
EBARA

CONTENTS

50Hz

Rev. 0

LPCD 4 Poles

SPECIFICATION

50Hz

Rev. 0

PUMP			
Liquid Handled	Type of liquid		Clean water
	Temperature	[°C]	min. -10 max +130
	Viscosity	[°E]	max 5
Maximum ambient temperature		[°C]	40 (over ask for details)
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
	Discharge		UNI 2223-29 PN16
Material	Casing		CAST IRON
	Impeller		CAST IRON
	Casing cover		CAST IRON
	Shaft seal		Carbon/SiC/EPDM (SiC/SiC/NBR optional)
	Shaft		AISI
	Bracket		CAST IRON
Applicable standard of test			ISO 9906 – Annex A

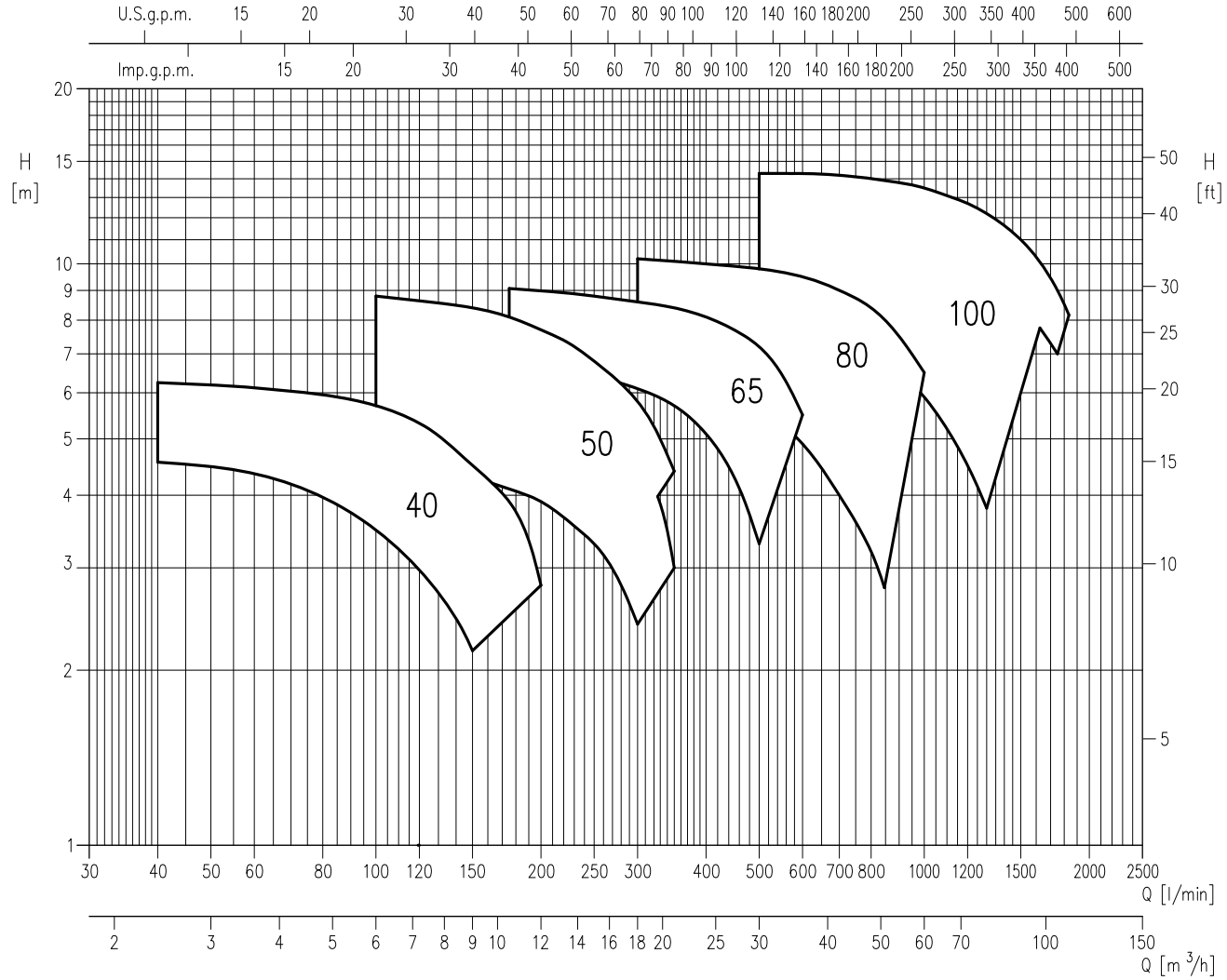
MOTOR		
Type		Electric - TEFC
		Three Phase
Efficiency level (Reg. 640/2009)		IE1 from 0.37 kW up to 0.55 kW IE2 0.75 kW and above
No. of Poles		4
Rotation speed	[min^{-1}]	≈ 1400
Insulation Class		F
Protection degree (CEI EN 60034-5)		IP 55
Power rating	[kW]	0.37 ÷ 37
	[HP]	0.5 ÷ 55
Frequency	[Hz]	50
Voltage	[V]	230/400 ±10%
Over load protection		Provided by the user
Casing material		Alluminum (up to MEC 132)

LPCD 4 Poles

SELECTION CHART

50Hz

Rev. 0



SELECTION CHART

50Hz

Rev. 0

LPCD 4 Poles: 40, 50, 65 Version

Pump type LPCD4	Power		Capacity																	
			l/min	0	40	50	75	100	125	150	175	200	225	250	300	350	400	450	500	600
Three Phase	[kW]	[HP]	m³/h	0	2,4	3	4,5	6	7,5	9	10,5	12	13,5	15	18	21	24	27	30	36
			H=Total manometric head in meters																	
LPCD4 40-125/0,25R	0,25	0,33		4,8	4,5	4,4	4,1	3,7	3	2,2	-	-	-	-	-	-	-	-	-	-
LPCD4 40-125/0,25	0,25	0,33		6,3	-	6,2	6	5,7	5,2	4,5	3,9	2,8	-	-	-	-	-	-	-	-
LPCD4 50-125/0,25	0,25	0,33		4,8	-	-	-	4,6	4,5	4,3	4,1	3,9	3,6	3,3	2,4	-	-	-	-	-
LPCD4 50-125/0,37	0,37	0,5		6,4	-	-	-	6,3	6,2	6,1	6	5,8	5,6	5,3	4,6	3	-	-	-	-
LPCD4 50-160/0,55	0,5	0,7		9,2	-	-	-	8,8	8,6	8,4	8,1	7,7	7,3	6,8	5,8	4,4	-	-	-	-
LPCD4 65-160/0,75R	0,55	0,75		6,9	-	-	-	-	-	6,8	6,7	6,6	6,5	6,4	6,1	5,7	5,1	4,3	3,3	-
LPCD4 65-160/0,75	0,75	1		8,3	-	-	-	-	-	-	-	8,1	8	7,9	7,8	7,4	7	6,6	6	4
LPCD4 65-160/1.1	0,9	1,25		9,1	-	-	-	-	-	-	-	9,0	8,9	8,8	8,7	8,4	8,1	7,7	7,2	5,5

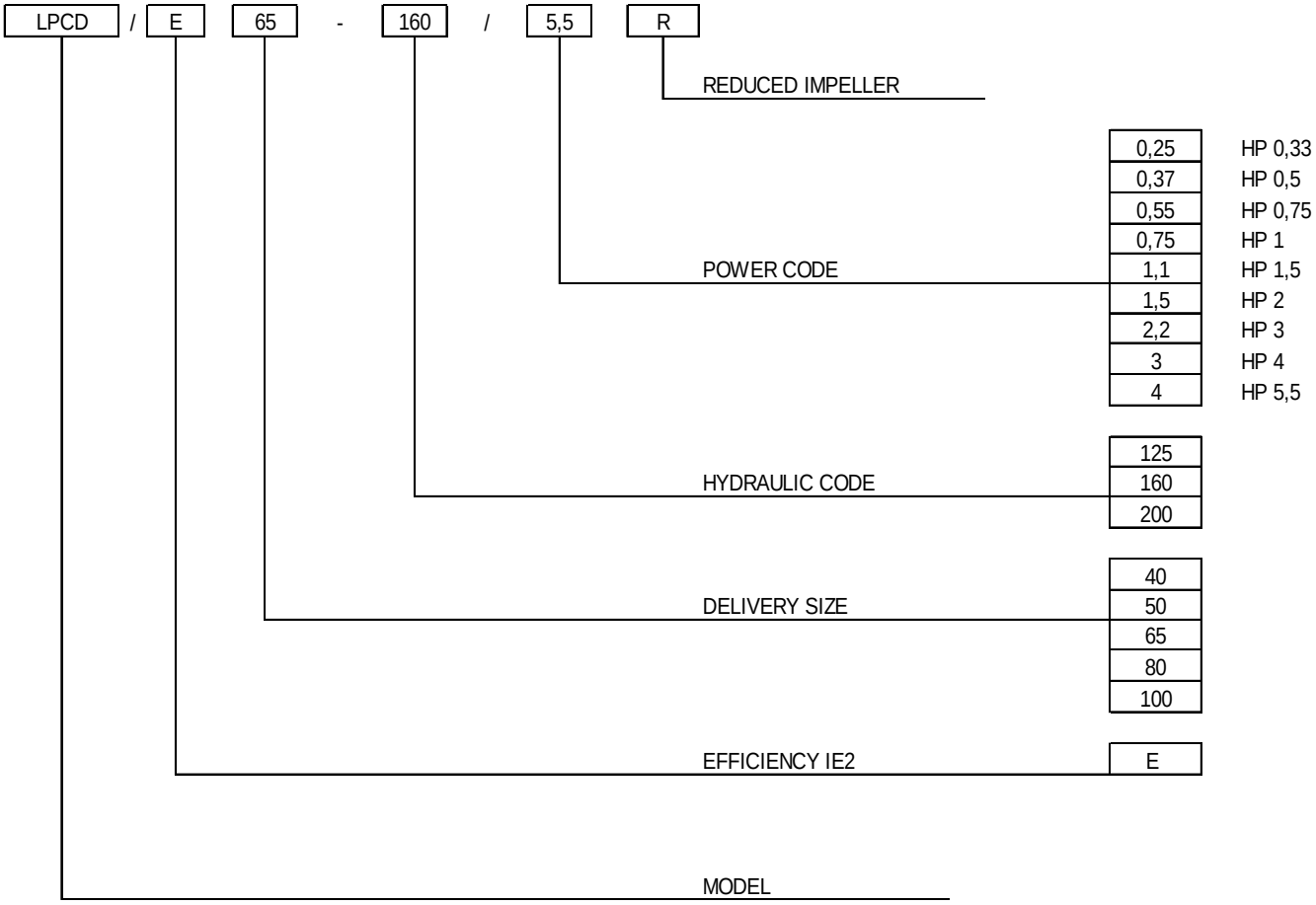
LPCD 4 Poles: 80, 100 Version

Pump type LPCD4	Power		Capacity																	
			l/min	0	300	350	400	450	500	600	700	800	900	1000	1100	1200	1300	1500	1750	2000
Three Phase	[kW]	[HP]	m³/h	0	18	21	24	27	30	36	42	48	54	60	66	72	78	90	105	120
			H=Total manometric head in meters																	
LPCD4 80-160/0,75	0,75	1		6,4	6,3	6,1	6	5,8	5,6	4,9	4	3,2	2,2	-	-	-	-	-	-	-
LPCD4 80-160/1.1R	0,90	1,25		7,4	7,3	7,2	7,1	7	6,8	6,3	5,6	4,8	3,8	-	-	-	-	-	-	-
LPCD4 80-160/1,5R	1,1	1,5		8,6	8,5	8,5	8,4	8,3	8,2	7,9	7,3	6,7	5,9	5	-	-	-	-	-	-
LPCD4 80-160/1,5	1,5	2		10,3	10,2	10,1	10	9,9	9,8	9,5	9	8,4	7,5	6,5	-	-	-	-	-	-
LPCD4 100-200/1,5	1,5	2		8,6	-	-	-	-	8,1	7,8	7,4	7	6,5	5,9	5,2	4,5	3,8	-	-	-
LPCD4 100-200/2,2	2,2	3		10,6	-	-	-	-	10,2	10	9,7	9,3	9	8,6	8,2	7,7	7,2	6	-	-
LPCD4 100- 200/3	3	4		12,7	-	-	-	-	-	12	11,8	11,5	11,3	10,9	10,5	10	9,5	8,5	7	-
LPCD4 100-200/4	4	5,5		14,9	-	-	-	-	-	14,3	14,2	14	13,8	13,4	13,1	12,7	12,2	11	9	6,5

TYPE KEY AND CURVE SPECIFICATION 50Hz

Rev. 0

TYPE KEY:



TYPE KEY AND CURVE SPECIFICATION 50Hz

Rev. 0

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 ν = 1 mm^2/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:

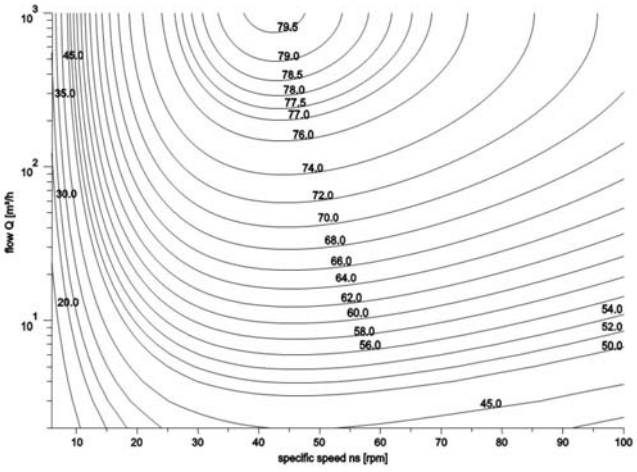
Q	=	volume flow rate
H	=	total head
P_2	=	pump power input (shaft power)
η	=	pump efficiency
NPSH	=	net positive suction head required by the pump
MEI	=	minimum efficiency index

The minimun 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.

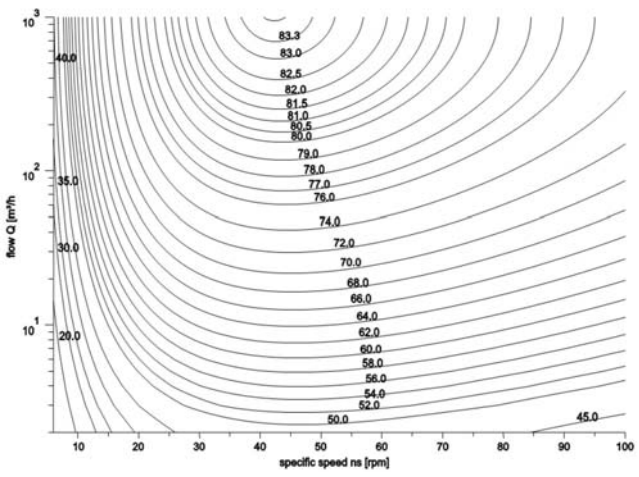
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

The operation of these water pumps with variabile duty points may be more efficient end 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 ESCCi 2900rpm



MEI=0.7 for ESCCi 2900 rpm

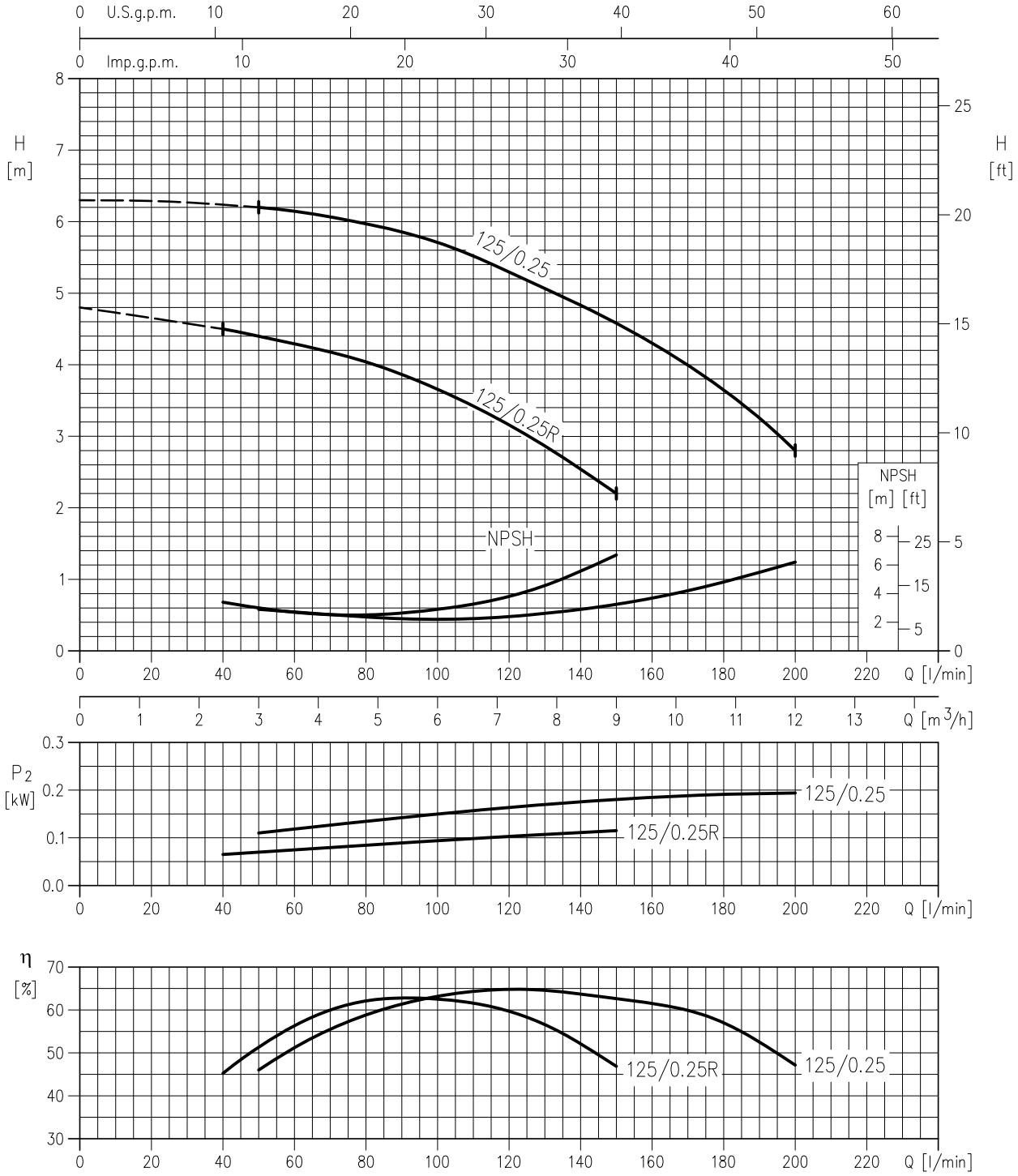


PERFORMANCE CURVE

50Hz

Rev. 0

LPCD 40-125/0.25R (0.25 kW) MEI > 0.70 - Impeller diameter = 125 mm
LPCD 40-125/0.25 (0.25 kW) MEI > 0.70 - Impeller diameter = 125 mm



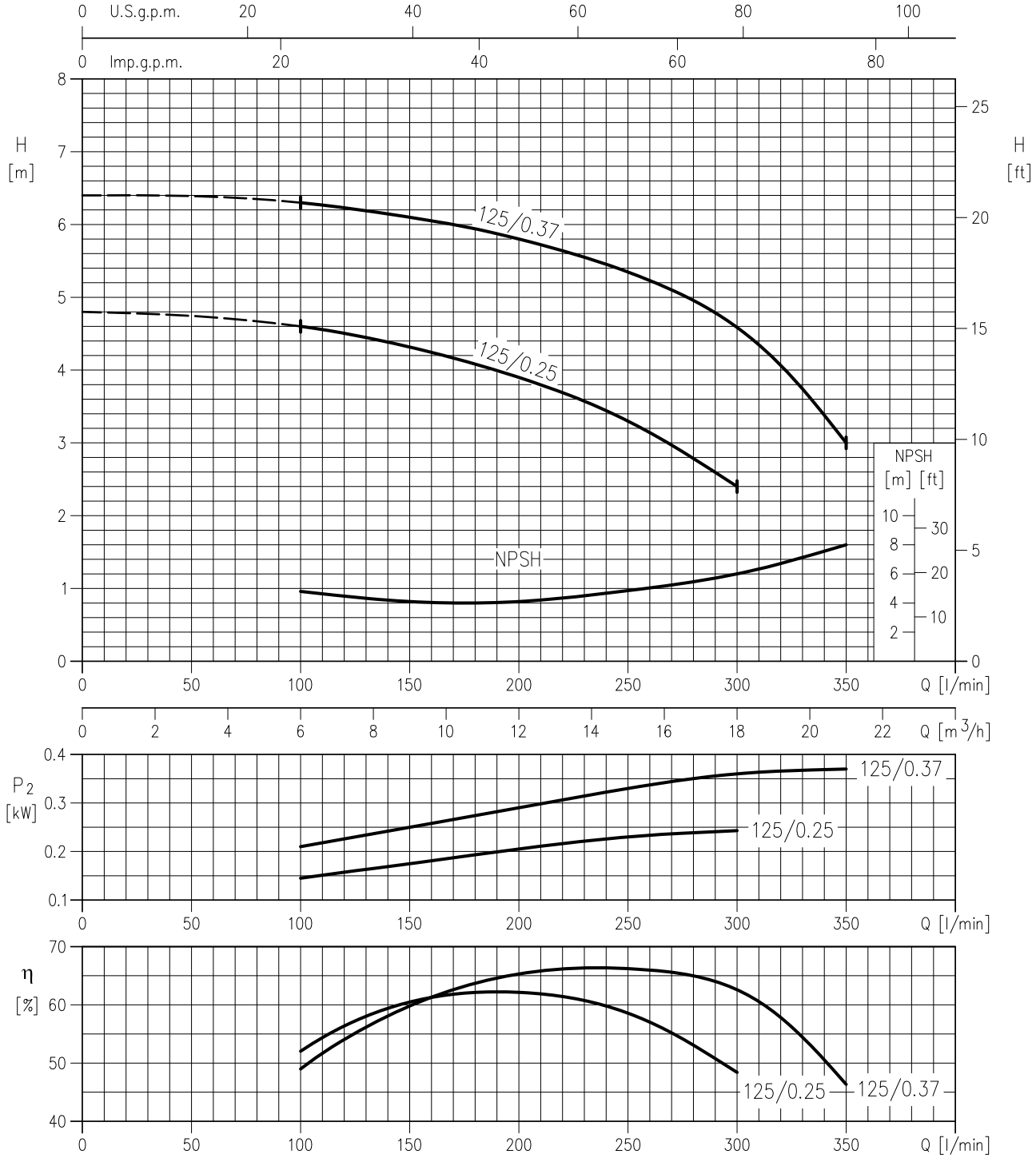
Rotation speed ≈ 1400 min^{-1}
Test standard: ISO 9906 – Annex A

PERFORMANCE CURVE

50Hz

Rev. 0

LPCD4 50-125/0.25 (0.25 kW) MEI > 0.70 - Impeller diameter = 125 mm
LPCD4 50-125/0.37 (0.37 kW) MEI > 0.70 - Impeller diameter = 125 mm



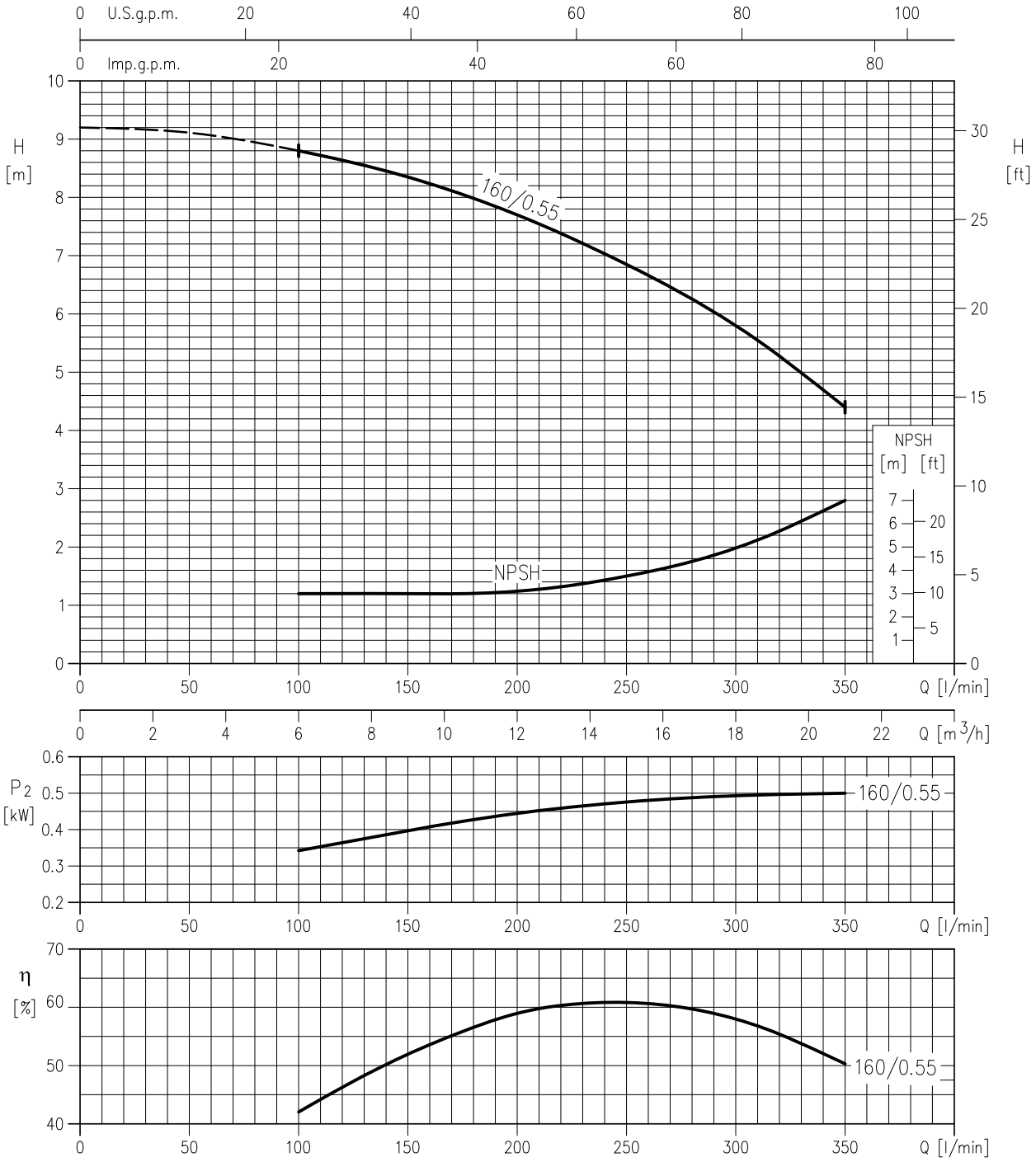
Rotation speed ≈ 1400 min^{-1}
Test standard: ISO 9906 – Annex A

PERFORMANCE CURVE

50Hz

Rev. 0

LPCD4 50-160/0.55 (0.55 kW) MEI > 0.40 - Impeller diameter = 160 mm



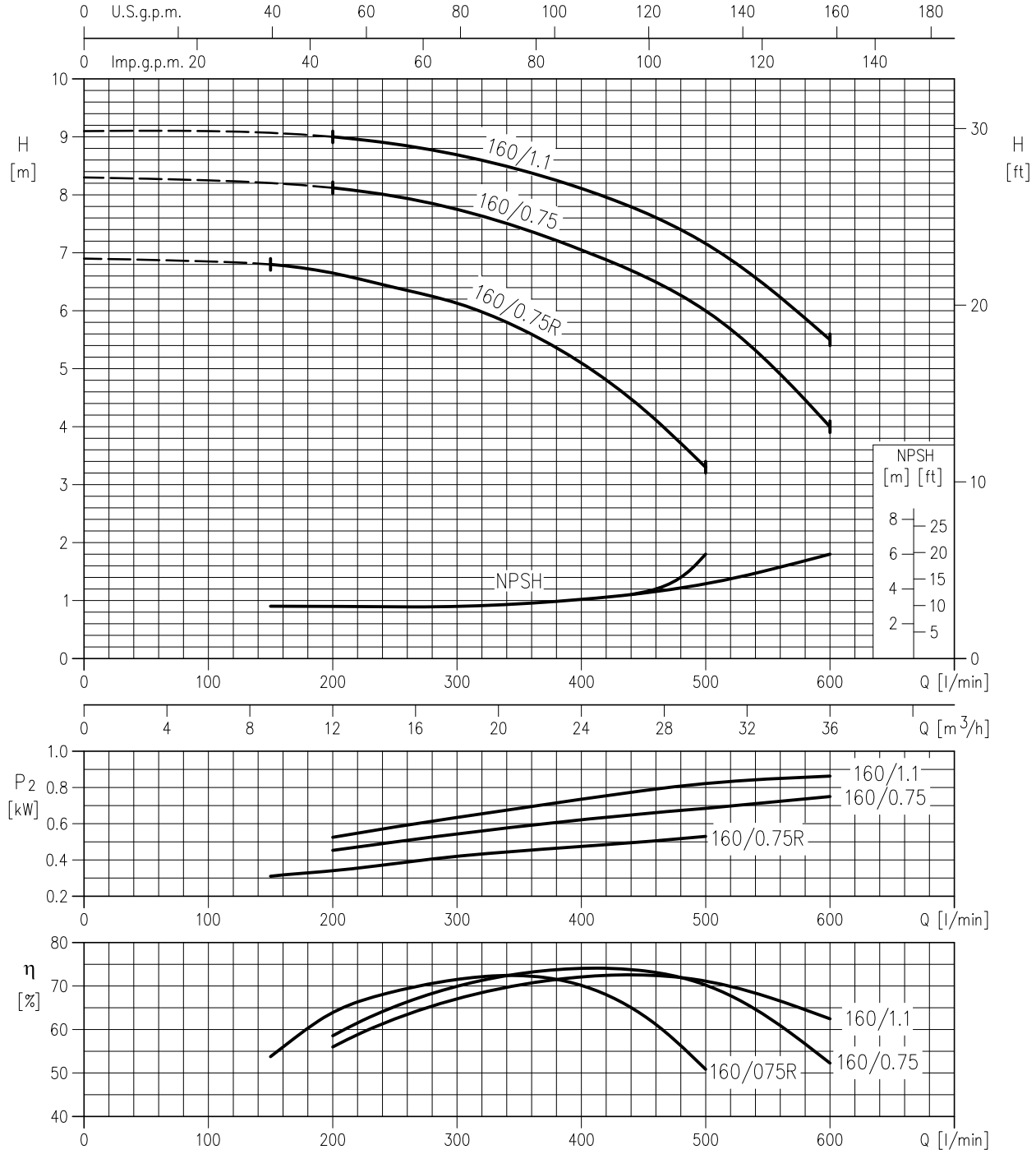
Rotation speed ≈ 1400 min^{-1}
Test standard: ISO 9906 – Annex A

PERFORMANCE CURVE

50Hz

Rev. 0

LPCD4 65-160/0.75R (0.75 kW) MEI > 0.70 - Impeller diameter = 160 mm
LPCD4 65-160/0.75 (0.75 kW) MEI > 0.70 - Impeller diameter = 160 mm
LPCD4 65-160/1.1 (1.1 kW) MEI > 0.70 - Impeller diameter = 160 mm



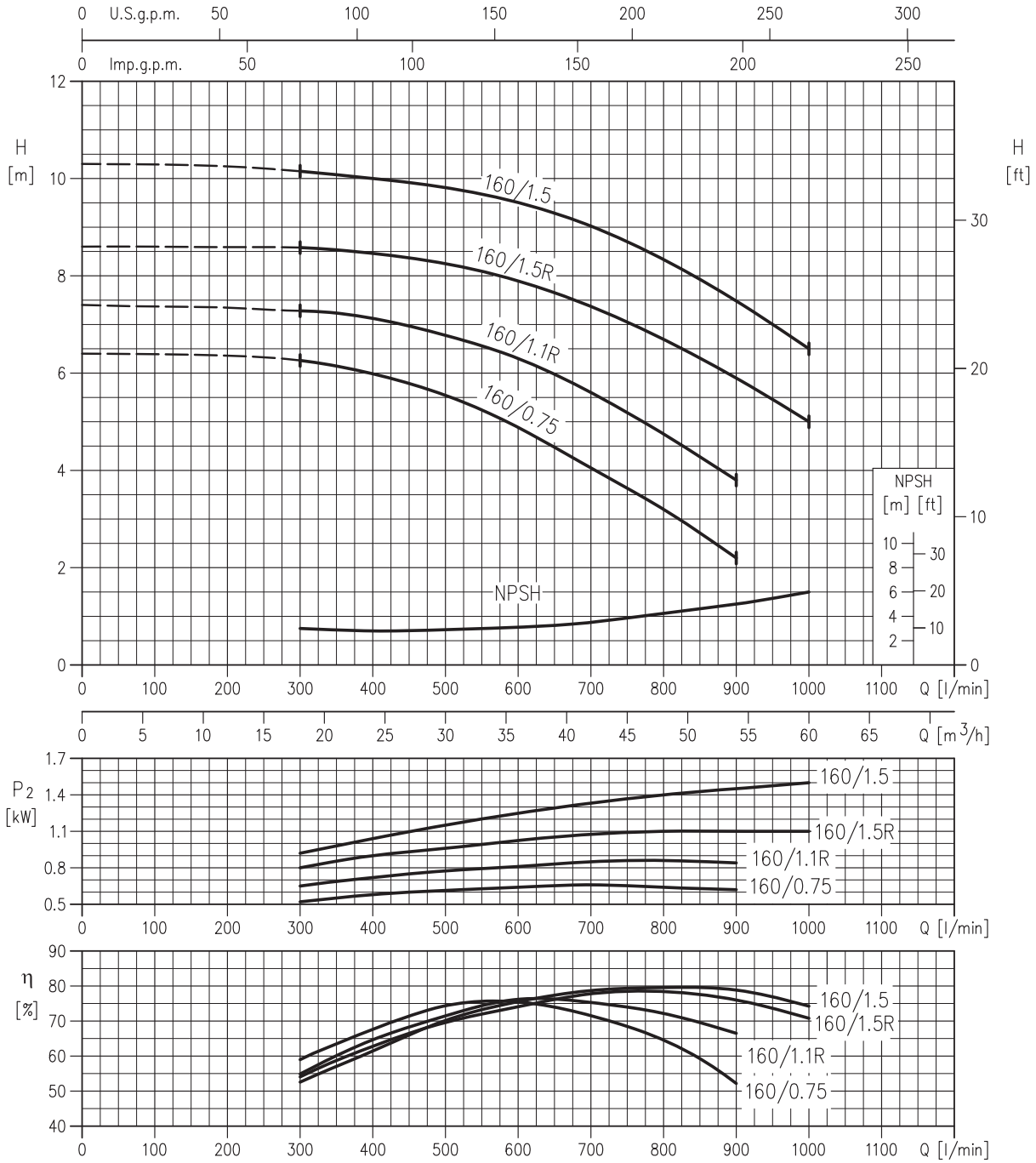
Rotation speed ≈ 1400 min^{-1}
Test standard: ISO 9906 – Annex A

PERFORMANCE CURVE

50Hz

Rev. 0

LPCD4 80-160/0.75 (0.75 kW) **MEI > 0.70 - Impeller diameter = 160 mm**
LPCD4 80-160/1.1R (1.1 kW) **MEI > 0.70 - Impeller diameter = 160 mm**
LPCD4 80-160/1.5R (1.5 kW) **MEI > 0.70 - Impeller diameter = 160 mm**
LPCD4 80-160/1. (1.5 kW) **MEI > 0.70 - Impeller diameter = 160 mm**



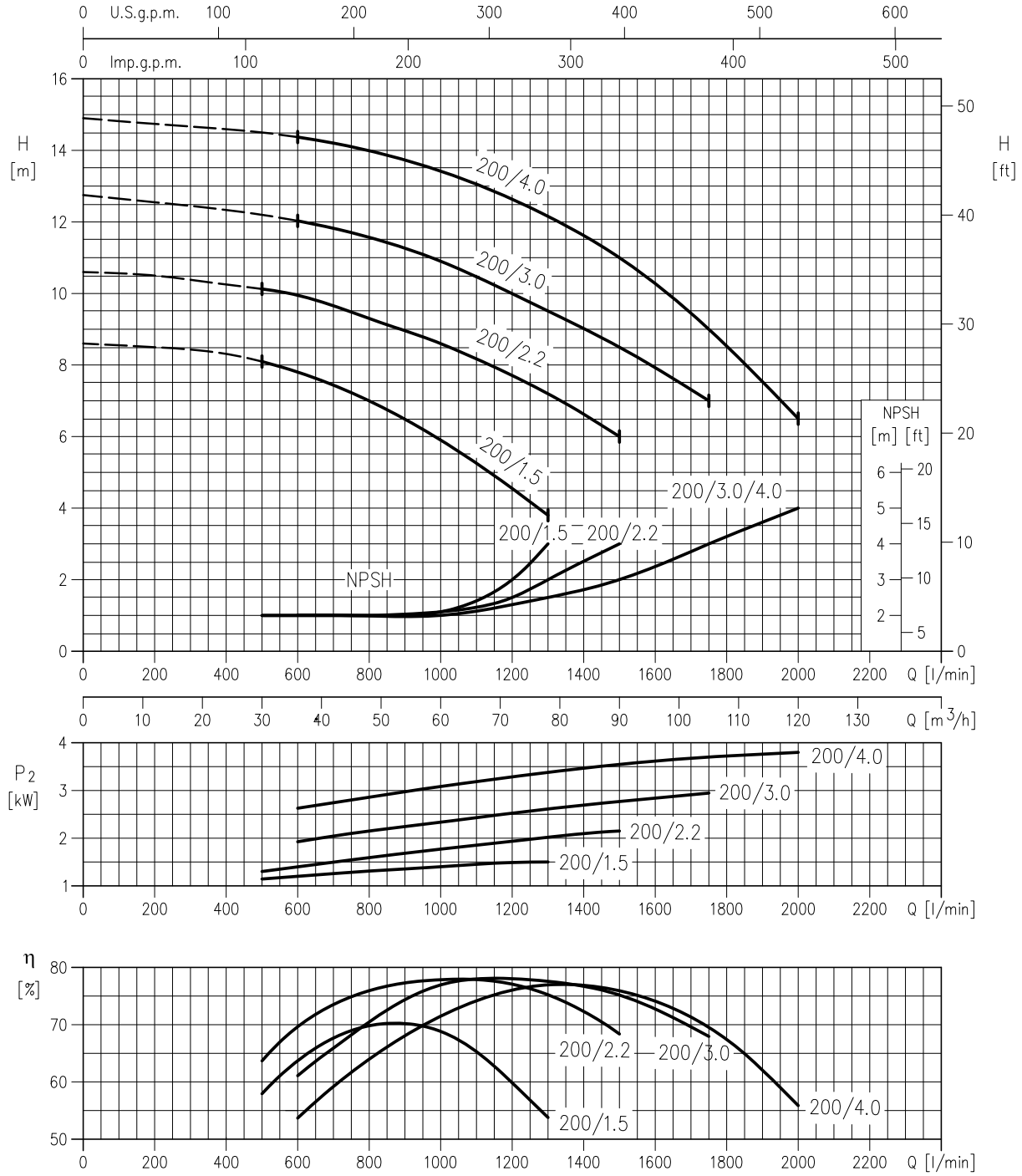
Rotation speed ≈ 1400 min
Test standard: ISO 9906 – Annex A

PERFORMANCE CURVE

50Hz

Rev. 0

LPCD4 100-200/1.5 (1.5 kW) MEI > 0.40 - Impeller diameter = 200 mm
LPCD4 100-200/2.2 (2.2 kW) MEI > 0.40 - Impeller diameter = 200 mm
LPCD4 100-200/3.0 (3.0 kW) MEI > 0.40 - Impeller diameter = 200 mm
LPCD4 100-200/4.0 (4.0 kW) MEI > 0.40 - Impeller diameter = 200 mm



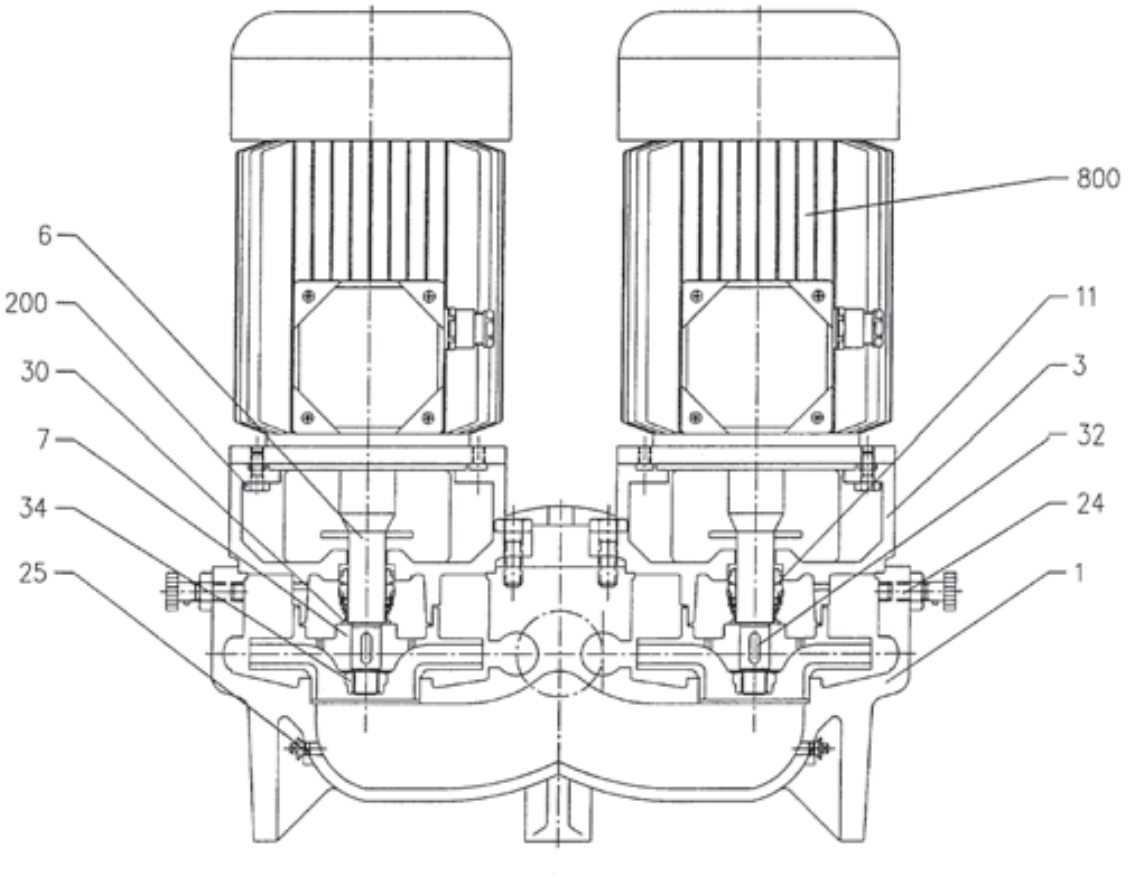
Rotation speed ≈ 1400 min^{-1}
Test standard: ISO 9906 – Annex A

CONSTRUCTION

50Hz

Rev. 0

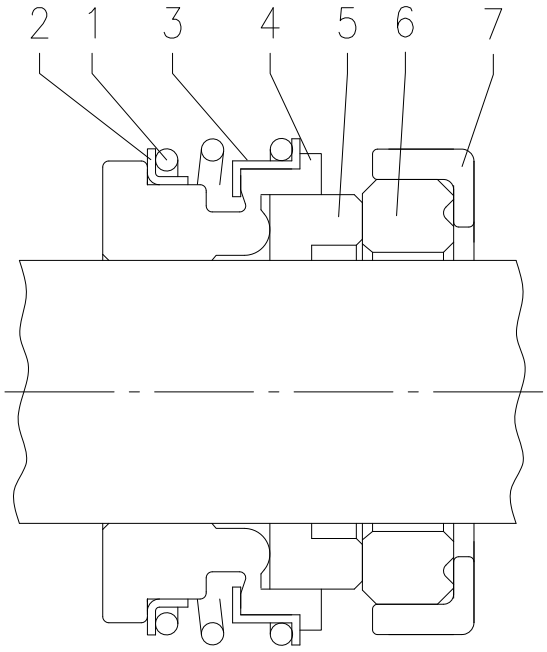
SECTIONAL VIEW DRAWING



N°	PART NAME	MATERIAL
1	Casing	Cast Iron
3	Motor bracket	Cast Iron
6	Shaft with rotor	AISI
7	Impeller	Cast Iron
11	Mechanical seal [1]	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 (up to MEC 132)

[1] Sic/Sic/NBR optional

MECHANICAL SEAL



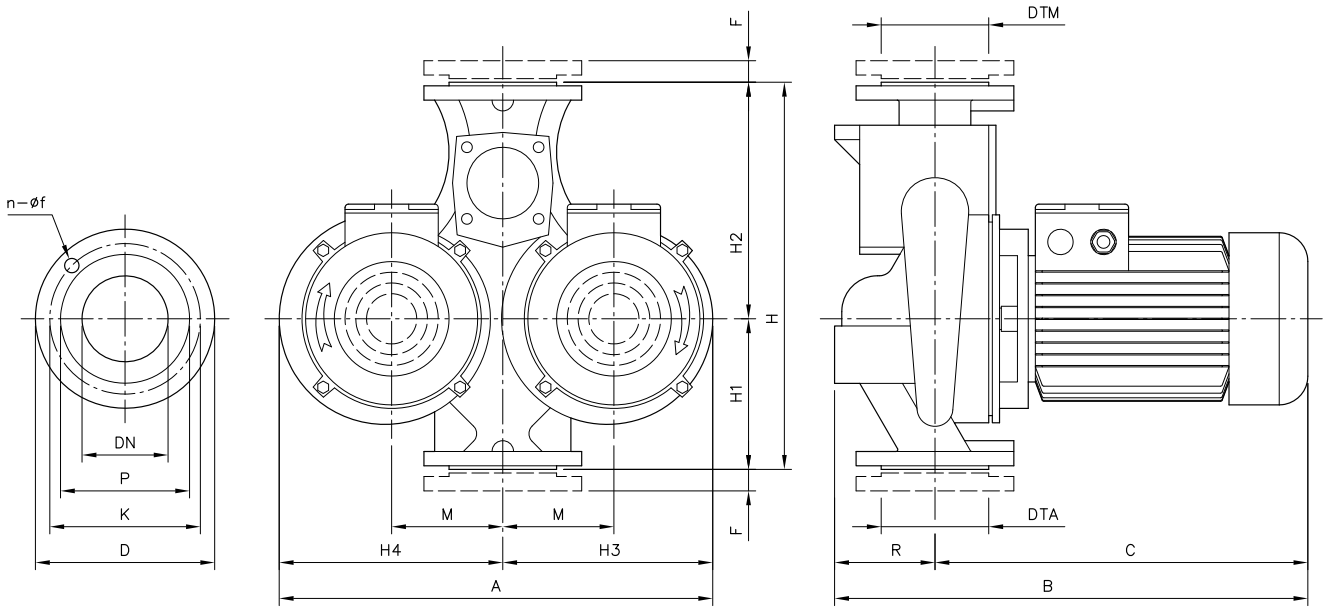
REF	PART NAME	MATERIAL	
		Standard version Max temperature: 90°C	Optional Max temperature: 110°C
1	Spring	AISI 316	AISI 316
2	O Ring	EPDM	NBR
3	Frame	AISI 316	AISI 316
4	O Ring	EPDM	NBR
5	Rotating part	Carbon	SiC
6	Fixed part	SiC	SiC
7	Rubber cover	EPDM	NBR

DIMENSIONS AND WEIGHT

50Hz

Rev. 0

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	
LPCD4 40-125/0,25R	G 1 1/2	40PN16	4	18	88	110	150	340	130	210	197	200	100	100	20	397	430	330	44
LPCD4 40-125/0,25	G 1 1/2	40PN16	4	18	88	110	150	340	130	210	197	200	100	100	20	397	430	330	44
LPCD4 50-125/0,25	G 2	50PN16	4	18	102	125	165	365	145	220	197	200	105	110	22	397	440	330	47
LPCD4 50-125/0,37	G 2	50PN16	4	18	102	125	165	365	145	220	197	200	105	110	22	397	440	330	46
LPCD4 50-160/0,55	G 2	50PN16	4	18	102	125	165	365	145	220	235	245	120	110	22	480	440	330	53
LPCD4 65-160/0,75R	G 2 1/2	65PN16	4	18	122	145	185	450	180	270	268	275	140	130	22	543	460	330	66
LPCD4 65-160/0,75	G 2 1/2	65PN16	4	18	122	145	185	450	180	270	268	275	140	130	22	543	503	373	75
LPCD4 65-160/1,1	G 2 1/2	65PN16	4	18	122	145	185	450	180	270	268	275	140	130	22	543	539	409	83
LPCD4 80-160/0,75	G 3	80PN16	4	18	138	160	200	510	205	305	270	280	135	150	24	550	523	373	82
LPCD4 80-160/1,1R	G 3	80PN16	4	18	138	160	200	510	205	305	270	280	135	150	24	550	559	409	90
LPCD4 80-160/1,1	G 3	80PN16	4	18	138	160	200	510	205	305	270	280	135	150	24	550	559	409	95
LPCD4 80-160/1,5	G 3	80PN16	4	18	138	160	200	510	205	305	270	280	135	150	24	550	559	409	95
LPCD4 100-200/1,5	G 4	100PN16	8	18	188	180	220	630	240	390	345	325	165	180	26	670	601	421	142
LPCD4 100-200/2,2	G 4	100PN16	8	18	188	180	220	630	240	390	345	325	165	180	26	670	846	468	160
LPCD4 100-200/3	G 4	100PN16	8	18	188	180	220	630	240	390	345	325	165	180	26	670	648	468	174
LPCD4 100-200/4	G 4	100PN16	8	18	188	180	220	630	240	390	345	325	165	180	26	670	666	486	192

TECHNICAL DATA

50Hz

Rev. 0

MOTOR DATA

Pump type Three Phase	Power [kW]	Power [HP]	Efficiency Three Phase	Efficiency (% Three phase η % 50%	75%	100%	Input [kW]	Full load current [A] 230 V	400 V	690 V	Locked rotor current [A] 230 V	400 V	690 V
LPCD4 40-125/0,25R	0,25	0,33	IE1	55	59	64	0,41	1,6	0,9	-	5	2,9	-
LPCD4 40-125/0,25	0,25	0,33	IE1	55	59	64	0,41	1,6	0,9	-	5	2,9	-
LPCD4 50-125/0,25	0,25	0,33	IE1	55	59	64	0,41	1,6	0,9	-	5	2,9	-
LPCD4 50-125/0,37	0,37	0,5	IE1	60,0	63,0	67,0	0,56	2,1	1,2	-	8,5	4,9	-
LPCD4 50-160/0,55	0,55	0,75	IE1	67,0	69,0	70,0	0,80	2,8	1,6	-	11,6	6,7	-
LPCD4 65-160/0,75R	0,75	1,0	IE2	79,2	80,3	80,2	0,95	3,1	1,8	-	17,1	9,9	-
LPCD4 65-160/0,75	0,75	1,0	IE2	79,2	80,3	80,2	0,95	3,1	1,8	-	17,1	9,9	-
LPCD4 65-160/1.1	1,1	1,5	IE2	81,4	82,7	82,5	1,33	4,3	2,5	-	26,3	15,2	-
LPCD4 80-160/0,75	0,75	1,0	IE2	79,2	80,3	80,2	0,95	3,1	1,8	-	17,1	9,9	-
LPCD4 80-160/1.1R	1,1	1,5	IE2	81,4	82,7	82,5	1,33	4,3	2,5	-	26,3	15,2	-
LPCD4 80-160/1,1	1,1	1,5	IE2	81,4	82,7	82,5	1,33	4,3	2,5	-	26,3	15,2	-
LPCD4 80-160/1,5	1,5	2	IE2	81,0	83,5	83,0	1,81	5,9	3,4	-	46,5	26,9	-
LPCD4 100-200/1,5	1,5	2	IE2	81,0	83,5	83,0	1,81	5,9	3,4	-	46,5	26,9	-
LPCD4 100-200/2,2	2,2	3	IE2	84,0	85,3	85,1	2,61	8,8	5,1	-	53,0	30,6	-
LPCD4 100- 200/3	3	4	IE2	82,6	84,7	86,4	3,47	11,3	6,5	-	95,7	55,3	-
LPCD4 100-200/4	4	5,5	IE2	86,0	87,3	87,1	4,59	14,7	8,5	-	89,7	51,8	-

NOISE DATA

Pump type Three Phase	Power [kW]	Power [HP]	LpA - dB(A) *
LPCD4 40-125/0,25R	0,25	0,33	<70
LPCD4 40-125/0,25	0,25	0	
LPCD4 50-125/0,25	0,3	0,3	
LPCD4 50-125/0,37	0,4	1	
LPCD4 50-160/0,55	0,5	1	
LPCD4 65-160/0,75R	0,6	1	
LPCD4 65-160/0,75	1	1	
LPCD4 65-160/1.1	1	1	
LPCD4 80-160/0,75	1	1,0	
LPCD4 80-160/1.1R	1	1	
LPCD4 80-160/1,1	1	1,5	
LPCD4 80-160/1,5	1,5	2,0	
LPCD4 100-200/1,5	1,5	2	
LPCD4 100-200/2,2	2,2	3	
LPCD4 100- 200/3	3	4	72
LPCD4 100-200/4	4,0	6	78

* Mean value of several measures at 1m distance around
Tollerance ± 2.5 dB.