



**EBARA**

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## SPECIFICATION

50Hz

Rev. E

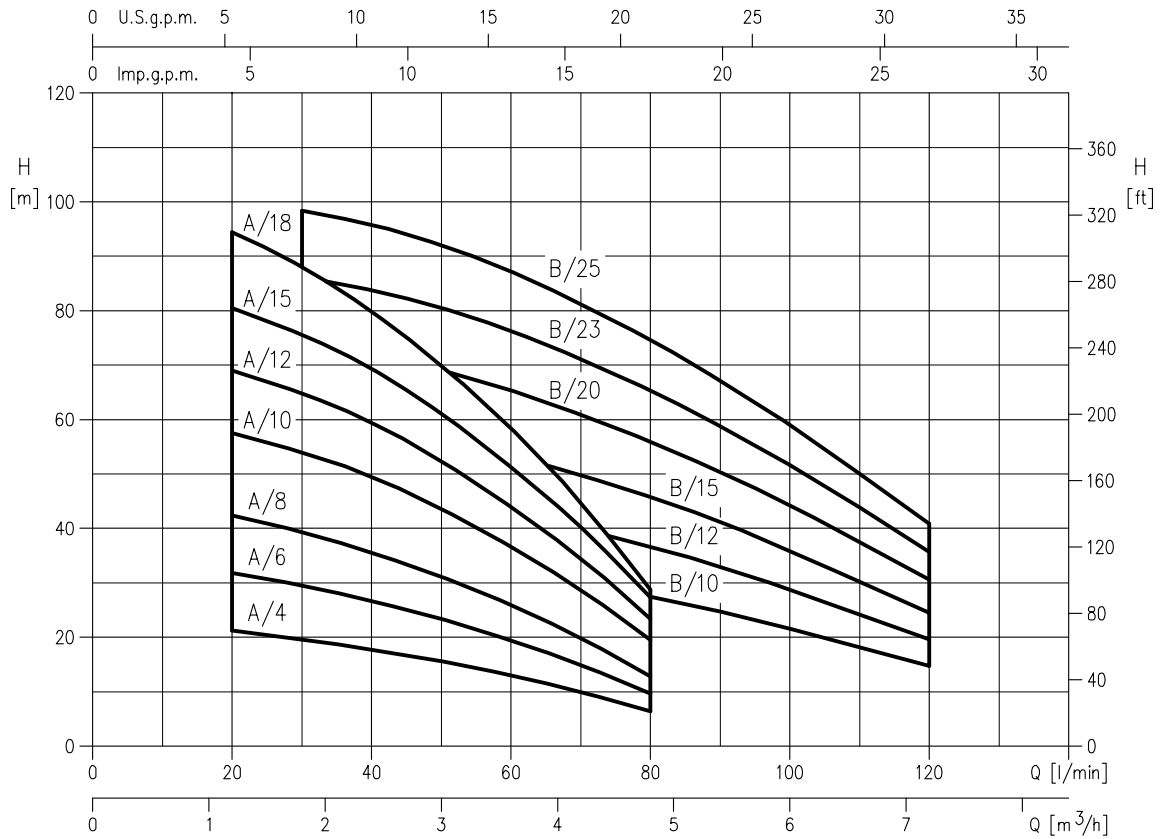
PUMP		
Liquid Handled	Type of liquid	Clean water
	Max temperature [°C]	40
Maximum working pressure [MPa]		1.1
Construction	Impeller	Closed centrifugal
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction	G 1 <sup>1</sup> / <sub>4</sub> UNI ISO 228
	Discharge	G 1 <sup>1</sup> / <sub>4</sub> 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 – Annex A

MOTOR		
Type	Electric asynchronous- TEFC	
	Single Phase	Three Phase
No. of Poles	2	
Rotation speed [min <sup>-1</sup> ]	≈ 2850	
Insulation Class	F	
Protection degree	IP 44	
Power rating	[kW]	0.3 ÷ 1.7
	[HP]	0.4 ÷ 2.3
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 (see pag. 400)	

## SELECTION CHART

50Hz

Rev. E



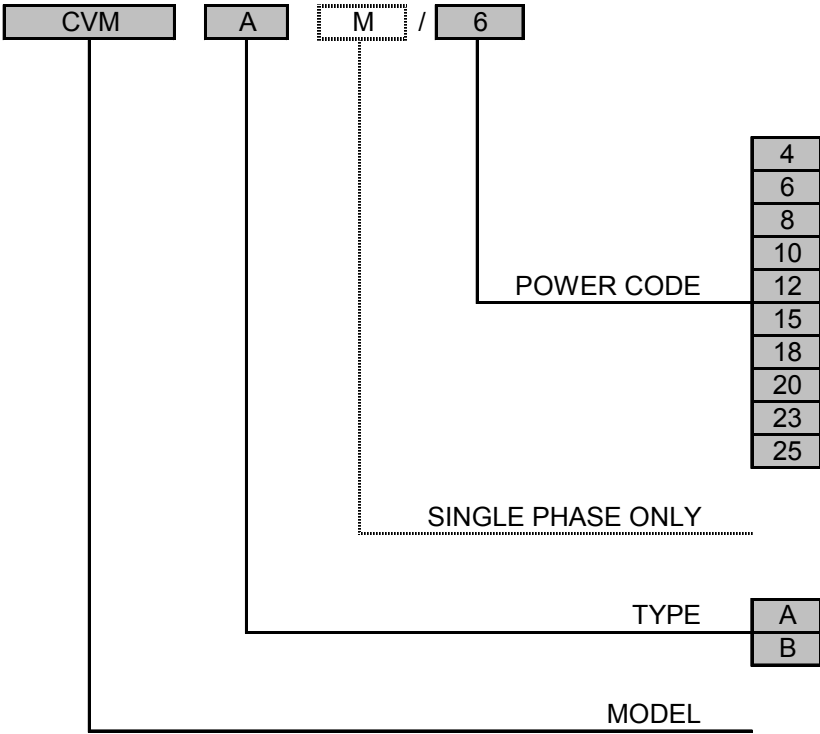
Type pumps		Power		Q=Capacity								
Single Phase	Three Phase	kW	HP	l/min 0	20	30	40	50	60	80	100	120
				m³/h 0	1.2	1.8	2.4	3	3.6	4.8	6	7.2
H=Total manometric head in meters												
CVM AM/4	CVM A/4	0.3	0.4	23.8	21.2	19.7	17.8	15.6	13.0	6.4	-	-
CVM AM/6	CVM A/6	0.44	0.6	35.7	31.8	29.5	26.7	23.3	19.4	9.6	-	-
CVM AM/8	CVM A/8	0.6	0.8	47.5	42.5	39.4	35.6	31.1	25.9	12.8	-	-
CVM AM/10	CVM A/10	0.75	1	62.5	57.5	54.0	49.5	43.5	36.6	19.5	-	-
CVM AM/12	CVM A/12	0.9	1.2	75.0	69.0	65.0	59.5	52.5	44.0	23.4	-	-
CVM AM/15	CVM A/15	1.1	1.5	87.5	80.5	75.5	69.5	61.0	51.0	27.3	-	-
CVM AM/18	CVM A/18	1.3	1.8	103.0	94.5	88.0	80.0	70.0	58.5	28.8	-	-
CVM BM/10	CVM B/10	0.75	1	38.1	-	36.2	35.1	33.7	32.0	27.5	21.6	14.7
CVM BM/12	CVM B/12	0.9	1.2	51.0	-	48.0	46.8	45.0	42.6	36.6	28.8	19.6
CVM BM/15	CVM B/15	1.1	1.5	63.5	-	60.5	58.5	56.2	53.3	45.8	36.0	24.5
CVM BM/20	CVM B/20	1.5	2	78.5	-	74.0	72.0	69.0	65.5	56.0	44.5	30.6
CVM BM/23	CVM B/23	1.7	2.3	91.5	-	86.0	84.0	80.5	76.5	65.5	51.5	35.7
-	CVM B/25	1.85	2.5	105.0	-	98.5	96.0	92.0	87.0	74.5	59.0	41.0

TYPE KEY

50Hz

Rev. E

TYPE KEY:



### 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

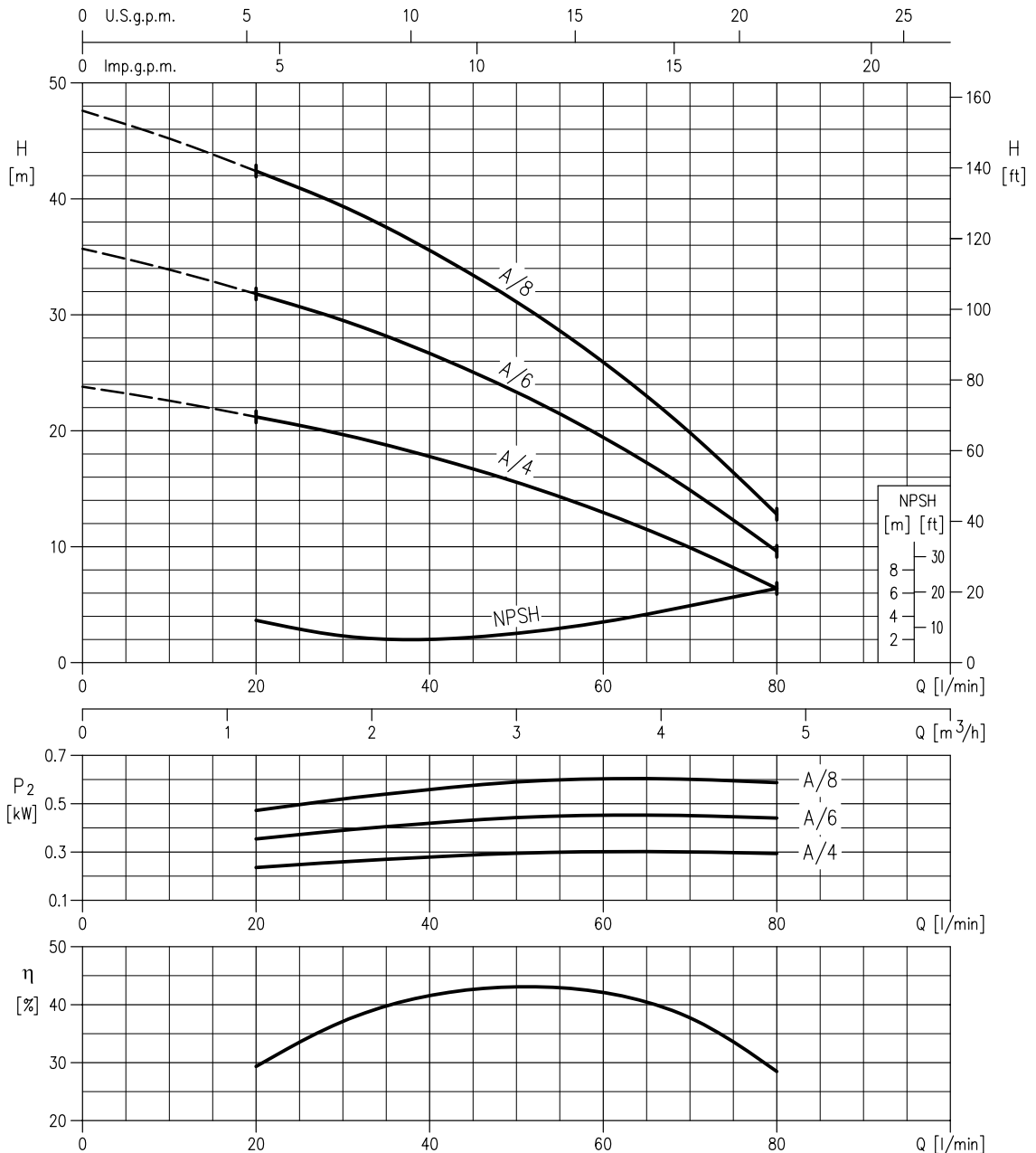
Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of  $\nu = 1 \text{ mm}^2/\text{s}$  (1 cSt)

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

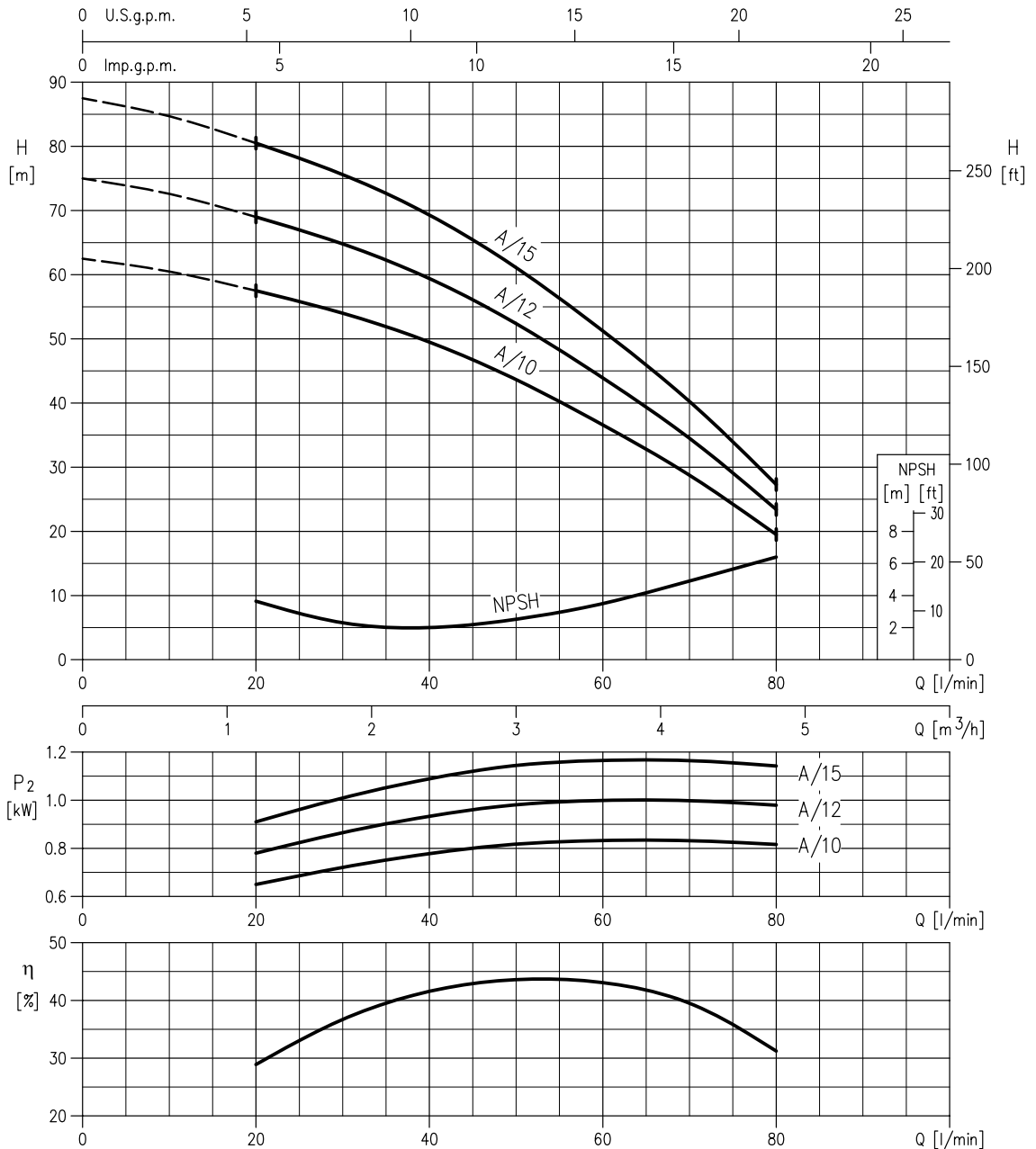
**CVM A/4 (0.3 kW)**  
**CVM A/6 (0.44 kW)**  
**CVM A/8 (0.6 kW)**



Impeller = Ø102 x 2.2 mm

Test standard: ISO 9906 – Annex A

CVM A/10 (0.75 kW)  
 CVM A/12 (0.9 kW)  
 CVM A/15 (1.1 kW)

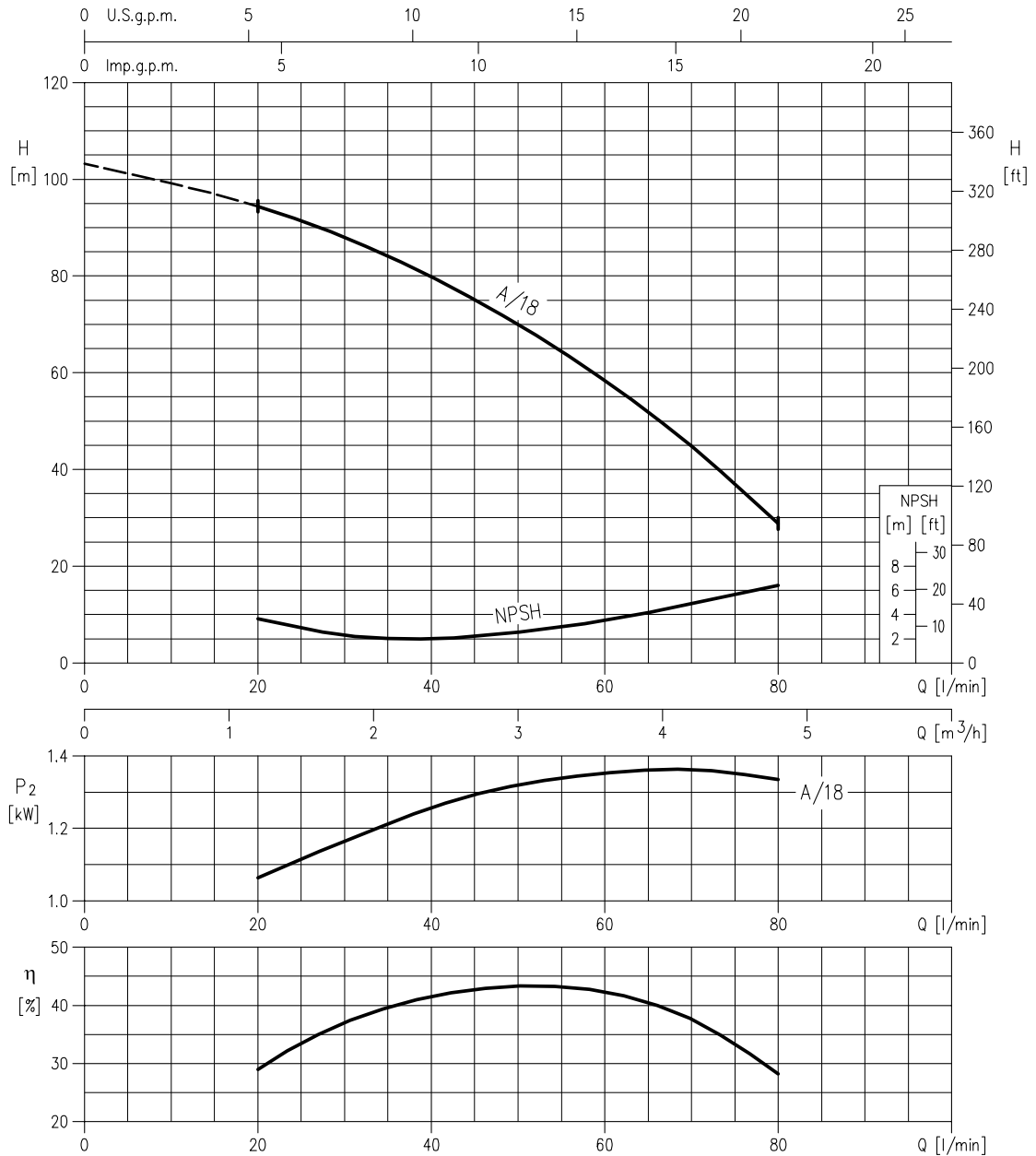


Impeller = Ø102 x 2.2 mm

Test standard: ISO 9906 – Annex A



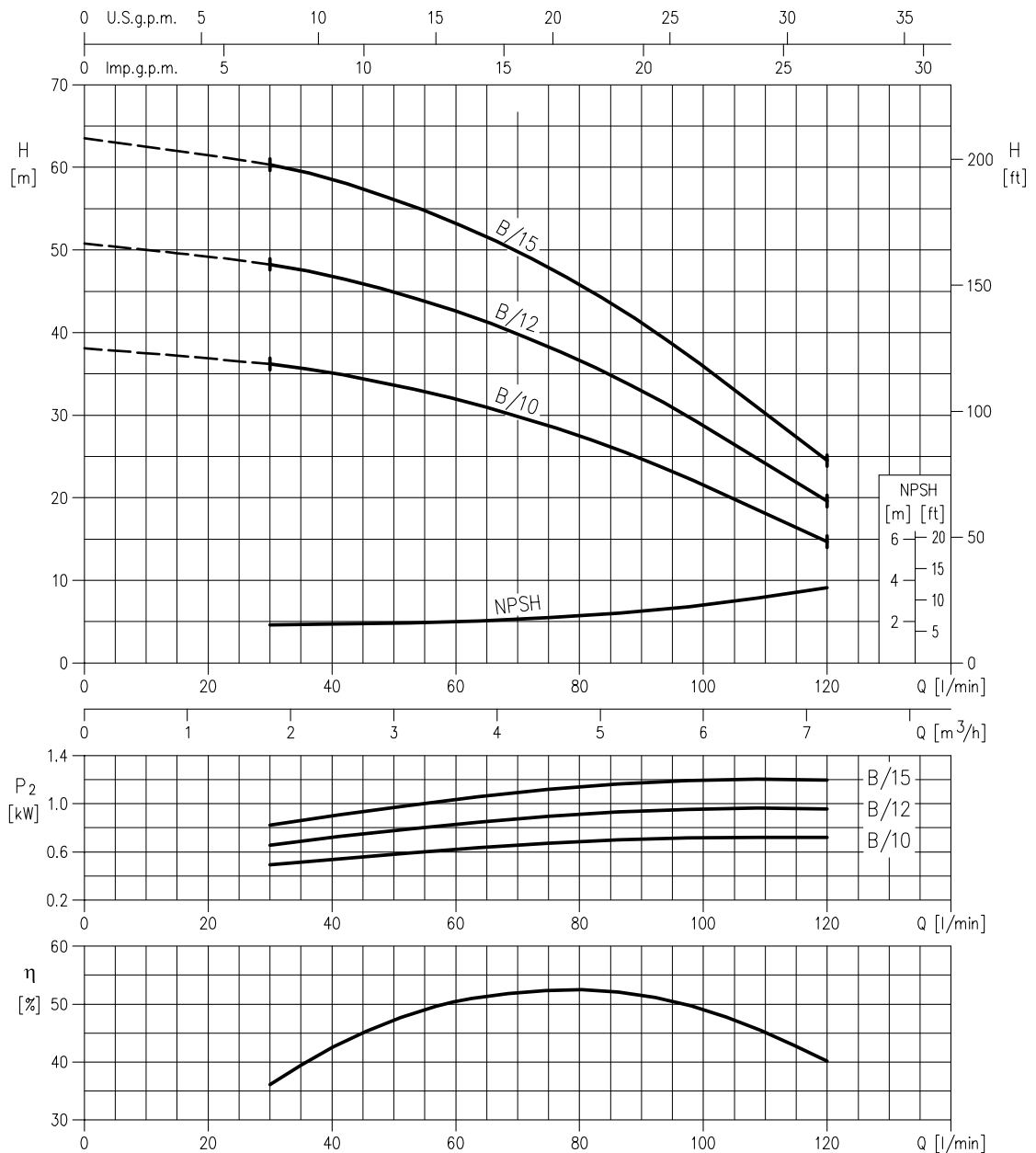
**CVM A/18 (1.3 kW)**



Impeller = Ø102 x 2.2 mm

Test standard: ISO 9906 – Annex A

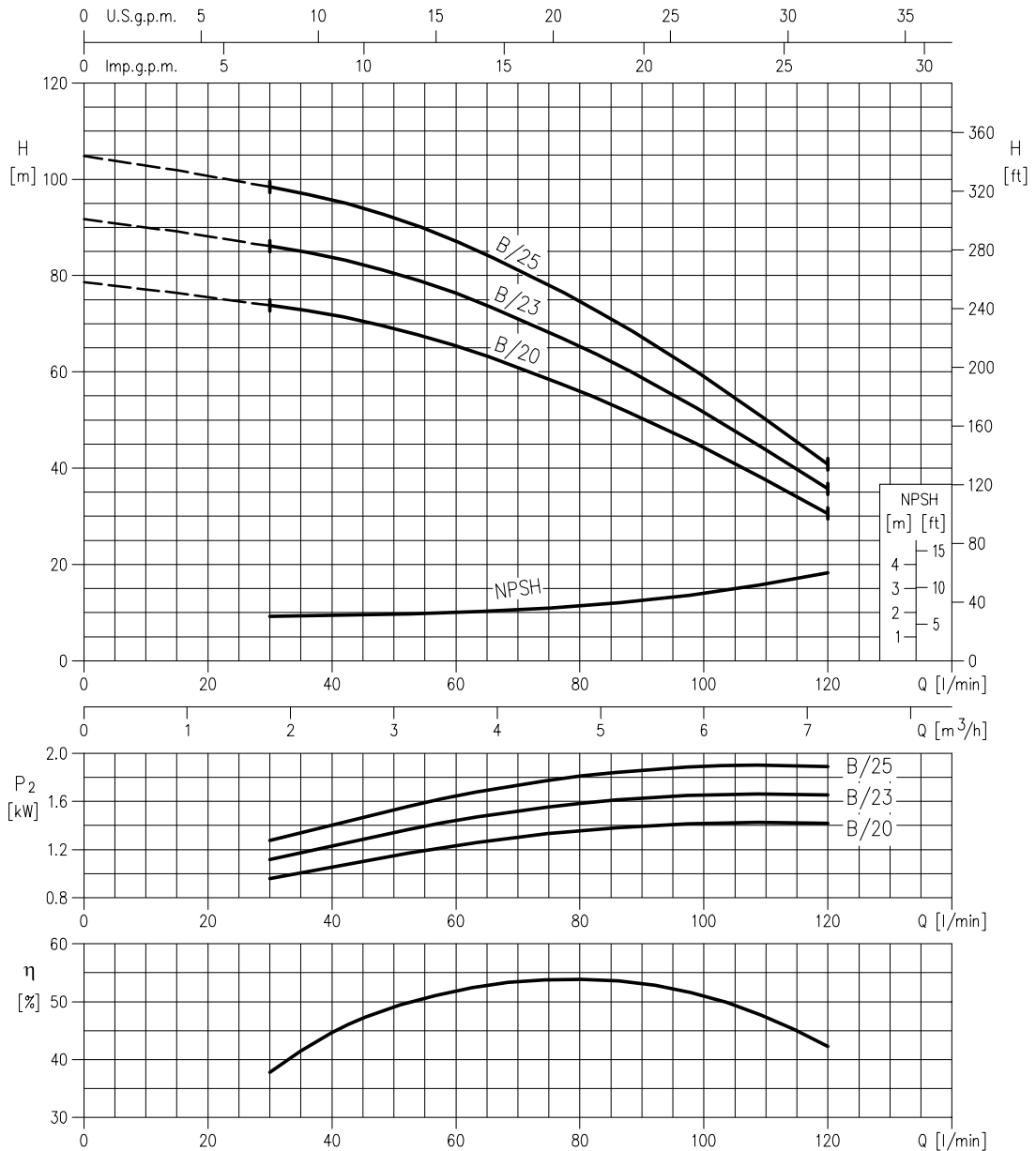
**CVM B/10 (0.75 kW)**  
**CVM B/12 (0.9 kW)**  
**CVM B/15 (1.1 kW)**



Impeller = Ø102 x 4 mm

Test standard: ISO 9906 – Annex A

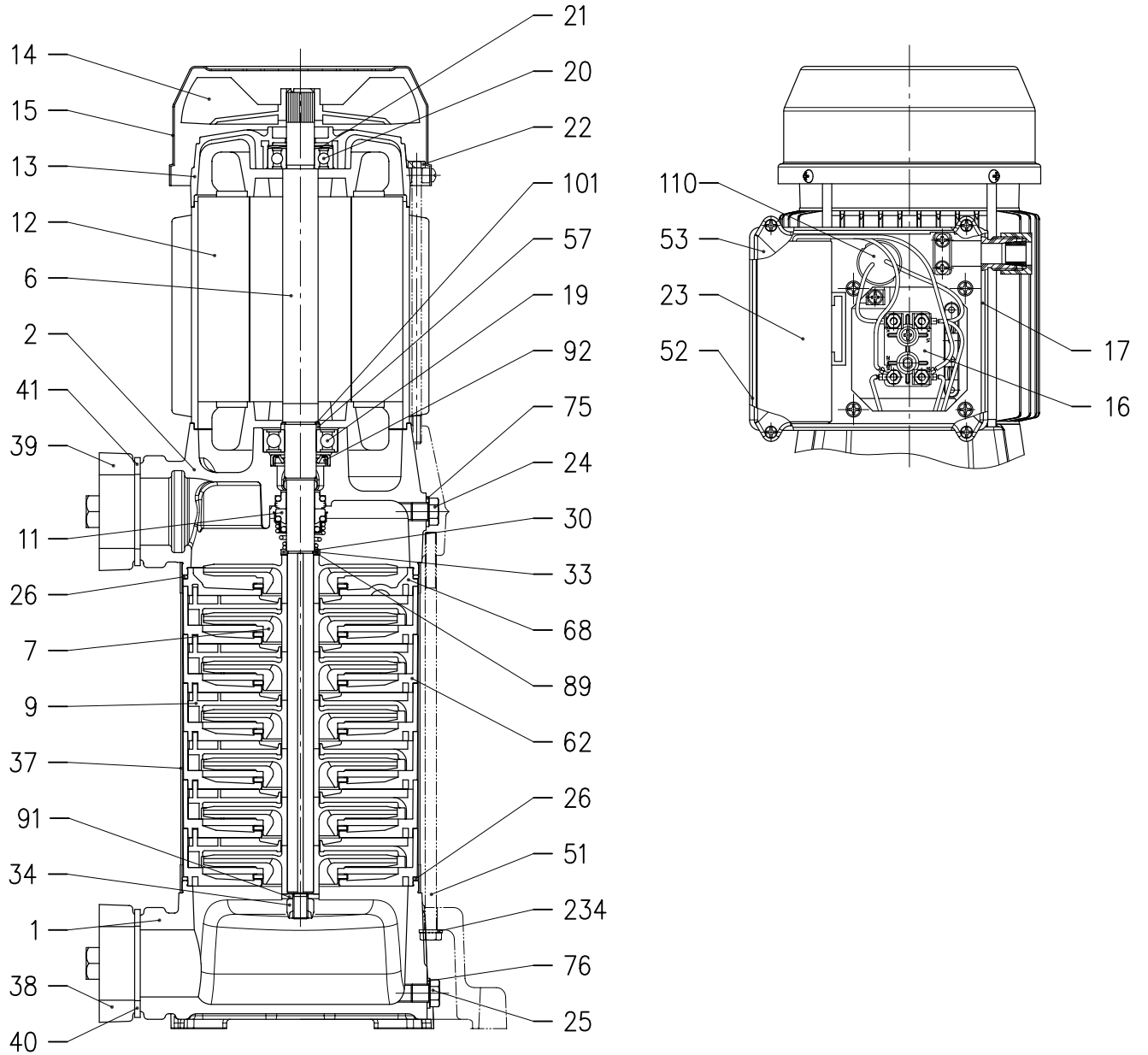
**CVM B/20 (1.5 kW)**  
**CVM B/23 (1.7 kW)**  
**CVM B/25 (1.85 kW)**



Impeller = Ø102 x 4 mm

Test standard: ISO 9906 – Annex A

SECTIONAL VIEW



## CONSTRUCTIONS

50 Hz

Rev. E

### SECTIONAL VIEW TABLES

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	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]	PP	-	-	1
53	Capacitor box cover [5]	PP	-	-	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
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

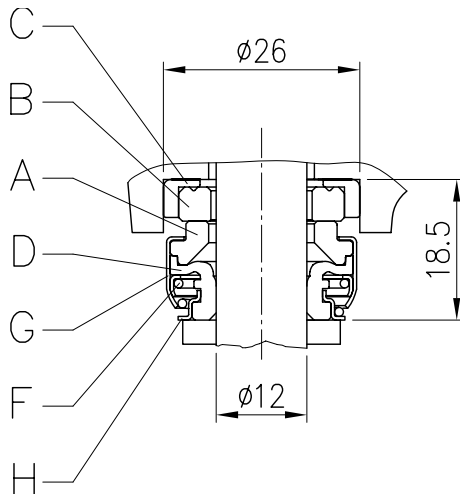
PUMP		QUANTITY FOR MODEL		
A type	B type	POS. 7	POS. 9	POS. 62
CVM A/4	-	2	1	1
CVM A/6	CVM B/10	3	2	2
CVM A/8	CVM B/12	4	3	3
CVM A/10	CVM B/15	5	4	4
CVM A/12	CVM B/20	6	5	5
CVM A/15	CVM B/23	7	6	6
CVM A/18	CVM B/25	8	7	7

**BEARINGS**

Type pumps		Ball Bearing	
Single Phase	Three Phase	Pump side	Fan side
CVM AM/4	CVM A/4	6201 2RSH	6201 2RSH
CVM AM/6	CVM A/6		
CVM AM/8	CVM A/8		
CVM AM/10	CVM A/10	6203 2RSH C3	6202 2RSH
CVM AM/12	CVM A/12		
CVM AM/15	CVM A/15		
CVM AM/18	CVM A/18	6304 2RSH C3	6203 2RSH
CVM BM/10	CVM B/10	6203 2RSH C3	6202 2RSH
CVM BM/12	CVM B/12		
CVM BM/15	CVM B/15		
CVM BM/20	CVM B/20	6304 2RSH C3	6203 2RSH
CVM BM/23	CVM B/23		
-	CVM B/25		

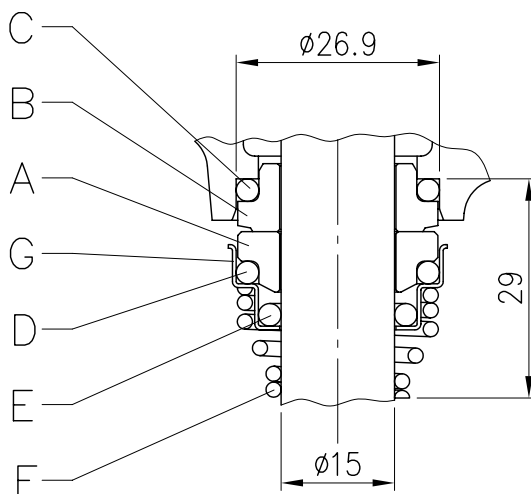
**MECHANICAL SEAL**

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

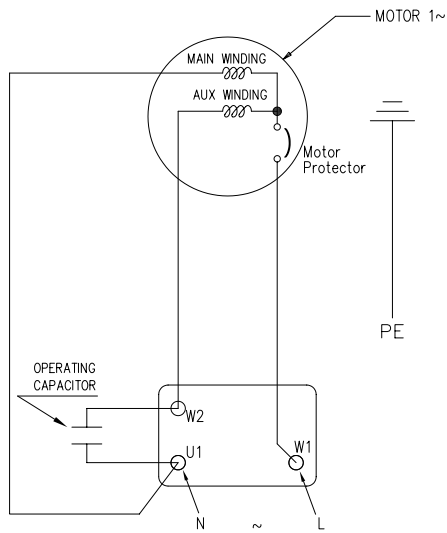
0,75 kW and above



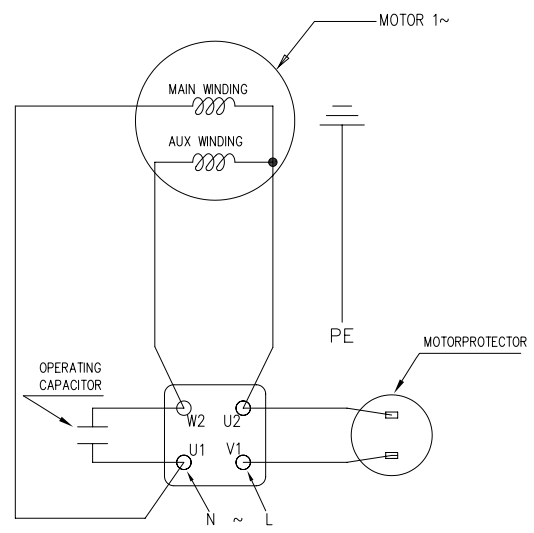
REF	PART NAME	MATERIAL product standard
A	Rotary seal ring	ceramic
B	Stationary seal ring	carbon graphite
C	O Ring	NBR
D	O Ring	NBR
E	O Ring	NBR
F	Self driving spring	AISI 316
G	Frame	AISI 304

**DIAGRAM AND ELECTRIC CONNECTIONS**

**SINGLE PHASE MOTOR**

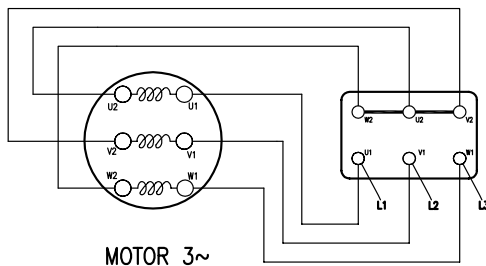


**INTERNAL MOTOR PROTECTOR**

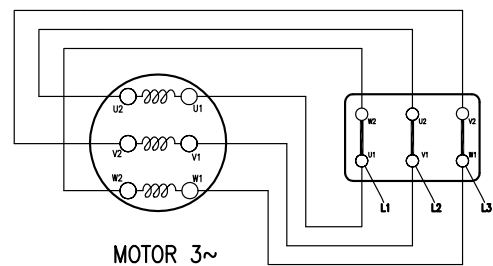


**EXTERNAL MOTOR PROTECTOR**

**THREE PHASE MOTOR**



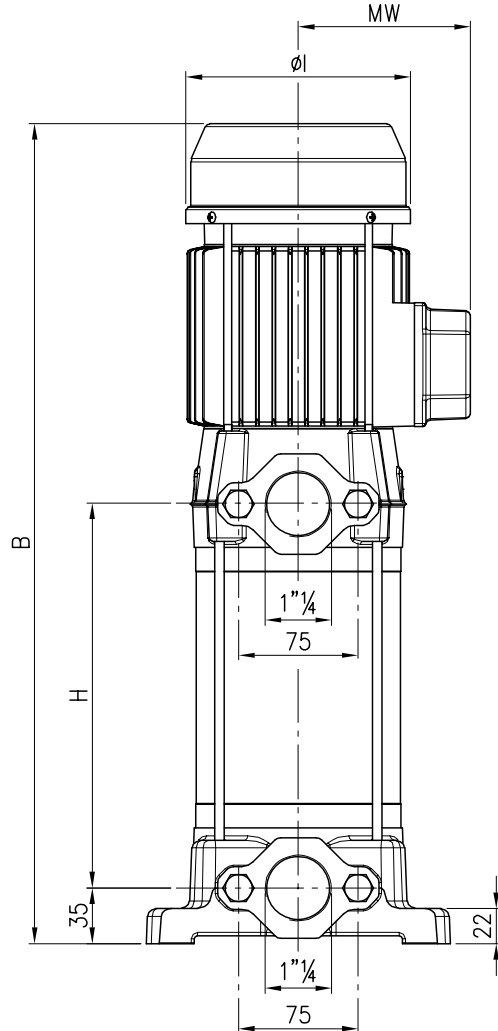
**"STAR" CONNECTION  
400 V**



**"DELTA" CONNECTION  
230 V**

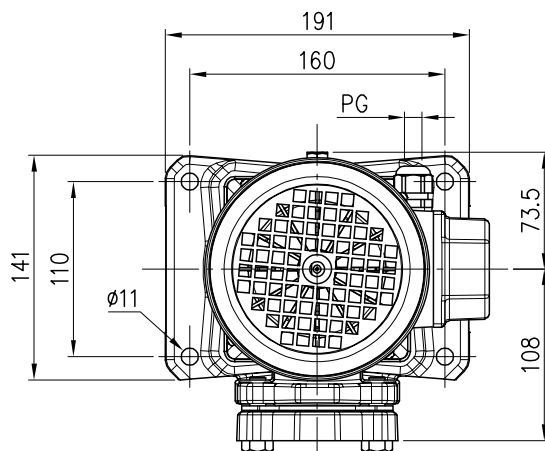


### PUMP

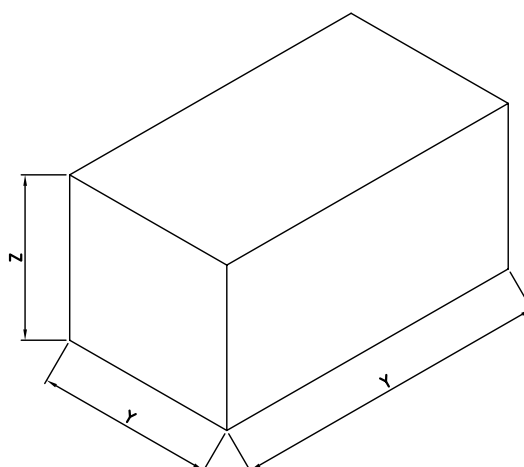


Pump type	Motor Size	Dimensions [mm]						Weight [kgf]			
		B	H	ØI	MW		PG		[1]	[2]	
CVM A/4	63	336	112	124	101	91.5	11	11	11	11	
CVM A/6		362	138						11.7	11.6	
CVM A/8		388	164						12.7	12.6	
CVM A/10	71	452	190	141	110.5	101	11	16.5	16.6		
CVM A/12		478	216							17.5	17.6
CVM A/15		516	242							18.5	18.6
CVM A/18	80	565	268	159	136	120.5	13.5	11	21.2	21.2	
CVM B/10	71	400	138	141	110.5	101	11	11	15.9	15.9	
CVM B/12		426	164						16.8	16.7	
CVM B/15		464	190						18	17.9	
CVM B/20	80	513	216	159	134.5	120.5	13.5	-	-	21.3	21.3
CVM B/23		552	242							22.6	22.4
CVM B/25		578	268							-	23.7

- [1] Single phase
- [2] Three phase



**PACKING**



Type pumps	PACKING [mm]			WEIGHT [kgf]	
	X	Y	Z	[1]	[2]
CVM A/4	212	427	208	11.9	11.9
CVM A/6				12.6	12.5
CVM A/8				13.6	13.5
CVM A/10		537		17.6	17.7
CVM A/12				18.6	18.7
CVM A/15				19.6	19.7
CVM A/18	250	595		21.4	21.5
CVM B/10	212	427		16.8	16.8
CVM B/12		537		17.9	17.8
CVM B/15				19.1	19.0
CVM B/20	250	595		22.3	22.4
CVM B/23				23.3	23.4
CVM B/25			-	25.1	

[1] Single phase

[2] Three phase

ELECTRIC DATA													
Type pumps		kW	HP	Capacitor Single Phase		Input [kW]		Full load current [A]			Locked rotor current [A]		
Single Phase	Three Phase			μF	Vl	Single Phase	Three Phase	Single Phase	Three Phase 230 V 400 V		Single Phase	Three Phase 230 V 400 V	
CVM AM/4	CVM A/4	0.3	0.4	10	450	0.54	0.49	2.6	1.9	1.1	8.5	6.8	3.9
CVM AM/6	CVM A/6	0.44	0.6	12.5	450	0.69	0.69	3.2	2.3	1.3	9.7	9.7	5.6
CVM AM/8	CVM A/8	0.6	0.8	14	450	0.89	0.83	4.0	2.8	1.6	11.9	10.4	6.0
CVM AM/10	CVM A/10	0.75	1	20	450	1.27	1.15	6.0	4.0	2.3	25.1	23.2	13.4
CVM AM/12	CVM A/12	0.9	1.2	31.5	450	1.45	1.37	6.5	4.8	2.8	24.8	26.3	15.2
CVM AM/15	CVM A/15	1.1	1.5	31.5	450	1.60	1.58	7.2	5.7	3.3	29.3	26.8	15.5
CVM AM/18	CVM A/18	1.3	1.8	31.5	450	1.76	1.68	7.8	5.4	3.1	40.3	35.1	20.3
CVM BM/10	CVM B/10	0.75	1	20	450	1.14	1.06	5.6	4.1	2.4	23.5	23.7	13.7
CVM BM/12	CVM B/12	0.9	1.2	31.5	450	1.38	1.32	6.2	4.7	2.7	23.6	25.8	14.9
CVM BM/15	CVM B/15	1.1	1.5	31.5	450	1.63	1.63	7.4	5.5	3.2	30.1	25.8	14.9
CVM BM/20	CVM B/20	1.5	2	35	450	1.91	1.80	8.3	5.7	3.3	30.7	34.8	20.1
CVM BM/23	CVM B/23	1.7	2.3	40	450	2.14	2.07	9.6	7.4	4.3	41.5	45.9	26.5
-	CVM B/25	1.85	2.5	-	-	-	2.33	-	7.4	4.3	-	46.6	26.9

NOISE DATA		
Type pumps		L <sub>pA</sub> - 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 the pump. Tolerance ± 2.5 dB.