

POINT 416 POLY FIX

Polyester resin styrene free



POINT 416 POLY FIX is a bi-component polyester styrene free chemical anchor for medium loads, CE marked and ETA assessed for use in different base materials as concrete, solid masonry and hollow bricks masonry. It is certified for threaded rods to be used in non-cracked concrete from diameters M8 to M16 and to use in solid and hollow masonry from diameters M8 to M12. Due to its strong adhesion and ease of penetration into holes and hollow materials, the resin allows a secure attachment without expansion and without stresses in the base material, which allows you to make fixings close to the corners and edges of base material.

Description:

ETA (European Technical Assessments) updated according to the Construction Product Regulation 305/2011. ETA-15/0560: Assessment for uncracked concrete, Option 7, according to ETAG-001 for diameters from M8 to M16. The product is certified for fixing with variable anchorage depths. This means that the project engineer and the user have a high flexibility. Maximum embedment depth up to 20 times nominal threaded rod diameter. Loads for installation in dry and wet concrete. Certified service temperatures are in the ranges: $-40^{\circ}\text{C}/+50^{\circ}\text{C}$ (T° max long period = 40°C). ETA-11/0396: Assessment for masonry according to ETAG 029 for fixings in solid bricks, perforated bricks and hollow bricks. Utilization possible even on masonry with temporary humidity present only during the product installation phase. The product is homologated for being used with a wide range of masonry (6 type of bricks), threaded rods (from M8 to M12) and sleeves (GC 12x80 - GC 15x85 - GC 20x85). Certified service temperatures are in the ranges $-40^{\circ}\text{C}/+40^{\circ}\text{C}$ (T° max long period = $+24^{\circ}\text{C}$) and $-40^{\circ}\text{C}/+50^{\circ}\text{C}$ (T° max long period = $+40^{\circ}\text{C}$). Base material temperature (concrete, bricks, etc...) for installation between 0° and $+30^{\circ}\text{C}$. VOC according to the French Decree 2011-321 and according to the standard ISO 16000/EN 16516.

Excellent adhesion to:

- Concrete
- Bricks
- Metal

Advantages

- Plastic foil opening system.
- Stone colour, paintable.
- Can be used with standart caulking gun.
- Overhead installation.
- Faint odour, styrene free.
- Quick setting and curing times.
- Suitable for dry and wet concrete.
- The tube is reusable, it is enough to change the mixer.

TECHNICAL DATA SHEET

Certification

 	11-1020 DoP:11/0396 ETA-11/0396 ETAG 029 M8-M10-M12 Use category: b, c and w/d	15-1020 DoP:15/0560 ETA-15/0560 ETAG 001-5 OPTION7: M8-M16



Setting times

Installation temperature			
30 °C			
25 °C	3 min.	20 min.	
20 °C	4 min.	30 min.	
10 °C	6 min.	45 min.	
5 °C	12 min.	90 min.	
0 °C	15 min.	120 min.	
	25 min.	180 min.	

Minimum product temperature for application is +5 °C.

Number of fixings

Fixings in solid materials		
Threaded stud d_{nom} [mm]	Hole d_0 [mm] $\times$ h_1 [mm]	Fixings
M 8	10 $\times$ 90	$\pm$ 54
M 10	12 $\times$ 95	$\pm$ 39
M 12	14 $\times$ 115	$\pm$ 25
M 16	18 $\times$ 130	$\pm$ 16
M 20	24 $\times$ 175	$\pm$ 6
M 24	28 $\times$ 215	$\pm$ 4

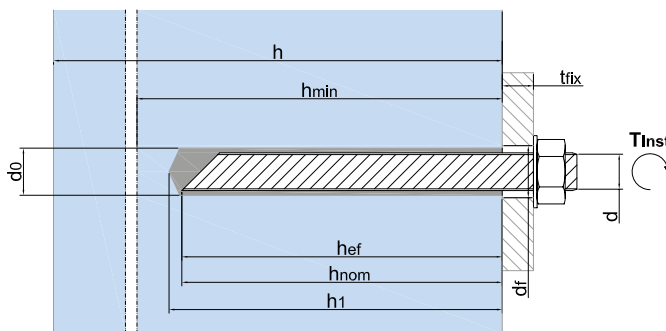
Fixings in hollow materials		
Threaded stud d_{nom} [mm]	Fixings	Sleeve d_0 [mm] $\times$ L [mm]
M 8	$\pm$ 27	GC 12 $\times$ 80
M 8	$\pm$ 16	GC 15 $\times$ 85
M 10	$\pm$ 16	GC 15 $\times$ 85
M 12	$\pm$ 16	GC 15 $\times$ 85
M 12	$\pm$ 9	GC 20 $\times$ 85
M 16	$\pm$ 9	GC 20 $\times$ 85

WARNING: The number of fixings above mentioned has been calculated according to the theoretical volume needed to fill the hole (or sleeve) excluded the volume of the inserted metal rod. In the theoretical volume it is included a standard extra quantity but the real quantity of the product may be different than it in function of the real application of the product.

TECHNICAL DATA SHEET

Installation data

Legend			
	Material	S_{cr} [mm]	Characteristic spacing
d [mm]	Rod diameter	C_{cr} [mm]	Characteristic edge distance
	Type of rod	S_{min} [mm]	Minimum allowable spacing
	Plastic sleeve	C_{min} [mm]	Minimum allowable edge distance
h_{min} [mm]	Minimum thickness of base material	t_{fix} [mm]	Fixture thickness
d_0 [mm]	Hole diameter	d_f [mm]	Diameter of clearance hole in the fixture
h_1 [mm]	Hole depth	S_w [mm]	Key
h_{nom} [mm]	Embedment depth	T_{inst} [Nm]	Installation torque
h_{ef} [mm]	Effective anchorage depth		



Warning: Before use see this section and the complete procedure of installation reported in the next pages. We assume no liability for the not correct use of the product.



Material	Rod diameter	Type of rod	Min. thickness base material			Hole diameter	Hole depth			Embedment depth			Effective anchorage depth			Characteristic spacing			Characteristic edge distance		
	d [mm]		h_{min} [mm]			d_0 [mm]	h_1 [mm]			h_{nom} [mm]			h_{ef} [mm]			$S_{cr,N}$ [mm]			$C_{cr,N}$ [mm]		
			min	med	max		min	med	max	min	med	max	min	med	max	min	med	max	min	med	max
Non cracked concrete	M8	≥ 5.8 A4-70	100	110	190	10	65	85	165	60	80	160	60	80	160	180	202	202	90	101	101
	M10	≥ 5.8 A4-70	100	120	230	12	75	95	205	70	90	200	70	90	200	210	253	253	105	126	126
	M12	≥ 5.8 A4-70	110	140	270	14	85	115	245	80	110	240	80	110	240	240	291	291	120	145	145
	M16	≥ 5.8 A4-70	136	161	356	18	105	130	325	100	125	320	100	125	320	300	351	351	150	175	175
	M20*	≥ 5.8 A4-70	168	218	448	24	125	175	405	120	170	400	120	170	400	360	450	450	180	225	225
	M24*	≥ 5.8 A4-70	201	266	536	28	150	215	485	145	210	480	145	210	480	435	540	540	218	270	270

(*) Diameters without ETA-CE approval

TECHNICAL DATA SHEET



Material	Rod diameter	Type of rod	Min. allowable spacing	Min. allowable edge distance	Fixture thickness	Diameter of clearance hole in the fixture	Key	Installation torque
	d [mm]		S _{min} [mm]	C _{min} [mm]	t _{fix} [mm]	d _r [mm]	S _w [mm]	T _{inst} [Nm]
					min÷max			
Non cracked concrete	M8	≥ 5.8 A4-70	40	40	0 ÷ 1500	9	13	10
	M10	≥ 5.8 A4-70	40	40	0 ÷ 1500	12	17	20
	M12	≥ 5.8 A4-70	40	40	0 ÷ 1500	14	19	40
	M16	≥ 5.8 A4-70	50	50	0 ÷ 1500	18	24	80
	M20*	≥ 5.8 A4-70	60	60	0 ÷ 1500	22	30	130
	M24*	≥ 5.8 A4-70	80	80	0 ÷ 1500	26	36	200

To avoid splitting failure, the thickness of the concrete member shall be $h \geq 2h_{ef}$

(*) Diameters without ETA-CE approval



Material	Rod diameter	Type of rod	Min. thickness base material	Hole diameter	Hole depth	Embedment depth	Effective anchorage depth	Characteristic spacing	Characteristic edge distance	Min. allowable spacing	Min. allowable edge distance	Fixture thickness	Diameter of clearance hole in the fixture	Key	Installation torque
	d [mm]		h _{min} [mm]	d ₀ [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	S _{cr} [mm]	C _{cr} [mm]	S _{min} [mm]	C _{min} [mm]	t _{fix} [mm]	d _r [mm]	S _w [mm]	T _{inst} [Nm]
Solid brick	M8	≥ 5.8 A4-70	200	10	85	80	80	240	120	240	120	10	9	13	5
	M10	≥ 5.8 A4-70	250	12	90	85	85	255	128	255	128	20	12	17	8
	M12	≥ 5.8 A4-70	300	14	100	95	95	285	143	285	143	30	14	19	10

Material	Rod diameter	Type of rod	Plastic sleeve	Min. thickness base material	Hole diameter	Hole depth	Embedment depth	Effective anchorage depth	Characteristic spacing	Characteristic edge distance	Min. allowable spacing	Min. allowable edge distance	Fixture thickness	Diameter of clearance hole in the fixture	Key	Installation torque
	d [mm]		(*)	h _{min} [mm]	d ₀ [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	S _{cr} [mm]	C _{cr} [mm]	S _{min} [mm]	C _{min} [mm]	t _{fix} [mm]	d _r [mm]	S _w [mm]	T _{inst} [Nm]
Hollow Brick	M8	≥ 5.8 A4-70	GC 12×80	100	12	85	80	80	I _{unit,max}	0,5×I _{unit,max}	100	100	10	9	13	3
	M10	≥ 5.8 A4-70	GC 15×85	100	16	90	85	85	I _{unit,max}	0,5×I _{unit,max}	100	100	20	12	17	4
	M12	≥ 5.8 A4-70	GC 20×85	100	20	90	85	85	I _{unit,max}	0,5×I _{unit,max}	120	120	30	14	19	6

(*) Other lengths available

I_{unit,max} = Max length of masonry unit

TECHNICAL DATA SHEET

Load data

Legend	
N_{Rum} [kN]	Average ultimate tension load
V_{Rum} [kN]	Average ultimate shear load
N_{RK} [kN]	Characteristic tension load
V_{RK} [kN]	Characteristic shear load
N_{rec} [kN]	Admissible tensile load
V_{rec} [kN]	Admissible shear load

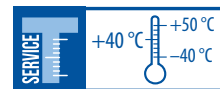
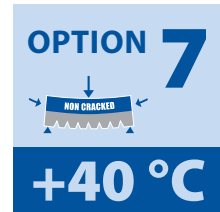
Loads for single anchor with no influence of spacing and edge distance and with $h \geq 2h_{ef}$

1 kN = 100 Kg
 $\psi_{sus} = 1,0$

Shear directed away from the edge

General safety factor included

Load increasing safety coefficient used = 1,4



Load data with MINIMUM effective anchorage depth

Material	Rod	Rod diameter	Effective anchorage depth	Ultimate tension load	Ultimate shear load	Characteristic tensile load	Characteristic shear load	Admissible tensile load	Admissible shear load
C20/25 Non cracked concrete		d [mm]	$h_{ef MIN}$ [mm]	N_{Rum} [kN]	V_{Rum} [kN]	N_{RK} [kN]	V_{RK} [kN]	N_{rec} [kN]	V_{rec} [kN]
	≥ 5.8	M 8	60	19,0	11,4	19,0	9,5	7,5	5,4
	≥ 5.8	M 10	70	30,2	18,1	27,4	15,1	10,9	8,6
	≥ 5.8	M 12	80	39,7	26,3	33,8	21,9	13,4	12,5
	≥ 5.8	M 16	100	56,4	48,9	47,0	40,8	18,6	23,3
	≥ 5.8	M 20*	120	64,1	76,2	52,6	63,5	20,9	36,2
	≥ 5.8	M 24*	145	82,0	110,4	67,3	92,0	26,7	52,5

Load data with MEDIUM effective anchorage depth

Material	Rod	Rod diameter	Effective anchorage depth	Ultimate tension load	Ultimate shear load	Characteristic tensile load	Characteristic shear load	Admissible tensile load	Admissible shear load
C20/25 Non cracked concrete		d [mm]	$h_{ef MED}$ [mm]	N_{Rum} [kN]	V_{Rum} [kN]	N_{RK} [kN]	V_{RK} [kN]	N_{rec} [kN]	V_{rec} [kN]
	≥ 5.8	M 8	80	19,0	11,4	19,0	9,5	9,0	5,4
	≥ 5.8	M 10	90	30,2	18,1	30,2	15,1	14,0	8,6
	≥ 5.8	M 12	110	43,8	26,3	43,8	21,9	18,4	12,5
	≥ 5.8	M 16	125	70,5	48,9	58,7	40,8	23,3	23,3
	≥ 5.8	M 20*	170	90,8	76,2	74,5	63,5	29,6	36,2
	≥ 5.8	M 24*	210	118,8	110,4	97,5	92,0	38,7	52,5

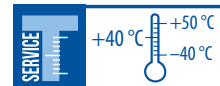
Load data with MAXIMUM effective anchorage depth

Material	Rod	Rod diameter	Effective anchorage depth	Ultimate tension load	Ultimate shear load	Characteristic tensile load	Characteristic shear load	Admissible tensile load	Admissible shear load
C20/25 Non cracked concrete		d [mm]	$h_{ef MAX}$ [mm]	N_{Rum} [kN]	V_{Rum} [kN]	N_{RK} [kN]	V_{RK} [kN]	N_{rec} [kN]	V_{rec} [kN]
	8.8	M 8	160	29,2	17,5	29,2	14,6	13,9	8,3
	8.8	M 10	200	46,4	27,8	46,4	23,2	22,1	13,2
	8.8	M 12	240	67,4	40,4	67,4	33,7	32,1	19,2
	8.8	M 16	320	125,0	75,0	125,0	62,5	59,5	35,7
	8.8	M 20*	400	203,0	121,8	175,4	101,5	69,6	58,0
	8.8	M 24*	480	271,4	175,8	222,9	146,5	88,5	83,7

(*) Diameters without ETA-CE approval

TECHNICAL DATA SHEET

For different masonry base materials, load values must be obtained with in site tests.



Material	Type of rod	Rod diameter	Admissible tensile load	Admissible shear load
Mattone Pieno EN 771-1 - HD (High Density) Dimensions: 120×240×60 mm class $f_b \geq 73 \text{ N/mm}^2$ density $\rho_m \geq 1700 \text{ kg/m}^3$		d [mm]	N_{rec} [kN]	N_{rec} [kN]
	≥ 5.8 A4 - 70	M 8	0,7	1,3
	≥ 5.8 A4 - 70	M 10	1,0	2,5
	≥ 5.8 A4 - 70	M 12	1,2	2,6

Material	Type of rod	Rod diameter	Plastic sleeve	Admissible tensile load	Admissible shear load
Mattone Doppio UNI EN 771-1 - LD (Low Density) Dimensions: 240×120×120 mm class $f_b \geq 18,3 \text{ N/mm}^2$ density $\rho_m \geq 810 \text{ kg/m}^3$		d [mm]		N_{rec} [kN]	N_{rec} [kN]
	≥ 5.8 A4 - 70	M 8	GC 12 × 80	1,5	1,7
	≥ 5.8 A4 - 70	M 10	GC 15 × 85	1,8	2,0
	≥ 5.8 A4 - 70	M 12	GC 20 × 85	2,1	2,9

Material	Type of rod	Rod diameter	Plastic sleeve	Admissible tensile load	Admissible shear load
Forato EN 771-1 - LD (Low Density) Dimensions: 120×250×250 mm class $f_b \geq 5,3 \text{ N/mm}^2$ density $\rho_m \geq 550 \text{ kg/m}^3$		d [mm]		N_{rec} [kN]	N_{rec} [kN]
	≥ 5.8 A4 - 70	M 8	GC 12 × 80	0,3	0,9
	≥ 5.8 A4 - 70	M 10	GC 15 × 85	0,7	0,9
	≥ 5.8 A4 - 70	M 12	GC 20 × 85	0,8	0,9

Material	Type of rod	Rod diameter	Plastic sleeve	Admissible tensile load	Admissible shear load
Brique creuse RC 40 EN 771-1 - LD (Low Density) Dimensions: 555×195×275 mm class $f_b \geq 4 \text{ N/mm}^2$ density $\rho_m \geq 600 \text{ kg/m}^3$		d [mm]		N_{rec} [kN]	N_{rec} [kN]
	≥ 5.8 A4 - 70	M 8	GC 12 × 80	0,3	0,4
	≥ 5.8 A4 - 70	M 10	GC 15 × 85	0,3	0,4
	≥ 5.8 A4 - 70	M 12	GC 20 × 85	0,3	0,4

Material	Type of rod	Rod diameter	Plastic sleeve	Admissible tensile load	Admissible shear load
Porotherm 25 P+W EN 771-1 - LD (Low Density) Dimensions: 373×238×250 mm class $f_b \geq 15 \text{ N/mm}^2$ density $\rho_m \geq 800 \text{ kg/m}^3$		d [mm]		N_{rec} [kN]	N_{rec} [kN]
	≥ 5.8 A4 - 70	M 8	GC 12 × 80	0,9	0,8
	≥ 5.8 A4 - 70	M 10	GC 15 × 85	0,9	1,0
	≥ 5.8 A4 - 70	M 12	GC 20 × 85	1,0	1,0

Material	Type of rod	Rod diameter	Plastic sleeve	Admissible tensile load	Admissible shear load
Hz B - 1.0 1NF 12-1 EN 771-1 - LD (Low Density) Dimensions: 115×240×71 mm class $f_b \geq 12 \text{ N/mm}^2$ density $\rho_m \geq 900 \text{ kg/m}^3$		d [mm]		N_{rec} [kN]	N_{rec} [kN]
	≥ 5.8 A4 - 70	M 8	GC 12 × 80	1,2	1,3
	≥ 5.8 A4 - 70	M 10	GC 15 × 85	1,7	1,7
	≥ 5.8 A4 - 70	M 12	GC 20 × 85	1,8	1,7

TECHNICAL DATA SHEET

Installation procedure

Cleaning

Drill the hole and check it's perpendicularity. Blow the hole with an appropriate pump blower (or compression air), clean the lateral surface of the hole with an appropriate steel brush, blow again in the hole until there is no dust and/or any residual material inside. We strongly recommend use of the steel brush to clean hole sides.

Opening

Unscrew the front cup, pull-out the steel closing clip according to the following operations: 1) Insert the mixer in the eye of the plastic extractor. 2) Pull the extractor to unhook the steel closing clip of the foil. After that, screw on the mixer and insert the cartridge in the gun. Use protections for hands and face.

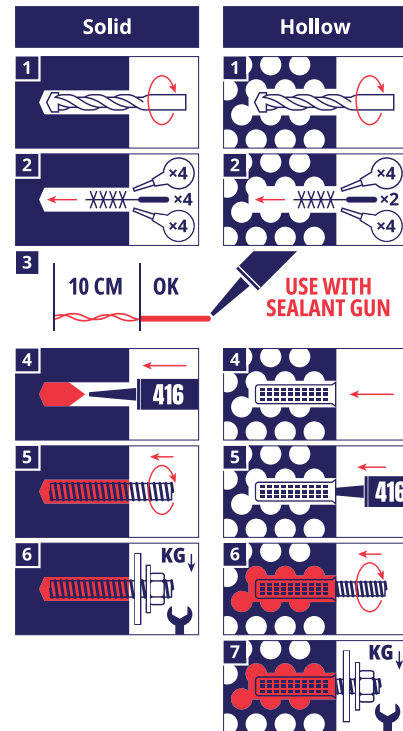
Cartridge preparation

Use the correct dispenser

Before starting to use the cartridge, eject a first part of the product, being sure that: 1) Through the mixer (transparent) see that the flux of product is compound of the part A (white colour) and of part B (black colour). 2) The two components are completely mixed. The complete mixing is reached only after that the product, obtained by mixing the two component, comes out from the mixer with an uniform colour. Now the cartridge is ready to be used.

Injection

1) Inject resin into the hole up to fill it 2/3rds. In hollow bricks use the plastic sleeve and inject the resin inside. 2) Before insert the rod, verify that the element is dry and free oil and other contaminants. Insert threaded stud turning back and forth to avoid presence of air in the fitted hole. 3) For the installation and the following anchor load phase, respect the open time and curing time detailed in the technical data sheet and in the label of the product. 4) Before to load the anchor, check the hardened of the product. 5) The cartridge can be used again screwing the cup and replacing the mixer. Remember to eject a first part of the product, see point 3.



Package

300 ml plastic cartridge, 15 cartridges in a box.

Storage and conservation

Guaranteed shelf life - 15 months from the date of manufacture, if stored in closed original packaging in a dry and cool place from +5 °C to +30 °C.