

PFEIFER

For a tight joint ...



03/2019

PFEIFER VS® FDS Joint Pressure Formwork

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Create perfect precast element connections quickly and easily with PFEIFER VS® FDS Joint Pressure Formwork

Innovation

- Problem-free joint pressure formwork makes grouting precast element joints easy
- No more “makeshift solutions” necessary for sealing the joints
- Permanently elastic seal of a building possible



Quality

- High-quality materials for long-lasting elements



Efficiency

- Space-saving storage
- Long-lasting
- Fast to use
- Time-saving
- No reworking



Expert tip

PFEIFER VS® FDS Joint Pressure Formwork



PFEIFER

Reinforcement Systems
VS® Joint Pressure Formwork

The PFEIFER-VS® FDS Joint Pressure Formwork makes it possible to apply formwork to grouting joints in the VS® system as quick as a flash for a perfect seal. Installation is simple and entails no waste at all, as pressure formwork can be repeatedly used. The joint pressure formwork guarantees a tight joint up to a height of 3.54 m during grouting. Once the joint sealant has hardened, the air is let out of the pressure formwork and the hose can be pulled out. There

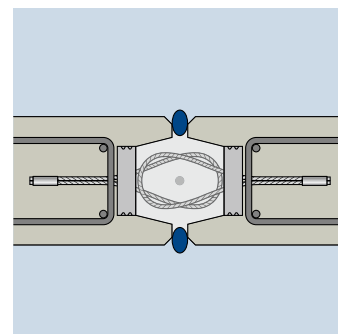
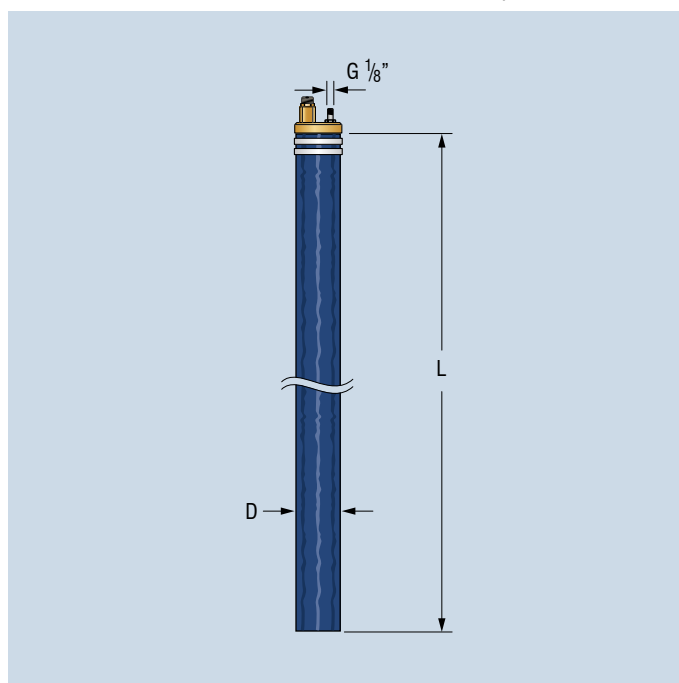
then remains a neat, recessed, slightly rounded and smooth joint.

Advantages:

- Neat, smooth joint
- Waste-free
- Reusable
- No reworking
- Time saving
- Space-saving storage

Materials:

Reinforced PVC
stainless steel
Brass



Ref. no.	Type	Joint width [mm]	Dimensions		max. P [Bar]	Weight [kg]
			D [mm]	L + 150 - 0 [mm]		
05.039.23.1200	FDS Minus	10–20	23	1200	2,5	0,40
05.039.29.1200	FDS Norm	20–25	29	1200	2,5	0,70
05.039.42.1200	FDS Plus	25–40	42	1200	2,5	0,90
05.039.23.4000	FDS Minus	10–20	23	4000	2,5	0,82
05.039.29.4000	FDS Norm	20–25	29	4000	2,5	1,10
05.039.42.4000	FDS Plus	25–40	42	4000	2,5	1,45

Instructions for installation and use

Intended use

The VS® FDS Joint Pressure Formwork is designed for shuttering grouting joints between wall panels or wall panels and columns. It is designed for a maximum grouting height of 3.54 m with single-storey grouting. In a correspondingly designed floor connection with a polystyrene seal plus the correct application of the joint pressure formwork will produce an absolutely pressure-tight grouting joint which can be filled without difficulty in a section of up to 3.54 m with the highly viscous grout. The joint pressure formwork can be filled using a compressed air foot pump with autovalve or a compressor with a pressure-monitored fill valve with an autovalve connector (Figure 1).

The joint according to Figure 2 can be permanently sealed for protection against the outside atmosphere.

Installation

The joint pressure formwork is pushed into the joint using a very slightly filled hose (figure 3/4, 6/7). The hose must not develop any tangible resistance to the compression, otherwise it can no longer be pushed in. If too much resistance develops, the air needs to be let out again. As soon as the hose has arrived in the correct position across the entire height, the pressure can be increased somewhat to 0.5 bar. If there are several panels behind one another or in several column fields, it is recommended to pump up all the joints one after the other beforehand with this slight pressurisation of 0.5 bar. According to Figure 8 and 9 the safety brackets and plates can be fitted with a slight gap to ease the threading of the joint pressure formwork according to Figures 3 and 4.

Securing the structural elements against slipping

In the case of lightweight concrete panels that slip slightly or in case of very thin columns in the corners, it is recommended to secure these joints from shifting when the final pressure is applied by using angle lugs (figures 3–9). With a total joint height of 3.5 m, horizontal forces of 40 kN can very soon occur here (figure 10). For this reason, it is useful that the horizontal joint pressures cancel each other out by forming joints one after the other. At the corners, however, the columns are only secured from bending by their bending stiffness. For particularly thin supports or structural elements that react particularly sensitively to the column heads moving, these must be secured e.g. with an angle lug.

The sequence of applying the pressure should be such that the lowest possible differential forces act on the wall panels in order to prevent shifts here too.

Overpressure protection

The maximum pressure in the end state in case of the 4 m hoses with a usable grouting height of 3.54 m is max. $P = 2.5$ bar. The FDS system has a pressure relief that triggers from 3 bar, meaning that no excessive forces can thus be exerted on the wall elements.

Figure 5: Permitted pressure range

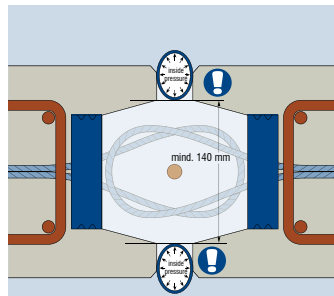
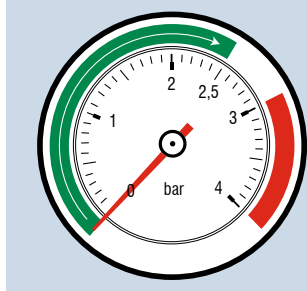


Figure 1



Caution:

When the pressure formwork is pressed into the joint, the interior grouting space must not be impaired (figure 1). Otherwise the concrete cover on the loop is no longer adequate.



Notice:

When applying the joint pressure formwork, the concrete cover on the loops at the side is made smaller as compared to flush grouting. This must be taken into account when thinking about corrosion or fire protection.

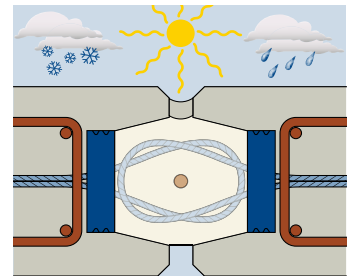


Figure 2: Joint with permanently elastic outward seal

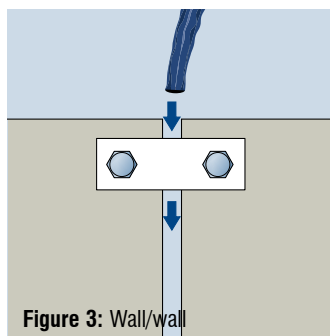


Figure 3: Wall/wall

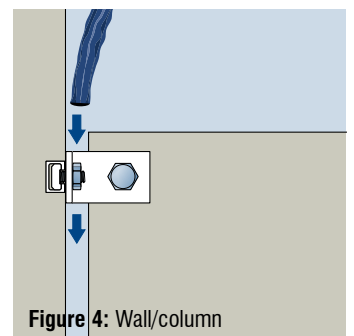


Figure 4: Wall/column

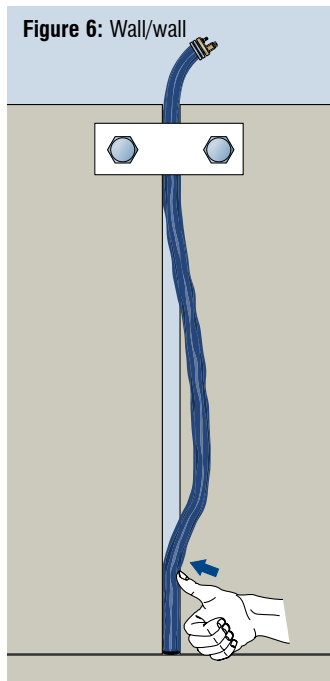


Figure 6: Wall/wall

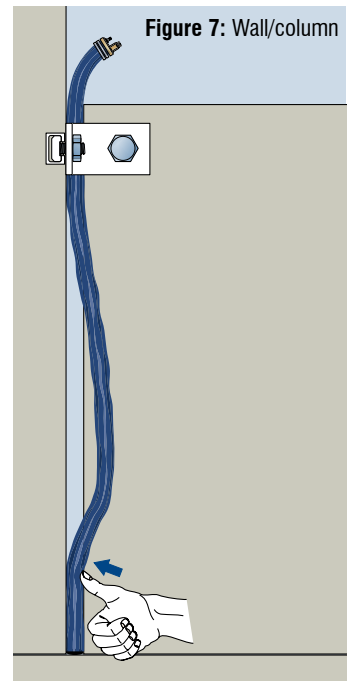


Figure 7: Wall/column



Caution:

Do not alter the factory-preset and secured overpressure protection. Otherwise there is a risk of overpressure in the hose, which can cause it to burst. This leads to risks for the ears and eyes, to a shifting of wall panels and/or to fixtures being hurled around.

Sealing the floor joint

When assembling the walls, the wall panels are normally set down on support panels made of plastic or steel and levelled to the same height (figure 11). In the area of the joint, a 30 cm long strip of polystyrene as thick as the wall and with a height of approx. 10 mm higher than the final bearing must be placed underneath in the area of the VS® joint. The polystyrene presses fully into the joint due to its weight and thereby seals the joint (figure 12). When pushing the hoses in, you start at the bottom end and press the lower end fully into the soft polystyrene so that this is sealed tight at the bottom (figure 11, 12, 13). Then the hose is pressed in further up. Once pressed in, it can be pumped up to around 0.5 bar for positional stability purposes.

Grouting the sealed joint

After application of the final pressure of maximally 2.5 bar to each of the joint pressure formwork pairs, the joint is now ready to be grouted. The grout is mixed according to the appropriate manufacturer's instructions and immediately filled into the joint from above. Up to 3.54 m can be filled in one go. The pressure in the joint pressure formwork system can withstand this load.

Removal of the formwork

Once the grouting material has hardened, the pressure can be released from the pressure formwork by pressing the centre pin on the hose valve and the hose can be pulled out. After cleaning with a moist cloth it is ready to be used again.



Notice:

The position may be secured with the mounting plates and brackets only after the grout has hardened! This will be 5 days by full use of the VS® connection.

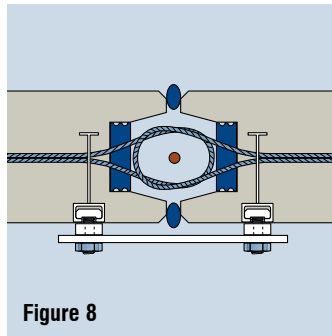


Figure 8

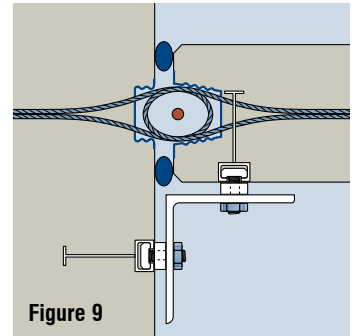


Figure 9

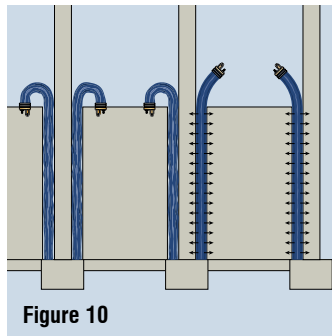


Figure 10

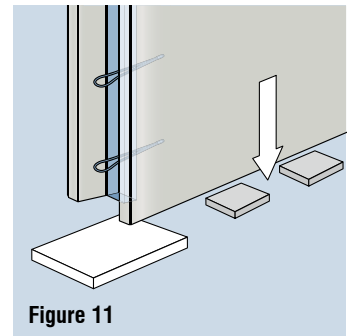


Figure 11

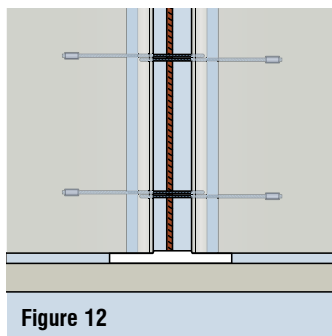


Figure 12

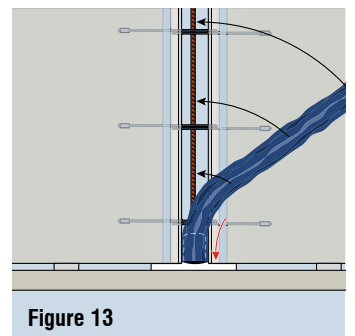
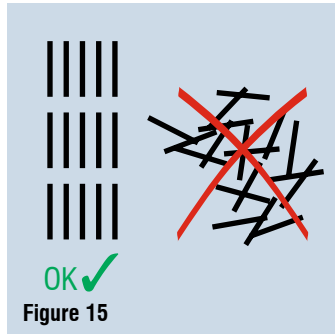
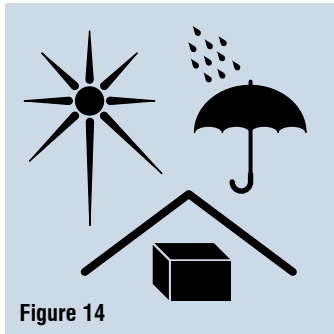


Figure 13

Instructions for installation and use

Storage



VS® FDS Joint Pressure Formwork in use



A soft polystyrene panel with a thickness of 5–10 mm more than the horizontal size of the joint is fitted beneath the entire grouting joint for sealing purposes when fitting the precast elements (Figure 16).

The VS® FDS Joint Pressure Formwork is pressed into or firmly onto the polystyrene panel (Figure 17).

The VS® FDS Joint Pressure Formwork is gradually pressed from bottom to top into the joint (Figure 18). It is recommended to lightly fill the hose with air.

Nominal pressure is applied to the VS® FDS Joint Pressure Formwork once the grouting joint has been filled on both sides so that the joint is completely sealed (Figures 19 and 20).

After the jointing material has hardened the PFEIFER FDS Joint Pressure Formwork can be easily drawn out of the joint.

Just release the pressure first.

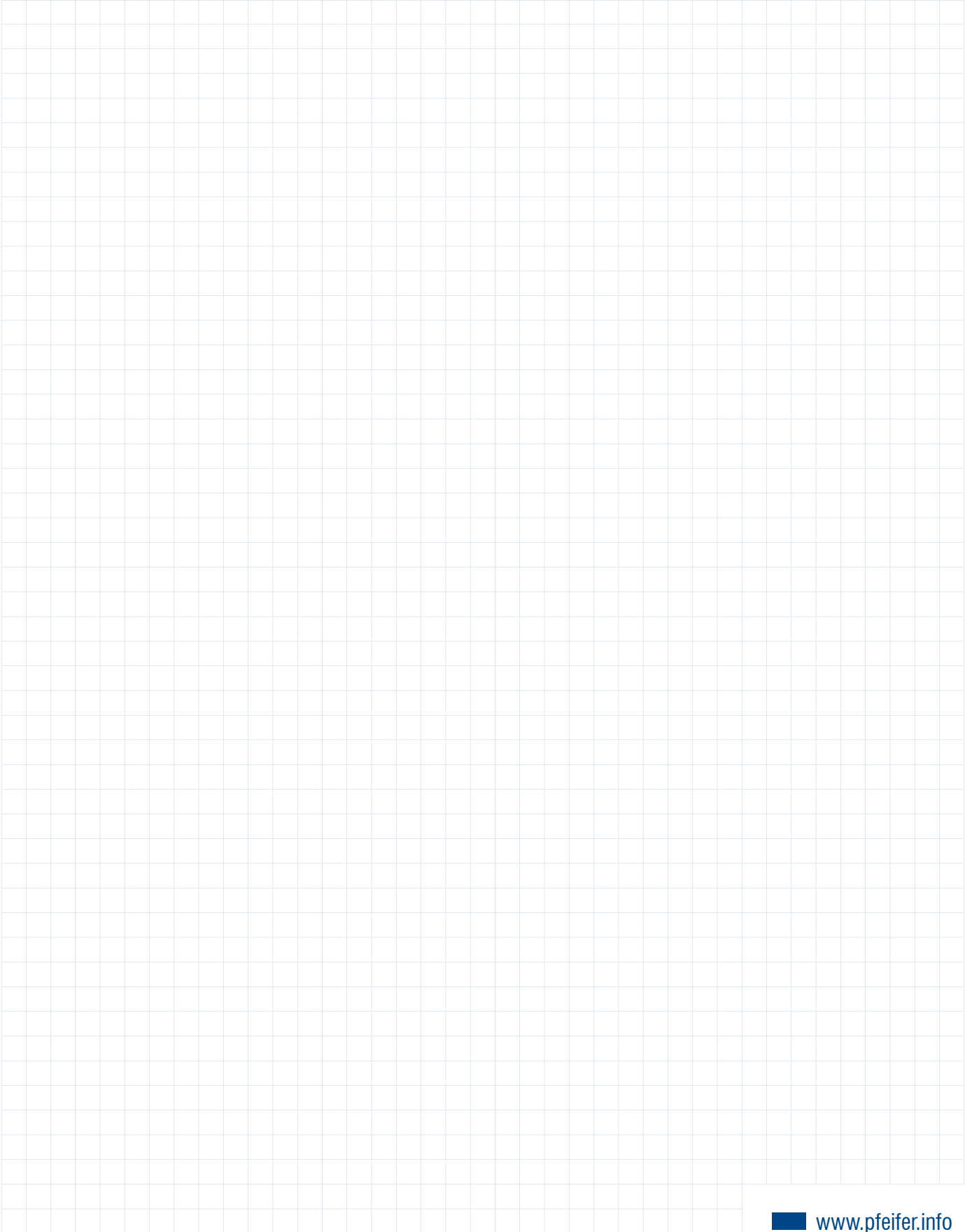
Perfect joint after removal of the hose (Figure 21).



Notice:

When using VS® products, the relevant installation and usage instructions should also be observed.

Notices



PFEIFER



The contact details of our locations and sales partners can be found at



www.pfeifer.info/contacts-cls

We look forward to hearing from you!

This document is superseded when a new edition appears at www.pfeifer.info.

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