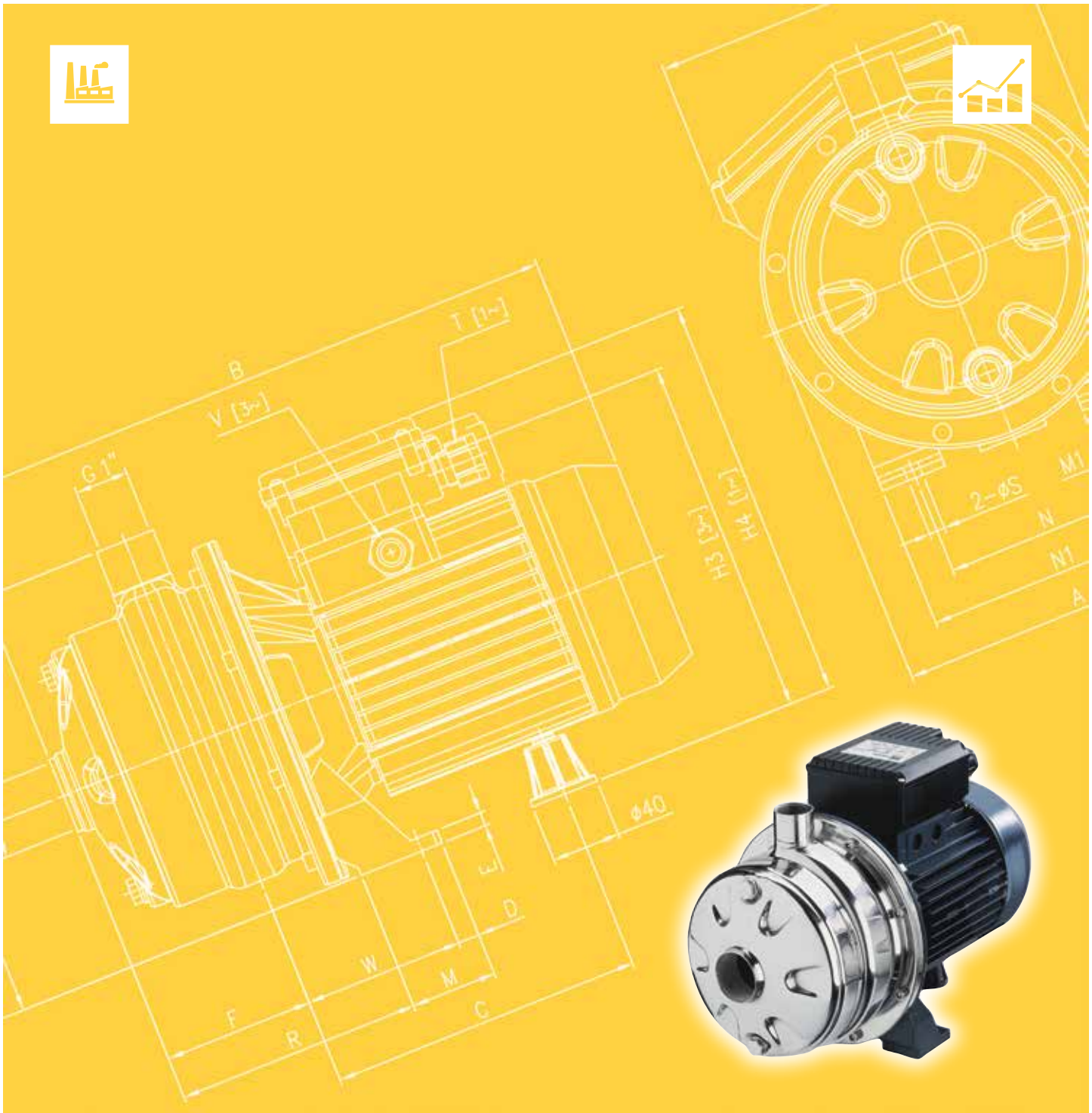
EBARA

Japanese Technology since 1912

2CDX

Data Book 60Hz



CONTENTS

60Hz

Rev.N

① click INDEX to jump CORRESPONDING SECTION

② click to go back to INDEX

SPECIFICATIONS 60Hz

Rev. N

PUMP			
Liquid Handled	Type of liquid		Clean water
	Temperature	[°C]	min. -5 max. +90 for Standard, H, E version max. +110 for HS - HW – HSW version max. +120 for Q1AEGG, VAEGG, U3U3EGG, Q1U3EGG, U3CEGG
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 G1"¼ to G1"½ UNI ISO 228
	Discharge	[inch]	G1" UNI ISO 228
Material	Casing		AISI 304
	Impeller		AISI 304
	Casing cover		AISI 304
	Shaft seal		Ceramic / Carbon / NBR (for versions see page 302)
	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 9906:2012 - Grade 3B

MOTOR			
Type		Electric - TEFC	
		Single Phase	Three Phase
Efficiency Level		IE2**	IE3* from 0.75 up to 4.0 kW
No. of Poles		2	
Rotation speed	[min^{-1}]	≈ 3400	
Insulation Class		F	
Protection degree (CEI EN 60034-5)		IP 55	
Power rating	[kW]	0.75 ÷ 2.2	0.75 ÷ 4.0
	[HP]	1 ÷ 3.0	1 ÷ 5.5
Frequency	[Hz]	60	
Voltage	[V]	220-230 ±6%	220/380-460 ±10% (IE3* from 0.75 up to 4.0kW)
Capacitor		Built in	-
Over load protection		Built in	Provided by the user
Casing material		Aluminium	
Base Material / Motor support		Aluminium	
Dimensions of cable entry		PG11 – PG13.5 – M16x1.5 – M20x1.5 (see dimensions table page 400)	

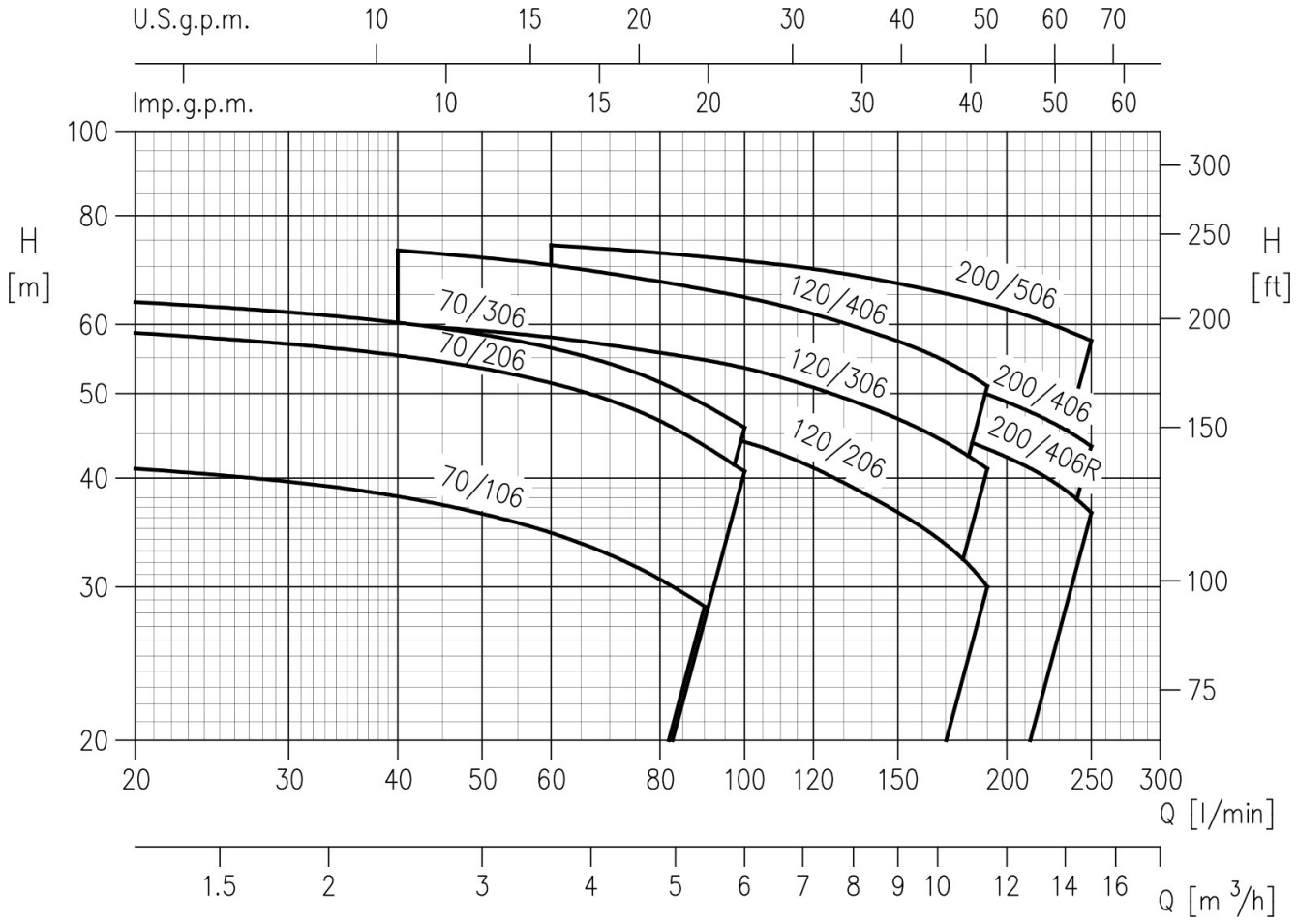
* Only for 460V

** Only for 70/106 model

PERFORMANCE RANGE and SELECTION CHART 60Hz

Rev. N

PERFORMANCE RANGE



SELECTION CHART

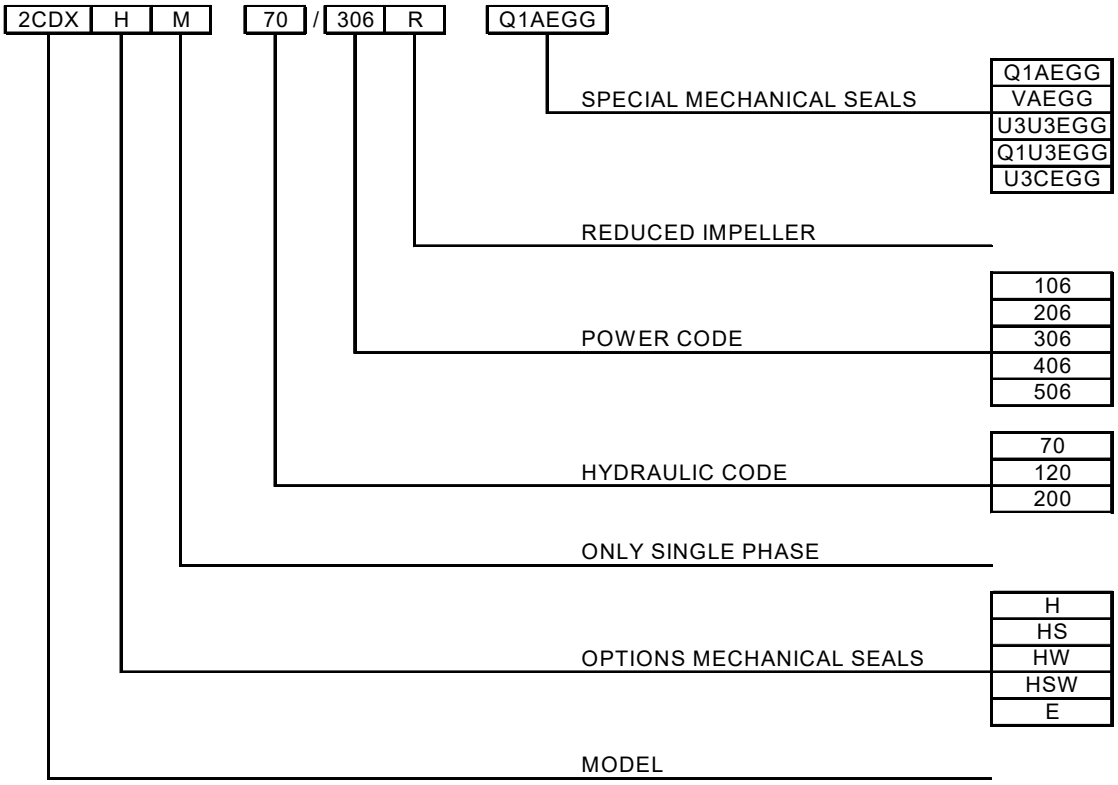
Pump type		Q=Capacity											
		l/min	0	20	40	60	90	100	120	140	160	190	240	250
Single Phase	Three Phase	m³/h	0	1.2	2.4	3.6	5.4	6.0	7.2	8.4	9.6	11.4	14.4	15
		H=Total manometric head in meters												
2CDXM 70/106	2CDX 70/106		43	41	38.1	34.6	28.5	-	-	-	-	-	-	-
2CDXM 70/206	2CDX 70/206		62	58.5	55.5	51.5	44	40.5	-	-	-	-	-	-
2CDXM 70/306	2CDX 70/306		67	63.5	60.5	56.5	49	45.5	-	-	-	-	-	-
-	2CDX 120/206		54.5	-	50.5	48.5	45	44	41.5	38.6	35.6	30	-	-
-	2CDX 120/306		64.5	-	60	58	54.5	53.5	51	48.5	45.5	41	-	-
-	2CDX 120/406		78	-	73	70	66	64.5	62	59	56	51	-	-
-	2CDX 200/406		65	-	-	60	58	57	55.5	54	52.5	50	45	43.5
-	2CDX 200/406R		57.5	-	-	53.5	51.5	51	49.5	47.5	46	43	37.9	36.5
-	2CDX 200/506		79	-	-	74	72	71	69.5	68	66	63.5	58.5	57.5

TYPE KEY and CURVE SPECIFICATIONS

60Hz

Rev. N

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 60 Hz, 2 poles.
Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of ν = 1 mm²/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:

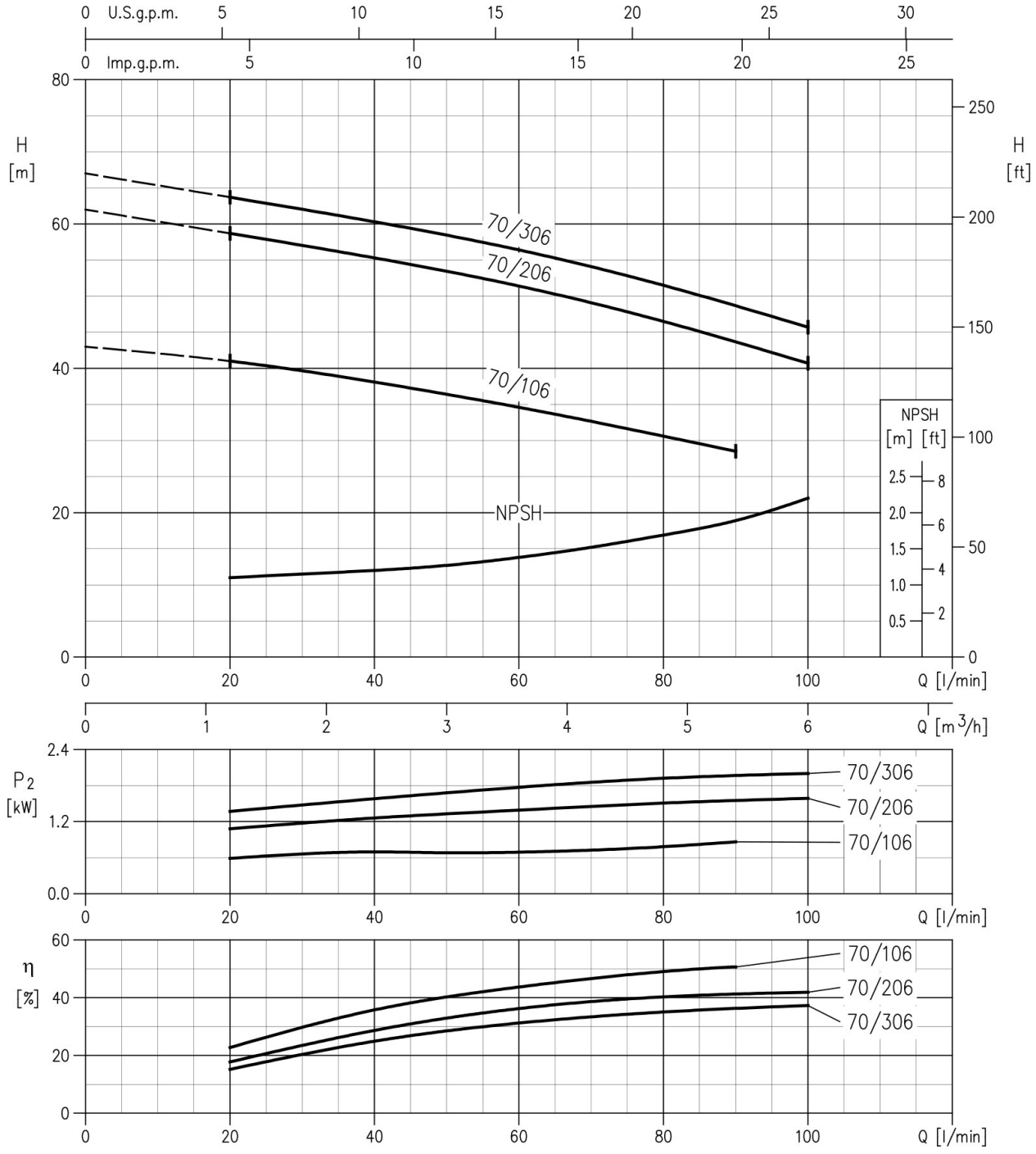
Q	=	volume flow rate
H	=	total head
P_2	=	pump power input (shaft power)
η	=	pump efficiency
NPSH	=	net positive suction head required by the pump

PERFORMANCE CURVE

60Hz

Rev. N

2CDX 70/106 - Impeller diameter = 115/115 mm
2CDX 70/206 - Impeller diameter = 132/132 mm
2CDX 70/306 - Impeller diameter = 132/153 mm



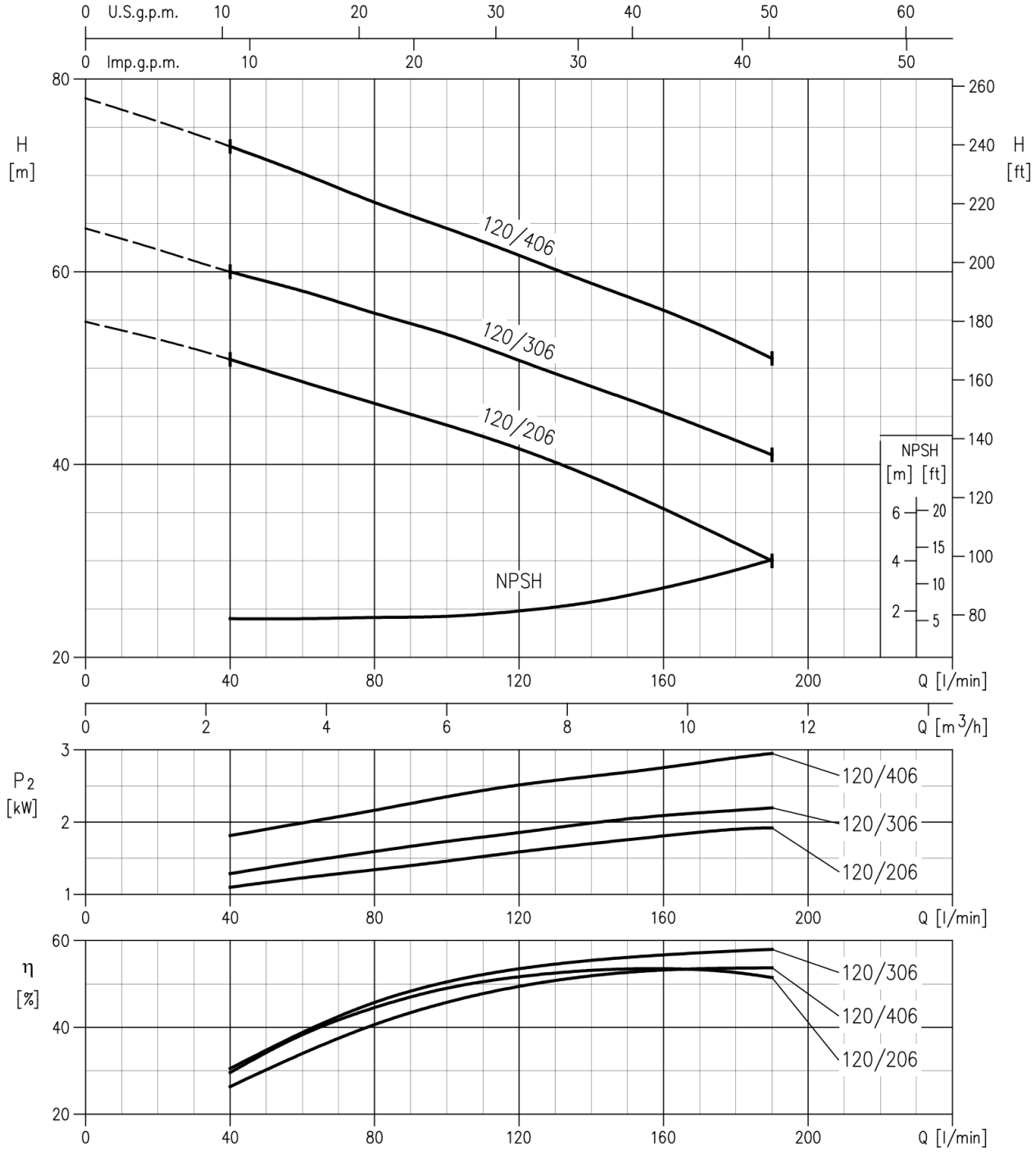
Rotation speed ≈ 3400 min^{-1}
Test standard: ISO 9906:2012 - Grade 3B

PERFORMANCE CURVE

60Hz

Rev. N

2CDX 120/206 - Impeller diameter = 115/132 mm
2CDX 120/306 - Impeller diameter = 132/132 mm
2CDX 120/406 - Impeller diameter = 132/157 mm



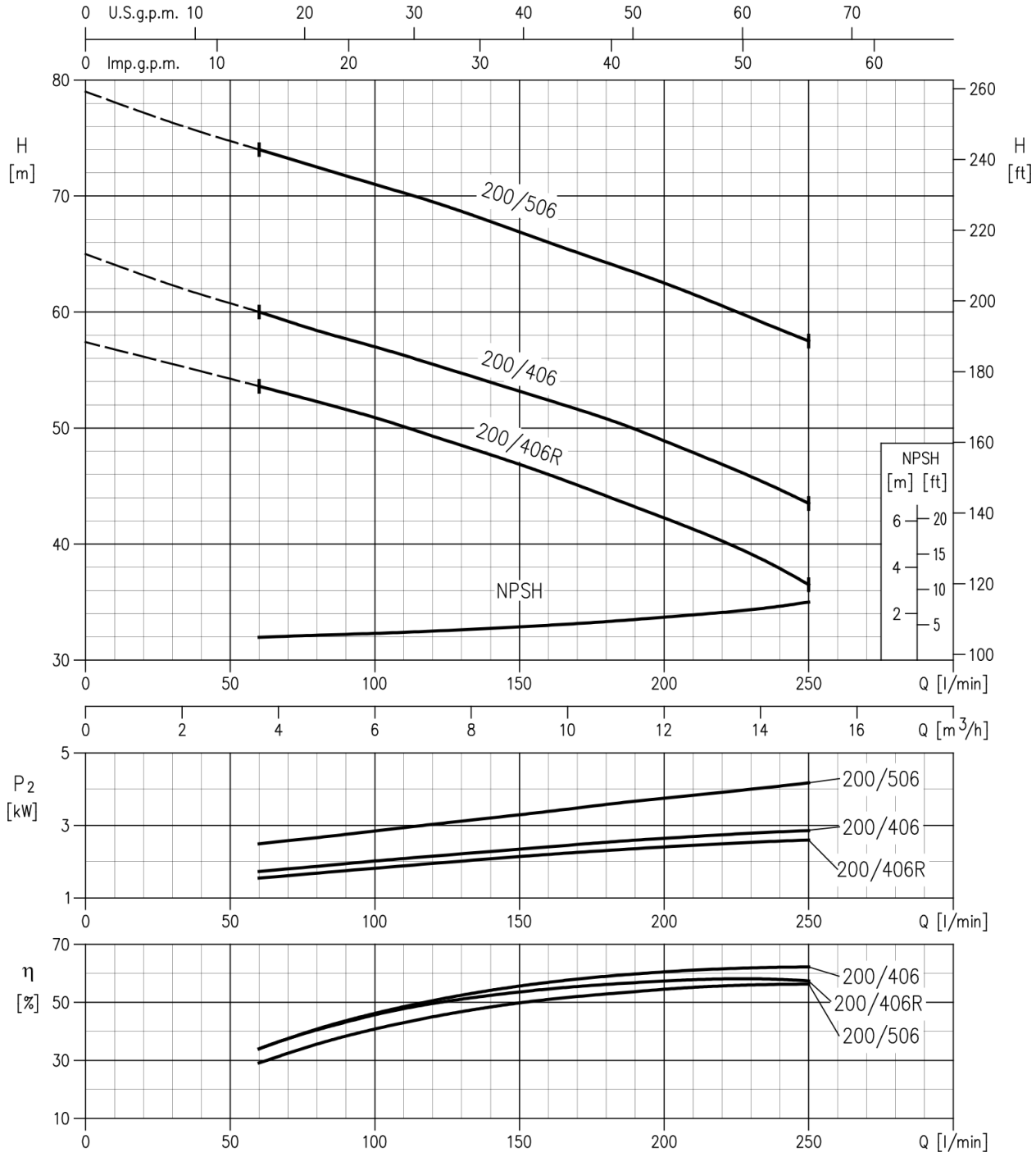
Rotation speed ≈ 3400 min^{-1}
Test standard: ISO 9906:2012 - Grade 3B

PERFORMANCE CURVE

60Hz

Rev. N

2CDX 200/406 - Impeller diameter = 132/132 mm
2CDX 200/406R - Impeller diameter = 115/132 mm
2CDX 200/506 - Impeller diameter = 132/157 mm



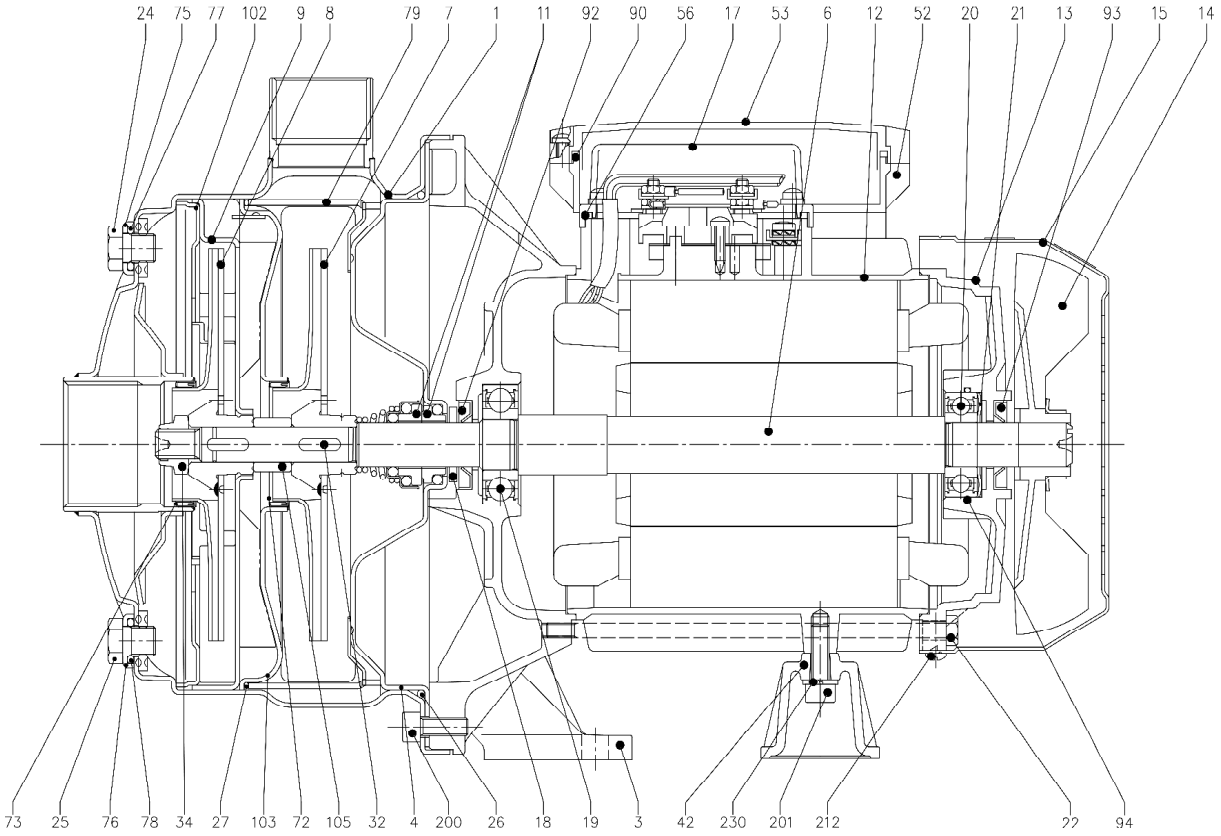
Rotation speed ≈ 3400 min^{-1}
Test standard: ISO 9906:2012 - Grade 3B

CONSTRUCTIONS

60Hz

Rev. N

SECTIONAL VIEW



N°	PART NAME	MATERIAL	Q.TY
1	Casing	AISI 304	1
3	Motor bracket	[5]	1
4	Casing cover	AISI 304	1
6	Shaft with rotor	AISI 304 (Wet extension)	1
7	Impeller	AISI 304	1
8	Impeller	AISI 304	1
9	Diffuser	AISI 304	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 Zincate	1
16	Terminal board	-	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 Zincate	4
23	Capacitor [1]	-	1
24	Priming plug	AISI 304	1
25	Drain plug	AISI 304	1
26	O-ring [3]	NBR	1
27	O-ring [3]	NBR	1

N°	PART NAME	MATERIAL	Q.TY
32	Key	AISI 316	2
34	Impeller nut	AISI 304	1
42	Motor support	Aluminium	1
52	Capacitor box [1]	ABS class V-0	1
53	Capacitor box cover [6]	ABS class V-0	1
56	Box gasket	NBR	1
72	Casing ring [4]	EPDM	1
73	Casing ring [4]	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	1
90	Terminal box cover gasket [8]	NBR	1
92	Lip seal	-	1
93	Lip seal	-	1
94	O-ring [9]	NBR	1
102	Suction cover	AISI 304	1
103	Conveyor cover	AISI 304	1
105	Sleeve	AISI 304	1
110	Protector [1]	-	1
200	Screw	Stainless steel A2 UNI7323	8
201	Screw	Zincate Steel	4
212	Screw	Zincate Steel	1

[1] Only for single phase
[2] Only for three phases
[3] FPM for H, HS, HW, HSW version; EPDM for E and Special Mechanical Seal
[4] FPM for H, HS, HW, HSW
[5] Material: Aluminium for version up to 2.2 kW included
Cast iron for version 3.0 kW and above

[6] With gasket in NBR only for version single phase 2CDXM 70/106

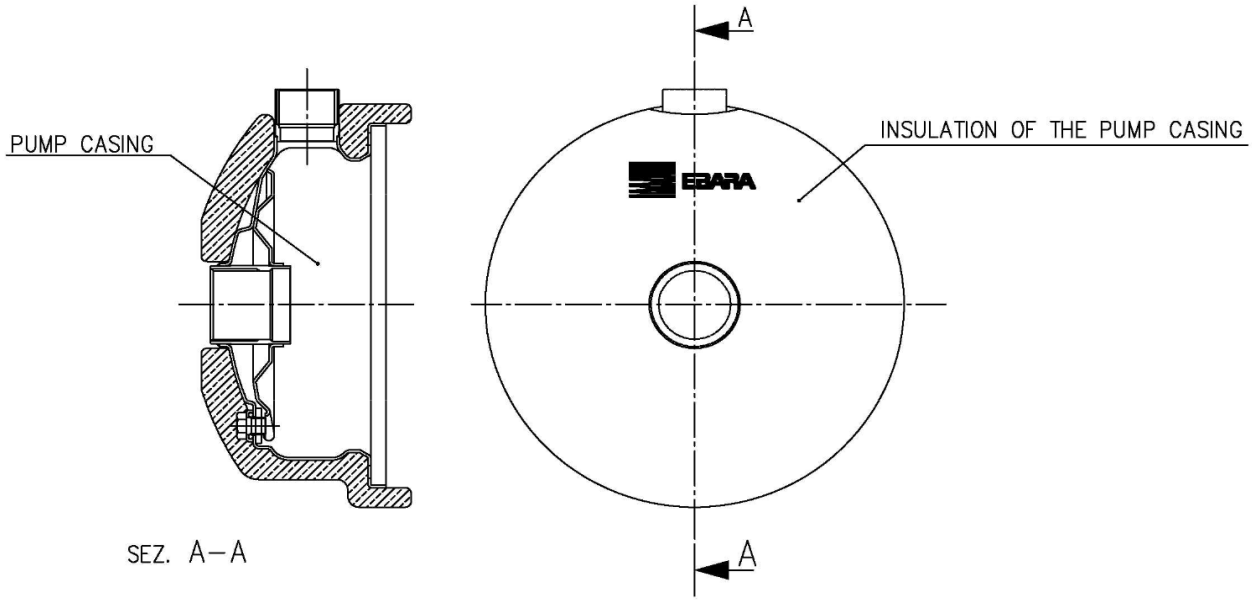
[7] See **MECHANICAL SEAL** pages 302-303
[8] Only for version single phase 2CDXM 70/206; 2CDXM 70/306
[9] Only for 2CDXM 70/106

CONSTRUCTIONS

60Hz

Rev. N

THERMAL INSULATION



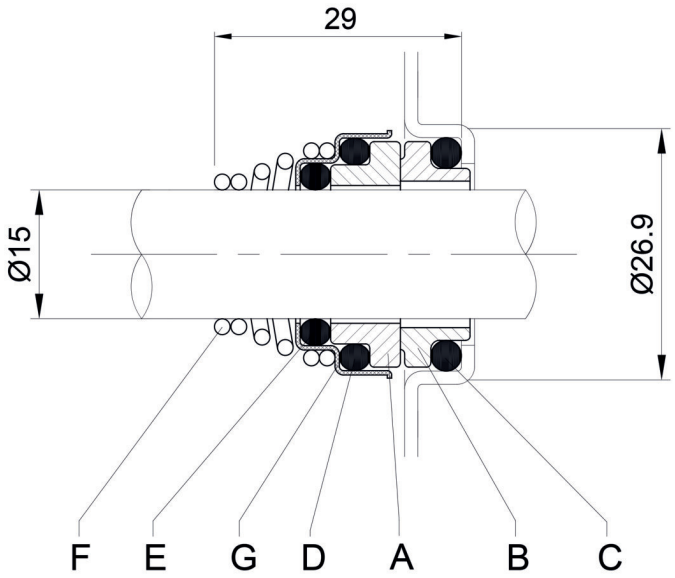
Pump Type	Insulation of the pump casing
2CDX 70/106	ON REQUEST
2CDX 70/206	
2CDX 70/306	
2CDX 120/206	
2CDX 120/306	
2CDX 120/406	
2CDX 200/406	
2CDX 200/406R	
2CDX 200/506	

CONSTRUCTIONS

60Hz

Rev. N

MECHANICAL SEAL



STANDARD

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

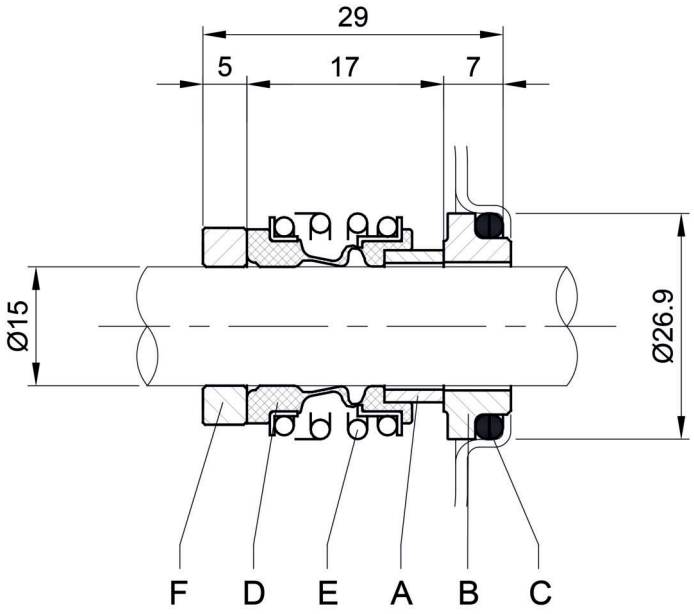
REF	PART NAME	MATERIAL			
		Q1U3EGG	**VAEGG**	**U3U3EGG**	**U3CEGG**
A	Rotary seal ring	Silicon carbide	Ceramic	Tungsten carbide	Tungsten carbide
B	Stationary seal ring	Tungsten carbide	Metallised carbon	Tungsten carbide	special Carbon
C	O-Ring	EPDM	EPDM	EPDM	EPDM
D	O-Ring	EPDM	EPDM	EPDM	EPDM
E	O-Ring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

CONSTRUCTIONS

60Hz

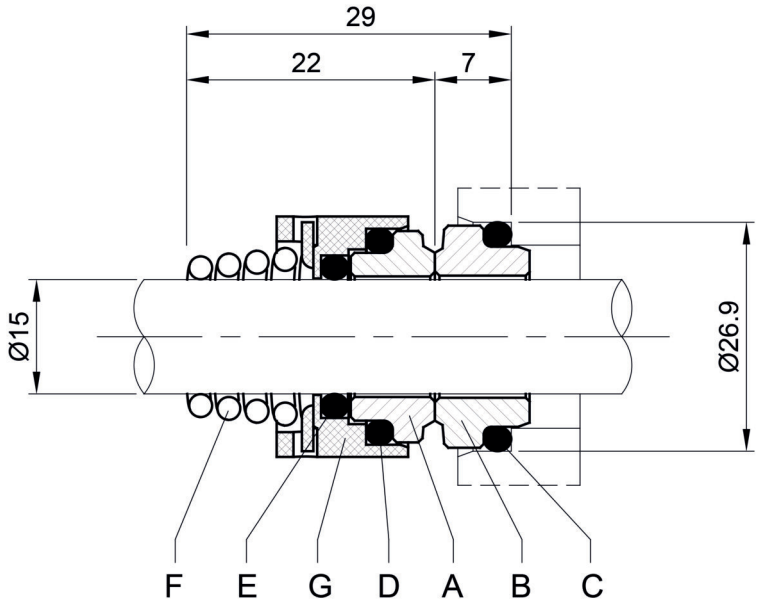
Rev. N

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

BEARINGS

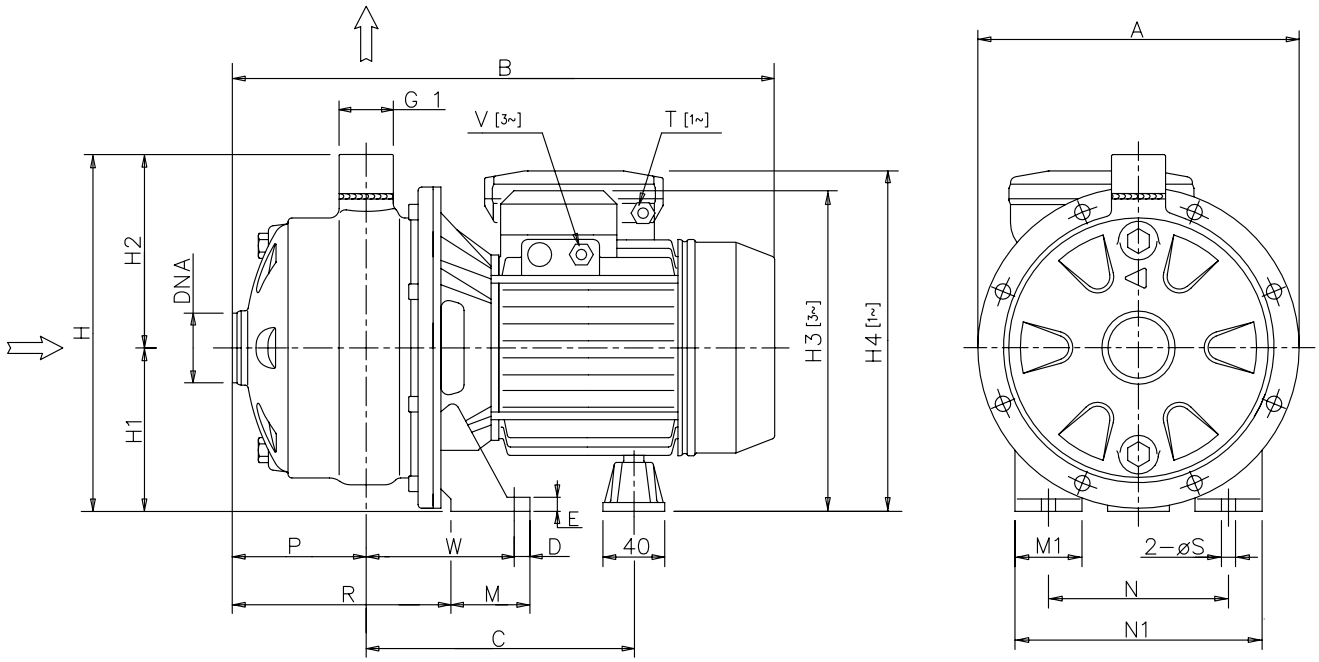
Pump type		Ball Bearing			
		Pump side		Fan side	
Single Phase	Three Phase	[1~]	[3~]	[1~]	[3~]
2CDXM 70/106	2CDX 70/106	6203	6203	6202	6202
2CDXM 70/206	2CDX 70/206	6204	6204	6203	6203
2CDXM 70/306	2CDX 70/306	6204	6204	6203	6203
-	2CDX 120/206	-	6204	-	6203
-	2CDX 120/306	-	6204	-	6203
-	2CDX 120/406	-	6205	-	6205
-	2CDX 200/406	-	6205	-	6205
-	2CDX 200/406R	-	6205	-	6205
-	2CDX 200/506	-	6206	-	6205

DIMENSIONS and WEIGHT

60Hz

Rev. N

PUMP



Pump type		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		
Single Phase	Three Phase		[1~]	[3~]							[3~]	[1~]								[1~]	[3~]			[1~]	[3~]
2CDXM 70/106	2CDX 70/106	208	366	354	181	12.5	8	229	106	123	208	216	50	38	120	160	87	142	Ø9	PG11	M16x1.5	93	G 1"¼	12.8	12
2CDXM 70/206	2CDX 70/206	208	393	405	199	12.5	8	229	106	123	225	242	55	40	140	180	87	140	Ø9	PG 13.5	M20x1.5	95	G 1"¼	16.6	17
2CDXM 70/306	2CDX 70/306	208	393	405	199	12.5	8	229	106	123	225	242	55	40	140	180	87	140	Ø9	PG 13.5	M20x1.5	95	G 1"¼	16.9	17
-	2CDX 120/206	208	-	407.5	199	12.5	8	229	106	123	225	-	55	40	140	180	89	142	Ø9	-	M20x1.5	95	G 1"¼	-	18.4
-	2CDX 120/306	208	-	407.5	199	12.5	8	229	106	123	225	-	55	40	140	180	89	142	Ø9	-	M20x1.5	95	G 1"¼	-	21
-	2CDX 120/406	208	-	459	224/235	12.5	8	229	106	123	230	-	65	40	140	180	89	146	Ø9	-	M20x1.5	109	G 1"¼	-	25.9
-	2CDX 200/406	208	-	457	224/235	12.5	8	229	106	123	230	-	65	40	140	180	87	144	Ø9	-	M20x1.5	109	G 1"½	-	25.7
-	2CDX 200/406R	208	-	457	224/235	12.5	8	229	106	123	230	-	65	40	140	180	87	144	Ø9	-	M20x1.5	109	G 1"½	-	25.7
-	2CDX 200/506	208	-	480	233	16	12	241	118	123	259	-	68	50	160	210	87	144	Ø12	-	M20x1.5	109	G 1"½	-	35.7

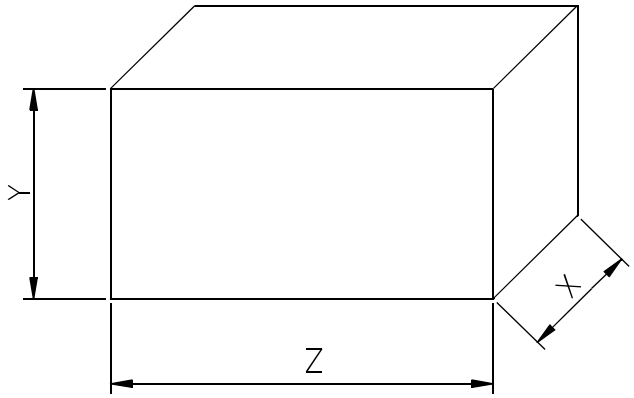
[1~] Single phase
[3~] Three phase

DIMENSIONS and WEIGHT

60Hz

Rev. N

PACKING



Pump type		Packing [mm]			Weight [kgf]	
Single Phase	Three Phase	X	Y	Z	[1~]	[3~]
2CDXM 70/106	2CDX 70/106	237	280	445	13.3	12.9
2CDXM 70/206	2CDX 70/206	237	285	500	17.5	17.8
2CDXM 70/306	2CDX 70/306	237	285	500	17.8	16.9
-	2CDX 120/206	237	285	500	-	19.3
-	2CDX 120/306	237	285	500	-	21.8
-	2CDX 120/406	237	285	585	-	26.7
-	2CDX 200/406	237	285	585	-	26.5
-	2CDX 200/406R	237	285	585	-	26.5
-	2CDX 200/506	237	285	585	-	36.6

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

TECHNICAL DATA 60Hz

Rev. N

MOTOR DATA

Pump type	Power		Efficiency	Capacitor		Efficiency (% load) and power factor				Input	Full load current		Locked rotor current	
						η %			cos-φ	[kW]	[A]		[A]	
Single Phase	[kW]	[HP]	[IE2 / IE3]	[μF]	[V]	50%	75%	100%			110 V	220 V	110 V	220 V
2CDXM 70/106	0,9	1,2	IE2	31,5	450	64,1	73,2	79,4	0,86	1,17	-	5,9	-	45,3
2CDXM 70/206	1,8	2,4	-	40	450	-	-	-	0,95	2,29	-	10,5	-	69,0
2CDXM 70/306	1,8	2,4	-	40	450	-	-	-	0,95	2,29	-	10,5	-	69,0

Pump type	Power		Efficiency	Efficiency (% load) Three phase (380 V) η %			Efficiency (% load) Three phase (460 V) η %			Input [kW] Three	Full load current [A] Three Phase			Locked rotor current [A] Three Phase		
Three Phase	[kW]	[HP]	[IE2/IE3]	50%	75%	100%	50%	75%	100%	Phase	220 V	380 V	460 V	220 V	380 V	460 V
2CDX 70/106	0.75	1.0	IE3	80.7	81.9	81.3	78.4	81.6	83.1	0.90	2.8	1.6	1.5	16.9	9.7	11.8
2CDX 70/206	1.5	2.0	IE3	86.5	86.8	86.2	86.9	87.8	87.4	2.48	7.5	4.3	4.1	55.7	32.2	38.9
2CDX 70/306	2.2	3.0	IE3	86.5	86.8	86.2	86.9	87.8	87.4	2.48	7.5	4.3	4.1	55.7	32.2	38.9
2CDX 120/206	1.5	2.0	IE3	86.5	86.8	86.2	86.9	87.8	87.4	2.48	7.5	4.3	4.1	55.7	32.2	38.9
2CDX 120/306	2.2	3.0	IE3	86.5	86.8	86.2	86.9	87.8	87.4	2.48	7.5	4.3	4.1	55.7	32.2	38.9
2CDX 120/406	3.0	4.0	IE3	86.8	87.0	87.5	87.0	87.9	88.5	3.42	10.2	5.9	5.6	75.7	43.7	52.8
2CDX 200/406	3.0	4.0	IE3	86.8	87.0	87.5	87.0	87.9	88.5	3.42	10.2	5.9	5.6	75.7	43.7	52.8
2CDX 200/506	3.7	5.0	IE3	89.7	89.6	88.6	86.1	88.4	88.5	4.52	13.5	7.8	7.6	107.1	61.8	74.9

10/23

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