

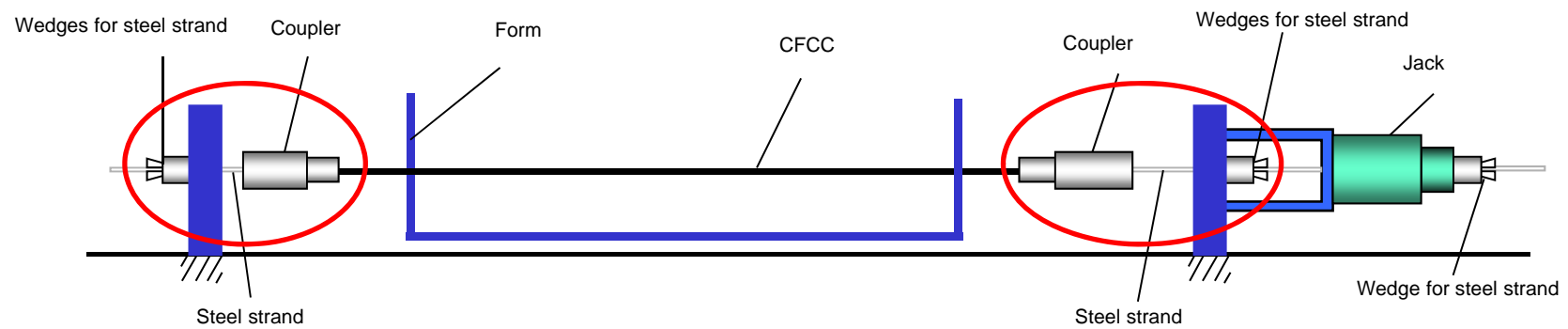
CFCC Pre-tensioning Manual for Precast pre-stressed concrete beam

This manual shows the basic work sequence at the time of manufacturing Precast Prestressed concrete Beams which uses CFCC Tendons at pre-caster's factories.



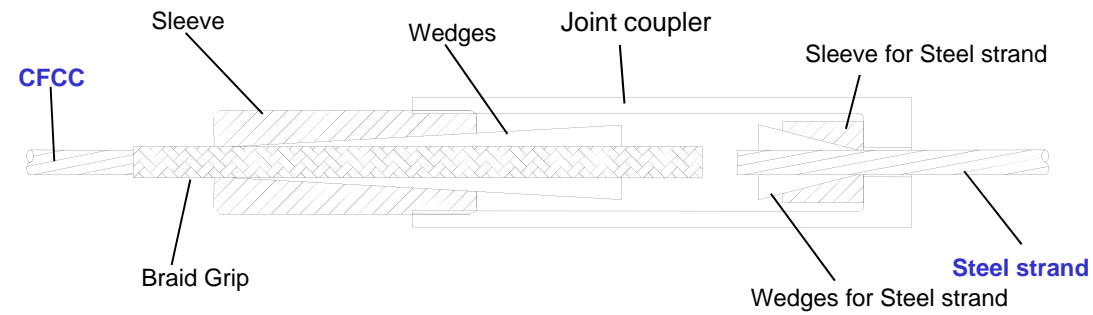
TOKYO ROPE MFG.CO.,LTD.

1. General pre-tensioning system



TOKYO ROPE MFG.CO.,LTD.

2. Parts list



Sleeve for CFCC



Wedges for CFCC



Joint coupler



Mesh sheet



Braid Grip

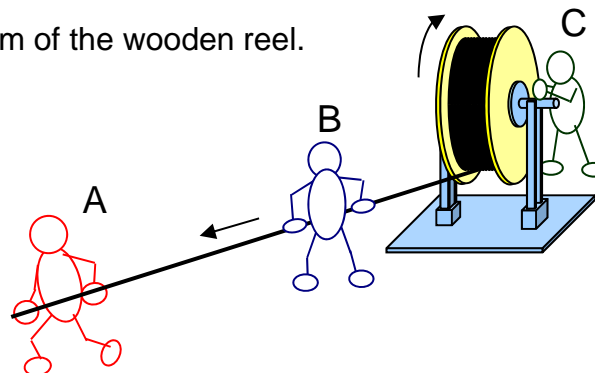


Wedges for Steel strand

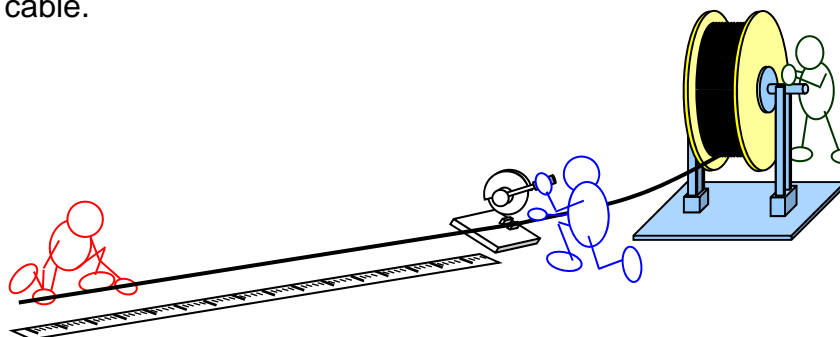
3. Handling of pre-tensioning cables (CFCC)

(1) Spreading and cutting

- ① Pull out the cable slowly from bottom of the wooden reel.



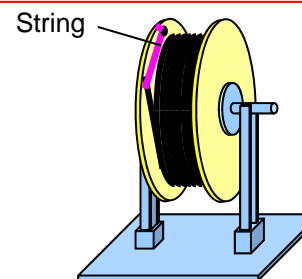
- ② Measure and cut the cable.



Notice

Hold outside the reel during the spreading work,
because it is the property to suddenly unwind.

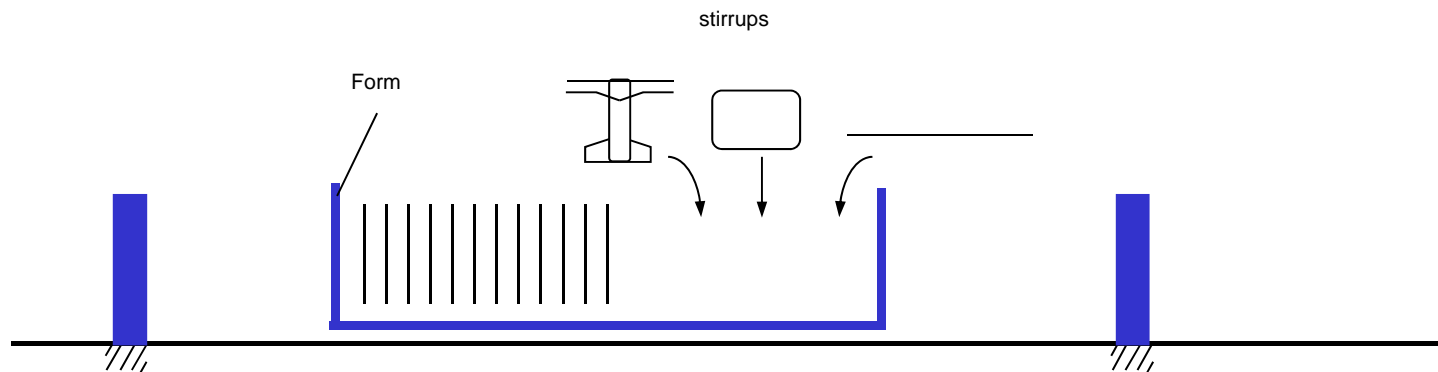
Fasten the end of CFCC to a wooden reel with a string,
at the time of the work end or the work intermission.



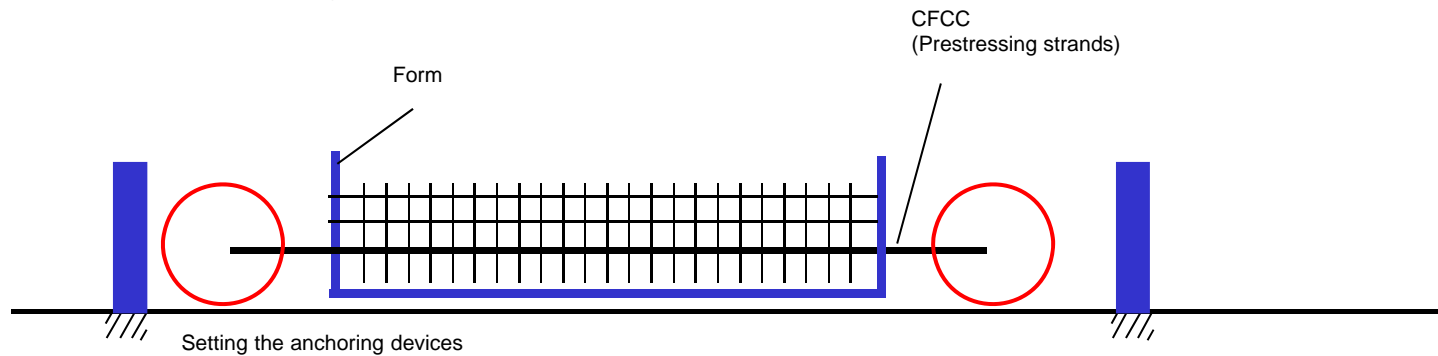
TOKYO ROPE MFG.CO.,LTD.

(2) Setting to the form

- ① Set the reinforcements (stirrups and bars) into the form.



- ② Insert the pre-stressing strands into the form.

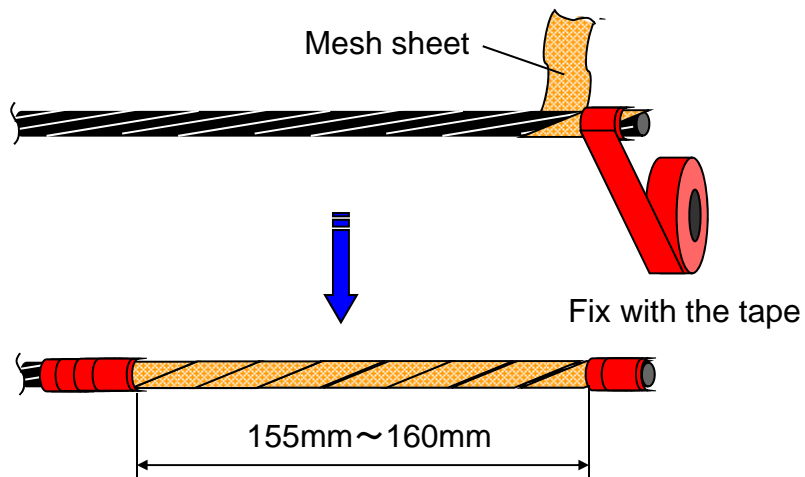


TOKYO ROPE MFG.CO.,LTD.

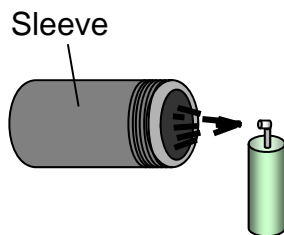
(3) Setting the anchoring devices

(3-1) Wrapping the buffer material

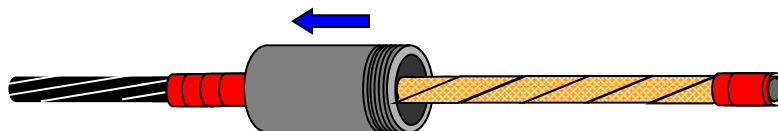
- ① Wrap the anchoring part of CFCC with the mesh sheets.



- ② Spray molybdenum on the inside of sleeve .

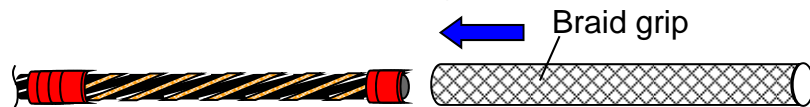


- ③ Insert the sleeve to CFCC.

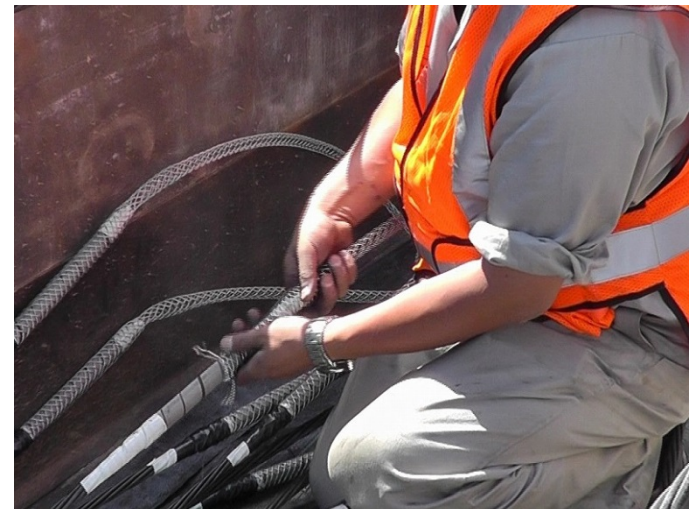
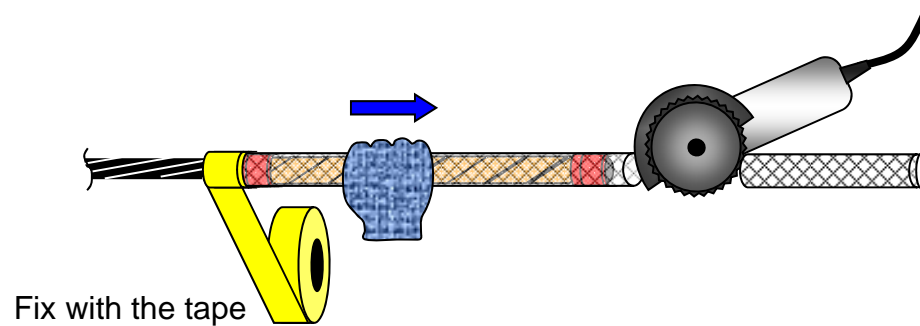


TOKYO ROPE MFG.CO.,LTD.

- ④ Insert the braid grip to CFCC, and cover the mesh sheet with the braid grip



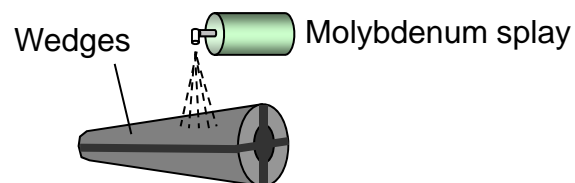
- ⑤ Draw the braid grip tightly in the direction of the arrow through your hand in order to eliminate the wrinkles, And then cut the braid grip.



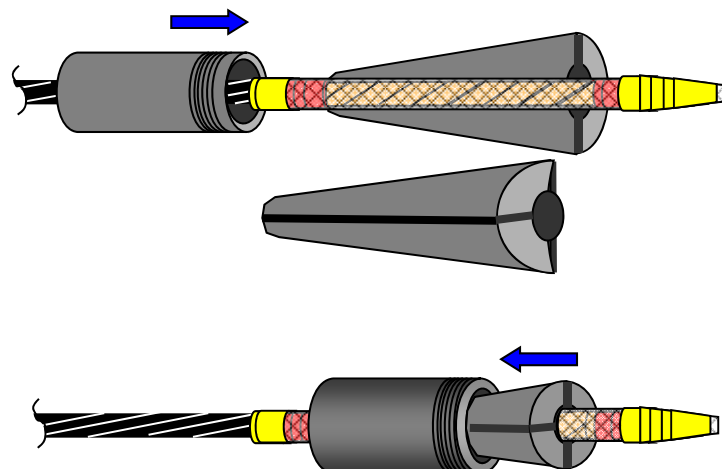
TOKYO ROPE MFG.CO.,LTD.

(3-2) Setting wedges and sleeve to CFCC

- ① Spray molybdenum on the outside of wedges.



- ② Set the wedges.

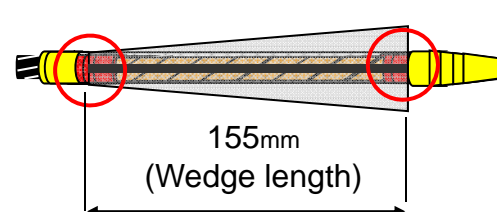


Notice

Pando 19A made by Three-bond or its equivalent shall be used for the molybdenum..

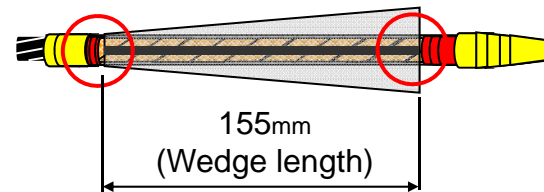
Notice

Do not set the wedges on any tape which fixed the mesh sheet and braid grips.



Warning

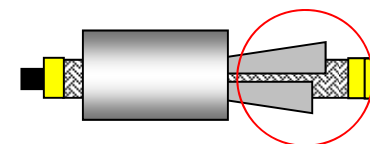
Set the wedges between the fixed tapes.



Good

Notice

Be careful so that the end face of the wedges does not become uneven.

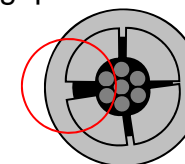


Warning

Do not become uneven the gaps between wedges.

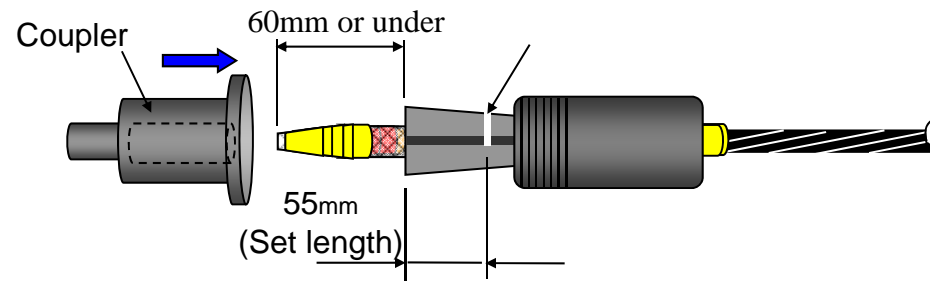


Warning

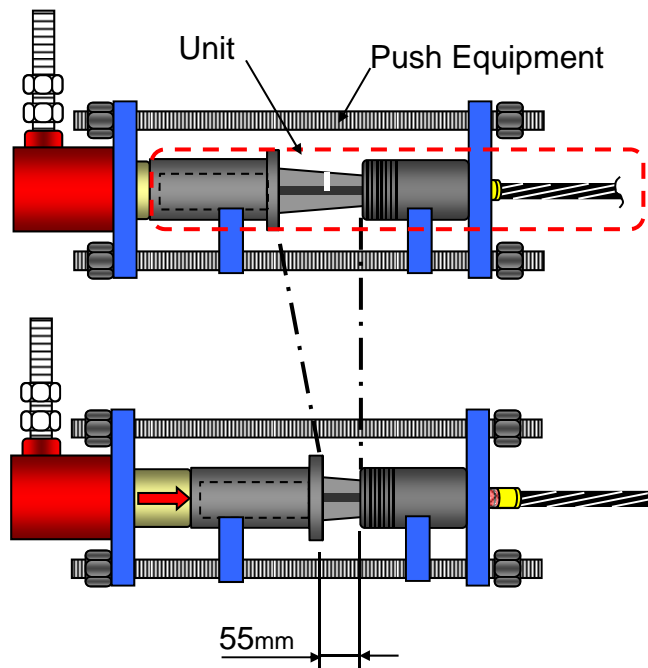


TOKYO ROPE MFG.CO.,LTD.

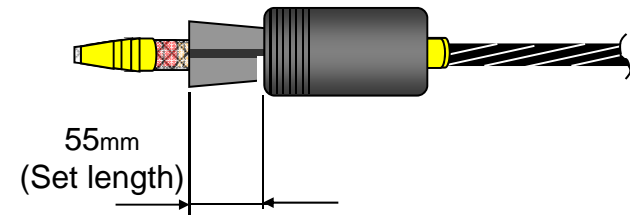
- ③ Mark the point at 55mm (Set length) ~~Mark the edge~~ of the wedges.



- ④ Set the above unit into the Push Equipment.

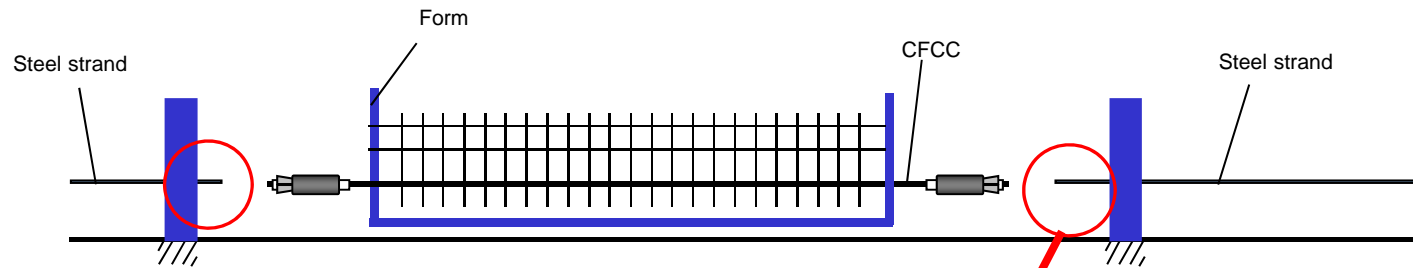


- ⑤ Finish

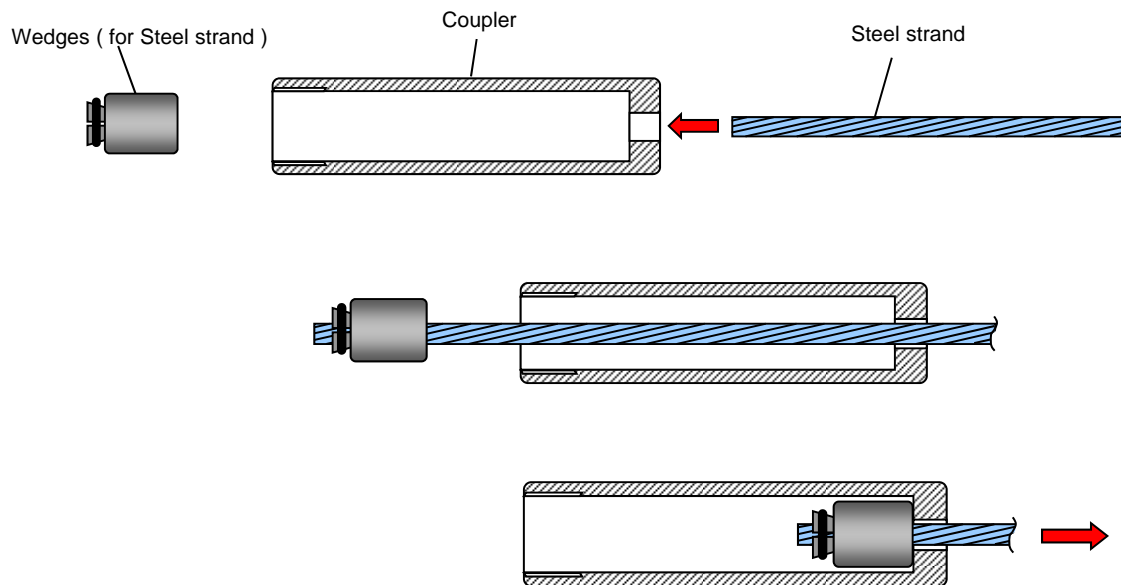


TOKYO ROPE MFG.CO.,LTD.

(4) Setting the tensioning devices



(4-1) Attaching the wedges and a coupler to steel strand.



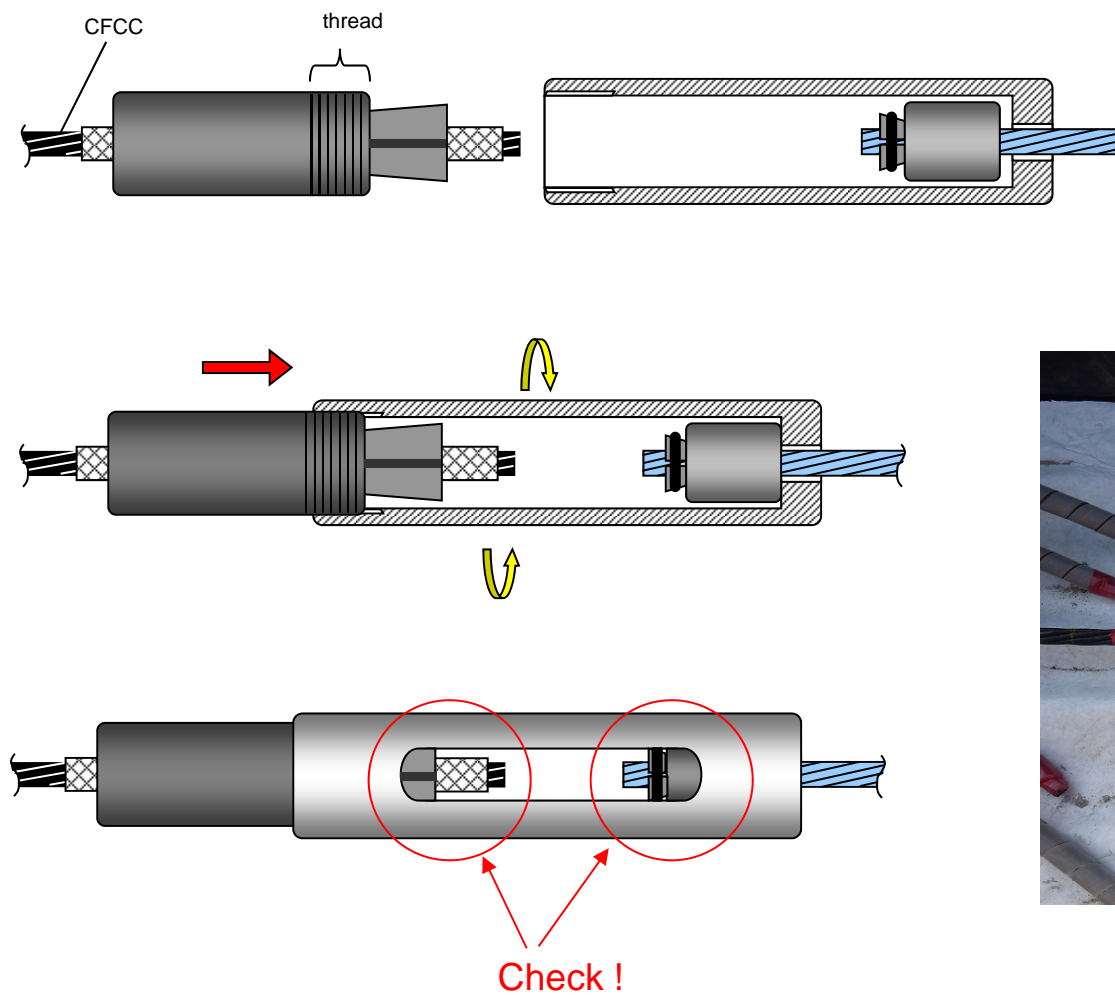
Notice

Use CFCC and steel strand of same lay direction. (The prevention of cable untwisting.)



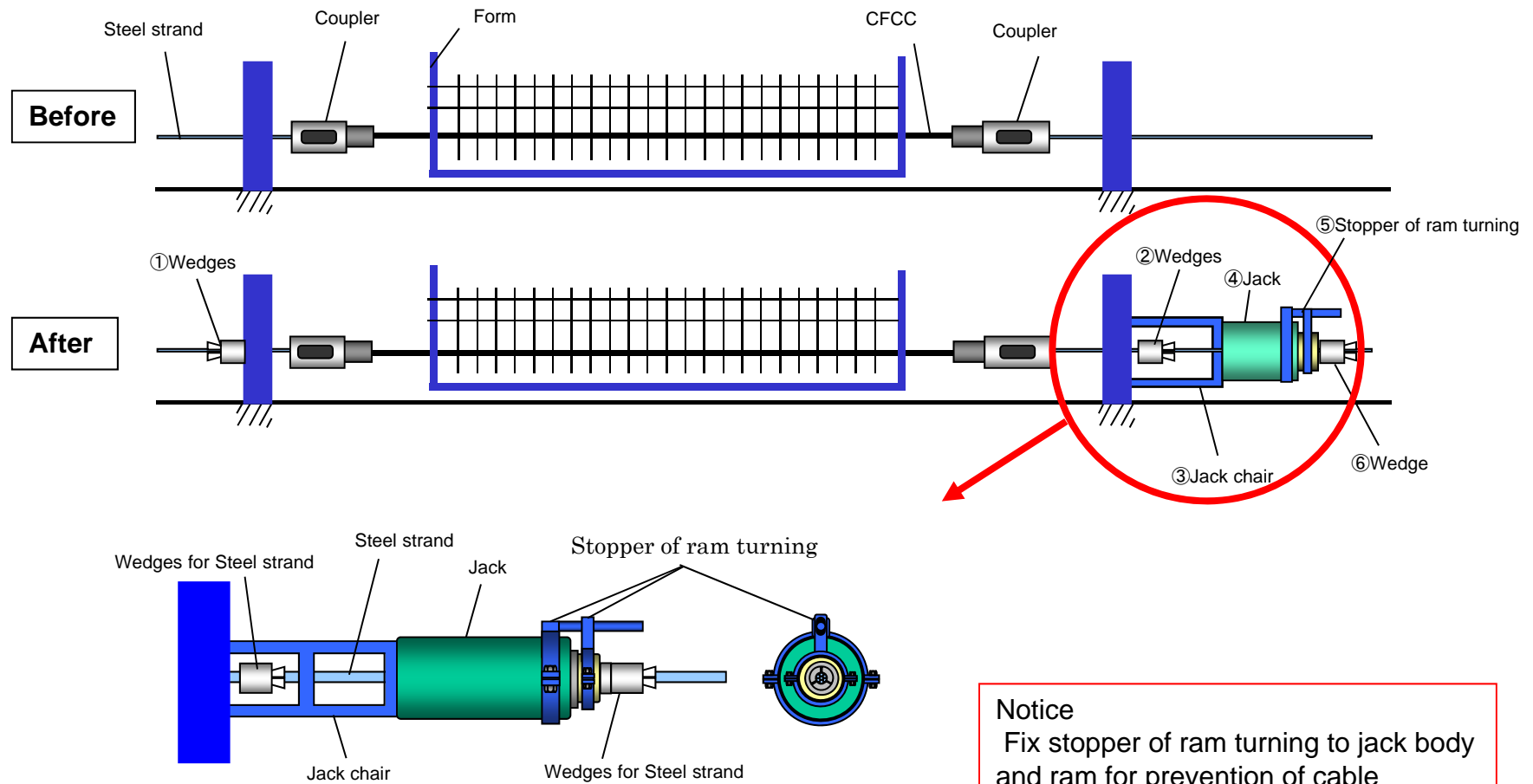
TOKYO ROPE MFG.CO.,LTD.

(4-2) Joining CFCC to steel strand while turning a coupler



TOKYO ROPE MFG.CO.,LTD.

(4-3) Setting up the tensioning devices



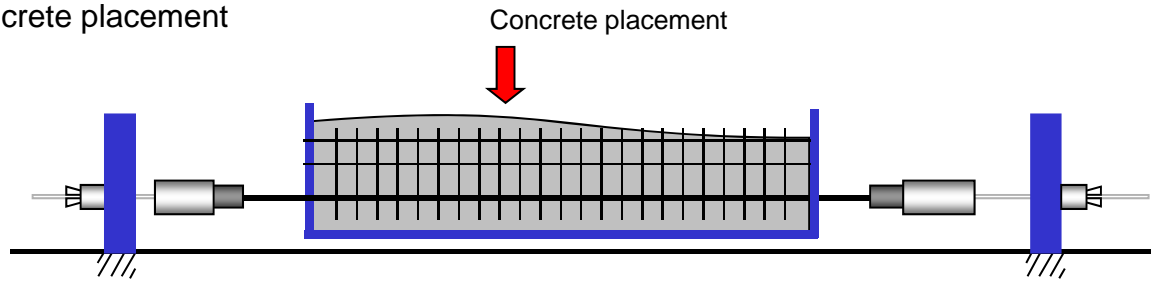
Notice
Fix stopper of ram turning to jack body and ram for prevention of cable untwisting.



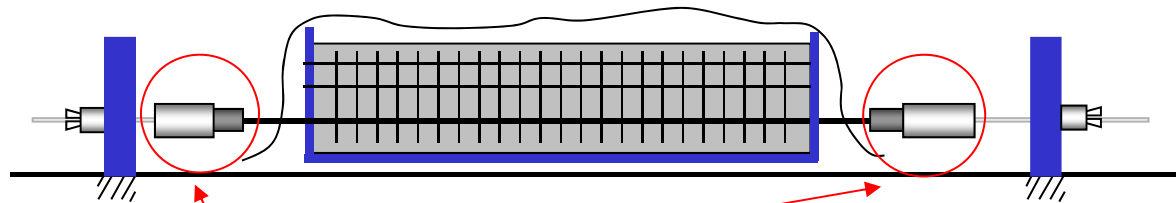
TOKYO ROPE MFG.CO.,LTD.

(8) Concrete placement and curing

① Concrete placement



② Concrete curing



Notice

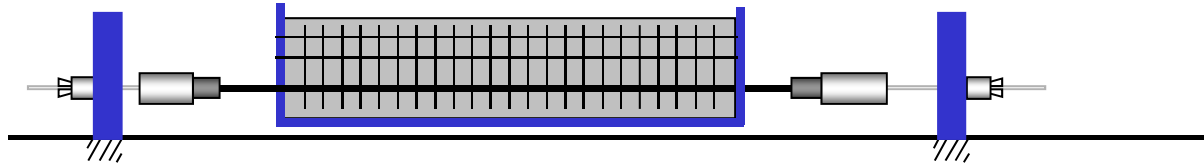
The part of couplers must not be exceeded 50°C (122° F).



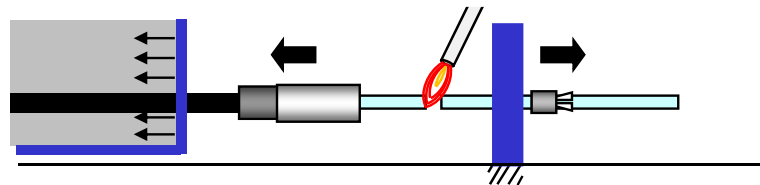
TOKYO ROPE MFG.CO.,LTD.

(9) Prestressing and disassembly of the couplers

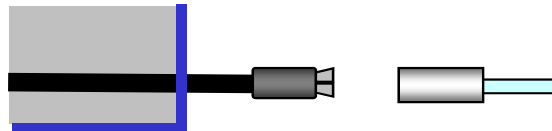
Install the tensioning devices again after curing.



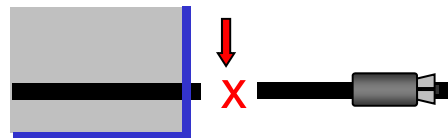
- ① Cut off the steel strand by the torch after curing.
(Prestressing for the concrete beam)



- ② Remove the coupler.



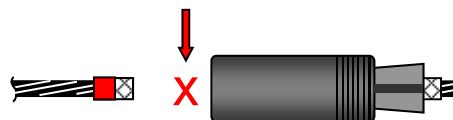
- ③ Cut off CFCC.



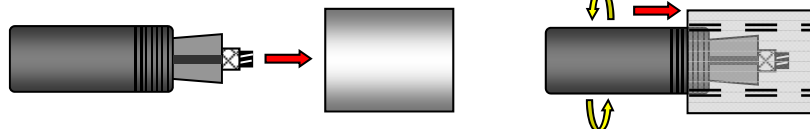
TOKYO ROPE MFG.CO.,LTD.

(10) Removing the wedges from Sleeve

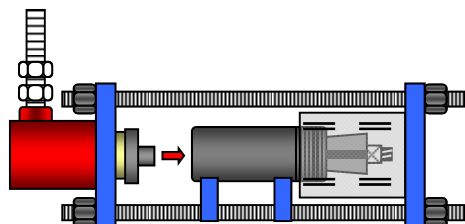
① Cut off surplus CFCC.



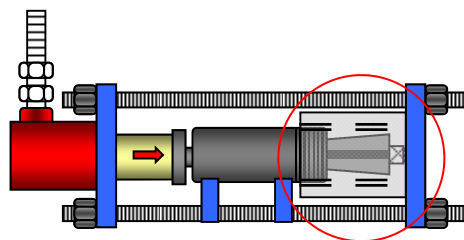
② Screw a sleeve into the collar.



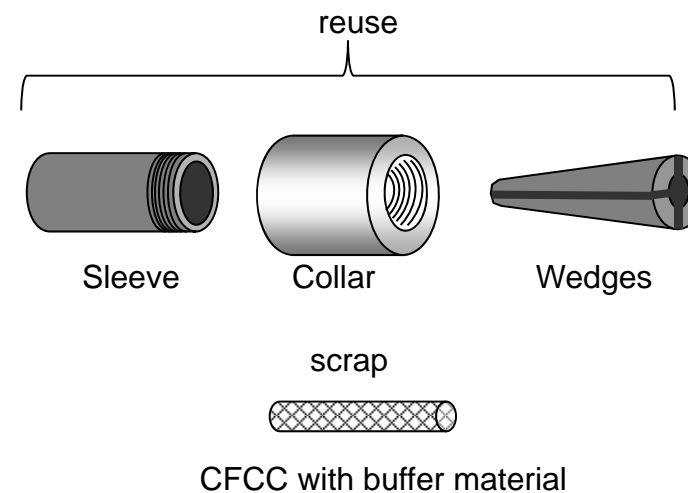
③ Set sleeve with collar at device to release the wedges.



④ Push out the wedges.



⑤ Remove the wedges from CFCC for reuse.



TOKYO ROPE MFG.CO.,LTD.