THEISSEN TRAINING SYSTEMS

THEISSEN TRAINING SYSTEMS (TTS) is one of the world’s leading manufacturers of live-fire training applications with production sites in Germany, Belgium and North America. TTS develops, produces and installs complete training range systems for Small Arms Ranges, Military Operations in Urban Terrain (MOUT) facilities and Combined Arms Live-Fire Exercise (Calfex) Ranges that include Tank and Attack Helicopter operations.

TTS GmbH located in Düsseldorf (Germany) is the headquarters of the Theissen Group, an alliance of companies with core competencies in targetry appliances for small sports air guns to tank and anti-tank ammunitions, hit evaluation, electronic scoring, ballistic instrumentation and internal ballistics.

For more than a century the founder and his family have been active in engineering and production. Since 1934 the name THEISSEN has stood for leading designers and producers of target appliances of all kind.
PRODUCT RANGE

TTS has continuously developed and improved a broad range of sophisticated off-the-shelf target mechanisms meeting today’s technical and quality requirements. The company’s modular product range enables us to put together well proven components from existing products to supply tailor made solutions.

Multifunctional target systems are available to train marksmanship, Military Operations in Urbanized Terrain (MOUT) and tactical live-fire operations.

To train infantry troops TTS has developed several deployable static and moving target systems. With these multifunctional systems very little time and preparation is required to initiate training scenarios. Nearly all TTS systems are available as a radio-controlled and mains supplied version, in their deployable version they come radio-controlled and battery or solar powered.

Major products available from Theissen Training Systems include:

- Infantry Targets
- Armor Targets
- Moving Targets
- Range Control Systems
- Automatic Scoring Systems
- Location of Miss and Hit (LOMAH) Targets
- LOMAH Equipment
- Indoor Range Equipment
- Effect Simulators
- Accessories
INFANTRY TARGETS

TTS offers a wide range of infantry targets. Pop-up targets can be exposed in a variety of ways with rotary movement combined with lifting to provide friend/foe discrimination training. TTS’s automated stationary infantry targets increase the shooter’s enthusiasm resulting in improved training quality.

Military Operations in Urban Terrain (MOUT), Close Quarters Battles (CQB) and Fighting in Built up Areas (FIBUA) are very different from conventional open field warfare operations. Unlike regular pop up Infantry target training mechanisms the MOUT system from TTS simulates six different adversary movements. These include peering over a cover with the “climbing target” mode and stepping sideways out of a cover with the “dodging target” mode. The increased variety of target presentations and the greater training realism enhances training results and creates diversity unknown to conventional training equipment. Designed specifically for modern, multi-functional MOUT and CQB ranges the system takes into consideration the reduced space for target appliances as well as different modes of movements of a potential aggressor in an urban terrain. For convenient operation and flexible training area set up the MOUT Mechanism is battery powered and radio-controlled. For ranges with mains supply hardwired versions are available.
ARMOR TARGETS

TTS supplies professional live fire solutions to train gunners and crews of armored vehicles on intelligent stationary and moving targets. The crews need regular training to improve safe and precise handling of attack and defense weapons under realistic and thus stressful conditions. Since only frequent training provides good results, professional training equipment is required. TTS offers a wide range of stationary and moving full and half size armor targets with flank or head-on views, which can either pop-up or be constantly exposed.

The Standard Armor Target Lifter can lift half scale tank flank target silhouettes as well as frontal silhouettes of tanks and armored vehicles. It is one of the most powerful medium sized lifters in the live-fire training market and due to its reduced weight it outrivals most competitive products.

Advanced Stationary Armor Target (SAT) Mechanisms serve typically on combined arms and multi-purpose ranges and simulate appearing and disappearing full-scale tank targets with dimensions up to 7m x 3m (23 ft x 9.84 ft). The powerful hydraulic drive with its low clearance endows the SAT with an enormous lifting capacity of 300 kg (661.38 lbs) and a smooth and sturdy lifting process even at large target silhouettes.
**MOVING TARGETS**

Shooting on moving targets is a real challenge and provides enhanced situational training for any shooter. Moving target training continues to build the unique awareness and reactionary self-confidence necessary in today’s ever changing live-fire environment. At TTS the further expansion of modular target systems encompasses the abilities where targetry, silhouettes, motion and speed can be altered to diversify the training and thus enhance training realism. With these capabilities, animation can be as unpredictable as the real combat threat.
**RANGE CONTROL SYSTEMS**

TTS offers fully computerized Range Control Systems for infantry target mechanisms, tank target mechanisms, moving target systems, effect simulators and automatic scoring systems. The systems is a fully computerized controller, which can be used for the control of all types of permanent, semi-permanent and mobile targetry equipment installed on anti-armor and Infantry live fire training areas. Typically the systems can be programmed to control all equipment that can be delivered for a live fire training area by TTS.

Different types of mobile control units are available as compact handheld target control systems. Specifically designed for the military use, they are battery powered and radio controlled terminals to remotely operate and manage infantry target mechanisms, armor target mechanisms, moving and stationary target systems, enemy fire simulators and automatic scoring systems.

TTS Control Software solutions are collections of programs and tools that work together to complete the tasks that are necessary to control one range or several ranges each having its own configuration, layout and training requirements.

In addition to a centralized control system, a range complex can be controlled from a MOBILE MISSION CONTROL VEHICLE (MMCV), which enables the instructor to move his range control to any desired location.
ELECTRONIC SCORING & AUTOMATIC MARKING SYSTEMS

For precision shooting and zeroing, TTS offers marking and scoring technology for supersonic and subsonic projectiles.

The Location of Miss and Hit (LOMAH) Sensor system is infantry precision target system that enables the correct detection of the location of the hit on the target and is even able to detect the exact location of near misses. The calculated position of a shot is transmitted (hardwired or radio) to the range control unit. Due to automatic scoring the system omits the need for repeated access to the target area for the retrieval of information. TTS LOMAH systems can be installed on existing targetry and is prepared for legacy or other vendors’ target mechanisms. It enables interaction with and is powered through the target appliance it is connected to. It is designed to display registered hits or misses graphically in relation to the respective target silhouettes on the monitor of the central control console. The stored target silhouettes depend on the targets in use with the respective user of the system.

Box Target systems operate in subsonic as well as in supersonic regions. They provide trainees and experienced shooters alike with a cost-effective and accurate training system. The high performance sensing solution, consisting of three sensors mounted inside a wooden framed target, registers the shockwave generated by a projectile. The generated signals are used to calculate the position of the shot. Rubber is positioned around the frame to give a zero-wind detection system for the automatic sensors.
Automatic Marking Equipment

On precision live-fire ranges equipped with LOMAH Targets or Box Targets the TTS Shooter’s Monitor gives a detailed view and precise hit results. Registered hits are displayed graphically as well as in Cartesian coordinates. Shot results are displayed instantly providing immediate performance feedback. The shooter sees the location of the shot and can, if necessary, correct his aiming point.

Shot Sensors installed on each firing position guarantee unimpeachable hit counting and eliminate wrong scoring on multi-lane ranges. With two high performing acoustic sensors, the muzzle bang of a weapon fired is registered. A registered hit of a target on a lane where no shot was fired at the shooting position will be displayed and marked as invalid.
To meet the demands of military and civilian government Special Operations Forces (SOF), TTS developed overhead retrievable target systems (ORT) in various configurations. These systems are specifically designed for dynamic and scalable training on indoor shooting ranges and meet the demands of military and civilian government special operations forces.

ORTs support training at varying shooting distances while simultaneously a 180° turning target mechanism can present the friend or foe side of a target board. The systems enable not only the training of shooting but train the shooter in the skills of decision making: “Shoot – Don’t Shoot”. (The systems not only allow for basic marksmanship training but more importantly they enable shooters to train on and to the necessary decision making skills of “shoot – don’t shoot”.)
TTS delivers a wide variety of simulators and accessories. Battle Effects and Sound Simulators realistically create the acoustical impression of a tank, anti-tank weapon, or hostile fire weapon system. These systems provide trainee’s and experienced shooters alike with a cost-effective and realistic training environment and creates the stressful situations similar to the experience in battle. Effects simulators replicate the visual impression of a hit or a kill by creating a cloud of smoke. Additionally they create the impression of counter enemy fire by discharging a loud main gun bang and/or gun smoke.

Thermal Imaging Systems are used to heat target silhouettes of infantry or armor targets which creates a realistic visual effect on the target when viewed through night vision devices or IR systems.

Trigger devices and activation switches such as light barriers, motion sensors, pressure pads, can be used to lift up popup targets (activate targets) or to switch on other devices through the motion of objects and persons. Realistic training scenario can easily be designed / created that enables the trainee to practice not only his shooting skills but also his responsiveness and/or decision making ability.
SERVICES

Turnkey services ensure delivery of all required infrastructure whether it be for a small indoor range or a fully equipped training camp in the harshest environment. Professional maintenance teams and spare parts service ensure reliable shooting range operation and TTS offers customized services like extended warranty programs, logistics support, maintenance contracts and long term spare part services. At TTS, service starts long before the sale and continues for the life of the project but doesn’t end there.

With every purchase, TTS provides the most experienced and professional customer service in the industry. The “deal and the handshake” is not the end; it is just the beginning of a long-lasting and dependable partnership. Before, during, and after training at designated training facilities, TTS Field Service experts deliver the right assistance and support thus saving you critical training time while expanding training opportunities.

TTS offers a broad spectrum of range operation contracts. Trained system administrators are available to operate the range equipment efficiently and professionally, and to tap the full potential of the range and its targetry. With maintenance & range management contracts TTS keeps a range in best operational condition. Military veterans and former Training Program Managers are employed to assist in range design, technical upgrade programs, training procedures and related issues. Extensive planning and requirements analysis are absolutely necessary for a successful range operation.