



image TERX 3D

PLASMA PROFILE ANALYSIS PLATFORM

TERX 3D enables a test operator to analyze plasma droplets and streams in up to three dimensions. Applications areas include the development and testing of shaped charge explosives for military, construction & demolition purposes.

POWERFUL

The TERX 3D platform is based on the proven TrackEye Motion Analysis Technology, capable of handling and analyzing large quantities of data at rapid speeds. Making it possible for the operator to track an unlimited number of plasma profiles throughout the image sequence.

SYNCHRONIZED

The user interface is fully synchronized: any change of parameters or set-up will immediately effect all parts of the tracking session, updating results, graphs and tables.

COMPATIBLE

TERX 3D is compatible with all major camera brands on the market. External data from other instrumentation data can easily be imported and synchronized with the image data.

TOTAL SOLUTION

TERX 3D handles all steps in the testing and the workflow is designed to facilitate repeated tests.

TEST PROCESS

During a TERX 3D test, a series of X-ray flashes are used to generate shadows of individual plasma elements, which are then captured on film and analysed. A TERX 3D test can achieve an accuracy of $\pm 1\text{mm}$.

PREPARATION

The test setup involves mounting of film plates behind protective aluminum plates (invisible to the X-rays and meant to shield the film from physical damage). Reference cross hairs are engraved in the aluminum plates, with an even distribution along the horizontal axis.

CALIBRATION

Prior to the actual test the 3D positions of the reference cross hairs are surveyed together with the exact 3D position of the X-ray sources.

EXECUTION

During a test, the plasma droplets are exposed along their flight path as the X-ray flashes are triggered at different points in time and in two dimensions, creating shadows on the film plates. The plates are then scanned/digitized, creating image files, which are then transferred to the RX3D application.

ANALYSIS AND REPORTING

The image files, together with the 3D coordinates of the cross hairs and the X-ray sources, are the base for the analysis together with the contour and position of each droplet generated during the tracking process. The derived results can be visualized in tables, charts and diagrams, and/or exported to external databases and tools such as MATLAB.

DATA OUTPUTS

- Droplet volume
- Droplet velocity
- Droplet rotation
- Estimated impact position

