



Westinghouse Electric Corporation  
Switchgear Division  
East Pittsburgh, Pa. 15112

Descriptive Bulletin  
**34-350**

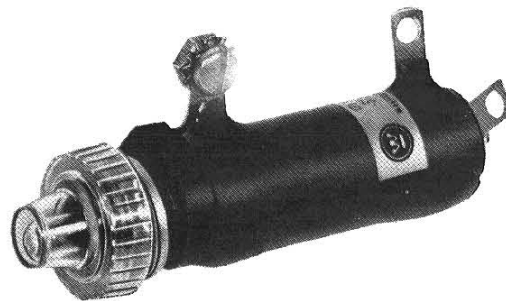
Page 1

August, 1977  
Supersedes DB 34-350, pages 1-12, dated  
December, 1967  
Mailed to: E, D, C/1978/DB

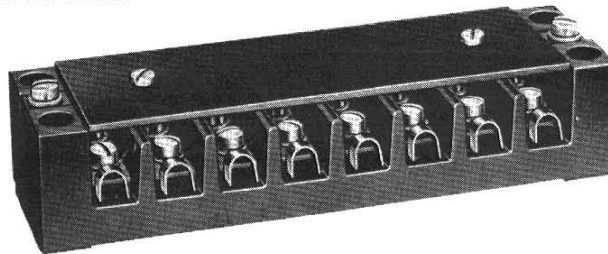
Indicating Lamps, Terminal Blocks,  
Terminals, Insulators, Switchboard Details

## Switchgear Details

Indicating Lamps



Terminal Blocks



Switchgear details are designed to give the best service for switchgear assembly requirements. Each of the individual items will provide the highest in efficiency and accuracy for the most effective operation. Maximum flexibility in operation and safety in maintenance are an integral part of all switchgear details. Manufacturing facilities assure complete quality control.

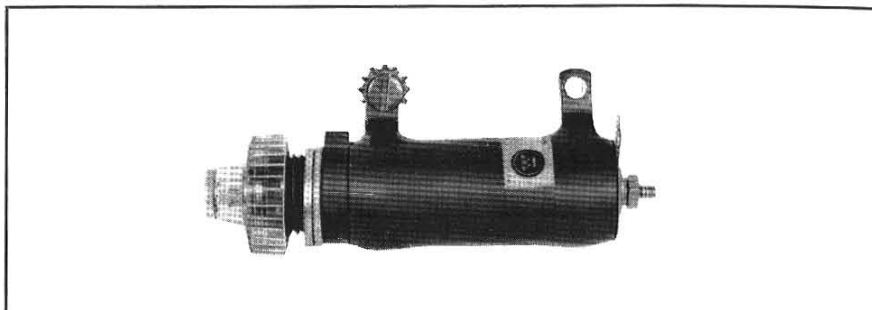
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### Indicating Lamps EZC Minalite

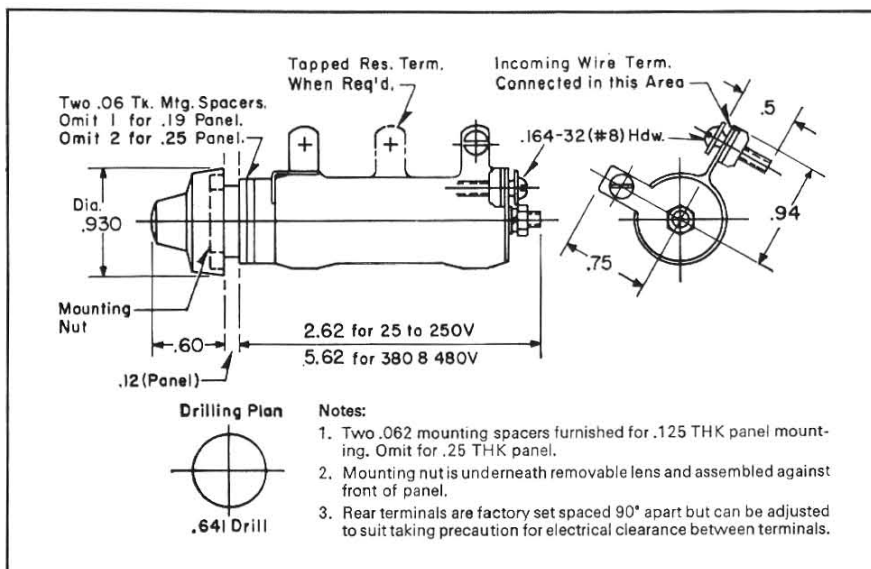
The Type EZC Minalite is a compact indicating lamp, designed for general indicating or signaling purposes on switchboards, control desks, etc. A complete lamp consists of a standard resistor, receptacle, a low drain telephone type slide base bulb, annular spacers, octagon mounting nut, lens and terminal hardware. The resistor, receptacle, bulb and lens are shipped assembled. The other parts are enclosed in an envelope. These two items are incorporated into a single package which is identified by a single style number for the required lamp.

The EZC indicating lamp is suitable for mounting on panels, up to and including  $\frac{1}{4}$  inch thickness, and are of a design that permits quick and easy installation. They are inserted from the rear of the panel, after unscrewing lens from resistor-receptacle assembly, through annular spacers as required for panel thickness. Tightening the octagon nut from the front of the panel mounts the assembly. The one-piece molded lens is then screwed on enclosing the lamp receptacle and the front mounting nut. Wiring connections are easily made at the rear end of the assembly.

The round receptacle and lens affords accurate alignment on the panel. The rear terminal, located on the axial tie rod, can be rotated 360 degrees and bent up 90 degrees to positions best suited to wiring requirements.



Dimensions in Inches



### Lamp Data

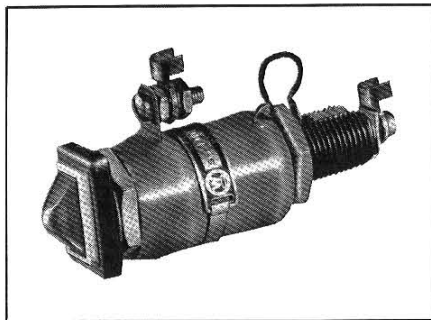
Service Voltage Ac - Dc	Style Numbers and Lens Color						Total Watts (Approx.) at Service Voltage
	Red	Green	White	Blue	Amber	Clear	
25	449D187G10	449D187G20	449D187G30	449D187G40	449D187G50	449D187G60	0.9
50	449D187G11	449D187G21	449D187G31	449D187G41	449D187G51	449D187G61	1.6
70	449D187G12	449D187G22	449D187G32	449D187G42	449D187G52	449D187G62	2.3
115	449D187G13	449D187G23	449D187G33	449D187G43	449D187G53	449D187G63	3.6
125	449D187G14	449D187G24	449D187G34	449D187G44	449D187G54	449D187G64	4.0
208	449D187G15	449D187G25	449D187G35	449D187G45	449D187G55	449D187G65	6.6
230	449D187G16	449D187G26	449D187G36	449D187G46	449D187G56	449D187G66	7.3
250	449D187G17	449D187G27	449D187G37	449D187G47	449D187G57	449D187G67	7.9
380	449D187G18	449D187G28	449D187G38	449D187G48	449D187G58	449D187G68	11.8
480	449D187G19	449D187G29	449D187G39	449D187G49	449D187G59	449D187G69	15.3
Assembled with Tapped Resistor for Bright-Dim Operation							Dim Bright
50 ♦	449D187G70	449D187G73	449D187G76	449D187G79	449D187G82	449D187G85	1.3 1.4
125 ♦	449D187G71	449D187G74	449D187G77	449D187G80	449D187G83	449D187G86	3.6 4.8
250 ♦	449D187G72	449D187G75	449D187G78	449D187G81	449D187G84	449D187G87	7.1 8.6

Above styles complete with lens, mounting hardware, resistors and 24 volt .032/.038 ampere bulb.

♦ With tapped resistor for "bright-dim" operation.



## Indicating Lamps Rectangular Minalite



Rectangular Minalite is a medium sized low-drain indicating lamp designed for extreme angular visibility and to provide the utmost in sturdiness, compactness and appearance. It is intended for general indicating or signal purposes on switchboards, control desks, etc.

Rectangular Minalite includes a rugged one-piece receptacle, made of Moldarta, a high-strength molded material, and is suitable for mounting on panels  $\frac{1}{2}$  to 2 inches thick. The molded receptacle is shaped to key into a square hole in the panel to provide accurate positioning. Where positioning is not mandatory, the same receptacle can be mounted by drilling a  $\frac{25}{32}$ -inch round hole. Pressure-type leaf spring contacts establish connections with the slide base telephone lamp having a rating of .032-.038 amperes, at 24 or 48 volts.

The rectangular lens assembly is held in place by means of phosphor bronze spring clips engaging in retaining grooves of the receptacle. A chromium metal holder encases the lens and spring clips. Rigid terminals for standard 10-32 hardware are provided. Resistors are available for bright-dim operation.

The lens provides visibility in all directions. The assembly using the 0.75-watt, 24-volt bulb is standard. A similar assembly using a 1.5-watt, 48-volt bulb is available for use in locations having a high level of illumination.

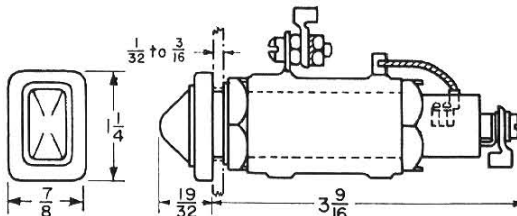
- Styles do not include lens or bulb. Select and specify as separate items from the following:

Red Lens S# 1615 688  
Green Lens S# 1615 689  
Clear Lens S# 1615 690  
Blue Lens S# 1615 691  
Amber Lens S# 1615 692  
Opalescent Lens S# 1615 693  
Bulb 24 Volt S# 1124 156  
Bulb 48 Volt S# 1615 719

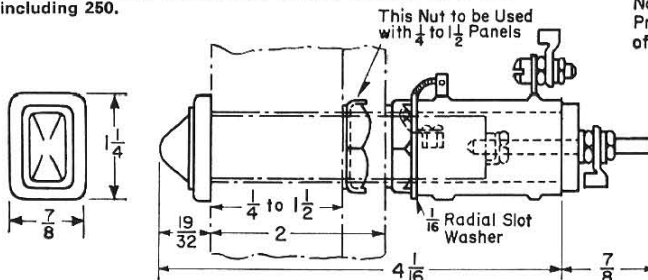
- ◆ Do not use for circuit breaker trip coil supervision. For this application a special bulb and series resistor are required. Refer to Westinghouse.
- ◆ With tapped resistor for "bright-dim" operation.

### Dimensions in Inches

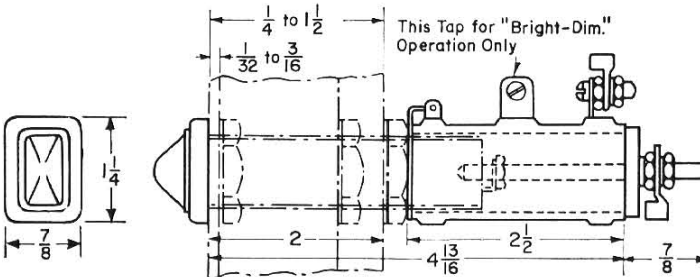
For panels  $\frac{1}{2}$  to  $\frac{3}{16}$ -inch thick, and for voltages up to and including 250.



For panels  $\frac{1}{2}$  to 2-inches thick, and for voltages up to and including 250.



380 and 480-volt receptacles, and all receptacles for "bright-dim" operation.  $\frac{1}{2}$  to 2-inch thick panel mounting.



### Drilling Plans



No. 1—Provides Positioning of Receptacle



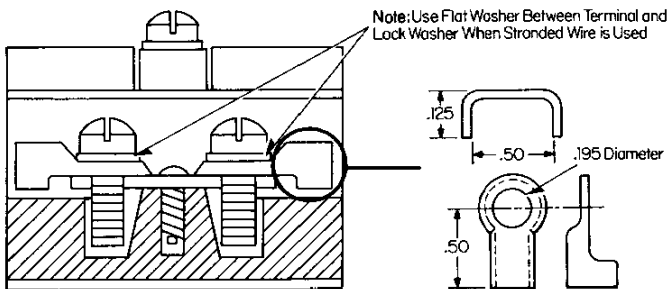
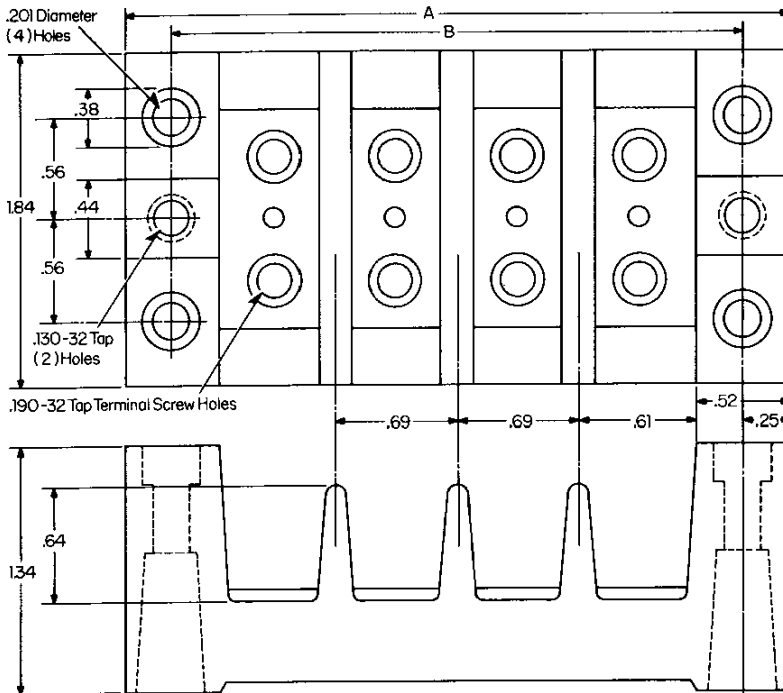
No. 2—Does not Provide Positioning of Receptacle

### Lamp Data

Service Voltage Ac – Dc	Style Numbers *				Total Watts (Approx.) at Service Voltage
	For 24 Volt S #1124156 Bulb		For 48 Volt S #1615 719 Bulb		
	For Panels Up To 3/16" Thick	For Panels 1/4" Up To 2" Thick	For Panels Up To 3/16" Thick	For Panels 1/4" To 2" Thick	
25 ♦	1589 180	1589 180	.....	.....	0.9
50	1589 181	1589 193	1589 180	1589 180	1.6
70	1589 182	1589 194	1586 570	1615 757	2.3
115	1589 183	1589 195	1584 571	1615 758	3.6
125	1589 184	1589 196	1584 572	1615 759	4.0
208	1589 185	1589 197	1615 754	1615 760	6.7
230	1589 186	1589 198	1615 755	1615 761	7.4
250	1589 187	1589 199	1615 756	1615 762	8.0
380	1589 188	1589 188	1615 720	1615 720	12.0
480	1589 189	1589 189	1615 721	1615 721	15.5
50 ♦	1589 190	1589 190	.....	.....	Dim 1.3    Bright 1.4
125 ♦	1589 191	1589 191	1615 722	1615 722	3.6    4.8
250 ♦	1589 192	1589 192	1615 723	1615 723	7.1    8.6

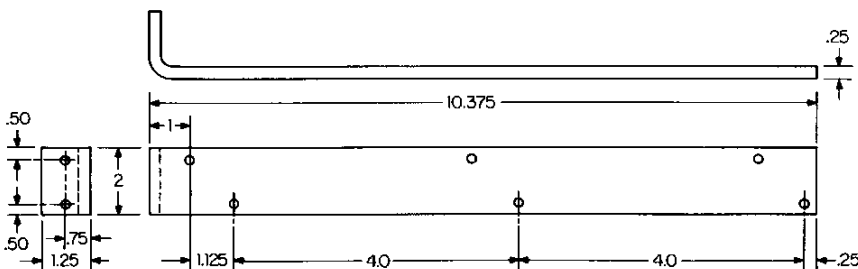
per Tony Tondo used 15 Volt bulb S# 822317  
w/ 120 ohm Resistor 1767257A  
090-.110 #10

### Dimensions of Terminal Blocks

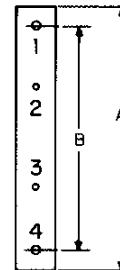


Section Through Terminal Block

### Mounting Bracket



### Marking Strip Dimensions (In Inches)

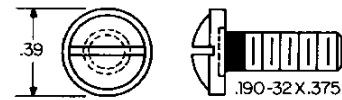


Number of Circuits	Overall Length "A"	Center to Center Mounting Holes "B"
4	3.62	3.12
5	4.31	3.78
8	6.38	5.88
12	9.12	8.62

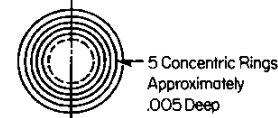
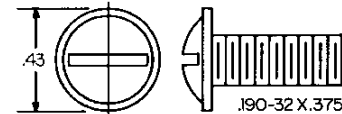
### Note:

Surface White With Black Numerals Numbered One Side Only. (Opposite Side Plain White, Matte Finish).

### Binding Head Screw



### Washer Head Screw



S#1616016 Mounting Bracket will accommodate one 12 point terminal block horizontally or three 8 point or 12 point terminal blocks vertically.



### Terminal Blocks Application

Terminal blocks are designed to meet modern demands of space economy, safety in operation, and flexibility in arrangement of control wiring and conduits. Black Moldarta blocks are compact, sturdy, and serviceable; they can be mounted by bolts in any two of the four bolt holes provided. Maximum short-circuit protection is provided between wires and to ground by maintaining a minimum of  $\frac{3}{8}$ " strike and a minimum of  $\frac{3}{4}$ " creep between terminals and ground through barriers and offsets in the design of the molded blocks.

Terminal Blocks are rated 40 amperes, 600 volts A-C or D-C.

Standard terminals are suitable for wire sizes no. 18 to no. 10 maximum. High-pressure terminals are available for wire sizes no. 16 to no. 6 maximum.

### Advantages

**Standard Moldarta Blocks:** Formed of a plastic material of fibrous cellulose filler and synthetic resin binder. They have exceptionally high resistance to heat, moisture and shock. This material is resistant to common solvents and has a smooth even finish which tends to retard the accumulation of dust.

**Removable Covers:** When used, can be removed without disturbing mounting, connections, or marking strips.

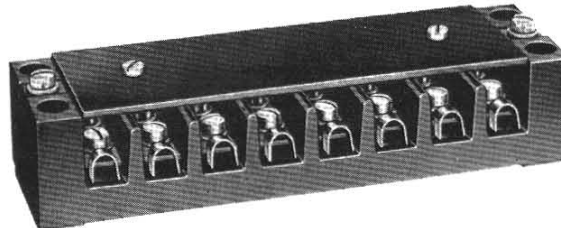
**Ease of Mounting:** Blocks can be mounted flat on housing or panel, or on brackets, by any two of four bolt holes.

**Reversible Marking Strips:** Can be lettered with white or yellow paint.

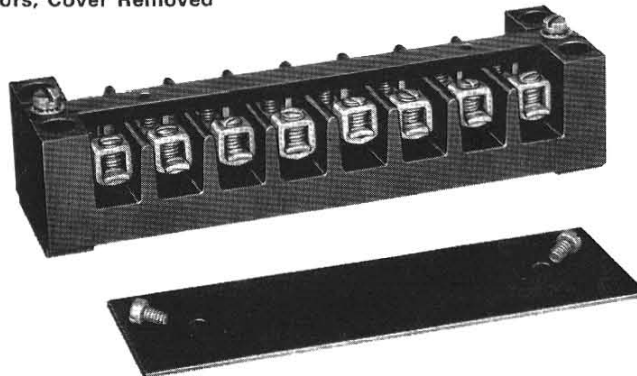
**Hardware:** Where furnished as part of a complete terminal block, consists of brass machine screws, lockwashers, and terminal clamps. All are tin-plated to prevent corrosion. All hardware will withstand mechanical and electrical stresses encountered in ordinary duty.

**Width and Height Dimensions** of all terminal blocks are the same — namely:  $1\frac{27}{32}$  wide,  $1\frac{1}{2}$  high.

8-Circuit Standard Terminal Block With Cover



8-Circuit Terminal Block With High-Pressure Connectors, Cover Removed



### Standard Block

No. of Circuits	Style Numbers		
	Without Hardware Black Marking Strip or Cover	With Hardware and Black Marking Strip (No Cover)	With Hardware, Black Marking Strip and Cover
4	1170 848	1170 851	1170 852
5	805 430	542 245	1123 963
8	805 431	542 246	1123 964
12	805 432	542 247	1123 965

### With High Pressure Connectors

4	.... .	1196 115	1491 642
5	.... .	1196 116	1491 643
8	.... .	1196 117	1491 644
12	.... .	1196 118	1491 645

### Terminal Blocks (With washer head terminal screws)

No. of Circuits	Style No. Includes: Cover, White Marking Strip and Hardware	Style No. Includes: White Marking Strip and Hardware
	Style Number	Style Number
4	804A910G01	804A911G01
5	804A910G02	804A911G02
8	804A910G03	804A911G03
12	804A910G04	804A911G04

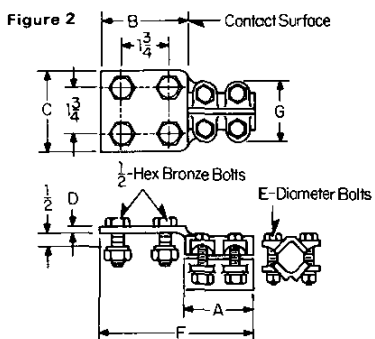
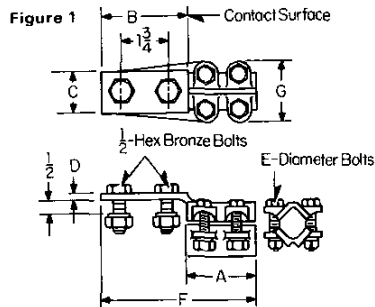
### Terminal Blocks With Binding Head Screws

No. of Circuits	White Marking Strip	White Marking Strip and Cover
	Style Number	Style Number
4	3710A95G01	3710A94G01
5	3710A95G02	3710A94G02
8	3710A95G03	3710A94G03
12	3710A95G04	3710A94G04

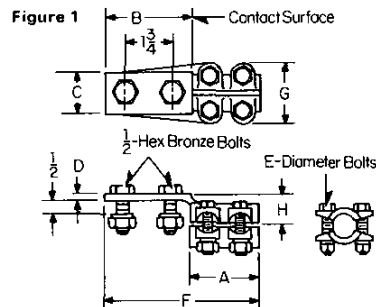
### Clamp Type Terminals

Terminals are for use on any electrical apparatus having flat terminal pads. They are not suitable for connection to terminal studs. Terminals are designed in accordance with NEMA standards. All terminals are side formed.

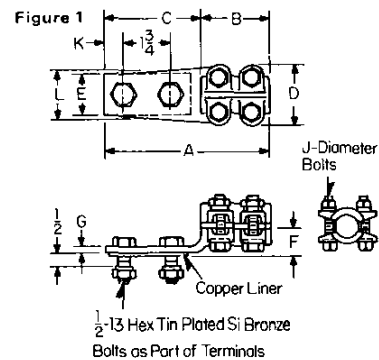
#### Copper Terminals, Cable to Flat



#### Copper Terminals, Tube to Flat



#### Aluminum Terminals, Cable to Flat



#### Copper Terminals, Cable to Flat

Style Number	Cable Range Size	Cable Diameter	Fig. No.	Dimensions in Inches						
				A	B	C	D	E	F	G
1718 651-A§	6sol.-250M.C.M.	.204-.575	1	2 1/2	3 1/4	1 1/2	1/4	3/8	6	2
1718 652§	1/0sol.-500M.C.M.	.325-.814	1	3 1/2	3 1/4	1 1/2	3/8	3/8	6 1/4	2 1/8
1718 653§	4/0-1000M.C.M.	.522-1.152	1	4 1/2	3 1/4	1 1/2	1/2	1/2	8 1/4	2 13/16
1718 655§	4/0sol.-500M.C.M.	.325-.814	2	3 1/2	3 1/4	3	1/4	3/8	6 1/4	2 1/8

#### Copper Terminals, Tube to Flat

Style Number	IPS Tube Size	Fig. No.	Dimensions in Inches							
			A	B	C	D	E	F	G	H
1718 660§	3/4	1	2 1/2	3 1/4	1 1/2	1/4	3/8	5 1/4	2 1/8	1

#### Aluminum Terminals, Cable to Flat

Style Number	ACSR Cable Range	Fig. No.	Dimensions in Inches									
			A	B	C	D	E	F	G	J	K	L
1799 505A	4/0 to 336M.C.M.	1	6 1/4	3	3 1/4	2 1/8	2	1 1/8	1/4	1/2	3/8	2 1/8

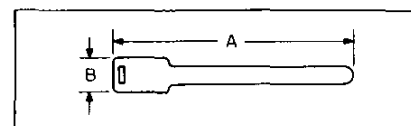
§ Stock Item.

### Marking Tags

Marking tags are recommended for use in identifying cable leads, switchboard circuits, and apparatus terminals. They are also recommended for use without marking for punching switchboard wiring.

#### Style Number

Thickness - Inches	Dimensions in Inches		Style Number
	A	B	
.014	4 1/4	1/4	61 410





### Glass Polyester Bus Insulators

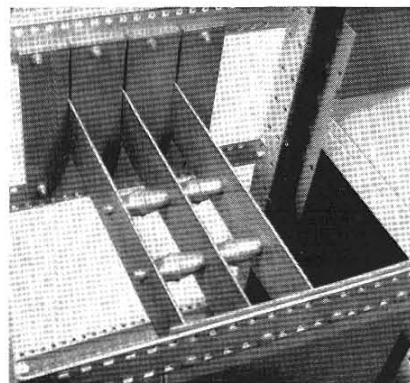
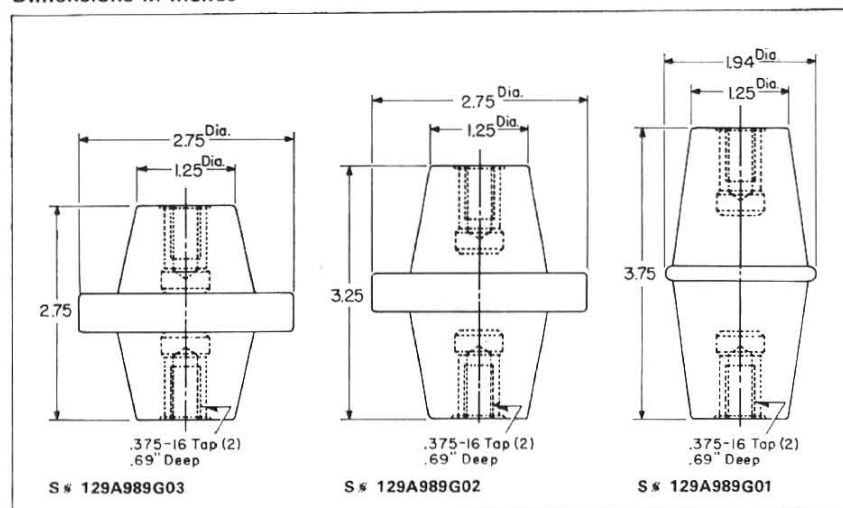
New Westinghouse insulation of improved glass polyester material is used for short circuit bracing of low voltage switchgear bus bars. In addition to being highly track resistant, this new insulation is also flame retardant. These bus braces are designed to be essentially self-cleaning and they are shaped to provide increased creepage distances.

#### The insulators have the following physical and electrical properties:

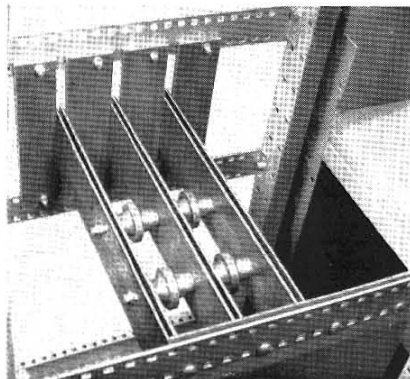
Impact strength (ft. - lbs.)	6-8
Flexural strength (psi)	18,000
Tensile strength (psi)	4,100
Compression strength (psi)	14,500
Water absorption (% in 24 hrs.)	.048%
Heat distortion	230°C
Dielectric strength (short-time)	230 volts per mil
Dielectric strength (step-by-step)	259 volts per mil
Arc resistance (seconds)	105
Specific gravity	2.07
Flame retardance (ignition)	123 seconds
Flame retardance (burning)	52 seconds
Thread inserts (plated steel)	5/8" x 16, 1 1/8" deep

	Height	Creep Distance
Style 129A989G01 (one bar per phase)	3.75"	3.88"
Style 129A989G02 (two bars per phase)	3.25"	4.25"
Style 129A989G03 (three bars per phase)	2.75"	4.00"

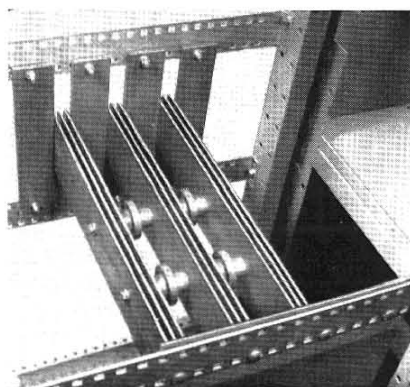
#### Dimensions in Inches



Glass polyester bus supports arranged for one bus bar per phase.



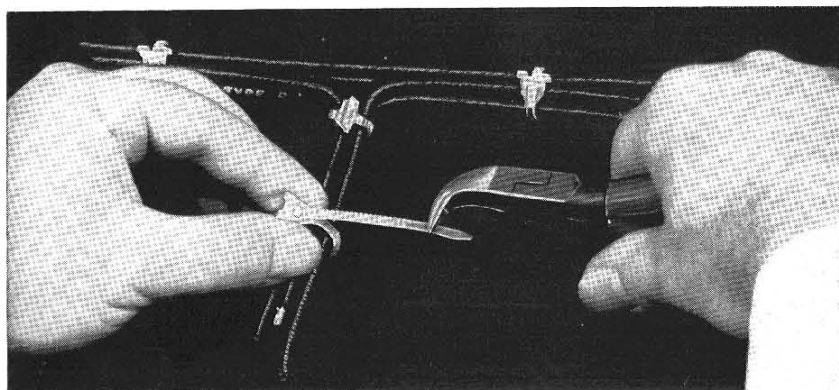
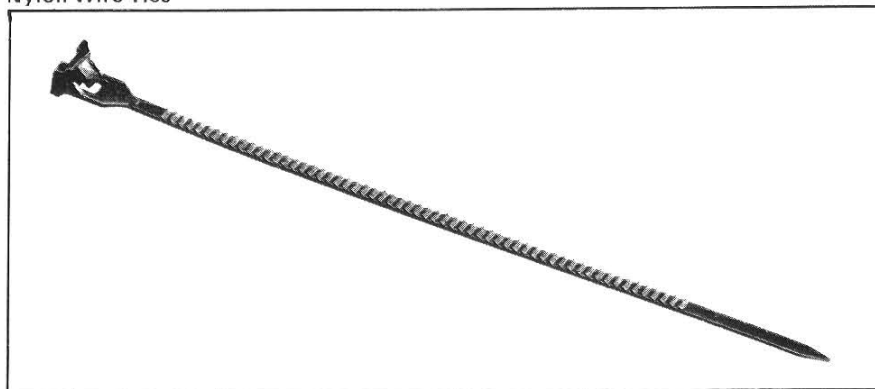
Glass polyester bus supports arranged for two bus bars per phase.



Glass polyester block arrangement for three bus bars per phase.



## Switchboard Details Nylon Wire Ties



Westinghouse Nylon wire ties are self-adjusting molded straps used primarily in securing bundles of wires in harnesses for switchboards, panelboards, switchgear assemblies and motor control centers. Other applications are found wherever wires are connected to or used with other electrical apparatus.

A neater and faster job can be accomplished with wire ties as compared with conventional string-tying methods. Time studies indicate substantial savings in installation time. Pre-wired harnesses and assemblies can be easily moved and handled without concern for loosening or shifting bundles. In addition, the Nylon material offers strength and insulation to the wire bundle.

The flexible Nylon tie is  $\frac{1}{8}$ " wide and  $5\frac{1}{4}$ " long, having a patented ratchet-like buckle at one end and a tapered lead point at the other end. The outside surface of the strap is formed as a continuous series of ratchet teeth, while the inside smooth surface has a length-wise

raised rib that prevents side slippage when the tie is pulled up snug around a wire bundle. The unique ratchet design allows the tie to be immediately adjusted to diameters of  $\frac{3}{16}$ " minimum to  $1\frac{1}{4}$ " maximum.

The tie is produced from black Nylon material only. (For clarity of illustration, a special neutral color tie was used in this publication.)

### Ordering Information

Ties are identified as S # 373-B-602-H03. Wire-Ties are packaged in one size container only — 1000 pieces to a box — and must be ordered in quantity of "sets". Each "set" is one box, or 1000 ties. An order of 10,000 pieces would be described as "10 sets", Nylon Wire-Ties, S # 373-B-602-H03. The installation tool is identified as "Wire-Tie installation pliers, # 373B" and can be ordered in any quantity. They are packaged in individual boxes.