

ELECTRIC PUMPS FOR RESIDENTIAL USE

50 Hz

EBARA Pumps Europe network

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EBARA Pumps Europe S.p.A. and the new EuP Directive 2009/125/CE

The European Directive 2009/125/CE (EuP), issued in July 2005, aims at protecting the environment and at the production of electrical appliances that are more Eco-compatible.

The goal of this Directive is to compel manufacturers and importers, by law, to only produce and distribute high energy efficiency products, and it concerns the following product categories:

- Electric motors
- Water pumps
- Circulator pumps for domestic heating

Electric motors

Commission Regulation (EC) 640/2009 introduces a new criterion for classifying the efficiency of electric motors. With effect from 16th June 2011, the regulation applies to three phase motors (2-poles and 4-poles) with 0.75kW to 375kW power output up to 100V, with the exception of permanently submerged motors. The motors will thus be classified with level IE2 energy efficiency. The regulation does not concern submerged, submersible, single phase motor-driven pumps and three phase motor-driven pumps with power output below 0.75kW, in addition to motor-driven pumps for explosive atmospheres (ATEX).

The successive stage of the regulation will come into force on 1st January 2015 and will concern motors with 7.5kW to 375kW power output. These motors must necessarily conform to the IE3 energy efficiency level, or level IE2 supported by inverters.

With effect from 2011, EBARA Pumps Europe S.p.A. has conformed to the regulation and has begun supplying three phase pumps complying with IE2 energy efficiency requirements, and is capable of supplying part of its motor-driven pump range according to IE3 energy efficiency requirements.

The EBARA motor-drive pumps affected by the regulation underwent some changes regarding the absorbed current, absorbed power, weight and - in some cases - dimensions (for further details, please consult the technical documentation on the website www.ebara-europe.com).

Improved energy efficiency translates into reduced energy consumption and longer lifespan of the motors, due to lower heat dissipation, which - in turn - ensure financial advantages for the end user.

Water pumps

Commission Regulation (EU) 547/2012 concerns the energy efficiency of the hydraulic part of pumps for the purpose of further reducing energy wastage.

All pump constructors in the European Union must comply with the regulation and have a single aim: the drastic reduction of CO₂ emissions by 2020.

The following pump categories are involved:

- Horizontal standardised single-stage pump with base (ESOB)
- Close-coupled single-stage pumps (ESCC)
- Vertical multistage pumps (MS-V)
- Submersible multistage pumps (MSS) 4" and 6"
- Close-coupled inline pumps (ESCCi)

The regulation is aimed at diffusing efficient motor-driven pumps on the market according to a hydraulic efficiency index, the value of which is calculated and known to the end user by means of MEI (Minimum Efficiency Index); in other words, MEI defines a minimum limit below which all non-conforming products will be excluded from the market.

The regulation will come into force on the following dates:

- starting from 1st January 2013 MEI ≥ 0.1
- starting from 1st January 2015 MEI ≥ 0.4

EBARA Pumps Europe S.p.A. is already up-to-date with the new regulation and offers on the market a range of products complying with the necessary hydraulic efficiency requirements.

The on-going improvement of the energy efficiency of its products is a priority for the company: EBARA Pumps Europe S.p.A. fully complies with the EuP Directive.

Circulator pumps for domestic heating

Commission Regulation (EC) 641/2009 also applies to wet rotor circulator pumps for heating and air-conditioning systems (with the exception of circulator pumps for domestic hot water recirculation and dedicated circulator pumps for solar heating systems). The regulation defines stringent energy efficiency requirements for circulator pumps by means of a specific index, the so-called EEI (Energy Efficiency Index).


The following are the compliance dates:

- starting from 1st January 2013 only circulator pumps* with EEI ≤ 0.27 will be allowed
- starting from 1st August 2015 only circulator pumps with EEI ≤ 0.23 will be allowed

In this context, EBARA Pumps Europe S.p.A. launches a new range of variable-speed electronic circulator pumps with EEI index complying with the regulation, advanced functionality and excellent performance.

* For the so-called "integrated" circulator pumps, namely pumps specifically designed for being installed inside a machine (e.g. inside a boiler), the start date is postponed to 01/08/2015.

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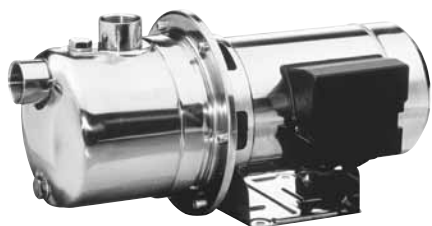
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JES - JE

SELF-PRIMING ELECTRIC PUMPS

in AISI 304



Self-priming electric pumps in AISI 304 stainless steel.

APPLICATIONS

- Supply of drinking water
- Domestic pressure boosting
- Small-scale garden irrigation
- Emptying reservoirs and swimming pools
- Moving clean water in general

TECHNICAL DETAILS

- Practical
- Light and easy to transport

PUMP TECHNICAL DATA

- Maximum working pressure: 6 bar
- Maximum temperature of the liquid: 45°C
- Maximum suction depth: 8 m
- G1 suction connection for JES, G1¼ for JE
- G1 discharge connection

MOTOR TECHNICAL DATA

- High efficiency motors IE2 starting from 0,75kW
- 2 poles self-ventilated closed asynchronous motor with internal ventilation
- Class of insulation F
- Protection degree IP44 (on request IP55)
- 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

- Pump body, motor bracket, seal housing disc, motor case and fan cover in AISI 304
- AISI 303 shaft (part in contact with the liquid)
- Impeller in AISI 304 for JE, in PPE+PS reinforced with fibreglass for JES
- Mechanical seal in Carbon/Ceramic/NBR

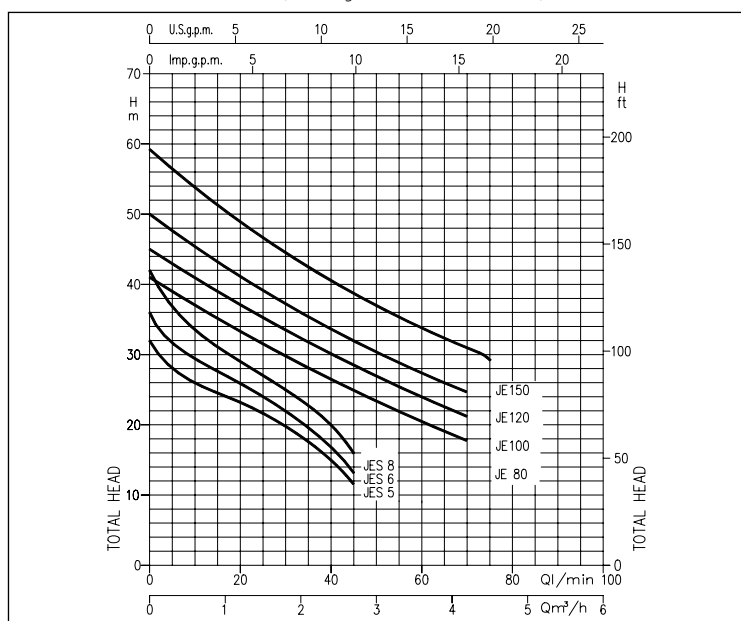
CONTROL PANELS

- 1EP
- 1EPBH

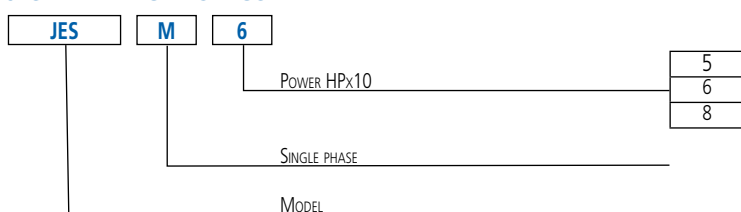
ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output - maximum motor power 2.2 kW - 3 HP)
- E-drive - frequency converter

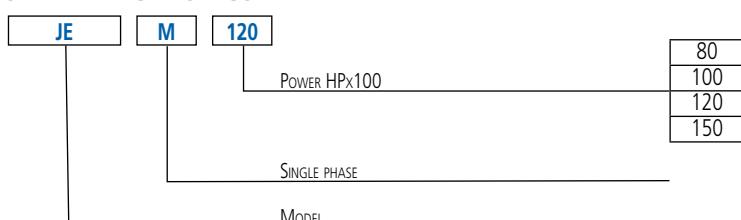
PERFORMANCE CURVES (according to ISO 9906 Attachment A)



JES IDENTIFICATION CODE



JE IDENTIFICATION CODE



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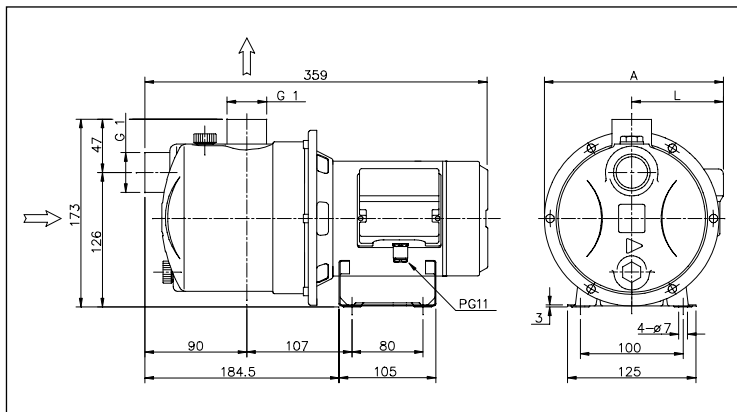
JES - JE

SELF-PRIMING ELECTRIC PUMPS in AISI 304

JES PERFORMANCE TABLE

Single phase 230V	Model	Three phase 230/400V	P ₂		Q=Flow rate				
			[HP]	[kW]	l/min	20	40	45	
					m ³ /h	0,3	1,2	2,4	2,7
					H=Head [m]				
JESM 5	JES 5		0,5	0,37	28,0	23,0	15,0	11,5	
JESM 6	JES 6		0,6	0,44	31,5	26,0	17,0	13,5	
JESM 8	JES 8		0,8	0,6	37,0	29,0	20,0	16,0	

JES DIMENSIONS

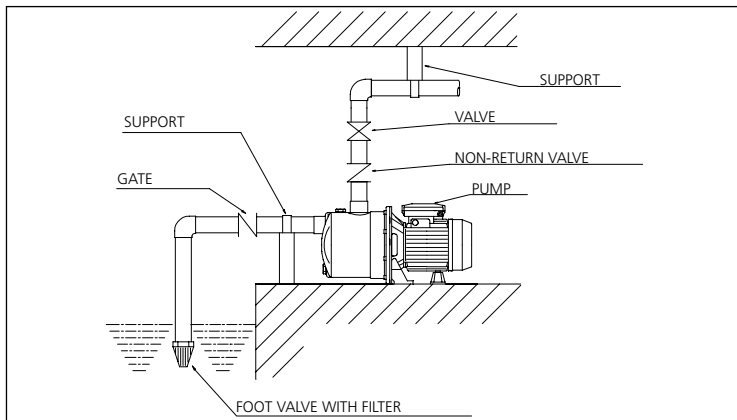


DIMENSIONS TABLE

Model	Dimensions [mm]					Weight [kg]
	[2]	A	[1]	[2]	L	
JES(M) 5	181		177	96	92	5,6
JES(M) 6	181		177	96	92	5,8
JES(M) 8	181		177	96	92	6,0

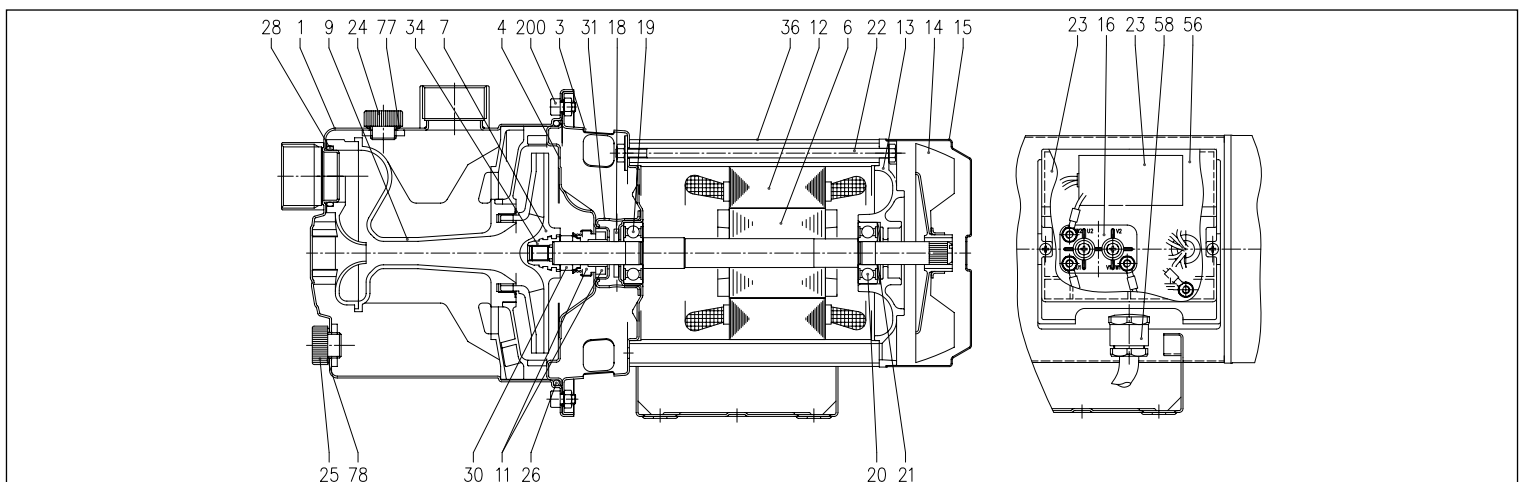
[1]= Three phase only
[2]= Single phase only

INSTALLATION



For correct installation of the system, it is recommended to fit a foot valve on the suction and support/anchorage for the piping.

JES SECTIONAL VIEW



JES - JE

SELF-PRIMING ELECTRIC PUMPS

in AISI 304

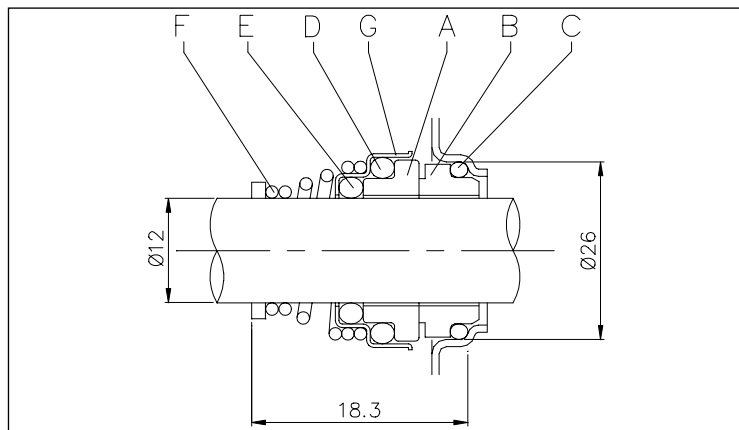
MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	AISI 304	21	Adjusting ring	Steel C70
3	Motor support	AISI 304	22	Tie-rod	Galvanised Fe 42
4	Seal housing disc	AISI 304	23	Capacitor [2]	-
6	Rotor shaft	AISI 303 (part in contact with the liquid)	24	Filler cap	PA6
7	Impeller	PPE+PS reinforced with fibreglass	25	Drain plug	PA6
9	Venturi Unit + nozzle	PPE+PS reinforced with fibreglass	26	O-Ring	NBR
11	Mechanical seal	Carbon/Ceramic/NBR	28	O-Ring	NBR
12	Motor case	-	30	Mechanical seal spacer	Brass
13	Motor cover	Aluminium	31	Disc/seal spacer	AISI 304
14	Fan	PA6	34	Impeller nut [1]	AISI 304
15	Fan cover	Galvanised Fe P04	36	Motor casing	AISI 304
16	Terminal box	-	56	Terminal box cover gasket	NBR
17	Terminal box cover	PA66 reinforced with fibreglass	58	Cable gland	-
18	Spray protector washer	NBR	77	O-Ring	NBR
19	Bearing (pump side)	-	78	O-Ring	NBR
20	Bearing (motor side)	-	200	Screw (Pump body)	A2 UNI7323 stainless steel

[1]= For three phase only

[2]= For single phase only

JES MECHANICAL SEAL



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

JES ELECTRIC DATA TABLE

Model	P ₂	Capacitor		P ₁	Absorbed Current [A]					
		Single phase	Three phase		Single phase	Three phase	Three phase			
Single phase 230V	Three phase 230/400V	[HP]	[kW]	µF	V _c	230V	230V	400V		
JESM 5	JES 5	0,5	0,37	10	450	0,44	0,43	2,1	1,5	0,85
JESM 6	JES 6	0,6	0,44	10	450	0,54	0,49	2,4	1,9	1,1
JESM 8	JES 8	0,8	0,6	12,5	450	0,63	0,58	3,0	2,25	1,3

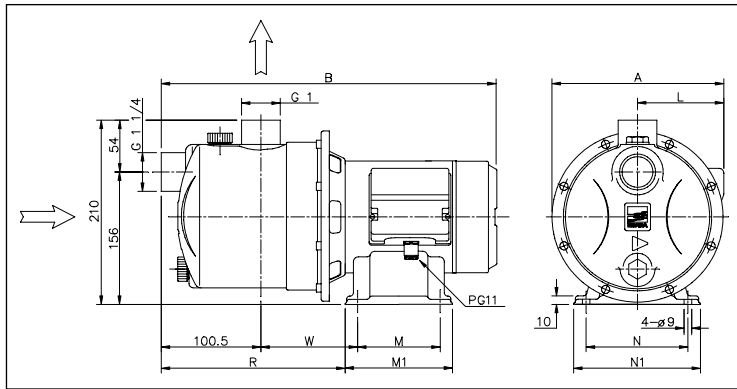
JES - JE

SELF-PRIMING ELECTRIC PUMPS in AISI 304

JE PERFORMANCE TABLE

Model	Single phase 230V	Three phase 230/400V	P ₂		Q=Flow rate							
			[HP]	[kW]	l/min	20	30	40	50	60	70	75
					m ³ /h	1,2	1,8	2,4	3	3,6	4,2	4,5
					H=Head [m]							
JEM 80	JE 80		0,8	0,6	33,0	29,0	26,5	23,5	20,5	18,0	-	-
JEM 100	JE 100		1	0,75	37,0	33,5	30,0	27,0	24,0	21,0	-	-
JEM 120	JE 120		1,2	0,88	41,0	37,0	34,0	30,5	27,5	24,5	-	-
JEM 150	JE 150		1,5	1,1	49,0	44,5	40,5	37,0	34,0	31,0	29,5	-

JE DIMENSIONS

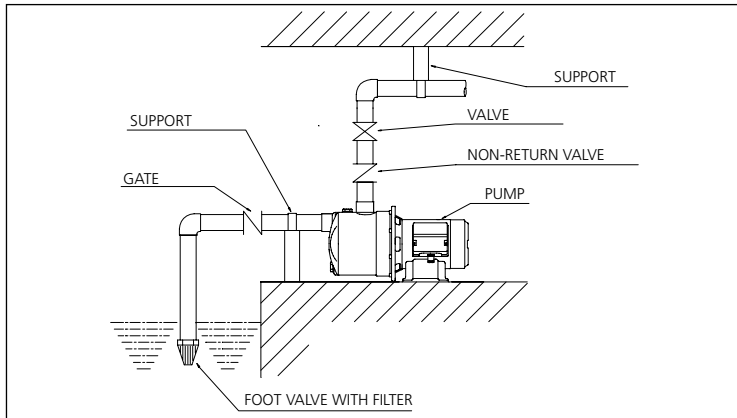


DIMENSIONS TABLE

Model	Dimensions [mm]												Weight [kg]	
	A [2]	[1]	B [2]	[1]	L [2]	[1]	M	M1	N	N1	R	W	[2]	[1]
JE(M) 80	211	208	396	396	107	103	100	131	120	150	213	128	10,5	10,5
JE(M) 100	211	208	426	426	107	103	100	131	120	150	228	143	12,0	12,0
JE(M) 120	211	208	426	426	107	103	100	131	120	150	228	143	12,5	12,5
JE(M) 150	215,5	215,5	433,5	433,5	111,5	111,5	120	150	140	170	231	145,5	14,1	16,4

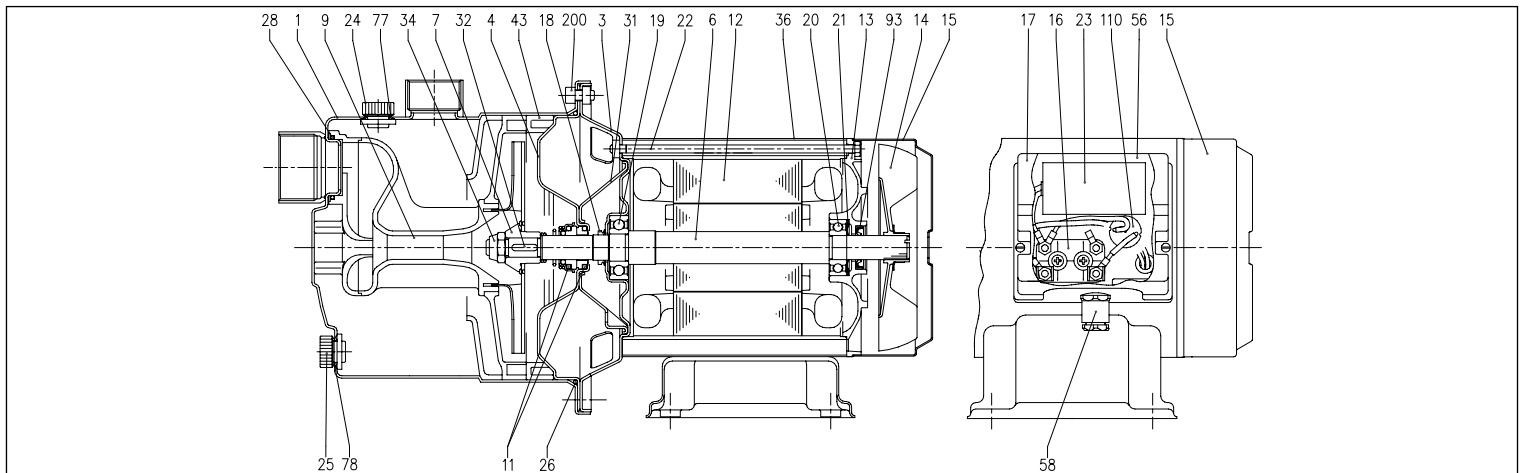
[1]= Three phase only
[2]= Single phase only

INSTALLATION



For correct installation of the system, it is recommended to fit a foot valve on the suction and support/anchorage for the piping.

JE SECTIONAL VIEW



SELF-PRIMING ELECTRIC PUMPS

in AISI 304

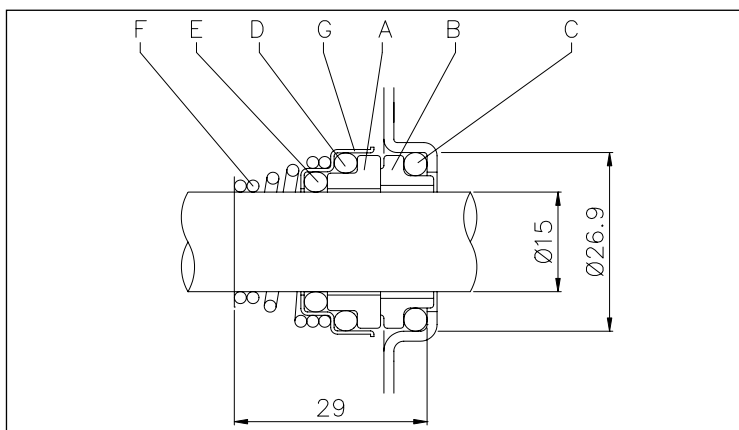
MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	AISI 304	23	Capacitor [2]	-
3	Motor support	AISI 304	24	Filler cap	PA6
4	Seal housing disc	AISI 304	25	Drain plug	PA6
6	Rotor shaft	AISI 303 (part in contact with the liquid)	26	O-Ring	NBR
7	Impeller	AISI 304	28	O-Ring	NBR
9	Venturi Unit + nozzle	PPE+PS reinforced with fibreglass	31	Disc/seal spacer	AISI 304
11	Mechanical seal	Carbon/Ceramic/NBR	32	Key	AISI 304
12	Motor case	-	34	Impeller nut	AISI 304
13	Motor cover	Aluminium	36	Motor casing	AISI 304
14	Fan	PA6	43	Nozzle spacer	PPE+PS reinforced with fibreglass
15	Fan cover	AISI 304	56	Terminal box cover gasket	NBR
16	Terminal box	-	58	Cable gland	-
17	Terminal box cover	PA66 reinforced with fibreglass	77	O-Ring	NBR
18	Spray protector washer	NBR	78	O-Ring	NBR
19	Bearing (pump side)	-	93	Sealing ring [1]	NBR
20	Bearing (motor side)	-	110	Motorprotector [2]	-
21	Adjusting ring	Steel C70	200	Screw (Pump body)	A2 UNI7323 stainless steel
22	Tie-rod	Galvanised Fe 42			

[1]= For IP 55 only

[2]= For single phase only

JE MECHANICAL SEAL



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

JE ELECTRIC DATA TABLE

Model		P ₂		Efficiency		Capacitor		Efficiency (%)			P ₁		Absorbed Current [A]		
Single phase 230V	Three phase 230/400V	[HP]	[kW]	Single phase	Three phase	Single phase	Three phase	Three phase			Single phase	Three phase	Single phase	Three phase	
						µF	V _c	50%	75%	100%	[kW]	[kW]	230V	230V	400V
JEM 80	JE 80	0,8	0,6	-	-	16	450	-	-	-	1,05	0,97	4,7	3,3	1,9
JEM 100	JE 100	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,33	1,13	6,4	3,5	2,0
JEM 120	JE 120	1,2	0,88	-	IE2	20	450	77,2	80,9	81,3	1,39	1,15	6,7	3,6	2,1
JEM 150	JE 150	1,5	1,1	-	IE2	31,5	450	79,7	82,5	83,0	1,70	1,80	7,6	5,5	3,2

JE NOISE DATA TABLE

Model		P ₂		L _{pa} - dB(A)*
Single phase 230V	Three phase 230/400V	[HP]	[kW]	
JEM 80	JE 80	0,8	0,6	71
JEM 100	JE 100	1	0,75	71
JEM 120	JE 120	1,2	0,88	71
JEM 150	JE 150	1,5	1,1	76

* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

JESX - JEX

SELF-PRIMING ELECTRIC PUMPS

in AISI 304



Self-priming electric pumps in AISI 304 stainless steel

APPLICATIONS

- Supply of drinking water
- Domestic pressure boosting
- Small-scale garden irrigation
- Emptying reservoirs and swimming pools
- Moving clean water in general

TECHNICAL DETAILS

- Practical
- Easy to transport
- Light

PUMP TECHNICAL DATA

- Maximum working pressure: 6 bar
- Maximum temperature of the liquid: 45°C
- Maximum suction depth: 8 m
- G1 suction connection for JESX, G1¼ for JEX
- G1 discharge connection

MOTOR TECHNICAL DATA

- High efficiency IE2 motors starting from 0,75kW
- Self-ventilated 2 poles asynchronous motor
- Class of insulation F
- Protection degree IP54 (on request IP55)
- 230V ±10%, 50Hz single phase voltage, 230/400V ±10%, 50Hz three phase voltage
- Permanent capacitor inserted and thermo-amperometric protection with automatic rearm incorporated for the single phase motor
- Protection under user's responsibility for the three phase version

MATERIALS

- Pump casing and seal housing disc in AISI 304
- AISI 303 shaft (part in contact with the liquid)
- Impeller in AISI 304 for JEX, in PPE+PS reinforced with fibreglass for JESX
- Mechanical seal in Carbon/Ceramic/NBR
- Bracket and motor casing in aluminium
- Venturi Unit + Nozzle in PPE+PS reinforced with fibreglass

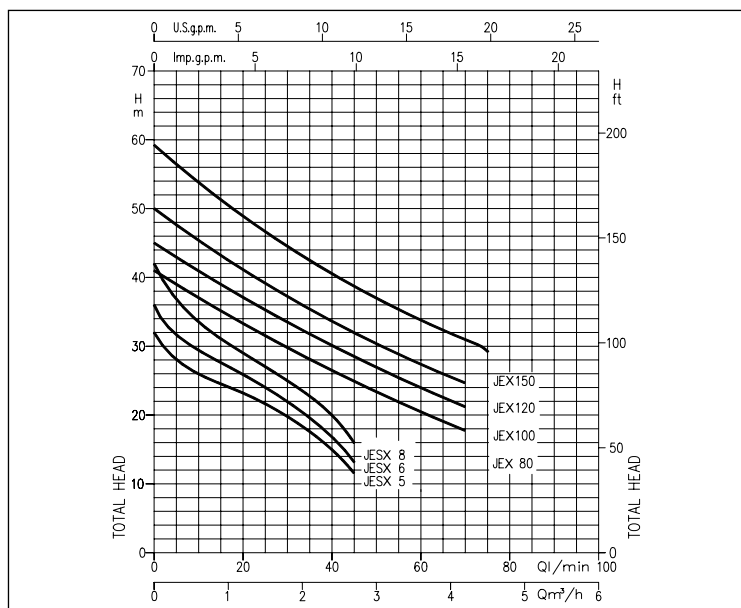
CONTROL PANELS

- 1EP
- 1EPBH

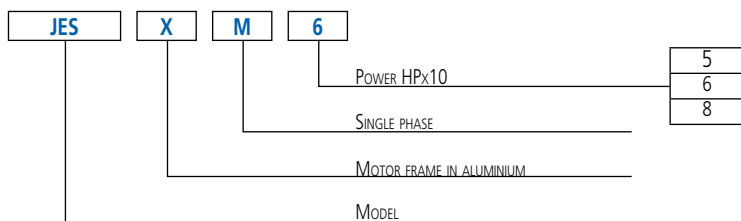
ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output - maximum motor power 2.2 kW - 3 HP)
- E-drive - frequency converter

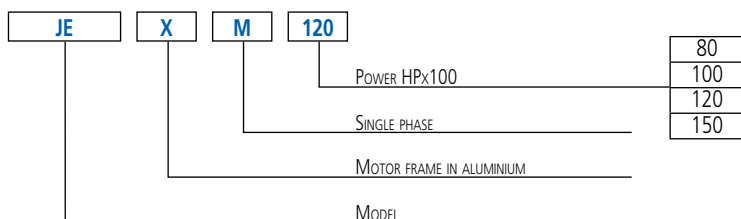
PERFORMANCE CURVES (according to ISO 9906 Attachment A)



JESX IDENTIFICATION CODE



JEX IDENTIFICATION CODE



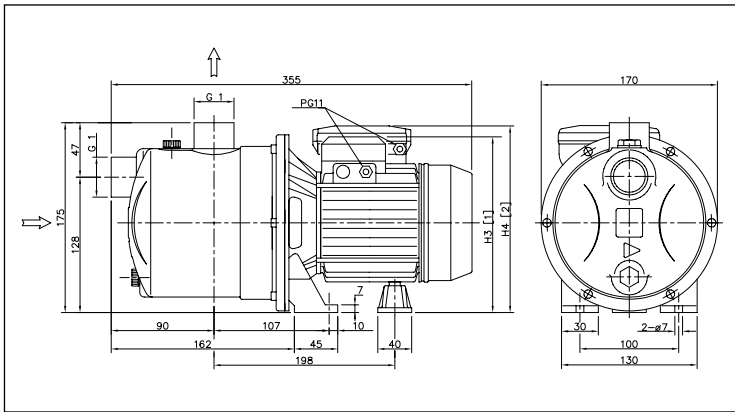
JESX - JEX

SELF-PRIMING ELECTRIC PUMPS in AISI 304

JESX PERFORMANCE TABLE

Single phase 230V	Model	Three phase 230/400V	P ₂		Q=Flow rate			
			[HP]	[kW]	l/min	m ³ /h	H=Head [m]	
JESXM 5	JESX 5		0,5	0,37	28,0	23,0	15,0	11,5
JESXM 6	JESX 6		0,6	0,44	31,5	26,0	17,0	13,5
JESXM 8	JESX 8		0,8	0,6	37,0	29,0	20,0	16,0

JESX DIMENSIONS

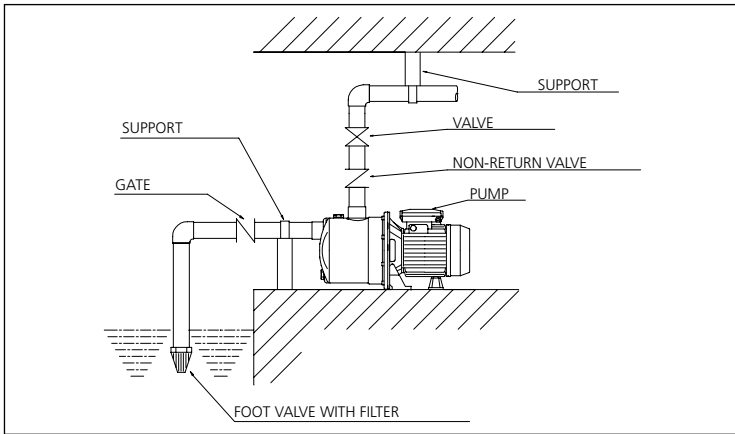


DIMENSIONS TABLE

Model	Dimensions [mm]		Weight [kg]
	[1] H3	[2] H4	
JESX(M) 5	175	200	5,1
JESX(M) 6	175	200	5,5
JESX(M) 8	175	200	6,1

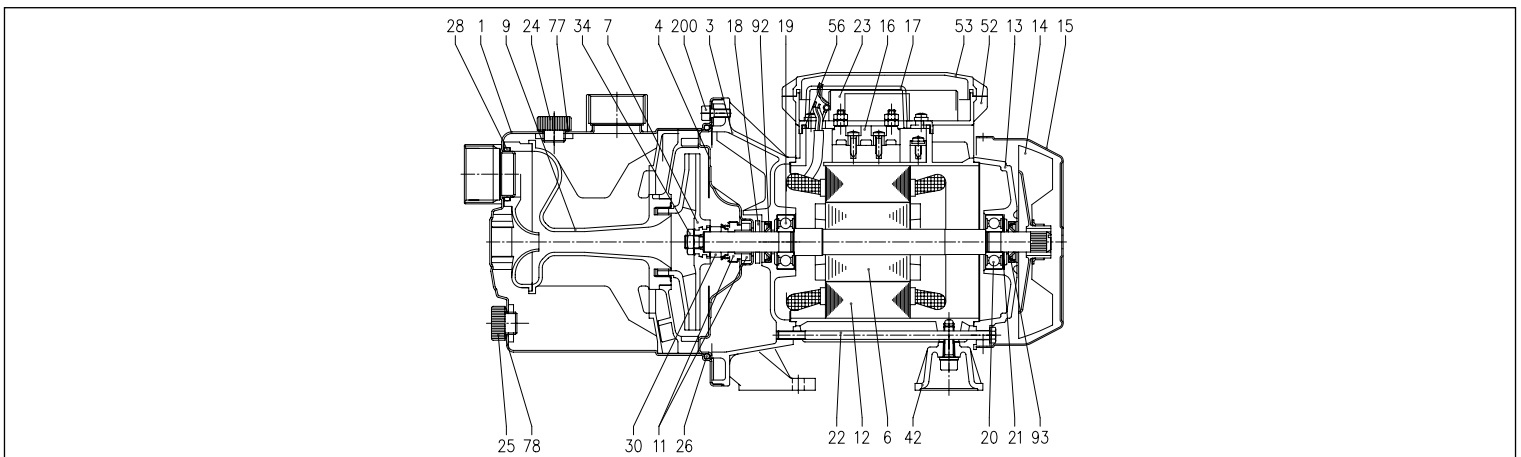
[1]= Three phase only
[2]= Single phase only

INSTALLATION



For correct installation of the system, it is recommended to fit a foot valve on the suction and support/anchorage for the piping.

JESX SECTIONAL VIEW



JESX - JEX

SELF-PRIMING ELECTRIC PUMPS

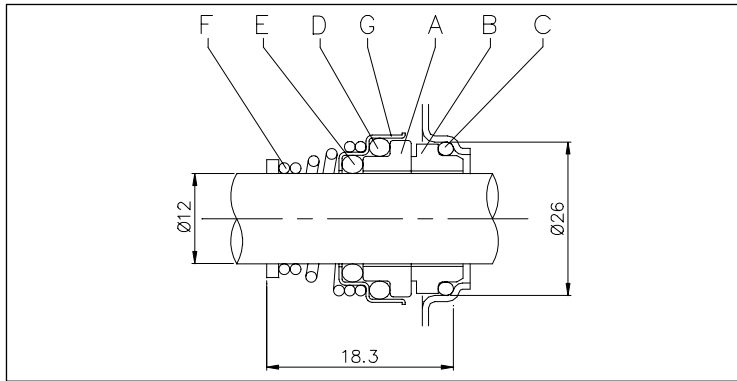
in AISI 304

MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	AISI 304	22	Tie-rod	Galvanised Fe 42
3	Motor support	Aluminium	23	Capacitor [2]	-
4	Seal housing disc	AISI 304	24	Filler cap	PA
6	Rotor shaft	AISI 303 (part in contact with the liquid)	25	Drain plug	PA
7	Impeller	PPE+PS reinforced with fibreglass	26	O-Ring	NBR
9	Venturi Unit + nozzle	PPE+PS reinforced with fibreglass	28	O-Ring	NBR
11	Mechanical seal	Carbon/Ceramic/NBR	30	Mechanical seal spacer	Brass
12	Motor case	-	34	Impeller nut [1]	AISI 304
13	Motor cover	Aluminium	42	Foot	Aluminium
14	Fan	PA	52	Capacitor-holder box [2]	ABS
15	Fan cover	Galvanised Fe P04	53	Terminal box cover with gasket	ABS+NBR
16	Terminal box	-	56	Terminal box cover gasket	NBR
17	Terminal box cover [1]	Aluminium	77	O-Ring	NBR
18	Spray protector washer	NBR	78	O-Ring	NBR
19	Bearing (pump side)	-	92	Sealing ring [3]	-
20	Bearing (motor side)	-	93	Sealing ring [3]	-
21	Adjusting ring	Steel C70	200	Screw (Pump body)	A2 UNI7323 stainless steel

[1]= Only for Three phase
 [2]= For single phase only
 [3]= For IP 55 only

JESX MECHANICAL SEAL



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

JESX ELECTRIC DATA TABLE

Model	P ₂	Capacitor		P ₁	Absorbed Current [A]					
		Single phase	Single phase		Single phase	Three phase	Three phase			
Single phase 230V	Three phase 230/400V	[HP]	[kW]	µF	V _c	230V	230V	400V		
JESXM 5	JESX 5	0,5	0,37	10	450	0,44	0,43	2,1	1,5	0,85
JESXM 6	JESX 6	0,6	0,44	10	450	0,54	0,49	2,4	1,9	1,1
JESXM 8	JESX 8	0,8	0,6	12,5	450	0,63	0,58	3,0	2,25	1,3

JESX NOISE DATA TABLE

Model	P ₂	L _{pa} - dB(A)*		
		[HP]	[kW]	
Single phase 230V	Three phase 230/400V	[HP]	[kW]	
JESXM 5	JESX 5	0,5	0,37	<70
JESXM 6	JESX 6	0,6	0,44	<70
JESXM 8	JESX 8	0,8	0,6	<70

* Mean value of several measures at 1m distance around the pump.
 Tolerance ± 2,5 dB.

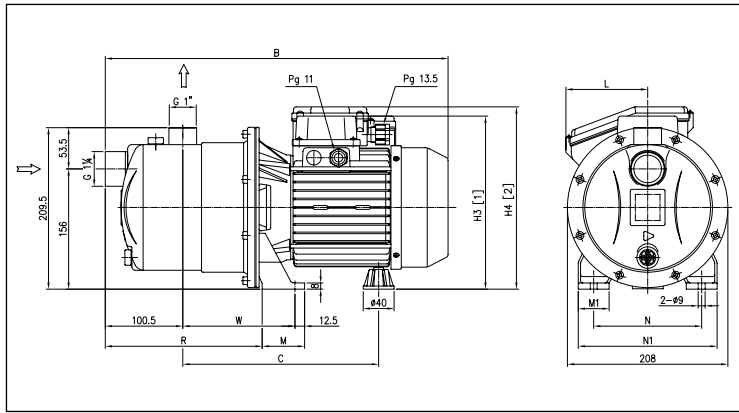
JESX - JEX

SELF-PRIMING ELECTRIC PUMPS in AISI 304

JEX PERFORMANCE TABLE

Model	Single phase 230V	Three phase 230/400V	P ₂		Q=Flow rate								
			[HP]	[kW]	l/min	20	30	40	50	60	70	75	
					m ³ /h	1,2	1,8	2,4	3	3,6	4,2	4,5	
						H=Head [m]							
JEXM 80	JEX 80		0,8	0,6		33,0	29,0	26,5		23,5	20,5	18,0	-
JEXM 100	JEX 100		1	0,75		37,0	33,5	30,0		27,0	24,0	21,0	-
JEXM 120	JEX 120		1,2	0,88		41,0	37,0	34,0		30,5	27,5	24,5	-
JEXM 150	JEX 150		1,5	1,1		49,0	44,5	40,5		37,0	34,0	31,0	29,5

JEX DIMENSIONS

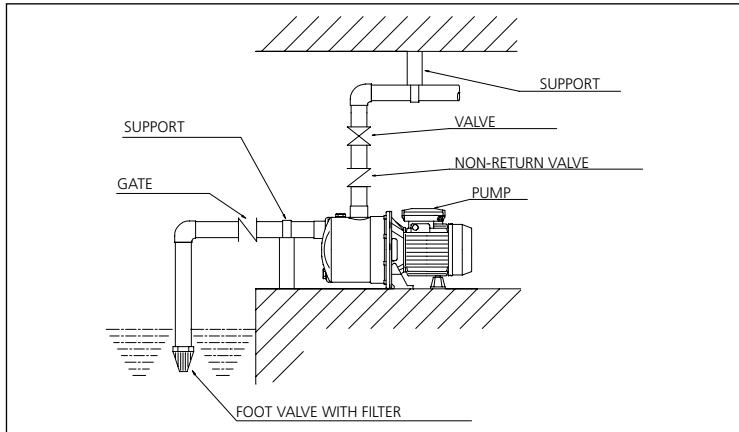


DIMENSIONS TABLE

Model	Dimensions [mm]											Weight [kg]		
	B	C	H3 [1]	H4 [2]	L [2]	M	M1	N	N1	R	T [2]	W	[2]	[1]
JEX(M) 80	419	232,5	207,5	216	84	50	38	120	160	206,5	PG11	143,5	10,2	10,2
JEX(M) 100	419	232,5	207,5	216	84	50	38	120	160	206,5	PG11	143,5	11,6	11,6
JEX(M) 120	419	232,5	207,5	216	84	50	38	120	160	206,5	PG11	143,5	11,6	11,6
JEX(M) 150	444,5	254	224,5	236,5	106	55	40	140	180	203,5	PG13,5	145,5	14,3	15,3

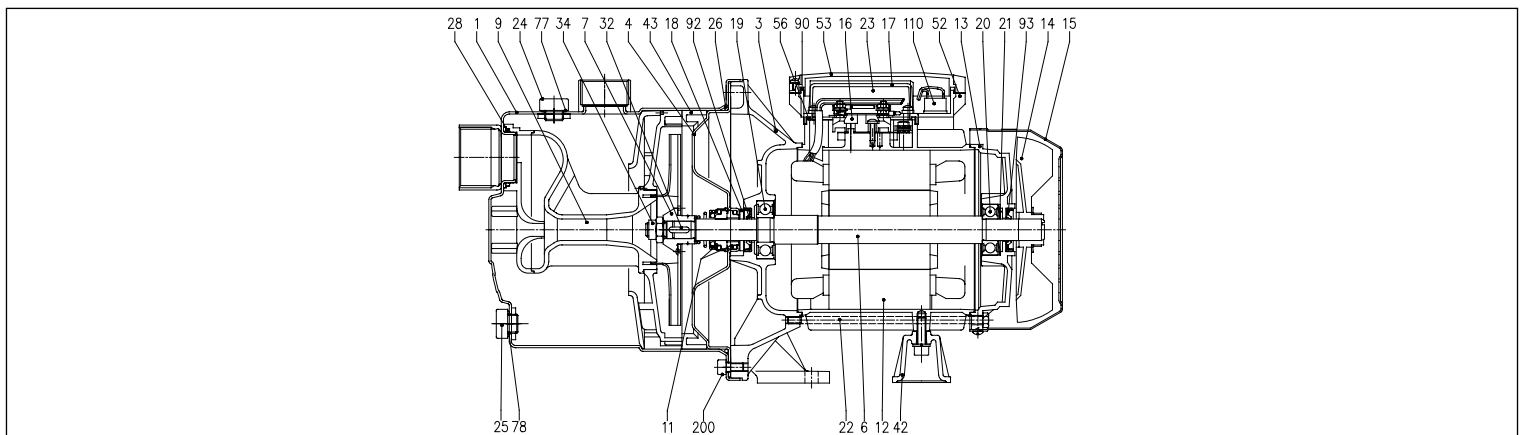
[1]= Three phase only
[2]= Single phase only

INSTALLATION



For correct installation of the system, it is recommended to fit a foot valve on the suction and support/anchorage for the piping.

JEX SECTIONAL VIEW



SELF-PRIMING ELECTRIC PUMPS

in AISI 304

MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	AISI 304	24	Filler cap	PA
3	Motor support	Aluminium	25	Drain plug	PA
4	Seal housing disc	AISI 304	26	O-Ring	NBR
6	Rotor shaft	AISI 303 (part in contact with the liquid)	28	O-Ring	NBR
7	Impeller	AISI 304	32	Key	AISI 304
9	Venturi Unit + nozzle	PPE+PS reinforced with fibreglass	34	Impeller nut	AISI 304
11	Mechanical seal	Carbon/Ceramic/NBR	42	Foot	Aluminium
12	Motor case	-	43	Nozzle spacer	PPE+PS reinforced with fibreglass
13	Motor cover	Aluminium	52	Capacitor-holder box [2]	ABS
14	Fan	PA	53	Capacitor-holder box cover [4]	ABS
15	Fan cover	Galvanised Fe P04	56	Terminal box cover gasket	NBR
16	Terminal box	-	77	O-Ring	NBR
17	Terminal box cover [1]	Aluminium	78	O-Ring	NBR
18	Spray protector washer	NBR	90	Cover gasket [5]	NBR
19	Bearing (pump side)	-	92	Sealing ring [3]	-
20	Bearing (motor side)	-	93	Sealing ring [3]	-
21	Adjusting ring	Steel C70	110	Motorprotector [2]	-
22	Tie-rod	Galvanised Fe 42	200	Screw (Pump body)	A2 UNI7323 stainless steel
23	Capacitor [2]	-			

[1]= For three phase only

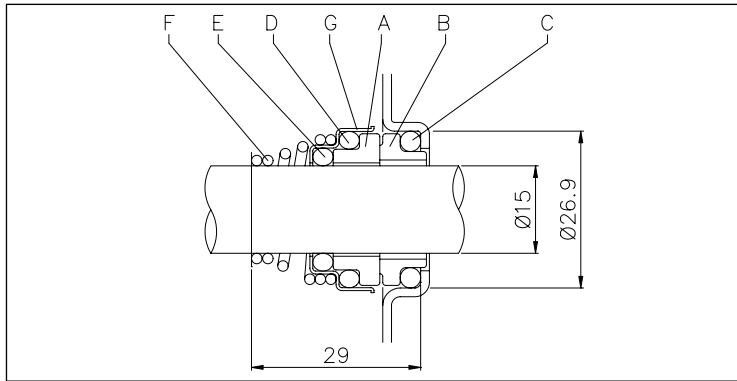
[4]= With gasket in NBR for JEX 80, JEX 100, JEX 120 single phase models

[2]= For single phase only

[5]= For JEXM 150 IP55 only

[3]= For IP 55 only

JEX MECHANICAL SEAL



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

JEX ELECTRIC DATA TABLE

Model Single phase 230V	Model Three phase 230/400V	P ₂		Efficiency		Capacitor		Efficiency (%) Three phase			P ₁		Absorbed Current [A]		
		[HP]	[kW]	Single phase	Three phase	µF	V.	η %			Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase	
								50%	75%	100%				230V	230V
JEXM 80	JEX 80	0,8	0,6	-	-	16	450	-	-	-	1,05	0,97	4,7	3,3	1,9
JEXM 100	JEX 100	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,33	1,13	6,4	3,5	2,0
JEXM 120	JEX 120	1,2	0,88	-	IE2	20	450	77,2	80,9	81,3	1,39	1,15	6,7	3,6	2,1
JEXM 150	JEX 150	1,5	1,1	-	IE2	35	450	79,7	82,5	83,0	1,70	1,80	7,6	5,5	3,2

JEX NOISE DATA TABLE

Model Single phase 230V	Model Three phase 230/400V	P ₂		L _{pa} - dB(A)*
		[HP]	[kW]	
JEXM 80	JEX 80	0,8	0,6	71
JEXM 100	JEX 100	1	0,75	71
JEXM 120	JEX 120	1,2	0,88	71
JEXM 150	JEX 150	1,5	1,1	76

* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

AGA - AGC

SELF-PRIMING ELECTRIC PUMPS

in cast iron



Cast iron self-priming electric pumps

APPLICATION

- Domestic pressure boosting
- Small-scale garden irrigation
- Washing vehicles
- Moving clean water in general

TECHNICAL DETAILS

- Available with brass impeller (AGA 0.60 M GO, AGA 0.75 M GO, AGA 1.00 M GO)

PUMP TECHNICAL DATA

- Maximum working pressure:
 - 6 bar for AGA 0.60-0.75-1.00
 - 10 bar for the rest of the range
- Maximum temperature of the liquid: 45°C
- Maximum suction depth: 8 m
- G1 suction connection for AGA 0.60-0.75-1.00, G1 ½ for the rest of the range
- G1 discharge connection

MOTOR TECHNICAL DATA

- High efficiency motors IE2 starting from 0,75kW
- Self-ventilated 2 poles 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-amperometric protection with automatic rearm incorporated for the single phase motor
- Protection under user's responsibility for the three phase version

MATERIAL

- Cast iron pump casing
- Seal housing disc in AISI 304 for AGA 0.60-0.75-1.00, in cast iron integrated in motor bracket for the rest of the range
- Shaft in AISI 303 (part in contact with the liquid)
- Impeller in PPE+PS reinforced with fibreglass for AGA 0.60-0.75-1.00, in brass for the rest of the range
- Mechanical seal in Carbon/Ceramic/NBR
- Ejector and nozzle in PPE+PS reinforced with fibreglass

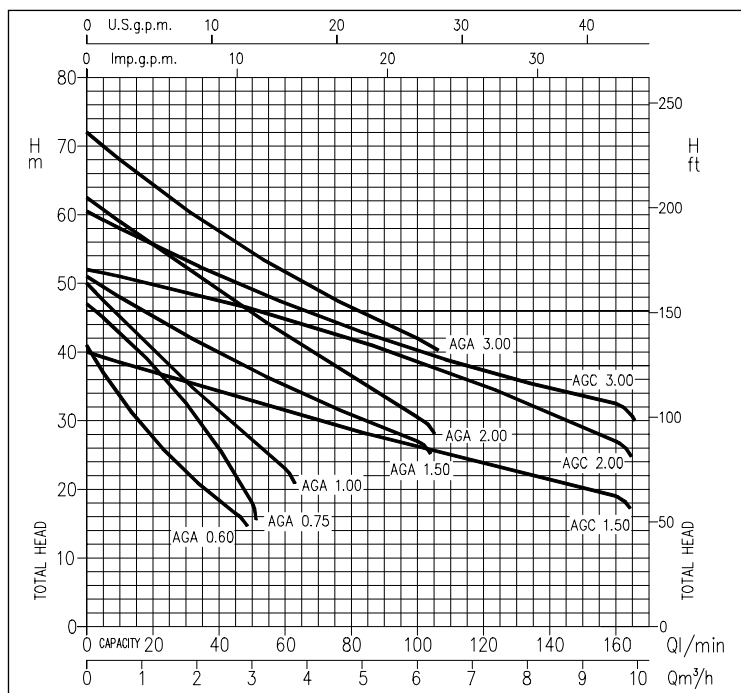
CONTROL PANELS

- 1EP
- 1EPBH

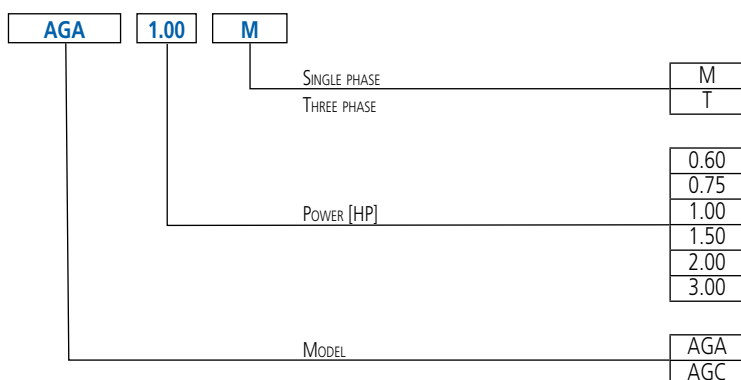
ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output - maximum motor power 2.2 kW - 3 HP)
- E-drive - Frequency converter

PERFORMANCE CURVES (according to ISO 9906 Attachment A)



IDENTIFICATION CODE



AGA - AGC

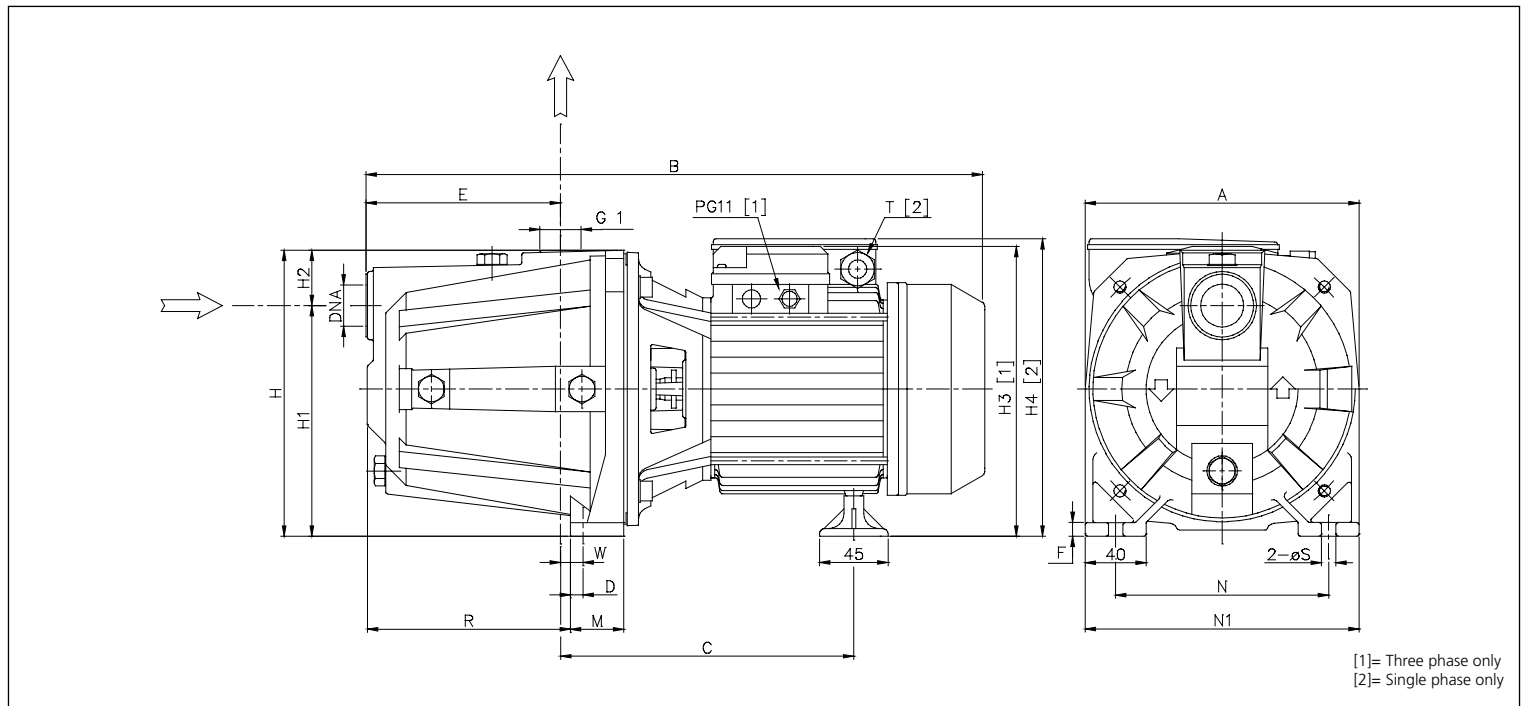
SELF-PRIMING ELECTRIC PUMPS

in cast iron

PERFORMANCE TABLE

Model		P ₂		Q=Flow rate															
Single phase 230V	Three phase 230/400V	[HP]	[kW]	H=Head [m]															
				l/min m ³ /h	5 0,3	10 0,6	20 1,2	30 1,8	45 2,7	50 3	60 3,6	80 4,8	100 6	130 7,8	160 9,6				
AGA 0.60 M	AGA 0.60 T	0,6	0,44	37,0	33,4	27,1	22,0	16,5	-	-	-	-	-	-	-	-	-	-	-
AGA 0.75 M	AGA 0.75 T	0,75	0,55	45,0	42,8	37,9	32,0	21,9	18,0	-	-	-	-	-	-	-	-	-	-
AGA 1.00 M	AGA 1.00 T	1	0,75	47,5	45,0	40,3	35,7	29,1	27,0	23,0	-	-	-	-	-	-	-	-	-
AGA 1.50 M	AGA 1.50 T	1,5	1,1	-	48,0	45,1	42,4	38,6	37,4	35,1	30,8	27,0	-	-	-	-	-	-	-
AGA 2.00 M	AGA 2.00 T	2	1,5	-	59,0	55,6	52,2	47,3	45,7	42,5	36,4	30,5	-	-	-	-	-	-	-
-	AGA 3.00 T	3	2,2	-	68,0	64,3	60,8	55,9	54,4	51,6	46,4	42,0	-	-	-	-	-	-	-
AGC 1.50 M	AGC 1.50 T	1,5	1,1	-	38,5	37,0	35,6	33,5	32,7	31,4	28,7	26,1	22,4	19,0	-	-	-	-	-
AGC 2.00 M	AGC 2.00 T	2	1,5	-	51,0	49,9	48,8	46,9	46,3	44,9	42,0	38,7	33,2	27,0	-	-	-	-	-
-	AGC 3.00 T	3	2,2	-	58,0	55,6	53,3	50,1	49,1	47,1	43,4	40,2	35,9	32,5	-	-	-	-	-

DIMENSIONS



[1]= Three phase only
[2]= Single phase only

DIMENSIONS TABLE

Model	Dimensions [mm]																			Weight [kg]
	A	B	C	D	E	F	H	H1	H2	H3 [1]	H4 [2]	M	N	N1	R	T [2]	W	S	DNA	
AGA 0.60 M	180	405	195	10,3	127	9	185	152	33	-	199	40	140	180	128,5	PG11	11,8	9,5	G1	12,0
AGA 0.60 T	180	405	195	10,3	127	9	185	152	33	197,5	-	40	140	180	128,5	-	11,8	9,5	G1	12,0
AGA 0.75 M	180	405	195	10,3	127	9	185	152	33	-	199	40	140	180	128,5	PG11	11,8	9,5	G1	12,5
AGA 0.75 T	180	405	195	10,3	127	9	185	152	33	197,5	-	40	140	180	128,5	-	11,8	9,5	G1	12,3
AGA 1.00 M	180	405	195	10,3	127	9	185	152	33	-	199	40	140	180	128,5	PG11	11,8	9,5	G1	13,8
AGA 1.00 T	180	405	195	10,3	127	9	185	152	33	197,5	-	40	140	180	128,5	-	11,8	9,5	G1	14,8
AGA 1.50 M	220	508	244	10	157	10	223	170	53	-	247	48	180	220	167,5	PG13,5	15,5	9	G1½	25,5
AGA 1.50 T	220	495	244	10	157	10	223	170	53	229	-	48	180	220	167,5	-	15,5	9	G1½	25,6
AGA 2.00 M	220	508	244	10	157	10	223	170	53	-	247	48	180	220	167,5	PG13,5	15,5	9	G1½	26,6
AGA 2.00 T	220	495	244	10	157	10	223	170	53	229	-	48	180	220	167,5	-	15,5	9	G1½	26,8
AGA 3.00 T	220	508	244	10	157	10	223	170	53	229	-	48	180	220	167,5	-	15,5	9	G1½	28,1
AGC 1.50 M	220	508	244	10	157	10	223	170	53	-	247	48	180	220	167,5	PG13,5	15,5	9	G1½	25,5
AGC 1.50 T	220	495	244	10	157	10	223	170	53	229	-	48	180	220	167,5	-	15,5	9	G1½	27,4
AGC 2.00 M	220	508	244	10	157	10	223	170	53	-	247	48	180	220	167,5	PG13,5	15,5	9	G1½	26,6
AGC 2.00 T	220	508	244	10	157	10	223	170	53	229	-	48	180	220	167,5	-	15,5	9	G1½	27,7
AGC 3.00 T	220	508	244	10	157	10	223	170	53	229	-	48	180	220	167,5	-	15,5	9	G1½	28,1

[1]= Three phase only
[2]= Single phase only

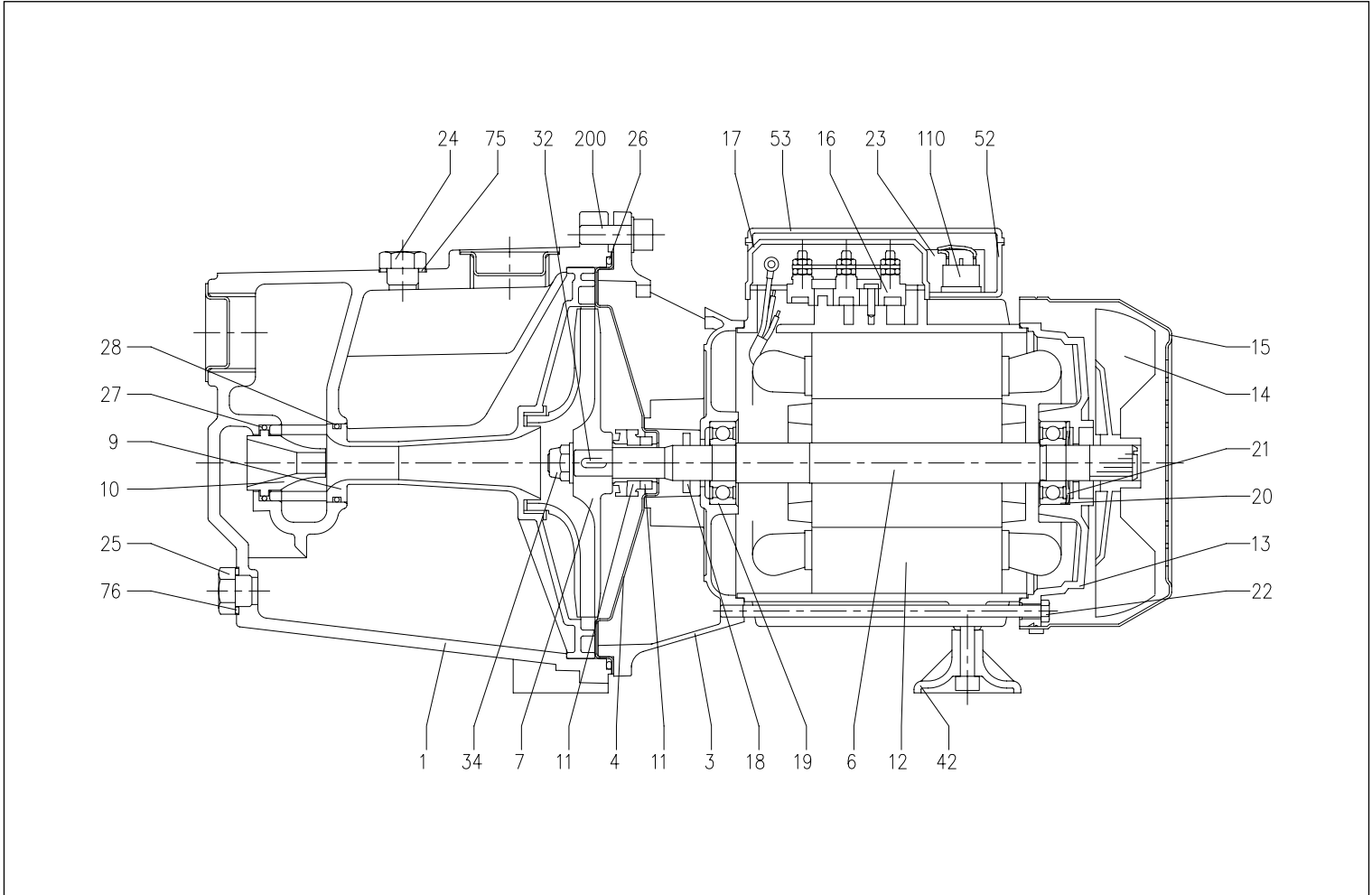
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AGA - AGC

SELF-PRIMING ELECTRIC PUMPS

in cast iron

SECTIONAL VIEW



MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	Cast iron	21	Adjusting ring	Steel C70
3	Motor support	[7]	22	Tie-rod	Galvanised Fe 42
4	Seal housing disc	[6]	23	Capacitor [1]	-
6	Rotor shaft	AISI 303 (part in contact with the liquid)	24	Filler cap	Brass
7	Impeller	[4]	25	Drain plug	Brass
9	Nozzle + Venturi pipe	PPE+PS reinforced with fibreglass	26	O-Ring	NBR
10	Venturi Nozzle	PPE+PS reinforced with fibreglass	27	O-Ring	NBR
11	Mechanical seal	Carbon/Ceramic/NBR	28	O-Ring	NBR
12	Motor casing with stator	-	32	Key	AISI 316
13	Motor cover	Aluminium	34	Impeller nut [3]	AISI 304
14	Fan	PA6	42	Foot	PP
15	Fan cover	Galvanised Fe P04	52	Box for terminal box [1]	ABS
16	Terminal box	-	53	Terminal box cover [8]	ABS
17	Terminal box cover [2]	Aluminium	75	Washer	Aluminium
18	Spray protector ring	NBR	76	Washer	Aluminium
19	Bearing (pump side)	-	110	Motorprotector [5]	-
20	Bearing (motor side)	-	200	Screw (Pump body)	Zn stainless steel Cl. 8.8 ISO 89 8-1

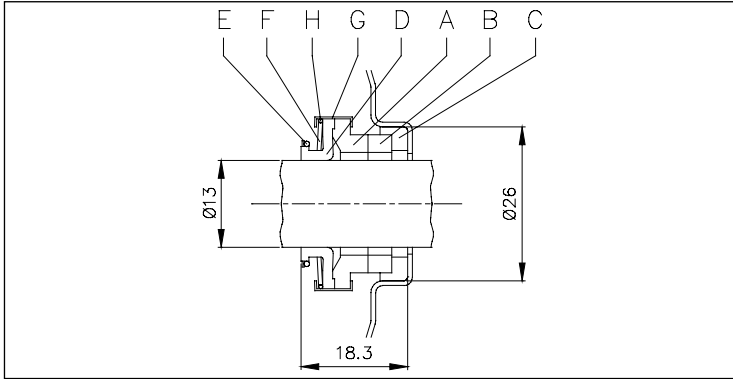
[1]= For single phase only
 [2]= For three phase only
 [3]= For the version with brass impeller only
 [4]= PPE+PS reinforced with fibreglass for AGA 0.60 - 0.75 - 1.00, brass for the rest of the range
 [5]= For single phase only AGA - AGC 1.50 - 2.00
 [6]= AISI 304 for AGA 0.60 - 0.75 - 1.00, in cast iron integrated on motor support for the rest of the range
 [7]= Cast iron for AGA - AGC 1.50 - 2.00 - 3.00, aluminium for AGA 0.60 - 0.75 - 1.00
 [8]= With gasket in NBR for AGA 0.60 - 0.75 - 1.00 single phase models

AGA - AGC

SELF-PRIMING ELECTRIC PUMPS

in cast iron

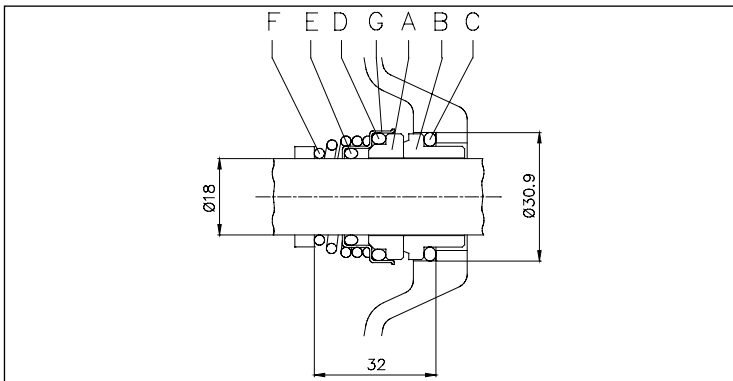
MECHANICAL SEAL for AGA 0.60 - 0.75 - 1.00



MATERIALS TABLE for AGA 0.60 - 0.75 - 1.00

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

MECHANICAL SEAL for AGA - AGC 1.50 - 2.00 - 3.00



MATERIALS TABLE for AGA - AGC 1.50 - 2.00 - 3.00

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		P ₂		Efficiency		Capacitor		Efficiency (%)			P ₁		Absorbed Current [A]		
Single phase 230V	Three phase 230/400V	[HP]	[kW]	Single phase	Three phase	Single phase	Single phase V _c	Three phase			Single phase	Three phase	Single phase 230V	Three phase 230V	Three phase 400V
								50%	75%	100%	[kW]	[kW]			
AGA 0.60 M	AGA 0.60 T	0,6	0,45	-	-	12,5	450	-	-	-	0,70	0,65	3,1	2,1	1,2
AGA 0.75 M	AGA 0.75 T	0,75	0,55	-	-	14	450	-	-	-	0,92	0,84	4,0	2,8	1,6
AGA 1.00 M	AGA 1.00 T	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,15	0,92	5,5	2,9	1,7
AGA 1.50 M	AGA 1.50 T	1,5	1,1	-	IE2	40	450	79,7	82,5	83,0	1,65	1,80	8,1	5,5	3,2
AGA 2.00 M	AGA 2.00 T	2	1,5	-	IE2	40	450	79,7	82,5	83,0	2,10	2,05	9,8	6,0	3,5
-	AGA 3.00 T	3	2,2	-	IE2	-	-	83,0	84,4	83,8	-	2,63	-	8,1	4,7
AGC 1.50 M	AGC 1.50 T	1,5	1,1	-	IE2	40	450	79,7	82,5	83,0	1,80	1,80	8,6	5,5	3,2
AGC 2.00 M	AGC 2.00 T	2	1,5	-	IE2	40	450	80,3	83,4	83,8	2,30	2,23	10,5	7,4	4,3
-	AGC 3.00 T	3	2,2	-	IE2	-	-	83,0	84,4	83,8	-	2,63	-	8,1	4,7

NOISE DATA TABLE

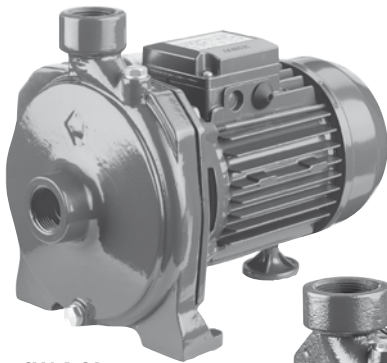
Model		P ₂		L _{pa} - dB(A)*
Single phase 230V	Three phase 230/400V	[HP]	[kW]	
AGA 0.60 M	AGA 0.60 T	0,6	0,45	71
AGA 0.75 M	AGA 0.75 T	0,75	0,55	71
AGA 1.00 M	AGA 1.00 T	1	0,75	71
AGA 1.50 M	AGA 1.50 T	1,5	1,1	76
AGA 2.00 M	AGA 2.00 T	2	1,5	76
-	AGA 3.00 T	3	2,2	76
AGC 1.50 M	AGC 1.50 T	1,5	1,1	76
AGC 2.00 M	AGC 2.00 T	2	1,5	76
-	AGC 3.00 T	3	2,2	76

* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

CMA - B - C - D - CMR

SINGLE IMPELLER CENTRIFUGAL ELECTRIC PUMPS

in cast iron

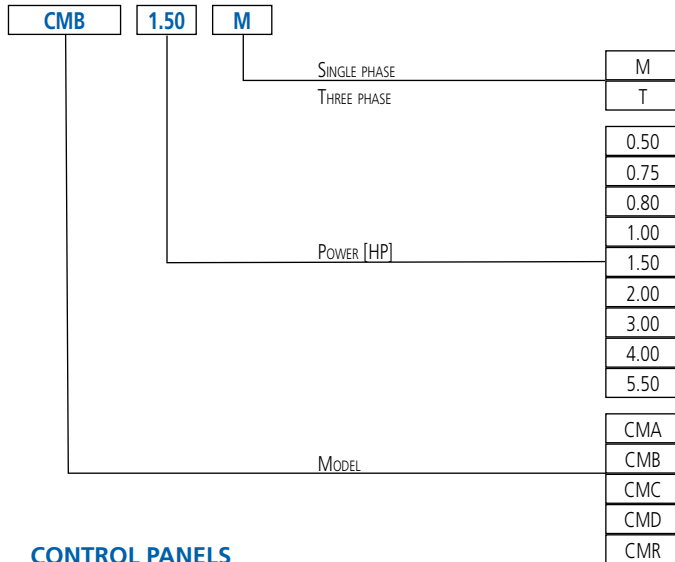


CMA-B-C-D



CMR

CMA-B-C-D - CMR IDENTIFICATION CODE



CONTROL PANELS

- 1EP
- 1EPBH

ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output - maximum motor power 2.2 kW - 3 HP)
- E-drive - Frequency converter

Cast iron self-priming electric pumps.

APPLICATIONS

- Pressure boosting domestic plants
- Small-scale irrigation
- Moving non-aggressive liquids for civil and industrial use
- Washing plants
- Washing vehicles

TECHNICAL DETAILS

- Available with brass impeller (CMA 0.50 M GO, CMA 0.75 M GO, CMA 1.00 M GO)
- The CMR version is equipped with an open impeller
- They can be inserted into machinery for industrial use

PUMP TECHNICAL DATA

- Maximum working pressure:
 - 6 bar for CMA 0.50 - 0.75 - 1.00, CMB 0.75 - 1.00 - 1.50 - 2.00 - 3.00, CMC, CMD, CMR
 - 8 bar for CMA 1.50 - 2.00 - 3.00, CMB 4.00 - 5.50
- Maximum temperature of the liquid:
 - 40°C for CMA 0.50 - 0.75 - 1.00
 - 90°C for the rest of the range
- G1 suction connection for CMA 0.50 - 0.75 - 1.00, G1¼ for CMA 1.50 - 2.00 - 3.00, G2 for CMB - CMC, G2½ for CMD
- G1 discharge connection for CMA, G1¼ for CMB, G1½ for CMR, G2 for CMC, G2½ for CMD
- MEI>0,4 (CMA-CMC), MEI>0,1 (CMB-CMD) For further information please see our Data Book on the website www.ebaraurope.com

MOTOR TECHNICAL DATA

- High efficiency motors IE2 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-amperometric 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
- Mechanical seal in Carbon/Ceramic/NBR
- Impeller:
 - in PPE+PS reinforced with fibreglass for CMA 0.50 - 0.75 - 1.00
 - in brass for CMA 1.50 - 2.00 - 3.00, CMB 2.00 - 3.00 - 4.00 - 5.50, CMR 0.75-1.00
 - in cast iron for CMB 0.75 - 1.00 - 1.50, CMC, CMD
- Shaft:
 - in AISI 416 (integral) for CMA 0.50
 - in AISI 303 (part in contact with the liquid) for CMA CMA 0.75 - 1.00 - 1.50 - 2.00 - 3.00, CMB 0.75 - 1.00, 1.50 - 2.00 - 3.00, CMC 0.75 - 1.00, CMD 1.50 - 2.00 - 3.00, CMR 0.75-1.00
 - in AISI 304 (part in contact with the liquid) for CMB 4.00 - 5.50, CMD 4.00
- Bracket:
 - in aluminium for CMA 0.50 - 0.75 - 1.00, CMB 0.75 - 1.00, CMC 0.75 - 1.00, CMR 0.75-1.00
 - in cast iron for the rest of the range

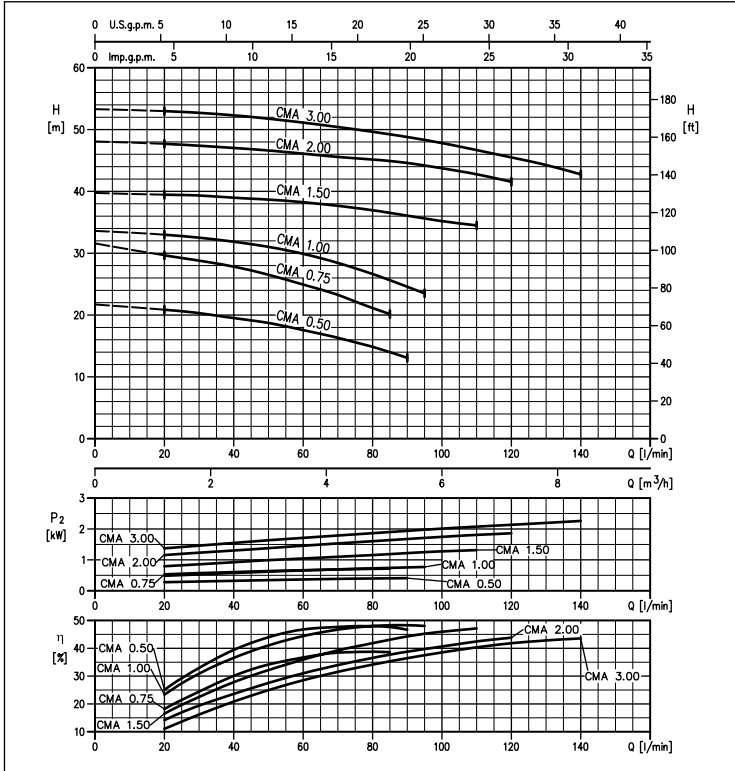
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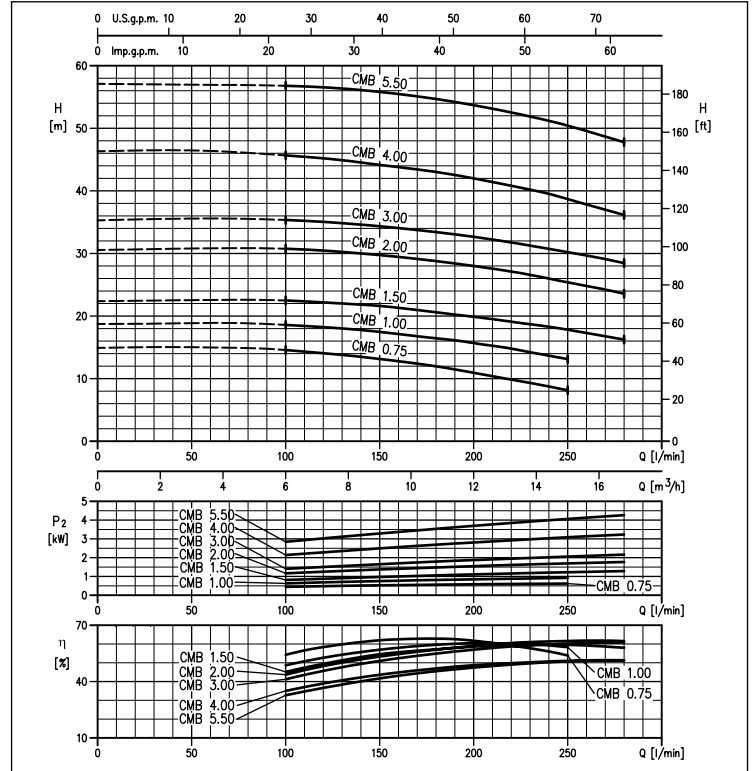
CMA - B - C - D - CMR

SINGLE IMPELLER CENTRIFUGAL ELECTRIC PUMPS in cast iron

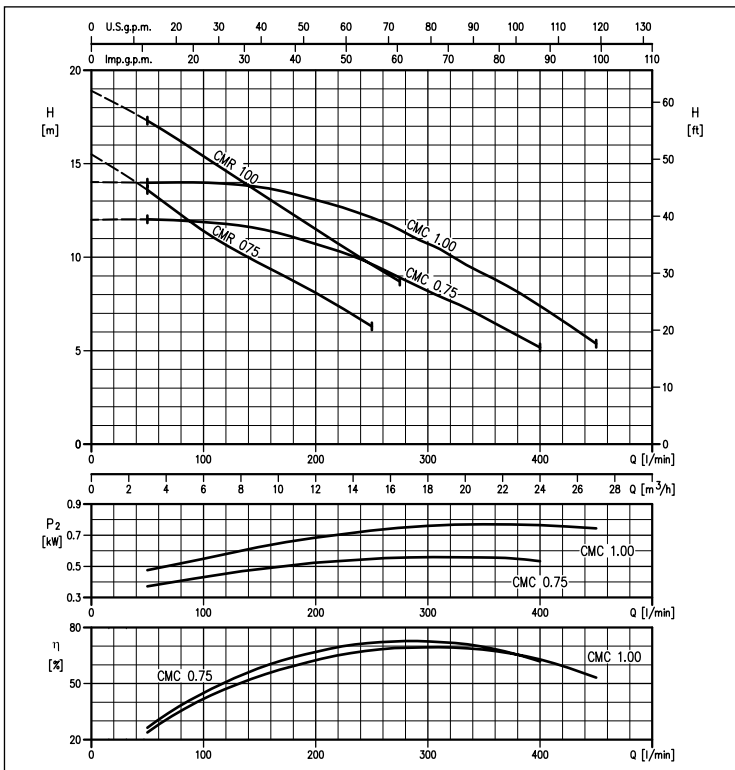
CMA range PERFORMANCE CURVES
(according to ISO 9906 Attachment A)



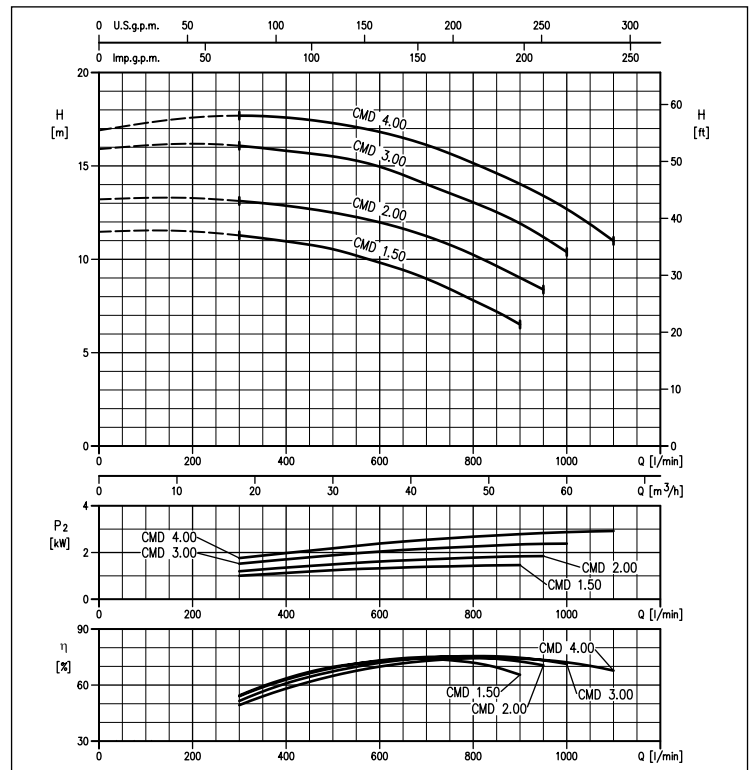
CMB range PERFORMANCE CURVES
(according to ISO 9906 Attachment A)



CMC-CMR range PERFORMANCE CURVES
(according to ISO 9906 Attachment A)



CMD range PERFORMANCE CURVES
(according to ISO 9906 Attachment A)



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CMA - B - C - D - CMR

SINGLE IMPELLER CENTRIFUGAL ELECTRIC PUMPS

in cast iron

CMA PERFORMANCE TABLE

Model		P ₂		Q=Flow rate										
Single phase 230V	Three phase 230/400V	[HP]	[kW]	l/min m ³ /h	20 1,2	40 2,4	60 3,6	80 4,8	85 5,1	90 5,4	95 5,7	110 6,6	120 7,2	140 8,4
				H=Head [m]										
CMA 0.50 M	CMA 0.50 T	0,5	0,37	20,9	19,5	17,6	14,9	14,0	13,1	-	-	-	-	-
CMA 0.75 M	CMA 0.75 T	0,75	0,55	29,7	27,8	24,9	21,1	20,2	-	-	-	-	-	-
CMA 1.00 M	CMA 1.00 T	1	0,75	33,0	31,9	29,9	26,6	25,6	24,6	23,5	-	-	-	-
CMA 1.50 M	CMA 1.50 T	1,5	1,1	39,5	39,0	38,3	37,0	36,5	36,1	35,6	34,5	-	-	-
CMA 2.00 M	CMA 2.00 T	2	1,5	47,5	47,0	46,0	45,0	45,0	44,5	44,0	43,0	42,0	-	-
-	CMA 3.00 T	3	2,2	53,0	52,5	51,0	49,5	49,0	49,0	48,5	46,5	45,5	42,5	-

CMB PERFORMANCE TABLE

Model		P ₂		Q=Flow rate					
Single phase 230V	Three phase 230/400V	[HP]	[kW]	l/min m ³ /h	100 6	150 9	200 12	250 15,1	280 16,9
				H=Head [m]					
CMB 0.75 M	CMB 0.75 T	0,75	0,55	14,6	13,2	10,9	8,1	-	-
CMB 1.00 M	CMB 1.00 T	1	0,75	18,6	17,5	15,7	13,1	-	-
CMB 1.50 M	CMB 1.50 T	1,5	1,1	22,5	21,6	20,0	17,8	16,2	-
CMB 2.00 M	CMB 2.00 T	2	1,5	30,8	29,7	28,0	25,4	23,6	-
-	CMB 3.00 T	3	2,2	35,4	34,4	32,7	30,2	28,5	-
-	CMB 4.00 T	4	3	45,5	44,0	42,0	37,8	36,2	-
-	CMB 5.50 T	5,5	4	57,0	56,0	53,5	50,5	48,0	-

CMC PERFORMANCE TABLE

Model		P ₂		Q=Flow rate						
Single phase 230V	Three phase 230/400V	[HP]	[kW]	l/min m ³ /h	50 3	100 6	200 12	300 18,1	400 24,1	450 27,1
				H=Head [m]						
CMC 0.75 M	CMC 0.75 T	0,75	0,55	12,0	11,9	10,7	8,3	5,2	-	-
CMC 1.00 M	CMC 1.00 T	1	0,75	14,0	14,0	13,1	10,8	7,4	5,4	-

CMD PERFORMANCE TABLE

Model		P ₂		Q=Flow rate							
Single phase 230V	Three phase 230/400V	[HP]	[kW]	l/min m ³ /h	250 18	400 24	600 36	800 48	900 54	950 57	1000 60
				H=Head [m]							
CMD 1.50 M	CMD 1.50 T	1,5	1,1	11,3	11,0	9,8	7,8	6,5	-	-	-
CMD 2.00 M	CMD 2.00 T	2	1,5	13,1	12,9	12,0	10,2	9,0	8,4	-	-
-	CMD 3.00 T	3	2,2	16,1	15,8	15,0	13,1	11,9	11,2	10,4	-
-	CMD 4.00 T	4	3	17,7	17,6	16,8	15,2	14,0	13,4	12,7	-

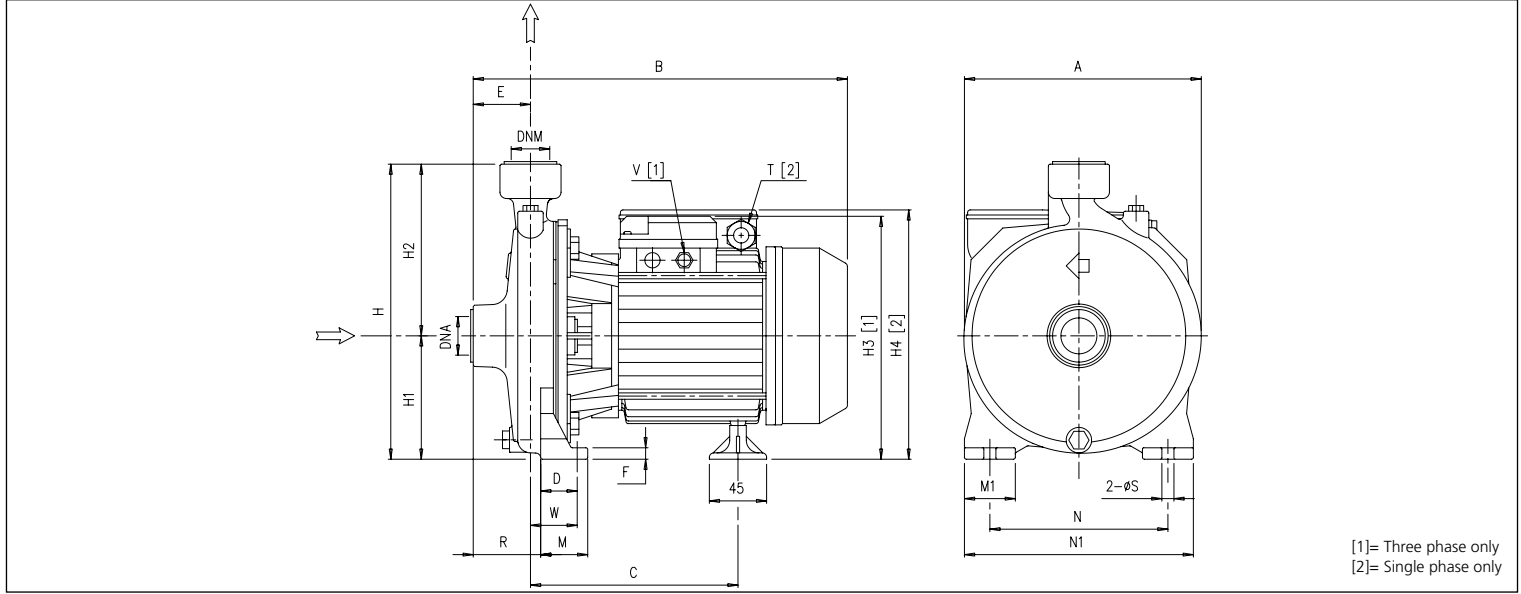
CMR PERFORMANCE TABLE

Model		P ₂		Q=Flow rate					
Single phase 230V	Three phase 230/400V	[HP]	[kW]	l/min m ³ /h	50 3	100 6	200 12	250 15	275 17,5
				H=Head [m]					
CMR 0.75 M	CMR 0.75 T	0,75	0,55	13,6	11,4	8,1	6,3	-	-
CMR 1.00 M	CMR 1.00 T	1	0,75	17,3	15,4	11,5	9,6	8,7	-

CMA - B - C - D - CMR

SINGLE IMPELLER CENTRIFUGAL ELECTRIC PUMPS
in cast iron

CMA-B-C-D - CMR DIMENSIONS



DIMENSIONS TABLE

Model	Dimensions [mm]																			Weight [kg]			
	A	B	C	D	E	F	H	H1	H2	H3 [1]	H4 [2]	M	M1	N	N1	R	T [2]	V [1]	W		S	DNA	DNM
CMA 0.50 M	160	261,8	158,8	30	44	8	202	82	120	-	173	40	40	110	150	44	PG11	-	30	9,5	G 1	G 1	7,2
CMA 0.50 T	160	261,8	158,8	30	44	8	202	82	120	172,5	-	40	40	110	150	44	-	PG11	30	9,5	G 1	G 1	7,1
CMA 0.75 M	185	300,3	171,8	36,8	45	9	232	97	135	-	198	45	40	140	180	45	PG11	-	36,8	9,5	G 1	G 1	10,3
CMA 0.75 T	185	300,3	171,8	36,8	45	9	232	97	135	197,5	-	45	40	140	180	45	-	PG11	36,8	9,5	G 1	G 1	10,2
CMA 1.00 M	185	300,3	171,8	36,8	45	9	232	97	135	-	198	45	40	140	180	45	PG11	-	36,8	9,5	G 1	G 1	11,5
CMA 1.00 T	185	300,3	171,8	36,8	45	9	232	97	135	197,5	-	45	40	140	180	45	-	PG11	36,8	9,5	G 1	G 1	11,6
CMA 1.50 M	200	347,3	208,3	41,8	45,5	9	252	100	152	-	232	50	40	155	194	45,5	PG13,5	-	41,8	9,5	G 1 1/4	G 1	19,5
CMA 1.50 T	200	347,3	208,3	41,8	45,5	9	252	100	152	214	-	50	40	155	194	45,5	-	PG11	41,8	9,5	G 1 1/4	G 1	19,9
CMA 2.00 M	225	360,3	208,3	41,8	45,5	9	285	115	170	-	247	50	40	180	220	45,5	PG13,5	-	41,8	9,5	G 1 1/4	G 1	22,8
CMA 2.00 T	225	361	208,3	41,8	45,5	9	285	115	170	229	-	50	40	180	220	45,5	-	PG11	41,8	9,5	G 1 1/4	G 1	23,4
CMA 3.00 T	225	360,3	208,3	41,8	45,5	9	285	115	170	229	-	50	40	180	220	45,5	-	PG11	41,8	9,5	G 1 1/4	G 1	23,4
CMB 0.75 M	188	315,3	182,3	36,8	49,5	9	251,5	101,5	150	-	127,5	45	40	140	180	65,5	PG11	-	52,8	9,5	G 2	G 1 1/4	11,6
CMB 0.75 T	188	315,3	182,3	36,8	49,5	9	251,5	101,5	150	127	-	45	40	140	180	65,5	-	PG11	52,8	9,5	G 2	G 1 1/4	11,6
CMB 1.00 M	188	315,3	182,3	36,8	49,5	9	251,5	101,5	150	-	127,5	45	40	140	180	65,5	PG11	-	52,8	9,5	G 2	G 1 1/4	13,7
CMB 1.00 T	188	315,3	182,3	36,8	49,5	9	251,5	101,5	150	127	-	45	40	140	180	65,5	-	PG11	52,8	9,5	G 2	G 1 1/4	13,7
CMB 1.50 M	188	349,3	206,3	36,8	49,5	9	251,5	101,5	150	-	233,5	45	40	140	180	65,5	PG13,5	-	52,8	9,5	G 2	G 1 1/4	19,9
CMB 1.50 T	188	349,3	206,3	36,8	49,5	9	251,5	101,5	150	215,5	-	45	40	140	180	65,5	-	PG11	52,8	9,5	G 2	G 1 1/4	19,5
CMB 2.00 M	200	373,3	209,3	36,8	57,5	9	271,5	111,5	160	-	243,5	45	40	160	200	76,5	PG13,5	-	55,8	9,5	G 2	G 1 1/4	21,0
CMB 2.00 T	200	374	209,3	36,8	57,5	9	271,5	111,5	160	225,5	-	45	40	160	200	76,5	-	PG11	55,8	9,5	G 2	G 1 1/4	22,0
CMB 3.00 T	200	373,3	209,3	36,8	57,5	9	271,5	111,5	160	225,5	-	45	40	160	200	76,5	-	PG11	55,8	9,5	G 2	G 1 1/4	21,3
CMB 4.00 T	247	428,8	222,3	48	60	12	323,5	133,5	190	264,5	-	60	50	190	240	77,5	-	PG16	65,5	12	G 2	G 1 1/4	37,7
CMB 5.50 T	247	469	222,3	48	60	12	323,5	133,5	190	264,5	-	60	50	190	240	77,5	-	PG16	65,5	12	G 2	G 1 1/4	43,4
CMC 0.75 M	186	313,3	186,8	36,8	43	9	247	97	150	-	198	45	40	140	180	63,5	PG11	-	57,3	9,5	G 2	G 2	11,6
CMC 0.75 T	186	313,3	186,8	36,8	43	9	247	97	150	197,5	-	45	40	140	180	63,5	-	PG11	57,3	9,5	G 2	G 2	11,6
CMC 1.00 M	186	313,3	186,8	36,8	43	9	247	97	150	-	198	45	40	140	180	63,5	PG11	-	57,3	9,5	G 2	G 2	13,0
CMC 1.00 T	186	313,3	186,8	36,8	43	9	247	97	150	197,5	-	45	40	140	180	63,5	-	PG11	57,3	9,5	G 2	G 2	13,8
CMD 1.50 M	213	384,3	222,8	36,8	68	12	271,5	111,5	160	-	243,5	45	40	160	200	100,5	PG13,5	-	69,3	9,5	G 2 1/2	G 2 1/2	21,3
CMD 1.50 T	213	384,3	222,8	36,8	68	12	271,5	111,5	160	225,5	-	45	40	160	200	100,5	-	PG11	69,3	9,5	G 2 1/2	G 2 1/2	22,2
CMD 2.00 M	213	397,3	222,8	36,8	68	12	271,5	111,5	160	-	243,5	45	40	160	200	100,5	PG13,5	69,3	9,5	G	G 2 1/2	G 2 1/2	23,0
CMD 2.00 T	213	398	222,8	36,8	68	12	271,5	111,5	160	225,5	-	45	40	160	200	100,5	-	PG11	69,3	9,5	G 2 1/2	G 2 1/2	23,3
CMD 3.00 T	213	397,3	222,8	36,8	68	12	271,5	111,5	160	225,5	-	45	40	160	200	100,5	-	PG11	69,3	9,5	G 2 1/2	G 2 1/2	23,0
CMD 4.00 T	213	449,3	234,8	36,8	68	12	271,5	111,5	160	354	-	45	50	160	200	100,5	-	PG16	69,3	9,5	G 2 1/2	G 2 1/2	34,3
CMR 0.75 M	180	310,3	181,8	36,8	45	9	229	97	132	197,5	198	45	40	140	180	60,5	PG11	PG11	52,3	9,5	G 1 1/2	G 1 1/2	10,7
CMR 0.75 T	180	310,3	181,8	36,8	45	9	229	97	132	197,5	198	45	40	140	180	60,5	PG11	PG11	52,3	9,5	G 1 1/2	G 1 1/2	10,7
CMR 1.00 M	180	310,3	181,8	36,8	45	9	229	97	132	197,5	198	45	40	140	180	60,5	PG11	PG11	52,3	9,5	G 1 1/2	G 1 1/2	11,9
CMR 1.00 T	180	310,3	181,8	36,8	45	9	229	97	132	197,5	198	45	40	140	180	60,5	PG11	PG11	52,3	9,5	G 1 1/2	G 1 1/2	12,7

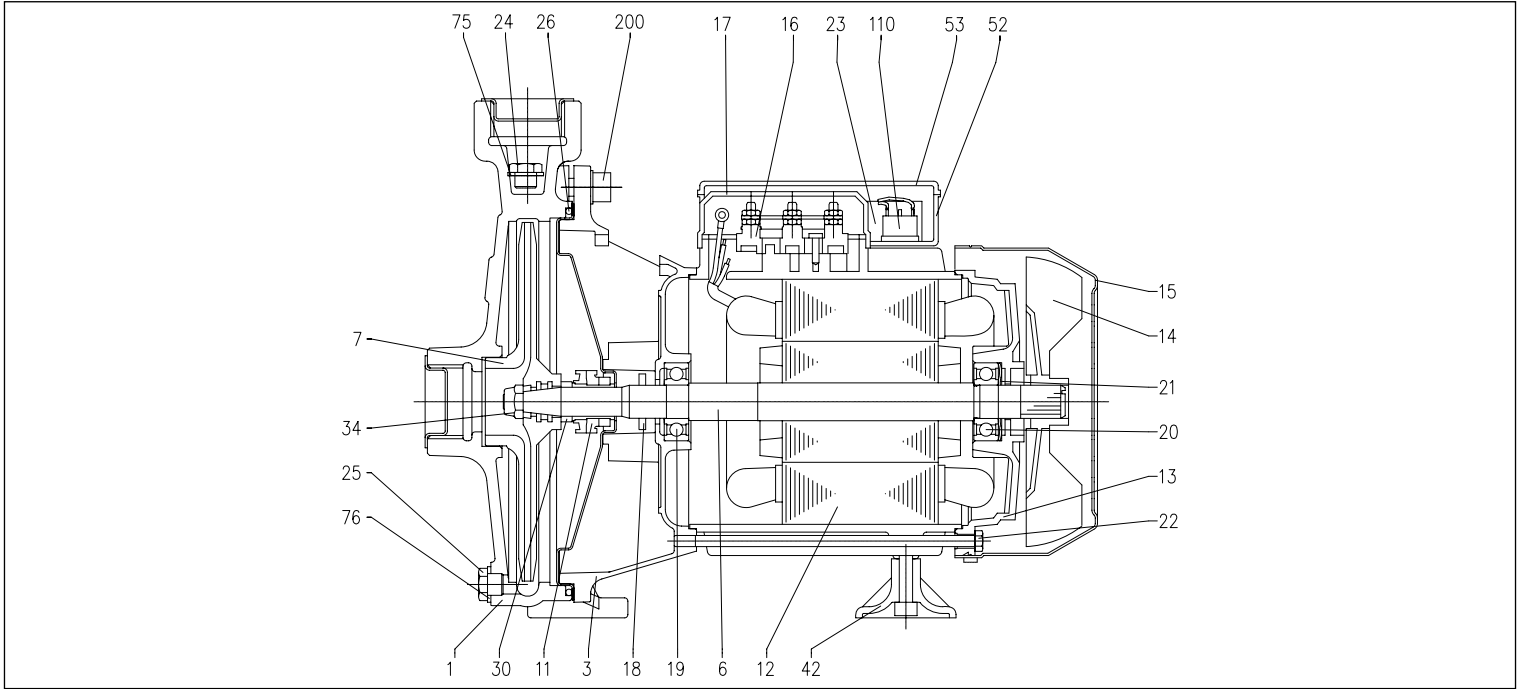
[1]= Three phase only
[2]= Single phase only

CMA - B - C - D - CMR

SINGLE IMPELLER CENTRIFUGAL ELECTRIC PUMPS

in cast iron

SECTIONAL VIEW for CMA-B-C-D up to 1.00 HP



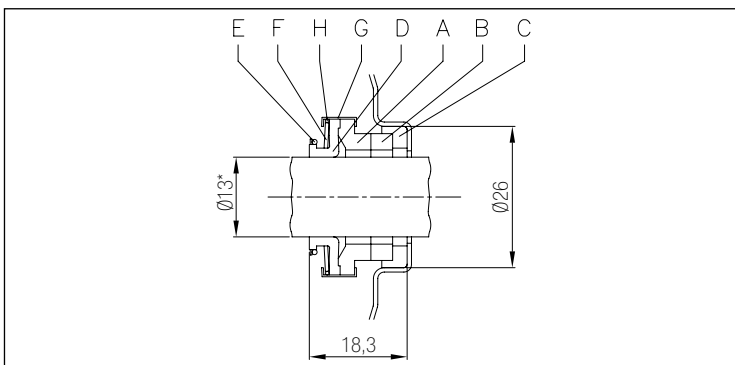
MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	Cast iron	21	Adjusting ring	Steel C70
3	Motor support	Aluminium	22	Tie-rod	Galvanised Fe 42
4	Seal housing disc	AISI 304	23	Capacitor [2]	-
6	Shaft	[3]	24	Filler cap	Brass
7	Impeller	[4]	25	Drain plug	Brass
11	Mechanical seal	Carbon/Ceramic/NBR	26	O-Ring	NBR
12	Motor casing with stator	-	30	Seal spacer [5]	Brass
13	Motor cover	Aluminium	34	Impeller nut [6]	AISI 304
14	Fan	PA6	42	Foot	PP
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	75	Washer	Aluminium
18	Spray protector ring	NBR	76	Washer	Aluminium
19	Bearing (pump side)	-	110	Protector [2]	-
20	Bearing (motor side)	-	200	Screw (Pump body)	Zn stainless steel Cl. 8.8 ISO 898-1

[1]= For three phase only
 [3]= AISI 416 (integral) for CMA 0.50, AISI 303 (part in contact with the liquid) for the rest of the range
 [5]= CMA 0.50, CMB 0.75 - 1.00, CMC 0.75 - 1.00 only

[2]= For single phase only
 [4]= PPE+PS reinforced with fibreglass for CMA, cast iron for CMB, CMC
 [6]= Except for CMA 0.50

MECHANICAL SEAL for CMA-B-C-D up to 1.00 HP



MATERIALS TABLE

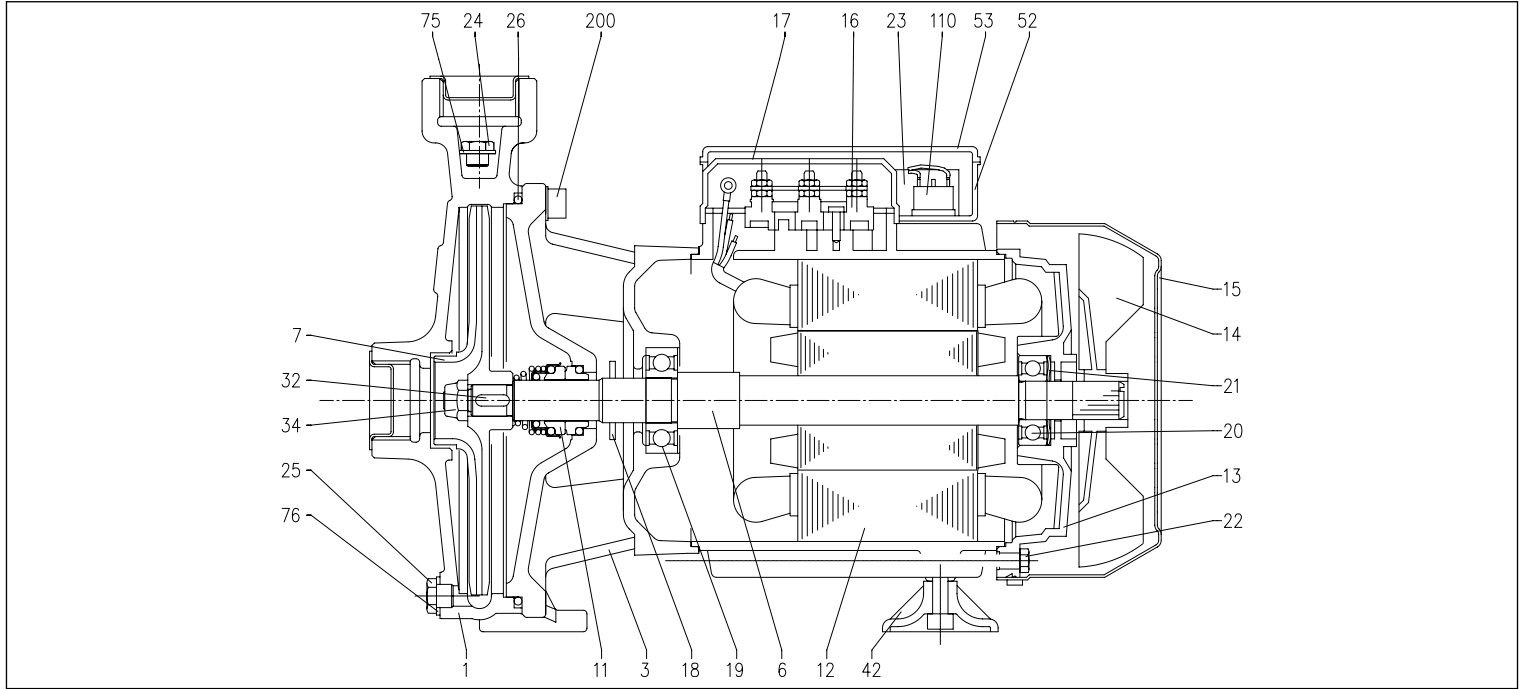
Ref.	Name	Material
A	Rotating part	Carbon
B	Fixed part	Ceramic
C	Gasket	NBR
D	Diaphragm	NBR
E	Ring	AISI 304
F	Spring	AISI 304
G	Structure/frame	AISI 304
H	Retainer ring	AISI 304

*= Ø12 for CMA 0.50

CMA - B - C - D - CMR

SINGLE IMPELLER CENTRIFUGAL ELECTRIC PUMPS in cast iron

SECTIONAL VIEW for CMA-B-C-D up to 1.50 HP and over



MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	Cast iron	22	Tie-rod	Galvanised Fe 42
3	Motor support	Cast iron	23	Capacitor [2]	-
6	Rotor shaft	[3]	24	Filler cap	Brass
7	Impeller	[4]	25	Drain plug	Brass
11	Mechanical seal	Carbon/Ceramic/NBR	26	O-Ring	NBR
12	Motor case	-	32	Key	AISI 316
13	Motor cover [1]	Aluminium	34	Impeller nut	AISI 304
14	Fan	PA6	42	Foot	PP
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	75	Washer	Aluminium
18	Spray protector ring	NBR	76	Washer	Aluminium
19	Bearing (pump side)	-	110	Motor protector	-
20	Bearing (motor side)	-	200	Screw (Pump body)	Zn stainless steel Cl. 8.8 ISO 898-1
21	Adjusting ring	Steel C70			

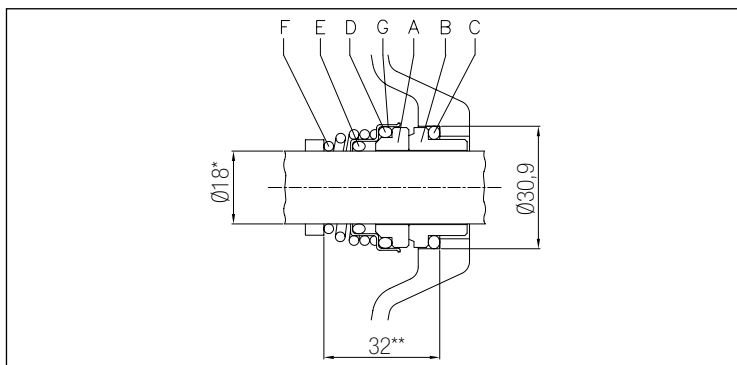
[1]= For three phase only

[2]= For single phase only

[3]= AISI 303 (part in contact with the liquid) per CMA, CMB 1.50 - 2.00 - 3.00, CMD 1.50 - 2.00 - 3.00, AISI 304 (part in contact with the liquid) for CMB 4.00 - 5.50, CMD 4.00

[4]= Brass for CMA, CMB 2.00 - 3.00 - 4.00 - 5.50, cast iron for CMB 1.50, CMD

MECHANICAL SEAL for CMA-B-C-D up to 1.50 HP 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

*= Ø20 for CMB 4.00 - 5.50

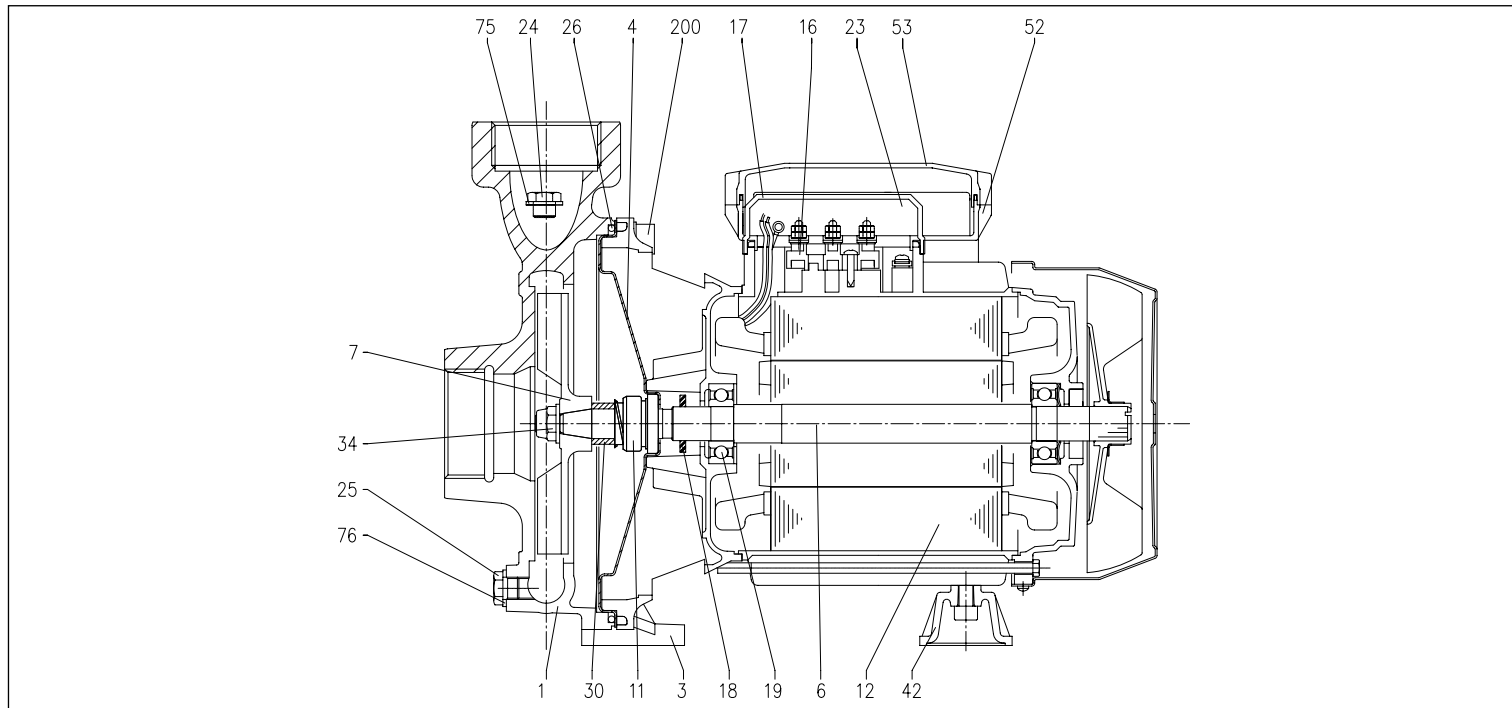
**= 33 for CMB 4.00 - 5.50

CMA - B - C - D - CMR

SINGLE IMPELLER CENTRIFUGAL ELECTRIC PUMPS

in cast iron

SECTIONAL VIEW for CMR

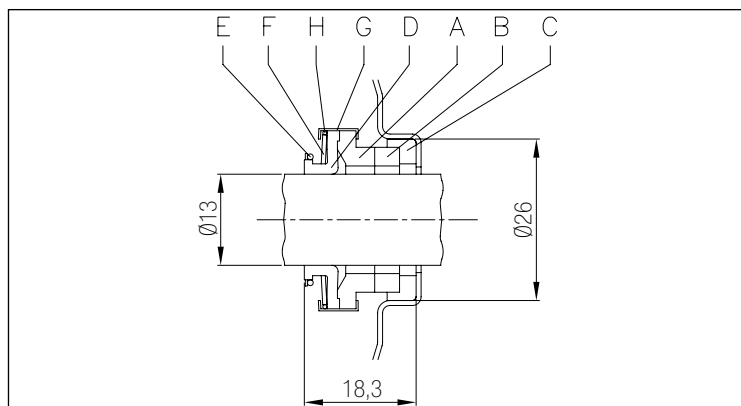


MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	Cast iron	21	Adjusting ring	Steel C70
3	Motor support	Aluminium	22	Tie-rod	Galvanised Fe 42
4	Seal housing disc	AISI 304	23	Capacitor [2]	-
6	Rotor shaft	AISI 303 (part in contact with the liquid)	24	Filler cap	Brass
7	Impeller	Brass	25	Drain plug	Brass
11	Mechanical seal	Carbon/Ceramic/NBR	26	O-Ring	NBR
12	Motor case	-	30	Seal spacer	Brass
13	Motor cover [1]	Aluminium	34	Impeller nut	AISI 304
14	Fan	PP	42	Foot	PP
15	Fan cover	Galvanised Fe P04	52	Capacitor-holder box [2]	ABS
16	Terminal box	-	53	Capacitor-holder box cover [2]	ABS+NBR
17	Terminal box cover [1]	Aluminium	75	Washer	Aluminium
18	Spray protector ring	NBR	76	Washer	Aluminium
19	Bearing (pump side)	-	200	Screw (Pump body)	Zn stainless steel Cl. 8.8 ISO 898-1
20	Bearing (motor side)	-			

[1]= For three phase only [2]= For single phase only

MECHANICAL SEAL for CMR



MATERIALS TABLE

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

CMA - B - C - D - CMR

SINGLE IMPELLER CENTRIFUGAL ELECTRIC PUMPS

in cast iron

CMA-B-C-D - CMR ELECTRIC DATA TABLE

Model		P ₂		Efficiency		Capacitor		Efficiency (%)			P ₁		Absorbed Current [A]		
Single phase 230V	Three phase 230/400V	[HP]	[kW]	Single phase	Three phase	Single phase μF	V _c	Three phase			Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase 230V	Three phase 400V
								50%	75%	100%					
CMA 0.50 M	CMA 0.50 T	0,5	0,37	-	-	10	450	-	-	-	0,66	0,63	3,2	2,4	1,4
CMA 0.75 M	CMA 0.75 T	0,75	0,55	-	-	16	450	-	-	-	1,02	0,97	4,7	3,2	1,8
CMA 1.00 M	CMA 1.00 T	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,35	1,11	6,2	3,4	2,0
CMA 1.50 M	CMA 1.50 T	1,5	1,1	-	IE2	40	450	79,7	82,5	83,0	1,73	1,80	8,0	5,6	3,2
CMA 2.00 M	CMA 2.00 T	2	1,5	-	IE2	40	450	80,3	83,4	83,8	2,4	2,33	10,3	7,6	4,4
-	CMA 3.00 T	3	2,2	-	IE2	-	-	83,0	84,4	83,8	-	2,77	-	8,5	4,9
CMB 0.75 M	CMB 0.75 T	0,75	0,55	-	-	14	450	-	-	-	0,98	0,95	4,5	3,0	1,7
CMB 1.00 M	CMB 1.00 T	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,33	1,17	6,0	3,4	2,0
CMB 1.50 M	CMB 1.50 T	1,5	1,1	-	IE2	40	450	79,7	82,5	83,0	1,77	1,80	8,2	5,6	3,2
CMB 2.00 M	CMB 2.00 T	2	1,5	-	IE2	40	450	80,3	83,4	83,8	2,3	2,09	10,3	7,0	4,0
-	CMB 3.00 T	3	2,2	-	IE2	-	-	83,0	84,4	83,8	-	2,63	-	8,2	4,7
-	CMB 4.00 T	4	3	-	IE2	-	-	83,1	86,3	86,8	-	3,76	-	11,8	6,8
-	CMB 5.50 T	5,5	4	-	IE2	-	-	84,3	87,2	87,8	-	4,56	-	15,1	8,7
CMC 0.75 M	CMC 0.75 T	0,75	0,55	-	-	14	450	-	-	-	0,92	0,9	4,2	2,8	1,6
CMC 1.00 M	CMC 1.00 T	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,15	0,92	5,3	3,0	1,7
CMD 1.50 M	CMD 1.50 T	1,5	1,1	-	IE2	40	450	79,7	82,5	83,0	1,86	1,80	8,5	5,6	3,2
CMD 2.00 M	CMD 2.00T	2	1,5	-	IE2	40	450	80,3	83,4	83,8	2,3	2,09	10,3	7,0	4,0
-	CMD 3.00 T	3	2,2	-	IE2	-	-	83,0	84,4	83,8	-	2,63	-	8,2	4,7
-	CMD 4.00 T	4	3	-	IE2	-	-	83,1	86,3	86,8	-	3,46	-	11,3	6,5
CMR 0.75 M	CMR 0.75 T	0,75	0,55	-	-	14	450	-	-	-	0,84	0,8	3,8	2,8	1,8
CMR 1.00 M	CMR 1.00 T	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,07	0,92	4,85	2,9	1,7

NOISE DATA TABLE

Model		P ₂		L _{pa} - dB(A)*
Single phase 230V	Three phase 230/400V	[HP]	[kW]	
CMA 0.50 M	CMA 0.50 T	0,5	0,37	<70
CMA 0.75 M	CMA 0.75 T	0,75	0,55	
CMA 1.00 M	CMA 1.00 T	1	0,75	
CMA 1.50 M	CMA 1.50 T	1,5	1,1	
CMA 2.00 M	CMA 2.00 T	2	1,5	
-	CMA 3.00 T	3	2,2	
CMB 0.75 M	CMB 0.75 T	0,75	0,55	<70
CMB 1.00 M	CMB 1.00 T	1	0,75	
CMB 1.50 M	CMB 1.50 T	1,5	1,1	
CMB 2.00 M	CMB 2.00 T	2	1,5	
-	CMB 3.00 T	3	2,2	
-	CMB 4.00 T	4	3	
-	CMB 5.50 T	5,5	4	72
CMC 0.75 M	CMC 0.75 T	0,75	0,55	<70
CMC 1.00 M	CMC 1.00 T	1	0,75	
CMD 1.50 M	CMD 1.50 T	1,5	1,1	<70
CMD 2.00 M	CMD 2.00T	2	1,5	
-	CMD 3.00 T	3	2,2	
-	CMD 4.00 T	4	3	72
CMR 0.75 M	CMR 0.75 T	0,75	0,55	<70
CMR 1.00 M	CMR 1.00 T	1	0,75	

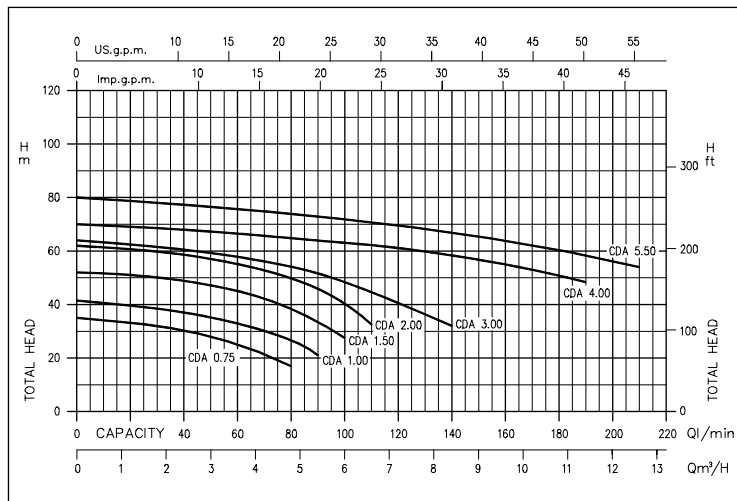
* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

DUAL IMPELLER CENTRIFUGAL ELECTRIC PUMPS

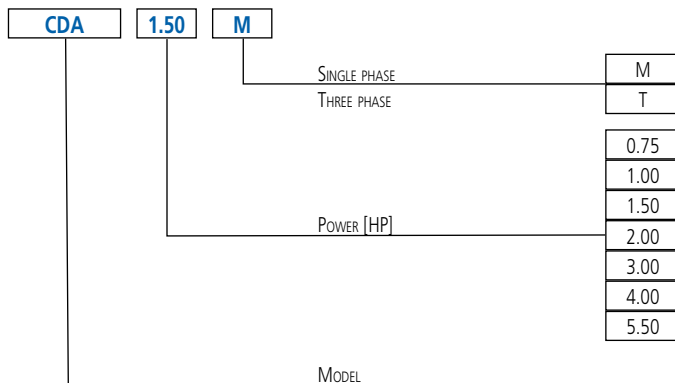
in cast iron



PERFORMANCE CURVES (according to ISO 9906 Attachment A)



IDENTIFICATION CODE



Cast iron dual impeller centrifugal electric pumps

APPLICATIONS

- Pressure boosting domestic plants
- Small-sale irrigation
- Moving non-aggressive liquids for civil and industrial use
- Washing plants and washing vehicles

TECHNICAL DETAILS

- Available with brass impeller (CDA 0.75 M GO, CDA 1.00 M GO).
- They can be inserted into machinery for industrial use

PUMP TECHNICAL DATA

- Maximum working pressure:
 - 6 bar for CDA 0.75 - 1.00
 - 10 bar for the rest of the range
- Maximum temperature of the liquid: 40°C for CDA 0.75 - 1.00, 90°C for the rest of the range
- G1 suction connection for CDA 0.75 - 1.00
- G1½ for CDA 1.50 - 2.00 - 3.00, G1½ for CDA 4.00 - 5.50
- G1 discharge connection for CDA 0.75 - 1.00 - 1.50 - 2.00 - 3.00
- G1¼ for CDA 4.00 - 5.50

MOTOR TECHNICAL DATA

- High efficiency IE2 motors starting from 0,75kW
- Self-ventilated 2 poles 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-amperometric 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
- Mechanical seal in Carbon/Ceramic/NBR
- Impeller in PPE+PS reinforced with glass fibres for CDA 0.75 - 1.00, in brass for the rest of the range
- Shaft in AISI 303 for CDA 0.75 - 1.00 - 1.50 - 2.00 - 3.00, in AISI 304 for CDA 4.00 - 5.50
- Bracket in aluminium for CDA 0.75 - 1.00, in cast iron for the rest of the range
- Seal housing disc in AISI 304 for CDA 0.75 - 1.00, in cast iron built-in the motor bracket for the rest of the range

CONTROL PANELS

- 1EP
- 1EPBH

ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output - maximum motor power 2.2 kW - 3 HP)
- E-drive - Frequency converter

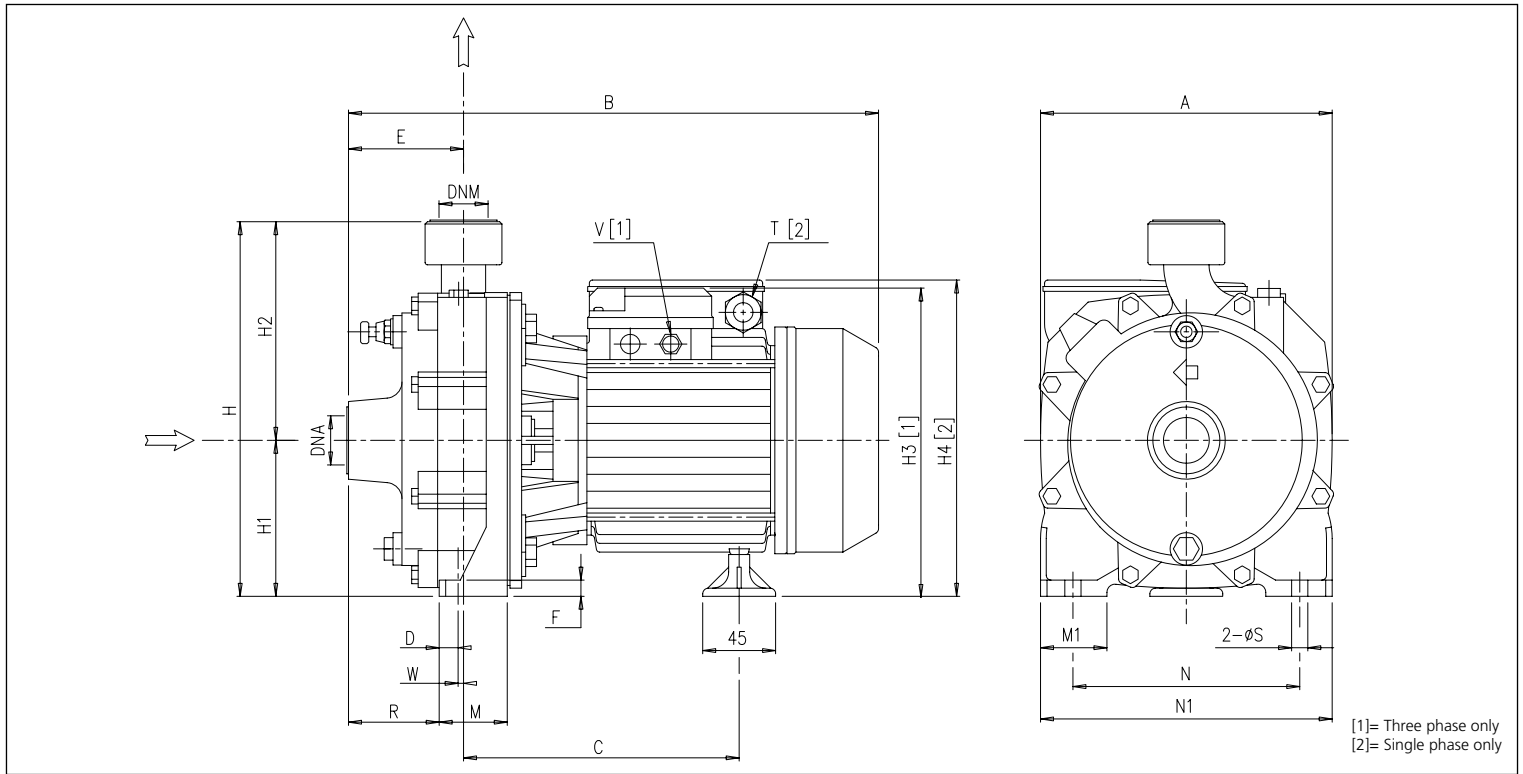
DUAL IMPELLER CENTRIFUGAL ELECTRIC PUMPS

in cast iron

PERFORMANCE TABLE

Model		P ₂		Q=Flow rate											
Single phase 230V	Three phase 230/400V	[HP]	[kW]	l/min	20	40	50	80	90	100	110	140	170	190	210
				m ³ /h	1,2	2,4	3	4,8	5,4	6	6,6	8,4	10,2	11,4	12,6
				H=Head [m]											
CDA 0.75 M	CDA 0.75 T	0,75	0,55	33,0	30,2	27,9	17,0	-	-	-	-	-	-	-	-
CDA 1.00 M	CDA 1.00 T	1	0,75	39,5	37,0	35,2	27,0	21,0	-	-	-	-	-	-	-
CDA 1.50 M	CDA 1.50 T	1,5	1,1	50,8	48,8	47,1	38,4	33,4	27,5	-	-	-	-	-	-
CDA 2.00 M	CDA 2.00 T	2	1,5	60,5	58,6	56,9	49,8	46,5	40,3	32,5	-	-	-	-	-
-	CDA 3.00 T	3	2,2	-	60,5	59,3	54,1	51,6	48,4	44,6	32,0	-	-	-	-
-	CDA 4.00 T	4	3	-	-	67,0	64,8	63,9	62,5	62,0	58,0	53,5	48,0	-	-
-	CDA 5.50 T	5,5	4	-	-	76,5	73,9	72,9	71,8	70,5	66,8	62,0	58,3	54,0	-

DIMENSIONS



DIMENSIONS TABLE

Model	Dimensions [mm]																				Weight [kg]		
	A	B	C	D	E	F	H	H1	H2	H3 [1]	H4 [2]	M	M1	N	N1	R	T [2]	V [1]	W	S		DNA	DNM
CDA 0.75M	183	336,3	179,8	8,3	73	9	227	97	130	-	198	42	40	140	180	57,5	PG11	-	6,8	9,5	G1	G1	13,8
CDA 0.75T	183	336,3	179,8	8,3	73	9	227	97	130	198	-	42	40	140	180	57,5	-	PG11	6,8	9,5	G1	G1	13,8
CDA 1.00M	183	336,3	179,8	8,3	73	9	227	97	130	-	198	42	40	140	180	57,5	PG11	-	6,8	9,5	G1	G1	15,0
CDA 1.00T	183	336,3	179,8	8,3	73	9	227	97	130	198	-	42	40	140	180	57,5	-	PG11	6,8	9,5	G1	G1	15,0
CDA 1.50M	209	407,8	218,3	8,3	86	9	265	110	155	-	242	48	40	155	195	65,5	PG13,5	-	12,3	9,5	G1¼	G1	24,2
CDA 1.50T	194	394,8	218,3	8,3	86	9	265	110	155	224	-	48	40	155	195	65,5	-	PG11	12,3	9,5	G1¼	G1	24,9
CDA 2.00M	209	410,8	218,3	8,3	86	9	265	110	155	-	242	48	40	155	195	65,5	PG13,5	-	12,3	9,5	G1¼	G1	26,0
CDA 2.00T	194	408,0	218,3	8,3	86	9	265	110	155	224	-	48	40	155	195	65,5	-	PG11	12,3	9,5	G1¼	G1	27,1
CDA 3.00T	194	410,8	218,3	8,3	86	9	265	110	155	224	-	48	40	155	195	65,5	-	PG11	12,3	9,5	G1¼	G1	25,8
CDA 4.00T	228	467,3	225,3	12	95,5	12	308,5	133,5	175	265	-	57	50	180	230	71,5	-	G1½	12,0	12	G1½	G1¼	46,8
CDA 5.50T	228	508,0	225,3	12	95,5	12	308,5	133,5	175	265	-	57	50	180	230	71,5	-	G1½	12,0	12	G1½	G1¼	52,0

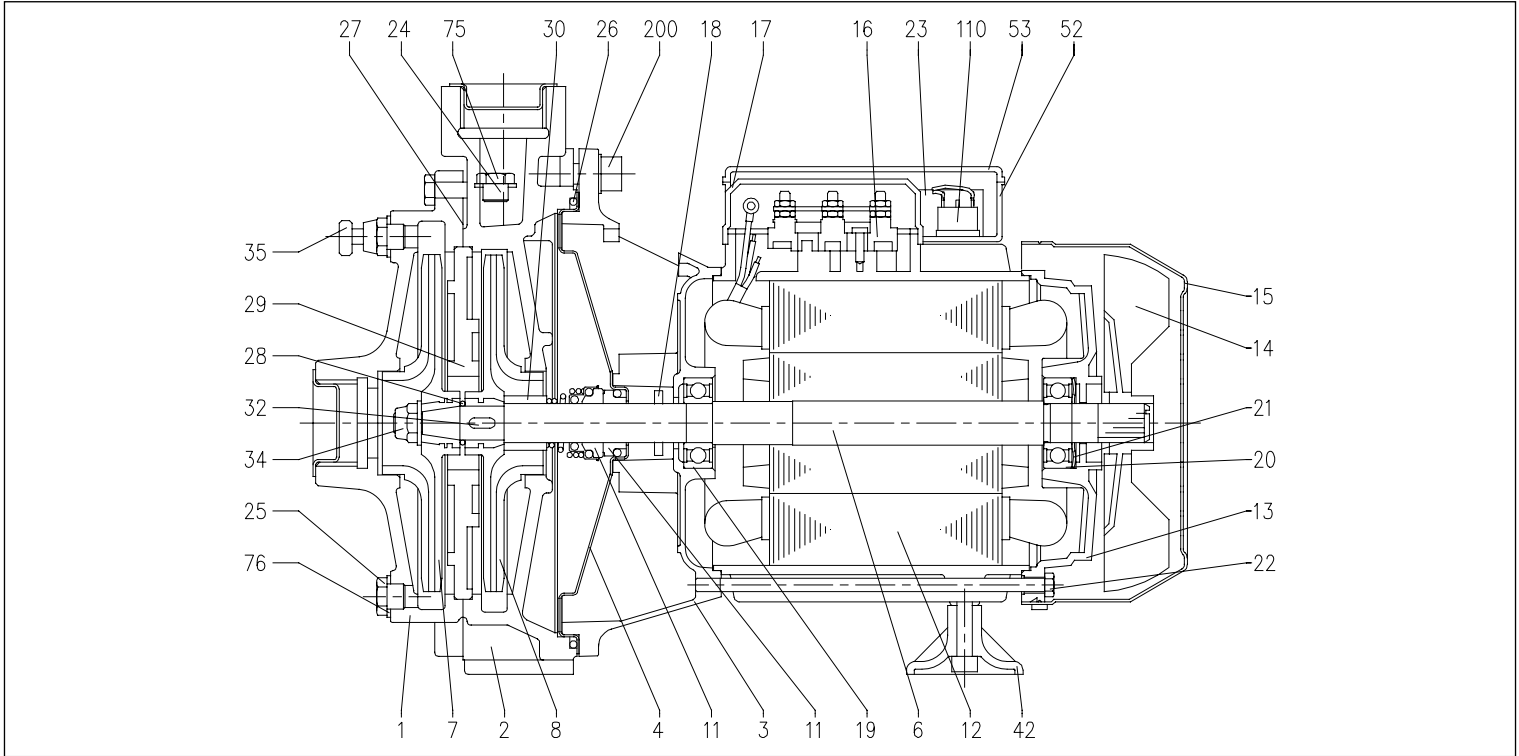
[1]= Three phase only

[2]= Single phase only

DUAL IMPELLER CENTRIFUGAL ELECTRIC PUMPS

in cast iron

SECTIONAL VIEW



MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	Cast iron	23	Capacitor [2]	-
2	Pump body	Cast iron	24	Filler cap	Brass
3	Motor support	[3]	25	Drain plug	Brass
4	Seal housing disc	[4]	26	O-Ring	NBR
6	Shaft	[5]	27	Pump body gasket	Cellulose fibres
7	Impeller	[6]	28	O-Ring	NBR
8	Impeller	[6]	29	Intermediate disc	Cast iron
11	Mechanical sealing	Carbon/Ceramic/NBR	30	Seal spacer	Brass
12	Motor case	-	32	Key	AlSi 316
13	Motor cover	Aluminium	34	Impeller nut [7]	AlSi 304
14	Fan	PP	35	Bleed valve	Brass
15	Fan cover	Galvanised Fe P04	42	Foot	PP
16	Terminal box	-	52	Capacitor-holder box [2]	ABS
17	Terminal box cover [1]	Aluminium	53	Capacitor-holder box cover [8]	ABS
18	Spray protector ring	NBR	75	Washer	Aluminium
19	Bearing (pump side)	-	76	Washer	Aluminium
20	Bearing (motor side)	-	110	Motorprotector [9]	-
21	Adjusting ring	Steel C70	200	Screw (Pump body)	Zn stainless steel Cl. 8.8 ISO 898-1
22	Tie-rod	Galvanised Fe 42			

[1]= For three phase only

[2]= For single phase only

[3]= Aluminium for CDA 0.75 - 1.00, cast iron for the rest of the range

[4]= AISI 304 for CDA 0.75 - 1.00, cast iron integrated Motor support for the rest of the range

[5]= AISI 303 (part in contact with the liquid) for CDA 0.75 - 1.00 - 1.50 - 2.00 - 3.00, AISI 304 (part in contact with the liquid) for the rest of the range

[6]= PPE+PS reinforced with fibreglass for CDA 0.75 - 1.00, brass for the rest of the range

[7]= Versione with impeller brass only

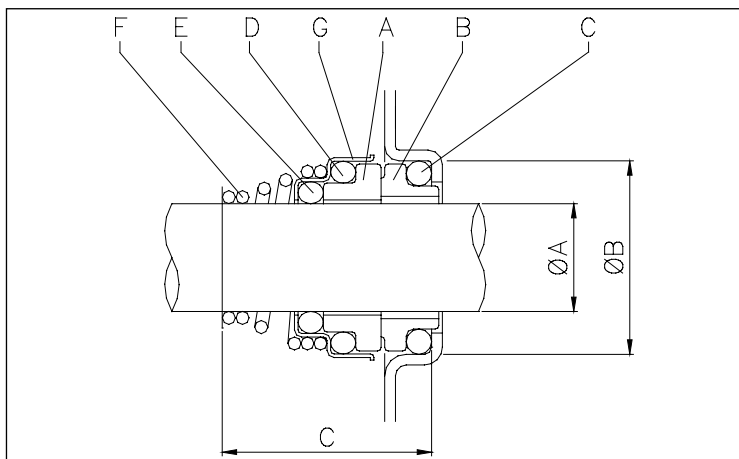
[8]= With gasket in NBR only for CDA 0.75 - 1.00 single phase models

[9]= Version CDA 1.50 - 2.00 single phase only

DUAL IMPELLER CENTRIFUGAL ELECTRIC PUMPS

in cast iron

MECHANICAL SEAL



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

DIMENSIONS

Single phase	Three phase	ØA	ØB	C
CDA 0.75 M	CDA 0.75 T	15	26	29
CDA 1.00 M	CDA 1.00 T	15	26	29
CDA 1.50 M	CDA 1.50 T	18	30,9	32
CDA 2.00 M	CDA 2.00 T	18	30,9	32
-	CDA 3.00 T	18	30,9	32
-	CDA 4.00 T	20	30,9	33
-	CDA 5.50 T	20	30,9	33

ELECTRIC DATA TABLE

Single phase 230V	Model Three phase 230/400V	P ₂		Efficiency		Capacitor		Efficiency (%)			P ₁		Absorbed Current [A]		
		[HP]	[kW]	Single phase	Three phase	Single phase µF	Three phase V _c	Three phase η %			Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase 230V 400V	
								50%	75%	100%					
CDA 0.75 M	CDA 0.75 T	0,75	0,55	-	-	16	450	-	-	-	1,1	1,05	5,0	3,4	2,0
CDA 1.00 M	CDA 1.00 T	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,38	1,13	6,1	3,4	2,0
CDA 1.50 M	CDA 1.50 T	1,5	1,1	-	IE2	40	450	79,7	82,5	83,0	1,85	1,80	8,6	5,5	3,2
CDA 2.00 M	CDA 2.00 T	2	1,5	-	IE2	40	450	80,3	83,4	83,8	2,35	2,25	10,8	7,8	4,5
-	CDA 3.00 T	3	2,2	-	IE2	-	-	83,0	84,4	83,8	-	2,74	-	8,5	4,9
-	CDA 4.00 T	4	3	-	IE2	-	-	83,1	86,3	86,8	-	4,10	-	12,5	7,2
-	CDA 5.50 T	5,5	4	-	IE2	-	-	84,3	87,2	87,8	-	4,56	-	15,1	8,7

NOISE DATA TABLE

Single phase 230V	Model Three phase 230/400V	P ₂		L _{pa} - dB(A)*
		[HP]	[kW]	
CDA 0.75 M	CDA 0.75 T	0,75	0,55	<70
CDA 1.00 M	CDA 1.00 T	1	0,75	
CDA 1.50 M	CDA 1.50 T	1,5	1,1	
CDA 2.00 M	CDA 2.00 T	2	1,5	
-	CDA 3.00 T	3	2,2	
-	CDA 4.00 T	4	3	
-	CDA 5.50 T	5,5	4	

* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

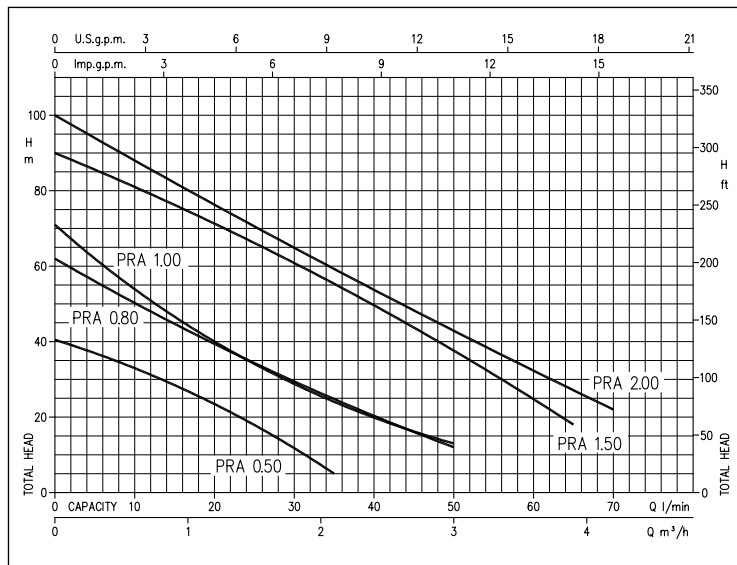
PRA

PERIPHERAL ELECTRIC PUMPS

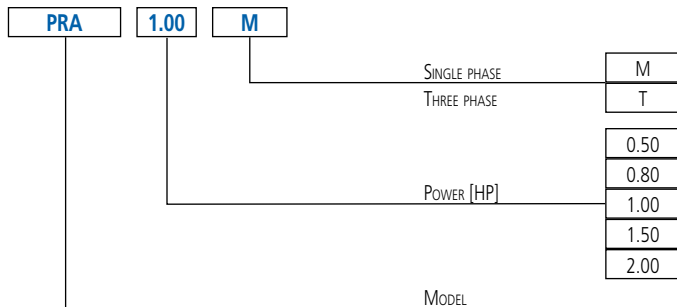
in cast iron



PERFORMANCE CURVES (according to ISO 9906 Attachment A)



IDENTIFICATION CODE



Cast iron peripheral electric pumps

APPLICATIONS

- Suitable for domestic uses
- Boilers power supply and booster units
- Autoclave group

TECHNICAL DETAILS

- They're silent
- Practical
- Easy to transport
- Available also in the nickel-plated version (PRN 0.50 model)

PUMP TECHNICAL DATA

- Maximum working pressure:
 - 6 bar for PRA 0.50
 - 7.5 bar for PRA 0.80
 - 12 bar for the rest of the range
- Maximum temperature of the liquid: 80°C
- G1 discharge connection
- G1 suction connection

MOTOR TECHNICAL DATA

- High efficiency IE2 motors starting from 0,75kW
- Asynchronous motor, 2 poles
- 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-amperometric 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 bracket
- Shaft in AVZ Steel for the PRA 0.50 model, in AISI 303 for the rest of the range
- Brass impeller
- Mechanical seal in Carbon/Ceramic/NBR

CONTROL PANELS

- 1EP
- 1EPBH

ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- 24 litre 16 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- FYG-32 5.6÷10.5 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Presso•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output - maximum motor power 2.2 kW - 3 HP)

PRA

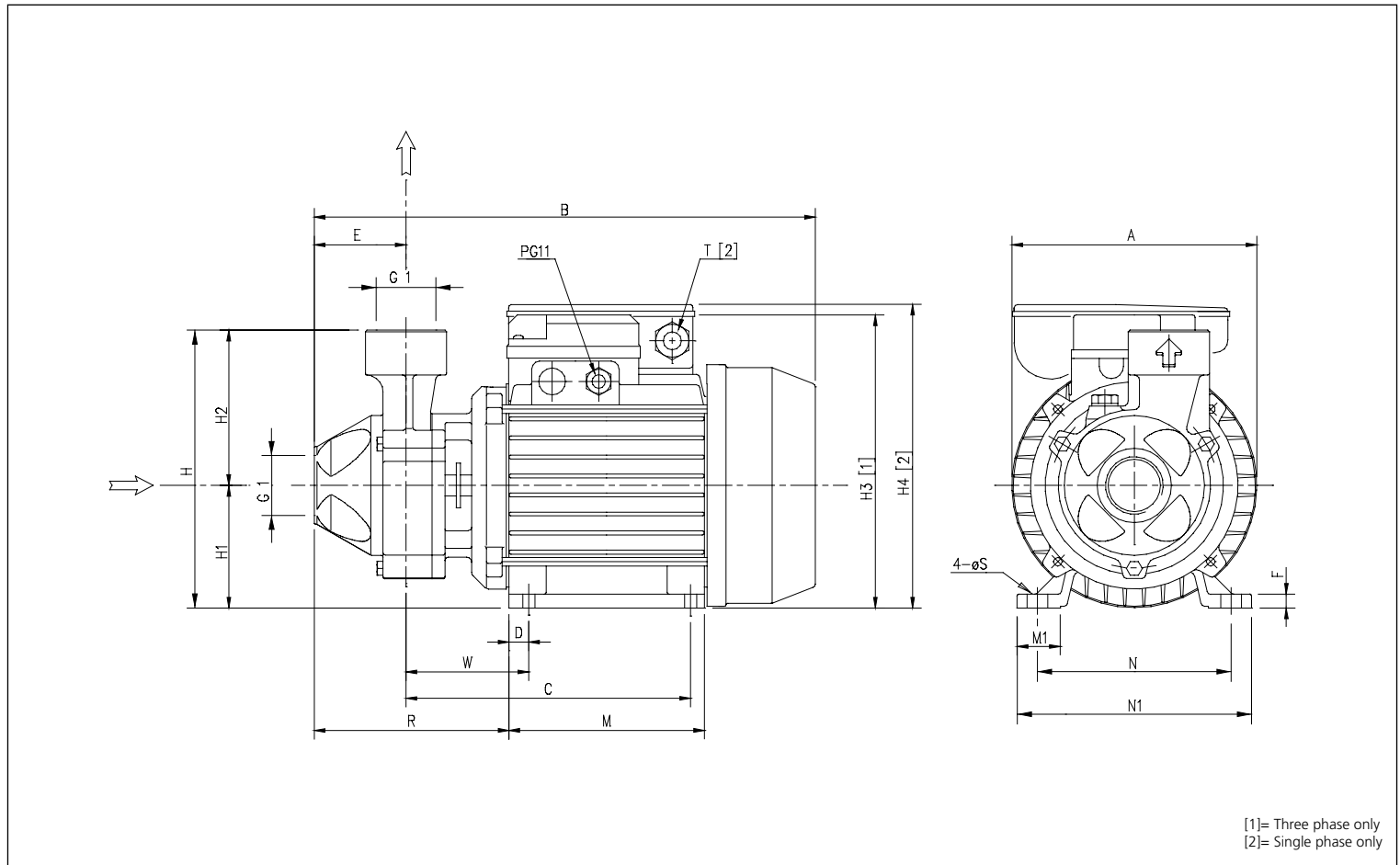
PERIPHERAL ELECTRIC PUMPS

in cast iron

PERFORMANCE TABLE

Single phase 230V	Model Three phase 230/400V	P ₂		l/min m ³ /h	Q=Flow rate															
		[HP]	[kW]		5	10	15	20	35	50	65	70								
					0,3	0,6	0,9	1,2	2,1	3	3,9	4,2								
									H=Head [m]											
PRA 0.50 M	PRA 0.50 T	0,5	0,37	37,0	33,3	28,7	23,7	5,0	-	-	-	-	-	-	-	-	-	-	-	-
PRA 0.80 M	PRA 0.80 T	0,8	0,6	56,0	50,7	45,1	39,8	25,0	12,0	-	-	-	-	-	-	-	-	-	-	-
PRA 1.00 M	PRA 1.00 T	1	0,75	62,0	54,4	47,0	40,4	24,3	13,0	-	-	-	-	-	-	-	-	-	-	-
PRA 1.50 M	PRA 1.50 T	1,5	1,1	-	81,0	76,9	71,9	55,8	37,9	18,0	-	-	-	-	-	-	-	-	-	-
PRA 2.00 M	PRA 2.00 T	2	1,5	-	88,0	82,9	77,0	59,8	43,3	27,4	22,0	-	-	-	-	-	-	-	-	-

DIMENSIONS



DIMENSIONS TABLE

Model	Dimensions [mm]																			Weight [kg]
	A	B	C	D	E	F	H	H1	H2	H3 [1]	H4 [2]	M	M1	N	N1	R	T [2]	W	S	
PRA 0.50M	130	263,5	148,5	10	50	7	143	63	80	-	160	100	23	100	120	118,5	PG11	68,5	7	5,6
PRA 0.50T	130	263,5	148,5	10	50	7	143	63	80	149,5	-	100	23	100	120	118,5	-	68,5	7	5,6
PRA 0.80M	130	290,5	159,3	11	53,8	9	161	71	90	-	178	112	25	112	135	122	PG11	69,3	7	9,2
PRA 0.80T	150	290,5	159,3	11	53,8	9	161	71	90	167,5	-	112	25	112	135	122	-	69,3	7	9,2
PRA 1.00M	150	290,5	159,3	11	53,8	9	161	71	90	-	178	112	25	112	135	122	PG11	69,3	7	9,7
PRA 1.00T	150	290,5	159,3	11	53,8	9	161	71	90	167,5	-	112	25	112	135	122	-	69,3	7	10,5
PRA 1.50M	162	330,5	188	12	57	12	175	80	95	-	212	124	28	125	152	144	PG13,5	88	9	14,5
PRA 1.50T	162	330,5	188	12	57	12	175	80	95	186,5	-	124	28	125	152	144	-	88	9	15,5
PRA 2.00M	162	330,5	188	12	57	12	175	80	95	-	212	124	28	125	152	144	PG13,5	88	9	15,8
PRA 2.00T	162	344	188	12	57	12	175	80	95	186,5	-	124	28	125	152	144	-	88	9	16,4

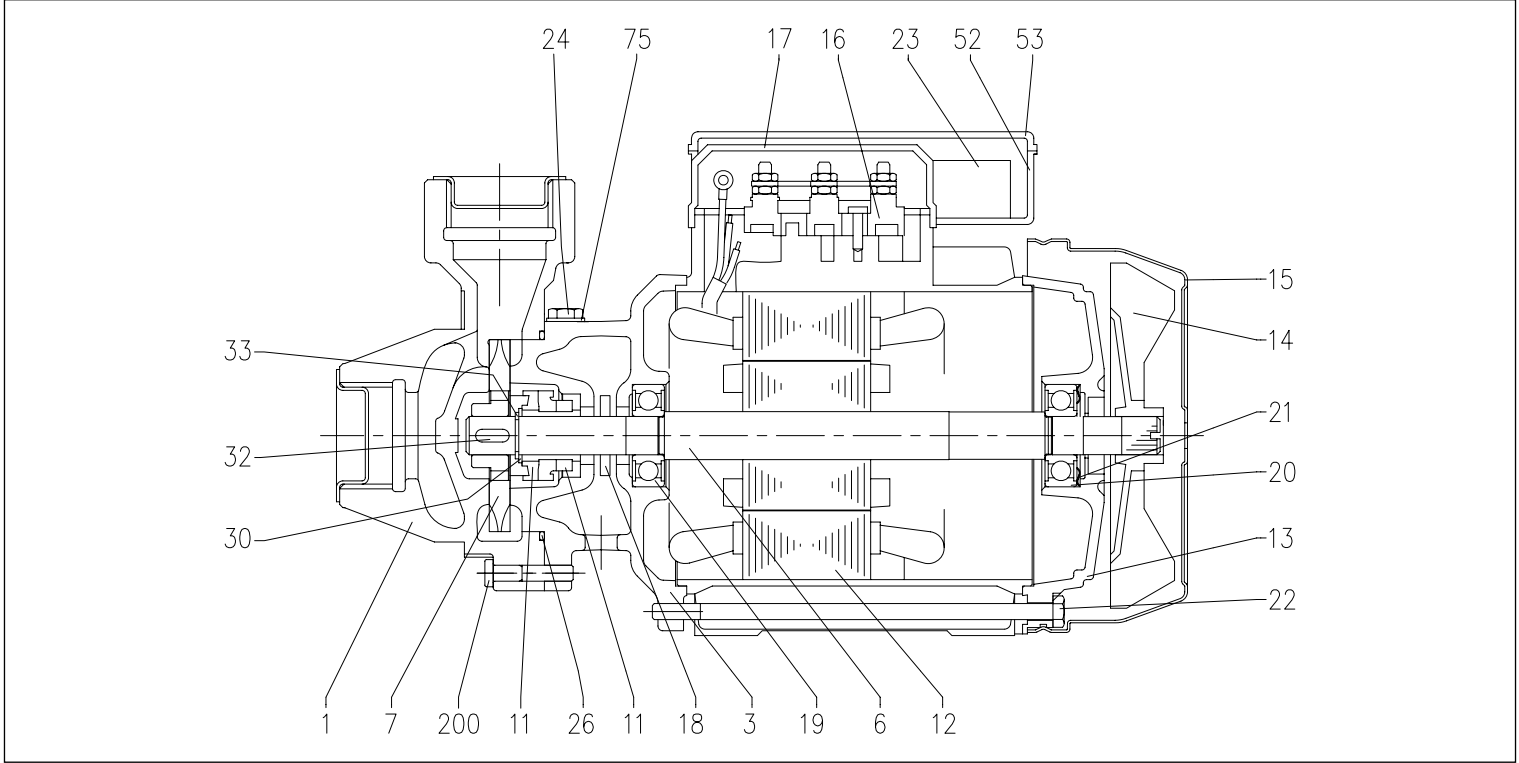
[1]= Three phase only
[2]= Single phase only

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PERIPHERAL ELECTRIC PUMPS

in cast iron

SECTIONAL VIEW



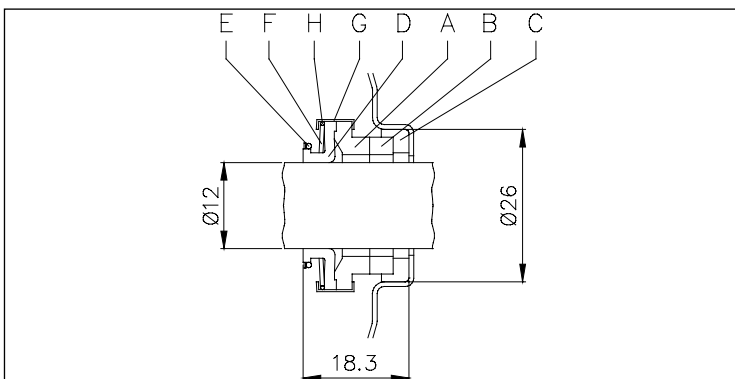
MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	Cast iron	20	Bearing (motor side)	-
3	Motor support	Cast iron	21	Adjusting ring	Steel C70
6	Shaft with rotor	[3]	22	Tie-rod	Galvanised Fe 42
7	Impeller	Brass	23	Capacitor [2]	-
11	Mechanical seal	Carbon/Ceramic/NBR	24	Filler cap	Brass
12	Motor casing with stator	-	26	O-Ring	NBR
13	Motor cover	Aluminium	30	Washer	AISI 304
14	Fan	PP	32	Key	AISI 316
15	Fan cover	Galvanised Fe P04	33	Ring	AISI 304
16	Terminal box	-	52	Capacitor-holder box [2]	ABS
17	Terminal box cover [1]	Aluminium	53	Capacitor-holder box cover [2]	ABS
18	Spray protector ring	NBR	75	Washer	Aluminium
19	Bearing (pump side)	-	200	Screw	Zn stainless steel Cl. 8.8

[1]= For three phase only [2]= For single phase only

[3]= Material: C10 for PRA 0.50, AISI 420 for PRA 0.80 and PRA 1.00, AISI 303 (part in contact with the liquid) for the rest of the range

MECHANICAL SEAL for PRA 0.50 - 0.80 - 1.00



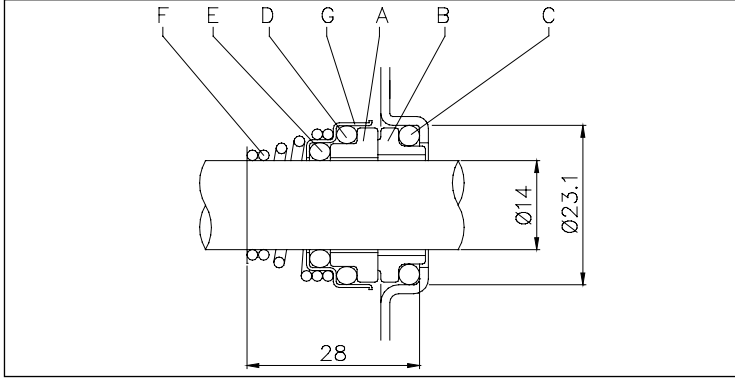
MATERIALS TABLE for PRA 0.50 - 0.80 - 1.00

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

PERIPHERAL ELECTRIC PUMPS

in cast iron

MECHANICAL SEAL for PRA 1.50 - 2.00



MATERIALS TABLE for PRA 1.50 - 2.00

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	Model Three phase 230/400V	P_2		Efficiency		Capacitor		Efficiency (%)			P_1		Absorbed Current [A]		
		[HP]	[kW]	Single phase	Three phase	Single phase μF	Three phase V_c	50%	75%	100%	Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase 230V	Three phase 400V
PRA 0.50 M	PRA 0.50 T	0,5	0,37	-	-	10	450	-	-	-	0,57	0,55	2,6	1,7	1,0
PRA 0.80 M	PRA 0.80 T	0,8	0,6	-	-	16	450	-	-	-	1,10	1,10	4,9	3,6	2,1
PRA 1.00 M	PRA 1.00 T	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,25	0,92	5,6	3,0	1,7
PRA 1.50 M	PRA 1.50 T	1,5	1,1	-	IE2	40	450	79,7	82,5	83,0	2,27	1,80	10,0	5,6	3,2
PRA 2.00 M	PRA 2.00 T	2	1,5	-	IE2	40	450	78,6	83,0	84,2	2,45	2,25	10,9	7,4	4,3

NOISE DATA TABLE

Model Single phase 230V	Model Three phase 230/400V	P_2		L_{pa} - dB(A)*
		[HP]	[kW]	
PRA 0.50 M	PRA 0.50 T	0,5	0,37	<70
PRA 0.80 M	PRA 0.80 T	0,8	0,6	
PRA 1.00 M	PRA 1.00 T	1	0,75	
PRA 1.50 M	PRA 1.50 T	1,5	1,1	73
PRA 2.00 M	PRA 2.00 T	2	1,5	

* Mean value of several measures at 1m distance around the pump.
Tolerance $\pm 2,5$ dB.

SWS - SWT

CENTRIFUGAL SELF-PRIMING ELECTRIC PUMPS FOR POOLS



Centrifugal self-priming electric pumps for pools.

APPLICATIONS

- Filtration systems for private and public pools

TECHNICAL DETAILS

- Large-size incorporated pre-filter
- Motor entirely isolated from the water
- Transparent pre-filter cover for easy inspection and maintenance
- Easy installation

PUMP TECHNICAL DATA

- Maximum temperature of the liquid: +40°C
- Maximum ambient temperature: +40 °C
- Pumped liquid: clean or slightly dirty water, water containing chlorine or additives for pools
- Connections for SWS (2 alternatives):
 - Female thread 1"½
 - Connection for Ø50mm PVC pipe to be glued on
- Connections for SWT: female thread 2"

MOTOR TECHNICAL DATA

- Self-ventilated 2-pole asynchronous motor
- Class F insulation
- Single phase voltage 230V 50Hz, three phase voltage 230/400V 50Hz (SWT only)

MATERIALS

- Pump body, seal holding disc and diffuser made of polypropylene reinforced with fibreglass and resistant to chemical substances
- Noryl impeller
- Graphite/ceramic mechanical seal
- AISI 316 shaft
- Transparent polycarbonate pre-filter cover
- Aluminium base
- AISI 304 screws

CONTROL PANELS

- 1EP
- 1EPBH

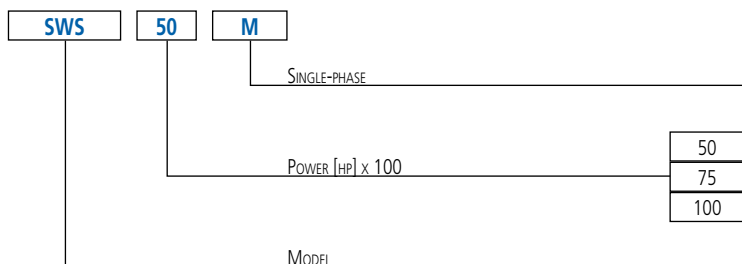


SWS

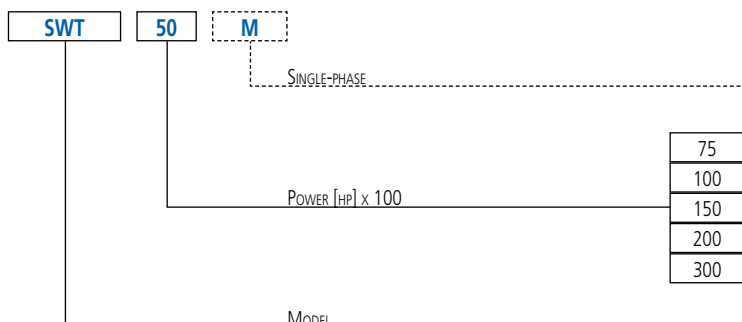


SWT

SWS IDENTIFICATION CODE



SWT IDENTIFICATION CODE

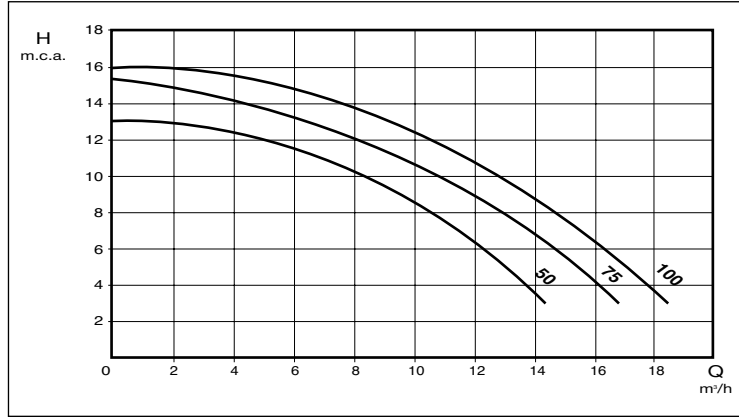


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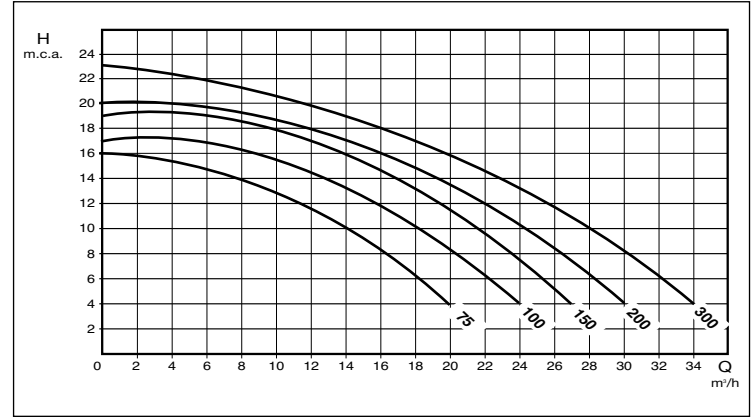
SWS - SWT

CENTRIFUGAL SELF-PRIMING ELECTRIC PUMPS FOR POOLS

SWS PERFORMANCE CURVES (according to ISO 9906 Annex A)



SWT PERFORMANCE CURVES (according to ISO 9906 Annex A)



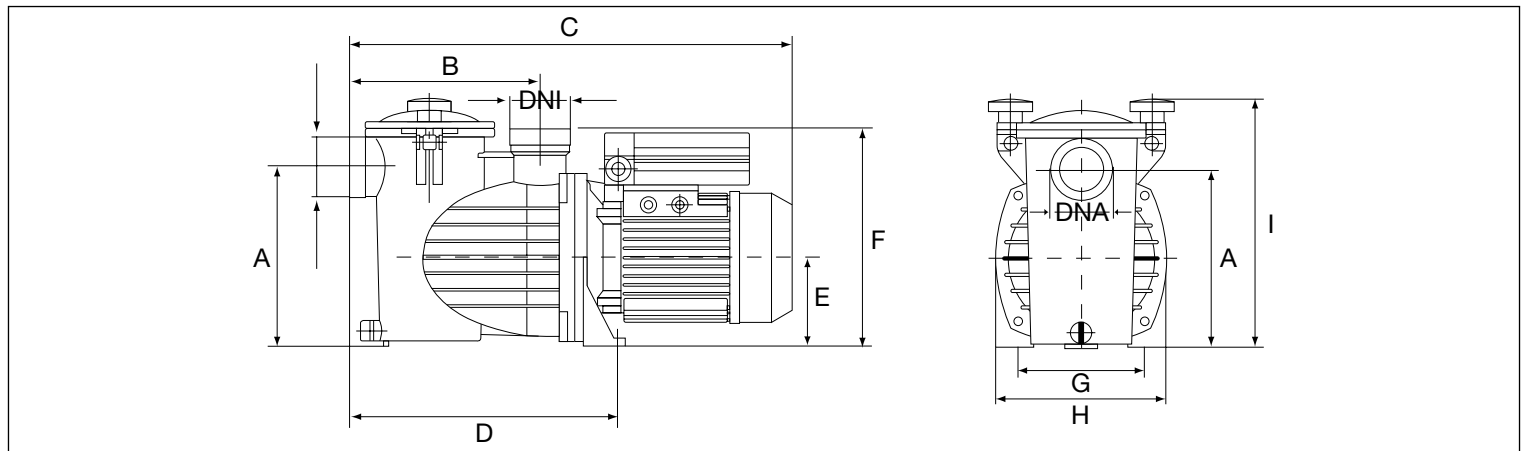
SWS PERFORMANCE TABLE

Model Single phase 230V	P ₂		H=Head [m]									
	[HP]	[kW]	4	6	8	10	11	12	13	14	15	
SWS 50 M	0,5	0,33	14,0	12,0	10,0	7,0	6,5	5,0	-	-	-	
SWS 75 M	0,75	0,55	16,0	15,0	12,5	10,0	9,3	8,0	6,6	4,2	2,0	
SWS 100 M	1	0,75	18,0	16,0	15,3	13,0	12,1	10,5	9,7	7,6	6,0	

SWT PERFORMANCE TABLE

Single phase 230V	Model Three phase 230/400V	P ₂		H=Head [m]									
		[HP]	[kW]	4	6	8	10	12	14	16	18	20	
SWT 75 M	SWT 75	0,75	0,55	19,5	18,0	15,7	13,5	10,8	7,9	-	-	-	
SWT 100 M	SWT 100	1	0,75	23,2	21,1	19,7	18,0	15,0	12,3	8,7	-	-	
SWT 150 M	SWT 150	1,5	1,1	27,0	25,0	23,0	21,0	19,0	17,0	14,0	10,0	-	
SWT 200 M	SWT 200	2	1,5	30,0	28,0	26,0	24,0	21,0	18,0	14,0	12,0	-	
SWT 300 M	SWT 300	3	2,2	34,0	32,0	30,0	29,0	27,0	23,0	20,0	15,0	12,0	

SWS DIMENSIONS



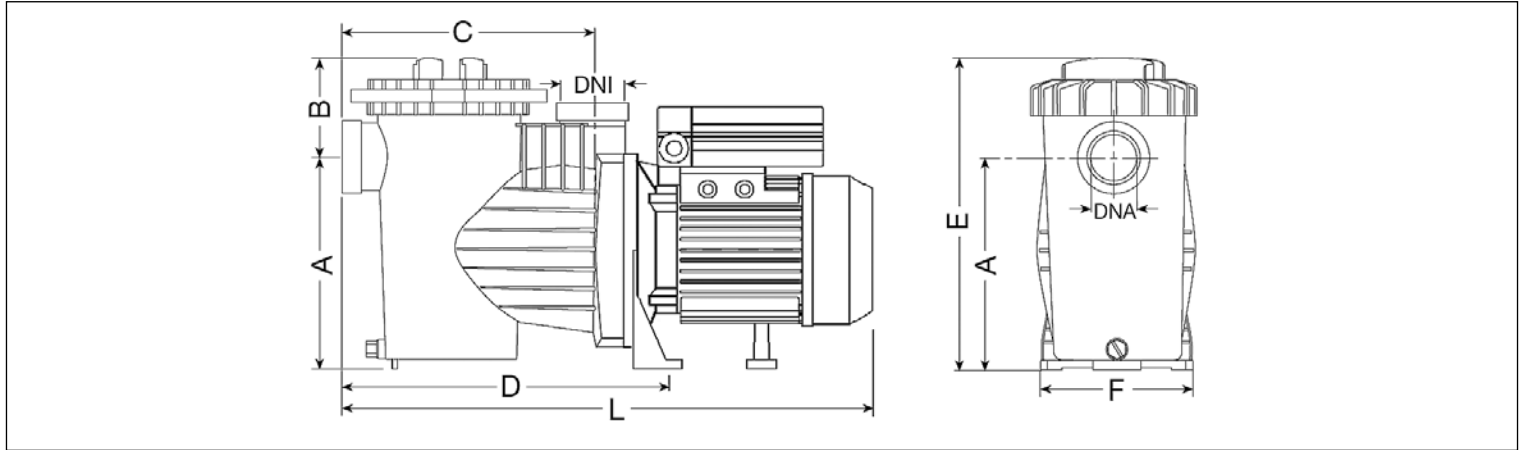
SWS DIMENSIONAL TABLE

Model	Dimensions [mm]										Weight [kg]
	A	B	C	D	E	F	G	H	I	DNA DNI	
SWS 50 M	191	205	470	285	95	233	140	180	265	1"½	11,0
SWS 75 M	191	205	470	285	95	233	140	180	265	1"½	12,6
SWS 100 M	191	205	470	285	95	233	140	180	265	1"½	12,6

SWS - SWT

CENTRIFUGAL SELF-PRIMING ELECTRIC PUMPS FOR POOLS

SWT DIMENSIONS



SWT DIMENSIONAL TABLE

Model	Dimensions [mm]								Weight [kg]
	A	B	C	D	E	F	L	DNA DNI	
SWT 75 M	216	109	265	370	325	206	550	2"	13,0
SWT 75	216	109	265	370	325	206	550	2"	12,5
SWT 100 M	216	109	265	370	325	206	550	2"	14,0
SWT 100	216	109	265	370	325	206	550	2"	14,0
SWT 150 M	216	109	265	370	325	206	580	2"	17,0
SWT 150	216	109	265	370	325	206	580	2"	15,5
SWT 200 M	216	109	265	370	325	206	650	2"	18,5
SWT 200	216	109	265	370	325	206	575	2"	17,0
SWT 300 M	216	109	265	370	325	206	650	2"	22,0
SWT 300	216	109	265	370	325	206	650	2"	19,0

ELECTRIC DATA TABLE

Model		P ₂		Efficiency		Capacitor		Absorbed current		
Single phase 230V	Three phase 230/400V	[HP]	[kW]	Single phase	Three phase	Single phase μF	V _c	Single phase 230V	Three phase 230V 400V	
SWWS 50 M	-	0,5	0,33	-	-	14	450	3,5	-	-
SWWS 75 M	-	0,75	0,55	-	-	16	450	4,3	-	-
SWWS 100 M	-	1	0,75	-	IE2	20	450	5,5	-	-
SWT 75 M	SWT 75	0,75	0,55	-	-	16	450	4,75	3,1	1,8
SWT 100 M	SWT 100	1	0,75	-	IE2	20	450	5,5	3,8	2,2
SWT 150 M	SWT 150	1,5	1,1	-	IE2	31,5	450	7,3	5,0	2,9
SWT 200 M	SWT 200	2	1,5	-	IE2	31,5	450	9,2	6,0	3,5
SWT 300 M	SWT 300	3	2,2	-	IE2	40	450	12,2	8,6	5,0

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COMPACT

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in cast iron



Cast iron horizontal multistage centrifugal electric pumps.

APPLICATIONS

- Domestic pressure boosting
- General pressure increases
- Small-scale garden irrigation
- Washing vehicles
- Moving clean water

TECHNICAL DETAILS

- Particularly silent
- Light and easy to handle

PUMP TECHNICAL DATA

- Maximum working pressure: 10 bar
- Maximum temperature of the liquid: 40°C
- G1 for COMPACT A, G1¼ for COMPACT B
- G1 discharge connection

MOTOR TECHNICAL DATA

- 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-amperometric 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 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 Carbon/Ceramic/NBR

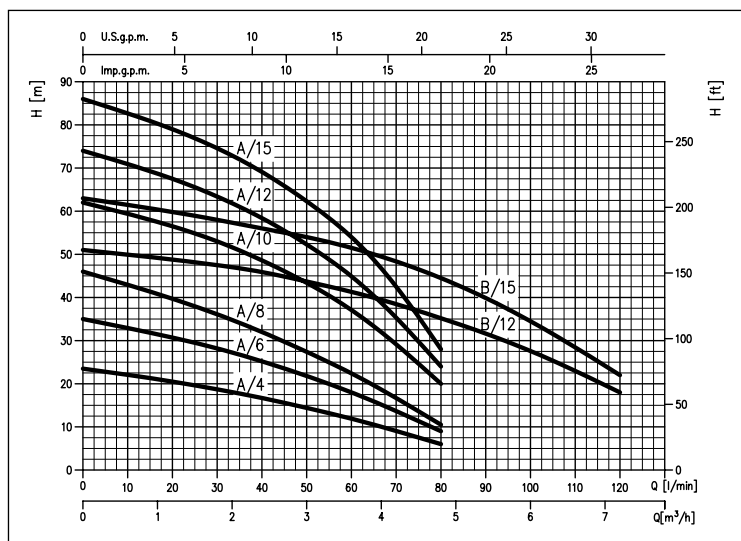
CONTROL PANELS

- 1EP
- 1EPBH

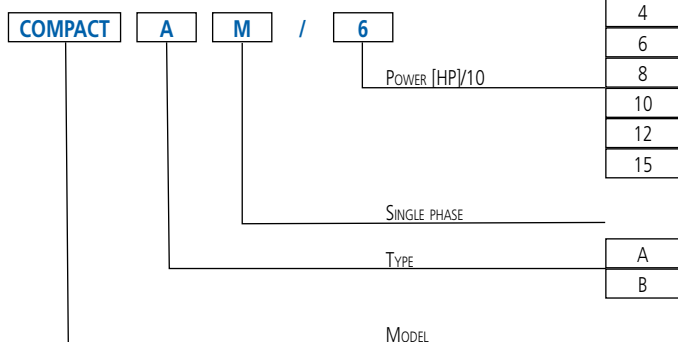
ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- 24 litre 16 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- FYG-32 5.6÷10.5 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output – maximum motor power 2.2 kW - 3 HP)
- E-drive - Frequency converter

PERFORMANCE CURVES (according to ISO 9906 Attachment A)



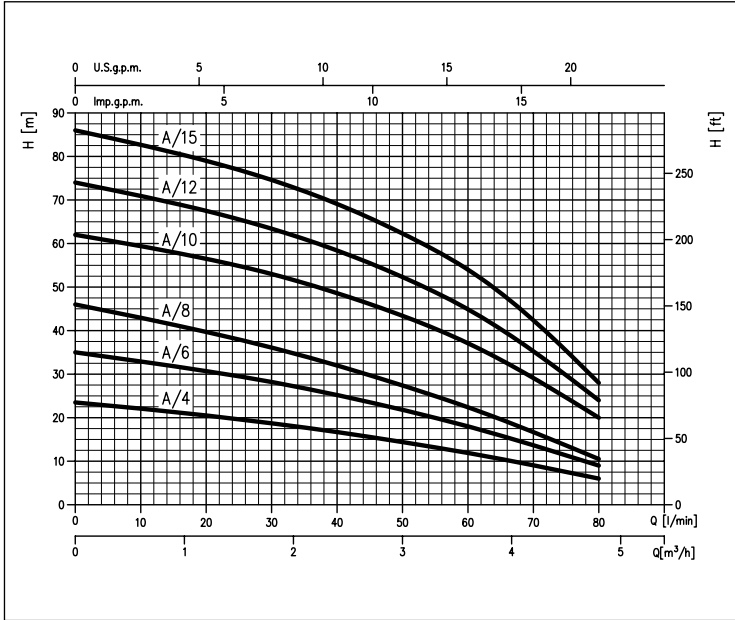
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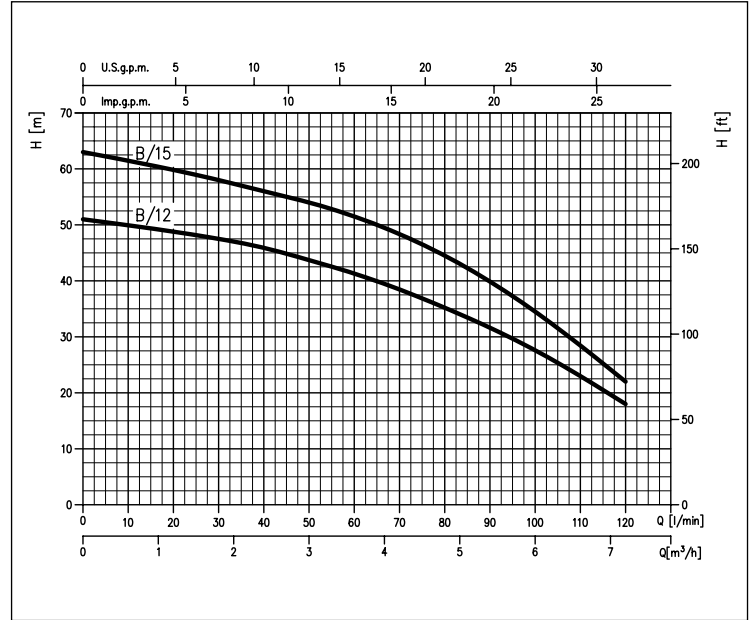
COMPACT

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in cast iron

COMPACT A range PERFORMANCE CURVES
(according to ISO 9906 Attachment A)



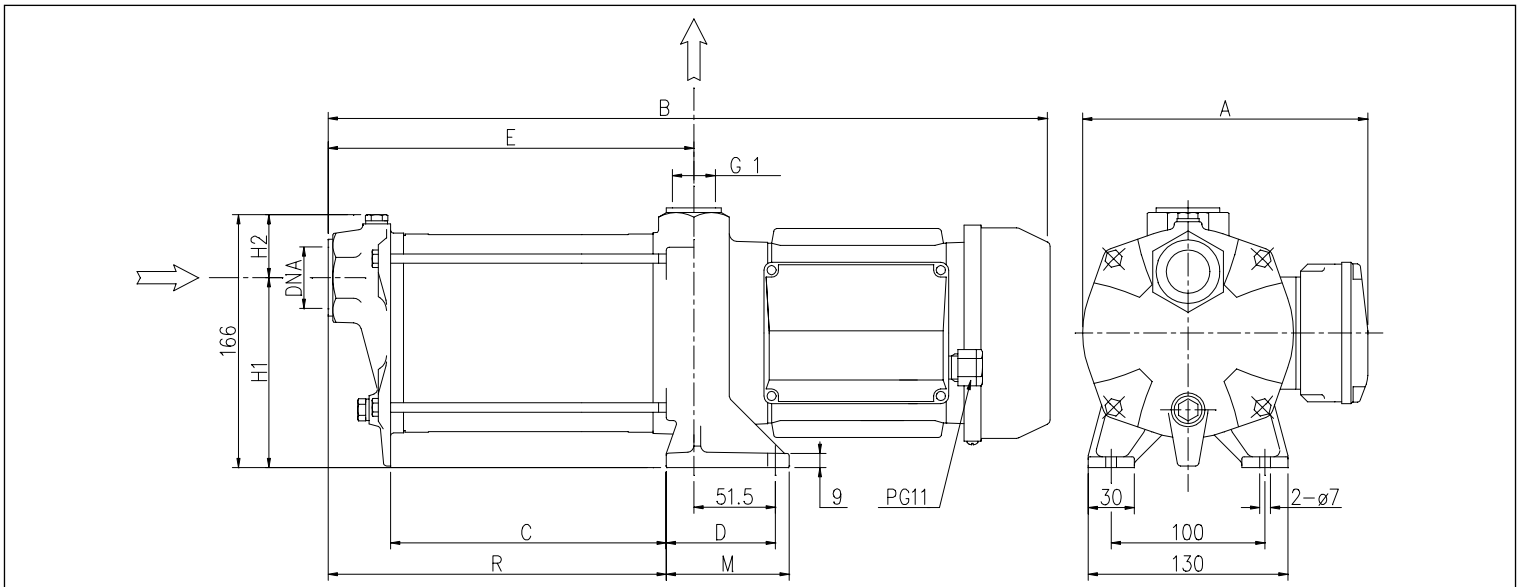
COMPACT B range PERFORMANCE CURVES
(according to ISO 9906 Attachment A)



PERFORMANCE TABLE

Single phase 230V	Model Three phase 230/400V	P ₂		Q=Flow rate								
		[HP]	[kW]	l/min	20	30	40	50	60	80	100	120
				m ³ /h	1,2	1,8	2,4	3	3,6	4,8	6	7,2
				H=Head [m]								
COMPACT AM/4	COMPACT A/4	0,4	0,3	20,5	18,7	16,7	14,4	11,9	6,0	-	-	-
COMPACT AM/6	COMPACT A/6	0,6	0,44	30,7	28,2	25,2	21,8	18,0	9,0	-	-	-
COMPACT AM/8	COMPACT A/8	0,8	0,6	39,7	36,1	32,0	27,4	22,4	10,5	-	-	-
COMPACT AM/10	COMPACT A/10	1	0,75	56,5	53,0	48,5	43,5	37,1	20,0	-	-	-
COMPACT AM/12	COMPACT A/12	1,2	0,9	67,5	63,4	58,5	52,5	45,0	24,0	-	-	-
COMPACT AM/15	COMPACT A/15	1,5	1,1	79,0	74,6	69,0	62,5	54,0	28,0	-	-	-
COMPACT BM/12	COMPACT B/12	1,2	0,9	-	47,5	46,0	43,5	41,5	35,2	27,6	18,0	-
COMPACT BM/15	COMPACT B/15	1,5	1,1	-	58,0	56,0	54,0	51,5	44,5	34,5	22,0	-

DIMENSIONS



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COMPACT

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

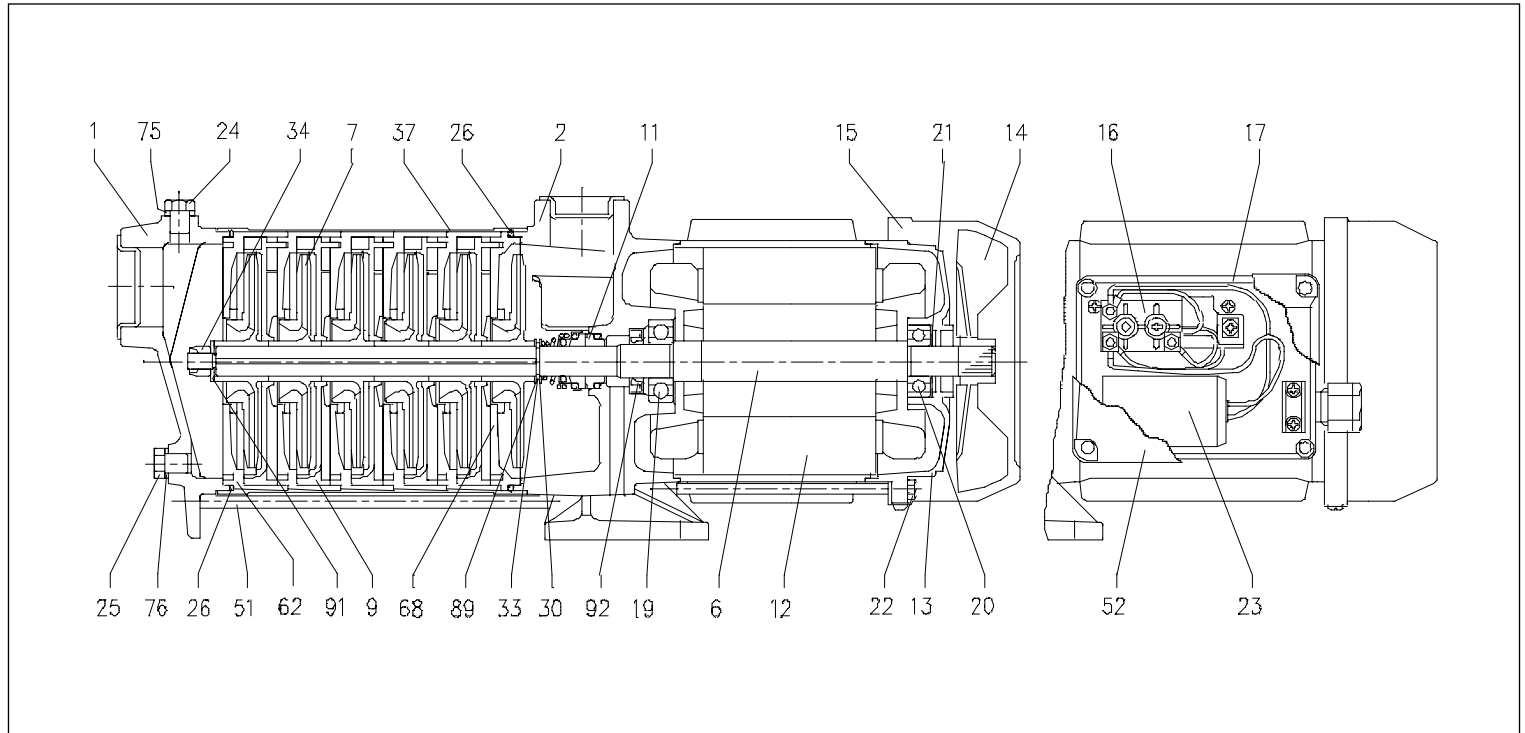
in cast iron

DIMENSIONS TABLE

Single phase	Model	Three phase	Dimensions [mm]												Weight [kg]	
			A [1]	A [2]	B [2]	B [1]	C	D	E	H1	H2	M	R	DNA	Single phase	Three phase
COMPACT AM/4	COMPACT A/4		159	183,5	307,5	307,5	82	51,5	120,5	127,5	38,5	62	120,5	G1	8,4	8,4
COMPACT AM/6	COMPACT A/6		159	183,5	333,5	333,5	108	51,5	146,5	127,5	38,5	62	146,5	G1	9,3	9,3
COMPACT AM/8	COMPACT A/8		159	183,5	359,5	359,5	134	51,5	172,5	127,5	38,5	62	172,5	G1	10,3	10,3
COMPACT AM/10	COMPACT A/10		169	193,5	426	426	142	69,5	198,5	123,5	42,5	80	180,5	G1	14,5	14,5
COMPACT AM/12	COMPACT A/12		169	193,5	452	464	168	69,5	224,5	123,5	42,5	80	206,5	G1	15,5	16,3
COMPACT AM/15	COMPACT A/15		169	193,5	490	490	194	69,5	250,5	123,5	42,5	80	232,5	G1	16,7	16,7
COMPACT BM/12	COMPACT B/12		169	193,5	400	412	116	69,5	172,5	123,5	42,5	80	154,5	G1¼	14,9	15,7
COMPACT BM/15	COMPACT B/15		169	193,5	438	438	142	69,5	198,5	123,5	42,5	80	180,5	G1¼	15,9	15,9

[1]= Three phase only
[2]= Single phase only

SECTIONAL VIEW



MATERIALS TABLE

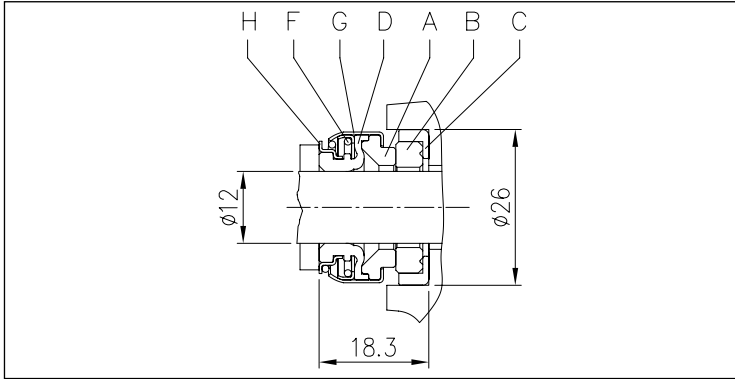
Ref.	Name	Material	Ref.	Name	Material
1	Pump body	G20	23	Capacitor [1]	-
2	Pump body support	G20	24	Filler cap	Brass
6	Rotor shaft	AISI 416	25	Drain plug	Brass
7	Impeller	PPE+PS reinforced with fibreglass	26	O-Ring	NBR
9	Nozzle	PPE+PS reinforced with fibreglass	30	Washer	AISI 304
11	Mechanical seal	Carbon/Ceramic/NBR	33	Seeger ring	AISI 304
12	Motor case	-	34	Impeller nut	AISI 304
13	Motor cover	Aluminium	37	Pump casing	AISI 304
14	Fan	PP	51	Pump tie-rod	Galvanised Fe P04
15	Fan cover	Galvanised Fe P04	52	Capacitor-holder box [1]	PP
16	Terminal box	-	62	Stage box	PPE+PS reinforced with fibreglass
17	Terminal box cover	Aluminium	68	Stage	PPE+PS reinforced with fibreglass/PTFE
19	Bearing (pump side)	-	75	Washer	AISI 304
20	Bearing (motor side)	-	76	Washer	AISI 304
21	Adjusting ring	Steel C70	89	Washer	AISI 304
22	Motor tie-rod	Galvanised Fe 42	91	Washer	AISI 304
			92	Sealing ring	-

[1]= Single phase only

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in cast iron

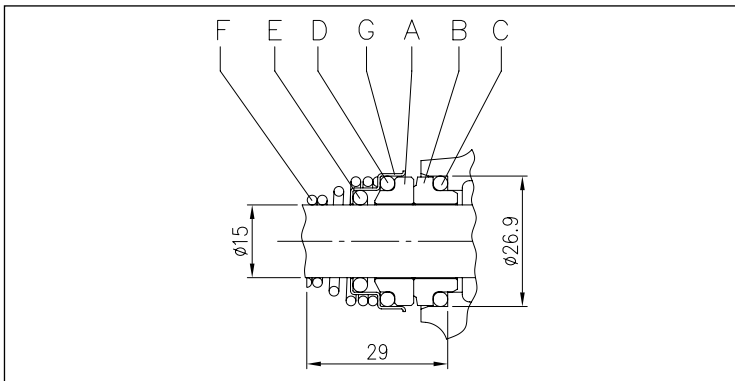
MECHANICAL SEAL for COMPACT A(M)/4, A(M)/6, A(M)/8



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 COMPACT A(M)/10, A(M)/12, A(M)/15 - B(M)/12, B(M)/15



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		P ₂		Efficiency		Capacitor		Efficiency (%)			P ₁		Absorbed Current [A]			
Single phase 230V	Three phase 230/400V	[HP]	[kW]	Single phase	Three phase	Single phase μF	Three phase V _c	Three phase			Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase 230V 400V		
								50%	75%	100%						
COMPACT AM/4	COMPACT A/4	0,4	0,3	-	-	10	450	-	-	-	0,53	0,50	2,5	1,9	1,1	
COMPACT AM/6	COMPACT A/6	0,6	0,44	-	-	12,5	450	-	-	-	0,70	0,65	3,0	2,3	1,3	
COMPACT AM/8	COMPACT A/8	0,8	0,6	-	-	14	450	-	-	-	0,90	0,82	4,0	2,6	1,5	
COMPACT AM/10	COMPACT A/10	1	0,75	-	IE2	20	450	77,2	80,9	81,3	1,25	0,92	6,0	2,9	1,7	
COMPACT AM/12	COMPACT A/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	
COMPACT AM/15	COMPACT A/15	1,5	1,1	-	IE2	31,5	450	79,0	81,7	81,6	1,60	1,35	7,3	4,3	2,5	
COMPACT BM/12	COMPACT B/12	1,2	0,9	-	IE2	31,5	450	79,0	81,7	81,6	1,30	1,35	5,8	4,3	2,5	
COMPACT BM/15	COMPACT B/15	1,5	1,1	-	IE2	31,5	450	79,0	81,7	81,6	1,60	1,35	7,3	4,3	2,5	

NOISE DATA TABLE

Model		P ₂		L _{wa} - dB(A)*
Single phase 230V	Three phase 230/400V	[HP]	[kW]	
COMPACT AM/4	COMPACT A/4	0,4	0,3	<70
COMPACT AM/6	COMPACT A/6	0,6	0,44	
COMPACT AM/8	COMPACT A/8	0,8	0,6	
COMPACT AM/10	COMPACT A/10	1	0,75	
COMPACT AM/12	COMPACT A/12	1,2	0,9	
COMPACT AM/15	COMPACT A/15	1,5	1,1	
COMPACT BM/12	COMPACT B/12	1,2	0,9	<70
COMPACT BM/15	COMPACT B/15	1,5	1,1	

* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

MATRIX

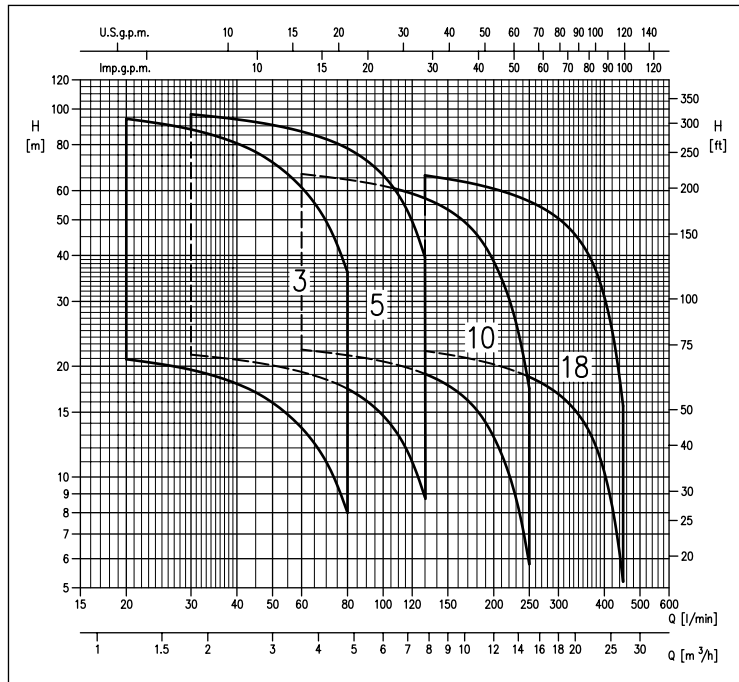
HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

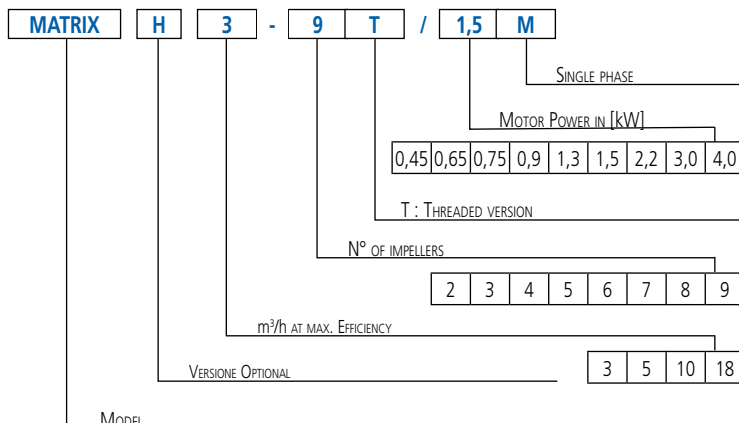


WRAS
APPROVED
PRODUCT

PERFORMANCE CURVES (according to ISO 9906 Attachment A)



IDENTIFICATION CODE



Horizontal multistage centrifugal electric pumps in AISI 304 stainless steel

APPLICATION

- Industrial washing
- Pressure boosting units
- Industrial plants
- Distribution and treatment of water
- Heating and air conditioning
- Cooling and chiller
- Irrigation
- Recovery of rain water

TECHNICAL DETAILS

- Strong and compact construction
- Available in various versions and models
- WRAS approval for the standard version (up to +85°C)

PUMP TECHNICAL DATA

- Temperature of the liquid:
from -15°C to +85°C (standard)
from -15°C to +110°C (for TE version for high temperature)
- Maximum working pressure: 10 bar
 - Maximum chlorine content: 500 ppm
 - G1 suction connection for MATRIX 3, G1¼ for MATRIX 5, G1½ for MATRIX 10, G2 for MATRIX 18
 - G1 discharge connection for MATRIX 3-5, G1¼ for MATRIX 10, G1½ for MATRIX 18

MOTOR TECHNICAL DATA

- High efficiency motors IE2 starting from 0,75kW
- Self-ventilated 2 poles asynchronous motor
- Class of insulation F
- IP55 Protection degree
- 230V ±10%, 50Hz single phase voltage
- 230/400V ±10%, 50Hz three phase voltage
- Permanent capacitor inserted and thermo-amperometric protection with automatic rearm incorporated for the single phase motor
- Protection under user's responsibility for the three phase version

MATERIALS

- Pump casing, impellers, intermediate stages, seal housing disc and shaft (part in contact with the liquid) in EN 1.4301 (AISI 304)
- Mechanical seal in:
 - Carbon/Ceramic/EPDM (standard)
 - Ceramic/Graphite (H version)
 - SiC/SiC/FPM (HS version)
 - U3Q1EGG version
- Bracket in EN AB-AISI11Cu2(Fe) (microcasted aluminium)

CONTROL PANELS

- 1EP
- 1EPBH

ACCESSORIES (on request)

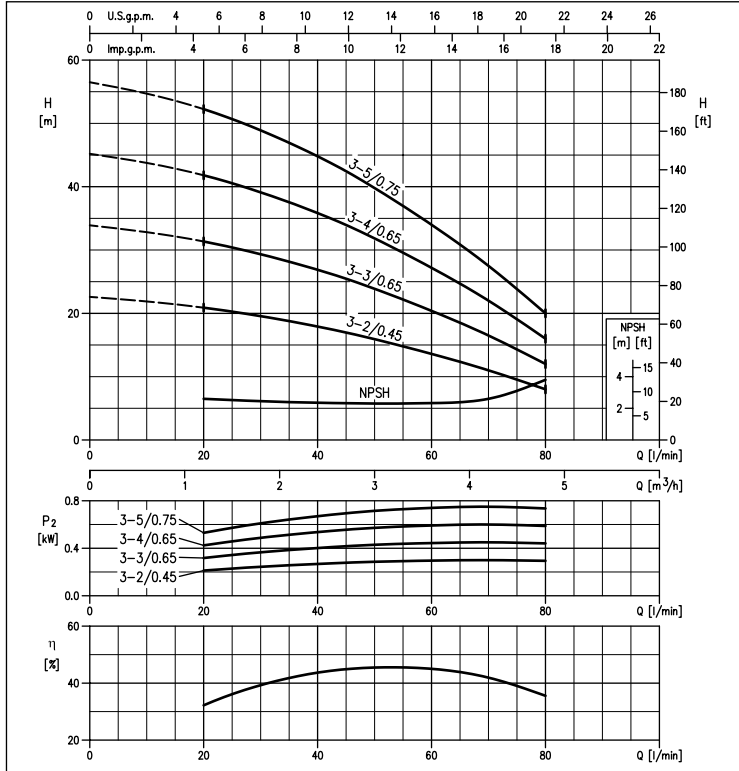
- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- 24 litre 16 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- FYG-32 5.6÷10.5 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Presso•Matic - Variable speed control system (230V±10% power supply single phase - 220V three phase output - maximum motor power 2.2 kW - 3 HP)
- E-drive - Frequency converter



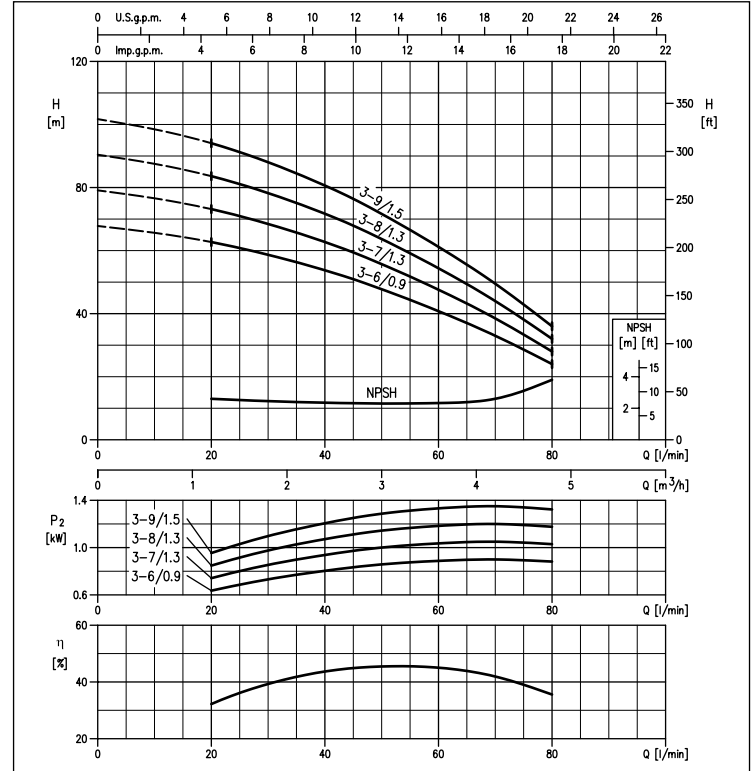
MATRIX

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in AISI 304

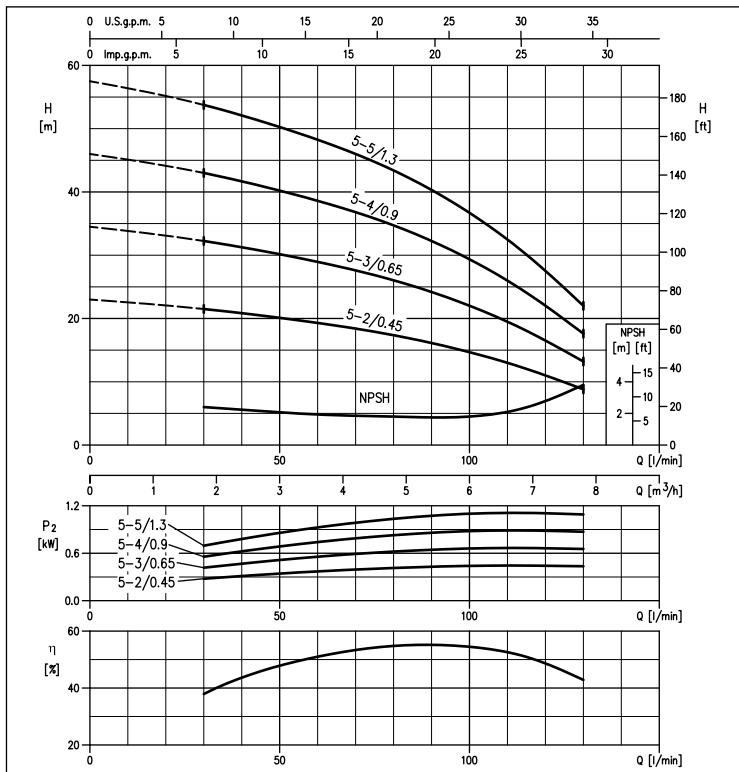
PERFORMANCE CURVES serie MATRIX 3 (from 2 to 5 impellers)
(according to ISO 9906 Attachment A)



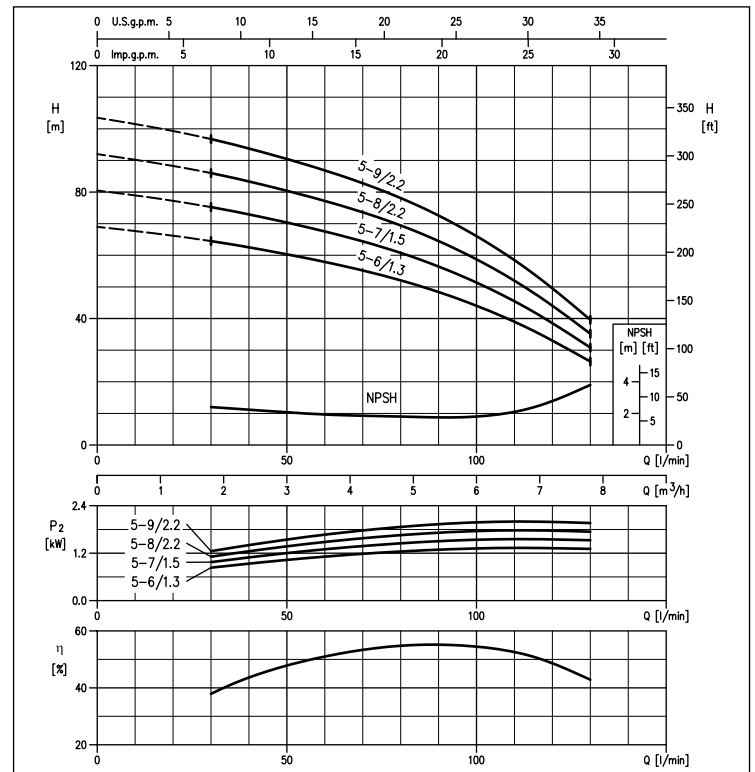
PERFORMANCE CURVES serie MATRIX 3 (from 6 to 9 impellers)
(according to ISO 9906 Attachment A)



PERFORMANCE CURVES serie MATRIX 5 (from 2 to 5 impellers)
(according to ISO 9906 Attachment A)



PERFORMANCE CURVES serie MATRIX 5 (from 6 to 9 impellers)
(according to ISO 9906 Attachment A)



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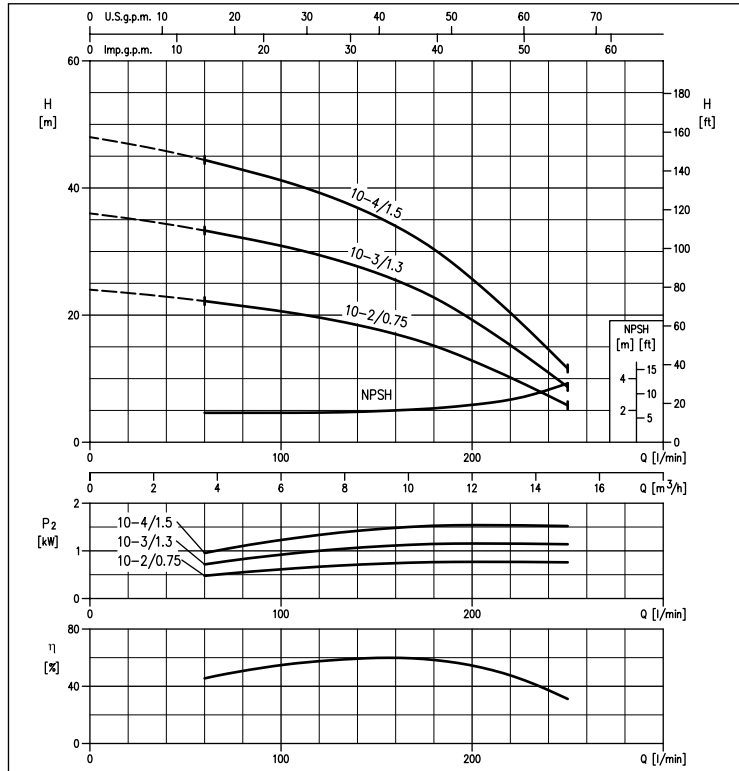


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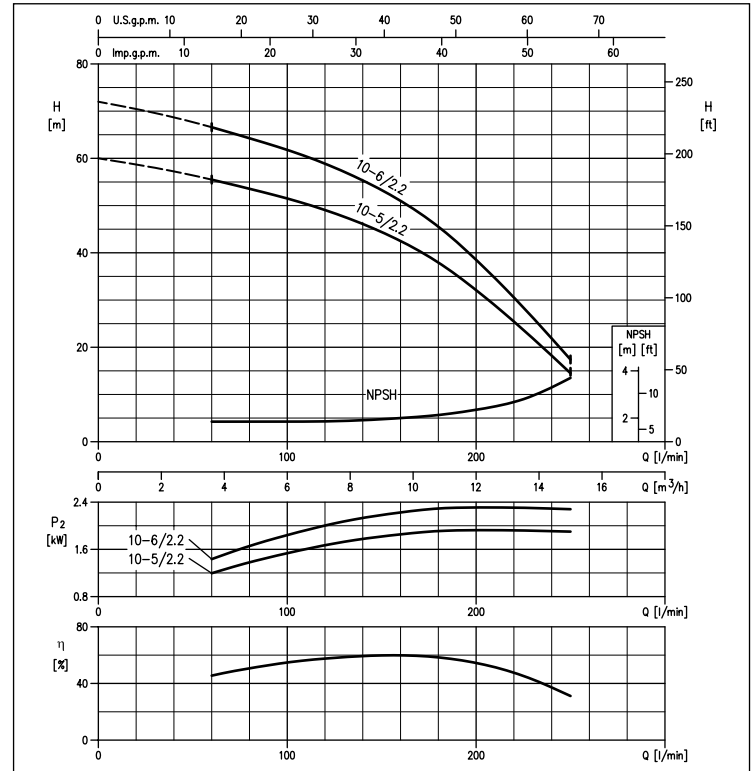
HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

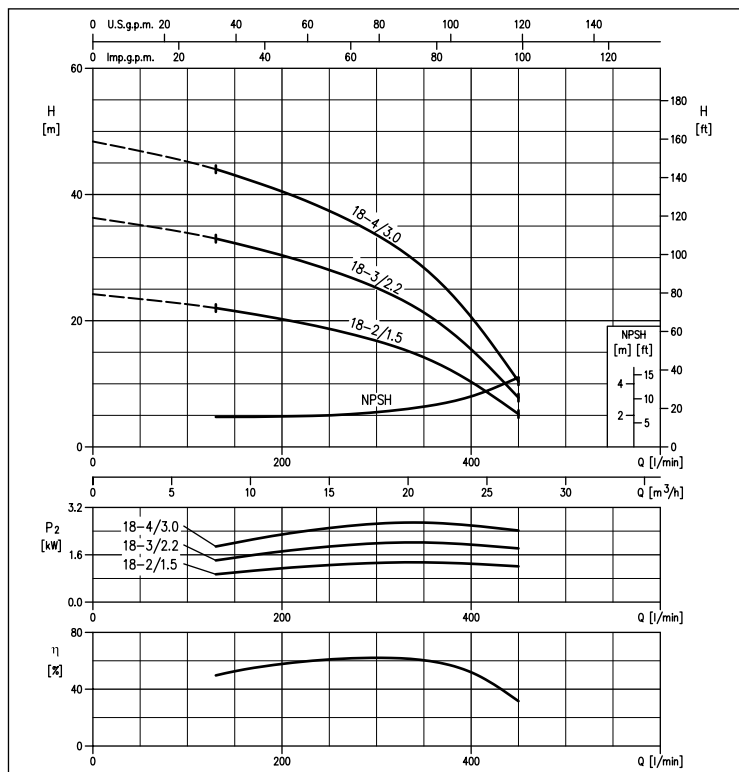
PERFORMANCE CURVES serie MATRIX 10 (from 2 to 4 impellers)
(according to ISO 9906 Attachment A)



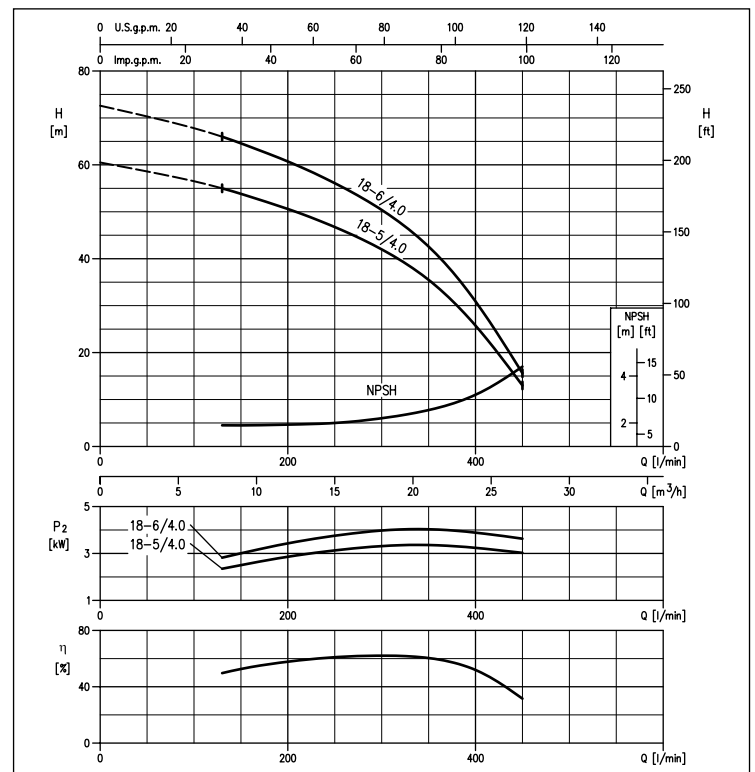
PERFORMANCE CURVES serie MATRIX 10 (5 and 6 impellers)
(according to ISO 9906 Attachment A)



PERFORMANCE CURVES serie MATRIX 18 (from 2 to 4 impellers)
(according to ISO 9906 Attachment A)



PERFORMANCE CURVES serie MATRIX 18 (5 and 6 impellers)
(according to ISO 9906 Attachment A)



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MATRIX

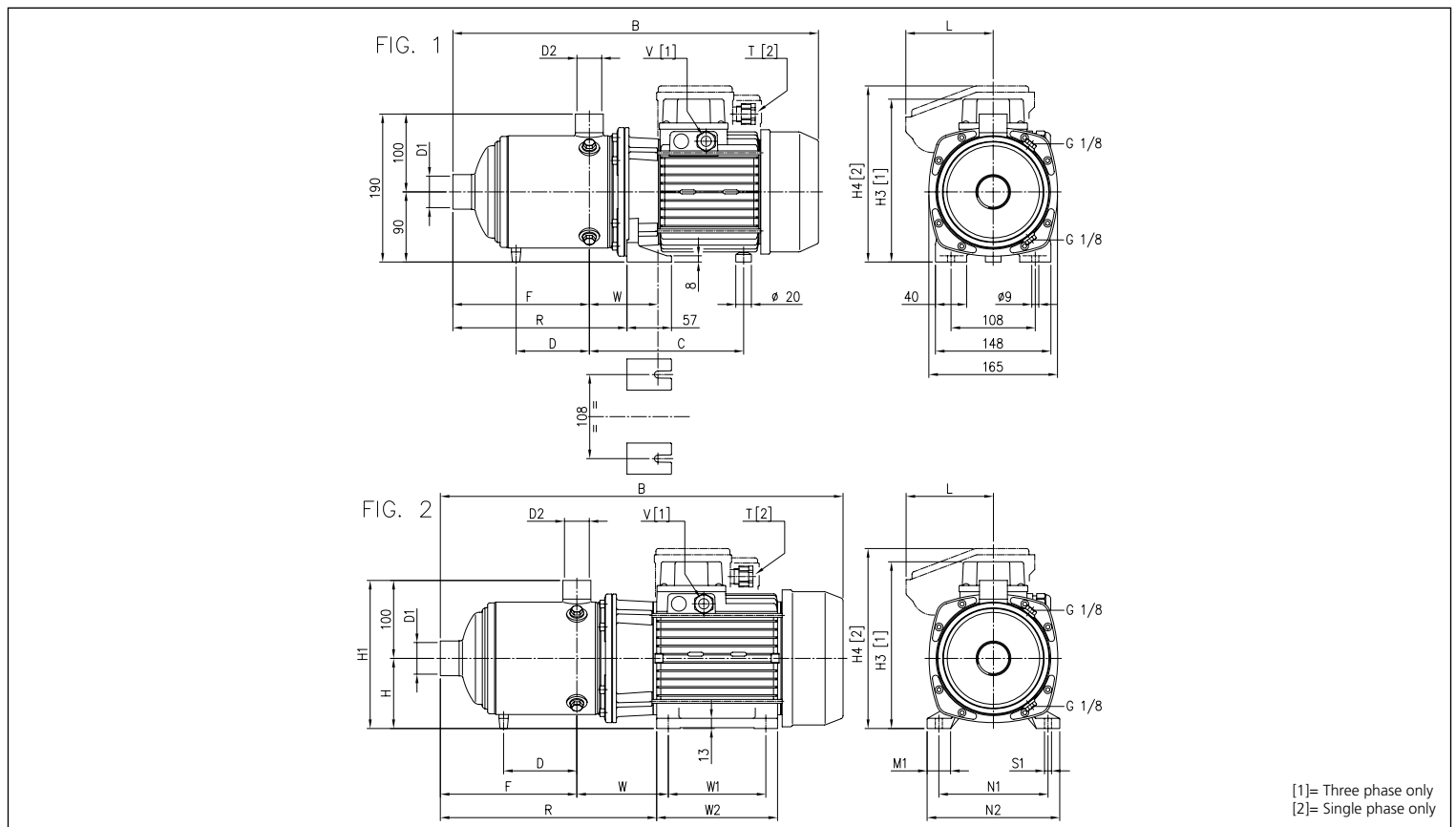
HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

PERFORMANCE TABLE

Single phase 230V	Model Three phase 230/400V	P ₂		Q=Flow rate														
		[HP]	[kW]	l/min	30	45	60	80	100	130	160	200	250	300	350	400	450	
				m ³ /h	1,2	1,8	2,7	3,6	4,8	6	7,8	9,6	12	15	18	21	24	27
				H=Head [m]														
MATRIX 3-2T/0.45M	MATRIX 3-2T/0.45	0,6	0,45	20,9	19,6	17,0	13,6	8,0	-	-	-	-	-	-	-	-	-	-
MATRIX 3-3T/0.65M	MATRIX 3-3T/0.65	0,9	0,65	31,4	29,3	25,5	20,4	12,0	-	-	-	-	-	-	-	-	-	-
MATRIX 3-4T/0.65M	MATRIX 3-4T/0.65	0,9	0,65	42,0	39,1	34,0	27,2	16,0	-	-	-	-	-	-	-	-	-	-
MATRIX 3-5T/0.75M	MATRIX 3-5T/0.75	1	0,75	52,5	49,0	42,5	34,0	20,0	-	-	-	-	-	-	-	-	-	-
MATRIX 3-6T/0.9M	MATRIX 3-6T/0.9	1,2	0,9	62,5	58,5	51,0	41,0	24,0	-	-	-	-	-	-	-	-	-	-
MATRIX 3-7T/1.3M	MATRIX 3-7T/1.3	1,8	1,3	73,0	68,5	59,5	47,5	28,0	-	-	-	-	-	-	-	-	-	-
MATRIX 3-8T/1.3M	MATRIX 3-8T/1.3	1,8	1,3	83,5	78,0	68,0	54,5	32,0	-	-	-	-	-	-	-	-	-	-
MATRIX 3-9T/1.5M	MATRIX 3-9T/1.5	2	1,5	94,0	88,0	76,5	61,0	36,0	-	-	-	-	-	-	-	-	-	-
MATRIX 5-2T/0.45M	MATRIX 5-2T/0.45	0,6	0,45	-	21,5	20,5	19,3	17,4	14,7	8,8	-	-	-	-	-	-	-	-
MATRIX 5-3T/0.65M	MATRIX 5-3T/0.65	0,9	0,65	-	32,3	30,7	29,0	26,0	22,0	13,2	-	-	-	-	-	-	-	-
MATRIX 5-4T/0.9M	MATRIX 5-4T/0.9	1,2	0,9	-	43,0	41,0	38,6	34,7	29,4	17,6	-	-	-	-	-	-	-	-
MATRIX 5-5T/1.3M	MATRIX 5-5T/1.3	1,8	1,3	-	54,0	51,0	48,5	43,5	36,7	22,0	-	-	-	-	-	-	-	-
MATRIX 5-6T/1.3M	MATRIX 5-6T/1.3	1,8	1,3	-	64,5	61,5	58,0	52,0	44,0	26,4	-	-	-	-	-	-	-	-
MATRIX 5-7T/1.5M	MATRIX 5-7T/1.5	2	1,5	-	75,5	72,0	67,5	61,0	51,5	30,8	-	-	-	-	-	-	-	-
MATRIX 5-8T/2.2M	MATRIX 5-8T/2.2	3	2,2	-	86,0	82,0	77,0	69,5	58,5	35,2	-	-	-	-	-	-	-	-
MATRIX 5-9T/2.2M	MATRIX 5-9T/2.2	3	2,2	-	97,0	92,0	87,0	78,0	66,0	39,6	-	-	-	-	-	-	-	-
MATRIX 10-2T/0.75M	MATRIX 10-2T/0.75	1	0,75	-	-	-	22,2	21,4	20,6	19,1	17,0	12,8	5,8	-	-	-	-	-
MATRIX 10-3T/1.3M	MATRIX 10-3T/1.3	1,8	1,3	-	-	-	33,3	32,1	30,9	28,6	25,5	19,3	8,7	-	-	-	-	-
MATRIX 10-4T/1.5M	MATRIX 10-4T/1.5	2	1,5	-	-	-	44,5	43,0	41,0	38,1	34,0	25,7	11,6	-	-	-	-	-
MATRIX 10-5T/2.2M	MATRIX 10-5T/2.2	3	2,2	-	-	-	55,5	53,5	51,5	47,5	42,5	32,1	14,5	-	-	-	-	-
MATRIX 10-6T/2.2M	MATRIX 10-6T/2.2	3	2,2	-	-	-	66,5	64,5	62,0	57,0	51,0	38,5	17,4	-	-	-	-	-
MATRIX 18-2T/1.5M	MATRIX 18-2T/1.5	2	1,5	-	-	-	-	-	-	22,0	21,3	20,2	18,7	16,8	14,2	10,3	5,2	-
MATRIX 18-3T/2.2M	MATRIX 18-3T/2.2	3	2,2	-	-	-	-	-	-	33,0	31,9	30,4	28,1	25,2	21,3	15,5	7,8	-
	MATRIX 18-4T/3	4	3	-	-	-	-	-	-	44,0	42,5	40,5	37,4	33,6	28,4	20,6	10,4	-
	MATRIX 18-5T/4	5,5	4	-	-	-	-	-	-	55,0	53,0	50,5	47,0	42,0	35,5	25,8	13,0	-
	MATRIX 18-6T/4	5,5	4	-	-	-	-	-	-	66,0	64,0	60,5	56,0	50,5	42,5	30,9	15,6	-

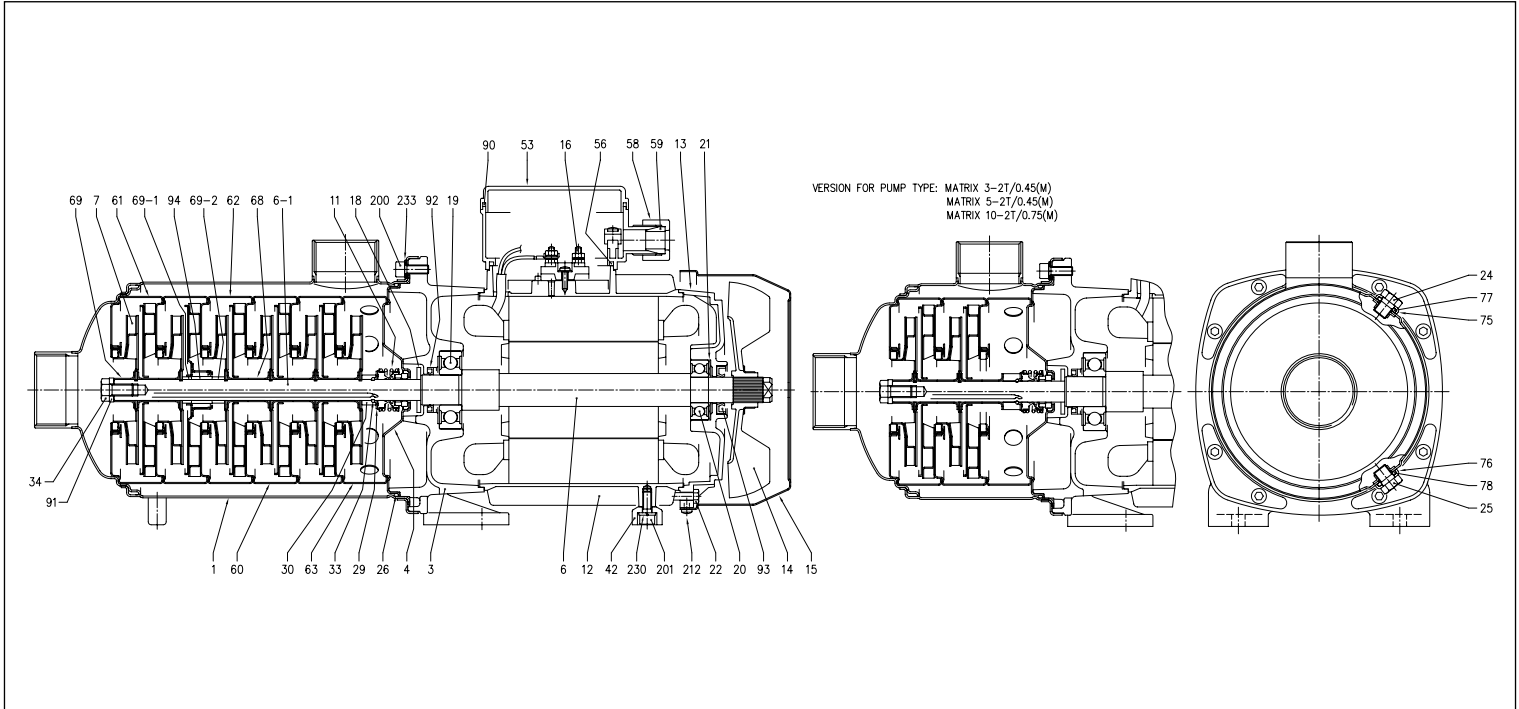
DIMENSIONS



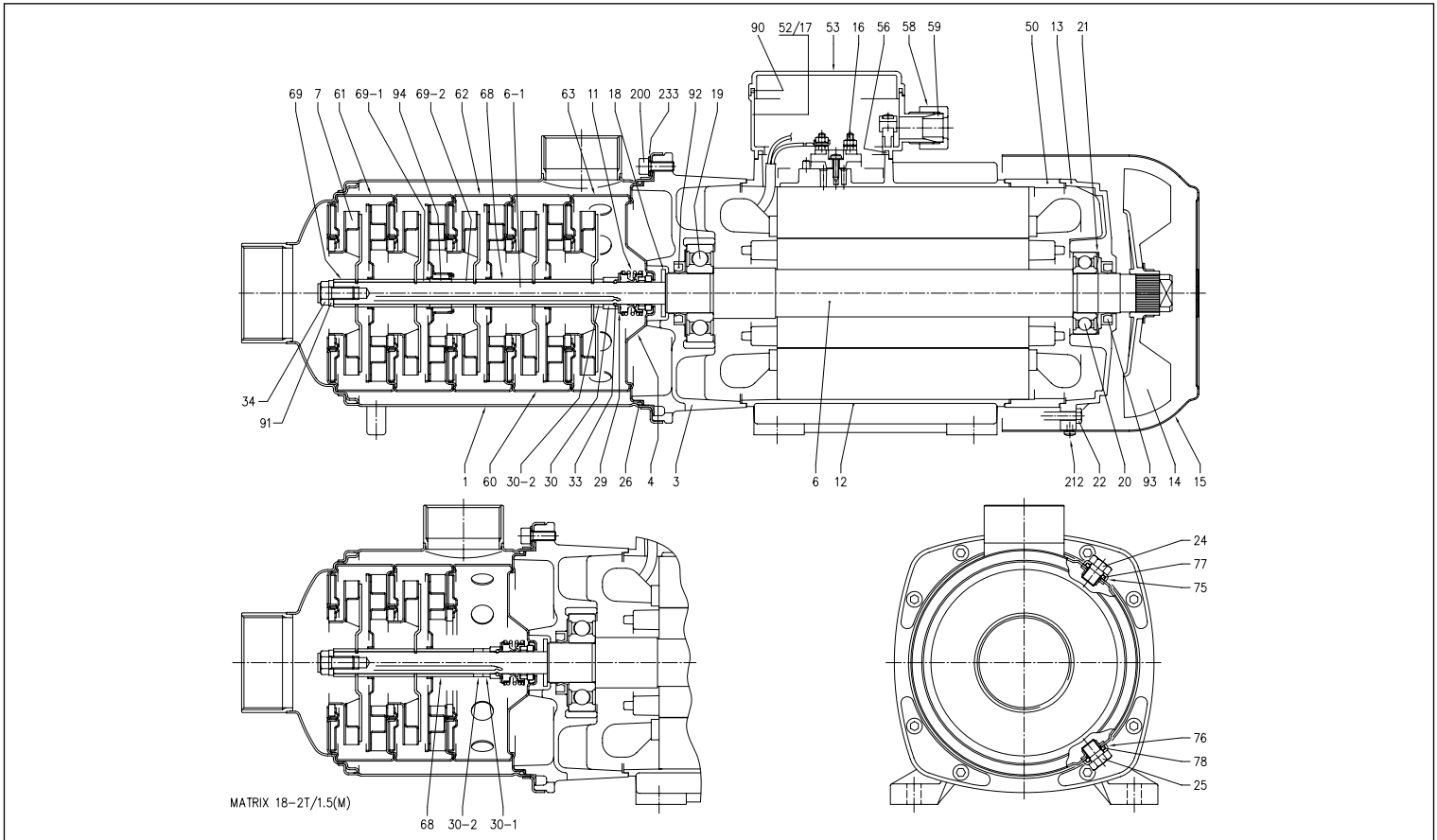
MATRIX

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in AISI 304

MATRIX 3-5-10 SECTIONAL VIEW



MATRIX 18 SECTIONAL VIEW



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HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

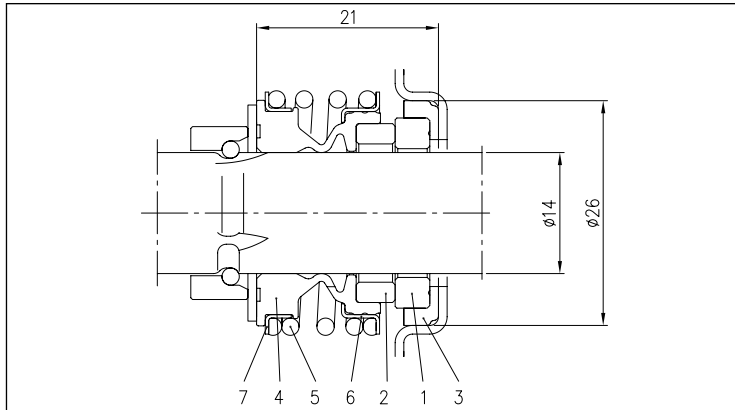
MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	EN 1.4301 (AISI 304)	42	Foot	Aluminium
3	Motor support	EN AB-AISI11Cu2(Fe)	50	Motore spacer [2]	Aluminium
4	Seal housing disc	EN 1.4301 (AISI 304)	52	Capacitor-holder box [1]	ABS
6	Rotor shaft	-	53	Capacitor-holder box cover [1]	ABS
6-1	Pump shaft	EN 1.4301 (AISI 304)	56	Box gasket	NBR
7	Impeller	EN 1.4301 (AISI 304)	58	Nut ring	-
11	Mechanical seal	Ceramic/Carbon/EPDM	59	Conic gasket	NBR
12	Motor case	-	60	Intermediate stage	EN 1.4301 (AISI 304)+PTFE
13	Motor cover	Aluminium	61	Intermediate stage (suction)	EN 1.4301 (AISI 304)+PTFE
14	Fan	PA	62	Intermediate stage (bearing)	EN 1.4301 (AISI 304) + PTFE + Ceramic
15	Fan cover	Galvanised Fe P04	63	Intermediate stage (discharge)	EN 1.4301 (AISI 304) + PTFE
16	Terminal box	-	68	Shaft casing (intermediate)	EN 1.4301 (AISI 304)
17	Terminal box cover	Aluminium	69	Impeller spacer	EN 1.4301 (AISI 304)
18	Spray protector ring	NBR	69-1	Shaft casing (adapter)	EN 1.4301 (AISI 304)
19	Bearing (pump side)	-	69-2	Shaft casing (adapter)	EN 1.4301 (AISI 304)
20	Bearing (motor side)	-	75	Washer	EN 1.4301 (AISI 304)
21	Adjusting ring	Steel C70	76	Washer	EN 1.4301 (AISI 304)
22	Tie-rod	Galvanised Fe 42	77	O-Ring	EPDM
24	Filler cap	EN 1.4301 (AISI 304)	78	O-Ring	EPDM
25	Drain plug	EN 1.4301 (AISI 304)	90	Terminal box cover [1]	NBR
26	O-Ring	EPDM	91	Shaft washer	EN 1.4301 (AISI 304)
29	Washer	EN 1.4301 (AISI 304)	92	Sealing ring	-
30	Holder ring	EN 1.4301 (AISI 304)	93	Sealing ring	-
30-1/2	Shaft casing	EN 1.4301 (AISI 304)	94	Guide bush	WC - Tungsten carbide
33	Ring	EN 1.4301 (AISI 304)	200	Screw (Pump body)	EN 1.4301 (AISI 304)
34	Screw	EN 1.4301 (AISI 304)	233	Plate	EN 1.4301 (AISI 304)

[1]= Single phase only

[2]= MATRIX 18-5T/4 and MATRIX 18-6T/4 only

MECHANICAL SEAL standard



MATERIALS TABLE standard

Ref.	Name	Material
1	Fixed part	Ceramic
2	Rotating part	Carbon
3	Gasket	EPDM
4	Diaphragm	EPDM
5	Spring	EN 1.4402 (AISI 316)
6	Structure/frame	EN 1.4402 (AISI 316)
7	Retainer ring	EN 1.4402 (AISI 316)

SPECIAL MECHANICAL SEALS (on request)

Ref.	Name	Material			
		TE Version	H Version	HS Version	U3Q1EGG Version
1	Fixed part	Ceramic	Carbon	SiC	Tungsten carbide
2	Rotating part	Carbon	Ceramic	SiC	SiC
3	Gasket	EPDM	FPM	FPM	EPDM
4	Diaphragm	EPDM	FPM	FPM	EPDM
5	Spring	EPDM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)
6	Structure/frame	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)
7	Retainer ring	EN 1.4402 (AISI 304)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

ELECTRIC DATA TABLE

Model		P ₂		Efficiency		Capacitor		Efficiency			P ₁		Absorbed Current [A]		
Single phase 230V	Three phase 230/400V	[HP]	[kW]	Single phase	Three phase	Single phase μF	V _c	Three phase			Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase	
								50%	75%	100%				230V	230V
MATRIX 3-2T/0.45M	MATRIX 3-2T/0.45	0,6	0,45	-	-	12,5	450	-	-	-	0,73	0,72	3,2	2,3	1,3
MATRIX 3-3T/0.65M	MATRIX 3-3T/0.65	0,9	0,65	-	-	16	450	-	-	-	0,97	0,85	4,5	2,8	1,6
MATRIX 3-4T/0.65M	MATRIX 3-4T/0.65	0,9	0,65	-	-	16	450	-	-	-	0,97	0,85	4,5	2,8	1,6
MATRIX 3-5T/0.75M	MATRIX 3-5T/0.75	1,0	0,75	-	IE2	25	450	77,2	80,9	81,3	1,14	0,92	5,4	3,0	1,7
MATRIX 3-6T/0.9M	MATRIX 3-6T/0.9	1,2	0,9	-	IE2	31,5	450	79,0	81,7	81,6	1,28	1,35	5,7	4,3	2,5
MATRIX 3-7T/1.3M	MATRIX 3-7T/1.3	1,8	1,3	-	IE2	35	450	79,7	82,5	83,0	1,75	1,80	7,8	5,6	3,2
MATRIX 3-8T/1.3M	MATRIX 3-8T/1.3	1,8	1,3	-	IE2	35	450	79,7	82,5	83,0	1,75	1,80	7,8	5,6	3,2
MATRIX 3-9T/1.5M	MATRIX 3-9T/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
MATRIX 5-2T/0.45M	MATRIX 5-2T/0.45	0,6	0,45	-	-	12,5	450	-	-	-	0,73	0,72	3,2	2,3	1,3
MATRIX 5-3T/0.65M	MATRIX 5-3T/0.65	0,9	0,65	-	-	16	450	-	-	-	0,97	0,85	4,5	2,8	1,6
MATRIX 5-4T/0.9M	MATRIX 5-4T/0.9	1,2	0,9	-	IE2	31,5	450	79,0	81,7	81,6	1,28	1,35	5,7	4,3	2,5
MATRIX 5-5T/1.3M	MATRIX 5-5T/1.3	1,8	1,3	-	IE2	35	450	79,7	82,5	83,0	1,75	1,80	7,8	5,6	3,2
MATRIX 5-6T/1.3M	MATRIX 5-6T/1.3	1,8	1,3	-	IE2	35	450	79,7	82,5	83,0	1,75	1,80	7,8	5,6	3,2
MATRIX 5-7T/1.5M	MATRIX 5-7T/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
MATRIX 5-8T/2.2M	MATRIX 5-8T/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,2	4,7
MATRIX 5-9T/2.2M	MATRIX 5-9T/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,2	4,7
MATRIX 10-2T/0.75M	MATRIX 10-2T/0.75	1,0	0,75	-	IE2	25	450	77,2	80,9	81,3	1,14	0,92	5,4	3,0	1,7
MATRIX 10-3T/1.3M	MATRIX 10-3T/1.3	1,8	1,3	-	IE2	35	450	79,7	82,5	83,0	1,75	1,80	7,8	5,6	3,2
MATRIX 10-4T/1.5M	MATRIX 10-4T/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
MATRIX 10-5T/2.2M	MATRIX 10-5T/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,2	4,7
MATRIX 10-6T/2.2M	MATRIX 10-6T/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,2	4,7
MATRIX 18-2T/1.5M	MATRIX 18-2T/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
MATRIX 18-3T/2.2M	MATRIX 18-3T/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,2	4,7
-	MATRIX 18-4T/3	4,0	3	-	IE2	-	-	85,0	86,7	86,3	-	3,48	-	10,6	6,1
-	MATRIX 18-5T/4	5,5	4	-	IE2	-	-	84,3	87,2	87,8	-	4,56	-	15,1	8,7
-	MATRIX 18-6T/4	5,5	4	-	IE2	-	-	84,3	87,2	87,8	-	4,56	-	15,1	8,7

NOISE DATA TABLE

Model		P ₂		L _{pa} - dB(A)*
Single phase 230V	Three phase 230/400V	[HP]	[kW]	
				MATRIX 3-2T/0.45M
MATRIX 3-3T/0.65M	MATRIX 3-3T/0.65	0,9	0,65	
MATRIX 3-4T/0.65M	MATRIX 3-4T/0.65	0,9	0,65	
MATRIX 3-5T/0.75M	MATRIX 3-5T/0.75	1,0	0,75	62
MATRIX 3-6T/0.9M	MATRIX 3-6T/0.9	1,2	0,9	
MATRIX 3-7T/1.3M	MATRIX 3-7T/1.3	1,8	1,3	
MATRIX 3-8T/1.3M	MATRIX 3-8T/1.3	1,8	1,3	64
MATRIX 3-9T/1.5M	MATRIX 3-9T/1.5	2,0	1,5	
MATRIX 5-2T/0.45M	MATRIX 5-2T/0.45	0,6	0,45	
MATRIX 5-3T/0.65M	MATRIX 5-3T/0.65	0,9	0,65	
MATRIX 5-4T/0.9M	MATRIX 5-4T/0.9	1,2	0,9	
MATRIX 5-5T/1.3M	MATRIX 5-5T/1.3	1,8	1,3	64
MATRIX 5-6T/1.3M	MATRIX 5-6T/1.3	1,8	1,3	
MATRIX 5-7T/1.5M	MATRIX 5-7T/1.5	2,0	1,5	
MATRIX 5-8T/2.2M	MATRIX 5-8T/2.2	3,0	2,2	65
MATRIX 5-9T/2.2M	MATRIX 5-9T/2.2	3,0	2,2	
MATRIX 10-2T/0.75M	MATRIX 10-2T/0.75	1,0	0,75	
MATRIX 10-3T/1.3M	MATRIX 10-3T/1.3	1,8	1,3	
MATRIX 10-4T/1.5M	MATRIX 10-4T/1.5	2,0	1,5	
MATRIX 10-5T/2.2M	MATRIX 10-5T/2.2	3,0	2,2	65
MATRIX 10-6T/2.2M	MATRIX 10-6T/2.2	3,0	2,2	
MATRIX 18-2T/1.5M	MATRIX 18-2T/1.5	2,0	1,5	
MATRIX 18-3T/2.2M	MATRIX 18-3T/2.2	3,0	2,2	
-	MATRIX 18-4T/3	4,0	3	68
-	MATRIX 18-5T/4	5,5	4	
-	MATRIX 18-6T/4	5,5	4	

* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

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
- Moving 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 website www.ebaraeurope.com

MOTOR TECHNICAL DATA

- High efficiency motor IE2 starting from 0,75 kW
- Self-ventilated 2 poles 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-amperometric 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 Carbon/Ceramic/NBR

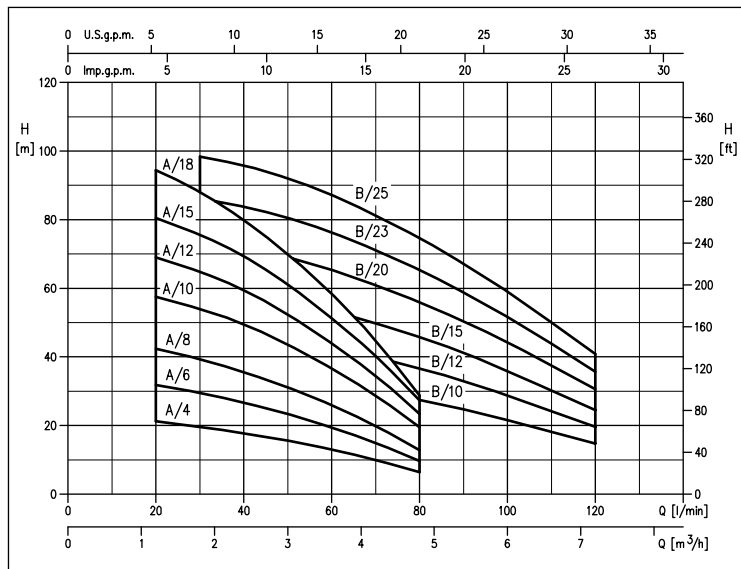
CONTROL PANELS

- 1EP
- 1EPBH

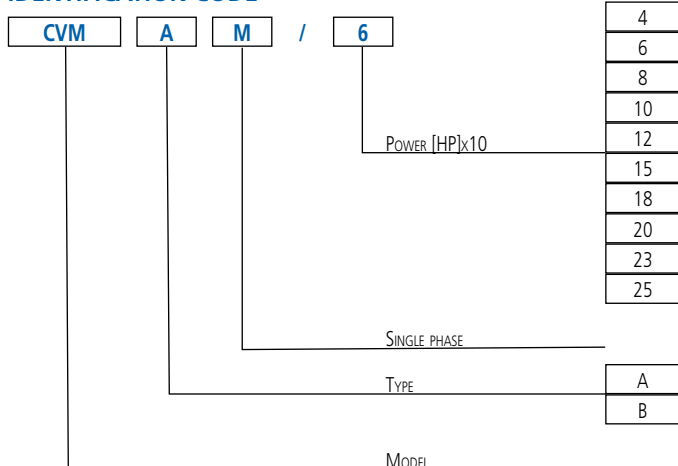
ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- 24 litre 16 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- FYG-32 5.6÷10.5 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase power supply three phase 220V output – maximum motor power 2.2 kW - 3 HP)
- E-drive - Frequency converter

PERFORMANCE CURVES (according to ISO 9906 Attachment A)

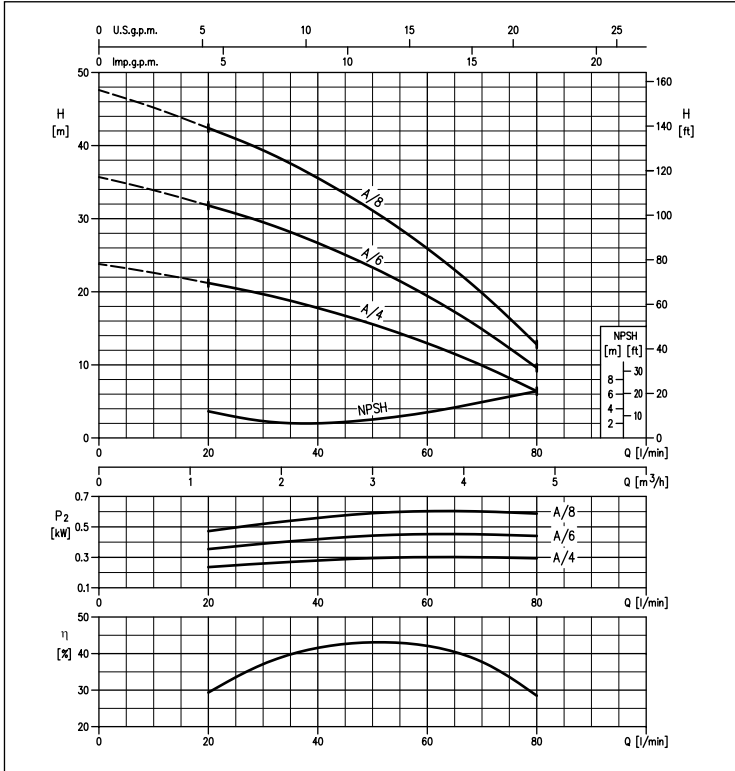


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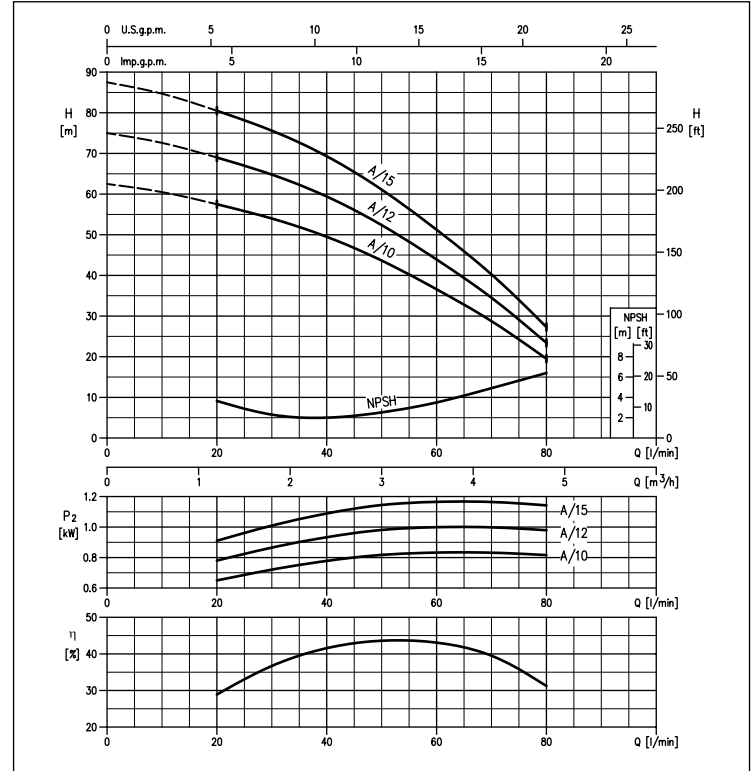


VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in cast iron

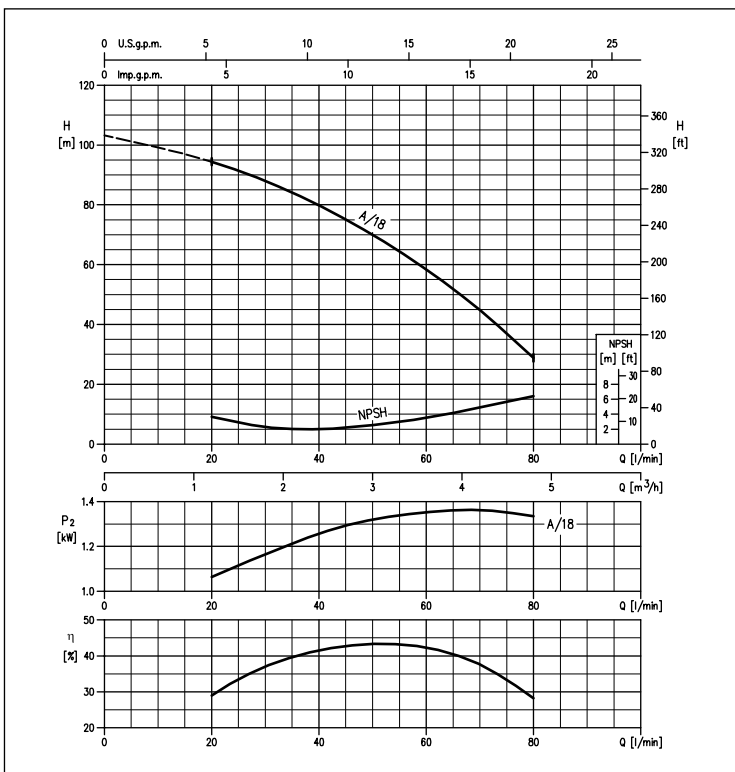
PERFORMANCE CURVES serie CVM A (from 0,3 to 0,6 kW)
(according to ISO 9906 Attachment A)



PERFORMANCE CURVES serie CVM A (from 0,75 to 1,1 kW)
(according to ISO 9906 Attachment A)



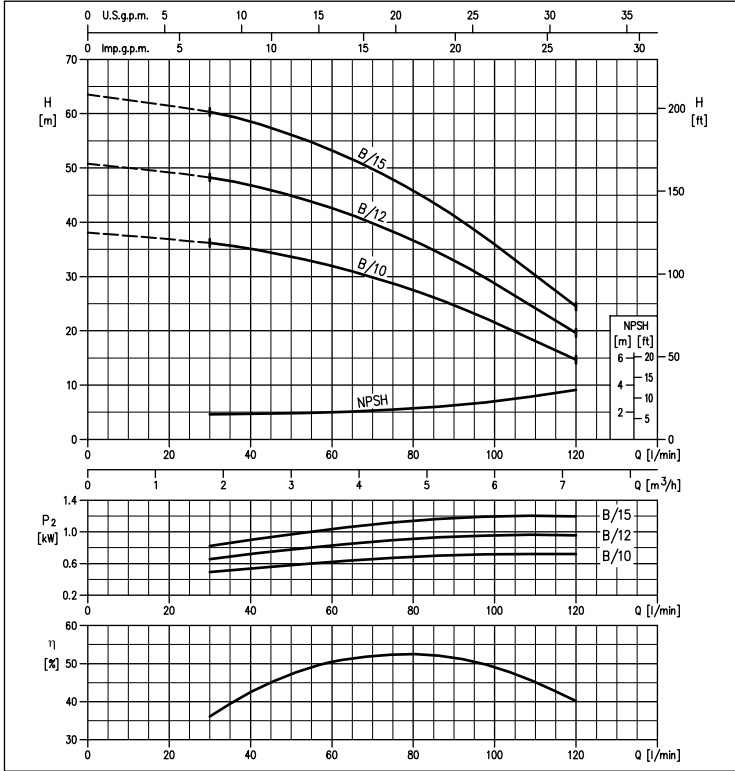
PERFORMANCE CURVES serie CVM A (1,3 kW)
(according to ISO 9906 Attachment A)



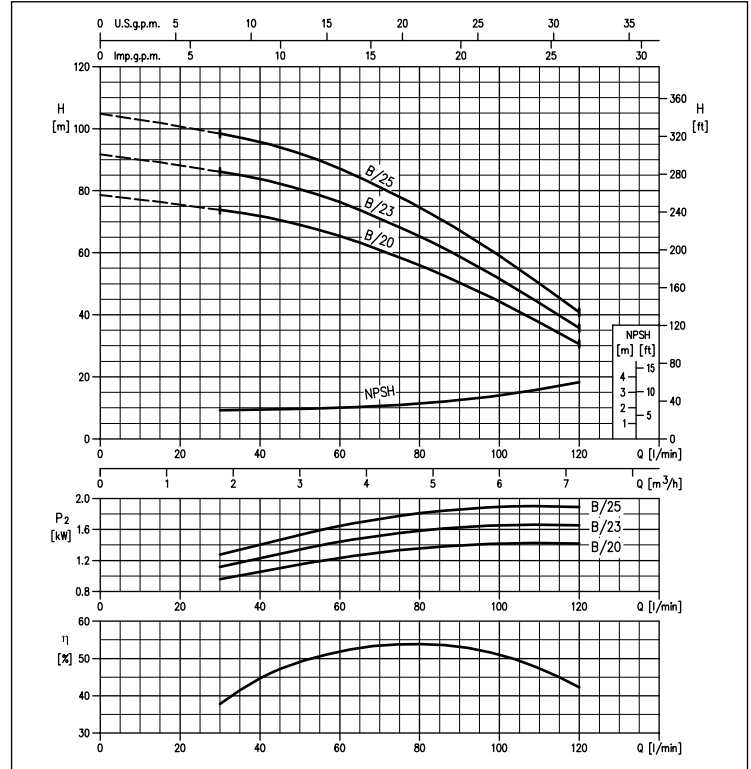
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VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in cast iron

PERFORMANCE CURVES serie CVM B (from 0,75 to 1,1 kW)
(according to ISO 9906 Attachment A)



PERFORMANCE CURVES serie CVM B (from 1,5 to 1,85 kW)
(according to ISO 9906 Attachment A)



PERFORMANCE TABLE

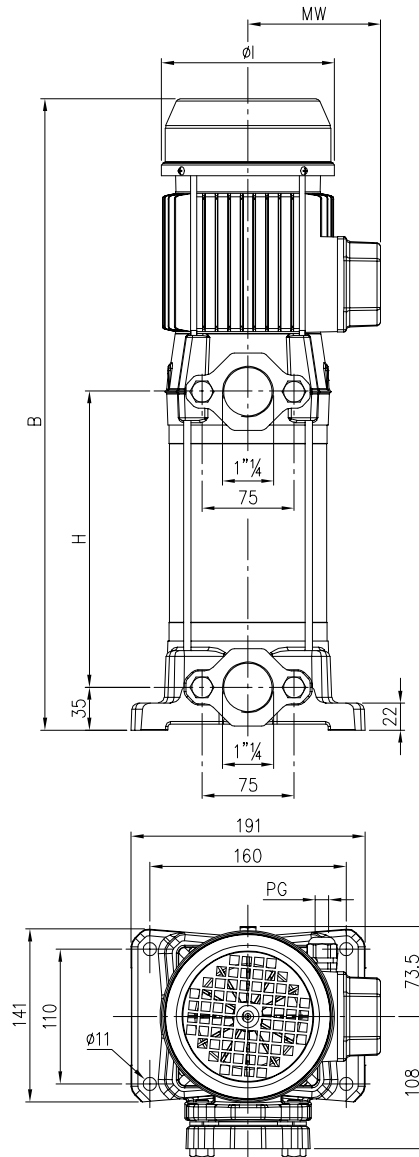
Single phase 230V	Model Three phase 230/400V	P ₂		Q=Flow rate												
		[HP]	[kW]	l/min	20	30	40	50	60	80	100	120				
				m ³ /h	1,2	1,8	2,4	3	3,6	4,8	6	7,2				
				H=Head [m]												
CVM AM/4	CVM A/4	0,4	0,3	-	21,2	19,7	17,8	15,6	13,0	6,4	-	-	-	-	-	
CVM AM/6	CVM A/6	0,6	0,44	-	31,8	29,5	26,7	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



[1]= Three phase only
[2]= Single phase only

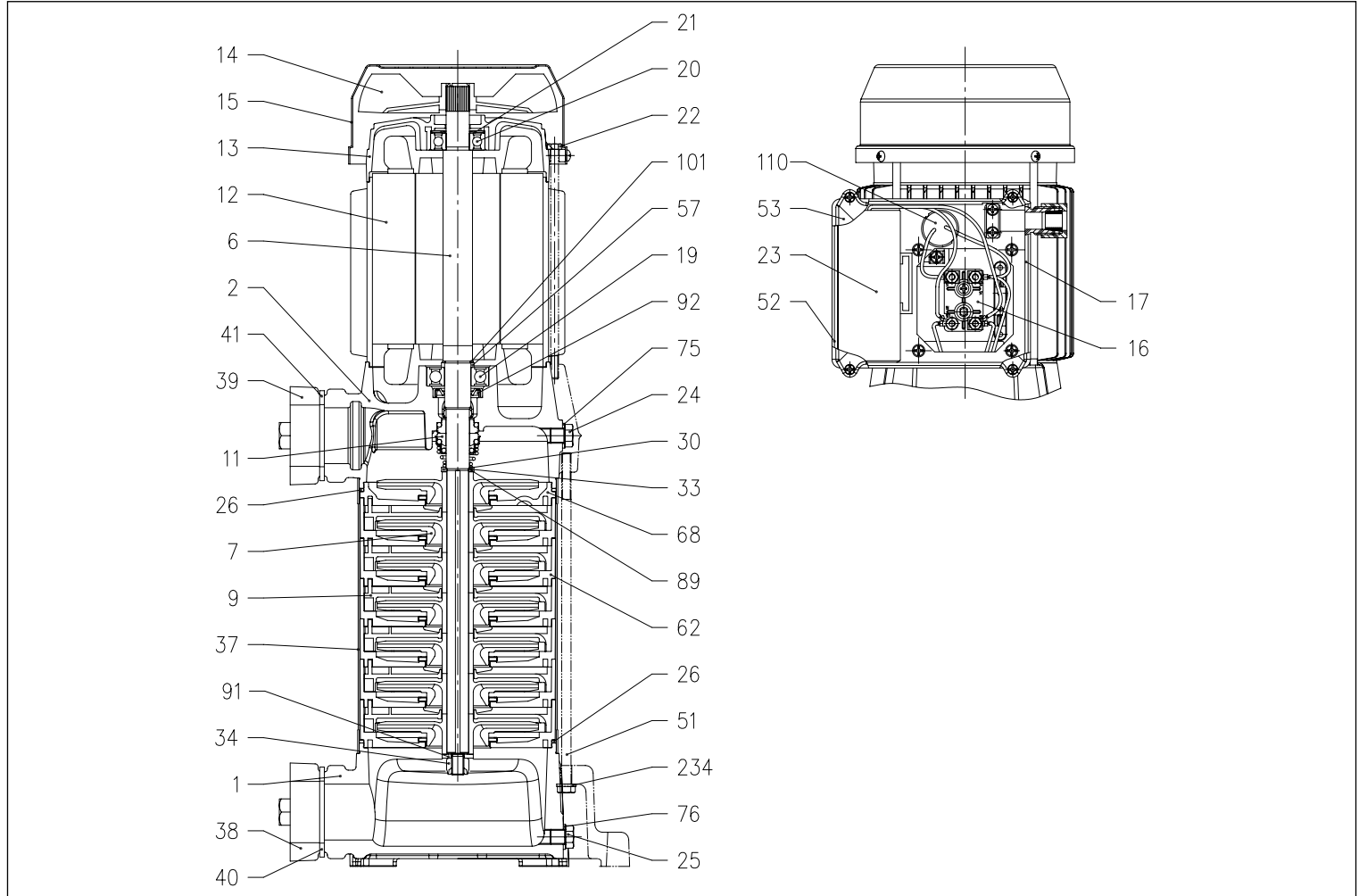
DIMENSIONS TABLE

Model		Motor Mec	Dimensions [mm]										Weight [kg]	
Single phase 230V	Three phase 230/400V		[2]	B	[1]	H	ØI	[2]	MW	[1]	[2]	PG	[1]	[2]
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	190	141	110,5	101	11	11	16,5	16,6		
CVM AM/12	CVM A/12	71	478	490	216	141	110,5	101	11	11	17,5	18,4		
CVM AM/15	CVM A/15	71	516	516	242	141	110,5	101	11	11	18,5	18,6		
CVM AM/18	CVM A/18	80	565	565	268	159	136	120,5	13,5	11	21,2	21,8		
CVM BM/10	CVM B/10	71	400	400	138	141	110,5	101	11	11	15,9	15,9		
CVM BM/12	CVM B/12	71	426	438	164	141	110,5	101	11	11	16,8	17,5		
CVM BM/15	CVM B/15	71	464	464	190	141	110,5	101	11	11	18,0	17,9		
CVM BM/20	CVM B/20	80	513	526	216	159	134,5	120,5	13,5	11	21,3	22,8		
CVM BM/23	CVM B/23	80	552	552	242	159	134,5	120,5	13,5	11	22,6	23,4		
-	CVM B/25	80	-	578	268	159	-	120,5	-	11	-	23,7		

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VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in cast iron

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	Nozzle	PPE+PS reinforced with fibreglass	38	Counter-flange	Cast iron EN-GJL-200-EN 1561
11	Mechanical seal	Carbon/Ceramic/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]	Stainless 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	Adjusting 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	Motorprotector [4]	-
			234	Washer	Galvanised steel

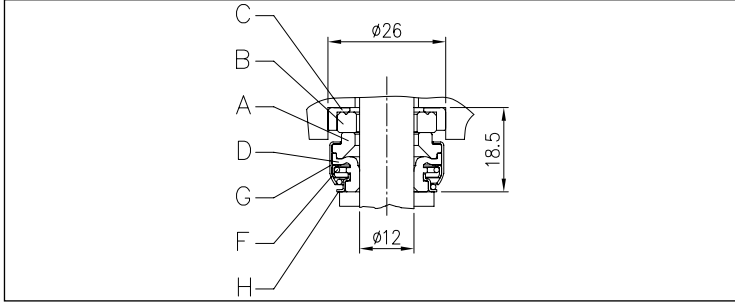
[1]= For three phase only [2]= For single phase only [3]= Only for motor size 80

[4]= Only for motor size 71 and 80 single phase

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in cast iron

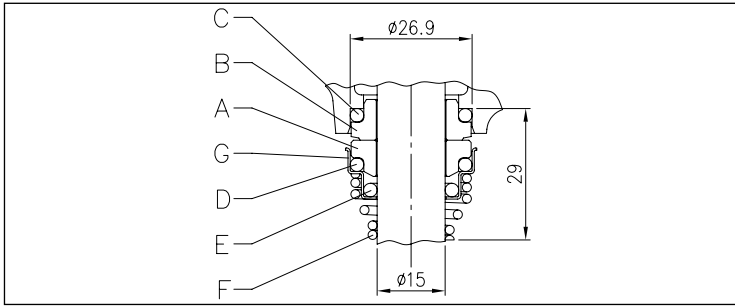
MECHANICAL SEAL for CVM up to 0,6 kW



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 up to 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 ₂		Efficiency		Capacitor		Efficiency (%)			P ₁		Absorbed Current [A]		
			[HP]	[kW]	Single phase	Three phase	Single phase	V _c	Three phase			Single phase	Three phase	Single phase	Three phase	
							μF		50%	75%	100%	[kW]	[kW]	230V	230V	400V
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
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
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
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
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
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
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
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
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
-	CVM B/25		2,5	1,85	-	IE2	-	-	83,0	84,4	83,8	-	2,63	-	8,1	4,7

NOISE DATA TABLE

Model	Single phase 230V	Three phase 230/400V	P ₂		L _{pa} - dB(A)*
			[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	

* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

MULTIGO

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304



MULTIGO

MULTIGO IN-LINE



AISI 304 vertical multistage centrifugal electric pumps.

APPLICATIONS

- Boosting of domestic and community hydraulic plants
- Moving liquids in places subject to flooding
- Supplying fountains
- Water games
- Sprinkling irrigation of small vegetable patches and gardens

TECHNICAL DETAILS

- Reliable
- Silent
- Equipped with motor cooled by the flow of moving water
- Twin mechanical seal with interposed oil chamber containing the lubrication liquid that ensures long duration
- Equipped with 5 m of H07 RN-F power supply cable
- Also available in the in-line version (only for single-phase version)

PUMP TECHNICAL DATA

- Maximum working pressure: 10 bar
 - Maximum temperature of the liquid: 40°C
 - Maximum suction depth: 6 m
 - G1¼ suction and discharge connection
 - MEI > 0,4
- For further information please see our Data Book on the website www.ebaraurope.com

MOTOR TECHNICAL DATA

- Asynchronous motor cooled via the moving liquid
- Class of insulation F
- IP68 Protection degree
- 230V ±10%, 50Hz single phase voltage
- 230V ±10%, 50Hz three phase voltage (except MULTIGO 40/15)
- 400V ±10%, 50Hz three phase voltage
- Permanent capacitor inserted and thermo-amprometric protection with automatic rearm incorporated for the single phase motor
- Protection under user's responsibility for the three phase version

MATERIALS

- Pump casing, seal housing disc, external casing and motor cover in AISI 304
- Impeller and diffuser in PPE+PS reinforced with fibreglass
- Shaft in AISI 416
- Mechanical seal in Carbon/Ceramic/NBR

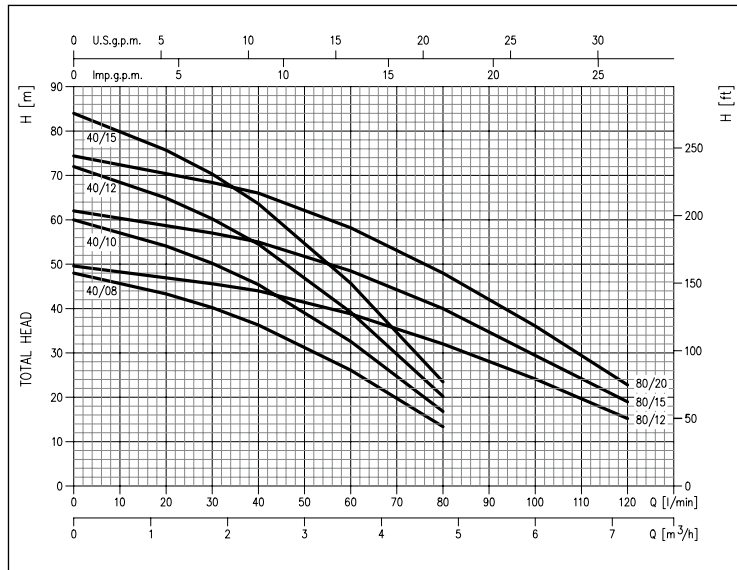
CONTROL PANELS

- 1EP
- 1EPBH

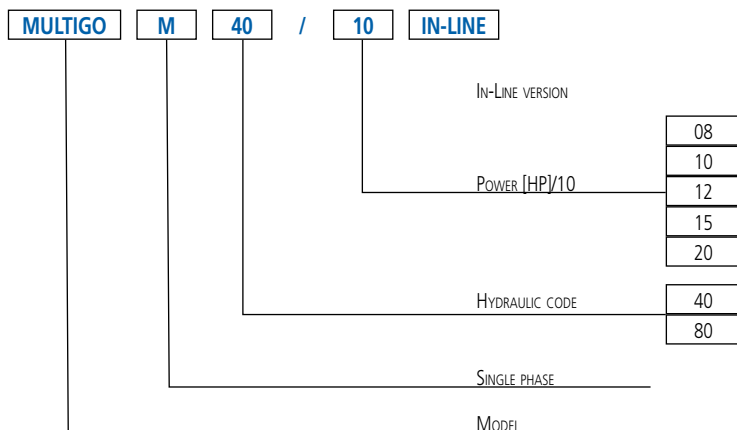
ACCESSORIES (on request)

- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- 24 litre 16 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- FYG-32 5.6÷10.5 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output - maximum motor power 2.2 kW - 3 HP)
- E-drive - Frequency converter

PERFORMANCE CURVES (according to ISO 9906 Attachment A)



IDENTIFICATION CODE



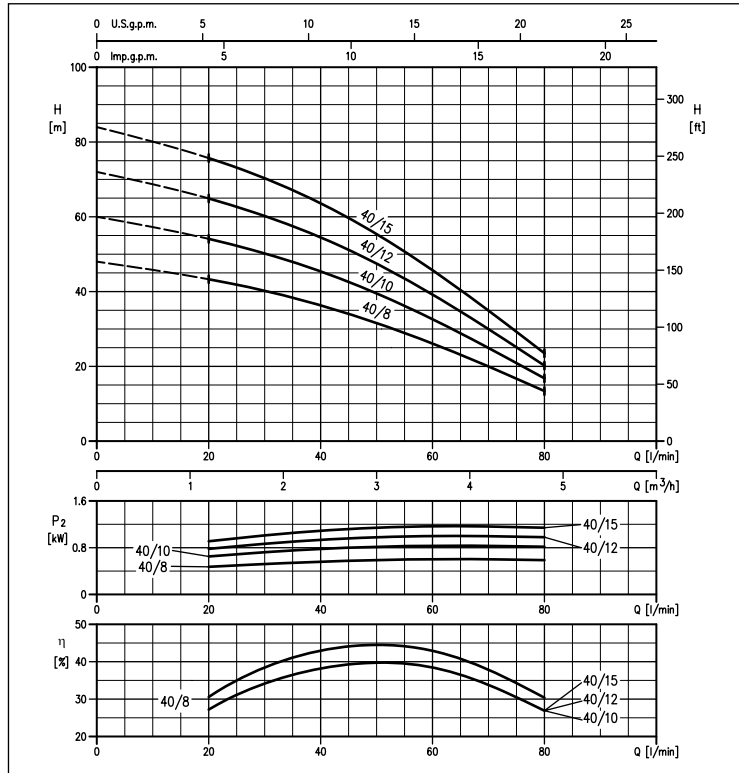
MULTIGO

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

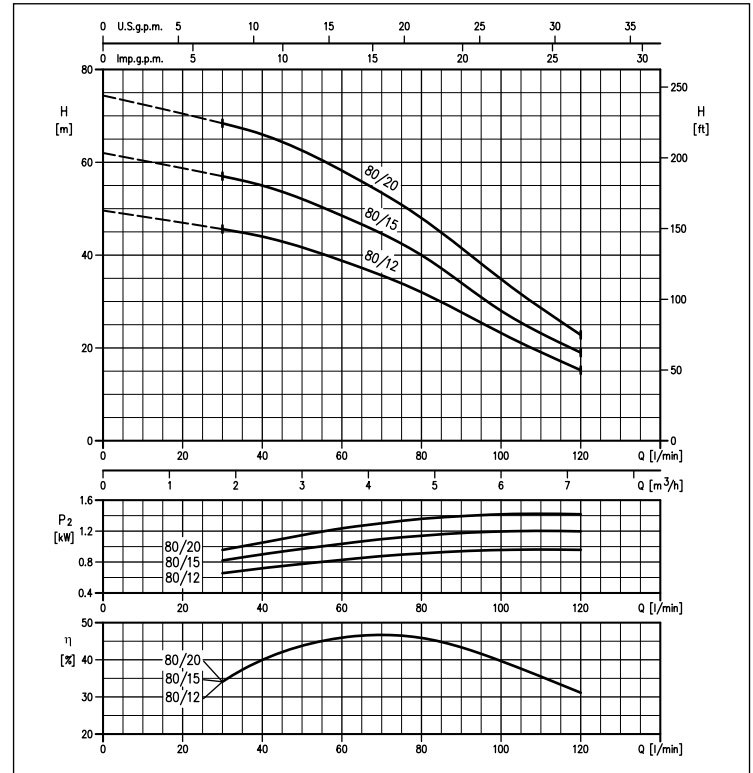
PERFORMANCE CURVES MULTIGO 40 series

(according to ISO 9906 Attachment A)



PERFORMANCE CURVES MULTIGO 80 series

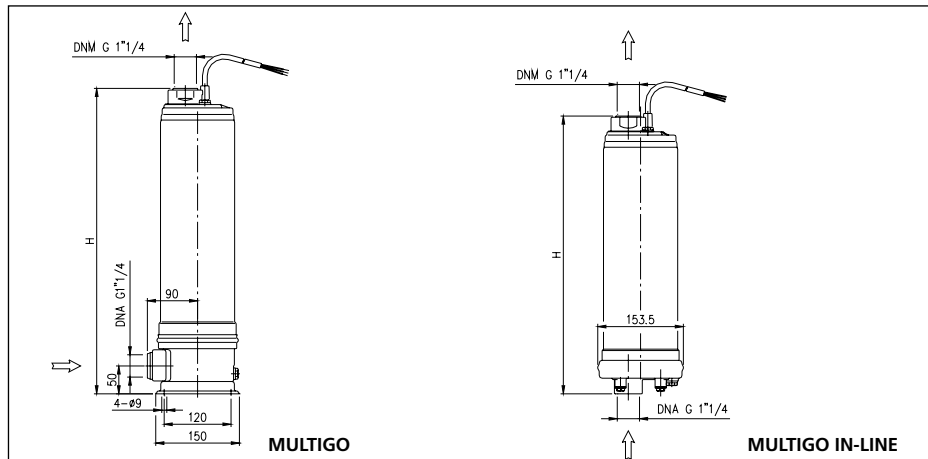
(according to ISO 9906 Attachment A)



PERFORMANCE TABLE

MULTIGO	Model	MULTIGO IN-LINE	P ₂		Q=Flow rate										
			[HP]	[kW]	l/min	20	30	40	H=Head [m]			100	120		
					m ³ /h	1,2	1,8	2,4	60	80	100	120			
					[kW]							6	7,2		
MULTIGO M40/08	MULTIGO 40/08	MULTIGO 40/08	0,8	0,6	43,3	40,2	36,3	26,1	13,4	-	-				
MULTIGO M40/10	MULTIGO 40/10	MULTIGO 40/10	1	0,75	54,1	50,2	45,4	32,6	16,8	-	-				
MULTIGO M40/12	MULTIGO 40/12	MULTIGO 40/12	1,2	0,9	64,9	60,2	54,5	39,2	20,2	-	-				
MULTIGO M40/15	MULTIGO 40/15	MULTIGO 40/15	1,5	1,1	75,7	70,3	63,6	45,7	23,5	-	-				
MULTIGO M80/12	MULTIGO 80/12	MULTIGO 80/12	1,2	0,9	-	45,6	44,0	38,8	32,0	23,2	15,2				
MULTIGO M80/15	MULTIGO 80/15	MULTIGO 80/15	1,5	1,1	-	57,0	55,0	48,5	40,0	28,0	19,0				
MULTIGO M80/20	-	-	2	1,5	-	68,4	66,0	58,2	48,0	34,8	22,8				

DIMENSIONS TABLE

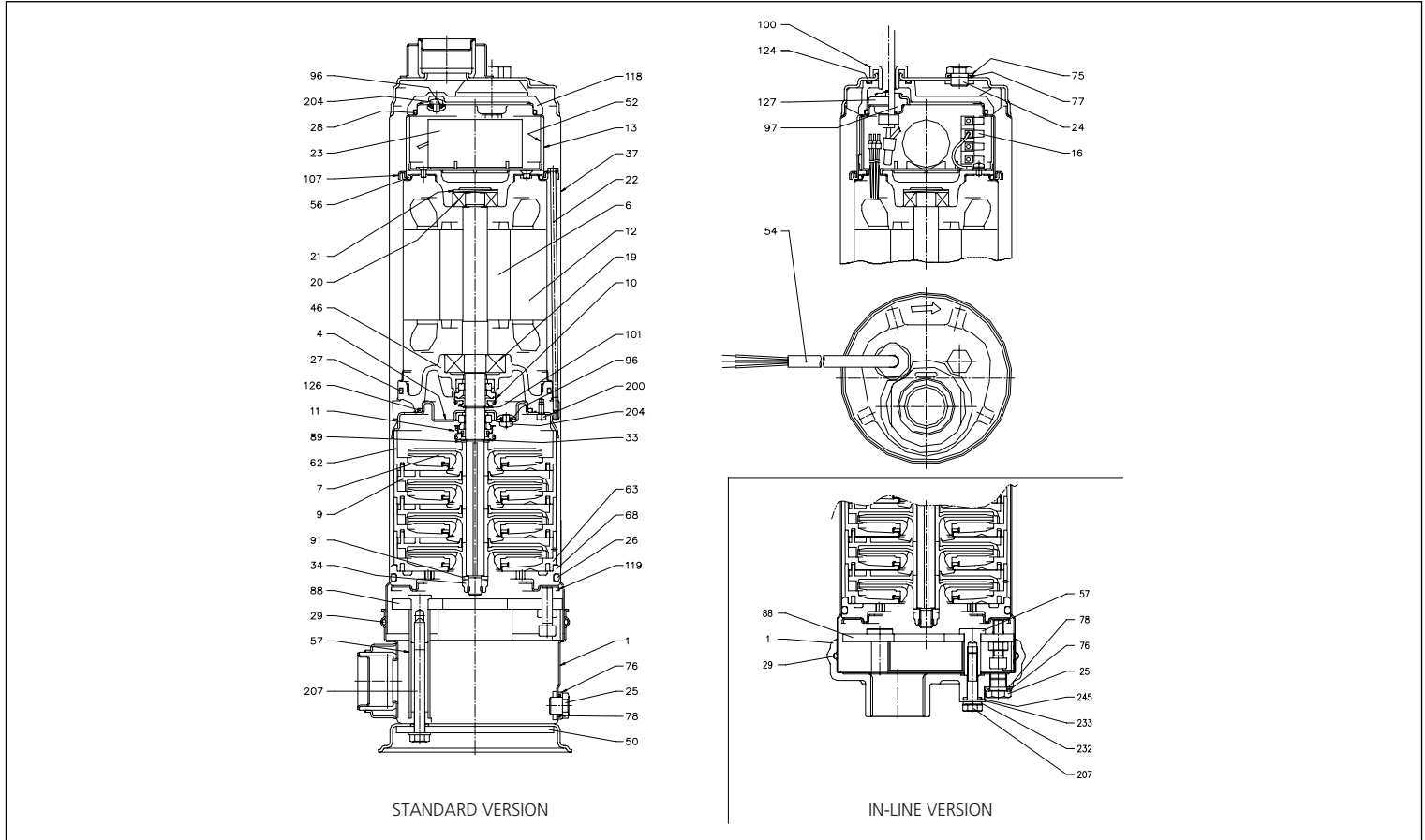


DIMENSIONS TABLE

Model	H [mm]		Weight [kg]	
	STANDARD VERSION	IN-LINE VERSION	[2]	[1]
MULTIGO 40/08	547	501	15,3	16,0
MULTIGO 40/10	573	527	16,5	17,0
MULTIGO 40/12	624	578	17,7	18,0
MULTIGO 40/15	650	604	18,8	18,7
MULTIGO 80/12	573	527	17,0	17,4
MULTIGO 80/15	598	552	18,2	18,2
MULTIGO 80/20	624	-	-	19,2

[1]= Three phase only
[2]= Single phase only

SECTIONAL VIEW



MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	EN 1.4301 (AISI 304)	56	O-Ring	NBR
4	Seal housing disc	EN 1.4301 (AISI 304)	57	Filter spacer	EN 1.4305 (AISI 303)
6	Shaft	EN 1.4057 (AISI 431)	62	Stage box	PPE+PS reinforced with fibreglass
7	Impeller	PPE+PS reinforced with fibreglass	63	Stage box with hole	PPE+PS reinforced with fibreglass
9	Nozzle	PPE+PS reinforced with fibreglass	68	Lower spacer	PPE+PS reinforced with fibreglass
10	Motor side mechanical seal	Carbon/Ceramic/NBR	75	Washer	EN 1.4301 (AISI 304)
11	Pump side mechanical seal	Carbon/Ceramic/NBR	76	Washer	EN 1.4301 (AISI 304)
12	Motor casing with stator	-	77	O-Ring	NBR
13	Motor cover	EN 1.4301 (AISI 304)	78	O-Ring	NBR
16	Terminal box	-	88	Closing ring	EN 1.4301 (AISI 304)
19	Bearing (pump side)	-	89	Washer	EN 1.4301 (AISI 304)
20	Bearing (motor side)	-	91	Washer	EN 1.4301 (AISI 304)
21	Adjusting ring	Steel C70	96	O-Ring	NBR
22	Tie-rod	EN 1.4305 (AISI 303)	97	Cable gland	NBR
23	Capacitor (For single phase only)	-	100	Lock screw	EN 1.4305 (AISI 303)
24	Filler cap	EN 1.4305 (AISI 303)	101	Seeger ring	EN 1.4021 (AISI 420)
25	Drain plug	EN 1.4305 (AISI 303)	107	Closing ring	EN 1.4301 (AISI 304)
26	O-Ring	NBR	118	Upper spacer with hole	Brass
27	O-Ring	NBR	119	Flange for spacer	EN 1.4301 (AISI 304)
28	O-Ring	NBR	124	O-Ring	NBR
29	O-Ring	NBR	126	O-Ring	NBR
33	Seeger ring	EN 1.4301 (AISI 304)	127	Cable gland connector (power supply)	EN 1.4301 (AISI 304)
34	Impeller nut	EN 1.4301 (AISI 304)	200	Screw	Stainless steel A2 UNI 7323
37	Casing	EN 1.4301 (AISI 304)	204	Screw	Stainless steel A2 UNI 7323
46	Bearing holder support	Brass	207	Screw	Stainless steel A2 UNI 7323
50	Pump body support	EN 1.4301 (AISI 304)	232	Washer	Stainless steel A2 UNI 7323
52	Capacitor-holder box	PA66 reinforced with fibreglass	233	Washer	Stainless steel A2 UNI 7323
54	Power supply cable	-	245	O-Ring	NBR

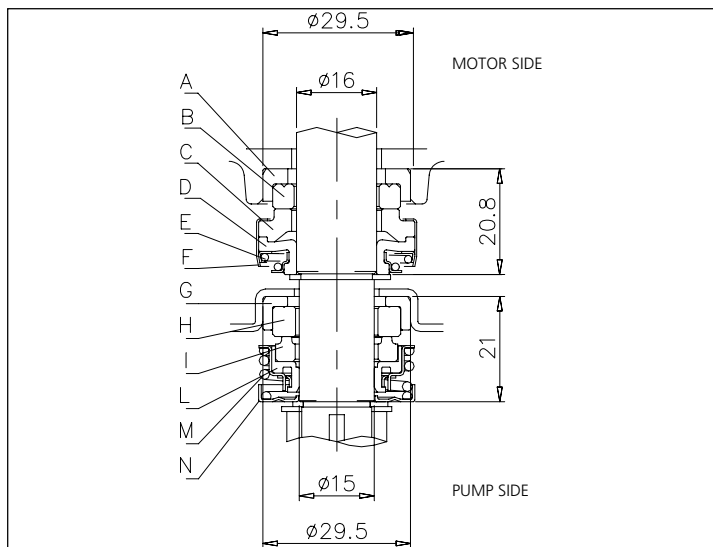
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MULTIGO

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

MECHANICAL SEAL



MATERIALS TABLE

Ref.	Name	Material
A	Fixed gasket	NBR
B	Fixed sealing ring	Ceramic
C	Rotating sealing ring	Carbon
D	Rotating gasket	NBR
E	Spring	AISI 304
F	Structure/frame	AISI 304
G	Fixed gasket	NBR
H	Fixed sealing ring	Ceramic
I	Rotating sealing ring	Carbon
L	Rotating gasket	NBR
M	Spring	AISI 304
N	Structure/frame	AISI 304

ELECTRIC DATA TABLE

Model		P ₂		Capacitor		P ₁		Absorbed Current [A]		
Single phase 230V	Three phase 230V - 400V	[HP]	[kW]	Single phase μF	V _c	Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase 230V	Three phase 400V
MULTIGO M40/08	MULTIGO 40/08	0,8	0,6	16	450	1	0,95	4,3		1,9
MULTIGO M40/10	MULTIGO 40/10	1	0,75	20	450	1,25	1,18	5,7		2,2
MULTIGO M40/12	MULTIGO 40/12	1,2	0,9	20	450	1,42	1,33	6,8		2,4
MULTIGO M40/15	MULTIGO 40/15	1,5	1,1	31,5	450	1,6	1,55	7,3	-	3,0
MULTIGO M80/12	MULTIGO 80/12	1,2	0,9	20	450	1,33	1,22	6,4		2,3
MULTIGO M80/15	MULTIGO 80/15	1,5	1,1	31,5	450	1,62	1,52	7,5		3,1
-	MULTIGO M80/20	2	1,5	-	-	-	1,9	-		3,5

NOISE DATA TABLE

Model		P ₂		L _{pa} - dB(A)*
Single phase 230V	Three phase 230V - 400V	[HP]	[kW]	
MULTIGO M40/08	MULTIGO 40/08	0,8	0,6	58
MULTIGO M40/10	MULTIGO 40/10	1	0,75	
MULTIGO M40/12	MULTIGO 40/12	1,2	0,9	
MULTIGO M40/15	MULTIGO 40/15	1,5	1,1	
MULTIGO M80/12	MULTIGO 80/12	1,2	0,9	59
MULTIGO M80/15	MULTIGO 80/15	1,5	1,1	
-	MULTIGO M80/20	2	1,5	

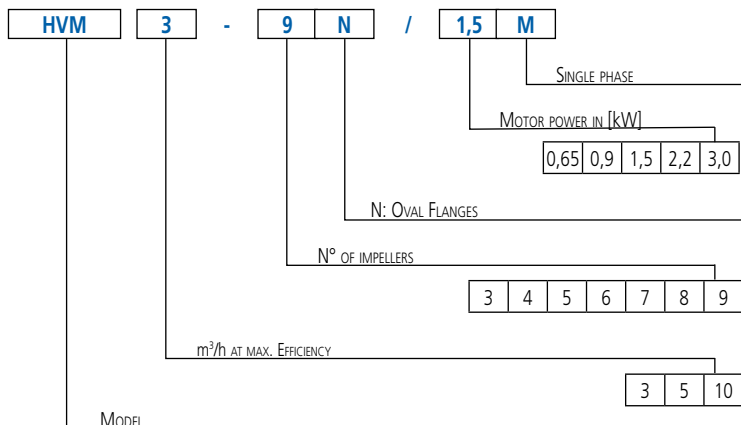
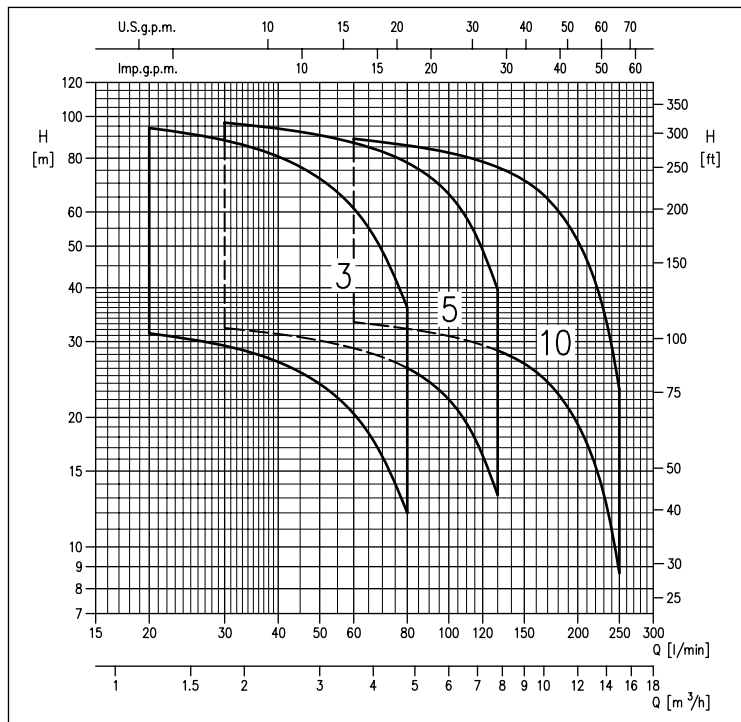
* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304



PERFORMANCE RANGE (according to ISO 9906 Attachment A)



Vertical multistage centrifugal electric pumps in AISI 304 stainless steel.

APPLICATIONS

- Treating water
- Industrial washing systems
- Heating and air conditioning
- Water supply and boosting
- Agriculture
- Irrigation

TECHNICAL DETAILS

- Openings in-line
- Strong and compact construction
- Wide range of models available in different numbers of stages to guarantee requested flow rate and head
- Supplied complete with standard counter-flanges (in compliance with ISO 228)

PUMP TECHNICAL DATA

- Maximum working pressure: 10 bar
 - Maximum temperature of the liquid: 90°C
 - Suction and discharge connection:

HVM 3	Ø 32 / Ø 32
HVM 5	Ø 32 / Ø 32
HVM 10	Ø 40 / Ø 40
 - Counter-flanges: HVM 3 G1-G1, HVM 5 G1¼-G1¼, HVM 10 G1½ - G1½
 - MEI > 0,4
- For further information please see our Data Book on the website www.ebara.com

MOTOR TECHNICAL DATA

- High efficiency motors IE2 starting from 0,75kW
- T.E.F.C. 2 poles motor
- Class of insulation F
- IP55 Protection degree
- 230V ±10%, 50Hz single phase voltage, 230/400V ± 10%, 50Hz three phase voltage
- Permanent capacitor inserted and thermo-amperometric 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 EN-GJL 250 EN1561 (painted in cataphoresis)
- External casing, impellers, intermediate stage, seal housing disc and shaft (part in contact with the liquid) in EN 1.4301 (AISI 304)
- Mechanical seal in Carbon/Ceramic/NBR

CONTROL PANELS

- 1EP
- 1EPBH

ACCESSORIES (on request)

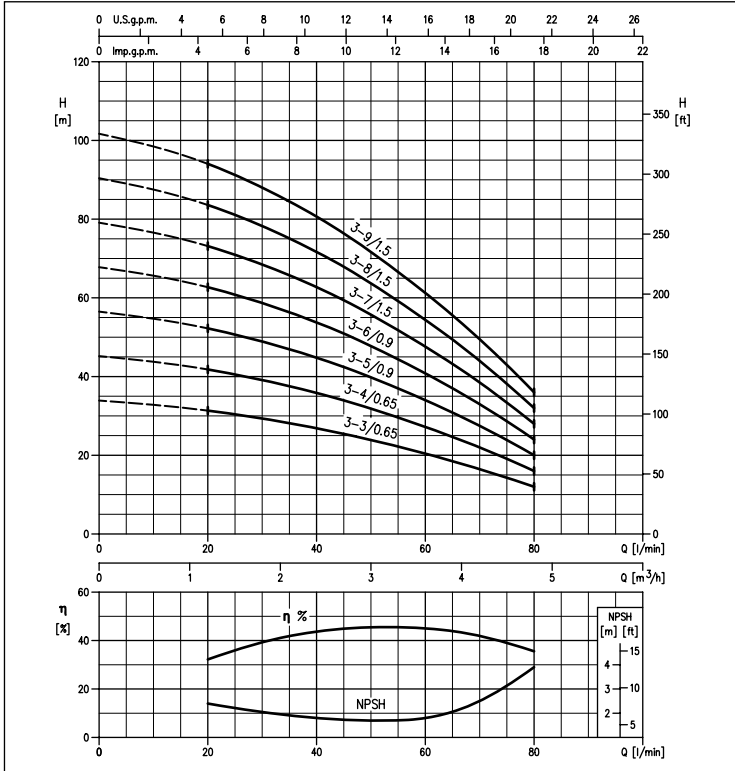
- 5 litre 10 bar ¾ EPDM vessel
- 24 litre 8 bar 1" EPDM vessel
- 24 litre 10 bar 1" EPDM vessel
- 24 litre 16 bar 1" EPDM vessel
- PVC 5m key float with counter-weight
- PVC 10m key float with counter-weight
- SQUARE-D FSG-2 1.4÷4.6 bar G¼ F pressure switch
- FYG-22 2.8÷7 bar G¼ F pressure switch
- FYG-32 5.6÷10.5 bar G¼ F pressure switch
- Presscomfort - Pressure regulator
- Press•o•Matic - Variable speed control system (230V±10% single phase - power supply three phase 220V output - maximum motor power 2.2 kW - 3 HP)
- E-drive - Frequency converter



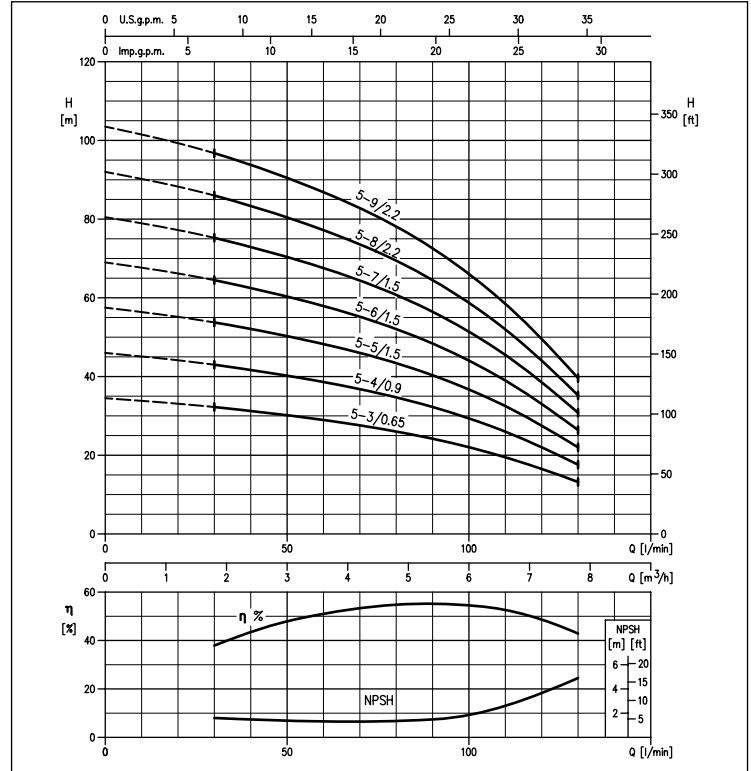
HVM

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in AISI 304

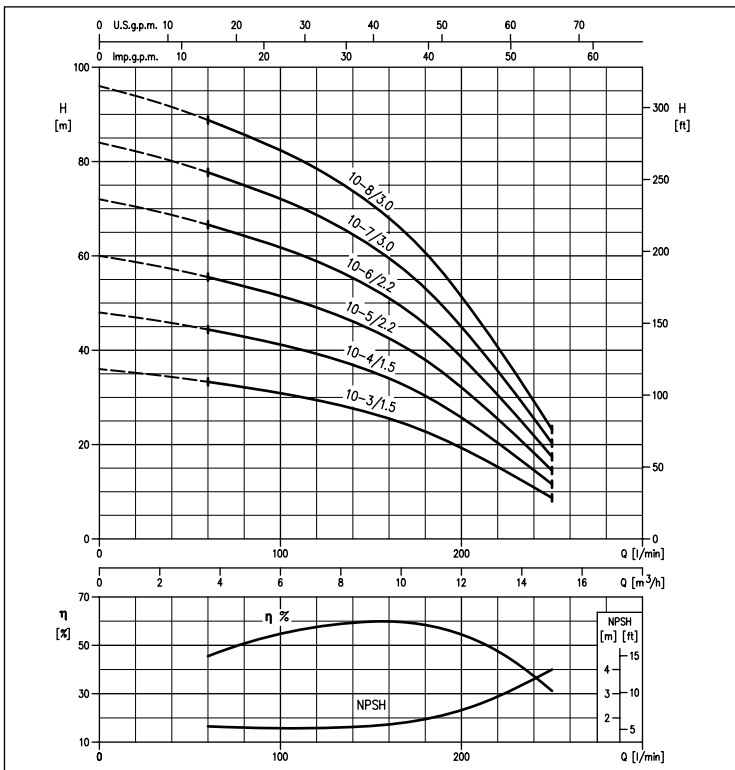
PERFORMANCE CURVES serie HVM 3 (from 0,65 kW to 1,5 kW)
(according to ISO 9906 Attachment A)



PERFORMANCE CURVES serie HVM 5 (from 0,65 kW to 2,2 kW)
(according to ISO 9906 Attachment A)



PERFORMANCE CURVES serie HVM 10 (from 1,5 kW to 3 kW)
(according to ISO 9906 Attachment A)



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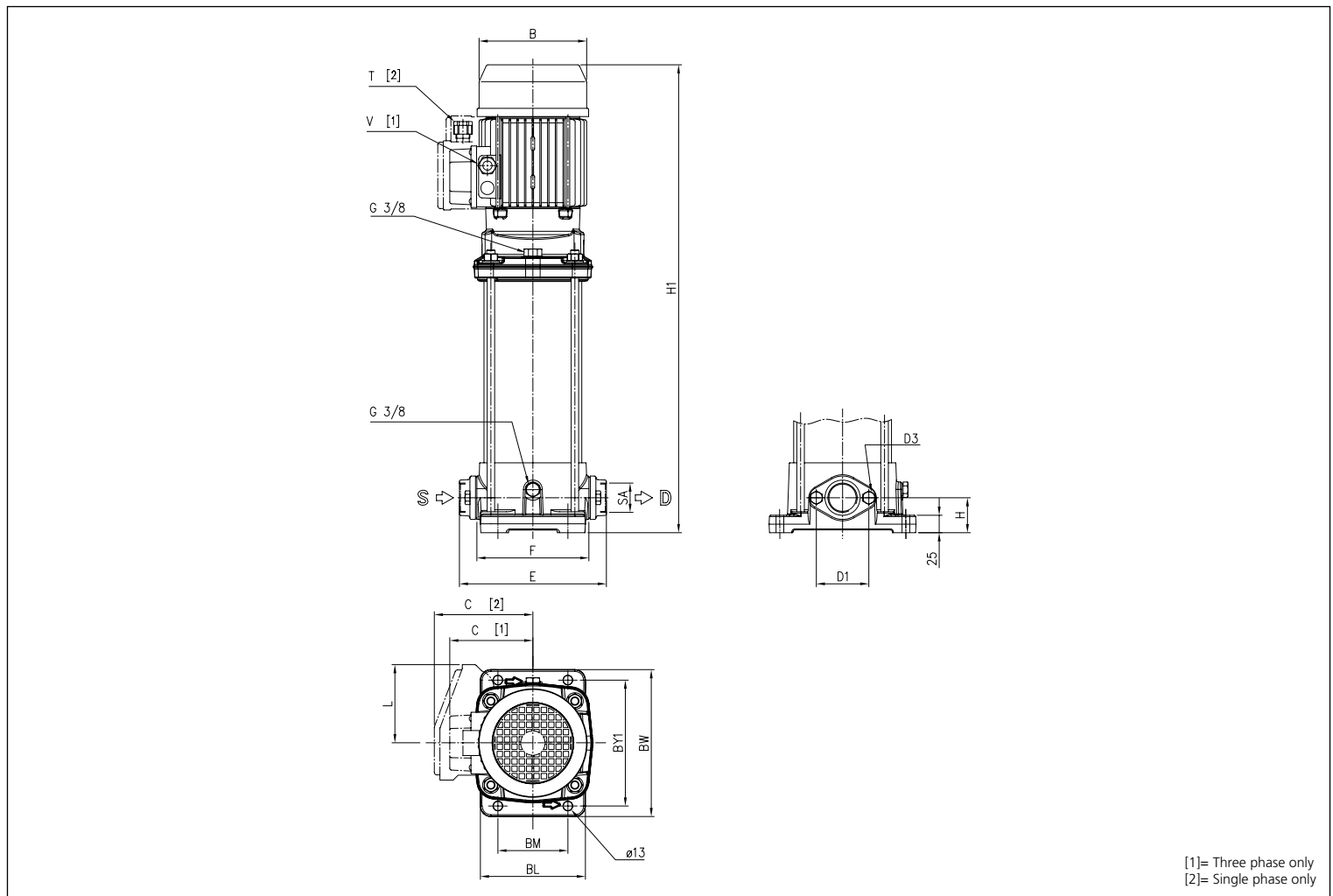
VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

PERFORMANCE TABLE

Model		P ₂		Q=Flow rate									
Single phase 230V	Three phase 230/400V	[HP]	[kW]	l/min 20	30	45	60	80	100	130	160	200	250
				m ³ /h 1,2	1,8	2,7	3,6	4,8	6	7,8	9,6	12	15
				H=Head [m]									
HVM 3-3N/0,65M	HVM 3-3N/0,65	0,9	0,65	31,4	29,3	25,5	20,4	12,0	-	-	-	-	-
HVM 3-4N/0,65M	HVM 3-4N/0,65	0,9	0,65	42,0	39,1	34,0	27,2	16,0	-	-	-	-	-
HVM 3-5N/0,9M	HVM 3-5N/0,9	1,2	0,9	52,5	49,0	42,5	34,0	20,0	-	-	-	-	-
HVM 3-6N/0,9M	HVM 3-6N/0,9	1,2	0,9	62,5	58,5	51,0	41,0	24,0	-	-	-	-	-
HVM 3-7N/1,5M	HVM 3-7N/1,5	2	1,5	73,0	68,5	59,5	47,5	28,0	-	-	-	-	-
HVM 3-8N/1,5M	HVM 3-8N/1,5	2	1,5	83,5	78,0	68,0	54,5	32,0	-	-	-	-	-
HVM 3-9N/1,5M	HVM 3-9N/1,5	2	1,5	94,0	88,0	76,5	61,0	36,0	-	-	-	-	-
HVM 5-3N/0,65M	HVM 5-3N/0,65	0,9	0,65	-	32,3	30,7	29,0	26,0	22,0	13,2	-	-	-
HVM 5-4N/0,9M	HVM 5-4N/0,9	1,2	0,9	-	43,0	41,0	38,6	34,7	29,4	17,6	-	-	-
HVM 5-5N/1,5M	HVM 5-5N/1,5	2	1,5	-	54,0	51,0	48,5	43,5	36,7	22,0	-	-	-
HVM 5-6N/1,5M	HVM 5-6N/1,5	2	1,5	-	64,5	61,5	58,0	52,0	44,0	26,4	-	-	-
HVM 5-7N/1,5M	HVM 5-7N/1,5	2	1,5	-	75,5	71,5	67,5	61,0	51,5	30,8	-	-	-
HVM 5-8N/2,2M	HVM 5-8N/2,2	3	2,2	-	86,0	82,0	77,0	69,5	58,5	35,2	-	-	-
HVM 5-9N/2,2M	HVM 5-9N/2,2	3	2,2	-	97,0	92,0	87,0	78,0	66,0	39,6	-	-	-
HVM 10-3N/1,5M	HVM 10-3N/1,5	2	1,5	-	-	-	33,3	32,1	30,9	28,6	25,5	19,3	8,7
HVM 10-4N/1,5M	HVM 10-4N/1,5	2	1,5	-	-	-	44,5	43,0	41,0	38,1	34,0	25,7	11,6
HVM 10-5N/2,2M	HVM 10-5N/2,2	3	2,2	-	-	-	55,5	53,5	51,5	47,5	42,5	32,1	14,5
HVM 10-6N/2,2M	HVM 10-6N/2,2	3	2,2	-	-	-	66,5	64,5	62,0	57,0	51,0	38,5	17,4
-	HVM 10-7N/3	4	3	-	-	-	77,5	75,0	72,0	66,5	59,5	45,0	20,3
-	HVM 10-8N/3	4	3	-	-	-	89,0	85,5	82,5	76,0	68,0	51,5	23,2

DIMENSIONS



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VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

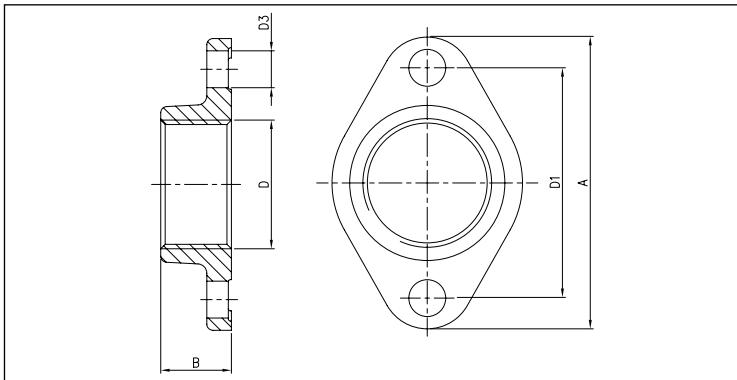
in AISI 304

HVM DIMENSIONS TABLE

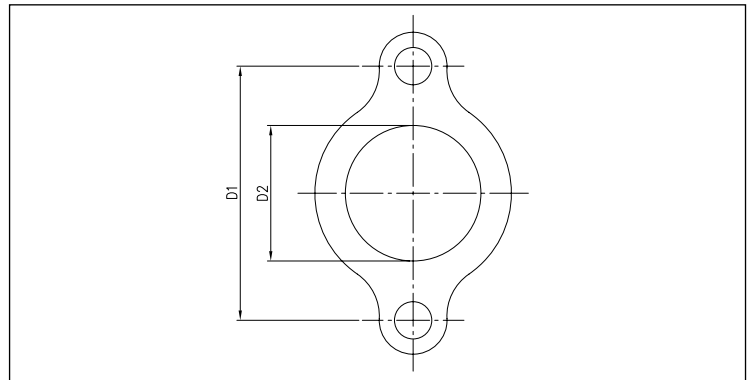
Model	H	H1	E	F	B	C		Dimensions [mm]							T	V	Weight [kg]	
						[2]	[1]	L	BM	BL	BW	BY1	SA	D1				D3
HVM 3-3N/0.65 M	50	464	209	160	135	110	-	86.5	100	150	210	180	G1	75	M10	Pg 11	-	18,6
HVM 3-3N/0.65	50	464	209	160	135	-	102	-	100	150	210	180	G1	75	M10	-	Pg 11	18,5
HVM 3-4N/0.65 M	50	488	209	160	135	110	-	86.5	100	150	210	180	G1	75	M10	Pg 11	-	19,3
HVM 3-4N/0.65	50	488	209	160	135	-	102	-	100	150	210	180	G1	75	M10	-	Pg 11	19,1
HVM 3-5N/0.9 M	50	512	209	160	135	129	-	106	100	150	210	180	G1	75	M10	M20x1,5	-	21,2
HVM 3-5N/0.9	50	524	209	160	135	-	102	-	100	150	210	180	G1	75	M10	-	Pg 11	21,9
HVM 3-6N/0.9 M	50	536	209	160	135	129	-	106	100	150	210	180	G1	75	M10	M20x1,5	-	22,4
HVM 3-6N/0.9	50	548	209	160	135	-	102	-	100	150	210	180	G1	75	M10	-	Pg 11	23,0
HVM 3-7N/1.5 M	50	597	209	160	155	136	-	112	100	150	210	180	G1	75	M10	M20x1,5	-	25,4
HVM 3-7N/1.5	50	608	209	160	155	-	119	-	100	150	210	180	G1	75	M10	-	Pg 11	27,1
HVM 3-8N/1.5 M	50	621	209	160	155	136	-	112	100	150	210	180	G1	75	M10	M20x1,5	-	25,4
HVM 3-8N/1.5	50	632	209	160	155	-	119	-	100	150	210	180	G1	75	M10	-	Pg 11	27,8
HVM 3-9N/1.5 M	50	645	209	160	155	136	-	112	100	150	210	180	G1	75	M10	M20x1,5	-	27,4
HVM 3-9N/1.5	50	656	209	160	155	-	119	-	100	150	210	180	G1	75	M10	-	Pg 11	28,7
HVM 5-3N/0.65 M	50	464	209	160	135	110	-	86.5	100	150	210	180	G1¼	75	M10	Pg 11	-	18,6
HVM 5-3N/0.65	50	464	209	160	135	-	102	-	100	150	210	180	G1¼	75	M10	-	Pg 11	18,5
HVM 5-4N/0.9 M	50	488	209	160	135	129	-	106	100	150	210	180	G1¼	75	M10	M20x1,5	-	20,9
HVM 5-4N/0.9	50	500	209	160	135	-	102	-	100	150	210	180	G1¼	75	M10	-	Pg 11	21,6
HVM 5-5N/1.5 M	50	549	209	160	155	136	-	112	100	150	210	180	G1¼	75	M10	M20x1,5	-	24,1
HVM 5-5N/1.5	50	560	209	160	155	-	119	-	100	150	210	180	G1¼	75	M10	-	Pg 11	25,5
HVM 5-6N/1.5 M	50	573	209	160	155	136	-	112	100	150	210	180	G1¼	75	M10	M20x1,5	-	24,3
HVM 5-6N/1.5	50	584	209	160	155	-	119	-	100	150	210	180	G1¼	75	M10	-	Pg 11	26,6
HVM 5-7N/1.5 M	50	597	209	160	155	136	-	112	100	150	210	180	G1¼	75	M10	M20x1,5	-	26,3
HVM 5-7N/1.5	50	608	209	160	155	-	119	-	100	150	210	180	G1¼	75	M10	-	Pg 11	27,6
HVM 5-8N/2.2 M	50	675	209	160	171	141	-	112	100	150	210	180	G1¼	75	M10	M20x1,5	-	31,5
HVM 5-8N/2.2	50	634	209	160	155	-	119	-	100	150	210	180	G1¼	75	M10	-	Pg 11	27,8
HVM 5-9N/2.2 M	50	699	209	160	171	141	-	112	100	150	210	180	G1¼	75	M10	M20x1,5	-	32,0
HVM 5-9N/2.2	50	658	209	160	155	-	119	-	100	150	210	180	G1¼	75	M10	-	Pg 11	27,9
HVM 10-3N/1.5 M	80	549	255	200	155	136	-	112	130	185	250	215	G1½	100	M12	M20x1,5	-	26,9
HVM 10-3N/1.5	80	560	255	200	155	-	119	-	130	185	250	215	G1½	100	M12	-	Pg 11	28,0
HVM 10-4N/1.5 M	80	577	255	200	155	136	-	112	130	185	250	215	G1½	100	M12	M20x1,5	-	27,8
HVM 10-4N/1.5	80	590	255	200	155	-	119	-	130	185	250	215	G1½	100	M12	-	Pg 11	29,5
HVM 10-5N/2.2 M	80	663	255	200	171	141	-	112	130	185	250	215	G1½	100	M12	M20x1,5	-	33,6
HVM 10-5N/2.2	80	622	255	200	155	-	119	-	130	185	250	215	G1½	100	M12	-	Pg 11	30,1
HVM 10-6N/2.2 M	80	693	255	200	171	141	-	112	130	185	250	215	G1½	100	M12	M20x1,5	-	34,7
HVM 10-6N/2.2	80	650	255	200	155	-	119	-	130	185	250	215	G1½	100	M12	-	Pg 11	30,5
HVM 10-7N/3	80	761	255	200	171	-	124	-	130	185	250	215	G1½	100	M12	-	Pg 13,5	37,2
HVM 10-8N/3	80	791	255	200	171	-	124	-	130	185	250	215	G1½	100	M12	-	Pg 13,5	38,1

[1]= Three phase only
[2]= Single phase only

COUNTER-FLANGE



GASKET

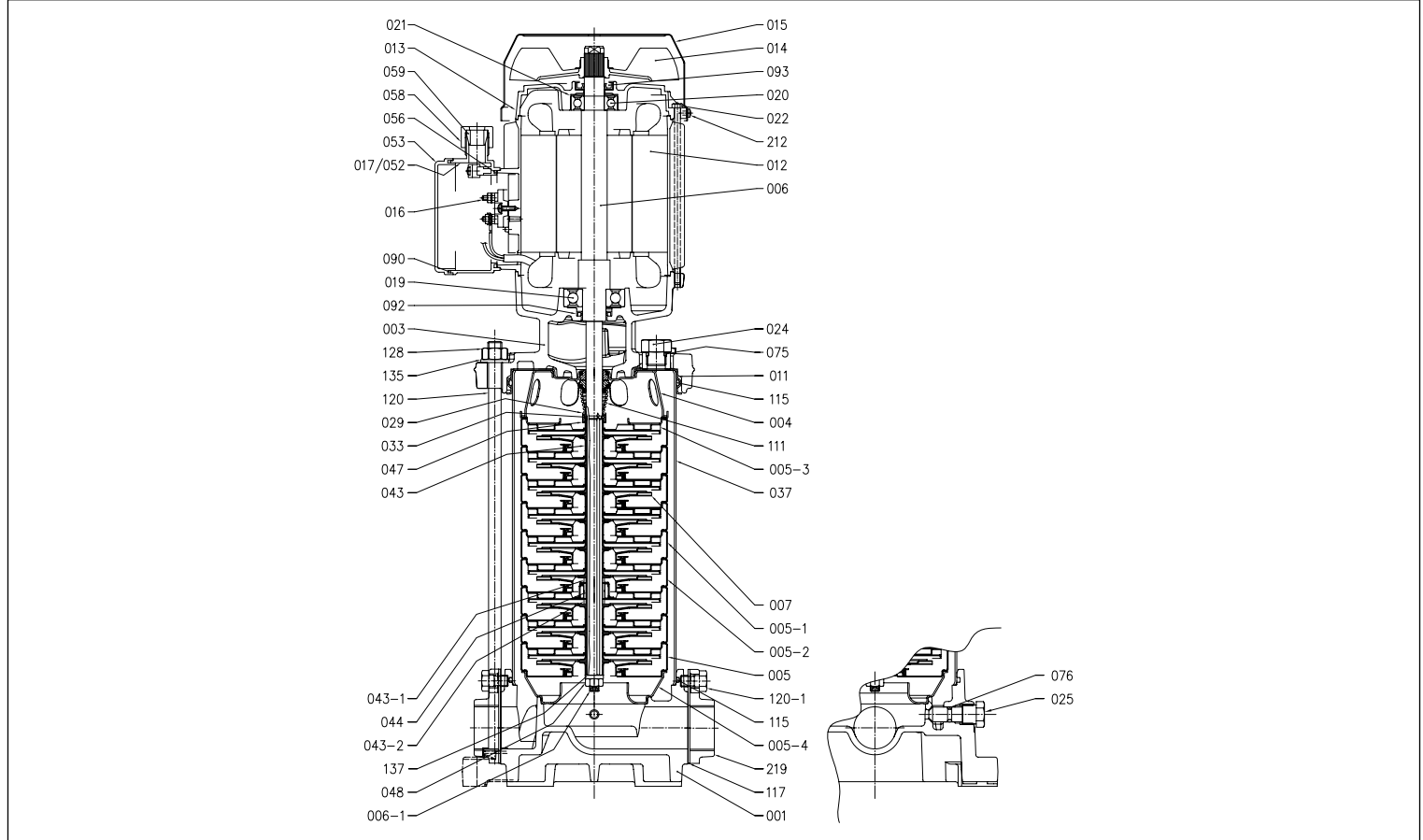


DIMENSIONS TABLE AND MATERIALS

DN	D	D1	D3	Counter-flange		Material	D2	Gasket
				A	B			Material
25	G1	75	12	95	23	Galvanised steel	40	EPDM
32	G1¼	75	12	95	23	Galvanised steel	40	EPDM
40	G1½	100	15	125	26	Galvanised steel	45	EPDM

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in AISI 304

SECTIONAL VIEW



MATERIALS TABLE

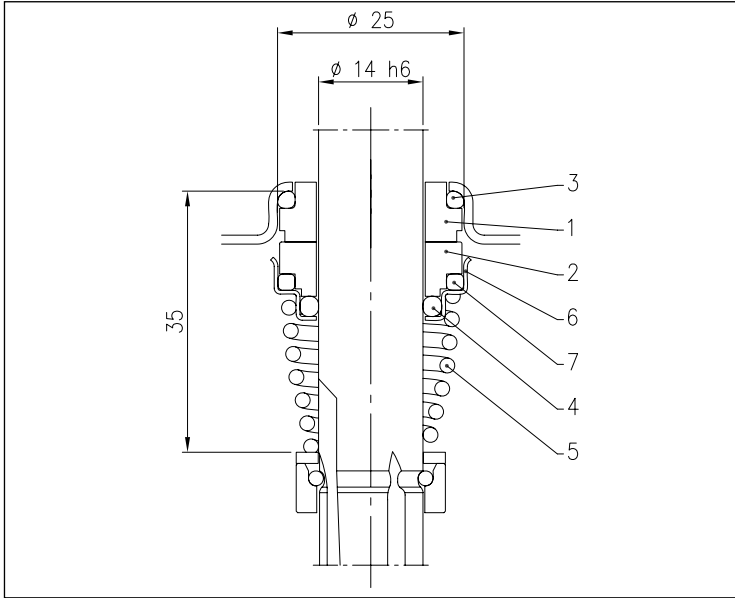
Ref.	Name	Material	Ref.	Name	Material
001	Pump body	Cast iron EN-GJL 250 EN1561	043	Impeller spacer	EN 1.4301 (AISI 304)
003	Motor support	Cast iron EN-GJL 250 EN1561	043-1	Shaft casing	EN 1.4301 (AISI 304)
004	Pressure pump body	EN 1.4301 (AISI 304)	043-2	Shaft casing	EN 1.4301 (AISI 304)
005	Intermediate stage (suction)	EN 1.4301 (AISI 304)+PTFE	044	Bearing shaft casing	EN 1.4460 (AISI 329)
005-1	Intermediate stage	EN 1.4301 (AISI 304)+PTFE	047	Holding ring	EN 1.4301 (AISI 304)
005-2	Intermediate stage (bearing)	EN 1.4301 (AISI 304)+PTFE+Ceramic	048	Nut	EN 1.4301 (AISI 304)
005-3	Discharge stage	EN 1.4301 (AISI 304)+PTFE	052	Capacitor-holder box [1]	ABS
005-4	First stage flange	EN 1.4301 (AISI 304)	053	Capacitor-holder box cover [1]	ABS
006	Motor shaft	-	056	Capacitor-holder box cover gasket	NBR
006-1	Hydraulic shaft	EN 1.4301 (AISI 304)	058	Cable gland nut	-
007	Impeller	EN 1.4301 (AISI 304)	059	Cable gland gasket	NBR
011	Seal housing disc	EN 1.4301 (AISI 304)	075	O-Ring	NBR
012	Motor case	-	076	O-Ring	NBR
013	Motor cover	Aluminium	090	Gasket	NBR
014	Fan	PA	092	Sealing ring (pump side)	-
015	Fan cover	Galvanised Fe P04	093	Sealing ring (motor side)	-
016	Terminal box	-	111	Mechanical seal	Carbon/Ceramic/NBR
017	Terminal box cover	Aluminium	115	O-Ring	NBR
019	Bearing (pump side)	-	117	Flange gasket	EPDM
020	Bearing (motor side)	-	120	Tie-rod	Galvanised Fe 42
021	Adjusting ring	Steel C70	120-1	Counter-flange screw	Galvanised steel
022	Tie-rod	Galvanised Fe 42	128	Tie-rod nut	Galvanised steel
024	Filler cap	EN 1.4301 (AISI 304)	135	Washer	Galvanised steel
025	Drain plug	EN 1.4301 (AISI 304)	137	Shaft washer	EN 1.4301 (AISI 304)
029	Washer for mechanical seal	EN 1.4301 (AISI 304)	212	Fan cover screw	Galvanised steel
033	Semi-ring	EN 1.4301 (AISI 304)	219	Counter-flange	Galvanised steel
037	External casing	EN 1.4301 (AISI 304)			

[1]= For single phase only

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

MECHANICAL SEAL



MATERIALS TABLE

Ref.	Name	Material
1	Fixed part	Ceramic
2	Rotating part	Carbon
3	O-Ring	NBR
4	O-Ring	NBR
5	Spring	EN 1.4402 (AISI 316)
6	Structure/frame	EN 1.4301 (AISI 304)
7	O-Ring	NBR

ELECTRIC DATA TABLE

Model		P ₂		Efficiency		Capacitor		Efficiency (%)			P ₁		Absorbed Current [A]		
Single phase 230V	Three phase 230/400V	[HP]	[kW]	Single phase	Three phase	Single phase μF	Three phase V _c	Three phase η %			Single phase [kW]	Three phase [kW]	Single phase 230V	Three phase 230V 400V	
								50%	75%	100%					
HVM 3-3N/0.65M	HVM 3-3N/0.65	0,9	0,65	-	-	16	450	-	-	-	0,97	0,85	4,5	2,8	1,6
HVM 3-4N/0.65M	HVM 3-4N/0.65	0,9	0,65	-	-	16	450	-	-	-	0,97	0,85	4,5	2,8	1,6
HVM 3-5N/0.9M	HVM 3-5N/0.9	1,2	0,9	-	IE2	31,5	450	79,0	81,7	81,6	1,28	1,35	5,7	4,3	2,5
HVM 3-6N/0.9M	HVM 3-6N/0.9	1,2	0,9	-	IE2	31,5	450	79,0	81,7	81,6	1,28	1,35	5,7	4,3	2,5
HVM 3-7N/1.5M	HVM 3-7N/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
HVM 3-8N/1.5M	HVM 3-8N/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
HVM 3-9N/1.5M	HVM 3-9N/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
HVM 5-3N/0.65M	HVM 5-3N/0.65	0,9	0,65	-	-	16	450	-	-	-	0,97	0,85	4,5	2,8	1,6
HVM 5-4N/0.9M	HVM 5-4N/0.9	1,2	0,9	-	IE2	31,5	450	79,0	81,7	81,6	1,28	1,35	5,7	4,3	2,5
HVM 5-5N/1.5M	HVM 5-5N/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
HVM 5-6N/1.5M	HVM 5-6N/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
HVM 5-7N/1.5M	HVM 5-7N/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
HVM 5-8N/2.2M	HVM 5-8N/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,1	4,7
HVM 5-9N/2.2M	HVM 5-9N/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,1	4,7
HVM 10-3N/1.5M	HVM 10-3N/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
HVM 10-4N/1.5M	HVM 10-4N/1.5	2,0	1,5	-	IE2	40	450	78,6	83,0	84,2	1,95	1,78	8,7	6,3	3,7
HVM 10-5N/2.2M	HVM 10-5N/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,1	4,7
HVM 10-6N/2.2M	HVM 10-6N/2.2	3,0	2,2	-	IE2	50	450	83,0	84,4	83,8	2,92	2,63	13,0	8,1	4,7
-	HVM 10-7N/3	4,0	3	-	IE2	-	-	85,0	86,7	86,3	-	3,48	-	10,6	6,1
-	HVM 10-8N/3	4,0	3	-	IE2	-	-	85,0	86,7	86,3	-	3,48	-	10,6	6,1

The contents of this publication must not be regarded as binding. EBARA Pumps Europe S.p.A. reserves the right to effect any modification it deems necessary, without prior notice.

VERTICAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

NOISE DATA TABLE

Single phase 230V	Model Three phase 230/400V	P ₂		L _{PA} - dB(A)*
		[HP]	[kW]	
HVM 3-3N/0.65M	HVM 3-3N/0.65	0,9	0,65	61
HVM 3-4N/0.65M	HVM 3-4N/0.65	0,9	0,65	
HVM 3-5N/0.9M	HVM 3-5N/0.9	1,2	0,9	62
HVM 3-6N/0.9M	HVM 3-6N/0.9	1,2	0,9	
HVM 3-7N/1.5M	HVM 3-7N/1.5	2,0	1,5	68
HVM 3-8N/1.5M	HVM 3-8N/1.5	2,0	1,5	
HVM 3-9N/1.5M	HVM 3-9N/1.5	2,0	1,5	
HVM 5-3N/0.65M	HVM 5-3N/0.65	0,9	0,65	61
HVM 5-4N/0.9M	HVM 5-4N/0.9	1,2	0,9	62
HVM 5-5N/1.5M	HVM 5-5N/1.5	2,0	1,5	68
HVM 5-6N/1.5M	HVM 5-6N/1.5	2,0	1,5	
HVM 5-7N/1.5M	HVM 5-7N/1.5	2,0	1,5	
HVM 5-8N/2.2M	-	3,0	2,2	70
-	HVM 5-8N/2.2	3,0	2,2	67
HVM 5-9N/2.2M	-	3,0	2,2	70
-	HVM 5-9N/2.2	3,0	2,2	67
HVM 10-3N/1.5M	HVM 10-3N/1.5	2,0	1,5	68
HVM 10-4N/1.5M	HVM 10-4N/1.5	2,0	1,5	
HVM 10-5N/2.2M	-	3,0	2,2	70
-	HVM 10-5N/2.2	3,0	2,2	67
HVM 10-6N/2.2M	-	3,0	2,2	70
-	HVM 10-6N/2.2	3,0	2,2	67
-	HVM 10-7N/3	4,0	3	71
-	HVM 10-8N/3	4,0	3	

* Mean value of several measures at 1m distance around the pump.
Tolerance ± 2,5 dB.

5" SUBMERSED CENTRIFUGAL ELECTRIC PUMPS

in AISI 304



AISI 304 5" submersed multistage centrifugal electric pumps.

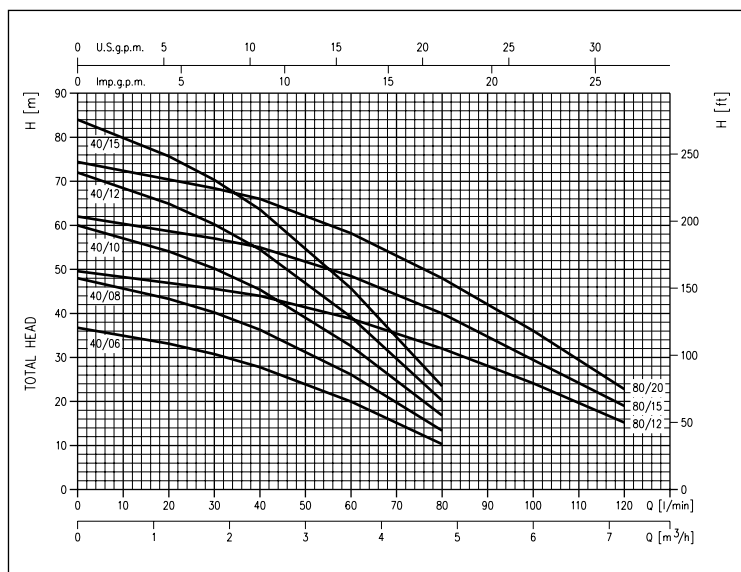
APPLICATIONS

- Moving clear water from wells, cisterns and primary collection reservoirs
- Pressure boosting domestic plants
- Small-sale irrigation
- Washing vehicles
- General pressure increases

TECHNICAL DETAILS

- Equipped with twin mechanical seal with interposed oil chamber
- Supplied with 20 m of H07RN-F power supply cable (5m for IDROGO 40/06 M model)
- Single phase version with float on request (version "A")
- Available in the 230V \pm 10% 50Hz three phase version
- Installation: in horizontal and vertical position

PERFORMANCE CURVES (according to ISO 9906 Attachment A)



PUMP TECHNICAL DATA

- Maximum working pressure: 10 bar
- Maximum temperature of the liquid: 40°C
- Maximum immersion: 20 m
- Maximum solid size passage: 2,5 mm
- G1¼ discharge connection

MOTOR TECHNICAL DATA

- 2 poles self-ventilated asynchronous motor cooled via the moving liquid
- Class of insulation F
- IP68 Protection degree
- 230V \pm 10%, 50Hz single-phase voltage
- 400V \pm 10%, 50Hz three-phase voltage
- 230V \pm 10%, 50Hz three-phase voltage
- Permanent capacitor inserted and thermo-amperometric protection with automatic reset incorporated for the single phase motor
- Protection under user's responsibility for the three phase version

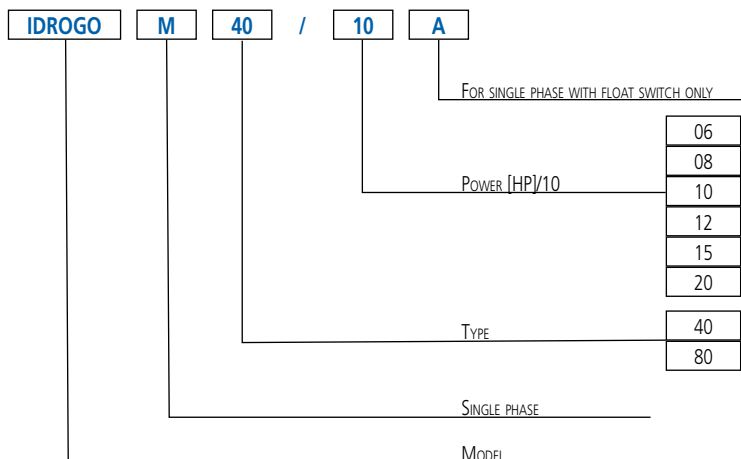
MATERIALS

- External casing, motor cover, seal housing disc, filter and closing ring in AISI 304
- Impeller, diffuser and spacer in PPE+PS reinforced with fibreglass
- Shaft in AISI 431
- Upper mechanical seal (motor side) in Carbon/Ceramic/NBR and lower (pump side) in SiC/Carbon/NBR

CONTROL PANELS

- 1EPBH

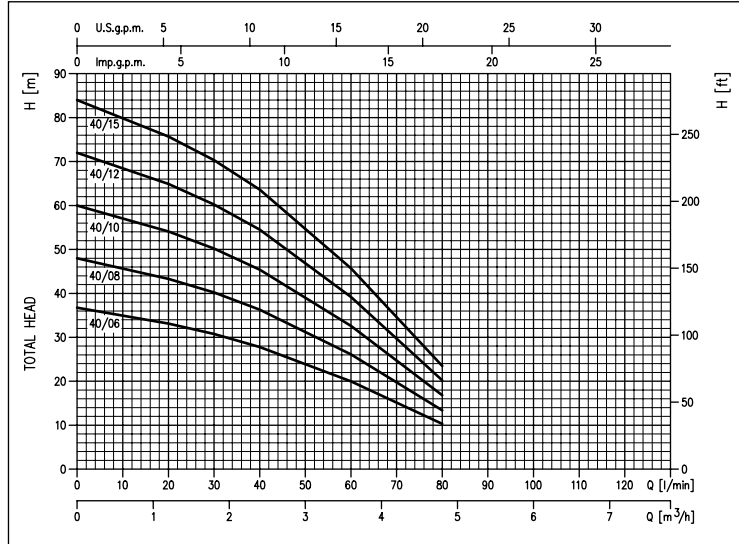
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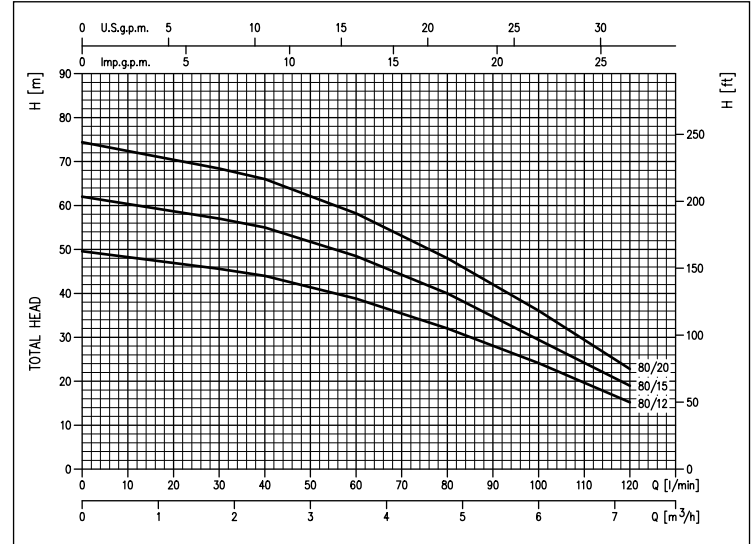
IDROGO

5" SUBMERSED CENTRIFUGAL ELECTRIC PUMPS in AISI 304

PERFORMANCE CURVES IDROGO 40 series (according to ISO 9906 Attachment A) - impeller diameter: 104 mm



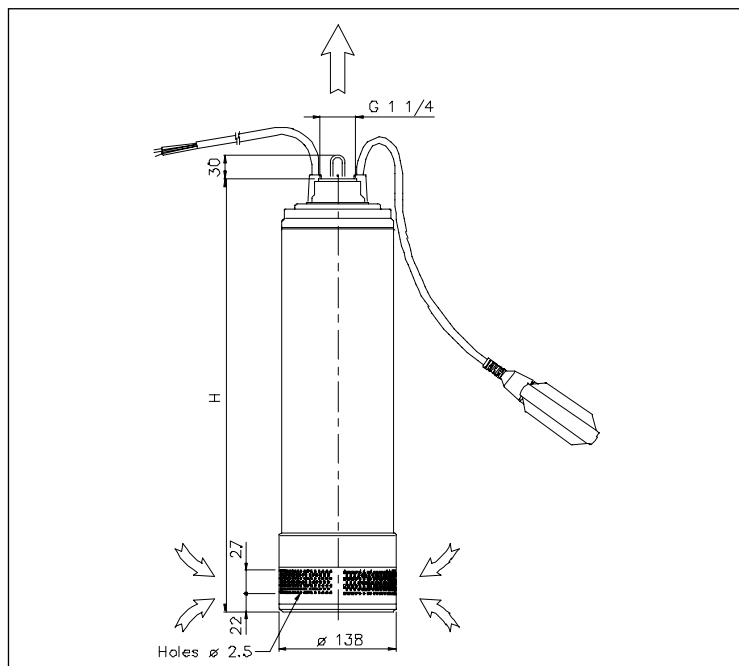
PERFORMANCE CURVES IDROGO 80 series (according to ISO 9906 Attachment A) - impeller diameter: 102 mm



PERFORMANCE TABLE

Single phase 230V	Model	Three phase 230V - 400V	P ₂		Q=Flow rate								
			[HP]	[kW]	l/min m ³ /h	20 1,2	30 1,8	40 2,4	H=Head [m]		60 3,6	80 4,8	100 6
IDROGO M 40/06	-	-	0,6	0,44	33,1	30,8	27,8	20,0	10,3	-	-	-	-
IDROGO M 40/08	IDROGO 40/08	-	0,8	0,6	43,3	40,2	36,3	26,1	13,4	-	-	-	-
IDROGO M 40/10	IDROGO 40/10	-	1	0,75	54,1	50,2	45,4	32,6	16,8	-	-	-	-
IDROGO M 40/12	IDROGO 40/12	-	1,2	0,9	64,9	60,2	54,5	39,2	20,2	-	-	-	-
IDROGO M 40/15	IDROGO 40/15	-	1,5	1,1	75,7	70,3	63,6	45,7	23,5	-	-	-	-
IDROGO M 80/12	IDROGO 80/12	-	1,2	0,9	-	45,6	44,0	38,8	32,0	23,2	15,2	-	-
IDROGO M 80/15	IDROGO 80/15	-	1,5	1,1	-	57,0	55,0	48,5	40,0	28,0	19,0	-	-
-	IDROGO 80/20	-	2	1,5	-	68,4	66,0	58,2	48,0	34,8	22,8	-	-

DIMENSIONS



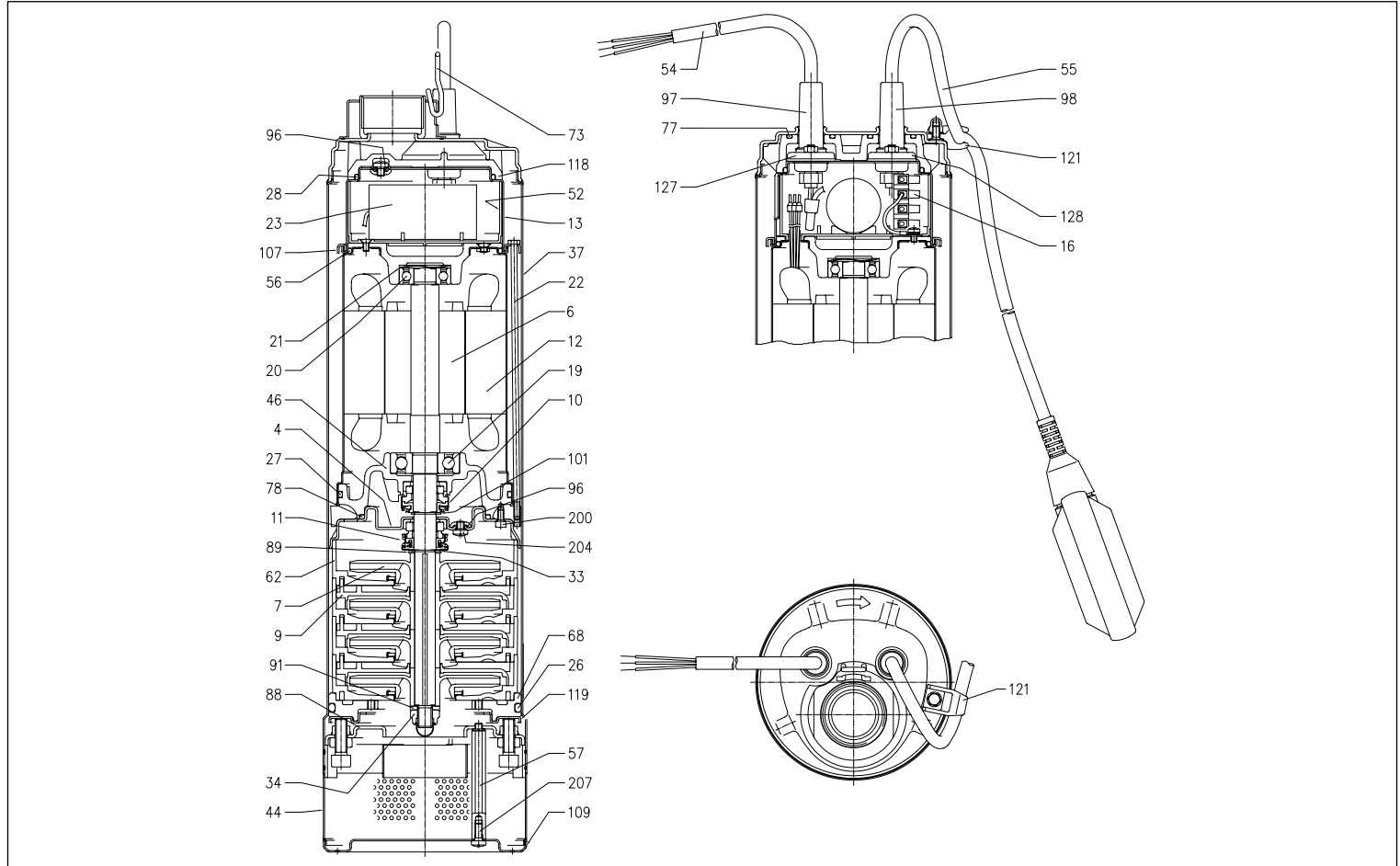
DIMENSIONAL TABLE

Model	H [mm]	Weight [kg]	
		Single phase	Three phase
IDROGO 40/06	513	13,0	-
IDROGO 40/08	513	14,6	14,8
IDROGO 40/10	539	16,0	16,1
IDROGO 40/12	590	17,2	17,4
IDROGO 40/15	616	18,3	18,3
IDROGO 80/12	540	16,5	16,4
IDROGO 80/15	564	17,7	17,4
IDROGO 80/20	590	-	18,0

5" SUBMERSED CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

SECTIONAL VIEW



MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
4	Casing cover	EN 1.4301 (AISI 304)	55	Float switch [2]	-
6	Shaft	EN 1.4057 (AISI 431)	56	O-Ring	NBR
7	Impeller	PPE+PS reinforced with fibreglass	57	Filter spacer	EN 1.4305 (AISI 303)
9	Diffusor	PPE+PS reinforced with fibreglass	62	Stage box	PPE+PS reinforced with fibreglass
10	Motor side mechanical seal	Carbon/Ceramic/NBR	68	Lower spacer	PPE+PS reinforced with fibreglass
11	Pump side mechanical seal	SiC/Carbon/NBR	73	Submersed hook	EN 1.4301 (AISI 304)
12	Motor case	-	77	O-Ring	NBR
13	Motor cover	EN 1.4301 (AISI 304)	78	O-Ring	NBR
16	Terminal box	-	88	Fixing flange	EN 1.4301 (AISI 304)
19	Bearing (pump side)	-	89	Washer	EN 1.4301 (AISI 304)
20	Bearing (motor side)	-	91	Washer	EN 1.4301 (AISI 304)
21	Adjusting ring	Steel C70	96	O-Ring	NBR
22	Tie-rod	EN 1.4305 (AISI 303)	97	Cable gland (power supply)	NBR
23	Capacitor [1]	-	98	Cable gland (float switch) [2]	NBR
26	O-Ring	NBR	101	Seeger ring	EN 1.4021 (AISI 420)
27	O-Ring	NBR	107	Lock ring	EN 1.4301 (AISI 304)
28	O-Ring	NBR	109	Filter base	EN 1.4301 (AISI 304)
33	Seeger ring	EN 1.4301 (AISI 304)	118	Upper spacer	PPE+PS reinforced with fibreglass
34	Impeller nut	EN 1.4301 (AISI 304)	119	Flange for lower spacer	EN 1.4301 (AISI 304)
37	Casing	EN 1.4301 (AISI 304)	121	Support for float switch [2]	PPE+PS reinforced with fibreglass
44	Filter	EN 1.4301 (AISI 304)	127	Cable gland connector (power supply)	EN 1.4301 (AISI 304)
46	Bearing holder support	Brass	128	Cable gland connector (float)	EN 1.4301 (AISI 304)
52	Capacitor-holder box	PA66 reinforced with fibreglass	200	Screw	Stainless steel A2 UNI 7323
54	Power supply cable	-	204-207	Screw	Stainless steel A2 UNI 7323

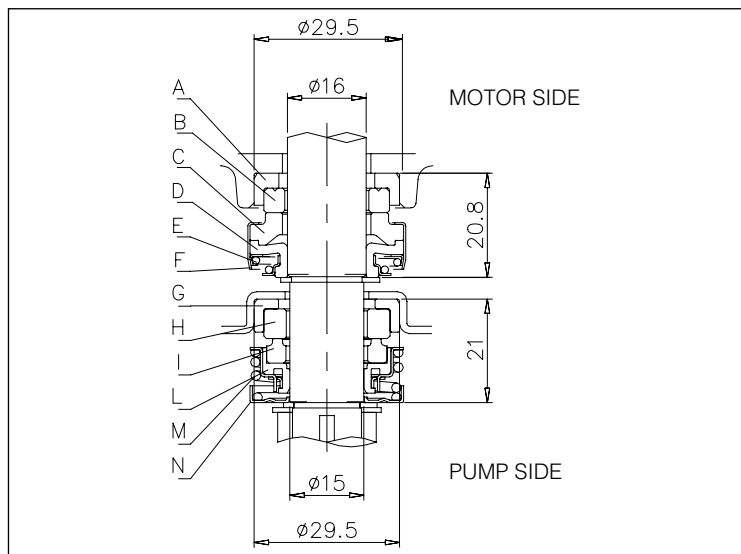
[1]= Single phase only
[2]= Single phase with float switch only

IDROGO

5" SUBMERSED CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

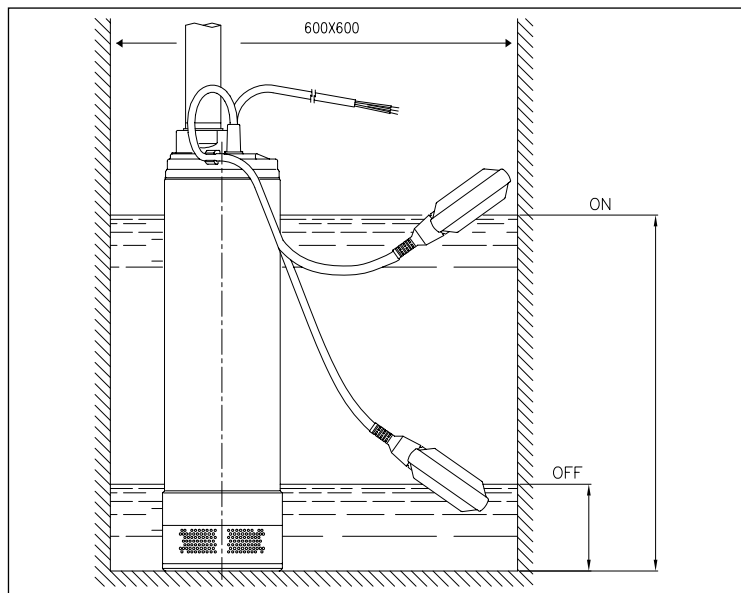
MECHANICAL SEAL



MATERIALS TABLE

Ref.	Name	Material
A	Fixed gasket	NBR
B	Fixed sealing ring	Ceramic
C	Rotating sealing ring	Carbon
D	Rotating gasket	NBR
E	Spring	AISI 304
F	Structure/frame	AISI 304
G	Fixed gasket	NBR
H	Fixed sealing ring	SiC
I	Rotating sealing ring	Carbon
L	Rotating gasket	NBR
M	Spring	AISI 304
N	Structure/frame	AISI 304

INSTALLATION



INSTALLATION TABLE

Model	Dimensions [mm]	
	ON	OFF
IDROGO 40/06	560	180
IDROGO 40/08	560	180
IDROGO 40/10	590	190
IDROGO 40/12	660	220
IDROGO 40/15	730	240
IDROGO 80/12	590	190
IDROGO 80/15	640	210

ELECTRIC DATA TABLE

Model	P ₂	Capacitor		P ₁	Absorbed Current					
		Single phase	V _c		Single phase	Three phase	Three phase			
Single phase 230V	Three phase 230V - 400V	[HP]	[kW]	μF	Single phase [kW]	Three phase [kW]	Single phase 230V [A]	Three phase 230V [A]	Three phase 400V [A]	
IDROGO M 40/06	-	0,6	0,44	16	450	0,82	-	3,8	-	-
IDROGO M 40/08	IDROGO 40/08	0,8	0,6	16	450	1	0,95	4,3	3,3	1,9
IDROGO M 40/10	IDROGO 40/10	1	0,75	20	450	1,25	1,18	5,7	3,8	2,2
IDROGO M 40/12	IDROGO 40/12	1,2	0,9	20	450	1,42	1,33	6,8	4,2	2,4
IDROGO M 40/15	IDROGO 40/15	1,5	1,1	31,5	450	1,6	1,55	7,3	5,2	3,0
IDROGO M 80/12	IDROGO 80/12	1,2	0,9	20	450	1,33	1,22	6,4	4,0	2,3
IDROGO M 80/15	IDROGO 80/15	1,5	1,1	31,5	450	1,62	1,52	7,5	5,4	3,1
-	IDROGO 80/20	2	1,5	-	-	-	1,9	-	6,1	3,5

1GP P

1GP P_DOMESTIC PRESSURE BOOSTING

Single phase centrifugal electric pumps assembled as a booster unit with vessel, pressure gauge, pressure switch brass fitting and power supply cable.

APPLICATIONS

- Domestic pressure boosting
- Small-scale garden irrigation
- Washing vehicles
- Moving clean water in general

TECHNICAL DETAILS

- Available in the following versions:
 - with cast iron self-priming electric pumps (AGA)
 - with AISI 304 stainless steel self-priming electric pumps (JEX)
 - with cast iron dual impeller centrifugal electric pumps (CDA)
 - with horizontal multistage electric pumps (COMPACT)



PERFORMANCE TABLE

Model	P ₂		Q [m ³ /h]	Performance	H [m]
	[HP]	[kW]			
1GP AGA 0.75 M - P	0,75	0,55	0,3÷1,2÷3,0		45,0÷37,9÷18,0
1GP AGA 1.00 M - P	1	0,75	0,3÷1,8÷3,6		47,5÷35,7÷23,0
1GP AGA/A 1.50 M - P	1,5	1,1	0,6÷2,7÷6,0		48,0÷38,6÷27,0
1GP CDA 1.00 M - P	1	0,75	1,2÷3,0÷5,4		39,5÷35,2÷21,0
1GP CDA/A 1.50 M - P	1,5	1,1	1,2÷3,0÷6,0		50,8÷47,1÷27,5
1GP JEXM/A 80 - P	0,8	0,6	1,2÷3,0÷4,5		33,0÷23,5÷18,0
1GP JEXM/A 100 - P	1	0,75	1,2÷3,0÷4,5		37,0÷27,0÷21,0
1GP JEXM/A 120 - P	1,2	0,9	1,2÷3,0÷4,5		41,0÷30,5÷24,5
1GP COMPACT/A AM/6 - P	0,6	0,44	1,2÷3,0÷4,8		31,0÷21,8÷9,0
1GP COMPACT/A AM/8 - P	0,8	0,6	1,2÷3,0÷4,8		40,0÷27,4÷10,5
1GP COMPACT AM/10 - P	1	0,75	1,2÷3,0÷4,8		57,0÷43,4÷20,0

TECHNICAL DATA TABLE

Model	P ₂		Absorbed Current [A] Single phase 230V	Suction connection	Discharge connection
	[HP]	[kW]			
1GP AGA 0.75 M - P	0,75	0,55	4	G1	G1
1GP AGA 1.00 M - P	1	0,75	5,5	G1	G1
1GP AGA/A 1.50 M - P	1,5	1,1	8,1	G1½	G1
1GP CDA 1.00 M - P	1	0,75	6,1	G1	G1
1GP CDA/A 1.50 M - P	1,5	1,1	8,6	G1¼	G1
1GP JEXM/A 80 - P	0,8	0,6	4,7	G1¼	G1
1GP JEXM/A 100 - P	1	0,75	6,4	G1¼	G1
1GP JEXM/A 120 - P	1,2	0,9	6,7	G1¼	G1
1GP COMPACT/A AM/6 - P	0,6	0,44	3	G1	G1
1GP COMPACT/A AM/8 - P	0,8	0,6	4	G1	G1
1GP COMPACT AM/10 - P	1	0,75	6	G1	G1

For further information, consult this catalogue (pages relative to the electric pumps indicated in the table)

1GP PRESSCOMFORT

1GP PRESSCOMFORT_DOMESTIC PRESSURE BOOSTING



Units with one electric pump with control unit.

PRESSCOMFORT is an automatic electronic appliance, destined to regulate the operation of the electric pump without using booster reservoirs.

Water pump automatic start and stop command when a cock or valve connected to the installation opens or closes respectively.

When the pump starts, it keeps running while it exists any tap opened in the system, giving flow and pressure to the hydraulic net while there is demand.

If there is no suction air, the pump stops automatically.

PRESSCOMFORT allows:

- manual restore (RESET key)
- automatic restore after 1, 6, 12 or 24 hours.

If on suction the water returns to a pressure exceeding the fixed value for pump start-up, PRESSCOMFORT is restored automatically.

APPLICATIONS

- Domestic pressure boosting
- Small-scale garden irrigation
- Washing vehicles
- Moving clean water in general

TECHNICAL DETAILS

- Available in the following versions:
 - with cast iron self-priming electric pump (AGA 1.00M)
 - with horizontal multistage electric pumps (COMPACT)

PERFORMANCE TABLE

Model	P ₂		Q [m ³ /h]	Performance	H [m]
	[HP]	[kW]			
1GP AGA 1.00M+PRESSCOMFORT	1	0,75	0,3÷1,8÷3,6		47,5÷35,7÷23,0
1GP COMPACT/A AM/6+PRESSCOMFORT	0,6	0,44	1,2÷3,0÷4,8		31,0÷21,8÷9,0
1GP COMPACT/A AM/8+PRESSCOMFORT	0,8	0,6	1,2÷3,0÷4,8		40,0÷27,4÷10,5
1GP COMPACT/A AM/10+PRESSCOMFORT	1	0,75	1,2÷3,0÷4,8		57,0÷43,4÷20,0

TECHNICAL DATA TABLE

Model	P ₂		Absorbed Current [A] Single phase 230V	Suction connection	Discharge connection
	[HP]	[kW]			
1GP AGA 1.00M+PRESSCOMFORT	1	0,75	5,5	G1	G1
1GP COMPACT/A AM/6+PRESSCOMFORT	0,6	0,44	3	G1	G1
1GP COMPACT/A AM/8+PRESSCOMFORT	0,8	0,6	4	G1	G1
1GP COMPACT/A AM/10+PRESSCOMFORT	1	0,75	6	G1	G1

For further information consult the catalogue relative to the electric pumps indicated in the table.

1GP H

1GP H_DOMESTIC PRESSURE BOOSTING



Booster units with single phase electric pumps complete with pressure switch, pressure gauge, brass fitting, flexible pipe, expansion vessel and power supply cable.

APPLICATIONS

- Domestic pressure boosting
- Small-scale garden irrigation
- Washing vehicles
- Moving clean water in general

TECHNICAL DETAILS

- Available in the following versions:
 - with cast iron self-priming electric pumps (AGA)
 - with steel self-priming electric pumps (JEX)

PERFORMANCE TABLE

Model	P ₂		Q [m ³ /h]	Performance	H [m]
	[HP]	[kW]			
1GP AGA 0.75 M - 24H	0,75	0,55	0,3÷1,2÷3,0		45,0÷37,9÷18,0
1GP AGA 1.00 M - 24H	1	0,75	0,3÷1,8÷3,6		47,5÷35,7÷23,0
1GP AGA/A 1.50 M - 24H	1,5	1,1	0,6÷2,7÷6,0		48,0÷38,6÷27,0
1GP JEXM/A 80 - 24H	0,8	0,6	1,2÷3,0÷4,5		33,0÷23,5÷18,0
1GP JEXM/A 100 - 24H	1	0,75	1,2÷3,0÷4,5		37,0÷27,0÷21,0
1GP JEXM/A 120 - 24H	1,2	0,9	1,2÷3,0÷4,5		41,0÷30,5÷24,5
1GP JEXM/A 150 - 24H	1,5	1,1	1,2÷3,0÷4,7		49,0÷37,0÷29,5

TECHNICAL DATA TABLE

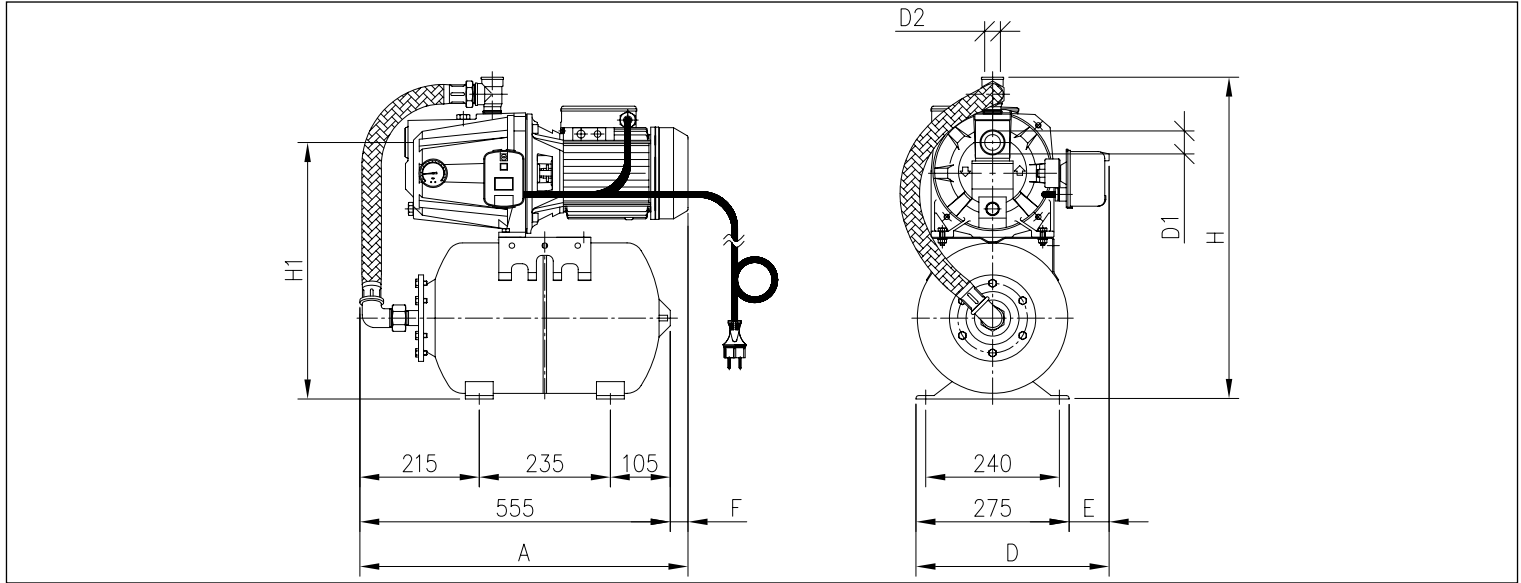
Model	P ₂		Absorbed Current [A] Single phase 230V	Suction connection	Discharge connection
	[HP]	[kW]			
1GP AGA 0.75 M - 24H	0,75	0,55	4	G1	G1
1GP AGA 1.00 M - 24H	1	0,75	5,5	G1	G1
1GP AGA/A 1.50 M - 24H	1,5	1,1	8,1	G1½	G1
1GP JEXM/A 80 - 24H	0,8	0,6	4,7	G1¼	G1
1GP JEXM/A 100 - 24H	1	0,75	6,4	G1¼	G1
1GP JEXM/A 120 - 24H	1,2	0,9	6,7	G1¼	G1
1GP JEXM/A 150 - 24H	1,5	1,1	7,6	G1¼	G1

For further information, consult this catalogue (pages relative to the electric pumps indicated in the table)

1GP H

1GP H_DOMESTIC PRESSURE BOOSTING

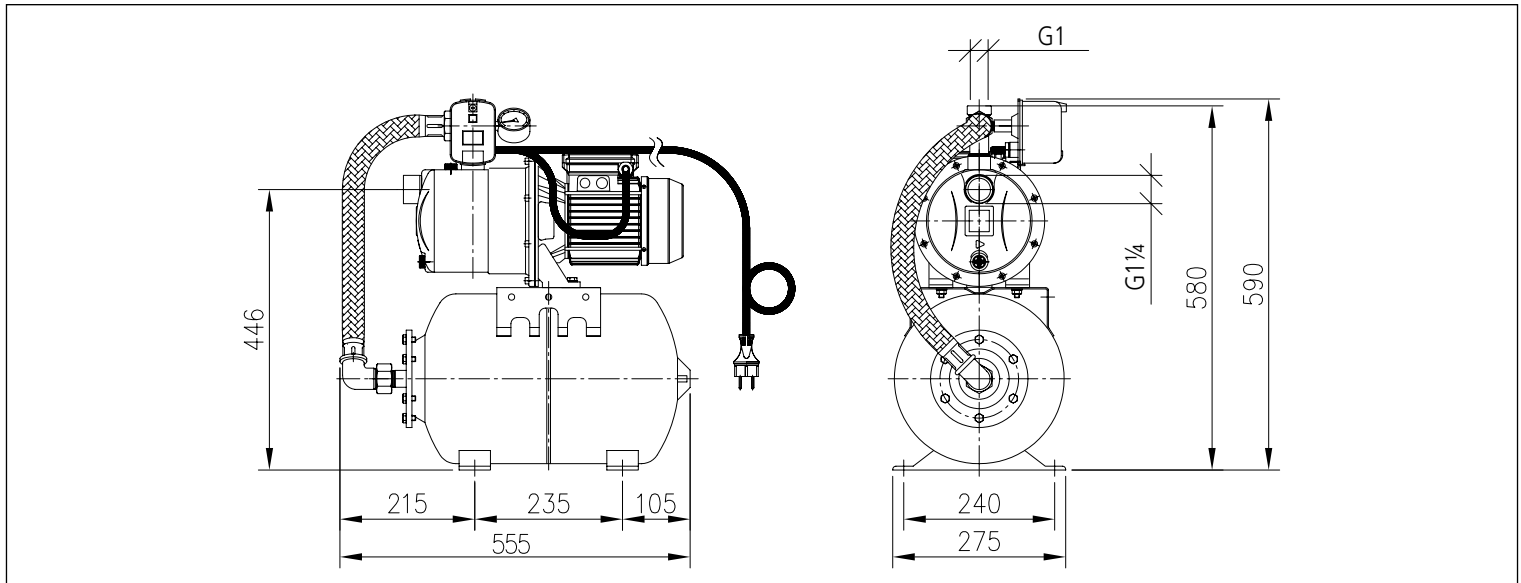
1GP H AGAM DIMENSIONS



DIMENSIONS TABLE

Model	Dimensions [mm]						D ₁	D ₂	Weight [kg]
	A	D	E	F	H	H1			
1GP AGA 0.75 M - 24H	555	330	55	-	540	442	G1	G1	20,0
1GP AGA 1.00 M - 24H	555	330	55	-	540	442	G1	G1	21,0
1GP AGA/A 1.50 M - 24H	575	350	75	20	575	460	G1½	G1	33,0

1GP H JEXM DIMENSIONS



WEIGHT TABLE

Model	Weight [kg]
1GP JEXM/A 80 - 24H	17,5
1GP JEXM/A 100 - 24H	17,5
1GP JEXM/A 120 - 24H	18,5
1GP JEXM/A 150 - 24H	21,0

1GPE PRESS•O•MATIC

1GPE PRESS•O•MATIC_DOMESTIC PRESSURE BOOSTING



Units with one electric pump with inverter control unit.

The Press•O•Matic electronic device for the control of the electric pumps is based on inverter technology, it controls start-up and stop of the electric pump and modulates motor revs. depending on the water withdrawal from the plant.

APPLICATIONS

- Domestic pressure boosting
- General pressure increases
- Small-scale garden irrigation
- Washing vehicles
- Moving clean water in general

TECHNICAL DETAILS

- Available in the following versions:
 - with horizontal multistage electric pumps equipped with body and support in cast iron, impellers and nozzle in PPE+PS reinforced with fibreglass (COMPACT)
 - with horizontal multistage electric pumps equipped with body, impellers and stages in AISI 304 stainless steel (MATRIX)

PERFORMANCE TABLE

Model	P ₂		Q [m ³ /h]	Performance	H [m]
	[HP]	[kW]			
1GPE COMPACT A/10+Press•O•Matic	1	0,75	1,2÷3,0÷4,8		56,5÷43,5÷20,0
1GPE COMPACT A/12+Press•O•Matic	1,2	0,9	1,2÷3,0÷4,8		67,5÷52,5÷24,0
1GPE COMPACT B/12+Press•O•Matic	1,2	0,9	1,8÷3,6÷7,2		47,5÷41,5÷18,0
1GPE COMPACT B/15+Press•O•Matic	1,5	1,1	1,8÷3,6÷7,2		58,0÷51,5÷22,0
1GPE MATRIX 3-4T/0,65+Press•O•Matic	0,9	0,65	1,2÷2,7÷4,8		42,0÷34,0÷16,0
1GPE MATRIX 3-5T/0,75+Press•O•Matic	1	0,75	1,2÷2,7÷4,8		52,5÷42,5÷20,0
1GPE MATRIX 3-6T/0,9+Press•O•Matic	1,2	0,9	1,2÷2,7÷4,8		62,5÷51,0÷24,0
1GPE MATRIX 3-7T/1,3+Press•O•Matic	1,8	1,3	1,2÷2,7÷4,8		73,0÷59,5÷28,0
1GPE MATRIX 5-4T/0,9+Press•O•Matic	1,2	0,9	1,8÷4,8÷7,8		43,0÷34,7÷17,6
1GPE MATRIX 5-5T/1,3+Press•O•Matic	1,8	1,3	1,8÷4,8÷7,8		54,0÷43,5÷22,0
1GPE MATRIX 5-6T/1,3+Press•O•Matic	1,8	1,3	1,8÷4,8÷7,8		64,5÷52,0÷26,4

TECHNICAL DATA TABLE

Model	P ₂		Current supplied to the motor [A] Three phase 230V	Suction connection	Discharge connection
	[HP]	[kW]			
1GPE COMPACT A/10+Press•O•Matic	1	0,75	2,9	G1	G1¼
1GPE COMPACT A/12+Press•O•Matic	1,2	0,9	4,3	G1	G1¼
1GPE COMPACT B/12+Press•O•Matic	1,2	0,9	4,3	G1¼	G1¼
1GPE COMPACT B/15+Press•O•Matic	1,5	1,1	4,3	G1¼	G1¼
1GPE MATRIX 3-4T/0,65+Press•O•Matic	0,9	0,65	2,8	G1	G1¼
1GPE MATRIX 3-5T/0,75+Press•O•Matic	1	0,75	3,0	G1	G1¼
1GPE MATRIX 3-6T/0,9+Press•O•Matic	1,2	0,9	4,3	G1	G1¼
1GPE MATRIX 3-7T/1,3+Press•O•Matic	1,8	1,3	5,6	G1	G1¼
1GPE MATRIX 5-4T/0,9+Press•O•Matic	1,2	0,9	4,3	G1¼	G1¼
1GPE MATRIX 5-5T/1,3+Press•O•Matic	1,8	1,3	5,6	G1¼	G1¼
1GPE MATRIX 5-6T/1,3+Press•O•Matic	1,8	1,3	5,6	G1¼	G1¼

For further information consult the catalogue relative to the electric pumps indicated in the table.
For correct functioning of the system, the use of an expansion vessel is recommended

ELECTRIC CONTROL PANELS FOR SUBMERSED AND SURFACE ELECTRIC PUMPS



Protection and control electric control panel for one electric pump. Functioning in manual mode or in automatic mode via pressure switch or float. When functioning two clamps are envisioned. Protection against dry running is ensured by the P.MIN pressure switch or by the float (the intervention stops the electric pump and is indicated by the relevant indicators and with remote contacts). The control panel protects the motors from overloading and missing phase. Any protections tripped are signalled on the control panel itself and at a distance via potential free contacts. The protection against overloading and missing phase, is automatic reset for three times, manual at the fourth intervention (any interventions, from 1 to 3, are cancelled after one hour from the last intervention).

TECHNICAL DETAILS

- P.MIN= Functioning against dry running (control using a float or minimum pressure switch) with automatic reset on water return
- PR1= Start and stop control of pump n° 1
- Motor protection against overloads with three automatic reset events, manual at the fourth
- Overload protection against short circuits, with fuses for starting the motor
- Protection of the transformer and auxiliary circuits with fuses
- Remote signalling with potential free NC-NA contact of the protections tripped

TECHNICAL DATA

- Power supply: 230V +10-15% 50/60 Hz (single phase)
400V +10-15% 50/60 Hz (trifase)
- Temperature: from -10°C to +40°C
- Protection degree: IP55
- Reference Standards: EN 60204-1, EN 60439-1, EN 61000-6-3, EN 61000-6-1 (for civil environments)

ELECTRIC DATA TABLES

Model Single phase 230V +10-15% - 50Hz	[HP]	[kW]	Nominal curr. [A]	Protection range [A]
1EP 0,37 - 2,2 M UA	0,55 ÷ 3	0,37 ÷ 2,2	16	3,2 ÷ 16

Control panels supplied without capacitor. For more information please contact our sales network.

Model Three phase 400V +10-15% - 50Hz	[HP]	[kW]	Nominal curr. [A]	Protection range [A]
1EP 2,2 T	0,55 ÷ 3	0,37 ÷ 2,2	6	3,2 ÷ 16
1EP 7,5 T	4 ÷ 10	3 ÷ 7,5	16	3,2 ÷ 16
1EP 11 SD UA	15	10	25	9 ÷ 15
1EP 15 SD UA	20	15	31	12 ÷ 18
1EP 18,5 SD UA	25	18,5	36	16 ÷ 24
1EP 22 SD UA	30	22	50	23 ÷ 32
1EP 30 SD UA	40	30	62	30 ÷ 40
1EP 37 SD UA	50	37	77	37 ÷ 50



Protection and control panels for a submersed or surface electric pump with direct start-up. The control panel can manually and automatically control an electric pump.

In the automatic function, the electric pump is controlled by the pressure switch, the float or signals that come from the electric probes or from the floats.

TECHNICAL DETAILS

- Protection against dry running (control using an electric probe) with automatic reset and water return
- Reservoir filling level control with two electric probes or floats
- Reservoir emptying level control with two electric probes or floats
- Cosφ module, optional for controlling against dry running without the use of the electric probes
- Motor protection against overloads and an automatic reset phase for three interventions, manual at the fourth
- Pump protection against excessive start-ups
- Overload and board protection, against short circuits, with fuses
- Remote displaying with NC-NO potential free contact of the present fault or alarm float
- Clamps for connecting any single phase motor starter capacitor
- Clamps for connecting a pressure switch
- Clamps for connecting an alarm float

TECHNICAL DATA

- 230V +10-15% 50/60 Hz power supply (single phase)
400V +10-15% 50/60 Hz (three phase + N)
- Temperature of the liquid: from -10°C to +40°C
- IP55 Protection rating
- Reference Standards: EN 60204-1, EN 60439-1, EN 61000-6-2, EN 61000-6-4 (for domestic and light industry application)

ELECTRIC DATA TABLE 4" SINGLE PHASE BOREHOLE MOTORS

Model Single phase 230V +10-15% - 50Hz	[HP]	[kW]	[A] max		Recommended capacitor		
			[OY]	[WY]	[OY]	μF	[WY]
1EPBH 0,37 M	0,5	0,37	3,6	4	20	16	450
1EPBH 0,55 M	0,75	0,55	4,5	5,9	25	20	450
1EPBH 0,75 M	1	0,75	6	7,3	35	35	450
1EPBH 1,1 M	1,5	1,1	8,2	8,6	40	40	450
1EPBH 1,5 M	2	1,5	11	10,4	60	50	450
1EPBH 2,2 M	3	2,2	14,8	15,3	80	70	450

Control panels supplied without capacitor

ELECTRIC DATA TABLE 4" THREE PHASE BOREHOLE MOTORS

Model Three phase 400V +10-15% - 50Hz	[HP]	[kW]	[A] max	
			[OY]	[WY]
1EPBH 0,37÷1,1 T	0,5÷1,5	0,37÷1,1	1,6÷3,4	1,03±2,8
1EPBH 1,5 T	2	1,5	4,6	3,9
1EPBH 2,2 T	3	2,2	6,2	5,5
1EPBH 3 T	4	3	8	7,5
1EPBH 4 T	5,5	4	10,2	9,9
1EPBH 5,5 T	7,5	5,5	14,4	12,6
1EPBH 7,5 T	10	7,5	19,5	17,1

1EPBH

ELECTRIC CONTROL PANELS FOR SUBMERSED AND SURFACE ELECTRIC PUMPS

ELECTRIC DATA TABLE 6" THREE PHASE BOREHOLE MOTORS

Model Three phase 400V +10-15% - 50Hz	[HP]	[kW]	[OY]	[A] max	[WY]
1EPBH 4 T	5,5	4	8,9		9,3
1EPBH 5,5 T	7,5	5,5	12,4		12,5
1EPBH 7,5 T	10	7,5	17,2		16
1EPBH 9,2÷11 T AVSE 2E*	12,5÷15	9,2÷11	22÷23,9		20,7÷23,3
1EPBH 15 T AVSE 2E*	20	15	31,4		31,3
1EPBH 18,5 T AVSE 2E*	25	18,5	41,5		38,5
1EPBH 22 T AVSE 2E*	30	22	46,5		45,3
1EPBH 30 T AVSE 2E*	40	30	63		63,5
1EPBH 37 T AVSE 2E*	50	37	79,2		73
1EPBH 45 T AVSE 2E*	60	45	-		89,5

*= Start with reactance -2 isolators

ELECTRIC DATA TABLE 8" THREE PHASE BOREHOLE MOTORS

Model Three phase 400V +10-15% - 50Hz	[HP]	[kW]	[A] max [WY]
1EPBH 30 T AVSE 2E*	40	30	61
1EPBH 37 T AVSE 2E*	50	37	74
1EPBH 45 T AVSE 2E*	60	45	89
1EPBH 55 T AVSE 2E*	75	55	108
1EPBH 75 T AVSE 2E*	100	75	145
1EPBH 93 T AVSE 2E*	125	93	190
1EPBH 110 T AVSE 2E*	150	110	222

*= Start with reactance -2 isolators

HERTZ ONE - TWIN

ELECTRIC CONTROL PANEL WITH INVERTER



HERTZ ONE



HERTZ TWIN

The HERTZ ONE control panel is an automatic control and protection system for one (HERTZ ONE) or two (HERTZ TWIN) electric centrifugal pumps equipped with three phase induction motors.

The control panel power supply can be three phase or single phase.

The HERTZ ONE and HERTZ TWIN control panels include a pump control software and allow regulation of motor speed via an electronic frequency changer (INVERTER) that powers the pump motor. On varying the rotation speed, the pump performance varies in terms of flow rate and head, allowing optimal use in every condition and saving energy.

TECHNICAL DETAILS

- Energy saving: the controller modulates the pump according to the hydraulic energy request of the plant with respect to a direct connection in the network
- Quicker and improved regulation
- Hammering reduced thanks to gradual start-up and stop
- Improved comfort in the heating, air conditioning and pressure boosting systems
- Reduced peak current
- Exchange at every powered pump re-start (HERTZ TWIN)
- Speed modulation on both pumps for excellent regulation (HERTZ TWIN)

TECHNICAL DATA

- Current limits for 60 seconds 1.6 times the current set for 60 seconds. Automatic restore for three times, manual restore on the fourth intervention
- Limits of use (environment temperature): from -10°C to +40°C
- IP55 Protection rating (IP44 TWIN TT 2x3, 3x4)
- Conformity to the CE mark, EN 60204-1; Security electrical equipment. - EN 60439-1; Switchgear and controlgear assemblies. EMC standards applied:
 - CEI EN 61000-6-1; immunity for residential, commercial, and light-industrial environments.
 - CEI EN 61000-6-2; industrial immunity.
 - CEI EN 61000-6-3; emission for residential, commercial and light-industrial environments.
 - CEI EN 61000-6-4; industrial emission.
 - CEI EN 61000-3-2; harmonic current emission $\leq 16A$ (use XL.L line inductance to be installed on request, see ref. 8.1, 8.2). Emissions: conformity for residential environments. Immunity: conformity for industrial environments.
- Recommended minimum output frequency: 30 Hz
- Power supply voltage (single phase version): 230V +10% -15%
- Power supply voltage (three phase version): 400V +10% -15%
- Number of pumps that can be connected: 1 (HERTZ ONE), 2 (HERTZ TWIN)
- Motor power: from 0.25 kW to 4 kW

E-drive

FREQUENCY INVERTER FOR THE CONTROL OF ELECTRIC PUMPS



The E-drive is a device for the control and protection of pumping systems based on frequency variations in the power supply of the pump.

The E-drive can be connected to any pump on the market, it manages operation to maintain set physical quantities constant (pressure, flow or temperature of fluid or more) depending on the conditions of use. In this way the pump is operated only as and when needed without wasting energy and as such extending its life.

APPLICATIONS

- Domestic and industrial water supply
- Irrigation
- Heating and air conditioning
- Filtering and pressure washing

TECHNICAL FEATURES

- Energy and financial savings
- Easy system installation and at a lower cost
- Longer system life
- Increased reliability

GENERAL FEATURES

- Power supply frequency: 50 - 60 Hz (+/- 2%)
- Max. working ambient temperature under a nominal load: 40°C (104 °F)
- Max. altitude under a nominal load: 1000 m
- Degree of protection: IP55 (NEMA 4)
- Configurable digital outputs NO or NC:
 1. running motor signal
 2. alarm
 3. pump control DOL 1
 4. pump control DOL 2
- Analogue inputs, (10 or 15 Vdc):
 1. 4-20 mA
 2. 4-20 mA
 3. 4-20 mA / 0 - 10 Vdc (configurable)
 4. 4-20 mA / 0 - 10 Vdc (configurable)
- 4 Digital inputs, configurable NO or NC, to start and stop motor
- Serial RS485

ELECTRIC DATA TABLE

Model	V _{in} +/- 15% [V]	Max. V _{out} [V]	I _{out} [A]	P ₂ Typical motor [kW]
E-drive 1500	1 x 230	1 x 230	9	1,1
		3 x 230	7	1,5
E-drive 3000	1 x 230	1 x 230	9	1,1
		3 x 230	11	3
E-drive 2200	3 x 400	3 x 400	6	2,2
E-drive 4000	3 x 400	3 x 400	9	4
E-drive 5500	3 x 400	3 x 400	14	5,5
E-drive 7500	3 x 400	3 x 400	18	7,5
E-drive 11000	3 x 400	3 x 400	25	11
E-drive 15000	3 x 400	3 x 400	30	15

PRESSCOMFORT

PRESSURE REGULATOR



PRESSCOMFORT is an automatic electronic appliance, destined to regulate functioning of the electric pumps without using booster reservoirs.

This unit manages the automatic start and stop of the pump when opening or closing any tap or valve of the installation.

When the pump starts, it keeps running while it exists any tap opened in the system, giving flow and pressure to the hydraulic net while there is demand.

If there is no suction air, the pump stops automatically.

PRESSCOMFORT allows:

- manual restore (RESET key)
- automatic restore after 1, 6, 12 or 24 hours.

If on suction the water returns to a pressure exceeding the fixed value for pump start-up, PRESSCOMFORT is restored automatically.

TECHNICAL DETAILS

- The PRESSCOMFORT is replacing the traditional expansion tank, pressure switch, check valves, level switch
- Version with or without cables
- Automatic regulation
- Adjustable start-up pressure
- Incorporated non-return valve
- Plate with functioning indicator
- Connection cable on the pump terminal box (for wired version only)
- Power supply cable (1.5 m) with standard socket (for wired version only)

TECHNICAL DATA

- Maximum temperature of the water: 60° C
- Maximum flow rate: 10,000 l/h
- Start-up pressure: 1.5 - 2.5 bar
- Maximum use pressure: 10 bar
- Power supply voltage: 220 ±10% - 50/60 Hz
- Maximum current intensity: 10A
- IP65 Protection rating
- G1 connections (pump and outlet side)
- Weight: 0,6 kg

INVERTER FOR CONTROLLING THE ELECTRIC PUMPS



Electronic device for controlling the electric pumps based on inverter technology. Controls start-up and stop of the electric pump and modulates the motor revs. depending on the withdrawal of water from the plant.

TECHNICAL DETAILS

- Constant pressure thanks to the regulation of the electric pump revs.
- Energy saving
- Gradual pump start-up and stop that reduce hammering and eliminate peak current on ignition
- Protection against dry running if there is no suction air
- Reset automatic in the case of stopping due to dry running
- Effective leak control (protection of the pump in the case of continuous re-starts)
- Indication of the pressure on the display
- Amperometric motor control
- Indication of the various functioning/error states via luminous indicators and messages on the display
- Functioning in twin units alternately
- Double set-point that can be commanded at a distance
- Electric pump remote start and stop
- Rotation direction inversion via software
- Removable electric clamps to easy wiring
- The use of an expansion vessel is recommended

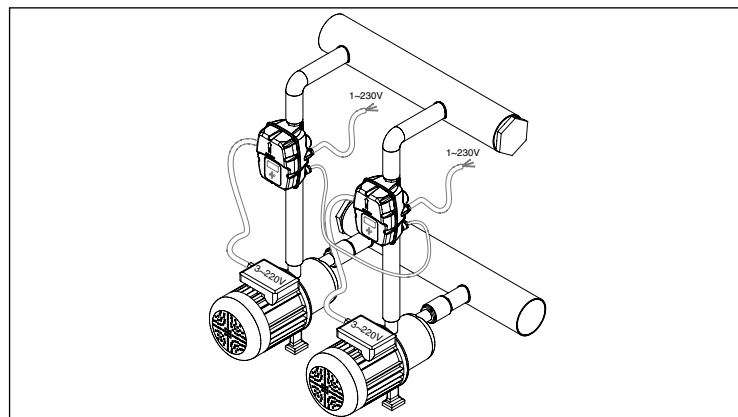
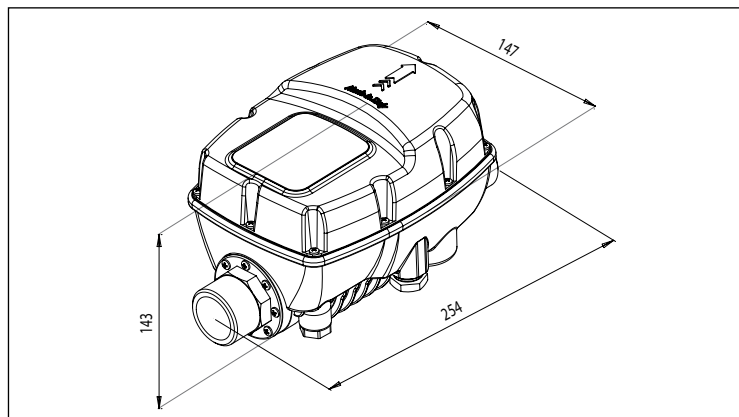
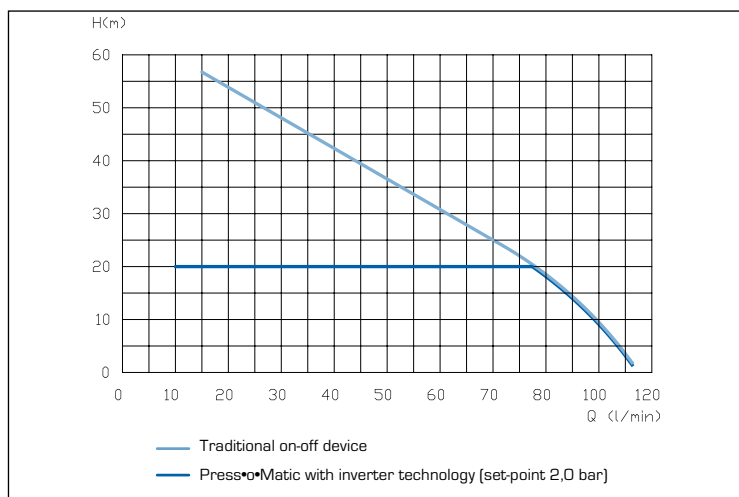
TECHNICAL DATA

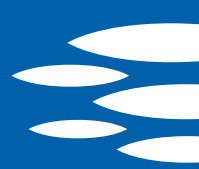
- Mains power supply: single phase 230V \pm 10%, 50Hz
- Motor supply: three phase 220V
- Maximum motor power: 2200W - 3HP
- Maximum motor current: 9,7A
- Maximum line absorption: 16A at 230V
- Maximum pressure accepted: 8 bar
- Maximum temperature of the liquid: 50°C
- Pressure drop: 0.1 bar at 150 l/min
- Set-point regulation range: 1.5÷7 bar
- Start pressure regulation range: 1÷6.7 bar
- Hydraulic connection: G1¼ male-male
- Frequency modulation range: 25÷50 Hz
- Protection rating: IP 65

SPECIAL VERSION

- Frequency modulation range 30÷60 Hz
- Connection cable for functioning in pairs 4x0.5 mm² 100 cm (SR-CBL4X05-100)

PRESSURE-FLOW RATE GRAPHICS (ELECTRIC PUMP 1,5 HP)





SPECIFIC PERFORMANCE

The specifications below qualify the curves shown in our catalogues and Data Book (see www.ebara-europe.com). All the performance curves are calculated according to ISO 9906 Attachment A.

Tolerance according to ISO 9906 Attachment A. The curves refer to an effective speed of the 50 Hz asynchronous motors. The measurements are made with water temperature of 20°C and cinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt). During the pump selection, consider to get a safety margin of at least 0.5 m.

The continuous curves indicate the recommended working range. The dotted curve is only a guide.

In order to prevent the risk of overheating, the pumps must not be used at a flow rate below 10% of the maximum efficiency flow rate.


During selection of the pumps, there is a safety margin of at least 1 m.

- Symbols:
- Q = Volume flow rate [m^3/h]
 - H = Total head [m]
 - P¹ = Power absorbed by the electric line
 - P² = 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.



DNV BUSINESS ASSURANCE

MANAGEMENT SYSTEM CERTIFICATE

Certificato No. / Certificate No. **CERT-17819-2006-AQ-VEN-SINCERT**

Si attesta che / This is to certify that

EBARA PUMPS EUROPE S.p.A.

Sede e Stabilimento di Brendola: Via Pacinotti, 32 - 36040 Brendola (VI) - Italy
 Stabilimento di Cles: Via Campo Sportivo, 30 - 38023 Cles (TN) - Italy
 Filiale di Palermo: Via Don Luigi Sturzo, 181/183 - Z. I. - 90040 Carini (PA) - Italy
 Filiale di Cagliari: Via del Fangario, 29 - 09122 Cagliari (CA) - Italy

è conforme ai requisiti della norma per i sistemi di gestione:
 has been found to conform to the management system standard:

UNI EN ISO 9001:2008 (ISO 9001:2008)

Questa Certificazione è valida per il seguente campo applicativo:
 This Certificate is valid for the following product or service ranges:

Progettazione, produzione, vendita e commercializzazione di pompe e sistemi di pompaggio
 (Settore EA : 18 - 17)

Design, manufacture, sales and trade of pumps and pumping systems
 (Sector EA : 18 - 17)

Data Prima Emissione/Initial Certification Date:
2006-10-13

Il Certificato è valido fino al:
This Certificate is valid until:
2015-10-10


L'audit è stato eseguito sotto la supervisione di
The audit has been performed under the supervision of

Michele Gaiba
Lead Auditor



Luogo e Data/Place and Date:
Agrate Brianza (MB), 2012-10-02

Per l'Organismo di Certificazione:
For the Accredited Unit:



Zeno Beltrami
Management Representative

La validità del presente Certificato è subordinata al rispetto delle condizioni contenute nel Contratto di Certificazione.
 Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

DNV NORWAY VERITAS ITALIA SRL - CENTRO DIREZIONALE CULLEONE - PALAZZO SIDA - V.LE COLLETTA 9 - 20084 AGRATE BRIANZA (MB) - ITALY - TEL. 039.8879966 - WWW.DNVBIL.COM

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