

V80-2.0MW, Tubular Tower, North Hoyle

History of this Document

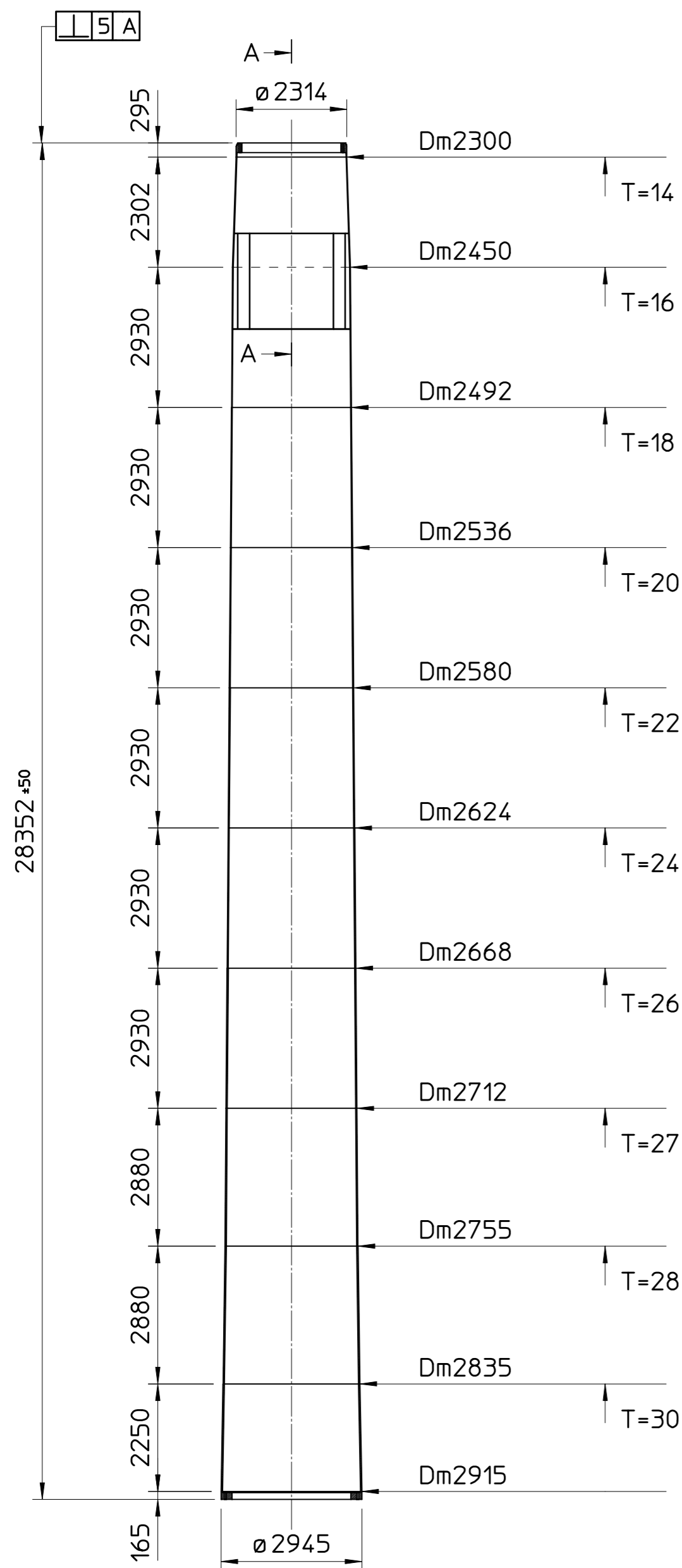
Changes in this document:

Rev. no.:	Date:	Description of change
0	2004-01-22	First edition

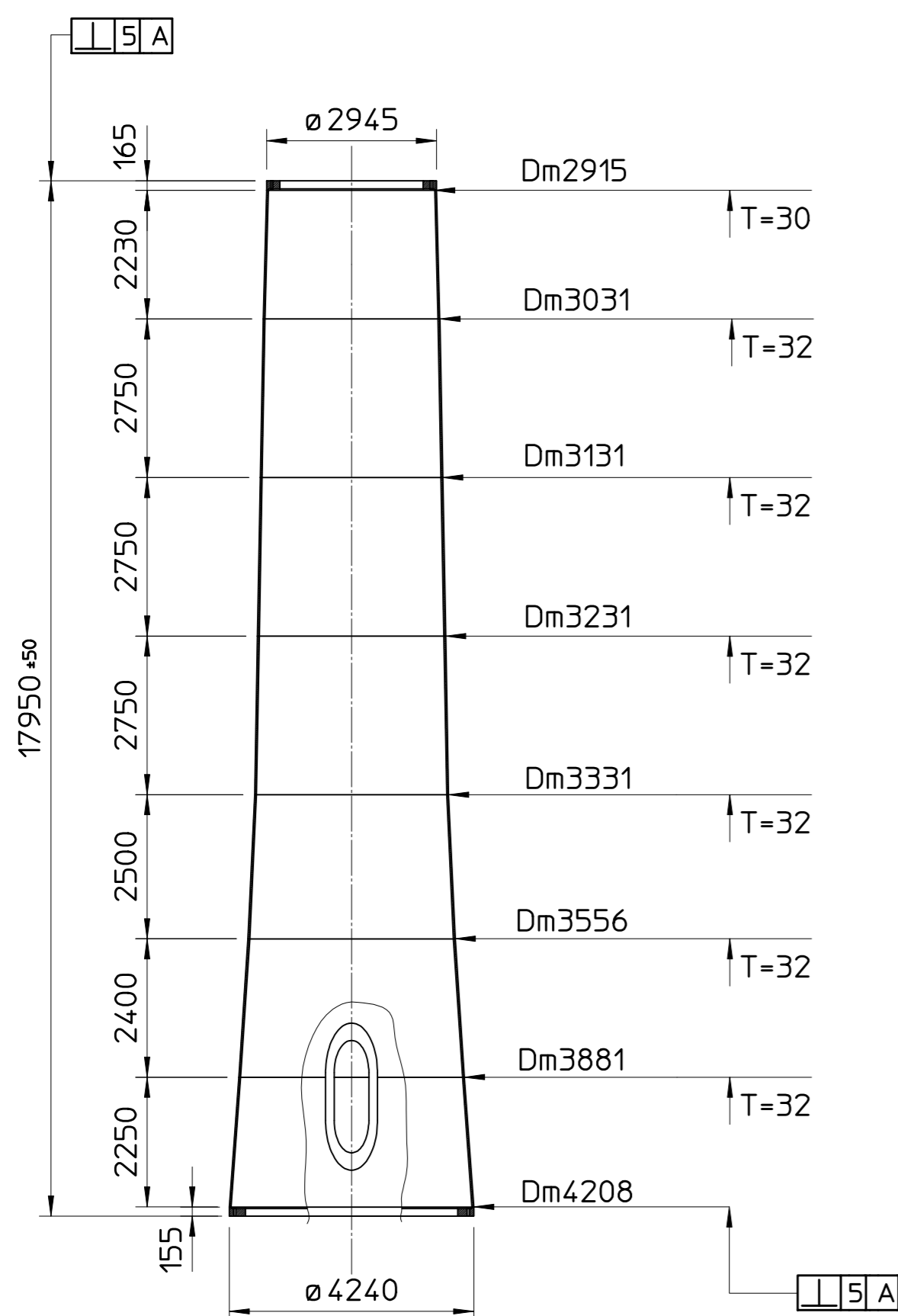
Manufacturer: VESTAS

1. Drawings

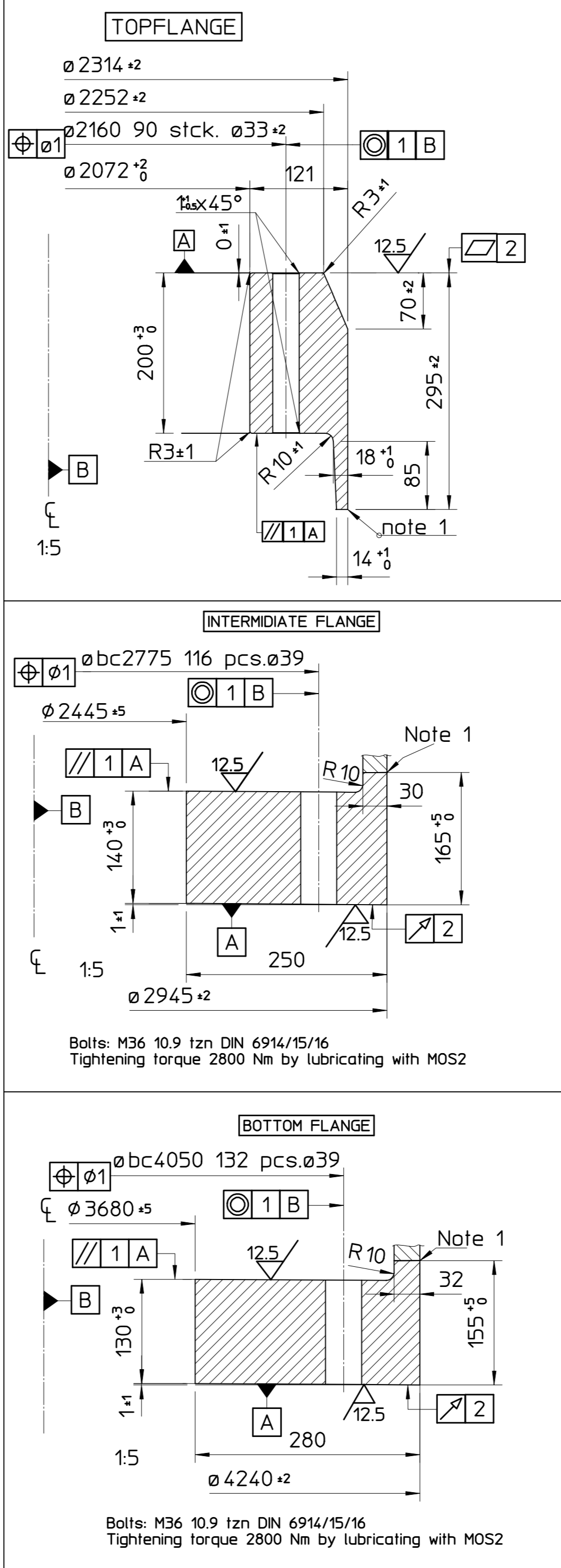
App. Drawing	Turbine type/Hub height/App.	Site Drawing/ Assembly Drawing
950926	V80 2.0 MW 48 m North Hoyle	
928041	Pendulum Length, North Hoyle	
928240	Arrangement Drawing North Hoyle	
	V80 2.0 MW North Hoyle Site	459000
	V80 2.0 NH Signal Site	459001



Topsection



Section 1



NOTES:
 (1): Oscillation damper. Length of pendulum in accordance with 928041
 1: All weldings between flanges, shells and frame must be full penetration butt welds and welded from both sides in horizontal position. Check of circular and longitudinal weldings and between shells and frame must be 100% complying with EN25817 level B.
 2: Welding on brackets and sand chamber a measure = 4. Check: 100% according to EN25817 level B.
 3: Flange in general: Purchasing specification no. 900791

SURFACE TREATMENT:
 Acc. to VESTAS purchasing specification no. 900786: C5M

IN GENERAL:
 See Quality guideline no. 990505
 All weldings to be controlled with relevant methods by EN 12062, the process depends on the welding preparation.
 All weldings to be controlled 100% visual

TOLERANCES
 Doorframe to be flame cut acc. EN/ISO 9013 - I
 Other flange cutting acc. to EN/ISO 9013 - II
 Tolerances for shell see ENV 1993-1-6 class B

Shell diameters are dimensioned to the centerline in the material.

Longitudinal weldings are staggered 180° and 90° by the door frame.

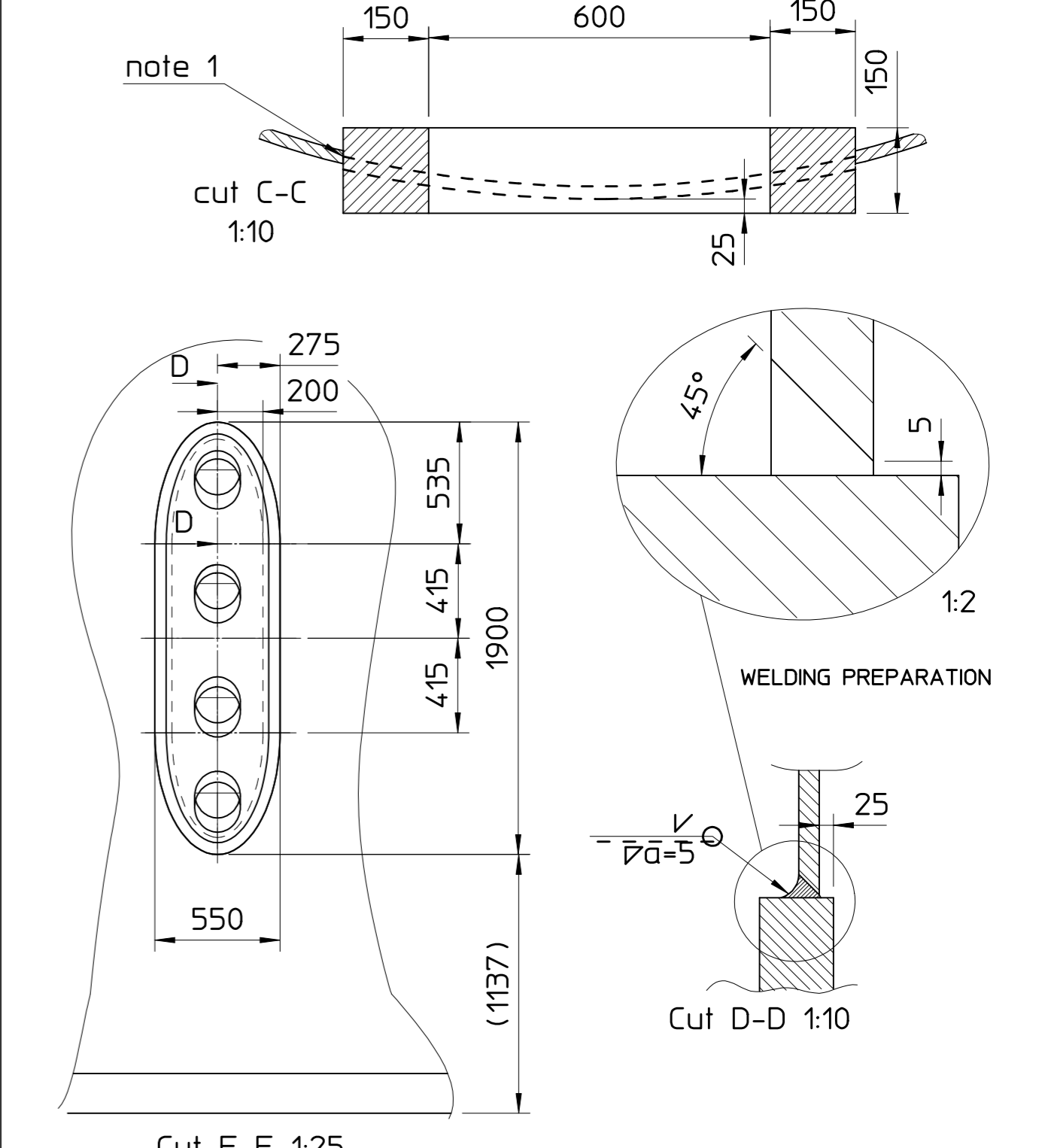
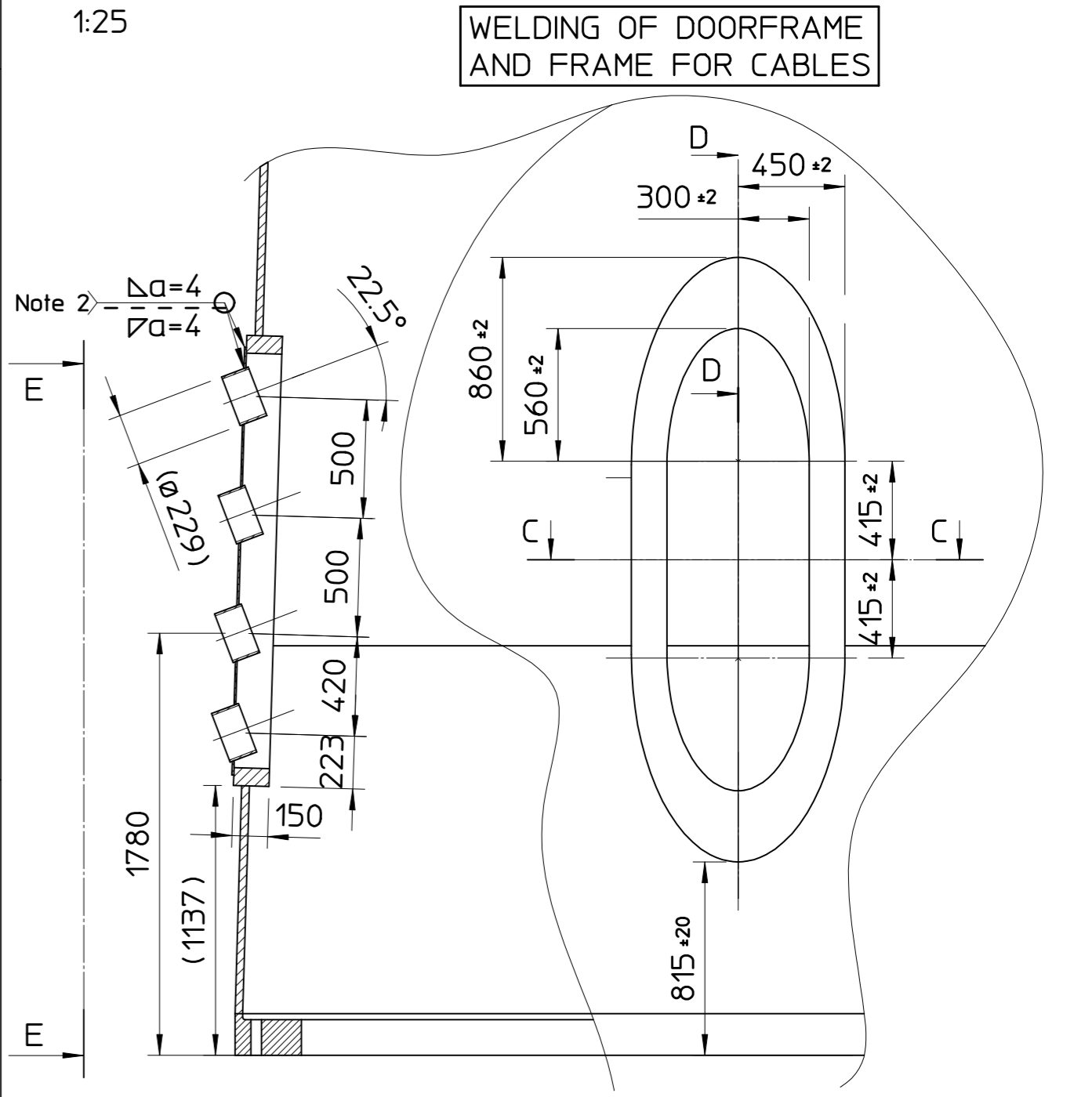
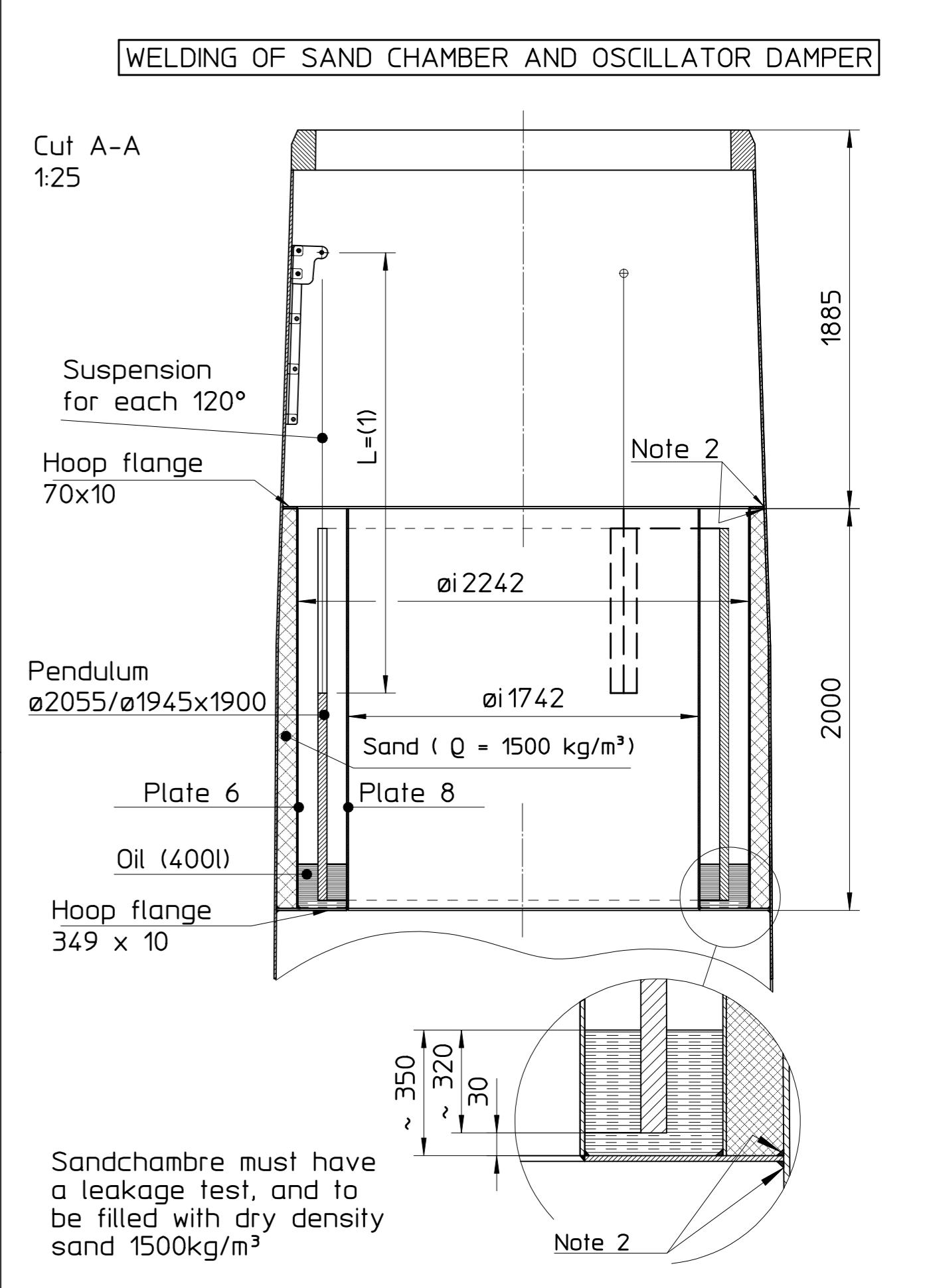
QUALITY OF MATERIALS:
 Flanges: S355 NL EN 10113-2 - 3.1B/EN 10204
 Upper yield strength ReH > 295 N/mm2
 tensile strength: Rm > 450 N/mm2
 Impact energy: 27 J (longitudinal test at -50°C)

Shell : T<30mm S355 J2G3 EN10025 - 3.1B/EN10204
 T≥30mm S355 NL EN10113-2 - 3.1B/EN10204

Frames: S235 J2G3 EN10025 - 3.1B/EN10204

Other materials: S235 JRG2 EN10025 - 2.2/EN10204

All measures without tolerances ±5



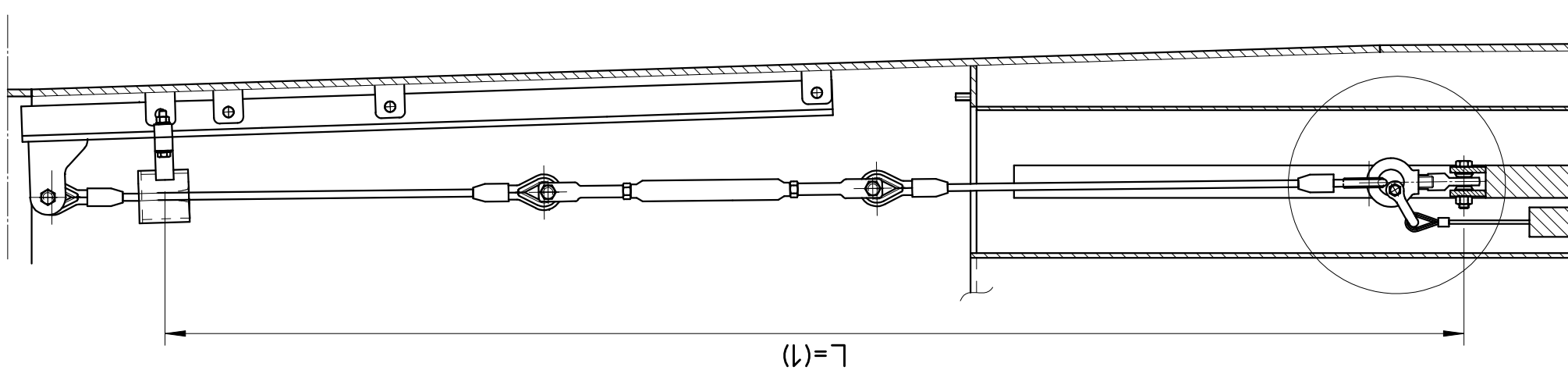
WELDING OF BRACKETS
 Principals of welded brackets for ladder, platforms, cables, lights, etc.


Min. 100 mm distance from other weldings to welding on of brackets.

Vestas		PROJ. VESTAS WIND SYSTEMS A/S SØND SØRENSEN VEJ 5, DK-4950 RINGKØBING Tlf. +45 96752375 - Fax +45 96752436	ITEM: V80-2.0MW 48M NORTH HOYLE
MATERIAL	FORMAT	DATE	REV
LAST REV. DATE	SIGN.	APPR.	MASS (kg)
30.09.02	CHM	GKY	
DATE	SIGN.	APPR.	DRAWING NO.
23.01.02	LBG	GKY	950926
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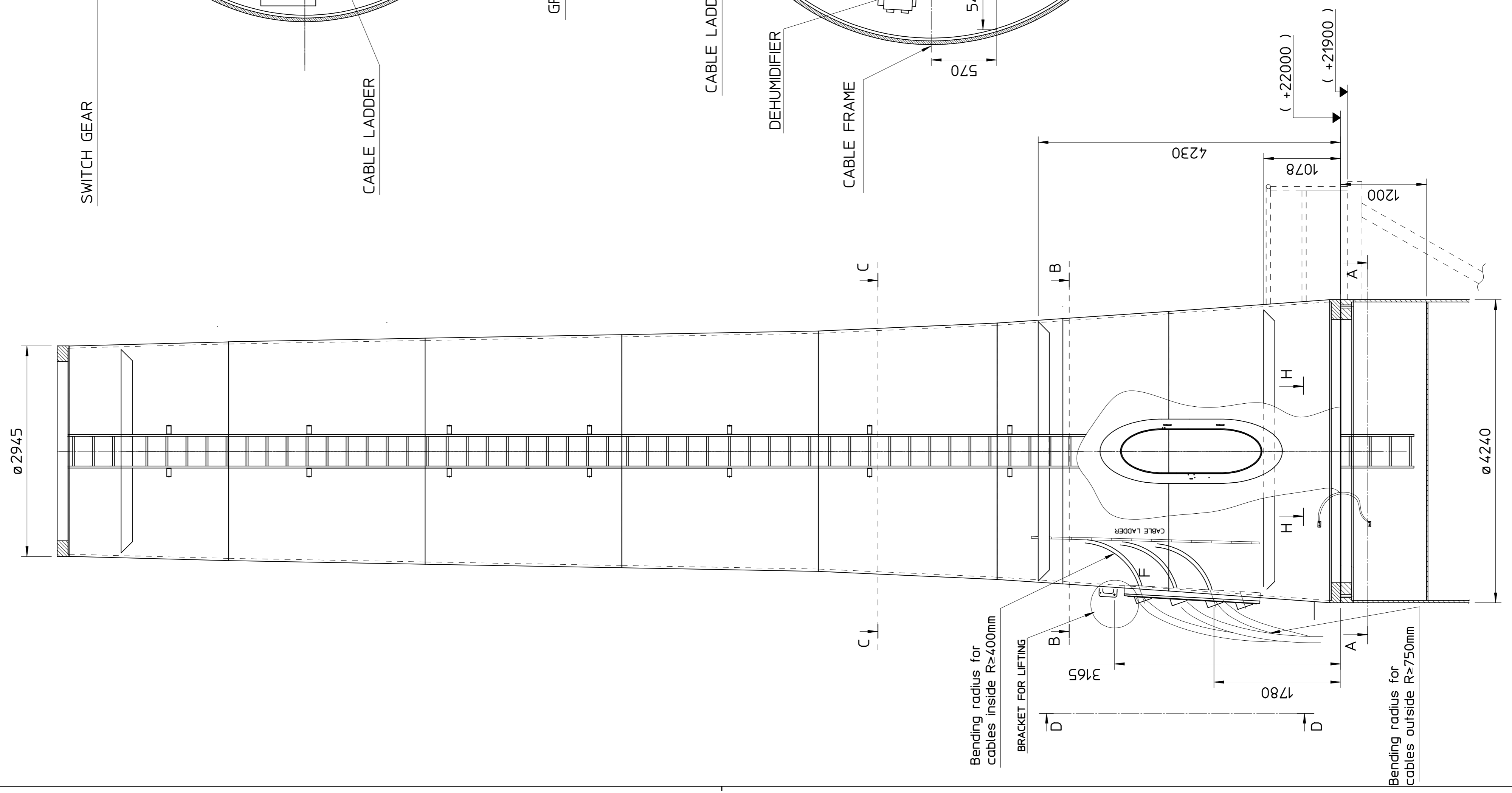
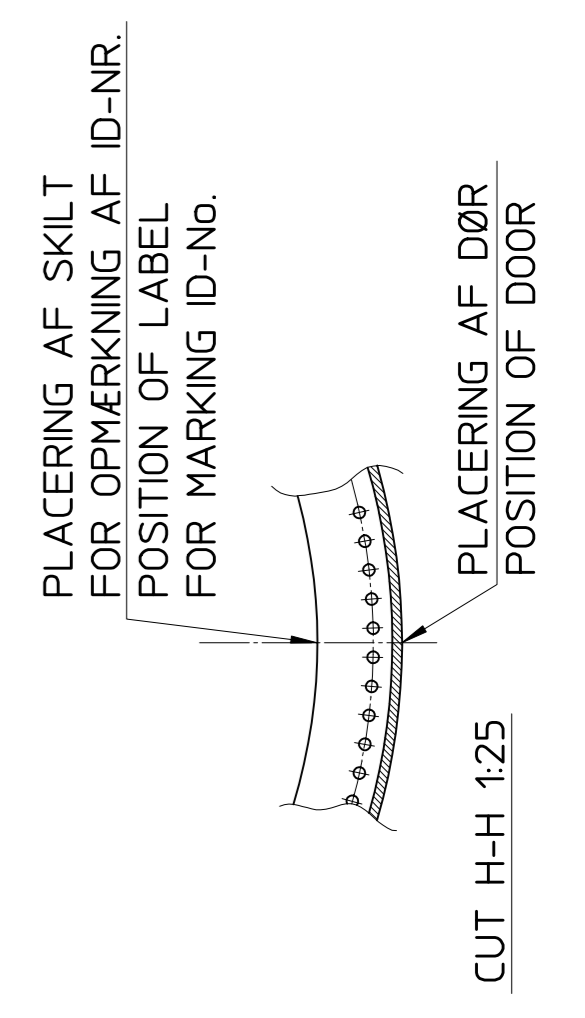
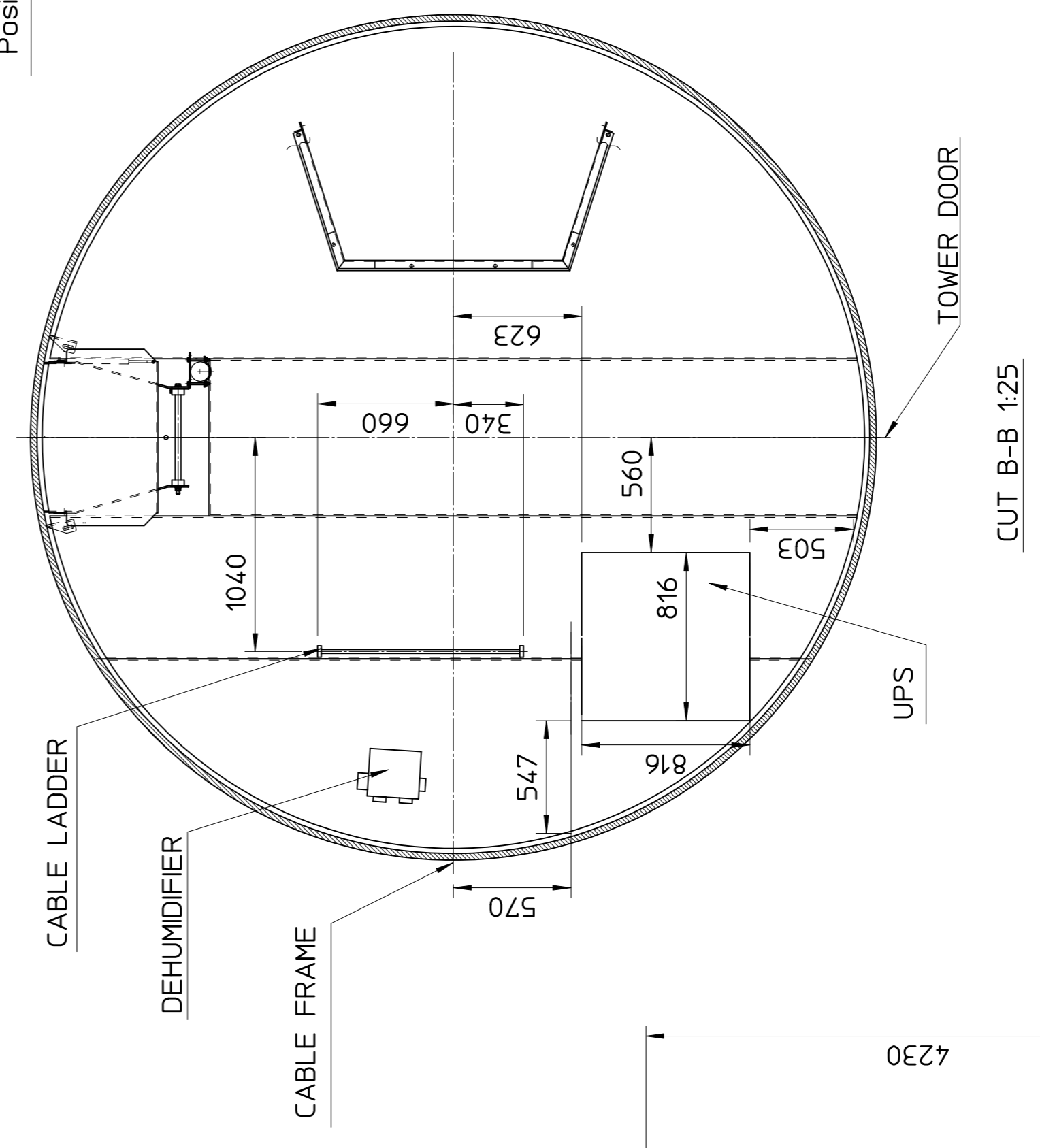
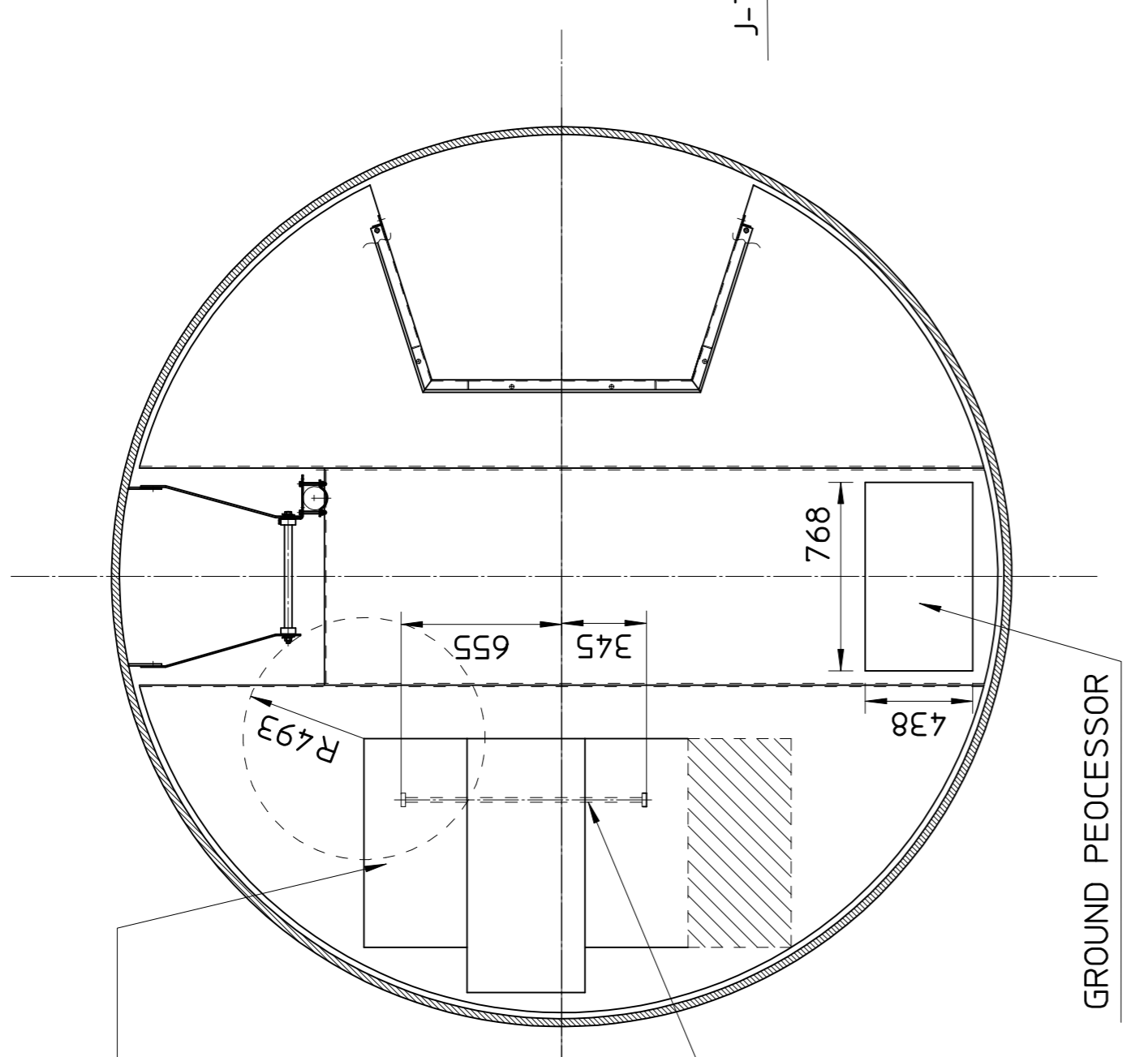
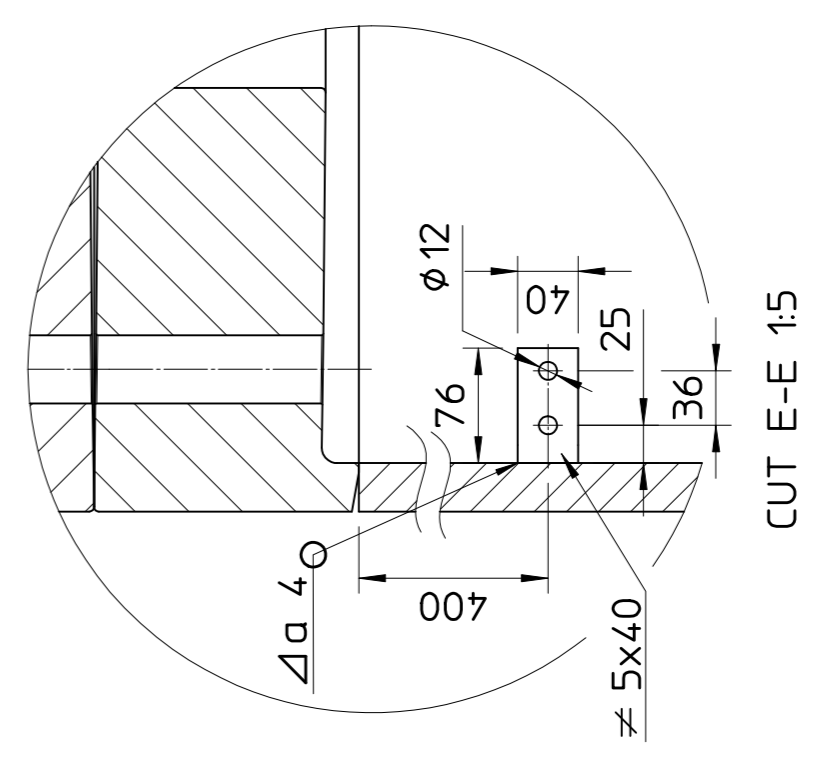
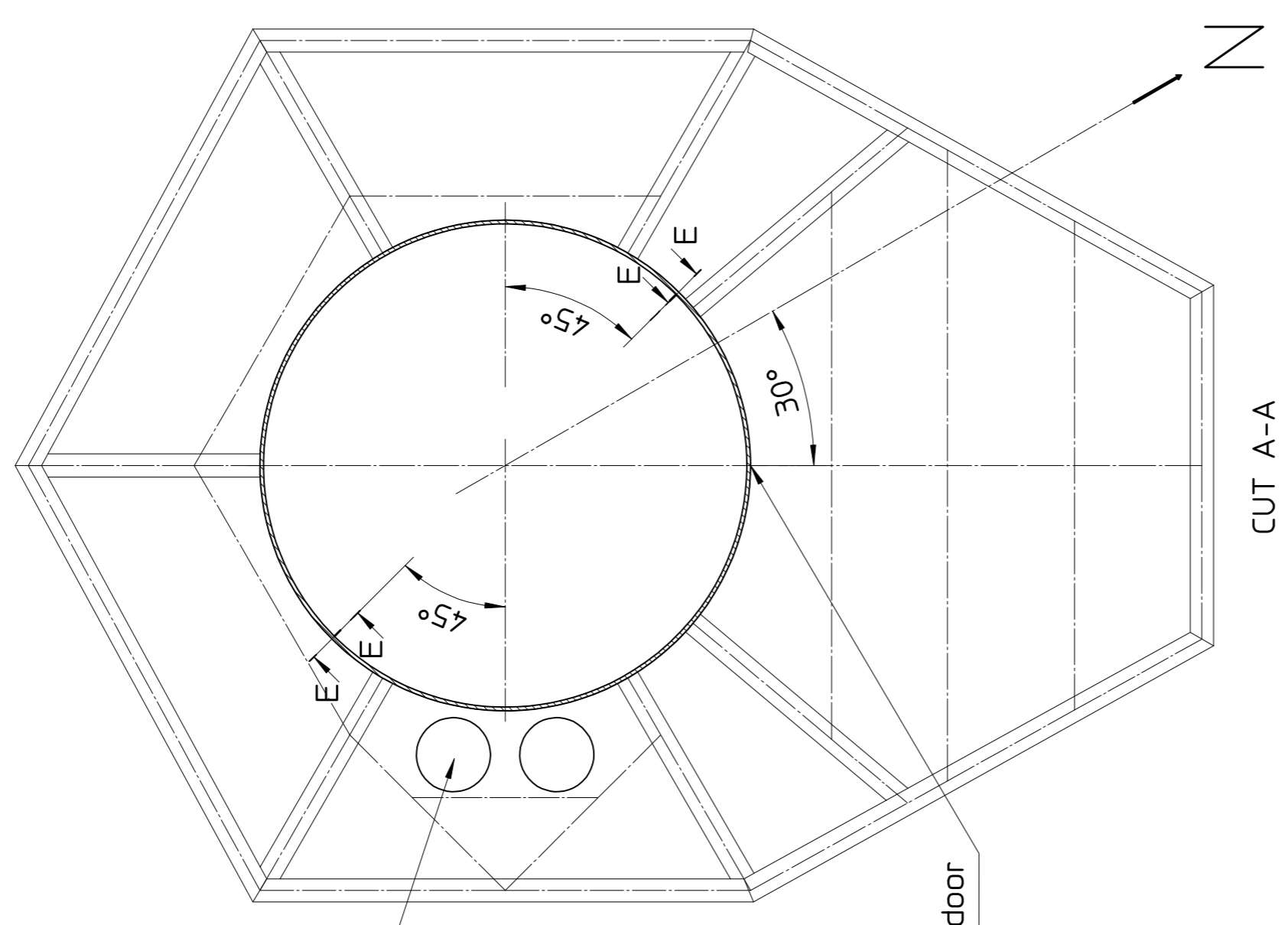
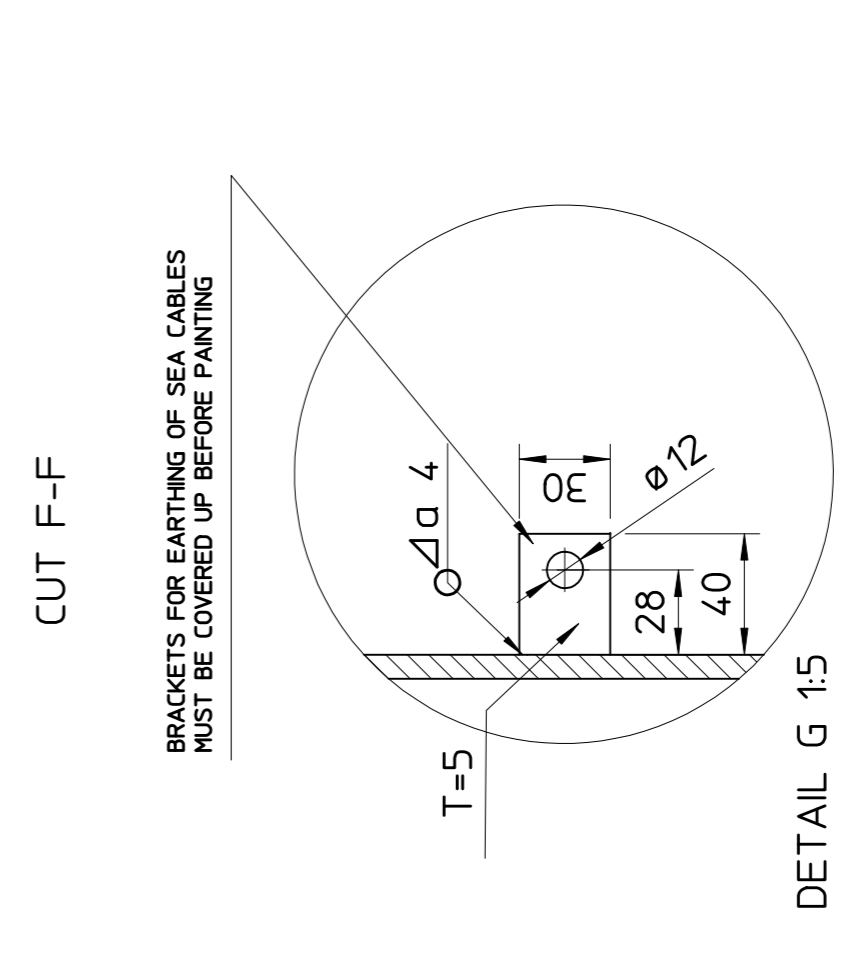
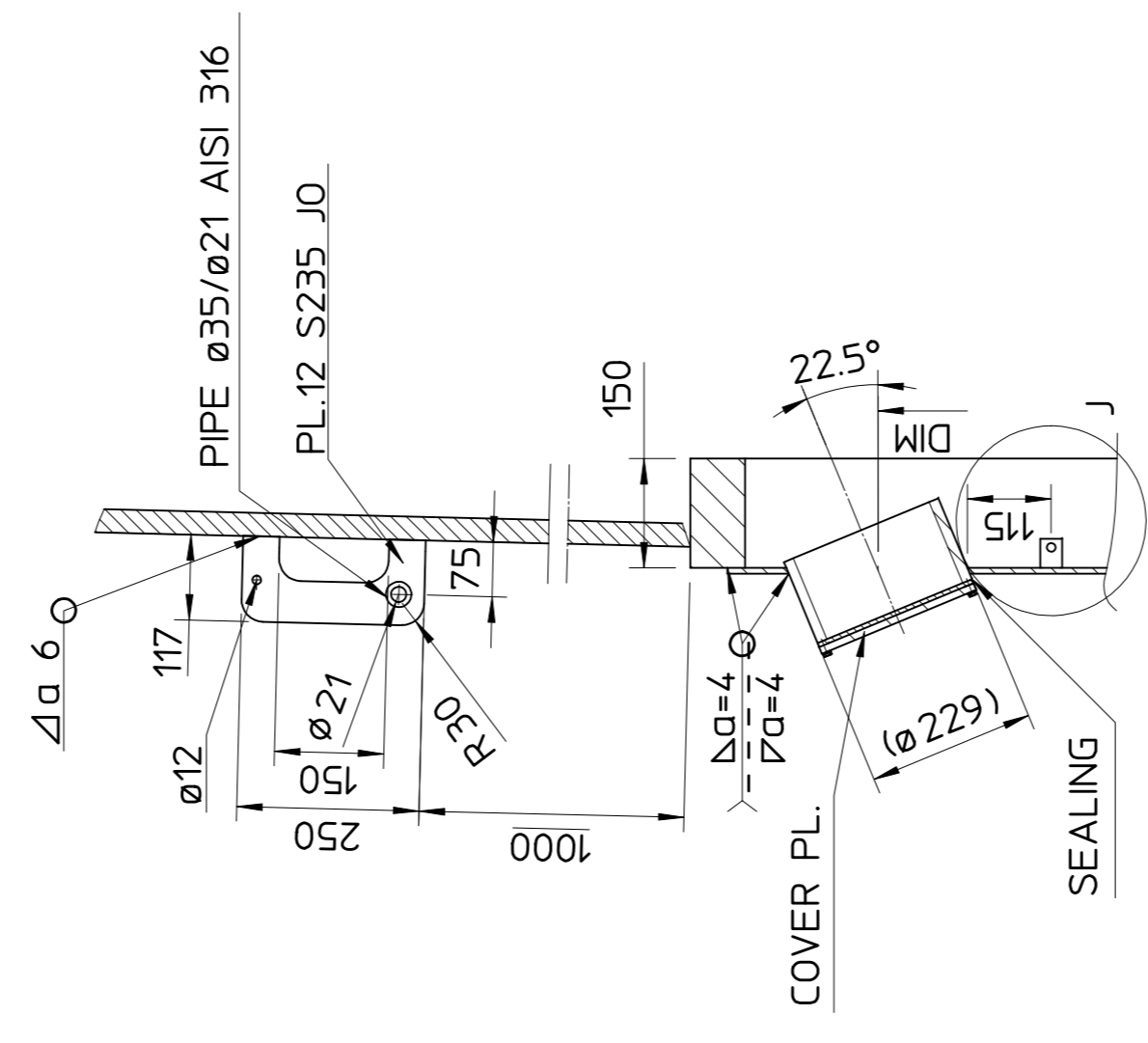
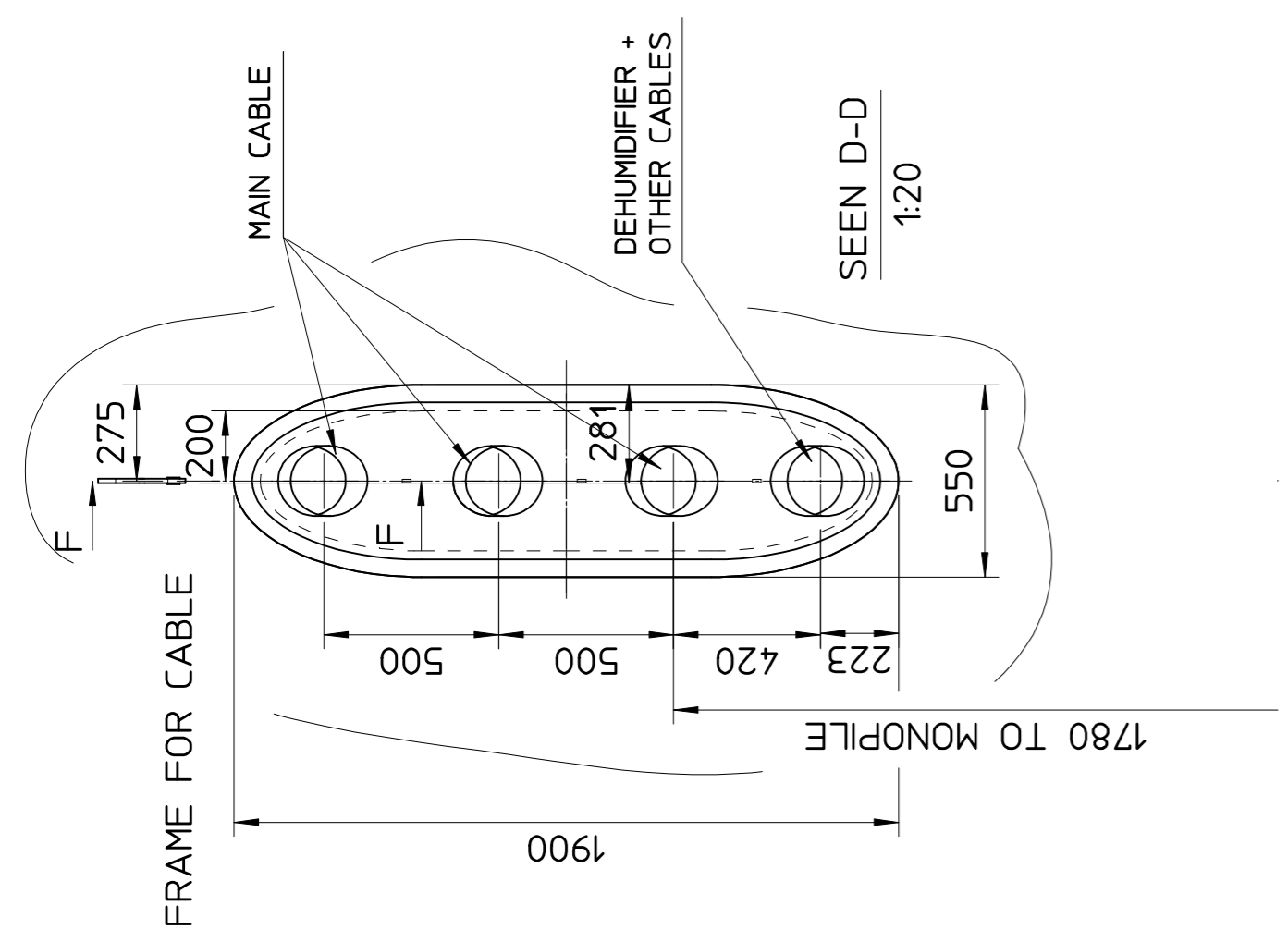
The length of the pendulum must be adjusted according to the scheme below

TURBINE No.	FREQUENCIES (Hz)	PENDULUM LENGTH (mm)
1	0.380	1840
2	0.380	1840
3	0.380	1840
4	0.380	1840
5	0.390	1710
6	0.380	1840
7	0.380	1840
8	0.380	1840
9	0.380	1840
10	0.380	1840
11	0.380	1840
12	0.380	1840
13	0.380	1840
14	0.370	1970
15	0.380	1840
16	0.380	1840
17	0.380	1840
18	0.380	1840
19	0.370	1970
20	0.370	1970
21	0.380	1840
22	0.380	1840
23	0.380	1840
24	0.360	2100
25	0.360	2100
26	0.380	1840
27	0.380	1840
28	0.380	1840
29	0.380	1840
30	0.370	1970



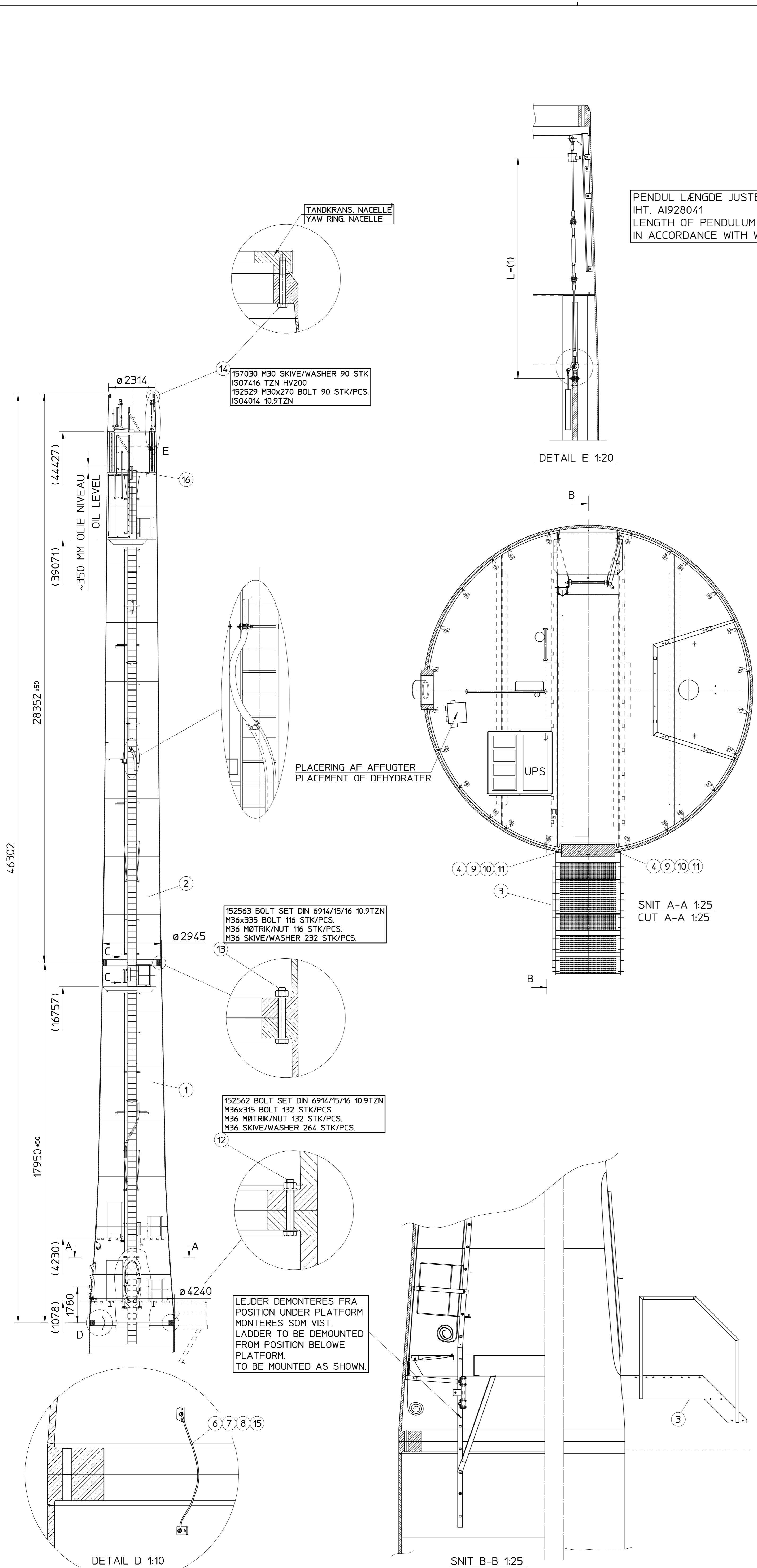
Vestas VESTAS WIND SYSTEMS A/S SMED SØRENSENS VEJ 5, DK-6950 RINGKØBING Tlf. +45 96752575 - Fax +45 96752436		PROJ.  EMNE	PENDULLÆNGDER NORTH HOYLE
MATERIAL		CAD / COMMENT ME10	
LAST REV. DATE 19.02.03		FORMAT A3	
SIGN. CHM		APPD. GKY	
DATE 30.09.02		SIGN. CHM	APPD. GKY
		SCALE 1:10	
		ITEM	PENDULUM LENGTH NORTH HOYLE
		DRAWING NO.	928041
		REV.	1

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		PROJ: ARRANGEMENTS/STEGNING CAD / COMMENT: NORTH HOYLE MATERIAL: ME10 ITEM: A1
DATE: 24.09.02 LAST REV. DATE: 03.10.02	DESIGNED: CHM DRAWN: GKY CHECKED: KRL APPROVED: GKY	SCALE: 1:40 MASS (kg): DRAWING NO: 928240 REV: 1

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TANDKRANS, NACELLE
YAW RING, NACELLE

14
157030 M30 SKIVE/WASHER 90 STK
ISO7416 TZN HV200
152529 M30x270 BOLT 90 STK/PCS.
ISO4014 10.9TZN

13
152563 BOLT SET DIN 6914/15/16 10.9TZN
M36x335 BOLT 116 STK/PCS.
M36 MØTRIK/NUT 116 STK/PCS.
M36 SKIVE/WASHER 232 STK/PCS.

12
152562 BOLT SET DIN 6914/15/16 10.9TZN
M36x315 BOLT 132 STK/PCS.
M36 MØTRIK/NUT 132 STK/PCS.
M36 SKIVE/WASHER 264 STK/PCS.

LEJDER DEMONTERES FRA
POSITION UNDER PLATFORM
MONTERES SOM VIST.
LADDER TO BE DEMOUNTED
FROM POSITION BELOW
PLATFORM.
TO BE MOUNTED AS SHOWN.

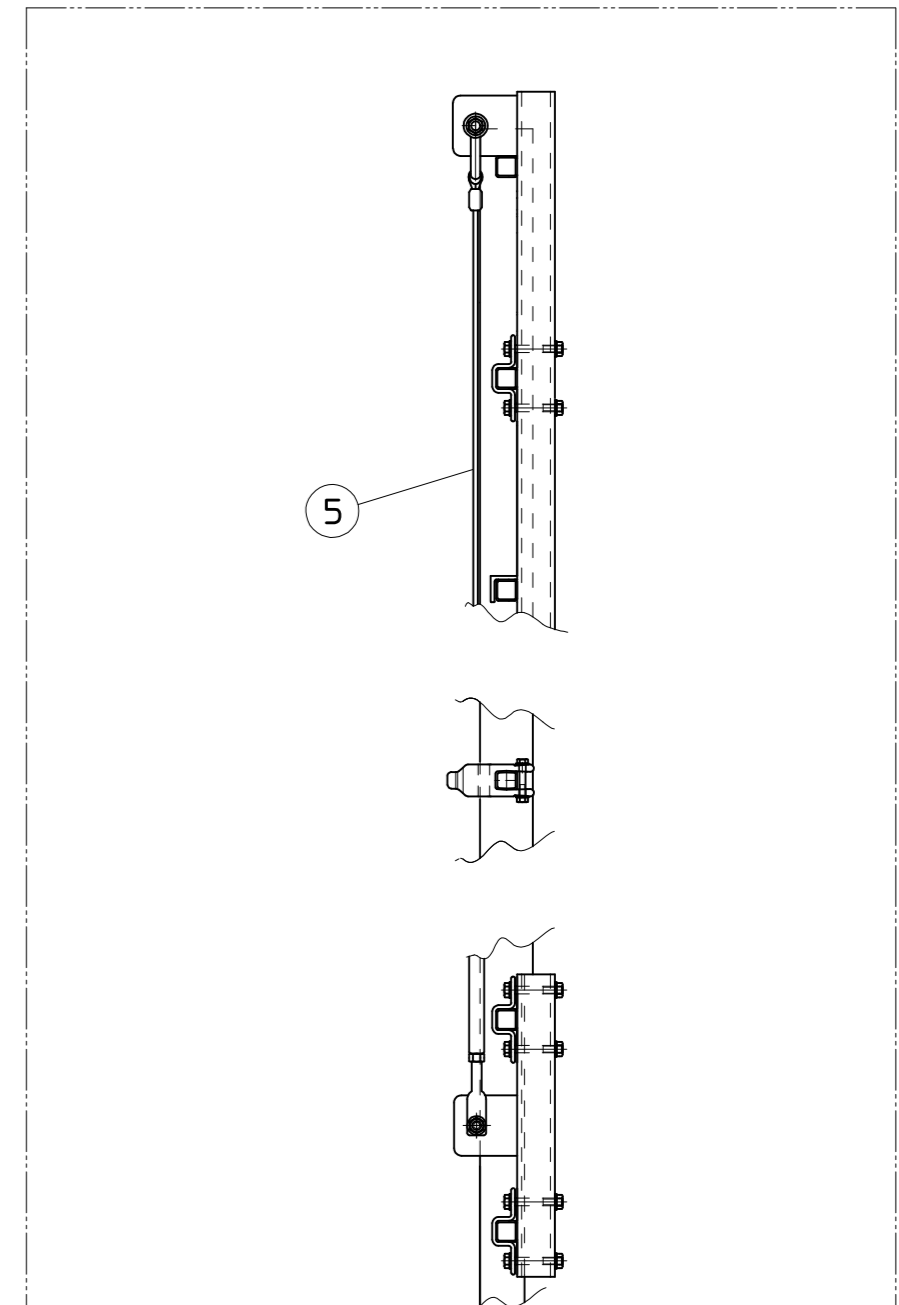
PENDUL LÆNGDE JUSTERES
IHT. A1928041
LENGTH OF PENDULUM
IN ACCORDANCE WITH W1928041

DETAIL E 1:20

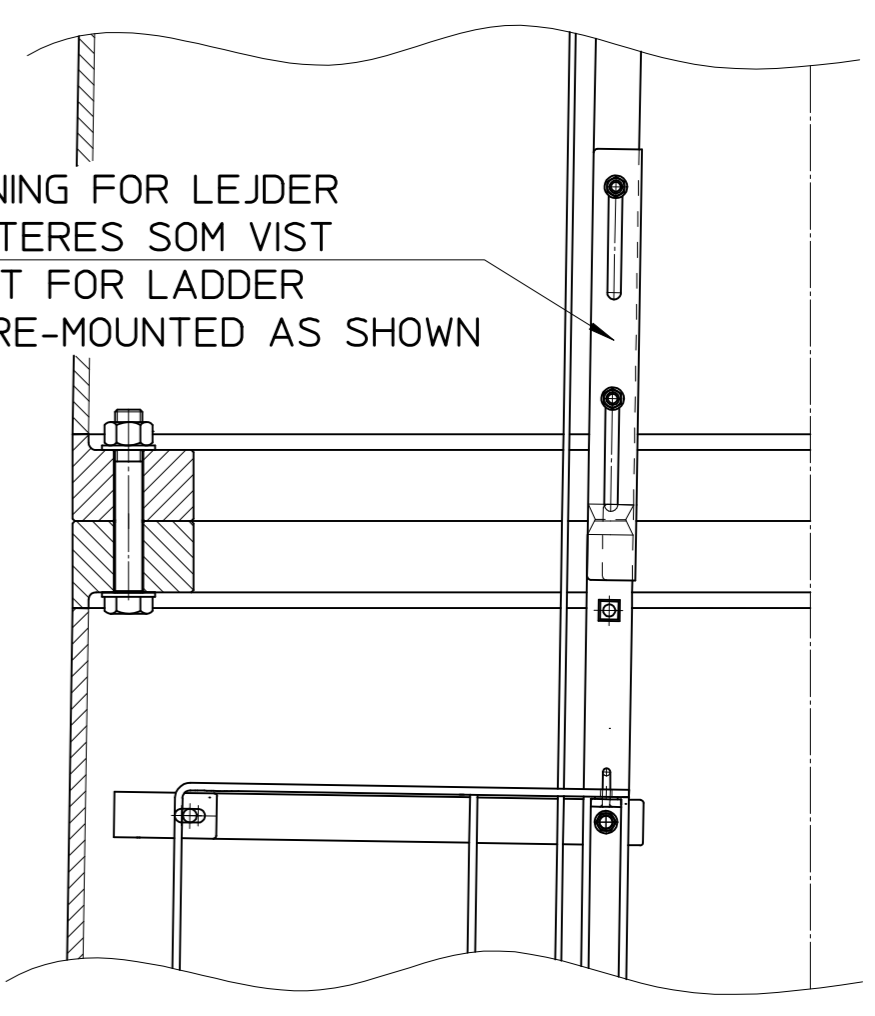
SNIT A-A 1:25
CUT A-A 1:25

SNIT B-B 1:25
CUT B-B 1:25

DETAIL D 1:10



FALDSIKRINGSWIRE MONTERES SOM VIST.
SERVICE WIRE AF-MONTERES I ALLE
SEKTIONER, EFTER MØLLEREJES.
SAFETY EQUIPMENT TO BE MOUNTED
AS SHOWN.
SERVICE-WIRE TO BE DE-MOUNTED
IN ALL SECTIONS, AFTER ERRECTING
TOWER.



AFSTIVNING FOR LEJDER
RE-MONTERES SOM VIST
SUPPORT FOR LADDER
TO BE RE-MOUNTED AS SHOWN

SNIT C-C 1:10
CUT C-C 1:10

POS. 17, 18, 19, 20 & 21 ER IKKE VIST PÅ TEGNING
POS. 17, 18, 19, 20 & 21 IS NOT SHOWN AT DRWG.

POS	QTY	TEXT	ITEM	MATR./CERT.	NETTO	BRUTTO
21	1	MARINEARMATUR 2 X 18W	193917	-	-	-
20	7	RØRKABEL SKO CABLE SHOE	094404	KRT 50MM2 ø10	-	-
19	7	KRYMPE FLEX L=40MM SHRINK FLEX L=40MM	094651	PO 160x0.7 SORT/BLACK	-	-
18	1	SPRAY CHESTERTON HEAVY DUTY RUST GUARD	149053	-	-	-
17	1	FUGELIM S40 HVID PATRON SEALING ADHESIVE S40 WHITE	149752	-	-	-
16	400	OIL FOR SVINGDAMPNER OIL FOR OSCILLDAMPNER	149116	WAY LUBRICANT X320	359	-
15	2	JORDKABEL 1x50 MM2 L=1200MM GROUND CABLE 1x50 MM2 L=1200MM	768402	-	0.4	-
14	1	FLBOLTE M30x270 V66/80 TOP 90/90 STK) FLBOLTS M30x270 V66/80 TOP 90/90 STK)	745972	ISO 4014/7416	108	-
13	1	FLBOLTE M36 x 335 (116 STK) FLBOLTS M36 x 335 (116 PCS)	745995	DIN 6914/15/16	822	-
12	1	FLBOLTE M36 x 315 (132 STK) FLBOLTS M36 x 315 (132 PCS)	745994	DIN 6914/15/16	873	-
11	7	M16 LÅSEMØTRIK M16 LOCK NUT	157729	DIN 980 FZV	-	-
10	14	M16 PLANSKIVE HV200 M16 WASHER, PLAIN HV200	157016	ISO7089 TZN	-	-
9	4	M16x70 6 KT.GEVIND SKRUE M16x70 HEX HD. SCREW	155142	ISO4017 8.8TZN	-	-
8	26	M10 LÅSEMØTRIK M10 LOCKNUT	157727	DIN 980 FZV	-	-
7	52	M10 PLANSKIVE HV200 M10 WASHER, PLAIN HV200	157010	ISO7089 TZN	-	-
6	11	M10x30 6 KT. GEVIND SKRUE M10x30 HEX HD. SCREW	153397	ISO4017 8.8TZN	-	-
5	1	FALDSIKRINGSWIRE L=39635 SAFETY EQUIPMENT L=39635	449541	GALV.	10.5	-
4	2	MELLEMLÆG TRINKONSOL RUBBER GASKET F.STEPS	736581	NEOPRENE	-	-
3	1	TRAPPEVANGE ALU KOMPLET STAIR ALU COMPLETE	449526	ALU	32	-
2	1	V80 2MW TOPSEK. NORTH HOYLE V80 2MW TOPSEC. NORTH HOYLE	459304	MALET/MONTERET PAINTED/MOUNTED	53942	TEGN/ DRWG.
1	1	V80 2MW SEK.1 NORTH HOYLE V80 2MW SEC.1 NORTH HOYLE	459300	MALET/MONTERET PAINTED/MOUNTED	55940	TEGN/ DRWG.

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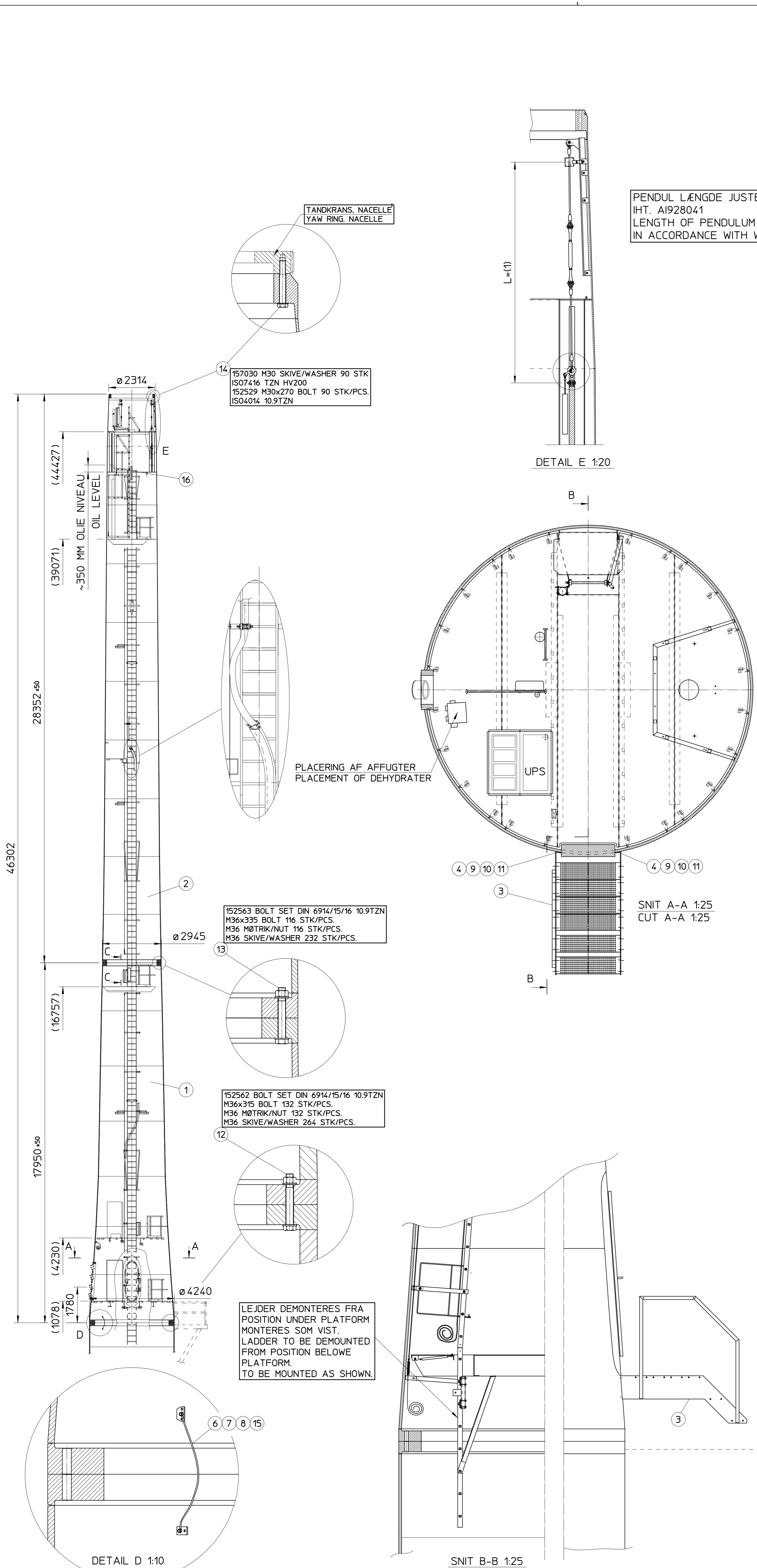
CAD / COMMENT
ME10

MATERIAL: **A1** ITEM: **V80 2.0MW NORTH HOYLE SITE**

LAST REV. DATE: **05.02.03** SKN: **CHM** APPD: **BO** MASS (kg): **112088** V80 2.0MW NORTH HOYLE SITE

DATE: **08.11.02** SKN: **CHM** APPD: **BO** SCALE: **1:100** DRAWING NO.: **459000** REV.: **2**

ALLE IKKE TOLERANCESATTE MÅL ±5
ALL DIMENSIONS WITHOUT TOLERANCES ±5



TANDKRANS, NACELLE
YAW RING, NACELLE

14 157030 M30 SKIVE/WASHER 90 STK
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ISO4014 10.9TZN

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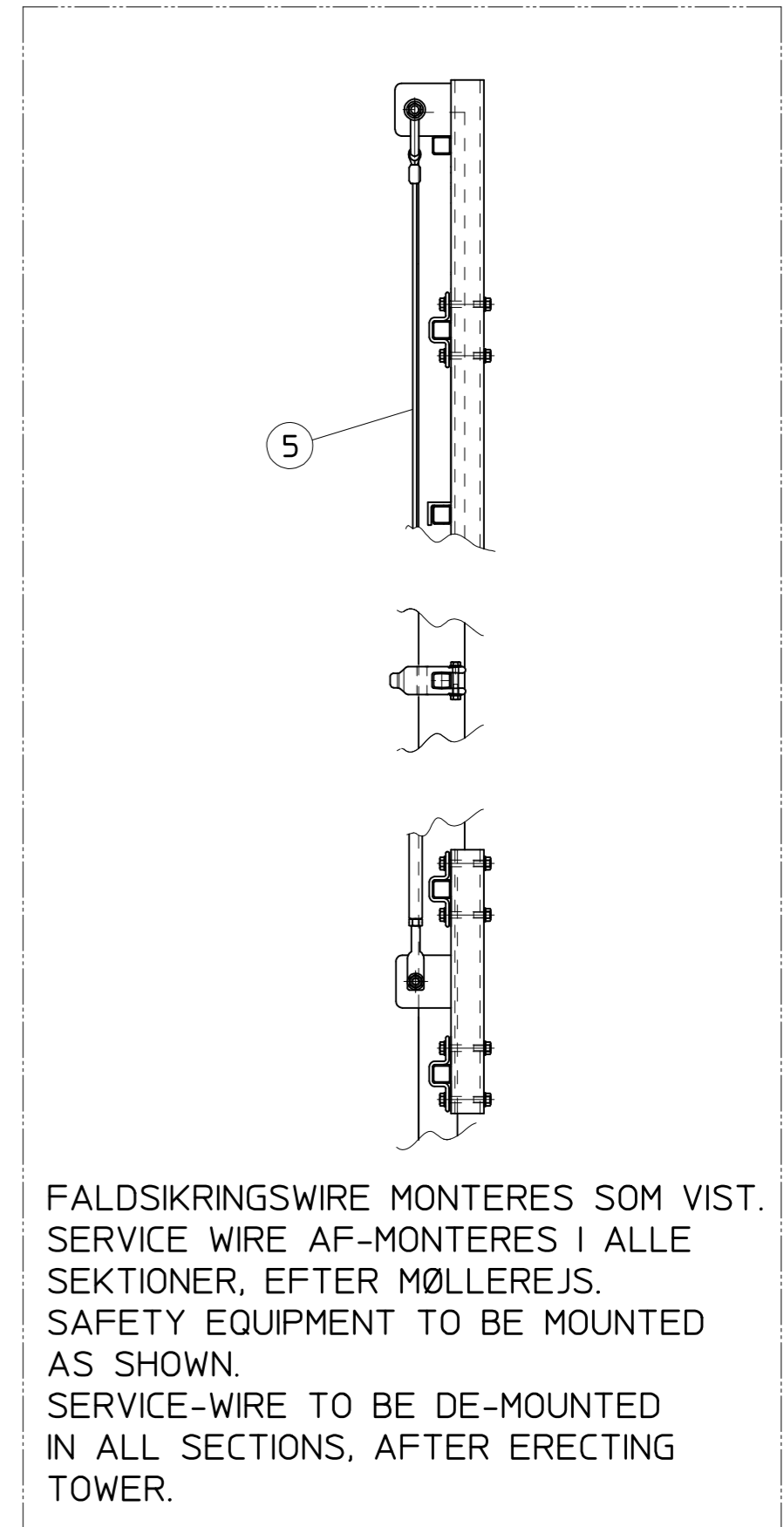
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PENDUL LÆNGDE JUSTERES
IHT. A1928041
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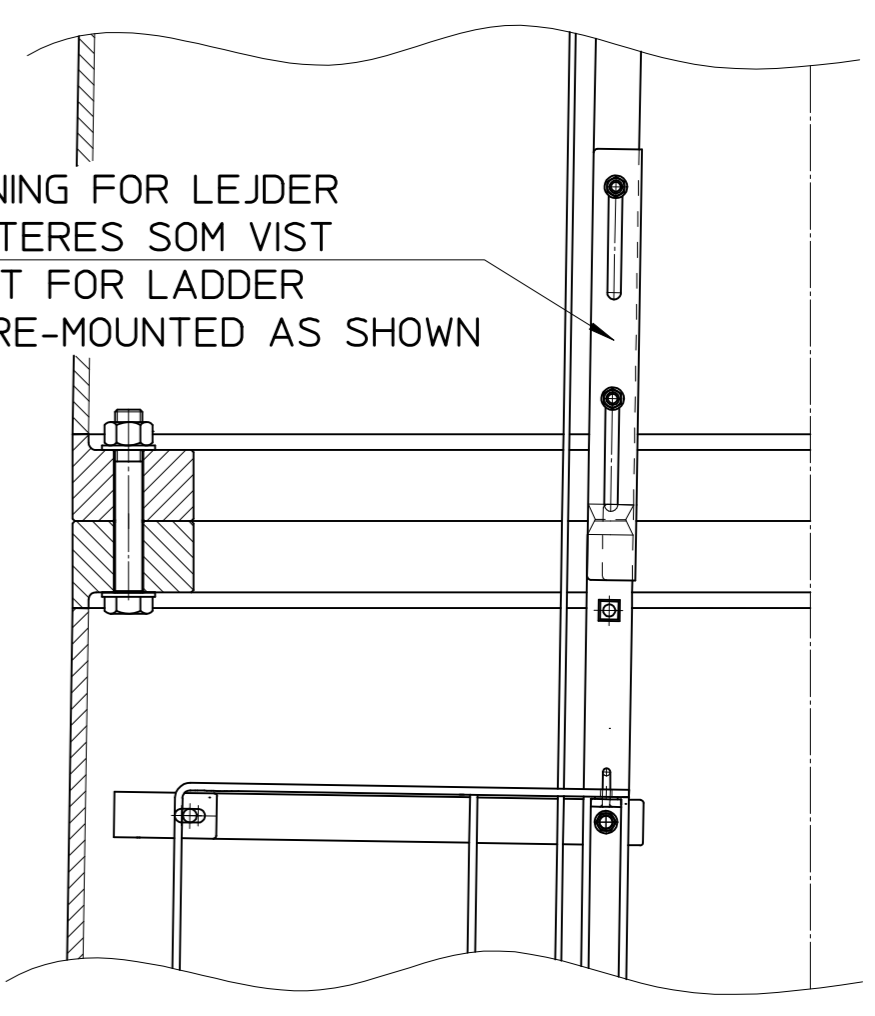
DETAIL E 1:20

SNIT A-A 1:25
CUT A-A 1:25

SNIT B-B 1:25
CUT B-B 1:25



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RE-MONTERES SOM VIST
SUPPORT FOR LADDER
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15	2	JORDKABEL 1x50 MM2 L=1200MM GROUND CABLE 1x50 MM2 L=1200MM	768402	-	0.4	-
14	1	FLBOLTE M30x270 V66/80 TOP 90/90 STK FLBOLTS M30x270 V66/80 TOP 90/90 STK	745972	ISO 4014/7416	108	-
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11	7	M16 LÅSEMØTRIK M16 LOCK NUT	157729	DIN 980 FZV	-	-
10	14	M16 PLANSKIVE HV200 M16 WASHER, PLAIN HV200	157016	ISO7089 TZN	-	-
9	4	M16x70 6 KT.GEVIND SKRUE M16x70 HEX HD. SCREW	155142	ISO4017 8.8TZN	-	-
8	26	M10 LÅSEMØTRIK M10 LOCKNUT	157727	DIN 980 FZV	-	-
7	52	M10 PLANSKIVE HV200 M10 WASHER, PLAIN HV200	157010	ISO7089 TZN	-	-
6	11	M10x30 6 KT. GEVIND SKRUE M10x30 HEX HD. SCREW	153397	ISO4017 8.8TZN	-	-
5	1	FALDSIKRINGSWIRE L=39635 SAFETY EQUIPMENT L=39635	449541	GALV.	10.5	-
4	2	MELLEMLÆG TRINKONSOL RUBBER GASKET F.STEPS	736581	NEOPRENE	-	-
3	1	TRAPPEVANGE ALU. KOMPLET STRING ALU. COMPLETE	449526	ALU	32	-
2	1	V80 2MW TOPSEC. NORTH HOYLE V80 2MW TOPSEC. NORTH HOYLE	459304	MALET/MONTERET PAINTED/MOUNTED	53942	TEGN/ DRWG.
1	1	V80 2MW SEK.1 NH SIGNAL V80 2MW SEC.1 NH SIGNAL	459301	MALET/MONTERET PAINTED/MOUNTED	56520	TEGN/ DRWG.

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CAD / COMMENT
ME10

MATERIAL
FORMAT
A1

LAST REV. DATE
05.02.03 SKN. CHM APPD. BO MASS (kg)
112668

DATE
08.11.02 SKN. CHM APPD. BO SCALE
1:100 DRAWING NO.
459001 REV.
2

ITEM
V80 2.0MW NH SIGNAL SITE

ITEM
V80 2.0MW NH SIGNAL SITE

ALLE IKKE TOLERANCESATTE MÅL ±5
ALL DIMENSIONS WITHOUT TOLERANCES ±5

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