

# Saf-T-Bar Features and Series

The Saf-T-Bar line of conductor bar products was originally manufactured by the Howell Corporation and is now part of the Conductix-Wampfler product family. Saf-T-Bar is designed to provide customers with a cost effective, yet highly reliable system for the transmission of electrical energy. Each system is designed with simplicity and reliability in mind. The performance of the product line has been proven in the field for over 30 years.

UL Listed



Series C

## Saf-T-Bar® is Ideal for:

- Small to Large Cranes • Hoists
- Conveyors • ASRS Systems (T Series)
- Monorails and Trolleys • Other Moving Equipment

Current range @ 600 Volts Maximum:

C Series: 90A, 110A, 250A, 300A, 350A

H Series: 500A, 750A, 1000A, 1500A T Series:

65A

Maximum Speed: 900 ft/min (274 meters/min)

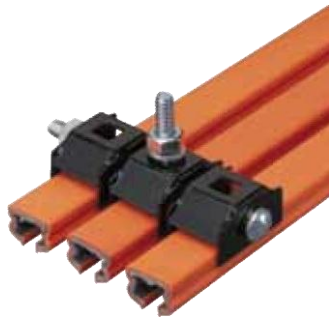
The Series C range of conductor bars is available in capacities from 90 amps through to 350 amps and can be mounted in any plane. The "C"-shaped metal guideway provides positive tracking of the collector shoe within the profile of the bar; the shoe will track with or without the cover. The flat contact surface of the bar and copper graphite shoe yields minimal shoe wear. Skin-tight insulation runs cooler and will not deform under clamping pressure. The push-pin joint system requires no loose hardware to install. C Series bars are available with standard rigid PVC insulation, or optional medium-heat Lexan or high-heat fiberglass insulation. Available accessories include single or tandem collectors, various single or multi-pole hanger clamps (3 or 4 pole), isolation sections, and expansion sections for longer runs.

The  
Bar  
Each of  
  
material  
shoe



### Series H

Series H Conductor Bar has the highest current rating of the Saf-T-lines, available in four amperages; 500, 750, 1000, and 1500 amps. The profiles are constructed of extruded aluminum with an integrated stainless steel contact channel rolled into aluminum to ensure positive tracking of the collector and optimum collector wear. This series is available with standard or high temperature insulation covers and a vast array of accessories.



### Series T

The T Series system is unique to Conductix-Wampfler and features a captive collector concept resulting in an extremely compact system. The conductor bars are supplied with pre-mounted joints. Using the jointing tool, adjoining rails can be connected quickly and easily. Special spring collectors are constructed of a chromium-copper material which ensures optimized collector wear. Available in 65 amp galvanized steel with a full line of accessories.

# Saf-T-Bar Ordering Information

## System Components:

**Conductor Bar:** Selected to meet ampacity, voltage drop, duty cycle, environmental, and application requirements.

**Rail Joints :** Required for each connection, unless the joint is pre-mounted to the bar - Series C and Series T only.

**Hanger/Anchor Clamps:** Must be installed at the spacing specified in this catalog. Anchor points must be determined and set according to the expansion of the system. Hangers must be installed at least 6"(152 mm) from any rail joint or power feed to allow for adequate system expansion.

**Support Arms:** Support arms are required at each hanger clamp location and must be of sufficient strength to ensure safe suspension of the conductor bar system.

**Power Feeds:** The ideal location for a single power feed is the center point of the system to yield the minimum voltage drop. A minimum of one power feed is required per pole.

**Expansion Sections:** Expansion sections are required for installations beyond certain total system lengths - See Pg. 65.

**End Caps:** End caps are required to insulate the system at the rail ends.

**Collectors:** Collectors must be selected to meet the amperage requirements of crane/machine and the related duty cycle of the application.

**Collector Towing Arm:** Is required for each set of current collectors and is required to tow the collector assembly.

## National Electric Code Ampacity Requirements

1. For one motor, use 100% of motor nameplate full load ampere rating.
2. For multiple motors on a single crane or hoist, the minimum circuit ampacity of the power supply conductors on a crane or hoist shall be the nameplate full load ampere rating of the largest motor or group of motors for any single crane motion, plus 50% of the nameplate full load ampere rating of the next largest motor or group of motors.
3. For multiple cranes and/or hoists supplied by a common conductor system, compute the motor minimum ampacity for each crane as in step (2), add them together and multiply the sum of the demand factor from the following table:

Number of cranes	Demand factor
2	.95
3	.91
4	.87
5	.84
6	.81
7	.78

4. For constant loads such as magnets, lights, and air conditioners, etc., plus high duty cycles, use full load amperage, in selecting conductor size.

## System Calculations

The Specification Data Sheets on pages 6-7 will help you collect information about your application. Also, see Pgs. 83-88 for other considerations that will help you choose the correct conductor bar system for your application. Please also refer to your relevant local, state/provincial, and federal regulations to make sure that the correct material is selected. In the USA, refer to calculation methods used in NEC 610-14(e). For constant loads such as magnets, lights, and air conditioners, etc., plus high duty cycles, use full load amperages to select conductor size.

Once these values are determined, depending upon the ambient temperature, apply ampacity correction factors (as per table 610.14(A)).

## Voltage Drop Calculation - See also Pgs. 84 and 87.

As most motors are designed to operate with a 2.5% to 5% voltage drop, divide volts lost by line voltage to determine if a larger conductor or additional feed points are required. See tables for values Z and R.

3 phase AC Volts lost = 1.73 x Z x Length in feet from feed x Ampere load  
 1 phase AC Volts lost = 2 x Z x Length in feet from feed x

Ampere load  
 DV Volts lost = 2 x R x Length in feet from feed x Ampere load

Bar Series	Bar Profile	Nominal current <sup>1</sup> (amps)	Approximate rail dim. in. (mm)	Total weight <sup>2</sup> lb/ft (kg/m)	AC impedance <sup>3</sup> (Z)	DC resistance <sup>45</sup> (R)	Standard rail length ft (m)
		110	0.6 x 1.4 (15.2 x 35.6)	0.50 (0.23)	0.000970	0.000500	(3.0)
		250	0.6 x 1.4 (15.2 x 35.6)	0.50 (0.23)	0.000131	0.000127	(3.0)
		300	0.6 x 1.4 (15.2 x 35.6)	0.48 (0.22)	0.000110	0.000080	(3.0)

<sup>1</sup> Nominal current is based on 30°C and 100% duty cycles.

<sup>2</sup> Weight includes both the bar material and the insulating cover.

<sup>3</sup> AC impedance is measured in ohms/ft based on 30°C and the largest typical bar centers. Please adjust as necessary for other ambient temperatures and/or bar centers.

<sup>4</sup> DC resistance is measured in ohms/ft based on 30°C and the largest typical bar centers. Please adjust as necessary for other ambient temperatures and/or bar centers.

<sup>5</sup> Maximum nominal voltage is based on standard insulation materials and spacing. For higher voltage applications, please consult the factory.

Please refer to Specification Data Sheets on Pgs. 6-7 and the Appendices on Pgs. 83-88 for more information about choosing the correct conductor bar system.

# Saf-T-Bar Specifications

CA90 90 0.6 x 1.4 (15.2 x 35.6) 0.50 (0.23) 0.001380 0.000700 10 (3.0)

CA110



CA300

CA250

CA350 350 0.6x 1.4 (15.2x35.6) 0.50 (0.23) 0.000080 0.000060 10 (3.0)

HC500



500 1.4x 1.7 (35.6x43.2) 1.39 (0.63) 0.0000363 0.0000194 20 (6.1)

HC750

750 1.4x 1.7 (35.6x43.2) 1.39 (0.63) 0.0000363 0.0000194 20 (6.1)

HC1000



1000 1.4x 1.7 (35.6x43.2) 1.62 (0.73) 0.0000355 0.0000155 20 (6.1)

HC1500



1500 1.4x 2.8 (35.6x71.1) 3.14 (1.42) 0.0000385 0.0000067 20 (6.1)

TA65



65 0.7x 1.0 (17.8x25.4) 0.30 (0.14) 0.00180 0.00090 10 (3.0)

Maximum voltage for all Series - 600 volts.

# Saf-T-Bar Specifications

	Maximum Support Spacing ft (m)	Typical Rail Centers in. (mm)	Maximum Nominal Voltage <sup>5</sup>	High-Temp Option	Outdoor	Page
	5 (1.5)	1.5 or 2.0 (38.1 or 50.1)	600V			61
	5 (1.5)	1.5 or 2.0 (38.1 or 50.1)	600V			61
	5 (1.5)	1.5 or 2.0 (38.1 or 50.1)	600V			61
	5 (1.5)	1.5 or 2.0 (38.1 or 50.1)	600V			61
			600V			
	10 (3.0)	5 (127)	600V			71
	10 (3.0)	5 (127)	600V			71
	10 (3.0)	5 (127)	600V			71
	10 (3.0)	5 (127)	600V			71
	5 (1.5)	1 or 2 (25.4 or 50.1)	600V			79
	5 (1.5)	1.5 or 2.0 (38.1 or 50.1)				61

## Safety Precautions

Please observe the following safety recommendations when selecting, installing or maintaining any conductor bar system.

Regulations: Please ensure the system is selected, located and installed in accordance to all relevant local, state and federal standards and regulations and that unauthorized personnel do not have access to any part of the system when energized.

Electrical Connections: Please ensure all electrical connections, including connection to the conductor bar power feed and installation and connection of the current collectors is conducted by an experienced and qualified personnel.

Lock-Out: During installation and/or service, please always lock out/tag out all electrical power before commencing any works on or around the conductor bar system.

# Saf-T-Bar Series C

Series C Conductor Bars are roll-formed of galvanized steel or

copper/steel laminate (250A) or copper (300A and 350A). The “U” Saf-T-Bar Series C is ideal for: joining hardware. Installation is simple and requires only a joining tool to connect the rails.

Ampacity range:

Based on continuous service with a 86°F (30°C) rise. Higher ratings

shaped contact surface ensures positive tracking of the collector shoe and ensures good contact throughout the travel of the system.

- Cranes
- Conveyors
- Monorails

The



standard material is supplied in 10 ft lengths with all necessary Automated storage and retrieval systems can be obtained by increasing temperature rise and using high heat covers - Contact the Factory.

CA90	90
CA110	110
CA250	250
CA300	300
CA350	350

Bar Material:

CA90	1010 galvanized steel
CA110	1010 galvanized steel
CA250	Steel/copper
CA300	Copper
CA350	Electrolytic copper

Bar Features:

- Skin-tight insulation runs cooler, will not deform under clamping pressure
- Metal Guideways assure positive tracking of collector shoe
- Flat contact surface for long conductor wear and greatest possible sliding contact area

Collector Features:

- Contact shoe made with sintered copper and graphite, self-lubricating, draws current to collectors. Flat contact surface.
- Pantograph spring suspension of collector provides even pressure to shoe throughout stroke, yielding maximum electrical and mechanical performance.



### Atmospheric specifications

In wet and icy atmospheres, the system can be shielded with a protective hood for additional protection. In dirty and dusty atmospheres, mount the conductor in down-turned position (bottom entry).

### Insulating cover options

Standard is orange rigid PVC extrusion, 160°F (71°C) heat distortion point at 260 psi, self-extinguishing. Medium heat cover of red Lexan extrusion can be specified when necessary, 260°F (127°C) heat distortion point at 260 psi, self-extinguishing. High heat fiberglass cover is available, 375°F (191°C) heat distortion.

### Long run options

Push-in-place locking tabs are available if required for use on long runs with expansion gaps on copper and steel/copper conductor sections.

## Saf-T-Bar Series C



Can be mounted so collector shoes enter from the bottom (vertical mode) or from the side (horizontal mode). Able to be factory curved to a minimum of 18 inches (457mm) radius with a maximum collector size of 35A.

Support Spacing: 5 ft (1.5 M)

Maximum rail temperature: 160°F (71°C) at 260 PSI (standard cover)  
 260°F (127°C) at 260PSI (medium temperature Lexan cover)  
 375°F (191°C) at 260 PSI (high heat fiberglass cover)

Type	Bar Material	Specifications				
		Nominal Current (Amps) <sup>1</sup>	Max. Voltage	DC Resistance (Ohms/ft)	AC impedance (Ohms/ft at 60Hz)	Wt lb/ft (kg/m)
CA90	Galvanized Steel	90	600	0.00070	0.001380	0.48
CA110	Galvanized Steel	110	600	0.00050	0.000970	0.48
CA250	Steel/Copper Laminate	250	600	0.00127	0.000131	0.50
CA300	Electrolytic Copper	300	600	0.00008	0.000110	0.45
CA350	Electrolytic Copper	350	600	0.00006	0.000080	0.55

PART NUMBERS										
Type	Std Heat Phase Conductor <sup>2</sup>	Std Heat Ground Conductor <sup>3</sup>	Std Heat (UV White) Conductor <sup>4</sup>	Med Heat <sup>5</sup>	High Heat <sup>6</sup>	Joint/Extra Joint Kit <sup>7</sup>	Joint/Extra Joint Kit <sup>8</sup> Med Heat	Power Feed	Expansion Section <sup>7</sup>	Power Feed Med Heat
CA90	CA90X10	CA90X10 G	CA90X10 W	CA90HHX10	CA90FIX10	CJ90	CJ90HH	350F	CA110XG -2*	100FH H
CA110	CA110X10	CA110X10 G	CA110X10 G	CA110HHX10	CA110FIX10	CJ110	CJ110H	350F	CA110XG -2*	350FH H
CA250	CA250X10	CA250X10 G	CA250X10 G	CA250HHX10	CA250FIX10	CJ250	CJ250H	350F	CA250XG -2*	350FH H
CA300	CA300X10	CA300X10 G	CA300X10 G	CA300HHX10	CA300FIX10	CJ300	CJ300H	350F	CA300XG -2*	350FH H
CA350	CA350X10	CA350X10 G	CA350X10 G	CA350HHX10	CA350FIX10	CJ350	CJ350H	350MCM -2	CA350XG -2*	350FH H

End Cap Part Number: CN100 ("Standard Heat" only)



- <sup>1</sup> Nominal current is based on 86°F (30°C) and is for 100% duty.
- <sup>2</sup> Complete with orange rigid "Standard Heat" PVC insulator cover, which has a 160° F (71° C) heat distortion point, 260psi. Self-extinguishing.
- <sup>3</sup> Complete with green rigid PVC insulator cover, which has a 160° F (71° C) heat distortion point, 260psi. Self-extinguishing. Some hand-safe options available, please consult Factory.
- <sup>4</sup> Complete with white rigid PVC insulator cover, which has a 160° F (71° C) heat distortion point, 260psi. Self-extinguishing. Some hand-safe options available, please consult Factory.
- <sup>5</sup> Complete with red Lexan "Medium Heat" insulator cover, which has a 260° F (127° C) heat distortion point, 260psi. Self-extinguishing.
- <sup>6</sup> Complete with fiber glass "High Heat" cover, which has 375° F ( 191° C) heat distortion point, 260psi. Self-extinguishing.
- <sup>7</sup> Series C and Series T are provided with the rail joint pre-mounted to the rail. If special cuts are required, the extra joint kit is available for series C.
- <sup>8</sup> Expansion Sections come with "Standard Heat" orange PVC covers. Medium Heat, High Heat, and green ground covers are also available. Please refer to the relevant section or contact factory.

## Saf-T-Bar Series C Components

### Extra Joint Kits

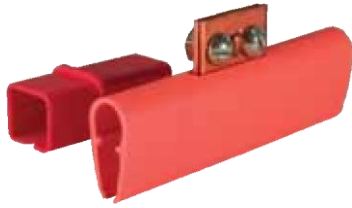
For completing field fabricated joints. Includes connector pins and a # 100JC snap-on insulating cover.



For Bar Type	Joint Kit Part No.	Pins Included in Kit
CA90	CJ90	5/16" x 4" (7.9 x 101.6) Steel & 15/64" x 3.75 (5.9 x 95.3) Steel
CA110	CJ110	5/16" x 4" (7.9 x 101.6) Steel & 15/64" x 3.75 (5.9 x 95.3) Copper
CA250	CJ250	5/16" x 4" (7.9 x 101.6) Copper & 15/64" x 3.75 (5.9 x 95.3) Copper
CA300	CJ300	5/16" x 4" (7.9 x 101.6) Copper & 15/64" x 3.75 (5.9 x 95.3) Copper
CA350	CJ350	5/16" x 4" (7.9 x 101.6) Copper & 7/32" x 3.75 (5.8 x 95) Copper

### Powerfeeds

The Powerfeed provides an electrical connection from power source to conductor bar. May be located at any point, but preferably near the center of the system. The powerfeed is 1 1/4" (31.8 mm) long and clamps to the top lobe of the conductor with 1/4" screws. The powerfeed is insulated by a cover and a nylon cap. The 350MCM-2 include provisions for attaching single and double-bolt 350 mcm terminals.



For Type	Part No.
CA90	350F
CA110	350F
CA250	350F
CA300	350F
CA350	350MCM-2

## End caps

Black nylon cap is driven onto end of the conductor to complete the insulation. Contoured to permit passage of the collector shoe. End caps can be used in pairs at switch transfers, interlocks, expansion gaps, and isolation points. Trim conductor slot after installation.



	Part No.
End Cap	CN100

## Hanger Brackets

Insul-8 Bar brackets are compatible with Series C Saf-T-Bar. Please refer to Pages; 20, 22 and 23 for more information.

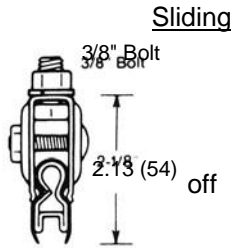
# Saf-T-Bar Series C Hangers

## Cross-Bolt Hanger Clamps

Cross-bolt hanger clamps are factory set to snap in place, but must be field adjusted for correct sliding tension after installing the conductor (unless used as an anchor).

Description	Application	Part No.
Single Hanger, Plated Steel	Indoors, clean, dry	100H
Steel Single Hanger, Stainless Steel	Indoors, corrosive environments	100HSS
Single Hanger, Plastic Coated Steel	Indoors, dirty, dry	100HN
Single Hanger, with Insulator Spool, Plated Steel	Indoors/outdoors, wet, dirty	100K
Single Hanger, with Insulator Spool, Stainless Steel	Indoors/outdoors, wet, dirty, corrosive environments	100KSS

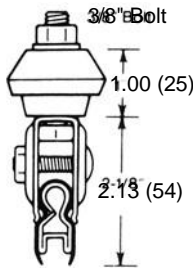
hangers (for conductor expansion): Tighten cross bolts, then back 1/4 turn.



Sliding	
Single Hanger, with Insulator Spool, Plastic Coated Steel	Indoors, outdoors, wet, dirty, corrosive 100KN
Three-Pole Hanger, 1.5" Centers	Indoors, clean, dry. Requires staggered collector mounting 100H3-1
Three-Pole Hanger, 2.0" Centers	Indoors, clean, dry. Does not require staggered collector mounting 100H3-2

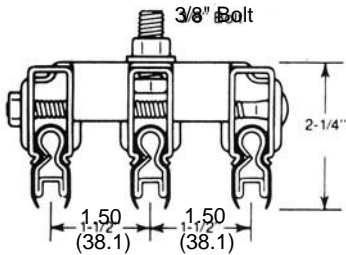


100KN



100H

Anchor hangers: Tighten cross-bolts to 6 ft lb.



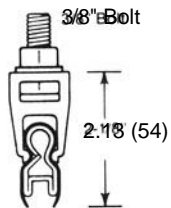
2.25 (57), or 2.13 (54) for snap-in version  
100H3-1

**Snap-in Hanger Clamps** Lexan snap-in hangers for use only on Series C PVC cover rated to 160°F, with holding rib. For high temperature applications, use Cross Bolt Hanger Clamps. All push-on snap hangers require a firm press to seat the conductor into the hanger. To remove the conductor, it is recommended that it be slid out

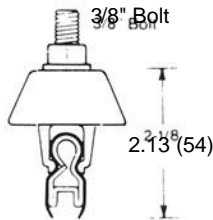
Can use instead of:	Application notes:	Part No.
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to avoid damage to the hanger.

100H, 100HN, 100K, or 100KN	Same as 100P, with "rain hat" for severe outdoor conditions	100PH
100H3-1	Multiple pole, 1.5" (38.1mm) centers: Indoors, wet, dirty. Requires staggered collector mounting	100P3-1
100H3-2	Multiple pole, 2.0" (50.8mm) centers: Indoors, wet, dirty. Does not require staggered collector mounting	100P3-2



100PH



100P

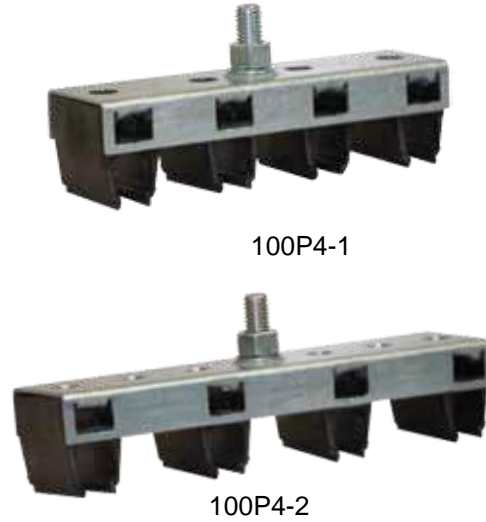
Fiber Pin Anchor Device

100P  
100H, 100HN, 100K, or 100KN Same mounting dimensions as 100H  
100P hanger

Anchor Hanger - Incorporates fiberglass 100PA filler for added strength, includes Fiber Pin Anchor Device inserted into 1/4" fielddrilled hole.

# Saf-T-Bar Series C Four-Pole Hangers

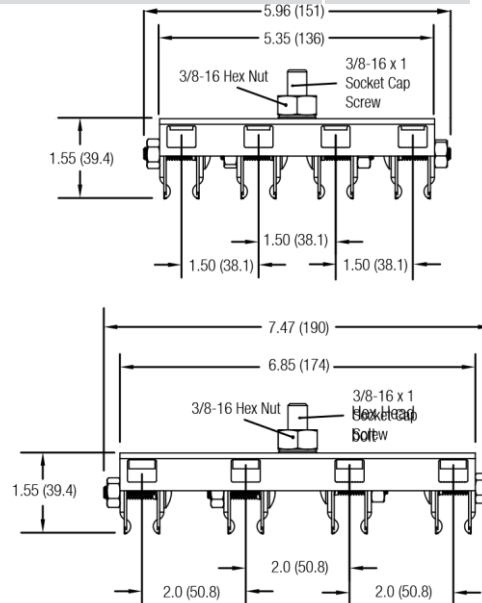
## Steel Cross-Bolt Multiple Hanger



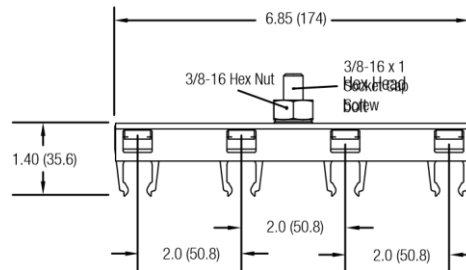
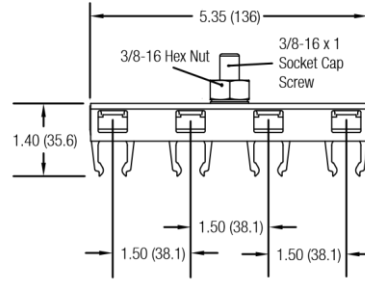
Hanger bodies are made with 1.62" (14.1mm) wide galvanized steel channel. These brackets can be used horizontally (bottom entry) or vertically (lateral entry).

Spacing Between Bars, in. (mm)	Part No.
1.5 (38.1)	100H4-1
2.0 (50.8)	100H4-2

## "Snap-in" Multiple Hangers



Spacing Between Bars, in. (mm)	Part No.
1.5 (38.1)	100P4-1
2.0 (50.8)	100P4-2



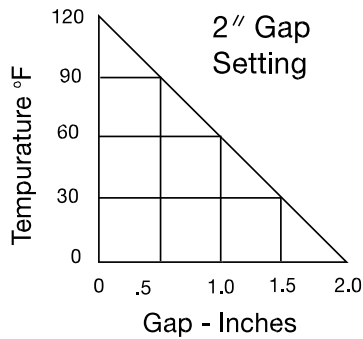
## Saf-T-Bar Series C Expansion Sections

### Expansion Sections - 2" gap

This assembly will accommodate up to a 2" expansion gap. The gap should be set based on the bar temperature according to the table below. Use tandem collectors to provide power across the expansion gap.

The expansion section is 10 feet long and takes the place of one standard bar length.

For Bar Type	Expansion required at ft (m)	Part No.	Powerfeeds included	Jumper(s) included
CA110	300 (91.4)	CA110XG-2	350F	ONE #4
CA250	200 (61.0)	CA250XG-2	350F	TWO #4
CA300	200 (61.0)	CA300XG-2	350F	TWO #4
CA350	200 (61.0)	CA350XG-2	350F	TWO #4



CA90

300 (91.4) CA110XG-2 350F

ONE #4

## Series C Curves

Factory curved conductor sections for applications requiring bends and curves. Please contact factory for further information and pricing.

- Minimum Bend Radius is 16"
- Minimum Bend Radius for High Heat Fiberglass cover is 57"

For Bar Type	Standard Heat (PVC)	Standard Heat (GRD)	Standard Heat (UV)	Medium Heat (Lexan)	High Heat (Fiberglass)
CA90	CA90X10-CV	CA90X10G-CV	CA90X10W-CV	CA90HHX10-CV	CA90FIX10-CV
CA110	CA110X10-CV	CA110X10G-CV	CA110X10W-CV	CA110HHX10-CV	CA110FIX10-CV
CA250	CA250X10-CV	CA250X10G-CV	CA250X10W-CV	CA250HHX10-CV	CA250FIX10-CV
CA300	CA300X10-CV	CA300X10G-CV	CA300X10W-CV	CA300HHX10-CV	CA300FIX10-CV

CA350 CA350X10-CV CA350X10G-CV CA350X10W-CV CA350HHX10-CV  
CA350FIX10-CV

CV

# Safe-T-Bar Series C Collectors



Light Spring (35E)

Self-centering Long Arm (70LC)

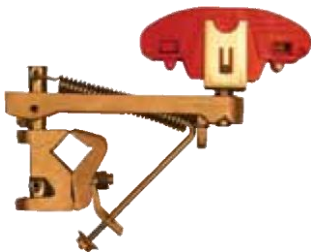


Standard Arm (70E)

Dual Head Standard (35V) Standard Arm Collectors (E) are recommended for general use on cranes and stable monorails. 2”(51 mm) vertical stroke. Also available in a self-centering version for use with Pick Up Guides - See Pg. 69.

Long Arm Collectors (L) are used where there is excessive motion vertically or horizontally (as with a swaying hoist) and for high-speed applications. 3” (38mm) vertical stroke and are suitable for higher speed applications. Also available in a self-centering version for use with Pick Up Guides - See Pg. 69.

Self-Centering Collectors, in either standard arm (C) or long arm (LC) configurations, have centering attachments for discontinuous circuits, swaying hoists, or high speed applications.



Self-centering, Standard Arm(70C)

Dual-Head (Tandem) Collectors are available in standard (V), long arm (W or LL), and long arm self-centering (LLC) versions depending on ampacity. Dual Head Collectors maintain full shoe contact through gaps (i.e. Expansion Gaps) and apply less pressure per length of bar. These are also used to obtain higher amperage than single collectors. Tandem collections must be mounted on 2” (50.8 mm) centers.

\* Pigtails not included with collectors. These will need to be ordered separate.



Collector Type	Part No.			
	35A	70A	150A	100A
Standard Arm	35E	70E	150E	100E
Long Arm	35L	70L	150L	100L
Standard Arm, Self-Centering	-	70C	-	100C
Long Arm, Self-Centering	-	70LC	-	100LC

Dual-Head (Tandem), Standard Arm	35V
Dual-Head (Tandem), Long Arm	35W
Dual-Head (Tandem), Long Arm, Self-Centering	-



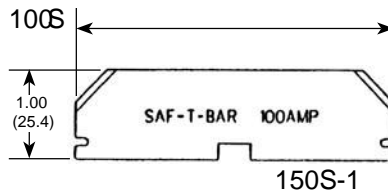
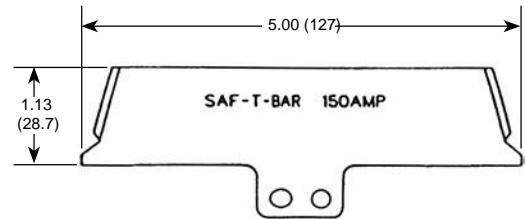
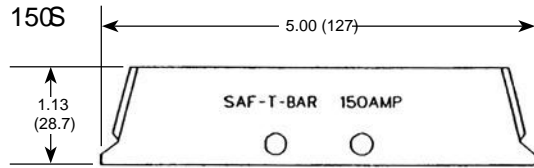
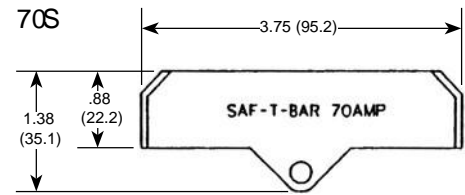
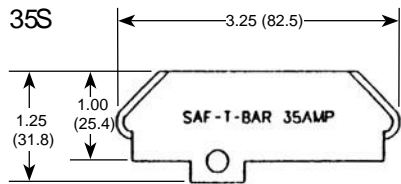
	Dual-Head, Long Arm (70LL)			
Pigtails	2 10wire (35A)	2 6wire (70A)	2 4wire (150A)	2 6wire (100A)

# Safe-T-Bar Series C Collector Shoes and Dimensions

## Collector Shoes

Shoe Material	Current Capacity (Amps)	For Collectors:	Part No.
Standard Copper Graphite	35	35E, 35V, 35L, 35W	35S
Standard Copper Graphite	70	70E, SC70, SCL70, 70L, SCC70, SCCL70, 70LL, SD70, SE70, SDD70, SEE70	70S
Standard Copper Graphite	100	100E, 100L, 100W	100S
Standard Copper Graphite	150	150E, 150L, 150LL	150S1
Abrasive Cleaning Material	70	70E, SC70, SCL70, 70L, SCC70, SCCL70, 70LL, SD70, SE70, SDD70, SEE70	70XX
Abrasive Cleaning Material	100	100E, 100L, 100W	100XX
Abrasive Cleaning Material	150	150E, 150L, 150LL	150XX
Cast Iron	70	70E, SC70, SCL70, 70L, SCC70, SCCL70, 70LL, SD70, SE70, SDD70, SEE70	70SC
Cast Iron	150	150E, 150L, 150LL	150SC





3.75 (95.3)

## Collector Parts

Description	35 amps	70 amps	100 amps	150 amps
Spring	35Z	100Z	100Z	100Z
Case & shoe assembly	401AS	707S	601AS100	150AS
Case only (Two halves w/Screws (2 halves w/screws))	401A	7071	601A100	150A
Yoke assembly	401Y	707Y	707Y	777Y

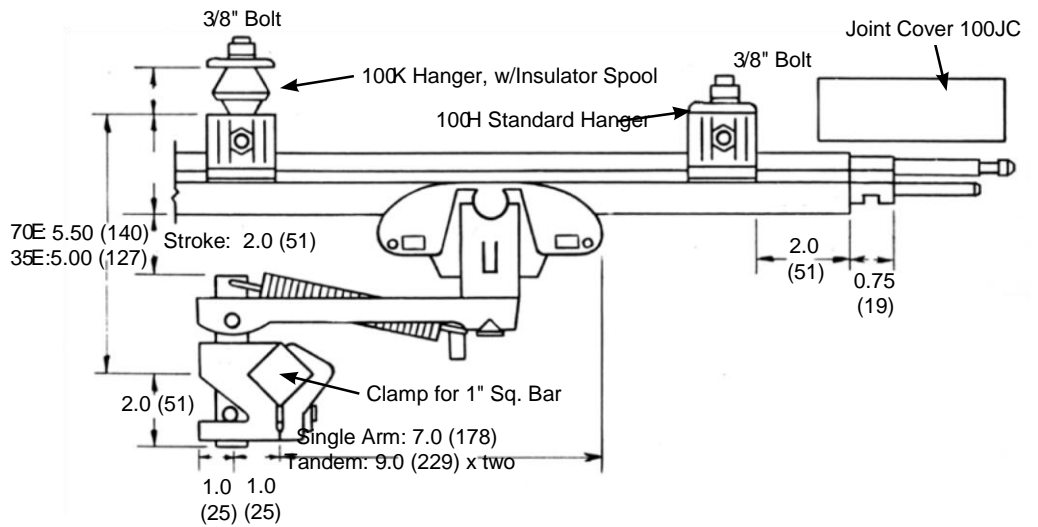
100Y -

Shoe  
Clip -  
-

# Safe-T-Bar Series C Collector Dimensions

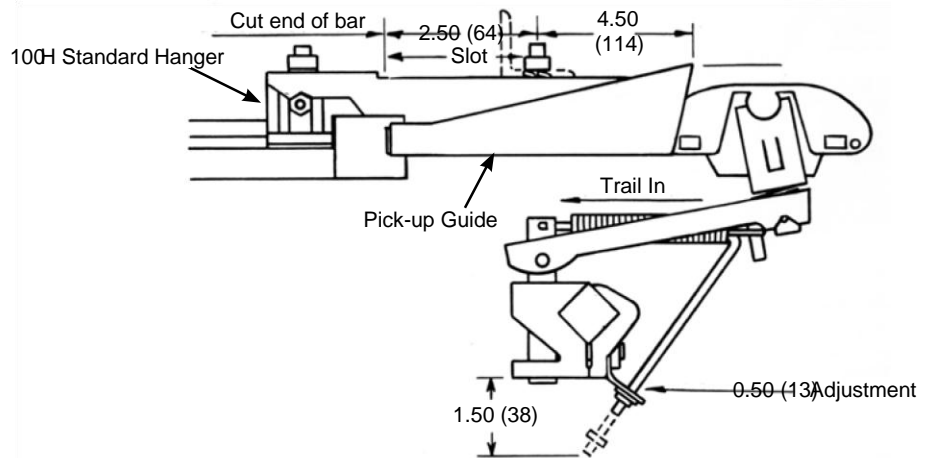
## Standard Arm Dimensions

35E  
35V  
70E  
100E  
150E



### Self-Centering

70C  
100C

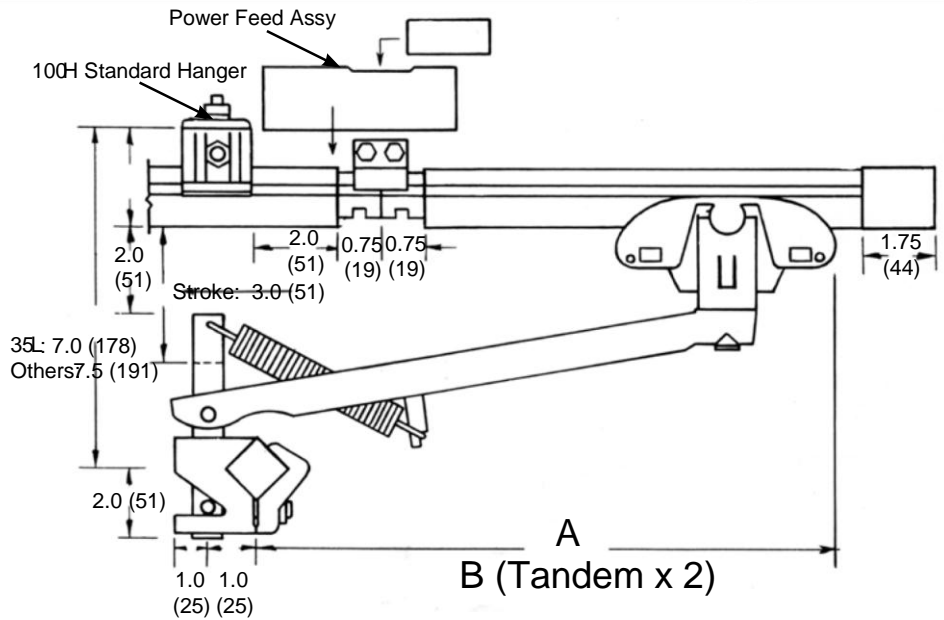


Also available in Long Arm (70LC and 100LC) and Tandem (70LLC and 100LLC) Versions:

Contact the Factory for Dimensions.

### Long Arm Collector

Collector	A	B
35L	12.00 (305)	
70L	12.00 (305)	
100L	12.25 (311)	
150L	12.25 (311)	
70LL		14.50 (368)
100W		14.75 (375)
150LL		15.00 (381)



# Saf-T-Bar Series C Components

## Collector Shoes

Amp Range	Drag	Shoe Length	Contour	Curves?	Shoe Thickness	Part No.	Case #
100-150	Normal	4.375	Blunt	None	0.21	150SI	150A
50-100	Normal	3.75	Tapered	None	0.19	70S	707-1
25-50	Light	3.00	Blunt	Short	0.19	35S	401A
100-125	Normal	3.75	Blunt	None	0.225	100S	601A100

## Isolation Sleeve

Used to electrically isolate adjacent conductor sections with a 1/2" over surface gap. The sleeve will support adjacent conductor sections, but must have hangers within 6" on each side of the isolation sleeve. Collectors bridge the gap electrically. Two sleeves separated by 6" of conductor are required to prevent collectors from bridging the gap as in signal or control functions.



	Part No.
Isolation Sleeve	CA100IS

Pick-up bridge controls, runway circuits at fire doors, etc., to allow collector to leave conductor and be realigned on return. Works with all bar capacities. Use with self-centering collectors only.



Guides Used for discontinuous circuits such as  
 The guide is provided with hanger clamp and end cap. The guide itself is secured to the bracket with a 3/8" bolt and the conductor is secured to the guide with a hanger clamp. Conductors must be mounted on 3" (76 mm) centers minimum. Install conductor one inch into guide throat.

	Part No.
Pick-up Guide	CP100

through bar misalignments of 1/8" to 1/2" (3-13 mm) laterally



Transfer Guides Used to track the collector and of up to 1/8" in the direction of contact. Self-centering collectors are not required, but dual collectors are required if power interruption cannot be tolerated.

Conductors must be mounted on 3" (76 mm) centers minimum. Install conductor 1-1/2" (38 mm) into guide throat.

	Part No.
Transfer Guide	CT100

# Saf-T-Bar Series H Conductor Bar

The advanced "Series H" Saf-T-Bar system features integral insulated conductors to provide years of safe, economical, and trouble-free service. It is designed for compact, low-cost installation, and minimum maintenance.

Series H conductors are supplied in 20 foot lengths with factory installed insulating covers. Joint fittings and covers are ordered separately.

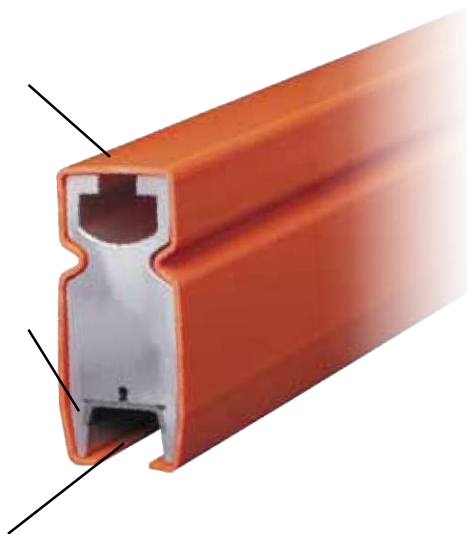
## Series H is ideal for:

- Heavy duty cranes and monorails
- Wet locations
- Port authority equipment
- Dusty and dirty environments
- Environments conducive to electrical tracking

Skin-tight insulation  
500 will not  
HC750 750 pressure.  
HC1000  
160° F (71° C).  
insulations are  
available

Metal guideways  
with 304 Stainless  
or without insulating

provides resistance to  
corrosion and electrical  
pitting.



Current Capacities  
runs cooler, HC500  
deform under clamp  
Standard insulation is  
1000  
Alternative HC1500 1500

Material  
assure positive All capacities: Aluminum  
Steel Contact tracking of collector shoe with Strip  
coverOther available features

- Contact shoe with flat surface of sintered copper and graphite, self-lubricating to effective draw position without special parts or fittings.
- Collectors are available in either single or dual arm construction. Single (L, LL), and pantograph dual-arm constructions (D, DD) are available.

current to the collector. Heat sink collector heads available for high

Flat contact surface for current draw. maximum conductor wear; the  
stainless steel channel insert • Compact mounting of conductor in vertical or horizontal

## Atmospheric specifications

In wet atmospheres, the system should be mounted on insulated hangers with the conductor in the downturn position. In dirty and dusty atmospheres, mount the conductor in the downturn position. If the atmosphere is likely to cause electrical over-surface tracking, choose

hanger clamps with spool insulators rather than the standard coated hanger clamp.

**Insulating hanger option**

A plastic slide hanger is available as an alternative design.

**Insulating cover options**

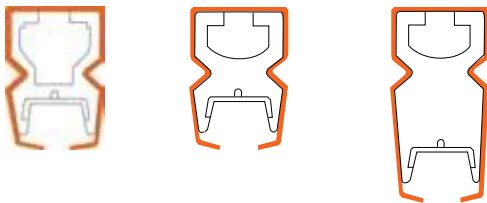
Prefix A Standard rigid vinyl for cranes and hoists

Suffix H Medium heat plastic to 260°F for cranes and hoists

Suffix FI High heat fiberglass to 375°F for cranes and hoists

# Saf-T-Bar Series H Conductor Bar

## Characteristics



Series H Conductor Bars are constructed of extruded aluminum with a stainless steel “U” shaped contact surface which guides collector shoe movement and minimizes collector shoe wear.

Bars are provided in four sizes: 500, 750, 1000, or 1500 Amp, each with "Standard Heat" rigid PVC insulation, "Medium Heat" Lexan, or "High Heat" fiberglass

HC500 (HH) HC1000 (HH) HC1500 (HH) insulations are available by request. The standard rail length is 20 feet (6.10 m).

**HC750 (HH)**

	Bar Type:	HC500	HC750	HC1000	HC1500
Specifications	Nominal Current (amps) <sup>1</sup>	500	750	1000	1500
	DC Resistance (ohms/ft)	0.0000194	0.0000194	0.0000155	0.0000067
	AC Impedance (ohms/ft at 60Hz) measured at 3.5" c/c	0.0000301	0.0000301	0.0000279	0.0000389
	AC Impedance (ohms/ft at 60Hz) measured at 5.0" c/c	0.0000363	0.0000363	0.0000355	0.0000385
	Wt lb/ft (kg/m)	1.390 (0.1922)	1.390 (0.1922)	1.616 (0.2234)	3.141(0.4328)
	Max. Voltage (V)	600	600	600	600
Common Characteristics	Nominal Support Spacing (ft)	10 foot (3.05 m)			
	Standard Rail Length (ft)	20 ft (6.10 m)			
	Maximum Rail Temperature	160° F (71.1° C) at 260 PSI (Standard Heat Cover) 260° F (126.7° C) at 260 PSI (Medium Heat Lexan Cover) 360° F (182.2° C) at 260 PSI (High Heat Fiberglass Cover)			
	Conductor Mounting Orientation	Can be installed vertically or horizontally			
	Curves	Consult Factory			

<sup>1</sup> Nominal current is based on 30°C and is for 100% duty.

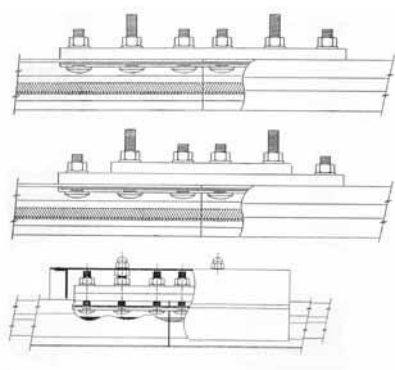
## Basic Series H Part Numbers <sup>6</sup>

Bar Type	Phase Conductor Std Heat <sup>1</sup>	Phase Conductor Med Heat <sup>2</sup>	WT lb (kg)	Joint Kit Std Heat <sup>4</sup>	Joint Kit Med Heat Lexan <sup>4</sup>	Power Feed Std Heat <sup>4</sup>	Expansion Gap Assemblies <sup>34</sup>	Power Feed Med Heat Lexan <sup>4</sup>
HC500	HC500X20	HC500HHX20	24.0 (10.89)	HA500J	HA500HHJ	HA500F	HA500XG-8*	HA500HHF
HC750	HC750X20	HC750HHX20	24.0 (10.89)	HA750J	HA750HHJ	HA750F	HA750XG-8*	HA750HHF
HC1000	HC1000X20	HC1000HHX20	30.0 (13.61)	HA1000J	HA1000HHJ	HA1000F	HA1000XG-8*	HA1000HHF
HC1500	HC1500X20	HC1500HHX20	60.0 (27.22)	HA1500J	HA1500HHJ	HA1500F	HA1500XG-8*	HA1500HHF

## Saf-T-Bar Series H Components

### Splice Joints

The bolted Splice Joint assembly is comprised of two stacked spring plates located inside the hollow portion of the conductor.



Used on Bar:	Part No. Std Heat	Part No. Med Heat	Wt (kg)	
HC500	HA500J	HA500HHJ	1.0 (0.45)	
HC750	HA750J	HA750HHJ	1.5 (0.48)	
HC1000	HA1000J	HA1000HHJ	2.0 (0.91)	HA500J
HC1500	HA1500J	HA1500HHJ	3.0 (1.36)	HA750J

HA1000J

<sup>1</sup> Complete with "standard heat" cover (orange rigid PVC, 160°F heat distortion point, 260 psi, self extinguishing)

<sup>2</sup> Complete with "medium heat" cover (red Lexan, 260°F heat distortion point, 260

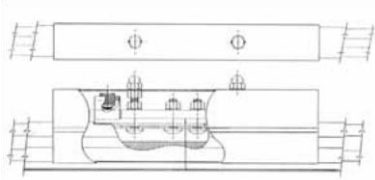
psi, self extinguishing) <sup>4</sup> See Pg. 72

<sup>3</sup> Powerfeeds and Expansion kits: medium heat Lexan and high heat fiberglass versions are available - Contact Factory

<sup>4</sup> End caps available for standard heat applications only - Part Nos.: HA500N, HA750N, HA1000N, HA1500N - See pg. 72 (Also available with white PVC (UV) cover for standard heat systems)

## HA1500J Powerfeed

The Powerfeed supplies power to the bar and is inserted in place of the bar splice joint. Or it can be mounted at any point along the conductor by cutting the bar and



insulating  
cover.

Used on Bar:	Terminals	Part No. Std Heat	Part No. Med Heat	Wt lb (kg)
HC500	Two 350 MCM	HA500F	HA500HHF	3.0 (1.36)
HC750	Two 350 MCM	HA750F	HA750HHF	3.0 (1.36)
HC1000	Two 350 MCM	HA1000F	HA1000HHF	3.0 (1.36)
HC1500	Three 350 MCM-2	HA1500F	HA1500HHF	6.0 (2.72)

### End Cap

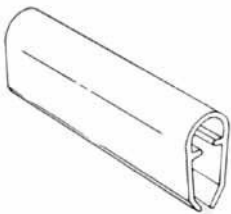
End caps are to be driven onto the exposed ends of the conductors to completely insulate the bar. Cap is 4" (102 mm) long.



Used on Bar:	Part No.	Wt lb (kg)
HC500	HA500N	0.50 (0.23)
HC750	HA750N	0.50 (0.23)
HC1000	HA1000N	0.50 (0.23)
HC1500	HA1500N	0.75 (0.34)

### Isolation Joints

Isolation joints are required for circuit segmentation and are comprised of an insulating angle with attachment hardware to secure and space the adjacent rails.



Used on Bar:	Part No.	Wt lb (kg)
HC500	HA1000IS	2.0 (0.91)
HC750	HA1000IS	2.0 (0.91)
HC1000	HA1000IS	2.0 (0.91)
HC1500	HA1000IS	2.0 (0.91)

## Saf-T-Bar Series H Components

Hanger Clamps and Anchors





HA1000H/H  
A



HA1000K/K  
A

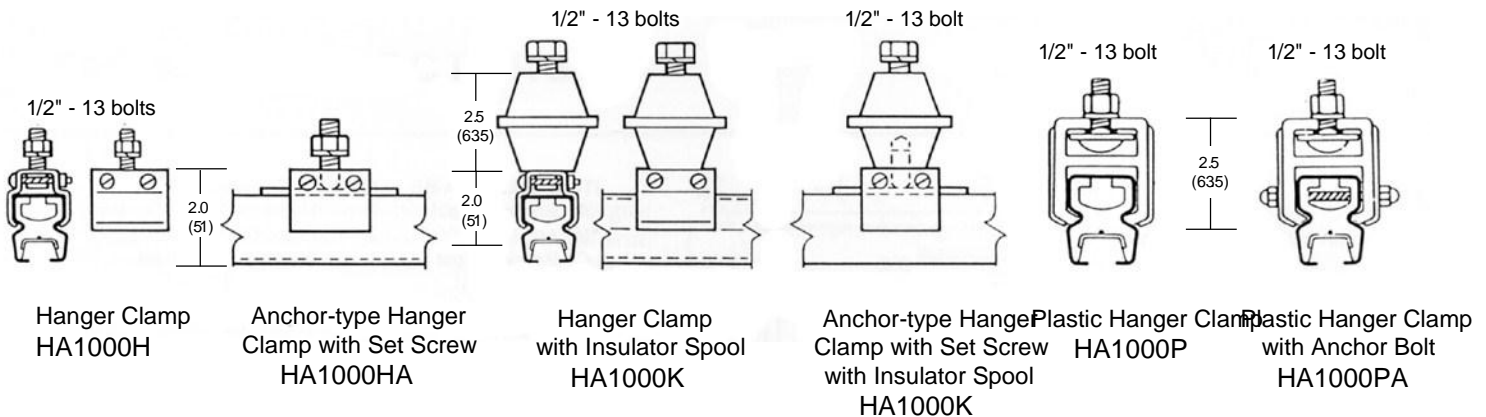


HA1000P/P  
A

To properly support the conductor and to keep standard rail overhang to 24" (610 mm), space the first two brackets on 6' (1.83 m) centers and all other brackets on 10' (3.05 m) centers.

The "Anchor" is a non-sliding version of the hanger which provides a solid fixing point on the conductor bar. Anchor clamp kit consists of an insulated keeper straddling each side of the standard hanger. The usual hanger bolt is replaced by a cup-point set screw that is tightened against the keeper plate at the desired anchor location. On HA1000H hangers, the set screw becomes the mounting bolt. ON HA1000K hangers, the set screw is threaded into the base of the insulator spool. HA1000PA anchors come with a drilled hole in the vertical stiffener. At the installation site, a hole is drilled through the conductor bar to accommodate a threaded rod. Threaded rod is captured by acorn nuts on both sides of the clamp.

## Hanger Clamp



## Mounting

Hanger clamp bracket should be attached to the runway beam by welding or bolting. Conductors should be spaced 5" (127 mm) inches apart, however, a minimum of 3.5" (89 mm) is acceptable. Hanger clamp brackets require 9/16" (14.3 mm) holes for 1/2" hanger clamp bolts.

Hanger Clamp Type <sup>2</sup>	Usage	Part No. <sup>1</sup>	Wt lb (kg)
Hanger, coated steel	Normal atmospheres	HA1000H	0.5 (0.23)
Hanger, coated steel with insulator spool	Wet atmospheres	HA1000K	1.0 (0.45)
Hanger, Plastic	In lieu of: HA1000H or HA1000K	HA1000P	0.5 (0.23)
Anchor, coated steel with anchor clamp kit	Normal atmospheres	HA1000HA	0.6 (0.27)



Anchor, coated steel with insulator spool and anchor clamp kit

<sup>1</sup>Suffix "A" indicates anchorations in Wet Atmospheres - HA1000PA

<sup>2</sup>All H Series components are available with stainless steel hardware, designated by the suffix "SS"

Anchor, plastic with anchor clamp kit

HA1000PA	0.6 (0.27)
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# Saf-T-Bar Series H Expansion Gaps

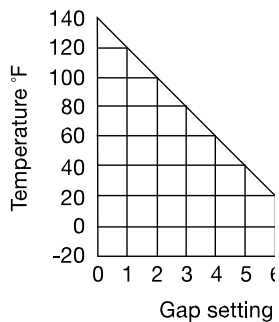
Expansion Gap assemblies are pre-assembled and ready to be installed between two adjacent sections of rail to compensate for thermal expansion of the rail due to environmental changes and power-generated heat. Each end of the expansion section is attached to its mating rail with a powerfeed type of rail splice.



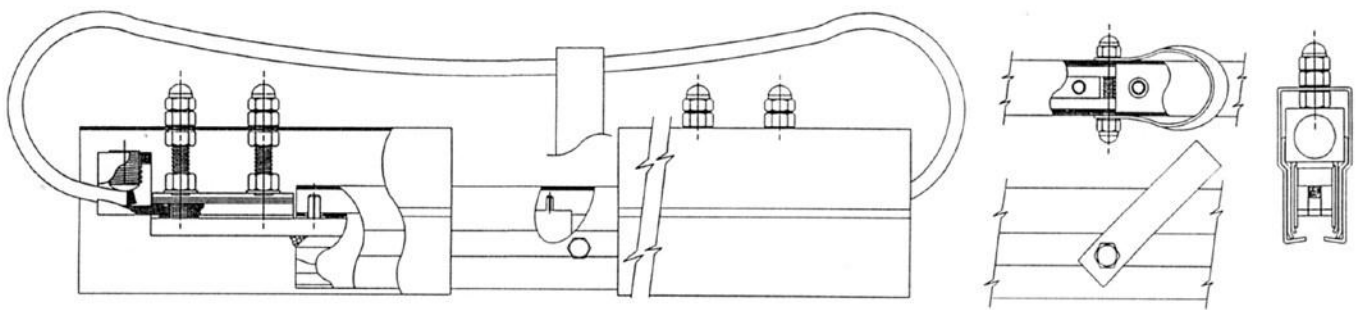
Aluminum conductors will expand one inch in 70 feet per 100° F temperature variation. The

Expansion Gap will handle expansions of up to 8". The Expansion Gap assembly HA500XG-8 is 12" long "closed" and 20" long expanded (with the maximum gap of 8".) The gap is normally set at 4" in an average 60° F environment. An Expansion Gap assembly is required for every 500 feet (or fraction thereof) in system length to handle a 100 degree F maximum temperature variation. A proportional decrease in the 500 foot interval is required for greater temperature variations.

Center point of all conductor runs using expansion gaps requires an anchor clamp kit to locate rail settings.

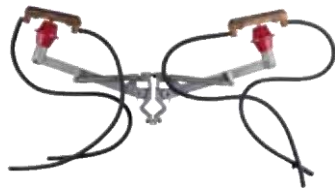


For Bar	Powerfeeds included	Jumpers included	Part No.	Wt lb (kg)
HC500	HA500F	# 3/0 x 40"	HA500XG-8"	13.0 (5.90)
HC750	HA750F	Two # 3/0 x 50"	HA750XG-8"	13.0 (5.90)
HC1000	HA1000F	Two # 3/0 x 50"	HA1000XG-8"	15.0 (6.80)
HC1500	HA1500F	Two 350 MC x 50"	HA1500XG-8"	20.0 (9.07)



# Saf-T-Bar Series H Collectors

## Standard L



Single  
200A

HA300LS

For collector movement of 2" in direction of contact and  $\pm 1"$  lateral drift.

Description	Intermittent Only	Continuous or Intermittent	Part No.
Tandem arm	600A	400A	HA600LLS
Single arm	450A	300A	HA400LS
Tandem arm	900A	600A	HA800LLS

arm 300A

## Standard D



For collector movement of 3" in direction of contact and  $\pm 3"$  lateral drift.

Description	Intermittent Only	Continuous or Intermittent	Part No.
Dual Parallel Arm, Single	300A	200A	HA300DS
Dual Parallel Arm, Tandem	600A	200A	HA600DDS
Dual Parallel Arm, Single	450A	300A	HA400DS
Dual Parallel Arm, Tandem	900A	600A	HA800DDS

## Heat Sink L



For collector movement of 2" in direction of contact and  $\pm 1"$  lateral drift.

Description	Intermittent Only	Continuous or Intermittent	Part No.
Single arm	500A	400A	HA400LSHS
Tandem arm	1000A	800A	HA800LLSHS

## Heat Sink D



For collector movement of 3" in direction of contact and  $\pm 3"$  lateral drift

Description	Intermittent Only	Continuous or Intermittent	Part No.
Single arm	500A	400A	HA400DSHS
Tandem arm	1000A	800A	HA800DDSHS

# Saf-T-Bar Series H Collector Parts and Shoes

## Collector Parts

Type	L Series	D Series	Heat Sink L Series	Heat Sink D Series
Body	302B	50-901	302B	
Contact Shoe	300SHP (6") 400SHP (8")	300SHP (6") 400SHP (8")	400SHPHS (x2)	400SHPHS (x2)
Spring	300Z	300Z	300Z	300Z
Arm	300LP	50-902	300LP	50-902
Spool	1000Q	1000Q	50-906	50-906
Welding cable	WR002RD1600			
Heat sink as-	-	-	400YHP-Head	400YHP-Head ssembly

## Collector Shoes

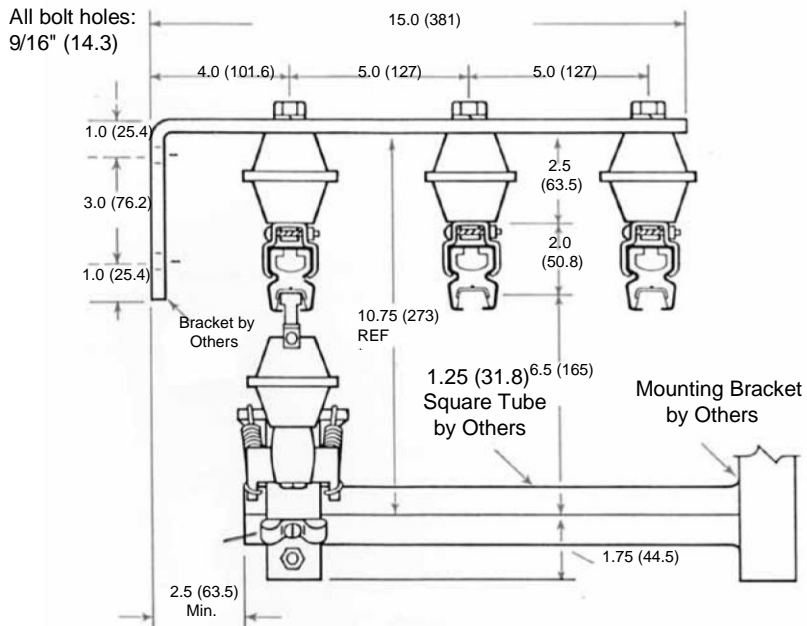


300SHP

Qty	Description	Shoe Size	Capacity (amps)		Part No.
			Continuous	Intermittent	
1	Single	5/8" x 6"	200	300	300SHP
2	Dual	5/8" x 6"	400	600	300SHP
1	Single	5/8 x 8"	300	450	400SHP
2	Dual	5/8 x 8"	600	900	400SHP
1	Single, Heat Sink Design	5/8 x 8"	400	500	400SHPHS
2	Dual, Heat Sink Design	5/8 x 8"	800	1000	400SHPHS

# Saf-T-Bar Series H Dimensions

## Installed End View

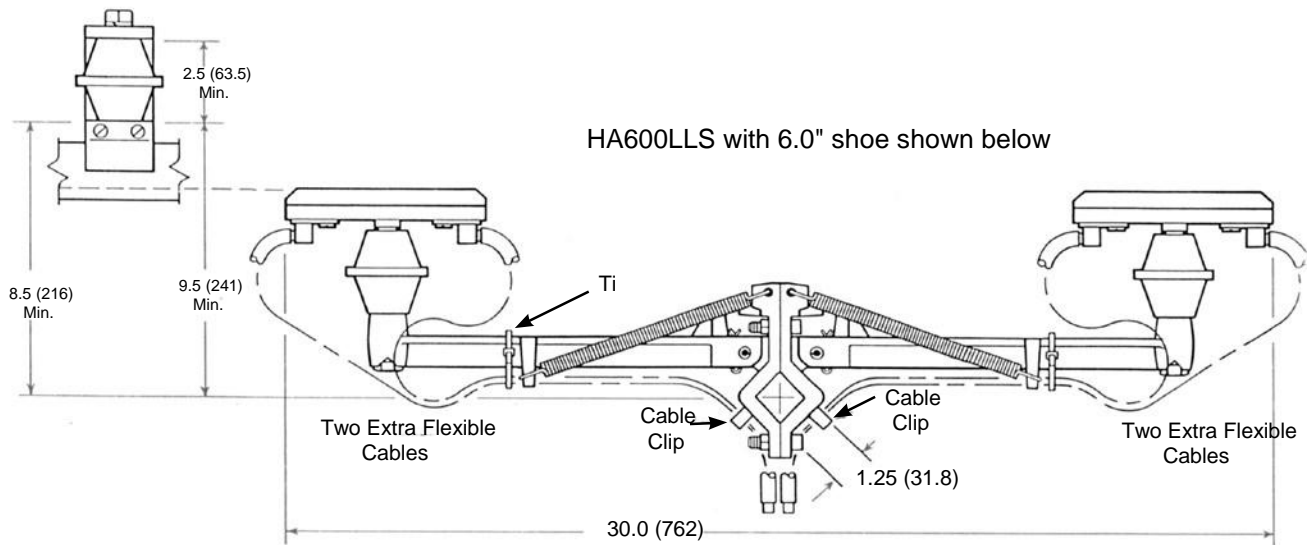


HC1000

Conductor Shown Above

\* For HC1500 Conductor, add 1.0" (25.4 mm)

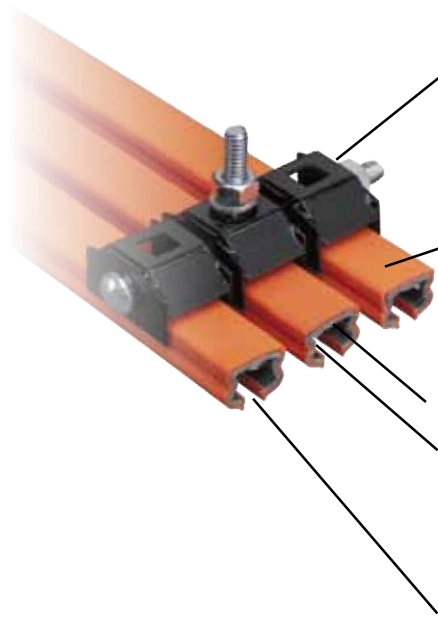
## Collector Side View



## Saf-T-Bar Series T

### Series T is Ideal for:

- Light Rail Systems
- Automated Storage and Retrieval Systems
- Conveyors
- Indoor, Dry Locations
- Small cranes, monorails, hoists
- Moving cameras and instruments
- Other mobile power applications



Rapid installation. Slide-on or snap-on joint clips and multiple bar assemblies. One unit mounting for quick, easy installation

Skin-tight, rigid PVC insulation runs cooler, will not deform under clamp pressure

Twin contact conductor. Two internal contact grooves track the collector. Provides for excellent ventilation with high current

capacity for its weight

Hand-safe design

Atmospheric specifications

Series T Saf-T-Bar is not recommended for dirty applications.

Insulating hanger option

Current capacity<sup>1</sup>

TA65 65 amps

Material

TA65 G alvanized Steel Rail with Rigid PVC  
Insulation rated at 160°F

Other features

A spool mount insulator hanger option is available as an alternative.

Insulating cover options

Insulating covers are rigid PVC extrusions rated at 160°F operating temperature and Lexan extrusions rated at 260°F. Both materials are self-extinguishing.

- Collector is "captured" within the "twin-contact" conductor profile of the bar, assuring good contact
- Compact dimensions for efficient use of minimal space. One square inch per conductor.
- Modular design of this system facilitates use of multiple conductors easily mounted in various combinations with multiple collector assemblies.

## Saf-T-Bar Series T Conductor Bar Characteristics

Series T conductor bars are constructed of roll-formed galvanized steel and are supplied with rail insulation along with the joint kit pre-mounted to one end of the conductor bar. The galvanized steel



version provides a current capacity of 65 Amps at

Description	TA65
Material	Galvanized Steel
Nominal current (Amps) <sup>2</sup>	65
DC resistance (ohms/ft)	0.0007
AC Impedance (ohms/ft at 60Hz)	0.0018
Weight	3.0 lb per 10 ft bar (1.36 per 3.05 m bar)
Max. Voltage (V)	600
Support Spacing (ft)	5.0
Standard Rail Length (ft)	10 feet - Other lengths on request
Maximum Rail Temperature	160°F at 260 PSI (standard cover) 260°F at 260 PSI (high temperature Lexan cover)
Conductor Mounting Orientation	Can be installed in either vertical or horizontal mode
Curves	Can be curved in our factory to a 12" (305 mm) minimum radius, using 30 Amp collector shoes.

<sup>1</sup> Ampere ratings are based on continuous service with a 30°C rise.

<sup>2</sup> Nominal current is based on 30°C and is for 100% duty.

30°C ambient temperature and continuous duty.

Basic Series T Part Numbers								
Bar Type	Phase Bar Part No. <sup>1</sup>	Ground Bar Part No. <sup>2</sup>	Med Heat Bar Part No. <sup>3</sup>	Joint Kit Std Heat Part No. <sup>4</sup>	Joint Kit Med Heat Lexan Part No. <sup>4</sup>	Power Feed Part No.	Power Feed Med. Heat Lexan Part No.	End Cap Part No. <sup>5</sup>
TA65	TA65X10	TA65X10G	TA65HHX10	TJ65	TJ65HH	TF100	TF100HH	TN100C

## Saf-T-Bar Series T Components

### Splice Joint Kit



Connects and aligns standard 10' conductor lengths. Consists of a 4" joint cover that slides over the exposed joint area to complete the insulation. The joint cover locks in place by means of indents and is formed of the same material as the insulating conductor cover. Splice joints are pre-installed on one of complete conductor

Part No.

TJ65

<sup>1</sup> Complete with normal phase rail cover, orange rigid PVC, 160°F heat distortion point, 260psi, self extinguishing.

<sup>2</sup> Complete with ground rail cover, green rigid PVC, 160°F heat distortion point, 260psi, self extinguishing.

<sup>3</sup> Complete with red Lexan medium heat cover, 260°F heat distortion point, 260psi, self extinguishing.

<sup>4</sup> Series T conductor kits are provided with the rail joint pre-mounted to the rail. If special cuts are required, use this part number to order the extra joint kit

<sup>5</sup> End caps available for "standard heat" applications only.

## Powerfeeds

The TF100 is a terminal lug with insulating cover that clamps onto a 3/4" (19.1 mm) length of bare conductor to feed power to the bar. It will accept wires up to # 6 flex. Rated at 100 amperes. The conductor may also be fed by securing a standard terminal lug to the 1/4" hole in the end of the conductor and taping over it for insulation.



Part No.

TF100

## End Caps

End Cap TN100C is a sleeve required to complete the insulation of the conductor. It extends 1/2" (13 mm) over the end of the bar. As an alternative, the conductor may be cut back so that the regular insulating cover extends 1/2" beyond the end of the TN100C

## Isolation Sleeves

A rigid plastic sleeve, providing 1/2" (13 mm) over-surface gap electrically, for electrical segmentation of conductor bars. A self-supporting sleeve.



Part No.

TA65IS

conductor. End Cap may also be used as a transfer end cap having a  $\pm 1/8"$  ( $\pm 3.2$  mm) tolerance with a 1" (25 mm) gap setting on interlocks.



Part No.

Phase	Part No.
1	TH101
2	TH201
3	TH301
4	TH402



## Hanger Mounting Clamps

Nylon coated stamped steel hanger clamps. Can be furnished in multiples on 1" (25 mm) centers. Can be mounted using cross bolt or back bolt. Bolts are 1/4" and require a 5/16" mounting hole. Hangers are required every 5' (1.52 m) of conductor. Joints should be located not more than 3" (76.2 mm) from hangers to avoid flexing.

Note: A spool mount insulator hanger option is available as an alternative - Contact Factory

TH402

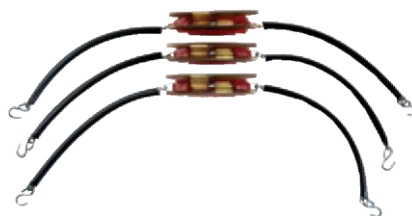


# Saf-T-Bar Series T Collectors and Tow Bar

Collectors with self-lubricating contacts for quiet operation and long life. Multiple collectors will be supplied as single units times the number of phases



TE501CR / TE501SC



TE503CR / TE503SC

# Poles	Shoe Size	Towlines Included?	Shoe Matl	Recommended For:	Cap.	Part No.
Single	Short	No	Chromium Copper	Systems using special towing arrangements	30 A	TE301ASCR
Single	Short	Yes	Chromium Copper	Systems with bend radii tighter than 48"	30 A	TE301
Dual	Short	Yes	Chromium Copper	Systems with bend radii tighter than 48"	30 A	TE302
Triple	Short	Yes	Chromium Copper	Systems with bend radii tighter than 48"	30 A	TE303
Single	Standard	Yes	Chromium Copper	Most systems without tight radii	50A	TE501CR
Single	Standard	No	Chromium Copper	Systems without tight radii	50A	TE501ASCR
Dual	Standard	Yes	Chromium Copper	Most systems without tight radii	50A	TE502CR
Triple	Standard	Yes	Chromium Copper	Systems without tight radii	50A	TE503CR

## Tow Bar

The Tow Bar is an optional mounting bracket for Series T collectors. It is designed to mount to a 1" (25.4 mm) square bar and connect to the standard towlines supplied with the Series T collector assemblies. The threaded rod is 18 inches long and is equipped with a clip at each end which



provides a connection point for the S-hook at the end of the T-bar towlines.

The TB18 will provide the proper angle of pull to ensure smooth travel of the collectors as they are pulled through the rail.

Part No.

TB18

## Series T Curves

Factory curved conductor sections for applications requiring bends and curves. Please contact factory for further information and pricing.

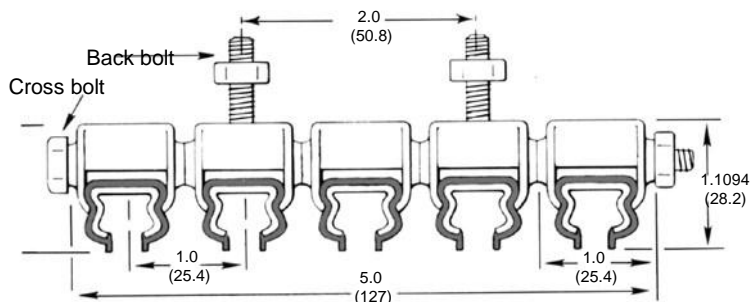
- Minimum Bend Radius is 12"

- \*T-Bar curves use different joint clip than the standard straight bar.

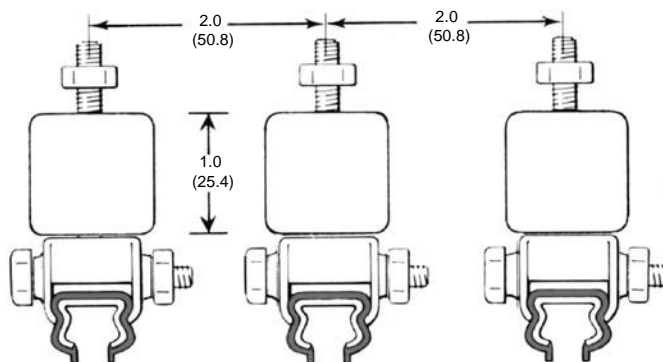
For Bar Type	Standard Heat (PVC)	Standard Heat (GRD)	Standard Heat (UV)	Medium Heat (Lexan)	High Heat (Fiberglass)	Joint*
TA65	TA65X10-CV	TA65X10G-CV	N/A	TA65HHX10-CV	N/A	TJS100

## Saf-T-Bar Series T Dimensions

### Hanger Mounting Clamps

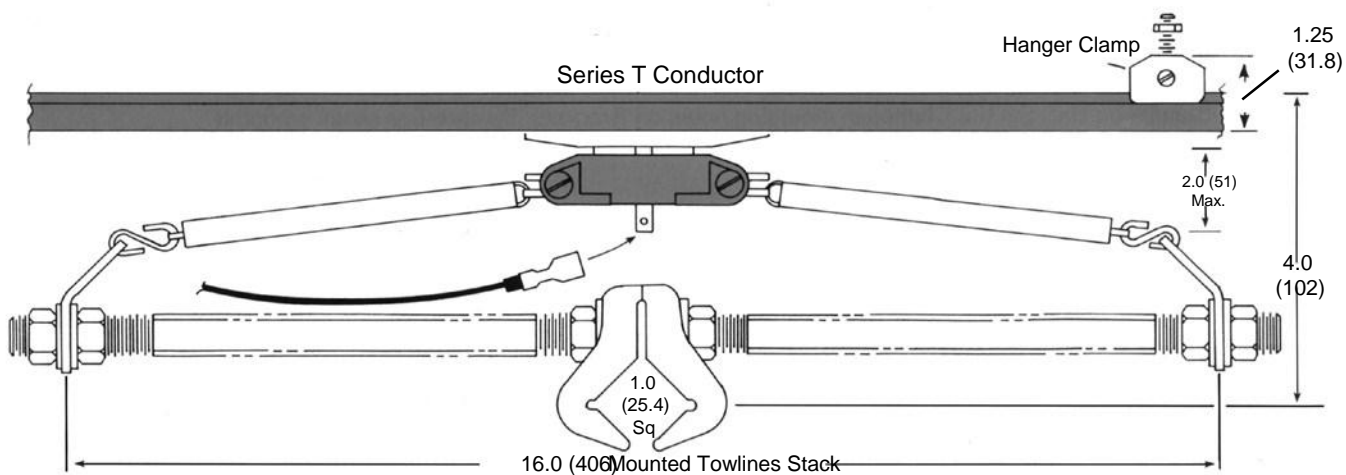


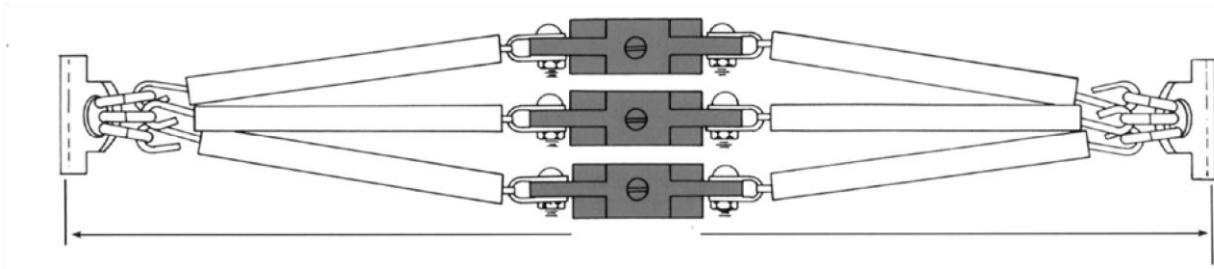
Standard Hangers



With Optional Insulator Spools

### Collectors





17.0 (432)

Unmounted

**Unmounted Collector Assembly**  
Multiple collectors will be supplied as  
single units times the number of  
phases.

