EBARA

Japanese Technology since 1912

AGA-AGC

Data Book 50Hz

CONTENTS

50Hz

Rev. M

① click INDEX to jump CORRESPONDING SECTION

② click ☰ to go back to INDEX

SPECIFICATION

50Hz

Rev. M

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	

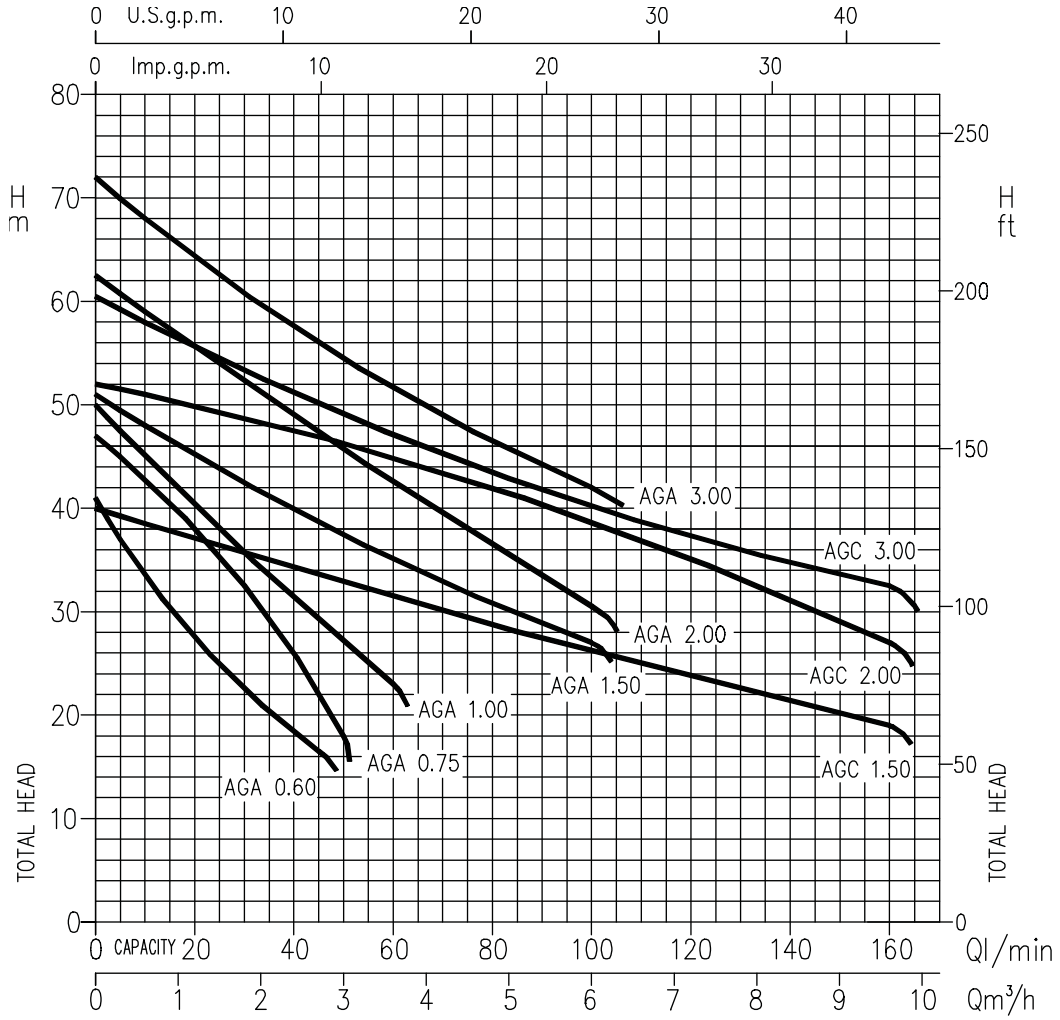
MOTOR			
Type		Electric - TEFC	
		Single Phase	Three Phase
Efficiency level (Reg. 1781/2019)		-	IE3
No. of Poles		2	
Rotation speed	[min^{-1}]	≈ 2800	
Insulation Class		F	
Protection degree (CEI EN 60034-5)		IP 44	
Power rating	[kW]	0.44÷1.5	0.44÷2.2
	[HP]	0.6÷2	0.6÷3
Frequency	[Hz]	50	
Voltage	[V]	230 ±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

50Hz

Rev. M

PERFORMANCE RANGE



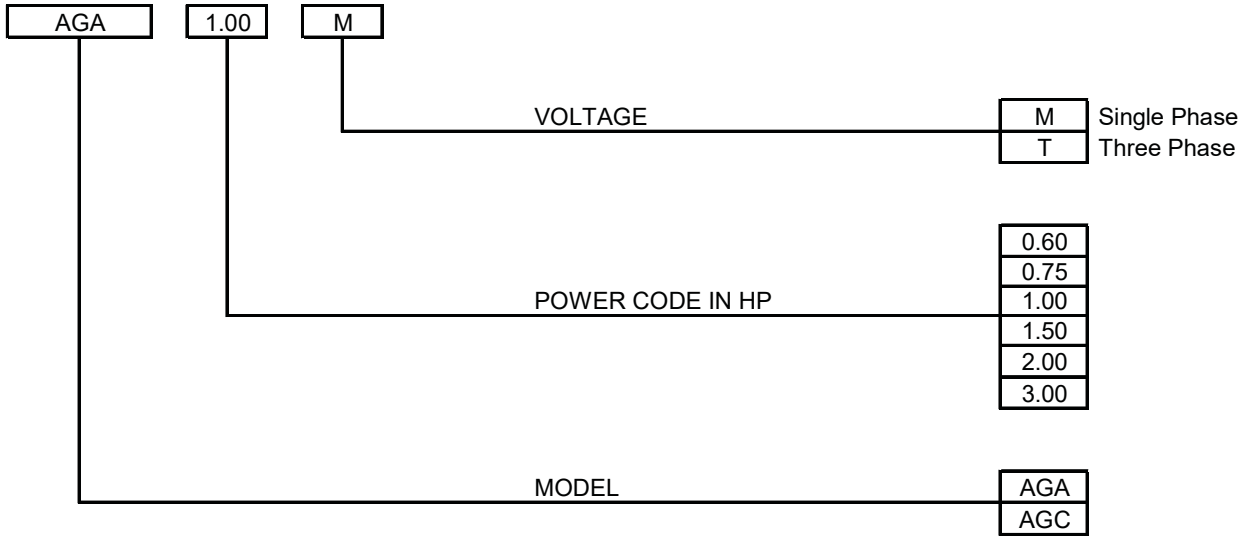
SELECTION CHART

Type pumps		Power		Q=Capacity												
				l/min	0	5	10	20	30	45	50	60	80	100	130	160
Single Phase	Three Phase	[kW]	[HP]	m³/h	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	0.44	0.6	41.5	37	33.4	27.1	22	16.5	-	-	-	-	-	-	
AGA 0.75 M	AGA 0.75 T	0.55	0.75	47	45	42.8	37.9	32	21.9	18	-	-	-	-	-	
AGA 1.00 M	AGA 1.00 T	0.75	1	50	47.5	45	40.3	35.7	29.1	27	23	-	-	-	-	
AGA 1.50 M	AGA 1.50 T	1.1	1.5	51	-	48	45.1	42.4	38.6	37.4	35.1	30.8	27	-	-	
AGA 2.00 M	AGA 2.00 T	1.5	2	62.5	-	59	55.6	52.2	47.3	45.7	42.5	36.4	30.5	-	-	
-	AGA 3.00 T	2.2	3	72	-	68	64.3	60.8	55.9	54.4	51.6	46.4	42	-	-	
AGC 1.50 M	AGC 1.50 T	1.1	1.5	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	1.5	2	52	-	51	49.9	48.8	46.9	46.3	44.9	42	38.7	33.2	27	
-	AGC 3.00 T	2.2	3	60.5	-	58	55.6	53.3	50.1	49.1	47.1	43.4	40.2	35.9	32.5	

TYPE KEY and CURVE SPECIFICATIONS 50Hz

Rev. M

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 ν = 1 mm²/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:

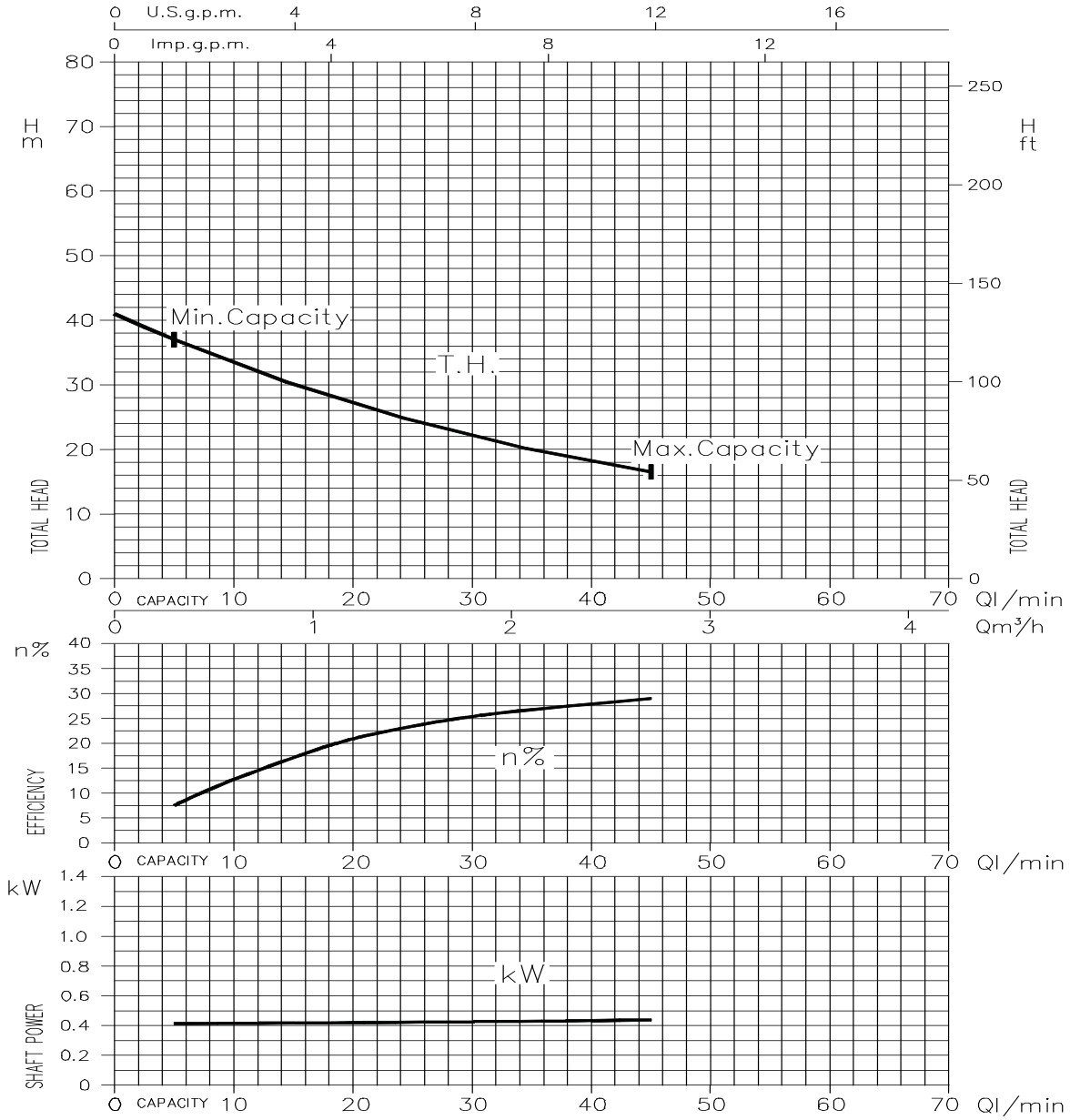
Q = volume flow rate
H = total head
P_2 = pump power input (shaft power)
η = pump efficiency

PERFORMANCE CURVE

50Hz

Rev. M

AGA 0.60 (0.45 kW) - Impeller diameter = 130 mm



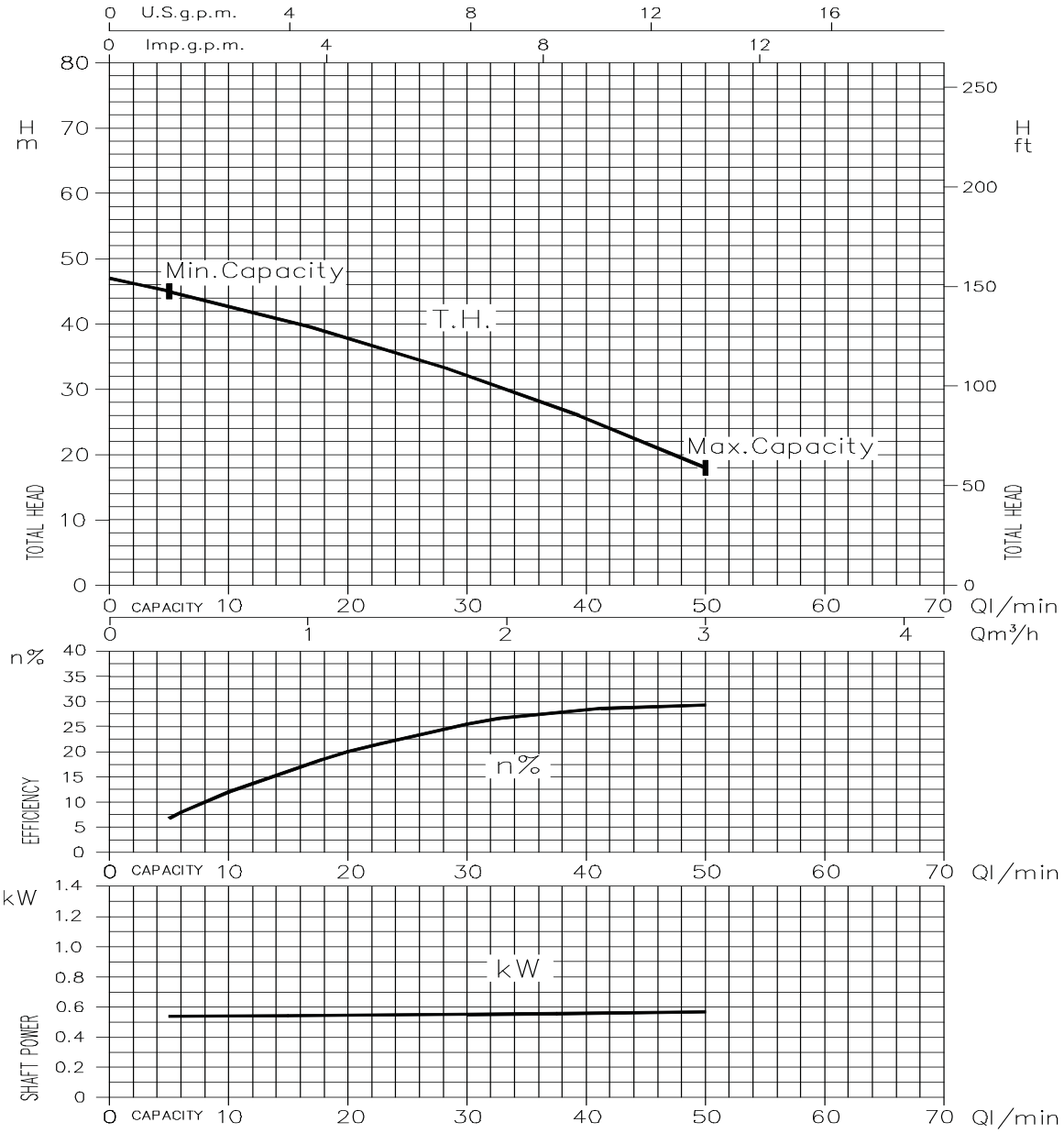
Rotation speed ≈ 2800 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

50Hz

Rev. M

AGA 0.75 (0.55 kW) - Impeller diameter = 130 mm



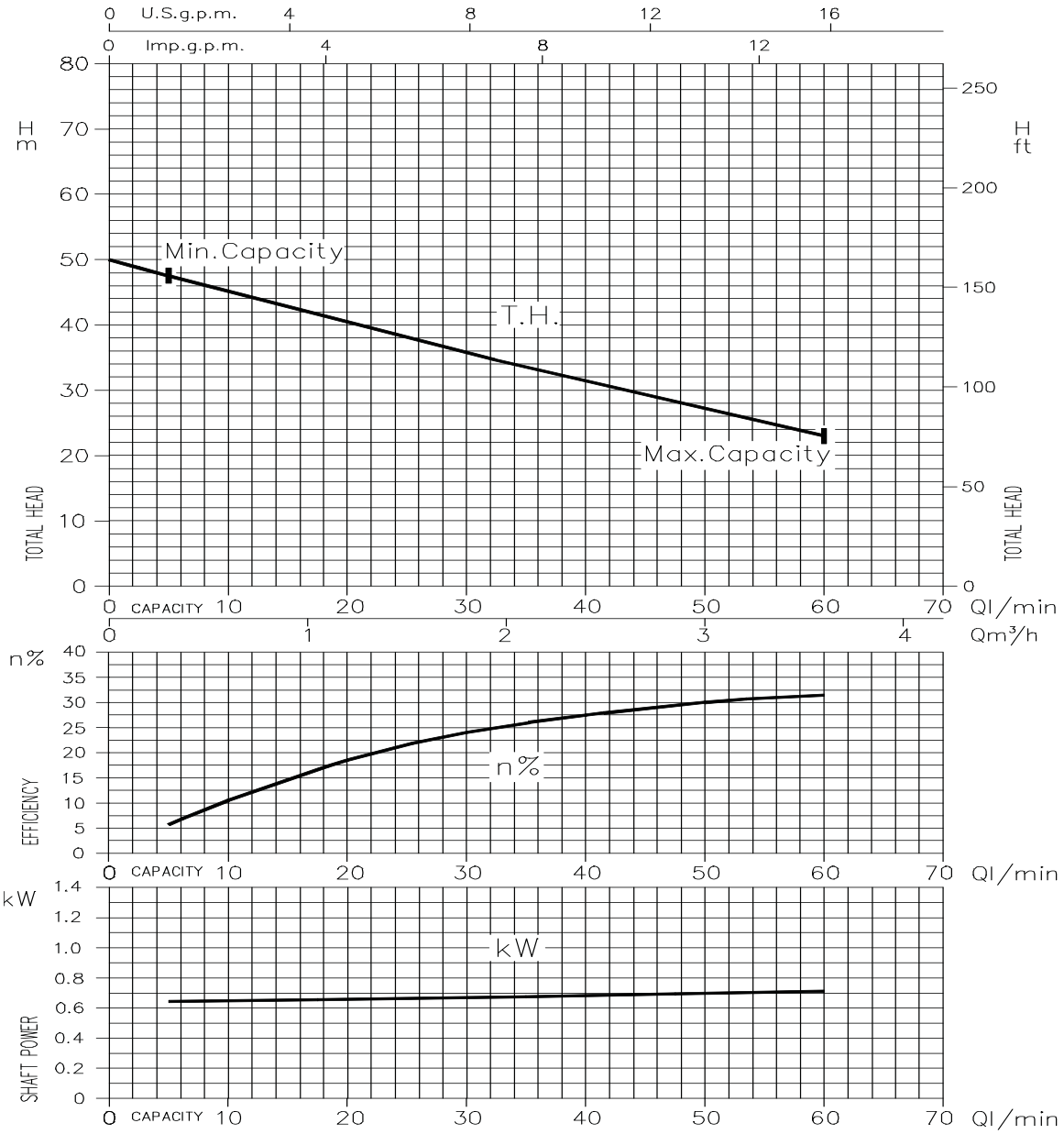
Rotation speed ≈ 2800 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

50Hz

Rev. M

AGA 1.00 (0.75 kW) - Impeller diameter = 130 mm



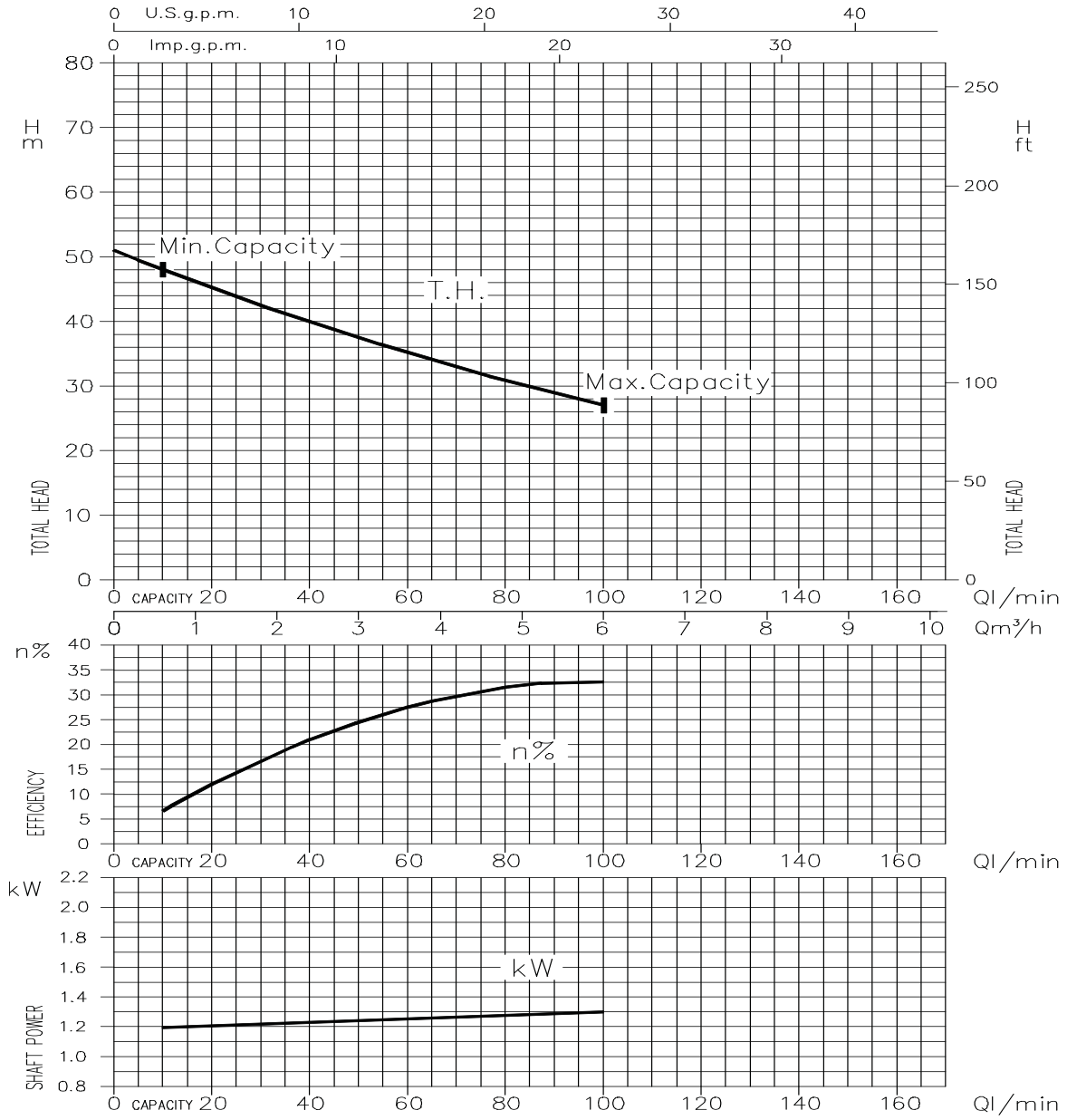
Rotation speed ≈ 2800 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

50Hz

Rev. M

AGA 1.50 (1.1 kW) - Impeller diameter = 143 mm



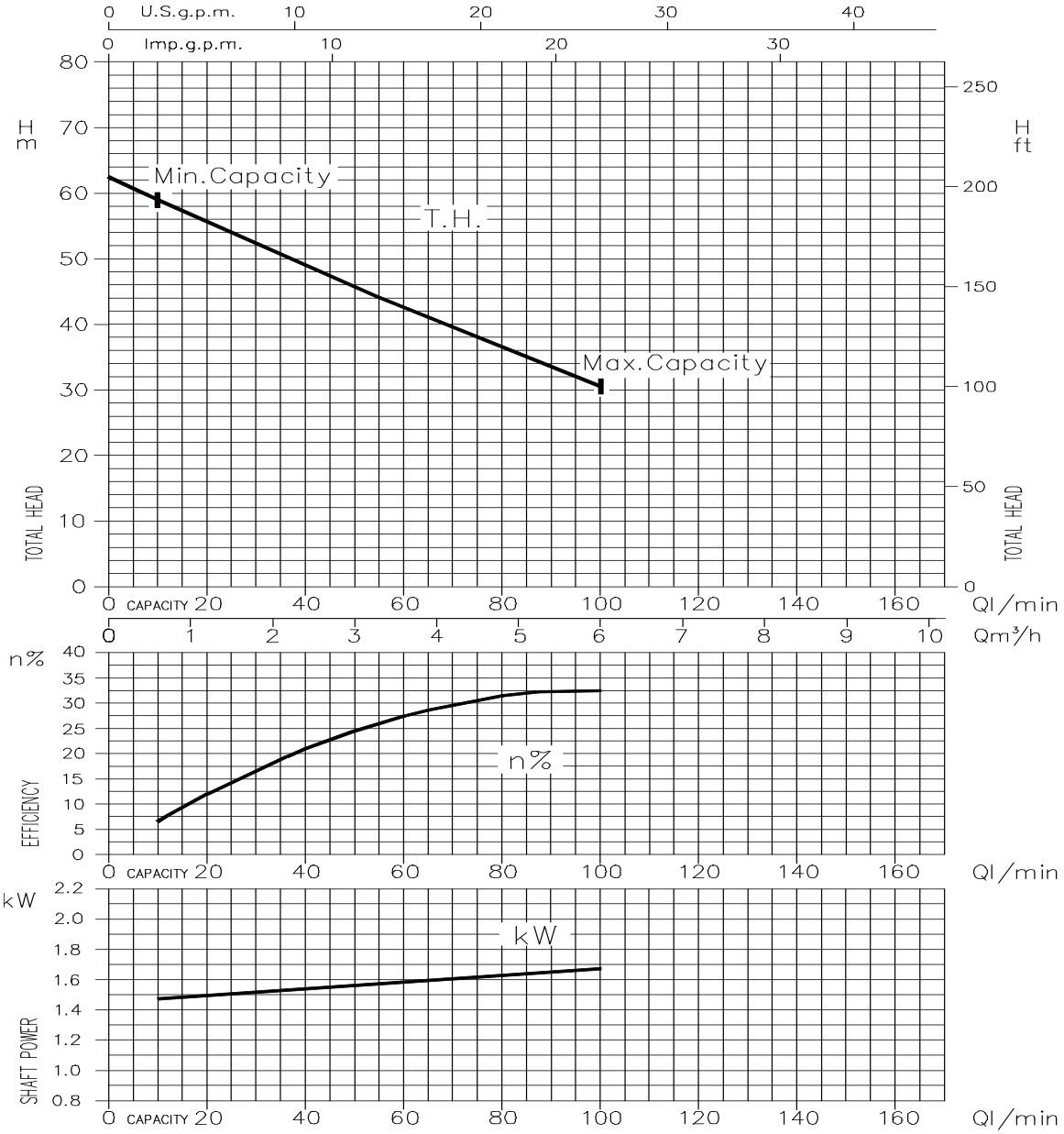
Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

50Hz

Rev. M

AGA 2.00 (1.5 kW) - Impeller diameter = 157 mm



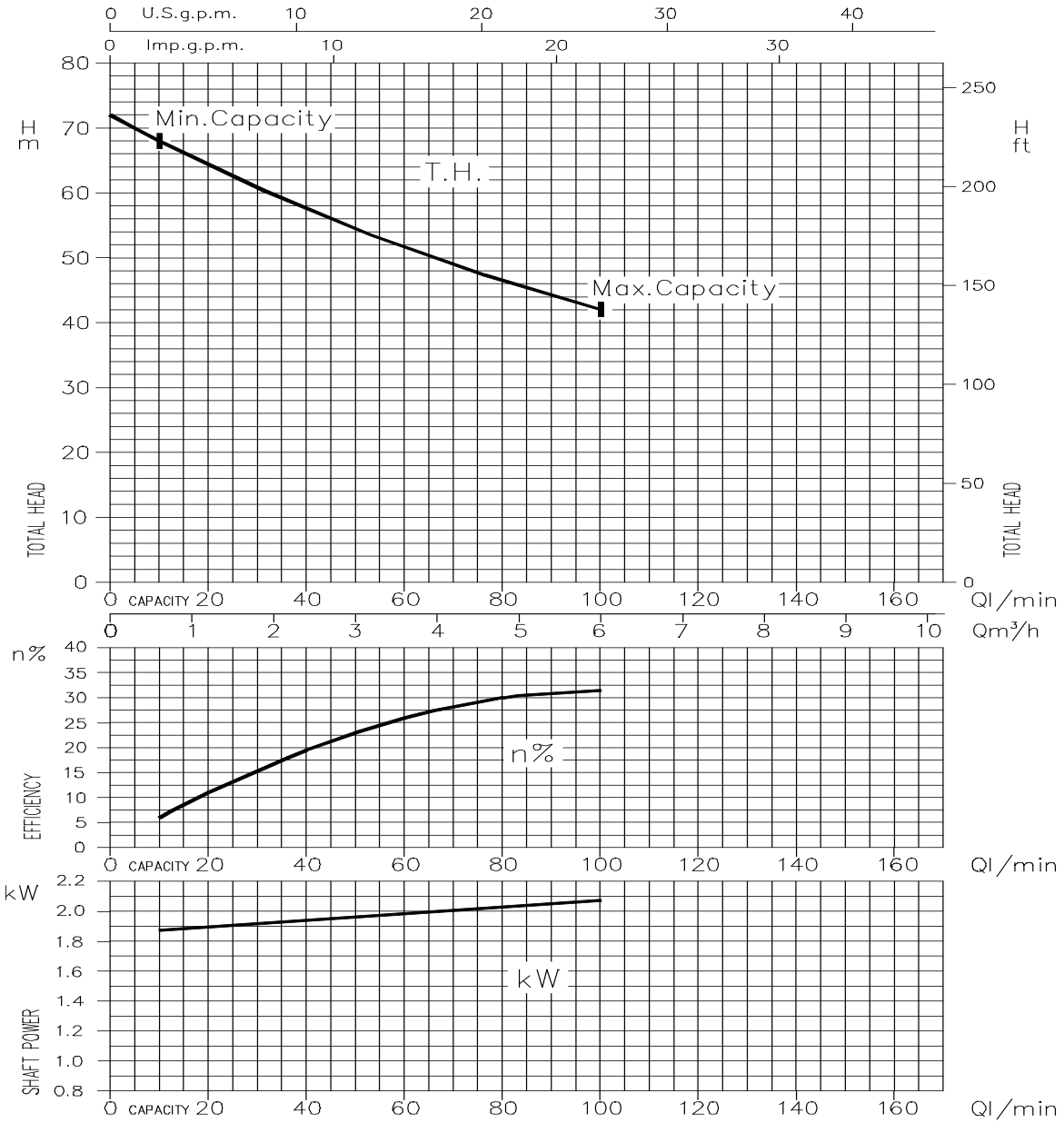
Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

50Hz

Rev. M

AGA 3.00 (2.2 kW) - Impeller diameter = 164 mm



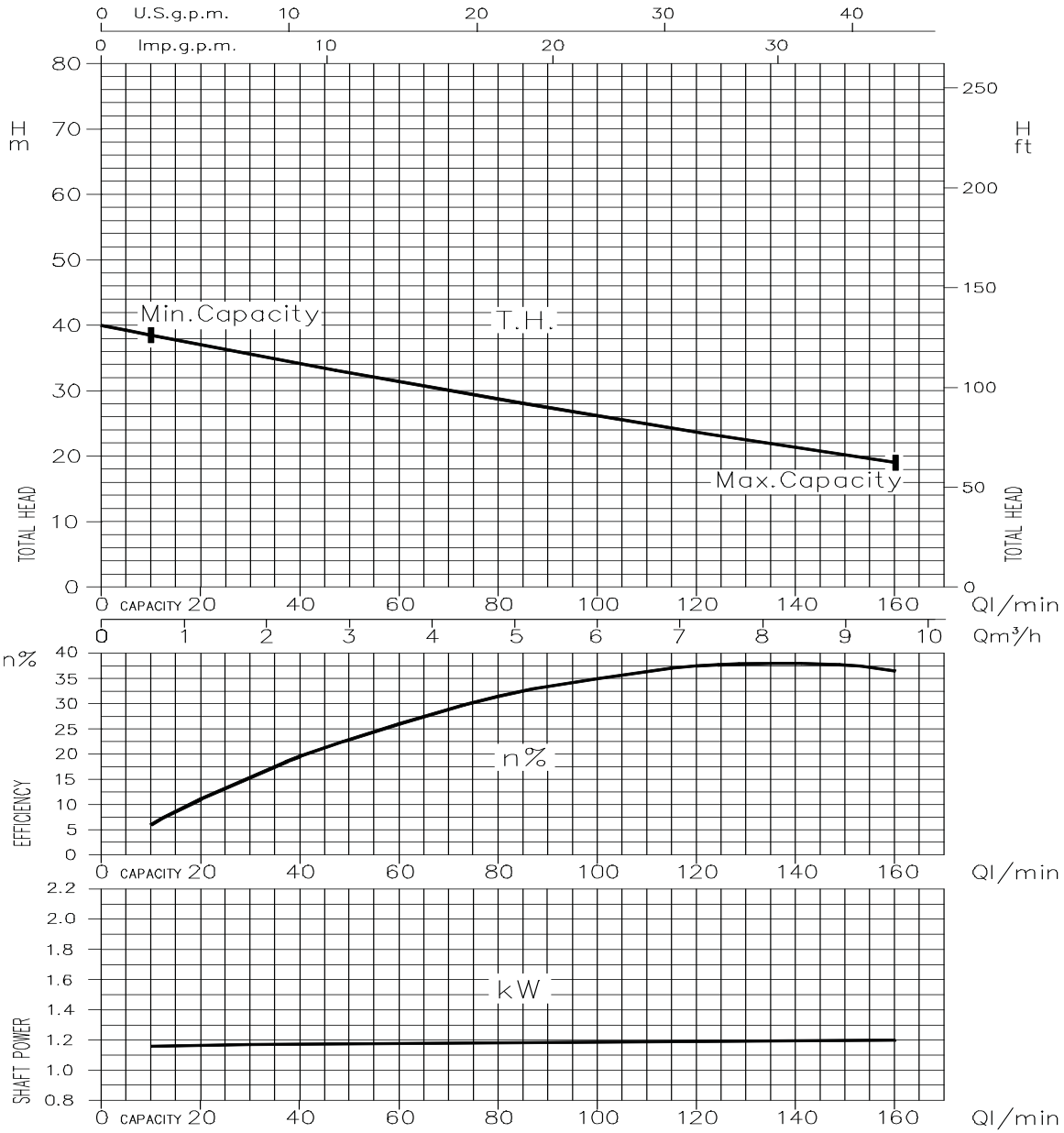
Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

50Hz

Rev. M

AGC 1.50 (1.1 kW) - Impeller diameter = 143 mm



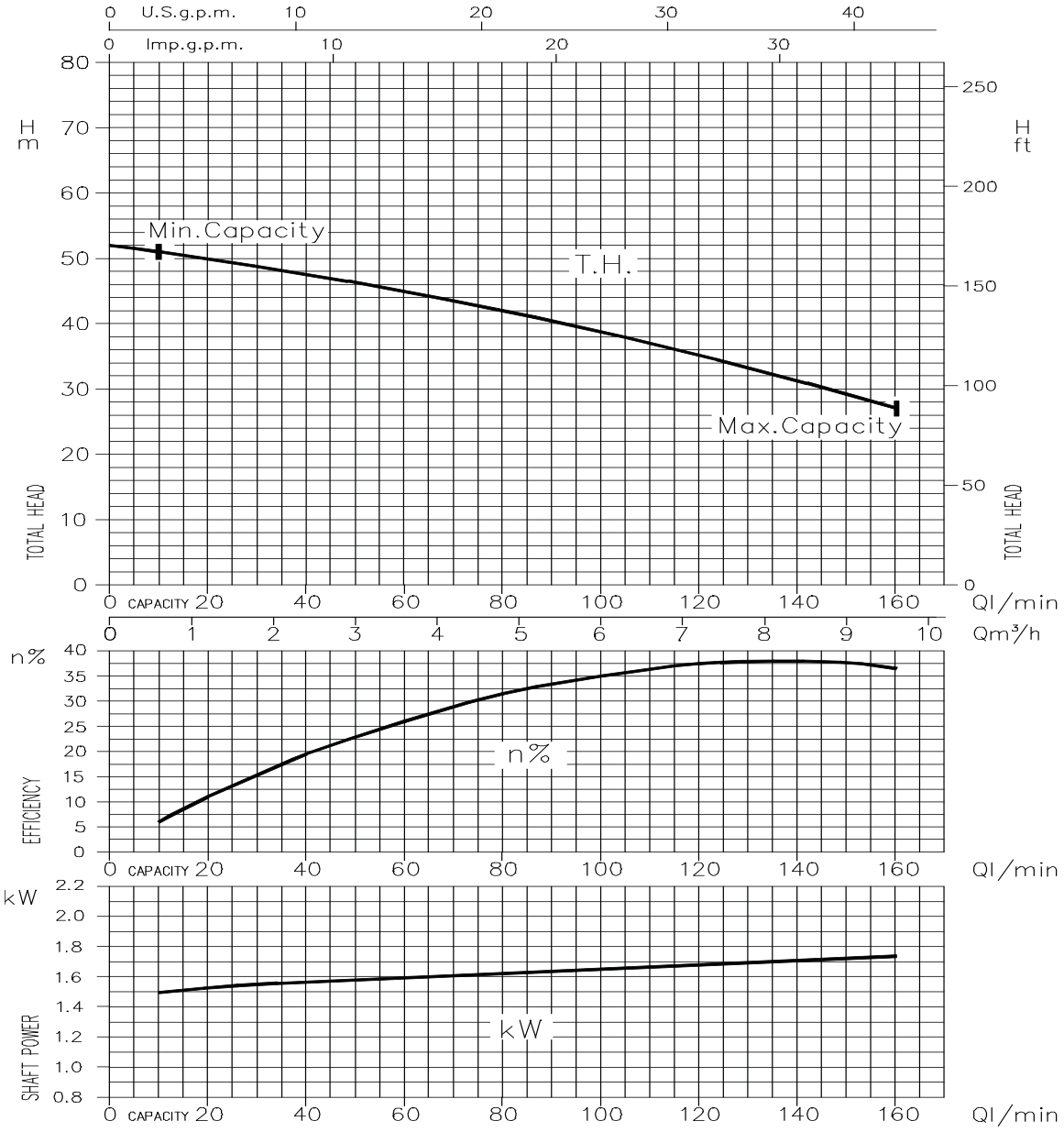
Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

50Hz

Rev. M

AGC 2.00 (1.5 kW) - Impeller diameter = 157 mm



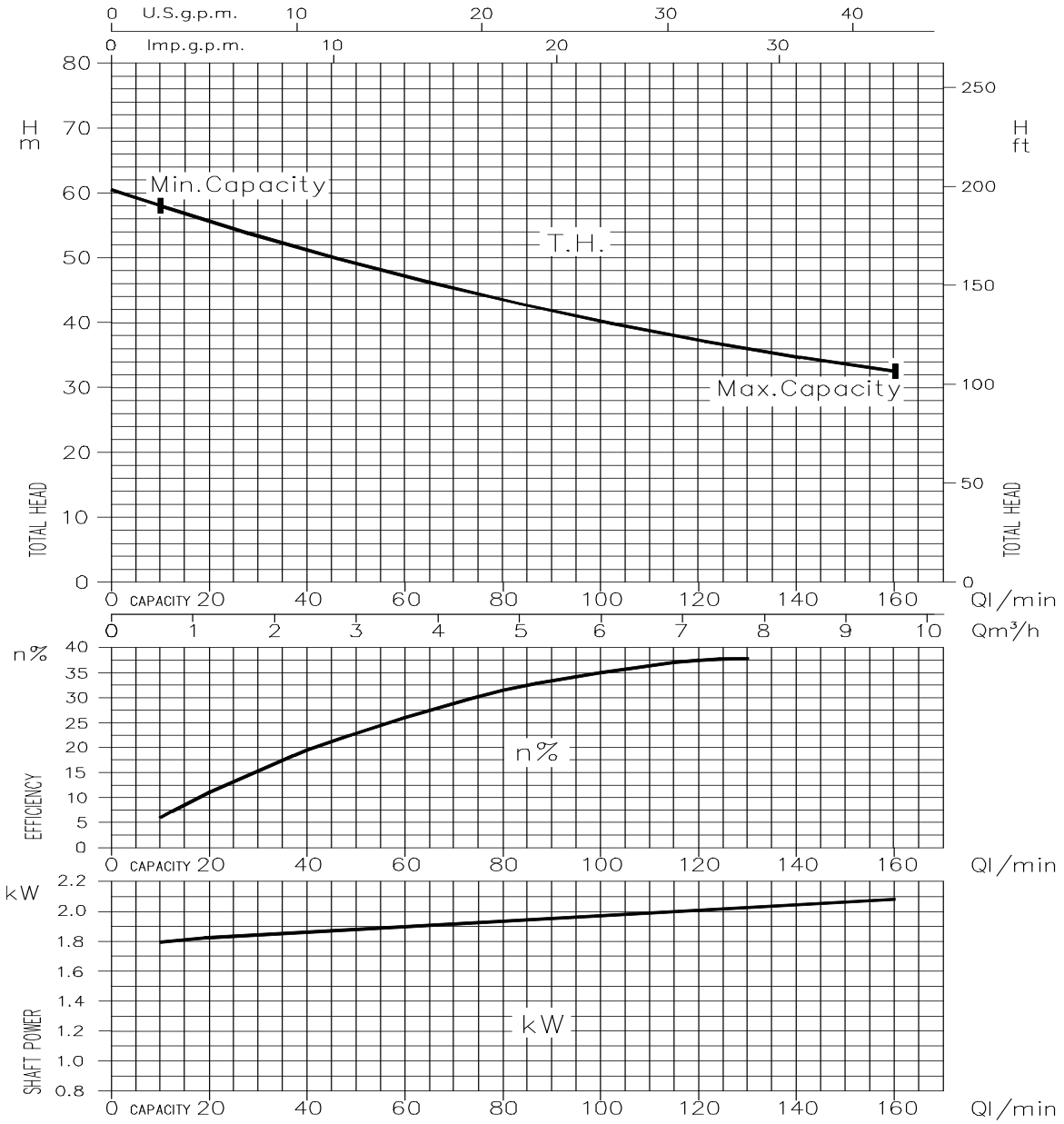
Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

50Hz

Rev. M

AGC 3.00 (2.2 kW) - Impeller diameter = 164 mm



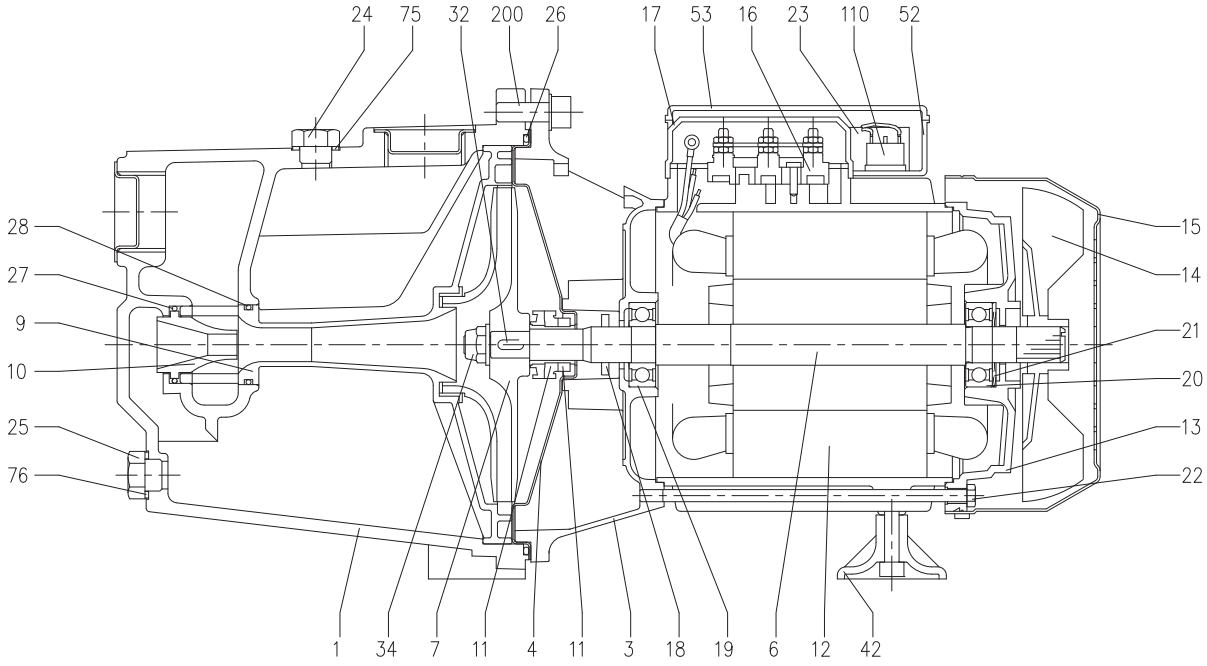
Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

CONSTRUCTIONS

50Hz

Rev. M

SECTIONAL VIEW



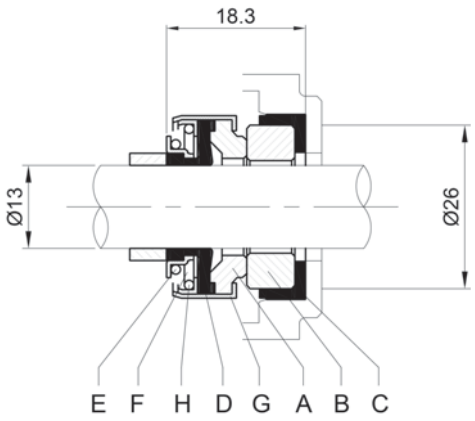
N°	PART NAME	MATERIAL	Q.TY
1	Casing	Cast iron	1
3	Motor bracket [1]	-	1
4	Casing cover [2]	AISI 304	1
6	Shaft with rotor	AISI 303 (wet extension)	1
7	Impeller [3]		1
9	Diffuser + Venturi tube	PPE+PS glass fibre reinforced	1
10	Venturi nozzle	PPE+PS glass fibre reinforced	1
11	Mechanical seal [4]	Carbon/Ceramic/NBR	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	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

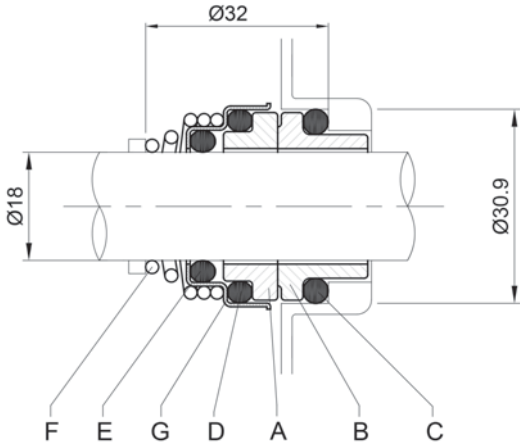
MECHANICAL SEAL

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

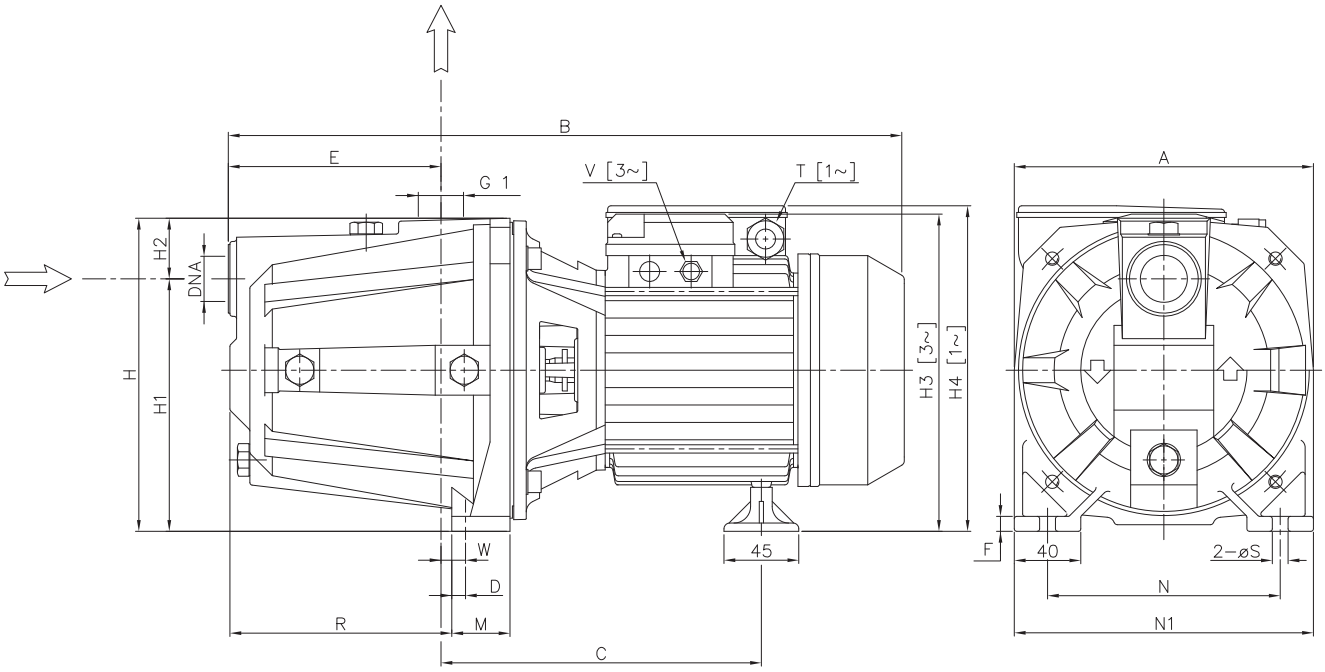
Type pumps		Ball Bearing	
		Pump side	Fan side
Single Phase	Three Phase	S.Phase / T.Phase	S.Phase / T.Phase
AGA 0.60 M	AGA 0.60 T	6202 2RSH / 2DW C3	6202 2RSH / 2DW C3
AGA 0.75 M	AGA 0.75 T	6202 2RSH / 2DW C3	6202 2RSH / 2DW C3
AGA 1.00 M	AGA 1.00 T	6202-ZZ C3	6202-ZZ C3
AGA 1.50 M	AGA 1.50 T	6204-ZZ C3	6203-ZZ C3
AGA 2.00 M	AGA 2.00 T	6204-ZZ C3	6203-ZZ C3
-	AGA 3.00 T	6204-ZZ C3	6203-ZZ C3
AGC 1.50 M	AGC 1.50 T	6204-ZZ C3	6203-ZZ C3
AGC 2.00 M	AGC 2.00 T	6204-ZZ C3	6203-ZZ C3
-	AGC 3.00 T	6204-ZZ C3	6203-ZZ C3

DIMENSIONS and WEIGHT

50Hz

Rev. M

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
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	12.5
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	13.8
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	508	244	10	157	10	223	170	53	-	247	48	175	220	167.5	PG13.5	-	15.5	9	G 1 1/2	25.5
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	508	244	10	157	10	223	170	53	-	247	48	175	220	167.5	PG13.5	-	15.5	9	G 1 1/2	26.6
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	508	244	10	157	10	223	170	53	-	247	48	175	220	167.5	PG13.5	-	15.5	9	G 1 1/2	25.5
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	508	244	10	157	10	223	170	53	-	247	48	175	220	167.5	PG13.5	-	15.5	9	G 1 1/2	26.6
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

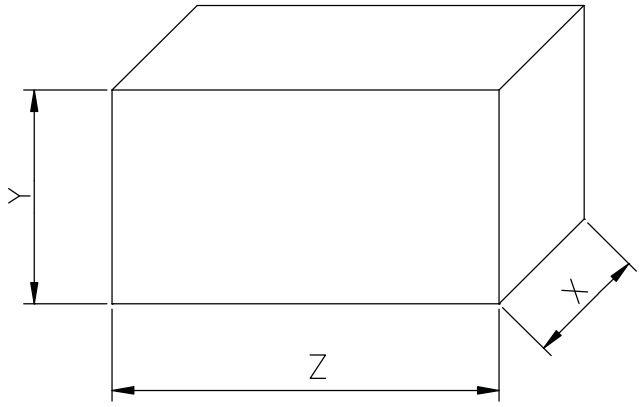
[1 ~] Single phase
[3 ~] Three phase

DIMENSIONS and WEIGHT

50Hz

Rev. M

PACKING



Type pumps		Packing [mm]			Weight [kgf]	
Single Phase	Three Phase	X	Y	Z	[1~]	[3~]
AGA 0.60 M	AGA 0.60 T	205	250	445	12.7	13.5
AGA 0.75 M	AGA 0.75 T	205	250	445	13.3	13.2
AGA 1.00 M	AGA 1.00 T	205	250	445	14.6	15.6
AGA 1.50 M	AGA 1.50 T	232	275	547	26.4	27.3
AGA 2.00 M	AGA 2.00 T	232	275	547	27.7	29.7
-	AGA 3.00 T	232	275	547	-	30.8
AGC 1.50 M	AGC 1.50 T	232	275	547	26.4	29.2
AGC 2.00 M	AGC 2.00 T	232	275	547	27.7	30.6
-	AGC 3.00 T	232	275	547	-	30.8

TECHNICAL DATA

50Hz

Rev. M

MOTOR DATA

Pump type		Power		Efficiency		Capacitor		Efficiency (% load) Three phase η %			Input [kW]		Full load current [A]			Locked rotor current [A]		
Single Phase	Three Phase	[kW]	[HP]	Single Phase	Three Phase	Single Phase [µF]	[V]	50%	75%	100%	Single Phase	Three Phase	Single Phase 230 V	Three Phase 230 V	Three Phase 400 V	Single Phase 230 V	Three Phase 230 V	Three Phase 400 V
AGA 0.60 M	AGA 0.60 T	0.45	0.6	-	IE3	12.5	450	75.1	78.5	78.0	0.7	0.71	3.1	2.4	1.4	10.2	12.7	7.3
AGA 0.75 M	AGA 0.75 T	0.55	0.75	-	IE3	14	450	75.1	78.5	78.0	0.92	0.71	4,0	2.4	1.4	13.5	12.7	7.3
AGA 1.00 M	AGA 1.00 T	0.75	1	-	IE3	20	450	80.9	82.3	82.1	1.15	0.91	5.5	3.0	1.7	17.5	19.7	11.4
AGA 1.50 M	AGA 1.50 T	1.1	1.5	-	IE3	40	450	83.5	84.3	84.6	1.65	1.77	8.1	5.8	3.3	43,0	47.4	27.4
AGA 2.00 M	AGA 2.00 T	1.5	2	-	IE3	40	450	83.5	84.3	84.6	2.1	2.06	9.8	6.2	3.6	43,0	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 M	AGC 1.50 T	1.1	1.5	-	IE3	40	450	83.5	84.3	84.6	1.8	1.77	8.6	5.8	3.3	43,0	47.4	27.4
AGC 2.00 M	AGC 2.00 T	1.5	2	-	IE3	40	450	84.2	86.8	86.9	2.3	2.23	10.5	7.6	4.4	43,0	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		Power		L_{pA} - dB(A) *
Single Phase	Three Phase	[kW]	[HP]	
AGA 0.60 M	AGA 0.60 T	0.45	0.6	71
AGA 0.75 M	AGA 0.75 T	0.55	0.75	
AGA 1.00 M	AGA 1.00 T	0.75	1	
AGA 1.50 M	AGA 1.50 T	1.1	1.5	76
AGA 2.00 M	AGA 2.00 T	1.5	2	
-	AGA 3.00 T	2.2	3	
AGC 1.50 M	AGC 1.50 T	1.1	1.5	
AGC 2.00 M	AGC 2.00 T	1.5	2	
-	AGC 3.00 T	2.2	3	

* Mean value of several measures at 1m distance around the pump.
Tollerance ± 2.5 dB.