



**EBARA**

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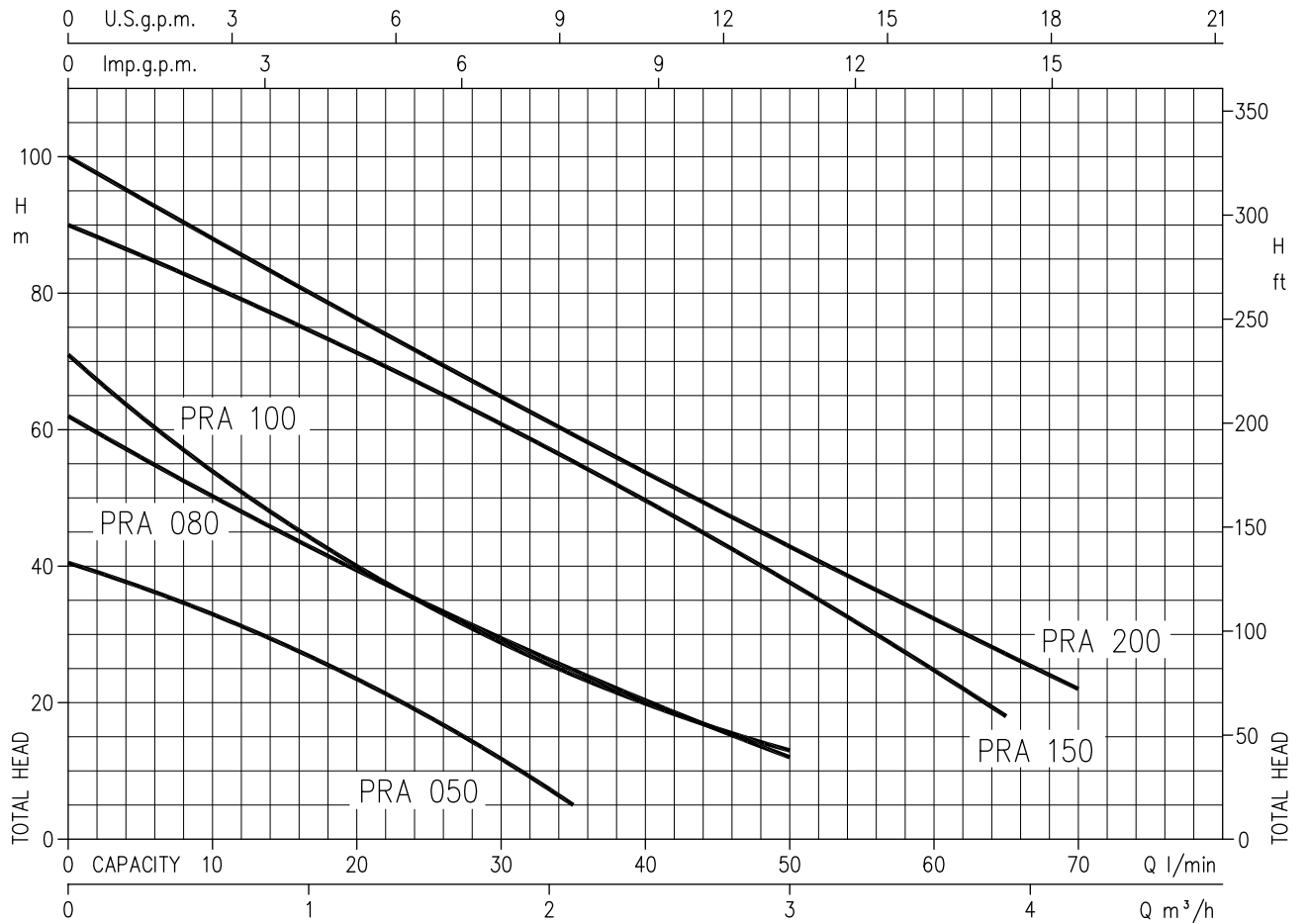
## SPECIFICATION

50Hz

Rev. J

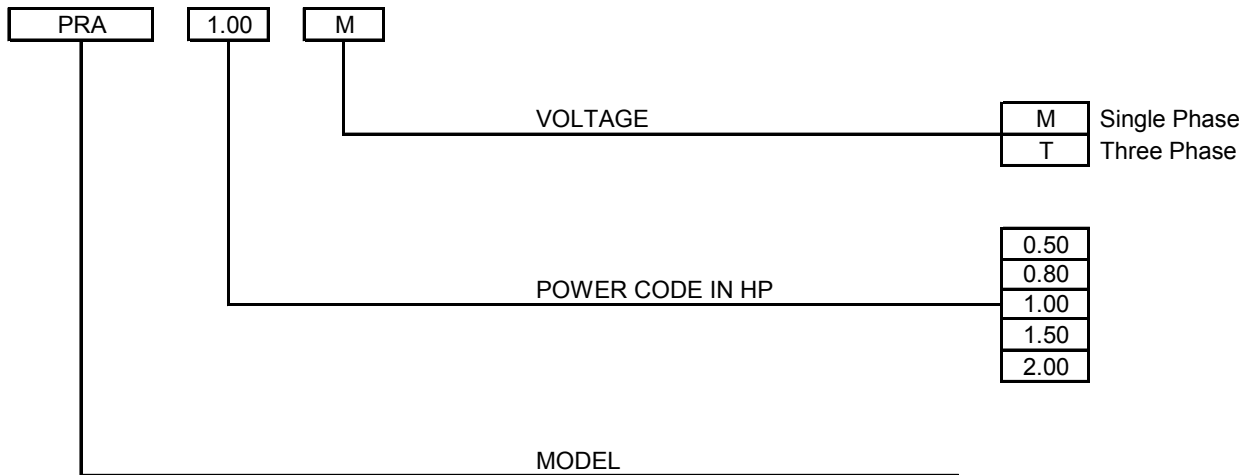
PUMP		
Liquid	Type of liquid	Clean water
Handled	Temperature [°C]	min. +5 max. +80
Maximum working pressure	[MPa]	0.6 (PRA 0.50) 0.75 (PRA 0.80) 1.2 (PRA 1.00-1.50-2.00)
Construction	Impeller	Peripheral turbine type
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction [inch]	G 1 UNI ISO 228
	Discharge [inch]	G 1 UNI ISO 228
Material	Casing	Cast iron
	Impeller	Brass
	Shaft seal	Ceramic/Carbon/NBR
	Shaft	Carbon steel - AISI 303 (wet extension)
	Bracket	Cast iron
Applicable standard of test		ISO 9906 – Annex A

MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 640/2009)	-	- from 0.37 kW up to 0.6 kW IE2 from 0.75 kW up to 1.5 kW IE3 from 0.75 kW up to 1.5 kW
No. of Poles	2	
Rotation speed [min <sup>-1</sup> ]	≈ 2850	
Insulation Class	Class F	
Protection degree (CEI EN 60034-5)	IP 44	
Power rating [kW]	0.37 ÷ 1.5	
[HP]	0.5 ÷ 2	
Frequency [Hz]	50	
Voltage [V]	230 ±10%	230/400 ±10%
Capacitor	Built in	-
Over load protection	Built in	Provided by the user
Casing material	Aluminium	
Base material	Aluminium	
Dimensions of cable entry	PG 11 - PG 13.5 - M16x1.5 - M20x1.5 (see dimensions page 400)	



Pump Type		Power		Q=Capacity								
				l/min	5	10	15	20	35	50	65	70
Single phase	Three phase	[kW]	[HP]	0	0.3	0.6	0.9	1.2	2.1	3	3.9	4.2
				H=Total manometric head in meters								
PRA 0.50 M	PRA 0.50 T	0.37	0.5	40.5	37	33.3	28.7	23.7	5	-	-	-
PRA 0.80 M	PRA 0.80 T	0.6	0.8	62	56	50.7	45.1	39.8	25	12	-	-
PRA 1.00 M	PRA 1.00 T	0.75	1	71	62	54.4	47	40.4	24.3	13	-	-
PRA 1.50 M	PRA 1.50 T	1.1	1.5	90	-	81	76.9	71.9	55.8	37.9	18	-
PRA 2.00 M	PRA 2.00 T	1.5	2	100	-	88	82.9	77	59.8	43.3	27.4	22

**TYPE KEY**



**PERFORMANCE CURVE SPECIFICATIONS**

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

Tolerances according to ISO 9906 Annex A

The curves refer to effective speed of asynchronous motors at 50 Hz

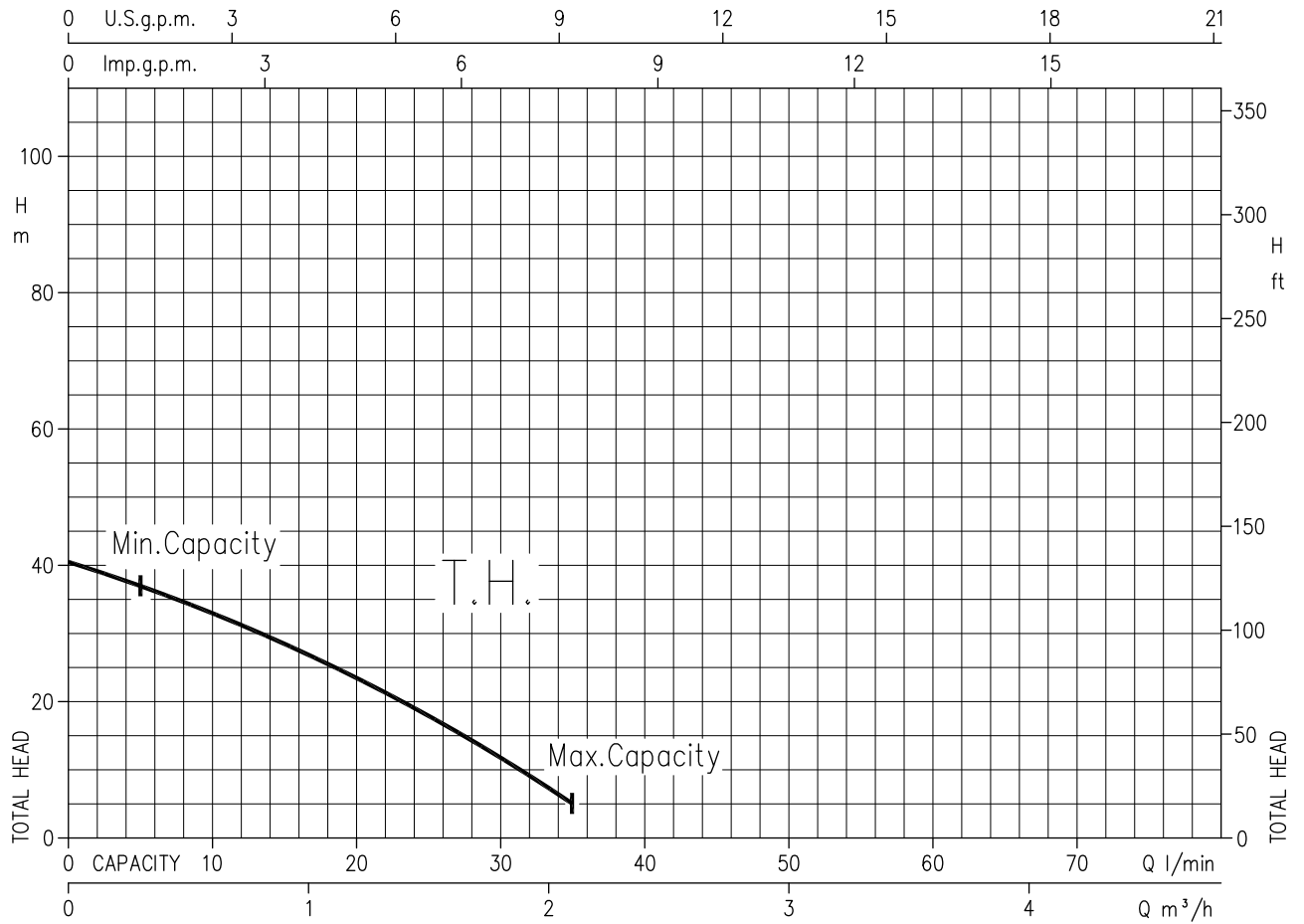
Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of  $\nu = 1 \text{ mm}^2/\text{s}$  (1 cSt)

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:

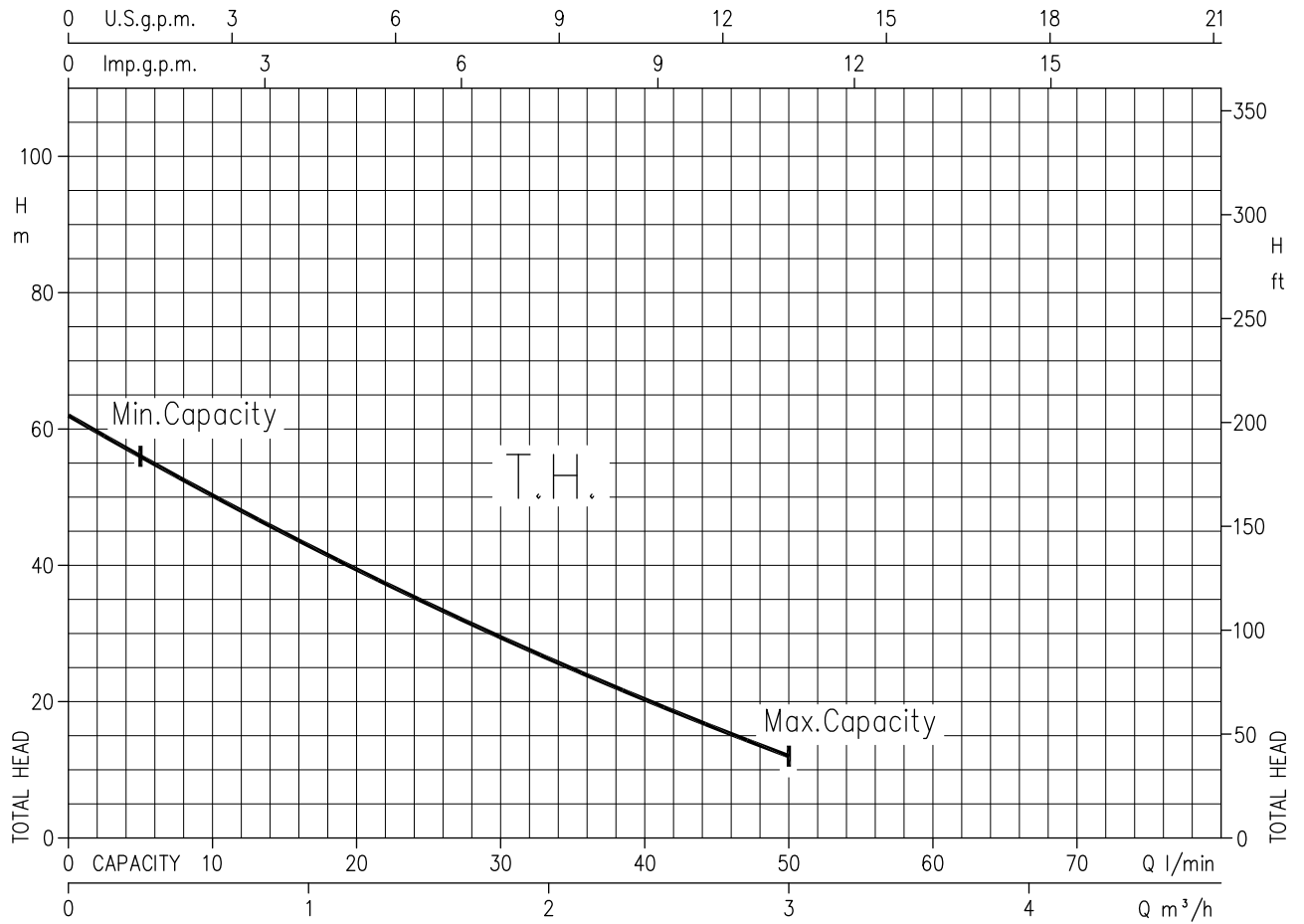
- Q = volume flow rate
- H = total head

PRA 0.50 (0.37 kW) - Impeller diameter = 60 mm



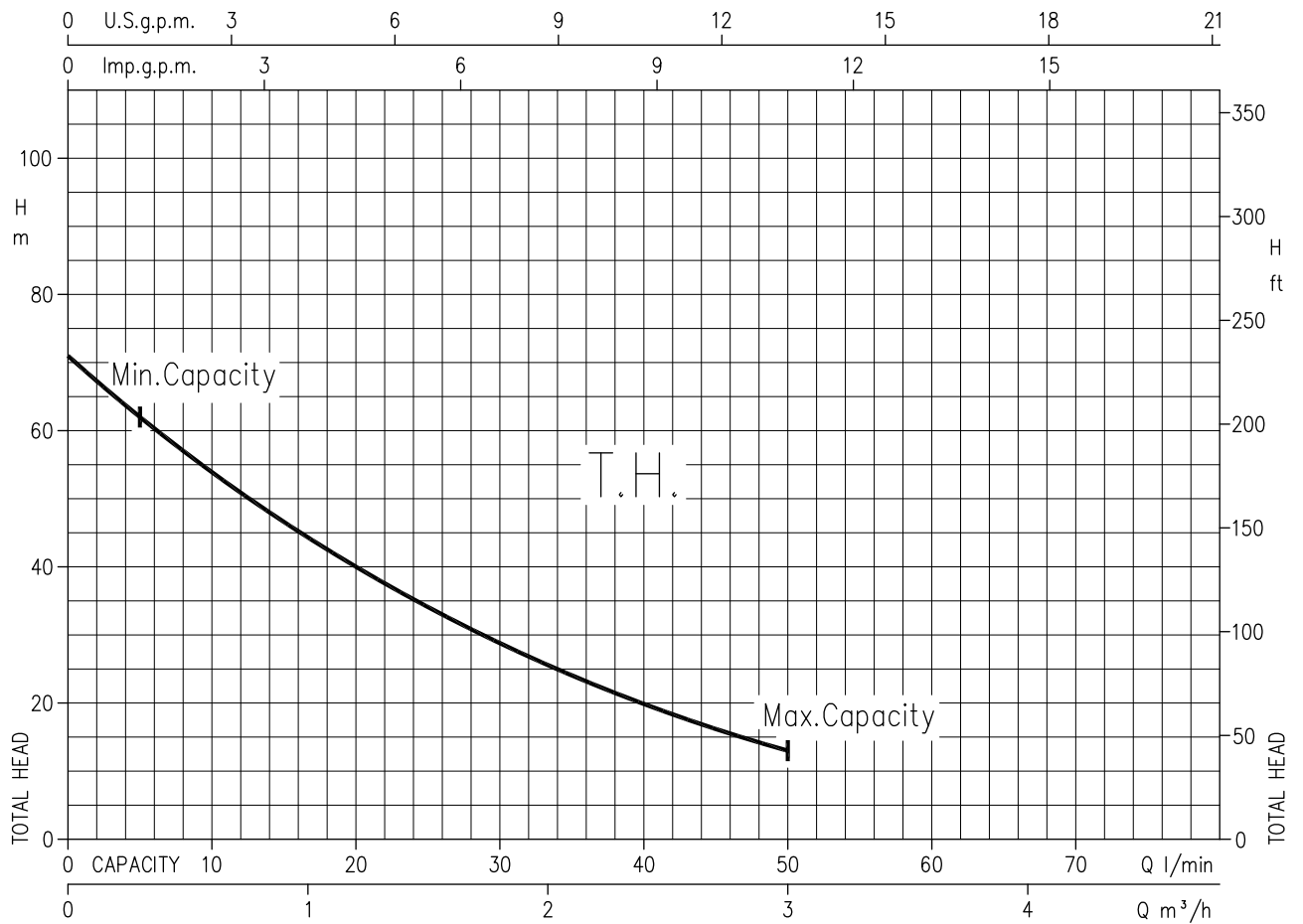
Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906 – Annex A

PRA 0.80 (0.6 kW)- Impeller diameter = 70 mm



Rotation speed  $\approx 2850 \text{ min}^{-1}$   
Test standard: ISO 9906 – Annex A

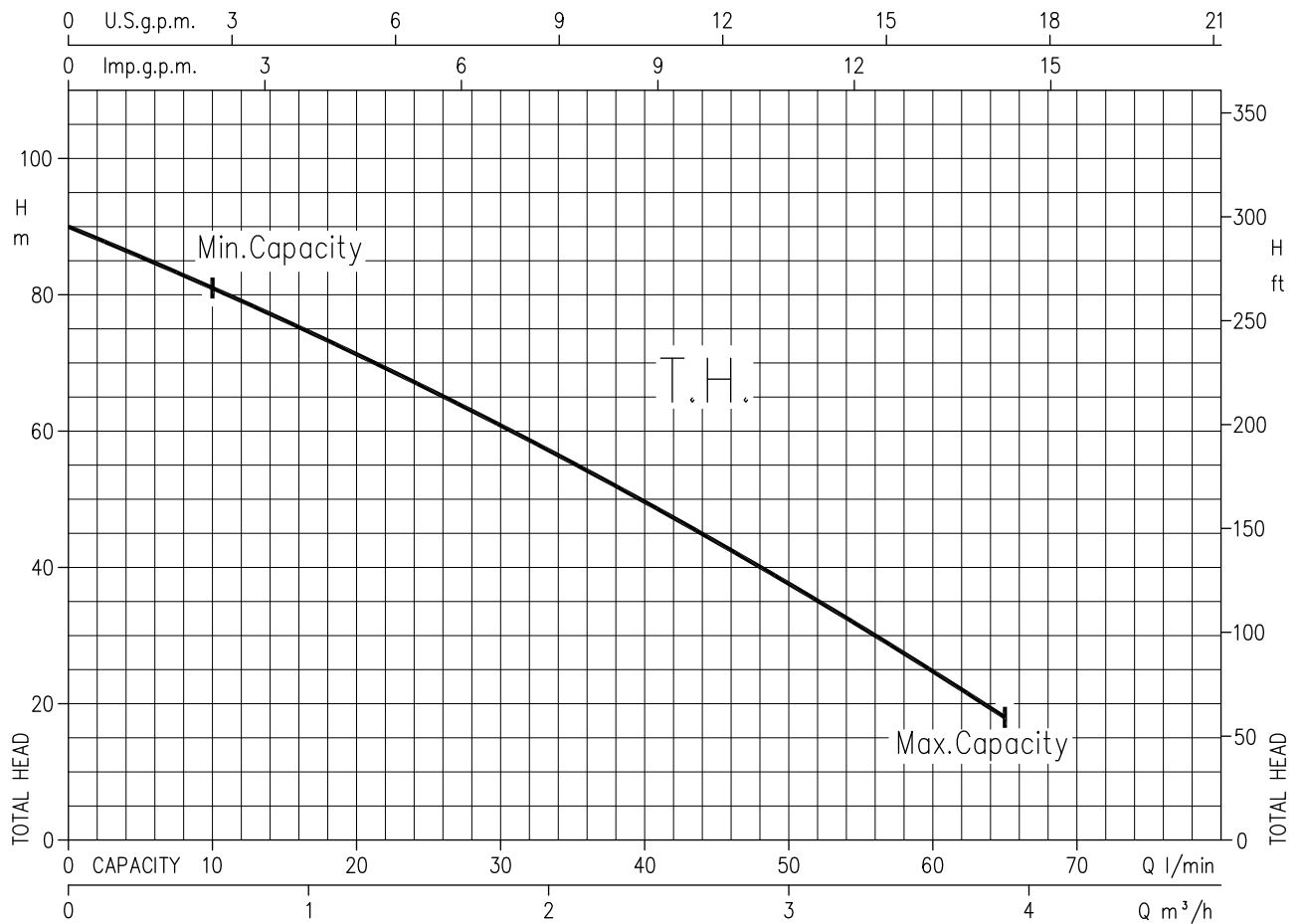
PRA 1.00 (0.75 kW)- Impeller diameter = 70.8 mm



Rotation speed  $\approx 2850 \text{ min}^{-1}$   
Test standard: ISO 9906 – Annex A

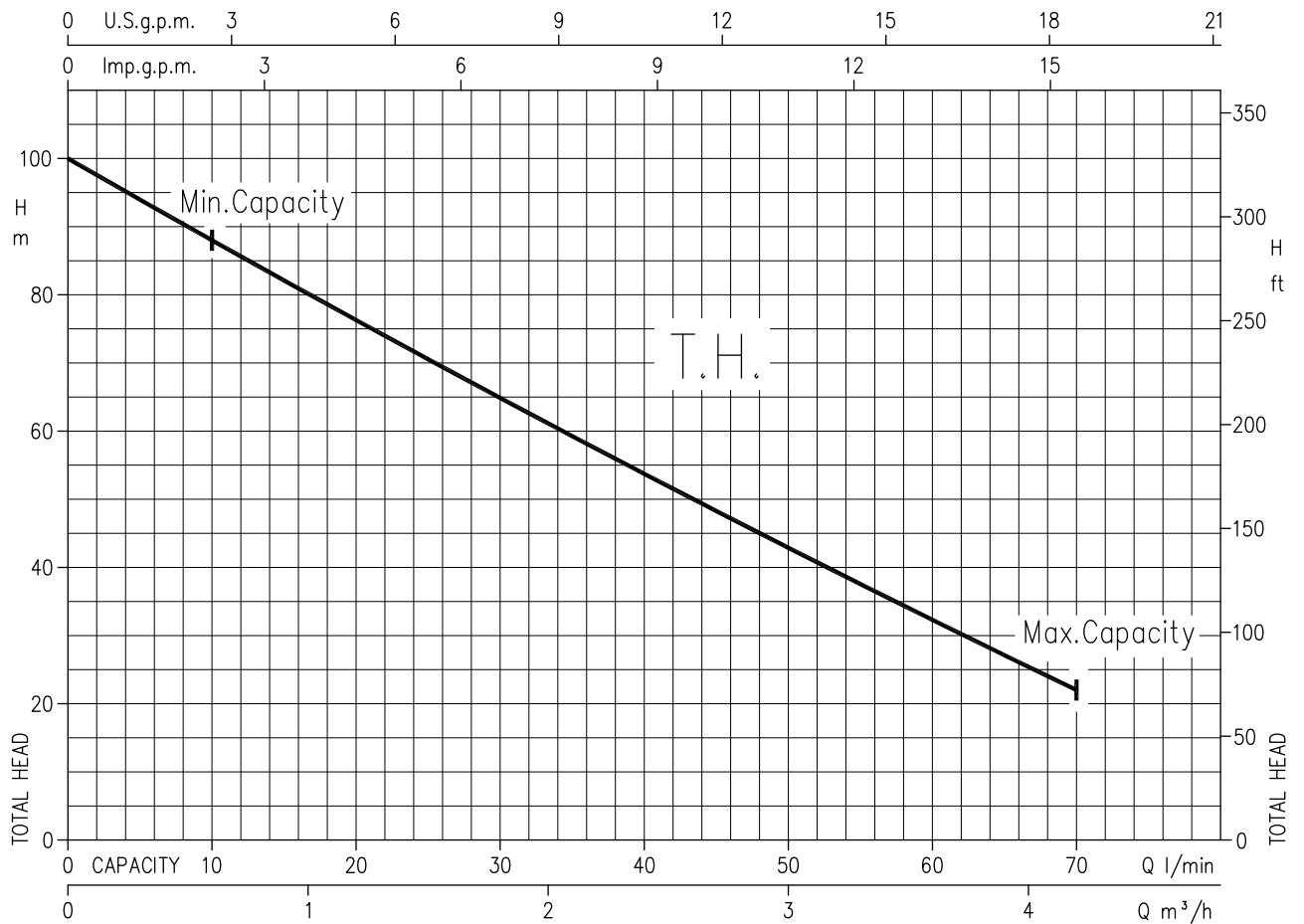


PRA 1.50 (1.1 kW)- Impeller diameter = 77 mm



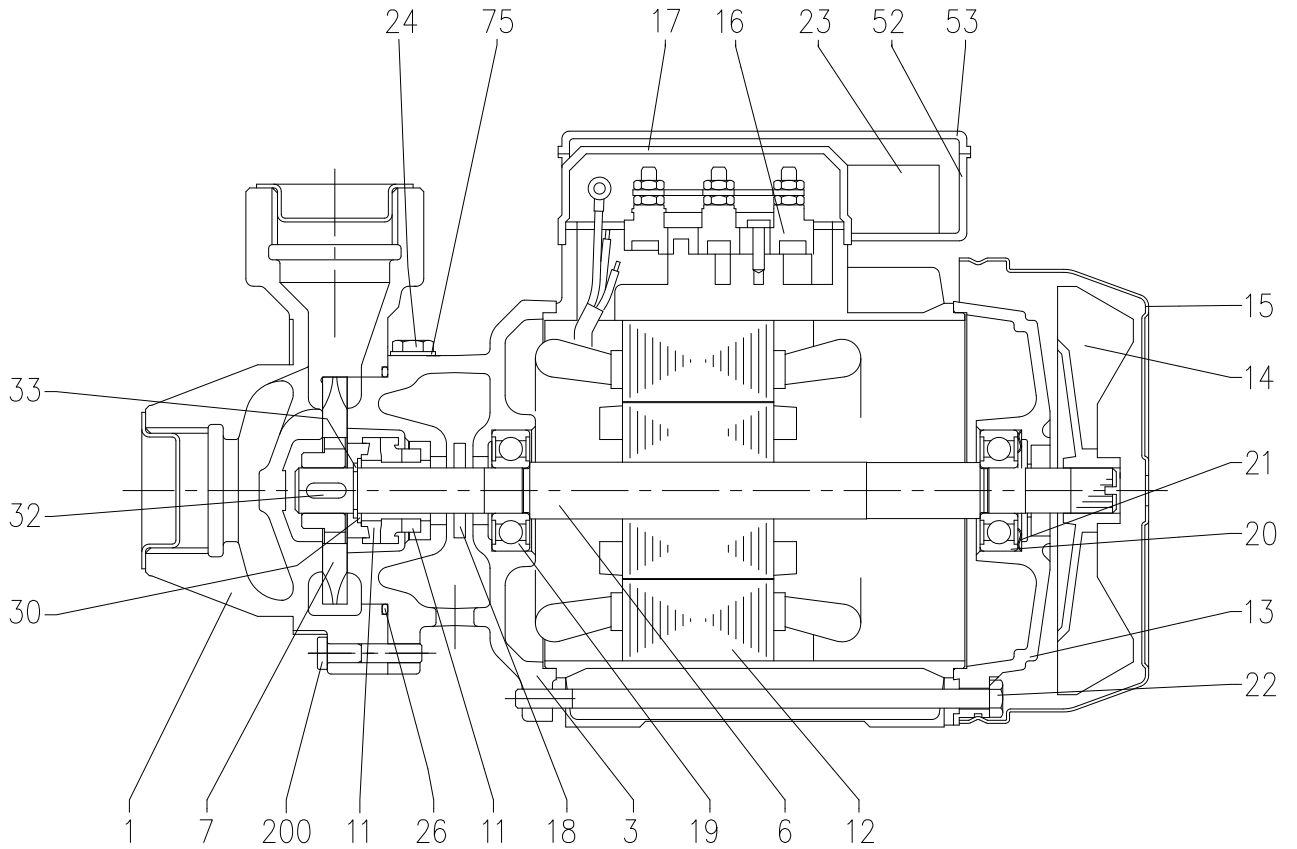
Rotation speed  $\approx 2850 \text{ min}^{-1}$   
Test standard: ISO 9906 – Annex A

PRA 2.00 (1.5 kW)- Impeller diameter = 78.2 mm



Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906 – Annex A

SECTIONAL VIEW DRAWING

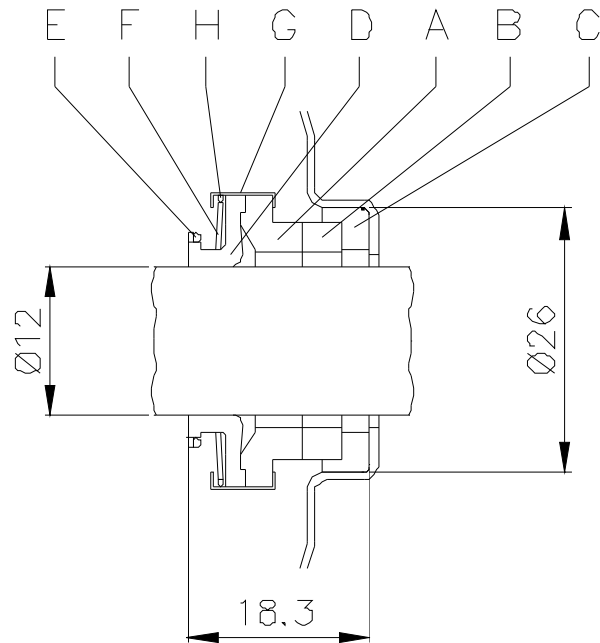


### SECTIONAL VIEW TABLE

N°	PART NAME	MATERIAL	DIMENSIONS	STANDARD	Q.TY
1	Casing	Cast iron			1
3	Motor bracket	Cast iron			1
6	Shaft with rotor	[1]		UNI 7846	1
7	Impeller	Brass			1
11	Mechanical seal [2]	Carbon/Ceramic/NBR	See pag.302-303		1
12	Motor frame with stator	-			1
13	Motor cover	Aluminium			1
14	Fan	PP			1
15	Fan cover	Fe P04 Galvanized			1
16	Terminal box	-			1
17	Terminal box cover [3]	Aluminium			1
18	Splash ring	NBR			1
19	Pump side ball bearing	-			1
20	Fan side ball bearing	-			1
21	Adjusting ring	Steel C70			1
22	Tie rod	Fe 42 Galvanized			4
23	Capacitor [4]	-			1
24	Priming plug	Brass	G 1/8"	UNI 338	1
26	O-Ring	NBR			1
30	Washer	AISI 304			1
32	Key	AISI 316			1
33	Seeger ring	AISI 304		UNI 7435	1
52	Capacitor box [4]	ABS class V-0			1
53	Capacitor box cover [4]	ABS class V-0			1
75	Washer	Aluminium			1
200	Screw	Zn Steel Cl. 8.8	0.37 kW	UNI 5938	3
			0.6-0.75 kW	ISO 898-1	
			1.1-1.5 kW		

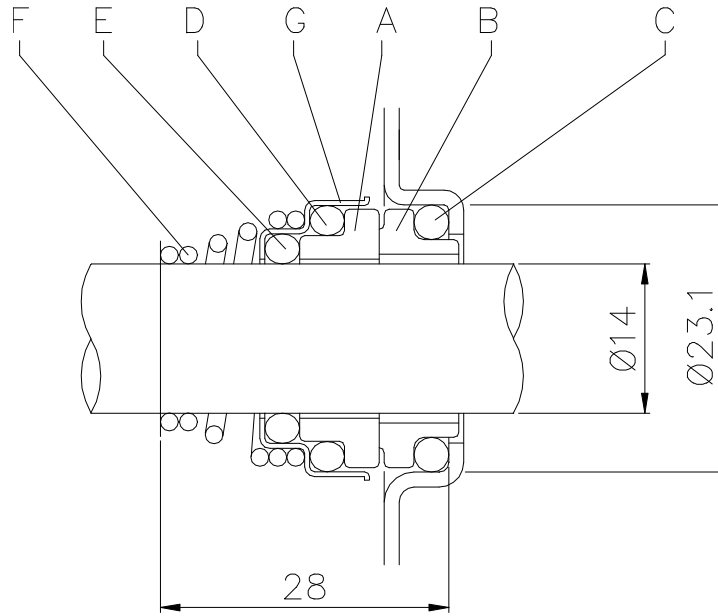
- [1] Material:AVZ for version PRA 0.50  
AISI 303 (wet extension) for the other version
- [2] See constructions mechanical seal page 301-302
- [3] Only for three phase
- [4] Only for single phase

**MECHANICAL SEAL  
(UP TO 0.75 kW)**



REF	PART NAME	MATERIAL Standard version (PRA)
A	Rotary seal ring	Carbon graphite
B	Stationary seal ring	Ceramic
C	Gasket	NBR
D	Bellows	NBR
E	Ring	AISI 304
F	Self driving spring	AISI 304
G	Frame	AISI 304
H	Retainer ring	AISI 304

**MECHANICAL SEAL  
(1.1 kW AND ABOVE)**



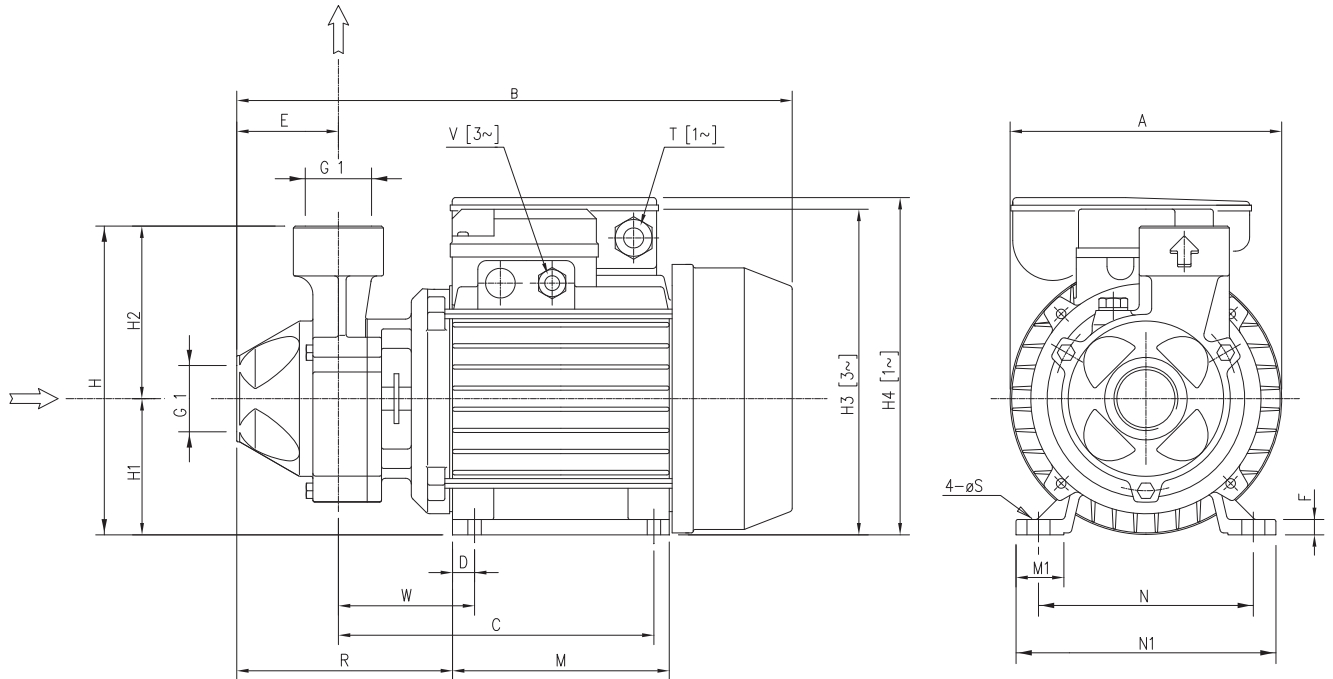
REF	PART NAME	MATERIAL Standard version (PRA)
A	Rotary seal ring	Ceramic
B	Stationary seal ring	Carbon graphite
C	O Ring	NBR
D	O Ring	NBR
E	O Ring	NBR
F	Self driving spring	AISI 316
G	Frame	AISI 304

**BEARINGS**

Pump Type		Ball bearing			
Single phase	Three phase	Pump side	(*) Pump side	Fan side	(*) Fan side
PRA 0.50 M	PRA 0.50	6201 2RSH	-	6201 2RSH	-
PRA 0.80 M	PRA 0.80	6202 2RSH	-	6202 2RSH	-
PRA 1.00 M	PRA 1.00	6202 2RSH	6202-ZZ C3	6202 2RSH	6202-ZZ C3
PRA 1.50 M	PRA 1.50	6204 2RSH	6204-ZZ C3	6203 2RSH	6203-ZZ C3
PRA 2.00 M	PRA 2.00	6204 2RSH	6204-ZZ C3	6203 2RSH	6203-ZZ C3

(\*) Only for IE3 Motors

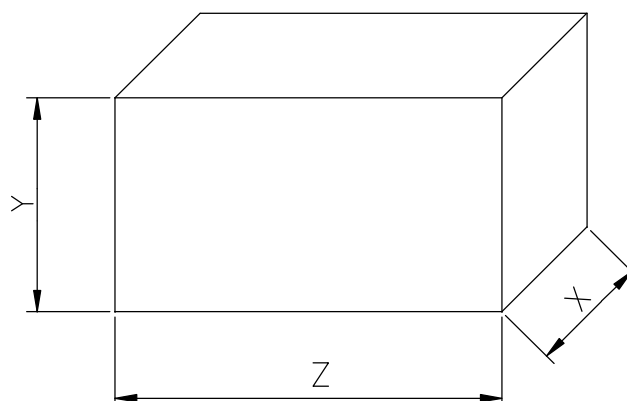
### PUMP



Pump Type	Dimensions [mm]																			Weight [kgf]				
	A	B (*)		C	D	E	F	H	H1	H2	H3	H4	M	M1	N	N1	R	[1~] T	[3~] (*) V	[3~] V	W	S	(*)	
PRA 0.50M	130	264	-	149	10	50	7	143	63	80	-	160	100	23	100	120	119	PG11	-	-	69	7	5.6	-
PRA 0.50T	130	264	-	149	10	50	7	143	63	80	150	-	100	23	100	120	119	-	-	PG11	69	7	5.6	-
PRA 0.80M	130	291	-	159	11	54	9	161	71	90	-	178	112	25	112	135	122	PG11	-	-	69	7	9.2	-
PRA 0.80T	150	291	-	159	11	54	9	161	71	90	168	-	112	25	112	135	122	-	-	PG11	69	7	9.2	-
PRA 1.00M	150	291	-	159	11	54	9	161	71	90	-	178	112	25	112	135	122	PG11	-	-	69	7	9.7	-
PRA 1.00T	150	291	291	159	11	54	9	161	71	90	168	-	112	25	112	135	122	-	M16x1.5	PG11	69	7	10.5	10.5
PRA 1.50M	162	331	-	188	12	57	12	175	80	95	-	212	124	28	125	152	144	PG13.5	-	-	88	9	14.5	-
PRA 1.50T	162	331	356	188	12	57	12	175	80	95	187	-	124	28	125	152	144	-	M20x1.5	PG11	88	9	15.5	16.4
PRA 2.00M	162	331	-	188	12	57	12	175	80	95	-	212	124	28	125	152	144	PG13.5	-	-	88	9	15.8	-
PRA 2.00T	162	344	357	188	12	57	12	175	80	95	187	-	124	28	125	152	144	-	M20x1.5	PG11	88	9	16.4	17.3

[1~] Single Phase  
 [3~] Three Phase  
 (\*) Only for IE3 Motors

### PACKING



Pump Type		Packing [mm]						Weight [kgf]		
Single Phase	Three Phase	X		Y		Z		[1~]	[3~]	(*) [3~]
		[1~]	[3~]	[1~]	[3~]	[1~]	[3~]			
PRA 0.50 M	PRA 0.50	155	155	195	195	285	285	6.1	6.1	-
PRA 0.80 M	PRA 0.80	180	180	200	200	305	305	9.4	9.4	-
PRA 1.00 M	PRA 1.00	180	180	200	200	305	305	10.5	9.9	9.9
PRA 1.50 M	PRA 1.50	195	160	230	205	372	355	15.4	13.7	14.6
PRA 2.00 M	PRA 2.00	195	160	230	205	372	355	16.5	17	17.9

[1~] Single Phase

[3~] Three Phase

(\*) Only for IE3 Motors



### MOTOR DATA

Pump type		Power		Efficiency		Capacitor		Efficiency (% load)			Input [kW]		Full load current [A]			Locked rotor current [A]		
Single Phase	Three Phase	[kW]	[HP]	Single Phase	Three Phase	Single Phase		Three phase			Single Phase	Three Phase	Three Phase			Three Phase		
						[μF]	[V]	50%	75%	100%			230 V	230 V	400 V	230 V	230 V	400 V
PRA 0.50 M	PRA 0.50	0,37	0,5	-	-	10	450	-	-	-	0,57	0,55	2,6	1,7	1,0	6,9	7,0	3,8
PRA 0.80 M	PRA 0.80	0,6	0,8	-	-	16	450	-	-	-	1,10	1,10	4,9	3,6	2,1	16,5	17,0	10
PRA 1.00 M	PRA 1.00	0,75	1	-	IE2	20	450	77,2	80,9	81,3	1,25	0,92	5,6	3,0	1,7	19,0	22,0	12,9
-	PRA 1.00	0,75	1	-	IE3	-	-	80,9	82,3	82,1	-	0,91	-	3,0	1,7	-	19,7	11,4
PRA 1.50 M	PRA 1.50	1,1	1,5	-	IE2	40	450	79,7	82,5	83,0	2,27	1,80	10,0	5,6	3,2	43,0	45,0	25,7
-	PRA 1.50	1,1	1,5	-	IE3	-	-	83,0	85,8	85,6	-	1,77	-	5,8	3,3	-	47,4	27,4
PRA 2.00 M	PRA 2.00	1,5	2	-	IE2	40	450	78,6	83,0	84,2	2,45	2,25	10,9	7,4	4,3	43,0	34,3	20,0
-	PRA 2.00	1,5	2	-	IE3	-	450	82,7	86,1	87,0	-	1,72	-	6,6	3,8	-	66,6	38,4

### NOISE DATA

Pump type		Power		L <sub>pA</sub> - dB(A) *
Single Phase	Three Phase	[kW]	[HP]	
PRA 0.50 M	PRA 0.50	0,37	0,5	<70
PRA 0.80 M	PRA 0.80	0,6	0,8	
PRA 1.00 M	PRA 1.00	0,75	1	
PRA 1.50 M	PRA 1.50	1,1	1,5	73
PRA 2.00 M	PRA 2.00	1,5	2	

\* Mean value of several measures at 1m distance around the pump.

Tolerance ± 2.5 dB.