

Declaration of Performance No 1020-CPR-090-046429

According to the Regulation EU No 305/2011

DGE03 Sinto ST-VEPX

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



1 - Intended use

Product-type:	Metal anchor for use in concrete
Anchor type:	Bonded anchor with anchor rod and rebar for use in non-cracked concrete under static and quasi-static loads
Technical description of the product:	The DGE03 Sinto ST-VEPX is a chemical anchor (injection type) which consist of a mortar cartridge equipped with a special mixer and threaded rods measuring from M8 to M16 in (with nut and washer): - Galvanized carbon steel - A4-70, A4-80 stainless steel or high corrosion resistance stainless steel
Specification of the intended use in accordance with the applicable EAD:	The anchors are intended to be used for anchorages for which requirements for mechanical resistance and stability and safety in use in the sense of the Basic Requirement 1 (EU) 305/2011 shall be fulfilled and failure of anchorages made with these products would compromise the stability of the works, cause risk to human life and/or lead to considerable economic consequences.
Base material:	The post-installed rebar connections may be used in normal weight concrete of a minimum grade C12/15 and maximum grade C50/60 according to EN 206-1. -Non-cracked concrete: sizes from M8 to M16 and from $\varnothing 8$ to $\varnothing 16$
Installation:	The anchors can be installed in: - Dry or wet concrete (use category 1): sizes from M8 to M16 and from $\varnothing 8$ to $\varnothing 16$ - Downward and horizontal and upwards installation: sizes from M8 to M16 and from $\varnothing 8$ to $\varnothing 16$ - The anchors are suitable for hammer drilled holes: sizes from M8 to M16 and from $\varnothing 8$ to $\varnothing 16$
Loads:	- Static and quasi static loads: sizes from M8 to M16 and from $\varnothing 8$ to $\varnothing 16$
Durability:	Elements made of galvanized steel may be used in structures subject to dry internal conditions only. Elements made of stainless steel may be used in structures subject to dry internal conditions and also in concrete subject to external atmospheric exposure (including industrial and marine environment) or exposure in permanently damp internal conditions if no particular aggressive conditions exist. Such particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used). Elements made of high corrosion resistant steel may be used in structures subject to dry internal conditions and also in concrete subject to external atmospheric exposure or exposure in permanently damp internal conditions or in other particular aggressive conditions. Such particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).
Service temperature:	The anchors may be used in the following temperature range: a) -40°C a +40°C (max. short term temperature +40°C and max. long term temperature +24°C). b) -40°C a +50°C (max. short term temperature +50°C max. short term temperature +40°C).
Resistance to fire:	Not performance declared (NPA).
Reaction to fire:	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.

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1 - Intended use

Information referred to in article 31 of Regulation (EC) No 1907/2006 (REACH):	See MSDS
European Assessment Document:	EAD 330499-00-0601, "Bonded fasteners for use in concrete"
European Technical Assessment:	ETA 19/0824
Technical Assessment Body:	ETA-Danmark A/S, Göteborg Plads 1 DK- 2150 Nordhavn (Danimarca)
Design methods:	Static and quasi-static loads: EN1992-4 o Technical Report TR055
Assessment and Verification of Constancy of Performance:	EC Certificate No. 1020-CPR-090-046429
Notified Body:	TECHNICKY A ZKUSEBNI USTAV STAVEBNI PRAHA Prosecká 811/76A, 190 00 Praha 9-Prosek
Under the system:	1

2 - Anchor's components

2.a: 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	Stell 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

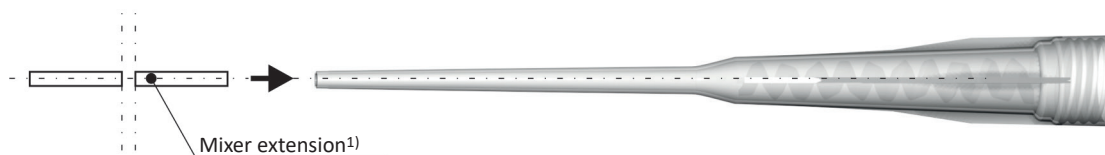
2.2: Resin

Injection mortar	Composition
DGE03 Sinto ST-VEPX Two component injection mortars	Mortar resin styrene-free, hardener, filler

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



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

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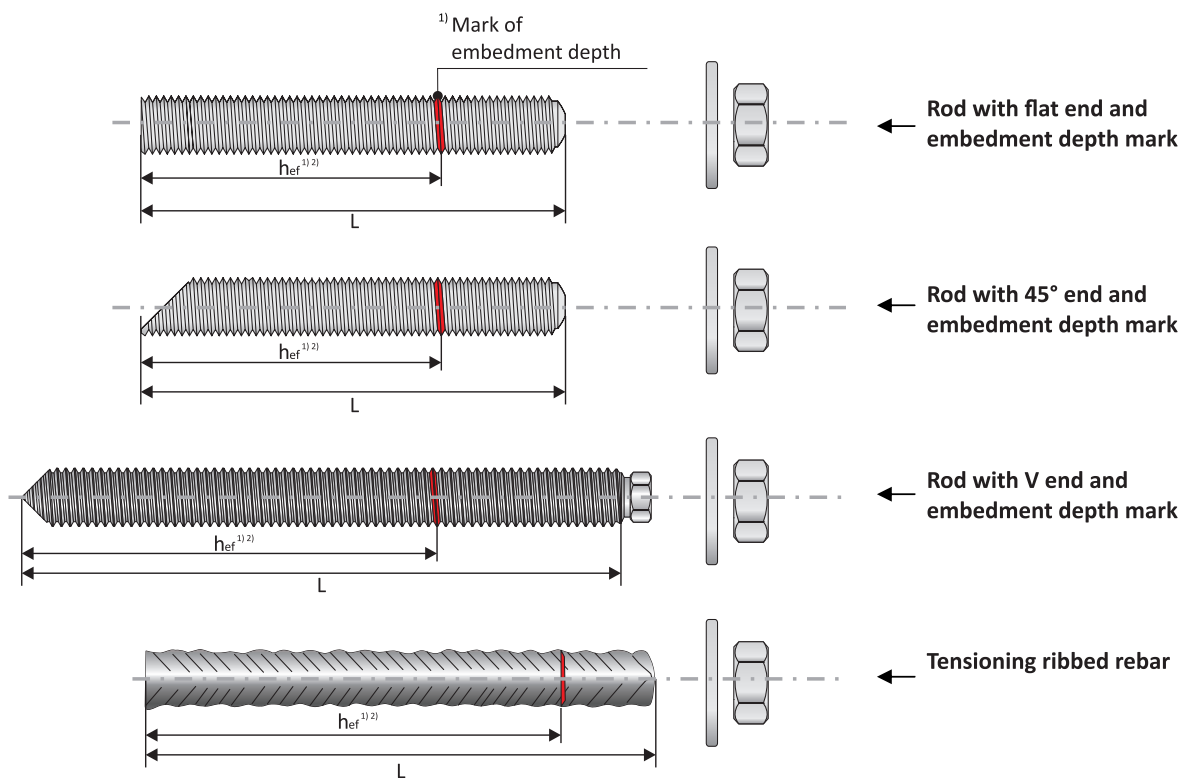
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2 - Anchor's components

2.2: 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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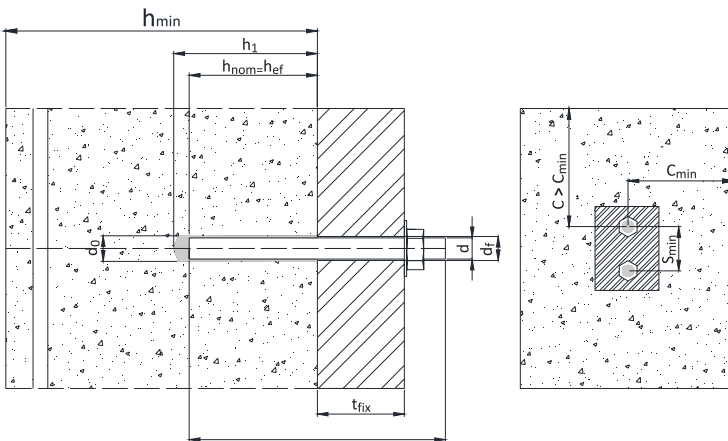
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3 - Installation

3.a: Installation information:



d	Thread diameter
l	Rod's length
d₀	Rod's length
d_f	Diameter of clearance hole in the fixture
t_{fix}	Thickness of fixture
h_{min}	Minimum thickness of concrete member
h₁	Depth of the drill hole
h_{nom}	Overall anchor embedment depth
h_{ef}	Effective anchorage depth
T_{inst}	Required torque moment
S_{min}	Minimum allowable spacing
C_{min}	Minimum allowable edge distance

3.b: Installation data

Size	d [mm]	d ₀ [mm]	d _f [mm]	h ₁ [mm]	h _{min} [mm]	h _{ef,min} [mm]	h _{ef,max} [mm]	T _{inst} [mm]	t _{fix} [mm]	S _{min} [mm]	C _{min} [mm]
M8	8	10	9	h _{ef} +5	h _{ef} +30 ≥100	60	160	10	< 1500	40	40
M10	10	12	12	h _{ef} +5	h _{ef} +30 ≥100	70	200	20	< 1500	50	50
M12	12	14	14	h _{ef} +5	h _{ef} +30 ≥100	80	240	40	< 1500	60	60
M16	16	18	18	h _{ef} +5	h _{ef} +2 d ₀	100	320	80	< 1500	75	75
Ø8	8	12	-	h _{ef} +5	h _{ef} +30 ≥100	60	160	-	< 1500	50	50
Ø10	10	14	-	h _{ef} +5	h _{ef} +30 ≥100	70	200	-	< 1500	60	60
Ø12	12	16	-	h _{ef} +5	h _{ef} +2 d ₀	80	240	-	< 1500	65	65
Ø14	14	18	-	h _{ef} +5	h _{ef} +2 d ₀	80	280	-	< 1500	75	75
Ø16	16	20	-	h _{ef} +5	h _{ef} +2 d ₀	100	320	-	< 1500	80	80

3.c: Minimum curing time¹⁾

Concrete temperature [°C]	Processing time	Minimum curing time ¹⁾
0 ²⁾	25 min	180 min
5 ²⁾	15 min	120 min
10	12 min	90 min
15	8 min	60 min
20	6 min	45 min
25	4 min	30 min
30	3 min	20 min

¹⁾ The minimum time from the end of the mixing to the time when the anchor may be torque or loaded.

²⁾ The minimum recommended resin temperature is 10[°C]

³⁾ Minimum curing time for dry and wet concrete

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3 - Installation

3.2: Installation procedure for insertion depths up to 300 [mm]

<p>1</p>	<p>Drill the hole perpendicularly to the concrete surface with the correct diameter and depth using a rotary percussive machine.</p>
<p>2</p>	<p>Clean the hole from drilling dust: the hole shall be cleaned by at least 4 blowing operations, by at least 4 brushing operations followed again by at least 4 blowing operations; before brushing, clean the brush and check if the brush diameter is sufficient</p>
<p>3</p>	<p>For coaxial and peeler cartridges unscrew the front cup, screw on the mixer and insert the cartridge in the gun. For the size 300 ml and 165 ml, unscrew the front cup, pull-out the steel closing clip according to the following operations:</p> <ul style="list-style-type: none"> - insert the mixer in the eye of the plastic extractor, - pull the extractor to unhook the steel closing clip of the foil. In the version without extractor cut the foil pack. After that, screw on the mixer and insert the cartridge in the gun.
<p>4</p>	<p>Before starting to use the cartridge, eject a first part of the product, being sure that the two components are completely mixed. The complete mixing is reached only after that the product, obtained by mixing the two components, comes out from the mixer with an uniform color.</p>
<p>5</p>	<p>Fill the drilled hole uniformly starting from the drilled hole bottom, in order to avoid entrapment of the air; remove the mixer slowly bit by bit during pressing-out; filling the drill hole with a quantity of the injection mortar corresponding to 2/3 of the drill hole depth. Insert immediately the steel element (threaded rod or rebar), marked according to the proper anchorage depth, slowly and with a slight twisting motion, removing excess of injection mortar around the steel element.</p>

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3 - Installation

3.4: Overhead installation

<p>1</p>	<p>Start injection: Inject from the bottom of the hole using the proper pneumatic-pump. Hold this position during the injection phase.</p>
<p>2</p>	<p>Injection phase: inject the product about 2/3 of the hole depth. During the injection hold this position to assure the correct installation.</p>
<p>3</p>	<p>End injection: remove the injection plug. Insert immediately the rod (turn the rod during the insertion).</p>
<p>4</p>	<p>End installation: to avoid the slipping of the rod during the open time of the product (due to the rod own weight) use a temporary interlocking element (e.g. wedge of wood)</p>

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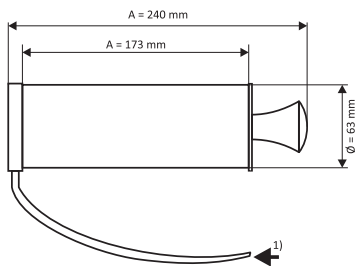
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3 - Installation

3.2: Cleaning tools

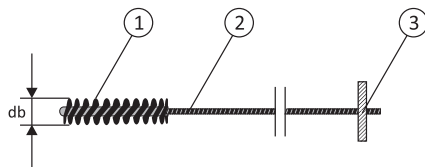


Manual blower pump
(To extend the length of blowing nozzle is it possible to use the mixer extension with the manual blowing pump)



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

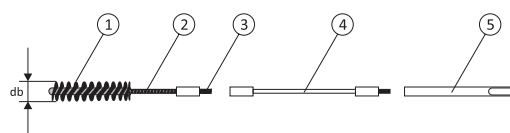


1 - Steel bristles
2 - Steel stem
3 - Wood handle

3.g: Standard brush diameter for threaded rods

Threaded rod diameter - d			M8	M10	M12	M16	
d_0	Nominal drill hole	[mm]	10	12	14	18	
d_b	Brush diameter	[mm]	12	14	16	20	
Rebar diameter - d			$\phi 8$	$\phi 10$	$\phi 12$	$\phi 14$	$\phi 16$
d_0	Nominal drill hole	[mm]	12	14	16	18	20
d_b	Brush diameter	[mm]	14	16	18	20	22

- Special brush



1 - 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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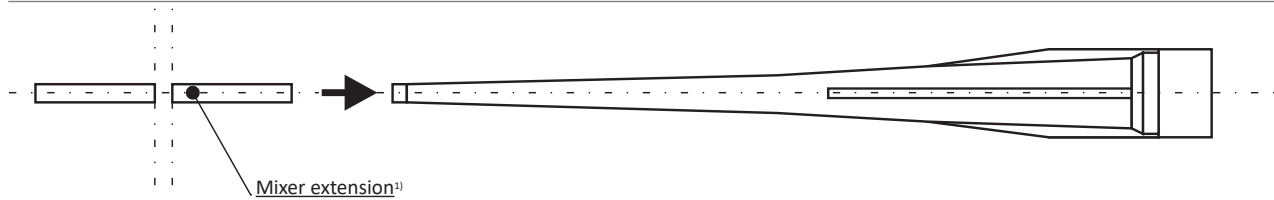
3 - Installation

3.2: Injection tools

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

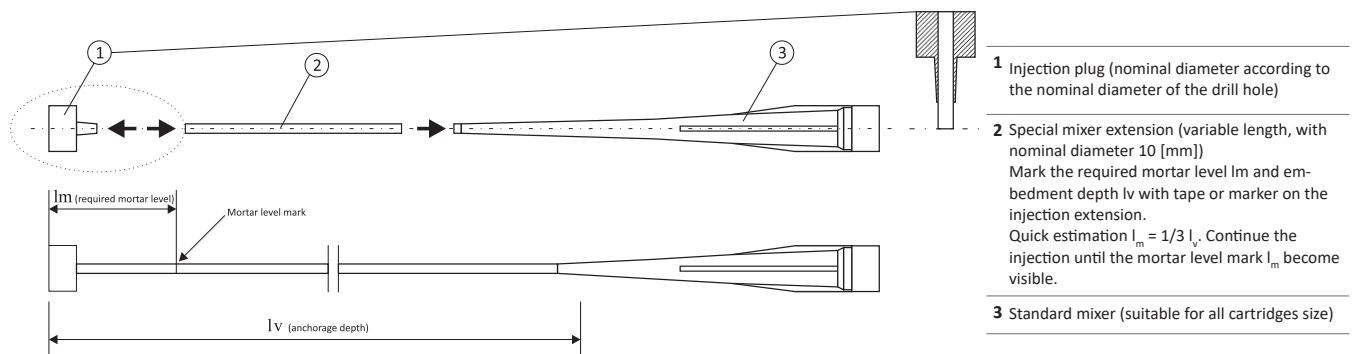
3.3.2 Special installation conditions:

3.3.2.1 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]

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



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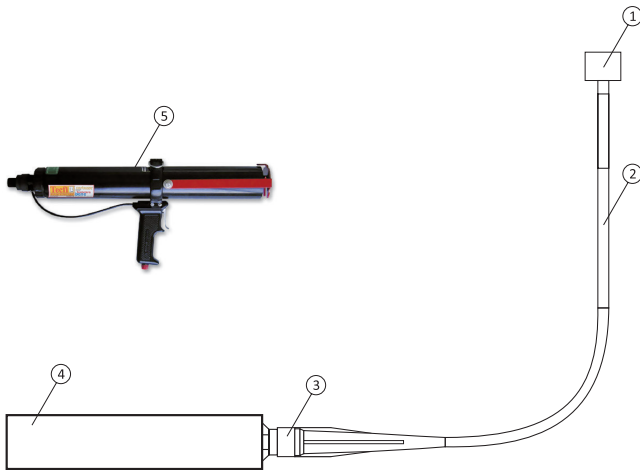
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3 - Installation

System assembled



- 1 Injection plug
- 2 Special mixer extension
- 3 Mixer
- 4 Cartridge
- 5 Pneumatic dispenser

3.8: Mortar injection pumps

Pumps (injection dispensers)	Cartridge	Types
DH 03 00 400 	400 ml	Pneumatic ¹⁾
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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4 - Declared performance according to EAD 330499-01-0601 – Threaded rods

4.a: Combined pull-out and concrete cone failure to tension load in non-cracked concrete

Misura		M8	M10	M12	M16
Concrete C20/25, temperature range [-40°C ; +40°C]	$\tau_{Rk,ucr}$ [N/mm ²]	13	13	11	9,5
Concrete C20/25, temperature range [-40°C ; +50°C]	$\tau_{Rk,ucr}$ [N/mm ²]	12	12	11	9
Increasing factor for C30/37	ψ_c C30/37			1,04	
Increasing factor for C40/50	ψ_c C40/50			1,07	
Increasing factor for C50/60	ψ_c C50/60			1,09	
Installation safety factor for use category 1	γ_2			1,00	

4.c: Splitting failure to tension load

Size		M8	M10	M12	M16
Spacing to ensure the transmission of the characteristic tension load of a single anchor without influence of the distance from the edge, in case of splitting failure (design method A)	$S_{cr,sp}$ [mm]				
	$S_{cr,sp}$ [mm]	$h = h_{min} \Rightarrow S_{cr,sp} = 4 h_{ef}$ $h_{min} \leq h < 2 h_{ef} \Rightarrow S_{cr,sp} = \text{interpolate}$ $h \geq 2 h_{ef} \Rightarrow S_{cr,sp} = 20 d (\tau_{Rk,ucr} / 7,5)^{0,5} \leq 3 h_{ef}$			
Edge distance to ensure the transmission of the characteristic tension load of a single anchor without influence of the spacing, in case of splitting failure (design method A)	$C_{cr,sp}$ [mm]	0,5 $S_{cr,sp}$ [mm]			

4.d: Concrete pry out failure

Size		M8	M10	M12	M16
Factor K_8	k [-]			2	

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4 - Declared performance according to all'EAD330499-00-0601 - Threaded rods

4.a: Combined pull-out and concrete cone failure to tension load in non-cracked concrete

Size		Ø8	Ø10	Ø12	Ø14	Ø16
Concrete C20/25, temperature range [-40°C ; +40°C]	$\tau_{Rk,ucr}$ [N/mm ²]	12	11	10	10	9
Concrete C20/25, temperature range [-40°C ; +50°C]	$\tau_{Rk,ucr}$ [N/mm ²]	12	10	10	9,5	8,5
Increasing factor for C30/37	Ψ_c C30/37	1,04				
Increasing factor for C40/50	Ψ_c C40/50	1,07				
Increasing factor for C50/60	Ψ_c C50/60	1,09				
Installation safety factor for use category 1	γ_2	1,00				

4.c: Splitting failure to tension load

Size		Ø8	Ø10	Ø12	Ø14	Ø16
Spacing to ensure the transmission of the characteristic tension load of a single anchor without influence of the distance from the edge, in case of splitting failure (design method A)	$S_{cr,sp}$ [mm]					
	$S_{cr,sp}$ [mm]	$h = h_{min} \Rightarrow S_{cr,sp} = 4 h_{ef}$ $h_{min} \leq h < 2 h_{ef} \Rightarrow S_{cr,sp} = \text{interpolate}$ $h \geq 2 h_{ef} \Rightarrow S_{cr,sp} = 20 d (\tau_{Rk,ucr} / 7,5)^{0,5} \leq 3 h_{ef}$				
Edge distance to ensure the transmission of the characteristic tension load of a single anchor without influence of the spacing, in case of splitting failure (design method A)	$C_{cr,sp}$ [mm]	0,5 $S_{cr,sp}$ [mm]				

4.d: Concrete pry out failure to shear load-non-cracked concrete

Size		Ø8	Ø10	Ø12	Ø14	Ø16
Factor K_8	k [-]	2				

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4.e: Displacement under shear and tensile loads-non-cracked concrete – Threaded rods

Size		M8	M10	M12	M16
Tension service load for concrete class from C20/25 to C50/60	F_{UCR} [kN]	9,5	13,8	16,9	23,6
Displacement in short term	$\delta_{N_{0,UCR}}$ [mm]	0,3	0,3	0,35	0,35
Displacement in long term	$\delta_{N_{\infty,UCR}}$ [mm]	0,73			
Shear service load for concrete class from C20/25 to C50/60	F_{UCR} [kN]	10,5	16,6	24,1	44,8
Displacement in short term	$\delta_{V_{0,UCR}}$ [mm]	2,0			
Displacement in long term	$\delta_{V_{\infty,UCR}}$ [mm]	3,0			

4.f: Displacement under shear and tensile loads-non-cracked concrete – Rebars

Size		Ø8	Ø10	Ø12	Ø14	Ø16
Tension service load for concrete class from C20/25 to C50/60	F_{UCR} [kN]	7,7	10	12,6	12,6	18,3
Displacement in short term	$\delta_{N_{0,UCR}}$ [mm]	0,35	0,35	0,40	0,40	0,40
Displacement in long term	$\delta_{N_{\infty,UCR}}$ [mm]	0,73				
Shear service load for concrete class from C20/25 to C50/60	F_{UCR} [kN]	5,5	8,6	12,3	16,8	21,9
Displacement in short term	$\delta_{V_{0,UCR}}$ [mm]	2,0				
Displacement in long term	$\delta_{V_{\infty,UCR}}$ [mm]	3,0				

5 - Item code

Size	Cartridge type	Codici articolo
300 ml	Coaxial foil cartridge	DGE 03 00 300
400 ml	Coaxial	DGE 03 00 400

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6 - Label

Elementi di fissaggio conformi all'ETA:
Diametro esterno Ø (mm) / Ø (inches)

Barre filetate / Threaded rods	A	B	C	D
Ø10	10	65	+73	
M12	12	75	+83	
M14	14	85	+93	
M16	16	95	+103	

Barre d'armatura / Rebars

A	B	C	D
Ø8	12	65	+73
Ø10	14	75	+83
Ø12	16	85	+93
Ø14	18	95	+103
Ø16	20	105	+113

Calcestruzzo Concrete C20/25 + C30/36

Temperatura a termo di installazione / Installation temperature	Temperatura ambiente / Ambient temperature	Temperatura di indurimento / Curing temperature
15°C	5°C	20°C
20°C	0°C	25°C
25°C	-5°C	30°C
30°C	-10°C	35°C
35°C	-15°C	40°C
40°C	-20°C	45°C

RESINA EPOSSIACRILATO A BASE VINILESTERE
Epoxy Acrylate Vinylester Resin
Résine Vinylester Epoxyacrilate
Vinylesterharz Epoxyacrylat
Resina Vinilester Epoxiacrilato

Warnings / Avvertenze

Scadenza / Expiry date: DGE 03 00 300 v3.00

ETA 19/0824 | Tecfi S.p.A. | DGE03 - Sinto ST-VEPX | DoP No. 1020-CPR-090-046429

- 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	Place and date of issue	Signature
President Antonio Guarino	Pastorano, July 22 th 2019	