

BUILDING  
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# Egcodorn<sup>®</sup> Lock

Temporary Movement Joint  
Shear and Tension Force Dowel





# Egcdorn® Lock

## The Innovative Solution for Temporary Movement Joints in Post-Tensioned Concrete Slabs

The Egcdorn® Lock is an engineered, rigorously tested stainless steel solution designed to accommodate temporary movement due to shrinkage in concrete structures. Its compact design ensures cost-effectiveness while providing high resistance to tension and shear loads.

The Egcdorn® Lock streamlines the construction of Temporary Movement Joints (TMJ's) by eliminating the need for traditional pour strips and grouted ducts. Its efficiency is further enhanced by its minimal footprint, minimal local reinforcement requirements and reduced grout volumes. The grouting process is both practical and reliable; linking up to 4 units in series, with grouting completed using grout pumps and tube typically available on-site. The Egcdorn® Lock's sealing mechanism has been tested up to 2.5 bar of pressure without leaks.

The sleeve's small profile (300 x 150 x 60 mm) significantly reduces reinforcement congestion at joint locations. This also enables installation in thin slabs, down to a minimum of 160 mm, while maintaining robust shear and tension resistance for joint widths up to 40 mm.

A key innovation, the Egcdorn® Lock provides a TMJ with an all-steel load path. It offers fire exposure performance equivalent to that of the core structure itself.

### Technical regulations and principles

Egcdorn® Lock is designed on the basis of the following standards:

- Structural strength and load-bearing capacity (AS 3600)
- Material properties and reinforcement compliance (AS 3600 & AS 4671)
- Shear and tension design requirements (AS 3600)
- Prefabricated concrete element compliance (AS 3850)
- Safety considerations in installation, load transfer, and bracing

### Patented Technology

Egcdorn® Lock is a patented product protected by international intellectual property rights:

- Australian Patent No: 2019400947
- European Patent No.: EP3899155
- United States Patent No: US 12,049,733 B2



## Egcodorn® Lock

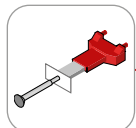
### The Innovative Solution for Temporary Movement Joints in Post-Tensioned Concrete Slabs

The system contains no plastic or resin in the load path, guaranteeing full fire resistance throughout the Egcodorn® Lock, matching the performance of the surrounding concrete. The 24 mm high-tensile dowel, made of 316 stainless steel, allows for  $\pm 20$  mm lateral movement and up to 40 mm longitudinal movement.

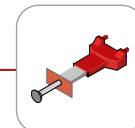
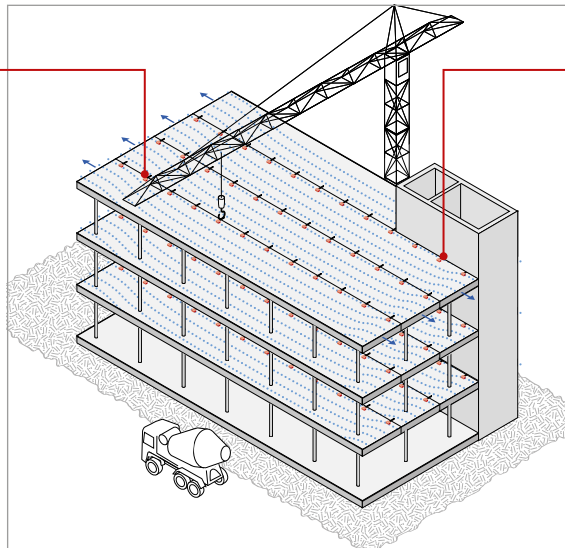
When grouted, Egcodorn® Lock achieves a design tension load of 150 kN. Even without grouting, it delivers high design shear loads and maintains low deflection – up to a joint opening of 40 mm.

#### ★ Advantages

- Compact design (approx. 300 × 150 × 60 mm) minimises reinforcement congestion and simplifies installation
- Requires up to 4 times less grout than conventional systems and uses standard post-tensioning grout
- Gravity grouting with high compressive strength (40 - 47 MPa) and secure sealing – no grout leakage (pressure-tested up to 2.5 bar)
- Minimal additional reinforcement needed thanks to optimized load transfer
- Superior corrosion protection through stainless steel in the joint area and all-metal load paths
- Fully fire-resistant when grouted – no plastic or resin softening, melting, or compression under heat exposure

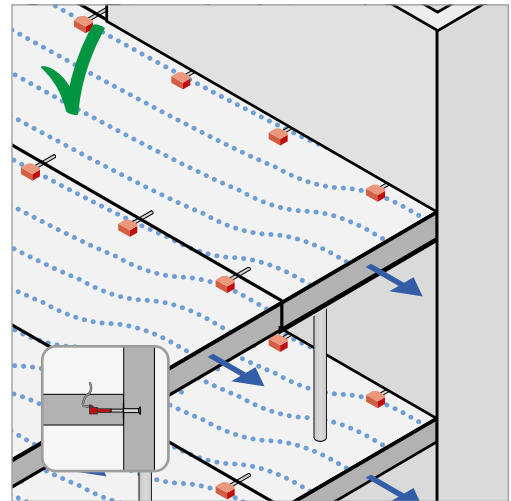
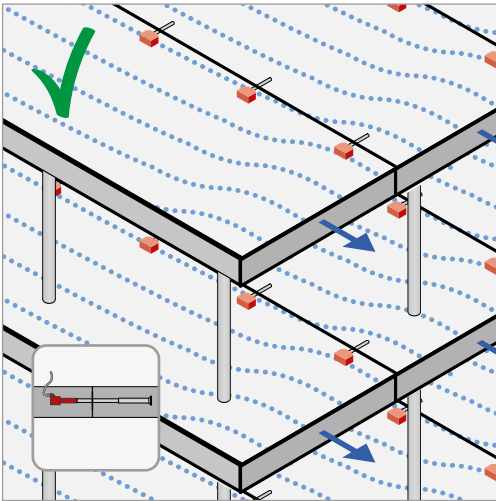


Egcodorn® Lock  
Slab-to-Slab Type



Egcodorn® Lock  
Slab-to-Wall Type

## Egcodorn® Lock engineered applications



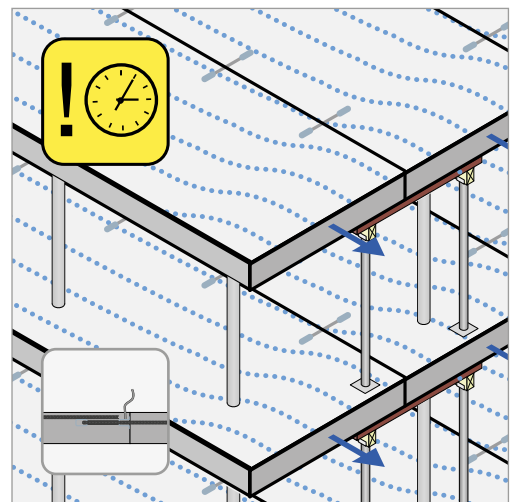
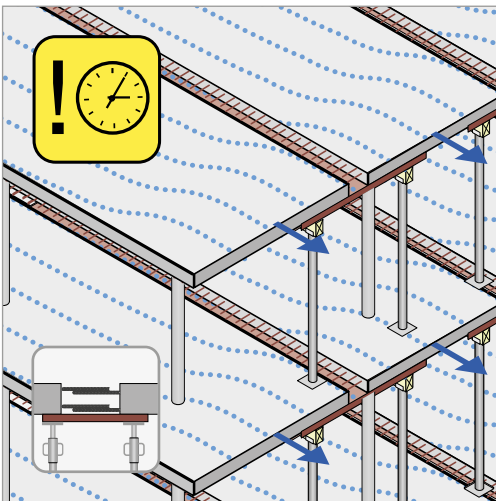
### Efficient Installation, High Early Strength, Material- and Time-Efficient Grouting

The Egcodorn® Lock with its minimal footprint, allows easy fixing to the formwork face.

High shear forces can be transmitted immediately after concrete hardening – even without grouting. This enables early removal of the formwork and significantly accelerates the construction process.

By requiring only a low volume of grout, the Egcodorn® Lock substantially minimises material consumption and reduces associated labour time when grouting. Its design delivers a cost-effective and resource-efficient solution.

## Conventional construction method



Pour strips introduce significant constructability and safety concerns. The specified 30-to-90-day curing period for pour strips, while necessary for shrinkage, presents three critical issues:

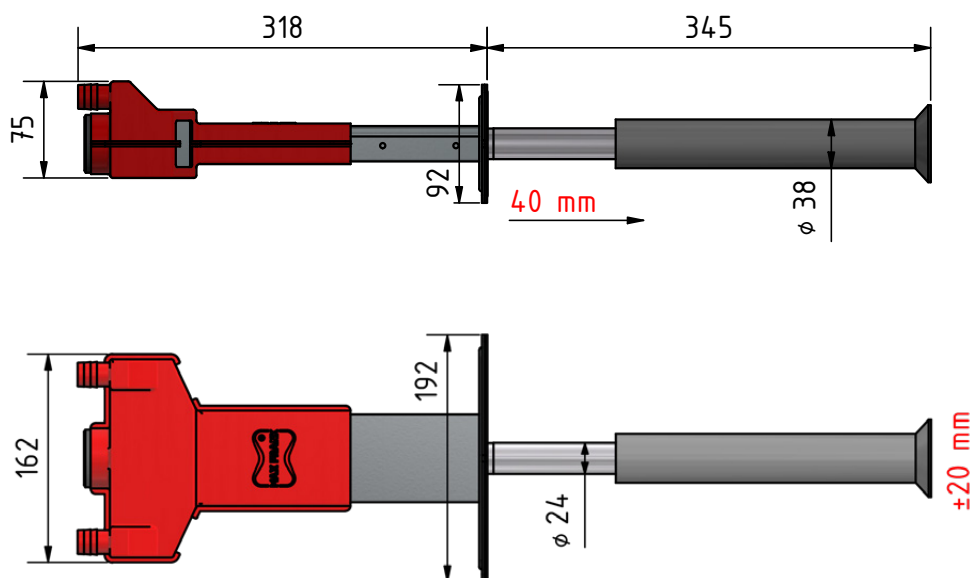
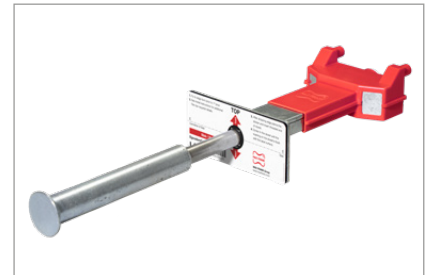
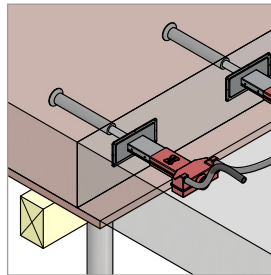
- 1. Site Safety:** The open strips create a persistent trip hazard, posing an ongoing risk to site personnel.
- 2. Project Schedule:** This extended duration will invariably cause sequential delays, impacting progress on all subsequent levels. This could disrupt critical path activities, including service installations, leading to projected schedule overruns ranging from weeks to months.
- 3. Formwork:** Furthermore, a critical structural stability risk is the formwork required as temporary support during this prolonged period, which needs to be rated for the cumulative loads from multiple floors.



## Egcodorn® Lock Slab-to-Slab Type:

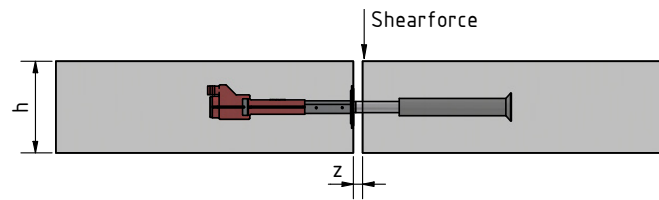
**Art.No.: EGCODLQ40**

Designed for temporary movement joints between two horizontal concrete slabs. Ideal for multi-level post-tensioned structures where secure and fire-resistant load transfer between slab elements is essential.



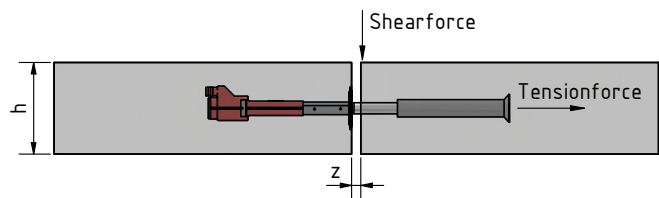


## Shear Load Capacities – ungrouted



		Shear Force (kN) – 20 MPa Concrete							
		Joint Width z							
		5mm	10mm	15mm	20mm	25mm	30mm	35mm	40mm
Slab Height h (mm)	160	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4
	180	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3
	200	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3
	220	42.2	42.2	42.2	42.2	42.2	42.2	42.2	42.2
	240	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1
	≥ 260	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0

## Shear Load Capacities



		Shear Force [kN] 32 MPa Concrete								Tension Force* [kN]
		Joint Width z								
		5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	
Slab Height h [mm]	160	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	150.0
	180	48.5	48.5	48.5	48.5	48.5	48.5	48.5	48.5	150.0
	200	50.9	50.9	50.9	50.9	50.9	50.9	50.9	48.8	150.0
	220	53.4	53.4	53.4	53.4	53.4	53.4	53.4	48.8	150.0
	240	55.8	55.8	55.8	55.8	55.8	55.8	54.0	48.8	150.0
	≥ 260	58.2	58.2	58.2	58.2	58.2	58.2	54.0	48.8	150.0

		Shear Force [kN] 40 MPa Concrete								Tension Force* [kN]
		Joint Width z								
		5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	35 mm	40 mm	
Slab Height h [mm]	160	51.5	51.5	51.5	51.5	51.5	51.5	51.5	48.8	150.0
	180	54.2	54.2	54.2	54.2	54.2	54.2	54.0	48.8	150.0
	200	56.9	56.9	56.9	56.9	56.9	56.9	54.0	48.8	150.0
	220	59.7	59.7	59.7	59.7	59.7	59.7	54.0	48.8	150.0
	240	62.4	62.4	62.4	62.4	62.4	60.4	54.0	48.8	150.0
	≥ 260	65.1	65.1	65.1	65.1	65.1	60.4	54.0	48.8	150.0

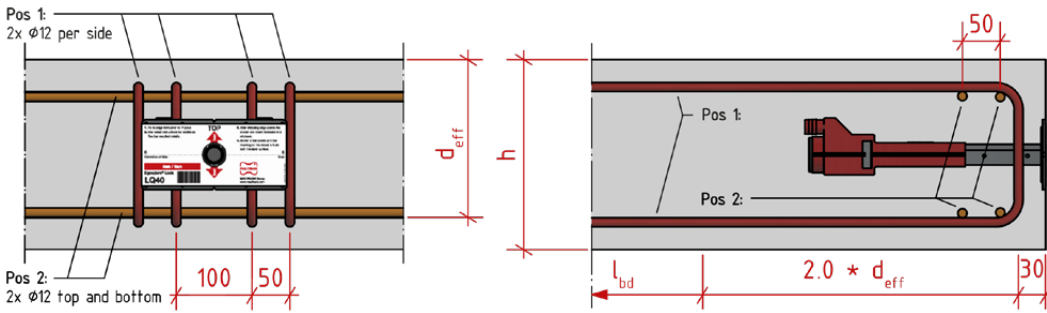
Concrete Strength [MPa]	Shear Stress Limit [MPa]	Provided Shear Stress [MPa]	Compliance
28	0.9	≤ 0.9	Compliant
50	1.2	≤ 1.2	Compliant

△ Fire exposure can alter the provided capacities.

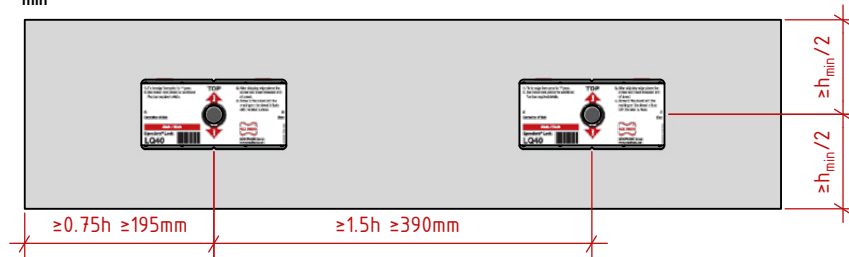
\* Only applies to grouted product.

## Reinforcement, edge distances and spacing

To transfer the loads into the concrete, the following reinforcement must be provided.

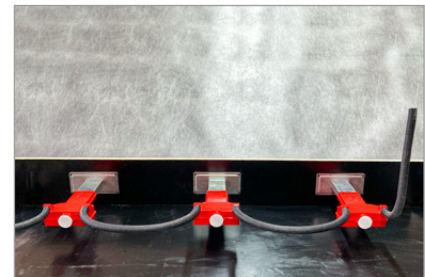


$h_{min} = 160\text{mm}$



## Grouting the System

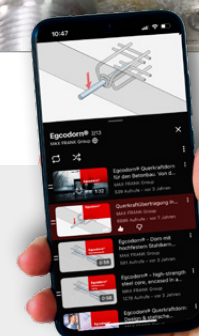
- Use grouting material with a final strength > 40 MPa
- Maximum 4 linked units in a row
- Standard grouting hose with 19 mm internal diameter
- No additional hose attachment required
- Fixing to the formwork using the screws supplied
- No plastic parts in the joint or in the concrete cover area for optimum corrosion and fire protection
- Very little grouting compound required, approx. 700 ml per Egcodorn® Lock
- Complete filling and tightness of the entire system tested up to 2.5 bar when set in concrete. The pressure was maintained over a period of time.

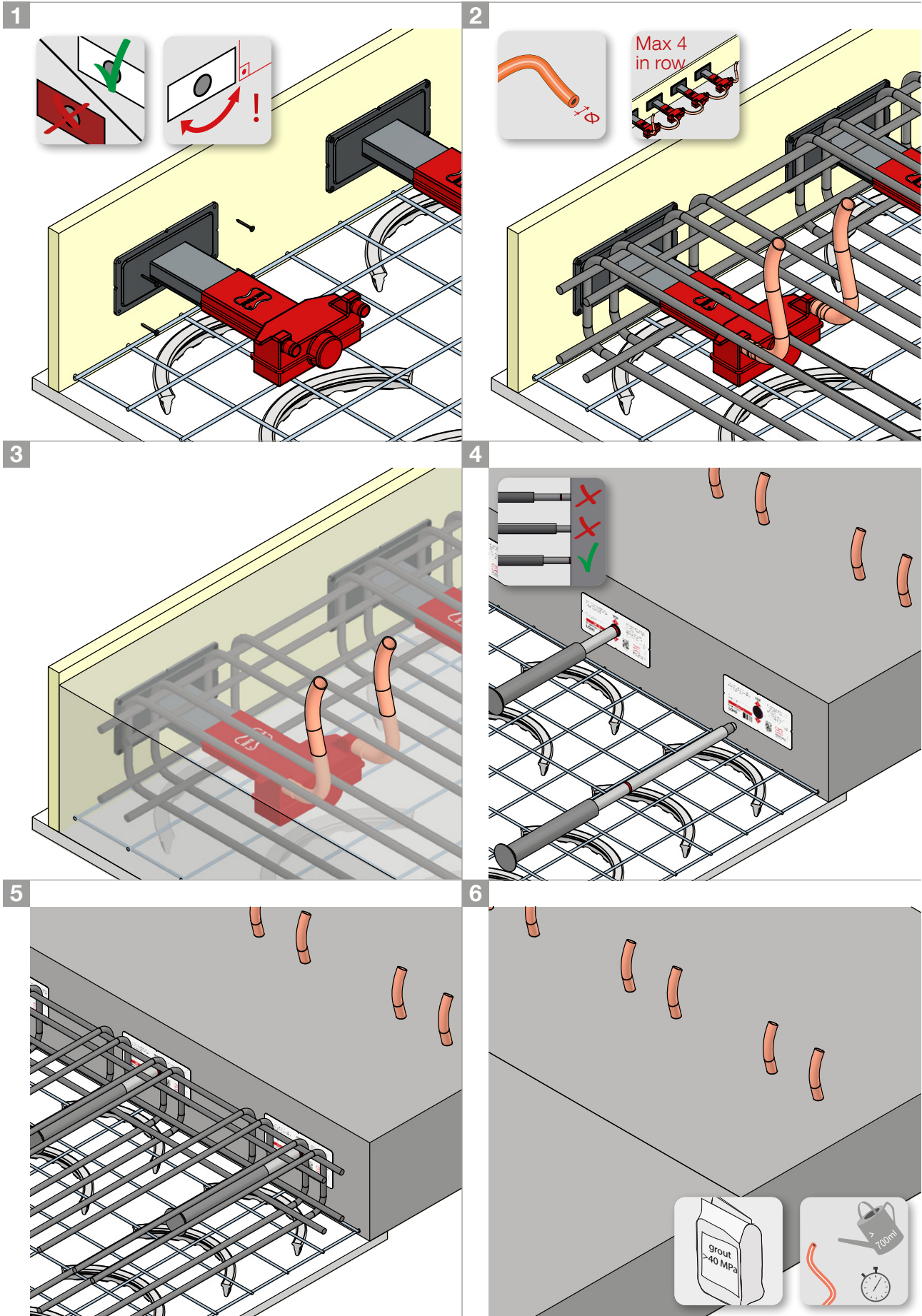


Watch the full Video!

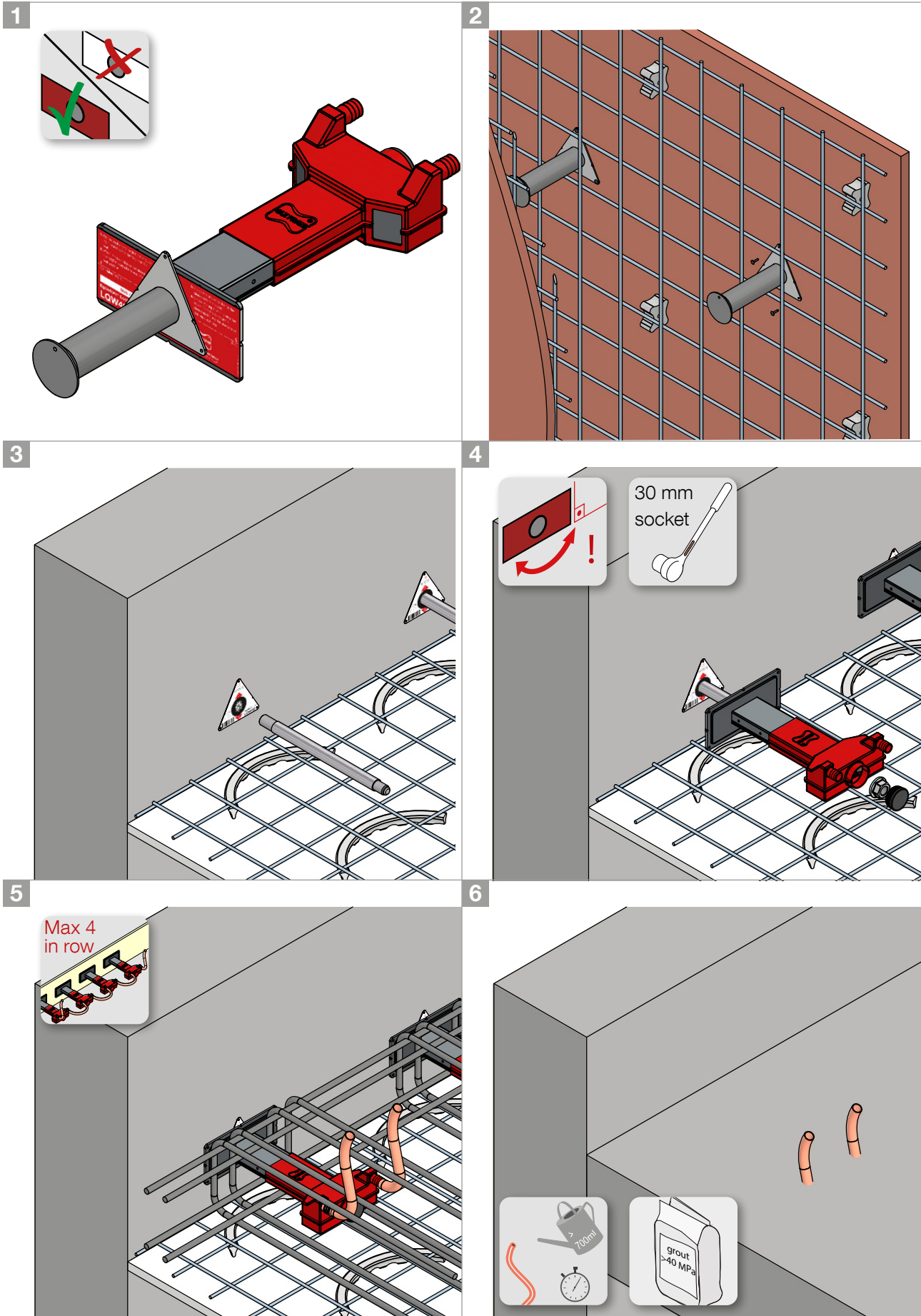


Simply scan the QR-Code!





This Installation Guideline is a condensed description of factors having a direct effect on the performance of the MAX FRANK Product and is based on the present state of the art. It may be necessary to alter these recommendations, as more information becomes available. Correct use is the responsibility of the user, if in doubt please consult your local supplier.



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