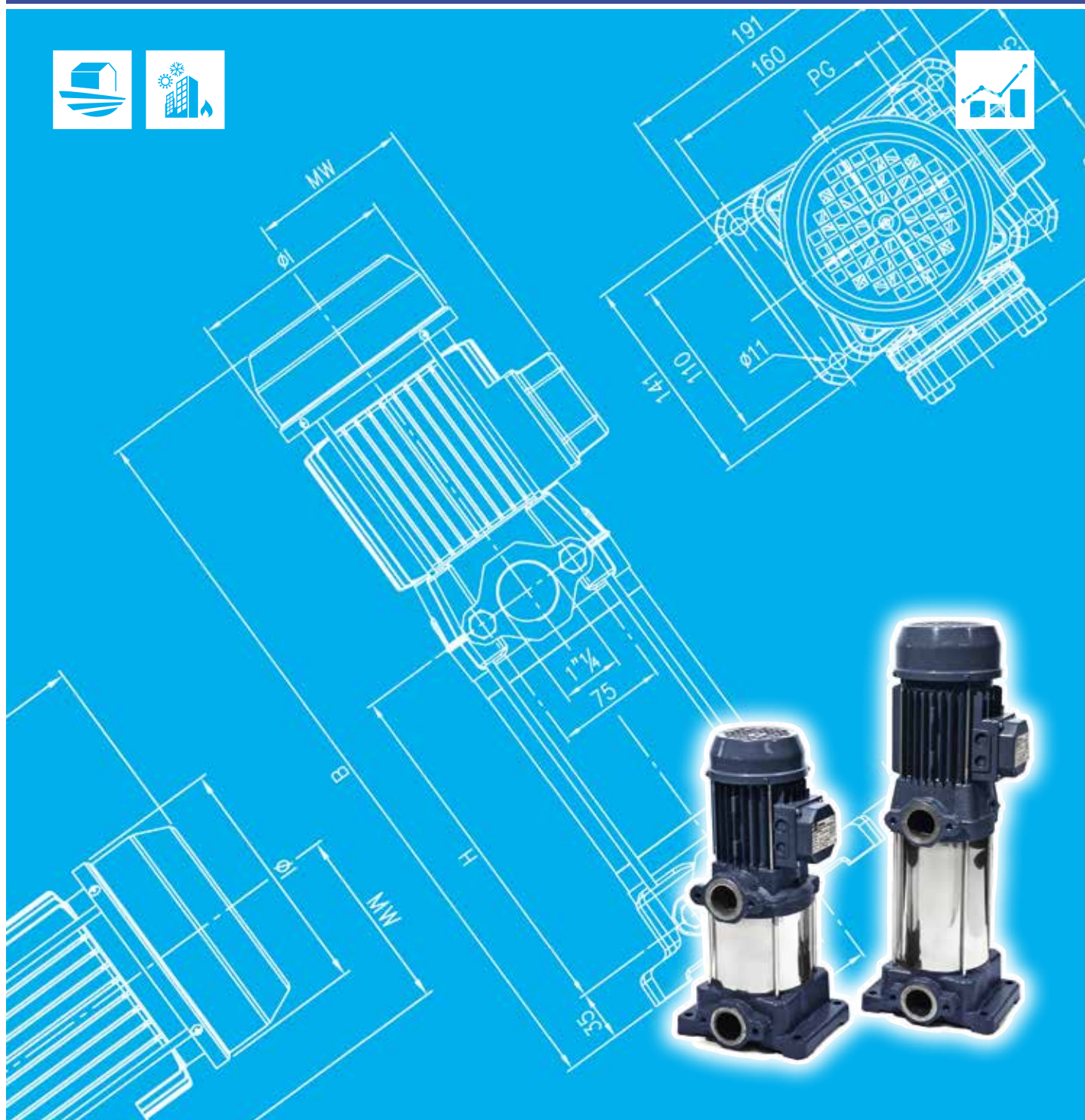




Japanese Technology since 1912

CVM

Data Book 50Hz



	Page
- SPECIFICATIONS	200
SELECTION CHART	201
TYPE KEY AND CURVE SPECIFICATIONS	202
PERFORMANCE CURVE CVM A (UP TO 0.6 KW)	204
PERFORMANCE CURVE CVM A (FROM 0.75 KW UP TO 1.1 KW)	205
PERFORMANCE CURVE CVM A (FROM 1.3 KW AND ABOVE)	206
PERFORMANCE CURVE CVM B (UP TO 1.1 KW)	207
PERFORMANCE CURVE CVM B (FROM 1.5 KW AND ABOVE)	208
 - CONSTRUCTIONS	 300
SECTIONAL VIEW DRAWING	300
SECTIONAL VIEW TABLE	301
QUANTITY FOR MODEL AND BEARINGS	302
MECHANICAL SEAL	303
 - DIMENSIONS AND WEIGHT	 400
PUMP	400
PACKING	401
 - TECHNICAL DATA	 500
MOTOR DATA	500
NOISE DATA	500

SPECIFICATION

50Hz

Rev. R

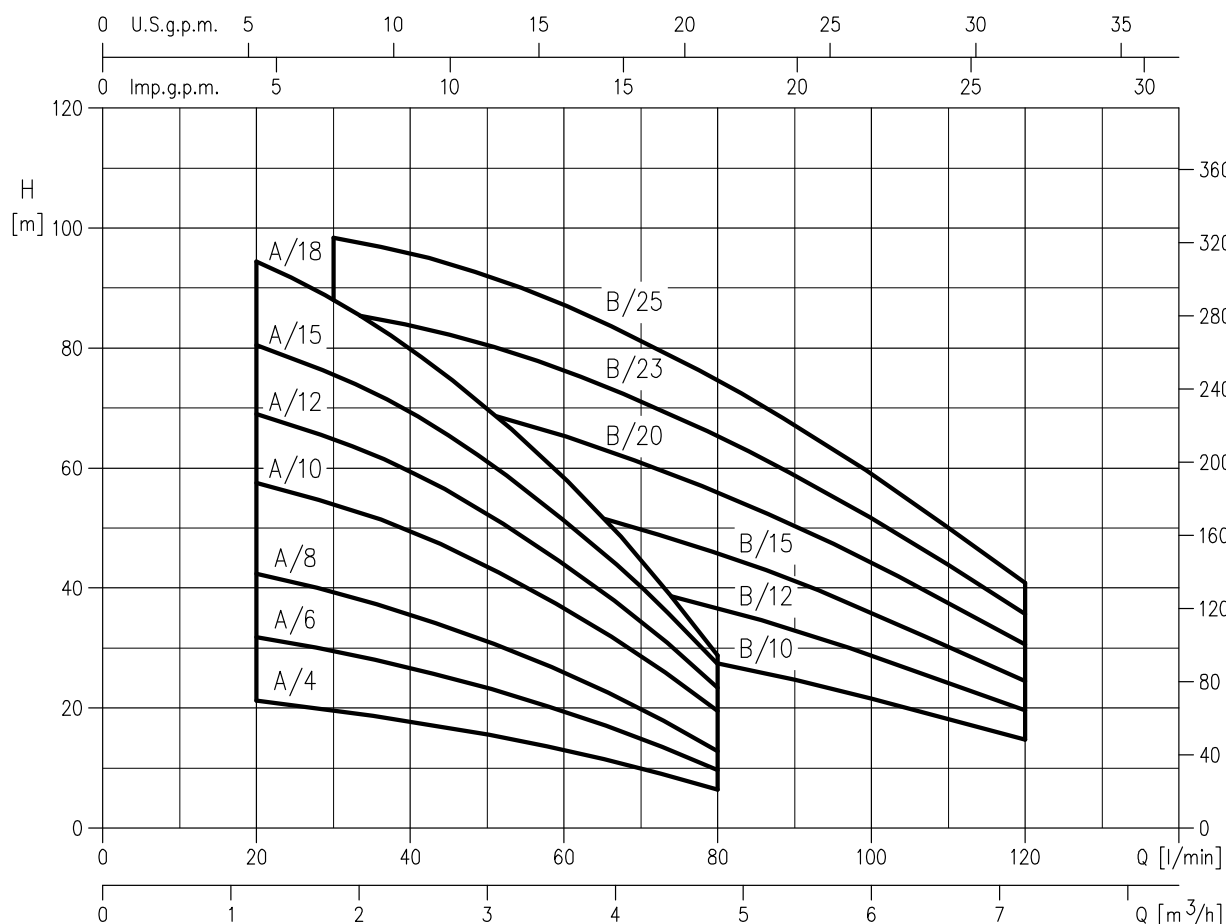
PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. +5 max. +40
Maximum working pressure [MPa]		1.1
Construction	Impeller	Closed centrifugal
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction	G 1"¼ UNI ISO 228
	Discharge	G 1"¼ UNI ISO 228
Material	Casing	Cast iron
	Impeller	PPE+PS Glass fibre reinforced
	Shaft seal	Ceramic/Carbon/NBR
	External pump casing	AISI 304
	Shaft	AISI 416
	Stages	PPE+PS Glass fibre reinforced /PTFE
	Diffuser	PPE+PS Glass fibre reinforced
	Bracket	Cast iron
Applicable standard of test		ISO 9906:2012 – Grade 3B

MOTOR		
Type	Electric asynchronous- TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 1781/2019)	IE2	IE3
No. of Poles	2	
Rotation speed [min ⁻¹]	≈ 2850	
Insulation Class	F	
Protection degree (CEI EN 60034-5)	IP 44	
Power rating	[kW]	0.37 ÷ 1.8
	[HP]	0.5 ÷ 2.4
Frequency [Hz]	50	
Voltage [V]	230 ±10%	230/400 ±10%
Capacitor	Built in	-
Over load protection	Built in	Provided by the user
Casing material	Aluminium	
Dimensions of cable entry	PG 11 – PG 13.5 - M16x1.5 – M20x1.5 (see pag. 400)	

SELECTION CHART

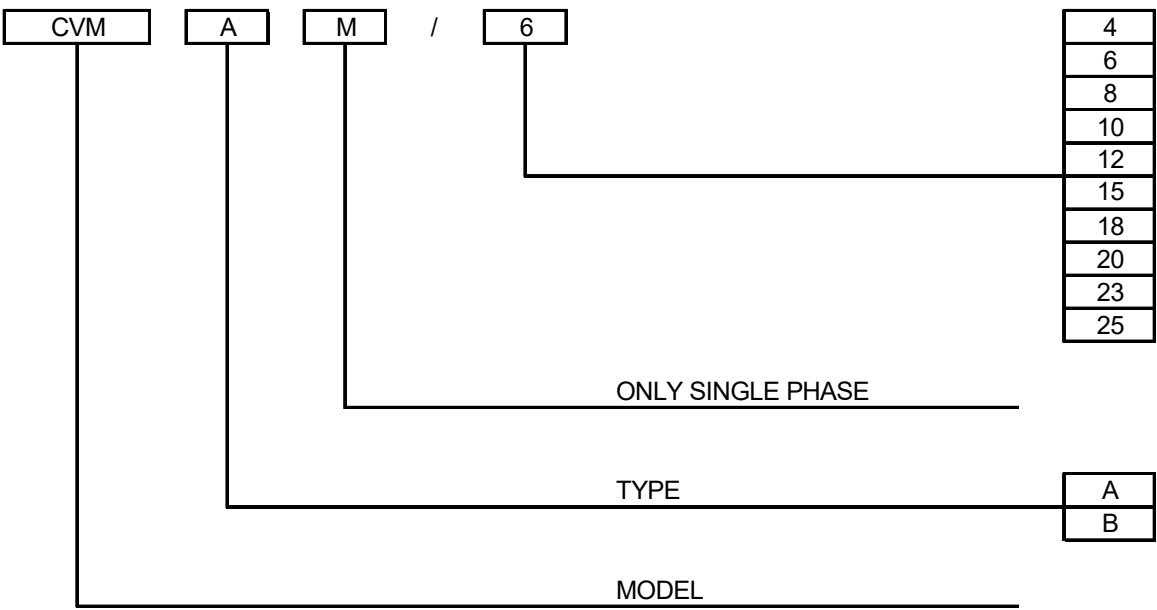
50Hz

Rev. R



Pump type		Q=Capacity									
		l/min 0	20	30	40	50	60	80	100	120	
Single Phase	Three Phase	m³/h 0	1,2	1,8	2,4	3	3,6	4,8	6	7,2	
H=Total manometric head in meters											
CVM AM/4	CVM A/4	23,8	21,2	19,7	17,8	15,6	13,0	6,4	-	-	
CVM AM/6	CVM A/6	35,7	31,8	29,5	26,7	23,3	19,4	9,6	-	-	
CVM AM/8	CVM A/8	47,5	42,5	39,4	35,6	31,1	25,9	12,8	-	-	
CVM AM/10	CVM A/10	62,5	57,5	54,0	49,5	43,5	36,6	19,5	-	-	
CVM AM/12	CVM A/12	75,0	69,0	65,0	59,5	52,5	44,0	23,4	-	-	
CVM AM/15	CVM A/15	87,5	80,5	75,5	69,5	61,0	51,0	27,3	-	-	
CVM AM/18	CVM A/18	103,0	94,5	88,0	80,0	70,0	58,5	28,8	-	-	
CVM BM/10	CVM B/10	38,1	-	36,2	35,1	33,7	32,0	27,5	21,6	14,7	
CVM BM/12	CVM B/12	51,0	-	48,0	46,8	45,0	42,6	36,6	28,8	19,6	
CVM BM/15	CVM B/15	63,5	-	60,5	58,5	56,2	53,3	45,8	36,0	24,5	
CVM BM/20	CVM B/20	78,5	-	74,0	72,0	69,0	65,5	56,0	44,5	30,6	
CVM BM/23	CVM B/23	91,5	-	86,0	84,0	80,5	76,5	65,5	51,5	35,7	
-	CVM B/25	105,0	-	98,5	96,0	92,0	87,0	74,5	59,0	41,0	

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:

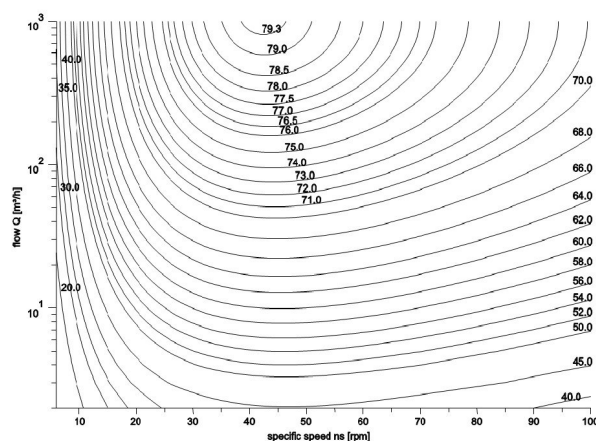
- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump
- MEI = minimum efficiency index

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.

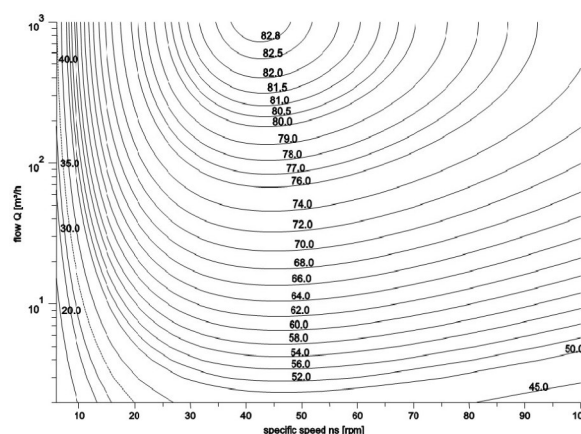
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

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



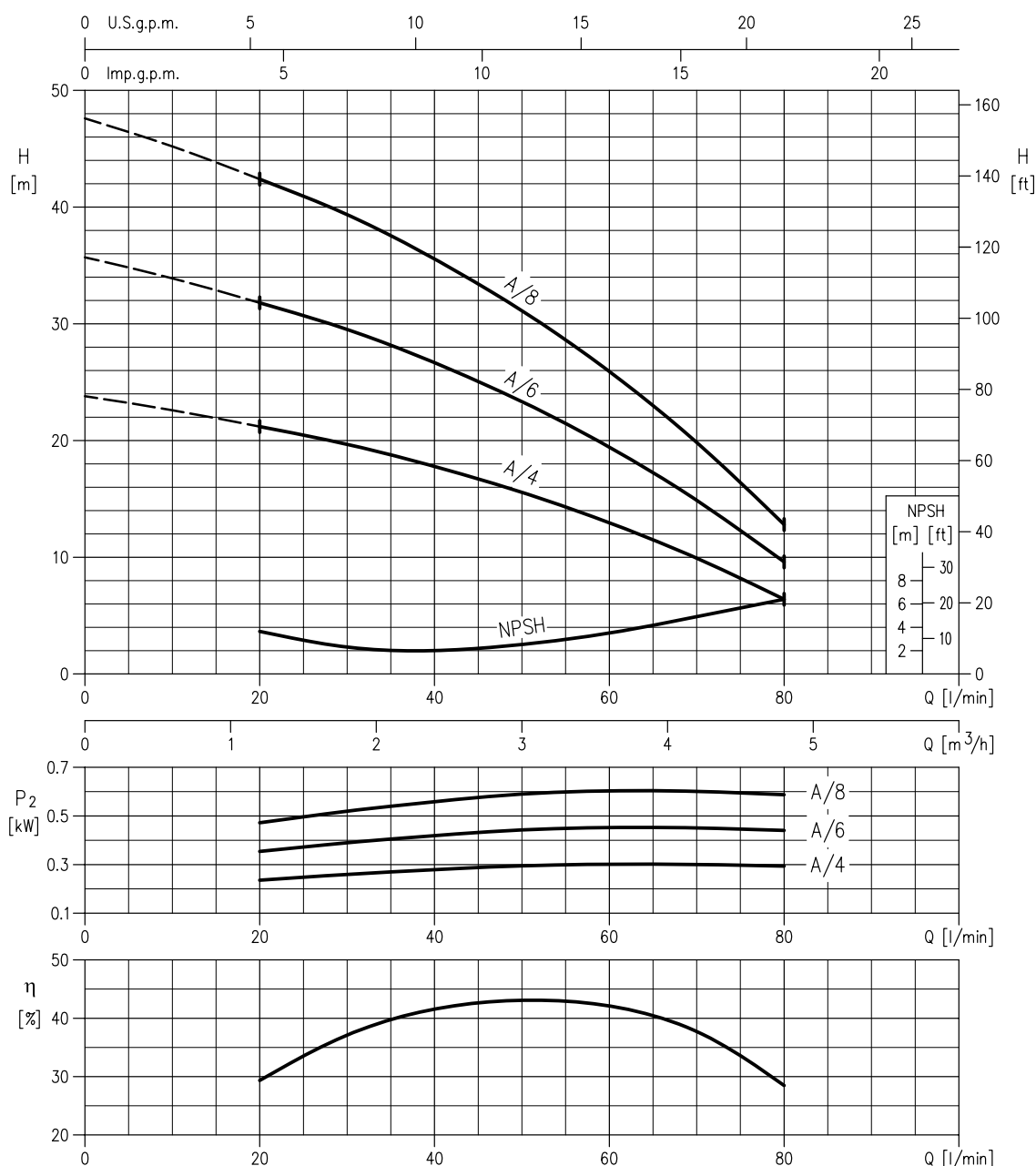
MEI=0.7 for Multistage Vertical 2900 rpm



CVM A/4 MEI > 0.70 - Impeller diameter = 104 mm

CVM A/6 MEI > 0.70 - Impeller diameter = 104 mm

CVM A/8 MEI > 0.70 - Impeller diameter = 104 mm

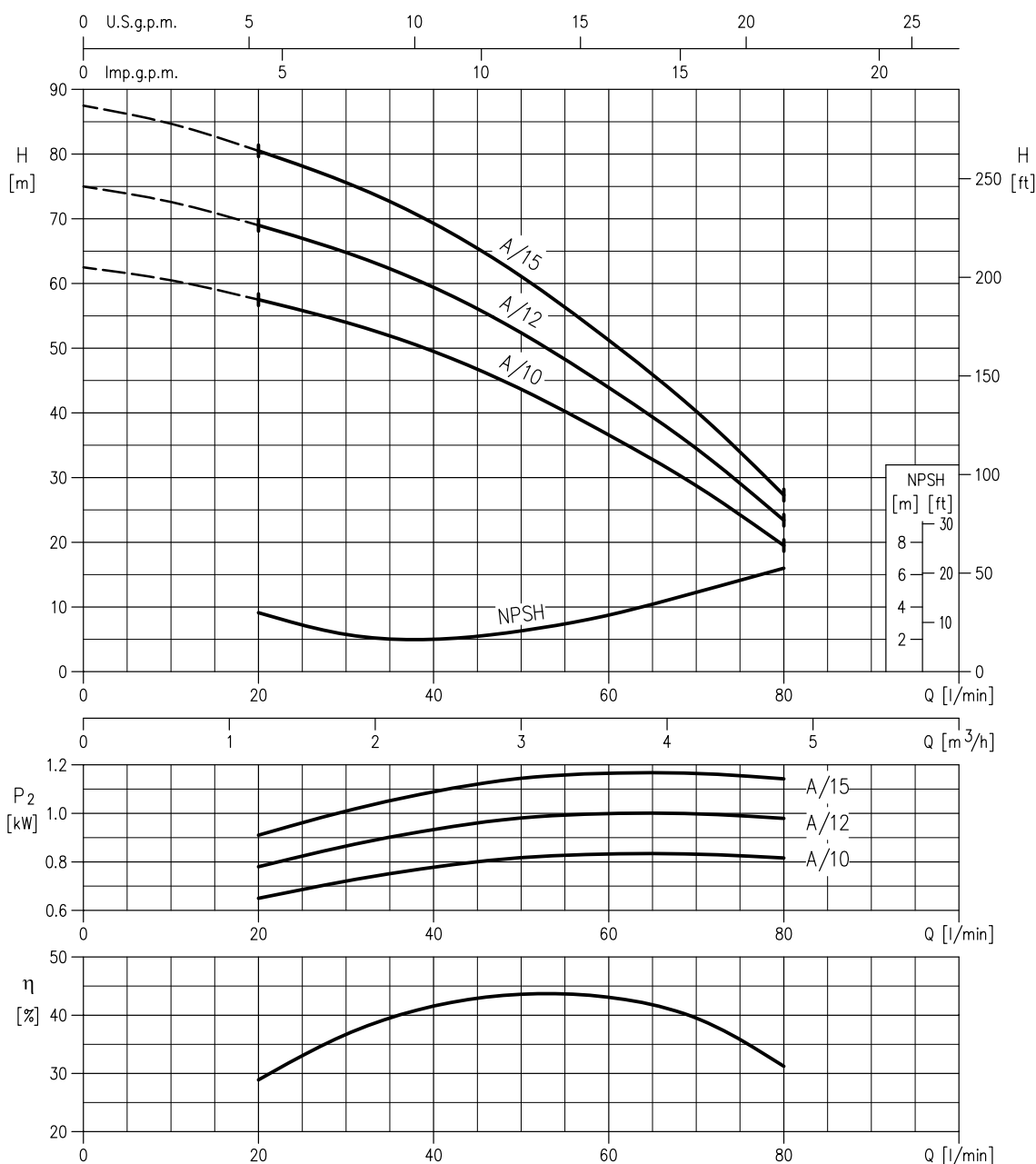


Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

CVM A/10 MEI > 0.70 - Impeller diameter = 104 mm

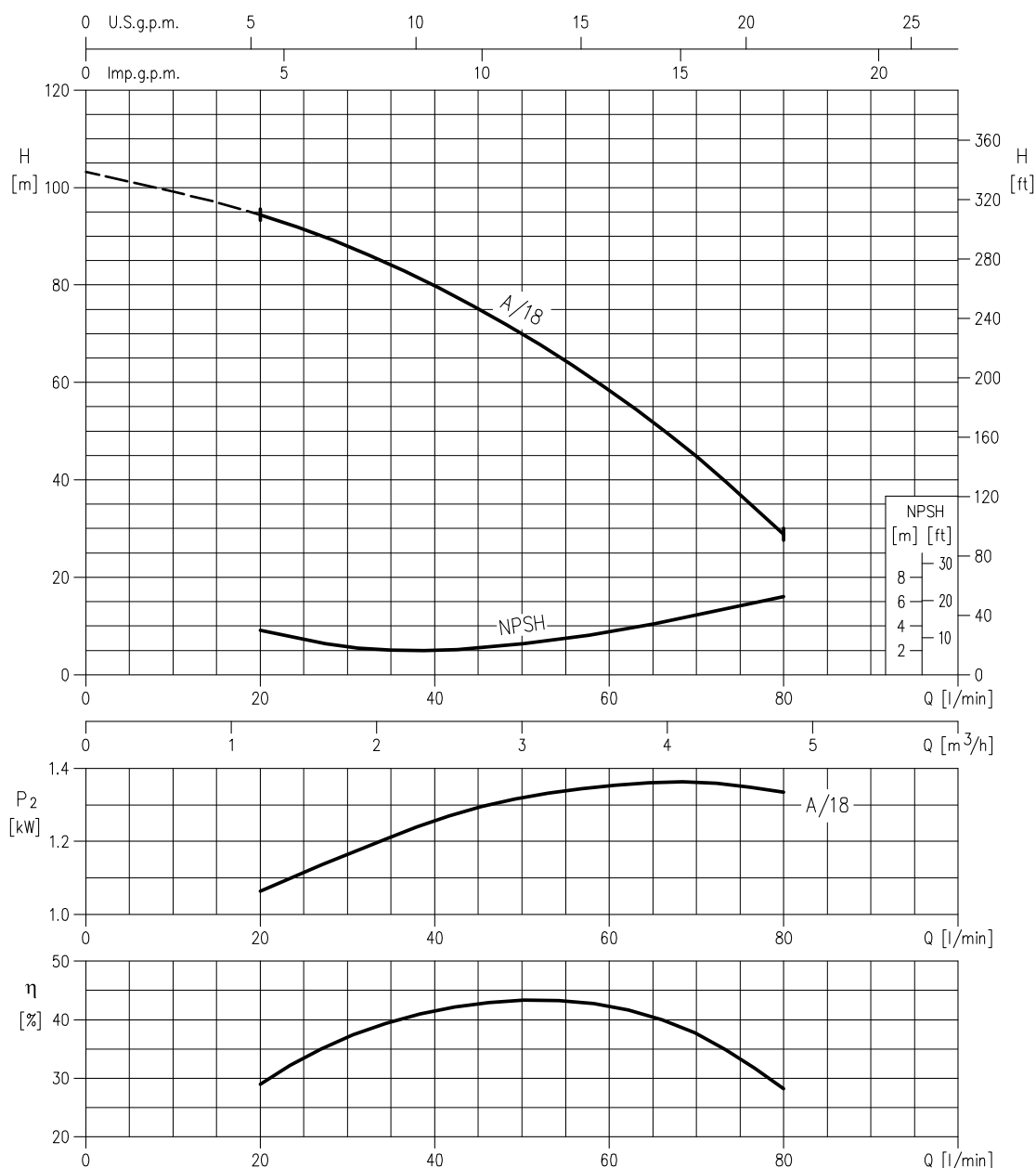
CVM A/12 MEI > 0.70 - Impeller diameter = 104 mm

CVM A/15 MEI > 0.70 - Impeller diameter = 104 mm



Rotation speed $\approx 2800 \text{ min}^{-1}$
Test standard: ISO 9906 – Annex A

CVM A/18 MEI > 0.70 - Impeller diameter = 104 mm

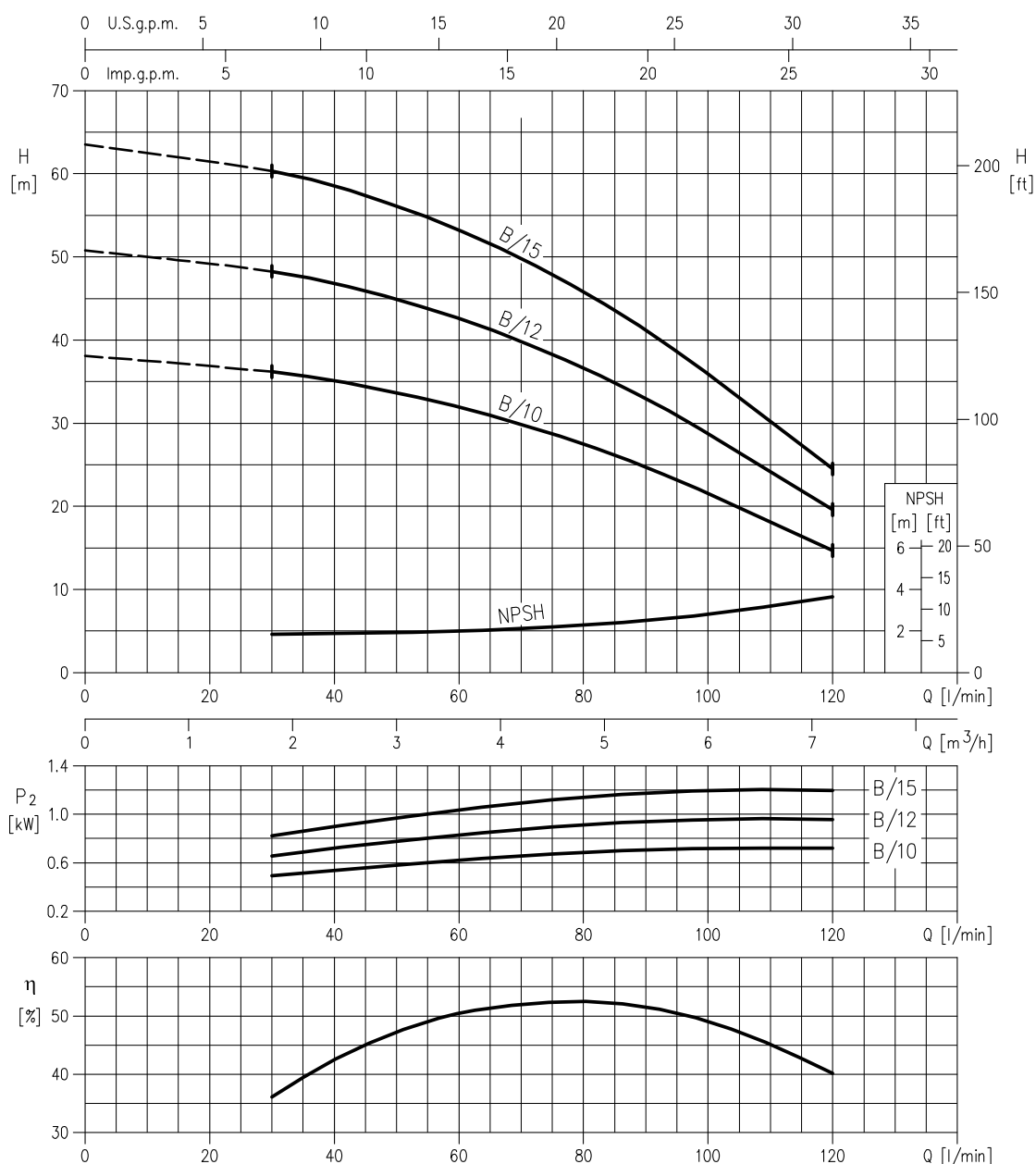


Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

CVM B/10 MEI > 0.70 - Impeller diameter = 102 mm

CVM B/12 MEI > 0.70 - Impeller diameter = 102 mm

CVM B/15 MEI > 0.70 - Impeller diameter = 102 mm

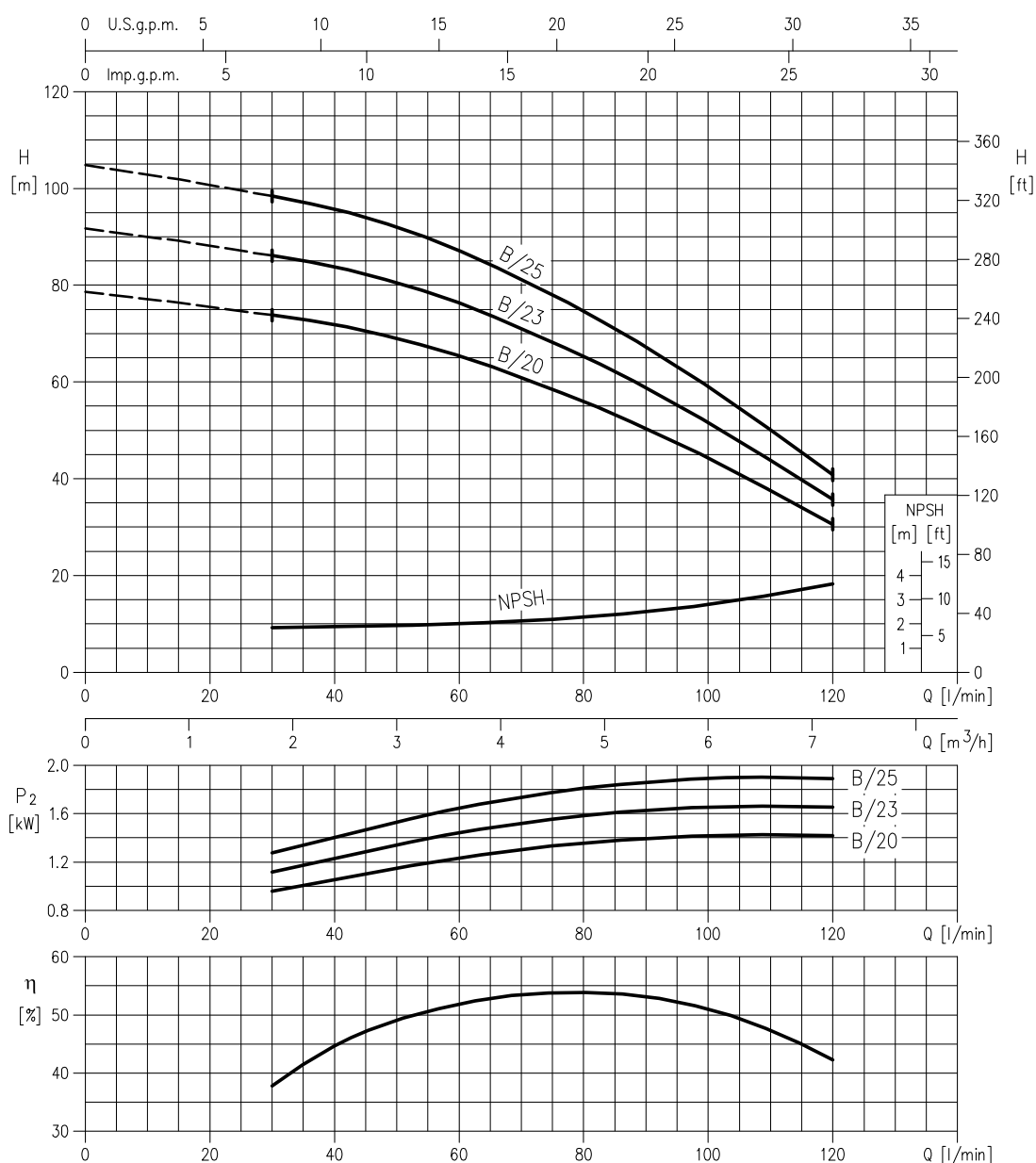


Rotation speed $\approx 2800 \text{ min}^{-1}$
Test standard: ISO 9906 – Annex A

CVM B/20 MEI > 0.70 - Impeller diameter = 102 mm

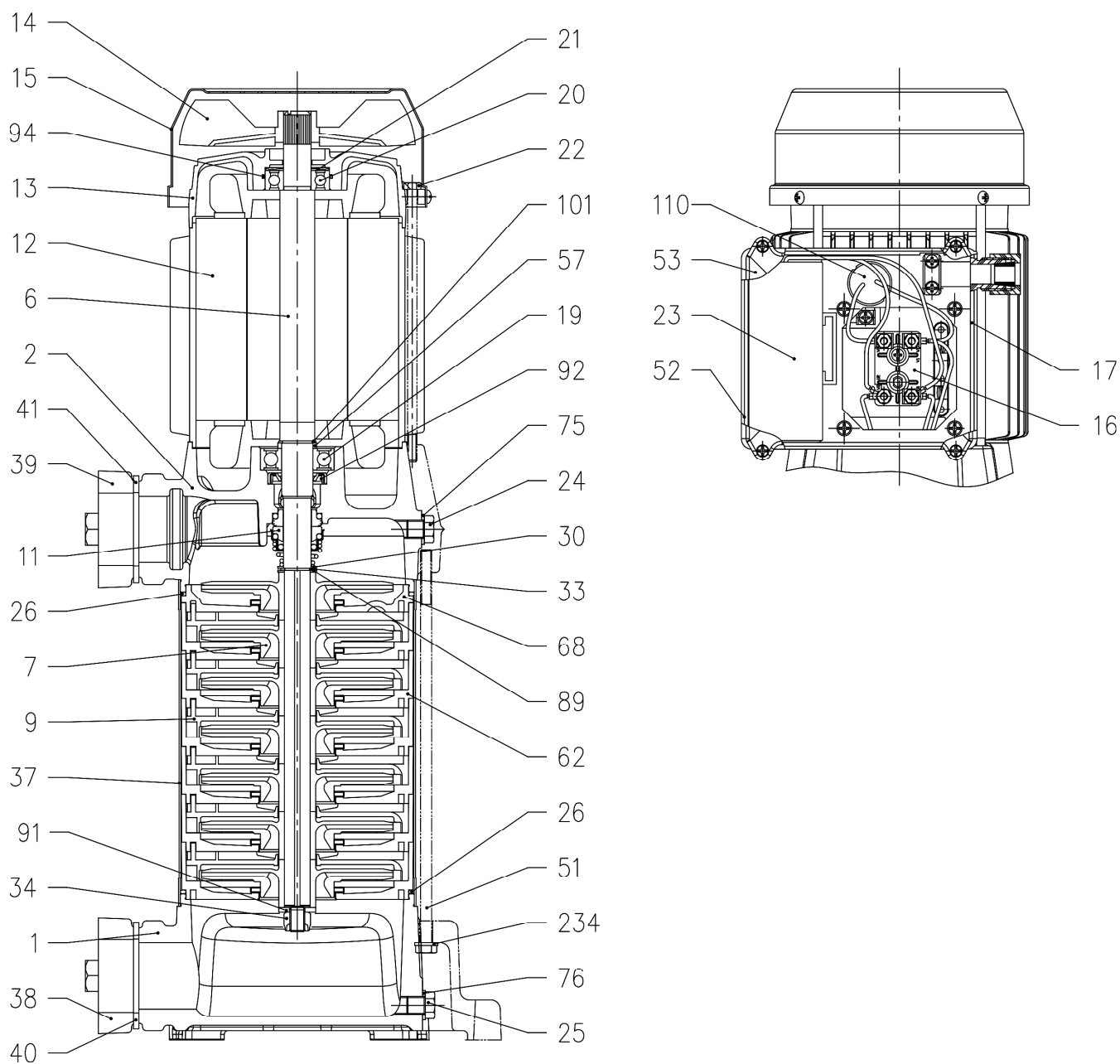
CVM B/23 MEI > 0.70 - Impeller diameter = 102 mm

CVM B/25 MEI > 0.70 - Impeller diameter = 102 mm



Rotation speed $\approx 2800 \text{ min}^{-1}$
Test standard: ISO 9906 – Annex A

SECTIONAL VIEW DRAWING



SECTIONAL VIEW TABLE

N°	PART NAME	MATERIAL	DIMENSIONS	STANDARD	Q.TY
1	Suction casing	Cast iron EN-GJL-200-EN 1561	-	-	1
2	Delivery casing	Cast iron EN-GJL-200-EN 1561	-	-	1
6	Shaft with rotor	EN 1.4005 (AISI 416)	-	-	1
7	Impeller	PPE+PS Glass fibre reinforced	-	-	[1]
9	Diffuser	PPE+PS Glass fibre reinforced	-	-	[1]
11	Mechanical seal [2]	Carbon / Ceramic / NBR	-	-	1
12	Motor frame with stator	-	-	-	1
13	Motor cover + Spacer [8]	Aluminium	-	-	1
14	Fan	PA	-	-	1
15	Fan cover	Galvanized Fe P04	-	-	1
16	Terminal board	-	-	-	1
17	Terminal box cover [3]	Aluminium	-	-	1
19	Pump side ball bearing	-	[4]	-	1
20	Fan side ball bearing	-	[4]	-	1
21	Adjusting ring	Steel C70	-	-	1
22	Motor tie rod	Galvanized Fe 42	M5xL	EBARA DRAWING	4
23	Capacitor [5]	-	-	-	1
24	Priming plug	OT 58 UNI 5705	G 1/8"	UNI ISO 228	1
25	Drain plug	OT 58 UNI 5705	G 1/8"	UNI ISO 228	1
26	O-ring	NBR	120x3	-	2
30	Washer	EN 1.4301 (AISI 304)	12x22x1 - [UP to 0,6kW] 15x22x1 - [0,75 kW and above]	EBARA DRAWING	1
33	Seeger ring	EN 1.4021 (AISI 420) EN 1.4301 (AISI 304)	12 14	UNI 7435 JIS B2804-1978	1
34	Impeller nut	EN 1.4301 (AISI 304)	M8x1 - [UP to 0,6kW] M10x1,25 - [0,75 kW and above]	UNI 7474	1
37	External pump casing	EN 1.4301 (AISI 304)	-	-	1
38	Counter flange	Cast iron EN-GJL-200-EN 1561	1"¼	EBARA DRAWING	1
39	Counter flange	Cast iron EN-GJL-200-EN 1561	1"¼	EBARA DRAWING	1
40	Counter flange gasket	NBR	-	EBARA DRAWING	1
41	Counter flange gasket	NBR	-	EBARA DRAWING	1
51	Tie rod	Galvanized Fe P04	M6	EBARA DRAWING	4
52	Capacitor box [5]	ABS class V-0	-	-	1
53	Capacitor box cover [5]	ABS class V-0	-	-	1
57	Pump side ball bearing spacer [6]	Steel C40	22x27x3	EBARA DRAWING	1
62	Stage housing	PPE+PS Glass fibre reinforced/PTFE	-	-	[1]
68	Stage	PPE+PS Glass fibre reinforced/PTFE	-	-	1
75	Washer	Aluminium	10x16x1,5	EBARA DRAWING	1
76	Washer	Aluminium	10x16x1,5	EBARA DRAWING	1
89	Washer	EN 1.4301 (AISI 304)	12x21x1 - [UP to 0,6kW] 14,1x22x1 - [0,75 kW and above]	EBARA DRAWING	1
91	Washer	EN 1.4301 (AISI 304)	8,4x17x1,6 - [UP to 0,6kW] 10,2x20x2,5 - [0,75 kW and above]	UNI EN ISO 7089 EBARA DRAWING	1
92	Lip seal	NBR	12x24x4 17x32x6	EBARA DRAWING	1
94	O-ring [9]	NBR	34.65x1.78	-	1
101	Seeger ring [6]	EN 1.4301 (AISI 304)	20	UNI 7435	1
110	Motor protector [7]	-	-	-	1
234	Washer	Galvanized steel	6,4x12,5x1,6	UNI EN ISO 7089	4

- [1] See table below
 [2] See pag. 303
 [3] Only for three phase

- [4] See pag. 302
 [5] Only for single phase
 [6] Only for motor size 80

- [7] Only for motor size 71 e 80 single phase version
 [8] Spacer – Only for A/8 3~model
 [9] Only for A/12, B/12, A/15, AM/15, B/15, BM/15 models

QUANTITY FOR MODEL

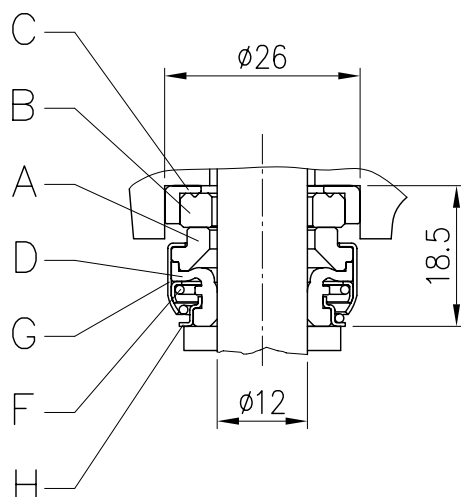
Pump		POS. 7	POS. 9	POS. 62
A type	B type			
CVM A/4	-	2	1	1
CVM A/6	CVM B/10	3	2	2
CVM A/8	CVM B/12	4	3	3
CVM A/10	CVM B/15	5	4	4
CVM A/12	CVM B/20	6	5	5
CVM A/15	CVM B/23	7	6	6
CVM A/18	CVM B/25	8	7	7

BEARINGS

Type pumps		Ball Bearing			
Single Phase	Three Phase	Pump side		Fan side	
		[1~]	[3~]	[1~]	[3~]
CVM AM/4	CVM A/4	6201	6201	6201	6201
CVM AM/6	CVM A/6				
CVM AM/8	CVM A/8				
CVM AM/10	CVM A/10	6203	6203	6202	6202
CVM AM/12	CVM A/12				
CVM AM/15	CVM A/15	6304	6304	6303	6303
CVM AM/18	CVM A/18				
CVM BM/10	CVM B/10	6203	6203	6202	6202
CVM BM/12	CVM B/12				
CVM BM/15	CVM B/15	6304	6304	6303	6303
CVM BM/20	CVM B/20				
CVM BM/23	CVM B/23				
-	CVM B/25	-		-	

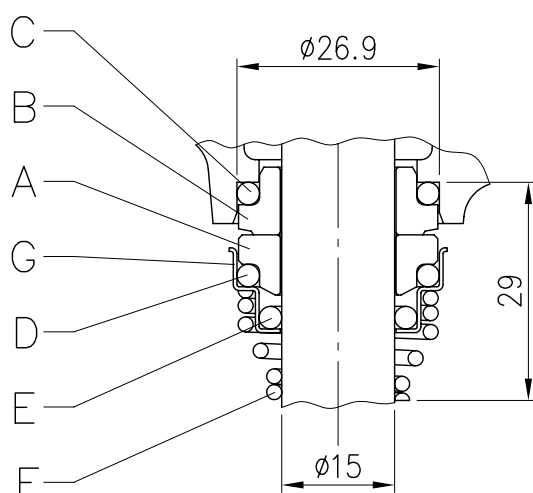
MECHANICAL SEAL

UP TO 0.6 KW



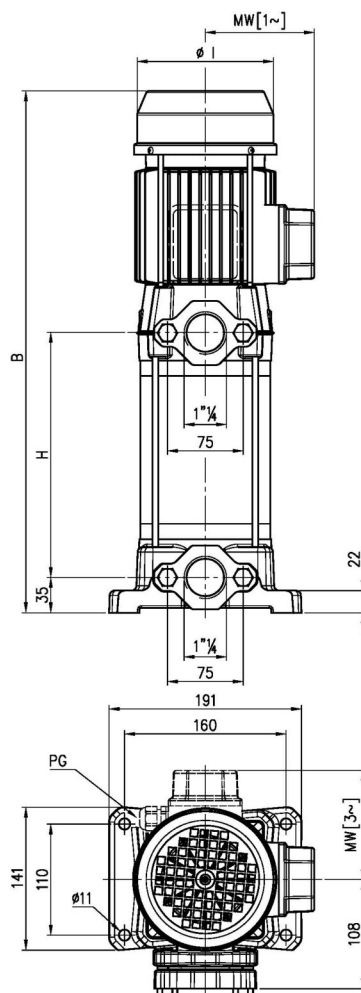
REF	PART NAME	MATERIAL product standard
A	Rotary seal ring	carbon graphite
B	Stationary seal ring	ceramic
C	Gasket	NBR
D	Bellows	NBR
F	Self driving spring	AISI 304
G	Frame	AISI 304
H	Retainer ring	AISI 304

0,75 KW AND ABOVE



REF	PART NAME	MATERIAL product standard
A	Rotary seal ring	ceramic
B	Stationary seal ring	carbon graphite
C	O Ring	NBR
D	O Ring	NBR
E	O Ring	NBR
F	Self driving spring	AISI 316
G	Frame	AISI 304

PUMP

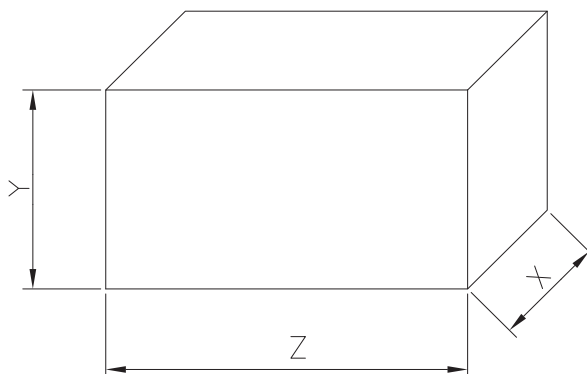


Pump type	B		H	ØI		MW		M	PG	Weight [kgf]	
	[1~]	[3~]		[1~]	[3~]	[1~]	[3~]			[1~]	[3~]
CVM A/4	336	336	112	124	124	101	91,5	PG11	11	11	11,1
CVM A/6	402	362	138	141		110,5		PG11		16	11,7
CVM A/8	428	406	164					PG11		16,5	12,8
CVM A/10	465	452	190		141		101	M16x1.5	24	16,6	
CVM A/12	490	490	216	M16x1.5		24,5		18,4			
CVM A/15	564	516	242	159		136		M16x1.5	24	18,6	
CVM A/18	590	565	268		159		120,5	M20x1.5	24	22,7	
CVM B/10	413	400	138		141		110,5	101	M16x1.5	11	17,5
CVM B/12	438	438	164	M16x1.5		18,5			17,5		
CVM B/15	512	464	190	159		136			120,5		M16x1.5
CVM B/20	538	526	216		M20x1.5		24	23,7			
CVM B/23	564	552	242		M20x1.5		24,5	24,3			
CVM B/25	-	578	268	-	-	-	-	M20x1.5	-	-	24,6

[1~] Single phase

[3~] Three phase

PACKING



Type pumps	Packing [mm]					Weight [kgf]		
	X		Y	Z				
	[1~]	[3~]		[1~]	[3~]	[1~]	[3~]	
CVM A/4	212	212	208	427	427	12	12,0	
CVM A/6				537		17	12,6	
CVM A/8				537	17,5	13,7		
CVM A/10					537	25	17,7	
CVM A/12						26	19,5	
CVM A/15	252	252		590	622	25	19,7	
CVM A/18				622		25	24,5	
CVM B/10	212	212		427	427	18,5	16,8	
CVM B/12				537	537	19,5	18,6	
CVM B/15	252	252		590		25	19,0	
CVM B/20				622	25	24,5		
CVM B/23					-		26	25,4
CVM B/25	-	-		-	-	-	-	25,7

[1~] Single phase

[3~] Three phase

MOTOR DATA

Pump type	Power		Efficiency	Capacitor		Efficiency (% load)				Input	Full load current	Locked rotor current
Single Phase	[kW]	[HP]		[μF]	[V]	η %			cos-φ			
			50%			75%	100%	[kW]		[A]	[A]	
										230 V	230 V	
CVM AM/4	0,37	0,5	IE2	12,5	450	60,0	67,8	69,8	0,92	0,55	2,6	9,6
CVM AM/6	0,45	0,6	IE2	14	450	55,7	65,6	72,5	0,94	0,65	3,0	13,4
CVM AM/8	0,55	0,75	IE2	20	450	62,3	70,4	74,8	0,93	0,75	3,5	18,9
CVM AM/10	0,9	1,2	IE2	31,5	450	67,0	75,3	79,0	0,92	1,15	5,4	31,3
CVM AM/12	1,1	1,5	IE2	31,5	450	71,9	77,7	79,6	0,94	1,40	6,6	31,3
CVM AM/15	1,3	1,75	IE2	40	450	67,1	75,5	80,5	0,86	1,63	8,2	65,2
CVM AM/18	1,3	1,75	IE2	40	450	67,1	75,5	80,5	0,86	1,63	8,2	65,2
CVM BM/10	0,9	1	IE2	31,5	450	67,0	75,3	79,0	0,92	1,15	5,4	31,3
CVM BM/12	0,9	1,2	IE2	31,5	450	67,0	75,3	79,0	0,92	1,15	5,4	31,3
CVM BM/15	1,3	1,75	IE2	40	450	67,1	75,5	80,5	0,86	1,63	8,2	65,2
CVM BM/20	1,5	2	IE2	40	450	69,8	76,6	81,3	0,92	1,90	9,0	65,2
CVM BM/23	1,8	2,4	IE2	40	450	73,1	78,8	82,2	0,93	2,20	10,5	65,2

Pump type	Power		Efficiency	Efficiency % load			Input	Full load current		Locked rotor current	
Three Phase	kW	HP		η %				[A]		[A]	
				50%	75%	100%	kW	230V	400V	230V	400V
CVM A/4	0,3	0,4	IE3	70,2	73,1	74,5	0,51	1,7	1	7,1	4,1
CVM A/6	0,44	0,6	IE3	69	74,6	75,1	0,55	1,8	1,1	9,6	5,5
CVM A/8	0,6	0,8	IE3	74,6	77,9	78,3	0,71	2,5	1,4	13	7,5
CVM A/10	0,75	1	IE3	80,9	82,3	82,1	0,91	3	1,7	19,7	11,4
CVM A/12	0,9	1,2	IE3	81,7	83,1	82,4	1,34	4,3	2,5	28,8	16,6
CVM A/15	1,1	1,5	IE3	81,7	83,1	82,4	1,34	4,3	2,5	28,8	16,6
CVM A/18	1,3	1,8	IE3	83	85,8	85,6	1,77	2,9	1,7	47,4	27,4
CVM B/10	0,75	1	IE3	80,9	82,3	82,1	0,91	3	1,7	19,7	11,4
CVM B/12	0,9	1,2	IE3	81,7	83,1	82,4	1,34	4,3	2,5	28,8	16,6
CVM B/15	1,1	1,5	IE3	81,7	83,1	82,4	1,34	4,3	2,5	28,8	16,6
CVM B/20	1,5	2	IE3	82,7	86,1	87	1,72	6,6	3,8	66,6	38,4
CVM B/23	1,7	2,3	IE3	84,2	86,8	86,9	2,01	7,1	4,1	66,6	38,4
CVM B/25	1,85	2,5	IE3	86,2	87	86	2,55	8,2	4,7	66,6	38,4

NOISE DATA

Pump type		L _{pA} - dB(A) *
Single Phase	Three Phase	
CVM AM/4	CVM A/4	53
CVM AM/6	CVM A/6	
CVM AM/8	CVM A/8	
CVM AM/10	CVM A/10	62
CVM AM/12	CVM A/12	
CVM AM/15	CVM A/15	
CVM AM/18	CVM A/18	67
CVM BM/10	CVM B/10	62
CVM BM/12	CVM B/12	
CVM BM/15	CVM B/15	
CVM BM/20	CVM B/20	67
CVM BM/23	CVM B/23	
-	CVM B/25	

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



EBARA Pumps Europe S.p.A.
Via Torri di Confine 2/1 int. C
36053 Gambellara (Vicenza), Italy
Phone +39 0444 706811
ebarapumps.epe@ebaracom
www.ebaraeurope.com

EBARA Pumps Europe S.p.A. GERMANY
Elisabeth-Selbert-Straße 2
63110 Rodgau, Germany
Phone +49 (0) 6106-660 99-0
info.epde@ebaracom

EBARA Pumps South Africa (PTY) LTD
26 Kyalami Boulevard,
Kyalami Business Park, 1684, Midrand,
Gauteng, South Africa
Phone +27 11 466 1844
ebaraeurope@ebaracom

EBARA Pumps Europe S.p.A. UK
Unit A, Park 34
Collett Way - Didcot
Oxfordshire - OX11 7WB, United Kingdom
Phone +44 1895 439027
marketing.epuk@ebaracom

EBARA Pumps Europe S.p.A. FRANCE
122, Rue Pasteur
69780 Toussieu, France
Phone: +33 04 72 76 94 82
mktg.eur@ebaracom

EBARA Pumps East Africa
Sunflag Industrial Park, Unit 5, Mombasa Road,
P.O. BOX 18851-00100, Nairobi, Kenya
Tel. +254709491900
info.epea@ebaracom
www.ebaraeurope.co.ke

EBARA POMPY POLSKA Sp. z o.o.
ul. Działkowa 115 A
02-234 Warszawa, Poland
Phone +48 22 3909920
marketing.epl@ebaracom

EBARA Pumps Europe Nordic
Gustav III Boulevard 34,
169 73 Solna, Sweden
info.epeu@ebaracom

EBARA West Africa Limited
ewasales.epe@ebaracom