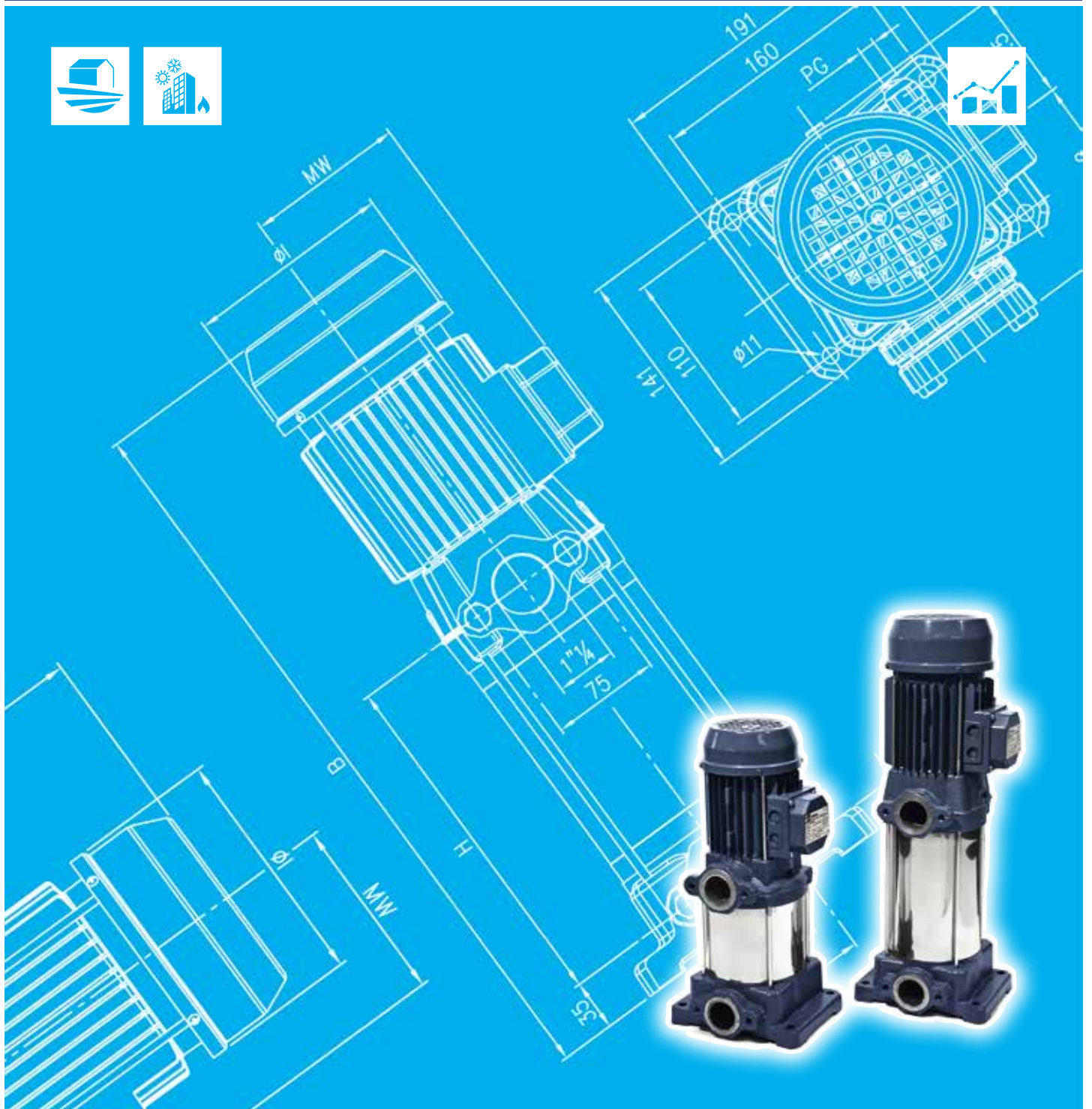




Japanese Technology since 1912

CVM

Data Book 60Hz



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SPECIFICATIONS

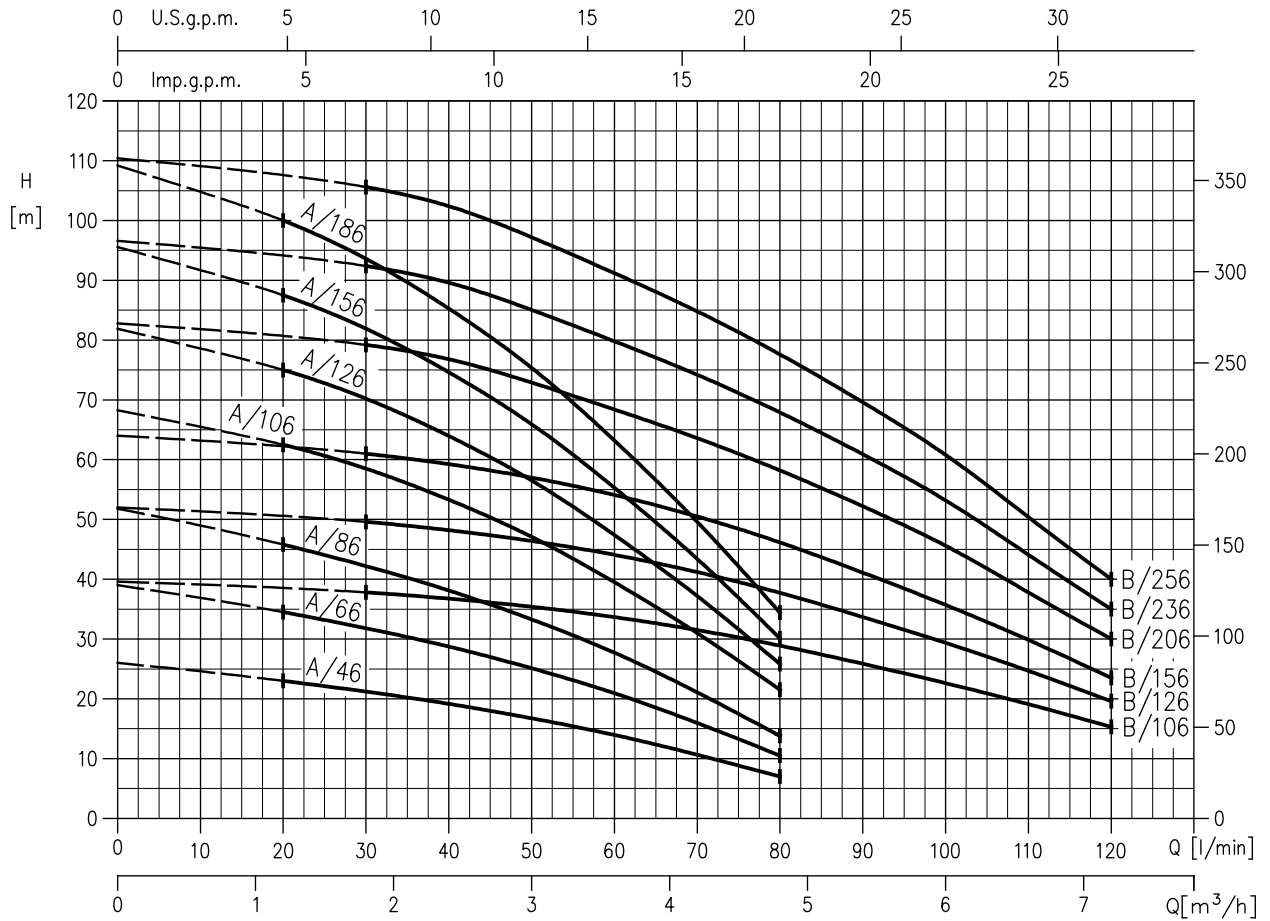
60Hz

Rev. J

PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min.+5 max.+40
Maximum working pressure [MPa]		1.1
Construction	Impeller	Closed centrifugal
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction	G 1 1/4 UNI ISO 228
	Discharge	G 1 1/4 UNI ISO 228
Material	Casing	Cast iron
	Impeller	PPE+PS Glass fibre reinforced
	Shaft seal	Ceramic/Carbon/NBR
	External pump casing	AISI 304
	Shaft	AISI 416
	Stages	PPE+PS Glass fibre reinforced /PTFE
	Diffuser	PPE+PS Glass fibre reinforced
Bracket	Cast iron	
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]	≈ 3450	
Insulation Class	F	
Protection degree	IP 44	
Power rating	[kW]	0.3 ÷ 1.7
	[HP]	0.4 ÷ 2.3
Frequency [Hz]	60	
Voltage [V]	220-230 ±6%	220/380 -6%+10% (from 0.3 kW up to 1.85 kW)
		220/380-460 ±10% (IE3* from 0.75 kW up to 1.85 kW)
Capacitor	Built in	-
Over load protection	Built in	Provided by the user
Casing material	Aluminium	
Dimensions of cable entry	PG 11 – PG 13.5 - M16x1.5 – M20x1.5 (see pag. 400)	

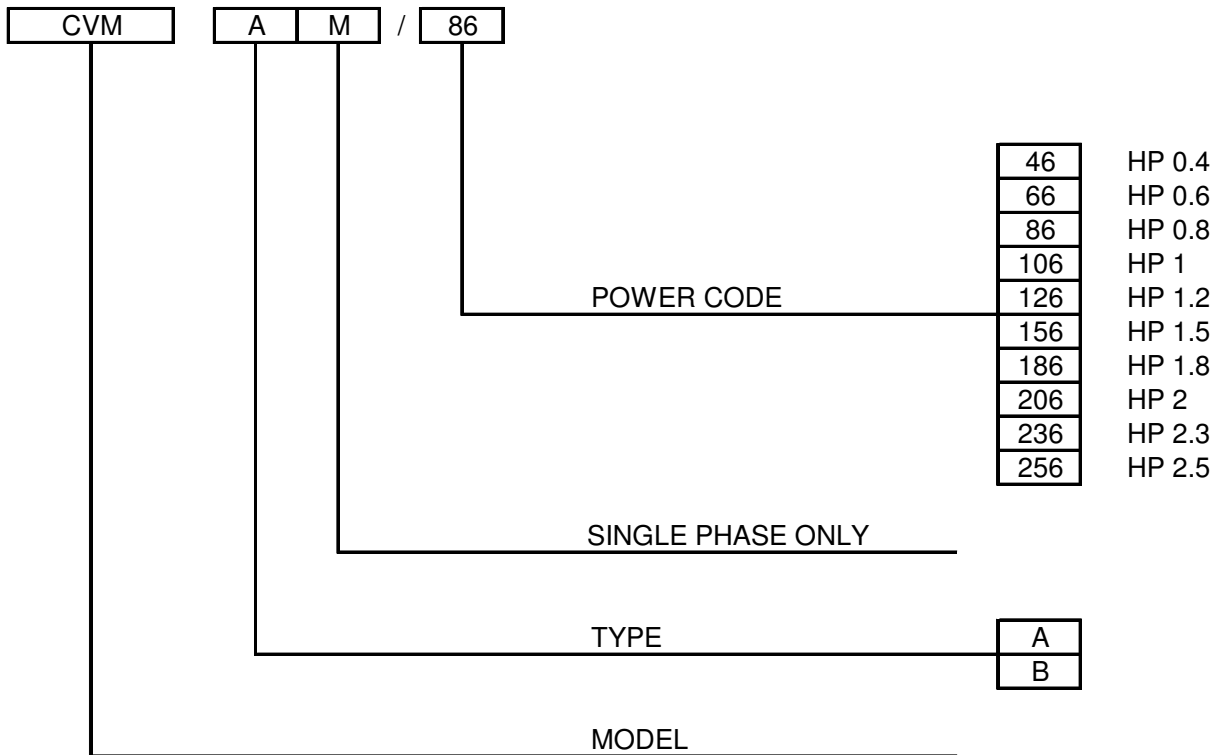
PERFORMANCE RANGE



SELECTION CHART

Pump type		Power		Q=Capacity									
				l/min	0	20	30	40	50	60	80	100	120
Single Phase	Three Phase	[kW]	[HP]	m³/h	0	1,2	1,8	2,4	3,0	3,6	4,8	6,0	7,2
H=Total manometric head in meters													
CVM AM46	CVM A/46	0,3	0,4	26	23	21,2	19,2	16,7	14	7	-	-	-
CVM AM66	CVM A/66	0,44	0,6	39	34,5	31,8	28,7	25,1	20,9	10,5	-	-	-
CVM AM86	CVM A/86	0,6	0,8	52	45,5	42	38,1	33,3	27,7	13,8	-	-	-
CVM AM106	CVMA/106	0,75	1	68,5	62,5	58,5	53,0	47	39,5	21,5	-	-	-
CVM AM126	CVMA/126	0,9	1,2	82	75	70	64	56,5	47,5	25,8	-	-	-
CVM AM156	CVMA/156	1,1	1,5	95,5	87,5	82	74,5	66	55,5	30,1	-	-	-
CVM AM186	CVMA/186	1,3	1,8	109	100	93,5	85,5	75,5	63	34,4	-	-	-
CVMBM106	CVMB/106	0,75	1	39,6	-	37,8	36,8	35,4	33,7	28,9	22,6	15,3	-
CVMBM126	CVMB/126	0,9	1,2	52	-	49,5	48	46,5	44	37,7	29,4	19,6	-
CVMBM156	CVMB/156	1,1	1,5	64	-	61	59,5	57	54	46	35,7	23,5	-
CVMBM206	CVMB/206	1,5	2	83	-	79	77	73	68,5	58	45,5	30	-
CVMBM236	CVMB/236	1,7	2,3	96,5	-	92,5	89,5	85	80	68	53	35	-
-	CVMB/256	1,85	2,5	110	-	106	102	97	91	77,5	61	40	-

TYPE KEY:



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

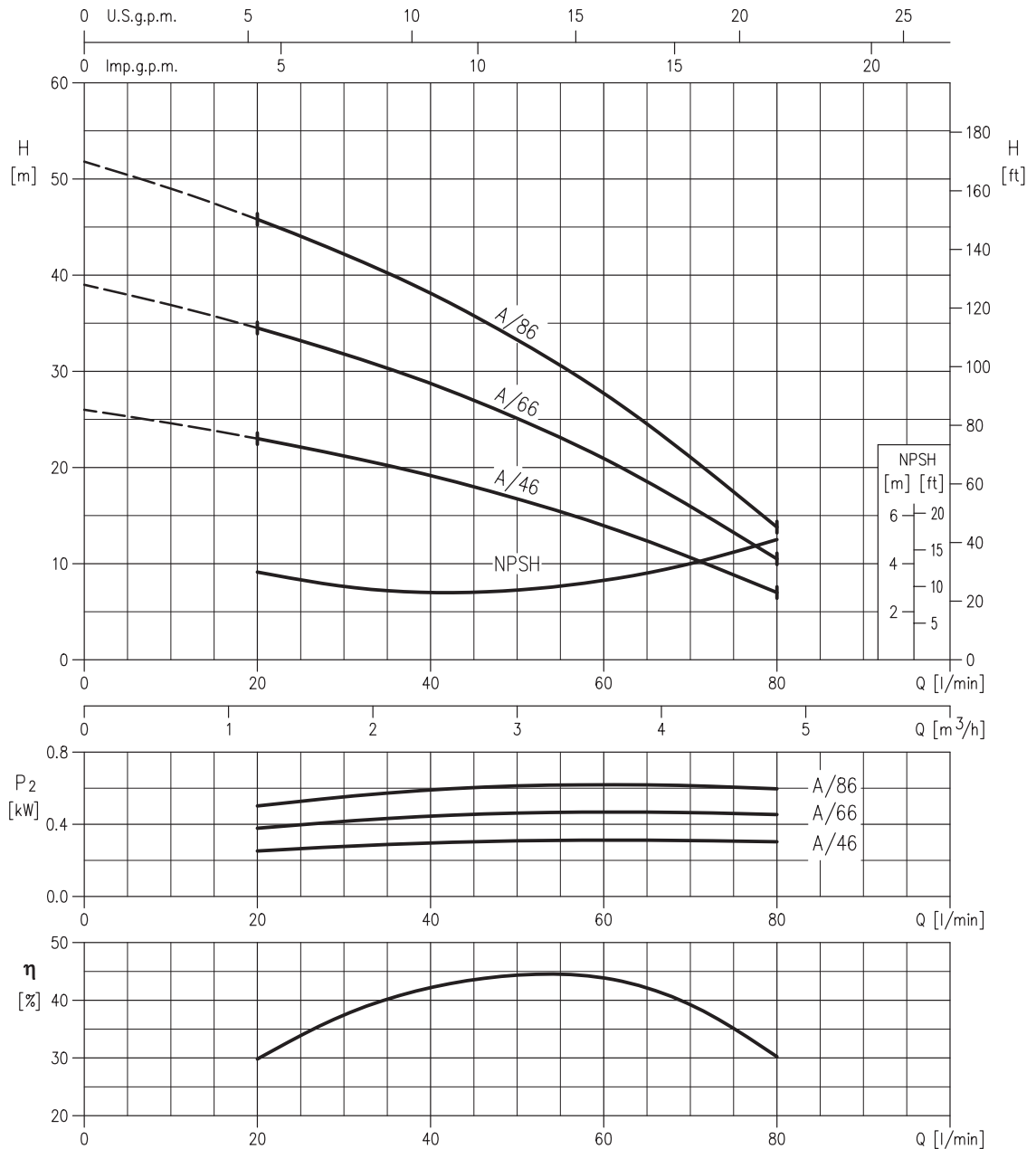
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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:

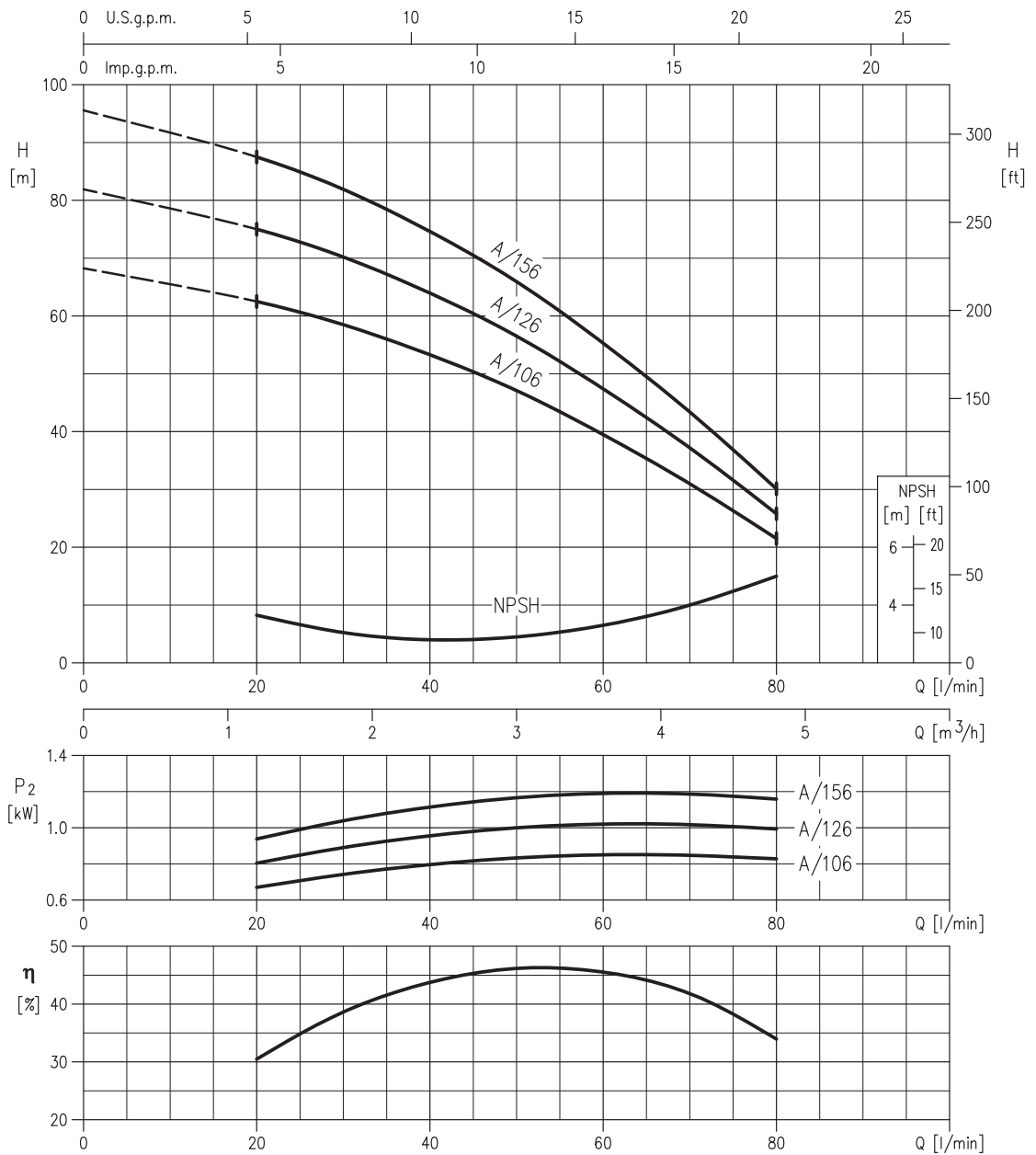
- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump

CVM A/46 (0.3 kW) - Impeller diameter = 90 mm
CVM A/66 (0.44 kW) - Impeller diameter = 90 mm
CVM A/86 (0.6 kW) - Impeller diameter = 90 mm



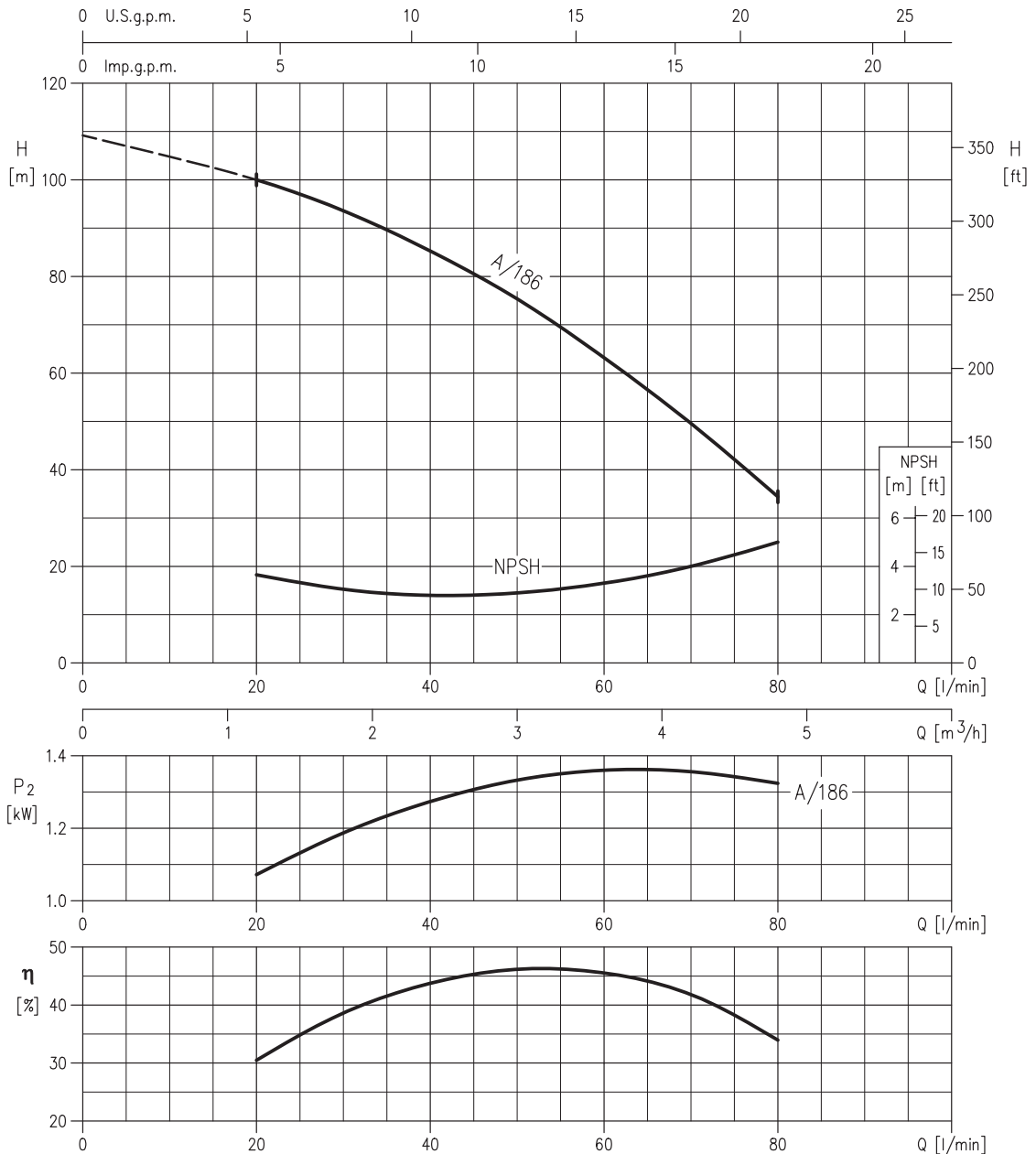
Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

CVM A/106 (0.75 kW) - Impeller diameter = 90 mm
CVM A/126 (0.9 kW) - Impeller diameter = 90 mm
CVM A/156 (1.1 kW) - Impeller diameter = 90 mm



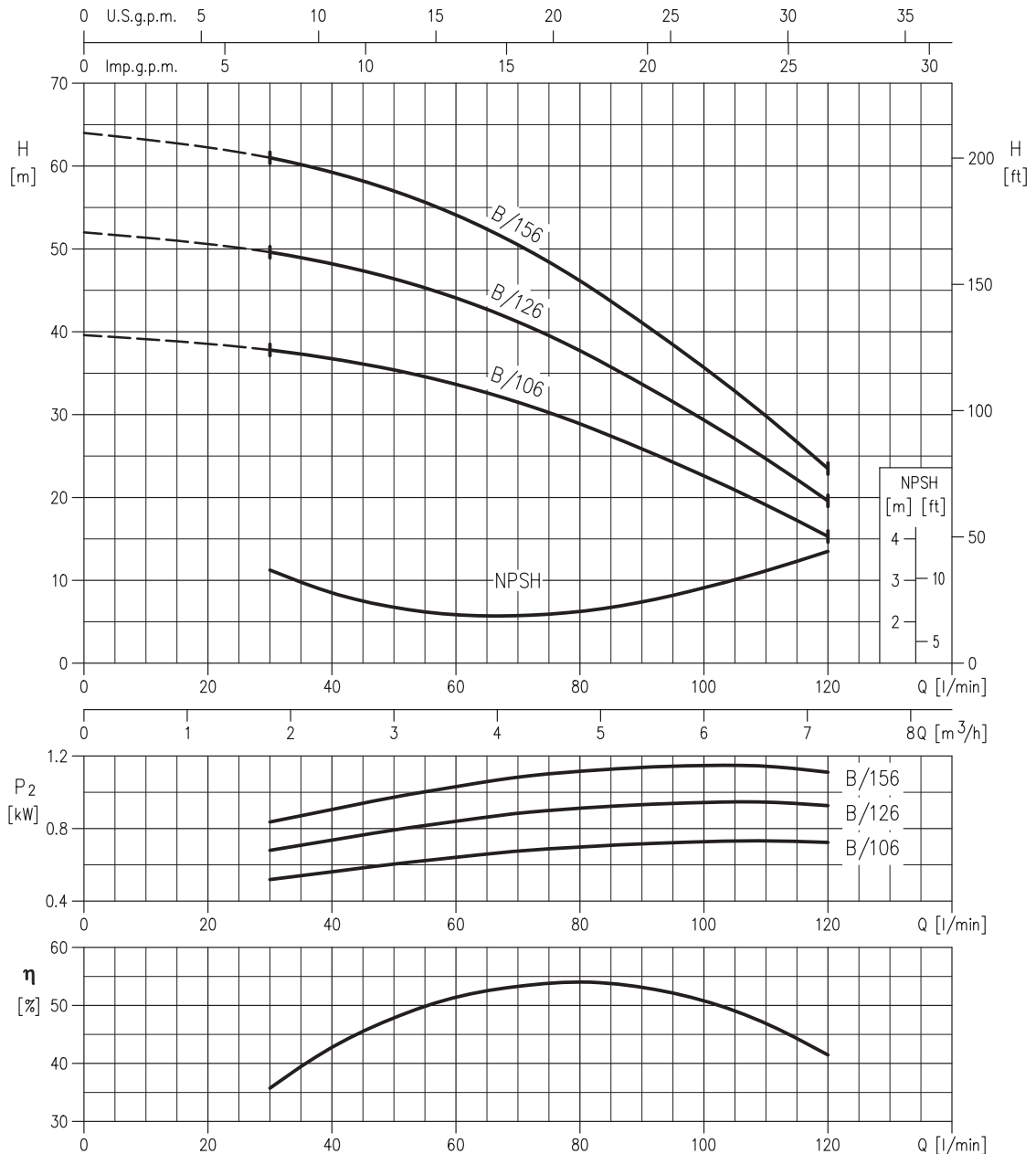
Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

CVM A/186 (1.3 kW) - Impeller diameter = 90 mm



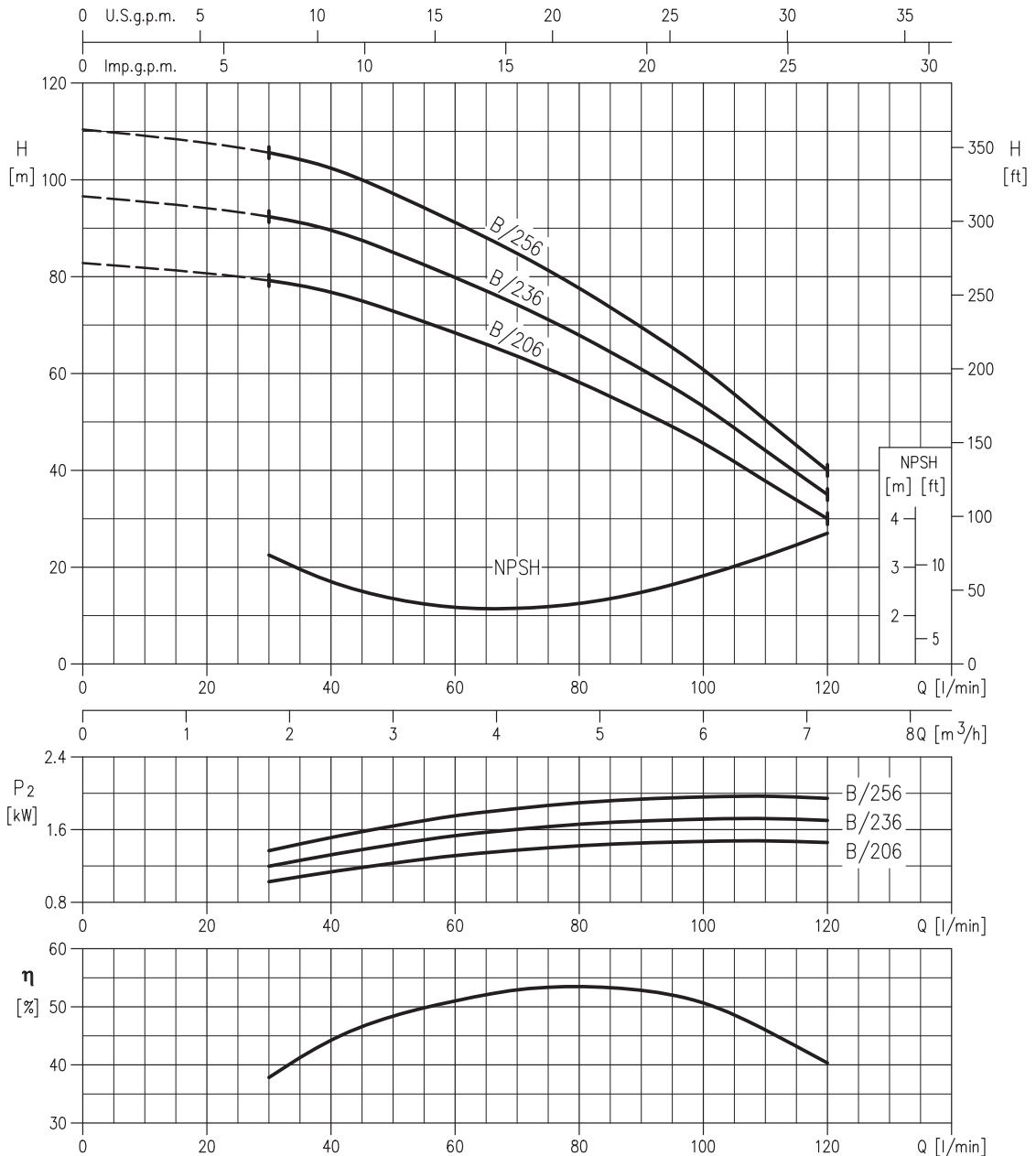
Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

CVM B/106 (0.75 kW) - Impeller diameter = 88 mm
CVM B/126 (0.9 kW) - Impeller diameter = 88 mm
CVM B/156 (1.1 kW) - Impeller diameter = 88 mm



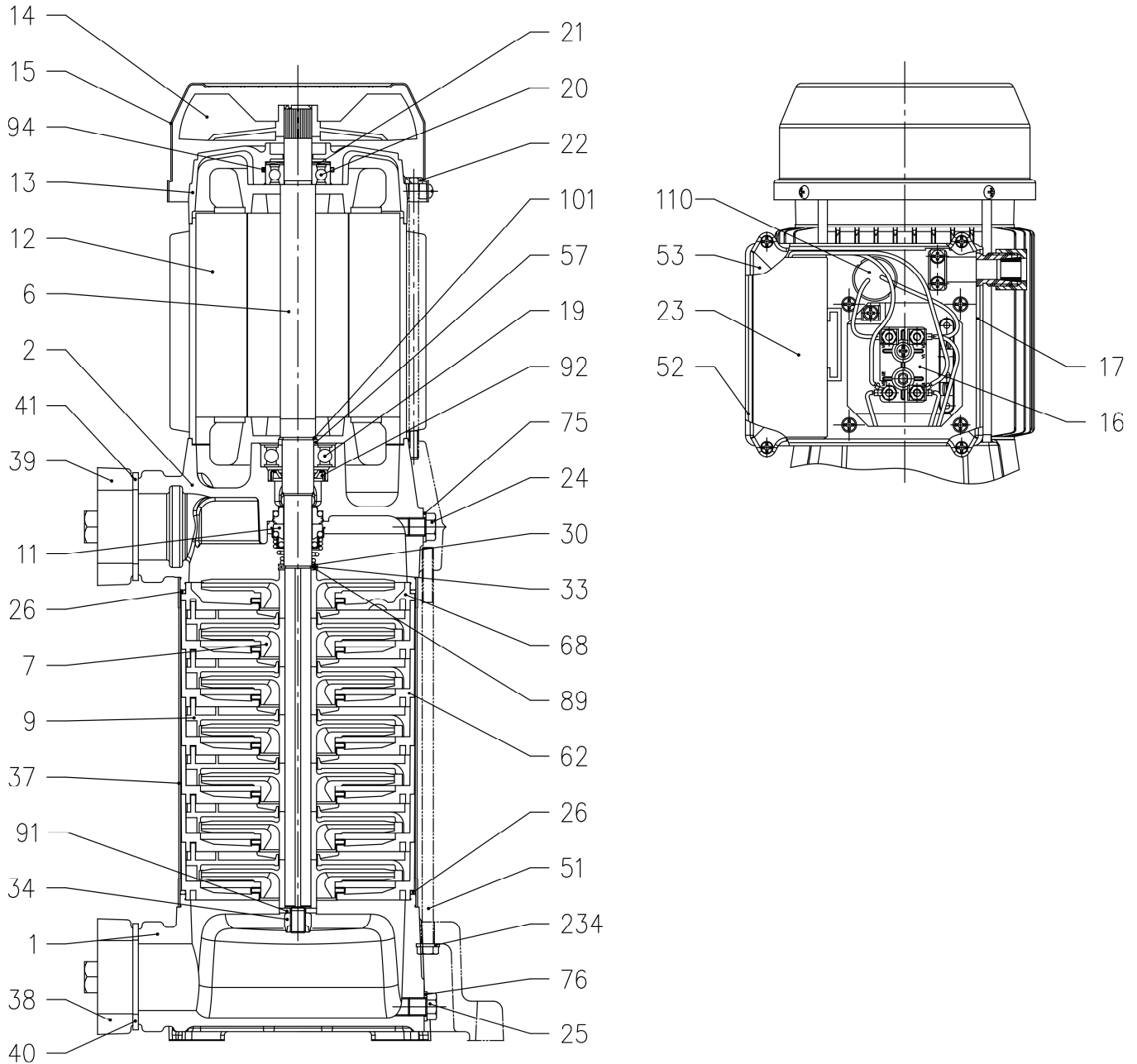
Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

CVM B/206 (1.5 kW) - Impeller diameter = 88 mm
CVM B/236 (1.7 kW) - Impeller diameter = 88 mm
CVM B/256 (1.9 kW) - Impeller diameter = 88 mm



Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

SECTIONAL VIEW DRAWING



SECTIONAL VIEW TABLE

N°	PART NAME	MATERIAL	DIMENSIONS	STANDARD	Q.TY
1	Suction casing	Cast iron EN-GJL-200-EN 1561	-	-	1
2	Delivery casing	Cast iron EN-GJL-200-EN 1561	-	-	1
6	Shaft with rotor	EN 1.4005 (AISI 416)	-	-	1
7	Impeller	PPE+PS Glass fibre reinforced	-	-	[1]
9	Diffuser	PPE+PS Glass fibre reinforced	-	-	[1]
11	Mechanical seal [2]	Carbon / Ceramic / NBR	-	-	1
12	Motor frame with stator	-	-	-	1
13	Motor cover + Spacer [9]	Aluminium	-	-	1
14	Fan	PA6	-	-	1
15	Fan cover	Galvanized Fe P04	-	-	1
16	Terminal board	-	-	-	1
17	Terminal box cover [3]	Aluminium	-	-	1
19	Pump side ball bearing	-	[4]	-	1
20	Fan side ball bearing	-	[4]	-	1
21	Adjusting ring	Steel C70	-	-	1
22	Motor tie rod	Galvanized Fe 42	M5xL	EBARA DRAWING	4
23	Capacitor [5]	-	-	-	1
24	Priming plug	OT 58 UNI 5705	G 1/8"	UNI ISO 228	1
25	Drain plug	OT 58 UNI 5705	G 1/8"	UNI ISO 228	1
26	O-ring	NBR	120x3	-	2
30	Washer	EN 1.4301 (AISI 304)	12x22x1 - [UP to 0,6kW] 15x22x1 - [0,75 kW and above]	EBARA DRAWING	1
33	Seeger ring	EN 1.4021 (AISI 420) EN 1.4301 (AISI 304)	12 14	UNI 7435 JIS B2804-1978	1
34	Impeller nut	EN 1.4301 (AISI 304)	M8x1 - [UP to 0,6kW] M10x1,25 - [0,75 kW and above]	UNI 7474	1
37	External pump casing	EN 1.4301 (AISI 304)	-	-	1
38	Counter flange	Cast iron EN-GJL-200-EN 1561	1"¼	EBARA DRAWING	1
39	Counter flange	Cast iron EN-GJL-200-EN 1561	1"¼	EBARA DRAWING	1
40	Counter flange gasket	NBR	-	EBARA DRAWING	1
41	Counter flange gasket	NBR	-	EBARA DRAWING	1
51	Tie rod	Galvanized Fe P04	M6	EBARA DRAWING	4
52	Capacitor box [5]	ABS class V-0	-	-	1
53	Capacitor box cover [5] [8]	ABS class V-0 [8]	-	-	1
57	Pump side ball bearing spacer [6]	Steel C40	22x27x3	EBARA DRAWING	1
62	Stage housing	PPE+PS Glass fibre reinforced/PTFE	-	-	[1]
68	Stage	PPE+PS Glass fibre reinforced/PTFE	-	-	1
75	Washer	Aluminium	10x16x1,5	EBARA DRAWING	1
76	Washer	Aluminium	10x16x1,5	EBARA DRAWING	1
89	Washer	EN 1.4301 (AISI 304)	12x21x1 - [UP to 0,6kW] 14,1x22x1 - [0,75 kW and above]	EBARA DRAWING	1
91	Washer	EN 1.4301 (AISI 304)	8,4x17x1,6 - [UP to 0,6kW] 10,2x20x2,5 - [0,75 kW and above]	UNI EN ISO 7089 EBARA DRAWING	1
92	Lip seal	NBR	12x24x4 17x32x6	EBARA DRAWING	1
94	O-ring [10]	NBR	34.65x1.78	-	1
101	Seeger ring [6]	EN 1.4301 (AISI 304)	20	UNI 7435	1
110	Motor protector [7]	-	-	-	1
234	Washer	Galvanized steel	6,4x12,5x1,6	UNI EN ISO 7089	4

[1] See QUANTITY FOR MODEL pag. 302

[2] See MECHANICAL SEAL pag. 303

[3] Only for three phase

[4] See BEARINGS pag. 302

[5] Only for single phase

[6] Only for motor size 80

[7] Only for motor size 71 e 80 single phase version

[8] With gasket in NBR only for version single phase:

CVM A from 0.3 kW up to 1.1 Kw

CVM B from 0.75 kW up to 1.1 Kw

[9] Spacer – Only for A/8 three phase model

[10] Only for A/126, B/126, AM/156, A/156, BM/156, B/156 models

QUANTITY FOR MODEL

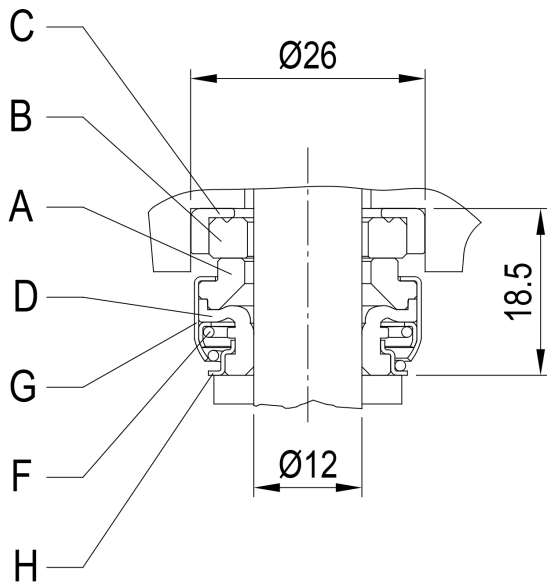
Pump		POS. 7	POS. 9	POS. 62
A type	B type			
CVM A/46	-	2	1	1
CVM A/66	CVM B/106	3	2	2
CVM A/86	CVM B/126	4	3	3
CVM A/106	CVM B/156	5	4	4
CVM A/126	CVM B/206	6	5	5
CVM A/156	CVM B/236	7	6	6
CVM A/186	CVM B/256	8	7	7

BEARINGS

Type pumps		Ball Bearing	
Single Phase	Three Phase	Pump side	Fan side
CVM AM/46	CVM A/46	6201 2DW C3	6201 2DW C3
CVM AM/66	CVM A/66		
CVM AM/86	CVM A/86		
CVM AM/106	CVM A/106	6203-2DW C3	6202-ZZ C3
CVM AM/126	CVM A/126		
CVM AM/156	CVM A/156		
CVM AM/186	CVM A/186	6304-2DW C3	6203-ZZ C3
CVM BM/106	CVM B/106	6203-2DW C3	6202-ZZ C3
CVM BM/126	CVM B/126		
CVM BM/156	CVM B/156		
CVM BM/206	CVM B/206	6304-2DW C3	6203-ZZ C3
CVM BM/236	CVM B/236		
-	CVM B/256		

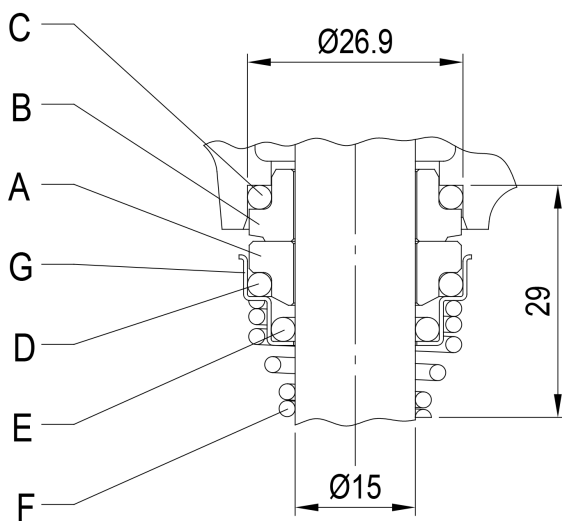
MECHANICAL SEAL

UP TO 0.6 kW



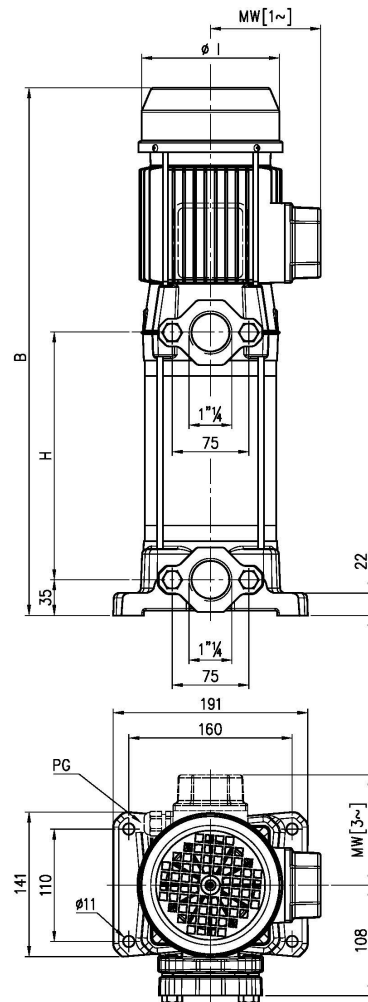
REF	PART NAME	MATERIAL product standard
A	Rotary seal ring	carbon graphite
B	Stationary seal ring	ceramic
C	Gasket	NBR
D	Bellows	NBR
F	Self driving spring	AISI 304
G	Frame	AISI 304
H	Retainer ring	AISI 304

0.75 kW AND ABOVE



REF	PART NAME	MATERIAL product standard
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

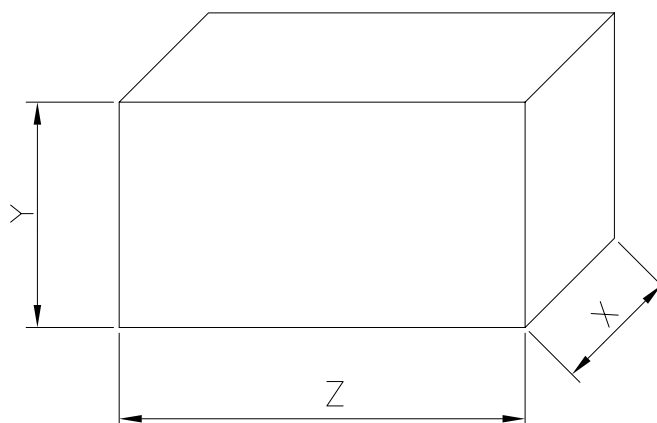
PUMP



Pump type	Motor Size	Dimensions [mm]						Weight [kgf]			
		B		H	ØI	MW		M		Weight [kgf]	
		[1~]	[3~]			[1~]	[3~]	[1~]	[3~]	[1~]	[3~]
CVM A/46	63	336	336	112	124	101	91,5	PG11	PG11	11	11,1
CVM A/66		362	362	138					PG11	11,7	11,7
CVM A/86		388	406	164					PG11	12,7	12,8
CVM A/106	71	452	452	190	141	110,5	101	PG11	M16x1.5	16,5	16,6
CVM A/126		478	490	216					M16x1.5	17,5	18,4
CVM A/156		516	516	242					M16x1.5	18,5	18,6
CVM A/186	80	565	565	268	159	136	120,5	PG13,5	M20x1.5	21,2	22,7
CVM B/106	71	400	400	138	141	110,5	101	PG11	M16x1.5	15,9	15,9
CVM B/126		426	438	164					M16x1.5	16,8	17,5
CVM B/156		464	464	190					M16x1.5	18	17,9
CVM B/206	80	513	526	216	159	134,5	120,5	PG13,5	M20x1.5	21,3	23,7
CVM B/236		552	552	242					M20x1.5	22,6	24,3
CVM B/256		-	578	268					-	-	M20x1.5

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

PACKING



Type pumps	Packing [mm]			Weight [kgf]	
	X	Y	Z	[1~]	[3~]
CVM A/46	212	208	-	11,9	12,0
CVM A/66				12,6	12,6
CVM A/86				13,6	13,7
CVM A/106			537	17,6	17,7
CVM A/126				18,6	19,5
CVM A/156				19,6	19,7
CVM A/186	252	208	617	22,3	24,5
CVM B/106	212		427	16,8	16,8
CVM B/126			537	17,9	18,6
CVM B/156				19,1	19,0
CVM B/206	252		617	22,4	24,5
CVM B/236				23,7	25,4
CVM B/256		-		25,7	

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

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	Single Phase		Three phase (380 V)			Three phase (460 V)			Single Phase	Three Phase	[A]				[A]			
						[μF]	[V]	50%	75%	100%	50%	75%	100%			220-230 V	220 V	380 V	460 V	220-230 V	220 V	380 V	460 V
CVM AM/46	CVM A/46	0,3	0,4	-	IE3	10	450	77,3	78,8	76,4	69,8	76,6	77,8	0,54	0,49	2,9	1,5	0,9	0,9	12,5	6,8	3,9	4,8
CVM AM/66	CVM A/66	0,44	0,6	-	IE3	12,5	450	75,7	77,1	75,9	71,8	75,1	78,6	0,73	0,55	3,5	1,8	1,0	1,0	8,6	4,9	6,0	6,0
CVM AM/86	CVM A/86	0,6	0,8	-	IE3	14	450	80,9	81,0	79,3	71,9	76,9	81,5	0,91	0,69	4,3	2,2	1,3	1,3	12,8	11,8	6,8	8,3
CVM AM/106	CVM A/106	0,75	1	-	IE3	20	450	80,7	81,9	81,3	78,4	81,6	83,1	1,33	0,90	6,7	2,8	1,6	1,5	35,2	16,9	9,7	11,8
CVM AM/126	CVM A/126	0,9	1,2	-	IE3	31,5	450	84,8	84,5	82,7	82,0	84,4	84,5	1,53	1,30	7,0	4,0	2,3	2,2	29,3	24,6	14,2	17,2
CVM AM/156	CVM A/156	1,1	1,5	-	IE3	31,5	450	84,8	84,5	82,7	82,0	84,4	84,5	1,60	1,30	7,5	3,8	2,3	2,2	30,7	24,6	14,2	17,2
CVM AM/186	CVM A/186	1,3	1,8	-	IE3	35	450	84,2	84,7	84,5	83,2	84,7	85,7	1,87	1,75	8,2	5,3	3,1	2,9	55,0	40,2	23,2	28,1
CVM BM/106	CVM B/106	0,75	1	-	IE3	20	450	80,7	81,9	81,3	78,4	81,6	83,1	1,19	0,90	6,4	2,8	1,6	1,5	33,7	16,9	9,7	11,8
CVM BM/126	CVM B/126	0,9	1,2	-	IE3	31,5	450	84,8	84,5	82,7	82,0	84,4	84,5	1,46	1,30	6,8	4,0	2,3	2,2	28,5	24,6	14,2	17,2
CVM BM/156	CVM B/156	1,1	1,5	-	IE3	31,5	450	84,8	84,5	82,7	82,0	84,4	84,5	1,58	1,30	7,4	4,0	2,3	2,2	30,3	24,6	14,2	17,2
CVM BM/206	CVM B/206	1,5	2	-	IE3	40	450	86,5	86,8	86,2	86,9	87,8	87,4	1,97	2,48	8,9	7,5	4,3	4,1	69,0	55,7	32,2	38,9
CVM BM/236	CVM B/236	1,7	2,3	-	IE3	40	450	86,5	86,8	86,2	86,9	87,8	87,4	2,29	2,48	10,7	7,5	4,3	4,1	69,0	55,7	32,2	38,9
-	CVM B/256	1,85	2,5	-	IE3	-	-	82,4	83,0	82,2	79,5	82,9	83,8	-	2,90	-	8,1	4,7	-	-	54,4	31,4	-
-	CVM B/256	1,85	2,5	-	IE3	-	-	86,5	86,8	86,2	86,9	87,8	87,4	-	2,48	-	7,5	4,3	4,1	-	55,7	32,2	38,9

NOISE DATA

Pump type		Power		L _{pA} - dB(A) *
Single Phase	Three Phase	[kW]	[HP]	
CVM AM/46	CVM A/46	0.3	0.4	57
CVM AM/66	CVM A/66	0.44	0.6	
CVM AM/86	CVM A/86	0.6	0.8	
CVM AM/106	CVM A/106	0.75	1	66
CVM AM/126	CVM A/126	0.9	1.2	
CVM AM/156	CVM A/156	1.1	1.5	
CVM AM/186	CVM A/186	1.3	1.8	67
CVM BM/106	CVM B/106	0.75	1	66
CVM BM/126	CVM B/126	0.9	1.2	
CVM BM/156	CVM B/156	1.1	1.5	
CVM BM/206	CVM B/206	1.5	2	67
CVM BM/236	CVM B/236	1.7	2.3	
-	CVM B/256	1.85	2.5	

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