EDITION 01 - MAY 2023

TEMPORARY COLUMN FIXING EFT

EDILMATIC

EDILMATIC EFT

INTRODUCTION

Anchoring Plate

EFT Bracket

The EDILMATIC EFT system is a rational safe and simple solution for a temporary fixing during the necessary correct plumbing of pre-cast columns as well as other pre-cast elements.

The system allows to fix the pre-cast column to the foundation while the rest of the concrete is poured, avoiding additional prop-up systems.

Each connection is composed of:
- Column side insert – standard Edilmatic anchoring plate;
- Foundation side insert (bolt), constituted by a standard rebar;
- Reusable EFT bracket element;
- Fixing bolts and accessories, reusable.

CERTIFICATIONS

EN 1090

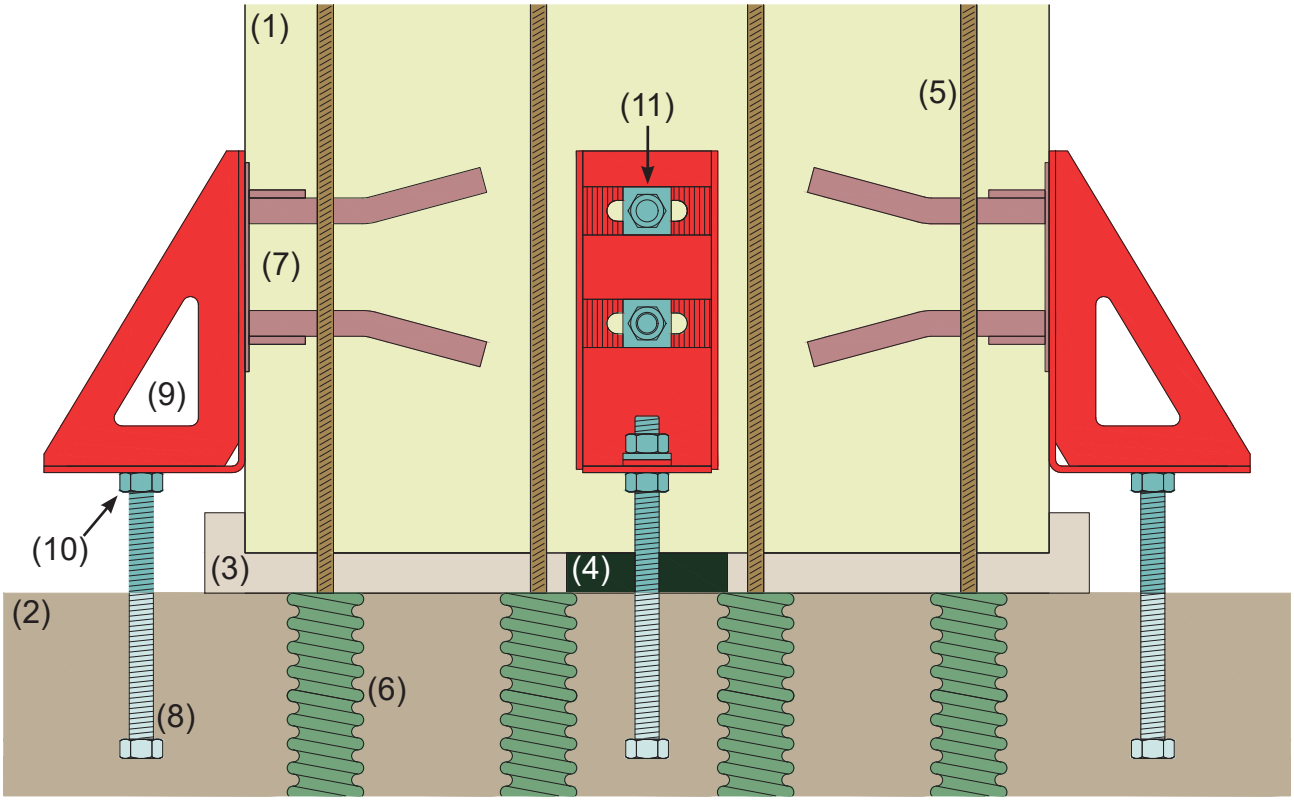
CE UNI EN 1090-1:2018

In 2017 Edilmatic obtains the EN 1090-1 certification. The UNI EN 1090-1 regulation is a harmonized regulation complying with the requirements of the CE marking, following the EU Regulation n. 305/2011 (CPR, Construction Products Regulation). This regulation specifies the requirements for the conformity evaluation of the performance features of steel and aluminium structural components as well as for the kits which are sold in the market, such as building components.

This certification requires that Edilmatic complies to all dispositions for the evaluation and the verification of the constancy of performances of CE-marked products, in the context of the control system 2+. This certification allows the production and reselling of the products up to the EXC3 execution class.
CE-marked products grant all the performances/characteristics described in the DoP, which is released alongside the same product. Edilmatic has the possibility to apply the CE marking following the UNI EN 1090-1 with method 1 or 3b.

APPLICATIONS

HOW IT WORKS?



Pos.	Descrizione
(1)	Precast pillar
(2)	Foundation
(3)	Grouting backfill
(4)	Central support
(5)	Pillar's reinforcement
(6)	Corrugated tubes
(7)	Anchoring plate
(8)	Threaded rod (foundation anchor)
(9)	EFT bracket
(10)	Nut
(11)	Bolt and counter-plate

During the production phase of the pillar, the anchoring plates shall be insert right where the formwork meets the face of the pillar. The longitudinal reinforcements will be longer than the pillar itself.

During the realisation of the foundations, the corrugated tubes must be placed in order to match the reinforcement position, as well as the rebar bolted connection must be placed externally to the pillar area in order to match the anchoring plates.

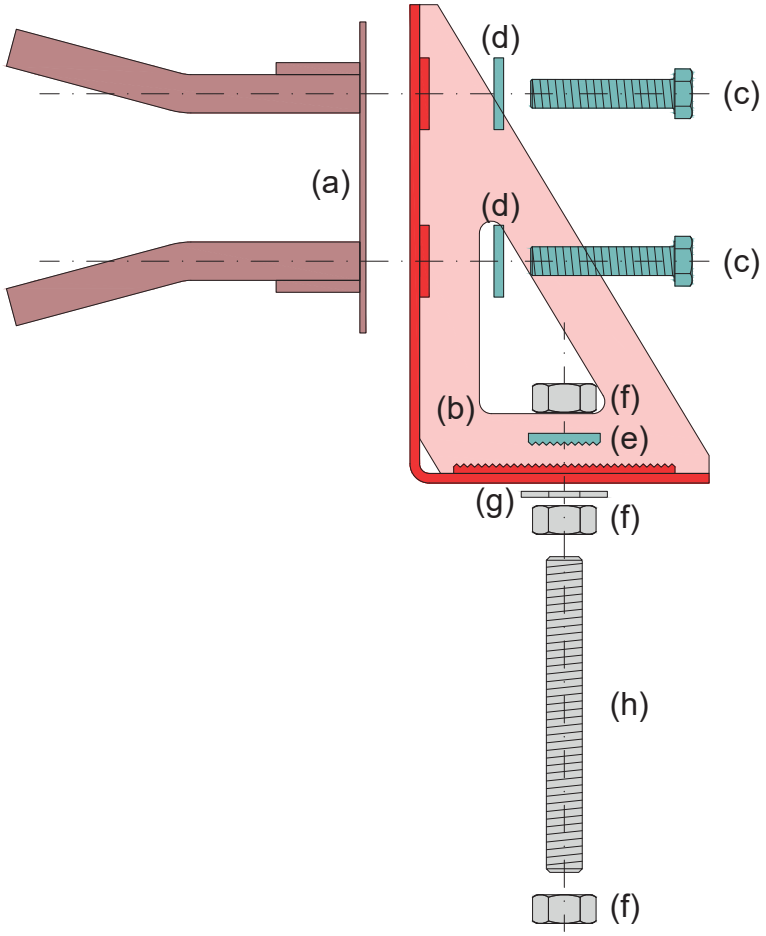
During the installation the pillar must be placed vertically on the central support making the reinforcements slide into corrugated tubes. Fix the EFT corner elements to the anchoring plates and to the rebar bolted connections, using the joint of the holes to correct possible misalignments.

The use of the specifically designed toothed counterplates avoids the displacement of the whole system.

The system allows the verticality regulation of the pillar. Once the pillar is fixed, it is possible to remove the crane and pour the concrete backfill. Once the concrete is hard, just remove the EFT elements and re-use them for the next installation.

COMPONENTS

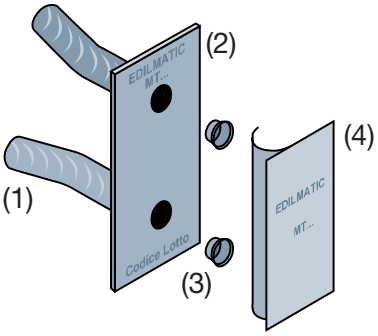
ASSEMBLY

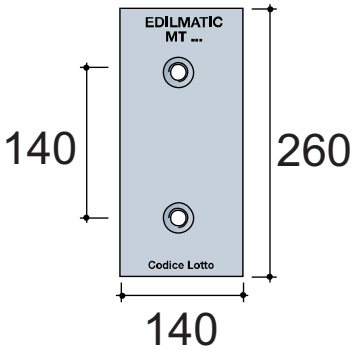


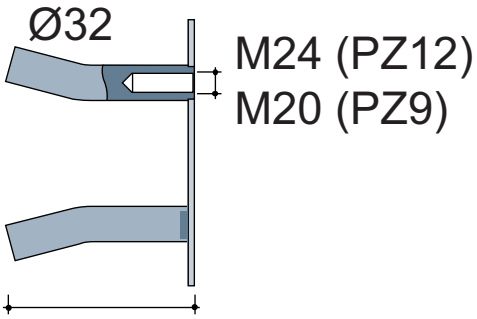
Pos.	n. pcs	Application with PZ9	Application with PZ12
(a)	1	Anchoring plate PZ9	Anchoring plate PZ12
(b)	1	EFT bracket	EFT bracket
(c)	2	Bolt M20x55 cl. 10.9	Bolt M24x65 cl. 10.9
(d)	2	Toothed counterplate 60x60, with Ø26 hole	Toothed counterplate 60x60, with Ø26 hole
(e)	1	Toothed counterplate 60x60, with Ø30 hole	Toothed counterplate 60x60, with Ø30 hole
(f)	3	Nut M24	Nut M24
(g)	1	Washer for M24	Washer for M24
(h)	1	Threader rod M24, class 8.8, L = 50 cm	Threader rod M24, class 8.8, L = 50 cm

COMPONENTS

ANCHORING PLATES







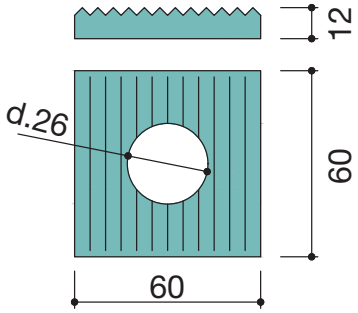
L = 300 (PZ12)
L = 200 (PZ9)

(1) Concrete steel rebar
(2) Galvanized steel plate
(3) Plastic caps
(4) Adhesive label

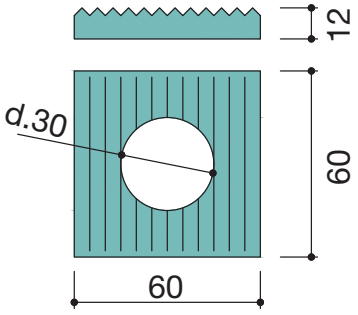
For more information, please browse the "*MT BRACKETS*" catalogue

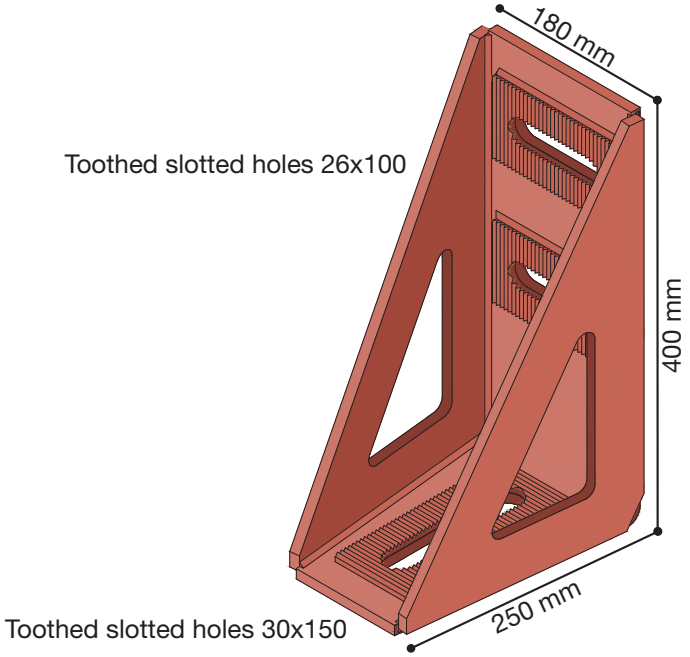
EFT BRACKET

N° 2 toothed counterplates 60x60, thickness 12, with hole Ø26



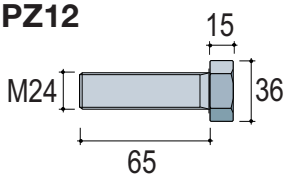
N° 1 toothed counterplates 60x60, thickness 12, with hole Ø30





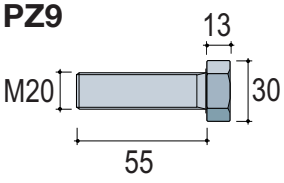
BOLTS

PZ12



N° 2 bolts M24x65 class 10.9

PZ9



N° 2 bolts M20x55 class 10.9

DESIGN

DESIGN RESISTANCES

To check the connection in the transitory phase of the assembly, the following loads must be taken into account:

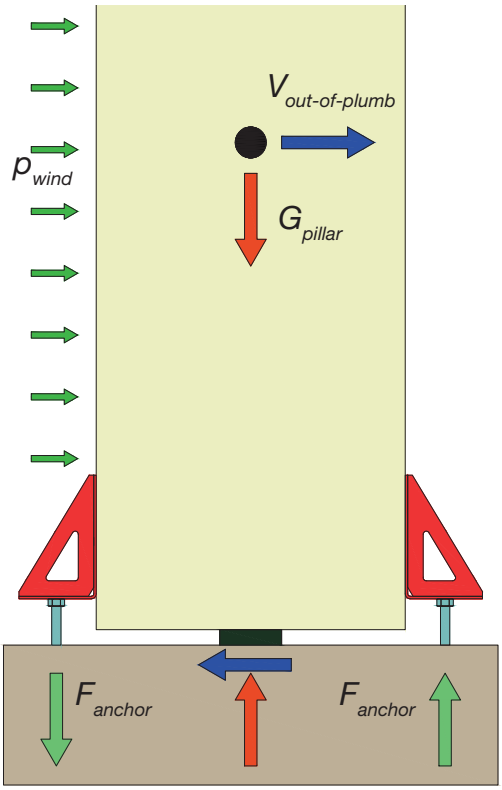
- self-weight of the pillar;
- actions due to the out-of-plumb;
- wind actions.

Loads must be combined accordingly to consider the worst-case scenario.

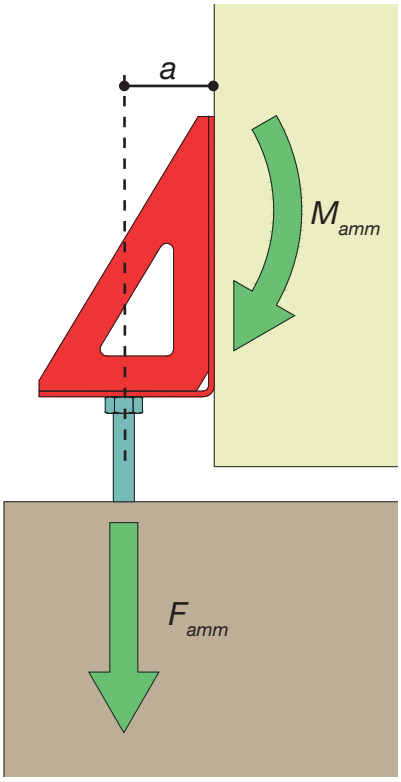
The central supporting element offers support for the weight and shear force.

The bolted connections are subjected in both directions to tensile or compression forces, which produce a balancing couple.

The moment acting on the anchoring plates and the acting force on the foundation bolts must be lower than the limit values mentioned in the table below.



Anchorig Plate	Allowed moment	Distance from the edge of the pillar	Allowable force	Tightening torque
-	M_{amm}	a	F_{amm}	T
-	kNm	mm	kN	Nm
PZ9	7,65	130	58,9	200
PZ12	10,20	130	78,5	200

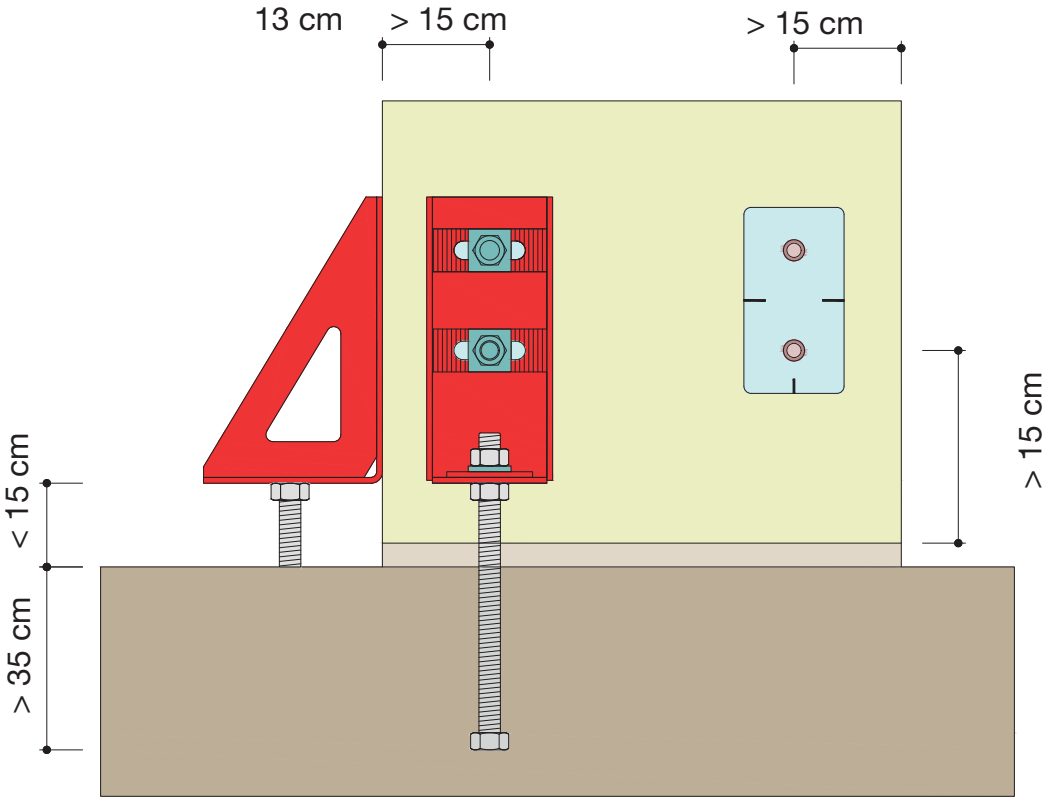


Concrete class during the assembly:

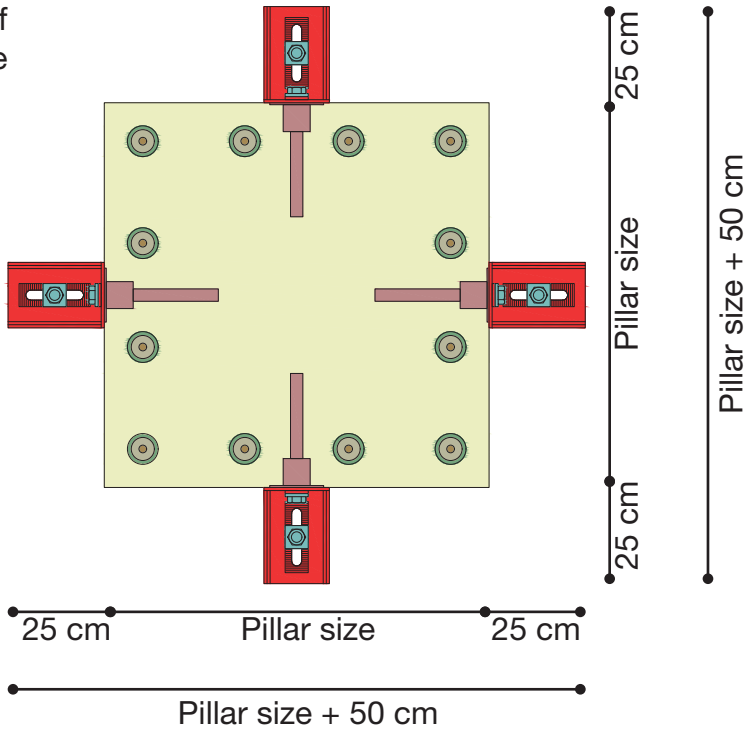
- pillar min. C30/35
- foundation min. C20/25

MINIMUM DISTANCES

Minimum distances from the edges that must be prescribed during the project phase are indicated in the picture below



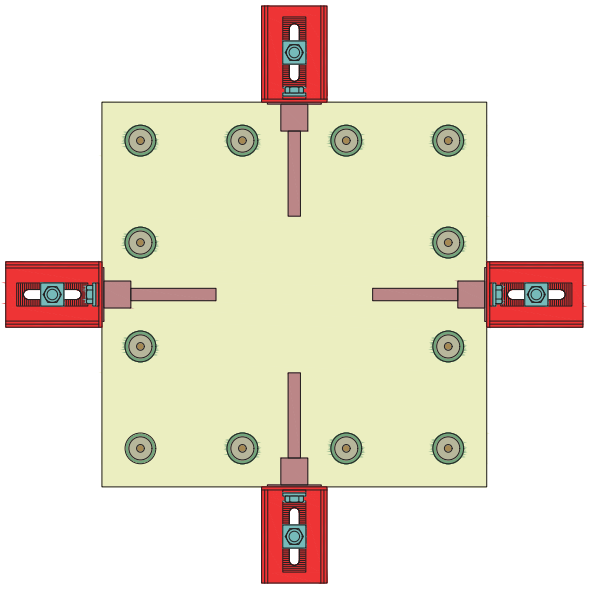
It is recommended to leave a portion of space free around the pillar to allow the work of the operators.



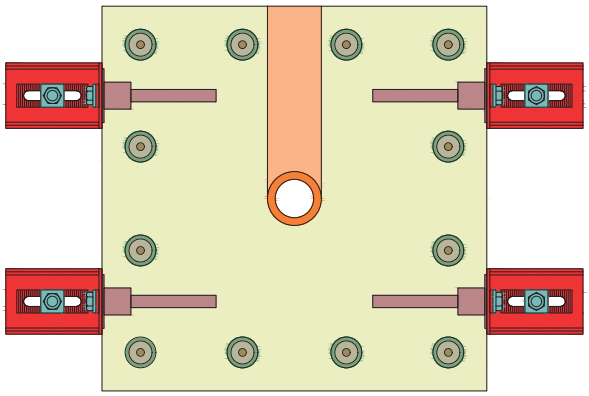
POSSIBLE INSTALLATION SCHEMES

The following four installation schemes are possible, with either three of four connections per pillar.

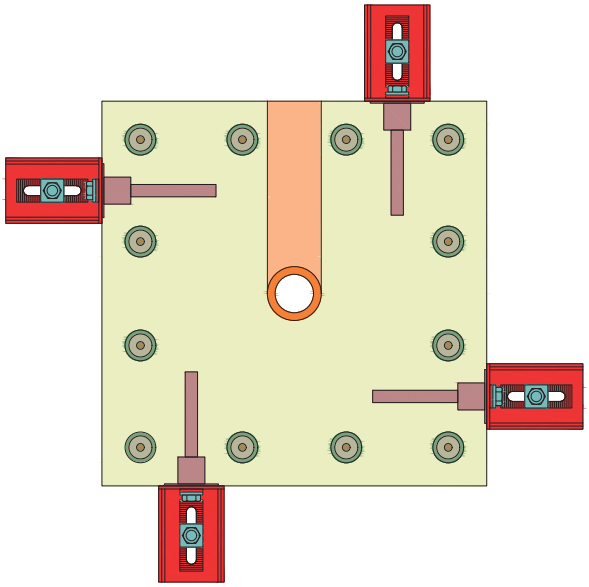
Type 1



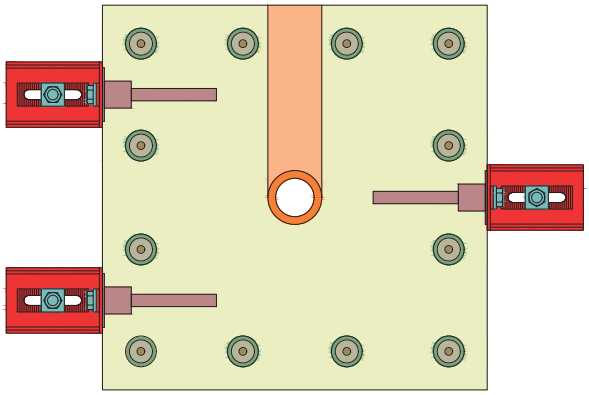
Type 2



Type 3

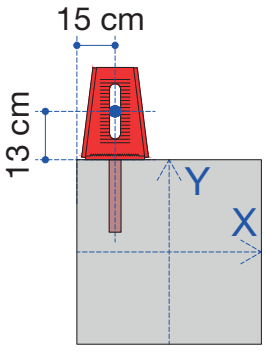


Type 4



Considering the reference system in this picture, the resistance moments can be calculated following these expressions

$$M_x = \frac{\sum_k y_k^2}{y_{max}} F_{amm} \qquad M_y = \frac{\sum_k x_k^2}{x_{max}} F_{amm}$$



DESIGN RESISTANCES

The resistance moments resulting from the different assembly schemes are reported here below.

Applications with PZ9					
Pillar section (cm)	Axis	Resistance moments at the base (kNm)			
		Type 1	Type 2	Type 3	Type 4
50x50	Mx	44,7	23,5	47,8	11,8
	My	44,7	89,4	47,8	67,1
60x60	Mx	50,6	35,3	56,8	17,7
	My	50,6	101,2	56,8	75,9
70x70	Mx	56,5	47,1	66,3	23,5
	My	56,5	113,0	66,3	84,7
80x80	Mx	62,4	58,8	76,3	29,4
	My	62,4	124,8	76,3	93,6
90x90	Mx	68,3	70,6	86,5	35,3
	My	68,3	136,5	86,5	102,4
100x100	Mx	74,1	82,4	97,0	41,2
	My	74,1	148,3	97,0	111,2

Applications with PZ12					
Pillar section (cm)	Axis	Resistance moments at the base (kNm)			
		Type 1	Type 2	Type 3	Type 4
50x50	Mx	-	-	63,8	15,7
	My	-	-	63,8	89,4
60x60	Mx	-	-	75,5	23,5
	My	-	-	75,5	101,2
70x70	Mx	75,3	62,8	88,4	31,4
	My	75,3	150,6	88,4	113,0
80x80	Mx	83,2	78,5	101,7	39,2
	My	83,2	166,3	101,7	124,8
90x90	Mx	91,0	94,2	115,4	47,1
	My	91,0	182,0	115,4	136,5
100x100	Mx	98,9	109,8	129,4	54,9
	My	98,9	197,7	129,4	148,3

notes

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EDILMATIC

Anchorage, supporting and lifting systems
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anti-seismic connections.

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