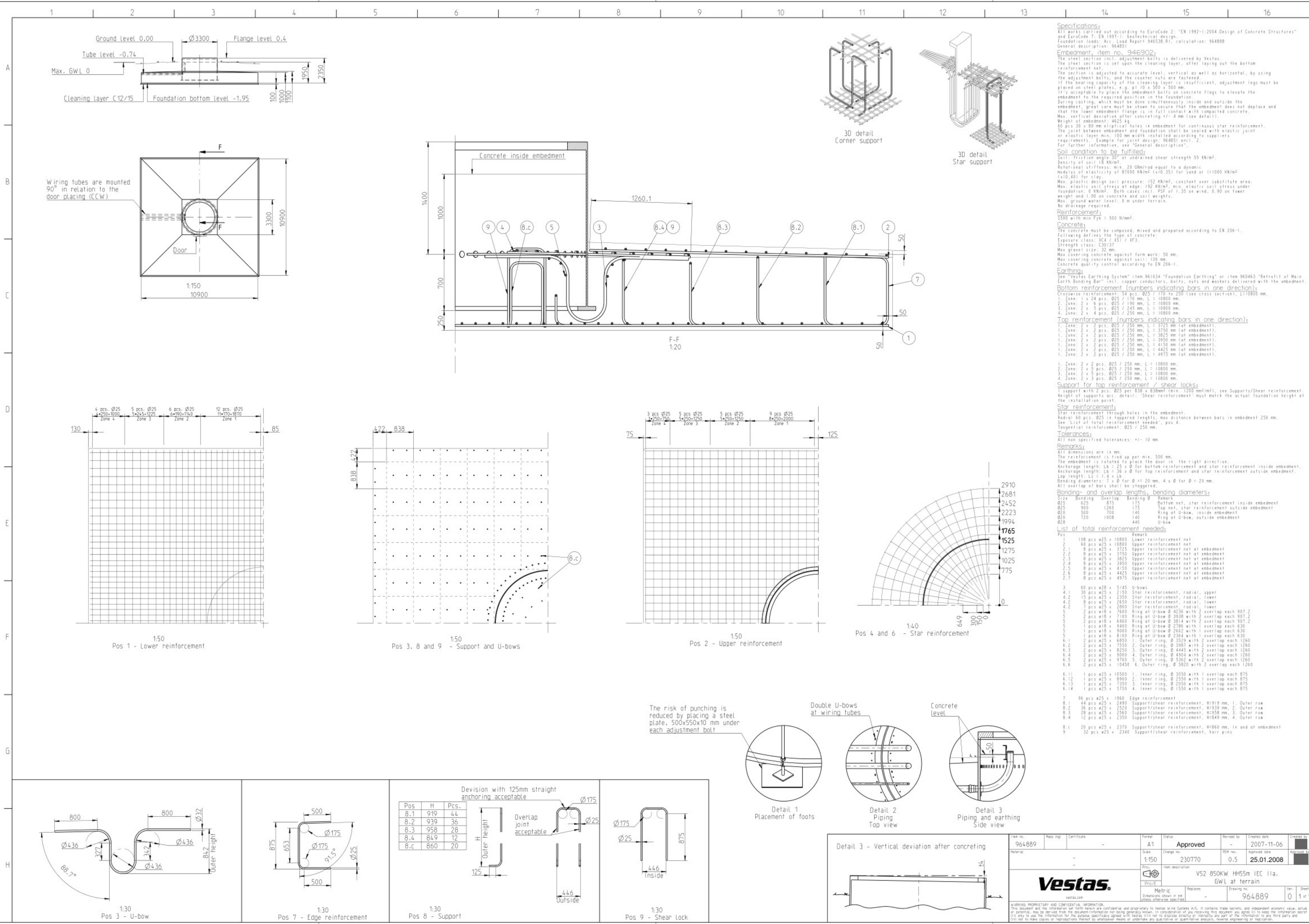




Specifications:
All works carried out according to EuroCode 2: "EN 1992-1:2004 Design of Concrete Structures" and EuroCode 7: "EN 1997-1:2004 Geotechnical design".
Foundation loads: Acc. Load Report 946538.R1, calculation: 964888
General description: 964888

Embedment, item no. 946902:
The steel section incl. adjustment bolts is delivered by Vestas.
The steel section is set upon the cleaning layer, after laying out the bottom reinforcement net.
The section is adjusted to accurate level, vertical as well as horizontal, by using the adjustment bolts, and the counter nuts are fastened.
If the bearing capacity of the cleaning layer is insufficient, adjustment legs must be placed on steel plates, e.g. p1 10 x 500 x 500 mm.
It's acceptable to place the embedment bolts on concrete flags to elevate the embedment to the required position in the foundation.
During casting, which must be done simultaneously inside and outside the embedment, great care must be taken to ensure that the embedment does not displace and that the lower embedment flange is in full contact with compacted concrete.
Max. vertical deviation after concreting +/- 4 mm (see detail).
Weight of embedment: 4625 kg.
60 pcs 30 x 80 mm elliptical holes in embedment for continuous star reinforcement.
The joint between embedment and foundation shall be sealed with elastic joint or elastic layer min. 100 mm width installed according to suppliers requirements. Example for joint design: 964888 encl. 2.
For further information, see "General description".

Soil condition to be fulfilled:
Soil: friction angle 30° or undrained shear strength 55 kN/m².
Density of soil 18 kN/m³.
Rotational stiffness: min. 20 GNm/rad equal to a dynamic modulus of elasticity of 87000 kN/m² (v35) for sand or 110000 kN/m² (v40) for clay.
Max. plastic design soil pressure: 152 kN/m², constant over substitute area.
Max. elastic soil stress at edge: 192 kN/m², min. elastic soil stress under foundation: 0 kN/m². Both cases incl. PSF of 1.35 on wind, 0.90 on tower weight and 1.00 on concrete and soil weights.
Max. ground water level: 0 m under terrain.
No drainage required.

Reinforcement:
3500 with min Fyk = 500 N/mm².

Concrete:
The concrete must be composed, mixed and prepared according to EN 206-1.
Following defines the type of concrete:
Exposure class: XC4 / XF3 / XF3.
Strength class: C30/37.
Max gravel size: 32 mm.
Max covering concrete against form work: 50 mm.
Max covering concrete against soil: 100 mm.
Concrete quality control according to EN 206-1.

Earthing:
See "Vestas Earthing System" item 961634 "Foundation Earthing" or item 960463 "Retrict of Main Earthing Bonding Bar" incl. copper conductors, bolts, nuts and washers delivered with the embedment.

Bottom reinforcement (numbers indicating bars in one direction):
Crosswise reinforcement: 54 pcs. Ø25 / 170 to 250 (see cross section), L=10800 mm.
1. Zone: 1 x 24 pcs. Ø25 / 170 mm, L = 10800 mm.
2. Zone: 2 x 6 pcs. Ø25 / 190 mm, L = 10800 mm.
3. Zone: 2 x 5 pcs. Ø25 / 245 mm, L = 10800 mm.
4. Zone: 2 x 4 pcs. Ø25 / 250 mm, L = 10800 mm.

Top reinforcement (numbers indicating bars in one direction):
1. Zone: 2 x 2 pcs. Ø25 / 250 mm, L = 3725 mm (at embedment).
2. Zone: 2 x 2 pcs. Ø25 / 250 mm, L = 3750 mm (at embedment).
3. Zone: 2 x 2 pcs. Ø25 / 250 mm, L = 3825 mm (at embedment).
4. Zone: 2 x 2 pcs. Ø25 / 250 mm, L = 3950 mm (at embedment).
5. Zone: 2 x 2 pcs. Ø25 / 250 mm, L = 4150 mm (at embedment).
6. Zone: 2 x 2 pcs. Ø25 / 250 mm, L = 4425 mm (at embedment).
7. Zone: 2 x 2 pcs. Ø25 / 250 mm, L = 4975 mm (at embedment).

Support for top reinforcement / shear locks:
Support with 2 pcs. Ø25 per 638 x 838mm min. 1200 mm²/m², see Supports/Shear reinforcement.
Height of supports acc. detail. Shear reinforcement must match the actual foundation height at the installation point.

Star reinforcement:
Star reinforcement through holes in the embedment.
Radial 60 pcs. Ø25 in tapered lengths, max distance between bars in embedment 250 mm.
See "List of total reinforcement needed", pos 4.
Tangential reinforcement: Ø25 / 250 mm.

Tolerances:
All non specified tolerances: +/- 10 mm

Remarks:
All dimensions are in mm.
The reinforcement is tied up per min. 500 mm.
The embedment is related to place the door in the right direction.
Anchorage length: Lb = 25 x Ø for bottom reinforcement and star reinforcement inside embedment.
Anchorage length: Lb = 36 x Ø for top reinforcement and star reinforcement outside embedment.
Top length: Ls = 1 x Lb.
Bending diameters: 7 x Ø for Ø >= 20 mm, 4 x Ø for Ø < 20 mm.
All overlap of bars shall be staggered.

Bonding- and overlap lengths, bending diameters:

Size	Bending	Overlap	Remark
Ø25	825	875	Bottom net, star reinforcement inside embedment
Ø25	900	1260	Top net, star reinforcement outside embedment
Ø20	500	700	Ring of U-bow, inside embedment
Ø20	720	1008	Ring of U-bow, outside embedment
Ø28		440	U-bow

List of total reinforcement needed:

Pos.	Remark
1	108 pcs Ø25 x 10800 Lower reinforcement net
2	60 pcs Ø25 x 10800 Upper reinforcement net
2.1	8 pcs Ø25 x 3725 Upper reinforcement net at embedment
2.2	8 pcs Ø25 x 3750 Upper reinforcement net at embedment
2.3	8 pcs Ø25 x 3825 Upper reinforcement net at embedment
2.4	8 pcs Ø25 x 3950 Upper reinforcement net at embedment
2.5	8 pcs Ø25 x 4150 Upper reinforcement net at embedment
2.6	8 pcs Ø25 x 4425 Upper reinforcement net at embedment
2.7	8 pcs Ø25 x 4975 Upper reinforcement net at embedment
3	60 pcs Ø28 x 5145 U-bows
4.1	30 pcs Ø25 x 2150 Star reinforcement, radial, upper
4.2	15 pcs Ø25 x 2350 Star reinforcement, radial, lower
4.3	8 pcs Ø25 x 2650 Star reinforcement, radial, lower
4.4	8 pcs Ø25 x 2800 Star reinforcement, radial, lower
5	2 pcs Ø18 x 7600 Ring at U-bow Ø 4236 with 2 overlap each 907.2
5.1	2 pcs Ø18 x 7100 Ring at U-bow Ø 3938 with 2 overlap each 907.2
5.2	2 pcs Ø18 x 6800 Ring at U-bow Ø 3814 with 2 overlap each 907.2
5.3	1 pcs Ø18 x 9400 Ring at U-bow Ø 2786 with 1 overlap each 630
5.4	1 pcs Ø18 x 9000 Ring at U-bow Ø 2662 with 1 overlap each 630
5.5	1 pcs Ø18 x 8100 Ring at U-bow Ø 2364 with 1 overlap each 630
6.1	2 pcs Ø25 x 6850 1. Outer ring, Ø 3529 with 2 overlap each 1260
6.2	2 pcs Ø25 x 7550 2. Outer ring, Ø 3987 with 2 overlap each 1260
6.3	2 pcs Ø25 x 8250 3. Outer ring, Ø 4445 with 2 overlap each 1260
6.4	2 pcs Ø25 x 9000 4. Outer ring, Ø 4904 with 2 overlap each 1260
6.5	2 pcs Ø25 x 9700 5. Outer ring, Ø 5362 with 2 overlap each 1260
6.6	2 pcs Ø25 x 10450 6. Outer ring, Ø 5820 with 2 overlap each 1260
6.11	1 pcs Ø25 x 10500 1. Inner ring, Ø 3050 with 1 overlap each 875
6.12	1 pcs Ø25 x 8900 2. Inner ring, Ø 2550 with 1 overlap each 875
6.13	1 pcs Ø25 x 7350 3. Inner ring, Ø 2050 with 1 overlap each 875
6.14	1 pcs Ø25 x 5750 4. Inner ring, Ø 1550 with 1 overlap each 875
7	96 pcs Ø25 x 1960 Edge reinforcement
8.1	44 pcs Ø25 x 2490 Support/shear reinforcement, H=919 mm, 1. Outer row
8.2	36 pcs Ø25 x 2520 Support/shear reinforcement, H=939 mm, 2. Outer row
8.3	28 pcs Ø25 x 2560 Support/shear reinforcement, H=958 mm, 3. Outer row
8.4	12 pcs Ø25 x 2350 Support/shear reinforcement, H=849 mm, 4. Outer row
8.c	20 pcs Ø25 x 2370 Support/shear reinforcement, H=860 mm, in and at embedment
9	32 pcs Ø25 x 2340 Support/shear reinforcement, hair pins

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