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| Date :      | 18.10.05  | Sign: tb |
| Last rev:   | 12.05.09  | Sign: tb |
| Doc. No:    | K4-10/37E | Sign: tb |
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## Standard reinforcement for beam ends BCC

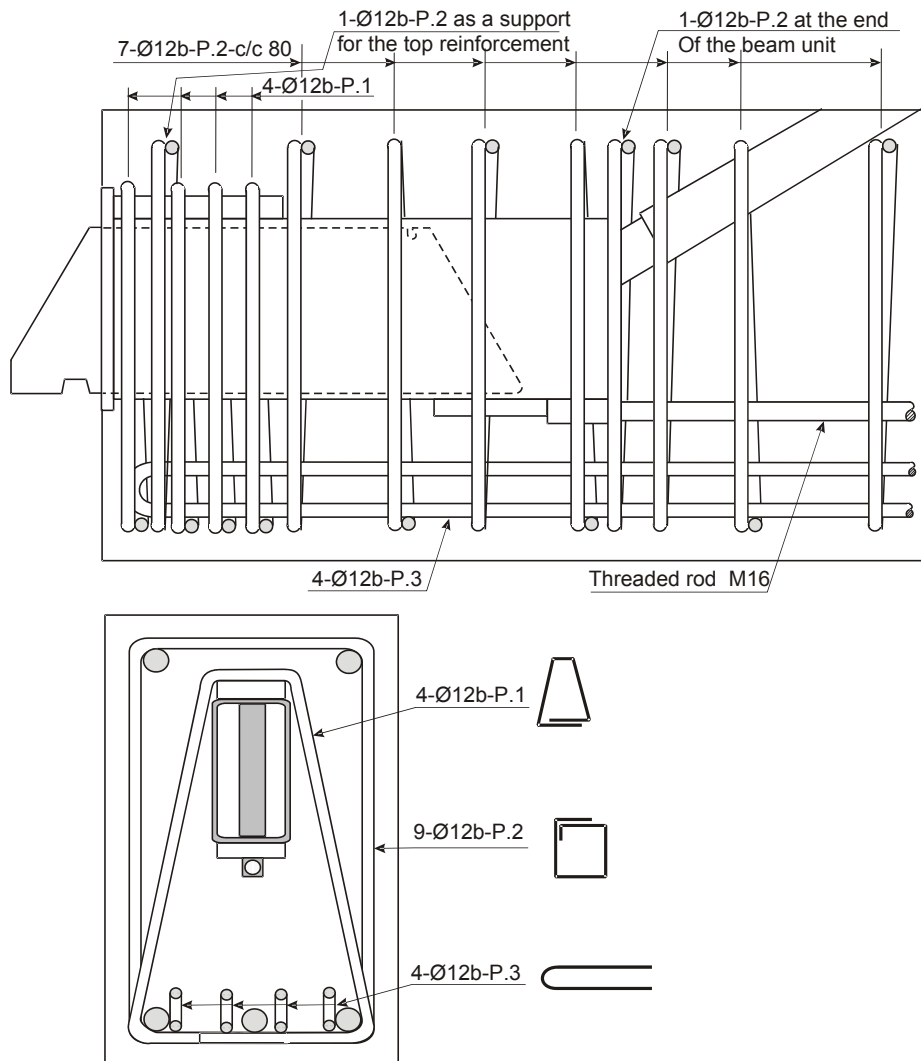
### Standard reinforcement for BCC 250

(ATT! This is the totale reinforcement for the beam end.)

For clarity the main reinforcement of the beam is not included in the side view. Between the given stirrups in each end of the beam the shear reinforcement have to be calculated. The beams main reinforcement must of course also be calculated.

These recommended stirrups includes all reinforcement in the beam end: The shear reinforcement that is required in an ordinary beam end, plus a contribution due to the cantilevering of the unit.)

Depended on the national rules, the shear reinforcement can be reduced by including the concrete contribution in the calculations of the shear capacity. This is most important for prestressed concrete elements.



At the end of the horizontal part of the front anchorage bars, it must be checked that the main reinforcement in the beam has sufficient anchorage. See clause 2.2 in memo 39a

## Standard reinforcement for beam ends BCC

### Bar schedule for BCC 250

The shown reinforcement is designed for a minimum beam size required to utilize the full capacity. See memo 2. Concrete is grade C45/55.

H= height of beam and B= width of beam.

X= National demands for concrete cover.

| Pos. Nr. | Bar schedule   | No. Of reinforcement bars at 250 kN   |
|----------|--|---|
| P1       | <p>110 mm</p> <p>Contact with the top of the beam unit</p> <p>H: Design according to the beam height, and the location of the beam unit in the concrete beam</p> <p>105 mm</p> <p>B- 3X</p> <p>B- 3X</p> <p>B- 2X</p> <p>Must be placed under the main reinforcement</p> | 4 - Ø12 mm  |
| P2       | <p>10*Dia</p> <p>10*Dia</p> <p>H- 2X</p> <p>B- 2X</p>  | 9 - Ø12 mm<br>Turned upside down each other time  |
| P3       | <p>750 mm</p> <p>Ø32 Mandrel diameter</p>  | 4 - Ø12b mm   |
| M16      | <p>600</p>   | <b>M16 Threaded bar</b><br><i>This is an additional product which can be delivered from SB Produksjon AS see memo 40.</i> |

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## Standard reinforcement for beam ends BCC

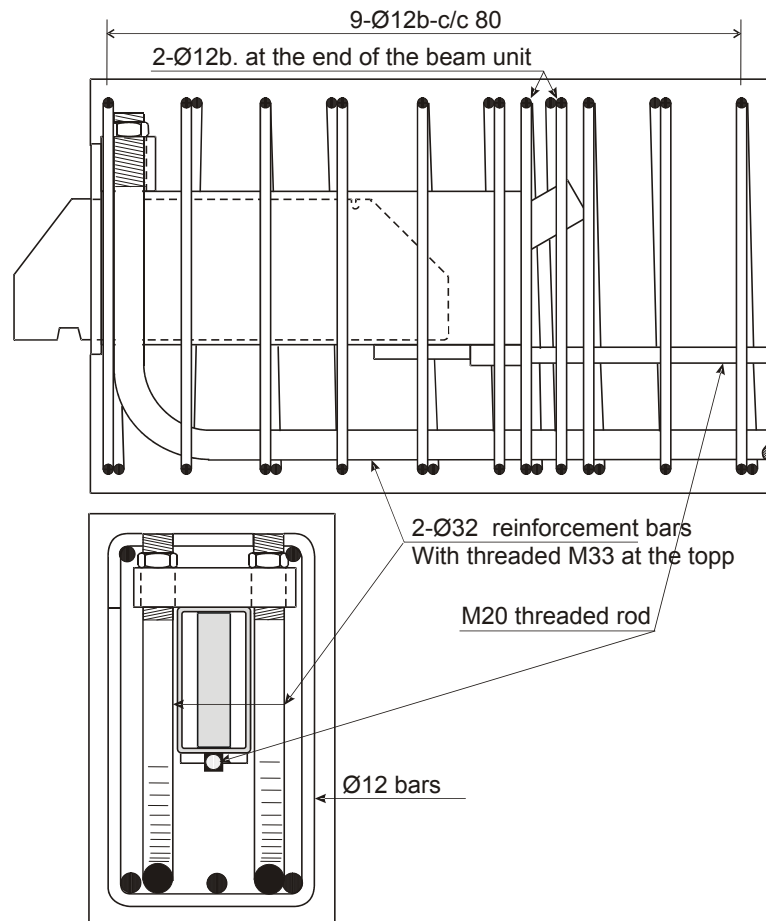
### Standard reinforcement for BCC 450

(ATT! This is the totale reinforcement for the beam end.)

For clarity the main reinforcement of the beam is not included in the side view. Between the given stirrups in each end of the beam the shear reinforcement have to be calculated. The beams main reinforcement must of course also be calculated.

These recommended stirrups includes all reinforcement in the beam end: The shear reinforcement that is required in an ordinary beam end, plus a contribution due to the cantilevering of the unit.)

Depended on the national rules, the shear reinforcement can be reduced by including the concrete contribution in the calculations of the shear capacity. This is most important for prestressed concrete elements.



At the end of the horizontal part of the front anchorage bars, it must be checked that the main reinforcement in the beam has sufficient anchorage. See clause 2.2 in memo 39b

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## Standard reinforcement for beam ends BCC

### Bar schedule for BCC 450

The shown reinforcement is designed for a minimum beam size required to utilize the full capacity. See memo 2. Concrete is grade C45/55.

H= height of beam and B= width of beam.

X= National demands for concrete cover.

| Pos. nr | Bar schedule | No. Of reinforcement bars at 450 kN   |
|---------|--------------|---|
| P1      |              | 11 - Ø12 mm   |
| P2      |              | <p>2 - Ø32mm bars with 150 mm M33 threaded at the top. The height (480 mm) can vary due to the height of the beam and the demand of concrete cover</p> <p><i>This is an additional product which can be delivered from SB Produksjon AS see memo 40..</i></p> |
| P3      |              | <p>1 - Threaded bar M 20</p> <p><i>This is an additional product which can be delivered from SB Produksjon AS see memo 40..</i></p>   |

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## Standard reinforcement for beam ends BCC

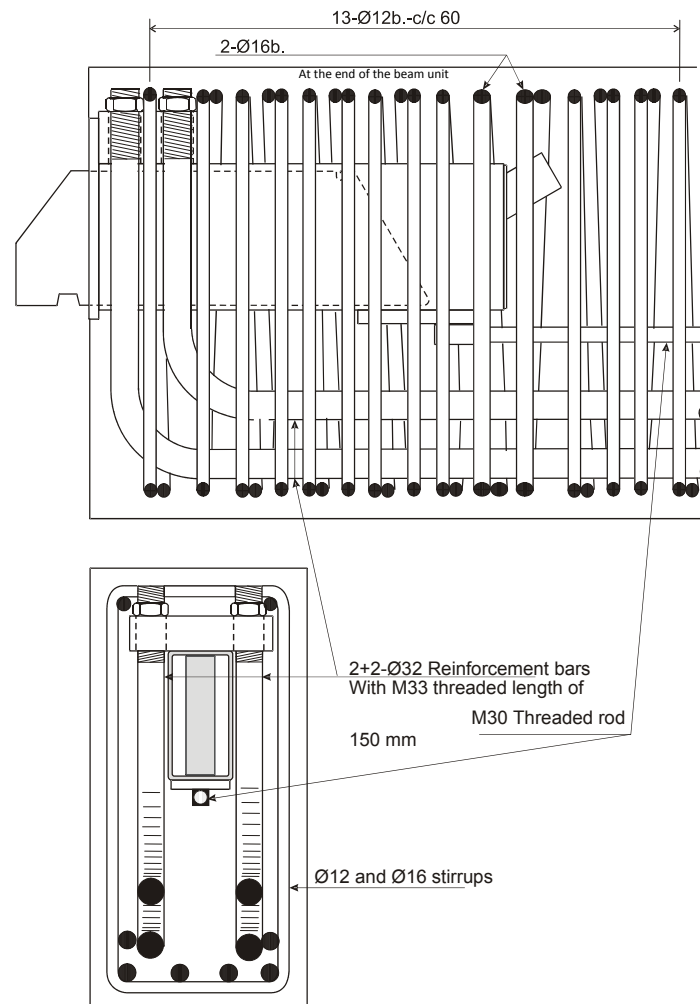
### Standard reinforcement for BCC 800

(ATT! This is the totale reinforcement for the beam end.)

For clarity the main reinforcement of the beam is not included in the side view. Between the given stirrups in each end of the beam the shear reinforcement have to be calculated. The beams main reinforcement must of course also be calculated.

These recommended stirrups includes all reinforcement in the beam end: The shear reinforcement that is required in an ordinary beam end, plus a contribution due to the cantilevering of the unit.)

Depended on the national rules, the shear reinforcement can be reduced by including the concrete contribution in the calculations of the shear capacity. This is most important for prestressed concrete elements.



At the end of the horizontal part of the front anchorage bars, it must be checked that the main reinforcement in the beam has sufficient anchorage. See clause 2.2 in memo 39c

## Standard reinforcement for beam ends BCC

### Bar schedule for BCC 800

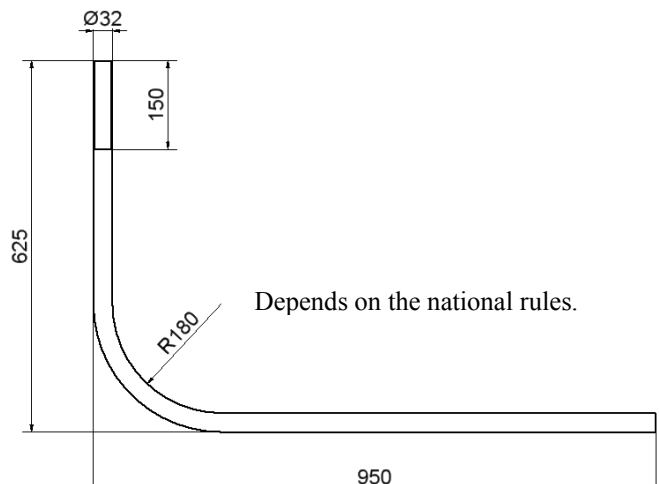
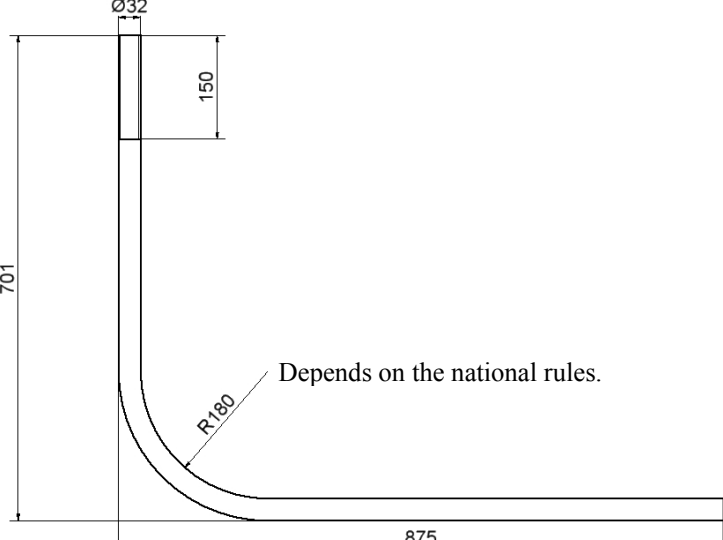
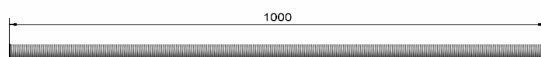
The shown reinforcement is designed for a minimum beam size required to utilize the full capacity.  
See memo 2. Concrete is grade C45/55.

H= height of beam and B= width of beam.

X= National demands for concrete cover.

| Arm. Pos. nr | Bar schedule | No. Of reinforcement bars at 800 kN |
|--------------|--------------|-------------------------------------|
| P1           |              | 13- Ø12 mm                          |
| P2           |              | 2 - Ø16 mm                          |

## Standard reinforcement for beam ends BCC

|    |   |  |
|----|---|--|
| P3 |   | <p><b>2 - Ø32mm bars with 150 mm M33 threaded at the top.</b></p> <p>The height 625 mm, can varies, due to beam height and demand of concrete cover.</p> <p><i>This is an additional product which can be delivered from SB Produksjon AS see memo 40.</i></p> |
| P4 |  | <p><b>2 - Ø32mm bars with 150 mm M33 threaded at the top.</b></p> <p>The height 625 mm, can varies, due to beam height and demand of concrete cover.</p> <p><i>This is an additional product which can be delivered from SB Produksjon AS see memo 40.</i></p> |
| P5 |  | <p><b>1 – Threaded rod M 30</b></p> <p><i>This is an additional product which can be delivered from SB Produksjon AS see memo 40.</i></p>  |