

50 Hz



40S-L4C L6C-L6W L8W-L10W-L12W Series

4" - 6" - 8" - 10" - 12"
SUBMERSIBLE MOTORS

Cod. 191004851 Rev.B Ed.08/2012

 **LOWARA**
a xylem brand

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4" Submersible motors

Submersible liquid-cooled motors.
The choice of component materials ensures optimum operating performances, superior quality, reliability and ease of installation.

4OS Series



SPECIFICATIONS

- **Stainless steel** outer sleeve.
- Shaft extension and coupling dimensions to **NEMA** standards.
- **Rewindable stator.**
- Class **F insulation.**
- Protection class: **IP68.**
- **Internal fluid** according to standards for oils in contact with foodstuffs (F.D.A. - FOOD AND DRUG ADMINISTRATION).
- Compensating bellows for internal liquid expansion.
- Axial load supported by angular bearings.
- **Mechanical seal** protected by sand guard.
- Maximum **immersion depth:** 150 m.
- Maximum **number of starts per hour** at regular intervals:
30 for direct start;
20 for impedance start.
- Maximum supply **voltage variations** allowed :
230V $\pm 10\%$,
400V $\pm 10\%$.
- Maximum water **temperature** : 35°C.
Max. temperature applies to motors working in a installation capable of delivering a flow of water around the motor jacket of at least 0,08 m/s.
- Water **pH:** 4÷8.
- **Axial thrust:**
3000 N from 0,37 to 2,2 kW;
6500 N from 3 to 7,5 kW.
- **Extractable supply cable** fitted with watertight connector.
- **Versions:**
 - Single-phase:
0,37 to 4 kW 220-240 V, 50 Hz
 - Three-phase:
0,37 to 7,5 kW 220-240 V, 50 Hz
0,37 to 7,5 kW 380-415 V, 50 Hz.
- Horizontal operation up to 2,2 kW.
- Inverter applications.

OPTIONAL FEATURES

- Special voltages.

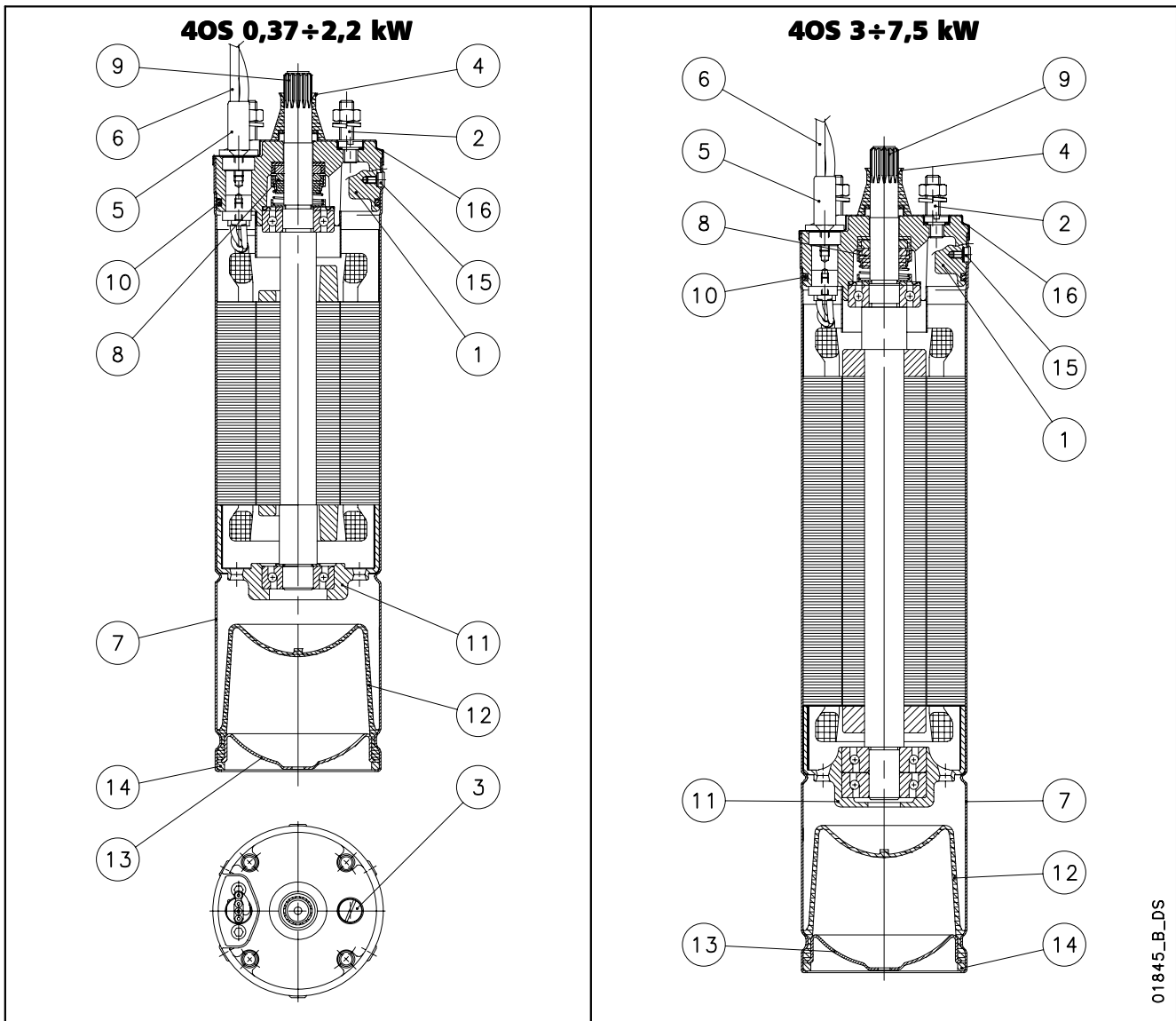
Rewindable stator

Liquid suitable for use with foodstuffs (complies with FDA)

High starting torque

Power supply cable with extractable connector

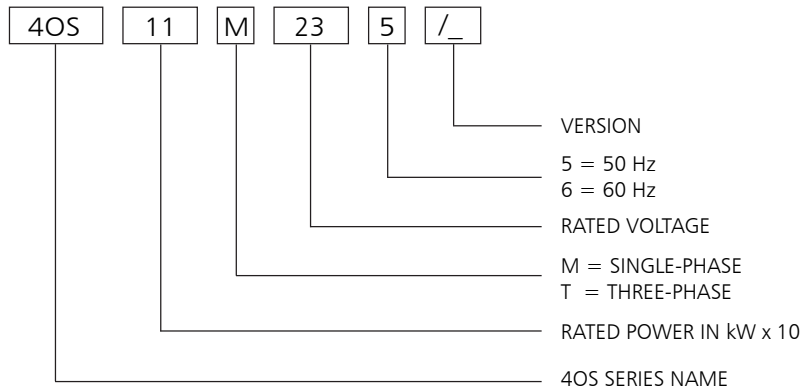
40S MOTOR SERIES MOTOR CROSS SECTION AND TABLE OF MATERIALS



01845_B_DS

REF. N.	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Head	Cast iron	UNI EN 5007 G20	ASTM A159-70-G3500
2	Studs	Stainless steel	EN 10088-3-X5CrNi18-10 (1.4301)	AISI 304
3	Filling screw	Brass	EN12165-CuZn40Pb2 (CW617N)	
4	Sand guard	NBR		
5	Connector sleeve	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
6	Cable	Epdm		
7	Outer sleeve	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
8	Mechanical seal	Carbon / Ceramic		
9	Shaft end for P ≤ 2.2 kW	Stainless steel	EN 10088-3-X8CrNiS18-9 (1.4305)	AISI 303
	Shaft end for 3 ≤ P ≤ 7.5 kW	Stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	ASTM A 182: F51
10	Elastomers	NBR		
11	Lower bracket	Cast iron	UNI EN 5007 G20	ASTM A159-70-G3500
12	Compensating diaphragm	NBR		
13	Lower protection	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
14	Snap ring	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
15	Screws, nuts, washers	Stainless steel	EN 10088-3-X5CrNi18-10 (1.4301)	AISI 304
16	Upper cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
	Cooling liquid	Non toxic oil		

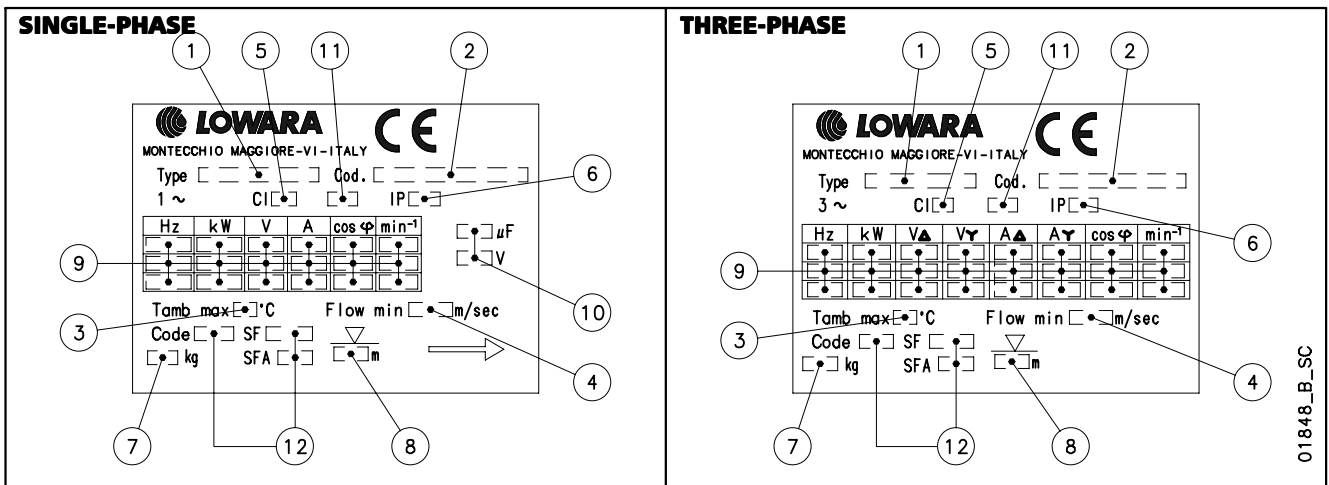
40S MOTOR SERIES IDENTIFICATION CODE



EXAMPLE : 40S11M235/C

40S MOTOR :
RATED POWER 1,1 kW; SINGLE-PHASE;
RATED VOLTAGE 230 V; 50 Hz; /C VERSION.

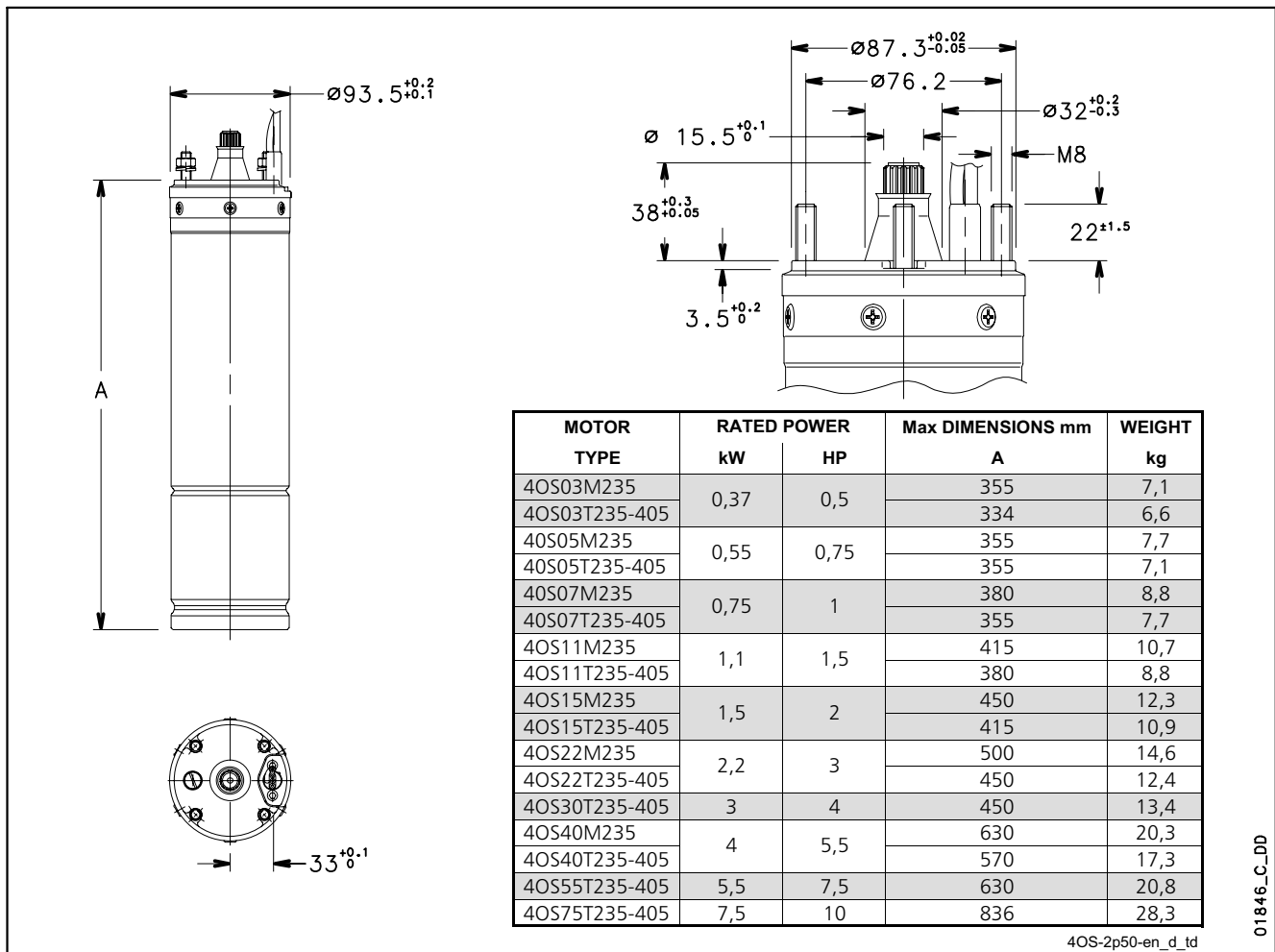
RATING PLATE



LEGEND

- | | |
|-------------------------------|--------------------------------------|
| 1 - Motor type | 7 - Weight |
| 2 - Code | 8 - Maximum immersion depth |
| 3 - Maximum water temperature | 9 - Operating characteristics |
| 4 - Minimum water velocity | 10 - Capacitor type |
| 5 - Insulation class | 11 - Service type |
| 6 - Protection class | 12 - Characteristics NEMA MG1 (60Hz) |

40S MOTOR SERIES DIMENSIONS AND WEIGHTS AT 50 Hz



4OS-2p50-en_d_td

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SINGLE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE	CAPACITOR	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE	CABLE TYPE			
	kW	HP			V	μF/450V	RATED CURRENT					Ts/Tn*	Is/In	Nc x sec	L
							A	rpm	η %	cosφ					
4OS03M235	0,37	0,5	220	16	3,0	2835	56,8	0,98	0,56	3,08	35	4x1.5	1,75		
			230		3,1	2845	54,7	0,96	0,62	3,17					
			240		3,2	2860	52,5	0,93	0,68	3,2					
4OS05M235	0,55	0,75	220	20	4,1	2815	62,4	0,98	0,60	2,93	35	4x1.5	1,75		
			230		4,1	2830	60,4	0,96	0,66	3,02					
			240		4,3	2845	58,4	0,92	0,72	3,06					
4OS07M235	0,75	1	220	30	5,4	2825	63,3	0,99	0,57	3,07	35	4x1.5	1,75		
			230		5,5	2840	61,6	0,97	0,63	3,2					
			240		5,6	2855	59,9	0,94	0,69	3,27					
4OS11M235	1,1	1,5	220	40	7,5	2820	67,6	0,99	0,62	2,97	35	4x1.5	1,75		
			230		7,4	2840	66,3	0,98	0,68	3,14					
			240		7,6	2850	63,9	0,95	0,74	3,2					
4OS15M235	1,5	2	220	50	10,0	2830	69,3	0,98	0,48	3,1	35	4x1.5	1,75		
			230		10,1	2845	67,6	0,96	0,53	3,22					
			240		10,5	2855	64,9	0,92	0,58	3,22					
4OS22M235	2,2	3	220	70	14,3	2805	71,1	0,99	0,46	2,71	35	4x1.5	2,5		
			230		14,1	2820	69,6	0,97	0,50	2,86					
			240		14,4	2840	67,7	0,94	0,55	2,93					
4OS40M235	4	5,5	220	90	25,7	2850	73,8	0,96	0,42	3,48	35	4 x 2	2,5		
			230		24,9	2870	74,0	0,94	0,46	3,76					
			240		24,8	2880	73,4	0,92	0,50	3,94					

* Ts/Tn = ratio between starting torque and nominal torque.

40S MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE	CABLE TYPE	
				RATED CURRENT	rpm	η %	cos ϕ				Nc x sez	L
	kW	HP						V	A			
4OS03T235	0,37	0,5	220	2,0	2835	62	0,78	3,4	5,1	35	4x1,5	1,75
			230	2,1	2855	62	0,72	3,8	5,3			
			240	2,2	2865	61	0,68	4,1	5,3			
4OS05T235	0,55	0,75	220	2,8	2795	65	0,8	2,8	4,6	35	4x1,5	1,75
			230	2,9	2820	64	0,75	3,1	4,7			
			240	3,0	2835	63	0,71	3,4	4,7			
4OS07T235	0,75	1	220	3,8	2790	68	0,78	3,3	4,6	35	4x1,5	1,75
			230	4,0	2815	67	0,71	3,6	4,7			
			240	4,2	2825	65	0,67	3,9	4,6			
4OS11T235	1,1	1,5	220	5,1	2780	72	0,8	2,7	4,2	35	4x1,5	1,75
			230	5,2	2810	71	0,74	3,0	4,4			
			240	5,4	2820	70	0,7	3,2	4,3			
4OS15T235	1,5	2	220	7,0	2790	73	0,78	3,0	4,7	35	4x1,5	1,75
			230	7,2	2815	72	0,72	3,4	4,8			
			240	7,6	2825	70	0,68	3,7	4,7			
4OS22T235	2,2	3	220	9,7	2785	74	0,80	2,3	4,7	35	4x1,5	2,5
			230	10,0	2810	74	0,74	2,6	4,8			
			240	10,5	2825	73	0,69	2,7	4,7			
4OS30T235	3	4	220	12,1	2810	77	0,85	1,8	4,2	35	4x1,5	2,5
			230	12,0	2830	77	0,81	2,0	4,5			
			240	12,3	2845	77	0,77	2,2	4,6			
4OS40T235	4	5,5	220	16,4	2810	75	0,85	2,2	4,8	35	4x1,5	2,5
			230	16,5	2840	76	0,80	2,4	5,0			
			240	17,0	2850	75	0,76	2,6	5,0			
4OS55T235	5,5	7,5	220	22,9	2795	76	0,83	1,8	4,6	35	4x1,5	2,5
			230	23,0	2820	77	0,78	2,0	4,8			
			240	23,7	2840	77	0,73	2,2	4,9			
4OS75T235	7,5	10	220	31,0	2820	78	0,82	1,9	4,9	35	4x1,5	4
			230	31,4	2850	79	0,76	2,1	5,1			
			240	32,4	2860	78	0,71	2,3	5,1			
4OS03T405	0,37	0,5	380	1,2	2835	62	0,78	3,4	5,1	35	4x1,5	1,75
			400	1,2	2855	62	0,72	3,8	5,3			
			415	1,2	2865	61	0,68	4,1	5,3			
4OS05T405	0,55	0,75	380	1,6	2795	65	0,8	2,8	4,6	35	4x1,5	1,75
			400	1,7	2820	64	0,75	3,1	4,7			
			415	1,7	2835	63	0,71	3,4	4,7			
4OS07T405	0,75	1	380	2,2	2790	68	0,78	3,3	4,6	35	4x1,5	1,75
			400	2,3	2815	67	0,71	3,6	4,7			
			415	2,4	2825	65	0,67	3,9	4,6			
4OS11T405	1,1	1,5	380	2,9	2780	72	0,8	2,7	4,2	35	4x1,5	1,75
			400	3,0	2810	71	0,74	3,0	4,4			
			415	3,1	2820	70	0,7	3,2	4,3			
4OS15T405	1,5	2	380	4,0	2790	73	0,78	3,0	4,7	35	4x1,5	1,75
			400	4,2	2815	72	0,72	3,4	4,8			
			415	4,4	2825	70	0,68	3,7	4,7			
4OS22T405	2,2	3	380	5,6	2785	74	0,80	2,3	4,7	35	4x1,5	2,5
			400	5,8	2810	74	0,74	2,6	4,8			
			415	6,1	2825	73	0,69	2,7	4,7			
4OS30T405	3	4	380	7,0	2810	77	0,85	1,8	4,2	35	4x1,5	2,5
			400	7,0	2830	77	0,81	2,0	4,5			
			415	7,1	2845	77	0,77	2,2	4,6			
4OS40T405	4	5,5	380	9,5	2810	75	0,85	2,2	4,8	35	4x1,5	2,5
			400	9,5	2840	76	0,80	2,4	5,0			
			415	9,8	2850	75	0,76	2,6	5,0			
4OS55T405	5,5	7,5	380	13,2	2795	76	0,83	1,8	4,6	35	4x1,5	2,5
			400	13,3	2820	77	0,78	2,0	4,8			
			415	13,7	2840	77	0,73	2,2	4,9			
4OS75T405	7,5	10	380	17,9	2820	78	0,82	1,9	4,9	35	4x1,5	4
			400	18,1	2850	79	0,76	2,1	5,1			
			415	18,7	2860	78	0,71	2,3	5,1			

* Ts/Tn = ratio between starting torque and nominal torque.

4" Submersible motors

Submersible canned motors.
The choice of component materials ensures optimum operating performances, superior quality, reliability and ease of installation.

L4C Series



SPECIFICATIONS

- **Stainless steel** outer sleeve.
- Shaft extension and coupling dimensions to **NEMA** standards.
- Class **F insulation**.
- Protection class: **IP68**.
- Compensating bellows for internal liquid expansion.
- Axial load supported by Kingsbury type thrust bearing.
- **Lip seal** protected by sand guard.
- Maximum **immersion depth**: 300 m.
- Maximum **number of starts per hour** at regular intervals:
40 for direct start;
20 for impedance start.
- Maximum supply **voltage variations** allowed : $\pm 6\%$.
- Maximum water **temperature**: 35°C.
Max. temperature applies to motors working in a installation capable of delivering a flow of water around the motor jacket of at least 0,3 m/s.
- **Axial thrust**:
2000 N from 0,37 to 1,1 kW;
3000 N from 1,5 to 2,2 kW;
6000 N from 3 to 7,5 kW.
- **Extractable supply cable** fitted with watertight connector.
- **Versions**:
 - Single-phase:
0,37 to 3,7 kW 220-240 V, 50 Hz
(0,37 to 1,1 kW with built in automatic reset overload protection).
 - Single-phase with built-in capacitor (Two Wire):
0,37 to 1,1 kW 220-240 V, 50 Hz.
 - Three-phase:
0,37 to 5,5 kW 220-240 V, 50 Hz
0,37 to 7,5 kW 380-415 V, 50 Hz.
- Can also operate in horizontal position, provided that the associated pump can apply an axial thrust of at least 100 N on the entire operating field.

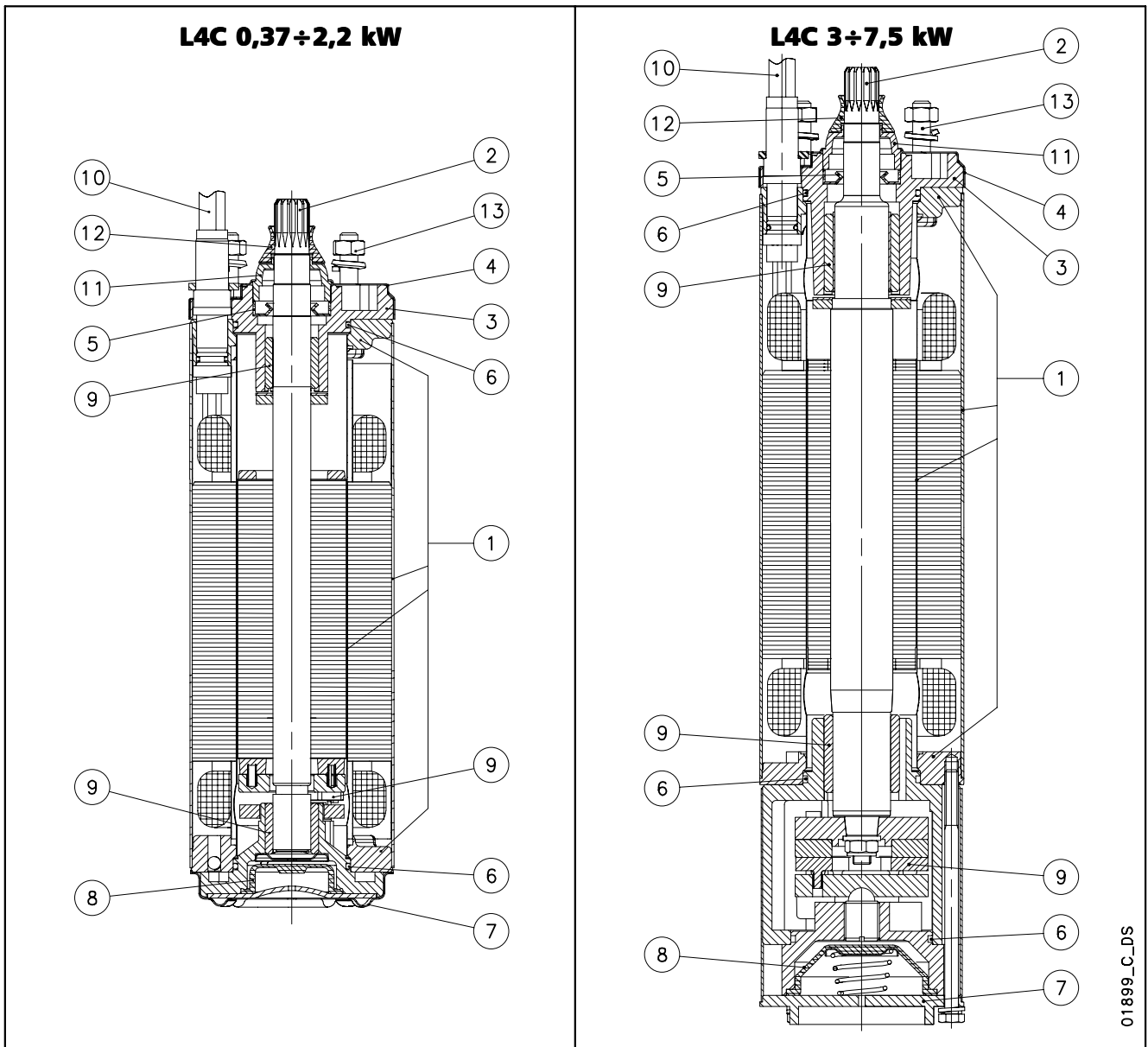
OPTIONAL FEATURES

- Special voltages.
- Inverter applications.

High starting torque

Power supply cable with extractable connector

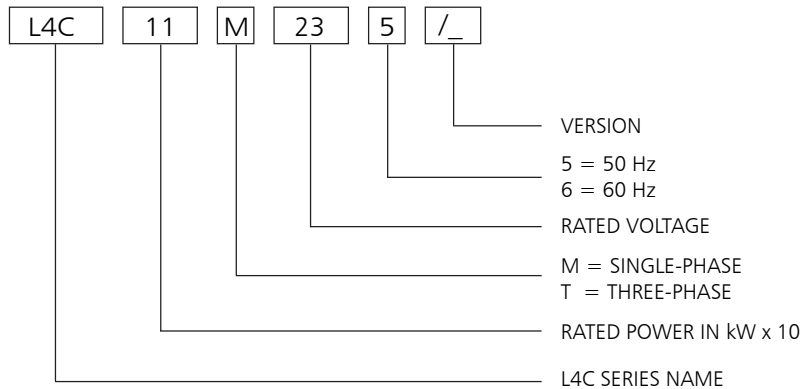
L4C MOTOR SERIES MOTOR CROSS SECTION AND TABLE OF MATERIALS



01899_C_DS

REF N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Inner, outer sleeves and flanges	Stainless steel	EN 10088-1-X2CrNi18-9 (1.4307)	AISI 304L
2	Shaft extension (up to 2.2 kW)	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
	Shaft extension (from 3 kW)	Stainless steel	EN 10088-3-X3CrNiMoN27 (1.4460)	AISI 329
3	Upper bracket	Cast iron	EN-GJL-200 EN 1561	Class 25 B
4	Upper cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
5	Lip seal	NBR		
6	Elastomers	NBR		
7	Lower cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI 304
8	Compensating bellows	EPDM		
9	Bearings	Carbon-graphite		
10	Cable	EPDM		
11	Fixed sand guard	Nylon		
12	Removable sand guard	NBR		
13	Bolts and screws	Stainless steel	UNI EN ISO 3506-1 Grade A2	
	Cooling liquid	Demineralized water + antifreeze		

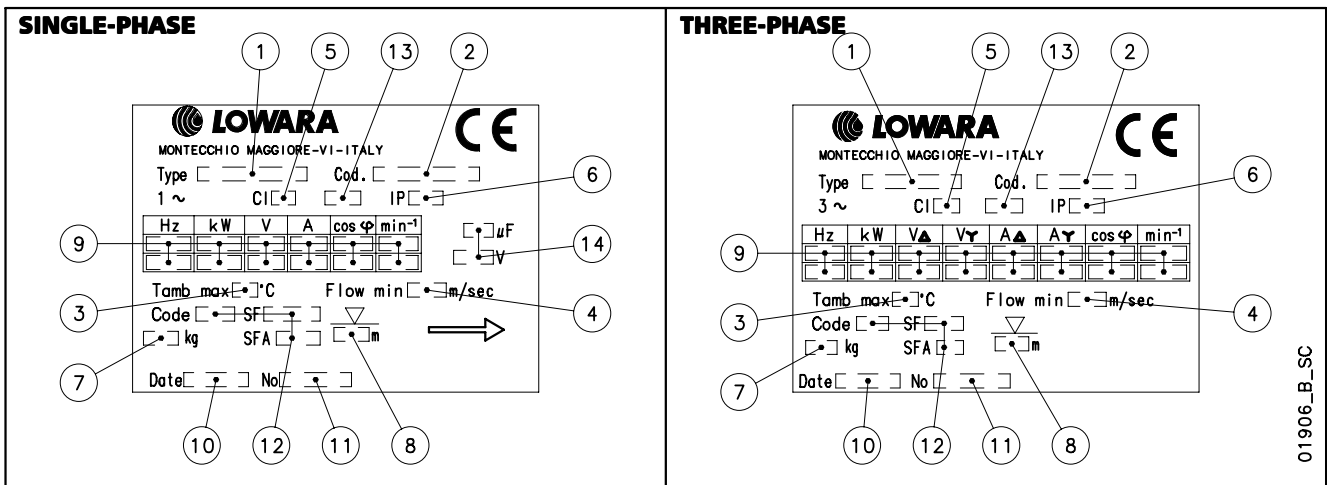
L4C MOTOR SERIES IDENTIFICATION CODE



EXAMPLE : L4C11M235

L4C MOTOR :
RATED POWER 1,1 kW; SINGLE-PHASE;
RATED VOLTAGE 230 V; 50 Hz.

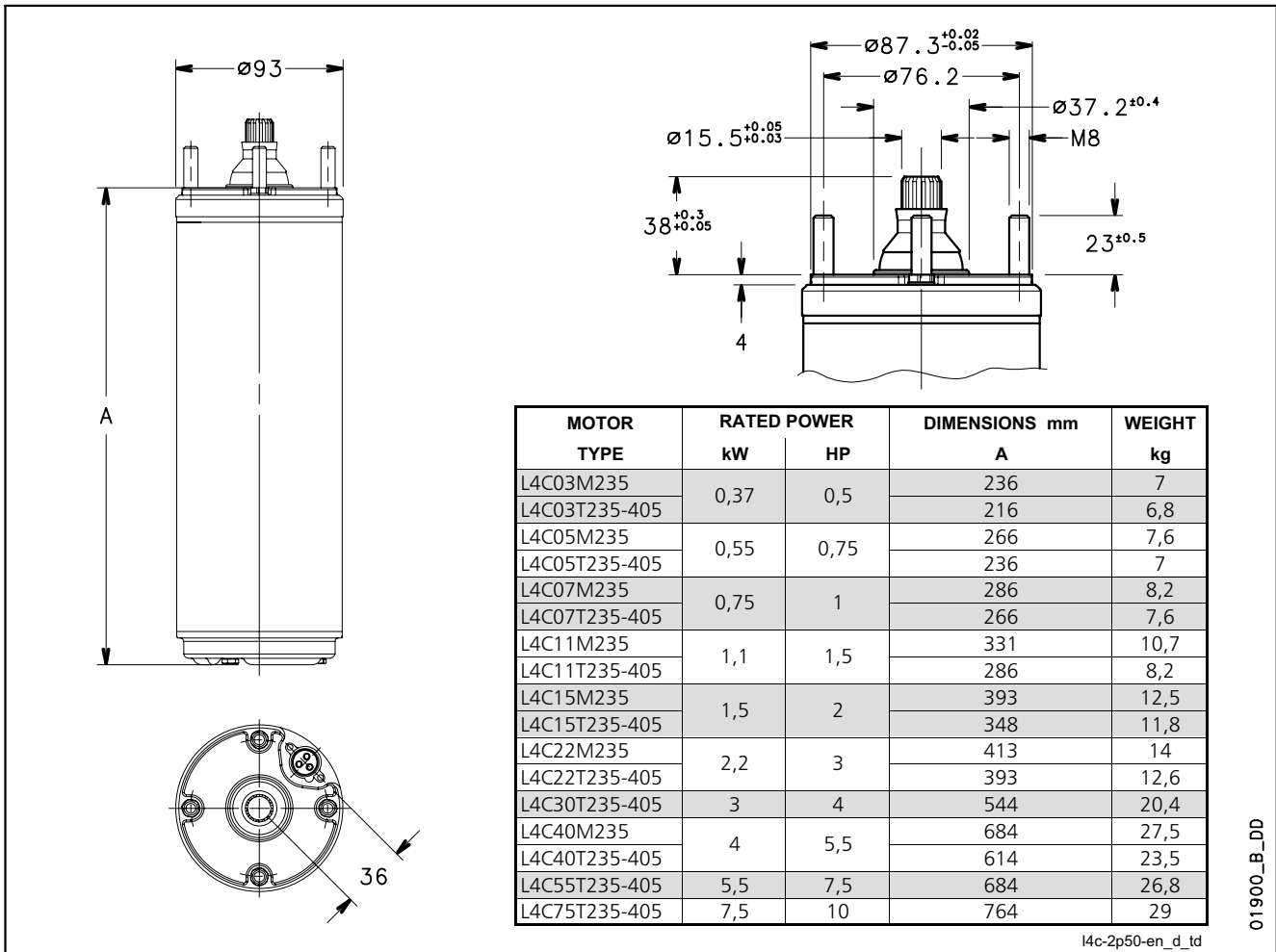
RATING PLATE



LEGEND

- | | |
|-------------------------------|--------------------------------------|
| 1 - Motor type | 8 - Maximum immersion depth |
| 2 - Code | 9 - Operating characteristics |
| 3 - Maximum water temperature | 10 - Production date |
| 4 - Minimum water velocity | 11 - Serial number |
| 5 - Insulation class | 12 - Characteristics NEMA MG1 (60Hz) |
| 6 - Protection class | 13 - Service type |
| 7 - Weight | 14 - Capacitor type |

L4C MOTOR SERIES DIMENSIONS AND WEIGHTS AT 50 Hz



01900_B_DD

l4c-2p50-en_d_td

SINGLE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE V	CAPACITOR μ F/450V	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE $^{\circ}$ C	CABLE TYPE	
	kW	HP			RATED CURRENT A	rpm	η %	cos ϕ	Ts/Tn*	Is/In		Ncxsez.(mm ²)	L (m)
L4C03M235	0,37	0,5	220	16	3,2	2810	53	0,96	0,63	2,68	35	4x1,5	1,7
			230		3,3	2820	54	0,97	0,69	2,72			
			240		3,4	2830	50	0,91	0,75	2,76			
L4C05M235	0,55	0,75	220	20	4,3	2810	61	0,95	0,62	3,3	35	4x1,5	1,7
			230		4,6	2820	56	0,94	0,68	3,2			
			240		4,8	2830	54	0,90	0,74	3,26			
L4C07M235	0,75	1	220	30	6	2810	60	0,93	0,63	3,18	35	4x1,5	1,7
			230		6,2	2820	58	0,92	0,66	3,2			
			240		6,5	2830	56	0,85	0,75	3,2			
L4C11M235	1,1	1,5	220	40	8,1	2800	67	0,94	0,60	3,48	35	4x1,5	1,7
			230		8,1	2835	65	0,92	0,60	3,54			
			240		8,3	2850	63	0,87	0,62	3,62			
L4C15M235	1,5	2	220	50	10,4	2800	67	0,96	0,74	3,3	35	4x1,5	1,7
			230		10,4	2820	66	0,93	0,74	3,38			
			240		10,7	2835	64	0,90	0,76	3,46			
L4C22M235	2,2	3	220	70	15,4	2740	68	0,96	0,54	3,1	35	4x1,5	1,7
			230		15	2770	68	0,94	0,54	3,2			
			240		15,3	2790	66	0,91	0,54	3,3			
L4C40M235	4	5,5	220	90	29,9	2820	70	0,93	0,46	3,5	35	4x2	2,7
			230		29,8	2830	68	0,90	0,51	3,6			
			240		29,7	2840	65	0,87	0,60	3,4			

* Ts/Tn = ratio between starting torque and nominal torque.

L4C MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE °C	CABLE TYPE	
	kW	HP		A	rpm	η %	cos ϕ	Ts/Tn*	Is/In		Nc x sec mm ²	L m
L4C03T235	0,37	0,5	220	2,6	2810	51	0,69	2,7	3,7	35	4x1.5	1,7
			230	2,7	2820	53	0,7	3	3,7			
			240	3,1	2830	48	0,67	3,2	3,4			
L4C05T235	0,55	0,75	220	3,1	2820	61	0,77	2,8	4,3	35	4x1.5	1,7
			230	3,3	2830	60	0,71	3,1	4,2			
			240	3,5	2840	60	0,66	3,3	4,2			
L4C07T235	0,75	1	220	4	2820	65	0,77	2,9	5	35	4x1.5	1,7
			230	4,1	2830	63	0,73	3,2	5,1			
			240	4,5	2840	63	0,66	3,5	4,8			
L4C11T235	1,1	1,5	220	5,6	2820	62	0,8	3	4	35	4x1.5	1,7
			230	5,7	2830	64	0,76	3,3	4,2			
			240	6,2	2840	63	0,73	3,6	4			
L4C15T235	1,5	2	220	7,4	2820	68	0,77	3,1	4,2	35	4x1.5	1,7
			230	7,6	2830	68	0,72	3,4	4,3			
			240	8	2840	67	0,68	3,7	4,3			
L4C22T235	2,2	3	220	10	2810	72	0,8	3	4,3	35	4x1.5	1,7
			230	10,2	2820	71	0,78	3,2	4,4			
			240	10,7	2830	70	0,7	3,5	4,4			
L4C30T235	3	4	220	13,7	2830	75	0,77	3	4,6	35	4x1.5	2,7
			230	14,3	2840	74	0,71	3,3	4,6			
			240	15,2	2850	70	0,68	3,5	4,5			
L4C40T235	4	5,5	220	16,4	2840	76	0,81	3,10	5,6	35	4x2	2,7
			230	17,3	2850	75	0,79	3,40	5,6			
			240	18,2	2860	72	0,74	3,70	5,5			
L4C55T235	5,5	7,5	220	23,4	2840	78	0,79	3	5,4	35	4x2	2,7
			230	24,2	2850	77	0,74	3,4	5,5			
			240	25	2860	76	0,7	3,6	5,5			
L4C03T405	0,37	0,5	380	1,5	2810	51	0,69	2,7	3,8	35	4x1.5	1,7
			400	1,6	2820	53	0,7	3	3,8			
			415	1,8	2830	48	0,67	3,2	3,4			
L4C05T405	0,55	0,75	380	1,8	2820	61	0,77	2,8	4,2	35	4x1.5	1,7
			400	1,9	2830	60	0,71	3,1	4,2			
			415	2	2840	60	0,66	3,3	4,1			
L4C07T405	0,75	1	380	2,3	2820	65	0,77	2,9	5	35	4x1.5	1,7
			400	2,4	2830	63	0,73	3,2	5			
			415	2,6	2840	63	0,66	3,5	4,8			
L4C11T405	1,1	1,5	380	3,3	2820	62	0,8	3	4	35	4x1.5	1,7
			400	3,4	2830	64	0,76	3,3	4,1			
			415	3,6	2840	63	0,73	3,6	4			
L4C15T405	1,5	2	380	4,3	2820	68	0,77	3,1	4,2	35	4x1.5	1,7
			400	4,4	2830	68	0,72	3,4	4,3			
			415	4,6	2840	67	0,68	3,7	4,3			
L4C22T405	2,2	3	380	5,8	2810	72	0,8	3	4,1	35	4x1.5	1,7
			400	5,9	2820	71	0,78	3,2	4,4			
			415	6,2	2830	70	0,7	3,5	4,3			
L4C30T405	3	4	380	7,9	2830	75	0,77	3	4,5	35	4x1.5	2,7
			400	8,3	2840	74	0,71	3,3	4,6			
			415	8,8	2850	70	0,68	3,5	4,5			
L4C40T405	4	5,5	380	9,5	2840	76	0,81	3,1	5,6	35	4x1.5	2,7
			400	10	2850	75	0,79	3,4	5,6			
			415	10,5	2860	72	0,74	3,7	5,5			
L4C55T405	5,5	7,5	380	13,5	2840	78	0,79	3	5,4	35	4x1.5	2,7
			400	14	2850	77	0,74	3,4	5,5			
			415	14,5	2860	76	0,7	3,6	5,5			
L4C75T405	7,5	10	380	17	2840	80	0,84	2,6	4,7	35	4x2	3,5
			400	17,4	2850	79	0,79	2,9	4,8			
			415	18,1	2860	76	0,75	3,1	4,8			

* Ts/Tn = ratio between starting torque and nominal torque.

6" Submersible motors

Submersible canned motors.
The choice of component materials ensures optimum operating performances, superior quality, reliability and ease of installation.

L6C Series



SPECIFICATIONS

- **Stainless steel** outer sleeve.
- Shaft extension and coupling dimensions to **NEMA** standards.
- Class **F insulation**.
- Protection class: **IP68**.
- Compensating bellows for internal liquid expansion.
- Axial load supported by Kingsbury type thrust bearing.
- **Mechanical seal** protected by sand guard.
- Maximum **immersion depth**: 250 m.
- Maximum **number of starts per hour** at regular intervals: 25 for direct start.
- Maximum supply **voltage variations** allowed: $\pm 10\%$.
- Maximum water **temperature**: 35°C.
Max. temperature applies to motors working in an installation capable of delivering a flow of water around the motor jacket of at least 0,2 m/s.

• Axial thrust:

16000 N from 4 to 22 kW;
27000 N from 30 to 37 kW.

• Extractable supply cable

fitted with watertight connector.

• Versions:

- Three-phase:

4 to 22 kW 220-240 V, 50 Hz.

4 to 37 kW 380-415 V, 50 Hz.

- Motors with double cable outlet for star/delta start can be supplied upon request.

- Can also operate in horizontal position, provided that the associated pump can apply an axial thrust of at least 250 N on the entire operating field.

- Screws included.

OPTIONAL FEATURES

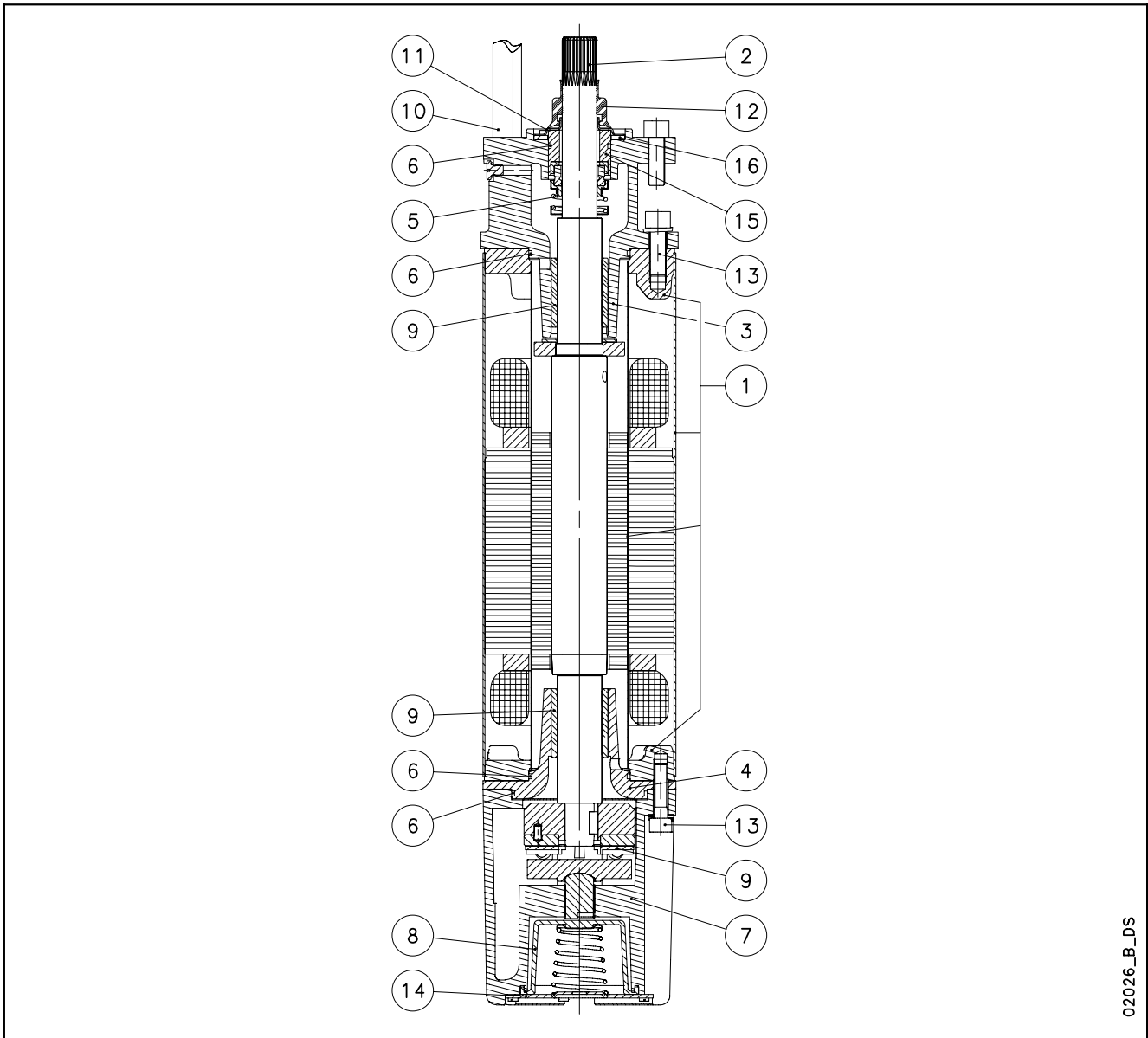
- Silicon Carbide mechanical seal.
- Special voltages.
- Inverter applications.
- Temperature sensor **PT 100 / PTC**.

High starting torque

Power supply cable with extractable connector

L6C MOTOR SERIES

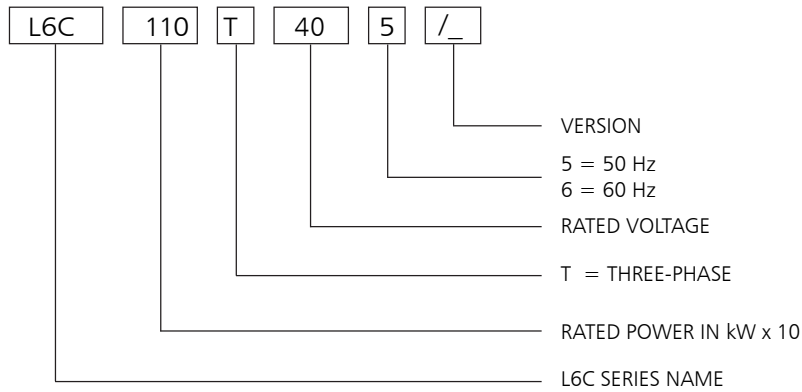
MOTOR CROSS SECTION AND TABLE OF MATERIALS



02026_B_DS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Inner and outer sleeve	Stainless steel	EN 10088-1-X2CrNi18-9 (1.4307)	AISI304L
	Flange	Carbon steel	EN 10025 - S355JR (Fe 510-B)	ASTM A105
2	Shaft extension	Stainless steel (Duplex)	EN 10095 X3CrNiMoN27-5-2 (1.4460)	AISI329
3	Upper bracket	Cast iron	EN-GJL-200	Class 25 B
4	Intermediate bracket	Cast iron	EN-GJL-200	Class 25 B
5	Mechanical seal	Carbon graphite / Aluminium oxide		
6	Elastomers	NBR		
7	Lower bracket	Cast iron	EN-GJL-200	Class 25 B
8	Compensating bellows	NBR		
9	Bearings	Carbon-graphite		
10	Cable	EPDM		
11	Fixed sand guard	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
12	Removable sand guard	NBR		
13	Bolts and screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
14	Lower cover	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
15	Mechanical seal spacer	A105 nichel plated		
16	Sand guard gasket	CR neoprene		
	Cooling liquid	Demineralized water + antifreeze		

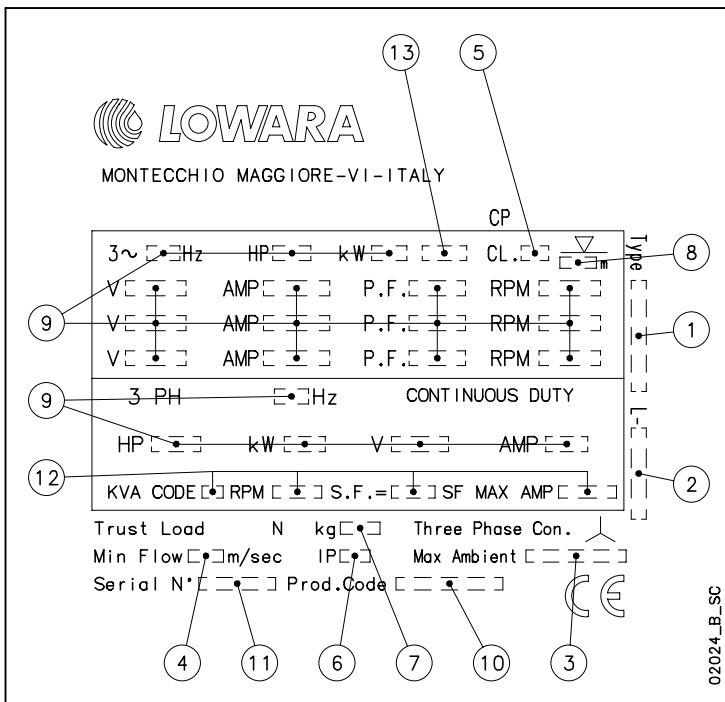
L6C MOTOR SERIES IDENTIFICATION CODE



EXAMPLE : L6C110T405

L6C MOTOR :
RATED POWER 11 kW; THREE-PHASE;
RATED VOLTAGE 400 V; 50 Hz.

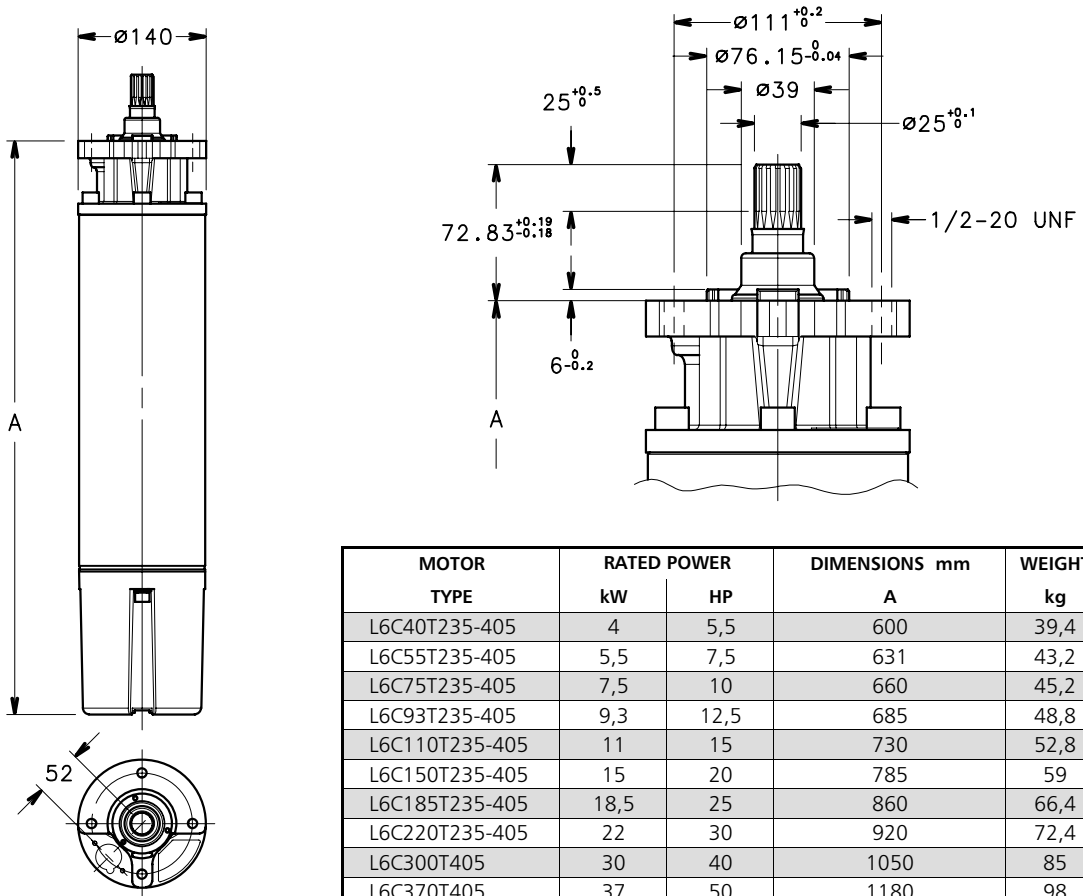
RATING PLATE



LEGEND

- 1 - Motor type
- 2 - Code
- 3 - Maximum water temperature
- 4 - Minimum water velocity
- 5 - Insulation class
- 6 - Protection class
- 7 - Weight
- 8 - Maximum immersion depth
- 9 - Operating characteristics
- 10 - Production date
- 11 - Serial number
- 12 - Characteristics at service factor
- 13 - Service type

**L6C MOTOR SERIES
DIMENSIONS AND WEIGHTS AT 50 Hz**



MOTOR TYPE	RATED POWER		DIMENSIONS mm A	WEIGHT kg
	kW	HP		
L6C40T235-405	4	5,5	600	39,4
L6C55T235-405	5,5	7,5	631	43,2
L6C75T235-405	7,5	10	660	45,2
L6C93T235-405	9,3	12,5	685	48,8
L6C110T235-405	11	15	730	52,8
L6C150T235-405	15	20	785	59
L6C185T235-405	18,5	25	860	66,4
L6C220T235-405	22	30	920	72,4
L6C300T405	30	40	1050	85
L6C370T405	37	50	1180	98

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02027_B_DD

L6C MOTOR SERIES

THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE °C	CABLE TYPE	
	kW	HP		A	rpm	η %	cosφ	Ts/Tn*	Is/In		Nc x sec mm ²	L m
L6C40T235	4	5,5	220	17,8	2825	75	0,8	1,7	3,9	35	4x4	4
			230	18,4	2845	74	0,75	1,7	3,9			
			240	19,1	2860	74	0,7	1,7	3,8			
L6C55T235	5,5	7,5	220	24,1	2820	77	0,8	1,8	3,8	35	4x4	4
			230	24,2	2845	76	0,75	1,8	3,8			
			240	25,3	2860	76	0,71	1,8	3,6			
L6C75T235	7,5	10	220	30,5	2820	78	0,82	2	3,9	35	4x4	4
			230	31,2	2840	77	0,78	2	3,9			
			240	31,7	2850	77	0,73	2	4			
L6C93T235	9,3	12,5	220	37,6	2820	78	0,82	2,1	3,8	35	4x6	4
			230	38,1	2840	79	0,8	2,1	3,9			
			240	39,5	2850	78	0,79	2,15	3,9			
L6C110T235	11	15	220	43,3	2815	77	0,87	2,1	4,5	35	4x6	4
			230	44,2	2840	78	0,82	2,1	4,5			
			240	45,0	2845	77	0,79	2,15	4,5			
L6C150T235	15	20	220	58,0	2810	80	0,84	2,2	4,1	35	4x8	4
			230	57,9	2840	81	0,8	2,2	4,1			
			240	59,2	2850	81	0,76	2,25	4,1			
L6C185T235	18,5	25	220	70,1	2820	81	0,83	2,3	4,3	35	4x8	4
			230	71,0	2845	82	0,8	2,3	4,3			
			240	72,7	2855	82	0,73	2,35	4,3			
L6C220T235	22	30	220	82,3	2810	81	0,88	2,3	4	35	4x8	4
			230	81,4	2825	82	0,84	2,3	4,1			
			240	82,3	2835	82	0,8	2,35	4,2			
L6C40T405	4	5,5	380	10,3	2825	75	0,8	1,7	3,9	35	4x4	4
			400	10,6	2845	74	0,75	1,7	3,9			
			415	11	2860	74	0,7	1,7	3,8			
L6C55T405	5,5	7,5	380	13,9	2820	77	0,8	1,8	3,8	35	4x4	4
			400	14	2845	76	0,75	1,8	3,8			
			415	14,6	2860	76	0,71	1,8	3,6			
L6C75T405	7,5	10	380	17,6	2820	78	0,82	2	3,9	35	4x4	4
			400	18	2840	77	0,78	2	3,9			
			415	18,3	2850	77	0,73	2	4			
L6C93T405	9,3	12,5	380	21,7	2820	78	0,82	2,1	3,8	35	4x4	4
			400	22	2840	79	0,8	2,1	3,9			
			415	22,8	2850	78	0,79	2,15	3,9			
L6C110T405	11	15	380	25	2815	77	0,87	2,1	4,5	35	4x4	4
			400	25,5	2840	78	0,82	2,1	4,5			
			415	26	2845	77	0,79	2,15	4,5			
L6C150T405	15	20	380	33,5	2810	80	0,84	2,2	4,1	35	4x4	4
			400	33,4	2840	81	0,8	2,2	4,1			
			415	34,2	2850	81	0,76	2,25	4,1			
L6C185T405	18,5	25	380	40,5	2820	81	0,83	2,3	4,3	35	4x6	4
			400	41	2845	82	0,8	2,3	4,3			
			415	42	2855	82	0,73	2,35	4,3			
L6C220T405	22	30	380	47,5	2810	81	0,88	2,3	4	35	4x6	4
			400	47	2825	82	0,84	2,3	4,1			
			415	47,5	2835	82	0,8	2,35	4,2			
L6C300T405	30	40	380	63	2810	82	0,89	2,4	4	35	4x8	4
			400	61,5	2830	82	0,85	2,4	4,1			
			415	63,5	2840	81	0,8	2,45	3,9			
L6C370T405	37	50	380	79,5	2820	82	0,87	2	3,7	35	4x8	4
			400	79,3	2830	81	0,84	2,2	3,9			
			415	80	2840	81	0,8	2,3	4			

* Ts/Tn = ratio between starting torque and nominal torque.

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6" Submersible motors

L6W Series



Water filled submersible motors.

The robust design together with excellent choice of materials ensures optimal performance, ease of installation and reliability in all applications. For extremely demanding operation as high water temperature or aggressive environments special versions are available.

SPECIFICATIONS

- **Stainless steel** outer sleeve.
- Shaft extension and coupling dimensions to **NEMA** standards.
- **Rewindable stator.**
- Class **Y insulation.**
- Protection class: **IP68.**
- Compensating bellows for internal liquid expansion.
- Axial load supported by Kingsbury type thrust bearing.
- **Mechanical seal** protected by sand guard.
- Maximum **immersion depth:** 350 m.
- Maximum **number of starts per hour** at regular intervals: 15.
- Maximum supply **voltage variations** allowed : $\pm 10\%$.
- Maximum water **temperature:** 30°C.
Max. temperature applies to motors working in a installation capable of delivering a flow of water around the motor jacket as following:
Standard versions 0,2 m/s (4÷9,3 kW), 0,3 m/s (11÷30 kW) and 0,5 m/s (37 kW).
HT versions 0,2 m/s (5,5÷7,5 kW), 0,3 m/s (9,3÷26 kW) and 0,5 m/s (30 kW).
- **Axial thrust:**
16000 N from 4 to 22 kW;
30000 N from 26 to 37 kW.
- **Power supply** cable suitable for drinkable water.
- **Versions:**
- Three-phase:
4 to 37 kW 380-415 V, 50 Hz.
- **Horizontal operation:**
valid for all versions provided that the direction of the axial thrust generated by the impellers is always from the pump to the motor.
- Flat power supply cable.
- Screws included.

SPECIAL VERSIONS

- Motors with double cable outlet for star/delta start.
- **L6WN series:** complete range available realized of AISI 316 stainless steel.
- **L6WR series:** complete range available realized of Duplex stainless steel.
- **HT series:** complete range available for all the L6W/N/R construction, realized for applications in high temperature environments (**up to 60°C**) or under inverter.

OPTIONAL FEATURES

- Silicon Carbide mechanical seal.
- Special voltages.

ACCESSORIES

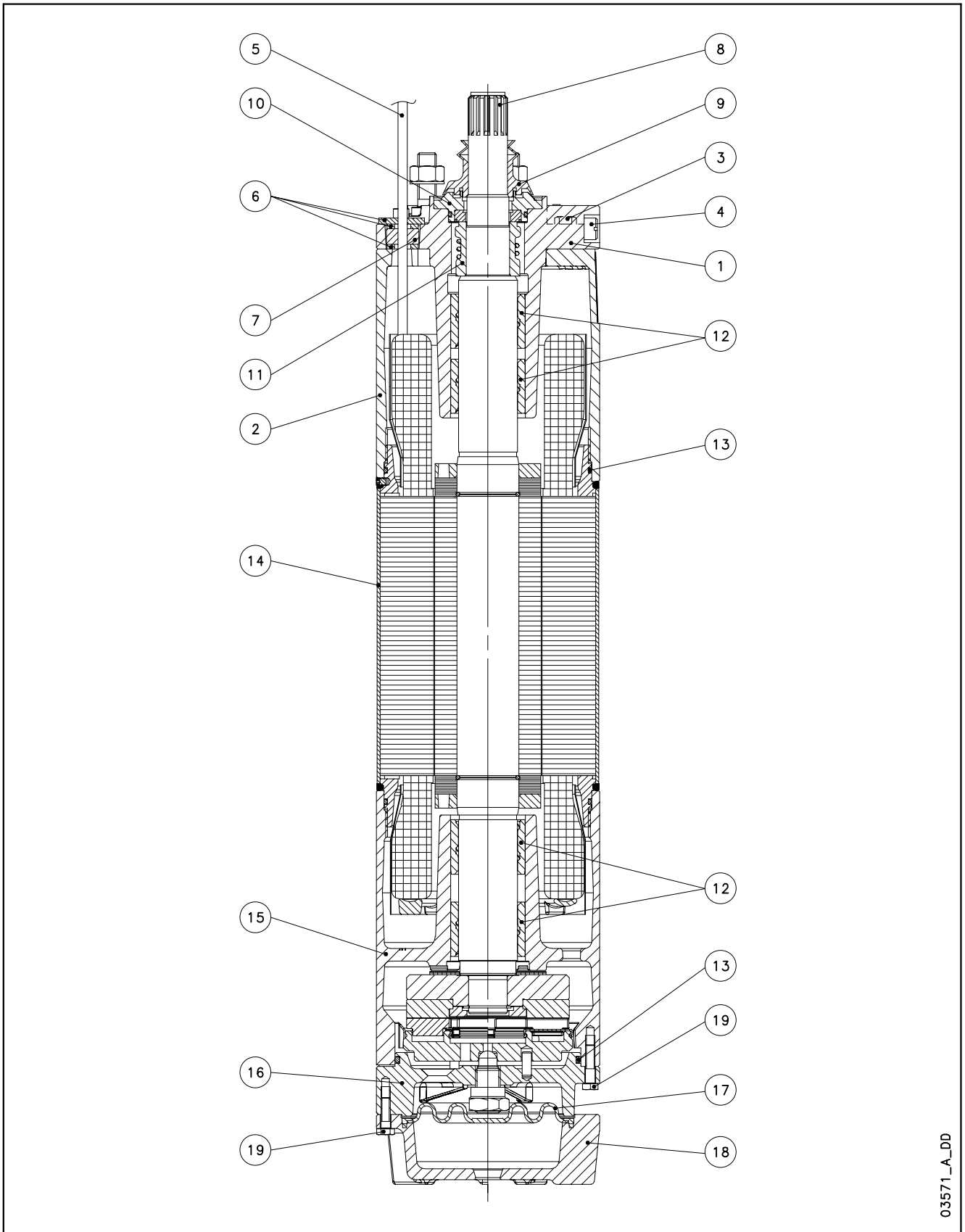
- Temperature sensor **PT 100 / PTC.**

Rewindable stator

Thrust bearing Kingsbury type

Mechanical seal

**L6W - L6WN - L6WR MOTOR SERIES
MOTOR CROSS SECTION**



03571_A_DD

L6W TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Cast iron	EN-GJL-200	Class 25 B
2	Spacer	Cast iron	EN-GJL-200	Class 25 B
3	Filling plug + OR	Stainless steel+NBR	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
4	Vent valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
7	Cable gland	EPDM		
8	Shaft end	Stainless steel	EN 10088-1-X20Cr13 (1.4021)	AISI420
9	Removable sand guard	EPDM		
10	Mechanical seal cover	Stainless steel	EN 10213-4-GX5CrNi19-10 (1.4308)	ASTM CF-8 (AISI 304 cast)
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1-X2CrNi19-11 (1.4306)	AISI304L
15	Lower bracket	Cast iron	EN-GJL-200	Class 25 B
16	Thrust bearing bracket	Cast iron	EN-GJL-200	Class 25 B
17	Diaphragm	EPDM		
18	Lower cover	Cast iron	EN-GJL-200	Class 25 B
19	Bolts and screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
	Cooling liquid	Water + antifreeze		

L6w-2p50-en_b_tm

L6WN TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
2	Spacer	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
3	Filling plug + OR	Stainless steel+NBR	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
4	Vent valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
7	Cable seal	EPDM		
8	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Removable sand guard	EPDM		
10	Mechanical seal cover	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
15	Lower bracket	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
16	Thrust bearing bracket	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
17	Diaphragm	EPDM		
18	Lower cover	Stainless steel	EN 10213-4-GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
19	Bolts and screws	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
	Cooling liquid	Water + antifreeze		

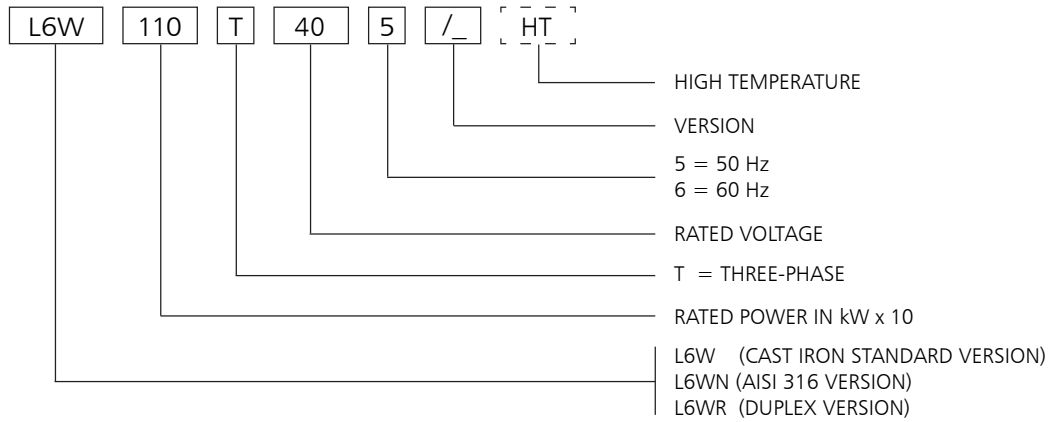
L6wn-2p50-en_b_tm

L6WR TABLE OF MATERIALS

REF. N°	PART	MATERIALE	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
2	Spacer	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
3	Filling plug + OR	Duplex s. s.+NBR	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
4	Vent valve	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1X1NiCrMoCu25-20-5 (1.4539)	AISI 904L
7	Cable gland	EPDM		
8	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Removable sand guard	EPDM		
10	Mechanical seal cover	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1X1NiCrMoCu25-20-5 (1.4539)	AISI 904L
15	Lower bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
16	Thrust bearing bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
17	Diaphragm	EPDM		
18	Lower cover	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
19	Bolts and screws	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
	Cooling liquid	Water + antifreeze		

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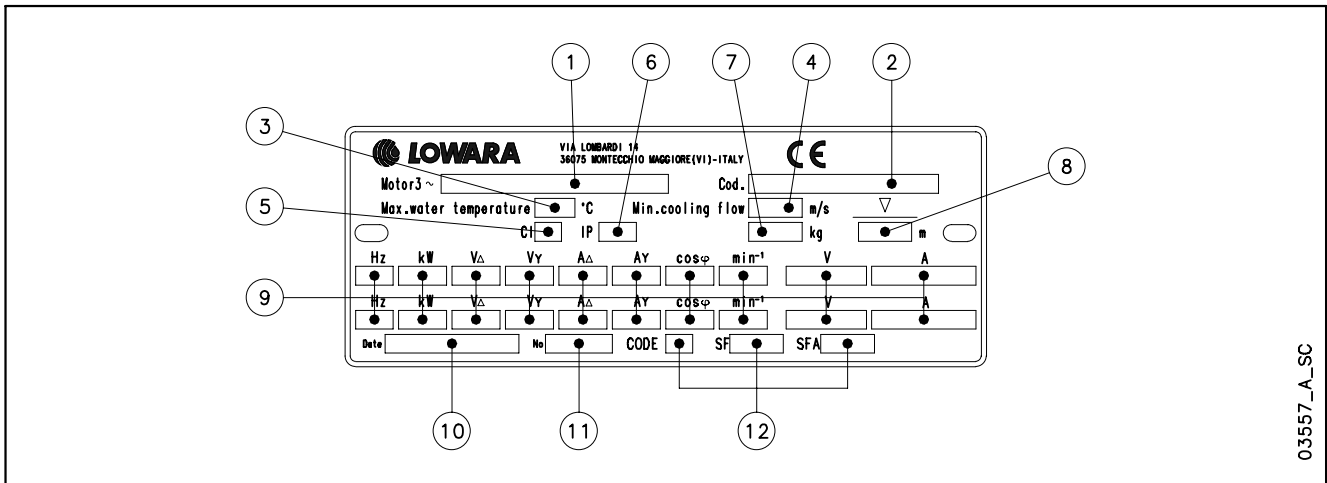
**L6W MOTOR SERIES
IDENTIFICATION CODE**



EXAMPLE : L6W110T405/A HT

L6W MOTOR :
 RATED POWER 11 kW; THREE-PHASE;
 RATED VOLTAGE 400 V; 50 Hz; /A VERSION; HIGH TEMPERATURE

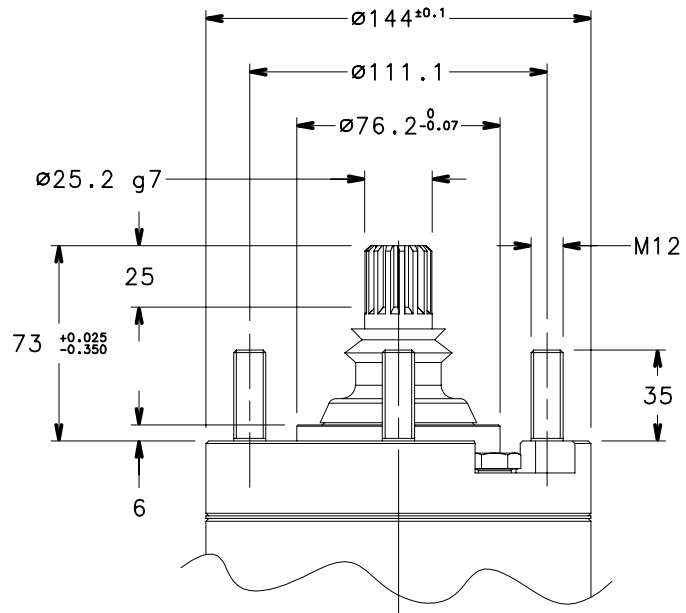
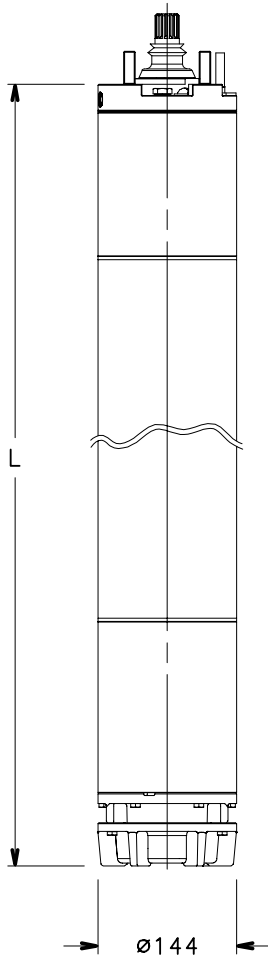
RATING PLATE



LEGEND

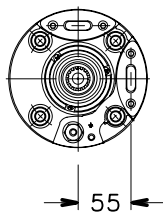
- 1 - Motor type
- 2 - Code
- 3 - Maximum water temperature
- 4 - Minimum water velocity
- 5 - Insulation class
- 6 - Protection class
- 7 - Weight
- 8 - Maximum immersion depth
- 9 - Operating characteristics
- 10 - Production date
- 11 - Serial number
- 12 - Characteristics at service factor

L6W MOTOR SERIES DIMENSIONS AND WEIGHTS AT 50 Hz



MOTOR TYPE	RATED POWER		DIMENSIONS (mm) L	WEIGHT kg
	kW	HP		
L6W40T405	4	5,5	583	38
L6W55T405	5,5	7,5	613	42
L6W75T405	7,5	10	653	46
L6W93T405	9,3	12,5	683	50
L6W110T405	11	15	723	54
L6W130T405	13	17,5	763	58
L6W150T405	15	20	833	66
L6W185T405	18,5	25	903	74
L6W220T405	22	30	943	77
L6W260T405	26	35	1071	86
L6W300T405	30	40	1151	94
L6W370T405	37	50	1301	108

l6w-2p50-en_b_td



MOTOR TYPE	RATED POWER		DIMENSIONS (mm) L	WEIGHT kg
	kW	HP		
L6W40T405 HT	4	5,5	613	42
L6W55T405 HT	5,5	7,5	653	46
L6W75T405 HT	7,5	10	683	50
L6W93T405 HT	9,3	12,5	723	54
L6W110T405 HT	11	15	763	58
L6W130T405 HT	13	17,5	833	66
L6W150T405 HT	15	20	903	74
L6W185T405 HT	18,5	25	943	77
L6W220T405 HT	22	30	1071	86
L6W260T405 HT	26	35	1151	94
L6W300T405 HT	30	40	1301	108

l6w-ht-2p50-en_a_td

03570_D_DD

L6W MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE	OPERATING CHARACTERISTICS AT RATED POWER					DIRECT START		MAX WATER TEMPERATURE	CABLE TYPE		
	THREE-PHASE	kW		HP	RATED CURRENT	rpm	η %	$\cos\phi$	Ts/Tn*	Is/In		°C	Sec. (mm ²)	
			V	A							DOL	Y/D	L (m)	
L6W40T405	4	5,5	380	9,89	2835	68,1	0,9	1,00	3,56	30	4	-	4	
			400	9,26	2865	71,0	0,88	1,13	4,00					
			415	9,13	2880	71,5	0,85	1,21	4,20					
L6W55T405	5,5	7,5	380	12,7	2855	75,4	0,88	1,18	4,37	30	4	4	4	
			400	12,4	2875	75,7	0,85	1,31	4,70					
			415	12,5	2885	75,4	0,82	1,42	4,85					
L6W75T405	7,5	10	380	17,0	2840	74,9	0,9	1,26	4,34	30	4	4	4	
			400	16,4	2860	76,0	0,87	1,41	4,74					
			415	16,2	2875	76,5	0,84	1,52	4,96					
L6W93T405	9,3	12,5	380	20,5	2840	77,6	0,89	1,51	4,64	30	4	4	4	
			400	20,0	2860	78,2	0,86	1,68	5,01					
			415	19,9	2870	78,3	0,83	1,81	5,21					
L6W110T405	11	15	380	24,2	2830	77,2	0,9	1,44	4,38	30	4	4	4	
			400	23,5	2850	78,0	0,87	1,47	4,75					
			415	23,4	2865	78,0	0,84	1,73	4,94					
L6W130T405	13	17,5	380	28,1	2830	77,9	0,9	1,31	4,53	30	4	4	4	
			400	27,1	2855	78,9	0,88	1,47	4,93					
			415	27,0	2865	79,1	0,9	1,59	5,15					
L6W150T405	15	20	380	32,1	2830	80,2	0,88	1,55	4,88	30	4	4	4	
			400	31,5	2855	80,6	0,85	1,72	5,25					
			415	31,3	2865	80,9	0,82	1,86	5,46					
L6W185T405	18,5	25	380	38,5	2845	81,8	0,89	1,77	5,23	30	6	4	4	
			400	37,6	2860	82,4	0,86	1,97	5,65					
			415	37,5	2870	82,4	0,83	2,13	5,86					
L6W220T405	22	30	380	47,3	2865	81,7	0,87	0,86	4,60	30	6	4	4	
			400	46,5	2880	82,2	0,83	0,96	4,93					
			415	46,7	2890	82,2	0,8	1,04	5,09					
L6W260T405	26	35	380	56,5	2860	81,9	0,85	1,58	4,82	30	6	4	4	
			400	55,4	2880	82,7	0,82	1,76	5,18					
			415	55,7	2890	82,7	0,79	1,90	5,35					
L6W300T405	30	40	380	63,8	2870	82,3	0,87	1,07	4,94	30	10	4	4	
			400	62,3	2890	83,1	0,84	1,19	5,32					
			415	62,0	2900	83,3	0,81	1,29	5,55					
L6W370T405	37	50	380	81,8	2845	79,6	0,86	1,03	4,25	30	10	4	4	
			400	79,1	2870	81,2	0,83	1,15	4,63					
			415	79,4	2880	80,8	0,80	1,25	4,79					

* Ts/Tn = ratio between starting torque and nominal torque.

l6w-2p50-en_f_te

L6W HT MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE V	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE °C	CABLE TYPE		
	THREE-PHASE kW	HP		RATED CURRENT A	rpm	η %	cosφ	Ts/Tn*	Is/In		Sec. (mm ²)		
											DOL	Y/D	L (m)
L6W40T405 HT	4	5,5	380	9,81	2905	76,9	0,81	1,65	5,65	45	4	4	4
			400	10,1	2915	75,5	0,76	1,83	5,78				
			415	10,5	2920	74,2	0,72	1,98	5,77				
L6W55T405 HT	5,5	7,5	380	12,9	2895	77,1	0,84	1,75	5,71	45	4	4	4
			400	13,0	2905	77,0	0,79	1,95	5,96				
			415	13,4	2915	76,3	0,75	2,10	6,03				
L6W75T405 HT	7,5	10	380	16,9	2880	79,2	0,85	1,89	5,64	45	4	4	4
			400	16,9	2890	79,0	0,81	2,11	5,91				
			415	17,3	2900	78,3	0,77	2,27	6,00				
L6W93T405 HT	9,3	12,5	380	20,6	2865	79,2	0,87	1,72	5,13	45	4	4	4
			400	20,4	2880	79,3	0,83	1,82	5,44				
			415	20,8	2890	78,4	0,79	2,07	5,53				
L6W110T405 HT	11	15	380	23,8	2870	80,1	0,88	1,57	5,35	45	4	4	4
			400	23,6	2885	80,1	0,84	1,75	5,69				
			415	23,9	2890	79,8	0,80	1,89	5,83				
L6W130T405 HT	13	17,5	380	28,3	2860	81,8	0,85	1,80	5,55	45	4	4	4
			400	28,1	2875	81,4	0,82	2,01	5,87				
			415	28,4	2885	81,4	0,78	2,17	6,03				
L6W150T405 HT	15	20	380	31,8	2880	83,6	0,86	2,21	6,33	45	6	4	4
			400	31,9	2890	83,4	0,82	2,46	6,65				
			415	32,5	2900	82,8	0,78	2,65	6,77				
L6W185T405 HT	18,5	25	380	40,3	2895	83,9	0,83	1,04	5,40	45	6	4	4
			400	40,5	2905	83,5	0,79	1,15	5,65				
			415	41,6	2910	83,0	0,75	1,24	5,71				
L6W220T405 HT	22	30	380	48,5	2890	83,6	0,82	1,89	5,62	45	6	4	4
			400	48,6	2905	83,6	0,78	2,10	5,90				
			415	49,7	2910	83,2	0,74	2,26	5,99				
L6W260T405 HT	26	35	380	55,7	2895	83,8	0,85	1,24	5,66	45	10	4	4
			400	55,2	2905	84,0	0,81	1,38	6,00				
			415	55,8	2915	83,9	0,77	1,49	6,17				
L6W300T405 HT	30	40	380	67,1	2885	82,2	0,83	1,29	5,18	45	10	4	4
			400	67,1	2900	82,8	0,78	1,44	5,46				
			415	68,8	2910	81,8	0,74	1,55	5,52				

* Ts/Tn = ratio between starting torque and nominal torque.

l6w-ht-2p50-en_c_te

8" Submersible motors

L8W Series



**Rewindable
stator**

**Thrust bearing
Kingsbury
type**

**Mechanical
seal**

Water filled submersible motors.

The robust design together with excellent choice of materials ensures optimal performance, ease of installation and reliability in all applications. For extremely demanding operation as high water temperature or aggressive environments special versions are available.

SPECIFICATIONS

- **Stainless steel** outer sleeve.
- Shaft extension and coupling dimensions to **NEMA** standards.
- **Rewindable stator.**
- Class **Y insulation.**
- Protection class: **IP68.**
- Compensating bellows for internal liquid expansion.
- Axial load supported by Kingsbury type thrust bearing.
- **Mechanical seal** protected by sand guard.
- Maximum **immersion depth:** 350 m.
- Maximum **number of starts per hour** at regular intervals: 10.
- Maximum supply **voltage variations** allowed : $\pm 10\%$.
- Maximum water **temperature:** 30°C.
Max. temperature applies to motors working in a installation capable of delivering a flow of water around the motor jacket of at least 0,5 m/s.
- **Axial thrust:** 50000 N from 30 to 93 kW.
- **Power supply** cable suitable for drinkable water.
- **Versions:**
 - Three-phase: 30 to 93 kW 380-415 V, 50 Hz.
- **Horizontal operation:** valid for all versions provided that the direction of the axial thrust generated by the impellers is always from the pump to the motor.

SPECIAL VERSIONS

- Motors with double cable outlet for star/delta start.
- **L8WN series:** complete range available realized of AISI 316 stainless steel.
- **L8WR series:** complete range available realized of Duplex stainless steel.
- **HT series:** complete range available for all the L8W/N/R construction, realized for applications in high temperature environments (**up to 60°C**) or under inverter.

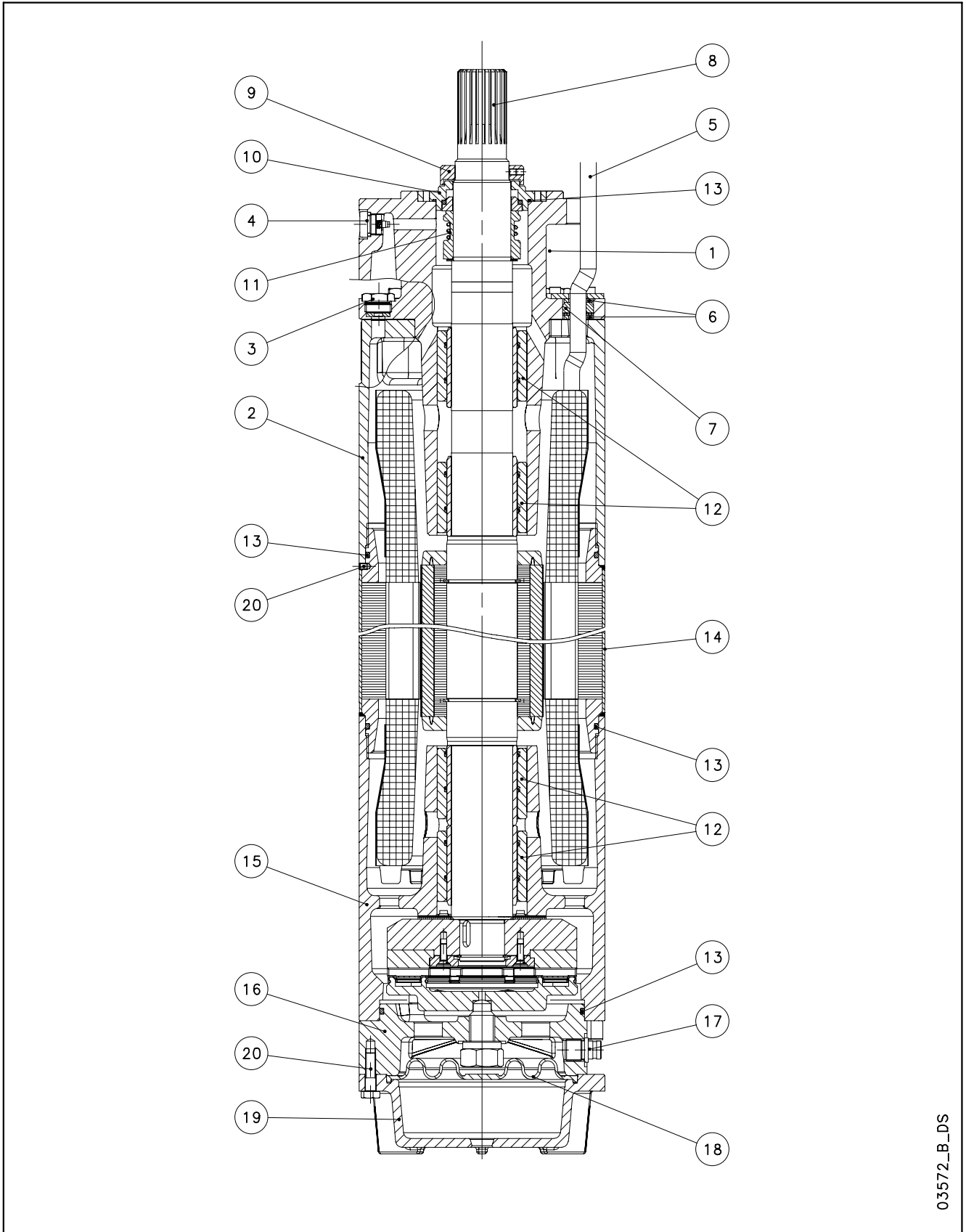
OPTIONAL FEATURES

- Silicon Carbide mechanical seal.
- Special voltages.

ACCESSORIES

- Temperature sensor **PT 100 / PTC.**

**L8W - L8WN - L8WR MOTOR SERIES
MOTOR CROSS SECTION**



03572_B_DS

L8W TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Cast iron	EN-GJL-200	Class 25 B
2	Spacer	Cast iron	EN-GJL-200	Class 25 B
3	Filling plug + OR	Stainless steel+NBR	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
4	Vent valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
7	Cable gland	EPDM		
8	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Removable sand guard	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Mechanical seal cover	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1-X2CrNi19-11 (1.4306)	AISI304L
15	Lower bracket	Cast iron	EN-GJL-200	Class 25 B
16	Thrust bearing bracket	Cast iron	EN-GJL-200	Class 25 B
17	Filling valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
18	Diaphragm	EPDM		
19	Lower cover	Cast iron	EN-GJL-200	Class 25 B
20	Bolts and screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
	Cooling liquid	Water + antifreeze		

L8w-2p50-en_a_tm

L8WN TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
2	Spacer	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
3	Filling plug + OR	Stainless steel+NBR	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
4	Vent valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
7	Cable gland	EPDM		
8	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Removable sand guard	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Mechanical seal cover	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
15	Lower bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
16	Thrust bearing bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
17	Filling valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
18	Diaphragm	EPDM		
19	Lower cover	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
20	Bolts and screws	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
	Cooling liquid	Water + antifreeze		

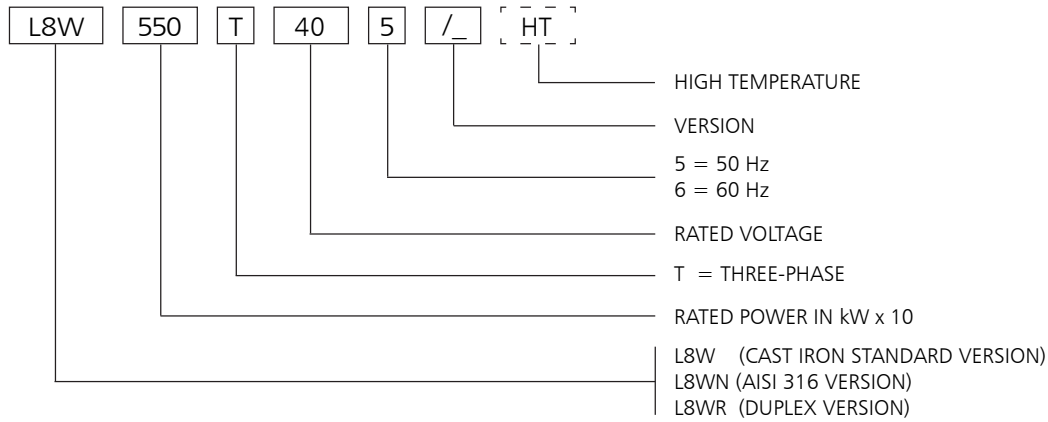
L8wn-2p50-en_a_tm

L8WR TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
2	Spacer	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
3	Filling plug + OR	Duplex s. s.+NBR	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
4	Vent valve	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1X1NiCrMoCu25-20-5 (1.4539)	AISI 904L
7	Cable gland	EPDM		
8	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Removable sand guard	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
10	Mechanical seal cover	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1X1NiCrMoCu25-20-5 (1.4539)	AISI 904L
15	Lower bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
16	Thrust bearing bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
17	Filling valve	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
18	Diaphragm	EPDM		
19	Lower cover	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
20	Bolts and screws	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
	Cooling liquid	Water + antifreeze		

L8wr-2p50-en_a_tm

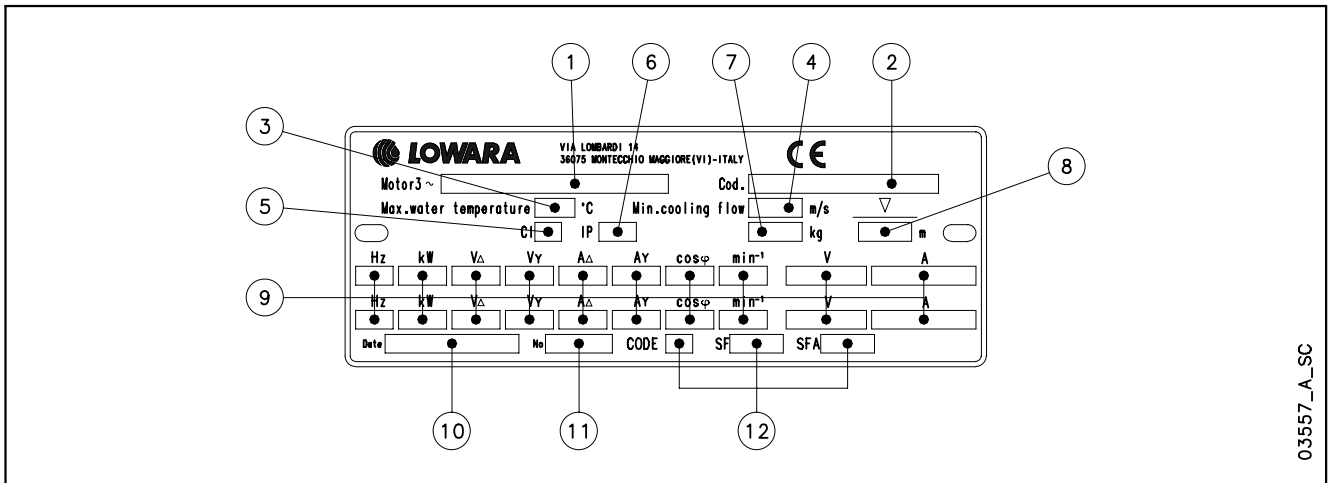
L8W MOTOR SERIES IDENTIFICATION CODE



EXAMPLE : L8W550T405/A HT

L8W MOTOR :
 RATED POWER 55 kW; THREE-PHASE;
 RATED VOLTAGE 400 V; 50 Hz; /A VERSION; HIGH TEMPERATURE

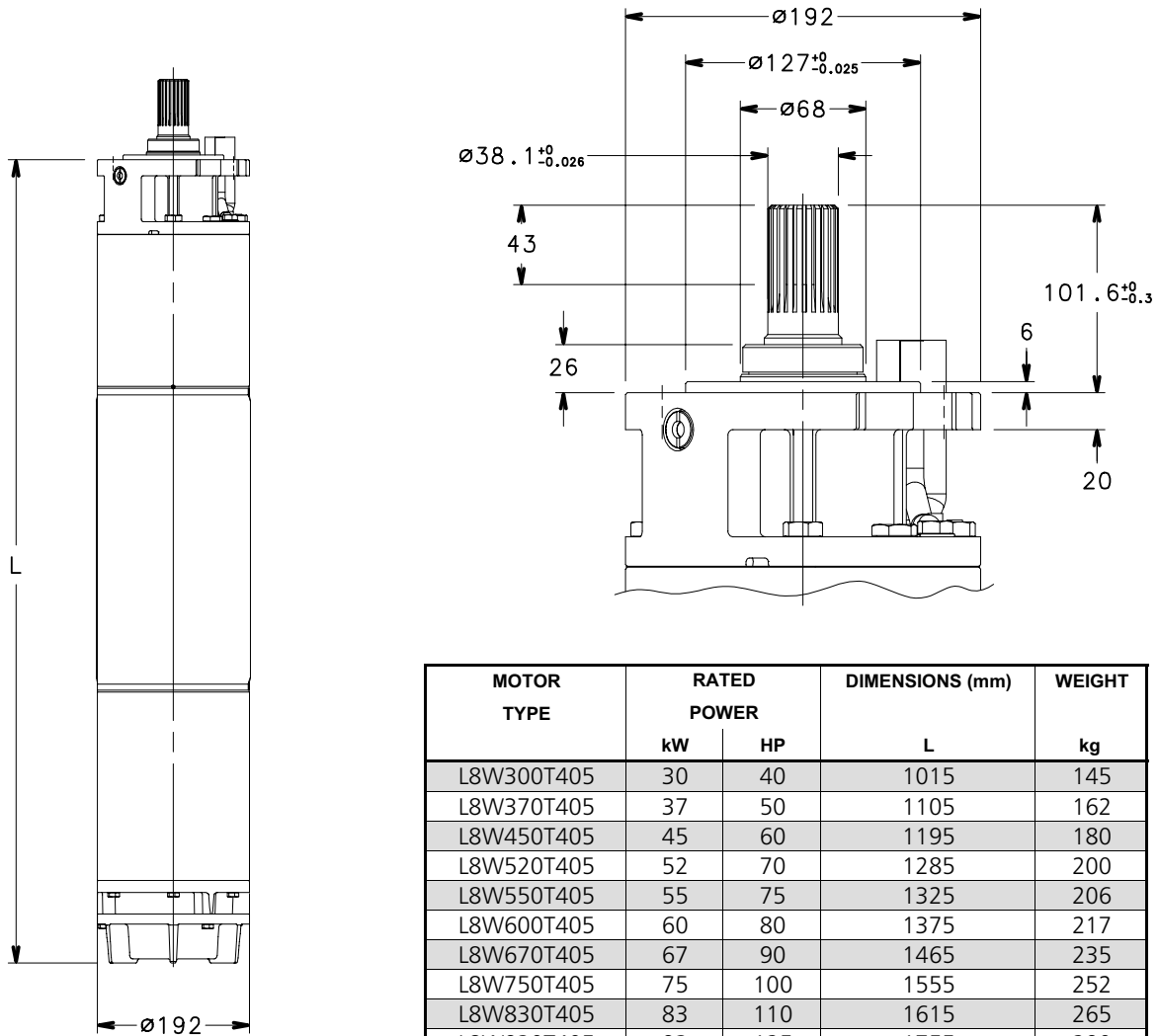
RATING PLATE



LEGEND

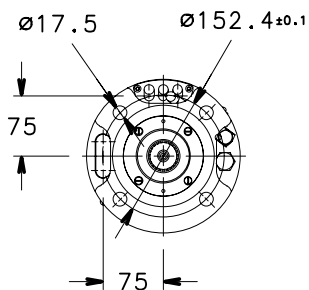
- | | |
|-------------------------------|--|
| 1 - Motor type | 7 - Weight |
| 2 - Code | 8 - Maximum immersion depth |
| 3 - Maximum water temperature | 9 - Operating characteristics |
| 4 - Minimum water velocity | 10 - Production date |
| 5 - Insulation class | 11 - Serial number |
| 6 - Protection class | 12 - Characteristics at service factor |

L8W MOTOR SERIES DIMENSIONS AND WEIGHTS AT 50 Hz



MOTOR TYPE	RATED POWER		DIMENSIONS (mm) L	WEIGHT kg
	kW	HP		
L8W300T405	30	40	1015	145
L8W370T405	37	50	1105	162
L8W450T405	45	60	1195	180
L8W520T405	52	70	1285	200
L8W550T405	55	75	1325	206
L8W600T405	60	80	1375	217
L8W670T405	67	90	1465	235
L8W750T405	75	100	1555	252
L8W830T405	83	110	1615	265
L8W930T405	93	125	1755	290

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MOTOR TYPE	RATED POWER		DIMENSIONS (mm) L	WEIGHT kg
	kW	HP		
L8W300T405 HT	30	40	1105	162
L8W370T405 HT	37	50	1195	180
L8W450T405 HT	45	60	1285	200
L8W520T405 HT	52	70	1325	206
L8W550T405 HT	55	75	1375	217
L8W600T405 HT	60	80	1465	235
L8W670T405 HT	67	90	1555	252
L8W750T405 HT	75	100	1615	265
L8W830T405 HT	83	110	1755	290

l8w-ht-2p50-en_a_td

03550_C_DD

L8W MOTOR SERIES

THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE	CABLE TYPE		
				RATED CURRENT				Ts/Tn*	Is/In		Sec. (mm ²)		
	kW	HP		V	A	rpm	η %				cosφ	°C	DOL
L8W300T405	30	40	380	65,0	2905	83,0	0,85	1,20	4,67	30	10	6	5,5
			400	62,0	2900	83,0	0,84	1,15	4,69				
			415	59,0	2900	83,0	0,84	1,09	4,70				
L8W370T405	37	50	380	81,0	2840	80,5	0,87	1,04	4,19	30	10	6	5,5
			400	78,5	2860	81,0	0,84	1,14	4,54				
			415	76,0	2870	81,5	0,83	1,23	4,88				
L8W450T405	45	60	380	92,0	2850	82,0	0,87	0,92	3,72	30	16	6	5,5
			400	89,0	2870	82,0	0,85	1,01	3,98				
			415	89,0	2880	83,5	0,83	1,09	4,23				
L8W520T405	52	70	380	110	2840	82,0	0,86	1,14	3,90	30	16	6	5,5
			400	108	2865	82,0	0,85	1,15	4,20				
			415	104	2885	82,5	0,82	1,16	4,50				
L8W550T405	55	75	380	118	2840	82,0	0,87	1,26	3,57	30	16	10	5,5
			400	114	2870	82,0	0,85	1,27	3,88				
			415	110	2885	82,5	0,83	1,27	4,19				
L8W600T405	60	80	380	124	2855	82,0	0,87	1,12	4,18	30	16	10	5,5
			400	120	2875	82,5	0,85	1,23	4,49				
			415	118	2885	83,5	0,83	1,33	4,80				
L8W670T405	67	90	380	138	2850	82,5	0,88	0,98	4,22	30	25	10	5,5
			400	133	2870	83,0	0,86	1,07	4,52				
			415	132	2885	83,5	0,83	1,16	4,82				
L8W750T405	75	100	380	156	2860	82,0	0,87	0,92	4,10	30	25	16	5,5
			400	152	2875	82,5	0,85	1,01	4,41				
			415	148	2885	83,0	0,82	1,10	4,72				
L8W830T405	83	110	380	172	2860	83,0	0,87	0,91	4,12	30	35	16	5,5
			400	168	2870	83,5	0,84	1,00	4,39				
			415	163	2880	84,0	0,82	1,08	4,66				
L8W930T405	93	125	380	192	2850	83,0	0,87	0,84	3,38	30	35	16	5,5
			400	186	2860	83,5	0,85	0,92	3,84				
			415	180	2885	84,0	0,83	1,00	4,30				

* Ts/Tn = ratio between starting torque and nominal torque.

l8w-2p50-en_d_te

L8W HT MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE V	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE °C	CABLE TYPE		
	kW	HP		RATED CURRENT				Ts/Tn*	Is/In		Sec. (mm ²)		
				A	rpm	η %	cosφ				DOL	Y/D	L (m)
L8W300T405 HT	30	40	380	66,6	2865	82,5	0,84	1,29	5,10	45	10	6	5,5
			400	64,5	2885	83,0	0,81	1,41	5,52				
			415	62,4	2895	83,5	0,8	1,53	5,94				
L8W370T405 HT	37	50	380	77,5	2865	84,0	0,86	1,12	4,41	45	16	6	5,5
			400	75,0	2885	84,0	0,84	1,23	4,72				
			415	75,0	2895	85,5	0,82	1,33	5,02				
L8W450T405 HT	45	60	380	97,8	2860	83,0	0,83	1,33	4,39	45	16	6	5,5
			400	96,0	2885	83,0	0,82	1,34	4,73				
			415	92,4	2905	83,5	0,79	1,35	5,06				
L8W520T405 HT	52	70	380	110	2835	83,0	0,86	1,33	3,84	45	16	10	5,5
			400	106	2865	83,0	0,84	1,34	4,17				
			415	102	2880	83,5	0,82	1,34	4,51				
L8W550T405 HT	55	75	380	117	2865	83,5	0,86	1,23	4,44	45	16	10	5,5
			400	113	2885	84,0	0,84	1,34	4,77				
			415	111	2895	85,0	0,82	1,46	5,10				
L8W600T405 HT	60	80	380	127	2860	83,5	0,87	1,10	4,60	45	25	10	5,5
			400	122	2880	84,0	0,85	1,20	4,93				
			415	121	2895	84,5	0,82	1,30	5,25				
L8W670T405 HT	67	90	380	141	2870	82,5	0,85	1,03	4,55	45	25	16	5,5
			400	137	2885	83,0	0,83	1,13	4,89				
			415	133	2895	83,5	0,8	1,24	5,24				
L8W750T405 HT	75	100	380	156	2905	82,5	0,86	1,02	4,55	45	35	16	5,5
			400	152	2915	83,0	0,83	1,12	4,85				
			415	147	2925	83,5	0,81	1,21	5,15				
L8W830T405 HT	83	110	380	171	2875	84,5	0,86	0,95	3,79	45	35	16	5,5
			400	166	2885	85,0	0,84	1,04	4,30				
			415	161	2910	85,5	0,82	1,13	4,82				

* Ts/Tn = ratio between starting torque and nominal torque.

l8w-ht-2p50-en_a_te

10" Submersible motors

L10W Series



Water filled submersible motors.

The robust design together with excellent choice of materials ensures optimal performance, ease of installation and reliability in all applications. For extremely demanding operation as high water temperature or aggressive environments special versions are available.

SPECIFICATIONS

- **Stainless steel** outer sleeve.
- **Rewindable stator.**
- **Class Y insulation.**
- Protection class: **IP68.**
- Compensating bellows for internal liquid expansion.
- Axial load supported by Kingsbury type thrust bearing.
- **Mechanical seal** protected by sand guard.
- Maximum **immersion depth:** 350 m.
- Maximum **number of starts per hour** at regular intervals: 8.
- Maximum supply **voltage variations** allowed : $\pm 10\%$.
- Maximum water **temperature:** 30°C.
Max. temperature applies to motors working in a installation capable of delivering a flow of water around the motor jacket of at least 0,5 m/s.
- **Axial thrust:** 65000 N from 93 to 150 kW.
- **Power supply** cable suitable for drinkable water.
- **Versions:**
 - Three-phase: 93 to 150 kW 380-415 V, 50 Hz.
- **Horizontal operation:** valid for all versions provided that the direction of the axial thrust generated by the impellers is always from the pump to the motor.

SPECIAL VERSIONS

- Motors with double cable outlet for star/delta start.
- **L10WN series:** complete range available realized of AISI 316 stainless steel.
- **L10WR series:** complete range available realized of Duplex stainless steel.
- **HT series:** complete range available for all the L10W/N/R construction, realized for applications in high temperature environments (**up to 60°C**) or under inverter.

OPTIONAL FEATURES

- Silicon Carbide mechanical seal.
- Special voltages.

ACCESSORIES

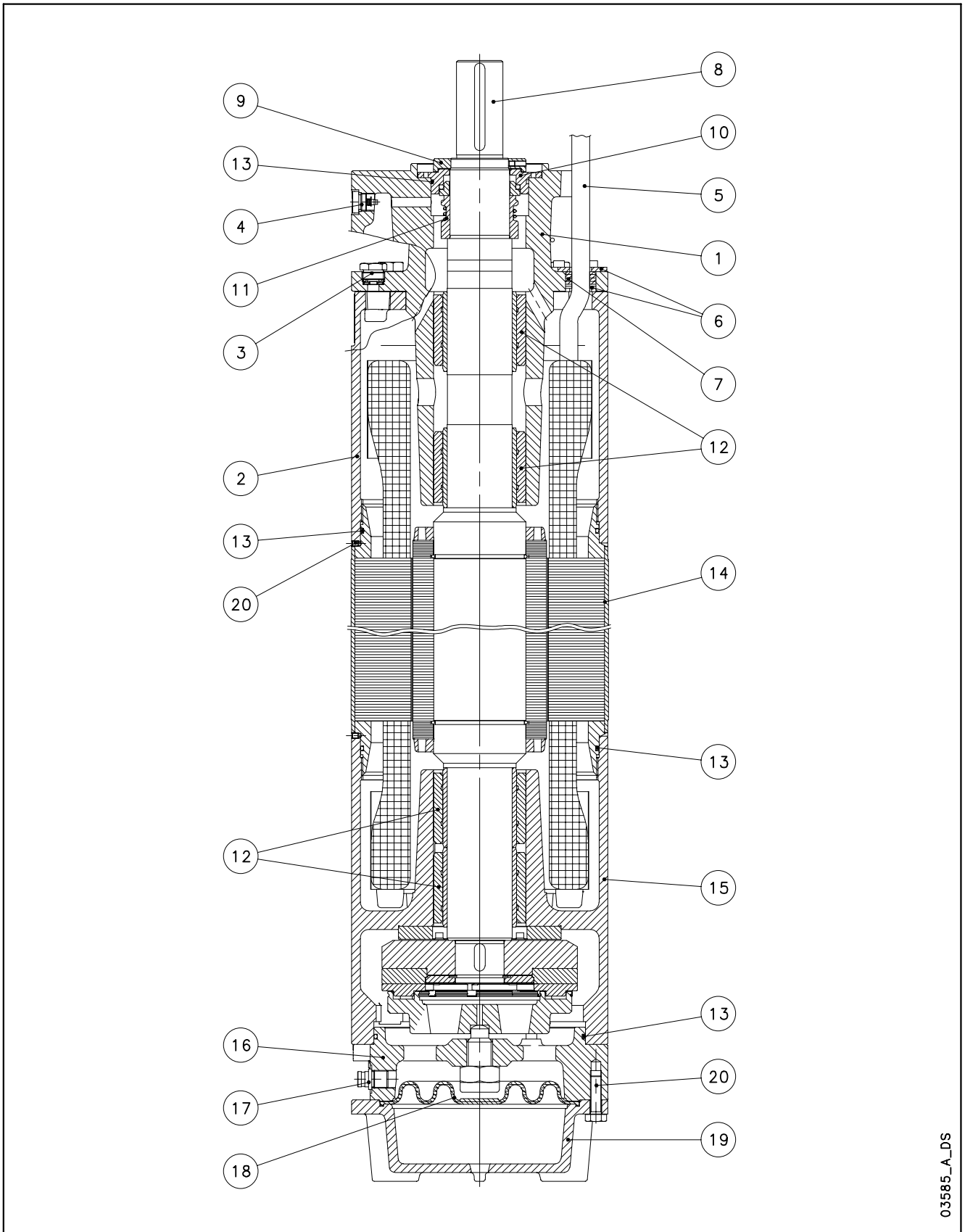
- Temperature sensor **PT 100 / PTC.**

Rewindable stator

Thrust bearing Kingsbury type

Mechanical seal

**L10W - L10WN - L10WR MOTOR SERIES
MOTOR CROSS SECTION**



03585_A_DS

L10W TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Cast iron	EN-GJL-200	Class 25 B
2	Spacer	Cast iron	EN-GJL-200	Class 25 B
3	Filling plug + OR	Stainless steel+NBR	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
4	Vent valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
7	Cable gland	EPDM		
8	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Removable sand guard	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Mechanical seal cover	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1-X2CrNi19-11 (1.4306)	AISI304L
15	Lower bracket	Cast iron	EN-GJL-200	Class 25 B
16	Thrust bearing bracket	Cast iron	EN-GJL-200	Class 25 B
17	Filling valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
18	Diaphragm	EPDM		
19	Lower cover	Cast iron	EN-GJL-200	Class 25 B
20	Bolts and screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
	Cooling liquid	Water + antifreeze		

L10w-2p50-en_a_tm

L10WN TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
2	Spacer	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
3	Filling plug + OR	Stainless steel+NBR	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
4	Vent valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
7	Cable gland	EPDM		
8	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Removable sand guard	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Mechanical seal cover	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
15	Lower bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
16	Thrust bearing bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
17	Filling valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
18	Diaphragm	EPDM		
19	Lower cover	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
20	Bolts and screws	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
	Cooling liquid	Water + antifreeze		

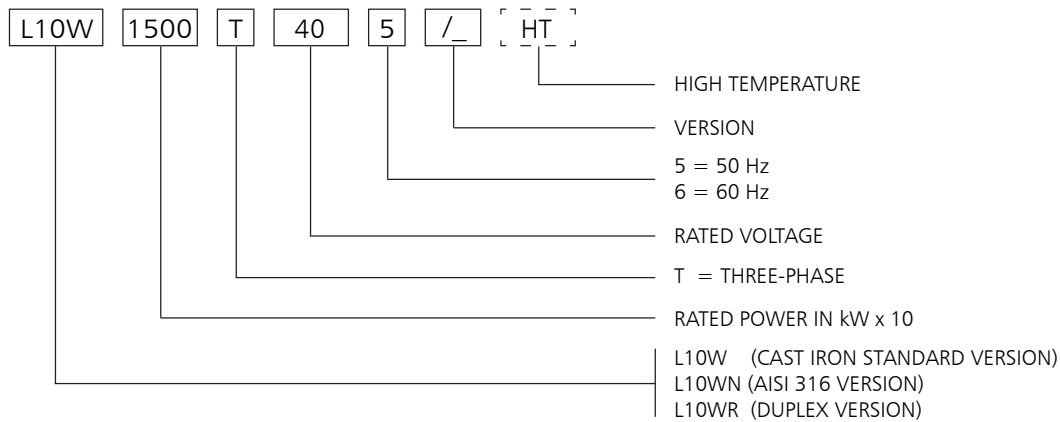
L10wn-2p50-en_a_tm

L10WR TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
2	Spacer	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
3	Filling plug + OR	Duplex s. s.+NBR	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
4	Vent valve	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
5	Cable	EPR		
6	Cable gland plate	Stainless steel	EN 10088-1X1NiCrMoCu25-20-5 (1.4539)	AISI 904L
7	Cable gland	EPDM		
8	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Removable sand guard	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
10	Mechanical seal cover	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
11	Mechanical seal	Carbon graphite / Aluminium oxide		
12	Bush bearings	Carbon graphite		
13	Elastomers	NBR		
14	Motor sleeve	Stainless steel	EN 10088-1X1NiCrMoCu25-20-5 (1.4539)	AISI 904L
15	Lower bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
16	Thrust bearing bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
17	Filling valve	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
18	Diaphragm	EPDM		
19	Lower cover	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
20	Bolts and screws	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
	Cooling liquid	Water + antifreeze		

L10wr-2p50-en_a_tm

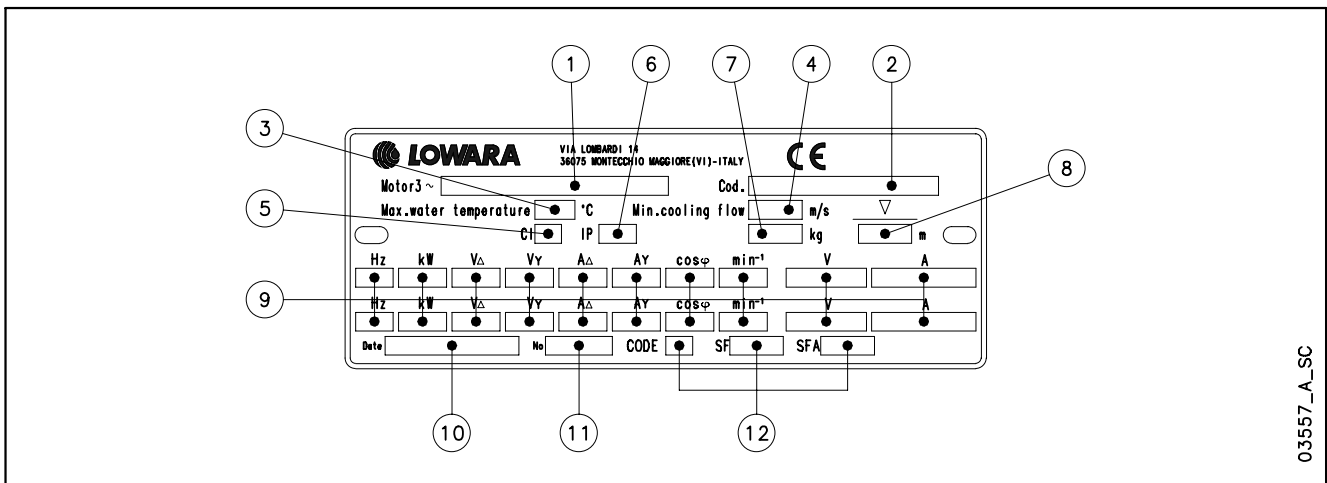
L10W MOTOR SERIES IDENTIFICATION CODE



EXAMPLE : L10W1500T405/A HT

L10W MOTOR :
 RATED POWER 150 kW; THREE-PHASE;
 RATED VOLTAGE 400 V; 50 Hz; /A VERSION; HIGH TEMPERATURE

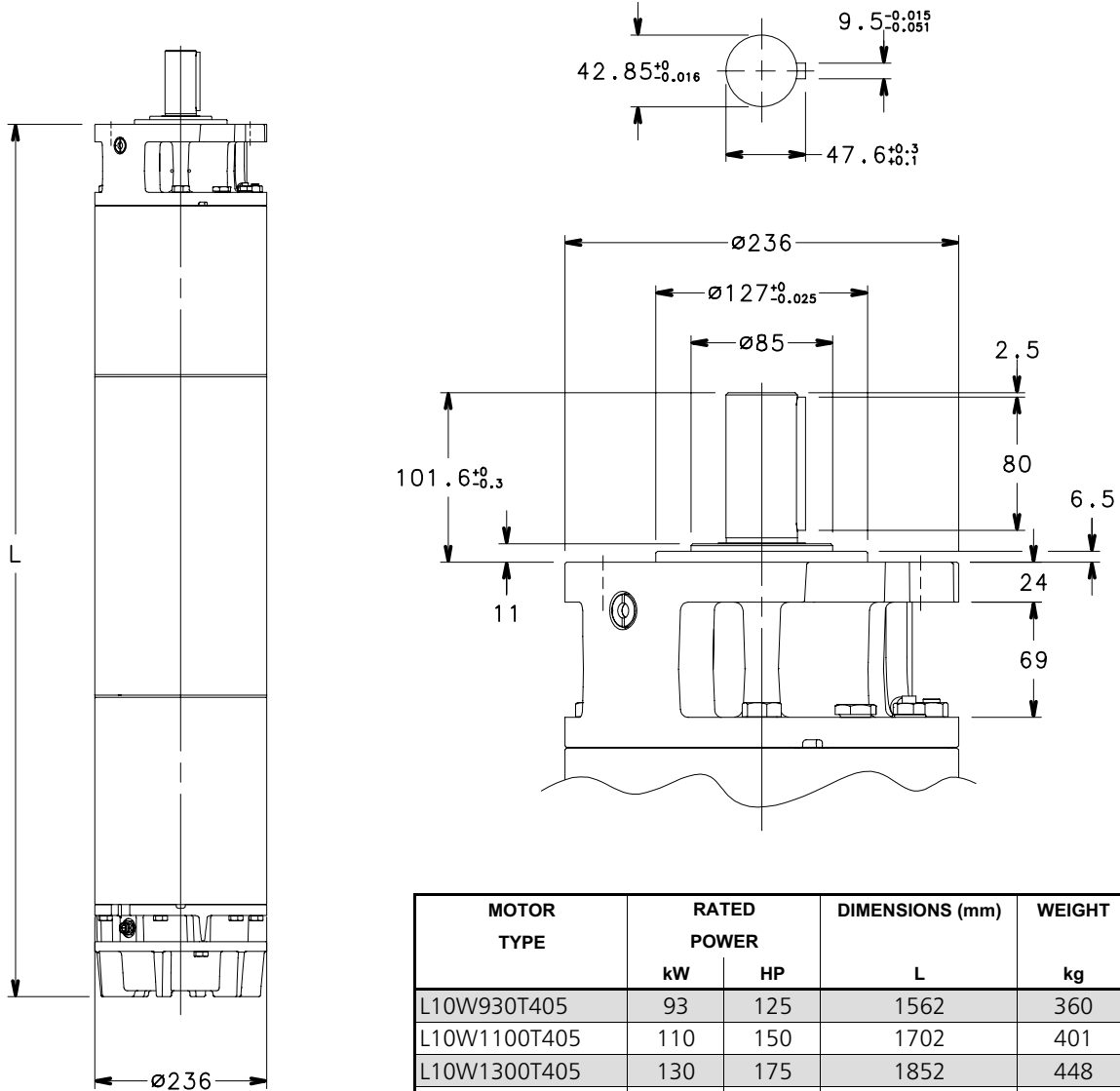
RATING PLATE



LEGEND

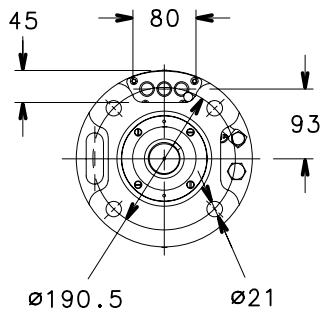
- | | |
|-------------------------------|--|
| 1 - Motor type | 7 - Weight |
| 2 - Code | 8 - Maximum immersion depth |
| 3 - Maximum water temperature | 9 - Operating characteristics |
| 4 - Minimum water velocity | 10 - Production date |
| 5 - Insulation class | 11 - Serial number |
| 6 - Protection class | 12 - Characteristics at service factor |

L10W MOTOR SERIES DIMENSIONS AND WEIGHTS AT 50 Hz



MOTOR TYPE	RATED POWER		DIMENSIONS (mm)	WEIGHT
	kW	HP	L	kg
L10W930T405	93	125	1562	360
L10W1100T405	110	150	1702	401
L10W1300T405	130	175	1852	448
L10W1500T405	150	200	1982	487

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MOTOR TYPE	RATED POWER		DIMENSIONS (mm)	WEIGHT
	kW	HP	L	kg
L10W830T405 HT	83	110	1562	360
L10W930T405 HT	93	125	1702	401
L10W1100T405 HT	110	150	1852	448
L10W1300T405 HT	130	175	1982	487

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L10W MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE °C	CABLE TYPE		
	THREE-PHASE	kW		HP	RATED CURRENT	A	rpm	η %	cosφ		Ts/Tn*	Is/In	Sec. (mm ²)
L10W930T405	93	125	380	191	2895	83,0	0,87	1,02	5,14	30	35	25	5
			400	184	2910	83,0	0,85	1,12	5,55				
			415	180	2915	84,0	0,84	1,21	5,95				
L10W1100T405	110	150	380	235	2900	83,5	0,86	1,20	4,77	30	50	25	5
			400	225	2910	83,5	0,84	1,32	5,17				
			415	220	2920	84,5	0,82	1,43	5,57				
L10W1300T405	130	175	380	270	2895	84,0	0,86	1,29	4,84	30	50	25	5
			400	263	2915	83,0	0,85	1,42	5,22				
			415	255	2915	85,5	0,83	1,54	5,60				
L10W1500T405	150	200	380	308	2905	83,0	0,86	1,26	4,77	30	70	25	5
			400	295	2915	83,0	0,85	1,38	5,20				
			415	285	2925	84,0	0,84	1,50	5,63				

* Ts/Tn = ratio between starting torque and nominal torque.

l10w-2p50-en_b_te

L10W HT MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE	RATED POWER		RATED VOLTAGE	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE °C	CABLE TYPE		
	THREE-PHASE	kW		HP	RATED CURRENT	A	rpm	η %	cosφ		Ts/Tn*	Is/In	Sec. (mm ²)
L10W830T405 HT	83	110	380	170,2	2900	85,0	0,87	1,14	5,77	45	35	25	5
			400	164,0	2915	85,0	0,85	1,25	6,22				
			415	160,4	2920	86,0	0,84	1,36	6,68				
L10W930T405 HT	93	125	380	200,5	2905	86,0	0,84	1,42	5,59	45	50	25	5
			400	192,0	2915	86,0	0,82	1,56	6,06				
			415	187,7	2925	87,0	0,8	1,69	6,53				
L10W1100T405 HT	110	150	380	233,0	2900	87,0	0,82	1,53	5,61	45	50	25	5
			400	227,0	2920	86,0	0,81	1,68	6,05				
			415	220,1	2920	88,6	0,79	1,82	6,49				
L10W1300T405 HT	130	175	380	288	2920	85,0	0,83	1,46	5,10	45	70	25	5
			400	276	2930	85,0	0,82	1,60	5,56				
			415	267	2940	86,0	0,81	1,74	6,02				

* Ts/Tn = ratio between starting torque and nominal torque.

l10w-ht-2p50-en_a_te

12" Submersible motors

L12W Series



Rewindable stator

Thrust bearing Kingsbury type

Mechanical seal

Water filled submersible motors.

The robust design together with excellent choice of materials ensures optimal performance, ease of installation and reliability in all applications. For extremely demanding operation as high water temperature or aggressive environments special versions are available.

SPECIFICATIONS

- **Stainless steel** outer sleeve.
- **Rewindable stator.**
- **Class Y insulation.**
- Protection class: **IP68.**
- Compensating bellows for internal liquid expansion.
- Axial load supported by Kingsbury type thrust bearing.
- **Mechanical seal** protected by sand guard.
- Maximum **immersion depth:** 350 m.
- Maximum **number of starts per hour** at regular intervals: 4.
- Maximum supply **voltage variations** allowed : $\pm 10\%$.
- Maximum water **temperature:** 30°C.
Max. temperature applies to motors working in a installation capable of delivering a flow of water around the motor jacket of at least 0,5 m/s.
- **Axial thrust:** 65000 N from 185 to 300 kW.
- **Power supply** cable suitable for drinkable water.
- **Versions:**
 - Three-phase: 185 to 300 kW 380-415 V, 50 Hz.
- **Horizontal operation:** valid for all versions provided that the direction of the axial thrust generated by the impellers is always from the pump to the motor.

SPECIAL VERSIONS

- Motors with double cable outlet for star/delta start.
- **L12WN series:** complete range available realized of AISI 316 stainless steel.
- **L12WR series:** complete range available realized of Duplex stainless steel.
- **HT series:** complete range available for all the L12W/N/R construction, realized for applications in high temperature environments (**up to 60°C**) or under inverter.

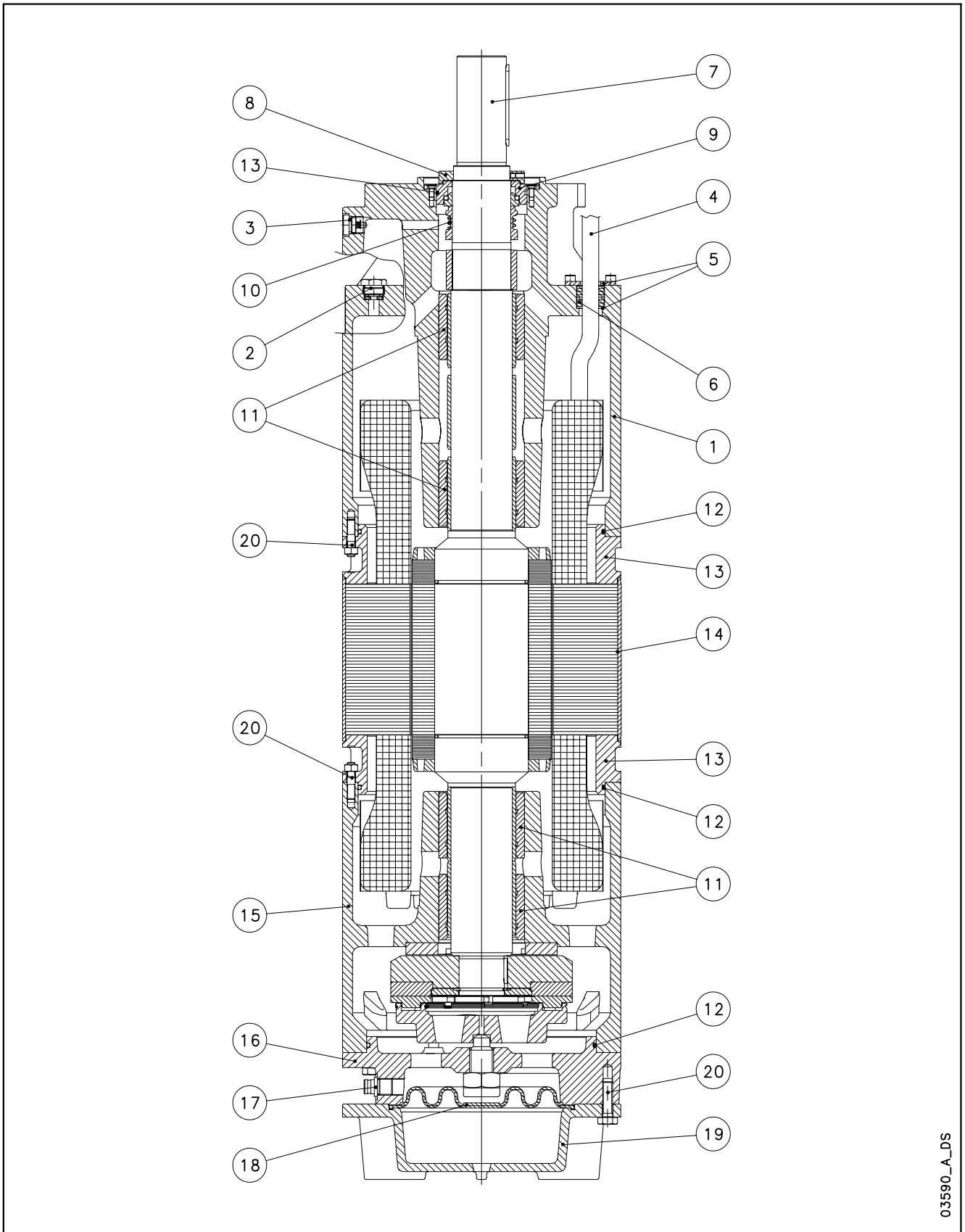
OPTIONAL FEATURES

- Silicon Carbide mechanical seal.
- Special voltages.

ACCESSORIES

- Temperature sensor **PT 100 / PTC.**

**L12W - L12WN - L12WR MOTOR SERIES
MOTOR CROSS SECTION**



L12W TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Cast iron	EN-GJL-200	Class 25 B
2	Filling plug + OR	Stainless steel+NBR	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
3	Vent valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
4	Cable	EPR		
5	Cable gland plate	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
6	Cable gland	EPDM		
7	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
8	Removable sand guard	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
9	Mechanical seal cover	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Mechanical seal	Carbon graphite / Aluminium oxide		
11	Bush bearings	Carbon graphite		
12	Elastomers	NBR		
13	Stator flanges	Steel	UNI 3158 - Fe 52	
14	Motor sleeve	Stainless steel	EN 10088-1-X2CrNi19-11 (1.4306)	AISI304L
15	Lower bracket	Cast iron	EN-GJL-200	Class 25 B
16	Thrust bearing bracket	Cast iron	EN-GJL-200	Class 25 B
17	Filling valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
18	Diaphragm	EPDM		
19	Lower cover	Cast iron	EN-GJL-200	Class 25 B
20	Bolts and screws	Stainless steel	EN 10088-1-X5CrNi18-10 (1.4301)	AISI304
	Cooling liquid	Water + antifreeze		

L12w-2p50-en_a_tm

L12WN TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
2	Filling plug + OR	Stainless steel+NBR	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
3	Vent valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
4	Cable	EPR		
5	Cable gland plate	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
6	Cable gland	EPDM		
7	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
8	Removable sand guard	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
9	Mechanical seal cover	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
10	Mechanical seal	Carbon graphite / Aluminium oxide		
11	Bush bearings	Carbon graphite		
12	Elastomers	NBR		
13	Stator flanges	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
14	Motor sleeve	Stainless steel	EN 10088-1-X2CrNiMo17-12-2 (1.4404)	AISI 316L
15	Lower bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
16	Thrust bearing bracket	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
17	Filling valve	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
18	Diaphragm	EPDM		
19	Lower cover	Stainless steel	EN 10213-4 - GX5CrNiMo19-11-2 (1.4408)	ASTM CF-8M (AISI 316 cast)
20	Bolts and screws	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)	AISI 316
	Cooling liquid	Water + antifreeze		

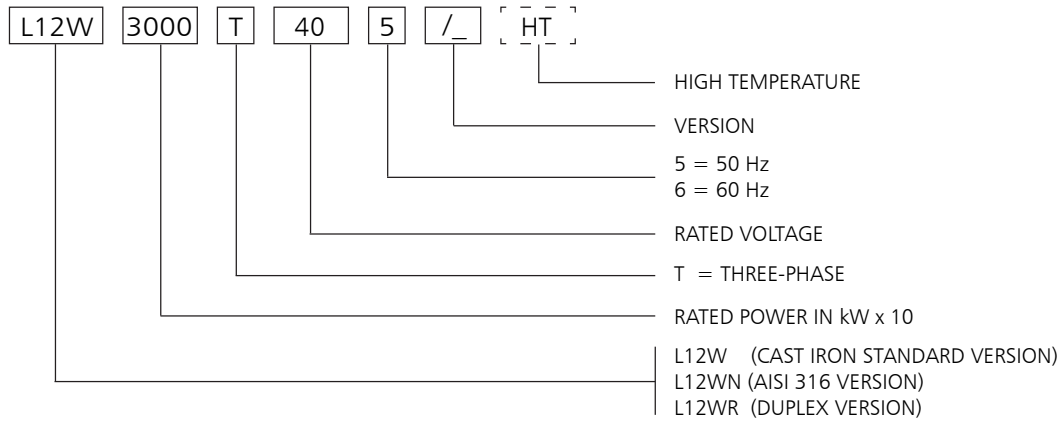
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L12WR TABLE OF MATERIALS

REF. N°	PART	MATERIAL	DESIGNATION	
			EUROPE	USA
1	Upper bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
2	Filling plug + OR	Duplex s. s.+NBR	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
3	Vent valve	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
4	Cable	EPR		
5	Cable gland plate	Stainless steel	EN 10088-1X1NiCrMoCu25-20-5 (1.4539)	AISI 904L
6	Cable gland	EPDM		
7	Shaft end	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
8	Removable sand guard	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
9	Mechanical seal cover	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
10	Mechanical seal	Carbon graphite / Aluminium oxide		
11	Bush bearings	Carbon graphite		
12	Elastomers	NBR		
13	Stator flanges	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
14	Motor sleeve	Stainless steel	EN 10088-1X1NiCrMoCu25-20-5 (1.4539)	AISI 904L
15	Lower bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
16	Thrust bearing bracket	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
17	Filling valve	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
18	Diaphragm	EPDM		
19	Lower cover	Duplex stainless steel	EN 10213-4-GX2CrNiMoCuN25-6-3-3 (1.4517)	
20	Bolts and screws	Duplex stainless steel	EN 10088-1-X2CrNiMoN22-5-3 (1.4462)	A276/A790-S31803
	Cooling liquid	Water + antifreeze		

L12wr-2p50-en_a_tm

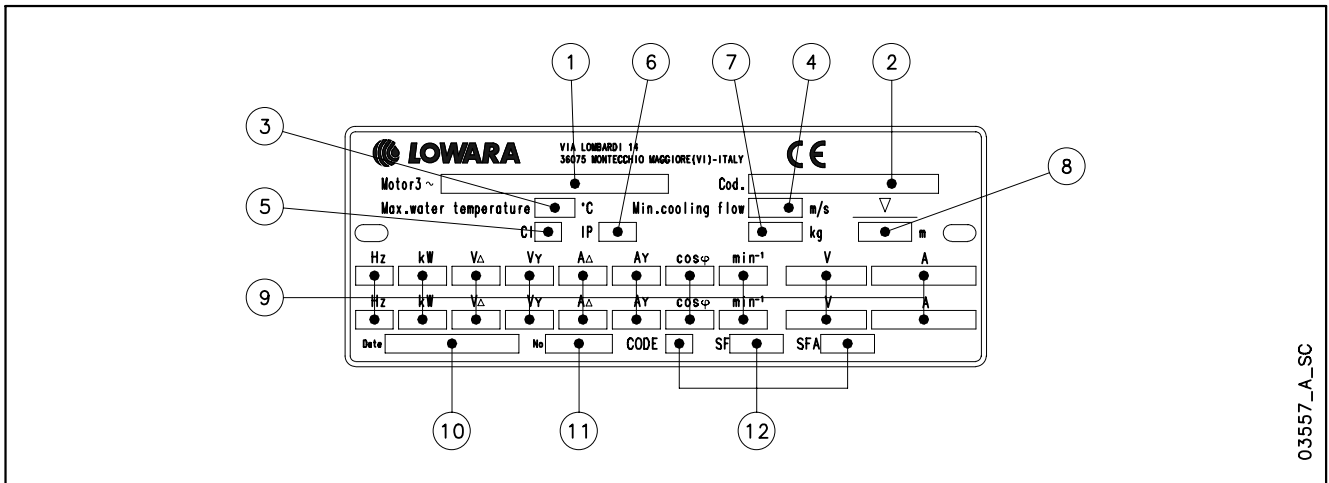
L12W MOTOR SERIES IDENTIFICATION CODE



EXAMPLE : L12W3000T405/A HT

L12W MOTOR :
 RATED POWER 300 kW; THREE-PHASE;
 RATED VOLTAGE 400 V; 50 Hz; /A VERSION; HIGH TEMPERATURE

RATING PLATE

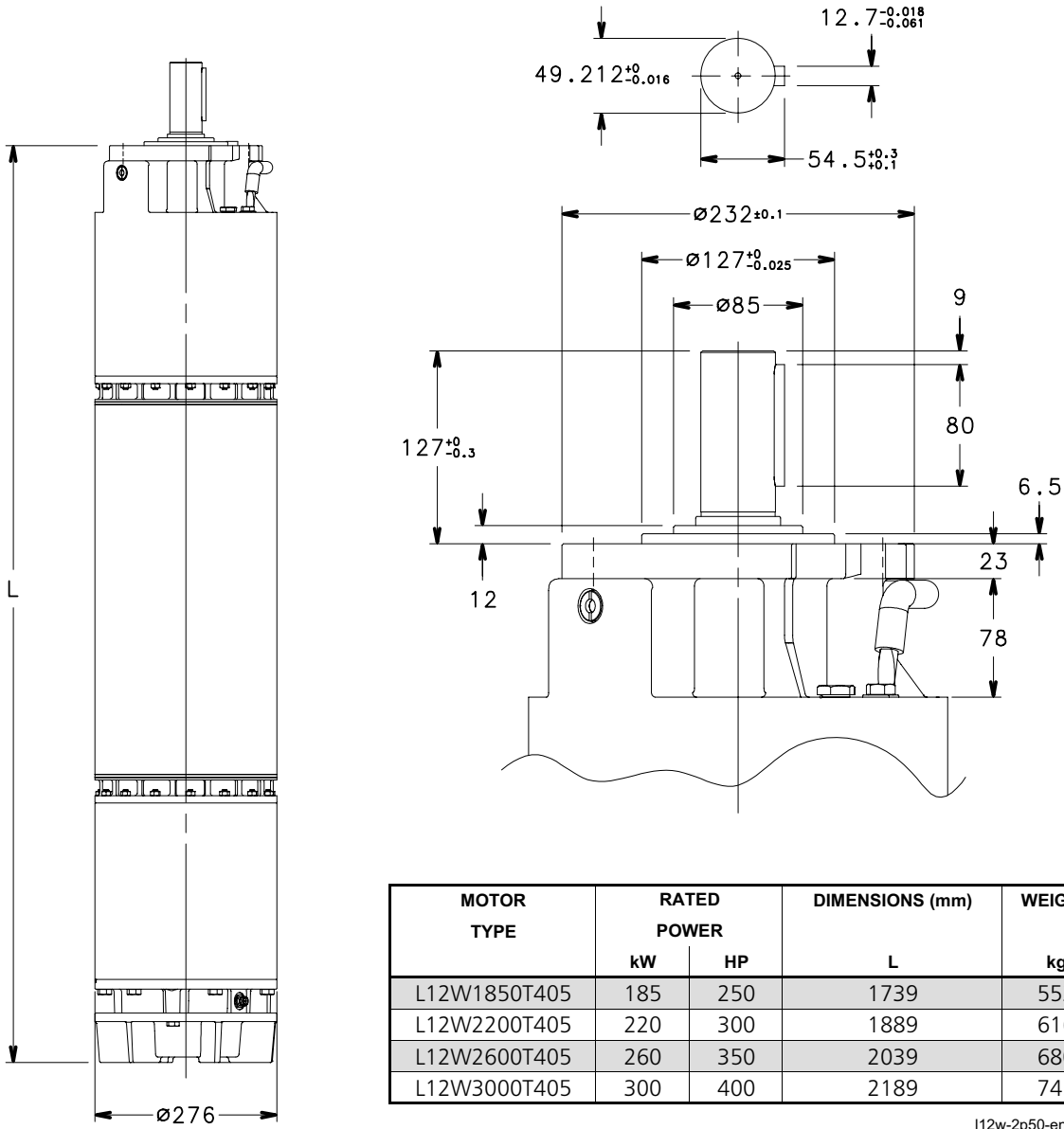


LEGEND

- | | |
|-------------------------------|--|
| 1 - Motor type | 7 - Weight |
| 2 - Code | 8 - Maximum immersion depth |
| 3 - Maximum water temperature | 9 - Operating characteristics |
| 4 - Minimum water velocity | 10 - Production date |
| 5 - Insulation class | 11 - Serial number |
| 6 - Protection class | 12 - Characteristics at service factor |

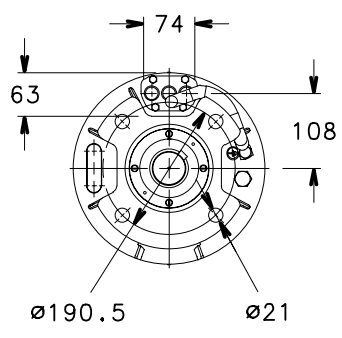
L12W MOTOR SERIES

DIMENSIONS AND WEIGHTS AT 50 Hz



MOTOR TYPE	RATED POWER		DIMENSIONS (mm)	WEIGHT
	kW	HP	L	kg
L12W1850T405	185	250	1739	552
L12W2200T405	220	300	1889	616
L12W2600T405	260	350	2039	680
L12W3000T405	300	400	2189	745

I12w-2p50-en_a_td



MOTOR TYPE	RATED POWER		DIMENSIONS (mm)	WEIGHT
	kW	HP	L	kg
L12W1500T405 HT	150	200	1739	552
L12W1850T405 HT	185	250	1889	616
L12W2200T405 HT	220	300	2039	680
L12W2600T405 HT	260	350	2189	745

I12w-ht-2p50-en_a_td

03553_C_DD

L12W MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE THREE-PHASE	RATED POWER		RATED VOLTAGE V	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE °C	CABLE TYPE		
	kW	HP		RATED CURRENT A	rpm	η %	cosφ	Ts/Tn*	Is/In		Sec. (mm ²)		
											DOL	Y/D	L (m)
L12W1850T405	185	250	380	380	2895	84,0	0,87	1,28	5,57	30	70	50	5
			400	370	2905	84,0	0,86	1,41	5,99				
			415	360	2915	84,5	0,86	1,53	6,40				
L12W2200T405	220	300	380	470	2910	84,5	0,86	1,04	4,60	30	95	50	5
			400	456	2925	84,5	0,85	1,14	5,01				
			415	435	2930	85,5	0,83	1,24	5,42				
L12W2600T405	260	350	380	525	2875	85,0	0,87	0,96	4,10	30	120	70	5
			400	512	2890	85,0	0,85	1,06	4,39				
			415	498	2910	86,0	0,83	1,15	4,67				
L12W3000T405	300	400	380	620	2880	85,0	0,87	0,90	4,10	30	2x70	70	5
			400	594	2900	85,0	0,85	0,99	4,50				
			415	570	2910	86,0	0,84	1,08	4,90				

* Ts/Tn = ratio between starting torque and nominal torque.

l12w-2p50-en_c_te

L12W HT MOTOR SERIES THREE-PHASE OPERATING CHARACTERISTICS AT 50 Hz

MOTOR TYPE THREE-PHASE	RATED POWER		RATED VOLTAGE V	OPERATING CHARACTERISTICS AT RATED POWER				DIRECT START		MAX WATER TEMPERATURE °C	CABLE TYPE		
	kW	HP		RATED CURRENT A	rpm	η %	cosφ	Ts/Tn*	Is/In		Sec. (mm ²)		
											DOL	Y/D	L (m)
L12W1500T405 HT	150	200	380	328,6	2930	87,0	0,82	1,60	6,44	45	70	50	5
			400	320,0	2940	87,0	0,81	1,75	6,92				
			415	311,4	2950	87,5	0,81	1,91	7,40				
L12W1850T405 HT	185	250	380	379,3	2915	87,0	0,83	1,24	5,70	45	95	50	5
			400	368,0	2930	87,0	0,82	1,36	6,21				
			415	351,1	2935	88,0	0,8	1,48	6,72				
L12W2200T405 HT	220	300	380	438,9	2915	88,0	0,86	1,15	4,90	45	120	70	5
			400	428,0	2930	88,0	0,84	1,26	5,25				
			415	416,3	2950	89,0	0,82	1,38	5,59				
L12W2600T405 HT	260	350	380	546	2895	87,0	0,84	1,04	4,66	45	2x70	70	5
			400	523	2915	87,0	0,82	1,15	5,11				
			415	502	2925	88,0	0,81	1,25	5,57				

* Ts/Tn = ratio between starting torque and nominal torque.

l12w-ht-2p50-en_a_te

ACCESSORIES

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40S - L4C MOTOR SERIES MOTOR - CONTROL PANEL COMBINATION TABLE

MOTOR TYPE 40S - 4" SINGLE-PHASE	RATED POWER		RATED CURRENT 220-240 V	CAPACITOR	PANEL TYPE				
	kW	HP	A	µF / 450 V	QSM...	QPC...	QPCS...	QSC...	QSCS...
	0,37	0,5	3,2	16	...03	...03	...03	...03	...03
0,55	0,75	4,3	20	...05	...05	...05	...05	...05	
0,75	1	5,6	30	...07	...07	...07	...07	...07	
1,1	1,5	7,6	40	...11	...11	...11	...11	...11	
1,5	2	10,5	50	-	...15	...15	...15	...15	
2,2	3	14,4	70	-	...22	...22	...22	...22	
4	5,5	24,9	90	-	-	-	...40	...40	

40S-2p50-en_e_tc

MOTOR TYPE 40S - 4" THREE-PHASE	RATED POWER		RATED CURRENT 380-415 V	PANEL TYPE				
	kW	HP	A	QTD/...	Q3D/...	Q3I/...	Q3A/...	Q3SF/...
	0,37	0,5	1,2	...03-05	...03-05	-	-	-
0,55	0,75	1,7	...05-07	...05-07	-	-	-	
0,75	1	2,4	...05-07	...05-07	-	-	-	
1,1	1,5	3,1	...07-15	...07-15	-	-	-	
1,5	2	4,4	...15-22	...15-22	-	-	-	
2,2	3	6,1	...15-22	...15-22	-	-	-	
3	4	7,1	...22-40	...22-40	-	-	-	
4	5,5	9,8	...22-40	...22-40	-	-	-	
5,5	7,5	13,7	...40-75	...40-75	...40-75	...40-75	...75	
7,5	10	18,7	...75-92	...75-92	...75-92	...75-92	...150	

For different voltages, please contact our sales network.

40S-2p50-en_e_tc

MOTOR TYPE L4C - 4" SINGLE-PHASE	RATED POWER		RATED CURRENT 220-240 V	CAPACITOR	PANEL TYPE				
	kW	HP	A	µF / 450 V	QSM...	QPC...	QPCS...	QSC...	QSCS...
	0,37	0,5	3,4	16	...03	...03	...03	...03	...03
0,55	0,75	4,8	20	...05	...05	...05	...05	...05	
0,75	1	6,5	30	...07	...07	...07	...07	...07	
1,1	1,5	8,3	40	...11	...11	...11	...11	...11	
1,5	2	10,7	50	-	...15	...15	...15	...15	
2,2	3	15,3	70	-	...22	...22	...22	...22	
4	5,5	29,9	90	-	-	-	...40	...40	

L4c-2p50_i_tc

MOTOR TYPE L4C - 4" THREE-PHASE	RATED POWER		RATED CURRENT 380-415 V	PANEL TYPE				
	kW	HP	A	QTD/...	Q3D/...	Q3I/...	Q3A/...	Q3SF/...
	0,37	0,5	1,8	...05-07	...05-07	-	-	-
0,55	0,75	2	...05-07	...05-07	-	-	-	
0,75	1	2,6	...07-15	...07-15	-	-	-	
1,1	1,5	3,6	...07-15	...07-15	-	-	-	
1,5	2	4,6	...15-22	...15-22	-	-	-	
2,2	3	6,2	...15-22	...15-22	-	-	-	
3	4	8,8	...22-40	...22-40	-	-	-	
4	5,5	10,5	...40-75	...40-75	-	-	-	
5,5	7,5	14,5	...40-75	...40-75	...40-75	...40-75	...75	
7,5	10	18,1	...75-92	...75-92	...75-92	...75-92	...150	

For different voltages please contact our sales network

L4c-2p50_i_tc

L6C - L6W MOTOR SERIES MOTOR - CONTROL PANEL COMBINATION TABLE

MOTOR TYPE L6C - 6" THREE-PHASE	RATED POWER		RATED CURRENT 380-415 V A	PANEL TYPE					
	kW	HP		QTD/...	Q3D/...	Q3I/...	Q3A/...	Q3Y/...	Q3SF/...
	4	5,5		11,0	...40-75	...40-75	...40-75	...40-75	...40-75
5,5	7,5	14,6	...40-75	...40-75	...40-75	...40-75	...40-75	...75	
7,5	10	18,3	...75-92	...75-92	...75-92	...75-92	...75-92	...150	
9,3	12,5	22,8	-	...92-110	...92-110	...92-110	...92-110	...150	
11	15	26,0	-	...110-150	...110-150	...110-150	...110-150	...150	
15	20	34,2	-	...150-185	...150-185	...150-185	...150-185	...220	
18,5	25	42,0	-	...185-220	...185-220	...185-220	...185-220	...220	
22	30	47,5	-	...185-220	...185-220	...185-220	...185-220	...300	
30	40	63,5	-	...300-370	...300-370	...300-370	...300-370	...370	
37	50	80,0	-	-	...370-450	...370-450	...370-450	...450	

For different voltages, please contact our sales network.

L6c-2p50-en_e_tc

MOTOR TYPE L6W - 6" THREE-PHASE	RATED POWER		RATED CURRENT 380-415 V A	PANEL TYPE					
	kW	HP		QTD/...	Q3D/...	Q3I/...	Q3A/...	Q3Y/...	Q3SF/...
	4	5,5		9,89	...40-75	...40-75	...40-75	...40-75	...40-75
5,5	7,5	12,7	...40-75	...40-75	...40-75	...40-75	...40-75	...75	
7,5	10	17,0	...75-92	...75-92	...75-92	...75-92	...75-92	...150	
9,3	12,5	20,5	-	...92-110	...92-110	...92-110	...92-110	...150	
11	15	24,2	-	...110-150	...110-150	...110-150	...110-150	...150	
13	17,5	28,1	-	...110-150	...110-150	...110-150	...110-150	...150	
15	20	32,1	-	...150-185	...150-185	...150-185	...150-185	...220	
18,5	25	38,5	-	...185-220	...185-220	...185-220	...185-220	...220	
22	30	47,3	-	...220-300	...220-300	...220-300	...220-300	...300	
26	35	56,5	-	...220-300	...220-300	...220-300	...220-300	...300	
30	40	63,8	-	...300-370	...300-370	...300-370	...300-370	...370	
37	50	81,8	-	-	...370-450	...370-450	...370-450	...450	
MOTOR TYPE L6W HT - 6" THREE-PHASE	4	5,5	10,5	...40-75	...40-75	...40-75	...40-75	...40-75	...75
	5,5	7,5	13,4	...40-75	...40-75	...40-75	...40-75	...40-75	...75
	7,5	10	17,3	...75-92	...75-92	...75-92	...75-92	...75-92	...150
	9,3	12,5	20,8	-	...92-110	...92-110	...92-110	...92-110	...150
	11	15	23,9	-	...110-150	...110-150	...110-150	...110-150	...150
	13	17,5	28,4	-	...110-150	...110-150	...110-150	...110-150	...150
	15	20	32,5	-	...150-185	...150-185	...150-185	...150-185	...220
	18,5	25	41,6	-	...185-220	...185-220	...185-220	...185-220	...220
	22	30	49,7	-	...220-300	...220-300	...220-300	...220-300	...300
	26	35	55,8	-	...220-300	...220-300	...220-300	...220-300	...300
30	40	68,8	-	...300-370	...300-370	...300-370	...300-370	...370	

For different voltages, please contact our sales network.

L6w-2p50-en_c_tc

L8W - L10W - L12W MOTOR SERIES MOTOR - CONTROL PANEL COMBINATION TABLE

MOTOR TYPE L8W - 8" THREE-PHASE	RATED POWER		RATED CURRENT 380-415 V A	PANEL TYPE					
	kW	HP		Q3D/...	Q3I/...	Q3A/...	Q3SF/...		
	30	40	65	...300-370	...300-370	...300-370	...370		
	37	50	81	-	...370-450	...370-450	...450		
	45	60	92	-	...450-550	...450-550	...550		
	52	70	110	-	...550-750	...550-750	...590		
	55	75	118	-	...550-750	...550-750	...590		
	60	80	124	-	...550-750	...550-750	...750		
	67	90	138	-	...750-900	...750-900	...900		
	75	100	156	-	...750-900	...750-900	...900		
	83	110	172	-	...750-900	...750-900	...900		
	93	125	192	-	...900-1100	...900-1100	...1100		
MOTOR TYPE L8W HT - 8" THREE-PHASE	30	40	66,6	...300-370	...300-370	...300-370	...370		
	37	50	77,5	-	...370-450	...370-450	...450		
	45	60	97,8	-	...450-550	...450-550	...550		
	52	70	110	-	...550-750	...550-750	...590		
	55	75	117	-	...550-750	...550-750	...590		
	60	80	127	-	...550-750	...550-750	...750		
	67	90	141	-	...750-900	...750-900	...900		
	75	100	156	-	...750-900	...750-900	...900		
	83	110	171	-	...750-900	...750-900	...900		

For different voltages, please contact our sales network.

L8w-2p50-en_b_tc

MOTOR TYPE L10W - 10" THREE-PHASE	RATED POWER		RATED CURRENT 380-415 V A	PANEL TYPE					
	kW	HP		Q3I/...	Q3A/...	Q3SF/...			
	93	125	191	...900-1100	...900-1100	...1100			
	110	150	235	...1100-1320	...1100-1320	...1100			
	130	175	270	...1320-1600	...1320-1600	(1)			
	150	200	308	...1600-2000	...1600-2000	(1)			
MOTOR TYPE L10W HT - 10" THREE-PHASE	83	110	170,2	...750-900	...750-900	...900			
	93	125	200,5	...900-1100	...900-1100	...1100			
	110	150	233,0	...1100-1320	...1100-1320	...1100			
	130	175	288,0	...1320-1600	...1320-1600	(1)			

(1) On request.

L10w-2p50-en_c_tc

For different voltages, please contact our sales network.

MOTOR TYPE L12W - 12" THREE-PHASE	RATED POWER		RATED CURRENT 380-415 V A	PANEL TYPE					
	kW	HP		Q3I/...	Q3A/...	Q3SF/...			
	185	250	380	...1600-2000	...1600-2000	(1)			
	220	300	470	...2500-3150	...2500-3150	(1)			
	260	350	525	...2500-3150	...2500-3150	(1)			
	300	400	620	(1)	(1)	(1)			
MOTOR TYPE L12W HT - 12" THREE-PHASE	150	200	328,6	...1600-2000	...1600-2000	(1)			
	185	250	379,3	...1600-2000	...1600-2000	(1)			
	220	300	438,9	...2000-2500	...2000-2500	(1)			
	260	350	546,0	...2500-3150	...2500-3150	(1)			

(1) On request.

L12w-2p50-en_c_tc

For different voltages, please contact our sales network.

Single-phase Electric Panel

APPLICATIONS

- Protection and control of a single-phase submersible electric pump for 4" wells

QSM Series

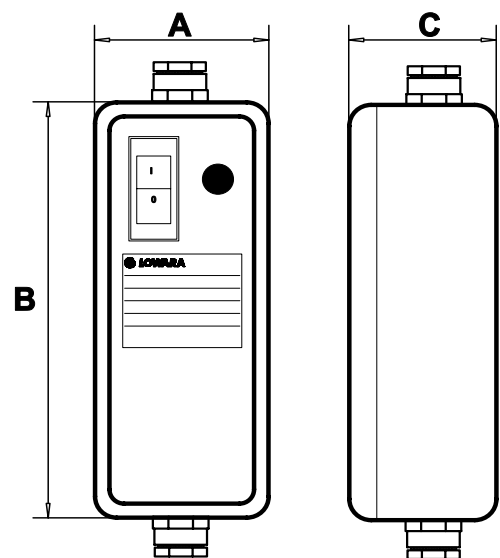


SPECIFICATIONS

- Main switch for manual control.
- Supply voltage: 1 x 220-240 V \pm 5%.
- Frequency: 50 Hz.
- Power: 0,25 to 1,1 kW.
- Direct motor start.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Plastic enclosure.
- Incorporated capacitor.
- Thermal protection with motor protector inside the panel.

OPTIONAL FEATURES

- QSM PF version with overvoltage protection (lightning protector).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	CAPACITOR 450V uF	DIMENSIONS			WEIGHT Kg
		kW	HP			A mm	B mm	C mm	
QSM 02	220-240	0,25	0,33	2,6	12,5	80	210	65	0,45
QSM 03	220-240	0,37	0,5	3,4	16	80	210	65	0,45
QSM 05	220-240	0,55	0,75	4,8	20	80	210	65	0,45
QSM 07	220-240	0,75	1	6,5	30	80	210	65	0,45
QSM 11	220-240	1,1	1,5	8,3	40	80	210	65	0,45

CB-QSM-en_c_te

Single-phase Electric Panel

APPLICATIONS

- Protection and control of a single-phase submersible electric pump for 4" wells.

QPC Series

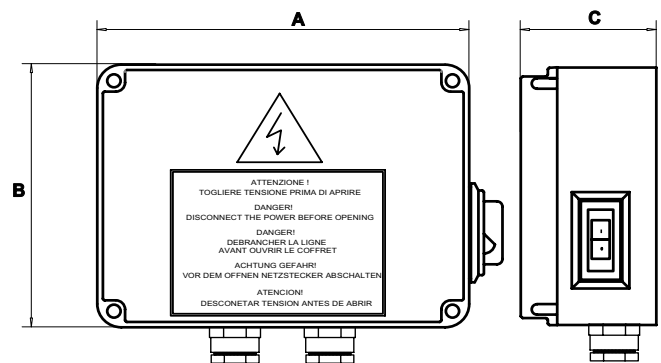


SPECIFICATIONS

- Main switch for manual control.
- Supply voltage: 1 x 230 V \pm 10%.
- Frequency: 50 Hz.
- Power: 0,25 to 2,2 kW.
- Direct motor start.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted with fins.
- Plastic enclosure.
- Incorporated capacitor.
- Main switch with manual-reset thermal protection and power indicator light.

OPTIONAL ACCESSORIES

- DPF single-phase module for overvoltage protection (lightning protector).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg	CAPACITOR μ F/450V
		kW	HP		A mm	B mm	C mm		
QPC/02	1 x 230 V \pm 10 %	0,25	0,33	3	170	170	75	1,1	12,5
QPC/03	1 x 230 V \pm 10 %	0,37	0,5	4	170	170	75	1,1	16
QPC/05	1 x 230 V \pm 10 %	0,55	0,75	5	170	170	75	1,1	20
QPC/07	1 x 230 V \pm 10 %	0,75	1	6	170	170	75	1,1	30
QPC/11	1 x 230 V \pm 10 %	1,1	1,5	9	170	170	75	1,1	40
QPC/15	1 x 230 V \pm 10 %	1,5	2	11	170	170	75	1,1	50
QPC/22	1 x 230 V \pm 10 %	2,2	3	16	170	170	127	1,2	70

Single-phase Electric Panel

APPLICATIONS

- Protection and control of a single-phase submersible electric pump for 4" wells.

QPCS Series



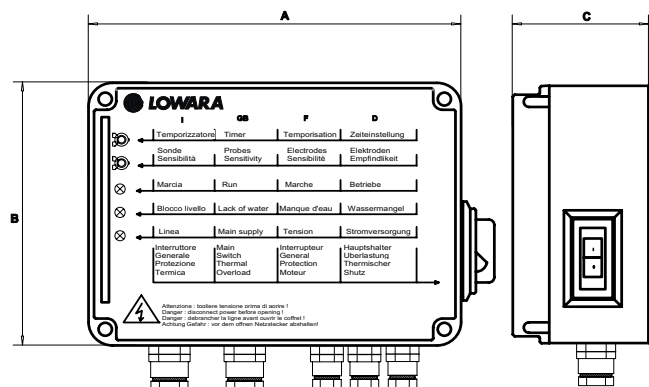
SPECIFICATIONS

- Automatic control through an external enable contact.
- Supply voltage: 1 x 230 V \pm 10%.
- Frequency: 50 Hz.
- Power: 0,25 to 2,2 kW.
- 12 V AC low-voltage auxiliary circuit.
- Direct motor start.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted with fins.
- Plastic enclosure with transparent cover.
- Incorporated capacitor.

- Main switch with manual-reset thermal protection and power indicator light.
- Power, pump running, level control LED.
- Overvoltage discharges.
- Dry running control through probes or float or minimum pressure switch.

OPTIONAL ACCESSORIES

- Set of 3 electrodes (probes) without cable.
- Float.
- Pressure switch.



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg	CAPACITOR μ F/450V
		kW	HP		A	B	C		
QPCS/02	1 x 230 V \pm 10 %	0,25	0,33	3	200	150	80	1,3	12,5
QPCS/03	1 x 230 V \pm 10 %	0,37	0,5	4	200	150	80	1,3	16
QPCS/05	1 x 230 V \pm 10 %	0,55	0,75	5	200	150	80	1,3	20
QPCS/07	1 x 230 V \pm 10 %	0,75	1	6	200	150	80	1,3	30
QPCS/11	1 x 230 V \pm 10 %	1,1	1,5	9	200	150	80	1,3	40
QPCS/15	1 x 230 V \pm 10 %	1,5	2	11	200	150	80	1,3	50
QPCS/22	1 x 230 V \pm 10 %	2,2	3	16	200	150	80	1,3	70

Single-phase Electric Panel

APPLICATIONS

- Protection and control of a single-phase submersible electric pump for 4" wells.

QSC Series

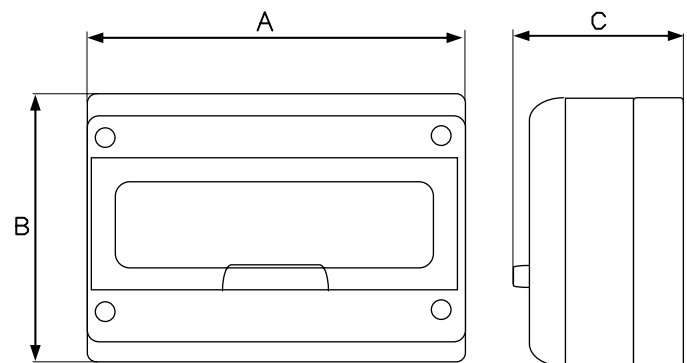


SPECIFICATIONS

- Main switch for manual control.
- Supply voltage: 1 x 230 V \pm 10%.
- Frequency: 50 Hz.
- Power: 0,25 to 4 kW.
- Direct motor start.
- Protection class: IP55.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Plastic enclosure.
- Incorporated capacitor.
- Main switch with manual-reset thermal protection.

OPTIONAL ACCESSORIES

- DPF single-phase module for overvoltage protection (lightning protector).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg	CAPACITOR μ F/450V
		kW	HP		A mm	B mm	C mm		
QSC/02	1 x 230 V \pm 10 %	0,25	0,33	2,5 \div 4	205	220	160	1,7	12,5
QSC/03	1 x 230 V \pm 10 %	0,37	0,5	4 \div 6,3	205	220	160	1,7	16
QSC/05	1 x 230 V \pm 10 %	0,55	0,75	4 \div 6,3	205	220	160	1,7	20
QSC/07	1 x 230 V \pm 10 %	0,75	1	4 \div 6,3	205	220	160	1,7	30
QSC/11	1 x 230 V \pm 10 %	1,1	1,5	6,3 \div 10	205	220	160	1,7	40
QSC/15	1 x 230 V \pm 10 %	1,5	2	10 \div 16	205	220	160	1,7	50
QSC/22	1 x 230 V \pm 10 %	2,2	3	16 \div 20	205	220	160	2,7	70
QSC/40	1 x 230 V \pm 10 %	4	5,5	25 \div 32	280	220	160	3	90

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Single-phase Electric Panel

APPLICATIONS

- Protection and control of a single-phase submersible electric pump for 4" wells.

QSCS Series



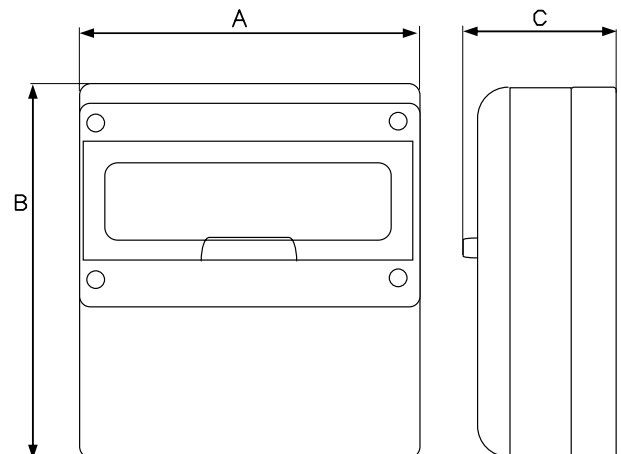
SPECIFICATIONS

- Automatic control through an external enable contact.
- Supply voltage: 1 x 230 V \pm 10%.
- Frequency: 50 Hz.
- Power: 0,25 to 2,2 kW.
- Direct motor start.
- Protection class: IP55.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Plastic enclosure.
- Incorporated capacitor.

- Main switch with manual-reset thermal protection.
- Dry running control with float or minimum pressure switch (available separately).

OPTIONAL ACCESSORIES

- DPF single-phase module for overvoltage protection (lightning protector).
- KSL series 24 V level kit. Probe module for protection against dry running (set of three electrodes included in the supply).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg	CAPACITOR μ F/450V
		kW	HP		A	B	C		
QSCS/02	1 x 230 V \pm 10 %	0,25	0,33	2,5 \div 4	280	370	160	3,7	12,5
QSCS/03	1 x 230 V \pm 10 %	0,37	0,5	4 \div 6,3	280	370	160	3,7	16
QSCS/05	1 x 230 V \pm 10 %	0,55	0,75	4 \div 6,3	280	370	160	3,7	20
QSCS/07	1 x 230 V \pm 10 %	0,75	1	4 \div 6,3	280	370	160	3,7	30
QSCS/11	1 x 230 V \pm 10 %	1,1	1,5	6,3 \div 10	280	370	160	3,7	40
QSCS/15	1 x 230 V \pm 10 %	1,5	2	10 \div 16	280	370	160	3,7	50
QSCS/22	1 x 230 V \pm 10 %	2,2	3	16 \div 20	280	370	160	3,7	70
QSCS/40	1 x 230 V \pm 10 %	4	5,5	25 \div 32	280	370	160	4	90

CB-QSCS-en_c_te

Three-phase Electric Panel

APPLICATIONS

- Protection and control of a three-phase surface or submersible electric pump.

QTD Series



SPECIFICATIONS

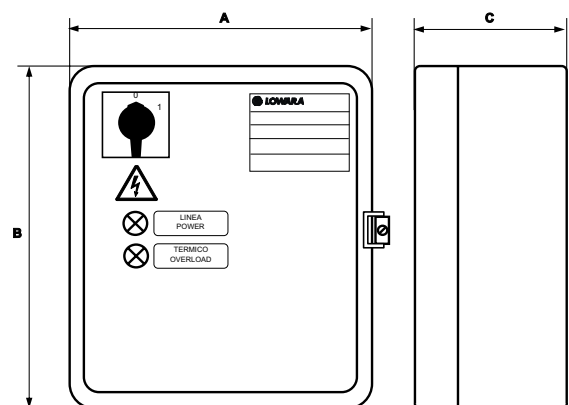
- Control through an external enable contact.
- Supply voltage: 3 x 400 V \pm 10%.
- Frequency: 50/60 Hz.
- Power: 0,25 to 9,2 kW.
- Direct motor start.
- Short-circuit and overload protection.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Metal enclosure.
- Ready for installation of dry running control float or pressure switch (to be ordered separately).
- Power and thermal overload indicator lights.

OPTIONAL ACCESSORIES

- VR3 three-phase module for overvoltage protection (lightning protector).
- KSL series 24 V level kit. Probe module for protection against dry running (set of three electrodes included in the supply).

SELECTION

- For a suitable choice of control panel, be sure the electrical input of the motor (Ampere) is included in the rated current value mentioned in the table below.



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg
		kW	HP		A mm	B mm	C mm	
QTD/02-03	3 x 400 V \pm 10 %	0,25-0,37	0,33-0,50	0,63 \div 1	235	265	150	5,8
QTD/03-05	3 x 400 V \pm 10 %	0,37-0,55	0,55-0,75	1 \div 1,6	235	265	150	5,8
QTD/05-07	3 x 400 V \pm 10 %	0,55-0,75	0,75-1	1,6 2,5	235	265	150	5,8
QTD/07-15	3 x 400 V \pm 10 %	0,75-1,5	1-2	2,5 4	235	265	150	5,8
QTD/15-22	3 x 400 V \pm 10 %	1,5-2,2	2-3	4 \div 6,3	235	265	150	5,8
QTD/22-40	3 x 400 V \pm 10 %	2,2-4	3-5,5	6,3 \div 10	235	265	150	5,8
QTD/40-75	3 x 400 V \pm 10 %	4-7,5	5,5-10	10 \div 16	235	265	150	5,8
QTD/75-92	3 x 400 V \pm 10 %	7,5-9,2	10-12,5	16 \div 20	235	265	150	5,8

Three-phase Electric Panel

APPLICATIONS

- Protection and control of a three-phase surface or submersible electric pump.

Q3D Series



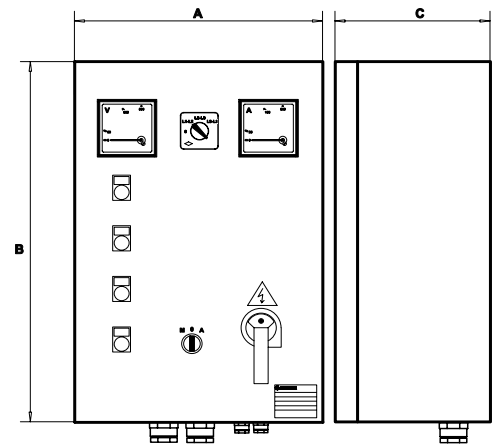
SPECIFICATIONS

- Manual control through an Auto/Man selector switch.
- Automatic control through an external enable contact.
- Supply voltage: 3 x 400 V \pm 10%.
- Frequency: 50/60 Hz.
- 24 V AC low voltage auxiliary circuit.
- Power: 0,25 to 37 kW.
- Direct motor start.
- Short-circuit and overload protection.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Metal enclosure.
- Power, pump running, thermal overload and dry running indicator lights.

- Ready for installation of dry running control float or pressure switch (to be ordered separately). Can be equipped with electronic protection module with electrodes.

OPTIONAL ACCESSORIES

- KSL series 24 V level kit. Probe module for protection against dry running (set of three electrodes included in the supply).
- Float.
- Pressure switch.
- VR3/SCA3 three-phase module for overvoltage protection (lightning protector).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg
		kW	HP		A mm	B mm	C mm	
Q3D/02-03	3 x 400 V \pm 10 %	0,25-0,37	0,33-0,50	0,63 \div 1	300	400	200	15
Q3D/03-05	3 x 400 V \pm 10 %	0,37-0,55	0,5-0,75	1 \div 1,6	300	400	200	15
Q3D/05-07	3 x 400 V \pm 10 %	0,55-0,75	0,75-1	1,6 \div 2,5	300	400	200	15
Q3D/07-15	3 x 400 V \pm 10 %	0,75-1,5	1-2	2,5 \div 4	300	400	200	15
Q3D/15-22	3 x 400 V \pm 10 %	1,5-2,2	2-3	4 \div 6,3	300	400	200	15
Q3D/22-40	3 x 400 V \pm 10 %	2,2-4	3-5,5	6,3 \div 10	300	400	200	15
Q3D/40-75	3 x 400 V \pm 10 %	4-7,5	5,5-10	10 \div 16	300	400	200	15
Q3D/75-92	3 x 400 V \pm 10 %	7,5-9,2	10-12,5	16 \div 20	300	400	200	15
Q3D/92-110	3 x 400 V \pm 10 %	9,2-11	12,5-15	20 \div 25	300	400	200	20
Q3D/110-150	3 x 400 V \pm 10 %	11-15	15-20	22 \div 32	400	500	200	20
Q3D/150-185	3 x 400 V \pm 10 %	15-18,5	20-25	28 \div 40	400	500	200	20
Q3D/185-220	3 x 400 V \pm 10 %	18,5-22	25-30	36 \div 50	400	600	200	27
Q3D/220-300	3 x 400 V \pm 10 %	22-30	30-40	45 \div 63	400	600	200	27
Q3D/300-370	3 x 400 V \pm 10 %	30-37	40-50	57 \div 75	400	600	200	27

Three-phase Electric Panel

Q3Y Series



APPLICATIONS

- Protection and control of a three-phase surface or submersible electric pump.

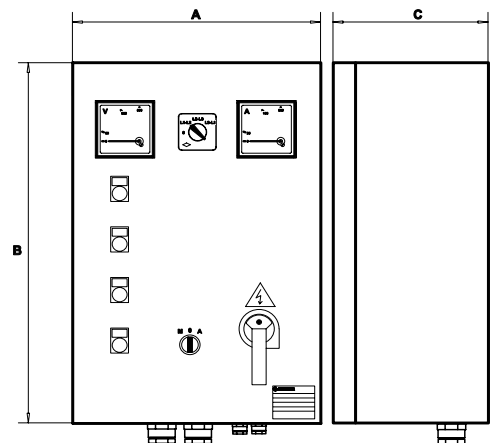
SPECIFICATIONS

- Manual control through an Auto/Man selector switch.
- Automatic control through an external enable contact.
- Supply voltage: 3 x 400 V \pm 10%.
- Frequency: 50/60 Hz.
- 24 V AC low voltage auxiliary circuit.
- Power: 4 to 315 kW.
- Star-delta starting.
- Short-circuit and overload protection.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Metal enclosure.
- Power, pump running, thermal overload and dry running indicator lights.

- Ready for installation of dry running control float or pressure switch (to be ordered separately). Can be equipped with electronic protection module with electrodes.

OPTIONAL ACCESSORIES

- KSL series 24 V level kit. Probe module for protection against dry running (set of three electrodes included in the supply).
- Float.
- Pressure switch.
- VR3/SCA3 three-phase module for overvoltage protection (lightning protector).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg
		kW	HP		A mm	B mm	C mm	
Q3Y/40-75	3 x 400 V \pm 10 %	4-7,5	5,5-10	10 \div 16	400	600	200	23
Q3Y/75-92	3 x 400 V \pm 10 %	7,5-9,2	10-12,5	16 \div 20	400	600	200	23
Q3Y/92-110	3 x 400 V \pm 10 %	9,2-11	12,5-15	20 \div 25	400	600	200	23
Q3Y/110-150	3 x 400 V \pm 10 %	11-15	15-20	22 \div 32	400	600	200	23
Q3Y/150-185	3 x 400 V \pm 10 %	15-18,5	20-25	28 \div 40	400	600	200	23
Q3Y/185-220	3 x 400 V \pm 10 %	18,5-22	25-30	36 \div 50	500	700	200	32
Q3Y/220-300	3 x 400 V \pm 10 %	22-30	30-40	45 \div 63	500	700	200	32
Q3Y/300-370	3 x 400 V \pm 10 %	30-37	40-50	57 \div 75	600	800	250	68
Q3Y/370-450	3 x 400 V \pm 10 %	37-45	50-60	70 \div 90	600	800	250	80
Q3Y/450-550	3 x 400 V \pm 10 %	45-55	60-75	80 \div 108	600	900	250	80
Q3Y/550-750	3 x 400 V \pm 10 %	55-75	75-100	105 \div 138	600p	1300p	300p	109
Q3Y/750-900	3 x 400 V \pm 10 %	75-90	100-125	138 \div 185	600p	1300p	300p	109
Q3Y/900-1100	3 x 400 V \pm 10 %	90-110	125-150	175 \div 210	600p	1500p	300p	120
Q3Y/1100-1320	3 x 400 V \pm 10 %	110-132	150-180	210 \div 260	800p	1700p	400p	130
Q3Y/1320-1600	3 x 400 V \pm 10 %	132-160	180-218	250 \div 305	800p	1700p	400p	130
Q3Y/1600-2000	3 x 400 V \pm 10 %	160-200	218-273	290 \div 400	800p	1900p	400p	140
Q3Y/2000-2500	3 x 400 V \pm 10 %	200-250	273-340	400 \div 460	1000p	1900p	400p	180
Q3Y/2500-3150	3 x 400 V \pm 10 %	250-315	340-430	450 \div 580	1000p	1900p	400p	180

Dimensions note : P indicates floor mounted control panel.

CB-Q3Y-en_c_te

Three-phase Electric Panel

Q3I Series



APPLICATIONS

- Protection and control of a three-phase surface or submersible electric pump.

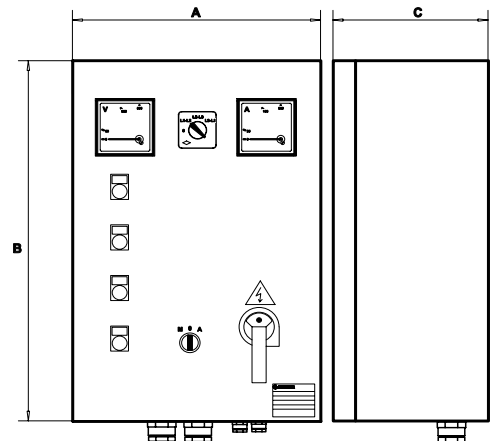
SPECIFICATIONS

- Manual control through an Auto/Man selector switch.
- Automatic control through an external enable contact.
- Supply voltage: 3 x 400 V \pm 10%.
- Frequency: 50/60 Hz.
- 24 V AC low voltage auxiliary circuit.
- Power: 4 to 315 kW.
- Impedance start.
- Short-circuit and overload protection.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Metal enclosure.
- Power, pump running, thermal overload and dry running indicator lights.

- Ready for installation of dry running control float or pressure switch (to be ordered separately). Can be equipped with electronic protection module with electrodes.

OPTIONAL ACCESSORIES

- KSL series 24 V level kit. Probe module for protection against dry running (set of three electrodes included in the supply).
- Float.
- Pressure switch.
- VR3/SCA3 three-phase module for overvoltage protection (lightning protector).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg
		kW	HP		A mm	B mm	C mm	
Q3I/40-75	3 x 400 V \pm 10 %	4-7,5	5,5-10	10 \div 16	400	600	250	35
Q3I/75-92	3 x 400 V \pm 10 %	7,5-9,2	10-12,5	16 \div 20	400	600	250	35
Q3I/92-110	3 x 400 V \pm 10 %	9,2-11	12,5-15	20 \div 25	400	600	250	35
Q3I/110-150	3 x 400 V \pm 10 %	11-15	15-20	22 \div 32	500	700	250	50
Q3I/150-185	3 x 400 V \pm 10 %	15-18,5	20-25	28 \div 40	500	700	250	50
Q3I/185-220	3 x 400 V \pm 10 %	18,5-22	25-30	36 \div 50	500	700	250	50
Q3I/220-300	3 x 400 V \pm 10 %	22-30	30-40	45 \div 63	500	700	250	65
Q3I/300-370	3 x 400 V \pm 10 %	30-37	40-50	57 \div 75	500	700	250	65
Q3I/370-450	3 x 400 V \pm 10 %	37-45	50-60	70 \div 90	600	900	250	65
Q3I/450-550	3 x 400 V \pm 10 %	45-55	60-75	80 \div 108	600p	1300p	300p	100
Q3I/550-750	3 x 400 V \pm 10 %	55-75	75-100	105 \div 138	600p	1300p	300p	100
Q3I/750-900	3 x 400 V \pm 10 %	75-90	100-125	138 \div 185	600p	1500p	300p	100
Q3I/900-1100	3 x 400 V \pm 10 %	90-110	125-150	175 \div 210	800p	1700p	400p	100
Q3I/1100-1320	3 x 400 V \pm 10 %	110-132	150-180	210 \div 260	800p	1700p	400p	150
Q3I/1320-1600	3 x 400 V \pm 10 %	132-160	180-218	250 \div 305	800p	1700p	400p	150
Q3I/1600-2000	3 x 400 V \pm 10 %	160-200	218-273	290 \div 400	800p	1900p	400p	160
Q3I/2000-2500	3 x 400 V \pm 10 %	200-250	273-340	400 \div 460	1000p	1900p	400p	180
Q3I/2500-3150	3 x 400 V \pm 10 %	250-315	340-430	450 \div 580	1000p	1900p	400p	200

Dimensions note : P indicates floor mounted control panel.

CB-Q3I-en_c_te

Three-phase Electric Panel

Q3A Series



APPLICATIONS

- Protection and control of a three-phase surface or submersible electric pump.

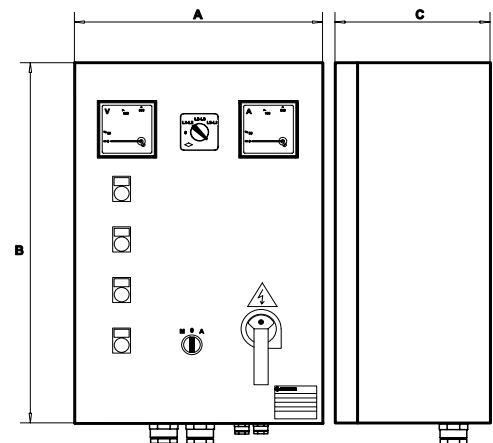
SPECIFICATIONS

- Manual control through an Auto/Man selector switch.
- Automatic control through an external enable contact.
- Supply voltage: 3 x 400 V \pm 10%.
- Frequency: 50/60 Hz.
- 24 V AC low voltage auxiliary circuit.
- Power: 4 to 315 kW.
- Starting autotransformer.
- Short-circuit and overload protection.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Metal enclosure.
- Power, pump running, thermal overload and dry running indicator lights.

- Ready for installation of dry running control float or pressure switch (to be ordered separately). Can be equipped with electronic protection module with electrodes.

OPTIONAL ACCESSORIES

- KSL series 24 V level kit. Probe module for protection against dry running (set of three electrodes included in the supply).
- Float.
- Pressure switch.
- VR3/SCA3 three-phase module for overvoltage protection (lightning protector).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg
		kW	HP		A mm	B mm	C mm	
Q3A/40-75	3 x 400 V \pm 10 %	4-7,5	5,5-10	10 \div 16	500	700	250	50
Q3A/75-92	3 x 400 V \pm 10 %	7,5-9,2	10-12,5	16 \div 20	500	700	250	50
Q3A/92-110	3 x 400 V \pm 10 %	9,2-11	12,5-15	20 \div 25	500	700	250	50
Q3A/110-150	3 x 400 V \pm 10 %	11-15	15-20	22 \div 32	500	700	250	50
Q3A/150-185	3 x 400 V \pm 10 %	15-18,5	20-25	28 \div 40	500	700	250	50
Q3A/185-220	3 x 400 V \pm 10 %	18,5-22	25-30	36 \div 50	500	700	250	50
Q3A/220-300	3 x 400 V \pm 10 %	22-30	30-40	45 \div 63	600	900	300	80
Q3A/300-370	3 x 400 V \pm 10 %	30-37	40-50	57 \div 75	600	900	300	80
Q3A/370-450	3 x 400 V \pm 10 %	37-45	50-60	70 \div 90	600p	1300p	300p	90
Q3A/450-550	3 x 400 V \pm 10 %	45-55	60-75	80 \div 108	600p	1500p	300p	120
Q3A/550-750	3 x 400 V \pm 10 %	55-75	75-100	105 \div 138	600p	1500p	300p	120
Q3A/750-900	3 x 400 V \pm 10 %	75-90	100-125	138 \div 185	600p	1700p	400p	150
Q3A/900-1100	3 x 400 V \pm 10 %	90-110	125-150	175 \div 210	800p	1900p	400p	150
Q3A/1100-1320	3 x 400 V \pm 10 %	110-132	150-180	210 \div 260	800p	1900p	400p	200
Q3A/1320-1600	3 x 400 V \pm 10 %	132-160	180-218	250 \div 305	800p	1900p	400p	200
Q3A/1600-2000	3 x 400 V \pm 10 %	160-200	218-273	290 \div 400	800p	1900p	400p	230
Q3A/2000-2500	3 x 400 V \pm 10 %	200-250	273-340	400 \div 460	1000p	1900p	400p	230
Q3A/2500-3150	3 x 400 V \pm 10 %	250-315	340-430	450 \div 580	1000p	1900p	400p	250

Dimensions note : P indicates floor mounted control panel.

CB-Q3A-en_c_te

Three-phase Electric Panel

Q3SF Series



APPLICATIONS

- Protection and control of a three-phase surface or submersible electric pump.

SPECIFICATIONS

- Manual control through an Auto/Man selector switch.
- Automatic control through an external enable contact.
- Supply voltage: 3 x 400 V \pm 10%.
- Frequency: 50/60 Hz.
- 24 V AC low voltage auxiliary circuit.
- Power: 5,5 to 110 kW.
- Softstart with torque control.
- Protection class: IP54.
- Ambient temperature: -5 to +40 °C
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Metal enclosure.
- Dry running indicator light.
- Power - pump running - malfunction LEDs on starter keypanel.
- ON/OFF selector switch for activation of by-pass contactor.
- Ready for installation of dry running control float or pressure switch (to be ordered separately). Can be equipped with electronic protection module with electrodes.

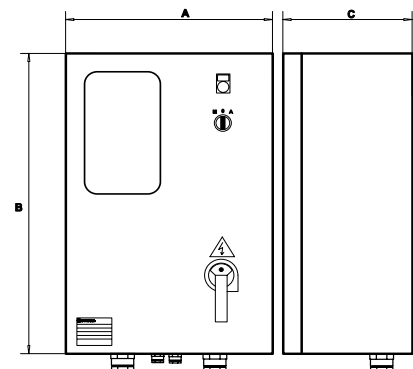
Protections against phase failure / phase sequence / frequency out of limits on power supply line.
Low-voltage protection on auxiliary circuits.
Protection against starter overtemperature / overload / malfunction.
Protection against overload / locked rotor / current asymmetry on motor side.
Short-circuit protection on inputs and outputs.
RS232 interface for remote control and RS485 for use of remote keypanel.
Incorporated by-pass contactor.

OPTIONAL ACCESSORIES

- KSL series 24 V level kit. Probe module for protection against dry running (set of three electrodes included in the supply).
- Float.
- Pressure switch.
- VR3/SCA3 three-phase module for overvoltage protection (lightning protector).

STATIC STARTER CHARACTERISTICS

- Static starter for gradual start-up/shutdown, featuring: keypanel with liquid crystal display showing voltage, absorbed current, $\cos \Phi$, operating hours, number of starts, last twenty messages on system status (events / alarms).



MODEL	RATED VOLTAGE V	RATED POWER		RATED CURRENT A	DIMENSIONS			WEIGHT Kg
		kW	HP		A mm	B mm	C mm	
Q3SF 75	3 x 400 V \pm 10 %	5,5 - 7,5	7,5 - 10	8,5 \div 17	400	600	250	35
Q3SF 150	3 x 400 V \pm 10 %	9,2 - 15	12,5 - 20	15 \div 30	500	700	250	40
Q3SF 220	3 x 400 V \pm 10 %	18,5 - 22	25 - 30	28 \div 45	500	700	250	40
Q3SF 300	3 x 400 V \pm 10 %	30	40	42 \div 60	600	900	300	90
Q3SF 370	3 x 400 V \pm 10 %	37	50	55 \div 75	600	900	300	90
Q3SF 450	3 x 400 V \pm 10 %	45	60	70 \div 85	600	900	300	90
Q3SF 550	3 x 400 V \pm 10 %	55	75	80 \div 110	600	900	300	90
Q3SF 590	3 x 400 V \pm 10 %	59	80	105 \div 125	600	900	300	90
Q3SF 750	3 x 400 V \pm 10 %	75	100	120 \div 142	600p	1700p	400p	120
Q3SF 900	3 x 400 V \pm 10 %	90	125	135 \div 190	600p	1700p	400p	120
Q3SF 1100	3 x 400 V \pm 10 %	110	150	185 \div 245	600p	1700p	400p	120

Dimensions note : P indicates floor mounted control panel.

CB-Q3SF-en_b_te

Level Control Panel

APPLICATIONS

- Accessory for electric pump control panels, suitable for tank filling or drainage applications or for activation of audible or visual alarms.

QCL5 Series



SPECIFICATIONS

- Automatic control through probes.
- Supply voltage:
1 x 230 V \pm 10% or 1 x 24 V \pm 10%.
- Frequency: 50/60 Hz.
- Voltage to probes:
15 V AC at 0,5 mA max.
- Switch contact 48 V AC at 3 A max (250 W max).
- Protection class: IP55.
- Ambient temperature: -5 to +40 °C (according to EN 60439-1).
- Maximum relative humidity: 50% at +40°C, provided that no condensation occurs (according to EN 60439-1).
- Wall mounted.
- Plastic enclosure.
- Electrodes suitable for water at a maximum temperature of 40°C.
- Set of three electrodes included in the supply.

OPTIONAL ACCESSORIES

- Drop cable with circular cross section.

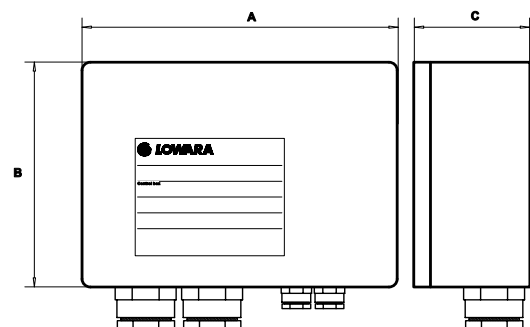
For connection of the electrodes to the panel we recommend the following cross sections:

LENGHT m		CABLE SECTION mm ²
0	50	0,5
50	100	0,75
100	200	1,0
200	400	2,5

CB-CASEL-en_b_te

Three-pole cables can be used for short lengths.

Otherwise we recommend the use of unipolar cables placed at suitable distance from each other to prevent the capacitive effect of the cable from interfering with the proper operation of the electronic module.



TYPE	POWER SUPPLY			CONTACT			DIMENSIONS A x B x C mm	WEIGHT Kg
	VOLTAGE V	FREQUENCY Hz	POWER W	TYPE	RANGE V	A		
QCL5/24	1 x 24	50/60	2	NO-C-NC	48	3	90 x 130 x 60	0,5
QCL5/230	1 x 230	50/60	2					

CB-QCL5-en_a_te

Kit 24 V Level Probe

APPLICATIONS

- Accessory for electric panels.

KSL Series



SPECIFICATIONS

- Electronic module for use of probes as protection against dry running.
- Supply voltage:
1 x 24 V \pm 10% for model SLD/24.
- Frequency: 50/60 Hz.
- Absorbed power: 3,5 VA max.
- Voltage to probes:
7,5 V AC at 0,4 mA max.
- Switch contact 24 V AC at 5 A max (250 W max).
- Designed for installation on Lowara electric panels featuring DIN bar.
- Electrodes suitable for water at a maximum temperature of 60°C.

CONSTRUCTION CHARACTERISTICS

- Module made of plastic material with DIN bar attachment.
- Cables with quick plug-in connectors.
- Set of three electrodes included in the supply.
- Electrodes with nylon 6 body, stainless steel sensitive element brass washer and nitrile rubber seal.

OPTIONAL ACCESSORIES

- Drop cable with circular cross section.

For connection of the electrodes to the panel we recommend the following cross sections:

LENGHT m		CABLE SECTION mm ²
0	50	0,5
50	100	0,75
100	200	1,0
200	400	2,5

CB-CASEL-en_b_te

Three-pole cables can be used for short lengths.

Otherwise we recommend the use of unipolar cables placed at suitable distance from each other to prevent the capacitive effect of the cable from interfering with the proper operation of the electronic module.

TYPE	POWER SUPPLY		CONTACT			DIMENSIONS A x B x C mm	WEIGHT Kg	PANELS	
	MAIN V	POWER VA	TYPE	RANGE V~	A				
KIT KSL/24	1x24	50/60 Hz	3,5	N0-C-NC	250	8	90 x 36 x 60	0,5	QSCS-QM-QTD-Q3D-Q3Y-Q3A-Q3I-Q3SF

CB-SLD-en_b_te

Lightning Protection

APPLICATIONS

- Accessory for electric panels.

DPF Series



SPECIFICATIONS

- Varistor for overvoltage protection of single-phase lines. To be connected between the phase and neutral conductor.
- Operating voltage: 460 V AC.
- Maximum varistor voltage: 750 V with 100 A peak current.

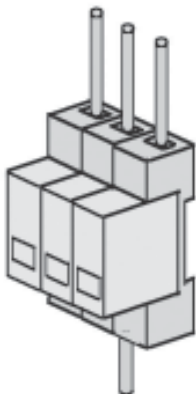
VR Series



SPECIFICATIONS

- Varistors for overvoltage protection of three-phase lines.
- To be connected between the phases (VR3 model).
- Operating voltage: 460 V AC.
- Maximum varistor voltage: 750 V with 100 A peak current.
- Designed for installation on Lowara electric panels featuring DIN bar.

SCA3 Series



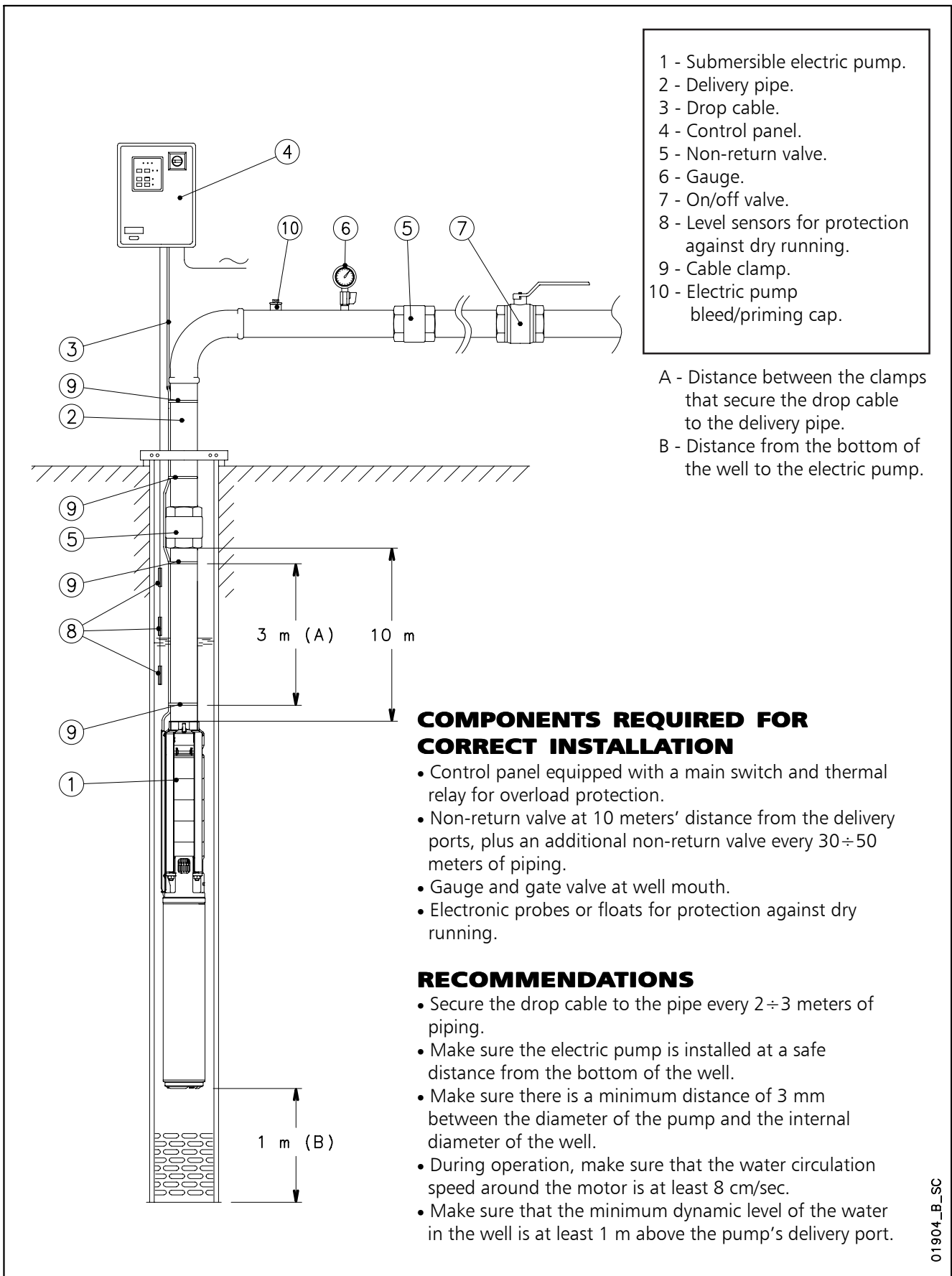
SPECIFICATIONS

- Lightning arresters for overvoltage protection of three-phase lines. To be connected between the phases and the heart conductor,
- Operating voltage: 500 V AC.
- Maximum varistor voltage: 2,5 kW with 40 kA peak current.
- Designed for installation on Lowara electric panels featuring DIN bar.

TYPE	VOLTAGE V	PANELS
DPF	1 x 220-240 50/60 Hz	QSM - QSC - QSCS - QPC
KIT VR1	1 x 220-230 50/60 Hz	QM - QDRM - QDRM2 - QDRMC - QDRMC2
KIT VR3	3 x 400 50/60 Hz	QTD - QDR - QDR2 - Q3D
KIT SCA 3	3 x 400 50/60 Hz	Q3Y-Q3A-Q3I-Q3SF-Q3D

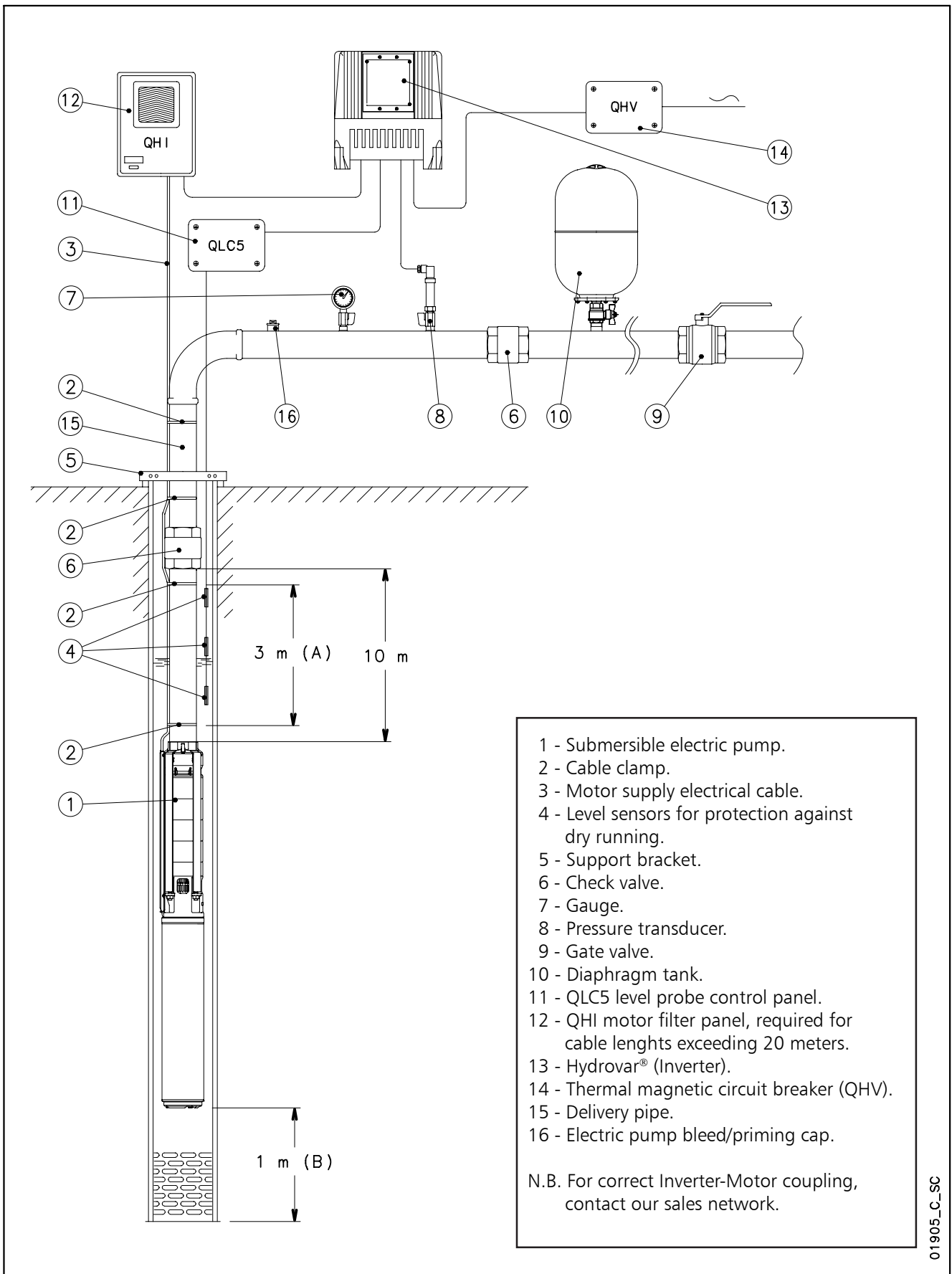
TECHNICAL APPENDIX

SUBMERSIBLE ELECTRIC PUMP INSTALLATION DIAGRAM



01904_B_SC

EXAMPLE OF INSTALLATION OF A SUBMERSIBLE ELECTRIC PUMP CONTROLLED BY AN INVERTER (HYDROVAR®)



40S MOTOR SERIES

TABLE OF POWER REDUCTION COEFFICIENTS WITH INCREASED WATER TEMPERATURE

MOTOR TYPE	RATED POWER kW	TEMPERATURE °C					
		30	35	40	45	50	55
40S	all models	1	1	0,9	0,8	0,7	0,6

40S-derating-50-en_a_te

EXAMPLE:

A 2,2 kW 40S motor is to be used in 50°C water.

Motor power at 50 °C = 2,2 x 0,7 = 1,54 kW

L4C MOTOR SERIES

TABLE OF POWER REDUCTION COEFFICIENTS WITH INCREASED WATER TEMPERATURE

MOTOR TYPE	RATED POWER kW	TEMPERATURE °C					
		30	35	40	45	50	55
L4C	all models	1	1	0,95	0,9	0,85	0,8

L4c-derating-50-en_b_te

EXAMPLE:

A 2,2 kW L4C motor is to be used in 50°C water.

Motor power at 50 °C = 2,2 x 0,85 = 1,87 kW

L6C MOTOR SERIES

TABLE OF POWER REDUCTION COEFFICIENTS WITH INCREASED WATER TEMPERATURE

MOTOR TYPE	RATED POWER kW	TEMPERATURE °C					
		35	40	45	50	55	60
L6C	all models	1	0,95	0,8	0,75	0,7	0,6

L6c-derating-50-en_b_te

EXAMPLE:

A 7,5 kW L6C motor is to be used in 45°C water.

Motor power at 50 °C = 7,5 x 0,8 = 6 kW

L6W - L8W - L10W - L12W MOTOR SERIES

TABLE OF POWER REDUCTION COEFFICIENTS WITH INCREASED WATER TEMPERATURE

MOTOR TYPE	RATED POWER kW	TEMPERATURE °C							
		25	30	35	40	45	50	55	60
STD	all models	1	1	0,75	-	-	-	-	-
HT	all models	1	1	1	1	1	0,85	0,75	0,65

(1) Standard winding for water temperature up to 35 °C.

Lw-derating-en_a_te

(2) Special winding for water temperature from 35 °C to 60 °C.

EXAMPLE:

A 15 kW L6W motor is to be used in 35°C water.

Motor power at 35 °C = 15 x 0,75 = 11,25 kW

SELECTING CABLE CROSS-SECTIONS FOR SUBMERSIBLE MOTORS

To select the cross-section of power cables for submersible pumps, consult the tables shown below. In these tables, the maximum lengths of the power cable for each cross-section are shown for each motor and next to the various input voltage ratings.

Therefore, to find the required cable cross-section, simply read off the maximum permitted lengths for each cross-section next to the selected motor and required input voltage.

E.g.:

A 120 m long power cable must be matched with a 230V L4C07M235 motor.

To determine the cross-section of the cable, simply move along the row of the 230V motor until you find the maximum length of 120 m or immediately above it and then read off the corresponding cross-section in that column.

In this case, the 4 mm² cable is selected.

N.B.: the tables include specific data (current and power factor) for each motor and voltage rating based on a maximum voltage drop of 4% (HD 384.5), a maximum cable temperature of 90°C, water installation similar to air installation at a temperature of 30°C.

CABLE TYPES

SECTION mm ²	THREE CORE FLAT					FOUR CORE FLAT					SINGLE CORE ROUND			FOUR CORE ROUND		
	Hmin mm	Lmin mm	Hmax mm	Lmax mm	Weight kg/km	Hmin mm	Lmin mm	Hmax mm	Lmax mm	Weight kg/km	Dmin mm	Dmax mm	Weight kg/km	Dmin mm	Dmax mm	Weight kg/km
4	8	19,2	9	20,8	250	8	25,2	9	26,8	395	6,5	7,5	92	14	16,1	360
6	8	19,2	9	20,8	325	8	25,2	9	26,8	470	7,4	8	118	15,7	18	475
10	8	19,2	9	20,8	535	8	25,2	9	26,8	710	8,6	10	183	20,9	23,9	836
16	-	-	-	-	-	-	-	-	-	-	9,6	11	251	23,8	27,1	1145
25	-	-	-	-	-	-	-	-	-	-	11	13	362	28,9	32,9	1716
35	-	-	-	-	-	-	-	-	-	-	12,5	14,5	497	-	-	-
50	-	-	-	-	-	-	-	-	-	-	15	17	669	-	-	-
70	-	-	-	-	-	-	-	-	-	-	17,5	19,5	901	-	-	-
95	-	-	-	-	-	-	-	-	-	-	20,5	22,5	1141	-	-	-
120	-	-	-	-	-	-	-	-	-	-	22	24,4	1435	-	-	-
150	-	-	-	-	-	-	-	-	-	-	25,2	28,3	1795	-	-	-
185	-	-	-	-	-	-	-	-	-	-	27,6	31	2156	-	-	-
240	-	-	-	-	-	-	-	-	-	-	30,6	34,5	2760	-	-	-

L-cavi-en_a_td

4OS SINGLE-PHASE, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES, DOL (DIRECT ON LINE) STARTING

MOTOR TYPE SINGLE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²								
							mm ²	1,5	2,5	4	6	10	16	25	35
							A max	23	32	42	54	75	100	127	158
Maximum length in metres															
4OS03M235	0,37	0,5	220	0,98	3,01	4									
			230	0,96	3,06			107	179	288	432				
			240	0,93	3,16										
4OS05M235	0,55	0,75	220	0,98	4,07										
			230	0,96	4,13			79	132	213	319				
			240	0,92	4,25										
4OS07M235	0,75	1	220	0,99	5,44										
			230	0,97	5,45			58	98	158	237	409			
			240	0,94	5,58										
4OS11M235	1,1	1,5	220	0,99	7,45										
			230	0,98	7,37			42	71	115	172	298	469		
			240	0,95	7,55										
4OS15M235	1,5	2	220	0,98	10,0										
			230	0,96	10,1		31	53	86	129	223	351	542		
			240	0,92	10,5										
4OS22M235	2,2	3	220	0,99	14,3										
			230	0,97	14,1		20	36	58	89	154	244	377	528	
			240	0,94	14,4										
4OS40M235	4	5,5	220	0,96	25,7										
			230	0,94	24,9		-	18	31	49	86	137	212	296	
			240	0,92	24,8										

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

4osm-b-cavi-50-en_c_te

4OS THREE-PHASE, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES, DOL (DIRECT ON LINE) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²															
	Kw	HP					mm ²	1,5	2,5	4	6	10	16	25	35							
							A max	23	32	42	54	75	100	127	158							
Maximum length in metres																						
4OS03T235	0,37	0,5	220	0,78	2,04	4																
			230	0,72	2,08		229	381														
			240	0,68	2,15																	
4OS05T235	0,55	0,75	220	0,80	2,79	4																
			230	0,75	2,86		163	271														
			240	0,71	2,96																	
4OS07T235	0,75	1	220	0,78	3,76	4																
			230	0,71	3,95		124	206	331													
			240	0,67	4,16																	
4OS11T235	1,1	1,5	220	0,80	5,06	4																
			230	0,74	5,18		89	149	240	358												
			240	0,70	5,42																	
4OS15T235	1,5	2	220	0,78	6,95	4																
			230	0,72	7,24		66	110	178	266	455											
			240	0,68	7,64																	
4OS22T235	2,2	3	220	0,80	9,72	4																
			230	0,74	10,0		45	76	123	185	317											
			240	0,69	10,5																	
4OS30T235	3	4	220	0,85	12,1	4																
			230	0,81	12,0		33	57	93	140	241	376										
			240	0,77	12,3																	
4OS40T235	4	5,5	220	0,85	16,4	4																
			230	0,80	16,5		23	41	67	102	177	277										
			240	0,76	17,0																	
4OS55T235	5,5	7,5	220	0,83	22,9	4																
			230	0,78	23,0		-	28	48	73	128	201	306									
			240	0,73	23,7																	
4OS75T235	7,5	10	220	0,82	31,0	4																
			230	0,76	31,4		-	19	34	53	94	148	227	314								
			240	0,71	32,4																	
4OS03T405	0,37	0,5	380	0,78	1,18	4																
			400	0,72	1,20		685															
			415	0,68	1,24																	
4OS05T405	0,55	0,75	380	0,80	1,61	4																
			400	0,75	1,65		489															
			415	0,71	1,71																	
4OS07T405	0,75	1	380	0,78	2,20	4																
			400	0,71	2,30		367															
			415	0,67	2,40																	
4OS11T405	1,1	1,5	380	0,80	2,90	4																
			400	0,74	3,00		271	451														
			415	0,70	3,10																	
4OS15T405	1,5	2	380	0,78	4,00	4																
			400	0,72	4,20		201	334														
			415	0,68	4,40																	
4OS22T405	2,2	3	380	0,80	5,60	4																
			400	0,74	5,80		139	232	374													
			415	0,69	6,10																	
4OS30T405	3	4	380	0,85	7,00	4																
			400	0,81	7,00		104	174	281	421												
			415	0,77	7,10																	
4OS40T405	4	5,5	380	0,85	9,50	4																
			400	0,80	9,50		75	127	206	309												
			415	0,76	9,80																	
4OS55T405	5,5	7,5	380	0,83	13,2	4																
			400	0,78	13,3		53	92	150	226	389											
			415	0,73	13,7																	
4OS75T405	7,5	10	380	0,82	17,9	4																
			400	0,76	18,1		37	66	109	166	288	451										
			415	0,71	18,7																	

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

4os-b-cavi-50-en_b_te

L4C SINGLE-PHASE, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES, DOL (DIRECT ON LINE) STARTING

MOTOR TYPE SINGLE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²													
							mm ²	1,5	2,5	4	6	10	16	25	35					
							A max	23	32	42	54	75	100	127	158					
Maximum length in metres																				
L4C03M235	0,37	0,5	220	0,96	3,20	4														
			230	0,97	3,30			103	172	278	416									
			240	0,91	3,40															
L4C05M235	0,55	0,75	220	0,95	4,30															
			230	0,94	4,60			76	127	205	307									
			240	0,90	4,80															
L4C07M235	0,75	1	220	0,93	6,00															
			230	0,92	6,20			57	96	155	232	398								
			240	0,85	6,50															
L4C11M235	1,1	1,5	220	0,94	8,10															
			230	0,92	8,10			40	68	110	166	286	448							
			240	0,87	8,30															
L4C15M235	1,5	2	220	0,96	10,4															
			230	0,93	10,4		30	52	84	126	218	343	527							
			240	0,90	10,7															
L4C22M235	2,2	3	220	0,96	15,4															
			230	0,94	15,0		19	34	56	84	146	231	355	496						
			240	0,91	15,3															
L4C40M235	4	5,5	220	0,93	29,9															
			230	0,90	29,8		-	15	27	42	75	120	185	259						
			240	0,87	29,7															

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l4cm-cavi-50-en_d_te

L4C THREE-PHASE, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES, DOL (DIRECT ON LINE) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²													
							mm ²	1,5	2,5	4	6	10	16	25	35					
							A max	23	32	42	54	75	100	127	158					
Maximum length in metres																				
L4C03T235	0,37	0,5	220	0,69	2,60	4														
			230	0,70	2,70		190	316												
			240	0,67	3,10															
L4C05T235	0,55	0,75	220	0,77	3,10	4														
			230	0,71	3,30		152	253	407											
			240	0,66	3,50															
L4C07T235	0,75	1	220	0,77	4,00	4														
			230	0,73	4,10		118	196	315											
			240	0,66	4,50															
L4C11T235	1,1	1,5	220	0,80	5,60	4														
			230	0,76	5,70		80	134	216	323										
			240	0,73	6,20															
L4C15T235	1,5	2	220	0,77	7,40	4														
			230	0,72	7,60		62	105	169	253	433									
			240	0,68	8,00															
L4C22T235	2,2	3	220	0,80	10,0	4														
			230	0,78	10,2		43	74	120	180	308									
			240	0,70	10,7															
L4C30T235	3	4	220	0,77	13,7	4														
			230	0,71	14,3		32	55	90	135	232	362								
			240	0,68	15,2															
L4C40T235	4	5,5	220	0,81	16,4	4														
			230	0,79	17,3		24	43	71	108	187	292	443							
			240	0,74	18,2															
L4C55T235	5,5	7,5	220	0,79	23,4	4														
			230	0,74	24,2		-	29	49	75	131	205	312							
			240	0,70	25,0															
L4C03T405	0,37	0,5	380	0,69	1,50	4														
			400	0,70	1,60		569													
			415	0,67	1,80															
L4C05T405	0,55	0,75	380	0,77	1,80	4														
			400	0,71	1,90		454													
			415	0,66	2,00															
L4C07T405	0,75	1	380	0,77	2,30	4														
			400	0,73	2,40		355													
			415	0,66	2,60															
L4C11T405	1,1	1,5	380	0,80	3,30	4														
			400	0,76	3,40		238	396												
			415	0,73	3,60															
L4C15T405	1,5	2	380	0,77	4,30	4														
			400	0,72	4,40		189	315												
			415	0,68	4,60															
L4C22T405	2,2	3	380	0,80	5,80	4														
			400	0,78	5,90		134	224	361											
			415	0,70	6,20															
L4C30T405	3	4	380	0,77	7,90	4														
			400	0,71	8,30		101	169	273	409										
			415	0,68	8,80															
L4C40T405	4	5,5	380	0,81	9,50	4														
			400	0,79	10,0		80	136	221	331										
			415	0,74	10,5															
L4C55T405	5,5	7,5	380	0,79	13,5	4														
			400	0,74	14,0		54	94	153	231	398									
			415	0,70	14,5															
L4C75T405	7,5	10	380	0,84	17,0	4														
			400	0,79	17,4		-	68	113	172	297	466								
			415	0,75	18,1															

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l4c-cavi-50-en_d_te

L6C, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES DOL (DIRECT ON LINE) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²								
	Kw	HP					mm ²	4	6	10	16	25	35	50	70
							A max	42	54	75	100	127	158	192	246
Maximum length in metres															
L6C40T235	4	5,5	220	0,80	17,8	4		65	99	171	268	406	559		
			230	0,75	18,4										
			240	0,70	19,1										
L6C55T235	5,5	7,5	220	0,80	24,1	4		47	72	125	197	300	413	572	
			230	0,75	24,2										
			240	0,71	25,3										
L6C75T235	7,5	10	220	0,82	30,5	4		34	54	95	151	231	320	444	
			230	0,78	31,2										
			240	0,73	31,7										
L6C93T235	9,3	12,5	220	0,82	37,6	4		26	42	76	121	186	258	359	489
			230	0,80	38,1										
			240	0,79	39,5										
L6C110T235	11	15	220	0,87	43,3	4		-	33	61	99	153	214	299	412
			230	0,82	44,2										
			240	0,79	45,0										
L6C150T235	15	20	220	0,84	58,0	4		-	-	44	73	115	161	226	311
			230	0,80	57,9										
			240	0,76	59,2										
L6C185T235	18,5	25	220	0,83	70,1	4		-	-	35	59	94	133	187	257
			230	0,80	71,0										
			240	0,73	72,7										
L6C220T235	22	30	220	0,88	82,3	4		-	-	-	46	74	106	152	212
			230	0,84	81,4										
			240	0,80	82,3										
L6C40T405	4	5,5	380	0,80	10,3	4		201	301	517					
			400	0,75	10,6										
			415	0,70	11,0										
L6C55T405	5,5	7,5	380	0,80	13,9	4		147	222	382					
			400	0,75	14,0										
			415	0,71	14,6										
L6C75T405	7,5	10	380	0,82	17,6	4		112	169	293	459				
			400	0,78	18,0										
			415	0,73	18,3										
L6C93T405	9,3	12,5	380	0,82	21,7	4		88	135	236	371	565			
			400	0,80	22,0										
			415	0,79	22,8										
L6C110T405	11	15	380	0,87	25,0	4		71	110	193	305	466			
			400	0,82	25,5										
			415	0,79	26,0										
L6C150T405	15	20	380	0,84	33,5	4		51	81	145	231	355	493		
			400	0,80	33,4										
			415	0,76	34,2										
L6C185T405	18,5	25	380	0,83	40,5	4		-	65	119	191	294	409		
			400	0,80	41,0										
			415	0,73	42,0										
L6C220T405	22	30	380	0,88	47,5	4		-	50	94	153	237	332	467	
			400	0,84	47,0										
			415	0,80	47,5										
L6C300T405	30	40	380	0,89	63,0	4		-	-	65	109	173	245	346	480
			400	0,85	61,5										
			415	0,80	63,5										
L6C370T405	37	50	380	0,87	79,5	4		-	-	-	84	135	193	274	381
			400	0,84	79,3										
			415	0,80	80,0										

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l6c-cavi-50-en_f_te

L6C, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES Y/Δ (STAR / DELTA) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ² + 3 x ...mm ²												
							mm ²	4	6	10	16	25	35	50	70				
							A max*	73	94	130	173	220	274	333	426				
Maximum length in metres																			
L6C40T405	4	5,5	380	0,80	10,3	4													
			400	0,75	10,6		352	525											
			415	0,70	11,0														
L6C55T405	5,5	7,5	380	0,80	13,9														
			400	0,75	14,0		259	388											
			415	0,71	14,6														
L6C75T405	7,5	10	380	0,82	17,6														
			400	0,78	18,0		199	299	513										
			415	0,73	18,3														
L6C93T405	9,3	12,5	380	0,82	21,7														
			400	0,80	22,0		160	241	415										
			415	0,79	22,8														
L6C110T405	11	15	380	0,87	25,0														
			400	0,82	25,5	130	197	340	533										
			415	0,79	26,0														
L6C150T405	15	20	380	0,84	33,5														
			400	0,80	33,4	98	150	260	408										
			415	0,76	34,2														
L6C185T405	18,5	25	380	0,83	40,5														
			400	0,80	41,0	80	123	216	340	518									
			415	0,73	42,0														
L6C220T405	22	30	380	0,88	47,5														
			400	0,84	47,0	63	98	173	274	421									
			415	0,80	47,5														
L6C300T405	30	40	380	0,89	63,0														
			400	0,85	61,5	44	70	126	202	312	435								
			415	0,80	63,5														
L6C370T405	37	50	380	0,87	79,5														
			400	0,84	79,3	-	53	99	160	248	347	487							
			415	0,80	80,0														

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l6c-cavi-SD-50-en_b_te

*A max is the maximum rated current of the motor

L6W, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES DOL (DIRECT ON LINE) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²											
							mm2	4	6	10	16	25	35	50	70			
							A max	42	54	75	100	127	158	192	246			
Maximum length in metres																		
L6W40T405	4	5,5	380	0,90	9,89	4		187	281	484								
			415	0,85	9,13													
L6W55T405	5,5	7,5	380	0,88	12,7			148	222	384								
			415	0,82	12,5													
L6W75T405	7,5	10	380	0,90	17,0			106	161	279	439							
			415	0,84	16,2													
L6W93T405	9,3	12,5	380	0,89	20,5			87	133	233	366	561						
			415	0,83	19,9													
L6W110T405	11	15	380	0,90	24,2			71	110	194	306	470						
			415	0,84	23,4													
L6W130T405	13	17,5	380	0,90	28,1			60	93	165	262	403	561					
			415	0,85	27,0													
L6W150T405	15	20	380	0,88	32,1			52	82	146	233	358	498					
			415	0,82	31,3													
L6W185T405	18,5	25	380	0,89	38,5			-	65	118	190	294	410					
			415	0,83	37,5													
L6W220T405	22	30	380	0,87	47,3			-	51	95,1	155	241	337	472				
			415	0,80	46,7													
L6W260T405	26	35	380	0,85	56,5			-	-	78	129	202	284	398				
			415	0,79	55,7													
L6W300T405	30	40	380	0,87	63,8		-	-	66	110	174	245	346	479				
			415	0,81	62,0													
L6W370T405	37	50	380	0,86	81,8		-	-	-	82	132	188	267	372				
			415	0,80	79,4													

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l6w-cavi-50-en_c_te

L6W, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES Y/Δ (STAR / DELTA) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ² + 3 x ...mm ²											
							mm ²	4	6	10	16	25	35	50	70			
							A max*	73	94	130	173	220	274	333	426			
							Maximum length in metres											
L6W40T405	4	5,5	380 415	0,90 0,85	9,89 9,13	4		327	490									
L6W55T405	5,5	7,5	380 415	0,88 0,82	12,7 12,5			260	389									
L6W75T405	7,5	10	380 415	0,90 0,84	17,0 16,2			189	283	488								
L6W93T405	9,3	12,5	380 415	0,89 0,83	20,5 19,9			157	237	408								
L6W110T405	11	15	380 415	0,90 0,84	24,2 23,4			131	197	341	535							
L6W130T405	13	17,5	380 415	0,90 0,85	28,1 27,0			111	169	293	460							
L6W150T405	15	20	380 415	0,88 0,82	32,1 31,3			99	150	261	410							
L6W185T405	18,5	25	380 415	0,89 0,83	38,5 37,5			80	122	214	337	517						
L6W220T405	22	30	380 415	0,87 0,80	47,3 46,7			64	99,5	176	278	426						
L6W260T405	26	35	380 415	0,85 0,79	56,5 55,7			53	83	148	236	362	502					
L6W300T405	30	40	380 415	0,87 0,81	63,8 62,0			44	70,2	127	203	313	436					
L6W370T405	37	50	380 415	0,86 0,80	81,8 79,4			-	52	96	157	243	340	476				

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l6w-cavi-SD-50-en_c_te

*A max is the maximum rated current of the motor

L8W, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES DOL (DIRECT ON LINE) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²									
							mm2	10	16	25	35	50	70	95	120	
							A max	75	100	127	158	192	246	298	346	
							Maximum length in metres									
L8W300T405	30	40	380	0,85	65,0	4		65	110	173	244	344	475			
			415	0,84	59,0											
L8W370T405	37	50	380	0,87	81,0			47	82	132	189	268	374	476		
			415	0,83	76,0											
L8W450T405	45	60	380	0,87	92,0			-	69	113	163	233	327	417	516	
			415	0,83	88,5											
L8W520T405	52	70	380	0,86	110			-	-	91	133	192	271	347	430	
			415	0,82	104											
L8W550T405	55	75	380	0,87	118			-	-	82	121	176	250	321	399	
			415	0,83	110											
L8W600T405	60	80	380	0,87	124			-	-	77	114	166	236	305	378	
			415	0,83	118											
L8W670T405	67	90	380	0,88	138			-	-	-	98	145	208	270	337	
			415	0,83	132											
L8W750T405	75	100	380	0,87	156			-	-	-	84	125	182	237	296	
			415	0,82	148											
L8W830T405	83	110	380	0,87	172			-	-	-	-	111	162	212	266	
			415	0,82	163											
L8W930T405	93	125	380	0,87	192			-	-	-	-	95	142	187	236	
			415	0,83	180											

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l8w-cavi-50-en_b_te

L8W, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES Y/ Δ (STAR / DELTA) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos ϕ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ² + 3 x ...mm ²								
							mm ²	6	10	16	25	35	50	70	95
							A max*	94	130	173	220	274	333	426	516
Maximum length in metres															
L8W300T405	30	40	380	0,85	65,0	4		70	127	203	313	435			
			415	0,84	59,0										
L8W370T405	37	50	380	0,87	81,0			52	96	157	244	341	478		
			415	0,83	76,0										
L8W450T405	45	60	380	0,87	92,0			44	83	136	212	298	419		
			415	0,83	88,5										
L8W520T405	52	70	380	0,86	110			-	67	112	176	248	350	484	
			415	0,82	104										
L8W550T405	55	75	380	0,87	118			-	60	102	161	228	323	447	
			415	0,83	110										
L8W600T405	60	80	380	0,87	124			-	56	96	152	216	306	425	541
			415	0,83	118										
L8W670T405	67	90	380	0,88	138			-	-	83	133	191	271	378	483
			415	0,83	132										
L8W750T405	75	100	380	0,87	156		-	-	71	116	167	239	334	427	
			415	0,82	148										
L8W830T405	83	110	380	0,87	172		-	-	62,2	103	149	214	301	385	
			415	0,82	163										
L8W930T405	93	125	380	0,87	192		-	-	53	89	131	189	267	343	
			415	0,83	180										

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l8w-cavi-SD-50-en_b_te

*A max is the maximum rated current of the motor

L10W, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES DOL (DIRECT ON LINE) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²								
							mm ²	35	50	70	95	120	150	185	240
							A max	158	192	246	298	346	399	456	538
Maximum length in metres															
L10W930T405	93	125	380	0,87	191	4		-	96	143	188	237	286	336	411
			415	0,84	180										
L10W1100T405	110	150	380	0,86	235			-	-	110	147	187	228	268	329
			415	0,82	220										
L10W1300T405	130	175	380	0,86	270			-	-	-	124	159	194	230	283
			415	0,83	255										
L10W1500T405	150	200	380	0,86	308			-	-	-	-	135	166	198	245
			415	0,84	285										

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l10w-cavi-50-en_b_te

L10W, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES Y/Δ (STAR / DELTA) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ² + 3 x ...mm ²								
							mm ²	25	35	50	70	95	120	150	185
							A max*	220	274	333	426	516	599	691	790
Maximum length in metres															
L10W930T405	93	125	380	0,87	191	4		90	132	191	269	345	428	511	
			415	0,84	180										
L10W1100T405	110	150	380	0,86	235			-	102	150	215	278	345	412	480
			415	0,82	220										
L10W1300T405	130	175	380	0,86	270			-	85	127	183	238	297	356	415
			415	0,83	255										
L10W1500T405	150	200	380	0,86	308			-	-	107	157	205	257	310	362
			415	0,84	285										

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l10w-cavi-SD-50-en_b_te

*A max is the maximum rated current of the motor

L12W, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES DOL (DIRECT ON LINE) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ²										
							mm ²	50	70	95	120	150	185	240	300		
							A max	192	246	298	346	399	456	538	621		
Maximum length in metres																	
L12W1850T405	185	250	380	0,87	380	4		-	-	-	-	127	154	194	229		
			415	0,86	360												
L12W2200T405	220	300	380	0,86	470			-	-	-	-	-	-	-	150	179	
			415	0,83	435												
L12W2600T405	260	350	380	0,87	525			-	-	-	-	-	-	-	131	158	
			415	0,83	498												
L12W3000T405	300	400	380	0,87	620			-	-	-	-	-	-	-	-	-	128
			415	0,84	570												

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l12w-cavi-50-en_b_te

L12W, 50 Hz: SIZING OF ETHYLENE-PROPILENE (EPR) CABLES Y/Δ (STAR / DELTA) STARTING

MOTOR TYPE THREE-PHASE	RATED POWER Kw HP		RATED VOLTAGE V	Cos φ	RATED CURRENT A	VOLTAGE DROP %	Cable cross section: 4G x ...mm ² + 3 x ...mm ²								
							mm ²	50	70	95	120	150	185	240	300
							A max*	333	426	516	599	691	790	932	1076
Maximum length in metres															
L12W1850T405	185	250	380	0,87	380	4		-	120	160	203	246	289	355	413
			415	0,86	360										
L12W2200T405	220	300	380	0,86	470			-	-	123	158	193	229	282	329
			415	0,83	435										
L12W2600T405	260	350	380	0,87	525			-	-	-	137	169	202	251	294
			415	0,83	498										
L12W3000T405	300	400	380	0,87	620			-	-	-	-	138	166	208	245
			415	0,84	570										

Exposed cable laid at a temperature of 30°C, maximum conductor temperature of 90°C

l12w-cavi-SD-50-en_b_te

*A max is the maximum rated current of the motor

SPLICE BETWEEN DROP CABLE AND MOTOR CABLE

MOTOR TYPE	POWER kW	TYPE OF SPLICE	FOUR-CORE DROP CABLE - SECTION (mm ²)																
			1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
4OS L4C	0,37 - 7,5	Resin-filled method	GR1	GR1	GR1	GR2	GR2	GR6	GR6	GR6	GR4	GR5	GR5	-	-	-	-	-	
		Heat-shrink method	GT1	GT1	GT2	GT2	GT3	GT4	GT5	GT6	-	-	-	-	-	-	-	-	-
		Tape method	Self-vulcanizing tape + self-vulcanizing sealing putty and PVC tape (1)																
L6C L6W	4 - 37	Resin-filled method	-	-	GR1	GR2	GR2	GR6	GR6	GR6	GR4	GR5	GR5	-	-	-	-	-	
		Heat-shrink method	-	-	GT2	GT2	GT3	GT4	GT5	GT6	-	-	-	-	-	-	-	-	-
		Tape method	Self-vulcanizing tape + self-vulcanizing sealing putty and PVC tape (1)																

MOTOR TYPE	POWER kW	TYPE OF SPLICE	THREE-CORE DROP CABLE - SECTION (mm ²)																
			1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
L6C L6W	4 - 37	Resin-filled method	-	-	GR1	GR1	GR2	GR2	GR6	GR6	GR6	GR4	GR5	-	-	-	-	-	
		Heat-shrink method	-	-	GT2	GT2	GT3	GT4	GT5	GT6	-	-	-	-	-	-	-	-	-
		Tape method	Self-vulcanizing tape + PVC tape																

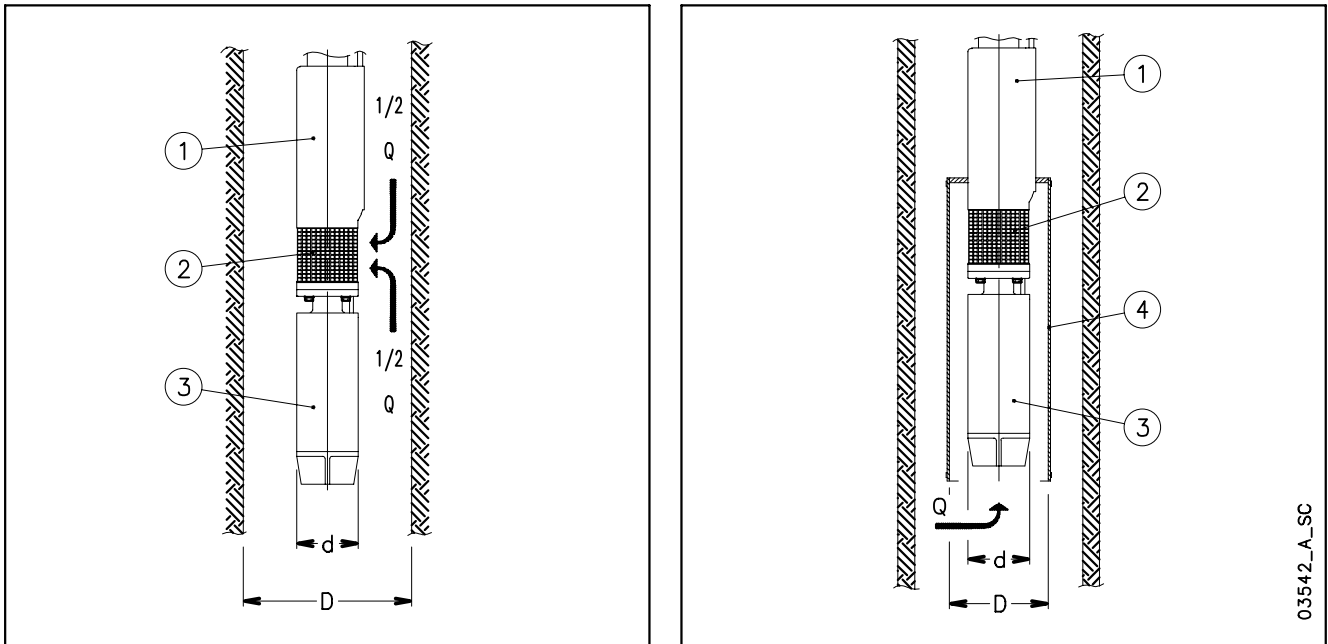
MOTOR TYPE	POWER kW	TYPE OF SPLICE	SINGLE-CORE DROP CABLE - SECTION (mm ²)																
			1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
L8W L10W L12W	30 - 300	Resin-filled method	-	-	-	GR1	GR1	GR1	GR1	GR1	GR1	GR2	GR2	GR2	GR6	GR6	GR6	GR4	
		Heat-shrink method	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Tape method	Self-vulcanizing tape + PVC tape																

(1) Use self-vulcanizing sealing putty to fill in the gaps between the three-conductor cable and the ground cable in the area covered by the final layer of tape, to restore continuity to the protective sheath.

RESIN-FILLED SPLICES				HEAT-SHRINK SPLICES			
TYPE	L [mm]	TYPE	L [mm]	TYPE	L [mm]	TYPE	L [mm]
GR1	148 x 32	GR5	369 x 76	GT1	450	GT4	450
GR2	178 x 36	GR6	270 x 55	GT2	450	GT5	500
GR4	319 x 63			GT3	450	GT6	500

L-giunzioni-en_d_te

CALCULATING THE SPEED OF THE FLUID THAT FLOWS AROUND A SUBMERGED MOTOR AND SIZING OF THE COOLING SLEEVE



The following formula is used to verify whether the speed of the fluid that flows around the motor of a submersible pump is high enough to guarantee the proper cooling of the motor:

$$v = \frac{\frac{Q}{2}}{\pi \cdot \left(\frac{D^2}{4} - \frac{d^2}{4} \right)}$$

Where: Q in [m³/s] is the operating flow rate of the electric pump; only half of this flow is taken into account, because the fluid which is sucked into the area of the filter (2), comes from the motor side (3) as well as from the pump side (1);
D in [m] corresponds to the diameter of the well;
d in [m] corresponds to the diameter of the motor (3);
v in [m/s] is the calculated speed of the fluid that flows around the motor.

Now, compare the speed thus calculated (v) with the minimum speed required for correct cooling of the motor (v_m): if v ≥ v_m it means that the motor is properly cooled, if v < v_m will be necessary to mount a cooling sleeve (4).

Example:

An electric pump OZ630/12 (motor diameter d = 0.144 m) operates in an 8" well (well diameter D = 0.203 m) with flow rate Q = 20 m³/h = 0.0055 m³/s.

Speed of fluid v = (0.0055/2) / {π·[(0.203)²/4 – (0.144)²/4]} = 0.17 m/s.

The minimum speed required for proper motor cooling is v_m = 0.20 m/s.

Because v < v_m, it will be necessary to mount a cooling sleeve.

The following formula is used to determine the maximum diameter of a cooling sleeve to be mounted on a submersible motor:

$$D = \sqrt{4 \cdot \left(\frac{Q}{v \cdot \pi} + \frac{d^2}{4} \right)}$$

Where: Q in [m³/s] is the operating flow rate of the electric pump; the entire flow is taken into account because the fluid comes from the motor side (3) only;
D in [m] corresponds to the diameter of the cooling sleeve (4);
d in [m] corresponds to the diameter of the motors(3);
v_m in [m/s] is the minimum speed of the fluid that flows around the motor.

If the electric pump operates at different flow rate, the minimum flow rate must be taken into account for calculating the diameter of the cooling sleeve.

Example:

A motor coupled to the electric pump OZ615/24 (motor diameter d = 0.144 m), which operates with flow rate

Q = 15 m³/h = 0.0042 m³/s, requires a minimum speed of the fluid of v_m = 0.20 m/s.

Cooling sleeve diameter D = {4·[(0.0042/(0.2·π)+(0.144)²/4]}^{0.5} = 0.217 m.

ASYNCHRONOUS MOTOR STARTING SYSTEMS

Direct

Suitable for low-power motors.

The starting current (I_s) is much higher than the rated current (I_n).

$$\text{Starting current } I_s = I_n \times 4 \div 8$$

$$\text{Starting torque } T_s = T_n \times 2 \div 3$$

Indirect

• Star/Delta

The starting current (I_s) is three times less than the direct starting current.

$$\text{Starting current } I_s = I_n \times 1.3 \div 2.7$$

$$\text{Starting torque } T_s = T_n \times 0.7 \div 1$$

In the star to delta changeover phase (approx. 70 ms) the motor is not supplied and tends to reduce its rotation speed.

In the case of submersible electric pumps with power above 10 HP, the modest mass of the rotor causes a slowdown at changeover, so that the initial Star supply phase is rendered partially useless.

In such cases we recommend using impedance panels or an autotransformer.

• Impedances

The motor is started with a voltage which is lower than the rated one, and which is obtained by means of impedances.

The Lowara panels use impedances which cut down to 70% the starting voltage.

The switch to the rated voltage takes place without any interruptions of the power supply.

$$\text{Rated voltage } U_n = 400 \text{ V}$$

$$\text{Starting voltage } U_s = U_n \times 0,7 = 280 \text{ V}$$

Starting current

$$I_s = I_n \times 4 \div 8 \times \left(\frac{U_s}{U_n} \right) = I_n \times 3 \div 6$$

Starting torque

$$T_s = T_n \times 2 \div 3 \times \left(\frac{U_s}{U_n} \right)^2 = T_n \times 1 \div 1,5$$

Autotransformer

The pump is started with a voltage which is lower than the rated one.

The Lowara panels use an autotransformer with a voltage that is 70% the value of the line voltage.

The switch to the rated voltage occurs without any interruptions of the power supply.

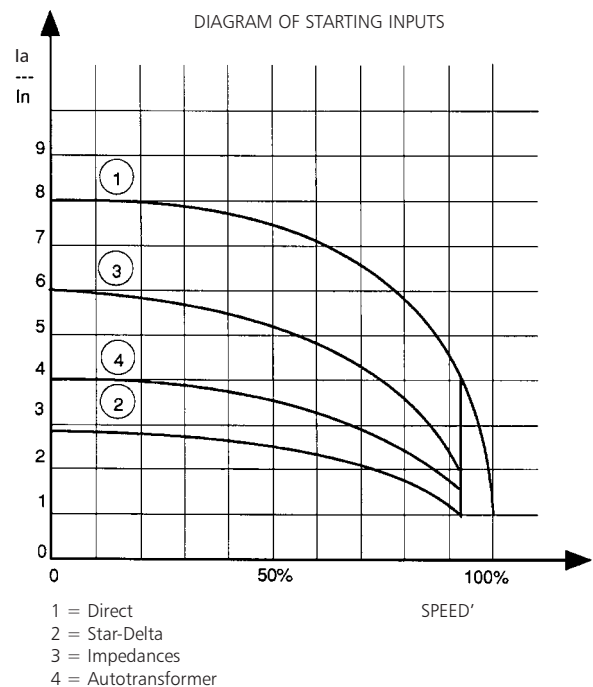
$$\text{Rated voltage } U_n = 400 \text{ V}$$

Starting current

$$I_s = I_n \times 4 \div 8 \times \left(\frac{U_s}{U_n} \right) = I_n \times 3 \div 6$$

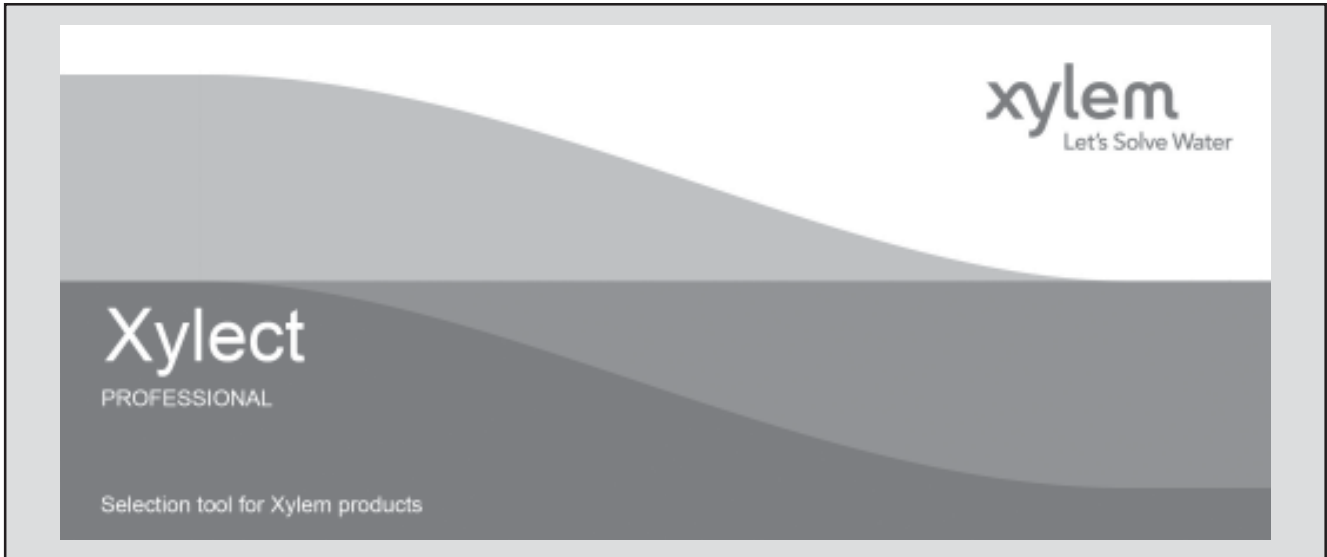
Starting torque

$$T_s = T_n \times 2 \div 3 \times \left(\frac{U_s}{U_n} \right)^2 = T_n \times 1 \div 1,5$$



FURTHER PRODUCT SELECTION AND DOCUMENTATION

Xylect



Xylect is pump solution selection software with an extensive online database of product information across the entire Lowara, and Vogel range of pumps and related products, with multiple search options and helpful project management facilities. The system holds up-to-date product information on thousands of products and accessories.

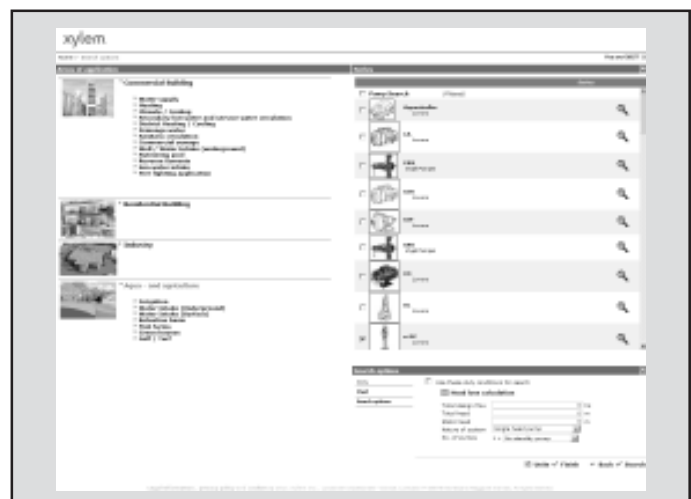
The possibility to search by applications and the detailed information output given makes it easy to make the optimal selection without having detailed knowledge about the Lowara and Vogel products.

The search can be made by:

- Application
- Product type
- Duty point

Xylect gives a detailed output:

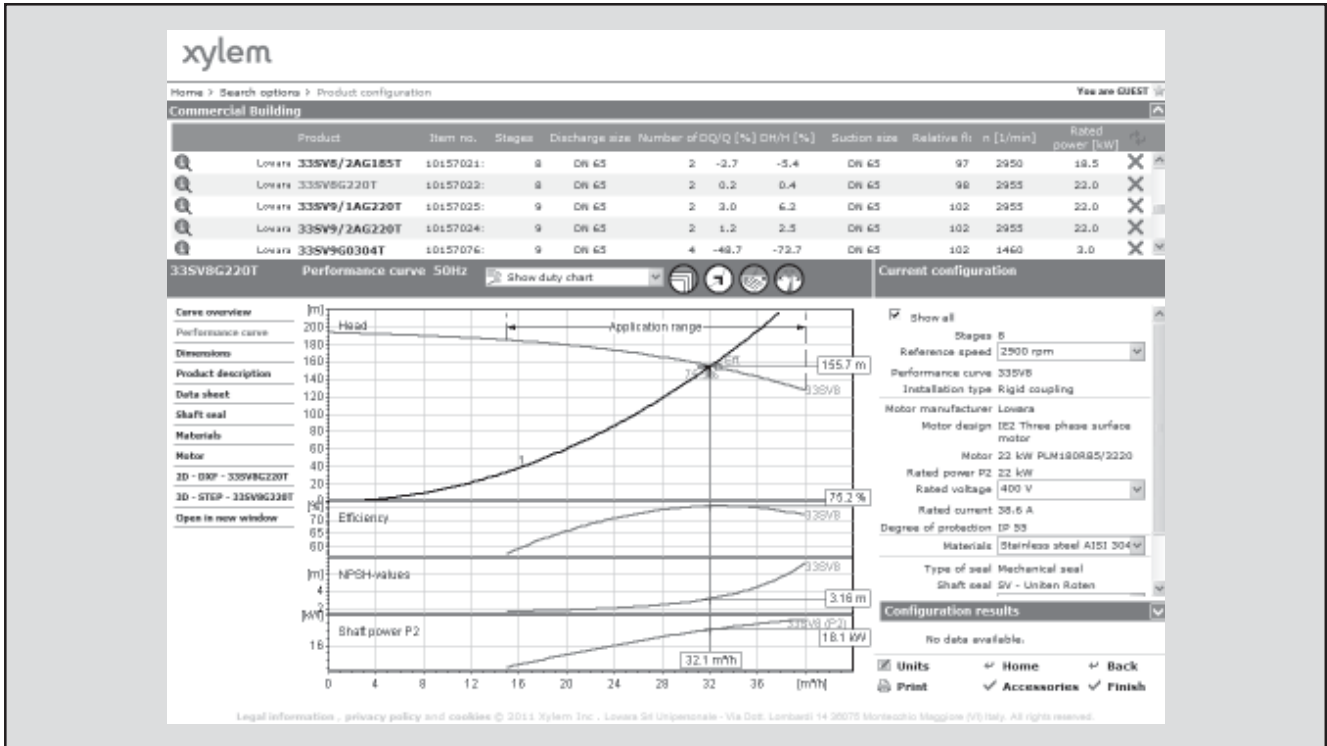
- List with search results
- Performance curves (flow, head, power, efficiency, NPSH)
- Motor data
- Dimensional drawings
- Options
- Data sheet printouts
- Document downloads incl dxf files



The search by application guides users not familiar with the product range to the right choice.

FURTHER PRODUCT SELECTION AND DOCUMENTATION

Xylect



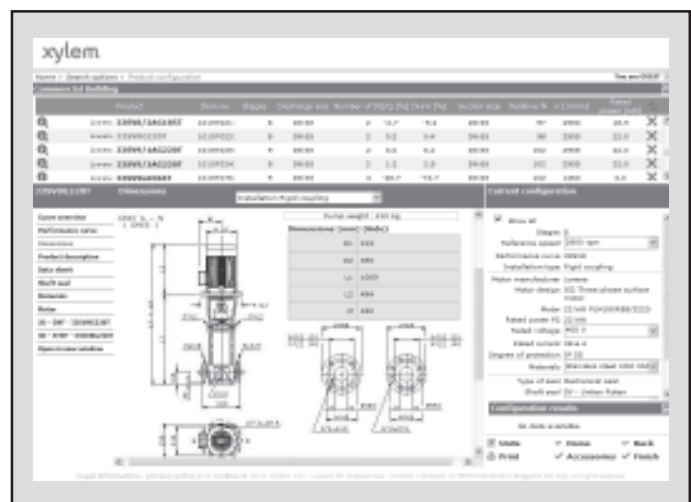
The detailed output makes it easy to select the optimal pump from the given alternatives.

The best way to work with Xylect is to create a personal account. This makes it possible to:

- Set own standard units
- Create and save projects
- Share projects with other Xylect users

Every user have a My Xylect space, where all projects are saved.

For more information about Xylect please contact our sales network or visit www.xylect.com.



Dimensional drawings appear on the screen and can be downloaded in dxf format.

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're 12,000 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to xylem.com.



Headquarters

LOWARA S.r.l. Unipersonale
Via Vittorio Lombardi 14
36075 Montecchio Maggiore - Vicenza - Italy
Tel. (+39) 0444 707111 - Fax (+39) 0444 492166
e-mail: lowara.mkt@xylem.com
web: www.lowara.com - www.completewatersystems.com

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