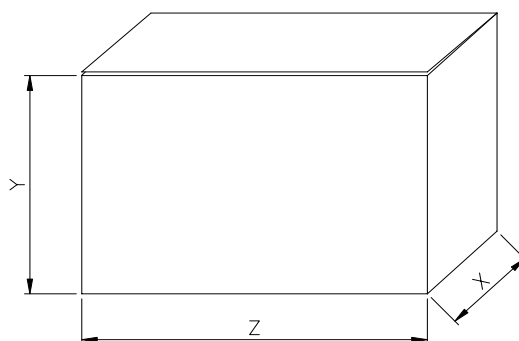
[2] Only for single phase

PUMP



Model	Dimensions [mm]																		Weight [kgf]
	Ø DN1	Ø P1	Ø K1	Ø D1	S1	Ø DN2	Ø P2	Ø K2	Ø D2	S2	Fig.	H	H1	H2	N1	N2	A1	A2	
MD 40-250/13	65	122	145	185	20	40	88	110	150	18	1	405	180	225	250	320	176	176	101
MD 40-250/15	65	122	145	185	20	40	88	110	150	18	1	405	180	225	250	320	176	176	102
MD 50-250/15	65	122	145	185	20	50	102	125	165	20	1	405	180	225	250	320	176	176	103
MD 50-250/18.5	65	122	145	185	20	50	102	125	165	20	1	405	180	225	250	320	176	176	130
MD 50-250/22	65	122	145	185	20	50	102	125	165	20	1	405	180	225	250	320	176	176	155
MD 65-160/15	80	138	160	200	22	65	122	145	185	20	2	360	160	200	212	280	144	154	115
MD 65-200/18.5	80	138	160	200	22	65	122	145	185	20	1	405	180	225	250	320	144	168	130
MD 65-200/22	80	138	160	200	22	65	122	145	185	20	1	405	180	225	250	320	144	168	142

PACKING



Pump type	Packing [mm]			Weight [kgf]		Pump type	Packing [mm]			Weight [kgf]	
	X	Y	Z	[1~]	[3~]		X	Y	Z	[1~]	[3~]
MD 32-125/1.1 (M)	255	305	455	29.3	36.6	MD 40-250/15	375	615	865	-	113
MD 32-125/1.5 (M)	255	305	455	30	37.4	MD 50-125/2.2 (M)	285	345	495	37	43.9
MD 32-160/1.5 (M)	285	335	435	33	42.5	MD 50-125/3.0	335	395	565	-	44.7
MD 32-160/2.2 (M)	285	335	435	37.4	43.7	MD 50-125/4.0	335	395	565	-	53.8
MD 32-200/3.0	335	395	505	-	52.7	MD 50-160/5.5	335	605	565	-	70
MD 32-200/4.0	335	395	565	-	62	MD 50-160/7.5	335	605	565	-	78
MD 32-250/5.5	375	560	585	-	80	MD 50-200/9.2	385	655	645	-	94
MD 32-250/7.5	375	560	585	-	80	MD 50-200/11	385	655	645	-	98.5
MD 32-250/9.2	375	560	585	-	102	MD 50-250/15	375	615	865	-	111
MD 32-250/11	375	560	585	-	103	MD 50-250/18.5	375	615	865	-	139
MD 40-125/1.5 (M)	255	305	455	31.2	38.8	MD 50-250/22	375	615	865	-	162
MD 40-125/2.2 (M)	255	305	455	36.6	40.5	MD 50-250/5.5	335	605	565	-	71.5
MD 40-160/3.0	285	345	495	-	46.9	MD 65-125/7.5	335	605	565	-	71.5
MD 40-160/4.0	335	395	565	-	56.9	MD 65-160/11	385	655	645	-	103
MD 40-200/5.5	355	605	565	-	74	MD 65-160/15	405	655	875	-	126
MD 40-200/7.5	355	605	565	-	74	MD 65-200/18.5	405	655	875	-	144
MD 40-250/11	375	560	685	-	110	MD 65-200/22	405	655	875	-	151
MD 40-250/13	375	615	865	-	111						

[1~] Single phase

[2~] Three phase

MOTOR DATA

Pump type		Power		Efficiency		Capacitor		Efficiency (% load)			Input		Full load current				Locked rotor current			
Single Phase	Three Phase	[kW]	[HP]	Single Phase	Three Phase	Single Phase	Three Phase	Three phase			Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
						[μF]	[V]	50%	75%	100%			230 V	230 V	400 V	690 V	230 V	230 V	400 V	690 V
MD 32-125/1.1 M	MD 32-125/1.1	1.1	1.5	-	IE2	31.5	450	79.5	82.0	82.5	1.51	1.82	6.7	5.6	3.2	-	24	57.0	33.0	-
MD 32-125/1.5 M	MD 32-125/1.5	1.5	2	-	IE2	40	450	79.5	82.0	82.5	2.10	1.82	9.6	5.6	3.2	-	44	57.0	33.0	-
MD 32-160/1.5 M	MD 32-160/1.5	1.5	2	-	IE2	40	450	79.5	82.0	82.5	2.10	2.05	9.6	6.1	3.5	-	44	57.0	33.0	-
MD 32-160/2.2 M	MD 32-160/2.2	2.2	3	-	IE2	50	450	83.1	85.7	86.2	2.95	2.55	13.3	7.8	4.5	-	70	75.0	43.5	-
-	MD 32-200/3.0	3	4	-	IE2	-	-	85.0	86.7	86.3	-	3.48	-	10.6	6.1	-	-	100.0	57.7	-
-	MD 32-200/4.0	4	5.5	-	IE2	-	-	84.3	87.2	87.8	-	4.56	-	15.1	8.7	-	-	151.0	87.0	-
-	MD 32-250/5.5	5.5	7.5	-	IE2	-	-	82.9	86.0	87.4	-	6.29	-	-	10.4	6.0	-	-	116.0	67.0
-	MD 32-250/7.5	7.5	10	-	IE2	-	-	86.1	88.2	88.8	-	8.45	-	-	13.7	7.9	-	-	140.0	81.0
-	MD 32-250/9.2	9.2	12.5	-	IE2	-	-	88.6	90.0	89.9	-	10.23	-	-	16.8	9.7	-	-	166.0	96.0
-	MD 32-250/11	11	15	-	IE2	-	-	88.9	90.3	90.2	-	12.20	-	-	21.9	12.7	-	-	186.0	108.0
MD 40-125/1.5 M	MD 40-125/1.5	1.5	2	-	IE2	40	450	79.5	82.0	82.5	2.10	1.82	9.6	5.6	3.2	-	44	57.0	33.0	-
MD 40-125/2.2 M	MD 40-125/2.2	2.2	3	-	IE2	50	450	83.1	85.7	86.2	2.95	2.55	13.3	7.8	4.5	-	70	75.0	43.5	-
-	MD 40-160/3.0	3	4	-	IE2	-	-	85.0	86.7	86.3	-	3.48	-	10.6	6.1	-	-	100.0	57.7	-
-	MD 40-160/4.0	4	5.5	-	IE2	-	-	84.3	87.2	87.8	-	4.56	-	15.1	8.7	-	-	151.0	87.0	-
-	MD 40-200/5.5	5.5	7.5	-	IE2	-	-	82.9	86.0	87.4	-	6.29	-	-	10.4	6.0	-	-	116.0	67.0
-	MD 40-200/7.5	7.5	10	-	IE2	-	-	86.1	88.2	88.8	-	8.45	-	-	13.7	7.9	-	-	140.0	81.0
-	MD 40-250/11	11	15	-	IE2	-	-	88.9	90.3	90.2	-	12.20	-	-	21.9	12.7	-	-	186.0	108.0
-	MD 40-250/13	13	17.5	-	IE2	-	-	89.3	91.0	91.1	-	18.00	-	-	30.0	17.3	-	-	246.0	143.0
-	MD 40-250/15	15	20	-	IE2	-	-	89.3	91.0	91.1	-	18.00	-	-	30.0	17.3	-	-	246.0	143.0
MD 50-125/2.2 M	MD 50-125/2.2	2.2	3	-	IE2	50	450	83.1	85.7	86.2	2.95	2.55	13.3	7.8	4.5	-	70	75.0	43.5	-
-	MD 50-125/3.0	3	4	-	IE2	-	-	85.0	86.7	86.3	-	3.48	-	10.6	6.1	-	-	100.0	57.7	-
-	MD 50-125/4.0	4	5.5	-	IE2	-	-	84.3	87.2	87.8	-	4.56	-	15.1	8.7	-	-	151.0	87.0	-
-	MD 50-160/5.5	5.5	7.5	-	IE2	-	-	82.9	86.0	87.4	-	6.29	-	-	10.4	6.0	-	-	116.0	67.0
-	MD 50-160/7.5	7.5	10	-	IE2	-	-	86.1	88.2	88.8	-	8.45	-	-	13.7	7.9	-	-	140.0	81.0
-	MD 50-200/9.2	9.2	12.5	-	IE2	-	-	88.6	90.0	89.9	-	10.23	-	-	16.8	9.7	-	-	166.0	96.0
-	MD 50-200/11	11	15	-	IE2	-	-	88.9	90.3	90.2	-	12.20	-	-	21.9	12.7	-	-	186.0	108.0
-	MD 50-250/15	15	20	-	IE2	-	-	89.3	91.0	91.1	-	18.00	-	-	30.0	17.3	-	-	246.0	143.0
-	MD 50-250/18.5	18.5	25	-	IE2	-	-	89.8	91.2	91.7	-	20.17	-	-	36.3	21.0	-	-	325.0	188.0
-	MD 50-250/22	22	30	-	IE2	-	-	89.9	91.9	92.4	-	23.80	-	-	40.8	23.6	-	-	383.0	222.0
-	MD 65-125/5.5	5.5	7.5	-	IE2	-	-	82.9	86.0	87.4	-	6.29	-	-	10.4	6.0	-	-	116.0	67.0
-	MD 65-125/7.5	7.5	10	-	IE2	-	-	86.1	88.2	88.8	-	8.45	-	-	13.7	7.9	-	-	140.0	81.0
-	MD 65-160/11	11	15	-	IE2	-	-	88.9	90.3	90.2	-	12.20	-	-	21.9	12.7	-	-	186.0	108.0
-	MD 65-160/15	15	20	-	IE2	-	-	89.3	91.0	91.1	-	18.00	-	-	30.0	17.3	-	-	246.0	143.0
-	MD 65-200/18.5	18.5	25	-	IE2	-	-	89.8	91.2	91.7	-	20.17	-	-	36.3	21.0	-	-	325.0	188.0
-	MD 65-200/22	22	30	-	IE2	-	-	89.9	91.9	92.4	-	23.80	-	-	40.8	23.6	-	-	383.0	222.0

NOISE DATA

Pump type		Power		L _{pA} - dB(A) *
Single Phase	Three Phase	[kW]	[HP]	
MD 32-125/1.1 M	MD 32-125/1.1	1.1	1.5	<70
MD 32-125/1.5 M	MD 32-125/1.5	1.5	2	
MD 32-160/1.5 M	MD 32-160/1.5	1.5	2	
MD 32-160/2.2 M	MD 32-160/2.2	2.2	3	
-	MD 32-200/3.0	3	4	71
-	MD 32-200/4.0	4	5.5	
-	MD 32-250/5.5	5.5	7.5	75
-	MD 32-250/7.5	7.5	10	
-	MD 32-250/9.2	9.2	12.5	80
-	MD 32-250/11	11	15	
MD 40-125/1.5 M	MD 40-125/1.5	1.5	2	<70
MD 40-125/2.2 M	MD 40-125/2.2	2.2	3	
-	MD 40-160/3.0	3	4	71
-	MD 40-160/4.0	4	5.5	
-	MD 40-200/5.5	5.5	7.5	75
-	MD 40-200/7.5	7.5	10	
-	MD 40-250/11	11	15	80
-	MD 40-250/13	13	17.5	
-	MD 40-250/15	15	20	83-82
MD 50-125/2.2 M	MD 50-125/2.2	2.2	3	<70
-	MD 50-125/3.0	3	4	71
-	MD 50-125/4.0	4	5.5	
-	MD 50-160/5.5	5.5	7.5	75
-	MD 50-160/7.5	7.5	10	
-	MD 50-200/9.2	9.2	12.5	80
-	MD 50-200/11	11	15	
-	MD 50-250/15	15	20	83-82
-	MD 50-250/18,5	18.5	25	
-	MD 50-250/22	22	30	
-	MD 65-125/5.5	5.5	7.5	75
-	MD 65-125/7.5	7.5	10	
-	MD 65-160/11	11	15	80
-	MD 65-160/15	15	20	83-82
-	MD 65-200/18.5	18.5	25	
-	MD 65-200/22	22	30	

* Mean value of several measures at 1m distance around the pump.

Tolerance ± 2.5 dB.