

Insulators

Current Collector Components/Insulators



TranSTech™
POWER TRANSFER SYSTEMS



**Molded Fiberglass
Reinforced Polyester
Compound**

**Porcelain, Giant Strain
and Molded Insulators
Available**

**Superior Mechanical
Strength**

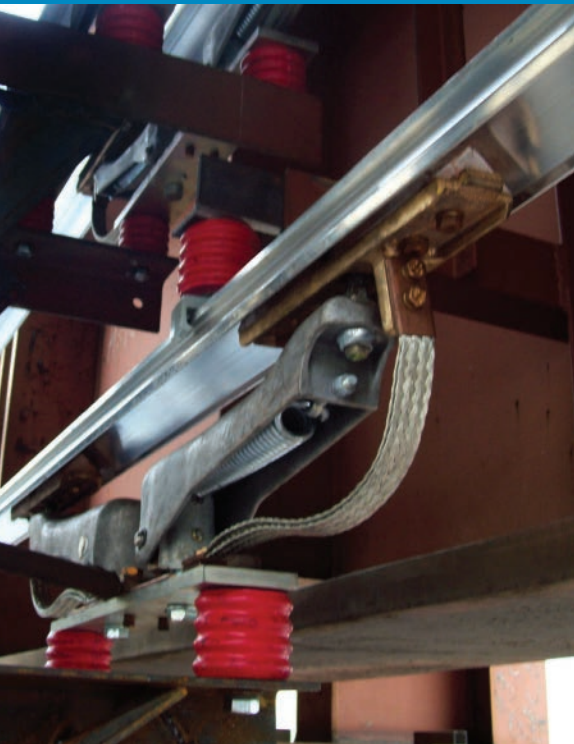
**Excellent Electrical
Characteristics**

Corrosion Resistant

**NEMA Class B
Applications**

High Heat Resistance

**Many Accessories
Available**



Standoff Electrical & Custom Thermoset Molded Insulators

Molded fiberglass reinforced polyester insulators have found wide acceptance in industrial insulation systems because of their superior mechanical strength, toughness, excellent electrical characteristics even under high humidity conditions and good weatherability and corrosion resistance. These materials are thermosetting exhibiting high heat resistance, flame retardance, excellent mechanical and thermal shock resistance, track resistance, and will not shatter if dropped.



Features

- Polyester Compound UL Recognized
- Hi-Pot Tested up to 25 kV for 10 Seconds
- Maximum Service Temperature
 - Continuous 300°F
 - Intermittent 400°F
- Molded Designs include Giant Strain, Spool, Suspension, Corrugated, Petticoat and others
- Voltages up to 5000 Volts
- High Impact Strength
- Tapped, Studded, Strain Eye, Strain Clevis, Various Stud Lengths & Sizes

TransTech insulators are molded of premium grade polyester compounds which have been tested and recognized by Underwriters Laboratory.* The materials used in these insulators are designed for NEMA Class B insulation applications. The insulators are self-extinguishing per ASTM D635 with flame resistance of 153 seconds to ignition and 25 seconds burning per FTMS-S-406,2023.2.

All molded insulators are 100% inspected and hi-pot withstand tested up to 25 kV for 10 seconds.

Applications

Recommended applications include bus and switch support, contact rail and wire supports, panel and switchboard insulators, or any application requiring combined structural support and electrical insulation.

References

U.L. Material-Recognition Number E27875-E36714 Patented: U.S. No. 3,098,894

Project Engineering and On-Site Installation Support

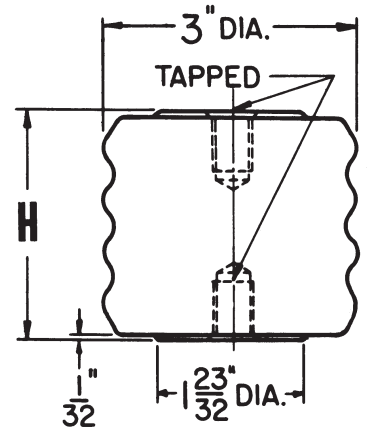
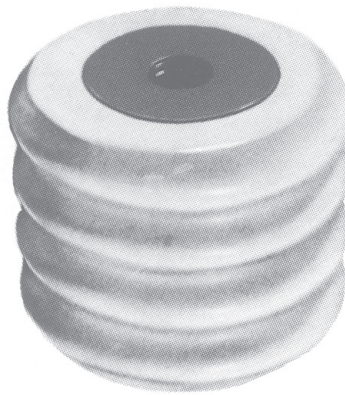
TransTech's engineers custom-configure our products and systems to meet each customer's unique application requirements. We provide on-site technical installation support and layout drawings to our customers and their installation teams.

Insulators - Molded Polyester Fiberglass

Mechanical and Electrical Properties

Tensile Strength (Pounds).....	7,000
Cantilever Strength (Inch Pounds).....	12,000
Compression Strength (Pounds).....	65,000
Torsional Strength (Ft. Pounds).....	150+
Tracking Resistance (Arc, ASTM D495) (Sec.)	190
Flame Resistance (ASTM D635)	Self-Ext.
(ASTM D757) (Inch/Min.)	0.264
(Federal Std. 406).....	12 ⁹ / ₅₄
Creep Distance (Inches) Plate to Plate	1/4 + "H"
Insert to insert.....	1 ³ / ₁₆ + "H"
Water Absorption (% in 24 hrs.) (ASTM D570)	0.28
Height Tolerance.....	±0.015
Maximum Service Temp., Continuous.....	300° F.
Intermittent.....	400° F.
Hi-Pot Withstand Test (100%) — KV.....	25

Corrugated Insulators



Catalog Information

Tap Size UNC - 2B	"H" = Height - Inches						
	2 ⁵ / ₈	2 ³ / ₄	2 ⁷ / ₈	3	3 ¹ / ₈	3 ¹ / ₄	3 ³ / ₈
1/2 - 13	88677	106600	106589	106590	106591	106592	106593
5/8 - 11	88678	106601	106594	106348	106595	106596	105960
3/4 - 10	89791	106602	106597	106349	106598	106599	105961

H = Height	2 ⁵ / ₈	2 ³ / ₄	2 ⁷ / ₈	3	3 ¹ / ₈	3 ¹ / ₄	3 ³ / ₈
Average Flashover Strength — Dry (K.V., S.T.)	40	40	45	45	50	50	55
Average Dew Flashover Strength (K.V., S.T.)	19	19.5	20	20.5	21	21.5	22
Impulse (K.V., 1.5 x 40 WAVE) WS*	80	84	88	92	96	100	104
Weight — Lbs.	1.75	1.8	1.85	1.9	1.95	2.0	2.05

Material:

Fiberglass reinforced polyester, electrical grade, corrosion resistant, red-poly standard grade #1. Color red.

*ASA C29.1 — 1951 American Standard Test Method Electrical Power Insulators

Insulators - Molded Red-Poly For Electrical Systems

Features

Featuring an all new self-cleaning configuration,* TransTech's new line of polyester fiberglass standoff insulators are offered in 69 standard size and shape varieties. All heights in either diameter also can be had with molded petticoat as illustrated. The petticoat will double the creepage distance and wet-flashover value. The flame retardance and track resistance ability of RED-POLY Insulators, plus the mechanical strength to withstand high shock and vibration, allow almost unrestricted application within the rated voltage.

The wide range of stock sizes and shapes enable the electrical system designer to use standard insulators for almost any space problem encountered. However, for special space problems, TransTech can supply insulators to exact heights required at a very small extra cost. Economical product of "specials" is a result of uniquely flexible and advanced manufacturing processes.

Material Grade

TransTech's Material Grades are engineered for use as structural insulating members in equipment designed to meet NEMA Class B Requirements.

Each item as catalogued is made of electrical grade corrosion and track resistant fiberglass reinforced polyester. This is a high strength material with superior weather-resistant characteristics.

Petticoats

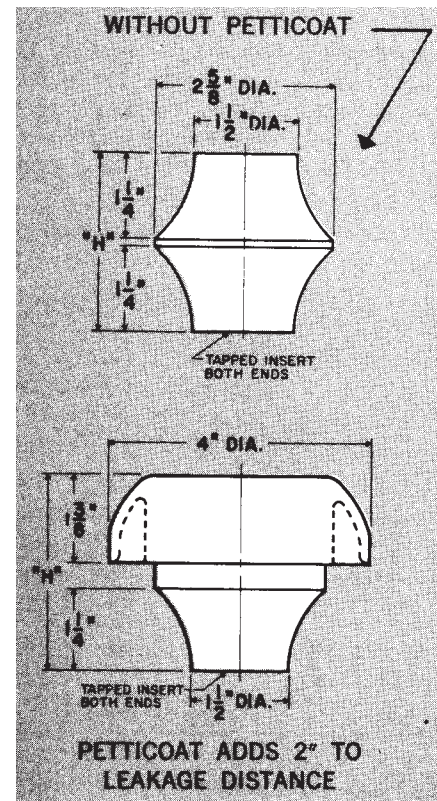
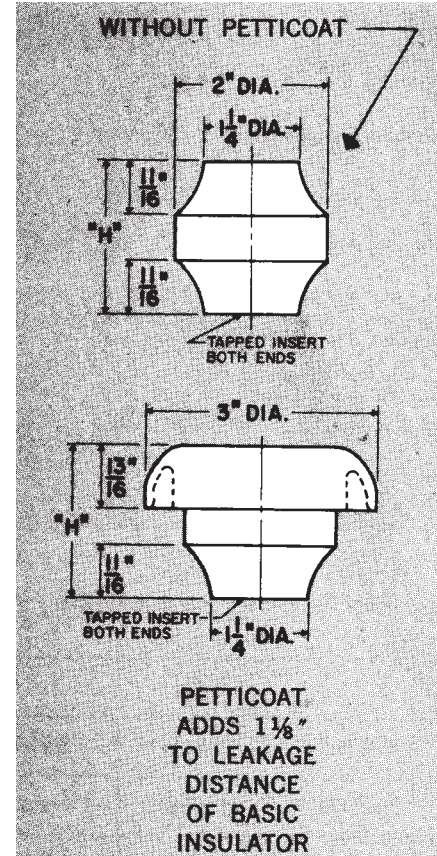
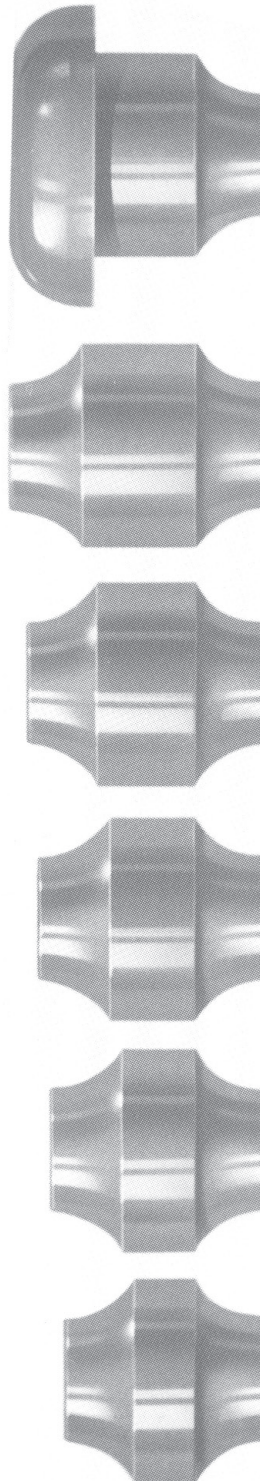
The Petticoat provides a "Leakage Current Barrier" by effectively increasing the leakage distance, and is desirable for applications under conditions of excessive moisture, air contamination, etc.

Petticoat is available, as an integral part of any insulator size listed (See Ordering Directions).

Inserts

All inserts are corrosion resistant plated steel with NC-class 2 threads.

*Patent No. 3,098,894



**Insulators - Molded
Red-Poly For Electrical Systems**

Catalog Number — 2" Dia.									
Tap Size	"H" Dim								
	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2
1/4 - 20	9455101	9455102	9455103	9455104	9455105	9455106	9455107		
5/16 - 18	9455108	9455109	9455110	9455111	9455112	9455113	9455114		
3/8 - 16	9455115	9455116	9455117	9455118	9455119	9455120	9455121	9455122	9455123
1/2 - 13			9455124	9455125	9455126	9455127	9455128	9455129	9455130
5/8 - 11			9455131	9455132	9455133	9455134	9455135	9455136	9455137

Ordering Directions

1. To Order insulators with Petticoat, change 51 to 71 in Cat. No.

Average Mechanical and Electrical Properties

Ultimate Tensile Strength (Pounds)	Track Resistance, Inclined Plane D2303 (Min.).....	1,200
1 1/2" to 1 7/8" High.....	Arc Resistance (Arc, ASTM, D-495) (Sec)	190
2" to 2 1/2" High.....	Flame Resistance (ASTM, D-635).....	Self. Ext.
Ultimate Cantilever Strength (Inch-Pounds)	Creep Distance (Inches - without Petticoat).....	1/4 + H
1 1/2" to 1 7/8" High.....	(Inches - with Petticoat).....	1 3/8 + H
2" to 2 1/2" High.....	Water Absorption (% in 24 Hours) (ASTM, D-570).....	0.28
Ultimate Compression Strength (Pounds).....	Height Tolerance (Inches).....	± .015
Ultimate Torsional Strength (Ft-Pounds).....		50

H = Height	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2
Flashover Strength - Dry (K.V., S.T.)	35	35	35	35	38	38	38	38	38
*Dew Flashover Strength (K.V., S.T.) w/o Petticoat	12	12.5	13	13.5	14	14.5	15	15.5	16
*Dew Flashover Strength (K.V., S.T.) w/ Petticoat	19	19.5	20	20.5	21	21.5	22	22.5	23
*Impulse (K.V., 1.5 x 40 WAVE) WS	25	30	35	40	45	50	55	60	65
Weight (lbs.) plus .15 lb. for Petticoat	.22	.26	.30	.34	.38	.42	.46	.50	.54

*A.S.A. C29.1 — 1961 American Standard Test Method Electrical Power Insulators

Catalog Number — 2 5/8" Dia.									
Tap Size	"H" Dim								
	2 5/8	2 3/4	2 7/8	3	3 1/8	3 1/4	3 3/8	3 1/2	
3/8 - 16	9456101	9456102	9456103	9456104	9456105	9456106	9456107	9456108	
1/2 - 13	9456109	9456110	9456111	9456112	9456113	9456114	9456115	9456116	
5/8 - 11	9456117	9456118	9456119	9456120	9456121	9456122	9456123	9456124	
3/4 - 10	9456125	9456126	9456127	9456128	9456129	9456130	9456131	9456132	

Ordering Directions

1. To Order insulators with Petticoat, change 61 to 81 in Cat. No.

Average Mechanical and Electrical Properties

Ultimate Tensile Strength (Pounds)	Flame Resistance (ASTM, D-635).....	Self. Ext.
Ultimate Cantilever Strength (Inch-Pounds)	Leakage Distance (Inches - without Petticoat)	3/8 + H
Ultimate Compression Strength (Pounds).....	(Inches - with Petticoat).....	2 3/8 + H
Ultimate Torsional Strength (Ft-Pounds).....	Water Absorption (% in 24 Hours) (ASTM, D-570).....	0.28
Track Resistance, Inclined Plane D2303 (Min.).....	Height Tolerance (Inches).....	± .015
Arc Resistance (Arc, ASTM, D-495) (Sec)		190

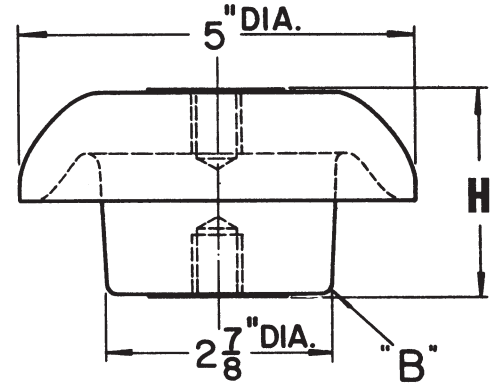
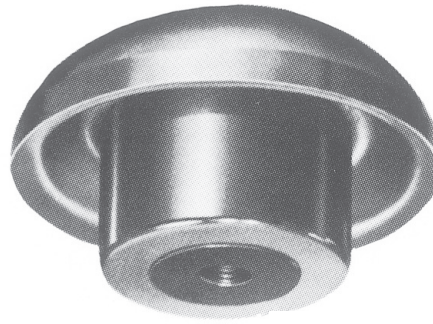
H = Height	2 5/8	2 3/4	2 7/8	3	3 1/8	3 1/4	3 3/8	3 1/2
17.5 Flashover Strength - Dry (K.V., S.T.)	40	40	40	40	40	40	40	40
*Dew Flashover Strength (K.V., S.T.) w/o Petticoat	17	17.5	18	18.5	19	19.5	20	20.5
*Dew Flashover Strength (K.V., S.T.) w/ Petticoat	28	28.5	29	29.5	30	30.5	31	31.5
*Impulse (K.V., 1.5 x 40 WAVE) WS	70	74	78	82	86	90	94	98
Weight (lbs.) plus .43 lb. for Petticoat	.65	.70	.75	.80	.85	.90	.95	1.00

*A.S.A. C29.1 — 1961 American Standard Test Method Electrical Power Insulators

Insulators - Molded Polyester Fiberglass

Mechanical and Electrical Properties

Tensile Strength (Pounds)	7,000
Cantilever Strength (Inch Pounds).....	12,000
Compression Strength (Pounds).....	65,000
Torsional Strength (Ft. Pounds).....	150+
Tracking Resistance	
(Arc, ASTM D495) (Sec.)	190
Flame Resistance (ASTM D635).....	Self-Ext.
Creep Distance (Inches)	2 ¹ / ₈ + "H"
Water Absorption (% in 24 hrs.)	
(ASTM D570)	0.28
Height Tolerance	±0.015
Maximum Service Temp., Continuous.....	300° F.
Intermittent.....	400° F.



Catalog Information								
Tap Size UNC - 2B	"H" = Height - Inches							
	2 ⁵ / ₈	2 ³ / ₄	2 ⁷ / ₈	3	3 ¹ / ₈	3 ¹ / ₄	3 ³ / ₈	3 ¹ / ₂
1/2 - 13	99600-1	99600-4	105956-1	105956-4	105957-1	105957-4	105958-1	105958-4
5/8 - 11	99600-2	99600-5	105956-2	105956-5	105957-2	105957-5	105958-2	105958-5
3/4 - 10	99600-3	99600-6	105956-3	105956-6	105957-3	105957-6	105958-3	105958-6

H = Height	2 ⁵ / ₈	2 ³ / ₄	2 ⁷ / ₈	3	3 ¹ / ₈	3 ¹ / ₄	3 ³ / ₈	3 ¹ / ₂
Dielectric Strength — Dry (K.V., S.T.)	40	40	45	45	50	50	55	55
Dew Flashover Strength (K.V., S.T.)*	31	32	33	34	35	36	37	38
Impulse (K.V., 1.5 x 40 WAVE) WS*	90	94	98	102	106	110	114	118
Weight — Lbs.	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0

Material:

Fiberglass reinforced polyester, electrical grade, corrosion resistant, red-poly standard grade #1. Color red.

*ASA C29.1 — 1951 American Standard Test Method Electrical Power Insulators

Insulators - Molded Giant Strain

Application

Giant Strain Insulator is a small rugged insulator. Its small size and high strength makes it suitable for many industrial applications. When equipped with the proper fittings it is used to support conductor angles, tee sections and bars; also when equipped with suitable hardware and clamps they are used for numerous strain applications, such as dead-ending trolley conductor wires or for supporting cables.

Features

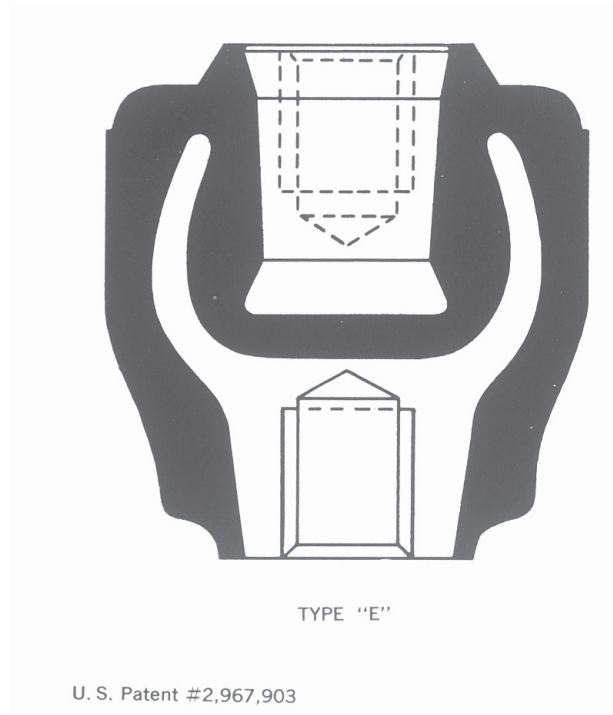
Giant Strain Insulators consist of two metal inserts molded in fiberglass reinforced polyester compound of high mechanical and electrical strength. One of the inserts is a cup shaped and the other is machined steel. When assembled they provide an interlocking design of high strength with the compound under compression rather than tensile loading. Relatively large mounting surface for such small insulators provides a substantial bearing for moderate cantilever loads.

Inserts are blind tapped to prevent them from being jacked loose as attaching cap screws are tightened. They are plated for corrosion resistance. Depth of tap is equal to or greater than the diameter.

The 2 $\frac{1}{4}$ " diameter insulator is available with $\frac{1}{2}$ " threads and $\frac{5}{8}$ " threads. They are provided in two styles, the type E having 2 tapped bosses and the type W with one tapped boss and one short threaded stud.



TYPE "W"

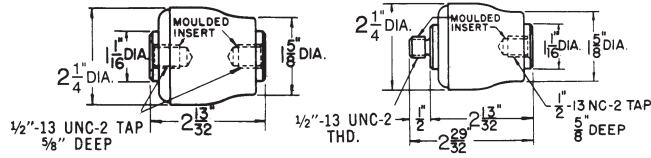


TYPE "E"

U. S. Patent #2,967,903

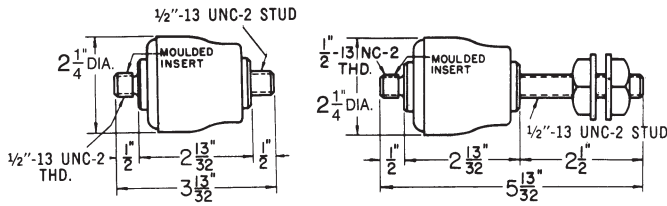
Insulators - Molded Giant Strain

1/2" Series



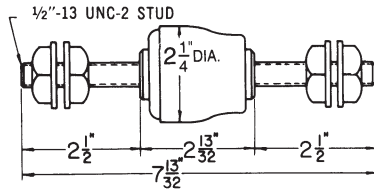
93704—TYPE E

93703—TYPE W



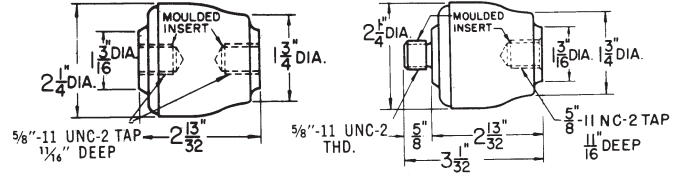
93705—TYPE F

93700—TYPE J



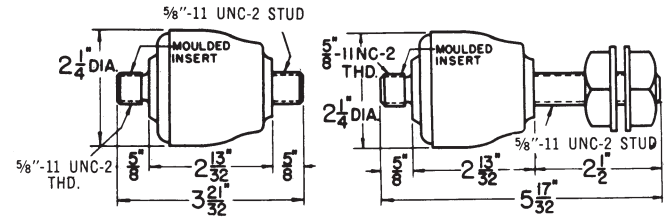
93701—TYPE G

5/8" Series



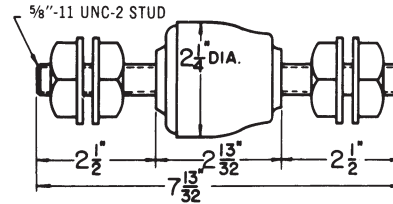
45784—TYPE E

67973—TYPE W



51911—TYPE F

82369—TYPE J



45792—TYPE G

Catalog Information

Insulator Type	Electrical Characteristics			Mechanical Characteristics			Maximum Service Temp Degrees F. †	Net Weight Lbs.	Catalog Number
	Flashover Wet KV.	Dielectric Strength Dry	Leakage Distance Inches	Tensile Strength Lbs.	Cantilever Strength in Lbs.	Compression Strength Lbs.			
1/2" Series									
E	10	20	3	12,000	6,500	30,000	250	3/4	93704
W	10	20	3	12,000	6,500	30,000	250	3/4	93703
F	10	20	3	12,000	6,500	30,000	250	.84	93705
G	10	20	3	12,000	6,500	30,000	250	1.41	93701
J	10	20	3	12,000	6,500	30,000	250	1.16	93700
5/8" Series									
E	10	20	3	15,000	6,500	30,000	250	7/8	45784
W	10	20	3	15,000	6,500	30,000	250	1	67973
F	10	20	3	15,000	6,500	30,000	250	1.08	51911
G	10	20	3	15,000	6,500	30,000	250	2.06	45792
J	10	20	3	15,000	6,500	30,000	250	1.58	82369

† Reduce mechanical values 50% when maximum service temperature is required.

Ordering Directions - Specify by Catalog Number, type and size.

Insulators - Porcelain Corrugated & Petticoat with Inserts

Application

These porcelain insulators are designed for general insulating purposes either indoors or outdoors, particularly where subject to moisture or industrial contaminants. They are suitable for supporting heavy overrunning rails. Other uses are for insulating resistors, bus bars, collectors, critical control conductors or similar industrial application.

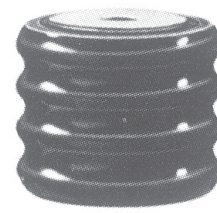
Features

These insulators are made of a wet process porcelain body provided with corrugations or extra heavy petticoats to resist breakage and provide maximum leakage distance. Plated iron inserts are bonded into the insulators by means of a special process providing resistance to vibration. Inserts are blind tapped to prevent them from becoming jacked loose as attaching cap screws are tightened. Depth of gap is equal to or greater than the thread diameter

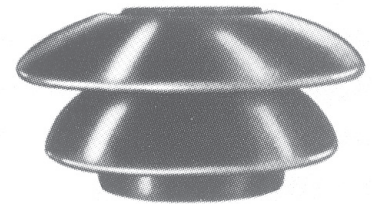
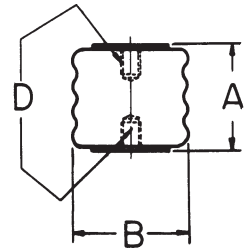
References

Assemblies using these insulators with proper rail clamps and bases can be used to support overrunning contact rails. When corrugated insulators are mounted horizontally to support light conductor angles, the expansion stud fitting listed on page II-11 should be used to allow movement of the conductor rail due to expansion.

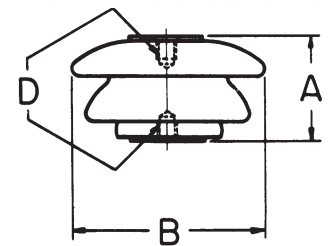
Additional designs of petticoat insulators with various styles of mountings bonded thereon are available.



CORRUGATED



PETTICOAT



Catalog Information

Dimensions			Electrical Characteristics			Mechanical Characteristics			Maximum Service Temp Degrees F.	Net Weight Lbs.	Catalog Number
A	B	D UNC-2B	Avg. Flashover		Leakage Distance Inches	Tensile Strength Lbs.	Cantilever Strength in Lbs.	Compression Strength Lbs.			
			Dry Kv.	Wet Kv.							
Corrugated Insulators											
3 ¹ / ₂	3 ³ / ₄	5 ⁵ / ₈ - 11	46	17	4	5000	7500	51000	300	3 ¹ / ₂	49874
2 ⁵ / ₈	3	1 ¹ / ₂ - 13	40	16	3	3000	5000	28000	300	1 ⁵ / ₈	59690
2 ⁵ / ₈	4	5 ⁵ / ₈ - 11	40	16	3 ¹ / ₄	3800	5000	37000	300	3 ³ / ₈	59695
2 ⁵ / ₈	3	5 ⁵ / ₈ - 11	40	16	3	3000	5000	28000	300	1 ⁵ / ₈	112168
3 ³ / ₈	4 ³ / ₄	3 ³ / ₄ - 10	44	17	4 ¹ / ₁₆	5000	8300	77000	300	5 ³ / ₄	69265
3 ³ / ₈	6	1 - 8	44	17	5 ¹ / ₁₆	5000	8300	100000	300	11 ¹ / ₄	74283
Petticoat Insulators											
2 ⁵ / ₈	4 ¹⁵ / ₁₆	1 ¹ / ₂ - 13	50	20	6.2	3000	4200	25000	300	2 ³ / ₄	64658
2 ⁵ / ₈	4 ¹⁵ / ₁₆	5 ⁵ / ₈ - 11	50	20	6.2	3000	4200	25000	300	2 ³ / ₄	64672
3 ¹ / ₂	5 ¹ / ₂	1 ¹ / ₂ - 13	65	29	6.5	3500	6000	30000	300	5 ¹ / ₄	90638
3 ¹ / ₂	5 ¹ / ₂	5 ⁵ / ₈ - 11	65	29	6.5	3500	6000	30000	300	5 ¹ / ₄	91376
3 ¹ / ₂	5 ¹ / ₂	3 ³ / ₄ - 10	65	29	6.5	3500	6000	30000	300	5 ¹ / ₄	91694
4	7	1 ¹ / ₂ - 13	75	38	9.1	5000	7700	60000	300	7 ³ / ₄	93968
4	7	5 ⁵ / ₈ - 11	75	38	9.1	5000	7700	60000	300	7 ³ / ₄	97703
4	7	3 ³ / ₄ - 10	75	38	9.1	5000	7700	60000	300	7 ³ / ₄	97704
† Reduce mechanical values 50% when maximum service temperature is required.											

Ordering Directions - Specify by Catalog Number.

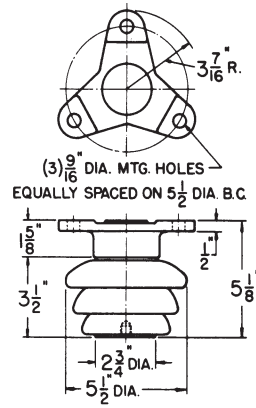
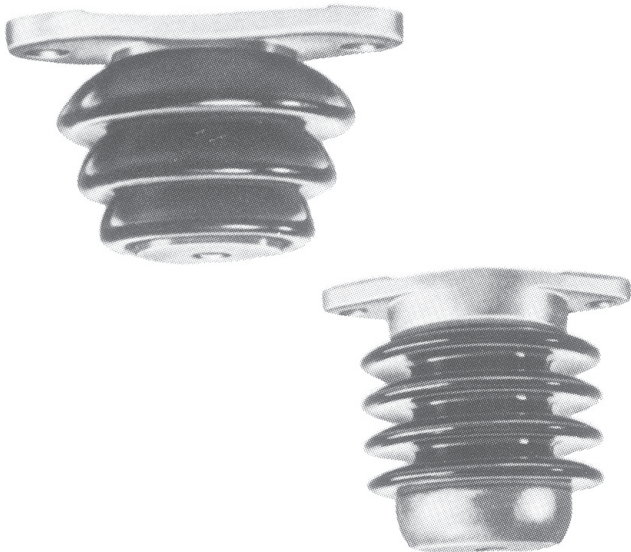
Insulators - Porcelain Petticoat with Mountings

Features

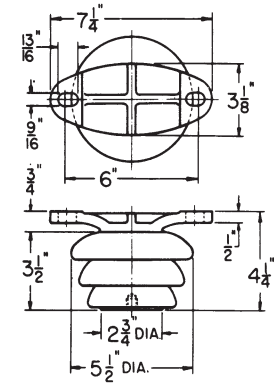
These insulator assemblies are similar in design to the petticoat insulators shown on the preceding page except they are provided with plated iron mounting bases and caps for particular requirements. Depth of tap is equal to or greater than the diameter.

References

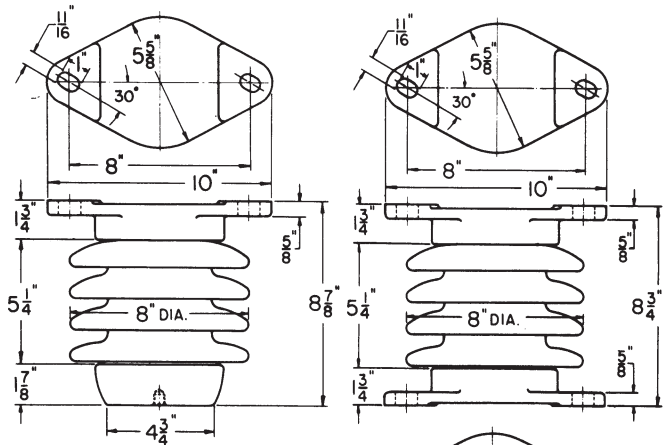
Wire clamps to support trolley wire conductors with these insulators and other accessories for supporting rigid conductors may be selected.



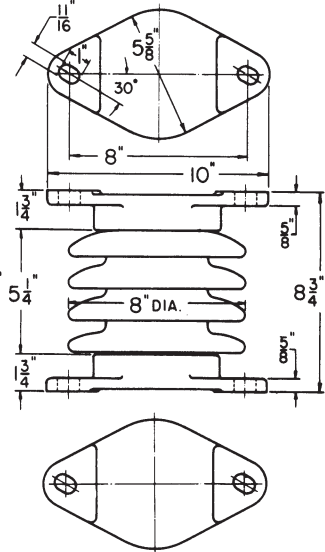
91151 & 98298



91378 & 92251
MOUNTING BASE AS SHOWN
92252 & 92685
MOUNTING BASE AT BOTTOM



90990
91409



91041

Catalog Information

Insulator Type	Electrical Characteristics			Mechanical Characteristics			Maximum Service Temp Degrees F.	Net Weight Lbs.	Catalog Number
	Flashover Wet KV.	Dielectric Strength Dry	Leakage Distance Inches	Tensile Strength Lbs.	Cantilever Strength in Lbs.	Compression Strength Lbs.			
$\frac{1}{2}$ - 13	85	55	15.5	10000	21000	40000	300	27 $\frac{1}{4}$	90990
$\frac{5}{8}$ - 11	85	55	15.5	10000	21000	40000	300	27 $\frac{1}{4}$	91409
—	85	55	15.5	10000	21000	40000	300	30 $\frac{1}{4}$	91041
$\frac{1}{2}$ - 13	50	25	6.3	4000	6600	40000	300	9 $\frac{1}{2}$	91151
$\frac{5}{8}$ - 11	50	25	6.3	4000	6600	40000	300	9 $\frac{1}{2}$	98298
$\frac{1}{2}$ - 13	50	25	6.3	4000	5800	40000	300	7 $\frac{1}{2}$	91378
$\frac{5}{8}$ - 11	50	25	6.3	4000	5800	40000	300	7 $\frac{1}{2}$	92251
$\frac{1}{2}$ - 13	50	25	6.3	4000	5800	40000	300	7 $\frac{1}{2}$	92252
$\frac{5}{8}$ - 11	50	25	6.3	4000	5800	40000	300	7 $\frac{1}{2}$	92685

Ordering Directions - Specify by Catalog Number, type and size.

Insulators - Porcelain Giant Strain

Application

Porcelain covered Giant Strain insulators are designed for general use where high values of tensile strength are required in outside applications or in atmospheres which make the superior qualities of wet process porcelain desirable. These units provide the strength, compactness, and reliability of the Giant Strain insulator with the waterproofing and non-arc tracking characteristics of wet-process porcelain. They are suitable for supporting heavy loadings in tension or compression in combination with vibration and shock. They are used for rugged strain and support applications, including suspension of heavy conductor rail sections for ore bridge and unloader installations.

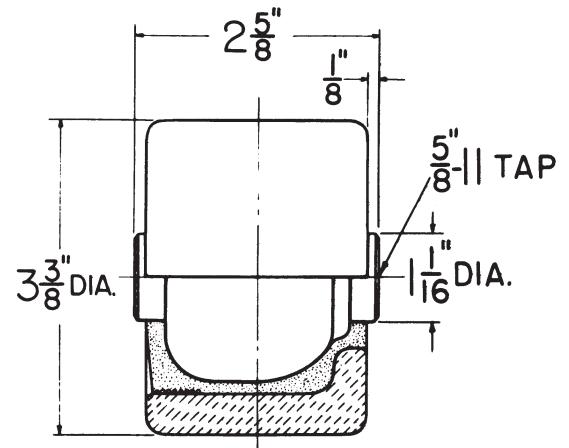
Features

Porcelain covered Giant Strain insulators consist of a standard fiberglass reinforced polyester insulating strain unit which is sealed into a brown glazed wet-process jacket with a new improved epoxy resin-polysulfide rubber compound. Inner strain unit uses inter-locking steel members designed to transpose a high tensile loading into compressive reaction which can be safely accommodated by central restrained fiberglass reinforced polyester insulating sections. This feature provides extra protection against release of the load if severe overstress occurs.

Outer seal is resilient throughout extreme changes in temperature and chemical exposure, and thereby affords extra protection against breakage of the porcelain jacket. The jacket is so effectively bonded to the inner member that portions of the jacket, if broken, remain attached to the seal providing for the ultimate in safety to personnel. Quality of bond obtained in the seal assures maintenance of the original electrical striking distance despite long exposure to the elements. All fittings are plated.

Reference

See insulator assembly section for assemblies complete with eyes and clevises or with rail support fittings.



Catalog Information										
Max./ System voltage AC or DC	Electrical Characteristics			Mechanical Characteristics				Service Temp De- grees F.	Net Weight Lbs.	Catalog Number
	Dielectric Strength Dry Kv.	Wet Flash- over Kv.	Leakage Distance Inches	Tensile Strength Lbs.	Cantilever Strength in Lbs.	Compression Strength Lbs.	Insert Rotation Resistance Ft. Lbs			
1000	20	10	4 ³ / ₄	12000	4200	40000	50	- 30° to 200°	2	62436

Ordering Directions - Specify by Catalog Number.

Insulators - Molded Giant Strain Type

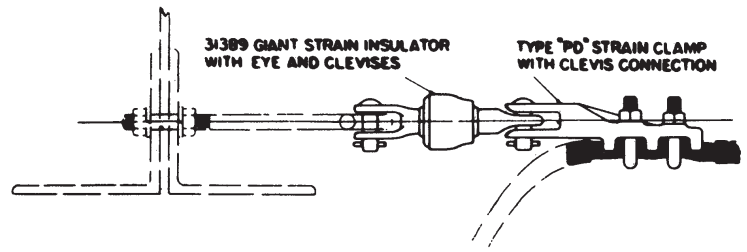
Application

Giant strain insulators with suitable hardware are used to support electrical cables such as feeder lines in industrial plants, for dead ending wire used as conductors and similar applications.

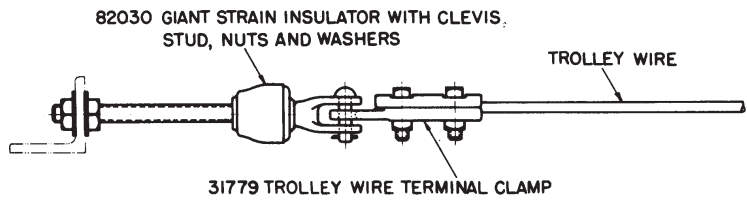
Features

Assemblies listed in detail on the following pages, some of which are shown below, are assembled from the following major components.

1/2" Series	Component	5/8" Series
93703	Insulator with Stud & Boss	67973
93194	Strain Eye	89149
63449	Strain Clevis	90092
75525	Short Stud	94635
90668	Long Stud	90669
76081	Extra Long Stud	76270



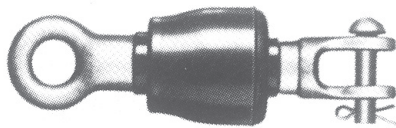
GIANT STRAIN INSULATOR WITH TYPE PD STRAIN CLAMP COMBINED WITH A CONVENTIONAL EYE BOLT SUPPORTING A HEAVY FEEDER CABLE.



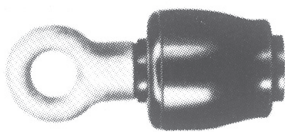
GIANT STRAINER INSULATOR WITH A TROLLEY TERMINAL CLAMP USED FOR "DEAD-ENDING" TROLLEY WIRE CONDUCTORS.

Typical Assemblies

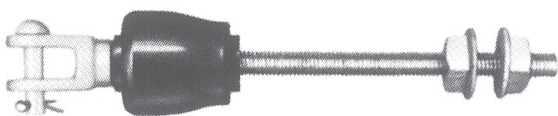
1/2" Series



93851



93853

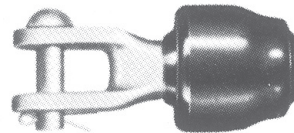


94704

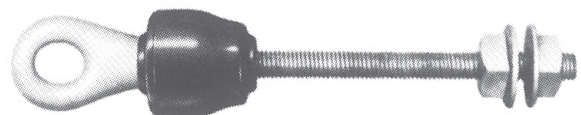
5/8" Series



31389



94706



46281

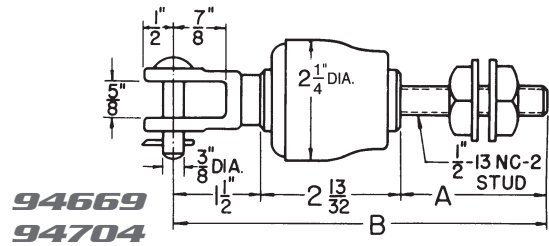
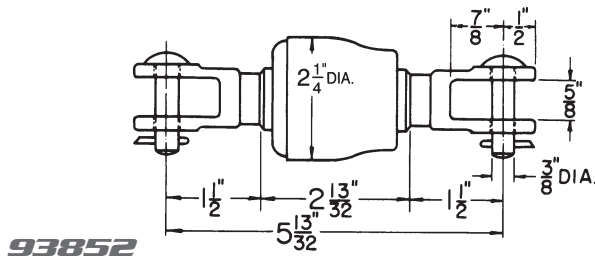
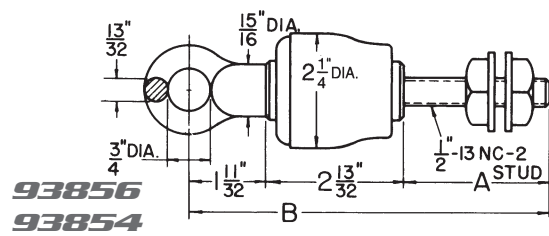
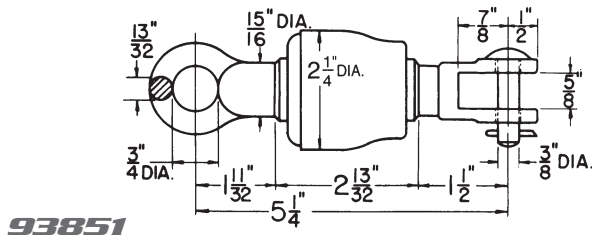
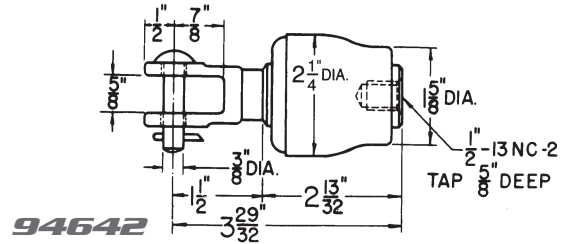
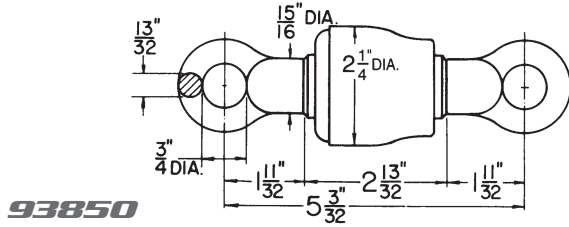
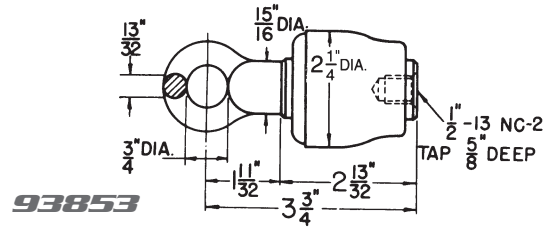
U.S. Patent #2,967,903

Insulators - Molded

1/2" Strain Insulators

Dimensions

2" Diameter Insulators
 750 Volt-Maximum Service
 5600# Safe Working Load



Catalog Information			
Description	Standard Package	Net Wt. Each — Lbs.	Catalog No.
with Two eyes	25	1.38	93850
with Strain Clevis & Eye	25	1.41	93851
with Two Strain Clevises	25	1.44	93852
with Eye and Tapped Boss	25	1.06	93853
with Eye and Long Stud — A-2 1/2" — B-6 1/4"	25	1.41	93854
with Eye and Extra Long Stud — A-6" — B-9 3/4"	20	1.56	93856
with Strain Clevis and Tapped Boss	25	1.09	94642
with Strain Clevis and Long Stud — A-2 1/2" — B-6 13/32"	25	1.44	94669
with Strain Clevis and Extra Long Stud — A-6" — B-9 29/32"	20	1.59	94704

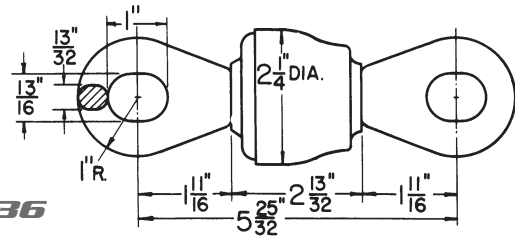
Ordering Directions - Specify by Catalog Number.

Insulators - Molded

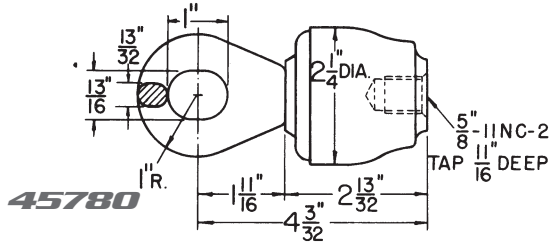
5/8" Strain Insulators

Dimensions

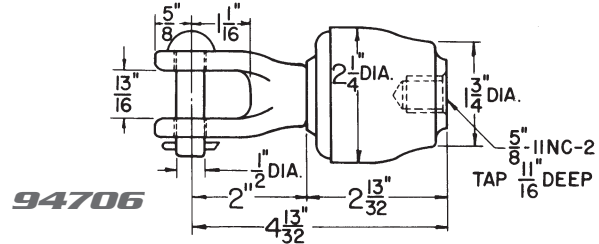
2 1/4" Diameter Insulators
 750 Volt-Maximum Service
 9,000# Safe Working Load



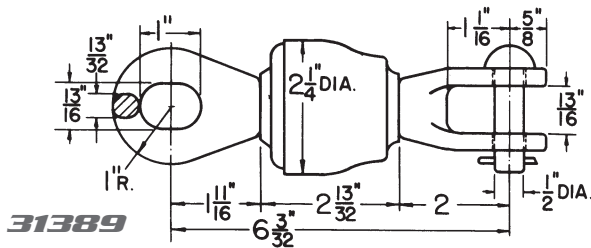
31336



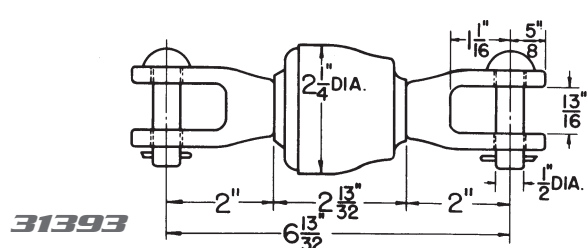
45780



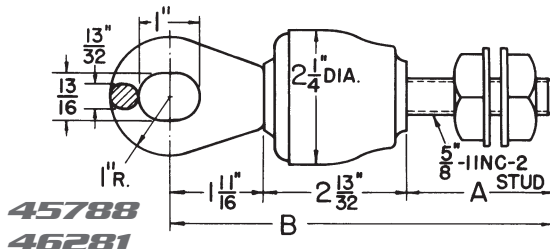
94706



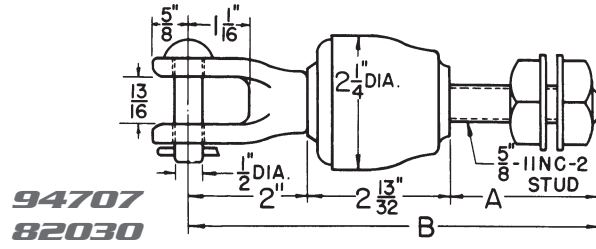
31389



31393



45788
46281



94707
82030

Catalog Information			
Description	Standard Package	Net Wt. Each — Lbs.	Catalog No.
with Two eyes	25	2.00	31336
with Strain Clevis & Eye	25	2.25	31389
with Two Strain Clevises	25	2.50	31393
with Eye and Tapped Boss	25	1.46	45780
with Eye and Long Stud — A-2 1/2" — B-6 19/32"	25	2.16	45788
with Eye and Extra Long Stud — A-7" — B-11 13/32"	25	2.35	46281
with Strain Clevis and Tapped Boss	25	1.69	94706
with Strain Clevis and Long Stud — A-2 1/2" — B-6 29/32"	25	2.27	94707
with Strain Clevis and Extra Long Stud — A-7" — B-11 13/32"	12	2.58	82030

Ordering Directions - Specify by Catalog Number.

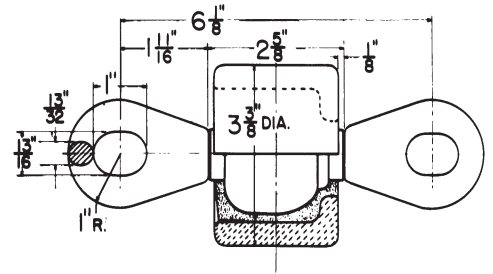
Insulators - Molded Porcelain Covered Giant Strain Insulators

Application

Porcelain covered Giant Strain insulators are designed for general use where high values of tensile strength are required in outside applications as in atmospheres which make the superior qualities of wet process porcelain desirable.

These units provide the strength, compactness, and reliability of the Giant Strain insulator with the water-proofing and non-arc tracking characteristics of wet-process porcelain.

They are suitable for supporting heavy loadings in tension in combination with vibration and shock. They are used for rugged strain applications.



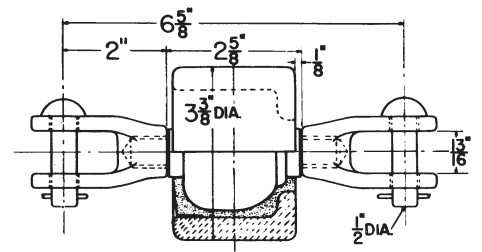
Strain Type 61348

Features

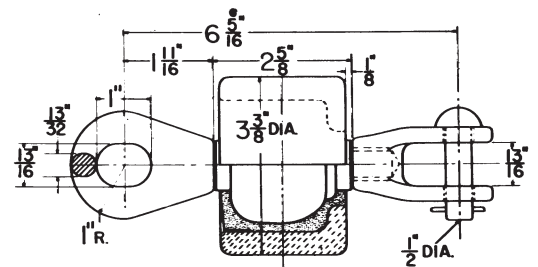
Porcelain covered Giant Strain insulators consist of a polyester strain insulator which is sealed into a brown glazed wet-process jacket with a new improved epoxy resin-polysulfide rubber compound. Inner strain unit uses inter-locking steel members designed to transpose a high tensile loading into compressive reaction which can be safely accommodated by central restrained polyester insulating sections. This feature provides extra protection against release of the load if severe overstress occurs.

Outer seal is resilient throughout extreme changes in temperature and chemical exposure, and thereby affords extra protection against breakage of the porcelain jacket. Jacket is so effectively bonded to the inner member, that portions of the jacket, if broken, remain attached to the seal providing for ultimate in safety to personnel. Quality of bond obtained in the seal assures maintenance of the original electrical striking distance despite long exposure to the elements.

All fittings are malleable, zinc plated, and are mounted on 5/8" diameter zinc plated studs.



Strain Type 61349



Strain Type 61350

Catalog Number									
Description	Electrical Characteristics				Mechanical Characteristics		Maximum Service Temp. Degrees F°	Net Wt. Each Lbs.	Catalog Number
	Flashover Wet Kv.	Dry Dielectric KV.	Leakage Distance Inches	Max. Sys. Voltage AC or DC V.	Tensile Strength Lbs.	Insert Rotation Resistance Ft. Lbs.			
with two eyes	10	20	4 ³ / ₄	1000	10000	50	200	2.95	61348
with two clevises	10	20	4 ³ / ₄	1000	10000	50	200	3.40	61349
with eye and clevises	10	20	4 ³ / ₄	1000	10000	50	200	3.20	61350

Ordering Directions - Specify by Catalog Number.

Insulators - Molded Spool & Bracket

Application

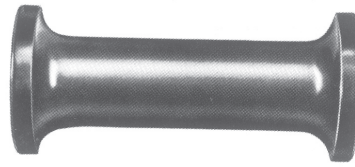
Spool insulators are used for supporting trolley wire conductors in a "pick-up" type system supplying current to electric cranes. Collectors attached to the cranes make contact by picking up the conductor wires which are supported on these spool and bracket type insulators.

Features

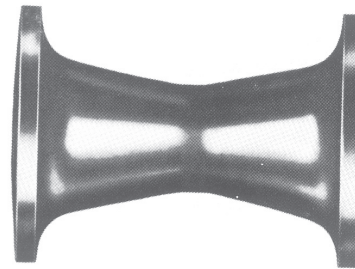
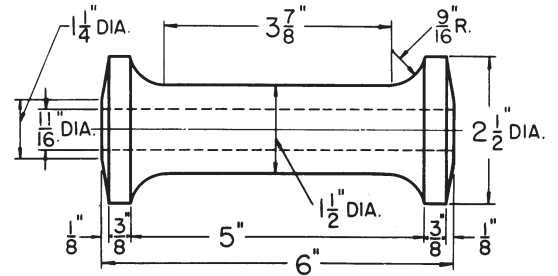
Spool insulators are made from red molded composition. Bracket insulator is made from brown glazed porcelain.

The molded composition spool insulator has greater mechanical strength than the porcelain spool. Wire grooves are wide and deep to provide considerable movement of the conductor wire. Composition spool insulator with bolt differs from the others in that it is provided with a 1/2 inch diameter bolt permanently molded therein and supplied with a nut and washer minimizing the possibility of spools working loose due to vibration.

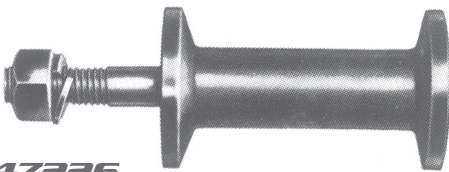
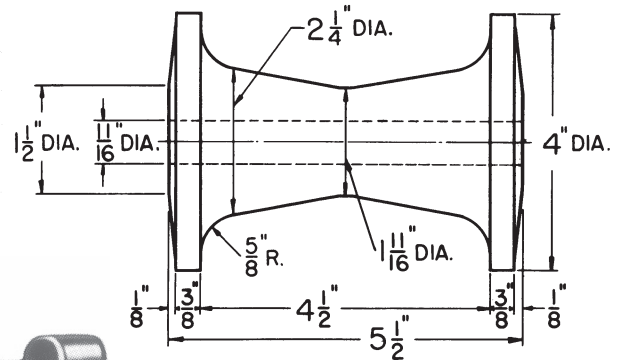
Molded Composition



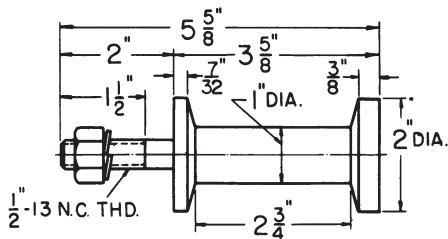
45501



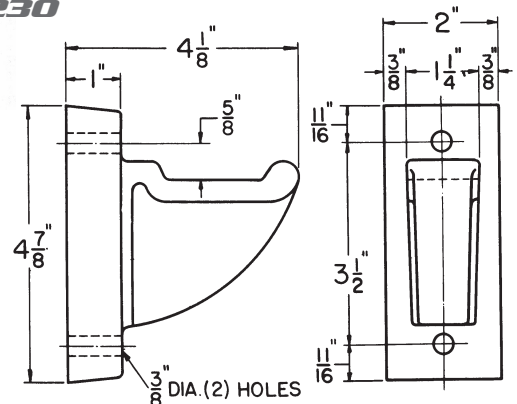
45553



47226



46230



Catalog Information		
Description	Approx. Wt. Lbs.	Catalog No.
Composition Spool Insulator	.56	45501
Composition Spool Insulator	1.25	45553
Composition Spool Insulator with Bolt	.56	47226
Porcelain Bracket Insulator	1.25	46230

Ordering Directions - Specify by Catalog Number.

Insulators - Molded Suspension Type

Application

The suspension insulators shown on this page are rugged insulators intended for use with suitable accessories to support crane runway conductors such as wire, bars, tees and angles.

Features

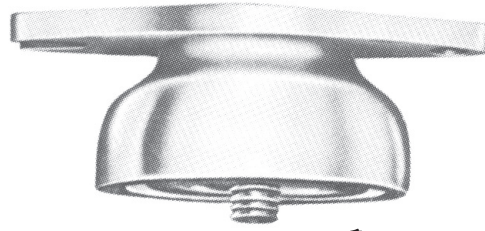
Bodies of all suspension insulators are galvanized malleable iron castings. A "Parkerized" finished steel $\frac{5}{8}$ "-11 threaded stud insert with integral bearing surface is molded into the body of each with a thermo-setting insulating compound molded to form generous petticoats.

There are two sizes, the larger type K with a body diameter of $3\frac{5}{8}$ " and consequently a greater leakage distance between the stud and the body. Smaller type F insulator having a shorter leakage distance is used where space conditions are limited and where moisture and industrial contaminants permit.

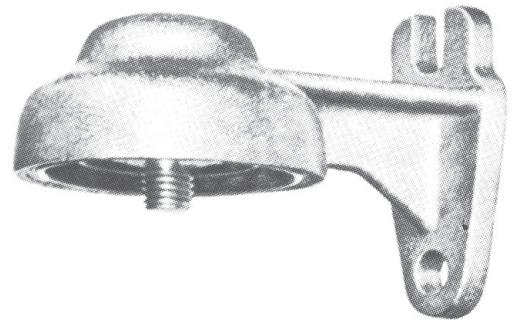
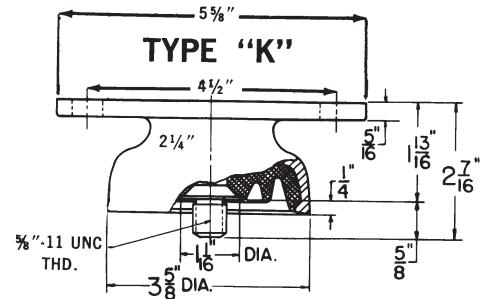
Type T4 insulator is like the type F4 with mounting holes in a horizontal plane and with minimum extension from mounting surface. When selecting accessories to be used with these insulators make certain to provide adequate clearance to mounting surfaces.

References

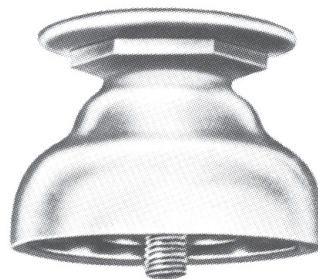
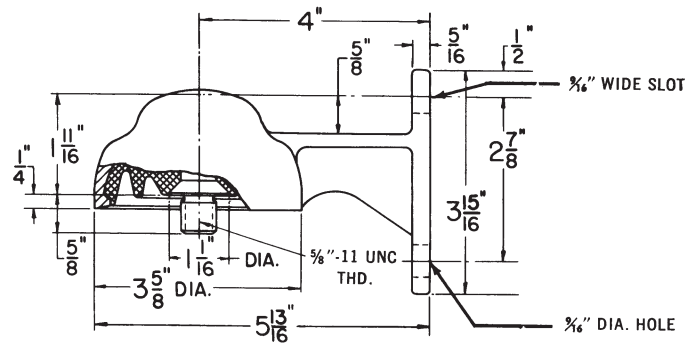
With suitable hardware and accessories, these insulators can be used for supporting wire and rigid conductors.



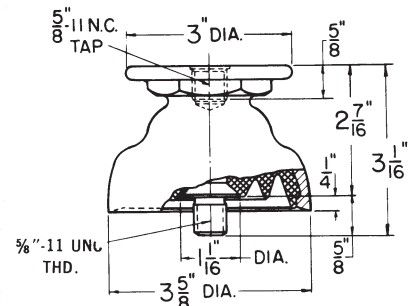
No. 30876 type K2 insulators are for attachment to a horizontal surface.



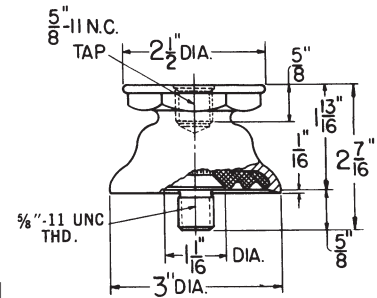
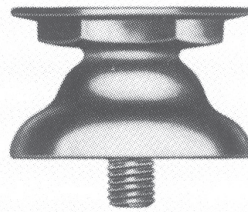
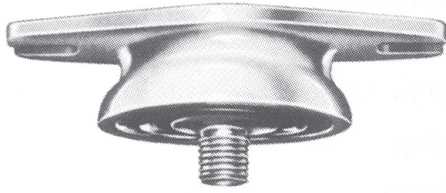
No. 30880 type K4 insulators are designed for attachment to a vertical surface. This insulator will accommodate trolley wire clamps up to and including 5" long.



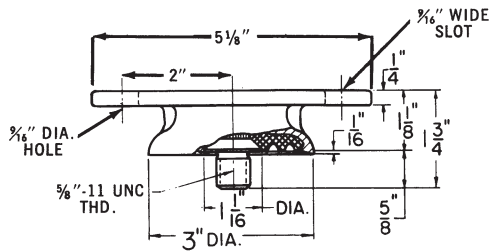
No. 41384 type K8 insulators are a universal form, adaptable to varied mountings; such as pipe suspension fittings, or bolts.



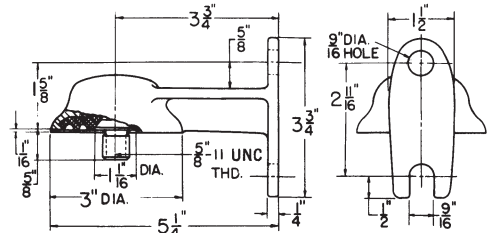
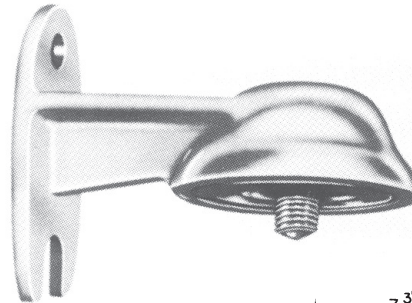
Insulators - Molded Suspension Type
Types F & T



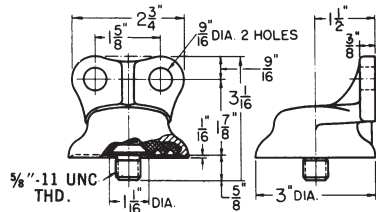
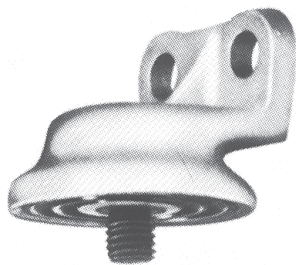
No. 44448 type F8 insulators are a universal form, adaptable to varied mountings; such as pipe suspension fittings, or bolts.



No. 44608 type F2 Insulators are for attachment to a horizontal surface.



No. 49692 type F4 insulators are designed for attachment to a vertical surface. This insulator will accommodate trolley wire clamps up to and including 5" long.



No. 90766 type 14 insulators are designed for attachment to a vertical surface. Mounting holes are in a horizontal plane and with minimum extension from the mounting surface.

Catalog Number								
Type	Electrical Characteristics			Mechanical Characteristics		†Maximum Service Temp. Degrees F°	Net Wt. Lbs.	Catalog Number
	Dry Flashover Kv.	Wet Flashover KV.	Leakage Distance Inches	Tensile Strength Lbs.	Cantilever Strength In — Lbs.			
K2	20	14	2.3	15000	6500	250	2.62	30876
K4	20	14	2.3	15000	6500	250	2.82	30880
K8	20	14	2.3	15000	6500	250	2.68	41384
F2	15	6	.94	12000	5000	250	1.31	44608
F4	15	6	.94	12000	5000	250	1.94	49692
F8	15	6	.94	12000	5000	250	1.50	44448
T4	15	6	.94	12000	5000	250	1.43	90766

† Reduce mechanical value 50% when maximum service temperature is required.

Ordering Directions - Specify by Catalog Number.

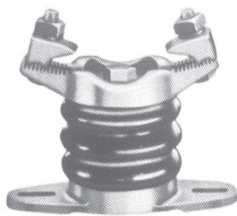
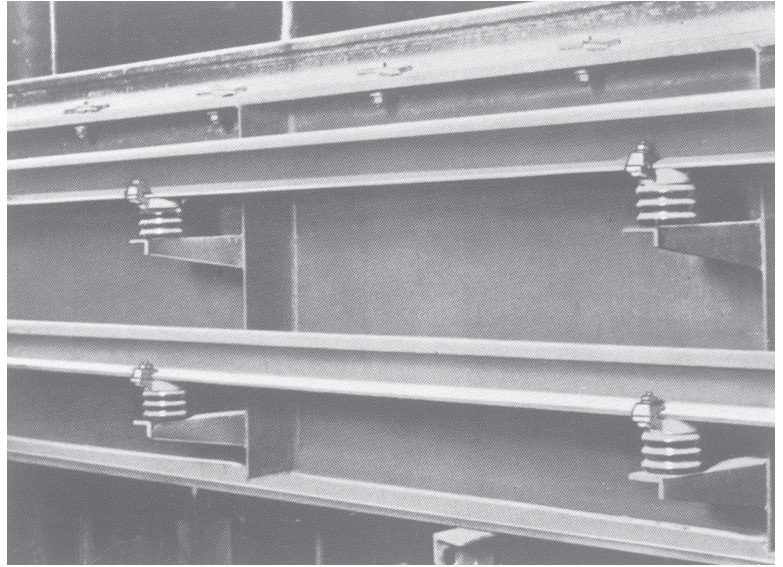
Insulators - Assemblies Overrunning Conductors, Contact Rail B Series

Application

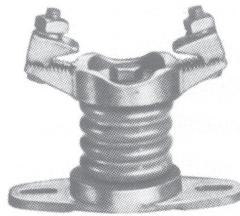
These insulators are designed for supporting conventional ASCE rail sections when used as contact rail conductors when collectors are operating in an over-running position.

Features

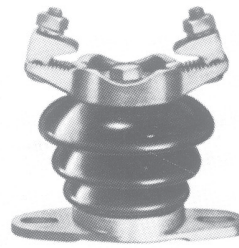
These designs consist of a bolted assembly of various types of insulators plus mounting bases and rail supports. All types are provided with interlocking notched clamps adjustable to accommodate different rail sizes and permit horizontal alignment. Clamps are designed to permit free movement of the conductor rail to allow for expansion due to temperature changes. Insulator assemblies can be used on circuits up to 5KV. For detailed electrical and mechanical characteristics of the individual insulators see Insulator section of catalog. Assemblies are listed both with and without mounting bases to suit the particular installation requirements. Mounting bases are supplied with slots to accommodate $\frac{1}{2}$ " mounting bolts except assemblies using 6" diameter corrugated porcelain insulators where $\frac{5}{8}$ " mounting bolts are used. On assemblies without bases the T dimension or thickness of mounting surface must be specified to determine length of bolt.



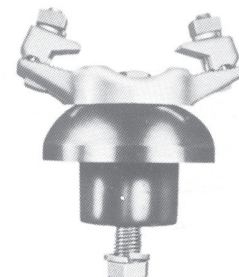
**Corrugated Porcelain
Insulator Assembly**



**Polyester Fiberglass
Insulator Assembly**



**Petticoat Porcelain
Insulator Assembly**



**Petticoat Polyester
Fiberglass
Insulator Assembly**

**Insulator Assemblies
Overrunning Conductors
Contact Rail B Series**

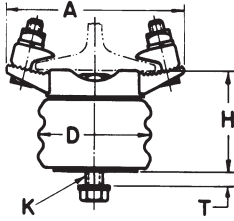


Figure 1
With Corrugated
Porcelain Insulators

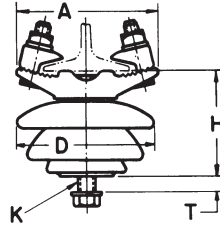


Figure 2
With 64672 Petticoat
Porcelain Insulator

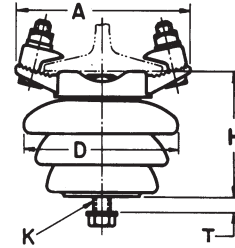


Figure 3
With 91376 and 91694
Petticoat Porcelain
Insulator

**Porcelain Rail Supports Without Mounting Base
With Corrugated Porcelain Insulator Units**

Rail Sizes Lbs. per Yd. A.S.C.E.	Insulator Number	Figure Number	Insulator Diameter D	Dimensions in Inches			Cantilever Strength Inch Lbs.	Net Weight Lbs.	Catalog Number
				A	H	K			
12 to 30	63326	1	3"	5"	3 ⁵ / ₈ "	5/ ₈ " - 11	4350	4.25	59667
12 to 30	49874	1	3 ¹ / ₄ "	5"	4 ¹ / ₂ "	5/ ₈ " - 11	6750	5.75	64110
12 to 30	59695	1	4"	5"	3 ⁵ / ₈ "	5/ ₈ " - 11	4350	5.00	59671
12 to 30	69265	1	4 ³ / ₄ "	5"	4 ³ / ₈ "	3/ ₄ " - 10	7450	8.25	99913
35 to 60	49874	1	3 ³ / ₄ "	6 ¹ / ₄ "	4 ¹ / ₂ "	5/ ₈ " - 11	6750	6.50	64112
35 to 60	59695	1	4"	6 ¹ / ₄ "	3 ⁵ / ₈ "	5/ ₈ " - 11	4350	6.00	59673
35 to 60	69265	1	4 ³ / ₄ "	6 ¹ / ₄ "	4 ³ / ₈ "	3/ ₄ " - 10	7450	8.75	69249
50 to 100	59695	1	4"	8"	3 ⁵ / ₈ "	5/ ₈ " - 11	4350	8.00	99911
60 to 100	69265	1	4 ³ / ₄ "	8"	4 ³ / ₈ "	3/ ₄ " - 10	7450	10.00	69250
60 to 100	74283	1	6"	8"	4 ³ / ₈ "	1" - 8	7450	11.50	76630
70 to 100	74283	1	6"	8"	4 ³ / ₈ "	1" - 8	7450	13.00	99920
70 to 100	59695	1	4"	8"	3 ⁵ / ₈ "	5/ ₈ "	4350	7.00	99912
110 to 152	74283	1	6"	9 ¹ / ₂ "	4 ³ / ₈ "	1"	7450	13.00	74269

**Porcelain Rail Supports Without Mounting Base
With Porcelain Petticoat Insulator Units**

12 to 30	64672	2	4 ¹⁵ / ₁₆ "	5"	3 ⁵ / ₈ "	5/ ₈ " - 11	1000	5.00	98968
35 to 60	91376	3	5 ¹ / ₂ "	6 ¹ / ₄ "	4 ¹ / ₂ "	5/ ₈ " - 11	1200	8.25	98969
65 to 100	91694	3	5 ¹ / ₂ "	8"	4 ¹ / ₂ "	3/ ₄ " - 10	1200	9.50	98970

Note: When ordering specify "T" dimension to insure proper bolt length

**Insulator Assemblies
Overrunning Conductors
Contact Rail B Series**

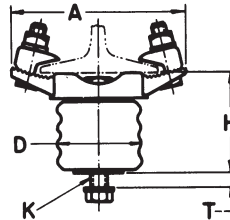


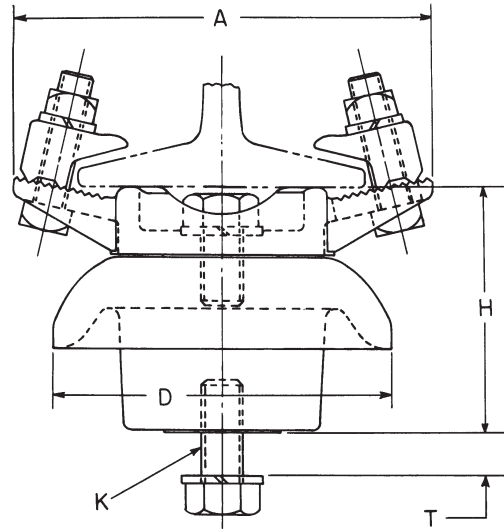
Figure 1
With Corrugated
Polyester Fiberglass Insulator

Polyester Fiberglass Rail Supports Without Mounting Base With Corrugated Polyester Fiberglass Insulator									
Rail Sizes Lbs. per Yd. A.S.C.E.	Insulator Number	Figure Number	Insulator Diameter D	Dimensions in Inches			Cantilever Strength Inch Lbs.	Net Weight Lbs.	Catalog Number
				A	H	K*			
12 to 30	88678	1	3"	5"	3 ⁵ / ₈ "	5 ⁵ / ₈ " - 11	7975	4.00	91794
12 to 30	106601	1	3"	5"	3 ³ / ₄ "	5 ⁵ / ₈ " - 11	8250	4.07	106675
12 to 30	106594	1	3"	5"	3 ⁷ / ₈ "	5 ⁵ / ₈ " - 11	8525	4.14	106676
12 to 30	106348	1	3"	5"	4"	5 ⁵ / ₈ " - 11	8800	4.21	106351
12 to 30	105695	1	3"	5"	4 ¹ / ₈ "	5 ⁵ / ₈ " - 11	9075	4.28	106677
12 to 30	106596	1	3"	5"	4 ¹ / ₄ "	5 ⁵ / ₈ " - 11	9350	4.35	106678
12 to 30	105960	1	3"	5"	4 ³ / ₈ "	5 ⁵ / ₈ " - 11	9650	4.42	106352
35 to 60	88678	1	3"	6 ¹ / ₄ "	3 ⁵ / ₈ "	5 ⁵ / ₈ " - 11	7975	4.75	91795
35 to 60	106601	1	3"	6 ¹ / ₄ "	3 ³ / ₄ "	5 ⁵ / ₈ " - 11	8250	4.82	106679
35 to 60	106594	1	3"	6 ¹ / ₄ "	3 ⁷ / ₈ "	5 ⁵ / ₈ " - 11	8525	4.89	106680
35 to 60	106348	1	3"	6 ¹ / ₄ "	4"	5 ⁵ / ₈ " - 11	8800	4.96	106353
35 to 60	106595	1	3"	6 ¹ / ₄ "	4 ¹ / ₈ "	5 ⁵ / ₈ " - 11	9075	5.03	106681
35 to 60	106596	1	3"	6 ¹ / ₄ "	4 ¹ / ₄ "	5 ⁵ / ₈ " - 11	9350	5.10	106682
35 to 60	105960	1	3"	6 ¹ / ₄ "	4 ³ / ₈ "	5 ⁵ / ₈ " - 11	9650	5.17	106354
65 to 100	88678	1	3"	8"	3 ⁵ / ₈ "	5 ⁵ / ₈ " - 11	7975	5.00	106350
65 to 100	106601	1	3"	8"	3 ³ / ₄ "	5 ⁵ / ₈ " - 11	8250	5.07	106683
65 to 100	106594	1	3"	8"	3 ⁷ / ₈ "	5 ⁵ / ₈ " - 11	8525	5.14	106684
65 to 100	106348	1	3"	8"	4"	5 ⁵ / ₈ " - 11	8800	5.21	106373
65 to 100	106595	1	3"	8"	4 ¹ / ₈ "	5 ⁵ / ₈ " - 11	9075	5.28	106685
65 to 100	106596	1	3"	8"	4 ¹ / ₄ "	5 ⁵ / ₈ " - 11	9350	5.35	106686
65 to 100	105960	1	3"	8"	4 ³ / ₈ "	5 ⁵ / ₈ " - 11	9650	5.42	106374

* Assemblies available with 1/2 - 13 or 3/4 - 10 inserts upon request.

Note: When ordering specify "T" dimension to insure proper bolt length

**Insulator Assemblies
Overrunning Conductors
Contact Rail B Series**



**Figure 1
With Petticoat
Polyester Fiberglass Insulator**

**Polyester Fiberglass Rail Supports Without Mounting Base
With Petticoat Polyester Fiberglass Insulator**

Rail Sizes Lbs. per Yd. A.S.C.E.	Insulator Number	Figure Number	Insulator Diameter D	Dimensions in Inches			Cantilever Strength Inch Lbs.	Net Weight Each Lbs.	Catalog Number
				A	H	K*			
12 to 30	99600-2	1	5"	5"	3 ⁵ / ₈ "	5/8" - 11	4350	4.75	99967
12 to 30	99600-5	1	5"	5"	3 ³ / ₄ "	5/8" - 11	4500	4.81	106645
12 to 30	105956-2	1	5"	5"	3 ⁷ / ₈ "	5/8" - 11	4650	4.87	106646
12 to 30	105956-5	1	5"	5"	4"	5/8" - 11	4800	4.93	106335
12 to 30	105957-2	1	5"	5"	4 ¹ / ₈ "	5/8" - 11	4950	4.99	106647
12 to 30	105957-5	1	5"	5"	4 ¹ / ₄ "	5/8" - 11	5100	5.05	106648
12 to 30	105958-2	1	5"	5"	4 ³ / ₈ "	5/8" - 11	5250	5.11	106336
12 to 30	105958-5	1	5"	5"	4 ¹ / ₂ "	5/8" - 11	5400	5.17	106649
35 to 60	99600-2	1	5"	6 ¹ / ₄ "	3 ⁵ / ₈ "	5/8" - 11	4350	5.40	99968
35 to 60	99600-5	1	5"	6 ¹ / ₄ "	3 ³ / ₄ "	5/8" - 11	4500	5.46	106650
35 to 60	105956-2	1	5"	6 ¹ / ₄ "	3 ⁷ / ₈ "	5/8" - 11	4650	5.52	106651
35 to 60	105956-5	1	5"	6 ¹ / ₄ "	4"	5/8" - 11	4800	5.58	106337
35 to 60	105957-2	1	5"	6 ¹ / ₄ "	4 ¹ / ₈ "	5/8" - 11	4950	5.64	106652
35 to 60	105957-5	1	5"	6 ¹ / ₄ "	4 ¹ / ₄ "	5/8" - 11	5100	5.70	106653
35 to 60	105958-2	1	5"	6 ¹ / ₄ "	4 ³ / ₈ "	5/8" - 11	5250	5.76	106338
35 to 60	105958-5	1	5"	6 ¹ / ₄ "	4 ¹ / ₂ "	5/8" - 11	5400	5.82	106654
65 to 100	99600-2	1	5"	8"	3 ⁵ / ₈ "	5/8" - 11	4350	6.10	99969
65 to 100	99600-5	1	5"	8"	3 ³ / ₄ "	5/8" - 11	4500	6.16	106655
65 to 100	105956-2	1	5"	8"	3 ⁷ / ₈ "	5/8" - 11	4650	6.22	106656
65 to 100	105956-5	1	5"	8"	4"	5/8" - 11	4800	6.28	106339
65 to 100	105957-2	1	5"	8"	4 ¹ / ₈ "	5/8" - 11	4950	6.34	106657
65 to 100	105957-5	1	5"	8"	4 ¹ / ₄ "	5/8" - 11	5100	6.40	106658
65 to 100	105958-2	1	5"	8"	4 ³ / ₈ "	5/8" - 11	5250	6.46	106340
65 to 100	105958-5	1	5"	8"	4 ¹ / ₂ "	5/8" - 11	5400	6.52	106659

* Assemblies available with 1/2 - 13 or 3/4 - 10 inserts upon request.

Note: When ordering specify "T" dimension to insure proper bolt length

**Insulator Assemblies
Overrunning Conductors
Contact Rail B Series**

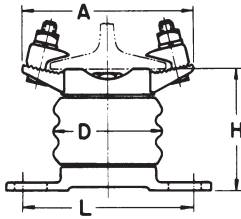


Figure 1
With Corrugated
Porcelain Insulators

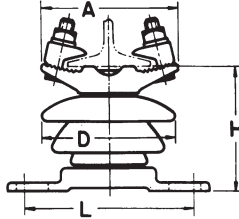


Figure 2
With 64672 Petticoat
Porcelain Insulator

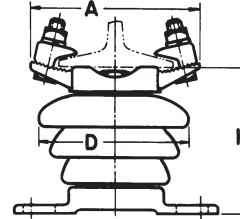


Figure 3
With 91376 and 91694
Petticoat Porcelain
Insulator

Slots in Mounting Bases Accommodate 1/2" Bolts.
Slots on 6" Diameter Corrugated Porcelain Assemblies Accommodate 5/8" Bolts.

Porcelain Rail Supports With Mounting Base With Corrugated Porcelain Insulator Units										
Rail Sizes Lbs. per Yd. A.S.C.E.	Insulator Number	Figure Number	Insulator Diameter D	Dimensions in Inches		L Dimension		Cantilever Strength Inch Lbs.	Net Weight Lbs.	Catalog Number
				A	H	Min.	Max.			
12 to 30	63326	1	3"	5"	4 1/2"	5"	6 1/4"	4350	5.12	64168
12 to 30	59695	1	4"	5"	4 1/2"	5"	6 1/4"	3750	8.25	59675
12 to 30	69265	1	4 3/4"	5"	5 1/4"	5"	6 1/4"	7450	10.00	72611
12 to 30	49874	1	3 3/4"	5"	5 3/8"	5"	6 1/4"	6750	8.75	64106
35 to 60	59695	1	4"	6 1/4"	4 1/2"	5"	6 1/4"	4350	9	59677
35 to 60	49874	1	3 3/4"	6 1/4"	5 3/8"	5"	6 1/4"	6750	9.5	64108
35 to 60	69265	1	4 3/4"	6 1/4"	5 1/4"	5"	6 1/4"	7450	11.75	72613
50 to 100	59695	1	4"	8"	4 1/2"	5"	6 1/4"	4350	12.25	99952
60 to 100	69265	1	4 3/4"	8"	5 1/4"	5"	6 1/4"	7450	13	72615
60 to 100	74283	1	6"	8"	5 3/8"	7 3/4"	8 1/2"	7650	16.75	98972
110 to 152	74283	1	6"	9 1/2"	5 3/8"	7 3/4"	8 1/2"	7650	18.25	98973

Porcelain Rail Supports With Mounting Base With Porcelain Petticoat Insulator Units										
12 to 30	64672	2	4 15/16"	5"	4 1/2"	5"	6 1/4"	1000	800	98977
35 to 60	91376	3	5 1/2"	6 1/4"	5 3/8"	5"	6 1/4"	1200	1125	98978
65 to 100	91694	3	5 1/2"	8"	5 3/8"	5"	6 1/4"	1200	1250	98979

**Insulator Assemblies
Overrunning Conductors
Contact Rail B Series**

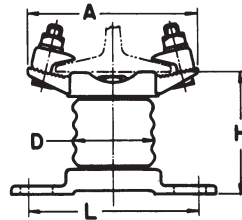
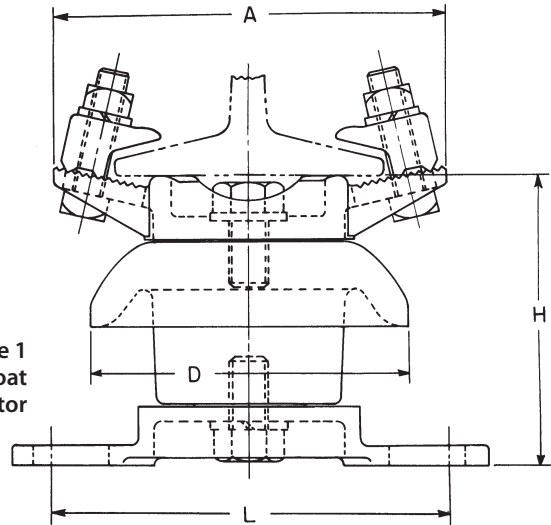


Figure 1
With Corrugated
Polyester Fiberglass Insulator

Polyester Fiberglass Rail Supports With Mounting Base With Corrugated Polyester Fiberglass Insulator										
Rail Sizes Lbs. per Yd. A.S.C.E.	Insulator Number	Figure Number	Insulator Diameter D	Dimensions in Inches		L Dimension		Cantilever Strength Inch Lbs.	Net Weight Lbs.	Catalog Number
				A	H	Min.	Max.			
12 to 30	88678	1	3"	5"	4 ¹ / ₂ "	5"	6 ¹ / ₄ "	7975	5.75	95377
12 to 30	106601	1	3"	5"	4 ⁵ / ₈ "	5"	6 ¹ / ₄ "	8250	5.82	106687
12 to 30	106594	1	3"	5"	4 ³ / ₄ "	5"	6 ¹ / ₄ "	8525	5.89	106688
12 to 30	106348	1	3"	5"	4 ⁷ / ₈ "	5"	6 ¹ / ₄ "	8800	5.96	106355
12 to 30	105695	1	3"	5"	5"	5"	6 ¹ / ₄ "	9075	6.03	106689
12 to 30	106596	1	3"	5"	5 ¹ / ₈ "	5"	6 ¹ / ₄ "	9350	6.10	106690
12 to 30	105960	1	3"	5"	5 ¹ / ₄ "	5"	6 ¹ / ₄ "	9650	6.17	106356
35 to 60	88678	1	3"	6 ¹ / ₄ "	4 ¹ / ₂ "	5"	6 ¹ / ₄ "	7975	6.75	90960
35 to 60	106601	1	3"	6 ¹ / ₄ "	4 ⁵ / ₈ "	5"	6 ¹ / ₄ "	8250	6.82	106691
35 to 60	106594	1	3"	6 ¹ / ₄ "	4 ³ / ₄ "	5"	6 ¹ / ₄ "	8525	6.89	106692
35 to 60	106348	1	3"	6 ¹ / ₄ "	4 ⁷ / ₈ "	5"	6 ¹ / ₄ "	8800	6.96	106357
35 to 60	105695	1	3"	6 ¹ / ₄ "	5"	5"	6 ¹ / ₄ "	9075	7.03	106693
35 to 60	106596	1	3"	6 ¹ / ₄ "	5 ¹ / ₈ "	5"	6 ¹ / ₄ "	9350	7.10	106694
35 to 60	105960	1	3"	6 ¹ / ₄ "	5 ¹ / ₄ "	5"	6 ¹ / ₄ "	9650	7.17	106358
65 to 100	88678	1	3"	8"	4 ¹ / ₂ "	5"	6 ¹ / ₄ "	7975	7.75	106359
65 to 100	106601	1	3"	8"	4 ⁵ / ₈ "	5"	6 ¹ / ₄ "	8250	7.82	106695
65 to 100	106594	1	3"	8"	4 ³ / ₄ "	5"	6 ¹ / ₄ "	8525	7.89	106696
65 to 100	106348	1	3"	8"	4 ⁷ / ₈ "	5"	6 ¹ / ₄ "	8800	7.96	106360
65 to 100	105695	1	3"	8"	5"	5"	6 ¹ / ₄ "	9075	8.03	106697
65 to 100	106596	1	3"	8"	5 ¹ / ₈ "	5"	6 ¹ / ₄ "	9350	8.10	106698
65 to 100	105960	1	3"	8"	5 ¹ / ₄ "	5"	6 ¹ / ₄ "	9650	8.17	106361

Slots in mounting base accommodate 1/2" bolts

**Insulator Assemblies
Overrunning Conductors
Contact Rail B Series**

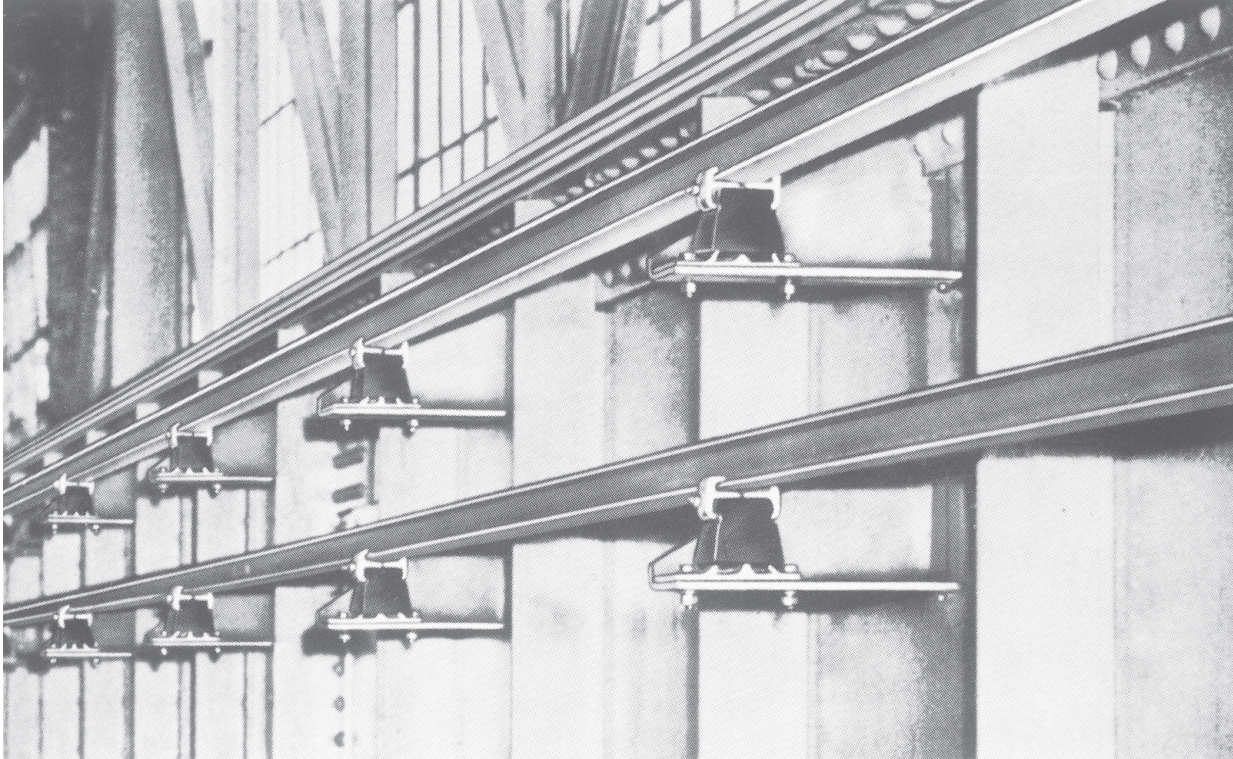


**Figure 1
With Petticoat
Polyester Fiberglass Insulator**

Polyester Fiberglass Rail Supports With Mounting Base With Petticoat Polyester Fiberglass Insulator										
Rail Sizes Lbs. per Yd. A.S.C.E.	Insulator Number	Figure Number	Insulator Diameter D	Dimensions in Inches		L Dimension		Cantilever Strength Inch Lbs.	Net Weight Each Lbs.	Catalog Number
				A	H	Min.	Max.			
12 to 30	99600-2	1	5"	5"	4 ¹ / ₂ "	5"	6 ¹ / ₄ "	4350	6.5	99970
12 to 30	99600-5	1	5"	5"	4 ⁵ / ₈ "	5"	6 ¹ / ₄ "	4500	6.56	106660
12 to 30	105956-2	1	5"	5"	4 ³ / ₄ "	5"	6 ¹ / ₄ "	4650	6.62	106661
12 to 30	105956-5	1	5"	5"	4 ⁷ / ₈ "	5"	6 ¹ / ₄ "	4800	6.68	106341
12 to 30	105957-2	1	5"	5"	5"	5"	6 ¹ / ₄ "	4950	6.74	106662
12 to 30	105957-5	1	5"	5"	5 ¹ / ₈ "	5"	6 ¹ / ₄ "	5100	6.80	106663
12 to 30	105958-2	1	5"	5"	5 ¹ / ₄ "	5"	6 ¹ / ₄ "	5250	6.86	106342
12 to 30	105958-5	1	5"	5"	5 ³ / ₈ "	5"	6 ¹ / ₄ "	5400	6.92	106664
35 to 60	99600-2	1	5"	6 ¹ / ₄ "	4 ¹ / ₂ "	5"	6 ¹ / ₄ "	4350	7.15	99971
35 to 60	99600-5	1	5"	6 ¹ / ₄ "	4 ⁵ / ₈ "	5"	6 ¹ / ₄ "	4500	7.21	106665
35 to 60	105956-2	1	5"	6 ¹ / ₄ "	4 ³ / ₄ "	5"	6 ¹ / ₄ "	4650	7.27	106666
35 to 60	105956-5	1	5"	6 ¹ / ₄ "	4 ⁷ / ₈ "	5"	6 ¹ / ₄ "	4800	7.33	106343
35 to 60	105957-2	1	5"	6 ¹ / ₄ "	5"	5"	6 ¹ / ₄ "	4950	7.39	106667
35 to 60	105957-5	1	5"	6 ¹ / ₄ "	5 ¹ / ₈ "	5"	6 ¹ / ₄ "	5100	7.45	106668
35 to 60	105958-2	1	5"	6 ¹ / ₄ "	5 ¹ / ₄ "	5"	6 ¹ / ₄ "	5250	7.51	106344
35 to 60	105958-5	1	5"	6 ¹ / ₄ "	5 ³ / ₈ "	5"	6 ¹ / ₄ "	5400	7.57	106669
65 to 100	99600-2	1	5"	8"	4 ¹ / ₂ "	5"	6 ¹ / ₄ "	4350	7.85	99972
65 to 100	99600-5	1	5"	8"	4 ⁵ / ₈ "	5"	6 ¹ / ₄ "	4500	7.91	106670
65 to 100	105956-2	1	5"	8"	4 ³ / ₄ "	5"	6 ¹ / ₄ "	4650	7.97	106671
65 to 100	105956-5	1	5"	8"	4 ⁷ / ₈ "	5"	6 ¹ / ₄ "	4800	8.03	106345
65 to 100	105957-2	1	5"	8"	5"	5"	6 ¹ / ₄ "	4950	8.10	106672
65 to 100	105957-5	1	5"	8"	5 ¹ / ₈ "	5"	6 ¹ / ₄ "	5100	8.16	106673
65 to 100	105958-2	1	5"	8"	5 ¹ / ₄ "	5"	6 ¹ / ₄ "	5250	8.22	106346
65 to 100	105958-5	1	5"	8"	5 ³ / ₈ "	5"	6 ¹ / ₄ "	5400	8.28	106674

Slots in mounting base accommodate 1/2" bolts

***Insulators Assemblies
Overrunning Conductors
Types HA, BOA, DDI, and DD***



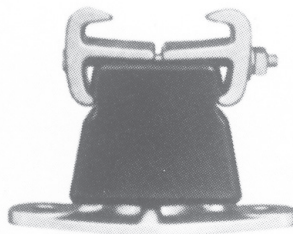
Application

These insulators are designed for supporting conventional ASCE rail sections when used as contact rail conductors when collectors are operating in an overrunning position.

These insulator assemblies differ from the "B" Series previously shown since the mounting bases and, in some cases, the rail supports are cemented to the insulators.

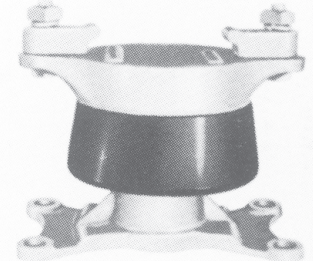
Four types most commonly used are shown, however, other types can also be supplied for various mountings and rail sizes.

Type "HA"



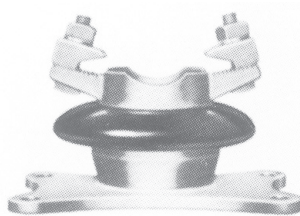
48696
48697
48698
48790
60444

Type "DD"



46519
46520

Type "BOA"



63045
63670

Type "DDI"

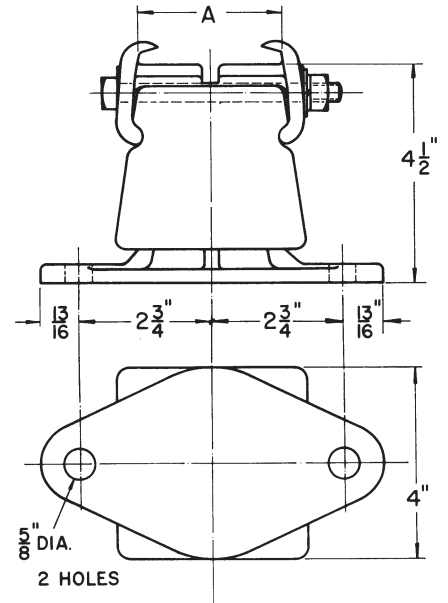


70463

Insulators Assemblies

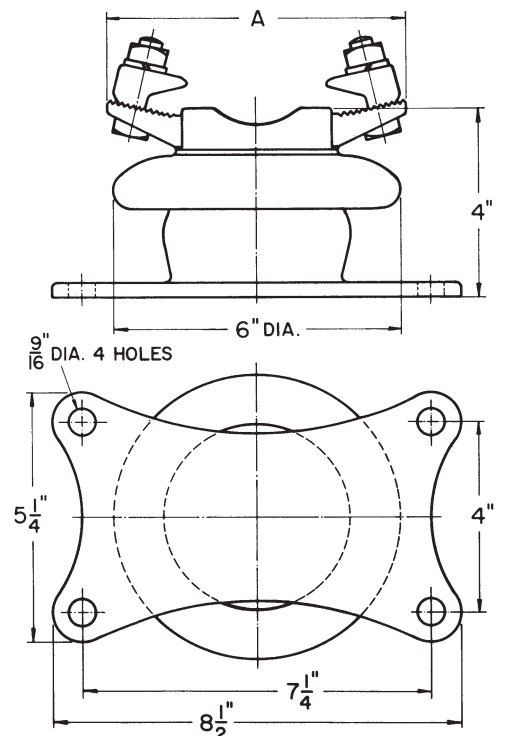
Overrunning Conductors - Types HA and BOA

Type HA Features	
Design	<p>Insulator with cast base cemented therein.</p> <p>Rail fittings are clamped to insulator making a rigid assembly.</p> <p>Rail clamps permit free movement of rail to allow for expansion and contraction.</p>
Insulator	Square block of brown glazed dry process porcelain.
Metal Parts	Galvanized



Catalog Information			
For ASCE Rail Size Lbs. per Yd.	Dimension A Inches	Net Wt. Each — Lbs.	Catalog Number
12 - 14	2 ⁵ / ₁₆	7	48696
16	2 ⁵ / ₈	7	48697
20 - 25	3	7	48698
30	3 ³ / ₈	7	48790
30 - 40	3 ³ / ₄	8 1/4	60444

Type BOA Features	
Design	<p>Insulator with base and rail cap cemented thereto making one piece assembly except for rail lugs.</p> <p>Rail clamps permit free movement of rail to allow for expansion and contraction.</p> <p>High strength parts and assembly for use where unusual mechanical strength is required.</p>
Insulator	Petticoat design of brown glazed wet-process porcelain.
Metal Parts	Galvanized



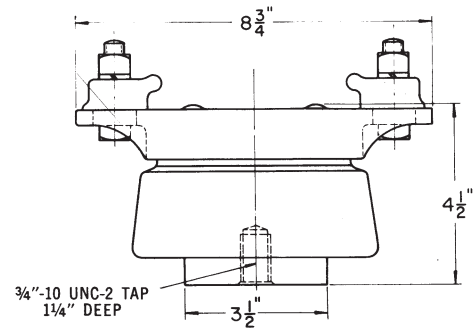
Catalog Information			
For ASCE Rail Size Lbs. per Yd.	Dimension A Inches	Net Wt. Each — Lbs.	Catalog Number
35 - 60	6 1/4	10	63045
65 - 100	8	12	63670

Ordering Directions - Specify by Catalog Number.

Insulators Assemblies

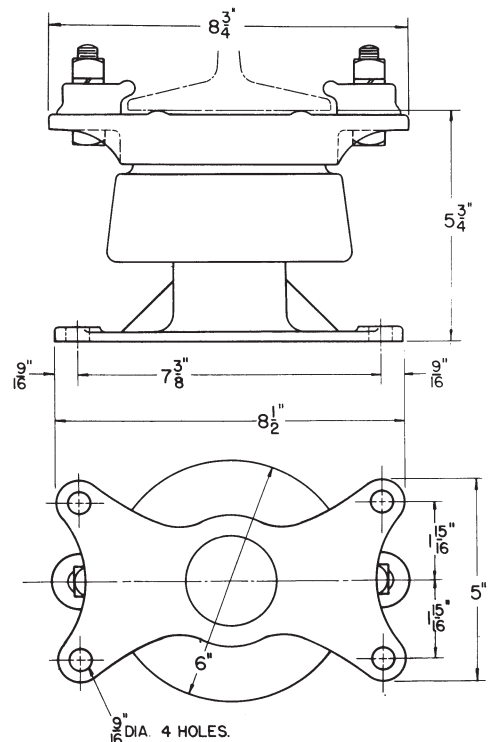
Overrunning Conductors - Types DDI and DD

Type DDI Features	
Design	<p>Large rail mounting cap cemented to top of insulator.</p> <p>Tapped insert cemented to bottom of insulator provides single hole mounting.</p> <p>Rail clamps permit free movement of rail to allow for expansion and contraction.</p>
Insulator	Round block of brown glazed dry process porcelain.
Metal Parts	Galvanized



Catalog Information		
For ASCE Rail Size Lbs. per Yd.	Net Wt. Each — Lbs.	Catalog Number
30 - 40	11 1/2	70463

Type DD Features	
Design	<p>Large rail mounting cap cemented to top of insulator.</p> <p>Four hole flat base cemented to bottom of insulator.</p> <p>Rail clamps permit free movement of rail to allow for expansion and contraction.</p>
Insulator	Round block of brown glazed dry process porcelain.
Metal Parts	Galvanized



Catalog Information		
For ASCE Rail Size Lbs. per Yd.	Net Wt. Each — Lbs.	Catalog Number
45 - 65	14	46519
70 - 95	14	46520

Ordering Directions - Specify by Catalog Number.

Insulators Assemblies Underrunning Conductors

Application

Under-Contact Rail System illustrated is for supporting conventional rail shapes used as conductors in industrial installations of heavy cranes, conveyors and other industrial haulage systems. This type of conductor system is used extensively in steel mills, shipyards, chemical works, coke plants and ore or coal handling systems.

Features

Under-Contact system assures good contact between the collector and the conductor by avoiding the accumulation of dust, dirt, or snow and sleet on the contact surface. No expansion joints are required as the rail conductor is free to move from expansion or contraction.

Installation does not call for highly skilled labor and the number of supports required is reduced to a minimum.

Protection against accidental contact with live rail may be secured by means of a wooden cover or a formed fibre cover, if desired.

This system has been developed using various types of supports, employing standard rail sections.

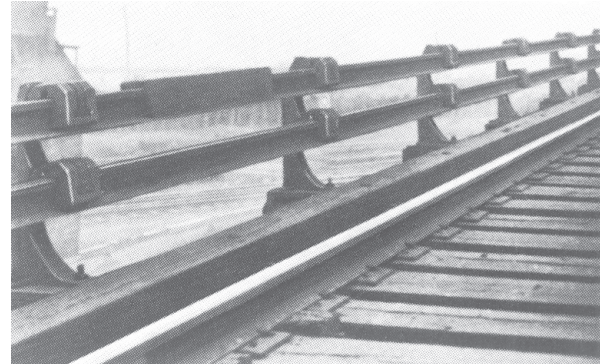
Various types of supporting standards and brackets for one, two or three rails and for rails of various weights are listed and described separately on pages following.

Component parts are those most commonly used, however other types and other sizes for larger rails are available to order.

Where the contact shoe employed is considerably wider than the contact surface of the rail to allow for horizontal misalignments it is essential that clearance between the contact shoe, rail, insulator and supporting standard or bracket be accurately determined before specifications are written. This will assure adequate electrical and mechanical clearances under conditions of maximum misalignment and contact shoe wear. This is particularly important when the smaller rail sizes are employed.

Suitable underrunning contact rail collectors for use in connection with this system are available.

Weld type feeder connectors are available.



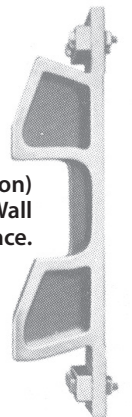
Typical Double Rail Installation



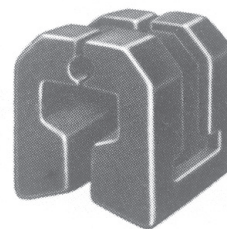
Assembly of Rail Standard with Insulator



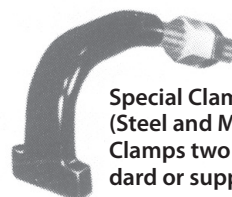
**Rail Standard (Cast Iron)
For Mounting on Rail Tie
or horizontal surface.**



**Rail Bracket (Cast Iron)
For Mounting on Wall
or vertical surface.**



**Insulators
(Polyester Fiberglass or
Brown Glazed Porcelain)
Varying in size to (it rail
selected. Two halves
required per support joint.**



**Special Clamping Bolt
(Steel and Malleable Iron Coated With Insulation)
Clamps two insulators with rail to the rail stan-
dard or support. One required per support point.**

**Insulators Assemblies
Underrunning Conductors
Porcelain Insulators**

Application

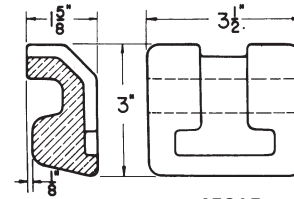
These Porcelain Insulators are used with the rail supports and special clamping bolts to insulate and support standard rail from 12 to 152 pounds used as conductors in this system.

They are made of two halves, the inside shaped to support the rail, the outside having recesses to fit lugs in the rail supports and the specially shaped clamping bolts.

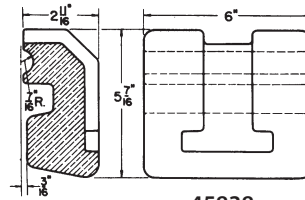
Features

Insulators are made of a special quality of porcelain for this service; heavily brown glazed, of high mechanical strength, particularly under compression, and having ample insulating characteristics up to 1000 volts under the worst conditions of exposure to weather.

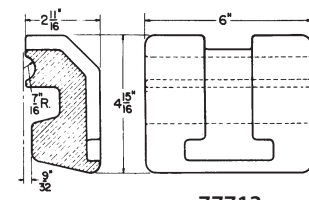
Insulator No. 77713 is designed to allow space for carrying auxiliary cable or cables along top of the base of the rail. This insulator when used with 60 lb. rail provides space for one 700 MCM bare cable per side or with 70 lb. rail 1000 MCM bare cable per side.



45815



45838



77713

Catalog Information			
ASCE Rail Size Lbs. Per Yd.	Use Insulated Clamping Bolt	Net Weight Each Lbs.	Catalog Number
12 - 30	89618	1	45815
35 - 55	90354	5.25	45838
60 - 70	90354	5.25	77713
Dimensions Not Shown			
80 - 100	105265	7.5	48773
Other Rail Types — Dimensions Not Shown			
112 - 132 (A.R.E.A.)	None	8	48605
60 - 90 (A.R.E.A.)	90354	4.5	41048
132 (A.R.E.A.)	105264	12.5	93341
152 Pa. Standard	105264	13.75	73218
Catalog number applies to one piece or a half, two insulator halves being required for each point of rail support.			

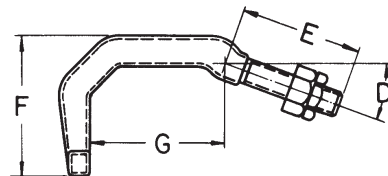
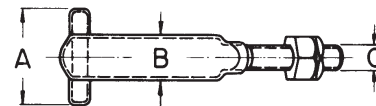
Clamping Bolts

Application

These clamping bolts engage insulator supporting rail and clamp the combination to the supporting structure. All bolts furnished with standard holding nut and lock nut.

Features

Insulated bolts are finished with a tough flexible insulating coating where bolt makes contact with insulator. Flexible coating increases insulation value and provides additional protection to insulator against vibration, mechanical shock or slight misalignment.



Catalog Information								
Insulated Clamping Bolt	A	B	C	D	E	F	G	Net Wt. each Lbs. Insulated
89618	2	15/16	1/2 - 13	20°	2 1/2	2 11/16	2 7/8	.625
90354	3 1/4	1 5/8	3/4 - 10	15°	3 7/8	4 5/8	3 13/16	2.5
105265	3 1/4	1 5/8	7/8 - 9	15°	4 1/4	5 1/4	4 9/16	3.5
74838	3 1/8	1 1/2	1 - 8	15°	4 3/8	5 7/16	5	—
105264	3 3/8	1 5/8	1 - 8	17° - 15°	4 3/4	7 3/4	4 7/16	5

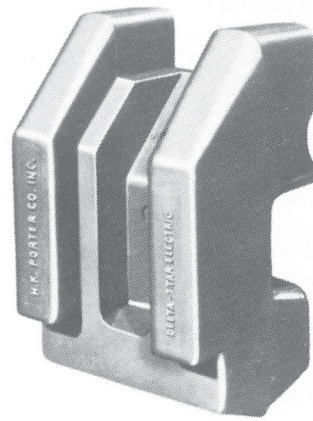
Ordering Directions - Specify by Catalog Number.

Insulators Polyester Fiberglass

Application

The Red polyester fiberglass insulator and clamping bolt are used as rail supports for A.S.C.E. and other rails when they are applied as the current carrying conductor in a system.

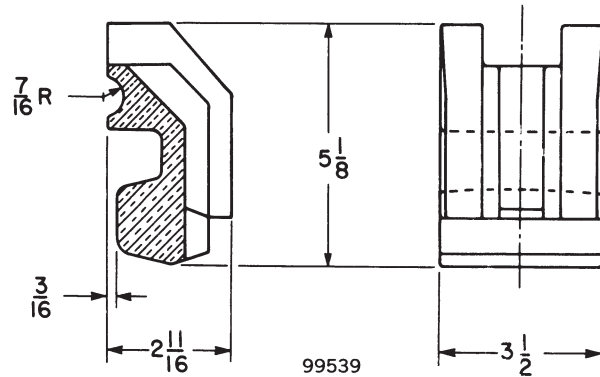
An assembly is made of two halves, the inside shaped to support the rail. The outside is recessed to accept lugs in the rail support bracket and the specially shaped clamping bolts.



Features

Units are molded from a special compound of polyester resin reinforced with glass fiber to give high impact strength, good electrical properties and a surface finish resistant to weathering.

The use of these insulators can result in a lower over-all cost compared with porcelain insulators due to their high impact strength and chip resistance effecting a very low maintenance factor.



Catalog Information			
ASCE Rail Size Lbs. per Yd.	Use Insulated Clamping Bolt	Net Weight Each Lbs.	Catalog Number
132 AREA	105264	4.5	99796
152 Pa. Standard Double Head	105264	4.5	99796
40 - 70	90354	1.5	99539
Other Rail Types Dimensions Not Shown			

Ordering Directions - Specify by Catalog Number.

Insulators Assemblies Underrunning Conductors

Application

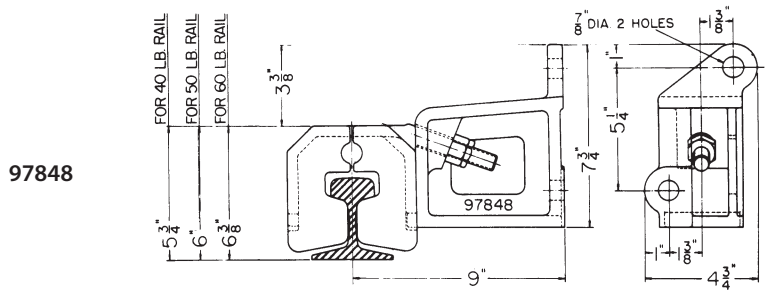
Rail standards and brackets shown illustrate a few of many styles and sizes used as industrial third-rail applications to support conventional rail conductors ranging in size from 12 to 60 pounds.

Features

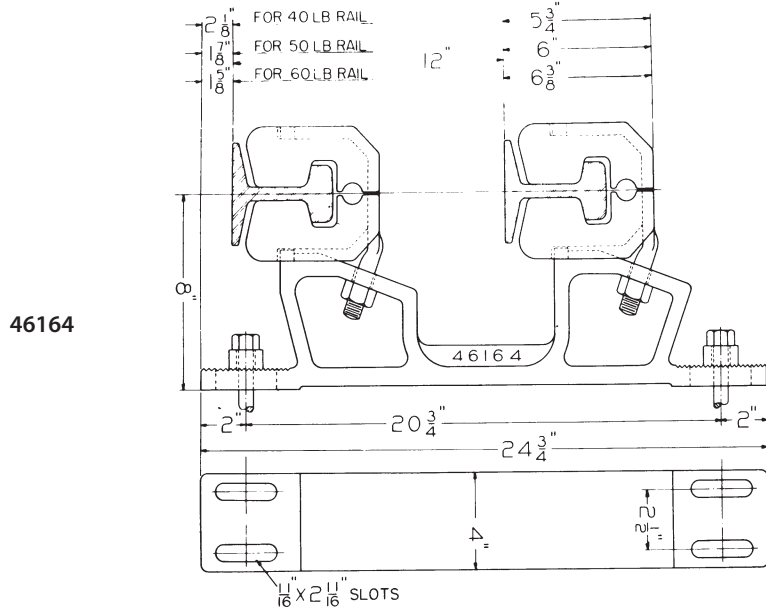
There are two types; the rail brackets shown on this page, generally mounted on a wall or vertical supporting structure, and the rail standards shown on the next page for use on concrete mountings, railroad ties or other horizontal surfaces. Both types are generally made of cast iron. Some of the rail brackets are provided with a corrugated section around an elongated mounting slot to be used with a corrugated washer to adjust for misalignment of the rail. Some types are available with mounting holes for attaching wooden guard rails. Pattern equipment is available for many types other than those shown in this listing.

Ordering Directions

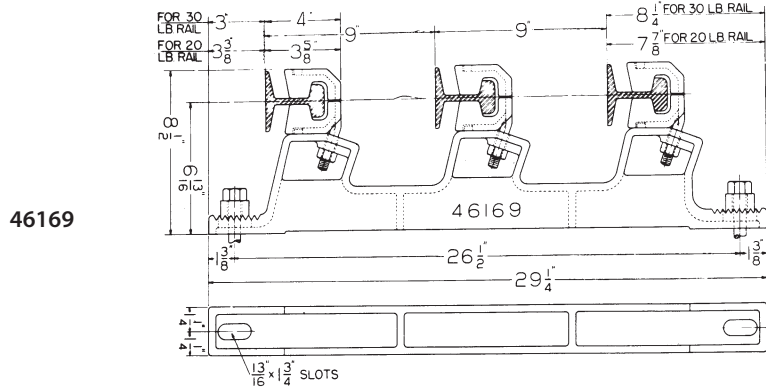
Catalog numbers shown refer only to the rail standard and corrugated washer, when used, but without insulators or clamping bolts. Specify by catalog number those illustrated or consult office for other styles.



97848



46164



46169

Catalog Information

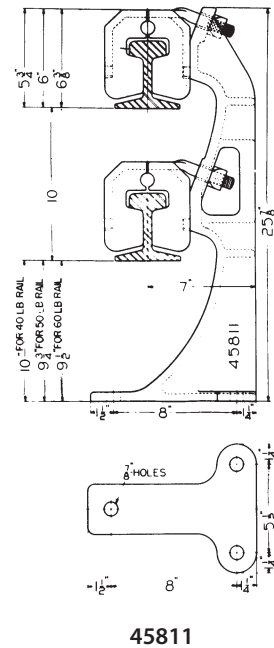
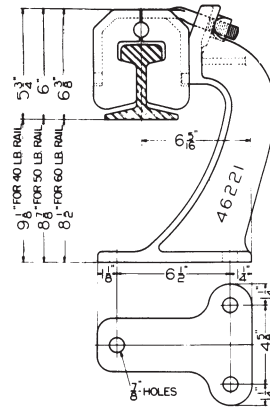
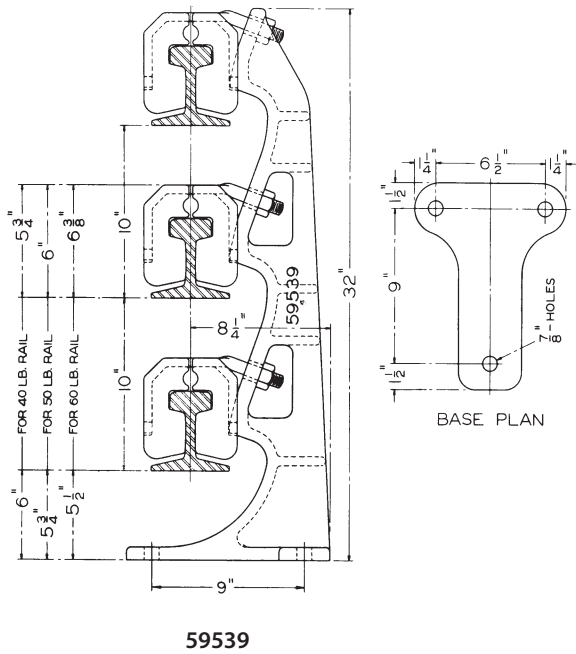
Description	Used with Rail Sizes Lbs. per Yard		Use Insulator	Use Clamping Bolt	Use Collectors	Net Weight Each - Lbs.	Catalog Number
	A.S.C.E.	A.R.A.					
Single Rail Bracket	35 to 55	35 to 48	45838	90354	L. M. Pony L. M. Standard L. M. I. Pony	12	97848
	40 to 60	60 A, B	77713				
Double Rail Bracket with Washers 46165	35 to 55	35 to 48	45838	90354	L. M. Pony L. M. Standard L. M. I. Pony	48	46164
	40 to 60	60 A, B	77713				
Triple Rail Bracket with Washers 44620	12 to 30	12 to 30	45815	89618	L. M. Pony L. M. I. Pony	30	46169

Insulators Assemblies Underrunning Assemblies

Ordering Directions

Catalog numbers shown refer only to the rail standard and corrugated washer, when used, but without insulators or clamping bolts.

Specify by catalog number those illustrated or consult office for other styles.



Catalog Information							
Description	Used with Rail Sizes Lbs. per Yard		Use Insulator	Use Clamping Bolt	Use Collectors	Approx. Weight Each - Lbs.	Catalog Number
	A.S.C.E.	A.R.A.					
Single Rail Standard	35 to 55	35 to 48	45838	90354	L. M. Pony L. M. Standard L. M. I. Pony	20	46221
	40 to 60	60 A, B	77713				
Double Rail Standard	35 to 55	35 to 48	45838	90354	L. M. Pony L. M. Standard L. M. I. Pony	43	45811
	40 to 60	60 A, B	77713				
Triple Rail Standard	35 to 55	35 to 48	45838	90354	L. M. Pony L. M. I. Pony	75	59539
	40 to 60	60 A, B	77713				

Insulators Assemblies Underrunning Conductors

Application

These rugged assemblies are designed for supporting inverted ASCE rail sections to permit collection of power from the ball face of the rail for underrunning contact applications. This type of installation is commonly employed for ore bridge and unloader cross travel conductors and on main runway conductors for this class of heavy duty equipment.

Assemblies employ the No. 62436 Porcelain Covered Giant Strain Insulator.

This insulator has superior tensile strength and weathering characteristics, resulting from the combination of a special molded interior strain assembly encased by a rugged brown wet-process porcelain outer jacket.

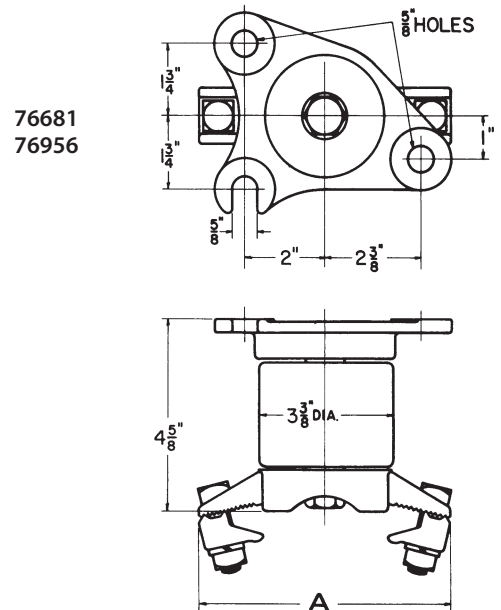
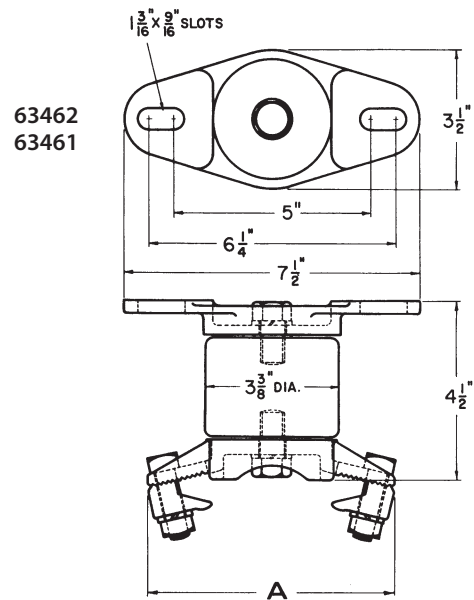
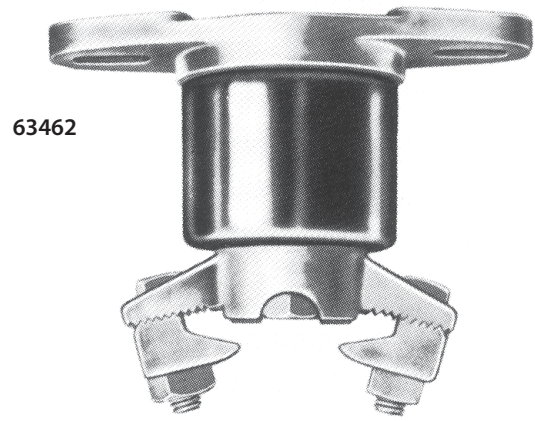
Insulators may be used on 12 to 60 pound ASCE rails on insulator spacings of ten feet, and for applications up to 1000 V. AC or DC.

Features

Assemblies consist of rail base with adjustable clips, mounting bases of the two styles shown and the Porcelain Covered Giant Strain Insulator. All fittings are of malleable iron, hot galvanized. Rail base clip combinations are designed to permit free movement of the rails, accommodating expansion and contraction with minimum insulator stress.

Catalog Information			
For ASCE Rails Lbs. per Yd.	A Dimension	Net Weight Lbs.	Catalog Number
35 - 60	6 ¹ / ₄ "	8 ¹ / ₈	63462
35 - 60	6 ¹ / ₄ "	8 ³ / ₈	76681
12 - 30	5"	7	63461
12 - 30	5"	7 ¹ / ₄	76956

Ordering Directions - Specify by Catalog Number.



The Fandstan Electric Companies



Fandstan Electric Group

The Fandstan Electric Group specializes in engineering solutions for the supply of electrical power and data to moving objects, both linear and rotary. Applications are as wide ranging as public mass transit, mobile cranes, industrial equipment, robots and wind turbines. The Group's Knowledge of the electrical interface is unrivalled. Fandstan is an independent, privately owned, electrical engineering group with major subsidiaries in Europe, America, Asia (including China) and Australia. The Group, which was founded in 1979, has grown both organically and by acquisition and now employs over 700 people, manufactures across four continents and sells throughout the world. The global positioning of the companies within the Group enables Fandstan Electric to supply close support to the customer and operator.





TranstTech
POWER TRANSFER SYSTEMS

The Leaders In Power Transfer Technology

TranstTech is a subsidiary of Fandstan Electric, a global group of companies focusing on energy transfer systems with installations in over 100 countries. Working synergistically with our European sister companies such as Brecknell-Willis, Stemmann and AKAPP, we are able to leverage a broad product portfolio and a wealth of technical expertise. Our goal is to better serve our power transfer markets by continuing to provide solutions that improve product life, performance, and reliability.

709 Augusta Arbor Way
Piedmont, SC 29673

800.245.4552 ph | 864.422.9027 fx
transtech.com

A Fandstan Electric Company