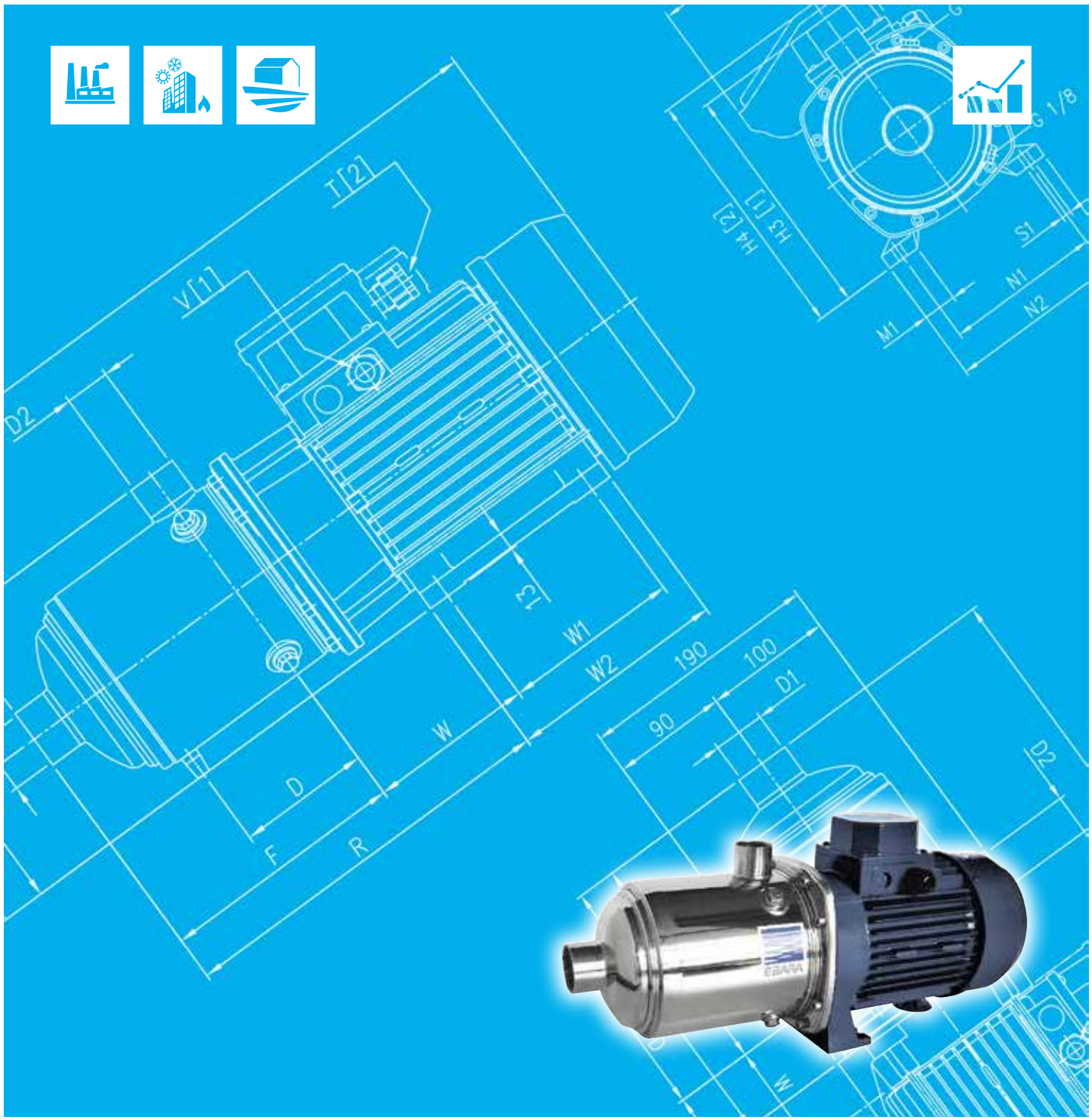




Japanese Technology since 1912

# MATRIX

Data Book 50Hz



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## SPECIFICATIONS

50Hz

Rev. K

PUMP			
Liquid Handled	Type of liquid	Water, moderate aggressive solutions, glycol solutions, moderate viscous fluids	
	Temperature [°C]	min.-15 max.+85 (STD*, H**, HS** version) max.+110 (-TE**, U3Q1EGG**, Q1AEGG** version)	
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)	UNI ISO 228
		G 1"¼ (Matrix 5)	UNI ISO 228
		G 1"½ (Matrix 10)	UNI ISO 228
		G 2" (Matrix 18)	UNI ISO 228
	Discharge	G 1" (Matrix 3)	UNI ISO 228
		G 1" (Matrix 5)	UNI ISO 228
G 1"¼ (Matrix 10)		UNI ISO 228	
G 1"½ (Matrix 18)		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	

\* Approval for drinking water application  
WRAS Approved product



\*\* Approval for drinking water application  
DM174/2004

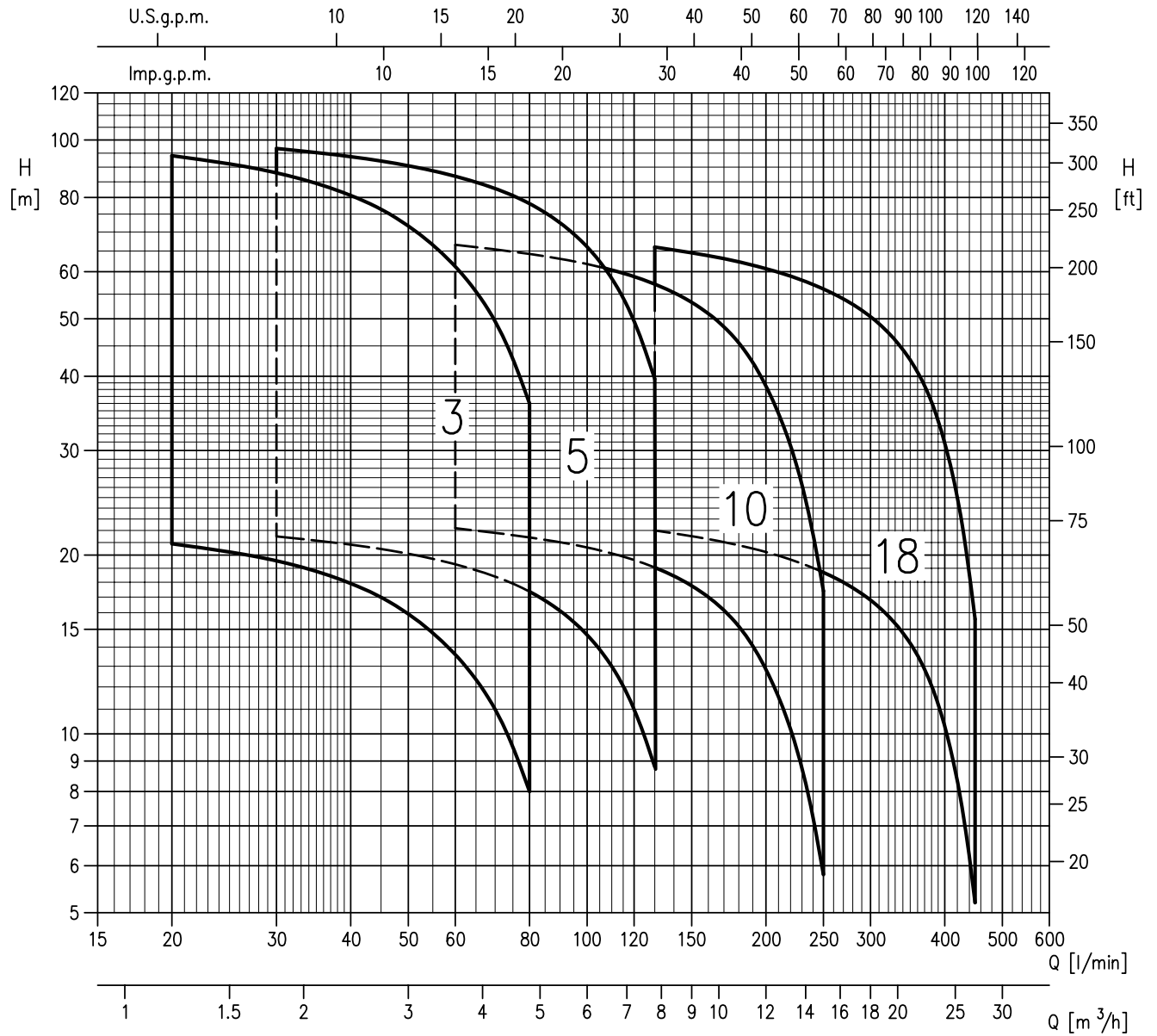
**SPECIFICATIONS**

50Hz

Rev. K

<b>MOTOR</b>		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 1781/2019)	-	IE3
No. of Poles	2	
Rotation speed [min <sup>-1</sup> ]	≈ 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	[Hz]	50
	[V]	230 ±10%
Voltage		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**

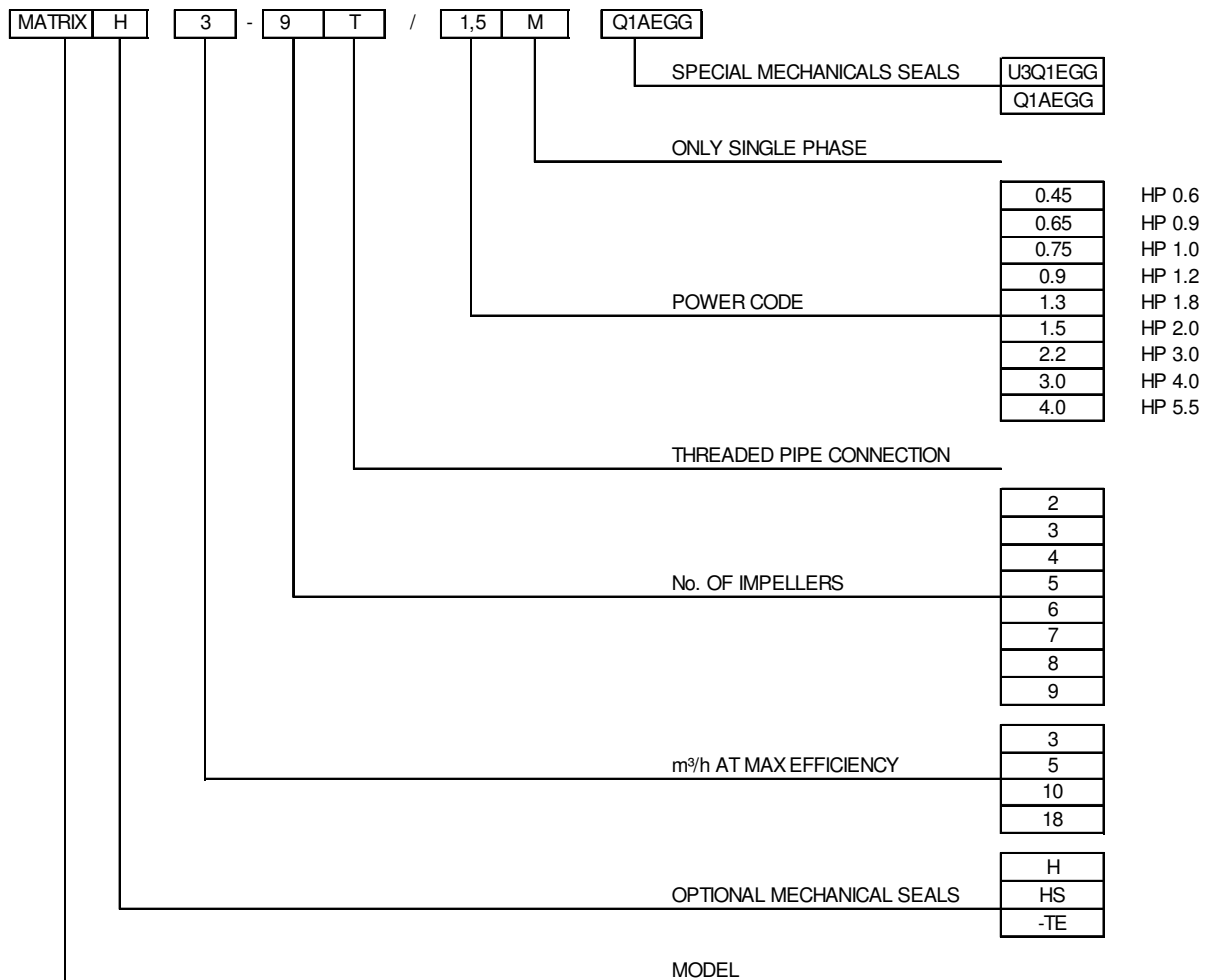
50Hz

Rev. K

**SELECTION CHART**

Pump type		Power		Q=Capacity																
Single phase	Three phase	[kW]	[HP]	l/min	0	20	30	45	60	80	100	130	160	200	250	300	350	400	450	
				m <sup>3</sup> /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	0.45	0.6	22.6	20.9	19.6	17	13.6	8											
3-3(.)0.65M	3-3(.)0.65	0.65	0.9	33.9	31.4	29.3	25.5	20.4	12											
3-4(.)0.65M	3-4(.)0.65	0.65	0.9	45	42	39.1	34	27.2	16											
3-5(.)0.75M	3-5(.)0.75	0.75	1	56.5	52.5	49	42.5	34	20											
3-6(.)0.9M	3-6(.)0.9	0.9	1.2	68	62.5	58.5	51	41	24											
3-7(.)1.3M	3-7(.)1.3	1.3	1.8	79	73	68.5	59.5	47.5	28											
3-8(.)1.3M	3-8(.)1.3	1.3	1.8	90.5	83.5	78	68	54.5	32											
3-9(.)1.5M	3-9(.)1.5	1.5	2	102	94	88	76.5	61	36											
5-2(.)0.45M	5-2(.)0.45	0.45	0.6	23	-	21.5	20.5	19.3	17.4	14.7	8.8									
5-3(.)0.65M	5-3(.)0.65	0.65	0.9	34.5	-	32.3	30.7	29	26	22	13.2									
5-4(.)0.9M	5-4(.)0.9	0.9	1.2	46	-	43	41	38.6	34.7	29.4	17.6									
5-5(.)1.3M	5-5(.)1.3	1.3	1.8	57.5	-	54	51	48.5	43.5	36.7	22									
5-6(.)1.3M	5-6(.)1.3	1.3	1.8	69	-	64.5	61.5	58	52	44	26.4									
5-7(.)1.5M	5-7(.)1.5	1.5	2	80.5	-	75.5	72	67.5	61	51.5	30.8									
5-8(.)2.2M	5-8(.)2.2	2.2	3	92	-	86	82	77	69.5	58.5	35.2									
5-9(.)2.2M	5-9(.)2.2	2.2	3	104	-	97	92	87	78	66	39.6									
10-2(.)0.75M	10-2(.)0.75	0.75	1	24	-	-	-	22.2	21.4	20.6	19.1	17	12.8	5.8						
10-3(.)1.3M	10-3(.)1.3	1.3	1.8	36	-	-	-	33.3	32.1	30.9	28.6	25.5	19.3	8.7						
10-4(.)1.5M	10-4(.)1.5	1.5	2	48	-	-	-	44.5	43	41	38.1	34	25.7	11.6						
10-5(.)2.2M	10-5(.)2.2	2.2	3	60	-	-	-	55.5	53.5	51.5	47.5	42.5	32.1	14.5						
10-6(.)2.2M	10-6(.)2.2	2.2	3	72	-	-	-	66.5	64.5	62	57	51	38.5	17.4						
18-2(.)1.5M	18-2(.)1.5	1.5	2	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	2.2	3	36.3	-	-	-	-	-	-	33	31.9	30.4	28.1	25.2	21.3	15.5	7.8		
-	18-4(.)3	3	4	48.5	-	-	-	-	-	-	44	42.5	40.5	37.4	33.6	28.4	20.6	10.4		
-	18-5(.)4	4	5.5	60.5	-	-	-	-	-	-	55	53	50.5	47	42	35.5	25.8	13		
-	18-6(.)4	4	5.5	72.5	-	-	-	-	-	-	66	64	60.5	56	50.5	42.5	30.9	15.6		

### 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)

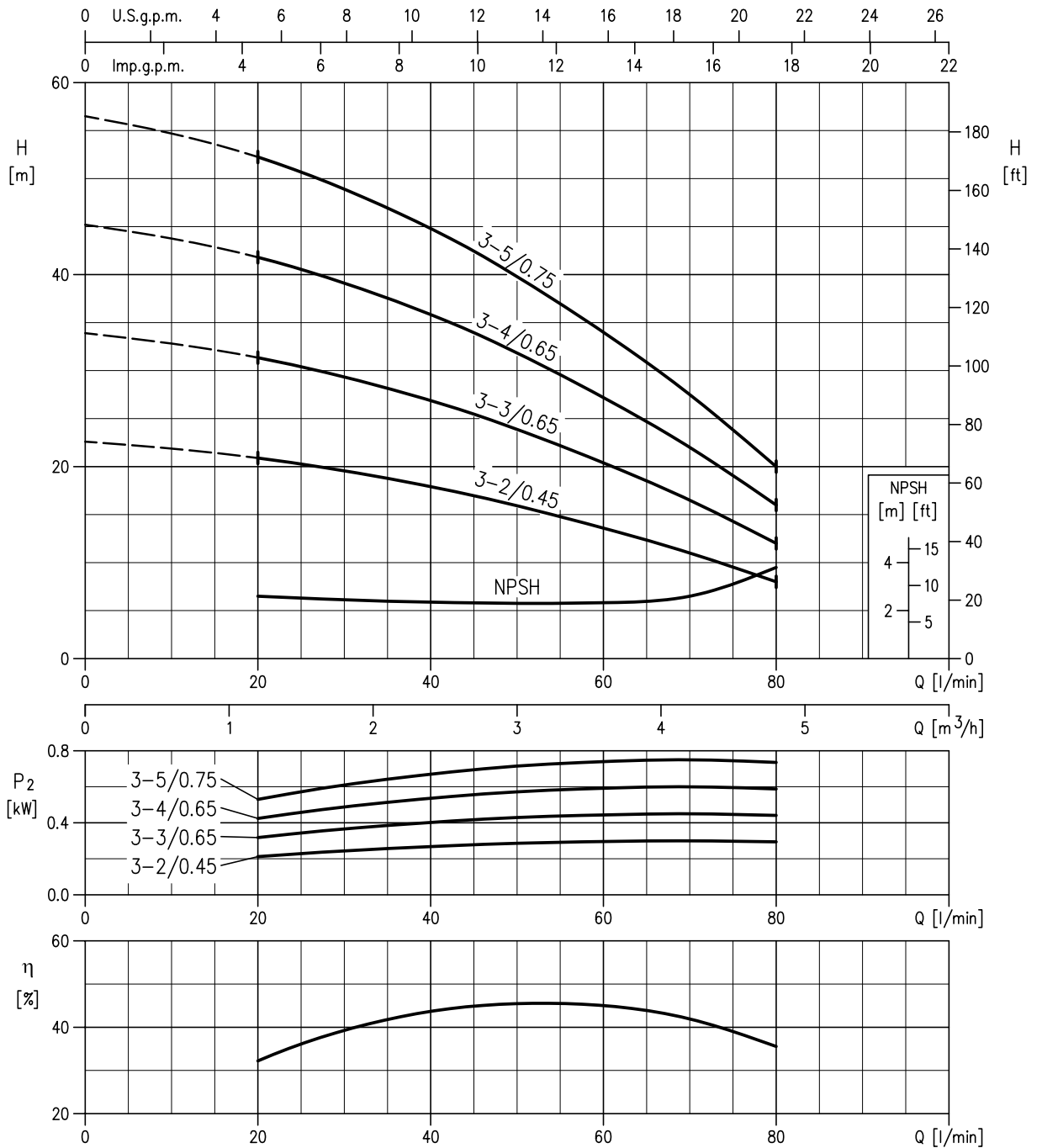
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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
- $P_2$  = pump power input (shaft power)
- $\eta$  = pump efficiency
- NPSH = net positive suction head required by the pump

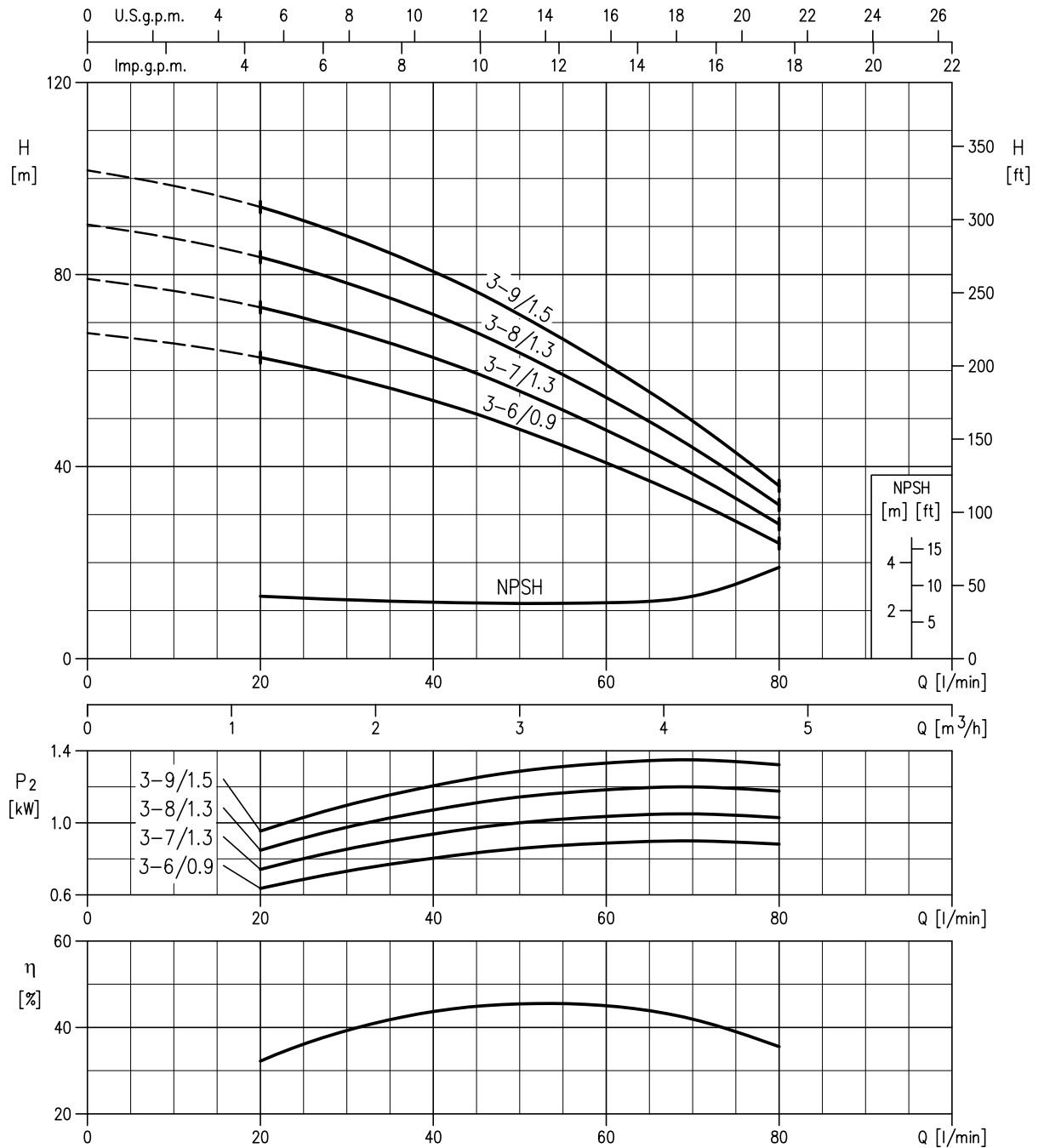
**MATRIX 3-5/0.75 (0.75 kW) - Impeller diameter = 98.5 mm**  
**MATRIX 3-4/0.65 (0.65 kW) - Impeller diameter = 98.5 mm**  
**MATRIX 3-3/0.65 (0.65 kW) - Impeller diameter = 98.5 mm**  
**MATRIX 3-2/0.45 (0.45 kW) - Impeller diameter = 98.5 mm**



Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906:2012 - Grade 3B

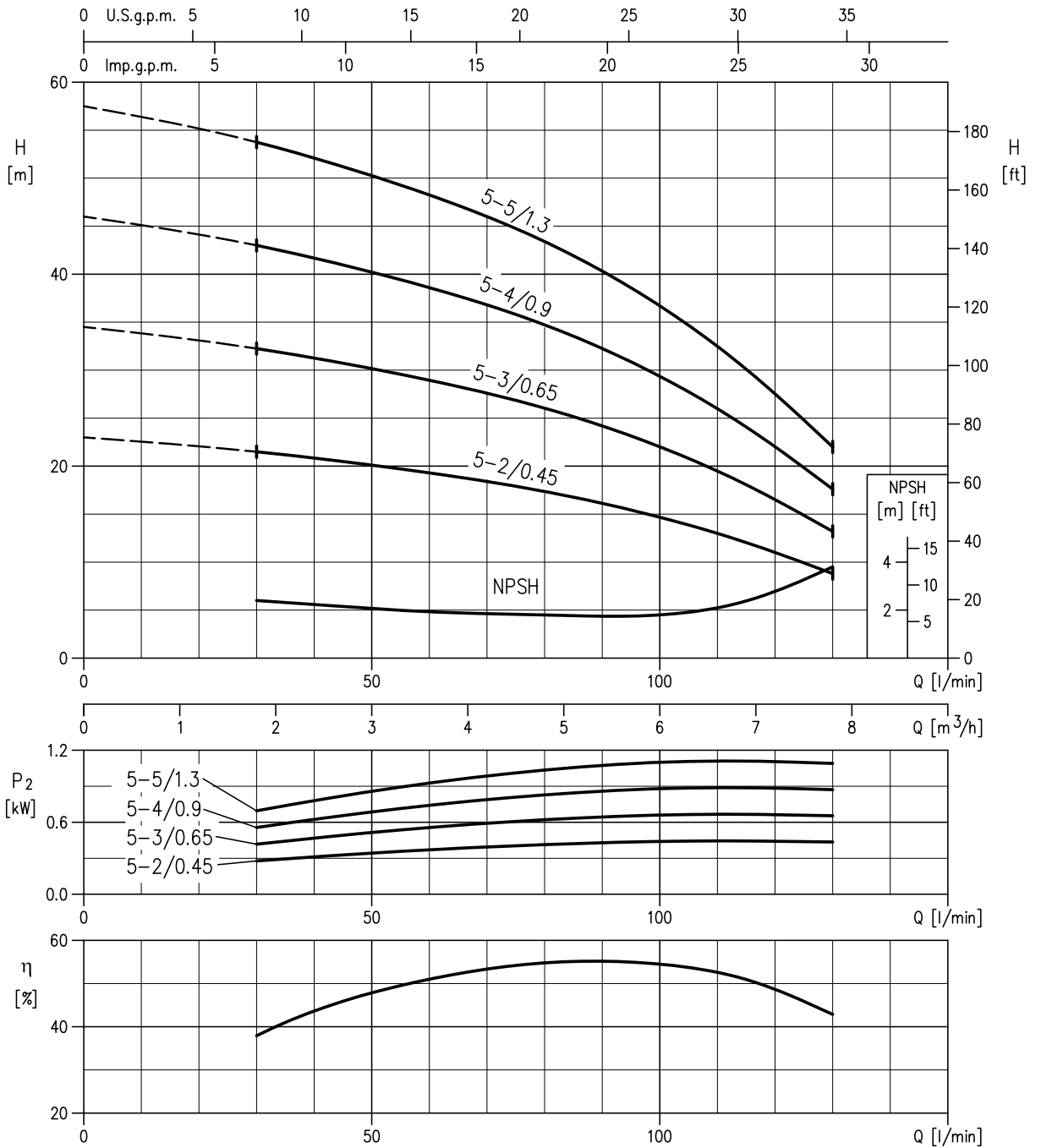


**MATRIX 3-9/1.5 (1.5 kW) - Impeller diameter = 98.5 mm**  
**MATRIX 3-8/1.3 (1.3 kW) - Impeller diameter = 98.5 mm**  
**MATRIX 3-7/1.3 (1.3 kW) - Impeller diameter = 98.5 mm**  
**MATRIX 3-6/0.9 (0.90 kW) - Impeller diameter = 98.5 mm**



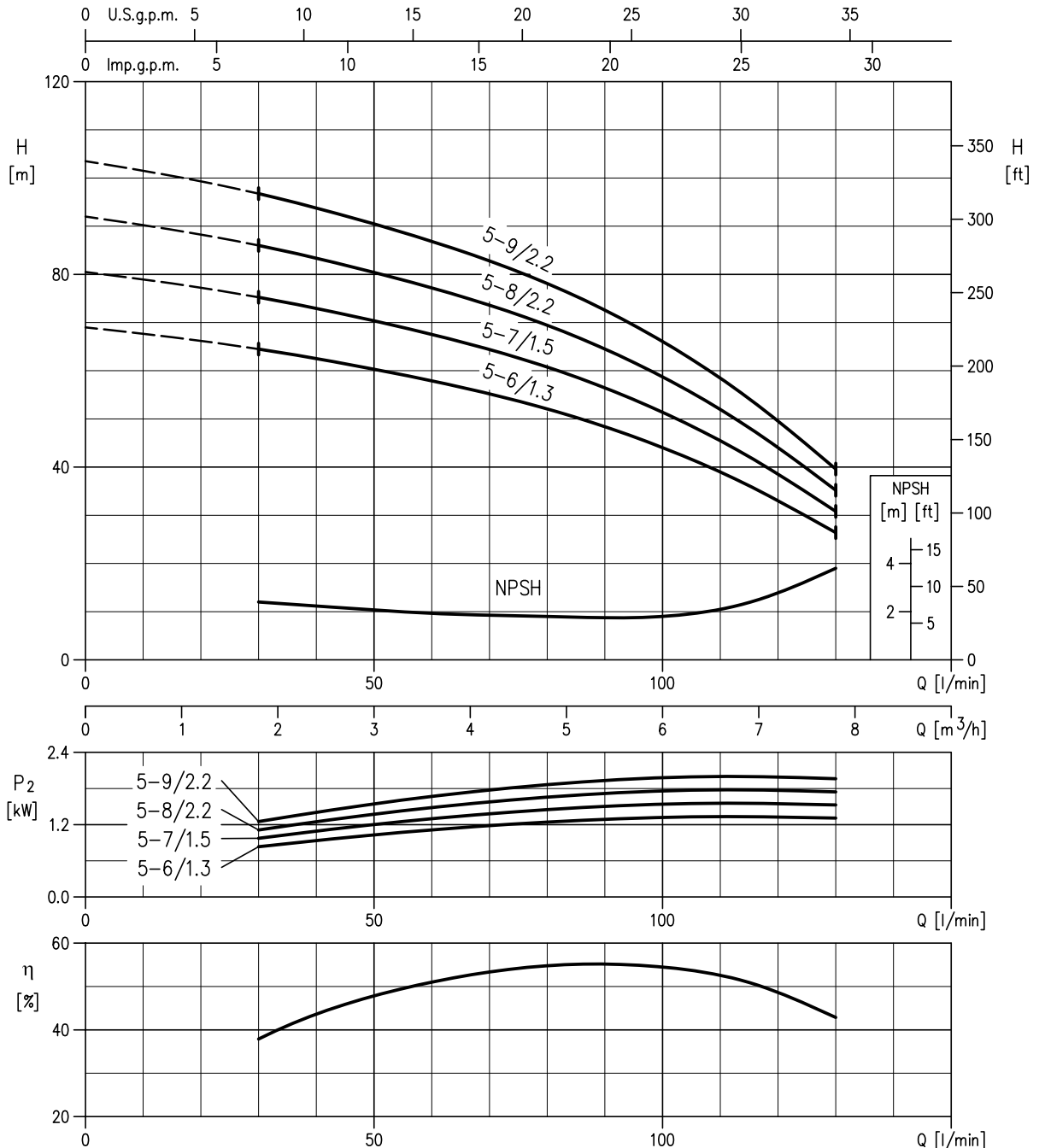
Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906:2012 - Grade 3B

**MATRIX 5-5/1.3 (1.3 kW) - Impeller diameter = 97 mm**  
**MATRIX 5-4/0.9 (0.90 kW) - Impeller diameter = 97 mm**  
**MATRIX 5-3/0.65 (0.65 kW) - Impeller diameter = 97 mm**  
**MATRIX 5-2/0.45 (0.45 kW) - Impeller diameter = 97 mm**



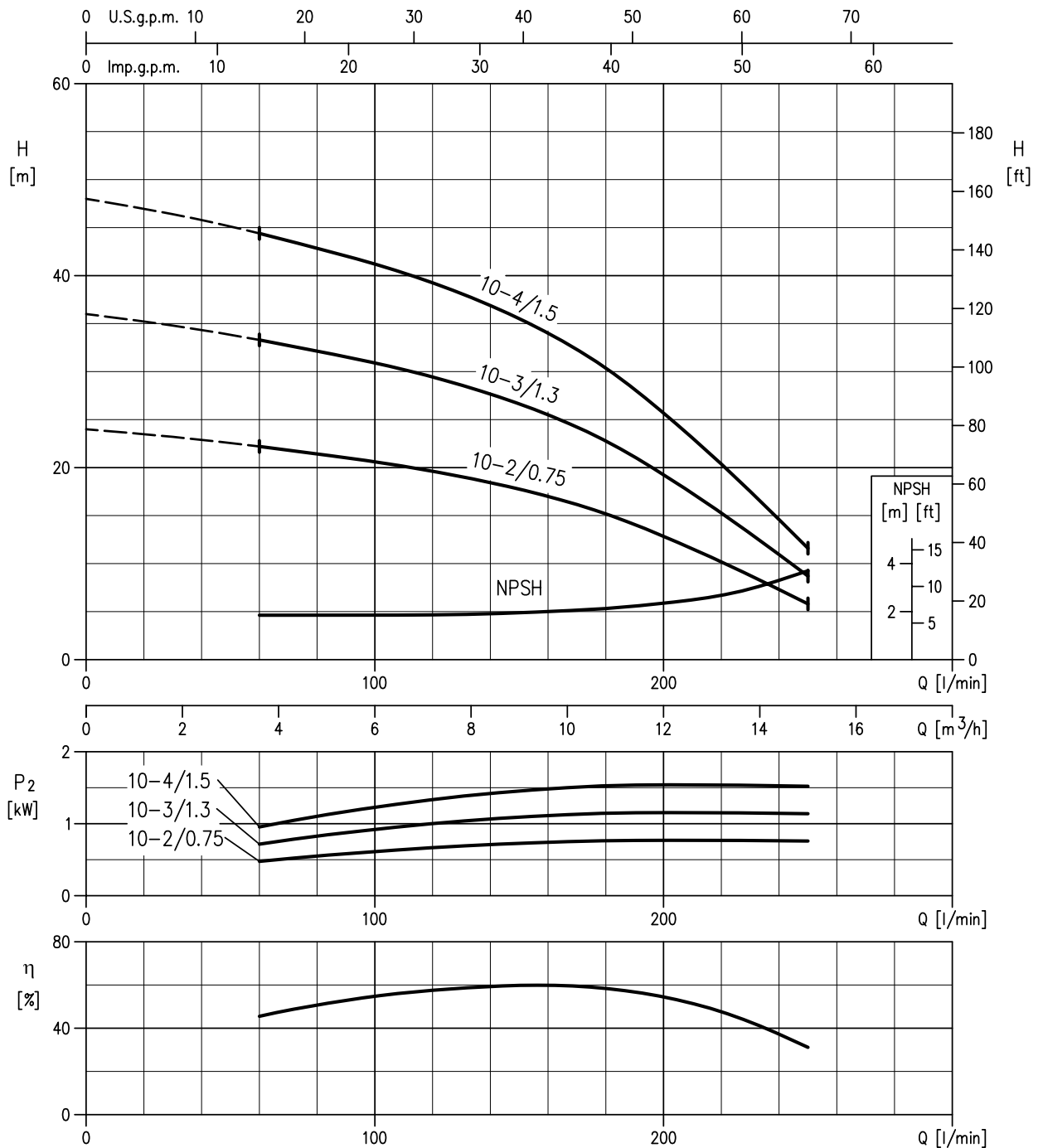
Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906:2012 - Grade 3B

**MATRIX 5-9/2.2 (2.2 kW) - Impeller diameter = 97 mm**  
**MATRIX 5-8/2.2 (2.2 kW) - Impeller diameter = 97 mm**  
**MATRIX 5-7/1.5 (1.5 kW) - Impeller diameter = 97 mm**  
**MATRIX 5-6/1.3 (1.3 kW) - Impeller diameter = 97 mm**



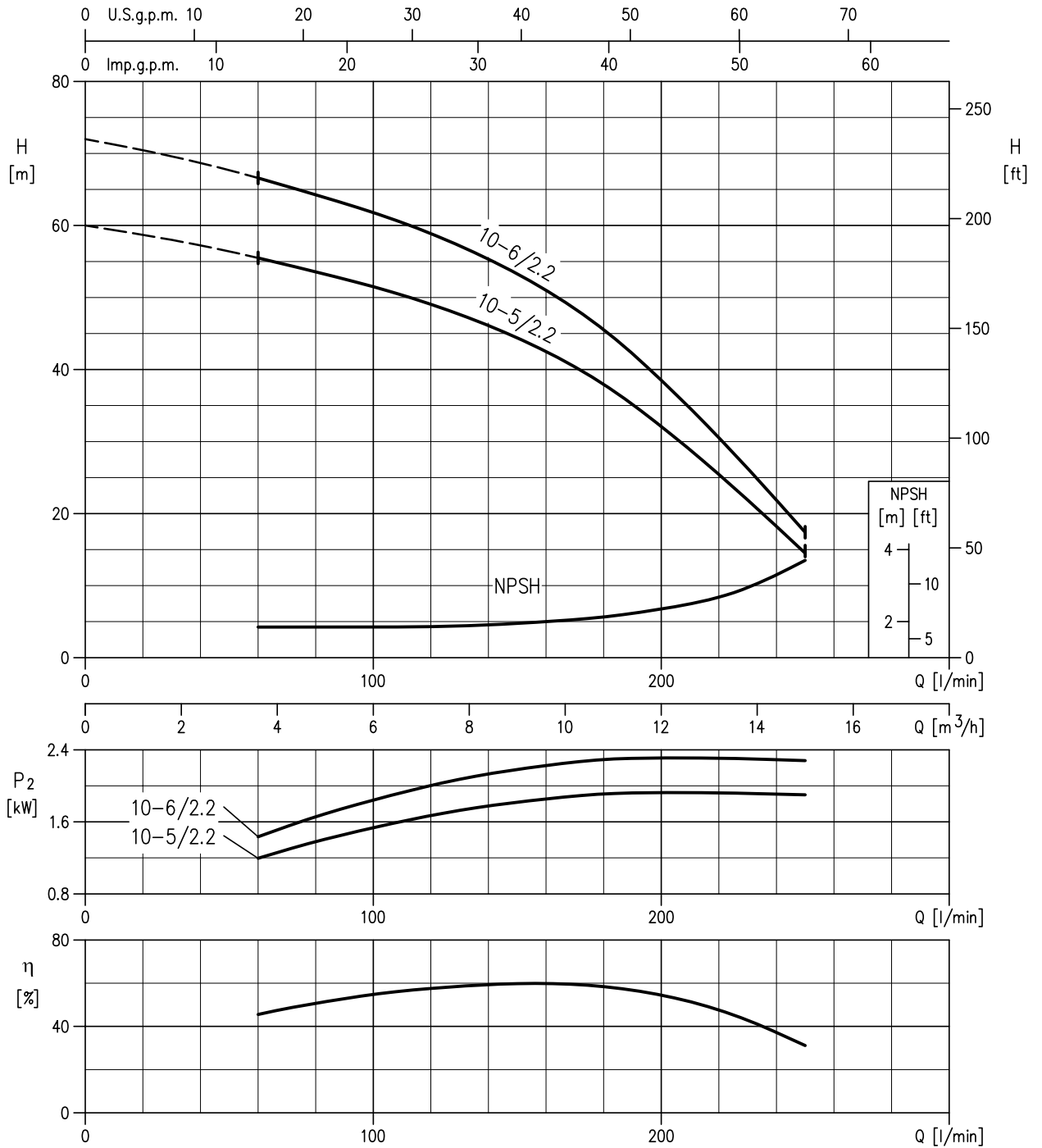
Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906:2012 - Grade 3B

**MATRIX 10-4/1.5 (1.5 kW) - Impeller diameter = 100.5 mm**  
**MATRIX 10-3/1.3 (1.3 kW) - Impeller diameter = 100.5 mm**  
**MATRIX 10-2/0.75 (0.75 kW) - Impeller diameter = 100.5 mm**



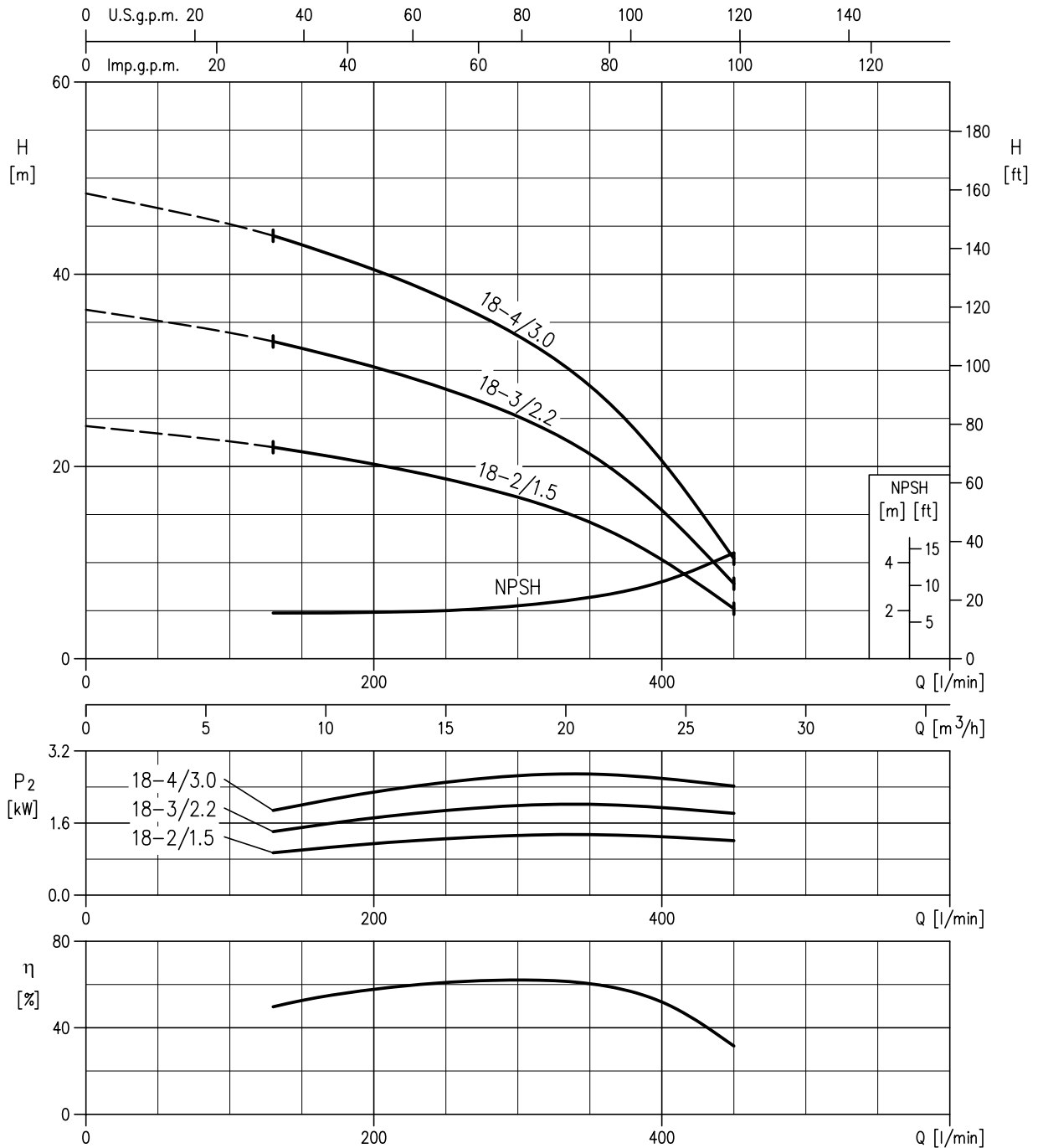
Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906:2012 - Grade 3B

**MATRIX 10-6/2.2 (2.2 kW) - Impeller diameter = 100.5 mm**  
**MATRIX 10-5/2.2 (2.2 kW) - Impeller diameter = 100.5 mm**



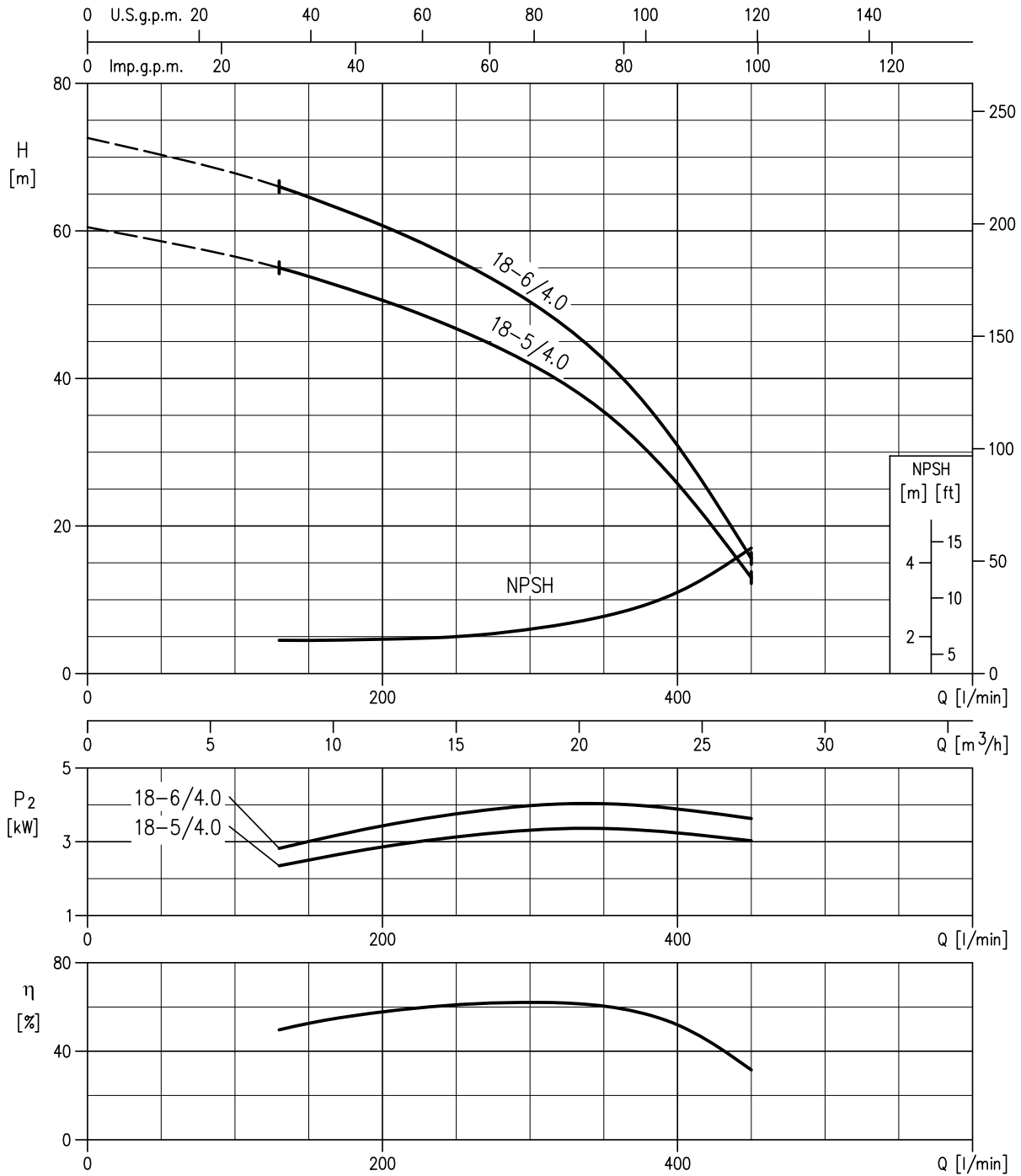
Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906:2012 - Grade 3B

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



Rotation speed ≈ 2875 min<sup>-1</sup>  
 Test standard: ISO 9906:2012 - Grade 3B

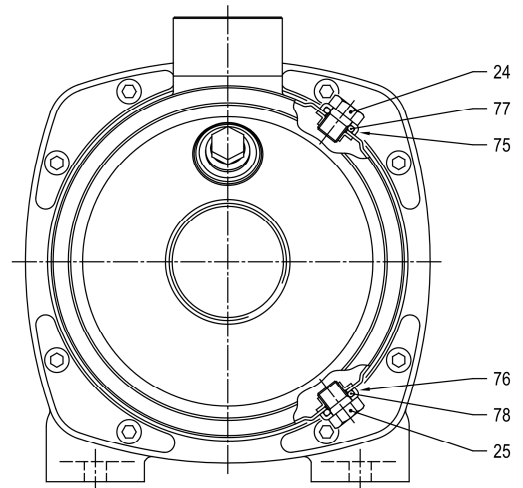
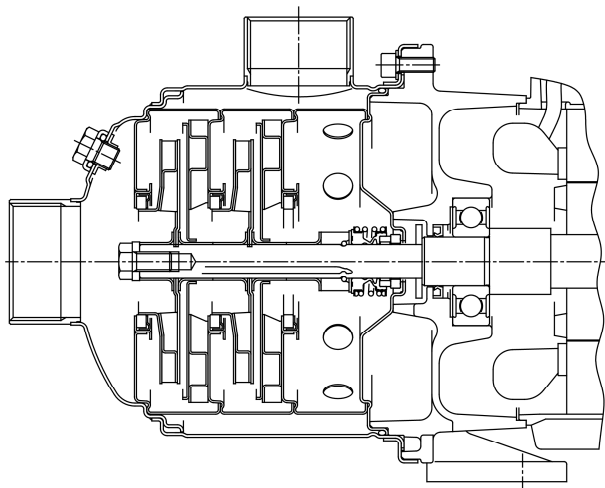
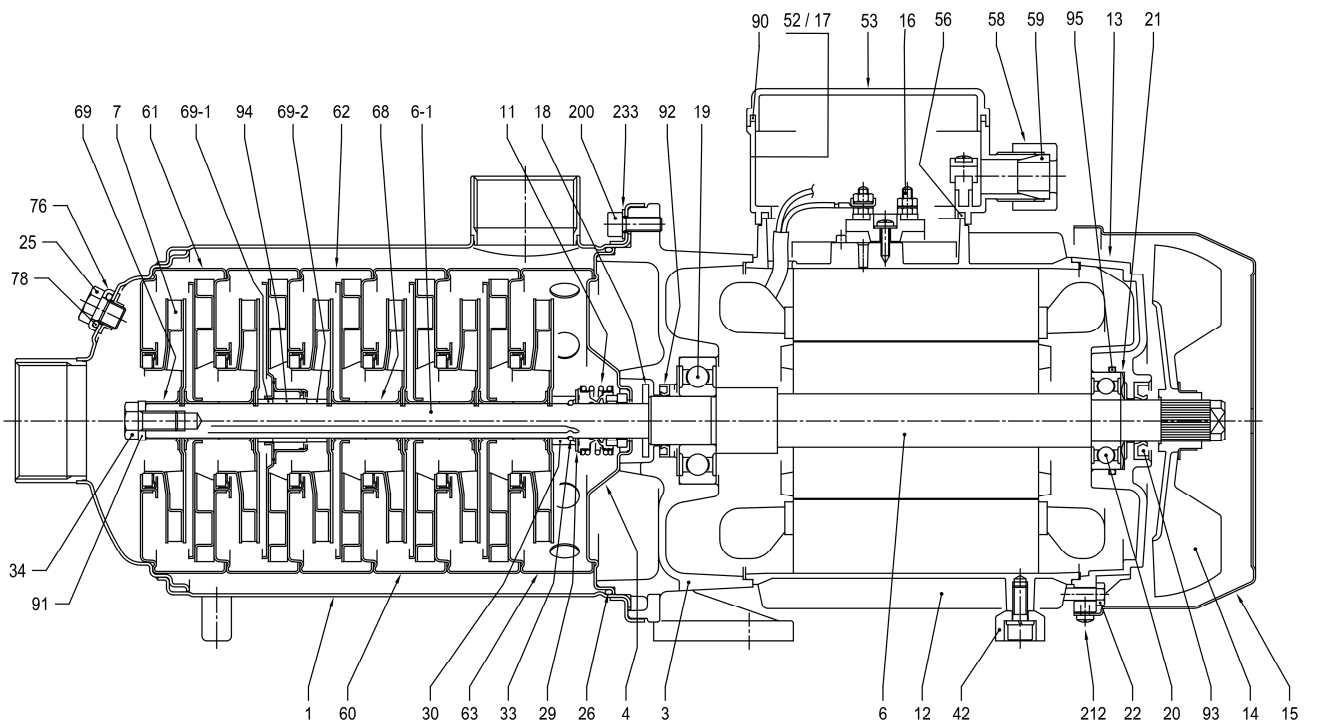
**MATRIX 18-6/4.0 (4.0 kW) - Impeller diameter = 106.7 mm**  
**MATRIX 18-5/4.0 (4.0 kW) - Impeller diameter = 106.7 mm**



Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906:2012 - Grade 3B

SECTIONAL VIEW DRAWING

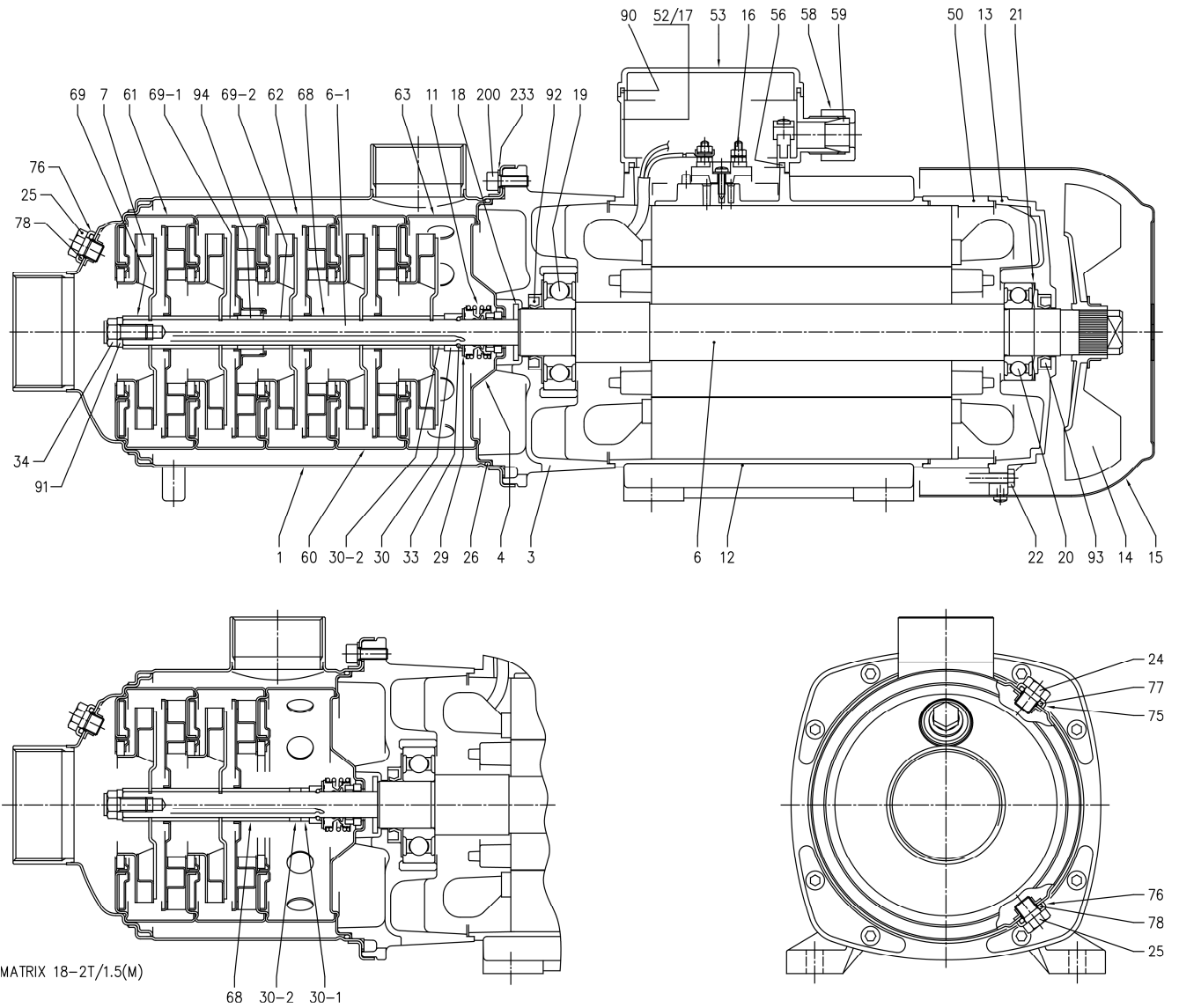
MATRIX 3/5/10



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

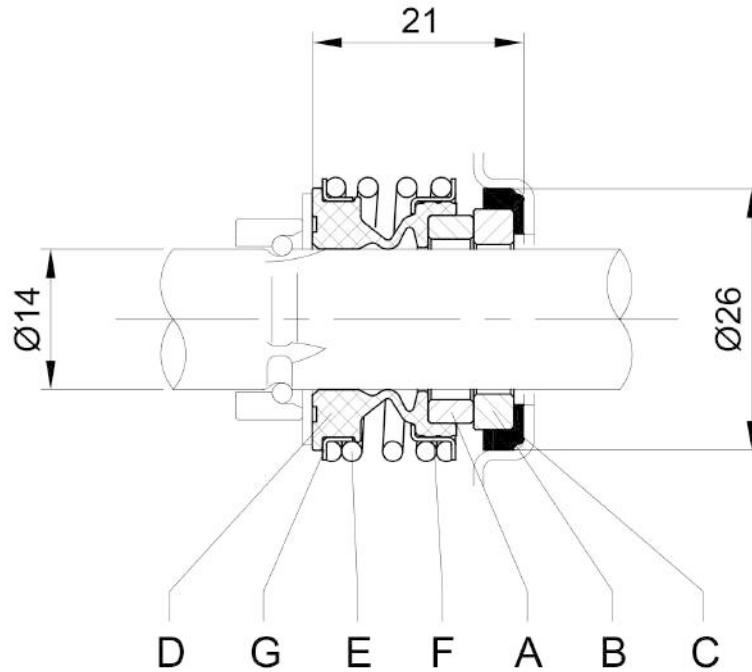
N°	PART NAME	MATERIAL	DIMENSION	STANDARD	Q.TY
1	Casing	EN 1.4301 (AISI 304)			1
3	Bracket	EN AB-AISI11Cu2(Fe)			1
4	Casing cover	EN 1.4301 (AISI 304)			1
6	Shaft with rotor	-			1
6-1	Pump Shaft	EN 1.4301 (AISI 304)			1
7	Impeller	EN 1.4301 (AISI 304)			[1]
11	Mechanical seal	[4] Ceramic/Carbon/EPDM			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 1.4301 (AISI 304)	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 1.4301 (AISI 304)			[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 1.3-1.5-2.2 kW 2.2M-3-4 kW	- 17x32x6 20x30x4 25x40x7		1 1 1
93	Lip seal	0.45-0.65-0.75-0.9 kW 1.3-1.5-2.2 kW 2.2M-3-4 kW	- 15x30x5 17x32x7 25x40x7		1 1 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	-	-	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**



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

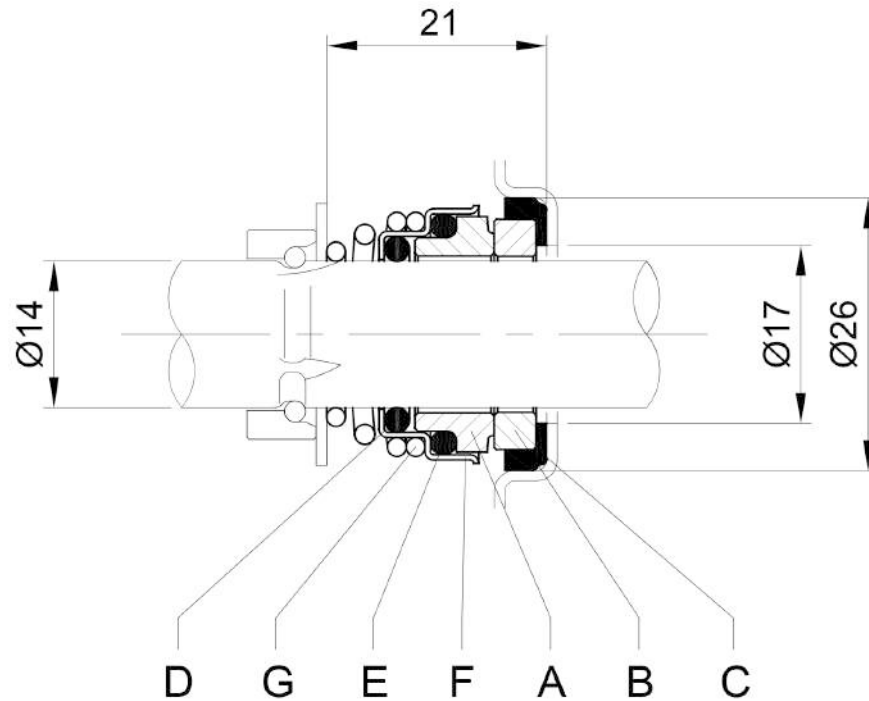
	A	B	C	Material D	E	F	G
Version	Rotary seal ring	Stationary seal ring	Gasket	Bellows	Spring	Frame	Retainer ring
OPTIONAL**	H	Ceramic	Carbon	FPM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)
	HS	Silicon Carbide	Silicon Carbide	FPM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI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

\*Approval for drinking water application  
WRAS Approval product

\*\*Approval for drinking water application  
DM174/2004



**MECHANICAL SEAL**

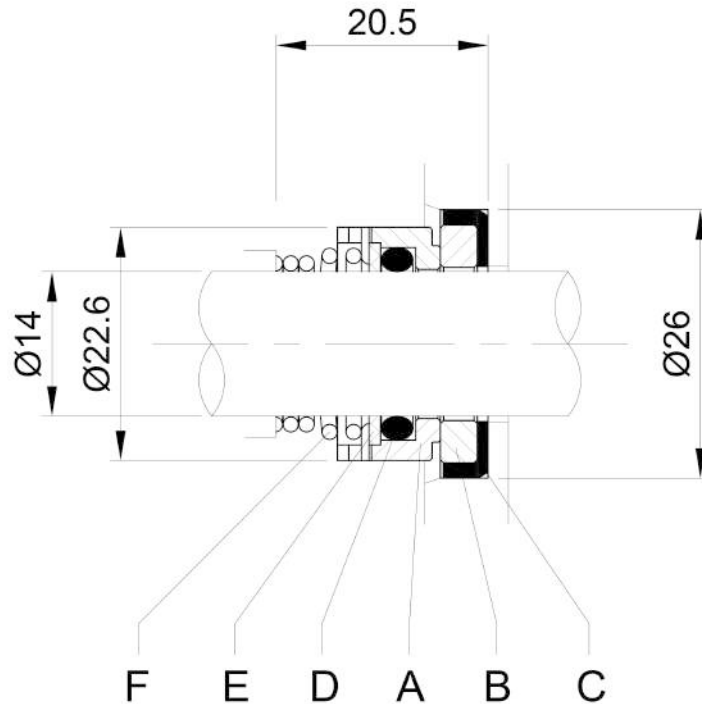


Version	A	B	C	Material			
	Rotary seal ring	Stationary seal ring	Gasket	D O-ring	E O-ring	F Spring	G Retainer ring
<b>OPTIONAL**</b> -TE	Carbon	Ceramic	EPDM	EPDM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)

Version	A	B	C	Material			
	Rotary seal ring	Stationary seal ring	Gasket	D O-ring	E O-ring	F Spring	G Retainer ring
<b>SPECIAL**</b> 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

**MECHANICAL SEAL**



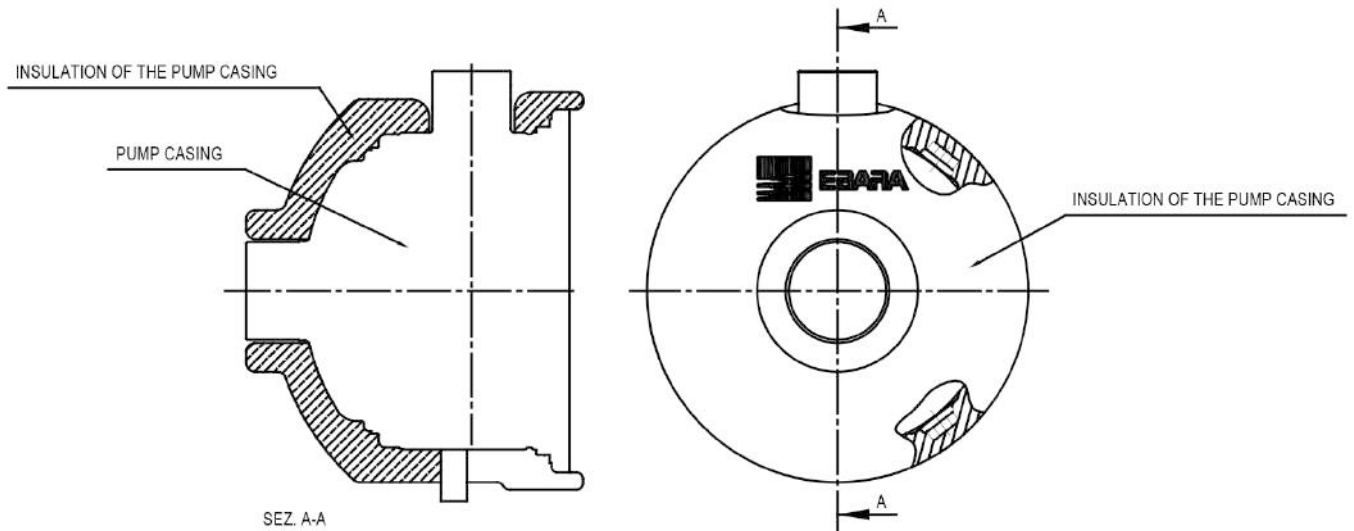
Version	Material					
	A Rotary seal ring	B Stationary seal ring	C Stationary Gasket	D O-Ring	E Washer	F Spring
<b>SPECIAL**</b> U3Q1EGG	Tungsten Carbide	Silicon Carbide	EPDM	EPDM	EN 1.4402 (AISI 316)	EN 1.4402 (AISI 316)

\*\* Approval for drinking water application  
DM174/2004

### BEARINGS

Pump Type	Bearings	
	Pump side	Fan side
MATRIX 3-2T/0.45M	6203-2RSH	6202-2RSH
MATRIX 3-2T/0.45	6203 2DW C3	6202 2DW C3
MATRIX 3-3T/0.65M	6203-2RSH	6202-2RSH
MATRIX 3-3T/0.65	6203 2DW C3	6202 2DW C3
MATRIX 3-4T/0.65M	6203-2RSH	6202-2RSH
MATRIX 3-4T/0.65	6203 2DW C3	6202 2DW C3
MATRIX 3-5T/0.75M	6203-2RSH	6202-2RSH
MATRIX 3-5T/0.75	6203-2RSH	6202-2RSH
MATRIX 3-6T/0.9M	6203-2RSH	6202-2RSH
MATRIX 3-6T/0.9	6203-ZZ C3	6202-ZZ C3
MATRIX 3-7T/1.3M	6304-2RSH	6203-2RSH
MATRIX 3-7T/1.3	6304-ZZ C3	6203-ZZ C3
MATRIX 3-8T/1.3M	6304-2RSH	6203-2RSH
MATRIX 3-8T/1.3	6304-ZZ C3	6203-ZZ C3
MATRIX 3-9T/1.5M	6304-2RSH	6203-2RSH
MATRIX 3-9T/1.5	6304-ZZ C3	6203-ZZ C3
MATRIX 5-2T/0.45M	6203-2RSH	6202-2RSH
MATRIX 5-2T/0.45	6203 2DW C3	6202 2DW C3
MATRIX 5-3T/0.65M	6203-2RSH	6202-2RSH
MATRIX 5-3T/0.65	6203 2DW C3	6202 2DW C3
MATRIX 5-4T/0.9M	6203-2RSH	6202-2RSH
MATRIX 5-4T/0.9	6203-ZZ C3	6202-ZZ C3
MATRIX 5-5T/1.3M	6304-2RSH	6203-2RSH
MATRIX 5-5T/1.3	6304-ZZ C3	6203-ZZ C3
MATRIX 5-6T/1.3M	6304-2RSH	6203-2RSH
MATRIX 5-6T/1.3	6304-ZZ C3	6203-ZZ C3
MATRIX 5-7T/1.5M	6304-2RSH	6203-2RSH
MATRIX 5-7T/1.5	6304-ZZ C3	6203-ZZ C3
MATRIX 5-8T/2.2M	6305-ZZ C3	6205-ZZ C3
MATRIX 5-8T/2.2	6304-ZZ C3	6203-ZZ C3
MATRIX 5-9T/2.2M	6305-ZZ C3	6205-ZZ C3
MATRIX 5-9T/2.2	6304-ZZ C3	6203-ZZ C3
MATRIX 10-2T/0.75M	6203-2RSH	6202-2RSH
MATRIX 10-2T/0.75	6203-ZZ C3	6202-ZZ C3
MATRIX 10-3T/1.3M	6304-2RSH	6203-2RSH
MATRIX 10-3T/1.3	6304-ZZ C3	6203-ZZ C3
MATRIX 10-4T/1.5M	6304-2RSH	6203-2RSH
MATRIX 10-4T/1.5	6304-ZZ C3	6203-ZZ C3
MATRIX 10-5T/2.2M	6305-ZZ C3	6205-ZZ C3
MATRIX 10-5T/2.2	6304-ZZ C3	6203-ZZ C3
MATRIX 10-6T/2.2M	6305-ZZ C3	6205-ZZ C3
MATRIX 10-6T/2.2	6304-ZZ C3	6203-ZZ C3
MATRIX 18-2T/1.5M	6304-2RSH	6203-2RSH
MATRIX 18-2T/1.5	6304-ZZ C3	6203-ZZ C3
MATRIX 18-3T/2.2M	6305-2RSH1	6205-ZZ C3
MATRIX 18-3T/2.2	6304-ZZ C3	6203-ZZ C3
MATRIX 18-4T/3		
MATRIX 18-5T/4	6305-ZZ C3	6205-ZZ C3
MATRIX 18-6T/4		

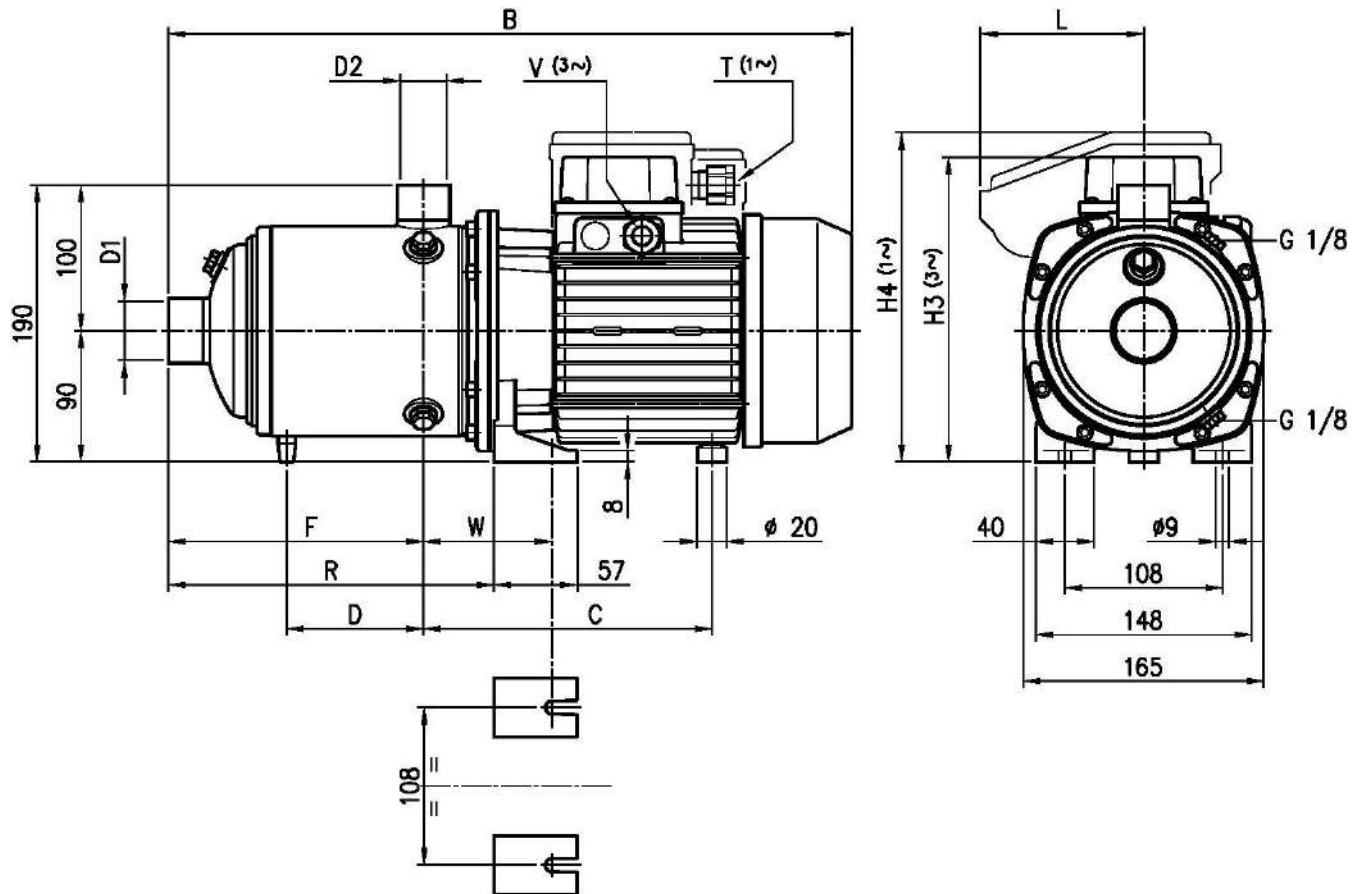
**THERMAL INSULATION**



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	

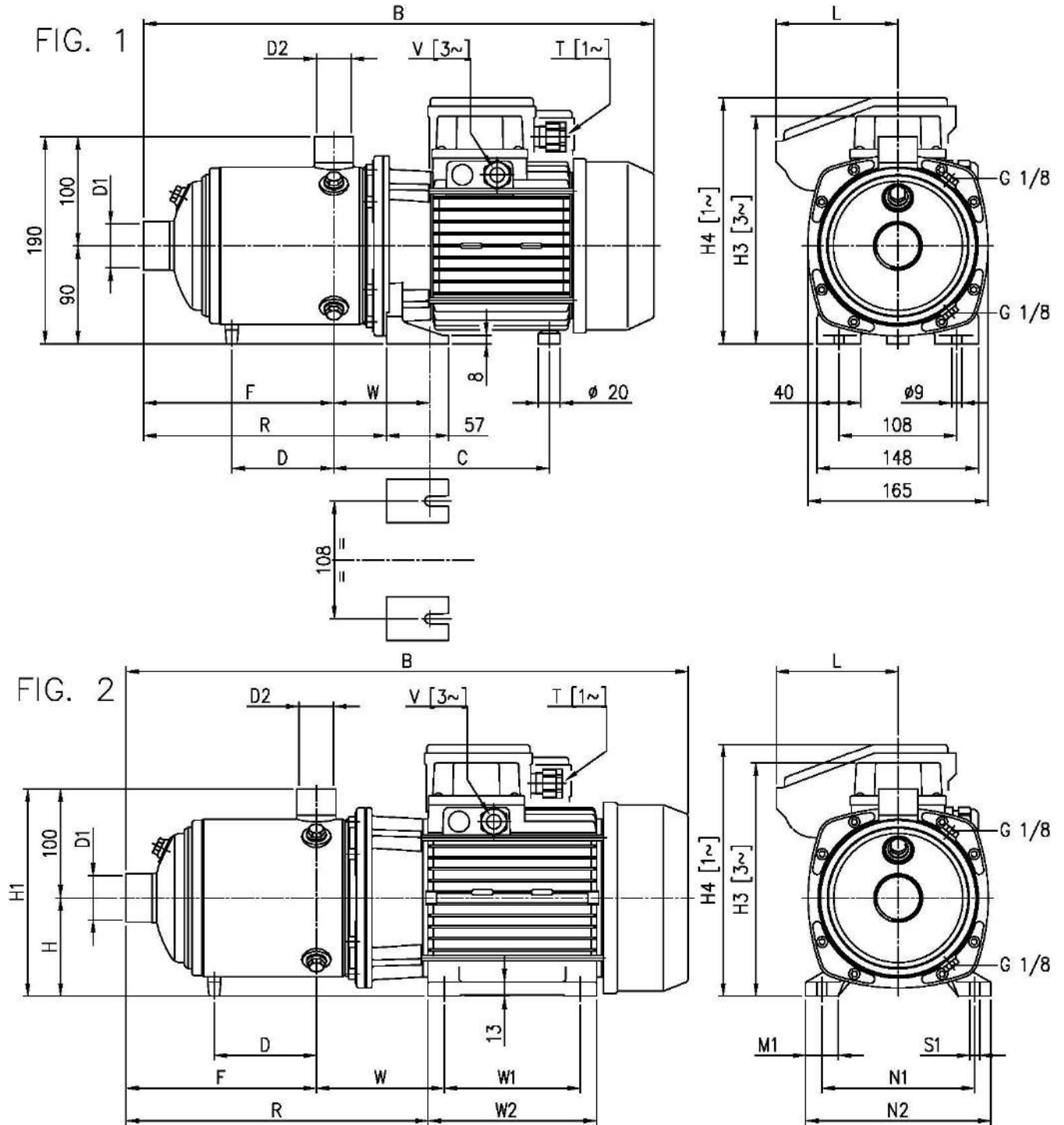


### PUMP MATRIX 3



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	8.5	
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	9.9
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	10.6
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	12.5
MATRIX 3-5T/0.75			408	171	-	151	192	-	-	199.5	-	-	M16x1.5	88 ÷ 97	12.4
MATRIX 3-6T/0.9M			432	171	-	175	-	219	106	223.5	M20x1.5	-	-	88 ÷ 97	13.7
MATRIX 3-6T/0.9			444	171	-	175	192	-	-	223.5	-	-	M16x1.5	88 ÷ 97	13.6
MATRIX 3-7T/1.3M			493	198	110.5	199	-	226	112	247.5	M20x1.5	-	-	88 ÷ 97	16.3
MATRIX 3-7T/1.3			518	198	110.5	199	209	-	-	247.5	-	-	M20x1.5	88 ÷ 97	17.9
MATRIX 3-8T/1.3M			517	198	134.5	223	-	226	112	271.5	M20x1.5	-	-	88 ÷ 97	16.3
MATRIX 3-8T/1.3			542	198	134.5	223	209	-	-	271.5	-	-	M20x1.5	88 ÷ 97	18.7
MATRIX 3-9T/1.5M			541	198	158.5	247	-	226	112	295.5	M20x1.5	-	-	88 ÷ 97	18.3
MATRIX 3-9T/1.5			566.5	198	158.5	247	209	-	-	295.5	-	-	M20x1.5	88 ÷ 97	20.9

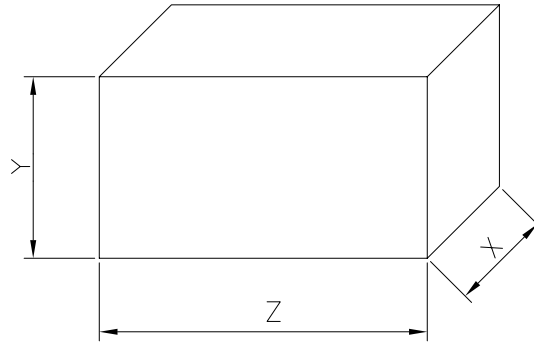
PUMP DRAWING MATRIX 5/10/18



**DIMENSION TABLE MATRIX 5/10/18**

Pump Type	Fig.	Dimensions [mm]																			Weight [kg]							
		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	-	-	-	-	-	-	8.5				
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	-	-	-	-	-	-	9.9			
MATRIX 5-3T/0.65				-	-	360	171	-	103	-	192	-	-	-	151.5	-	M16x1.5	88±97	-	-	-	-	-	-	11.3			
MATRIX 5-4T/0.9 M				-	-	384	171	-	127	-	-	219	106	175.5	M20x1.5	-	-	88±97	-	-	-	-	-	-	12.2			
MATRIX 5-4T/0.9				-	-	396	171	-	127	-	192	-	-	175.5	-	M16x1.5	88±97	-	-	-	-	-	-	-	12.4			
MATRIX 5-5T/1.3 M				-	-	445	198	-	151	-	-	226	112	199.5	M20x1.5	-	-	88±97	-	-	-	-	-	-	15.8			
MATRIX 5-5T/1.3				-	-	470	198	-	151	-	209	-	-	199.5	-	M20x1.5	88±97	-	-	-	-	-	-	-	16.7			
MATRIX 5-6T/1.3 M				-	-	469	198	-	175	-	-	226	112	223.5	M20x1.5	-	-	88±97	-	-	-	-	-	-	15.2			
MATRIX 5-6T/1.3				-	-	494	198	-	175	-	209	-	-	223.5	-	M20x1.5	88±97	-	-	-	-	-	-	-	17.1			
MATRIX 5-7T/1.5 M				-	-	493	198	110.5	199	-	-	226	112	247.5	M20x1.5	-	-	88±97	-	-	-	-	-	-	18.3			
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	-	90	190	565	-	134.5	223	-	231	112	325.5	M20x1.5	-	117.5	125	155	30	140	170	9	22.3			
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	589	-	158.5	247	-	231	112	349.5	M20x1.5	-	117.5	125	155	30	140	170	9	23.3						
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	-	-	-	-	-	-	11.3					
MATRIX 10-2T/0.75				-	-	379	175	-	118	-	192	-	-	170.5	-	M16x1.5	92±101	-	-	-	-	-	-	11.2				
MATRIX 10-3T/1.3 M				-	-	416	202	-	118	-	-	226	112	170.5	M20x1.5	-	-	92±101	-	-	-	-	-	-	14.3			
MATRIX 10-3T/1.3				-	-	441	202	-	118	-	209	-	-	170.5	-	M20x1.5	92±101	-	-	-	-	-	-	-	14.5			
MATRIX 10-4T/1.5 M				-	-	446	202	-	148	-	-	226	112	200.5	M20x1.5	-	-	92±101	-	-	-	-	-	-	15.6			
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	524	-	-	178	-	231	112	284.5	M20x1.5	-	121.5	125	155	30	140	170	9	21.8			
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	554	-	118.5	208	-	231	112	314.5	M20x1.5	-	121.5	125	155	30	140	170	9	22.1			
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	-	-	442	205	-	141	-	226	112	196.5	M20x1.5	-	95 ± 104	-	-	-	-	-	-	14.5		
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	490	-	-	141	-	231	112	250.5	M20x1.5	-	124.5	125	155	30	140	170	9	20.7
MATRIX 18-3T/2.2							1	-	-	-	467.5	205	-	141	209	-	-	196.5	-	M20x1.5	95 ± 104	-	-	-	-	-	-	18.1
MATRIX 18-4T/3	-	-	90				190	565	-	-	178.5	214	-	-	288	-	M20x1.5	124.5	125	155	30	140	170	9	23.8			
MATRIX 18-5T/4	2	-	100				200	615	-	123	216	241	-	-	315	-	M20x1.5	114	140	170	35	160	192	11	33.2			
MATRIX 18-6T/4	1	-	100				200	652	-	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	180	220	465	9.1					
MATRIX 3-2T/0.45				9.8					
MATRIX 3-3T/0.65M				10.5					
MATRIX 3-3T/0.65				11.9					
MATRIX 3-4T/0.65M				11.2					
MATRIX 3-4T/0.65				12.5					
MATRIX 3-5T/0.75M	210	240	550	13.1					
MATRIX 3-5T/0.75				13					
MATRIX 3-6T/0.9M				14.5					
MATRIX 3-6T/0.9			570	14.6					
MATRIX 3-7T/1.3M				17.1					
MATRIX 3-7T/1.3				18					
MATRIX 3-8T/1.3M			660	17.1					
MATRIX 3-8T/1.3				18.8					
MATRIX 3-9T/1.5M				19.1					
MATRIX 3-9T/1.5				21					
MATRIX 5-2T/0.45M			180	220	465	9.1			
MATRIX 5-2T/0.45						9.8			
MATRIX 5-3T/0.65M	10.5								
MATRIX 5-3T/0.65	11.9								
MATRIX 5-4T/0.9M	13								
MATRIX 5-4T/0.9	550	13.2							
MATRIX 5-5T/1.3M		16.8							
MATRIX 5-5T/1.3		570				17.7			
MATRIX 5-6T/1.3M						16			
MATRIX 5-6T/1.3						18.1			
MATRIX 5-7T/1.5M		660				19.3			
MATRIX 5-7T/1.5	20.5								
MATRIX 5-8T/2.2M	23.3								
MATRIX 5-8T/2.2	660					20.4			
MATRIX 5-9T/2.2M						24.4			
MATRIX 5-9T/2.2						20.7			
MATRIX 10-2T/0.75M	180	220				465	11.9		
MATRIX 10-2T/0.75							11.8		
MATRIX 10-3T/1.3M			210	240	570		15.3		
MATRIX 10-3T/1.3							550	15.1	
MATRIX 10-4T/1.5M							570	16.4	
MATRIX 10-4T/1.5					660		19.1		
MATRIX 10-5T/2.2M							660	22.3	
MATRIX 10-5T/2.2							570	19.6	
MATRIX 10-6T/2.2M			210	240	570		23.1		
MATRIX 10-6T/2.2							20		
MATRIX 18-2T/1.5M							210	240	570
MATRIX 18-2T/1.5					17.9				
MATRIX 18-3T/2.2M	21.6								
MATRIX 18-3T/2.2	660	19.1							
MATRIX 18-4T/3		24.8							
MATRIX 18-5T/4		34.4							
MATRIX 18-6T/4	280	750	35.2						

### MOTOR DATA

Pump type		Power		Efficiency		Capacitor		Efficiency (% load)			Input		Full load current			Locked rotor current		
Single Phase	Three Phase	[kW]	[HP]	Single Phase	Three Phase	Single Phase		Three phase			Single Phase	Three Phase	[A]			[A]		
						[μF]	[V]	50%	75%	100%			230 V	230 V	400 V	230 V	230 V	400 V
MATRIX 3-2T/0.45M	MATRIX 3-2T/0.45	0.45	0.6	-	IE3	12.5	450	75.1	78.5	78.0	0.73	0.71	3.2	2.4	1.4	8.0	12.7	7.3
MATRIX 3-3T/0.65M	MATRIX 3-3T/0.65	0.65	0.9	-	IE3	16	450	80.2	82.8	82.9	0.97	0.91	4.5	3.0	1.7	16.2	20.5	11.8
MATRIX 3-4T/0.65M	MATRIX 3-4T/0.65	0.65	0.9	-	IE3	16	450	80.2	82.8	82.9	0.97	0.91	4.5	3.0	1.7	16.2	20.5	11.8
MATRIX 3-5T/0.75M	MATRIX 3-5T/0.75	0.75	1.0	-	IE3	25	450	80.9	82.3	82.1	1.14	0.91	5.4	3.0	1.7	22.7	19.7	11.4
MATRIX 3-6T/0.9M	MATRIX 3-6T/0.9	0.9	1.2	-	IE3	31.5	450	81.7	83.1	82.4	1.28	1.34	5.7	4.3	2.5	21.7	28.8	16.6
MATRIX 3-7T/1.3M	MATRIX 3-7T/1.3	1.3	1.8	-	IE3	35	450	83.5	84.3	84.6	1.75	1.77	7.8	5.8	3.3	41.0	47.4	27.4
MATRIX 3-8T/1.3M	MATRIX 3-8T/1.3	1.3	1.8	-	IE3	35	450	83.5	84.3	84.6	1.75	1.77	7.8	5.8	3.3	41.0	47.4	27.4
MATRIX 3-9T/1.5M	MATRIX 3-9T/1.5	1.5	2.0	-	IE3	40	450	82.7	86.1	87.0	1.95	1.72	8.7	6.6	3.8	43.0	66.6	38.4
MATRIX 5-2T/0.45M	MATRIX 5-2T/0.45	0.45	0.6	-	IE3	12.5	450	75.1	78.5	78.0	0.73	0.71	3.2	2.4	1.4	8.0	12.7	7.3
MATRIX 5-3T/0.65M	MATRIX 5-3T/0.65	0.65	0.9	-	IE3	16	450	80.2	82.8	82.9	0.97	0.91	4.5	3.0	1.7	16.2	20.5	11.8
MATRIX 5-4T/0.9M	MATRIX 5-4T/0.9	0.9	1.2	-	IE3	31.5	450	81.7	83.1	82.4	1.28	1.34	5.7	4.3	2.5	21.7	28.8	16.6
MATRIX 5-5T/1.3M	MATRIX 5-5T/1.3	1.3	1.8	-	IE3	35	450	83.5	84.3	84.6	1.75	1.77	7.8	5.8	3.3	41.0	47.4	27.4
MATRIX 5-6T/1.3M	MATRIX 5-6T/1.3	1.3	1.8	-	IE3	35	450	83.5	84.3	84.6	1.75	1.77	7.8	5.8	3.3	41.0	47.4	27.4
MATRIX 5-7T/1.5M	MATRIX 5-7T/1.5	1.5	2.0	-	IE3	40	450	82.7	86.1	87.0	1.95	1.72	8.7	6.6	3.8	43.0	66.6	38.4
MATRIX 5-8T/2.2M	MATRIX 5-8T/2.2	2.2	3.0	-	IE3	50	450	86.2	87.0	86.0	2.92	2.55	13.0	8.2	4.7	62.4	66.6	38.4
MATRIX 5-9T/2.2M	MATRIX 5-9T/2.2	2.2	3.0	-	IE3	50	450	86.2	87.0	86.0	2.92	2.55	13.0	8.2	4.7	62.4	66.6	38.4
MATRIX 10-2T/0.75M	MATRIX 10-2T/0.75	0.75	1.0	-	IE3	25	450	80.9	82.3	82.1	1.14	0.91	5.4	3.0	1.7	26.5	19.7	11.4
MATRIX 10-3T/1.3M	MATRIX 10-3T/1.3	1.3	1.8	-	IE3	35	450	83.5	84.3	84.6	1.75	1.77	7.8	5.8	3.3	41.0	47.4	27.4
MATRIX 10-4T/1.5M	MATRIX 10-4T/1.5	1.5	2.0	-	IE3	40	450	82.7	86.1	87.0	1.95	1.72	8.7	6.6	3.8	43.0	66.6	38.4
MATRIX 10-5T/2.2M	MATRIX 10-5T/2.2	2.2	3.0	-	IE3	50	450	86.2	87.0	86.0	2.92	2.55	13.0	8.2	4.7	62.4	66.6	38.4
MATRIX 10-6T/2.2M	MATRIX 10-6T/2.2	2.2	3.0	-	IE3	50	450	86.2	87.0	86.0	2.92	2.55	13.0	8.2	4.7	62.4	66.6	38.4
MATRIX 18-2T/1.5M	MATRIX 18-2T/1.5	1.5	2.0	-	IE3	40	450	82.7	86.1	87.0	1.95	1.72	8.7	6.6	3.8	43.0	66.6	38.4
MATRIX 18-3T/2.2M	MATRIX 18-3T/2.2	2.2	3.0	-	IE3	50	450	86.2	87.0	86.0	2.92	2.55	13.0	8.2	4.7	62.4	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		Power		LpA-dB(A)*
Single phase	Three phase	[kW]	[HP]	
MATRIX 3-2T/0.45M	MATRIX 3-2T/0.45	0.45	0.6	61
MATRIX 5-2T/0.45M	MATRIX 5-2T/0.45			
MATRIX 3-3T/0.65M	MATRIX 3-3T/0.65	0.65	0.9	62
MATRIX 3-4T/0.65M	MATRIX 3-4T/0.65			
MATRIX 5-3T/0.65M	MATRIX 5-3T/0.65			
MATRIX 3-5T/0.75M	MATRIX 3-5T/0.75	0.75	1.0	62
MATRIX 10-2T/0.75M	MATRIX 10-2T/0.75			
MATRIX 3-6T/0.9M	MATRIX 3-6T/0.9	0.9	1.2	62
MATRIX 5-4T/0.9M	MATRIX 5-4T/0.9			
MATRIX 3-7T/1.3M	MATRIX 3-7T/1.3	1.3	1.8	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	1.5	2.0	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	2.2	3.0	65
-	MATRIX 5-9T/2.2			
-	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	-			
MATRIX 10-5T/2.2M	-			
MATRIX 10-6T/2.2M	-			
MATRIX 18-3T/2.2M	-			
-	MATRIX 18-4T/3	3.0	4.0	68
-	MATRIX 18-5T/4	4.0	5.5	69
-	MATRIX 18-6T/4			

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