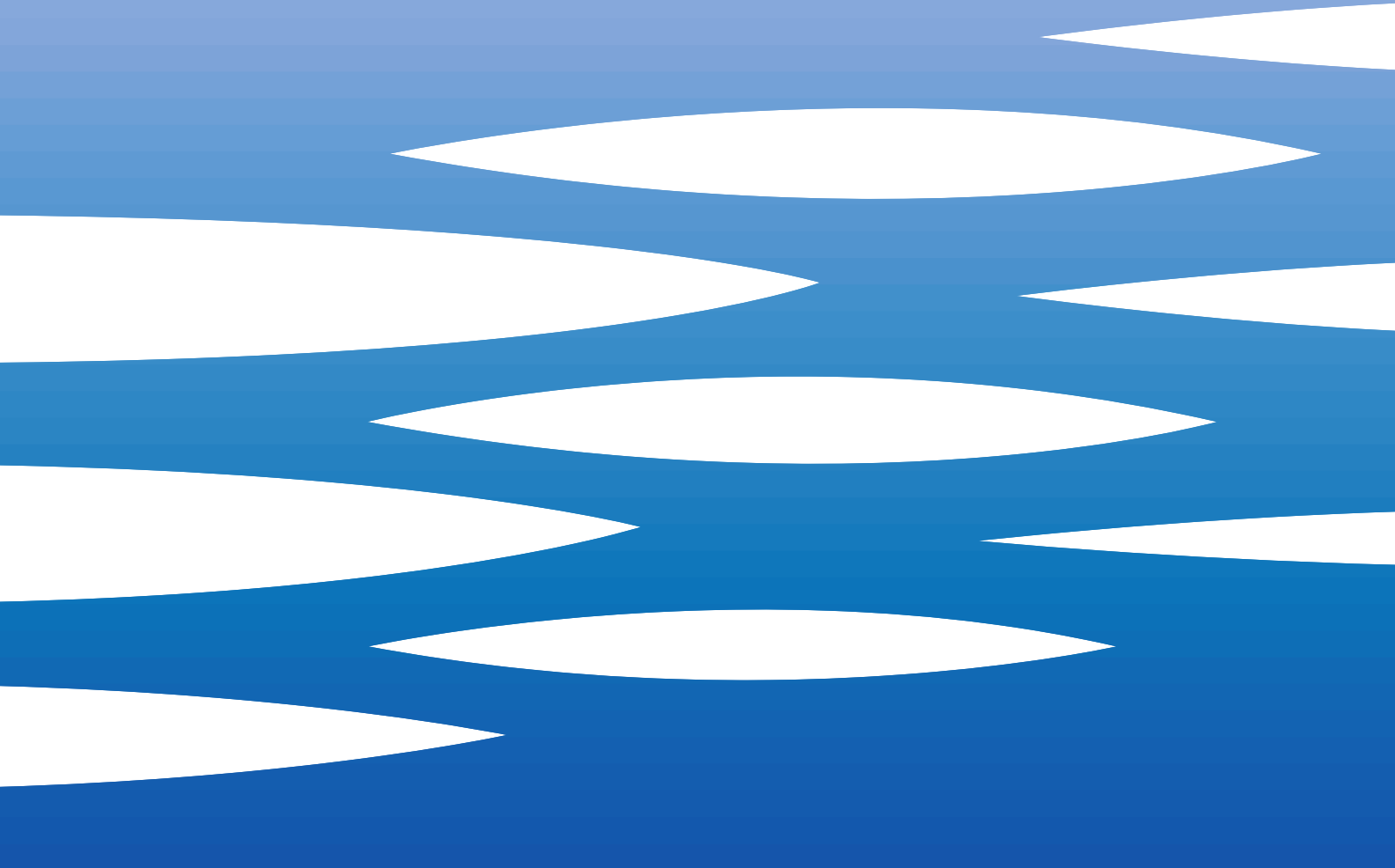


EBARA



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SPECIFICATION

50Hz

Rev. I

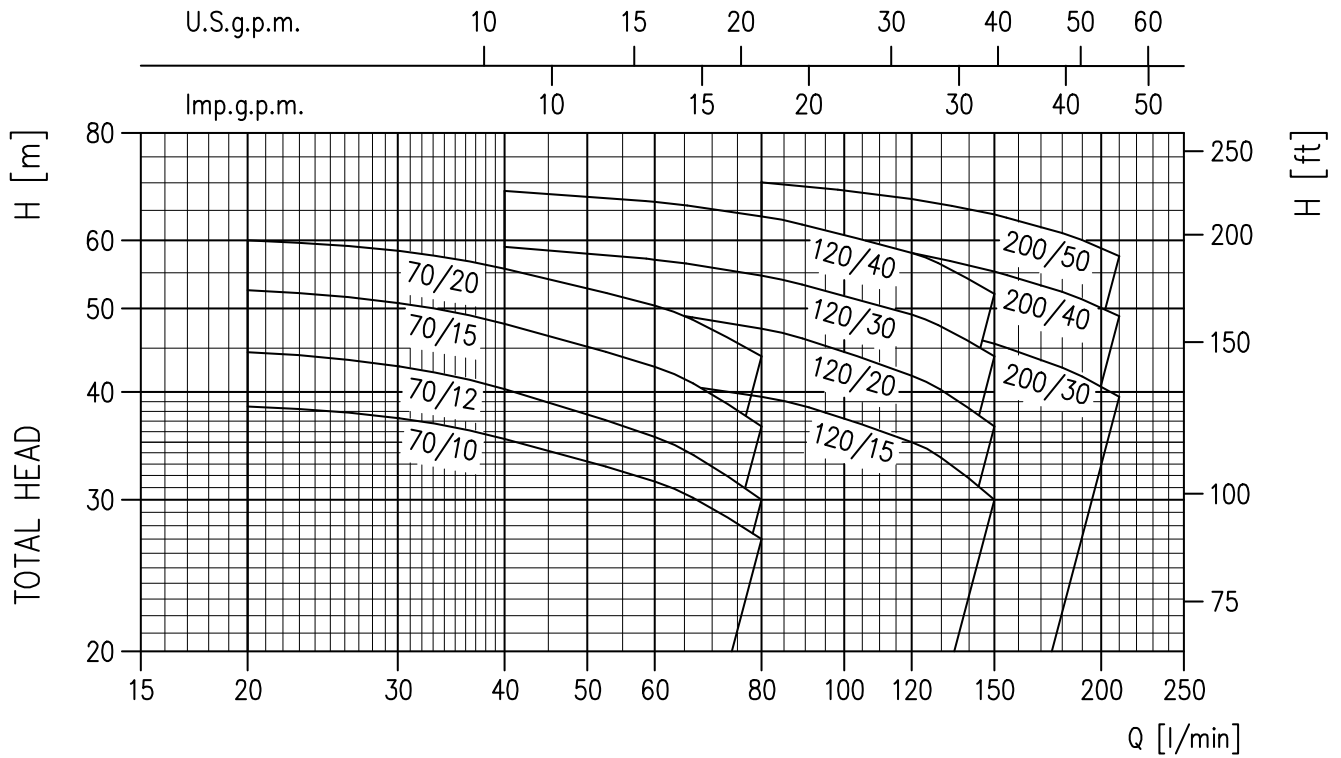
PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -5 max. +60 max. +60 (E) max. +110 (H-HS-HW-HSW)
Maximum working pressure	[MPa]	0.8
Construction	Impeller	Closed centrifugal type (Twin)
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction [inch]	from G 1 ¹ / ₄ to G 1 ¹ / ₂ (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 2CDX) Ceramic/Carbon/FPM (for 2CDXH) SiC/SiC/FPM (for 2CDXHS) Tungsten Carbide/Tungsten Carbide/FPM (for 2CDXHW) SiC/Tungsten Carbide/FPM (for 2CDXHSW) Ceramic/Carbon/EPDM (for 2CDXE)
	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
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	PG 11 – PG 13.5 – PG 16 (see dimensions page 400)	

SELECTION CHART

50Hz

Rev. I



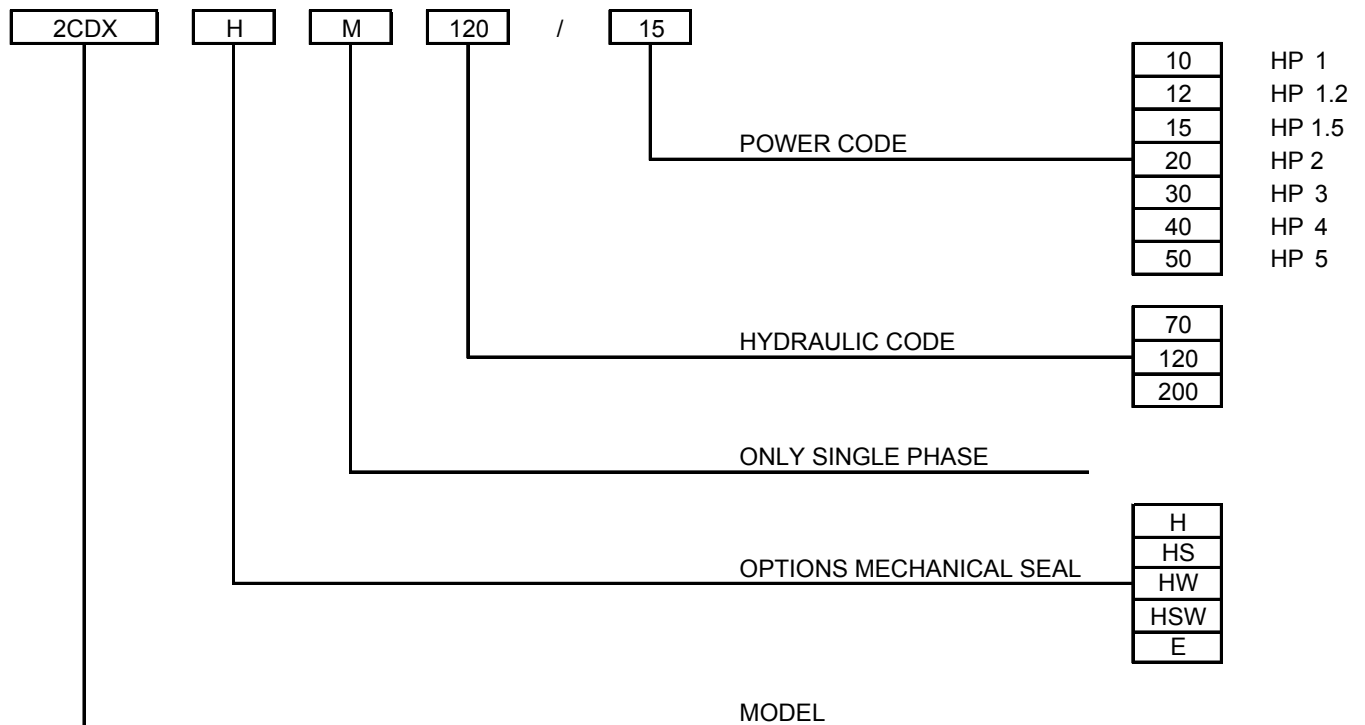
Pump Type		Power		Q=Capacity								
Single Phase	Three Phase	[kW]	[HP]	l/min	20	40	60	80	120	150	180	210
				m³/h	1.2	2.4	3.6	4.8	7.2	9.0	10.8	12.6
H=Total manometric head in meters												
2CDXM 70/10	2CDX 70/10	0.75	1	41	38.5	35.3	31.5	27	-	-	-	-
2CDXM 70/12	2CDX 70/12	0.9	1.2	48	44.5	40.3	35.5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

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.

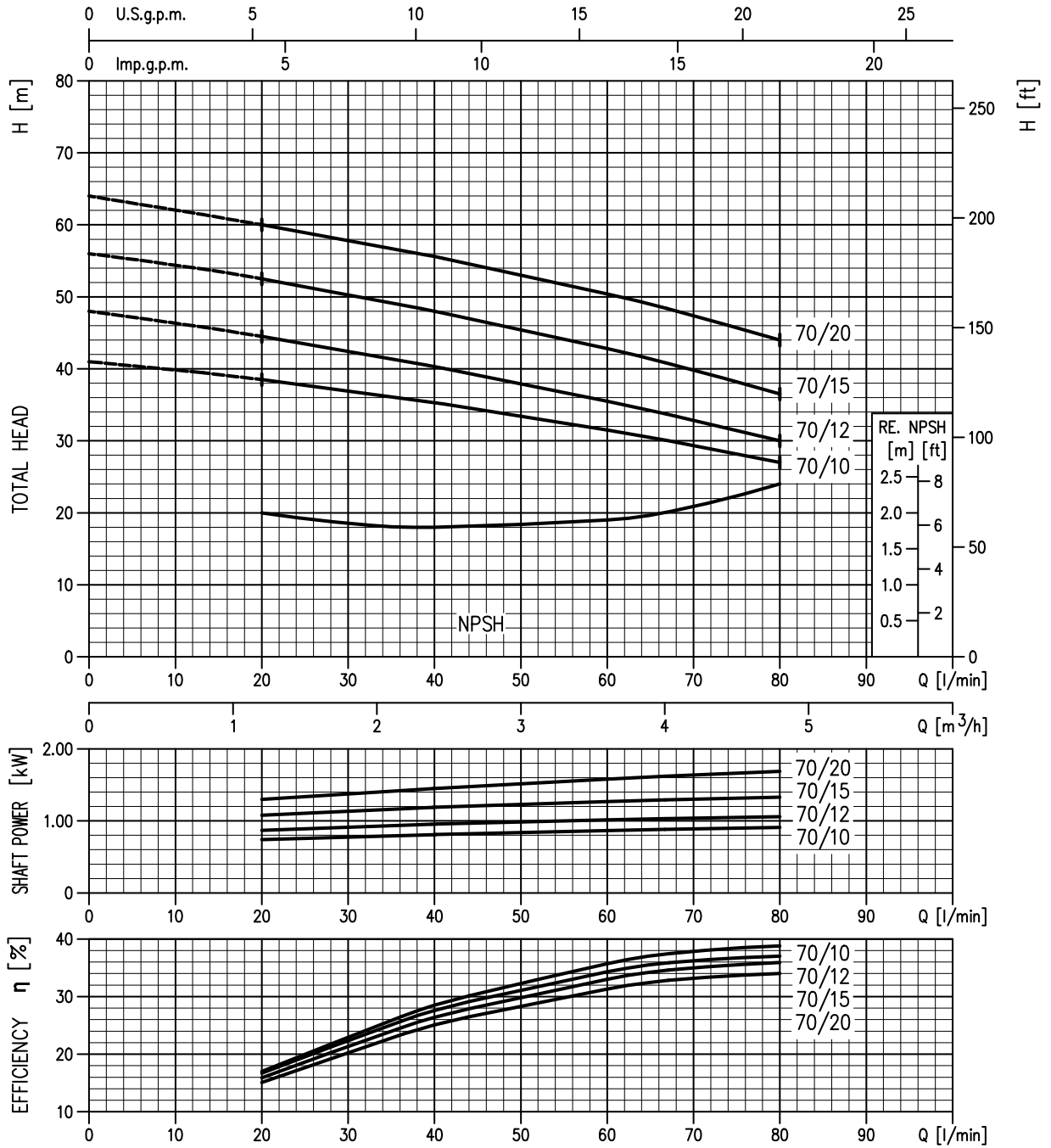
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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:

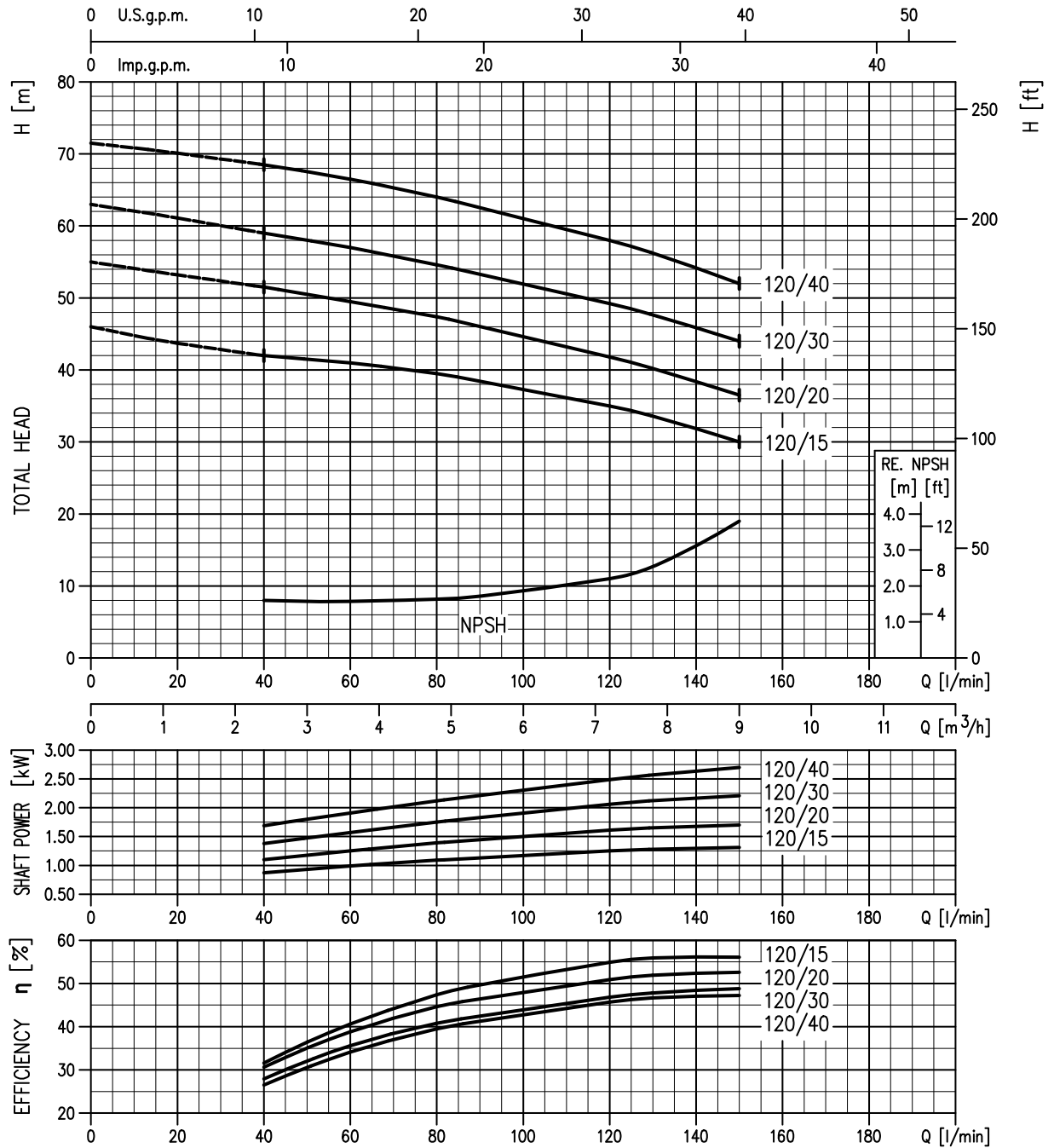
- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump

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



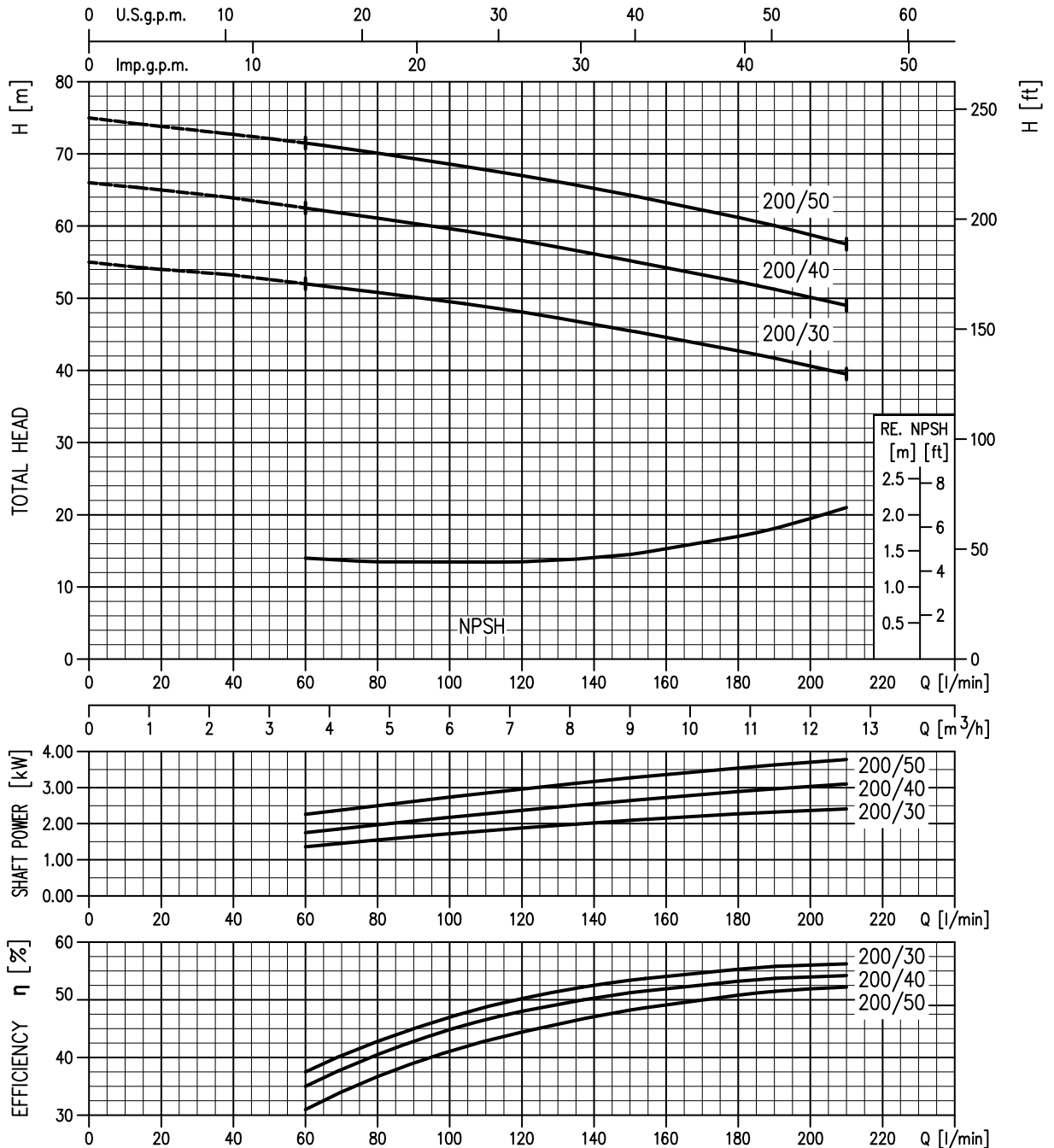
Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

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



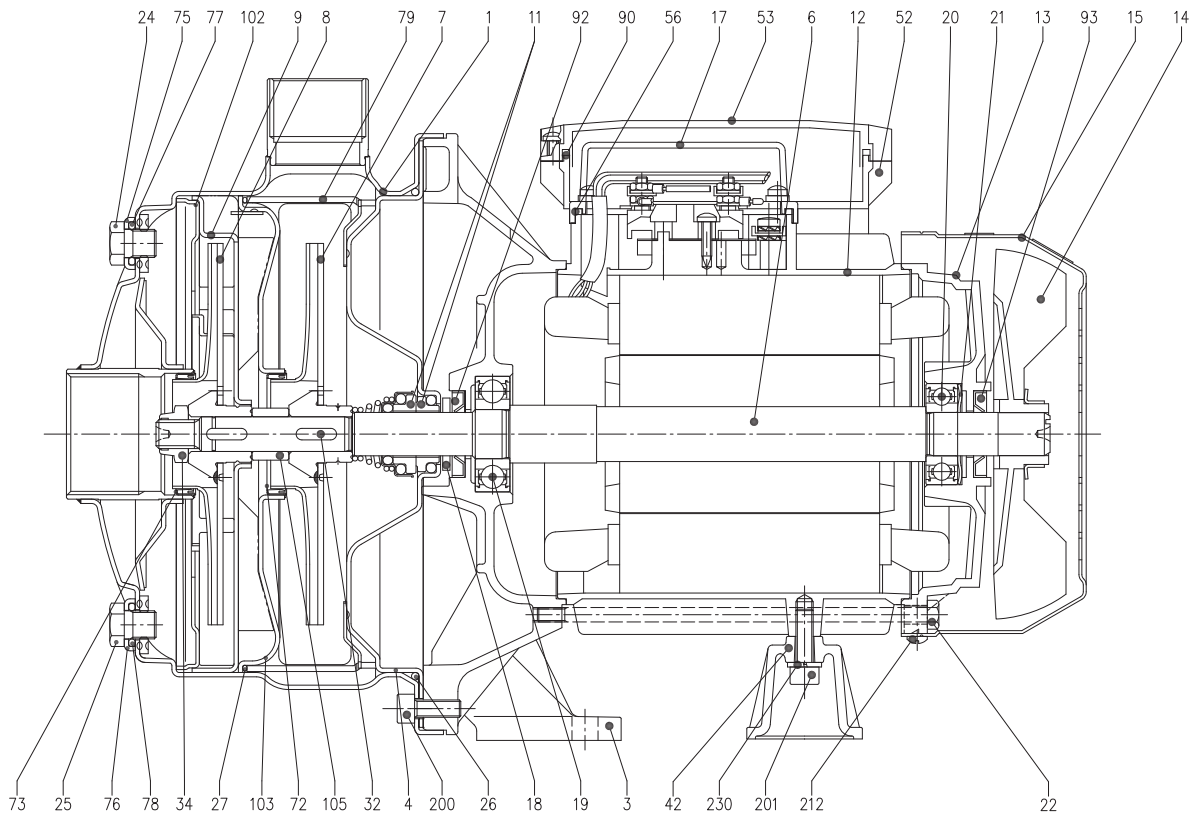
Rotation speed $\approx 2800 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

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 ≈ 2800 min⁻¹
 Test standard: ISO 9906 – Annex A

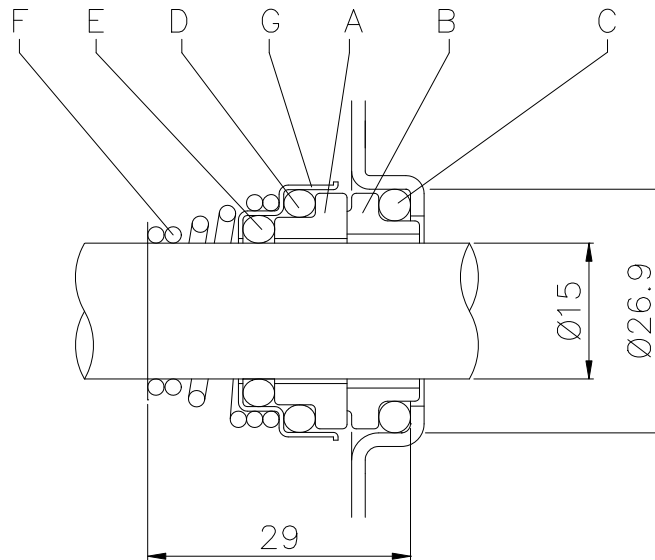
SECTIONAL VIEW



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			1
4	Casing cover	AISI 304			1	53	Capacitor box cover [1]	ABS			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	Sieve	AISI 304			1
22	Tie rod	Fe 420 Galvanized			4						
24	Priming plug	AISI 304			1	200	Screw 70/10, 120/15, 120/20, 200/30 70/12, 70/15, 70/20, 120/30, 120/40, 200/40, 200/50	Stainless steel A2-70	M6X16		
25	Drain plug	AISI 304			1				M6X18	UNI 5931	8
26	O-ring [3]	NBR			1	201			Screw	Zn. Steel cl.8.8	UNI 5931
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

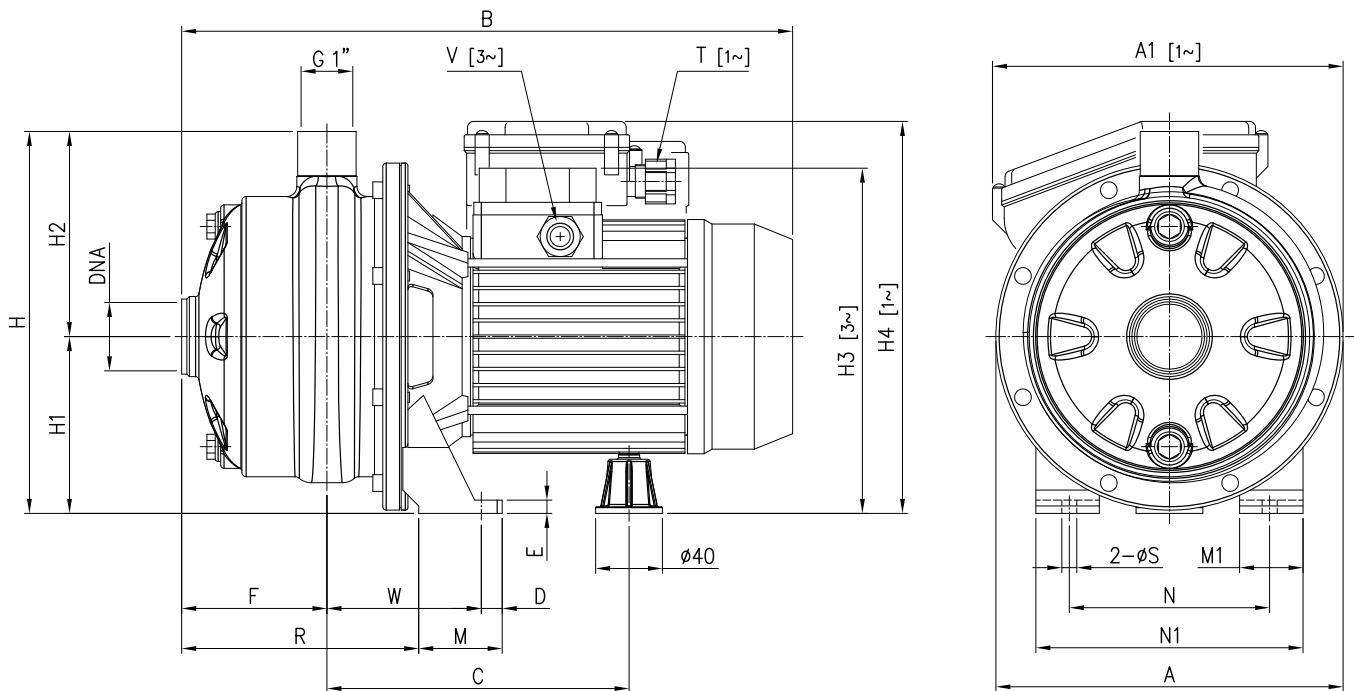


REF	PART NAME	MATERIAL					
		Standard version (2CDX)	(2CDXH)	(2CDXHS)	Optional (2CDXHW)	(2CDXHSW)	(2CDXE)
A	Rotary seal ring	Ceramic	Ceramic	Silicon carbide	Tungsten carbide	Silicon carbide	Ceramic
B	Stationary seal ring	Carbon graphite	Carbon graphite	Silicon carbide	Tungsten carbide	Tungsten carbide	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	Fan side
2CDXM 70/10	2CDX 70/10	6203 2RSH	6202 2RSH
2CDXM 70/12	2CDX 70/12	6203 2RSH	6202 2RSH
2CDXM 70/15	2CDX 70/15	6204 2RSH	6203 2RSH
2CDXM 70/20	2CDX 70/20	6204 2RSH	6203 2RSH
2CDXM 120/15	2CDX 120/15	6204 2RSH	6203 2RSH
2CDXM 120/20	2CDX 120/20	6204 2RSH	6203 2RSH
-	2CDX 120/30	6305 2RSH	6205 2RSH
-	2CDX 120/40	6305 2RSH	6205 2RSH
-	2CDX 200/30	6205 2RSH	6205 2RSH
-	2CDX 200/40	6305 2RSH	6205 2RSH
-	2CDX 200/50	6206 2RSH	6205 2RSH

PUMP



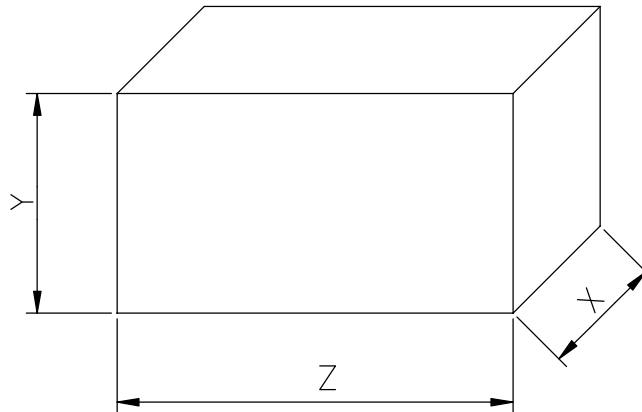
Pump type	Dimensions [mm]																				Weight					
	A	A1 *	B		C	D	E	F	H	H1	H2	H3	H4	M	M1	N	N1	R	T	V	W	S	DNA	[1~]	[3~]	
2CDXM																										
2CDX			[1~]	[3~]							[3~]	[1~]														
70/10	208	-	355	354	181	12.5	8	87	229	106	123	207	216	50	38	120	160	142	PG 11	PG 11	92.5	9	G1¼	12.7	12.6	
70/12	208	210	355	366	181	12.5	8	87	229	106	123	207	235	50	38	120	160	142	PG 13.5	PG 11	92.5	9	G1¼	13.3	13.7	
70/15	232	-	395.5	382	198.5	12.5	8	89	250	118	132	237	248.5	55	40	140	180	141.5	PG 13.5	PG 11	95	9	G1¼	17.5	17	
70/20	232	-	382.5	395	198.5	12.5	8	89	250	118	132	237	248.5	55	40	140	180	141.5	PG 13.5	PG 11	95	9	G1¼	18.5	19.2	
120/15	208	210	395.5	382	198.5	12.5	8	89	229	106	123	225	236.5	55	40	140	180	141.5	PG 13.5	PG 11	95	9	G1¼	16.3	15.6	
120/20	208	210	382.5	395	198.5	12.5	8	89	229	106	123	225	236.5	55	40	140	180	141.5	PG 13.5	PG 11	95	9	G1¼	17	17.4	
120/30	232	-	-	419	223.5 + 234.5	12.5	10	87	250	118	132	242	-	65	40	140	180	143.5	-	PG 13.5	109	9	G1¼	-	25.2	
120/40	232	-	-	458	223.5 + 234.5	12.5	10	87	250	118	132	242	-	65	40	140	180	143.5	-	PG 13.5	109	9	G1¼	-	27.8	
200/30	208	-	-	458	223.5 + 234.5	12.5	10	87	229	106	123	230	-	65	40	140	180	143.5	-	PG 13.5	109	9	G1½	-	25.7	
200/40	232	-	-	458	223.5 + 234.5	12.5	10	87	250	118	132	242	-	65	40	140	180	143.5	-	PG 13.5	109	9	G1½	-	27.6	
200/50	232	-	-	481	232.5	16	12	87	250	118	132	259	-	68	50	160	210	143.5	-	PG 16	108.5	12	G1½	-	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~]	[1~]	[3~]				
2CDXM 70/10	2CDX 70/10	225	225	278	278	373	387	13.3	13.3		
2CDXM 70/12	2CDX 70/12	225	244	278	308	387	427	13.9	14.6		
2CDXM 70/15	2CDX 70/15	244	244	308	308	427	427	18.4	17.8		
2CDXM 70/20	2CDX 70/20	244	244	308	308	427	427	19.5	20.1		
2CDXM 120/15	2CDX 120/15	244	244	308	308	427	427	17	16.4		
2CDXM 120/20	2CDX 120/20	244	244	308	308	427	427	17.7	18.4		
-	2CDX 120/30	-	244	-	308	-	427	-	25.8		
-	2CDX 120/40	-	244	-	313	-	507	-	28.8		
-	2CDX 200/30	-	244	-	313	-	507	-	27.6		
-	2CDX 200/40	-	244	-	313	-	507	-	28.6		
-	2CDX 200/50	-	244	-	313	-	507	-	37.5		

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

MOTOR DATA

Pump type		Power		Efficiency		Capacitor		Efficiency (% load)			Input [kW]		Full load current [A]			Locked rotor current [A]			
Single Phase	Three Phase	[kW]	[HP]	Single Phase	Three Phase	Single Phase		Three phase			Single Phase	Three Phase	[A]			[A]			
						[μF]	[V]	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	-	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	
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	
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	
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	
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	
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 120/30	2.2	3.0	-	IE2	-	-	83.1	85.7	86.2	-	2.90	-	8.8	5.1	-	-	75.0	43.5
-	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 200/30	2.2	3.0	-	IE2	-	-	85.0	86.7	86.3	-	3.48	-	10.6	6.1	-	-	100.0	57.7
-	2CDX 200/40	3.0	4.0	-	IE2	-	-	85.0	86.7	86.3	-	3.83	-	11.6	6.7	-	-	100.0	57.7
-	2CDX 200/50	3.7	5.0	-	IE2	-	-	84.3	87.2	87.8	-	4.56	-	15.1	8.7	-	-	151.0	87.0

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.