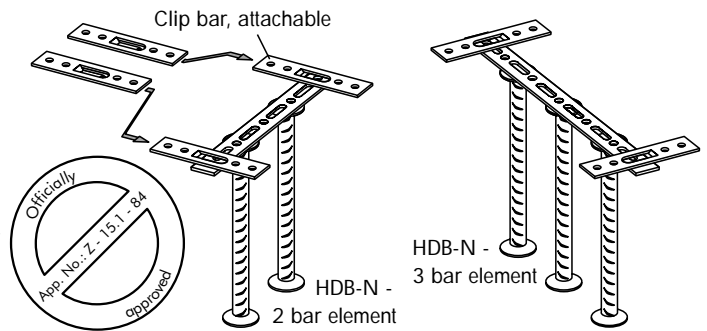


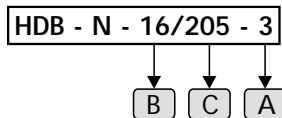
The delivered HDB-N - punching shear reinforcement elements have been manufactured following the informations which were part of the order and in accordance with the Official Approval Certificate No Z - 15.1 - 84, DIBt, Berlin, Germany.

Clip bars (to be ordered separately) can be used for safely fixing the HDB-N - elements to the reinforcement. They can be attached at any place on the spacer bar of the HDB-N- element. Before installing HDB-N - elements the following items must be observed:

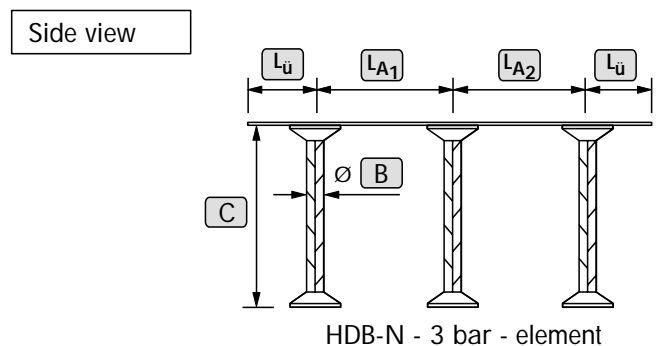


**Control check**

- Check the number of welded double studded bars per HDB-N - element → **A**
- Conformity of the dimensions with the delivery note, e.g.:



Note: Dimensions **L<sub>ü</sub>** **L<sub>A1</sub>** **L<sub>A2</sub>** etc. are indicated only in case of non-standard HDB-N - products.

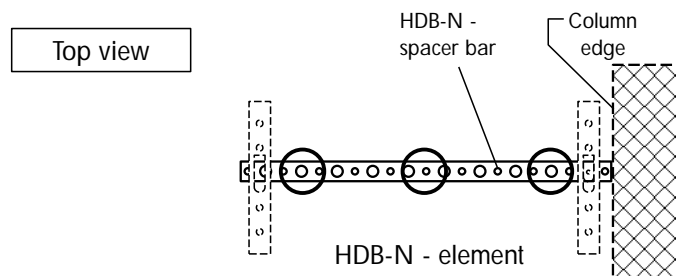


**Notes for assembly**

The installation of the HDB-N - elements has to follow the indications in the reinforcement drawing.

After installing the upper and lower reinforcement the HDB-N - elements are inserted from above through the reinforcement.

Adjust the position of the HDB-N - element so that the end of the spacer bar is flush with the edge of the column.



**HDB-N - combinations**

- 1 At first insert the elements adjoining to the columns.
- 2 Then install the other elements in such a way, that the ends of the spacer bars meet in a butt joint → **M**

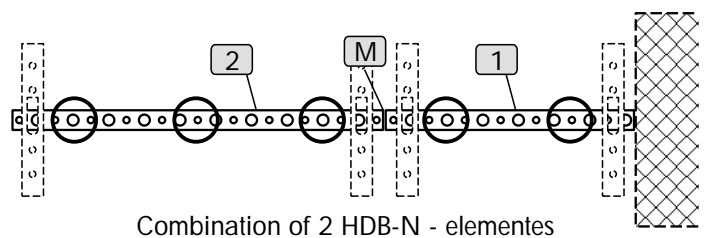


Fig. 1: Examples for HDB-N - combinations out of 2 or 3 elements:

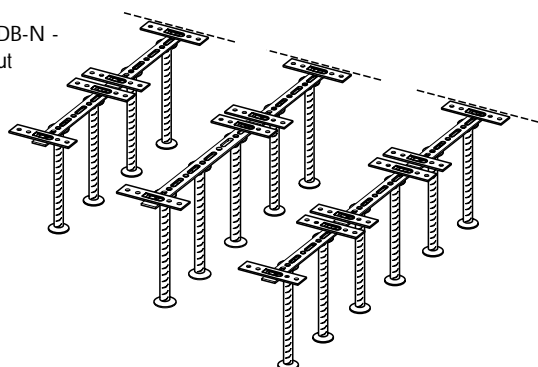
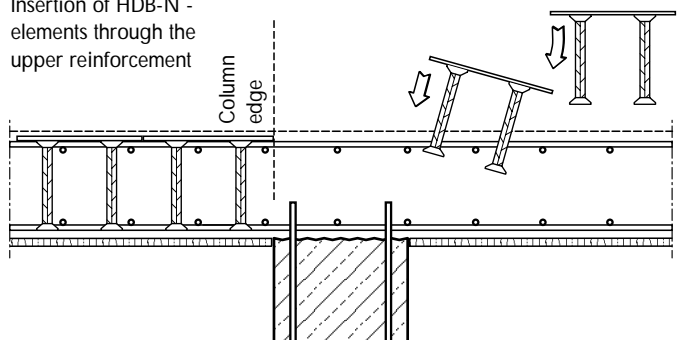
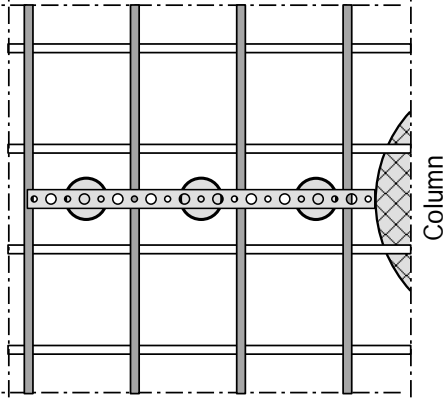


Fig. 2: Insertion of HDB-N - elements through the upper reinforcement



Fixing the HDB-N - elements to the reinforcement

- without clip bars perpendicular to the upper reinforcement



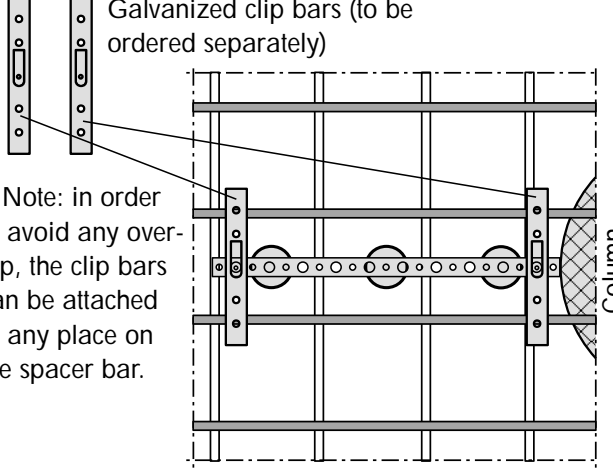
Side view

Column

**Note**

We recommend to fix the spacer bar to the upper reinforcement in order to hold the element safely in position.

- with clip bars parallel to the upper reinforcement



Galvanized clip bars (to be ordered separately)

- Note: in order to avoid any overlap, the clip bars can be attached at any place on the spacer bar.

Column

Reversed assembly (from below)

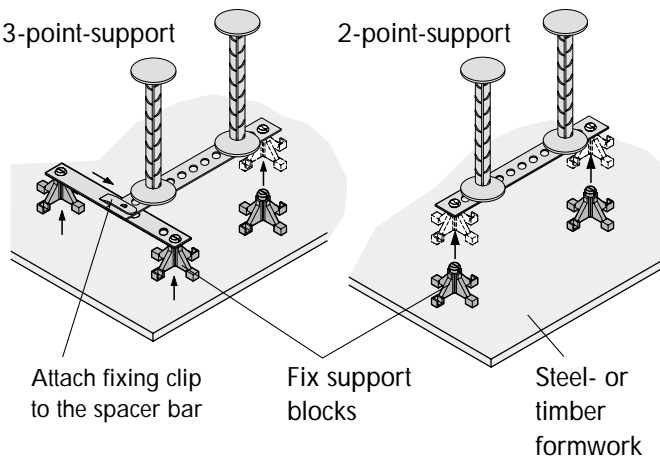
When using in elemented floor slabs or when there is an extremely dense upper reinforcement the HDB-N - elements can also be inserted in the reverse direction (i.e. spacer bars with or without clip bars to the bottom).

The full load capacity of the HDB-N - elements is guaranteed also in this position.

**Note**

HDB-N - elements can be fixed to **timber formwork** together with support blocks using nails.

At **steel formwork** the spacer bars should be attached to the lower reinforcement (using wire etc.).



3-point-support

2-point-support

Attach fixing clip to the spacer bar

Fix support blocks

Steel- or timber formwork

Plastic support blocks type **HDB-ABST** available for heights h  
15 - 20 - 25 - 30 - 35 - 40 mm