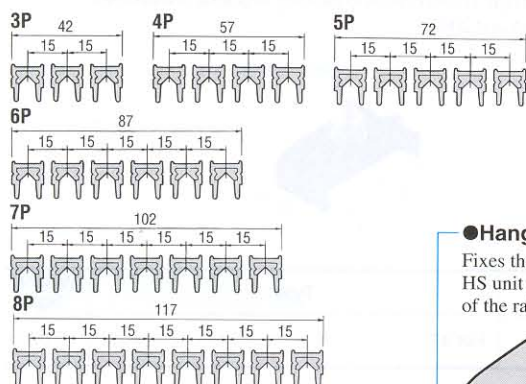


Installation Procedures for Tro-Reel HS (Non-Tension Type)

●Cross-section dimensions



- Center feed-in joiner

Connects the Tro-Reel HS units together and feeds external power to the conductors.

- Collector arm

Collects power during travel.
Traveling speed must be
300m/min. or less (60m/min. or
less for guide-capped sections).
1P 600V, 30A (single type)
1P 600V, 60A (tandem type)

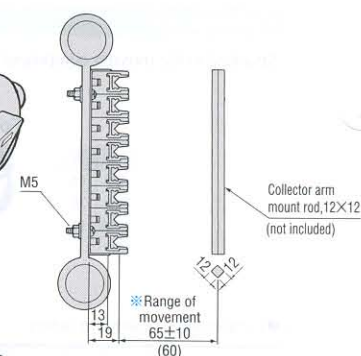
- Insulating piece

Separates circuits by providing an insulated section on the line.

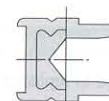
- Hanger

Fixes the Tro-Reel HS unit to the side of the rail.

●Standard installation



※ Distance between the High-Tro-Reel unit's conductor sliding surface and the collector arm mount rod.
The values in parentheses indicate the DH58920 size.



⚡ Conductor sliding surface

- Guide cap (right-angled)

Works as an end cap
to close off terminals.

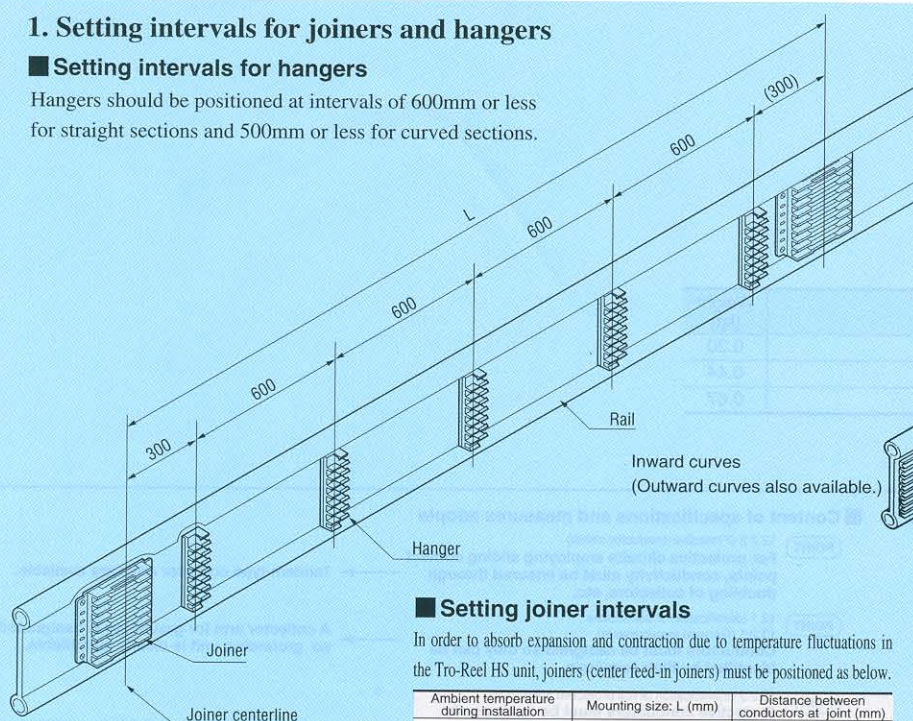
- Tro-Reel HS unit

600V, 90A with standard length of 3m

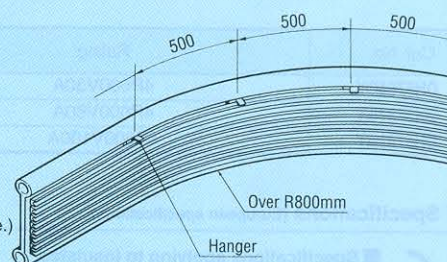
1. Setting intervals for joiners and hangers

■ Setting intervals for hangers

Hangers should be positioned at intervals of 600mm or less for straight sections and 500mm or less for curved sections.



■ Setting intervals for hangers on curved sections



Hangers should be placed at intervals of 500mm or less on curves.

■ Setting joiner intervals

In order to absorb expansion and contraction due to temperature fluctuations in the Tro-Reel HS unit, joiners (center feed-in joiners) must be positioned as below.

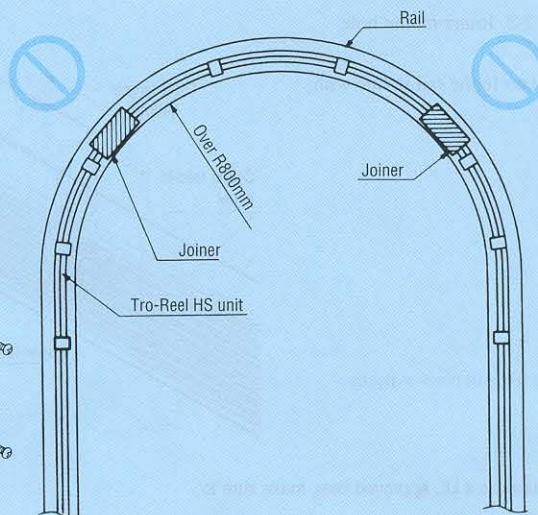
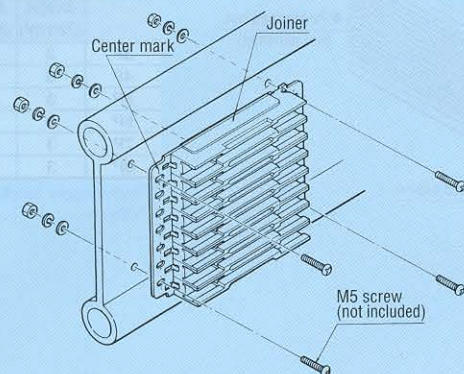
Ambient temperature during installation	Mounting size: L (mm)	Distance between conductors at joint (mm)
10°C or lower	3003	5~13
11~40°C	3000	3~10

 Caution

Failure to conform to this table may cause poor collector arm contact or separation from wires.
The length of the Tro-Reel HS unit is $2997 \pm 2\text{mm}$.

2-1. Joiner installation

1. Drill holes in the rail matching the position of the joiner as shown below. (See 2-2.)
2. Screw the joiner to the rail in line with the center mark.

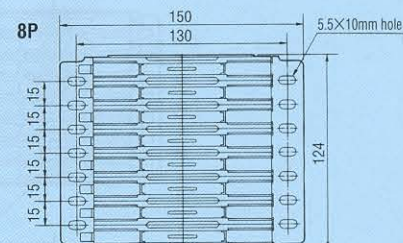
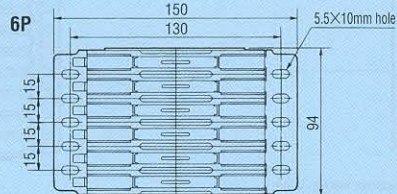
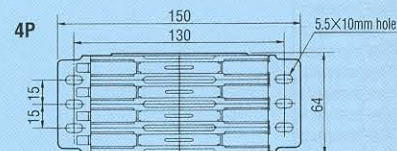
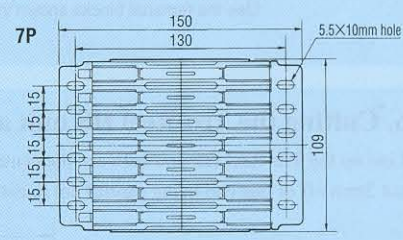
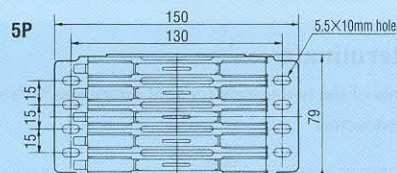
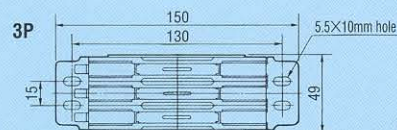


Caution

Avoid positioning joints on curved sections. If installation on curved sections is inevitable, please mount the joint at the straightest part of the curved section, as shown in the drawing.

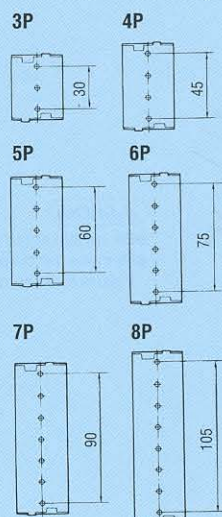
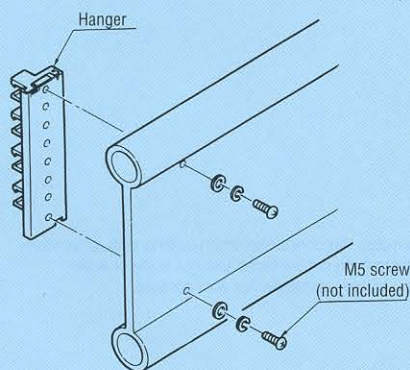
2-2. Joiner mount hole dimensions (center feed-in joiner).

Joiner and center feed-in joiner mount holes are as shown below:



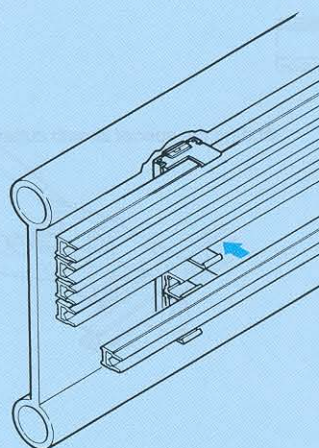
3. Hanger installation

●Gap between screws
(two M5 screws; 8mm thread depth)



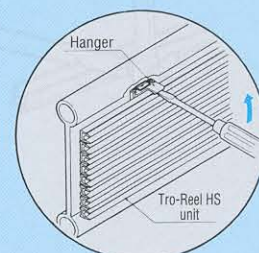
4. Mounting the Tro-Reel HS unit onto the hangers.

Snap the Tro-Reel HS unit onto the hanger as shown below.



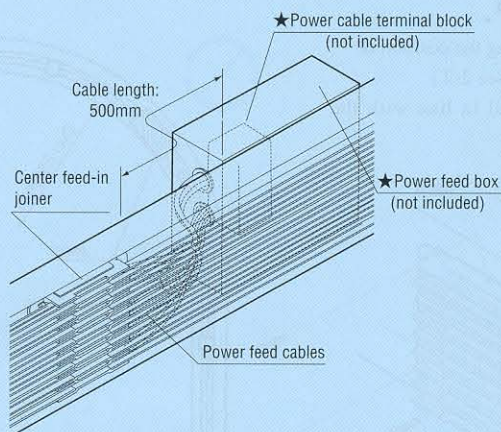
Removing the Tro-Reel HS unit

Insert a flat tip screwdriver into the hanger slit. Then, lift the upper holder upward while pulling the lower holder down.



5. Center feed-in joiner installation

1. Drill holes in the rail. (See 2-2. Joiner mount hole dimensions.)
2. Screw the center feed-in joiner to the rail in line with the center mark.



■ Number of power cables

	AWG4 (22mm ²)	AWG8 (8mm ²)
3P	3	—
4P	3	1
5P	3	2
6P	3	3
7P	3	4
8P	3	5

※ Power cable length is 500mm.

⚠ Caution

Be sure to screw the power cable terminal block in tightly. Failure to do so may cause fire.

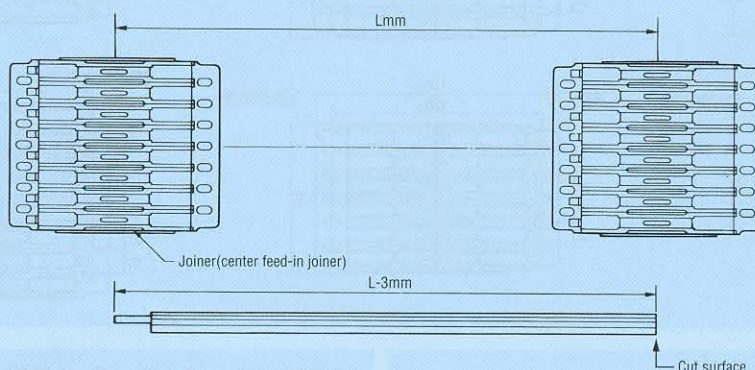
★When using a center feed-in joiner as a UL Approved item, make sure to meet the following requirements.

1. Power feed box: The specifications must comply with the UL50 Enclosure For Electrical Equipment.
2. Power cable terminal block: Use the terminal blocks shown in the table at right.

Manufacturer	Cat. No.	Screw tightening torque N·m (kgf·cm)
KASUGA ELECTRIC WORK, LTD.	TX-100	8~10 (80~100)
KYORITSU KEIKI CO., LTD.	KT-100, KTR-100	8.5~11 (85~110)
YOSHIDA ELECTRIC INDUSTRY CO., LTD.	UKU-125	6~9 (60~90)

6. Cutting the Tro-Reel HS unit and terminals

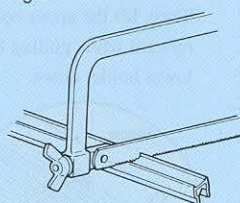
Line up the Tro-Reel HS unit between the center points of the two joiners (central dimension "L") and cut 3mm off of one end being careful not to cut the conductor.



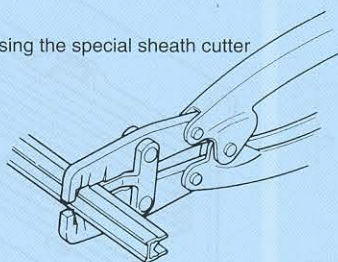
Mark the length to be cut off on the Tro-Reel HS unit as shown below and remove the insulating sheath using a hacksaw or the special sheath cutter (DH5884K).



●Using a hacksaw



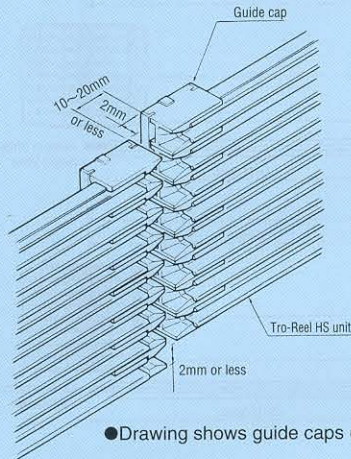
●Using the special sheath cutter



⚠ Caution

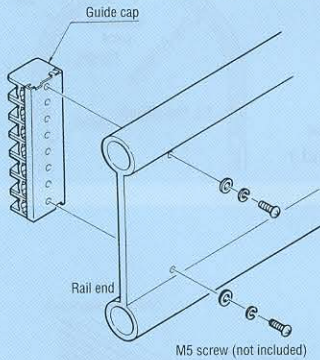
- Be careful not to damage the conductor when cutting with a hacksaw.
- Remove the burrs from both cut surfaces using a knife or a file. Failure to do so may cause poor collector arm contact.

7. Guide cap installation

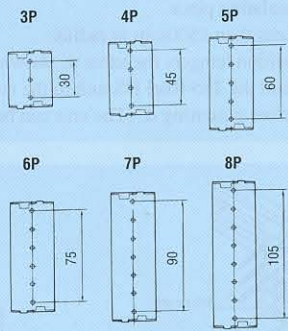


●Drawing shows guide caps (right-angled).

1. Drill holes in the rail as shown below.
2. Screw a guide cap to the rail and insert the Tro-Reel HS unit into the guide cap.

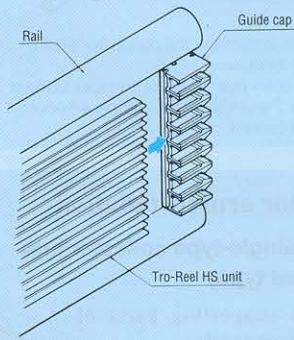


■ Mounting a guide cap
(two M5 screws; 8mm thread depth)

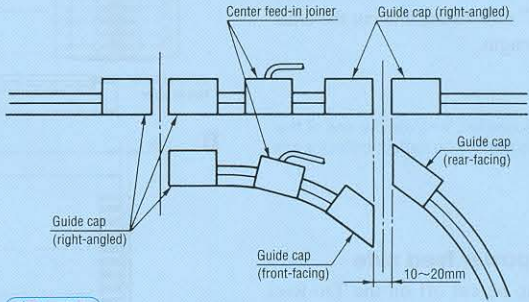


■ Mounting the Tro-Reel HS unit to the guide cap

Insert the Tro-Reel HS unit into the guide cap in the direction of arrow.



■ Usage of guide cap



⚠ Caution

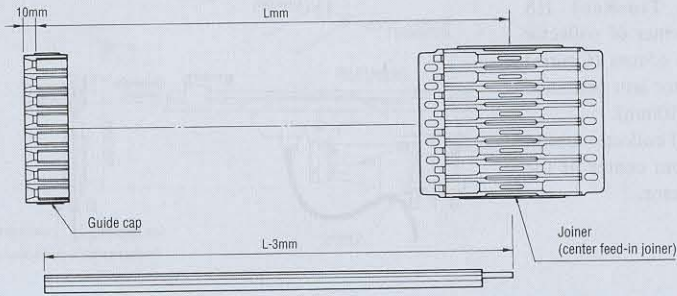
- Use a tandem-type collector arm and set traveling speed at 60m/min, or less for switching sections.
- Be sure to use only the specified dimensions for each mounting part. Failure to do so may cause poor collector arm contact or separation from wires.

Cutting the Tro-Reel HS unit and terminals

Line up the Tro-Reel HS unit between the center points of the joiner and the guide cap (central dimension "L") and cut 3mm off of one end being careful not to cut the conductor.

⚠ Caution

Remove the burrs from both cut surfaces using a knife or a file. Failure to do so may cause poor collector arm contact.

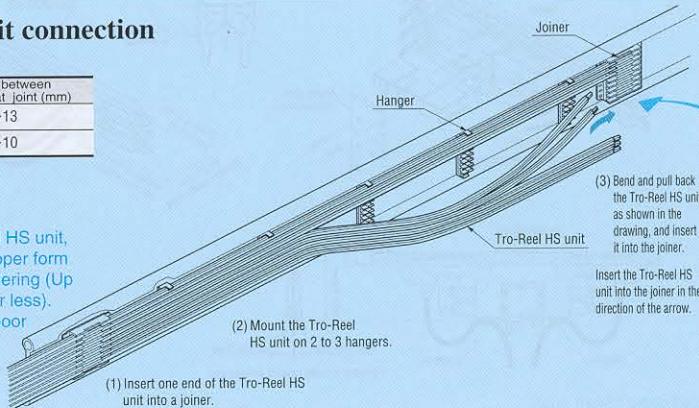


8. Tro-Reel HS unit connection

Ambient temperature during installation	Distance between conductors at joint (mm)
10°C or lower	5~13
11~40°C	3~10

⚠ Caution

When mounting the Tro-Reel HS unit, be careful to maintain the proper form and layout. Do not be meandering (Up and down direction $\pm 3\text{mm}$ or less). Failure to do so may cause poor collector arm contact or separation from wires.

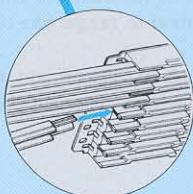


- (1) Insert one end of the Tro-Reel HS unit into a joiner.

- (2) Mount the Tro-Reel HS unit on 2 to 3 hangers.

- (3) Bend and pull back the Tro-Reel HS unit as shown in the drawing, and insert it into the joiner.

Insert the Tro-Reel HS unit into the joiner in the direction of the arrow.



※Center feed-in joiners are mounted in the same way.

9. Insulating piece installation

■ Cutting the Tro-Reel HS unit

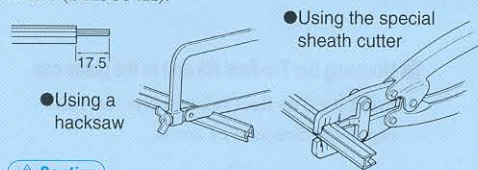
Line up each Tro-Reel HS unit (in (A) and (B) below) with the “L” dimension, and cut the units to the appropriate length.

⚠ Caution

If signal lines are not needed, insulate the end of the line with vinyl tape so that it won't affect collector arm travel.

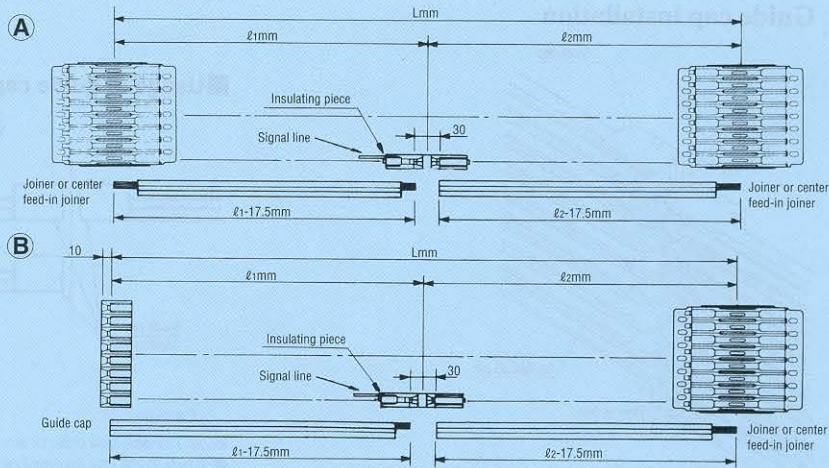
■ Cutting the power feed side

Mark the length to be cut off on the Tro-Reel HS unit as shown below and cut the insulating sheath using a hacksaw or the special sheath cutter (DH5884K).



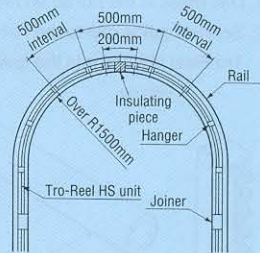
⚠ Caution

- 1. Be careful not to damage the conductor when cutting with a hacksaw.
- 2. Remove the burrs from both cut surfaces using a knife or a file. Failure to do so may cause poor collector arm contact.



■ Installation to curved sections (inward and outward curves)

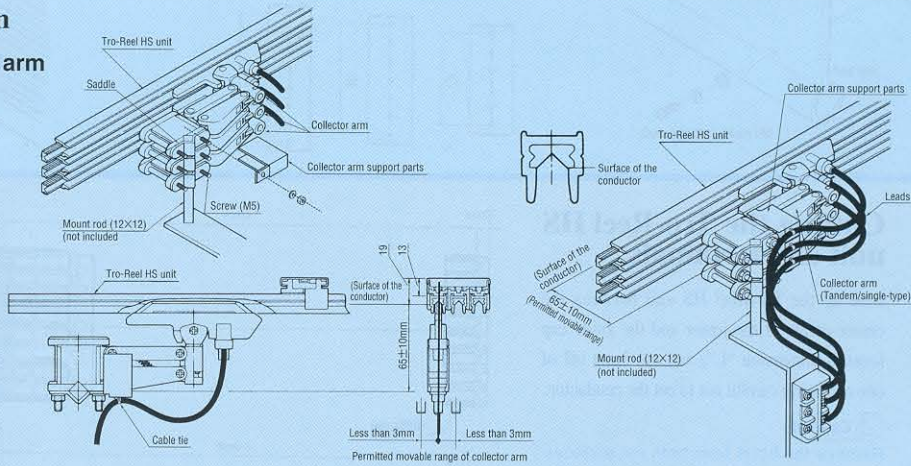
- (1) Over 1500mm in radius:
 - 1. Position hangers at 500mm intervals.
 - 2. Position hangers 200mm from each end of the insulating piece.
- (2) Less than 1500mm in radius:
 - 1. position hangers the same as shown above (1).
 - 2. Bend the Tro-Reel HS unit to the required degree before mounting it. (The unit can be bent by hand.)



10. Collector arm installation

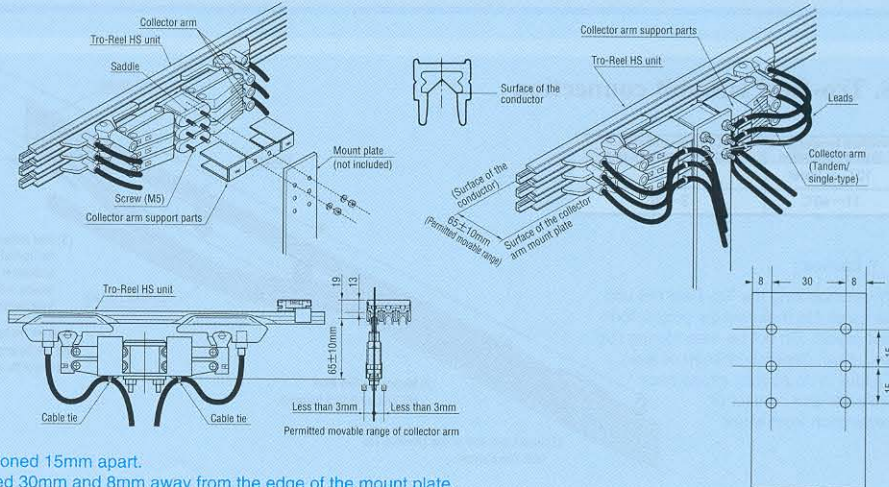
■ Tandem/single-type collector arm (mount rod type)

- 1. Mount the supporting parts of collector arm on saddle.
- 2. Set the distance from the upper surface of the Tro-Reel HS conductor to the center of collector arm mount rod to 65mm (Central value of the collector arm permitted movable range 65±10mm).
- 3. Mount the center of collector arm to less than 3mm from center of the Tro-Reel HS conductor.



■ Tandem/collector arm (mount plate type)

- 1. Mount the supporting parts between saddle and the mount plate.
- 2. Set the distance from the upper surface of the Tro-Reel HS conductor to the upper surface of the collector arm mount plate to 65mm (Central value of the collector arm permitted movable range 65±10mm).
- 3. Mount the center of collector arm to less than 3mm from center of the Tro-Reel HS conductor.



⚠ Caution

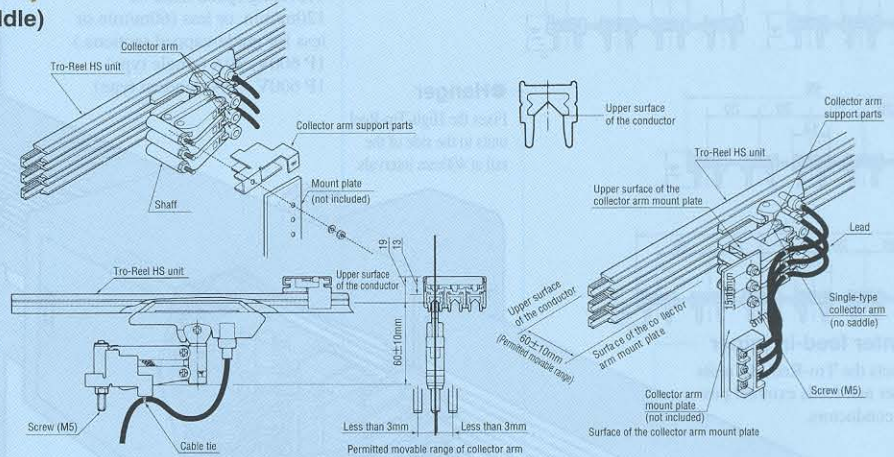
- Collector arm mounting screw should be positioned 15mm apart.
- Mount plate mounting hole should be positioned 30mm and 8mm away from the edge of the mount plate.

Single-type collector arm (no saddle)

1. Mount the supporting parts between the top of saddle and the mount plate.
2. Set the distance from the upper surface of the Tro-Reel HS conductor to the center of collector arm mount plate to 60mm (Central value of the collector arm permitted movable range 60 ± 10 mm).
3. Mount the center of collector arm to less than 3mm from center of the Tro-Reel HS conductor.

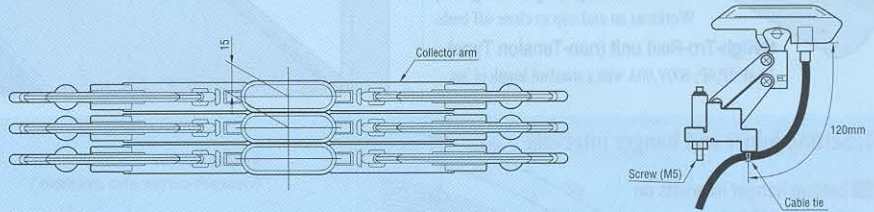
Caution

Collector arm mounting screw should be positioned 15mm apart and 8 mm away from the edge of the mount plate.



Caution

1. Be sure to use only the specified dimensions for each mounting part.
For operating the equipment, set the collector arm within permitted movable range of 65 ± 10 mm (60 ± 10 mm for single).
2. Collector arm mounting screw should be positioned 15 mm apart and Collector arms (single-type with no saddle excluded) must be positioned close to each other as shown in the drawing at right.
3. Be sure that collector arms are mounted parallel to the Tro-Reel HS unit with no twisting.
Failure to conform to this table may cause poor collector arm contact or separation from wires.
4. Mount the center of collector arm to less than 3 from center of the Tro-Reel HS conductor.
Failure to conform to this table may cause poor collector arm contact or separation from wires.
5. Hold the leads in using the cable ties(included). When exchange the replacement part of collector, hold the leads in using the cable ties(length less than 100 mm and width less than 3 mm) which is sold generally. Then, keep slack in the leads (The length of lead to fix is about 120 mm from replacement part of collector). Do not influences movement of the collector arm.
Failure to occur biased wear of collector arm and fragment of sheath.
6. Be sure to confirm the Tro-Reel HS unit phase (R.S.T) before connecting the leads to the lead.
7. When mount the insulated terminals to the terminal, do not twist more than required.
Failure to occur biased wear of collector arm and fragment of sheath.
8. Exchange of the collector aim once in exchange three times of replacement part of collector.
9. When mount the collector arm support parts,if it is changed or damaged by fall, exchange the new parts.
Failure to occur biased wear of collector arm and fragment of sheath.



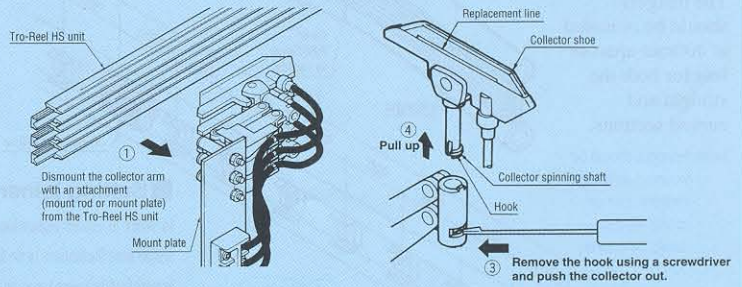
11. Replacing collector shoes

How to repair collector shoes

1. Dismount the collector arm with an attachment (mount rod or mount plate) from the Tro-Reel HS unit.
2. Cut the cable ties, then take out the lead.
3. Using the tool, take off the hook of shaft.
4. Press out the replacement part of collector, and take off it.
5. After the exchange of replacement part of collector, hold the leads in the supporting parts using the cable ties (length less than 100mm and width less than 3mm) which is sold generally. Then, keep slack in the leads,. Do not influences movement of the collector arm.

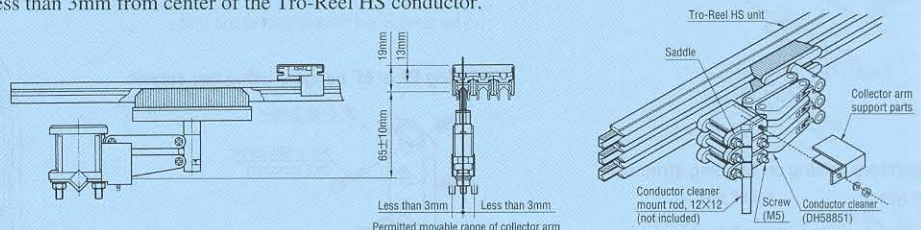
Caution

Collector shoes should be replaced when they wear down to the replacement indication line. Failure to do so may cause fire due to sparks, poor collector arm contactor separation from wires. Don't dismount the collector arm in the state that it set up in the Tro-Reel HS unit. Failure to changed or damaged of the collector arm support parts.



12. Mounting a conductor cleaner

1. Mount the supporting parts of collector arm on saddle.
2. Set the distance from the upper surface of the Tro-Reel HS conductor to the center of collector arm mount rod to 65mm (Central value of the collector arm permitted movable range 65 ± 10 mm).
3. Mount the center of collector arm to less than 3mm from center of the Tro-Reel HS conductor.



Caution

Be sure that the conductor cleaner is mounted parallel to the Tro-Reel HS unit with no twisting. Failure to do so may cause fire due to sparks, poor collector arm contactor separation from wires.