

Declaration of Performance No 1020-CPD-010031645

According to the Regulation EU No 305/2011

VS11 - VS13 - VS31 - VS33 - VS21 - VS71 - VS81 - VS83

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



1 - Intended use	
Generic type:	Plastic anchor for multiple use in concrete and masonry for non-structural applications.
Base material:	Cracked and non-cracked concrete with strength class C12/15 at minimum and C50/60 at maximum, according to EN 206-1:2000-12, solid masonry, hollow masonry and aerate autoclaved concrete and mortar strength class \geq M 2,5 according to EN 998-2:2003
Screw material:	Carbon steel grade 5.8 (galvanized min. 5 μ m according to ISO 2081) and Stainless steel A4/70 (AISI 316) according to ISO 3506-1 and EN 10088-3
Durability:	<p>Specific screw of galvanized steel: The specific screw made of galvanized steel may only be used in structures subject to dry internal conditions. The specific screw may also be used in structures subject to external atmospheric exposure or exposure in permanently damp internal conditions, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e. g. undercoating or body cavity protection for cars).</p> <p>Specific screw of stainless steel: The specific screw made of stainless steel may be used in structures subject to dry internal conditions and also in structures 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).</p>
Loading:	Static and quasi-static
Fire resistance:	According to the EOTA Technical Report TR 020 "Evaluation of anchorages in concrete concerning resistance to fire" it can be assumed that for fastening of facade systems the load bearing behaviour of the Tecfi VS-Handyplug \varnothing 10, has a sufficient resistance to fire at least 90 minutes (R90) if the admissible load $[FRk / (\gamma_M \cdot \gamma_F)]$ is \geq 0,8 kN (no permanent centric tension load).
Fire reaction:	NPD
ETA:	ETA 13/0135, rilasciato dal DIBT
On the basis of:	Etag 020 used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011
Attestation of Conformity:	EC number 1020-CPD-010031645, issued by TZUS
European Assessment Document:	EAD 330047-01-0602 "Fastening screws for sandwich panels"
Under system:	2+

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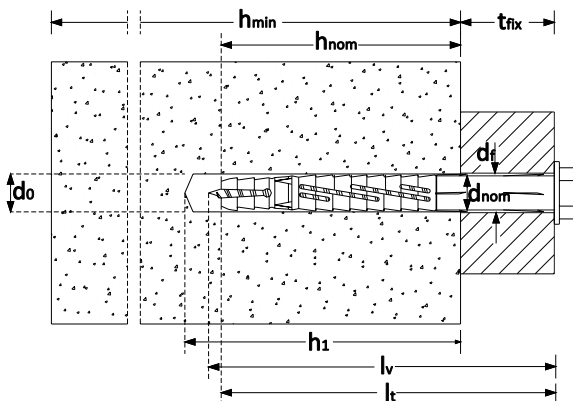
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Figure 1 - Anchor types and installation parameters

Item Code	Description	Finishing
VS11	Multi-purpose countersunk edge nylon anchor, with 6-lobe recess flat countersunk head screw	zinc plated
VS13	Multi-purpose countersunk edge nylon anchor, with 6-lobe recess flat countersunk head screw	A4-70 (AISI 316) stainless steel
VS31	Multi-purpose countersunk edge nylon anchor, with 6-lobe recess hexagonal washer head screw	zinc plated
VS33	Multi-purpose countersunk edge nylon anchor, with 6-lobe recess hexagonal washer head screw	A4-70 (AISI 316) stainless steel
VS21	Multi-purpose countersunk edge nylon anchor, with 6-lobe recess mushroom head screw	zinc plated
VS71	Multi-purpose cylinder edge nylon anchor, with 6-lobe recess mushroom head screw	zinc plated
VS81	Multi-purpose cylinder edge nylon anchor, with 6-lobe recess hexagonal washer head screw	zinc plated
VS83	Multi-purpose cylinder edge nylon anchor, with 6-lobe recess hexagonal washer head screw	A4-70 (AISI 316) stainless steel



- d_{nom} anchor diameter
- l_t anchor length
- l_v screw length
- t_{fix} maximum thickness of fixture
- d_0 drill hole diameter
- h_1 depth of drill hole
- h_{min} minimum thickness of the member
- h_{nom} minimum overall anchor embedment depth
- d_f diameter of clearance hole in the fixture

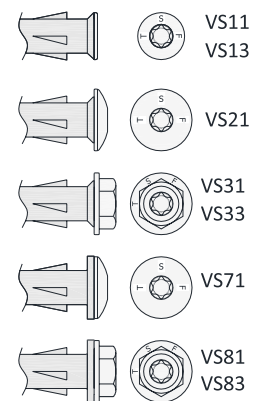
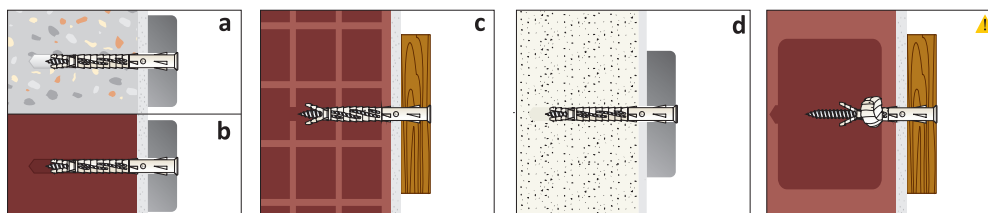


Figure 2 - Installation sequence



- a - normal weight concrete
- b - solid masonry
- c - hollow or perforated masonry
- d - autoclaved aerated concrete
- ! - hollow masonries not included in the ETA-CE

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Table 2 - Declared Performances according to ETAG 020 part 1 - 5

Installation parameters					
Anchor type		VS Ø8		VS Ø10	
Outside diameter of anchor	d_{nom} [mm]	8		10	
Screw diameter	d_v [mm]	6		7	
Nominal drill hole diameter	d_o [mm]	8		10	
Depth of drill hole	h_1 [mm]	90		90	
Effective anchorage depth	h_{ef} [mm]	70		70	
Diameter of clearance hole in the fixture	d_f [mm]	9		11	
Hexalobular socket number (ISO 10664)	T	30		40	
Wrench size (for hexagonal head only)	SW [mm]	10		13	
Characteristic bending resistance of the screw in concrete and masonry ¹⁾					
Size		VS Ø8		VS Ø10	
		Galvanized steel	Stainless steel	Galvanized steel	Stainless steel
Characteristic bending resistance	$M_{Rk,s}$ [Nm]	12,1	16,9	19,3	27,1
Partial safety factor	γ_{Ms} [-]	1,25			
Characteristic resistance of the screw in concrete and masonry ¹⁾					
Size		VS Ø8		VS Ø10	
		Galvanized steel	Stainless steel	Galvanized steel	Stainless steel
Characteristic tension resistance	$N_{Rk,s}$ [kN]	11,3	15,8	15,4	21,6
Partial safety factor	γ_{Ms} [-]	1,5			
Characteristic shear resistance	$V_{Rk,s}$ [kN]	5,6	7,9	7,7	10,8
Partial safety factor	γ_{Ms} [-]	1,25			
Characteristic resistance for use in concrete ¹⁾					
Plastic sleeve pull-out failure		VS Ø8		VS Ø10	
Temperature range		24°C / 40°C	50°C / 80°C	24°C / 40°C	50°C / 80°C
Characteristic tension resistance	$N_{Rk,p}$ [kN]	3,5	3,0	4,5	4,0
Partial safety factor	$\gamma_{Mc}^{2)}$ [-]	1,8			
Plastic sleeve pull-out failure under fire exposure					
in any load direction, no permanent centric tension load and without lever arm, fastening of façade systems		VS Ø8		VS Ø10	
Characteristic tension resistance	$N_{Rk,p,R90}$ [kN]	NPD		0,8	

1) Concrete strength $f_{ck} \geq 16/20$ {"trench class according to EN 206-1:2000-12)

2) In absence of other national regulations

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Displacements under tension load in concrete			
Size		VS Ø8	VS Ø10
Service tension load concrete	N [kN]	1,2	1,6
Displacements	δ_{N0} [mm]	0,24	0,29
	$\delta_{N\infty}$ [mm]	0,48	0,58
Displacements under shear load in concrete			
Size		VS Ø8	VS Ø10
Service tension load concrete	V [kN]	3,2	4,4
Displacements	δ_{V0} [mm]	2,00	1,67
	$\delta_{V\infty}$ [mm]	3,00	2,50

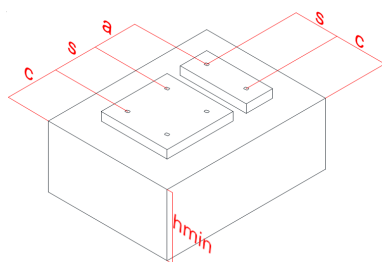
1) Concrete strength $f_{ck} \geq 16/20$ (strength class C16/20 acc. to EN 206-1:2000-12)

2) In absence of other national regulations

3) Design method according to ETAG 020, Annex C

Minimum thickness of the member, edge distance and spacing in concrete

Size		VS Ø8	VS Ø10
		Concrete class $\geq 16/20$	
Mnimum tickness of the member	h_{min} [mm]	140	
Characteristic edge distance	$c_{cr,N^{1)}$ [mm]	105	105
Characteristic spacing	s_{min} [mm]	90	100
Interasse e distanza dal bordo minimi consentiti ¹⁾	c_{min} [mm]	90	100



Fixing points with a spacing $a \leq s_{cr,N}$ are considered as a group with a maximum characteristic resistance $NR_{k,p}$ acc. to Table 2. For a spacing $a \geq s_{cr,N}$ the anchors are considered as single anchors, each with a characteristic resistance $NR_{k,p}$ acc. to Table 2.

1) Intermediate value by linear interpolation

Geometry and mechanical properties – Solid masonry type "A" (use category "b")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description	-	[kg/dm ³]	[N/mm ²]
Solid clay brick acc. to EN771-1:2011 - solid masonry 110x60x240 "Danesi"	Rotary + hammer	1,7	39,0

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Characteristic resistance in solid masonry Type "A"			
Size		VS Ø8	VS Ø10
Characteristic resistance	$F_{rk}^{1)}$ [mm]	3,0	2,0
Service tension load in solid masonry	N [kN]	0,9	0,6
Displacements	δ_{N0} [mm]	0,04	0,06
	$\delta_{N\infty}$ [mm]	0,08	0,12
Minimum thickness of the member, edge distance and spacing in solid masonry type "A"			
Size		VS Ø8	VS Ø10
Mnimum tickness of the member	h_{min} [mm]	110	
Single Anchor			
Minimum edge distance	c_{min} [mm]	120	
Anchor Group			
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240	
Spacing parallel to free edge	$S_{2,min}$ [mm]	480	
Minimum edge distance	c_{min} [mm]	120	
Displacements under shear load in solid masonry type "A"			
Size		VS Ø8	VS Ø10
Service shear load in solid masonry	V [kN]	3,2	4,4
Displacements	δ_{V0} [mm]	2,67	3,67
	$\delta_{V\infty}$ [mm]	4,00	5,50

1) Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min} . The specific conditions for the design method have to be considered according to Annex B.1 of ETA 13/0135.

Geometry and mechanical properties – Solid masonry type "B" (use category "b")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description	-	[kg/dm ³]	[N/mm ²]
Solid clay brick acc. to EN771-1:2011 - - Mattone pieno 250x120x55 "Terreal Italia"	Rotary + hammer	1,7	27,0

Characteristic resistance in solid masonry type "B"			
Size		VS Ø8	VS Ø10
Characteristic resistance	$F_{rk}^{1)}$ [kN]	4,0	5,0
Service tension load in solid masonry	N [kN]	1,1	1,4
Displacements	δ_{N0} [mm]	0,25	0,67
	$\delta_{N\infty}$ [mm]	0,50	1,34

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Minimum thickness of the member, edge distance and spacing in solid masonry type "B"

Size		VS Ø8	VS Ø10
Mnimum tickness of the member	h_{min} [mm]	120	
Single Anchor			
Minimum edge distance	c_{min} [mm]	125	
Anchor Group			
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	250	
Spacing parallel to free edge	$S_{2,min}$ [mm]	500	
Minimum edge distance	c_{min} [mm]	125	

Displacements under shear load in solid masonry type "B"

Size		VS Ø8	VS Ø10
Service shear load in solid masonry	V [kN]	3,2	4,4
Displacements	δ_{V0} [mm]	2,67	3,67
	$\delta_{V\infty}$ [mm]	4,00	5,50

1) Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing smin. The specific conditions for the design method have to be considered according to Annex B.1 of ETA 13/0135.

Geometry and mechanical properties – Solid masonry type "E" (use category "b")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description	-	[kg/dm ³]	[N/mm ²]
Vulcanic tuff brick acc. to EN771-3:2011 - - Fior di tufo 370x370x110 "Cave riunite"	Rotary + hammer	2,4	7,5

Characteristic resistance in solid masonry type "E"

Size		VS Ø8	VS Ø10
Characteristic resistance	$F_{rk}^{1)}$ [kN]	-	0,3
Service tension load in solid masonry	N [kN]	-	0,09
Displacements	δ_{N0} [mm]	-	0,01
	$\delta_{N\infty}$ [mm]	-	0,02

Minimum thickness of the member, edge distance and spacing in solid masonry type "E"

Size		VS Ø8	VS Ø10
Mnimum tickness of the member	h_{min} [mm]	370	
Single Anchor			
Minimum edge distance	c_{min} [mm]	185	
Anchor Group			
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	370	
Spacing parallel to free edge	$S_{2,min}$ [mm]	740	
Minimum edge distance	c_{min} [mm]	185	

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Displacements under shear load in solid masonry type "E"

Size		VS Ø8	VS Ø10
Service shear load in solid masonry	V [kN]	3,2	4,4
Displacements	δ_{V0} [mm]	2,67	3,67
	$\delta_{V\infty}$ [mm]	4,00	5,50

1) Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing smin. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

Geometry and mechanical properties – Solid masonry type "F" (use category "b")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description	-	[kg/dm ³]	[N/mm ²]
Calcium silicate solid brick, acc. EN 771-2:2011 Kalksandsteine KS-Plansteine KS-R(P)-20-2,0-8DF {240} "Heidelberger-Kalksandstein"	Rotary + hammer	1,9	28,2

Characteristic resistance in solid masonry type "F"

Size		VS Ø8	VS Ø10
Characteristic resistance	$F_{rk}^{1)}$ [kN]	5,5	6,0
Service tension load in solid masonry	N [kN]	1,57	1,71
Displacements	δ_{N0} [mm]	0,14	0,07
	$\delta_{N\infty}$ [mm]	0,29	0,15

Minimum thickness of the member, edge distance and spacing in solid masonry type "F"

Size		VS Ø8	VS Ø10
Minimum thickness of the member	h_{min} [mm]	240	
Single Anchor			
Minimum edge distance	c_{min} [mm]	120	
Anchor Group			
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240	
Spacing parallel to free edge	$S_{2,min}$ [mm]	480	
Minimum edge distance	c_{min} [mm]	120	

Displacements under shear load in solid masonry type "F"

Size		VS Ø8	VS Ø10
Service shear load in solid masonry	V [kN]	3,2	4,4
Displacements	δ_{V0} [mm]	2,67	3,67
	$\delta_{V\infty}$ [mm]	4,00	5,50

1) Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing smin. The specific conditions for the design method have to be considered according to annex B.1 of ETA 13/0135.

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Geometry and mechanical properties –Hollow masonry type "C" (use category "c")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description Perforated clay brick, acc. EN 771-1:2011 - Doppio doppio UNI 120x245x250 "Danesi"	-	[kg/dm ³]	[N/mm ²]
	Rotary	0,9	13,0

Characteristic resistance in hollow masonry type "C"

Size		VS Ø8	VS Ø10
Characteristic resistance	$F_{rk}^{1)}$ [kN]	-	0,3
Service tension load in hollow masonry	N [kN]	-	0,09
Displacements	δ_{N0} [mm]	-	0,12
	$\delta_{N\infty}$ [mm]	-	0,24

Minimum thickness of the member, edge distance and spacing in hollow masonry type "C"

Size		VS Ø8	VS Ø10
Minimum thickness of the member	h_{min} [mm]	-	120

Single Anchor

Minimum edge distance	c_{min} [mm]	-	125
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Anchor Group

Spacing perpendicular to free edge	$S_{1,min}$ [mm]	-	250
Spacing parallel to free edge	$S_{2,min}$ [mm]	-	500
Minimum edge distance	c_{min} [mm]	-	125

Displacements under shear load in hollow masonry type "C"

Size		VS Ø8	VS Ø10
Service shear load in hollow masonry	V [kN]	-	4,4
Displacements	δ_{V0} [mm]	-	8,80
		-	13,20

1) Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min} . The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Geometry and mechanical properties – Hollow masonry type "D" (use category "c")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description Perforated clay brick, acc. EN 771-1:2011 - Forati 120x250x250 "Wienerberger"	-	[kg/dm ³]	[N/mm ²]
	Rotary	0,6	2,0

Characteristic resistance in hollow masonry type "D"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Characteristic resistance	$F_{rk}^{1)}$ [kN]	0,3	-
Service tension load in hollow masonry	N [kN]	0,09	-
Displacements	δ_{N0} [mm]	0,03	-
	$\delta_{N\infty}$ [mm]	0,06	-

Minimum thickness of the member, edge distance and spacing in hollow masonry type "D"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Minimum thickness of the member	h_{min} [mm]	120	-
Single Anchor			
Minimum edge distance	c_{min} [mm]	125	-
Anchor Group			
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	250	-
Spacing parallel to free edge	$S_{2,min}$ [mm]	500	-
Minimum edge distance	c_{min} [mm]	125	-

Displacements under shear load in hollow masonry type "D"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Service shear load in hollow masonry	V [kN]	3,2	-
Displacements	δ_{V0} [mm]	6,40	-
	$\delta_{V\infty}$ [mm]	9,60	-

1)Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min} . The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Geometry and mechanical properties – Hollow masonry type "G" (use category "c")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description Perforated clay brick, acc. EN 771-1:2011 Poroton-Hochlochziegel-Block-T-24,0-0,9 L "Wienerberger" H blocco: 235mm 	-	[kg/dm ³]	[N/mm ²]
	Rotary	0,9	7,0

Characteristic resistance in hollow masonry type "G"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Characteristic resistance	$F_{rk}^{1)}$ [kN]	0,9	0,9
Service tension load in hollow masonry	N [kN]	0,26	0,26
Displacements	δ_{N0} [mm]	0,01	0,01
	$\delta_{N\infty}$ [mm]	0,02	0,02

Minimum thickness of the member, edge distance and spacing in hollow masonry type "G"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Minimum thickness of the member	h_{min} [mm]	240	

Single Anchor

Minimum edge distance	c_{min} [mm]	120	
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Anchor Group

Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240	
Spacing parallel to free edge	$S_{2,min}$ [mm]	480	
Minimum edge distance	c_{min} [mm]	120	

Displacements under shear load in hollow masonry type "G"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Service shear load in hollow masonry	V [kN]	0,26	0,26
Displacements	δ_{V0} [mm]	0,21	0,21
	$\delta_{V\infty}$ [mm]	0,32	0,32

1) Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing smin. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Geometry and mechanical properties – Hollow masonry type "H" (use category "c")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description Perforated clay brick, acc. EN 771-1:2011 Poroton-Kleinformat HlzB- 2DF -0,9 "Wienerberger"	-	[kg/dm ³]	[N/mm ²]
<p>H Blocco : 112mm</p>	Rotary	0,9	16,4

Characteristic resistance in hollow masonry type "H"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Characteristic resistance	$F_{rk}^{1)}$ [kN]	0,9	0,9
Service tension load in hollow masonry	N [kN]	0,26	0,26
Displacements	δ_{N0} [mm]	0,01	0,01
	$\delta_{N\infty}$ [mm]	0,02	0,02

Minimum thickness of the member, edge distance and spacing in hollow masonry type "H"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Minimum thickness of the member	h_{min} [mm]	115	

Single Anchor

Minimum edge distance	c_{min} [mm]	120	
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Anchor Group

Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240	
Spacing parallel to free edge	$S_{2,min}$ [mm]	480	
Minimum edge distance	c_{min} [mm]	120	

Displacements under shear load in hollow masonry type "H"

Size		VS $\varnothing 8$	VS $\varnothing 10$
Service shear load in hollow masonry	V [kN]	0,26	0,26
Displacements	δ_{V0} [mm]	0,21	0,21
	$\delta_{V\infty}$ [mm]	0,32	0,32

1) Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min} . The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

Declaration of Performance No 1020-CPD-010031645

According to the Regulation EU No 305/2011

VS11 - VS13 - VS31 - VS33 - VS21 - VS71 - VS81 - VS83

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



Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5

Geometry and mechanical properties – Hollow masonry type "I" (use category "c")

Base material	Drill method	Bulk density class ρ	Minimum compressive strength f_b
Description Muratura forata in silicato di calcio secondo EN771-1 - "Heidelberger-Kalksandstein" K"-L	-	[kg/dm ³]	[N/mm ²]
	Rotary	1,5	16,3

Characteristic resistance in hollow masonry type "I"

Size		VS Ø8	VS Ø10
Characteristic resistance	$F_{rk}^{1)}$ [kN]	5,0	5,5
Service tension load in hollow masonry	N [kN]	1,43	1,57
Displacements	δ_{N0} [mm]	0,11	0,08
	$\delta_{N\infty}$ [mm]	0,21	0,17

Minimum thickness of the member, edge distance and spacing in hollow masonry type "I"

Size		VS Ø8	VS Ø10
Minimum thickness of the member	h_{min} [mm]	175	
Single Anchor			
Minimum edge distance	c_{min} [mm]	120	
Anchor Group			
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240	
Spacing parallel to free edge	$S_{2,min}$ [mm]	480	
Minimum edge distance	c_{min} [mm]	120	

Displacements under shear load in hollow masonry type "I"

Size		VS Ø8	VS Ø10
Service shear load in hollow masonry	V [kN]	1,43	1,57
Displacements	δ_{V0} [mm]	1,19	1,31
	$\delta_{V\infty}$ [mm]	1,79	1,96

1) Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing smin. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

Declaration of Performance No 1020-CPD-010031645

According to the Regulation EU No 305/2011

VS11 - VS13 - VS31 - VS33 - VS21 - VS71 - VS81 - VS83

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



Tabella 2 (cont.) - Prestazioni dichiarate in accordo all' ETAG 020 parte 1 - 5

Geometry and mechanical properties – autoclaved aerated concrete (use category "d")

Base material	Metodo di perforazione	Classe di peso specifico ρ	Minima resistenza a compressione f_b
Descrizione	-	[kg/dm ³]	[N/mm ²]
Non-cracked aerated autoclaved concrete (AAC Blocks) EN 771-4: 2011	Rotazione	0,5	3,5
Characteristic resistance in autoclaved aerated concrete			
Size		VS $\varnothing 8$	VS $\varnothing 10$
Characteristic resistance	$F_{rk}^{1)}$ [kN]	0,5	0,6
Service tension load in autoclaved aerated concrete	N [kN]	0,18	0,21
Displacements	δ_{N0} [mm]	0,01	0,01
	$\delta_{N\infty}$ [mm]	0,02	0,02
Minimum thickness of the member, edge distance and spacing in autoclaved aerated concrete			
Size		VS $\varnothing 8$	VS $\varnothing 10$
Minimum thickness of the member	h_{min} [mm]	240	
Single Anchor			
Minimum edge distance	c_{min} [mm]	120	
Anchor Group			
Spacing perpendicular to free edge	$S_{1,min}$ [mm]	240	
Spacing parallel to free edge	$S_{2,min}$ [mm]	480	
Minimum edge distance	c_{min} [mm]	120	
Displacements under shear load in in autoclaved aerated concrete			
Size		VS $\varnothing 8$	VS $\varnothing 10$
Service shear load in autoclaved aerated concrete	V [kN]	0,18	0,21
Displacements	δ_{V0} [mm]	0,36	0,43
	$\delta_{V\infty}$ [mm]	0,54	0,64

1) Characteristic resistance FRk for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min} . The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

Declaration of Performance No 1020-CPD-010031645

According to the Regulation EU No 305/2011

VS11 - VS13 - VS31 - VS33 - VS21 - VS71 - VS81 - VS83

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



Table 3 - VS11, VS13, VS21, VS31, VS33, VS71, VS81, VS83 ranges

\varnothing	d_o [mm]	l [mm]	t_{fix} [mm]
$\varnothing 8$	8	80	10
		100	30
		120	50
		140	70
$\varnothing 10$	10	80	10
		100	30
		120	50
		140	70
		160	90
		200	130
		230	160

Declaration of Performance No 1020-CPD-010031645

According to the Regulation EU No 305/2011

VS11 - VS13 - VS31 - VS33 - VS21 - VS71 - VS81 - VS83

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



20 - Label

Art. **VS 11 10 120**

Ancorante UNIVERSALE in nylon con bordo svasato (BREVETTATO) con vite TPS in acciaio zincato

Multi-purpose nylon anchor with CSK edge (Pat.Pend.) with flat CSK head screw, zinc plated

Cheville universelle rallongée en nylon collerette fraisée, avec vis tête fraisée plate

Universal-Langschafdübel aus Nylon mit Senkkopfkragen mit Senkkopf- Holzschraube

Taco nylon UNIVERSAL con collarín avellanado (PATENTADO) con tornillo cabeza avellanada

6 lobe - T40

$\varnothing 10 \times 120 / 50$
d_{nom} x L / t_{fix}

ETA CE

Tecfi S.p.A. 13

VS11 ETAG020

Plastic anchor for multiple use in concrete and masonry for non-structural applications. Use category a,b,c

Essential characteristics given in the DoP No. 1020-CPD-010031645
www.tecfi.it/DoP

Pz./Pcs. 50

8 0 2 6 5 3 3 1 0 9 6 0 9 1

Tecfi certezze lavorare bene

ISO 9001:2008
ISO 14001:2004

Art. **VS 11 10 120**

Lotto/Lot: 12345

6 lobe - T40

$\varnothing 10 \times 120 / 50$
d_{nom} x L / t_{fix}

www.tecfi.it info@tecfi.it

- | | |
|--|---|
| 1 Item Code | 10 Intended use of the product as laid down in the European standard applied, level of performance declared |
| 2 Descriptions | 11 DoP Number |
| 3 Picture | 12 Link to DoP |
| 4 Anchor Diameter (d _{nom}) | 13 Lot Number |
| 5 Anchor Length (L) | 14 Number of Pieces per Box |
| 6 Maximum Thickness of fixture (t _{fix}) | 15 Fire Resistance |
| 7 Identification number of the Notified Body | 16 Wrench Size / hexalobular socket number |
| 8 Last two digits of the year in which the marking was first affixed | |
| 9 European Technical Specification | |

The performances of the product identified by the above identification code are in conformity with the declared performance. This declaration of performance is issued under the sole responsibility of Tecfi S.p.A.

Signed for and behalf of the manufacturer by:

Name and function	Place and date of issue	Signature
President Antonio Guarino	Pastorano, September 8 th 2017	