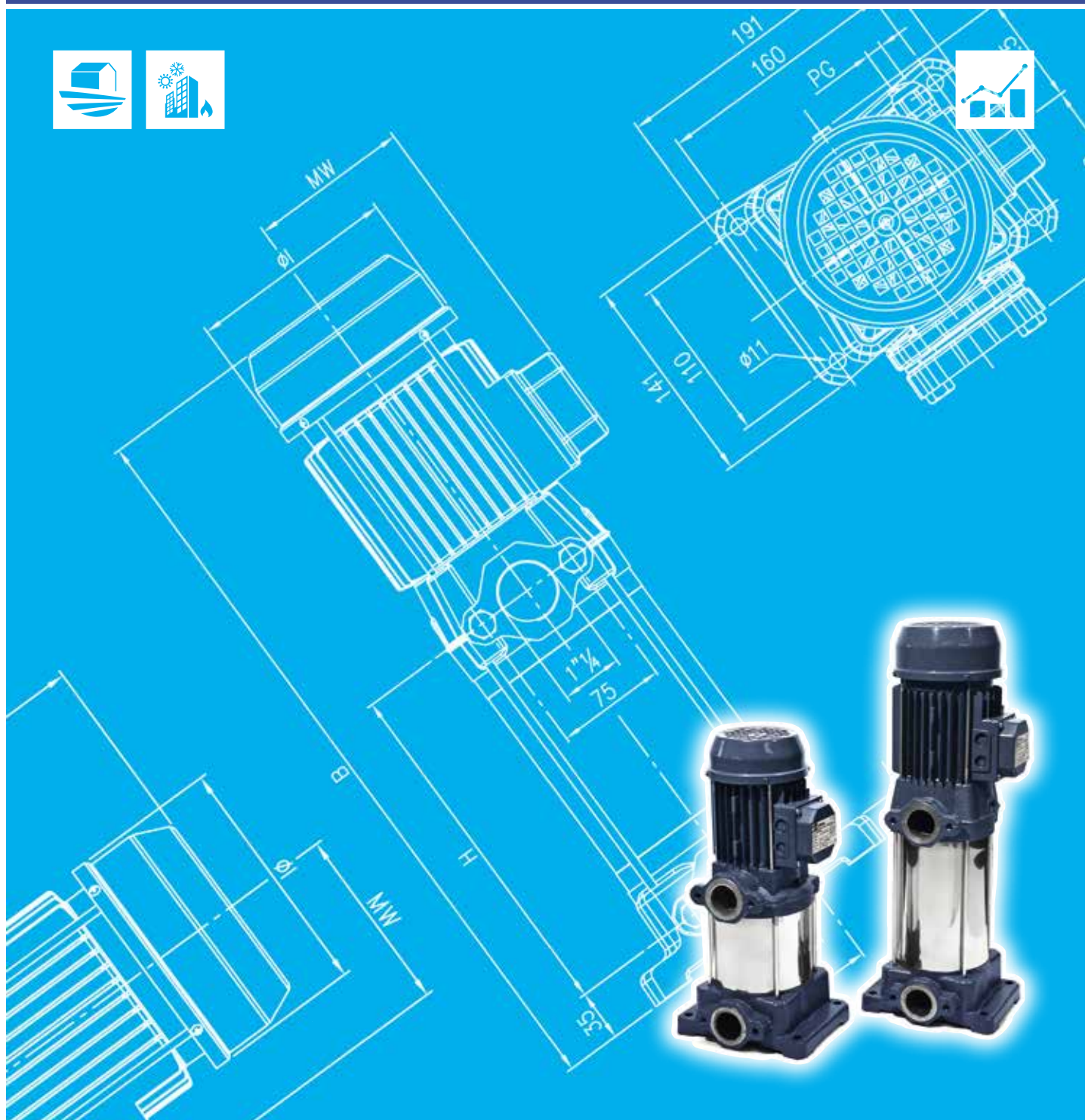




Japanese Technology since 1912

CVM

Data Book 60Hz



	Page
- SPECIFICATIONS	200
PERFORMANCE RANGE and SELECTION CHART	201
TYPE KEY and CURVES SPECIFICATIONS	202
PERFORMANCE CURVES CVM A (UP TO 0.6 kW)	203
PERFORMANCE CURVES CVM A (FROM 0.75 kW UP TO 1.1 kW)	204
PERFORMANCE CURVES CVM A (FROM 1.3 kW AND ABOVE)	205
PERFORMANCE CURVES CVM B (UP TO 1.1 kW)	206
PERFORMANCE CURVES CVM B (FROM 1.5 kW AND ABOVE)	207
 - CONSTRUCTIONS	 300
SECTIONAL VIEW DRAWING	300
SECTIONAL VIEW TABLE	301
QUANTITY FOR MODEL	302
BEARINGS	302
MECHANICAL SEAL (UP TO 0.6 kW)	303
MECHANICAL SEAL (0.75 kW AND ABOVE)	303
 - DIMENSIONS and WEIGHT	 400
PUMP	400
PACKING	401
 - TECHNICAL DATA	 500
MOTOR DATA	500
NOISE DATA	501

SPECIFICATIONS

60Hz

Rev. M

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"¼ UNI ISO 228
	Discharge	G 1"¼ 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

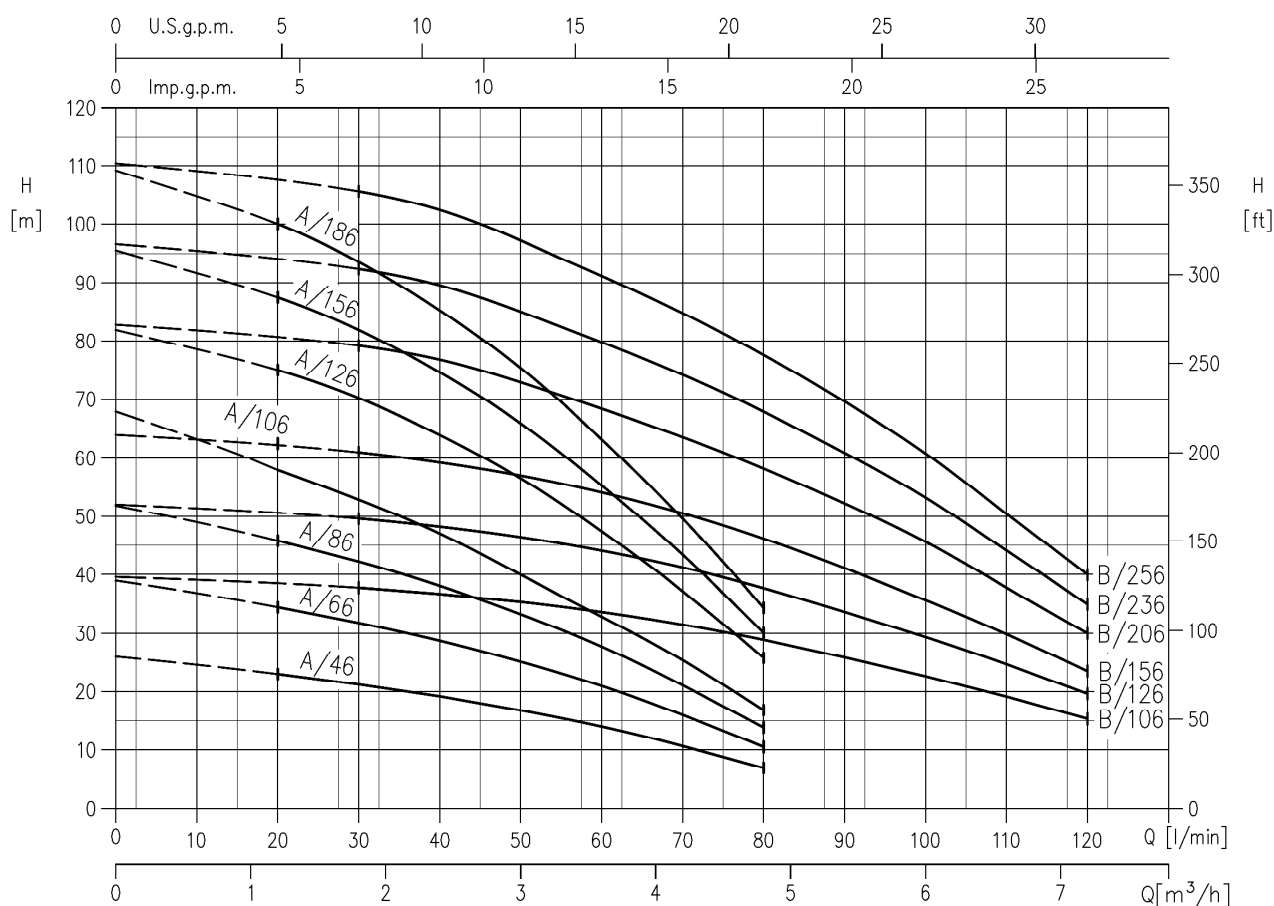
MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg.1781/2019)	IE2 **	IE3 *
No. of Poles	2	
Rotation speed [min ⁻¹]	≈ 3450	
Insulation Class	F	
Protection degree	IP 44	
Power rating [kW]	0.3 ÷ 1.7	0.3 ÷ 1.85
	[HP]	0.4 ÷ 2.5
Frequency [Hz]	60	
Voltage [V]	220-230 ±6%	220/380-460 ±10%
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)	

* IE3 at 460V; IE2 at 220/380

** IE2 only for models AM/46, AM/66, AM/86, AM/106, BM/106

Other single-phase models not available for the European market

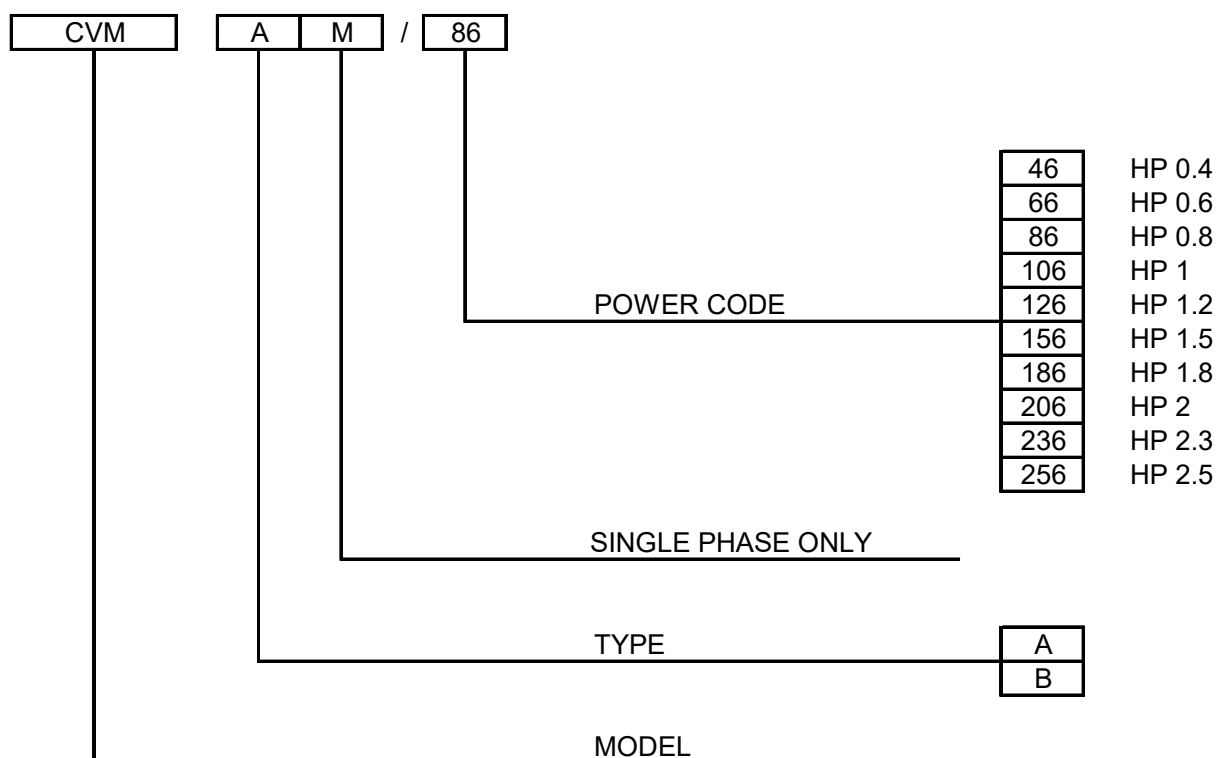
PERFORMANCE RANGE



SELECTION CHART

Pump type		Power		Q=Capacity									
Single Phase	Three Phase	[kW]	[HP]	l/min	0	20	30	40	50	60	80	100	120
				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 AM/46	CVM A/46	0.3	0.4	26	23	21.2	19.2	16.7	14	7	-	-	-
CVM AM/66	CVM A/66	0.44	0.6	39	34.5	31.8	28.7	25.1	20.9	10.5	-	-	-
CVM AM/86	CVM A/86	0.6	0.8	52	45.5	42	38.1	33.3	27.7	13.8	-	-	-
CVM AM/106	CVM A/106	0.75	1	68	58	53	47	40	33	16.8	-	-	-
CVM AM/126	CVM A/126	0.9	1.2	82	75	70	64	56.5	47.5	25.8	-	-	-
CVM AM/156	CVM A/156	1.1	1.5	95.5	87.5	82	74.5	66	55.5	30.1	-	-	-
CVM AM/186	CVM A/186	1.3	1.8	109	100	93.5	85.5	75.5	63	34.4	-	-	-
CVM BM/106	CVM B/106	0.75	1	39.6	-	37.8	36.8	35.4	33.7	28.9	22.6	15.3	-
CVM BM/126	CVM B/126	0.9	1.2	52	-	49.5	48	46.5	44	37.7	29.4	19.6	-
CVM BM/156	CVM B/156	1.1	1.5	64	-	61	59.5	57	54	46	35.7	23.5	-
CVM BM/206	CVM B/206	1.5	2	83	-	79	77	73	68.5	58	45.5	30	-
CVM BM/236	CVM B/236	1.7	2.3	96.5	-	92.5	89.5	85	80	68	53	35	-
-	CVM B/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.

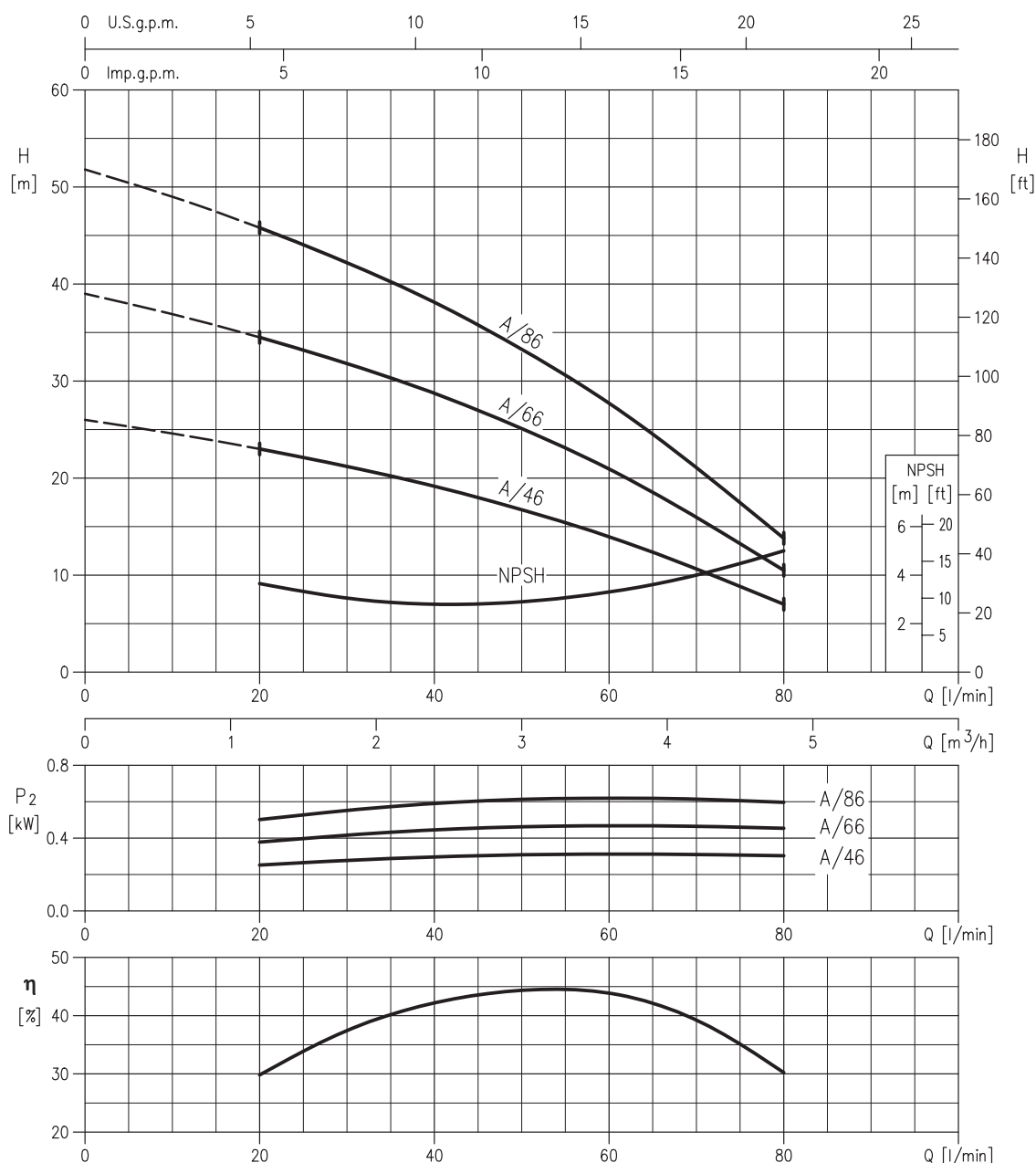
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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
- P₂ = 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

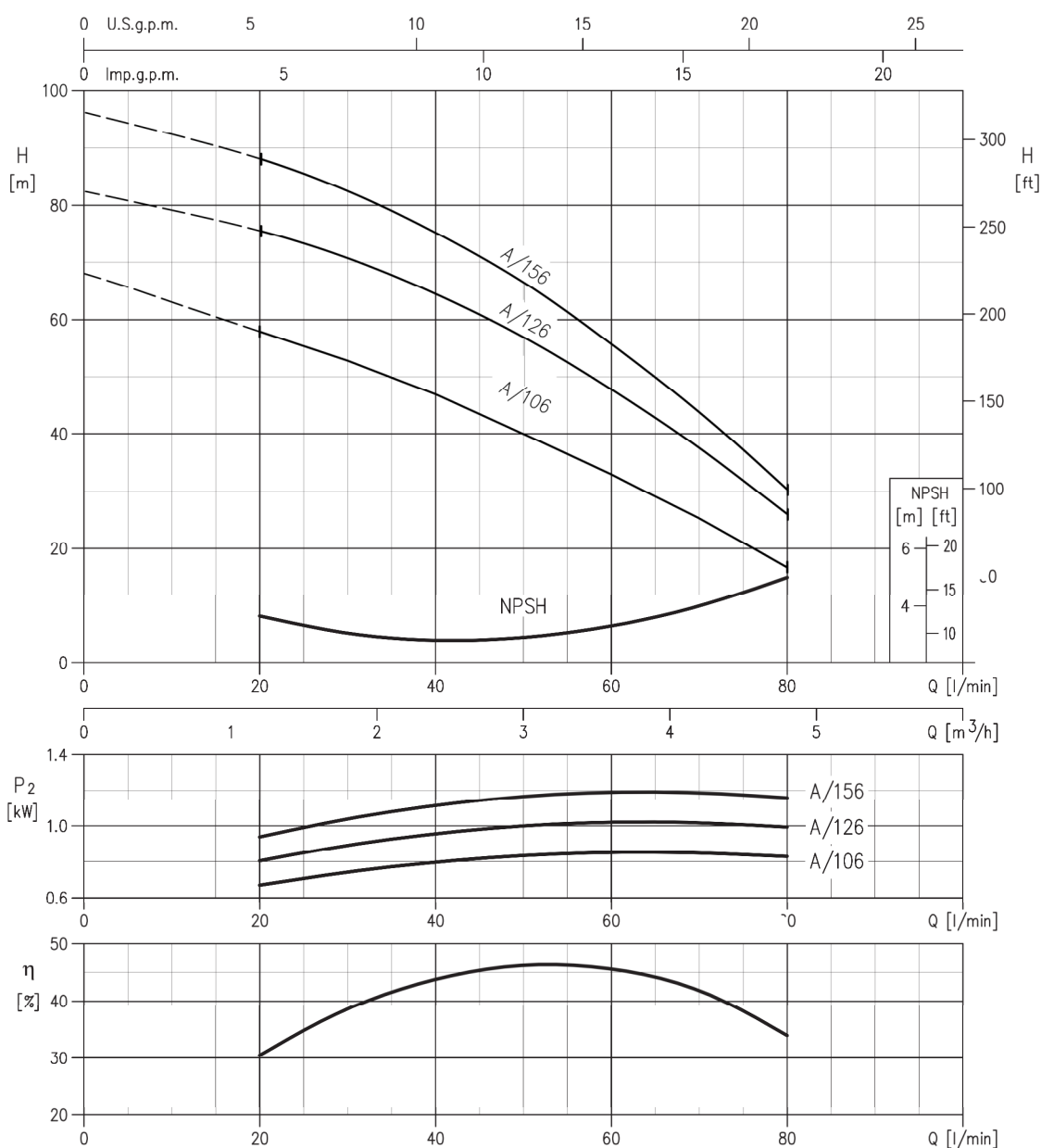


Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

CVM A/106 (0.75 kW) - Impeller diameter = 90 mm

CVM A/126 (0.9 kW) - Impeller diameter = 90 mm

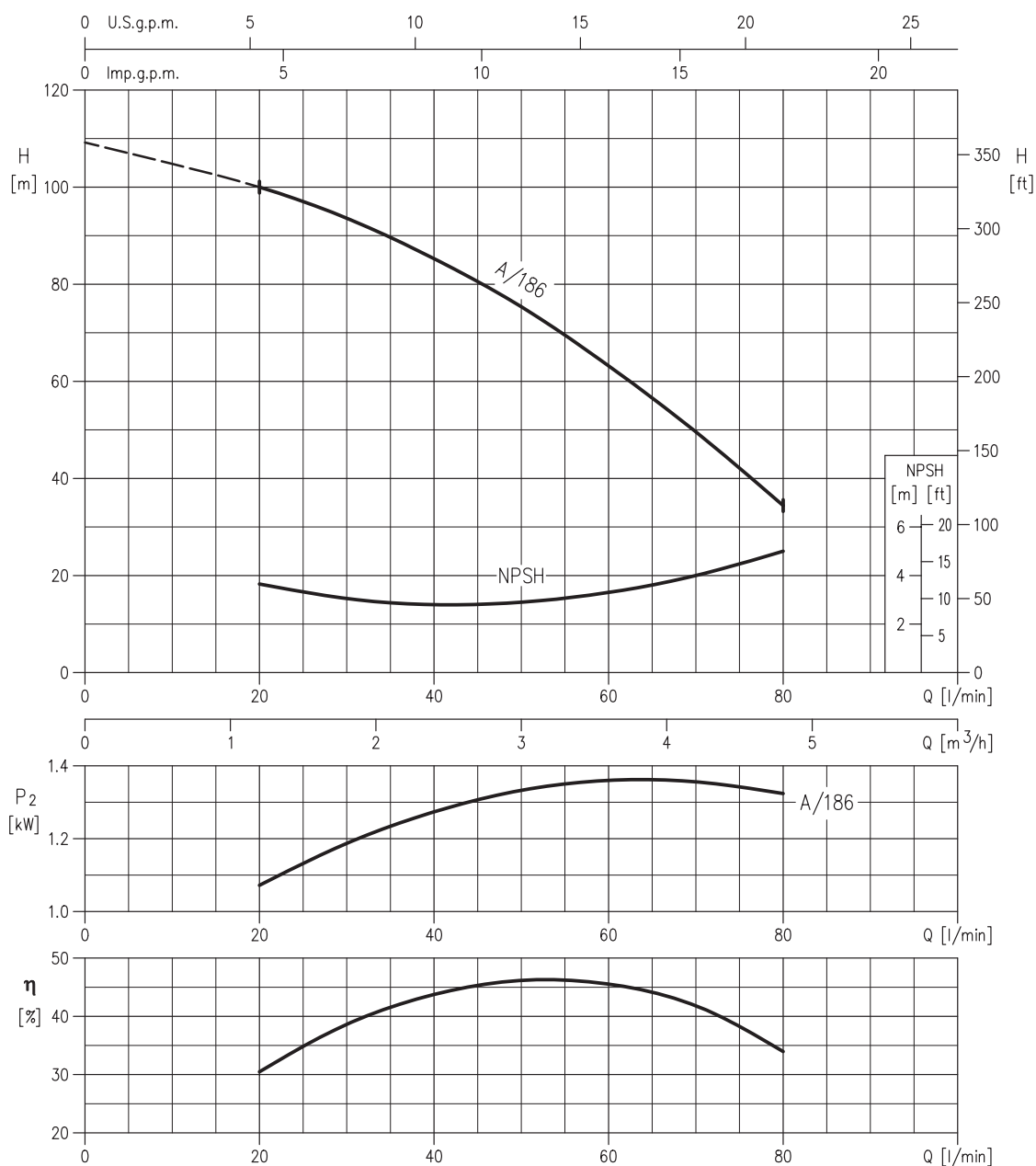
CVM A/156 (1.1 kW) - Impeller diameter = 90 mm



Rotation speed $\approx 3450 \text{ min}^{-1}$

Test standard: ISO 9906:2012 - Grade 3B

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



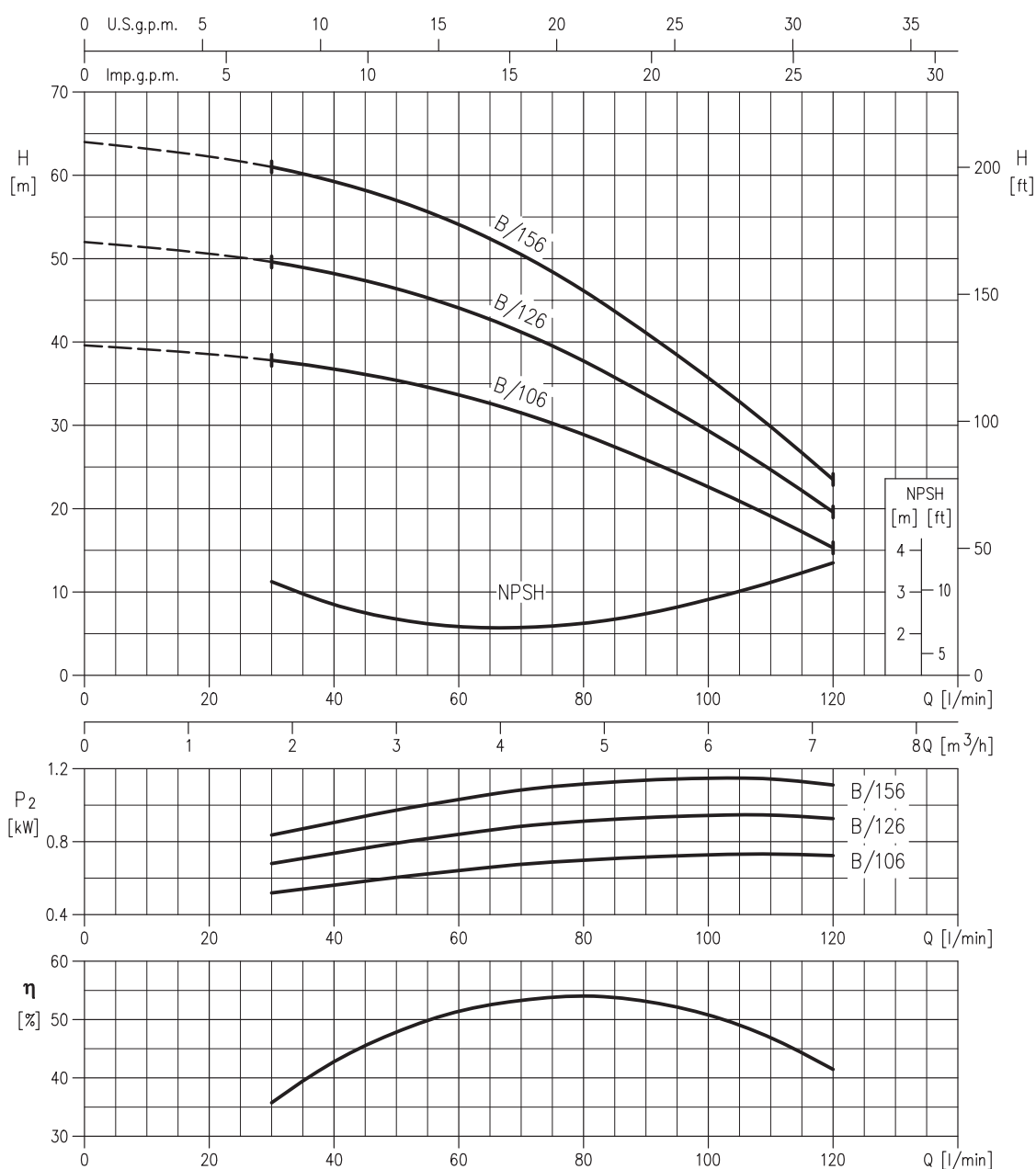
Rotation speed $\approx 3450 \text{ min}^{-1}$

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



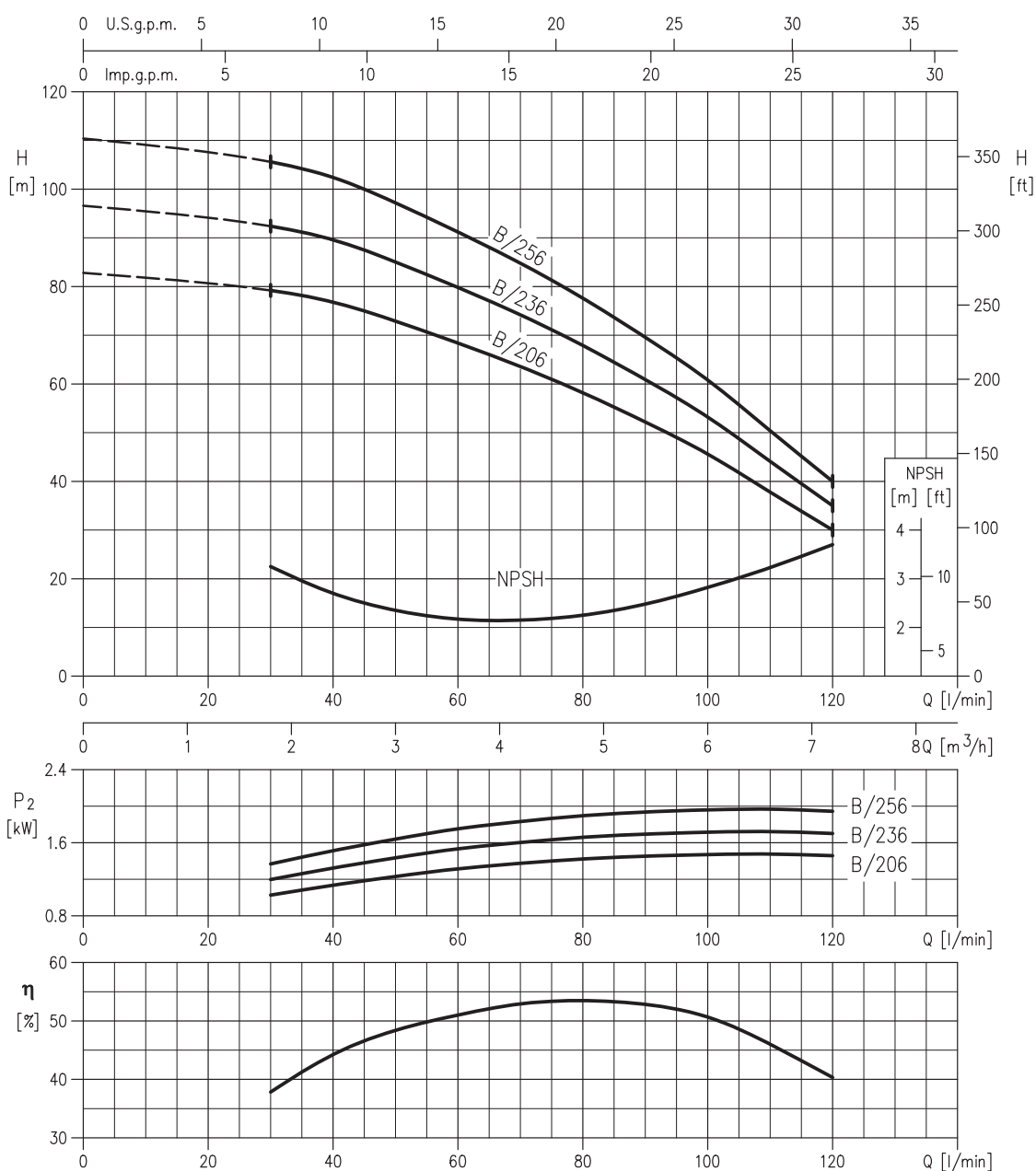
Rotation speed $\approx 3450 \text{ min}^{-1}$

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

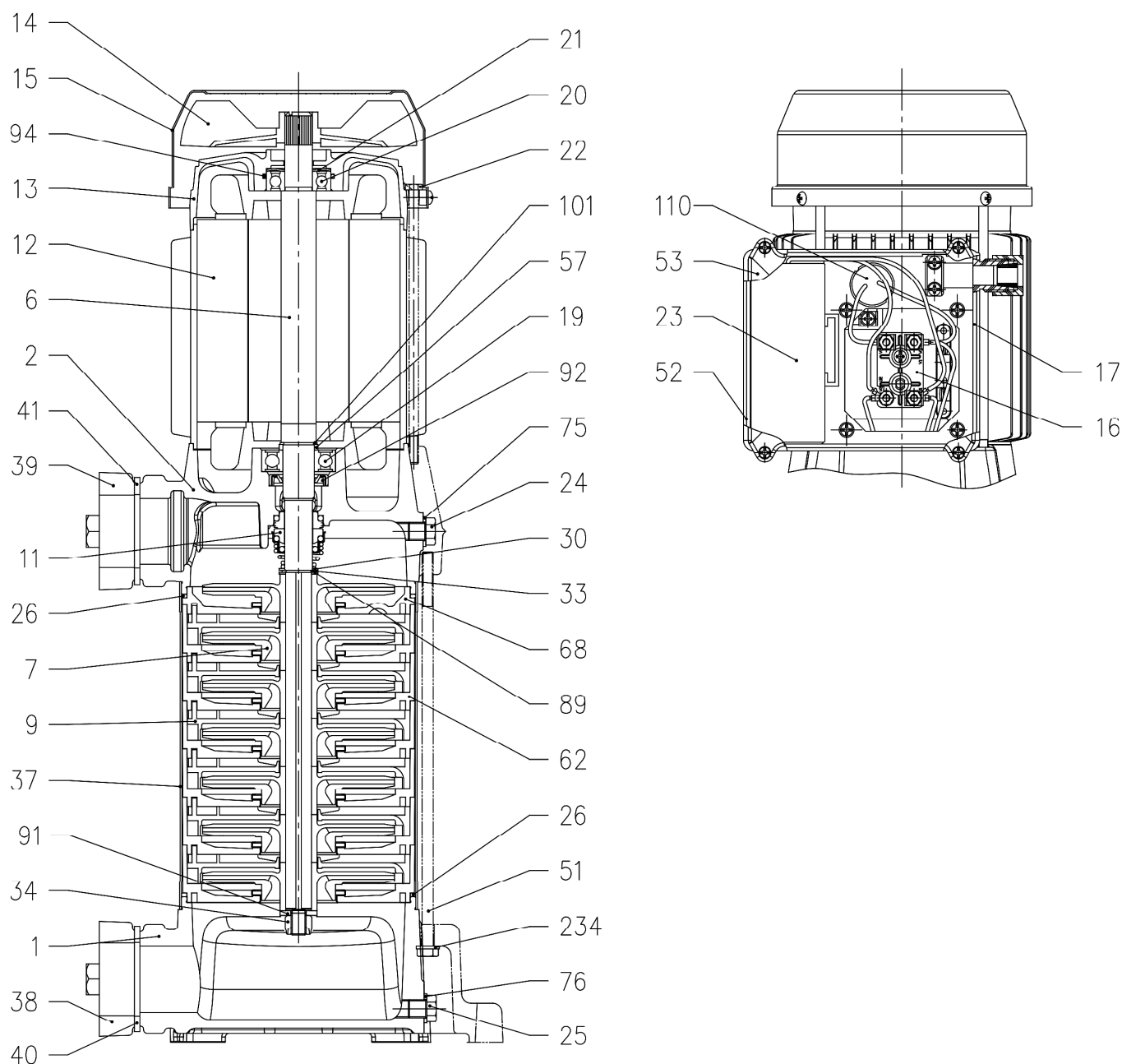
CVM B/256 (1.9 kW) - Impeller diameter = 88 mm



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 1/4"	EBARA DRAWING	1
39	Counter flange	Cast iron EN-GJL-200-EN 1561	1 1/4"	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

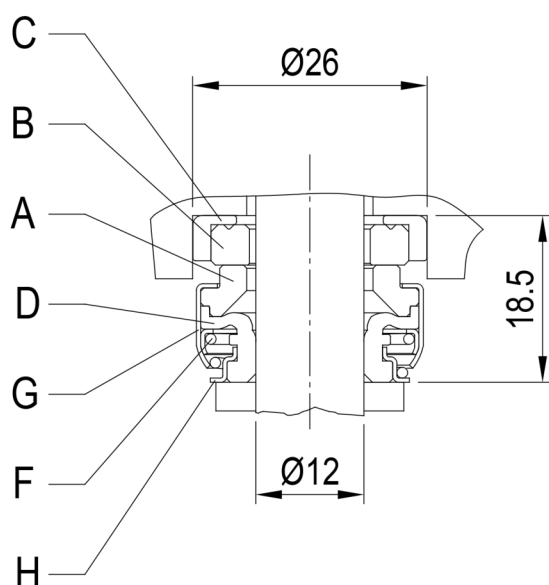
Pump		POS. 7	POS. 9	POS. 62
A type	B type			
CVM A/46	-	2	1	1
CVM A/66	CVM B/106	3	2	2
CVM A/86	CVM B/126	4	3	3
CVM A/106	CVM B/156	5	4	4
CVM A/126	CVM B/206	6	5	5
CVM A/156	CVM B/236	7	6	6
CVM A/186	CVM B/256	8	7	7

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		

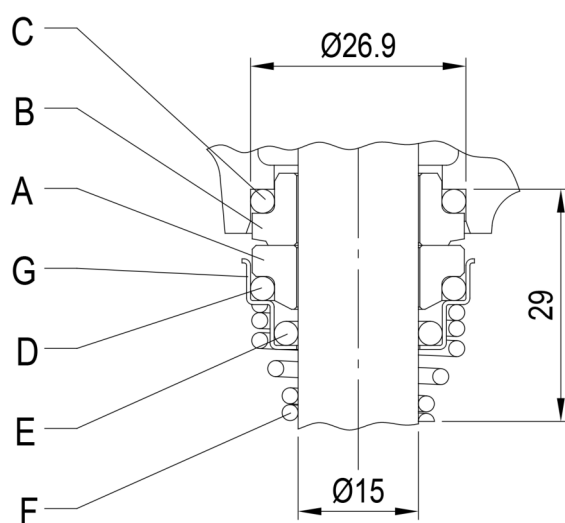
MECHANICAL SEAL

UP TO 0.6 kW



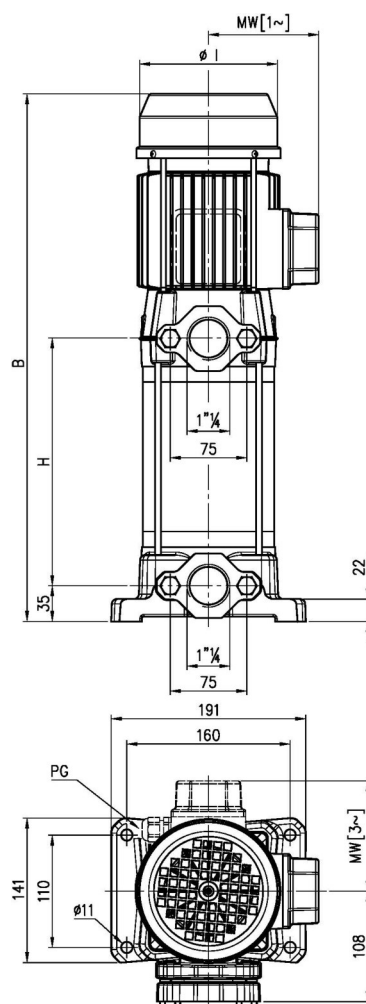
REF	PART NAME	MATERIAL product standard
A	Rotary seal ring	carbon graphite
B	Stationary seal ring	ceramic
C	Gasket	NBR
D	Bellows	NBR
F	Self driving spring	AISI 304
G	Frame	AISI 304
H	Retainer ring	AISI 304

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

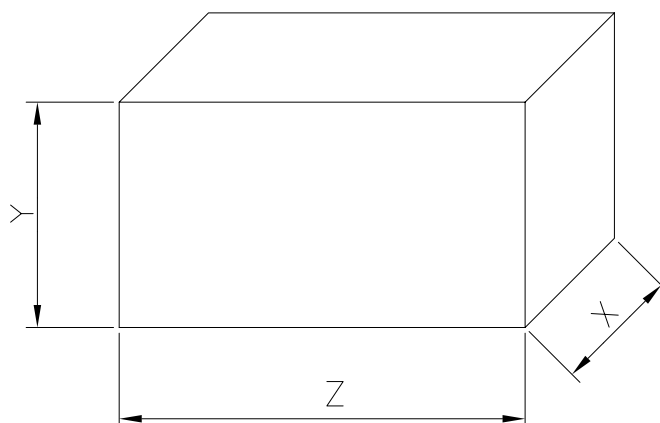


Pump type	Motor Size	Dimensions [mm]								Weight [kgf]		
		B		H	ØI	MW		M		[1~]	[3~]	
		[1~]	[3~]			[1~]	[3~]	[1~]	[3~]			
CVM A/46	63	336	336	112	124	101	91.5	PG11	PG11	12	11.1	
CVM A/66	71	402	362	138		110.5			101	PG11	14	11.7
CVM A/86		428	406	164						PG11	14.5	12.8
CVM A/106		452	452	190						M16x1.5	18.5	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	17.5	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		513	526	216					134.5	120.5	PG13,5	M20x1.5
CVM B/236	80	552	552	242	M20x1.5	22.6	24.3					
CVM B/256		-	578	268	-	M20x1.5	-	24.6				

[1~] Single phase

[3~] Three phase

PACKING



Type pumps	Packing [mm]			Weight [kgf]	
	X	Y	Z	[1~]	[3~]
CVM A/46	212	208	-	13	12,0
CVM A/66				15	12,6
CVM A/86				15,5	13,7
CVM A/106			537	19	17,7
CVM A/126				18,6	19,5
CVM A/156				19,6	19,7
CVM A/186	252		617	22,3	24,5
CVM B/106	212		427	18	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) and power factor				Input	Full load current		Locked rotor current	
Single Phase	[kW]	[HP]	[IE]	[μF]	[V]	η %			cos-φ	[kW]	[A]		[A]	
						50%	75%	100%			110 V	220 V	110 V	220 V
CVM AM/46	0.37	0.5	IE2	12.5	450	63.8	70.5	72.4	1.0	0.51	-	2.4	-	8.8
CVM AM/66	0.55	0.75	IE2	12.5	450	63.8	71.2	75.7	1.0	0.75	-	3.6	-	17.4
CVM AM/86	0.6	0.8	IE2	12.5	450	63.0	71.4	74.9	0.9	0.80	-	3.7	-	17.4
CVM AM/106	0.9	1	IE2	31.5	450	64.1	73.2	79.4	0.9	1.17	-	5.9	-	45.3
CVM AM/126	1.1	1.5	- **	25	450	-	-	-	1.0	1.54	-	7.3	-	35.0
CVM AM/156	1.1	1.5	- **	31.5	450	-	-	-	1.0	1.47	-	7.1	-	30.7
CVM AM/186	1.7	2.3	- **	31.5	450	-	-	-	1.0	2.08	-	9.7	-	55.0
CVM BM/106	0.9	1	IE2	31.5	450	64.1	73.2	79.4	0.9	1.17	-	5.9	-	45.3
CVM BM/126	1.1	1.5	- **	25	450	-	-	-	1.0	1.54	-	7.3	-	35.0
CVM BM/156	1.1	1.5	- **	31.5	450	-	-	-	1.0	1.47	-	7.1	-	30.7
CVM BM/206	1.8	2.4	- **	40	450	-	-	-	1.0	2.29	-	10.5	-	69.0
CVM BM/236	1.8	2.4	- **	40	450	-	-	-	1.0	2.29	-	10.5	-	69.0

Pump type	Power		Efficiency	Efficiency (% load)			Efficiency (% load)			Input	Full load current			Locked rotor current		
	Three Phase	[kW]		[HP]	Three phase (380 V)			Three phase (460 V)			[A]	[A]				
					η %			η %				[A]				
			[IE]	50%	75%	100%	50%	75%	100%		220 V	380 V	460 V	220 V	380 V	460 V
CVM A/46	0.3	0.4	IE3	77.3	78.8	76.4	69.8	76.6	77.8	0.49	1.5	0.9	0.9	6.8	3.9	4.8
CVM A/66	0.44	0.6	IE3	75.7	77.1	75.9	71.8	75.1	78.6	0.55	1.8	1.0	1.0	8.6	4.9	6.0
CVM A/86	0.6	0.8	IE3	80.9	81.0	79.3	71.9	76.9	81.5	0.69	2.2	1.3	1.3	11.8	6.8	8.3
CVM A/106	0.75	1	IE3	80.7	81.9	81.3	78.4	81.6	83.1	0.90	2.8	1.6	1.5	16.9	9.7	11.8
CVM A/126	0.9	1.2	IE3	84.8	84.5	82.7	82.0	84.4	84.5	1.30	4.0	2.3	2.2	24.6	14.2	17.2
CVM A/156	1.1	1.5	IE3 *	84.8	84.5	82.7	82.0	84.4	84.5	1.30	3.8	2.3	2.2	24.6	14.2	17.2
CVM A/186	1.3	1.8	IE3 *	84.2	84.7	84.5	83.2	84.7	85.7	1.75	5.3	3.1	2.9	40.2	23.2	28.1
CVM B/106	0.75	1	IE3	80.7	81.9	81.3	78.4	81.6	83.1	0.90	2.8	1.6	1.5	16.9	9.7	11.8
CVM B/126	0.9	1.2	IE3	84.8	84.5	82.7	82.0	84.4	84.5	1.30	4.0	2.3	2.2	24.6	14.2	17.2
CVM B/156	1.1	1.5	IE3 *	84.8	84.5	82.7	82.0	84.4	84.5	1.30	4.0	2.3	2.2	24.6	14.2	17.2
CVM B/206	1.5	2	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
CVM B/236	1.7	2.3	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
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

* IE3 at 460V; IE2 at 220/380

** model not available for the european market

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.



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