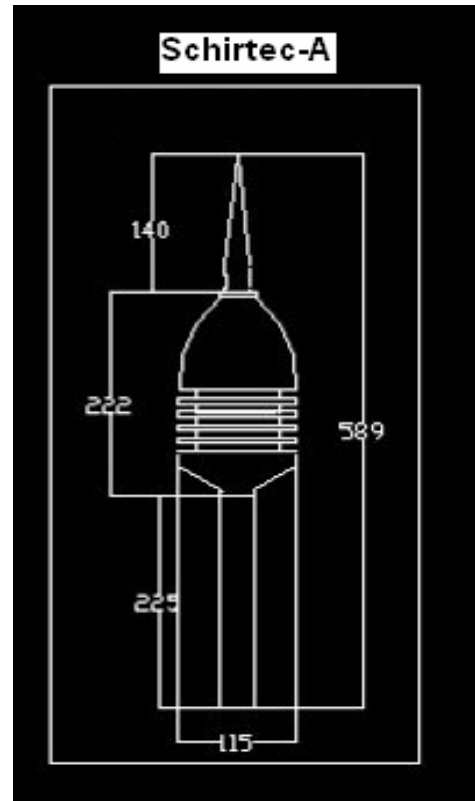




## SCHIRTEC-A E.S.E. LIGHTNING CONDUCTOR



(a)



(b)

Figure 1. **SCHIRTEC-A** E.S.E. Lightning Conductor

**SCHIRTEC-A E.S.E.** Lightning Conductor is products that do not include radioactive materials but protect large fields from one point by becoming active with the lightning risk due to increasing atmospheric electrical field effect in lightning weathers. The head part of **SCHIRTEC-A E.S.E** Lightning Conductor is formed by four main parts;

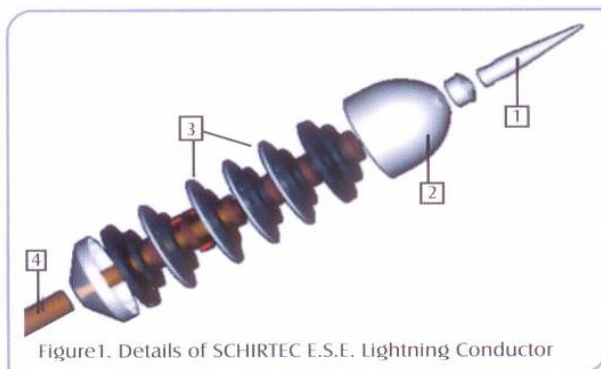


Figure1. Details of SCHIRTEC E.S.E. Lightning Conductor

1. Air Terminal
2. First Ion Generator
3. Accelerator and Atmospheric Electrodes
4. Grounding Connection Terminal

Figure 2. Details of **SCHIRTEC-A** E.S.E. Lightning Conductor

The Lightning Conductor is produced in the cross section and in the quality that can carry the biggest lightning observed. It is equipped with ion generator, induction coil and protective high impedance. This generator is placed in the special epoxy resin, so ion generator is protected against the negative effects of external environment.

Accelerator and atmospheric electrodes are designed in a way that can be charged with different potentials and with this feature, it is aimed to make work the electrodes as both additional ionization producing resource and as an accelerator.

Grounding connection terminal, makes the ground connection of the head. At the same time connection with the roof pole is provided with the pipe.

**SCHIRTEC** E.S.E Lightning Conductors are produced with completely rustproof materials, and this feature is documented by TÜV certificate. Product's resistance to lightning current is tested in BET and CTI Vienna laboratories. Early ionization interval and according to it early ionization way is documented by the tests made in the ICMET laboratory.

The most important factor in **SCHIRTEC** E.S.E. Lightning Conductors is protection radius. It is dependent on protection diameter level calculation and the  $\Delta T$  value, which is found in the product's test results. Protection radius is calculated according to their protection levels with the formula below. The working principle of **SCHIRTEC-A** Lightning Conductor's head is the same as that of the **SCHIRTEC-AS**, **SCHIRTEC-DA** and **SCHIRTEC-DAS** Lightning Conductors. The regulation is made with the number of the electrodes and ion generators' impedance, allows the different protection capacities in the **SCHIRTEC** E.S.E. Lightning Conductors.

$$R_p^2 = H \cdot (2D - H) + \Delta L (2D + \Delta L) \quad H \geq 5 \text{ meter}$$

D: Lightning advancement step or leaping interval of lightning along the way.  
For this reason it is the protection level parameter.

For level I protection D=20 m  
For level II protection D=30 m  
For level III protection D=45 m  
For level IV protection D=60 m

$$\Delta L \text{ (m)} = V \text{ (m/}\mu\text{s)} \cdot \Delta T \text{ (}\mu\text{s)}$$

V: is the speed of advancement of ions, which are formed on the conditions of lightning, around the air terminal, moving towards lightning. According to the standards  $V=1\text{m}/\mu\text{s}$

$\Delta T$ : is early ionization time period.

$\Delta L$ : is the distance to catch the lightning in  $\Delta T$  period (in other words, the distance that ions travel towards the lightning). This parameter is variable according to the air terminal produced and it is set in the laboratory tests,

H: Active Air Terminal Height (m)

$R_p$ : Protection Radius (m)

<b>SCHIRTEC-A E.S.E. LIGHTNING CONDUCTOR</b>					
<b>Ref.No:</b>	<b>Description</b>	<b><math>\Delta T(\mu s)</math></b>	<b>Material</b>	<b>Size (cm)</b>	<b>Weight(kg)</b>
S-A	E.S.E. Type Lightning Conductor According to NFC 17 102, $\Delta T: 60 \mu s$	68	Stainless Steel	59x12	2,8

The Protection Radius For **SCHIRTEC-A** E.S.E. Lightning Conductor (According to NFC 17 102 )

<b>Rp</b>	<b>SCHIRTEC-A ( <math>\Delta T=60 \mu s</math> )</b>			
<b>H</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>
<b>2</b>	<b>31</b>	<b>35</b>	<b>39</b>	<b>43</b>
<b>4</b>	<b>63</b>	<b>69</b>	<b>78</b>	<b>85</b>
<b>6</b>	<b>79</b>	<b>87</b>	<b>97</b>	<b>107</b>
<b>8</b>	<b>79</b>	<b>87</b>	<b>98</b>	<b>108</b>
<b>10</b>	<b>79</b>	<b>88</b>	<b>99</b>	<b>109</b>
<b>20</b>	<b>80</b>	<b>89</b>	<b>102</b>	<b>113</b>
<b>30</b>	<b>80</b>	<b>90</b>	<b>104</b>	<b>116</b>
<b>60</b>	<b>80</b>	<b>90</b>	<b>105</b>	<b>120</b>

