

INSTALL THE PRODUCT – PRECAST FACTORY

Identification of the product

HPKM Column Shoes are available in standard models (16, 20, 24, 30 and 39) analogous to M-thread sizes of the HPM Anchor Bolts. The model of column shoe can be identified by the name in the label on the product and also according to the color of the product. Color codes are shown in the table hereafter. Color codes of recess boxes are corresponding to the color codes of HPKM Column Shoes.

HPKM Column Shoe with corresponding recess box.

Column Shoe	Anchor Bolt	Corner recess	Middle recess	Color code
HPKM 16	HPM 16	HPKM 16 CBOX	HPKM 16 MBOX	yellow
HPKM 20	HPM 20	HPKM 20 CBOX	HPKM 20 MBOX	blue
HPKM 24	HPM 24	HPKM 24 CBOX	HPKM 24 MBOX	gray
HPKM 30	HPM 30	HPKM 30 CBOX	HPKM 30 MBOX	green
HPKM 39	HPM 39	HPKM 39 CBOX	HPKM 39 MBOX	orange

Installation of the column shoes

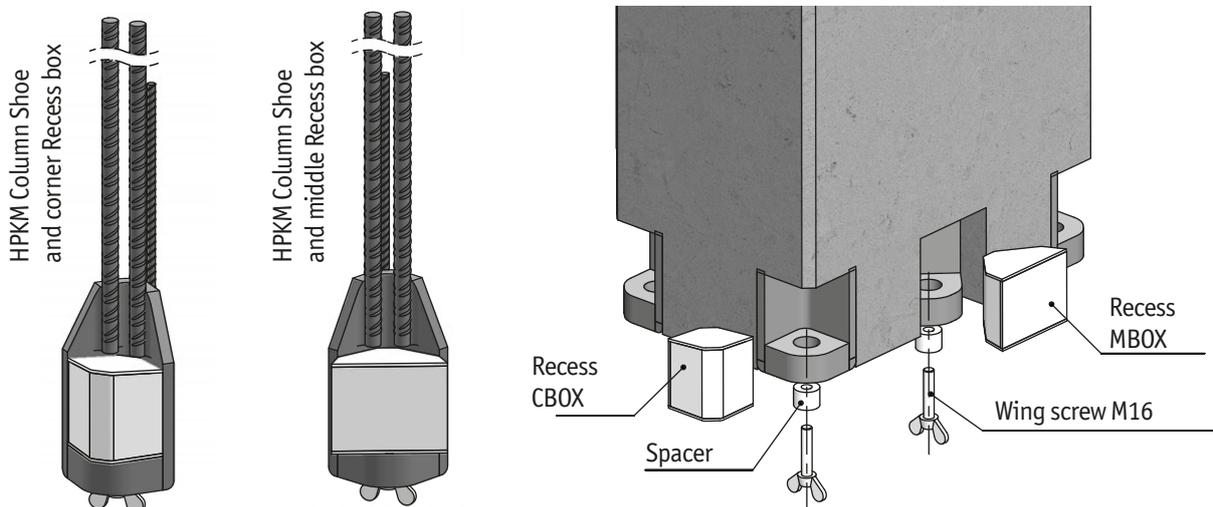
The HPKM Column Shoes are placed into the reinforcement of the column and fixed through their base plates to the end plate of the mould with recess boxes. Installation tolerance of column shoe in crosswise direction of the column is ± 2 mm. Supplementary reinforcement must be placed at the area of column base, according to drawings (Technical Manual Annex A). After casting the column, boxes are removed from shoes and voids are checked that they are clean from concrete.

Recess boxes are fixing accessories used to form pockets in concrete column for anchor bolts. There are separate recess boxes available for all types of column shoes and depending on the column shoe position in column's cross section:

- CBOX is used with column shoes fixed in corner of the column
- MBOX is used with column shoes fixed in middle of the column

Recess boxes enable the shoes to be fastened and positioned to the end plate of the mould. The wing screw M16, which comes with a spacer equal to the size of the column shoe's bolt hole, is used for fixing. With the help of the spacer, the shoe can be fixed to the correct place in the end plate. Environmental friendly formers are very durable and re-usable. It is recommended to maintain them to achieve long operating life.

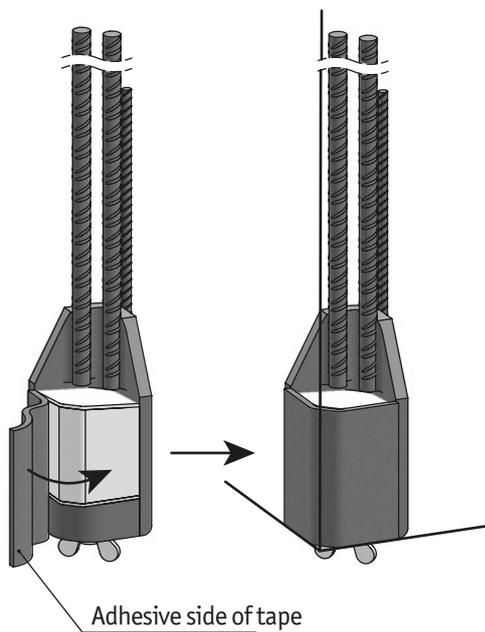
Recess boxes for corner and middle position of HPKM Column Shoe.



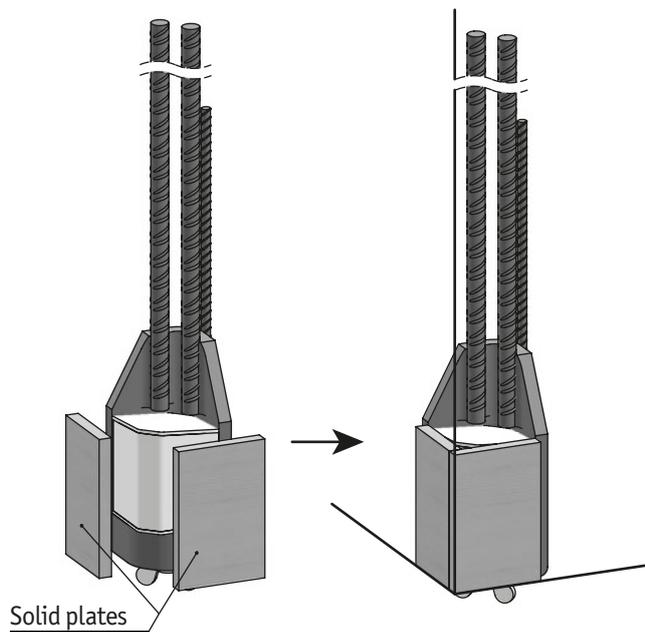
To ensure higher values of concrete cover thicknesses of main anchor bars, in accordance with chapter 1.2.3 of the technical manual, follow these instructions for increased values Δ_c of concrete cover:

- $\Delta_c < 5 \text{ mm}$, there is no special request for recess boxes; instructions are same as for standard concrete cover of column shoes. The gap is too small to be filled up with concrete. However if the gap is filled or partially filled, the concrete shell can be easily crushed after removing mould.
- $5 \text{ mm} \leq \Delta_c \leq 10 \text{ mm}$, self-adhesive foam tape or equivalent can be used to prevent the fill up of the gap. Foam tape of corresponding thickness Δ_c is fixed on two sides of the recess box.
- $\Delta_c > 10 \text{ mm}$, to prevent the concrete to fill up the gap, it is recommended to use some kind of solid plate – e.g. plywood or hardened polystyrene of corresponding thickness Δ_c . These plates can be fixed to the surface of the mould.

Use of **self-adhesive foam tape** to prevent the fill up the gap with concrete.



Use of **solid plates** to prevent the fill up the gap with concrete.



Ensure of thicker concrete cover by self-adhesive foam tape or solid plates

HPKM Column Shoes before and after casting

