



Japanese Technology since 1912


## AGA-AGC

Data Book 50Hz



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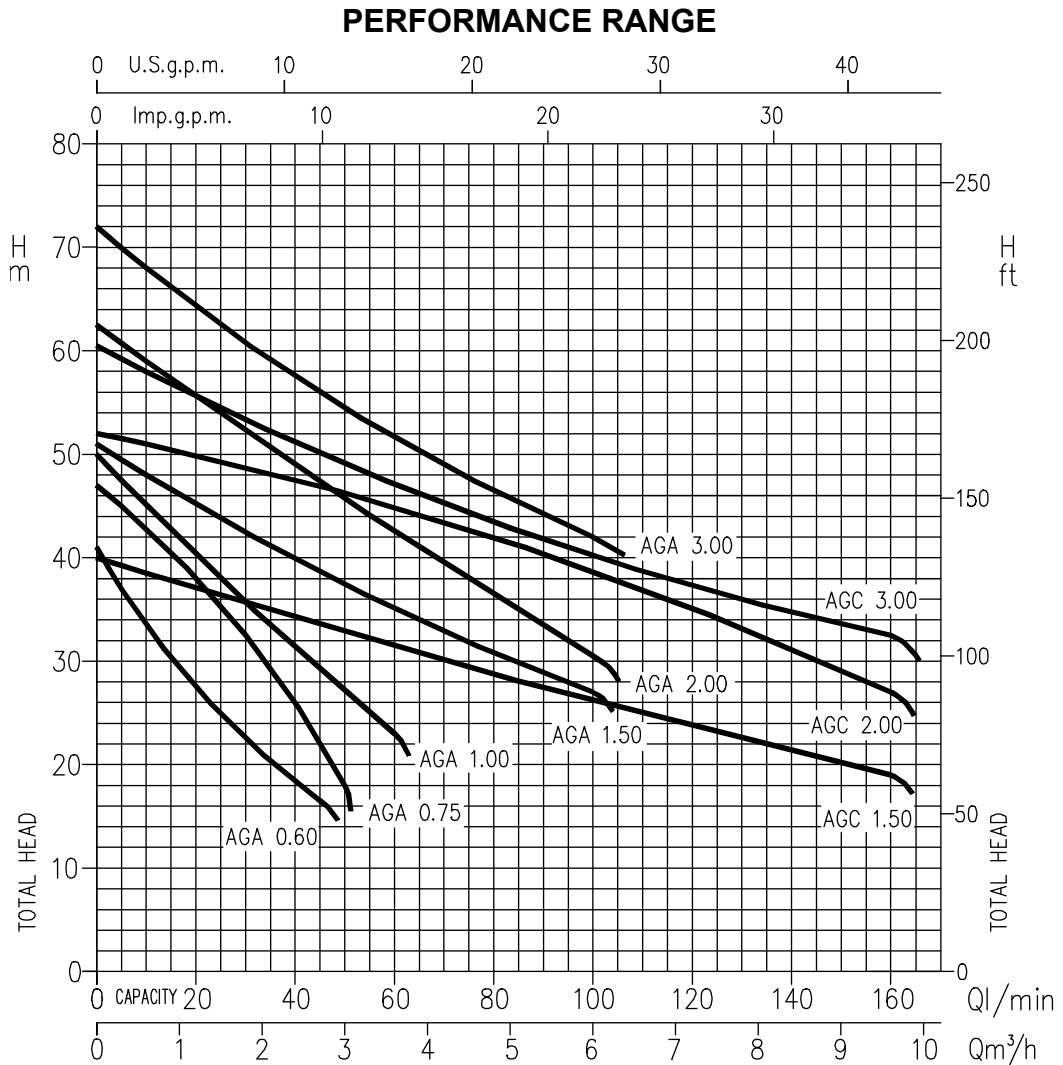
## SPECIFICATION

50Hz

Rev.O

PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. +5 max. +45
Maximum working pressure	[MPa]	0.6 (AGA 0.60-0.75-1.00) 1.0 (AGA 1.50-2.00-3.00; all AGC)
Maximum suction depth	[m]	8
Construction	Impeller	Closed centrifugal type
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction	G 1 (AGA 0.60-0.75-1.00) UNI ISO 228
		G 1½ (AGA 1.50-2.00-3.00; all AGC) UNI ISO 228
	Discharge	G 1 UNI ISO 228
Material	Casing	Cast iron
	Impeller	PPE+PS glass fibre reinforced (AGA 0.60-0.75-1.00)
		Brass (AGA 1.50-2.00-3.00; all AGC)
	Shaft seal	Ceramic/Carbon/NBR
	Casing cover	AISI 304 (AGA 0.60-0.75-1.00)
		Cast iron built-in on the motor bracket (AGA 1.50-2.00-3.00; all AGC)
	Shaft	AISI 303 (wet extension)
	Bracket	Aluminium (AGA 0.60-0.75-1.00)
Cast iron (AGA 1.50-2.00-3.00; all AGC)		
Ejector	PPE+PS glass fibre reinforced	
Diffuser	PPE+PS glass fibre reinforced	
Applicable standard of test		ISO 9906:2012 – Grade 3B

MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 1781/2019)	IE2	IE3
No. of Poles	2	
Rotation speed [min <sup>-1</sup> ]	≈ 2800	
Insulation Class	F	
Protection degree (CEI EN 60034-5)	IP 44	
Power rating	[kW]	0.44÷1.5
	[HP]	0.6÷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 / Motor support	Plastic foot /Cast iron	
Dimensions of cable entry	PG11 - PG13.5 – M16x1.5 – M20x1.5 (see dimensions page 400)	



**SELECTION CHART**

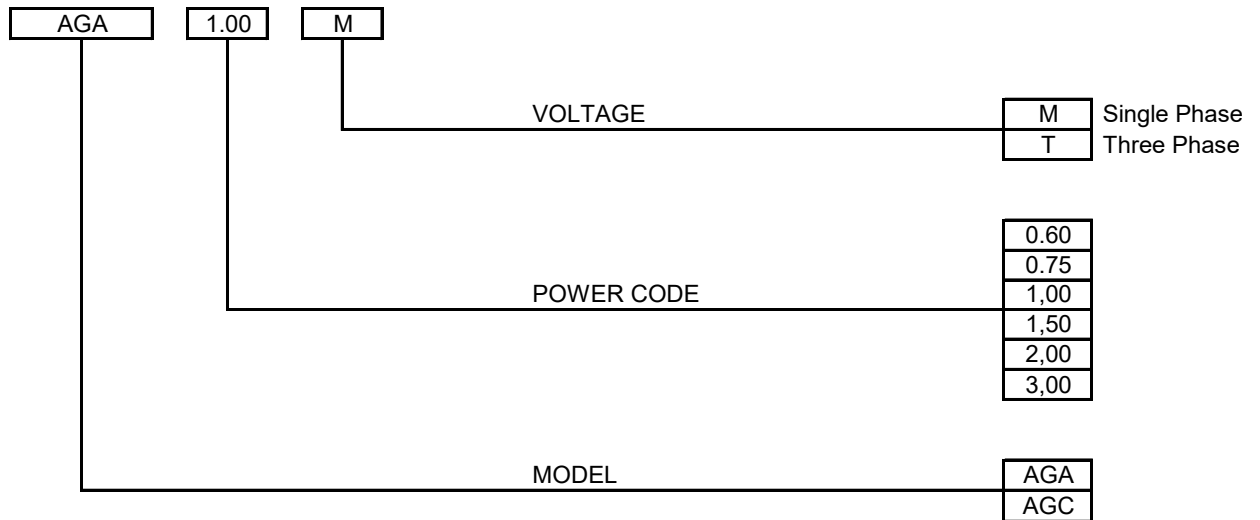
Type pumps		Q=Capacity												
		l/min m³/h	0	5	10	20	30	45	50	60	80	100	130	160
Single Phase	Three Phase		0	0,3	0,6	1,2	1,8	2,7	3,0	3,6	4,8	6	7,8	9,6
		H=Total manometric head in meters												
AGA 0.60 M	AGA 0.60 T	41.5	37	33.4	27.1	22	16.5	-	-	-	-	-	-	-
AGA 0.75 M	AGA 0.75 T	47	45	42.8	37.9	32	21.9	18	-	-	-	-	-	-
AGA 1.00 M	AGA 1.00 T	50	47,5	45	40.3	35.7	29.1	27	23	-	-	-	-	-
AGA 1.50 M	AGA 1.50 T	51	-	48	45.1	42.4	38.6	37.4	35.1	30.8	27	-	-	-
AGA 2.00 M	AGA 2.00 T	62.5	-	59	55.6	52.2	47.3	45.7	42.5	36.4	30.5	-	-	-
-	AGA 3.00 T	72	-	68	64.3	60.8	55.9	54.4	51.6	46.4	42	-	-	-
AGC 1.50 M	AGC 1.50 T	40	-	38.5	37	35.6	33.5	32.7	31.4	28.7	26.1	22.4	19	-
AGC 2.00 M	AGC 2.00 T	52	-	51	49.9	48.8	46.9	46.3	44.9	42	38.7	33.2	27	-

**TYPE KEY and CURVE SPECIFICATIONS**

50Hz

Rev.O

**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.

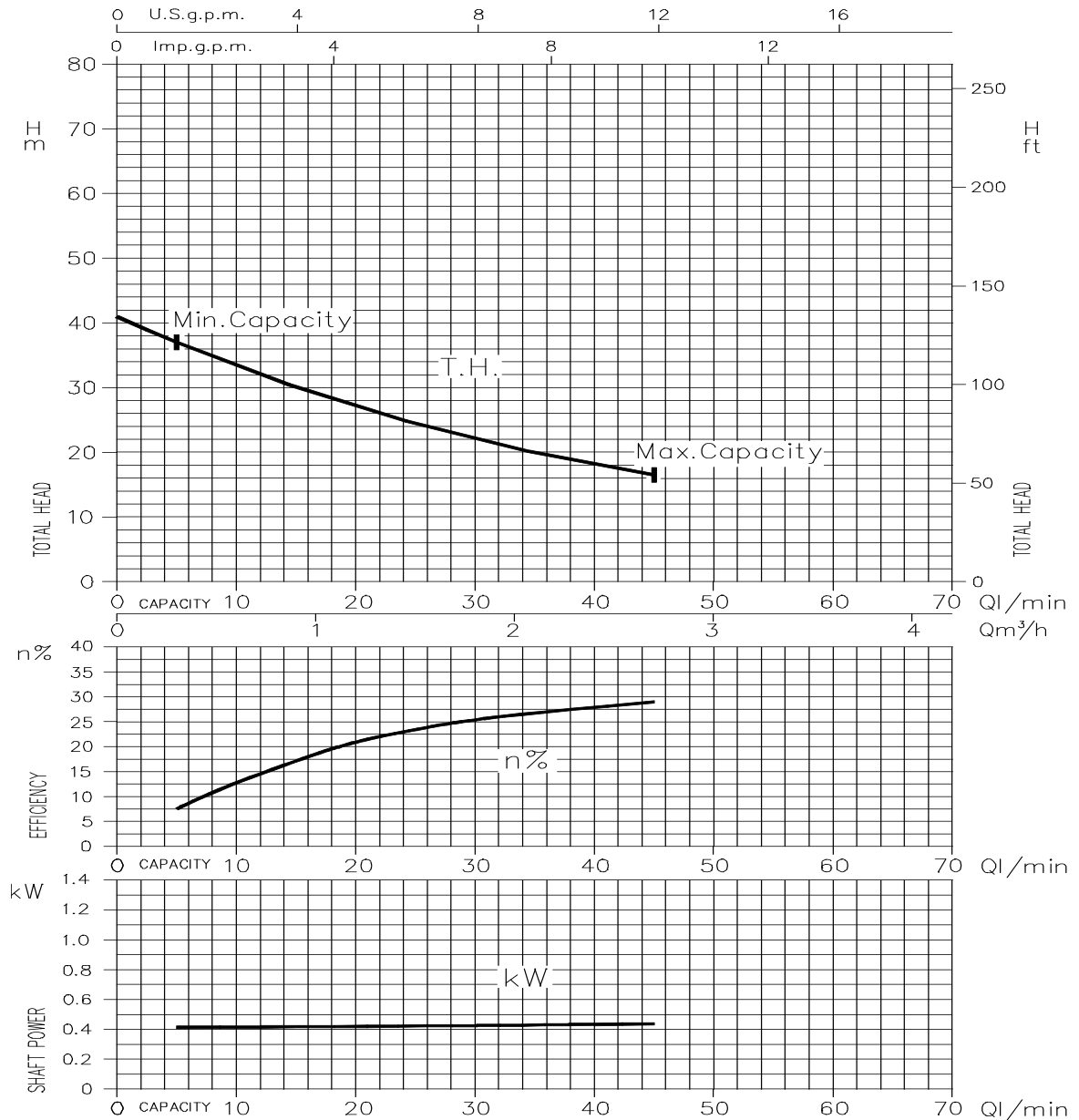
Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of  $\nu = 1 \text{ mm}^2/\text{s}$  (1 cSt)

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:

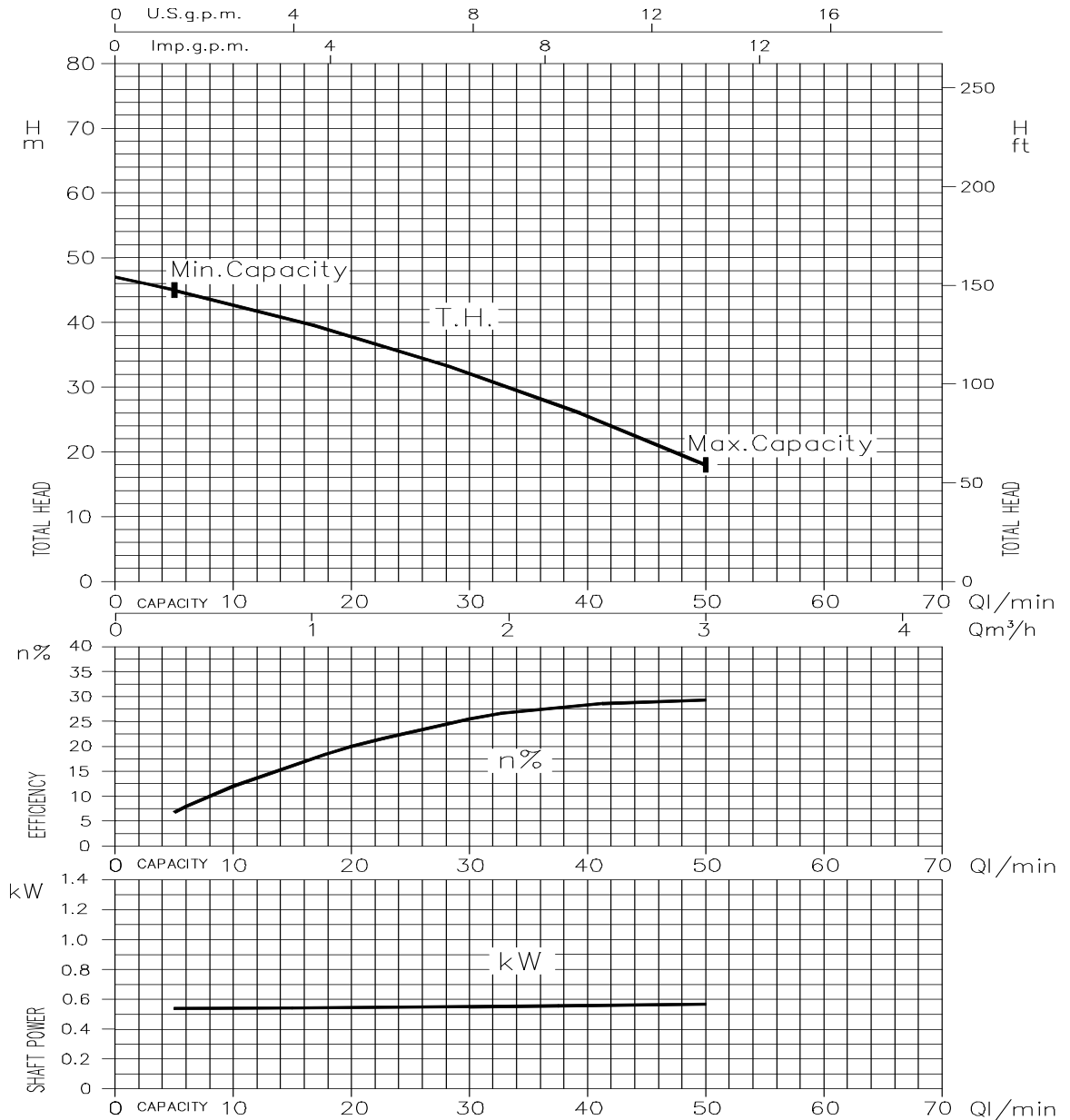
- Q = volume flow rate
- H = total head
- $P_2$  = pump power input (shaft power)
- $\eta$  = pump efficiency

AGA 0.60 - Impeller diameter = 130 mm



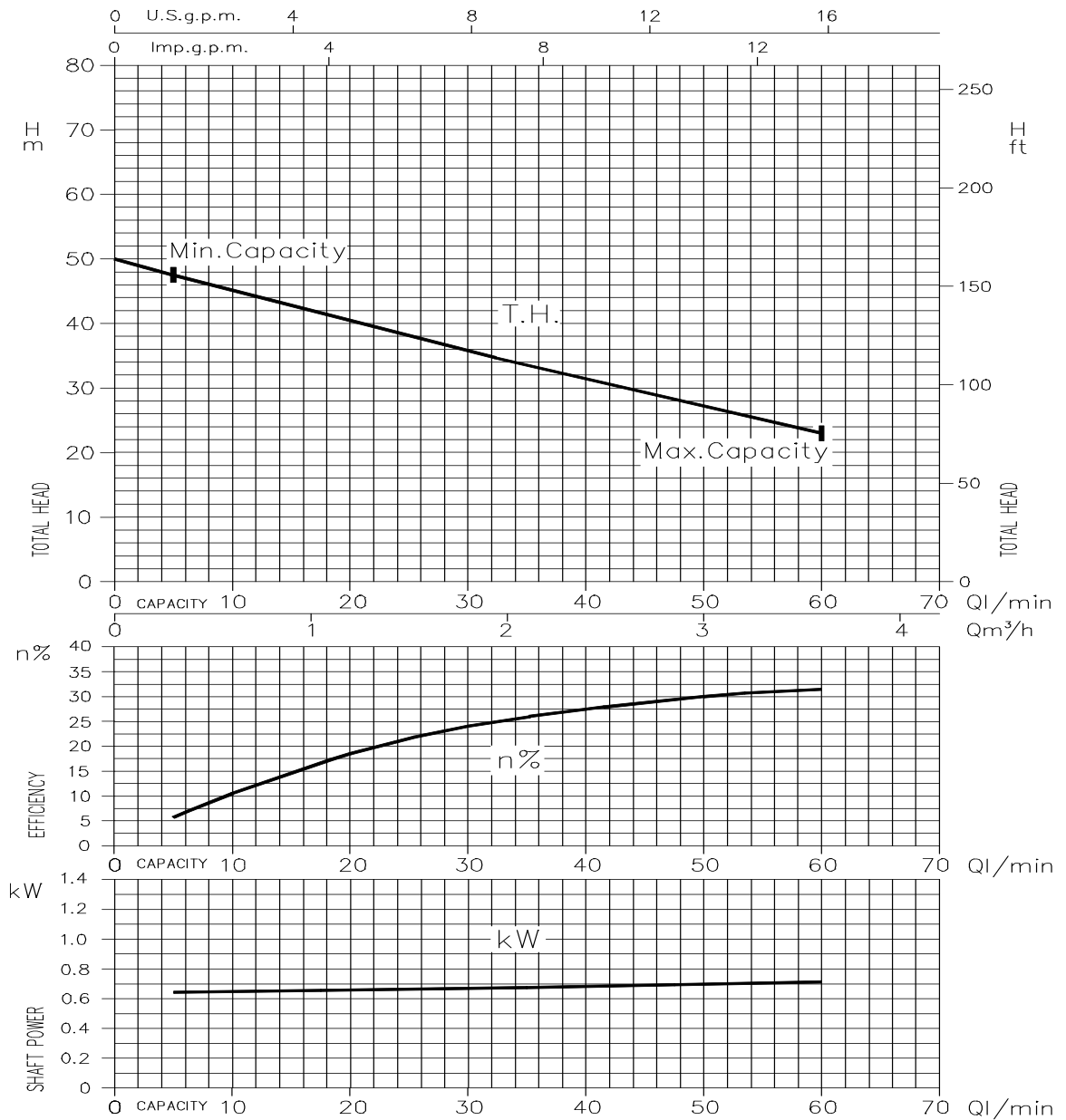
Rotation speed  $\approx 2800 \text{ min}^{-1}$   
 Test standard: ISO 9906:2012 – Grade 3B

AGA 0.75 - Impeller diameter = 130 mm



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

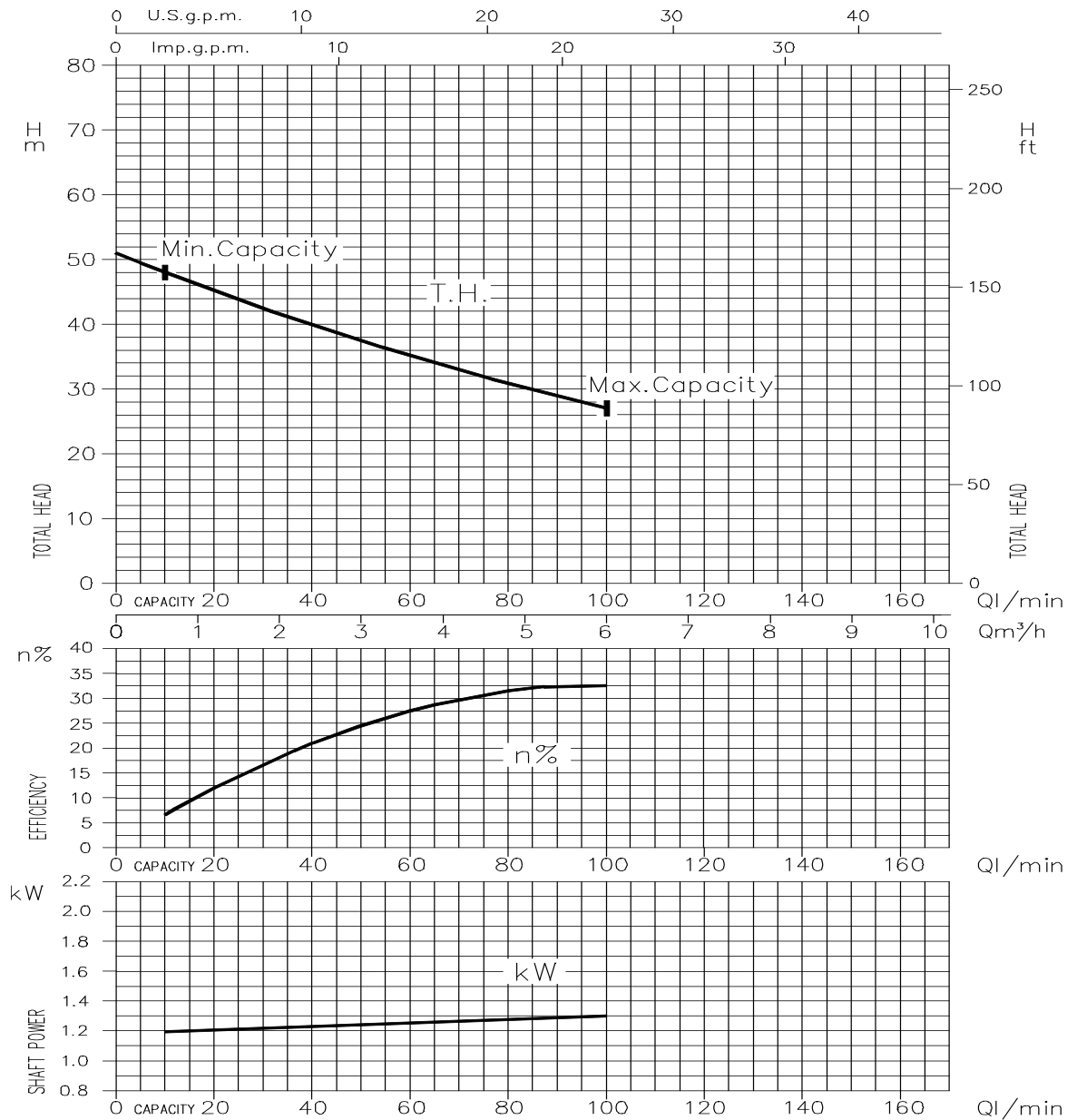
AGA 1.00 - Impeller diameter = 130 mm



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

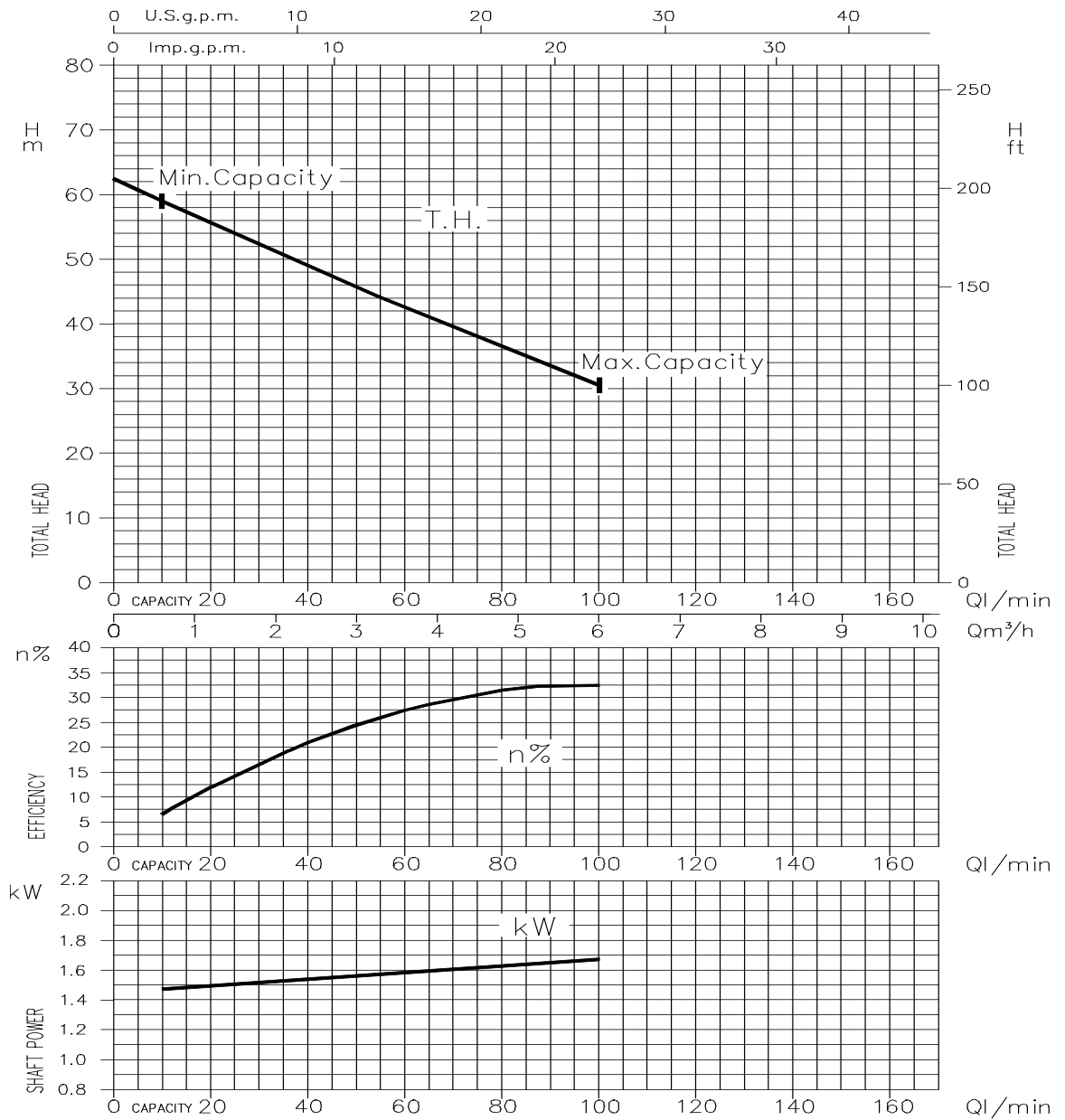


AGA 1.50 - Impeller diameter = 143 mm



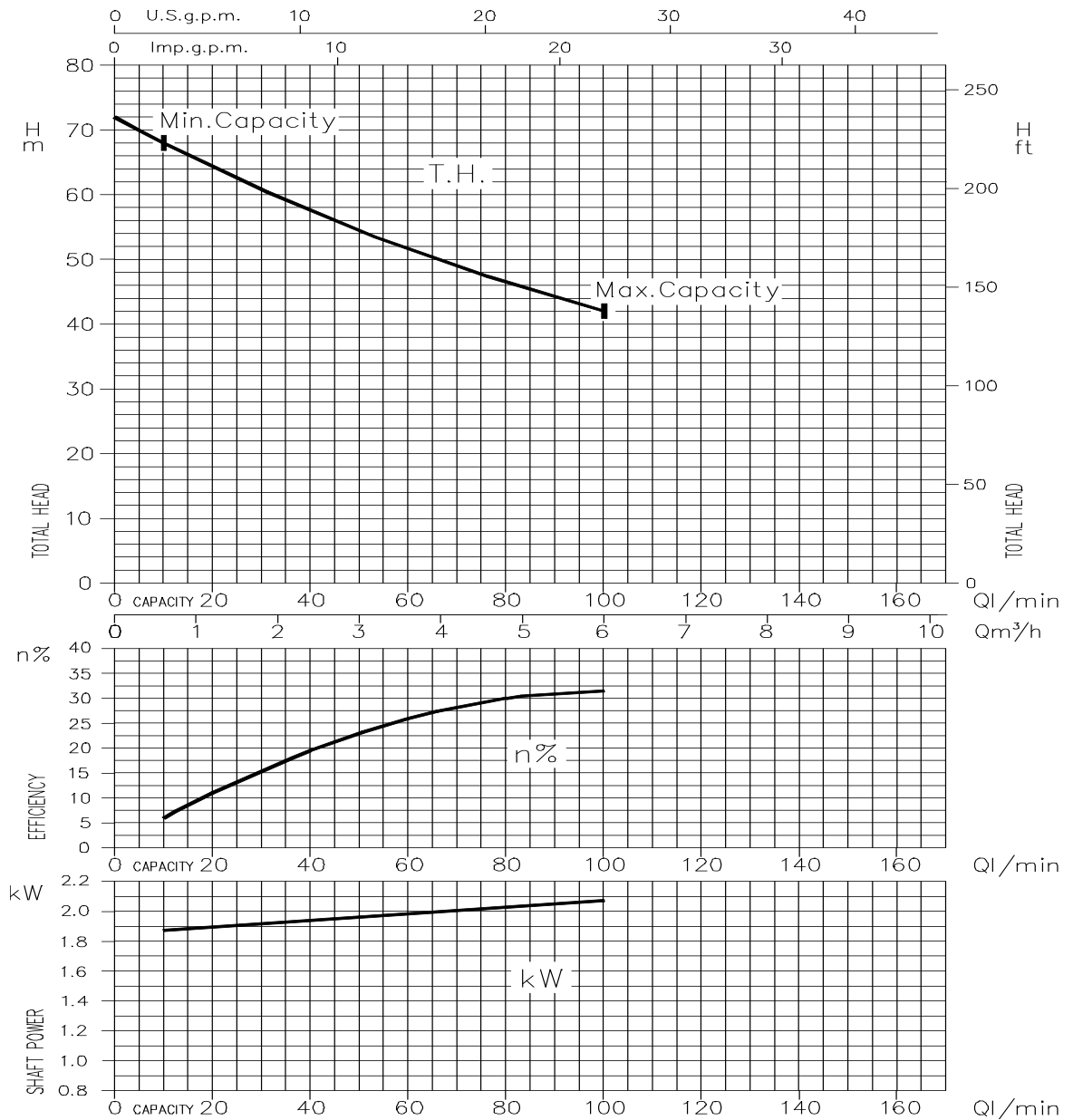
Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906:2012 – Grade 3B

AGA 2.00 - Impeller diameter = 157 mm



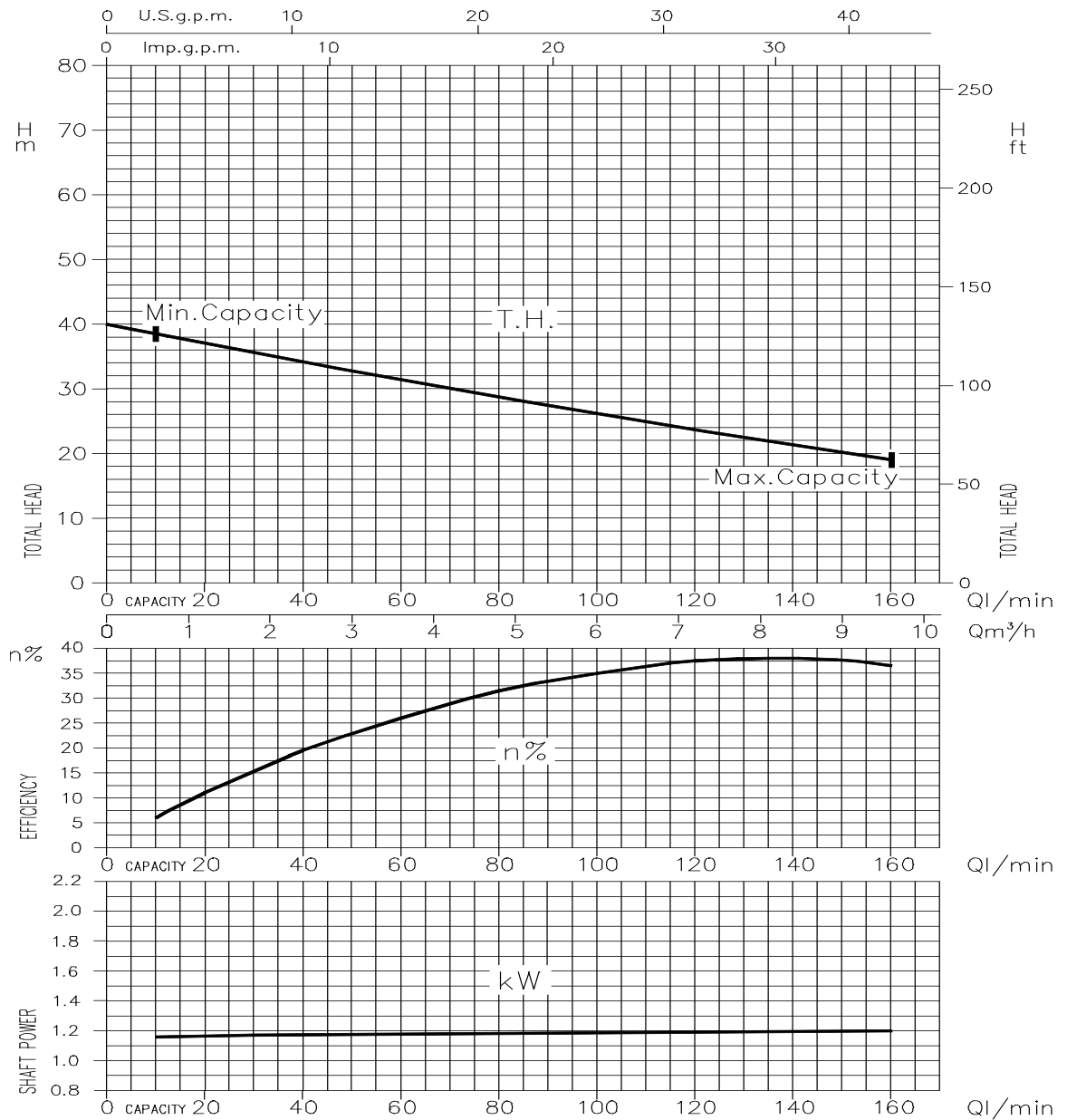
Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906:2012 – Grade 3B

AGA 3.00 - Impeller diameter = 164 mm



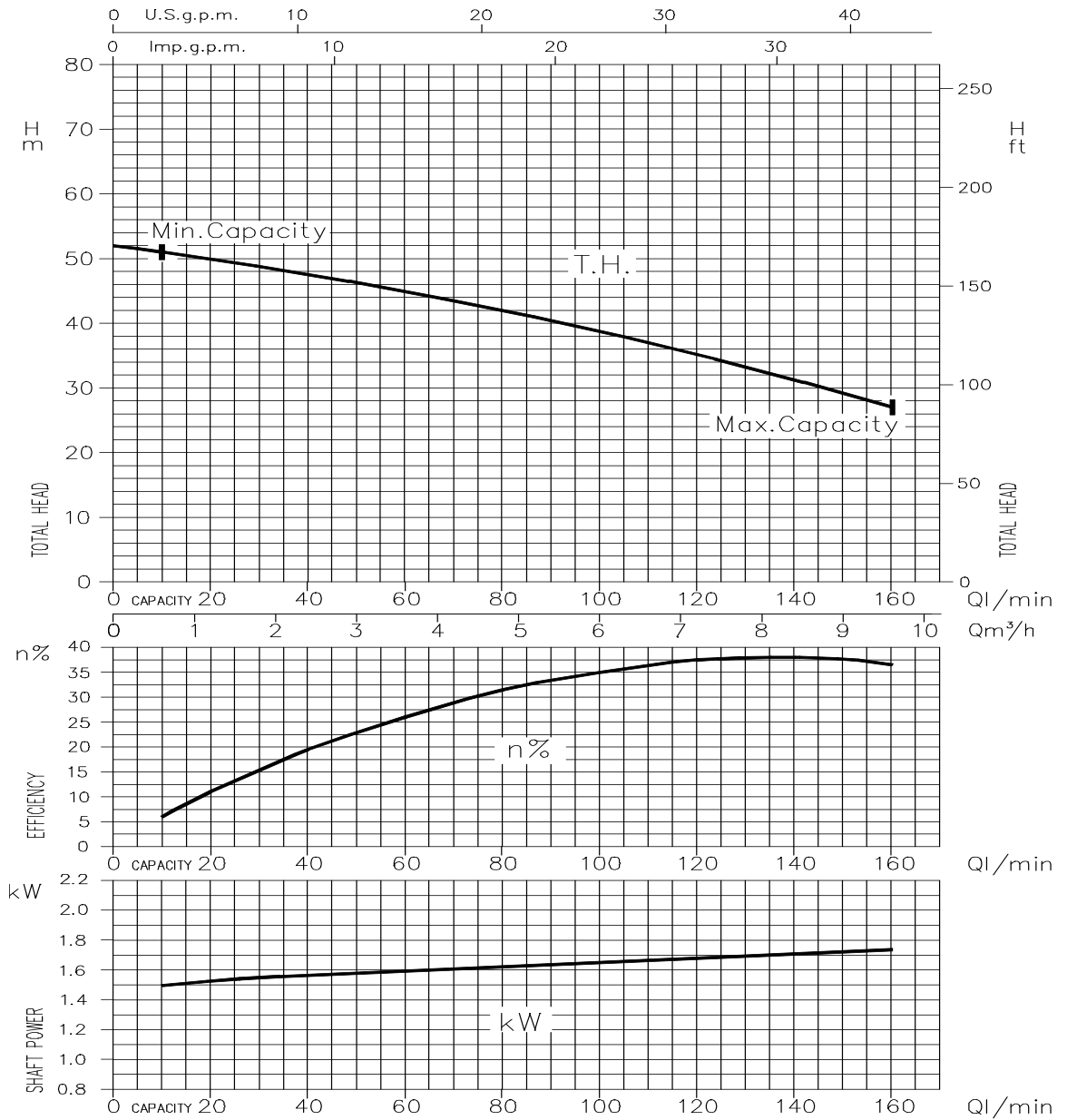
Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906:2012 – Grade 3B

AGC 1.50 - Impeller diameter = 143 mm



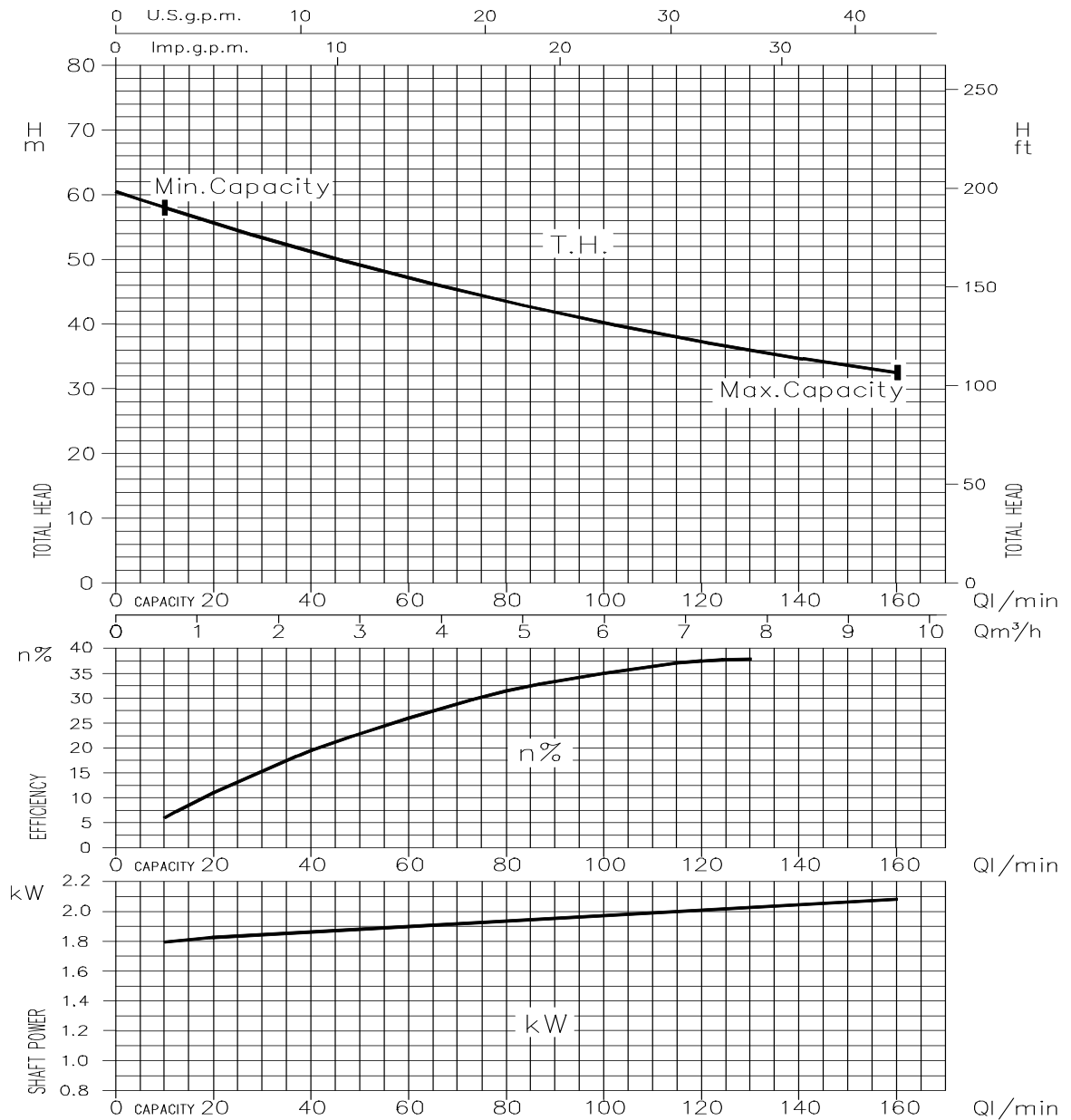
Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906:2012 – Grade 3B

AGC 2.00 - Impeller diameter = 157 mm



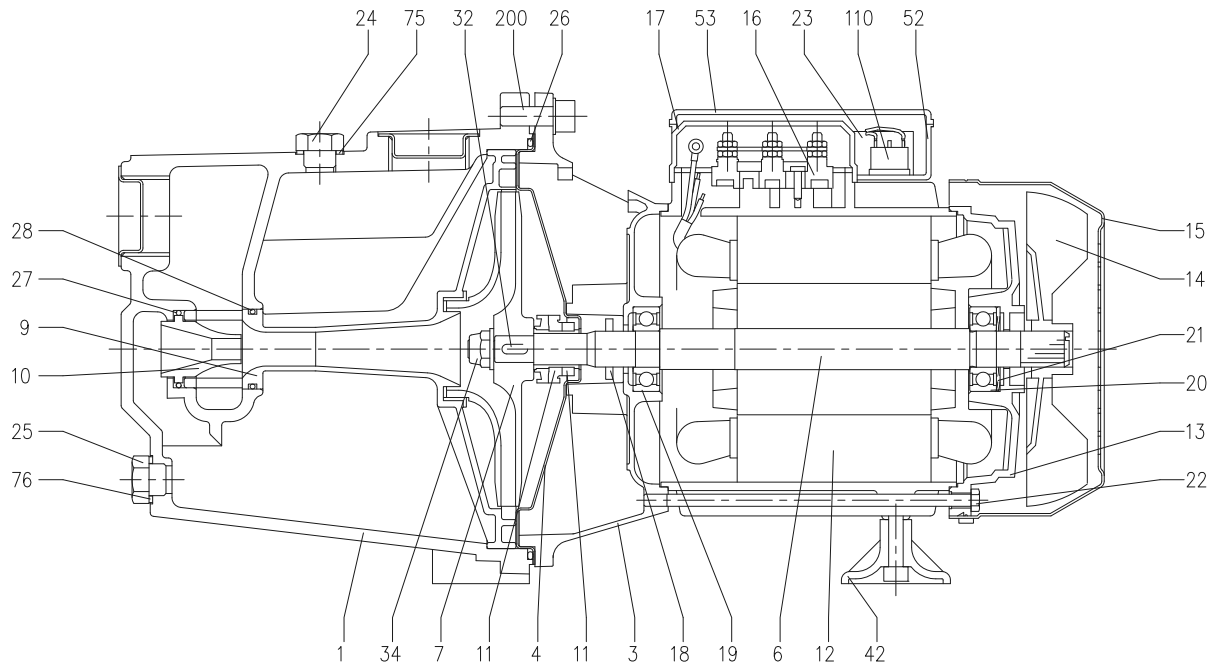
Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906:2012 – Grade 3B

AGC 3.00 - Impeller diameter = 164 mm



Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906:2012 – Grade 3B

SECTIONAL VIEW



N°	PART NAME	MATERIAL	Q.TY
1	Casing	Cast iron	1
3	Motor bracket [1]	-	1
4	Casing cover [2]	AISI 304	1
6	Shaft with rotor	AISI 303 (wet extension)	1
7	Impeller [3]		1
9	Diffuser + Venturi tube	PPE+PS glass fibre reinforced	1
10	Venturi nozzle	PPE+PS glass fibre reinforced	1
11	Mechanical seal [4]	Carbon/Ceramic/NBR	1
12	Motor frame with stator	-	1
13	Motor cover	Aluminium	1
14	Fan	PA	1
15	Fan cover	Fe P04 Zincate	1
16	Terminal board	-	1
17	Terminal box cover [5]	Aluminium	1
18	Splash ring	NBR	1
19	Pump side ball bearing	-	1
20	Fan side ball bearing	-	1

N°	PART NAME	MATERIAL
21	Adjusting ring	Steel C70
22	Tie rod	Fe 42 Zincate
23	Capacitor [6]	-
24	Priming plug	Brass
25	Drain plug	Brass
26	O-ring	NBR
27	O-ring	NBR
28	O-ring [4]	NBR
32	Key	AISI 316
34	Impeller nut [7]	AISI 304
42	Foot	PP
52	Capacitor box [8]	ABS class V-0
53	Capacitor box cover [9]	ABS class V-0
75	Washer	Aluminium
76	Washer	Aluminium
110	Protector [8]	-
200	Screw	Zn Steel Cl. 8.8 ISO 898-1

[1] Material: Cast iron for version AGA1.50 - AGA 2.00 - AGA 3.00 - AGC 1.50 - AGC 2.00 - AGC 3.00  
Aluminium for version AGA 0.60 - AGA 0.75 - AGA 1.00

[2] Only for version AGA 0.60 - AGA 0.75 - AGA 1.00

[3] Material: PPE+PS glass fibre reinforced for version AGA 0.60 - AGA 0.75 - AGA 1.00  
Brass for version AGA 1.50 - AGA 2.00 - AGA 3.00 - AGC 1.50 - AGC 2.00 - AGC 3.00

[4] See constructions mechanical seal page 301

[5] Only for three phase

[6] Only for single phase

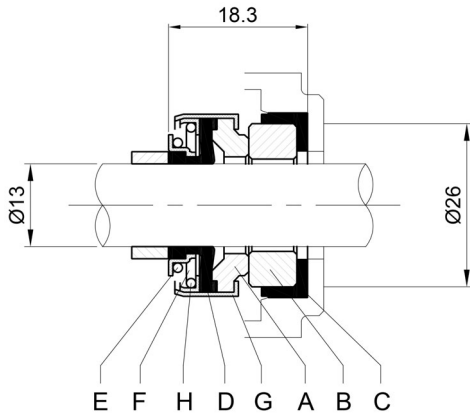
[7] Only for version with impeller in Brass

[8] Only for version single phase AGA 1.50 - AGA 2.00 - AGC 1.50 - AGC 2.00

[9] With gasket in NBR only for version single phase AGA 0.60 - AGA 0.75 - AGA 1.00

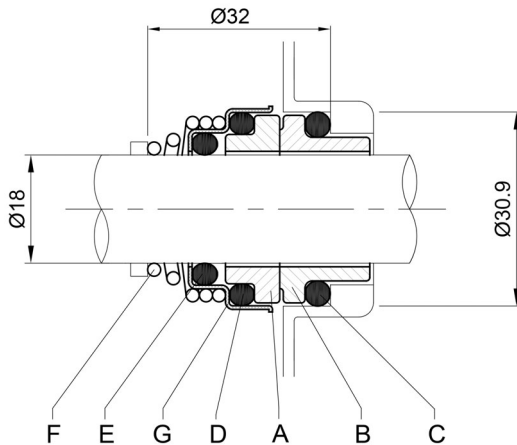
**MECHANICAL SEAL**

**UP TO 0.75 kW**



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

**1.1 kW AND ABOVE**



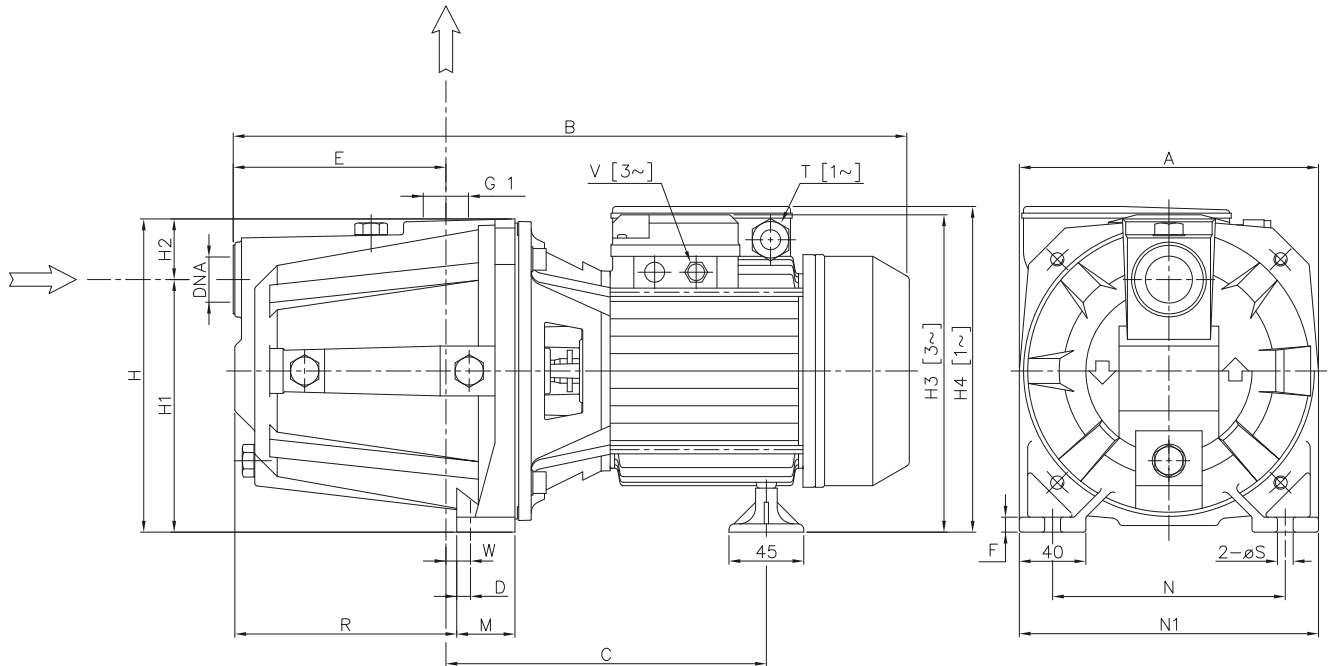
REF	PART NAME	MATERIAL
A	Rotary seal ring	Ceramic
B	Stationary seal ring	Carbon graphite
C	O-Ring	NBR
D	O-Ring	NBR
E	O-Ring	NBR
F	Self-driving spring	AISI 316
G	Frame	AISI 304

**BEARINGS**

Type pumps		Ball Bearing	
Single Phase	Three Phase	Pump side S.Phase / T.Phase	Fan side S.Phase / T.Phase
AGA 0.60 M	AGA 0.60 T	6202	6202
AGA 0.75 M	AGA 0.75 T	6202	6202
AGA 1.00 M	AGA 1.00 T	6202	6202
AGA 1.50 M	AGA 1.50 T	6204	6203
AGA 2.00 M	AGA 2.00 T	6204	6203
-	AGA 3.00 T	6204	6203
AGC 1.50 M	AGC 1.50 T	6204	6203
AGC 2.00 M	AGC 2.00 T	6204	6203
-	AGC 3.00 T	6204	6203



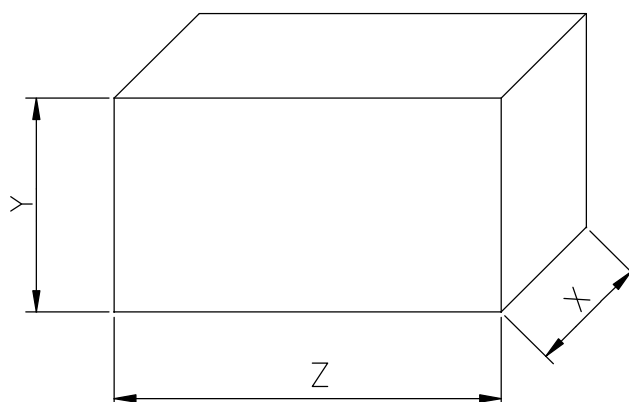
PUMP



Pump type	Dimensions [mm]																			Weight [kgf]	
	A	B	C	D	E	F	H	H1	H2	[3~] H3	[1~] H4	M	N	N1	R	[1~] T	[3~] V	W	S		DNA
AGA 0.60 M	180	405	195	10.3	127	9	185	152	33	-	199	40	140	180	128.5	PG11	-	11.8	9.5	G 1	12.5
AGA 0.60 T	180	405	195	10.3	127	9	185	152	33	197.5	-	40	140	180	128.5	-	PG11	11.8	9.5	G 1	12.8
AGA 0.75 M	180	405	195	10.3	127	9	185	152	33	-	199	40	140	180	128.5	PG11	-	11.8	9.5	G 1	14
AGA 0.75 T	180	405	195	10.3	127	9	185	152	33	197.5	-	40	140	180	128.5	-	PG11	11.8	9.5	G 1	12.4
AGA 1.00 M	180	405	195	10.3	127	9	185	152	33	-	199	40	140	180	128.5	PG11	-	11.8	9.5	G 1	14.5
AGA 1.00 T	180	405	195	10.3	127	9	185	152	33	197.5	-	40	140	180	128.5	-	M16x1.5	11.8	9.5	G 1	14.8
AGA 1.50 M	220	520	244	10	157	10	223	170	53	-	247	48	175	220	167.5	PG13.5	-	15.5	9	G 1 1/2	29
AGA 1.50 T	220	520	244	10	157	10	223	170	53	229	-	48	175	220	167.5	-	M20x1.5	15.5	9	G 1 1/2	26.5
AGA 2.00 M	220	520	244	10	157	10	223	170	53	-	247	48	175	220	167.5	PG13.5	-	15.5	9	G 1 1/2	29
AGA 2.00 T	220	520	244	10	157	10	223	170	53	229	-	48	175	220	167.5	-	M20x1.5	15.5	9	G 1 1/2	28.6
AGA 3.00 T	220	521	244	10	157	10	223	170	53	229	-	48	175	220	167.5	-	M20x1.5	15.5	9	G 1 1/2	29.9
AGC 1.50 M	220	520	244	10	157	10	223	170	53	-	247	48	175	220	167.5	PG13.5	-	15.5	9	G 1 1/2	29
AGC 1.50 T	220	520	244	10	157	10	223	170	53	229	-	48	175	220	167.5	-	M20x1.5	15.5	9	G 1 1/2	28.3
AGC 2.00 M	220	520	244	10	157	10	223	170	53	-	247	48	175	220	167.5	PG13.5	-	15.5	9	G 1 1/2	29
AGC 2.00 T	220	521	244	10	157	10	223	170	53	229	-	48	175	220	167.5	-	M20x1.5	15.5	9	G 1 1/2	29.5
AGC 3.00 T	220	521	244	10	157	10	223	170	53	229	-	48	175	220	167.5	-	M20x1.5	15.5	9	G 1 1/2	29.9

[1 ~] Single phase  
 [3 ~] Three phase

## PACKING



Type pumps		Packing [mm]					Weight [kgf]	
Single Phase	Three Phase	X		Y	Z		[1~]	[3~]
		[1~]	[3~]		[1~]	[3~]		
AGA 0.60 M	AGA 0.60 T	205	205	250	445	445	13	13.5
AGA 0.75 M	AGA 0.75 T	205	205	250	445	445	14.5	13.2
AGA 1.00 M	AGA 1.00 T	205	205	250	445	445	15.5	15.6
AGA 1.50 M	AGA 1.50 T	237	237	275	552	552	30	27.3
AGA 2.00 M	AGA 2.00 T	232	237	275	547	552	30.5	29.7
-	AGA 3.00 T	237	237	275	-	552	-	30.8
AGC 1.50 M	AGC 1.50 T	237	237	275	552	552	29.5	29.2
AGC 2.00 M	AGC 2.00 T	232	237	275	547	552	30	30.6
-	AGC 3.00 T	237	237	275	-	552	-	30.8

MOTOR DATA

Pump type	Power		Efficiency [IE2 / IE3]	Capacitor		Efficiency (% load) and power factor				Input [kW]	Full load current		Locked rotor current	
	[kW]	[HP]		[μF]	[V]	cos-φ	η %				[A]		[A]	
							50%	75%	100%		110 V	230 V	110 V	230 V
AGA 0.60 M	0,45	0,6	IE2	14	450	55,7	65,6	72,5	0,94	0,65	-	3,0	-	13,4
AGA 0.75 M	0,55	0,75	IE2	20	450	62,3	70,4	74,8	0,93	0,75	-	3,5	-	18,9
AGA 1.00 M	0,8	1,1	IE2	25	450	69,9	76,0	78,2	0,95	1,03	-	4,8	-	24,0
AGA 1.50 M	1,5	2,0	IE2	40	450	69,8	76,6	81,3	0,92	1,90	-	9,0	-	65,2
AGA 2.00 M	1,8	2,4	IE2	40	450	73,1	78,8	82,2	0,93	2,20	-	10,5	-	65,2
AGC 1.50 M	1,5	2,0	IE2	40	450	69,8	76,6	81,3	0,92	1,90	-	9,0	-	65,2
AGC 2.00 M	1,8	2,4	IE2	40	450	73,1	78,8	82,2	0,93	2,20	-	10,5	-	65,2

Pump type	Power		Efficiency	Efficiency (% load)			Input [kW]	Full load current		Locked rotor current	
	[kW]	[HP]		η %				[A]		[A]	
				50%	75%	100%		230 V	400 V	230 V	400 V
AGA 0.60 T	0.45	0.6	IE3	75.1	78.5	78.0	0.71	2.4	1.4	12.7	7.3
AGA 0.75 T	0.55	0.75	IE3	75.1	78.5	78.0	0.71	2.4	1.4	12.7	7.3
AGA 1.00 T	0.75	1	IE3	80.9	82.3	82.1	0.91	3.0	1.7	19.7	11.4
AGA 1.50 T	1.1	1.5	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
AGA 2.00 T	1.5	2	IE3	83.5	84.3	84.6	2.06	6.2	3.6	47.4	27.4
AGA 3.00 T	2.2	3	IE3	86.2	87.0	86.0	2.55	8.2	4.7	66.6	38.4
AGC 1.50 T	1.1	1.5	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
AGC 2.00 T	1.5	2	IE3	84.2	86.8	86.9	2.23	7.6	4.4	66.6	38.4
AGC 3.00 T	2.2	3	IE3	86.2	87.0	86.0	2.55	8.2	4.7	66.6	38.4

NOISE DATA

Pump type		L <sub>pA</sub> - dB(A) *
Single Phase	Three Phase	
AGA 0.60 M	AGA 0.60 T	71
AGA 0.75 M	AGA 0.75 T	
AGA 1.00 M	AGA 1.00 T	
AGA 1.50 M	AGA 1.50 T	76
AGA 2.00 M	AGA 2.00 T	
-	AGA 3.00 T	
AGC 1.50 M	AGC 1.50 T	
AGC 2.00 M	AGC 2.00 T	
-	AGC 3.00 T	

\* Mean value of several measures at 1m distance around  
Tolerance ± 2.5 dB.



**EBARA Pumps Europe S.p.A.**  
Via Torri di Confine 2/1 int. C  
36053 Gambellara (Vicenza), Italy  
Phone +39 0444 706811  
ebarapumps.epe@ebaracom  
www.ebaraeurope.com

**EBARA Pumps Europe S.p.A. GERMANY**  
Elisabeth-Selbert-Straße 2  
63110 Rodgau, Germany  
Phone +49 (0) 6106-660 99-0  
info.epde@ebaracom

**EBARA Pumps South Africa (PTY) LTD**  
26 Kyalami Boulevard,  
Kyalami Business Park, 1684, Midrand,  
Gauteng, South Africa  
Phone +27 11 466 1844  
ebaraeurope@ebaracom

**EBARA Pumps Europe S.p.A. UK**  
Unit A, Park 34  
Collett Way - Didcot  
Oxfordshire - OX11 7WB, United Kingdom  
Phone +44 1895 439027  
marketing.epuk@ebaracom

**EBARA Pumps Europe S.p.A. FRANCE**  
122, Rue Pasteur  
69780 Toussieu, France  
Phone: +33 04 72 76 94 82  
mktg.epr@ebaracom

**EBARA Pumps East Africa**  
Delta Corner Tower 2, 13th Floor, Office 1308,  
Chiromo Road, Westlands  
P.O. Box 13796-00800, Nairobi  
Phone: +254(0)722913119  
info.epea@ebaracom

**EBARA POMPY POLSKA Sp. z o.o.**  
ul. Działkowa 115 A  
02-234 Warszawa, Poland  
Phone +48 22 3909920  
marketing.epl@ebaracom

**EBARA Pumps RUS Ltd.**  
Prospekt Andropov 18, building 7, floor 11  
115432 Moscow  
Phone +7 499 6830133  
mktg.epr@ebaracom