

## Install the Product – Casting of COPRA Anchoring Couplers

### Identification of the product

COPRA Anchoring Couplers are available in models (16, 20, 24, 30, 36, 39, 45, 52) defined by the M-thread diameter of the bolt. The model of anchoring coupler can be identified by the name on the label on the product and the color of the product.

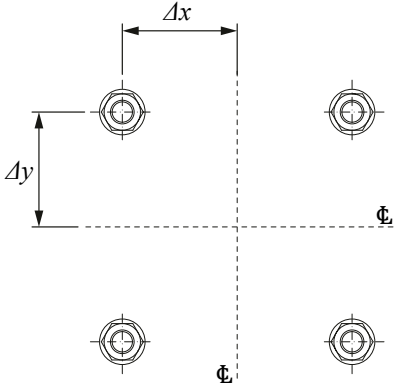
Table 9. Color code of COPRA Anchoring Couplers.

Anchoring Coupler	Thread diameter	Color code
COPRA 16H	M16	Yellow
COPRA 20H	M20	Blue
COPRA 24H	M24	Gray
COPRA 30H	M30	Green
COPRA 39H	M39	Orange
COPRA 30P	M30	Black
COPRA 36P	M36	Red
COPRA 39P	M39	Brown
COPRA 45P	M45	Purple
COPRA 52P	M52	White



## Installation tolerances

Anchoring couplers are installed at the precast factory. The height level of the anchoring coupler is defined by the formwork or an installation template. The maximum height installation tolerance in precast elements is  $\pm 2$  mm. The installation tolerances for groups of anchoring couplers are shown in the following table.



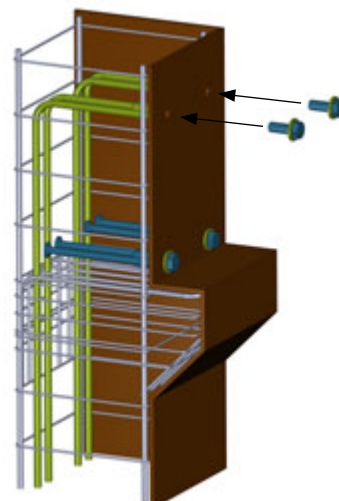
		COPRA 16H	COPRA 20H	COPRA 24H	COPRA 30H	COPRA 39H	COPRA 30P	COPRA 36P	COPRA 39P	COPRA 45P	COPRA 52P
$\Delta x$	[mm]	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 4$	$\pm 4$	$\pm 4$	$\pm 5$
$\Delta y$	[mm]	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 4$	$\pm 4$	$\pm 4$	$\pm 5$

## Installation of COPRA Anchoring Couplers

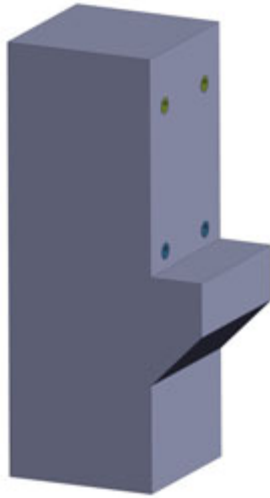
Anchoring couplers are placed into the reinforcing cage and screwed to the formwork wall. It is recommended to place some grease on the coupler thread before screwing it into the mold. This prevents the coupler from being filled with concrete during casting. After the concrete element is cast, the connecting nuts are removed from the mold and the concrete element is removed from the formwork.

**NOTE:** Optionally, nailing plates can be used to attach the couplers to the formwork. See Annex B – Accessories.

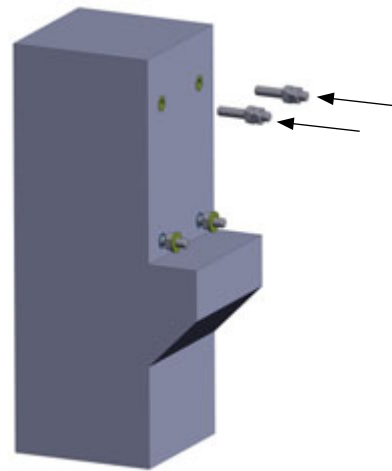
- 1) *Placing the anchoring couplers into the reinforcing cage of the column.*
- 2) *Placing the column reinforcement with anchoring couplers to the formwork. Fixing anchoring couplers with bolts.*



3) *Casting the column and demolding the element.*



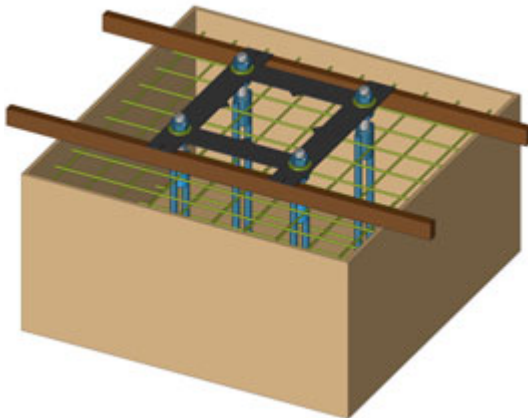
4) *Installing the threaded bars with nuts at building site.*



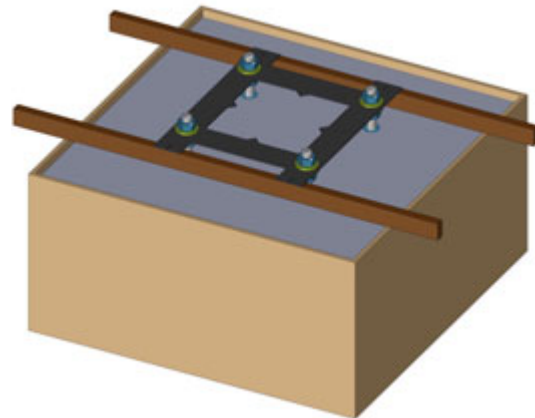
## Installation to foundation

Anchoring couplers are placed into the reinforcing cage and screwed to the installation template with threaded bars and nuts. The foundation is filled with concrete. When the concrete element hardens to the required strength, the installation template is removed and used for another group of anchoring couplers. The lower nuts are leveled to the correct position before the attachment is erected.

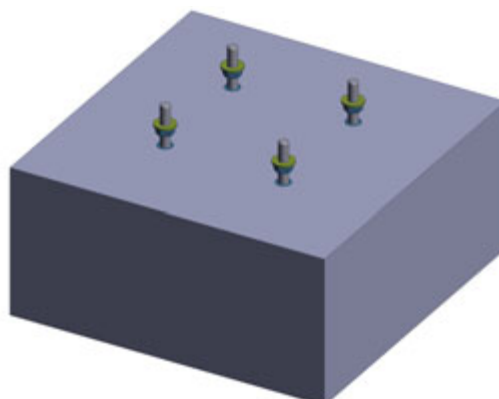
1) *Placing reinforcement and anchoring couplers into the formwork. The installation template ensures the correct position of the anchoring coupler.*



2) *Casting the foundation.*



3) *Removing the installation template and leveling the lower nuts to the correct position.*



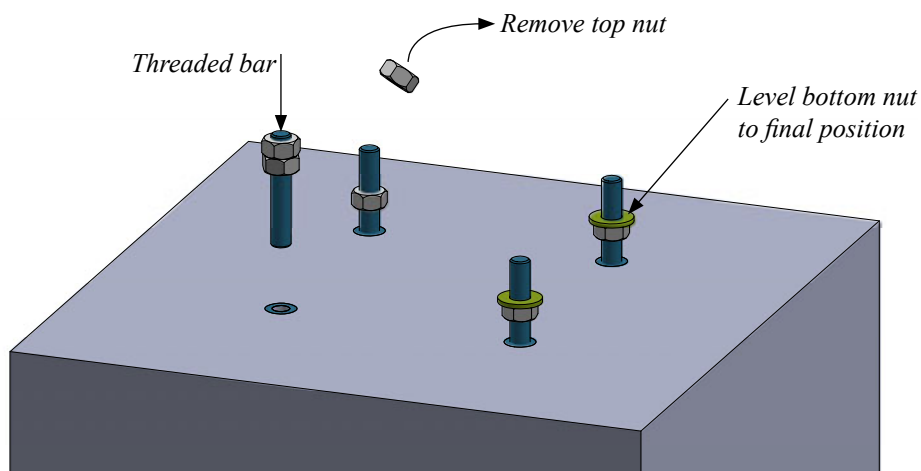
## Install the Product – Assembling

### Erection of the attachment

#### Vertical attachment (Figure 11)

Before placing the vertical attachment into the final position, screw the threaded bar onto the coupler and tighten it with two nuts (see Figure 11). Interlocking between two nuts enables the threaded bar to be fastened to the coupler. The top nut is removed from the threaded bar. The lower nuts with washers are leveled into the final position. The attachment is placed in the final position. The lower nuts are adjusted as needed. The top washers and nuts are placed onto the threaded bars and tightened. After the nuts are tightened, the precast element can be detached from the crane.

Figure 11. Installation of the threaded bars to the couplers.

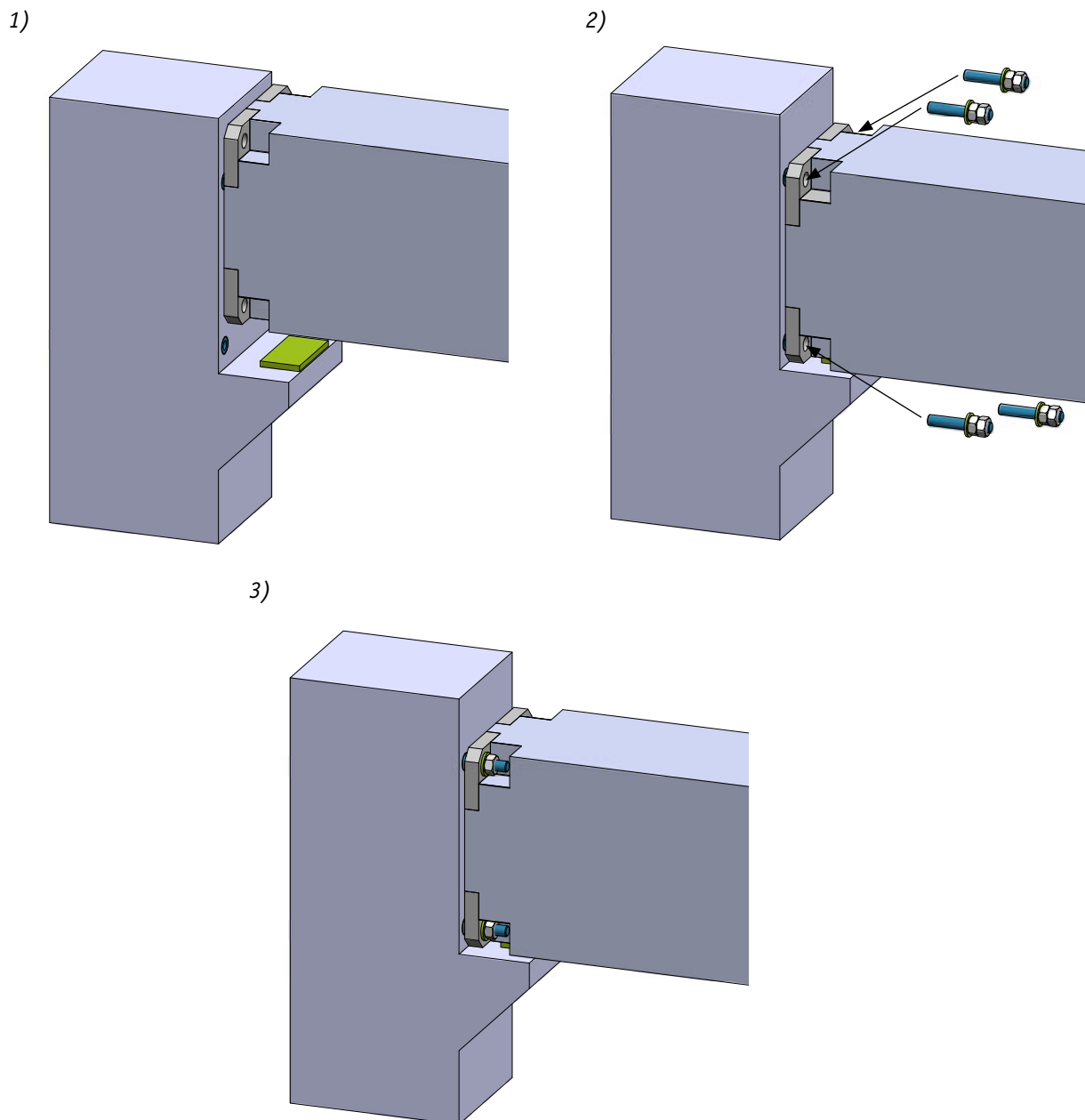


## Horizontal attachment (Figure 12)

Before placing the horizontal attachment in the final position, the thread protection plastic plugs are removed from the coupler. The horizontal attachment is placed on the column corbel (steel or elastic shim plate). The threaded bar is placed through the casting box into the coupler and tightened with two nuts. Interlocking between two nuts enables the threaded bar to be fastened to the coupler. Shim plates are placed between the column and horizontal attachment. The top washers and nuts are screwed into the final position and tightened.

1. Install the precast beam in the column corbel
2. Insert threaded bars through the beam shoe and screw them to the couplers. Threaded bars are tightened to the couplers using two nuts.
3. Remove the top nuts and tighten the lower nuts in their final position.

Figure 12. Horizontal attachment to anchoring couplers.



**NOTE:** Threaded couplers must be clean and dirt-free before the threaded bar is screwed into the coupler.

The gap in the connection must be then grouted with non-shrinking mortar. The connection is finalized after the grouting has hardened to the sufficient strength and the structure can take the load of upper-floor elements.