VIKING

Early Streamer Emission lightning conductor

A SAFER

more

Cost effective

and

reliable

alternatif

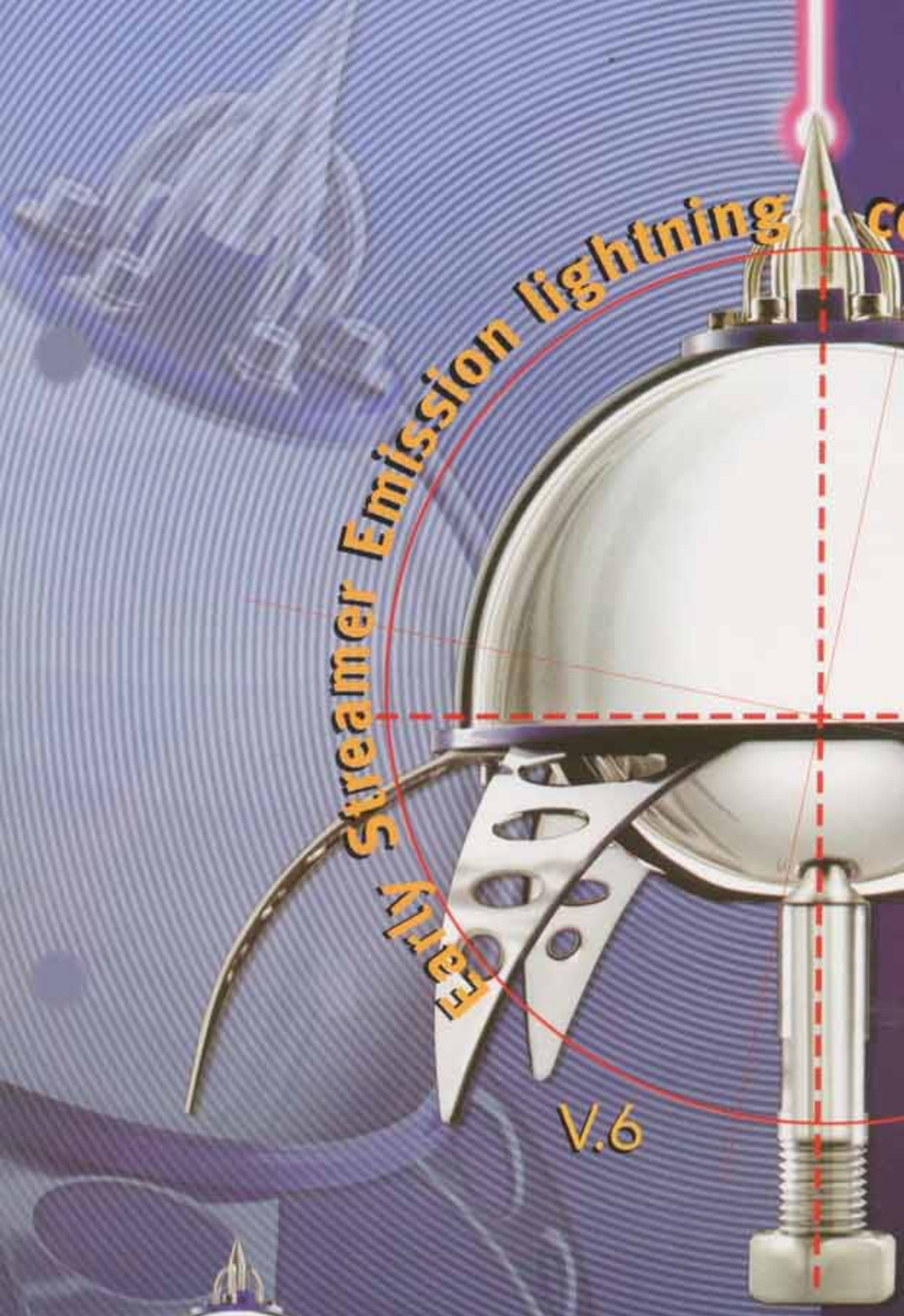
as compare

to

conventional

lightning conductor

system.



EARLY STREAMER EMISSION LIGHTNING CONDUCTOR

Operating Principle

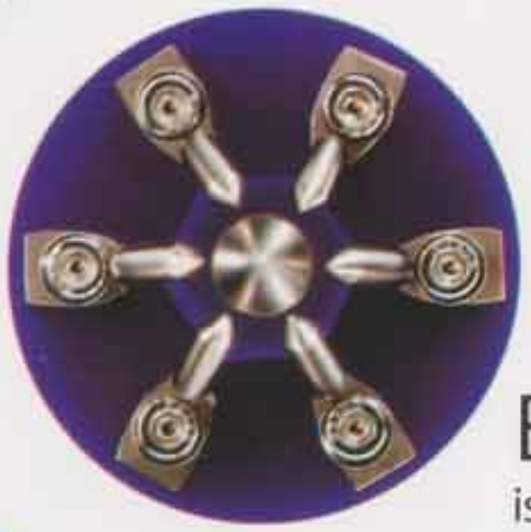
The Viking Early Streamer Emission product operates as ION GUN which fires the large number of Ions to the atmosphere just before the lightning strike.

Releasing the Ions to atmosphere will automatically generate the lightning path is known as Upward Leader which is earlier than other nearby high point and also reduce the exitation time of CORONA affect.

Product Description

The VIKING Early Streamer Emission product is equiped with the following :

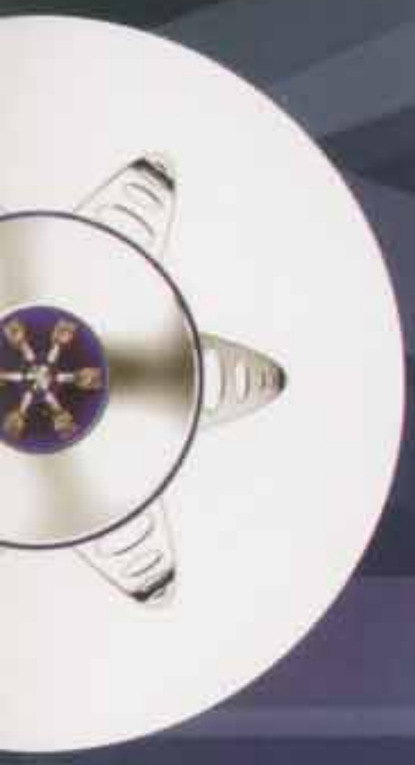
- Electrical Impuls Sensors and Electric energy collector.
- Lightning Pick up rod,
- Ions generator terminal,
- Electronic ion generator.



V. 3.

Basic operation of VIKING Early Streamer Emission is to collect ambiant electrical energy in the atmosphere, store it and release it on the right moment just before the lightning strike. Electrical energy colleted by triangle shape terminal which located at lower part of product and stored it within electronic ion generator. When the storm approaches the earth, it causes the rapidly escalating electric field in the atmosphere.

This phenomenon is deteced by the triangle shape terminal and send the information to electronic ion generator to produce a large no of ion and release them to the atmosphere. Releasing a large no of ion to the atmosphere will generate upward leader faster rather than other nearby high point. This means that the VIKING Early Streamer product becomes the first priority tobe strike by the storm.

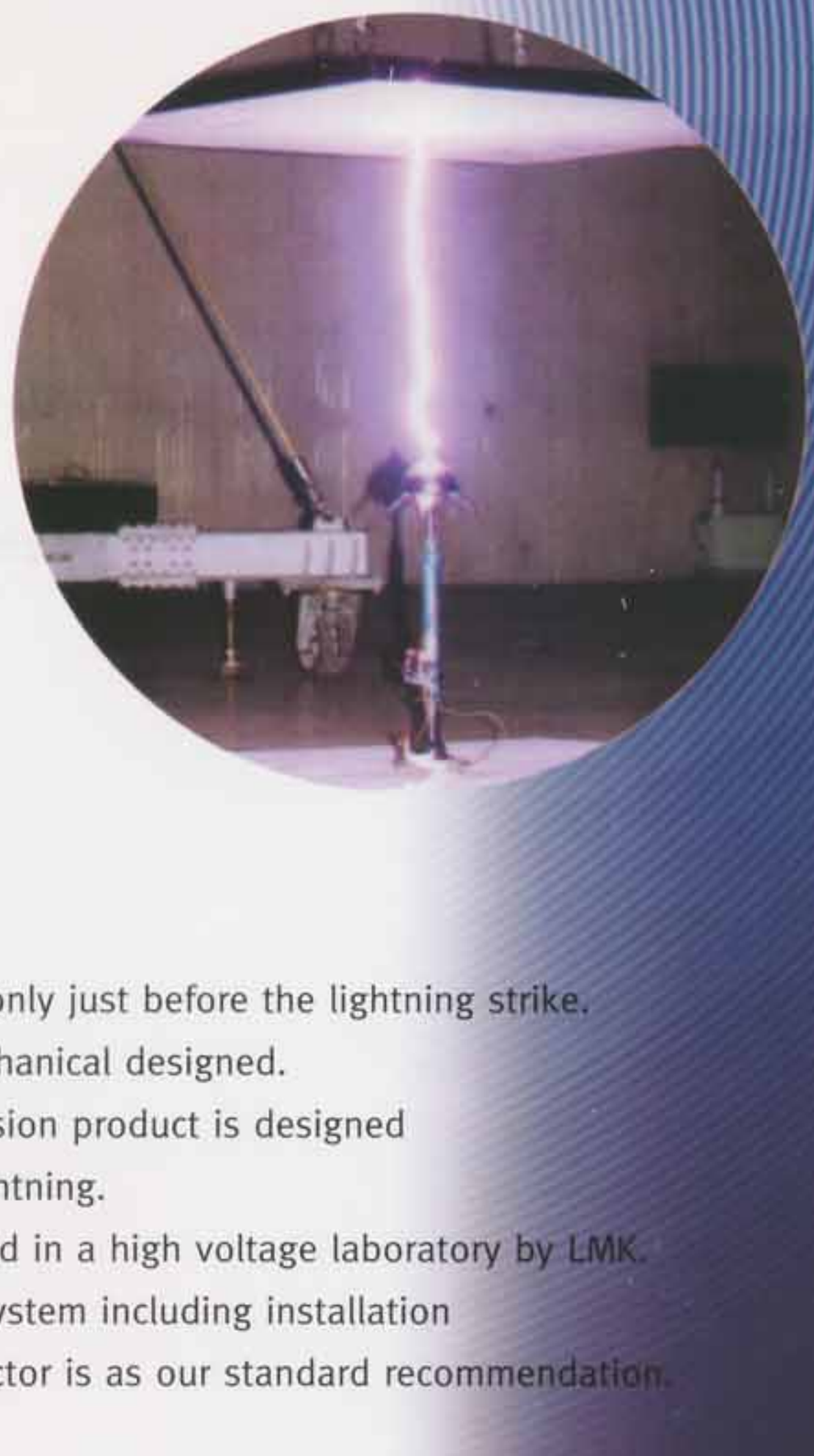


Early Streamer Emission lightning conductor

Product Range

There are 2 models in the VIKING range and each model has different performance specification corresponding to different protection radii. Both model are made of stainless steel which particulary suited to any corrosive environments.

V. 6.



Advantages

- Long life operation as it works only just before the lightning strike.
- Export quality with robbust mechanical designed.
- The VIKING Early Streamer Emission product is designed for both positive or negative lightning.
- Performance and reliability tested in a high voltage laboratory by LMK.
- Competitive price on the total system including installation cost as single core down conductor is as our standard recommendation.

According to formula defined by French National Standard NF C 17 - 102, the protection radius Rp of VIKING Lightning conductor is calculated by the following formula :

$$Rp\ (m) = \sqrt{h\ (2D - h) + \Delta L\ (2D + \Delta L)}$$, where $h > 5$ m

where $h \leqslant 5$ m, protection radius is taken of the table shown below.

h (m) = Height of VIKING above the area tobe protected.
if the VIKING is tobe used to protec the building, the height of mast should be added by the height of building to calculated the radius protection at the ground level of building.

D (m) = Striking distance in value 20m, 45m or 60m depending on the protection level required according to the lightning risk on the area tobe protected.

ΔL (m) = $10^6\ \Delta T$ (µsec)
ΔL (µsec) = Triggering advance which determined in High Voltage Test Laboratory depending on the selected type of VIKING.

Level 1 protection : D = 20 m

h(m) / Type	2	3	4	5	6	7	8	10	15	20
V3	25	38	50	64	64	65	65	65	66	66
V6	34	52	70	87	87	87	87	87	88	88

Level 2 protection : D = 45 m

h(m) / Type	2	3	4	5	6	8	10	15	20	45
V3	33	49	66	82	83	85	85	88	89	93
V6	43	64	86	107	107	108	109	111	112	115

Level 3 protection : D = 60 m

h(m) / Type	2	3	4	5	6	8	10	20	45	60
V3	36	55	74	92	92	93	96	101	109	110
V6	47	70	93	118	118	119	120	124	131	132

Type	ΔT(µsec)	Weight (Kg)
V3	50	3,9
V6	70	4,3