

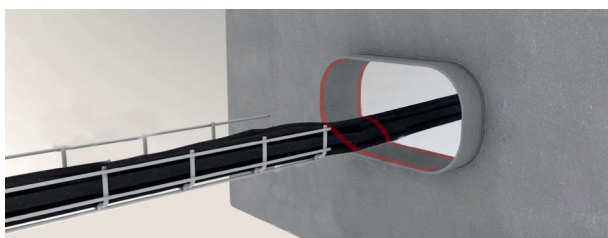
INSTALLATION GUIDE

MARINE FLEX SYSTEM



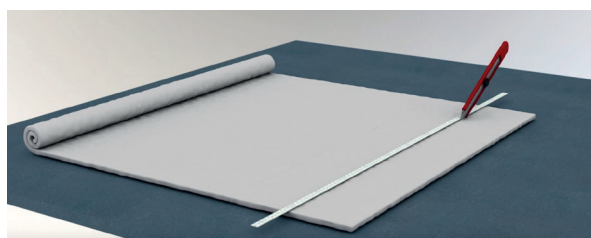
This is a step-by-step installation guide developed to ensure that installations of Marine Flex System are carried out correctly in 180–200 mm long steel sleeve. For detailed information, see associated product installation drawings.

STEP 1



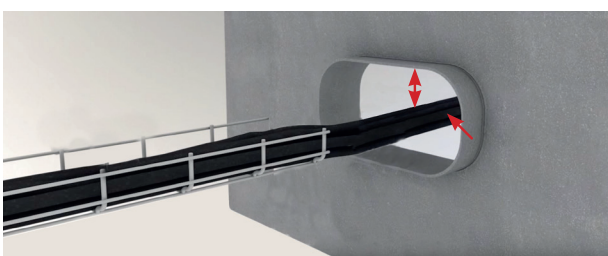
- Clean the sleeve and the cables/pipes.
- The cleaning shall remove all trace of grease, oil, debris, loose material and rust.
- Be extra thorough where the Marine Flex Sealant shall bond to the sleeve as well as the cables/pipes.

STEP 2



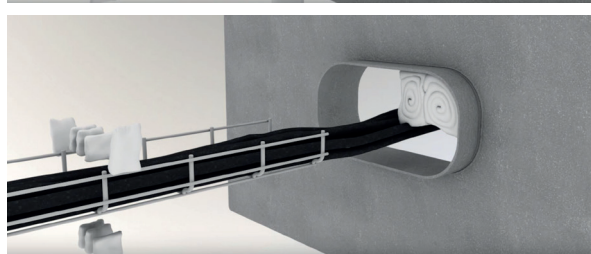
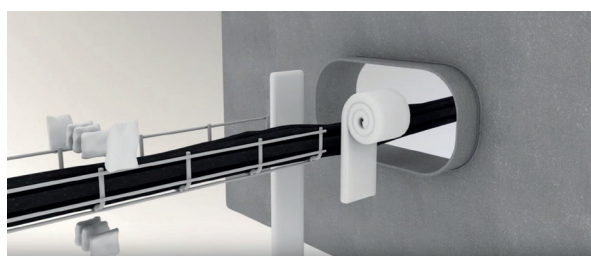
- Measure the depth of the sleeve.
- Cut strips of the Blanket in suitable width. (See example below)
- Width of blanket, [sleeve depth - 0,8" / 2]
(example: [7,9" - 0,8" / 2 = **3,5"**])
- Width of Marine Blanket, [sleeve depth - 20mm / 2]
(example: [200mm - 20mm / 2 = **90mm**])

STEP 3



- If watertight installation is required, all cables must be separated with minimum 5mm (0,2") by using Marine Blanket. (Spacers can be used as an alternative)
- Non watertight installation allows bundle cables.
- Bundled cables must be firmly packed together and bundled with e.g. cable tie
- Distance between cable and sleeve must always be minimum 5mm (0,2").
- Distance between pipe and sleeve must always be minimum 10mm (0,4").

STEP 4



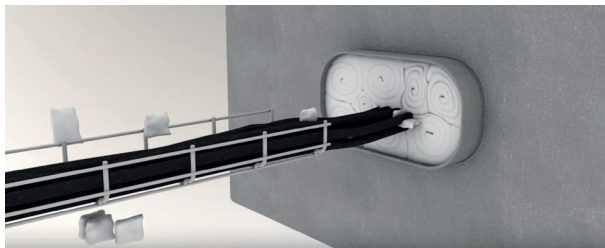
- Roll or fold the Marine Blanket strips and insert the rolls in the sleeve, between and around the cables or the pipes.
- The Marine Blanket rolls shall be firm and well packed.

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STEP 5

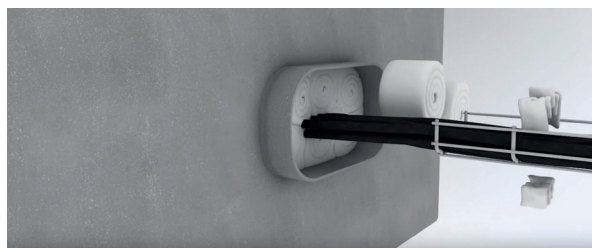


- All cavities shall be filled with pieces of Marine Blanket.
- For watertight installations, cables must be separated with minimum 5mm (0,2") of Marine Blanket.
- Bundled cables are not accepted in watertight installations
- Use Marine Blanket or Spacers for separation of cables.

STEP 6

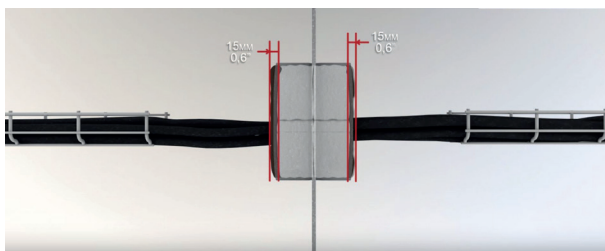


- Make sure Marine Blanket leaves a 15mm (0,6") gap to the edge of the sleeve.



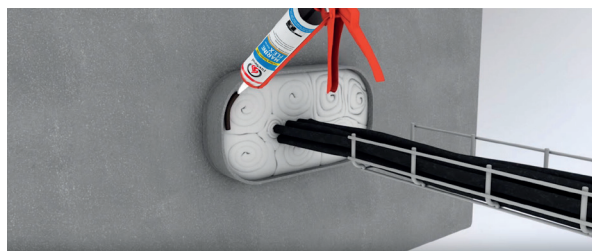
- Repeat the procedure on the opposite side of the sleeve.

STEP 7



- When the Marine Blanket is installed from both sides of the sleeve, it's time to start applying the Marine Flex Sealant.
- The Marine Flex Sealant shall not be of less than 15 mm (0.6 ") thickness on both side of the sleeve, thicker layers are acceptable, but not necessary.
- It's important to get good adhesion to sleeve edge and cables / pipes. It is acceptable for the Marine Flex Sealant to be applied so that it follows the cables/pipes as they exit the penetration and/or exceeds 15 mm (0.6") thickness anywhere throughout the layer of sealant.

STEP 8



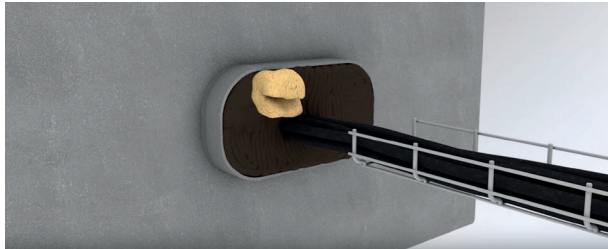
- First, check "Expire date" on the cartridge. Expired cartridges may not be used.
- Start by sealing around the edge of the sleeve and around the cables.
- Fill the rest of the surface.
- When applying the silicone, press the nozzle into the Marine Blanket to avoid cavities and for best adhesion.
- Avoid cavities in the Marine Flex Sealant.

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STEP 9



- Smooth out the Marine Flex Sealant surface with a scraper.
- Finish by smoothening out the Marine Flex Sealant on the surface with a sponge moistened in soapy water.
- Alternatively, the surface can be smoothed with a piece of Blanket pressed towards the Marine Flex Sealant.
- Finally, visually inspect the installation to ensure there are no gaps.

INSTALLATION AID

Spacers

Spacers are cylindrical rods made from Marine Flex silicone. The intended used is to separate the cables from each other inside the sleeve.

The spacers are placed between the cables next to the applied Marine Blanket to finally be covered by the 15mm thick sealant layer of Marine Flex silicone.

The use of Spacer is voluntary but tested and approved.



STEP 10

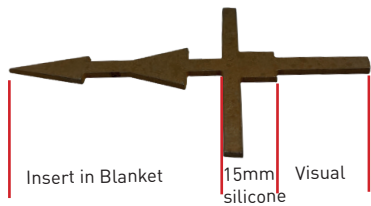
Key self check points

- Have the sleeve and the cables / pipes been properly cleaned before installation?
- Is the Marine Blanket well-packed?
- Are there a minimum of 15mm (0,6") thickness of Marine Flex silicone on both side of the sleeve?
- If watertightness is required. Are there minimum 5mm (0,2") of Blanket and Marine Flex Sealant around the cables and the same between cables and sleeve?
- Distance between pipe / sleeve must be minimum 10mm (0,4").
- Verification method [FS-QP2209-01]:

Application	Method
Non watertight installation	Visual examination
Watertight installation	Seal Integrity Test

Tell-tale

Tell-Tale is a silicone thickness gauge to ensure that the silicone thickness is not less than 15mm. The pointed end is inserted into the Marine Blanket. When 15mm of Marine Flex silicone is applied, the outer end will be visible.



This document does not cover deck and bulkhead insulation. Detailed information regarding insulation and technical information can be found in each class societies certificates and/or in FireSeal associated product installation drawings.