

4WP

MOTORE SOMMERSO SERIE 4WP
Manuale d'installazione

SUBMERSIBLE MOTOR 4WP SERIES
Installation manual

MOTOR SUMERGIDO SERIE 4WP
Manual de instalacion

OVERVIEW

This manual gives information about the correct use and installation of the 4" motor WP series.

Any improper use of the motor may cause damage to the motor and to the plant and invalidates product warranty.

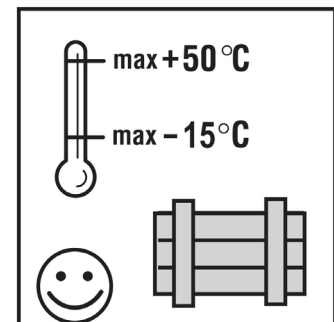
Instructions and prescriptions refer to the standard installation: for any special arrangement please contact Producer Technical Department.

4WP MOTOR DESCRIPTION

- Stator impregnated with a special epoxy resin and hermetically sealed, in order to guarantee the best electrical insulation and the most efficient cooling.
- Rotor and bearings lubricated with a solution of water and polypropylenic glycol.
- Removable cable connector.
- AISI 304 outer sleeve.
- AISI 303 and AISI 431 for HT version splined shaft end.
- Cast iron G20 upper and lower bracket with cataphoresis coating.
- AISI 304 upper bracket cover.
- Motor sealing provided by labyrinth sand slinger and mim ring.
- Pressure balancing diaphragm.
- Valve for cooling liquid refilling.

TRANSPORT AND STORAGE

- Store motor in original package until assembly.
- Under no circumstances may the motor be stored as temperatures above +50° C since this can lead to filling liquid leakage and premature motor failure.



PRELIMINARY INSPECTION

- [√] Visually check the motor integrity, in order to find possible damages due to transportation.
- [√] Check power and voltage according to the application.
- [√] Manually check that the shaft can rotate
- [√] If the motor remains in stock for more than one year, check the water level: if water refilling is needed, please contact the Producer Technical Department.
- [√] Check the insulation resistance with a megger before installation: referring to a brand new motor, the resistance must be over 400 Mohm.

APPLICATION

The 4WP motor can be coupled with 4" submersible pump having the flange and joint dimensions according to NEMA standards.

The motor is designed to be submerged and it is suitable for the following applications:

- water supply from deep wells;
- domestic and agricultural irrigation;
- booster pressurizing.



Pumping explosive liquids or using the motor in hazardous environments is strictly forbidden!

APPLICATION LIMITS

- Maximum water temperature: 35 °C
- Water pH: 5.8-8.6
- Maximum startings per hour: 30
- Minimum cooling flow rate: 0.08 m/s
- Maximum immersion depth: 150 m
- Voltage tolerance: +6%/-10 %
- Vertical or horizontal use is allowed
- If the motor is combined with a frequency converter, please contact Producer Technical Department
- Remind that in case of using the motor in aggressive environments, any anomaly or malfunction are under the responsibility of the installator
- If the motor is powered by an electric generating set, we recommend to:
 - start the generating set before the motor
 - stop the motor before the generating set.

INSTALLATION

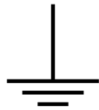
- The 4WP motor has been designed to work only submerged.
- A cable is provided: do not damage the motor while moving it and do not lift the motor by the cable.
- After mounting the pump, check that the shaft is able to rotate and put some grease on the joint.
- Choose the lead cable according to the table on the next page.
- Concerning the connection, please follow the instructions supplied with the cable junction kit.
- Fix the cable to the delivery pipe in order to avoid damages.



Make sure that the motor does not touch the bottom of the well! Sand may damage the diaphragm, so keep the motor at least 1 m over the bottom of the well!

ELECTRICAL INSTALLATION

- Electrical connection: check the colours on the motor rating plate and refer to the schemes at the end of this manual if necessary.
- Fuses and overload protections are recommended in order to keep the motor safe. For further information, please contact Producer Technical Department.
- An high sensitivity circuit breaker device is recommended.
- Single phase version: please use the control panel provided by Producer or choose a panel according to Producer specification in order to let the motor work properly.



Motor has to be earthed according to local regulation

POWER CABLE

The cable has to be suitable for submersible applications.

Check the table at the end of this manual, it shows the maximum cable lengths (expressed in m) as function of the cross section. These dimensions are valid for a tension drop of the 3 % at a room temperature of 30 °C.

DISPOSAL

When disposing of the motor, please comply rigorously with the regulations in force in your country.

This symbol on the motor means that it cannot be disposed of with household waste.



This provision only concerns the disposal of equipment within the European Union (2012/19/UE). The user is responsible for disposing of the equipment by taking it to a collection and recycling facility authorized to dispose of electrical waste.

CAUSES OF FAILURES OR MALFUNCTIONS

NO START

- No power supply
- Supply voltage too low
- Cable unplugged or damaged
- Excessive starting voltage drop
- Fuses burnt
- Circuit breaker not calibrated
- Supplied with 2 phases (three-phase mot.)
- Thrust bearing stuck
- Uncorrect capacitor (single phase mot.)
- Activation of level probe
- Operating level too deep
- Blocked impeller
- Faulty stator:
 - Overload
 - Lightning discharge or overvoltage
 - Overheating

GROUNDING MOTOR

- Grounded supply cable or jack
- Grounded connection
- O-ring outseat or cut
- Water leaks
 - from diaphragm
 - from supply cable

RUNS SLOWLY

- Run and start windings exchanged on ctrl panel (single phase mot.)
- Wrong winding connections (three-phase mot.)

FREQUENT STARTS AND STOPS

- Damaged pressure switch or level probe
- Oversized pump
- Too high liquid temperature
- Too high power absorption
- Leaks in plant

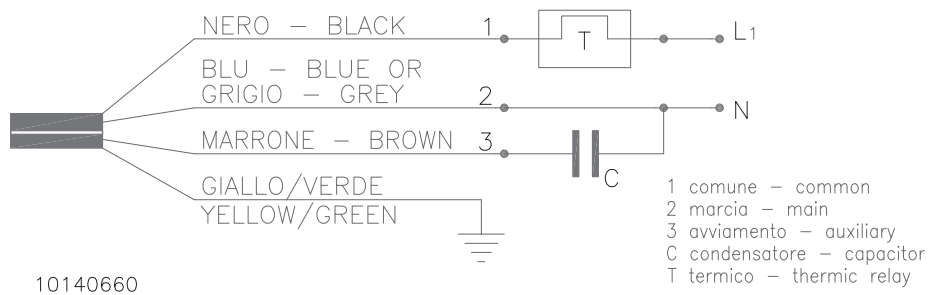
POWER INPUT TOO HIGH

- Wrong voltage
- Wrong capacitor
- Defected winding
- Supplied with 2 phases instead of 3 (three-phase mot.)
- Overload
 - Wrong pump size
 - Faulty pump
 - Damaged thrust bearing
 - Too high liquid temperature
 - Too many startings per hour

NO STOP

- Level probe defected
- Leaks in plant

schema di collegamento – wiring diagram



	MOTORE MOTOR	Hp	kW	SEZIONE CAVO (mm ²) DROP CABLE SECTION (mm ²)						
				4x1	4x1.5	4x2.5	4x4	4x6	4x10	4x16
SINGLE PHASE 230V/50Hz 220V/60Hz	4WP 050 M	0,50	0,37	50	75	125				
	4WP 075 M	0,75	0,55	38	57	95	152			
	4WP 100 M	1,00	0,75	30	45	75	120	174		
	4WP 150 M	1,50	1,10	22	33	53	85	127	210	
	4WP 200 M	2,00	1,50		23	38	63	92	154	246
	4WP 300 M	3,00	2,20			28	45	67	112	180

THREE PHASE 400V/50Hz 380V/60Hz	4WP 050 T	0,50	0,37	240						
	4WP 075 T	0,75	0,55	164	246					
	4WP 100 T	1,00	0,75	133	200	333				
	4WP 150 T	1,50	1,10	97	146	244	390			
	4WP 200 T	2,00	1,50	72	109	180	290	435		
	4WP 300 T	3,00	2,20	51	78	130	207	310	516	
	4WP 400 T	4,00	3,00	41	62	104	167	250	416	
	4WP 500 T	5,50	4,00	31	46	77	124	186	310	496
	4WP 750 T	7,50	5,50		33	56	90	135	225	360
4WP 1000 T	10,00	7,50				66	100	165	270	

THREE PHASE 220V/50 - 60Hz	4WP 050 T	0,50	0,37	90	135					
	4WP 075 T	0,75	0,55	60	90	150	240			
	4WP 100 T	1,00	0,75	47	71	118	190			
	4WP 150 T	1,50	1,10	35	52	87	140	210		
	4WP 200 T	2,00	1,50	26	40	66	106	160	266	
	4WP 300 T	3,00	2,20		29	48	76	115	191	306
	4WP 400 T	4,00	3,00			37	60	90	150	240
	4WP 500 T	5,50	4,00			27	44	66	110	176
	4WP 750 T	7,50	5,50				32	48	80	128
4WP 1000 T	10,00	7,50					35	58	96	

Technical data for THREE PHASE 4WP series 4" motors - 50 Hz -

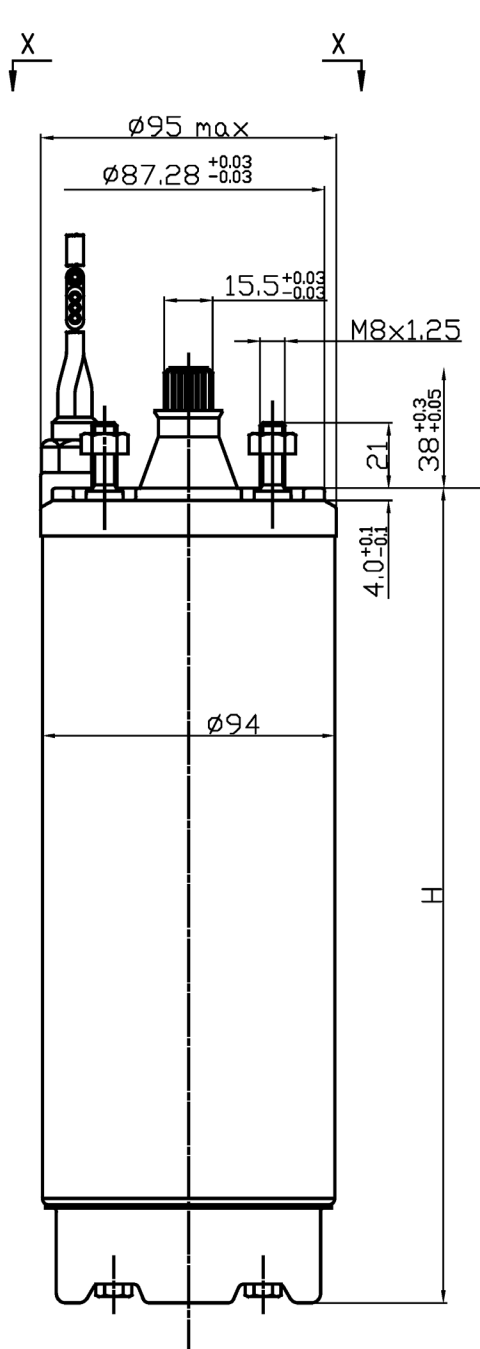
50Hz.	Thrust Load	Weight	H	kW	Hp	In	Istart	RPM	Cosφ	Ts/Tn PSC	EFF%	Rf	
	N	Kg	mm			Amp							
400V	4WP 050 T	1500	5,8	235	0,37	0,5	1,3	5,3	2870	0,72	2,6	62	39,7
	4WP 075 T		7	250	0,55	0,75	1,7	7,2	2860	0,71	2,5	66	27,6
	4WP 100 T		8,3	265	0,75	1	2,2	9,2	2840	0,73	1,9	67	24,0
	4WP 150 T	3000	10,9	295	1,1	1,5	3,0	14,2	2840	0,74	2,3	72	15,0
	4WP 200 T		11,4	340	1,5	2	4,0	18,5	2830	0,75	2,1	72	13,7
	4WP 300 T		14,2	375	2,2	3	5,6	26,5	2830	0,77	2,4	74	7,8
	4WP 400 T		18,3	480	3	4	7,5	34,3	2830	0,77	2,2	76	5,5
	4WP 550 T	6500	23,4	555	4	5,5	10,6	44	2830	0,79	2,3	69	4,0
	4WP 750 T		29,4	675	5,5	7,5	13,6	62	2830	0,82	2,2	72	3,3
	4WP 1000 T		33,8	765	7,5	10	18,3	90	2840	0,79	2,2	75	2,2
4WP 050 T	220V		5,8	235	0,37	0,5	2,3	9,2	2870	0,72	2,6	62	13,23
4WP 075 T		1500	7	250	0,55	0,75	2,9	12,5	2860	0,71	2,5	66	9,20
4WP 100 T			8,3	265	0,75	1	3,8	15,9	2840	0,73	1,9	67	8,00
4WP 150 T			10,9	295	1,1	1,5	5,2	24,6	2840	0,74	2,3	72	5,00
4WP 200 T		3000	11,4	340	1,5	2	6,9	32,0	2830	0,75	2,1	72	4,57
4WP 300 T			14,2	375	2,2	3	9,7	45,9	2830	0,77	2,4	74	2,60
4WP 400 T			18,3	480	3	4	13,0	59,4	2830	0,77	2,2	76	1,83
4WP 550 T			6500	23,4	555	4	5,5	18,4	76,2	2830	0,79	2,3	69
4WP 750 T		29,4		675	5,5	7,5	23,6	107,4	2830	0,82	2,2	72	1,10
4WP 1000 T		33,8		765	7,5	10	31,7	155,9	2840	0,79	2,2	75	0,73
4WP 100 T	110V	1500		8,3	265	0,75	1	7,5	36,0	2800	0,75	1,9	70
4WP 150 T		3000	10,9	295	1,1	1,5	10,8	54,0	2780	0,77	2,3	69	1,62

Technical data for CSIR 2W - 4WP series 4" motors - 50 Hz -

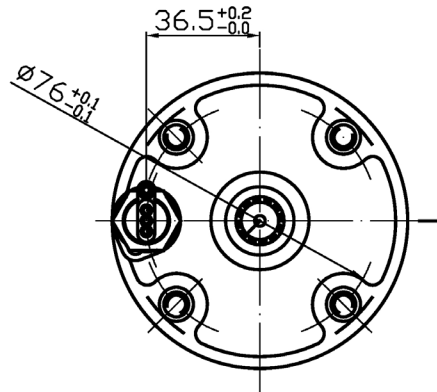
50Hz.	Thrust Load	Weight	H	kW	Hp	In	Istart	RPM	Cosφ	Ts/Tn	EFF%	Rm	
	N	Kg	mm			Amp							
Single Phase 230V	4WP 050 M	1500	8,8	270	0,37	0,5	4,4	26	2890	0,70	0,85	58	7,48
	4WP 075 M		9,8	295	0,55	0,75	5,9	35	2880	0,72	0,81	58	5,07
	4WP 100 M		10,8	315	0,75	1	7,8	49	2880	0,72	0,82	58	3,6
	4WP 150 M	3000	12,5	390	1,1	1,5	11,5	72	2860	0,74	0,81	60	2,78

MOTORE SOMMERSO SERIE 4WP LT/MT
SUBMERSIBLE CANNED MOTOR MOD. 4WP LT/MT

MODEL
4WP
1500N/3000N



VISTA DA
VIEW FROM X-X

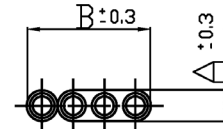


DIMENSIONE DEI CAVI
CABLE DIMENSION

2W series UP to 1.5Hp

2W series UP to 1.5Hp-3W series

9 ±0.05



CONNETTORE CON CAVI SECONDO VDE 0295-VDE 0207 Std. E TERRA INTEGRALE.
CONNECTOR WITH VDE 0295-VDE 0207 Std. CABLE AND INTEGRAL EARTH

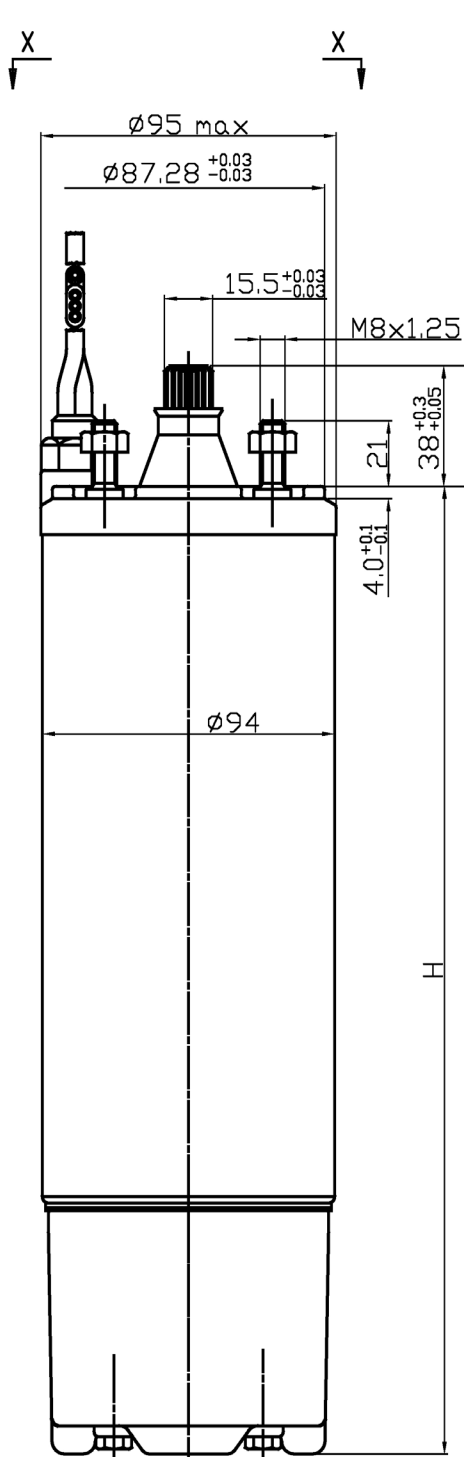
Dati tecnici per i motori serie 4WP Technical data for 4WP motors.									
Tipo Type	kW	Hp	Carico ax. Thrust load	H mm	Sez. mmq.	Cavo-Cable A B		Peso Weight Kg	
Monofase - 1φ V220-240/50Hz	4WP 050	0.37	0.5	1500 N	250	1.5	5.6	18.8	6.8
	4WP 075	0.55	0.75		265				8.1
	4WP 100	0.75	1		295				10.6
	4WP 150	1.1	1.5	340	11.2				
	4WP 200	1.5	2	375	14				
	4WP 300	2.2	3	430	16.4				
Trifase - 3φ V380-415/50Hz	4WP 050	0.37	0.5	1500 N	235	1.5	5.6	18.8	5.8
	4WP 075	0.55	0.75		250				7
	4WP 100	0.75	1		265				8.3
	4WP 150	1.1	1.5	295	10.9				
	4WP 200	1.5	2	340	11.4				
	4WP 300	2.2	3	375	14.2				

Il produttore si riserva di cambiare le caratteristiche senza preavviso.
Technical data eventually changeable without prior notice.

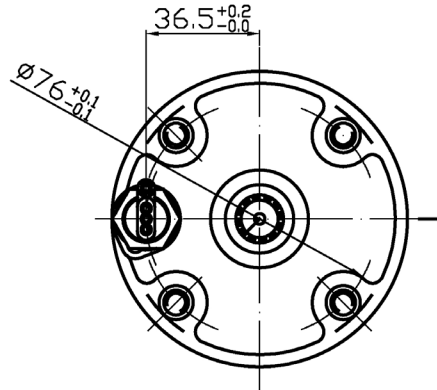
Dis. N°
Dwg N° 64000000/G/06

MOTORE SOMMERSO SERIE 4WP HT
SUBMERSIBLE CANNED MOTOR MOD. 4WP HT

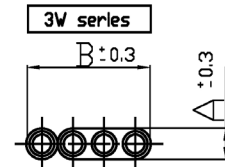
MODEL
4WP
6500N



VISTA DA
VIEW FROM X-X



DIMENSIONE DEI CAVI
CABLE DIMENSION



CONNETTORE CON CAVO SECONDO VDE 0295-VDE 0207 Std. E TERRA INTEGRALE
CONNECTOR WITH VDE 0295-VDE 0207 Std. CABLE AND INTEGRAL EARTH

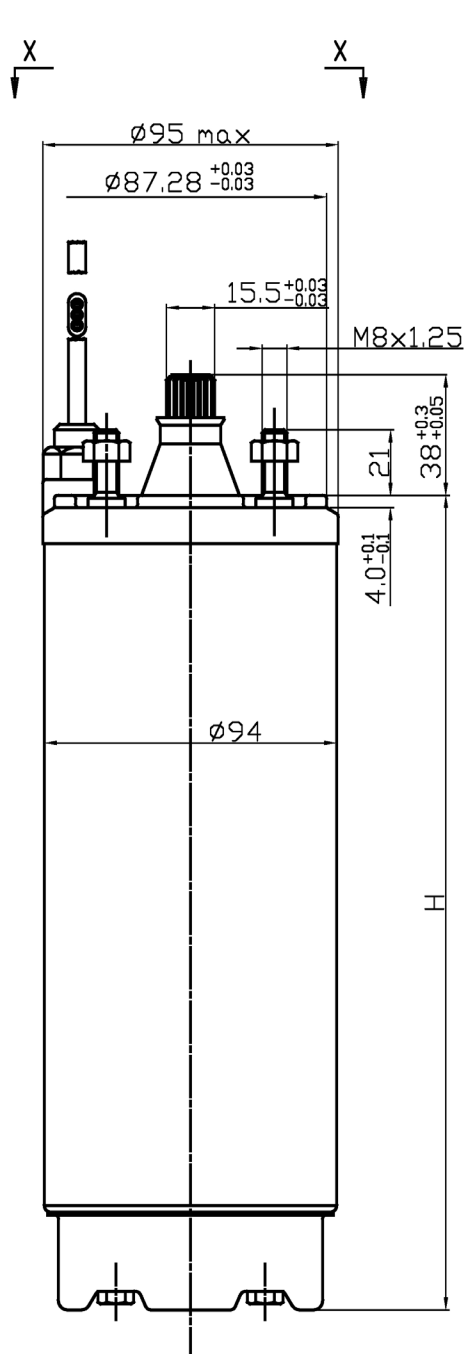
Dati tecnici per i motori serie 4WP Technical data for 4WP motors.									
Tipo Type	kW	Hp	Carico ax. Thrust load	H mm	Sez. mmq.	Cavo-Cable A B		Peso Weight Kg	
Manifase - 1ø V220-240/50Hz	4WP 500	3,7	5	6500 N	675	1,5	5,6	18,8	29,4
	4WP 400	3	4	6500 N	480	1,5	5,6	18,8	18,3
	4WP 550	4	5,5		555				23,4
	4WP 750	5,5	7,5		675				29,4
4WP 1000	7,5	10	765		34				
Trifase - 3ø V380-415/50Hz									

Il produttore si riserva di cambiare le caratteristiche senza preavviso.
Technical data eventually changeable without prior notice.

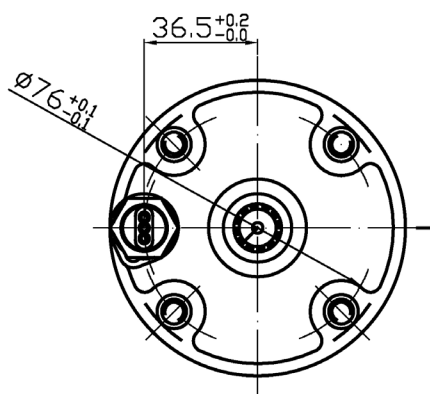
Dis. N°
Dwg N° 64000001/L/18

MOTORE SOMMERSO SERIE 4WP 2W LT/MT
 SUBMERSIBLE CANNED MOTOR MOD. 4WP 2W LT/MT

MODEL
4WP-2W
 1500N/3000N



VISTA DA
 VIEW FROM X-X

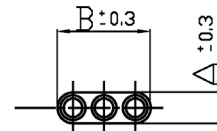


DIMENSIONE DEI CAVI
 CABLE DIMENSION (available round-stranded-flat)

$9 \pm 0,05$



$B \pm 0,3$



CONNETTORE CON CAVO SECONDO VDE 0295-VDE 0207 Std. E TERRA INTEGRALE
 CONNECTOR WITH VDE 0295-VDE 0207 Std. CABLE AND INTEGRAL EARTH

Dati tecnici per i motori serie 4WP-2W Technical data for 4WP-2W motors									
Tipo Type	kW	Hp	Carico ax. Thrust load	H mm	Sez. mmq.	Cavo-Cable A B		Peso Weight Kg	
in V115/60Hz	4WP 050	0,37	0,5	1500 N	270	1,5	5,3	10,7	7,2
	4WP 050	0,37	0,5		270				7,2
in V220-240/50-60Hz	4WP 075	0,55	0,75		295				8,5
	4WP 100	0,75	1		315				11,2
	4WP 150	1,1	1,5	3000 N	390	14,2			

Il produttore si riserva di cambiare le caratteristiche senza preavviso.
 Technical data eventually changeable without prior notice.

Dis. N°
 Dwg N° 64100000/M/14