



The Calpeda 4", 6", 8" and 10" submersible motors are built using advanced technology and components of superior quality that they ensure good mechanical strength and excellent electrical reliability.

The good performances are guaranteed thanks to strict tests of all the different components during the various production phases.

### Rewindable motor CS series

The **CS** 6/8/10" motors are in a water bath with the wire being coated with polyvinyl chloride, while the **CS** 4" motors have a special food grade dielectric fluid that gives a better lubricant effect, increasing the life of all moving parts and the copper wires.

The special design of all our motors allows easy access to the various components, simplifying maintenance and repair. All the **CS** motors can be rewound and they are NEMA STANDARD.

Standard construction.  
AISI 316 construction.

### Encapsulated motor FK series

The **FK** motors, manufactured to ISO 9001 standards feature an hermetically sealed stator, where the self healing stator resin prevents motor burn out.

They are designed for high electrical efficiency, low cost, and non contaminating water-filled design.

Water lubricated thrust and radial bearings allow a maintenance free operation. A special diaphragm ensures pressure compensation inside the motor.

For facilitating the connection, removable "Water Bloc" lead connector is used and for increasing the performance in sand the FK 6/8" have a sand fighter with SiC-Mechanical Seal.

Standard construction.  
AISI 316 construction.

kW	4" 1 ~		4" 3 ~			6" 3 ~				8" 3 ~				10" 3 ~		kW
	CS	FK	CS	FK	I-FK 316	CS	I-CS 316	FK	I-FK 316	CS	I-CS 316	FK	I-FK 316	CS	I-CS 316	
0,37	●	●	●	●	●											0,37
0,55	●	●	●	●	●											0,55
0,75	●	●	●	●	●											0,75
1,1	●	●	●	●	●											1,1
1,5	●	●	●	●	●											1,5
2,2	●	●	●	●	●											2,2
3			●	●	●											3
4			●	●	●	●	●	●	●							4
5,5			●	●	●	●	●	●	●							5,5
7,5				●	●	●	●	●	●							7,5
9,2						●	●	●	●							9,2
11						●	●	●	●							11
13						●	●	●	●							13
15						●	●	●	●							15
18,5						●	●	●	●							18,5
22						●	●	●	●							22
26																26
30						●	●	●	●	●	●	●	●			30
37										●	●	●	●			37
45										●	●	●	●			45
51-52										●	●	●	●			51-52
55										●	●	●	●			55
59-60										●	●	●	●			59-60
66-67										●	●	●	●			66-67
75										●	●	●	●			75
82-85										●	●	●	●	●	●	82-85
92-93										●	●	●	●	●	●	92-93
110														●	●	110
130														●	●	130
150														●	●	150
185														●	●	185

● Rewindable motor CS series

● Encapsulated motor FK series

## Rewindable motor CS series

### Operating conditions

Motor	Max. Liquid temperature	Cooling minimum flow velocity	Max. starts per hour
4"	35 °C	0,08 m/s	20
6"	25 °C	0,20 m/s for 4 ÷ 15 kW 0,50 m/s for 18,5 ÷ 30 kW	15
8"	25 °C	0,20 m/s for 30 ÷ 51 kW 0,50 m/s for 55 ÷ 92 kW	15
10"	25 °C	0,50 m/s	10

Continuous duty.

### Operation data

2-pole induction motor, 50 Hz (n = 2900 rpm).  
Sized for connection to the pumps according to NEMA Standards.

Standard voltages:

- single-phase 230 V - up to 2,2 kW for 4" motors.
- three-phase 230 V; 400 V for 4" motors.
- three-phase 400 V; 400/690 V for 6"-8"-10" motors.

Voltage tolerance : +6% / -10%.

In order to limit both current and torque at each starting, for rated motor powers equal to or higher than 7.5kW, one of the following types of starting is necessary: star/delta, soft starter, stator impedance or autotransformer.

Insulation class F for 4" motors, PVC coated wire for 6"-8"-10" motors.  
Protection IP 68.

### Cable

Motor 230V - 50Hz - 1~	Section	Length
4CS 0,37 ÷ 1,5 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	2 m
4CS 2,2 kW	3x2 + 1G2 mm <sup>2</sup>	2 m

Motor 400V - 50Hz - 3 ~	Section	Length
4CS 0,37 ÷ 1,5 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	2 m
4CS 2,2 ÷ 5,5 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	3 m
6CS 4 ÷ 22 kW	3 x (1x4) mm <sup>2</sup>	3,5 m
6CS 26 - 30 kW	3 x (1x6) mm <sup>2</sup>	3,5 m
I-6CS 4 ÷ 13 kW	4G2,5 mm <sup>2</sup>	4 m
I-6CS 26 - 30 kW	4G6 mm <sup>2</sup>	4 m
I-6CS 37 kW	3x10 + 1G10 mm <sup>2</sup>	4 m
8CS 30 kW	3 x (1x6) mm <sup>2</sup>	4 m
8CS 37 ÷ 59 kW	3 x (1x16) mm <sup>2</sup>	4 m
8CS 66 - 75 kW	3 x (1x25) mm <sup>2</sup>	4 m
8CS 92 kW	3 x (1x35) mm <sup>2</sup>	4 m
I-8CS 30 ÷ 45 kW	4G10 mm <sup>2</sup>	4 m
I-8CS 52 ÷ 60 kW	4G16 mm <sup>2</sup>	4 m
I-8CS 67 ÷ 93 kW	3 x 25 mm <sup>2</sup>	4 m
10CS 85-130 kW	3 x 50 mm <sup>2</sup>	6 m

Motor 400/690V - 50Hz - 3 ~ Y/Δ	Section	Length
10CS 150-185 kW	3 x 50 mm <sup>2</sup>	6 m

### Materiales

Components	4" standard	-
External frame	Cr-Ni steel AISI 304	-
Motor flange	Brass or Cast iron	-
Shaft end	Cr-Ni-Mo steel AISI 316	-
Thrust bearing	Oil wetted	-
Components	6", 8", 10" standard	6", 8", 10" AISI 316
External frame	AISI 304 (AISI 316Ti for 10")	Cr-Ni-Mo steel AISI 316 Ti
Motor flange	Cast iron GJL 200 EN 1561	Cr-Ni-Mo steel AISI 316
Shaft end	Hardened and tempered AISI 420 (AISI 329 for 10")	Cr-Ni-Mo steel AISI 329
Thrust bearing	Oscillating pads	Oscillating pads
Bushings	Graphite (Bronze for 8" motor of 51-59-66 kW)	Graphite

### Special features on request

- Other voltage.
- Frequency 60 Hz.
- Operation with frequency converter.
- Higher liquid temperature.

## Encapsulated motor FK series

### Operating conditions

Motor	Max. Liquid temperature	Cooling minimum flow velocity	Max. starts per hour
4"	30 °C	0,08 m/s	20
6"	30 °C for 4 ÷ 30 kW 50 °C for 37 ÷ 45 kW	0,16 m/s	20
8"	30 °C	0,16 m/s	20

Continuous duty.

### Operation data

2-pole induction motor, 50 Hz (n = 2900 rpm).  
Sized for connection to the pumps according to NEMA Standards.

Standard voltages:

- single-phase 230 V - up to 2,2 kW for 4" motors.
- three-phase 230 V; 400 V for 4" motors.
- three-phase 400 V; 400/690 V for 6"-8" motors.

Voltage tolerance : +6% / -10%.

In order to limit both current and torque at each starting, for rated motor powers equal to or higher than 7.5kW, one of the following types of starting is necessary: star/delta, soft starter, stator impedance or autotransformer.

Insulation class B for 4" motors, class F for 6"-8" motors.

Protection IP 68.

Operation with frequency converter.

### Cable

Motor 230V - 50Hz - 1~	Section	Length
4FK 0,37 ÷ 2,2 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	1,5 m

Motor 400V - 50Hz - 3 ~	Section	Length
4FK 0,37 ÷ 1,5 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	1,5 m
4FK 2,2 ÷ 5,5 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	2,5 m
6FK 4 ÷ 22 kW	4 G 4 mm <sup>2</sup>	4 m
6FK 30 - 45 kW	3x8,4 + 1G8,4 mm <sup>2</sup>	4 m
8FK 30 ÷ 45 kW	3 x (1x8,4) mm <sup>2</sup>	8 m
8FK 55 ÷ 93 kW	3 x (1x16) mm <sup>2</sup>	8 m
8FK 110 ÷ 150 kW	3 x (1x35) mm <sup>2</sup>	8 m

Motor 230V - 50Hz - 1~	Section	Length
I-4FK 0,37 ÷ 2,2 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	1,5 m

Motor 400V - 50Hz - 3 ~	Section	Length
I-4FK 0,37 ÷ 1,5 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	1,5 m
I-4FK 2,2 ÷ 5,5 kW	3x1,5 + 1G1,5 mm <sup>2</sup>	2,5 m
I-6FK 4 ÷ 22 kW	4 G 4 mm <sup>2</sup>	4 m
I-6FK 30 - 45 kW	3x8,4 + 1G8,4 mm <sup>2</sup>	4 m
I-8FK 30 ÷ 45 kW	3 x (1x8,4) mm <sup>2</sup>	8 m
I-8FK 55 ÷ 93 kW	3 x (1x16) mm <sup>2</sup>	8 m
I-8FK 110 ÷ 150 kW	3 x (1x35) mm <sup>2</sup>	8 m

### Materiales

Components	4" standard	4" AISI 316
External frame	Cr-Ni steel AISI 304	Cr-Ni-Mo steel AISI 316Ti
Motor flange	Cr-Ni steel AISI 304	Cr-Ni-Mo steel AISI 316L
Shaft end	Cr-Ni steel AISI 303	Cr-Ni-Mo steel AISI 329
Thrust bearing	Oscillating pads	Oscillating pads
Components	6", 8" standard	6", 8" AISI 316
External frame	Cr-Ni steel AISI 304	Cr-Ni-Mo steel AISI 316 Ti
Supports	Cast iron GJL 200 EN 1561	Cr-Ni-Mo steel AISI 316
Shaft end	Cr-Ni steel AISI 304 (AISI 303 for 8")	Cr-Ni-Mo steel AISI 316 (AISI 630 for 8")
Thrust bearing	Oscillating pads	Oscillating pads

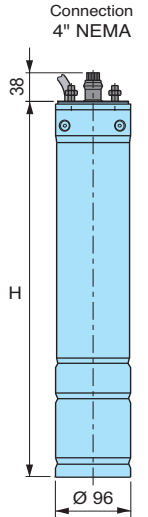
### Special features on request

- Other voltage.
- Frequency 60 Hz.
- Higher liquid temperature.

Performance, dimensions and weights

4" CS - 1 ~

Type	PN		IN 230 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Capacitor 450 Vc μF	Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN				
4CS 0,37M	0,37	0,5	3,2	0,93	0,90	0,84	54	47	37	≈ 2850	3,5	0,55	16	1500	327	7,7
4CS 0,55M	0,55	0,75	4,7	0,92	0,88	0,82	56	52	41		3,7	0,60	25		347	8,7
4CS 0,75M	0,75	1	5,8	0,94	0,90	0,84	61	54,5	44		4	0,55	30		377	9,9
4CS 1,1M	1,1	1,5	8,3	0,94	0,88	0,79	64	57	47		3,8	0,55	40		407	11,3
4CS 1,5M	1,5	2	12,5	0,90	0,80	0,70	64	54	43		3,8	0,56	50		467	13,6
4CS 2,2M	2,2	3	15,1	0,96	0,93	0,85	68	63	54		3,1	0,58	70		517	16,7

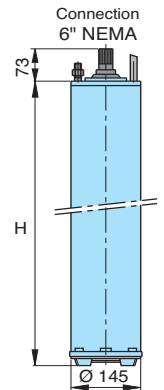


4" CS - 3 ~

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN			
4CS 0,37T	0,37	0,5	1,45	0,65	0,56	0,47	59	53	44	≈ 2850	4,8	4,8	1500	327	7,7
4CS 0,55T	0,55	0,75	1,7	0,77	0,68	0,56	63	61	53		4,1	3,2		327	7,7
4CS 0,75T	0,75	1	2,2	0,79	0,68	0,56	64	63	57		4,1	3,1		347	8,7
4CS 1,1T	1,1	1,5	3	0,79	0,69	0,55	68	67	61		4,5	3,3		377	9,7
4CS 1,5T	1,5	2	4,2	0,78	0,68	0,54	68	67	63		4,2	3,2		407	11,3
4CS 2,2T	2,2	3	6	0,72	0,63	0,50	73	73	68		5,2	3,7		507	15
4CS 3T	3	4	7,4	0,81	0,72	0,56	73,5	73,5	69		5,7	2,16	473	15,1	
4CS 4T	4	5,5	9,4	0,82	0,74	0,60	74,5	75	71		6,3	2,19	538	18,1	
4CS 5,5T	5,5	7,5	13	0,81	0,72	0,57	76	76	71		7,8	3,44	638	22,5	

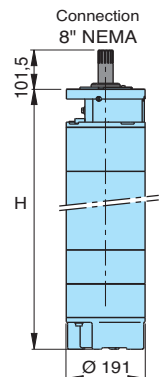
6" CS

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN			
6CS 4	4	5,5	11	0,78	0,71	0,61	70	67	60	≈ 2850	4,9	2	20000	530	40
6CS 5,5	5,5	7,5	13,5	0,83	0,79	0,69	72	70	66		4	1,45		530	40
6CS 7,5	7,5	10	18	0,83	0,79	0,69	72	70	66		4,1	1,5		580	45
6CS 9,2	9,2	12,5	21	0,83	0,78	0,68	75	74	70		5	1,7		630	50
6CS 11	11	15	25,5	0,82	0,76	0,65	76	76	74		5,4	2		680	55
6CS 13	13	17,5	29,5	0,79	0,72	0,59	81	81	79		6,2	2,5		780	65
6CS 15	15	20	33	0,81	0,74	0,62	81	82	80		5,6	2,2		780	65
6CS 18,5	18,5	25	40	0,82	0,76	0,63	82	82	81		5,6	2,2		830	70
6CS 22	22	30	48,5	0,80	0,72	0,60	83	82	79		6	2,7		930	80
6CS 26	26	35	58	0,80	0,75	0,64	82	83	80		5,8	2,3		1030	90
6CS 30	30	40	63	0,83	0,76	0,64	83	84	82	5,6	2,1	1130	100		



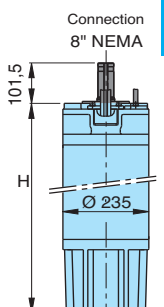
8" CS

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN			
8CS 30	30	40	61	0,82	0,74	0,62	85	85	84	≈ 2900	5,3	1,4	30000	1056	141
8CS 37	37	50	74	0,85	0,82	0,72	84	85	83		5,1	1,25		1156	161
8CS 45	45	60	91	0,82	0,77	0,67	87	87	85		5,8	1,7		1236	177
8CS 51	51	70	108	0,78	0,70	0,58	88	89	86		8	2		1376	205
8CS 55	55	75	114	0,80	0,72	0,60	88	89	87		7,6	1,91		1376	205
8CS 59	59	80	121	0,82	0,74	0,62	87	89	87		7,2	1,8		1376	205
8CS 66	66	90	136	0,80	0,73	0,63	88	86	84		7,8	2		1576	245
8CS 75	75	100	147	0,83	0,75	0,65	87	88	86		7,3	1,8		1576	245
8CS 92	92	125	186	0,83	0,78	0,66	88	89	87		7,5	1,89		1735	277



10" CS

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN			
10CS 85	85	115	174	0,85	0,81	0,72	85	85	83	≈ 2900	4,7	1,1	60000	1419	280
10CS 110	110	150	232	0,82	0,76	0,65	86	86	84		5	1,3		1529	315
10CS 130	130	175	256	0,86	0,82	0,74	88	88	87		5,3	1,3		1656	362
10CS 150	150	200	298	0,85	0,81	0,73	87	88	86		5,3	1,3		1769	413
10CS 185	185	250	384	0,81	0,75	0,64	88	88	86		5,6	1,7		1919	449

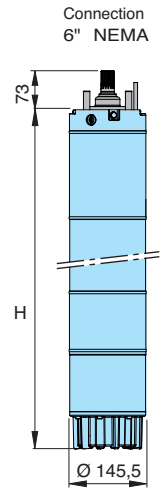


PN Rated power output      IN Rated current      I<sub>A</sub>/IN Starting current / Nominal current      C<sub>A</sub>/CN Starting torque/Nominal torque

### Performance, dimensions and weights

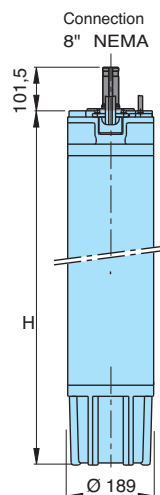
#### I-6CS

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			Direct start IA IN	CA CN	Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4					
I-6CS 4	4	5,5	10,6	0,73	0,65	0,53	76	73	68	4,81	1,32	15500	712	48
I-6CS 5,5	5,5	7,5	13,3	0,81	0,74	0,62	76	76	72	3,83	0,95		712	48
I-6CS 7,5	7,5	10	17,7	0,82	0,76	0,65	77	78	75	3,56	0,87		732	50
I-6CS 9,3	9,3	12,5	21,4	0,82	0,76	0,64	78	79	78	3,64	0,94		762	53
I-6CS 11	11	15	25,2	0,83	0,76	0,65	79	80	77	3,89	0,97		792	56
I-6CS 13	13	17,5	29,6	0,81	0,74	0,61	80	80	78	4,22	1,18		842	61
I-6CS 15	15	20	33,1	0,83	0,77	0,65	81	81	79	4,47	1,22		887	66
I-6CS 18,5	18,5	25	42,0	0,80	0,74	0,61	81	81	78	4,33	1,38		932	70
I-6CS 22	22	30	49,0	0,80	0,73	0,61	82	82	80	4,71	1,41		1022	79
I-6CS 26	26	35	56,7	0,83	0,74	0,61	83	83	81	5,01	1,57		1127	90
I-6CS 30	30	40	66,4	0,80	0,73	0,60	83	83	80	5,23	1,53	1227	100	
I-6CS 37	37	50	81,9	0,80	0,72	0,60	83	83	80	5,29	1,77	1307	107	



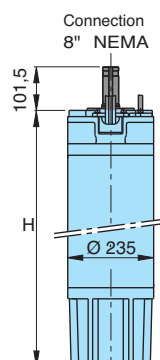
#### I-8CS

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			Direct start IA IN	CA CN	Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4					
I-8CS 30	30	40	60	0,89	0,86	0,80	84	85	84	5,3	1,42	45000	1140	140
I-8CS 37	37	50	76	0,86	0,82	0,74	85	85	84	5,26	1,44		1140	140
I-8CS 45	45	60	90	0,86	0,82	0,74	86	87	85	5,78	1,63		1230	156
I-8CS 52	52	70	103	0,87	0,84	0,76	86	87	86	5,9	1,82		1340	179
I-8CS 55	55	75	110	0,86	0,82	0,72	86	87	86	6	1,88		1340	179
I-8CS 60	60	80	116	0,88	0,84	0,77	87	88	87	6,25	1,81		1470	198
I-8CS 67	67	90	133	0,86	0,82	0,74	87	88	87	5,99	1,63		1470	198
I-8CS 75	75	100	148	0,87	0,83	0,74	87	87	86	6,36	1,92		1560	215
I-8CS 83	83	113	160	0,88	0,84	0,77	88	88	88	6,73	1,99		1560	247
I-8CS 92	92	125	183	0,86	0,81	0,71	88	88	87	6,97	2,05		1740	247



#### I-10CS

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			Direct start IA IN	CA CN	Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4					
I-10CS 85	85	115	174	0,85	0,81	0,72	85	85	83	4,7	1,13	60000	1419	280
I-10CS 110	110	150	232	0,82	0,76	0,65	86	86	84	5	1,3		1529	315
I-10CS 130	130	175	256	0,86	0,82	0,74	88	88	87	5,25	1,3		1656	362
I-10CS 150	150	200	298	0,85	0,81	0,73	87	88	86	5,33	1,3		1769	413
I-10CS 185	185	250	384	0,81	0,75	0,64	88	88	86	5,6	1,69		1919	449



PN Rated power output

IN Rated current

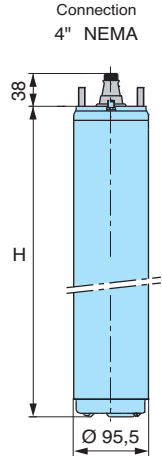
IA Starting current / Nominal current

CA Starting torque/Nominal torque

### Performance, dimensions and weights

#### 4FK - 1 ~

Type	PN		IN 230 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Capac. 450 Vc μF	Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN				
4FK 0,37M	0,37	0,5	3,3	0,91	0,85	0,78	54	46	35	2860	3,8	0,94	16	3000	228	8
4FK 0,55M	0,55	0,75	4,3	0,94	0,91	0,86	63	57	45	2850	4,1	0,86	20		253	9,2
4FK 0,75M	0,75	1	5,7	0,98	0,96	0,92	59	52	41	2845	4	1	35		282	10,4
4FK 1,1M	1,1	1,5	8,4	0,92	0,86	0,77	63	56	43	2845	4	0,84	40		307	11,8
4FK 1,5M	1,5	2	10,7	0,95	0,90	0,82	66	59	48	2830	3,9	0,76	50		339	12,9
4FK 2,2M	2,2	3	14,7	0,97	0,93	0,86	68	62	51	2840	4,2	0,74	70	4000	437	17,3

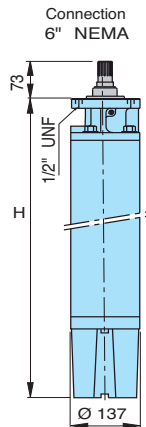


#### I-4FK, 4FK - 3 ~

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN			
I-4FK, 4FK 0,37T	0,37	0,5	1,1	0,74	0,66	0,55	66	63	54	2855	4,92	2,5	3000	214	7,2
I-4FK, 4FK 0,55T	0,55	0,75	1,6	0,74	0,65	0,53	68	63	55	2845	4,63	2,31		228	7,7
I-4FK, 4FK 0,75T	0,75	1	2	0,77	0,68	0,55	70	68	61	2865	3,5	2,69		248	8,7
I-4FK, 4FK 1,1T	1,1	1,5	2,8	0,78	0,69	0,57	74	72	66	2850	5,71	3,09		283	10,2
I-4FK, 4FK 1,5T	1,5	2	3,9	0,78	0,68	0,55	73	71	65	2855	5,31	2,82		307	11,2
I-4FK, 4FK 2,2T	2,2	3	5,5	0,77	0,66	0,52	75	74	69	2845	5,42	2,99	339	12,6	
I-4FK, 4FK 3T	3	4	7,5	0,77	0,67	0,53	76	76	70	2845	5,6	3,17	394	15	
I-4FK, 4FK 3,7T	3,7	5	9	0,78	0,69	0,54	78	77	73	2840	5,81	3,32	6500	520	19,1
I-4FK, 4FK 4T	4	5,5	9,9	0,77	0,67	0,52	78	77	72	2840	5,76	3,28		543	20
I-4FK, 4FK 5,5T	5,5	7,5	12,6	0,81	0,73	0,59	79	79	75	2865	6,13	3,09		653	26,6
I-4FK, 4FK 7,5T	7,5	10	17,1	0,81	0,72	0,58	79	79	75	2855	5,81	2,91	731	30,6	

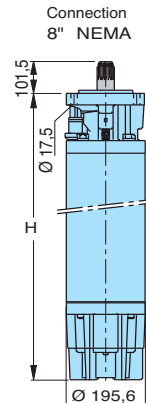
#### I-6FK, 6FK - 3 ~

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN			
I-6FK, 6FK 4	4	5,5	9,3	0,82	0,74	0,62	78	77	74	2860	4,6	1,5	15500	581	37,5
I-6FK, 6FK 5,5	5,5	7,5	12,5	0,82	0,75	0,63	79	78	74	2870	5,1	1,9		615	41,1
I-6FK, 6FK 7,5	7,5	10	16	0,86	0,81	0,70	79	78	75	2860	5,2	1,9		646	45,2
I-6FK, 6FK 9,2	9,2	12,5	20,7	0,80	0,72	0,58	81	81	78	2870	5,4	2,2		679	47,5
I-6FK, 6FK 11	11	15	23,3	0,85	0,79	0,68	81	81	78	2860	5,5	2,1		711	50,9
I-6FK, 6FK 15	15	20	31,3	0,85	0,80	0,70	81	81	79	2860	5,4	2,1	776	56,7	
I-6FK, 6FK 18,5	18,5	25	38,5	0,85	0,79	0,68	82	82	80	2850	6	2,5	842	63,3	
I-6FK, 6FK 22	22	30	45,3	0,86	0,81	0,71	83	83	81	2860	5,9	2,4	907	69,3	
I-6FK, 6FK 30	30	40	63,5	0,84	0,79	0,67	83	83	80	2860	6,2	2,6	1037	83,9	
I-6FK, 6FK 37	37	50	79	0,85	0,80	0,70	81	81	78	2875	5,2	2,3	27500	1421	138
I-6FK, 6FK 45	45	60	95,2	0,84	0,80	0,70	82	82	80	2875	5,3	2,2		1574	152



#### I-8FK, 8FK - 3 ~

Type	PN		IN 400 V A	Power factor cos φ			Efficiency η %			R.P.M.	Direct start		Axial thrust N	H mm	Weight kg
	kW	HP		4/4	3/4	2/4	4/4	3/4	2/4		I <sub>A</sub> IN	C <sub>A</sub> CN			
I-8FK, 8FK 30	30	40	61	0,84	0,78	0,68	86	86	83	2900	6,85	2,6	45000	909	116
I-8FK, 8FK 37	37	50	74	0,86	0,81	0,71	87	87	84	2920	7,2	2,4		986	131
I-8FK, 8FK 45	45	60	89	0,85	0,81	0,71	87	87	85	2920	7,25	2,7		1062	145
I-8FK, 8FK 55	55	75	108	0,87	0,82	0,72	88	87	85	2920	8	3,1		1204	175
I-8FK, 8FK 75	75	100	145	0,87	0,82	0,72	87	87	85	2925	8	2,3		1395	213
I-8FK, 8FK 92	92	125	190	0,83	0,78	0,68	87	86	84	2930	7	1,9	1747	291	
I-8FK, 8FK 110	110	150	222	0,84	0,80	0,70	88	87	85	2930	7,2	2,1	1976	334	
I-8FK, 8FK 130	130	175	252	0,87	0,84	0,79	88	87	86	2920	6,9	2,2	2179	380	
I-8FK, 8FK 150	150	200	284	0,88	0,86	0,79	88	88	86	2920	6,54	2,1	2408	429	



PN Rated power output

IN Rated current

I<sub>A</sub> Starting current / Nominal current

C<sub>A</sub> Starting torque/Nominal torque

### Maximum length of electric cables

230 Volt - 50 Hz - 1 ~					
MOTOR kW	1 four-wires cable 4 x ....mm <sup>2</sup>				
	1,5	2,5	4	6	10
cables max m					
0,37	114	191	305		
0,55	77	128	205	308	
0,75	56	94	151	226	376
1,1	38	64	103	154	257
1,5		47	75	113	188
2,2		32	51	77	128

Voltage drop 3%.  
Maximum room temperature + 30 °C.

### Direct-starting

230 Volt - 50 Hz - 3 ~															
MOTOR kW	1 four-wires cable 4 x ....mm <sup>2</sup>						4 cables 1 x ....mm <sup>2</sup>								
	1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240
cables max m															
0,37	261														
0,55	175	292													
0,75	129	214	343												
1,1	88	146	234	351											
1,5	64	107	172	257											
2,2	44	73	117	176	293										
3	32	54	86	129	215	344									
3,7-4		40	64	97	161	258									
5,5			47	70	117	188	294								
7,5			34	52	86	138	216	302							
9,2				42	70	113	176	247	353						
11					59	94	148	207	295						
15						69	109	152	217	304					
18,5						57	88	124	177	248	336				
22							75	104	149	209	384	358			
30								77	110	155	210	265	331		
37									90	126	171	216	271	334	
45									75	105	142	179	224	276	359
55										86	116	146	183	226	294
75											88	111	138	171	222

400 Volt - 50 Hz - 3 ~																		
MOTOR kW	1 four-wires cable 4 x ....mm <sup>2</sup>						4 cables 1 x ....mm <sup>2</sup>											
	1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240			
cables max m																		
0,37	777																	
0,55	523																	
0,75	384																	
1,1	262																	
1,5	192	320																
2,2	131	218	349															
3	96	160	256	385														
3,7-4	72	120	192	289														
5,5	52	88	140	210	351													
7,5		64	103	154	258													
9,2		52	84	126	210	337												
11			70	106	176	282												
15				78	130	208	324											
18,5				63	106	169	264	370										
22					89	143	223	312										
30						105	165	231	330									
37							134	188	269	377								
45								111	156	223	312							
55										182	255	357						
75											138	193	262	331				
92											114	160	217	274	342			
110												136	184	233	291	359		
132													157	198	248	306	396	
150														143	180	226	279	361
165															159	199	245	318

### Star-delta starting

230 Volt - 50 Hz - 3 ~ Y/Δ														
MOTOR kW	2 four-wires cables 4 x ....mm <sup>2</sup>					7 cables 1 x ....mm <sup>2</sup>								
	4	6	10	16	25	35	50	70	95	120	150	185	240	
cables max m														
7,5	52	78	129	207	324									
9,2		63	106	169	264	370								
11			53	89	142	221	310	443						
15				65	104	163	228	326						
18,5				53	85	133	186	265	372					
22					72	112	157	224	314	426				
30					53	83	116	166	232	315	398			
37						68	95	135	189	257	325	406		
45							56	78	112	157	213	269	336	415
55								92	128	174	220	275	340	
75								69	97	132	166	208	256	332

400 Volt - 50 Hz - 3 ~ Y/Δ																			
MOTOR kW	2 four-wires cables 4 x ....mm <sup>2</sup>						7 cables 1 x ....mm <sup>2</sup>												
	1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240				
cables max m																			
7,5	58	96	154	232	386														
9,2	47	79	126	189	316														
11		66	106	159	264	423													
15			49	78	117	195	311	487											
18,5				63	95	158	253	396											
22					53	80	134	214	334	468									
30						59	99	158	247	346									
37							81	129	202	282	404								
45							67	107	167	234	334	468							
55								87	136	191	273	383	536						
75									103	145	207	289	393	496					
92										120	171	240	325	411	514				
110											146	204	277	350	437	539			
132												124	173	235	297	372	458	595	
150													113	158	214	271	339	418	543
165														138	188	238	298	367	477



### Electric control boards

#### M COMP

For single-phase motor.

TYPE	Capacitor	Protection <b>A</b>	Motor 230V - 1~ <b>kW</b>
	Vc 450		
M COMP 4-16	16 $\mu$ f	4,5	0,37
M COMP 5-20	20 $\mu$ f	5	0,55
M COMP 5-25	25 $\mu$ f	5	0,55
M COMP 7-30	30 $\mu$ f	7	0,75
M COMP 7-35	35 $\mu$ f	7	0,75
M COMP 10-40	40 $\mu$ f	10	1,1
M COMP 12-50	50 $\mu$ f	12	1,5
M COMP 18-70	70 $\mu$ f	18	2,2

#### T COMP

For three-phase motor with **direct** starting up.

TYPE	Protection <b>A</b>	Motor 3~	
		230V <b>kW</b>	400V <b>kW</b>
T COMP 8	1÷8	0,37÷1,5	0,5÷2,2
T COMP 10	7÷10	---	3-3,7
T COMP 12	9÷12	2,2	4
T COMP 16	11÷16	3	5,5
T COMP 20	14÷20	3,7-4	7,5

#### QTL 1 FTE

For three-phase motor with **direct** starting up. Fuse protection.

TYPE	Motor 3~ 400V <b>kW</b>
QTL 1 D 1,1 FTE	0,75 - 1,1
QTL 1 D 1,5 FTE	1,5
QTL 1 D 3 FTE	2,2 - 3
QTL 1 D 4 FTE	4
QTL 1 D 5,5 FTE	5,5
QTL 1 D 7,5 FTE	7,5
QTL 1 D 11 FTE	9,2 - 11
QTL 1 D 15 FTE	15
QTL 1 D 18,5 FTE	18,5
QTL 1 D 22 FTE	22
QTL 1 D 30 FTE	30

#### QTL 1 ST FTE

For three-phase motor. **Star/delta** starting.

TYPE	Motor 3~ 400V <b>kW</b>
QTL 1 ST 4 FTE	4
QTL 1 ST 5,5 FTE	5,5
QTL 1 ST 7,5 FTE	7,5
QTL 1 ST 11 FTE	9,2 - 11
QTL 1 ST 15 FTE	15
QTL 1 ST 18,5 FTE	18,5
QTL 1 ST 22 FTE	22
QTL 1 ST 30B FTE	30
QTL 1 ST 30A FTE	30
QTL 1 ST 37 FTE	37
QTL 1 ST 45 FTE	45
QTL 1 ST 55 FTE	55
QTL 1 ST 75 FTE	75
QTL 1 ST 92 FTE	92
QTL 1 ST 110 FTE	110
QTL 1 ST 130 FTE	130
QTL 1 ST 150 FTE	150
QTL 1 ST 185 FTE	185

#### QTL 1 AT

For three-phase motor. **Autotransformer** starting.

TYPE	Motor 3~ 400V <b>kW</b>
QTL 1 AT 5,5	5,5
QTL 1 AT 7,5	7,5
QTL 1 AT 9,2	9,2
QTL 1 AT 11	11
QTL 1 AT 15	15
QTL 1 AT 18	18,5
QTL 1 AT 22	22
QTL 1 AT 30	30
QTL 1 AT 37	37
QTL 1 AT 45	45
QTL 1 AT 55	55
QTL 1 AT 75	75
QTL 1 AT 92	92
QTL 1 AT 110	110
QTL 1 AT 130	130
QTL 1 AT 150	150
QTL 1 AT 185	185

#### QTL 1 IS

For three-phase motor. **Impedance** starting.

TYPE	Motor 3~ 400V <b>kW</b>
QTL 1 IS 5,5	5,5
QTL 1 IS 7,5	7,5
QTL 1 IS 9,2	9,2
QTL 1 IS 11	11
QTL 1 IS 15	15
QTL 1 IS 18	18,5
QTL 1 IS 22	22
QTL 1 IS 30	30
QTL 1 IS 37	37
QTL 1 IS 45	45
QTL 1 IS 55	55
QTL 1 IS 75	75
QTL 1 IS 92	92
QTL 1 IS 110	110
QTL 1 IS 130	130
QTL 1 IS 150	150
QTL 1 IS 185	185

#### QTL 1 SS

For three-phase motor. Start-stop with **Soft Start**.

TYPE	Motor 3~ 400V <b>kW</b>
QTL 1 SS 7,5	7,5
QTL 1 SS 15	9,2-11-15
QTL 1 SS 22	18,5-22
QTL 1 SS 30	30
QTL 1 SS 37	37
QTL 1 SS 45	45
QTL 1 SS 55	55
QTL 1 SS 59	59
QTL 1 SS 75	75
QTL 1 SS 92	92
QTL 1 SS 110	110
QTL 1 SS 130	130
QTL 1 SS 150	150
QTL 1 SS 185	185

#### QTL 1 VFH

For three-phase motor. With **inverter** control.

TYPE	Max <b>A</b>	Motor 3~ 400V <b>kW</b>
QTL 1 VFH 5,5	13	4
QTL 1 VFH 7,5	16	5,5
QTL 1 VFH 11	22	7,5-9,2
QTL 1 VFH 15	29	11
QTL 1 VFH 22	43	13-15-18,5
QTL 1 VFH 30	57	22-26
QTL 1 VFH 37	70	30
QTL 1 VFH 45	85	37
QTL 1 VFH 55	105	45
QTL 1 VFH 75	135	51-55-59
QTL 1 VFH 92	160	66-75
QTL 1 VFH 110	196	83-92
QTL 1 VFH 160	314	110-130-150
QTL 1 VFH 200	387	185

Higher powers and other starting types on request.

### Motor Cooling

To ensure a suitable cooling, water must be in touch with the motor casing with a minimum velocity according to the following table

#### Rewindable motor CS series

Motor	Max. Liquid temperature	Cooling minimum flow velocity	Max. starts per hour
4"	35 °C	0,08 m/s	20
6"	25 °C	0,20 m/s for 4 ÷ 15 kW 0,50 m/s for 18,5 ÷ 30 kW	15
8"	25 °C	0,20 m/s for 30 ÷ 51 kW 0,50 m/s for 55 ÷ 92 kW	15
10"	25 °C	0,50 m/s	10

#### Encapsulated motor FK series

Motor	Max. Liquid temperature	Cooling minimum flow velocity	Max. starts per hour
4"	30 °C	0,08 m/s	20
6"	30 °C for 4 ÷ 30 kW 50 °C for 37 ÷ 45 kW	0,16 m/s	20
8"	30 °C	0,16 m/s	20

For operation with higher temperatures, contact our Technical Sales Department

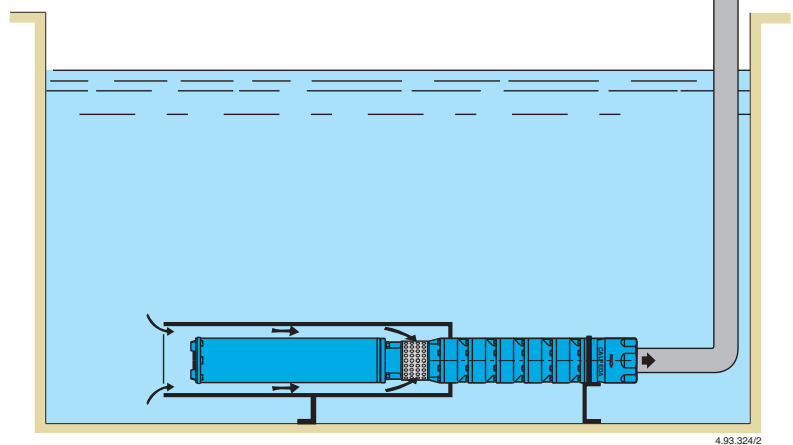
### Cooling jacket

When the submersible motor is installed :

- below the well inlet points (**picture A**);
- in tanks, lakes, basins, etc... (**pictures B and C**)

an external jacket must be installed to create a cooling flow around the motor. Only in this way a safe operation can be assured avoiding any overheating which can damage the motor.

(fig. B)



(fig. C)

