

## Test rig for mechanical loading, burglary and durability

Test method for determination of resistance under static and dynamic loading, and against manual burglary attempts

Type: MPA-I



### 1 Description of the MPA-I module

Test rig and mountings for mechanical loading, burglary, and durability test.

Test method according to the classifications and standards for the determination of resistance under static and dynamic loading as well as against manual burglary attempts.

The base frame of the MPA-I test rig consists of a torsion-resistant steel construction and two movable beams.

The beams are prepared to carry additional components. Two U-profiles are also part of the base frame for mounting and fixing of the test specimens.

Characteristic feature of the clamping surface is the ability of integrating other **ift** test rigs for testing of additional standards.

The major component of the MPA-I module is the measurement and control technology with a hydraulic device and a laptop.

Static forces are initiated by the hydraulic unit that is composed of a hydraulic cylinder, an electric pressure control valve and a force sensor with share force stability up to 10 kN. The hydraulic cylinder with 400 mm piston stroke and a maximum force of 20 kN exerts the static load to the specimen and provides at the same time measure results via an installed measure system. High precision while measuring is ensured by a servo valve.

The total measure system is built of float-, temperature-, and filters monitoring as well as a force sensor system. A protection switch for the engine and the electro mechanic is built in.

The control cabinet is accomplished by a laptop. Controlling, regulating, and recording are the tasks. With the preinstalled software, you have the opportunity to visualize the results and saving them afterwards in ASCII-code or in English/German language.

All necessary elements like the start/stop-, the emergency switch off button or the hydraulic pressure control are in place.

The complete test is executed according to the standards EN 1627 to EN 1630. The possibility of combining further **ift** test rigs gives you the opportunity to meet additional standards.

### 1.1 Static loading

A pressure pad applies loads to several loading points like infilling corner, leaf corner, and locking points.

Test characteristic criterion is the dimension of the gap.

### 1.2 Dynamic loading

The dynamic pendulum load test shall apply the impact points according to the standard. The testing properties depend on the standard classification.

Test characteristic criterion is the dimension of the gap.

### 1.3 Manual burglary attempts

The resistance class RC2 to RC6 according to the standard shows which tool set shall be applied to gain a classification. The time period of use and the attack area are also explained in the standard.

The test specimen has failed if an accessible opening is created.

### 1.4 Mobile pendulum test rig

You can test dynamic resistance at your place with the **ift** mobile pendulum test rig. The mobile test rig requires only a local forklift.

Please feel free to contact us to get more detailed information.

### 1.5 Clamping surface in combination with other ift test rigs

We designed the clamping surface universally so you are able to combine different **ift** modules. This clamping surface is used as a stable mounting element for each test. You can easily add the test rig for durability testing of windows (DDK), doors (DDT), and of sliding doors (DDKS) to perform the test according to each standard.

### 2 Measure and measured values according to following standards

Testing characteristic	Standards
<i>Pedestrian door sets, windows, curtain walling, grilles and shutters – burglar resistance</i>	
Requirements and classification	EN 1627
Static loading	EN 1628
Dynamic loading	EN 1629
Manuel burglary attempts	EN 1630

Additional testing characteristics and standards	
Please note the possibility of adding further <b>ift</b> test rigs to the clamping surface for testing following standards	
Test rig for durability testing of windows DDK	EN 1191 EN 13126-8 Qm 328
Test rig for durability testing of doors DDT	EN 1191
Test rig for durability testing of sliding doors DDKS	EN 1191 EN 13126, part 15-17

### 3 Technical data

- Dimensions frame: 5.0 x 3.5 m (WxH) (you have the opportunity to choose your own individual dimension)
- Clamping surface for various dimension of the test specimen (one specimen approx. 4.0 x 3.0 m or two specimen each approx. 2.0 x 3.0 m (WxH))
- Hydraulic unit:
  - Hydraulic cylinder with 400 mm piston stroke and 20 kN force
  - Measure system with a potentiometric position encoder 0 to 100 mm
  - A/D, D/A and DIO via “Gantner module” with USB or RS232 port
- Force sensor with share force stability up to 10 kN
- Shear force device: two force cylinder inclusive a two force taker 2 kN
- Required supply:
  - Safety socket: CEE 16 A 230 V
  - Compressed air: 6 - 8 bar

### 4 Scope of delivery

#### Basic version:

- Clamping surface consisting of a torsion-resistant steel frame colored in RAL 7035 (light grey), two movable racks incl. drill holes for mounting of optional available devices and modules, two U-profiles for fixing of test specimen

## Mechanical loading and burglary



- Measurement and control technology with a hydraulic device and a laptop:
  - Hydraulic unit: hydraulic cylinder (400 mm piston stroke; 20 kN force) with a servo valve and an installed measuring system
  - Electric pressure control valve
  - Force sensor with share force stability up to 10 kN
  - Electro mechanics and engine protect switch
  - Float-, temperature-, and filter monitoring
  - Measure system with a potentiometric position encoder 0 to 100 mm
  - A/D, D/A and DIO via “Gantner module” with USB or RS232 port
  - Control cabinet with laptop (software to visualize, regulate, control, and record the results in German, English; data can also be saved in ASCII-code
  - Hydraulic oil
  - Emergency switch off button
- Electro motive unit to displace the pendulum impactor
- Impactor (leather sack/two pneumatic tires approx. 50 kg)
- Electromagnetic activation of the pendulum impactor
- Electromotive positioning unit for adjusting of the pendulum impactor
- Tool sets RC1N, RC2N, RC3, RC4
- Individual coating

Individual features, especially for your needs, can be provided after consulting.

### 5 Optional features / modifications

The following options can be offered on enquiry:

- C-profiles for durability test devices (on both sides of the socket)
- Stationary pendulum impactor equipment: stiff construction with wheels and forklift eyes to adjust the heights via forklift, also included is a deflection roller and a steel cable

#### Contact:

ift Rosenheim GmbH  
MessTec  
Tegernseestraße 14  
83022 Rosenheim  
Tel.: +49 (0)8031/261-2550  
Fax: +49 (0)8031/261-28-2550  
E-Mail: [info@ift-rosenheim.de](mailto:info@ift-rosenheim.de)  
Internet: [www.ift-rosenheim.de](http://www.ift-rosenheim.de)