

Customer	Date 21-October-2016	Company
Contact	Item no.	Issued by
Phone	Project	Phone
E-mail	Project ID	E-mail

Requested data

1	Pump type	CENTRIFUGAL PUMP	Fluid	Water, clean
2	Number of pumps / Reserve	1 / 0	Liquid temperature °C	20
3	Flow l/min	0	Kin. viscosity mm ² /s	1
4	Head m	0	Vapour pressure kPa	2.2
5	Static head m	0	PH value	7
6	Inlet pressure kPa	10	Density kg/m ³	1000
7	Available system NPSH	0	Solids Weight %	0
8	Environmental temperature °C	20	Altitude m	1000

Pump

9	Pump name	PRA 156 T	Frequency Hz	60
10	Design	CENTRIFUGAL PUMP	Installation type	STANDARD
11	Manufacturer	EPE	Impeller Max. mm	74
12	Speed 1/min	3350	Diameter Designed mm	74
13	No. of Stage	1	Min. mm	74
14	Connection Suction side	UNI ISO 228	Flow Operating l/min	
15	Connection Discharge side	UNI ISO 228	Max- l/min	65
16	Max Working Pressure kPa		Min- l/min	10
17	Shut-off head kPa	853.22	Head Operating m	
18	Total weight kg	See the table of "Dimensions".	- (Qmax.) m	16.9
19	Shaft power kW		- (Qmin.) m	75.0
20			Max. Shaft Power at max. impeller kW	
21	Required NPSH m		Efficiency %	

Materials

22				
23				
24				
25				
26				
27				

Motor

28	Manufacturer	EPE Standard	Insulation class	F
29	Type	TEFC_PRA 156 T_220_Three Phase	Phases	3~
30	Specific design	- / 60 Hz / Pole pairs 1	Frame size	
31	Rated power kW	1.1	Weight kg	0
32	Number of poles	2	Electric voltage V	220
33	Speed 1/min	3350	Electric current A	5.7
34	Degree of protection	IP 44		
35				

Remarks

Performance curve

Pump name PRA 156 T

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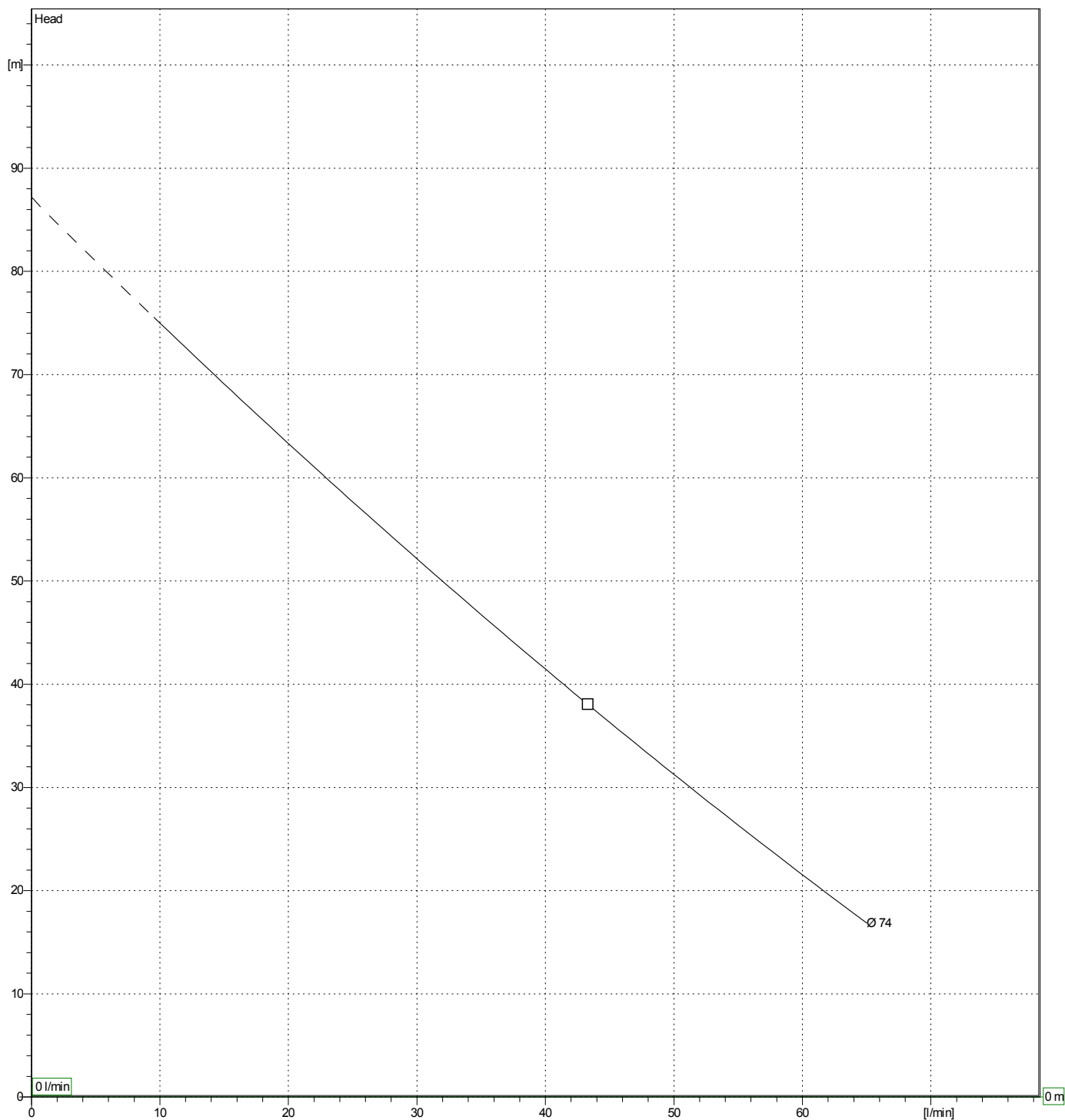
1	Flow	l/min	0
2	Head	m	0
3	Static head	m	0

Pump

Operating Flow	l/min	Impeller Diameter	Designedmm	74
Operating Head	m	Frequency	Hz	60
		Speed	1/min	

Test standard: ISO 9906:2012 - Grade3B

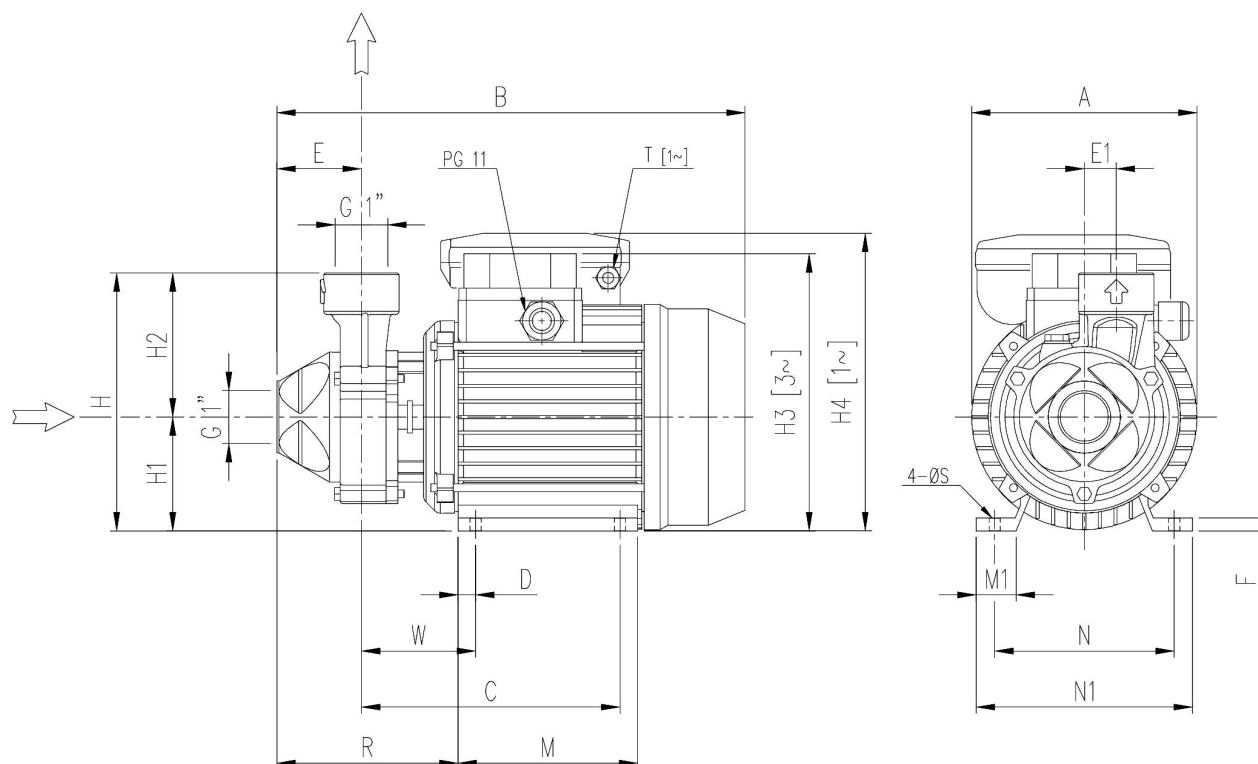
Water, clean [100%] ; 20°C; 998.3kg/m³; 0mm²/s



Dimensions

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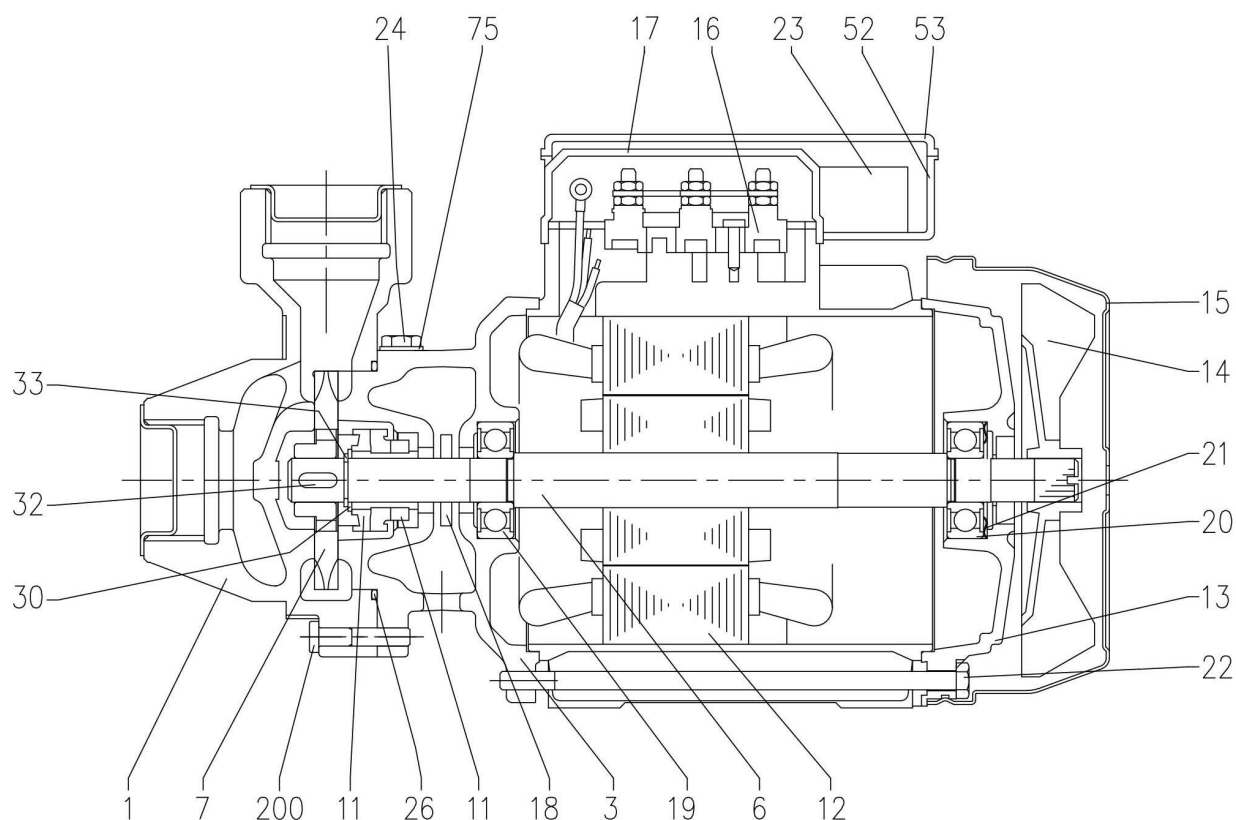
[1~] Single Phase
[3~] Three Phase

Dimensions in mm							
1	A	160	N	125			
2	B	335	N1	152			
3	C	191	R	135			
4	D	12	S	9			
5	E	56	W	91			
6	E1	20	Weight kg	14.5			
7	F	10					
8	H	175					
9	H1	80					
10	H2	95					
11	H3	199					
12	M	124					
13	M1	26					

Construction

Pump name PRA 156 T

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N°	PART NAME	MATERIAL	Q.TY	N°	PART NAME	MATERIAL	Q.TY
1	Casing	Cast Iron	1	20	Fan side ball bearing	-	1
3	Motor bracket	Cast Iron	1	21	Adjusting ring	Steel C70	1
6	Shaft with rotor	[1]	1	22	Tie rod	Fe 42 Zincate	4
7	Impeller	Brass	1	23	Capacitor [3]	-	1
11	Mechanical seal	Carbon/Ceramic/NBR	1	24	Priming plug	Brass	1
12	Motor frame with stator	-	1	26	O-Ring	NBR	1
13	Motor cover	Aluminium	1	30	Washer	AISI 304	1
14	Fan	PP	1	32	Key	AISI 316	1
15	Fan cover	Fe P04 Zincate	1	33	Seeger ring	AISI 304	1
16	Terminal box	-	1	52	Capacitor box [3]	ABS	1
17	Terminal box cover [2]	Aluminium	1	53	Capacitor box cover [3] [4]	ABS [4]	1
18	Splash ring	NBR	1	75	Washer	Aluminium	1
19	Pump side ball bearing	-	1	200	Screw	Zn Steel Cl. 8.8 ISO 898-1	3

- [1] Material: 1.0736 for version PRA 056
AISI 303 (wet extension) for the other version
- [2] Only for three phase
- [3] Only for single phase
- [4] With gasket in NBR for version single phase PRA 056, PRA 086, PRA 106

SPECIFICATION

60Hz

Rev. B

PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. +5 max. +80
Maximum working pressure [MPa]		0.6 (PRA 056) 0.75 (PRA 086) 1.2 (PRA 106-156-206)
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

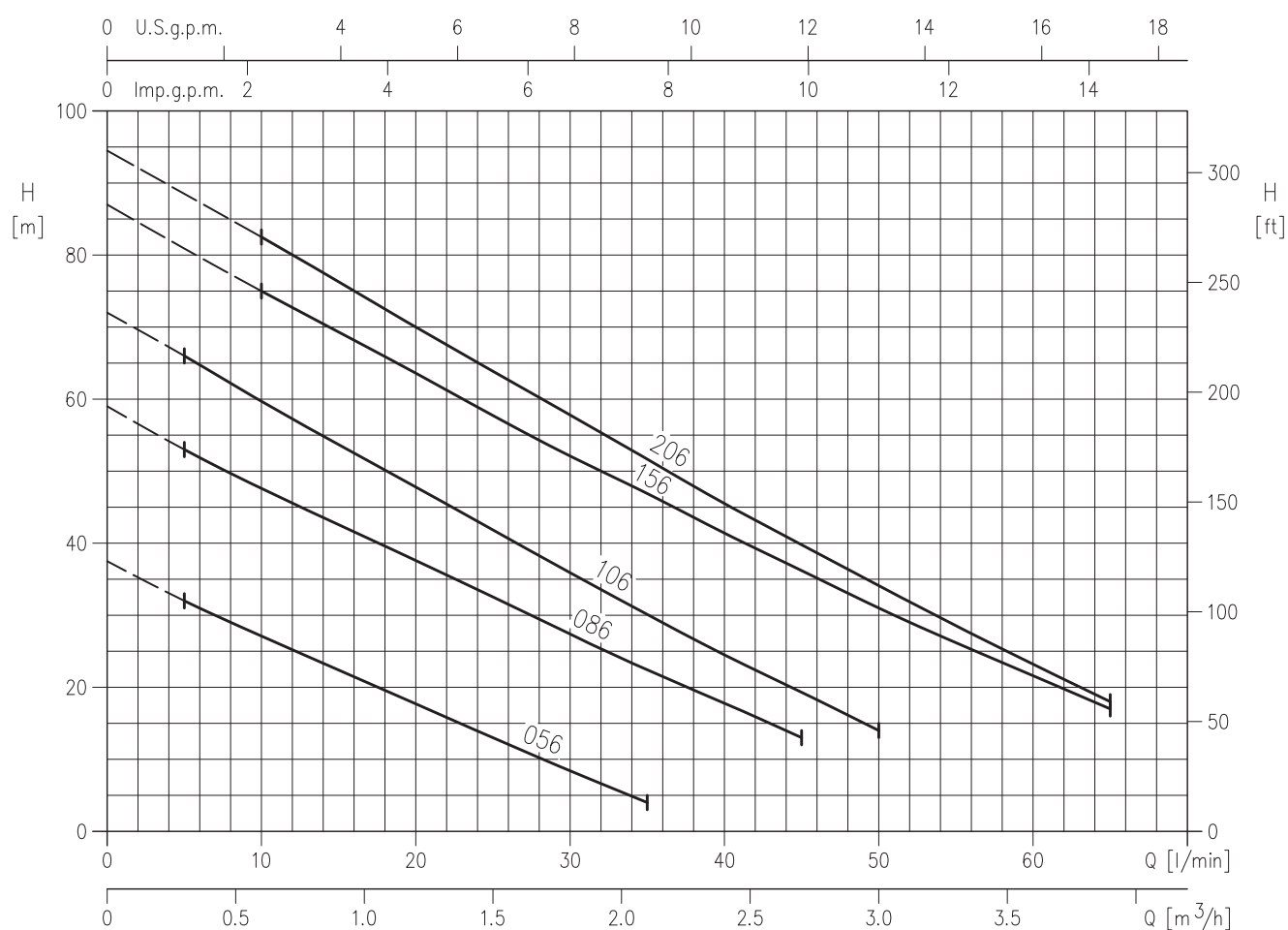
MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level	-	- from 0.37 kW up to 0.6 kW -- from 0.75 kW up to 1.5 kW IE3* from 0.75 kW up to 1.5 kW (*only for 460V)
No. of Poles	2	
Rotation speed [min ⁻¹]	≈ 3350	
Insulation Class	Class F	
Protection degree	IP 44	
Power rating	[kW]	0.37 ÷ 1.5
	[HP]	0.5 ÷ 2
Frequency [Hz]	60	
Voltage [V]	110-115 ±6%	220/380 -6% +10% (from 0.37 kW up to 0.6 kW)
	220-230 ±6%	220/380 ±10% (from 0.75 kW up to 1.5 kW) 220/380-460 ±10% (IE3* from 0.75 kW up to 1.5 kW)
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)	

*only for 460 V

SELECTION CHART

60Hz

Rev. B



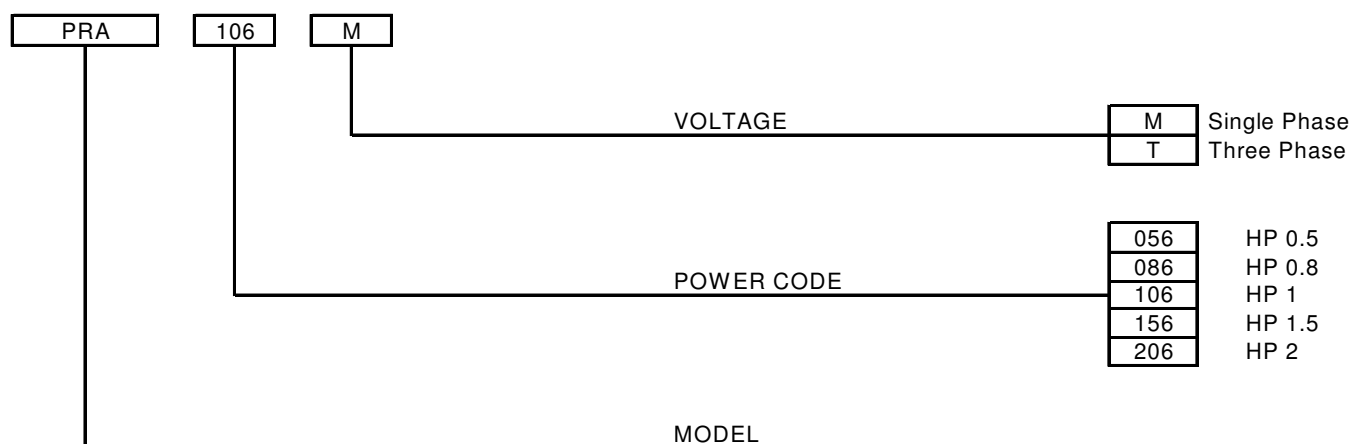
Pump type		Power		Q=Capacity											
Single Phase	Three Phase	[kW]	[HP]	l/min.	0	5	10	20	30	35	40	45	50	60	65
				m³/h	0	0.3	0.6	1.2	1.8	2.1	2.4	2.7	3.0	3.6	3.9
H=Total manometric head in meters															
PRA 056 M	PRA 056 T	0.37	0.5	37.5	32	27	17.7	8.4	4	-	-	-	-	-	-
PRA 086 M	PRA 086 T	0.6	0.8	59	53	48	37.6	27.5	22.2	17.9	13	-	-	-	-
PRA 106 M	PRA 106 T	0.75	1	72	66	60	48	35.9	30.1	24.5	19.4	14	-	-	-
PRA 156 M	PRA 156 T	1.1	1.5	87	-	75	63.5	52	47	41.5	36.2	31	21.8	17	-
-	PRA 206 T	1.5	2.0	94.5	-	82.5	70	57.8	51.6	45.5	39.8	34.1	23.2	18	-

TYPE KEY AND CURVE SPECIFICATIONS

60Hz

Rev. B

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 60 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)

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

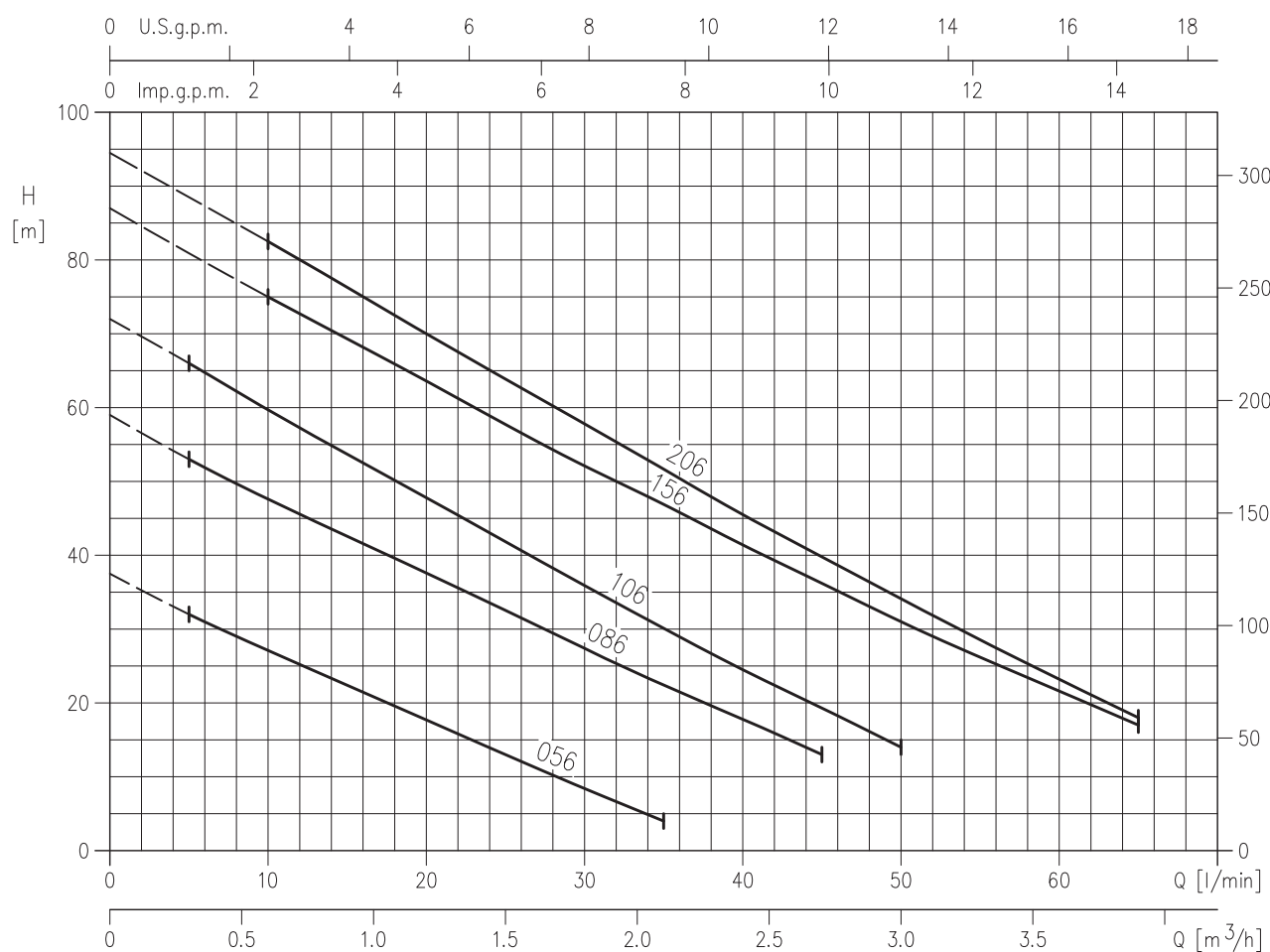
PRA 056 (0.37 kW) - Impeller dimension = 57 mm

PRA 086 (0.6 kW) - Impeller dimension = 67 mm

PRA 106 (0.75 kW) - Impeller dimension = 68 mm

PRA 156 (1.1 kW) - Impeller dimension = 74 mm

PRA 206 (1.5 kW) - Impeller dimension = 74.5 mm



Rotation speed $\approx 3350 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

MOTOR DATA

Pump type		Power		Efficiency		Capacitor				Efficiency (% load)			Efficiency (% load)			Input		Full load current						Locked rotor current					
Single Phase	Three Phase	[kW]	[HP]	Single Phase	Three Phase	110-115 V		220-230 V		Three phase (380 V)			Three phase (460 V)			Single Phase	Three Phase	Single Phase		Three Phase		Single Phase		Three Phase		Single Phase		Three Phase	
						[μF]	[V]	[μF]	[V]	50%	75%	100%	50%	75%	100%			110-115 V	220-230 V	220 V	380 V	460 V	110-115 V	220-230 V	220 V	380 V	460 V		
PRA 056 M	PRA 056 T	0.37	0.5	-	-	31.5	250	8	450	-	-	-	-	-	-	0.58	0.56	5.5	2.8	1.9	1.1	-	15.5	7.55	5.5	3.2	-		
PRA 086 M	PRA 086 T	0.6	0.8	-	-	60	250	14	450	-	-	-	-	-	-	1.37	1.33	12.5	6.3	4.0	2.3	-	48.8	23.2	16.4	9.5	-		
PRA 106 M	PRA 106 T	0.75	1.0	-	-	60	250	20	450	77.2	79.5	79.3	76.6	80.9	82.3	1.54	1.00	15.3	7.1	2.9	1.7	-	52.0	26.0	20.6	11.9	-		
-	PRA 106 T	0.75	1.0	-	IE3*	-	-	-	-	80.7	81.9	81.3	78.4	81.6	83.1	-	0.90	-	-	2.8	1.6	1.5	-	-	-	16.9	9.7	11.8	
PRA 156 M	PRA 156 T	1.1	1.5	-	-	-	-	35	450	78.3	80.4	81.0	76.5	81.3	83.4	2.20	2.00	-	10.4	5.7	3.3	-	-	69.0	38.8	22.4	-		
-	PRA 156 T	1.1	1.5	-	IE3*	-	-	-	-	85.4	86.5	85.7	83.0	85.8	86.6	-	1.75	-	-	5.3	3.1	2.9	-	-	40.2	23.2	28.1		
-	PRA 206 T	1.5	2.0	-	-	-	-	-	-	82.4	83.0	82.2	79.5	82.9	83.8	-	2.90	-	-	8.1	4.7	-	-	-	54.4	31.4	-		
-	PRA 206 T	1.5	2.0	-	IE3*	-	-	-	-	88.9	88.8	87.2	86.3	88.5	88.4	-	2.48	-	-	7.5	4.3	4.1	-	-	55.7	32.2	38.9		

* only for 460 V