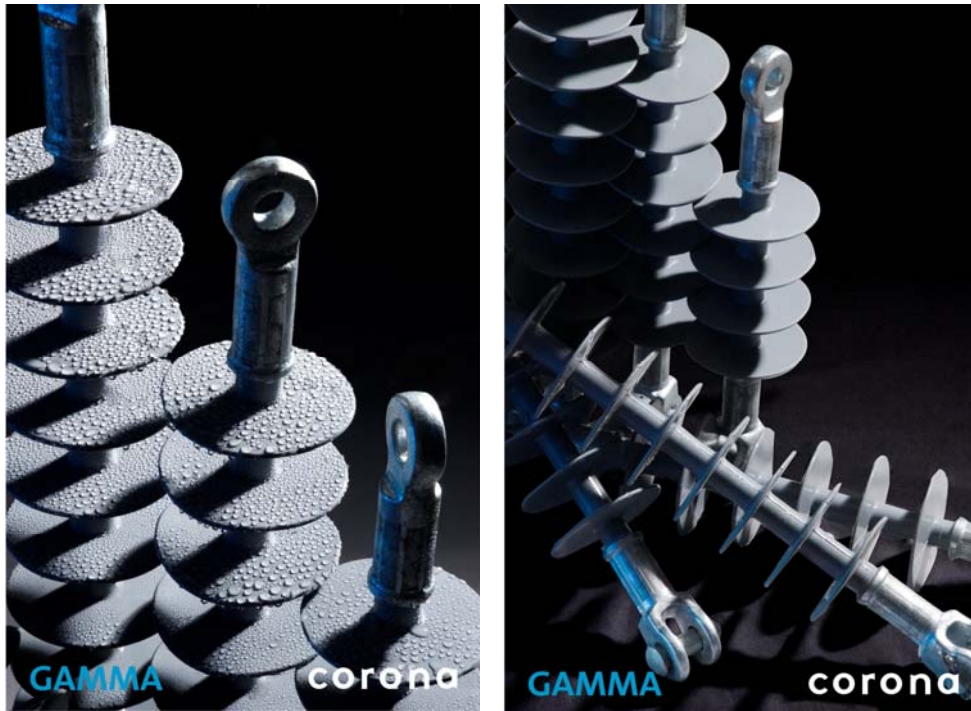


## ¡We Are Producing Polymeric Insulators!



GAMMA – CORONA Insulators launches its new line of products: Polymeric Insulators for 15, 25 and 35 kV. In this way we take one more step in our permanent pursuit to satisfy our clients' needs.

The production of polymeric insulators is the result of two years of research and large investments on equipment and specialized know how.

In Sabaneta, Antioquia, we have established a state-of-the-art technology plant in which we have implemented world class production tools and effective management systems.

### Certifications

The production and the marketing processes are certified by Icontec under the ISO 9001:2000, ISO 14001 and OSHAS 18001 norms.

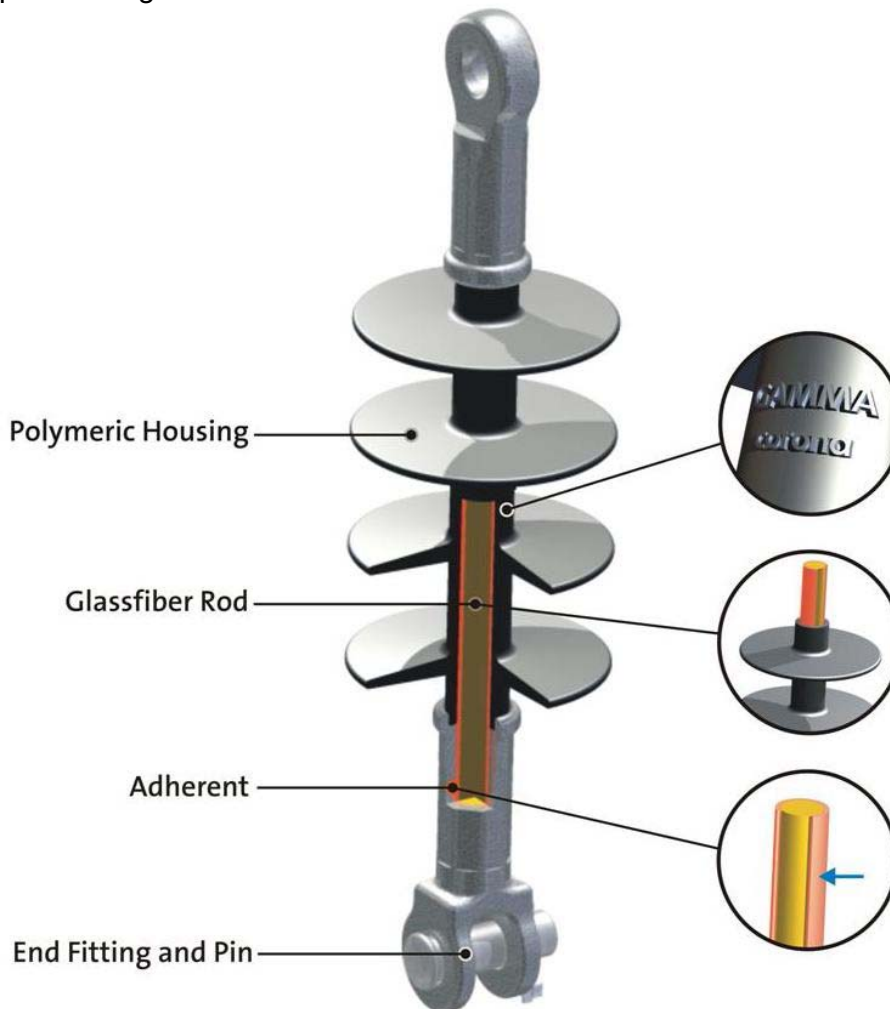
Insulators are certified by Cidet under the IEC 61109 and ANSI C29.13 international technical norms.

We also have the RETIE certification issued by Cidet.



## The product

GAMMA – CORONA polymeric insulators have elements in its constitutive parts provided by suppliers recognized world wide.



### Polymeric cover

It is made with HTV (High Temperature Vulcanized) silicone from Dow Corning, U.S, world leader in the production of all types of silicones, rubbers, etc.

The material has the following characteristics: Low elastic modulus, high hydrophobicity, stress resistance, easy mold release and excellent performance under humid conditions.

### Glass fiber core

Produced by Glasform, also from the United States, world class supplier and leader in America of these type of products.

Glass fiber core is made with the pultrusion process in order to guarantee uniformity of fibers, avoid axial cracks, develop the mechanical resistance required for the insulator and enable silicone to be uniformly vulcanized.

### End fittings and pin

Thanks to more than 45 years of experience in the acquisition of this type of inputs, we can rely on suppliers recognized globally.

They are made of nodular hot-dip galvanized iron mechanized by high precision equipments.

## **The plant**

Since the beginning, the project was conceived with the purpose of building a world class plant, with the most recognized equipment manufacturers, and the selection of injection process for the manufacturing of the polymeric cover and the encrypted process for fitting adherence, which allow us to guarantee the requirements of our clients in a most effective way.

To ensure this objective, it was also decided to acquire cutting-edge technology in order to comply with the most demanding specifications for the process and the final product.

The plant was designed based on the most modern production tools principles.

### TPM (Total Productive Maintenance)

Machines are designed and installed based primarily on the objective of looking for the safety of operators.

The design of the plant maximizes the global efficiency of the equipments inside, taking into account aspects like productivity, quality and operation time, within the bounds of auto control, autonomy and cleanliness.

### Lean Manufacturing

We use the Lean Manufacturing principles to design equipment distribution and product flow inside the plant.

Our aim for each one of the production operations is to add value to the product and to eliminate waist. We organized the equipment in such a way that we reduced transportation, rework, waiting times and inventory in process, in order to make a product in the least possible time.

### DFSS (Design for Six Sigma)

We use this methodology for the product and process design.

By means of mathematical equations we determined the design of the product required by our clients and current regulations, and with the use of simulators we were able to predict the quality of the product.

In this way, we established control points in the process that allow us to guarantee quality as well as compliance with technical specifications.

### Six Sigma

We were able to establish that the process is under control and that the learning curve was covered in a short time by applying Six Sigma, a methodology that with the help of statistics allows reduce the variability of processes, to increase quality levels and to comply with the requirements of clients.

## **Conformity Assessment**

GAMMA - CORONA polymeric insulators were designed and produced according to IEC 61109 and ANSI C29.13 norms, and were tested by CESI from Germany and Lapem from Mexico, two highly recognized laboratories respected world wide.

## The Guarantee

Because we are confident of the products we are launching, characterized for being reliable and safe, from we are now offering the same warranty as the best and most experimented manufacturers in the world: 24 months post-installation and 36 months post-sale.

## Packing and storage

Silicone insulators belong to the elastomers family, a material that distorts when subjected to external forces but recovers its initial form once the force ceases to exist, and therefore must be handled adequately so that prolonged pressures will not distort them.

To avoid such distortions, we have designed a cardboard packing that protects the bells from having to support such kind of force; free from efforts and distortions.

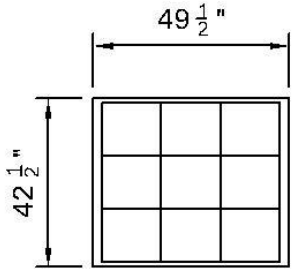
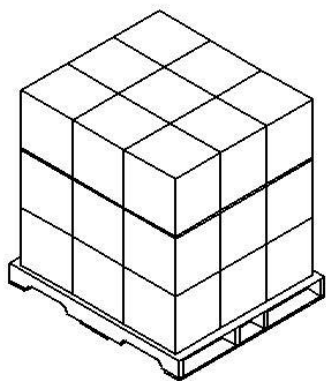
To prevent the cardboard from getting wet and the boxes damaged, storage must be under a roof. The boxes may be placed one on top of the other one until reaching 3 levels. If it is necessary to store above three levels, it is recommended to use a wood stowage every 3 levels. See the following graphic.

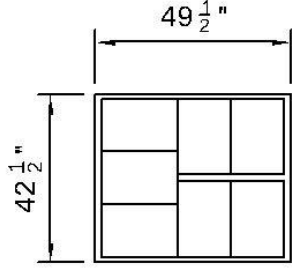
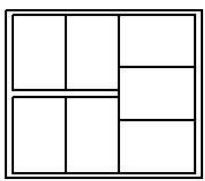
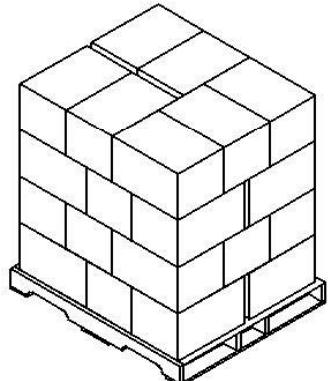
Finally, the product must be out of reach of rodents, birds, cockatoos and other animals that can damage the silicone.

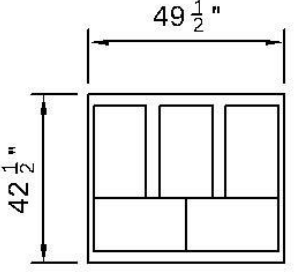
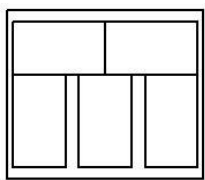
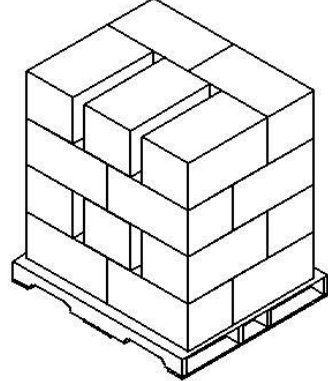
With the security provided by our background, the certainty of having insulators produced with the best material available world wide; and with the support of methodologies previously mentioned as well as the management, quality, environmental and health, and industrial safety systems, we launch our product to conquer the polymeric insulators market, not only in Colombia, but in all the American Continent.

## How should the insulators pile be?

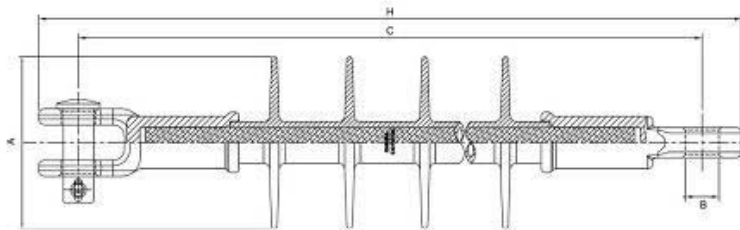
Below, are our recommendations on how to store and pile our polymeric insulators in your warehouse in order to optimize space and conserve them.

REFERENCE	TYPE OF PALLET ( Inch <sup>2</sup> )	BOXES PER PALLET	BOXES PER LAYING	# OF LAYINGS	TYPE OF PILE	PALLET PER PILE
POLIMERIC FOR 15 KV	49 1/2" x 42 1/2"	27	9	3	Unlock	2
	  <p>3 EQUAL LAYINGS</p>					

REFERENCE	TYPE OF PALLET ( Inch <sup>2</sup> )	BOXES PER PALLET	BOXES PER LAYING	# OF LAYINGS	TYPE OF PILE	PALLET PER PILE
POLIMERIC FOR 25 KV	49 1/2" x 42 1/2"	28	7	4	Lock	2
	   <p>1<sup>ST</sup> LAYING 3<sup>RD</sup> LAYING</p> <p>2<sup>ND</sup> LAYING 4<sup>TH</sup> LAYING</p>					

REFERENCE	TYPE OF PALLET ( Inch <sup>2</sup> )	BOXES PER PALLET	BOXES PER LAYING	# OF LAYINGS	TYPE OF PILE	PALLET PER PILE
POLIMERIC FOR 35 KV	49 1/2" x 42 1/2"	20	5	4	Lock	2
	   <p>1<sup>ST</sup> LAYING 3<sup>RD</sup> LAYING</p> <p>2<sup>ND</sup> LAYING 4<sup>TH</sup> LAYING</p>					

## Suspension Polymer Insulator Clevis - Eye Type



CATALOG NUMBER	PS015	PS025	PS035
ANSI CLASS (C29.13 - 2000)	D5-15	D5-28	D5-35
IEC	61109	61109	61109
<b>CRITICAL DISTANCES</b>			
Dry arcing distance, inches (mm)	7.4 (190)	11.4 (290)	15.3 (390)
Leakage distance, inches (mm)	16.1 (410)	24.8 (630)	36.0 (915)
<b>MECHANICAL VALUES</b>			
Specified mechanical load (SML), lb (kN)	15736 (70)	15736 (70)	15736 (70)
Routine test load (RTL), lb (kN)	7868 (35)	7868 (35)	7868 (35)
Torsional load, lb.ft (N.m)	35 (47)	35 (47)	35 (47)
<b>ELECTRICAL VALUES, kV</b>			
Typical application voltage	15	25	35
Low-frequency dry flashover	95	130	160
Low-frequency wet flashover	85	120	150
Critical impulse flashover, positive	145	215	265
Basic insulation level (BIL)	140	210	255
<b>RADIO INFLUECE</b>			
Voltage test (kV)	15	20	30
Radio influence voltage at 1000 kHz, (μV)	<10	<10	<10
<b>DIMENSIONS ACCORDING TO DRAWING</b>			
Total height H, inches (mm)	14.7 (374)	18.6 (474)	22.4 (569)
Length A, inches (mm)	3.6 (91)	3.6 (91)	3.6 (91)
Length B, inches (mm)	0.71 (18)	0.71 (18)	0.71 (18)
Length C, inches (mm)	13 (330)	16.9 (430)	20.6 (525)
Number of sheds	4	6	9
<b>PACKING AND SHIPPING DATA</b>			
Net weight each, pounds (Kg)	2.3 (1.04)	2.6 (1.18)	2.9 (1.34)
Packed weight, pounds (Kg)	54.7 (24.8)	50.0 (22.7)	57.3 (26.0)
Pieces in standard package	22	18	18

Fiberglass rod (E-glass).

Polymer housing: Silicone "high voltage".

End Fitting and pin: Nodular iron galvanized.

## Contact us...

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