

EBARA

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SPECIFICATION

60Hz

Rev. E

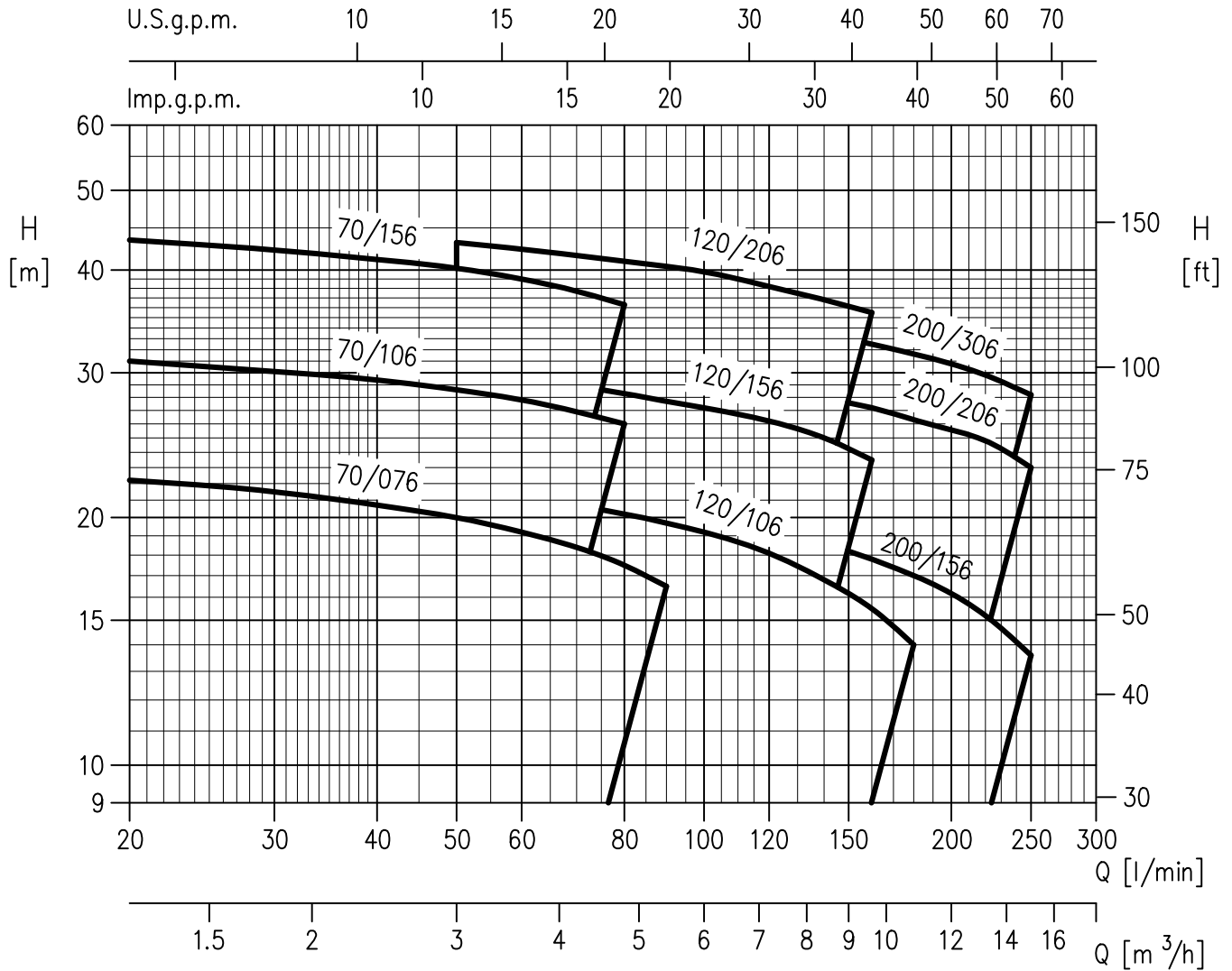
PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	min. -5 max. +60 (CDX 70/076-70/106-70/156) max. +90 max. +110 (H-HS-HW-HSW) max. +120 (E)
Maximum working pressure	[MPa]	0.8
Construction	Impeller	Closed centrifugal type
	Shaft seal type	Mechanical seal
	Bearing	Sealed ball bearing
Pipe Connection	Suction [inch]	from G 1¼ to G 1½ UNI ISO 228-1
	Discharge [inch]	G 1 UNI ISO 228-1
Material	Casing	EN 1.4301 (AISI 304) - (AISI 316 only for "L" version)
	Impeller	EN 1.4301 (AISI 304) - (AISI 316 only for "L" version)
	Casing cover	EN 1.4301 (AISI 304) - (AISI 316 only for "L" version)
	Shaft seal	Ceramic/Carbon/NBR (for CDX) Ceramic/Carbon/FPM (for CDXH) SiC/SiC/FPM (for CDXHS) Tungsten Carbide/Tungsten Carbide/FPM (for CDXHW) SiC/Tungsten Carbide/FPM (for CDXHSW)
	Shaft	AISI 303 / AISI 316 (Wet extension)
	Bracket	Aluminium
Applicable standard of test		ISO 9906 – Annex A

MOTOR		
Type	Electric - TEFC	
	Single Phase	Three Phase
No. of Poles	2	
Rotation speed [min ⁻¹]	≈ 3450	
Insulation Class	F	
Protection degree (CEI EN 60034-5)	IP 55	
Power rating	[kW]	0.55 ÷ 1.5
	[HP]	0.75 ÷ 2.0
Frequency [Hz]	60	
Voltage [V]	110-115 ±6%	220/380-460 -6% +10%
	220-230 ±6%	
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 (see dimensions page 400)	

SELECTION CHART

60Hz

Rev. E



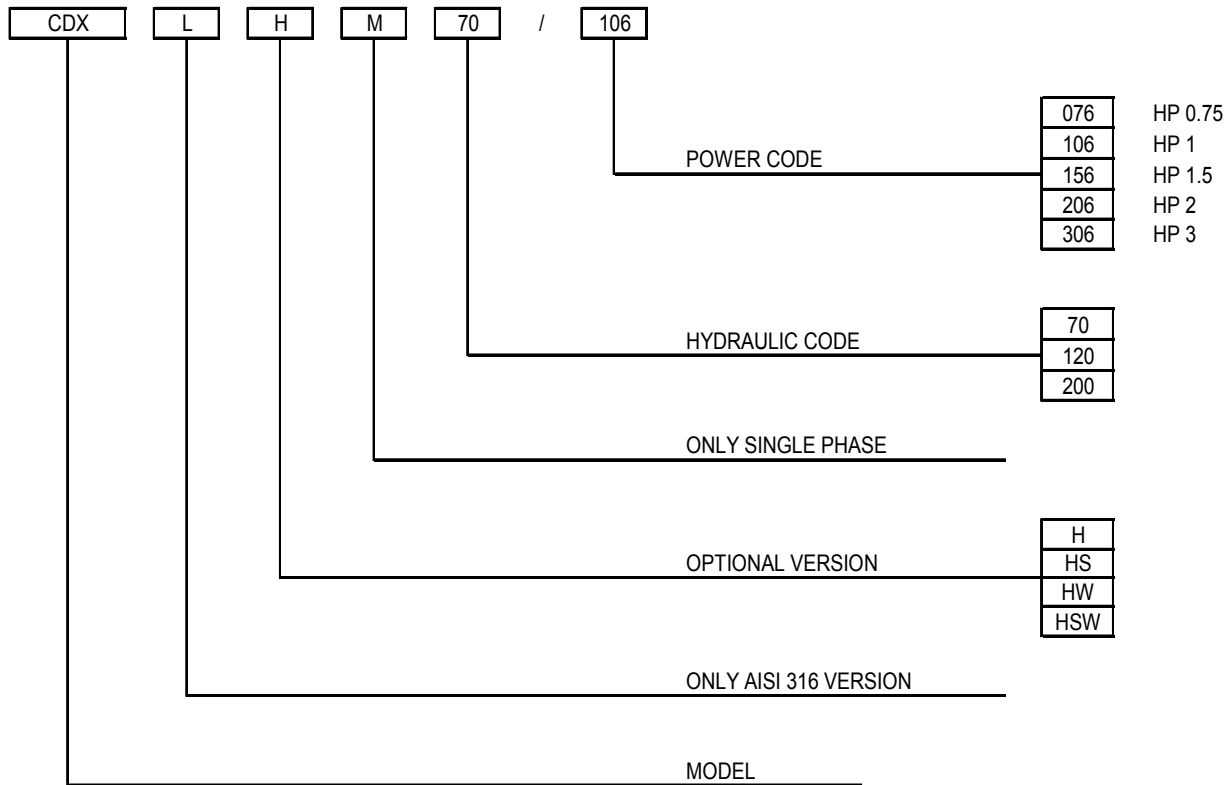
Pump type		Power		Q=Capacity												
				l/min	0	20	50	80	90	120	140	160	180	220	250	
Single Phase	Three Phase	[kW]	[HP]	m³/h	0	1.2	3	4.8	5.4	7.2	8.4	9.6	10.8	13.2	15	
H=Total manometric head in meters																
CDXM 70/076	CDX 70/076	0.55	0.75		23.5	22.2	20	17.5	16.5	-	-	-	-	-	-	-
CDXM 70/106	CDX 70/106	0.75	1		32.3	31	28.6	26	-	-	-	-	-	-	-	-
CDXM 70/156	CDX 70/156	1.1	1.5		44.5	43.5	40.2	36.3	-	-	-	-	-	-	-	-
CDXM 120/106	CDX 120/106	0.75	1		23.8	-	21.8	20.2	19.7	18.1	16.8	15.5	14	-	-	-
CDXM 120/156	CDX 120/156	1.1	1.5		32	-	29.8	28.3	27.7	26.2	25	23.5	-	-	-	-
CDXM 120/206	CDX 120/206	1.5	2		45.5	-	43.2	41	40.4	38.2	36.8	35.5	-	-	-	-
CDXM 200/156	CDX 200/156	1.1	1.5		23.3	-	-	20.8	20.4	19.4	18.6	17.8	17	15.2	13.5	
CDXM 200/206	CDX 200/206	1.5	2		32	-	-	30	29.5	28.6	27.9	27.2	26.3	24.6	23	
-	CDX 200/306	2.2	3		38.8	-	-	35.5	35.1	34	33.3	32.5	31.6	29.8	28.3	

TYPE KEY AND CURVE SPECIFICATIONS

60Hz

Rev. E

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.

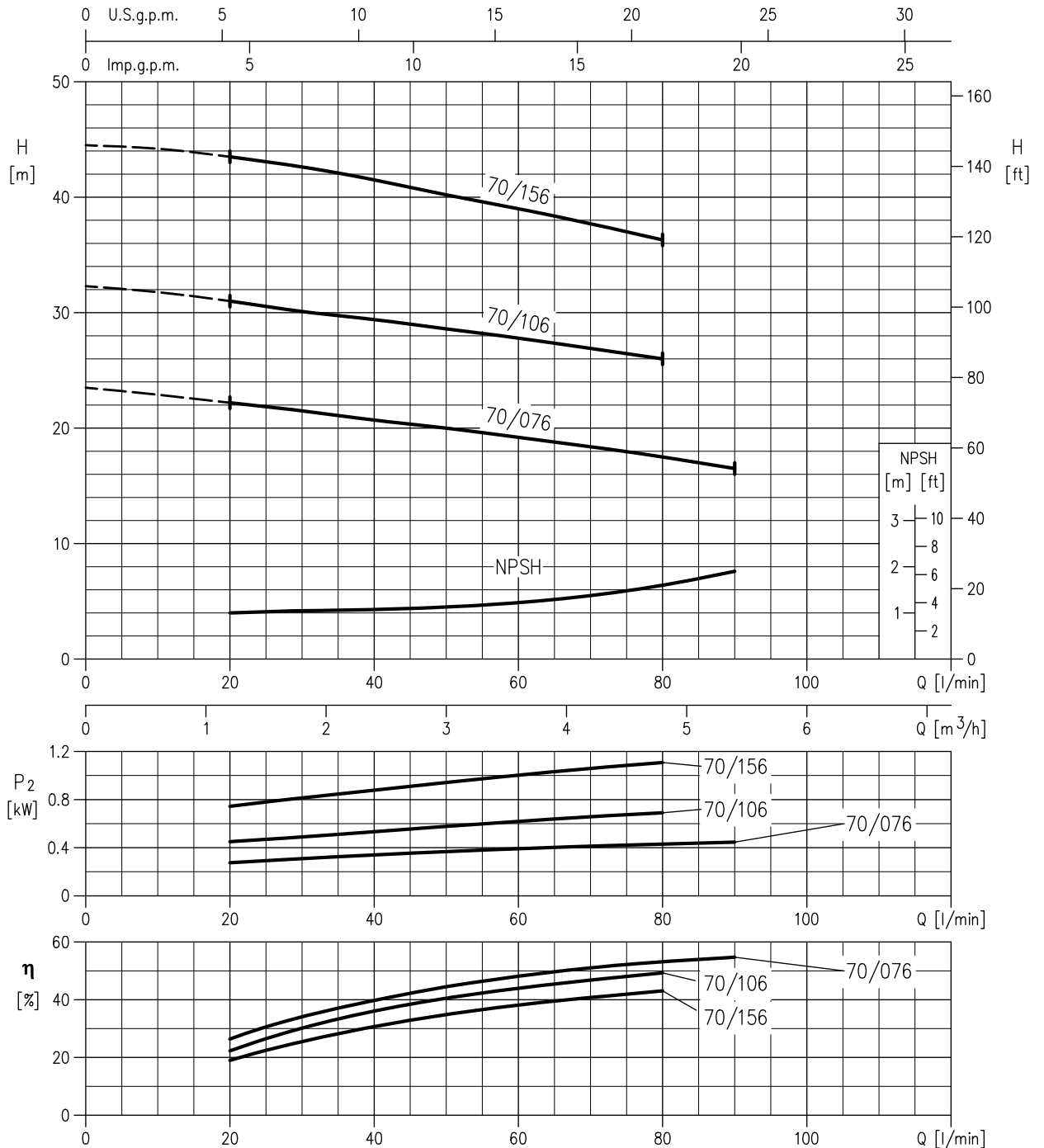
The continuous curves indicate the recommended working range. The dotted curve is only a guide.

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:

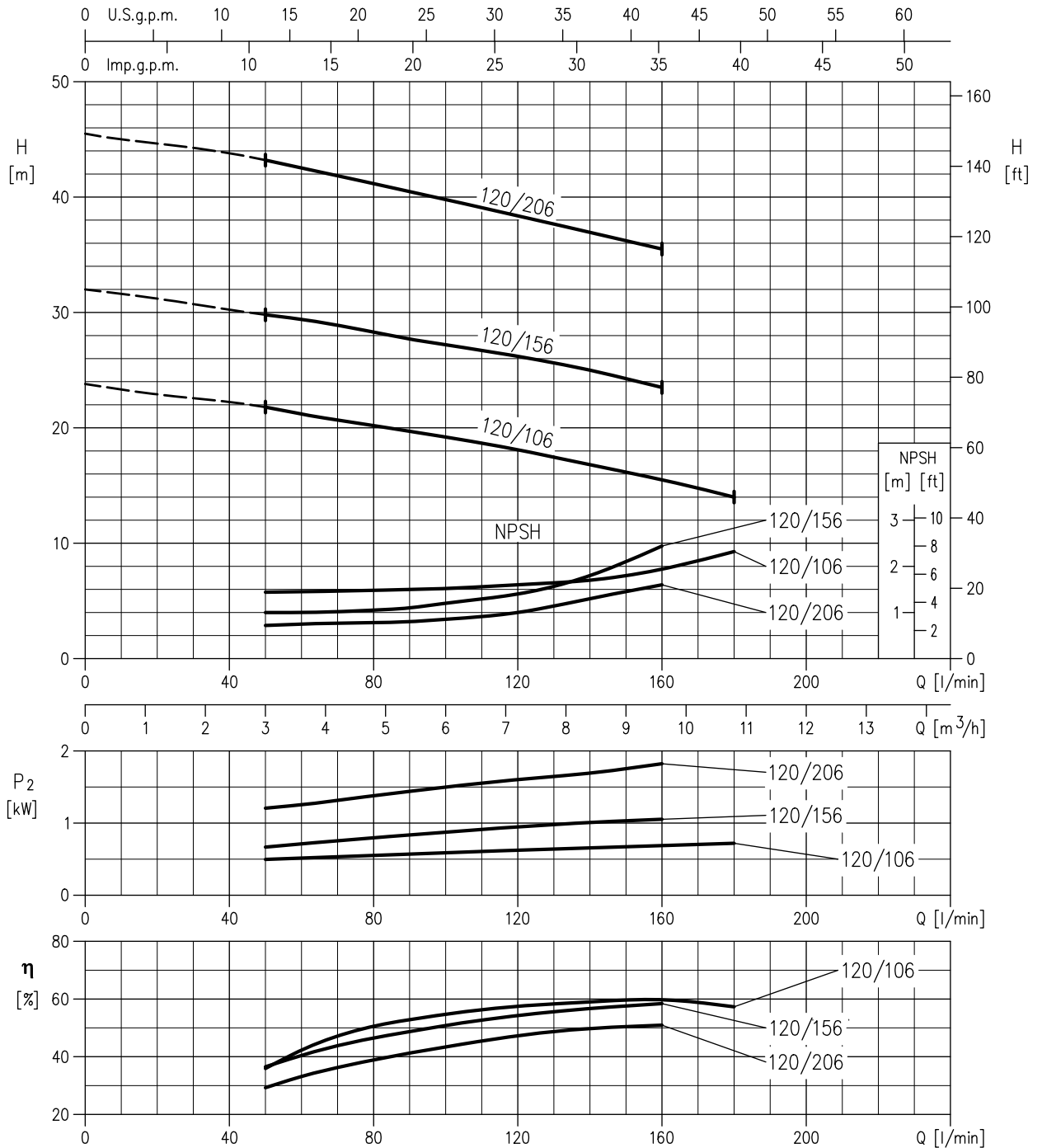
- Q = volume flow rate
- H = total head
- P_2 = pump power input (shaft power)
- η = pump efficiency
- NPSH = net positive suction head required by the pump

CDX 70/076 (0.55 kW) - Impeller diameter = 115 mm
CDX 70/106 (0.75 kW) - Impeller diameter = 132 mm
CDX 70/156 (1.1 kW) - Impeller diameter = 157 mm



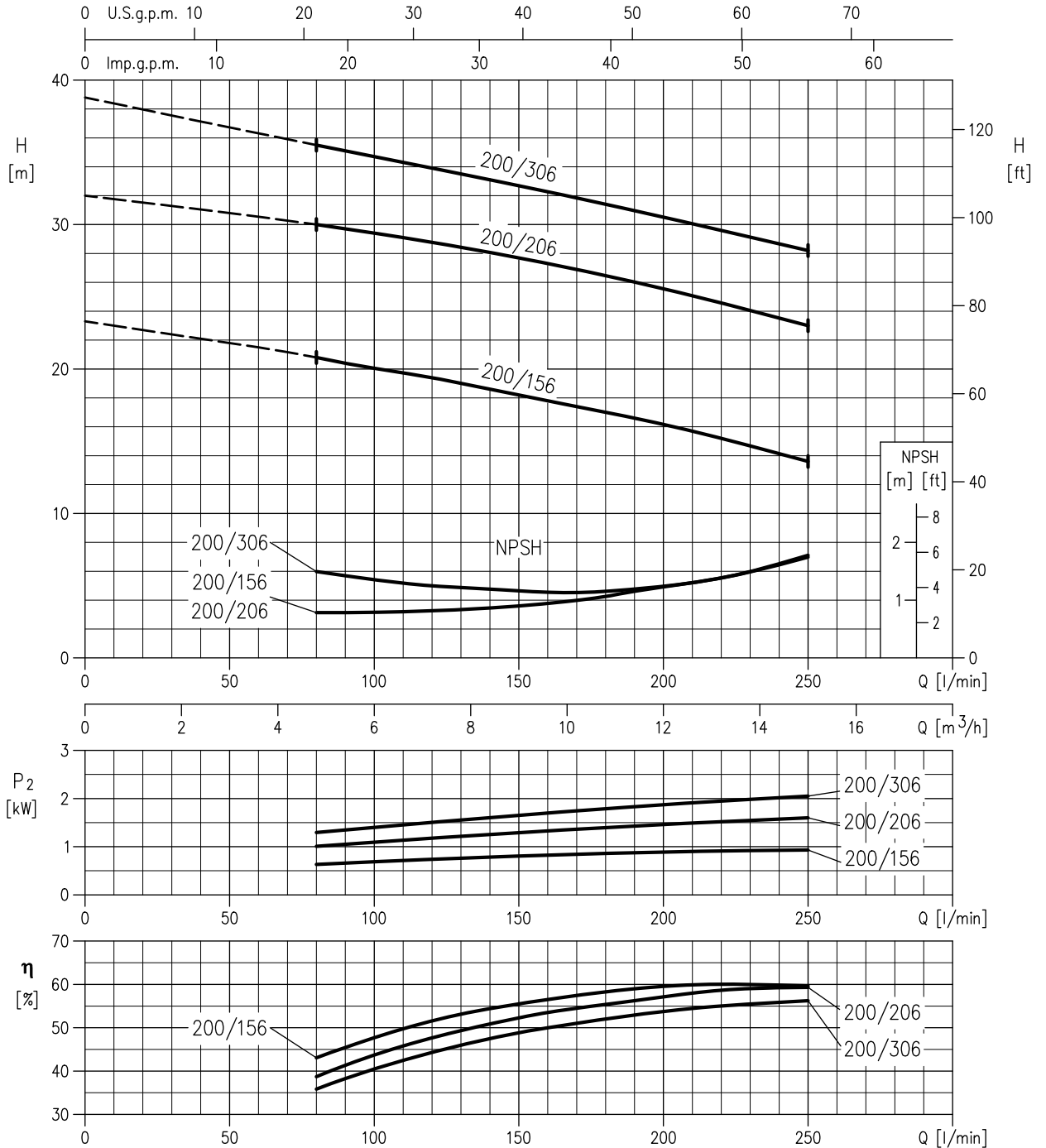
Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

CDX 120/106 (0.75 kW) - Impeller diameter = 115 mm
 CDX 120/156 (1.1 kW) - Impeller diameter = 132 mm
 CDX 120/206 (1.5 kW) - Impeller diameter = 157 mm



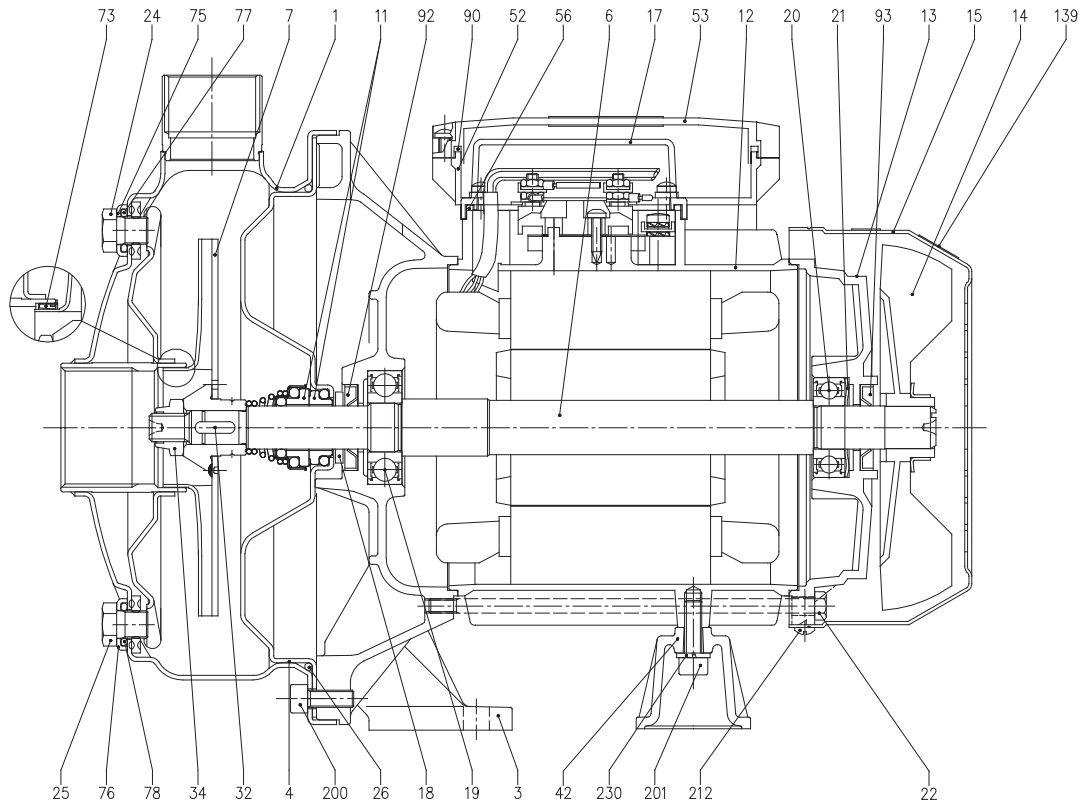
Rotation speed ≈ 3450 min⁻¹
 Test standard: ISO 9906 – Annex A

CDX 200/156 (1.1 kW) - Impeller diameter = 115 mm
CDX 200/206 (1.5 kW) - Impeller diameter = 132 mm
CDX 200/306 (2.2 kW) - Impeller diameter = 144 mm



Rotation speed $\approx 3450 \text{ min}^{-1}$
 Test standard: ISO 9906 – Annex A

SECTIONAL VIEW



N°	PART NAME	MATERIAL	Q.TY	N°	PART NAME	MATERIAL	Q.TY
1	Casing	AISI 304 / AISI 316 [8]	1	25	Drain plug	AISI 303 / AISI 316 [8]	1
3	Motor bracket	Aluminium	1	26	O-ring [3]	NBR	1
4	Casing cover	AISI 304 / AISI 316 [8]	1	32	Key	AISI 316	1
6	Shaft with rotor	AISI 303 / AISI 316 [8] (Wet extension)	1	34	Impeller nut	AISI 304 / AISI 316 [8]	1
7	Impeller	AISI 304 / AISI 316 [8]	1	42	Motor support	Aluminium	1
11	Mechanical seal [3] - [4]	Carbon/Ceramic/NBR	1	52	Terminal box [1]	ABS	1
12	Motor frame with stator	-	1	53	Terminal box cover [6]	ABS [6]	1
13	Motor cover	Aluminium	1	56	Box gasket	NBR	1
14	Fan	PA	1	73	Casing ring [5]	AISI 304 / AISI 316 [8]	1
15	Fan cover	Fe P04 Zincate	1	75	Washer	AISI 304 / AISI 316 [8]	1
16	Terminal board	-	1	76	Washer	AISI 304 / AISI 316 [8]	1
17	Terminal box cover [2]	Aluminium	1	77	O-ring [3]	NBR	1
18	Splash ring	NBR	1	78	O-ring [3]	NBR	1
19	Pump side ball bearing	-	1	90	Terminal box cover gasket [7]	NBR	1
20	Fan side ball bearing	-	1	92	Lip seal	-	1
21	Adjusting ring	Steel C70	1	93	Lip seal	-	1
22	Tie rod	Fe 420 Zincate	4	110	Protector [1]	-	1
23	Capacitor [1]	-	1	200	Screw	Stainless steel A2 UNI7323	8
24	Priming plug	AISI 303 / AISI 316 [8]	1				

[1] Only for single phase

[2] Only for three phase

[3] FPM for CDX H-HS-HW-HSW

[4] Special version, see page 301

[5] NBR for CDX 70/076-70/106-70/156

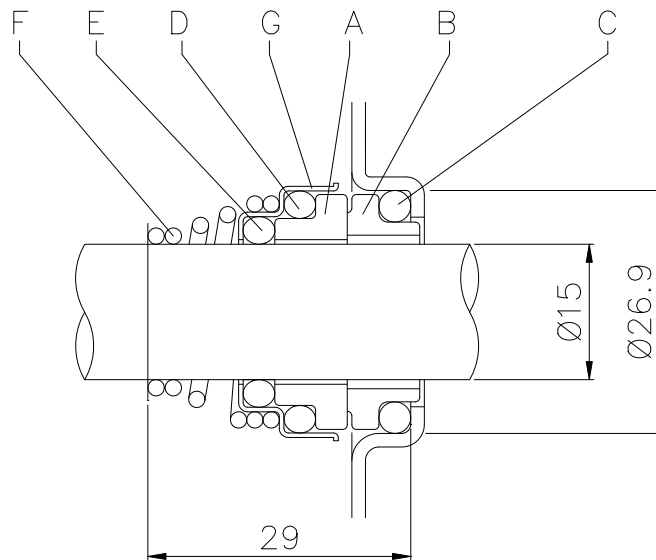
FPM for CDX H-HS-HW-HSW of the CDX 70/076-70/106-70/156

[6] Whit gasket in NBR only for version single phase CDXM 70/076, 70/106, 70/156, 120/106, 120/156, 200/156

[7] Only for version single phase CDXM 120/206, 200/206

[8] Only for "L" version

MECHANICAL SEAL

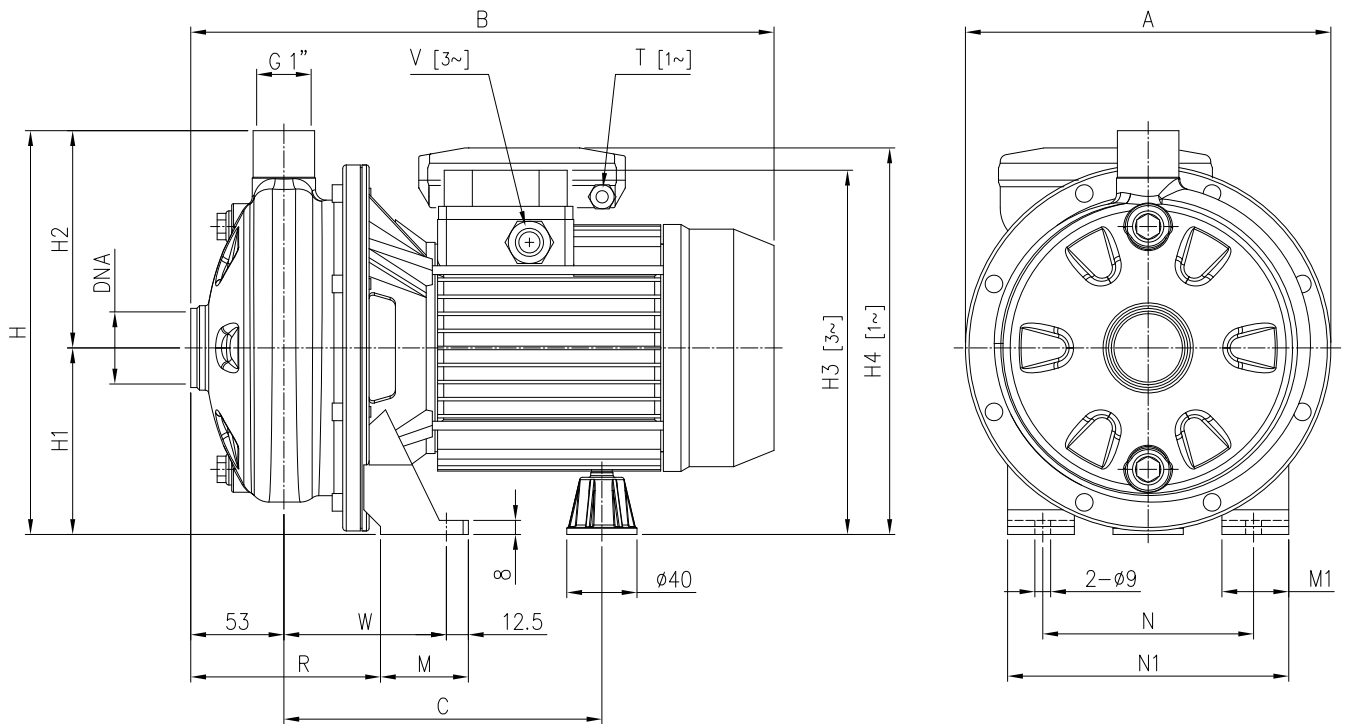


REF	PART NAME	MATERIAL				
		Standard version (CDX)	(CDXH)	Optional (CDXHS)	(CDXHW)	(CDXHSW)
A	Rotary seal ring	Ceramic	Ceramic	Silicon carbide	Tungsten carbide	Silicon carbide
B	Stationary seal ring	Carbon graphite	Carbon graphite	Silicon carbide	Tungsten carbide	Tungsten carbide
C	O Ring	NBR	FPM	FPM	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
CDXM 70/076	CDX 70/076	6203 2RSH	6202 2RSH
CDXM 70/106	CDX 70/106	6203 2RSH	6202 2RSH
CDXM 70/156	CDX 70/156	6203 2RSH	6202 2RSH
CDXM 120/106	CDX 120/106	6203 2RSH	6202 2RSH
CDXM 120/156	CDX 120/156	6203 2RSH	6202 2RSH
CDXM 120/206	CDX 120/206	6204 2RSH	6203 2RSH
CDXM 200/156	CDX 200/156	6203 2RSH	6202 2RSH
CDXM 200/206	CDX 200/206	6204 2RSH	6203 2RSH
-	CDX 200/306	6204 2RSH	6203 2RSH

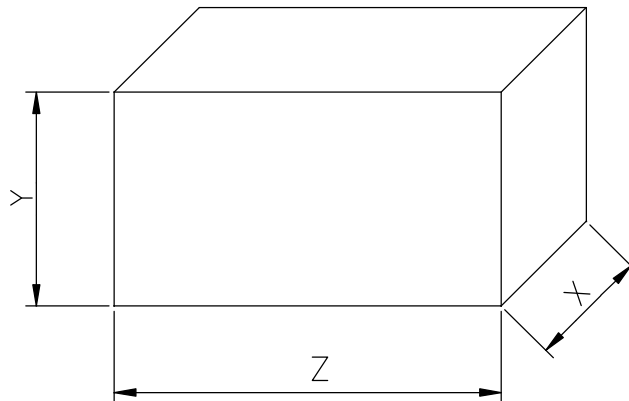
PUMP



Pump type CDXM CDX	Dimensions [mm]																Weight [kgf]				
	A	B		C	H	H1	H2	H3	H4	M	M1	N	N1	R	T	V	W	DNA	[1~]	[3~]	
		[1~]	[3~]					[3~]	[1~]						[1~]	[3~]					
70/076	208	321	320	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	PG 11	92.5	G 1"¼	8.5	8.4	
70/106	208	321	320	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	PG 11	92.5	G 1"¼	9.5	9.6	
70/156	208	321	332	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	PG 11	92.5	G 1"¼	11.7	12.5	
120/106	208	321	320	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	PG 11	92.5	G 1"¼	9.5	9.5	
120/156	208	321	332	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	PG 11	92.5	G 1"¼	11.7	12.4	
120/206	208	347	359	198.5	229.5	106	123.5	225	249	55	40	140	180	105.5	PG 13.5	PG 11	95	G 1"¼	15.3	14.5	
200/156	208	321	320	181	229.5	106	123.5	207	216	50	38	120	160	108	PG 11	PG 11	92.5	G 1"½	11	10.7	
200/206	208	347	359	198.5	229.5	106	123.5	225	237	55	40	140	180	105.5	PG 13.5	PG 11	95	G 1"½	15	15.7	
200/306	232	-	359	198.5	250	118	132	237	-	55	40	140	180	105.5	-	PG 11	95	G 1"½	-	16.9	

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

PACKING



Type pumps		Packing [mm]						Weight [kgf]	
Single Phase	Three Phase	X		Y		Z		[1~]	[3~]
		[1~]	[3~]	[1~]	[3~]	[1~]	[3~]		
CDXM 70/076	CDX 70/076	215	215	265	265	332	332	9.1	9
CDXM 70/106	CDX 70/106	215	215	265	265	332	332	10.2	10.3
CDXM 70/156	CDX 70/156	215	239	265	289	332	372	12.4	13.1
CDXM 120/106	CDX 120/106	215	215	265	265	332	332	10.3	10.3
CDXM 120/156	CDX 120/156	215	239	265	289	332	372	12.3	13
CDXM 120/206	CDX 120/206	239	239	289	289	372	372	16	15.2
CDXM 200/156	CDX 200/156	215	215	265	265	332	332	11.6	11.3
CDXM 200/206	CDX 200/206	239	239	289	289	372	372	15.7	16.4
-	CDX 200/306	-	239	-	289	-	372	-	17.6

[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]	110-115 V		220-230 V		Three phase (380 V)			Three phase (460 V)			Single Phase	Three Phase	[A]					[A]				
				[µF]	[V]	[µF]	[V]	50%	75%	100%	50%	75%	100%			Single Phase	Three Phase	110-115 V	220-230 V	220 V	380 V	460 V	110-115 V	220-230 V	220 V
CDXM 70/076	CDX 70/076	0.55	0.75	45	250	12.5	450	-	-	-	-	-	-	0.70	0.74	7.5	3.4	2.0	1.2	1.2	28.1	15.0	9.6	5.5	6.4
CDXM 70/106	CDX 70/106	0.75	1.0	60	250	14	450	-	-	-	-	-	-	1.05	0.97	9.4	5.1	2.9	1.7	1.6	48.8	22.0	15.0	8.5	13.0
CDXM 70/156	CDX 70/156	1.1	1.5	-	-	25	450	80.7	82.3	81.5	77.9	81.7	82.7	1.56	1.50	-	7.5	3.8	2.2	2.2	-	35.0	28.8	16.6	19.1
CDXM 120/106	CDX 120/106	0.75	1.0	60	250	14	450	-	-	-	-	-	-	1.06	0.99	10.4	5.2	2.9	1.7	1.7	48.8	22.0	15.0	8.5	13.0
CDXM 120/156	CDX 120/156	1.1	1.5	-	-	25	450	80.7	82.3	81.5	77.9	81.7	82.7	1.50	1.50	-	7.2	3.8	2.2	2.2	-	35.0	28.8	16.6	19.1
CDXM 120/206	CDX 120/206	1.5	2.0	-	-	35	450	82.4	83.0	82.2	79.5	82.9	83.8	2.34	2.90	-	11.3	8.1	4.7	4.3	-	69.0	54.4	31.4	38
CDXM 200/156	CDX 200/156	1.1	1.5	-	-	20	450	77.2	79.5	79.3	76.6	80.9	82.3	1.35	1.00	-	6.6	2.9	1.7	1.6	-	32.0	20.6	11.9	13.6
CDXM 200/206	CDX 200/206	1.5	2.0	-	-	35	450	82.4	83.0	82.2	79.5	82.9	83.8	2.06	2.90	-	10.0	8.1	4.7	4.3	-	69.0	54.4	31.4	38
-	CDX 200/306	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