

# CVM

## VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in cast iron



Cast iron vertical multistage centrifugal electric pumps.

### APPLICATIONS

- Pressure boosting plants
- General pressure increases
- Irrigation
- Washing plants
- Pumping clean water

### TECHNICAL DETAILS

- Reliable
- Silent
- Easy maintenance
- Electric pumps supplied with counter-flanges

### PUMP TECHNICAL DATA

- Maximum working pressure: 11 bar
  - Maximum temperature of the liquid: 40°C
  - G1¼ suction and discharge connection
  - MEI > 0.4
- For further information please see our Data Book on the web site [www.ebara-europe.com](http://www.ebara-europe.com)

### MOTOR TECHNICAL DATA

- IE2 and IE3 high energy-efficiency motors starting from 0.75kW
- Self-ventilated 2 pole asynchronous motor
- Class of insulation F
- IP44 Protection degree
- 230V ±10% 50Hz single phase voltage, 230/400V ±10% 50Hz three phase voltage
- Permanent capacitor inserted and thermo-ampereometric protection with automatic rearm incorporated for the single phase motor
- Protection under user's responsibility for the three phase version

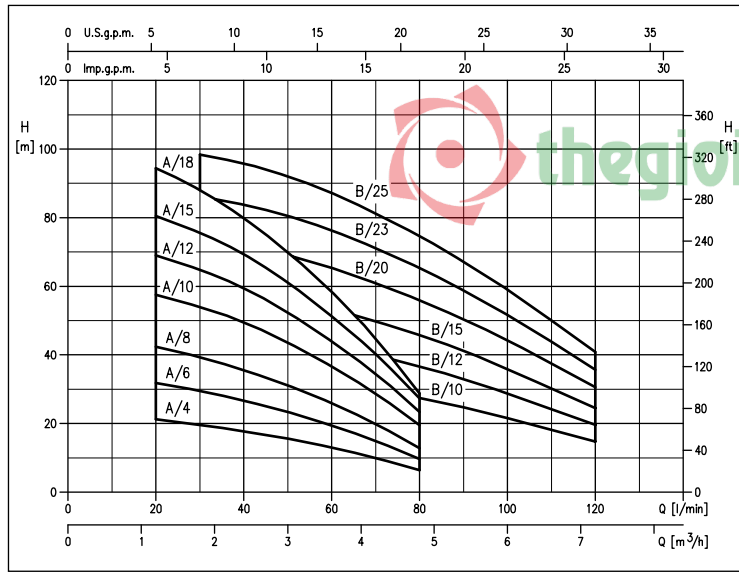
### MATERIALS

- Cast iron pump casing and motor bracket
- External casing in AISI 304
- Impeller and diffuser in PPE+PS reinforced with fibreglass
- Stages in PPE+PS reinforced with fibreglass/PTFE
- Shaft in AISI 416
- Mechanical seal in Ceramic/Carbon/NBR

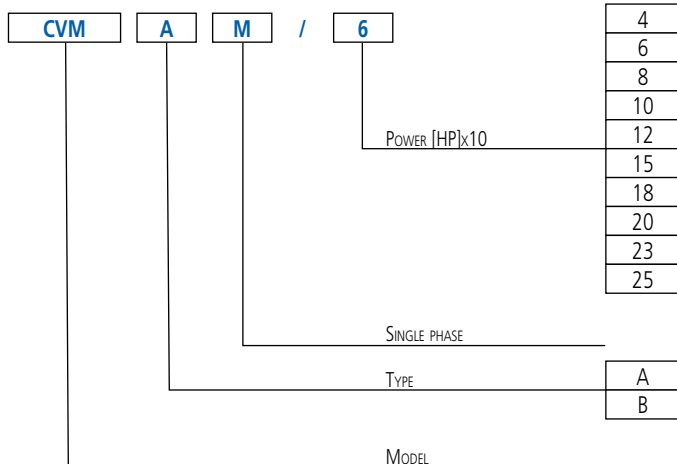
### ACCESSORIES (On request)

- Electric panels
- Vessels
- Floats
- Pressure switches
- Presscomfort - Pressure regulator
- E-power - Variable speed control system
- E-drive - Frequency converter

### PERFORMANCE CURVES (according to ISO 9906 Attachment A)



### IDENTIFICATION CODE

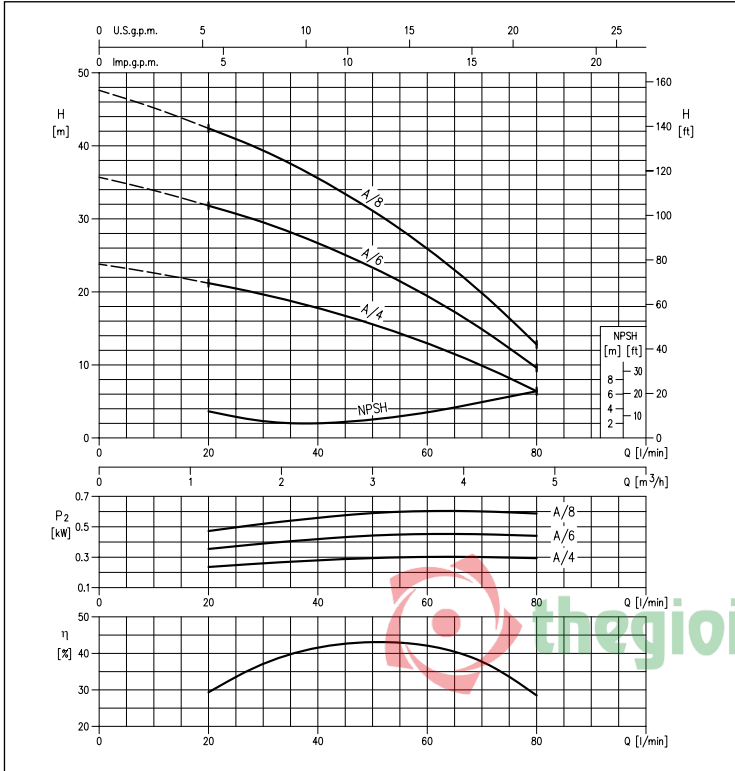




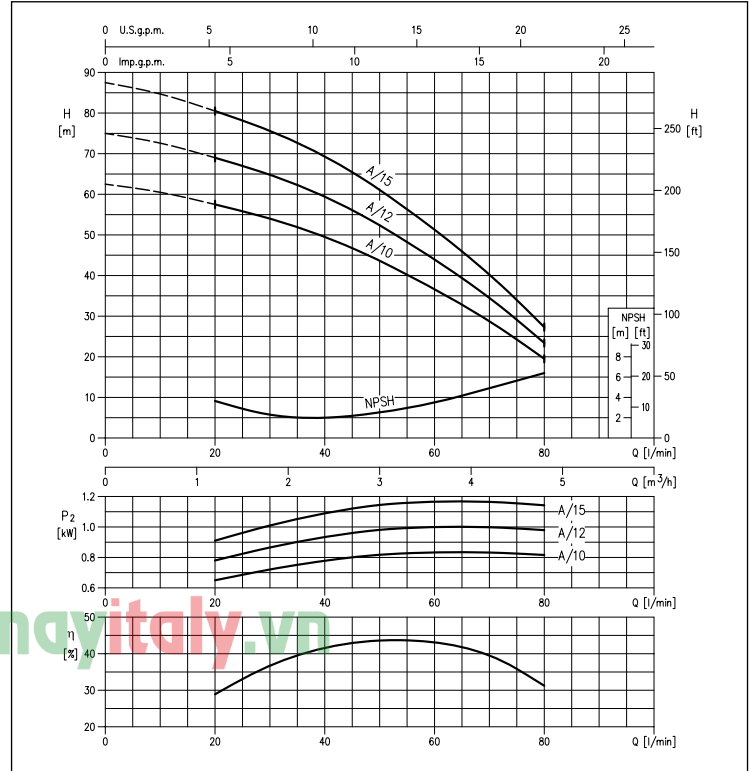
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## VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in cast iron

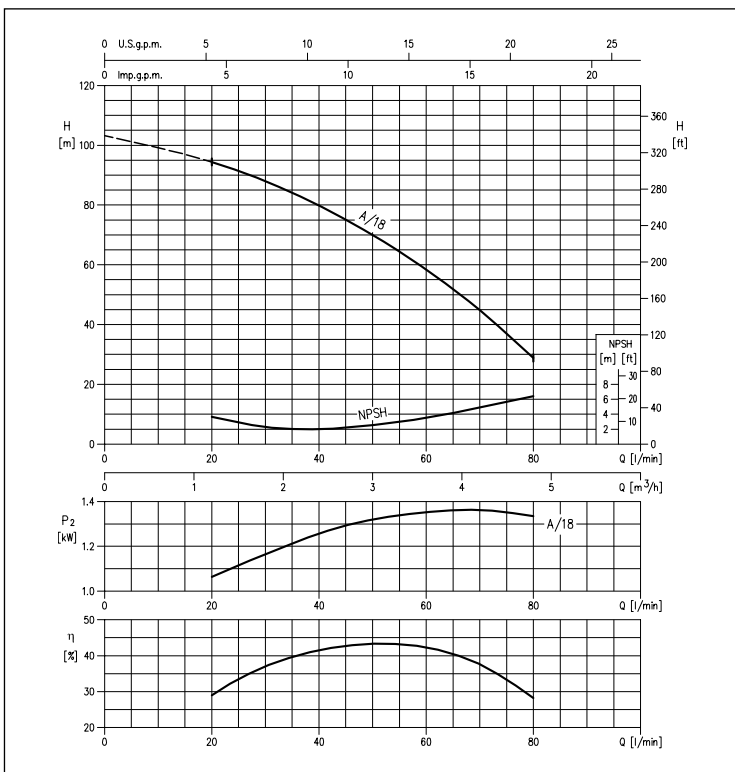
**CVM A range PERFORMANCE CURVES** (from 0.3 to 0.6 kW)  
(according to ISO 9906 Attachment A)



**CVM A range PERFORMANCE CURVES** (from 0.75 to 1.1 kW)  
(according to ISO 9906 Attachment A)



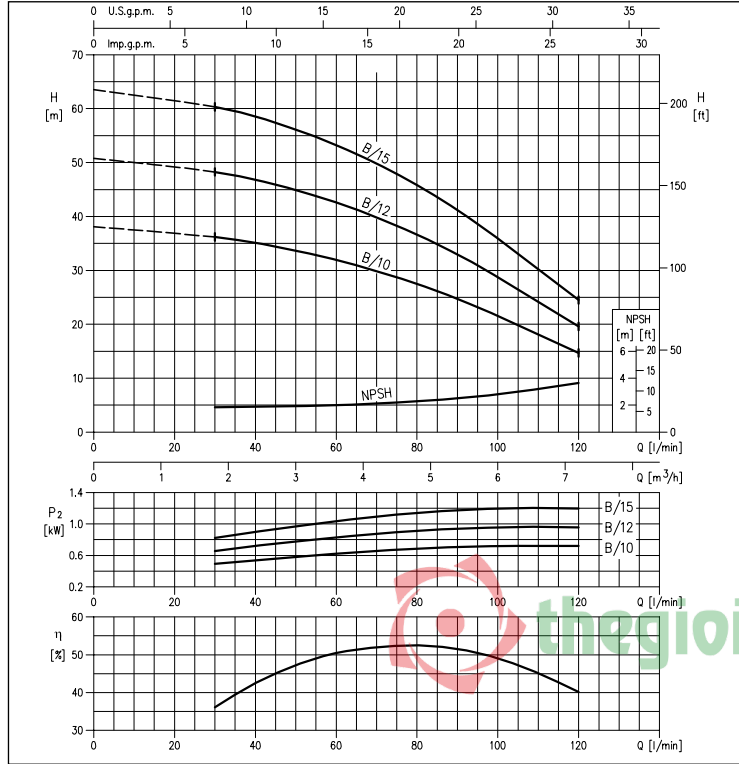
**CVM A range PERFORMANCE CURVES** (1.3 kW)  
(according to ISO 9906 Attachment A)



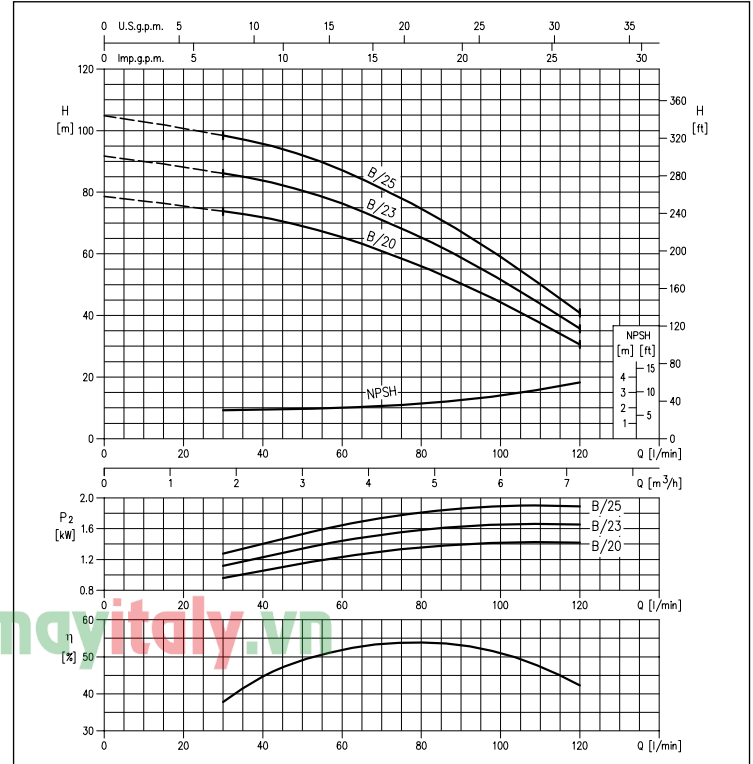
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## VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in cast iron

**CVM B range PERFORMANCE CURVES** (from 0.75 to 1.1 kW)  
(according to ISO 9906 Attachment A)



**CVM B range PERFORMANCE CURVES** (from 1.5 to 1.85 kW)  
(according to ISO 9906 Attachment A)



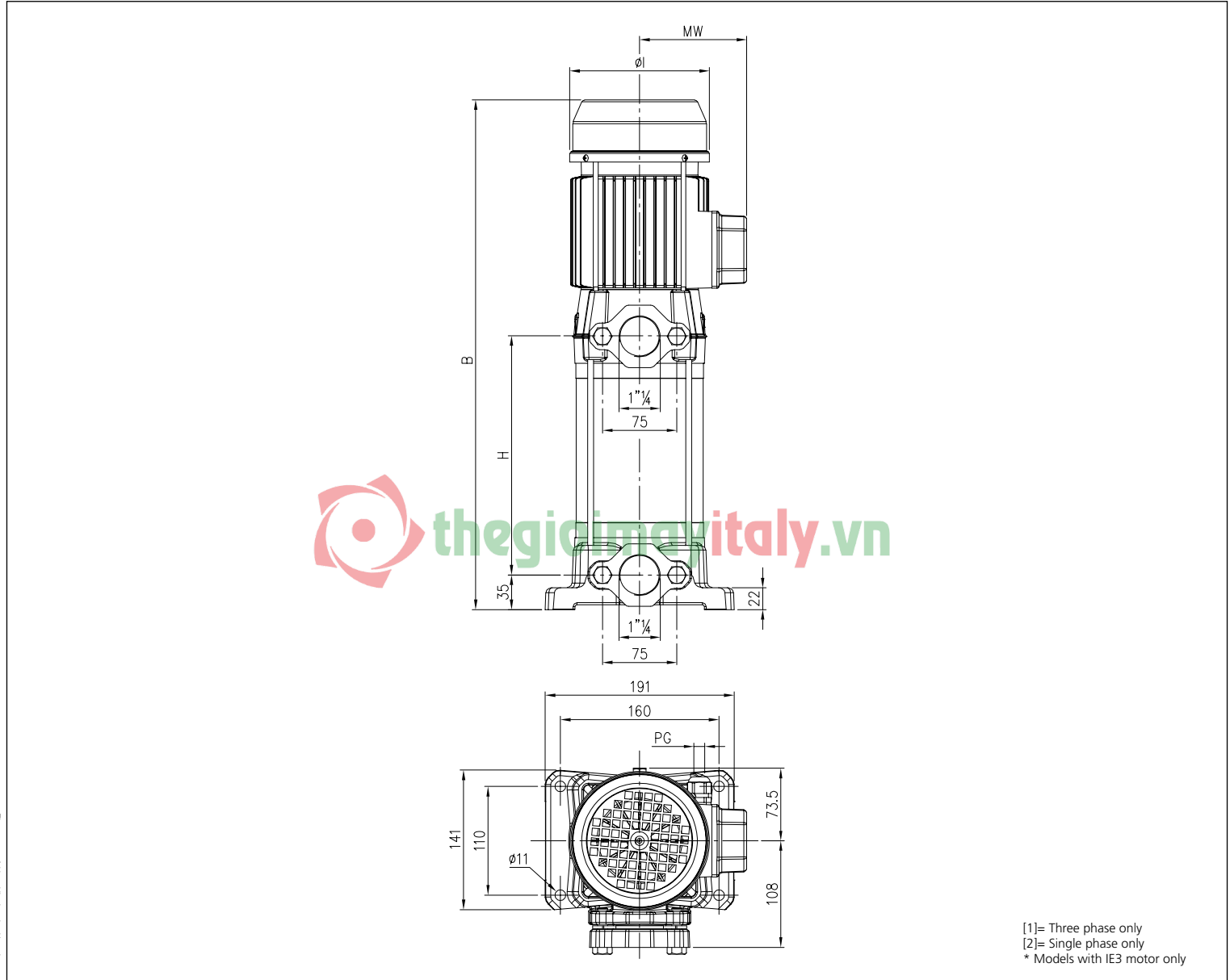
### PERFORMANCE CHART

Single phase 230V	Model Three phase 230/400V	P <sub>2</sub>		Q = Flow Rate												
		[HP]	[kW]	l/min	20	30	40	50		60	80	100	120			
				m <sup>3</sup> /h	1.2	1.8	2.4	3	3.6	4.8	6	7.2				
				H=Head [m]												
CVM AM/4	CVM A/4	0.4	0.3	-	21.2	19.7	17.8	15.6	13.0	6.4	-	-	-	-	-	
CVM AM/6	CVM A/6	0.6	0.44	-	31.8	29.5	26.7	23.3	19.4	9.6	-	-	-	-	-	
CVM AM/8	CVM A/8	0.8	0.6	-	42.5	39.4	35.6	31.1	25.9	12.8	-	-	-	-	-	
CVM AM/10	CVM A/10	1	0.75	-	57.5	54.0	49.5	43.5	36.6	19.5	-	-	-	-	-	
CVM AM/12	CVM A/12	1.2	0.9	-	69.0	65.0	59.5	52.5	44.0	23.4	-	-	-	-	-	
CVM AM/15	CVM A/15	1.5	1.1	-	80.5	75.5	69.5	61.0	51.0	27.3	-	-	-	-	-	
CVM AM/18	CVM A/18	1.8	1.3	-	94.5	88.0	80.0	70.0	58.5	28.8	-	-	-	-	-	
CVM BM/10	CVM B/10	1	0.75	-	-	36.2	35.1	33.7	32.0	27.5	21.6	14.7	-	-	-	
CVM BM/12	CVM B/12	1.2	0.9	-	-	48.0	46.8	45.0	42.6	36.6	28.8	19.6	-	-	-	
CVM BM/15	CVM B/15	1.5	1.1	-	-	60.5	58.5	56.2	53.3	45.8	36.0	24.5	-	-	-	
CVM BM/20	CVM B/20	2	1.5	-	-	74.0	72.0	69.0	65.5	56.0	44.5	30.6	-	-	-	
CVM BM/23	CVM B/23	2.3	1.7	-	-	86.0	84.0	80.5	76.5	65.5	51.5	35.7	-	-	-	
-	CVM B/25	2.5	1.85	-	-	98.5	96.0	92.0	87.0	74.5	59.0	41.0	-	-	-	

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## VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in cast iron

### DIMENSIONS



### DIMENSIONS TABLE

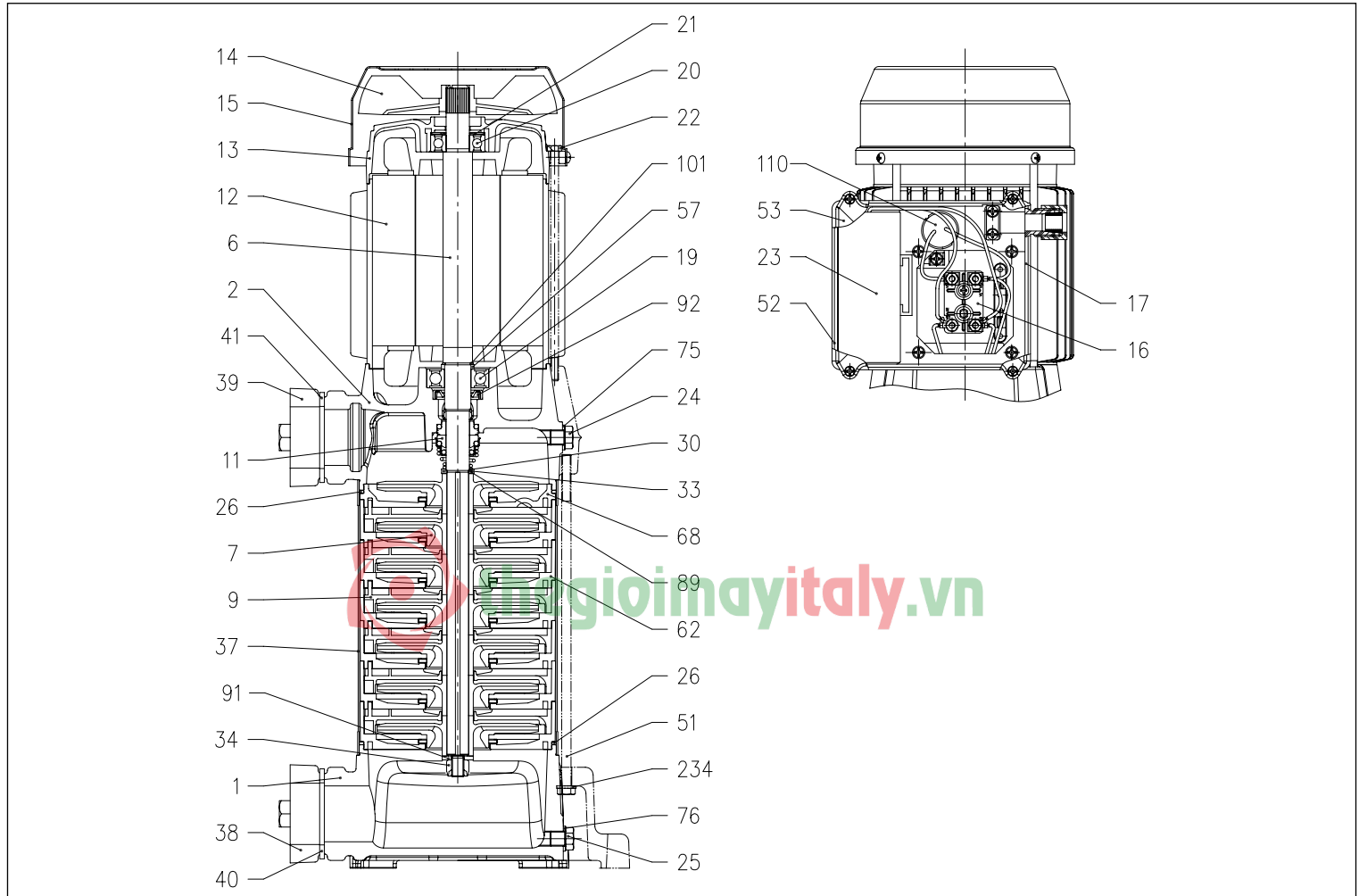
Model		Motor Mec	Dimensions [mm]										Weight [kg]		
Single phase 230V	Three phase 230/400V		[2]	B [1]	*	H	Ø1	MW [2]	MW [1]	M *	PG [2]	PG [1]	[2]	[1]	*
CVM AM/4	CVM A/4	63	336	336	-	112	124	101	91.5	-	11	11	11.0	11.0	-
CVM AM/6	CVM A/6	63	362	362	-	138	124	101	91.5	-	11	11	11.7	11.6	-
CVM AM/8	CVM A/8	63	388	388	-	164	124	101	91.5	-	11	11	12.7	12.6	-
CVM AM/10	CVM A/10	71	452	452	452	190	141	110.5	101	M16x1.5	11	11	16.5	16.6	16.6
CVM AM/12	CVM A/12	71	478	490	490	216	141	110.5	101	M16x1.5	11	11	17.5	18.4	18.4
CVM AM/15	CVM A/15	71	516	516	516	242	141	110.5	101	M16x1.5	11	11	18.5	18.6	18.6
CVM AM/18	CVM A/18	80	565	565	565	268	159	136	120.5	M20x1.5	13.5	11	21.2	21.8	22.7
CVM BM/10	CVM B/10	71	400	400	400	138	141	110.5	101	M16x1.5	11	11	15.9	15.9	15.9
CVM BM/12	CVM B/12	71	426	438	438	164	141	110.5	101	M16x1.5	11	11	16.8	17.5	17.5
CVM BM/15	CVM B/15	71	464	464	464	190	141	110.5	101	M16x1.5	11	11	18.0	17.9	17.9
CVM BM/20	CVM B/20	80	513	526	526	216	159	134.5	120.5	M20x1.5	13.5	11	21.3	22.8	23.7
CVM BM/23	CVM B/23	80	552	552	552	242	159	134.5	120.5	M20x1.5	13.5	11	22.6	23.4	24.3
-	CVM B/25	80	-	578	578	268	159	-	120.5	M20x1.5	-	11	-	23.7	24.6

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### SECTIONAL VIEW



### MATERIALS TABLE

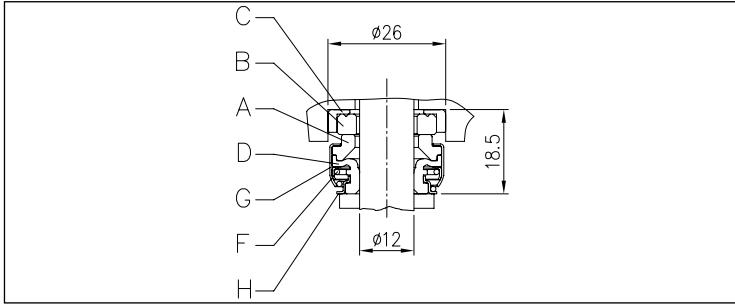
Ref.	Name	Material	Ref.	Name	Material
1	Pump body	Cast iron EN-GJL-200-EN 1561	33	Seeger ring	EN 1.4021 (AISI 420) (Dim. 12)
2	Pump body support	Cast iron EN-GJL-200-EN 1561			EN 1.4301 (AISI 304) (Dim. 14)
6	Shaft	EN 1.4005 (AISI 416)	34	Impeller nut	EN 1.4301 (AISI 304)
7	Impeller	PPE+PS reinforced with fibreglass	37	Casing	EN 1.4301 (AISI 304)
9	Diffuser	PPE+PS reinforced with fibreglass	38	Counter-flange	Cast iron EN-GJL-200-EN 1561
11	Mechanical seal	Ceramic/Carbon/NBR	39	Counter-flange	Cast iron EN-GJL-200-EN 1561
12	Motor case	-	40	Counter-flange gasket	NBR
13	Motor cover	Aluminium	41	Counter-flange gasket	NBR
14	Fan	PA	51	Pump tie-rod	Galvanised Fe P04
15	Fan cover	Galvanised Fe P04	52	Capacitor-holder box [2]	ABS
16	Terminal Box	-	53	Capacitor-holder box cover [2]	ABS
17	Terminal Box cover [1]	Aluminium	57	Spacer [3]	Steel C40
19	Bearing (pump side)	-	62	Stage box	PPE+PS reinforced with fibreglass/PTFE
20	Bearing (motor side)	-	68	Stage	PPE+PS reinforced with fibreglass/PTFE
21	Adjustment ring	Steel C70	75	Washer	Aluminium
22	Motor tie-rod	Galvanised Fe 42	76	Washer	Aluminium
23	Capacitor [2]	-	89	Washer	EN 1.4301 (AISI 304)
24	Filler cap	OT 58 UNI 5705	91	Washer	EN 1.4301 (AISI 304)
25	Drain plug	OT 58 UNI 5705	92	Sealing ring	NBR
26	O-Ring	NBR	101	Seeger ring [3]	EN 1.4301 (AISI 304)
30	Washer	EN 1.4301 (AISI 304)	110	Motor protector [4]	-
			234	Washer	Galvanised steel

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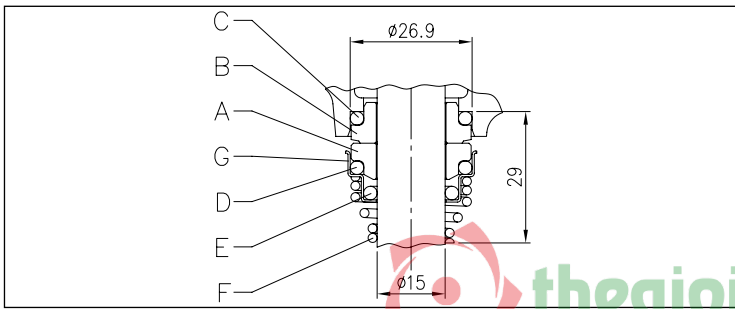
### MECHANICAL SEAL for CVM up to 0.6 kW



### MATERIALS TABLE

Ref.	Name	Material
A	Rotating part	Carbon
B	Fixed part	Ceramic
C	Gasket	NBR
D	Diaphragm	NBR
F	Spring	AISI 304
G	Structure/frame	AISI 304
H	Retainer ring	AISI 304

### MECHANICAL SEAL for CVM from 0.75 kW and over



### MATERIALS TABLE

Ref.	Name	Material
A	Rotating part	Ceramic
B	Fixed part	Carbon
C	O-Ring	NBR
D	O-Ring	NBR
E	O-Ring	NBR
F	Spring	AISI 316
G	Structure/frame	AISI 304

### ELECTRIC DATA TABLE

Model	Single phase 230V	Three phase 230/400V	P <sub>2</sub>		Efficiency		Capacitor		Efficiency (%)			P <sub>1</sub>		Absorbed Current [A]		
			[HP]	[kW]	Single phase	Three phase	Single phase μF	V <sub>c</sub>	Three phase η %			Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase 230V 400V	
									50%	75%	100%					
CVM AM/4	CVM A/4		0.4	0.3	-	-	10	450	-	-	-	0.54	0.49	2.6	1.9	1.1
CVM AM/6	CVM A/6		0.6	0.44	-	-	12.5	450	-	-	-	0.69	0.69	3.2	2.3	1.3
CVM AM/8	CVM A/8		0.8	0.6	-	-	14	450	-	-	-	0.89	0.83	4.0	2.8	1.6
CVM AM/10	CVM A/10		1	0.75	-	IE2	20	450	77.2	80.9	81.3	1.27	0.92	6.0	2.9	1.7
-			1	0.75	-	IE3	-	-	80.9	82.3	82.1	-	0.91	-	3.0	1.7
CVM AM/12	CVM A/12		1.2	0.9	-	IE2	31.5	450	79.0	81.7	81.6	1.45	1.35	6.5	4.3	2.5
-			1.2	0.9	-	IE3	-	-	81.7	83.1	82.4	-	1.34	-	4.3	2.5
CVM AM/15	CVM A/15		1.5	1.1	-	IE2	31.5	450	79.0	81.7	81.6	1.60	1.35	7.2	4.3	2.5
-			1.5	1.1	-	IE3	-	-	81.7	83.1	82.4	-	1.34	-	4.3	2.5
CVM AM/18	CVM A/18		1.8	1.3	-	IE2	35	450	79.7	82.5	83.0	1.76	1.80	7.8	5.6	3.2
-			1.8	1.3	-	IE3	-	-	83.0	85.8	85.6	-	1.77	-	5.8	3.3
CVM BM/10	CVM B/10		1	0.75	-	IE2	20	450	77.2	80.9	81.3	1.14	0.92	5.6	2.9	1.7
-			1	0.75	-	IE3	-	-	80.9	82.3	82.1	-	0.91	-	3.0	1.7
CVM BM/12	CVM B/12		1.2	0.9	-	IE2	31.5	450	79.0	81.7	81.6	1.38	1.35	6.2	4.3	2.5
-			1.2	0.9	-	IE3	-	-	81.7	83.1	82.4	-	1.34	-	4.3	2.5
CVM BM/15	CVM B/15		1.5	1.1	-	IE2	31.5	450	79.0	81.7	81.6	1.63	1.35	7.4	4.3	2.5
-			1.5	1.1	-	IE3	-	-	81.7	83.1	82.4	-	1.34	-	4.3	2.5
CVM BM/20	CVM B/20		2	1.5	-	IE2	40	450	78.6	83.0	84.2	1.91	1.78	8.3	6.3	3.7
-			2	1.5	-	IE3	-	-	82.7	86.1	87.0	-	1.72	-	6.6	3.8
CVM BM/23	CVM B/23		2.3	1.7	-	IE2	40	450	80.3	83.4	83.8	2.14	2.09	9.6	6.9	4.0
-			2.3	1.7	-	IE3	-	-	84.2	86.8	86.9	-	2.01	-	7.1	4.1
-	CVM B/25		2.5	1.85	-	IE2	-	-	83.0	84.4	83.8	-	2.63	-	8.1	4.7
-			2.5	1.85	-	IE3	-	-	86.2	87.0	86.0	-	2.55	-	8.2	4.7

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### NOISE DATA TABLE

Single phase 230V	Model		P <sub>2</sub>		L <sub>pa</sub> - dB(A)*
	Three phase 230/400V		[HP]	[kW]	
CVM AM/4	CVM A/4		0.4	0.3	53
CVM AM/6	CVM A/6		0.6	0.44	
CVM AM/8	CVM A/8		0.8	0.6	
CVM AM/10	CVM A/10		1	0.75	62
CVM AM/12	CVM A/12		1.2	0.9	
CVM AM/15	CVM A/15		1.5	1.1	
CVM AM/18	CVM A/18		1.8	1.3	67
CVM BM/10	CVM B/10		1	0.75	62
CVM BM/12	CVM B/12		1.2	0.9	
CVM BM/15	CVM B/15		1.5	1.1	
CVM BM/20	CVM B/20		2	1.5	67
CVM BM/23	CVM B/23		2.3	1.7	
-	CVM B/25		2.5	1.85	

\* Average noise level measured at 1 m from the motor pump.  
Tolerance ± 2.5 dB.

