



DRIBO, spol. s r.o. (Ltd.)

Summary Catalogue

The company DRIBO, spol. s r.o. (Ltd.), with its headquarters in Brno, Czech Republic, was founded in 1995. The company is involved in the manufacturing and sales of electric devices (disconnectors, switch disconnectors, circuit breakers), and MV switchboards and MV components (within the voltage range of 6 kV to 38.5 kV). Furthermore, the company provides complete deliveries of remote control systems for outdoor devices and switching stations. The company has achieved firm position between the other suppliers of the above product assortment for both the Czech and Slovak power utility companies. You may find the DRIBO products in all the Czech and Slovak power distribution companies where also most of our production is delivered.



In 1998, the daughter company DRIBO Stará Turá s.r.o. (Ltd.) was founded in the Slovak Republic.

The production of switching devices and its applications mostly uses the know-how of the German manufacturer DRIESCHER GmbH. The quality and reliability of apparatus and switchboards supplied has been verified by many years of operation of such devices in the power utility networks and by notable industrial companies.

DRIBO, spol. s r.o. is holder of the ISO 9001:2008 certificate. The quality level of material used and care exercised in the production process guarantee low operation and maintenance costs in the future.



All switching devices and switchboards supplied are of simple and robust design, which provides for their high mechanical resistance and long service life, while keeping to high reliability of functioning. DRIBO, spol. s r. o. guarantees its product's reliable and maintenance-free operation for the time period of 10 years.

DRIBO, spol. s r.o.
Pražákova 36
619 00 Brno
Czech Republic

Phone: +420 533 101 111
Phone: +420 543 321 111
Fax: +420 543 216 619
E-mail: dribo@dribo.cz



DRIBO Stará Turá, s.r.o.
Husitská 2
916 01 Stará Turá
Slovak Republic

Phone: +421 32 7762459
Fax: +421 32 7762199
E-mail: dribo@dribo.sk

Detailed informations to our products may be found at our internet address:
<http://www.dribo.cz>

Devices with the possibility to be installed under voltage

Fla GB

DRIBO Flc GB

Fla 15/6400, Fla 15/6410, Fla 15/6400 AE, Fla 15/6410 SA

FTr

DRIBO Flrm



The world-wide trend of today is characterized by a large development of techniques used for works carried out under voltage which brings large cost savings.

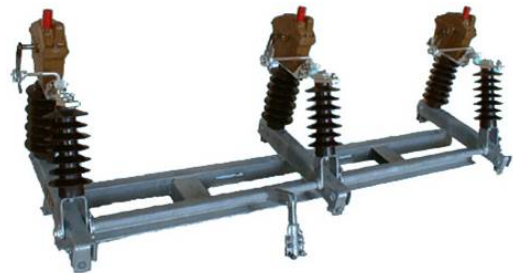
One of the advantages of works carried out under voltage is the elimination of damages caused by the not supplied power to clients, but also losses of earnings in the power distributors. This applies in particular to power consumers with uninterrupted production flow where each power outage or interruption is followed with heavy losses.

The company DRIBO, spol. s r.o. has a whole series of devices in its production range on which works can be carried out under voltage.

Outdoor switch disconnectors with oil-based arc quenching chambers

Fla 15/60

- **single- and three-pole design**
- **rated voltage 25 kV and 38.5 kV**
- **rated current 400A and 630 A**



The supporting frame and other steel-made parts are protected with hot galvanizing.

The switching takes place in sealed arc-quenching chamber, filled with the SHELL transformer oil.

No leakages of products of combustion are released into the environment.

All current-carrying parts of the switch disconnector are made of galvanically silver coated electrolytical copper. When supplied the switch disconnectors are provided supporting insulators made either of cycloaliphatic resin material or porcelain. The switch disconnectors may also be equipped with earthing switches and encapsulated auxiliary switching contacts used for the indication of the switching state of the main device. The mechanical lifetime is at least 5000 switching cycles.

Other types of design:

Fla 15/60 P – switch disconnectors for environmentally-friendly lines of the PARAT type, which is a new-generation overhead line in triangle shape. The switch disconnector consists of three single-pole Fla 15/60 type switching units, secured to the PARAT type console.

Fla 15/60 IZV – these switch disconnectors with a phase pitch of 500 mm are a complement to the insulated conductor overhead line, which make possible to keep the narrowed line profile along its whole length, including that of the switching point. These switch disconnectors are designed as an extension of the standard type of console and used for insulated power lines of IZVE type.

Fla 15/60 D – used for doubled lines arranged in barrel-type configuration. These switch disconnectors are used in power lines consisting of both insulated and bare conductors. By their use the configuration of the line can be preserved along its whole length, i.e. also at the switching point. The switch disconnector consists of three single-pole units of Fla 15/60 type on supporting structure.

Fla 15/60 GB – one of the advantages of this series of switch disconnectors is the possibility for the staff to work under voltage, easier assembly on the pole as well as an easier handling due to its reduced mass. The Fla 15/60 GB are the first switch disconnectors with built-in surge arresters.

Outdoor switch disconnectors with oil-based arc quenching chambers – vertical design

Fla 15/6400

- **three-pole design**
- **rated voltage 25 and 38.5 kV**
- **rated current 400 and 630 A**



Other types of design:

Fla 15/6410 – three-pole design with fuse holders installed in the bottom part, with fuses rated to up to 200 A.

Fla 15/6410 SA – three-pole design with fuse holders installed in the bottom part, with fuses rated up to 200 A and with an automatic three-pole disconnection in case of tripping by the fuse operation.

Smart outdoor disconnector

Fla 15/6400 AE

- **three-pole design**
- **rated voltage 25 kV**
- **rated current 630 A**

The Fla 15/6400 AE switch disconnectors are equipped with charging mechanism and an electronic system that is used for opening the switch disconnector during the no-voltage period following after an unsuccessful repeated closing. In such a way the defective part of the line gets disconnected and the subsequent repeated closing affects now only the failure-free part of the line. This kind of switching reduces significantly the duration of the power outage in the healthy parts of the line.



Outdoor switch disconnectors with vacuum type arc quenching chambers



Fla 15/97

- **single- and three-pole design**
- **rated voltage 12, 25 and 38,5 kV**
- **rated current 400 and 630 A**

These products are the continuation of a proven type of outdoor Fla 15/60 switch disconnectors. The switching takes place in sealed vacuum arc-quenching chambers, which may be replaced against another type of state-of-art oil based chambers. The electrical lifetime of the vacuum chambers achieves 2000 breaking operations at the rated operating level.

Other types of design:

Fla 15/97 P – switch disconnectors for the environmentally friendly power line of PARAT type.

Fla 15/97 IZV – for outdoor power line with insulated conductors.

Fla 15/97 D – for doubled power lines in barrel-type configuration.

Fla 15/97 GB – for mounting under power lines where it is possible to work on „live“ devices.

Fla 15/97 6400 – vertical design.

Outdoor switch disconnectors with spring-based arc-quenching mechanism



DRIBO F1c

- **single- and three-pole design**
- **rated voltage 25 and 38.5 kV**
- **rated current 400 and 630 A**

The DRIBO F1c switch disconnectors are equipped with a spring-based arc-quenching mechanism. In these switch disconnectors the switching of electric current is achieved without the occurrence of electric arc burning continuously. Another advantage of the new switching system is the brand new design of the contacts with higher short-circuits making capability.

Other types of design:

DRIBO F1c GB – the advantage of this series of switch disconnectors, inferred from the DRIBO F1c product type, is the possibility of working under voltage, the simplified assembly when mounting the switching device on the pole, and easier handling of the device due to its reduced weight. The DRIBO F1c GB switch disconnectors have already been designed for using overvoltage limiters.

Outdoor switch disconnectors – chamber less design

DRIBO F1b 15/60

- **single- and three-pole design**
- **rated voltage 25 and 38.5 kV**
- **rated current 400 and 630 A**

The DRIBO F1b 15/60 switch disconnectors are equipped with arc quenching horns to facilitate the breaking process.

Other types of design:

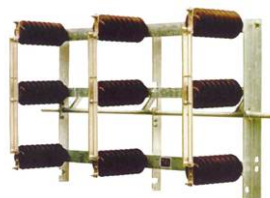
Dribo F1b 15/60 P – switch disconnectors for power line of PARAT type.



Outdoor disconnectors – vertical design

FTr

- **three-pole design**
- **rated voltage 25 and 38.5 kV**
- **rated current 400 and 630 A**



At the moment of delivery the disconnectors are equipped with supporting insulators made of cycloaliphatic resin or porcelain. Equipment to these devices is: hand and motor-operated drives, auxiliary contacts and fuses.

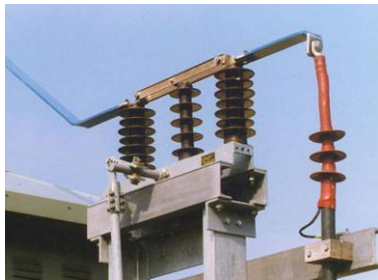
The type FTr disconnectors are delivered either without or with earthing switch, with mechanical interlocking.

The FTr ...-SE type disconnector is equipped with fuse holders for MV fuses.



Other types of design:

Disconnectors FTr, FTr ...-SU with arc quenching horns – with or without earthing switch.



1350, 2054

- **single-pole design**
- **rated voltage 12, 25 and 38.5 kV**
- **rated current 400 and 630A**

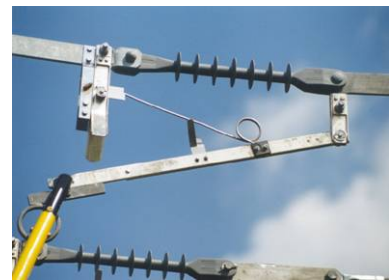
Disconnectors in single-pole design. The 1350 type does not incorporate the earthing switch and is equipped with handling bar. The 2054 type with or without the earthing switch has a built-in interlocking between the earthing switch and the disconnector, and is equipped with either manual drive or electric motor operated drive mechanism.

Outdoor single-pole suspension type disconnectors

DRIBO Flrm

- **rated voltage 25kV and 38.5kV**
- **rated current 400 A**

The DRIBO Flrm outdoor design, single-pole disconnectors serve for the disconnection of end position transformer stations and parts of no-load power lines. The disconnectors are equipped with a simple arc quenching device which activates the disconnector breaking operation independently of the speed of its control. Disconnectors of 25 kV rated voltage have been successfully tested for switching of no-load 630 kVA distribution transformers, with no significant overvoltage effects. The Flrm-k type is intended for mounting on a console, the Flrm-v type is mounted in between the power line span. Operating rods of 5 to 6 m length are used for the control of the disconnectors. Also the „Powerman Hot 40.5 kV“ sets with a special extension part can be used for this purpose.



Outdoor single-pole disconnectors for assembly and service groups



DRIBO Fls

- **rated voltage 25kV and 38.5kV**
- **rated current 400 A**

These switching devices are fit for using by the assembly and service groups. The disconnectors are used for temporary disconnection of those parts of power lines on which works are to be carried through. The disconnectors are controlled by opening pull rods of 5 to 6 m length, or by the „Powerman Hot 40.5 kV“ rod set.

Outdoor fuse holders

PS 25, PS 38

- **single-pole design**
- **rated voltage 25 and 38.5 kV**
- **rated current 2 to 200 A**



The supporting insulators are made of cycloaliphatic resin, and intended to accommodate any type of fuses in accordance with the EN 60282-1 standard.

Outdoor fuse holders with surge arresters



PSO 25, PSO 38

- **single-pole design**
- **rated voltage 25 kV and 38.5 kV**
- **rated current 2 A to 200 A**

These outdoor design single-pole fuse holders with surge arresters mounted instead of one of the supporting insulators are a very prospective and compact optional solution to the combination of overvoltage and overcurrent protection.

They are equipped with supporting insulators made of cycloaliphatic resin and with in principal any type of surge arresters. By default they are equipped with the ABB, RAYCHEM and TRIDELTA surge arresters. They are designed for any type of fuses in accordance with the EN 60282-1 standard.

Switch disconnectors and disconnectors for railway tractions

- **single- and double-pole design**
- **rated insulation level of 17.5 kV and 27.5 kV**
- **rated current of 2000 A**



Fla 15/97-1B and Fla 15/97-6400 switch disconnectors

The vacuum arc quenching chambers used feature high engineering standards. Devices satisfy EN 50 125-2 requirements.

These switch disconnectors have the main and the auxiliary switching system clearly separated from each other. A patented cinematic switching system provides for both the making and breaking via the vacuum arc quenching chamber connected in parallel, which prevents the electric arc to act on the main contacting system in case of breaking operations.

Fla 15/97-6400 load disconnector is a version for vertical assembly, equipped with fuse holder.



FTTr-1B and FTTr 25-630-1SB disconnectors

This single-pole disconnector design has been developed mainly for railway applications. During the operation the device features highest safety and reliability level. Large air insulating distance is one of the prerequisites for the highest operation safety. The design does not impose any special requirements on maintenance.

FTTr 25-630-1SB disconnector is version for vertical assembly.

The GVR Recloser circuit breakers – Whipp & Bourne Switchgear

- **rated voltage 15 kV, 27 kV and 38 kV**
- **rated current 630 A**

The gas filled GVR circuit breaker with vacuum chambers features a combination of the principle of high reliable switching of electric current in vacuum and a controlled environment filled with SF₆ gas of high insulation strength, where SF₆ gas is acting only as the insulation medium. The GVR circuit breaker is installed either on the pole or in the inside of the transformer station.

The circuit breaker does not require any maintenance during the first 10 years, or up to 10.000 switching operations.



Indoor vacuum circuit breakers

- three-pole design
- rated voltage 12, 25 and 38.5 kV
- rated current 630 A to 2500 A

The circuit breakers are mounted to the front side of the cubicles, and delivered in **KUF** (energy charging via electric motor; suitable for short-time repeated closing) design.

By segmenting the system onto structural units/groups and by their optimum arrangement highly compact design succeeded to be created. This is why the circuit breaker is highly flexible for various applications, meeting all the requirements imposed by the customer. Optimised mechanics also provides additional benefits such as the minimization of maintenance costs and astonishing lifetime.



Indoor switch disconnectors

H 22



- three-pole design
- rated voltage 12, 25 and 38.5 kV
- rated current 630 and 1250 A

These switch disconnectors feature the following advantages: reliable and safe arc quenching, increased safety level for the operating personnel due to the use of earthing switches with short-circuit making capabilities, clearly visible insulating distance on an opened switch disconnector, simple visible control, high frequency of switching operations and minimum requirements on maintenance.

The switch disconnector types are, as follows: **H 22 EK**, **H 22 EA** (with breaking mechanism and spring-type charging mechanism), and **H 22 SEA** (with fuse holders used to accommodate fuses with activating pin to open all the switch disconnector poles after the MV fuse was blown).

All the switch disconnector types can be completed with a mechanically interlocked earthing switch, and controlled with either a manually operated or electric motor operated drive mechanism.

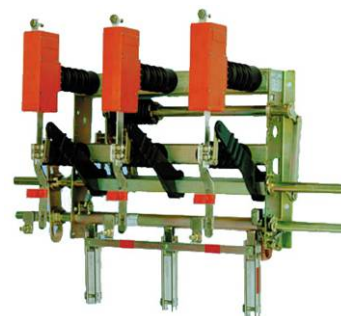
H 27

- three-pole design
- rated voltage 12 and 25 kV
- rated current 400 and 630 A

The H 27 switch disconnectors are supplied with three different versions with phase pitch of 275 mm, 225 mm and 170 mm. The switch disconnectors can be completed with mechanically blocked earthing switch. Due to their reduced dimensions they can be used in close-packed switchboards.

Type designation: **H 27 EK** (for wall mounting), **H 27 EA** (with spring-type charging drive mechanism), **H 27 SEA** (for wall mounting, with spring-type charging drive mechanism, and with fuse holders installed), **H 27 SuT** (side mounting, instantaneous closing and opening, breaking mechanism with spring-type charger and with fuse holders installed in the bottom part), **H 27 F-EK** (front mounting), **H 27 F-EA** (front mounting, opening mechanism based on spring-based energy charger), **H 27 F-SuT** (front mounting, with energy charger and a built-in mechanism for fuses equipped with release pin).

Control is done manually or by electric motor drive.

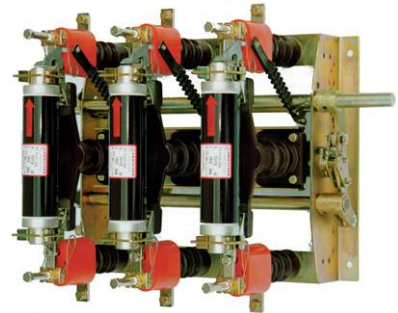


M 3007 – fused switch disconnector

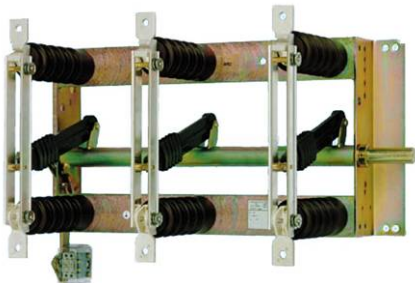
- **three-pole design**
- **rated voltage 25, 38.5 kV**
- **rated current 400 A**

Due to their compact design the indoor switch disconnectors Driescher type 3007 are suitable in particular for use in newly erected and retrofitted tower-type MV transformer stations.

Properties: supporting insulators made of cycloaliphatic resin, switching chambers with main and burnout contact, release mechanism with instantaneous switching.



Indoor disconnectors



13300, Itr

- **single-pole and three-pole design**
- **rated voltage 12, 25 and 38.5 kV**
- **rated current 630, 1250 up to 6300 A**

These disconnectors are used for the switching of no-load MV equipment. The built-in earthing switches are designed with appropriate short-circuit making capability.

The operation of the disconnectors is done using manually controlled or electric motor actuated drives. On customer request the disconnector can be equipped with auxiliary switches, blocking magnets or built-in electric motor operated drive units.

Indoor fuse holders

- **single-pole and three-pole design**
- **rated voltage 12, 25 and 38.5 kV**

These comply with the Czech national standard EN 62 271-1 and serve for the accommodation of fuses to the EN 60 282-1 standard, for rated currents within the range up to 200 A, and for rated voltages of 12; 25 and 38.5 kV.

The fuse holders feature small dimensions and low mass. Three-pole fuse holders may be equipped with remote mechanism to indicate the fuse tripping.



Switch disconnectors and disconnectors for railway tractions



- **single-pole design**
- **rated voltage up to 27 kV**
- **rated current up to 4000 A**

- **H 22-1B, H 27-1B, H 29-1B load disconnectors**
- **L31 disconnectors**
- **Fuse holders**
- **Stroke limitation pads**



MV switchboards

D 12 and D 24; with the H 27 switch disconnectors

- **rated voltage 25 kV**
- **rated current 400 and 630A**

The design and equipment of the cubicles uses the proven building-block principle that makes possible to meet the various and specific requirements of the customers and to offer a state-of-the-art and variable system. The switchboards can be equipped with various accessories such as the cylindrical locks, bases and supports, as well as the consoles for the installation of instrument transformers and surge arresters.

The doors of the switchboard bear the corresponding mimic diagram. The D-type switchboard cubicles are equipped with a lock in which special type of key is to be used. The switchboard cubicles can be separated each from the other at the busbar compartment.



D 1200; with the H 27 switch disconnectors

- **rated voltage 25 kV**
- **rated current 400 and 630 A**

This compact, air-insulated switchboard of the D 1200 type meets the requirements on environmentally friendly and maintenance-free operation while imposing only very limited requirements on the size of the installation place. The switchboard is equipped with the H 27 switch disconnectors.

Normally the switchboard is delivered in the 2 + 1 and 3 + 1 arrangement, with the fused switch disconnector mounted in the left-hand upper cubicle.

In case of necessity, the both upper cubicles may be equipped with fused switch disconnectors or with switch disconnectors connected to the power outlet. The lower cubicles can accommodate only switch disconnectors for cable outlets.

Each of the switch disconnectors installed can be equipped with short-circuit capable earthing switch.

Compact switchgears with the H 27 switch disconnectors

- **rated voltage 12 and 25 kV**
- **rated current 400A and 630A**

The air-insulated compact switchboards are capable of using the well proven H 27 switch disconnectors, mounted in the ring main unit's transformer stations, actuated from the outside.

The switchboard design also meets the requirements imposed on direct installation in buildings.

The concept of the switchboard is arranged in a way to meet the required dielectric strength without the necessity of using supplementary insulation. The connection takes place without using special connectors, and all standard types of cable terminals can be used.



F 24; with the H 27 switch disconnectors



- **rated voltage 25 kV**
- **rated current 400 and 630A**

The F 600 air insulated switchboards consist of independent and separated type tested cubicles, with one single and unified busbar system. Thanks to their reduced ground plan the switchboards are used with advantage at places where only a small area is available. The switchboard cubicle consists either of one MV compartment with fixed panels at the busbar installation area, or it may be equipped with a separate terminal box covered with doors.



The building-block design allows for customer specific arrangement of the switchboard and its extension at some later time.

W 24



- **rated voltage 25 kV**
- **rated current up to 1250 A**

This metal encapsulated, air-insulated MV switchboard of W 24 type consists of type tested cubicles, separated each from the other and equipped with one unified busbar system. The equipment of the respective cubicles is the result of customer requirements. All the built-in switching devices may be actuated manually or via electric motor drive. All standard types of cable terminals can be used.



W 38.5

- **rated voltage 38.5 kV**
- **rated current up to 1250 A**

This metal encapsulated, air-insulated MV switchboard of W 38.5 type consists of type tested cubicles, separated each from the other and equipped with one unified busbar system. The design of the switchboard allows for customer specific solutions, with the possibility of extension and additional modification of the configuration. On request the switchboards can be equipped with electric motor operated drive mechanisms; capacitive voltage sensors or indicators of short-circuit currents. The connection uses all standard types of cable terminals.



K 900 S and K 900 P

- **K 900 S – with the H 27 SEA switch disconnecter**
- **K 900 P – with fuses**
- **rated voltage 25 kV**
- **rated current 400 and 630A**



These types of switchboards are intended to be used at end-point transformer stations. Due to their reduced dimensions the switchboards allow for the erection of small transformer stations, with using all the advantages of conventional concept of air-insulated switchboards. The switchboard is suitable, in particular, for mounting in compact transformer stations. K 900 S – this switchboard is equipped with three-pole fused H 27 SEA switch disconnecter. The earthing switches used feature the short-circuit capability, and are equipped with interlocking devices. K 900 P – this switchboard is equipped with fuse holders for fuses with rated currents up to 200 A.

Switchboard retrofits

In the retrofitted switchboard the existing switch disconnectors have been replaced with the new H 27 EK or H 27 SEA types, which meet the requirements of the EN 62 271-1 and EN 60 265-1 standards. During the reconstruction works also the busbars are replaced. On request the manual operated or electric motor actuated drive is installed.

The existing supporting insulators made of porcelain can be replaced with plastic ones. The reconstruction does not affect the connection position of the cabling.



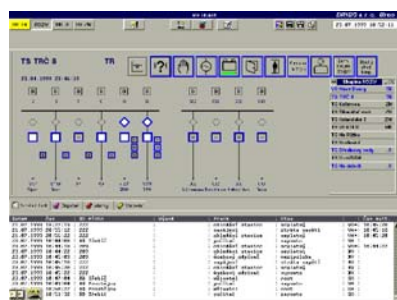
Reconstruction of switching devices

This kind of reconstruction refers to the additional installation of electric motor drives. The existing pressurized air drive mechanisms on both the disconnectors and switch disconnectors are being replaced with electric motor actuated drives.

Remote control of outdoor switch disconnectors, circuit breakers and transformer stations

This system consists of wireless communication network, the central control room and dispatcher stations, and the remote controlled stations.

The system is protected against random noise, interferences and against statical electric charges, featuring a comprehensive programming options for the various and complicated logical operations (being especially suitable for use in stations with a high number of control elements and indication states), high resistivity against disrupted communication flow and the possibility of remote adjustment of parameters of the corresponding remote controlled stations.



The controller system has been developed for the special task of control and monitoring of switching elements being the part of the remote control within the MV power networks.

A powerful control and information system allows mainly for the monitoring of network operation, or the measurement of currents and voltages, the actuation of switching elements and the selection of error messages.

Our company deals as a supplier of the comprehensive delivery of the remote control system, and a provider of all activities related to the commissioning of the system.



Drives and accessories

UM – Common use electric motor drives for both indoor and outdoor switching devices

This type of drive mechanism serves for the control of switching devices, in particular the MV disconnectors and switch disconnectors.

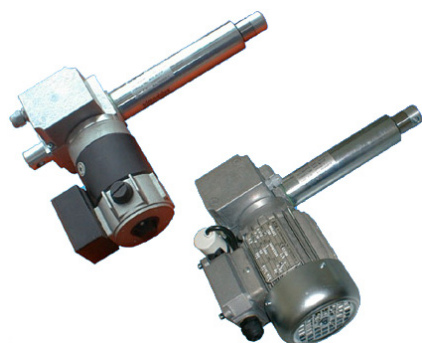
The common use of the drives consists in the possibility of mounting these either straight on the switching device, or on the front side of the cubicle, or that of the switching cell. The drives can additionally be installed onto manually operated switching devices already built in the system.

The high rated output torque of 250 Nm guarantees a reliable actuation of the switching devices, even in heavy-duty conditions.

On request drives with rated torque of 360 Nm are supplied.



Linear motor drives LM for indoor switching devices



Serving for remote control of the MV switching devices, mainly the disconnectors, earthing switches and switch disconnectors. The drives are mounted straight on the switching device controlled, with the possibility of additional mounting to devices already equipped with drives operated manually.

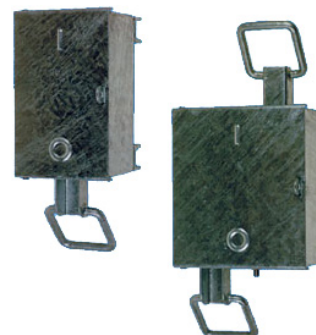
The high rated output force combined with low power consumption provides for reliable control of the switching devices. The design of all parts of the drive mechanism ensures the reliable achievement of limit positions, while guaranteeing defect-free indication of both the ON and OFF position, depending on the position of the shaft of the switching device.

Manual operation takes place using a switching rod via handle with lug on the switching device's shaft. The LM 50 linear drives are maintenance-free.

Manual drives for outdoor switching devices

The L drive – is intended to be used on wooden, concrete or steel masts in simple arrangement. The system can be protected against tampering with a padlock.

The cabinet type of drive is supplied in single-, double- or tripple arrangement. The drive mechanism is installed in a lockable box, which can be secured with a padlock against tampering. Doubled and trippled drives are provided with mechanical interlocking in between the handles, which is a preventive element against faulty handling.



Manual drives for indoor switching devices



SHA – Handle operated drives used for the actuation of indoor switching devices, in particular the MV disconnectors and switch disconnectors installed in switching cells.

Accessories to the drives: steel and insulated pull rods, control handles.

Locking segments and the Cu earthing conductor may be supplied on request.

DZ – these are drives operated with a hexagonal head handle from the side, and used for the actuation of indoor switching devices, in particular the MV disconnectors and switch disconnectors mounted in cells and switchboards.

Accessories: steel and insulated pull rods, handles.

Fiberlink – plastic insulators

Of patented design, the core of which is a body, coiled around with an infinite fibre and embedded in a silicon sheath. This sheath provides for high electrical and mechanical strength, which has proven in the most severe climatic conditions.

The small weight provides for the reduction of transport costs and the improvement in handling during the assembly.



The “Reliable” quick couplings

These couplings are the safest and most effective element used for the connection and termination of steel, copper and aluminium conductors and the AIFe ropes. The installation of the Reliable couplings is very easy. Short installation times are the key element for significant cost reduction as compared with another (non-automatic) couplings.

ELSIC made testing devices for high resistance capacitive sensors

- used in switchboards within the rated voltage range of 1 kV to 52 kV

All the testing and inspection devices made by the company ELSIC have been developed in conformity with the DIN VDE 0681 standard, part No. 7, and the IEC 78/183 CDV recommendations.

HO-SA – tester of high-ohmic sensors.

HO-MPK – inspection and testing device for high-ohmic sensors.

HO-PV – phasing device for high-ohmic sensors.

