

Open impeller centrifugal electric pumps and threaded connections

MARKET SECTORS

CIVIL, INDUSTRIAL.

APPLICATIONS

- Washing of metal parts and/or surface treatment.
- Washing of produce in the packaging industry.
- Food industry washing equipment and systems.
- Dyeing plant and textile industry.
- Plants for the circulation and transfer of moderately viscous liquids, with light chemical aggressiveness.
- Industrial washing machines and commercial dishwashers.



CONSTRUCTION FEATURES

- Close-coupled, single-impeller centrifugal pump with axial suction and radial delivery.
- Threaded suction and delivery ports (Rp ISO 7).
- Compact construction; adapter for motor/pump coupling; the impeller is keyed directly to the motor shaft extension.
- Back pull-out design; no need to disconnect the pump body from the system pipes.
- **All components in contact with pumped liquid are made of AISI 316L stainless steel**
- **AISI 316L** stainless steel open **impeller** with four pressed vanes welded onto base disk.
- Impeller's front **wear surface** consists of a study **AISI 316L** stainless steel plate welded onto the suction port.
- **AISI 316L** stainless steel **pump body and seal housing disk**, with no diffusers or cavities for easier cleaning and maintenance.

- Pump body tightened by 8 screws allowing rotation of the discharge head.
- **Mechanical seal:**
Standard version: Carbon/ Ceramic faces, **FPM** elastomers. The other parts are made of AISI 316L stainless steel. **"K" version** : faces are made of **Silicon Carbide and Tungsten Carbide**. **FPM** Elastomers. The other parts are made of AISI 316L stainless steel.
- **FPM O-Rings.**

OPTIONAL FEATURES

- Different voltages and frequencies.
- Different materials for the mechanical seal and O-rings.

SPECIFICATIONS

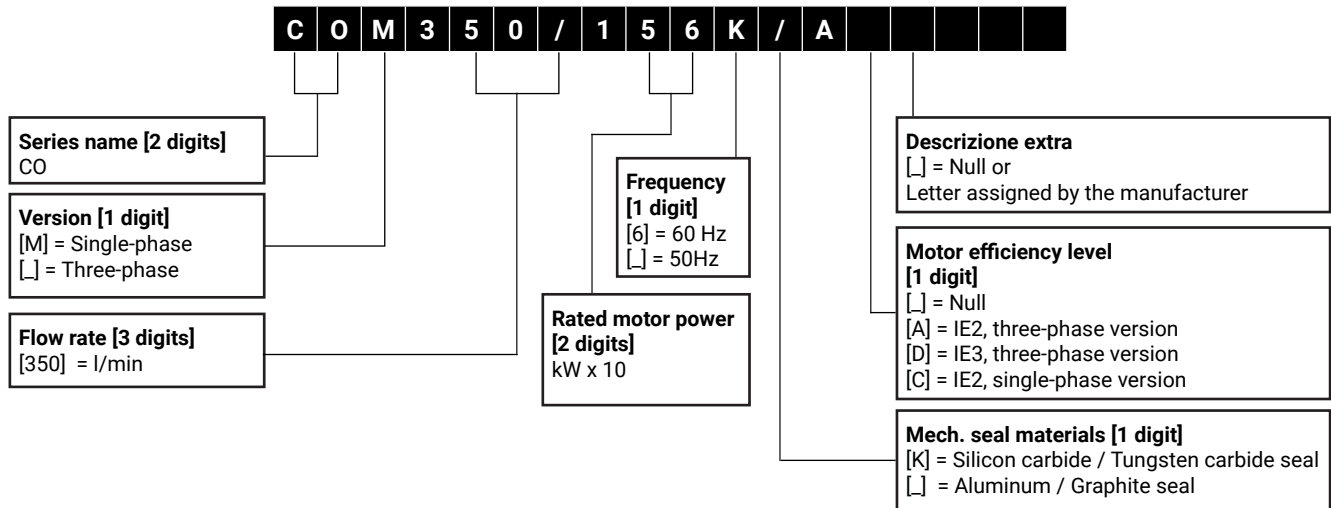
PUMP

- Delivery up to **54 m³/h**.
- Head up to **24 m**.
- Maximum ambient temperature: **45 °C**.
- Temperature of pumped liquid:
-10°C to +110°C for standard version.
- Maximum working pressure: **8 bar** (PN 8).
- Suspended solids handled up to:
CO350: **11 mm**. CO500: **20 mm**.
- Hydraulic performance compliant with ISO 9906:2012
- Grade 3B. (ex ISO 9906:1999 - Annex A).

MOTOR

- Asynchronous, squirrel cage rotor, close construction, external ventilation.
- Protection class: **IP55**.
- **Class 155 (F)** Insulation
- Performance to EN 60034-1 specifications.
- **Standard voltage:**
- Single-phase version: 220-240 V, 50 Hz
- Three-phase version: 220-240/380-415 V, 50 Hz.
- Condensate drain plugs in the standard version.

IDENTIFICATION CODE

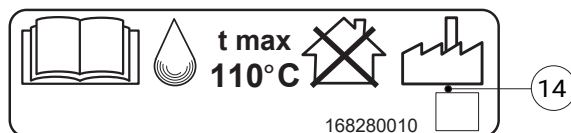
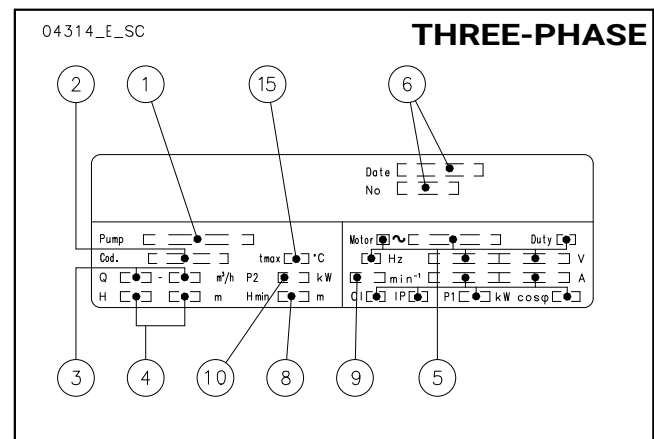
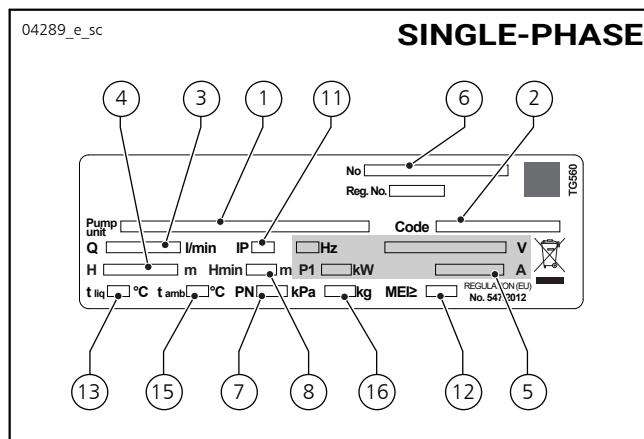


EXAMPLE :

COM 350/156K

CO series electric pump, single-phase, flow rate 350 l/min, rated power 1,5 kW, 60 Hz version, Silicon Carbide/ Tungsten Carbide seal.

RATING PLATE



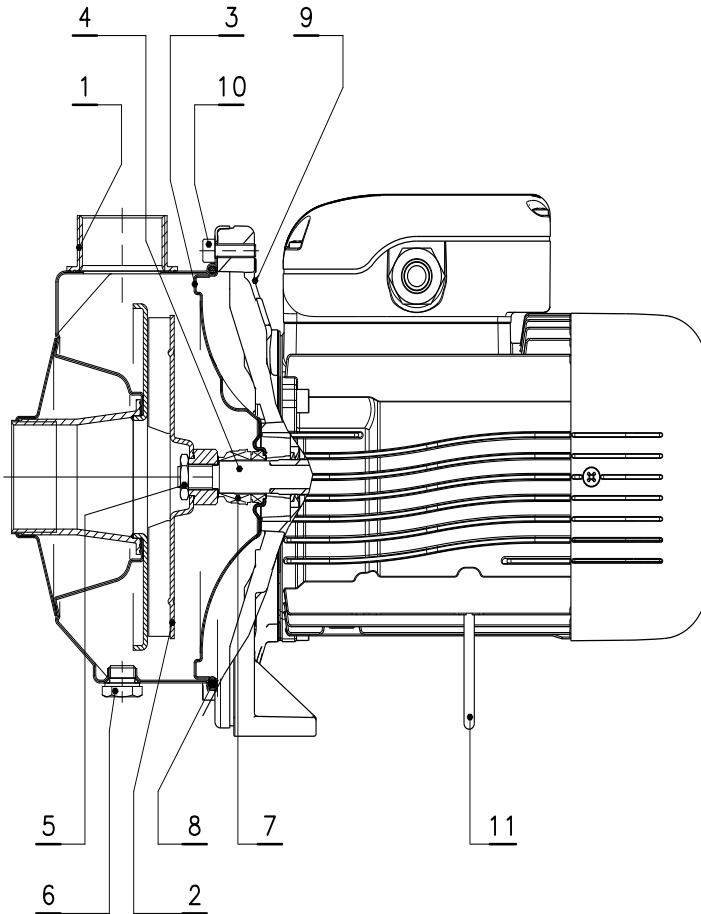
LEGEND

- 1 - Electric pump unit type
- 2 - Electric pump unit code
- 3 - Flow range
- 4 - Head range
- 5 - Electrical data
- 6 - Serial number (data + order number)
- 7 - Maximum operating pressure
- 8 - Minimum head (EN 60335-2-41)
- 9 - Speed

- 10 - Nominal rated power
- 11 - Pump protection class
- 12 - Minimum efficiency index (MEI)
- 13 - Maximum operating liquid temperature (uses as EN 60335-2-41)
- 14 - Maximum operating liquid temperature (for use other than EN 60335-2-41)
- 15 - Maximum operating ambient temperature
- 16 - Weight

LIST OF MODELS AND TABLE OF MATERIALS

04309_B_DS



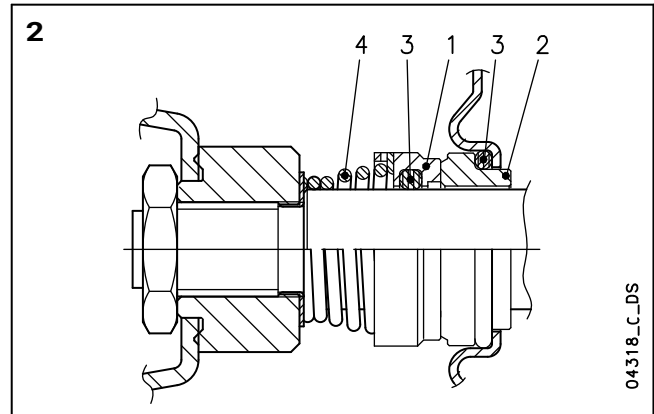
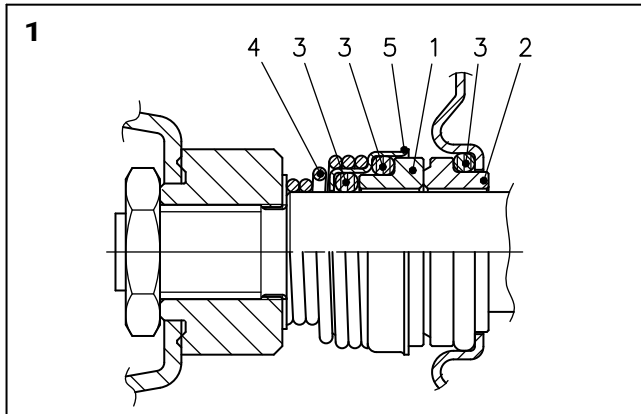
VERSIONS	
SINGLE-PHASE	THREE-PHASE
COM 350/03	CO 350/03
COM 350/05	CO 350/05
COM 350/07	CO 350/07
COM 350/09	CO 350/09
COM 350/11	CO 350/11
COM 350/15	CO 350/15
COM 500/15	CO 500/15
	CO 500/22
	CO 500/30

co-en_b_mo

REF. N.	NAME	MATERIAL	REFERENCE STANDARDS	
			EUROPE	USA
1	Pump body	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
2	Impeller	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
3	Seal housing	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
4	Shaft extension	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
5	Impeller locknut and washer	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
6	Fill/drain plugs	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
7	Mechanical seal	Ceramic / resin impregnated Carbon / FKM (standard version)		
8	Elastomers	FKM (standard version)		
9	Adapter	Aluminium	EN 1706-AC-AISI8Cu3 (Fe) (AC46200)	-
10	Pump body fastening bolts & screws	Galvanized steel		
11	Support foot	Galvanized steel		

co-en_b_tm

MECHANICAL SEAL



LIST OF MATERIALS

POSITION 1 - 2	POSITION 3	POSITION 4 - 5
B : Resin impregnated carbon	V : FKM (FPM)	G : AISI 316
C : Special resin impregnated carbon	E : EPDM	
V : Ceramic		
Q : Silicon Carbide		
U : Tungsten Carbide		

Fluoro-elastomer: FPM (old ISO), FKM (ASTM & new ISO).

co_ten-mec-en_d_tm

SEAL TYPES

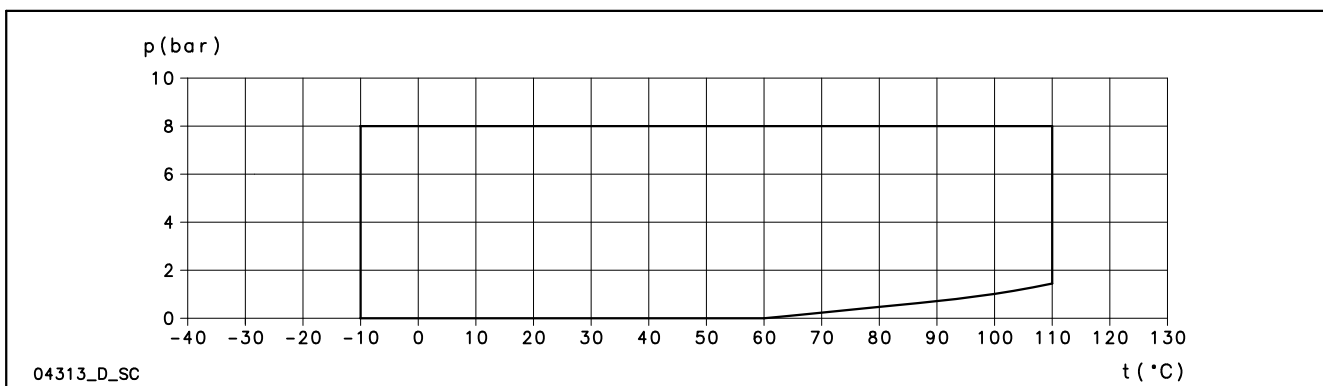
TYPE	REF N.	POSITION					TEMPERATURE (°C)*
		1	2	3	4	5	
		ROTATING ASSEMBLY	FIXED ASSEMBLY	ELASTOMERS	SPRINGS	OTHER COMPONENTS	
STANDARD MECHANICAL SEAL							
VBVGG	1	V	B	V	G	G	-10 +110
OTHER MECHANICAL SEAL TYPES							
UUVGG ¹	2	U	U	V	G	G	-10 +110
UQVGG ¹	2	U	Q	V	G	G	-10 +110
UQEGG	2	U	Q	E	G	G	-10 +110
QQVGG	1	Q	Q	V	G	G	-10 +110
QCVGG	1	Q	C	V	G	G	-10 +110

1) Long tail model with anti-rotation lockpin available on request.

co_tipi-ten-mec-en_d_tc

* FPM elastomer (V): for applications in water or aqueous solutions the maximum temperature limit is 80 °C.

COMPLETE PUMP PRESSURE / TEMPERATURE OPERATING LIMITS



MOTORS (ErP 2009/125/EC)

- Short-circuit squirrel-cage motor, enclosed construction with external ventilation (TEFC).
- **IP55** protection degree.
- Insulation class **155 (F)**.
- Electrical performances according to EN 60034-1.
- Supplied **single-phase** surface motors with **IE2** efficiency level
- Supplied **three-phase** surface motors with **IE2** efficiency level (power < 0,75 kW) or **IE3** efficiency level (power ≥ 0,75 kW) as standard according to EN 60034-30:2009 and EN 60034-30-1:2014.
- Metric cable gland according to EN 50262.
- **Single-phase** version:
0,40 to 1,5 kW (2-pole)
220-240 V 50 Hz
Built-in automatic reset overload protection
Maximum ambient temperature: 45 °C.
- **Three-phase** version:
0,40 to 3 kW (2-pole)
220-240/380-415 V 50 Hz
Overload protection to be provided by the user.
Maximum ambient temperature: 40 °C.

From 1 July 2023 in accordance with the **Regulations (EU) 2019/1781 and 2021/341**, the three-phase 50 Hz, 60 Hz or 50/60 Hz **surface motors** with **power outputs ranging from 0,12 to 0,749 kW** must have a minimum level **IE2** efficiency; the ones with power outputs ranging from **0,75 and 74,9 kW** must have a minimum level of **IE3** efficiency. The single-phase **surface motors** with **power outputs ranging from 0,12 kW** must have a minimum level **IE2** efficiency.

The following tables also contain the mandatory information pursuant to Annex I, section 2, of the aforementioned Regulations.

SINGLE-PHASE MOTORS AT 50 Hz, 2 POLES

P _N kW	MOTOR TYPE	IEC SIZE	Construction Design	INPUT CURRENT I _n (A) 220-240 V	CAPACITOR		DATA FOR 230 V 50 Hz VOLTAGE							Operating conditions **		
					μF	V	min ⁻¹	I _s / I _n	η %	cosφ	T _n Nm	T _s /T _n	T _m /T _n	Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
0,40	SM63BG/1045	63	SPECIAL	2,52-2,41	16	450	2800	3,24	70,4	0,99	1,36	0,66	1,98	≤ 1000	-15 / 45	No
0,55	SM71BG/1055	71		3,33-3,19	16	450	2810	4,16	74,1	0,99	1,87	0,69	2,13			
0,75	SM80BG/1075	80		4,38-4,27	25	450	2865	5,11	77,4	0,97	2,50	0,40	2,26			
1,1	SM80BG/1115	80		6,26-5,93	30	450	2860	4,78	79,6	0,98	3,67	0,50	2,14			
1,5	PLM90BG/1155	90		8,41-7,87	50	450	2890	6,71	81,3	0,97	4,95	0,59	2,78			

** Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

co-motm-2p50-en_b_te

THREE-PHASE MOTORS AT 50 Hz, 2 POLES

P _N kW	Model	IEC SIZE	Construction Design	N. of Poles	f _N Hz	Data for 400 V / 50 Hz Voltage				
						cosφ	I _s / I _N	T _N Nm	T _s /T _N	T _m /T _N
0,4	SM63BG/304	63	SPECIALE	2	50	0,64	4,35	1,37	4,14	4,10
0,55	SM71BG/305	71				0,71	6,25	1,84	3,96	3,97
0,75	SM80BG/307 PE	80				0,78	7,38	2,48	3,57	3,75
0,95	SM80BG/311 PE	80				0,79	8,31	3,63	3,95	3,95
1,1	SM80BG/311 PE	80				0,79	8,31	3,63	3,95	3,95
1,5	SM80BG/315 PE	80				0,80	8,8	4,96	4,31	4,10
2,2	PLM90BG/322 E3	90				0,80	8,77	7,28	3,72	3,70
3	PLM90BG/330 E3	90				0,79	7,81	9,93	4,26	3,94

P _N kW	Voltage U _N V											n _N min ⁻¹	Operating conditions **		
	Δ			Y			Δ			Y			Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V	690 V				
	I _N (A)														
0,4	2,03	2,18	2,32	1,17	1,26	1,34	-	-	-	-	-	2745 ÷ 2800	≤ 1000	-15 / 40	No
0,55	2,46	2,49	2,56	1,43	1,44	1,48	-	-	-	-	-	2835 ÷ 2865			
0,75	2,96	2,94	2,96	1,71	1,70	1,71	1,70	1,69	1,70	0,98	0,98	2875 ÷ 2895			
0,95	4,19	4,14	4,16	2,42	2,39	2,40	2,41	2,38	2,38	1,39	1,37	2870 ÷ 2900			
1,1	4,19	4,14	4,16	2,42	2,39	2,40	2,41	2,38	2,38	1,39	1,37	2870 ÷ 2900			
1,5	5,56	5,49	5,51	3,21	3,17	3,18	3,21	3,18	3,19	1,85	1,84	2870 ÷ 2895			
2,2	7,97	7,90	7,98	4,60	4,56	4,61	4,57	4,54	4,57	2,64	2,62	2880 ÷ 2900			
3	11,0	11,0	11,2	6,35	6,33	6,44	6,29	6,27	6,34	3,63	3,62	2865 ÷ 2895			

P _N kW	Efficiency η_N																		IE
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 240 V Y 415 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V			
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	
0,4	70,4	73,2	68,9	70,4	70,3	64,5	70,4	67,2	60,2	-	-	-	-	-	-	-	-	-	2
0,55	74,1	74,2	70,4	74,1	73,6	68,8	74,1	72,7	67,1	-	-	-	-	-	-	-	-	-	
0,75	82,5	83,1	81,3	82,8	82,7	80,1	82,6	82,0	78,9	82,5	82,0	78,9	82,5	82,0	78,9	82,5	82,0	78,9	3
0,95	84,0	84,7	83,4	84,4	84,5	82,5	84,3	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	
1,1	84,0	84,7	83,4	84,4	84,5	82,5	84,3	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	84,0	84,0	81,4	
1,5	85,6	86,5	85,8	85,9	86,4	84,9	86,0	86,0	84,0	85,6	86,0	84,0	85,6	86,0	84,0	85,6	86,0	84,0	
2,2	86,5	87,4	86,8	86,4	86,9	85,7	86,6	86,7	85,0	86,4	86,7	85,0	86,4	86,7	85,0	86,4	86,7	85,0	
3	87,2	88,5	88,3	87,5	88,2	87,5	87,5	87,8	86,4	87,2	87,8	86,4	87,2	87,8	86,4	87,2	87,8	86,4	

** Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

co-ie3-mott-2p50-en_c_te

AVAILABLE VOLTAGES

SINGLE-PHASE	50 Hz	60 Hz
PN kW	1 x 220-240	1 x 220-230
0,40	s	-
0,55	s	s
0,75	s	s
1,1	s	-
1,5	s	-

THREE-PHASE	50 Hz			60 Hz				50/60 Hz	
PN kW	3 x 220-230-240/380-400-415	3 x 380-400-415/660-690	3 x 440-460/-	3 x 220-230/380-400	3 x 255-265-277/440-460-480	3 x 380-400/660-690	3 x 440-460-480/-	3 x 230/400 50 Hz 3 x 265/460 60 Hz	3 x 400/690 50 Hz 3 x 460/- 60 Hz
0,40	s	o	o	s	o	o	o	o	o
0,55	s	o	o	s	o	o	o	o	o
0,75	s	o	o	s	o	o	o	o	o
1,1	s	o	o	s	o	o	o	o	o
1,5	s	o	o	s	o	o	o	o	o
2,2	s	o	o	s	o	o	o	o	o
3	s	o	o	s	o	o	o	o	o

s = Standard voltage

o = voltage upon request

cea-volt-lowa-en_e_te

Please contact the sales network to check other available voltages.

Tolerances on nominal voltages
• 50 Hz:

± 10% on the single voltage value shown on the rating plate.
± 5% on voltage range shown on the rating plate.

• 60 Hz:

± 10% on the voltage values shown on the rating plate.

HYDRAULIC PERFORMANCE RANGE AT 50 Hz, 2 POLES

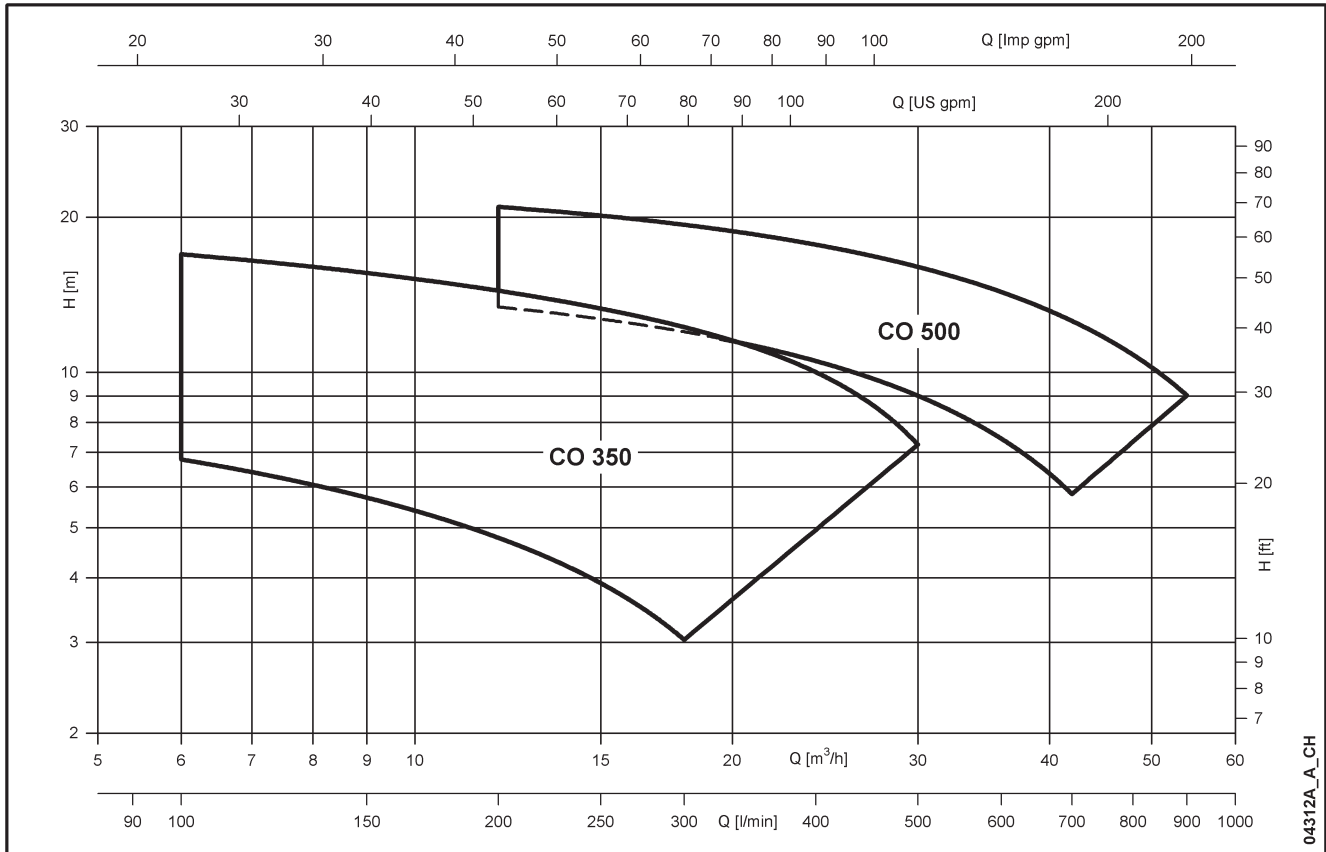


TABLE OF PERFORMANCES AT 50 Hz, 2 POLES

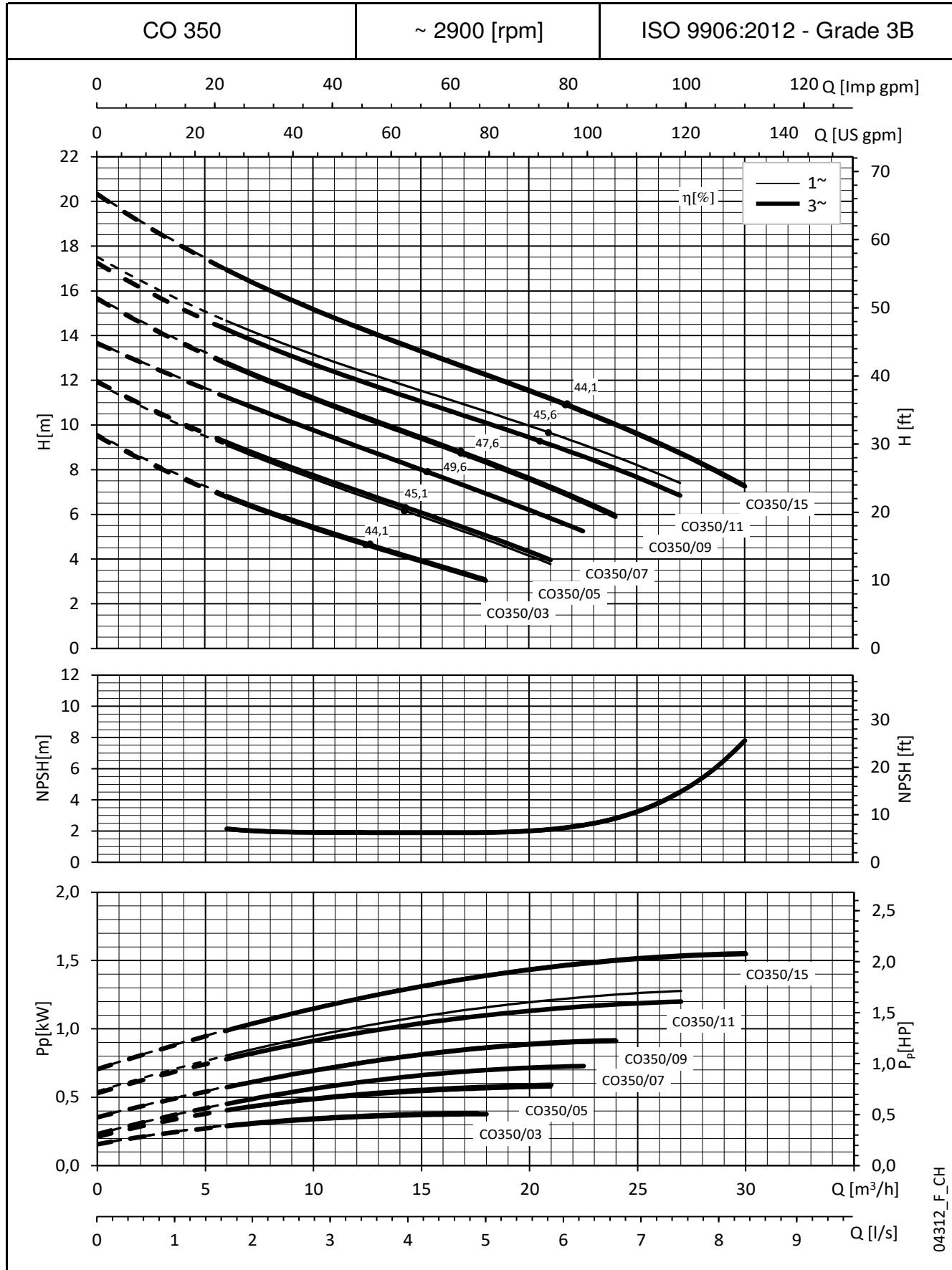
PUMP TYPE	VERSION	MOTOR		ELECTIC PUMP			Q = DELIVERY											
		P _N kW	TYPE	* P ₁ kW	* I 220-240 V	CAPACITOR μF / 450 V	l/min 0	100	200	250	300	350	400	450	500	600	700	
					m3/h 0		6,0	12,0	15,0	18,0	21,0	24,0	27,0	30,0	36,0	42,0		
					H = TOTAL HEAD IN METRES OF COLUMN OF WATER													
COM 350/03	1 ~	0,40	SM63BG/1045	0,56	2,39	16	9,5	6,8	4,8	3,9	3,0							
COM 350/05		0,55	SM71BG/1055	0,79	3,41	16	12,0	9,2	7,1	6,1	5,1	4,0						
COM 350/07		0,75	SM80BG/1075	0,96	4,22	25	13,7	11,2	9,1	8,0	6,9	5,8						
COM 350/09		1,1	SM80BG/1115	1,19	5,23	30	15,7	12,7	10,5	9,4	8,3	7,2	5,9					
COM 350/11		1,1	SM80BG/1115	1,59	7,23	30	17,3	14,3	12,0	11,1	10,1	9,1	8,0	6,8				
COM 350/15		1,5	PLM90CEA-CO/1155	1,91	8,65	50	20,3	16,9	14,4	13,3	12,2	11,2	10,0	8,7	7,2			
COM 500/15		1,5	PLM90CEA-CO/1155	1,87	8,48	50	16,0		13,4	12,7	12,0	11,3	10,5	9,8	9,0	7,4	5,8	

PUMP TYPE	VERSION	MOTOR		ELECTIC PUMP			Q = DELIVERY											
		P _N kW	TYPE	* P ₁ kW	* I		l/min 0 m3/h 0	100 6,0	150 9,0	250 15,0	350 21,0	450 27,0	550 33,0	650 39,0	750 45,0	850 51,0	900 54,0	
					220-240 V	380-415 V												
					H = TOTAL HEAD IN METRES OF COLUMN OF WATER													
CO 350/03	3 ~	0,40	SM63BG/304	0,64	2,53	1,46	9,5	6,8	5,7	3,9								
CO 350/05		0,55	SM71BG/305	0,79	2,70	1,56	12,0	9,2	8,1	6,1	4,0							
CO 350/07		0,75	SM80BG/307PE	0,92	2,96	1,71	13,7	11,2	10,1	8,0	5,8							
CO 350/09		0,95	SM80BG/311PE	1,08	3,72	2,15	15,7	12,7	11,5	9,4	7,2							
CO 350/11		1,1	SM80BG/311PE	1,61	4,87	2,81	17,3	14,3	13,1	11,1	9,1	6,8						
CO 350/15		1,5	SM80BG/315PE	1,87	5,75	3,32	20,3	16,9	15,6	13,3	11,2	8,7						
CO 500/15		1,5	SM80BG/315PE	1,84	5,70	3,29	16,0			12,7	11,3	9,8	8,2	6,6				
CO 500/22		2,2	PLM90BG/322E3	2,66	8,27	4,78	19,6			16,6	15,2	13,7	12,1	10,4	8,6			
CO 500/30		3	PLM90BG/330E3	3,80	11,4	6,57	24,1			20,1	18,5	16,9	15,2	13,5	11,7	9,9	9,0	

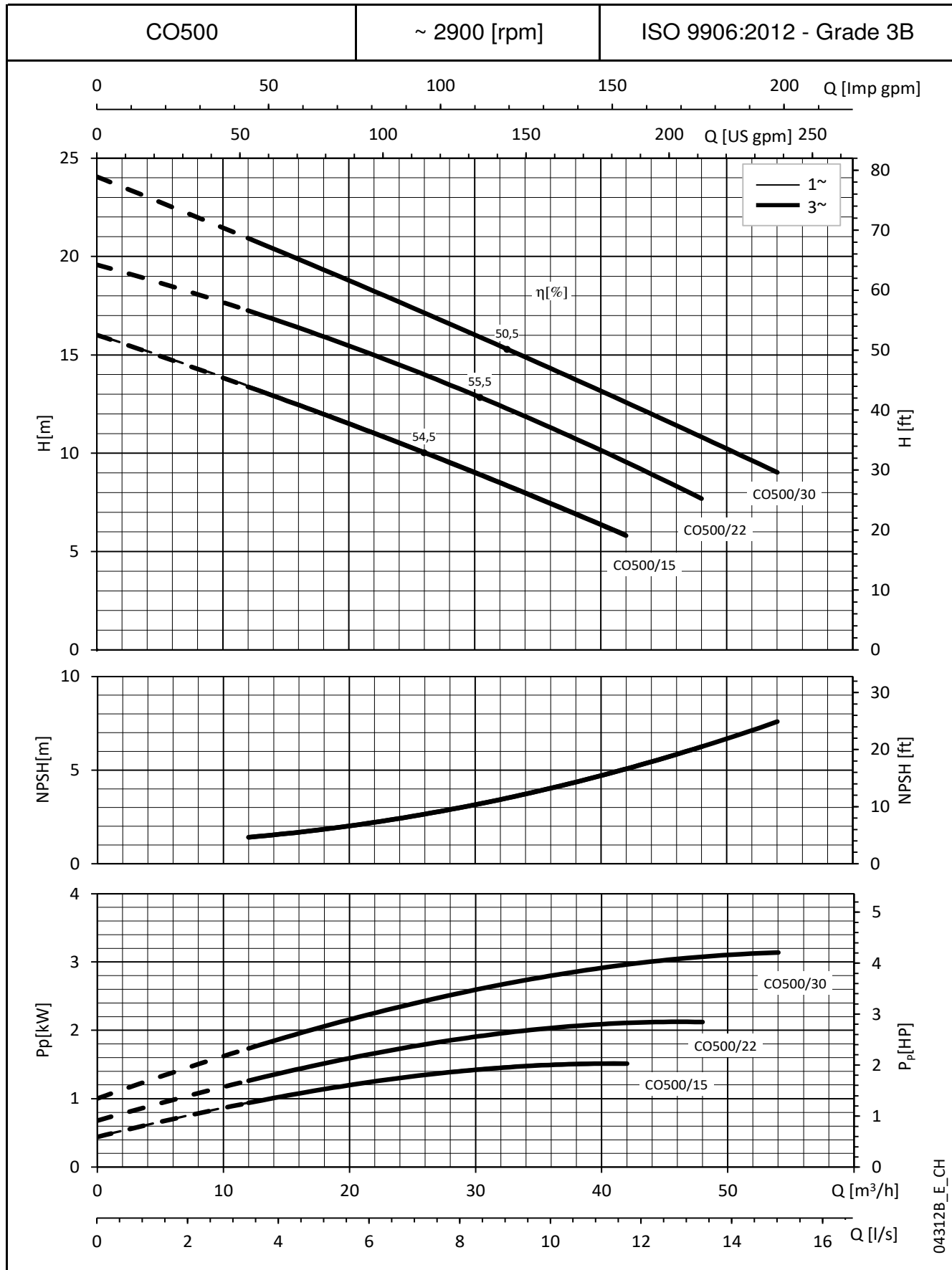
Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

co-2p50-en_e_th

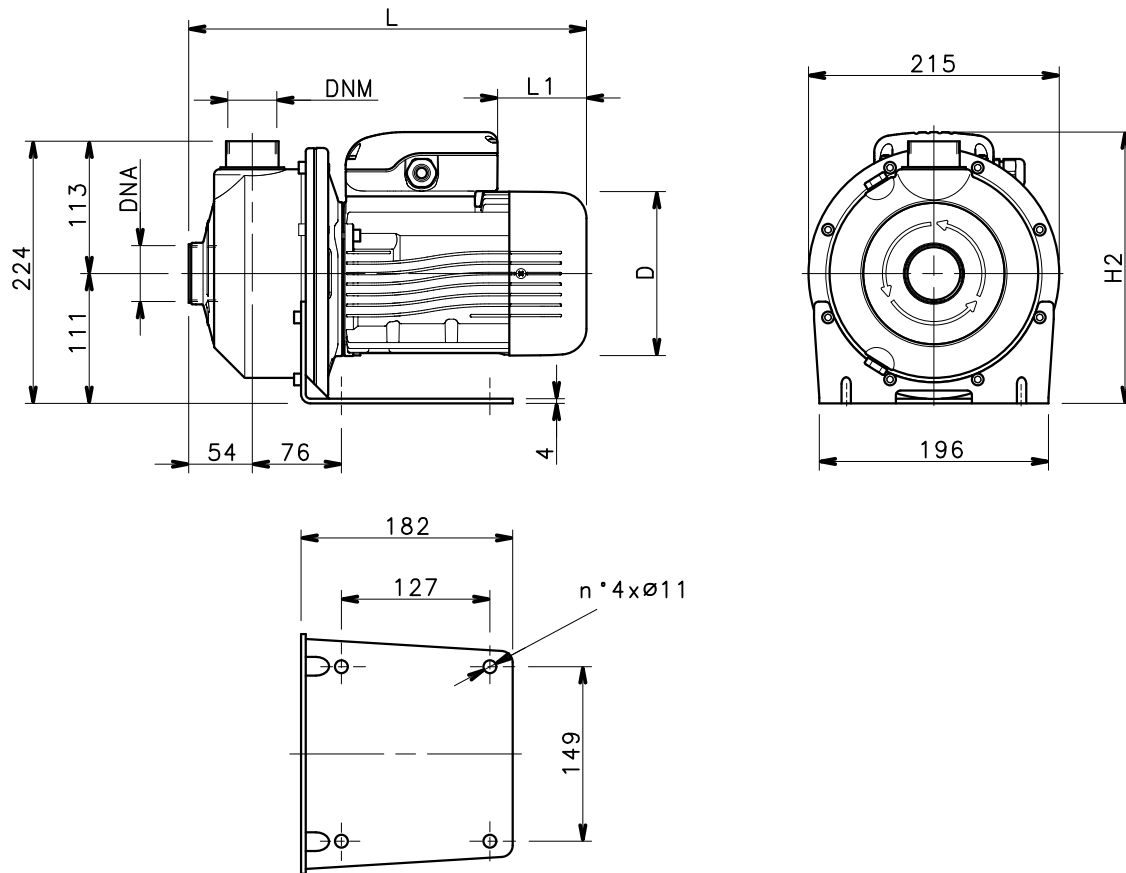
* Maximum value in specified range: P₁ = input power; I = input current.

OPERATING CHARACTERISTICS AT 50 Hz , 2 POLES


The NPSH values are laboratory values: for practical use we suggest increasing these values by 0,5 m.
 These performances are valid for liquids with density $\rho = 1.0 \text{ kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

OPERATING CHARACTERISTICS AT 50 Hz, 2 POLES


The NPSH values are laboratory values: for practical use we suggest increasing these values by 0,5 m.
 These performances are valid for liquids with density $\rho = 1.0 \text{ kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

DIMENSIONS AND WEIGHTS AT 50 Hz, 2 POLES


04311B_C_DD

PUMP TYPE	DIMENSIONS (mm)					DNA	DNM	WEIGHT kg
	D	H2	L	L1	L2			
COM 350/03/C	120	222	325	62	115	Rp 1½	Rp 1¼	9
COM 350/05/C	140	232	339	76	117	Rp 1½	Rp 1¼	11
COM 350/07/C	156	248	385	69	150	Rp 1½	Rp 1¼	14
COM 350/09/C	156	248	385	69	150	Rp 1½	Rp 1¼	14
COM 350/11/C	174	270	429	57	197	Rp 1½	Rp 1¼	22
COM 350/15/C	174	270	429	57	197	Rp 1½	Rp 1¼	23
COM 500/15/C	174	270	429	57	197	Rp 2	Rp 1½	23
CO 350/03/A	120	222	325	62	115	Rp 1½	Rp 1¼	9
CO 350/05/A	140	232	339	76	117	Rp 1½	Rp 1¼	11
CO 350/07/D	155	240	385	114	150	Rp 1½	Rp 1¼	13
CO 350/09/D	155	240	385	114	150	Rp 1½	Rp 1¼	15
CO 350/11/D	155	240	385	114	150	Rp 1½	Rp 1¼	15
CO 350/15/D	155	240	385	114	150	Rp 1½	Rp 1¼	17
CO 500/15/D	155	240	385	114	150	Rp 2	Rp 1½	17
CO 500/22/D	174	245	429	172	197	Rp 2	Rp 1½	22
CO 500/30/D	174	245	429	172	197	Rp 2	Rp 1½	24

co-2p50-en_h_td