

Declaration of Performance Number 1109-CPD-0081.3

According to Regulation EU No 305/2011

Item code: DGE01

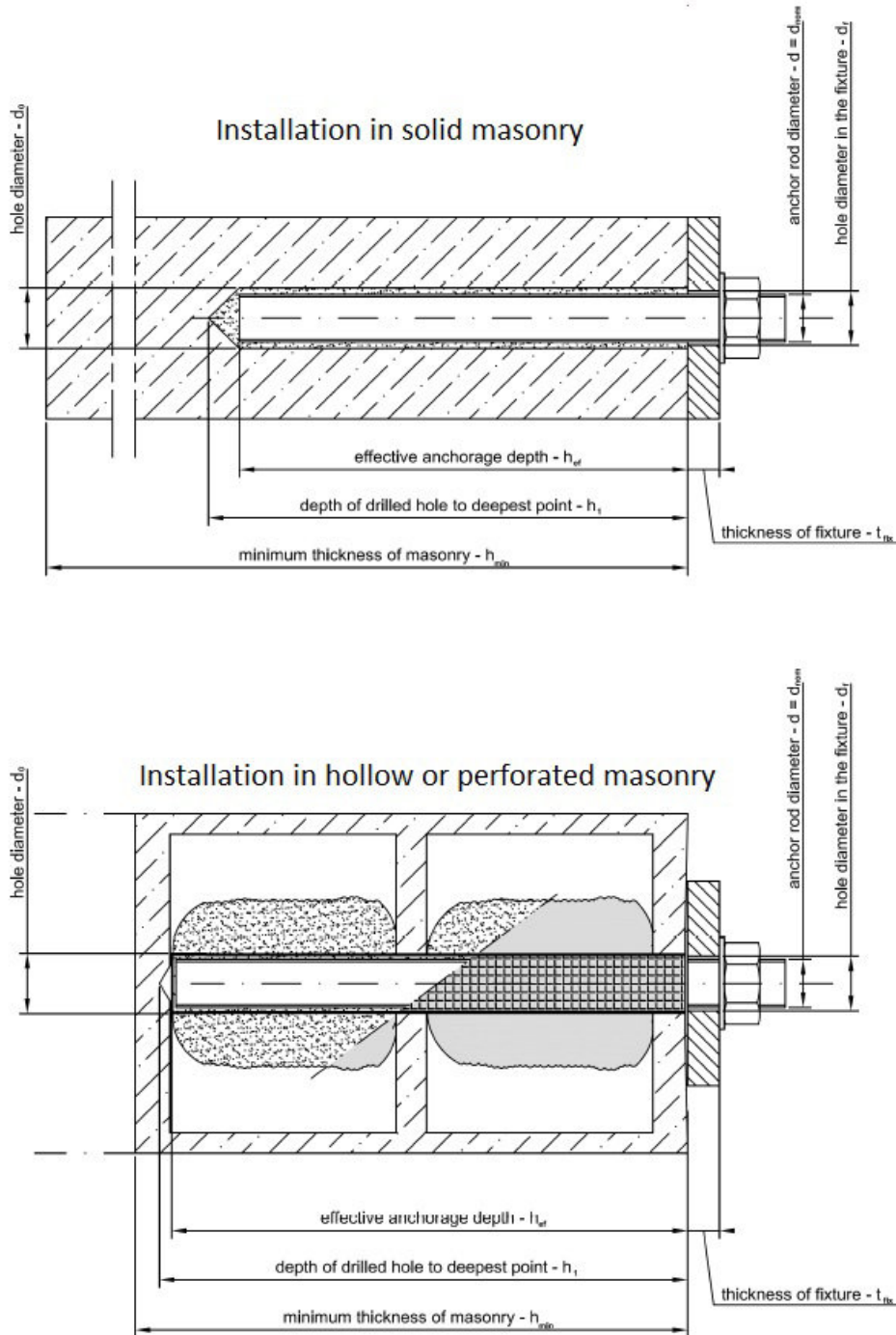
Manufacturer: Tecfi S.p.A. - S.S. Appia, km 193 - 81050 Pastorano (CE), Italy

Table 1 - Intended use	
Generic type:	Bonded anchor with anchor rod made of galvanized steel or stainless steel of sizes M8, M10 and M12, for use in masonry.
Base material:	Masonry walls according to Annex 12 of ETA 11/0553 and mortar strength class \geq M 2,5 according to EN 998-2:2003
Materials:	<p>Threaded rods:</p> <p>a) Galvanized Carbon steel grade 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.
Loading:	Static and quasi-static
Service temperatures:	<p>a) -40°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C),</p> <p>b) -40°C to +50°C (max. short term temperature +50°C and max. long term temperature +40°C).</p>
Use category in respect of the base material:	Use category b: metal injection anchors for use in solid masonry Use category c: metal injection anchors for use in hollow or perforated masonry
Use category in respect of the installation and use:	Category w/d: installation in wet substrate and use in structures subjected to dry, internal conditions.
ETA:	ETA 11/0553, issued by ETA-Denmark
On the basis of:	Etag 029
Attestation of Conformity:	EC number 11109-CPD-0081.3, issued by IFBT
Under system:	2+

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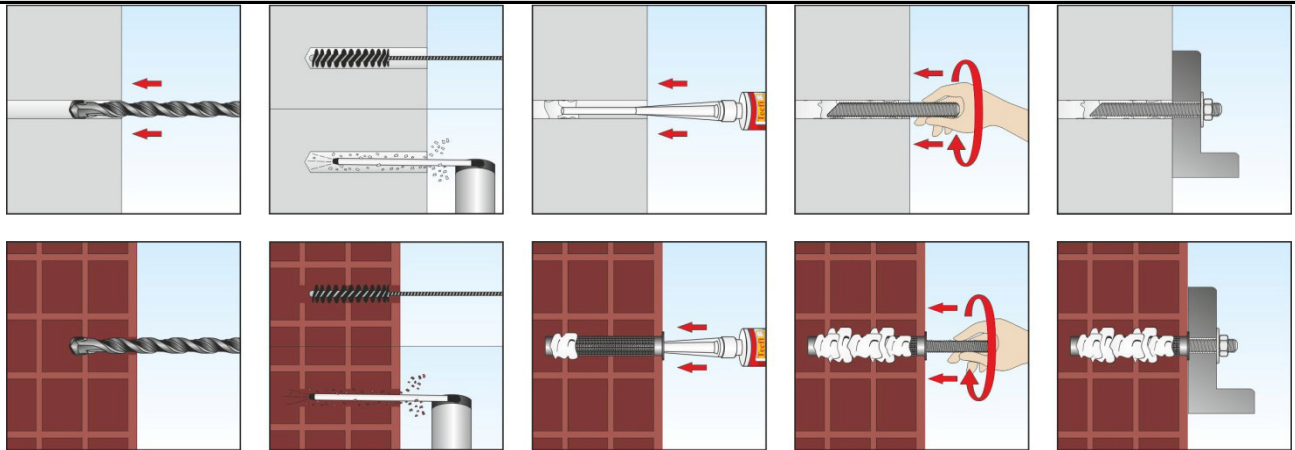
Figure 1 – Anchor types and installation parameters



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Figure 2 - Installation sequence



Installation in solid masonry:

- 1 – Drill the hole with the correct diameter and depth using a rotary percussive machine. Check the perpendicularity of the hole during the drilling operation
- 2 – 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.
- 3 – Unscrew the front cap, screw in the mixer and insert the cartridge in the gun.
- 4 – Eject a little quantity of product until the color of the resin appear uniform
- 5 – Fill the drilled hole from the bottom (2/3 of the drilled hole must be filled)
- 6 – Insert immediately the rod according to the proper anchorage depth

Installation in hollow or perforated masonry:

- 1 – Drill the hole with the correct diameter and depth using a rotary machine. Check the perpendicularity of the hole during the drilling operation
- 2 – 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.
- 3 – Unscrew the front cap, screw in the mixer and insert the cartridge in the gun.
- 4 – Eject a little quantity of product until the color of the resin appear uniform and insert the plastic sleeve into the base material
- 5 – Fill the plastic sleeve starting from the bottom
- 6 – Insert immediately the rod according to the proper anchorage depth

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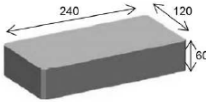
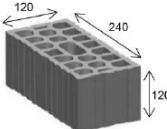
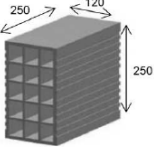
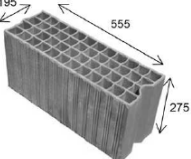
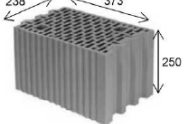
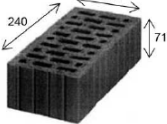
According to Regulation EU No 305/2011

Table 1 - Declared performance according to ETAG 029						
Installation parameters						
Size	d [mm] – rod diameter			h _{ef} [mm] – solid masonry		h _{ef} [mm] – hollow/perforated masonry
M8	8			80		80
M10	10			85		85
M12	12			95		85
Minimum curing time³⁾						
Masonry temperature	Processing time			Minimum curing time ⁵⁾		
0°C ⁴⁾	25 min.			180 min		
5°C ⁴⁾	15 min			120 min		
10°C	12 min			90 min		
15°C	8 min			60 min		
20°C	6 min			45 min		
25°C	4 min			30 min		
30°C	3 min			20 min		
Brush and plastic sleeve						
Use category ->	Use in solid masonry			Use in hollow/perforated masonry		
Threaded rod	M8	M10	M12	M8	M10	M12
Plastic sleeve [mm]	-	-	-	12x80	15x85	20x85
Nominal drill hole diameter – d ₀ [mm]	10	12	14	12	16	20
Nominal brush diameter – d _b [mm]	12	14	16	12	16	20

³⁾ the minimum time from the end of the mixing to the time when the anchor may be torque or loaded

⁴⁾ minimum resin temperature recommended, for injection between 5°C and 0°C, equal to 5°C

⁵⁾ minimum curing time for dry and wet conditions

<p>Brick n°1 – Solid according to EN 771-1 - HD (High density)</p>  <p>Dimensions [mm]: 120 x 240 x 60 f_o class ≥ 73 N/mm² density p_m ≥ 1700 kg/m³ (e.g. type "Mattone Piano")</p>	<p>Brick n°2 – Hollow/perforated according to EN 771-1 - LD (Low density)</p>  <p>Dimensions [mm]: 240 x 120 x 120 f_o class ≥ 18,3 N/mm² density p_m ≥ 810 kg/m³ (e.g. type "Mattone Doppio UNI")</p>
<p>Brick n°3 – Hollow/perforated according to EN 771-1 - LD (Low density)</p>  <p>Dimensions [mm]: 120 x 250 x 250 f_o class ≥ 5,3 N/mm² density p_m ≥ 550 kg/m³ (e.g. type "Forato")</p>	<p>Brick n°4 – Hollow/perforated according to EN 771-1 - LD (Low density)</p>  <p>Dimensions [mm]: 555 x 195 x 275 f_o class ≥ 4,0 N/mm² density p_m ≥ 800 kg/m³ (e.g. type "Brique creuse RC 40")</p>
<p>Brick n°5 – Hollow/perforated according to EN 771-1 - LD (Low density)</p>  <p>Dimensions [mm]: 373 x 238 x 250 f_o class ≥ 15 N/mm² density p_m ≥ 800 kg/m³ (e.g. type "Porotherm 25 P+W")</p>	<p>Brick n°6 – Hollow/perforated according to EN 771-1 - LD (Low density)</p>  <p>Dimensions [mm]: 115 x 240 x 71 f_o class ≥ 12 N/mm² density p_m ≥ 900 kg/m³ (e.g. type "Hz B – 1.0 1NF 12-1")</p>

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Table 1 (cont.) - Declared performance according to ETAG 029				
Installation parameters – brick 1				
	Size	M8	M10	M12
Nominal drill hole diameter	d_o [mm]	10	12	14
Diameter of the clearance hole in the fixture	d_{fix} [mm]	9	12	14
Embedment depth	h_{ef} [mm]	80	85	95
Depth of the drill hole	h_1 [mm]	$h_{ef} + 5$ [mm]		
Required torque moment	T_{inst} [Nm]	5	8	10
Minimum thickness of fixture	$t_{fix,min}$ [mm]	>0		
Maximum thickness of fixture	$t_{fix,max}$ [mm]	<1500		
Minimum spacing	s_{min} [mm]	50		
Minimum edge distance	c_{min} [mm]	50		
Installation parameters – bricks 2, 3, 4, 5 and 6				
	Size	M8	M10	M12
Plastic sleeve		12x80	15x85	20x85
Nominal drill hole diameter	d_o [mm]	12	16	20
Diameter of the clearance hole in the fixture	d_{fix} [mm]	9	12	14
Embedment depth	h_{ef} [mm]	80	85	85
Depth of the drill hole	h_1 [mm]	$h_{ef} + 5$ [mm]		
Required torque moment	T_{inst} [Nm]	3	4	6
Minimum thickness of fixture	$t_{fix,min}$ [mm]	>0		
Maximum thickness of fixture	$t_{fix,max}$ [mm]	<1500		
Minimum spacing	s_{min} [mm]	100	100	120
Minimum edge distance	c_{min} [mm]	100	100	120
Characteristic resistance to tension and shear loads – brick 1				
	Size	M8	M10	M12
Brick n°1 according to EN 771-1 - $f_b \geq 73$ [N/mm ²]; $\rho_m \geq 1700$ [kg/m ³]	Tension - N_{Rk} [kN]	1,50	2,50	3,00
	Shear - N_{Rk} [kN]	1,50	2,50	3,00
Partial safety factor	γ_m	2,50		
Characteristic resistance to tension and shear loads – brick 2				
	Size	M8	M10	M12
Brick n°1 according to EN 771-1 - $f_b \geq 18,3$ [N/mm ²]; $\rho_m \geq 810$ [kg/m ³]	Tension - N_{Rk} [kN] ¹⁾	3,50	4,00	5,00
	Shear - V_{Rk} [kN] ²⁾	3,50	4,00	5,00
Partial safety factor	γ_m	2,50		
Characteristic resistance to tension and shear loads – brick 3				
	Size	M8	M10	M12
Brick n°1 according to EN 771-1 - $f_b \geq 5,3$ [N/mm ²]; $\rho_m \geq 550$ [kg/m ³]	Tension - N_{Rk} [kN] ¹⁾	0,60	1,50	1,50
	Shear - V_{Rk} [kN] ²⁾	0,60	1,50	1,50
Partial safety factor	γ_m	2,50		
Characteristic resistance to tension and shear loads – brick 4				
	Size	M8	M10	M12
Brick n°1 according to EN 771-1 - $f_b \geq 4,0$ [N/mm ²]; $\rho_m \geq 600$ [kg/m ³]	Tension - N_{Rk} [kN] ¹⁾	0,90	0,90	0,60
	Shear - V_{Rk} [kN] ²⁾	0,90	0,90	0,60
Partial safety factor	γ_m	2,50		

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Table 1 (cont.) - Declared performance according to ETAG 029				
Characteristic resistance to tension and shear loads – brick 5				
	Size	M8	M10	M12
Brick n°1 according to EN 771-1 - $f_b \geq 15,0$ [N/mm ²]; $\rho_m \geq 800$ [kg/m ³]	Tension - N_{Rk} [kN] ¹⁾	2,00	2,00	2,50
	Shear - V_{Rk} [kN] ²⁾	2,00	2,00	2,50
Partial safety factor	γ_m	2,50		
Characteristic resistance to tension and shear loads – brick 6				
	Size	M8	M10	M12
Brick n°1 according to EN 771-1 - $f_b \geq 12,0$ [N/mm ²]; $\rho_m \geq 900$ [kg/m ³]	Tension - N_{Rk} [kN] ¹⁾	3,00	4,00	4,00
	Shear - V_{Rk} [kN] ²⁾	3,00	4,00	4,00
Partial safety factor	γ_m	2,50		

¹⁾For design according to ETAG 029 Annex C $N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,pb}$ – steel failure is not decisive

²⁾For design according to ETAG 029 Annex C $V_{Rk} = V_{Rk,b} = V_{Rk,c}$ – steel failure without lever arm is not decisive

Table 1 (cont.) - Declared performance according to ETAG 029				
Characteristic bending moments				
	Size	M8	M10	M12
Threaded rod grade 5.8	$M_{Rk,s}$ [Nm]	19	37	65
	$\gamma_{m,s}$	1,25		
Threaded rod grade 6.8	$M_{Rk,s}$ [Nm]	22	45	79
	$\gamma_{m,s}$	1,25		
Threaded rod A4 grade 70	$M_{Rk,s}$ [Nm]	26	52	92
	$\gamma_{m,s}$	1,56		

β - factor for job site tests according to etag 029 Annex B – bricks 2, 3, 4, 5 and 6

Brick type	Factor	Temperature range [-40°C;+40°C] and [-40°C;+50°C]
n°1, 2, 3, 4, 6 with all sizes	β	0,70
n°5 with size M8/12x80	β	0,65
n°5 with size M10/15x85 and M12/20x85	β	0,70

Edge distance and spacing

Brick type	Size	M8		M10		M12	
		$S_{cr,N}$ [mm]	$C_{cr,N}$ [mm]	$S_{cr,N}$ [mm]	$C_{cr,N}$ [mm]	$S_{cr,N}$ [mm]	$C_{cr,N}$ [mm]
1		160	80	200	100	240	120
2 ³⁾		240	120	240	120	240	120
3 ³⁾		250	125	250	125	250	125
4 ³⁾		555	278	555	278	555	278
5 ³⁾		373	187	373	187	373	187
6 ³⁾		240	120	240	120	240	120

³⁾Installation with plastic sleeve

Table 1 (cont.) - Declared performance according to ETAG 029				
Displacement under tension load – brick 1				
	Size	M8	M10	M12
Admissible service load	N [kN]	0,65	1,03	1,15
Displacement	δ_{N0}	0,08	0,07	0,06
	$\delta_{N\infty}$	0,16	0,16	0,16
Displacement under tension load – brick 2				
	Size	M8	M10	M12
Admissible service load	N [kN]	1,48	1,81	2,09
Displacement	δ_{N0}	0,06	0,08	0,10
	$\delta_{N\infty}$	0,16	0,16	0,20

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Table 1 (cont.) - Declared performance according to ETAG 029				
Displacement under tension load – brick 3				
	Size	M8	M10	M12
Admissible service load	N [kN]	0,29	0,73	0,80
Displacement	δ_{N0}	0,06	0,08	0,07
	$\delta_{N\infty}$	0,16	0,16	0,16
Displacement under tension load – brick 4				
	Size	M8	M10	M12
Admissible service load	N [kN]	0,39	0,44	0,26
Displacement	δ_{N0}	0,06	0,06	0,06
	$\delta_{N\infty}$	0,16	0,16	0,16
Displacement under tension load – brick 5				
	Size	M8	M10	M12
Admissible service load	N [kN]	0,92	0,91	1,02
Displacement	δ_{N0}	0,06	0,06	0,06
	$\delta_{N\infty}$	0,16	0,16	0,16
Displacement under tension load – brick 6				
	Size	M8	M10	M12
Admissible service load	N [kN]	1,19	1,69	1,78
Displacement	δ_{N0}	0,12	0,07	0,06
	$\delta_{N\infty}$	0,24	0,16	0,16
Displacement under shear load – brick 1				
	Size	M8	M10	M12
Admissible service load	V [kN]	1,32	2,94	2,62
Displacement	δ_{V0}	0,23	0,48	0,38
	$\delta_{V\infty}$	0,34	0,72	0,57
Displacement under shear load – brick 2				
	Size	M8	M10	M12
Admissible service load	V [kN]	1,72	2,03	2,93
Displacement	δ_{V0}	0,20	0,38	0,34
	$\delta_{V\infty}$	0,30	0,57	0,51
Displacement under shear load – brick 3				
	Size	M8	M10	M12
Admissible service load	V [kN]	0,93	1,08	0,86
Displacement	δ_{V0}	0,31	0,23	0,18
	$\delta_{V\infty}$	0,46	0,34	0,27
Displacement under shear load – brick 4				
	Size	M8	M10	M12
Admissible service load	V [kN]	0,44	0,63	0,44
Displacement	δ_{V0}	0,10	0,18	0,27
	$\delta_{V\infty}$	0,15	0,27	0,40
Displacement under shear load – brick 5				
	Size	M8	M10	M12
Admissible service load	V [kN]	0,78	1,06	1,00
Displacement	δ_{V0}	0,23	0,19	0,31
	$\delta_{V\infty}$	0,34	0,28	0,46
Displacement under shear load – brick 6				
	Size	M8	M10	M12
Admissible service load	V [kN]	1,25	2,23	1,65
Displacement	δ_{V0}	0,17	0,69	0,13
	$\delta_{V\infty}$	0,25	1,03	0,19

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Table 1 (cont.) - Declared performance according to ETAG 029			
General rules for spacing and edge distance			
Installation in solid masonry		Installation in hollow/perforated masonry	
Tension load	Shear load	Tension load	Shear load
$S_{cr,N} = 20 d$ [mm] $C_{cr,N} = 10 d$ [mm]	$S_{cr,V} = C_{cr,V} = 20 d$ [mm]	$S_{cr,N} = l_{unit,max}$ [mm] $C_{cr,N} = 0,5 l_{unit,max}$ [mm]	$S_{cr,V} = C_{cr,V} = l_{unit,max}$ [mm]

d – nominal diameter of the threaded rod
 $l_{unit,max}$ – max dimension of unit masonry
 h – thickness of masonry

Figure 3 - Label

ST-PE 4000
DGE 01 00 380

ISO 9001:2008 ISO 14001:2004

Tecfi S.p.A.
DGE01 ETAG029
Metal injection anchor for use in masonry
Use category h,c and w/c
Caratteristiche essenziali riportate nell'Essential characteristics given in the DoP No. 1109-CPD-0081.03
www.tecfi.it/DoP

SERVICE T° RANGE
 -40°C/+24°C/+40°C
 -40°C/+40°C/+50°C

0°C	25'	3 hours
5°C	15'	2 hours
10°C	12'	1,5 hours
20°C	6'	hours
25°C	4'	45'
30°C	3'	30'

RESINA POLIESTERE SENZA STIRENE
 H319 Provoca grave irritazione oculare. H315 Provoca irritazione cutanea. H317 Può provocare una reazione allergica cutanea. H412 Nocivo per gli organismi acquatici con effetti di lunga durata. P102 Tenere fuori dalla portata dei bambini. P264 Lavare accuratamente le mani dopo l'uso. P273 Non disperdere nell'ambiente. P280 Indossare guanti/indumenti protettivi/Proteggere gli occhi/il viso. P302+P352 IN CASO DI CONTATTO CON LA PELLE: lavare abbondantemente con acqua e sapone. P333+P313 In caso di irritazione o eruzione della pelle: consultare un medico. Contiene: 2-Hidroxiethyl metacrilato (comp. A) - Benzoini perossido (comp. B).

POLYESTER RESIN STYRENE FREE
 H319 Causes serious eye irritation. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H412 Harmful to aquatic life with long lasting effects. P102 Keep out of reach of children. P273 Wash the hands thoroughly after handling. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection. P302+P352 IF ON SKIN: Wash with plenty of soap and water. P333+P313 If skin irritation or rash occurs: Get medical advice/attention. Contains: 2-Hydroxyethyl methacrylate (comp. A) - Benzoini peroxide (comp. B).

RÉSINE POLYESTER SANS STYRÈNE
 H319 Provoque une sévère irritation des yeux. H315 Provoque une irritation cutanée. H317 Peut provoquer une allergie cutanée. H412 Nocif pour les organismes aquatiques, effets néfastes à long terme. P102 Tenir hors de portée des enfants. P264 Se laver les mains soigneusement après manipulation. P273 Éviter le rejet dans l'environnement. P280 Porter des gants de protection/des vêtements de protection/un équipement de protection des yeux/du visage. P302+P352 EN CAS DE CONTACT AVEC LA PEAU: laver abondamment à l'eau et au savon. P333+P313 En cas d'irritation ou d'éruption cutanée: consulter un médecin. Contiens: 2-Hydroxyethyl methacrylate (comp. A) - Benzoini peroxide (comp. B).

POLYESTERHARZ STYROLFREI
 H319 Verursacht schwere Augenreizung. H315 Verursacht Hautreizungen. H317 Kann allergische Hautreaktionen verursachen. H412 Schädlich für Wasserorganismen, mit langfristiger Wirkung. P102 Darf nicht in die Hände von Kindern gelangen. P264 Nach Gebrauch Hände gründlich waschen. P273 Freisetzung in die Umwelt vermeiden. P280 Schutzhandschuhe/Schutzkleidung/ Augenschutz/Gesichtsschutz tragen. P302+P352 BEI KONTAKT MIT DER HAUT: Mit viel Wasser und Seife waschen. P333+P313 Bei Hautreizung oder -ausschlag: Ärztlichen Rat einholen/Ärztliche Hilfe hinzuziehen. Enthält: 2-Hydroxyethyl methacrylate (comp. A) - Benzoin Peroxyd (Komp. B).

RESINA POLIESTER SIN STIRENO
 H319 Provoca irritación ocular grave. H315 Provoca irritación cutánea. H317 Puede provocar una reacción alérgica en la piel. H412 Nocivo para los organismos acuáticos, con efectos nocivos duraderos. P102 Mantener fuera del alcance de los niños. P264 Lavarse las manos cuidadosamente tras la manipulación. P273 Evitar su liberación al medio ambiente. P280 Llevar guantes/gorras/gafas/máscara de protección. P302+P352 EN CASO DE CONTACTO CON LA PIEL: Lavar con agua y jabón abundantes. P333+P313 En caso de irritación o erupción cutánea: Consultar a un médico. Contiene: 2-hidroxiethyl metacrilato (componente A) - El peróxido de benzoino (comp. B).

MATERIALI PIENI
 Solid Materials
 Matériaux Pleins
 Vollmaterialien

MATTONI FORATI
 Hollow Bricks
 Briques Creuses
 Hohlsteinen

A	B	C	D
M8	10	85	±75
M10	12	90	±54
M12	14	100	±38
M16*	18	130	±21

* Misura non certificata ETA-CE - Item without ETA-CE certification

400 ml

MADE IN ITALY v.1.02

TECFI S.p.A.
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 Tel: (+39) 0823.88.33.38 - Fax: (+39) 0823.88.32.60
 www.tecfi.it - info@tecfi.it

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
President Antonio Guarino	Pastorano, July 1 st 2013