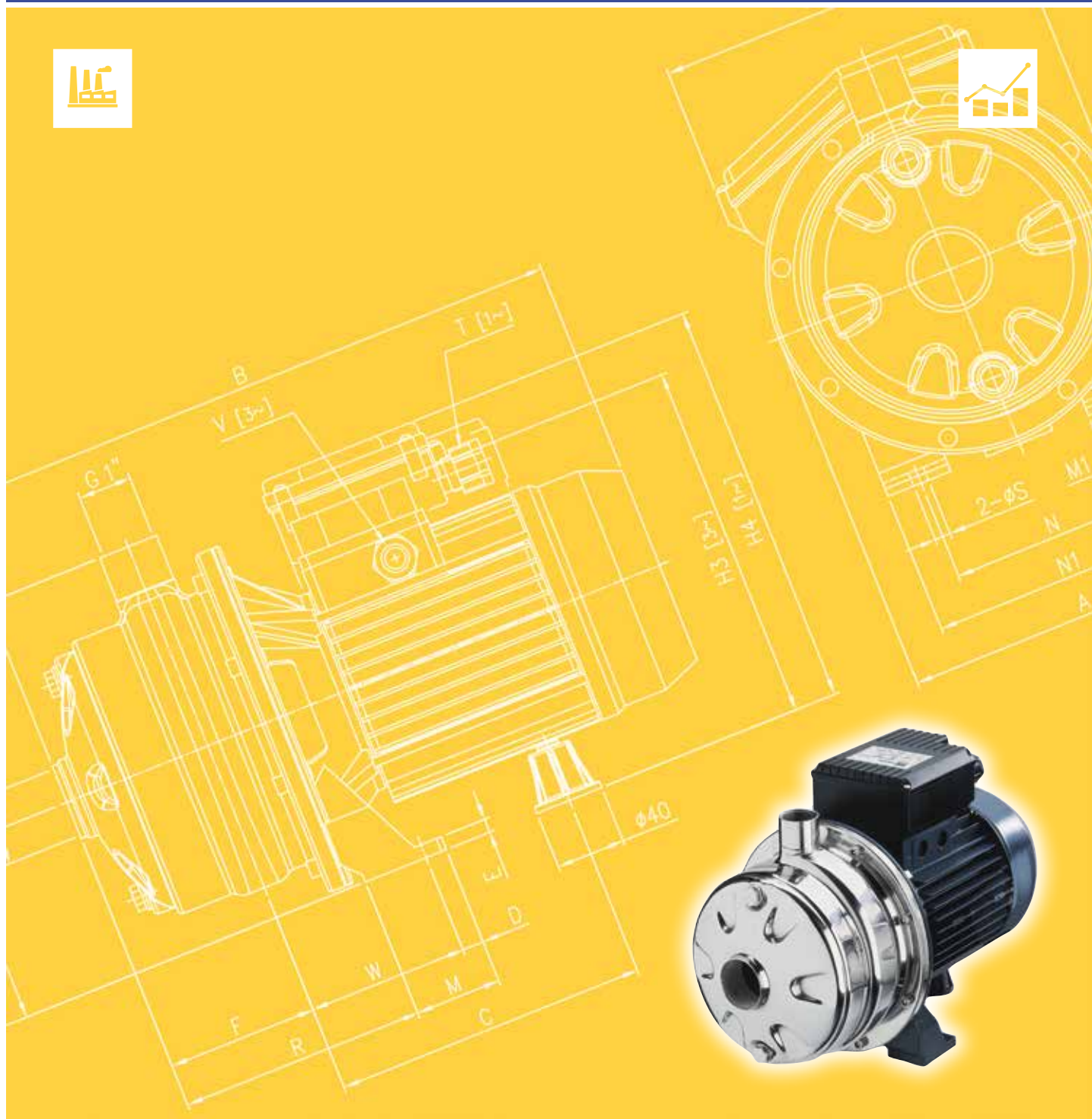




Japanese Technology since 1912

2CDX(L)

Data Book 50Hz



	Page
- SPECIFICATIONS	200
PERFORMANCE RANGE and SELECTION CHART	201
TYPE KEY and CURVE SPECIFICATIONS	202
PERFORMANCE CURVE 2CDX 70	203
PERFORMANCE CURVE 2CDX 120	204
PERFORMANCE CURVE 2CDX 200	205
 - CONSTRUCTIONS	 300
SECTIONAL VIEW	300
THERMAL INSULATION	301
MECHANICAL SEAL	302
FLUID TEMPERATURE RANGE	304
BEARINGS	305
 - DIMENSIONS and WEIGHT	 400
PUMP	400
PACKING	401
 - TECHNICAL DATA	 500
MOTOR DATA	500
NOISE DATA	500

SPECIFICATIONS

50Hz

Rev. U

PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -5 max. +120 For full details see section "FLUID TEMPERATURE RANGE"
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 ¹ / 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	EN 1.4301 (AISI 304) - (AISI 316L only for "L" version)
Applicable standard of test		ISO 9906:2012 – Grade 3B

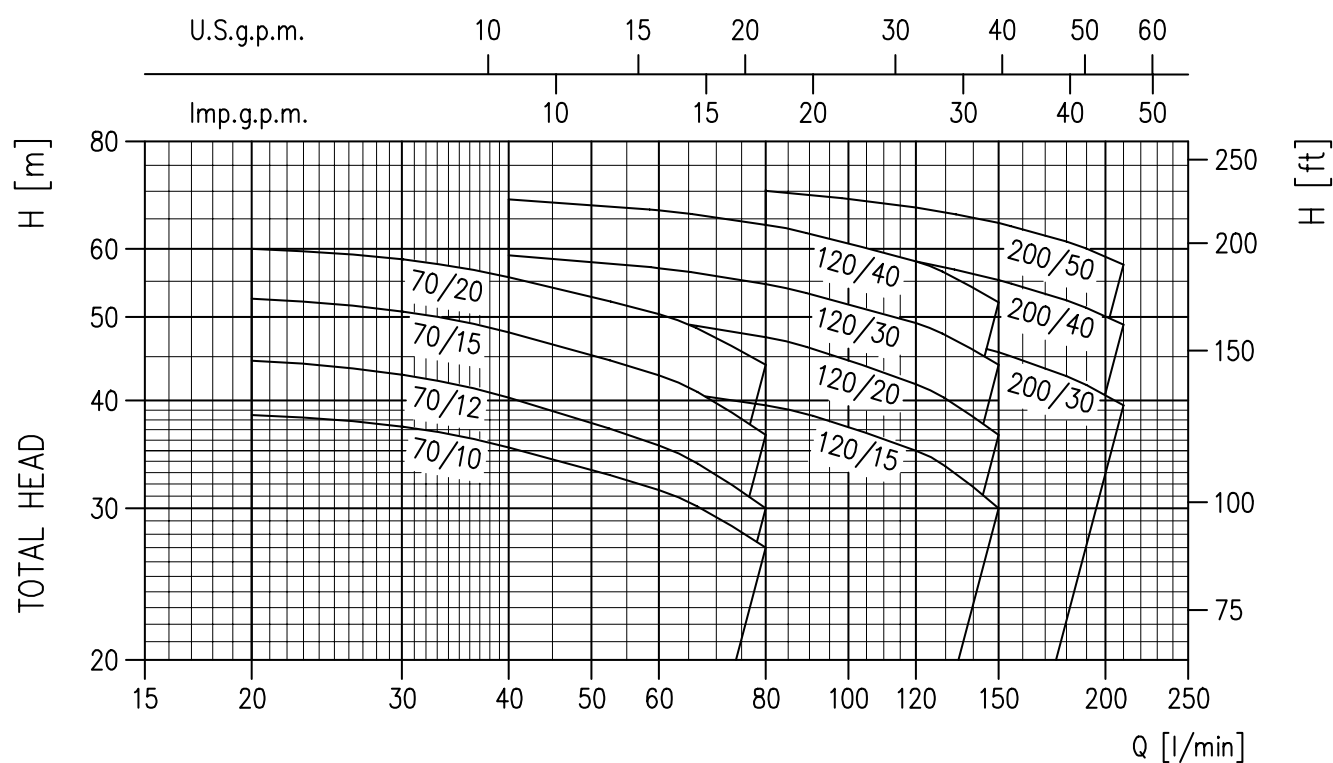
MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 1781/2019)	IE2	IE3
No. of Poles	2	
Rotation speed [min ⁻¹]	≈ 2800	
Insulation Class	F	
Protection degree (CEI EN 60034-5)	IP 55	
Power rating	[kW]	0.9 ÷ 1.8
	[HP]	1.2 ÷ 2.4
Frequency [Hz]	50	
Voltage [V]	230 ±10%	230/400 ±10%
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 and SELECTION CHART

50Hz

Rev. U

PERFORMANCE RANGE

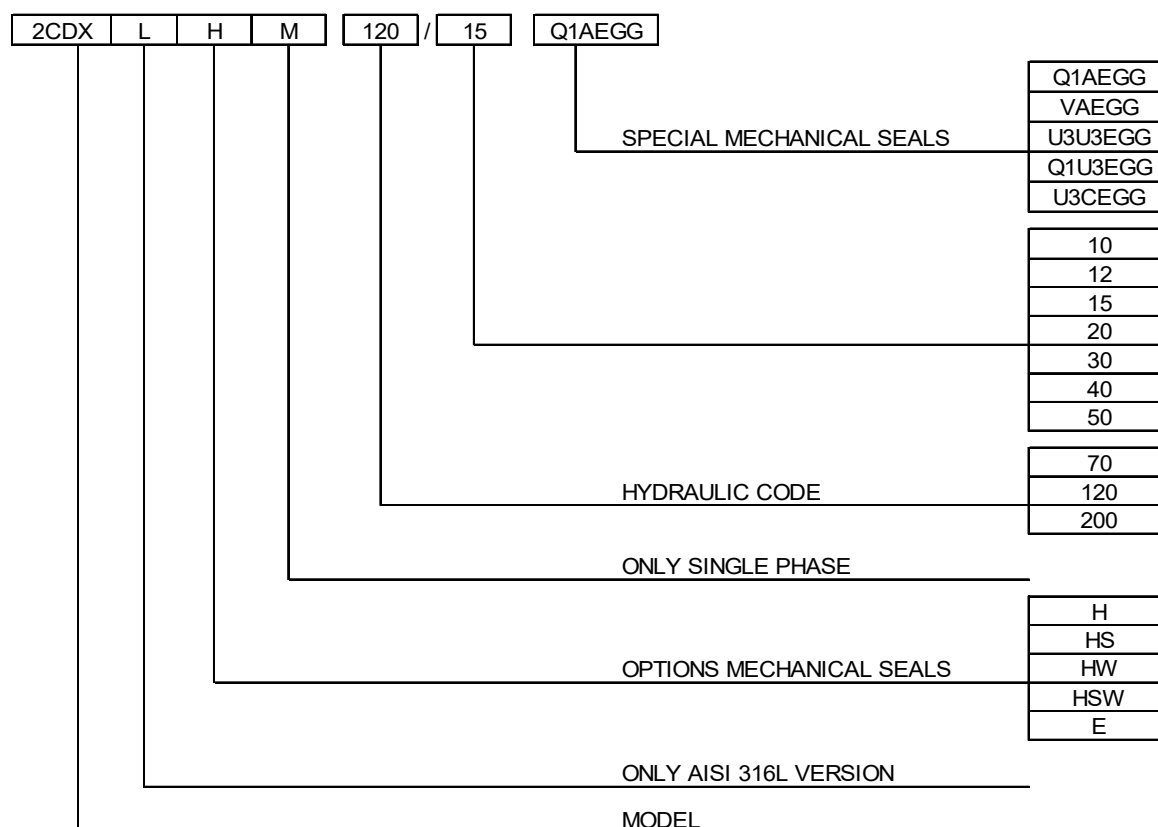


SELECTION CHART

Pump Type		Q=Capacity									
		l/min	0	20	40	60	80	120	150	180	210
Single Phase	Three Phase	m³/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	41	38,5	35,3	31,5	27	-	-	-	-	-
2CDXM 70/12	2CDX 70/12	48	44,5	40,3	35,5	30	-	-	-	-	-
2CDXM 70/15	2CDX 70/15	56	52,5	48	42,8	36,5	-	-	-	-	-
2CDXM 70/20	2CDX 70/20	64	60	55,6	50,4	44	-	-	-	-	-
2CDXM 120/15	2CDX 120/15	46	-	42	41	39,5	35	30	-	-	-
2CDXM 120/20	2CDX 120/20	55	-	51,5	49,5	47,4	41,8	36,5	-	-	-
-	2CDX 120/30	63	-	59	57	54,6	49,2	44	-	-	-
-	2CDX 120/40	71,5	-	68,5	66,5	64	58	52	-	-	-
-	2CDX 200/30	55	-	-	52	50,8	48,1	45,5	42,7	39,5	-
-	2CDX 200/40	66	-	-	62,5	61,1	58	55,2	52,3	49	-
-	2CDX 200/50	75	-	-	71,5	70,1	67	64,3	61,2	57,5	-

TYPE KEY and CURVE SPECIFICATIONS**50Hz**

Rev. U

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:

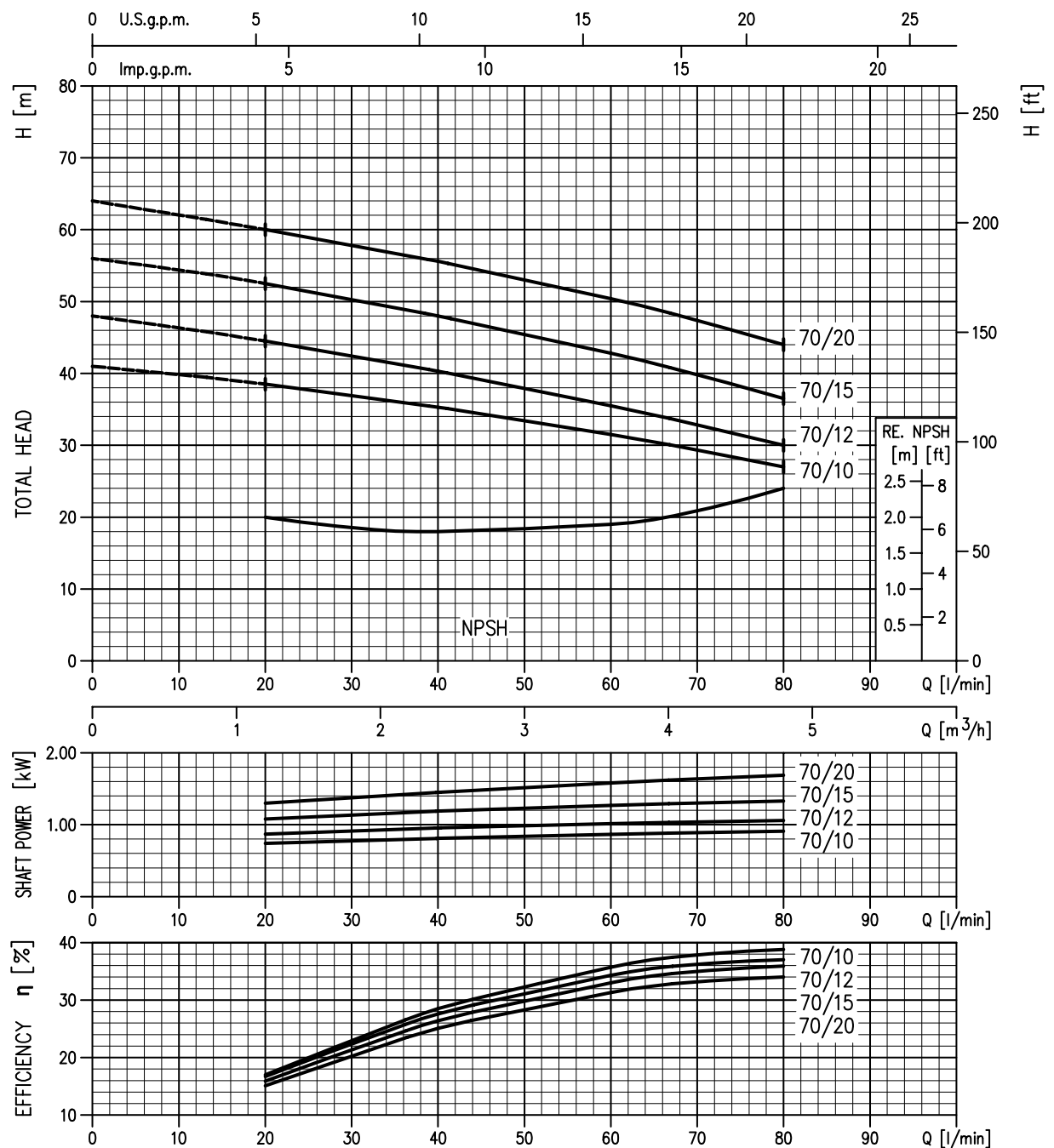
- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump

2CDX 70/10 - Impeller diameter = 132/132 mm

2CDX 70/12 - Impeller diameter = 153/132 mm

2CDX 70/15 - Impeller diameter = 153/153 mm

2CDX 70/20 - Impeller diameter = 153/176 mm

Rotation speed $\approx 2800 \text{ min}^{-1}$

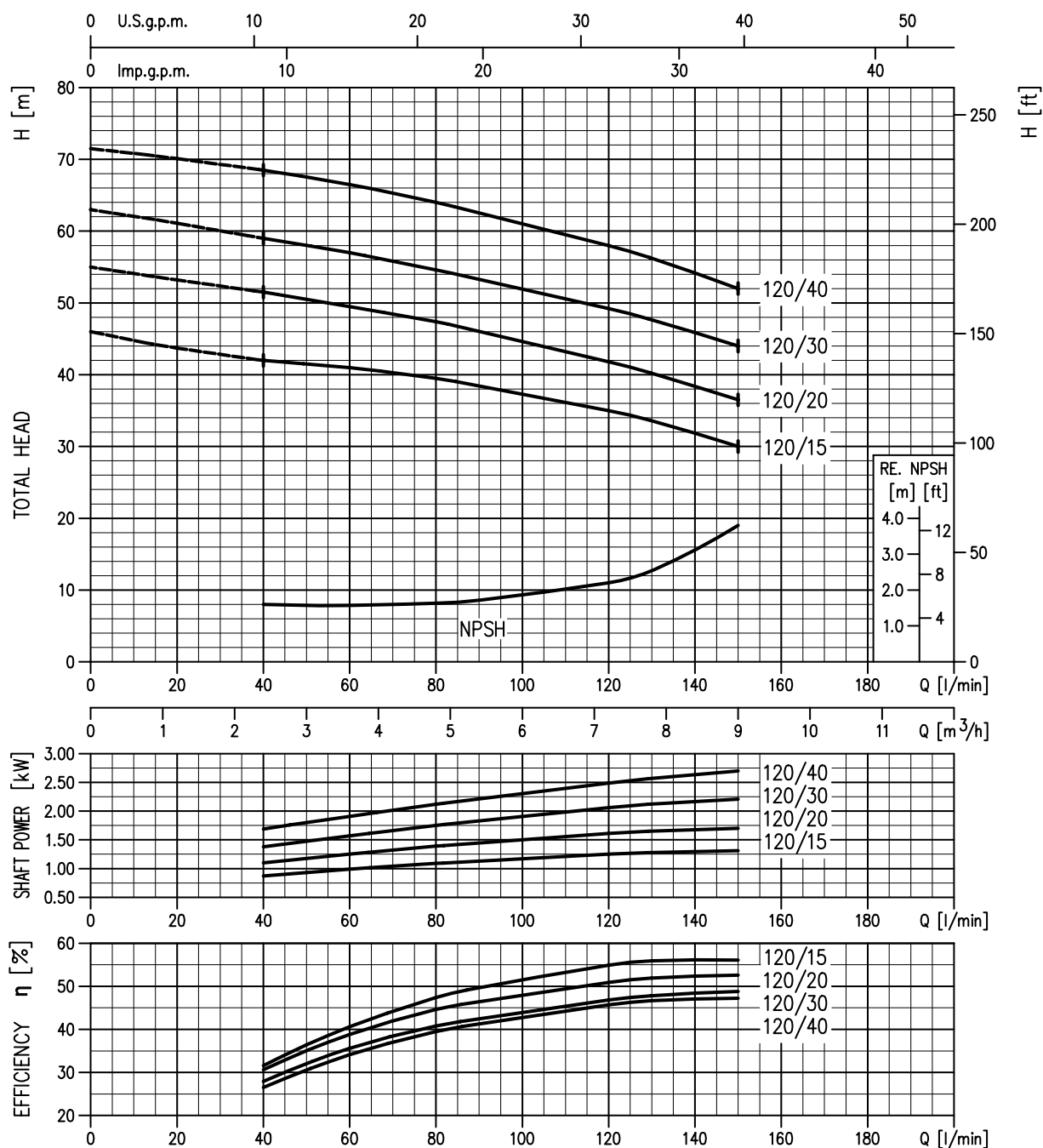
Test standard: ISO 9906:2012 - Grade 3B

2CDX 120/15 - Impeller diameter = 132/132 mm

2CDX 120/20 - Impeller diameter = 157/132 mm

2CDX 120/30 - Impeller diameter = 157/157 mm

2CDX 120/40 - Impeller diameter = 176/157 mm

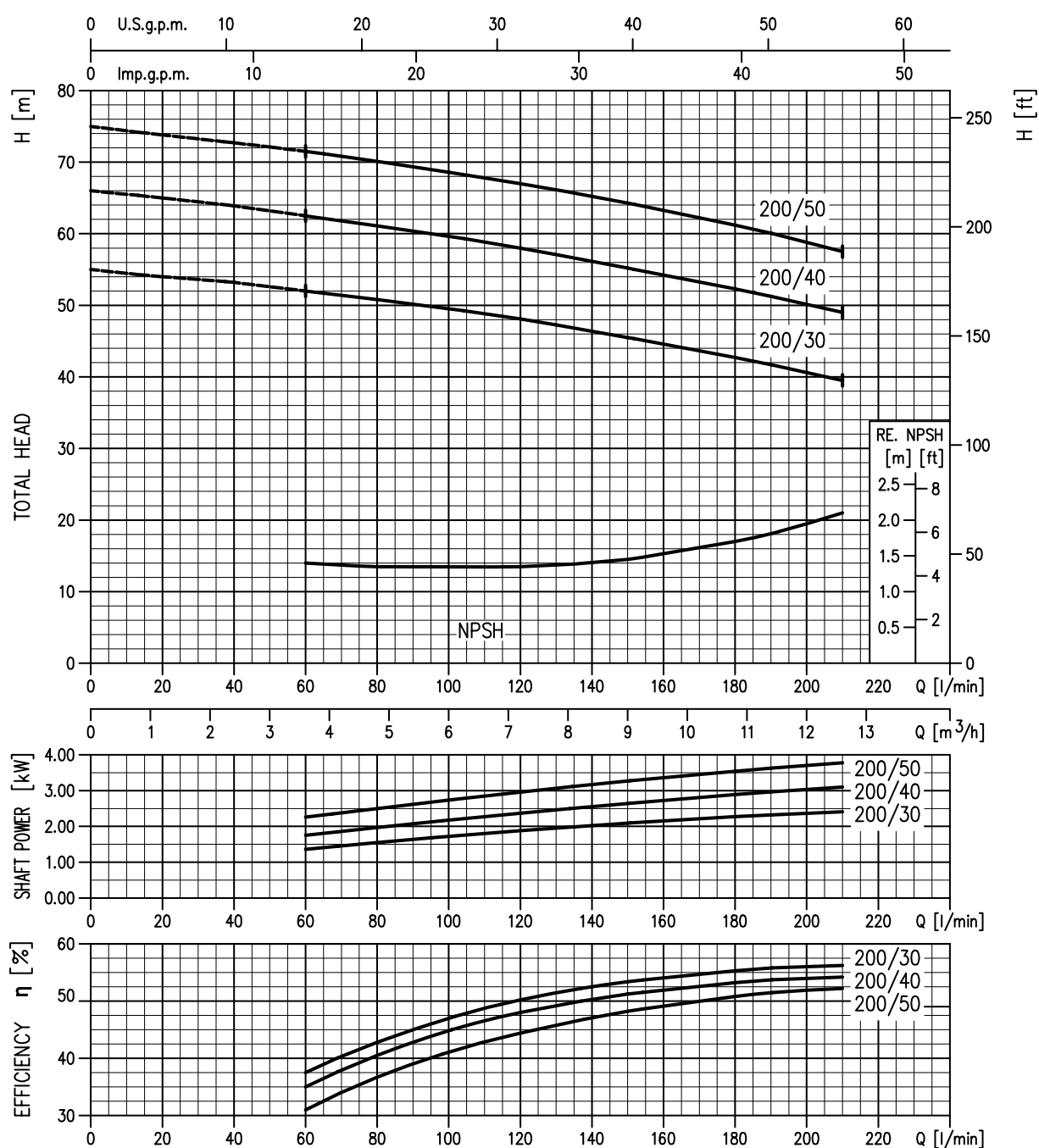
Rotation speed $\approx 2800 \text{ min}^{-1}$

Test standard: ISO 9906:2012 - Grade 3B

2CDX 200/30 - Impeller diameter = 157/132 mm

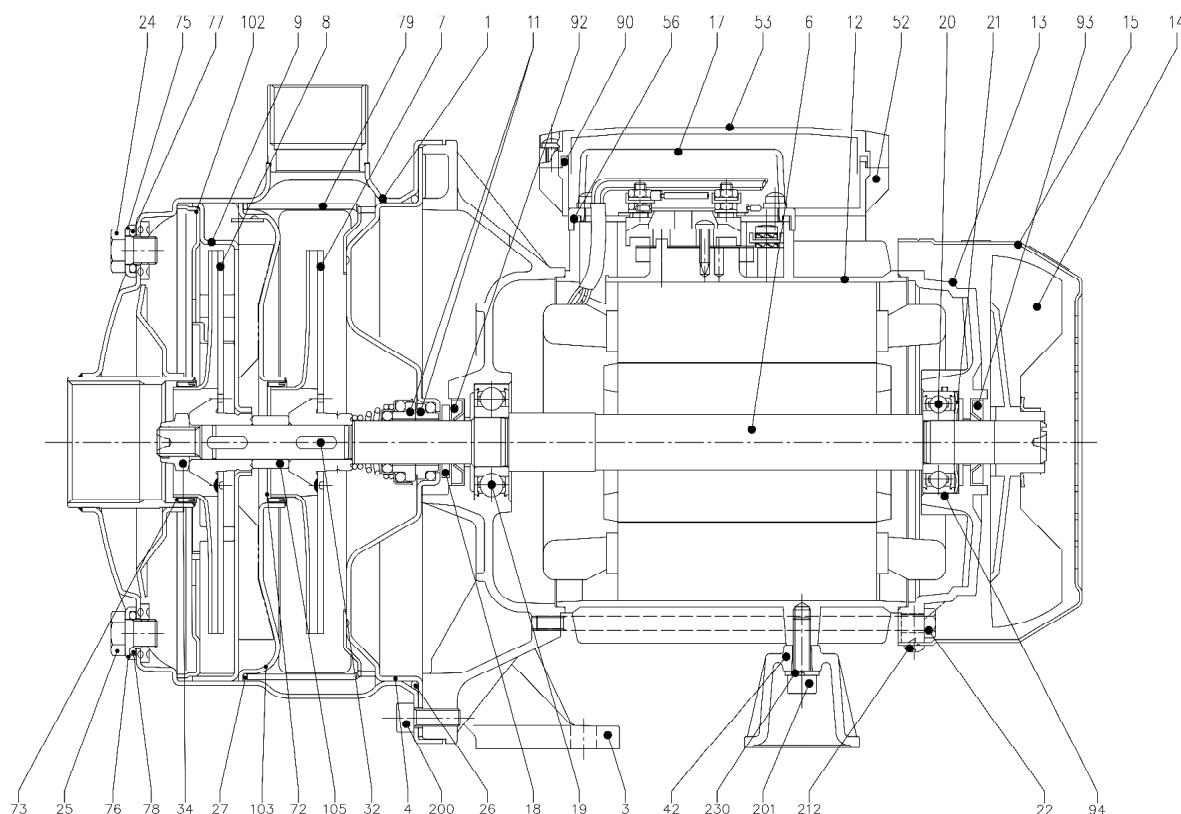
2CDX 200/40 - Impeller diameter = 157/157 mm

2CDX 200/50 - 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 [9] (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] EPDM			1
73	Casing ring	[5] EPDM			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
94	O-ring	[8] NBR	34.65x1.78		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	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

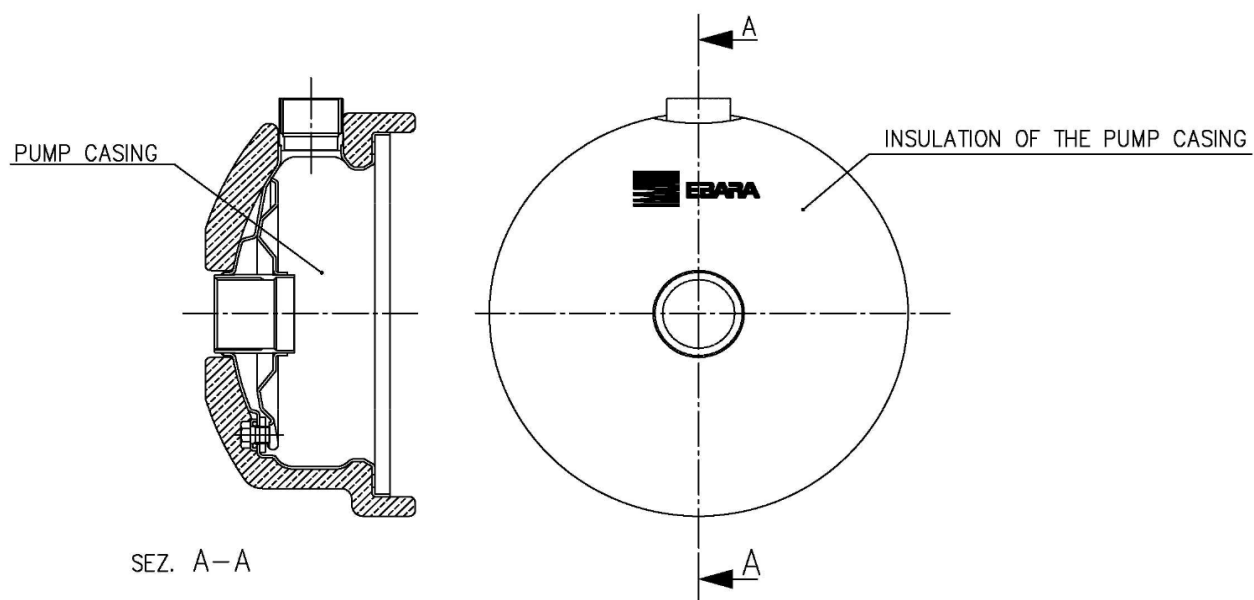
[6] AISI 316L only for "L" version

[7] See **MECHANICAL SEAL** pages 302-303

[8] Only for 2CDX 70/12, 2CDXM 70/10, 2CDXM 70/12 model

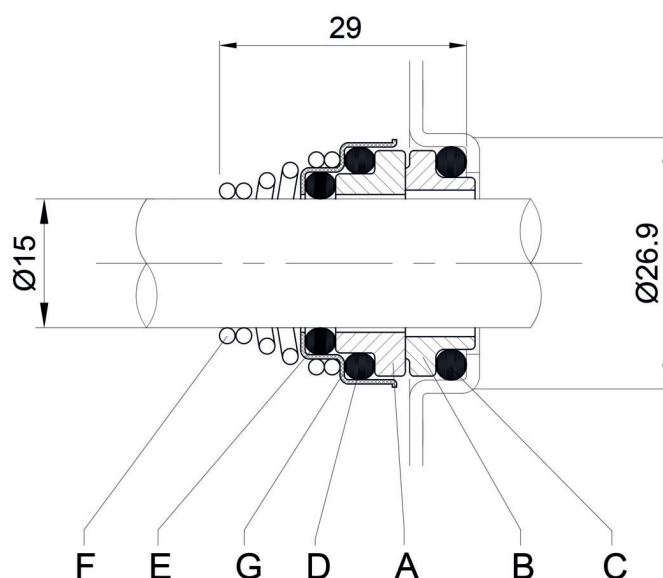
[9] 2CDX(M) 70/20,120/20-120/30-40,200/30-40-50 shaft AISI316L

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

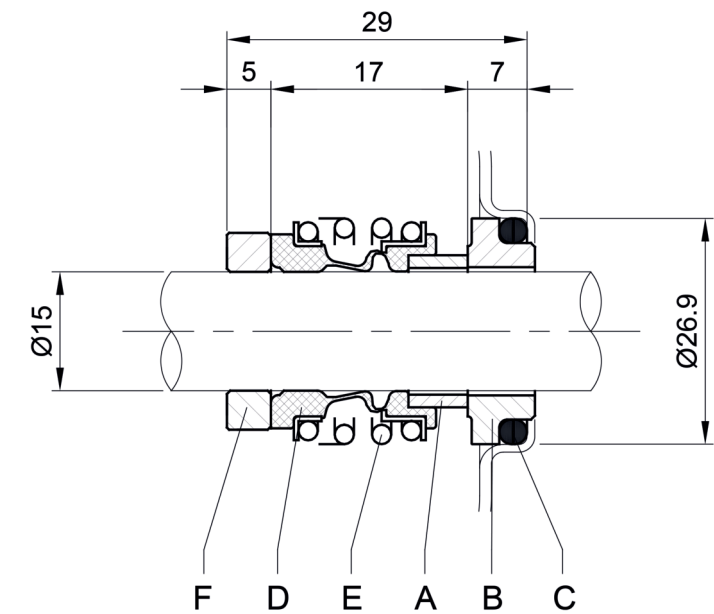
OPTIONAL

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

SPECIAL

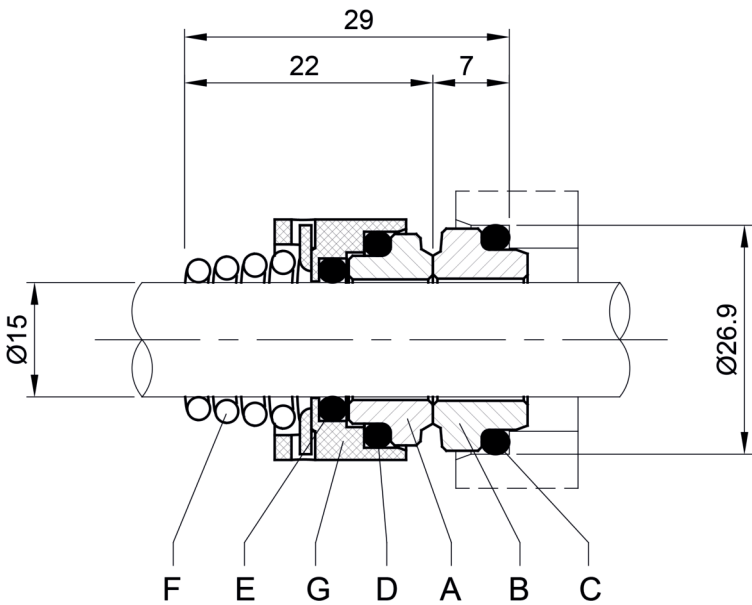
REF	PART NAME	MATERIAL			
		VAEGG	U3U3EGG	Q1U3EGG	U3CEGG
A	Rotary seal ring	Ceramic	Tungsten carbide	Silicon carbide	Tungsten carbide
B	Stationary seal ring	Metallised carbon	Tungsten carbide	Tungsten carbide	special Carbon
C	O-Ring	EPDM	EPDM	EPDM	EPDM
D	O-Ring	EPDM	EPDM	EPDM	EPDM
E	O-Ring	EPDM	EPDM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

FLUID TEMPERATURE RANGE

The maximum allowable temperature for the pumped fluid is a determining factor for the operational life of the pump. A primary role in this limitation is played by the materials of the mechanical seals (rings and elastomers), whose thermal resistance often defines the upper limit. The general construction materials of the pump (casing, impeller) and the lubricant used also contribute to defining the maximum temperature. Although the fluid properties and operating conditions have an impact, the choice of suitable seal materials for the operating temperature is crucial to prevent leaks and ensure the reliability of the pumping system.

To preserve optimal performance and prevent failures, we recommend to operate within the following limits:

STANDARD mechanical seal	TEMPERATURE	
	MIN	MAX
STANDARD	-5 °C	90 °C

OPTIONAL mechanical seal	TEMPERATURE	
	MIN	MAX
H *	-5 °C	110 °C
HS *	-5 °C	110 °C
HW *	-5 °C	110 °C
HSW *	-5 °C	110 °C
E	-5 °C	120 °C

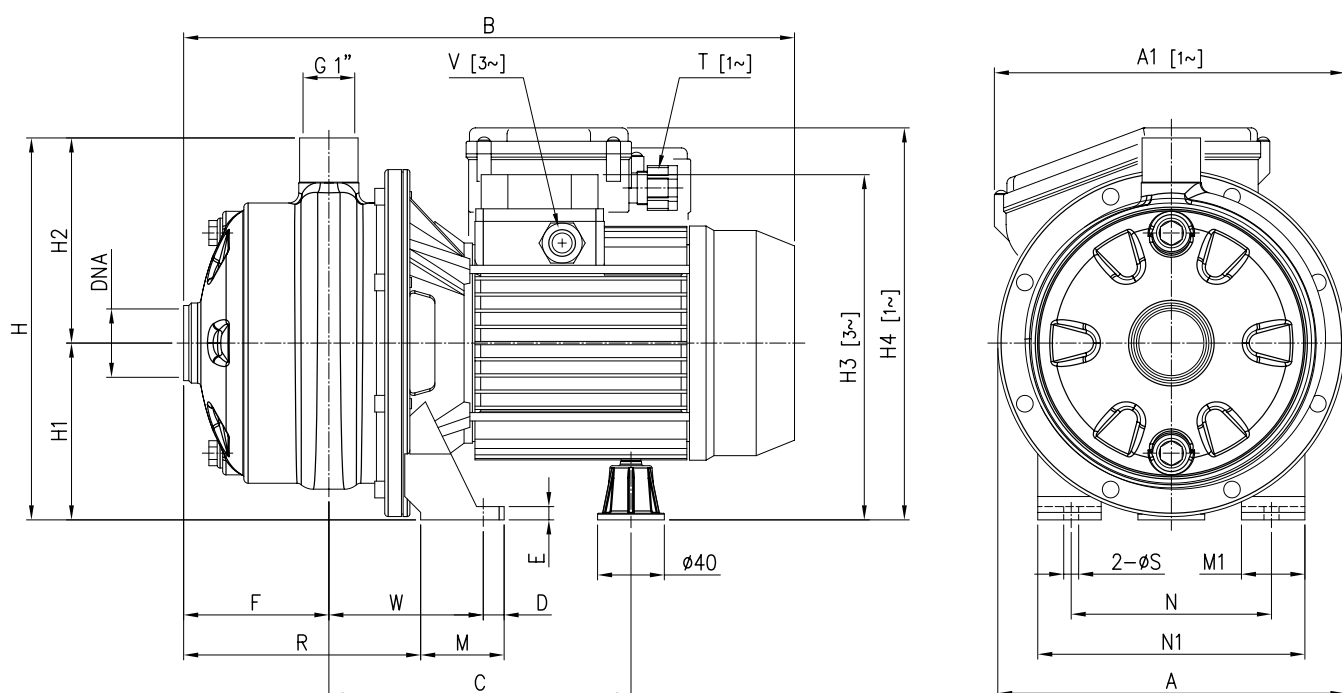
SPECIAL mechanical seal	TEMPERATURE	
	MIN	MAX
Q1AEGG	-5 °C	120 °C
VAEGG	-5 °C	90 °C
U3U3EGG	-5 °C	120 °C
Q1U3EGG	-5 °C	120 °C
U3CEGG	-5 °C	120 °C

* in case the pumped fluid is water in combination to FPM elastomers, a maximum temperature fluid of 75°C is recommended in order to guarantee a longer life of the sealing parts

BEARINGS

Pump type		Ball Bearing	
Single Phase	Three Phase	Pump side	Fan side
2CDXM 70/10	2CDX 70/10	6203	6202
2CDXM 70/12	2CDX 70/12	6203	6202
2CDXM 70/15	2CDX 70/15	6204	6203
2CDXM 70/20	2CDX 70/20	6204	6203
2CDXM 120/15	2CDX 120/15	6204	6203
2CDXM 120/20	2CDX 120/20	6204	6203
-	2CDX 120/30	6204	6203
-	2CDX 120/40	6305	6205
-	2CDX 200/30	6205	6205
-	2CDX 200/40	6305	6205
-	2CDX 200/50	6206	6205

PUMP



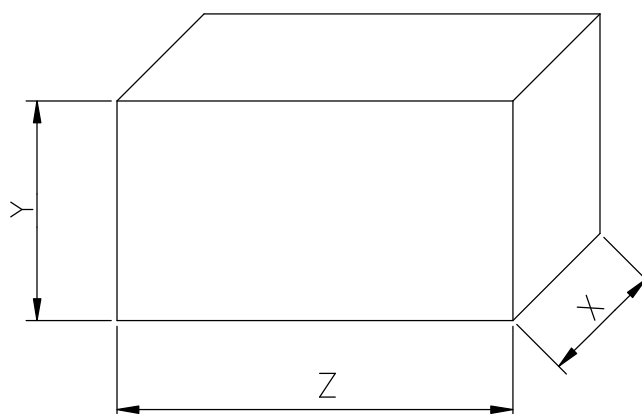
Pump type		Dimensions [mm]																							Weight [kgf]	
Single Phase	Three Phase	A	A1' [1~]	B [1~] [3~]	C	D	E	F	H	H1	H2	H3 [3~]	H4 [1~]	M	M1	N	N1	R	T [1~]	V [3~]	W	S	DNA	[1~]	[3~]	
2CDXM 70/10	2CDX 70/10	208	-	367 354	181	12.5	8	87	229	106	123	207	216	50	38	120	160	142	PG 11	M16x1.5	92.5	9	G1"½	14	12.6	
2CDXM 70/12	2CDX 70/12	208	210	367 366	181	12.5	8	87	229	106	123	207	235	50	38	120	160	142	PG 13.5	M16x1.5	92.5	9	G1"½	14	13.7	
2CDXM 70/15	2CDX 70/15	232	-	408 407	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"½	20	17	
2CDXM 70/20	2CDX 70/20	232	-	395 407.5	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"½	20	20.1	
2CDXM 120/15	2CDX 120/15	208	210	408 407	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"½	18.5	15.6	
2CDXM 120/20	2CDX 120/20	208	210	395 407.5	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"½	18.5	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"½	-	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"½	-	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"½	-	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"½	-	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"½	-	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	245	245	315	315	510	510	15	13.3
2CDXM 70/12	2CDX 70/12	245	245	315	315	510	510	15	14.6
2CDXM 70/15	2CDX 70/15	245	245	315	315	590	590	21	17.8
2CDXM 70/20	2CDX 70/20	245	245	315	315	590	590	21.5	21
2CDXM 120/15	2CDX 120/15	245	245	315	315	590	590	19.5	16.4
2CDXM 120/20	2CDX 120/20	245	245	315	315	590	590	20	19.3
-	2CDX 120/30	-	245	-	315	-	590	-	26.7
-	2CDX 120/40	-	245	-	315	-	590	-	28.8
-	2CDX 200/30	-	245	-	315	-	590	-	28.5
-	2CDX 200/40	-	245	-	315	-	590	-	28.6
-	2CDX 200/50	-	245	-	315	-	590	-	37.5

[1~] Single phase

[3~] Three phase

MOTOR DATA

Pump type	Power		Efficiency	Capacitor		Efficiency (% load)				Input [kW]	Full load current	Locked rotor current
Single Phase	[kW]	[HP]		[μF]	[V]	η %			cos-φ		[A]	[A]
						50%	75%	100%			230 V	230 V
2CDXM 70/10	0.9	1.2	IE2	31.5	450	67.0	75.3	79.0	0.92	1.15	5.4	31.3
2CDXM 70/12	1.1	1.5	IE2	31.5	450	71.9	77.7	79.6	0.94	1.4	6.6	31.3
2CDXM 70/15	1.5	2.0	IE2	40	450	69.8	76.6	81.3	0.92	1.9	9.0	65.2
2CDXM 70/20	1.8	2.4	IE2	40	450	73.1	78.8	82.2	0.93	2.2	10.5	65.2
2CDXM 120/15	1.5	2.0	IE2	40	450	69.8	76.6	81.3	0.92	1.9	9.0	65.2
2CDXM 120/20	1.8	2.4	IE2	40	450	73.1	78.8	82.2	0.93	2.2	10.5	65.2

Pump type	Power		Efficiency	Efficiency (% load)			Input	Full load current		Locked rotor current	
Three Phase	[kW]	[HP]		η %			[kW]	[A]		[A]	
				50%	75%	100%		230 V	400 V	230 V	400 V
2CDX 70/10	0.75	1.0	IE3	80.9	82.3	82.1	1.11	3.4	2.0	19.7	11.4
2CDX 70/12	0.9	1.2	IE3	81.7	83.1	82.4	1.34	4.3	2.5	28.8	16.6
2CDX 70/15	1.1	1.5	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
2CDX 70/20	1.5	2.0	IE3	84.2	86.8	86.9	2.30	7.8	4.5	66.6	38.4
2CDX 120/15	1.1	1.5	IE3	83.5	84.3	84.6	1.77	5.8	3.3	47.4	27.4
2CDX 120/20	1.5	2.0	IE3	84.2	86.8	86.9	2.30	7.8	4.5	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	3.0	4.0	IE3	85.9	87.5	87.1	3.76	11.2	6.5	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		L _{pA} - dB(A) *
Single Phase	Three Phase	
2CDXM 70/10	2CDX 70/10	62
2CDXM 70/12	2CDX 70/12	
2CDXM 70/15	2CDX 70/15	
2CDXM 70/20	2CDX 70/20	64
2CDXM 120/15	2CDX 120/15	
2CDXM 120/20	2CDX 120/20	
-	2CDX 120/30	68
-	2CDX 120/40	
-	2CDX 200/30	
-	2CDX 200/40	
-	2CDX 200/50	

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



EBARA Pumps Europe S.p.A.

Via Torri di Confine 2/1 int. C
36053 Gambellara (Vicenza), Italy
Phone +39 0444 706811
ebarapumps.epe@ebaracom
www.ebaraeurope.com

EBARA Pumps Europe S.p.A. GERMANY

Elisabeth-Selbert-Straße 2
63110 Rodgau, Germany
Phone +49 (0) 6106-660 99-0
info.epde@ebaracom

EBARA Pumps South Africa (PTY) LTD

26 Kyalami Boulevard,
Kyalami Business Park, 1684, Midrand,
Gauteng, South Africa
Phone +27 11 466 1844
ebaraeurope@ebaracom

EBARA Pumps Europe S.p.A. UK

Unit A, Park 34
Collett Way - Didcot
Oxfordshire - OX11 7WB, United Kingdom
Phone +44 1895 439027
marketing.epuk@ebaracom

EBARA Pumps Europe S.p.A. FRANCE

122, Rue Pasteur
69780 Toussieu, France
Phone: +33 04 72 76 94 82
mktg.epr@ebaracom

EBARA Pumps East Africa

Delta Corner Tower 2, 13th Floor, Office 1308,
Chiromo Road, Westlands
P.O. Box 13796-00800, Nairobi
Phone: +254(0)722913119
info.epea@ebaracom

EBARA POMPY POLSKA Sp. z o.o.

ul. Działkowa 115 A
02-234 Warszawa, Poland
Phone +48 22 3909920
marketing.epl@ebaracom

EBARA Pumps RUS Ltd.

Prospekt Andropov 18, building 7, floor 11
115432 Moscow
Phone +7 499 6830133
mktg.epr@ebaracom