

**EBARA**

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## SPECIFICATION

50Hz

Rev. A

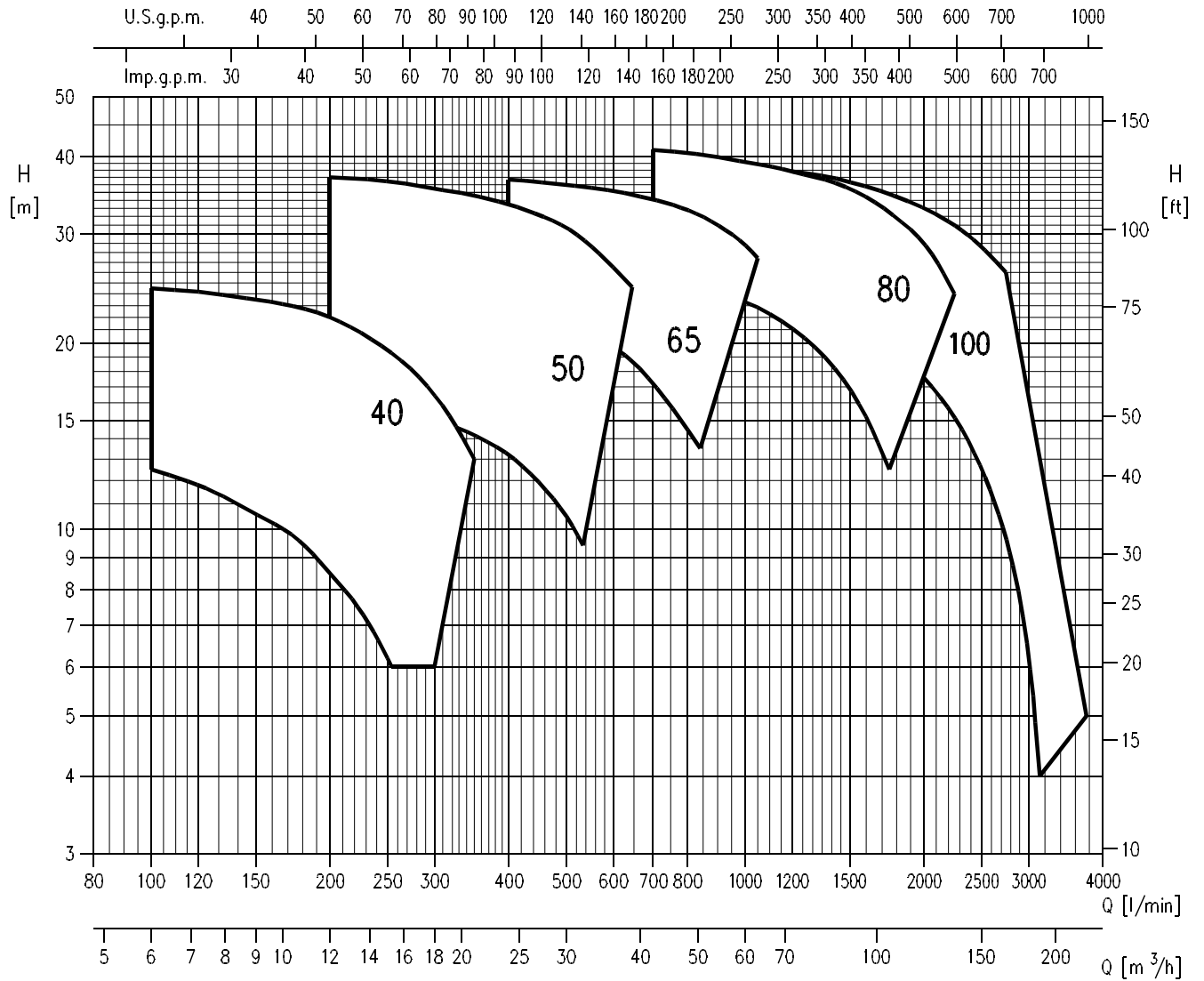
PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -10 max +110
	Viscosity [cSt]	max 38
Maximum ambient temperature [°C]		+40 (over ask for de tails)
Maximum working pressure [MPa]		1.0
Construction	Impeller	Closed centrifugal type
	Shaft seal type	Mechanical seal
	Bearing	On the motor
Pipe Connection	Suction	UNI 2223-29 PN16 DIN 2501
	Discharge	UNI 2223-29 PN16 DIN 2501
Material	Casing	CAST IRON
	Impeller	CAST IRON
	Casing cover	CAST IRON
	Shaft seal	Carbon/SiC/EPDM
	Shaft	AISI 420
	Bracket	CAST IRON
Applicable standard of test		ISO 9906 – Annex A

MOTOR	
Type	Electric - TEFC Three Phase
Efficiency level (Reg. 640/2009)	IE2 from 0.75 kW up to 5.5 kW IE3 from 7.5 kW up to 15 kW
No. of Poles	2
Rotation speed [min <sup>-1</sup> ]	≈ 2900
Insulation Class	F
Protection degree (CEI EN 60034-5)	IP 55
Power rating [kW]	0.75 ÷ 15
[HP]	1 ÷ 20
Frequency [Hz]	50
Voltage [V]	230/400 ±10% up to 4 kW 400/690 ±10% 5.5kW and above
Over load protection	Provided by the user
Casing material	Alluminium

SELECTION CHART

50Hz

Rev. A



**SELECTION CHART**

50Hz

Rev. A

**LPCD 2 Poles: 40, 50 Version**

Pump type LPCD  Three Phase	Power		Capacity														
	[kW]	[HP]	l/min	0	100	125	150	175	200	225	250	300	350	400	450	500	600
			m <sup>3</sup> /h	0	6,0	7,5	9	10,5	12	13,5	15	18	21	24	27	30	36
Metric head in meters																	
LPCD 40-125/0,75R	0,55	0,75	14,1	12,5	11,6	10,6	9,7	8,5	7,4	5,5	-	-	-	-	-	-	-
LPCD 40-125/0,75	0,75	1	16,9	15,3	14,5	13,7	12,8	11,5	10,4	9	6	-	-	-	-	-	-
LPCD 40-125/1,1	1,1	1,5	21,5	20,5	19,7	19,0	18,1	17,1	15,9	14,5	11,2	7,5	-	-	-	-	-
LPCD 40-125/1,5	1,5	2	25	24,5	24,1	23,5	22,9	22,0	20,8	19,5	16,5	13,0	-	-	-	-	-
LPCD 50-125/1,5	1,5	2	16,8	-	-	-	-	16	15,7	15,5	15,0	14,2	13,2	11,9	10,5	7	-
LPCD 50-125/2,2	2,2	3	20	-	-	-	-	19,5	19,3	19,1	18,5	17,5	16,6	15,5	14,1	10,5	-
LPCD 50-125/3	3	4	25	-	-	-	-	24,7	24,6	24,5	24,2	23,7	23	21,8	20,5	17	-
LPCD 50-160/3	3	4	31	-	-	-	-	30,5	30,2	29,9	29	27,8	26,5	24,9	23	18	-
LPCD 50-160/4	4	5,5	38	-	-	-	-	37	36,8	36,5	35,5	34,6	33,5	32,2	30,7	26,5	-

**LPCD 2 Poles: 65, 80, 100 Version**

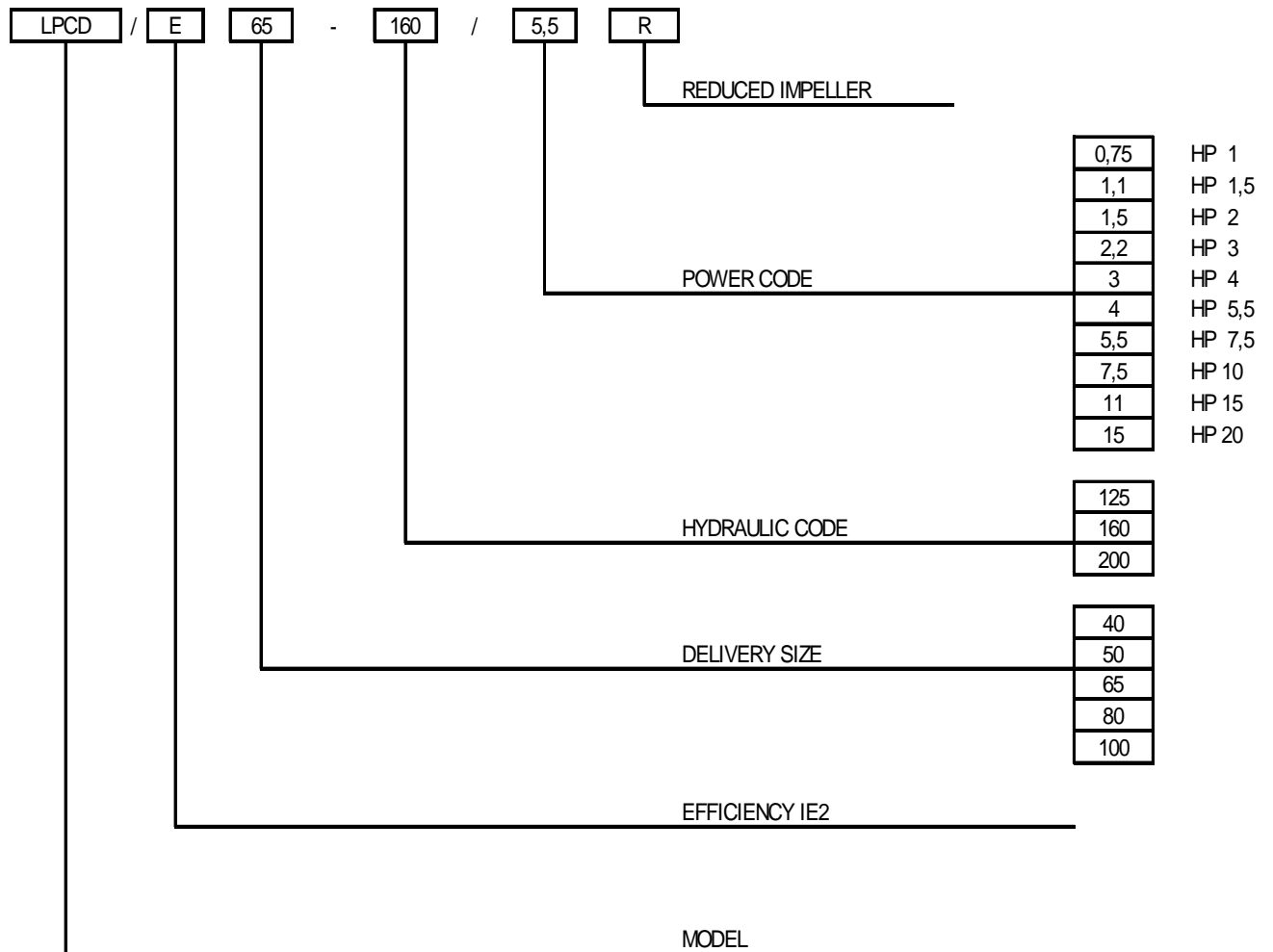
Pump type LPCD  Three Phase	Power		Capacity																					
	[kW]	[HP]	l/min	0	350	400	450	500	600	700	800	900	1000	1250	1500	1750	2000	2250	2750	3000	3166	3500	3667	
			m <sup>3</sup> /h	0	21	24	27	30	36	42	48	54	60	75	90	105	120	135	165	180	190	210	220	
Metric head in meters																								
LPCD 65-160/3	3	4	24	23	22,5	22	21,3	19,7	17,2	14,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPCD 65-160/4	4	5,5	27,5	27	26,6	26	25,5	24,2	22,5	20,2	17,6	-	-	-	-	-	-	-	-	-	-	-	-	-
LPCD 65-160/5,5	5,5	7,5	33	-	32,3	32	31,5	30,8	29,5	28	25,8	23,5	-	-	-	-	-	-	-	-	-	-	-	-
LPCD 65-160/7,5	7,5	10	37	-	36,7	36,4	36	35,2	34,1	32,8	31	28,8	-	-	-	-	-	-	-	-	-	-	-	-
LPCD 80-160/7,5	7,5	10	26,2	-	-	-	-	25,5	25,2	24,7	24	23,3	20,5	16,9	12,5	-	-	-	-	-	-	-	-	-
LPCD 80-160/11	11	15	31	-	-	-	-	30,5	30	29,5	29	27	24	20,2	16	-	-	-	-	-	-	-	-	-
LPCD 80-160/15R	12,5	17	37	-	-	-	-	36	35,5	35	34,5	32,8	30	27	23	19	-	-	-	-	-	-	-	-
LPCD 80-160/15	15	20	42	-	-	-	-	41	40,5	39,9	39,2	37,5	35,5	32,5	29	24	-	-	-	-	-	-	-	-
LPCD 100-200/11	11	15	25,5	-	-	-	-	-	-	-	-	24,5	23,5	22	20,5	18,5	16,0	10,5	7	4	-	-	-	-
LPCD 100-200/15R	15	20	29,5	-	-	-	-	-	-	-	-	28	27	26	24,5	23,2	20,5	15,5	12,5	11	7	5	-	-
LPCD 100-200/15	15	20	39	-	-	-	-	-	-	-	-	38,5	37,5	36,5	35	33	31	26	-	-	-	-	-	-

TYPE KEY AND CURVE SPECIFICATION

50Hz

Rev. A

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 50 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.

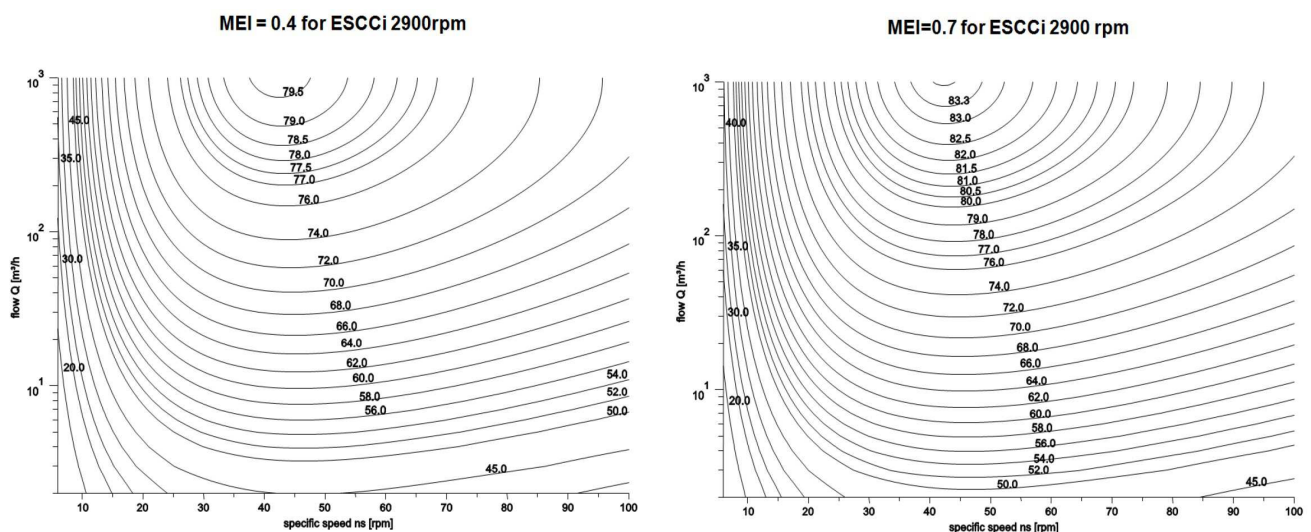
Symbols explanation:

- Q = volume flow rate
- H = total head
- $P_2$  = pump power input (shaft power)
- $\eta$  = 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.

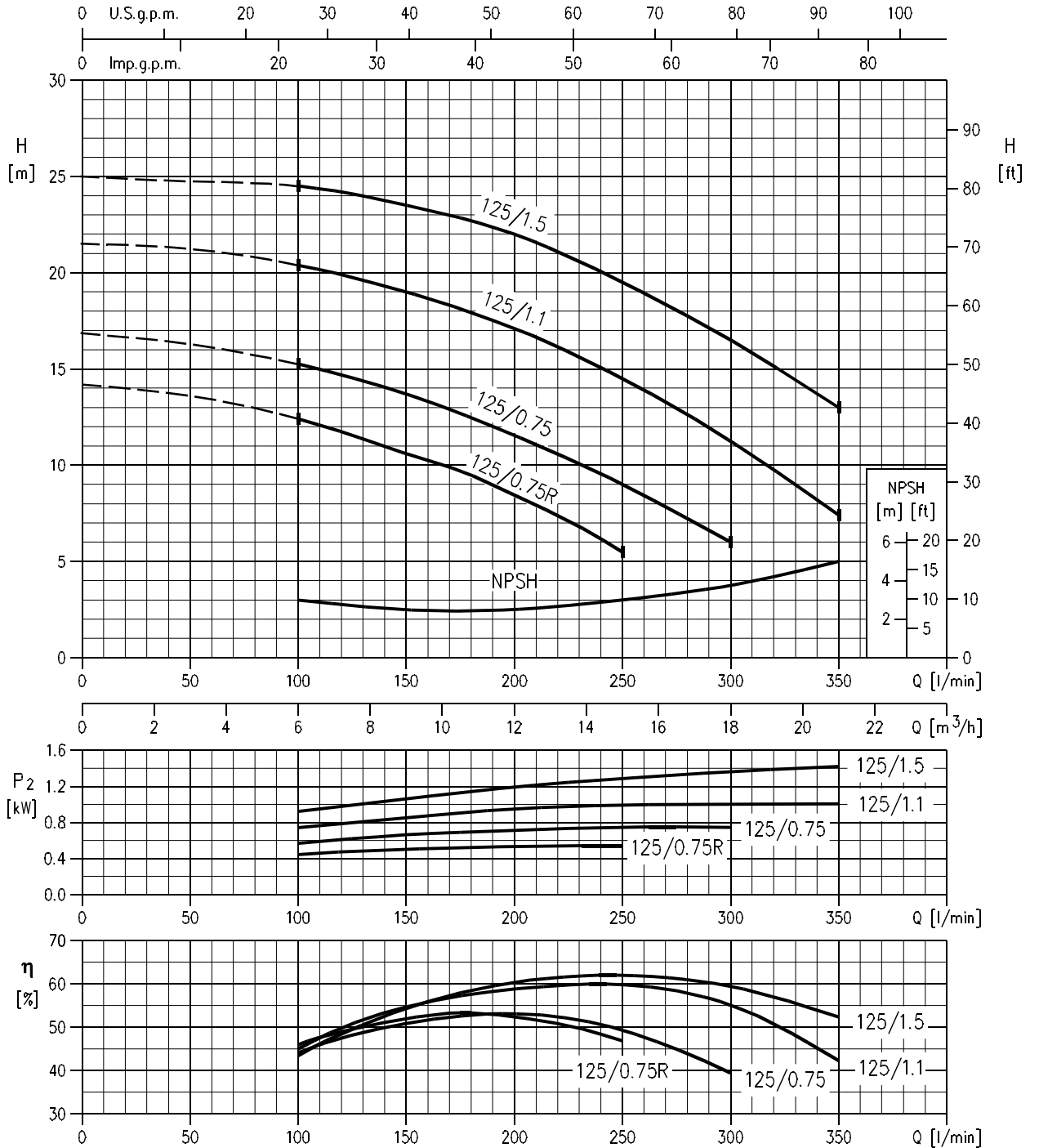


PERFORMANCE CURVE

50Hz

Rev. A

LPCD 40-125/0.75R (0.75 kW) MEI > 0.40 Impeller diameter = 112 mm  
 LPCD 40-125/0.75 (0.75 kW) MEI > 0.40 Impeller diameter = 120 mm  
 LPCD 40-125/1.1 (1.1 kW) MEI > 0.40 Impeller diameter = 130 mm  
 LPCD 40-125/1.5 (1.5 kW) MEI > 0.40 Impeller diameter = 139 mm



Rotation speed ≈ 2900 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

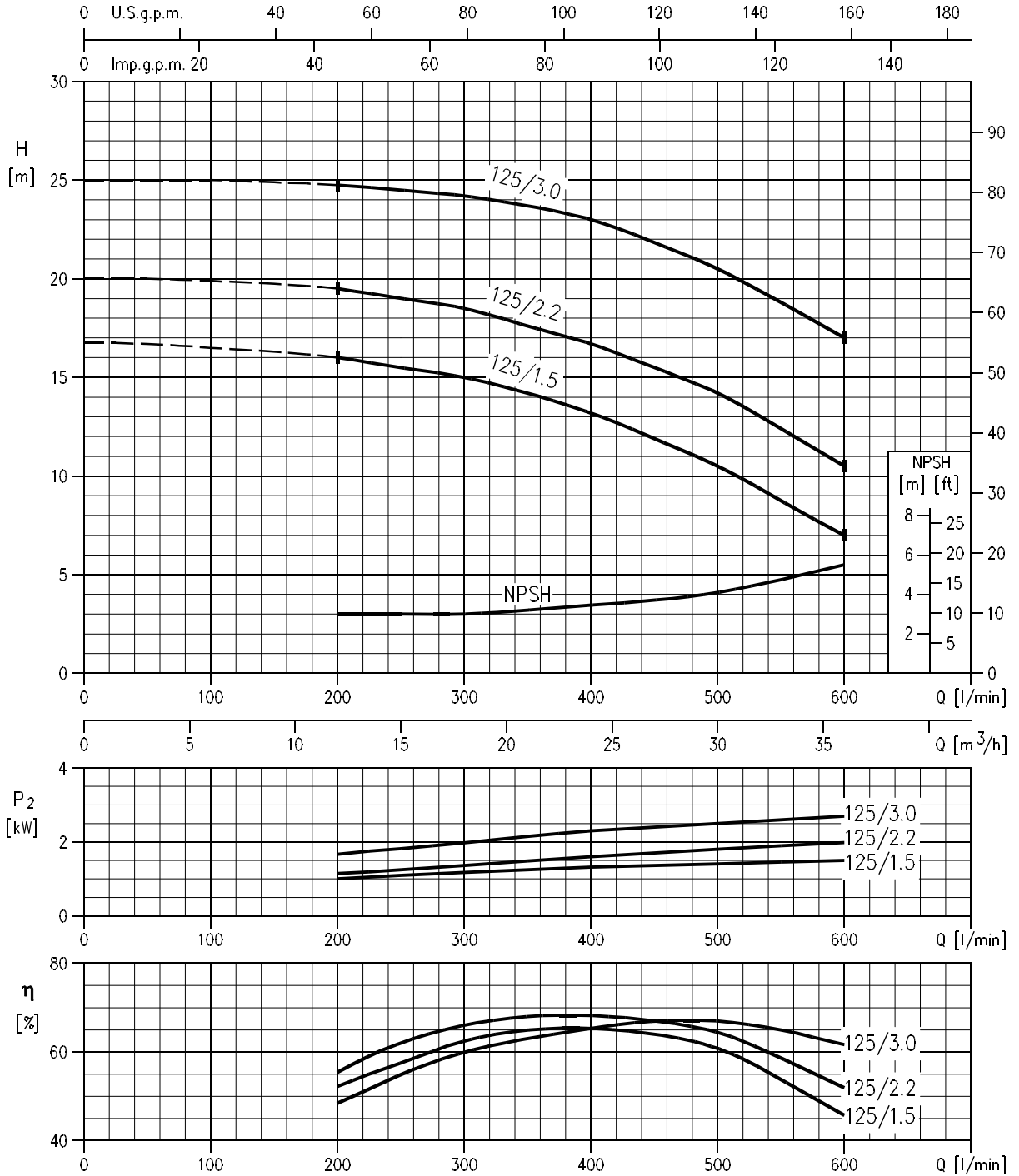


PERFORMANCE CURVE

50Hz

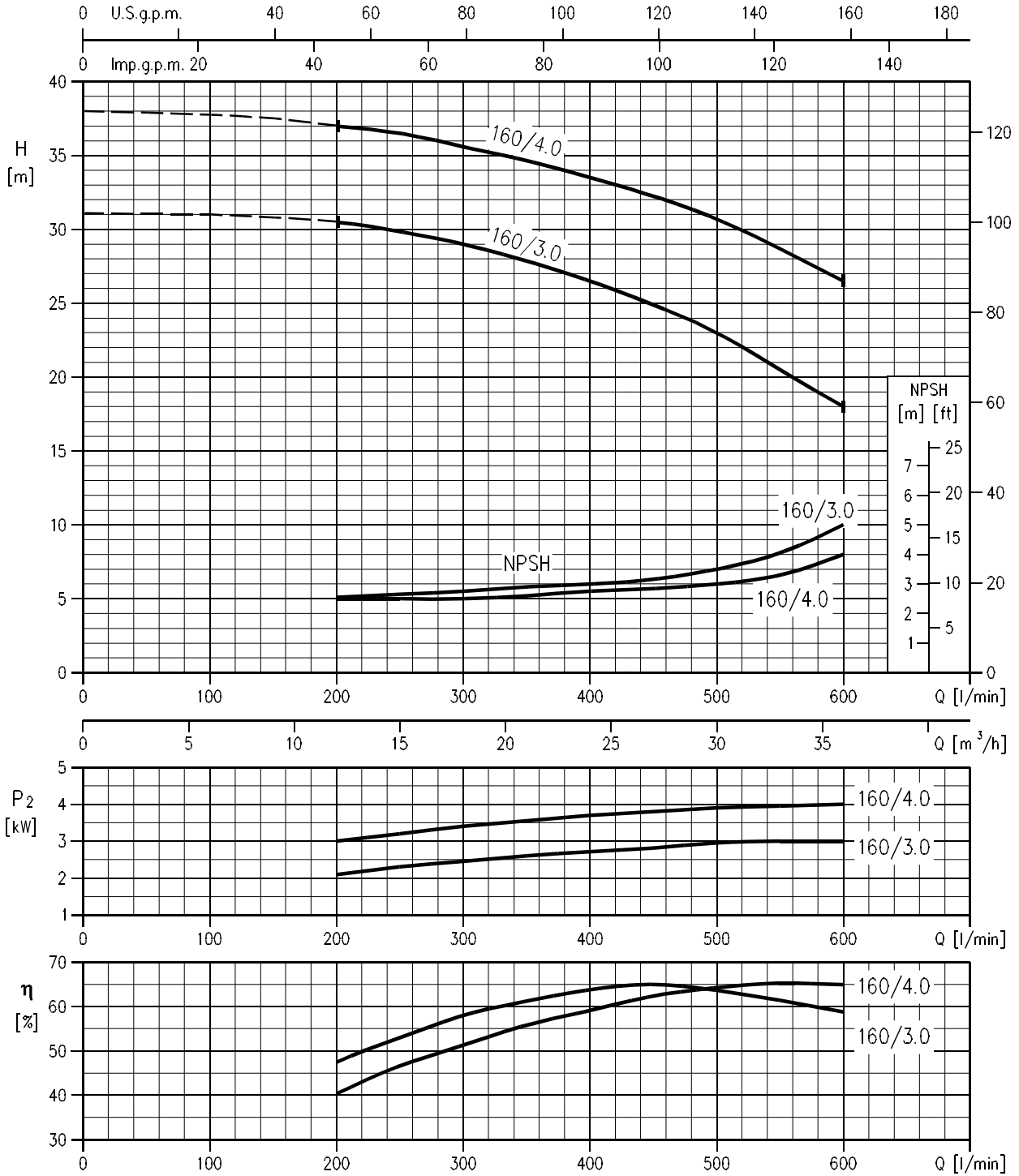
Rev. A

LPCD 50-125/1.5 (1.5 kW) MEI > 0.40 Impeller diameter = 122 mm  
 LPCD 50-125/2.2 (2.2 kW) MEI > 0.40 Impeller diameter = 130 mm  
 LPCD 50-125/3.0 (3.0 kW) MEI > 0.40 Impeller diameter = 140.5 mm



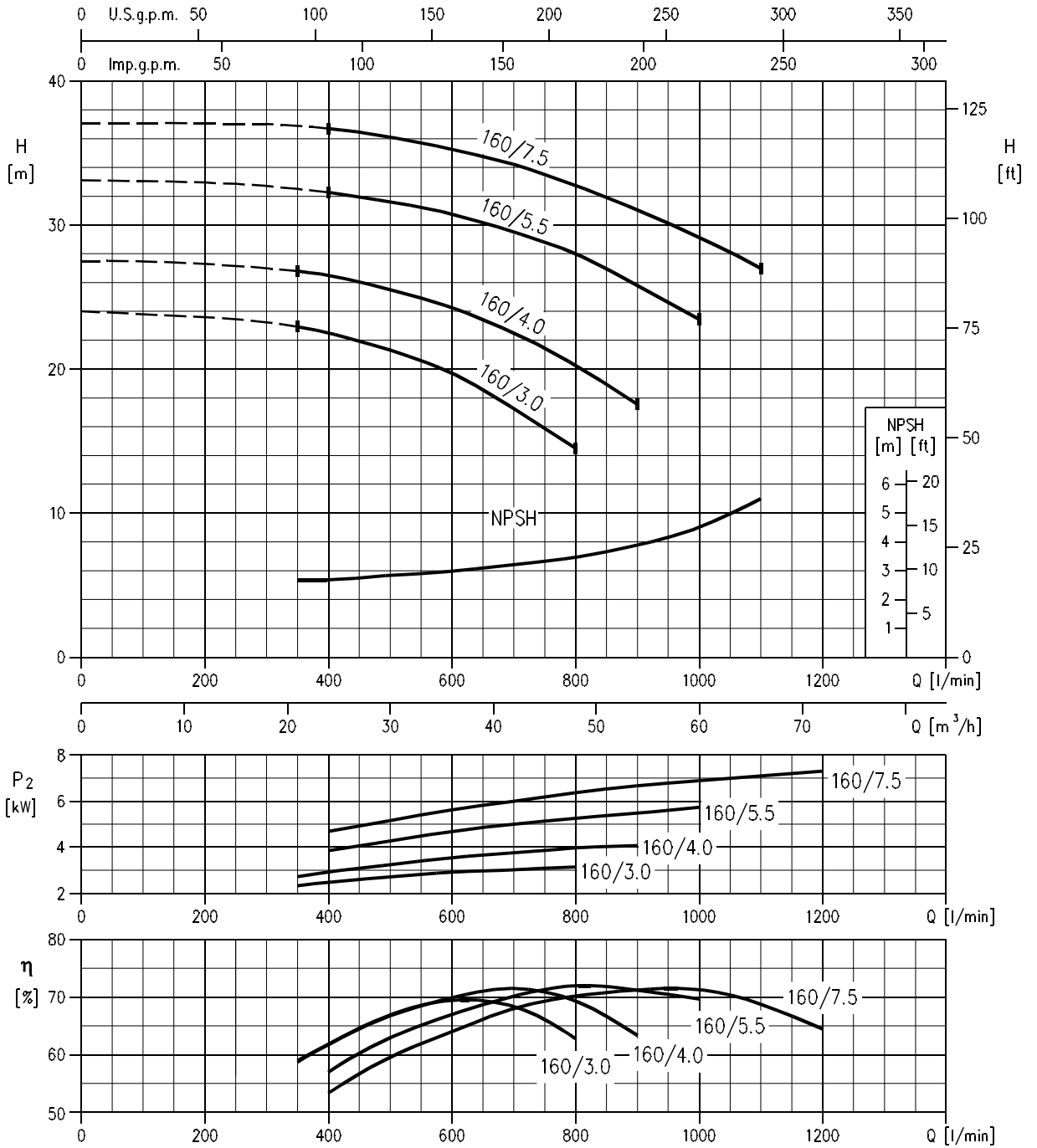
Rotation speed ≈ 2900 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

LPCD 50-160/3.0 (3.0 kW) MEI > 0.40 Impeller diameter = 158 mm  
 LPCD 50-160/4.0 (4.0 kW) MEI > 0.40 Impeller diameter = 169 mm



Rotation speed ≈ 2900 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

LPCD 65-160/3.0 (3.0 kW) MEI > 0.40 Impeller diameter = 142 mm  
 LPCD 65-160/4.0 (4.0 kW) MEI > 0.40 Impeller diameter = 150 mm  
 LPCD 65-160/5.5 (5.5 kW) MEI > 0.40 Impeller diameter = 160 mm  
 LPCD 65-160/7.5 (7.5 kW) MEI > 0.40 Impeller diameter = 169 mm



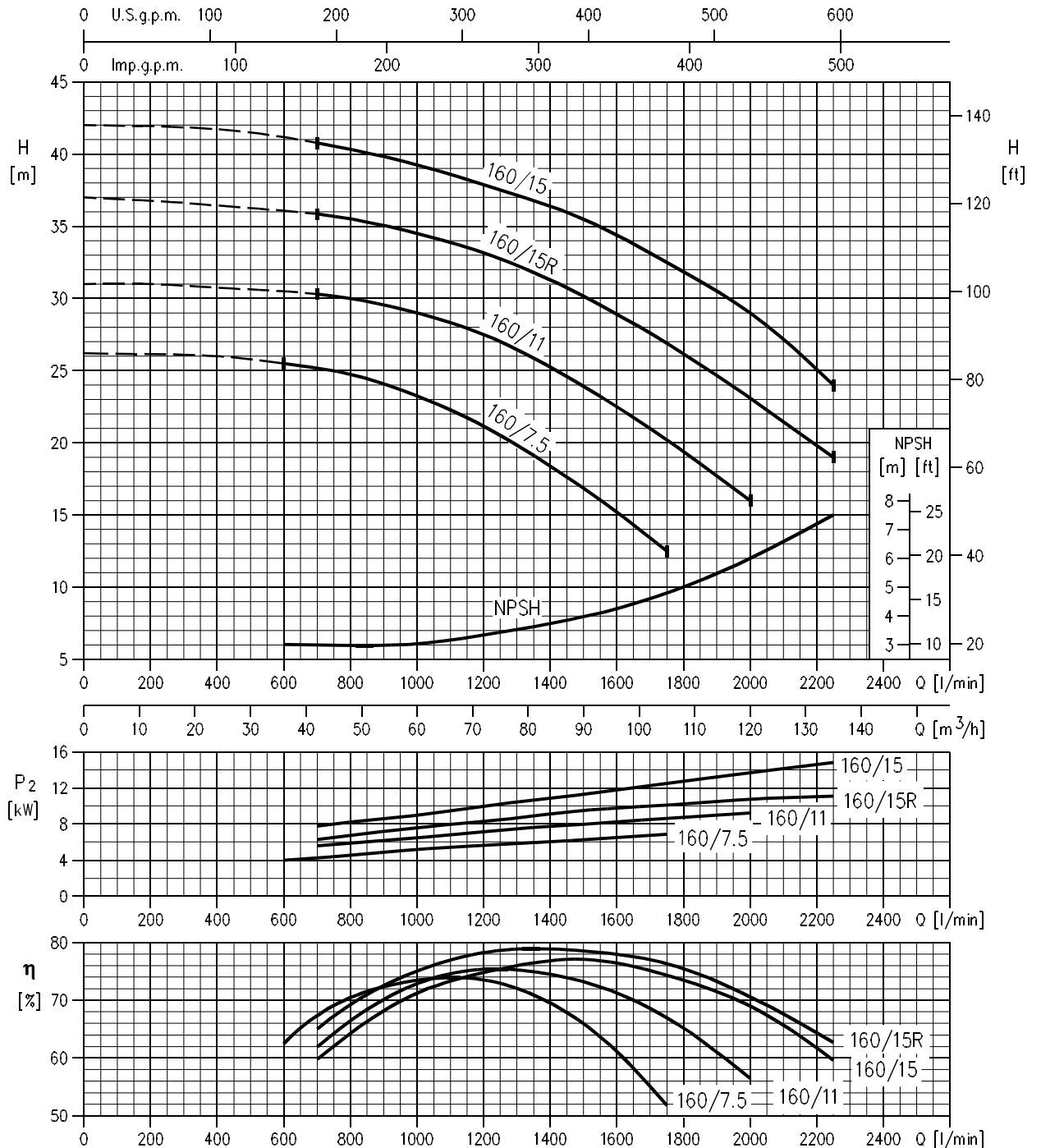
Rotation speed ≈ 2900 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

PERFORMANCE CURVE

50Hz

Rev. A

LPCD 80-160/7.5 (7.5 kW) MEI > 0.40 Impeller diameter = 140 mm  
 LPCD 80-160/11 (11 kW) MEI > 0.40 Impeller diameter = 150 mm  
 LPCD 80-160/15R (15 kW) MEI > 0.40 Impeller diameter = 160 mm  
 LPCD 80-160/15 (15 kW) MEI > 0.40 Impeller diameter = 169 mm



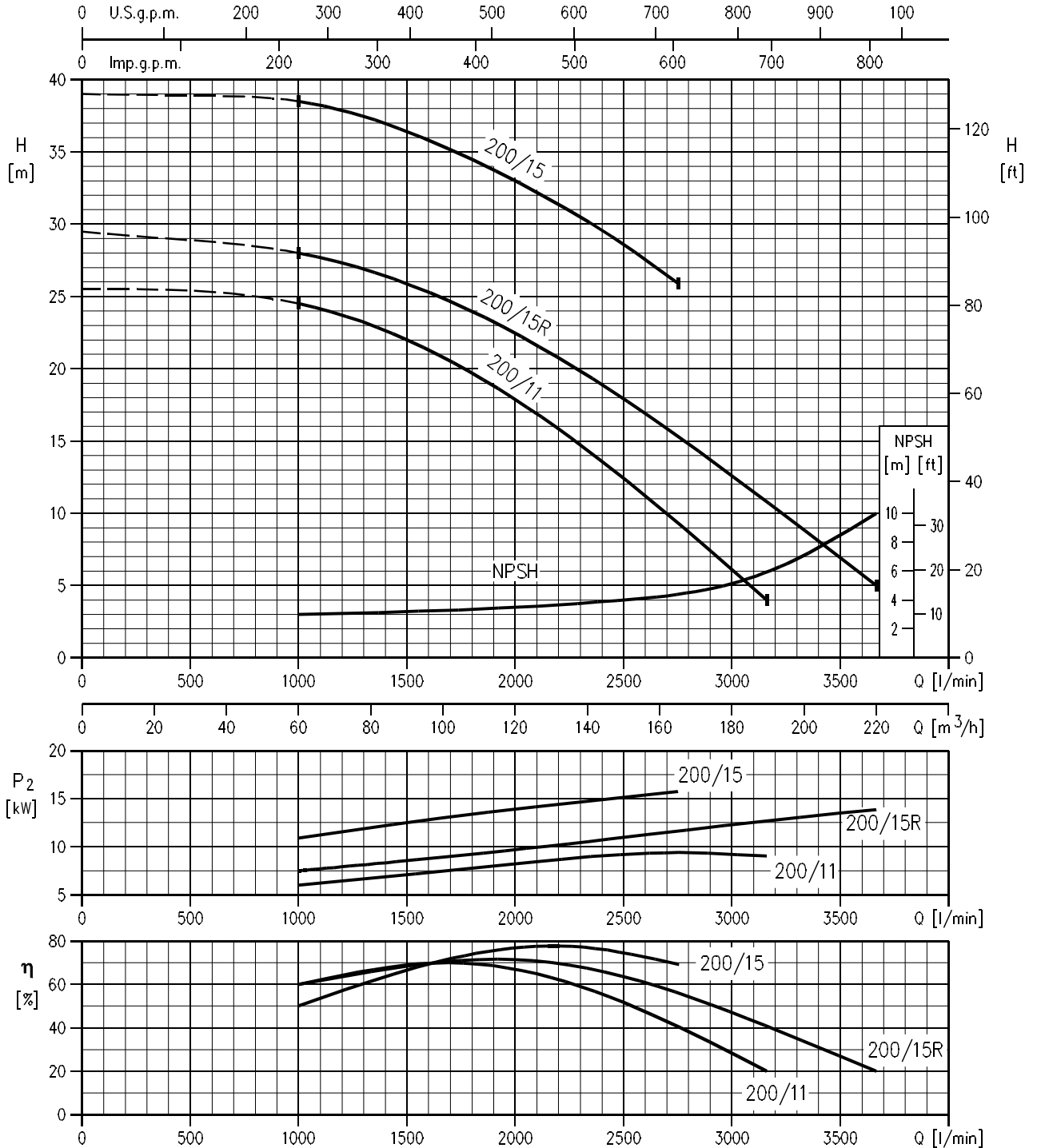
Rotation speed ≈ 2900 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

PERFORMANCE CURVE

50Hz

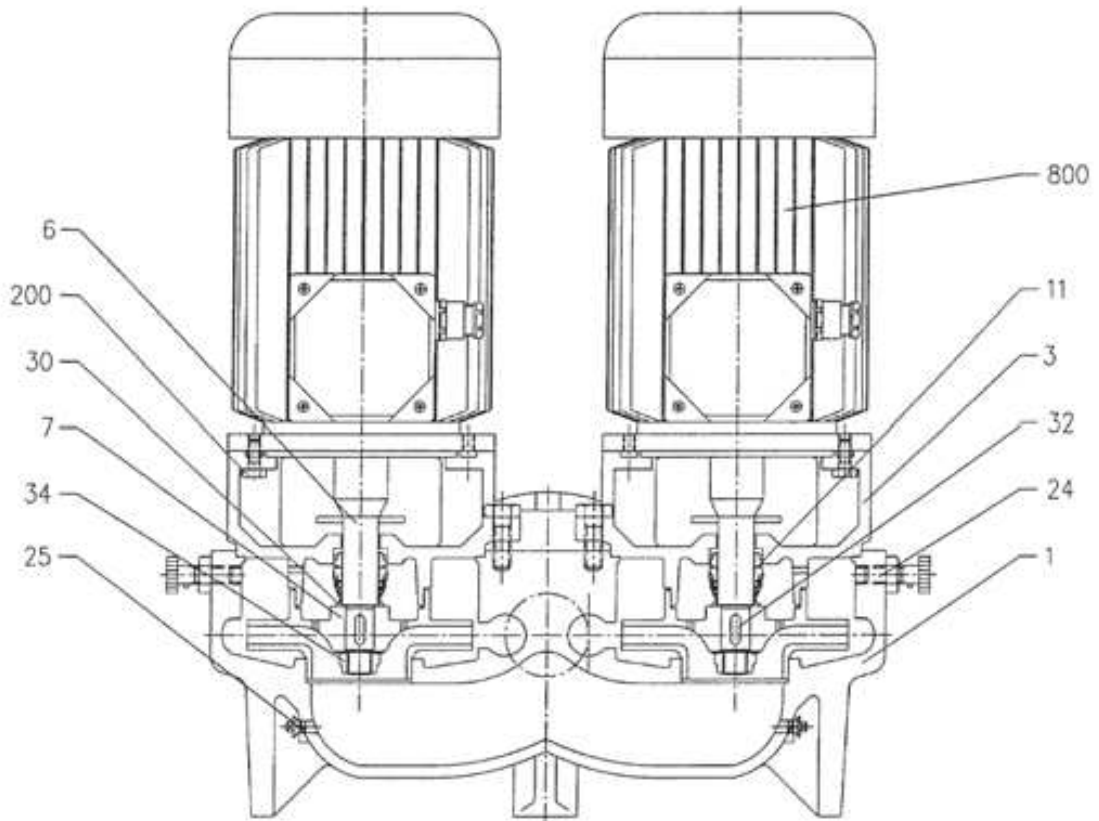
Rev. A

LPCD 100-200/11 (11 kW) MEI > 0.40 Impeller diameter = 140 mm  
 LPCD 100-200/15R (15 kW) MEI > 0.40 Impeller diameter = 173 mm  
 LPCD 100-200/15 (15 kW) MEI > 0.40 Impeller diameter = 150 mm



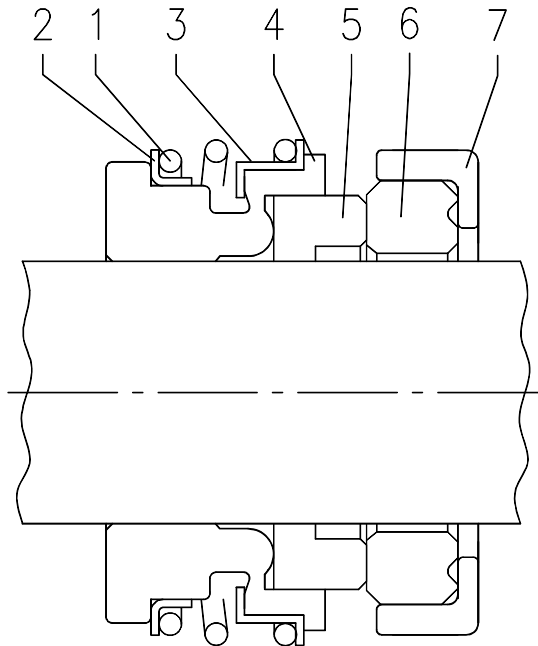
Rotation speed ≈ 2900 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex

SECTIONAL VIEW DRAWING



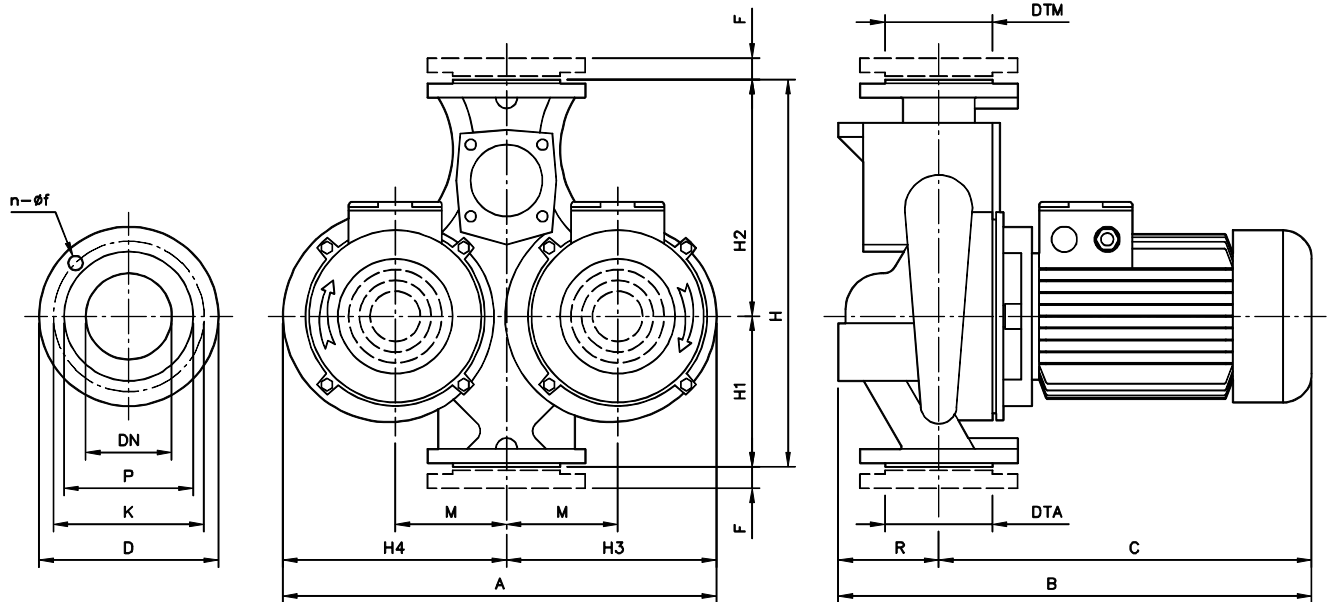
N°	PART NAME	MATERIAL
1	Casing	Cast Iron
3	Motor bracket	Cast Iron
6	Shaft with rotor	AISI 420
7	Impeller	Cast Iron
11	Mechanical seal	Carbon/SiC/EPDM
24	Priming plug	Stainless steel
25	Drain plug	Stainless steel
30	Spacer	Stainless steel
32	Key	Stainless steel
34	Impeller nut	Stainless steel
200	Screw	Stainless steel
800	Motor frame with stator	Alluminum

MECHANICAL SEAL



REF	PART NAME	MATERIAL (Max temperature: 110°C)
1	Spring	AISI 316
2	O Ring	EPDM
3	Frame	AISI 316
4	O Ring	EPDM
5	Rotating part	Carbon
6	Fixed part	SiC
7	Rubber cover	EPDM

PUMP LPCD



Model	Dimensions (mm)																	Weight (kgf)	
	DTA/M	DNA/M	n	f	P	K	D	H	H1	H2	H3	H4	M	R	F	A	B		C
LPCD 40-125/0,75R	G 1 1/2	40PN16	4	18	88	110	150	340	130	210	197	200	100	100	20	397	446	346	55
LPCD 40-125/0,75	G 1 1/2	40PN16	4	18	88	110	150	340	130	210	197	200	100	100	20	397	446	346	55
LPCD 40-125/1,1	G 1 1/2	40PN16	4	18	88	110	150	340	130	210	197	200	100	100	20	397	446	346	57
LPCD 40-125/1,5	G 1 1/2	40PN16	4	18	88	110	150	340	130	210	197	200	100	100	20	397	446	346	59
LPCD 50-125/1,5	G 2	50PN16	4	18	102	125	165	365	145	220	210	217	105	110	22	427	456	346	61
LPCD 50-125/2,2	G 2	50PN16	4	18	102	125	165	365	145	220	210	217	105	110	22	427	491	381	64
LPCD 50-125/3	G 2	50PN16	4	18	102	125	165	365	145	220	210	217	105	110	22	427	530	420	77
LPCD 50-160/3	G 2	50PN16	4	18	102	125	165	410	170	240	235	245	120	110	22	480	530	420	78
LPCD 50-160/4	G 2	50PN16	4	18	102	125	165	410	170	240	235	245	120	110	22	480	530	420	86
LPCD 65-160/3	G 2 1/2	65PN16	4	18	122	145	185	450	180	270	268	275	140	130	22	543	550	420	92
LPCD 65-160/4	G 2 1/2	65PN16	4	18	122	145	185	450	180	270	268	275	140	130	22	543	550	420	101
LPCD 65-160/5,5	G 2 1/2	65PN16	4	18	122	145	185	450	180	270	268	275	140	130	22	543	572	442	112
LPCD 65-160/7,5	G 2 1/2	65PN16	4	18	122	145	185	450	180	270	268	275	140	130	22	543	594	464	118
LPCD 80-160/7,5	G 3	80PN16	8	18	138	160	200	510	205	305	270	280	135	150	24	550	614	464	141
LPCD 80-160/11	G 3	80PN16	8	18	138	160	200	510	205	305	270	280	135	150	24	550	709	559	188
LPCD 80-160/15R	G 3	80PN16	8	18	138	160	200	510	205	305	270	280	135	150	24	550	760	610	193
LPCD 80-160/15	G 3	80PN16	8	18	138	160	200	510	205	305	270	280	135	150	24	550	760	610	193
LPCD 100-200/11	G 4	100PN16	8	18	158	180	220	630	240	390	345	325	165	180	26	670	751	571	226
LPCD 100-200/15R	G 4	100PN16	8	18	158	180	220	630	240	390	345	325	165	180	26	670	802	622	232
LPCD 100-200/15	G 4	100PN16	8	18	158	180	220	630	240	390	345	325	165	180	26	670	802	622	232



### MOTOR DATA

Pump type Three Phase	Power		Efficiency	Input [kW]	Efficiency (% load) and power-factor			Full load current [A]			Locked rotor current [A]			
	[kW]	[HP]			$\eta$ %	cos- $\phi$	230 V	400 V	690 V	230 V	400 V	690 V		
													50%	75%
LPCD 40-125/0,75R	0,75	1,0	IE2	0,92	77,3	78,5	80,5	0,78	3,0	1,7	-	24,7	14,3	-
LPCD 40-125/0,75	0,75	1,0	IE2	0,92	77,3	78,5	80,5	0,78	3,0	1,7	-	24,7	14,3	-
LPCD 40-125/1,1	1,1	1,5	IE2	1,35	79,5	81,2	81,5	0,78	4,3	2,5	-	41,1	23,8	-
LPCD 40-125/1,5	1,5	2,0	IE2	1,83	80,5	82,1	82,4	0,78	5,9	3,4	-	45,9	26,5	-
LPCD 50-125/1,5	1,5	2,0	IE2	1,83	80,5	82,1	82,4	0,78	5,9	3,4	-	45,9	26,5	-
LPCD 50-125/2,2	2,2	3,0	IE2	2,59	82,5	84,0	84,0	0,85	7,6	4,4	-	76,9	44,4	-
LPCD 50-125/3	3,0	4,0	IE2	3,43	84,1	85,8	85,5	0,84	10,3	5,9	-	105,3	60,8	-
LPCD 50-160/3	3,0	4,0	IE2	3,43	84,1	85,8	85,5	0,84	10,3	5,9	-	105,3	60,8	-
LPCD 50-160/4	4,0	5,5	IE2	4,64	85,2	86,4	86,1	0,86	13,6	7,8	-	140,5	81,1	-
LPCD 65-160/3	3,0	4,0	IE2	3,43	84,1	85,8	85,5	0,84	10,3	5,9	-	105,3	60,8	-
LPCD 65-160/4	4,0	5,5	IE2	4,64	85,2	86,4	86,1	0,86	13,6	7,8	-	140,5	81,1	-
LPCD 65-160/5,5	5,5	7,5	IE2	6,34	85,8	87,4	87,3	0,88	-	10,4	6,0	-	102,9	59,4
LPCD 65-160/7,5	7,5	10,0	IE3	8,38	88,0	89,7	90,1	0,84	-	14,4	8,3	-	149,7	86,4
LPCD 80-160/7,5	7,5	10,0	IE3	8,38	88,0	89,7	90,1	0,84	-	14,4	8,3	-	149,7	86,4
LPCD 80-160/11	11,0	15,0	IE3	12,27	90,0	90,8	91,2	0,89	-	19,9	11,5	-	193,0	111,4
LPCD 80-160/15R	15,0	20,0	IE3	16,33	91,0	92,2	91,9	0,88	-	26,8	15,5	-	257,3	148,5
LPCD 80-160/15	15,0	20,0	IE3	16,33	91,0	92,2	91,9	0,88	-	26,8	15,5	-	257,3	148,5
LPCD 100-200/11	11,0	15,0	IE3	12,27	90,0	90,8	91,2	0,89	-	19,9	11,5	-	193,0	111,4
LPCD 100-200/15R	15,0	20,0	IE3	16,33	91,0	92,2	91,9	0,88	-	26,8	15,5	-	257,3	148,5
LPCD 100-200/15	15,0	20,0	IE3	16,33	91,0	92,2	91,9	0,88	-	26,8	15,5	-	257,3	148,5

### NOISE DATA

Pump type Three Phase	Power		$L_{pA}$ - dB(A) *
	[kW]	[HP]	
LPCD 40-125/0,75R	0,55	0,75	<70
LPCD 40-125/0,75	0,75	1	
LPCD 40-125/1,1	1,1	1,5	
LPCD 40-125/1,5	1,5	2	
LPCD 50-125/1,5	1,5	2	
LPCD 50-125/2,2	2,2	3	
LPCD 50-125/3	3	4	72
LPCD 50-160/3	3	4	72
LPCD 50-160/4	4	5,5	78
LPCD 65-160/3	3	4	72
LPCD 65-160/4	4	5,5	78
LPCD 65-160/5,5	5,5	7,5	
LPCD 65-160/7,5	7,5	10	80
LPCD 80-160/7,5	7,5	10	
LPCD 80-160/11	11	15	
LPCD 80-160/15R	12,5	17	
LPCD 80-160/15	15	20	
LPCD 100-200/15R	11	15	
LPCD 100-200/11	15	20	
LPCD 100-200/15	15	20	

\* Mean value of several measures at 1m distance around the  
Tolerance  $\pm 2.5$  dB.