



EBARA

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SPECIFICATION

50Hz

Rev. 0

PUMP		
Liquid Handled	Type of liquid	Clear water (Clean water for MS version)
	Max temperature [°C]	50
	Max solids size [mm]	10 20 (for Vortex version)
Maximum immersion [m]		2 (with power cable length 5 m) 5 (with power cable length 10 m)
Construction	Impeller	Semi-open centrifugal type (BEST ONE) Vortex type (BEST ONE VOX)
	Shaft seal type	Oil lubricated mechanical seal (pump side) + lip seal (motor side)
	Bearing	Sealed ball bearing
Pipe Connection	Suction	Strainer
	Discharge nozzle [inch]	G1¼": UNI ISO 228
Material	Pump casing	AISI 304
	Impeller	AISI 304
	Shaft seal	Mechanical seal: Ceramic/Carbon/NBR Lip seal: NBR
	Casing cover	AISI 304
	Shaft	AISI 303 + AISI 303 ceramic coated shaft sleeve
	Lubricating liquid	White mineral oil: Esso Marcol 152
Applicable standard of test		ISO 9906:2012 – Grade 3B

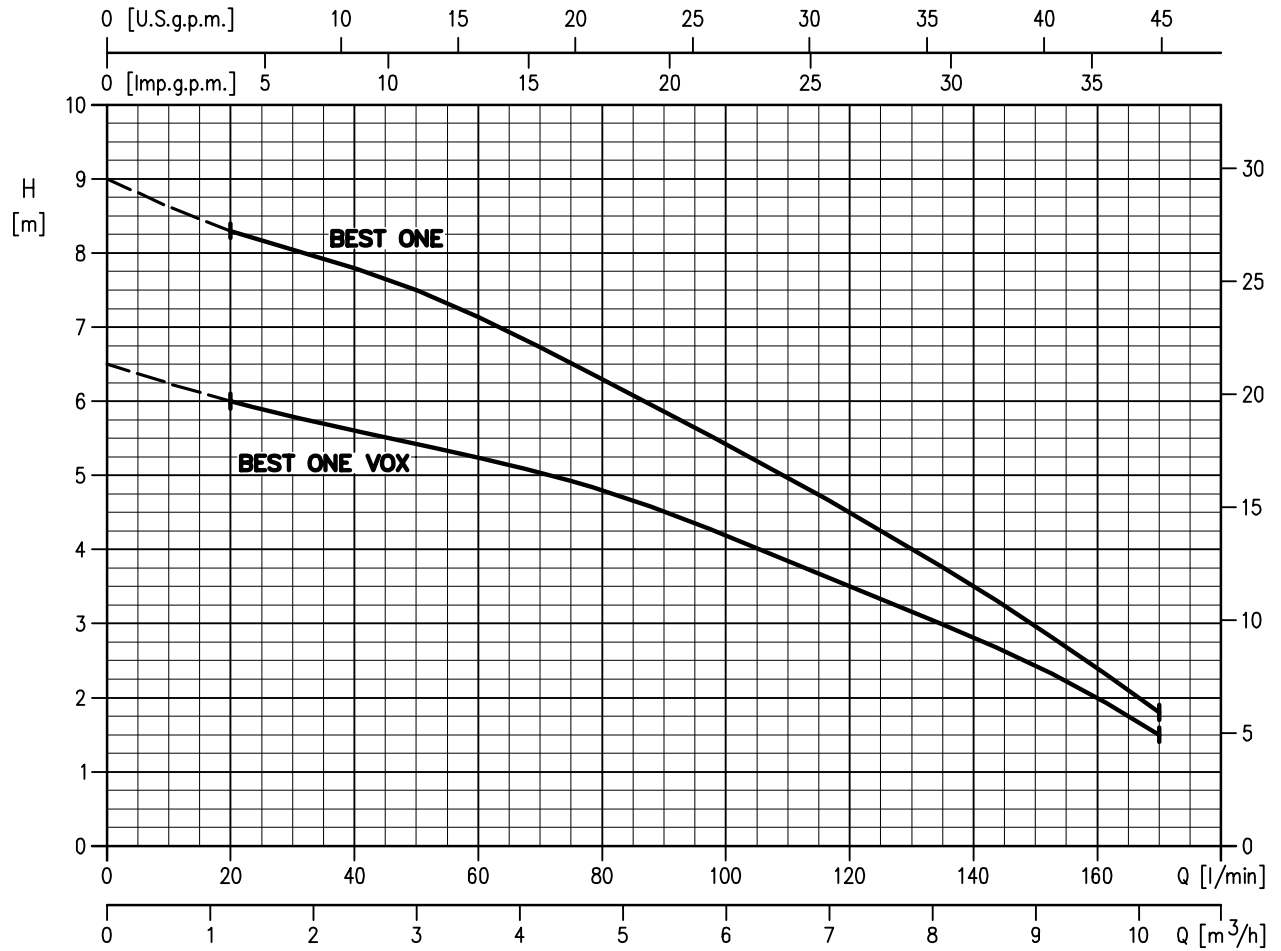
MOTOR			
Type	Submersible dry type		
	Single Phase	Three Phase	
No. of Poles	2		
Rotation speed [min ⁻¹]	≈2800		
Insulation Class	F		
Protection degree	IP 68		
Power rating	[kW]	0.25	
	[HP]	0.33	
Frequency [Hz]	50		
Voltage [V]	230 ±10%	400 ±10%	
Capacitor	Built in	-	
Over load protection	Built in	-	
Casing material	AISI 304		
Switch	float	MA version (no maintenance required)	-
	magnetic	MS version (maintenance required)	-
Float/magnetic switch cable	material	H07RN-F	-
	size	3G1	-
Power cable	length [m]	5 (only for internal usage); 10	
	material	H05RN-F	H07RN-F
	size	3G0.75	4G1
Cable entry	Cable Gland		

SELECTION CHART

50Hz

Rev. O

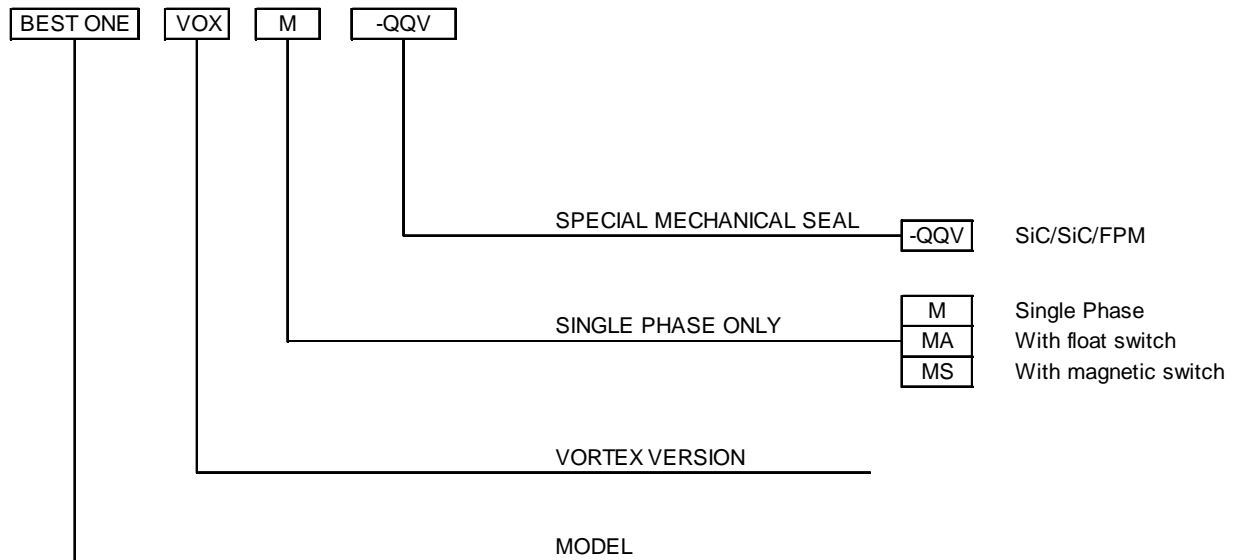
PERFORMANCE CURVE



SELECTION CHART

Pump Type		Power		Q=Capacity							
				l/min	0	20	40	80	120	160	170
Single Phase	Three Phase	[kW]	[HP]	m ³ /h	0	1,2	2,4	4,8	7,2	9,6	10,2
H=Total manometric head in meters											
BEST ONE M	BEST ONE	0,25	0,33	9,0	8,3	7,8	6,3	4,5	2,4	1,8	
BEST ONE VOX M	BEST ONE VOX	0,25	0,33	6,5	6,0	5,6	4,8	3,5	2,0	1,5	

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.

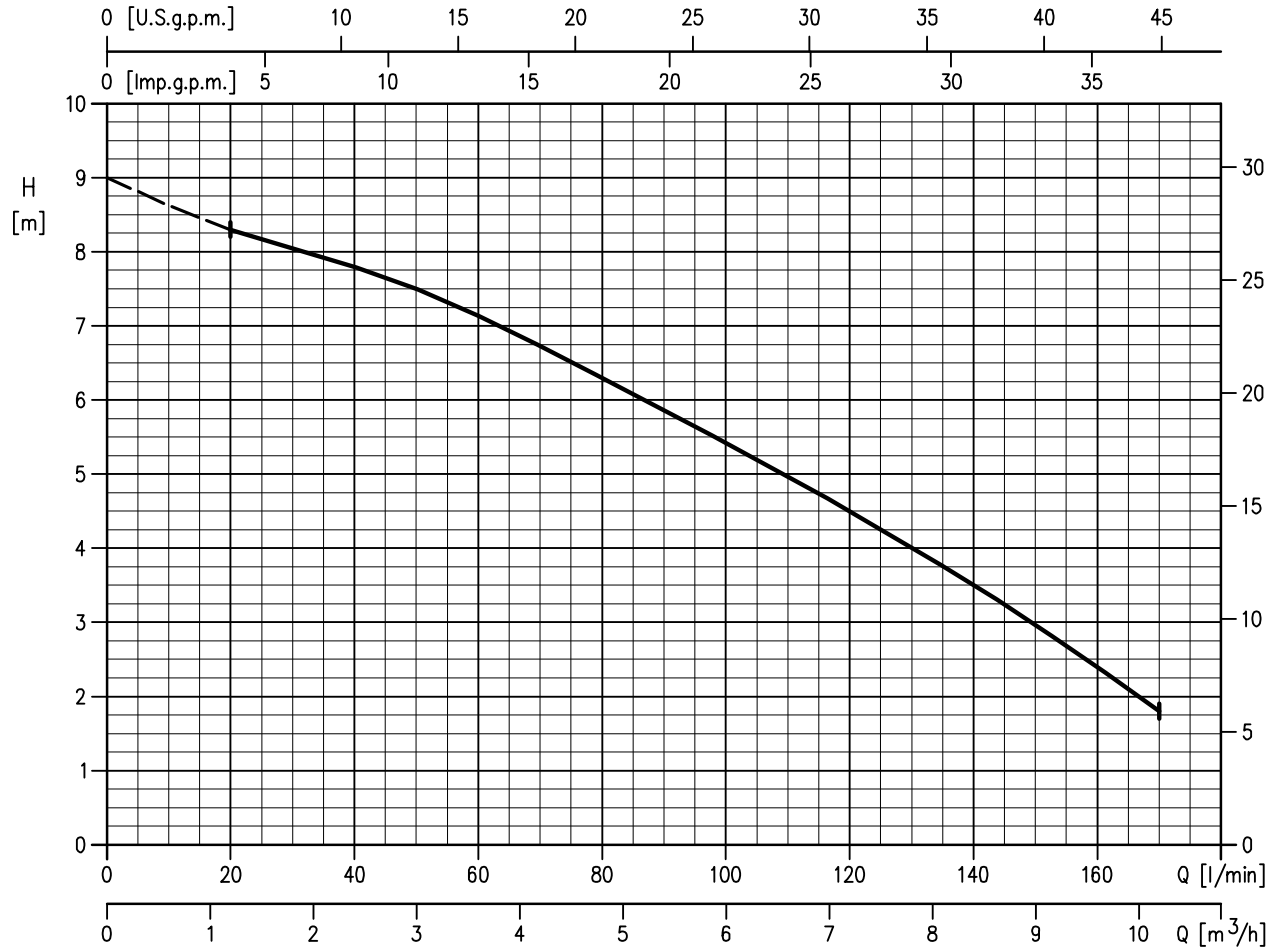
Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt)

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:

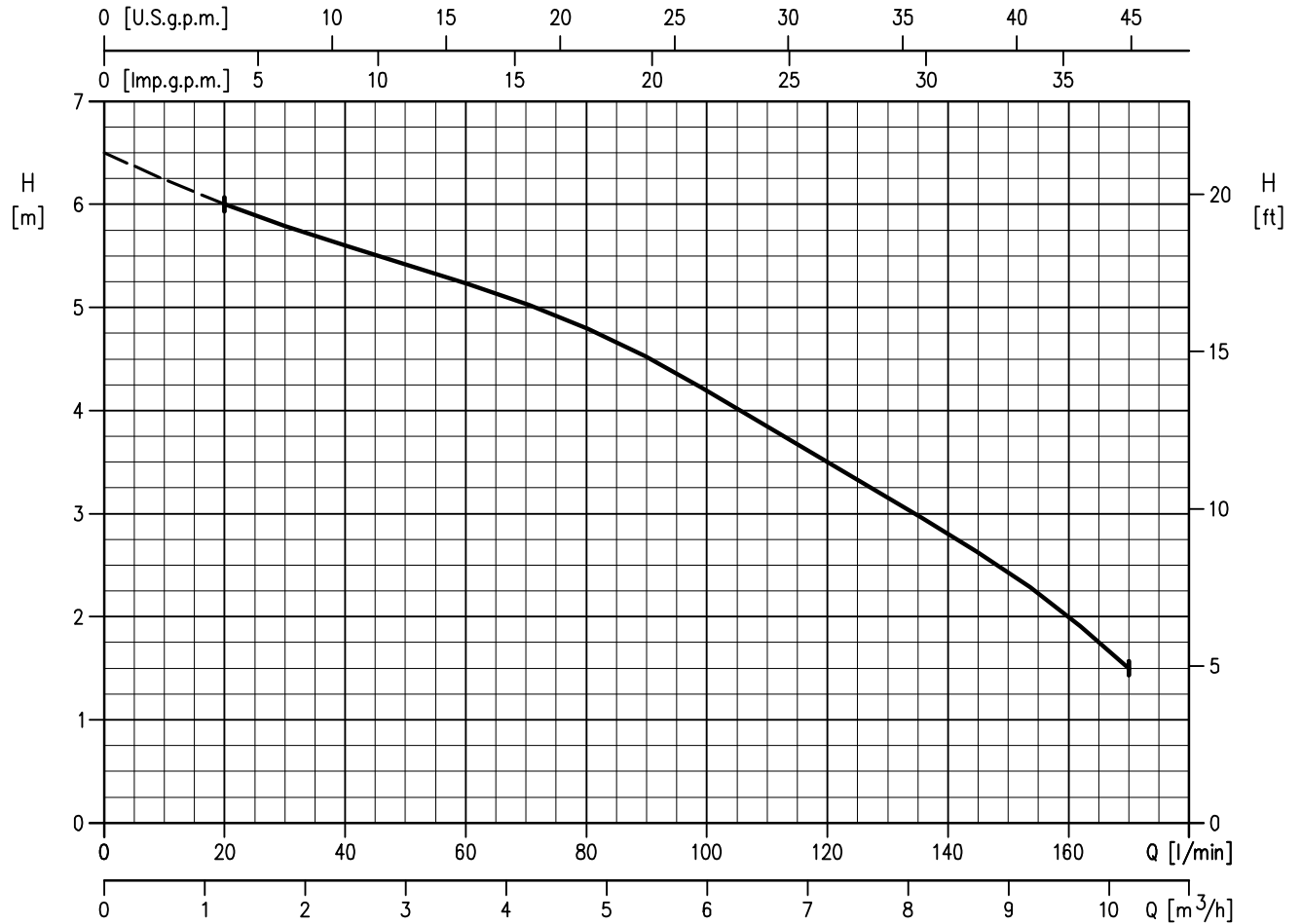
- Q = volume flow rate
- H = total head

BEST ONE (0.25 kW) – impeller diameter = 85 mm



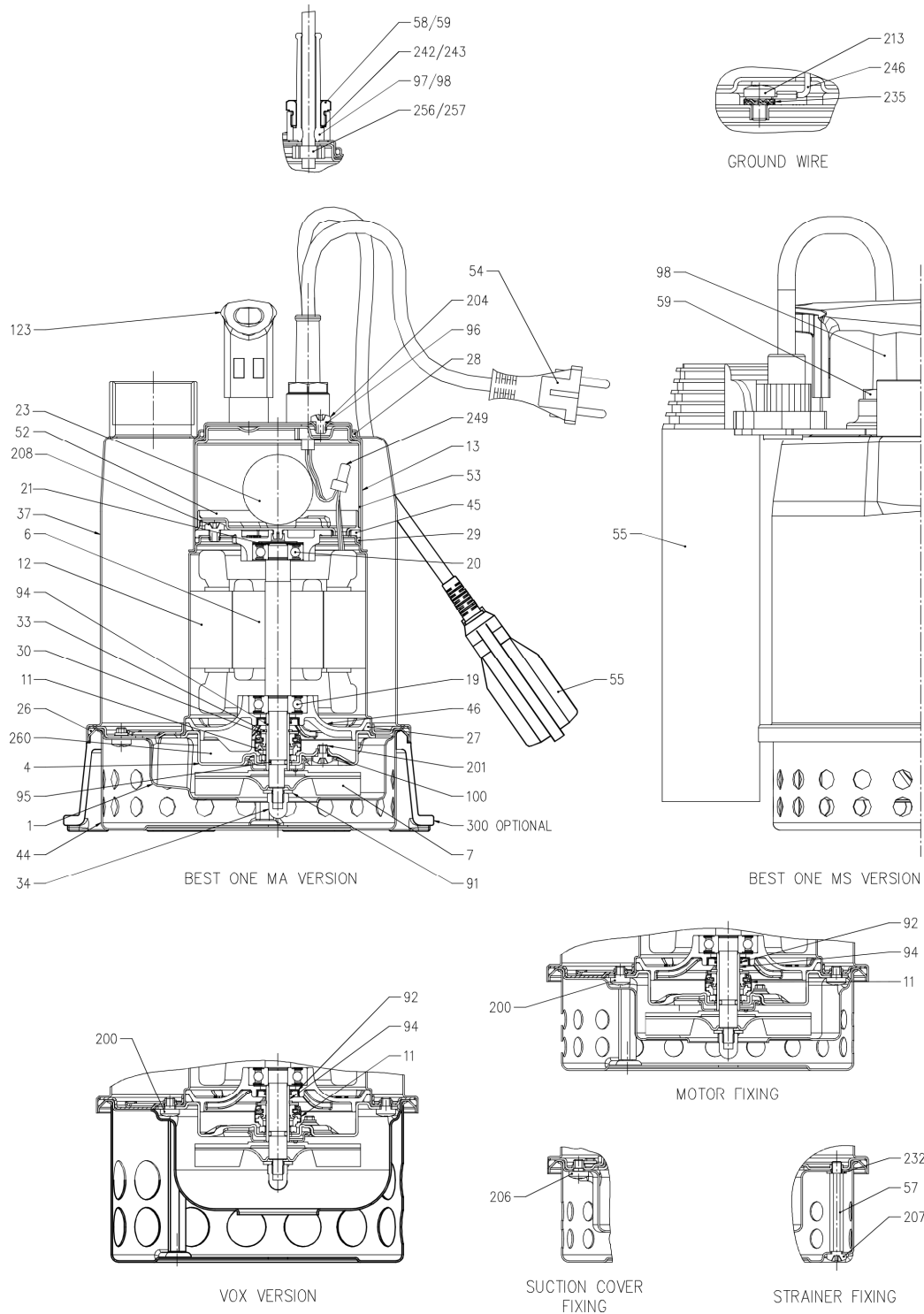
Rotation speed $\approx 2800 \text{ min}^{-1}$
Test standard: ISO 9906:2012 – Grade 3B

BEST ONE VOX (0.25 kW) – impeller diameter = 85 mm



Rotation speed $\approx 2800 \text{ min}^{-1}$
Test standard: ISO 9906:2012 – Grade 3B

SECTIONAL VIEW DRAWING



SECTIONAL VIEW TABLE

N°	PART NAME	MATERIAL	DIMENSIONS	STANDARD	Q.TY
1	Suction cover	EN 14301(AISI 304)	-	-	1
4	Casing cover	EN 14301(AISI 304)	-	-	1
6	Shaft with rotor	EN 14305 (AISI 303)	-	-	1
7	Impeller	EN 14301(AISI 304)	-	-	1
11	Mechanical seal [1]	[1]	[1]	-	1
12	Motor frame with stator	EN 14301(AISI 304)	-	-	1
13	Motor cover	EN 14301(AISI 304)	-	-	1
19	Lower ball bearing	-	-	-	1
20	Upper ball bearing	-	-	-	1
21	Adjusting ring	-	-	-	1
23	Capacitor [2]	-	-	-	1
26	O-ring	NBR	159,5x3	-	1
27	O-ring	NBR	88,5x3,53	-	1
28	O-ring	NBR	75,87x2,62	-	1
29	O-ring	NBR	75,87x2,62	-	1
30	Washer	EN 14301(AISI 304)	12x2x1	-	1
33	Seeger ring	Carbon steel TC80	12	UNI 7435	1
34	Impeller nut	A2 - 70 UNI 7323	M 6	UNI 5721	1
37	Pump casing	EN 14301(AISI 304)	-	-	1
44	Strainer	EN 14301(AISI 304)	-	-	1
45	Upper bearing housing	EN 1706 AC-46000 D	-	-	1
46	Lower bearing housing	EN 1706 AC-46000 D	-	-	1
52	Terminal insulating base	PA 6 class V-0	-	-	1
53	Terminal insulating box	PA 6 class V-0	-	-	1
54	Power cable	-	-	-	1
55	Switch [3] [4]	-	-	-	1
57	Spacer	EN 14301(AISI 304)	-	-	2
58	Power cable connector	OT 58 UNI 5705-65 Nickel-plated Brass	-	-	1
59	Switch cable connector [3]	OT 58 UNI 5705-65 Nickel-plated Brass	-	-	1
91	Washer	EN 14301(AISI 304)	-	-	1
92	Lip seal	NBR	22x12x4	-	1
94	Shaft sleeve	EN 14305 (AISI 303) ceramic coated	-	-	1
95	O-ring	NBR	6,07x1,78	-	1
96	O-ring	NBR	4,48x1,78	-	1
97	Power cable connector	NBR	-	-	1
98	Switch cable connector [3]	NBR	-	-	1
100	O-ring	NBR	4,48x1,78	-	1
123	Handle	PP	-	-	1
200	Screw	A2 - 70 UNI 7323	M 5x6	UNI 7687	4
201	Screw	A2 - 70 UNI 7323	M 5x6	UNI 7687	1
204	Screw	A2 - 70 UNI 7323	M 5x6	UNI 7687	1
206	Screw	A2 - 70 UNI 7323	M 5x6	UNI 7687	3
207	Screw	A2 - 70 UNI 7323	M 5x6	UNI 7687	2
208	Screw	A2 - 70 UNI 7323	M 5x6	UNI 7687	3
213	Screw	A2 - 70 UNI 7323	M 4x6	UNI 7687	1
232	Washer	PA 6	5,5x10x1	-	1
235	Washer	Zinked Steel	4	UNI 8842	1
242	Washer	EN 14301(AISI 304)	13,4x15,9x1	-	1
243	Washer [3]	EN 14301(AISI 304)	13,4x15,9x1	-	1
246	Ground wire	-	-	-	1
256	Strain relief	-	-	-	1
257	Strain relief [3]	-	-	-	1
260	Oil	Esso Marcol 152	-	-	40 cc
300	Minimum suction system [5]	Thermoplastic elastomer vulcanizate	-	-	-

[1] See Mechanical Seal table at page.302

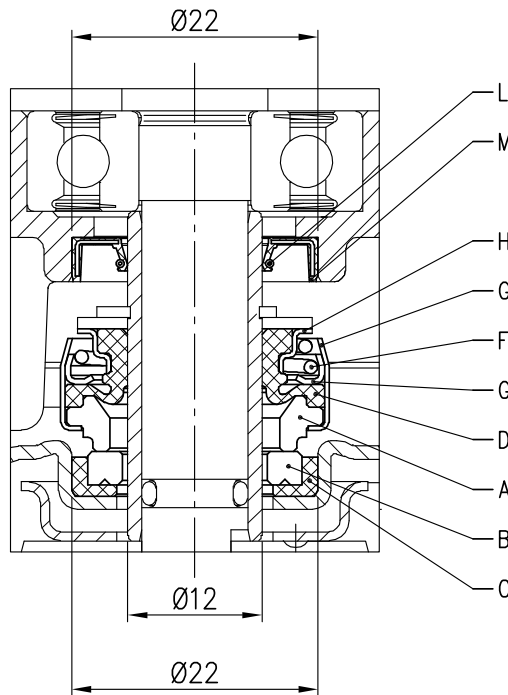
[2] Only for single phase
[3] Only for switch version

[4] It could be float or magnetic type
[5] See pag.700 (OPTIONAL)

BEARINGS

Type pumps		Ball Bearing	
Single Phase	Three Phase	Lower side	Upper side
BEST ONE M	BEST ONE	6200 ZZ C3	6000 ZZ C3

MECHANICAL SEAL



REF	PART NAME	MATERIAL standard	MATERIAL QQV
A	Rotary seal ring	Carbon graphite	SiC
B	Stationary seal ring	Ceramic	SiC - Q6 (*)
C	Gasket	NBR	FPM
D	Bellows	NBR	FPM
F	Self driving spring	EN 1.4301 (AISI 304)	
G	Frame	EN 1.4301 (AISI 304)	
H	Retainer ring	EN 1.4301 (AISI 304)	
L	Spring	EN 1.4318 (AISI 302)	
M	Lip	NBR	

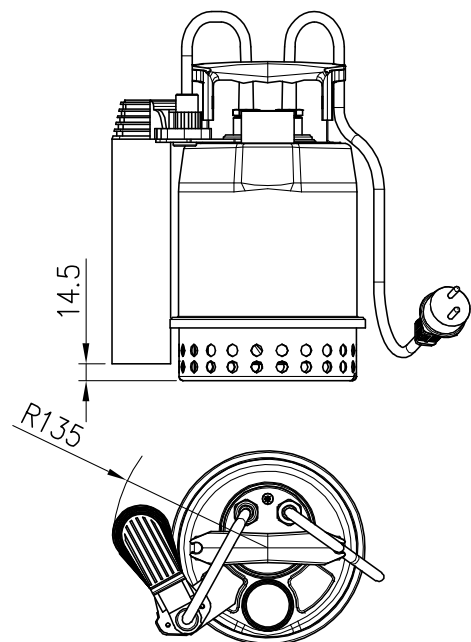
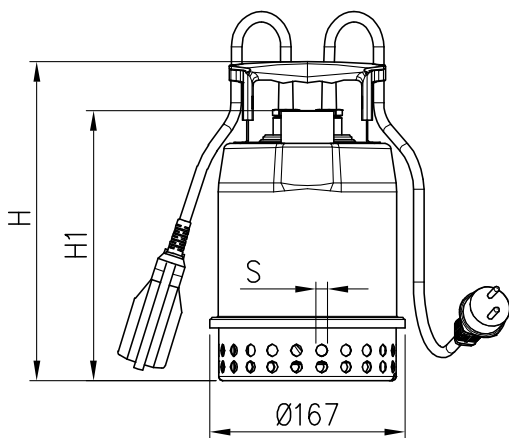
(*) Special grade of SiC with microporosities filled with graphite

(**) Only for model BEST ONE VOX MA

PUMP

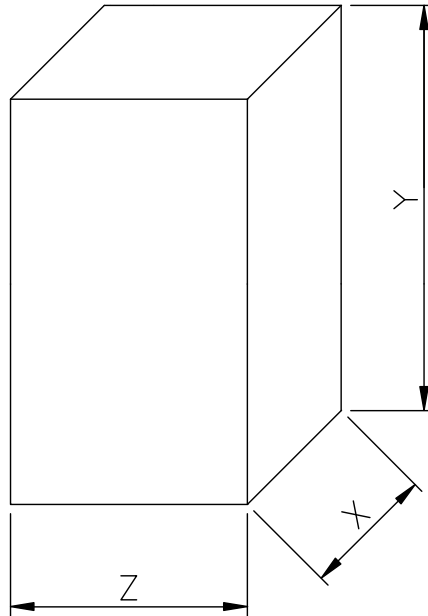
**BEST ONE MA
BEST ONE VOX MA**

BEST ONE MS



Pump Type	Dimensions [mm]			Weight [kgf]
	H	H1	S	
BEST ONE	273	231	10	4.3
BEST ONE M				4.4
BEST ONE MA				4.6
BEST ONE MS				4.8
BEST ONE VOX	304	262	20	4.4
BEST ONE VOX M				4.5
BEST ONE VOX MA				4.7

PACKING



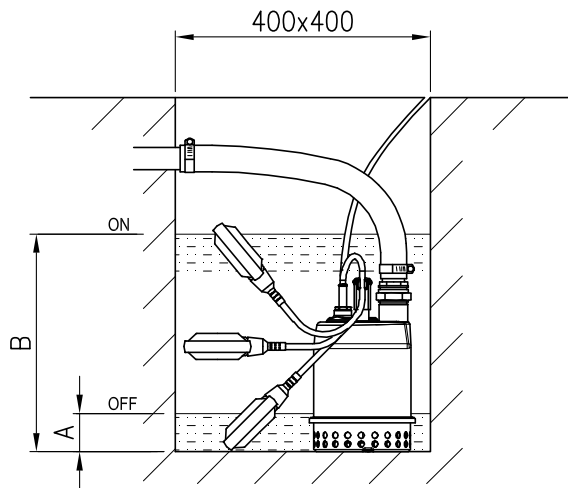
Pump Type	Dimensions [mm]			Weight [kgf]
	X	Y	Z	
BEST ONE	180	330	220	4.8
BEST ONE M				4.9
BEST ONE MA				5.1
BEST ONE MS				5.3
BEST ONE VOX				4.9
BEST ONE VOXM				5.0
BEST ONE VOXMA				5.2

MOTOR DATA

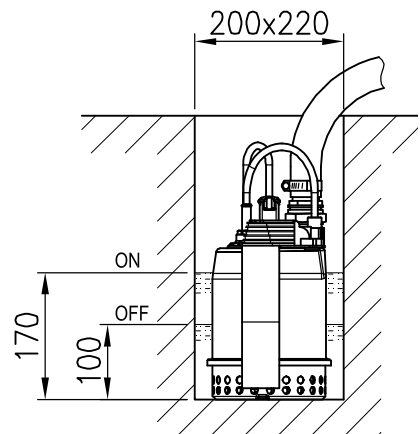
Pump Type		Power		Capacitor Single Phase		Input [kW]		Full load current [A]		Locked rotor current [A]	
Single Phase	Three Phase	[kW]	[HP]	[μF]	[Vc]	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
BEST ONE M	BEST ONE	0.25	0.33	8	450	0.51	0.47	2.3	0.8	5.8	2.7
BEST ONE VOX M	BEST ONE VOX	0.25	0.33	8	450	0.50	0.44	2.2	0.8	5.6	2.7

INSTALLATION

**BEST ONE MA
BEST ONE VOX MA
(With float switch)**

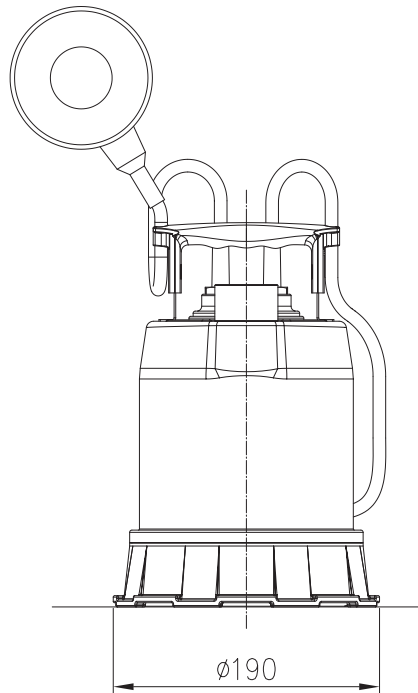


**BEST ONE MS
(With magnetic switch)**



Pump Type	A	B
BEST ONE MA	110	305
BEST ONE VOXMA		330

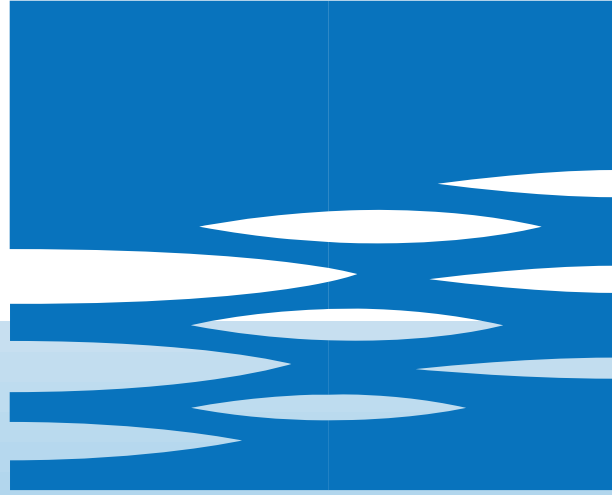
MINIMUM SUCTION SYSTEM



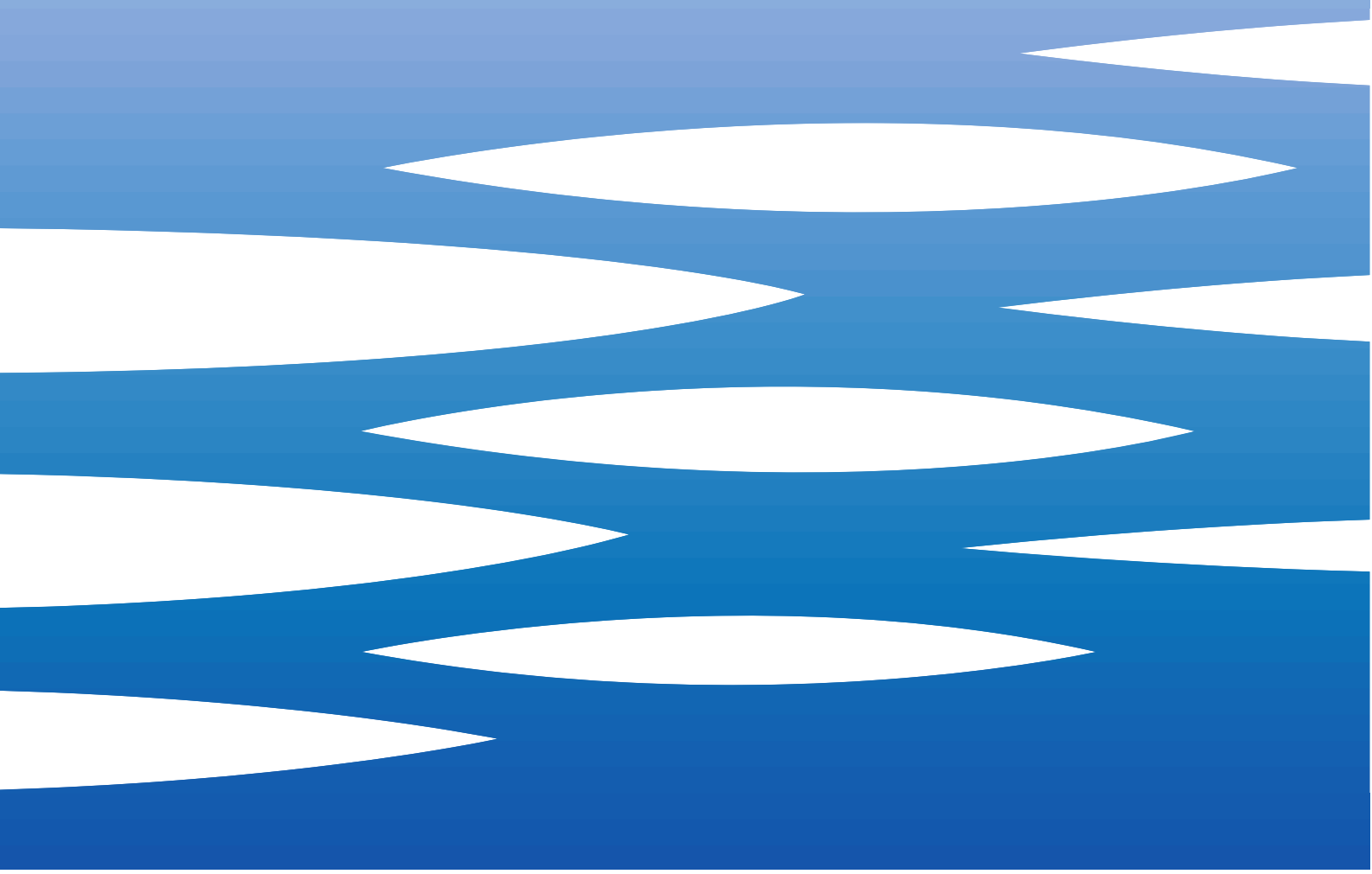
LEVEL	
Minimum starting suction level	10 mm
Minimum suction level capability	3 mm

COMPATIBILITY				
Type pumps	Version			
	1~			3~
	M	MA	MS	
BEST ONE	✓	✓	✗	✓
BEST ONE VOX	✗	✗	*	✗

* This model don't exist



EBARA



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SPECIFICATION

50Hz

Rev. I

PUMP		
Liquid Handled	Type of liquid	Clean / dirty water
	Max temperature [°C]	35
	Max solids size [mm]	10 (suspended particles)
Maximum immersion	[m]	7
Construction	Impeller	Open centrifugal type
	Shaft seal type	Double mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction-Flange	Strainer
	Discharge-Flange [inch]	G 1½ UNI ISO 228
Material	Casing	AISI 304
	Impeller	AISI 304
	Casing cover	AISI 304
	Shaft seal	Pump side : SiC/SiC/NBR Motor side : Carbon/Ceramic/NBR
	Seal cover	AISI 304
	Shaft	AISI 303 (wet extension)
	Lubricating liquid	White mineral oil ESSO MARCOL 172 (180 cc)
Applicable standard of test	ISO 9906:2012 – Grade 3B	

MOTOR		
Type	Submersible dry type	
	Single Phase	Three Phase
No. of Poles	2	
Rotation speed [min ⁻¹]	≈2800	
Insulation Class	F	
Protection degree	IP 68	
Power rating	[kW]	0.55 ÷ 1.1
	[HP]	0.75 ÷ 1.5
Frequency [Hz]	50	
Voltage [V]	230 ±10%	400 ±10%
Capacitor	Built in	-
Over load protection	Built in	-
Float Switch	Optional	-
Float Switch material	H07RN-F	-
Cable size	3G1	-
Casing material	AISI 304	
Base material/motor support	AISI 304	
Power cable	length [m]	10
	material	H07RN-F
	size	3G1 (Best 2) 3G1.5 (Best 3, 4)
Dimensions of cable entry	Cable Gland	

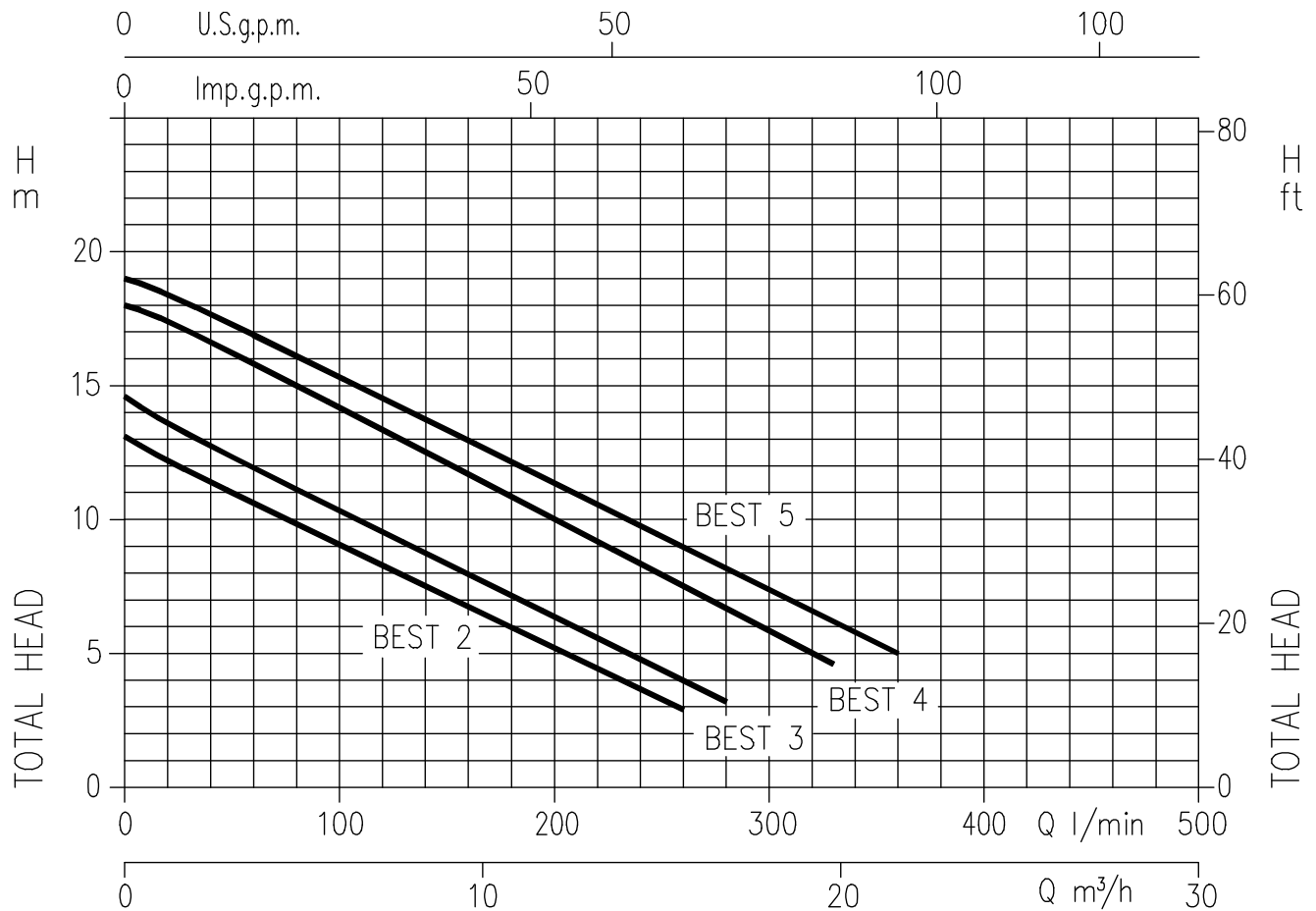
200

SELECTION CHART

50Hz

Rev. I

PERFORMANCE RANGE

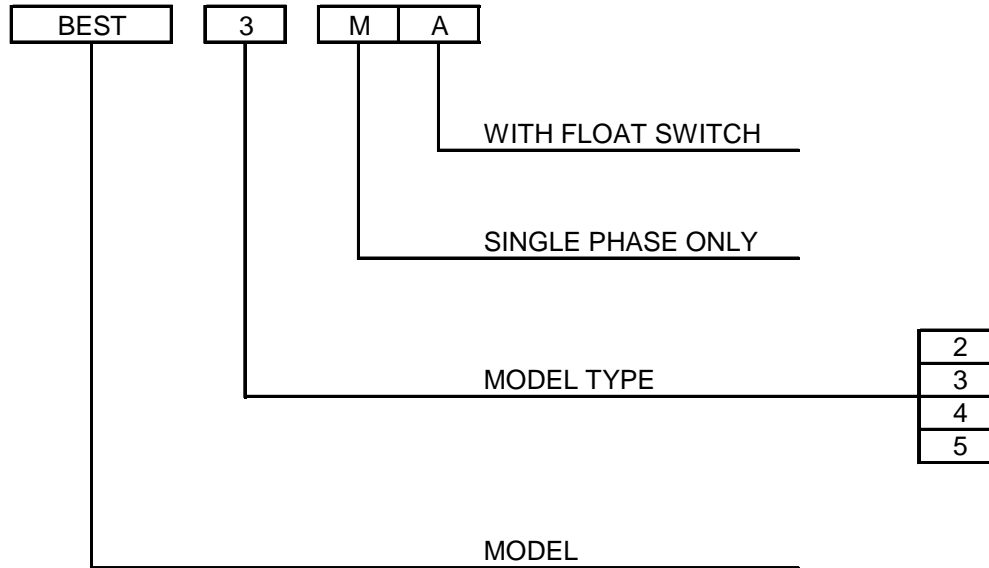


SELECTION CHART

Pump type	Power		Q=Capacity													
	[kW]	[HP]	l/min m³/h	0	20	40	80	120	160	170	200	260	280	300	330	360
BEST 2	0.55	0.75		13.1	12.2	11.4	9.8	8.3	6.7	6.3	5	2.9	-	-	-	-
BEST 3	0.75	1		14.6	13.6	12.7	11.1	9.5	7.9	7.6	6.4	4	3.2	-	-	-
BEST 4	1.1	1.5		18	17.4	16.6	15	13.4	11.7	11.3	10	7.5	6.7	5.9	4.6	-
BEST 5	1.5	2		19	18.4	17.7	16.1	14.5	12.8	12.5	11.4	9	8	7.4	6	5

H=Total manometric head in meters

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.

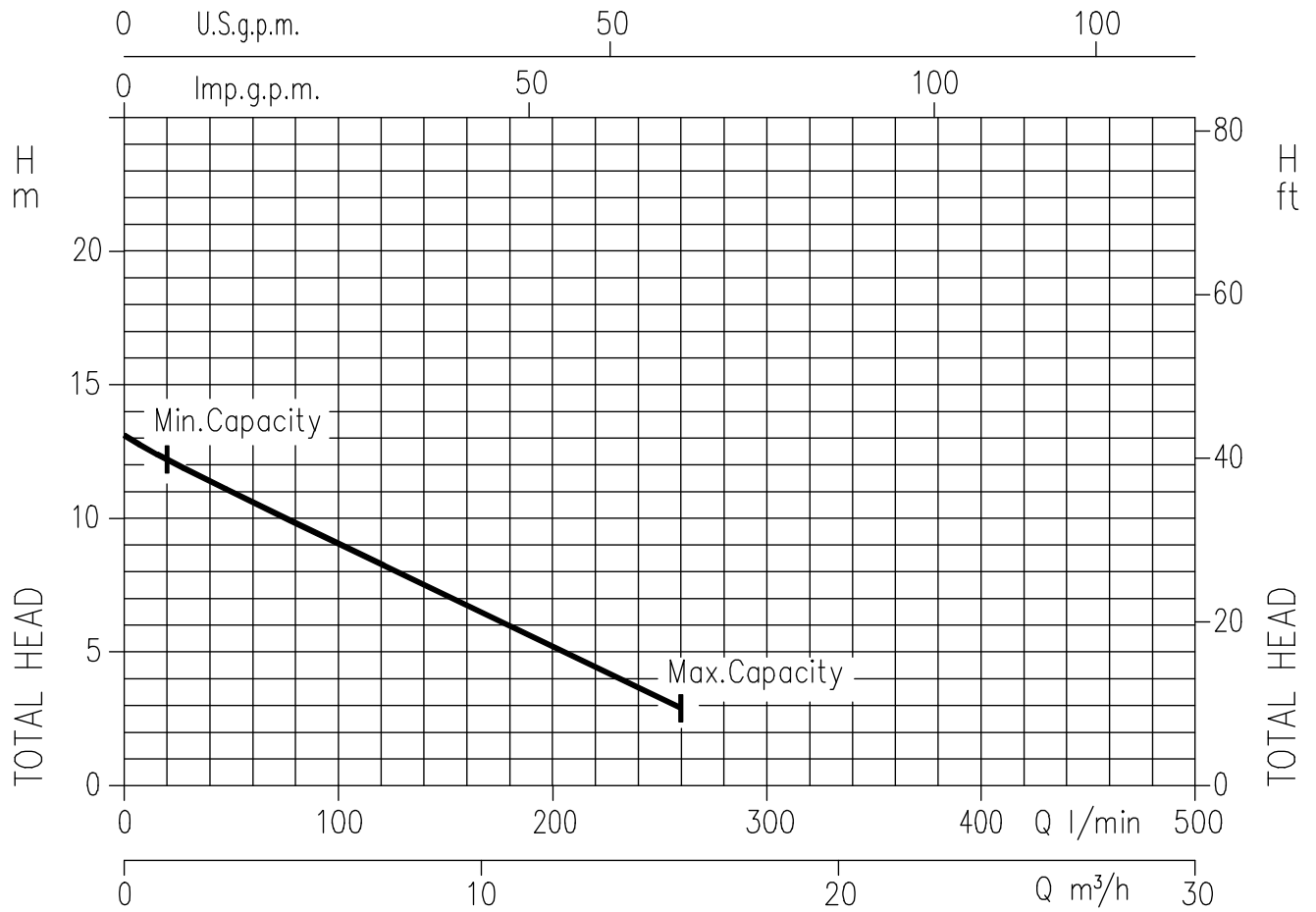
Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt)

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:

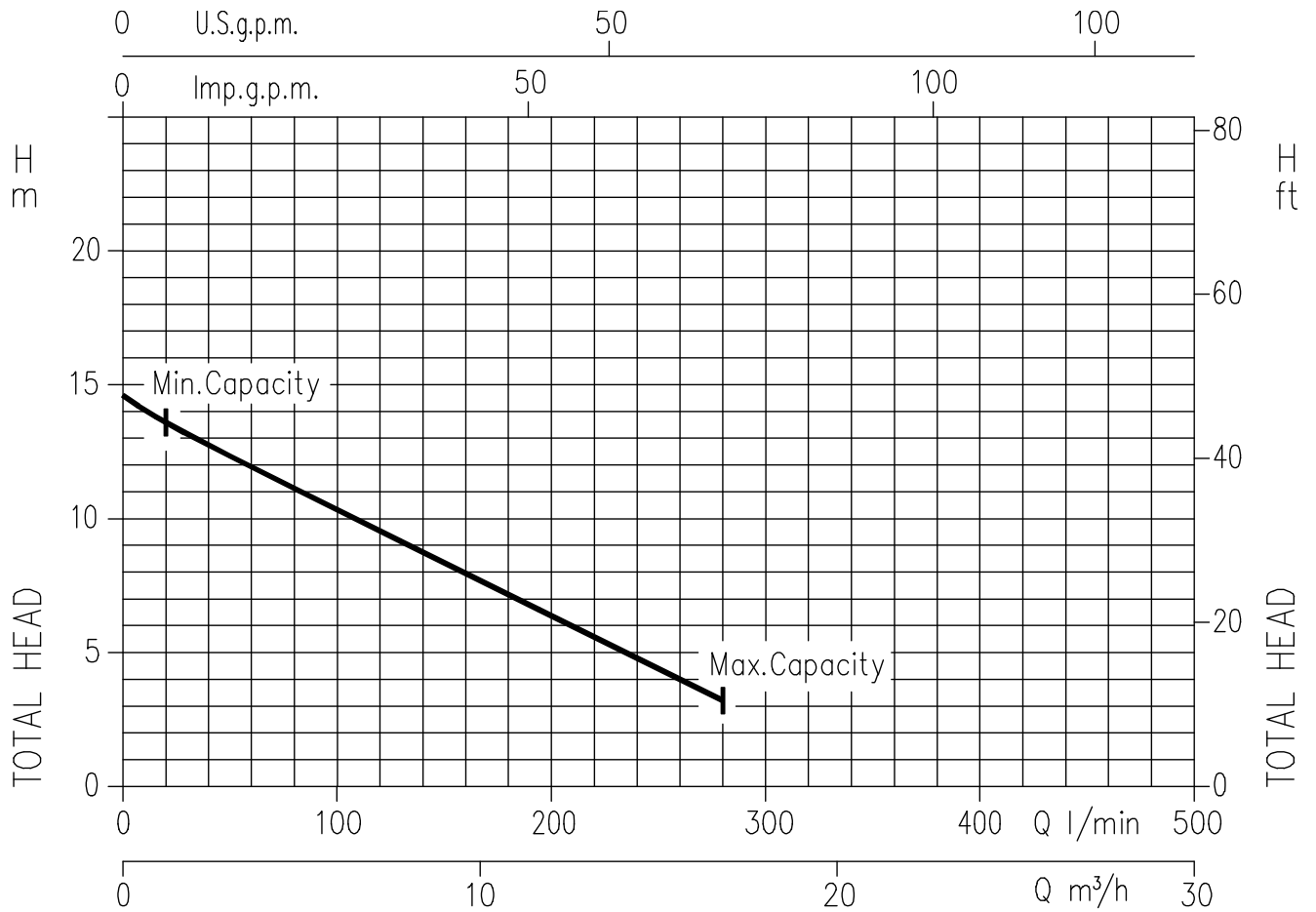
- Q = volume flow rate
- H = total head

BEST 2 (0.55 kW) – impeller diameter = 112 mm



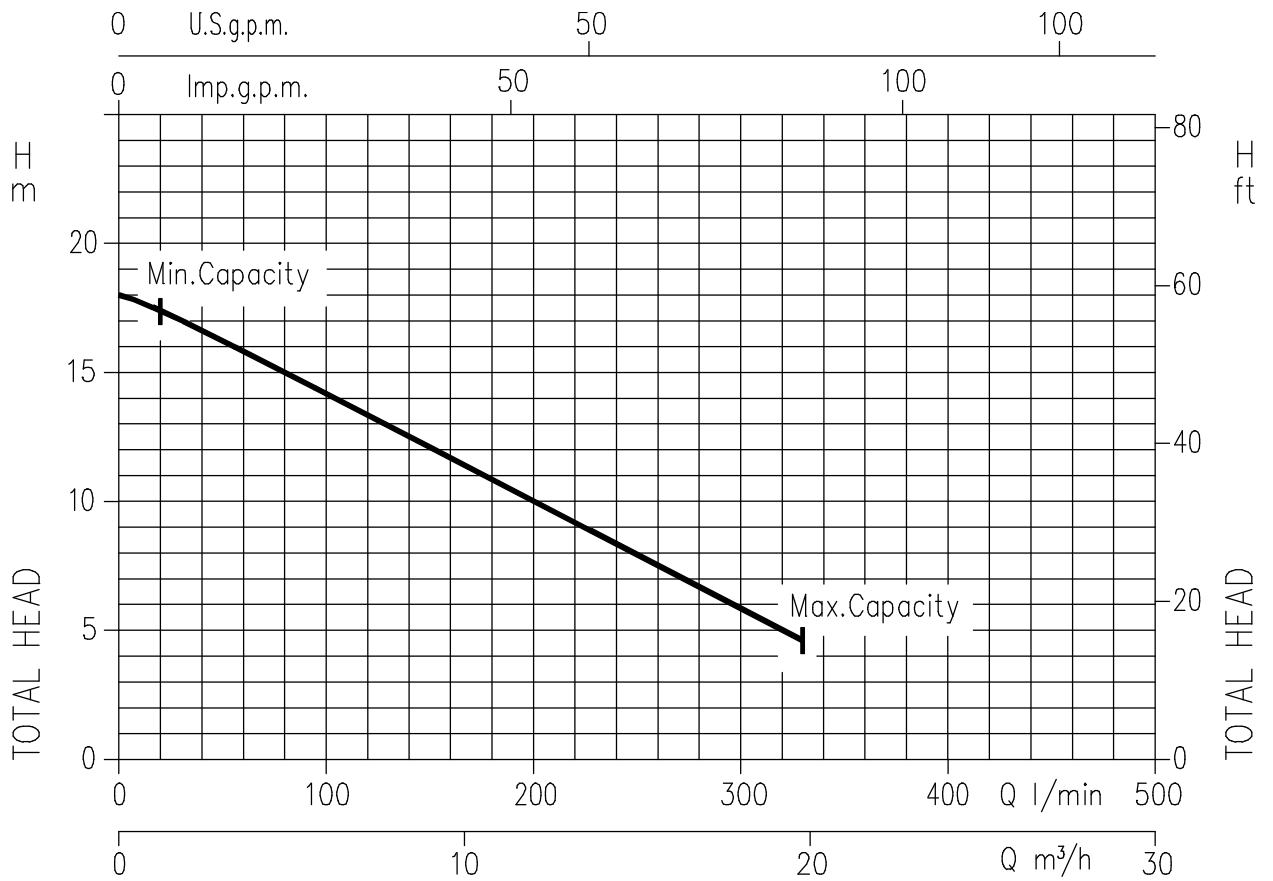
Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

BEST 3 (0.75 kW) – impeller diameter = 120 mm



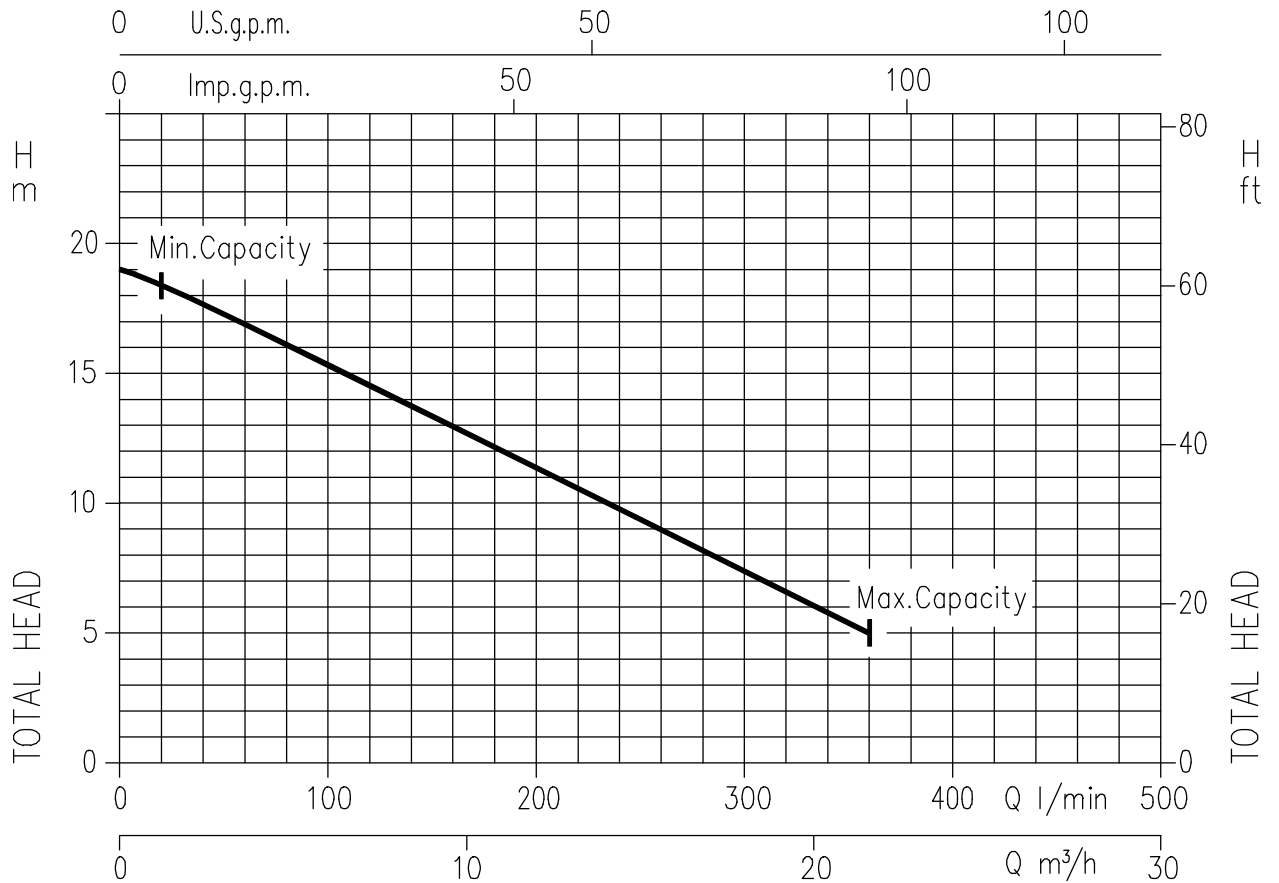
Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

BEST 4 (1.1 kW) – impeller diameter = 125 mm



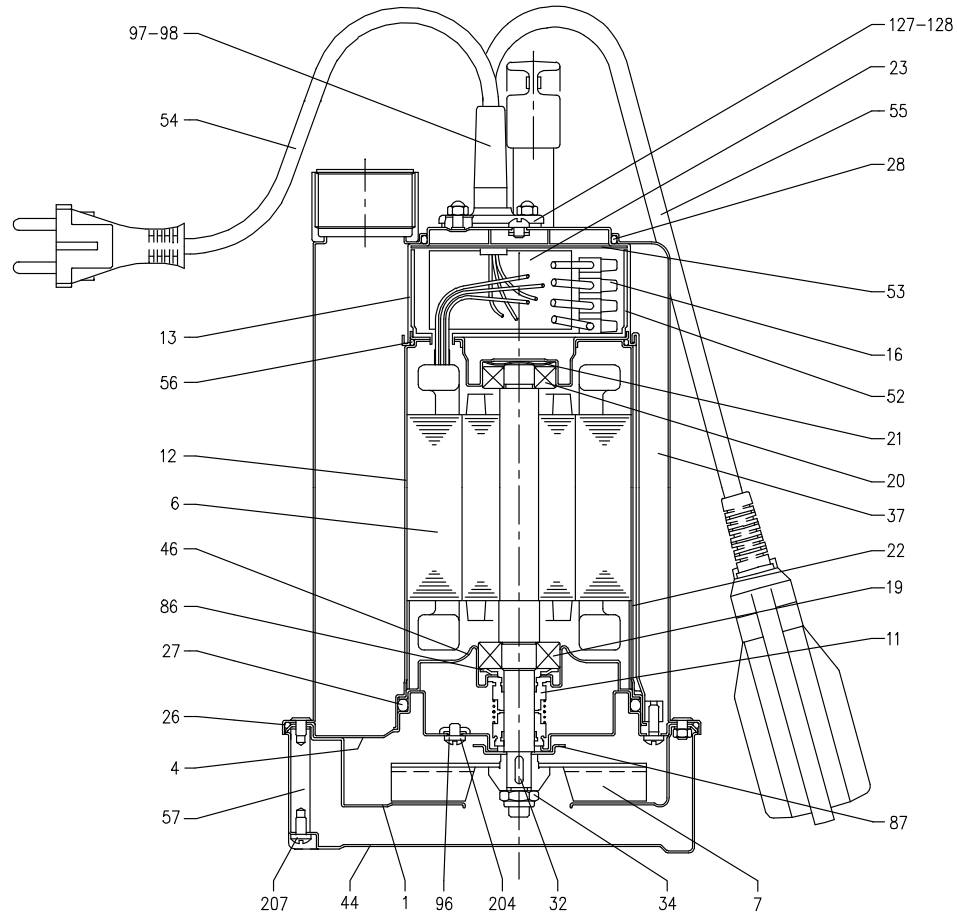
Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

BEST 5 (1.5 kW) – impeller diameter = 125 mm



Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

SECTIONAL VIEW



N°	PART NAME	MATERIAL	Q.TY
1	Volute	AISI 304	1
4	Motor bracket	AISI 304	1
6	Shaft w ith rotor	AISI 303	1
7	Impeller	AISI 304	1
11	Mechanical seal [4]	NBR	2
12	Motor frame w ith stator	-	1
13	Motor cover	AISI 304	1
16	Terminal	-	1
19	Pump side ball bearing	-	1
20	Fan side ball bearing	-	1
21	Adjusting ring	Steel C70	1
22	Tie rod	AISI 304	3
23	Capacitor [2]	-	1
26	"O" Ring	NBR	1
27	"O" Ring	NBR	1
28	"O" Ring	NBR	1
32	Key	AISI 304	1
34	Impeller nut	AISI 304	1

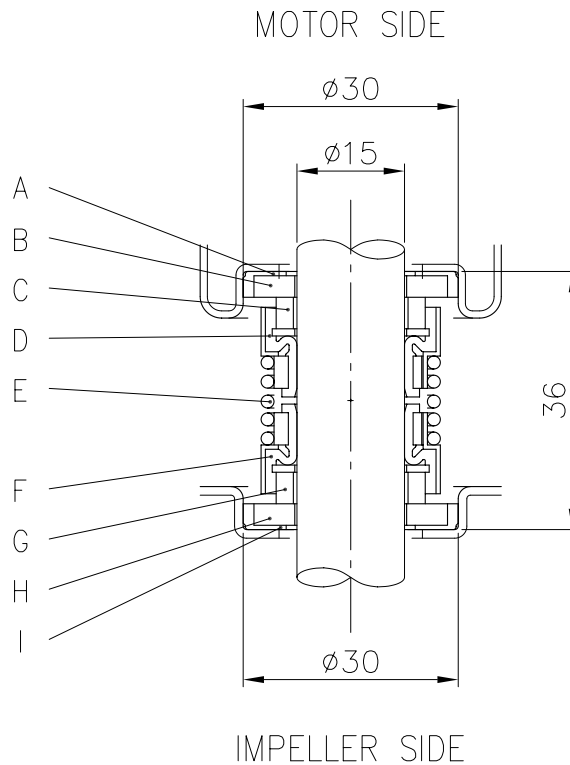
N°	PART NAME	MATERIAL	Q.TY
37	Pump casing	AISI 304	1
44	Strainer	AISI 304	1
46	Bearing housing	AISI 304	1
52	Terminal insulating box	PA66 glass fibre reinforced class V-0	1
53	Terminal insulating cover	PA66 class V-0	1
54	Power cable	-	1
55	Float switch [1]	-	1
56	"O" Ring	NBR	1
57	Bolt	AISI 303	3
86	Washer	AISI 304	1
87	Impeller ring	AISI 304	1
96	"O" Ring	NBR	3
97	Cable connector [1]	NBR	1
98	Cable connector	NBR	1
127	Cable connector [1]	AISI 304	1
128	Cable connector	AISI 304	1
204	Screw	Stainless steel A2 UNI 7323	3
207	Screw	Stainless steel A2 UNI 7323	3

[1] Only for version single phase with float switch
 [2] Only for version single phase
 [3] See Mechanical Seal dimensions at page 301

BEARINGS

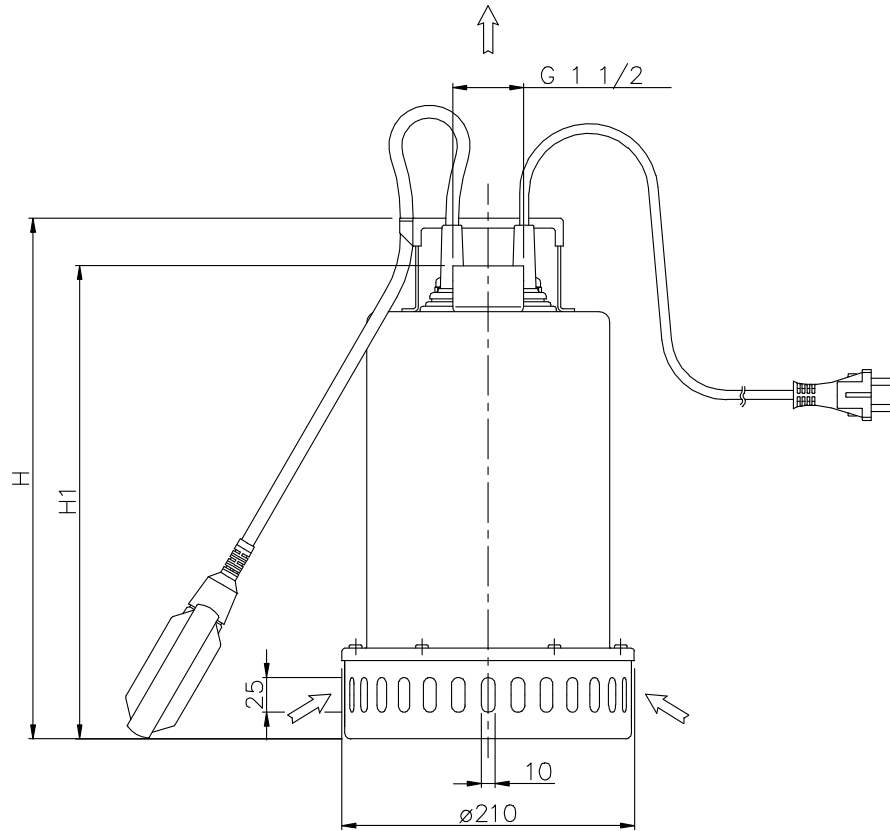
Type pumps		Ball Bearing	
Single Phase	Three Phase	Pump side	Fan side
BEST 2M	BEST 2	6203 ZZ	6202 ZZ
BEST 3M	BEST 3	6203 ZZ	6202 ZZ
BEST 4M	BEST 4	6203 ZZ	6202 ZZ
-	BEST 5	6203 ZZ	6202 ZZ

MECHANICAL SEAL



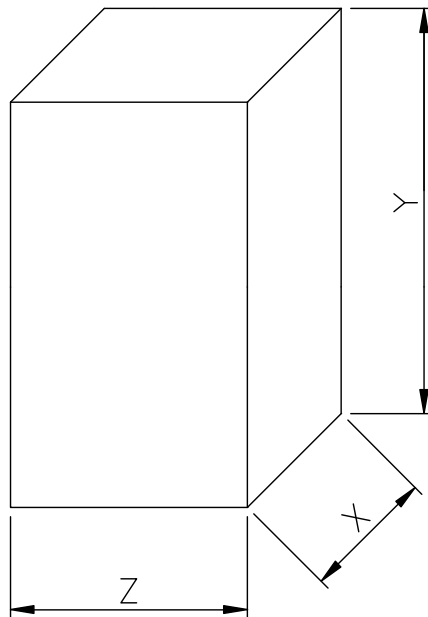
REF	PART NAME	MATERIAL
A	Rubber cup	NBR
B	Seat	Ceramic
C	Seal face	Carbon
D	Bellow	NBR
E	Spring	AISI 304
F	Bellow	NBR
G	Seal face	Silicon carbide
H	Seat	Silicon carbide
I	Rubber cup	NBR

PUMP



Pump type	Dimensions [mm]	
	H	H1
BEST 2	352	315
BEST 3	352	315
BEST 4	377	340
BEST 5	377	340

PACKING



Type pumps		Packing [mm]			Weight pump w ith paking [kg]	Weight pump w ithout paking [kg]
Single Phase	Three Phase	X	Y	Z		
BEST 2M	BEST 2	240	375	250	12,5	12
BEST 3M	BEST 3	240	375	250	13,2	12,7
BEST 4M	BEST 4	240	400	250	14,3	13,8
-	BEST 5	240	400	250	14	13,5

MOTOR DATA

Type pumps		Power		Capacitor Single Phase		Input [kW]		Full load current [A]		Locked rotor current [A]	
Single Phase	Three Phase	[kW]	[HP]	(F)	[Vc]	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
BEST 2M	BEST 2	0,55	0,75	16	450	0,9	1,0	4,4	2,0	16	10
BEST 3M	BEST 3	0,75	1	20	450	1,3	1,2	5,6	2,4	20	12,5
BEST 4M	BEST 4	1,1	1,5	30	450	1,7	1,6	7,3	3,0	25	16,5
-	BEST 5	1,5	2	-	-	-	1,7	-	3,3	-	16,5

INSTALLATION

