

Declaration of Performance No 1404-CPR-2838

According to the Regulation EU No 305/2011

DGE00 Sinto ST-PES

Manufacturer: Tecfi S.p.A. - S.S. Appia, km 193 - 81050 Pastorano (CE), Italia



1 - Intended use

Product-type:	Metal Injection Anchors for use in Masonry, bonded anchor with anchor rod made of galvanized steel or stainless steel of sizes M8, M10 and M12, for use in masonry.
Base material:	Solid masonry (use category b) or hollow or perforated masonry (use category c). The mortar strength class of the masonry has to be M 2,5 according to EN 998-2:2010 at minimum.
Materials:	<p>Threaded rods:</p> <p>a) Galvanized Carbon steel grade 4.6, 5.8 and 6.8 according to EN ISO 898-1</p> <p>b) Stainless steel A4-70 according to EN ISO 3506</p> <p>Nuts and washers:</p> <p>Corresponding to anchor rod material above mentioned for the different environmental exposures.</p>
Durability:	Elements made of galvanized steel or stainless steel may be used in structures subject to dry internal conditions only. Perforation with drilling machine
Loading:	Static and quasi-static
Service temperatures:	<p>a) -40°C to +40°C (max. short term temperature +40°C e and max. long term temperature +24°C).</p> <p>b) -40°C to +80°C (max. short term temperature +80°C e max. long term temperature +50°C).</p>
Use category:	Category w/d: installation in wet substrate and use in structures subjected to dry, internal conditions.
Fire Resistance	NPD
Fire Reaction	In the final application the thickness of the mortar layer is about 1 to 2 mm and most of the mortar is material classified class A1 according to EC Decision 96/603/EC. Therefore it may be assumed that the bonding material (synthetic mortar or a mixture of synthetic mortar and cementitious mortar) in connection with the metal anchor in the end use application do not make any contribution to fire growth or to the fully developed fire and they have no influence to the smoke hazard.
ETA:	ETA 17/0031, issued bu ETA-Danmark A/S
On the basis of:	Etag 029 used as EAD
Attestation of Conformity:	Number 1404-CPR-2838, issued by ZAG
Under system:	1

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2 - Anchor's components

2.1: Rebars material

Part	Designation			
	Steel, zinc plated $\geq 5 \mu\text{m}$ according to EN ISO 4042 Acciaio Zincato a Caldo min 40 μm secondo ISO 1461	Stainless steel A2	Stainless steel A4	Stainless steel with high corrosion resistance (HRC)
Threaded rod	Steel class 4.8, 5.8, 8.8 in accordance with EN ISO 898-1	Material 1.4301/1.4307/1.4567/1.4541 in accordance with EN 10088; property class 70 ed 80 (A2-70 and A2-80) in accordance with EN ISO 3506	Material 1.4401/1.4404/1.4571/1.4362/1.4578 in accordance with EN 10088; property class 70 and 80 (A4-70 and A4-80) according to EN ISO 3506	Material 1.4529/1.4565 in accordance with EN 10088; property class 70 in accordance with EN ISO 3506
Hexagon nut	Steel class 4, 5, 8, in accordance with EN 20898-2; corresponding to the material of the threaded rod	Material 1.4301/1.4307/1.4567/1.4541 according to EN 10088; property class 70 ed 80 (A2-70 and A2-80) in accordance with EN ISO 3506	Material 1.4401/1.4404/1.4571/1.4362/1.4578 in accordance with EN 10088; property class 70 and 80 (A4-70 and A4-80) according to EN ISO 3506	Material 1.4529/1.4565 in accordance with EN 10088; property class 70 in accordance with EN ISO 3506
Washer	Steel in accordance with EN ISO 7089; corresponding to the material of the threaded rod	Material 1.4301/1.4307/1.4567/1.4541 according to EN 10088; corresponding to the material of the threaded rod	Material 1.4401/1.4404/1.4571/1.4362/1.4578 in accordance with EN 10088; corresponding to the material of the threaded rod	Material 1.4529/1.4565 in accordance with EN 10088; corresponding to the material of the threaded rod

Commercial standard steel element with:

- material and mechanical properties according to Table A3 and A4,
- confirmation of material and mechanical properties by inspection certificate 3.1 according to EN-10204:2004,
- marking of the threaded rod with the embedment depth

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2 - Anchor's components

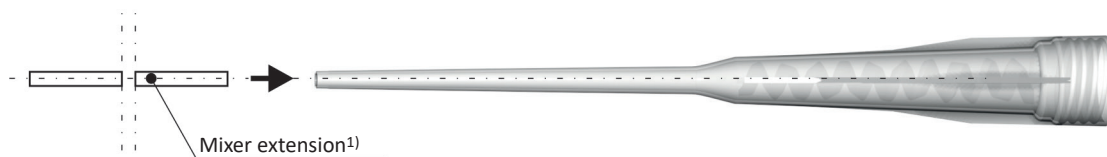
2.2: Resin

Injection mortar	Composition
DGE00 Sinto-ST PES Dual component Polyester resin	Bonding agent: polyester resin Additive : quartz Hardener: dibenzoyl peroxide

The cartridge code contains the article code, batch, expiration date, installation procedure, workability time and hardening time in relation to the temperature of the concrete, safety pictograms and storage methods



Mixer – suitable of all the cartridges



¹)Length variables from 380 [mm] to 1000 [mm]

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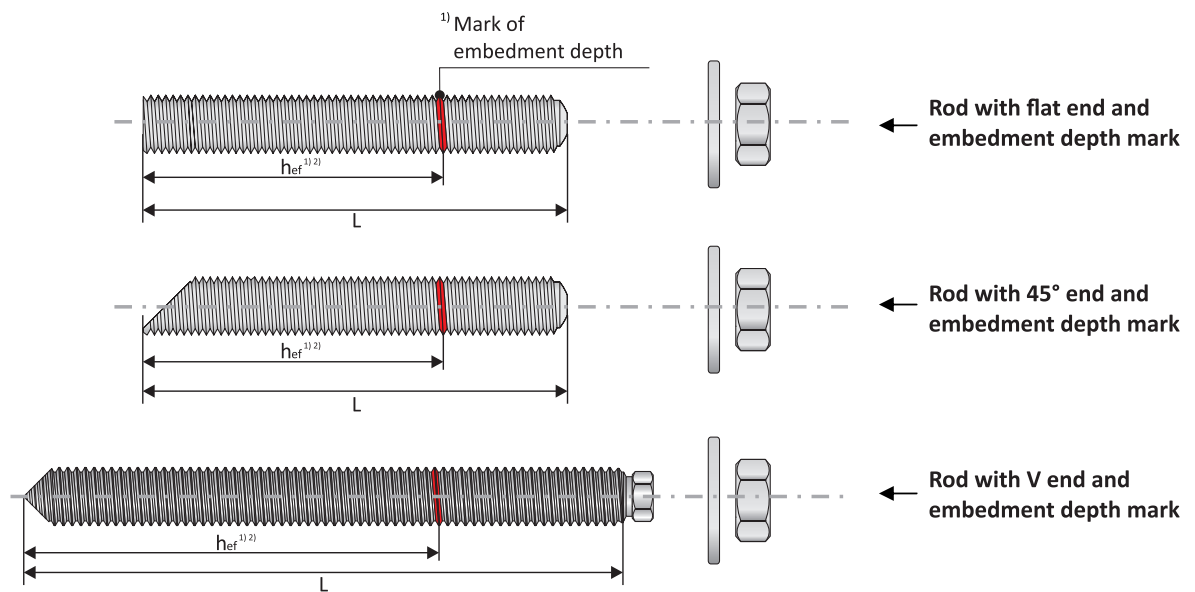
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2 - Anchor's components

2.3: Metallic elements

Threaded rod types:



1) Marking according to point 1.1 of EAD 330499-00-0601

2) Effective anchorage depths according to the range specified in 3.b

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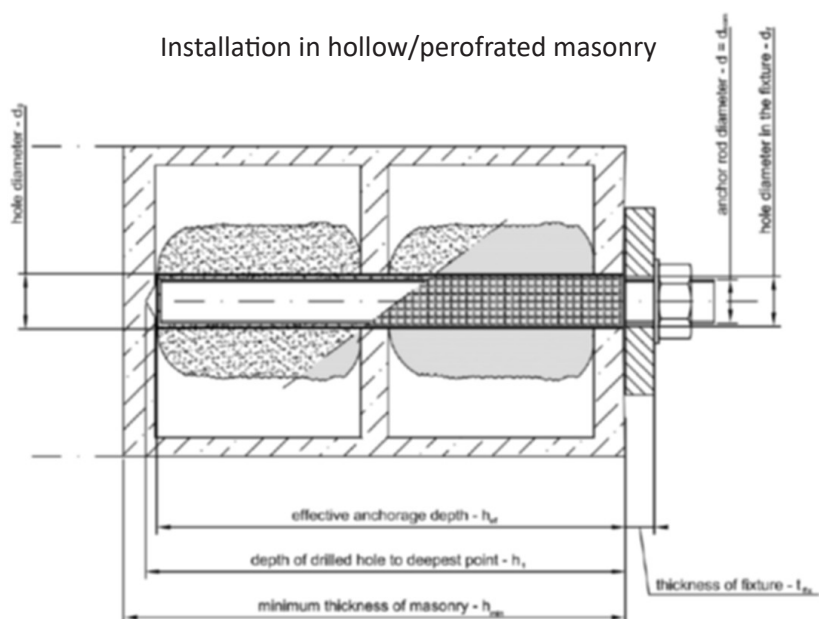
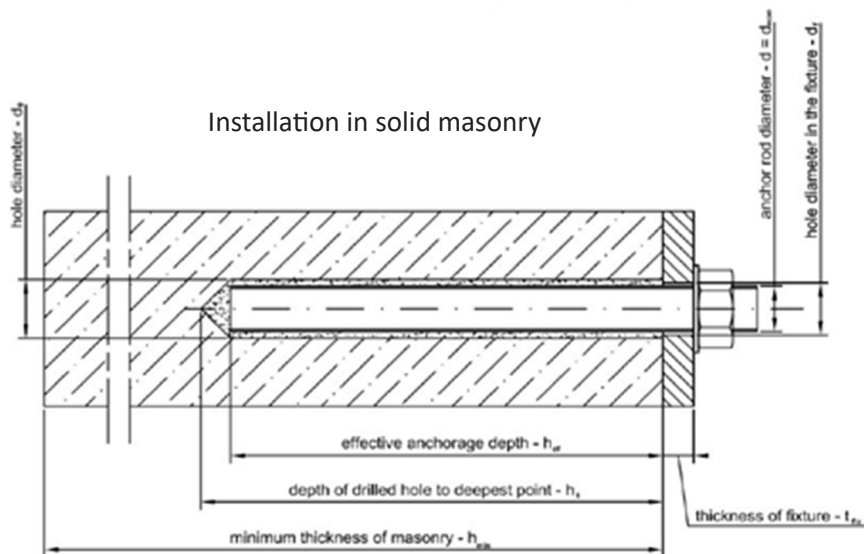
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3 - Anchor application and installation parameter



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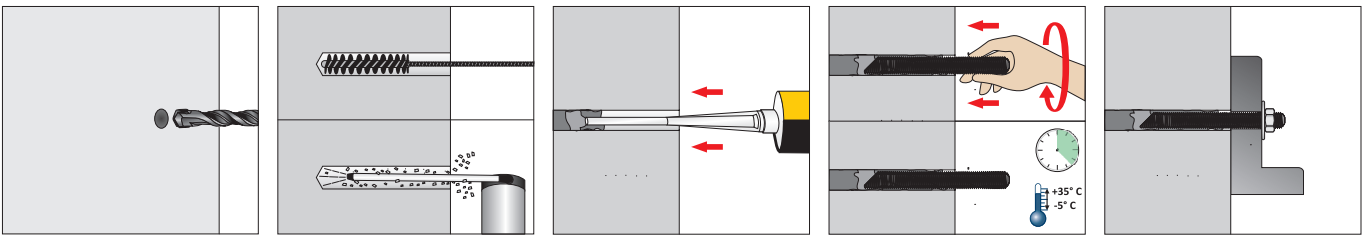
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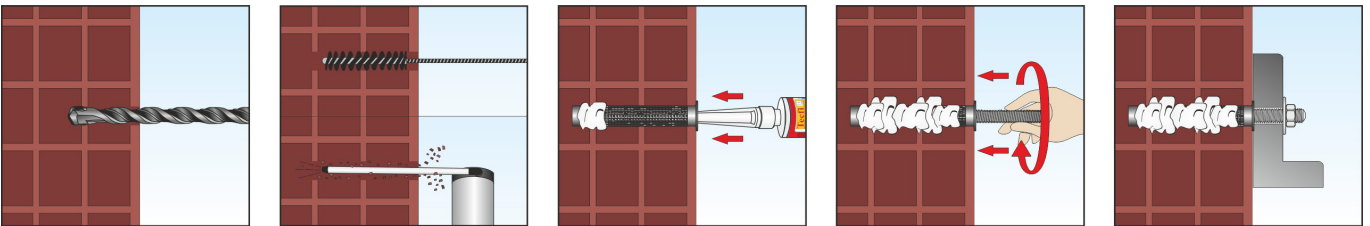


4 - Installation sequence, brush and resin injection gun

4.1: Installation sequence – solid masonry (use category b)



4.2: Installation sequence – hollow masonry (use category c)



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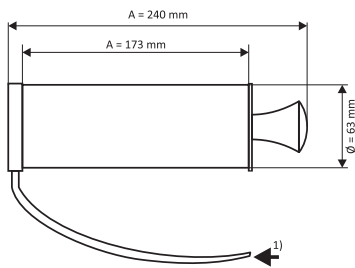
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4 - Installation

4.3: Cleaning tools



Manual blower pump

(To extend the length of blowing nozzle is it possible to use the mixer extension with the manual blowing pump)

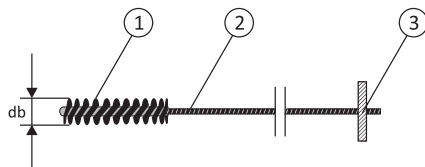


Mechanical air system (compressed air)

The use of the mixer extension is also allowed if using the compressor (compressed air)

- Minimum suitable pressure 6 [bar] at 6 [m3/h].
- Oil free compressed air.
- Recommended air gun with an orifice opening minimum 3,5 [mm] in diameter.

- Standard brush



1 - Steel bristles

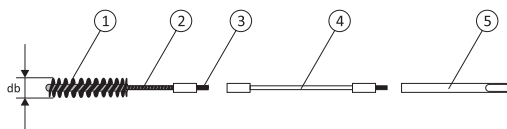
2 - Steel stem

3 - Wood handle

Standard brush diameter for threaded rods

Threaded rod diameter - d			M8	M10	M12
d_0	Nominal drill hole (solid masonry)	[mm]	10	12	14
d_b	Brush diameter (solid masonry)	[mm]	10	13	13
d_0	Diametro nominale del foro (hollow/perforated masonry)	[mm]	18	18	18
d_b	Diametro dello scovolino (hollow/perforated masonry)	[mm]	16	16	16

- Special brush



Steel bristles

2 - Steel stem

3 - Threaded connection for drilling tool extension

4 - Special brush extension

5 - Drilling tool connection (SDS connection)

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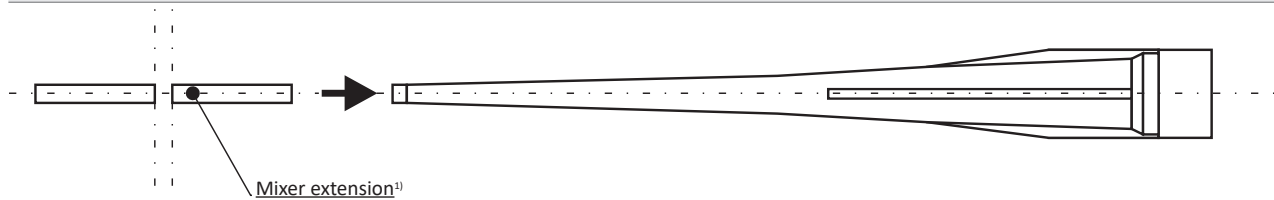
4 - Installation

4.4: Injection tools

Installation procedure up to 300 [mm] embedment depth (no overhead installation)

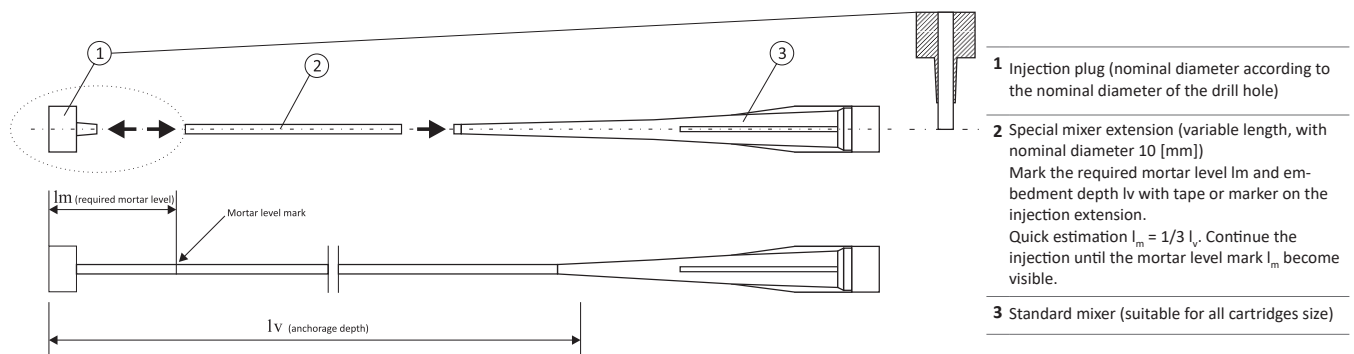
4.4.1 Special installation conditions:

4.4.2 Use the mixer extension (assembled on the standard mixer) in the installation procedure up to 300 [mm] embedment depth if needed

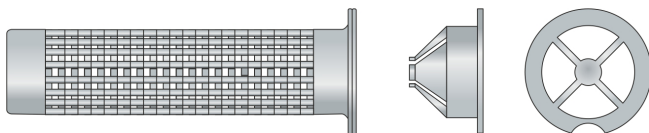


¹⁾ Length variable da 380 [mm] a 1000 [mm]

4.4.3 Use the mixer extension (assembled on the standard mixer) with the injection plug for installation procedure up to 600 [mm] and overhead installations



4.4.4 Plastic sleeve



Plastic sleeve for chemical anchor

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5 - Installation

5.1: Mortar injection pumps

Pumps (injection dispensers)	Cartridge	Types
DH 01 00 400 	400 ml	Manual (up to 300 [mm] anchorage depth)
DH 01 00 345 	345 ml	Manual (up to 300 [mm] anchorage depth)
DH 01 01 300 	300 ml	Manual (up to 300 [mm] anchorage depth)

¹⁾ The pneumatic injection pump is recommended for all special applications

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6.1 - Declared performance according to ETAG 029

Installation parameters

Size		M8	M10	M12
Nominal anchor diameter	d_{nom} [mm]	8	10	12
Nominal drill hole diameter – solid masonry (use category b)	d_0 [mm]	10	12	14
Nominal drill hole diameter – hollow masonry (use category c)		16	16	16
Plastic sleeve – hollow masonry (use category c)	-	∅ 16 x 85	∅ 16 x 85	∅ 16 x 85
Diameter of the clearance hole in the fixture	d_f [mm]	9	12	14
Embedment depth – solid masonry (use category b)	h_{ef} [mm]	85		
Embedment depth – hollow masonry with plastic sleeve (use category c)				
Depth of the drill hole - solid masonry (use category b)	h_1 [mm]	90		
Depth of the drill hole - hollow masonry (use category c)				
Required torque moment - solid masonry (use category b)	T_{inst} [Nm]	2	2	2
Required torque moment - hollow masonry (use category c)		2	2	2
Minimum spacing and edges distances- solid masonry (use category b)	S_{min} [mm]	255		
	C_{min} [mm]	127,5		
Minimum spacing and edges distances - hollow masonry (use category c)	$S_{min} \parallel$ [mm]	560		
	$S_{min} \perp$ [mm]	200		
	C_{min} [mm]	100		
Brush size - solid masonry (use category b)	d_b [mm]	10	13	13
Brush size - hollow masonry (use category c)	d_b [mm]	16	16	16

Processing and curing time

Masonry temperature	Processing time	Minimum curing Time for dry and wet conditions
≥ - 5°C	40 min	180 min
≥ 5°C	20 min	90 min
≥ 15°C	9 min	60 min
≥ 25°C	5 min	30 min
≥ 35°C	3 min	20 min

Characteristic Bending Moment

Size		M8	M10	M12
Rod, class 4.6	$M_{rk,S}$ [Nm]	15	30	52
Partial safety factor	γ_{Ms} [-]	1,67		
Rod, class 5.8	$M_{rk,S}$ [Nm]	19	37	66
Partial safety factor	γ_{Ms} [-]	1,25		
Rod, class 6.8	$M_{rk,S}$ [Nm]	22	45	79
Partial safety factor	γ_{Ms} [-]	1,25		
Rod, class A4-70	$M_{rk,S}$ [Nm]	26	52	92
Partial safety factor	γ_{Ms} [-]	1,56		
Rod, class A4-80	$M_{rk,S}$ [Nm]	30	60	105
Partial safety factor	γ_{Ms} [-]	1,33		

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6.2 - Declared performance according to ETAG 029

Geometry and mechanical Properties – Solid Masonry Type “Brick n°1” (use category “b”)

Base Material	Drilling method	Density class (ρ)	Compressive strength (f_b)
Description	-	[kg/m ³]	[N/mm ²]
“Brick n°1” - solid masonry 2120x240x60	Rotazione + percussione	1666,7	40,0

Characteristic resistance in solid masonry type “Brick n°1” (use category “b”)

Size		M8	M10	M12
Characteristic tensile resistance for single anchor – service temperature a)	N_{rk} [kN]	2,5		
Characteristic tensile resistance for single anchor – service temperature b)	N_{rk} [kN]	2,0		
Characteristic shear resistance for single anchor- all temperature ranges	V_{rk} [kN]	6,0		
Edge Distance and spacing for ensuring the transmission of the characteristic tensile resistance of a single anchor without spacing and edge effects	$S_{Cr,N}$ [mm]	255	255	255
	$C_{Cr,N}$ [mm]	127,5	127,5	127,5
β coefficient for in situ test according to ETAG029 – service temperature a)	-	0,57		
β coefficient for in situ test according to ETAG029 – service temperature b)	-	0,45		

Displacement for tensile load in solid masonry type “Brick n°1” (use category “b”)

Size		M8	M10	M12
Admissible service load in tensile in solid masonry type “Brick n°1” - service temperature a)	F [kN]	0,71		
Displacement	δ_{NO} [mm]	0,02		
	$\delta_{N_{or}}$ [mm]	0,05		
Admissible service load in tensile in solid masonry type “Brick n°1” - service temperature b)	F [kN]	0,57		
Displacement	δ_{NO} [mm]	0,03		
		0,06		

Displacement for shear load in solid masonry type “Brick n°1” (use category “b”)

Size		M8	M10	M12
Admissible service load in shear – all temperature ranges	V [kN]	1,71		
Displacement	δ_{v0} [mm]	0,45		
		0,68		

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6.3 - Declared performance according to ETAG 029

and mechanical Properties – Hollow masonry type “Brick n°2” (use category “c”)

Base Material	Drilling method	Density class (ρ)	Compressive strength (f_b)
Description	-	[kg/m ³]	[N/mm ²]
“Brick n°2” – French Brick 200x560x274	Rotary only	600	8,5

Characteristic resistance in hollow masonry type “Brick n°2” (use category “c”)

Size		M8	M10	M12
Characteristic tensile resistance for single anchor – service temperature a)	N_{rk} [kN]	0,75		
Characteristic tensile resistance for single anchor – service temperature b)	N_{rk} [kN]	0,6		
Characteristic shear resistance for single anchor- all temperature ranges	V_{rk} [kN]	3,75		
Edge Distance and spacing for ensuring the transmission of the characteristic tensile resistance of a single anchor without spacing and edge effects	$S_{cr,N}$ [mm]			
	$C_{cr,N}$ [mm]			
β coefficient for in situ test according to ETAG029 – service temperature a)	-	0,6		
β coefficient for in situ test according to ETAG029 – service temperature b)	-	0,47		

Displacement for tensile load in hollow masonry type “Brick n°2” (use category “c”)

Misura		M8	M10	M12
Admissible service load in tensile in solid masonry type “Brick n°1” - service temperature a)	F [kN]	0,21		
Displacement	δ_{NO} [mm]	0,03		
	$\delta_{N_{ser}}$ [mm]	0,05		
Admissible service load in tensile in solid masonry type “Brick n°1” - service temperature b)	F [kN]	0,17		
Displacement	δ_{NO} [mm]	0,03		
		0,07		

Displacement for shear load in hollow masonry type “Brick n°2” (use category “c”)

Size		M8	M10	M12
Admissible service load in shear – all temperature ranges	V [kN]	1,00		
Displacement	δ_{vo} [mm]	1,15		
		1,73		

7 - Item code

Cartridge capacity	Cartridge capacity	Cartridge capacity
300 ml	Side by side (shuttle)	DGE 00 00 300
400 ml	Side by side (shuttle)	DGE 00 00 400

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8 - Label

Tecfi certezze per lavorare bene
Sistemi di fissaggio

DGE 00 SINTO-ST

RESINA POLIESTERE

Polyster Resin
Resine Polyester
Polyesterharz
Resina Poliester

Temperatura Ambiente / Temperature	Tempo di Preparazione / Processing Time	Tempo minimo di indurimento / Minimum curing time	Temperature e tempi di installazione / Installation temperature and curing times
A -5°C	40'	3 hours	Temperature and installation time for normal conditions, consult DOP/ETA
15°C	9'	1 hour	Temperature and installation time for normal conditions
25°C	5'	30'	Temperature and installation time for normal conditions
35°C	3'	20'	Temperature and installation time for normal conditions

Warning / Attenzione

Scadenza / Expiry date: DGE 00 00 300

300 ml

- 1 Item Code
- 2 Descriptions
- 3 Cartridge capacity (ml)
- 4 EAN 13 code
- 5 Installation sequence
- 6 Expiring date
- 7 Lot Number
- 8 Warnings
- 9 Danger symbols
- 10 Identification number of the Notified Body
- 11 Last two digits of the year in which the marking was first affixed
- 12 European standard applied and intended use
- 13 DoP number
- 14 Link to DoP
- 15 European Assessment Document's number

The performance of the product identified above is in conformity with the set of declared performances. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Name and function President Antonio Guarino	Place and date of issue Pastorano, April 7 th 2017	Signature
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