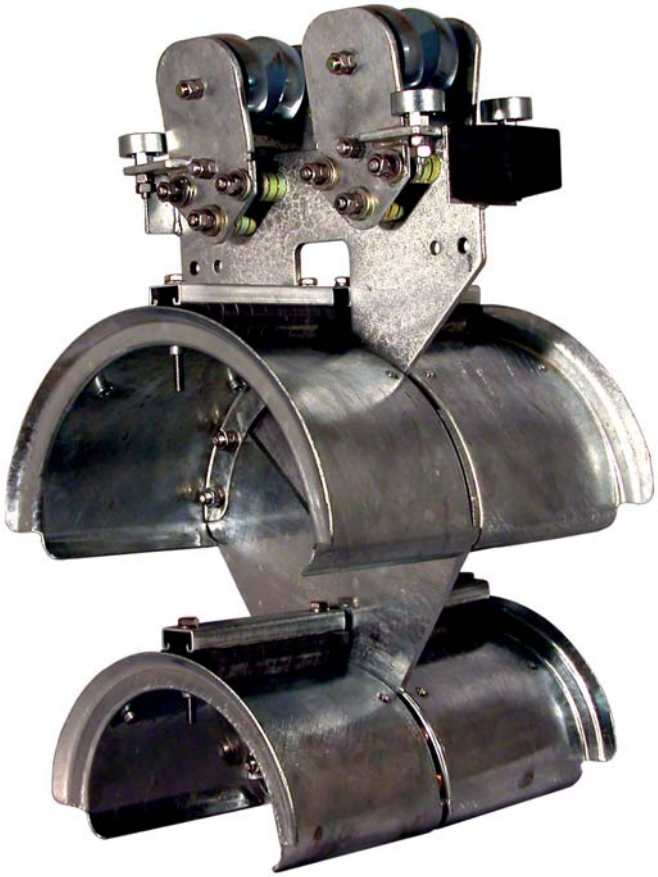
Insul-8 Mobile Electrification

Cable & Hose Reels ◆ Bar ◆ Festoon ◆ Pendants ◆ Radios ◆ Slip Rings

Solutions From A Single Source

Heavy-Duty Festoon



Modular Designs
Preassembled / Prewired
Corrosion Resistant Hardware
Single Piece, Formed Steel Saddle
(no welds)

INSUL 8
CONDUCTIC DIVISION
DELACHAUX GROUP

www.insul-8.com

Terms & Conditions

Terms & Conditions

INSUL-8 CORPORATION

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Insul-8.

Seller agrees to repair or exchange the goods sold hereunder necessitated by reason of defective workmanship and material discovered and reported to Seller within one year after shipment of such goods to Buyer.

Except where the nature of the defect is such that it is appropriate, in Seller's judgment, to effect repairs on site. Seller's obligation hereunder to remedy defects shall be limited to repairing or replacing (at Seller's option) FOB point of original shipment by Seller, any part returned to Seller at the risk and cost of Buyer. Defective parts replaced by Seller shall become the property of Seller.

Seller shall only be obligated to make such repair or replacement of the goods have been used by Buyer only in service recommended by Seller and altered only as authorized by Seller. Seller is not responsible for defects which arise from improper installation, neglect, or improper use or from normal wear and tear.

Additionally, Seller's obligation shall be limited by the manufacturer's warranty, (and shall not further warranted by Seller) for all parts procured from others according to published data, specifications or performance information not designed by or for Seller.

Seller further agrees to replace or at Seller's option to provide a refund of the sales price of any goods that did not conform to applicable specifications or which differ from that agreed to be supplied which non-conformity is discovered and forthwith reported to Seller within thirty (30) days after shipment to Buyer. Seller's obligation to replace or refund the purchase price for non-conforming goods shall arise once Buyer returns such good FOB point of original shipment by Seller at the risk and cost of Buyer, Goods replaced by Seller shall be come property of Seller.

There is no guarantee or warranty as to anything made or sold by Seller, or any service performed, except as to title and freedom from encumbrances and, except as herein expressly stated and particularly, and without limiting the foregoing, there is no guarantee or warranty, express or implied, of merchantability or of fitness for any particular purpose or against claim of infringement or the like.

Seller makes no warranty (and assumes no liability) as to function of equipment or operation of systems built to Buyer's design or of the ability of any goods to interface, operate or function with any portions of Buyer's system not provided by Seller.

Seller's liability on any claim, whether in contract, or (including negligence), or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery, resale, repair, replacement or use of any products or services shall in no case exceed the price paid for the product or services or any part thereof which give rise to the claim. In no event shall Seller be liable for consequentially, special, incidental or other damages, nor shall Seller be liable in respect of personal injury or damage to property no the subject matter hereof unless attributable to gross misconduct of Seller, which shall mean an act of omission by Seller demonstrating reckless disregard of the foreseeable consequences thereof.

Seller is not responsible for incorrect choice of models or where products are used in excess of their rated and recommended capacities and design functions or under abnormal conditions. Seller assumes no liability for loss of time, damage or injuries to property or persons resulting from the use of Seller's products. Buyer shall hold Seller harmless from all liability, claims, suits and expenses in connection with loss or damage resulting from operation of products utilization of services, respectively, or Seller and shall defend any suit or action which might arise there from in Buyer's name - provided that Seller shall have the right to elect to defend any such suit or action for the account of Buyer. The foregoing shall be the exclusive remedies of the buyer and all persons and entitles claiming through the Buyer.

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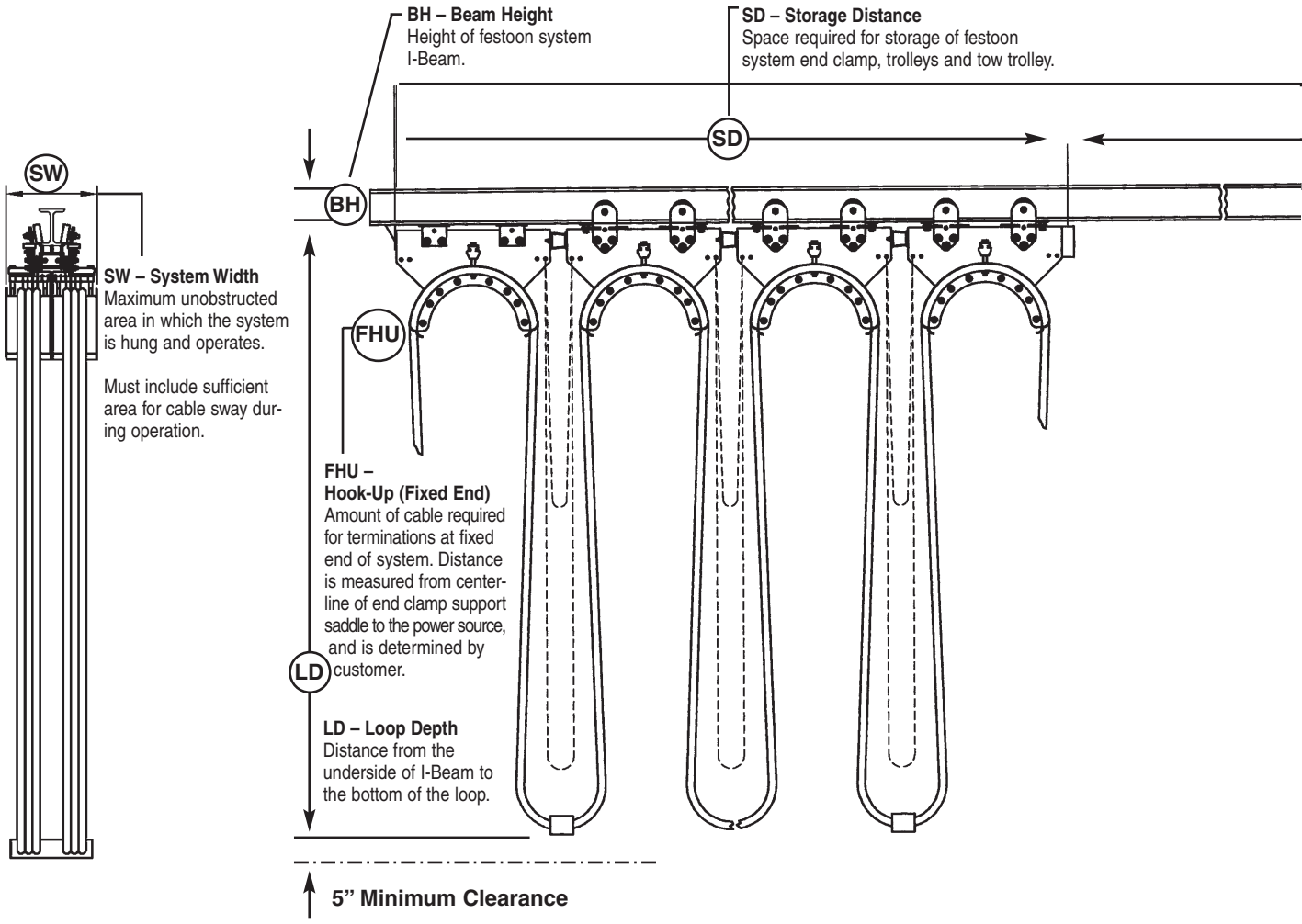
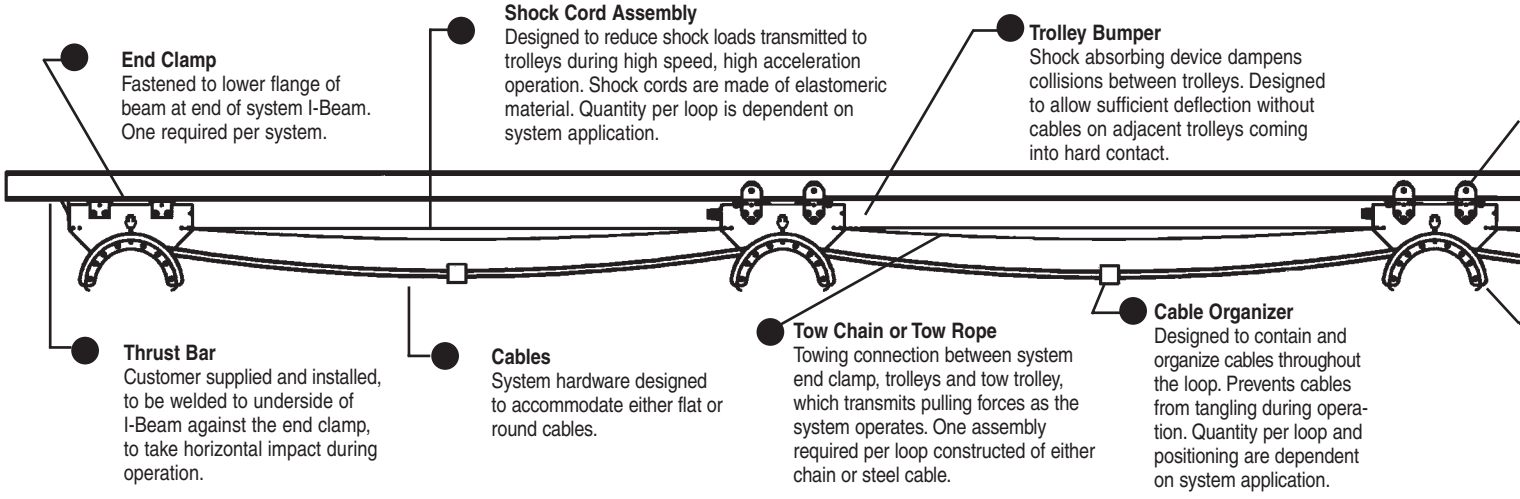
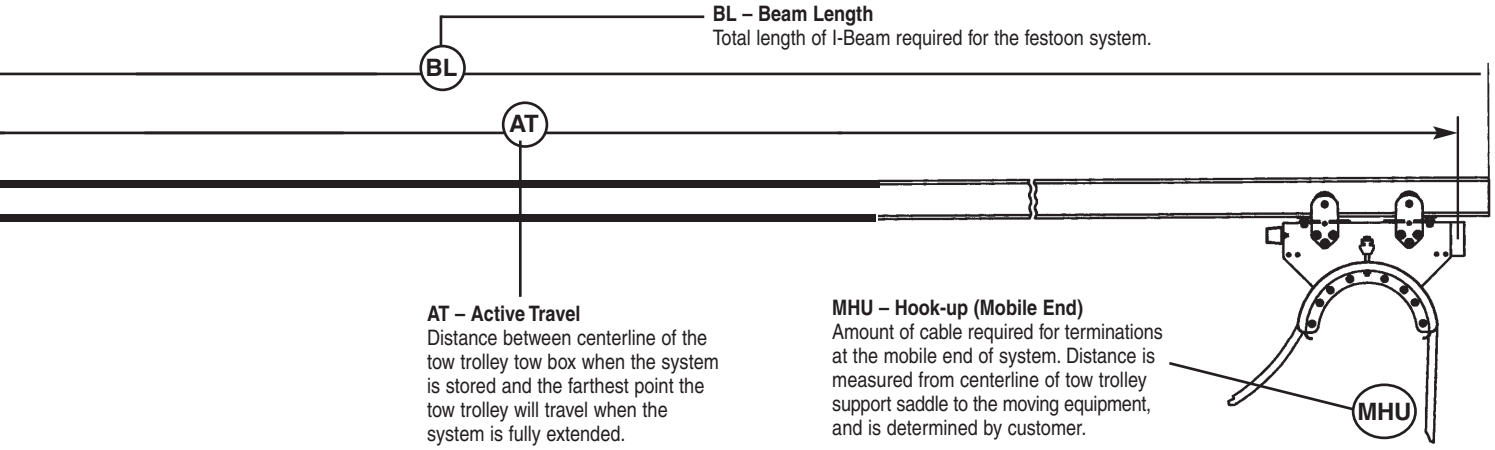
Insul-8 Heavy-Duty Festoon Systems

Terms & Definitions





Insul-8 Heavy-Duty Festoon Sytems



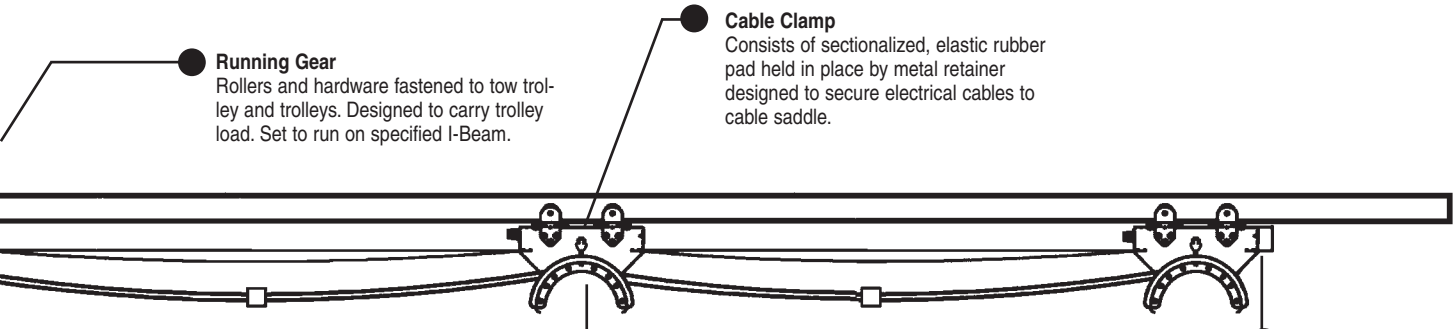
BL – Beam Length
Total length of I-Beam required for the festoon system.

AT – Active Travel
Distance between centerline of the tow trolley tow box when the system is stored and the farthest point the tow trolley will travel when the system is fully extended.

MHU – Hook-up (Mobile End)
Amount of cable required for terminations at the mobile end of system. Distance is measured from centerline of tow trolley support saddle to the moving equipment, and is determined by customer.

- Festoon systems are designed to provide electrical power and control signals from a fixed source to a moving consumer. This is accomplished by placing the electrical cables on supports (trolleys) which are free to travel in conjunction with the moving consumer.
- Insul-8's Heavy-Duty Festoon system is designed to provide the utmost protection and care for the electric cables which are the lifeblood of the system. This protection equates to longer cable life, lower maintenance costs, and lower overall operating expenses.

The layout below depicts a typical festoon system, the key components, terms and definitions.



Running Gear
Rollers and hardware fastened to tow trolley and trolleys. Designed to carry trolley load. Set to run on specified I-Beam.

Cable Clamp
Consists of sectionalized, elastic rubber pad held in place by metal retainer designed to secure electrical cables to cable saddle.

Trolley
Intermediate moving hardware that carries cable support saddle. Trolley length sized to protect cables during operation. Quantity required per system depends on application.

Cable Saddle
One piece formed steel designed to provide support for full 180° of cable loop draped over them.

Tow Trolley (With Rollers)
Functions as first moving carrier, connected to moving equipment via outrigger arm (tube) that is located centrally in the rectangular opening. One required per system.

Tow Clamp (Without Rollers)
Functions as first moving carrier, fastened to moving equipment via outrigger arm (channel iron).

System Layout: Five Basic Steps

There are five basic steps required to layout a standard festoon system. Specific information regarding each step can be found on the accompanying pages.

Step I: Application Information All pertinent information regarding the crane, its electrical requirements and duties, is required to properly size the festoon system.

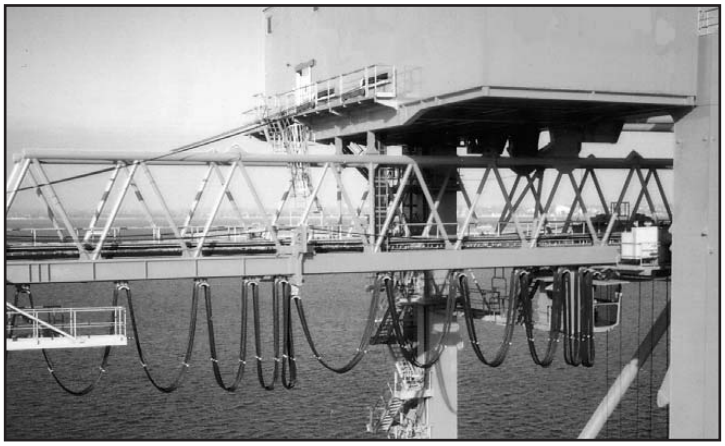
Step II: Cable Selection and Arrangement In order to satisfy the electrical requirement of the crane, the number, the size of conductors and the type of cable must be determined. Once determined, they must then be arranged in an order that is suitable for the constant work (flexing) required during operation.

Step III: Trolley Selection Method to determine a suitable trolley carrier that will not only protect the electrical cables, but also meet the physical demands of the application.

#1 Trolley selection is based on the minimum bend diameter of the cable to be festooned. Minimum allowable cable saddle diameter is 10 times the O.D. of the largest cable in the cable package. After determining cable saddle diameter, a saddle width must be specified by determining the maximum width of the cable package.

Step IV: System Calculations Required to determine the length of cables and the number of trolleys required to meet the application requirements.

Step V: System Accessories Items that may be required in order to enhance the performance of the festoon system.



Insul-8 Festoon System on a Container Crane

Closeup shot of the same crane.

Step 1: Application Information

The following information is required in order to determine and layout the proper festoon system.

Type of Equipment: _____

Crane Classification:_____ ***(Class A, B, C, etc.)***

I-Beam Size:_____

Mean Running Time per Day:_____ **Operating Speed:**_____ **ft/min**

Acceleration Rate:_____ **ft/s²** **Deceleration Rate:**_____ **ft/s²**

Environment: Indoors _____ **Outdoors**_____ **Dusty**_____ **Snow**_____ **Ice**_____

Chemicals: _____ **Concentration:**_____

Operating Temperature: Maximum: _____ **Minimum:**_____

Active Travel:_____**ft. or Crane Span:**_____ **ft.**

Storage Distance: _____**ft. or Storage Space Available:**_____ **ft.**

Loop Depth:_____**ft. Maximum Space Available:**_____ **ft.**

Cable Requirements: Flat_____ **Round**_____ **Combination**_____

Insulation: PVC:_____ **Neoprene:**_____

Flat Cables:

No. of Conductors & Size:

AWG _____ **No. of Cond.** _____ **AWG**_____ **No. of Cond.** _____
AWG _____ **No. of Cond.** _____ **AWG**_____ **No. of Cond.** _____
AWG _____ **No. of Cond.** _____ **AWG**_____ **No. of Cond.** _____

Round Cables:

No. of Conductors, Size and Type:

AWG _____ **No. of Cond.** _____ **Type** _____
AWG _____ **No. of Cond.** _____ **Type** _____
AWG _____ **No. of Cond.** _____ **Type** _____
AWG _____ **No. of Cond.** _____ **Type** _____

Enclosures Required: Fixed End_____ **Mobile End**_____ **Both**_____

If yes, NEMA Rating:_____ **Terminals Required: Yes**_____ **No**_____

Step 2: Cable Selection & Arrangement

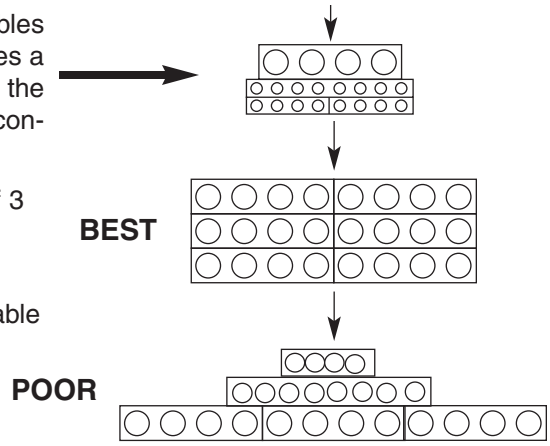
The first step in designing a festoon system begins with the electrical cables.

- ◆ Determine the number and size of conductors.
- ◆ Select the type of cable.

Either flat or round cables or a combination of the two can be selected. Generally, it is recommended to use either all round or all flat for a system. However, depending on the application and the actual combination, equipment can be selected to accommodate both types. Care should be taken when selecting round cables as some cables are not suited for the constant flexing required. Highly stranded round cables are recommended as they are designed to have the flexibility required to meet the demands of the system. The next step is to prepare a sketch on paper of how the cables are to be arranged on the support saddles. Here are some general guidelines to follow:

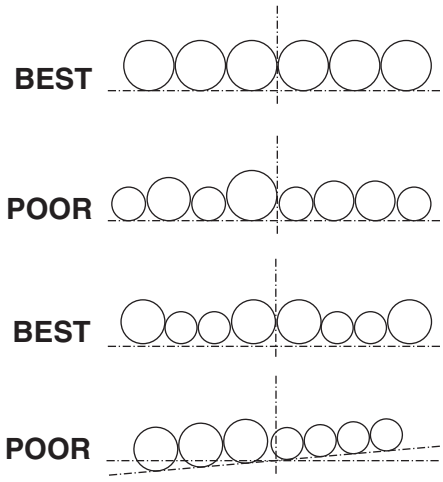
Flat Cables:

1) Cables should be arranged such that the larger conductor sized cables (power cables) are on top of the stack. *(See diagram.)* This provides a larger bending radius, as well as improving heat dissipation. Since the top cable also takes more pulling force during operation, the larger conductor placed on top is better suited to handle this force.
2) Cable packages should be arranged with a width to height ratio of 3 or 4 to 1. Tall and narrow cable stacks can be unstable during operation.
3) Cables should be arranged such that a minimum of 50% of each cable surface is under clamp pressure. *(See diagram.)*



Round Cables:

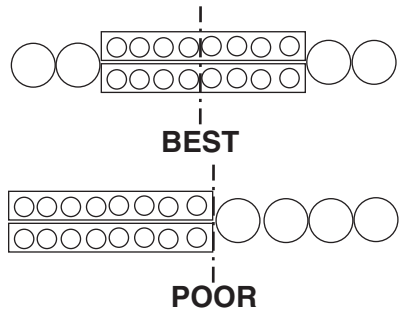
1) Cable diameter variations should be kept to a minimum. Large deviations in diameters makes clamping difficult and they may not remain secure during operation, see diagram.
2) Cables should be arranged in the following order: 1) The two largest cables are placed in the outer most positions of the support saddle. 2) The remaining cables are then arranged between these two cables, taking care to place the heaviest cables near the centerline of the trolley and the lighter cables to the outer positions, see diagram. It is recommended to distribute the cable load evenly as this is important for smooth running and longer bearing life.



Combination Flat & Round Cables:

Cable should be arranged in the following order:

1) Large round cables placed on the outer most positions of the cable saddle. Flat cables arranged between the round cables. Distribute weight evenly on both saddles. Use round cable organizers.



Don't see what you need? *Call us!*

Step 3: Trolley Selection

Trolley Selection consists of the following steps: 1) selecting the proper body size, 2) selecting the proper style of running gear, and 3) determining the proper main roller size.

1) Body size selection is determined by the cable arrangement prepared earlier, and is based primarily on the diameter of the support saddle. Saddles are designed to provide support for the full 180° loops of cable which are draped over them. This eliminates the stress on the cable at the saddle edges where the cable begins to hang straight. The rules for proper saddle diameter selection are:

   For Flat Cables:
   Cable thickness up to .316": Saddle diameter ⩾ 6.3 x Cable thickness
   Cable thickness up to .500": Saddle diameter ⩾ 8 x Cable thickness
   Cable thickness over .500": Saddle diameter ⩾ 10 x Cable thickness

   For Round Cables:
   Saddle diameter ⩾ 10 x Largest cable diameter

   For dimensional information of trolleys, tow trolleys, etc. see pages 12, 13 & 14.

2) The style of running gear to be selected depends on the application. The following are the recommended guidelines:

Running Gear	Application
Crowned Main Rollers + Horizontal Guide Rollers	✱ Indoor operation
	✱ Moderate speeds, any duty cycle
	✱ Outdoor operation if no possibility of ice on beam.
Crowned Main Rollers + Horizontal Guide Rollers + Anti-Lift Rollers	✱ All speeds and duty cycles
	✱ Use where side winds/lateral forces could cause trolley to tip.
	✱ Especially useful on multiple tier trolleys and beams with narrow flanges.
	✱ Anti-Lift rollers required on **all** Tow Trolleys.
Flanged Main Rollers	✱ Indoor operation
	✱ Moderate speeds - any duty cycle
Flanged Main Rollers + Anti-Lift Rollers	✱ Moderate speeds and any duty cycle
	✱ Use where side winds/lateral forces could cause trolley to tip.
	✱ Especially useful on multiple tier trolleys and beams with narrow flanges.
	✱ Anti-Lift rollers required on **all** Tow Trolleys.

See pages 17 thru 20 for running gear part numbers

Step 3: Trolley Selection *(continued)*

3) Proper main roller size is based on the mean operating speed of the festoon system, the running time per day and the load per trolley.

The following charts will help determine the size (diameter) of the main roller based on these factors. Please note that the standard rollers are made of hardened steel, however for special applications, rollers with polyurethane tires are also available. These are suited for applications where quiet operation is required and minimal wear of the running beam is desired.

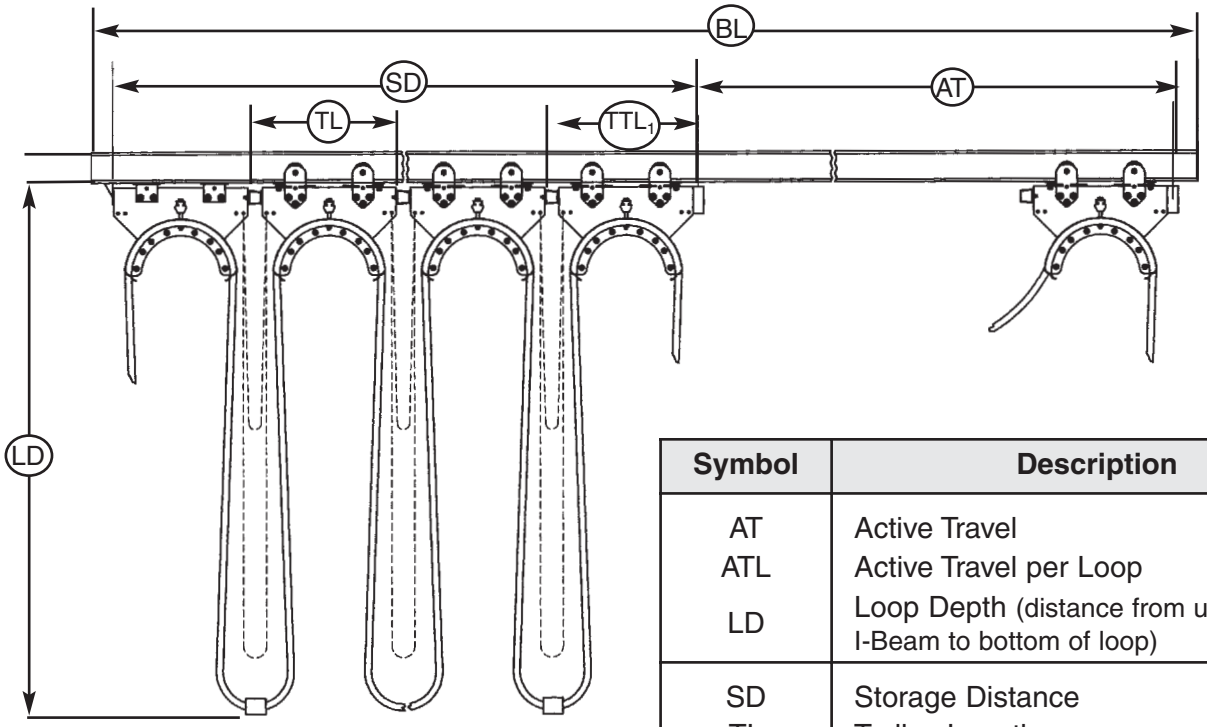
Hardened Steel						
Speed		**Mean Running Time per Day (Hours)**				
Ft. / Min.	**M / Min.**					
Up to 84	25	4 to 8	8 to 16	Over 16		
84-175	25-53	2 to 4	4 to 8	8 to 16	Over 16	
175-326	53-100	Up to 2	2 to 4	4 to 8	8 to 16	Over 16
326-660	100-201		Up to 2	2 to 4	4 to 8	8 to 16
Over 660	Over 201			Up to 2	2 to 4	4 to 8
Main Roller Diameter		**Load per Trolley Pounds (Kg)**				
Inches	**MM**					
2.5	62	450 (204)	350 (159)	275 (125)	225 (102)	175 (79)
4	100	1100 9 (500)	900 (408)	750 (340)	575 (261)	450 (204)

Polyurethane Tired						
Speed		**Mean Running Time per Day (Hours)**				
Ft. / Min.	**M / Min.**					
Up to 84	25	4 to 8	8 to 16	Over 16		
84-175	25-53	2 to 4	4 to 8	8 to 16	Over 16	
175-326	53-100	Up to 2	2 to 4	4 to 8	8 to 16	Over 16
326-660	100-201		Up to 2	2 to 4	4 to 8	8 to 16
Over 660	Over 201			Up to 2	2 to 4	4 to 8
Main Roller Diameter		**Load per Trolley Pounds (Kg)**				
Inches	**MM**					
2.5	62	315 (143)	245 (111)	190 (86)	155 (70)	120 (55)
4	100	770(350)	630 (286)	340 (155)	400 (182)	315 (143)

Steps:
1) Select system operating speed
2) Follow line to right to the column displaying appropriate running time per day
3) Follow column down to line displaying appropriate load per trolley
(approximate load = [loop depth (ft.) x 2] x total cable package weight lbs. / ft.)
4) Follow line to left to determine main roller diameter

Don't see what you need? *Call us!*

Step 4: System Calculations



Symbol	Description
AT	Active Travel
ATL	Active Travel per Loop
LD	Loop Depth (distance from underside of I-Beam to bottom of loop)
SD	Storage Distance
TL	Trolley Length
TTL_1	Tow Trolley Length (measured from bumper to center line of tow box)
SF	Cable Sag Factor
CL	Cable Required per Loop
TCL	Total Cable Length (does not include hook-up footages)
NL	Number of Loops Required

Cable Length per Loop
CL = 2 x LD

Active Travel per Loop
ATL = (CL x SF) - TL

Number of Loops
NL = AT / ATL

Total Cable Length
TCL = CL x NL

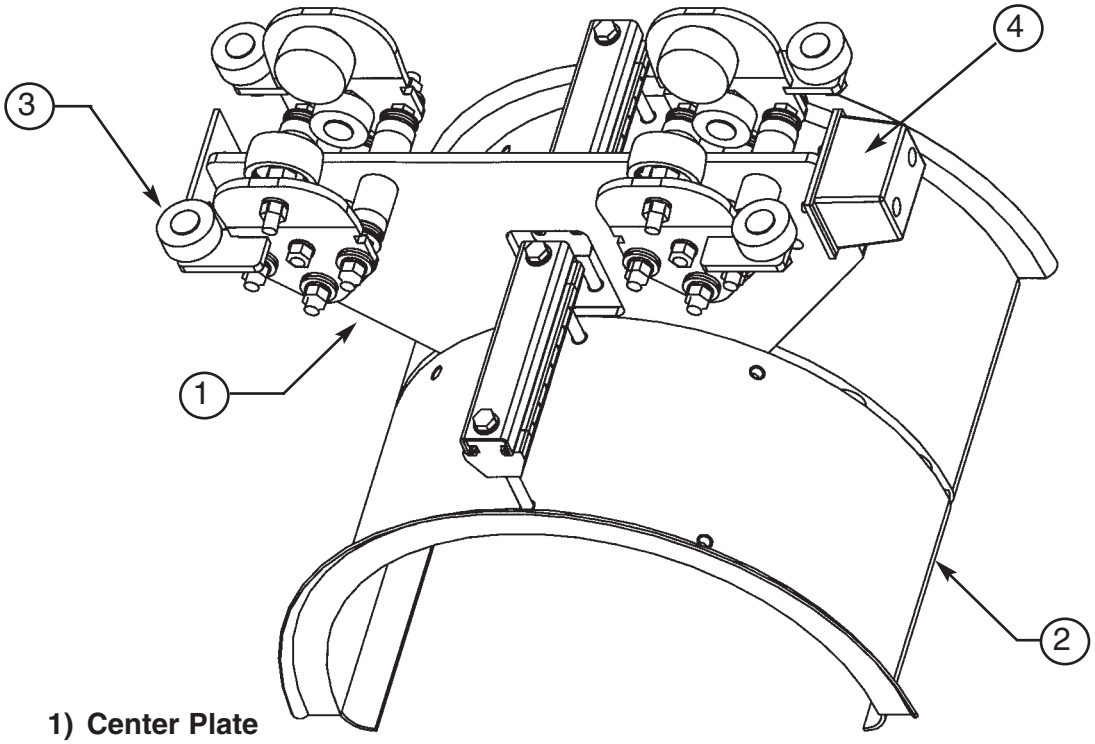
Storage Distance
SD = (NLxTL) +TTL_1

CABLE SAG FACTOR CHART

Speed Ft/min (M/min)	LOOP DEPTH -- FT. (M)					
	up to 2.5 (up to 0.76)	2.51 to 4.0 (0.77 to 1.21)	4.01 to 6.5 (1.22 to 1.98)	6.5 to 10.5 (1.99 to 3.2)	10.51 to 16.5 (3.21 to 5.03)	16.51 to 26 (5.04 to 7.9)
0-105 (0-32)	0.90	0.90	0.90	0.90	0.90	0.90
105-130 (32-40)	0.85	0.90	0.90	0.90	0.90	0.90
130-160 (40-50)	0.80	0.85	0.90	0.90	0.90	0.90
165-205 (50-63)	0.75	0.80	0.85	0.90	0.90	0.90
205-260 (63-80)		0.75*	0.80	0.85	0.90	0.90
260-330 (80-100)			0.75*	0.80	0.85	0.90
330-410 (100-125)				0.75*	0.80	0.85
410-525 (125-160)						
25-655 (160-200)						

*Shock cords are recommended. See pages 23 & 24 for details.

Trolley Conctruction/Secifications/Features



1) Center Plate

Material: 3/8" Hot Rolled Steel
Finish: Hot Dipped Galvanized

2) Saddle Assembly

Material: 12 Gauge Steel
Finish: Hot Dipped Galvanized
Features: • Formed Saddle from single piece of steel, no welds
• Saddle has rolled flanges with rounded edges, won't cut cables
• Saddles bolted to center plate with stainless steel fasteners
• Saddles available with either single or double cable clamping bar

3) Running Gear

Side Shields:
Material: 5/16" Hot Rolled Steel
Finish: Hot Dipped Galvanized
Features: • Bolted to center plate with stainless steel fasteners
• Independently removable

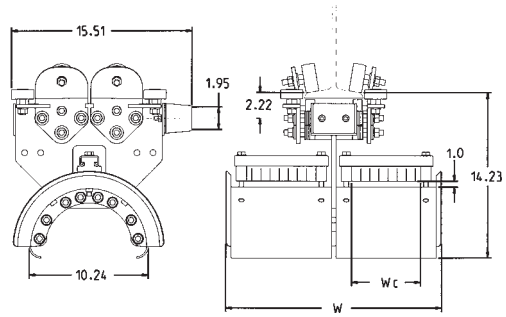
Rollers:
Material: Hardened Steel
Finish: Zinc Plated
Bearings: Permanently Sealed, Ball Bearings
Feature: Available with polyurethane tires for quiet travel and minimal beam wear

4) Bumper

Material: Neoprene Rubber
Durometer: 65-70 ShoreA
Fasteners: Stainless Steel
Feature: Large contact surface area

10” (260 mm) Saddle Diameter

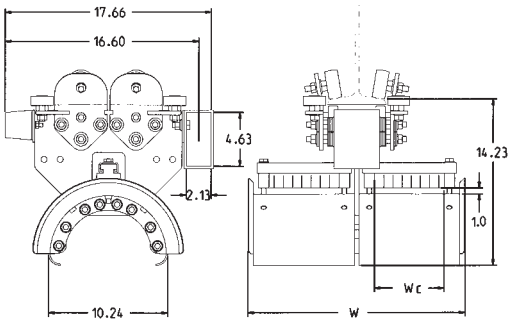
Trolley



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40500A	6.00 (152)	18.50 (470)	Single	29 (13.2)
40500B	12.63 (320)	31.75 (806)	Single	39.5 (17.9)
40505A	6.00 (152)	18.50 (470)	Double	33.2 (15.1)
40505B	12.63 (320)	31.75 (806)	Double	46.7 (21.2)

Note: Running Gear is not included. Must be ordered separately. *(See pages 17 thru 20.)*

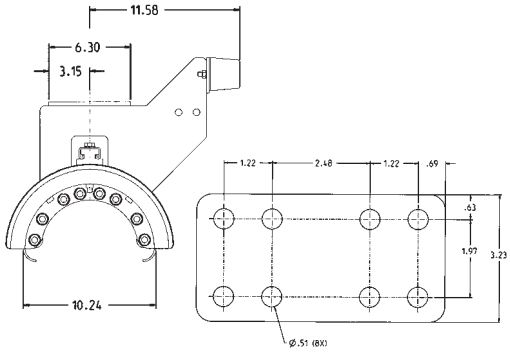
Tow Trolley



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40510A	6.00 (152)	18.50 (470)	Single	32.3 (14.6)
40510B	12.63 (320)	31.75 (806)	Single	42.8 (19.4)
40515A	6.00 (152)	18.50 (470)	Double	36.5 (16.6)
40515B	12.63 (320)	31.75 (806)	Double	50 (22.7)

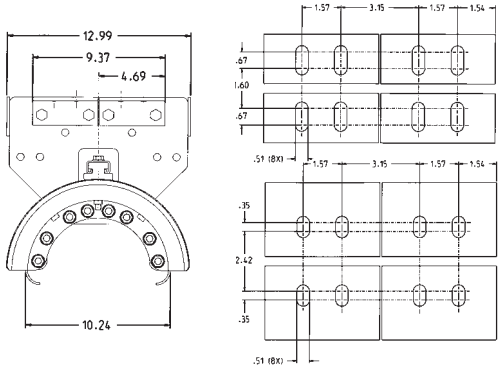
Note: Running Gear is not included. Must be ordered separately. *(See pages 17 thru 20.)*

Tow Clamp



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40520A	6.00 (152)	18.50 (470)	Single	29 (13.2)
40520B	12.63 (320)	31.75 (806)	Single	39.5 (17.9)
40525A	6.00 (152)	18.50 (470)	Double	33.2 (15.1)
40525B	12.63 (320)	31.75 (806)	Double	46.7 (21.2)

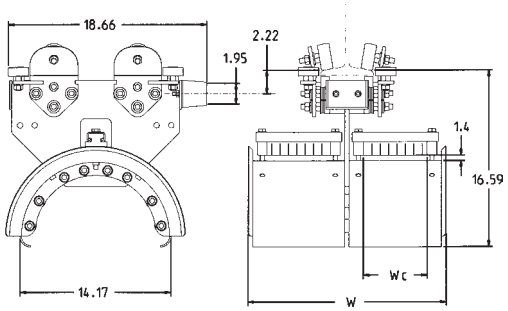
End Clamp



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40530A	6.00 (152)	18.50 (470)	Single	33.1 (15)
40530B	12.63 (320)	31.75 (806)	Single	43.6 (19.8)
40535A	6.00 (152)	18.50 (470)	Double	37.3 (16.9)
40535B	12.63 (320)	31.75 (806)	Double	50.8 (23)

14” (360 mm) Saddle Diameter

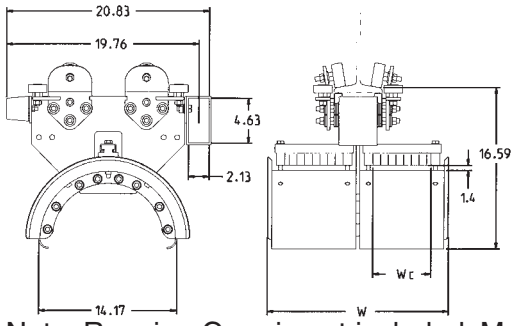
Trolley



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40501A	6.00 (152)	18.50 (470)	Single	37 (16.8)
40501B	12.63 (320)	31.75 (806)	Single	49.9 (22.6)
40506A	6.00 (152)	18.50 (470)	Double	41.3 (18.7)
40506B	12.63 (320)	31.75 (806)	Double	57.2 (26)

Note: Running Gear is not included. Must be ordered separately. *(See pages 17 thru 20.)*

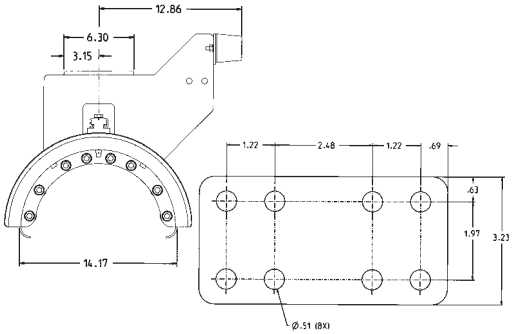
Tow Trolley



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40511A	6.00 (152)	18.50 (470)	Single	40.3 (18.3)
40511B	12.63 (320)	31.75 (806)	Single	53.2 (24.1)
40516A	6.00 (152)	18.50 (470)	Double	44.5 (20.2)
40516B	12.63 (320)	31.75 (806)	Double	60.5 (27.5)

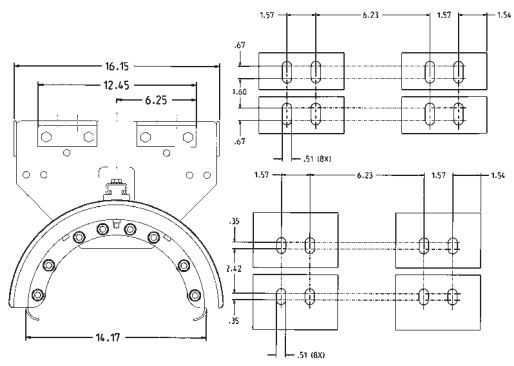
Note: Running Gear is not included. Must be ordered separately. *(See pages 17 thru 20.)*

Tow Clamp



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40521A	6.00 (152)	18.50 (470)	Single	37.9 (17.2)
40521B	12.63 (320)	31.75 (806)	Single	50.8 (23)
40526A	6.00 (152)	18.50 (470)	Double	42.2 (19.1)
40526B	12.63 (320)	31.75 (806)	Double	58.1 (26.4)

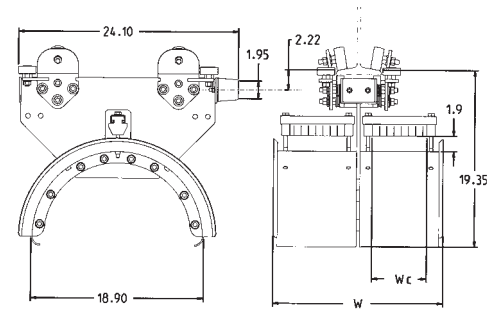
End Clamp



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40531A	6.00 (152)	18.50 (470)	Single	43.8 (19.9)
40531B	12.63 (320)	31.75 (806)	Single	55.1 (25)
40536A	6.00 (152)	18.50 (470)	Double	48 (21.8)
40536B	12.63 (320)	31.75 (806)	Double	64 (29)

19” (480 mm) Saddle Diameter

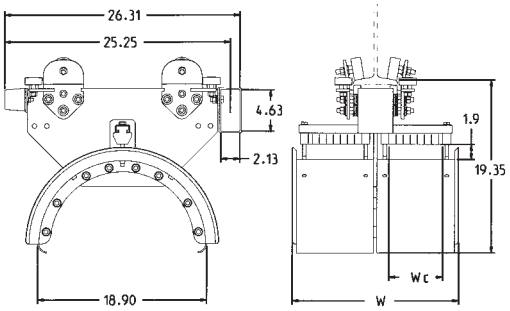
Trolley



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40502A	6.00 (152)	18.50 (470)	Single	48.8 (22.1)
40502B	12.63 (320)	31.75 (806)	Single	64.7 (29.4)
40507A	6.00 (152)	18.50 (470)	Double	53.1 (24.1)
40507B	12.63 (320)	31.75 (806)	Double	71.9 (32.6)

Note: Running Gear is not included. Must be ordered separately. *(See pages 17 thru 20.)*

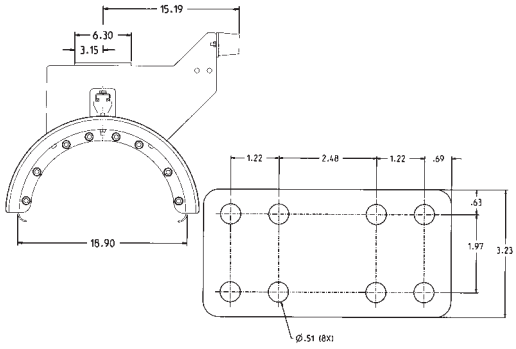
Tow Trolley



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40512A	6.00 (152)	18.50 (470)	Single	52.1 (23.6)
40512B	12.63 (320)	31.75 (806)	Single	68 (30.9)
40517A	6.00 (152)	18.50 (470)	Double	56.3 (25.5)
40517B	12.63 (320)	31.75 (806)	Double	75.2 (34.1)

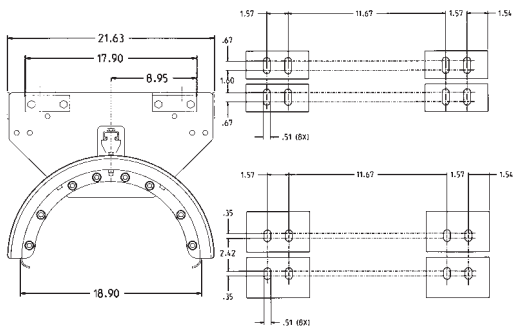
Note: Running Gear is not included. Must be ordered separately. *(See pages 17 thru 20.)*

Tow Clamp



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40522A	6.00 (152)	18.50 (470)	Single	46.4 (21)
40522B	12.63 (320)	31.75 (806)	Single	62.3 (28.3)
40527A	6.00 (152)	18.50 (470)	Double	50.7 (23)
40527B	12.63 (320)	31.75 (806)	Double	69.6 (31.6)

End Clamp



Part Number	“Wc” Inches (mm)	“W” Inches (mm)	Clamping Bar	Weight Lbs. (Kg)
40532A	6.00 (152)	18.50 (470)	Single	55.6 (25.2)
40532B	12.63 (320)	31.75 (806)	Single	71.4 (32.4)
40537A	6.00 (152)	18.50 (470)	Double	60 (27.2)
40537B	12.63 (320)	31.75 (806)	Double	78.7 (35.7)

Auxiliary Saddle

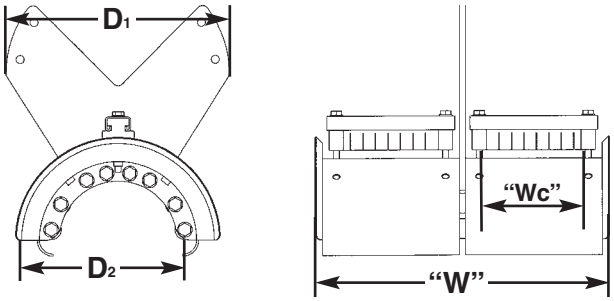
Auxiliary Saddle

In certain applications, additional saddles may be required:

a) For large cable packages unable to fit on primary saddle or

b) To separate power and control cables.

One or two additional saddles may be added, depending on the weight limit of the trolley.



Part Number	D_1 Inches (mm)	D_2 Inches (mm)	"Wc" Inches (mm)	"W" Inches (mm)	Clamping Bar	Weight Lbs. (Kg.)
40570 A	10" (260	10" (260)	6.00 (152)	18.50 (470)	Single	22.5 (10.2)
40570 B			12.63 (320)	31.75 (806)	Single	33 (15)
40715 A			6.00 (152)	18.50 (470)	Double	26.7 (12.1)
40715 B			12.63 (320)	31.75 (806)	Double	40.2 (18.3)
40571 A	14" (360)	10" (260)	6.00 (152)	18.50 (470)	Single	28 (12.7)
40571 B			12.63 (320)	31.75 (806)	Single	38.5 (17.5)
40717 A			6.00 (152)	18.50 (470)	Double	32.3 (14.6)
40717 B			12.63 (320)	31.75 (806)	Double	45.7 (20.7)
40572 A	19" (480)	10" (260)	6.00 (152)	18.50 (470)	Single	28.2 (12.8)
40572 B			12.63 (320)	31.75 (806)	Single	38.6 (17.5)
40718 A			6.00 (152)	18.50 (470)	Double	32.3 (14.6)
40718 B			12.63 (320)	31.75 (806)	Double	45.8 (20.8)
40573 A	14" (360)	14" (360)	6.00 (152)	18.50 (470)	Single	31 (14.1)
40573 B			12.63 (320)	31.75 (806)	Single	42.4 (19.2)
40719 A			6.00 (152)	18.50 (470)	Double	35.3 (16)
40719 B			12.63 (320)	31.75 (806)	Double	51.2 (23.2)
40574 A	19" (480)	10" (260)	6.00 (152)	18.50 (470)	Single	33.5 (15.2)
40574 B			12.63 (320)	31.75 (806)	Single	46.4 (21)
40720 A			6.00 (152)	18.50 (470)	Double	37.8 (17.1)
40720 B			12.63 (320)	31.75 (806)	Double	53.7 (24.4)
40575 A	19" (480)	19" (480)	6.00 (152)	18.50 (470)	Single	43.6 (19.8)
40575 B			12.63 (320)	31.75 (806)	Single	59.4 (27)
40721 A			6.00 (152)	18.50 (470)	Double	47.8 (21.7)
40721 B			12.63 (320)	31.75 (806)	Double	66.7 (30.3)

Notes: 1) Auxiliary support saddles are normally selected and ordered with initial order. However, they can be ordered separately for installation to existing systems if required.

2) Certain configurations may require bumper extensions, see page 16 for details.

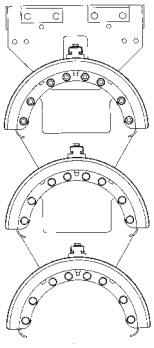
Don't see what you need? *Call us!*

Bumper Extensions

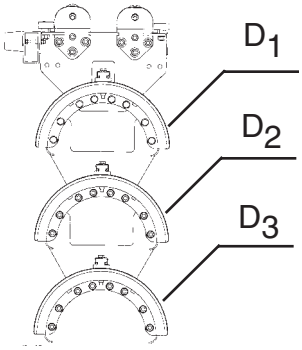
In some configurations, multi-tier trolleys must use bumper extensions to ensure cables on adjacent trolleys do not come into hard contact with one another during operation.

The chart below indicates which multi-tier trolleys require bumper extensions.

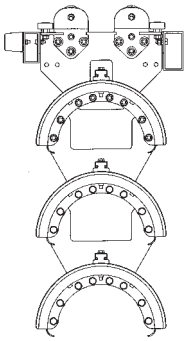
End Clamp



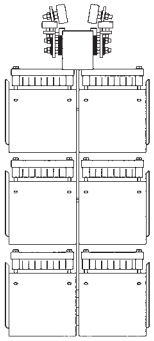
Trolley

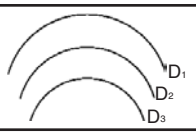
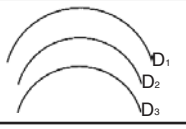
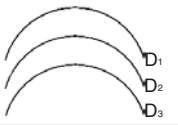


Tow Trolley



Side View

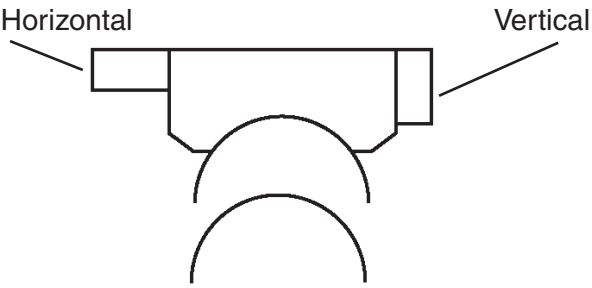


Saddle Arrangement	D_1	D_2	D_3	Bumper Extension/ Mounting
	480	360	--	- / -
	480	260	--	- / -
	360	260	--	- / -
	480	480	--	Vertical / Vertical
	360	360	--	Horizontal / -
	260	260	--	- / -
	480	360	260	- / -
	480	360	360	Vertical / -
	480	260	260	- / -
	360	260	260	Vertical / -
	480	480	480	(2) Vertical / (2) Vertical
	360	360	360	Horizontal / Horizontal
	260	260	260	Vrtical / -

The Insul-8 **Bumper Extension Kit** ***(Part No. 40576)*** may be mounted vertically and/or horizontally to add clearance for cables.

Each kit consists of one extension and mounting hardware. Order one kit per trolley and one additional kit for the tow trolley or tow clamp.

Mounting Orientation

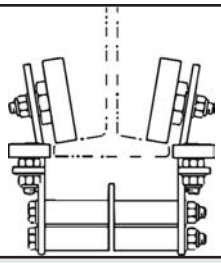
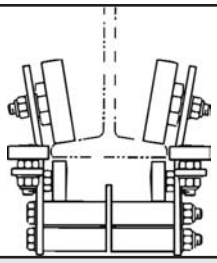


Running Gear for S Beams

Steel Main Rollers, Crowned

Running Gear

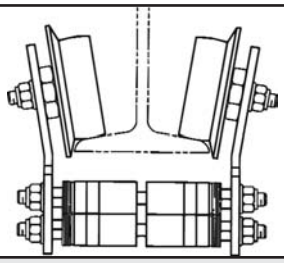
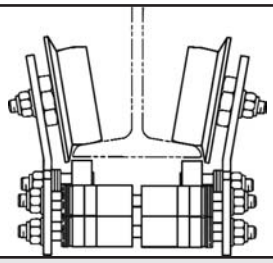
- Consists of (4) side shields with appropriate rollers, galvanized steel spacers and stainless steel fasteners.
- Main rollers: *hardened steel, zinc plated with permanently sealed precision ball bearings.*
- Horizontal guide and anti-lift rollers: *zinc plated, sealed ball bearings.*
- Operating temperatures: -22° F to 220° F.
- Running gear designed for independent side shield removal.

				
	With Horizontal Guide Rollers		**With Horizontal Guide & Anti-Lift Rollers**	
Main Roller Diameter In. (mm)	2.5” (62)	4” (100)	2.5” (62)	4” (100)
Maximum Load Lbs. (Kg)	450 (204)	1100 (500)	450 (204)	1100 (500)
Part Number	40546	40548	40551	40553
Weight Lbs. (Kg)	24.8 (11.2)	36.1 (16.4)	27.3 (12.4)	38.5 (17.5)

Steel Main Rollers, Crowned

Running Gear

- Consists of (4) side shields with appropriate rollers, galvanized steel spacers and stainless steel fasteners.
- Main rollers: *hardened steel, zinc plated with permanently sealed precision ball bearings.*
- Anti-lift rollers: *zinc plated, sealed ball bearings.*
- Operating temperatures: -22° F to 220° F.
- Running gear designed for independent side shield removal.

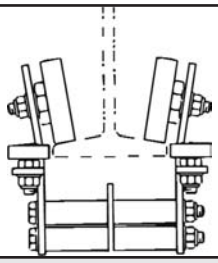
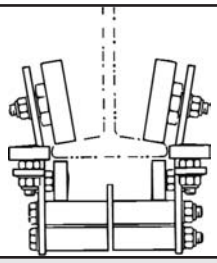
				
	Without Anti-Lift Rollers		**With Anti-Lift Rollers**	
Main Roller Diameter In. (mm)	2.5” (62)	4” (100)	2.5” (62)	4” (100)
Maximum Load Lbs. (Kg)	450 (204)	1100 (500)	450 (204)	1100 (500)
Part Number	40677	40678	40679	40680
Weight Lbs. (Kg)	24.8 (11.2)	36.1 (16.4)	27.3 (12.4)	38.5 (17.5)

Running Gear for S Beams

Steel Main Rollers, Polyurethane Tire

Running Gear

- Consists of (4) side shields with appropriate rollers, galvanized steel spacers and stainless steel fasteners.
- Main rollers: *steel hub, zinc plated with permanently sealed precision ball bearings.*
- Horizontal guide and anti-lift rollers: *zinc plated steel with sealed ball bearings.*
- Operating temperatures: -22° F to 220° F.
- Running gear designed for independent side shield removal.

				
	With Horizontal Guide Rollers		**With Horizontal Guide & Anti-Lift Rollers**	
Main Roller Diameter In. (mm)	2.5” (62)	4” (100)	2.5” (62)	4” (100)
Maximum Load Lbs. (Kg)	315 (143)	770 (350)	315 (143)	770 (350)
Part Number	40547	40549	40552	40554
Weight Lbs. (Kg)	23.3 (10.6)	31.3 (14.2)	24.4 (11.1)	33.7 (15.3)

Ordering Instructions

How To Order Running Gear:

Running gear is assembled to the trolleys and tow trolleys at the factory. They are set to the nominal dimension of the I-beam of choice.

- Choose the appropriate running gear type and roller diameter.
- Add the corresponding suffix of the beam size to the base running gear number.

Example: 40551E = *Running gear with 2.5" dia. steel main roller with horizontal guide and anti-lift rollers set for S5x10.0 I-beam.*

Beam Size	Part Number Suffix
S4 x 7.7	C*
S4 x 9.5	D*
S5 x 10.0	E
S5 x 14.75	F
S6 x 12.5	G
S6 x 17.25	H
S7 x 15.3	J
S7 x 20.0	K

Beam Size	Part Number Suffix
S8 x 18.4	L
S8 x 23.0	M
S10 x 25.4	N
S10 x 35.0	P
S12 x 31.8	Q
S12 x 35.0	R
S15 x 42.9	U
S15 x 50.0	V

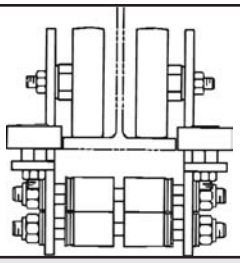
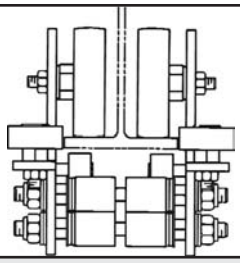
* **NOTE: Suffix code C & D are not applicable for running gear with 4" dia. Main Roller.**

Running Gear for W Beams

Steel Main Rollers, Crowned

Running Gear

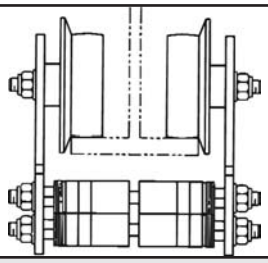
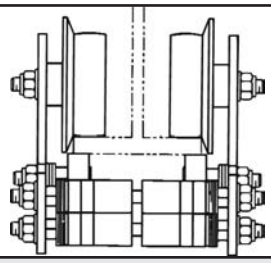
- Consists of (4) side shields with appropriate rollers, galvanized steel spacers and stainless steel fasteners.
- Main rollers: *hardened steel, zinc plated with permanently sealed precision ball bearings.*
- Horizontal guide and anti-lift rollers: *zinc plated, sealed ball bearings.*
- Operating temperatures: -22° F to 220° F.
- Running gear designed for independent side shield removal.

				
	With Horizontal Guide Rollers		**With Horizontal Guide & Anti-Lift Rollers**	
Main Roller Diameter In. (mm)	2.5” (62)	4” (100)	2.5” (62)	4” (100)
Maximum Load Lbs. (Kg)	450 (204)	1100 (500)	450 (204)	1100 (500)
Part Number	40556	40558	40560	40562
Weight Lbs. (Kg)	24.8 (11.2)	36.1 (16.4)	27.3 (12.4)	38.5 (17.5)

Steel Main Rollers, Flanged

Running Gear

- Consists of (4) side shields with appropriate rollers, galvanized steel spacers and stainless steel fasteners.
- Main rollers: *hardened steel, zinc plated with permanently sealed precision ball bearings.*
- Anti-lift rollers: *zinc plated, sealed ball bearings.*
- Operating temperatures: -22° F to 220° F.
- Running gear designed for independent side shield removal.

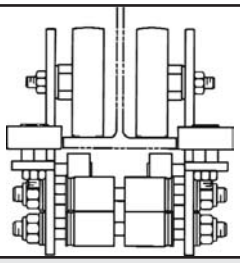
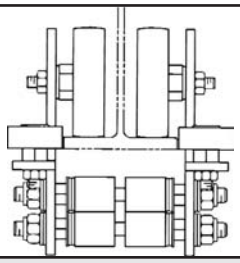
				
	Without Anti-Lift Rollers		**With Anti-Lift Rollers**	
Main Roller Diameter In. (mm)	2.5” (62)	4” (100)	2.5” (62)	4” (100)
Maximum Load Lbs. (Kg)	450 (204)	1100 (500)	450 (204)	1100 (500)
Part Number	40670	40672	40674	40676
Weight Lbs. (Kg)	23 (10.4)	33.8 (15.3)	24 (10.9)	36.2 (16.4)

Running Gear for W Beams

Steel Main Rollers, Polyurethane Tire

Running Gear

- Consists of (4) side shields with appropriate rollers, galvanized steel spacers and stainless steel fasteners.
- Main rollers: *steel hub, zinc plated with permanently sealed precision ball bearings.*
- Horizontal guide and anti-lift rollers: *zinc plated steel with sealed ball bearings.*
- Operating temperatures: -22° F to 220° F.
- Running gear designed for independent side shield removal.

				
	With Horizontal Guide Rollers		**With Horizontal Guide & Anti-Lift Rollers**	
Main Roller Diameter In. (mm)	2.5” (62)	4” (100)	2.5” (62)	4” (100)
Maximum Load Lbs. (Kg)	315 (143)	770 (350)	315 (143)	770 (350)
Part Number	40547	40549	40552	40554
Weight Lbs. (Kg)	23.3 (10.6)	31.3 (14.2)	24.4 (11.1)	33.7 (15.3)

Ordering Instructions

How To Order Running Gear:

Running gear is assembled to the trolleys and tow trolleys at the factory. They are set to the nominal dimension of the I-beam of choice.

- Choose the appropriate running gear type and roller diameter.
- Add the corresponding suffix of the beam size to the base running gear number.

Example: 40560E = *Running gear with 2.5" dia. steel main roller with horizontal guide and anti-lift rollers set for W6 x 12 I-beam.*

Beam Size	Part Number Suffix
W4 x 13	A*
W5 x 16	B
W5 x 19	C
W6 x 9	D
W6 x 12	E
W6 x 16	G
W8 x 10	L
W8 x 13	L

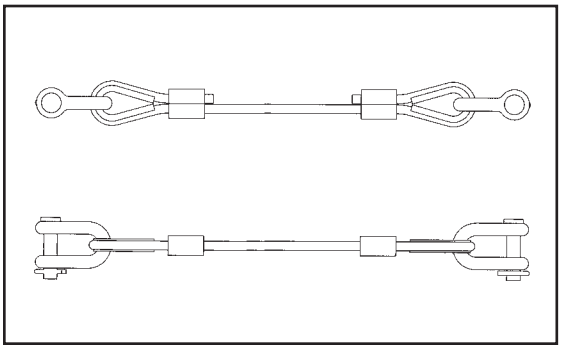
Beam Size	Part Number Suffix
W8 x 15	M
W8 x 18	N
W8 x 21	P

* **NOTE: Suffix code C & D are not applicable for running gear with 4" dia. Main Roller.**

Step 5: Accessories / Tow Rope Assemblies

The use of tow rope or tow chain assemblies are recommended for applications where:

- Travel speed is greater than 150 FPM (45m/min)
- Acceleration is greater than 1 ft/s^2 (0.3m/s^2)

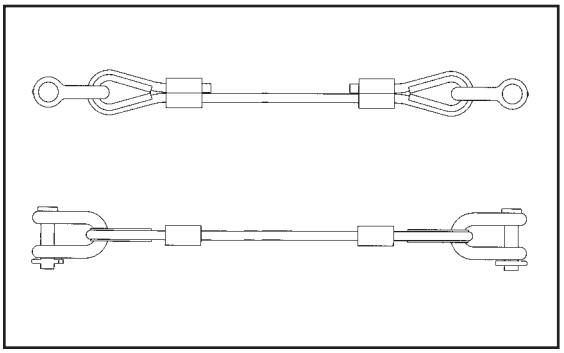


ROPE:
- Vinyl coated 7x19 galvanized steel aircraft cable 1/4" dia. (6mm)
- Overall diameter 5/16" (8mm)
- Working load: 2,800 lbs.

HARDWARE:
- Thimble galvanized steel
- Aluminum ferrule
- 7/16" galvanized steel shackle w/ roll pin

Part No.	Length Range	
	Feet	Meters
40580 A-A	up to 6.00	up to 1.82
40580 A-B	6.01 to 9.00	1.83 to 2.74
40580 A-C	9.01 to 12.00	2.75 to 3.65
40580 A-D	12.01 to 15.00	3.66 to 4.57
40580 A-E	15.01 to 18.00	4.58 to 5.48
40580 A-F	18.01 to 21.00	5.49 to 6.40

Part No.	Length Range	
	Feet	Meters
40580 A-G	21.01 to 24.00	6.41 to 7.31
40580 A-H	24.01 to 27.00	7.32 to 8.23
40580 A-J	27.01 to 30.00	8.24 to 9.14
40580 A-K	30.01 to 33.00	9.15 to 10.06
40580 A-L	33.01 to 36.00	10.07 to 10.97
40580 A-M	36.01 to 39.00	10.98 to 11.89



ROPE:
- Vinyl coated 7x19 galvanized steel aircraft cable 5/16" dia. (8mm)
- Overall diameter 3/8" (10mm)
- Working load: 3,900 lbs.

HARDWARE:
- Thimble galvanized steel
- Aluminum ferrule
- 7/16" galvanized steel shackle w/ roll pin

Part No.	Length Range	
	Feet	Meters
40580 B-A	up to 6.00	up to 1.82
40580 B-B	6.01 to 9.00	1.83 to 2.74
40580 B-C	9.01 to 12.00	2.75 to 3.65
40580 B-D	12.01 to 15.00	3.66 to 4.57
40580 B-E	15.01 to 18.00	4.58 to 5.48
40580 B-F	18.01 to 21.00	5.49 to 6.40

Part No.	Length Range	
	Feet	Meters
40580 B-G	21.01 to 24.00	6.41 to 7.31
40580 B-H	24.01 to 27.00	7.32 to 8.23
40580 B-J	27.01 to 30.00	8.24 to 9.14
40580 B-K	30.01 to 33.00	9.15 to 10.06
40580 B-L	33.01 to 36.00	10.07 to 10.97
40580 B-M	36.01 to 39.00	10.98 to 11.89

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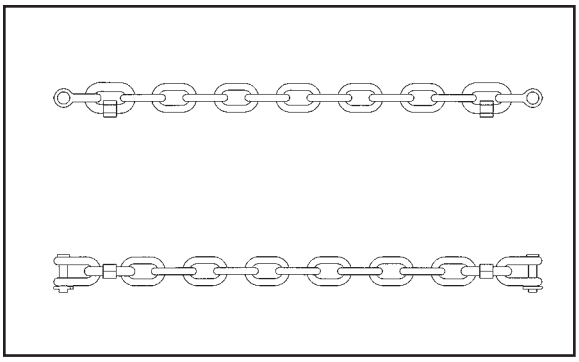
Tow Chain Assembly



CHAIN:
- ◆ 0.25" Galvanized steel, grade 30 proof coil
- ◆ Working load: 1,250 lbs.
- ◆ Weight: 0.675 lbs. / ft.
- ◆ Travel speeds less than 150 FPM

HARDWARE:
- ◆ 0.43" Galvanized steel shackle with roll-pin
- ◆ Weight: 0.38 lbs. each

Part No.	Length Range	
	Feet	Meters
40580 C-A	up to 6.00	up to 1.82
40580 C-B	6.01 to 9.00	1.83 to 2.74
40580 C-C	9.01 to 12.00	2.75 to 3.65
40580 C-D	12.01 to 15.00	3.66 to 4.57
40580 C-E	15.01 to 18.00	4.58 to 5.48
40580 C-F	18.01 to 21.00	5.49 to 6.40

Part No.	Length Range	
	Feet	Meters
40580 C-G	21.01 to 24.00	6.41 to 7.31
40580 C-H	24.01 to 27.00	7.32 to 8.23
40580 C-J	27.01 to 30.00	8.24 to 9.14
40580 C-K	30.01 to 33.00	9.15 to 10.06
40580 C-L	33.01 to 36.00	10.07 to 10.97
40580 C-M	36.01 to 39.00	10.98 to 11.89

Length Calculation

Tow Rope / Tow Chain Length
***TRL** = (**ATL + 4.25") x 1.05

****TRL** = Tow Rope/Tow Chain Length ***ATL** = Active Travel Per Loop*

Ordering Instructions

How To Order Tow Rope / Tow Chain:
- Calculate length using the above formula.
- Using charts on pages 20 & 21, locate the appropriate length range in order to determine the proper part number.
- When ordering, specify the part number and the calculated length.

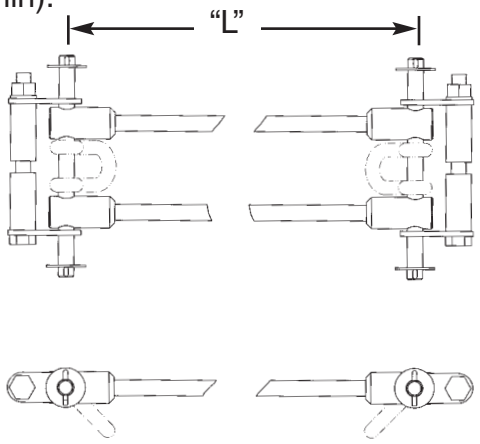
Example: Calculated tow rope length of 13.75 feet.
5/16" diameter tow rope assembly has been chosen.
To order specify: **40580A-D @ 13.75 feet long**.

Accessories

Shock Cord Assembly (with Two Ropes or Four Ropes)

The use of shock cord assemblies are recommended for applications where:

- ◆ Travel speed is greater than 300 FPM (100m/min).
- ◆ Acceleration is greater than 2 ft/s² (0.6m/s²).



Shock Cord Assembly with Two Ropes

MATERIAL:

Jacket:	Polypropylene
Cord:	Natural Rubber
Fittings:	Steel, Zinc-Plated
Hardware:	Stainless Steel

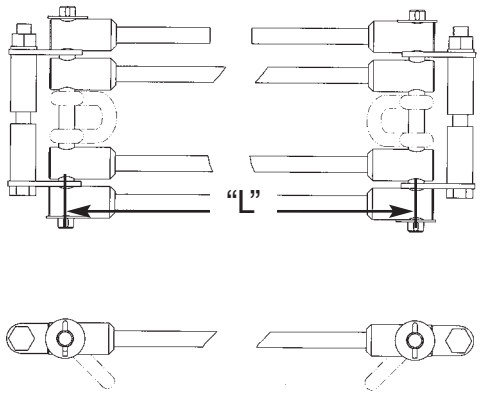
Part No.		Length Range "L"	
0.5" Dia.	.62" Dia	Feet	Meters
40590A-A	40607 A-A	up to 2.50	up to 0.76
40590 A-B	40607 A-B	2.51 to 4.50	0.76 to 1.37
40590 A-C	40607 A-C	4.51 to 6.50	1.38 to 1.98
40590 A-D	40607 A-D	6.51 to 8.50	1.99 to 2.59
40590 A-E	40607 A-E	8.51 to 10.50	2.60 to 3.20
40590 A-F	40607 A-F	10.51 to 12.50	3.21 to 3.81

Part No.		Length Range "L"	
0.5" Dia.	.62" Dia	Feet	Meters
40590A-G	40607 A-G	12.51 to 14.50	3.82 to 4.42
40590 A-H	40607 A-H	14.51 to 16.50	4.43 to 5.03
40590 A-J	40607 A-J	16.51 to 18.50	5.04 to 5.64
40590 A-K	40607 A-K	18.51 to 20.50	5.65 to 6.25
40590 A-L	40607 A-L	20.51 to 22.50	6.26 to 6.85
40590 A-M	40607 A-M	22.51 to 24.50	6.86 to 7.47

Shock Cord Assembly with Four Ropes

MATERIAL:

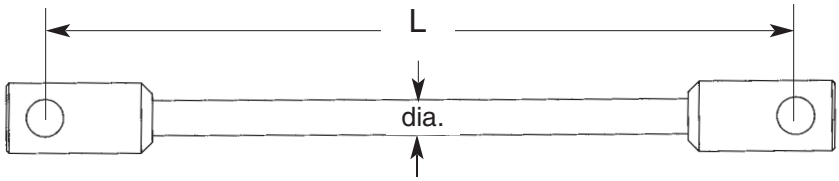
Jacket:	Polypropylene
Cord:	Natural Rubber
Fittings:	Steel, Zinc-Plated
Hardware:	Stainless Steel



Part No.		Length Range "L"	
0.5" Dia.	.62" Dia	Feet	Meters
40590B-A	40607 B-A	up to 2.50	up to 0.76
40590 B-B	40607 B-B	2.51 to 4.50	0.76 to 1.37
40590 B-C	40607 B-C	4.51 to 6.50	1.38 to 1.98
40590 B-D	40607 B-D	6.51 to 8.50	1.99 to 2.59
40590 B-E	40607 B-E	8.51 to 10.50	2.60 to 3.20
40590 B-F	40607 B-F	10.51 to 12.50	3.21 to 3.81

Part No.		Length Range "L"	
0.5" Dia.	.62" Dia	Feet	Meters
40590B-G	40607 B-G	12.51 to 14.50	3.82 to 4.42
40590 B-H	40607 B-H	14.51 to 16.50	4.43 to 5.03
40590 B-J	40607 B-J	16.51 to 18.50	5.04 to 5.64
40590 B-K	40607 B-K	18.51 to 20.50	5.65 to 6.25
40590 B-L	40607 B-L	20.51 to 22.50	6.26 to 6.85
40590 B-M	40607 B-M	22.51 to 24.50	6.86 to 7.47

Replacement Shock Cords



0.5" DIA

Part No.	Length Range	
	Feet	Meters
40656-A	up to 2.50	up to 0.76
40656-B	2.51 to 4.50	0.76 to 1.37
40656-C	4.51 to 6.50	1.38 to 1.98
40656-D	6.51 to 8.50	1.99 to 2.59
40656-E	8.51 to 10.50	2.60 to 3.20
40656-F	10.51 to 12.50	3.21 to 3.81

Part No.	Length Range	
	Feet	Meters
40656-G	12.51 to 14.50	3.82 to 4.42
40656-H	14.51 to 16.50	4.43 to 5.03
40656-J	16.51 to 18.50	5.04 to 5.64
40656-K	18.51 to 20.50	5.65 to 6.25
40656-L	20.51 to 22.50	6.26 to 6.85
40656-M	22.51 to 24.50	6.86 to 7.47

0.62" DIA

Part No.	Length Range	
	Feet	Meters
40657-A	up to 2.50	up to 0.76
40657-B	2.51 to 4.50	0.76 to 1.37
40657-C	4.51 to 6.50	1.38 to 1.98
40657-D	6.51 to 8.50	1.99 to 2.59
40657-E	8.51 to 10.50	2.60 to 3.20
40657-F	10.51 to 12.50	3.21 to 3.81

Part No.	Length Range	
	Feet	Meters
40657-G	12.51 to 14.50	3.82 to 4.42
40657-H	14.51 to 16.50	4.43 to 5.03
40657-J	16.51 to 18.50	5.04 to 5.64
40657-K	18.51 to 20.50	5.65 to 6.25
40657-L	20.51 to 22.50	6.26 to 6.85
40657-M	22.51 to 24.50	6.86 to 7.47

Length Calculation

Shock Cord Length
***SCL** = **TRL x 0.70

***SCL** = Shock Cord Length **TRL** = Tow Rope/Tow Chain Length*

Ordering Instructions

How To Order Shock Cord:

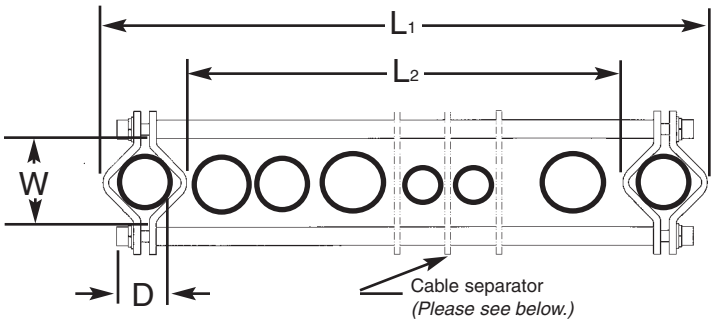
- Calculate length using the above formula.
- Using charts on pages 22 & 23, locate the appropriate length range in order to determine the proper part number.
- When ordering, specify the part number and the calculated length.

Example: Calculated shock cord length of 7.7 feet.
1/2" diameter shock cord assembly has been chosen.
To order specify: **40590A-D @ 7.7 feet long**.

Accessories

Round Cable Organizers

Recommended for systems in order to prevent the cables within the loops from becoming tangled or caught during operation. Depending on the application, either one or two per loop may be required. Consult factory for further information.



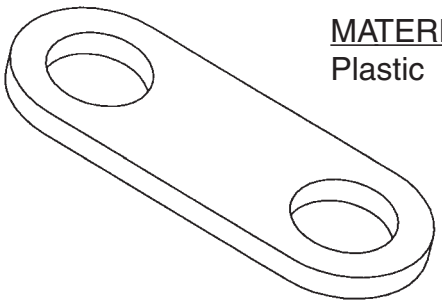
MATERIAL:
Clamps: Steel, Zinc-Plated
Rods: Stainless Steel
Hardware: Stainless Steel

Part Number	"D" Cable Dia. Range		L_1		L_2		W		Weight	
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Lbs.	Kg.
40600A	up to .75	up to 20	15.2	385	13.1	332	1.3	34	4.1	1.9
40600B	up to .75	up to 20	28.5	725	26.5	672	1.3	34	5.6	2.6
40600C	.75 - 1.00	20 - 26	15.5	394	12.8	324	1.7	42	4.3	1.9
40600D	.75 - 1.00	20 - 26	28.9	734	26.1	664	1.7	42	5.8	2.6
40600E	1.00 - 1.22	26 - 31	15.8	402	12.4	315	2.0	51	4.4	2.0
40600F	1.00 - 1.22	26 - 31	29.2	742	25.8	655	2.0	51	5.9	2.7
40600G	1.22 - 1.42	31 - 36	16.1	409	12.1	308	2.1	53	4.5	2.1
40600H	1.22 - 1.42	31 - 36	29.5	749	25.5	648	2.1	53	6.0	2.7
40600J	1.42 - 1.65	36 - 42	16.4	416	11.9	301	2.4	60	4.6	2.1
40600K	1.42 - 1.65	36 - 42	29.8	756	25.2	641	2.4	60	6.2	2.8
40600L	1.65 - 1.89	42 - 48	16.7	425	11.5	292	2.7	69	4.8	2.2
40600M	1.65 - 1.89	42 - 48	30.1	765	24.9	632	2.7	69	6.3	2.9

Cable Separators

To be used with round cable organizers listed above. If the sum of the diameters of two adjacent cables within the loop is equal to or less than the dimension "W", a cable separator must be installed to prevent cables from becoming tangled within the loop.

Part Number	Ref Organizer Part Number
40608 A	40600 A & B
40608 B	40600 C & D
40608 C	40600 E & F
40608 D	40600 G & H
40608 E	40600 J & K
40608 F	40600 L & M



MATERIAL:
Plastic

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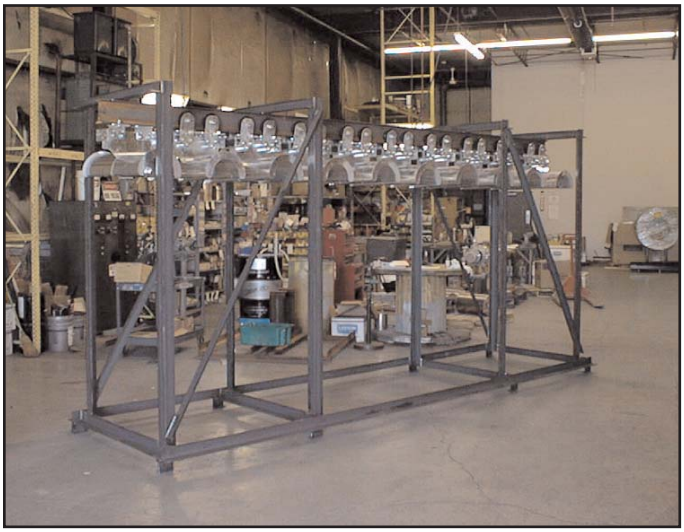
Pre-Assembly Option

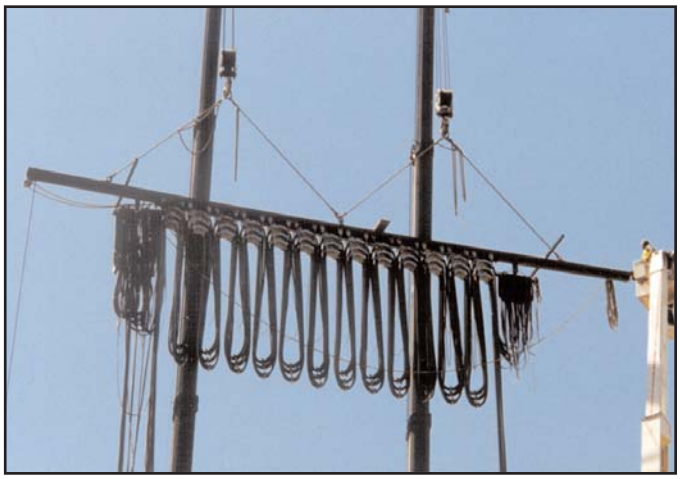
Insul-8 offers complete factory pre-assembled systems carefully assembled by experienced personnel working under ideal conditions. Pre-assembly reduces potential field problems as well as installation time and expenses. Systems are assembled and shipped on steel shipping frames designed for safe and easy transfer to the main system I-Beam. Please contact the factory for more details.



System awaiting electrical cable installation.

Completed system ready for shipment.
Note that all portions of the festoon system are protected by the shipping frame.

Completed system prepared for a ship-unloader installation.
Shipping systems by flatbed trailer facilitates unloading and hoisting of system into position during installation.



Pre-Assembled system on crane being installed.
Pre-assembled systems install easily and decrease downtime when it really counts.

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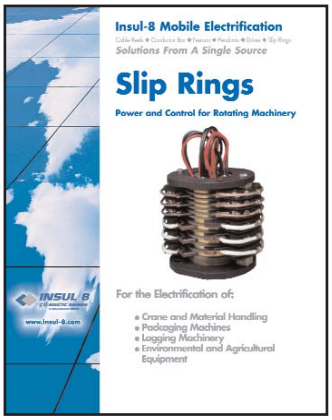
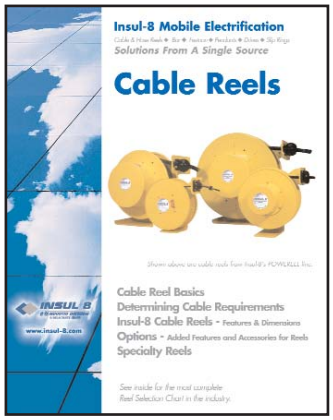
PENDANTS & RADIO CONTROLS

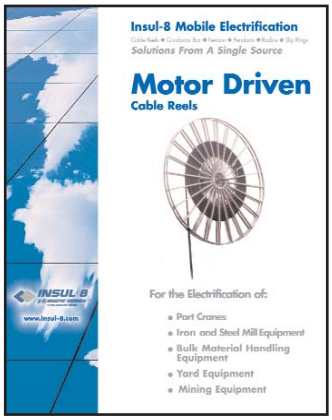


SLIP RINGS



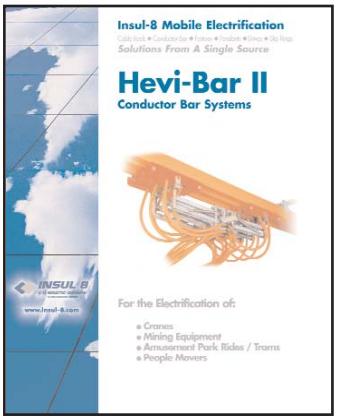
CABLE REELS

CONDUCTOR BAR



MOTOR DRIVEN REELS

Distributed By:



CONDUCTOR BAR

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