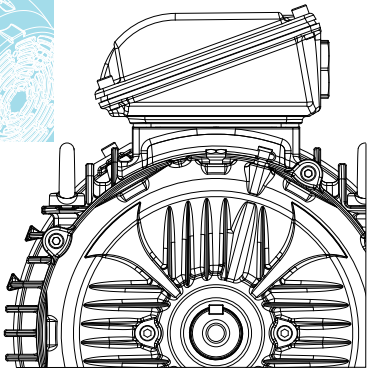
Introduction and Instruction Manual

Totally Enclosed Fan-Cooled (tefc) Squirrel-Cage Induction Motors

More languages see website www.weg.net



EU DECLARATION OF CONFORMITY

Manufacturers:

WEG Equipamentos Elétricos S.A.
Av. Prefeito Waldemar Grubba, 3000
89256-900 - Jaraguá do Sul – SC – Brazil
www.weg.net

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

WEG MEXICO, S.A. DE C.V
Carretera Jorobas - Tula Km 3.5, Manzana 5,
Lote 1, Fraccionamiento Parque Industrial Huehuetoca,
Municipio de Huehuetoca, C.P. 54680,
CD. de Mexico y Área Metropolitana – Mexico
www.weg.net/mx

WEG (Jiangsu) Electric Equipment CO., LTD.
No. 88, Huimin West Road, Chengbei Street, Rugao City, Jiangsu
Province – China
www.weg.net/cn

WEG (Nantong) Electric Motor Manufacturing CO., LTD.
No. 128# - Xinkai South Road, Nantong
Economic & Technical Development
Zone, Nantong, Jiangsu Province – China
www.weg.net/cn

ZEST WEG Electric
6 Laneshaw Street, Longlake Extention 4,
Johannesburg, Gauteng, 1619 - South Africa
www.weg.net/za

WEGeuro, S.A.
Rua António Joaquim Campos Monteiro, 510,
Santa Cristina do Couto, 4780-165 – Santo Tirso – Portugal
Single Contact Point in the European Union for compiling the technical documentation:
Luís Filipe Oliveira Silva Castro Araújo
Authorised Representative
www.weg.net/pt

VOLT ELEKTRİK MOTOR SANAYİ VE TİCARET ANONİM ŞİRKETİ
Kazım Karabekir Cad. No:84 Kemalpaşa 35735 İzmir / Türkiye
https://voltmotor.com.tr/

WEG INDUSTRIES (INDIA) PVT.LTD.
No. E20 (North) SIPCOT Industrial Complex – Phase II – Expansion II. Mornapalli Village Hosur 635109 Tamil Nadu

Changzhou Yatong Jiewei Electromotor Co.,LTD
No.118, Dongdu West Road, Luoyang Town, Wujin, Changzhou, Jiangsu, China.
www.weg.net/cn

Antriebstechnik KATT Hessen GmbH
(Bahnhofstrasse 66, 34576 Homberg (Efze), Germany
https://akh-antriebstechnik.de/

WEG (Chang Zhou) Automation Equipment Co.,Ltd
No. 227, Xincheng Avenue, Jintan District,
Changzhou City, Jiangsu Province, China.
www.weg.net/cn

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

BLDC, W01, W11, W12, W20, W21, W22, W23, W30, W40, W50, W51, W60, W80, WFL, WIN, K1F, K1N, K1O, K1S, K1T, K1W, K2F, K2N, K2U, General Purpose, HGF, Roller Table, Steel Motor, PSC, Pump/Filter, Servomotor, Vertical High Thrust, Water Cooled and WQuattro

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 harmonization legislation and standards, wherever applicable:

Low Voltage Directive	2014/35/EU*;
EU Ecodesign Directive	(EU)2019/1781* as amended by Comission Regulation (EU)2021/341; Directive 2009/125/EC*;
RoHS Directive	2011/65/EU* and its amendments (including Directive 2015/863/EU);
Machinery Directive	(EU)2023-1230**;
EMC Directive	2014/30/EU (electric motors are considered inherently benign in terms of electromagnetic compatibility).

EN 60034-1:2010 + AC:2010 / EN 60034-2-1:2014 / EN IEC 60034-5:2020 / EN 60034-6:1993/ EN 60034-7:1993 + A1:2001 / EN 60034-8:2007 + A1:2014 / EN 60034-9:2005 + A1:2007 /EN 60034-11:2004/ EN 60034-12:2017/EN IEC 60034-14:2018 / EN 60034-30-1:2014/ EN 60204-1:2018 /EN IEC 60204-11:2019 / CLC IEC/TS 60034-30-2:2021 / EN 61800-5-1: 2007+A1:2017+A11:2021 / EN IEC 61800-3: 2018 / EN IEC 63000:2018 / CLC IEC/TS 60034-25:2024 and IEC 60034-30-3:2024.

* Electric motors with a voltage rating higher than 1000V are not under the scope.
** Electric motors are considered partly completed machinery and are supplied with a "Declaration of Incorporation".

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 (EU)2023-1230.

We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the product identified above (partly completed machinery) through WEG authorized 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.

Signed for and on behalf of the manufacturer:

Assinado de forma digital por VITOR MARCON:79566175900
Dados: 2025.05.09 16:40:46 -03'00'

Vitor Marcon
Quality Systems and Certifications Manager
Jaraguá do Sul
May 9, 2025

Assinado de forma digital por EDSON JOSE KOSHINSKI:02103921933
Dados: 2025.05.13 10:38:20 -03'00'

Edson Jose Koshinski
Engineering Director
Jaraguá do Sul
May 9, 2025

Declaration of Conformity

Manufacturers:

WEG Equipamentos Elétricos S.A.
Av. Prefeito Waldemar Grubba, 3000
89256-900 - Jaraguá do Sul – SC – Brazil
www.weg.net

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

WEG MEXICO, S.A. DE C.V
Carretera Jorobas - Tula Km 3.5, Manzana 5,
Lote 1, Fraccionamiento Parque Industrial Huehuetoca,
Municipio de Huehuetoca, C.P. 54680,
CD. de Mexico y Área Metropolitana – Mexico
www.weg.net/mx

WEG (Jiangsu) Electric Equipment CO., LTD.
No. 88, Huimin West Road, Chengbei Street, Rugao City, Jiangsu
Province – China
www.weg.net/cn

WEG (Nantong) Electric Motor Manufacturing CO., LTD.
No. 128# - Xinkai South Road, Nantong
Economic & Technical Development
Zone, Nantong, Jiangsu Province – China
www.weg.net/cn

ZEST WEG Electric
6 Laneshaw Street, Longlake Extention 4,
Johannesburg, Gauteng, 1619 - South Africa
www.weg.net/za

WEG UK Contact:
Single Contact Point in the United Kingdom for compiling the technical documentation:
Gustavo da Silva
Authorised Representative

WEGeuro, S.A.
Rua António Joaquim Campos Monteiro, 510,
Santa Cristina do Couto, 4780-165 – Santo Tirso – Portugal
Single Contact Point in the European Union for compiling the technical documentation:
Luís Filipe Oliveira Silva Castro Araújo
Authorised Representative
www.weg.net/pt

VOLT ELEKTRİK MOTOR SANAYİ VE TİCARET ANONİM ŞİRKETİ
Kazım Karabekir Cad. No:84 Kemalpaşa 35735 İzmir / Türkiye
https://voltmotor.com.tr/

WEG INDUSTRIES (INDIA) PVT.LTD.
No. E20 (North) SIPCOT Industrial Complex – Phase II – Expansion II. Mornapalli Village Hosur 635109 Tamil Nadu

Changzhou Yatong Jiewei Electromotor Co.,LTD
No.118, Dongdu West Road, Luoyang Town, Wujin, Changzhou, Jiangsu, China.
www.weg.net/cn

Antriebstechnik KATT Hessen GmbH
Bahnhofstrasse 66, 34576 Homberg (Efze), Germany
https://akh-antriebstechnik.de/

WEG (Chang Zhou) Automation Equipment Co.,Ltd
No. 227, Xincheng Avenue, Jintan District,
Changzhou City, Jiangsu
www.weg.net/cn

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

BLDC, W01, W11, W12, W20, W21, W22, W23, W30, W40, W50, W51, W60, W80, WFL, WIN, K1F, K1N, K1O, K1S, K1T, K1W, K2F, K2N, K2U, General Purpose, HGF, Roller Table, Steel Motor, PSC, Pump/Filter, Servomotor, Vertical High Thrust, Water Cooled and Wquattro

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 harmonization legislation and standards, wherever applicable:

Electrical Equipment (Safety) Regulations	S.I. 2016/1101*;
The Ecodesign for Energy-Related Products Regulations and Energy Information	S.I. 2021/745*;
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations	S.I. 2012/3032*;
Supply of Machinery (Safety) Regulations	S.I. 2008/1597 amended by S.I.2011/2157**;
Electromagnetic Compatibility Regulations	S.I. 2016/1091 (electric motors are considered inherently benign in terms of electromagnetic compatibility);

EN 60034-1:2010 + AC:2010 / EN 60034-2-1:2014 / EN IEC 60034-5:2020 / EN 60034-6:1993/ EN 60034-7:1993 + A1:2001 / EN 60034-8:2007 + A1:2014 / EN 60034-9:2005 + A1:2007 /EN 60034-11:2004/ EN 60034-12:2017/EN IEC 60034-14:2018 / EN 60034-30-1:2014/EN 60204-1:2018 /EN IEC 60204-11:2019 / EN IEC 63000:2018 / CLC IEC/TS 60034-30-2:2021 and CLC IEC/TS 60034-25:2024.

* Electric motors with a voltage rating higher than 1000V are not under the scope.
** Electric motors are considered partly completed machinery and are supplied with a "Declaration of Incorporation".

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 Machinery Directive.

A Technical Documentation for the products above is compiled in accordance with Part 7 (b) of schedule 2 of The Supply of Machinery (Safety) Regulations 2008.

We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the product identified above (partly completed machinery) through WEG authorized 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.

Signed for and on behalf of the manufacturer:

Assinado de forma digital por VITOR MARCON:79568173900
Dados: 2025.07.29 10:24:01 -03'00'

Vitor Marcon
Quality Systems and Certifications Manager
Jaraguá do Sul
July 28, 2025

Assinado de forma digital por EDSON JOSE KOSHINSKI:02103921933
Dados: 2025.07.29 15:44:56 -03'00'

Edson Jose Koshinski
Engineering Director
Jaraguá do Sul
July 28, 2025

1. Introduction

The installation, operation and maintenance of the motor must always be performed by qualified personnel 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 synchronous reluctance motors;

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. Noncompliance with the instructions provided in this manual and others mentioned on the website www.weg.net voids the product warranty and may cause serious personal injuries and material damages.

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

2. Security warnings

For problem-free operation, certain precautions must be taken before installation. The person who makes the mechanical and electrical connections, should be trained and experienced in electric motors. Intervention by an unqualified person may result in serious injury and material damages.

- Technical information in the catalogues and nameplates on the electric motors must be followed. Operation instructions should be carefully studied.
- Electric power circuit connection and disconnection procedures should only be performed by authorized operator.
- Operation and maintenance of electric motors and any intervention in case of breakdown should only be performed by authorized operator.
- Before beginning any maintenance work on the electric motor, the power connection should be cut off and motor should be secured with warning signs to ensure safety.
- After power to the motor cut off, operator should wait until moving parts come to a complete stop before starting any intervention on the motor.
- Electrical and mechanical connections should be checked before reconnecting power to the motor. Proper grounding must be ensured.
- Electric terminal connections should be tightened with the proper torque, and it should be ensured that the connection does not cause any problems.
- For motors with permanent magnet rotor, the motor assembly and disassembly require the use of proper devices due to the attracting or repelling forces that occur between metallic parts. This work must only be performed by a WEG Authorized service center specifically trained for such an operation. People with pacemakers cannot handle these motors.

The authorized operator (qualified in accord with safety standards of IEC 60364 and HD 60364) should follow the warnings and instructions in the instruction manual during

installation, controls, commissioning and any kind of maintenance of the motor. Any action to the contrary may result in injuries negatively affecting human health, damage to the machines, faulty installation, incorrect maintenance, failure to take necessary precautions, or incorrect electrical and mechanical connections.
Motors should be installed at the place of use in accordance with the instruction manual by the authorized qualified operator.

3. Transport and storage

Check the conditions of the motor immediately upon receipt. 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 and the environmental conditions in which the motor will be installed. 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 (where provided). 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) 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

Always handle the motor 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.

Do not handle the motors by the polymeric components: fan cover, terminal box and / or terminal box cover. 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. For multimounting motors (with removable feet/base), the eyebolts must be positioned according to the motor mounting position so that the lifting angle is vertically aligned (lifting at 0°). Additional information regarding the maximum allowable angle-of-inclination is indicated in the general manual available on the website 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.

4. Motor Installation and Mechanical Connection

4.1. Mounting Torque Values

Material Name	M4	M5	M6	M8	M10	M12	4.2 - 4.8
Foot Mounting Bolts	-	4,0 - 6,0	6,0 - 7,0	14,0 - 16,0	24,0 - 26,0	29,0 - 31,0	-
Fan Cover Screws & Bolts	1,5 - 2,5	1,5 - 2,5	2,5 - 3,5	-	-	-	-
Motor Cover Bolts	2,0 - 3,0	3,5 - 5,5	7,0 - 9,0	10,0 - 14,0	18,0 - 22,0	45,0 - 55,0	-
Grounding Lug Screws & Bolts	-	-	2,0 - 4,0	-	-	-	1,9 - 2,9
Terminal Box Screws & Bolts	-	-	3,5 - 5,5	12,0 - 16,0	-	-	2,0 - 3,0
Terminal Box Cover Screws & Bolts	-	-	5,0 - 6,0	-	-	-	1,9 - 2,9
Nuts on Terminal Connections	0,7 - 1,7	1,2 - 2,2	3,1 - 4,1	-	-	-	-
Fixed Bearing Allen (Hex) Screws	1,0 - 2,0	-	-	-	-	-	-

4.2. Before Installation

- Ensure that motor is not damaged during transportation and storage.
- Check that the information on the motor nameplate complies with the current line voltage.
- Check the conformity of the motor for the intended usage.
- Check the accessories on the motor – if available – in complete and operative condition.

4.3. Preparations for Installation

- Plastic protective cover on motor shaft to prevent corrosion should be removed and materials on the shaft should be cleaned.
- Check for any friction by rotating the motor shaft by hand.

Insulation resistance should be measured. If not complying with the limits within the article 6 of instruction manual, motor should not be utilized under any circumstances.

- WEG motors are dynamically balanced by installing half key. Therefore, transmission parts should be balanced with half key.

4.4. Installation

- The motor should be placed on a flat surface, which is straight, vibration isolator and a strong support against torsion.
- Load and motor shaft should be on the same axis and parallel.
- The motor's air intake must remain sufficiently unobstructed.
- Terminal box and cover for the electric connections should be easy to access after the installation.

4.5. Balancing and Axial Alignment

Take care not to expose the motor to impact and forces in order to prevent the bearing deformation of the pulley, coupling and other transmission parts.

If there is apparatus and devices to mount the transmission parts in the required precision, it is recommended to install it after heating to 60-80°C. It is required to place on the shaft and tighten in order to ensure that there is no space after the installation of transmission parts.

Installation should be made after fixing the shaft in the installation of pulley and coupling.

If the motors are bound with coupling and similar parts, parallelism and axial eccentricity is so critical for the performance and life-time of the motor. Therefore, it is required to align suitably and measure. If the alignment is not suitable, vibration may occur in motor. If the eccentricity is so much, some parts may get harmed.

While aligning the coupling connection, consider the effect of heat of the motor and the running pump. Different extension levels of the coupling systems may vary alignment and levelling during the operation. Therefore, it is recommended to keep an axial space of 3 mm at least between the couplings. If the alignment is broken due to temperature, bearings may get harmed due to extreme vibration.

In the application of belt and pulley, the pulleys should be put in parallel and belt and pulley system should be set with suitable belts in suitable tension. Over-tension on belts may cause over-vibration and also shaft breaking or bearing damages. As the motor is balanced with half key, the pulleys and couplings to be used should be balanced with half key.

While making mechanical connections, pay attention to the direction of rotation of the motor. The reverse direction may cause damage on some parts.

The ground, in which the motor is fixed, should be in a structure to meet the requirements of motor weight and mechanical power. The sizes of the bolts should not cause vibration on the motor.

Users are responsible for the suitable installation of the electric motor.

The installation place should not prevent the ventilation of the electric motor. There should be adequate space to allow suction behind the motor fan. Motor should be placed so that electrical connections and maintenances can be done. If the environment includes fluff, motor cooling is not possible due to the fact that air holes of fan cover is covered by the fluff.

5. Electrical Connections and Grounding

5.1. Before Installation

- Connections should be done according to the electric wiring diagram, supplied with the motor. The motor connection should not be done without checking the diagram.
- Voltage and frequency information on the motor nameplate should be examined carefully and the conformity with the current line should be checked.

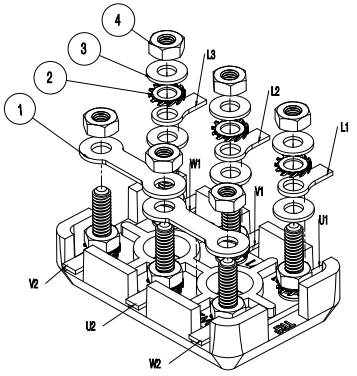
5.2. Preparations for Installation

- The terminal connection in the motor terminal box should be checked. If there is any loosening it must be tightened and if there is any damage, it must be recovered.
- The connection side of the cables to the windings must be checked whether there is corrosion.
- The cable section used appropriately to the power of the motor and distance to the panel of motor must be appropriate.
- The suitability of the cable glands in the terminal box must be checked according to the cable diameter to be used.
- The direction of rotation must be determined before motor-load connection is made and the connection must be made after the compliance to the load is provided.

5.3. Installation

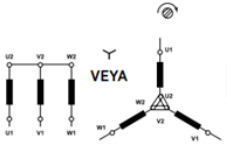
The connection of the motor to the input voltage is made through the terminal box on the motor. The input cables are passed through the cable glands in the terminal box and are connected to the terminal with the appropriate cable lug.

List of Materials to be Used in Star Connection Application

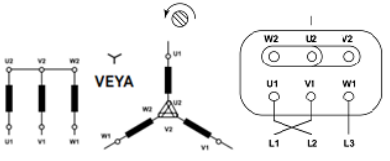


Part Number	Material Name	Usage Amount
1	Terminal Bridge	2
2	Serrated Washer	3
3	Flat Washer	6
4	Nut	6

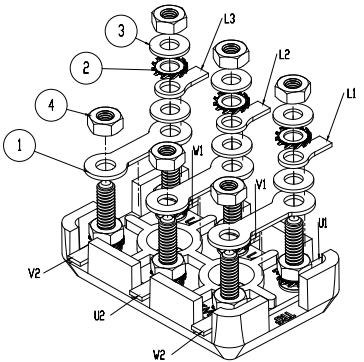
Star connection for three phase motors



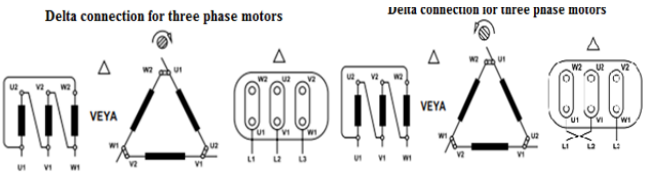
Star connection for three phase motors

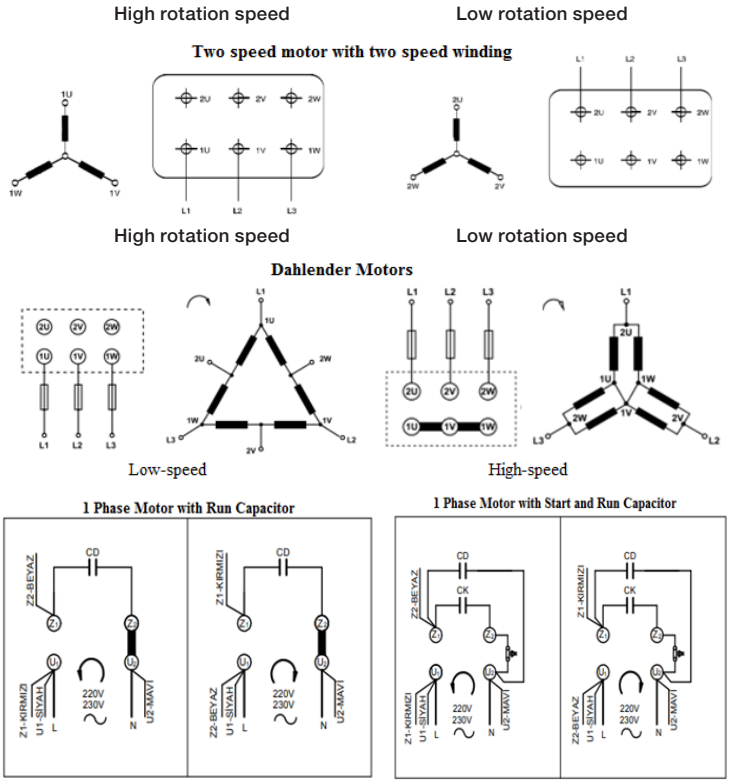


List of Materials to be Used in Delta Connection Application



Part Number	Material Name	Usage Amount
1	Terminal Bridge	3
2	Serrated Washer	3
3	Flat Washer	6
4	Nut	6





5.4. Grounding

The electrical connection made with ground of the metallic parts that may carry current in the places where electricity is used, is called grounding. The aim of grounding in the electrical installations is to provide the life security of people using electrical devices and to prevent damages to the devices. The grounding circuit should be made with low resistance conductive materials (copper or aluminium) and with the capacity of transmitting the highest residual current that will occur in the circuit of the connected device. The grounding line must be installed in an environment protected against mechanical and chemical effects. The housing of the motor and terminal box must be grounded. The electrical connections must be completed using grounding terminal in the terminal box and the grounding bolts on the motor housing. The grounding resistance must be less than 1Ω.

6. 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. In case of doubt, turn off the motor immediately and contact the nearest WEG service center. Do not use roller bearings for direct coupling. Motors fitted with roller bearings require radial load to ensure their 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. After complete standstill, the cooling and lubrication systems (if any exist) must be switched OFF and the space heaters must be switched ON.

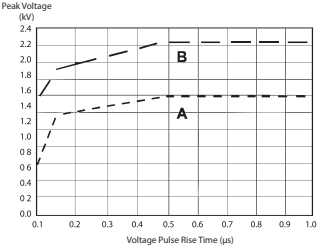
7. Low Voltage Motors Operated at Variable Speeds

- Maximum length of the cable between driver and motor should be 100 m
- Motor housing and inverter must be grounded.
- dV/dt filter should be used in required applications

Motor rated voltage	Voltage spikes at motor terminals (phase-phase)	dV/dt* at motor terminals (phase-phase)	Rise Time	MTBP
$V_{NOM} < 460$ V	≤ 1600 V	≤ 5200 V/µs	≥ 0.1 µs	≥ 6 µs
460 V ≤ V_{NOM} < 575 V	≤ 2000 V	≤ 6500 V/µs	≥ 0.1 µs	≥ 6 µs
575 V ≤ V_{NOM} ≤ 1000 V	≤ 2400 V	≤ 7800 V/µs	≥ 0.1 µs	≥ 6 µs

- The motor and drive must be compatible in terms of voltage, frequency, current rating, and control method (e.g., V/f, vector control).
- Motor nameplate data (e.g., rated voltage, current, frequency, speed, power factor) must be accurately programmed into the drive to ensure optimal performance and protection.

If the peak voltage at the motor terminals exceeds the limits defined by Curve A (for motors rated up to 500V) or Curve B (for motors rated between 500V and 690V), appropriate output filtering must be applied. Curve A and curve are according to IEC 60034-25 and are given below



VFD Capabilities

VFD Capabilities	
Torque Derating	Voltage
Ins. F(B): 0.95x Tn, variable torque only Ins. F(F): 1xTn, variable torque only	Up to 460 V

8. Maintenance

The necessary precautions should be taken on the circuits and connections that may be under voltage during the maintenance and control of the motor. Motors should be protected with the switches, thermic, thermistor, thermic switches or electronic protection circuits suitable for the full load current specified in the motor nameplate against the overload and heating. The availability and accuracy of the selected circuits should be checked.
The following parameters for the operation of the electric motor should be followed.

- The temperature levels of bearings and windings should be monitored.
- The ventilation ducts of the motor should be cleaned and the proper cooling of the motor should be provided.
- The vibration level of the system should be monitored.
- The insulation resistance should be measured at regular intervals.
- The accessories on the motor should be checked.
- The condition of the load transfer elements should be monitored.

Lubrication of Bearings

The type of the grease and the change periods are indicated on the motor nameplate in the motors that deep groove ball open bearings are used
The lubrication grooves and lubricator to provide the lubrication without opening our external bearing covers of the bearings are present in our external lubrication motors. The lubricator cover should be closed after the lubrication process. The grease should be free from dirt and dust during lubrication. The grease type and amount indicated on the nameplate should be observed and any different grease should not be used for the bearing. Using different type of grease may cause motor damages because it exposes to high temperatures. Mixture of different greases should be avoided.

9. Troubleshooting

9.1. Preliminary Checklist for Potential Failures in Three Phase Motor Models

Problem	Anticipated causes	Solution
Motor is operating noisy	1.Loose parts that haven't been tightened enough. (Foot, pulley etc.) 2.Breaking or bending in fan blades. 3.Touching of the fans. 4.Loosen connections. 5.Deterioration on the motor bearings. 6.Faulty motor coupling. 7.Failed bearing tension spring. 8.Motor is running in two phases.	1.Tighten the connections. 2.Change the fan. 3.Remove the contact or ensure clearance 4.Tighten the connections 5.Check the motor bearings. 6.Check and correct coupling. 7.Change the bearing tension spring 8. Find out the cause and correct.
Motor is overheating.	1.Low network voltage. 2.The cooling fan is damaged or not functioning. 3. Ambient temperature too high. 4.Bearings are damaged/broken. 5. Motor is operating with a missing phase. 6. Motor is overloaded. 7. The air intake of the motor is blocked 8.Short circuit exists on the stator winding.	1. Find out the cause and correct. 2. Change the fan. 3. Use a special motor for the environment. 4. Check the motor bearings. 5. Find out the cause and correct. 6. Check the compatibility of the motor for the load. 7. Find out the cause and correct. 8. Consult the service.

Problem	Anticipated causes	Solution
Motor is not working, there is no magnetic humming noise.	1.The fuse is blown or disconnected 2. The thermal protection is blown. 3.Cable connections are loose or aren't correct. 4.The circuit breaker is tripped	1. Check the fuse. 2. Check the thermal protection 3. Check the cable connections. 4. Check the circuit breaker.
Motor is not running, there is magnetic humming noise, thermal protection is tripping.	1.Mechanical jamming inside the motor. 2. Incorrect cable connections. 3.Low network voltage. 4.Short circuit or disconnection in motor windings 5.Failed Relay. 6.Motor is operating with a missing phase.	1. Check the motor bearings. 2. Check cable connections. 3. Determine the cause and correct. 4. Consult service. 5. Change the relay. 6. Determine the cause and correct.
Motor is starting but thermal protection is tripping after some time.	1. Low network voltage. 2. Failed thermal protection. 3. Motor is overloaded 4. Motor is operating with a missing phase	1. Determine the cause and correct. 2. Check the thermal protection 3. Check the compatibility of the motor for the load.. 4. Determine the cause and correct.
Unable to crank the motor	When the motor is idle; 1. Rotor bars are broken or open-circuited 2. Low network voltage. 3. Motor is operating with a missing phase. 4. Connections are loose 5. Incorrect connections 6. Mechanical jamming inside the motor Additionally, when the motor is loaded; 7. Motor is overloaded 8. Faulty relay 9. Intermittent relay is insufficient.	1. Consult service 2. Determine the cause and correct. 3. Determine the cause and correct. 4. Tighten the connections. 5. Check the connections. 6. Check the motor bearings. 7. Check the compatibility of the motor for the load. 8. Change the relay. 9. Change the time of the intermittent relay.

9.2. Preliminary Checklist for Potential Failures in One Phase Motor Models

Problem	Anticipated causes	Solution
Motor is operating noisy	1. Insufficiently tightened, loose parts (Foot, pulley etc.) 2. Breaking or bending in fan blades. 3. Failure in motor bearings. 4. Failure in coupling. 5. Faulty bearing tension spring. 6. Touching of the fan. 7. Loosen cable connections.	1. Tighten the connections. 2. Replace the fans. 3. Change the motor bearings. 4. Check and correct coupling. 5. Replace the bearing tension spring. 6. Remove the contact or ensure clearance 7. Tighten the connections.
Motor is overheating.	1. Low network voltage. 2. Motor is overloaded. 3. Auxiliary winding is not cutting out. 4. The cooling fan is damaged or not functioning. 5. Rotor is faulty 6. Ambient temperature is too high. 7. The air intake of the motor is blocked Short circuit in the stator winding 8. Bearings are broken.	1.Determine the cause and correct. 2.Check the compatibility of the motor for the load. 3.Replace the centrifugal mechanism and/or key group. 4.Replace the fan. 5.Replace the rotor. 6.Use special motor for the purpose. 7. Determine the cause and correct. 8. Consult service. 9. Check the motor bearings.

Problem	Anticipated causes	Solution
Motor is not working, there is no magnetic humming noise.	1. Fuse is unscrewed or tripped. 2. Thermal protection is tripped. 3.Cable connections are incorrect or loosen. 4. Circuit breaker is tripped.	1. Check the fuse. 2. Check the thermal protection. 3. Check the cable connections. 4. Check the circuit breaker.
Motor is not running, there is magnetic humming noise, thermal protection is tripping.	1. Incorrect cable connections. 2. Low network voltage 3. Short circuit or disconnection in windings. 4. Mechanical jamming inside the motor 5. Auxiliary winding is disabled. 6. Starting capacitor is faulty.	1. Check cable connections. 2. Determine the cause and correct. 3. Consult service. 4. Check the motor bearings. 5. Determine the cause and correct. 6. Replace the capacitor.
Motor is starting and running but the auxiliary winding isn't cut out.	1. Low network voltage 2. Centrifugal mechanism or the key group is not working. 3. Motor is overloaded. 4. Incorrect connection.	1. Determine the cause and correct. 2. Replace the centrifugal mechanism or key group. 3. Check the compatibility of the motor for the load. 4. Check the connections.
Unable to crank the motor	When the motor is idle; 1. Rotor bars are broken or open-circuited Low network voltage. 2. Disconnection in main or auxiliary winding. 3. Loosen connections. 4. Incorrect connection. 5. Mechanical jamming inside the motor. 6. Insufficient or faulty capacitor. When the motor is loaded; 7. Motor is overloaded.	1. Replace the rotor. 2. Determine the cause and correct. 3. Replace the winding(s). 4. Tighten the connections. 5. Check the connections 6. Check the motor bearings. 7. Replace the capacitor. 8. Check the compatibility of the motor for the load.
The capacitor is failing or damaged	1. Motor starts under load very often. 2. Extreme vibration in the motor. 3. Incorrect connection. 4. Capacitor with incorrect capacitance value or voltage.	1. Use appropriate motor for the purpose. 2. Eliminate the vibration. 3. Fix the connections. 4. Select the appropriate capacitor.

10. Environmental Health & Safety Information and Energy Efficiency Guidelines

10.1. Product Disposal Guidelines

At the end of its service life, the electric motor must be disposed of in compliance with environmental legislation under the Waste Electrical and Electronic Equipment (WEEE) Directive. Electric motors are complex systems containing conductive windings, magnetic materials, oils, plastics, and various metal components. Therefore, end-of-life motors should be recycled, and any hazardous materials should be handled by licensed facilities.
Applicable Waste Codes Based on Usage:

- 20 01 35* – Discarded electrical and electronic equipment containing hazardous components
- 20 01 36 – Discarded electrical and electronic equipment free of hazardous components
- 16 02 13* – Discarded industrial equipment containing hazardous components
- 16 02 14 – Discarded industrial equipment free of hazardous components

10.2. Customer Health and Safety Considerations

Once decommissioned or malfunctioning, electric motors may contain residual substances such as oil, grease, metal dust, and insulation materials that can pose risks to human health and environmental safety.

Important Safety Precautions:

- Disassembly must be carried out by trained and competent personnel using appropriate personal protective equipment (PPE).
- During dismantling and disposal, gloves, safety goggles, and masks must be worn due to potential exposure to chemical residues such as grease, oil, and varnish.
- Out-of-service motors must never be disposed of with household waste and should be sent to licensed recycling and disposal facilities.
- Disposal operations must comply with relevant national regulations (e.g., WEEE Directive, Waste Management Regulations) and international environmental standards (e.g., ISO 14001).
- Improper disposal may lead to fire hazards, release of harmful emissions, or toxic substance exposure.

10.3. Energy Efficiency

The electric motor provided to you is designed in compliance with the European Union Ecodesign Directive (2009/125/EC) and the applicable implementing regulations such as EU Regulation 2019/1781. Depending on the product type and operating conditions, it meets the specified energy efficiency requirements.

Recommendations for Energy-Efficient Use:

- Operate the motor within its designed load and speed range. Overloading can reduce efficiency and shorten the motor's lifespan.
- Use compatible drive systems (VSD/VFD) to achieve energy savings, particularly in variable load and speed applications.
- Perform regular maintenance; ensure proper bearing function and clean fans and air channels to enhance performance and efficiency.
- Avoid frequent start-stop operations. Use soft starters for heavy loads and frequency converters (VFD) for variable speed and load conditions.
- In long-term downtimes, isolate the motor from the power supply to ensure safety and energy savings.
- Select motors with voltage and frequency ratings compatible with the power supply. Incorrect selection can lead to efficiency loss and system failures.
- Ambient temperature and ventilation significantly affect motor efficiency and lifespan. Prevent overheating by ensuring sufficient airflow around the motor.
- Use cables with appropriate cross-section and minimal length to reduce energy losses and increase overall efficiency.

11. Spare Parts

When there is a need for spare parts, the faults will be eliminated by using the original motor parts. The identification of important parts and the spare parts for the one phase and three phase motors are provided in the diagrams below. Motor type and identification should be provided in the spare parts requests.

12. Customer Services and Authorized Services

Dear Valued Customer,

We think that providing you a good service is as important as providing quality products. Our authorized service operates 5 days a week between 08:00-18:00. You can reach WEG Customer Services and demand any service you wish.

WEG CUSTOMER SERVICES
+90 (232) 877 10 60

We kindly ask you to observe the recommendations provided below:

1. Have your Guarantee Certificate signed and confirmed by our Authorized Dealer.
2. Read the manual provided alongside the motor and use your product according to the manual.
3. In case you have a service request regarding to your product, contact Customer Services from the telephone numbers provided above.
4. Ask the service technician his “technician ID card”.
5. When the work is finished, don’t forget to ask for “SERVICE RECEIPT” from the service technician. You will benefit from the Service Receipt in case you have a problem about your product.

Note: The expected life of the product is 10 years. (The spare product time required for the proper functioning of the product)

WEG motors are covered by a 2-year warranty against production defects from the date of sale.

Production Information is as follows

Factory, Customer Services Unit and Service Address:

Volt Elektrik Motor San. Ve Tic. A.Ş.
Address: Kazim Karabekir Cad. No:84 Kemalpaşa – 35735 Izmir / TURKEY
Tel: +90 232 877 10 60
Fax: +90 232 877 10 59
E-mail: info@volt.weg.net;
Web: www.weg.net

For information about Authorized Services, please visit www.weg.net.

Points for User to Consider about Warranty

In order for a motor to be processed in our service under warranty, it shouldn’t be disassembled and its rod shouldn’t have been operated on. The faulty motor will be inspected and decided if the failure is a production defect. The failures occurred due to the production errors are processed under warranty.

The warranty that is provided by WEG doesn’t cover the usage of the electric motor out of the scope of its intended use as well as the conditions below:

1. Damages and failures occurring due to misuse.
2. The damages and failures happen during the loading, unloading and handling after the delivery of the product to the customer.
3. Low or high voltage; faulty electric wiring; running the product on different voltage than it is indicated on its nameplate.
4. Damages or failures occur as a result of natural disasters, fires and lightning.
5. The failures resulting from not using the product as it is instructed in manuals.

The repairs of the failures mentioned above are made for a fee.

The assembly and transportation of the product to the location of the usage is not included in the product fee.
The responsibility of maturing the certification of warranty and delivering it to the consumer is the responsibility of the dealer, agency or the representation office that the customer purchased the product. Warranty will be considered as void if it is determined that the certificate of warranty is falsified or the original serial number on the product is removed or altered.
The malfunctions that may arise from use are given below;
1. Voltage Fluctuations.
2. Low voltage, high voltage or unbalanced voltage.
3. Faulty motor power selection. (motor output power, motor moment of inertia, motor operating moment values)
4. Unsuitable motor selection for the operating environment.
5. Bearing problems on load side.
6. One or more motor phases to be disabled.
7. Faulty electrical or mechanical assembly.
8. The motor shaft to be in locked position.
9. Use beyond the instruction manual information.
10. Overload. (long term working over the nominal load)

Guarantee terms lose the validity in case of disassembly process part removal or replacement such as flange, fan or fan cover, to be carried out on the purchased motor.

Final User Environmental Obligations
Recycling / disposal of motors that have completed their lifetime and / or will be scrapped should be carried out in accordance with current legal regulations.
Waste should be sent to licensed companies and it should be ensured that it is not mixed with garbage.

+90 232 877 10 60

info@volt.weg.net

Address: Kazim Karabekir Cad. No:84
Kemalpaşa – 35735 Izmir / TURKEY

Cod: 50151710 | Rev. 29 | Date (m/y): 09/2025.