



CHARACTERISTICS

- Two component anchoring mortar for anchoring into solid and hollow materials
- Styrene free, can be used in confined spaces
- Ready to use, pre-cut packaging
- Suitable for dry, wet and flooded holes without loss of performance
- Suitable for overhead installations (without additional accessories)
- Fast loading time
- Anchoring may be placed close to the edges (see table installation parameters)
- Can be applied with a standard cartridge gun

APPLICATIONS

- Can be used for medium load anchoring applications in hollow and solid materials.
- Can be used in hollow materials: hollow masonry and voided stone.
- Can be used in solid materials: concrete, solid masonry, rock, hard natural stone.
- For fixing roller shutters, staircase hand rails, sun protection, canopies, boilers, racking, bicycle racks, masonry supports, signs, safety barriers, balcony fences, satellite dishes...

TECHNICAL CHARACTERISTICS	
Type of product	Polyester
Mixing ratio	10:1
Curing system	2-component chemical reaction
Packaging	Flexible pocket with 2 compartments for component A and component B contained in a single-piston cartridge
Working time	See table
Loading time	See table
Minimum resin cartridge temperature	+5°C
Temperature of base material	+5°C - +30°C
Minimum service temperature	-40°C
Maximum service temperature	Long term (>12h): +50°C Short term (<12h): +80°C
Threaded rod sizes in uncracked concrete	M8 - M10 - M12 - M16 - M20 - M24
Threaded rod sizes in masonry	M8 - M10 - M12
Shelf life, in the original packing in upside position, out of direct sunlight and in dry conditions between +5°C - +25°C	15 months

PACKING AND COLOUR
12 cartridges of 300 ml/box - 95 boxes/pallet (1140 cartridges)
Beige

Necessary accessories

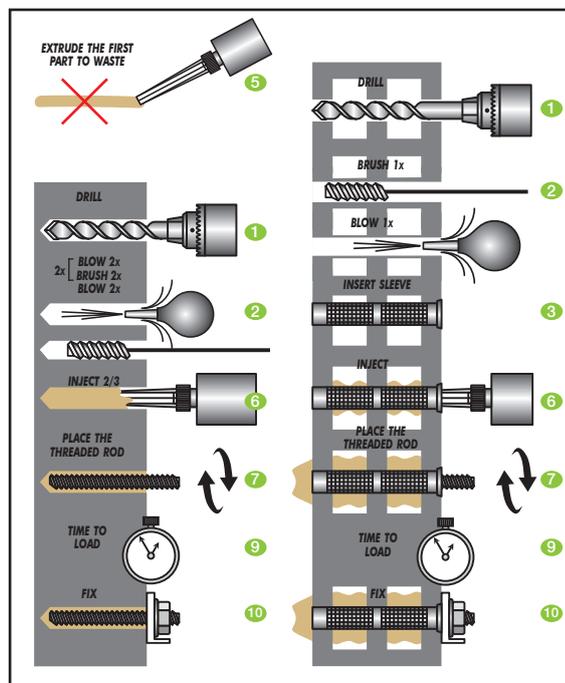
- Standard applicator gun (manual, pneumatic or electric)
- Static mixing nozzle (2 pieces included with cartridge)
- Cleansing blowing pump
- Cleansing brush
- Sieve sleeve (in case of hollow materials)

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METHOD OF USE

Application in solid or hollow substrate

1. Drill the hole to the correct diameter and depth.
2. Thoroughly **clean the hole** in the following sequence:
For solid materials: blow clean x2, then brush clean x2, then blow clean x2.
For hollow materials: brush clean 1x, then blow clean x1.
Note: use a brush with the required extensions and a source of clean compressed air. For holes of 400 mm or less deep, a blow pump may be used. The resin should be injected into a properly cleaned hole. Remove standing water before cleaning.
3. In case of hollow or perforated brick masonry: **insert the correct sieve sleeve**.
4. Once the hole is prepared, open the cartridge and screw **mixing nozzle** onto the mouth of the cartridge. Insert the cartridge into the sealant gun.
5. Extrude the first part of the cartridge to waste until an **even colour** is achieved, without streaking in the extruded product.



6. **Insert the mixing nozzle** to the bottom of the hole or the sleeve. Begin to extrude the product and slowly withdraw the mixer nozzle from the hole or the plug ensuring that there are no air voids as the mixer nozzle is withdrawn. For solid materials: fill the hole to approximately $\frac{1}{2}$ to $\frac{3}{4}$ full and withdraw the nozzle completely. For hollow materials: completely fill the sleeve with resin.
7. Immediately **insert the clean threaded rod** (free from oil or other release agents) to the bottom of the hole using a back and forth twisting motion ensuring all the threads are thoroughly coated. Adjust to the correct position within the stated working time (see table).
8. Any **excess product** will be expelled from the hole evenly around the steel element showing that the hole is full. This excess product should be removed from around the mouth of the hole before it sets.
9. Leave the anchor to cure. **Do not disturb the anchor until the appropriate loading time has elapsed** (depending on the substrate conditions and ambient temperature).
10. Load with force after curing of the resin. Attach the fixture and tighten the nut to the recommended torque. Do not over-tighten.
11. Leave the static mixing nozzle on the cartridge and change with new one just before the next application.

Working and loading times

Temperature of resin cartridge and base material	Working time	Loading time (minimum time required until load can be applied)
+5°C	18 min.	145 min.
+5°C » +10°C	10 min.	145 min.
+10°C » +20°C	6 min.	85 min.
+20°C » +25°C	5 min.	50 min.
+25°C » +30°C	4 min.	40 min.
+30°C	4 min.	35 min.

T work is typical gel time at highest temperature. T load is set at the lowest temperature.

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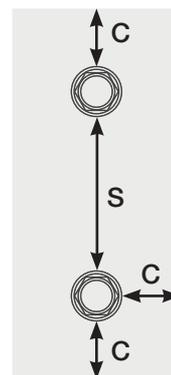
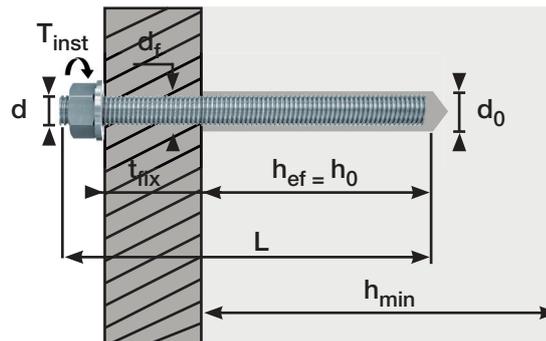
USE IN NON-CRACKED CONCRETE

Installation parameters

Threaded rod		M8	M10	M12	M16	M20	M24
Size of threaded rod	d (mm)	8	10	12	16	20	24
Nominal drill hole diameter	d _o (mm)	10	12	14	18	22	26
Diameter of cleaning brush	d _b (mm)	14	14	20	20	29	29
Torque moment	T _{inst} (Nm)	10	20	40	80	120	160
Depth of drill hole for h _{ef} min/h _{ef} max	h _{ef} (mm)	64/96	80/120	96/144	128/192	160/240	192/288
Minimum edge distance	c _{min} (mm)	40/50	40/60	50/70	65/95	80/120	95/145
Minimum spacing	s _{min} (mm)	40/50	40/60	50/70	65/95	80/120	95/145
Minimum thickness of base material	h _{min} (mm)	h _{ef} + 30 mm ≥ 100 mm			h _{ef} + 2 d _o		

Theoretical consumption*

	Drill hole diameter d _o (mm)	Embedment depth h _{ef} min/standard/max (mm)	Number of applications per cartridge (# of drill holes)
M8	10	64	100
		80	80
		96	66
M10	12	80	55
		90	49
		120	37
M12	14	96	34
		110	30
		144	23
M16	18	128	15
		128	15
		192	10
M20	22	160	8
		170	8
		240	6
M24	26	192	5
		210	4
		288	3



*Consumption based on 60% filling rate of drill hole.

Characteristic bond resistance for combined pullout and concrete cone failure in dry/wet C20/25 uncracked concrete (temperature range: -40°C to +80°C)

	M8	M10	M12	M16	M20	M24
Characteristic bond resistance in dry/wet concrete T _{Rk uncr} (N/mm ²)	6	6	5	5	4	4
Partial safety factor γ _{Mp} (-)	1.8	1.8	1.8	1.8	1.8	1.8
Factor for concrete ψ _c C30/37	1.08					
Factor for concrete ψ _c C35/45	1.12					
Factor for concrete ψ _c C50/60	1.19					

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Tension load calculations for combined pullout and concrete cone failure at various embedment depths using threaded rods in dry/wet C20/25 uncracked concrete (temperature range: -40°C to +80°C)

Property	Symbol	Unit	M8	M10	M12	M16	M20	M24
Effective embedment depth = 8d	h_{ef}	mm	64	80	96	128	160	192
Characteristic load	$N_{Rk,p}$	kN	9.65	15.08	18.10	32.17	40.21	57.91
Partial safety factor	γ_{Mp}	-	1.80	1.80	1.80	1.80	1.80	1.80
Design load	N_{Rd}	kN	5.36	8.37	10.05	17.87	22.33	32.17
Effective embedment depth = STD	h_{ef}	mm	80	90	110	128	170	210
Characteristic load	$N_{Rk,p}$	kN	12.06	16.96	20.73	32.17	42.73	63.33
Partial safety factor	γ_{Mp}	-	1.80	1.80	1.80	1.80	1.80	1.80
Design load	N_{Rd}	kN	6.70	9.42	11.52	17.87	23.74	35.18
Effective embedment depth = 10d	h_{ef}	mm	80	100	120	160	200	240
Characteristic load	$N_{Rk,p}$	kN	12.06	18.85	22.62	40.21	50.27	72.38
Partial safety factor	γ_{Mp}	-	1.80	1.80	1.80	1.80	1.80	1.80
Design load	N_{Rd}	kN	6.70	10.47	12.57	22.34	27.92	40.21
Effective embedment depth = 12d	h_{ef}	mm	96	120	144	192	240	288
Characteristic load	$N_{Rk,p}$	kN	14.48	22.62	27.14	48.25	60.32	86.86
Partial safety factor	γ_{Mp}	-	1.80	1.80	1.80	1.80	1.80	1.80
Design load	N_{Rd}	kN	8.04	12.56	15.07	26.80	33.51	48.25

Remarks regarding tension load calculations table

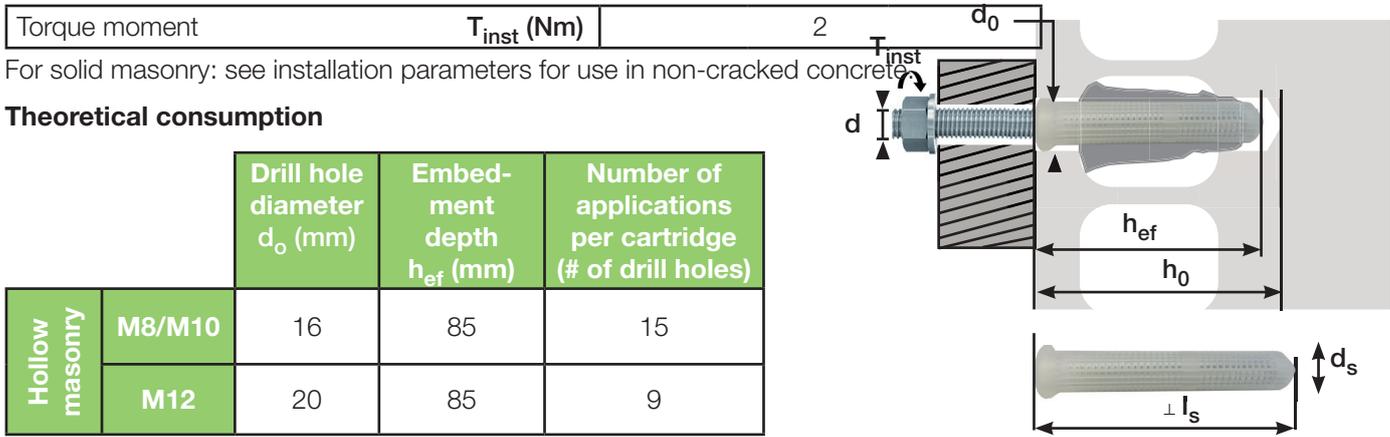
1. Characteristic loads are valid for **combined concrete cone and pullout failure** as defined by TR029 only. All other failure modes, including steel failure, detailed in TR029 as well as including combined effects of tension and shear, must be considered in accordance with TR029.
2. Characteristic loads are valid for single anchors without close edge, anchor spacing or eccentric loading considerations.
3. Tabulated values are valid for temperature range -40°C to +80°C (Max LLT = +50°C; Max STT = +80°C).
4. Tabulated values are only valid for the installation conditions stated. Other conditions, such as different temperature ranges, may affect the performance of the product.
5. Long term temperatures are those that remain roughly constant over prolonged periods. Short term temperatures occur over brief intervals, eg: diurnal cycling.
6. The compressive strength of the concrete ($f_{ck,cube}$) is assumed to be 25 N/mm² for C20/25 concrete.
7. Tabulated values assume that the geometry of the anchor(s) and concrete member is sufficient to avoid splitting failure.

USE IN MASONRY

Installation parameters

Threaded rod	Hollow masonry			
	M8	M10	M12	
Size of threaded rod	d (mm)	8	10	12
Sieve sleeve length	l_s (mm)	85	85	85
Sieve sleeve diameter	d_s (mm)	16	16	20
Nominal drill hole diameter	d_o (mm)	16	16	20
Diameter of cleaning brush	d_b (mm)	20 ^{±1}	20 ^{±1}	22 ^{±1}
Depth of drill hole	h_o (mm)	90		
Effective anchorage depth	h_{ef} (mm)	85		
Diameter of clearance hole in the fixture	$d_f \leq$ (mm)	9	12	14

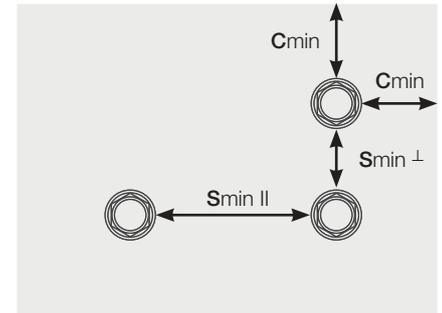
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Edge distances and spacing

- C_{min} = Minimum allowable edge distance
- $S_{min II}$ = Minimum allowable spacing parallel to the horizontal joint
- $S_{min \perp}$ = Minimum allowable spacing perpendicular to the horizontal joint

Base material	M8			M10			M12		
	C_{min}	$S_{min II}$	$S_{min \perp}$	C_{min}	$S_{min II}$	$S_{min \perp}$	C_{min}	$S_{min II}$	$S_{min \perp}$
	mm	mm	mm	mm	mm	mm	mm	mm	mm
Brick no. 1	100	235	115	100	235	115	100	235	115
Brick no. 3	128	255	255	128	255	255	128	255	255
Brick no. 6	128	255	255	128	255	255	128	255	255
Brick no. 5	100	250	240	100	250	240	100	250	240
Brick no. 2	100	370	238	100	370	238	100	370	238
Brick no. 7	100	245	110	100	245	110	100	245	110
Brick no. 4	100	373	238	100	373	238	100	373	238



Characteristic resistance under tension (NRk) and shear loading (VRk)

Base material	M8	M10	M12
NRk = VRk [kN]			
Brick no. 1	2.0	2.0	2.0
Brick no. 3	1.2	1.5	2.5
Brick no. 6	0.5	0.75	1.2
Brick no. 5	0.6	0.75	0.75
Brick no. 2	1.2	1.2	2.0
Brick no. 7	0.5	0.5	0.5
Brick no. 4	1.2	1.2	1.5

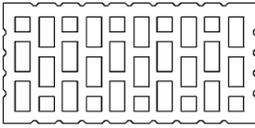
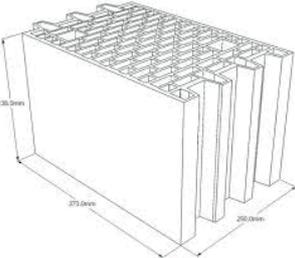
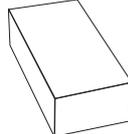
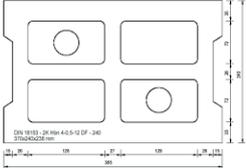
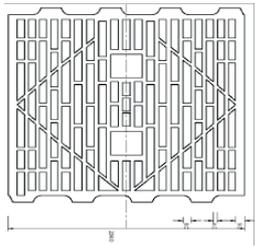
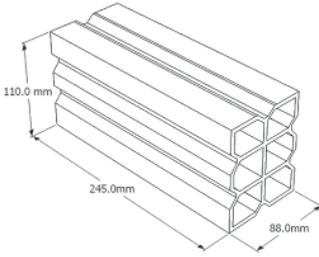
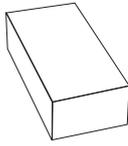
Design resistance under tension (NRd) and shear loading (VRd)

Partial safety factor for masonry $\gamma_{Mm} = 2.5$ (according TR054)

Base material	M8	M10	M12
NRd = VRd [kN]			
Brick no. 1	0.80	0.80	0.80
Brick no. 3	0.48	0.48	0.80
Brick no. 6	0.48	0.60	1
Brick no. 5	0.48	0.48	0.60
Brick no. 2	0.24	0.30	0.30
Brick no. 7	0.20	0.30	0.48
Brick no. 4	0.20	0.20	0.20

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Types and dimensions of blocks and bricks

<p>Brick no. 1</p>  <p>Hollow clay brick Hlz 12-1,0-2DF according to EN771-1 Length/width/height 235 mm/112 mm/115 mm $f_b \geq 12 \text{ N/mm}^2 / \rho \geq 1,0 \text{ kg/dm}^3$</p>	<p>Brick no. 4</p>  <p>Hollow clay brick Porothersm 25P+W KL15 according to EN771-1 Length/width/height 373 mm/250 mm/238 mm $f_b \geq 12 \text{ N/mm}^2 / \rho \geq 0,9 \text{ kg/dm}^3$</p>	<p>Brick no. 6</p>  <p>Solid sand lime brick KS 12-2,0-NF according to EN771-2 Length/width/height 240 mm/115 mm/70 mm $f_b \geq 12 \text{ N/mm}^2 / \rho \geq 2,0 \text{ kg/dm}^3$</p>
<p>Brick no. 2</p>  <p>Concrete masonry unit Hbn 4-12DF according to EN771-3 Length/width/height 370 mm/240 mm/238 mm $f_b \geq 4 \text{ N/mm}^2 / \rho \geq 1,2 \text{ kg/dm}^3$</p>	<p>Brick no. 5</p>  <p>Hollow clay brick HlzW 6-0,7-8DF according to EN771-1 Length/width/height 250 mm/240 mm/240 mm $f_b \geq 6 \text{ N/mm}^2 / \rho \geq 0,8 \text{ kg/dm}^3$</p>	<p>Brick no. 7</p>  <p>Hollow clay brick Hueco Doble according to EN771-1 Length/width/height 245 mm/110 mm/88 mm $f_b \geq 2,5 \text{ N/mm}^2 / \rho \geq 0,74 \text{ kg/dm}^3$</p>
<p>Brick no. 3</p>  <p>Solid clay brick Mz 12-2,0-NF according to EN771-1 Length/width/height 240 mm/116 mm/71 mm $f_b \geq 12 \text{ N/mm}^2 / \rho \geq 2,0 \text{ kg/dm}^3$</p>		

SAFETY

Safety data sheet available on request.

LIMITATIONS

- Due to the nature of the product, migration of the monomer in the resin may cause staining in certain materials (f. ex. natural stone). Preliminary tests are necessary.
- Not intended for anchoring into porous or reconstituted stone.
- The chemical anchor is not intended for use as a cosmetic or decorative product.
- Not intended for anchoring into holes flooded with seawater.

TECHNICAL APPROVALS



* Information sur le niveau d'émission de substances volatiles dans l'air intérieur, présentant un risque de toxicité par inhalation, sur une échelle de classe allant de A+ (très faibles émissions) à C (fortes émissions).

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