

Instructions for assembly, operation and maintenance of outdoor load disconnectors Fla 15/6400

**three-pole design
for mounting on concrete pole
rated voltage 25 kV
rated current 630 A**



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General

Outdoor devices of Fla 15/6400 are load disconnectors according to the EN 62271-103 standard. They are manually or motor operated. Motor drives are designed especially for remote control.

In the Fla 15/6400 load disconnectors, disconnecting takes place in a low-oil volume quenching chamber.

The manufacturer does not assume liability for damage and operating faults caused by not observing the installation instructions.

Climatic conditions

Maximum temperature	°C	+ 40
Minimum temperature	°C	- 30
Maximum relative air humidity	%	100
Maximum wind pressure	Pa (m/s)	700 (34)
Maximum ice or hoar-frost thickness	mm	20
Typical altitude	m a.s.l	up to 1000

For use in higher altitudes please consult the manufacturer.

Handling and storage

During transport and handling, disconnectors may only be lifted at the base frame, never at the quenching chambers or at the current path or insulators.

Storage is allowed in both indoor and outdoor spaces. Store devices on a level surface. Protect devices against damage during transport and handling.

List of necessary tools and tightening torques

Tool	Size
Ring spanner	24
Engineer's spanner	24
Socket spanner (GOLA)	17 (16)
Socket spanner (GOLA)	30
Torque spanner – see the table of tightening torques	-
Clamping tongs for stainless fixing band (e.g. Bandimex W 001, Band-It)	-
Stainless fixing band (e.g. Bandimex B 206, Band-It)	width 19 mm, thickness 0.75 mm
Clamp for stainless fixing band (e.g. Bandimex S 256, Band-It)	width 19 mm

Tool part / joint	Torque
Clamping terminal yokes	30 Nm
Connecting lug bolts (power leads)	75 Nm

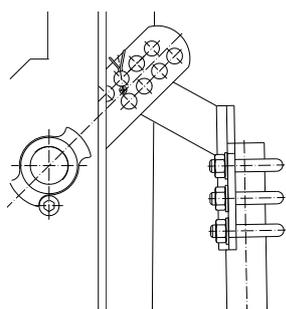
Device installation on pole

The disconnecter is installed on a concrete pole using two sleeves R 130 (Fig. 1, pos. 10). The prescribed pole diameter in the point of fixing the device is 240 – 265 mm.

Installation of drive, intermediate bearings and pull rods

When assembling and setting the drive, the disconnecter is in the switched-on position on the ON stop.

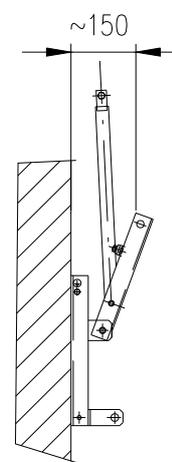
Fix the manual drive T (Fig. 1, pos. 1) on the concrete pole using the sleeve (pos. 2) at a height of approx. 1350 mm above the ground. Banding the lower part of the drive is done after the complete assembly and testing of the drive function.



Assemble the disconnecter's operating lever (pos. 8) on the disconnecter's shaft. Fix this lever at the angle of approx. 45° upwards (leading to the back side of disconnecter), in the position nearest as possible to the disconnecter center.

Fix the angled clamping stub head (pos 9) to the rounded end of the upper pull rod (flattened on the one side, without holes - pos. 7). Connect clamping stub head to the operating lever (pos. 8) on the device shaft using the pin.

Fix the intermediate bearing (pos. 3) to the lower end of the upper tube. Position the fixing base of the intermediate bearing to the pole so that the intermediate bearing lever is tilted up at the angle of 45°. Fix the intermediate bearing in this position to the pole with two bands.



Slide the lower pull rod tube with the end with hole on the socket of manual drive T (pos. 5) and secure with the provided screw. Move the drive lever to the switched-on position – the lever directs vertically. After swinging the lever by approx. 150 mm (see the figure; in this way the necessary pretension of the pull rod in the switched-on position is reached) measure the necessary length of the lower pull rod tube and shorten it. **Shorten the tube from its upper part – the one without holes!**

When shortened, screw the lower pull rod tube (pos. 5) together with the manual drive (pos. 1). Slide the upper end of tube into the yokes of the intermediate bearing (pos. 3) and tighten the yokes by the prescribed torque.

Function test after installation

Operate the drive to the OFF position to disconnect the main contacts. Then operate to the limit ON position. In the limit ON position, the disconnecter must reliably reach the switched-on position. Contacts must be fully retracted and the stop on the device must reach the limit position. Intermediate bearings must not thrust and no deflection of the pull rod tubes must occur (a threat of damage to the drive).

If the limit position of the device is not reached, make correction by changing the length of the lower of pull rod tube within the limits of possible shift on the clamping terminal of the upper intermediate bearing (pos. 3). If a larger correction is required, the pull rod must be replaced or the manual drive shifted.

On the disconnecter, check that the moving contact is retracted in the main contact properly. If the disconnecter does not have the correct clearance in contacts despite reaching the ON position stop, check that the contact system was not damaged during transport.

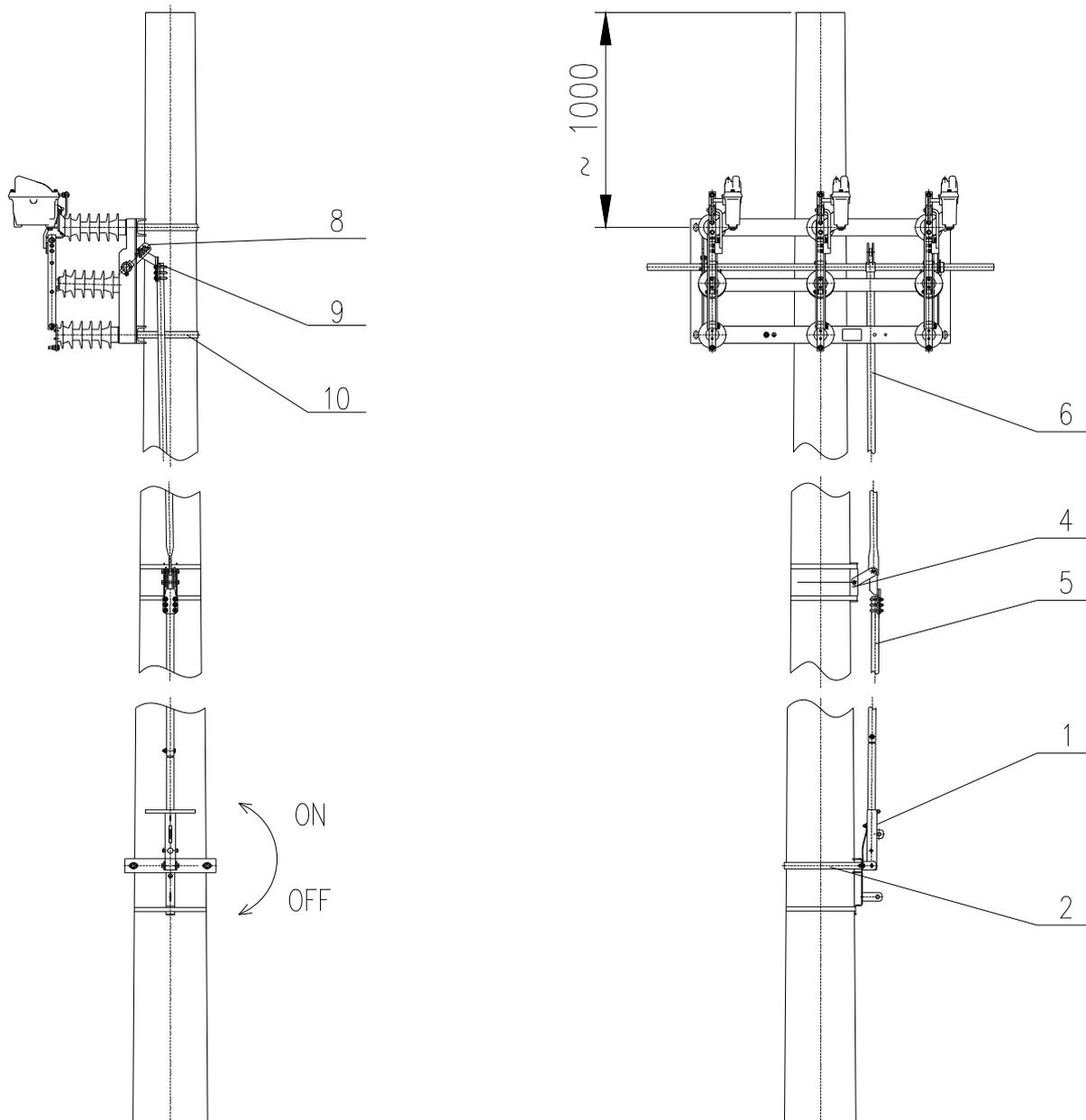
The device must reliably reach the stops in both limit positions.

After making contacts several times and checking the correct function of the drive and disconnecter, check that all joints are tightened properly.

After testing, secure the T drive (Fig. 1, pos. 1) with the band.

The marked earthing terminal on the disconnecter frame and the device drive is used for the earthing of disconnecter.

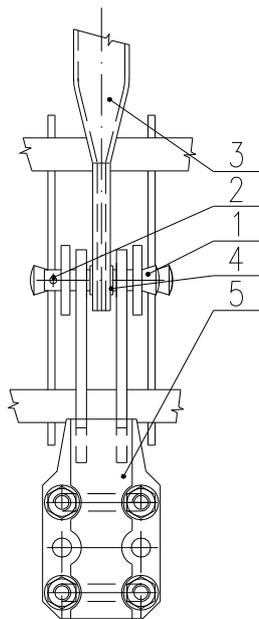
Assembly of the drive of disconnectors type Fla 15/6400 with one bearing



1. T-type manual drive
2. Sleeve R178
3. Banding-type intermediate bearing (with barrel, flattened tube up, clamping terminal down)
5. Lower pull rod tube (to drive/adjustable)
7. Upper pull rod tube (flattened/round)
8. Operating lever of the device
9. Angled clamping stub head
10. Sleeve R130 (2 pcs)

Fig. 1

Representation of the intermediate bearing



1. Cotter pin 12x63
2. Cotter 4x25
3. Flattened pull rod tube
4. Brass barrel bushing
5. Clamping terminal assembly

Inspection and maintenance of devices

Outdoor devices Fla 15/6400 GB R are disconnectors not demanding for maintenance.

If the disconnector is in switched-off position for a long time (longer than one year), it is recommended making several no-load manipulations in order to clean the contact joints and to check the mechanical operation of the drive.

A. In the case of a round once a year – inspection using binoculars:

- Checking visible faults of contacts (burn-offs, distorted contacts).
- Inspection of the condition of insulators.
- Inspection of the integrity of the operating mechanism.

B. In the case of a climbing inspection according to the preventive maintenance plan – at least once for 20 years (10 years for remotely controlled devices), the following operations must be carried out:

- Check of the correct switching function of the device by switching on and off several times.
- Inspection of the condition of contacts (burn-offs) or replacement, if necessary.
- Check of the correct setting of the device.
- Cleaning contacts with a dissolvent or degreasing agent.
- Lubricating contacts (grease Barrierta L 55/1 from Klüber Lubrikation, Germany).

! CAUTION ! Contacts must not be lubricated with any other grease!

- Check of the run of all bearings and articulated joints and their lubrication (Omnigliss – Spray from Dow Corning).
- Inspection of insulators for possible damage.
- Cleaning insulators if fouled.

In the case of disconnectors Fla 15/6400, an oil condition check is possible. The oil condition check is carried out if there is a suspicion of oil leakage. At this check, the bleeder plug must only be set, not screwed in. The oil level must be between the two lines on the bleeder plug gauge. Each quenching chamber contains approx. 0.5 l of oil.

In the case of manually operated disconnectors Fla 15/6400 it is recommended, after twenty years, to inspect the chambers connected with renovation. Renovation is performed at the manufacturer and it includes oil change and seal replacement, check and, if necessary, replacement of other parts. In the case of remotely controlled devices, we recommend renovating the chambers due to the anticipated higher operating load after ten years at the latest. In the case of already renovated quenching chambers, such inspection is recommended after ten years. The renovation of chambers is performed using the exchange method – in this way the lock-out time is only limited practically to the time necessary for dismantling old and mounting new chambers.

The same warranty is given to chambers renovated by manufacturer as to new chambers. The manufacturer also provides free ecological disposal of used oil.