

Outdoor load disconnectors Fla 15/97 GB

three-pole design
rated voltage 25 kV
rated current 400 A



DRIBO, spol. s r.o.

Pražákova 36
619 00 Brno
Czech Republic

Tel.: +420 533 101 111, Fax: +420 543 216 619, E-mail: dribo@dribo.cz, Internet: <http://www.dribo.eu>



Fla 15/97 GB outdoor load disconnectors

Outdoor design, load disconnectors of Fla 15/97 GB series, with switching in vacuum, have been developed by the DRIBO company as design version of the Fla 15/97 load disconnectors which prove its high reliability and operation safety since many years on the world market.

The Fla 15/97 GB load disconnectors may be used as a replacement for the Fla 15/97, Fla 15/6400 and Fla 15/6410 outdoor load disconnectors.

One of the advantages of this load disconnector series is the possibility of working of the staff under voltage, easy and quick mounting of overvoltage limiters onto the switching device, thus providing for a simplification of mounting the disconnector on the pole, and a better handling due to reduced weight.

The load disconnectors comply with requirements of the following standards: EN 62271-1, EN 60265-1. Used insulators satisfy the fourth grade of contamination area.

All current carrying components are made of silver plated electrolytical copper and constitute a loop-less current conduction path.

The construction of the load disconnectors, the quality level of material used and care exercised in the production process, which is governed by the principles of the ISO 9001:2000 standard, is a guarantee for low operation and maintenance costs in the future.

Under normal operating conditions it is not necessary for the load disconnectors to undergo a preventive maintenance during the period of twenty years.

The cross-section of the conductors the current-carrying path consists of is sufficiently dimensioned. Appropriate contact pressures of the stainless steel springs are one of the prerequisites for a fault-free switching even after many years of load disconnector's operation under extreme operating conditions and also under hoarfrost loads.

The load disconnectors can be provided with supports, made of cycloaliphatic resins with additives used to improve the material properties against the environmental impact (UV radiation, high temperature changes etc.). The material resistance has been verified by a long-term (during more than 30 years) period of disconnector usage.

The Fla GB load disconnector design has been arranged in a way to provide for the installation of overvoltage limiters.

The load disconnectors can be controlled either by manually operated drive mechanisms or remote controlled motor driven drives in outdoor design.

The short-circuit capacity of the load disconnector is met with a high reserve.

Versions of the Fla 15/97 GB load disconnectors

Version	Load disconnector characterization	Rated voltage (kV)	Pole height (m)	Ordering number	Weight (kg)
Fla 15/97 GB	Horizontal-design load disconnector for mounting on a concrete pole	25	10,5 12	01001097 01001297	83
Fla 15/97 GB K	Load disconnector for mounting on a concrete pole and provided with a cable drop-in	25	10,5 12	05011097x 05011297x	86
Fla 15/97 GB P	Load disconnector for mounting on a concrete pole and provided with fuse holders and cable drop-in	25	10,5 12	05021097x 05021297x	105

* The last digit of the ordering number (symbol x, optionally y) means the type of used overvoltage limiters.

As an option the switching device may be equipped with overvoltage limiters. These devices have in their version description also word O. For example *Fla 15/97 KO* – load disconnector for mounting on a concrete pole and provided with a cable drop-in, equipped with overvoltage limiters. The limiters are mounted either at the manufacturer's plant or later on site. Generally, all kind of overvoltage limiter (arrester) can be used. There are, however, a few recommended types, as follows: RAYCHEM, type HDA-24NA; ABB, type POLIM D 24N or MWK 25 and Tridelta type SBK-I 31/5 or SBK-I 31/10.

Rated voltage U _r , v kV	x	y	Used overvoltage limiters
25	-	-	Without limiters
25	1	-	ABB, type POLIM D 24N
25	2	-	ABB, type MVK 25
25	3	-	RAYCHEM, type HDA-24NA
25	4	-	TRIDELTA, type SBK-I 31/5
25	5	-	TRIDELTA, type SBK-I 31/10

Technical data

Rated voltage	U_r	kV	25
rated current	I _r	A	400
rated short-time current	I _k	kA	16
rated peak withstand current	I _p	kA	40
rated making current	I _{ma}	kA ¹⁾	25
rated breaking current – cos φ 0,7	I ₁	A	630
rated breaking current of closed loop	I _{2a}	A	630
rated breaking current of no-load cable	I _{4a}	A	25
rated breaking current of the earth fault	I _{6a}	A	200
rated cable charging breaking current below earth fault conditions	I _{6b}	A	32
rated voltage	U _r	kV	25
mechanical service life			5000xCO

¹⁾ Applies for adequately rapid manual control

Withstand voltages

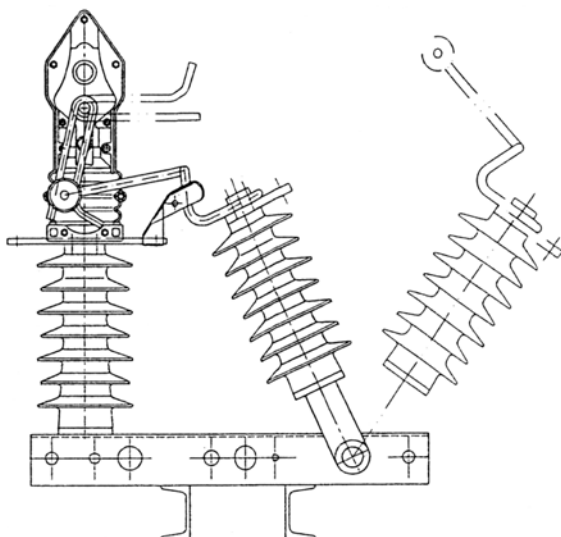
rated voltage	kV	25
rated short-time withstand power frequency voltage / 1min. to be applied in both dry and wet environmental conditions		
against the earth, across the poles and between disconnected contacts	kV	50
across the isolating distance	kV	60
rated lightning pulse withstand voltage		
against the earth, across the poles and between disconnected contacts	kV	125
across the isolating distance	kV	145

Climatic conditions

highest temperature	°C	+ 40
lowest temperature	°C	- 30
highest relative humidity	%	100
highest wind pressure	Pa (m/s)	700 (34)
admissible hoar frost	mm	20
typical altitude	m a. s.	up to 1000

Usages in higher altitudes please consult with producer.

Function description

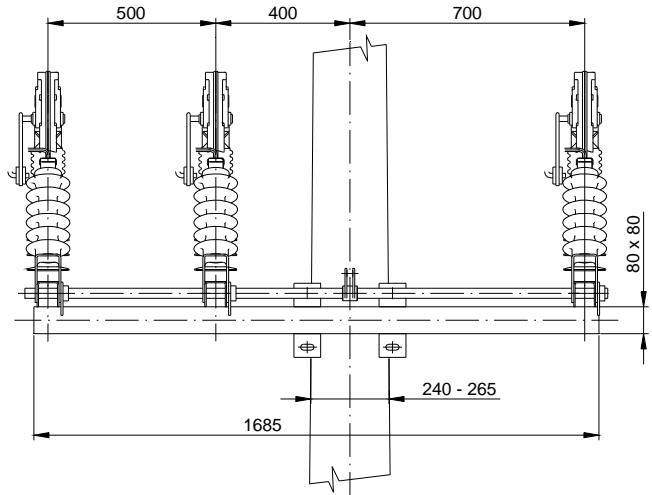
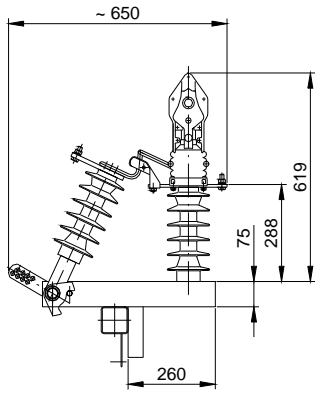


When in ON position the vacuum arc quenching chamber, together with the switching mechanism installed in a case made of insulating material, is connected in parallel to the current carrying path. When switching the load-disconnector OFF the main contacts first disconnect and in this way the whole current is redirected to the branch in parallel. In this branch we can find the vacuum chamber. This circuit mechanically is designed as a fork with switching rollers, which are shaped in form of a half dish.

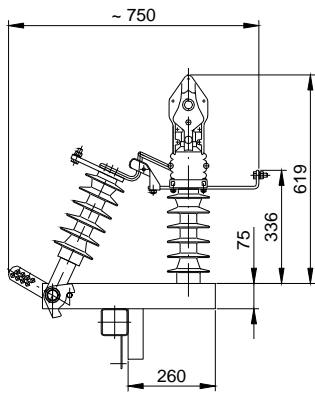
As soon as the main contacts have separated to an appropriate distance the contacts inside the vacuum chamber disconnect and the resulting arc gets cut during the first pass of the current through zero. Subsequently, the rocking insulator moves and a distance between the load-disconnector contacts now is clearly visible. The life expectancy of the vacuum chamber and the quick breaking mechanism is 5000 cycles, at minimum. All components installed in the current carrying path are silver coated. All metallic parts of the quick breaking mechanism are made of stainless steel.

Three-pole outdoor load disconnectors Fla 15/97 GB for U_r of 25 kV

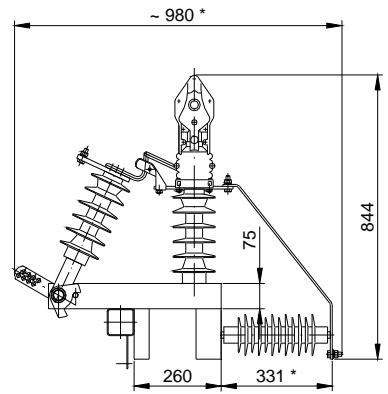
Fla 15/97 GB



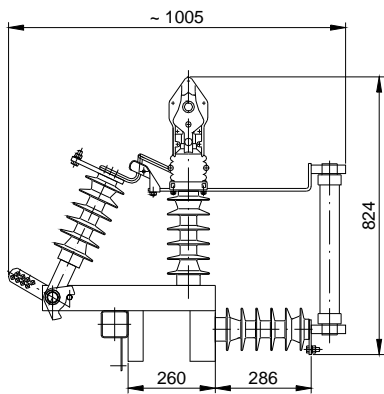
Fla 15/97 GB K



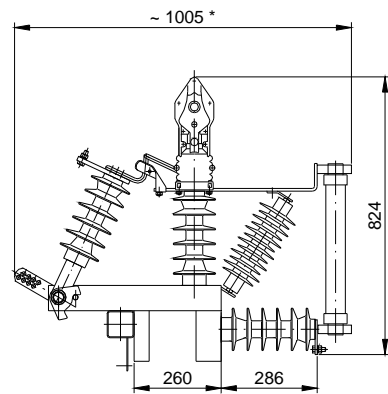
Fla 15/97 GB KO



Fla 15/97 GB P

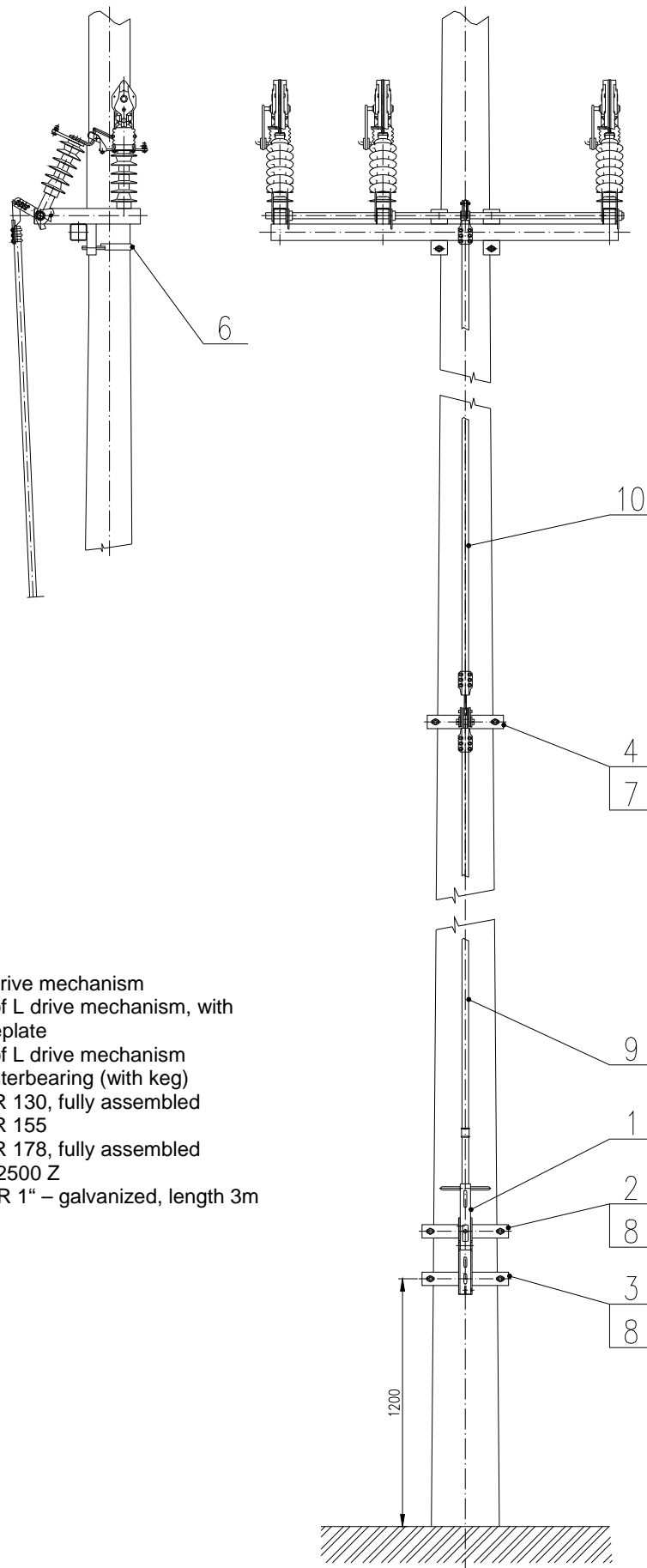


Fla 15/97 GB PO



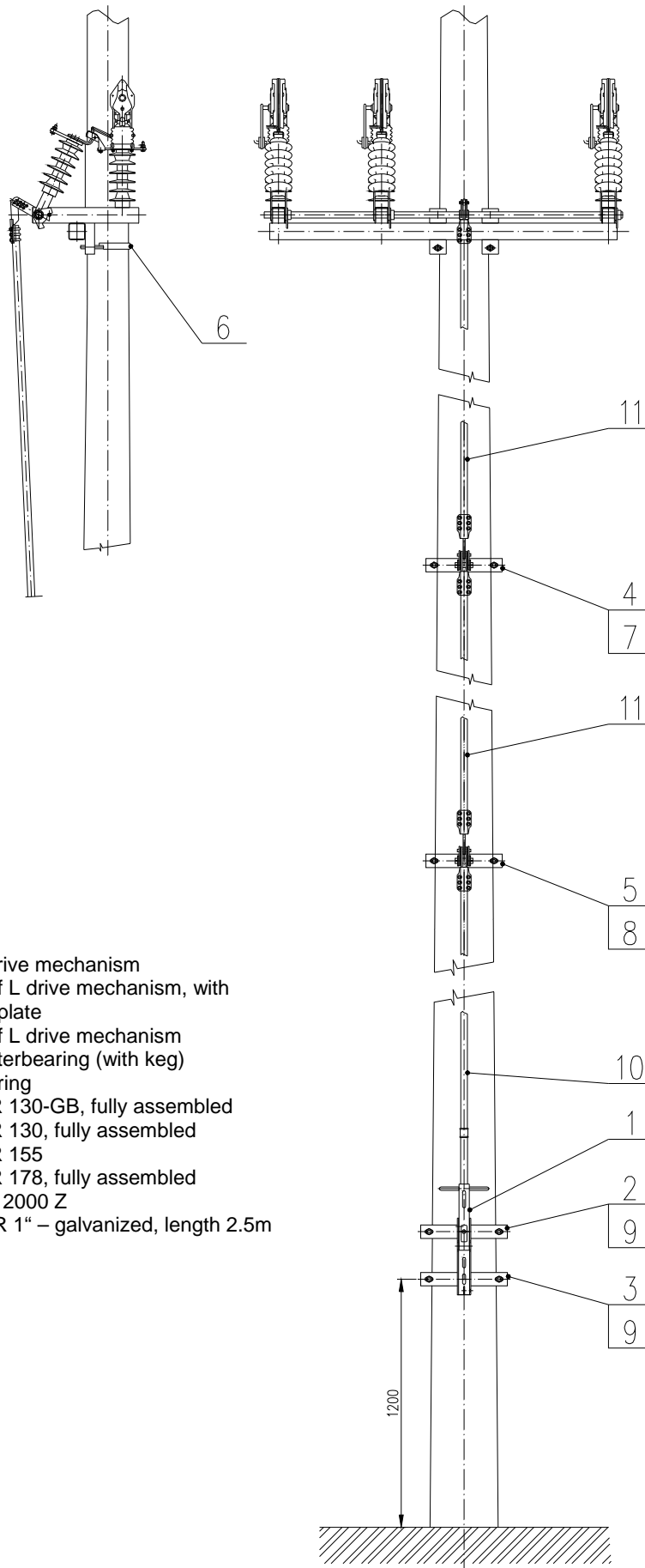
* dimension depends on used overvoltage limiter (here shown: RAYCHEM HDA24-NA)

Drive mechanism installation for outdoor load disconnectors Fla 15/97 GB
mounted on a pole of 10.5 m height



- 1 – L type drive mechanism
- 2 – holder of L drive mechanism, with a nameplate
- 3 – holder of L drive mechanism
- 4 – upper interbearing (with keq)
- 6 – sleeve R 130, fully assembled
- 7 – sleeve R 155
- 8 – sleeve R 178, fully assembled
- 9 – pipe 1" 2500 Z
- 10 – pipe KR 1" – galvanized, length 3m

Drive mechanism installation for outdoor load disconnectors Fla 15/97 GB
mounted on a pole of 12 m height



- 1 – L type drive mechanism
- 2 – holder of L drive mechanism, with a nameplate
- 3 – holder of L drive mechanism
- 4 – upper interbearing (with keq)
- 5 – interbearing
- 6 – sleeve R 130-GB, fully assembled
- 7 – sleeve R 130, fully assembled
- 8 – sleeve R 155
- 9 – sleeve R 178, fully assembled
- 10 – pipe 1" 2000 Z
- 11 – pipe KR 1" – galvanized, length 2.5m