

Avalanche Tower LS12-5



Safety through **innovation**

WYSSSEN *avalanche*
switzerland **control**

Set up and function



The Wyssen avalanche tower is designed to trigger avalanches prophylactically with remote-controlled blasting.

To trigger an avalanche, a coded command is sent from the control centre WAC.3 to the control system of the deployment box to initiate the blasting. The deployment box contains 12 prepared explosive charges, which can be individually deployed by remote control. When the explosive charge is dropped, two igniters are pulled and the explosion is set off after a time delay. The charge remains hanging from a cord at a pre-set height above the snow cover, which is completely dropped after blasting. To reload explosive charges the complete deployment box is lifted from the tower by helicopter and brought to a station building or warehouse respectively.



Effectiveness

The greatest degree of success for controlled release of avalanches is achieved by a remote-controlled detonation of an efficient explosive at the right time and in the right place.

From the operator's point of view, a blasting installation must be extremely reliable and effective as well as being simple to operate and maintain. The installation in the terrain must be as simple as possible and the interference of the installation must have a low impact on this sensitive environment. The Wyssen avalanche tower fulfils these requirements ideally.

Smallest residual risk thanks to the largest effective range

- Blasting above the snow with bigger charges (5kg/11 lbs) gives the maximum effective range up to 260m in Ø (850 ft in Ø)
- Explosives with high detonation speeds produce N-shaped pressure waves which has been proven to lead to the best release effect, particularly at a greater distance from the detonation point
- The possibility of positioning the installation in higher locations in addition to suspending the charge higher enables the effect to be reached in locations of pressure shadow (in couloirs, behind terrain ribs)
- Release of smallest quantities of snow possible, thanks to the greatest effectiveness
- Very good stability test for assessment of the local avalanche danger

Highest reliability

- No critical or moving parts are exposed to the weather, thanks to its intelligent concept
- The solar power supply or wind generator avoids the necessity of vulnerable supply lines in the terrain

Reduced closure times thanks to rapid release, around the clock and in all weathers

- Remote-controlled installations allow operation around the clock
- Very rapid operation possible
- Closure times are reduced in the rule to a maximum of 30 min.
- Clearing away avalanche snow is usually dispensed with, since the avalanche run-outs are short due to the release of smaller portions

Highest cost-effectiveness

- Low investment and operating cost in comparison with permanent constructional protective measures
- Lowest operational costs thanks to its ingenious system concept
- Damage to the infrastructure is avoided by the release of smaller portions
- Economic benefits thanks to reduced closure times

Highest degree of safety for the operating staff

- No staff in the danger area thanks to remote-controlled release
- preparation of the charges takes place in protected areas
- the mobility of the deployment boxes means that no maintenance is necessary in the terrain

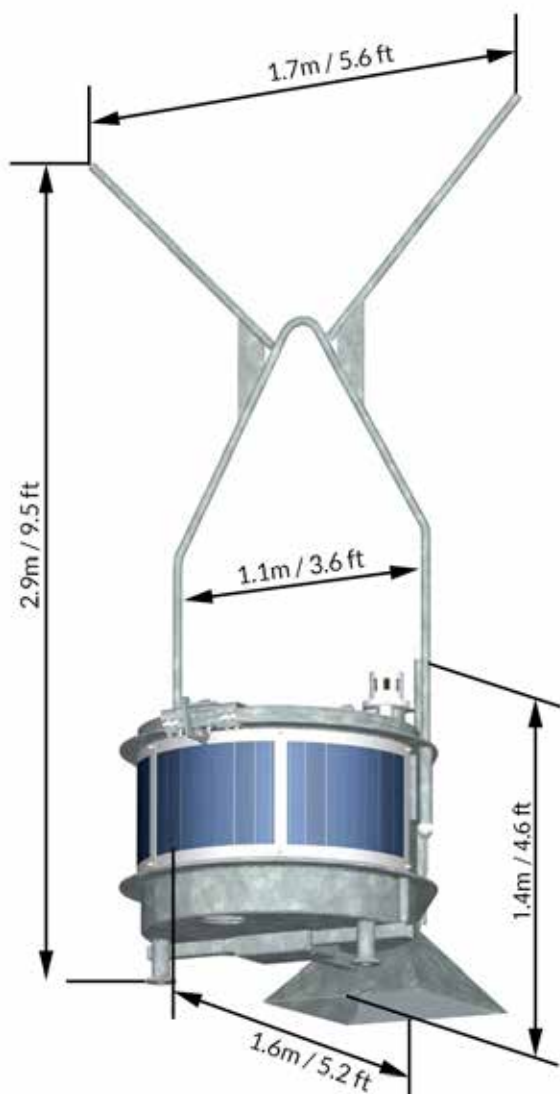
The smallest interference in nature is very environmentally friendly

- Foundation only uses 1m²
- Short construction times in the terrain simplify planning and implementation
- Blasting over the ground prevents damage to the vegetation cover
- Dismantling after operating life possible without any problems



Deployment Box

The solar panels, antenna and a flashing lamp are mounted on the outside of the deployment boxes. The dropping mechanism, the electronics and 12 prepared explosive charges are on the inside of the box and protected against the elements. The compact and sealed design means that maximum system reliability is attained.



Charge Containers

The explosive charge consists of two orange half-shells with pre-mounted SZ 83 percussion fuse, which are assembled with 5kg (11 lbs) of explosives. The charges are assembled by the operator on-site. We deliver the charge containers and the canvas bag for the retaining cable (7.5m / 25 ft). Explosives and other pyrotechnical elements are purchased directly by customers from the appropriate suppliers.





Technical Data

General information

Weight deployment box incl. charges	approx. 600kg (1,300 lbs)
Dimensions (l x b x h) Deployment box	1600 x 1050 x 1200 mm (5.2 x 3.4 x 3.9 ft)
Dimensions of tower (h x ø)	8000 x 300 mm (26.2 x 1 ft)
Inclination of tower	15° in dir. of slope towards the valley

Loading capacity

Number of charges per launcher	12 Stk.
Amount of explosives per charge	max. 5 kg (11 lbs)

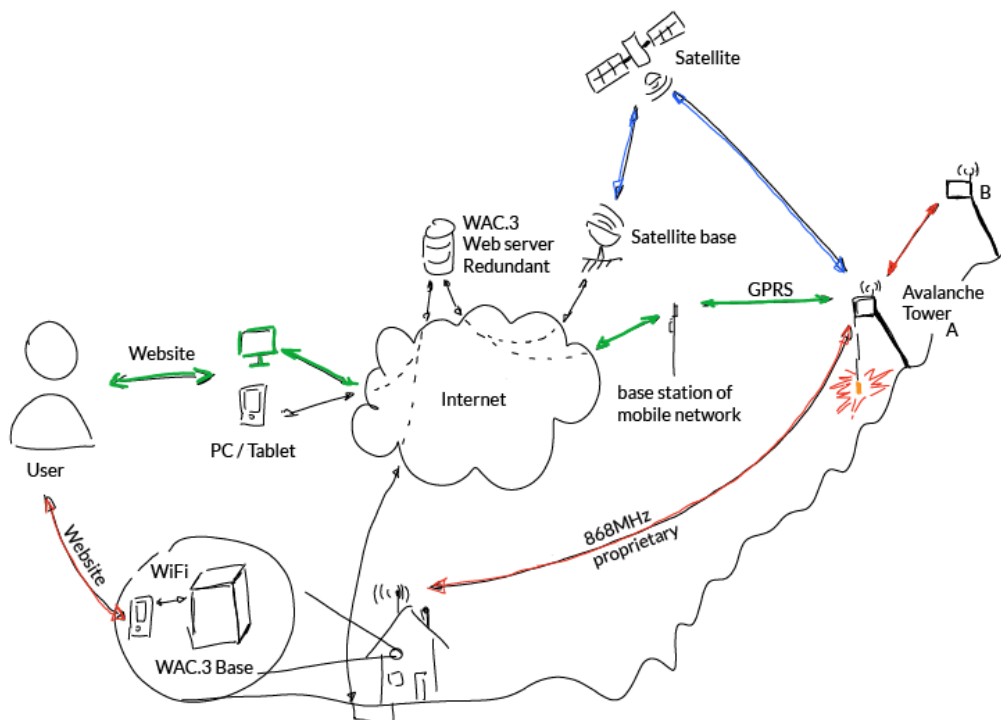
Mechanism in the deployment box

Drive unit	DC Motor
Time for rotating one position	approx. 13 s
Transmission Gearbox	gear motor

Power supply

Battery in deployment box supplied by solar panel	12 V
Power supply of computer and relay	230 V / battery

Functional principle Avalanche Tower



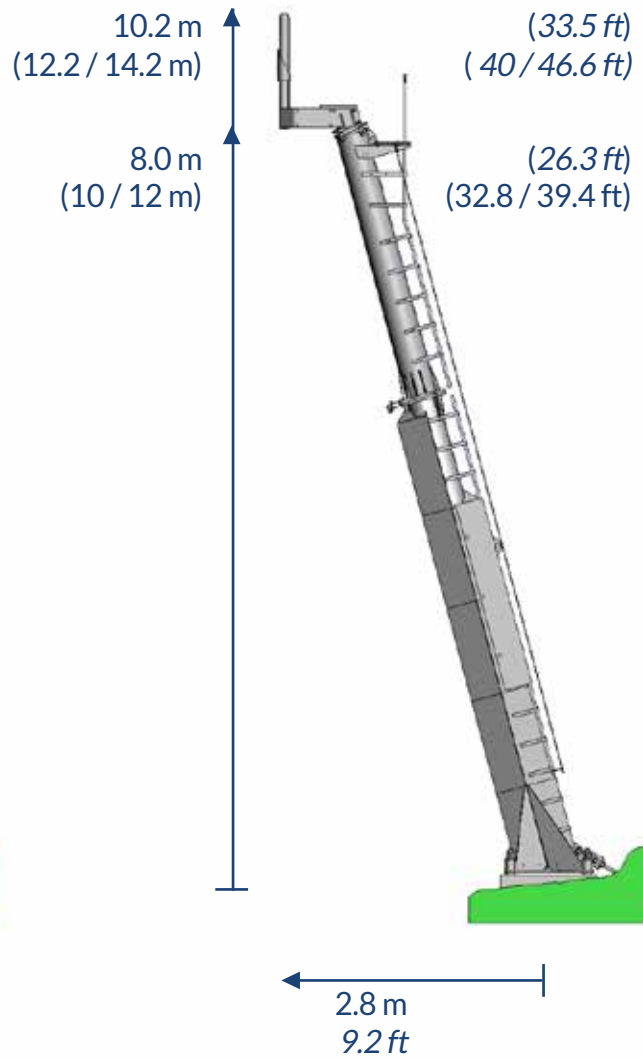
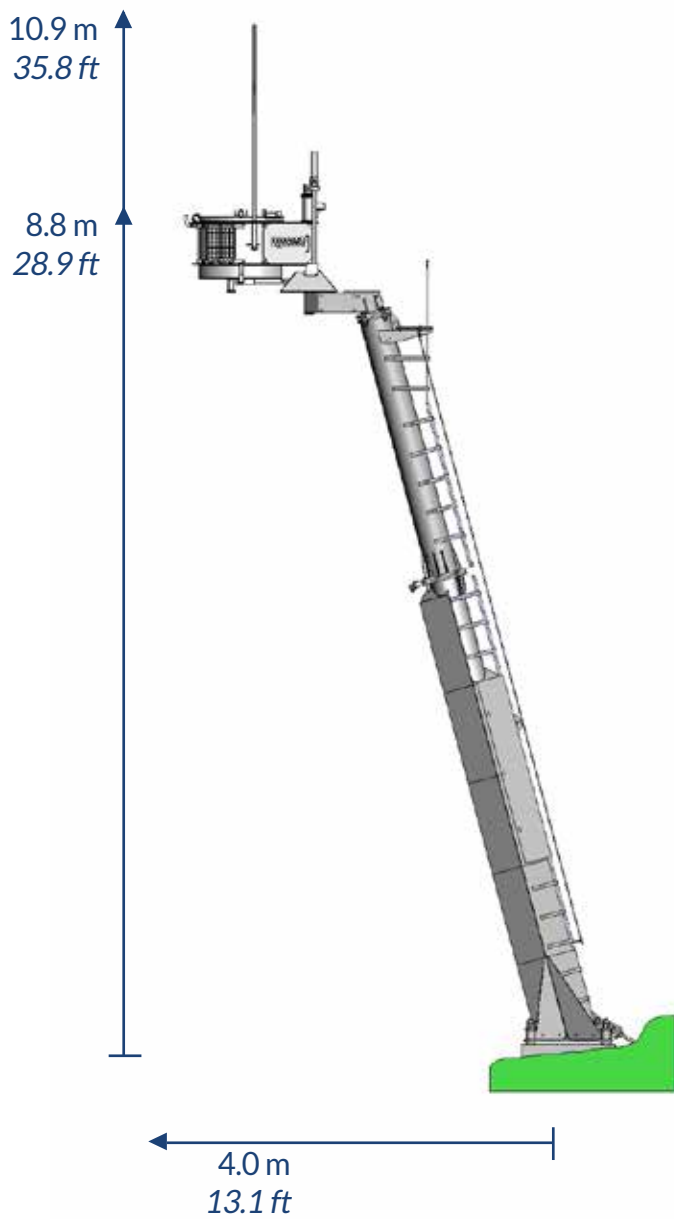


Tower in the winter

with deployment box

Tower in the summer

without deployment box





Transportation by Helicopter

The deployment box is transported by helicopter to the towers in the terrain. Thanks to the guiding system the pilot is able to perform the placement on the tower on his own without a flight assistant. The deployment box orientates itself automatically in the correct position. A safety switch detects the correct position, after which the system becomes operational. The operation can verify the placement of the deployment box on the correct tower on the operating interface immediately thanks to the GPS receiver installed. The system will not be activated if placement is incorrect.

When all charges are used or after end of season the deployment box is being retrieved from the tower by helicopter. Thanks to the special Wyssen Heli link (picture on the right) no flight assistance is needed in the terrain.

Safety regulations

Only those persons are permitted to operate and handle the installation who are in possession of a valid certificate for the artificial release of avalanches with explosives and who have attended a certified course by Wyssen Avalanche Control AG.

Approval for storing explosives: for each tower location authorisation must be requested by the customer from the responsible authorities for storing explosives in the avalanche tower deployment boxes during the period of operation.





All in one online platform

Operating Software Wyssen Avalanche Control Center WAC.3

The latest software generation including new hardware for operating, monitoring and data storage of the well-proven Wyssen Avalanche Towers, detection systems and weather stations.



- ✓ Intuitive web-based operating interface
- ✓ operable from any web-enabled device (PC, Tablet, Notebook, Smartphone)
- ✓ Operation independent of location
- ✓ Multiple release from Avalanche Towers possible
- ✓ Monitoring of systems 24/7
- ✓ Automatic documentation and archiving of activities and system data
- ✓ Data transfer via mobile network or radio connection
- ✓ Extensive additional features (explosive documentation, avalanche documentation, weather station, communication tool, snow height measurement etc.)



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