

Group J



Daylight Warning Spheres

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Daylight Warning Spheres



Daylight Warning Spheres

The Daylight Warning Spheres for electrical systems are intended for visual warning of aircrafts like helicopters, airplanes, balloons, gliders, etc. preventing thus the collision of these aircrafts with the electrical transmission and distribution systems.

Due to the various situations and places where the installation of the Daylight Warning Spheres is necessary, specific models have been designed, aiming at minimizing the inconveniences caused by hard-to-reach locations, irregular land surface and road crossings, among others.

In order to meet the requirements of the electrical utilities, Daylight Warning Spheres are manufactured according to Brazilian Standard NBR 15237 and in-house manufacturing process, ensuring excellent characteristics, such as:

- long service life
- UV resistance
- aeolic vibration resistance
- rotation movement resistance
- sliding resistance
- rain water draining system through radial holes, perpendicular to the cable

All models are made of high density polyethylene.

Note:

Other color patterns can be supplied upon request.

The cable attachment system of the Warning Spheres for **conventional installation** is composed of aluminum alloy brackets, specific rubber supports adapted for each cable diameter, bolts, nuts and washers. The rubber supports can be supplied for cable diameters ranging from 6.35 to 22.22 mm (1/4" to 7/8").



For Distribution Systems

- ESR-250P* and ESR-400P*

These models have been specially designed for warning of overhead distribution systems, with the same characteristics of the conventional warning spheres, but with smaller Ø of 250 or 400 mm.

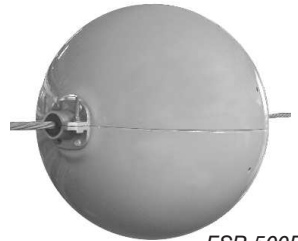


ESR-250P

For Transmission Systems

- ESR-500P* and ESR-600P (conventional installation)

Designed for transmission lines with cables made of steel, aluminum or OPGW.



ESR-500P

For Robotic / Rope Installation and Removal from Ground

RITZ developed Warning Spheres for **Hot Line Installation and Removal**, using different methods.

- ESRC-600P

Developed to provide more productivity and to work easily. It allows to install and remove steel manufactured cables, aluminum or OPGW from the ground using:

- a robot specially developed for this task, operated by remote control or
- a set for rope operation.



ESRC-600P

Robot for Warning Spheres

The Robot for Daylight Warning Spheres is a high-technology equipment developed by RITZ intended for installation and removal of Daylight Warning Spheres on transmission lines.

Equipped with a remote control unit operated from ground, the robot drives the sphere toward the installation position on the line, and closes the bracket for attachment of the sphere on the cable. During the removal operation, for replacement or maintenance purposes, the robot drives the sphere back to the structure by opening the bracket.



* Upon request



RPR-F/1

TECHNICAL CHARACTERISTICS

- Maximum displacement speed: 2.5 km/h;
- Power: one 12 V - 45A battery (to be ordered separately);
- Battery Life: 1h;
- Radio transmitter / receiver power: 3 alkaline batteries (size AA);
- Radio transmitter: Frequency designated with FRS (Family Radio Service);
- Remote control maximum reach: 3 km (no obstacles);
- Tightening torque of the bracket: 21 N.m;
- Approx. weight of the robot with battery: 31 kg;
- Approx. weight of the battery: 18 kg.
- Maximum inclination angle of the robot: 15 degrees;

ROBOT FOR WARNING SPHERES

Cat. No.	Description	Approx. Weight (kg)
RPR-F/1	Robot for Daylight Warning Sphere ESRC-600P installation and removal	31*

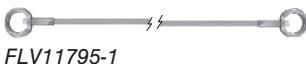
* with battery.



FLV03278-3



FLV12963-1



FLV11795-1



FLV11796-1

Set for Rope Operation

Item	Qty.	Unit.	Cat. No.	Description
01	1	pc	FLV03278-3	Snatch Block, made of aluminum
02	1	pc	FLV12963-1	Snatch Block and Strain link Stick
03	6	pc	FLV11795-1	Ø 6 x 1500 mm Rope Insulating Stick
04	1	pc	FLV11796-1	Hooks
05	220	m	RM1895-1	Polypropylene Rope

For Helicopter Installation

- ESRH-600P

The Daylight Warning Spheres for installation using a helicopter is equipped with a special mechanism for opening and installation on the cable, activated by a single eye-bolt at the top of the sphere, for operation with a specially designed RITZGLAS® Grip-All Clamp-Stick (FLV16617-1). Equipped with a counterweight to maintain the eye-bolt in the top position of the sphere.

It enables a safe and quick installation of the sphere on the transmission line, directly from the helicopter.



ESRH-600P

ACCESSORY			
RITZGLAS® Grip-all Clampstick for warning sphere installation			
Cat. No.	Ø (mm)	Overall Length (m)	Approx. Weight (kg)
FLV16617-1	25	1.96	2.60

This item is not purchased with the warning sphere.



FLV16617-1

For Crane Extension Installation

- ESRG-600P (Required Patent)

Similar to ESRH-600P model (for helicopter installation), however equipped with the fixing eye-bolt at the bottom side of the sphere, without counterweight, for operation with a special Grip-All Clamp Stick from the Crane Extension (IE-500).

Notes:

- 1) For all inquiries/orders, the diameter of the cable on which the spheres will be installed must be informed.
- 2) Spheres with different outside diameters can be supplied upon request.



ESRG-600P

DAYLIGHT WARNING SPHERES - TECHNICAL CHARACTERISTICS

Cat. No.	Outside Ø (mm)	Axial Sliding Withstanding Load (daN)	Opening Capacity (mm)	Color	Approx. Weight (kg)	
ESR-250P*	250	20	6.35 through 22.2	Orange Munsell 2.5 YR 6/14	1.8	
ESR-400P*	400				3.0	
ESR-500P*	500				4.0	
ESR-600P	600				6.0	
ESRC-600P	600		6.35 through 19.00		6.6	
ESRG-600P					6.6	
ESRH-600P			600		6.35 through 19.00	6.6
						6.6

* Upon request

