EBARA

Japanese Technology since 1912

CDA

Data Book 50Hz

CONTENTS

50Hz

Rev.P

SPECIFICATION 50Hz

Rev.P

PUMP			
Liquid Handled	Type of liquid		Clean water
	Temperature	[°C]	min. +5 max. +40 (CDA 0.75 - 1.00) max. +90
Maximum working pressure		[MPa]	0.6 (CDA 0.75-1.00) 1.0 (CDA 1.50-2.00-3.00-4.00-5.50)
Construction	Impeller		Twin closed type
	Shaft seal type		Mechanical seal
	Bearing		Sealed ball bearing
Pipe Connection	Suction		G1 (CDA 0.75-1.00) UNI ISO 228 G1¼ (CDA 1.50-2.00-3.00) UNI ISO 228 G1½ (CDA 4.00-5.50) UNI ISO 228
	Discharge		G1 (CDA 0.75-1.00-1.50-2.00-3.00) UNI ISO 228 G1¼ (CDA 4.00-5.50) UNI ISO 228
Material	Casing		Cast iron
	Impeller		PPE+PS glass fibre reinforced (CDA 0.75-1.00) Brass (CDA 1.50 - 2.00-3.00-4.00-5.50)
	Casing cover		AISI 304 (CDA 0.75-1.00) Cast iron built-in the motor bracket (CDA 2.00-3.00-4.00-5.50)
	Shaft seal		Ceramic/Carbon/NBR
	Shaft		AISI 303 (CDA 0.75-1.00-1.50-2.00-3.00) AISI 304 (CDA 4.00-5.50)
	Bracket		Aluminium (CDA 0.75-1.00) Cast iron (CDA 1.50-2.00-3.00-4.00-5.50)
Applicable standard of test			ISO 9906:2012 – Grade 3B

MOTOR				
Type			Electric - TEFC	
			Single Phase	Three Phase
Efficiency level (Reg. 1781/2019)			IE2	IE3
No. of Poles			2	
Rotation speed		[mim-1]	≈ 2850	
Insulation Class			F	
Protection degree (CEI EN 60034-5)			IP 44	
Power rating		[kW]	0.55 ÷ 1.5	0.55 ÷ 4
		[HP]	0.75 ÷ 2	0.75 ÷ 5.5
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	
Base material / Motor support			Cast iron / Plastic foot	
Dimensions of cable entry			PG11 - PG13.5 - G 1/2 – M16x1.5 – M20x1.5 (see dimensions page 400)	

SELECTION CHART

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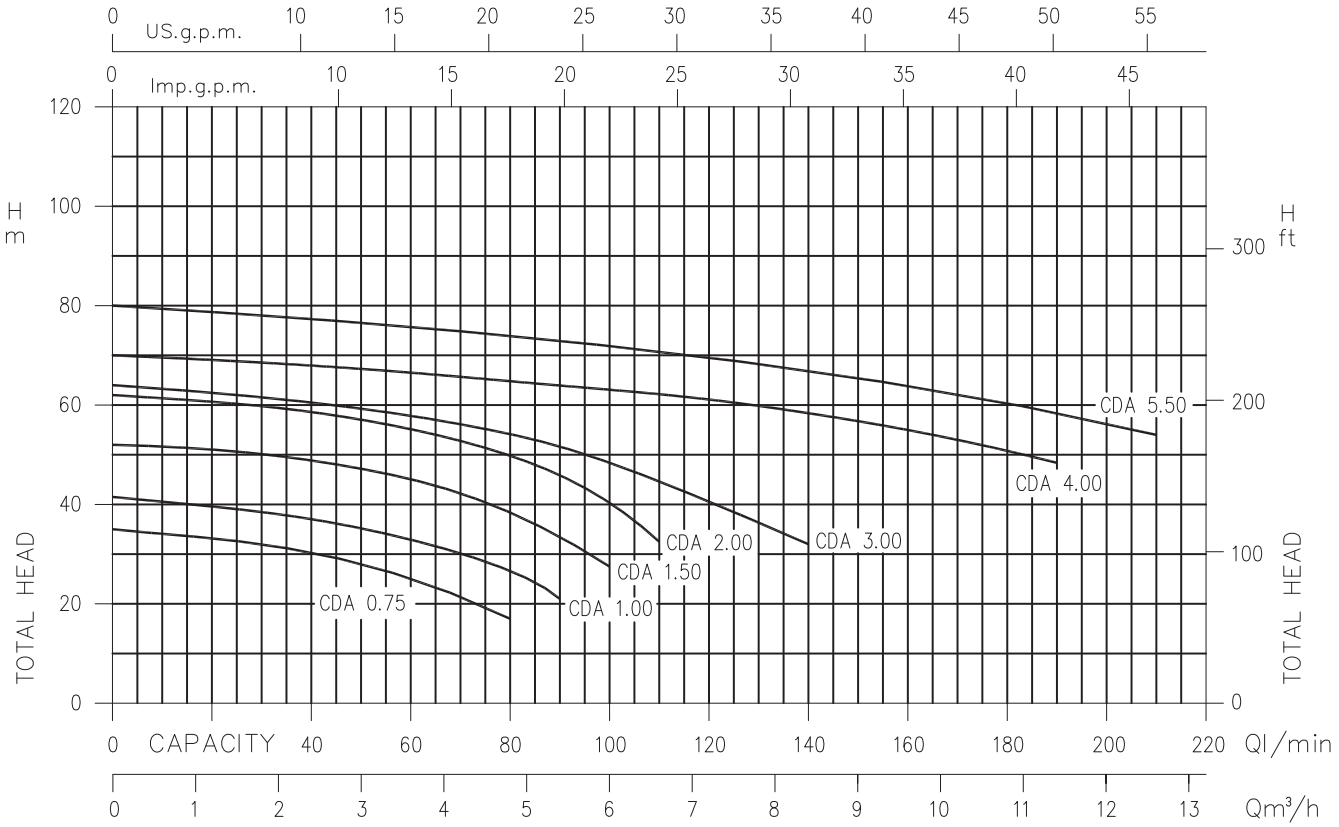

Pump type		Q=Capacity											
		l/min 0	20	40	50	80	90	100	110	140	170	190	210
Single Phase	Three Phase	m³/h 0	1,2	2,4	3	4,8	5,4	6,6	6,6	8,4	10,2	11,4	12,6
		H=Total manometric head in meters											
CDA 0.75 M	CDA 0.75 T	35	33	30,2	27,9	17	-	-	-	-	-	-	-
CDA 1.00 M	CDA 1.00 T	41,5	39,5	37	35,2	27	21	-	-	-	-	-	-
CDA 1.50 M	CDA 1.50 T	52	50,8	48,8	47,1	38,4	33,4	27,5	-	-	-	-	-
CDA 2.00 M	CDA 2.00 T	62	60,5	58,6	56,9	49,8	46,5	40,3	32,5	-	-	-	-
-	CDA 3.00 T	64	-	60,5	59,3	54,1	51,6	48,4	44,6	32	-	-	-
-	CDA 4.00 T	70	-	-	67	64,8	63,9	62,5	62	58	53,5	48	-

TYPE KEY AND CURVE SPECIFICATIONS 50Hz

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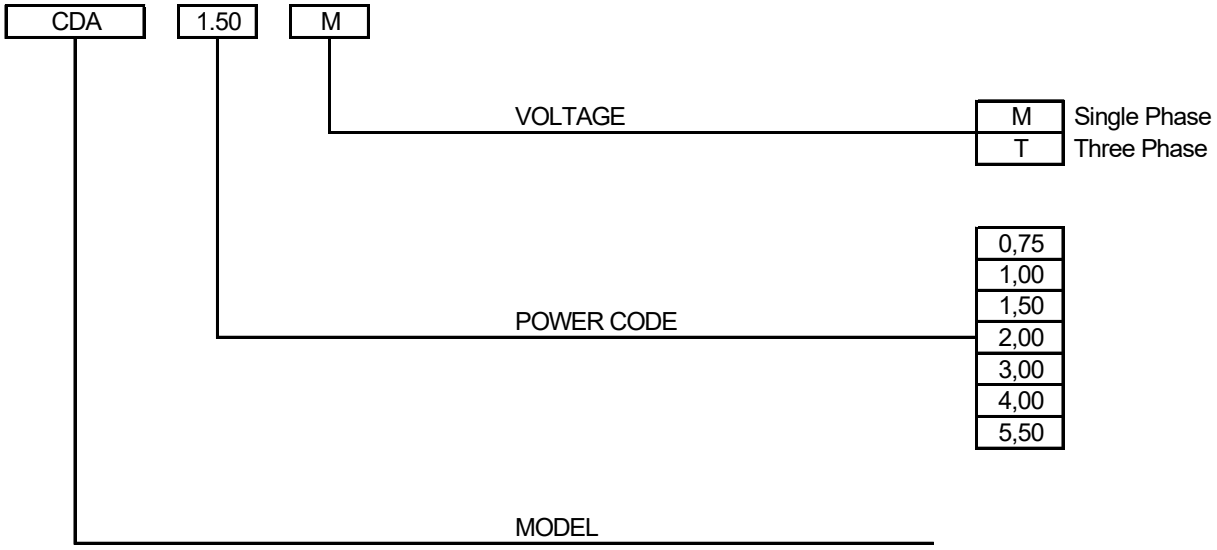
TYPE KEY



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 ν = 1 mm^2/s (1 cSt)
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

PERFORMANCE CURVE

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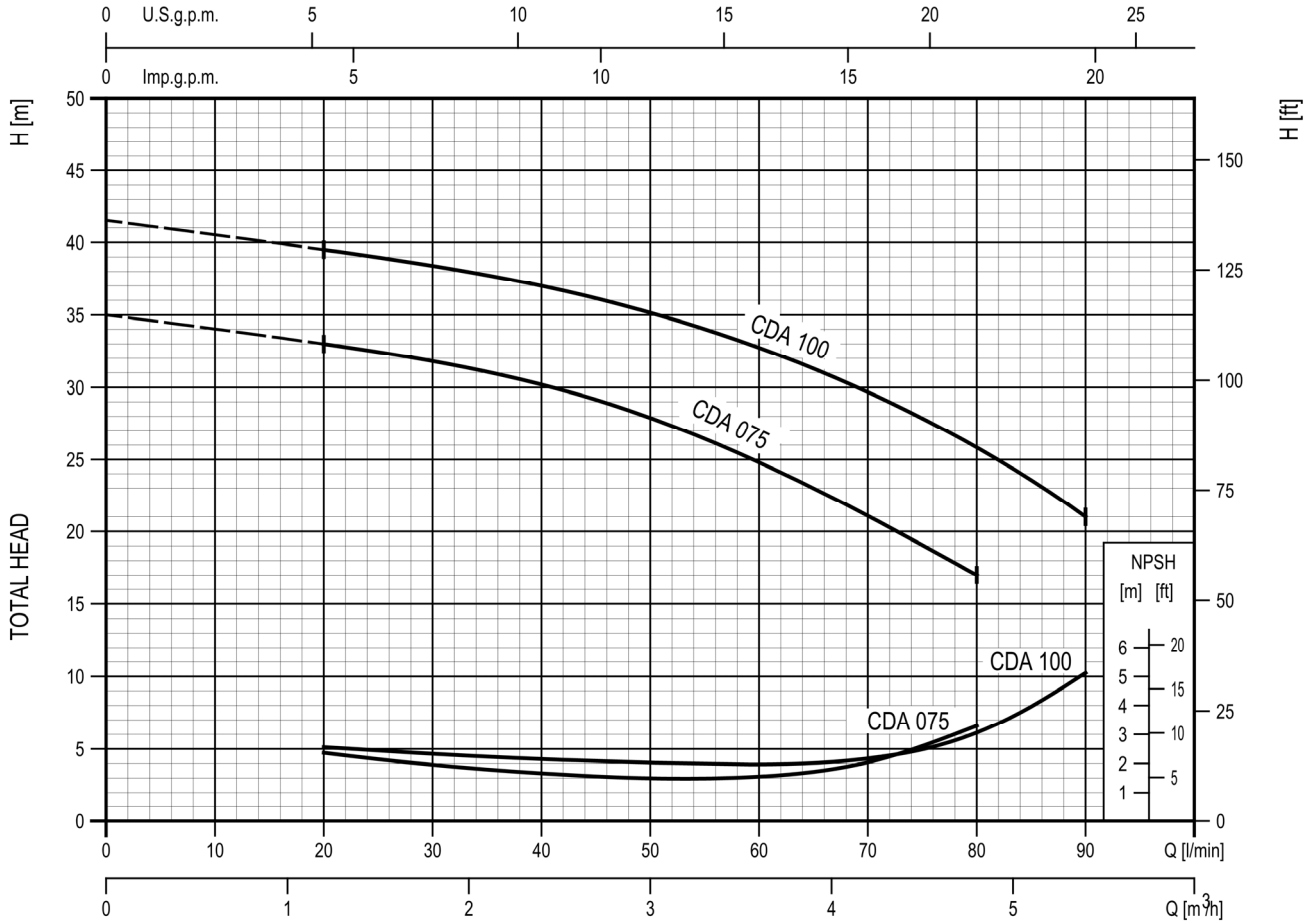
CDA 0.75 - Impeller diameter = 122 mm
CDA 1.00 - Impeller diameter = 130 mm



Rotation speed ≈ 2800 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

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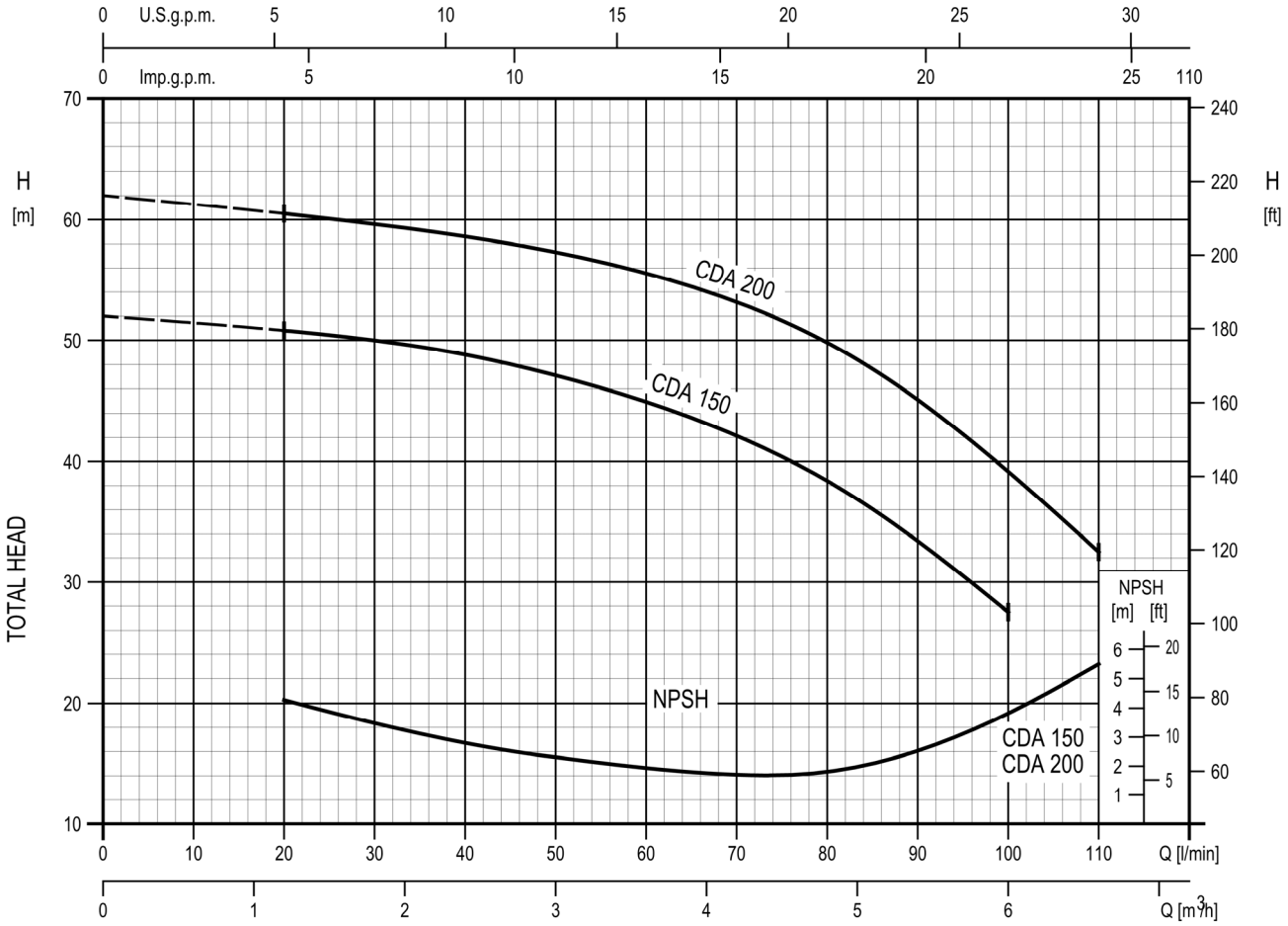
CDA 1.50 - Impeller diameter = 143 mm
CDA 2.00 - Impeller diameter = 153 mm



Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

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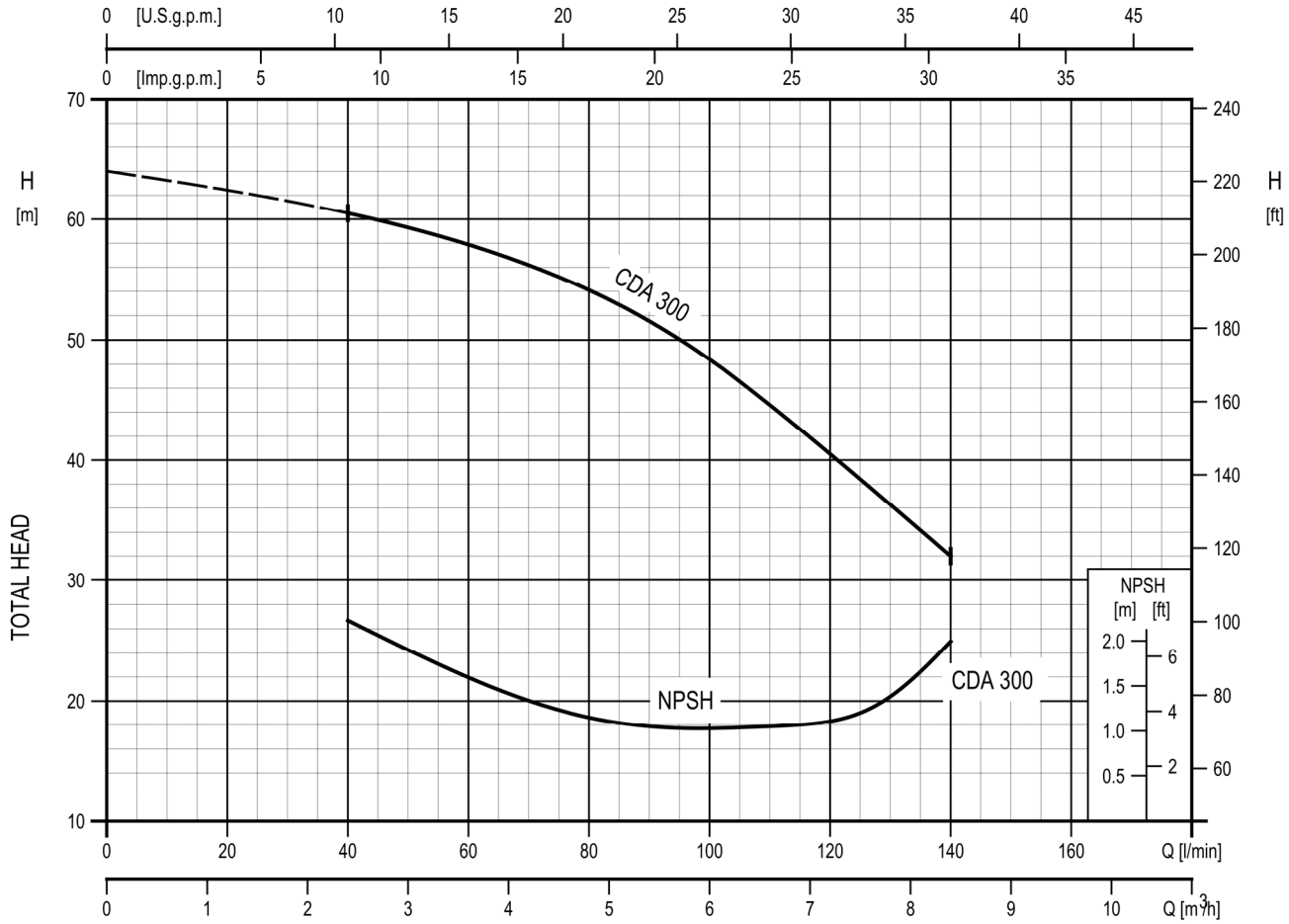
CDA 3.00 - Impeller diameter = 156 mm



Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

PERFORMANCE CURVE

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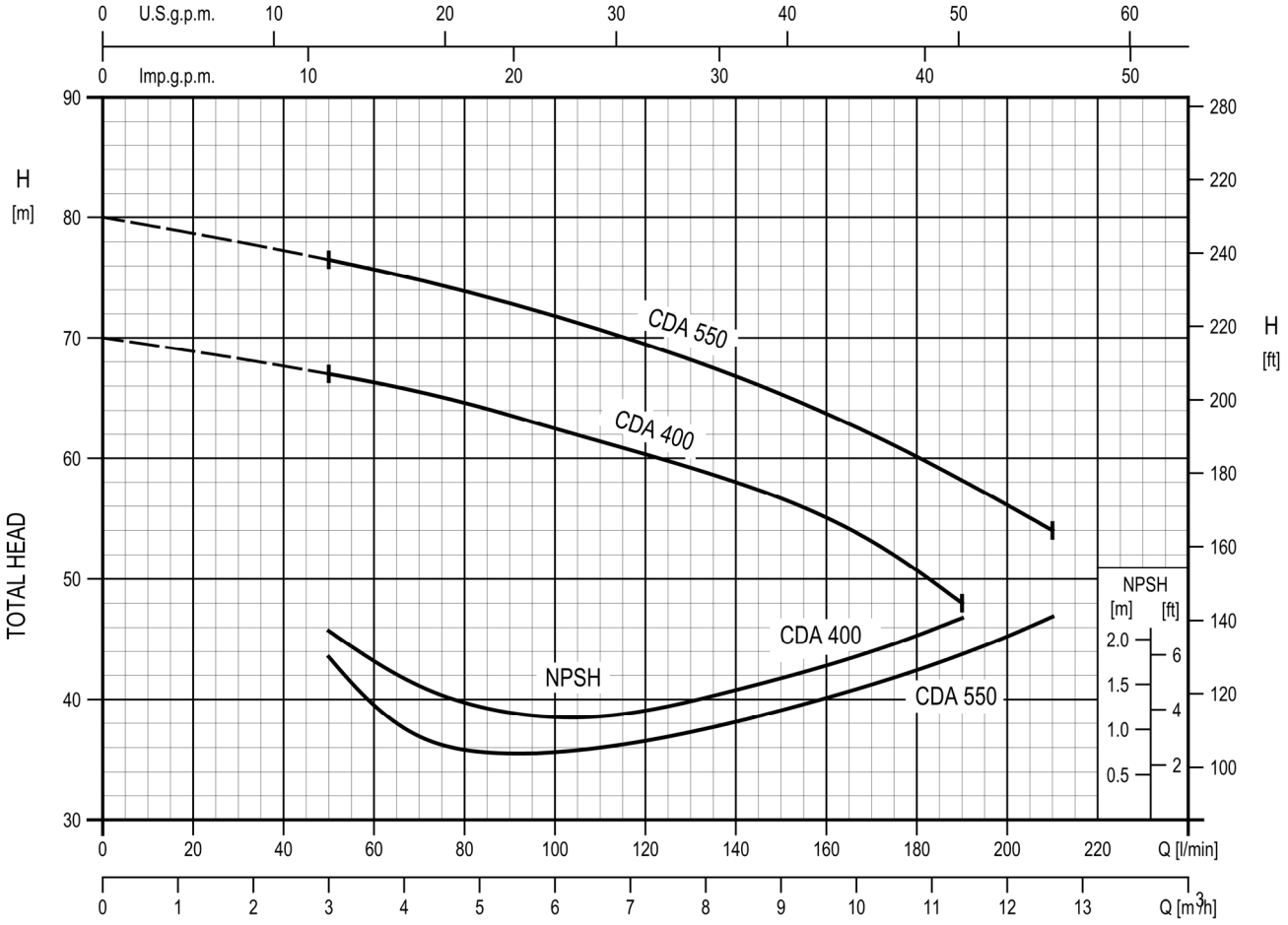
CDA 4.00 - Impeller diameter = 167 mm
CDA 5.50 - Impeller diameter = 179 mm



Rotation speed ≈ 2900 min^{-1}
Test standard: ISO 9906:2012 – Grade 3B

CONSTRUCTION

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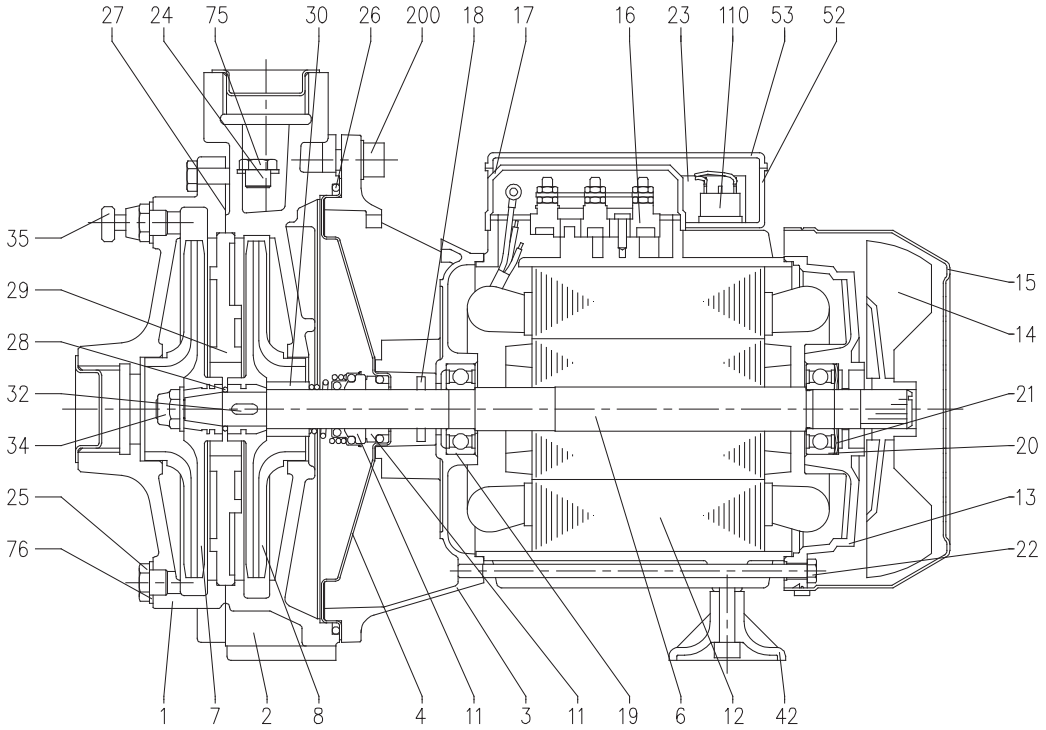
SECTIONAL VIEW



N°	PART NAME	MATERIAL	Q. TY	N°	PART NAME	MATERIAL	Q. TY
1	Casing	Cast iron	1	23	Capacitor [1]	-	1
2	Casing	Cast iron	1	24	Priming plug	Brass	1
3	Motor bracket	[8]	1	25	Drain plug	Brass	1
4	Casing cover	[9]	1	26	O-ring	NBR	1
6	Shaft with rotor	[6]	1	27	Gasket	Compressed cellulose fibre	1
7	Impeller	[4]	1	28	O-ring	NBR	1
8	Impeller	[4]	1	29	Intermediate plate	Cast iron	1
11	Mechanical seal [7]	Carbon/Ceramic/NBR	1	30	Mechanical seal spacer	Brass	1
12	Motor frame with stator	-	1	32	Key	AISI 316	1
13	Motor cover	Aluminium	1	34	Impeller nut [3]	AISI 304	1
14	Fan	PP	1	35	Air breather valve	Brass	1
15	Fan cover	Fe P04 Zincate	1	42	Foot	PP	1
16	Terminal box	-	1	52	Capacitor box [1]	ABS class V-0	1
17	Terminal box cover [2]	Aluminium	1	53	Capacitor box cover [10]	ABS class V-0 [10]	1
18	Splash ring	NBR	1	75	Washer	Aluminium	1
19	Pump side ball bearing	-	1	76	Washer	Aluminium	1
20	Fan side ball bearing	-	1	110	Protector [5]	-	1
21	Adjusting ring	Steel C70	1	200	Screw	Zn Steel Cl. 8.8 ISO 898-1	4
22	Tie rod	Fe 42 Zincate	4				

[1] Only for single phase
[2] Only for three phase
[3] Only for version with impeller in Brass
[4] Material : PPE+PS glass fibre reinforced for version CDA 0.75 - 1.00
Brass for version CDA 1.50 - 2.00 - 3.00 - 4.00 - 5.50
[5] Only for version single phase CDA 1.50 - 2.00
[6] Material : AISI 303 (wet extension) for version CDA 0.75 - 1.00 - 1.50 - 2.00 - 3.00
AISI 304 (wet extension) for version CDA 4.00 - 5.50
[7] See constructions mechanical seal page 301
[8] Material : Aluminium for version CDA 0.75 - 1.00
Cast iron for version CDA 1.50 - 2.00 - 3.00 - 4.00 - 5.50
[9] Material : AISI 304 for version CDA 0.75 - 1.00
Cast iron built-in the motor bracket for version CDA 1.50 – 2.00 – 3.00 - 4.00 - 5.50
[10] With gasket in NBR only for version single phase CDA 0.75 - 1.00

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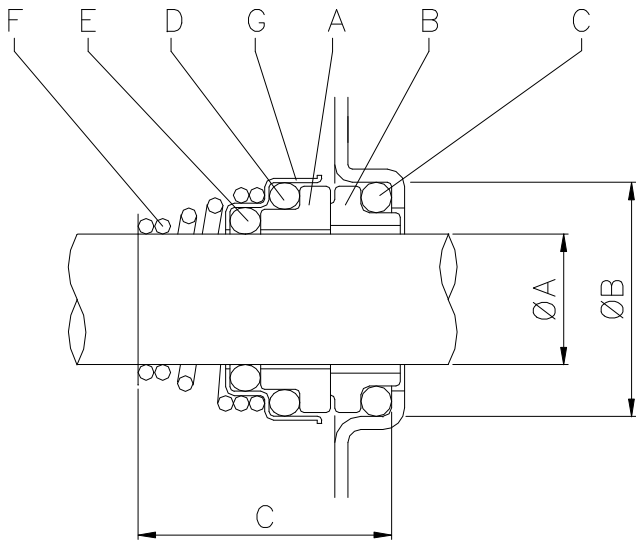
MECHANICAL SEAL



Single Phase	Three Phase	ØA	ØB	C
CDA 0.75 M	CDA 0.75 T	15	26	29
CDA 1.00 M	CDA 1.00 T	15	26	29
CDA 1.50 M	CDA 1.50 T	18	30.9	32
CDA 2.00 M	CDA 2.00 T	18	30.9	32
-	CDA 3.00 T	18	30.9	32
-	CDA 4.00 T	20	30.9	33
-	CDA 5.50 T	20	30.9	33

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

BEARINGS

Type pumps		Ball Bearing	
Single phase	Three Phase	Pump side	Fan side
CDA 0.75 M	CDA 0.75 T	6202	6203
CDA 1.00 M	CDA 1.00 T	6202	6202
CDA 1.50 M	CDA 1.50 T	6204	6203
CDA 2.00 M	CDA 2.00 T	6204	6203
-	CDA 3.00 T	6204	6203
-	CDA 4.00 T	6306	6205
-	CDA 5.50 T	6306	6205

DIMENSIONS AND WEIGHT

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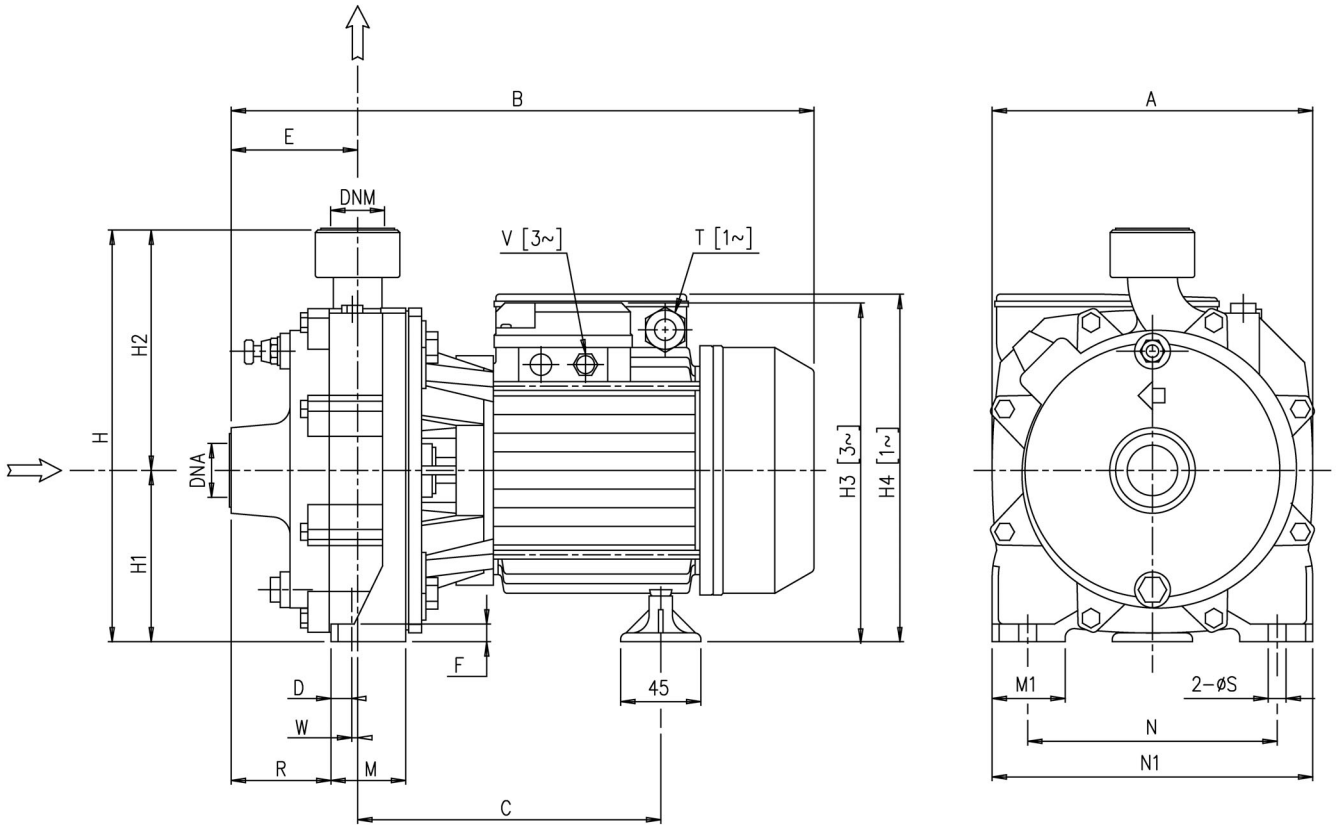
PUMP



Pump type	Dimensions mm																					Weight [kgf]
	A	B	C	D	E	F	H	H1	H2	H3	H4	M	M1	N	N1	R	T	V	W	S	DNA	DNM	
CDA 0.75M	183	336,3	179,8	8,3	73	9	227	97	130	-	198,0	42	40	140	180	57,5	PG11	-	6,8	9,5	G 1	G1	14
CDA 0.75T	183	336,3	179,8	8,3	73	9	227	97	130	197,5	-	42	40	140	180	57,5	-	M16x1.5	6,8	9,5	G 1	G1	14,1
CDA 1.00M	183	358,0	179,8	8,3	73	9	227	97	130	-	198,0	42	40	140	180	57,5	PG11	-	6,8	9,5	G 1	G1	15,5
CDA 1.00T	183	336,3	179,8	8,3	73	9	227	97	130	197,5	-	42	40	140	180	57,5	-	M16x1.5	6,8	9,5	G 1	G1	15
CDA 1.50M	209	420,0	218,3	8,3	86	9	265	110	155	-	242,0	48	40	155	195	65,5	PG13.5	-	12,3	9,5	G1 1/4	G1	27
CDA 1.50T	194	419,8	218,3	8,3	86	9	265	110	155	224,0	-	48	40	155	195	65,5	-	M20x1.5	12,3	9,5	G1 1/4	G1	25,8
CDA 2.00M	209	423,0	218,3	8,3	86	9	265	110	155	-	242,0	48	40	155	195	65,5	PG13.5	-	12,3	9,5	G1 1/4	G1	27
CDA 2.00T	194	421	218,3	8,3	86	9	265	110	155	224	-	48	40	155	195	65,5	-	M20x1.5	12,3	9,5	G1 1/4	G1	28
CDA 3.00T	194	423,3	218,3	8,3	86	9	265	110	155	224	-	48	40	155	195	65,5	-	M20x1.5	12,3	9,5	G1 1/4	G1	26,7
CDA 4.00T	228	494,5	262,5	12,0	95,5	12	308,5	133,5	175	259,5	-	57	50	180	230	71,5	-	M20x1.5	12	12	G1 1/2	G1 1/4	46,8
CDA 5.50T	228	508	225,3	12,0	95,5	12	308,5	133,5	175	264,5	-	57	50	180	230	71,5	-	M20x1.5	12	12	G1 1/2	G1 1/4	52

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

DIMENSIONS AND WEIGHT

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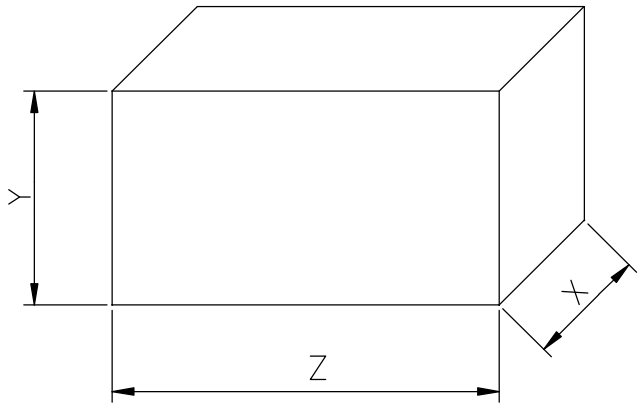
PACKING



Pump type		Packing [mm]				Weight [kgf]	
		X	Y	Z			
Single phase	Three phase			[1~]	[3~]	[1~]	[3~]
CDA 0.75 M	CDA 0.75 T	210	290	355	370	14,5	15,7
CDA 1.00 M	CDA 1.00 T	240	320	450	435	16	15,7
CDA 1.50 M	CDA 1.50 T	240	320	425	435	28	26,6
CDA 2.00 M	CDA 2.00 T	240	320	425	435	28	28,8
-	CDA 3.00 T	237	320	-	477	-	27,5
-	CDA 4.00 T	280	350	-	520	-	48,3

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

MOTOR DATA

Pump type	Power		Efficiency	Capacitor		Efficiency (% load) and power factor				Input	Full load current		Locked rotor current	
						η %				[kW]	[A]		[A]	
	[kW]	[HP]	[IE2 / IE3]	[μF]	[V]	50%	75%	100%	cos-φ		110 V	230 V	110 V	230 V
CDA 0.75 M	0,75	1,0	IE2	25	450	61,0	70,8	79,2	0,93	0,95	-	4,4	-	24,0
CDA 1.00 M	0,9	1,2	IE2	31,5	450	67,0	75,3	79,0	0,92	1,15	-	5,4	-	31,3
CDA 1.50 M	1,5	2,0	IE2	40	450	69,8	76,6	81,3	0,92	1,90	-	9,0	-	65,2
CDA 2.00 M	1,5	2,0	IE2	40	450	69,8	76,6	81,3	0,92	1,90	-	9,0	-	65,2

Pump type	Power		Efficiency	Efficiency (% load) Three phase η %			Input [kW]	Full load current [A]		Locked rotor current [A]	
	[kW]	[HP]		50%	75%	100%		230 V	400 V	230 V	400 V
CDA 0.75 T	0,55	0,75	IE3	80,2	82,8	82,9	0,91	3,0	1,7	20,5	11,8
CDA 1.00 T	0,75	1	IE3	80,9	82,3	82,1	0,91	3,0	1,7	19,7	11,4
CDA 1.50 T	1,1	1,5	IE3	83,0	85,8	85,6	1,77	5,8	3,3	47,4	27,4
CDA 2.00 T	1,5	2	IE3	84,2	86,8	86,9	2,01	7,1	4,1	66,6	38,4
CDA 3.00 T	2,2	3	IE3	86,2	87,0	86,0	2,55	8,2	4,7	66,6	38,4
CDA 4.00 T	3	4	IE3	85,9	87,5	87,1	3,44	11,1	6,4	90,0	52,0
CDA 5.50 T	4	5,5	IE3	84,3	87,2	87,8	4,56	15,1	8,7	151,0	87,0
CDA 5.50 T	4	5,5	IE3	85,8	88,3	88,4	4,52	15,1	8,7	131,8	76,1

NOISE DATA

Pump type		L_{pA} - dB(A) *
Single Phase	Three Phase	
CDA 0.75 M	CDA 0.75 T	<70
CDA 1.00 M	CDA 1.00 T	
CDA 1.50 M	CDA 1.50 T	
CDA 2.00 M	CDA 2.00 T	
-	CDA 3.00 T	
-	CDA 4.00 T	
-	CDA 5.50 T	

* Mean value of several measures at 1m distance around
Tollerance ± 2.5 dB.

07/23

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