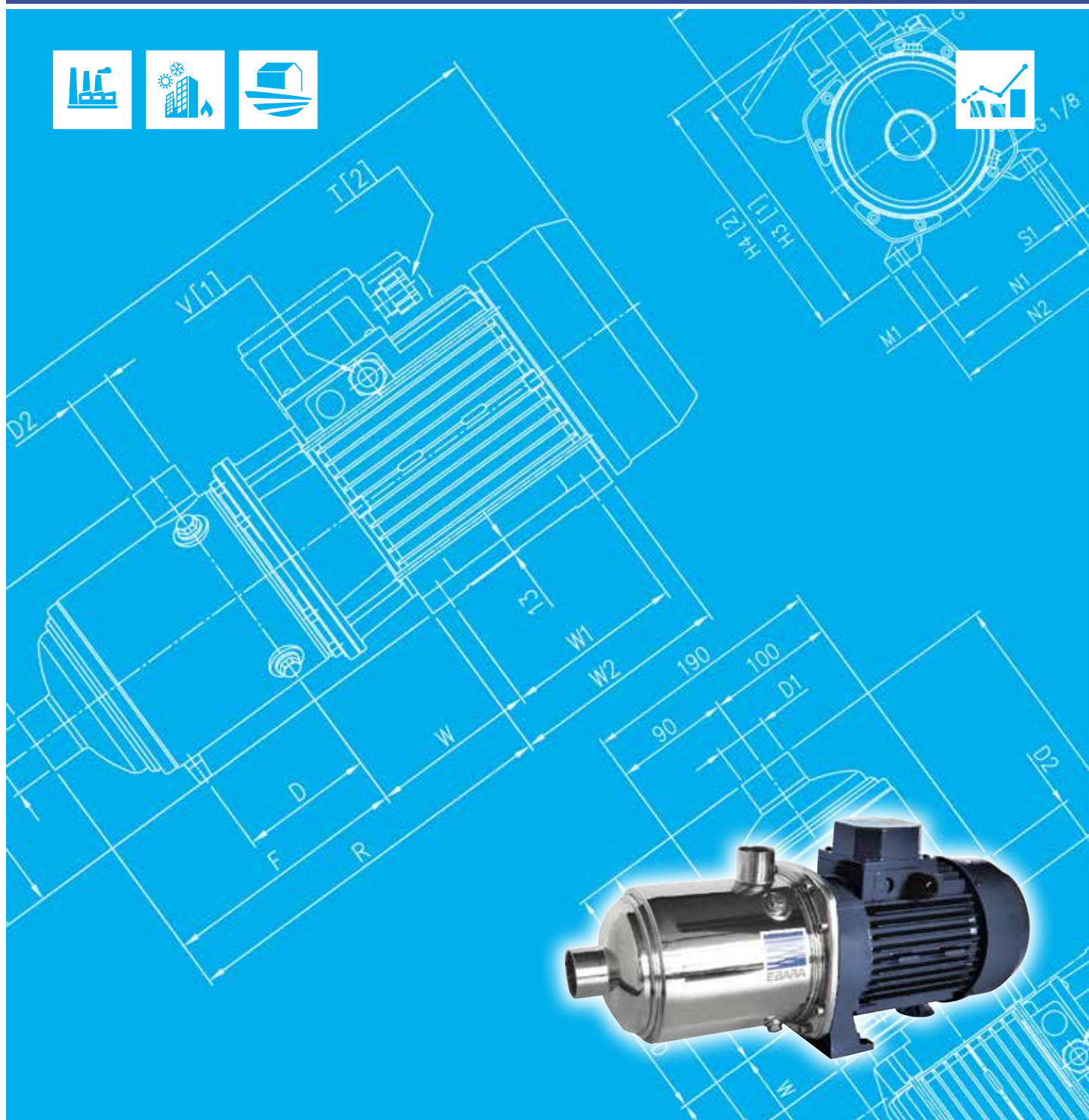




Japanese Technology since 1912

MATRIX

Data Book 50Hz



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SPECIFICATIONS

50Hz

Rev. 0

PUMP			
Liquid Handled	Type of liquid	Water, moderate aggressive solutions, glycol solutions, moderate viscous fluids	
	Temperature [°C]	min. -15 max. +110 For full details see section "FLUID TEMPERATURE RANGE"	
Max chlorine content		500 ppm	
Maximum working pressure [MPa]		1	
Construction	Impeller	Closed centrifugal type	
	Motor bearings	Screened ball bearing – greased for life	
	Pump bearings	n° 7-8-9 impellers (Matrix 3-5) n° 6 impellers (Matrix 10) n° 5-6 impellers (Matrix 18)	Type: Sleeve Shaft sleeve: Tungsten Carbide Bearing: Ceramic
Pipe Connection	Suction	G 1" (Matrix 3) G 1"¼ (Matrix 5) G 1"½ (Matrix 10) G 2" (Matrix 18)	UNI ISO 228 UNI ISO 228 UNI ISO 228 UNI ISO 228
	Discharge	G 1" (Matrix 3) G 1" (Matrix 5) G 1"¼ (Matrix 10) G 1"½ (Matrix 18)	UNI ISO 228 UNI ISO 228 UNI ISO 228 UNI ISO 228
Material	Casing	EN 1.4301 (AISI 304)	
	Impeller	EN 1.4301 (AISI 304)	
	Intermediate casing	EN 1.4301 (AISI 304)	
	O-Rings	EPDM	
	Shaft seal	Ceramic / Carbon / EPDM	
	Liner ring	EN 1.4301 (AISI 304) + PPS	
	Casing cover	EN 1.4301 (AISI 304)	
	Shaft	EN 1.4301 (AISI 304) wet extension	
	Bracket	EN AB-AISI11Cu2(Fe) (Die cast Aluminium)	
Applicable standard of test		ISO 9906:2012 - Grade 3B	

ONLY for EPDM version (STANDARD):
Approvals for drinking water application

WRAS & DM174/2004 (ICIM) approved product



ONLY for EPDM version (-TE):
Approvals for drinking water application

DM174/2004 (ICIM) approved product



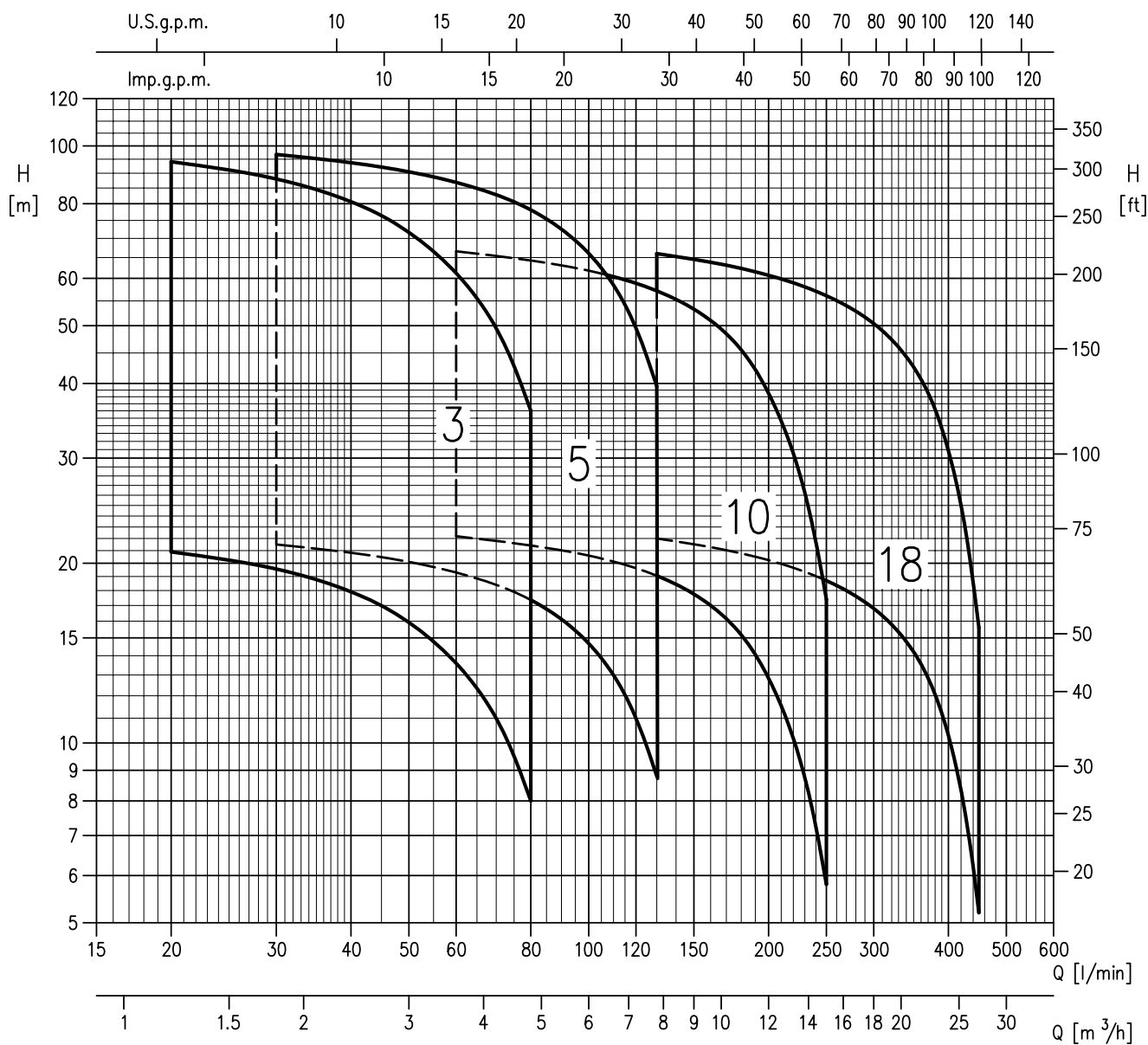
SPECIFICATIONS

50Hz

Rev. 0

MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 1781/2019)	IE2	IE3
No. of Poles	2	
Rotation speed [min ⁻¹]	≈ 2850	
Insulation Class	F	
Max temperature environment [°C]	40	
Protection degree (CEI EN 60034-5)	IP 55	
Power rating	[kW]	0.45 ÷ 2.2
	[HP]	0.6 ÷ 3.0
Frequency	50	
	[Hz]	
Voltage [V]	230 ±10%	230/400 ±10%
Capacitor	Built in	-
Overload protection	Built in	Provided by the user
Casing material	Aluminium	
Base material / Motor support	Aluminium	
Dimensions of cable entry	PG11 – M20x1.5	PG11 – PG13.5 M16x1.5 – M20x1.5

PERFORMANCE RANGE



SELECTION CHART

50Hz

Rev. O

SELECTION CHART

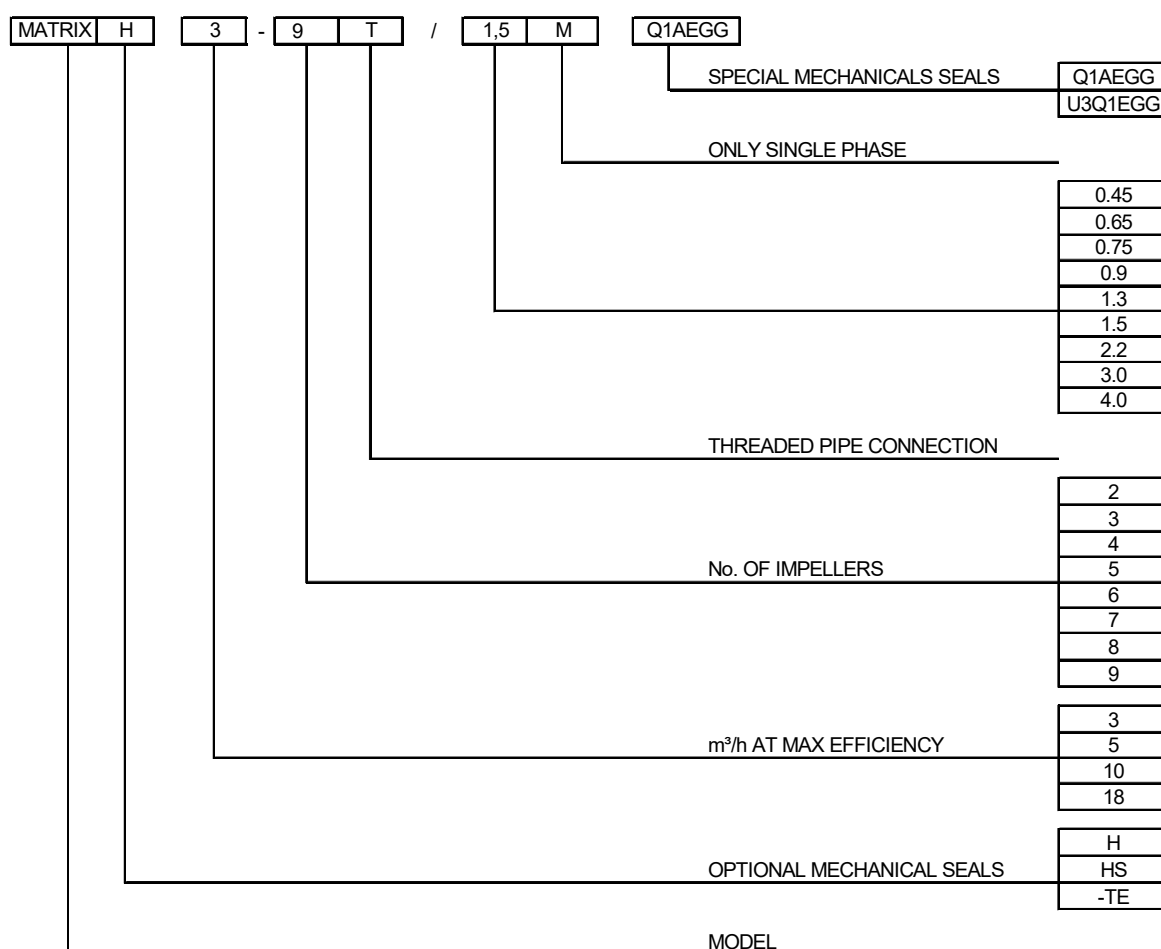
Pump type		Q=Capacity															
		l/min	0	20	30	45	60	80	100	130	160	200	250	300	350	400	450
Single phase	Three phase	m³/h	0	1,2	1,8	2,7	3,6	4,8	6	7,8	9,6	12	15	18	21	24	27
		H=Total manometric head in meters															
3-2(.) / 0.45M	3-2(.) / 0.45	22,6	20,9	19,6	17	13,6	8										
3-3(.) / 0.65M	3-3(.) / 0.65	33,9	31,4	29,3	25,5	20,4	12										
3-4(.) / 0.65M	3-4(.) / 0.65	45	42	39,1	34	27,2	16										
3-5(.) / 0.75M	3-5(.) / 0.75	56,5	52,5	49	42,5	34	20										
3-6(.) / 0.9M	3-6(.) / 0.9	68	62,5	58,5	51	41	24										
3-7(.) / 1.3M	3-7(.) / 1.3	79	73	68,5	59,5	47,5	28										
3-8(.) / 1.3M	3-8(.) / 1.3	90,5	83,5	78	68	54,5	32										
3-9(.) / 1.5M	3-9(.) / 1.5	102	94	88	76,5	61	36										
5-2(.) / 0.45M	5-2(.) / 0.45	23	-	21,5	20,5	19,3	17,4	14,7	8,8								
5-3(.) / 0.65M	5-3(.) / 0.65	34,5	-	32,3	30,7	29	26	22	13,2								
5-4(.) / 0.9M	5-4(.) / 0.9	46	-	43	41	38,6	34,7	29,4	17,6								
5-5(.) / 1.3M	5-5(.) / 1.3	57,5	-	54	51	48,5	43,5	36,7	22								
5-6(.) / 1.3M	5-6(.) / 1.3	69	-	64,5	61,5	58	52	44	26,4								
5-7(.) / 1.5M	5-7(.) / 1.5	80,5	-	75,5	72	67,5	61	51,5	30,8								
5-8(.) / 2.2M	5-8(.) / 2.2	92	-	86	82	77	69,5	58,5	35,2								
5-9(.) / 2.2M	5-9(.) / 2.2	104	-	97	92	87	78	66	39,6								
10-2(.) / 0.75M	10-2(.) / 0.75	24	-	-	-	22,2	21,4	20,6	19,1	17	12,8	5,8					
10-3(.) / 1.3M	10-3(.) / 1.3	36	-	-	-	33,3	32,1	30,9	28,6	25,5	19,3	8,7					
10-4(.) / 1.5M	10-4(.) / 1.5	48	-	-	-	44,5	43	41	38,1	34	25,7	11,6					
10-5(.) / 2.2M	10-5(.) / 2.2	60	-	-	-	55,5	53,5	51,5	47,5	42,5	32,1	14,5					
10-6(.) / 2.2M	10-6(.) / 2.2	72	-	-	-	66,5	64,5	62	57	51	38,5	17,4					
18-2(.) / 1.5M	18-2(.) / 1.5	24,2	-	-	-	-	-	-	22	21,3	20,2	18,7	16,8	14,2	10,3	5,2	
18-3(.) / 2.2M	18-3(.) / 2.2	36,3	-	-	-	-	-	-	33	31,9	30,4	28,1	25,2	21,3	15,5	7,8	
-	18-4(.) / 3	48,5	-	-	-	-	-	-	44	42,5	40,5	37,4	33,6	28,4	20,6	10,4	
-	18-5(.) / 4	60,5	-	-	-	-	-	-	55	53	50,5	47	42	35,5	25,8	13	
-	18-6(.) / 4	72,5	-	-	-	-	-	-	66	64	60,5	56	50,5	42,5	30,9	15,6	

TYPE KEY and CURVE SPECIFICATIONS

50Hz

Rev. 0

TYPE KEY



PERFORMANCE CURVE SPECIFICATIONS

The specifications below qualify the curves shown on the following pages.

Tolerances according to ISO 9906:2012 - Grade 3B

The curves refer to effective speed of asynchronous motors at 50 Hz, 2 poles.

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

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

In order to avoid the risk of over-heating, the pumps should not be used at a flow rate below 10% of best efficiency point.

Symbols explanation:

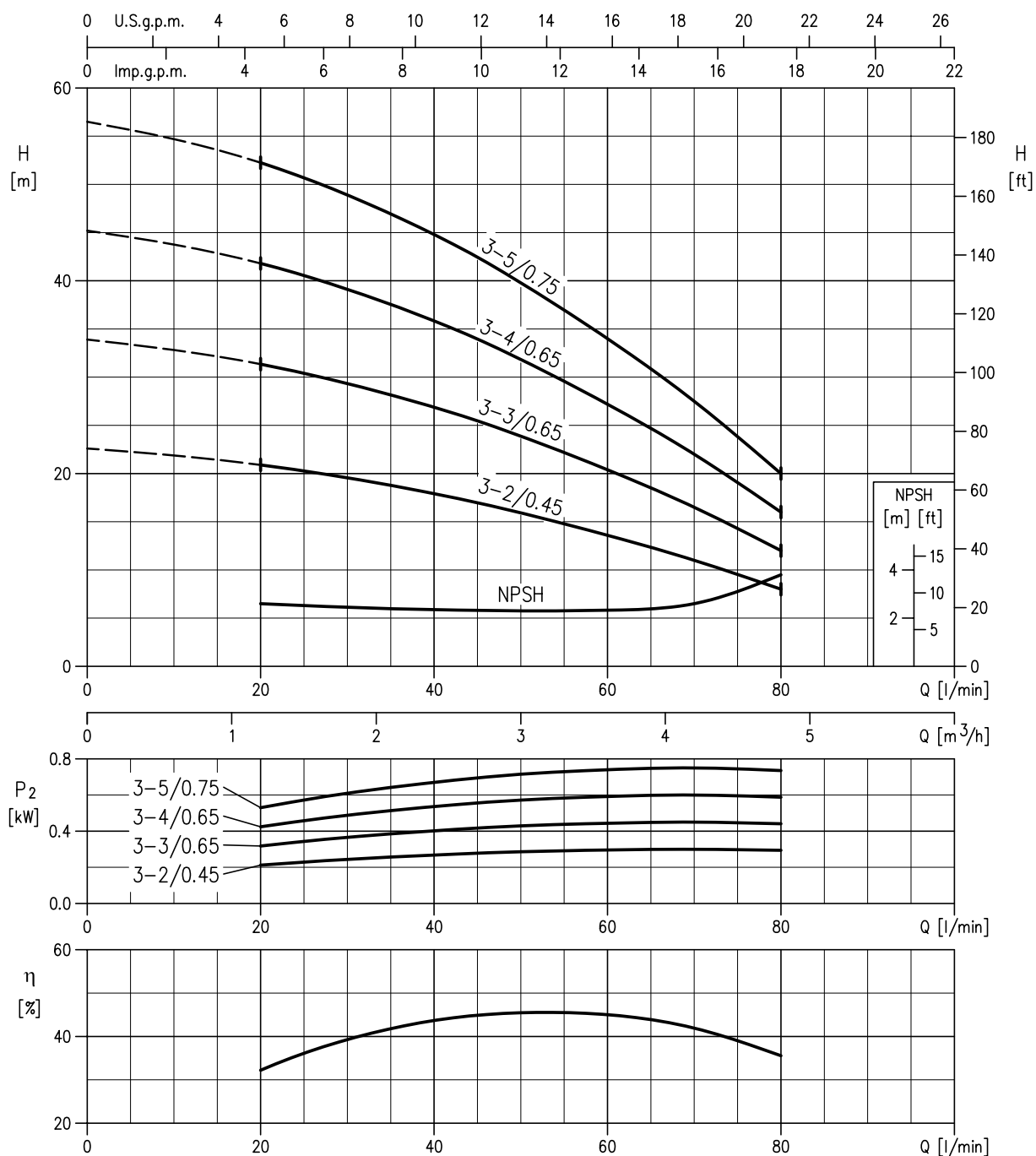
- Q = volume flow rate
- H = total head
- P₂ = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump

MATRIX 3-5/0.75 - Impeller diameter = 98.5 mm

MATRIX 3-4/0.65 - Impeller diameter = 98.5 mm

MATRIX 3-3/0.65 - Impeller diameter = 98.5 mm

MATRIX 3-2/0.45 - Impeller diameter = 98.5 mm



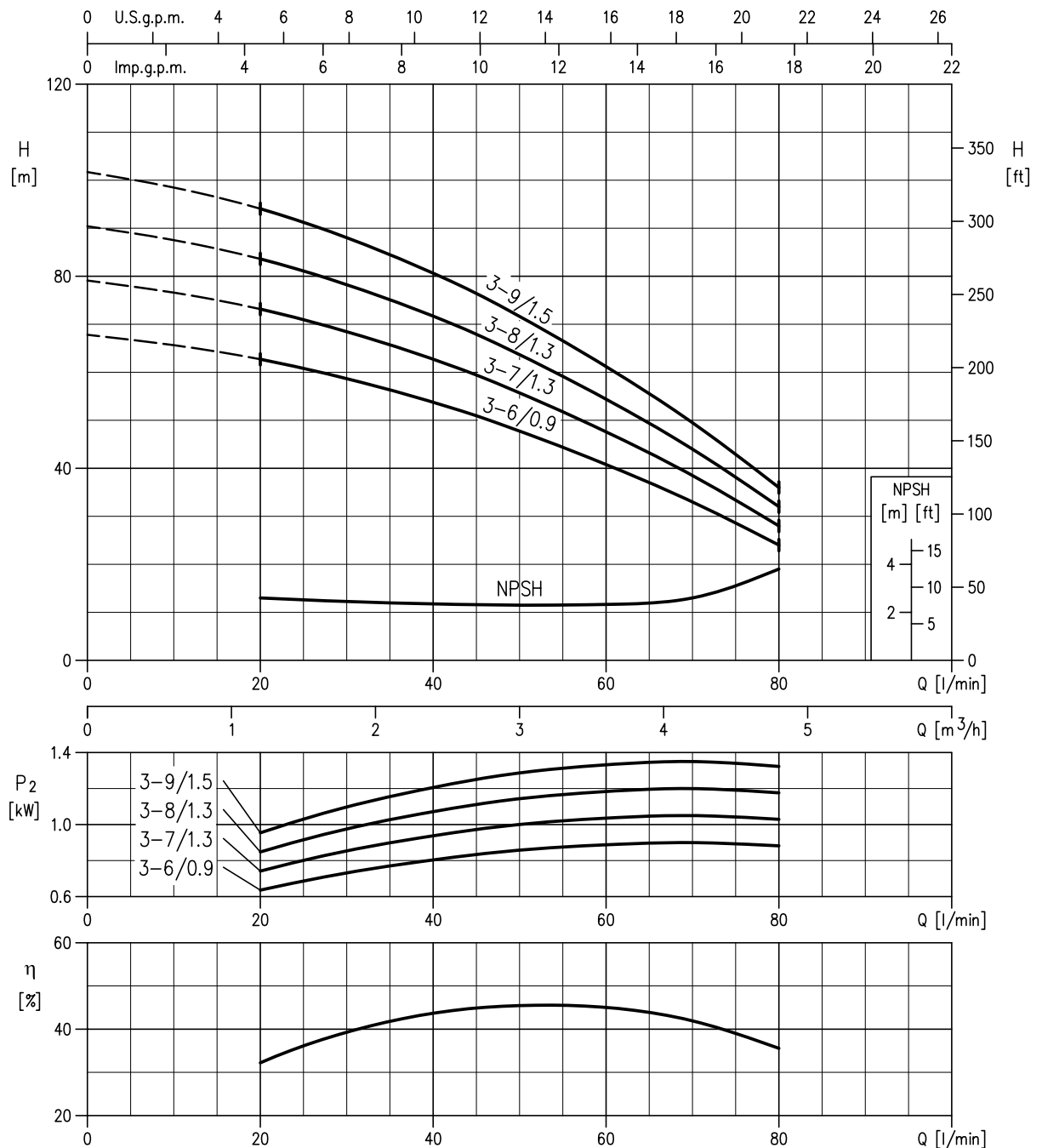
Rotation speed ≈ 2850 min⁻¹
Test standard: ISO 9906:2012 - Grade 3B

MATRIX 3-9/1.5 - Impeller diameter = 98.5 mm

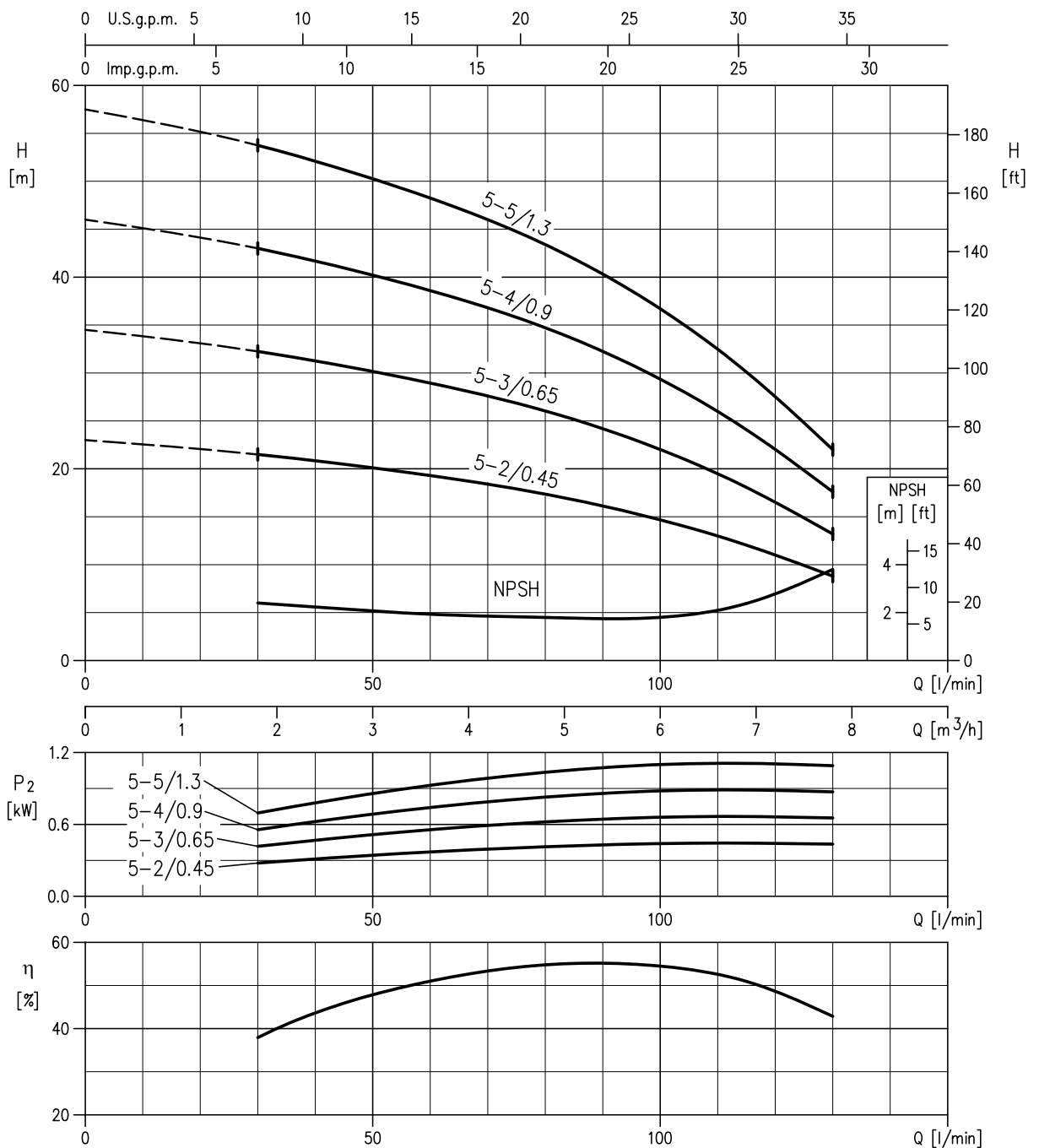
MATRIX 3-8/1.3 - Impeller diameter = 98.5 mm

MATRIX 3-7/1.3 - Impeller diameter = 98.5 mm

MATRIX 3-6/0.9 - Impeller diameter = 98.5 mm



Rotation speed ≈ 2850 min⁻¹
Test standard: ISO 9906:2012 - Grade 3B

MATRIX 5-5/1.3 - Impeller diameter = 97 mm**MATRIX 5-4/0.9 - Impeller diameter = 97 mm****MATRIX 5-3/0.65 - Impeller diameter = 97 mm****MATRIX 5-2/0.45 - Impeller diameter = 97 mm**

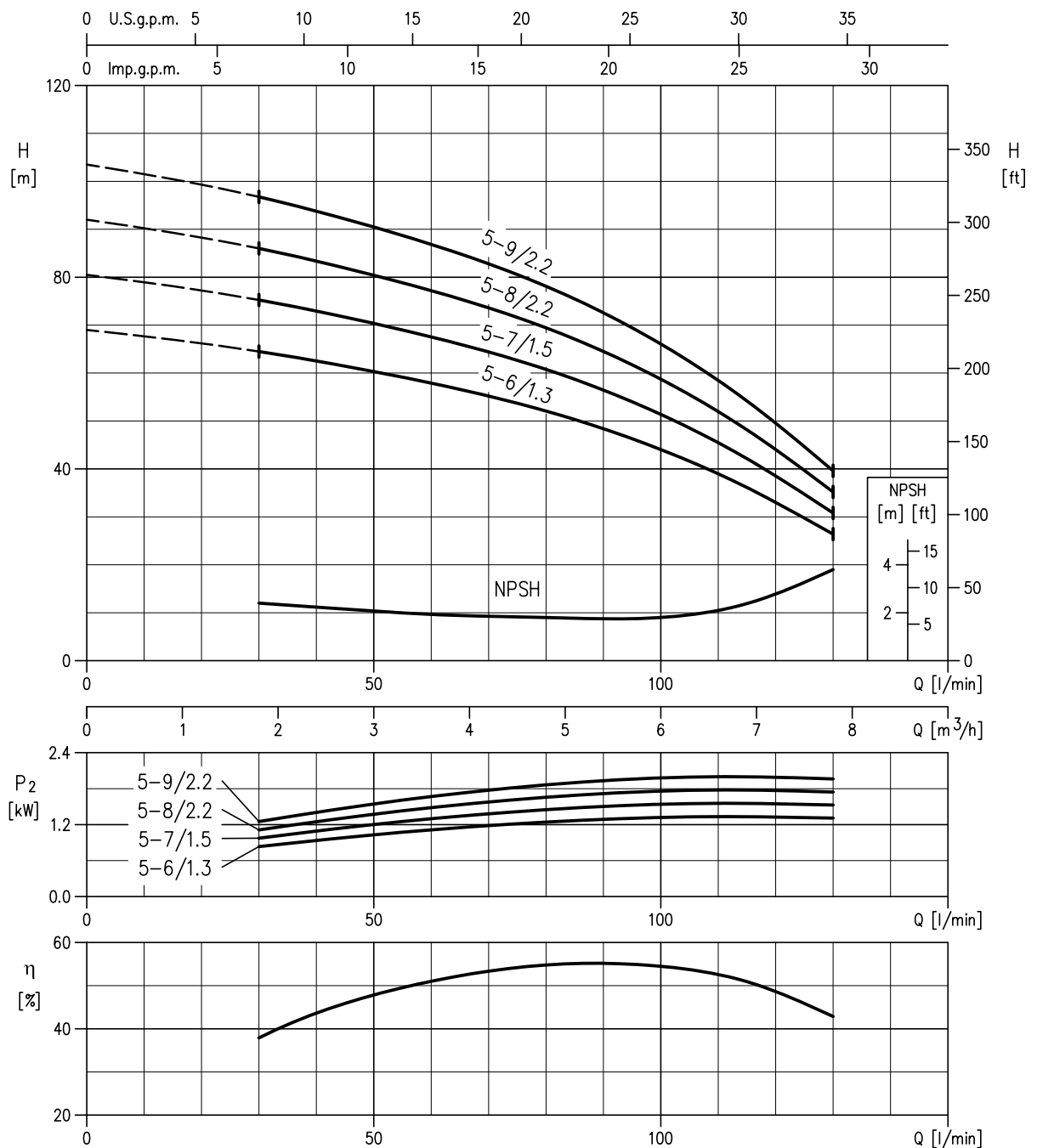
Rotation speed ≈ 2850 min⁻¹
 Test standard: ISO 9906:2012 - Grade 3B

MATRIX 5-9/2.2 - Impeller diameter = 97 mm

MATRIX 5-8/2.2 - Impeller diameter = 97 mm

MATRIX 5-7/1.5 - Impeller diameter = 97 mm

MATRIX 5-6/1.3 - Impeller diameter = 97 mm

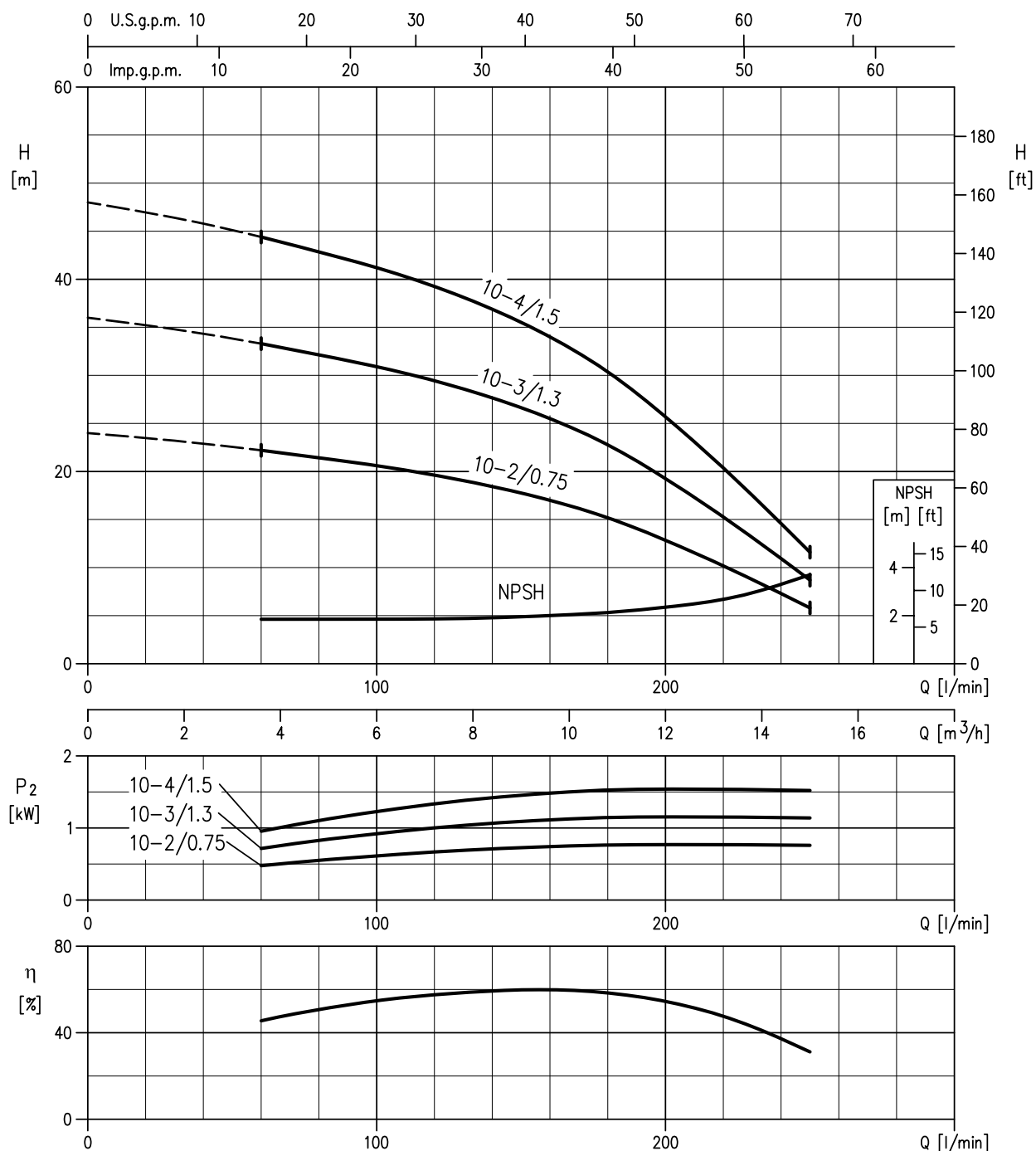
Rotation speed ≈ 2850 min⁻¹

Test standard: ISO 9906:2012 - Grade 3B

MATRIX 10-4/1.5 - Impeller diameter = 100.5 mm

MATRIX 10-3/1.3 - Impeller diameter = 100.5 mm

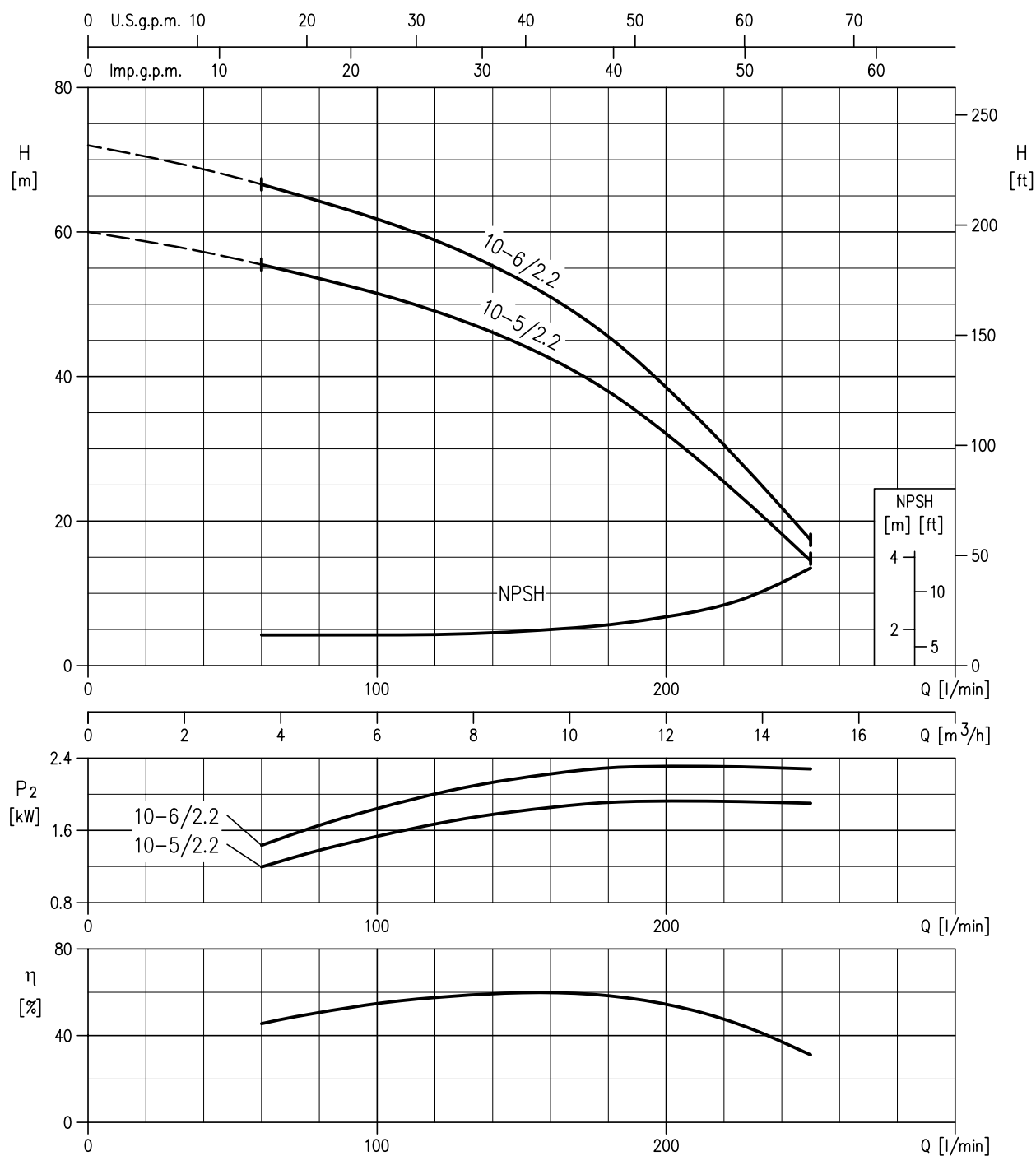
MATRIX 10-2/0.75 - Impeller diameter = 100.5 mm



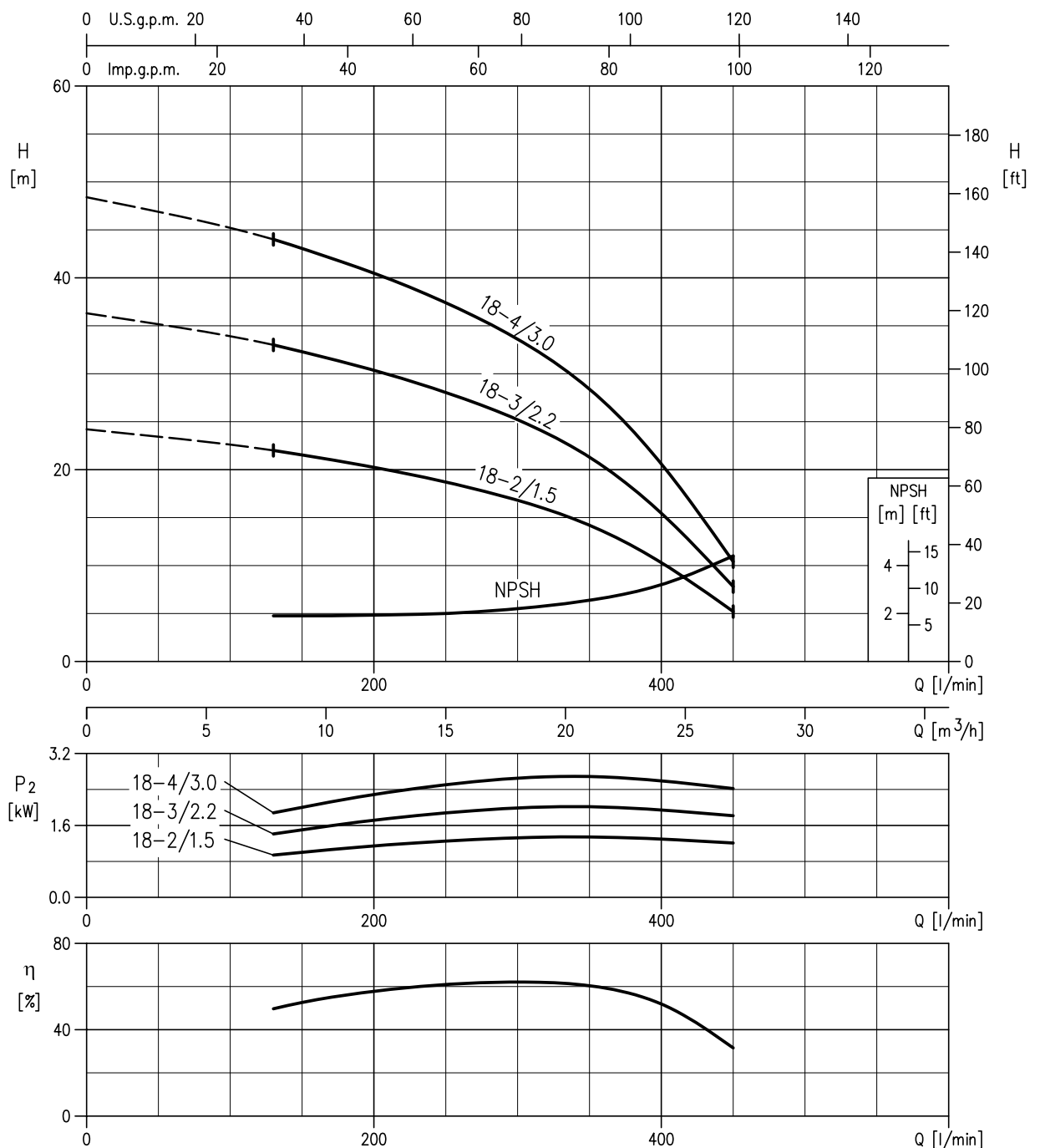
Rotation speed $\approx 2850 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

MATRIX 10-6/2.2 - Impeller diameter = 100.5 mm

MATRIX 10-5/2.2 - Impeller diameter = 100.5 mm



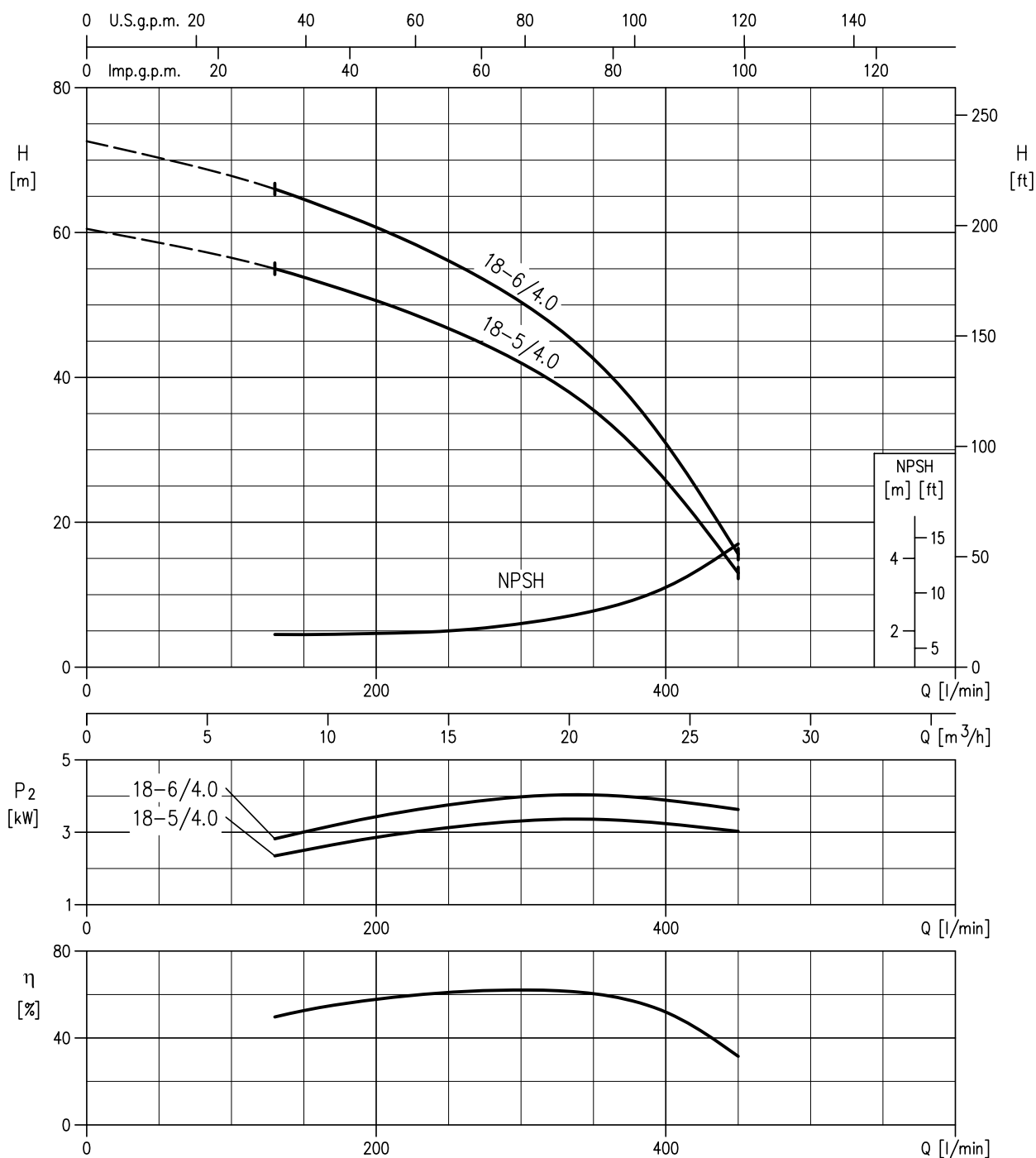
Rotation speed $\approx 2850 \text{ min}^{-1}$
Test standard: ISO 9906:2012 - Grade 3B

MATRIX 18-4/3.0 - Impeller diameter = 106.7 mm**MATRIX 18-3/2.2 - Impeller diameter = 106.7 mm****MATRIX 18-2/1.5 - Impeller diameter = 106.7 mm**

Rotation speed $\approx 2875 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

MATRIX 18-6/4.0 - Impeller diameter = 106.7 mm

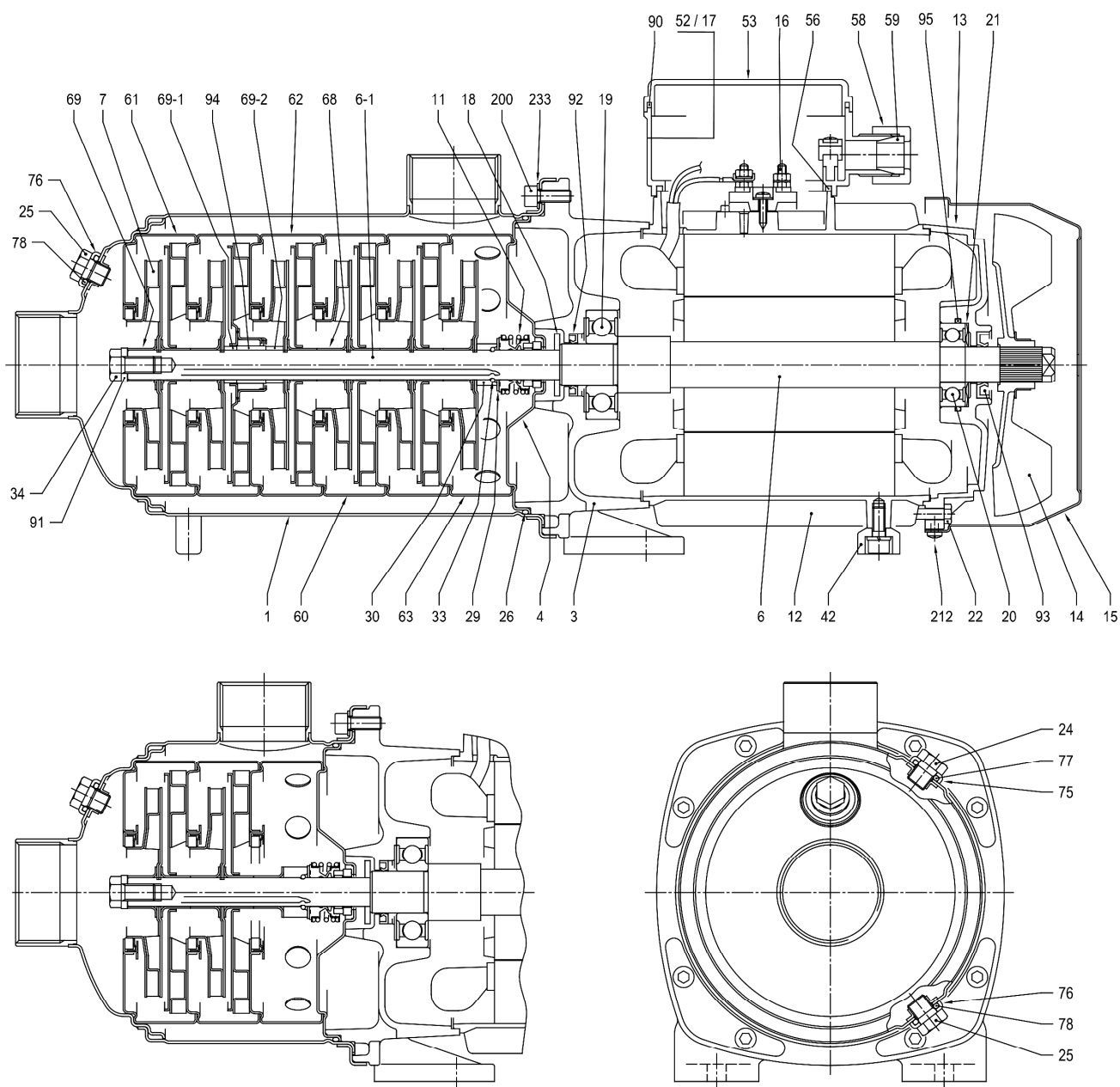
MATRIX 18-5/4.0 - Impeller diameter = 106.7 mm



Rotation speed $\approx 2850 \text{ min}^{-1}$
Test standard: ISO 9906:2012 - Grade 3B

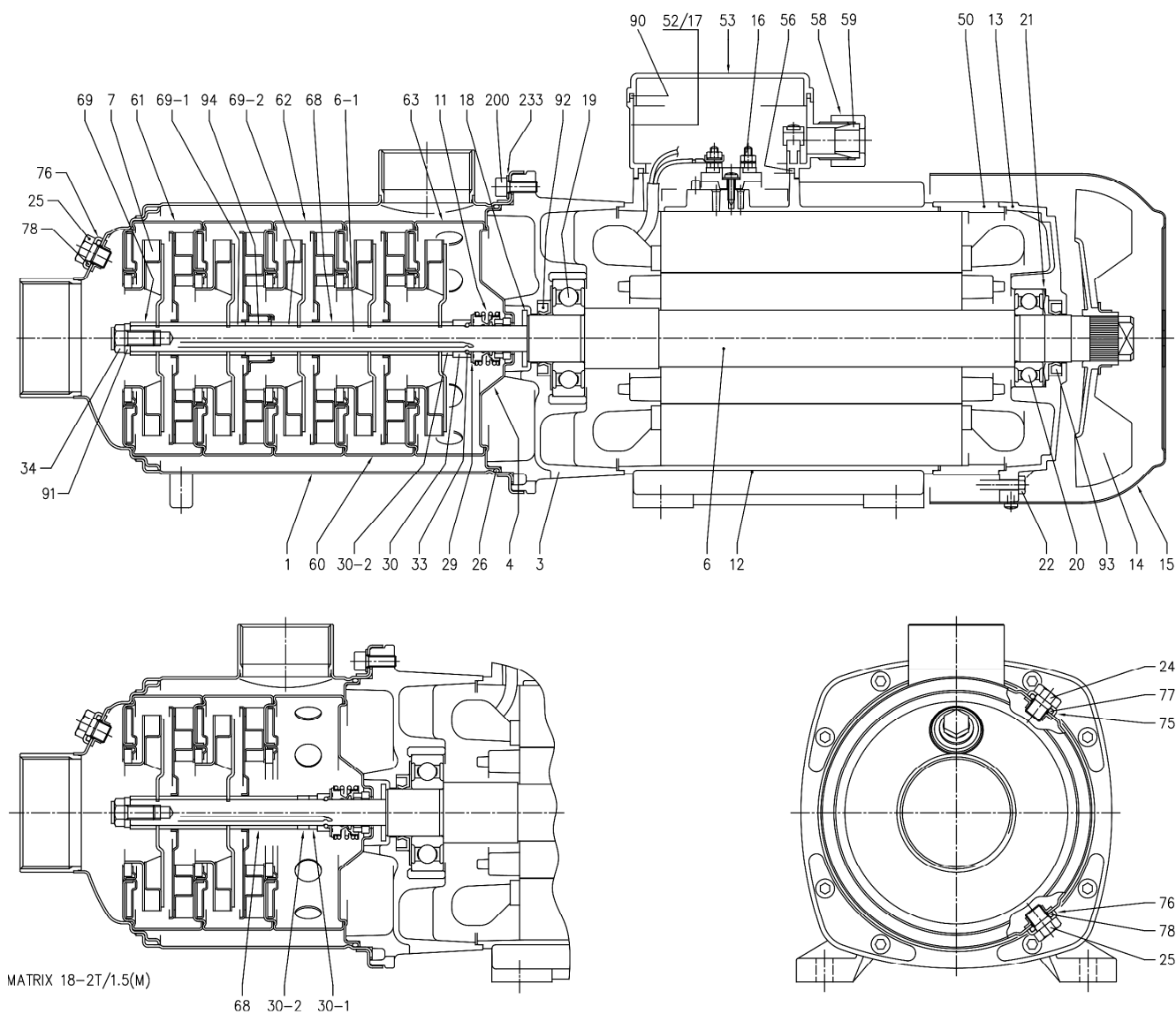
SECTIONAL VIEW DRAWING

MATRIX 3/5/10



VERSION FOR PUMP TYPE: MATRIX 3-2T/0.45(M)
MATRIX 5-2T/0.45(M)
MATRIX 10-2T/0.75(M)

MATRIX 18



SECTIONAL VIEW TABLE

N°	PART NAME	MATERIAL	DIMENSION	STANDARD	Q.TY
1	Casing	EN 1.4301 (AISI 304)			1
3	Bracket	EN AB-AISI11Cu2(Fe)			1
4	Casing cover	EN 1.4301 (AISI 304)			1
6	Shaft with rotor	-			1
6-1	Pump Shaft	EN 1.4301 (AISI 304)			1
7	Impeller	EN 1.4301 (AISI 304)			[1]
11	Mechanical seal [4]	Ceramic/Carbon/EPDM			1
12	Motor frame with stator	-			1
13	Motor cover	Aluminium			1
14	Fan	PA			1
15	Fan cover	Fe P04 Zincate			1
16	Terminal board	-			1
17	Terminal box cover	Aluminium			[1]
18	Splash ring	NBR	30x13.5x2.5		1
19	Bearing	-			1
20	Bearing	-			1
21	Adjusting ring	Steel C70			1
22	Tie rod	Fe 42 Zinc-coated			4
24	Plug	EN 1.4301 (AISI 304)			1
25	Plug	EN 1.4301 (AISI 304)			2
26	O-ring	EPDM			1
29	Washer	EN 1.4401 (AISI 316)	25.1x14x1		1
30	Ring holder	EN 1.4301 (AISI 304)			1
30-1	Shaft sleeve (adjustment)	EN 1.4301 (AISI 304)			[1]
30-2	Shaft sleeve (adjustment)	EN 1.4301 (AISI 304)			[1]
33	Ring	EN 1.4301 (AISI 304)			2
34	Screw	EN 1.4301 (AISI 304)	M 8x16	UNI 5739	1
42	Foot	Aluminium			[1]
50	Motor spacer [3]	Aluminium			1
52	Capacitor box [2]	ABS class V-0			1
53	Capacitor box cover [2]	ABS class V-0			1
56	Box gasket	NBR			1
58	Ring nut	-			[1]
59	Conic gasket	NBR			[1]
60	Intermediate casing	EN 1.4301 (AISI 304)+PPS			[1]
61	Intermediate casing (suction)	EN 1.4301 (AISI 304)+PPS			1
62	Intermediate casing (bearing)	EN 1.4301 (AISI 304)+PPS + Ceramic			[1]
63	Intermediate casing (discharge)	EN 1.4301 (AISI 304)+PPS			1
68	Shaft sleeve (intermediate)	EN 1.4404 (AISI 316L)			[1]
69	Impeller spacer	EN 1.4301 (AISI 304)			1
69-1	Shaft sleeve (adjustment) [1]	EN 1.4301 (AISI 304)			[1]
69-2	Shaft sleeve (adjustment) [1]	EN 1.4301 (AISI 304)			[1]
75	Washer (plug)	EN 1.4301 (AISI 304)			1
76	Washer (plug)	EN 1.4301 (AISI 304)			2
77	O-ring	EPDM	9.19x2.62		1
78	O-ring	EPDM	9.19x2.62		2
90	Terminal box cover gasket [2]	NBR	-		[1]
91	Shaft washer	EN 1.4301 (AISI 304)			1
92	Lip seal	0.45-0.65-0.75-0.9 kW	-	17x32x6	1
		1.3-1.5-2.2 kW		20x30x4	1
		2.2M-3-4 kW		25x40x7	1
93	Lip seal	0.45-0.65-0.75-0.9 kW	-	15x30x5	1
		1.3-1.5-2.2 kW		17x32x7	1
		2.2M-3-4 kW		25x40x7	1
94	Shaft sleeve (bearing)	SSiC - Silicon carbide			[1]
95	O-ring [5]	NBR	34.65x1.78		1
200	Screw	EN 1.4301 (AISI 304)	M6x16	UNI 5931	8
212	Screw	Zincate Steel			4
233	Plate	EN 1.4301 (AISI 304)			4

[1] See **QUANTITY FOR MODEL** page 303

[2] Only for single phase

[3] Only for 18-5T/4 and 18-6T/4

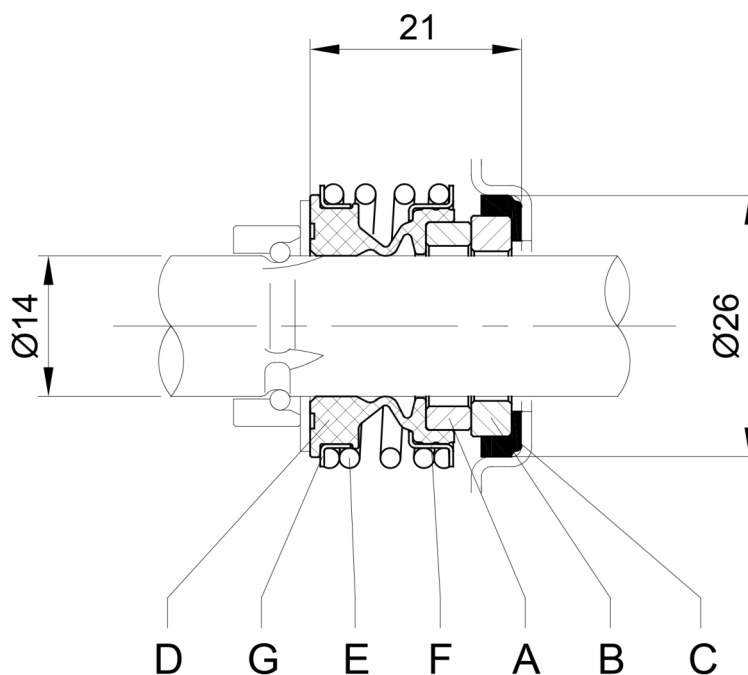
[4] See **MECHANICAL SEAL** pages 304-306

[5] Only for 3-6T/0.9 and 5-4T/0.9 models

QUANTITY FOR MODEL

Pump type	7	17	30-1	30-2	42	58	59	60	62	68	69-1	69-2	90	94
MATRIX 3-2T/0.45M	2	-	-	-	1	1	1	1	-	4	-	-	1	-
MATRIX 3-2T/0.45		1	-	-	1	-	-	1	-	4	-	-	-	-
MATRIX 3-3T/0.65M	3	-	-	-	1	1	1	1	-	4	-	-	1	-
MATRIX 3-3T/0.65		1	-	-	1	-	-	1	-	4	-	-	-	-
MATRIX 3-4T/0.65M	4	-	-	-	1	1	1	2	-	6	-	-	1	-
MATRIX 3-4T/0.65		1	-	-	1	-	-	2	-	6	-	-	-	-
MATRIX 3-5T/0.75M	5	-	-	-	1	1	1	3	-	8	-	-	1	-
MATRIX 3-5T/0.75		1	-	-	1	-	-	3	-	8	-	-	-	-
MATRIX 3-6T/0.9M	6	-	-	-	1	1	1	4	-	10	-	-	1	-
MATRIX 3-6T/0.9		1	-	-	1	-	-	4	-	10	-	-	-	-
MATRIX 3-7T/1.3M	7	-	-	-	1	1	1	4	1	10	1	1	1	1
MATRIX 3-7T/1.3		1	-	-	1	-	-	4	1	10	1	1	-	1
MATRIX 3-8T/1.3M	8	-	-	-	1	1	1	5	1	12	1	1	1	1
MATRIX 3-8T/1.3		1	-	-	1	-	-	5	1	12	1	1	-	1
MATRIX 3-9T/1.5M	9	-	-	-	1	1	1	6	1	14	1	1	1	1
MATRIX 3-9T/1.5		1	-	-	1	-	-	6	1	14	1	1	-	1
MATRIX 5-2T/0.45M	2	-	-	-	1	1	1	1	-	4	-	-	1	-
MATRIX 5-2T/0.45		1	-	-	1	-	-	1	-	4	-	-	-	-
MATRIX 5-3T/0.65M	3	-	-	-	1	1	1	1	-	4	-	-	1	-
MATRIX 5-3T/0.65		1	-	-	1	-	-	1	-	4	-	-	-	-
MATRIX 5-4T/0.9M	4	-	-	-	1	1	1	2	-	6	-	-	1	-
MATRIX 5-4T/0.9		1	-	-	1	-	-	2	-	6	-	-	-	-
MATRIX 5-5T/1.3M	5	-	-	-	1	1	1	3	-	8	-	-	1	-
MATRIX 5-5T/1.3		1	-	-	1	-	-	3	-	8	-	-	-	-
MATRIX 5-6T/1.3M	6	-	-	-	1	1	1	4	-	10	-	-	1	-
MATRIX 5-6T/1.3		1	-	-	1	-	-	4	-	10	-	-	-	-
MATRIX 5-7T/1.5M	7	-	-	-	1	1	1	4	1	10	1	1	1	1
MATRIX 5-7T/1.5		1	-	-	1	-	-	4	1	10	1	1	-	1
MATRIX 5-8T/2.2M	8	-	-	-	-	1	1	5	1	12	1	1	1	1
MATRIX 5-8T/2.2		1	-	-	1	-	-	5	1	12	1	1	-	1
MATRIX 5-9T/2.2M	9	-	-	-	-	1	1	6	1	14	1	1	1	1
MATRIX 5-9T/2.2		1	-	-	1	-	-	6	1	14	1	1	-	1
MATRIX 10-2T/0.75M	2	-	-	-	1	1	1	1	-	4	-	-	1	-
MATRIX 10-2T/0.75		1	-	-	1	-	-	1	-	4	-	-	-	-
MATRIX 10-3T/1.3M	3	-	-	-	1	1	1	1	-	4	-	-	1	-
MATRIX 10-3T/1.3		1	-	-	1	-	-	1	-	4	-	-	-	-
MATRIX 10-4T/1.5M	4	-	-	-	1	1	1	2	-	6	-	-	1	-
MATRIX 10-4T/1.5		1	-	-	1	-	-	2	-	6	-	-	-	-
MATRIX 10-5T/2.2M	5	-	-	-	-	1	1	3	-	8	-	-	1	-
MATRIX 10-5T/2.2		1	-	-	1	-	-	3	-	8	-	-	-	-
MATRIX 10-6T/2.2M	6	-	-	-	-	1	1	3	1	8	1	1	1	1
MATRIX 10-6T/2.2		1	-	-	1	-	-	3	1	8	1	1	-	1
MATRIX 18-2T/1.5M	2	-	1	1	1	1	1	1	-	2	-	-	1	-
MATRIX 18-2T/1.5		1	1	1	1	-	-	1	-	2	-	-	-	-
MATRIX 18-3T/2.2M	3	-	-	1	-	1	1	1	-	2	-	-	1	-
MATRIX 18-3T/2.2		1	-	1	1	-	-	1	-	2	-	-	-	-
MATRIX 18-4T/3	4	1	-	1	-	-	-	2	-	3	-	-	-	-
MATRIX 18-5T/4	5	1	-	1	-	-	-	2	1	3	1	1	-	1
MATRIX 18-6T/4	6	1	-	1	-	-	-	3	1	4	1	1	-	1

MECHANICAL SEAL



STANDARD*	A	B	C	Material	E	F	G
	Rotary seal ring	Stationary seal ring	Gasket	D Bellows	Spring	Frame	Retainer ring
	Carbon	Ceramic	EPDM	EPDM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)

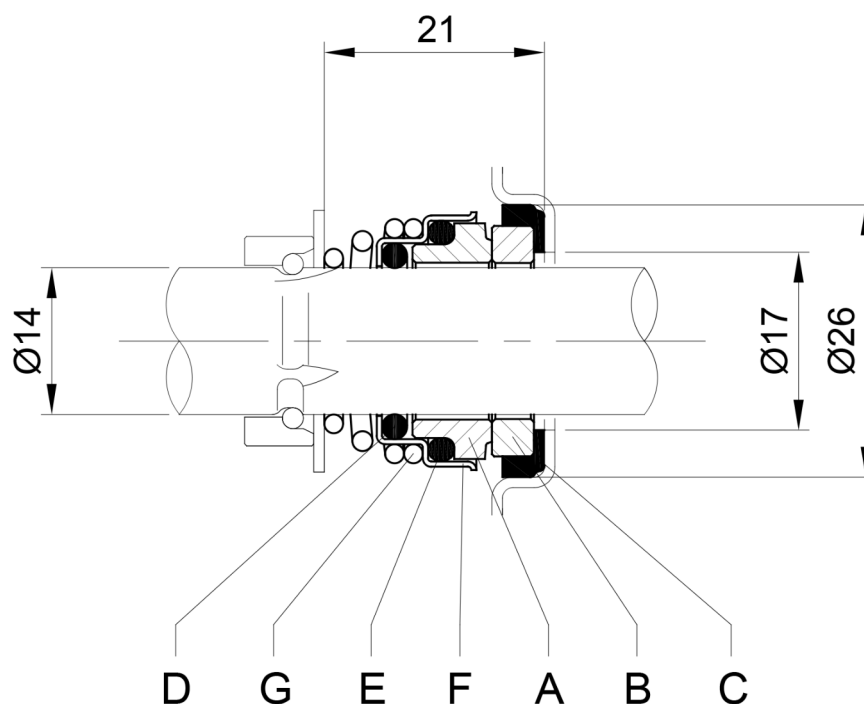
OPTIONAL	Version	A	B	C	Material	E	F	G
		Rotary seal ring	Stationary seal ring	Gasket	D Bellows	Spring	Frame	Retainer ring
	H	Ceramic	Carbon	FPM	FPM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)
	HS	Silicon Carbide	Silicon Carbide	FPM	FPM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)

* Approvals for drinking water application

WRAS & DM174/2004 (ICIM) approved product



MECHANICAL SEAL



OPTIONAL**	Version	A Rotary seal ring	B Stationary seal ring	C Gasket	Material D O-ring	E O-ring	F Spring	G Retainer ring
	-TE	Carbon	Ceramic	EPDM	EPDM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)

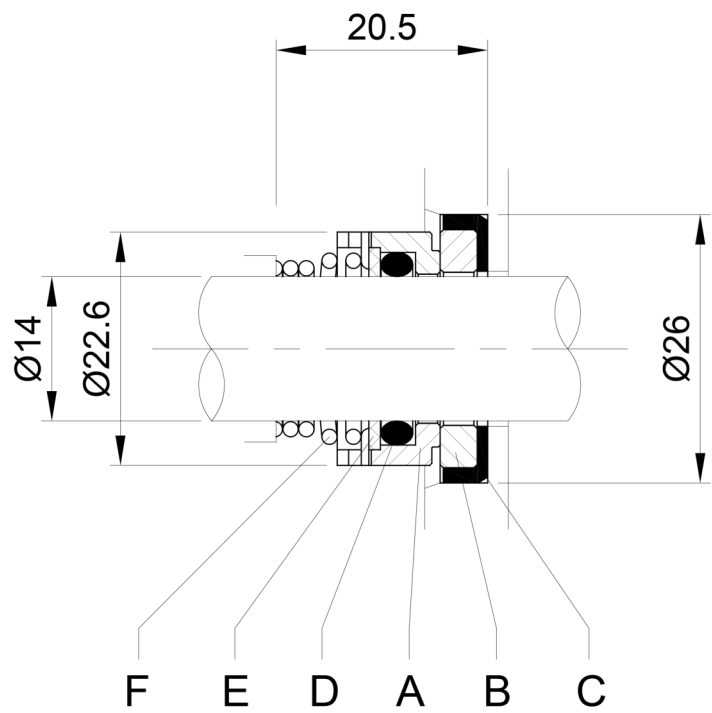
SPECIAL	Version	A Rotary seal ring	B Stationary seal ring	C Gasket	Material D O-ring	E O-ring	F Spring	G Retainer ring
	Q1AEGG	Metalized Carbon	Silicon Carbide	EPDM	EPDM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)

** Approval for drinking water application

DM174/2004 (ICIM) approved product



MECHANICAL SEAL



		Material					
Version		A Rotary seal ring	B Stationary seal ring	C Stationary Gasket	D O-Ring	E Washer	F Spring
SPECIAL	U3Q1EGG	Tungsten Carbide	Silicon Carbide	EPDM	EPDM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)

FLUID TEMPERATURE RANGE

The maximum allowable temperature for the pumped fluid is a determining factor for the operational life of the pump. A primary role in this limitation is played by the materials of the mechanical seals (rings and elastomers), whose thermal resistance often defines the upper limit. The general construction materials of the pump (casing, impeller) and the lubricant used also contribute to defining the maximum temperature. Although the fluid properties and operating conditions have an impact, the choice of suitable seal materials for the operating temperature is crucial to prevent leaks and ensure the reliability of the pumping system.

To preserve optimal performance and prevent failures, we recommend to operate within the following limits:

STANDARD mechanical seal	TEMPERATURE	
	MIN	MAX
STANDARD	-15 °C	85 °C

OPTIONAL mechanical seal	TEMPERATURE	
	MIN	MAX
H *	-15 °C	85 °C
HS *	-15 °C	85 °C
-TE	-15 °C	110 °C

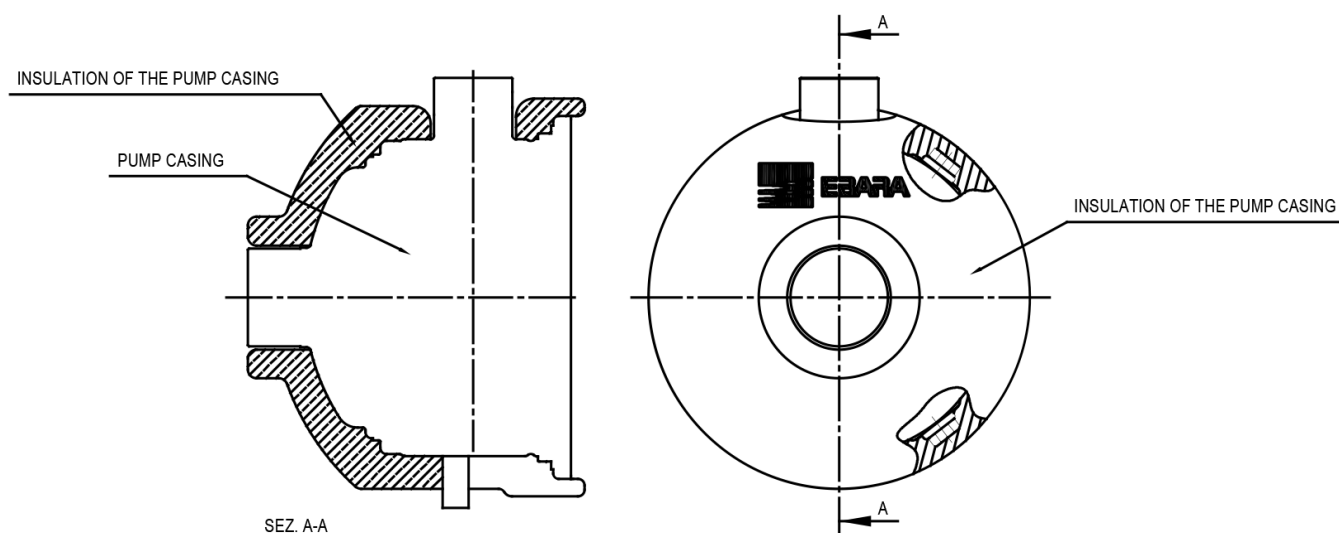
SPECIAL mechanical seal	TEMPERATURE	
	MIN	MAX
Q1AEGG	-15 °C	110 °C
U3Q1EGG	-15 °C	110 °C

* in case the pumped fluid is water in combination to FPM elastomers, a maximum temperature fluid of 75°C is recommended in order to guarantee a longer life of the sealing parts

BEARINGS

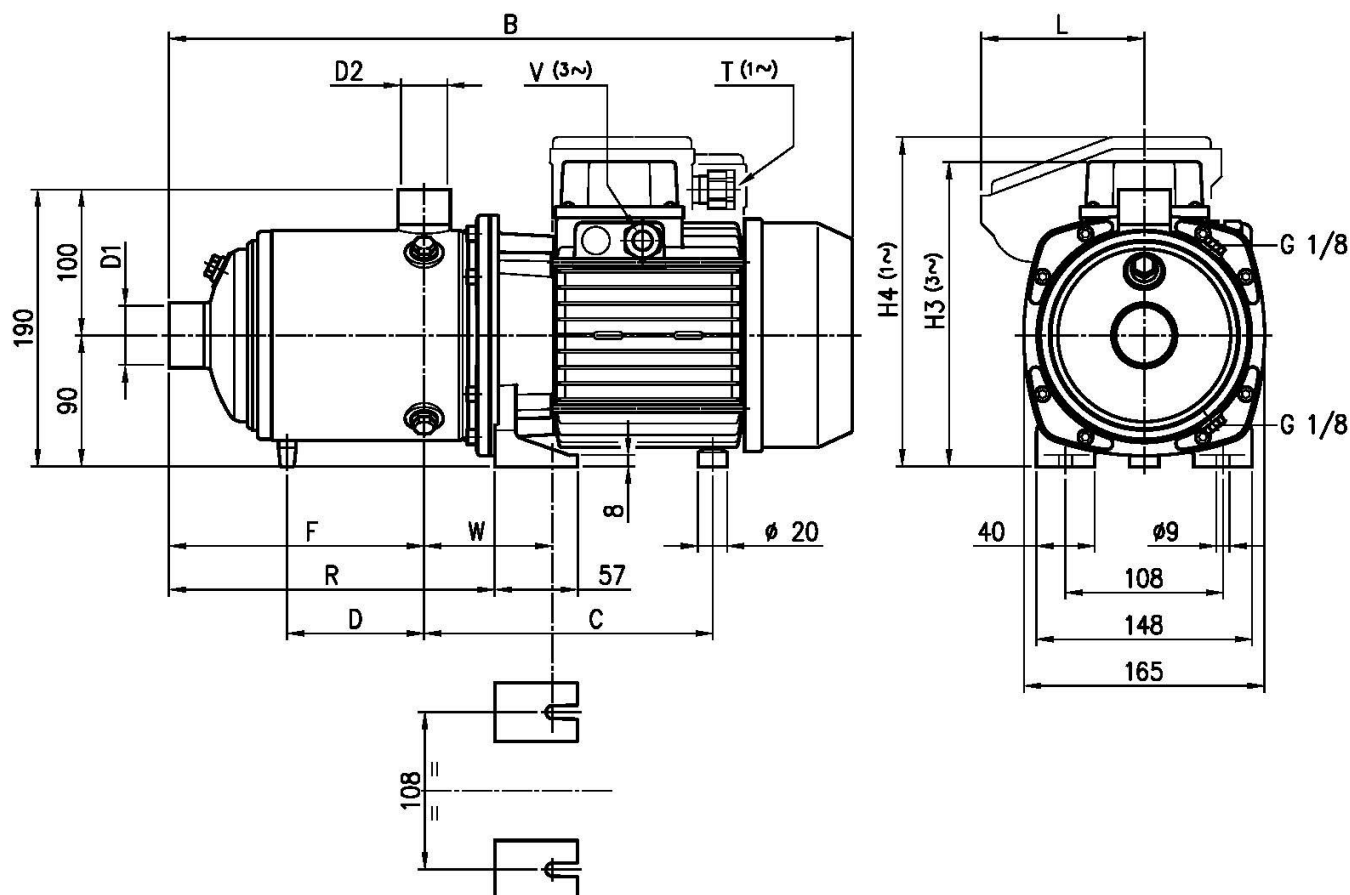
Pump Type	Bearings	
	Pump side	Fan side
MATRIX 3-2T/0.45M	6203	6202
MATRIX 3-2T/0.45	6203	6202
MATRIX 3-3T/0.65M	6203	6202
MATRIX 3-3T/0.65	6203	6202
MATRIX 3-4T/0.65M	6203	6202
MATRIX 3-4T/0.65	6203	6202
MATRIX 3-5T/0.75M	6203	6202
MATRIX 3-5T/0.75	6203	6202
MATRIX 3-6T/0.9M	6203	6202
MATRIX 3-6T/0.9	6203	6202
MATRIX 3-7T/1.3M	6304	6203
MATRIX 3-7T/1.3	6304	6203
MATRIX 3-8T/1.3M	6304	6203
MATRIX 3-8T/1.3	6304	6203
MATRIX 3-9T/1.5M	6304	6203
MATRIX 3-9T/1.5	6304	6203
MATRIX 5-2T/0.45M	6203	6202
MATRIX 5-2T/0.45	6203	6202
MATRIX 5-3T/0.65M	6203	6202
MATRIX 5-3T/0.65	6203	6202
MATRIX 5-4T/0.9M	6203	6202
MATRIX 5-4T/0.9	6203	6202
MATRIX 5-5T/1.3M	6304	6203
MATRIX 5-5T/1.3	6304	6203
MATRIX 5-6T/1.3M	6304	6203
MATRIX 5-6T/1.3	6304	6203
MATRIX 5-7T/1.5M	6304	6203
MATRIX 5-7T/1.5	6304	6203
MATRIX 5-8T/2.2M	6305	6205
MATRIX 5-8T/2.2	6304	6203
MATRIX 5-9T/2.2M	6305	6205
MATRIX 5-9T/2.2	6304	6203
MATRIX 10-2T/0.75M	6203	6202
MATRIX 10-2T/0.75	6203	6202
MATRIX 10-3T/1.3M	6304	6203
MATRIX 10-3T/1.3	6304	6203
MATRIX 10-4T/1.5M	6304	6203
MATRIX 10-4T/1.5	6304	6203
MATRIX 10-5T/2.2M	6305	6205
MATRIX 10-5T/2.2	6304	6203
MATRIX 10-6T/2.2M	6305	6205
MATRIX 10-6T/2.2	6304	6203
MATRIX 18-2T/1.5M	6304	6203
MATRIX 18-2T/1.5	6304	6203
MATRIX 18-3T/2.2M	6305	6205
MATRIX 18-3T/2.2	6304	6203
MATRIX 18-4T/3	6305	6205
MATRIX 18-5T/4		
MATRIX 18-6T/4		

THERMAL INSULATION



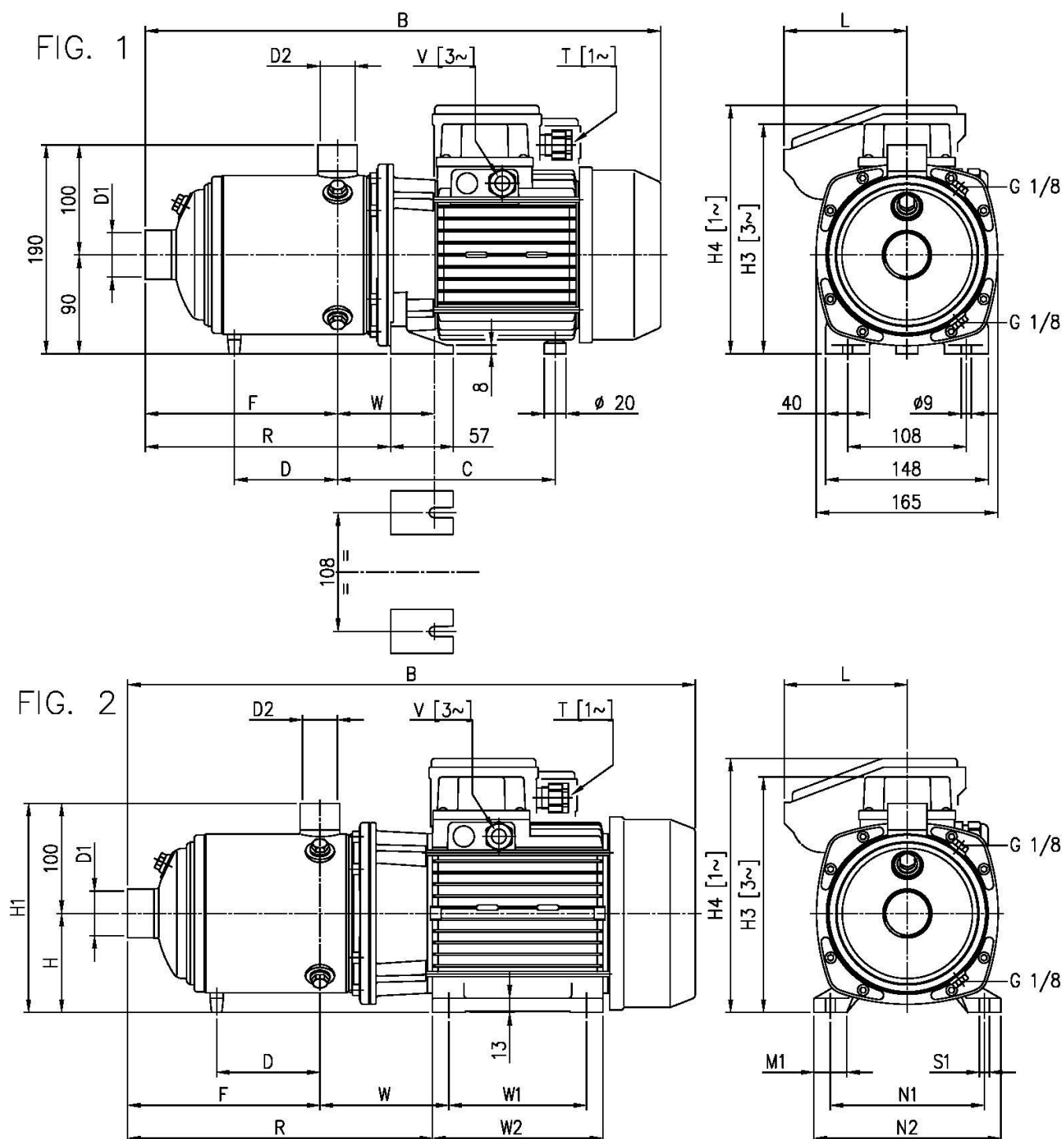
Pump type		INSULATION OF PUMP CASING
Single phase	Three phase	
3-2(.) / 0.45M	3-2(.) / 0.45	ON REQUEST
3-3(.) / 0.65M	3-3(.) / 0.65	
3-4(.) / 0.65M	3-4(.) / 0.65	
3-5(.) / 0.75M	3-5(.) / 0.75	
3-6(.) / 0.9M	3-6(.) / 0.9	
3-7(.) / 1.3M	3-7(.) / 1.3	
3-8(.) / 1.3M	3-8(.) / 1.3	
3-9(.) / 1.5M	3-9(.) / 1.5	
5-2(.) / 0.45M	5-2(.) / 0.45	
5-3(.) / 0.65M	5-3(.) / 0.65	
5-4(.) / 0.9M	5-4(.) / 0.9	
5-5(.) / 1.3M	5-5(.) / 1.3	
5-6(.) / 1.3M	5-6(.) / 1.3	
5-7(.) / 1.5M	5-7(.) / 1.5	
5-8(.) / 2.2M	5-8(.) / 2.2	
5-9(.) / 2.2M	5-9(.) / 2.2	
10-2(.) / 0.75M	10-2(.) / 0.75	
10-3(.) / 1.3M	10-3(.) / 1.3	
10-4(.) / 1.5M	10-4(.) / 1.5	
10-5(.) / 2.2M	10-5(.) / 2.2	
10-6(.) / 2.2M	10-6(.) / 2.2	
18-2(.) / 1.5M	18-2(.) / 1.5	
18-3(.) / 2.2M	18-3(.) / 2.2	
-	18-4(.) / 3	
-	18-5(.) / 4	
-	18-6(.) / 4	

PUMP MATRIX 3



Pump Type	Dimensions [mm]													Weight [kgf]
	D1	D2	B	C	D	F	H3 (3~)	H4 (1~)	L	R	T (1~)	V (3~)	W	
MATRIX 3-2T/0.45M	1"	1"	360	171	-	103	-	200	86.5	151.5	PG11	-	88 ÷ 97	9
MATRIX 3-2T/0.45			360	171	-	103	192	-	-	151.5	-	M16x1.5	88 ÷ 97	9.2
MATRIX 3-3T/0.65M			360	171	-	103	-	200	86.5	151.5	PG11	-	88 ÷ 97	11.5
MATRIX 3-3T/0.65			360	171	-	103	192	-	-	151.5	-	M16x1.5	88 ÷ 97	11.3
MATRIX 3-4T/0.65M			384	171	-	127	-	200	86.5	175.5	PG11	-	88 ÷ 97	12
MATRIX 3-4T/0.65			384	171	-	127	192	-	-	175.5	-	M16x1.5	88 ÷ 97	11.9
MATRIX 3-5T/0.75M			408	171	-	151	-	200	86.5	199.5	PG11	-	88 ÷ 97	12
MATRIX 3-5T/0.75			408	171	-	151	192	-	-	199.5	-	M16x1.5	88 ÷ 97	12.4
MATRIX 3-6T/0.9M			444	171	-	175	-	219	106	223.5	M20x1.5	-	88 ÷ 97	14.5
MATRIX 3-6T/0.9			444	171	-	175	192	-	-	223.5	-	M16x1.5	88 ÷ 97	13.6
MATRIX 3-7T/1.3M			518	198	110.5	199	-	226	112	247.5	M20x1.5	-	88 ÷ 97	19
MATRIX 3-7T/1.3			518	198	110.5	199	209	-	-	247.5	-	M20x1.5	88 ÷ 97	17.9
MATRIX 3-8T/1.3M			542	198	134.5	223	-	226	112	271.5	M20x1.5	-	88 ÷ 97	20.5
MATRIX 3-8T/1.3			542	198	134.5	223	209	-	-	271.5	-	M20x1.5	88 ÷ 97	18.7
MATRIX 3-9T/1.5M			566	198	158.5	247	-	226	112	295.5	M20x1.5	-	88 ÷ 97	21.5
MATRIX 3-9T/1.5			567	198	158.5	247	209	-	-	295.5	-	M20x1.5	88 ÷ 97	20.9

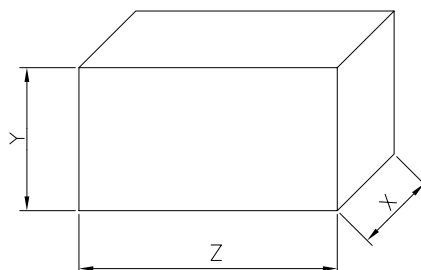
PUMP DRAWING MATRIX 5/10/18



DIMENSION TABLE MATRIX 5/10/18

Pump Type	Dimensions [mm]																						Weight [kgf]	
	Fig.	D1	D2	H	H1	B	C	D	F	H3 (3~)	H4 (1~)	L	R	T (1~)	V (3~)	W	W1	W2	M1	N1	N2	S1		
MATRIX 5-2T/0.45 M	1	1"1/4	1"	-	-	360	171	-	103	-	200	86.5	151.5	PG11	-	88+97	-	-	-	-	-	-	9.0	
MATRIX 5-2T/0.45				-	-	360	171	-	103	192	-	-	151.5	-	M16x1.5	88+97	-	-	-	-	-	-	-	9.2
MATRIX 5-3T/0.65 M				-	-	360	171	-	103	-	200	86.5	151.5	PG11	-	88+97	-	-	-	-	-	-	-	11.5
MATRIX 5-3T/0.65				-	-	360	171	-	103	192	-	-	151.5	-	M16x1.5	88+97	-	-	-	-	-	-	-	11.3
MATRIX 5-4T/0.9 M				-	-	396	171	-	127	-	219	106	175.5	M20x1.5	-	88+97	-	-	-	-	-	-	-	13.0
MATRIX 5-4T/0.9				-	-	396	171	-	127	192	-	-	175.5	-	M16x1.5	88+97	-	-	-	-	-	-	-	12.4
MATRIX 5-5T/1.3 M				-	-	495	198	-	151	-	226	112	199.5	M20x1.5	-	88+97	-	-	-	-	-	-	-	18.5
MATRIX 5-5T/1.3				-	-	470	198	-	151	209	-	-	199.5	-	M20x1.5	88+97	-	-	-	-	-	-	-	16.7
MATRIX 5-6T/1.3 M				-	-	494	198	-	175	-	226	112	223.5	M20x1.5	-	88+97	-	-	-	-	-	-	-	19.5
MATRIX 5-6T/1.3				-	-	494	198	-	175	209	-	-	223.5	-	M20x1.5	88+97	-	-	-	-	-	-	-	17.1
MATRIX 5-7T/1.5 M				-	-	505	198	110.5	199	-	226	112	247.5	M20x1.5	-	88+97	-	-	-	-	-	-	-	20.0
MATRIX 5-7T/1.5				-	-	518.5	198	110.5	199	209	-	-	247.5	-	M20x1.5	88+97	-	-	-	-	-	-	-	19.6
MATRIX 5-8T/2.2 M	2	1"	1"	90	190	603	-	134.5	223	-	231	112	325.5	M20x1.5	-	117.5	125	155	30	140	170	9	28.0	
MATRIX 5-8T/2.2	1			-	-	542.5	198	134.5	223	209	-	-	271.5	-	M20x1.5	88+97	-	-	-	-	-	-	19.6	
MATRIX 5-9T/2.2 M	2			90	190	627	-	158.5	247	-	231	112	349.5	M20x1.5	-	117.5	125	155	30	140	170	9	28.5	
MATRIX 5-9T/2.2	1			-	-	566.5	198	158.5	247	209	-	-	295.5	-	M20x1.5	88+97	-	-	-	-	-	-	19.7	
MATRIX 10-2T/0.75 M	1	1"1/2	1"1/4	-	-	379	175	-	118	-	200	86.5	170.5	PG11	-	92+101	-	-	-	-	-	-	12	
MATRIX 10-2T/0.75				-	-	379	175	-	118	192	-	-	170.5	-	M16x1.5	92+101	-	-	-	-	-	-	11.2	
MATRIX 10-3T/1.3 M				-	-	441	202	-	118	-	226	112	170.5	M20x1.5	-	92+101	-	-	-	-	-	-	17.5	
MATRIX 10-3T/1.3				-	-	441	202	-	118	209	-	-	170.5	-	M20x1.5	92+101	-	-	-	-	-	-	14.5	
MATRIX 10-4T/1.5 M				-	-	458	202	-	148	-	226	112	200.5	M20x1.5	-	92+101	-	-	-	-	-	-	18.5	
MATRIX 10-4T/1.5				-	-	471.5	202	-	148	209	-	-	200.5	-	M20x1.5	92+101	-	-	-	-	-	-	18.2	
MATRIX 10-5T/2.2 M	2			90	190	562	-	-	178	-	231	112	284.5	M20x1.5	-	121.5	125	155	30	140	170	9	26	
MATRIX 10-5T/2.2	1			-	-	501.5	202	-	178	209	-	-	230.5	-	M20x1.5	92+101	-	-	-	-	-	-	18.8	
MATRIX 10-6T/2.2 M	2	90	190	592	-	118.5	208	-	231	112	314.5	M20x1.5	-	121.5	125	155	30	140	170	9	26.5			
MATRIX 10-6T/2.2	1	-	-	531.5	202	118.5	208	209	-	-	260.5	-	M20x1.5	92+101	-	-	-	-	-	-	19.2			
MATRIX 18-2T/1.5M	1	2"	1"1/2	-	-	454	205	-	141	-	226	112	196.5	M20x1.5	-	95 ÷ 104	-	-	-	-	-	-	18	
MATRIX 18-2T/1.5				-	-	467.5	205	-	141	209	-	-	196.5	-	M20x1.5	95 ÷ 104	-	-	-	-	-	-	17.1	
MATRIX 18-3T/2.2M	2			90	190	506	-	-	141	-	231	112	250.5	M20x1.5	-	124.5	125	155	30	140	170	9	25.5	
MATRIX 18-3T/2.2	1			-	-	467.5	205	-	141	209	-	-	196.5	-	M20x1.5	95 ÷ 104	-	-	-	-	-	-	18.1	
MATRIX 18-4T/3	2			90	190	565	-	-	178.5	214	-	-	288	-	M20x1.5	124.5	125	155	30	140	170	9	23.8	
MATRIX 18-5T/4				100	200	625	-	123	216	241	-	-	315	-	M20x1.5	114	140	170	35	160	192	11	33.2	
MATRIX 18-6T/4				100	200	662	-	160.5	253.5	241	-	-	352.5	-	M20x1.5	114	140	170	35	160	192	11	34.2	

PACKING



Pump Type	Packing [mm]			Weight [kgf]
	X	Y	Z	
MATRIX 3-2T/0.45M	220	260	560	10
MATRIX 3-2T/0.45				9.8
MATRIX 3-3T/0.65M				12
MATRIX 3-3T/0.65				11.9
MATRIX 3-4T/0.65M				12.5
MATRIX 3-4T/0.65				12.5
MATRIX 3-5T/0.75M				13.5
MATRIX 3-5T/0.75				13
MATRIX 3-6T/0.9M	220	260	580	16
MATRIX 3-6T/0.9				14.6
MATRIX 3-7T/1.3M	220	260	670	20
MATRIX 3-7T/1.3				18
MATRIX 3-8T/1.3M				22
MATRIX 3-8T/1.3				18.8
MATRIX 3-9T/1.5M	220	300	760	22.5
MATRIX 3-9T/1.5				21
MATRIX 5-2T/0.45M	220	260	560	10
MATRIX 5-2T/0.45				9.8
MATRIX 5-3T/0.65M				12
MATRIX 5-3T/0.65				11.9
MATRIX 5-4T/0.9M				14.5
MATRIX 5-4T/0.9				13.2
MATRIX 5-5T/1.3M	220	260	670	19.5
MATRIX 5-5T/1.3				17.7
MATRIX 5-6T/1.3M				20
MATRIX 5-6T/1.3				18.1
MATRIX 5-7T/1.5M				21
MATRIX 5-7T/1.5				20.5
MATRIX 5-8T/2.2M	220	300	760	29.5
MATRIX 5-8T/2.2				20.4
MATRIX 5-9T/2.2M				29.5
MATRIX 5-9T/2.2				20.7
MATRIX 10-2T/0.75M	220	260	560	12.5
MATRIX 10-2T/0.75				11.8
MATRIX 10-3T/1.3M	220	260	580	18.5
MATRIX 10-3T/1.3				15.1
MATRIX 10-4T/1.5M				19.5
MATRIX 10-4T/1.5				19.1
MATRIX 10-5T/2.2M	220	300	760	27
MATRIX 10-5T/2.2				19.6
MATRIX 10-6T/2.2M				27.5
MATRIX 10-6T/2.2				20
MATRIX 18-2T/1.5M	220	260	580	19.5
MATRIX 18-2T/1.5	220	260	670	17.9
MATRIX 18-3T/2.2M				26.5
MATRIX 18-3T/2.2				19.1
MATRIX 18-4T/3				24.8
MATRIX 18-5T/4	220	300	760	34.4
MATRIX 18-6T/4				35.2

MOTOR DATA

Pump type	Power		Efficiency	Capacitor		Efficiency (% load)				Input	Full load current		Locked rotor current
	[kW]	[HP]		[μF]	[V]	η %			cos-φ		[A]		
Single Phase						50%	75%	100%		[kW]	230 V		230 V
MATRIX 3-2T/0.45M	0.45	0.6	IE2	14	450	55.7	65.6	72.5	0.94	0.65	3.0		13.4
MATRIX 3-3T/0.65M	0.75	1.0	IE2	25	450	61.0	70.8	79.2	0.93	0.95	4.4		24.0
MATRIX 3-4T/0.65M	0.75	1.0	IE2	25	450	61.0	70.8	79.2	0.93	0.95	4.4		24.0
MATRIX 3-5T/0.75M	0.75	1.0	IE2	25	450	61.0	70.8	79.2	0.93	0.95	4.4		24.0
MATRIX 3-6T/0.9M	0.9	1.2	IE2	31.5	450	67.0	75.3	79.0	0.92	1.15	5.4		31.3
MATRIX 3-7T/1.3M	1.3	1.8	IE2	40	450	71.5	78.0	81.8	0.97	1.64	7.4		51.3
MATRIX 3-8T/1.3M	1.3	1.8	IE2	40	450	71.5	78.0	81.8	0.97	1.64	7.4		51.3
MATRIX 3-9T/1.5M	1.5	2.0	IE2	40	450	69.8	76.6	81.3	0.92	1.90	9.0		65.2
MATRIX 5-2T/0.45M	0.45	0.6	IE2	14	450	55.7	65.6	72.5	0.94	0.65	3.0		13.4
MATRIX 5-3T/0.65M	0.75	1.0	IE2	25	450	61.0	70.8	79.2	0.93	0.95	4.4		24.0
MATRIX 5-4T/0.9M	0.9	1.2	IE2	31.5	450	67.0	75.3	79.0	0.92	1.15	5.4		31.3
MATRIX 5-5T/1.3M	1.3	1.8	IE2	40	450	71.5	78.0	81.8	0.97	1.64	7.4		51.3
MATRIX 5-6T/1.3M	1.3	1.8	IE2	40	450	71.5	78.0	81.8	0.97	1.64	7.4		51.3
MATRIX 5-7T/1.5M	1.5	2.0	IE2	40	450	69.8	76.6	81.3	0.92	1.90	9.0		65.2
MATRIX 5-8T/2.2M	2.2	3.0	IE2	55	450	76.5	81.5	83.8	0.95	2.72	12.3		73.0
MATRIX 5-9T/2.2M	2.2	3.0	IE2	55	450	76.5	81.5	83.8	0.95	2.72	12.3		73.0
MATRIX 10-2T/0.75M	0.75	1.0	IE2	25	450	61.0	70.8	79.2	0.93	0.95	4.4		24.0
MATRIX 10-3T/1.3M	1.3	1.8	IE2	40	450	71.5	78.0	81.8	0.97	1.64	7.4		51.3
MATRIX 10-4T/1.5M	1.5	2.0	IE2	40	450	69.8	76.6	81.3	0.92	1.90	9.0		65.2
MATRIX 10-5T/2.2M	2.2	3.0	IE2	55	450	76.5	81.5	83.8	0.95	2.72	12.3		73.0
MATRIX 10-6T/2.2M	2.2	3.0	IE2	55	450	76.5	81.5	83.8	0.95	2.72	12.3		73.0
MATRIX 18-2T/1.5M	1.5	2.0	IE2	40	450	70.2	77.5	81.8	0.93	1.93	8.9		64.8
MATRIX 18-3T/2.2M	2.2	3.0	IE2	55	450	76.5	81.5	83.8	0.95	2.72	12.3		73.0

Pump type	Power		Efficiency	Efficiency (% load)			Input	Full load current		Locked rotor current	
	[kW]	[HP]		50%	75%	100%		[A]		[A]	
Three Phase							[kW]	230 V	400 V	230 V	400 V
MATRIX 3-2T/0.45	0.45	0.6	IE3	75.1	78.5	78.0	0.71	2.4	1.4	12.7	7.3
MATRIX 3-3T/0.65	0.65	0.9	IE3	80.2	82.8	82.9	0.91	3.0	1.7	20.5	11.8
MATRIX 3-4T/0.65	0.65	0.9	IE3	80.2	82.8	82.9	0.91	3.0	1.7	20.5	11.8
MATRIX 3-5T/0.75	0.75	1.0	IE3	80.9	82.3	82.1	0.91	3.0	1.7	19.7	11.4
MATRIX 3-6T/0.9	0.9	1.2	IE3	81.7	83.1	82.4	1.34	4.3	2.5	28.8	16.6
MATRIX 3-7T/1.3	1.3	1.8	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
MATRIX 3-8T/1.3	1.3	1.8	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
MATRIX 3-9T/1.5	1.5	2.0	IE3	82.7	86.1	87.0	1.72	6.6	3.8	66.6	38.4
MATRIX 5-2T/0.45	0.45	0.6	IE3	75.1	78.5	78.0	0.71	2.4	1.4	12.7	7.3
MATRIX 5-3T/0.65	0.65	0.9	IE3	80.2	82.8	82.9	0.91	3.0	1.7	20.5	11.8
MATRIX 5-4T/0.9	0.9	1.2	IE3	81.7	83.1	82.4	1.34	4.3	2.5	28.8	16.6
MATRIX 5-5T/1.3	1.3	1.8	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
MATRIX 5-6T/1.3	1.3	1.8	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
MATRIX 5-7T/1.5	1.5	2.0	IE3	82.7	86.1	87.0	1.72	6.6	3.8	66.6	38.4
MATRIX 5-8T/2.2	2.2	3.0	IE3	86.2	87.0	86.0	2.55	8.2	4.7	66.6	38.4
MATRIX 5-9T/2.2	2.2	3.0	IE3	86.2	87.0	86.0	2.55	8.2	4.7	66.6	38.4
MATRIX 10-2T/0.75	0.75	1.0	IE3	80.9	82.3	82.1	0.91	3.0	1.7	19.7	11.4
MATRIX 10-3T/1.3	1.3	1.8	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
MATRIX 10-4T/1.5	1.5	2.0	IE3	82.7	86.1	87.0	1.72	6.6	3.8	66.6	38.4
MATRIX 10-5T/2.2	2.2	3.0	IE3	86.2	87.0	86.0	2.55	8.2	4.7	66.6	38.4
MATRIX 10-6T/2.2	2.2	3.0	IE3	86.2	87.0	86.0	2.55	8.2	4.7	66.6	38.4
MATRIX 18-2T/1.5	1.5	2.0	IE3	82.7	86.1	87.0	1.72	6.6	3.8	66.6	38.4
MATRIX 18-3T/2.2	2.2	3.0	IE3	86.2	87.0	86.0	2.55	8.2	4.7	66.6	38.4
MATRIX 18-4T/3	3	4.0	IE3	85.9	87.5	87.1	3.44	11.1	6.4	90.0	52.0
MATRIX 18-5T/4	4	5.5	IE3	85.8	88.3	88.4	4.52	15.1	8.7	131.8	76.1
MATRIX 18-6T/4	4	5.5	IE3	85.8	88.3	88.4	4.52	15.1	8.7	131.8	76.1

NOISE DATA

Pump Type		LpA-dB(A)*
Single phase	Three phase	
MATRIX 3-2T/0.45M	MATRIX 3-2T/0.45	61
MATRIX 5-2T/0.45M	MATRIX 5-2T/0.45	
MATRIX 3-3T/0.65M	MATRIX 3-3T/0.65	
MATRIX 3-4T/0.65M	MATRIX 3-4T/0.65	62
MATRIX 5-3T/0.65M	MATRIX 5-3T/0.65	
MATRIX 3-5T/0.75M	MATRIX 3-5T/0.75	
MATRIX 10-2T/0.75M	MATRIX 10-2T/0.75	62
MATRIX 3-6T/0.9M	MATRIX 3-6T/0.9	
MATRIX 5-4T/0.9M	MATRIX 5-4T/0.9	
MATRIX 3-7T/1.3M	MATRIX 3-7T/1.3	64
MATRIX 3-8T/1.3M	MATRIX 3-8T/1.3	
MATRIX 5-5T/1.3M	MATRIX 5-5T/1.3	
MATRIX 5-6T/1.3M	MATRIX 5-6T/1.3	
MATRIX 10-3T/1.3M	MATRIX 10-3T/1.3	
MATRIX 3-9T/1.5M	MATRIX 3-9T/1.5	64
MATRIX 5-7T/1.5M	MATRIX 5-7T/1.5	
MATRIX 10-4T/1.5M	MATRIX 10-4T/1.5	
MATRIX 18-2T/1.5M	MATRIX 18-2T/1.5	
-	MATRIX 5-8T/2.2	
-	MATRIX 5-9T/2.2	65
-	MATRIX 10-5T/2.2	
-	MATRIX 10-6T/2.2	
-	MATRIX 18-3T/2.2	
MATRIX 5-8T/2.2M	-	
MATRIX 5-9T/2.2M	-	65
MATRIX 10-5T/2.2M	-	
MATRIX 10-6T/2.2M	-	
MATRIX 18-3T/2.2M	-	
-	MATRIX 18-4T/3	
-	MATRIX 18-5T/4	69
-	MATRIX 18-6T/4	

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



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The contents of this publication must not be considered binding.



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