



**EBARA**

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**SPECIFICATION**

60Hz

Rev. H

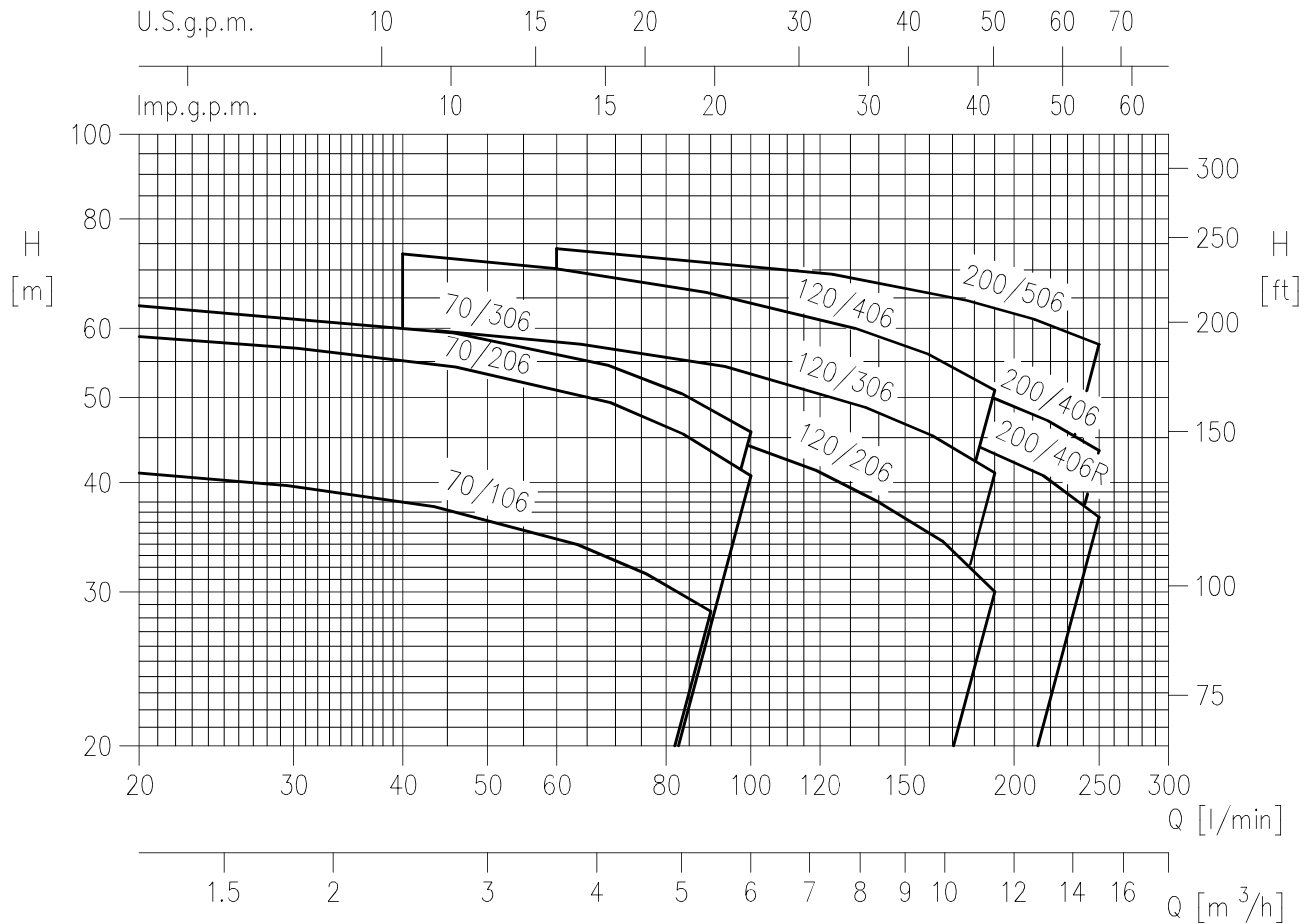
<b>PUMP</b>		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -5 max. +60 max. +110 (H-HS-HW-HSW)
Maximum working pressure	[MPa]	0.8
Construction	Impeller	Closed centrifugal type (Two)
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction [inch]	from G 1¼ to G 1½ UNI ISO 228
	Discharge [inch]	G 1 UNI ISO 228
Material	Casing	AISI 304
	Impeller	AISI 304
	Casing cover	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)
	Shaft	AISI 304 (Wet extension)
	Bracket	Aluminium (up to 2.2 kW included) Cast iron (3.0 kW and above )
	Diffuser	AISI 304
Applicable standard of test		ISO 9906 – Annex A

<b>MOTOR</b>		
Type	Electric - TEFC	
	Single Phase	Three Phase
No. of Poles	2	
Rotation speed [min <sup>-1</sup> ]	≈ 3400	
Insulation Class	F	
Protection degree (CEI EN 60034-5)	IP 55	
Power rating	[kW]	0.75 ÷ 2.2
	[HP]	1 ÷ 3.0
Frequency [Hz]	60	
Voltage [V]	220-230 ±6%	220/380-460 -6 +10%
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 – PG 16 (see dimensions page 400)	

## SELECTION CHART

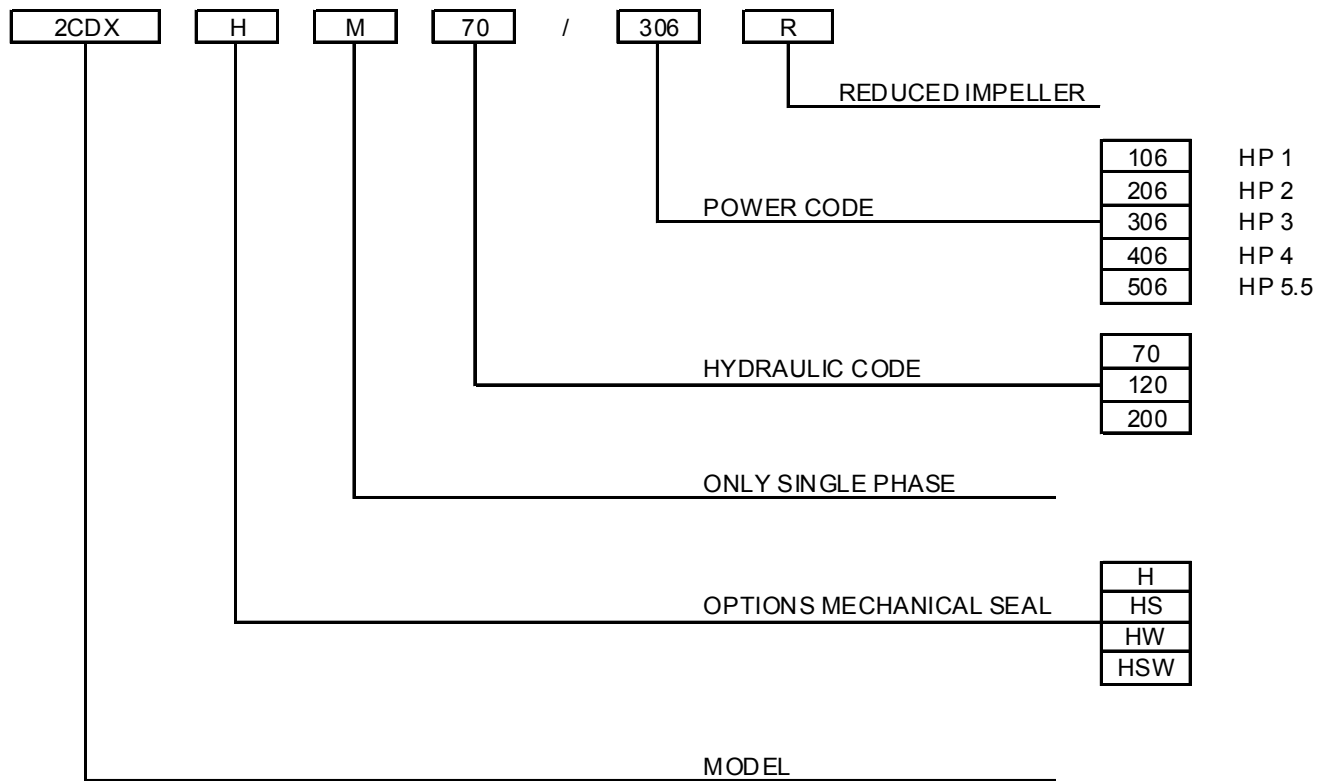
60Hz

Rev. H



Pump type		Power		Q=Capacity												
Single Phase	Three Phase	[kW]	[HP]	l/min	0	20	40	60	90	100	120	140	160	190	240	250
				m³/h	0	1,2	2,4	3,6	5,4	6	7,2	8,4	9,6	11,4	14,4	15
H=Total manometric head in meters																
2CDXM 70/106	2CDX 70/106	0,75	1	43	41	38,1	34,6	28,5	-	-	-	-	-	-	-	-
2CDXM 70/206	2CDX 70/206	1,5	2	62	58,5	55,5	51,5	44	40,5	-	-	-	-	-	-	-
2CDXM 70/306	2CDX 70/306	2,2	3	67	63,5	60,5	56,5	49	45,5	-	-	-	-	-	-	-
-	2CDX 120/206	1,5	2	54,5	-	50,5	48,5	45	44	41,5	38,6	35,6	30	-	-	-
-	2CDX 120/306	2,2	3	64,5	-	60	58	54,5	53,5	51	48,5	45,5	41	-	-	-
-	2CDX 120/406	3	4	78	-	73	70	66	64,5	62	59	56	51	-	-	-
-	2CDX 200/406	3	4	65	-	-	60	58	57	55,5	54	52,5	50	45	43,5	-
-	2CDX 200/406R	3	4	57,5	-	-	53,5	51,5	51	49,5	47,5	46	43	37,9	36,5	-
-	2CDX 200/506	4	5,5	79	-	-	74	72	71	69,5	68	66	63,5	58,5	57,5	-

**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 60 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.

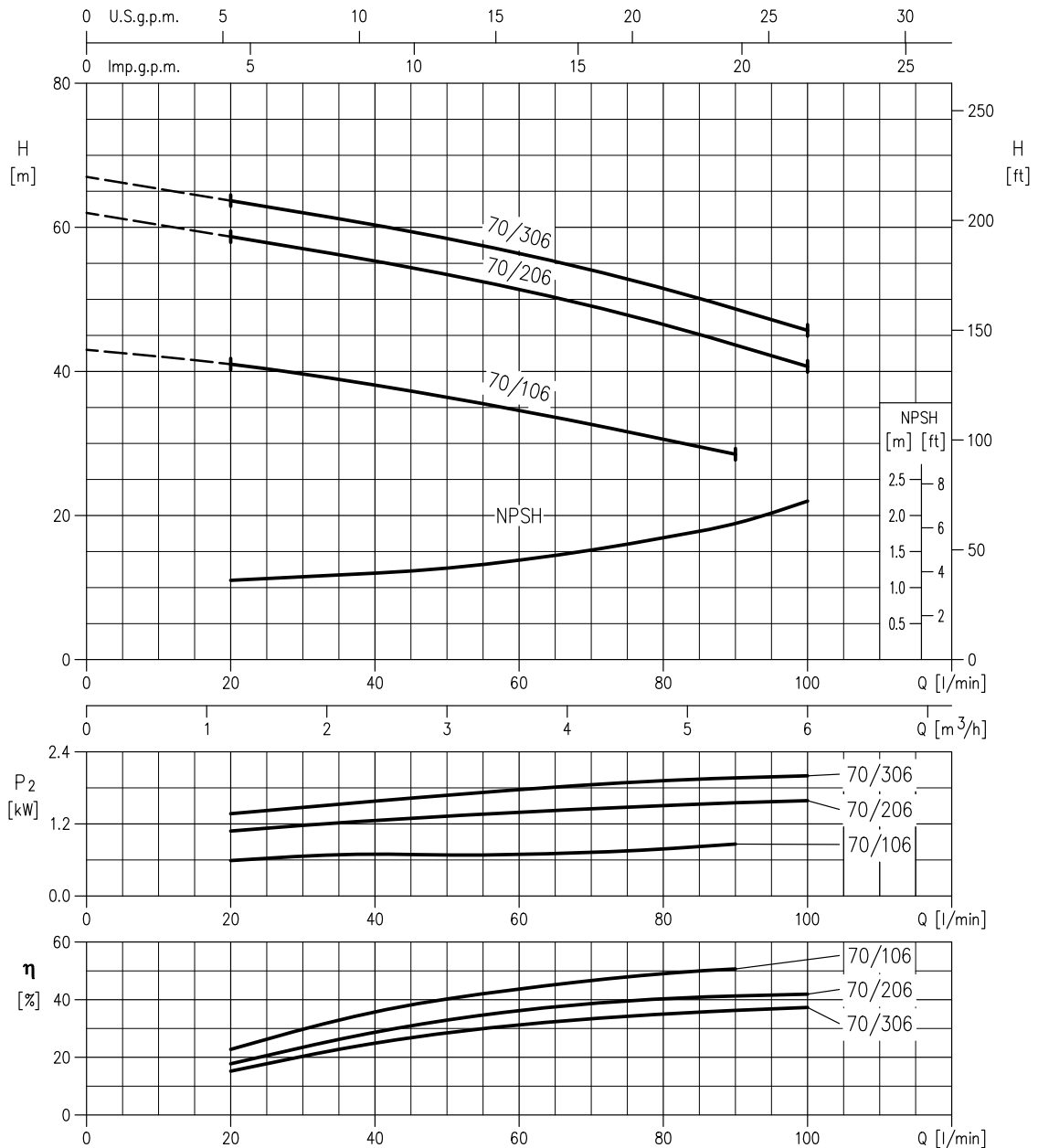
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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:

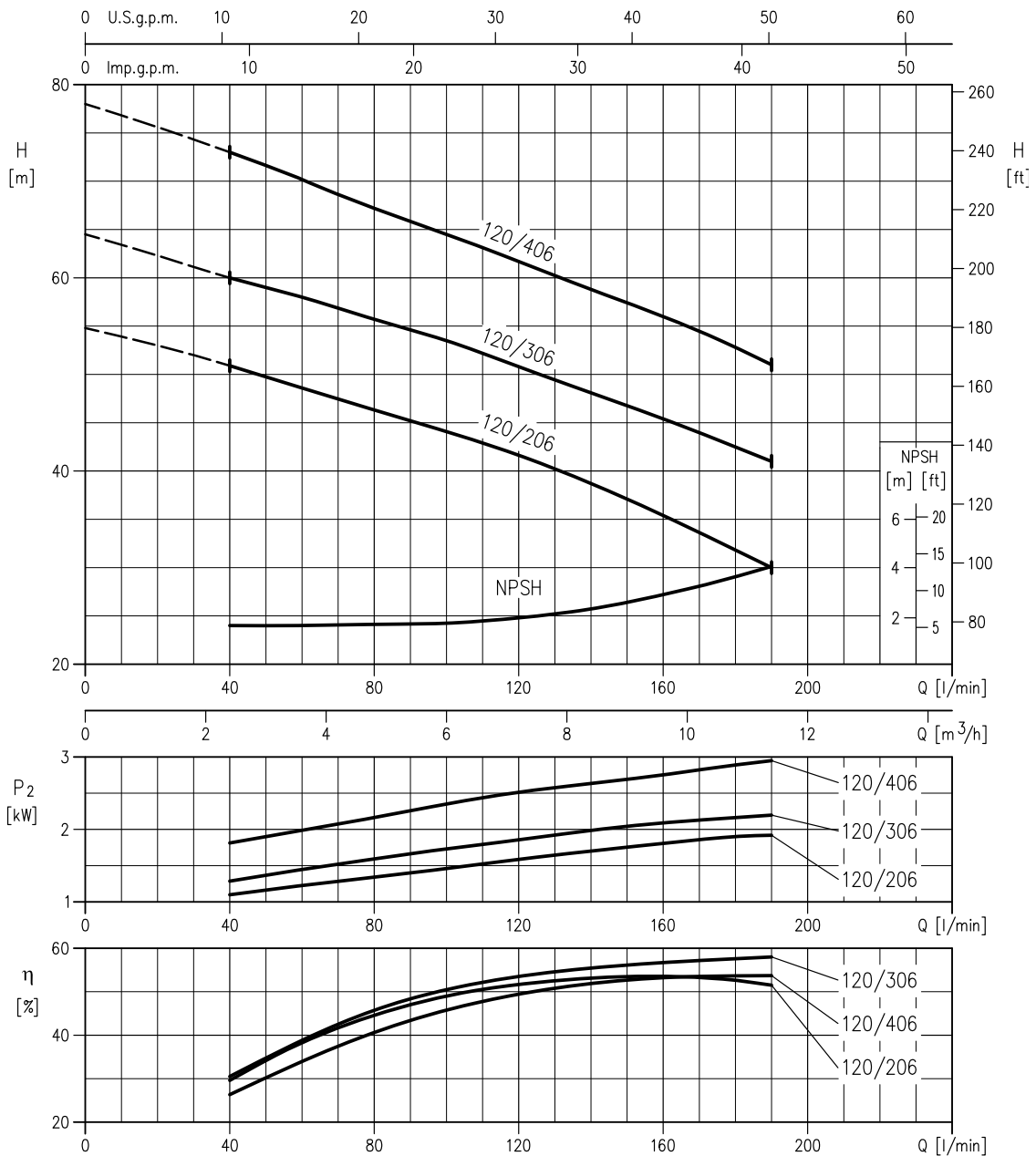
- Q = volume flow rate
- H = total head
- $P_2$  = pump power input (shaft power)
- $\eta$  = pump efficiency
- NPSH = net positive suction head required by the pump

2CDX 70/106 (0.75 kW) - Impeller diameter = 115/115 mm  
 2CDX 70/206 (1.5 kW) - Impeller diameter = 132/132 mm  
 2CDX 70/306 (2.2 kW) - Impeller diameter = 132/153 mm



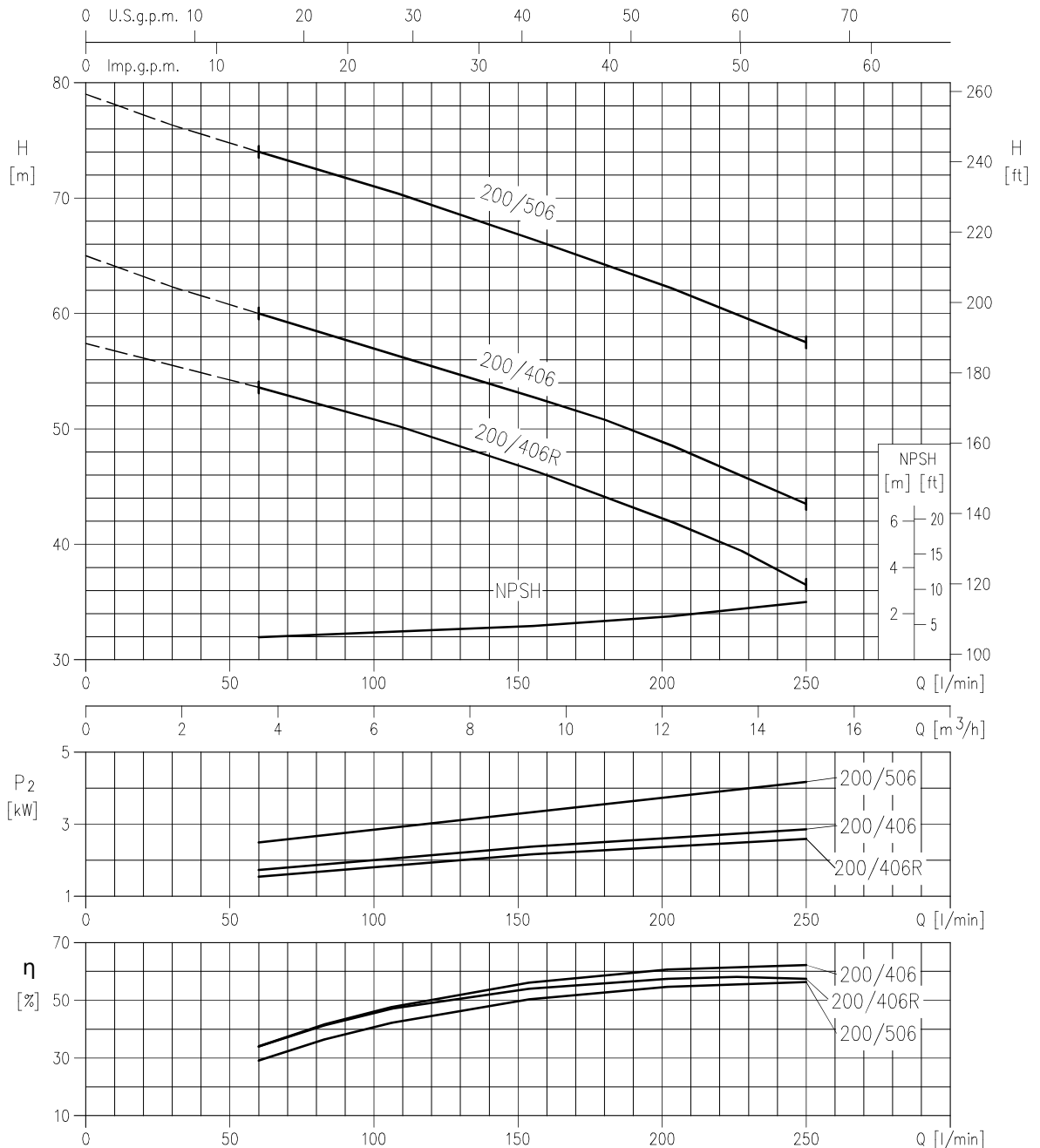
Rotation speed  $\approx 3400 \text{ min}^{-1}$   
 Test standard: ISO 9906 – Annex A

2CDX 120/206 (1.5 kW) - Impeller diameter = 115/132 mm  
 2CDX 120/306 (2.2 kW) - Impeller diameter = 132/132 mm  
 2CDX 120/406 (3.0 kW) - Impeller diameter = 132/157 mm



Rotation speed  $\approx 3400 \text{ min}^{-1}$   
 Test standard: ISO 9906 – Annex A

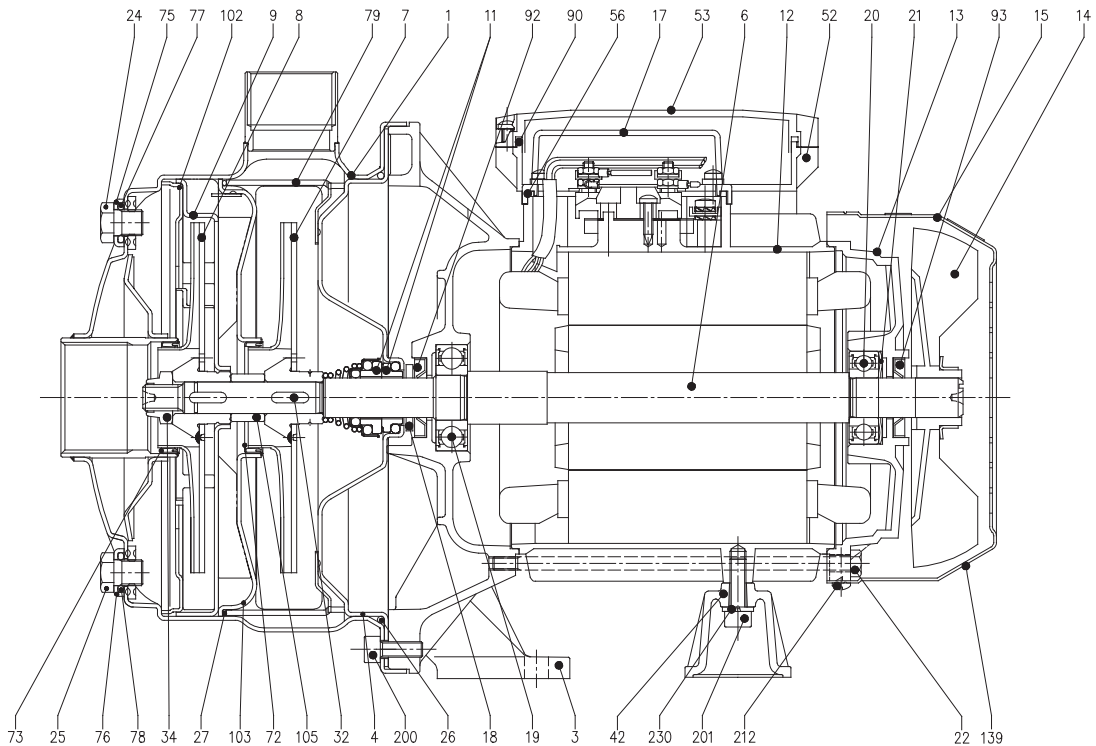
2CDX 200/406 (3.0 kW) - Impeller diameter = 132/132 mm  
 2CDX 200/406R (3.0 kW) - Impeller diameter = 115/132 mm  
 2CDX 200/506 (4.0 kW) - Impeller diameter = 132/157 mm



Rotation speed ≈ 3400 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A



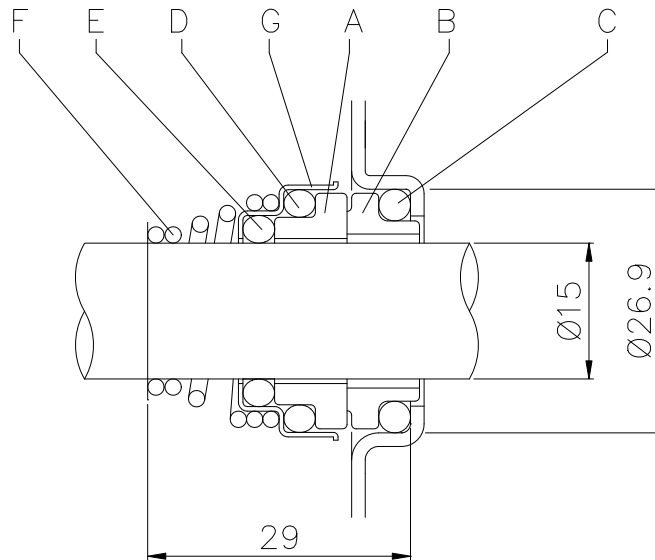
SECTIONAL VIEW



N°	PART NAME	MATERIAL	Q.TY	N°	PART NAME	MATERIAL	Q.TY
1	Casing	AISI 304	1	27	O-ring [3]	NBR	1
3	Motor bracket	[4]	1	32	Key	AISI 316	2
4	Casing cover	AISI 304	1	34	Impeller nut	AISI 304	1
6	Shaft with rotor	AISI 304 (Wet extension)	1	42	Motor support	Aluminium	1
7	Impeller	AISI 304	1	52	Terminal box [1]	ABS	1
8	Impeller	AISI 304	1	53	Terminal box cover [5]	ABS [5]	1
9	Diffuser	AISI 304	1	56	Box gasket	NBR	1
11	Mechanical seal [3] [6]	Ceramic/Carbon/NBR	1	72	Casing ring [3]	NBR	1
12	Motor frame with stator	-	1	73	Casing ring [3]	NBR	1
13	Motor cover	Aluminium	1	75	Washer	AISI 304	1
14	Fan	PA	1	76	Washer	AISI 304	1
15	Fan cover	Fe P04 Zincate	1	77	O-ring [3]	NBR	1
16	Terminal board	-	1	78	O-ring [3]	NBR	1
17	Terminal box cover [2]	Aluminium	1	79	Space diffuser	AISI 304	1
18	Splash ring	NBR	1	90	Terminal box cover gasket [7]	NBR	1
19	Pump side ball bearing	-	1	92	Lip seal	-	1
20	Fan side ball bearing	-	1	93	Lip seal	-	1
21	Adjusting ring	Steel C70	1	102	Suction cover	AISI 304	1
22	Tie rod	Fe 420 Zincate	4	103	Conveyor cover	AISI 304	1
23	Capacitor [1]	-	1	105	Sleeve	AISI 304	1
24	Priming plug	AISI 304	1	110	Protector [1]	-	1
25	Drain plug	AISI 304	1	200	Screw	Stainless steel A2 UNI7323	8
26	O-ring [3]	NBR	1				

- [1] Only for single phase
- [2] Only for three phase
- [3] FPM for H, HS, HW, HSW
- [4] Material: Aluminium for version up to 2.2 kW included  
Cast iron for version 3.0 kW and above
- [5] Whit gasket in NBR only for version single phase 2CDXM 70/106
- [6] Special version: see page 301
- [7] Only for version single phase 2CDXM 70/206; 2CDXM 70/306

MECHANICAL SEAL

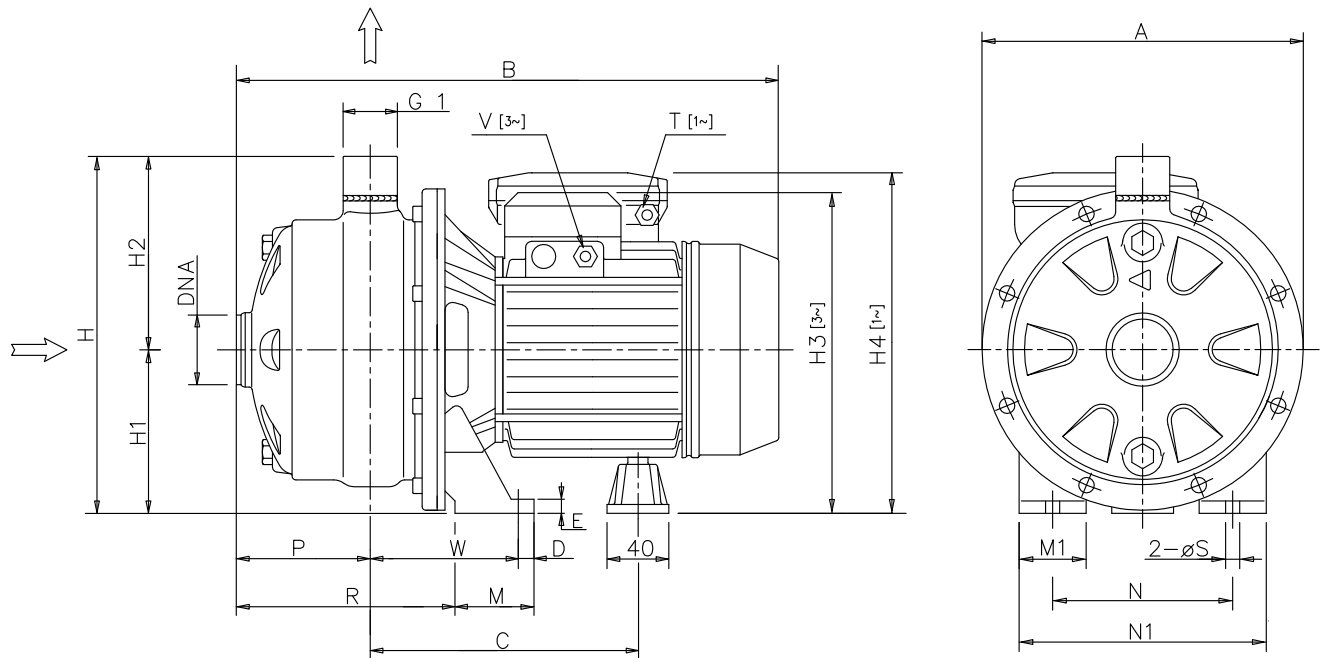


REF	PART NAME	MATERIAL				
		Standard version (2CDX)	(2CDXH)	(2CDXHS)	Optional (2CDXHW) (2CDXHSW)	
A	Rotary seal ring	Ceramic	Ceramic	Silicon carbide	Tungsten carbide	Silicon carbide
B	Stationary seal ring	Carbon graphite	Carbon graphite	Silicon carbide	Tungsten carbide	Tungsten carbide
C	O Ring	NBR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

BEARINGS

Pump type		Ball Bearing	
Single Phase	Three Phase	Pump side	Fan side
2CDXM 70/106	2CDX 70/106	6203 2RSH	6202 2RSH
2CDXM 70/206	2CDX 70/206	6204 2RSH	6203 2RSH
2CDXM 70/306	2CDX 70/306	6204 2RSH	6203 2RSH
-	2CDX 120/206	6204 2RSH	6203 2RSH
-	2CDX 120/306	6204 2RSH	6203 2RSH
-	2CDX 120/406	6205 2RSH	6205 2RSH
-	2CDX 200/406	6205 2RSH	6205 2RSH
-	2CDX 200/406R	6205 2RSH	6205 2RSH
-	2CDX 200/506	6206 2RSH	6205 2RSH

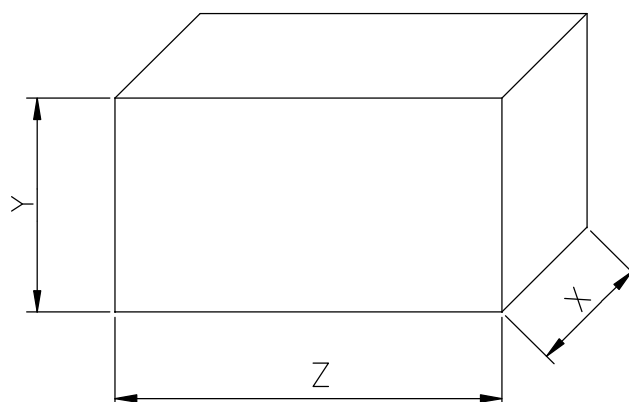
PUMP



Pump type 2CDX(M)	Dimensions [mm]																			Weight [kgf]				
	A	B		C	D	E	H	H1	H2	H3	H4	M	M1	N	N1	P	R	S	T	V	W	DNA	[1~]	[3~]
70/106	208	354	354	181	12,5	8	229	106	123	208	216	50	38	120	160	87	142	Ø9	PG11	PG 11	93	G 1"¼	12,6	12
70/206	208	393	380	199	12,5	8	229	106	123	225	242	55	40	140	180	87	140	Ø9	PG 13.5	PG 11	95	G 1"¼	16,6	16
70/306	208	393	380	199	12,5	8	229	106	123	225	242	55	40	140	180	87	140	Ø9	PG 13.5	PG 11	95	G 1"¼	16,9	16
120/206	208	-	395	199	12,5	8	229	106	123	225	-	55	40	140	180	89	142	Ø9	-	PG 11	95	G 1"¼	-	17,5
120/306	208	-	395	199	12,5	8	229	106	123	225	-	55	40	140	180	89	142	Ø9	-	PG 11	95	G 1"¼	-	20,1
120/406	208	-	459	224/235	12,5	8	229	106	123	230	-	65	40	140	180	89	146	Ø9	-	PG 13.5	109	G 1"¼	-	25,9
200/406	208	-	457	224/235	12,5	8	229	106	123	230	-	65	40	140	180	87	144	Ø9	-	PG 13.5	109	G 1"½	-	25,7
200/406R	208	-	457	224/235	12,5	8	229	106	123	230	-	65	40	140	180	87	144	Ø9	-	PG 13.5	109	G 1"½	-	25,7
200/506	208	-	480	233	16,0	12	241	118	123	259	-	68	50	160	210	87	144	Ø12	-	PG 16	109	G 1"½	-	35,7

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

## PACKING



Pump type		Packing [mm]			Weight [kgf]	
Single Phase	Three Phase	X	Y	Z	[1~]	[3~]
2CDXM 70/106	2CDX 70/106	224	255	372	13,3	12,9
2CDXM 70/206	2CDX 70/206	249	289	412	17,5	16,9
2CDXM 70/306	2CDX 70/306	249	289	412	17,8	16,9
-	2CDX 120/206	249	289	412	-	18,4
-	2CDX 120/306	249	289	412	-	20,9
-	2CDX 120/406	252	280	515	-	26,7
-	2CDX 200/406	252	280	515	-	26,5
-	2CDX 200/406R	252	280	515	-	26,5
-	2CDX 200/506	252	280	515	-	36,6

[1~] Single phase

[3~] Three phase

### MOTOR DATA

Pump type		Power		Capacitor		Efficiency (% load)			Efficiency (% load)			Input		Full load current				Locked rotor current			
Single Phase	Three Phase	[kW]	[HP]	Single Phase		Three phase (380 V)			Three phase (460 V)			Single Phase	Three Phase	[A]			[A]				
				[μF]	[V]	50%	75%	100%	50%	75%	100%			Single Phase	Three Phase	220-230 V	220 V	380 V	460 V	Single Phase	Three Phase
2CDXM 70/106	2CDX 70/106	0,75	1,0	20	450	77,2	79,5	79,3	76,6	80,9	82,3	1,37	1,00	6,4	2,9	1,7	1,6	33,8	20,6	11,9	13,6
2CDXM 70/206	2CDX 70/206	1,5	2,0	35	450	82,4	83,0	82,2	79,5	82,9	83,8	2,05	2,90	9,9	8,1	4,7	4,3	64,1	54,4	31,4	38,0
2CDXM 70/306	2CDX 70/306	2,2	3,0	35	450	82,4	83,0	82,2	79,5	82,9	83,8	2,63	2,90	11,9	8,1	4,7	4,3	77,0	54,4	31,4	38,0
-	2CDX 120/206	1,5	2,0	-	-	82,4	83,0	82,2	79,5	82,9	83,8	-	2,90	-	8,1	4,7	4,3	-	54,4	31,4	38,0
-	2CDX 120/306	2,2	3,0	-	-	82,4	83,0	82,2	79,5	82,9	83,8	-	2,90	-	8,1	4,7	4,3	-	54,4	31,4	38,0
-	2CDX 120/406	3,0	4,0	-	-	84,0	85,9	85,2	80,2	83,5	84,6	-	3,90	-	10,5	6,1	5,6	-	92,1	53,2	57,0
-	2CDX 200/406	3,0	4,0	-	-	84,0	85,9	85,2	80,2	83,5	84,6	-	3,90	-	10,5	6,1	5,6	-	92,1	53,2	57,0
-	2CDX 200/406R	3,0	4,0	-	-	84,0	85,9	85,2	80,2	83,5	84,6	-	3,90	-	10,5	6,1	5,6	-	92,1	53,2	57,0
-	2CDX 200/506	4,0	5,5	-	-	83,2	85,8	86,1	81,0	85,1	86,7	-	5,10	-	15,7	9,0	7,4	-	108,8	62,8	76,0