

Thyssen-Celebration of Towers

Spectacular Grand Opening of the Thyssen Testing Tower with LOBO

The company LOBO electronic, with more than 35 years of experience in the lasershow business and awarded with 161 ILDA awards by the International Laser Display Association, staged a barnstorming lasershow on the 7th of October. The occasion was the grand opening of the Thyssen highspeed elevator Test Tower in Rottweil, Germany, the first of its kind worldwide, also having the highest observation deck in Germany.

246m of vertiginous height, unpredictable winds and fickle weather conditions were quite a challenge for the LOBO crew and engineers.

The actual Job Task consisted of Extremes

We were asked to shoot a laser show from a height of approximately 800ft above the ground, targeting three spectator areas about 0,8 miles away. Additionally, we were to connect eight historical towers, dispersed throughout the town of Rottweil, with the new Thyssen Test Tower by means of laser beams for the occasion of the upcoming tower festival. Stage fog, due to the extreme distances, was completely out of the question. Furthermore, the show music played in the spectator areas was to be without time lag and in sync with the laser show and the accompanying fireworks.



With a Preparation Phase of just 11 Days LOBO came up with extraordinary Solutions

First off all, ways of how to avoid any risks for general air traffic had to be compiled in dialog with the aviation safety authorities due to the extreme height position of the laser system on the roof of the 800ft high test tower.

For the extraordinary distance of 1300m to the three spectator areas, LOBO chose six ultra-bright laser systems equipped with

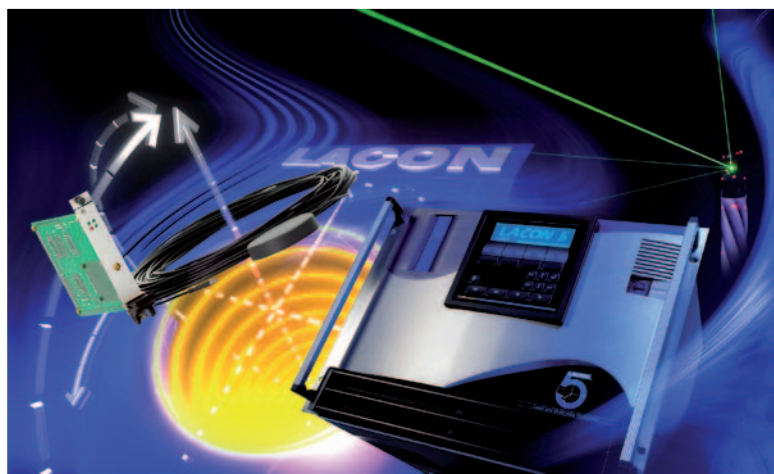


PCS: two sparks® multicolor systems, one sparks® laser monochrome, two solidstate lasers monochrome and one infinity beam® high performance laser with a terrific effective laser brightness (ELB200) of 44683 Watt/qm. Thanks to the sophisticated Post-Collimated Scanning System (PCS), the total brightness of LOBO laser systems is increased by up to 900% in comparison to usual OPSL laser systems – which allowed extremely fine, sharp and bright projections in this staging for the spectators, despite the immense distance

Thanks to the AMP-6, high precision graphic scanner, born and developed at LOBO, it only became feasible in the first place to carry out the needed, constant and highest accuracy at a breathtaking distance of 1300m. For example, at a distance of 2400m, the approximate actual distance from the Test Tower to the Water Tower, the laser beam targeting was carried out in step increments as small as 40 mm – a more than notable accuracy.

Three laser and multimedia work stations type LACON-5® were chosen, not just to control the laser, but also for the synchronous audio signaling, fireworks and laser. For that purpose they were equipped with LOBO GPS time code modules.

Two of the LACON-5®'s were planned for laser, as master and backup, and the third LACON® was seeded at "the new radio neckarburg" to play the audio programs with GPS timecode considering a 2,49 seconds signal time delay between radio station and radio listener. By transmitting the soundtrack via radio station it was made sure that not just the three audience areas but also every radio listener could enjoy the music simultaneously and synchronic with the multimedia show.



Except for the infinity beam laser, all hardware was installed in the narrow space environment of the fully air-conditioned 10ft Laser Truck® container due to the rough operating conditions on top of the Test Tower.

Our nightly laser show tests during the preparation phase on the opposite mountain of the LOBO headquarter may have come to attention to one or another citizen in the city of Aalen.



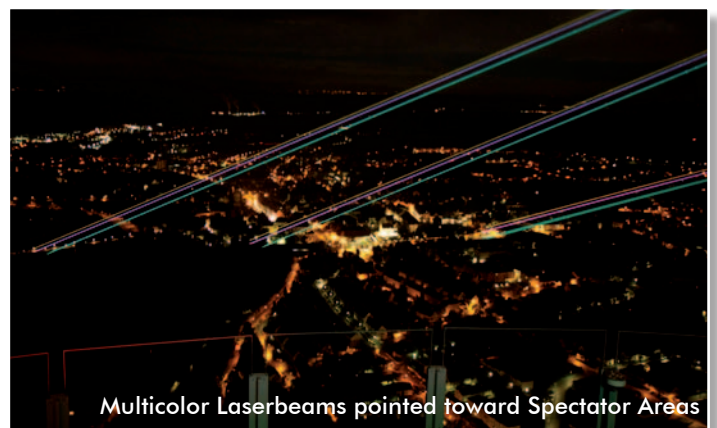
HighTech in LOBO Laser Truck®



LOBO Laser Truck® being placed onto Roof of Test Tower

Departure was on Wednesday the 04.10. early in the morning. A special truck loaded the container and arrived three hours later on site in Rottweil where a crane on the roof of this majestic building of architecture was ready to carry the three tons of weight 246m upwards. The infinity beam® disappeared on the crane's hook in direction to the tower roof as well, where the crew was already busy laying power supply lines.

At 23:00 o'clock, after notifying the air security center of the police department in Tuttlingen as well as the police helicopter squadron in Stuttgart regarding the laser use, the first show test frame laser projections emanated from the roof of the tower down toward the city center. Thanks to the weather it was a ghostly beautiful night on the top of the Thyssen Test Tower with the great view on the sea of lights of the historical center of Rottweil



Multicolor Laserbeams pointed toward Spectator Areas

Thursday started with setting-up the LOBO GPS timecode hardware at rough, almost turbulent weather conditions. LOBO engineers installed the third LACON-5® at the local radio station “the new radio neckarburg”. Now they were timecode synchronic with audio track, ready to be injected into the ether for the upcoming show.

By late afternoon the pyro technicians also were eventually connected with the navel of the LOBO GPS timecode. After sunset a unique light show shot through the sky as the crew started first testing and adjusting show sequences at the LACON-5® work station, pointing at the three spectator areas 1300m distant. Thursday night was quite a challenge; it was bitterly cold on the roof of the Test Tower. Two technicians with binoculars, exposed to wind and rain on “the roof of the world” in front of the Laser Truck® container, which was fully equipped with state-of-the-art laser technology, were guiding the operator until all eight historical towers were successfully targeted by the lasers. Two scouts, equipped with radio, navigation and geodata of the targets, drove to the locations of each tower to ensure the ultimate accuracy of the radiated beam.



Laserbeam pointing at Water Tower • 3km Distance

This impressive geometry of light in the silence and darkness of the night, no one on the streets, the test tower on the distant hill with its colorful flare seeming to be rising to eternity – a moment of devotion, a moment of awestruck wonder. A working day came to an end with a satisfied smile and a rapid elevator-run of over 8m/sec. downward towards the parking area.

The following day was the time for the testing of all systems, also meaning the fully automatic redundantly running backup

system, (everybody knows Murphy’s Law) during brilliant weather and a starry Friday night.

Result: The complete system ran unaffectedly sovereign, highly precise and without a single disruption, such as LOBO is generally accustomed to, despite temperature fluctuation and changing weather conditions.

Saturday was the day of all days. There was a busy but festive atmosphere at the historical city center of Rottweil. A Ferris wheel offered a stately view here, also looking towards the Test Tower. A 246 m long dining table, corresponding to the tower height, was decorated for the guests at pedestrian zone who got to enjoy culinary delicacies.

The city was full of people. At the tower premises festivities were in full swing. For the opening ceremony of the visitor platform 150 invited guests came, among them Mr. Winfried Kretschmann, prime minister of Baden-Württemberg, and Mr. Volker Kauder, fraction president of the Bundestag. Kretschmann said: “The Thyssenkrupp Test Tower is a lighthouse of



LOBO's Lasers from Test Tower to the City
Kretschmann: "The Thyssenkrupp Test Tower is a lighthouse of innovation and citizen participation."



Laser pointing at historic Towers

innovation and citizen participation." "The tower is already a lot: a future lab for an era of elevators and an impressive evidence for innovative strength and engineering art" Thyssenkrupp's Executive Board Chairman Heinrich Hiesinger stated.

Around 20 o'clock many people were gathering at the three designated audience areas down below at the historical center of Rottweil and feverishly awaiting the spectacle. The ten second countdown called out by „the new radio neckarburg“, loudly accompanied by the huge number of spectators, was echoed epically across the Neckar valley towards the Test Tower. Firework explosions enmeshed the tower and colorful illuminated the sky. Laser beams from the tower conquered the nightly sky and laid majes-

tically over the spectators in the shape of dancing light- and digi fans like a protecting hand in different colors. 12 minutes unforgettable magic for everyone who was there, underscored with a kind of symphonic dramaturgy - simply pure goose bumps!

For the ending LOBO's laser beams were directed from the roof of the Test Tower at all eight historical towers connecting all of them with each other for more than one and a half hours, illuminating the sky so magically.