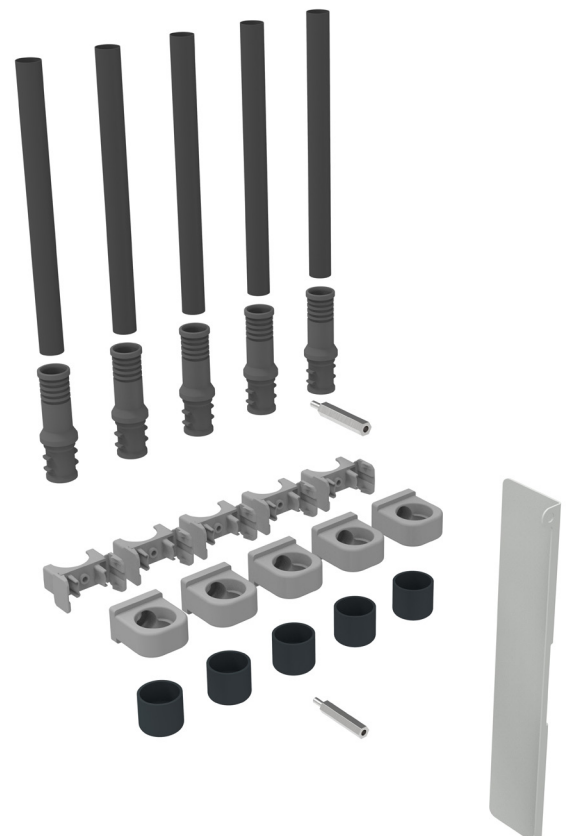


FACT-FRACC-CAP-HFC (base kit)



FACT-FRACC-CAP-HFC-EXT (extension kit)

FACT

INSTALLATION INSTRUCTION: FACT cable attachment plate for high fiber count cable (base kit and extension kit)

FACT CABLE ATTACHMENT PLATE FOR HIGH FIBER COUNT CABLE (BASE KIT AND EXTENSION KIT)

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1. General product information

This FACT frame accessory product is designed to fix high fiber count fiber cables with stranded or rollable ribbon fiber in the FACT frame and to distribute the fibers to the FACT chassis through flex-tubes. A broad range of cables can be installed on the plate using the appropriate cable clamps (to be selected for the applicable cable diameter and to be ordered separately). If required, a strength member attachment kit also has to be ordered separately.

The cable attachment plate base kit (FACT-FRACC-CAP-HFC) allows to distribute the fibers to up to five diameter 17mm flex-tubes. One diameter 17mm flex-tube can feed up to 864 bare fibers. One FACT frame can hold up to two CABLE DISTRIBUTION PLATES. This kit can also be used in the FIST-GR3 frame with identical installation practice.

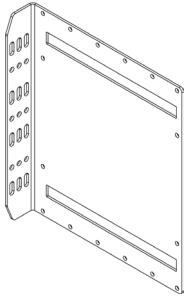
There is also an extension kit (FACT-FRACC-CAP-HFC-EXT) available which can be used to add up to five extra flex-tubes to the high fiber count cable attachment plate. Both kits will be shown in this installation instruction.

2. Warnings and caution

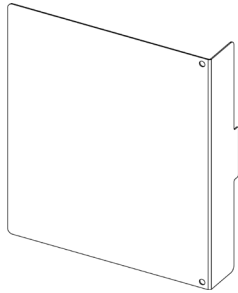
- Fiber optic cables may be damaged if bent or curved to a radius that is less than the recommended minimum bend radius. Always observe the recommended bend radius limit when installing fiber optic cables and patch cords.
- Exposure to laser radiation can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not assume the laser power is turned off or that the fiber is disconnected at the other end.

3. Kit content

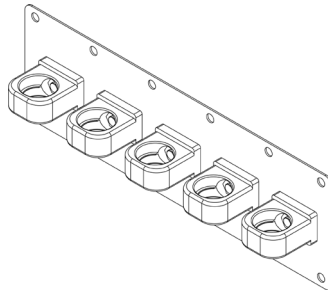
3.1. FACT-FRACC-CAP-HFC



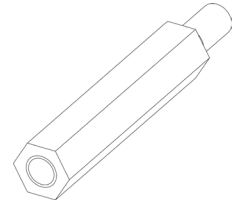
1x distribution plate



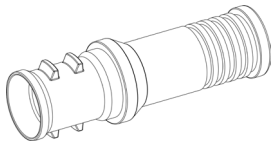
1x large shielding plate



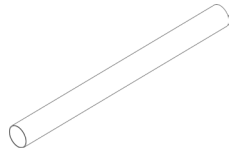
1x clamp plate kit



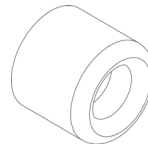
2x M5 spacer



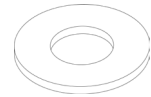
5x flex-tube adapter



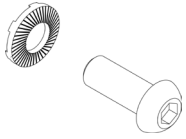
5x tubing sleeve



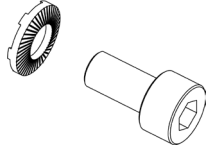
5x flex-tube edge protection



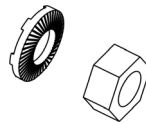
2x M10 washer



2x M6 bolt and washer



5x M5 bolt and washer

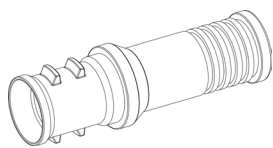


9x M5 nut and washer

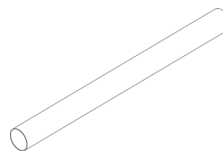
3.2. FACT-FRACC-CAP-HFC-EXT



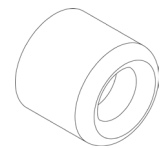
2x small shielding plate



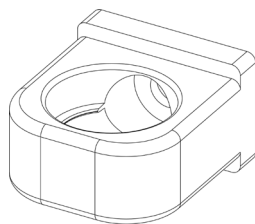
5x flex-tube adapter



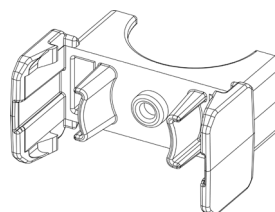
5x tubing sleeve



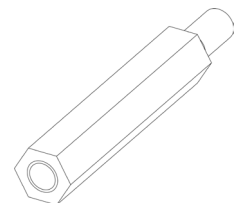
5x flex-tube edge protection



5x flex-tube clamp



5x clamp connection piece

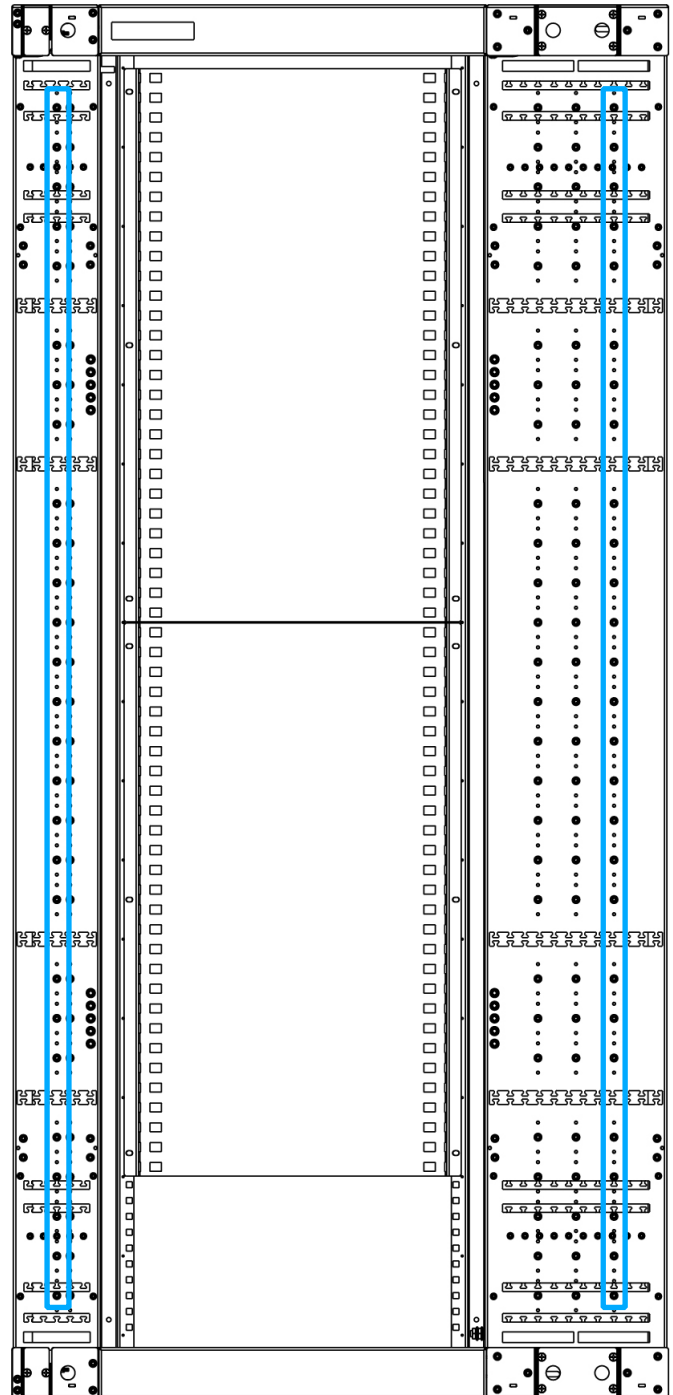
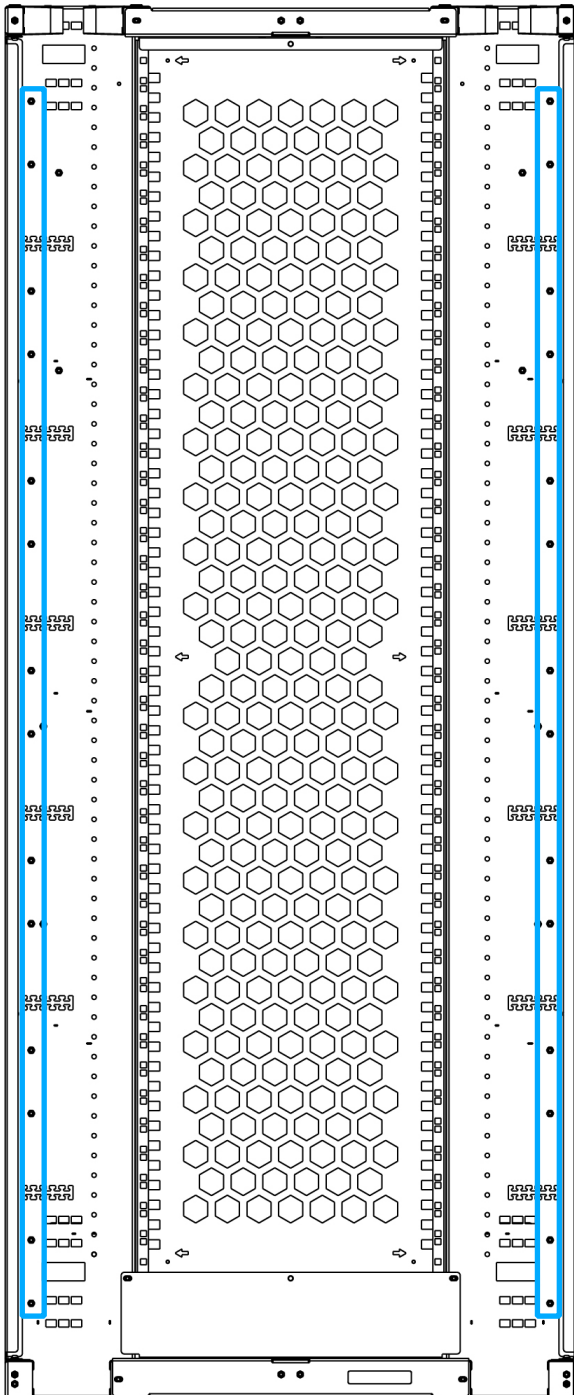


2x M5 spacer

4. Determine cable distribution plate position and mount it into the frame

FACT splice frame

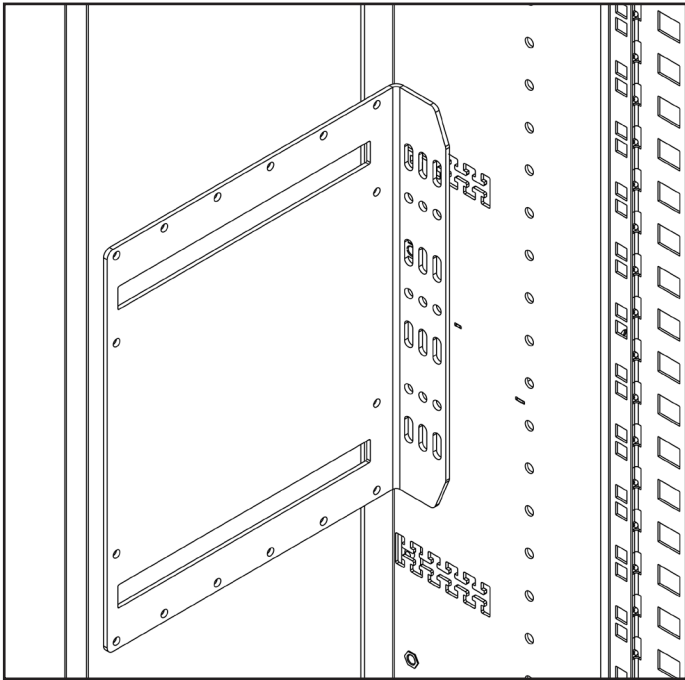
FIST-GR3



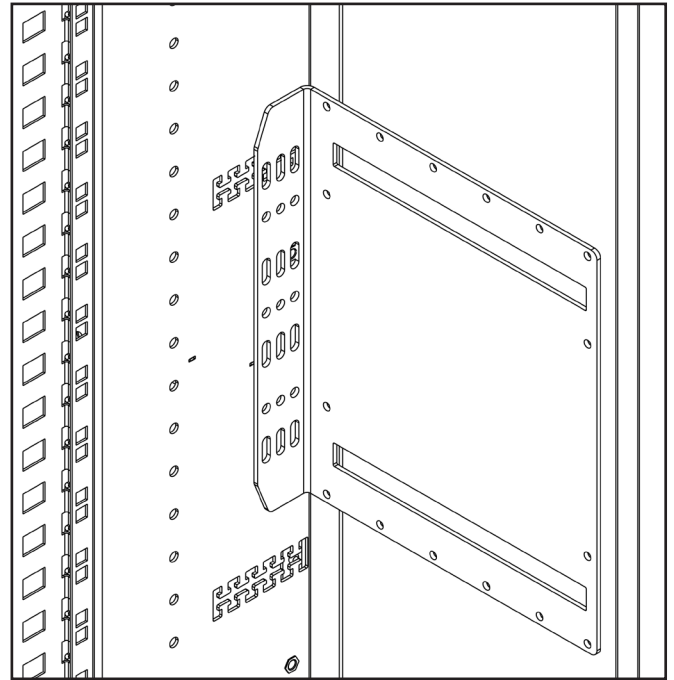
The cable distribution plate can be mounted on different positions. The left picture above shows the FACT splice frame with all fixing points for the distribution plate. The distribution plate can also be used in GR3 frames. The picture on the right above shows the fixing points for a GR3 frame.

The distribution plate can be mounted in different orientations. The pictures below show the different orientations. The pictures on the left show the left side-duct. The pictures on the right show the right side-duct.

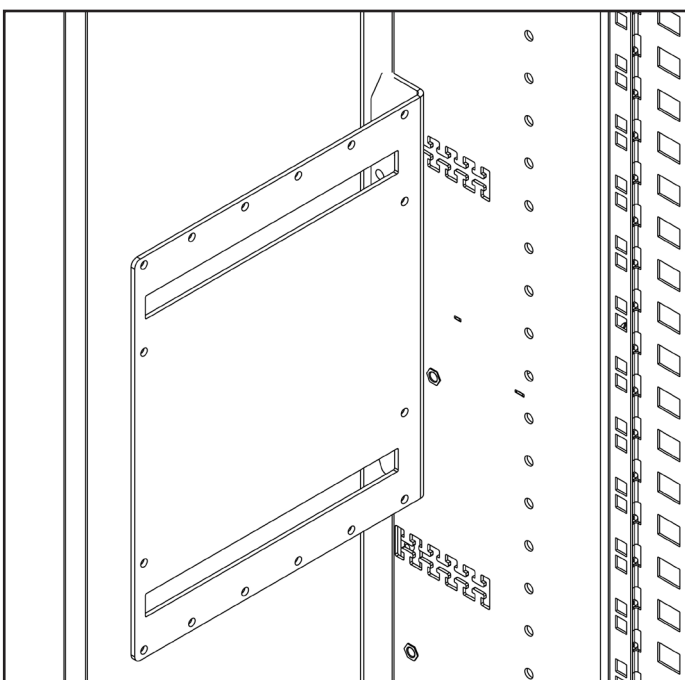
LEFT SIDE-DUCT: ORIENTATION 1



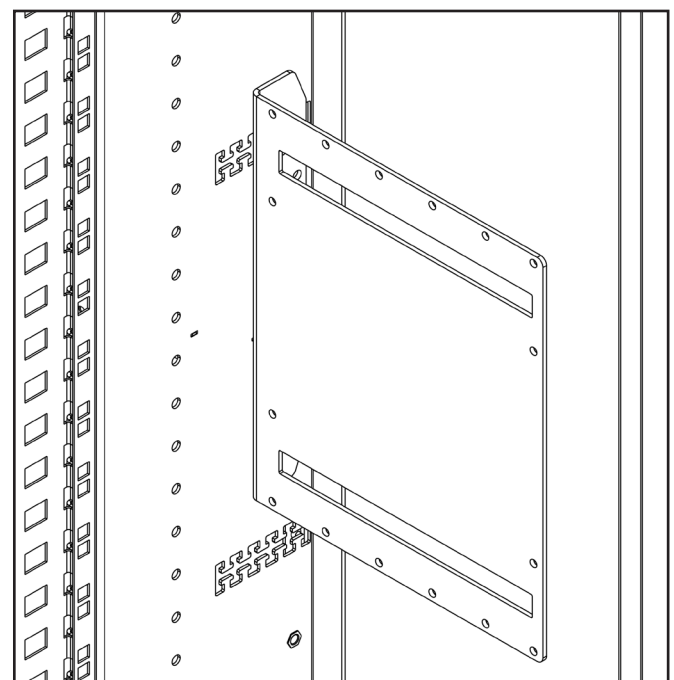
RIGHT SIDE-DUCT: ORIENTATION 1



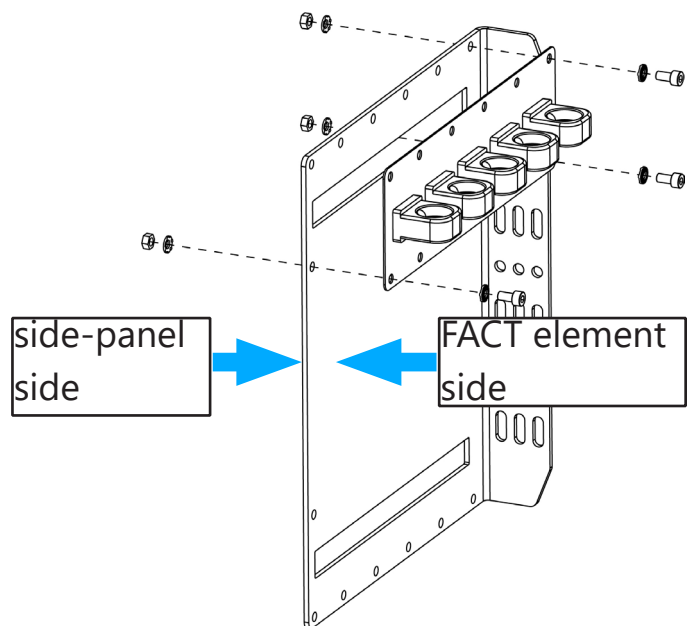
LEFT SIDE-DUCT: ORIENTATION 2



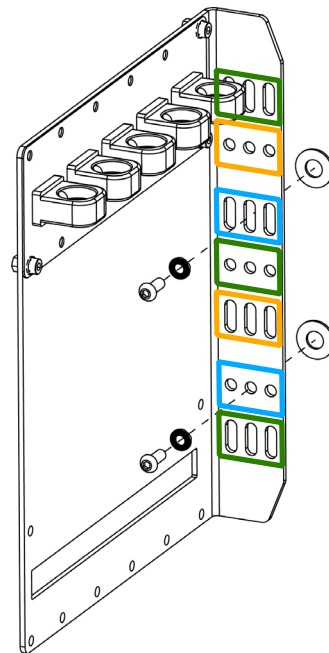
RIGHT SIDE-DUCT: ORIENTATION 2



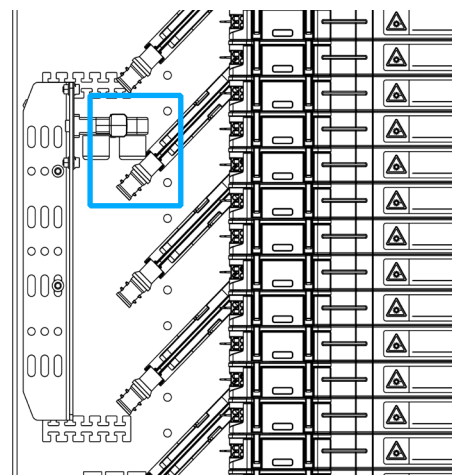
After you have chosen your position and orientation of the distribution plate you can mount the clamp plate onto the distribution plate with M5 nuts, washers, and bolts. You must mount the clamp plate before mounting the distribution plate into the frame because you will not have enough access between the side-panel and the distribution plate for handling the washers and nuts. The clamp plate must be placed at the top of the distribution plate at the FACT element side. That's why you need to know the orientation of the plate before mounting it into the frame. Use only 3 points of attachment. The top front corner is fixed later when mounting the shielding plate (see section 8).



There are 3 columns of hole patterns you can use for mounting the distribution plate to the frame, offering a wide range of placement possibilities. But when choosing your mounting position and orientation you must keep in mind that you need some space between the plate and the side-panel for routing flex-tubes. Round holes are always paired with oblong holes. The picture on the right shows the pairs that belong together in similar colors. Mount the distribution plate in the frame in the desired position using the M6 bolts and washers. Also place two M10 washers in between the distribution plate and the frame as a spacer if this is required in the FACT FRAME (as shown in the picture on the right).



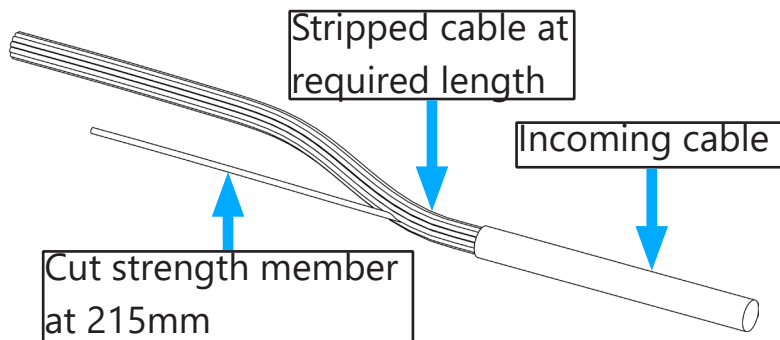
Note: When working with the FACT FRAME angled CTU's you have to be careful in selecting the position of the cable distribution plate in the frame. You have to make sure that the CTU's will not interfere with the flex-tube clamps or the flex-tube edge protection pieces (see picture below).



5. Cable termination

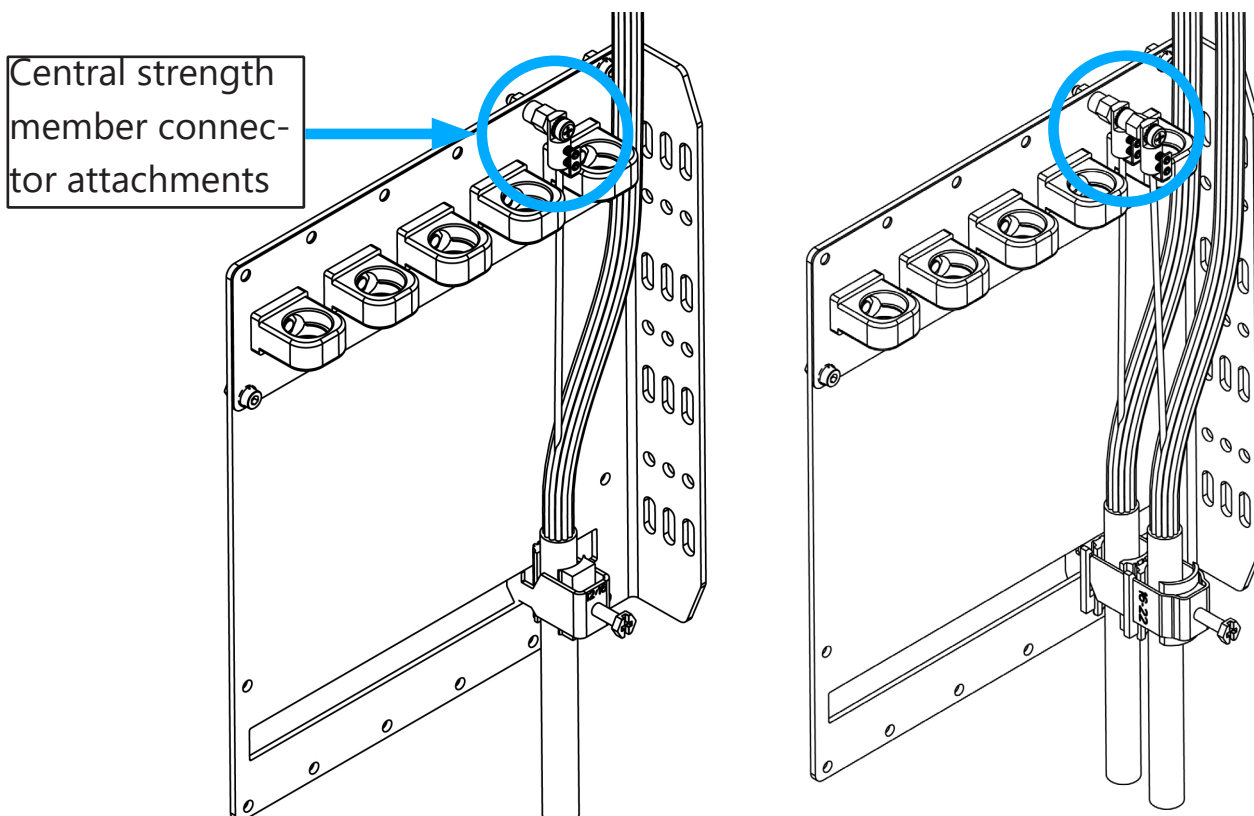
Step 1:

Strip the incoming cable at the required length. Remove the central tube or the loose tubes and cut the strength member at 215mm if central strength member attachment is required.



Step 2:

Different cable clamps are available to allow multiple cable diameters and stacking of cables (2x). Choose the type of cable clamp and install the clamp and the cable on the distribution plate. If a central strength member attachment is required, you can mount it simultaneously. If you want to attach multiple cables in a row, it is best to start at the back of the plate to ensure future accessibility. Two cables can be mounted on top of each other as well, if required. If you install 2 cables on top of each other, each with a strength member, install a spacer between the first and second central strength member connector. Fasten the screw of the cable clamp hand tight to avoid optical losses. The pictures below show some installation examples.



6. Distribute and guide fibers to FACT chassis through flex-tubes

Step 1:

Determine the length from the flex-tube clamp to the flex-tube holder on the CTU and cut the flex-tube to this length (see section 9).

Step 2:

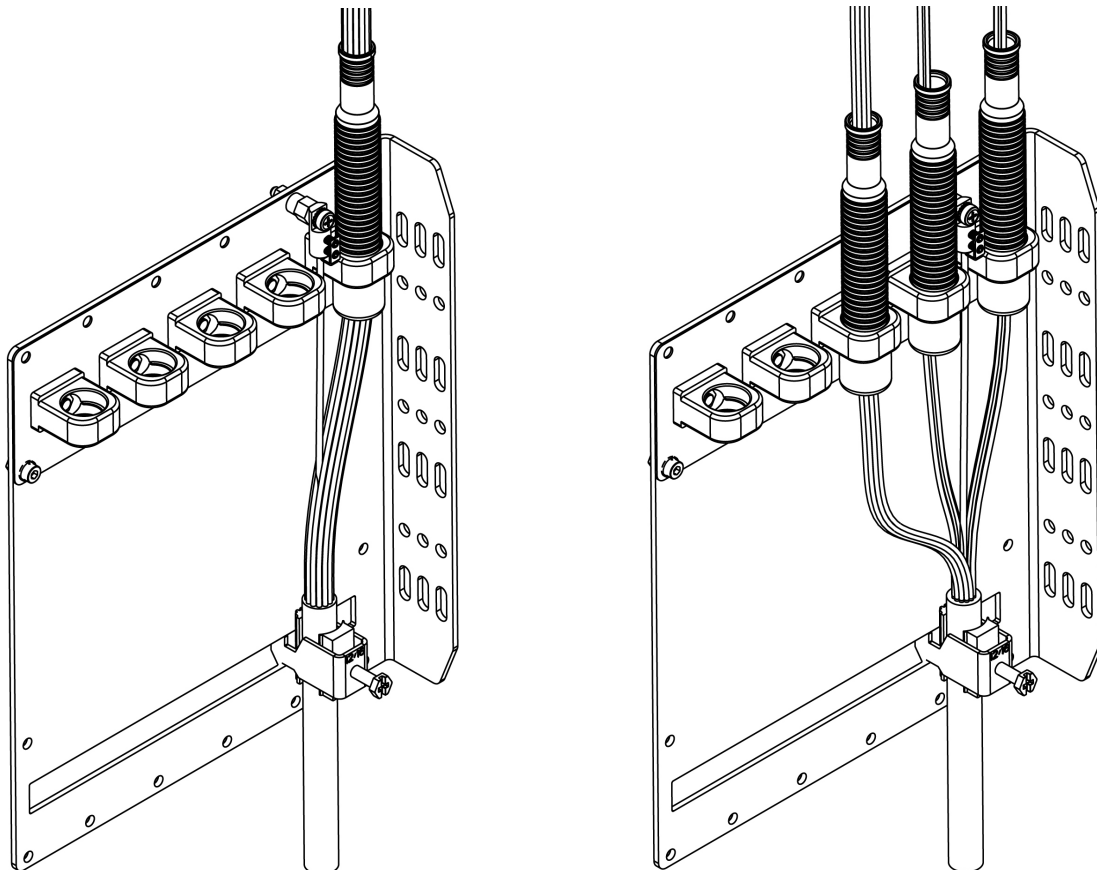
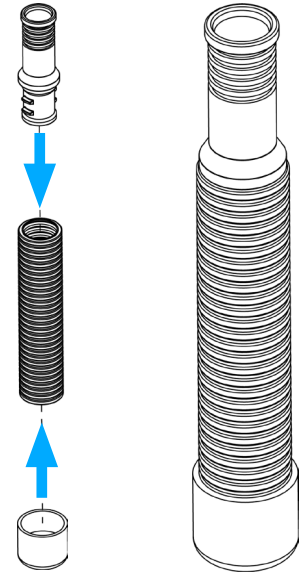
Push the flex-tube edge protection over the flex-tube at one side and push the flex-tube adapter in the flex-tube on the other side. Make sure these components are pushed over each other as far as possible.

Step 3:

Tape the end of the fiber bundle and feed it through the flex-tube. You can feed a maximum of 864 bare fibers through one flex-tube. Depending on the cable fiber count and the required FACT configuration you can fan-out the fibers of one cable to multiple flex-tubes.

Step 4:

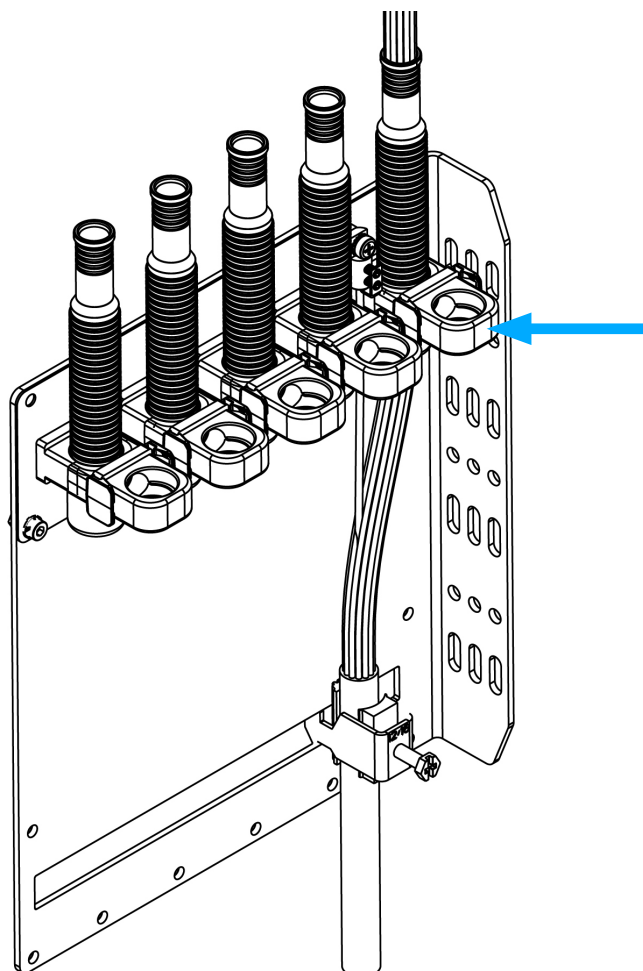
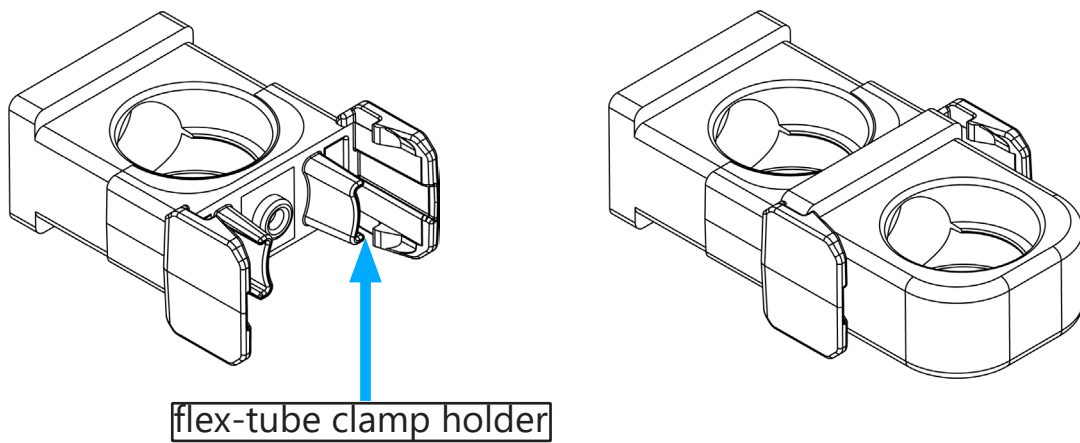
Attach the flex-tube to the distribution plate with the flex-tube clamps (see pictures below). Afterwards, attach the other side of the flex-tube adapter to the corresponding CTU (see section 7).



Step 5:

Repeat steps 1 through 4 to complete the cable to flex transition.

Note: If required, flex-tubes can be stacked with an extra connection piece (kit FACT-FRACC-CAP-HFC-EXT is required).

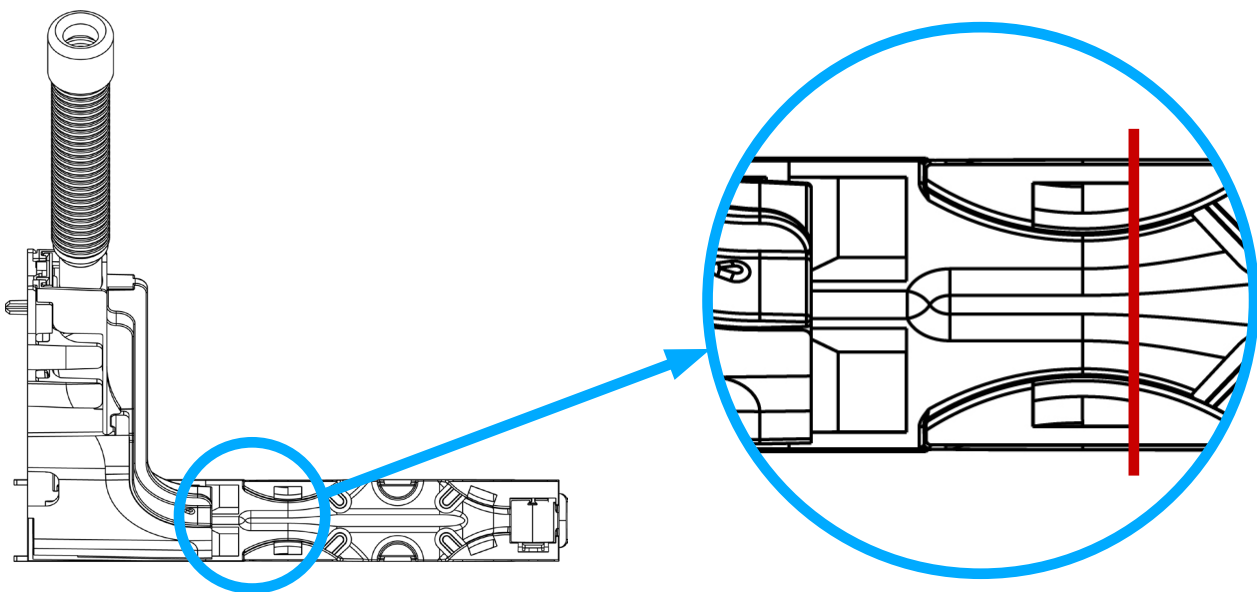


7. Attach the flex-tube to the CTU and distribute the fiber bundles to the FACT chassis

Step 1:

For FACT FRAME angled CTU's, feed every fiber bundle through a 150mm tubing sleeve. This sleeve will protect the bundle of fibers from pinching in between the cover and the bracket of the angled CTU. Position the sleeve correctly! The end of the sleeve must be somewhere in front of the red line shown in the picture below.

For other CTU's you can ignore this step.



Step 2:

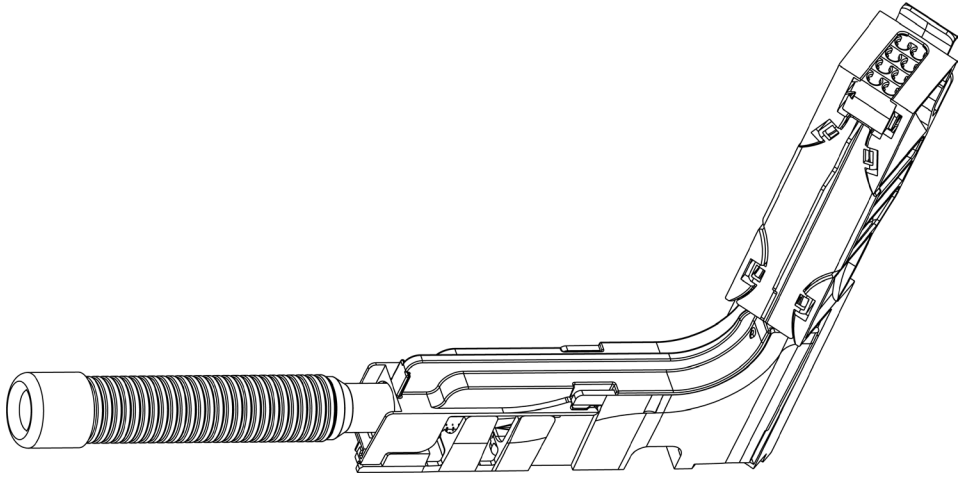
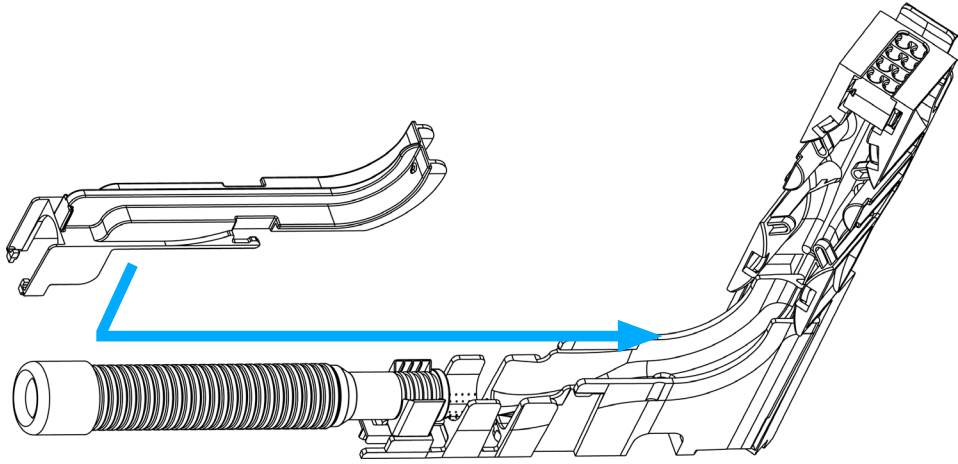
Attach the flex-tube adapter (mounted on the flex-tube) to the CTU via the flex-tube holder.

Step 3:

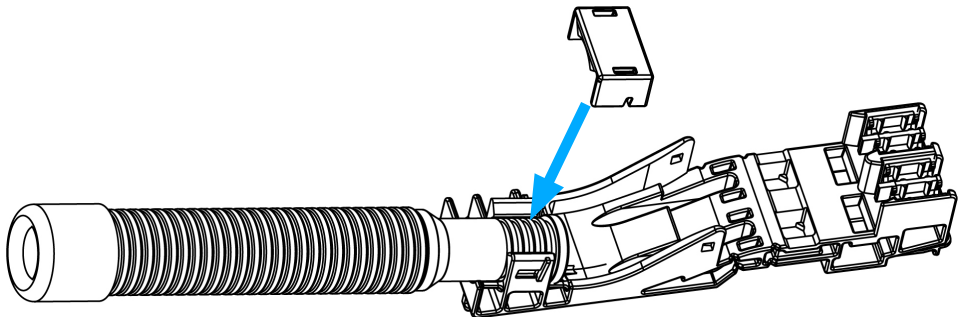
Distribute the fiber bundles to the FACT chassis (see installation instruction delivered with the CTU). Below you will see some pictures showing the angled CTU and the CTU-M.

Warning: If more than 288 fibers are entering one CTU, always use the angled CTU (**FACT-FRACCCTUxE**)!

FACT FRAME angled CTU

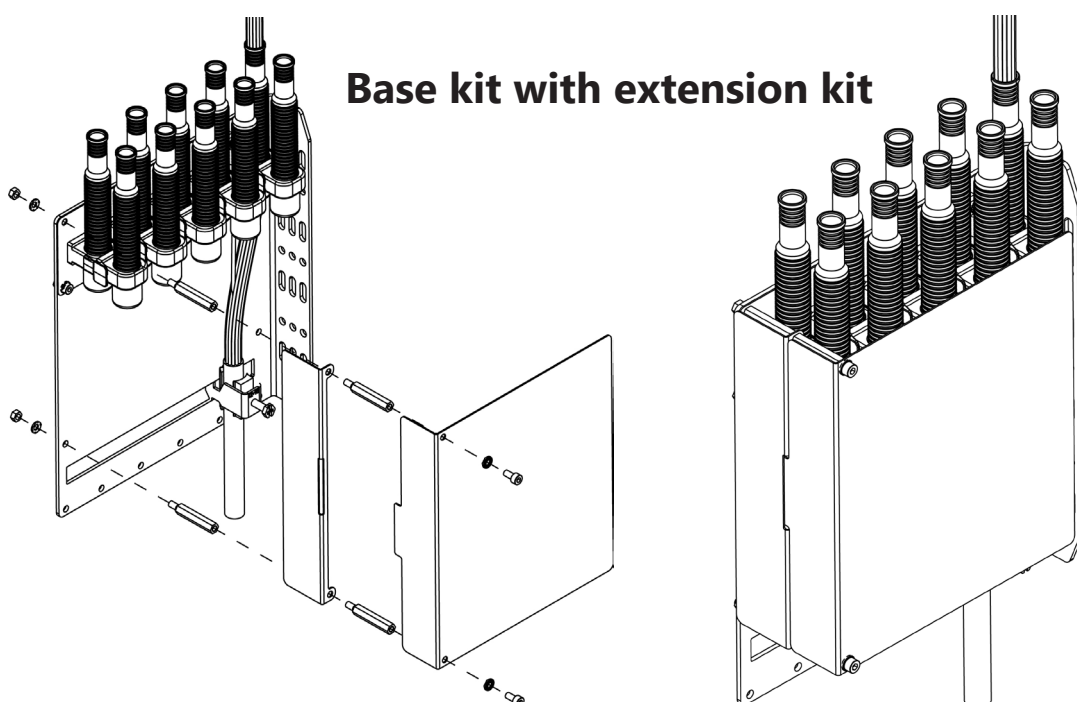
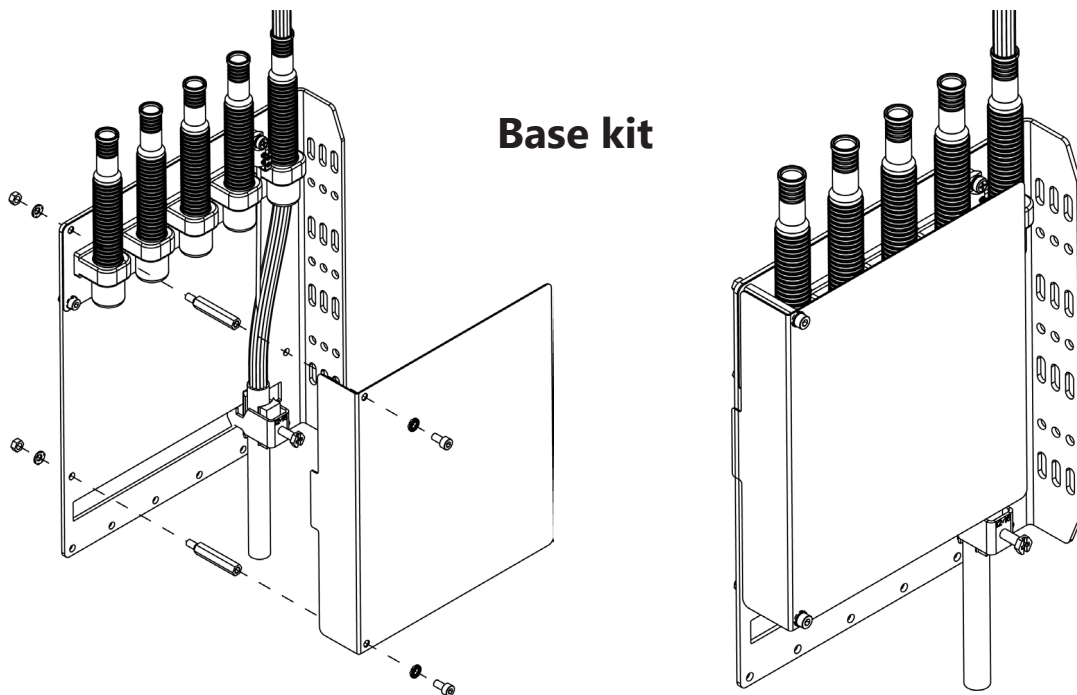


CTU-M



8. Add cover to distribution plate

The last step is to place the shielding plate(s) using M5 bolts, nuts, washers and spacers. The top two pictures below show the assembly of the shielding plate of the base kit. The bottom two pictures show the assembly of the shielding plates when using the expansion kit.



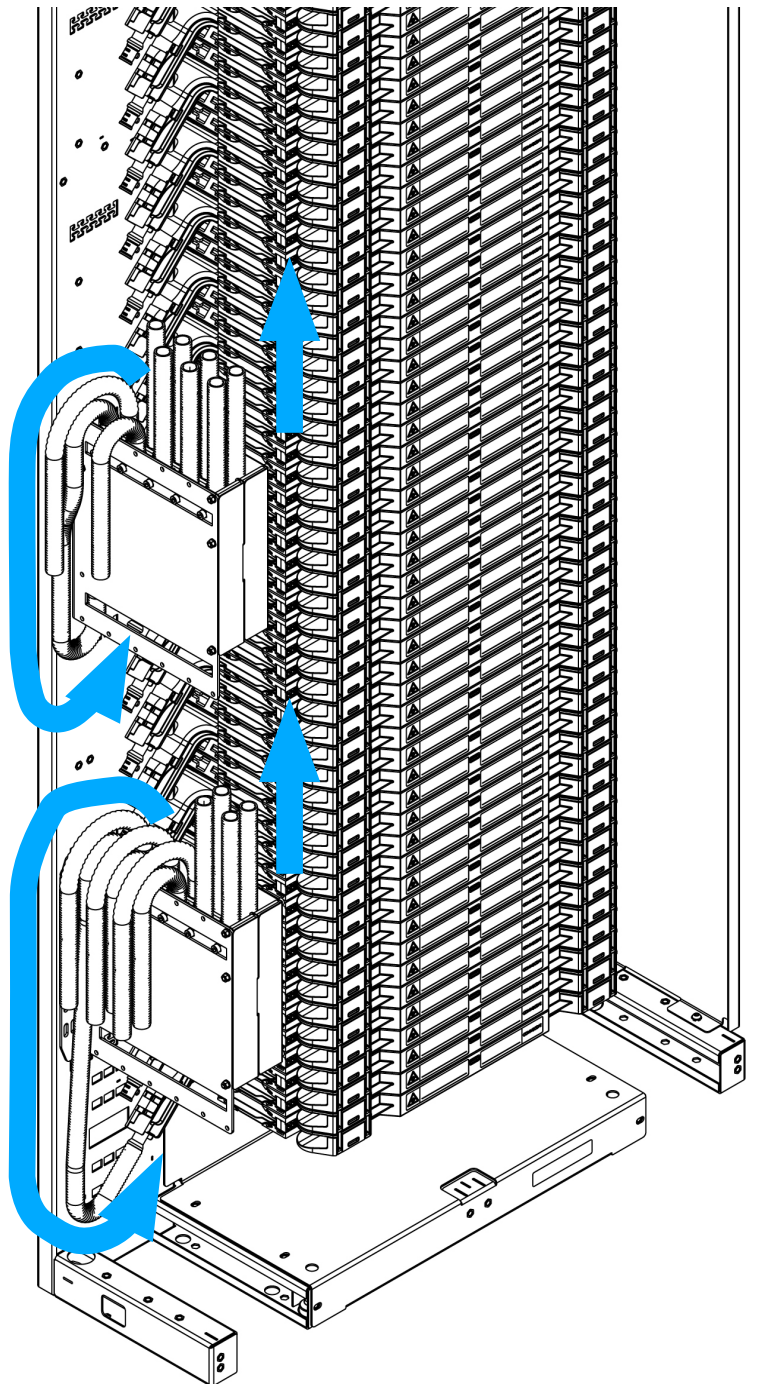
9. Installation practices

This chapter will show some recommended installation practices using two examples.

9.1. Two distribution plates - cables from bottom - example

As first example we will use two cable distribution kits and two expansion kits, placed in a FACT splice frame with 60 FACT splice elements. This means we can have up to 20 flex-tubes. This means that, if we use all 20 flex-tubes, each flex-tube will guide fibers to a block of 3 elements. In this use-case we recommend mounting the distribution plates using the third and fourth fixing point for the bottom plate and the 7th and 8th fixing point for the top plate, starting to count the fixing points at the bottom of the frame (see section 4). This corresponds to the bottom of the attached plates being at an approximate height of 33cm and 97cm respectively. It is also recommended to mount them staggered. This will give some extra necessary space for cable(s) to go from the bottom of the frame to the higher mounted distribution plate, passing the left side of the lower mounted distribution plate.

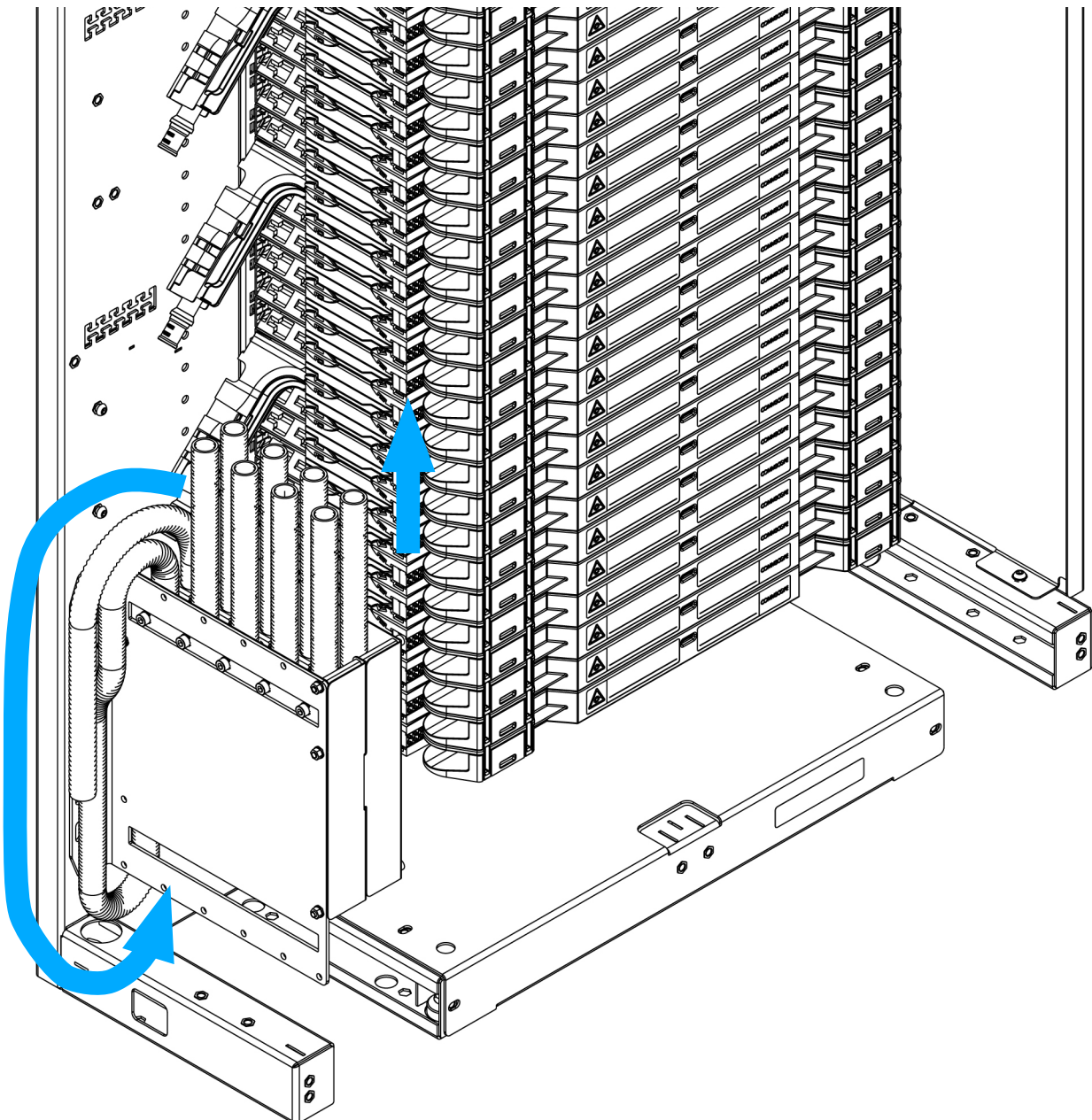
To avoid too many crossings, you can route the 6 flex-tubes in the back of the lower distribution plate counter-clockwise around the distribution plate to the lowest FACT elements. The four remaining flex-tubes are routed to the next elements on top of those. For the top distribution plate, the 3 flex-tubes in the back are routed counter-clockwise around the distribution plate to provide these next elements with fibers and the remaining flex-tubes are going up to the highest FACT elements.



9.2. One distribution plate - cables from bottom – example

As a second example we will use one cable distribution kit and one expansion kit, placed in a FACT splice frame with 60 FACT splice elements. This means we can have up to 10 flex-tubes. This means that, if we use all 10 flex-tubes, each flex-tube will guide fibers to a block of 6 elements. In this use-case we recommend mounting the distribution plates using the two lowest fixing points (see section 4). This corresponds to the bottom of the attached plate being at an approximate height of 10cm.

To avoid too many crossings, you can route the 2 flex-tubes in the back of the distribution plate counter-clockwise around the distribution plate to the lowest FACT elements. The remaining flex-tubes are routed to the next elements on top of those.



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