



# Cluster Bar Features

Conductix-Wampfler Cluster Bar is a safe, economical system engineered to fit in confined areas. On-center bar spacing is only 3/4". The system features long-wearing copper-graphite shoes and continuously roll-formed 15 ft. sections in either 40A galvanized or 120A copper configurations. Bar covers are PVC to withstand up to 160° F and are rated V-0 (will not support combustion).

Cluster Bar can be factory-bent in three orientations to accommodate tight curves.



## Cluster Bar is Ideal for:

- Small cranes
- Automated Storage and Retrieval Systems
- Conveyors
- Tightly curved systems
- Hangar doors
- Moving cameras and instruments
- Other mobile power applications

**Current range:** 40A, 120A @ 600 volts maximum

**Maximum Speed:** 600 fpm

## Features

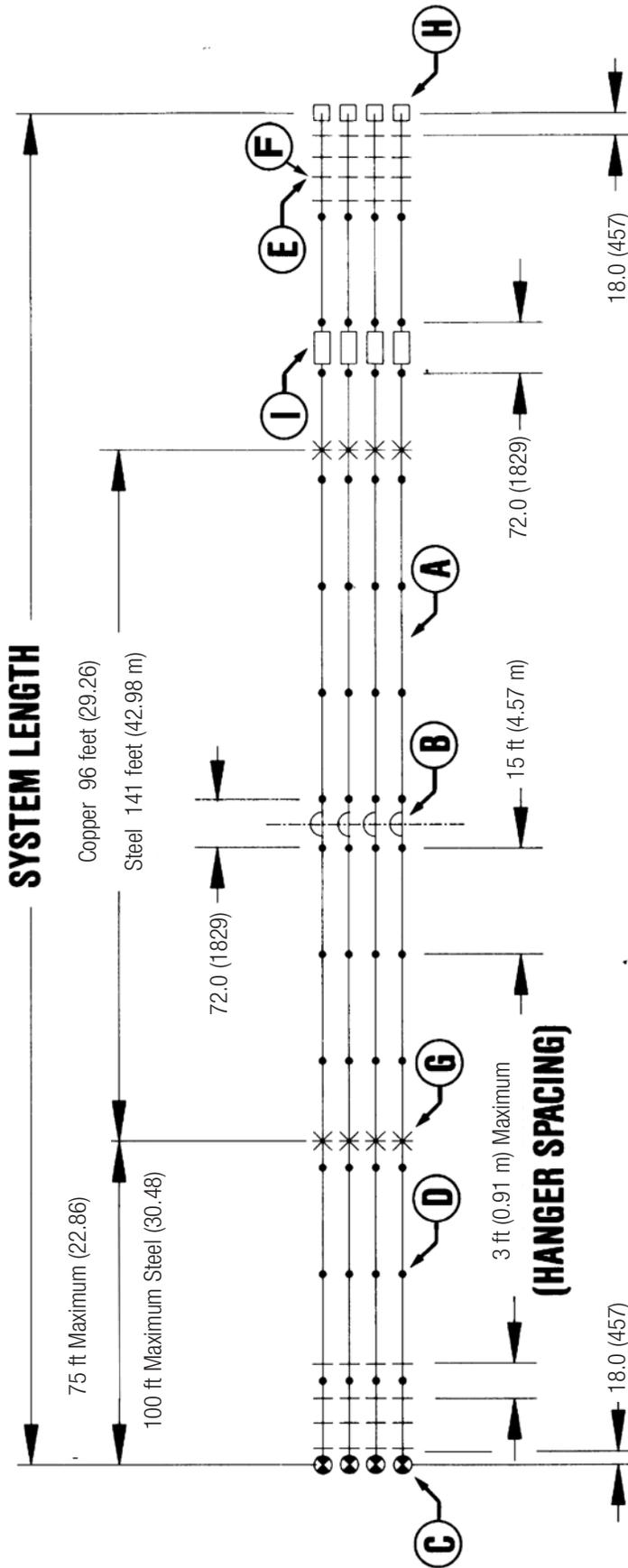
- IP2 insulated "finger safe" design
- Captive "V-contact" design for positive conductivity
- Can be curved to an 18" radius
- Backed by the best customer service and engineering services in the industry:
- Parts in stock for quick delivery
- Designed and built in the USA under stringent ISO 9001: 2000 standards
- Engineers are available to help with your unique application

## Installs Quickly and Easily

- Minimum number of basic parts
- Crimped or bolted splices available
- Easy to maintain
- Can be mounted vertically or laterally



# Cluster Bar Typical 4-Bar Layout



**NOTE: MAXIMUM LENGTH W/O EXPANSIONS**

**120 AMP COPPER IS 150'**

**40 AMP STEEL IS 200'**

- A = Conductor Bar
- B = Expansion Section
- C = Powerfeed
- D = Splice Joint
- E = Hanger Clamp
- F = Hanger Bracket
- G = Anchor Location
- H = End Cover
- I = Isolation Section

# Cluster Bar Specifications

## Technical Data

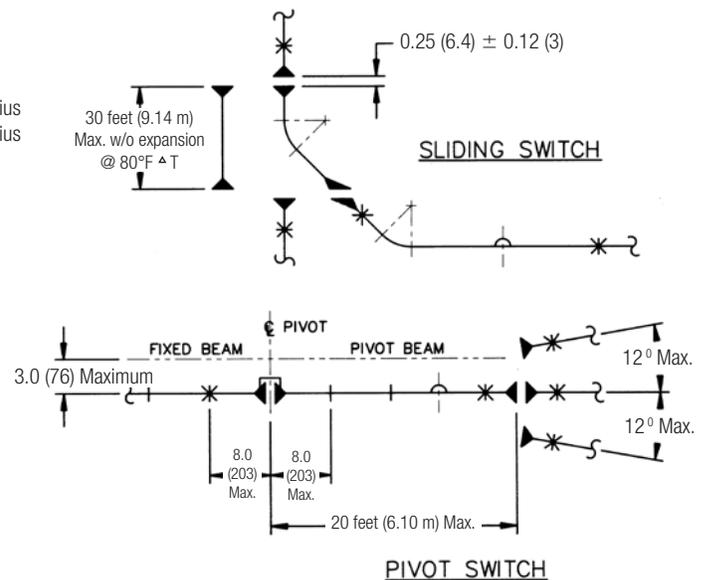
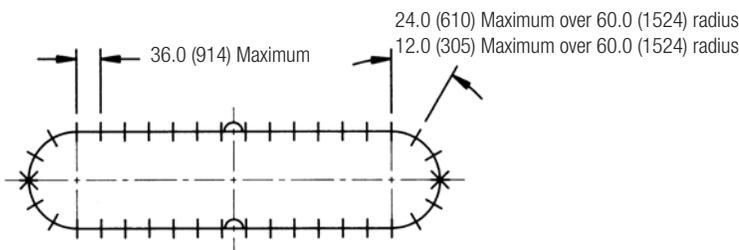
		Factor "K"					
		Duty	100%	80%	60%	40%	20%
		Ta					
Standard Cover	25° C (77° F)		1.000	1.118	1.291	1.581	2.236
	35° C (95° F)		0.905	1.011	1.168	1.430	2.023
	45° C (113° F)		0.798	0.892	1.030	1.261	1.784
	55° C (130° F)		0.674	0.754	0.870	1.066	1.508

The maximum permissible continuous current rating of the conductor bar depends on the duty factor of the cranes and the maximum ambient temperature **Ta**. It can be established using the following formula:  $I_{\text{allowable}} = \text{nominal current} \times K$

Conductor	Ampacity	Resistance R (DC)*	Reactance 60 HZ 30*	Independence z (60 HZ)*	Spacing in. (mm)
Steel	40A	2382	382	2412	0.75 (19.1)
Copper	120A	245	38	248	0.75 (19.1)

\*Micro-Ohms Per Foot

## Typical Installation Details

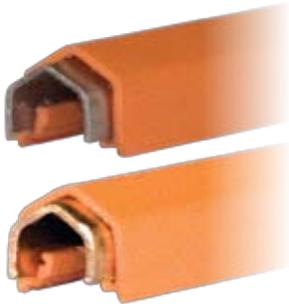


The appropriate conductor bar can be chosen only when all the relevant factors are known. Please refer to the Data Sheet on Pgs. 6-7, and to Appendices I through IV at the back of this catalog. Also, please consult Conductix-Wampfler Sales if you have any questions about the suitability of this product to your application.

- LEGEND**
- +— HANGER CLAMP
  - E— END COVER
  - A— EXPANSION
  - \*— ANCHOR CLAMP
  - ISOLATION KIT
  - ▶ TRANSFER CAP, STRAIGHT
  - ◀ TRANSFER CAP, ANGLE
  - ◀ TRANSFER CAP, SWIVEL
  - ▲ PICKUP GUIDE
  - POWERFEED

# Cluster Bar Components

## Conductor Bar



Continuous roll formed inverted “V” cross section encased by an insulating PVC cover. Splice kit included with the price of conductor. Operating Temperature: -10° F to 160° F. Bars are 15.0 ft (4.57 m) long

Bar Type	Current Capacity (A)	Part No. (w/Bolted Splice)	Part No. (w/Crimped Splice)	Wt lb (kg)
Galvanized Steel	40	<b>28656</b>	<b>28101</b>	2.0 (0.91)
Rolled Copper	120	<b>28655</b>	<b>28100</b>	2.0 (0.91)

## Expansion Section



Shown without cover

Factory assembled with overlapping design to provide continuous contact with collector shoes to compensate for thermal expansion. Power feeds are flexible jumpers installed to meet electrical and mechanical requirements. Spacing for expansion sections is every 141' for 40A steel conductor and 96' for 120A copper conductor. Length: 6 ft. (1.83m)

Bar Type	Current Capacity (A)	Part No. (w/Bolted Splice)	Part No. (w/Crimped Splice)	Wt lb (kg)
Galvanized Steel	40	<b>28658</b>	<b>28104</b>	6.0 (2.72)
Rolled Copper	120	<b>28657</b>	<b>28103</b>	7.0 (3.72)

## Power feed



Shown with half cover

Provides the electrical connection from power source to the conductor bar. It may be located at any point along the conductor, preferably near the systems' center to reduce voltage drop.

Connection Wire Size (AWG)	Part No.	Wt lb (kg)
10	<b>28067</b>	0.4 (0.18)
6	<b>28066</b>	0.4 (0.18)

## End Power Feed



Shown with half cover

Provides the electrical connection from the power source to the conductor bar. This power feed attaches to the end of the bar.

Connection Wire Size	Part No.	Wt lbs.
#8 AWG	<b>29836</b>	0.2 (0.09)
#10 AWG	<b>29837</b>	0.2 (0.09)

## End Cover



Two-piece polypropylene boot used to close off the open ends of the conductor bar.

Part No.	Wt lb (kg)
<b>28105</b>	0.3 (0.14)

# Cluster Bar Components

## Crimping Tool



Used to join the crimp-style bars together.

Part No.	Wt lb (kg)
28102	5.0 (2.27)

## Splice Cover Kit



Insulates the bar joint

Part No.	Wt lbs.
29875	0.2 (.09)

## Splice Joints



Shown with half cover.

Connects two sections or conductors together

Bar Type	Current Capacity (A)	Part No. (Bolted Splice)	Part No. (Crimped Splice)	Wt lb (kg)
Galvanized Steel	40	29632	30211	6.0 (2.72)
Rolled Copper	120	29548	30210	7.0 (3.18)

## Transfer Cap



Used to guide the contact shoe through a 1/4" maximum air gap

No. Cond	Part No.	Wt lb (kg)
1	29413	0.10 (0.05)
3	28807	0.30 (0.14)
4	28808	0.40 (0.18)
5	28809	0.50 (0.23)
6	28810	0.60 (0.23)

## Pick-Up Guides

Scoop located at the end of the conductor. Designed to gather the collectors and align them to ride on the conductor bars for discontinuous operation. Consult factory for proper selection.

## Isolation Kit



Provides electrical isolation between conductor bar. Wiring not included

Connection Wire Size (AWG)	Part No.	Wt lb (kg)
10	28126	0.5 (0.23)
8	29869	0.5 (0.23)

# Cluster Bar Components

## Hanger Clamps



Molded Polycarbonate hangers designed for vertical or horizontal mounting. The hanger clamps “snap on” the conductor for a sliding fit. No field adjustments are required.

Part No.	Wt lb (kg)
28112	0.10 (0.045)

## Anchor Clamps



These are molded plastic pieces that are bolted together and are positioned on each side of the hanger clamp. The anchor clamps hold the conductor firmly to control thermal expansion and contraction. The kit includes two clamps per conductor.

Part No.	Wt lb (kg)
29864	0.10 (0.05)

## Multi-Conductor Bracket



Molded bracket with hanger clamps. There is no need for an aluminum mounting bracket.

No. Cond	Part No.	Wt lb (kg)	Mounting
3	33138	0.14 (0.06)	1 Bolt
4	33137	0.14 (0.06)	2 Bolt

## Multi-Conductor Bracket



Aluminum mounting channel with hanger clamps, available in various conductor configurations.

No. Cond	Part No.	Wt lb (kg)
3	28113	1.0 (0.45)
4	28114	1.1 (0.50)
5	28115	1.3 (0.59)
6	28116	1.3 (0.59)

## Multi-Conductor Web Brackets



Aluminum channel web bracket with assembled hanger clamps in various conductor configurations.

No. Cond	Part No.	Wt lb (kg)
3	28665	1.4 (0.64)
4	29939	1.5 (0.68)
5	29940	1.6 (0.73)
6	29941	1.6 (0.73)

# Cluster Bar Components

## Multi-Conductor Flange Brackets



Aluminum channel flange bracket with assembled hanger clamps in various conductor configurations. (Includes flange clips)

No. Cond	Bracket Setting	Part No.	Wt lb (kg)
3	2/1	28666	1.4 (0.64)
4	2/2	29942	1.5 (0.68)
5	2/3	29943	1.6 (0.73)
6	2/3	29944	1.6 (0.73)
3	0/3	29986	1.4 (0.64)
4	0/4	29987	1.6 (0.73)
5	0/5	29988	1.7 (0.77)
6	0/6	29989	1.8 (0.87)

## 30A Collector, Single Conductor



## 1/2" Square Bar Mount Type.

Insulated contact heads mounted on self centering, spring loaded arm assemblies that articulate in both the vertical and horizontal positions. Exposed metal surfaces do not carry current. The sliding contact type confines wear only to the easily replaceable contact shoes. Part #: 28082

Description	Part No.	Wt lb (kg)
For 1 Conductor	31589	0.80 (0.36)

## 30A Collector, Multi Conductor



## Channel Mount Type

Insulated contact heads mounted on self centering spring loaded arm assemblies that articulate in both the vertical and horizontal positions. Exposed metal surface does not carry current. The sliding contact type confines wear only to the easily replaceable contact shoes.

No. Cond	Part No.	Wt lb (kg)
3	31583	3.0 (1.36)
4	31584	3.8 (1.72)
5	31585	4.6 (2.09)
6	31586	5.4 (2.45)

## 30A Compression Collector



Description	Part No.	Wt lb (kg)
14mm, compression collector	32180	0.80 (0.36)

# Cluster Bar Components

## Collector Mounting Staff



Available in double or single mount. Used for 31589 collector mounting.

Description	Part No.	Wt lb (kg)
Single	<b>39618C</b>	0.5 (0.23)
Double	<b>39050</b>	1.0 (0.45)

## Slip Rings and Curves

Factory supplied in 360° rings or segments to fit the mounting specifications. 16" minimum radius for inside or outside contact. Factory engineered curved systems available.

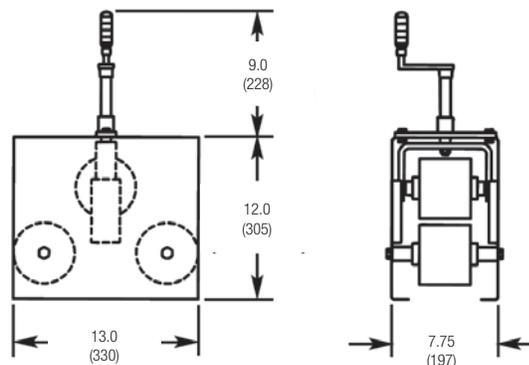
**Consult Factory for Assistance in Regards to Your Curve and Slip Ring Requirements.**

Description	Part No. (Crimped Splice)	Part No. (Bolted Splice)	Minimum Radius In. (mm)
1-piece 360°, 16" Radius to 27" Radius	<b>29960</b>	<b>29962</b>	
2-180° pieces, 27.1" Radius to 54" Radius	<b>29964</b>	<b>29966</b>	
3-120° pieces, 54.1" Radius to 80" Radius	<b>29968</b>	<b>29970</b>	
Horizontal inside, 40A	<b>28503</b>	<b>29364</b>	16
Horizontal inside, 120A	<b>28500</b>	<b>29363</b>	16
Horizontal outside, 40A	<b>28504</b>	<b>29359</b>	16
Horizontal outside, 120A	<b>28501</b>	<b>29358</b>	16
Vertical, 40A	<b>28505</b>	<b>29366</b>	32
Vertical, 120A	<b>28502</b>	<b>29365</b>	32

## Curving Machine

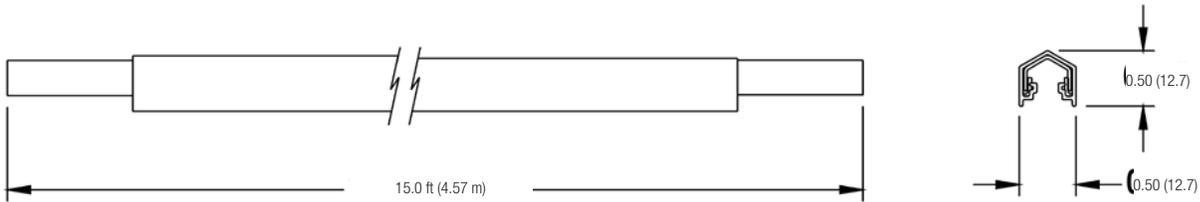
For curving of Cluster Bar, either on site or in the shop. Available for Lease or Sale.

Description	Part No.	Wt lb (kg)
Curving Machine	<b>29931</b>	25.0 (11.34)

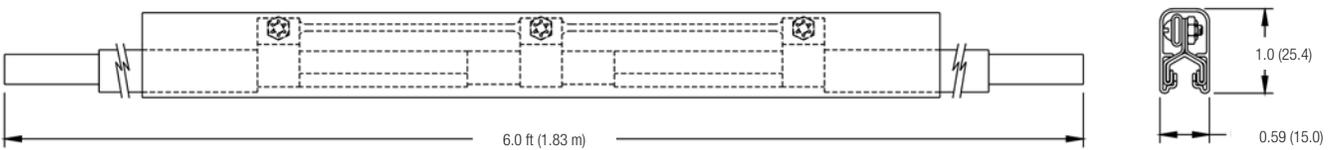


# Cluster Bar Dimensions

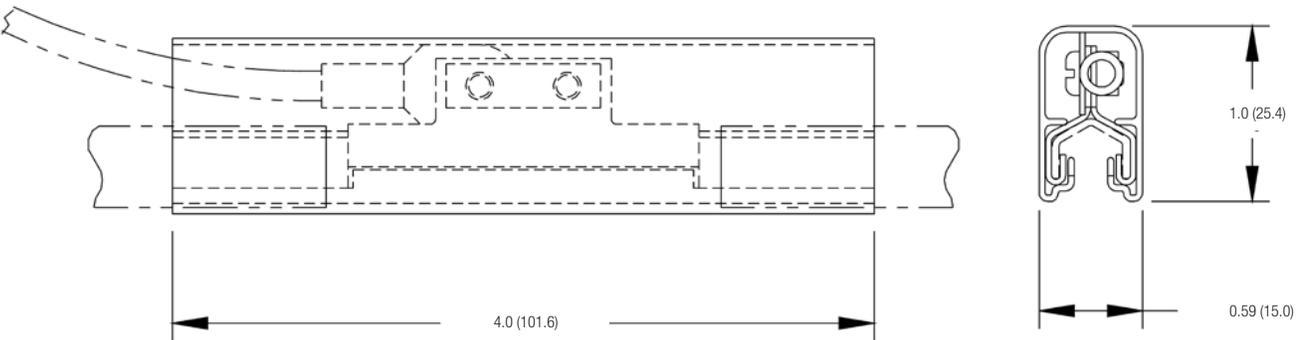
## Conductors



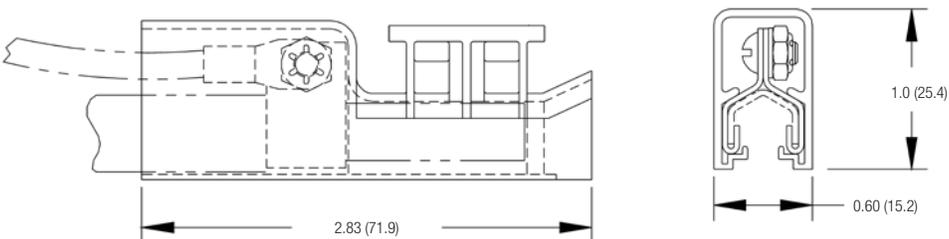
## Expansion Section



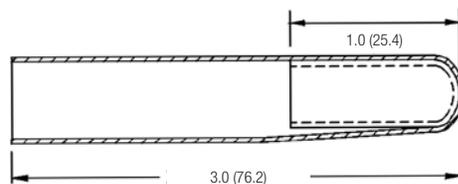
## In-Line Power Feed



## End Power Feed

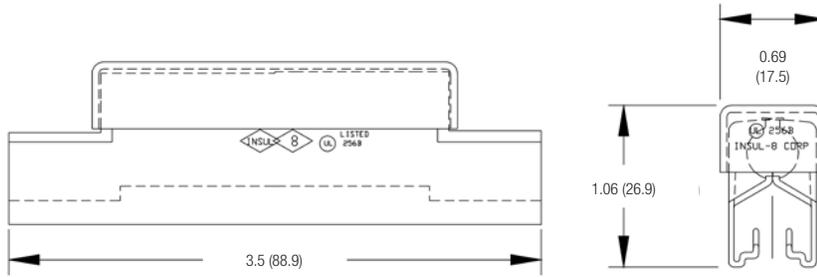


## End Cap

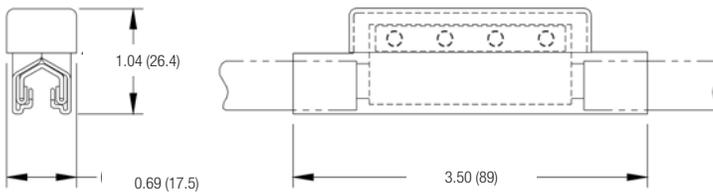


# Cluster Bar Dimensions

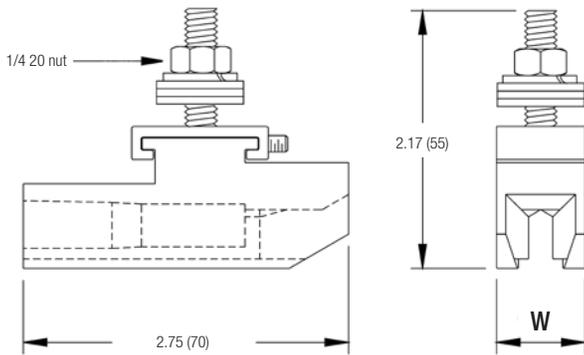
## Splice Cover Kit



## Splice Joint

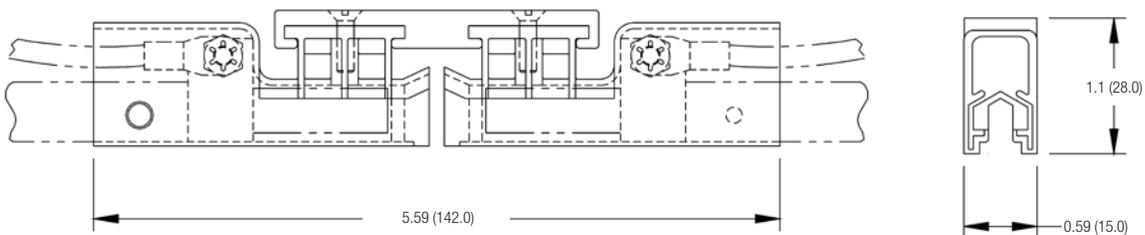


## Transfer Cap



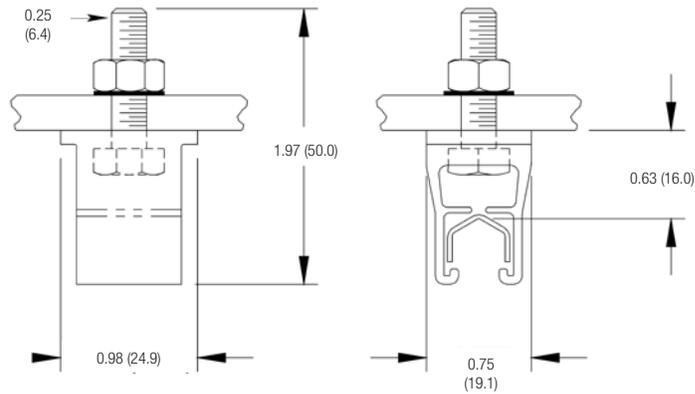
No. Cond.	Part No.	"W" (in.)	"W" (mm)
1	29413	0.60	15.2
3	28807	1.80	45.7
4	28808	2.40	61.0
5	28809	3.00	76.2
6	28810	3.60	91.4

## Isolation Kit

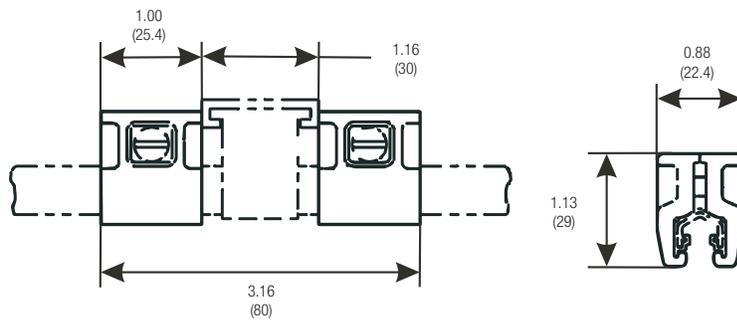


# Cluster Bar Dimensions

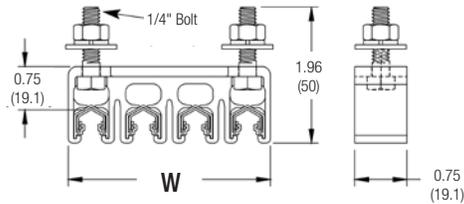
## Hanger Clamp



## Anchor Clamp

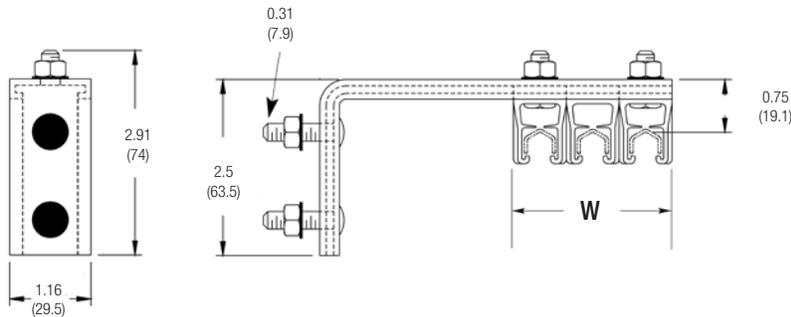


## Multi-Conductor Web Bracket



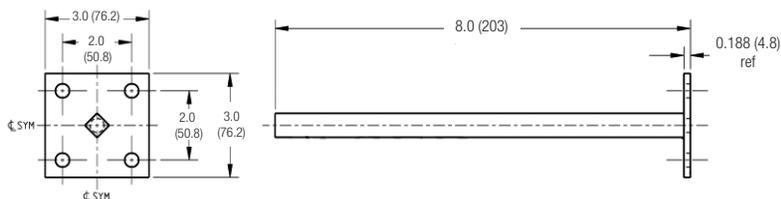
No. Cond.	Part No.	"W" (in.)	"W" (mm)
3	33138	2.16	54.9
4	33137	2.90	73.7

## Multi-Conductor Web Bracket



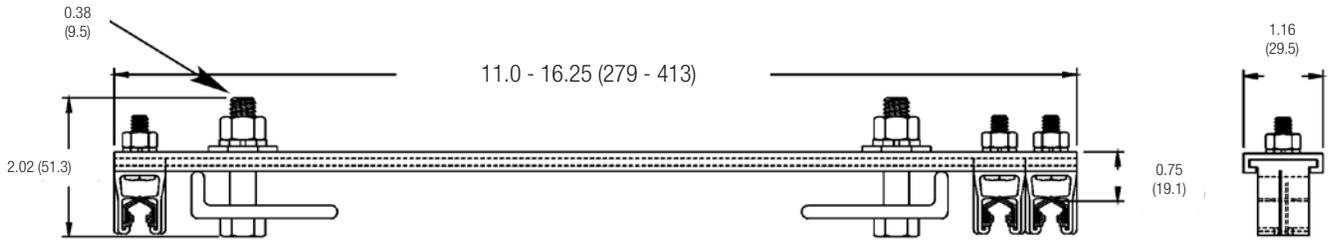
No. Cond.	Part No.	"W" (in.)	"W" (mm)
3	28665	2.25	57.2
4	29939	3.00	76.2
5	29940	3.75	95.3
6	29941	4.50	114.3

## Collector Mounting Staff

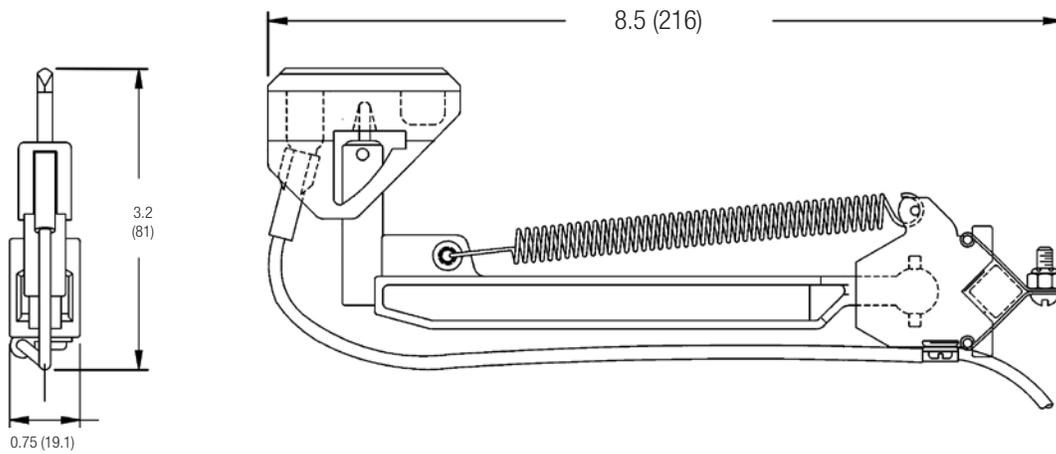


# Cluster Bar Dimensions

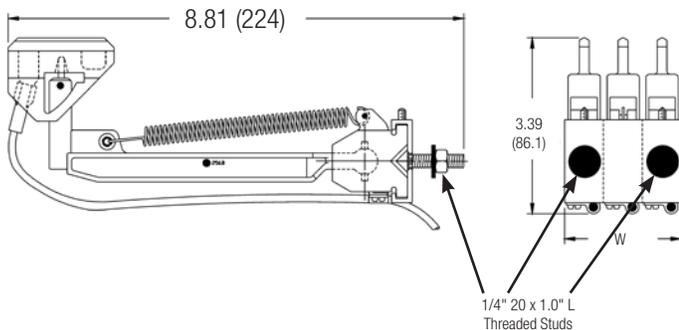
## Multi-Conductor Flange Bracket



## 30A Collector, Single Conductor, 0.50" (12.7mm) Square Bar Mount



## 30A Collector, Multi Conductor, Channel Mount



Part No.	No. Cond.	W dim.		Stud Centers	
		in.	(mm)	in.	(mm)
31583	3	2.25	57.2	1.50	38.1
31584	4	3.00	76.2	2.25	57.2
31585	5	3.75	95.3	3.00	76.2
31586	6	4.50	114.3	3.75	95.3