

MEMO 522e

BSF 1100

EXAMPLE: REINFORCEMENT IN BEAM

END WITH MAXIMUM LOAD 1100kN

DESIGN

Date: 13.04.2018

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Sign.: sss

Control: ps

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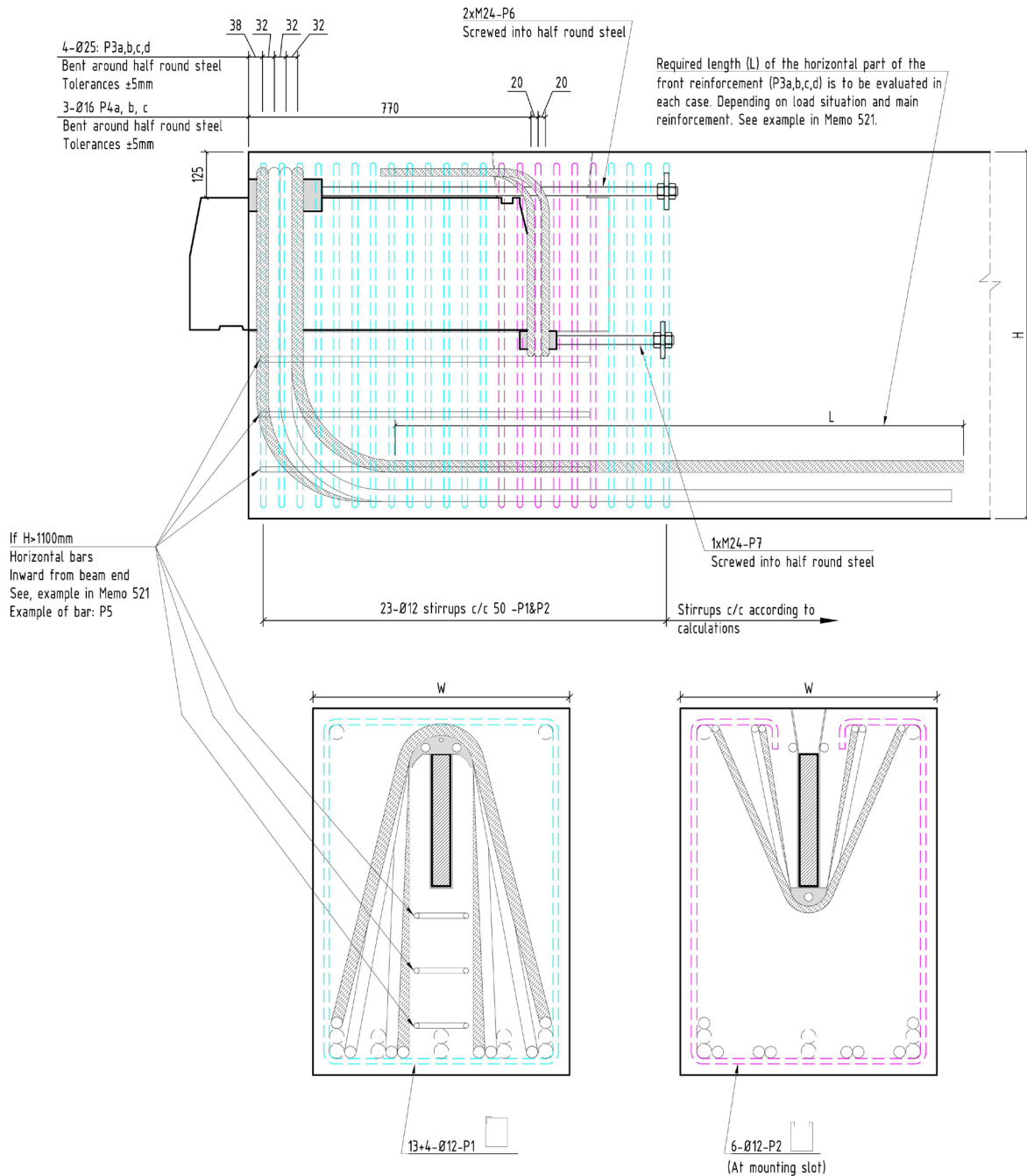


Figure 1: Reinforcement in beam end.

The basis for the illustrated reinforcement is found in the example calculations in Memo 521. The amount of reinforcement and final shape of several of the bars has to be evaluated in each case. This can be done according to the procedures outlined in the Memo. Concrete quality C35 and beam dimension: W×H=700×1000 is used in the example calculation. This corresponds to the approximate minimum cross section of the beam in order to utilize the full capacity of the unit.

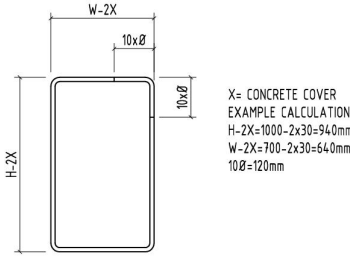
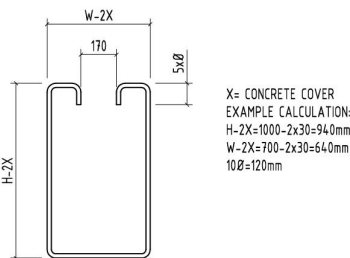
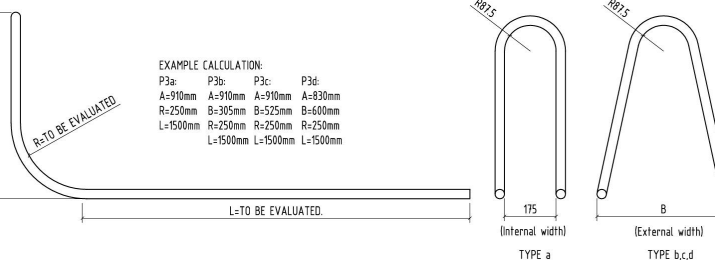
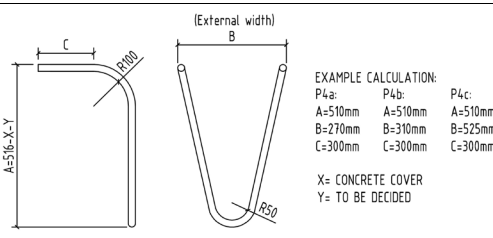
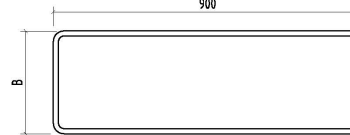
| Pos. | Ø | No. pr. unit | Bar schedule | Grade |
|-----------|-----|--------------|--|------------------------------|
| P1 | Ø12 | 17 |  <p>X= CONCRETE COVER EXAMPLE CALCULATION: H-2X=1000-2x30=940mm W-2X=700-2x30=640mm 10Ø=120mm</p> | 500C (EC2, Annex C) |
| P2 | Ø12 | 6 |  <p>X= CONCRETE COVER EXAMPLE CALCULATION: H-2X=1000-2x30=940mm W-2X=700-2x30=640mm 10Ø=120mm</p> | 500C (EC2, Annex C) |
| P3a,b,c,d | Ø25 | 1+1+1+1 |  <p>EXAMPLE CALCULATION: P3a: P3b: P3c: P3d: A=910mm A=910mm A=910mm A=830mm R=250mm B=305mm B=525mm B=600mm L=1500mm R=250mm R=250mm R=250mm L=1500mm L=1500mm L=1500mm</p> <p>R=TO BE EVALUATED L=TO BE EVALUATED</p> <p>175 (Internal width) TYPE a B (External width) TYPE b,c,d</p> | 500C (EC2, Annex C) |
| P4a,b,c | Ø16 | 1+1+1 |  <p>EXAMPLE CALCULATION: P4a: P4b: P4c: A=510mm A=510mm A=510mm B=270mm B=310mm B=525mm C=300mm C=300mm C=300mm</p> <p>X= CONCRETE COVER Y= TO BE DECIDED</p> | 500C (EC2, Annex C) |
| P5 | Ø12 | |  <p>In beams with H>1100mm. Number and width B to be decided</p> | 500C (EC2, Annex C) |
| P6 | M24 | 2 | Threaded bar. Length = 1000 mm With plate 110x110x15 and 2 nuts, one on each side of plate. | Thr. bar: 8.8 Plate: S355 |
| P7 | M24 | 1 | Threaded bar. Length = 350 mm With plate 110x110x15 and 2 nuts, one on each side of plate. | Thr. bar: 8.8 Plate: S355 |

Table 1: List of reinforcement.

| REVISION HISTORY | |
|------------------|---|
| Date: | Description: |
| 13.04.2018 | First edition. |
| 13.11.2018 | Updated typing errors |
| 27.09.2019 | Corrected typing error mandrel diameter P4a, b, c |