



BAKIRAL[®]

ESE LIGHTNING ROD PROTECTION SYSTEMS

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“Reliable”



NFC 17-102 / 2011

INSTALLATION PLAN



Bakiral Lightning Protection Systems Manufacturer is established in 2001 on principle of producing products with highest ratio of price and quality. According to this principle our company has engineered lightning protection systems that serving our clients in the best possible way of their needs. Our purpose is expanding our sectoral client base and production volumes as much as possible while without losing our main principle of producing our products with highest quality and cheapest price.

CERTIFICATE



Since 1990, BAKIRAL has been providing solutions to lightning protection and earthing sectors. Our company's principle is to produce our products tested in international standards with best quality and price ratios. According to this principle, our company designed lightning protection systems to best meet the needs of our customers. BAKIRAL takes place in the world lightning rod market with its export and import services and our goal is to improve the sectoral customer base and production volume as much as possible without losing our main principle.

PRINCIPLE & OPERATING

Compact's principle is storing electrostatic energy present in the atmosphere at a stormy cloud approach, to release the ascending discharge excitation in good time.

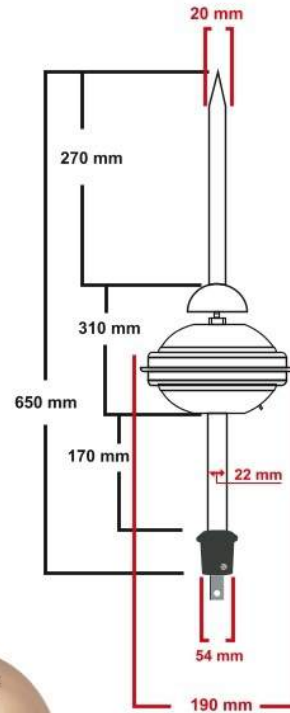
This device operates at a stormy activity approach by an integrated sensor which measures the surrounding electrical field value.

It provokes then a polarity inversion of the lightning conductor head, creating a sudden amplification of the electrical field on its tip.

ESE LIGHTNING ROD



304 l grade chrome high durability
With convenient testing mechanism
Remote testing option



Golden Head



Copper Head



Chrome Head

CONTROL TESTER



BAKIRAL LIGHTNING COUNTER

Bakiral Lightning Counter detects the electrical energy that is derived to the ground through a conductor when a lightning impact occurs. The device registers each impact incrementing the counter in one unit each time. It must be installed in the down conductor that connects the lightning rod to the grounding system. It does not use any type of power supply because it uses the electric energy of the lightning (including voltage at the moment of the discharge deviation to ground).

The BAKIRAL lightning counter is a device designed to detect lightning strikes upon any external lightning protection system (lightning rods, Faraday cages., etc). Electro-mechanical lightning discharge counte

TECHNICAL SPECIFICATIONS:

- Weight: 830 gr
- Range of Intensity: 1kA (8/20 μ s) - 100 kA (10/350 μ s)
- Range of register from 0 to 999 impulses
- Working temperature from -20°C to 65°C
- Protection degree IP 65 Bypass connector (shunt) (cable/ rod/ plate) 50 - 95 mm² / D8-12 mm/ 30 x 2 mm

Warranty

- 1- Ese lightning rod conductore made of stainless steel durable material according to corrosion 5 year warranty outisde conditions.
- 2- Ese lightning rod manufactured according to appropriate NFC 17 102 France Standard (Appendix C)in laboratory test.
- 3- Δ L & Δ D results can testable with lightning rod conductor test electronic device after montage.
- 4- Ese lightning rod conductor have a ISO 9001-2008, ISO14001:2004, OHSAS 18001-2007 ,CE Decleration of community certificates.
- 5- Ese lightning rod conductor is durable aganist high discharge electric current and lightning
- 6- Product tested Vmin:988 kV in NFC 17 102 laboratory.
- 7- Invoice date is valid for starting warranty.
- 8- Periodic maintenance needs after montage by montager technical company (Wholesaler Distributor) every year.



SPECIAL DESIGNS
Project-specific
developable products...



SPECIAL REQUEST
Everything is guaranteed
by contract



EASY TO INSTALL
It is designed to be
easily mounted



ALL THE WORLD
Our products in many
countries in the world



MOBLIE COMPATIBLE SITE
For a more conivent
review ...



INNOVATIVE IDEAS
Constant self-renewing
work ...

RADIUS OF PROTECTION (m)

The protection radius (Rp) of a BAKIRAL ESE terminal is calculated using the following formula as defined in NF C 17 - 102 (September 2011), namely:

$$Rp(h) = \sqrt{2rh - h^2 + \Delta(2r + \Delta)} \text{ for } h \geq 5m$$

and

$$Rp = h \times Rp5 / 5 \text{ for } 2 \leq h < 5m$$

where h = BAKIRAL height relative to the area being protected (m)

$Rp5$ = value of Rp from Eqn. (1) when $h = 5m$

r = 20m for protection level I (Very High protection)

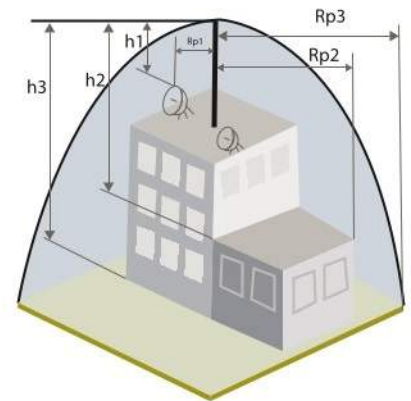
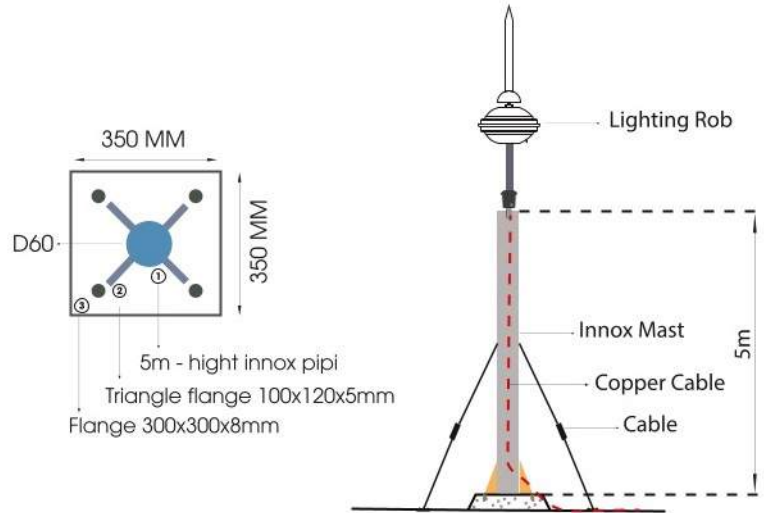
30m for protection level II (High protection)

45m for protection level III (Medium protection)

60m for protection level IV (Standard protection)

and Δ = BAKIRAL time and height advantage according to the

Innox Mast Details For Lighting Rod



Radius Of Protection

BKR Code	LV 1						LV 2						LV 3						LV 4					
	ALFAS ESE 15	ALFAS ESE 30	ALFAS ESE 50	ALFAS ESE 60	ALFAS ESE 60 SJ	ALFAS ESE 60 SM	ALFAS ESE 15	ALFAS ESE 30	ALFAS ESE 50	ALFAS ESE 60	ALFAS ESE 60 SJ	ALFAS ESE 60 SM	ALFAS ESE 15	ALFAS ESE 30	ALFAS ESE 50	ALFAS ESE 60	ALFAS ESE 60 SJ	ALFAS ESE 60 SM	ALFAS ESE 15	ALFAS ESE 30	ALFAS ESE 50	ALFAS ESE 60	ALFAS ESE 60 SJ	ALFAS ESE 60 SM
3	19	24	28	47	76	97	22	33	42	52	87	105	27	38	64	69	97	107	39	43	72	85	97	111
4	25	34	37	62	80	107	30	44	57	69	97	119	36	51	79	86	111	122	52	57	90	96	113	138
5	28	37	47	74	90	110	37	55	63	86	103	122	45	63	86	97	114	134	64	79	97	107	125	145
10	29	38	49	75	91	111	38	56	66	87	105	122	45	64	86	98	115	135	65	79	98	109	126	147
15	29	38	49	75	91	111	38	56	66	87	105	122	45	64	86	98	115	135	65	79	98	109	126	147