E-CFW

Accelerator Manual

TOPFIBRA

EFFECTIVE FILAMENT WINDING® PIONEERS

E-CFW

ACCELERATOR MANUAL

TABLE OF CONTENTS

1. GENERAL INFORMATION

This document describes the operations and maintenance of the E-AD3000 HIGH PERFORMANCE TOPFIBRA ACCELERATOR.

This document is prepared by TOPFIBRA D.O.O.

To correctly install and operate the device, please refer to the following documents:

- THIS TECHNICAL MANUAL;
- 20027-000-02-R01 GENERAL ASSEMBLY;
- 20027-049-R01 ELECTRIC MOTOR GEARBOX ASSEMBLY;
- MOTOVARIO PRODUCT DATA SHEET;
- MOTOVARIO QL0208 GEAR USE AND MAINTENANCE HANDBOOK;
- MOTOVARIO QL0219 MOTORS USE AND MAINTENANCE HANDBOOK;
- DRYLIN-T LINEAR GUIDE SYSTEM;
- PNEUMATIC PISTON FESTO DSBC-63;
- SWITCH FESTO SME-8M TDS;
- RE01-14 PRESSURE REGULATOR TDS;
- CS02400 COIL TDS;
- K52W1018 5-2-WAY SOLENOID VALVE TDS;
- MBA01-14 SHUT-OFF VALVE TDS.

1.1. General description

The pipe accelerator device is a tool usually installed on board of a lifting table in a continuous filament winding machine.

It activates during the operations of grinding and cutting of a pipe, to ensure the right rotation to the portion of the pipe that has been cut, before the unloading of the pipe (Figure 1).

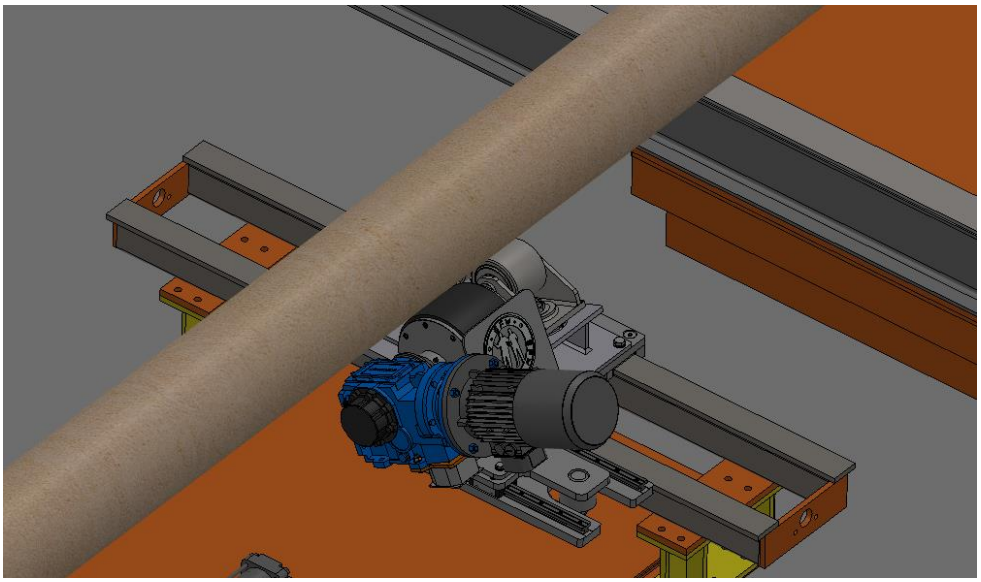


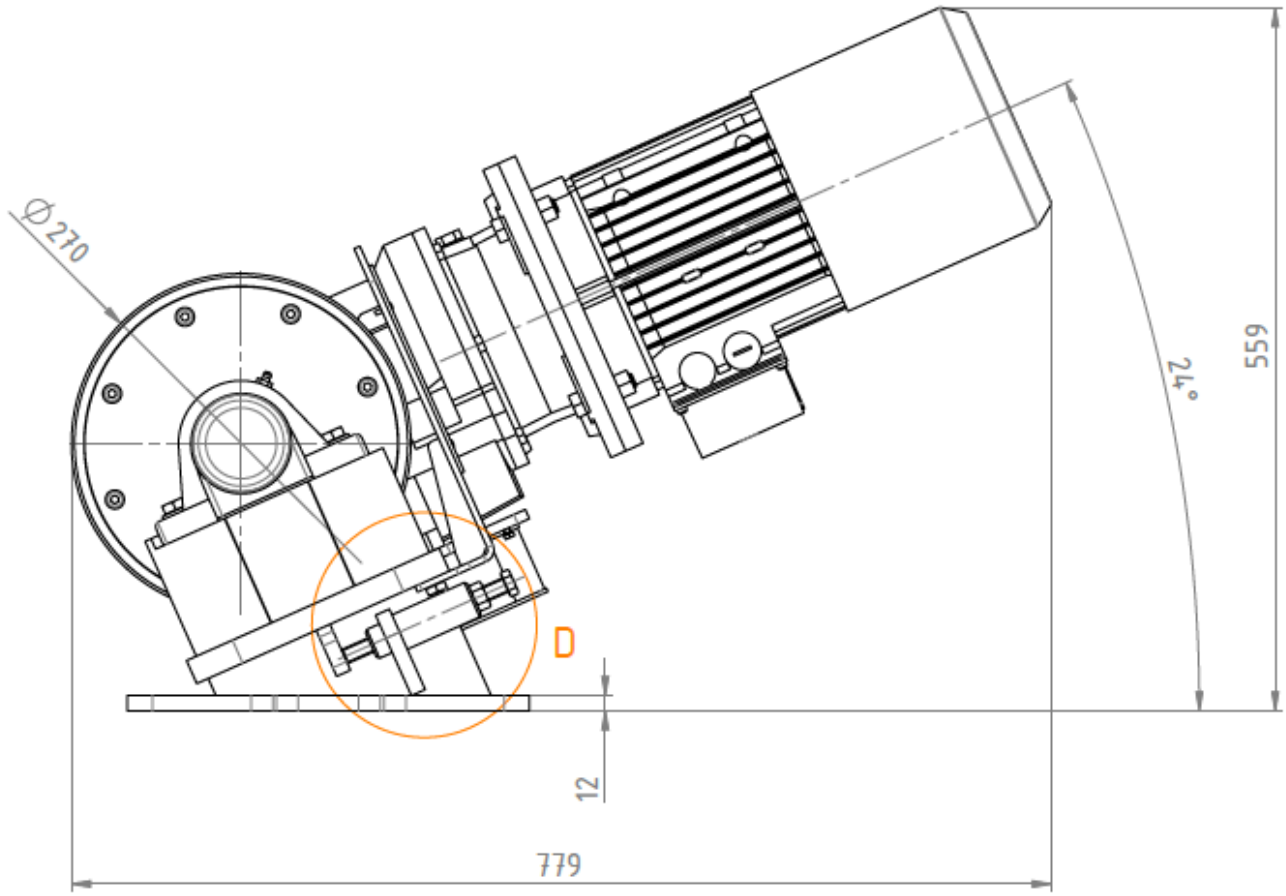
Figure 1: Accelerator device

When the device is not operative, it is not in contact with the pipe. During the cutting operations it is activated, and it moves into contact with the pipe by means of a pneumatic piston.

Once in contact with the pipe, it rotates at the same speed of the pipe, to help the rotation. When the cutting operation is completed, it continues rotating the pipe until the unloading phase starts.

1.2. Technical data

Dimensions: please refer to the general assembly drawing 20027-000-02-R01.



Please refer to the electric motor gearbox assembly 20027-049-R01.

Electric motor with gearbox:

Three phase motor: 2.2 kw / S1

I= 32,33

Tilt:

Maximum setting tilt: 5 degrees

Minimum setting tilt: 0 degrees

Traction wheel:

Wheel with vulcanized rubber diameter: 270mm

Freewheel clutch: Stieber.

2. SAFETY INSTRUCTIONS

2.1. General

Precautions for general use: it is recommended to prohibit access to the operational area of E-AD3000 HIGH PERFORMANCE TOPFIBRA ACCELERATOR to non-experts and that the operators wear protective gloves, helmet and safety shoes. We recommend that the following labels are installed:

3. INSTALLATION

This section is intended to give a general overview of the preliminary actions to correctly commission and operate the pipe accelerator device.

The device can be divided into 4 parts:

- The sliding platform;
- The accelerator tool;
- The pneumatic control panel;
- Electrical connections.

The sliding platform consists of a pneumatic piston moving a base plate into two different positions: backward and forward. A manual stopper can be positioned in the desired place of the linear guide.

The accelerator tool consists of an electric motor and a gear box, directly connected with a rubber roller in contact with the pipe. The angular position of the rubber roller can be adjusted according to the diameter of pipe in production. The direct transmission doesn't need the belt. One part less to care about during maintenance, no need for the belt adjustment checks, instantaneous speed self-adjustment.

The pneumatic control panel manages the movement of the pneumatic piston by means of a valve activated by electric signal coming from the main machine control.

3.1. Positioning, fixing and connecting

3.1.1. System Installation

The system must be installed on the existing lifting table and electrically connected to the existing machine automation.

3.1.2. Mechanical Installation

The E-AD3000 HIGH PERFORMANCE ACCELERATOR is installed on a sliding platform shown in the following picture (Figure 2).

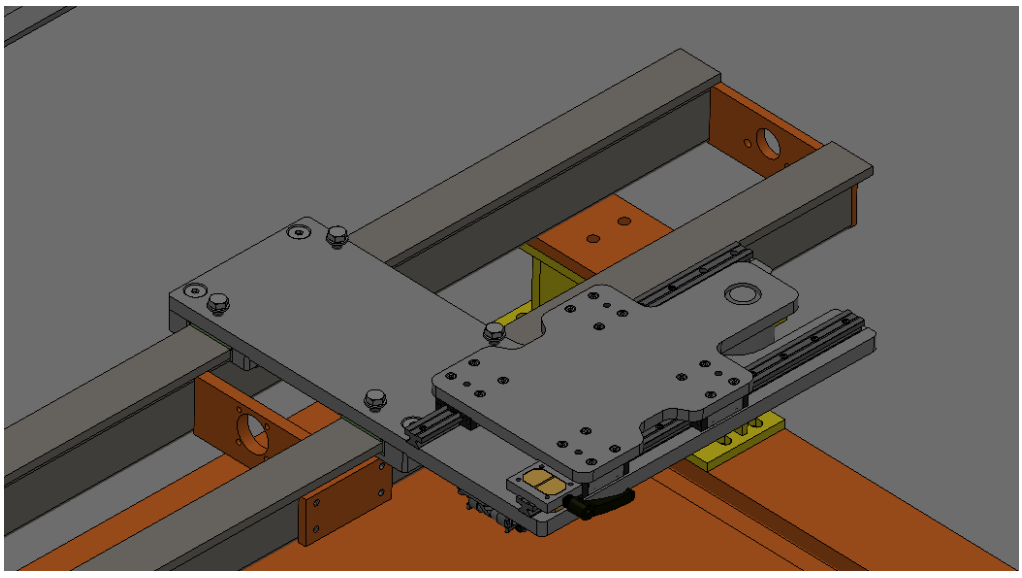


Figure 2: Sliding platform

Connect the pneumatic piston to the sliding platform and to the main plate (Figure 3).

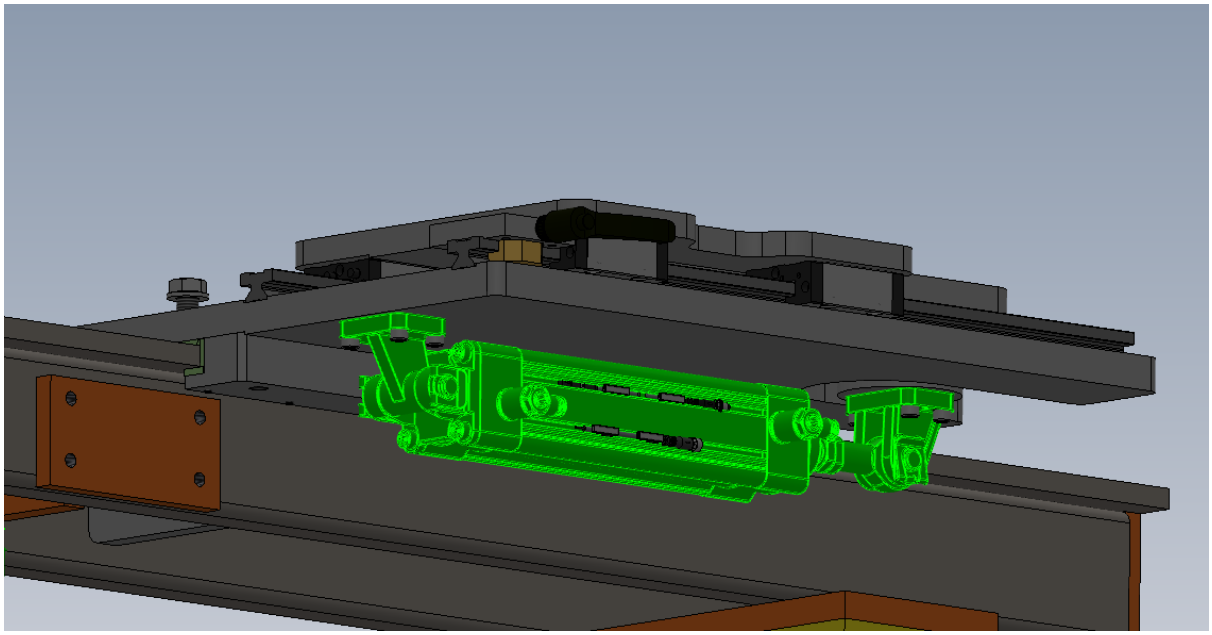


Figure 3: Position of the pneumatic piston

Finally install the accelerator group on the sliding platform by means of four screws (Figure 4).

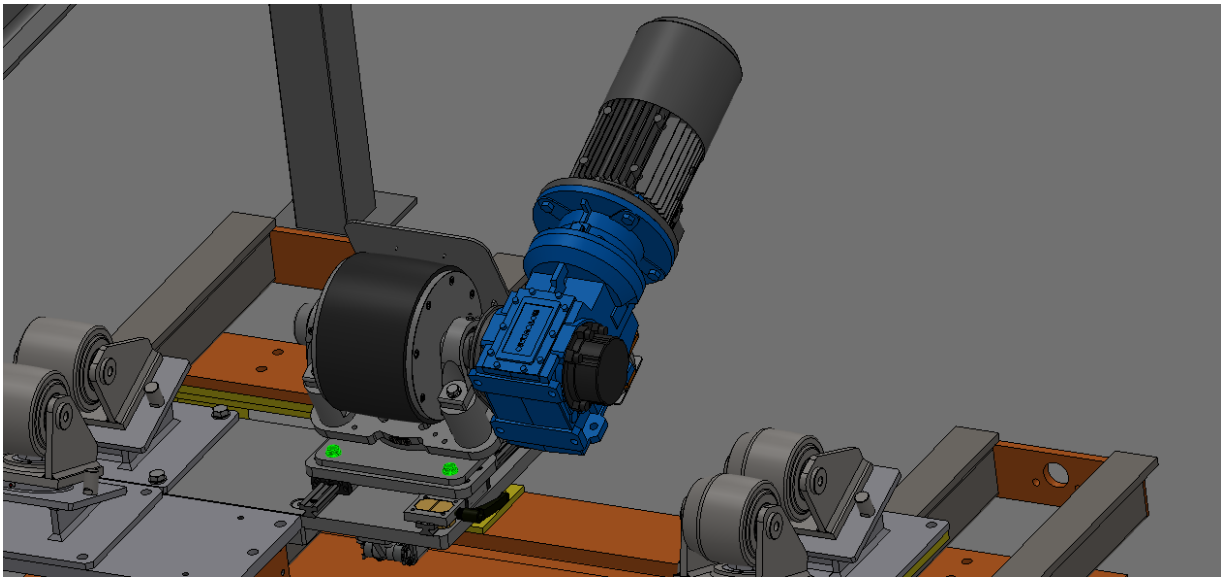


Figure 4: Installing the accelerator on the sliding platform

3.1.3. Electrical Installation

Please refer to the main E-CFW electrical schemes.

3.1.4. Pneumatic connection

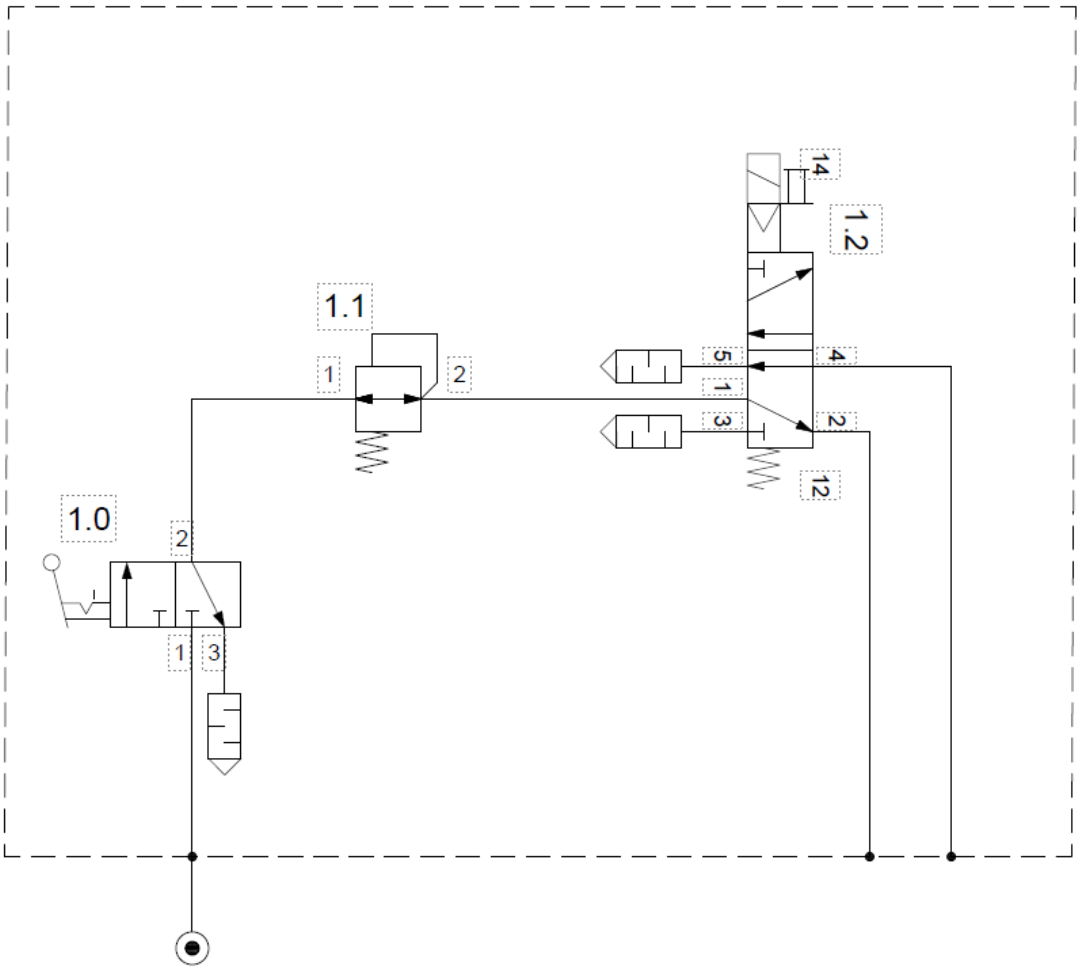
Connect the pneumatic piston to the pneumatic panel by means of the 2 spring hoses provided together with the device.

3.2. Diagrams

3.2.1. Electric diagram

Please refer to the main E-CFW electrical schemes.

3.2.2. Pneumatic diagram



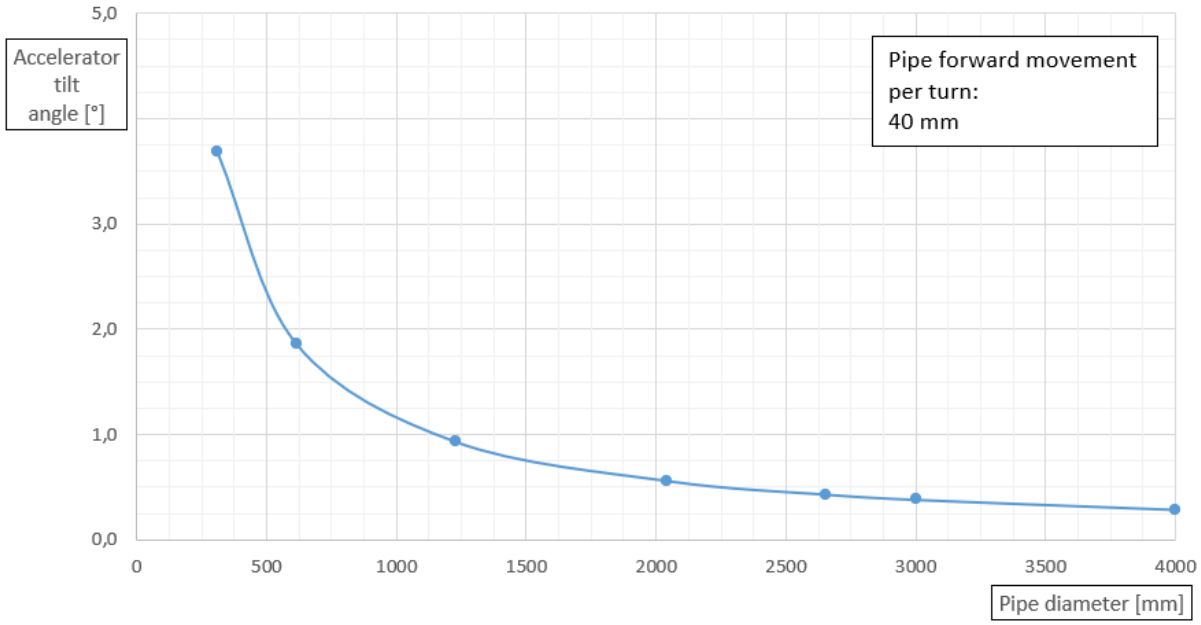
4. OPERATING INSTRUCTIONS

4.1. Preparation before use

4.1.1. Rubber roller angle

Before starting a new pipe production run, the operator has to set the correct angle on the rubber roller, to ensure the correct rotation of the pipe after the cutting cycle.

Follow the next graph to determine the angle to set-up related to the pipe diameter in production. The graph is only indicative. The final set up must be done checking the first cutting of a complete pipe.



To regulate the rubber roller angle, loosen the screws that clamp the roller (Figure 5).

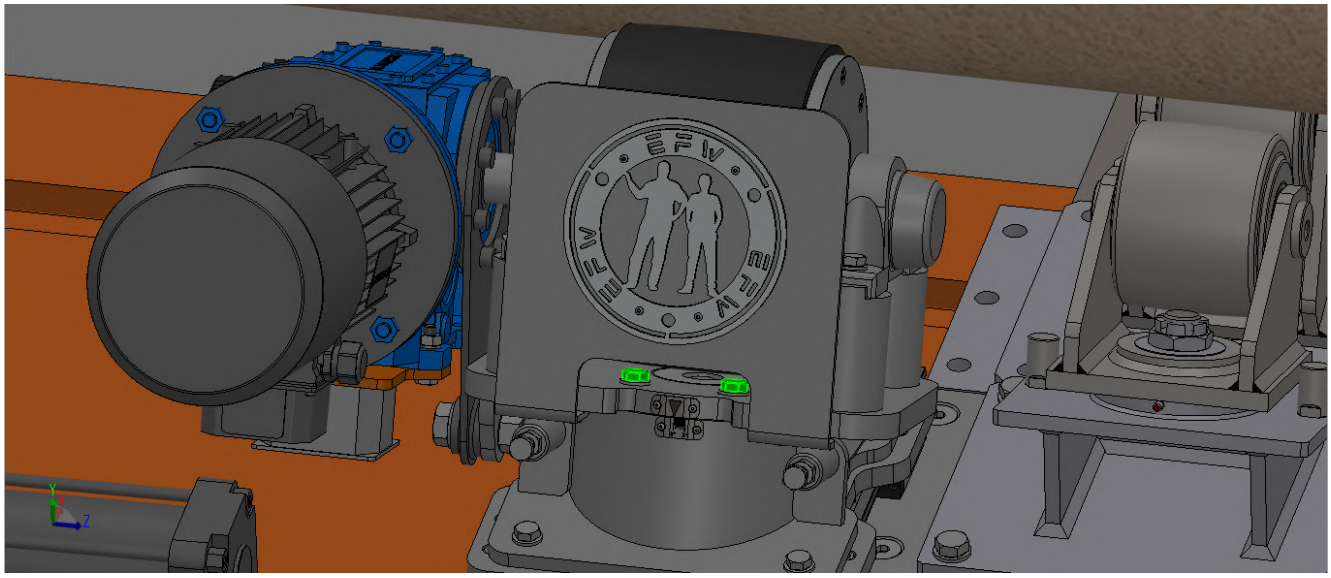


Figure 5

Check that the rubber roller support is free to rotate and regulate the angle by acting on the two screws on the side of the roller support (Figure 6).

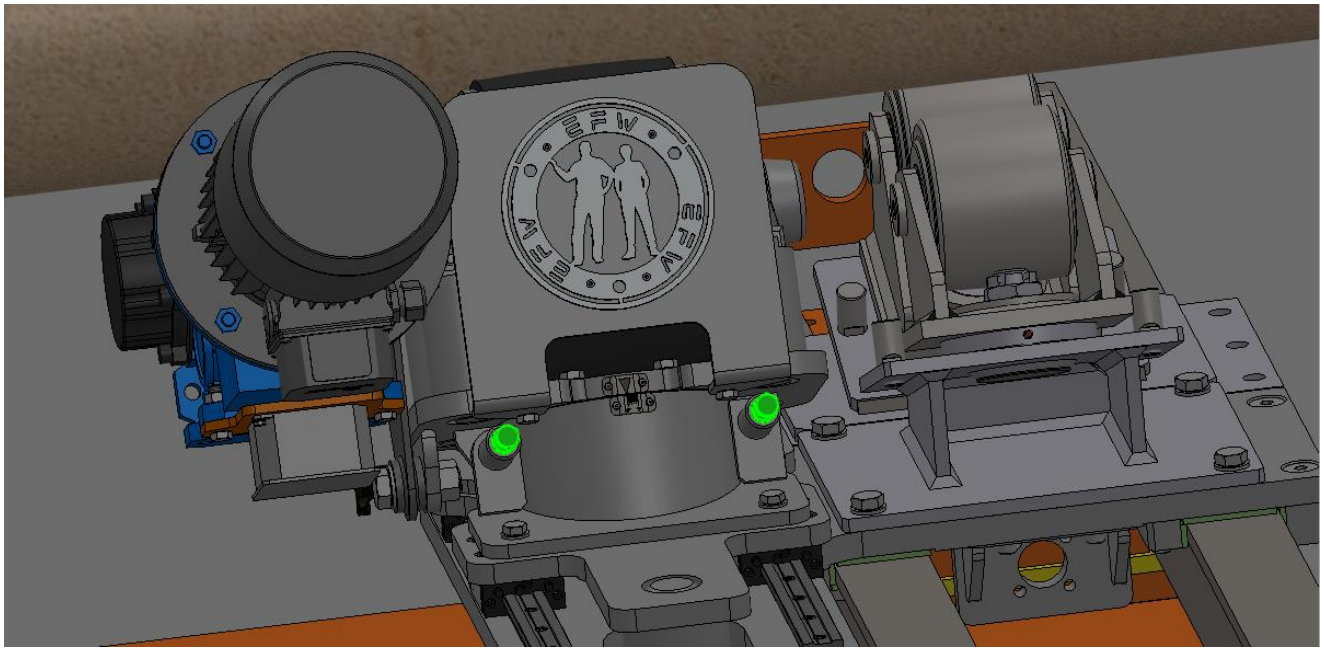


Figure 6: Two screws to rotate and regulate the angle

It is possible to read the angle by observing the graduated index located directly underneath the rubber roller (Figure 7).

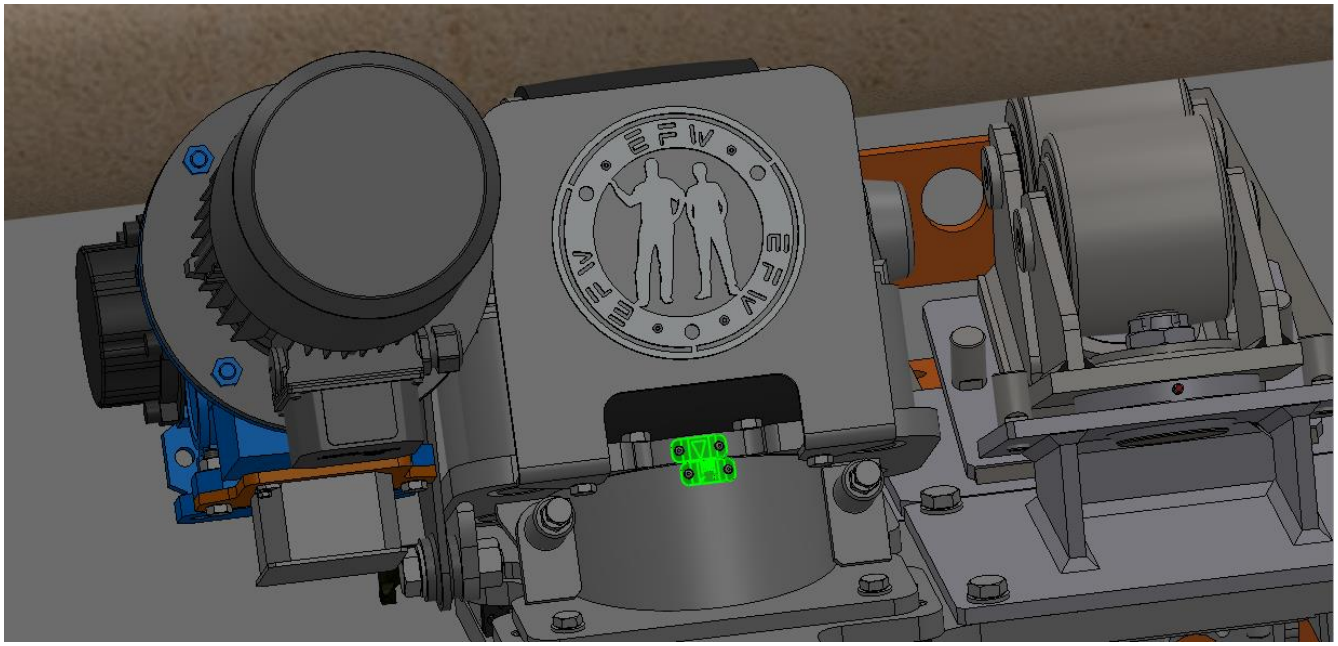


Figure 7: Index to read the angle

4.1.2. Stopper positioning

To operate the device with small diameter pipes, the stopper needs to be fixed in the correct position, to avoid that the accelerator lifts the pipe.

To complete this operation:

- Reduce the pressure in the pneumatic piston to the minimum level and manually move the accelerator to place the roller in direct contact with the pipe;
- Put the stopper in this position: it will hold the accelerator, to avoid it lifting the pipe (Figure 8);

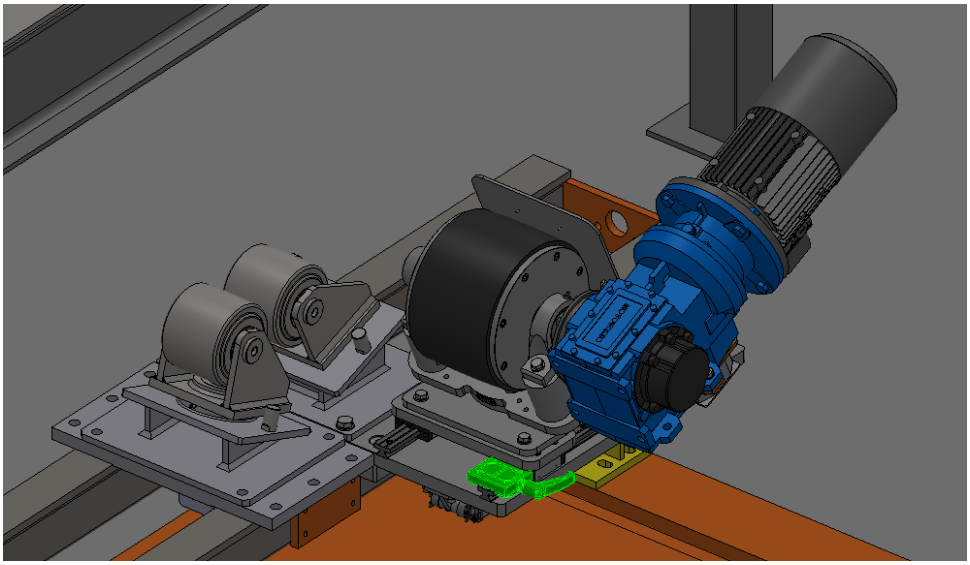


Figure 8: Stopper

- Move the accelerator back and increase the pressure of the pneumatic piston to the desired level.

4.2. Start-up procedure

The operator can enable and disable a unit to run using the HMI command, or in manual mode using the switches in the pulpits – please refer to the E-CFW operating manual

4.3. Operating the device

The following regulation can be done in the accelerator:

4.3.1. Torque and speed

The maximum value for the torque I set in order to avoid the slipping of the accelerator wheels on the pipe surface -– please refer to the E-CFW operating manual.

Set up a speed value of max 10% during pipe production.

Set up an initial torque value of 30% up to ND 1000 (36”) 35% up to ND 2100 (81”) and 40% for higher diameters.

Check if during the last turn of cutting the accelerator slip (too high torque) or after finish the cutting the pipe on the table slow down (too little torque).

4.3.2. Fine tuning of the rubber roller angle

During the pipe production run, the operator has to check the correct angle on the rubber roller, to ensure the correct rotation of the pipe after the cutting cycle.

Check if during the cutting the pipe on the table continue the advance at the same speed of the pipe being produced. If the advance is a little bit slower, increase slightly the angle.

5. MAINTENANCE

5.1. Gearbox

Maintenance must be done by a technician familiar with workplace safety legislation and environmental issues. Do not dump polluting fluids, replaced parts or maintenance waste into the environment.

Before working on the unit, disconnect its power supply, being careful to be protected against inadvertent reactivation, and in any case against the mobility of the components of the unit itself. Wait until the unit reaches the ambient temperature. Inform staff working in the area by duly signaling the areas nearby and preventing access. Put in place all necessary measures for environmental safety (dust, gas…).

The precise machining of the unit's internal components ensures correct operation with minimum maintenance. In general, the following rules are valid: periodic check of the unit external cleanliness, especially in the areas more involved in the cooling process; periodic check of any leaks of lubricant, especially in the areas of the sealing rings; check and cleaning of the vent cap hole. For the products requiring lubrification, check periodically by means of the specific level indicators the correct quantity of lubricant. If topping up is necessary, use the same brand and type of lubricant as the one already used, or in any case compatible with it. Use oils and greases recommended by Motovario. During an oil change (products not lubricated for life) follow the above-mentioned recommendations.

For any additional information on the maintenance of the gearbox please refer to the gearbox manual MOTOVARIO QL0208 GEAR USE AND MAINTENANCE HANDBOOK.

5.2. Motor

Before working on the motors or in their vicinities, shut off the power supply and wait for all moving parts to come to a halt; ensure that the motor cannot restart as a result of moving parts dragging the shaft; finally, wait for the motor's surface temperature to drop below 50°C (burn hazard).

Periodic maintenance:

- inspect the motor at regular intervals;
- remove powder, dust, oil and dirt on the fan and fan cover; this helps air to circulate and keep the motor cool;
- check the condition of the seal rings and V-rings;
- check the electrical and mechanical connections and the tightening/anchor nuts and bolts;
- check the condition of the bearings, listening for strange noises or vibrations.

In the event that the motor needs to be disassembled and its internal components examined, then qualified personnel must be enlisted, who use appropriate equipment and follow the relevant procedures for any additional information on the maintenance of the motor please refer to the motor manual MOTOVARIO QL0219 MOTORS USE AND MAINTENANCE HANDBOOK.

5.3. Rubber wheel replacement

When the rubber wheel appears worn it needs to be replaced to ensure the effective operation of the device.

Refer to Lists of critical parts to select the right code of the part to purchase from TOPFIBRA D.O.O.

To replace the wheel, follow the instructions:

1. Remove the M20 bolt and then remove the electric motor with gearbox (Figure 10).

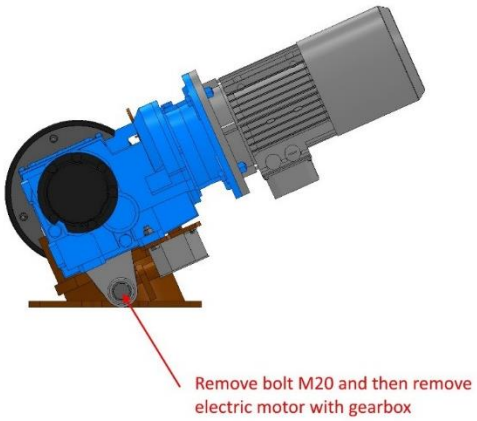


Figure 9: Bolt M20

2. Remove four bolts M12 and then remove the wheel assembly from the accelerator base (Figure 11).

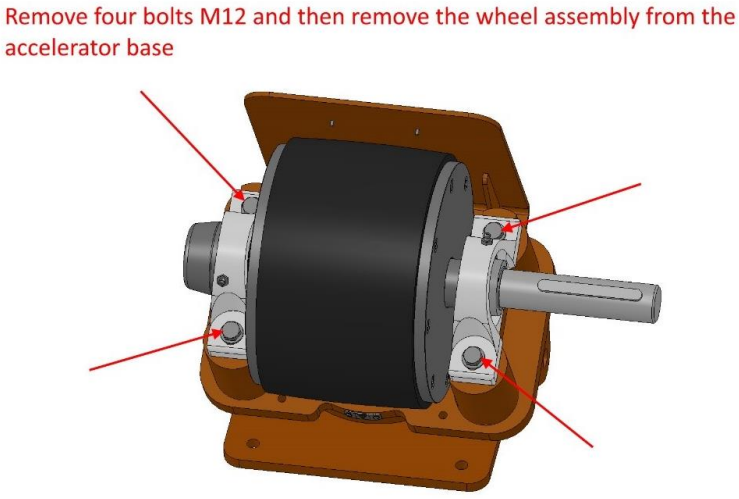


Figure 10: The four bolts M12

Remove bearing housing end cap cover (Figure 12).

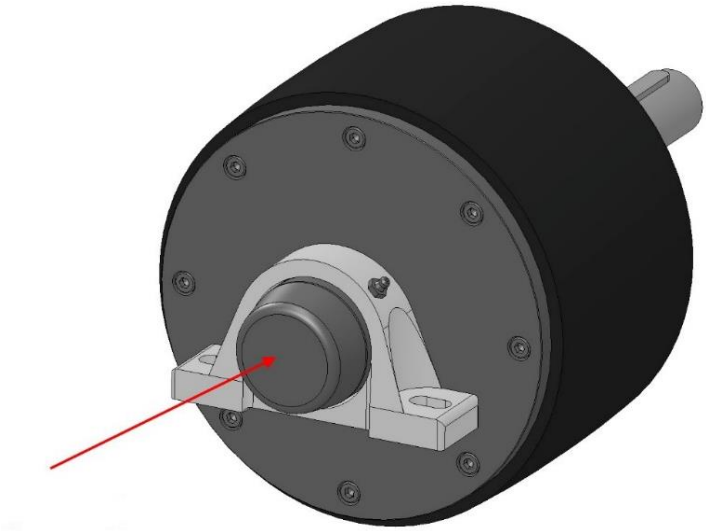


Figure 11: Bearing housing end cap cover

Unscrew and remove bearing lock nut and remove bearing housing from the shaft (figure 13).

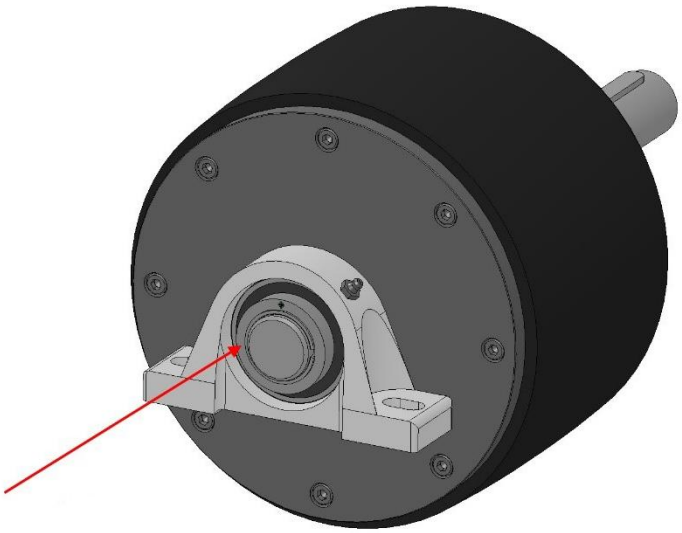


Figure 12: Bearing lock nut

3. Remove eight bolts M8 and then remove wheel side cover (Figure 14).

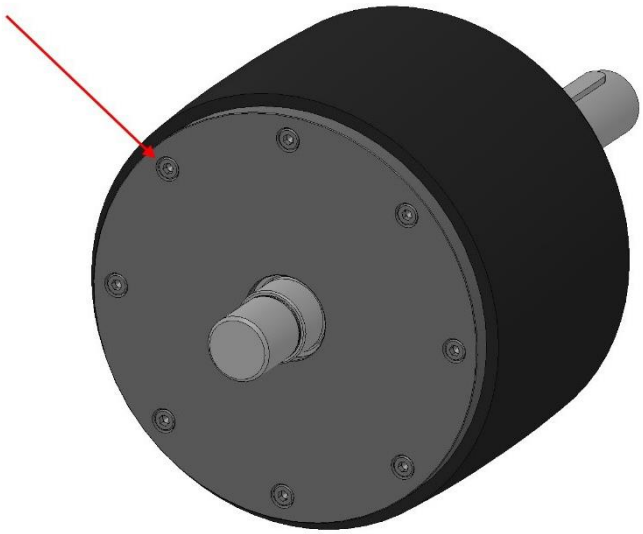


Figure 13: Bolt M8

4. Remove eight bolts M8 (figure 15) and then remove clutch side flange (Figure 16).

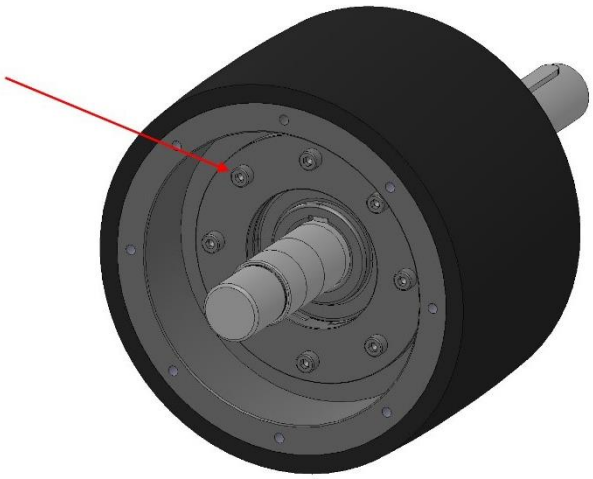


Figure 14: Bolt M8

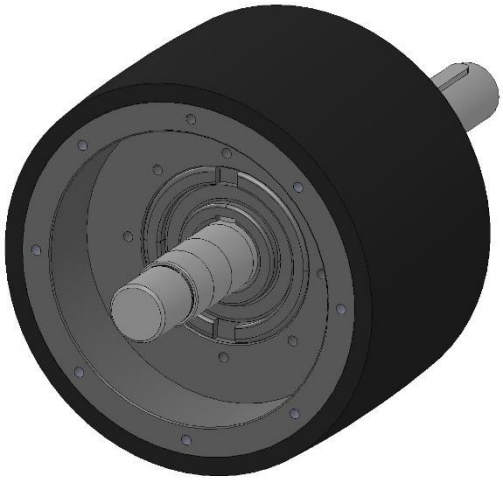


Figure 15: Removed clutch side flange

5. Remove eight bolts M8 (figure 17) and then remove wheel side cover with shaft and bearing housing (Figure 18).

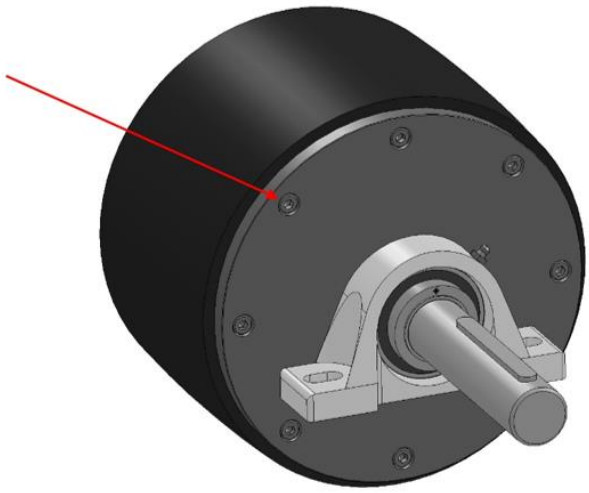


Figure 16: Bolt M8

Figure 17: Removed wheel side cover with shaft and bearing housing

6. Remove clutch from the wheel (Figure 19).

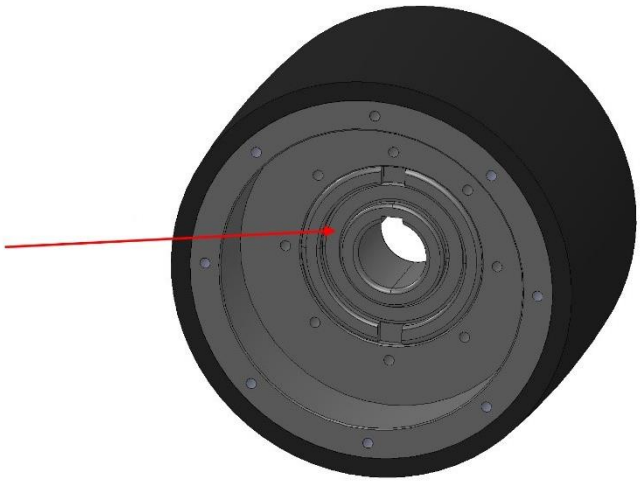


Figure 18: Remove clutch

7. Replace the wheel and reassemble, repeating steps backwards (Figure 20).

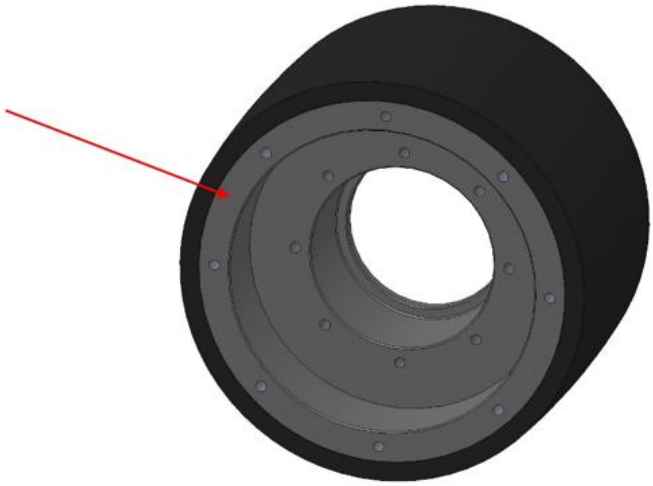


Figure 19: Replace the wheel

5.3.1. Greasing

Every wheel disassembly, grease the freewheel clutch pos. 11 (see assembly drawing). Fill approx. 30% of the free space in the clutch with grease. Too much grease can impair the function of the one-way clutch.

Recommended grease is KLÜBERSYNTH BM 44-42.

5.3.2. Oil fill

Proper lubrication makes for:

- Lower friction;
- Less heating;
- Increased efficiency;
- Lower oil temperature;
- Less wear.

Please refer to Motovario gear use and maintenance handbook and technical specification handbook.

5.3.3. Critical spare parts

Here are the components which you need to ensure are always available, viewed as critical due to wear and tear:

Description	**TOPFIBRA SKU**
20027-039-R00 Wheel with vulcanized rubber ϕ270x165	0100260170

5.3.4. Recommended spare parts

For the list of the items of each group refer to the following drawings and bills of materials:

Description	**Drawing**
20027-000-02-R01 GENERAL ASSEMBLY	20027-000-02-R01
20027-049-R01 ELECTRIC MOTOR WITH GEARBOX – ASSEMBLY	20027-049-R01

For more information contact us writing at

support@topfibra.eu

or

visit our page

www.topfibra.eu

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www.twitter.com/topfibraefw