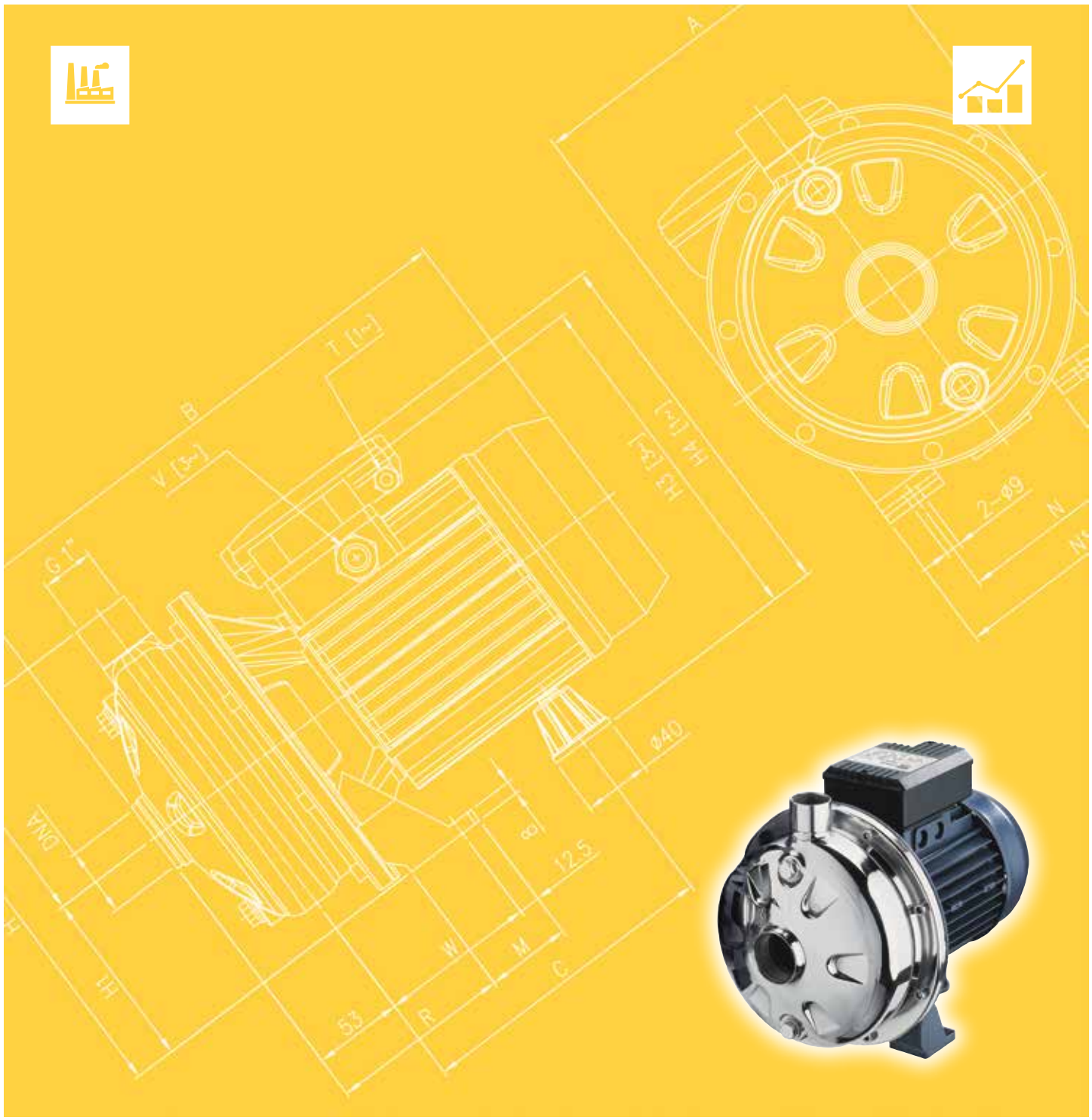




Japanese Technology since 1912

CDX

Data Book 60Hz



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PERFORMANCE RANGE and SELECTION CHART

60Hz

Rev. N

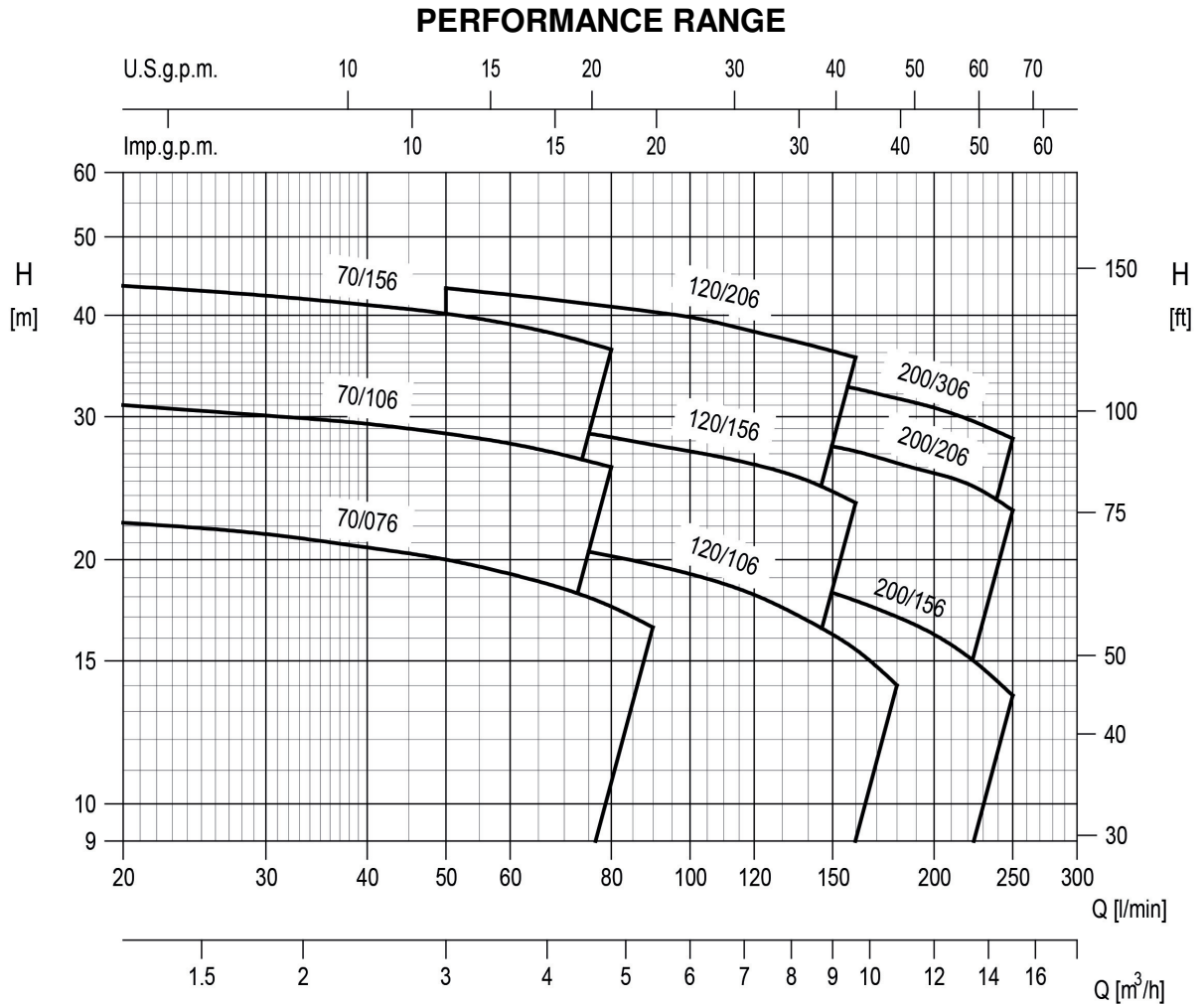
PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -5 max. +60 only for model 70/076, 70/106, 70/156 max. +60 for model 70/076, 70/106, 70/156 version: E, Q1AEGG, VAEGG, U3U3EGG, Q1U3EGG, U3CEGG max. +90 max. +110 H - HS - HW - HSW max. +120 E, Q1AEGG, VAEGG, U3U3EGG, Q1U3EGG, U3CEGG
Maximum working pressure [MPa]		0.8
Construction	Impeller	Closed centrifugal type
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction [inch]	from G1" ¹ / ₄ to G1" ¹ / ₂ UNI ISO 228-1
	Discharge [inch]	G1" UNI ISO 228-1
Material	Casing	EN 1.4301 (AISI 304) - (AISI 316L only for "L" version)
	Impeller	EN 1.4301 (AISI 304) - (AISI 316L only for "L" version)
	Casing cover	EN 1.4301 (AISI 304) - (AISI 316L only for "L" version)
	Shaft seal	Ceramic / Carbon / NBR (for special versions see page 301)
	Shaft	AISI 303 / AISI 316L (Wet extension)
	Bracket	Aluminium
Applicable standard of test		ISO 9906:2012 - Grade 3B

MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Rif.1781/2019)	-	IE3
No. of Poles	2	
Rotation speed [min ⁻¹]	≈ 3450	
Insulation Class	F	
Protection degree (CEI EN 60034-5)	IP 55	
Power rating	[kW]	0.55 ÷ 1.5
	[HP]	0.75 ÷ 2.0
Frequency [Hz]	60	
Voltage [V]	110-115 ±6%	220/380-460 -6% +10% (0.55 kW)
	220-230 ±6%	220/380-460 ±10% (IE3* from 0.75 kW up to 2.2 kW)
Capacitor	Built in	-
Over load protection	Built in	Provided by the user
Casing material	Aluminium	
Base material / Motor support	Aluminium	
Dimensions of cable entry	PG 11 - PG 13.5 - M16x1.5 - M20x1.5 (see dimensions table page 400)	

PERFORMANCE RANGE and SELECTION CHART

60Hz

Rev. N



SELECTION CHART

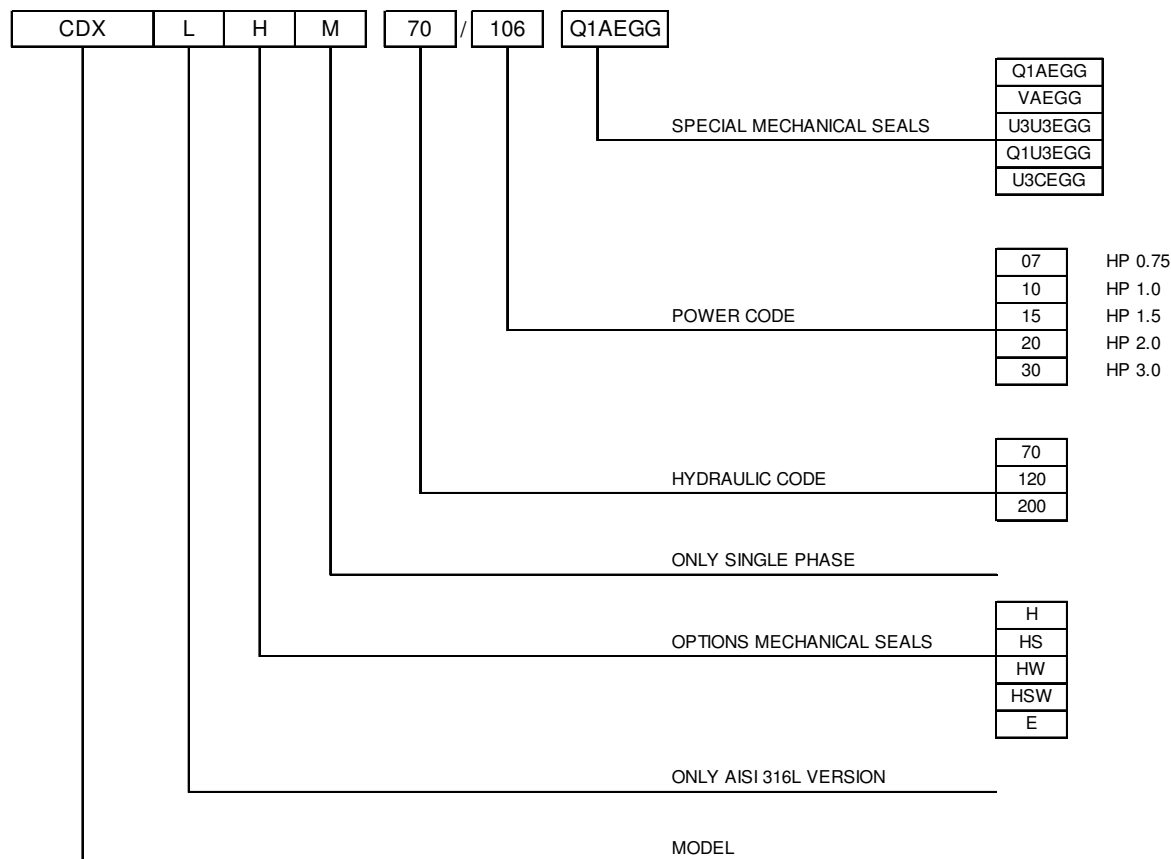
Pump type		Power		Q=Capacity												
				l/min	0	20	50	80	90	120	140	160	180	220	250	
Single Phase	Three Phase	[kW]	[HP]	m³/h	0	1.2	3.0	4.8	5.4	7.2	8.4	9.6	10.8	13.2	15	
H=Total manometric head in meters																
CDXM 70/076	CDX 70/076	0.55	0.75	23.3	22.4	20.4	18.2	17.4	-	-	-	-	-	-	-	-
CDXM 70/106	CDX 70/106	0.75	1	30.3	29.3	27.2	24.8	-	-	-	-	-	-	-	-	-
CDXM 70/156	CDX 70/156	1.1	1.5	44.1	44.2	39.5	36.4	-	-	-	-	-	-	-	-	-
CDXM 120/106	CDX 120/106	0.75	1	23.8	-	22.1	20.6	20.0	18.5	17.4	16.0	14.6	-	-	-	-
CDXM 120/156	CDX 120/156	1.1	1.5	31.6	-	29.2	27.7	27.1	25.4	24.2	22.5	-	-	-	-	-
CDXM 120/206	CDX 120/206	1.5	2	45.6	-	43.2	41.4	40.6	38.3	36.4	34.3	-	-	-	-	-
CDXM 200/156	CDX 200/156	1.1	1.5	23.3	-	-	21.7	21.4	20.3	19.4	18.4	17.4	15.2	13.5	-	-
CDXM 200/206	CDX 200/206	1.5	2	32.6	-	-	31.3	31.1	30.2	29.5	28.6	27.8	25.6	24.2	-	-
-	CDX 200/306	2.2	3	36.8	-	-	35.5	35.2	34.5	33.8	33.1	32.2	30.2	29.0	-	-

TYPE KEY and CURVE SPECIFICATIONS

60Hz

Rev. N

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 60 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)

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

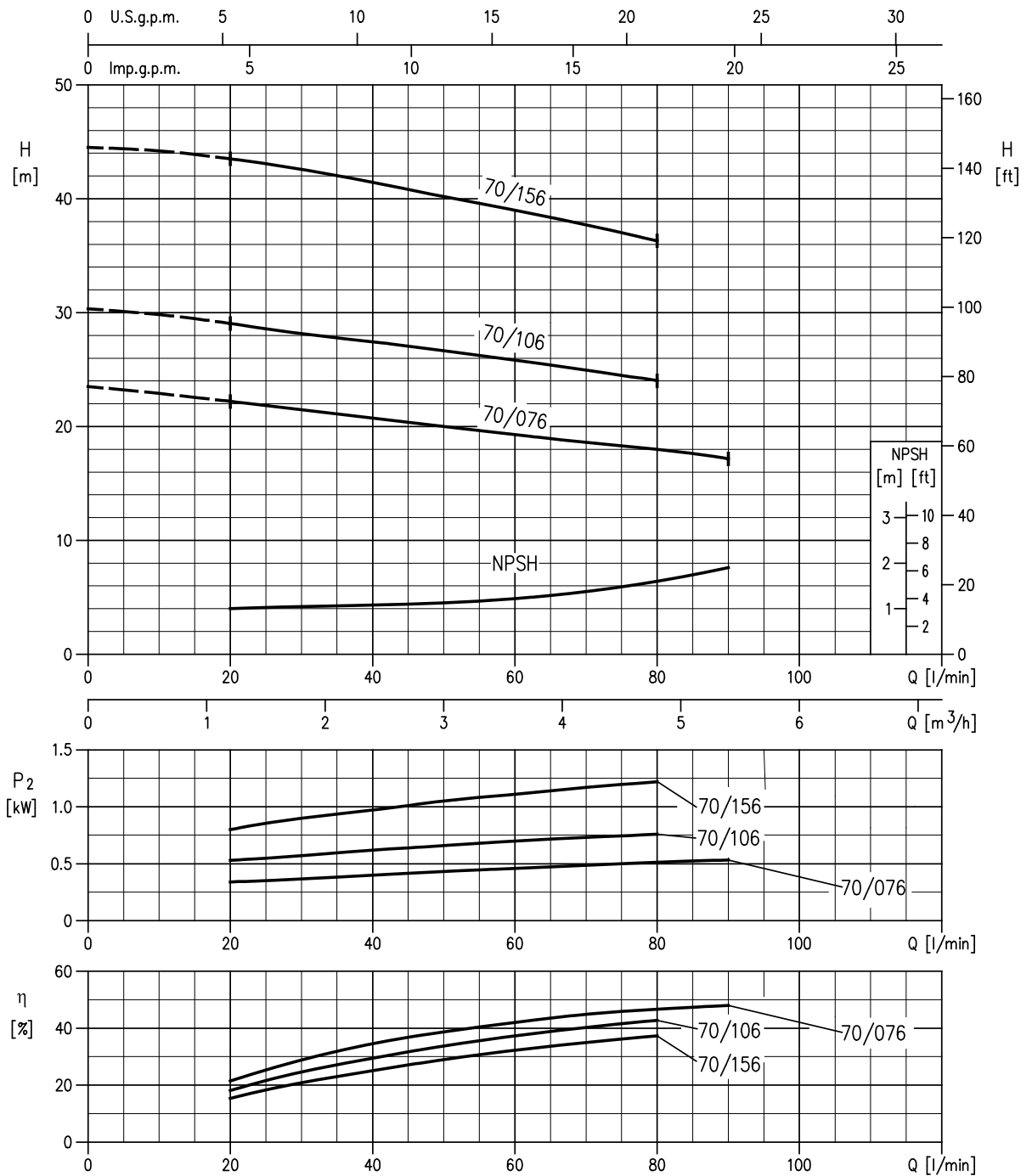
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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:

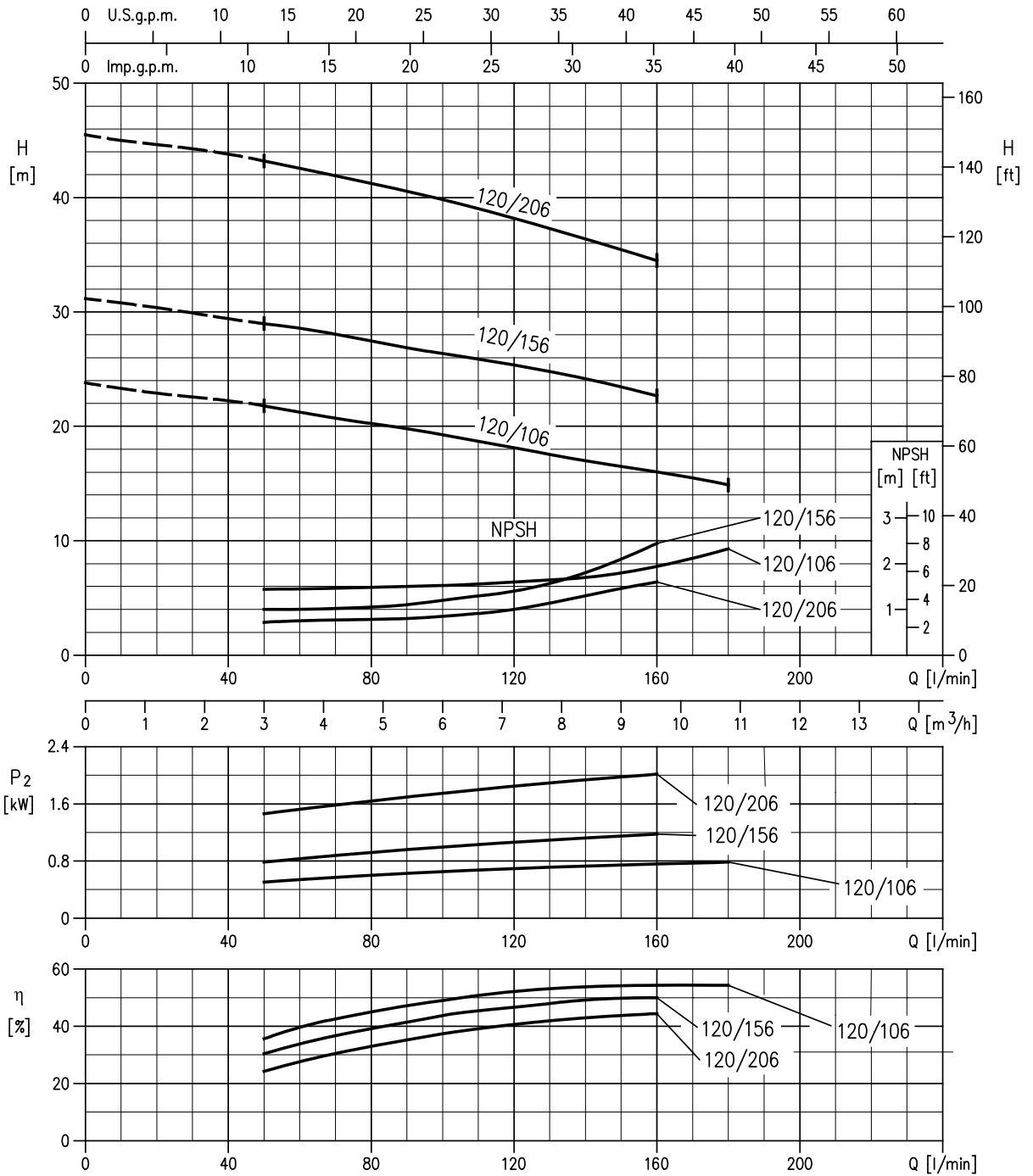
- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump

CDX 70/076 (0.55 kW) - Impeller diameter = 115 mm
CDX 70/106 (0.75 kW) - Impeller diameter = 132 mm
CDX 70/156 (1.1 kW) - Impeller diameter = 157 mm



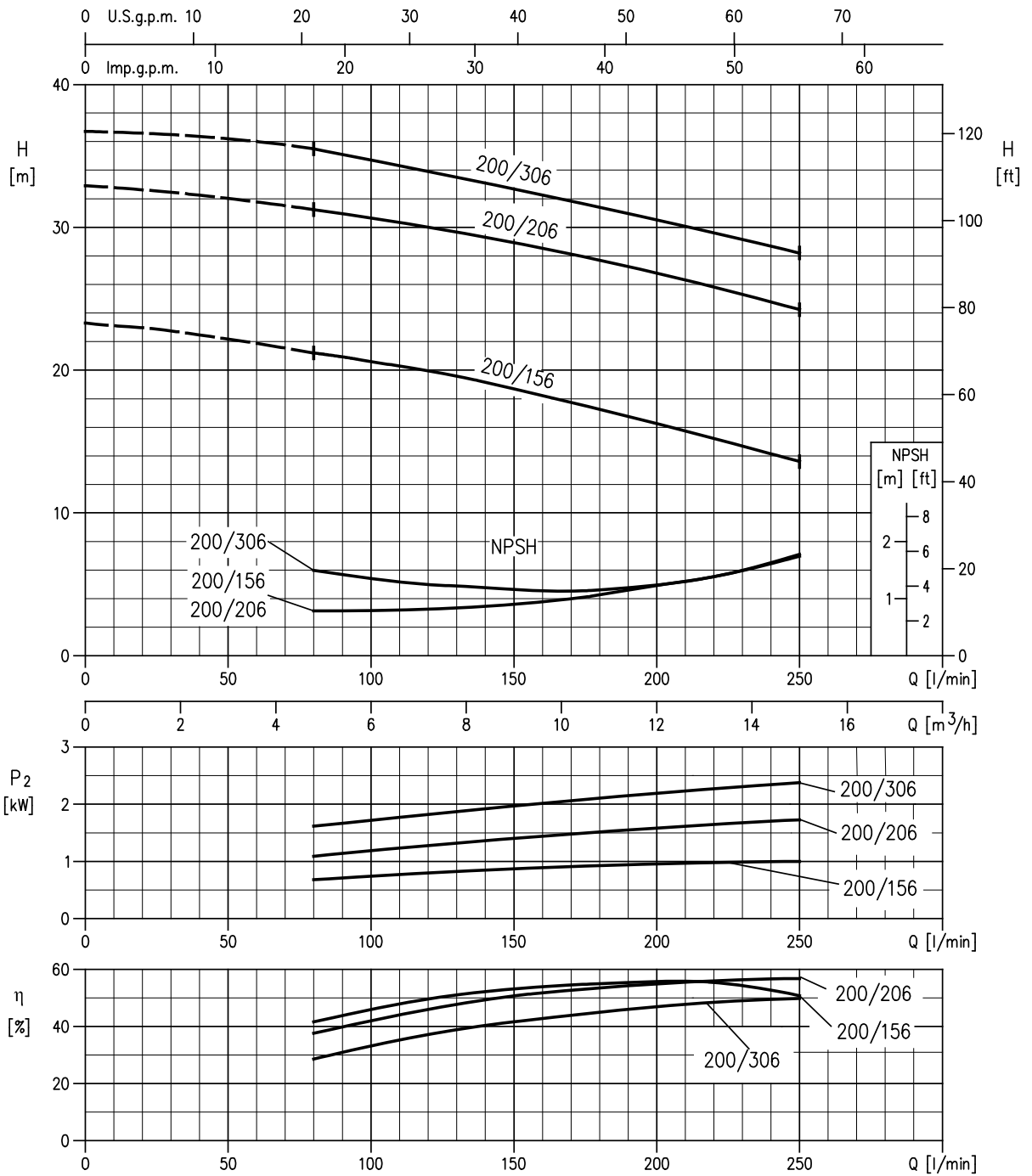
Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

CDX 120/106 (0.75 kW) - Impeller diameter = 115 mm
 CDX 120/156 (1.1 kW) - Impeller diameter = 132 mm
 CDX 120/206 (1.5 kW) - Impeller diameter = 157 mm



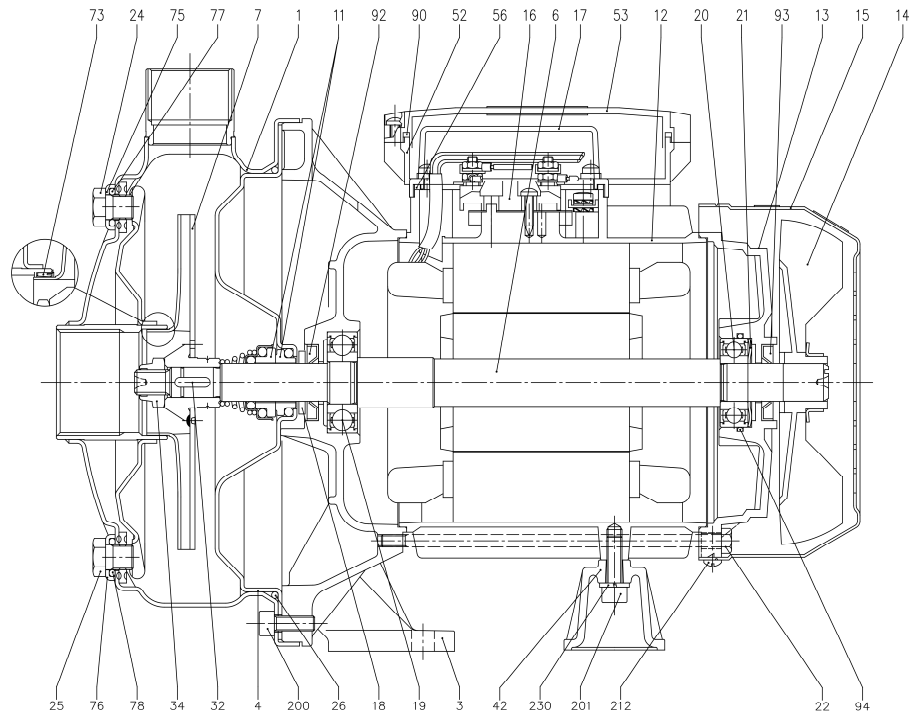
Rotation speed ≈ 3450 min⁻¹
 Test standard: ISO 9906:2012 - Grade 3B

CDX 200/156 (1.1 kW) - Impeller diameter = 115 mm
CDX 200/206 (1.5 kW) - Impeller diameter = 132 mm
CDX 200/306 (2.2 kW) - Impeller diameter = 144 mm



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

SECTIONAL VIEW

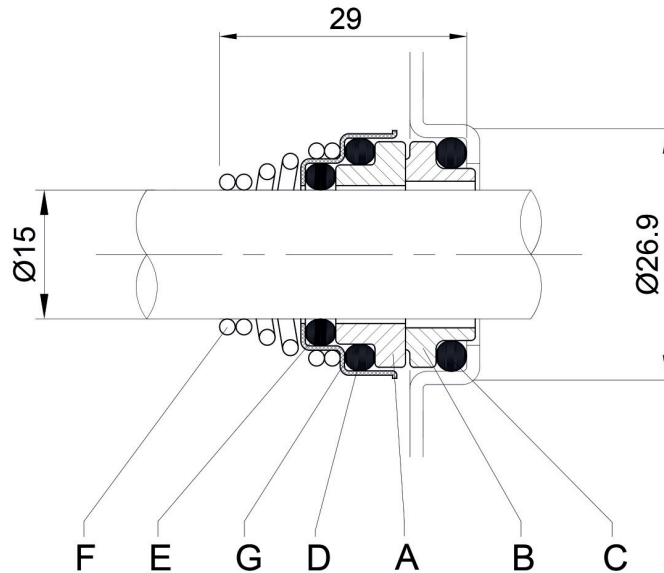


N°	PART NAME	MATERIAL	Q.TY
1	Casing	AISI 304 / AISI 316L [7]	1
3	Motor bracket	Aluminium	1
4	Casing cover	AISI 304 / AISI 316L [7]	1
6	Shaft with rotor	AISI 303 / AISI 316L [7] (Wet extension)	1
7	Impeller	AISI 304 / AISI 316L [7]	1
11	Mechanical seal [8]	Carbon/Ceramic/NBR	1
12	Motor frame with stator	-	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 [2]	Aluminium	1
18	Splash ring	NBR	1
19	Pump side ball bearing	-	1
20	Fan side ball bearing	-	1
21	Adjusting ring	Steel C70	1
22	Tie rod	Fe 420 Zincate	4
23	Capacitor [1]	-	1
24	Priming plug	AISI 303 / AISI 316 [7]	1

N°	PART NAME	MATERIAL	Q.TY
26	O-Ring	[3] NBR	1
32	Key	AISI 316	1
34	Impeller nut	AISI 304 / AISI 316 [7]	1
42	Motor support	Aluminium	1
52	Terminal box	[1] ABS class V0	1
53	Terminal box cover	[5] ABS class V0	1
56	Box gasket	NBR	1
73	Casing ring	[4] AISI 304 / AISI 316L [7]	1
75	Washer	AISI 304	1
76	Washer	AISI 304	1
77	O-Ring	[3] NBR	1
78	O-Ring	[3] NBR	1
90	Terminal box cover gasket	[6] NBR	1
92	Lip seal	-	1
93	Lip seal	-	1
94	O-Ring	[9] NBR	1
110	Protector	[1] -	1
200	Screw	Stainless steel A2 UNI7323	8
201	Screw	Zincate Steel	4
212	Screw	Zincate Steel	1

- [1] Only for single phase
- [2] Only for three phase
- [3] FPM for H-HS-HW-HSW
EPDM for E and Special Mechanical Seal
- [4] NBR for CDX 70/076-70/106-70/156
FPM for H-HS-HW-HSW version of the CDX 70/076-70/106-70/156
- [5] With gasket in NBR only for version single phase CDXM 70/076, 70/106, 70/156, 120/106, 120/156, 200/156
- [6] Only for version single phase CDXM 120/206, 200/206
- [7] Only for "L" version
- [8] See **MECHANICAL SEAL** pages 301-302
- [9] Only for CDX 70/156, CDX 120/156, CDX 200/156 (three phase) models

MECHANICAL SEAL



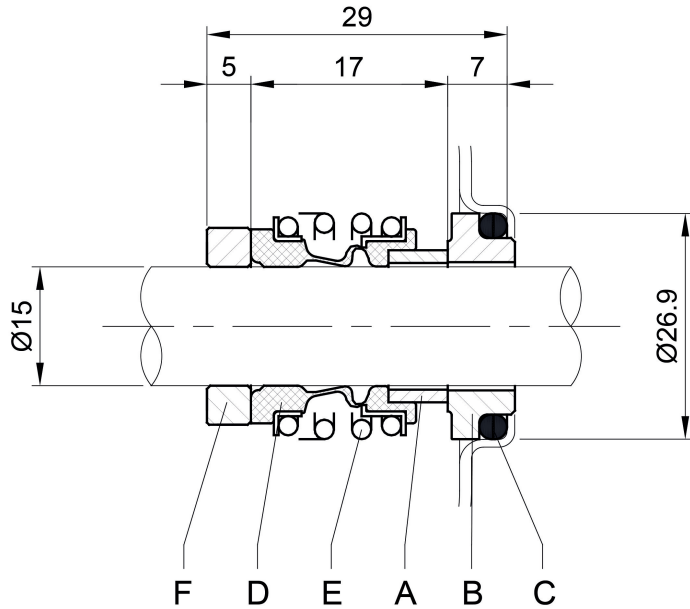
STANDARD
+
"L" version

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

REF	PART NAME	MATERIAL			
		H	HW	HSW	E
A	Rotary seal ring	Ceramic	Tungsten carbide	Silicon carbide	Ceramic
B	Stationary seal ring	Carbon graphite	Tungsten carbide	Tungsten carbide	Carbon graphite
C	O-Ring	FPM	FPM	FPM	EPDM
D	O-Ring	FPM	FPM	FPM	EPDM
E	O-Ring	FPM	FPM	FPM	EPDM
F	Self-driving spring	AISI 316	AISI 316	AISI 316	AISI 316
G	Frame	AISI 304	AISI 316	AISI 316	AISI 316

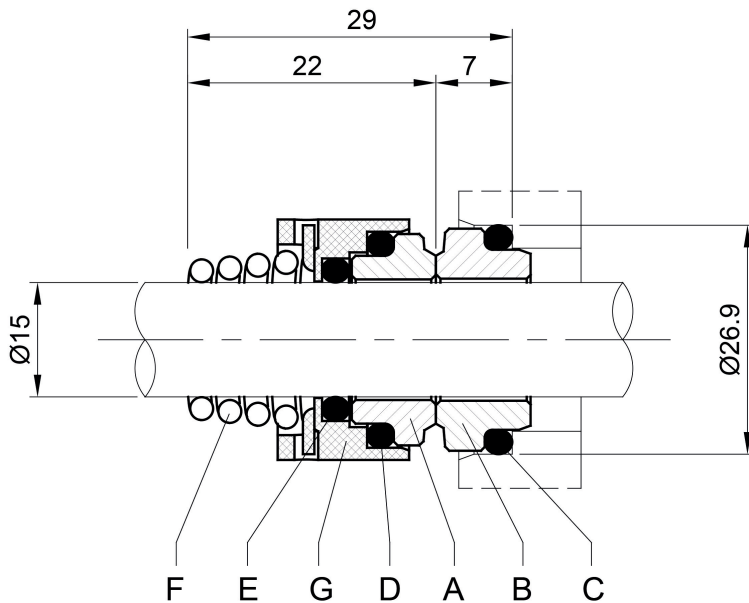
REF	PART NAME	MATERIAL			
		Q1U3EGG	VAEGG	U3U3EGG	U3CEGG
A	Rotary seal ring	Silicon carbide	Ceramic	Tungsten carbide	Tungsten carbide
B	Stationary seal ring	Tungsten carbide	Metallised carbon	Tungsten carbide	special Carbon
C	O-Ring	EPDM	EPDM	EPDM	EPDM
D	O-Ring	EPDM	EPDM	EPDM	EPDM
E	O-Ring	EPDM	EPDM	EPDM	EPDM
F	Self-driving spring	AISI 316	AISI 316	AISI 316	AISI 316
G	Frame	AISI 316	AISI 316	AISI 316	AISI 316

MECHANICAL SEAL



OPTIONAL

REF	PART NAME	MATERIAL HS
A	Rotary seal ring	Silicon carbide
B	Stationary seal ring	Silicon carbide
C	O-Ring	FPM
D	Bellows	FPM
E	Frame + Spring	AISI 316
F	Spacer ring	AISI 316



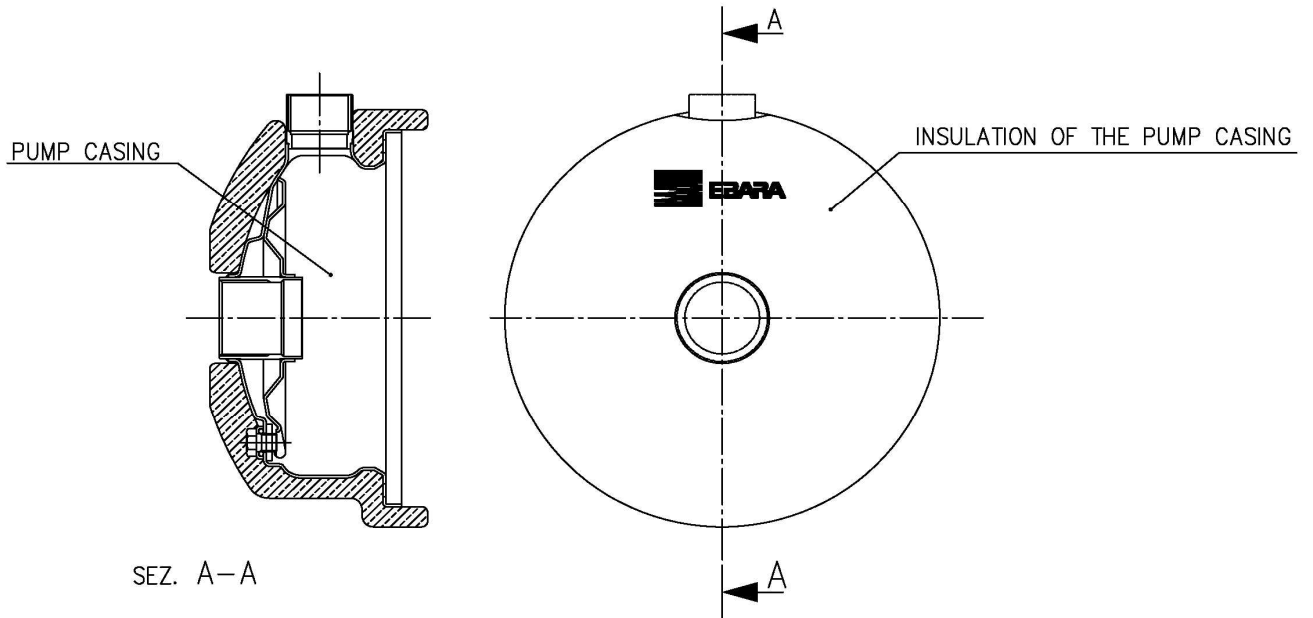
SPECIAL

REF	PART NAME	MATERIAL Q1AEGG
A	Rotary seal ring	Silicon carbide
B	Stationary seal ring	Metallised carbon
C	O-Ring	EPDM
D	O-Ring	EPDM
E	O-Ring	EPDM
F	Self-driving spring	AISI 316
G	Frame	AISI 316

BEARINGS

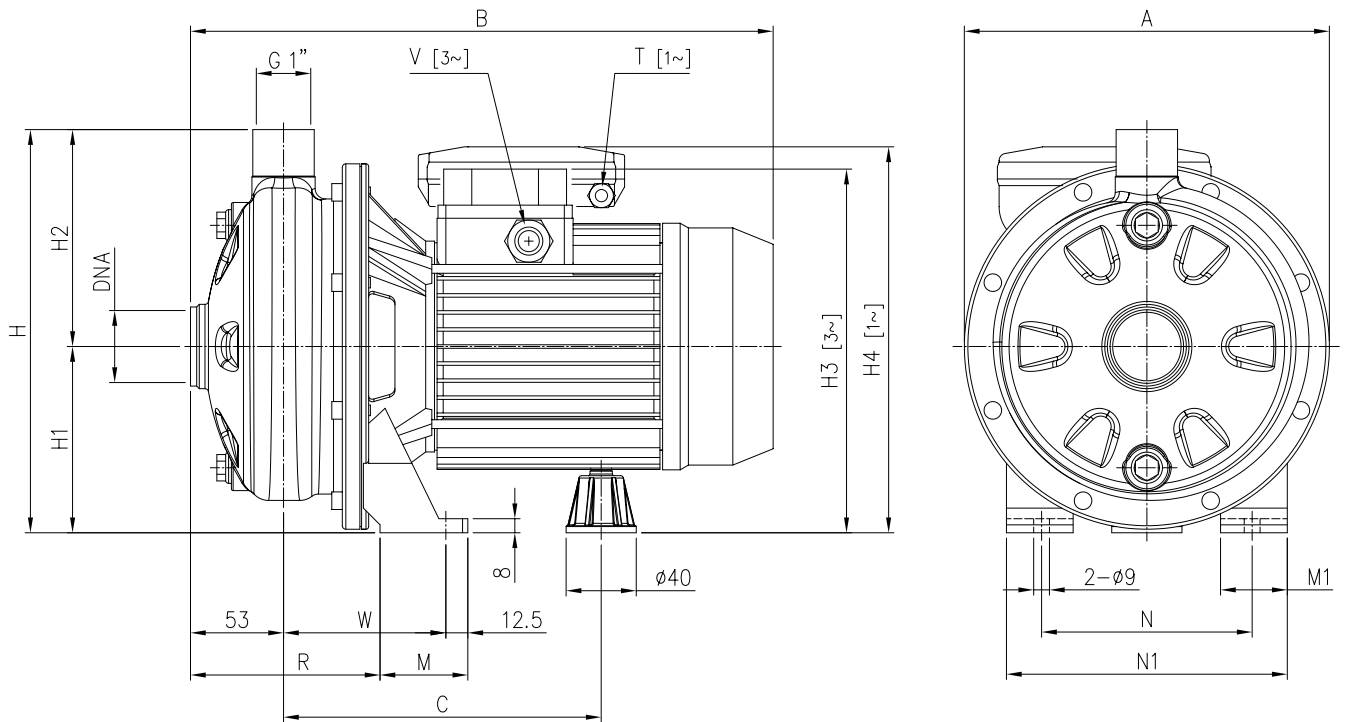
Pump type		Ball Bearing			
Single Phase	Three Phase	Pump side		Fan side	
		[1~]	[3~]	[1~]	[3~]
CDXM 70/076	CDX 70/076	6203 2RSH	6203 2DW C3	6202 2RSH	6202 2DW C3
CDXM 70/106	CDX 70/106	6203 2RSH	6203 2DW C3	6202 2RSH	6202 2DW C3
CDXM 70/156	CDX 70/156	6203 2RSH	6203 2DW C3	6202 2RSH	6202-ZZ C3
CDXM 120/106	CDX 120/106	6203 2RSH	6203 2DW C3	6202 2RSH	6202 2DW C3
CDXM 120/156	CDX 120/156	6203 2RSH	6203 2DW C3	6202 2RSH	6202-ZZ C3
CDXM 120/206	CDX 120/206	6204 2RSH	6204 2RSH C3	6203 2RSH	6203-ZZ C3
CDXM 200/156	CDX 200/156	6203 2RSH	6203 2DW C3	6202 2RSH	6202-ZZ C3
CDXM 200/206	CDX 200/206	6204 2RSH	6204 2RSH C3	6203 2RSH	6203-ZZ C3
-	CDX 200/306	-	6204 2RSH C3	-	6203-ZZ C3

THERMAL INSULATION



Pump type	INSULATION OF THE PUMP CASING
CDX 70/076	ON REQUEST
CDX 70/106	
CDX 70/156	
CDX 120/106	
CDX 120/156	
CDX 120/206	
CDX 200/156	
CDX 200/206	
CDX 200/306	

PUMP

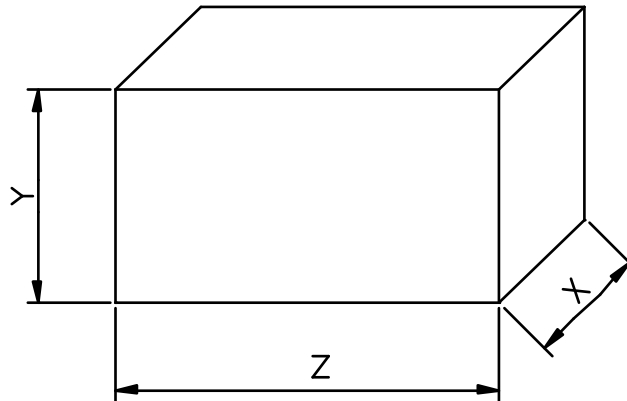


Pump type		Dimensions [mm]																	Weight [kgf]		
Single Phase	Three Phase	A	B		C	H	H1	H2	H3	H4	M	M1	N	N1	R	T	V	W	DNA	[1~]	[3~]
			[1~]	[3~]					[3~]	[1~]						[1~]	[3~]				
CDXM 70/076	CDX 70/076	208	321	320	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	PG 11	92.5	G 1"¼	8.5	9.6
CDXM 70/106	CDX 70/106	208	321	320	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	M16x1.5	92.5	G 1"¼	9.5	11.5
CDXM 70/156	CDX 70/156	208	321	332	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	M16x1.5	92.5	G 1"¼	11.7	13
CDXM 120/106	CDX 120/106	208	321	320	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	M16x1.5	92.5	G 1"¼	9.5	11.5
CDXM 120/156	CDX 120/156	208	321	332	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	M16x1.5	92.5	G 1"¼	11.7	12
CDXM 120/206	CDX 120/206	208	347	371.5	198.5	229.5	106	123.5	225	249	55	40	140	180	105.5	PG 13.5	M20x1.5	95	G 1"¼	15.3	15.4
CDXM 200/156	CDX 200/156	208	321	320	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	M16x1.5	92.5	G 1"½	11	11
CDXM 200/206	CDX 200/206	208	347	371.5	198.5	229.5	106	123.5	225	237	55	40	140	180	105.5	PG 13.5	M20x1.5	95	G 1"½	15	16.6
-	CDX 200/306	232	-	371.5	198.5	250	118	132	237	-	55	40	140	180	105.5	-	M20x1.5	95	G 1"½	-	17.8

[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~]	[1~]	[3~]		
CDXM 70/076	CDX 70/076	247	247	289	289	402	402	9	9.8
CDXM 70/106	CDX 70/106	247	247	289	289	402	402	10	11.5
CDXM 70/156	CDX 70/156	247	247	289	289	402	402	12	13
CDXM 120/106	CDX 120/106	247	247	289	289	402	402	10	11.5
CDXM 120/156	CDX 120/156	247	247	289	289	402	402	12	13
CDXM 120/206	CDX 120/206	244	244	308	308	452	452	16	15
CDXM 200/156	CDX 200/156	244	244	308	308	452	452	12	11
CDXM 200/206	CDX 200/206	244	244	308	308	452	452	16	17
-	CDX 200/306	-	244	-	308	-	452	-	19

[1~] Single phase

[3~] Three phase

MOTOR DATA

Pump type		Power		Capacitor				Efficiency (% load)			Efficiency (% load)			Input		Full load current [A]					Locked rotor current [A]				
Single Phase	Three Phase	[kW]	[HP]	110-115 V		220-230 V		Three phase (380 V)			Three phase (460 V)			Single	Three	Single Phase			Three Phase		Single Phase			Three Phase	
				[μF]	[V]	[μF]	[V]	50%	75%	100%	50%	75%	100%	Phase	Phase	110-115 V	220-230 V	220 V	380 V	460 V	110-115 V	220-230 V	220 V	380 V	460 V
CDXM 70/076	CDX 70/076	0.55	0.75	45	250	12.5	450	76.9	78.1	77.8	74.0	76.8	79.8	0.70	0.70	7.5	3.4	2.3	1.9	1.3	28.1	15.0	11.0	6.4	7.8
CDXM 70/106	CDX 70/106	0.75	1	60	250	14	450	82.3	83.5	83.2	80.5	83.1	84.6	1.05	0.90	9.4	5.1	2.8	1.6	1.5	48.8	22.0	17.9	10.3	12.5
CDXM 70/156	CDX 70/156	1.1	1.5	-	-	25	450	84.8	84.5	82.7	82.0	84.4	84.5	1.56	1.30	-	7.5	4.0	2.3	2.2	-	35.0	24.6	14.2	17.2
CDXM 120/106	CDX 120/106	0.75	1	60	250	14	450	82.3	83.5	83.2	80.5	83.1	84.6	1.06	0.90	10.4	5.2	2.8	1.6	1.5	48.8	22.0	17.9	10.3	12.5
CDXM 120/156	CDX 120/156	1.1	1.5	-	-	25	450	84.8	84.5	82.7	82.0	84.4	84.5	1.50	1.30	-	7.2	4.0	2.3	2.2	-	35.0	24.6	14.2	17.2
CDXM 120/206	CDX 120/206	1.5	2	-	-	40	450	86.5	86.8	86.2	86.9	87.8	87.4	2.34	2.48	-	11.3	7.5	4.3	4.1	-	69.0	55.7	32.2	38.93
CDXM 200/156	CDX 200/156	1.1	1.5	-	-	20	450	80.7	81.9	81.3	78.4	81.6	83.1	1.35	0.90	-	6.6	2.8	1.6	1.5	-	32.0	16.9	9.7	11.8
CDXM 200/206	CDX 200/206	1.5	2.0	-	-	40	450	86.5	86.8	86.2	86.9	87.8	87.4	2.06	2.48	-	10.0	7.5	4.3	4.1	-	69.0	55.7	32.2	38.93
-	CDX 200/306	2.2	3	-	-	-	-	86.5	86.8	86.2	86.9	87.8	87.4	-	2.48	-	-	7.5	4.3	4.1	-	-	55.7	32.2	38.93