



GUAM POWER AUTHORITY
AGANA, GUAM

Specification No. 021

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PREPARED BY INFORMATION SYSTEMS DEPARTMENT

GUAM POWER AUTHORITY
Post Office Box 2977
AGANA, GUAM 96910

TRANSMISSION & DISTRIBUTION SPECIFICATION

SPECIFICATION No. E-021

FOR

POLYMER COMPOSITE INSULATORS:

115 KV SUSPENSION, LINE POSTS,

STATION, AND 34.5 KV HORIZONTAL

LINE POST CLAMP TOP

EFFECTIVE DATE: 12/31/86

ISSUED: *Antonio O. Espinoza*

APPROVED: *W. Palacios*



POLYMER COMPOSITE INSULATORS:
115 KV SUSPENSION, LINE POST, STATION, AND
34.5 KV HORIZONTAL LINE POST CLAMP TOP

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String Assembly
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1.0 SCOPE:

This specification covers the design and technical features required for polymer type composite insulators used on the GPA transmission system.

2.0 DEVIATIONS:

- 2.1 Deviations from this specification or changes in the material or design after the purchase order has been placed must be approved by the GPA Engineering Department and acknowledged by Purchase Order Amendment.
- 2.2 Units received with deviations or non-conformances which are not acknowledged as specified in Sub-Paragraph 2.1 are subject to rejection. The Supplier of units rejected in this paragraph is responsible for any corrective action including but not limited to materials, labor and transportation necessary to dispose of, or make the units conform to the specification.
- 2.3 Notification of defective units discovered before or after installation that are believed to be inherent to manufacturing problems or workmanship shall be made and forwarded to the Supplier. The description of the item, documentation of the problem and the described information, disposition and/or follow-up (as appropriate) that GPA expects from the Supplier will be specified. The Supplier's response shall be made within thirty (30) days unless an extension is acknowledged and approved in writing by the GPA Manager of Engineering.

3.0 STANDARDS:

Insulators furnished by manufacturer shall conform to the latest standards of IEEE, ANSI, ASA, and NEMA with respect to material, design and tests, and shall meet the requirements of N.E.C.

4.0 INSULATOR MATERIAL:

- 4.1 Insulators shall be made of good commercial polymer composite insulators. The insulators shall be continuous weathershed material containing no joints or axial parting lines to eliminate discharge and erosion.



- 4.2 The assembly shall firmly unite the insulators component parts together eliminating the need for bonding or barrier materials so there is no possibility of discharge-producing voids at the interfaces.
- 4.3 The sheds of insulators must be steeply sloped to reduce bridging and provide extensive protected leakage distance.
- 4.4 The insulators shall be protected against damaging moisture penetration.

5.0 TESTS:

The insulators shall receive an electrical and mechanical test to assure the soundness before shipment.

- 5.1 Insulators shall be tested in accordance with American National Standard Test Methods for Electrical Power Insulators (ANSI C29.1)

The Manufacturer shall assure that the insulators being furnished meet each of the test requirements by furnishing certified test reports of previously performed tests on insulators of the same basic design and rating.

5.2 Electrical Tests

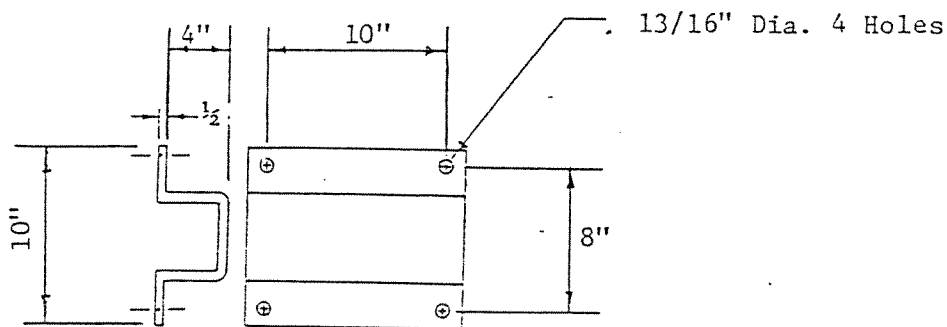
- 5.2.1 Low frequency withstand voltage tests
- 5.2.2 Impulse withstand voltage tests
- 5.2.3 Radio influence voltage tests
- 5.2.4 Impulse flashover voltage tests
- 5.2.5 Low frequency flashover voltage tests

5.3 Mechanical Tests

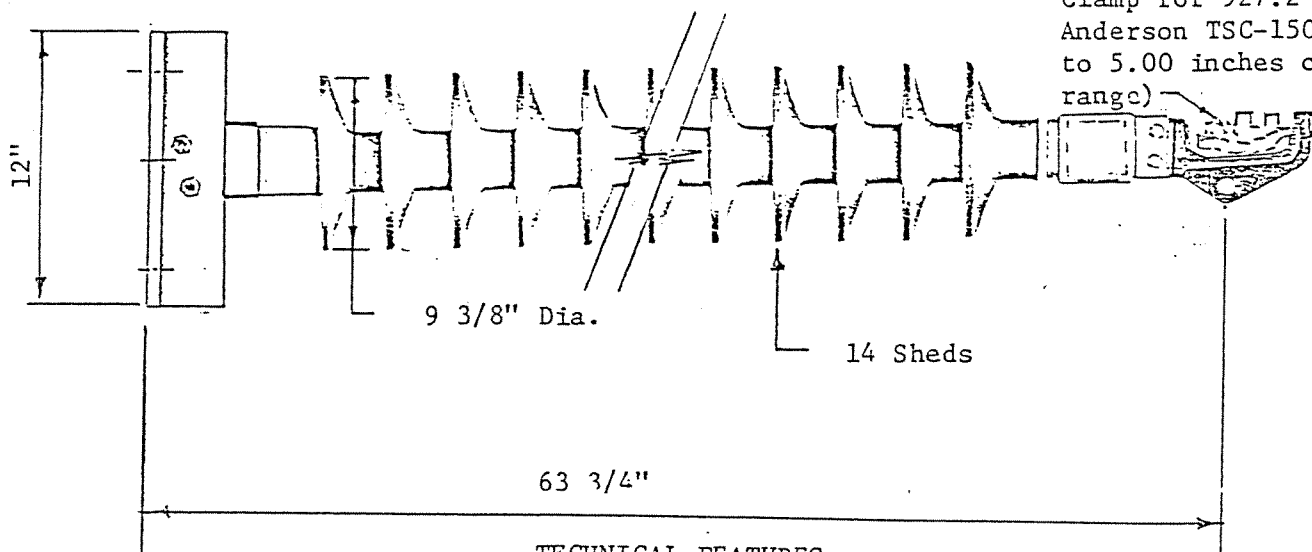
- 5.3.1 Ultimate mechanical - strength test
- 5.3.2 Thermal test



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Mounting Details



Aluminum Trunnion Susp.
Clamp for 927.2 Al.wire
Anderson TSC-150(1.00
to 5.00 inches clamping
range)

TECHNICAL FEATURES

Max Design Cantilever Load(Insulator Rating, Clamp Top Adapter ----- is Rated 1,500 lb)	1290 lb.
Mas Design Tension Load(Insulator Rating, Clamp Top Adapter----- is Rated 1,500 lb)	7500 lb.
Net Weight -----	70 lb.
Leakage Distance -----	130 in.
Strike Distance -----	51 in.
Dry 60 HZ Flashover -----	500 kv
Wet 60 HZ Flashover -----	445 kv
Impulse Positive Flashover -----	740 kv

6.0

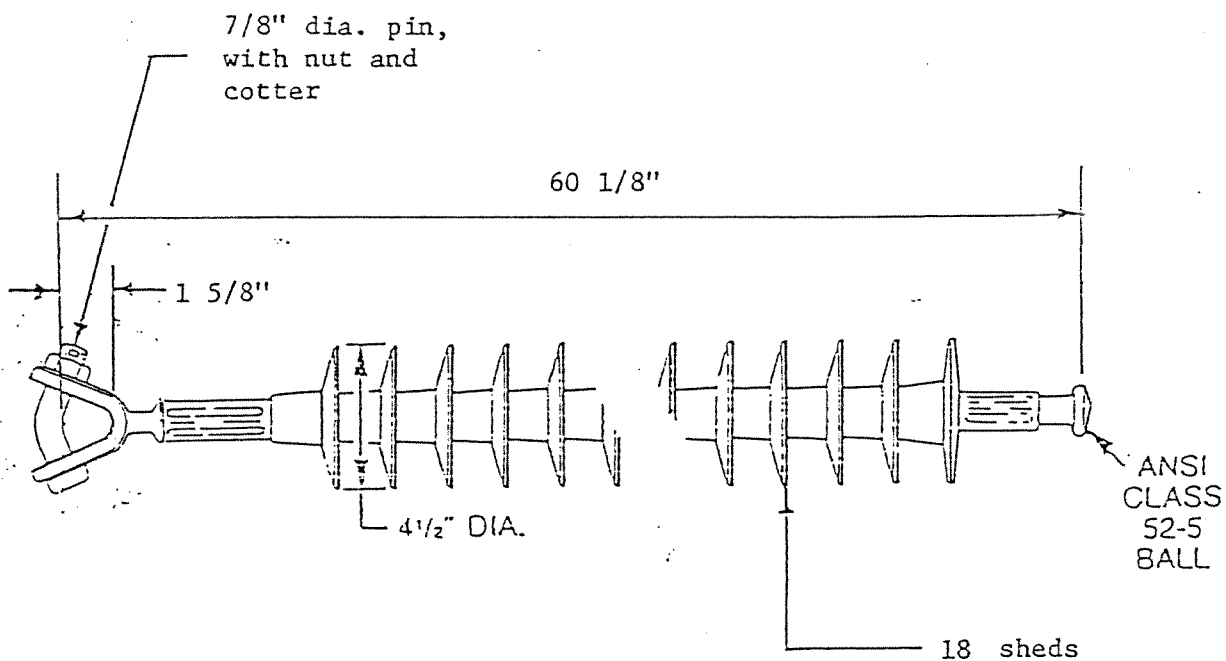
115 KV LINE POST (FLAT MOUNT) INSULATOR

(Ohio Brass Cat. No. 232700-3005 or equal)

EFFECTIVE DATE: 12/31/86

ISSUED: Antonio D. Lopez

APPROVED: H. Lopez



7.0

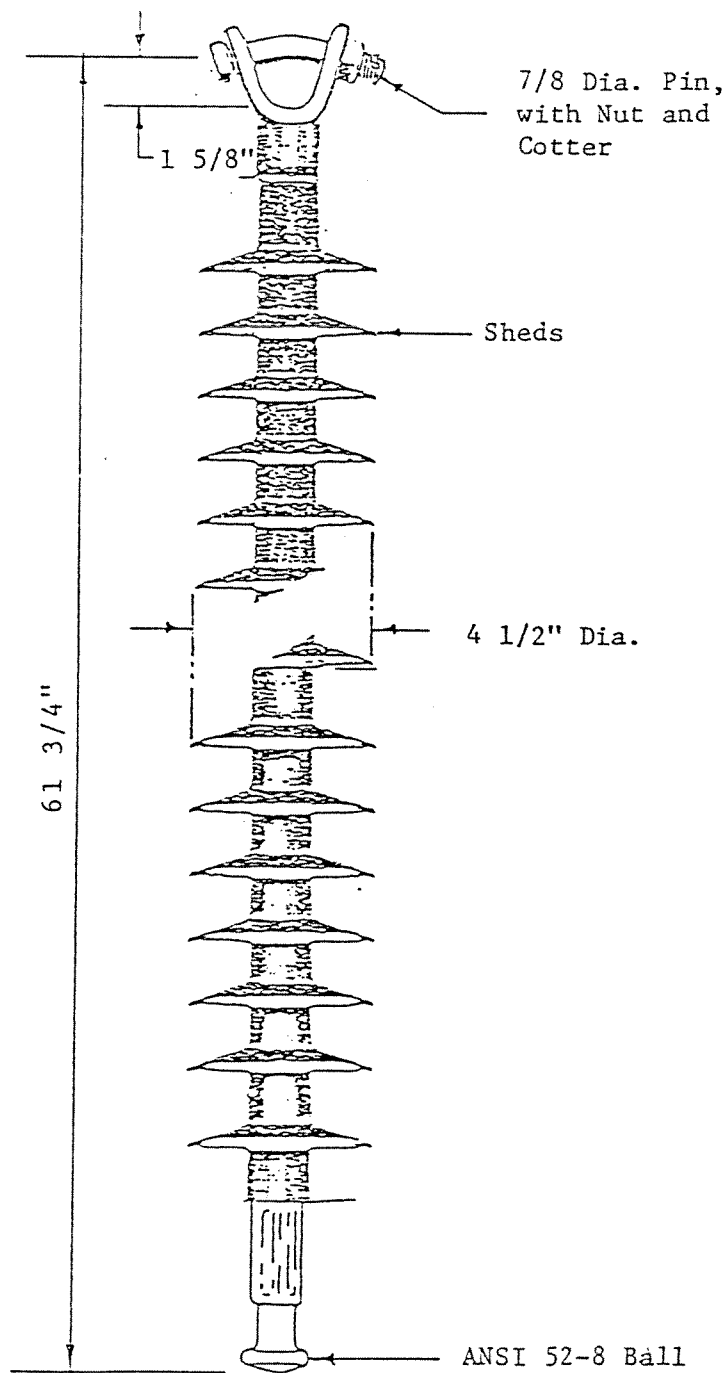
115 KV SUSPENSION INSULATOR (Vertical Mounting)

(Ohio Brass Cat. No. 232797-3101 or equal)

Mechanical Values: 15000 lbs. strength (equivalent to 30,000 lbs.
porcelain M & E rating)



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8.0 115 KV SUSPENSION INSULATOR FOR DEADEND ASSEMBLY

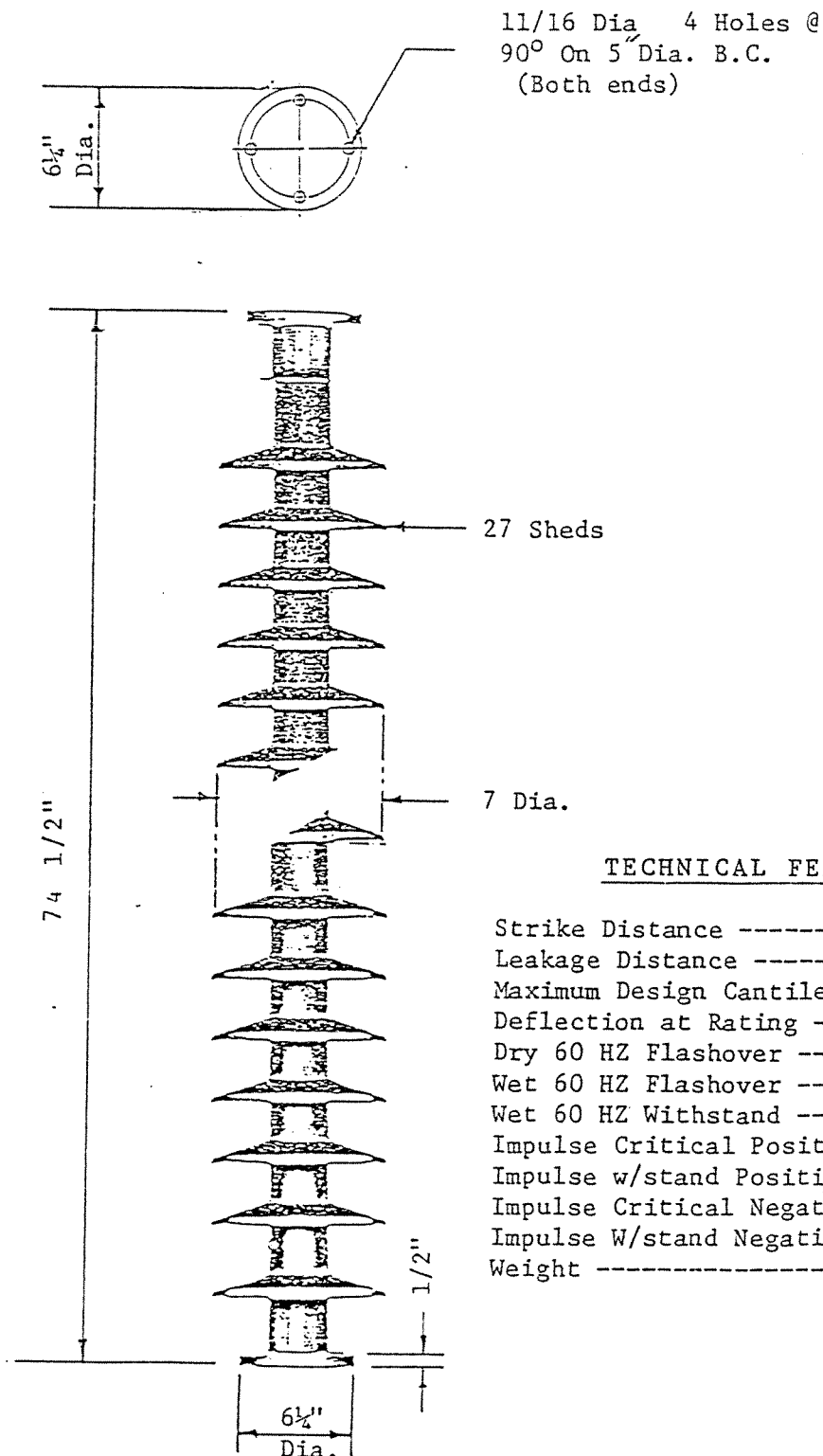
(Ohio Brass Cat. No. 232909 - 3101 or equal)

Mechanical Values: 20,000 lbs. strength (equivalent to 40,000 lbs. porcelain M & E rating).

EFFECTIVE DATE: 12/31/86

ISSUED: *Unbravo U. Esquivel*

APPROVED: *W. Balaguer*

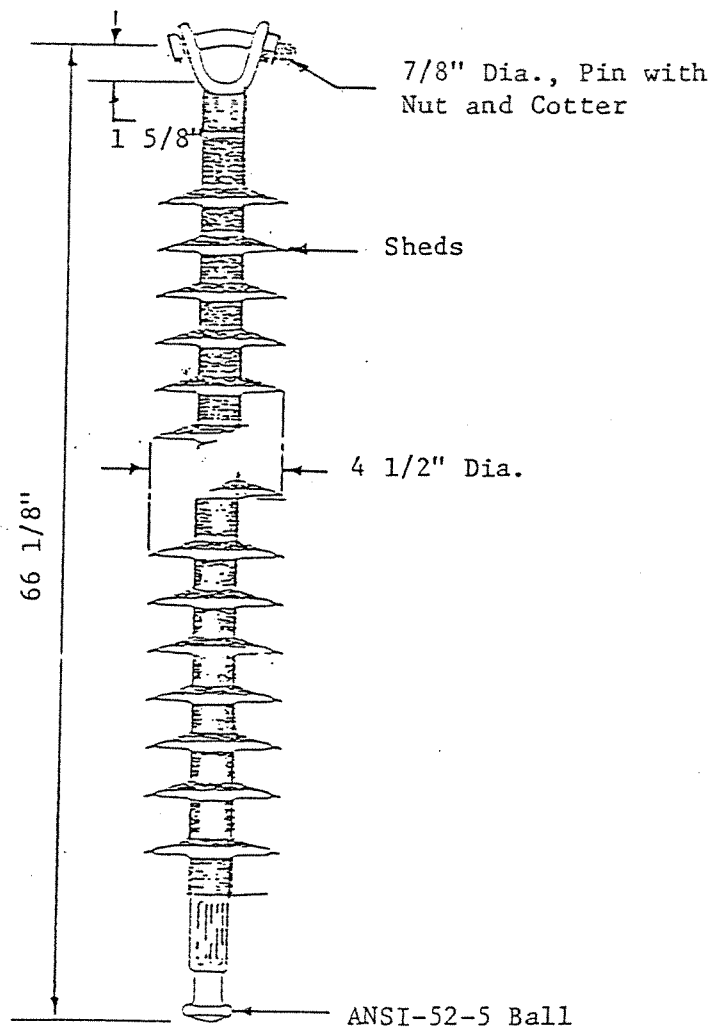


TECHNICAL FEATURES

Strike Distance	71 in.
Leakage Distance	196 in.
Maximum Design Cantilever	284 lb.
Deflection at Rating	12.1 in.
Dry 60 HZ Flashover	705 KV
Wet 60 HZ Flashover	640 KV
Wet 60 HZ Withstand	545 KV
Impulse Critical Positive	1100 KV
Impulse w/stand Positive	1045 KV
Impulse Critical Negative	1200 KV
Impulse W/stand Negative	1140 KV
Weight	58 lb.

9.0

115 KV STATION POST (STRUT) INSULATOR
(Ohio Brass Cat. No. 233190-3002 or equal)



10.0 115 SUSPENSION INSULATOR FOR VEE STRING ASSEMBLY

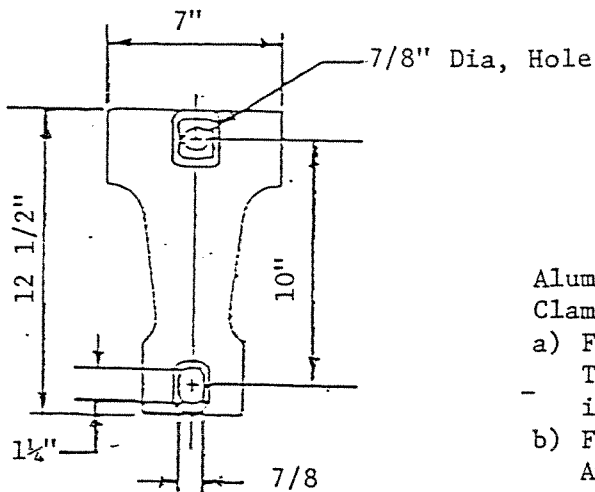
(Ohio Brass Cat. No. 232800-3101 or equal)

Mechanical Values: 15000 lbs. strength (equivalent to 30,000 lbs porcelain M & E rating).

EFFECTIVE DATE: 12/31/86

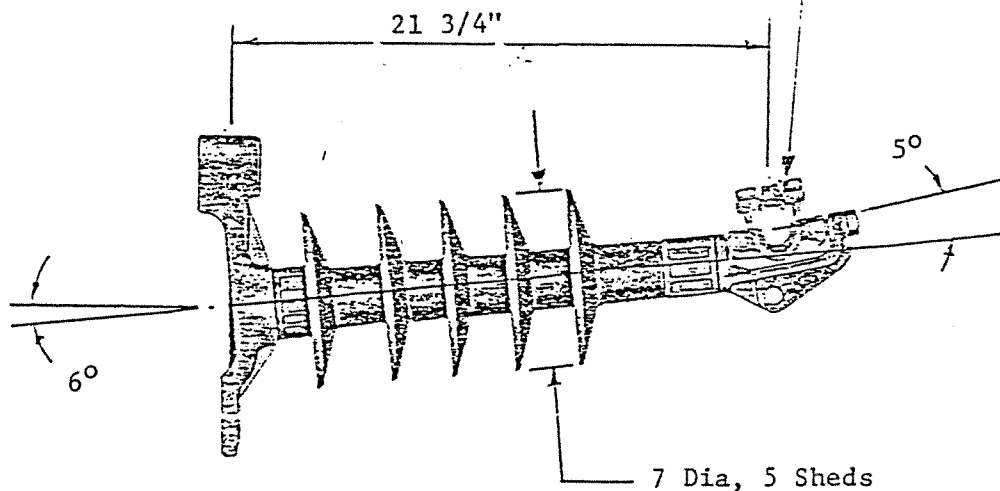
ISSUED: *Virginia U. Engineer*

APPROVED: *Balegishi*



Aluminum Trunnion Suspension
Clamp

- a) For 336.4 al. use Anderson TSC 106(.50 to 1.06 inches clamping range)
- b) For 927.2 al. use Anderson TSC 150(1.00 to 1.50 inches clamping range)



TECHNICAL FEATURES

Strike Distance	-----	16 in.
Leakage Distance	-----	36 1/2 in.
Maximum Design Cantilever	-----	1135 lb.
Deflection at Rating	-----	.78 in.
Dry 60 HZ Flashover	-----	140 kv
Wet 60 HZ Flashover	-----	125 kv
Wet 60 HZ Withstand	-----	110 kv
Impulse Critical Positive	-----	225 kv
Impulse Withstand Positive	-----	215 kv
Impulse Critical Negative	-----	345 kv
Impulse Withstand Negative	-----	330 kv
Weight	-----	22 1/2 lb.

11.0

34.5 KV HORIZONTAL LINE POST CLAMP TOP

(Ohio Brass Cat. No. 232658-3001 or equal)

EFFECTIVE DATE: 12/31/84

ISSUED: Unifor O. C. C. C.

APPROVED: M. C. C.