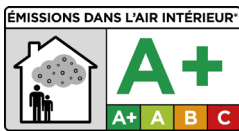


# Injection mortar **Liquix Pro 1**



[www.YouTube.com/toxgermany](http://www.YouTube.com/toxgermany)



## Features

- A single solution for everything: Building authority approval for cracked & un-cracked concrete, perforated and solid masonry and additional reinforcement connections
- LEED and emission tested: for ecological and healthy living
- Usual threaded rods\* can be used
- Earthquake tested C1
- Processing even possible at extremely low temperatures (down to -10° C)
- Can be used in wet and water-filled drill holes
- Small axis and edge distances for anchoring without spreading pressure
- Fixing of high loads weighing up to 13.3 tonnes
- Can also be processed overhead
- Reuse of the broken cartridge by changing the static mixer
- Variable anchoring depth – saves time and material

\*according to Approval

Pack	Item No.	Type	Content	Cartridge	Drill Ø	Min. Drill hole depth	Min. Setting Depth	Fixture Thickness	Approval
					d <sub>0</sub> ø mm	h <sub>1</sub> ≥ mm	h <sub>ef</sub> mm	t <sub>fix</sub> ≤ mm	ETA
	Liquix Pro 1 styrene-free		per pack						
	084 600 041	150 ml	1x Liquix Pro 1 2x Liquix Mix 4x Liquix Sleeve 16x85	coaxial	-	-	-	-	■
	084 600 081	280 ml	1x Liquix Pro 1 2x Liquix Mix 4x Liquix Sleeve 16x85	peeler	-	-	-	-	■
	Liquix Pro 1 styrene-free		per pack						
	084 100 081	280 ml	12x Liquix Pro 1 24x Liquix Mix	peeler	-	-	-	-	■
	084 100 031	345 ml	12x Liquix Pro 1 24x Liquix Mix	side-by-side	-	-	-	-	■

Pack	Item No.	Type	Content	Diameter	Length	Drill Ø	Min. Drill hole depth	Min. Setting Depth	Threaded rod	Approval
				ø mm	mm	d <sub>0</sub> /d <sub>f</sub> ø mm	h <sub>1</sub> ≥ mm	h <sub>ef</sub> mm	Stix ø mm	ETA
	Liquix Set		per range							
	084 909 251	Liquix Pro 1 280 ml	4x	-	280	-	-	-	-	■
		Liquix Blaster	1x	-	-	-	-	-	-	-
		Liquix Sleeve	8x	16	85	16/12	90	85	M10	■
		Taifun 240 ml	1x	-	-	-	-	-	-	-
		Brush	1x	10	300	-	-	-	-	-
		Brush	1x	13	300	-	-	-	-	-
		Brush	1x	18	300	-	-	-	-	-
Brush		1x	28	300	-	-	-	-	-	
Liquix Mix	6x	-	200	-	-	-	-	■		



## Description & Area of Application

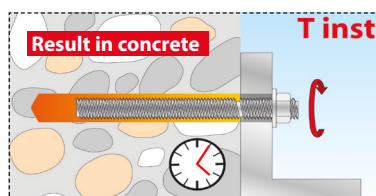
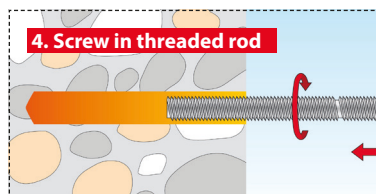
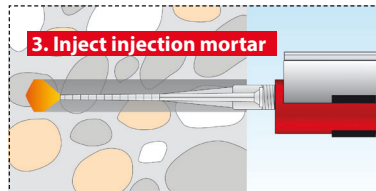
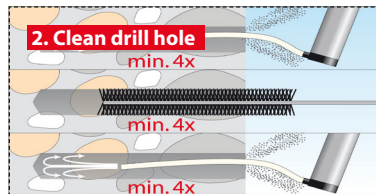
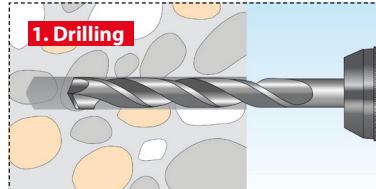
- Liquix Pro 1 is a styrene-free, vinyl ester injection mortar available in various cartridge types and cartridge sizes with static mixer Liquix Mix
- For approval-relevant fixings in cracked and uncracked concrete and masonry
- Approved in connection with standard threaded rods or the TOX threaded rod Stix.
- Watertight fastening tested to DIN EN 12390-8



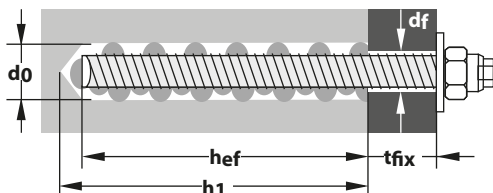
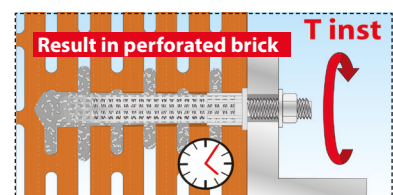
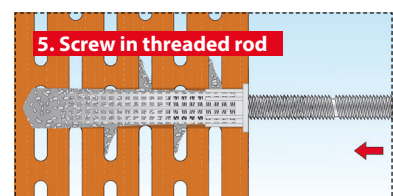
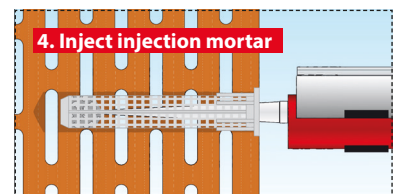
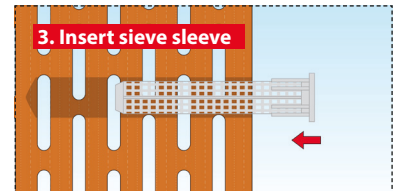
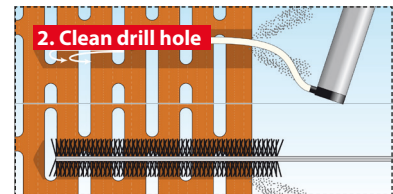
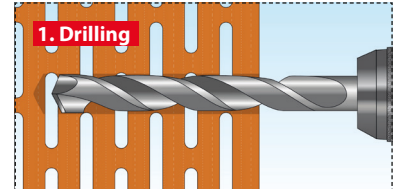
## Processing & Installation

- In perforated brick, work with sieve sleeve
- Clean drill hole
- Screw static mixer tightly onto the cartridge
- Mark setting depth differing from standard onto anchor rod
- Discard the first approx. 10 cm of the injection mortar and do not use it for fastening
- Fill the cleaned drill hole approx. 2/3 of the way from the base of the drill hole or, if a sieve sleeve is used, fill it completely with injection mortar
- Insert the anchor rod with slight turning movements to the specified setting depth
- Observe the torques and curing times of the respective valid permits
- The mortar may be used in wet or dry concrete as well as in water-filled drill holes
- For the processing of coaxial, peeler and hose film cartridges, use the Liquix Blaster and Liquix Blaster Pro squeeze guns; for side-by-side cartridges use the Liquix Blaster Plus squeeze gun

### Installation in concrete and solid masonry



### Installation in perforated brick



Liquix Pro 1 in concrete C20/25	M8	M10	M12	M16	M20	M24	M27	M30
<b>Effective anchoring depth <math>h_{ef}</math><sup>1</sup></b>	60-160 mm	60-200 mm	70-240 mm	80-320 mm	90-400 mm	96-480 mm	108-540 mm	120-600 mm
<b>Permissible loads</b>								
<b>Permissible central tension load of a single wall plug without environmental effects <math>N_{zul}</math> in uncracked concrete C20/25</b>								
Threaded rod galvanised, property class 5.8	720-860 kg	900-1380 kg	1170-2000 kg	1430-3710 kg	1710-5810 kg	1880-8380 kg	2250-10950 kg	2630-13300 kg
Threaded rod A4, property class 5.8	720-990 kg	900-1570 kg	1170-2250 kg	1430-4200 kg	1710-6530 kg	1880-9430 kg	2250-5740 kg	2630-7020 kg
<b>Permissible shear loads of a single wall plug without environmental effects <math>V_{zul}</math> in uncracked concrete C20/25</b>								
Threaded rod galvanised, property class 5.8	510 kg	860 kg	1200 kg	2230 kg	3490 kg	4520-5030 kg	5400-6570 kg	6320-8000 kg
Threaded rod A4, property class 5.8	600 kg	920 kg	1370 kg	2520 kg	3940 kg	4520-5680 kg	3450 kg	4200 kg
<b>Permissible central tension load of a single wall plug without environmental effects <math>N_{zul}</math> in cracked concrete C20/25</b>								
Threaded rod galvanised, property class 5.8	290-770 kg	370-1250 kg	570-1970 kg	880-3510 kg	1220-5490 kg	1340-7900 kg	1600-10950 kg	1880-13300 kg
Threaded rod A4, property class 5.8	290-770 kg	370-1250 kg	570-1970 kg	880-3510 kg	1220-5490 kg	1340-7900 kg	1600-5740 kg	1880-7020 kg
<b>Permissible shear loads of a single wall plug without environmental effects <math>V_{zul}</math> in cracked concrete C20/25</b>								
Threaded rod galvanised, property class 5.8	510 kg	860 kg	1200 kg	2230 kg	2930-3490 kg	3230-5030 kg	3850-6570 kg	4500-8000 kg
Threaded rod A4, property class 5.8	600 kg	920 kg	1370 kg	2450-2520 kg	2930-3490 kg	3220-5670 kg	3450 kg	4200 kg
<b>Component dimensions and installation characteristics</b>								
Minimum axis distance $s_{min}$	40 mm	50 mm	60 mm	80 mm	100 mm	120 mm	135 mm	150 mm
Minimum edge distance $c_{min}$	40 mm	50 mm	60 mm	80 mm	100 mm	120 mm	135 mm	150 mm
Minimum component thickness $h_{min}$	----- $h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$ -----			----- $h_{ef} + 2d_0$ -----				
Drill nominal diameter $d_0$	10 mm	12 mm	14 mm	18 mm	24 mm	28 mm	32 mm	35 mm
Drill hole depth $h_1$	60-160 mm	60-200 mm	70-240 mm	80-320 mm	90-400 mm	96-480 mm	108-540 mm	120-600 mm
Through hole in the component to be connected $d_f \leq$	9 mm	12 mm	14 mm	18 mm	22 mm	26 mm	30 mm	33 mm
Torque during anchoring $T_{inst} \leq$	10 Nm	20 Nm	40 Nm	80 Nm	120 Nm	160 Nm	180 Nm	200 Nm

- The specified loads refer to anchorings of single anchors in wet and dry concrete as well as for anchorings from  $-40^\circ \text{C}$  to  $+24^\circ \text{C}$  (or briefly up to  $+40^\circ \text{C}$ )
- When sizing, the entire declaration of performance of the Liquix Pro 1 must be observed
- The partial safety factors of the resistances specified in the approval and a partial safety factor of  $\gamma_F = 1.4$  are to be considered.
- Approved wall plugs must be used for fixings where safety is of importance (see also [www.tox.de/safety+loads](http://www.tox.de/safety+loads))

<sup>1</sup> The anchoring depth  $h_{ef}$  can be freely selected between the values  $h_{ef \text{ min}}$  und  $h_{ef \text{ max}}$

#### Curing times for injection mortar Liquix Pro 1:

Concrete temperature	Processing time	Minimum curing time in dry concrete	Minimum curing time in wet concrete
$\geq -10^\circ \text{C}^*$	90 min.	24 h	48 h
$\geq -5^\circ \text{C}$	90 min.	14 h	28 h
$\geq 0^\circ \text{C}$	45 min.	7 h	14 h
$\geq +5^\circ \text{C}$	25 min.	2 h	4 h
$\geq +10^\circ \text{C}$	15 min.	80 min.	160 min.
$\geq +20^\circ \text{C}$	6 min.	45 min.	90 min.
$\geq +30^\circ \text{C}$	4 min.	25 min.	50 min.
$\geq +35^\circ \text{C}$	2 min.	20 min.	40 min.
$\geq +40^\circ \text{C}$	1.5 min.	15 min.	30 min.

\* The cartridge temperature must be at least  $+15^\circ \text{C}$



Liquix Pro 1 for masonry	Anchoring depth $h_{ef}$	Drill hole depth $h_0$	Drill diameter $d_0$	Brush $\emptyset$	Sieve sleeve	$T_{inst}$	Permissible Tensile load $N_{Zul}$	Permissible Shear load $V_{Zul}$
<b>Brick Mz <math>f_b \geq 20 \text{ N/mm}^2</math></b>								
M8	80 mm	80 mm	10 mm	12 mm	-	2 Nm	130 kg	140 kg
M10	90 mm	90 mm	12 mm	14 mm	-	2 Nm	160 kg	140 kg
M12	100 mm	100 mm	14 mm	16 mm	-	2 Nm	170 kg	140 kg
M16	100 mm	100 mm	18 mm	20 mm	-	2 Nm	170 kg	230 kg
<b>Vertically-perforated brick Hlz <math>f_b \geq 12 \text{ N/mm}^2</math></b>								
M8	80 mm	85 mm	12 mm	14 mm	12x80	2 Nm	40 kg	100 kg
M8/M10	85 mm	90 mm	16 mm	18 mm	16x85	2 Nm	70 kg	160 kg
M8/M10	130 mm	135 mm	16 mm	18 mm	16x130	2 Nm	100 kg	170 kg
M12/ M16	85 mm	90 mm	20 mm	22 mm	20x85	2 Nm	100 kg	170 kg
<b>Solid lime sand brick KS <math>f_b \geq 20 \text{ N/mm}^2</math></b>								
M8	80 mm	80 mm	10 mm	12 mm	-	2 Nm	170 kg	110 kg
M10	90 mm	90 mm	12 mm	14 mm	-	2 Nm	170 kg	130 kg
M12	100 mm	100 mm	14 mm	16 mm	-	2 Nm	170 kg	110 kg
M16	100 mm	100 mm	18 mm	20 mm	-	2 Nm	140 kg	110 kg
<b>Perforated lime sand brick KSL <math>f_b \geq 14 \text{ N/mm}^2</math></b>								
M8	80 mm	85 mm	12 mm	14 mm	12x80	2 Nm	70 kg	100 kg
M8/M10	85 mm	90 mm	16 mm	18 mm	16x85	2 Nm	70 kg	170 kg
M8/M10	130 mm	135 mm	16 mm	18 mm	16x130	2 Nm	70 kg	170 kg
M12/ M16	85 mm	90 mm	20 mm	22 mm	20x85	2 Nm	190 kg	170 kg
<b>Lightweight concrete solid block Hbn <math>f_b \geq 2 \text{ N/mm}^2</math></b>								
M8	80 mm	80 mm	10 mm	12 mm	-	2 Nm	90 kg	90 kg
M10	90 mm	90 mm	12 mm	14 mm	-	2 Nm	90 kg	90 kg
M12	100 mm	100 mm	14 mm	16 mm	-	2 Nm	100 kg	90 kg
M16	100 mm	100 mm	18 mm	20 mm	-	2 Nm	90 kg	90 kg
<b>Lightweight concrete hollow block Hbl B40 <math>f_b \geq 4 \text{ N/mm}^2</math></b>								
M8	80 mm	85 mm	12 mm	14 mm	12x80	2 Nm	30 kg	90 kg
M8/M10	85 mm	90 mm	16 mm	18 mm	16x85	2 Nm	30 kg	90 kg
M8/M10	130 mm	135 mm	16 mm	18 mm	16x130	2 Nm	30 kg	90 kg
M12/ M16	85 mm	90 mm	20 mm	22 mm	20x85	2 Nm	30 kg	90 kg
<b>Cellular concrete P6 <math>f_b \geq 6 \text{ N/mm}^2</math></b>								
M8	80 mm	80 mm	10 mm	12 mm	-	2 Nm	90 kg	210 kg
M10	90 mm	90 mm	12 mm	14 mm	-	2 Nm	140 kg	360 kg
M12	100 mm	100 mm	14 mm	16 mm	-	2 Nm	180 kg	360 kg
M16	100 mm	100 mm	18 mm	20 mm	-	2 Nm	230 kg	360 kg

- The specified loads refer to anchorings of a single anchor without environmental effects as well as for anchorings from  $-40^\circ \text{ C}$  to  $+24^\circ \text{ C}$  (or briefly up to  $+40^\circ \text{ C}$ )
- When sizing, the entire declaration of performance of the Liquix Pro 1 must be observed
- Drilling into perforated masonry in rotary mode
- The partial safety factors of the resistances and a partial safety factor of  $\gamma_F = 1.4$  are to be considered.
- For other masonry types see approval ETA-13/0047
- Approved wall plugs must be used for fixings where safety is of importance (see also [www.tox.de/safety+loads](http://www.tox.de/safety+loads))