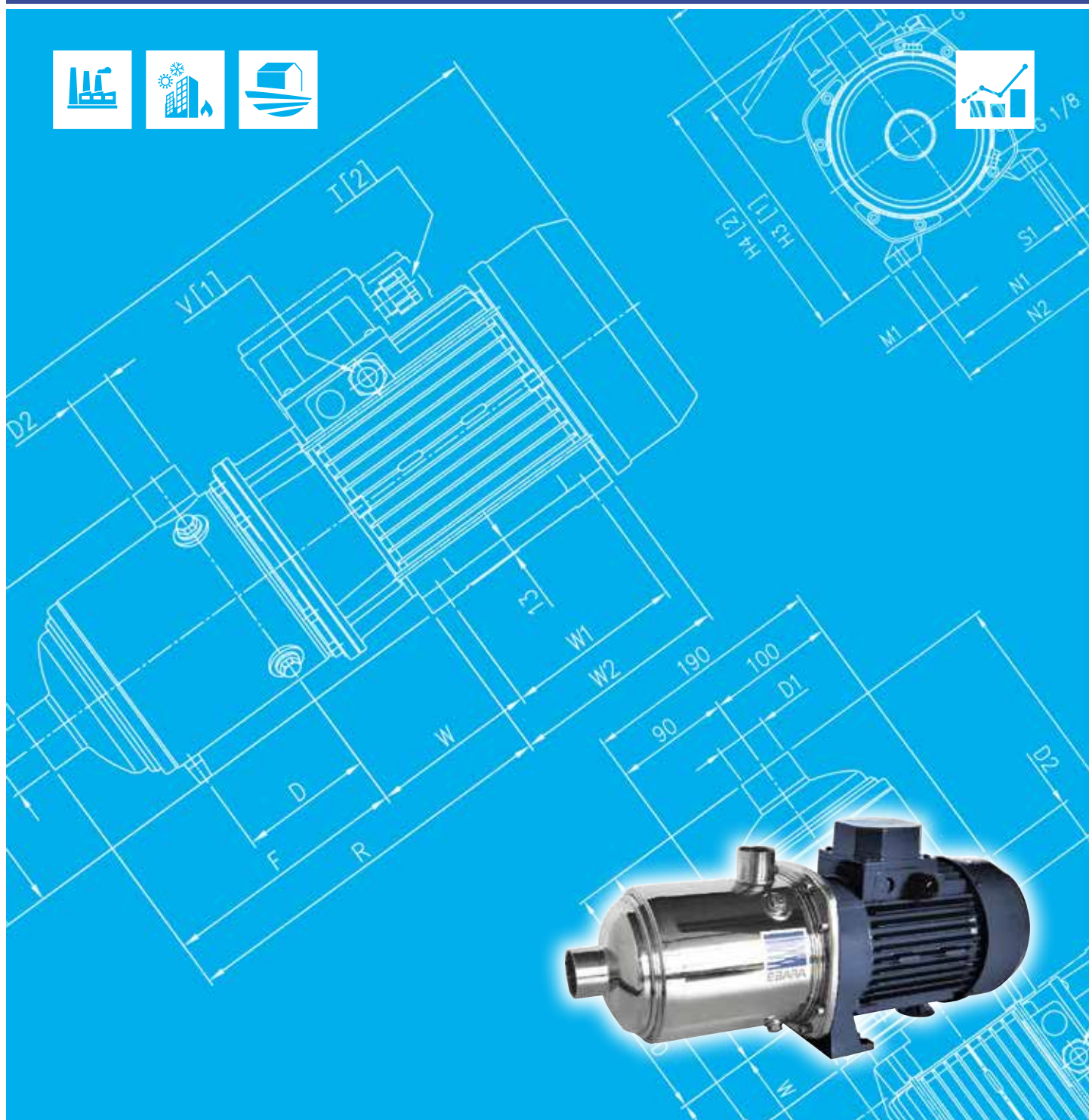




Japanese Technology since 1912

MATRIX

Data Book 50Hz



SPECIFICATIONS

50Hz

Rev. N

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) 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

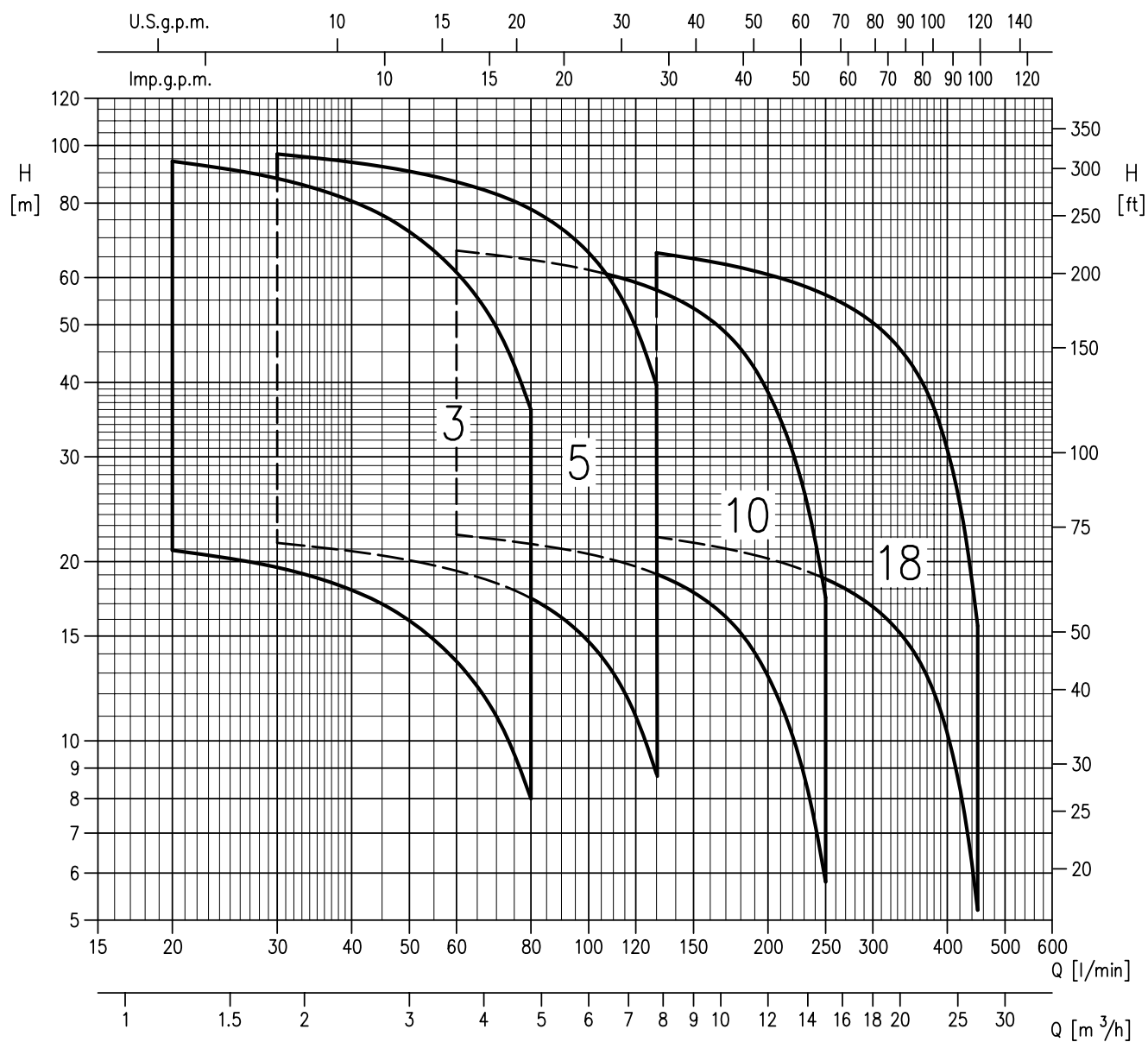
SPECIFICATIONS

50Hz

Rev. N

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 [Hz]	50	
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.N

SELECTION CHART

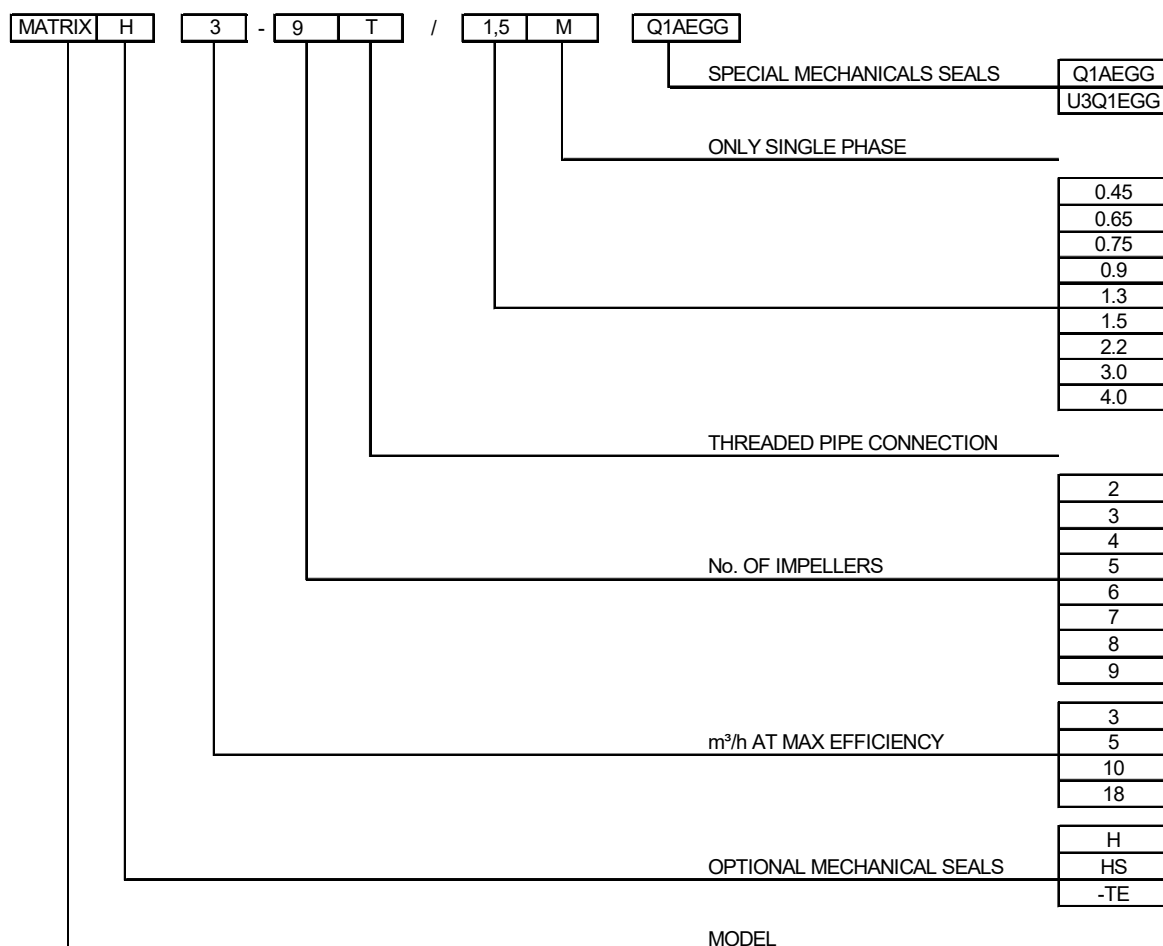
Pump type		Q=Capacity															
		l/min	0	20	30	45	60	80	100	130	160	200	250	300	350	400	450
Single phase	Three phase	m³/h	0	1,2	1,8	2,7	3,6	4,8	6	7,8	9,6	12	15	18	21	24	27
		H=Total manometric head in meters															
3-2(.) / 0.45M	3-2(.) / 0.45	22,6	20,9	19,6	17	13,6	8										
3-3(.) / 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. N

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)

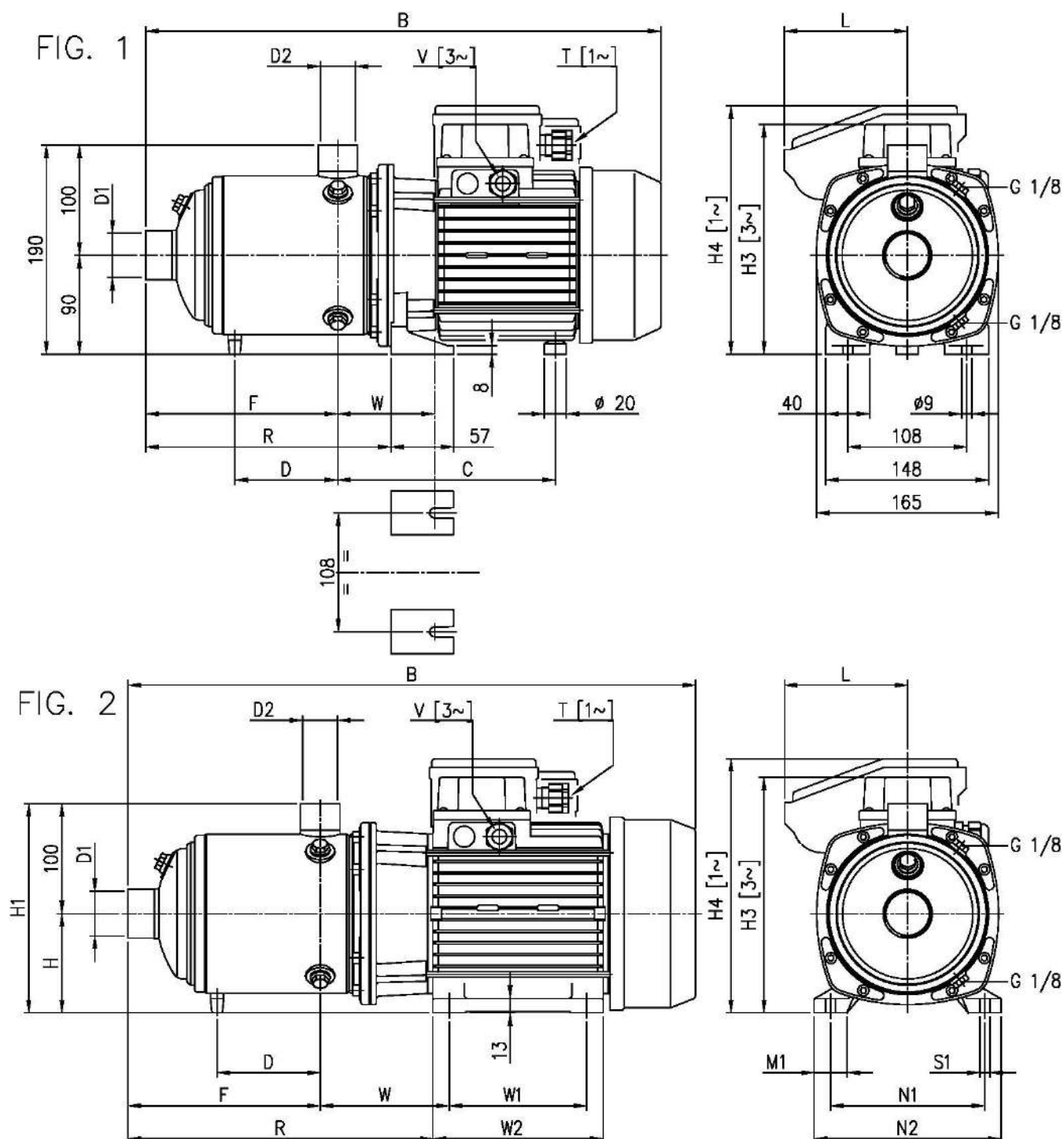
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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.

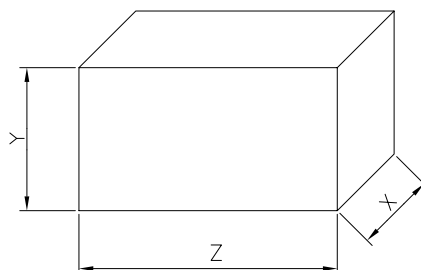
Symbols explanation:

- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump

PUMP DRAWING MATRIX 5/10/18



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