COMUNICATION

Type Universal tower - type S7

ELV
JARLSO

UTILISATION AREA:

-Antenna tower for telecomunication and repetition in a mobile telephone network
-Lightening tower

ENVIRONMENTAL IMPACT

The tower` slim rounded surface make it visually unobtrusive. A painted version of the tower can also be delivered.

TRANSPORT

To reduce volume the sections can be packed telescopically. They can be transported on their side in two layers. All loose equipment, such as the ladders and the ladder fixtures, must be placed inside sections. Supplementary equipment should be placed on a Euro bench.

MOUNTING

Very easy to mount with a helicopter ar a mobile crane. Either parts of the tower, or the whole tower including all its equipment, can be assembled on the ground before it is erected. When assembling horizontally, thew tower must be supported at a sufficient number of points on level ground, and with all its bolts kept loose until all its parts have been assembled. The lifting slings are to be attached 1/3 from the top.

GENERAL OUTLINE

A medium range universal tower reaching a maximum height of 35m. The tower` slim line design makes for a very small top– tapering from a slightly wider base section—for which only a small foundation is necessary.

DESIGN

Welded standard square 5m galvanized sections, including an inside ladder. Round steel in the main legs, diagonals and ladder. The sections connect with the use of flanges and high tensile, quality 8.8 bolts. Fixed welded inside ladder in sections 1 to 4. Bolted loose ladder in section 5 to 7.

EQUIPMENT

The tower is delivered with a number of pieces of standard extra equipment. Such as, revolving cross arms for up to 8 headlights, a rest and work platform, cable rail brackets, an anti-climb device, equipment locker brackets, and anti-fall equipment, such as lines,lines,rails,gliders and belts.

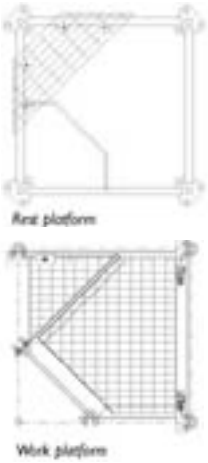
QA-DOCUMENTATION

Documentation which responds to the specific needs and wishes of the customer, can be provided such as calculations of strength, and documentation concerning materials, welding and hot-dip galvanizing.

ELV Jarlso As, Åslyveien 15, 3170 Sem, Tlf.: +47 33 01 54 54, Mail: elvjarlso@elvjarlso.no, http//www.elvjarlso.no

FOUNDATION

See separate data sheet for standard rock and soil foundation. Foundations can be specifically designed to suit particular circumstances.



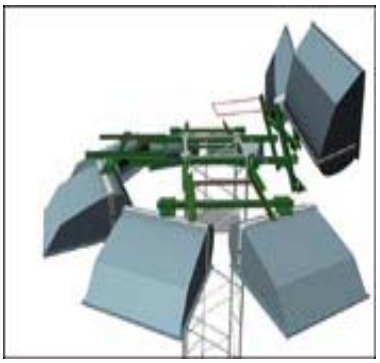
The tower can be equipped with rest platforms at openly selected intervals and work platforms in connection with antennas or light armatures.

SPECIAL EQUIPMENT/DESIGN

In accordance with a customer`specification, a special design for the tower and the equipment can be provided at an agreed price.

«**PRODUCT SUMMARY**»

- **Easy Construction**
- **Visually unobtrusive**
- **Easily transported and mounted**
- **A product in a series of universal tower with standard equipment**
- **A wide range of utilisation areas**



S7 towers can be equipped with cross arms on which light armatures can be fastened in a large number of different configurations and combinations. The picture left shows rwvolving cross arms for an arrangement with 8 armatures, in which 2 armatures can be swung up for maintenance.

Universal locker brackets are delivered for mounting of all types of lockers.

Anti-climb device with lockable access door in impregnated wood.

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MATERIAL:

Steel quality:…….NS-EN 10025-93
Steel grade:……...S 355 J0+N(main structure)
Steel grade:……...S 235 JR G2(for accessories)
Bolts and nuts:……..ISO 898-1/2 quality 8.8
Foundarion bolts:….Thread bars, quality 8.8

HOT DIP GALVANIZING:

According to ISO 1461. If specified by the customer the S7 tower can be galvanized according to other international standards.

LOAD CAPASITY:

The table below shows the equivalent top area capacity as designed according to Eurocode 3 and the wind load according to NS 3479 / NS 3479-Al. The equivalent top Area(AC) is the total calculated area including all the equipment—sich as cables and antennas—multiplied by its own shape factor(C_f) multiplied by the ratio of the height of the equipment(H_{ant}) divided by the total height of the tower(H_{tot}). See calculation example below.

CALCULATION EXAMPLE:

A S7 30-5(25m) tower with 3 pcs. Sector antennas (1250x220x50)mm at a 24m level fixed with 2 pcs. RHS profile 70mm with a length of 2200mm + 3 pcs. Cables of 28mm. Wind load according to 26 m/s.

Equivalent top area:

Antennas AC=$A*C_f*H_{tower} / H_{tot}$…..= ((1,25x0,22)*1,4*24/25)*3 = 1.11 m^2
70mm HUP Profile AC=……..=((0,07x2,2)*2,0*23,5/25)*2 = 0,28m^2
Cables 3 of 28mm AC=……....=((0,028*25)*1,2*12,5/25)*3 = 1,26m^2
Total AC on top ……..= 2,95m^2

The table below shows that the allowable top AC is 3,94m^2, which is greater than calculated. The tower has adequate capacity. If specific requirements need to be met, such as for twist and sway, dynamic loads etc., design calculations can be done on request.

TABLE FOR S7:			**C x A (m^2)**					**Deflection**
Tower	Height (m)	Sections	22m/s	24m/s	26m/s	28m/s	30m/s	Max.Deg.
S7 35	35m	1-7	2,38	1,96	1,63	1,37	1,16	.0,73
S7 35-5	30m	2-7	5,37	4,46	3,76	3,21	2,64	.0,66
S7 30	30m	1-6	2,48	2,04	1,70	1,43	1,21	.0,64
S7 30-5	25m	2-6	5,61	4,67	3,94	3,36	2,87	.0,59
S7 25	25m	1-5	2,60	2,14	1,79	1,51	1,28	.0,57
S7 25-5	20m	2-5	5,94	4,95	4,17	3,56	3,07	.0,50
S7 20	20m	1-4	2,76	2,28	1,90	1,61	1,37	.0,45
S7 20-5	15m	2-4	6,40	5,34	4,51	3,85	3,32	.0,39
S7 15	15m	1-3	2,99	2,47	2,07	1,75	1,49	.0,33
S7 15-5	10m	2-3	7,16	5,97	5,05	4,32	3,73	.0,26

Designed acc. To Norwegian Standard NS 3491-4, Wind Load
The tower is placed in terrain category 2, Flat Field
Sway is designed with 70% of full wind velocity

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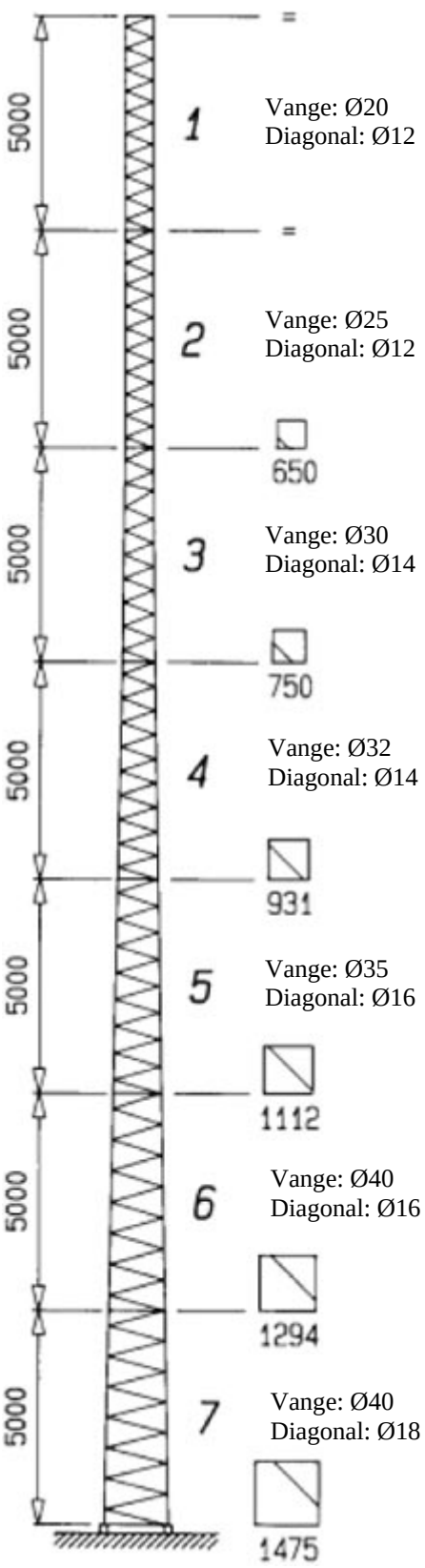
WEIGHT TABLE.	
SECTION 1	165 KG
SECTION 2	177 KG
SECTION 3	282 KG
SECTION 4	298 KG
SECTION 5	370 KG
SECTION 6	431 KG
SECTION 7	490 KG



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