



BAKIRAL®

LIGHTNING PROTECTION SYSTEMS

Distributed by



CV. WIJAYA LIGHTNING PROTECTION
SUPPLIER & INSTALLATION

Lightning Protection - Grounding System
Exothermic Welding - Electrical & Technical

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Bakiral; Lightning Protection Systems Manufacturer, is established in 2001 on principle of production with highest ratio of quality and price. According to this, our company has engineered lightning protection systems serving our clients meeting their needs with the best product solutions. Our purpose is to expand our sectoral portfolio and product range and volume of sales with a keen quality approach fixed by international standards.



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ESE LIGHTNING ROD PROTECTION SYSTEMS

“Reliable”



NFC 17-102
2011



ALFA (S - SJ) 60 μ s

OPERATING PRINCIPLE

The purpose of BAKIRAL® lightning rods is to provide a SAFE & low-resistance path to ground that can be used to conduct the enormous electrical currents when lightning strikes occur. If lightning strikes, the system attempts to carry the harmful electrical current away from the structure and safely to ground. The system has the ability to handle the enormous electrical current associated with the strike. If the strike contacts a material that is not a good conductor, the material will suffer massive heat damage. BAKIRAL® lightning-rod system is an excellent conductor and thus allows the current to flow to ground without causing any heat damage. If the strike occurs in the active range of the lightning-rod system, the system will have a very low-resistance path and can then receive a "jump," diverting the strike current to ground before it can do any more damage.

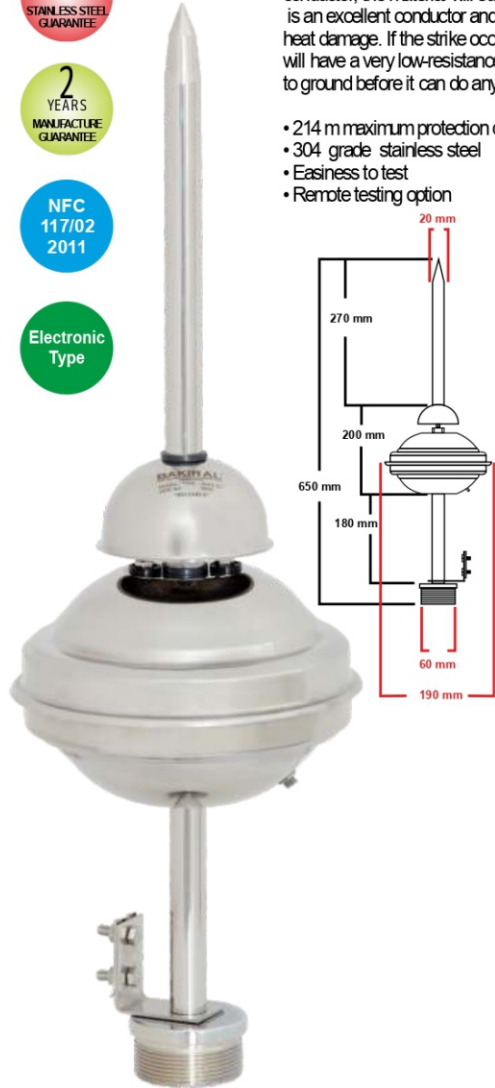
- 214 m maximum protection diameter
- 304 grade stainless steel
- Easiness to test
- Remote testing option

5 YEARS
STAINLESS STEEL
GUARANTEE

2 YEARS
MANUFACTURE
GUARANTEE

NFC
117/02
2011

Electronic
Type



Copper Head

Golden Head

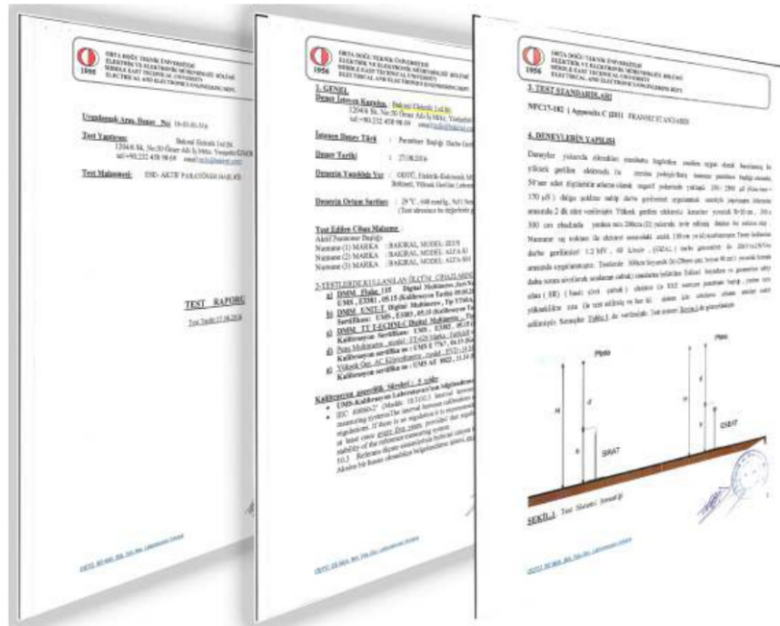
TYPES OF BASIS



CERTIFICATE



TEST REPORT



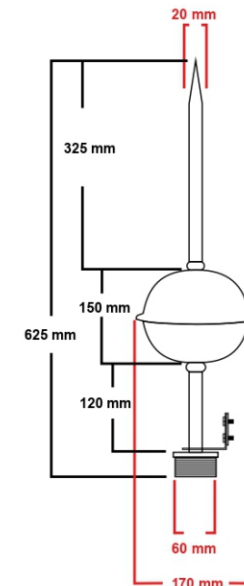
Warranty

- 1- Ese lightning rod conductor is made of durable stainless steel material and we provide 5 years warranty against corrosion in standard weather conditions.
- 2- Ese lightning rod is manufactured according to NFC 17 102-2011 France Standard (Appendix C)
- 3- ΔL & ΔD results can be tested with lightning rod conductor test electronic device after assembling.
- 4- Ese lightning rod conductor have ISO 9001-2008, ISO 14001-2004, OHSAS 18001-2007, CE Declaration Certificates.
- 5- Ese lightning rod conductor is durable against high electric current discharge and lightning.
- 6- Product tested vMin: 998kV in NFC 17 102 Laboratory.
- 7- Warranty period starts by Invoice date
- 8- Periodic maintenance must be executed each year after erection by a technical company under control and account of Sales Distributor and/or wholesales company in relevant Country.

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- 214 m maximum protection diameter
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THOR SM 67 μs



5 YEARS STAINLESS STEEL GUARANTEE

2 YEARS MANUFACTURE GUARANTEE

NFC 117/02 2011

Electronic Type

TYPES OF BASIS



LIROD 60 μs

OPERATING PRINCIPLE

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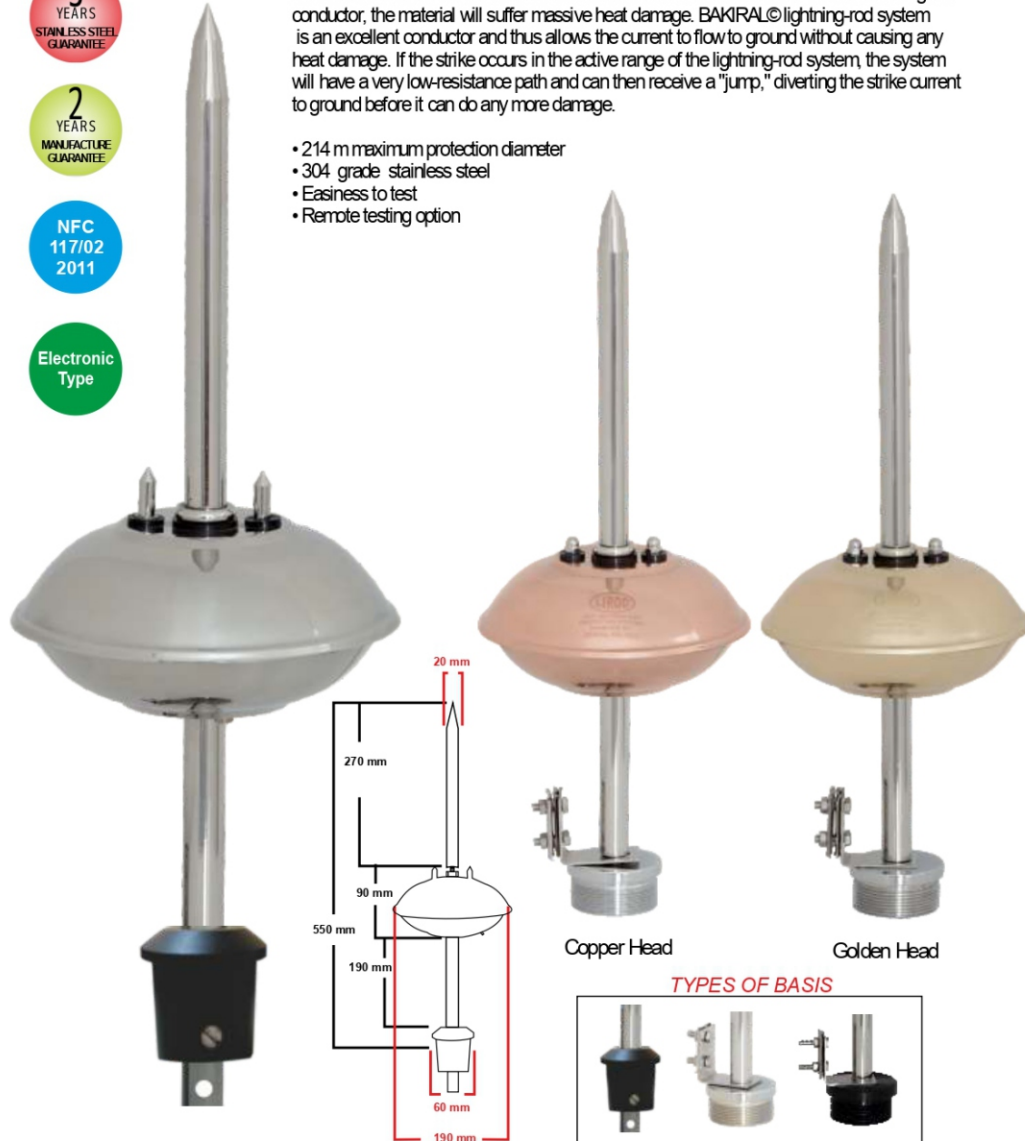
- 214 m maximum protection diameter
- 304 grade stainless steel
- Easiness to test
- Remote testing option

5 YEARS STAINLESS STEEL GUARANTEE

2 YEARS MANUFACTURE GUARANTEE

NFC 117/02 2011

Electronic Type



Copper Head

Golden Head

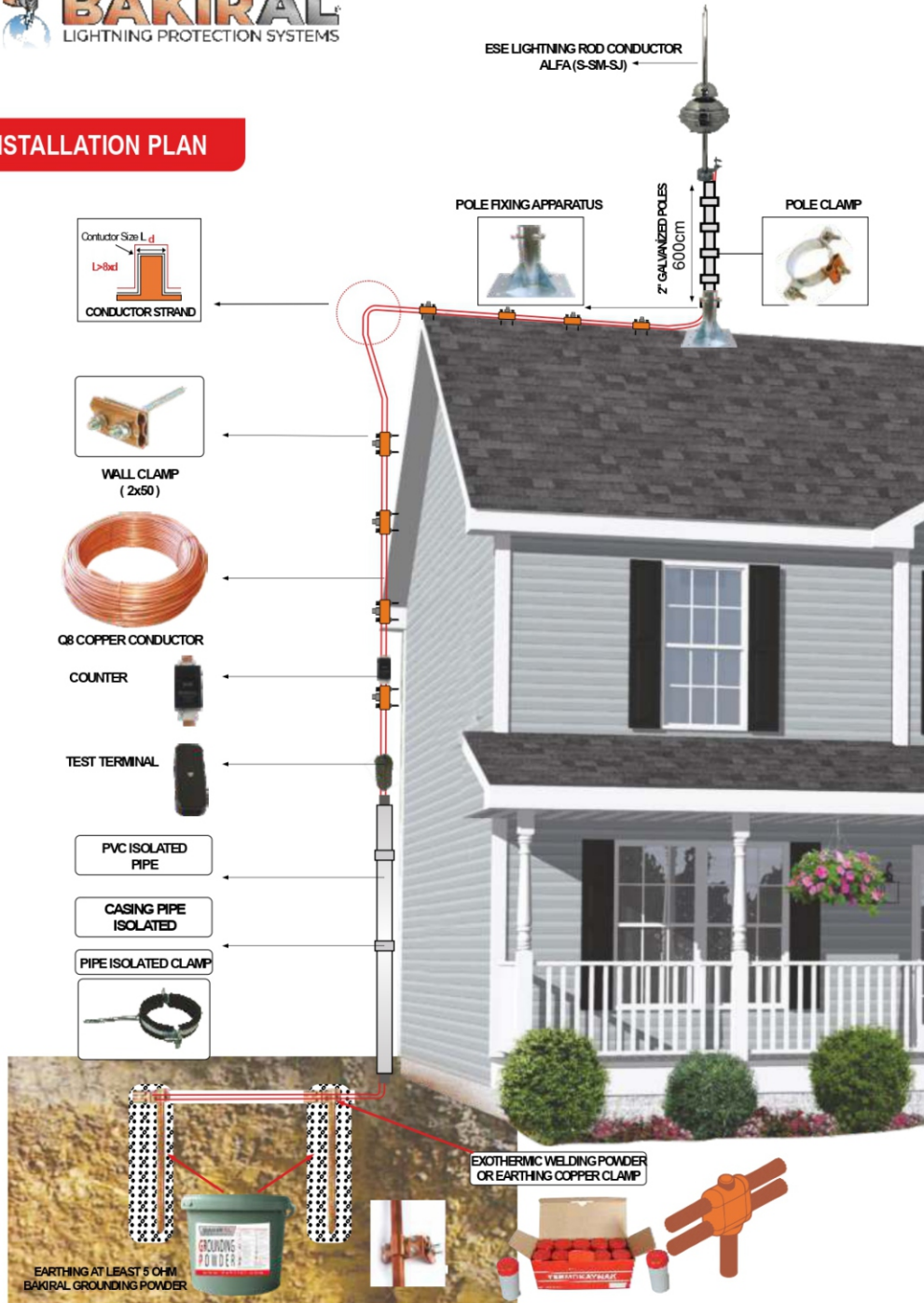
TYPES OF BASIS



MOUNTAGE EQUIPMENT

POLE MONTAGE		MOSQUE CLAMP	
POLE MONTAGE OMEGA		CATCHER BASE	
POLE MONTAGE TABLE		COPPER CLAMP	
		TEST THERMINAL	
WALL CLIPS		EXOTHERMIC WELDING POWDER AND EQUIPMENT	
WALL CLIPS (U TYPE)		STATIC GROUNDING PLATE	
POLE CLAMP		TILE CLAMP	
CLAMP (Z TYPE)		ROF TILE CLAMP	
PYLON CLAMP		GROUNDING POWDER (10 KG.)	
CLAMP			

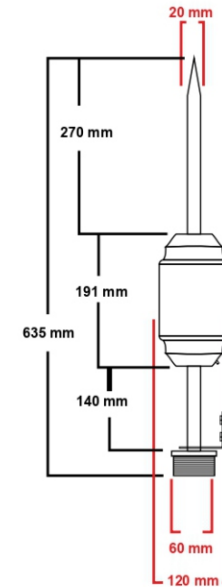
INSTALLATION PLAN



OPERATING PRINCIPLE

The purpose of BAKIRAL® lightning rods is to provide a SAFE & low-resistance path to ground that can be used to conduct the enormous electrical currents when lightning strikes occur. If lightning strikes, the system attempts to carry the harmful electrical current away from the structure and safely to ground. The system has the ability to handle the enormous electrical current associated with the strike. If the strike contacts a material that is not a good conductor, the material will suffer massive heat damage. BAKIRAL® lightning-rod system is an excellent conductor and thus allows the current to flow to ground without causing any heat damage. If the strike occurs in the active range of the lightning-rod system, the system will have a very low-resistance path and can then receive a "jump," diverting the strike current to ground before it can do any more damage.

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- Remote testing option



TYPES OF BASIS



ZEUS S 65 µs

5 YEARS
STAINLESS STEEL
GUARANTEE

2 YEARS
MANUFACTURE
GUARANTEE

NFC
117/02
2011

Mechanic
Type

Electronic
Type



PRODUCTION SYSTEMS

TESTER & COUNTER

$$\sqrt{h \times (2 \times D - h) + \Delta T \times (2 \times D + \Delta T)}$$

ALFAS - SJ - ΔT 60 • THORS - ΔT 67
LIROD - ΔT 60 • ZEUS - ΔT 65

ESE LIGHTNING ACTIVE RANGE TABLE

Protection Radius of PER NFC 17-102 STANDARD				
h (m)	Protection Level			
	I	II	III	IV
2	31	35	39	43
3	47	52	58	64
5	79	86	97	107
10	79	88	99	109
20	80	89	102	113



TEST DEVICES 2 TYPES

- 1-Standard test device with cable. It can easily test all kinds of lightning rods with plug.
- 2-Test device with remote controller: It communicates with the solar module that is mounted to lightning rod and executes testing remotely.

Both of the devices truly informs about operative and non operative lightning rods.



COUNTER

LIGHTNING COUNTER

This test certified device counts the quantity of lightning strikes which lightning rod conducted to ground. It has 6 digits.