



EBARA

MATRIX

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

60 Hz

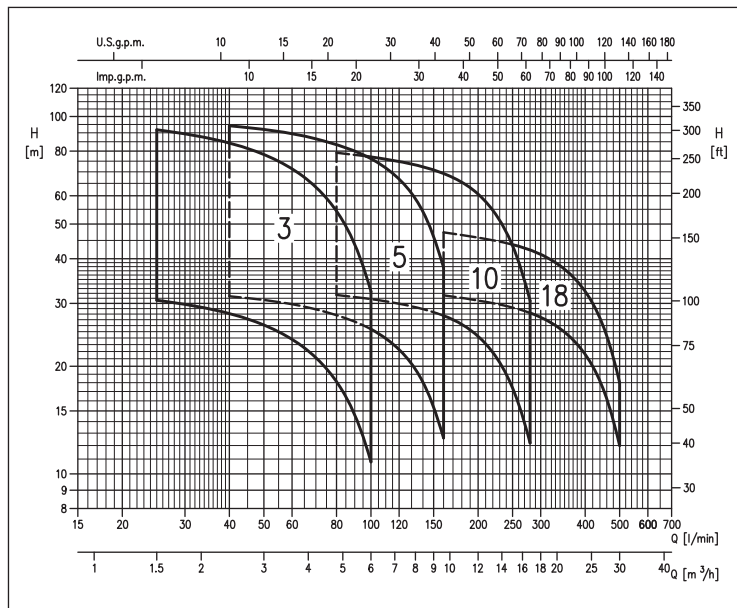


HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

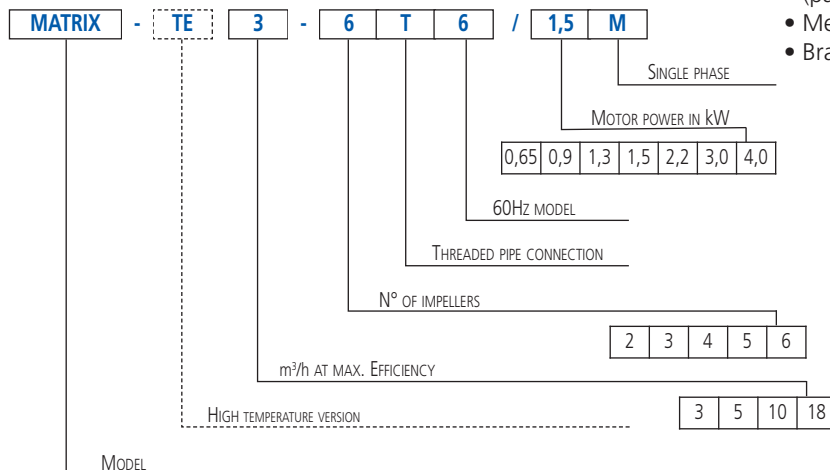
in AISI 304



PERFORMANCE CHART (according to ISO 9906 Attachment A)



IDENTIFICATION CODE



Horizontal multistage centrifugal electric pumps in AISI 304 stainless steel.

APPLICATIONS

- 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
- TIFQ certified product in compliance to DM 174, pumps are fit for contact with water intended for human consumption
- Standard version WRAS-approved (up to 85°C)

TECHNICAL DATA

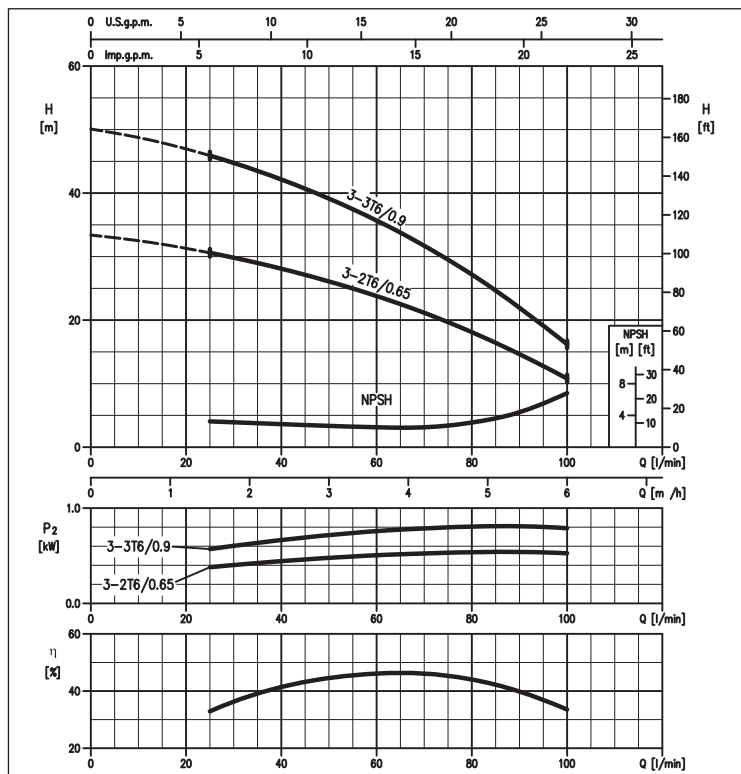
- Temperature of the liquid:
 - from -15°C to +85°C (standard)
 - from -15°C to +110°C (TE version)
- Maximum working pressure: 10 bar
- Maximum chlorine content: 500 ppm
- Self-ventilated 2 pole asynchronous motor
- Class of insulation F
- IP55 Protection rating
- 220-230V ±6%, 60Hz single phase voltage, 220/380-460V -6%+10%, 60Hz 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
- Suction connection: G1 for MATRIX 3, G1¼ for MATRIX 5, G1½ for MATRIX 10, G2 for MATRIX 18
- Discharge connection: G1 for MATRIX 3-5, G1¼ for MATRIX 10, G1½ for MATRIX 18

MATERIALS

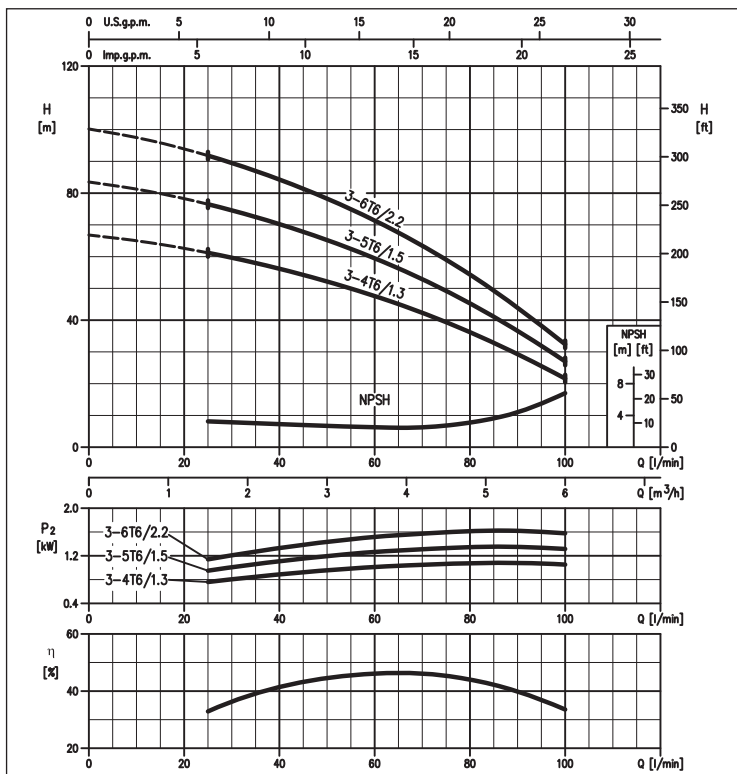
- Pump body, impeller, intermediate stages, casing cover and shaft (part in contact with the liquid) in AISI 304
- Mechanical seal in Carbon/Ceramic/EPDM
- Bracket in EN AB-AISI11Cu2(Fe) (Die cast Aluminium)

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in AISI 304

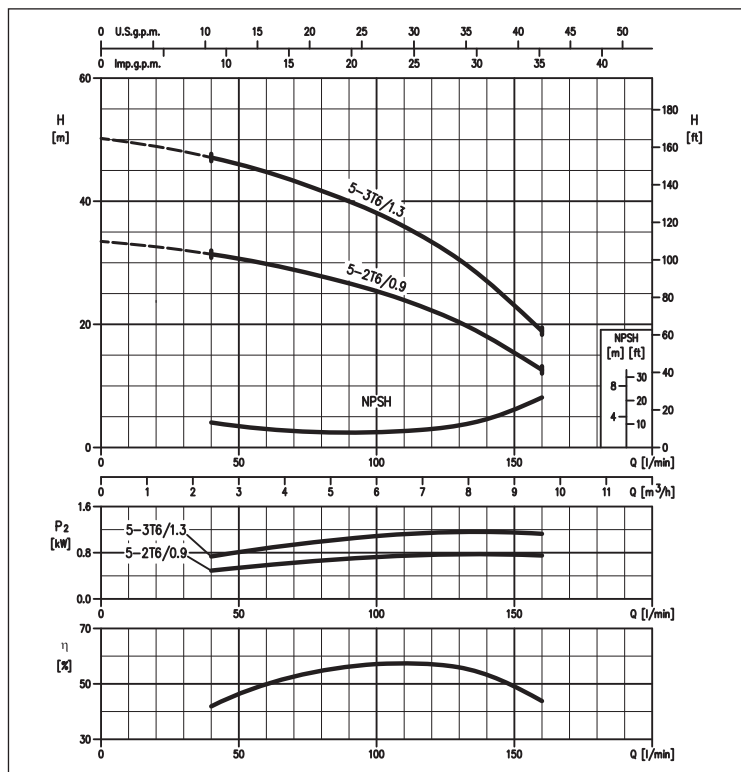
MATRIX 3 range PERFORMANCE CURVES (from 2 to 3 impellers)
(according to ISO 9906 Attachment A)



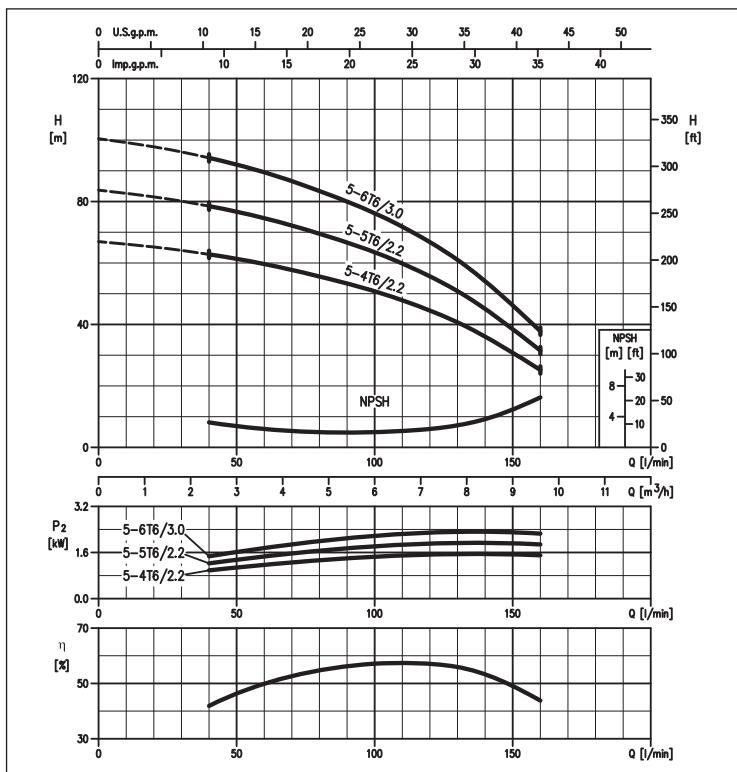
MATRIX 3 range PERFORMANCE CURVES (from 4 to 6 impellers)
(according to ISO 9906 Attachment A)



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



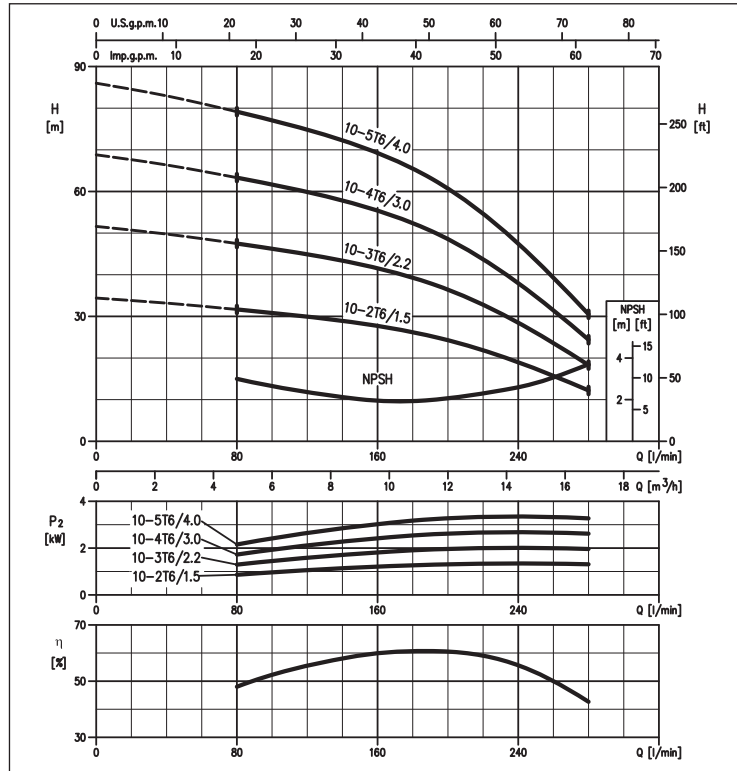
MATRIX 5 range PERFORMANCE CURVES (from 4 to 6 impellers)
(according to ISO 9906 Attachment A)



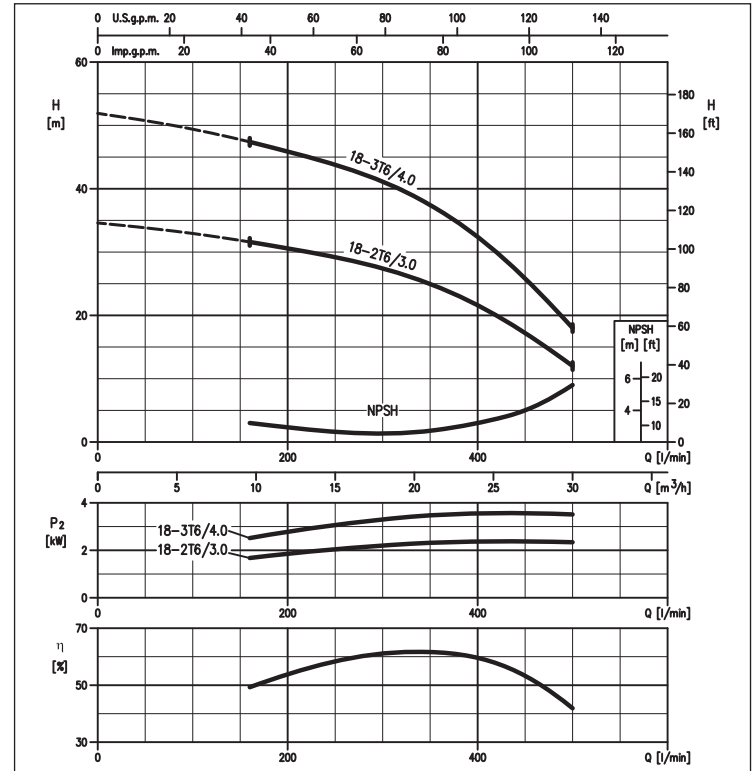
HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

MATRIX 10 range PERFORMANCE CURVES (from 2 to 5 impellers)
(according to ISO 9906 Attachment A)



MATRIX 18 range PERFORMANCE CURVES (from 2 to 3 impellers)
(according to ISO 9906 Attachment A)



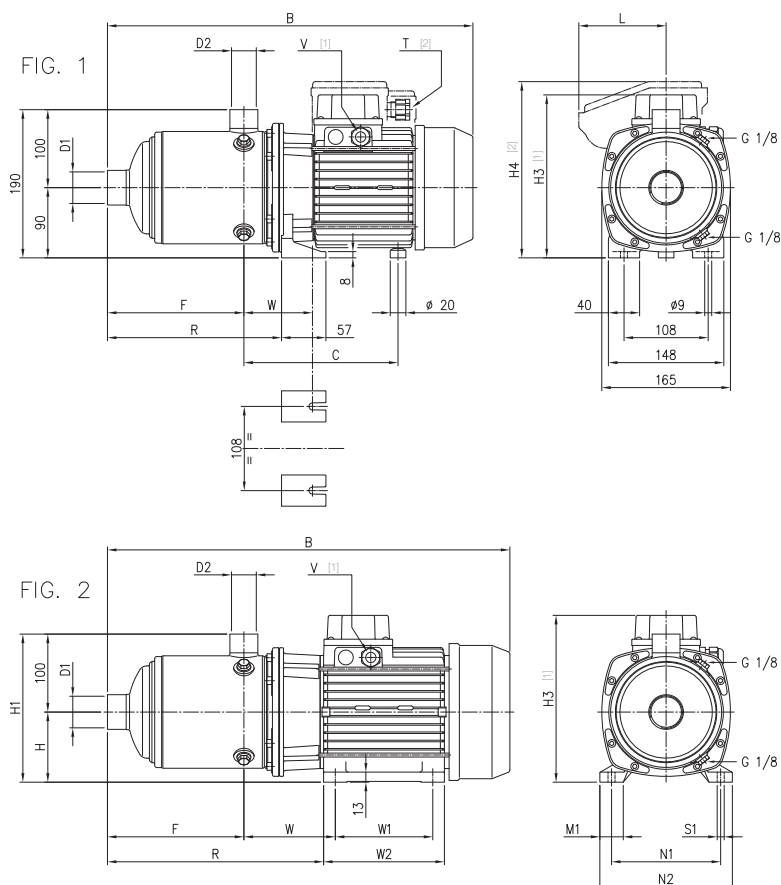
PERFORMANCE TABLE

Model		P ₂		Q=Flow rate													
Single phase 220-230V	Three phase 220/380-460V	[HP]	[kW]	l/min 25	40	60	80	100	130	160	220	280	340	400	460	500	
				m³/h 1,5	2,4	3,6	4,8	6	7,8	9,6	13,2	16,8	20,4	24	27,6	30	
H=Head [m]																	
MATRIX 3-2T6/0.65M	MATRIX 3-2T6/0.65	0,9	0,65	30,6	28,1	23,8	18,1	10,8	-	-	-	-	-	-	-	-	
MATRIX 3-3T6/0.9M	MATRIX 3-3T6/0.9	1,2	0,9	46,0	42,0	35,7	27,2	16,2	-	-	-	-	-	-	-	-	
MATRIX 3-4T6/1.3M	MATRIX 3-4T6/1.3	1,8	1,3	61,0	56,0	47,5	36,2	21,6	-	-	-	-	-	-	-	-	
MATRIX 3-5T6/1.5M	MATRIX 3-5T6/1.5	2	1,5	76,5	70,5	59,5	45,5	27,0	-	-	-	-	-	-	-	-	
-	MATRIX 3-6T6/2.2	3	2,2	92,0	84,5	71,5	54,5	32,4	-	-	-	-	-	-	-	-	
MATRIX 5-2T6/0.9M	MATRIX 5-2T6/0.9	1,2	0,9	-	31,4	29,8	27,8	25,4	20,3	12,6	-	-	-	-	-	-	
MATRIX 5-3T6/1.3M	MATRIX 5-3T6/1.3	1,8	1,3	-	47,0	45,0	41,5	38,1	30,5	18,9	-	-	-	-	-	-	
-	MATRIX 5-4T6/2.2	3	2,2	-	63,0	59,5	55,5	51,0	40,5	25,2	-	-	-	-	-	-	
-	MATRIX 5-5T6/2.2	3	2,2	-	78,5	74,5	69,5	63,5	51,0	31,5	-	-	-	-	-	-	
-	MATRIX 5-6T6/3	4	3	-	94,0	89,5	83,5	76,0	61,0	37,8	-	-	-	-	-	-	
MATRIX 10-2T6/1.5M	MATRIX 10-2T6/1.5	2	1,5	-	-	-	31,7	30,8	29,4	27,7	21,9	12,2	-	-	-	-	
-	MATRIX 10-3T6/2.2	3	2,2	-	-	-	47,5	46,5	44,0	41,5	32,8	18,3	-	-	-	-	
-	MATRIX 10-4T6/3	4	3	-	-	-	63,5	61,5	59,0	55,5	43,5	24,4	-	-	-	-	
-	MATRIX 10-5T6/4	5,5	4	-	-	-	79,0	77,0	73,5	69,5	54,5	30,5	-	-	-	-	
-	MATRIX 18-2T6/3	4	3	-	-	-	-	-	-	31,6	30,0	28,2	25,5	21,6	16,2	12,0	
-	MATRIX 18-3T6/4	5,5	4	-	-	-	-	-	-	47,5	45,0	42,5	38,3	32,4	24,3	18,0	

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

DIMENSIONS



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

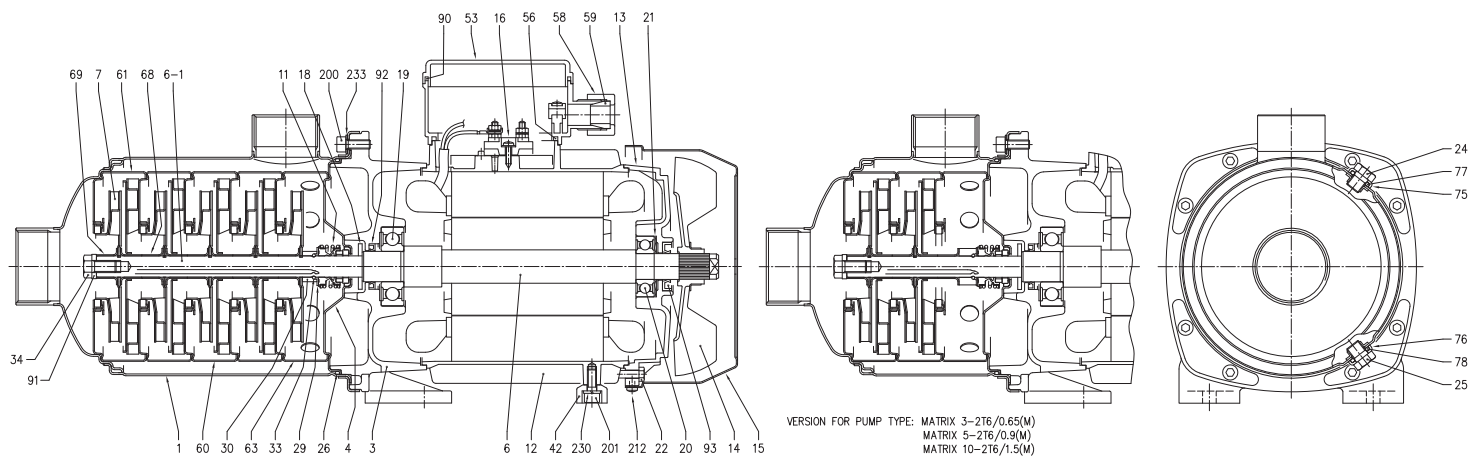
DIMENSIONAL TABLE

Model	Fig.	B	C	F	H	H1	H3 [1]	H4 [2]	L	R	T [2]	V [1]	W	W1	W2	M1	N1	N2	S1	D1	D2	Weight [kg]
MATRIX 3-2T6/0.65M	1	360	171	103	-	-	-	200	86,5	151,5	PG11	-	88÷97	-	-	-	-	-	-	1"	1"	9,8
MATRIX 3-2T6/0.65	1	360	171	103	-	-	192	-	-	151,5	-	PG11	88÷97	-	-	-	-	-	-	1"	1"	9,7
MATRIX 3-3T6/0.9M	1	360	171	103	-	-	-	219	106	151,5	M20x1,5	-	88÷97	-	-	-	-	-	-	1"	1"	11,7
MATRIX 3-3T6/0.9	1	372	171	103	-	-	192	-	-	151,5	-	PG11	88÷97	-	-	-	-	-	-	1"	1"	12,4
MATRIX 3-4T6/1.3M	1	421	198	127	-	-	-	226	112	175,5	M20x1,5	-	88÷97	-	-	-	-	-	-	1"	1"	14,7
MATRIX 3-4T6/1.3	1	421	198	127	-	-	209	-	-	175,5	-	PG11	88÷97	-	-	-	-	-	-	1"	1"	14,4
MATRIX 3-5T6/1.5M	1	458	198	151	-	-	-	226	112	199,5	M20x1,5	-	88÷97	-	-	-	-	-	-	1"	1"	16,0
MATRIX 3-5T6/1.5	1	458	198	151	-	-	209	-	-	199,5	-	PG11	88÷97	-	-	-	-	-	-	1"	1"	17,8
MATRIX 3-6T6/2.2	1	482	198	175	-	-	209	-	-	223,5	-	PG11	88÷97	-	-	-	-	-	-	1"	1"	18,3
MATRIX 5-2T6/0.9M	1	360	171	103	-	-	-	219	106	151,5	M20x1,5	-	88÷97	-	-	-	-	-	-	1 1/4"	1"	11,6
MATRIX 5-2T6/0.9	1	372	171	103	-	-	192	-	-	151,5	-	PG11	88÷97	-	-	-	-	-	-	1 1/4"	1"	12,3
MATRIX 5-3T6/1.3M	1	397	198	103	-	-	-	226	112	151,5	M20x1,5	-	88÷97	-	-	-	-	-	-	1 1/4"	1"	14,0
MATRIX 5-3T6/1.3	1	397	198	103	-	-	209	-	-	151,5	-	PG11	88÷97	-	-	-	-	-	-	1 1/4"	1"	13,8
MATRIX 5-4T6/2.2	1	434	198	127	-	-	209	-	-	175,5	-	PG11	88÷97	-	-	-	-	-	-	1 1/4"	1"	16,7
MATRIX 5-5T6/2.2	1	458	198	151	-	-	209	-	-	199,5	-	PG11	88÷97	-	-	-	-	-	-	1 1/4"	1"	16,9
MATRIX 5-6T6/3	2	554	-	175	90	90	214	-	-	277,5	-	PG13,5	117,5	125	155	30	140	170	9	1 1/4"	1"	22,4
MATRIX 10-2T6/1.5M	1	429	202	118	-	-	-	226	112	170,5	M20x1,5	-	92÷101	-	-	-	-	-	-	1 1/2"	1 1/4"	14,8
MATRIX 10-2T6/1.5	1	429	202	118	-	-	209	-	-	170,5	-	PG11	92÷101	-	-	-	-	-	-	1 1/2"	1 1/4"	16,5
MATRIX 10-3T6/2.2	1	429	202	118	-	-	209	-	-	170,5	-	PG11	92÷101	-	-	-	-	-	-	1 1/2"	1 1/4"	16,3
MATRIX 10-4T6/3	2	531	-	148	90	190	214	-	-	254,5	-	PG13,5	121,5	125	155	30	140	170	9	1 1/2"	1 1/4"	22,7
MATRIX 10-5T6/4	2	574	-	178	100	200	241	-	-	274	-	PG16	111	140	170	35	160	192	11	1 1/2"	1 1/4"	26,2
MATRIX 18-2T6/3	2	527	-	141	90	190	214	-	-	250,5	-	PG13,5	124,5	125	155	30	140	170	9	2"	1 1/2"	21,6
MATRIX 18-3T6/4	2	540	-	141	100	200	241	-	-	240	-	PG16	114	140	170	35	160	192	11	2"	1 1/2"	25,4

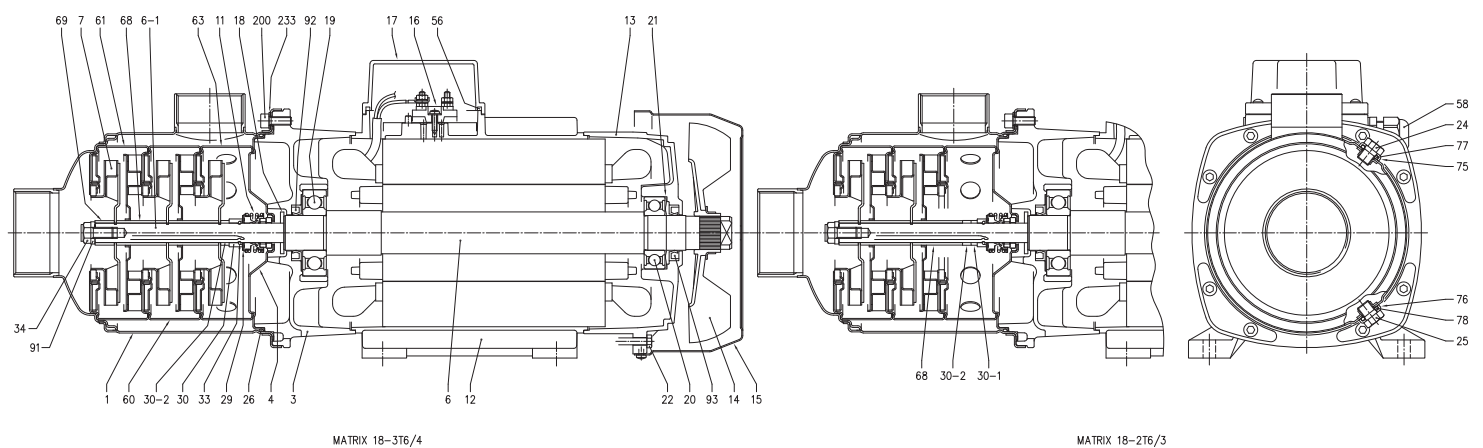
[1]= Three phase only
[2]= Single phase only

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS in AISI 304

MATRIX 3-5-10 SECTIONAL VIEW



MATRIX 18 SECTIONAL VIEW



HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

MATERIALS TABLE

Ref.	Name	Material	Ref.	Name	Material
1	Pump body	EN 1.4301 (AISI 304)	34	Screw	EN 1.4301 (AISI 304)
3	Bracket	EN AB-AISI11Cu2(Fe)	42	Foot	Aluminium
4	Casing cover	EN 1.4301 (AISI 304)	50	Motor spacer [3]	Aluminium
6	Shaft with rotor	-	52	Capacitor box [2]	ABS
6-1	Pump shaft	EN 1.4301 (AISI 304)	53	Capacitor box cover [2] [4]	ABS
7	Impeller	EN 1.4301 (AISI 304)	56	Box gasket	NBR
11	Mechanical seal	Ceramic/Carbon/EPDM	58	Ring nut	-
	High temperature mechanical seal	Ceramic/Carbon/EPDM	59	Conic gasket [2]	NBR
12	Motor frame with stator	-	60	Intermediate casing	EN 1.4301 (AISI 304)+PTFE
13	Motor cover	Aluminium	61	Intermediate casing (suction)	EN 1.4301 (AISI 304)+PTFE
14	Fan	PA6	63	Intermediate casing (discharge)	EN 1.4301 (AISI 304)+PTFE
15	Fan cover	Galvanised Fe P04	68	Shaft sleeve (intermediate)	EN 1.4301 (AISI 304)
16	Terminal board	-	69	Impeller spacer	EN 1.4301 (AISI 304)
17	Terminal box cover [1]	Aluminium	75	Washer	EN 1.4301 (AISI 304)
18	Splash ring	NBR	76	Washer	EN 1.4301 (AISI 304)
19	Bearing (pump side)	-	77	O-Ring	EPDM
20	Bearing (motor side)	-	78	O-Ring	EPDM
21	Adjusting ring	Steel C70	90	Cover box gasket [2]	NBR
22	Tie rod	Galvanised Fe 42	91	Shaft washer	EN 1.4301 (AISI 304)
24	Filler cap	EN 1.4301 (AISI 304)	92	Lip seal	-
25	Drain plug	EN 1.4301 (AISI 304)	93	Lip seal	-
26	O-Ring	EPDM	200	Screw (pump body)	EN 1.4301 (AISI 304)
29	Washer	EN 1.4301 (AISI 304)	201	Screw	Steel 8.8 strenght class ISO 898/1
30	Ring holder	EN 1.4301 (AISI 304)	230	Washer	Steel C70
30-1/2	Shaft sleeve	EN 1.4301 (AISI 304)	233	Plate	EN 1.4301 (AISI 304)
33	Ring	EN 1.4301 (AISI 304)			

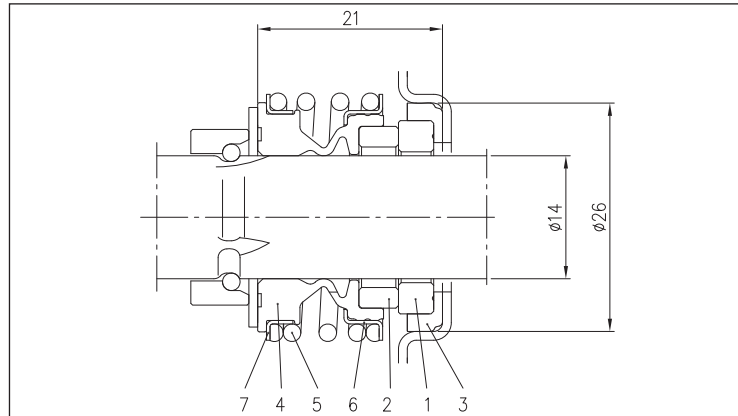
[1]= Three phase only

[3]= Only for 10-5T6/4 and 18-3T6/4

[2]= Single phase only

[4]= With gasket in NBR only for 3-2T6/0.65M, 3-3T6/0.9M, 5-2T6/0.9M single phase version

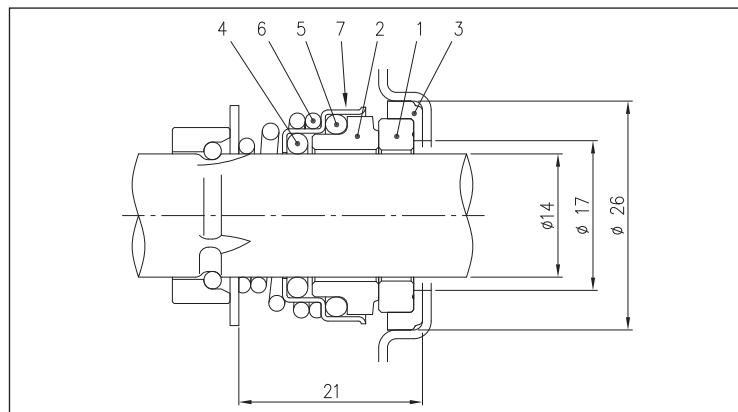
MECHANICAL SEAL standard



MATERIALS TABLE standard

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

MECHANICAL SEAL TE version (high temperature)



MATERIALS TABLE TE version (high temperature)

Ref.	Name	Material
1	Fixed part	Ceramic
2	Rotating part	Carbon
3	Gasket	EPDM
4	O-Ring	EPDM
5	O-Ring	EPDM
6	Spring	EN 1.4402 (AISI 316)
7	Retainer ring	EN 1.4301 (AISI 304)

HORIZONTAL MULTISTAGE CENTRIFUGAL ELECTRIC PUMPS

in AISI 304

ELECTRIC DATA TABLE

Model		P ₂		Capacitor Single phase		P ₁		Absorbed Current [A]			
Single phase 220-230V	Three phase 220/380-460V	[HP]	[kW]	μF	V _c	Single phase [kW]	Three phase [kW]	Single phase 220-230V	Three phase 220V	380V	460V
MATRIX 3-2T6/0.65M	MATRIX 3-2T6/0.65	0,9	0,65	14	450	0,97	0,90	4,7	2,8	1,6	1,5
MATRIX 3-3T6/0.9M	MATRIX 3-3T6/0.9	1,2	0,9	25	450	1,34	1,50	6,3	3,8	2,2	2,2
MATRIX 3-4T6/1.3M	MATRIX 3-4T6/1.3	1,8	1,3	35	450	1,70	2,00	7,7	5,7	3,3	2,9
MATRIX 3-5T6/1.5M	MATRIX 3-5T6/1.5	2	1,5	35	450	1,88	2,90	8,7	8,1	4,7	4,3
-	MATRIX 3-6T6/2.2	3	2,2	-	-	-	2,90	-	8,1	4,7	4,3
MATRIX 5-2T6/0.9M	MATRIX 5-2T6/0.9	1,2	0,9	25	450	1,34	1,50	6,3	3,8	2,2	2,2
MATRIX 5-3T6/1.3M	MATRIX 5-3T6/1.3	1,8	1,3	35	450	1,70	2,00	7,7	5,7	3,3	2,9
-	MATRIX 5-4T6/2.2	3	2,2	-	-	-	2,90	-	8,1	4,7	4,3
-	MATRIX 5-5T6/2.2	3	2,2	-	-	-	2,90	-	8,1	4,7	4,3
-	MATRIX 5-6T6/3	4	3	-	-	-	3,90	-	10,5	6,1	5,6
MATRIX 10-2T6/1.5M	MATRIX 10-2T6/1.5	2	1,5	35	450	1,88	2,90	8,7	8,1	4,7	4,3
-	MATRIX 10-3T6/2.2	3	2,2	-	-	-	2,90	-	8,1	4,7	4,3
-	MATRIX 10-4T6/3	4	3	-	-	-	3,90	-	10,5	6,1	5,6
-	MATRIX 10-5T6/4	5,5	4	-	-	-	5,10	-	14,7	8,5	8,0
-	MATRIX 18-2T6/3	4	3	-	-	-	3,90	-	10,5	6,1	5,6
-	MATRIX 18-3T6/4	5,5	4	-	-	-	5,10	-	14,7	8,5	8,0

SPECIFIC PERFORMANCE

The specifications given refer to the curves illustrated in our catalogues and Data Book (see www.ebara.eu).
All of the performance curves are calculated according to ISO 9906 Attachment A.

Tolerance according to ISO 9906 Annex A.

The curves refer to an effective speed of the 60 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).

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 = Flow rate [m^3/h]

H = Head [m]

P₁ = Power absorbed by the electric line

P₂ = Power yielded to the motor axis (power absorbed by the pump)



EBARA Pumps Europe network

HEAD OFFICE

EBARA Pumps Europe S.p.A.

Via Pacinotti, 32
36040 Brendola (VI), Italy
Phone +39 0444 706811 - Fax +39 0444 405811

Italian sales:
e-mail: ordini@ebaraeurope.com

Export sales:
e-mail: exportsales@ebaraeurope.com

Technical Customer Service (TCS):
e-mail: technical_customer_service@ebaraeurope.com
Phone +39 0444 706902/923

Marketing & Marketing Communication:
e-mail: marketing@ebaraeurope.com

ITALIAN SALES NETWORK

NORTH Region:

(Valle d'Aosta, Piemonte, Lombardia, Liguria, Trentino
Alto Adige, Veneto, Friuli Venezia Giulia, Emilia Romagna)
Regional Manager cell.: +39 348 8732512
e-mail: nord@ebaraeurope.com
Phone +39 0444 706811 - Fax +39 0444 405811

CENTRAL Region:

(Toscana, Umbria, Marche, Lazio, Abruzzo, Molise)
Regional Manager cell.: +39 335 6423286
e-mail: centro@ebaraeurope.com
Phone +39 0444 706811 - Fax +39 0444 405811

SOUTH Region:

(Campania, Basilicata, Puglia, Calabria, Sicilia)
Regional Manager cell.: +39 335 6423316
e-mail: sud@ebaraeurope.com
Phone +39 0444 706811 - Fax +39 0444 405811

INDUSTRIAL Division:

Manager cell.: +39 335 6423302
e-mail: industry@ebaraeurope.com
Phone +39 0444 706811 - Fax +39 0444 405811

WASTEWATER Division:

Manager cell.: +39 335 6423290
e-mail: ses@ebaraeurope.com
Phone +39 0444 706811 - Fax +39 0444 405811

MILANO Branch:

Via Lainate, 62
20017 Rho (MI)
Phone +39 02 93507358 - Fax +39 0444 405975
Branch Manager cell.: +39 335 5327276
e-mail: mktgmi@ebaraeurope.com

CAGLIARI Branch:

Via del Fangario, 29
09122 Cagliari
Phone +39 070 274281 - Fax +39 0444 405960
Branch Manager cell.: +39 335 6423320
e-mail: mktgca@ebaraeurope.com

PALERMO Branch

Via Don L. Sturzo, 181/183
Z.I. - 90044 Carini (PA)
Phone +39 091 8669790 - Fax +39 0444 405980
Branch Manager cell.: +39 335 6423316
e-mail: mktgpa@ebaraeurope.com

EXPORT NETWORK

EBARA Pumps Europe S.p.A. UNITED KINGDOM

Unit 7 - Zodiac Business Park
High Road - Cowley Uxbridge
Middlesex - UB8 2GU, United Kingdom
Phone +44 1895 439027 - Fax +44 1895 439028
e-mail: mktguk@ebaraeurope.com

EBARA ESPAÑA BOMBAS S.A.

C/Cormoranes 6 Y 8
Poligono Ind. La Estación
28320 Pinto (Madrid), Spain
Phone +34 916.923.630 - Fax +34 916.910.818
e-mail: marketing@ebara.es

EBARA Pumps Europe S.p.A. FRANCE

555, Rue Juliette Recamier
69970 Chaponnay, France
Phone +33 4 72769482 - Fax +33 805101071
e-mail: mktgfr@ebaraeurope.com

EBARA Pumps Europe S.p.A. GERMANY

Ferdinand-Porsche-Ring 7
63110 Rodgau-Jügesheim, Germany
Phone +49 (0) 6106-660 99-0
Fax +49 (0) 6106-660 99-45
e-mail: mktgde@ebaraeurope.com

EBARA POMPY POLSKA Sp. z o.o.

ul. Działkowa 115
02-234 Warszawa, Poland
Phone +48 22 3909920 - Fax +48 22 3909929
e-mail: mktgpl@ebaraeurope.com

EBARA Pumps Europe S.p.A. MIDDLE EAST

P.O. Box 54515
Dubai Airport Free Zone
Dubai, United Arab Emirates
Phone +971 4 609 1040 - Fax +971 4 609 1038
e-mail: mktgme@ebaraeurope.com

EBARA Pumps Europe S.p.A INDIA LIAISON OFFICE

Bhumiraj Costarica,
Room No. 1503, Sector -18,
Palm Beach Rd., Sanpada,
Navi Mumbai, Maharashtra, India
Phone +91 22 27812862/63/64
Fax +91 22 27812865
e-mail: mktgind@ebaraeurope.com

EBARA Pumps Europe S.p.A. RUSSIA

Phone +7 985 7672672
e-mail: mktgrus@ebaraeurope.com



EBARA Pumps Europe S.p.A.

Via Pacinotti, 32
36040 Brendola (Vicenza), Italy
Phone +39 0444 706811 - Fax +39 0444 405811
e-mail: marketing@ebaraeurope.com
www.ebaraeurope.com



EBARA Corporation

11-1, Haneda Asahi-cho, Ohta-ku,
Tokyo 144-8510
Japan
Phone +81 3 6275 7598 - Fax +81 3 5736 3193
www.ebara.com