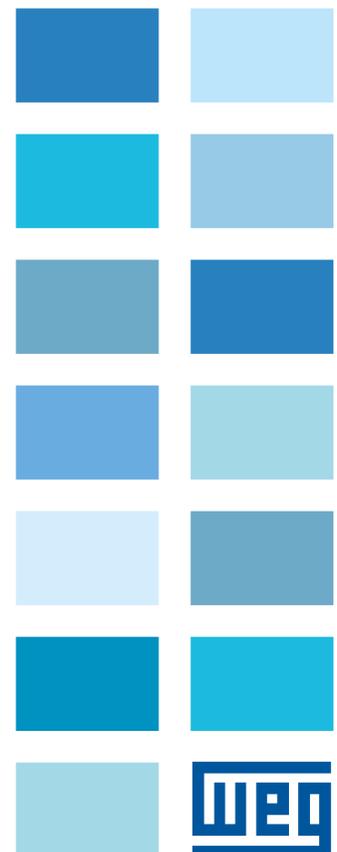


WEGscan

New WEGscan 100

Mechanical Installation Manual





Mechanical Installation Manual

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SUMMARY OF REVIEWS

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CONTENTS

1	Safety Instructions	1-1
1.1	SAFETY WARNINGS IN THE MANUAL	1-1
1.2	PRELIMINARY RECOMMENDATIONS	1-2
1.3	CHANGING THE BATTERIES	1-3
1.4	DISPOSAL AND RECYCLING	1-4
2	General Information	2-1
2.1	ANATEL APPROVAL	2-1
2.2	WARRANTY TERMS	2-1
3	Tools and materials for installation	3-1
3.1	SENSOR FIXED DIRECTLY WITH THREADED HOLE ON THE MOTOR	3-1
3.2	SENSOR FIXED WITH BUSHING	3-2
3.3	SENSOR FIXED DIRECTLY WITH ADHESIVE	3-3
3.4	SENSOR FIXED WITH ADHESIVE AND INTERMEDIATE BASE	3-4
3.5	SENSOR FIXED WITH EYEBOLT ADAPTER	3-5
4	Sensor positioning for instalation	4-1
4.1	SENSOR POSITIONING - APPLICATION: WEG ELETRIC MOTOR ASSET OF THE W22 AND W50 LINES	4-1
4.2	SENSOR POSITIONING – APPLICATION: WEG ELECTRIC MOTOR ASSET OF THE W40 LINE	4-3
4.3	SENSOR POSITIONING – APPLICATION: WEG ELECTRIC MOTOR ASSET OF THE W60 LINE	4-5
4.4	SENSOR POSITIONING – INSTALLATION IN BEARING HOUSINGS	4-6
4.5	SENSOR POSITIONING - INSTALLATION IN BERING HOUSINGS	4-8
5	Installation Procedure	5-1
5.1	INSTALLATION PROCEDURE WITH BUSHING	5-1
5.2	PROCEDURE FOR INSTALLATION WITHOUT BUSHING – APPLICATION: ACTIVE ELECTRIC MOTOR	5-2
5.3	INSTALLATION PROCEDURE – APPLICATION: OTHER ASSETS	5-2
5.4	INSTALLATION PROCEDURE WITH ADHESIVE – GENERAL GUIDELINES	5-3
5.4.1	ADHESIVE INSTALLATION PROCEDURE – APPLICATION	5-5
5.5	SURFACE PROTECTION AFTER FIXING THE INTERMEDIATE SUPPORT	5-5

1 SAFETY INSTRUCTIONS

This manual contains the necessary information for the proper use of WEGscan (a smart monitoring device for asset characteristics). The following instructions are essential for the product's optimal performance and must be observed during installation, maintenance, and operation.

Failure to follow the instructions may result in operational accidents, environmental damage, product damage, and damage to connected equipment, as well as voiding the warranty.

Throughout this manual, the terms "sensor" and "WEGscan" refer to WEGscan 100 devices (powered by replaceable batteries)

1.1 SAFETY WARNINGS IN THE MANUAL

The following safety warnings are used in this manual:



DANGER!

Failure to comply with the procedures recommended in this warning may lead to death, serious injuries and considerable material damages.



ATTENTION!

Failure to comply with the procedures recommended in this warning may cause material damages.



NOTE!

The text provides important information for the complete understanding and proper operation of the product.

1.2 PRELIMINARY RECOMMENDATIONS

**NOTE!**

Follow the installation recommendations described in Chapter 4. Read this manual completely before installing or operating the WEGscan 100.

**DANGER!**

Only individuals with appropriate qualifications and familiarity with the WEGscan 100 should plan or execute the installation, operation, and maintenance of this device. These individuals must follow all safety instructions contained in this guide and/or defined by local regulations.

For safety reasons, maintain a safe distance from the sensor and motor during operation (no less than 20 cm), limiting proximity to authorized personnel only. Failure to follow safety instructions can result in a risk of death and/or damage to the device.

Ensure that the markings on the sensor and the quick installation guide correspond to the classification of the area where the sensor will be installed.

Correct area classification and assessment of environmental characteristics are the user's responsibility. Incorrect application compromises product safety and installation, potentially leading to severe personal and material damage.

**ATTENTION!**

Special usage conditions:

The "X" symbol alongside some certification numbers, marked on the sensor, indicates the need for special conditions for installation, usage, and/or maintenance. These conditions are detailed in the certification documentation.

Failure to observe these requirements compromises product safety and installation. For reference, see the Certifications and Regulations section for a list of certificates.

**DANGER!**

Risk of shock. Do not touch electrically energized parts or equipment. Before starting the installation of the device, disconnect the power supply of the asset. The asset may have a high surface temperature and cause burns or injuries. Before starting the installation of the sensor, wait for the necessary time for the asset to cool down. Use proper instruments to measure the temperature of the asset.

**DANGER!**

The sensor is provided in a plastic housing that can store electrostatic charge. The sensor must be kept in a way that electrostatic charges are avoided. To do this, the sensors must be cleaned carefully, such as by using a damp cloth, to avoid the generation of electrostatic discharges.

1.3 CHANGING THE BATTERIES

The WEGscan 100 is powered by batteries that must be replaced at the end of their charge, as illustrated in 1.1. Follow these steps:

1. Unscrew the side screws.
2. Remove the top cover.
3. Remove the used batteries and dispose of them properly.
4. Insert new batteries with the correct polarity (refer to the technical specifications table at the end of this document).
5. Ensure the individual battery pressers are correctly positioned inside the housing.
6. Install the top cover (tightening torque for the side screws = 0.8 Nm).

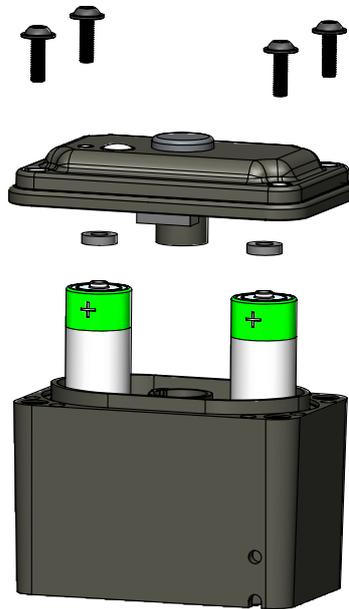


Figure 1.1: Battery replacement - New WEGscan 100

1.4 DISPOSAL AND RECYCLING

In consideration of the environment, WEG develops and supplies products that contribute to reducing environmental impacts throughout their lifecycle. User participation in the selective collection and recycling of the battery (for WEGscan 100) and used electronic equipment is also important to minimize potential effects on the environment and human health.

Proper disposal of the sensor, in compliance with applicable legislation, is essential for your safety and the environment, as well as for conserving resources.



ATTENTION!

The WEGscan 100 battery is replaceable. At the end of its service life, it must be collected as used electronic equipment. For information on return or available collection points for proper treatment and recycling, contact WEG or send the sensor to our authorized service network.

Sensors and batteries must be disposed of separately at an appropriate collection point and not placed in conventional waste streams. They must not be disposed of in municipal waste incinerators or landfills.

Sensor and battery disposal must comply with local regulations. Battery removal and recycling should only be conducted by qualified professionals.



NOTE!

The symbol shown above indicates that:

- The product cannot be disposed of at municipal waste collection points.
- It is part of selective collection for electrical, electronic equipment, and batteries.
- The entire device and its packaging are made from recyclable materials and, at the end of its service life, should be sent to specialized recycling companies.
- The horizontal bar below the bin indicates that the equipment was marketed after August 13, 2005.

2 GENERAL INFORMATION

2.1 ANATEL APPROVAL

This equipment is not entitled to protection against harmful interference and may not cause interference to duly authorized systems.



2.2 WARRANTY TERMS

WEG Drives & Controls - Automação Ltda, offers a warranty against manufacturing and material defects for the WEGscan product for a period of 36 months, except for the batteries which have a warranty of 3 months, counted from the date of issuance of the factory or distributor/reseller invoice. The full text of the warranty terms is available at www.weg.net.

3 TOOLS AND MATERIALS FOR INSTALLATION

3.1 SENSOR FIXED DIRECTLY WITH THREADED HOLE ON THE MOTOR

For the correct installation of the sensor on the asset, the tools and materials indicated in Figure 3.1 are required.



(a) New WEGscan 100



(b) Drill



(c) 3,3 mm Drill bit



(d) M4X0,7 Tap



(e) Tap wrench



(f) 3 mm Allen Key



(g) M4X45 mm Screw

Figure 3.1: Tools and materials required for sensor installation directly with threaded hole on the motor.

3.2 SENSOR FIXED WITH BUSHING

For the correct installation of the sensor on the asset, the tools and materials indicated in Figure 3.2 are required.



(a) New WEGscan 100



(b) Drill



(c) 5,9 mm or 15/64" Drill bit



(d) Bushing



(e) Hammer



(f) 3 mm Allen Key



(g) M4X45 mm Screw

Figure 3.2: Tools and materials required for sensor installation with bushing.

3.3 SENSOR FIXED DIRECTLY WITH ADHESIVE

For the correct installation of the sensor on the asset, the tools and materials indicated in Figure 3.3 are required.



Figure 3.3: Tools and materials required for sensor installation directly with adhesive.

3.4 SENSOR FIXED WITH ADHESIVE AND INTERMEDIATE BASE

For the correct installation of the sensor on the asset, the tools and materials indicated in Figure 3.4 are required.



(a) New WEGscan 100



(b) M4x40 mm Screw



(c) Intermediate base



(d) 3 mm Allen Key



(e) Fine sandpaper for steel



(f) Two-component epoxy adhesive

Figure 3.4: Tools and materials required for sensor installation with adhesive and intermediate base.

3.5 SENSOR FIXED WITH EYEBOLT ADAPTER

For the correct installation of the sensor on the asset, the tools and materials indicated in Figure 3.5 are required.



(a) New WEGscan 100



(b) M4x40 mm Screw



(c) Eyebolt adapter



(d) 3 mm Allen Key

Figure 3.5: Tools and materials required for sensor installation with eyebolt adapter.

4 SENSOR POSITIONING FOR INSTALATION

This section describes the mechanical installation of the WEGscan on electric motors with an emphasis on the central position of the motor. For installation on other assets and in other possible positions on the motor, see Chapter 4.4 e 5.

4.1 SENSOR POSITIONING - APPLICATION: WEG ELETRIC MOTOR ASSET OF THE W22 AND W50 LINES

As shown in Figure 4.1 and 4.2, the sensor should be installed approximately at the center of the motor and at a distance M from the top of the fin. The distance M varies with the housing and motor line and is indicated in Table 4.1.

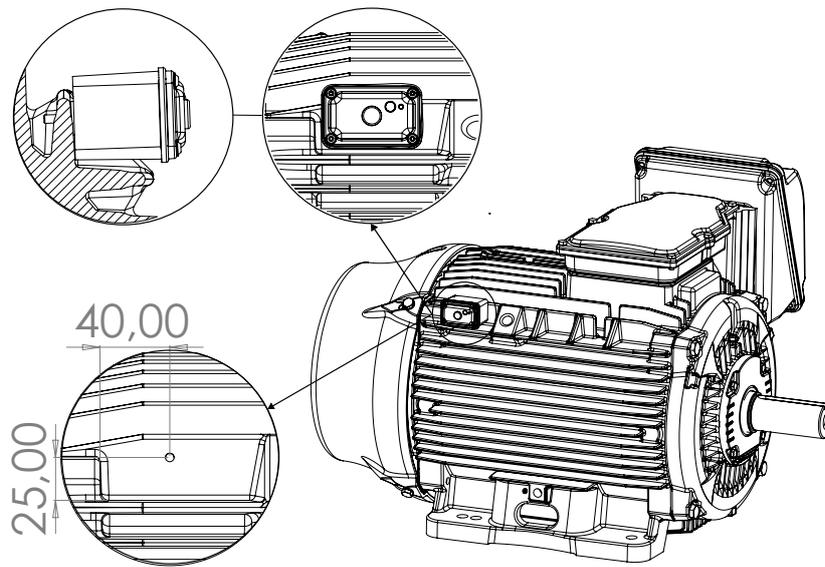


Figure 4.1: Sensor fixed on the W22 motor

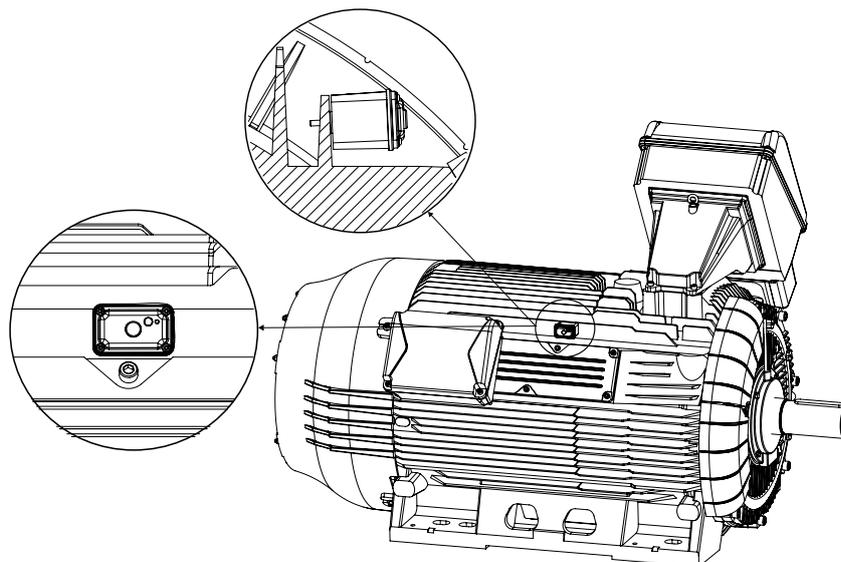


Figure 4.2: Sensor fixed on the W50 motor

Table 4.1: Dimension M and recommended installation positions of WEGscan.

Carcaça	M(mm)	M[pol.]	Frames 63 to 132 - W22
Consult WEG.			
Carcaça	M(mm)	M[pol.]	Frames 160 to 225 - W22
160	8	0.315	
180	6	0.2362	
200	10	0.3937	
225	10	0.3937	
Carcaça	M(mm)	M[pol.]	Frames 250 to 355 - W22
250	10	0.3937	
280	10	0.3937	
315	10	0.3937	
355	10	0.3937	
Carcaça	M(mm)	M[pol.]	Frames 315 to 450 - W50
315	10	0.3937	
355	10	0.3937	
400	10	0.3937	
450	10	0.3937	

4.2 SENSOR POSITIONING – APPLICATION: WEG ELECTRIC MOTOR ASSET OF THE W40 LINE

The sensor can be installed on motors of the W40 line following the positions indicated in Figure 3.1 on page 3-1 (for IEC frames 160 to 280S/M, if the terminal box is on top, the sensor should be placed on the side base as shown in Figure 4.3a, if the terminal box is on the side, the sensor should be placed on top as shown in Figure 4.3b). In the case of the top box, if there is any component on one of the side bases, it should be fixed on the opposite base.

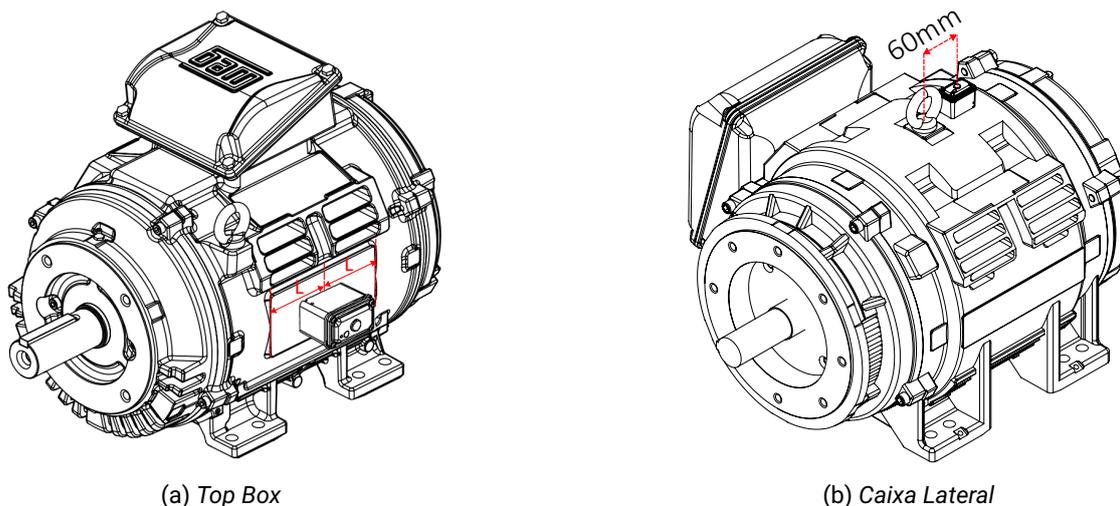


Figure 4.3: Fixing location of the WEGscan for W40 line motors, frames IEC160 to 280S/M.

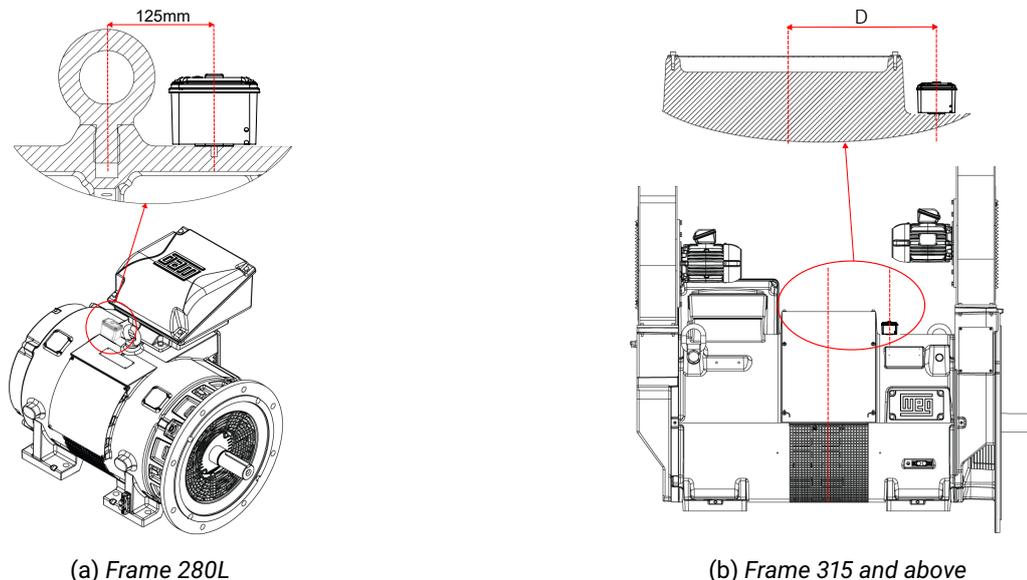


Figure 4.4: Fixing location of the WEGscan for W40 line motors, frames 280L and above.

For frames 315 and above, the values of the distance between the drilling and the center of the motor should be consulted in Table 4.3.

Table 4.3: Distances between the drilling and the center of the motor.

Frame	Distance (mm)
315 (5010/11)	250
355 (L5010/11)	290
400 (L5809/10 e L5810/11)	320
450 (L6808/09)	340

4.3 SENSOR POSITIONING – APPLICATION: WEG ELECTRIC MOTOR ASSET OF THE W60 LINE

Due to the constructive characteristics of the W60 line motors, the preferred position that should be adopted for the WEGscan is the side base (Figure 4.5). The WEGscan should be positioned at the height of the center of the shaft and should be centrally positioned along the length of the motor. If the terminal box overlaps the indicated region, the WEGscan should be placed on the opposite side of the terminal box. The sensor can be positioned with a deviation of up to 40 mm in the axial direction and up to 20 mm in the transverse direction to the axial direction relative to the recommended position.

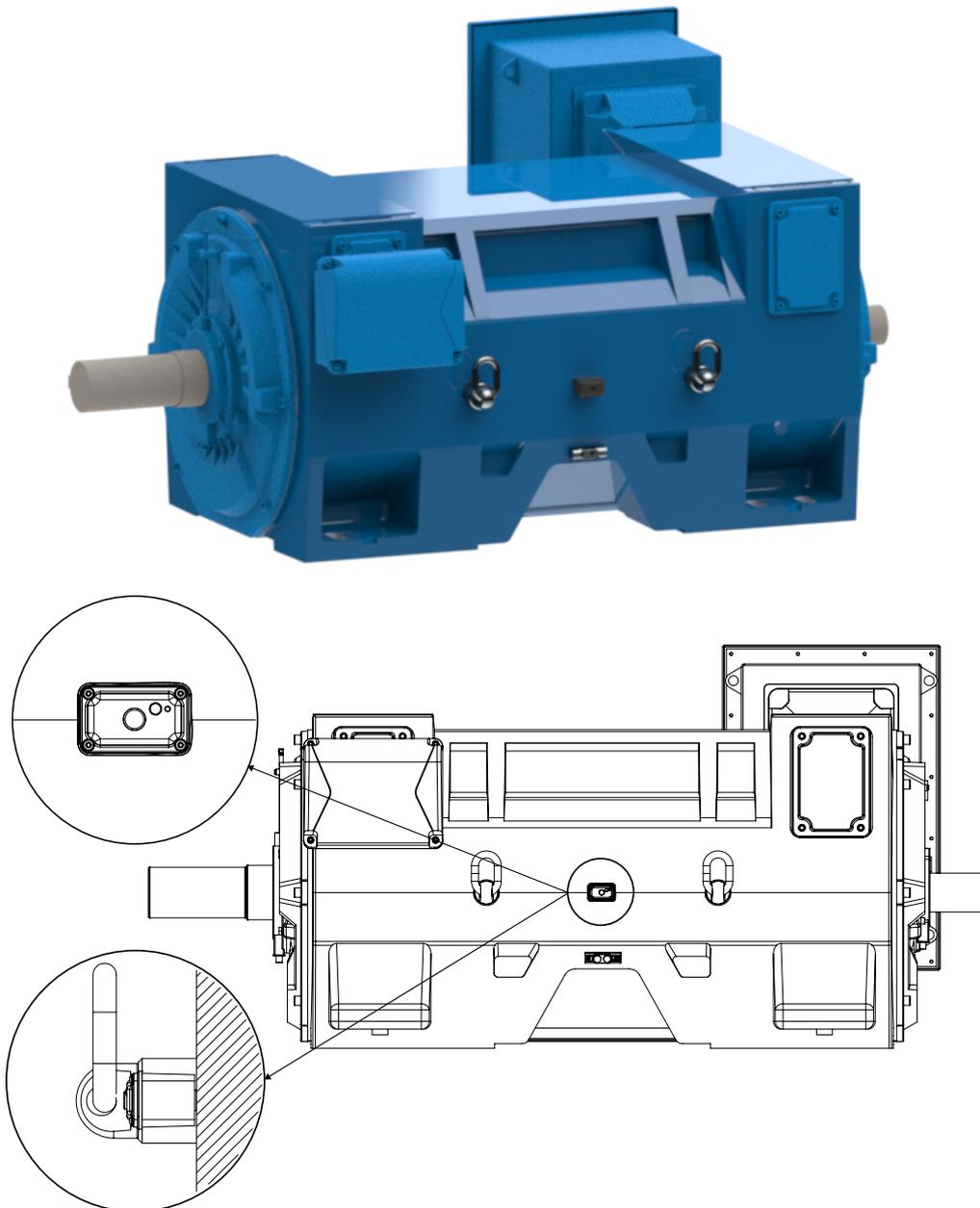


Figure 4.5: Detail of the position for fixing the WEGscan system device on W60 motors.

4.4 SENSOR POSITIONING – INSTALLATION IN BEARING HOUSINGS

O WEGscan deve ser instalado em uma posição próxima aos mancais de rolamento. Uma recomendação, se possível, é seguir o que é descrito na norma ISO 20816 (Mechanical vibration - Measurement and evaluation of machine vibration). Entretanto, o WEGscan pode ser instalado em outra posição mais conveniente. A fixação dos sensores, nesse caso, pode ser feita com a utilização de adesivos, tanto aplicando-o diretamente no WEGscan como utilizando uma base intermediária.

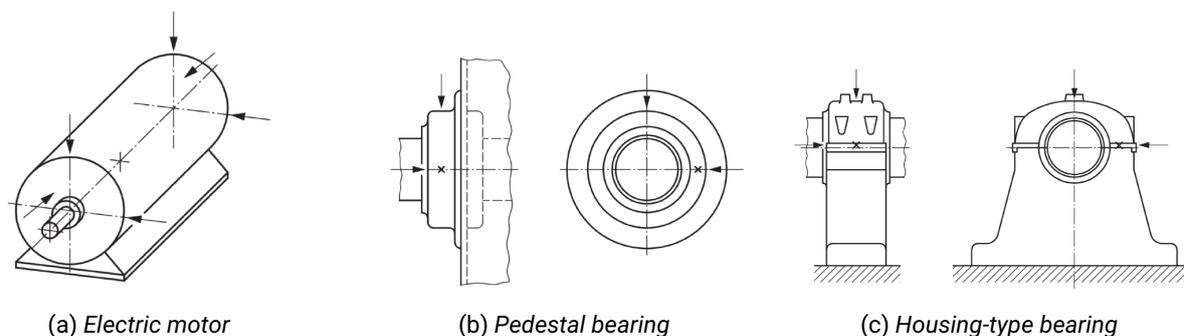


Figure 4.6: Examples of positions recommended by the ISO 20816 standard for vibration data collection in bearings.

In Figures 4.7 and 4.8, examples of sensor fixation in bearings are also presented, using fixation with the help of an intermediate base.

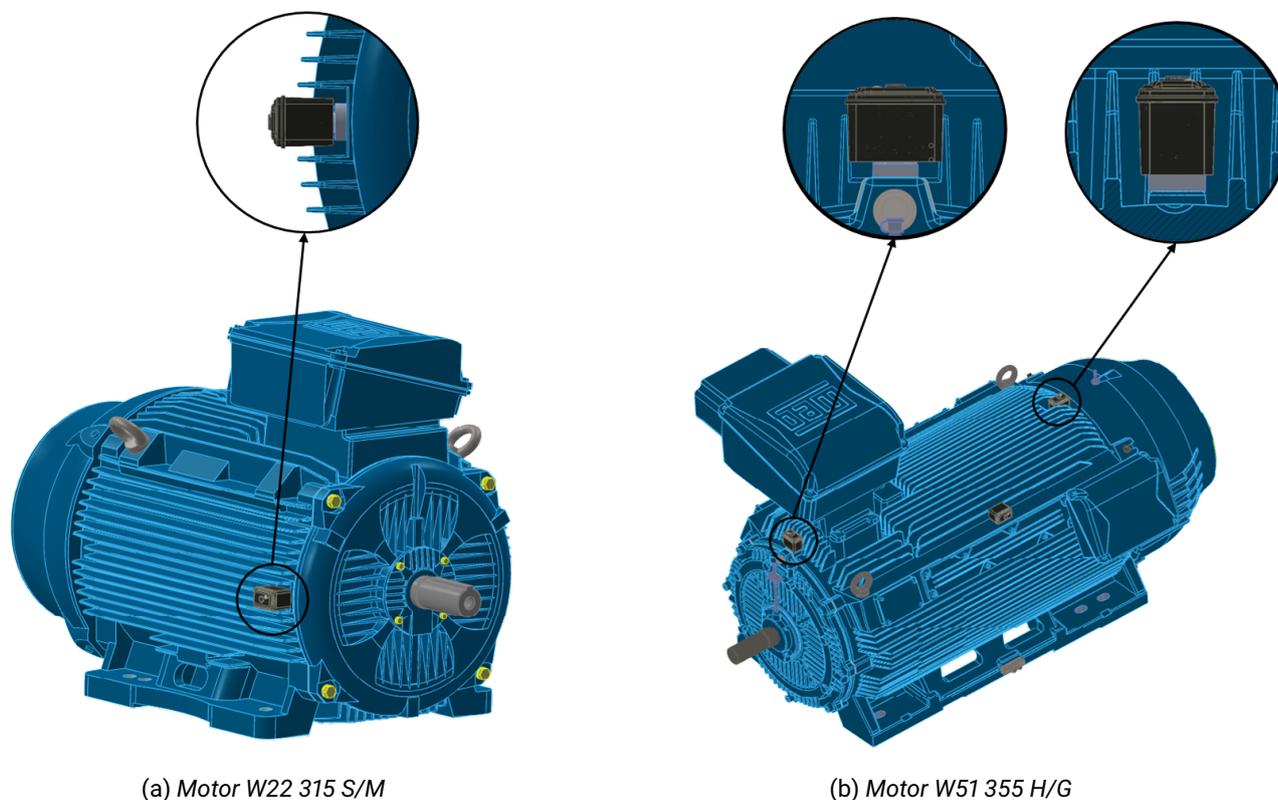


Figure 4.7: Examples of WEGscan fixation in bearings of different motors.

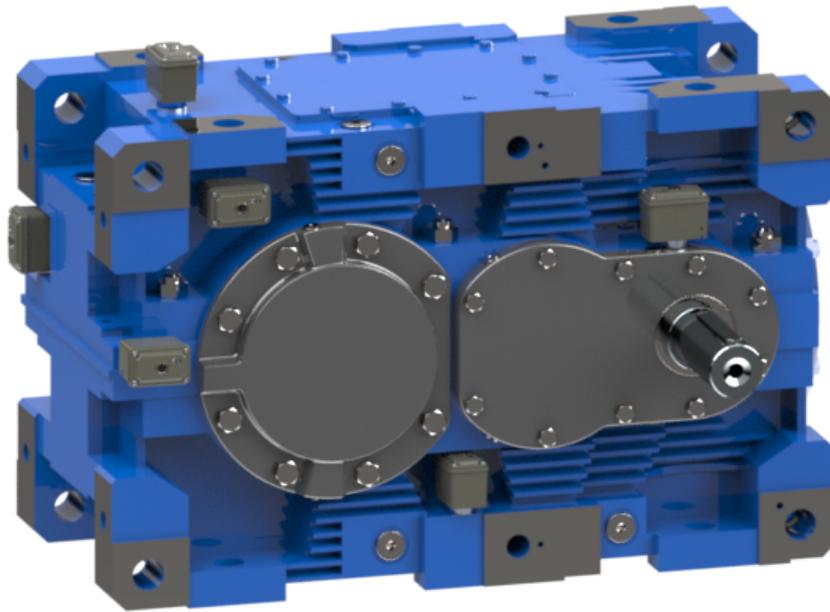


Figure 4.8: Examples of WEGscan fixation on a WEG reducer (WCG50 WP052).

4.5 SENSOR POSITIONING - INSTALLATION IN BERING HOUSINGS

One possibility for fixing the WEGscan is in the motor's spare eyebolt. In this case, an eye adapter can be used to assist in this assembly. This adapter must have an external thread, compatible with the eyebolt thread, and an internal M4 (standard) or M5 thread, allowing the WEGscan to be fixed to the motor with a screw. WEG recommends adapters made of stainless steel or aluminum to avoid oxidation problems.

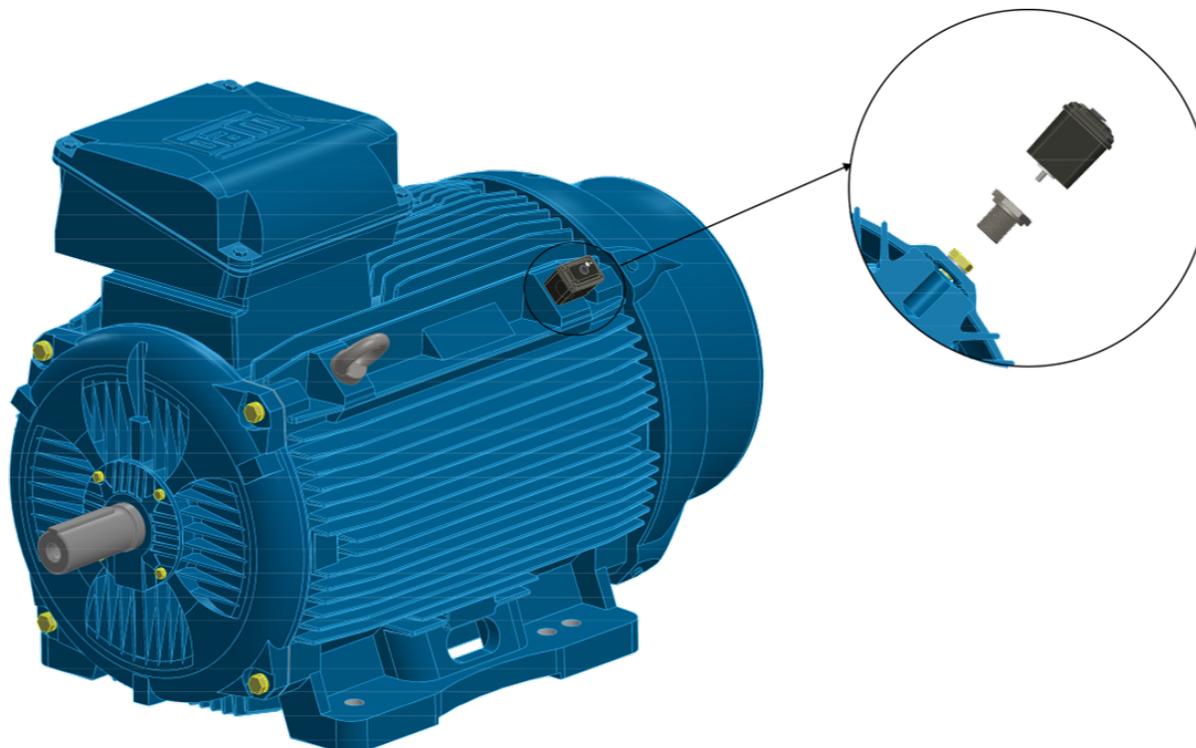


Figure 4.9: Montagem inclinada do WEGscan no Olhal - Linha W22.

The assembly is performed by fixing the eye adapter in the spare eyebolt hole and then fixing the WEGscan to the adapter with an M4 (standard) or M5 screw.

One of the characteristics of this mounting model is that the sensor can be fixed at an angle, and in this case, the measurements should be considered in the radial, tangential, and axial directions (as per Figure 4.9). For Specialist module measurements, WEG recommends installing the WEGscan in the rear spare eyebolt. For other types of measurement (global vibrations, frequency spectra, etc.), the mounting position can be in any spare eyebolt of the motor.



ATTENTION!

For the installation of the WEGscan on assets not covered in this manual and motors from other manufacturers, consult WEG on our support channel: www.weg.net.

5 INSTALLATION PROCEDURE

5.1 INSTALLATION PROCEDURE WITH BUSHING

To correctly fix the sensor to the motor in the central position, the following sequence of steps should be followed:

1. With the motor turned off and following all safety instructions indicated in this manual, locate the position on the motor where the sensor should be fixed. According to the positioning guidelines indicated in Chapter 4-4, mark the spot for drilling..
2. In finned motors, drill through the fin and in non-finned motors, make a smooth hole 9 mm deep. For this, use a 5.9 mm (15/64") diameter drill bit.
3. Using a hammer, insert the knurled bushing into the hole until the flange touches the motor fin, as shown in Figure 5.1



NOTE!

If the bushing is inserted without the aid of a hammer, it means the hole diameter is slightly larger and in this case, the sensor's fixation on the motor will be compromised. Therefore, it is necessary to drill a new hole for the correct fixation of the bushing.

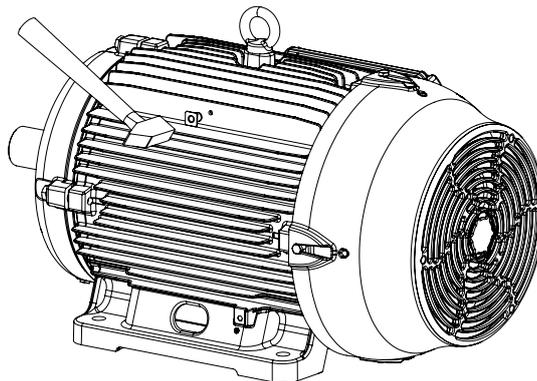


Figure 5.1: Detail of the insertion of the knurled bushing.

4. Using a 3 mm Allen key, screw the sensor into the knurled bushing and check its tightness. The maximum tightening torque is 4.0 Nm. As shown in Figure 5.2 on page 5-1.

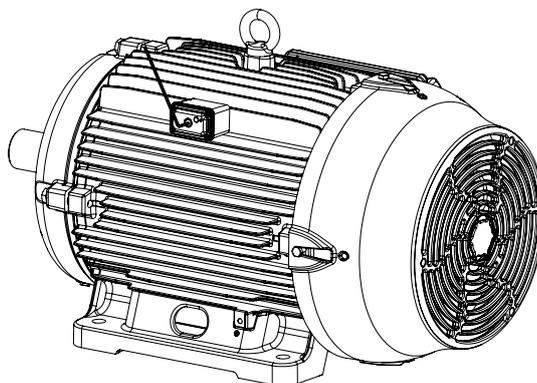


Figure 5.2: Detail of screwing the sensor into the knurled bushing.

5.2 PROCEDURE FOR INSTALLATION WITHOUT BUSHING – APPLICATION: ACTIVE ELECTRIC MOTOR

For proper sensor attachment to the motor, at the center position, without using the knurled bushing, the following steps should be followed:

1. With the motor turned off and adhering to all safety instructions outlined in this manual, locate the position on the motor where the sensor should be mounted. Follow the positioning guidelines provided in Chapter 4-2, and mark the location to perform the drilling.
2. For finned motors, drill a through-hole in the fin. For non-finned motors, drill a smooth hole 13 mm deep. Use a 3.3 mm diameter drill bit.
3. Using an M4 tap, thread the M4 thread in the smooth hole made in step 2.
4. Using a 3 mm Allen wrench, screw the sensor into the knurled bushing and check its tightness. The maximum tightening torque is 4.0 Nm. Refer to Figure 5.2 on page 5-1.

5.3 INSTALLATION PROCEDURE – APPLICATION: OTHER ASSETS

To correctly fix the sensor by screw in other positions/assets where vibration and temperature are to be monitored, the following sequence of steps should be followed:

1. With the equipment turned off and following all safety instructions indicated in this manual, define a position to fix the sensor. This position depends on the quantity to be measured. For example, if the variable of interest is vibration, avoid fixing near the asset's mounting point; if the variable of interest is temperature, fix the sensor in a place with elevated temperature. Mark the spot for drilling.
2. By insertion of the knurled bushing:
 - (a) Make a smooth hole with a 5.9 mm (15/64") diameter drill bit; the hole depth should be at least 9 mm.
 - (b) Using a hammer, insert the knurled bushing into the hole until the flange touches the asset's surface.



NOTE!

If the bushing is inserted without the aid of a hammer, it means the hole diameter is slightly larger, and in this case, the sensor's fixation on the motor will be compromised. Therefore, it is necessary to drill a new hole for the correct fixation of the bushing.

3. By threading:
 - (a) Make a smooth hole with a 3.3 mm diameter drill bit; the hole depth should be at least 13 mm.
 - (b) Using an M4 tap, make the M4 thread in the smooth hole made in the previous step.
4. Using a 3 mm Allen key, screw the sensor into the knurled bushing and check its tightness. The maximum tightening torque is 4.0 Nm. As shown on page 5-1.

5.4 INSTALLATION PROCEDURE WITH ADHESIVE – GENERAL GUIDELINES

Direct adhesive fixation on the sensor can be used as an alternative to the standard screw mounting, i.e., in cases where sensor fixation on a surface is not possible through drilling. WEG suggests using the 3M DP8407NS two-component epoxy adhesive or similar, ensuring that the adhesive’s maximum service temperature supports the maximum surface temperature of the application. This fixation method can be done:

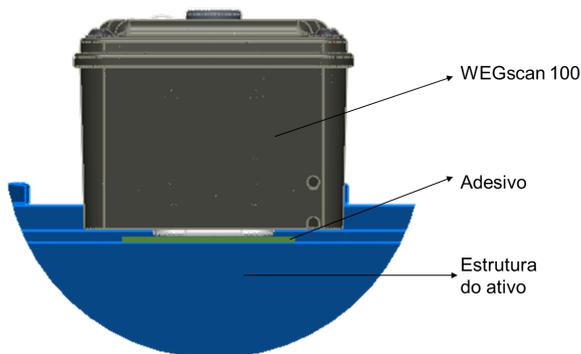
- *Directly*: applying the adhesive to the area of the metal bushing at the base of the sensor, as indicated in Figure 5.3. The amount of adhesive applied should be sufficient to cover the entire bushing area.



(a) Application of adhesive on the sensor base



(b) Application of adhesive on the sensor base



(c) Direct installation scheme with adhesive

Figure 5.3: Direct installation of WEGscan by applying adhesive.

Installation Procedure

- *By Intermediate Support*: fixation by intermediate support allows a robust installation with relative flexibility, as the sensor is fixed by screw on the support. For installation, it is recommended to use a base of 12 mm in height, as shown in 5.4, and an M4 x 40 mm stainless steel screw. There are no restrictions on the diameter of the support, but it is recommended that the base be in contact with the entire area of the sensor bushing. WEG recommends stainless steel or aluminum bases to avoid oxidation problems. There are no restrictions on the use of other materials, as long as their ability to withstand the environment is considered.

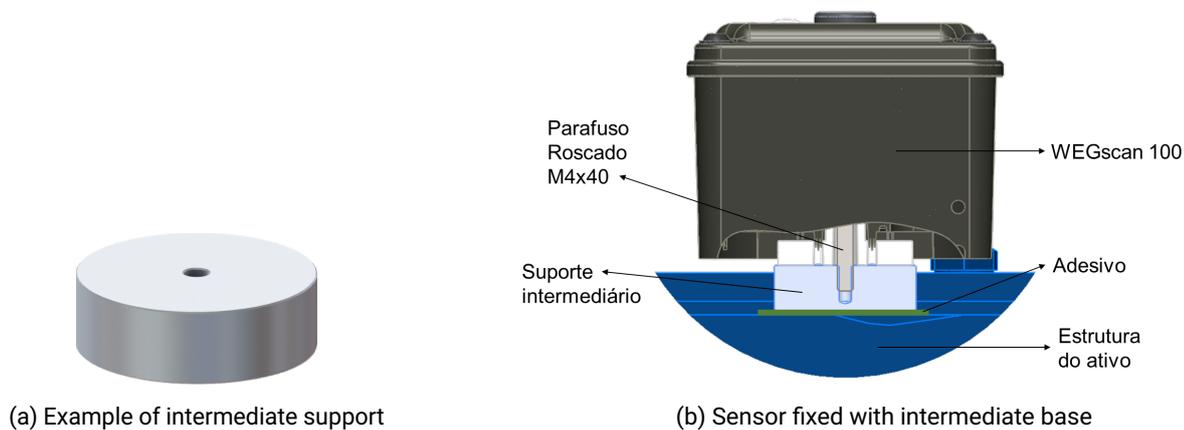


Figure 5.4: Intermediate support installation scheme with adhesive

5.4.1 ADHESIVE INSTALLATION PROCEDURE – APPLICATION

When installing the WEGscan using adhesive, follow these steps:

1. Before applying the adhesive to the surface, remove the paint only from the area where the support will be placed. It is not recommended to apply the adhesive directly onto paint or contaminated surfaces (with oil or other substances) as the adhesive may not bond properly and could peel off easily (Figure 5.5a);
2. Ensure that the surfaces are clean and apply the adhesive carefully. Apply a sufficient layer to cover the entire bottom area of the support. The space between the support and the active component should be fully filled with adhesive (Figure 5.5b);
3. Place the support in the chosen area, holding it for the time specified by the manufacturer. If necessary, this preliminary positioning can be done with the help of adhesive tape (Figure 5.5c);
4. If necessary, after removing the paint, placing the adhesive, and installing the support, you may apply a thin layer of anti-corrosion protective material over the entire structure, especially on the area where the paint was removed. Be cautious when attaching the sensor to surfaces with high temperatures.

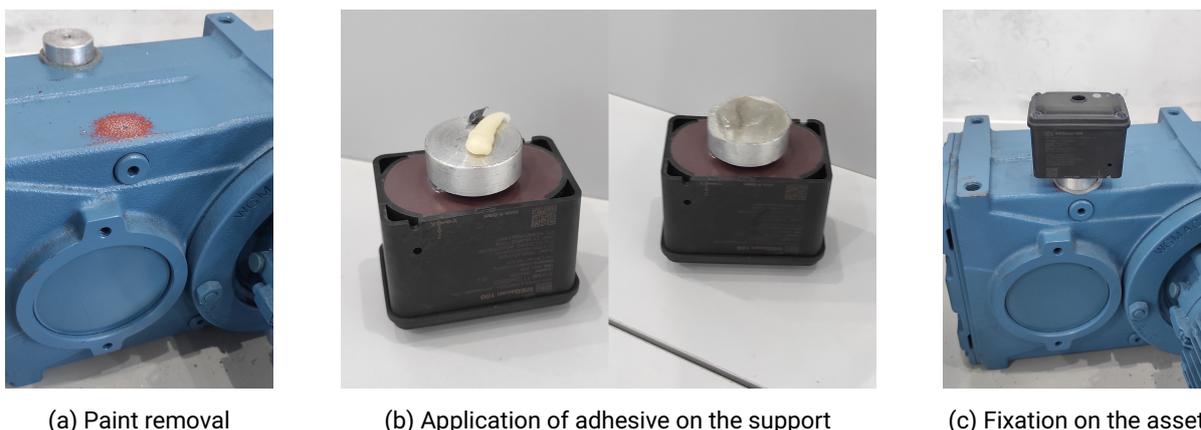


Figure 5.5: Procedure for fixing the intermediate support with adhesive

5.5 SURFACE PROTECTION AFTER FIXING THE INTERMEDIATE SUPPORT

It is recommended that after fixing the intermediate support and the complete curing of the epoxy adhesive, the proper protection of the affected surface against corrosion should be resumed, using an anti-corrosive protective coating with salt spray protection of 500 hours or more.

Table 5.1: Examples of suggested protective coatings.

Corrosion Protection	Time in Salt Spray Chamber (hours)	Additional Information
TECTYL 506 EH	1500	https://www.tectyleurope.com/products/
CLARUS RustyMax RAC-05	700	https://clarus-corp.com/anti-corrosion/
Outros similares com especificação offshore	mín. de 500	-



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