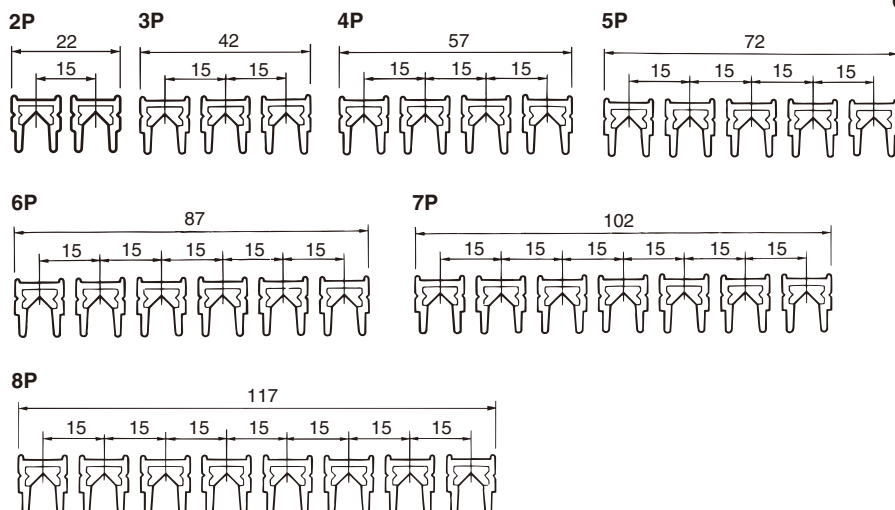
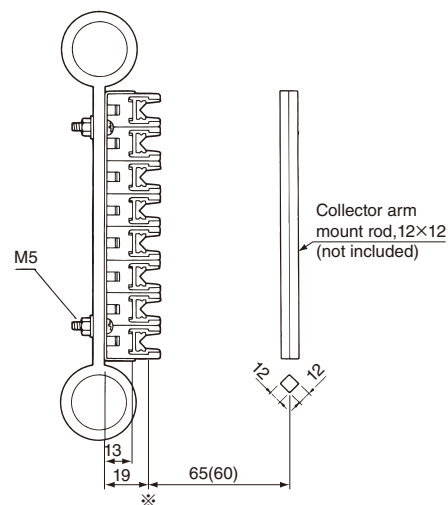


Cross-section dimensions



Standard installation procedure

- In case of using a tandem type of collector arm



The values in parentheses for collector arm (without saddle) size. Attach the collector arm to the collector arm mount plate.
The asterisk (*) indicates the upper conductor surface of the Tro-Reel HS unit.

Collector arm

Collects power during travel.
Be sure to use in a tandem type.
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)

Hanger

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

Center feed-in joiner

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

Guide cap (right-angled)

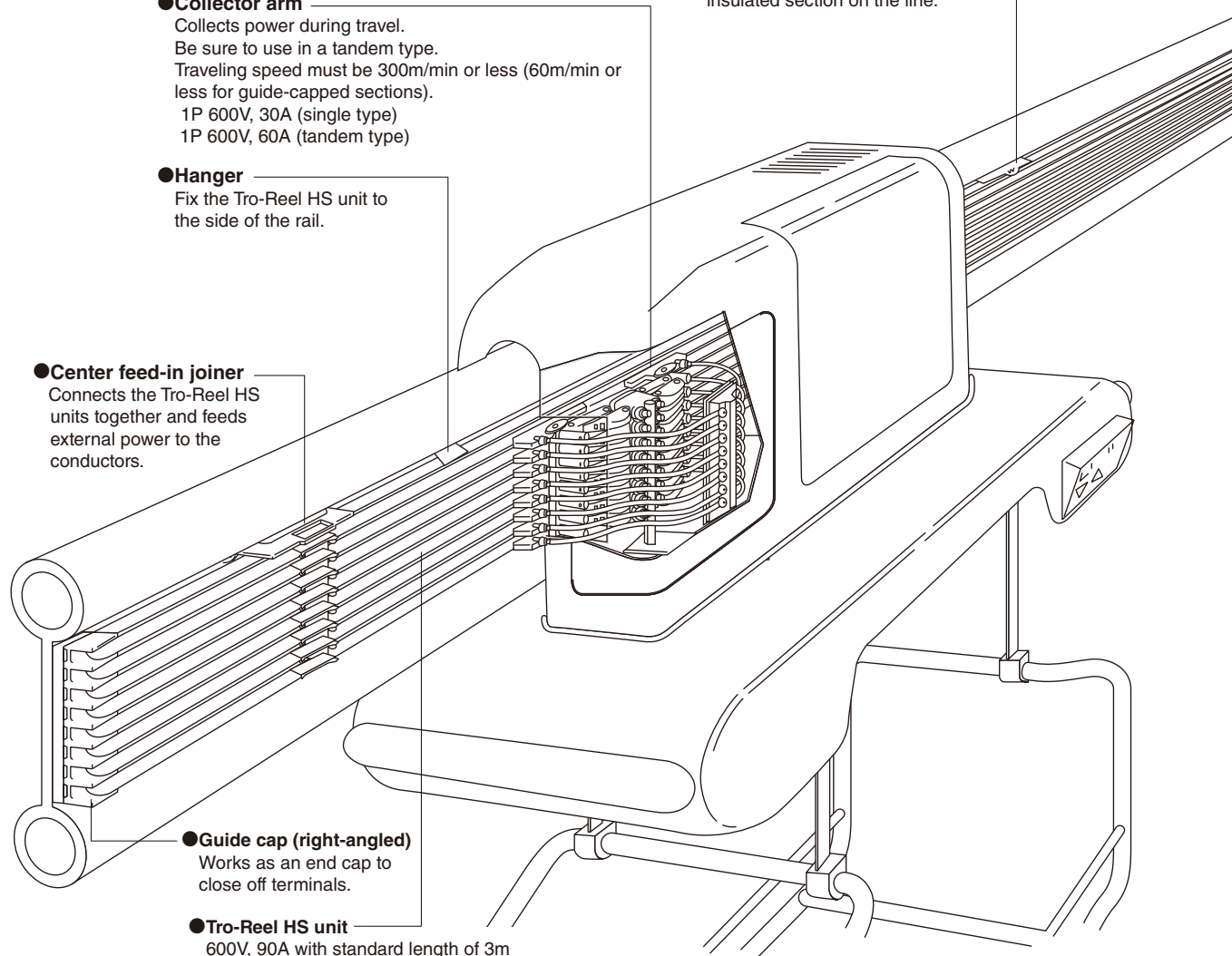
Works as an end cap to close off terminals.

Tro-Reel HS unit

600V, 90A with standard length of 3m

Insulating piece

Separates circuits by providing an insulated section on the line.

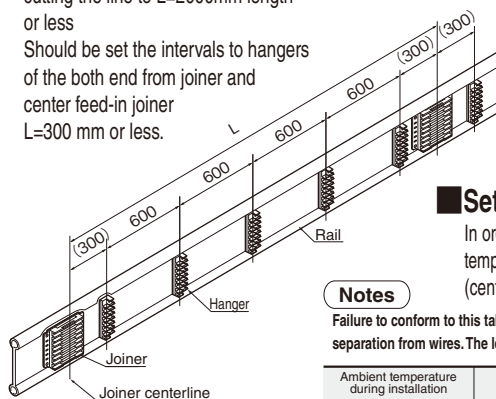


1 Setting intervals for joiners and hangers

Setting intervals for hangers

Hangers should be positioned at intervals of 600mm or less for straight sections and 500mm or less for curved sections. In case of working after cutting the line to L=2000mm length or less

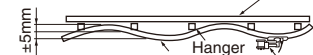
Should be set the intervals to hangers of the both end from joiner and center feed-in joiner
L=300 mm or less.



Notes

●Should be installed the hangers and joiners as the snaking/swell of Tro-Reel HS get within tolerance.

Snaking: Displacement of collector arm press direction
Tolerance: Standard $\pm 5\text{mm}$ Construction material



Swell: Displacement of collection arm press direction and right angle direction
Tolerance: Standard $\pm 3\text{mm}$



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.

Notes

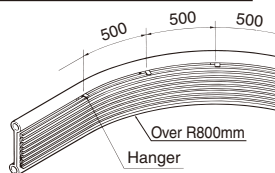
Failure to conform to this table may cause poor collector arm contact or separation from wires. The length of the Tro-Reel HS unit is $5993 \pm 2\text{mm}$.

Ambient temperature during installation	Mounting size	Distance between conductors at joint
$-10 \sim 40^\circ\text{C}$	6000mm	1~12mm

Setting intervals for hangers on curved sections

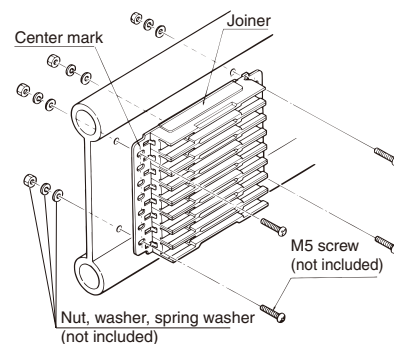
Inward curves (Outward curves also available.)

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



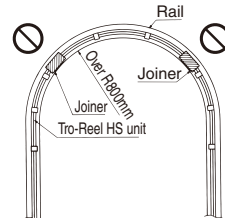
2-1 Joiner installation

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.



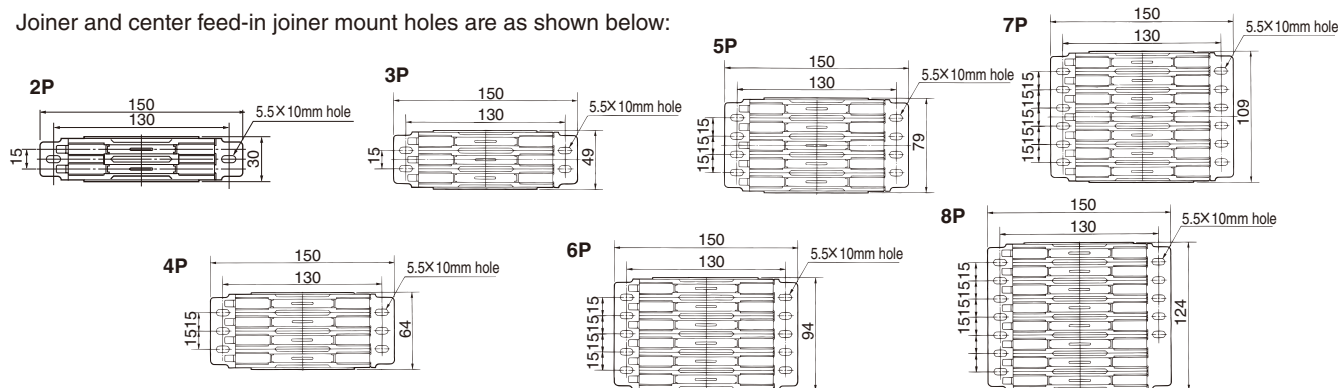
Notes

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.

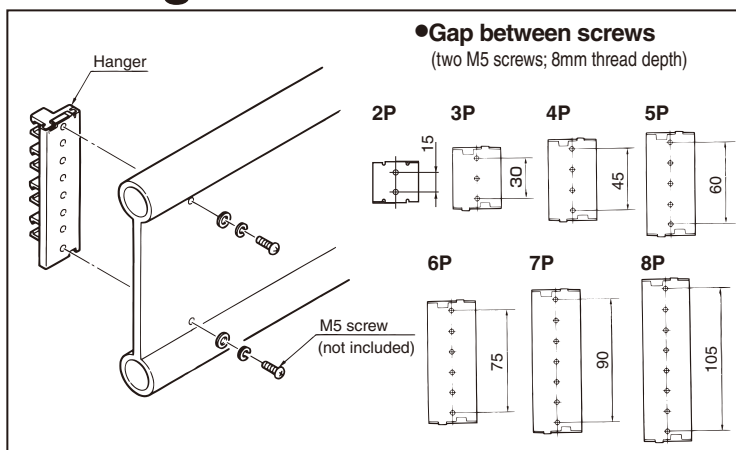


2-2 Joiner mount hole dimensions (center feed-in joiner)

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

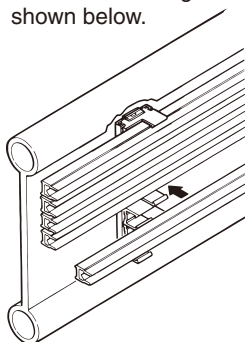


3 Hanger installation



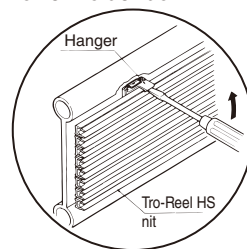
4 Mounting the Tro-Reel HS unit onto the hangers.

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



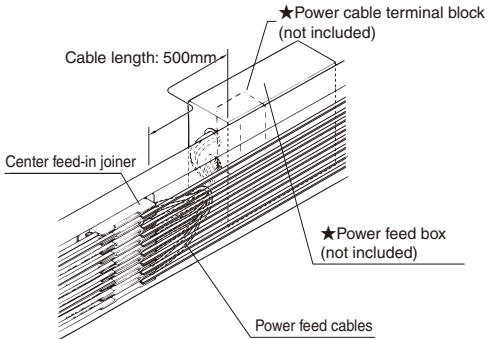
Removing the Tro-Reel HS unit

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)
2P	2	—
3P	3	—
4P	3	1
5P	3	2
6P	3	3
7P	3	4
8P	3	5

※ Power cable length is 500mm.

★ 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: Must be one of the items shown in the table.

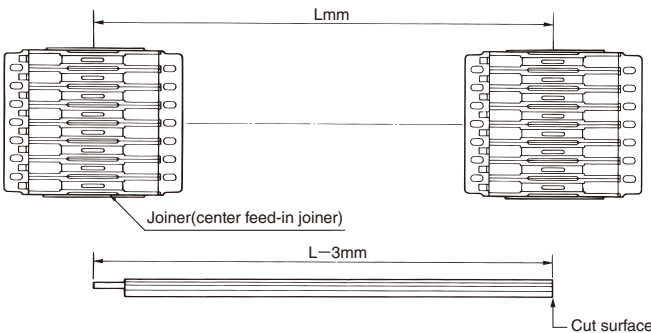
Maker	Item No.	Screw tightening torque N/m (kgf/cm)
KASUGA ELECTRIC WORK., LTD.	TX-100	8~10 {80~100}
KYORITU KEIKI CO., LTD.	KT-100, KTR-100	8.5~11 {85~110}
YOSHIDA ELECTRIC INDUSTRY CO., LTD.	UKU-125	6~9 {60~90}

Caution

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

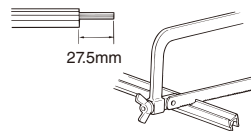
6 Cutting the Tro-Reel HS unit and terminals

1. 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.

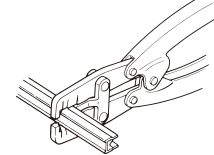


2. Mark the length to be cut off on the Tro-Reel HS unit as shown below and remove the insulating sheath using a hacksaw or the special sheath cutter.

Using a hacksaw



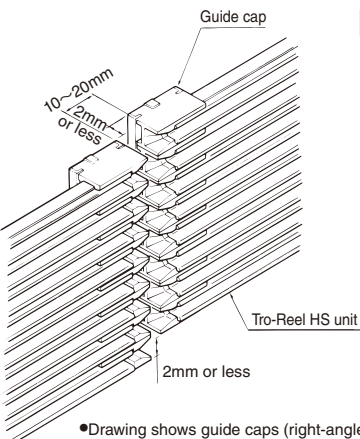
Using the special sheath cutter



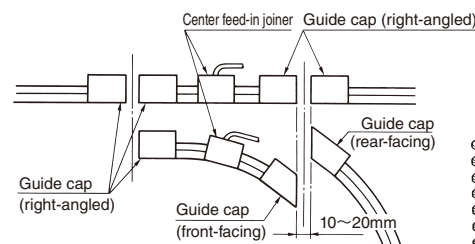
Notes

- 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



Usage of guide cap

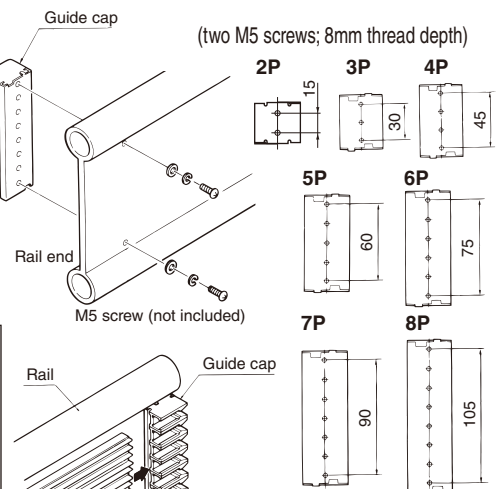


Notes

- 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.

Mounting a guide cap

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.



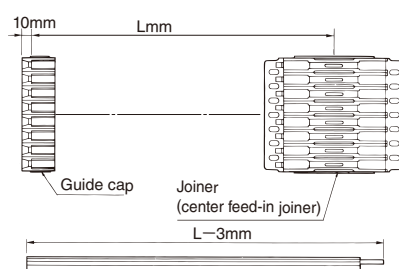
■ Mounting the Tro-Reel HS unit to the guide cap
Insert the Tro-Reel HS unit into the guide cap in the direction of arrow.

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.

Notes

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



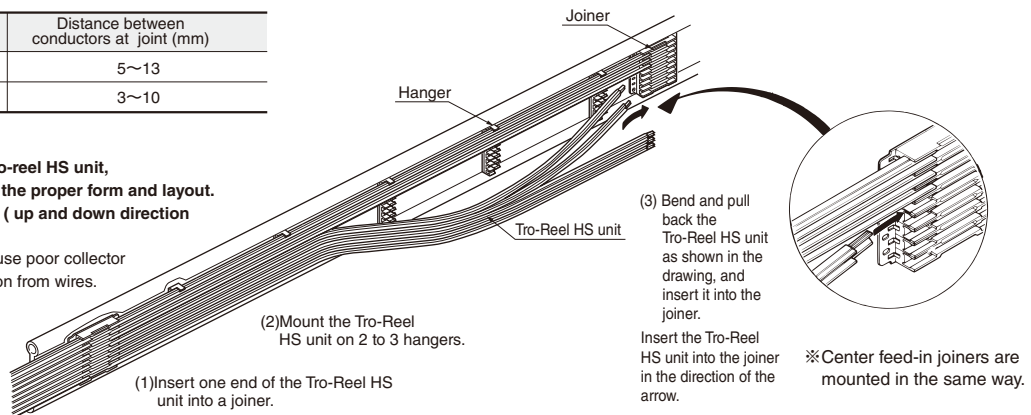
8 Tro-Reel HS unit connection

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

Notes

When mounting the Tro-reel HS unit,
Be careful to maintain the proper form and layout.
Do not be meandering (up and down direction
±3mm or less)

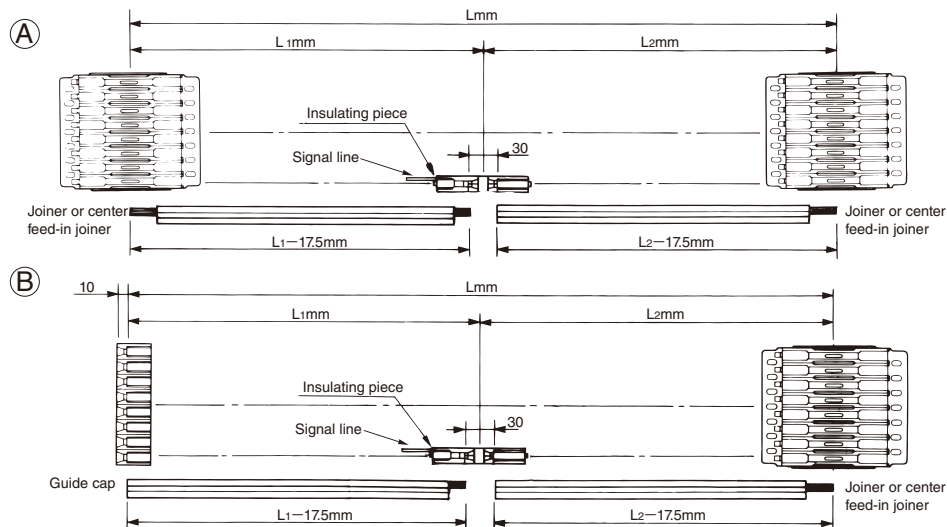
Failure to do so may cause poor collector
arm contact or separation from wires.



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.

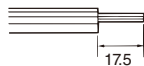


Notes

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

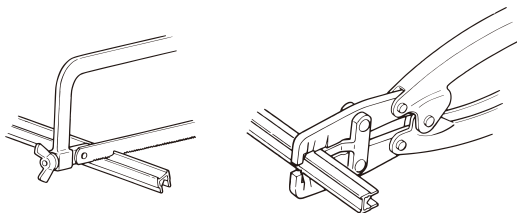
● Cutting the power feed side

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.



● Using a hacksaw

● Using the special sheath cutter



Notes

● 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.

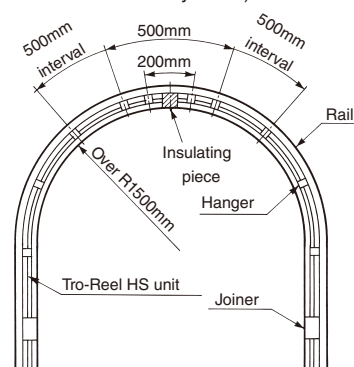
● Installation to curved sections (inward and outward curves)

(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:

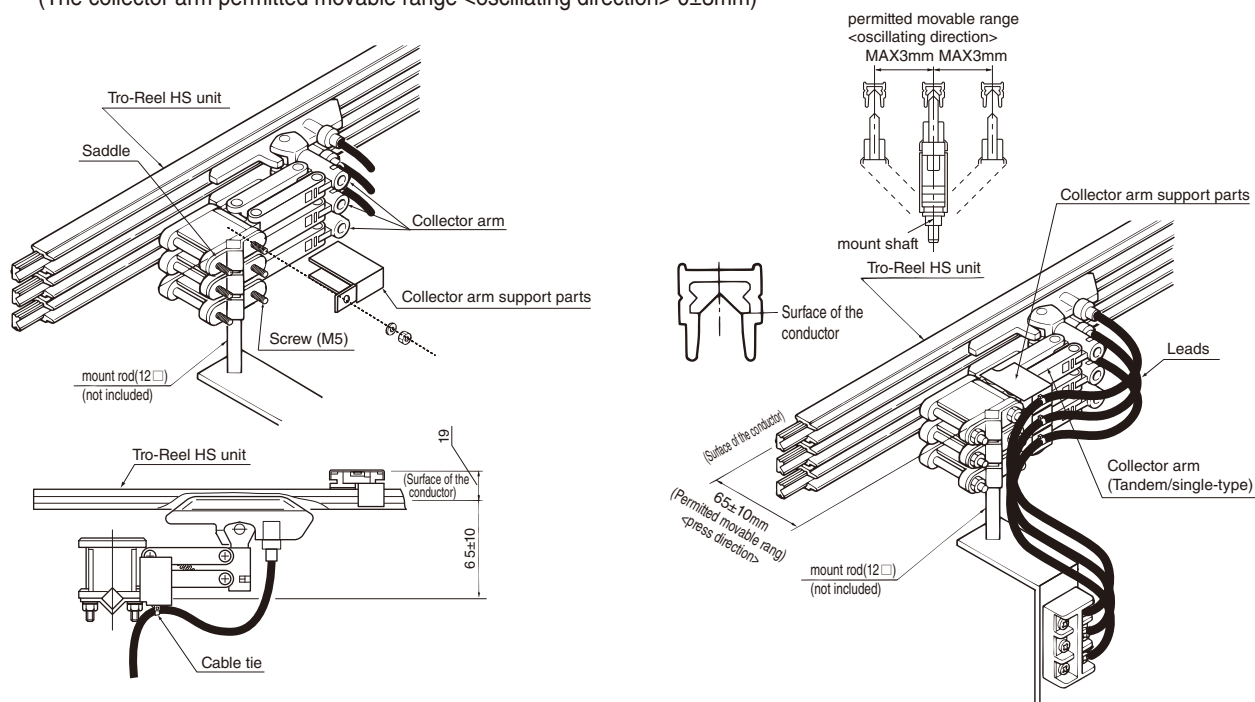
1. position hangers the same as shown above (1).
2. Bend the Tro-Reel HS unit to the required degree before mounting it. (The unit can be bent by hand.)



10 Collector arm installation

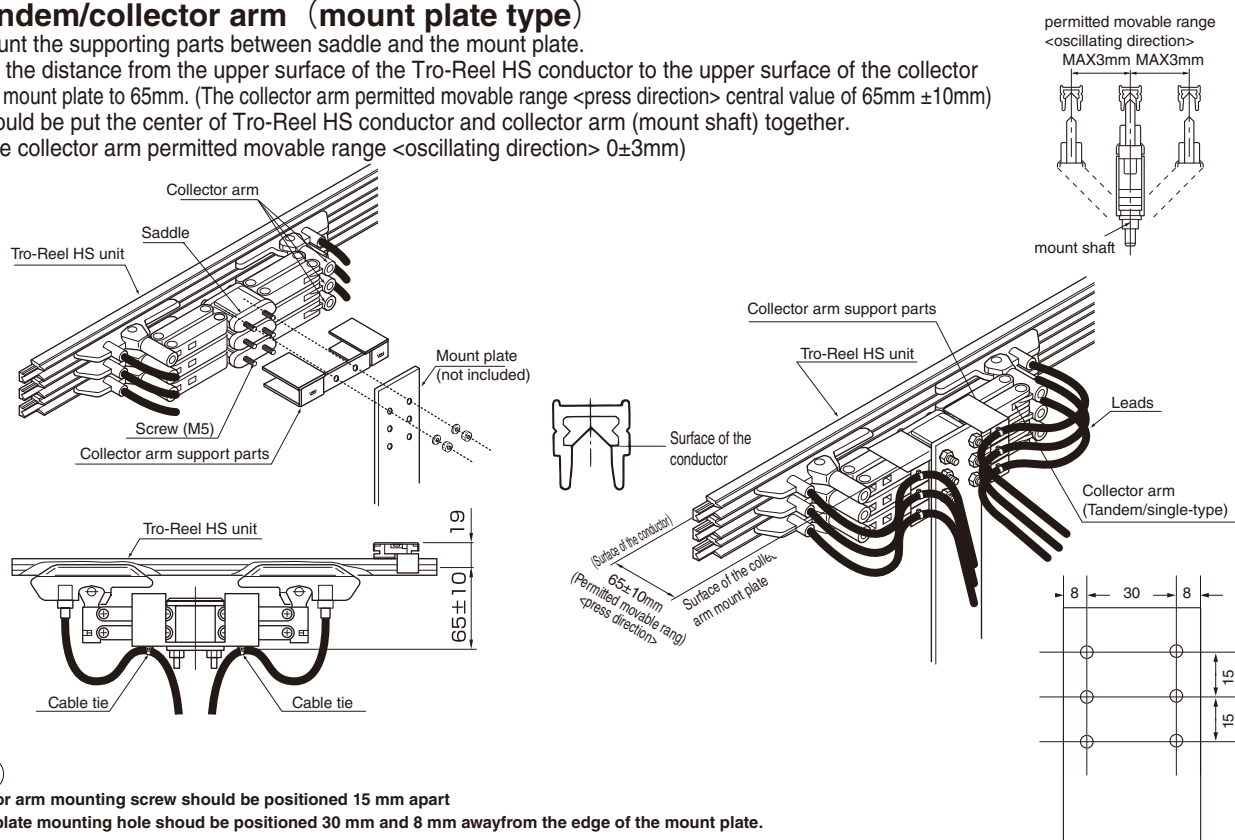
■ Tandem/single-type collector arm (mount rod type)

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
(The collector arm permitted movable range <press direction> central value of $65\text{mm} \pm 10\text{mm}$)
3. Should be put the center of Tro-Reel HS conductor and collector arm (mount shaft) together.
(The collector arm permitted movable range <oscillating direction> $0 \pm 3\text{mm}$)



■ 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. (The collector arm permitted movable range <press direction> central value of $65\text{mm} \pm 10\text{mm}$)
3. Should be put the center of Tro-Reel HS conductor and collector arm (mount shaft) together.
(The collector arm permitted movable range <oscillating direction> $0 \pm 3\text{mm}$)

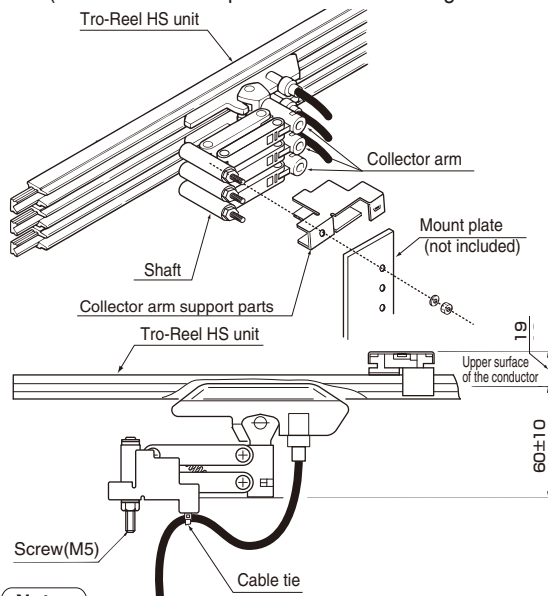


Notes

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

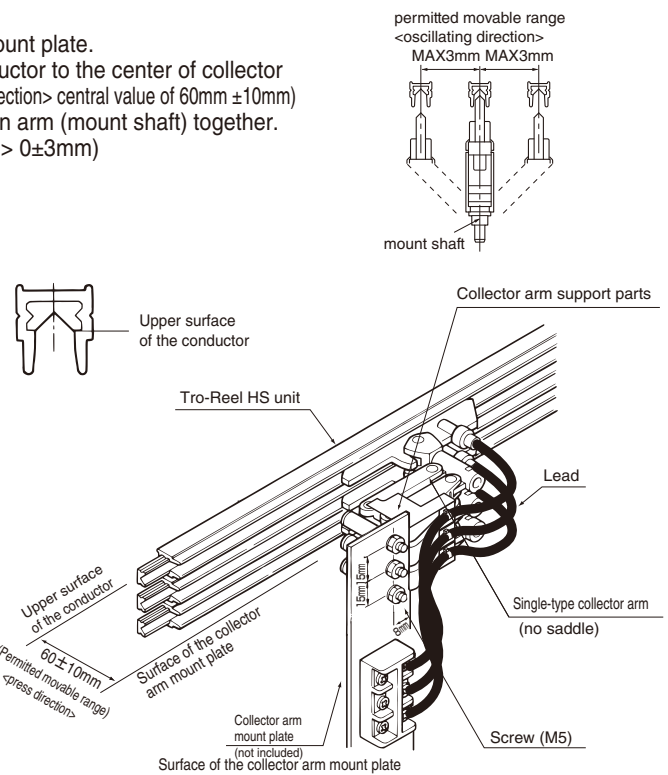
Single-type collector arm (no saddle)

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 (The collector arm permitted movable range <press direction> central value of $60\text{mm} \pm 10\text{mm}$)
3. Should be put the center of Tro-Reel HS conductor and collection arm (mount shaft) together. (The collector arm permitted movable range <oscillating direction> $0 \pm 3\text{mm}$)



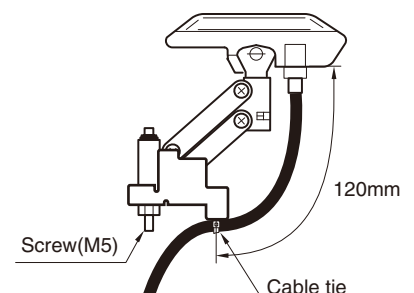
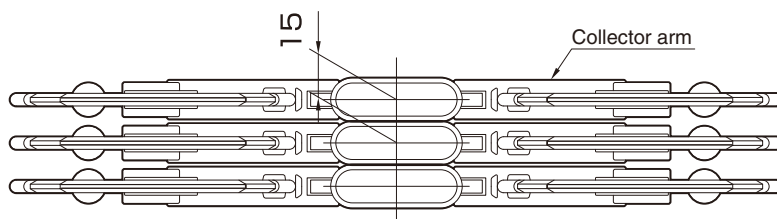
Notes

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



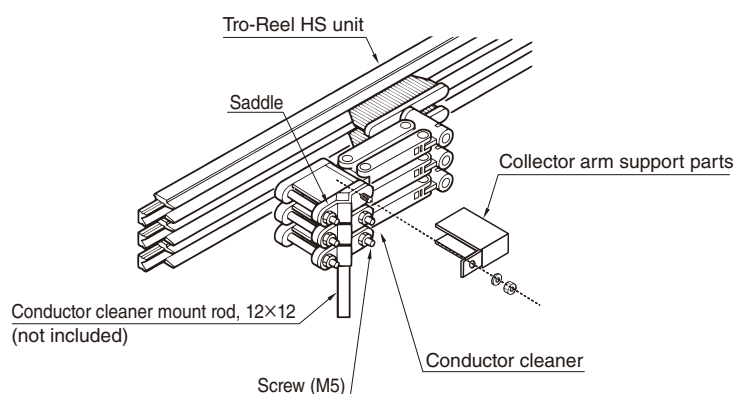
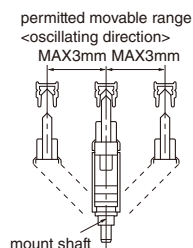
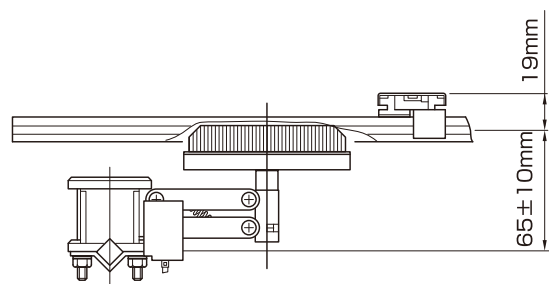
Notes

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 $65 \pm 10\text{mm}$ ($60 \pm 10\text{mm}$ 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 exchanging 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 separately.
Then, keep slack in the leads (The length of lead to fix is about 120 mm from replacement part of collector). Do not influence 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 load.
7. When mounting 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. 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 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 cleaner mount rod to 65mm (The collector arm permitted movable range <press direction> central value of $65\text{mm} \pm 10\text{mm}$)
3. Should be put the center of Tro-Reel HS conductor and collection arm (mount shaft) together.
(The collector arm permitted movable range <oscillating direction> $0 \pm 3\text{mm}$)



Notes

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.