



**EBARA**

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## SPECIFICATION

50Hz

Rev. J

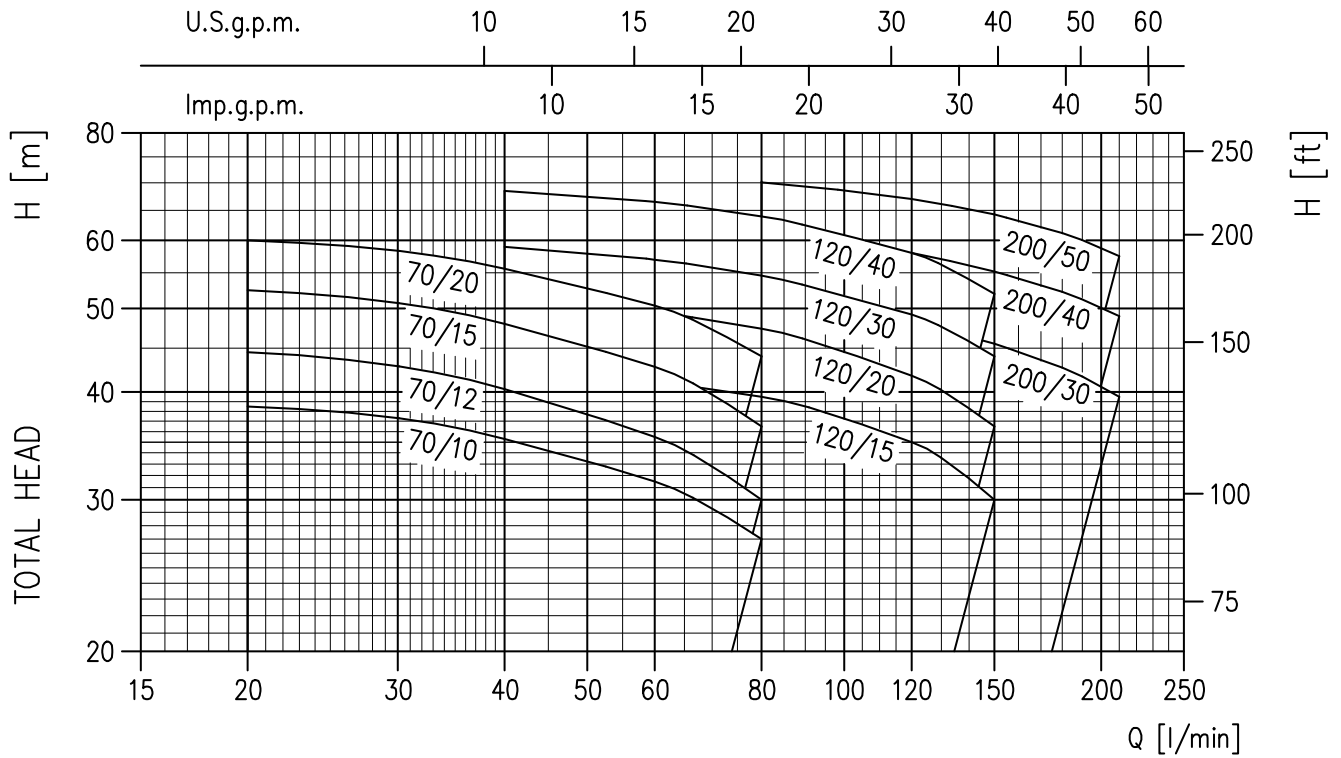
PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -5 max. +60 max. +60 (E) max. +110 (H-HS-HW-HSW)
Maximum working pressure	[MPa]	0.8
Construction	Impeller	Closed centrifugal type (Twin)
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction [inch]	from G 1 <sup>1</sup> / <sub>4</sub> to G 1 <sup>1</sup> / <sub>2</sub> (2CDX 200) UNI ISO 228
	Discharge [inch]	G 1" UNI ISO 228
Material	Casing	EN 1.4301 (AISI 304)
	Impeller	EN 1.4301 (AISI 304)
	Casing cover	EN 1.4301 (AISI 304)
	Shaft seal	Ceramic/Carbon/NBR (for version see page 301)
	Shaft	EN 1.4301 (AISI 304) (Wet extension)
	Bracket	Aluminium (up to 1.5 kW included) Cast iron (2.2 kW and above)
	Diffuser	EN 1.4301 (AISI 304)
Applicable standard of test		ISO 9906 – Annex A

MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
Efficiency level (Reg. 640/2009)	-	IE2 from 0.75 kW up to 4.0 kW IE3 from 0.75 kW up to 4.0 kW
No. of Poles	2	
Rotation speed [min <sup>-1</sup> ]	≈ 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	PG 11 – PG 13.5 – PG 16 - M16x1.5 - M20x1.5 (see dimensions page 400)	

SELECTION CHART

50Hz

Rev. J



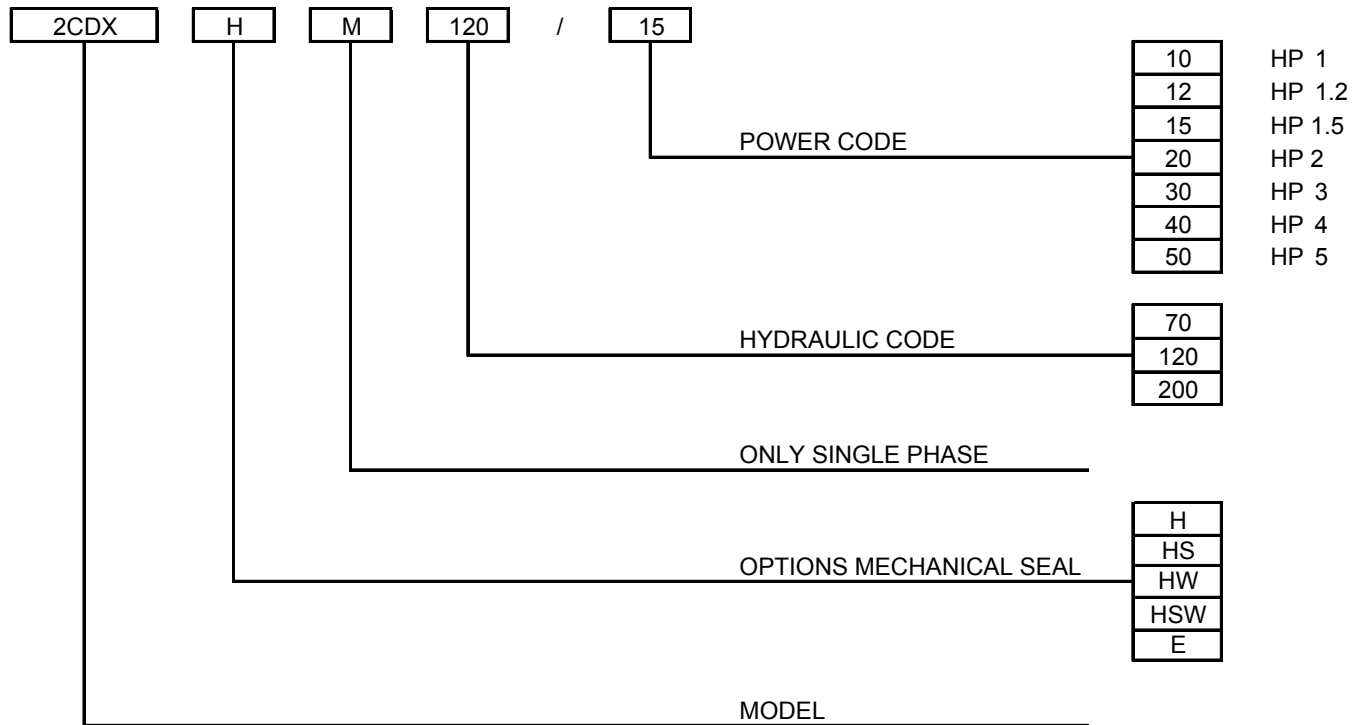
Pump Type		Power		Q=Capacity								
Single Phase	Three Phase	[kW]	[HP]	l/min	20	40	60	80	120	150	180	210
				m³/h	1.2	2.4	3.6	4.8	7.2	9.0	10.8	12.6
H=Total manometric head in meters												
2CDXM 70/10	2CDX 70/10	0.75	1	41	38.5	35.3	31.5	27	-	-	-	-
2CDXM 70/12	2CDX 70/12	0.9	1.2	48	44.5	40.3	35.5	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. J

TYPE KEY



PERFORMANCE CURVE SPECIFICATIONS

The specifications below qualify the curves shown on the following pages.

Tolerances according to ISO 9906 Annex A

The curves refer to effective speed of asynchronous motors at 50 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.

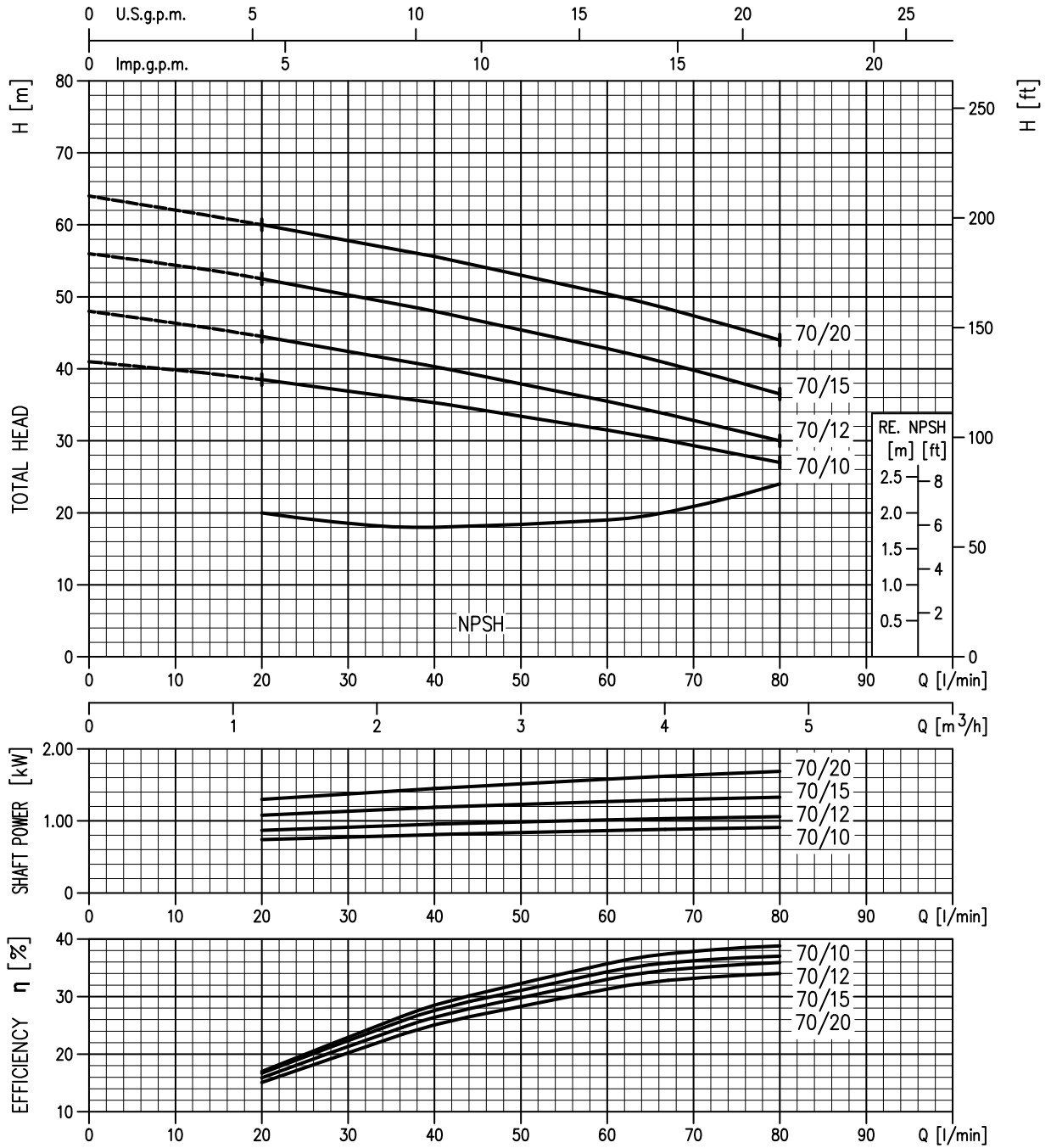
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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:

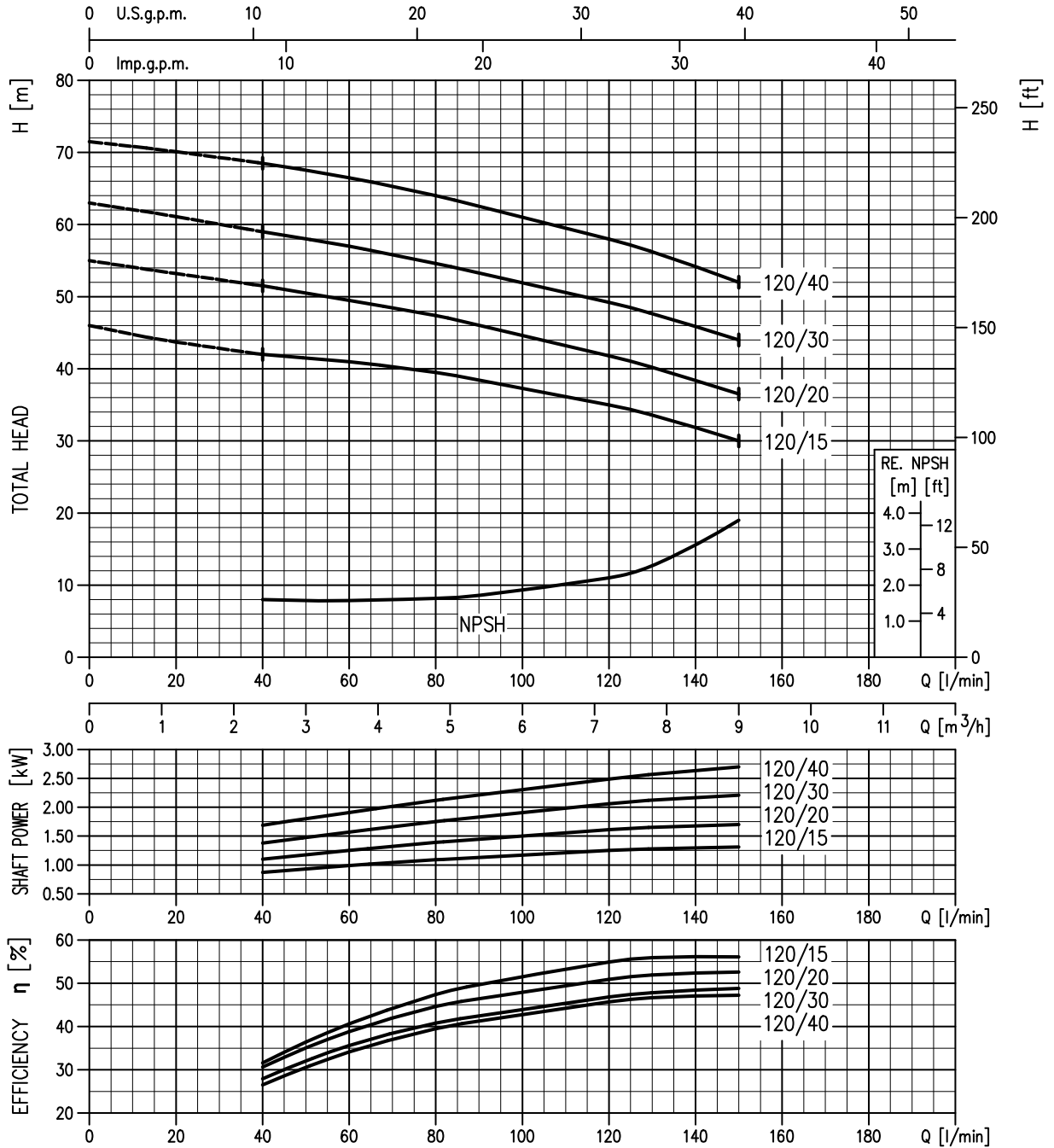
- Q = volume flow rate
- H = total head
- $P_2$  = pump power input (shaft power)
- $\eta$  = pump efficiency
- NPSH = net positive suction head required by the pump

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



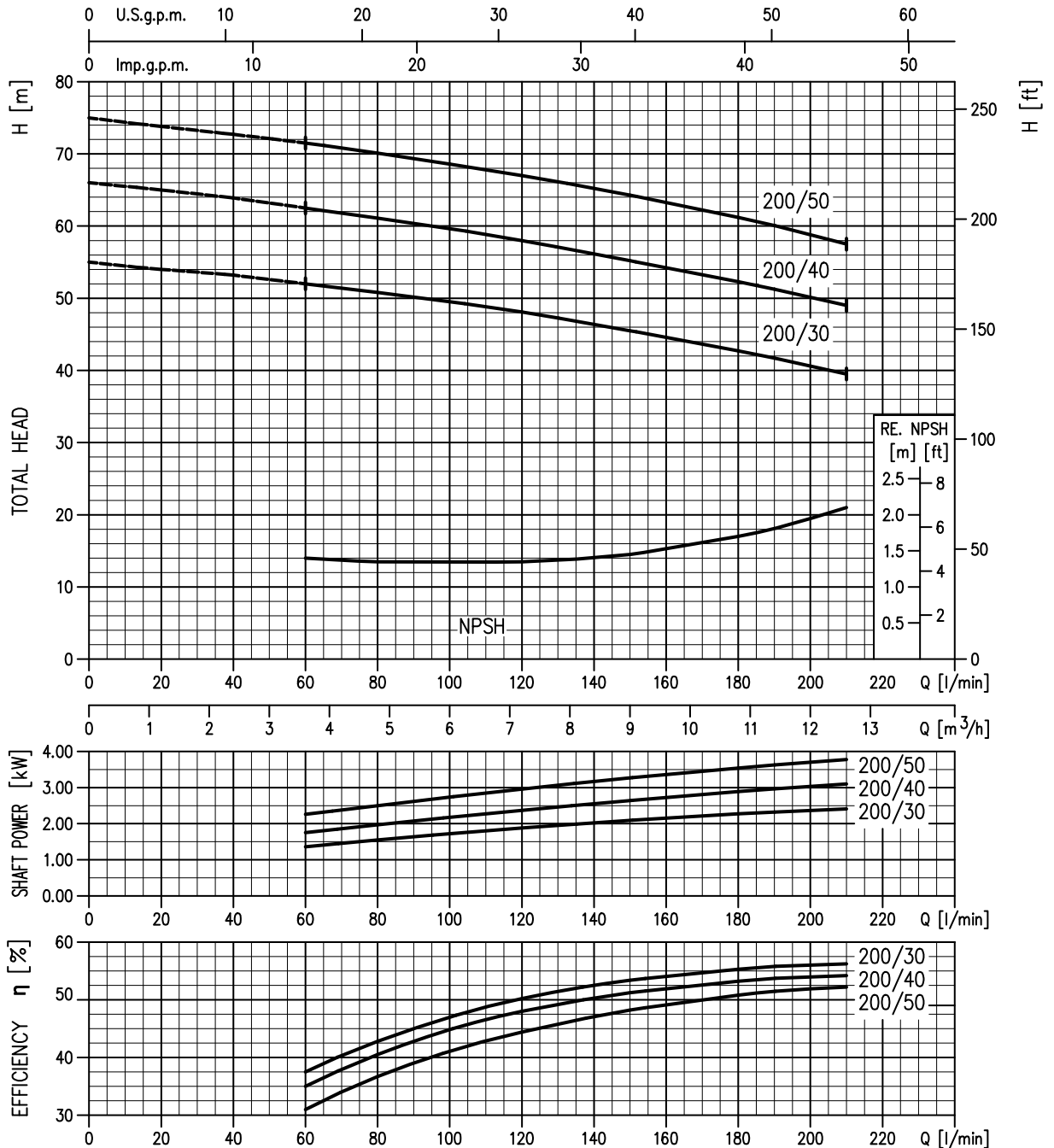
Rotation speed  $\approx 2800 \text{ min}^{-1}$   
 Test standard: ISO 9906 – Annex A

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<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

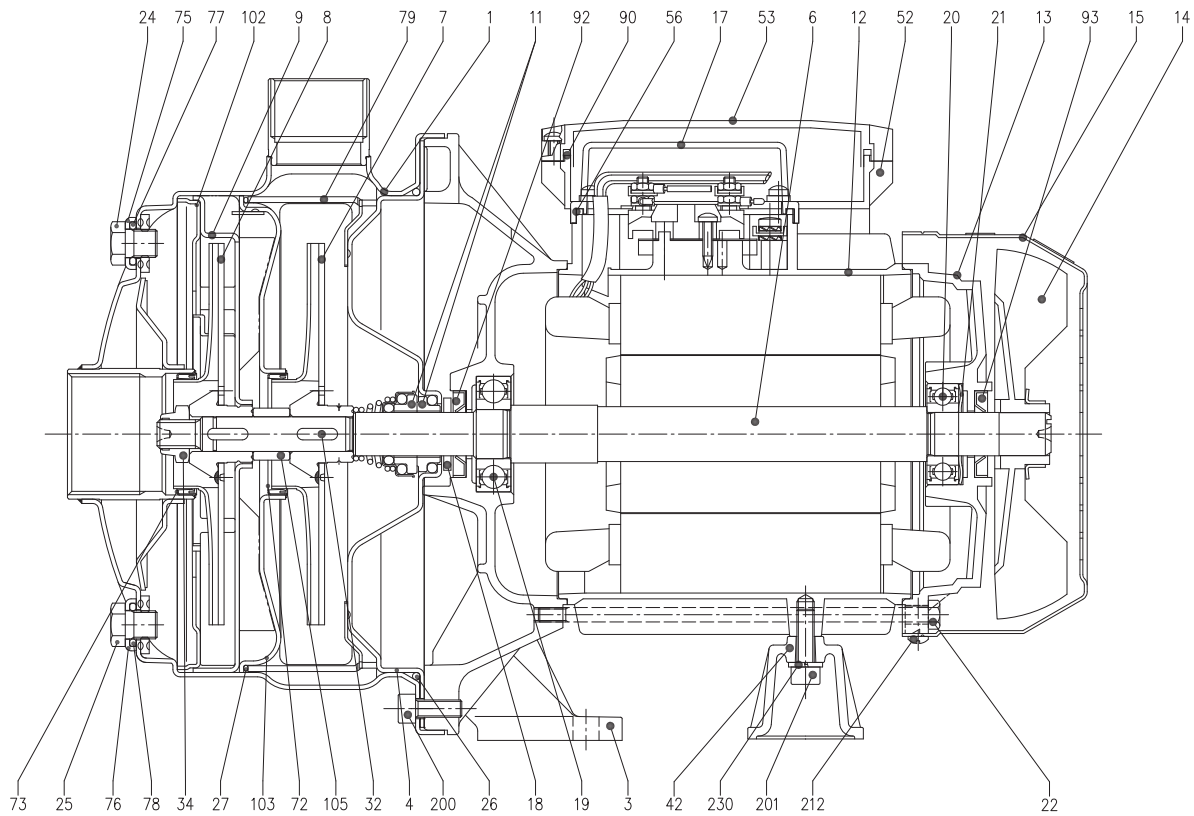
2CDX 200/30 (2.2 kW) - Impeller diameter = 157/132 mm  
 2CDX 200/40 (3.0 kW) - Impeller diameter = 157/157 mm  
 2CDX 200/50 (3.7 kW) - Impeller diameter = 176/157 mm



Rotation speed  $\approx 2800 \text{ min}^{-1}$   
 Test standard: ISO 9906 – Annex A



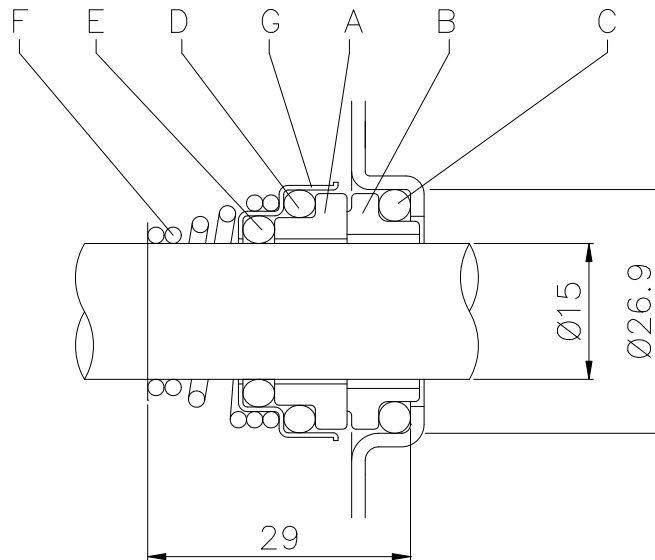
### SECTIONAL VIEW



N°	PART NAME	MATERIAL	DIMENSION	STANDARD	Q.TY	N°	PART NAME	MATERIAL	DIMENSION	STANDARD	Q.TY	
1	Casing	AISI 304			1	42	Motor support	Aluminium			1	
3	Motor bracket	[4]			1	52	Capacitor box [1]	ABS class V-0			1	
4	Casing cover	AISI 304			1	53	Capacitor box cover [1]	ABS class V-0			1	
6	Shaft with rotor	AISI 304 (Wet extension)			1	56	Box gasket	NBR			1	
7	Impeller	AISI 304			1	72	Casing ring [5]	NBR			1	
8	Impeller	AISI 304			1	73	Casing ring [5]	NBR			1	
9	Diffuser	AISI 304			1	75	Washer	AISI 304			1	
11	Mechanical seal	Ceramic/Carbon/NBR	see page 301		1	76	Washer	AISI 304			1	
12	Motor frame with stator	-			1	77	O-ring [3]	NBR			1	
13	Motor cover	Aluminium			1	78	O-ring [3]	NBR			1	
14	Fan	PA			1	79	Space diffuser	AISI 304			1	
15	Fan cover	Fe P04 Galvanized			1	90	Terminal box cover gasket [1]	NBR			1	
17	Terminal box cover [2]	Aluminium			1	92	Lip seal	NBR			1	
18	Splash ring	NBR			1	93	Lip seal	NBR			1	
19	Pump side ball bearing	-			1	102	Suction cover	AISI 304			1	
20	Fan side ball bearing	-			1	103	Conveyor cover	AISI 304			1	
21	Adjusting ring	Steel C70			1	105	Sleeve	AISI 304			1	
22	Tie rod	Fe 420 Galvanized			4							
24	Priming plug	AISI 304			1	200	Screw	Stainless steel A2-70	70/10, 120/15, 120/20, 200/30	M6X16	UNI 5931	8
25	Drain plug	AISI 304			1	201			70/12, 70/15, 70/20, 120/30, 120/40, 200/40, 200/50	M8X18		
26	O-ring [3]	NBR			1	212	Screw	Zn. Steel cl.8.8			UNI 5931	1
27	O-ring [3]	NBR			1	212	Screw	Stainless steel A2	3,5X9,5		UNI 6954	4
32	Key	AISI 316			2	230	Washer	Steel C70	6.4		UNI 1751	1
34	Impeller nut	Stainless steel A2-70	M10X1,25	UNI 7474	1							

- [1] Only for single phase
- [2] Only for three phase
- [3] FPM for H-HS-HW-HSW  
EPDM for E
- [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  
NBR for E

MECHANICAL SEAL



REF	PART NAME	MATERIAL					
		Standard version (2CDX)	(2CDXH)	(2CDXHS)	Optional (2CDXHW)	(2CDXHSW)	(2CDXE)
A	Rotary seal ring	Ceramic	Ceramic	Silicon carbide	Tungsten carbide	Silicon carbide	Ceramic
B	Stationary seal ring	Carbon graphite	Carbon graphite	Silicon carbide	Tungsten carbide	Tungsten carbide	Carbon graphite
C	O Ring	NBR	FPM	FPM	FPM	FPM	EPDM
D	O Ring	NBR	FPM	FPM	FPM	FPM	EPDM
E	O Ring	NBR	FPM	FPM	FPM	FPM	EPDM
F	Self driving spring	AISI 316	AISI 316	AISI 316	AISI 316	AISI 316	AISI 316
G	Frame	AISI 304	AISI 304	AISI 316	AISI 316	AISI 316	AISI 316

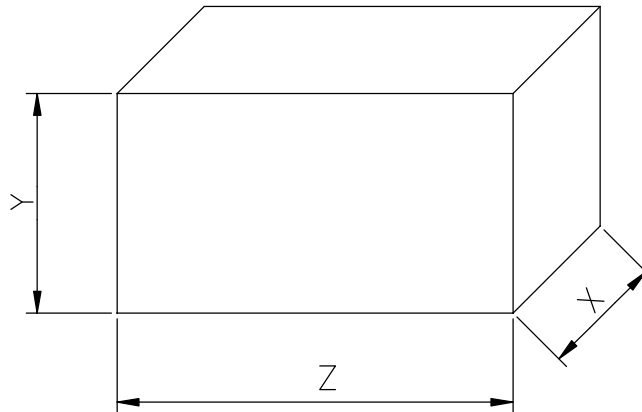
BEARINGS

Pump type		Ball Bearing			
Single Phase	Three Phase	Pump side	(**)		(**)
			Pump side	Fan side	
2CDXM 70/10	2CDX 70/10	6203 2RSH	6203-ZZ C3	6202 2RSH	6202-ZZ C3
2CDXM 70/12	2CDX 70/12	6203 2RSH	6203-ZZ C3	6202 2RSH	6202-ZZ C3
2CDXM 70/15	2CDX 70/15	6204 2RSH	6204-ZZ C3	6203 2RSH	6203-ZZ C3
2CDXM 70/20	2CDX 70/20	6204 2RSH	6204-ZZ C3	6203 2RSH	6203-ZZ C3
2CDXM 120/15	2CDX 120/15	6204 2RSH	6204-ZZ C3	6203 2RSH	6203-ZZ C3
2CDXM 120/20	2CDX 120/20	6204 2RSH	6204-ZZ C3	6203 2RSH	6203-ZZ C3
-	2CDX 120/30	6305 2RSH	6305-ZZ C3	6205 2RSH	6205-ZZ C3
-	2CDX 120/40	6305 2RSH	6305-ZZ C3	6205 2RSH	6205-ZZ C3
-	2CDX 200/30	6205 2RSH	6205-ZZ C3	6205 2RSH	6205-ZZ C3
-	2CDX 200/40	6305 2RSH	6305-ZZ C3	6205 2RSH	6205-ZZ C3
-	2CDX 200/50	6206 2RSH	6206-ZZ C3	6205 2RSH	6205-ZZ C3

(\*\*) Only for IE3 Motors



PACKING



Pump type		Packing [mm]									Weight [kgf]		
Single Phase	Three Phase	X			Y			Z			[1~]	[3~]	(**) [3~]
		[1~]	[3~]	(**) [3~]	[1~]	[3~]	(**) [3~]	[1~]	[3~]	(**) [3~]			
2CDXM 70/10	2CDX 70/10	225	225	225	278	278	278	373	387	387	13.3	13.3	13.3
2CDXM 70/12	2CDX 70/12	225	244	244	278	308	308	387	427	427	13.9	14.6	14.6
2CDXM 70/15	2CDX 70/15	244	244	244	308	308	308	427	427	427	18.4	17.8	17.8
2CDXM 70/20	2CDX 70/20	244	244	244	308	308	308	427	427	427	19.5	20.1	21
2CDXM 120/15	2CDX 120/15	244	244	244	308	308	308	427	427	427	17	16.4	16.4
2CDXM 120/20	2CDX 120/20	244	244	244	308	308	308	427	427	427	17.7	18.4	19.3
-	2CDX 120/30	-	244	244	-	308	308	-	427	427	-	25.8	26.7
-	2CDX 120/40	-	244	244	-	313	313	-	507	507	-	28.8	28.8
-	2CDX 200/30	-	244	244	-	313	313	-	507	507	-	27.6	28.5
-	2CDX 200/40	-	244	244	-	313	313	-	507	507	-	28.6	28.6
-	2CDX 200/50	-	244	280	-	313	350	-	507	520	-	37.5	37.5

[1~] Single phase  
 [3~] Three phase  
 (\*\*) Only for IE3 Motors

### 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]		
								[μF]	[V]	50%			75%	100%	230 V	230 V	400 V	230 V
2CDXM 70/10	2CDX 70/10	0.75	1.0	-	IE2	20	450	77.2	80.9	81.3	1.30	1.14	6.0	3.6	2.0	22.7	22.0	12.9
-	2CDX 70/10	0.75	1.0	-	IE3	-	-	80.9	82.3	82.1	-	0.91	-	3.0	1.7	-	19.7	11.4
2CDXM 70/12	2CDX 70/12	0.9	1.2	-	IE2	31.5	450	79.0	81.7	81.6	1.55	1.35	7.0	4.3	2.5	25.5	31.0	17.8
-	2CDX 70/12	0.9	1.2	-	IE3	-	-	81.7	83.1	82.4	-	1.34	-	4.3	2.5	-	28.8	16.6
2CDXM 70/15	2CDX 70/15	1.1	1.5	-	IE2	40	450	79.7	82.5	83.0	1.80	1.80	8.1	5.6	3.2	43.0	45.0	25.7
-	2CDX 70/15	1.1	1.5	-	IE3	-	-	83.0	85.8	85.6	-	1.77	-	5.8	3.3	-	47.4	27.4
2CDXM 70/20	2CDX 70/20	1.5	2.0	-	IE2	40	450	80.3	83.4	83.8	2.30	2.28	10.0	7.4	4.3	43.0	34.3	20.0
-	2CDX 70/20	1.5	2.0	-	IE3	-	-	84.2	86.8	86.9	-	2.01	-	7.1	4.1	-	66.6	38.4
2CDXM 120/15	2CDX 120/15	1.1	1.5	-	IE2	40	450	79.7	82.5	83.0	1.80	1.80	8.3	5.6	3.2	43.0	45.0	25.7
-	2CDX 120/15	1.1	1.5	-	IE3	-	-	83.0	85.8	85.6	-	1.77	-	5.8	3.3	-	47.4	27.4
2CDXM 120/20	2CDX 120/20	1.5	2.0	-	IE2	40	450	80.3	83.4	83.8	2.35	2.28	10.2	7.3	4.2	43.0	34.3	20.0
-	2CDX 120/20	1.5	2.0	-	IE3	-	-	84.2	86.8	86.9	-	2.01	-	7.1	4.1	-	66.6	38.4
-	2CDX 120/30	2.2	3.0	-	IE2	-	-	83.1	85.7	86.2	-	2.90	-	8.8	5.1	-	75.0	43.5
-	2CDX 120/30	2.2	3.0	-	IE3	-	-	85.8	86.2	87.1	-	2.56	-	7.8	4.5	-	63.3	36.6
-	2CDX 120/40	3.0	4.0	-	IE2	-	-	85.0	86.7	86.3	-	3.48	-	10.6	6.1	-	100.0	57.7
-	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	-	IE2	-	-	85.0	86.7	86.3	-	3.48	-	10.6	6.1	-	100.0	57.7
-	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	-	IE2	-	-	85.0	86.7	86.3	-	3.83	-	11.6	6.7	-	100.0	57.7
-	2CDX 200/40	3.0	4.0	-	IE3	-	-	85.9	87.5	87.1	-	3.44	-	11.1	6.4	-	90.0	52.0
-	2CDX 200/50	3.7	5.0	-	IE2	-	-	84.3	87.2	87.8	-	4.56	-	15.1	8.7	-	151.0	87.0
-	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 <sub>pA</sub> - 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	68
-	2CDX 120/30	2.2	3.0	
-	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.