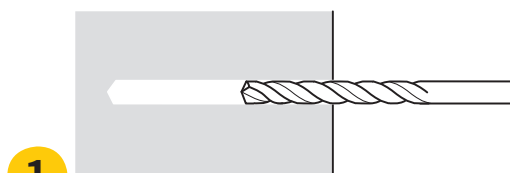


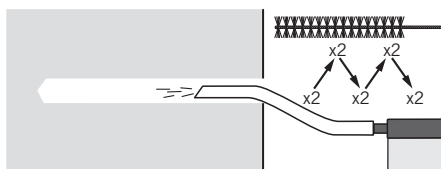
STYRENE FREE INJECTION MORTAR - ESI

Installation:

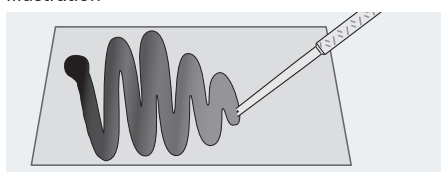
For fixing of post-installed reinforcement bars in concrete



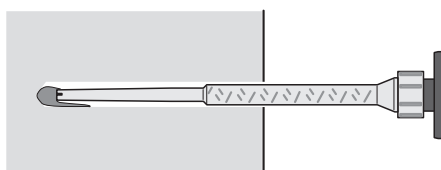
1 Drill a hole in correct diameter and depth



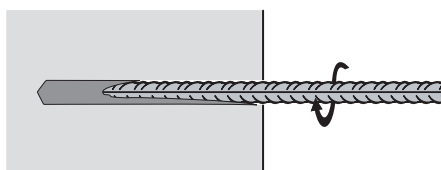
2 Clean the drilled hole thoroughly - follow above illustration



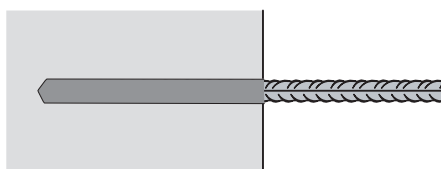
3 Eject approximately 10-15 cm mortar in order to ensure correct mixing ratio for injection



4 Insert the mixer into the drilled hole, and while the mixer is slowly retracted inject the correct volume of styrene free injection mortar



5 Insert reinforcement bar in a slowly rotating motion. For optimal filling of the hole excess mortar should flow out. Observe temperature dependent curing time



6 Installation is finished



Conditions:

This technical sheet states the basic design resistance for post-installed reinforcement bars together with Expandet Styrene Free Injection Mortar – ESI in concrete class C20/25.

The design resistance is based on use of reinforcement bars with an yield strength of 500 N/mm².

Materials:

Expandet Styrene Free Injection Mortar – ESI is a two-component hybrid mortar – supplied in 300 ml, 380 ml and 825 ml cartridges (300 ml cartridges can be used with normal silicone gun).

CURING TIME:		
Temperature	Processing time*	Curing time
>-5- 0°C	*	24 hours
> 0- 5°C	18 minutes	180 minutes
6- 10°C	11 minutes	65 minutes
11-15°C	7 minutes	50 minutes
16-20°C	5 minutes	40 minutes
21-25°C	4 minutes	32 minutes
26-30°C	3 minutes	27 minutes
31-35°C	2 minutes	23 minutes

* For installation, the cartridge (mortar) temperature must be at least +5°C

Accessories:

- Blow Out Bulp.
- Brush.
- Injection gun for 300 and 380 ml.



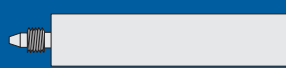
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STYRENE FREE INJECTION MORTAR - ESI

Post-installed reinforcement bars with Expandet Injection mortar – ESI in concrete C20/25

The below stated design resistances for post-installed reinforcement bars do not take into account edge distance, spacing or conditions of actions.

Design resistance are basic values and for guidance only. All post-installation of reinforcement bars must be in accordance with national building code.

It is recommended that the chosen embedment depth \geq full developed yield.

Load Capacities

Design resistance* (kN) for reinforcement bars in concrete C20/25

h ₁	h _{nom}	Bar diameter							
		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28
		Drill diameter, mm							
Depth of drilled hole mm	Embedment depth mm	12	14	16	18	22	28	35	38
100	100	13,9	17,4	23,1	24,9	26,0			
120	120	16,7	20,8	27,8	29,9	31,2			
140	140	19,3 [◇]	24,3	32,4	34,9	36,5	36,4		
160	160		27,8	37,0	39,9	41,7	41,9	55,4	
180	180		30,2 [◇]	41,7	44,9	46,9	46,8	62,3	66,2
200	200			43,5 [◇]	49,9	52,1	52,0	69,3	73,5
220	220				54,9	57,3	57,2	76,2	80,9
240	240				59,2 [◇]	62,5	62,4	83,1	88,2
260	260					67,7	67,6	90,1	95,6
280	280					72,9	72,8	97,0	103,0
300	300					77,3 [◇]	78,0	103,9	110,3
350	350						91,0	121,2	128,7
450	450						117,1	155,9	165,5
550	550						120,8 [◇]	188,8 [◇]	202,2
600	600								220,6
650	650								236,8 [◇]
700	700								
750	750								

* Design resistance is valid for reinforcement bars with characteristic yield strength of 500 N/mm² together with Expandet Styrene Free Injection Mortar in concrete C20/25.

◇ Full developed yield.

Partial safety factor for material (γ_m) is included in the design resistance.

Partial safety factor for bond γ_{mb} : 1,8

Partial safety factor for steel γ_{ms} : 1,3

Use of mortar per drilled hole in ml.

h ₁	h _{nom}	Bar diameter							
		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28
		Drill diameter, mm							
Depth of drilled hole mm	Embedment depth mm	12	14	16	18	22	28	35	38
100	100	6,3	7,5	8,8	10,1	17,9			
120	120	7,5	9,0	10,6	12,1	21,5			
140	140	8,8	10,6	12,3	14,1	25,1	42,2		
160	160	10,1	12,1	14,1	16,1	28,7	48,3	75,4	
180	180	11,3	13,6	15,8	18,1	32,2	54,3	84,8	93,3
200	200	12,6	15,1	17,6	20,1	35,8	60,3	94,2	103,7
220	220	13,8	16,6	19,4	22,1	39,4	66,4	103,7	114,0
240	240	15,1	18,1	21,1	24,1	43,0	72,4	113,1	124,4
260	260	16,3	19,6	22,9	26,1	46,6	78,4	122,5	134,8
280	280	17,6	21,1	24,6	28,1	50,1	84,4	131,9	145,1
300	300	18,8	22,6	26,4	30,2	53,7	90,5	141,4	155,5
350	350		26,4	30,8	35,2	62,7	105,6	164,9	181,4
450	450			39,6	45,2	80,6	135,7	212,1	233,3
550	550				55,3	98,5	165,9	259,2	285,1
600	600					107,4	181,0	282,7	311,0
650	650						196,0	306,3	336,9
700	700							329,9	362,9
750	750								388,8

Specific embedment depth for full developed yield[◇]

Bar diameter	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28
Depth of drilled hole (h ₁), mm	140	175	190	240	300	465	550	645
Embedment depth (h _{nom}), mm	140	175	190	240	300	465	550	645
Load capacity, kN	19,3	30,2	43,5	59,2	77,3	120,8	188,8	236,8

* Design resistance is valid for reinforcement bars with characteristic yield strength of 500 N/mm² together with Expandet Styrene Free injection Mortar in concrete C20/25.

Partial safety factor for material is included: $\gamma_{ms} = 1,3$



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