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EBARA

CONTENTS

50Hz

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SPECIFICATIONS 50Hz

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PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	Maximum 30
	Sand content	Maximum 50 parts per million
	Chlorine ion density	Maximum 500 parts per million
Construction	Impeller	Closed centrifugal type
	Bearing	Sleeve type - Stainless steel / rubber
Pipe connection	Suction	N/A
	Discharge	G1 " - UNI ISO 228
Material	Impeller	PPO mod. glass + fibre reinforced
	Intermediate casing	POM Polyacetals
	Diffuser plate	POM Polyacetals
	Suction casing	EN 1.4301 (AISI 304)
	Discharge casing	EN 1.4301 (AISI 304)
	Shaft	EN 1.4105(AISI 430 F)
	Valve	PPO mod. glass + fibre reinforced
	Strain	EN 1.4016 (AISI 430 2B)
Applicable standard of test		ISO 9906 - Annex A

MOTOR				
Type			Submersible oil filled (type O) 3"	
Manufacturer			Sumoto	
			Single phase	Three phase
Power rating		[kW]	0.37÷0.75	0.37÷1.1
		[HP]	0.5÷1	0.5÷1.5
No. of Poles			2	
Rated speed			Refer to each characteristic performance rotation speed as rated speed	
Insulation class			F	
Protection degree			IP 58	
Maximum immersion		[m]	60	
Starts / hours			30	
Start type			Direct on line	
Frequency		[Hz]	50 Hz	
Voltage		[V]	230 ± 6-10%	400 ± 6-10%
Capacitor for start and run			Fitted in starter box	-
Over load protection			Fitted in starter box	Provided by the user
Sealing liquid			Oil type: Marcol 82 (Esso)	
Motor bracket			Cast iron with nickel plate	
Casing material			EN 1.4301 (AISI 304)	
Power cable	material		EPDM/Cross Seald Polyethylene	
	size	[mm^2]	4x1.5	
	lenght	[m]	L=1.75	
Flange mount			NEMA standard	

SELECTION CHART

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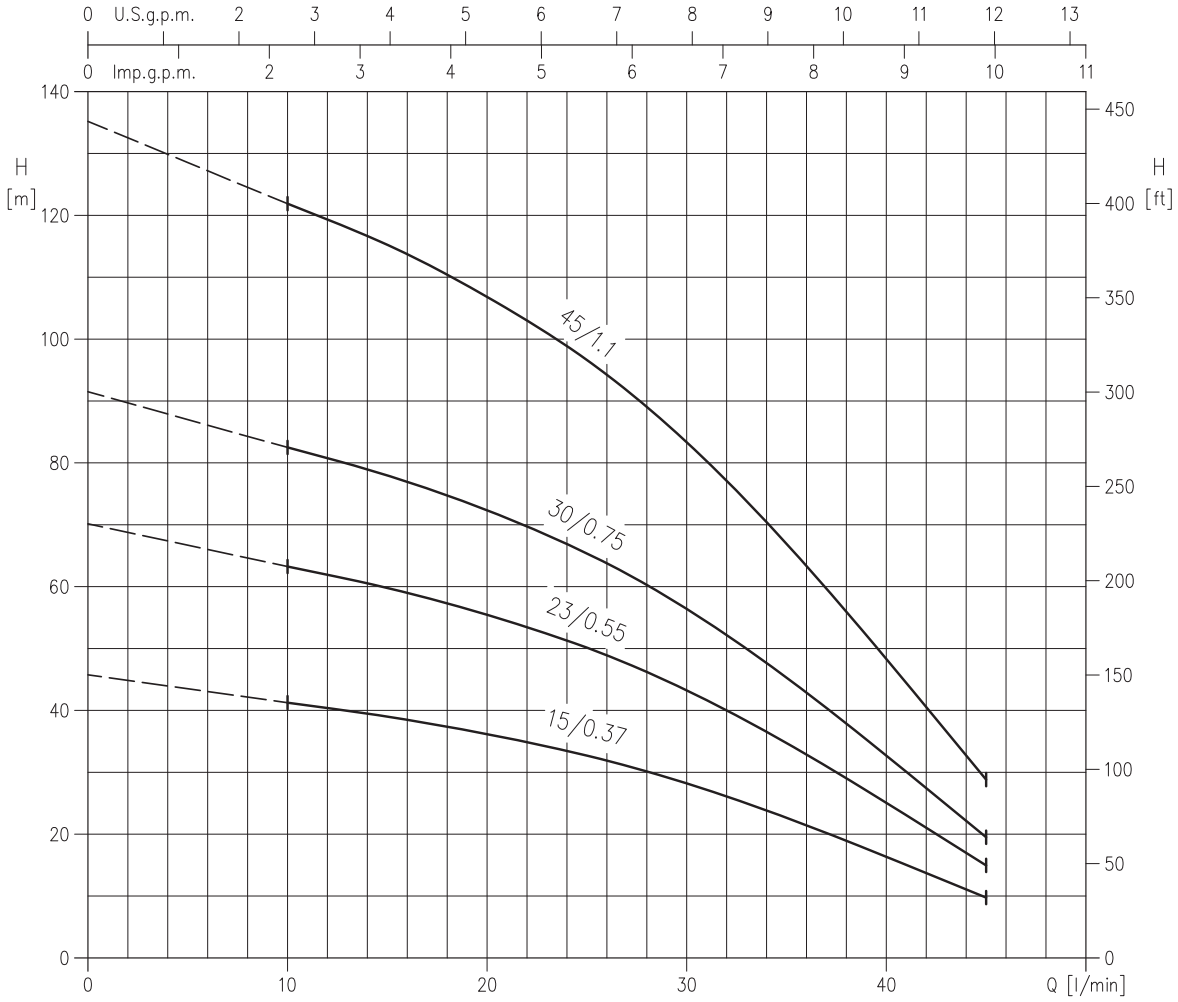
SB 3



Pump type	Power		Q=Capacity								
			l/min	0	10	15	20	25	30	35	40	45
			m^3/h	0	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7
	[kW]	[HP]	H=Total Head									
SB 3-15	0.37	0.5	46	41.5	39	36.2	32.7	28.2	22.7	16.5	9.8
SB 3-23	0.55	0.75	70.5	63.5	60	55.5	50	43.5	34.7	25.1	15
SB 3-30	0.75	1	91.5	82.5	78	72.5	65.5	56.5	45.5	32.7	19.5
SB 3-45	1.1	1.5	135.5	122	115	107	96.6	83.5	67	48.5	28.8

TYPE KEY AND CURVE SPECIFICATIONS

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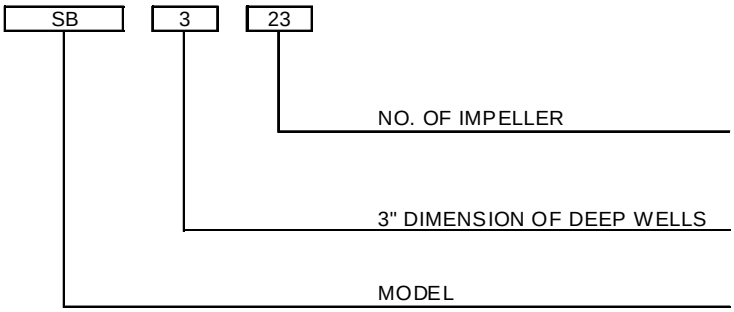
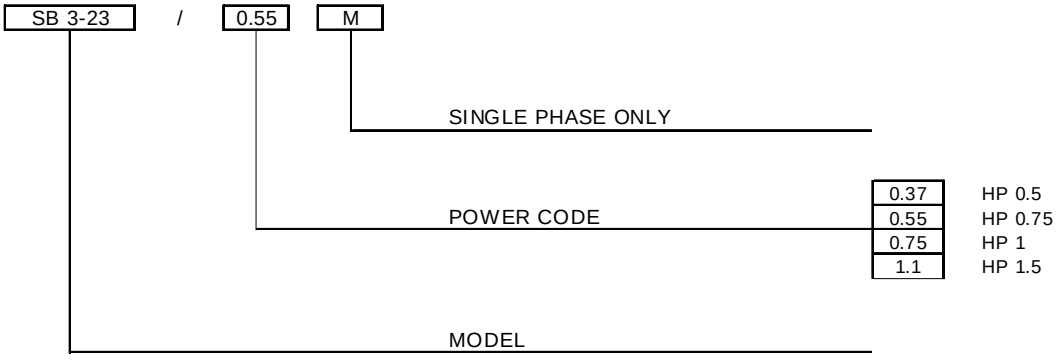
TYPE KEY:

PUMP WITHOUT MOTOR



PUMP WITH MOTOR



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 ν = 1 mm^2/s (1 cSt)

The NPSH curve is an average curve obtained in the same conditions of performance curves.
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

PERFORMANCE CURVE

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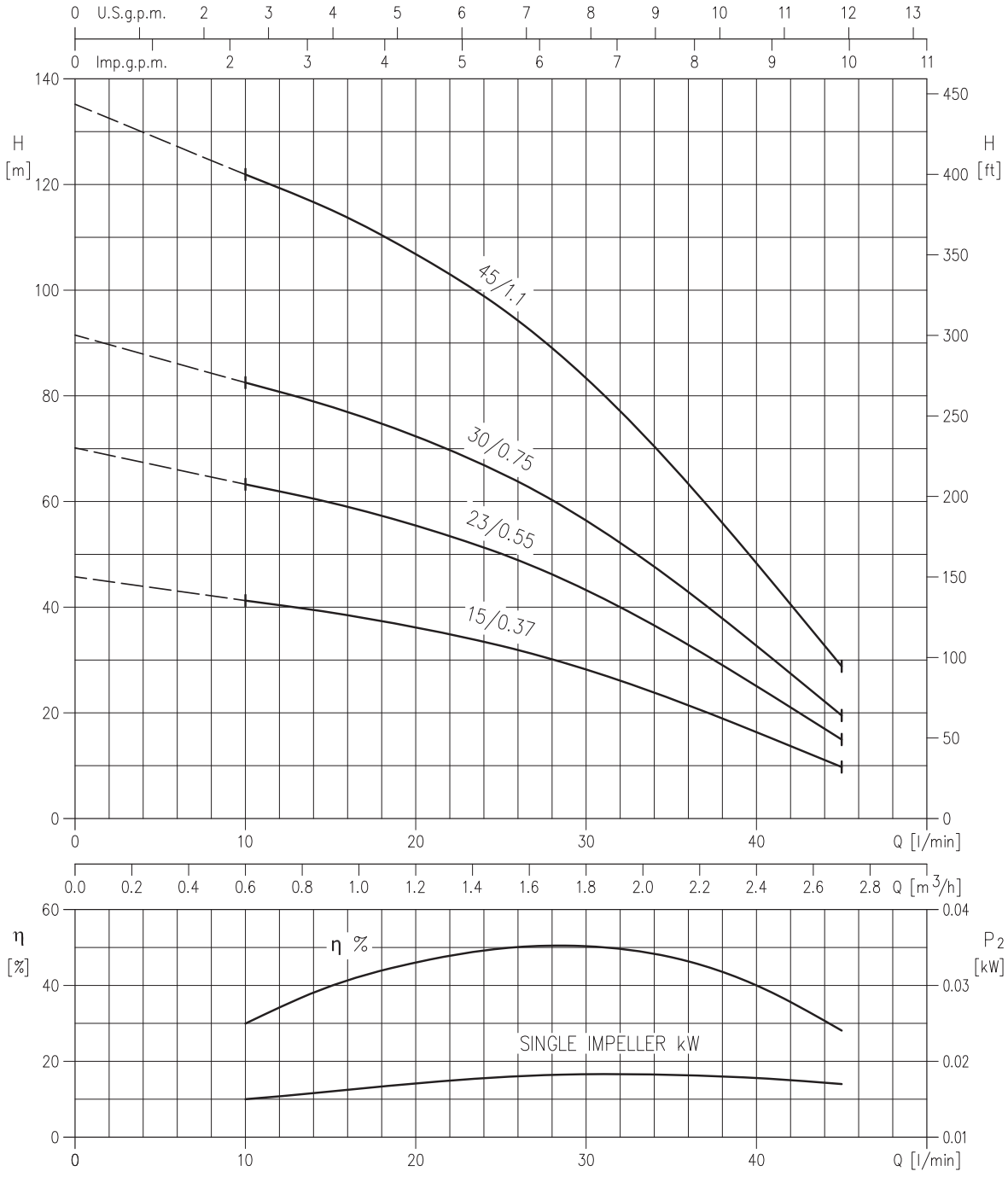
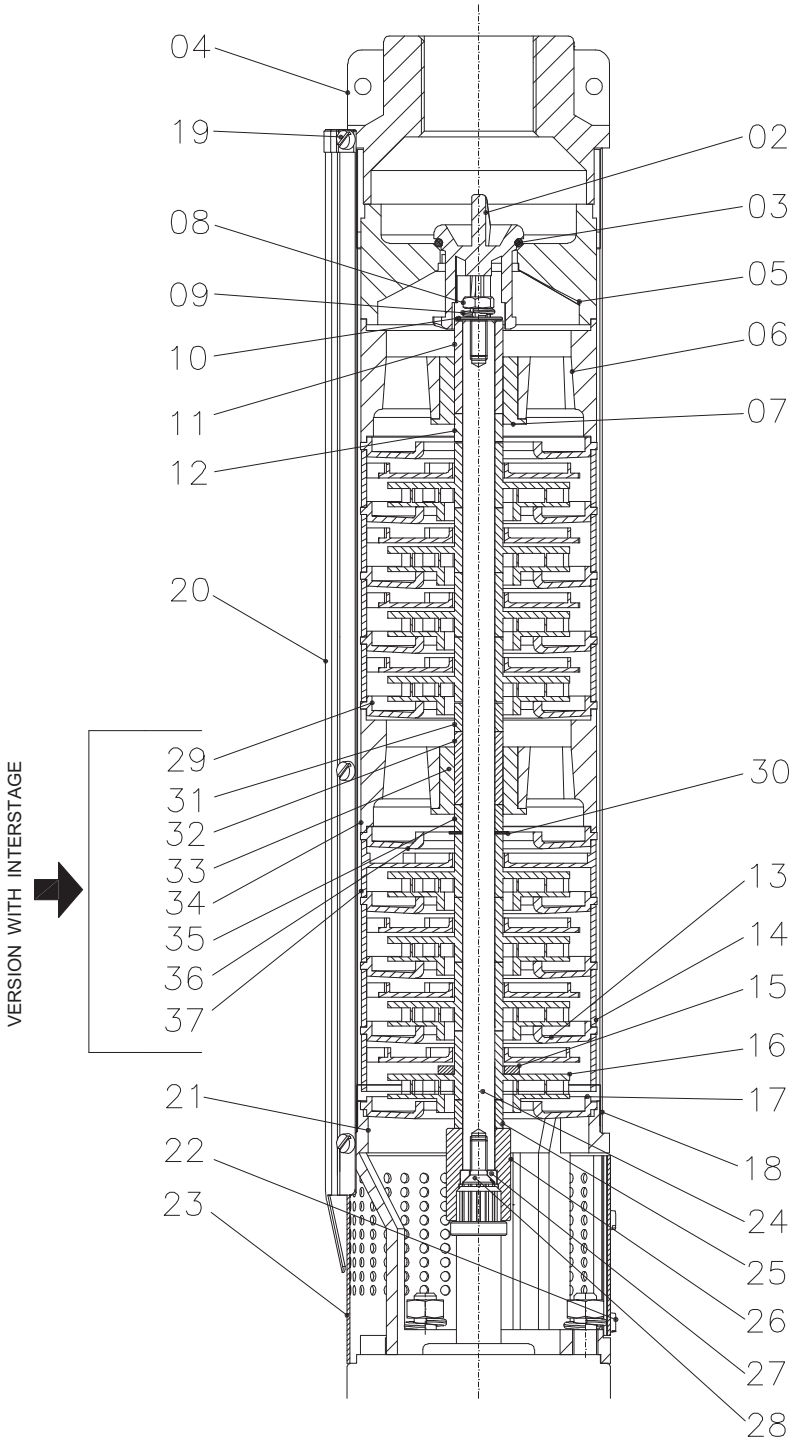


Rotation speed ≈ 2800 min^{-1}

Applicable standard of test : ISO 9906 Annex A

SECTIONAL VIEW DRAWING



SECTIONAL VIEW TABLE

N°	PART.NAME	MATERIAL	Q.TY
01	Plug	PVC	1
02	Valve	POM Polyacetals	1
03	O-Ring	NBR	1
04	Discharge casing	EN 1.4301 (AISI 304)	1
05	Valve seat	PPO mod. + G.F.	1
06	Bearing seat	PPO mod. + G.F.	1
07	Bearing	PUR Polyurethane	1
08	Screw	EN 1.4301 (AISI 304)	1
09	Washer	EN 1.4301 (AISI 304)	1
10	Washer	EN 1.4401 (AISI 316)	1
11	Bearing	EN 1.4401 (AISI 316)	1
12	Spacer	PPO mod. + G.F.	1
13	Diffuser plate	POM Polyacetals	1
14	Diffuser	POM Polyacetals	n
15	Washer	EN 1.4301 (AISI 304)	1
16	Impeller	PPO mod. + G.F.	n
17	Diffuser plate	POM Polyacetals	n
18	Pump casing	EN 1.4301 (AISI 304)	1
19	Screw	EN 1.4301 (AISI 304)	4
20	Cable cover	EN 1.4016 (AISI 430)	1
21	Suction casing	EN 1.4301 (AISI 304)	1
22	Screw	EN 1.4301 (AISI 304)	2
23	Strainer	EN 1.4016 (AISI 430)	1
24	Shaft	EN 1.4105 (AISI 430F)	1
25	Spacer	PPO mod. + G.F.	1
26	Coupling	EN 1.4401 (AISI 316)	1
27	Washer	EN 1.4401 (AISI 316)	1
28	Screw	EN 1.4301 (AISI 304)	1
29	Diffuser plate	POM Polyacetals	n
30	Adjusting ring	EN 1.4301 (AISI 304)	n
31	Spacer	PPO mod. + G.F.	1
32	Sleeve	EN 1.4401 (AISI 316)	1
33	Bearing	PUR Polyurethane	1
34	Bearing seat	PPO mod. + G.F.	1
35	Spacer	PPO mod. + G.F.	1
36	Diffuser plate	POM Polyacetals	n
37	Diffuser	POM Polyacetals	n

DIMENSIONS AND WEIGHT

50Hz

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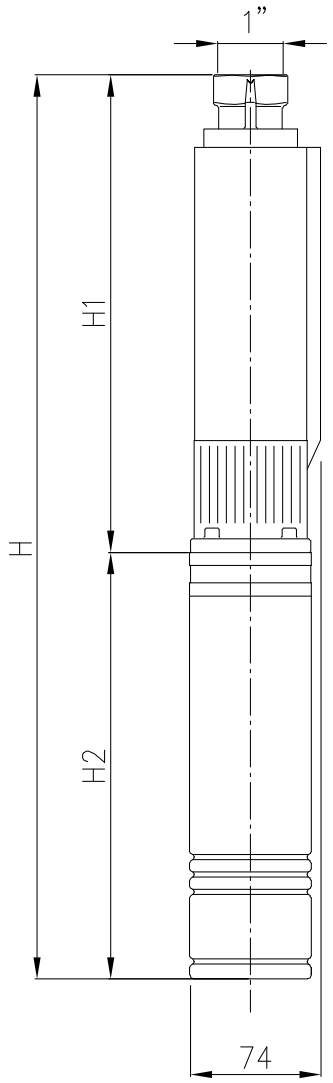
PUMP



Pump type	Power		Pump without motor		Pump with oil filled motor				Pump weight	Weight of pump with motor	
					single phase		three phase			single phase	three phase
	[kW]	[HP]	H1 [mm]	DNM	H2 [mm]	H [mm]	H2 [mm]	H [mm]	[Kg]	[Kg]	[Kg]
SB 3-15	0.37	0.5	580	G1	377	957	-	-	3.3	9.3	-
SB 3-23	0.55	0.75	780	G1	397	1177	377	1157	4.4	10.8	10.5
SB 3-30	0.75	1	1000	G1	416	4116	397	1397	5.6	12.4	12
SB 3-45	1.1	1.5	1380	G1	-	-	416	1796	7.6	-	14.4

MOTOR DATA

OIL FILLED MOTOR

Power		Hight	Single phase 230 V				Three phase 400 V			
[kW]	[HP]	thrust [N]	Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor
0.37	0.5	1200	0.72	3.75	8.8	0.96	0.72	2,0	8,0	0.71
0.55	0.75	1200	1	4.5	12.2	0.98	0.98	2.1	9.1	0.75
0.75	1	1200	1.31	5.85	14.5	0.98	1.19	2.5	11.7	0.75
1.1	1.5	1200	-	-	-	-	1.75	3.2	14,0	0.75

OIL FILLED MOTORS CABLE SELECTION

EXAMPLE : MOTOR 0.55 kW 230 V CABLE LENGTH 95 m - 4x2.5 mm2

Single phase 230 V

POWER		CABLE TYPE AND MAXIMUM LENGTH (*)				
[kW]	[HP]	4x1	4x1.5	4x2.5	4x4	4x6
0.37	0.5	50	75	125	-	-
0.55	0.75	38	57	95	152	-
0.75	1	30	45	75	120	174

Three phase 400 V

POWER		CABLE TYPE AND MAXIMUM LENGTH (*)				
[kW]	[HP]	4x1	4x1.5	4x2.5	4x4	4x6
0.37	0.5	240	-	-	-	-
0.55	0.75	164	246	-	-	-
0.75	1	133	200	333	-	-
1.1	1.5	97	146	244	390	-

(*) Maximum cable lenght with a voltage drop of 3% at 30°C ambient temperature.

If the operating voltage Ui in the installation is different from the nominal voltage Un, it is possible to calculate the permissible maximum length Lmax, with the given table lenght Ltab, with the following formula: