

## ***4GG - 4TW***

<b>IT</b>	SERIE 4GG - 4TW	Istruzioni d'installazione e uso
<b>EN</b>	4GG - 4TW SERIES	Installation and operating instructions
<b>FR</b>	SÉRIE 4GG - 4TW	Instructions pour l'installation et l'utilisation
<b>PL</b>	SERIA 4GG - 4TW	Instrukcje instalacji i obsługi

## AVVERTIMENTI PER LA SICUREZZA DELLE PERSONE E DELLE COSE

Di seguito trovate il significato dei simboli utilizzati nel presente manuale



**PERICOLO:**

Rischio di danni alle persone, e alle cose, se non osservate quanto prescritto



**SCOSSE ELETTRICHE**

Rischio di scosse elettriche se non osservate quanto prescritto

**ATTENZIONE**

**AVVERTENZA**

Rischio di danni alle cose (pompa, impianto, quadro,...) o all'ambiente se non osservate quanto prescritto



Leggete attentamente il manuale prima di procedere

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## WARNINGS FOR THE SAFETY OF PEOPLE AND PROPERTY

The symbols used in this manual are shown below together with their meanings



**DANGER**

Failure to observe this warning may cause personal injury and/or damage to property



**ELECTRIC SHOCK**

Failure to observe this warning may result in electric shock

**WARNING**

**WARNING**

Failure to observe this warning may cause damage to property (pump, system, panel,...) or the environment



Read this manual carefully before proceeding

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## AVERTISSEMENTS POUR LA SÉCURITÉ DES PERSONNES ET DES BIENS

Nous donnons ci-après la signification des symboles utilisés dans le présent manuel



**DANGER**

Risque de dommages aux personnes et aux biens en cas de non-respect de la prescription



**DÉCHARGES ÉLECTRIQUES**

Risque de décharges électriques en cas de non-respect de la prescription

**ATTENTION**

**AVERTISSEMENT**

Risque de dommages aux biens (pompe, installation, coffret,...) ou à l'environnement en cas de non-respect de la prescription



Lire attentivement le manuel avant de procéder

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## OSTRZEŻENIA DOTYCZĄCE BEZPIECZEŃSTWA OSÓB I RZECZY

Poniżej zamieszczono znaczenie symboli wykorzystywanych w niniejszej instrukcji



**NIEBEZPIECZEŃSTWO**

Zagrożenie bezpieczeństwa osób i rzeczy w przypadku nieprzestrzegania podanych zasad.



**PORAŻENIE ELEKTRYCZNE**

Zagrożenie porażenia elektrycznego w przypadku nieprzestrzegania podanych zasad.

**UWAGA**

**OSTRZEŻENIE**

Ryzyko uszkodzenia rzeczy (pompa, system, tablica, itp.) lub negatywnego wpływu na środowisku w przypadku nieprzestrzegania podanych zasad.



Przed rozpoczęciem pracy należy dokładnie zapoznać się z treścią instrukcji.

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**1. Overview**

This manual gives important information concerning the installation, use and maintenance of the motors. The contents of this manual refer to the standard product, as presented in the sales documentation. Any special versions will be supplied with supplementary instruction sheets. Please refer to the sales contract for the features of variants and special versions. Always specify the exact type of motor and code when requesting our Sales and Service Department for technical information or spare parts. For any instructions, situations and events not covered in this manual or in the sales documentation, please contact the nearest Technical Assistance Centre.



Read this manual carefully before installing and using the product.



Improper use may cause personal injury and/or damage to property, and invalidate the warranty.

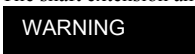
**2. Product Description**

The 4GG-4TW range comprises a number of 4” submersible motors with cased stator and rotor immersed in a bath of demineralised water and anti-freeze lubricating liquid, designed to be coupled to 4” and 6” submersible pumps with NEMA-compliant flange and coupling sizes. All the metal parts in contact with the water are either made from stainless steel or cast iron. Each motor includes a cable with removable connector and a Kingsbury pivoted-shoe thrust bearing.

**3. Applications**

All the motors in the 4GG-4TW range can be used to drive submersible pumps in the conditions established in EN 60034-1 (IEC 60034-1) and at the supply voltage / frequency specified on the rating plate.

The shaft extension and flange size of these motors comply with NEMA MG1:2006 Rev. 1-2007.



The power of the pumps coupled to these motors must be less than or equal to that of the motors.

**3.1 Working Limits**

**3.1.1 Liquids in which the motor can operate**

This motor can be used in cold water.



Do not use this motor with corrosive or explosive liquids, or particularly dirty or hard water (impurities may deposit on the outer casing).

**3.1.2 Water temperature**



Minimum water temperature is + 0°C.

Maximum water temperature is + 35°C as long as the flowrate of the water around the motor does not fall below 0,2 m/s.

For temperatures above + 35°C, motor output must be reduced to ensure correct cooling.

For further information, please contact our Sales and Service Department.

**3.1.3 Cooling the motor**



To ensure the motor is correctly cooled, make sure the flowrate of the water around the outer casing is at least 0,2 m/s when positioning the motor in wells or tanks. At water speeds lower than 0,2 m/s, mount a cooling jacket.

For further information, please contact our Sales and Service Department.

**3.1.4 Installation Position**

All the motors in the range can be installed vertically.

All the motors in the range can be installed horizontally as long as the axial thrust of the pump never falls below 100 N while it is working.

For special requirements, please contact our Sales and Service Department.

**3.1.5 Depth of immersion**

The maximum depth of immersion for all motors is 300 m.

**3.1.6 Power supply requirements**



Make sure the supply voltage and frequency match those indicated on the rating plate of the motor.

For further information, please contact our Sales and Service Department.

The motors can generally work at the following supply voltage tolerances:

f Hz	~	UN	
		V	± %
50	1	220-240	6
50	3	230/400	6
50	3	400/690	6

f Hz	~	UN	
		V	± %
60	1	220-230	6
60	3	220/380	6
60	3	380/660	6

**3.1.7 Number of starts per hour**

The maximum number of starts per hour is 40 for direct starting and 20 for impedance starting.

**3.1.8 Compatible pumps**



Make sure the motor is compatible with the pump. Incompatible combinations may cause problems.

In particular, before coupling the motor to the pump check that:

- the power of the pump to couple to the motor is less than or equal to that of the motor.
- the supply voltage and frequency match those indicated on the rating plate of the motor
- the motor and pump shafts turn freely

For further information, please contact our Sales and Service Department.

### 3.1.9 Motor powered by a frequency converter

#### WARNING

The motors can be powered with a frequency converter (30 Hz – 50/60 Hz).

For further information, please contact our Sales and Service Department.

#### WARNING

If the motor is combined with a frequency converter, downgrade power by 10% and make sure you never exceed the rated input frequency of the motor.

To ensure the motor is properly cooled, the minimum water flowrate at the minimum frequency of use must equal the minimum flowrate indicated in the previous points.

For further information, please contact our Sales and Service Department.

### 3.1.10 Motor powered by a generating set

For information, please contact our Sales and Service Department.

### 3.1.11 Special applications

#### WARNING

For situations other than those described for the nature of the liquid and/or installation, please contact our Sales and Service Department.

### 3.1.12 Improper Use



Improper use of the motor may create dangerous conditions and cause personal injury and/or damage to property.

Improper use includes:

- working with liquids other than water
- working at water temperatures higher than 35 °C without downgrading the motor
- working with a cooling water flowrate of less than 0.2 m/s
- exceeding the maximum number of starts per hour

### 3.2 Technical specifications

For performance data, please refer to the rating plate attached to the motor.

For any requirements, please contact our Sales and Service Department.

### 3.3 Warranty

Please refer to the sales contract for further information.

### 4. Transport and storage

The motors are supplied in various shapes and sizes of cardboard boxes.

Store packed products at an ambient temperature ranging from –5° to +40°C.

#### WARNING

Packed products must be transported, handled and stored horizontally.  
Protect products from humidity, heat and physical damage (knocks, falls, ...).  
Do not place heavy objects on boxes.



Lift and handle products carefully, using suitable lifting equipment. Observe accident prevention regulations.  
Do not lift or carry motors by their power cord.

On receipt of the motor, check the box for signs of damage. If the product is damaged, inform our dealer within 8 days of delivery.

If you cannot reuse the box, dispose of it according to local bylaws governing sorted waste disposal.

Harness the product safely before lifting and handling it.

For further information ⇐ section 3.1.

### 5. Installation



Before installing the motor, read this instructions manual and the one supplied with the pump or electric pump to which the motor will be coupled. Keep both manuals with care.

If the product shows clear signs of damage, do not proceed with installation, but contact the Technical Service Centre.



This product may only be installed by qualified and experienced personnel.  
Use suitable equipment and protective devices. Observe all accident prevention regulations.  
Carefully read the working limits specified in section 3.1.

Always refer to current local and/or national regulations, legislation and bylaws governing installation and water and power connections.

#### 5.1 Selecting the electrical panel. (Only for motors 4GG series)

Motors must be suitably protected against overloads and short circuits.

The following starting systems can be used: direct, impedance, autotransformer, soft-start.

#### WARNING

Make sure the panel power ratings match those of the pump. Incompatible combinations may cause faults and fail to fully protect the motor.  
Check the working limits specified in section 3.1.



Before installing, carefully read the instructions supplied with the electrical panel.

For further information, please contact our Sales and Service Department.

#### 5.2 Pump connections



Before connecting the motor to the pump, read this instructions manual and the one supplied with the pump or electric pump to which the motor will be coupled. Keep both manuals with care.

For further information, please contact our Sales and Service Department.

### 5.3 Installing the motor in a well or tank



Follow the instructions in the pump or electric pump manual.

When installing the electric pump vertically, make sure the motor does not rest on the bottom of the well or tank.  
When installing the electric pump horizontally, make sure the motor does not rest on the bottom of the tank.  
For further information, please contact our Sales and Service Department.

### 6. Start-up



Follow the instructions in the pump or electric pump manual.

#### 6.1 Electrical connections to the electric pump



**WARNING**

Electrical connections may only be performed by a qualified installer in compliance with current regulations.

Make sure that the supply voltage and frequency are compatible with the electrical panel. The relative information is shown on the motor rating plate and in the documents supplied with the panel. Provide suitable short circuit protection on the supply line.



Before proceeding, make sure that all the connections (even if they are potential-free) are voltage-free.  
Unless otherwise specified in local bylaws, the supply line must be fitted with:

- a short circuit protection device
  - a high sensitivity residual current circuit breaker (30mA) for additional protection from electrocution in case of inefficient grounding.
  - a general switch with a contact aperture of at least 3 millimetres.
- Ground the system in compliance with current regulations.

##### • Single-phase version

Connect the electric pump to a supply line via a suitable electrical control panel containing the overload protection and the capacitor.

**WARNING**

Refer to the wiring diagram on the outer casing of the motor and in figure 1 and the documentation supplied with the electrical panel. (Only for motors 4GG series).  
Refer to the motor rating plate for the capacity of the capacitor.  
Install the electrical panel in a sheltered area.

##### • Three-phase version

Connect the electric pump to a supply line via a suitable electrical control panel .

**WARNING**

Install the electrical panel in a sheltered area.  
Refer to the documentation supplied with the electrical panel.

For connections to any external control devices (e.g.: pressure switch, float) follow the instructions supplied with these devices.

**WARNING**

Verify the correct execution of the junction, measuring the insulation resistance. For a new motor the correct measurement has to be at least 200 Mohm

### 7. Maintenance, Service, Spare Parts



Before proceeding, always make sure the motor is disconnected from the supply line.



Maintenance operations may only be performed by expert and qualified people. Use suitable equipment and protective devices.  
Observe all accident prevention regulations.  
Do not attempt to disconnect the connector from the motor head cable.  
This may only be done by authorised personnel.

**WARNING**

Only use original spare parts to replace faulty components.

The motor does not require any scheduled routine maintenance.

Users wishing to prepare a maintenance schedule should bear in mind that maintenance frequencies depend on the conditions of use.  
For any requirements, please contact our Sales and Service Department.

#### 7.1 Spare Parts

**WARNING**

Always specify the exact type of motor and code when requesting our Sales and Assistance Service for technical information or spare parts.



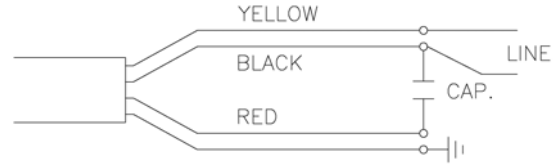
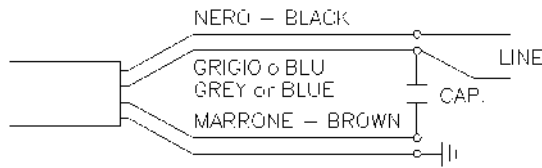
Only use spare parts to replace faulty components. Unsuitable spare parts may cause the product to work incorrectly and cause hazards for people and property.

For further information, please contact our Sales and Service Department.

### 8. Warranty

Please refer to the sales contract for further information.

**Figura 1:** Schema di collegamento per motore 4" serie GG versione monofase  
**Figure 1:** Wiring diagram for motor 4" GG series single-phase version  
**Figure 1:** Schéma de connexion pour moteur 4" série GG version monophasée  
**Rysunek 1:** Schemat podłączenia dla silnika 4" serii GG wersja jednofazowa



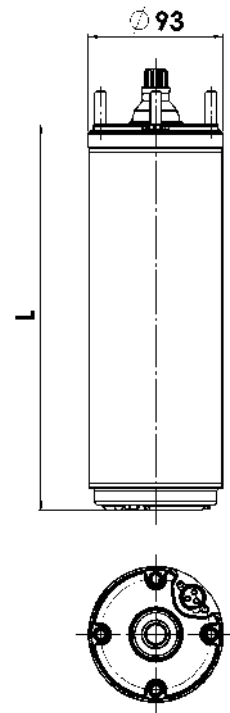
Versione standard – Standard version – Version standard – Wersja standardowa

Mercato americano – U.S. market – Marché américain – Rynek amerykański

**SERIE 4GG - 4GG SERIES - SÉRIE - SERIA 4GG**

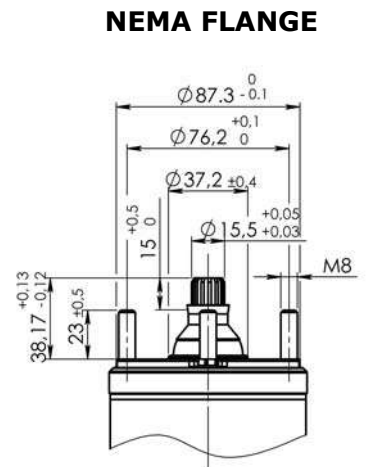
**DIMENSIONI E PESI - DIMENSIONS AND WEIGHTS - DIMENSIONS ET POIDS - WYMIARY I WAGI 50Hz**

	Potenza Rated Puissance Moc (Hp)	Potenza Rated Puissance Moc (kW)	Phase	Spinta assiale Axial thrust Poussée axiale Nacisk wzdłużny	Lunghezza Length Longueur Długość (mm)	Peso Weight Poids Waga (Kg)
<b>SINGLE PHASE</b>	0,5	0,37	<b>1</b>	<b>2000N</b>	236	6,7
	0,75	0,55			266	8,0
	1	0,75			286	9,0
	1,5	1,1			331	11,0
	2	1,5			393	13,0
	3	2,2			413	13,8
	5	3,7			684	26,5
<b>THREE PHASE</b>	0,5	0,37	<b>3</b>	<b>2000N</b>	216	6,0
	0,75	0,55			236	6,7
	1	0,75			266	8,0
	1,5	1,1			286	9,0
	2	1,5			348	11,0
	3	2,2			393	13,0
	4	3			544	19,7
	5,5	4			614	23,0
	7,5	5,5			684	26,6
	10	7,5			764	30,6



**DIMENSIONI E PESI - DIMENSIONS AND WEIGHTS - DIMENSIONS ET POIDS - WYMIARY I WAGI 60Hz**

Potenza Rated Puissance Moc (Hp)	Potenza Rated Puissance Moc (kW)	S.F.	Phase	Spinta assiale Axial thrust Poussée axiale Nacisk wzdłużny	Lunghezza Length Longueur Długość (mm)	Peso Weight Poids Waga (Kg)
0,5	0,37	1,6	<b>1</b>	<b>2000N</b>	266	8,0
0,75	0,55	1,5			286	9,0
1	0,75	1,4			331	11,0
1,5	1,1	1,3			391	13,0
2	1,5	1,25			411	14,0
3	2,2	1,15			451	15,7
5	3,7	1,15			684	26,5
0,5	0,37	1,6	<b>3</b>	<b>2000N</b>	236	6,7
0,75	0,56	1,5			266	8,0
1	0,75	1,4			286	9,0
1,5	1,1	1,3			346	11,0
2	1,5	1,25			391	13,0
3	2,2	1,15			411	14,0
5,5	4	1,15			614	23,0
7,5	5,5	1,15			684	26,6
10	7,5	1,15			764	30,6



**DIMENSIONAMENTO CAVI AVVIAMENTO DIRETTO**  
**SECTION CABLE DIRECT START**  
**DIMENSIONNEMENT CÂBLES DÉMARRAGE DIRECT**  
**WYMIAROWANIE KABLI – ROZRUCH BEZPOŚREDNI**

VOLTAGE TENSIONE NOMINALE TENSION NOMINAL NAPIĘCIE ZNAMIONOWE	RATED POWER POTENZA NOMINALE PUISSANCE NOMINAL MOC ZNAMIONOWA		PHASE ~	VOLTAGE DROP CADUTA DI TENSIONE CHUTE DE TENSION SPADEK NAPIĘCIA	Sezione del cavo - section cable - Section du câble mm <sup>2</sup> - Sekcja kabla									
					mm <sup>2</sup>	1	1,5	2,5	4	6	10	16	25	
					A max	10	16	25	29	36	51	67	89	
V	kW	Hp		%	Lunghezza massima- maximum length Longueur maximum mt - Maksymalna długość									
220- 230	0,37	0,5	1	4		63	94	156	250					
	0,55	0,75			45	67	112	179	267					
	0,75	1			39	59	98	156	233					
	1,1	1,5			28	42	69	110	165	273				
	1,5	2			22	32	54	86	128	213	337			
	2,2	3					24	41	65	97	161	256		
	3,7	5						26	42	63	104	166	256	
220- 230	0,37	0,5	3	4		94	140	233						
	0,55	0,75			67	100	167	266						
	0,75	1			67	100	166	263						
	1,1	1,5			42	63	104	166	247					
	1,5	2			38	57	98	151	225					
	2,2	3			30	45	75	119	177	292				
	3	4			23	34	56	90	134	220	347			
	4	5,5					25	41	66	98	162	256		
	5,5	7,5						31	49	73	120	189	290	
380- 400	0,37	0,5	3	4		270	405							
	0,55	0,75			192	288								
	0,75	1			190	284								
	1,1	1,5			120	180	298							
	1,5	2			109	163	271							
	2,2	3			86	129	214	341						
	3	4			64	96	160	255	381					
	4	5,5			47	71	118	188	280	463				
	5,5	7,5			35	52	87	139	207	342				
	7,5	10					40	66	105	157	260	411		

**Figura 1:** Schema di collegamento per motore 4" serie TW  
**Figure 1:** Wiring diagram for motor 4" TW series  
**Figure 1:** Schéma de connexion pour moteur 4" série TW  
**Rysunek 1:** Schemat podłączenia dla silnika 4" serii TW



Versione standard – Standard version – Version standard – Wersja standardowa

Mercato americano – U.S. market – Marché américain – Rynek amerykański

**SERIE 4TW - 4TW SERIES - SÉRIE - SERIA 4TW**  
**DIMENSIONI E PESI - DIMENSIONS AND WEIGHTS - DIMENSIONS ET POIDS**  
**WYMIARY I WAGI 50Hz**

	Potenza Rated Puissance Moc (Hp)	Potenza Rated Puissance Moc (kW)	Phase	Spinta assiale Axial thrust Poussée axiale Nacisk wzdluzny	Lunghezza Length Longueur Długość (mm)	Peso Weight Poids Waga (Kg)
<b>SINGLE PHASE</b>	0,5	0,37	<b>1</b>	<b>2000N</b>	<b>405</b>	<b>7,3</b>
	0,75	0,55			<b>435</b>	<b>8,5</b>
	1	0,75			<b>455</b>	<b>9,3</b>
	1,5	1,1			<b>500</b>	<b>11,3</b>

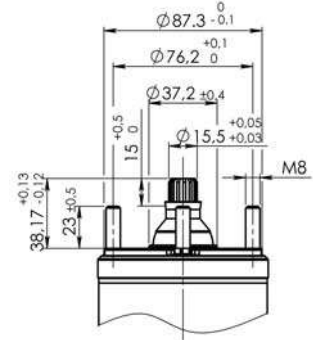


**SERIE 4TW – 4TW SERIES – SÉRIE 4TW**  
**DIMENSIONI E PESI - DIMENSIONS AND WEIGHTS- DIMENSIONS ET POIDS**  
**WYMIARY I WAGI 60Hz**

Potenza Rated Puissance Moc (Hp)	Potenza Rated Puissance Moc (kW)	S.F.	Phase	Spinta assiale Axial thrust Poussée axiale Nacisk wzdluzny	Lunghezza Length Longueur Długość (mm)	Peso Weight Poids Waga (Kg)
0,5	0,37	1,6	<b>1</b>	<b>2000N</b>	<b>435</b>	<b>8,5</b>
0,75	0,55	1,5			<b>455</b>	<b>9,3</b>
1	0,75	1,4			<b>500</b>	<b>11,3</b>
1,5	1,1	1,3			<b>3000N</b>	<b>560</b>



**NEMA FLANGE**



**DIMENSIONAMENTO CAVI AVVIAMENTO DIRETTO - SECTION CABLE DIRECT START**  
**DIMENSIONNEMENT CÂBLES DÉMARRAGE DIRECT - WYMIAROWANIA KABLI – ROZRUCH BEZPOŚREDNI**

VOLTAGE TENSIONE NOMINALE TENSION NOMINAL NAPIĘCIE ZNAMIONOWE	RATED POWER POTENZA NOMINALE PUISSANCE NOMINAL MOC ZNAMIONOWA		PHASE ~	VOLTAGE DROP CADUTA DI TENSIONE CHUTE DE TENSION SPADEK NAPIĘCIA	Sezione del cavo - section cable - Section du câble mm <sup>2</sup> - Sekcja kabla									
	kW	Hp			%	mm <sup>2</sup>	1	1,5	2,5	4	6	10	16	25
							A max	10	16	25	29	36	51	67
<b>V</b>	<b>kW</b>	<b>Hp</b>		<b>%</b>	<b>Lunghezza massima - maximum length Longueur maximum mt - Maksymalna długość</b>									
<b>220- 230</b>	<b>0,37</b>	<b>0,5</b>	<b>1</b>	<b>4</b>		<b>63</b>	<b>94</b>	<b>156</b>	<b>250</b>					
	<b>0,55</b>	<b>0,75</b>				<b>45</b>	<b>67</b>	<b>112</b>	<b>179</b>	<b>267</b>				
	<b>0,75</b>	<b>1</b>				<b>39</b>	<b>59</b>	<b>98</b>	<b>156</b>	<b>233</b>				
	<b>1,1</b>	<b>1,5</b>				<b>28</b>	<b>42</b>	<b>69</b>	<b>110</b>	<b>165</b>	<b>273</b>			







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