

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 Rebar Anchor Bolts. The model of column shoe can be identified by the name on the label on the product and also according to the color of the product. The color codes are shown in the table below. The color codes of recess boxes correspond to the color codes of HPKM® Column Shoes.

HPKM® Column Shoe with corresponding recess box.

Column Shoe	Rebar Anchor Bolt	Corner recess	Middle recess	Color code
HPKM 16 ACI	HPM 16 ACI	HPKM 16 CBOX	HPKM 16 MBOX	Yellow
HPKM 20 ACI	HPM 20 ACI	HPKM 20 CBOX	HPKM 20 MBOX	Blue
HPKM 24 ACI	HPM 24 ACI	HPKM 24 CBOX	HPKM 24 MBOX	Gray
HPKM 30 ACI	HPM 30 ACI	HPKM 30 CBOX	HPKM 30 MBOX	Green
HPKM 39 ACI	HPM 39 ACI	HPKM 39 CBOX	HPKM 39 MBOX	Orange

Installation of the column shoes

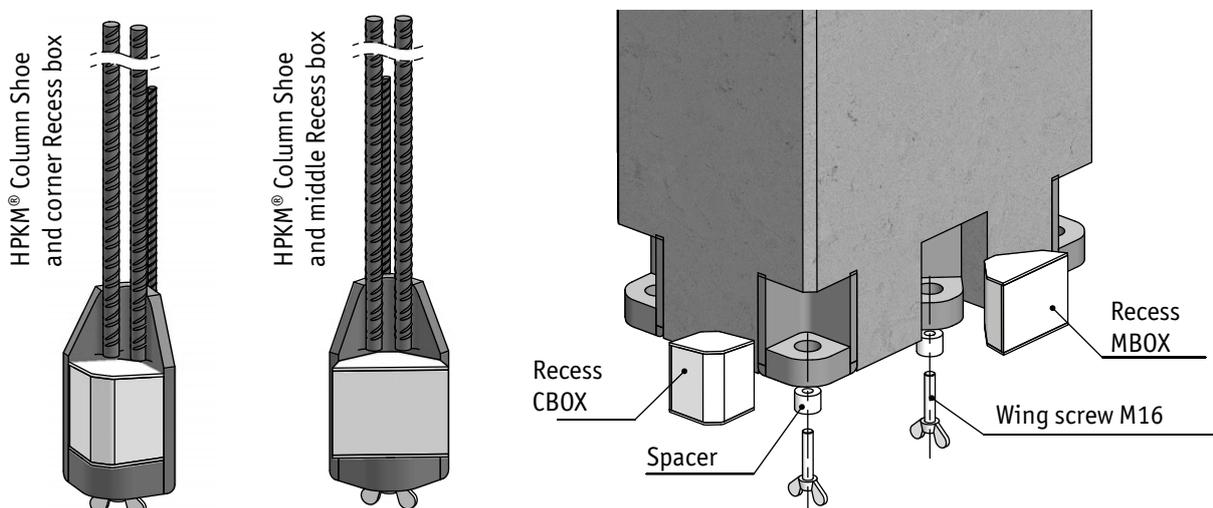
The HPKM® Column Shoes are placed into the reinforcement of the column and fixed through their base plates to the end plate of the mold with recess boxes. The installation tolerance of column shoes in the crosswise direction of the column is ± 2 mm. Supplementary reinforcement must be placed in the area of the column base according to drawings (Technical Manual Annex A). After casting the column, the boxes are removed from the shoes and the voids are checked to ensure that they are free of 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, depending on the position of the column shoe in the 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 mold. The M16 wing screw, 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. Environmentally friendly formers are very durable and re-usable. It is recommended that they be maintained to achieve a long operating life.

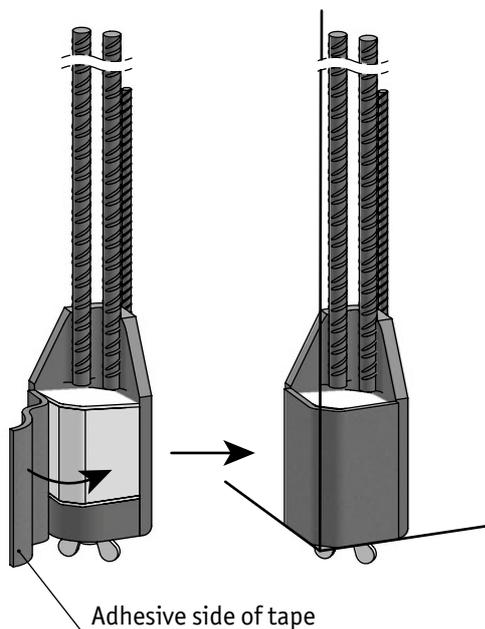
Recess boxes for corner and middle position of HPKM® Column Shoe.



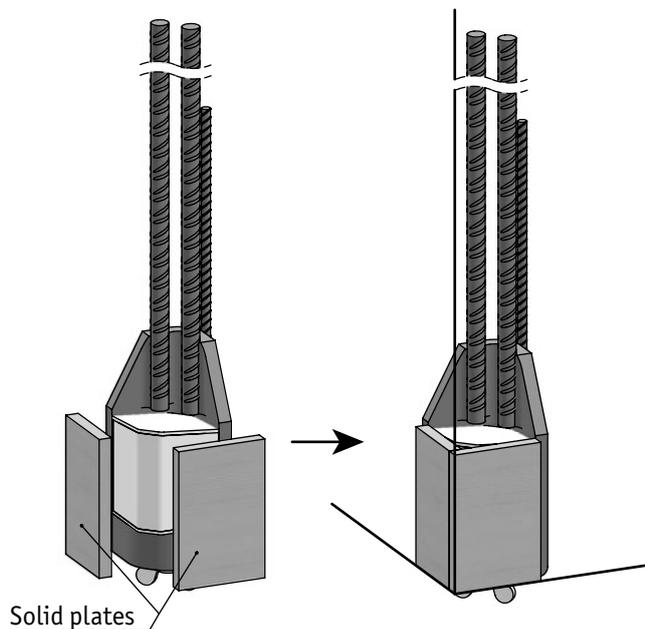
To ensure higher values of concrete cover thicknesses of main anchor bars in accordance with section 1.2.3 of the technical manual, follow these instructions for increased values Δ_c of concrete cover:

- $\Delta_c < 5 \text{ mm}$, there is no special requirement for recess boxes; instructions are the 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 the mold.
- $5 \text{ mm} \leq \Delta_c \leq 10 \text{ mm}$, self-adhesive foam tape or equivalent can be used to prevent the gap from filling up. Foam tape of corresponding thickness Δ_c is fixed on two sides of the recess box.
- $\Delta_c > 10 \text{ mm}$, to prevent concrete from filling up the gap, it is recommended that a solid plate be used such as plywood or hardened polystyrene of corresponding thickness Δ_c . These plates can be fixed to the surface of the mold.

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



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



Ensure thicker concrete cover using self-adhesive foam tape or solid plates.

HPKM® Column Shoes before and after casting.

