

Series C SAF-T-BAR

Series C Conductor Bars are roll-formed of galvanized steel or copper/steel laminate (250A) or copper (300A and 350A). The “C” shaped contact surface ensures positive tracking of the collector shoe and ensures good contact throughout the travel of the system. The standard material is supplied in 10 ft lengths with all necessary joining hardware. Installation is simple and requires only a jointing tool to connect the rails.



Saf-T-Bar Series C is ideal for:

- Cranes
- Hoists
- Conveyors
- Monorails
- Automated storage and retrieval systems

Ampacity range:

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

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Series C SAF-T-BAR



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) ¹ | 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 ² | Std Heat Ground Conductor ³ | Med Heat ⁴ | High Heat ⁵ | Joint/ Extra Joint Kit ⁶ | Joint/Extra Joint Kit ⁶ Med Heat | Power Feed | Expansion Section ⁷ | Power Feed Med Heat |
| CA90 | CA90X10 | CA90X10G | CA90HHX10 | CA90FIX10 | CJ90 | CJ90HH | 350F | CA110XG-2* | 100FHH |
| CA110 | CA110X10 | CA110X10G | CA110HHX10 | CA110FIX10 | CJ110 | CJ110HH | 350F | CA110XG-2* | 350FHH |
| CA250 | CA250X10 | CA250X10G | CA250HHX10 | CA250FIX10 | CJ250 | CJ250HH | 350F | CA250XG-2* | 350FHH |
| CA300 | CA300X10 | CA300X10G | CA300HHX10 | CA300FIX10 | CJ300 | CJ300HH | 350F | CA300XG-2* | 350FHH |
| CA350 | CA350X10 | CA350X10G | CA350HHX10 | CA350FIX10 | CJ350 | CJ350HH | 350MCM-2 | CA350XG-2* | 350FHH |

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

¹ Nominal current is based on 86°F (30°C) and is for 100% duty.

² Complete with orange rigid "Standard Heat" PVC insulator cover, which has a 160° F (71° C) heat distortion point, 260psi. Self-extinguishing.

³ 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.

⁴ Complete with red Lexan "Medium Heat" insulator cover, which has a 260° F (127° C) heat distortion point, 260psi. Self-extinguishing.

⁵ Complete with fiber glass "High Heat" cover, which has 375° F (191° C) heat distortion point, 260psi. Self-extinguishing.

⁶ 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.

⁷ 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.

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

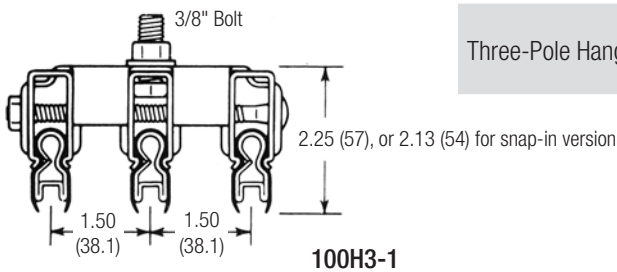
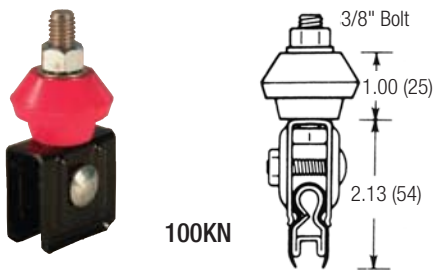
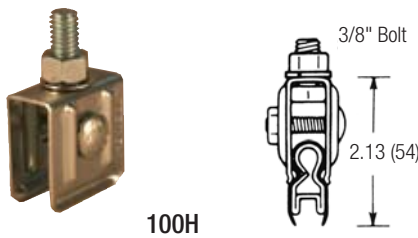


Black nylon cap is driven onto end of the conductor to complete the insulation. Contoured to permit passage of the collector shoe. End caps can be used in pairs at switch transfers, interlocks, expansion gaps, and isolation points. Trim conductor slot after installation.

| | Part No. |
|---------|--------------|
| End Cap | CN100 |

Series C Hangers

Cross-Bolt Hanger Clamps

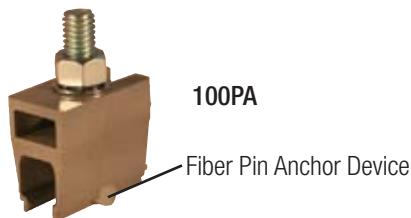
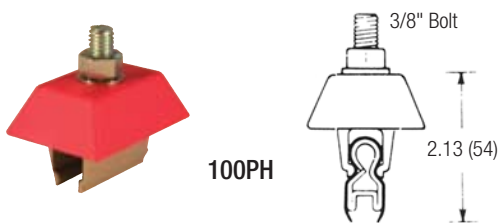
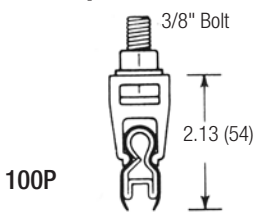


Cross-bolt hanger clamps are factory set to snap in place, but must be field adjusted for correct sliding tension after installing the conductor (unless used as an anchor).

Sliding hangers (for conductor expansion): Tighten cross bolts, then back off 1/4 turn.
Anchor hangers: Tighten cross-bolts to 6 ft lb.

| 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 |
| 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 |

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 to avoid damage to the hanger.

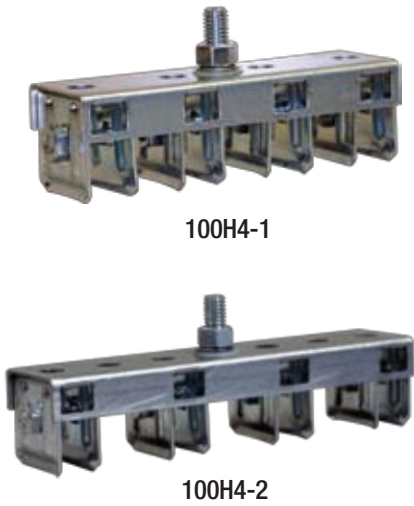
| Can use instead of: | Application notes: | Part No. |
|-----------------------------|--|----------|
| 100H, 100HN, 100K, or 100KN | Same mounting dimensions as 100H hanger | 100P |
| 100H, 100HN, 100K, or 100KN | Same as 100P, with "rain hat" for severe outdoor conditions | 100PH |
| 100H3-1 | Multiple 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 |

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

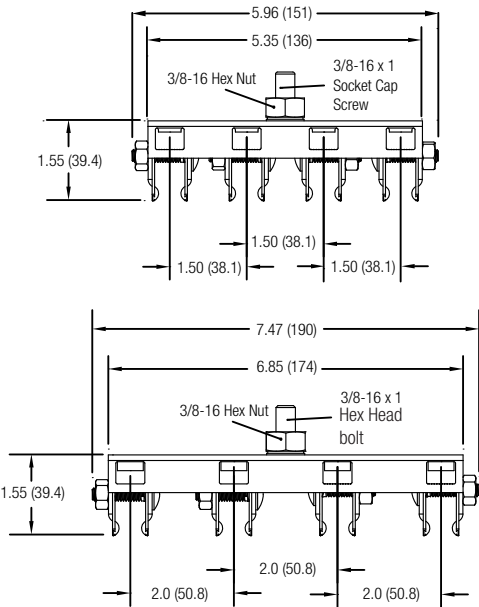
Series C Four-Pole Hangers

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).

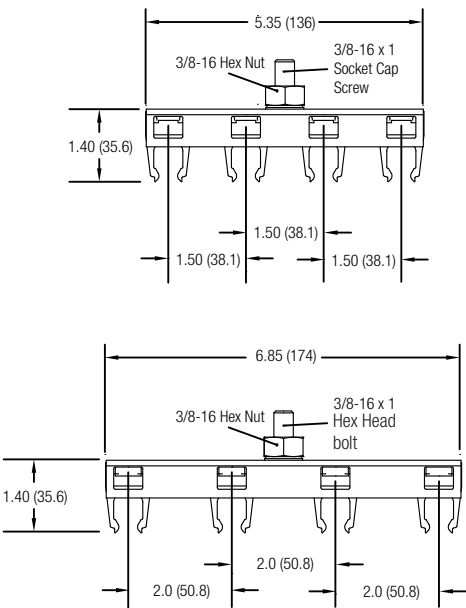
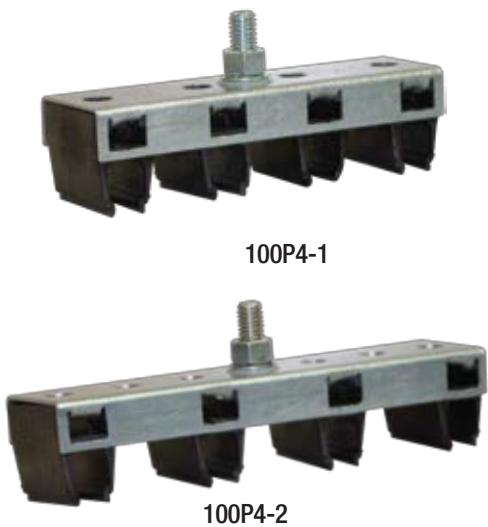


| Spacing Between Bars, in. (mm) | Part No. |
|--------------------------------|----------|
| 1.5 (38.1) | 100H4-1 |
| 2.0 (50.8) | 100H4-2 |



"Snap-in" Multiple Hangers

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



Series C Expansion Sections

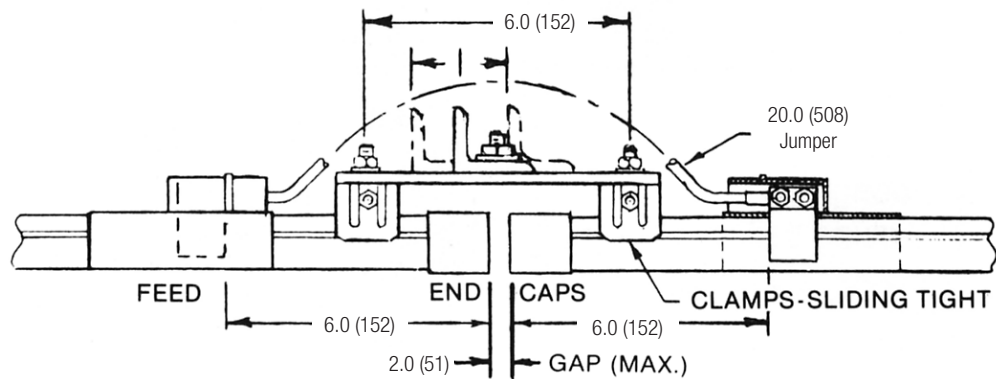
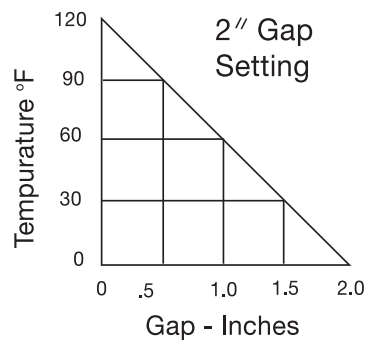
Expansion Sections - 2" gap

One Expansion Gap Kit is required for every 150 feet in system length (steel systems) or one per every 100 feet (copper systems).

This kit will accommodate up to a 2" expansion gap. The gap should be set based on the bar temperature according to the table below. Gap Guide Bracket is used for mounting. Kits include two extra powerfeeds and a jumper to bridge the gap electrically. Use tandem collectors to provide power across the expansion gap.



| For Bar Type | Expansion required at ft (m) | Part No. | Powerfeeds included | Jumper(s) included |
|--------------|------------------------------|-----------|---------------------|--------------------|
| CA90 | 300 | CA110XG-2 | 350F | ONE #4 |
| CA110 | 300 | CA110XG-2 | 350F | ONE #4 |
| CA250 | 200 | CA250XG-2 | 350F | TWO #4 |
| CA300 | 200 | CA300XG-2 | 350F | TWO #4 |
| CA350 | 200 | CA350XG-2 | 350F | TWO #4 |



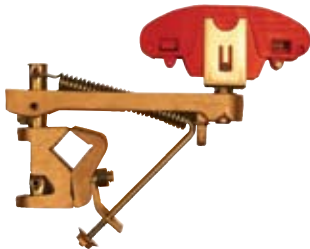
Series C Collectors



Light Spring (35E)



Standard Arm (70E)



Self-centering, Standard Arm (70C)



Self-centering Long Arm (70LC)



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.

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.

| Collector Type | Part No. | | | |
|--|----------|----------|-----------|--------|
| | 25A-50A | 50A-100A | 100A-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 | 70LL | 150LL | 100W |
| Dual-Head (Tandem), Long Arm, Self-Centering | - | 70LLC | - | 100LLC |



Dual-Head, Long Arm (70LL)

Series C Collector Shoes and Dimensions

Collector Shoes

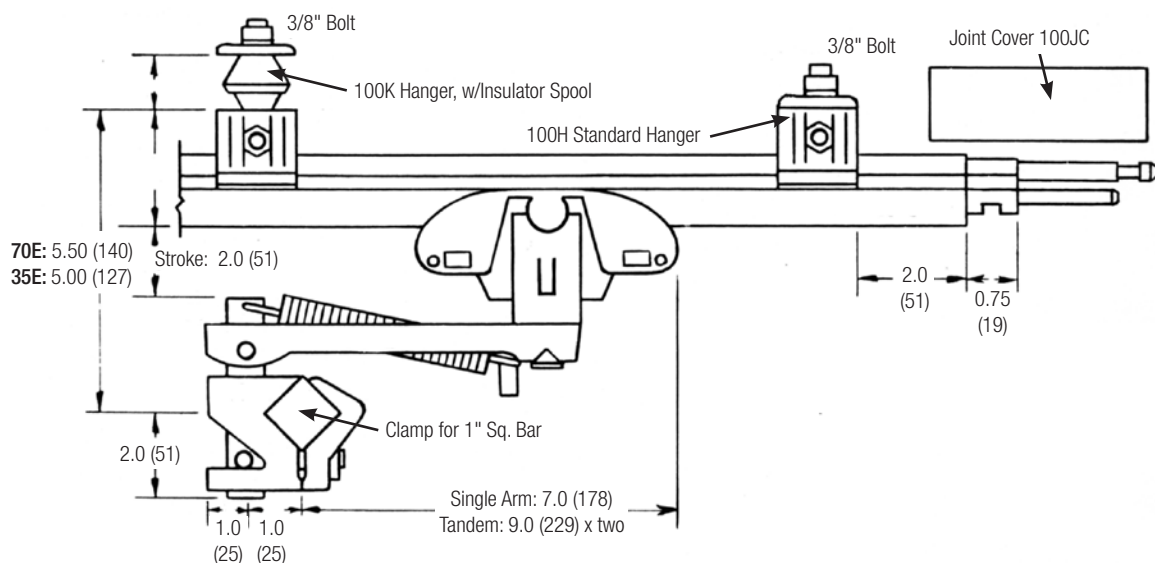
| Shoe Material | Current Capacity (Amps) | For Collectors: | Part No. |
|----------------------------|-------------------------|--|----------|
| Standard Copper Graphite | 35 | 35E, 35V, 35L, 35W | 35S |
| Standard Copper Graphite | 70 | 70E, SC70, SCL70, 70L, SCC70, SCCL70, 70LL, SD70, SE70, SDD70, 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 |

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 |
| Shoe Clip | - | - | 100Y | - |

Standard Arm Dimensions

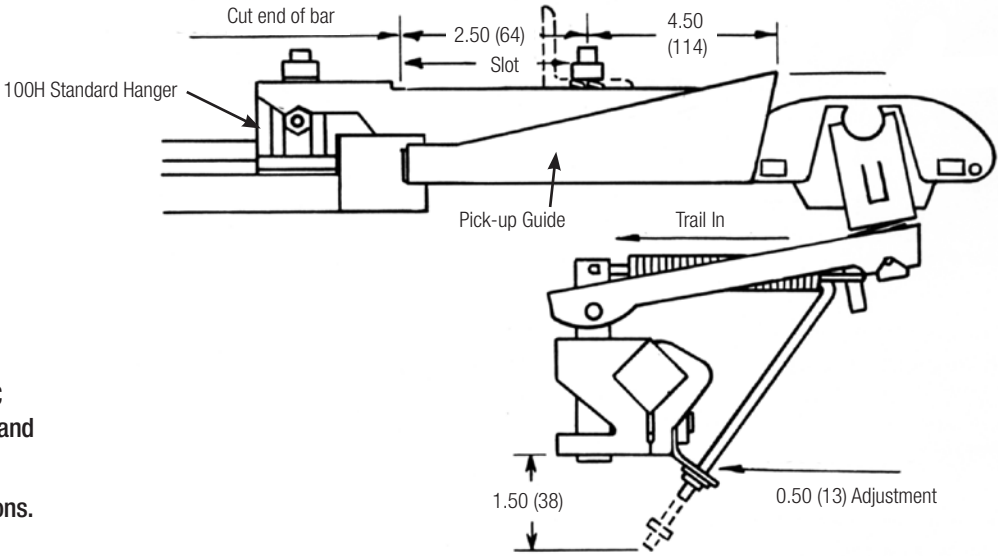
35E
35V
70E
100E
150E



Series C Collector Dimensions

Self-Centering

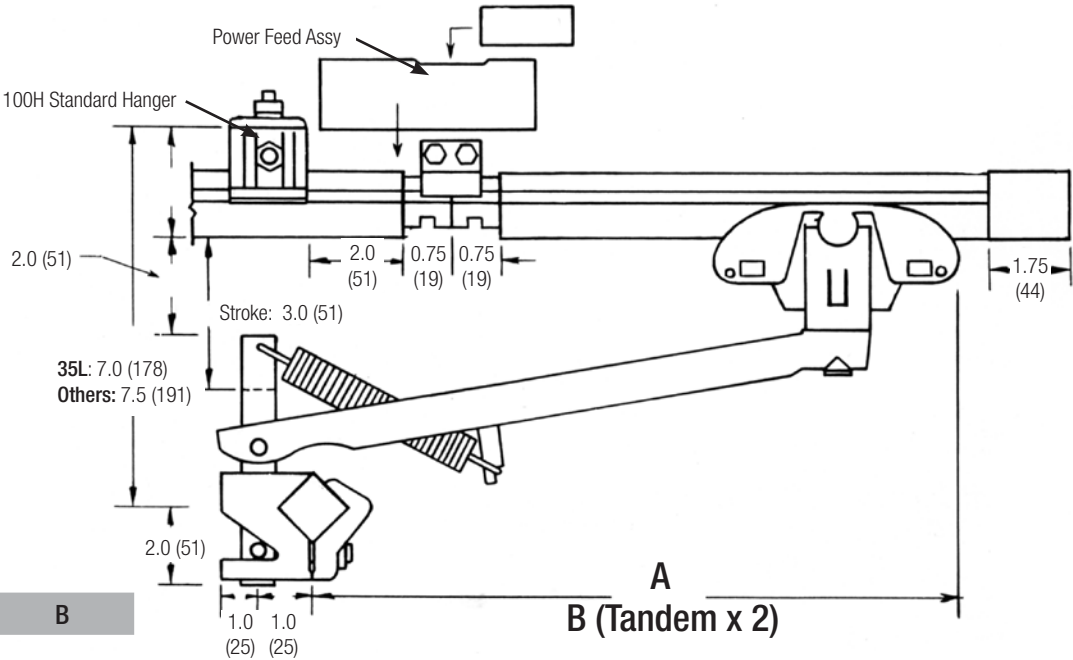
70C
100C



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 Guides



Used for discontinuous circuits such as 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.

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 |

Transfer Guides



Used to track the collector through bar misalignments of 1/8" to 1/2" (3-13 mm) laterally 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 |