

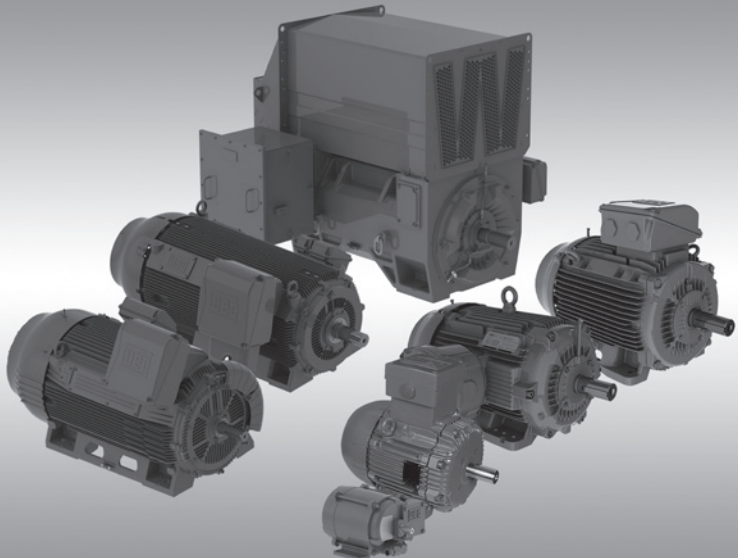


<b>Electric motors for explosive atmospheres</b> Instructions manual for installation, operation and maintenance of electric motors	<b>EN 03</b>
<b>Motores elétricos para atmosferas explosivas</b> Manual de instalação, operação e manutenção de motores elétricos	<b>PT 06</b>
<b>Motores eléctricos para atmósferas explosivas</b> Manual de instalación, operación y mantenimiento de motores eléctricos	<b>ES 10</b>
<b>Elektrische Motoren für explosionsfähige Atmosphäre</b> Installations-, Betriebs- und Wartungsanleitung für elektrische Motoren	<b>DE 14</b>
<b>Moteurs électriques pour des atmosphères explosives</b> Manuel d'installation, utilisation et maintenance de moteurs électriques	<b>FR 18</b>
<b>Электродвигатели для взрывоопасных зон</b> Инструкция по установке, эксплуатации и техническому обслуживанию электромоторов	<b>RU 22</b>
<b>Elektrische motoren voor explosiegevaarlijke omgevingen</b> Handleiding voor installatie, bediening en onderhoud van elektrische motoren	<b>NL 26</b>
<b>Motori elettrici per atmosfera esplosive</b> Manuale di installazione, gestione e manutenzione di motori elettrici	<b>IT 30</b>
<b>爆炸性环境用电动机</b> 电动机安装、操作及维修安全手册	<b>CN 34</b>

More languages see website [www.weg.net](http://www.weg.net)

## Product Lines

- W21
- W21Xec
- W21Xtb
- W22Xdb
- W22Xeb
- W22Xec
- W22Xtb
- W50Xec
- W60Xec
- HGF
- Fuel Pump
- W51HDXec
- W51HDXtb
- W50Xtb
- W60Xtb





# EU Declaration of Conformity

## Manufacturers:

### WEG Equipamentos Elétricos S.A.

Av. Prefeito Waldemar Grubba, 3000  
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www.weg.net

### WEGeuro – Indústria Eléctrica S.A.

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Authorised Representative in the European Union

#### (Single Contact Point)

#### Branch – Santo Tirso:

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### WEG (Nantong) Electric Motor Manufacturing CO., LTD.

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Economic & Technical Development  
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### WEG (Jiangsu) Electric Equipment CO., LTD.

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Rugao City, Jiangsu Province – China  
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### WEG Linhares Equipamentos Elétricos S.A.

Rod. BR 101, Km 161,5, s/n  
Distrito Industrial Rio Quartel  
Bairro Rio Quartel de Baixo  
29915-500 – Linhares – ES – Brazil  
www.weg.net

Declares under sole responsibility that WEG electric motors and components used for following motor lines:

W21, W22X..., W50X..., W51HDX..., W60X... and HGF

when installed, maintained and used in applications for which they were designed, and in compliance with the relevant installation standards and manufacturer's instructions, comply with the provisions of the following relevant European Union harmonisation legislation, wherever applicable:

ATEX Directive	2014/34/EU;
RoHS Directive	2011/65/EU and its amendments (including Directive 2015/863/EU);
Regulation	(EU) No 2019/1871 (as amended by Commission Regulation (EU) 2021/341)** and Directive 2009/125/EC**;
Machinery Directive	2006/42/EC
EMC Directive	2014/30/EU (electric motors are considered inherently benign in terms of electromagnetic compatibility).

The fulfillment of the safety objectives of the relevant European Union harmonization legislation has been demonstrated by compliance with the following standards, wherever applicable:

EN IEC 60079-0:2018\* / EN 60079-1:2014\* / EN IEC 60079-7:2015 + A1:2018\* / EN 60079 31:2014, EN 60204-1:2018 / EN 60204-11:2019 / EN IEC 63000:2018, / EN 60034-2-1:2014, EN 60034-30-1:2014 and IEC TS 60034-25:2014

\* A comparison of the current version of the EN IEC 60079-0:2018, EN 60079-1:2014 and EN IEC 60079-7:2015 + A1:2018 standards with the previous versions used by some Baseefa and CESI ATEX certificates shows that there are no changes in the "state of the art" applicable to the product covered by this Declaration of Conformity. The manufacturer hereby declares that the ATEX Certificates issued by Baseefa and CESI meet the Essential Health and Safety Requirements of ATEX Directive 2014/34/EU.

## Declaration of Incorporation

The products above cannot be put into service until the machinery into which they have been incorporated has been declared in conformity with the Machinery Directive.

A Technical Documentation for the products above is compiled in accordance with part B of annex VII of Machinery Directive 2006/42/EC and the following essential requirements of this directive are applied an fulfilled: 1.1, 1.2, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.5, 1.3.6, 1.4.1, 1.4.2, 1.4.3, 1.5.1, 1.5.2, 1.5.3, 1.5.4, 1.5.5, 1.5.6, 1.5.7, 1.6.1, 1.6.2, 1.6.3, 1.6.4, 1.7.1, 1.7.2, 1.7.3 and 1.7.4.

We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery identified above through WEG authorised representative established in the European Union. The method of transmission shall be electronic or physical method and shall be without prejudice to the intellectual property rights of the manufacturer

The Quality System for the certificates described above is approved by SGS Fimko Oy (NB0598) under the Quality Assurance Notification SGS ATEX 5886 (WEG Equipamentos Elétricos S.A. and SGS ATEX 3862 (WEGeuro – Indústria Eléctrica S.A.).

The equipment marking, name and number of the Notified Body which performed the EU-type examination and the EU-type examination certificate number issued are listed in chapter Certificates.

Signed for and on behalf of the manufacturer:

Carlos Lourenço  
Product Compliance Supervisor  
Jaraguá do Sul  
August 23, 2022

Rodrigo Fimko  
Engineering Director  
Jaraguá do Sul  
August 23, 2022



**UK  
CA**

# Declaration of Conformity

## Manufacturers:

**WEG EQUIPAMENTOS ELÉTRICOS S.A.**  
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**WEG (Nantong) Electric Motor Manufacturing CO., LTD.**  
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**Authorised Representative in the UK:**  
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Contact person: Patrick O'Neill  
(Single Contact Point)  
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declares under sole responsibility that WEG electric motors and components used for following motor lines:

W21, W22X..., W50X..., W51HDX..., W60X... and HGF

when installed, maintained and used in applications for which they were designed, and in compliance with the relevant installation standards and manufacturer's instructions, comply with the provisions of the following relevant UK statutory requirements, wherever applicable:

The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres

Regulations

S.I.2016/1107 amended by S.I. 2019/696)

The Ecodesign for Energy-Related Products and Energy Information

S.I. 2021/745

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment

S.I. 2012/3032

The Supply of Machinery (Safety)

S.I. 2008/1597 amended by S.I.2011/2157

Electromagnetic Compatibility (electric motors are considered inherently benign in terms of electromagnetic compatibility).

S.I. 2016/1091

The fulfilment of the safety objectives of the relevant UK statutory requirements has been demonstrated by compliance with the following designated standards, wherever applicable:

**EN IEC 60079-0:2018 / EN 60079-1:2014 / EN IEC 60079-7:2015 + A1:2018 / EN 60079 31:2014 / EN 60204-1:2018  
EN 60204-11:2019 / EN IEC 63000:2018 / EN 60034-2-1:2014 / EN 60034-30-1:2014 and IEC TS 60034-25:2014**

## Declaration of Incorporation (for motors above 1000V)

The products above cannot be put into service until the machinery into which they have been incorporated has been declared in conformity with the Supply of Machinery (Safety) Regulation 2008.

A Technical Documentation for the products above is compiled in accordance with part B, Annex VII (Part 7 of Schedule 2) of Supply of Machinery (Safety) Regulations 2008, S.I. 2008/1597 and the following essential requirements of this statutory instrument are applied and fulfilled: 1.1, 1.2, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.5, 1.3.6, 1.4.1, 1.4.2, 1.4.3, 1.5.1, 1.5.2, 1.5.3, 1.5.4, 1.5.5, 1.5.6, 1.5.7, 1.6.1, 1.6.2, 1.6.3, 1.6.4, 1.7.1, 1.7.2, 1.7.3 and 1.7.4.

We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery identified above through WEG authorised representative established in the United Kingdom. The method of transmission shall be electronic or physical method and shall be without prejudice to the intellectual property rights of the manufacturer.

The Quality System for the certificates described above is approved by SGS Baseefa (AB1180) under the Quality Assurance Notification SGS UKEX 5886 (WEG Equipamentos Eléctricos S.A.) and SGS UKEX 3862 (WEGEURO – Indústria Eléctrica S.A.). The equipment marking, name and number of the Notified Body which performed the UK-type examination and the UK-type examination certificate number issued are listed in chapter Certificates.

*Signed for and on behalf of the manufacturer:*

Carlos Lourenço  
Product Compliance Supervisor  
Jaraguá do Sul  
August 23, 2022

Rodrigo Fumo  
Engineering Director  
Jaraguá do Sul  
August 23, 2022

## 1. INTRODUCTION



The installation, operation and maintenance of the motor must be always performed by personnel qualified for hazardous area motors using proper tools and methods and following the instructions contained in the documents supplied with the motor.

The instructions presented in this document are valid for WEG motors with the following characteristics:

- Three-phase and single-phase induction motors (squirrel cage rotor)      ■ Three-phase permanent magnet motors
- Three-phase hybrid motors (squirrel cage rotor + permanent magnets)

These motors can be used in hazardous areas with the following types of protection:

- Increased Safety – “Ex eb” or “Ex ec”
- Flameproof enclosure - “Ex db” or “Ex db eb”
- Protection by Enclosure (combustible dust) - “Ex tb” or “Ex tc”

Details of motor marking may be found on nameplate and product certification, which is part of the motor documentation. For reference, this manual lists the certificate numbers for each type of protection and their nameplate markings. Furthermore, the applicable Standards may be found in the product certification and at the “Installation, Operation and Maintenance Manual of Electric Motors for Use in Explosive Atmospheres” - code 50034162. This manual is available in the website [www.weg.net](http://www.weg.net).

The objective of this manual is to provide important information, which must be considered during the shipment, storage, installation, operation and maintenance of WEG motors. Therefore, we advise to make a careful and detailed study of the instructions contained herein before performing any procedures on the motor. The noncompliance with the instructions informed in this manual and others mentioned in the website [www.weg.net](http://www.weg.net) voids the product warranty and may compromise the type of protection of the motor and still result in serious personal injuries and material damages.



Any component added to the motor by the user, for example, cable glands, thread plug, encoder, etc., must meet the type of protection of the enclosure, the “equipment protection levels” (EPL) and the degree of protection of the motor, according to the Standards indicated in the product certification.

### Special Conditions for Safe Use



The sign “X” added to the certificate number, informed on the nameplate of the motor, indicates that the equipment demands special conditions for installation, operation and/or maintenance, being those described in the certificate and the motor documentation. For reference, the chapter Certificates lists the certificate numbers for each type of protection and their nameplate markings.

The noncompliance with these requirements compromises the safety of the product and of the installation.

The correct classification of the installation area and ambient characteristics is user’s responsibility.

Electric motors have energized circuits and exposed rotating parts which may cause injuries to people.

## 2. SHIPMENT, STORAGE AND HANDLING

Check the motor conditions immediately after receiving. When any damage is noticed, this must be reported in writing to the transportation company, and immediately communicated to the insurance company and to WEG. In this case, no installation job can be started before the detected problem has been solved.

Check if the nameplate data matches the invoice data, the environmental conditions in which the motor will be installed, the type of protection and EPL of the motor. If the motor is not immediately installed, it must be stored in a clean and dry room protected against dust, vibrations, gases and corrosive agents, and with relative humidity not exceeding 60%.

In order to prevent water condensation within the motor during the storage period, it is recommended to keep the space heater ON (when supplied). In order to prevent oxidation of the bearings and ensure an even distribution of the lubricant, rotate the motor shaft at least once a month (at least five turns), always leaving it in a different position. For bearings with oil mist lubrication systems, the motor must be stored horizontally, independently from the mounting configuration, with ISO VG 68 oil in the bearing. (the amount is indicated in the motor manual available on the website [www.weg.net](http://www.weg.net)) and the shaft must be turned weekly. If motors with open bearings are stored longer than six months, the bearings must be relubricated with the amount of grease indicated on the nameplate before the commissioning of the motor. If the motors are stored for more than two years, it is recommended to change the bearings, or to remove, wash, inspect and relubricate them before the motor is started. After this storage period, it is also recommended to change the start capacitors of single-phase motors since they lose their operating characteristics.



Handle the motor always carefully in order to prevent impacts and damages to the bearings and always install the shaft transportation/locking device (if supplied) when transporting the motor.

Use only the eyebolts to lift the motor. However these eyebolts are designed for the motor weight only. Thus never use these eyebolts to lift the motor with additional loads coupled to it. The lifting eyebolts of the terminal box, fan cover, etc., are intended to handle only these parts when disassembled from the motor. Additional information regarding the maximum allowable angle-of-inclination is indicated in the general manual available on the website [www.weg.net](http://www.weg.net).

Periodically and mainly before the initial start-up, measure the insulation resistance of the motor winding. Check the recommended values and the measuring procedures in the website.

## 3. INSTALLATION



During the installation, the motors must be protected against accidental energization.

Check the motor direction of rotation, turning it without load before it is coupled to the load.

Remove the transportation devices and shaft locking device (if supplied) before starting the motor installation.

Motors must be only installed in places compatible with their mounting features and in applications and environments for which they are intended. It must be respected the type of protection and the EPL of the motor, according to the classification of the area where the motor will be installed.

The motors with feet must be installed on bases duly planned in order to prevent vibrations and assure perfect alignment. The motor shaft must be properly aligned with the shaft of the driven machine. Incorrect alignment, as well as improper belt tension, will certainly damage the bearings, resulting in excessive vibrations and even causing the shaft to fail. The admissible shaft radial and axial loads indicated in the general manual of the website must be respected. Use flexible coupling whenever possible.

When motors are fitted with oil lubricated bearings or oil mist lubrication systems, connect the cooling and lubrication tubes (where provided).

For oil lubricated bearings, the oil level must be in the center of the sight glass.


Only remove the corrosion protection grease from the shaft end and flange immediately before the motor installation.

Unless specified otherwise in the purchase order, WEG motors are dynamically balanced with “half key” and without load (uncoupled). The driving elements, such as pulleys, couplings, etc., must be balanced with “half key” before they are mounted on the shaft of the motors.



The motor must always be positioned so the drain hole is at the lowest position.

“Open/closed” rubber drain plugs are delivered in closed position and must be opened periodically to allow the drainage of the condensed water. For environments with high water condensation levels and motor with degree of protection IP55, the drain plugs can be mounted in open position.

 For motors with degree of protection IP66, IP65 or IP66, the drain plugs must remain at closed position, being opened only during the motor maintenance procedures. "Automatic" rubber drain plugs are designed for one use only and cannot be reused. If any drain plug is removed for any purpose, it must always be replaced by a new one. The drain system of motors with Oil Mist lubrication system must be connected to a specific collection system. The drain plugs of explosion proof motors cannot be removed during installation and maintenance procedures. When provided with a breather-drain to certificates IECEX CSA 12.0005U, Sira 12ATEX1245U, CSAE 21UKEX1299U, the motors are limited to Groups II and III, an ambient temperature of -55 °C to +50 °C for temperature class T5 and -55 °C to +80°C for temperature class T4 to T2. Do not cover or block the motor ventilation openings. Ensure a minimum clearance of ¼ of the diameter of the air intake of the fan cover from the walls. The air used for cooling the motor must be at ambient temperature, limited to the temperature range indicated on the motor nameplate (when not indicated, -20 °C to +40 °C must be considered). Motors installed outdoors or in the vertical position require the use of additional shelter to protect them from water; for instance, use of a drip cover. To prevent accidents, ensure that the grounding connection has been performed according to the applicable standards and that the shaft key has been securely fastened before the motor is started. Connect the motor properly to the power supply by means of safe and permanent contacts, always considering the data informed on the nameplate, such as rated voltage, wiring diagram, etc. When motors are supplied with flying leads, they must be suitably connected to an appropriate terminal box required for the use condition (type of protection). When using terminals, all wires that form the stranded cable must be fastened inside the sleeve. The insulation of the accessories cables must be kept up to 1 mm from the connector connection point.

When provided with terminal blocks marked with "W-A12", "W-B12 (160V)" or "W-B12 (500V)", the following characteristics must be respected:

Table 1 - Terminal block type designation

Characteristic	Terminal block type designation		
	W-A12	W-B12 (160 V)	W-B12 (500 V)
Voltage	Up to 160 V	Up to 160 V	Up to 500 V
Current	Max. 15 A	Max. 15 A	Max. 20 A
Conductor cross-section	0,3 to 2,5 mm <sup>2</sup>	0,3 to 4 mm <sup>2</sup>	0,3 to 4 mm <sup>2</sup>
Number of cables per terminal connection	2x1 mm <sup>2</sup>	2x1,5 mm <sup>2</sup>	2x1,5 mm <sup>2</sup>
Connection torque	0,5 to 0,7 Nm		
Service temperature	-20 °C to +80 °C		
ATEX marking/certificate	II 2G Ex eb IIC Gb / I M2 Ex eb I Mb / PTB 06 ATEX 1078 U		
IECEX marking/certificate	Ex eb IIC Gb / Ex eb I Mb / IECEX PTB 17.0014 U		
UKEX marking/certificate	II 2G Ex eb IIC Gb / I M2 Ex eb I Mb / BAS21UKEX0454U		

When provided with an "Ex eb" terminal block according to certificates PTB 03 ATEX 1153 U/IECEX PTB 11.0088U / BAS21UKEX0453U, it is permitted a maximum of 2 (two) single-wire cables per terminal connection. For power cables and grounding system connections and terminal box assembly, the tightening torques indicated on Tables 2 and 3 must be respected.

Table 2 - Tightening torques for fixing elements [Nm]

Type of protection enclosure	Component	M4	M5	M6	M8	M10	M12	M14	M16	M20	
Ex db	Terminal Box Cover	Class 8.8/12.9	-	3,5 to 5	6 to 12	14 to 30	28 to 60	45 to 105	75 to 110	115 to 170	230 to 330
		Class A2-70 / A4-70	-	3,5 to 5	6 to 8,5	14 to 19	28 to 40	45 to 60	75 to 100	115 to 170	225 to 290
Ex db	Grounding	1,5 to 3	3 to 5	5 to 10	10 to 18	28 to 40	45 to 70	-	115 to 170	-	
		Terminal block	1 to 1,5	2 to 4	4 to 6,5	6,5 to 9	10 to 18	15,5 to 30	-	30 to 50	50 to 75
Ex db eb	Terminal block	1 to 1,5	2 to 4	4 to 6,5	6,5 to 9	5 to 9	10 to 15	-	20 to 30	-	
		Locking bolt for connection clamp	-	3 to 7	4 to 8	7 to 11	-	-	-	-	-
Ex db eb	Locking bolt for power cables	-	-	-	2 to 6	6 to 10	-	-	-	-	
		Terminal box cover	-	3 to 5	4 to 8	8 to 15	18 to 30	25 to 40	30 to 45	35 to 50	-
Ex tb	Grounding	1,5 to 3	3 to 5	5 to 10	10 to 18	28 to 40	45 to 70	-	115 to 170	-	
Ex tc	Terminal block	1 to 1,5	2 to 4	4 to 6,5	6,5 to 9	10 to 18	15,5 to 30	-	30 to 50	50 to 75	
Ex eb	Terminal block fixing bolts	-	3 to 5	5 to 10	10 to 18	28 to 40	45 to 70	75 to 110	115 to 170	-	


Table 3 - Tightening torques for cable glands and plugs [Nm]

Thread	Material	M16	M20	M25	M32	M40	M50	M63	M80
Metric	Plastic	3 to 5	3 to 5	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8
	Metallic	40 to 50	40 to 50	55 to 70	65 to 80	80 to 100	100 to 120	115 to 140	160 to 190
Thread	Material	NPT 1/2"	NPT 3/4"	NPT 1"	NPT 1 1/2"	NPT 2"	NPT 2 1/2"	NPT 3"	NPT 4"
NPT	Plastic	5 to 6	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8
	Metallic	40 to 50	40 to 50	55 to 70	65 to 80	100 to 120	115 to 140	150 to 175	200 to 240

For power cables, switching and protection devices dimensioning, consider the rated motor current, the service factor, and the cable length, among others. For motors without terminal block, insulate the motor terminal cables by using insulating materials that are compatible with the insulation class informed on the nameplate. The minimum insulation distance between the non-insulated live parts themselves and between live parts and the grounding must respect the Table 4.

Table 4 - Minimum insulation distance (mm)

Voltage	Type of protection of the enclosure	
	Ex eb / Ex db eb	Ex ec / Ex db / Ex tb / Ex tc
U ≤ 440 V	6	4
440 < U ≤ 690 V	10	5,5
690 < U ≤ 1000 V	14	8
1000 < U ≤ 6900 V	60	45
6900 < U ≤ 11000 V	100	70
11000 < U ≤ 16500 V	-	105

 Take the required measures in order to ensure the type of protection, the EPL and the degree of protection indicated on the motor nameplate:

- unused cable inlet holes in the terminal boxes must be properly closed with certified plugs;
- components supplied loose (for example, terminal boxes mounted separately) must be properly closed and sealed;

The cable entries used must be fitted with components (such as, cable glands and conduits) that meet the applicable standards and regulations for each country. For "Ex db" motors, the conduit entries are permitted only for electrical equipment of group II. The fixing elements mounted in the threaded through holes in the motor enclosure (for example, the flange) must be properly sealed, with the products listed in item 5, to ensure the degree of protection indicated on the motor nameplate.

The motor must be installed with overload protection devices. These protection devices can be integrated to the motor (such as thermistors in the windings) or external protection devices, where the motor load is monitored by the nominal current. For three-phase motors, it is recommended to install a phase failure protection device. Motors driven by variable frequency drives must have their winding thermal protections connected. For motors with a soft start supply, effective measures for limiting the temperature of the motor shall be provided by the installer according to the applicable installation standards. For other starting methods, the use of the thermal protections is optional. For "Ex ec", "Ex db", "Ex db eb", "Ex tb" and "Ex tc" motors: all thermal protections (RTDs, bimetal thermal protectors and thermistors for stator protection) used in the motor protection circuit can be connected via a standard industrial controller located in a safe area.

For "Ex eb" motors: all thermal protections (RTDs, bimetal thermal protectors and thermistors for stator protection) must be suitably certified Ex equipment or they are to be separately protected by the use of an intrinsic safety supply that ensures the minimum EPL Gb level of protection. Ensure the correct operation of the accessories (brake, encoder, thermal protection, forced ventilation, etc.) installed on the motor before it is started. The temperature limits for alarm and tripping of the thermal protection can be defined according to the application, however they may not exceed the values shown in Table 5.

Table 5 - Maximum temperature of actuation for thermal protections

Component	Classified area marked on nameplate	Classified area where product will be installed	Maximum operating temperature (°C)		
			Alarm	Tripping	
Winding	Ex db	Ex db	130	150	
	Ex ec	Ex ec	130	155	
	Ex tb	Ex tb	120	140	
	Ex tc	Ex tc	-	110	
	Ex eb	Ex eb	-	140	
	Ex ec + Ex tc	Ex ec	Ex ec	140	155
		Ex tc	Ex tc	-	140
	Ex db + Ex tb	Ex db	Ex db	140	150
Ex tb		Ex tb	-	140	
Bearings	All	All	110	120	

**Notes:**

- 1) The quantity and type of thermal protections installed in the motor are informed in the additional nameplates included on it.  
 2) In case of calibrated thermal protection (for example, Pt-100), the monitoring system must be set at the operation temperature indicated on Table 5.

In "Ex eb" motors application, the thermal protection device, in case of overload or locked rotor, must actuate with time delay according to the current and track the external power cables. The " $t_E$ " time indicated in the motor nameplate can not be exceeded. The "Ex eb" motors, submitted to acceleration time conditions greater than  $1,7 \times t_E$  time, must be protected with protection devices against overcurrent.



**Motors fitted with Automatic Thermal Protectors will reset automatically as soon as the motor cools down. Thus, do not use motors with Automatic Thermal Protection in applications where the auto-resetting of this device may cause injuries to people or damage to equipment.**

**If the Automatic Thermal Protector trips, disconnect the motor from the power supply and check the cause why the thermal protector trips.**

For W60 motors with air-water heat exchanger, please see the nameplate at heat-exchanger.

For information about the use of variable frequency drives, you must follow the instructions in the documents 50034162 ("Installation, Operation and Maintenance Manual of Electric Motors for Use in Explosive Atmospheres") and 50029350 ("Induction motors fed by PWM frequency inverters" in the website [www.weg.net](http://www.weg.net) and in the manual of the variable frequency drive.

## 4. OPERATION



**During operation, do not touch the non-insulated energized parts and never touch or stay too close to rotating parts.**

**Ensure that the space heater is always OFF during the motor operation.**

The rated performance values and the operating conditions are specified on the motor nameplate. The voltage and frequency variations of the power supply should never exceed the limits established in the applicable standards.

Occasional different behavior during the normal operation (actuation of thermal protections, noise level, vibration level, temperature and current increase) must always be assessed by qualified personnel.

Do not use roller bearings for direct coupling. Motors fitted with roller bearings require a minimum radial load to ensure a proper operation.

For motors fitted with oil lubrication or oil mist systems, the cooling system must be ON even after the machine is OFF and until the machine is at complete standstill.

In case of failure in the lubrication and/or cooling system, turn the motor OFF immediately. After complete standstill, the cooling and lubrication systems (if any exist) must be switched OFF and the space heaters (when supplied) must be switched ON. In case of doubts, turn the motor OFF immediately and contact the nearest WEG Authorized Service Center for Explosive Atmospheres.

## 5. MAINTENANCE



**Before any service is performed, ensure that motor is at standstill, disconnected from the power supply and protected against accidental energization. Even when the motor is stopped, dangerous voltages may be present in space heater terminals.**

**Motor disassembly during the warranty period must be performed by a WEG Authorized Service Center for Explosive Atmospheres only.**

For motors with permanent magnet rotor (WQuattro and Magnet motors), the motor assembly and disassembly require the use of proper devices due to the attracting or repelling forces that occur between metallic parts. This maintenance must be only performed by a WEG Authorized Service Center specifically trained for such an operation. People with pacemakers cannot handle these motors. The permanent magnets can also cause disturbances or damages to other electric equipment and components during maintenance.

**Motors with flameproof enclosures and Protection by enclosure (Ex t), wait at least 60 minutes for frame sizes IEC 71 up to 200 and NEMA 143/5 up to 324/6 and at least 150 minutes for frame sizes IEC 225 up to 355 and NEMA 364/5 to 586/7 to open the terminal box and/or disassemble the motor.**

**For easy removal of the terminal box cover for W22Xdb motors with terminal box integrated into the frame: remove a plug (if available) and then turn the terminal box cover before performing the removal procedure. Reinstall the plug according to item 3 (Installation) after completing the maintenance procedures.**

**For the W51 HD, W50 and HGF motor lines provided with axial fans, the motor and the axial fan have different markings for indicating the direction of rotation for prevent incorrect assembly. The axial fan must be assembled so that the indicative arrow for direction of rotation is always visible, viewing the non-drive end side. The marking indicated on the axial fan blade, CW for clockwise direction of rotation or CCW for counterclockwise direction of rotation, indicates the direction of rotation of the motor viewing the drive end side.**

Motors with degree of protection greater than IP55 are supplied with a sealing product on joints and fixing bolts. Before assembly the components with machined faces (for example, terminal box cover of Flameproof motors), clean these surfaces and apply a new layer of this product.

For flameproof motors joints only the following products can be used: Lumomoly PT/4 (manufacturer: Lumobras – for ambient temperature ranging from -20 °C to +80 °C) or Molykote DC 33 (manufacturer: Dow Corning – for ambient temperature ranging from -55 °C to +80 °C). For motors with other types of protection, use Loctite 5923 (manufacturer: Henkel) on joints. For Flameproof motors, special care should be taken with the machined surfaces of the flame path. These surfaces must be free of burrs, scratches, etc. that reduce the flame path length and increase the gap. For any repair, contact WEG. The gaps between terminal boxes and the respective terminal box covers should not exceed the values specified in Table 6.

Table 6 - Maximum gap between terminal box and terminal box cover for flameproof enclosures

Product line	Frame size	Flat joint		Cylindrical joint	
		Gap (max)	Length (min)	Gap (max)	Length (min)
W21Xdb	IEC 90 to 355 NEMA 143 to 586/7	0,05 mm	Under request	Not available	
	IEC 71 and 80	Not available		0,15 mm	12,5 mm
W22Xdb	IEC 90 to 355 NEMA 143 to 586/7	0,075 mm	6 mm	0,15 mm	19 mm

For terminal box cover mounting, please follow the tightening torques indicated on Table 2 for fixing bolts.

In case of replacement of a fixing bolt, it is necessary to keep its dimensions and quality of material. For flameproof motors, the yield stress of the fastener elements of motor and terminal boxes enclosures must be at least equal to class 12.9 for carbon steel bolts and class A2-70 or A4-70 for stainless steel bolts.

Motors which may have a potential risk of electrostatic charge accumulation, supplied duly identified, must receive proper cleaning and maintenance interventions, i.e. with the use of a damp cloth, avoiding electrostatic discharges.

For Protection by Enclosure motors (groups I and/or III), the maximum permissible dust layer on the motor enclosure is five millimeters (5 mm).

Regularly inspect the operation of the motor, according to its application, and ensure a free air flow. Inspect the seals, the fastening bolts, the bearings, the vibration and noise levels, the drain operation, etc. The lubrication interval is specified on the motor nameplate (more information in the manual 50034162 in the website [www.weg.net](http://www.weg.net)).



## 6. ADDITIONAL INFORMATION

For further information about shipment, storage, handling, installation, operation, maintenance and disposal of electric motors, access the website [www.weg.net](http://www.weg.net).

For special applications and operating conditions (50026367 manual for Smoke Extraction Motors, 50021973 manual for Brake Motors, 50078700 manual for Electronically Commutated Motors, 14629920 manual for Roller Table motors, 50106963 manual for WEG Lift Gearless motors) refer to the applicable manual on the website [www.weg.net](http://www.weg.net) or contact WEG.

When contacting WEG, please, have the full description of the motor at hand, as well as the serial number and manufacturing date, indicated on the motor nameplate. For motors supplied with WEG Motor Scan sensor, see installation guidelines Overview of Receipt to Operation Manual (10008475131) available on [www.weg.net](http://www.weg.net).

## 7. WARRANTY TERMS

WEG Equipamentos Eléctricos S/A, Motors Business Unit ("WEG"), offers warranty against defects in workmanship and materials for its products for a period of 18 months from the invoice date issued by the factory or distributor/dealer, limited to 24 months from the date of manufacture.

Motors of the HGF and W60 Line are covered for a period of 12 months from the invoice date issued by the factory or distributor / dealer, limited to 18 months from the date of manufacture. The paragraphs above contain the legal warranty periods. If a warranty period is defined in a different way in the commercial/technical proposal of a particular sale, that will supersede the time limits set out above. The warranty periods above are independent of the product installation date and the startup. If any defect or abnormal occurrence is detected during machine operation, the customer must immediately notify WEG in writing about the occurred defect, and make the product available for WEG or its Authorized Service Center for the period required to identify the cause of the defect, check the warranty coverage, and perform the proper repairs. In order for the warranty to be valid, the customer must be sure to follow the requirements of WEG's technical documents, especially those set out in the product Installation, Operation and Maintenance Manual, as well as the applicable standards and regulations in force in each country. Defects arising from the inappropriate or negligent use, operation, and/or installation of the equipment, non-execution of regular preventive maintenance, as well as defects resulting from external factors or equipment and components not supplied by WEG, will not be covered by the warranty. The warranty will not apply if the customer at its own discretion makes repairs and/or modifications to the equipment without prior written consent from WEG. The warranty will not cover equipment, components, parts and materials whose lifetime is usually shorter than the warranty period. It will not cover defects and/or problems resulting from force majeure or other causes not imputable to WEG, such as, but not limited to: incorrect or incomplete specifications or data supplied by the customer; transportation, storage, handling, installation, operation and maintenance not complying with the provided instructions; accidents; defects in the construction works; use in applications and/or environments for which the machine was not designed; equipment and/or components not included in the scope of WEG supply. The warranty does not include disassembly services at the buyer's premises, product transportation costs and travel, lodging and meal expenses for the technical staff of the Service Centers, when requested by the customer. The services under warranty will be provided exclusively at WEG authorized Service Centers or at one of its manufacturing plants. Under no circumstances will the warranty services extend the equipment warranty period. WEG's Civil Liability is limited to the supplied product; WEG will not be liable for indirect or consequential damages, such as losses of profit and revenue losses and alike which may arise from the contract signed between the parties.

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