

Standard C-Track Festoon

Instruction Manual



MAGNETEK
UNCOMMON POWER

Electromotive Systems

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Part Number: 000-3300

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***DANGER, WARNING, CAUTION, and NOTE* Statements**

DANGER, WARNING, CAUTION, and Note statements are used throughout this manual to emphasize important and critical information. You must read these statements to help ensure safety and to prevent product damage. The statements are defined below.



DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE: A *NOTE* statement is used to notify people of installation, operation, programming, or maintenance information that is important, but not hazard-related.

Standard C-Track Festoon System Installation Instructions

General Considerations

1. Determine the length of the span to be festooned. Consideration should be given to the impact of the storage distance (stack up) on the actual travel distance of the moving equipment, and the speed at which the system will run.
 - a. To determine storage/stack up area, multiply length of trolley by the number of trolleys. (i.e. 5" long trolley x 10 trolleys=50").
 - b. To determine the length of track required, add the sum of the storage distance, the working travel, and ½ the length of the lead trolley. Consider that C-track sections are available in either 10 or 20 foot standard lengths, or can be supplied in cut-lengths of whole foot increments.
 - c. ***For systems with speeds of 250 feet per minute or more, consult the factory, as tow cables/chain may be required.***
2. Determine the desired loop depth. A 3-foot loop depth is common. A deeper loop depth requires fewer trolleys and reduces the storage (stack up) distance.
3. Select the proper Flat Cable that meets or exceeds the electrical requirements of the application, based upon the amperage and conductors required. The total number of control wires should include one common and one ground. Additional wires may be required for brakes, limit switches or other devices when controls are mounted remotely from their motors.
 - a. The length of cable required is the sum of: the length of track plus approximately 20% for cable sag, plus the distance to the power source.
 - b. Calculate total weight of cable per trolley to ensure that a maximum of 45 lbs. per trolley is not exceeded—see cable specifications page 5. Cables may be stacked in the saddle as long as the maximum weight per trolley is not exceeded.
 - c. To calculate cable load/trolley use loop depth (ft.) x 2 x Cable wt./ft. (reference page 5 for cable engineering data).
4. Determine the track support/hanger spacing. Recommended hanger spacing is 5'-0" centers—for systems with cable loads exceeding 150 lbs. please consult factory.
 - a. It may be necessary to add another hanger in the storage/stack up area due to additional weight when trolleys accumulate there.
5. Determine the number of trolleys required by dividing the length of the run by the total amount of cable required for one loop. (i.e. a 3-foot loop depth requires 6 feet of cable). The number of intermediate trolleys will be reduced by (1) to account for the lead/tow trolley or control box trolley.
6. Determine the junction box size and terminal strips required for the amount of conductors being festooned from the power source and/or the control box trolley. Cable grips are available for terminating cable in various sizes and for multiple cable accommodations.

Standard C-Track Festoon Configuration

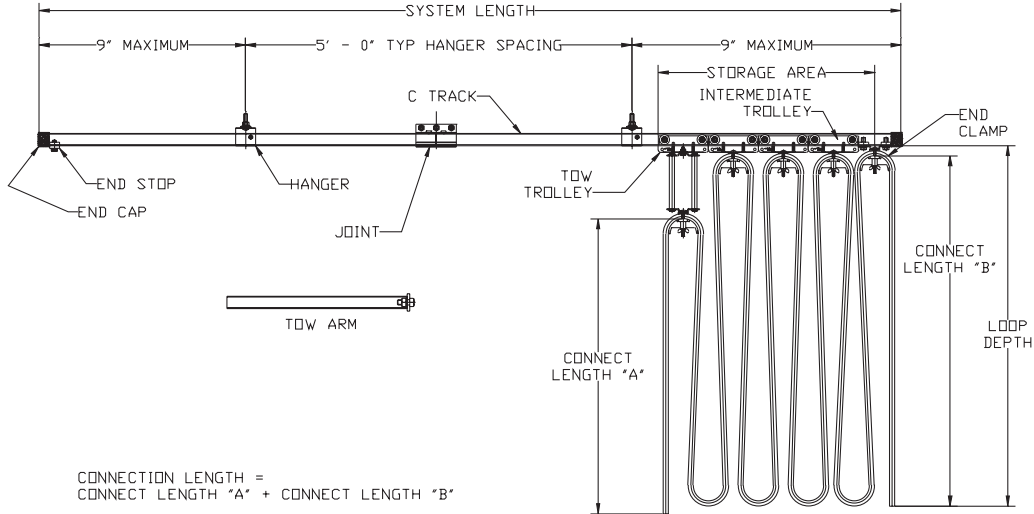


Figure 1

Standard System Components

Part No.	Description	Page Number	*Tech Bulletin #
F-CT10	Galvanized C-Track Section—10 foot	6	FS-CT1
F-CT20	Galvanized C-Track Section—20 foot	6	FS-CT1
F-CT "X"	Cross Arm Brackets— "X" = 1 foot increments	6	FS-CT1
F-CTJ	Joint Assembly	7	FS-CT2
F-CTA	Tow Arm Assembly—18" standard	6	FS-CT2
F-CTC	Cross Arm Mounting Bracket	7	FS-CT3
F-CTH	Low Profile Hanger	8	FS-CT4
F-CTHB	Standard Profile Hanger	8	FS-CT3
F-CTH-C	C-Hanger	9	FS-CT5
F-CTE	End Cable Clamp	9	FS-CT5
F-CTS	End Stop	10	FS-CT7
F-CCT	Tow Trolley	11	FS-CT8
F-CC3	Intermediate Trolley—3" Frame	13	FS-CT18
F-CC5	Intermediate Trolley—5" Frame	13	FS-CT18
F-CCB	Control Box Trolley—includes hardware & saddle	12	FS-CT15
F-EC	End Cap—2 required	N/A	

Additional Components: Pendant pushbutton stations and round pendant cable available in standard and custom configurations—please consult factory.

Components for multiple saddle and/or round cable also available—please consult factory.

* For your reference technical bulletins for most components maybe requested by calling the factory or are available on-line at www.electromotive.com under the "Support" section under Festoon Systems and Cable.

Installation Procedures (refer to drawing—figure 1 on page 3)

1. Install Cross Arm Support Brackets—either weld or bolt sections of C-Track to beam or angles, channels, etc., sufficient to carry 150 lbs. each.
2. Install Track Hangers on Cross Arms with fasteners furnished. Leave the clamping bolts loose so C-Track can be inserted.
3. Install C-Track into Hanger Clamps, butting ends of C-track together. Tighten Hanger Clamps securely.
4. Join C-Track sections together with “self-locking” Track Joint assemblies. The locking tabs in the C-Track will fit into the cutout holes on the joint clamps. Tighten the clamping bolts securely.
 - a. Verify locking tabs are present at joint connection. C-Track cut to length should be installed at end of system with trimmed side system.
5. Insert the Lead/Tow Trolley or Control Box Trolley and Intermediate Cable Trolleys into the C-Track, making sure all trolleys roll freely.
6. Install the End Cable Clamp assembly in the C-Track at the cable storage end. Tighten Securely.
7. Install the End Stop in the end of the C-Track, opposite the storage end.
8. Loosen the wing nuts (but do not remove wing nuts) on the trolley saddles. Feed the festoon cables into the trolleys between the clamping pad and saddle. Make sure to leave enough cable past the Tow/Lead Trolley or Control Box Trolley to wire into the enclosure. Measure the desired loop depth and tighten the wing nuts to secure the festoon cables.
9. Install festoon cable grips into approved junction boxes and insert cables through the cable glands. Tighten cable grip nuts firmly to secure cables.
10. For power & control applications, install the Tow Arm in the center of the rectangular box mounted on the Tow/Lead Trolley. The Tow Arm should be securely fastened to the moving equipment to be electrified.
11. For traveling pendant pushbutton applications, install the junction box on the Control Box Trolley. Fasten securely with hardware furnished.
12. Run the completed festoon system back and forth several times over the entire system to ensure proper operation. Flat festoon cables should extend and retract in a straight line if the cables have been properly fastened to the trolleys.

Flat Festoon Cables and Trolleys–Engineering Data

Trolley Specifications

- Trolley frames available in 3” and 5”
- Trolleys provided with ball bearing wheels
- Trolleys capable of supporting up to 45 lbs. each
- Corrosion resistant trolleys have stainless steel frame and wheels
- Spark Resistant Trolleys have stainless steel frame and brass wheels
- Consult factory for speeds 250 feet per minute or higher

Cable Saddle Specifications

- 3” long Trolleys have 1½” diameter nylon cable saddle with ¾” x 2” maximum cable opening
- 5” long Trolleys have 3” diameter nylon cable saddle with 1” x 2¼” maximum cable opening
- Multiple saddle configurations to accommodate flat or round cable available–consult factory

Flat Festoon Cable Reference–Cable Specifications

- Indoor/Outdoor Festoon flat cable and round pendant control cable
- 105°C (221°F) 600 volt AC, 250 volt DC
- Conductors are annealed copper
- Each conductor has color coded jacket
- Jacket rating -40°C (-40°F) to 105°C (221°F)
- Resistant to UV, ozone, water, oil and weather
- 4, 8, or 12 conductor flat cable
- #2 AWG through #16 AWG flat cable

Part No.	AWG Size	# of Conductors	Dimensions (Inches)	Ampacity*	Approximate lbs/MFT	Bend Radius (in.)
F-16/8	16	8	0.200 X 1.110	14	194	0.80
F-16/12	16	12	0.200 X 1.605	14	292	0.80
F-14/4	14	4	0.210 X 0.625	27	138	0.84
F-14/8	14	8	0.210 X 1.175	19	254	0.84
F-14/12	14	12	0.210 X 1.700	19	380	0.84
F-12/4	12	4	0.230 X 0.710	33	180	0.92
F-12/8	12	8	0.230 X 1.340	23	343	0.92
F-10/4	10	4	0.270 X 0.880	44	239	1.08
F-8/4	8	4	0.365 X 1.190	60	401	1.46
F-6/4	6	4	0.430 X 1.450	82	620	1.72
F-4/4	4	4	0.490 X 1.690	104	896	1.96
F-2/4	2	4	0.560 X 1.955	142	1278	2.24

*–Ampacities are de-rated at higher temperatures (above 30°C).
 Minimum Bending Radius (approx. 4 X cable thickness)
 Specialty cable also available–contact the factory for more information
 Cable available in specific lengths or in full reels of 500 or 1000 feet
 Round pendant cable available in #16 AWG with 8, 12, 16, 24 or 36 conductors
 –No suitable for 1½” or 3” diameter saddles.

Track Sections

Standard Duty

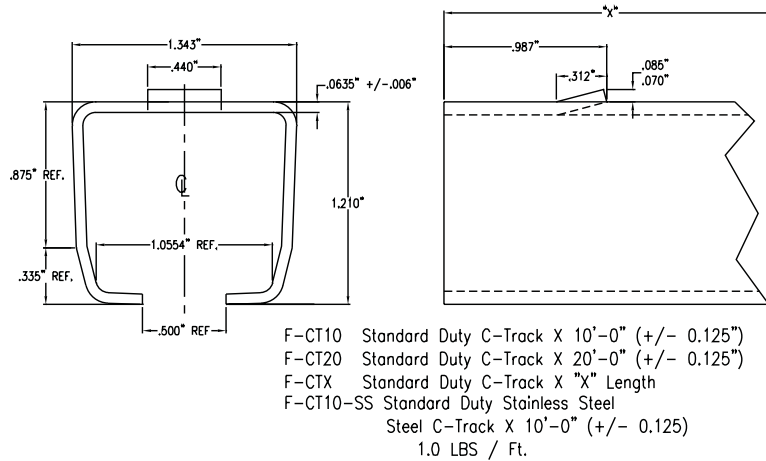


Figure 2

- F-CT10 Standard Duty C-Track x 10'-0" (+/- 0.125")
- F-CT20 Standard Duty C-Track x 20'-0" (+/- 0.125")
- F-CTX Standard Duty C-Track x "X" Length
- F-CT10-SS Standard Duty Stainless Steel
C-Track x 10'-0" (+/- 0.125)
1.0 Lbs./Ft.

Tow Arm

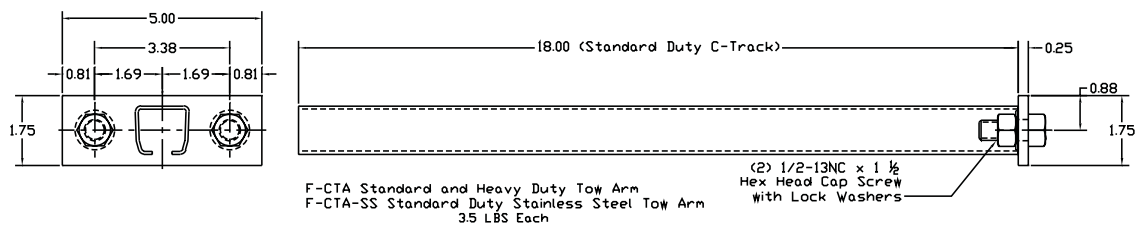


Figure 3

- F-CTA Standard and Heavy Duty Tow Arm
- F-CTA-SS Standard Duty Stainless Steel Tow Arm
3.5 lbs./ea.

Joint Assembly

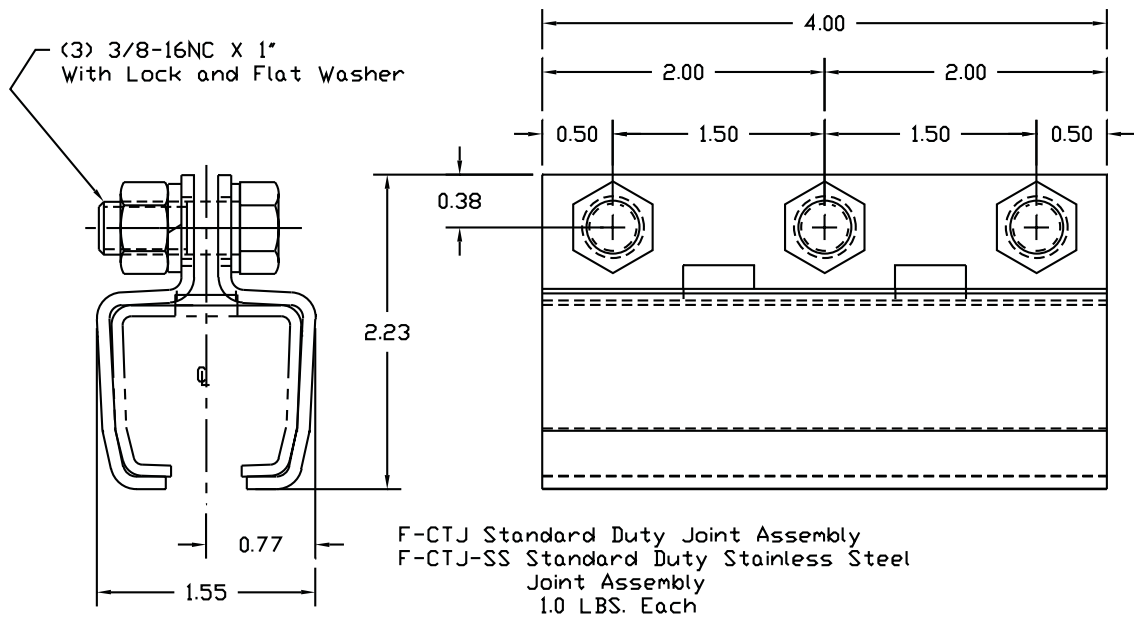
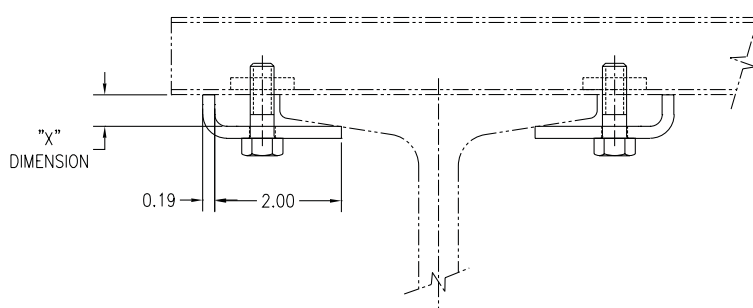


Figure 4

F-CTJ Standard Duty Joint Assembly
F-CTJ-SS Standard Duty Stainless Steel Joint Assembly
1.0 lbs./ea.

Cross Arm Mounting Bracket



F-CTC Cross Arm Mounting Clamp "X"=0.50"
F-CTA Cross Arm Mounting Clamp "X"=0.75"
F-CTB Cross Arm Mounting Clamp "X"=0.63"
F-CTC-C Cross Arm Mounting Clamp "X"=1.00"
0.25 LBS. Each

Figure 5

F-CTC Cross Arm Mounting Clamp– "X"=0.50"
F-CTA Cross Arm Mounting Clamp– "X"= 0.75"
F-CTB Cross Arm Mounting Clamp– "X"=0.63"
F-CTC-C Cross Arm Mounting Clamp– "X"=1.00"
0.25 lbs./ea.

Hanger Assembly—Standard Profile

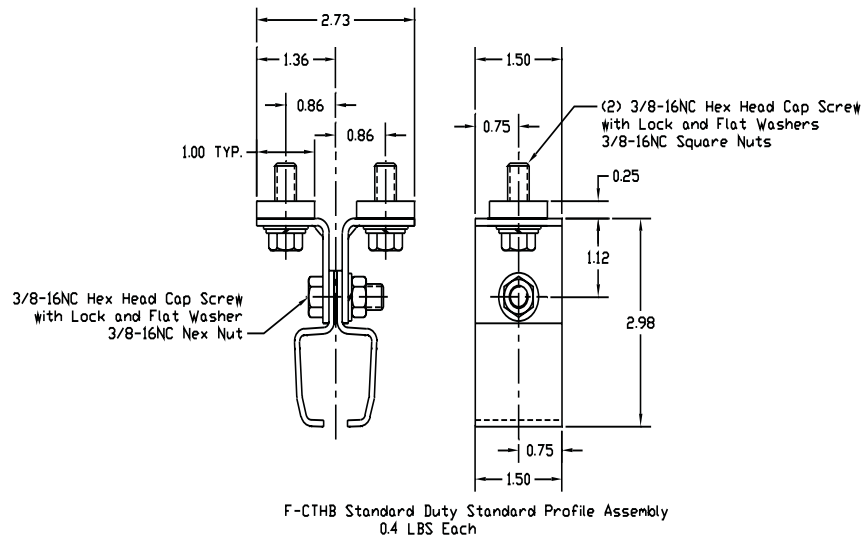


Figure 6

F-CTHB Standard Profile Hanger
0.4 lbs./ea.

Hanger Assembly—Low Profile

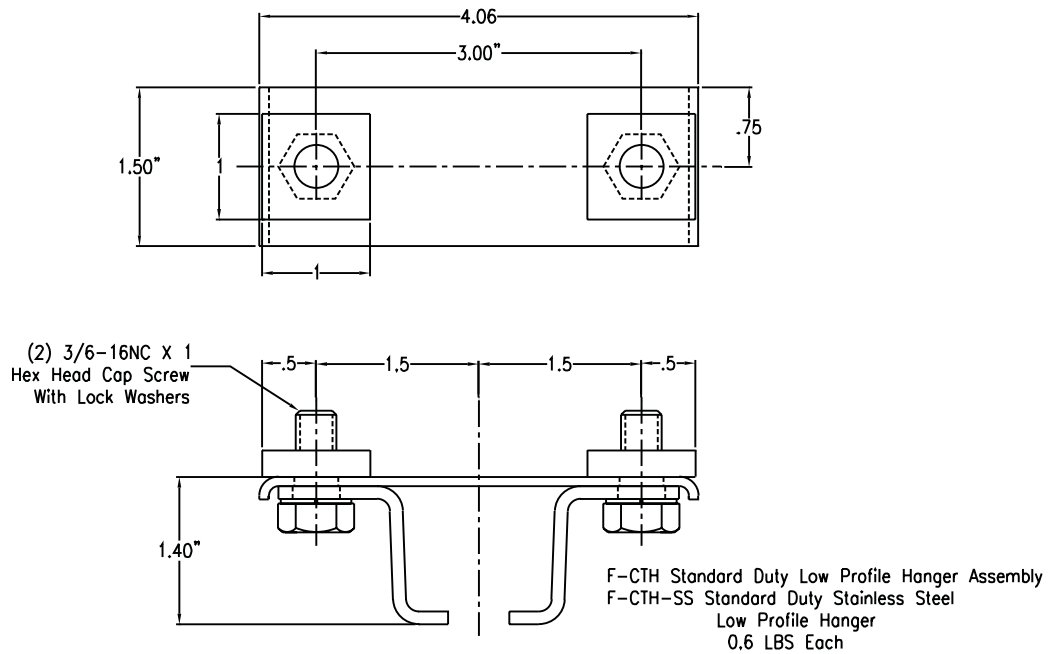


Figure 7

F-CTH Standard Duty Low Profile Hanger Assembly
F-CTH-SS Standard Duty Stainless Steel Low Profile Hanger
0.6 lbs./ea.

Hanger Assembly–C-Hanger

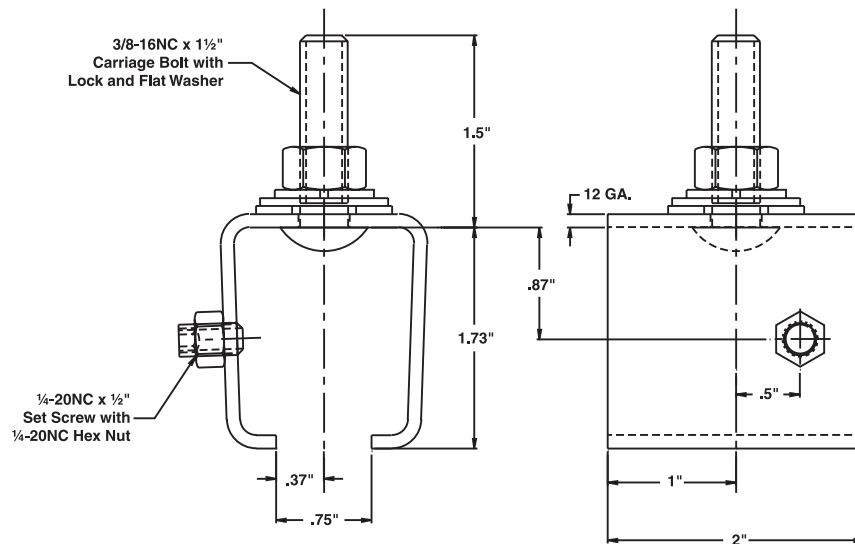


Figure 8

F-CTH-C Standard Duty C-Hanger Assembly
0.4 lbs/ea.

End Cable Clamp

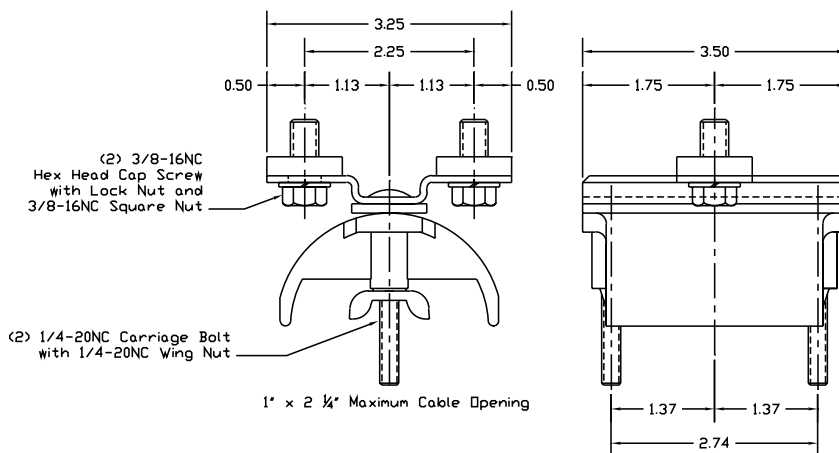


Figure 9

F-CTE Standard and Heavy Duty End Cable Clamp
F-CTE-SS Standard Duty Stainless Steel End Cable Clamp
(All stainless steel hardware with plastic saddle)
0.75 lbs./ea.

End Stop Assembly

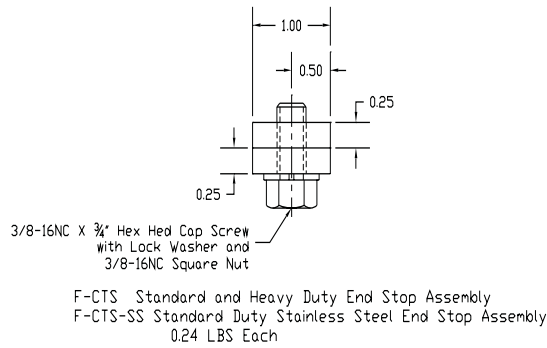


Figure 10

F-CTS Standard and Heavy Duty End Stop Assembly
F-CTS-SS Standard Duty Stainless Steel End Stop Assembly
0.24 lbs./ea

Tow Trolley

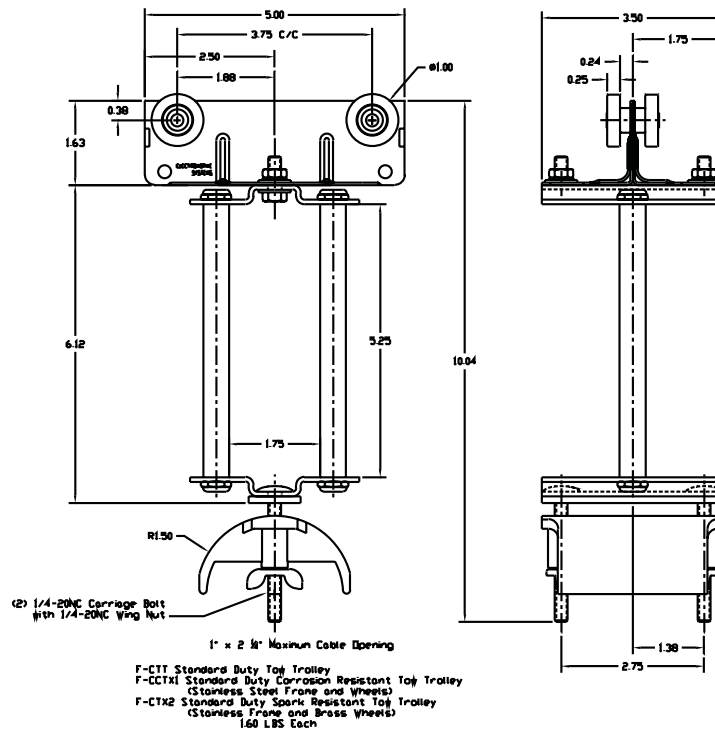


Figure 11

F-CCT Standard Duty Tow Trolley
F-CCTX1 Standard Duty Corrosion Resistant Tow Trolley (Stainless Steel Frame and Wheels)
1.30 lbs./ea.

Control Box Trolley

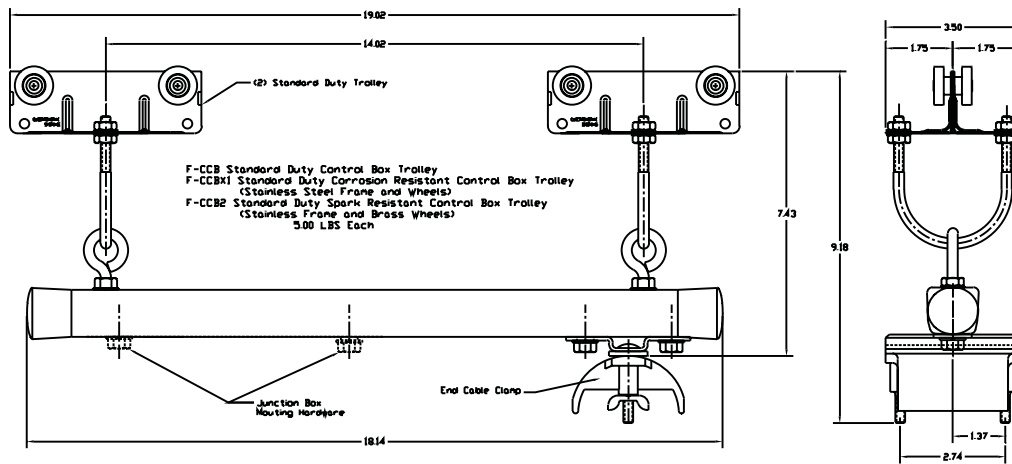


Figure 12

- F-CCB Standard Duty Control Box Trolley
- F-CCBX1 Standard Duty Corrosion Resistant Control Box Trolley (Stainless Steel Frame and Wheels)
5.00 lbs./ea.

Intermediate Trolley 3"

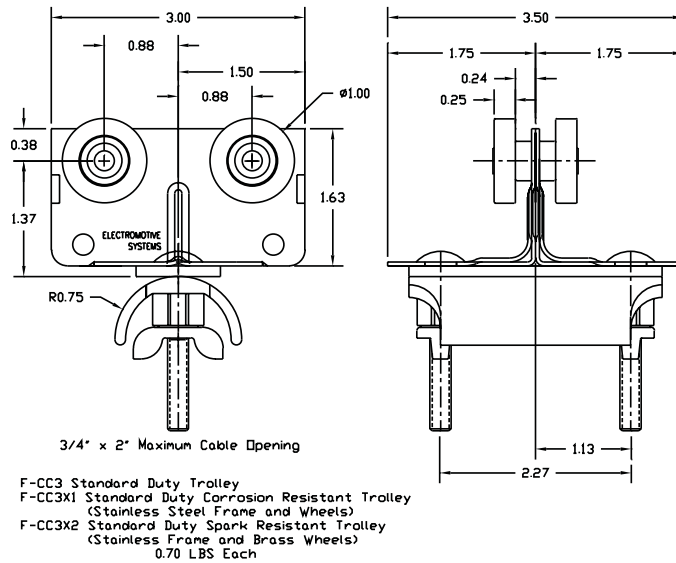


Figure 14

- F-CC3 Standard Duty Trolley
- F-CC3X1 Standard Duty Corrosion Resistant Trolley (Stainless Steel Frame and Wheels)
0.70 lbs/ea.

Intermediate Trolley 5"

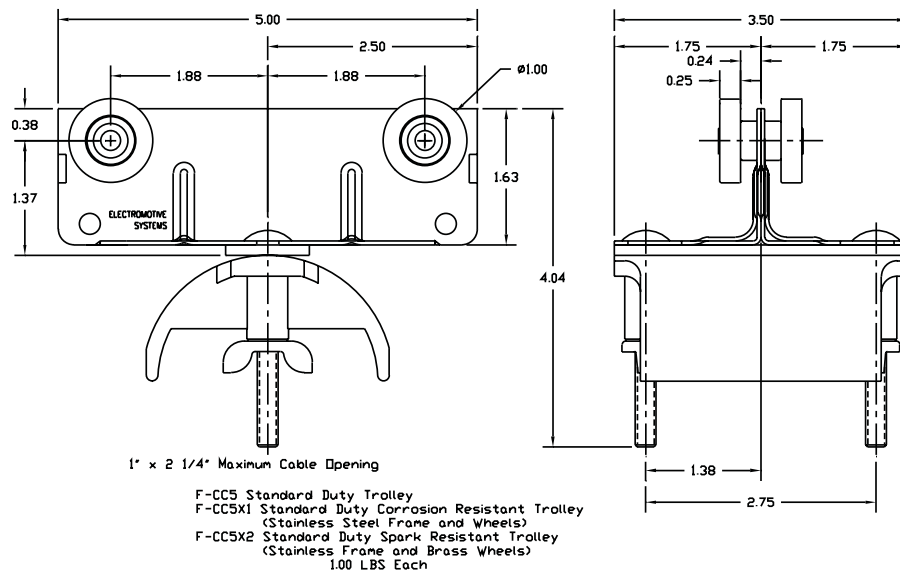


Figure 15

- F-CC5 Standard Duty Trolley
- F-CC5X1 Standard Duty Corrosion Resistant Trolley (Stainless Steel Frame and Wheels)
1.0 lbs./ea.