Liva® grup

ELEKTRİK ELEKTRONİK İNŞAAT
TAAHHÜT SAN. ve TİC. LTD. ŞTİ.

LIGHTNING ROD AND GROUNDING SYSTEMS

LIVA ACTIVE LIGHTNING RODS

B. Early Streamer Emission System (ESE) and Piezo Crystallized Lightning Rod:

MATERIAL: The metal components of the conductor rod, which will carry the lightning, are produced of stainless steel (Inox) to resist against chemical interactions and corrosion. This feature of the lightning rod allows it to remain strong and durable, just like the first day, against heavy elements of the nature.

OPERATION SYSTEM:
Electro Atmospheric Field and Wind Effective Liva Active Lightning Rod, which works in accordance with the principle of Early Streamer Emission System (ESE) and Piezo Crystallized Emission System, obtains its energy from the density changes between electrostatic and electromagnetic fieds in the air, and making use of the dynamic energy of the wind.

1. Capture Terminal
2. Wind Wings
3. Body;
   (a) Energy Block
   (b) Piezo Crystals and related equipment
4. Bottom Mil
5. Conductor Rod Connection Adaptor

TESTS AND DOCUMENTS

You can find below the tests that Liva Active Lightning Rods underwent.

Lightning Surge Voltage By-Passing Time (Δt) Test: Lightning Surge Voltage By-Passing (Early Streamer Warning) Time(Δt) Test at NFC 17-102 (Appendix C) was applied to the Lightning Rod at the High Voltage Laboratories of the Middle East Technical University (METU) Department of Electrics and Electronics. The tests proved that the Lightning Rod is in conformity with the relevant standards.

Gost Document: The Lightning Rod has "GOST" Document.
CE Certificate: The Lightning Rod has received "CE" Conformity to Europe document.

Warranty Period: The Lightning Rod has "30-Year Warranty" Document.

You can also find detailed information about our Active Lightning Rods on our website www.livaparatoner.com

TABLE OF LIVA LIGHTNING RODS PROTECTION LEVELS

Protection Levels	LEVEL- 1							LEVEL- 2							LEVEL- 3							LEVEL- 4						
Type of Lightning Rods	LAP-AX 210	LAP-BX 175	LAP-BX 125	LAP-CX 070	LAP-CX 040	LAP-DX 250	LAP-PEX 220	LAP-AX 210	LAP-BX 175	LAP-BX 125	LAP-CX 070	LAP-CX 040	LAP-DX 250	LAP-PEX 220	LAP-AX 210	LAP-BX 175	LAP-BX 125	LAP-CX 070	LAP-CX 040	LAP-DX 250	LAP-PEX 220	LAP-AX 210	LAP-BX 175	LAP-BX 125	LAP-CX 070	LAP-CX 040	LAP-DX 250	LAP-PEX 220
Height of the Pole (m)	Radius of Protection Area (Mt.)							Radius of Protection Area (Mt.)							Radius of Protection Area (Mt.)							Radius of Protection Area (Mt.)						
4	100	81	58	48	39	115	155	108	89	65	55	45	123	164	120	100	74	64	53	134	176	130	110	83	72	60	146	188
5	100	82	58	49	39	115	155	109	90	65	56	46	124	164	121	100	75	65	54	135	177	131	110	84	72	61	146	188
6	101	82	58	49	40	115	155	109	90	66	56	46	124	164	121	101	76	65	54	135	177	131	111	84	73	62	146	188
8	102	82	59	50	40	115	156	110	90	66	57	47	124	165	122	101	77	66	56	136	177	132	111	85	75	63	147	189
10	102	82	59	50	41	116	156	110	91	67	58	48	124	165	122	102	77	67	57	137	178	133	112	87	76	65	148	190
15	102	83	60	51	42	116	156	111	92	68	59	50	125	165	123	104	80	70	60	138	178	135	114	89	79	69	149	191
20	102	83	60	51	42	116	156	112	92	69	60	51	126	166	125	105	81	72	62	139	179	136	116	92	82	72	151	192




LIVA ACTIVE LIGHTNING RODS

LAP-DX 250

LAP-DX 250

PHYSICAL PROPERTIES LAP-DX 250

Order code	Size	Package Size	Δt Early Streamer Warning Time (according to NFC 17 – 102 standards) (*)	Protection Radius (Mt.) (according to NFC 17 – 102 standards) (**)			
				Level 1	Level 2	Level 3	Level 4
LAP-DX 250	Length: 70 cm Net weight: 5.00 kg Gross weight: 5.70 k	25x25x50 cm	96 µsec.	115	124	135	146

LAP-AX 210

LAP-AX 210

PHYSICAL PROPERTIES LAP-AX 210

Order code	Size	Package Size	Δt Early Streamer Warning Time (according to NFC 17 – 102 standards) (*)	Protection Radius (Mt.) (according to NFC 17 – 102 standards) (**)			
				Level 1	Level 2	Level 3	Level 4
LAP-AX 210	Length: 100 cm Net weight: 5.00 kg Gross weight:5.70 kg	17x17x100 cm	82 µsec.	101	109	121	131

(*) Δt value shows the early streamer time advantage that a lightning rod (ESE lightning rod, for instance) has in arresting the lightning, compared to an ordinary capture terminal (S.R.). Bigger Δt value means that the active reaction of the lightning rod is better. It shows that it can attract the lightning to itself at a higher point, at a larger protection diameter and fastly.)

(**) It involves the situation that the lightning rod is mounted at least 6 m. higher than tha highest point of the building to be protected, with the help of the lightning pole. The protection diameter is calculated by taking into account the approximate early streamer warning time.

LIVA ACTIVE LIGHTNING RODS

LAP-BX 175

LAP-BX 175

PHYSICAL PROPERTIES LAP-BX-175

Order code	Size	Package Size	Δt Early Streamer Warning Time (according to NFC 17 – 102 standards) (*)	Protection Radius (Mt.) (according to NFC 17 – 102 standards) (**)			
				Level 1	Level 2	Level 3	Level 4
LAP -BX 175	Length: 100 cm Net weight: 4.80 kg Gross weight: 5.50 kg	17x17x100 cm	63 µsec.	82	90	101	111

LAP-BX 125

LAP-BX 125

PHYSICAL PROPERTIES LAP-BX 125

Order code	Size	Package Size	Δt Early Streamer Warning Time (according to NFC 17 – 102 standards) (*)	Protection Radius (Mt.) (according to NFC 17 – 102 standards) (**)			
				Level 1	Level 2	Level 3	Level 4
LAP -BX 125	Length: 80 cm Net weight: 4.20 kg Gross weight: 4.60 kg	17x17x80 cm	40 µsec.	58	66	76	84

(*) Δt value shows the early streamer time advantage that a lightning rod (ESE lightning rod, for instance) has in arresting the lightning, compared to an ordinary capture terminal (S.R.). Bigger Δt value means that the active reaction of the lightning rod is better. It shows that it can attract the lightning to itself at a higher point, at a larger protection diameter and fastly.)

(**) It involves the situation that the lightning rod is mounted at least 6 m. higher than tha highest point of the building to be protected, with the help of the lightning pole. The protection diameter is calculated by taking into account the approximate early streamer warning time.

LIVA ACTIVE LIGHTNING RODS

LAP-CX 070

LAP-CX 070

PHYSICAL PROPERTIES LAP-CX 070

Order code	Size	Package Size	Δt Early Streamer Warning Time (according to NFC 17 – 102 standards) (*)	Protection Radius (Mt.) (according to NFC 17 – 102 standards) (**)			
				Level 1	Level 2	Level 3	Level 4
LAP-CX 070	Length: 70 cm Net weight : 2.40 kg Gross weight: 3.10 kg	13x13x70 cm	31 µsec.	49	56	65	73

LAP-CX 040

LAP-CX 040

PHYSICAL PROPERTIES LAP-CX 040

Order code	Size	Package Size	Δt Early Streamer Warning Time (according to NFC 17 – 102 standards) (*)	Protection Radius (Mt.) (according to NFC 17 – 102 standards) (**)			
				Level 1	Level 2	Level 3	Level 4
LAP-CX 040	Length: 70 cm Net weight: 2.30 kg Gross weight: 2.90 kg	13x13x70 cm	22 µsn	40	46	54	62

(*) Δt value shows the early streamer time advantage that a lightning rod (ESE lightning rod, for instance) has in arresting the lightning, compared to an ordinary capture terminal (S.R.). Bigger Δt value means that the active reaction of the lightning rod is better. It shows that it can attract the lightning to itself at a higher point, at a larger protection diameter and fastly.)

(**) It involves the situation that the lightning rod is mounted at least 6 m. higher than tha highest point of the building to be protected, with the help of the lightning pole. The protection diameter is calculated by taking into account the approximate early streamer warning time.

LIVA LIGHTNING RODS
PIEZO CRYSTAL AND ESE TYPES

LAP-PEX 220

LAP-PEX 220

PHYSICAL PROPERTIES LAP-PEX 220

Order code	Size	Package Size	Δt Early Streamer Warning Time (according to NFC 17 – 102 standards) (*)	Protection Radius (Mt.) (according to NFC 17 – 102 standards) (**)			
				Level 1	Level 2	Level 3	Level 4
LAP-PEX 220	Length: 150 cm Net weight : 15 kg Gross weight: 16.5 kg	16x160 cm	136 µsec.	155	164	177	188

(*) Δt value shows the early streamer time advantage that a lightning rod (ESE lightning rod, for instance) has in arresting the lightning, compared to an ordinary capture terminal (S.R.). Bigger Δt value means that the active reaction of the lightning rod is better. It shows that it can attract the lightning to itself at a higher point, at a larger protection diameter and fastly.)

(**) It involves the situation that the lightning rod is mounted at least 6 m. higher than tha highest point of the building to be protected, with the help of the lightning pole. The protection diameter is calculated by taking into account the approximate early streamer warning time.

THE TESTER OF LIVA
LIGHTNING RODS&LIGHTNING STRIKE COUNTERS

Order Code	Class	Type	Accessories
TESTER LLRT-A1	Active Lightning Rod and Lightning Counter Test Device	Digital	Power Supply Unit, Energy cable/ Detector / Reference Props and Magnetic Generator

TECHNICAL PROPERTIES

Working Voltage	Reference Value	Maximum Working Temperature	Size	
220 volt - 50/60 Hz.	3 - 10	-20 °C ile +50 °C	Measuring Device	110x190x60 mm
			Magnetic Generator	280 x Ø60 mm
			Weight of Device	1.60 Kgs

"Liva LLRT-A1 Liva Active Lightning Rod and Lightning Counter Testing Device" is a combined testing device that can test Liva Active Lightning Rods and Liva Lightning Counters.

FEATURES
Active Lightning Rod and Lightning Counter Testing Device;
The device can test the following:

1- Liva Active Lightning Rods, which can be tested directly (the ones that have testing sockets on),

2- Other Liva Active Lightning Rods, which do not have testing sockets on them,

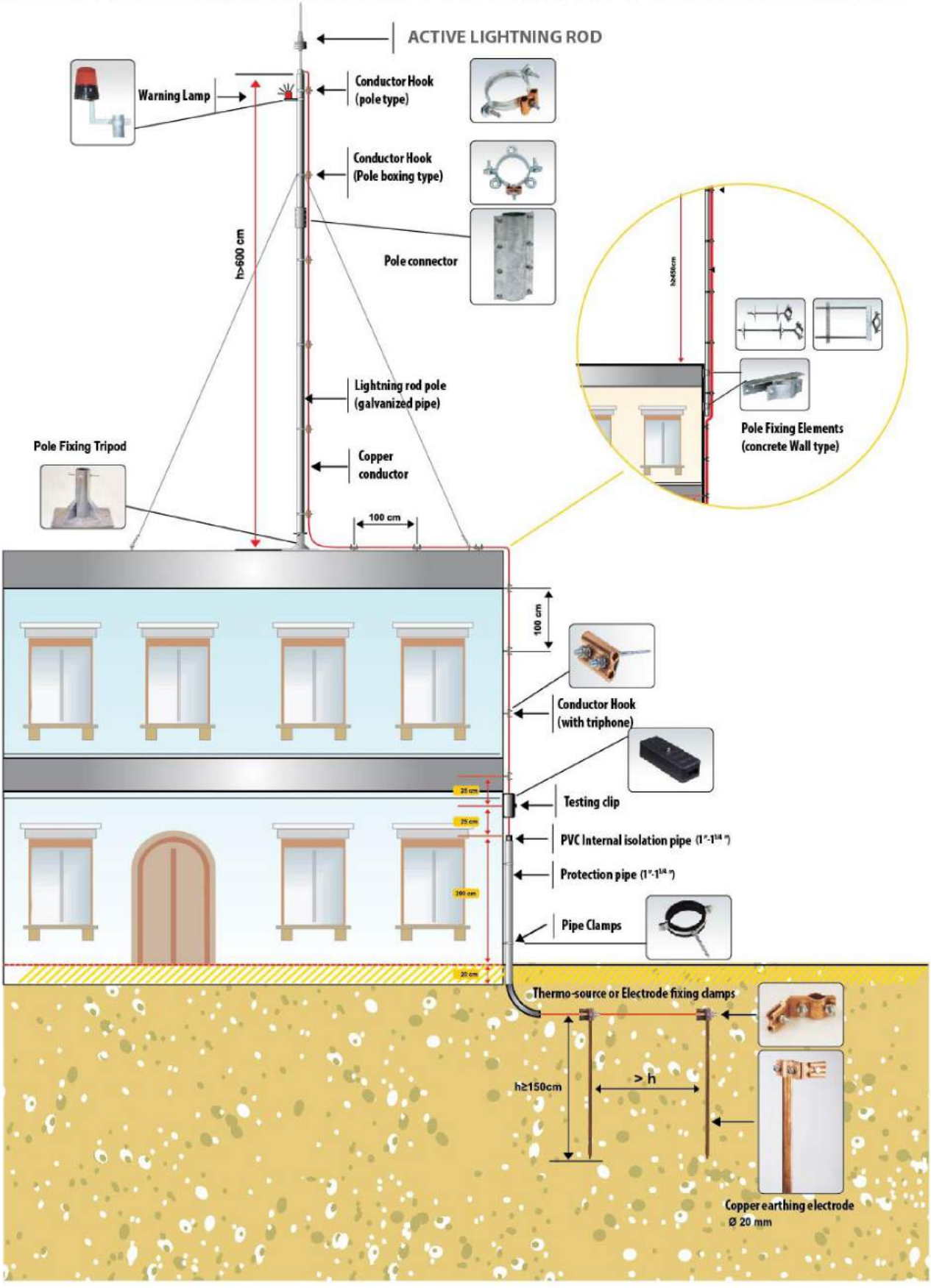
3- Lightning Counters, which can be tested directly (the ones that have testing sockets on).

The cables and other equipment that would be required for the operation of the testing device are given as accessories component to the device.

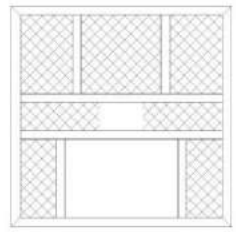
The device does not need any power supply other than it sown power supply for testing directly testable lightning rods and lightning counters.

The testing device has three testing sockets on it. Each socket is designed in a different way. In order to perform the test, the relevant socket is connected to the relevant cables present in the device content and/or other equipment can be used.

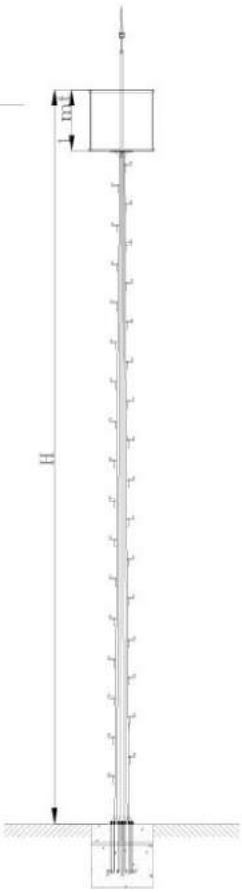
MOUNTING DRAWINGS OF LIVA ACTIVE LIGHTNING ROD

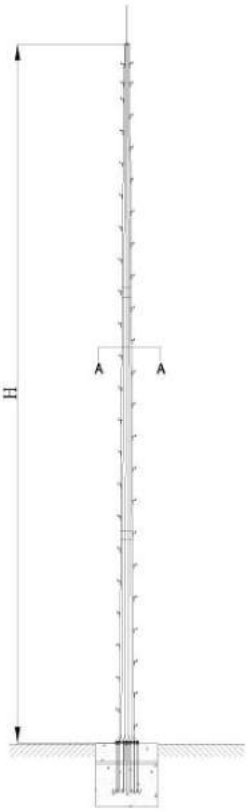


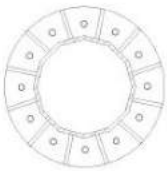
MOUNTING DRAWINGS LIVA ACTIVE LIGHTNING ROD



THE VIEW OF THE PLATFORM
FROM THE TOP

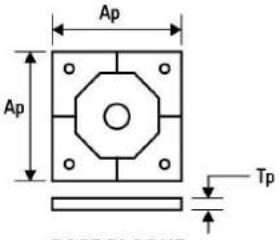






BASE PLAQUE

ANCHORING BOLT



BASE PLAQUE
Small pole