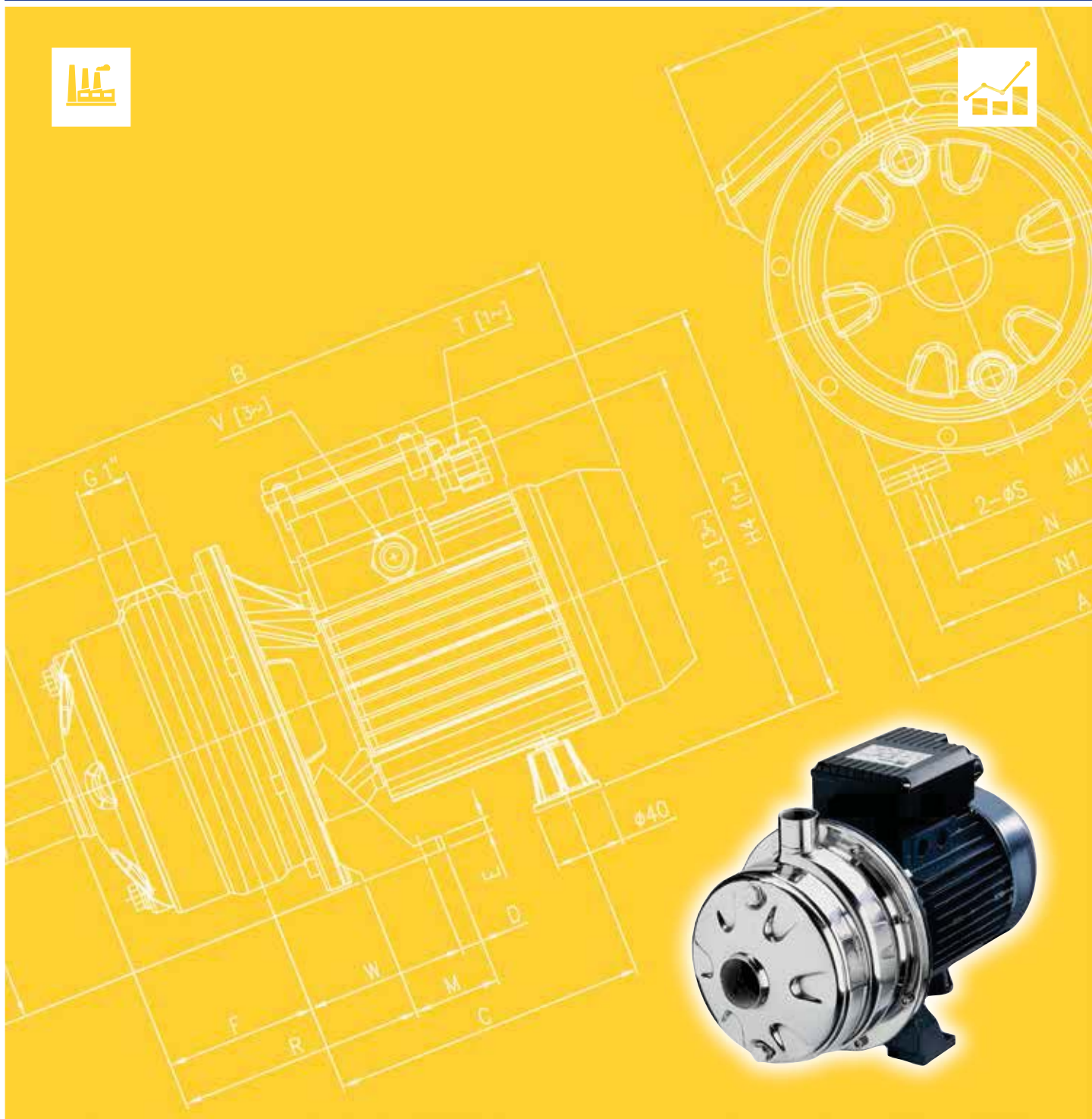




Japanese Technology since 1912


2CDX(L)

Data Book 50Hz



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SPECIFICATIONS

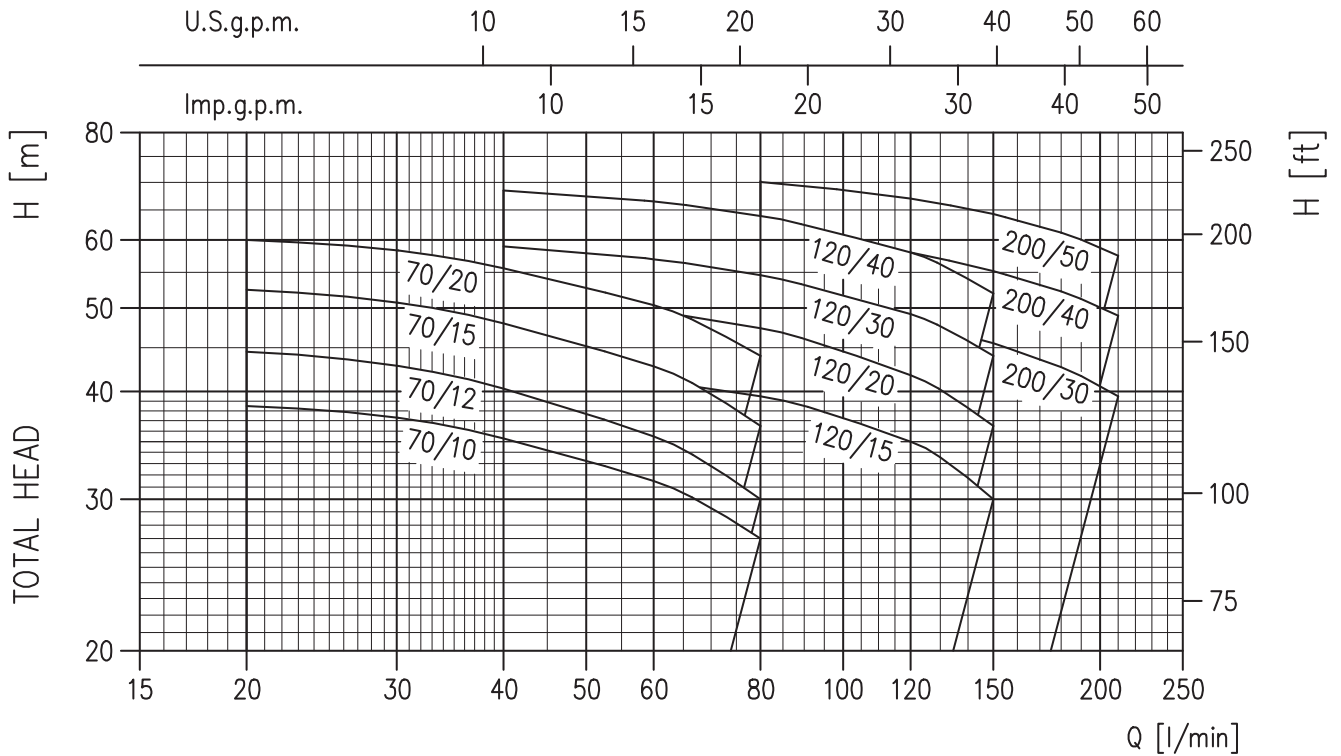
50Hz

Rev. O

PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -5 max. +60 (Standard - L version – E - Q1AEGG – VAEGG– U3U3EGG - Q1U3EGG - U3CEGG) max. +110 (H – HS – HW - HSW)
Maximum working pressure	[MPa]	0.8
Construction	Impeller	Closed centrifugal type (Twin)
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction [inch]	from G1 ³ / ₄ to G1 ¹ / ₂ (2CDX 200) 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 version see page 302)
	Shaft	AISI 304 / AISI 316L (Wet extension)
	Bracket	Aluminium (up to 1.5 kW included) Cast iron (2.2 kW and above)
	Diffuser	AISI 304 / AISI 316L
Applicable standard of test		ISO 9906:2012 – Grade 3B

MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 640/2009)	-	IE3 from 0.75 kW up to 4.0 kW
No. of Poles	2	
Rotation speed [min ⁻¹]	≈ 2800	
Insulation Class	F	
Protection degree (CEI EN 60034-5)	IP 55	
Power rating	[kW]	0.75 ÷ 2.2
	[HP]	1 ÷ 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	
Motor support	Aluminium	
Dimensions of cable entry	PG11 – PG13.5 – M16x1.5 – M20x1.5 (see dimensions table page 400)	

PERFORMANCE RANGE



SELECTION CHART

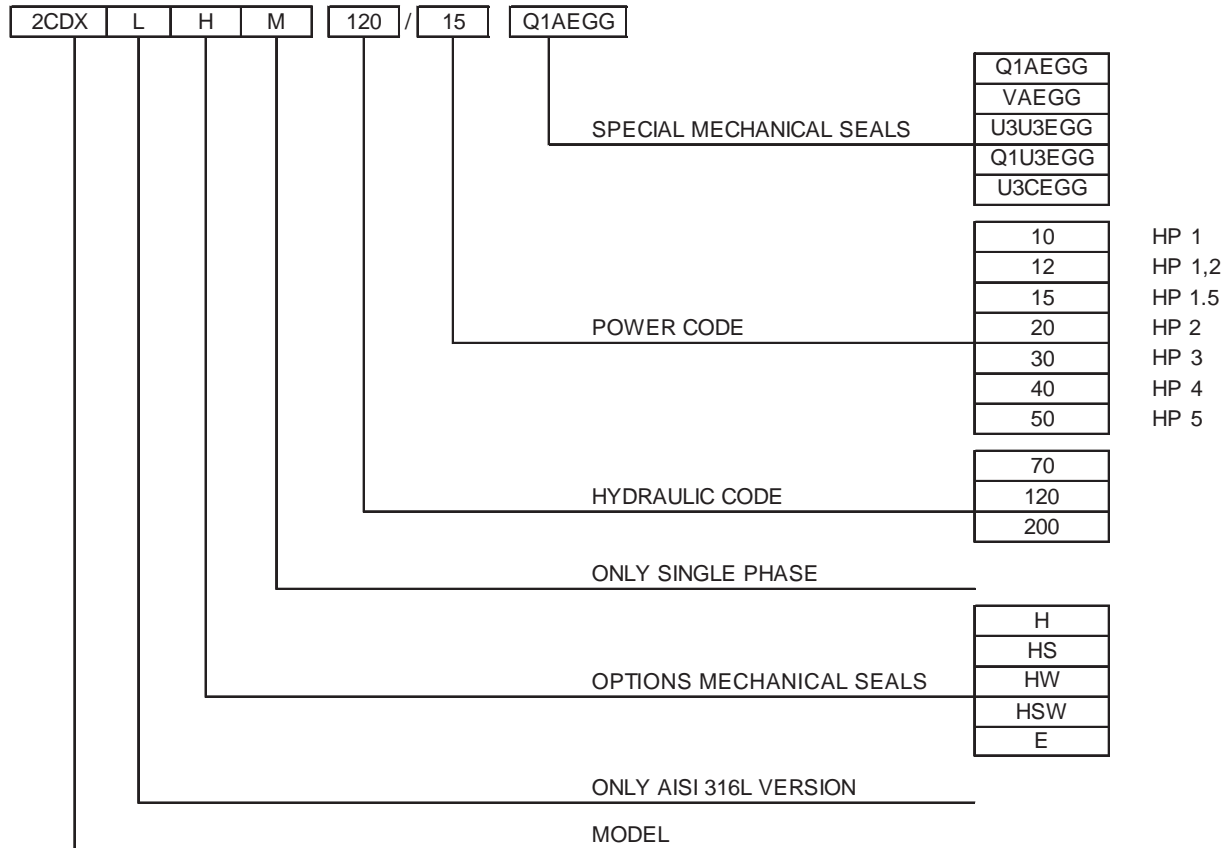
Pump Type		Power		Q=Capacity									
				l/min	0	20	40	60	80	120	150	180	210
Single Phase	Three Phase	[kW]	[HP]	m ³ /h	0	1.2	2.4	3.6	4.8	7.2	9.0	10.8	12.6
H=Total manometric head in meters													
2CDXM 70/10	2CDX 70/10	0.75	1	41	38.5	35.3	31.5	27	-	-	-	-	-
2CDXM 70/12	2CDX 70/12	0.9	1.2	48	44.5	40.3	35.5	30	-	-	-	-	-
2CDXM 70/15	2CDX 70/15	1.1	1.5	56	52.5	48	42.8	36.5	-	-	-	-	-
2CDXM 70/20	2CDX 70/20	1.5	2	64	60	55.6	50.4	44	-	-	-	-	-
2CDXM 120/15	2CDX 120/15	1.1	1.5	46	-	42	41	39.5	35	30	-	-	-
2CDXM 120/20	2CDX 120/20	1.5	2	55	-	51.5	49.5	47.4	41.8	36.5	-	-	-
-	2CDX 120/30	2.2	3	63	-	59	57	54.6	49.2	44	-	-	-
-	2CDX 120/40	3	4	71.5	-	68.5	66.5	64	58	52	-	-	-
-	2CDX 200/30	2.2	3	55	-	-	52	50.8	48.1	45.5	42.7	39.5	-
-	2CDX 200/40	3	4	66	-	-	62.5	61.1	58	55.2	52.3	49	-
-	2CDX 200/50	3.7	5	75	-	-	71.5	70.1	67	64.3	61.2	57.5	-

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)

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

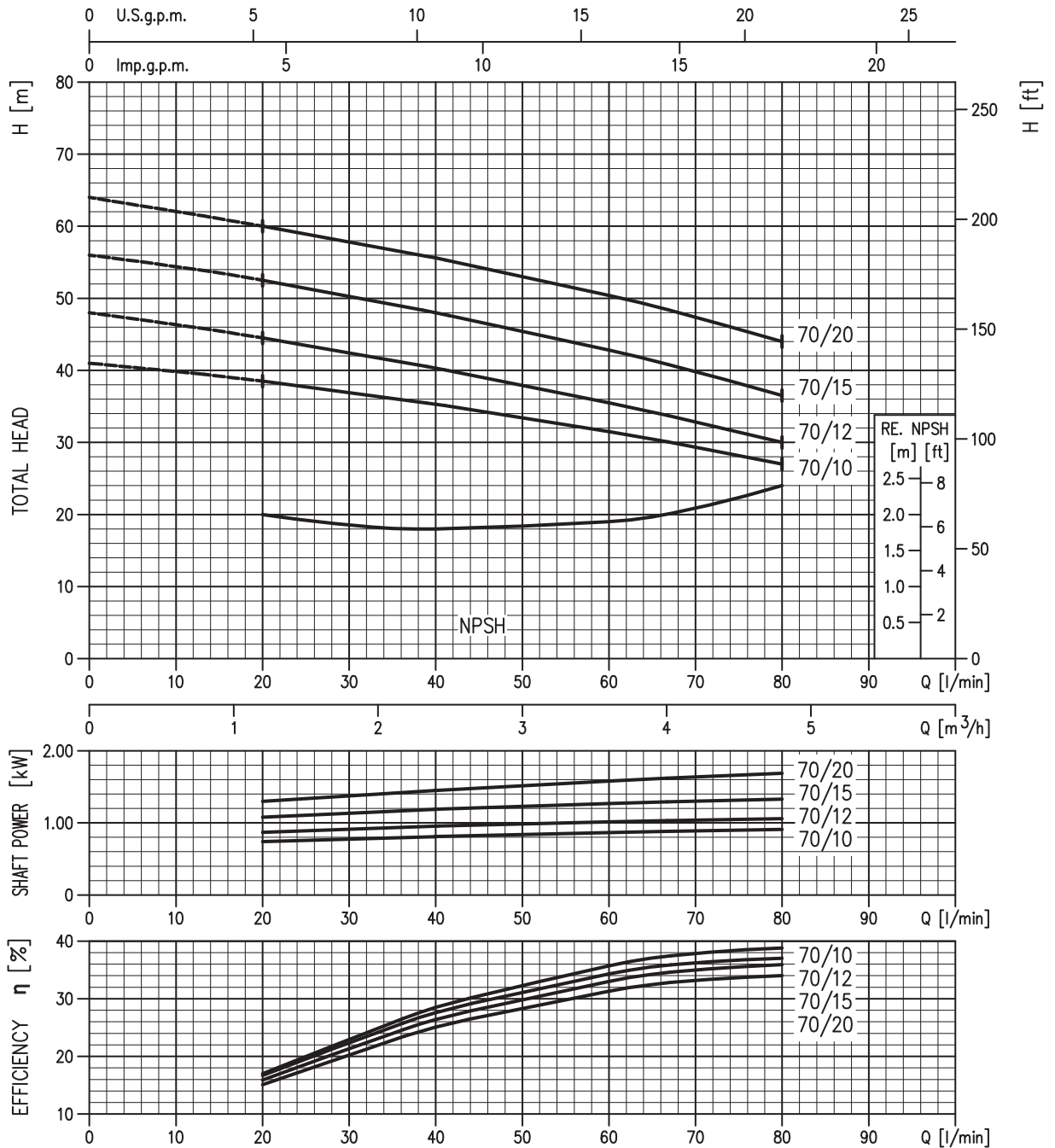
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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:

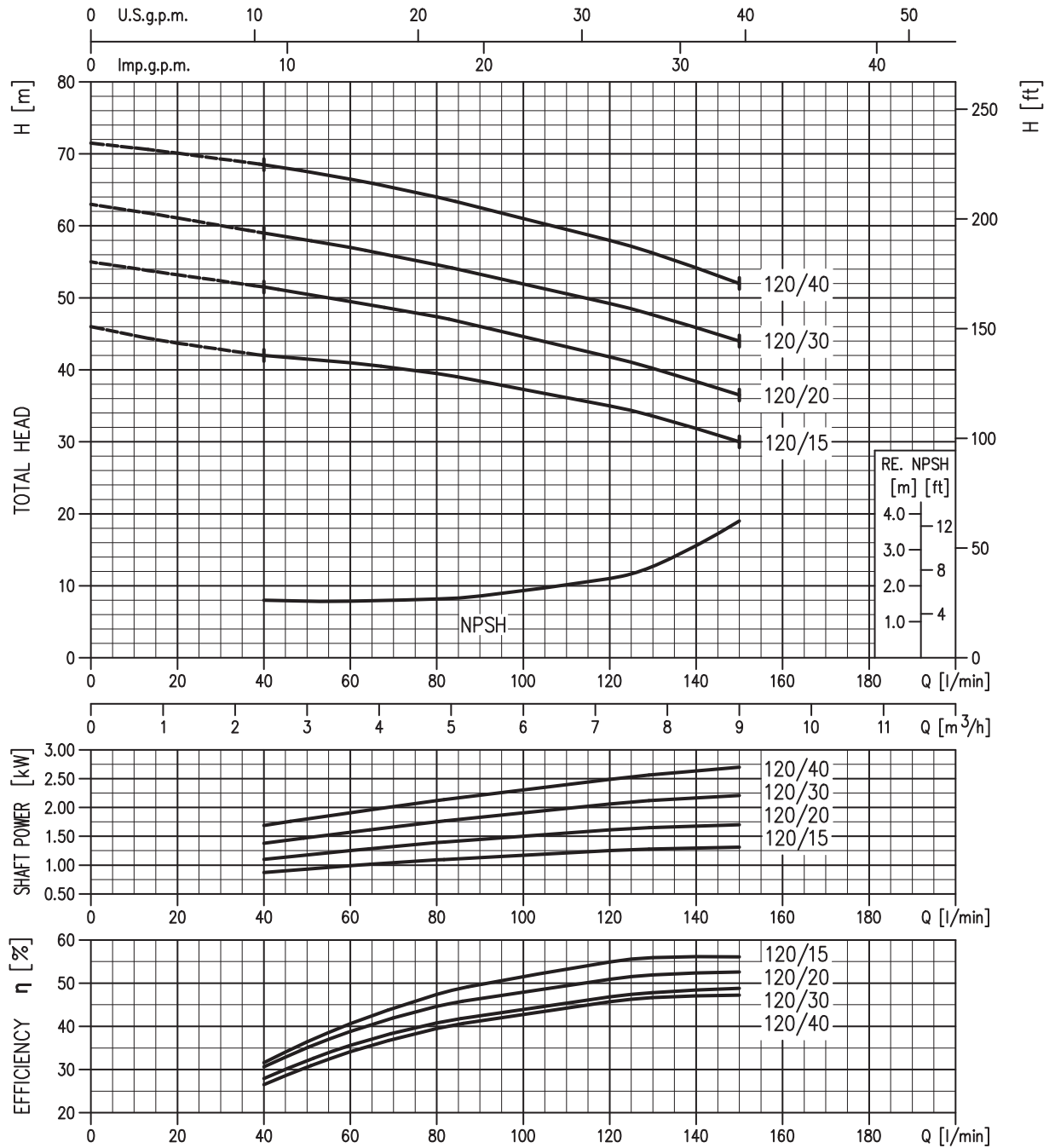
- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump

2CDX 70/10 (0.75 kW) - Impeller diameter = 132/132 mm
 2CDX 70/12 (0.9 kW) - Impeller diameter = 153/132 mm
 2CDX 70/15 (1.1 kW) - Impeller diameter = 153/153 mm
 2CDX 70/20 (1.5 kW) - Impeller diameter = 153/176 mm



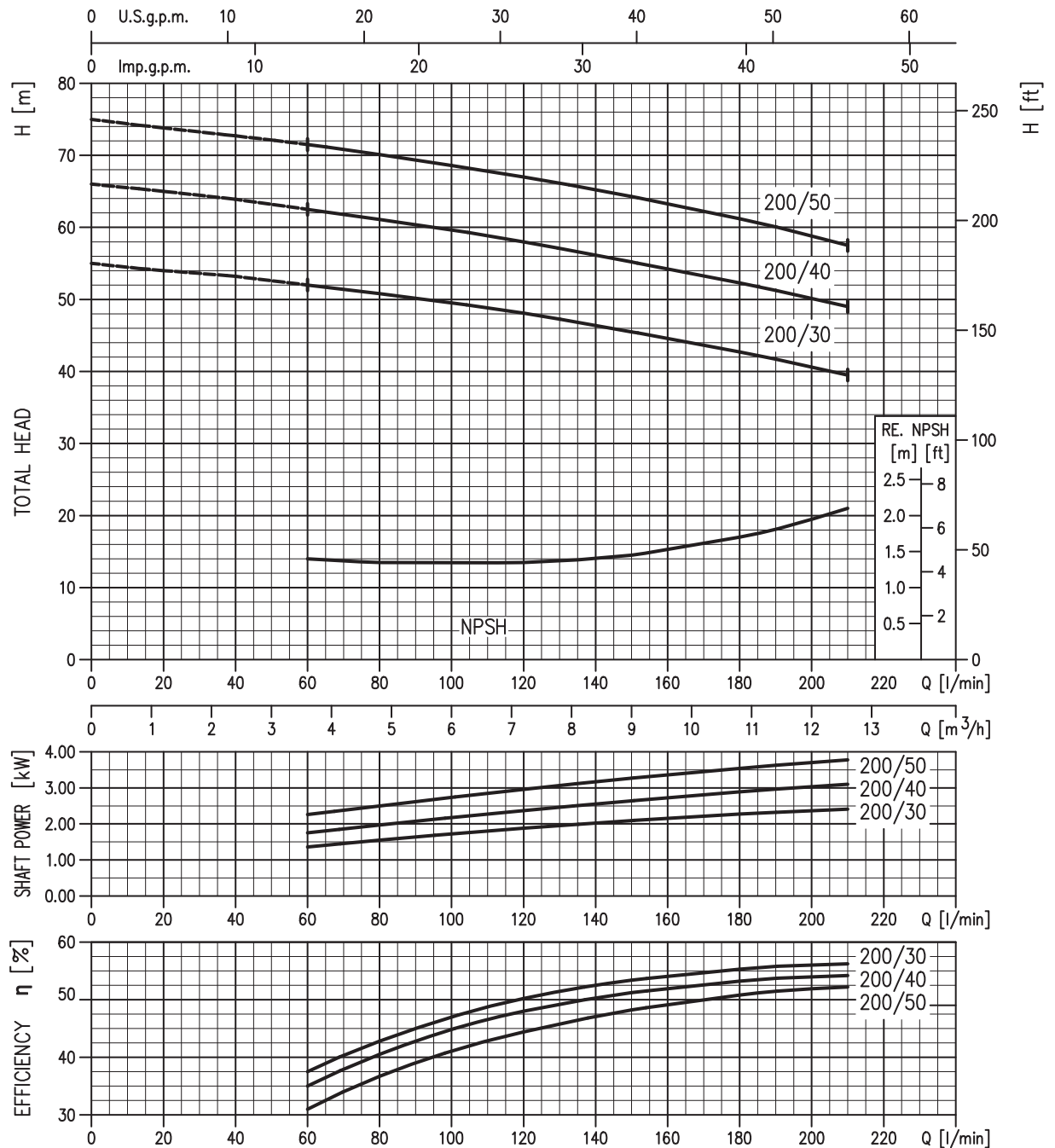
Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906:2012 - Grade 3B

2CDX 120/15 (1.1 kW) - Impeller diameter = 132/132 mm
 2CDX 120/20 (1.5 kW) - Impeller diameter = 157/132 mm
 2CDX 120/30 (2.2 kW) - Impeller diameter = 157/157 mm
 2CDX 120/40 (3.0 kW) - Impeller diameter = 176/157 mm



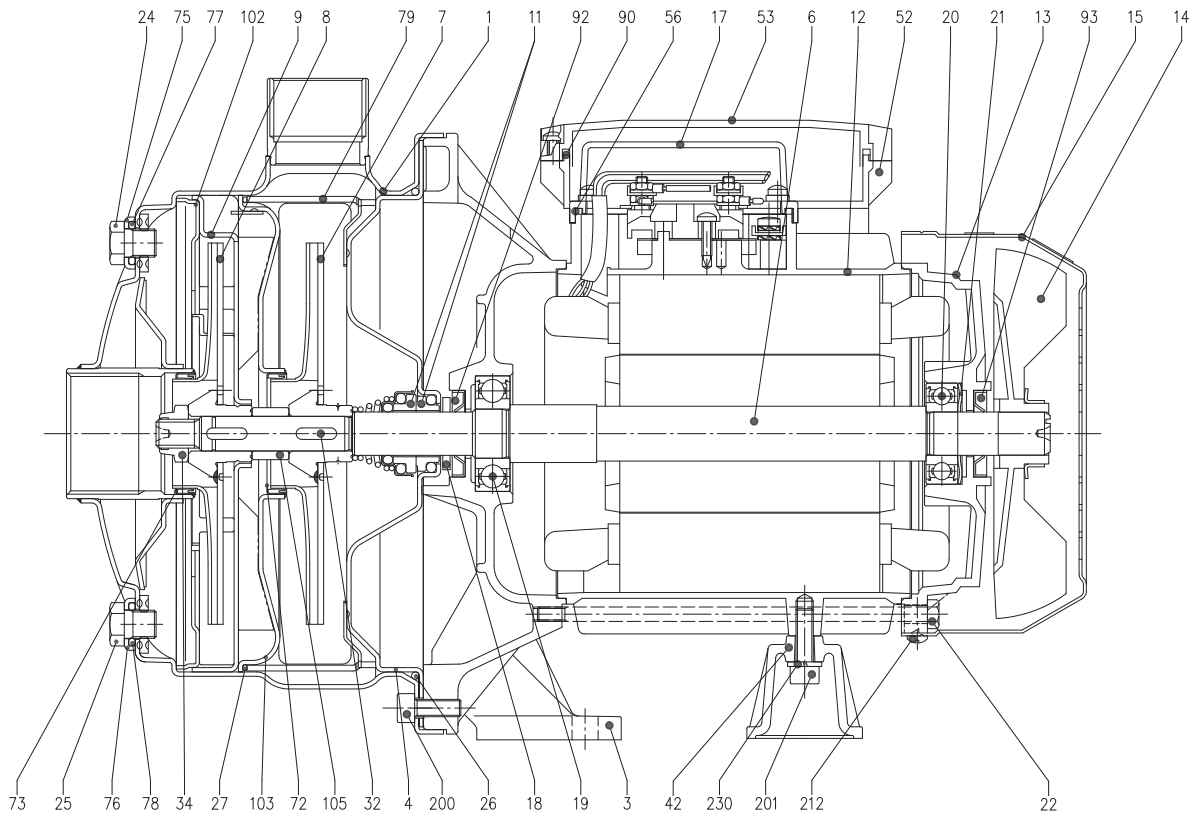
Rotation speed ≈ 2800 min⁻¹
 Test standard: ISO 9906:2012 - Grade 3B

2CDX 200/30 (2.2 kW) - Impeller diameter = 157/132 mm
 2CDX 200/40 (3.0 kW) - Impeller diameter = 157/157 mm
 2CDX 200/50 (3.7 kW) - Impeller diameter = 176/157 mm



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

SECTIONAL VIEW



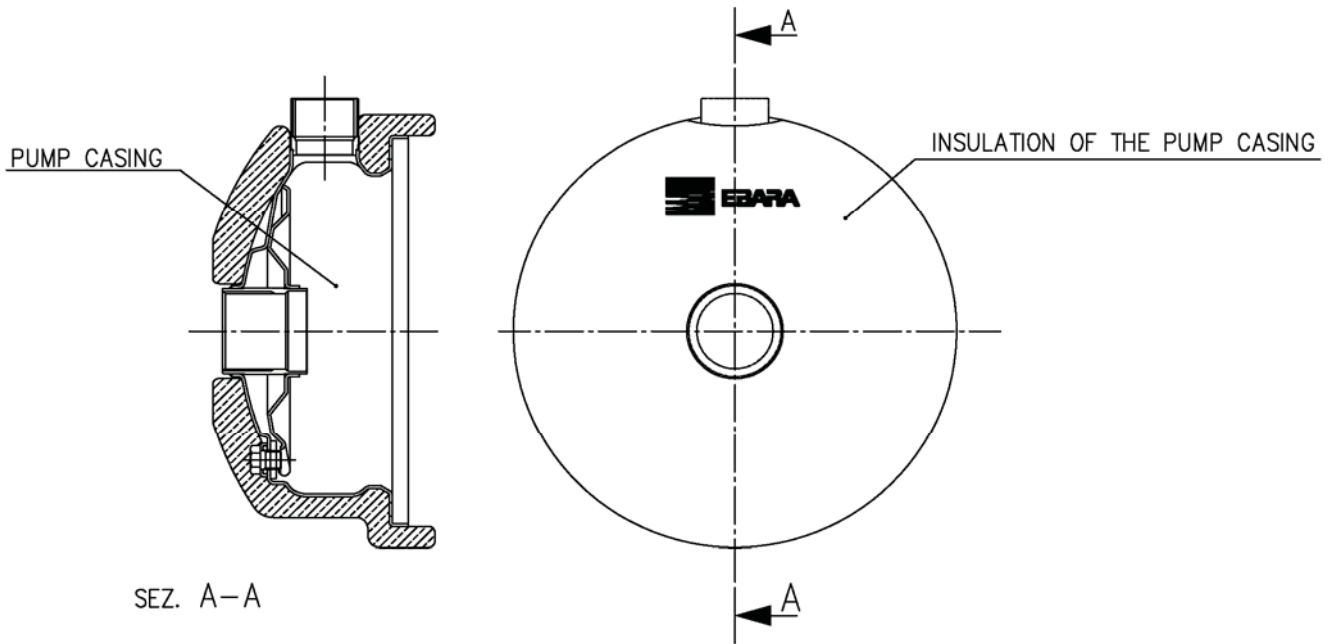
N°	PART NAME	MATERIAL	DIMENSION	STANDARD	Q.TY
1	Casing	AISI 304 / AISI 316L [6]			1
3	Motor bracket	[4]			1
4	Casing cover	AISI 304 / AISI 316L [6]			1
6	Shaft with rotor	AISI 303 / AISI 316L [6] (Wet extension)			1
7	Impeller	AISI 304 / AISI 316L [6]			1
8	Impeller	AISI 304 / AISI 316L [6]			1
9	Diffuser	AISI 304 / AISI 316L [6]			1
11	Mechanical seal	[7] Ceramic/Carbon/NBR			1
12	Motor frame with stator	-			1
13	Motor cover	Aluminium			1
14	Fan	PA			1
15	Fan cover	Fe P04 Galvanized			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 Galvanized			4
24	Priming plug	AISI 304 / AISI 316 [6]			1
25	Drain plug	AISI 304 / AISI 316 [6]			1
26	O-ring	[3] NBR			1
27	O-ring	[3] NBR			1
32	Key	AISI 316			2
34	Impeller nut	Stainless steel A2-70	M10X1,25	UNI 7474	1

N°	PART NAME	MATERIAL	DIMENSION	STANDARD	Q.TY	
42	Motor support	Aluminium			1	
52	Capacitor box	[1] ABS class V-0			1	
53	Capacitor box cover	[1] ABS class V-0			1	
56	Box gasket	NBR			1	
72	Casing ring	[5] NBR			1	
73	Casing ring	[5] NBR			1	
75	Washer	AISI 304			1	
76	Washer	AISI 304			1	
77	O-ring	[3] NBR			1	
78	O-ring	[3] NBR			1	
79	Space diffuser	AISI 304 / AISI 316 [6]			1	
90	Terminal box cover gasket	[1] NBR			1	
92	Lip seal	NBR			1	
93	Lip seal	NBR			1	
102	Suction cover	AISI 304 / AISI 316 [6]			1	
103	Conveyor cover	AISI 304 / AISI 316 [6]			1	
105	Sleeve	AISI 304 / AISI 316 [6]			1	
200	Screw	Stainless steel A2-70	70/10, 120/15, 120/20, 200/30	M6X16	UNI 5931	8
			70/12, 70/15, 70/20, 120/30, 120/40, 200/40, 200/50	M8X18		
201	Screw	Zn. Steel cl.8.8			UNI 5931	1
212	Screw	Stainless steel A2	3.5X9.5		UNI 6954	4
230	Washer	Steel C70	6,4		UNI 1751	1

- [1] Only for single phase
- [2] Only for three phase
- [3] FPM for H-HS-HW-HSW
EPDM for E and Special Mechanical Seals
- [4] Material: Aluminium for version up to 1.5 kW included
Cast iron for version 2.2 kW and above

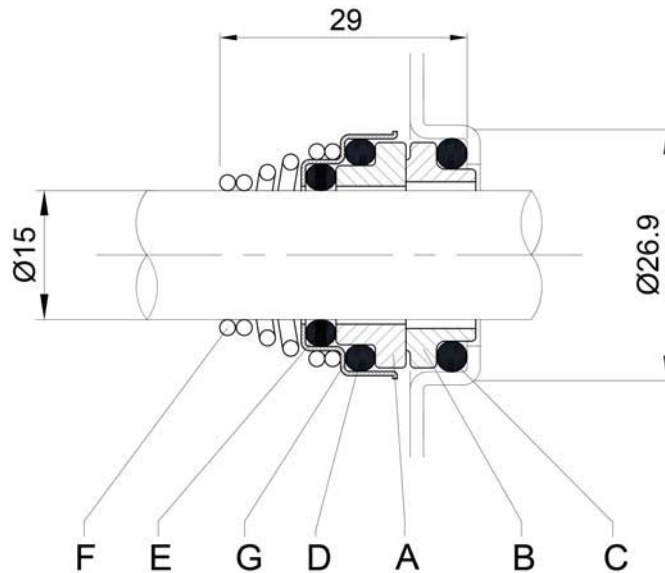
- [5] FPM for H-HS-HW-HSW
- [6] Only for "L" version
- [7] See **MECHANICAL SEAL** pages 302-303

THERMAL INSULATION



Pump Type	Insulation of the pump casing
2CDX 70/10	ON REQUEST
2CDX 70/12	
2CDX 70/15	
2CDX 70/20	
2CDX 120/15	
2CDX 120/20	
2CDX 120/30	
2CDX 120/40	
2CDX 200/30	
2CDX 200/40	
2CDX 200/50	

MECHANICAL SEAL



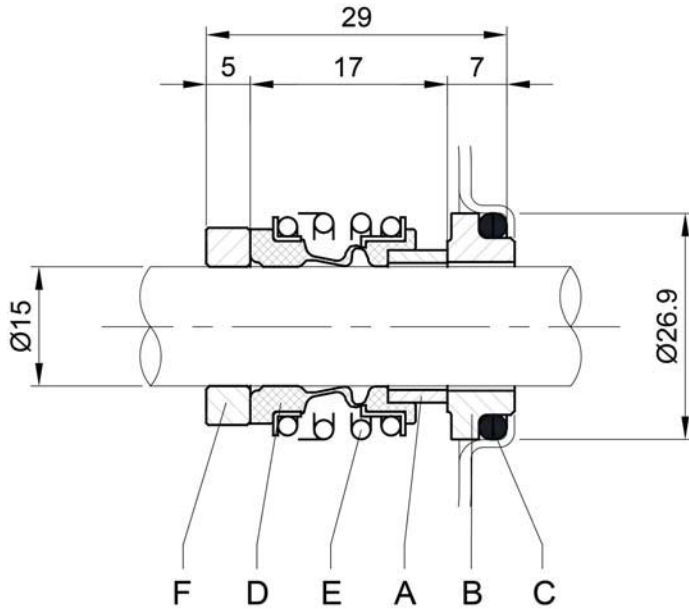
STANDARD
+
"L" version

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

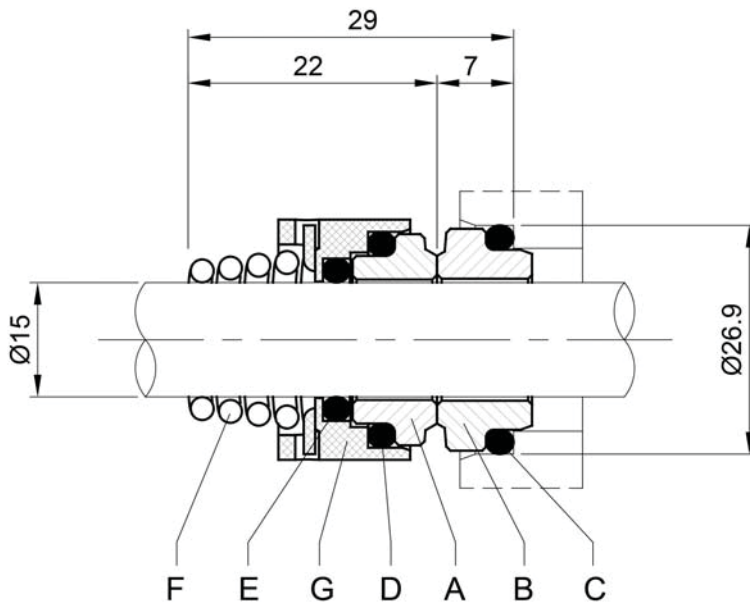
REF	PART NAME	MATERIAL			
		Q1U3EGG	VAEGG	U3U3EGG	U3CEGG
A	Rotary seal ring	Silicon carbide	Ceramic	Tungsten carbide	Tungsten carbide
B	Stationary seal ring	Tungsten carbide	Metallised carbon	Tungsten carbide	special Carbon
C	O-Ring	EPDM	EPDM	EPDM	EPDM
D	O-Ring	EPDM	EPDM	EPDM	EPDM
E	O-Ring	EPDM	EPDM	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



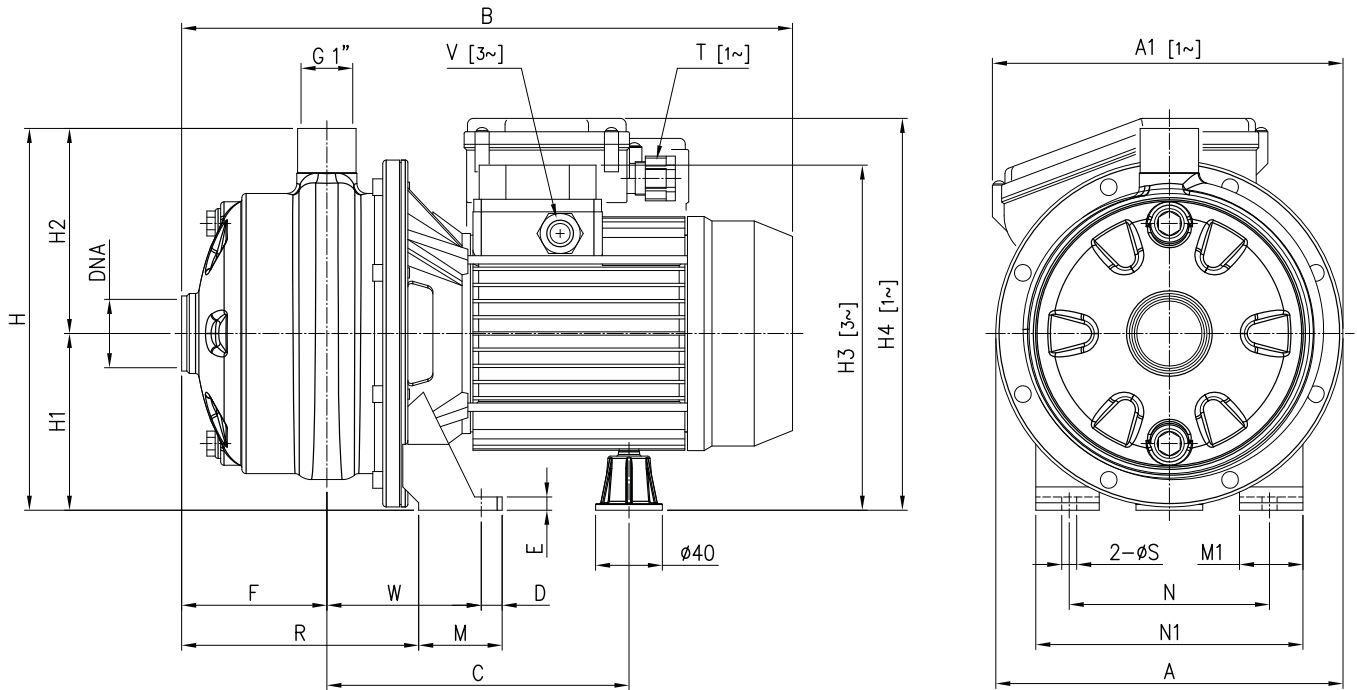
SPECIAL

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
2CDXM 70/10	2CDX 70/10	6203-ZZ C3	6202-ZZ C3
2CDXM 70/12	2CDX 70/12	6203-ZZ C3	6202-ZZ C3
2CDXM 70/15	2CDX 70/15	6204-ZZ C3	6203-ZZ C3
2CDXM 70/20	2CDX 70/20	6204-ZZ C3	6203-ZZ C3
2CDXM 120/15	2CDX 120/15	6204-ZZ C3	6203-ZZ C3
2CDXM 120/20	2CDX 120/20	6204-ZZ C3	6203-ZZ C3
-	2CDX 120/30	6305-ZZ C3	6205-ZZ C3
-	2CDX 120/40	6305-ZZ C3	6205-ZZ C3
-	2CDX 200/30	6205-ZZ C3	6205-ZZ C3
-	2CDX 200/40	6305-ZZ C3	6205-ZZ C3
-	2CDX 200/50	6206-ZZ C3	6205-ZZ C3

PUMP



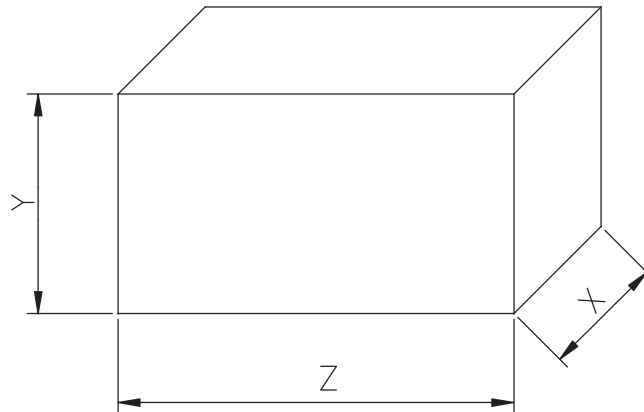
Pump type		Dimensions [mm]																				Weight [kgf]				
Single Phase	Three Phase	A	A1* [1~]	B [1~] [3~]	C	D	E	F	H	H1	H2	H3 [3~]	H4 [1~]	M	M1	N	N1	R	T [1~]	V [3~]	W	S	DNA	[1~]	[3~]	
2CDXM 70/10	2CDX 70/10	208	-	355	354	181	12.5	8	87	229	106	123	207	216	50	38	120	160	142	PG 11	M16x1.5	92.5	9	G1 $\frac{1}{4}$	12.7	12.6
2CDXM 70/12	2CDX 70/12	208	210	355	366	181	12.5	8	87	229	106	123	207	235	50	38	120	160	142	PG 13.5	M16x1.5	92.5	9	G1 $\frac{1}{4}$	13.3	13.7
2CDXM 70/15	2CDX 70/15	232	-	395.5	407	198.5	12.5	8	89	250	118	132	237	248.5	55	40	140	180	141.5	PG 13.5	M20x1.5	95	9	G1 $\frac{1}{4}$	17.5	17
2CDXM 70/20	2CDX 70/20	232	-	382.5	407.5	198.5	12.5	8	89	250	118	132	237	248.5	55	40	140	180	141.5	PG 13.5	M20x1.5	95	9	G1 $\frac{1}{4}$	18.5	20.1
2CDXM 120/15	2CDX 120/15	208	210	395.5	407	198.5	12.5	8	89	229	106	123	225	236.5	55	40	140	180	141.5	PG 13.5	M20x1.5	95	9	G1 $\frac{1}{4}$	16.3	15.6
2CDXM 120/20	2CDX 120/20	208	210	382.5	407.5	198.5	12.5	8	89	229	106	123	225	236.5	55	40	140	180	141.5	PG 13.5	M20x1.5	95	9	G1 $\frac{1}{4}$	17	18.3
-	2CDX 120/30	232	-	-	405	198.5	12.5	10	87	250	118	132	237	-	65	40	140	180	143.5	-	M20x1.5	95	9	G1 $\frac{1}{4}$	-	26.1
-	2CDX 120/40	232	-	-	458	223.5 ÷ 234.5	12.5	10	87	250	118	132	242	-	65	40	140	180	143.5	-	M20x1.5	109	9	G1 $\frac{1}{4}$	-	27.8
-	2CDX 200/30	208	-	-	458	223.5 ÷ 234.5	12.5	10	87	229	106	123	230	-	65	40	140	180	143.5	-	M20x1.5	109	9	G1 $\frac{1}{2}$	-	26.6
-	2CDX 200/40	232	-	-	458	223.5 ÷ 234.5	12.5	10	87	250	118	132	242	-	65	40	140	180	143.5	-	M20x1.5	109	9	G1 $\frac{1}{2}$	-	27.6
-	2CDX 200/50	232	-	-	481	232.5	16	12	87	250	118	132	259	-	68	50	160	210	143.5	-	M20x1.5	108.5	12	G1 $\frac{1}{2}$	-	35.6

(*) Specified only if higher than "A"

[1~] Single phase

[3~] Three phase

PACKING



Pump type		Packing [mm]						Weight [kgf]	
Single Phase	Three Phase	X		Y		Z		[1~]	[3~]
		[1~]	[3~]	[1~]	[3~]	[1~]	[3~]		
2CDXM 70/10	2CDX 70/10	237	237	280	280	445	445	13.3	13.3
2CDXM 70/12	2CDX 70/12	237	237	280	285	445	500	13.9	14.6
2CDXM 70/15	2CDX 70/15	237	237	285	285	500	500	18.4	17.8
2CDXM 70/20	2CDX 70/20	237	237	285	285	500	500	19.5	21
2CDXM 120/15	2CDX 120/15	237	237	285	285	500	500	17	16.4
2CDXM 120/20	2CDX 120/20	237	237	285	285	500	500	17.7	19.3
-	2CDX 120/30	-	237	-	285	-	500	-	26.7
-	2CDX 120/40	-	237	-	285	-	585	-	28.8
-	2CDX 200/30	-	237	-	285	-	585	-	28.5
-	2CDX 200/40	-	237	-	285	-	585	-	28.6
-	2CDX 200/50	-	237	-	285	-	585	-	37.5

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

MOTOR DATA

Pump type		Power		Efficiency		Capacitor		Efficiency (% load)			Input		Full load current			Locked rotor current		
Single Phase	Three Phase	[kW]	[HP]	Single Phase	Three Phase	Single Phase	Three Phase	Three phase			Single Phase	Three Phase	[A]			[A]		
								50%	75%	100%			230 V	230 V	400 V	230 V	230 V	400 V
2CDXM 70/10	2CDX 70/10	0.75	1.0	-	IE3	20	450	80.9	82.3	82.1	1.30	1.11	6.0	3.4	2.0	22.7	19.7	11.4
2CDXM 70/12	2CDX 70/12	0.9	1.2	-	IE3	31.5	450	81.7	83.1	82.4	1.55	1.34	7.0	4.3	2.5	25.5	28.8	16.6
2CDXM 70/15	2CDX 70/15	1.1	1.5	-	IE3	40	450	83.5	84.3	84.6	1.80	1.77	8.1	5.8	3.3	43.0	47.4	27.4
2CDXM 70/20	2CDX 70/20	1.5	2.0	-	IE3	40	450	84.2	86.8	86.9	2.30	2.30	10.0	7.8	4.5	43.0	66.6	38.4
2CDXM 120/15	2CDX 120/15	1.1	1.5	-	IE3	40	450	83.5	84.3	84.6	1.80	1.77	8.3	5.8	3.3	43.0	47.4	27.4
2CDXM 120/20	2CDX 120/20	1.5	2.0	-	IE3	40	450	84.2	86.8	86.9	2.35	2.30	10.2	7.8	4.5	43.0	66.6	38.4
-	2CDX 120/30	2.2	3.0	-	IE3	-	-	86.2	87.0	86.0	-	2.55	-	8.2	4.7	-	66.6	38.4
-	2CDX 120/40	3.0	4.0	-	IE3	-	-	85.9	87.5	87.1	-	3.44	-	11.1	6.4	-	90.0	52.0
-	2CDX 200/30	2.2	3.0	-	IE3	-	-	85.9	87.5	87.1	-	3.44	-	11.1	6.4	-	90.0	52.0
-	2CDX 200/40	3.0	4.0	-	IE3	-	-	85.9	87.5	87.1	-	3.76	-	11.2	6.5	-	90.0	52.0
-	2CDX 200/50	3.7	5.0	-	IE3	-	-	85.8	88.3	88.4	-	4.52	-	15.1	8.7	-	131.8	76.1

NOISE DATA

Pump type		Power		L _{pA} - dB(A) *
Single Phase	Three Phase	[kW]	[HP]	
2CDXM 70/10	2CDX 70/10	0.75	1.0	62
2CDXM 70/12	2CDX 70/12	0.9	1.2	
2CDXM 70/15	2CDX 70/15	1.1	1.5	
2CDXM 70/20	2CDX 70/20	1.5	2.0	64
2CDXM 120/15	2CDX 120/15	1.1	1.5	
2CDXM 120/20	2CDX 120/20	1.5	2.0	
-	2CDX 120/30	2.2	3.0	68
-	2CDX 120/40	3.0	4.0	
-	2CDX 200/30	2.2	3.0	
-	2CDX 200/40	3.0	4.0	
-	2CDX 200/50	3.7	5.0	

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