Roxtec

DESCRIPTION AND APPLICATION GUIDELINES

Roxtec casting guidelines – Knock out sleeve

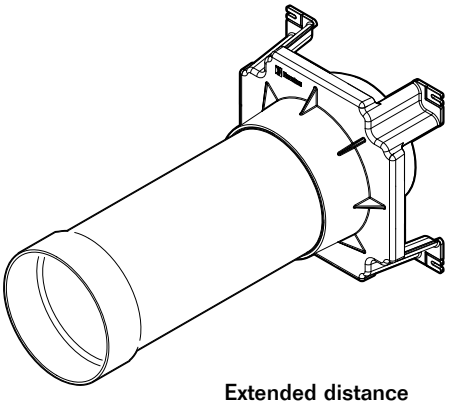
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Date: 2015-12-10
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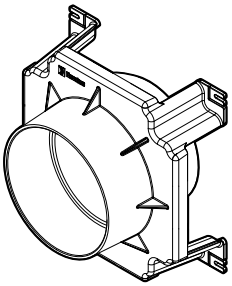
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1. Roxtec knock-out sleeve – Casting guidelines

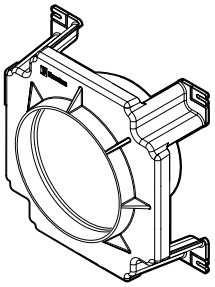
The Roxtec knock-out sleeve is designed to fit between shutters of 150 mm distance by default. It is also possible to cut or extend the sleeve to make it fit any wall depth by using standard pipes for cable protection.



Extended distance between shutters



Standard distance between shutters D=150 mm

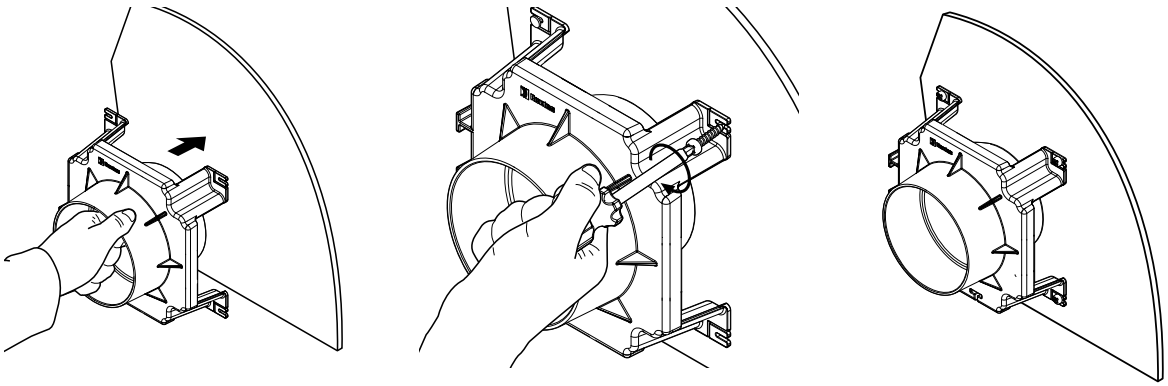


Shorter distance between shutters min D=120 mm

2. Attach the sleeve to the shutters

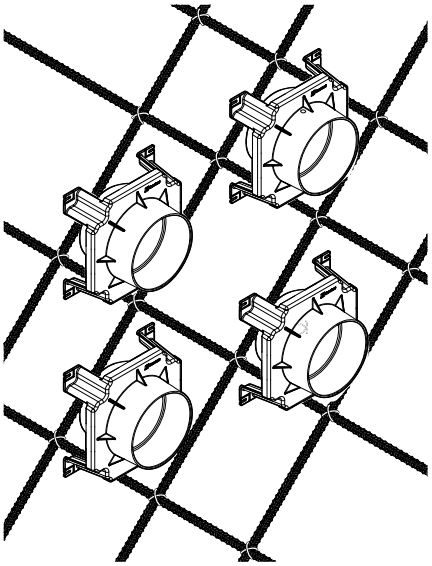
The sealing side of the sleeve is attached to the shutters with suitable fasteners, such as screws, glue or magnets. This creates a pressing force towards the shutter, making the aperture sealed from concrete.

Note: the KOS can be located on either the inside or outside facing wall depending on your preference.

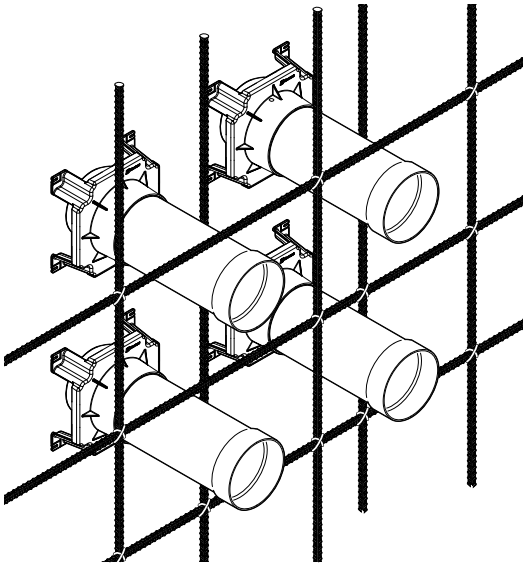


Sleeve attached by screws

When multiple sleeves are attached it is important to create space between them to allow for mounting of rebar structures. Consider national codes and regulations for spacing.



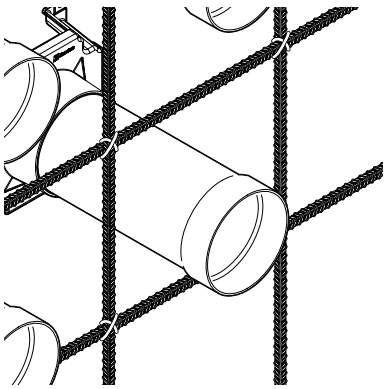
Knock-out sleeve installed in a 2x2 formation, separated by rebars



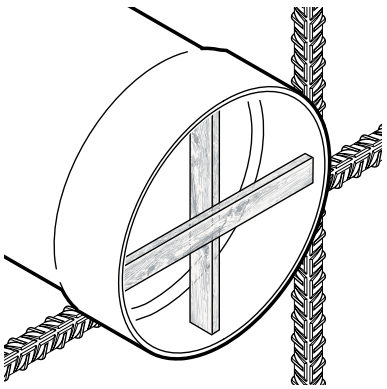
Knock-out sleeve with extensions installed in a 2x2 formation, separated by rebars

3. Rebar and support

The rebar structure shall be designed in accordance with national codes and laws. If the rebar needs to be placed close to the sleeves it is important to allow the concrete to fill potential voids. This often requires space for a vibrator or other compaction equipment. If there is a lot of force on the cable protection pipe during the casting process it might need to support it to avoid geometrical deformation at the female end.



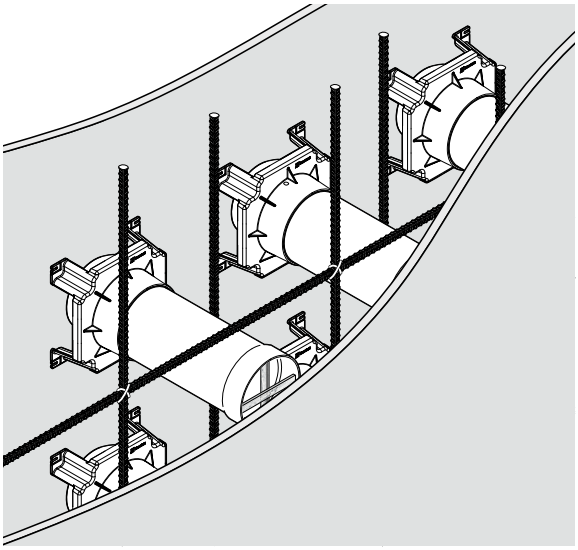
Knock-out sleeve with extension pipe at female end



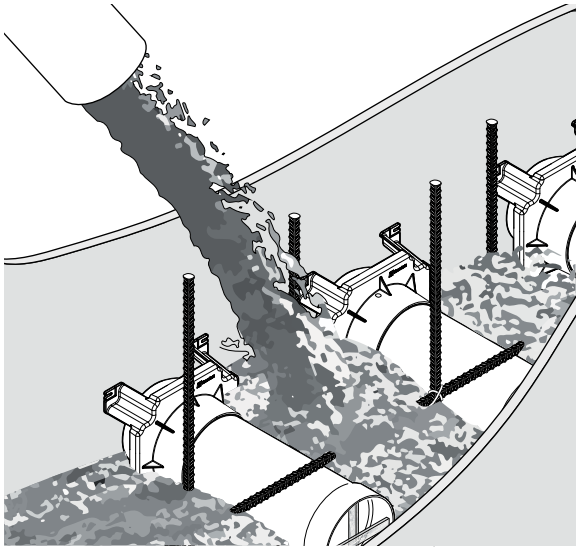
Extension pipes with supports

4. Casting and consolidation

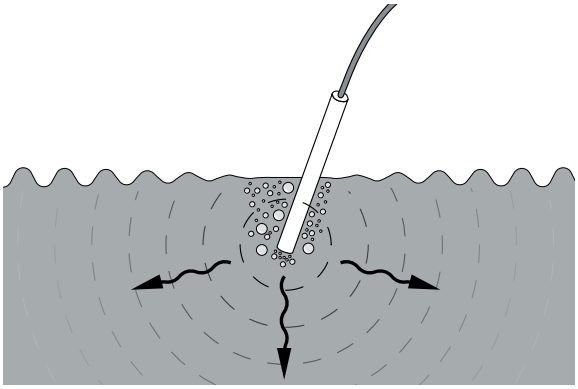
Apply the second shutter to seal the wall before pouring concrete. Avoid pouring large masses of concrete directly onto the sleeves, especially from heights. The w/c ratio must be well balanced to allow the concrete to fill any voids around the sleeve but still remain watertight. A suitable grade of aggregate that is well consolidated also contributes to obtain watertight penetrations. During the consolidating phase it is important not to damage the sleeve or cable protection pipes.



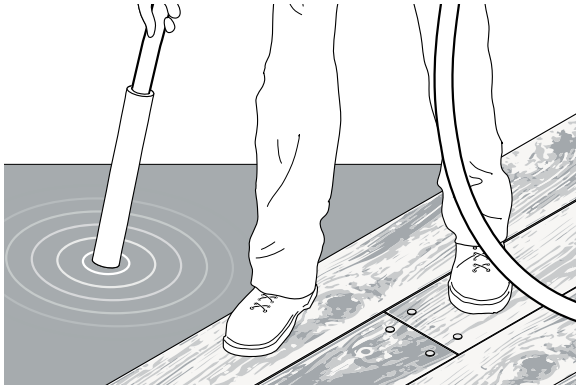
Applying second shutter



Pouring concrete

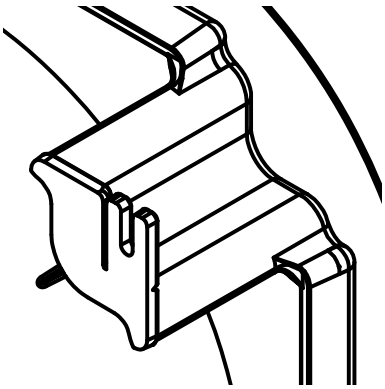


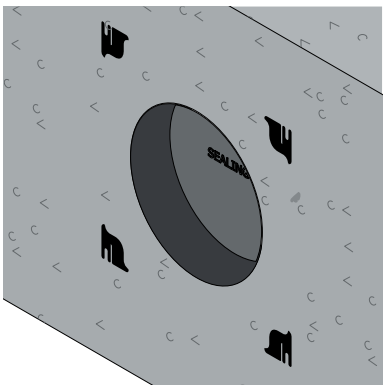
Schematic view of vibration from consolidation

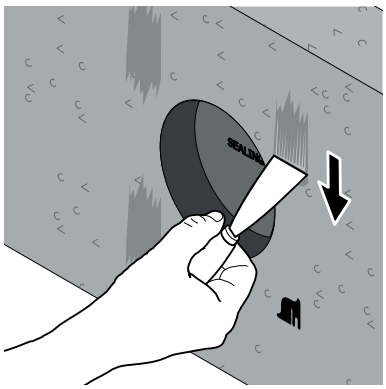


5. Finish

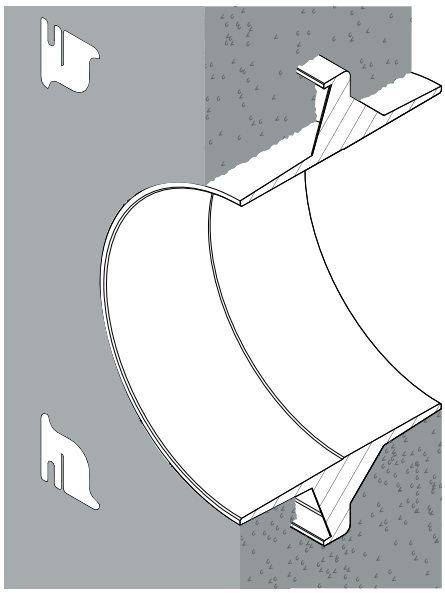
When the shutters are removed the holder on the sleeve will be broken and stay attached to the shutter. For visual finish, the feet can be covered with suitable cement screed.



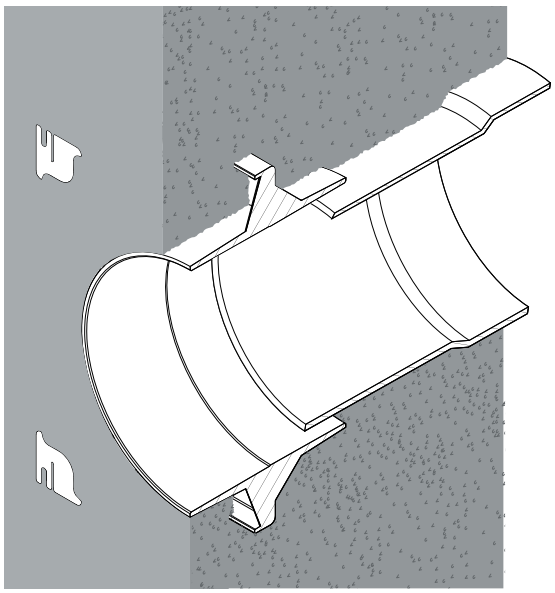




Depending on wall thickness, cable protection pipes can be attached either directly to the sleeve or to the extension pipe used for elongation through the wall.



KOS sleeve



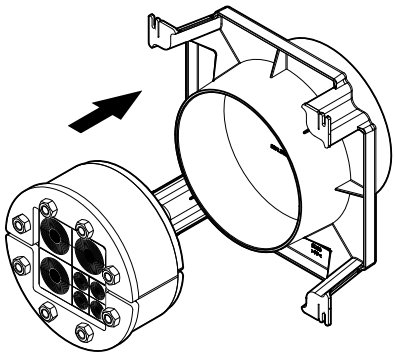
KOS sleeve with extension

6. Installation of seals

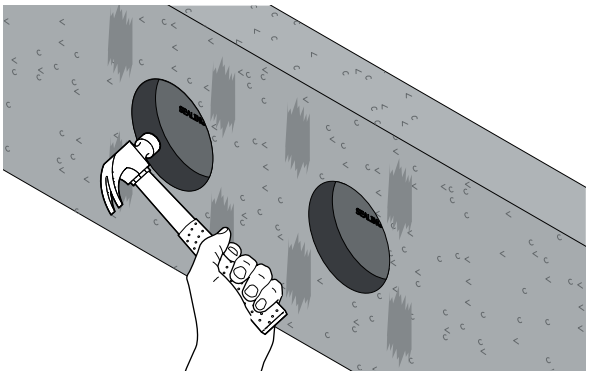
When it is time to install the seals the knock-out cover is removed by the use of a hammer. Make sure the sealing surfaces are clean and that the installation instructions of the seal are followed.

To simplify the installation, consider the following steps:

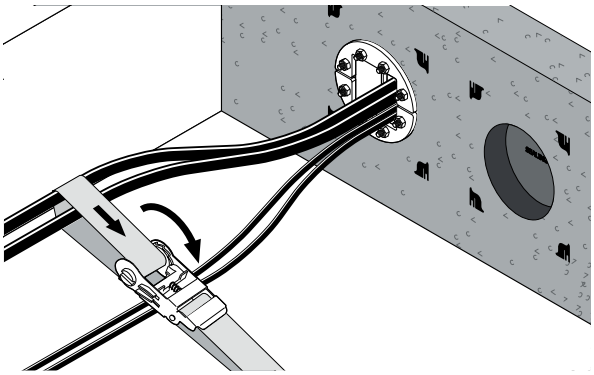
- Avoid filling the trench before installation to allow movement of cables.
- Elevate cables to the center of the sleeve to simplify insertion of the seal and modules.



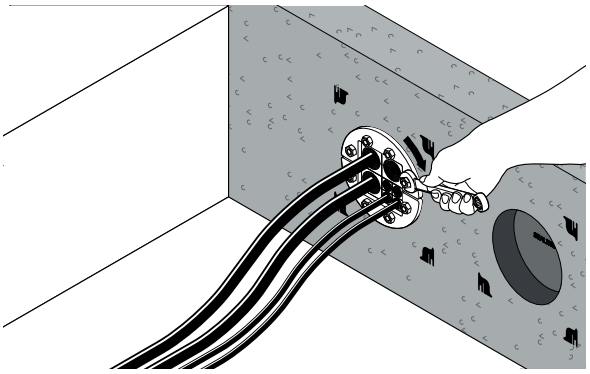
Position of seal in Knock out sleeve



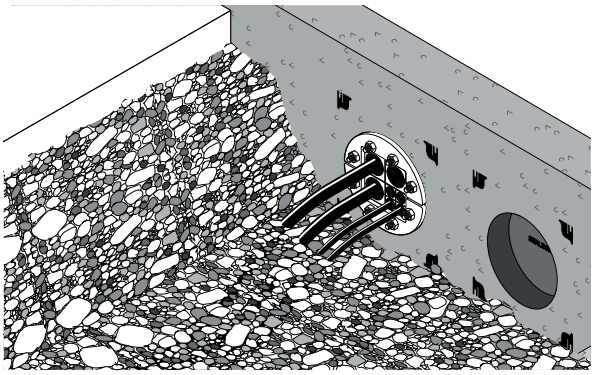
Knock-out removal



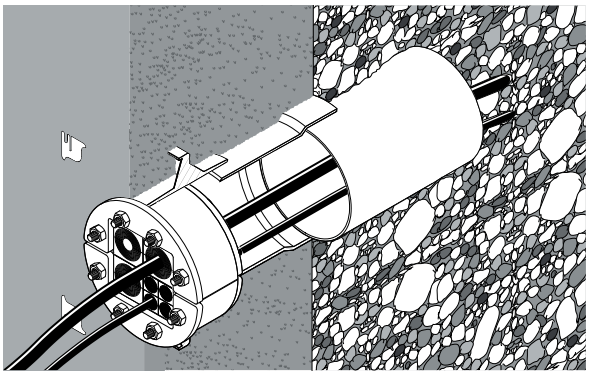
Cables moved in position



Tighten the seal before filling the trench



Fill the cable trench



Knock-out sleeve and seal mounted from the inside of the structure

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(b) Installation shall be carried out in accordance with Roxtec installation instructions in effect from time to time.

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