

Crash-protected Memory Module

IEEE Std 1482.1, FRA 49 CFR 229 and IEC 62625-1



Our accreditation as a testing laboratory (ISO/ICE 17025) means that the performed tests and test documents are internationally recognized. We will be happy to provide you with professional and efficient support in formulating your technical problems.

- ✓ **CRASHWORTHINESS**
- ✓ **ELECTRONIC RAILWAY EQUIPMENT**
- ✓ **ON BOARD DRIVING DATA RECORDING SYSTEM (ODDRS)**
- ✓ **EVENT RECORDER MEMORY MODULE (ERMM)**
- ✓ **CRASH HARDENED MEMORY MODULE (CHMM)**
- ✓ **RAIL TRANSIT VEHICLE EVENT RECORDERS**

As an accredited testing body, the following tests can be carried out on crash-protected data storage devices for rail vehicles:

- Impact shock
- Penetration
- Static crush
- High and low-temperature fire tests
- Fluid immersion
- Hydrostatic pressure
- Magnetic field



Test rig: static crush

STATIC CRUSH

Static Crush test in accordance with standard specifications of IEEE Std. 1482.1, FRA 49 CFR 229 and IEC 62625-1 (110 kN, 5 min). Further options for static crush: FRA 49 CFR 229 (111.2 kN, 5 min, 44.5 kN single „squeeze“. IEC 62625-1 (20 kN, 1 min).

YOUR BENEFITS

In-house testing

The tests are carried out by a single testing body, which saves you logistical effort and costs. You also benefit from an optimised test procedure in terms of time, that is adapted to your needs.

Confidentiality

We guarantee absolute confidentiality of projects, designs, processes and prototypes.

High flexibility

Individual, customer-specific requirements can be immediately incorporated in the tests.

Reliable test rigs

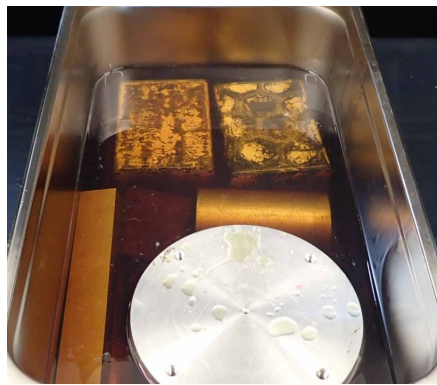
State-of-the-art test facilities, professionalism and reliability are our watchwords.



Test rig: penetration

PENETRATION

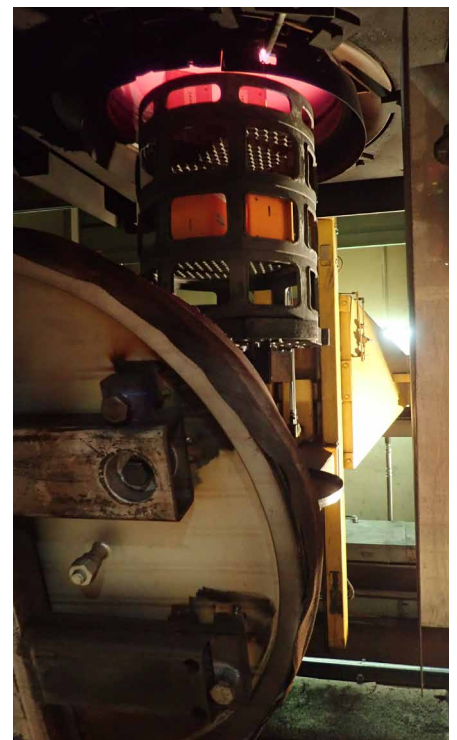
Penetration test in accordance with standard specifications of IEEE Std 1482.1 und IEC 6265-1 (23 kg weight, drop height 1.5 m, protruding 6.4 mm steel pin). For penetration testing, we use a high-speed camera as additional proof of testing and for analysis purposes in case of failure (the picture shows a section of the high-speed recording of a penetration test).



Test rig: fluid immersion

FLUID IMMERSION

Fluid immersion test in accordance with standard specifications of IEEE Std 1482.1, FRA 49 CFR 229 and IEC 62625-1, (48 h any single fluid, 10 min fire-extinguishing fluids followed by 48 h in a dry location). Further options for fluid immersion, FRA 49 CFR 229 and IEC 6265-1 (60 min in any of the fluids).



Test rig: fire

FIRE

Fire in accordance with the standard specifications of IEEE Std 1482.1, FRA 49 CFR (750 °C, 60 min, followed by 260 °C, 10 hours).

Further options for fire test, FRA 49 CFR 229 (1000 °C, 60 min, followed by 260 °C, 10 hours).

IEC 62625-1 (650 °C, 30 min, followed by 300 °C, 60 min followed by 100 °C, 5 hours).

IEC 62625-1 (700 °C, 5 min).

Impact Shock IEEE 1482.1-2013 / FRA 49 CFR Part 229 Appendix D / IEC 62625-1-2013

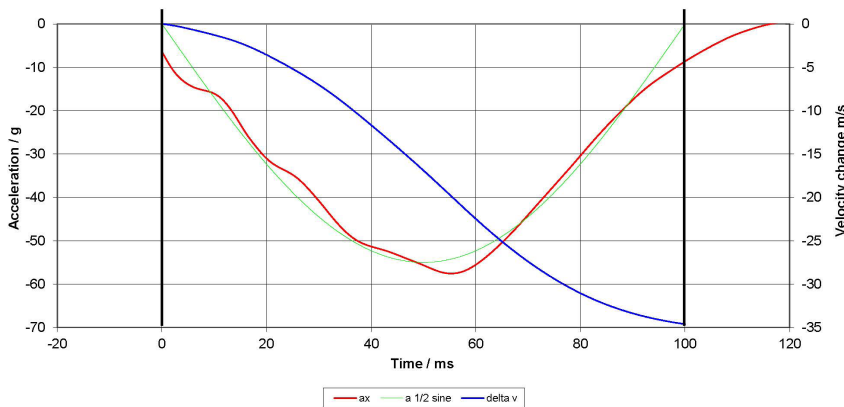
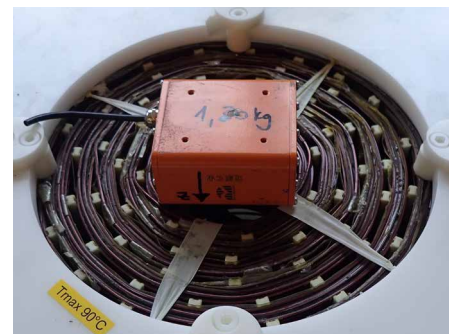


Chart of ED-155 impact shock test

IMPACT SHOCK

The chart shows the half-sine curve (green) in accordance with the standard specifications of IEEE Std. 1482.1, FRA 49 CFR 229 and IEC 62625-1, the measured deceleration values (red) and integrated change in velocity (blue) while a test was being carried out (half-sine crash pulse, 55 g, 100 ms, velocity change 34.4 m/s resp. ≥ 28 m/s for FRA 49 CFR 229). Further pulse options FRA 49 CFR 229 (half-sine crash pulse, 23 g, 250 ms), IEC 62625-1 (half-sine crash pulse, 100 g 10 ms).

The deceleration profile of the test rig can be adapted to your requirements.



Test rig: magnetic field

MAGNETIC FIELD

Magnetic field test in accordance with the standard specifications of IEC 62625-1 (Magnetic field 0 to 64 kA at a rise of 10 MA/s at a distance of 1 m).



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