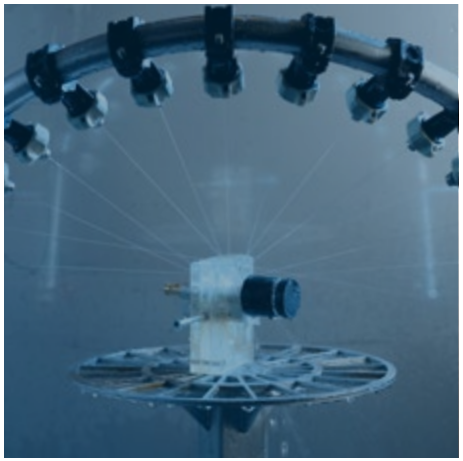
SAFETY TESTED AND CERTIFIED

# TESTING INSTITUTE LOCKS AND HARDWARE VELBERT



Your partner for testing, certification and monitoring

# Your partner for testing, certification and monitoring

As an accredited and internationally recognised testing institute, we stand for manufacturer-independent and expert testing services in the field of locks and hardware as well as windows and doors – and have done so since 1978.

Our team is known for its outstanding professional competence, a high degree of motivation, commitment, responsibility and quality awareness.

Take advantage of our extensive knowledge and many years of experience as a service provider.

We …

- offer reliable quality in the fields of testing, monitoring and certification
- ensure that you receive professional, expert and personal support
- see ourselves as a skilled, independent and reliable partner
- meet each other in a spirit of openness, trust and respect
- always focus on the customer and act with an awareness of costs
- constantly optimise our technical facilities and continually expand our range of services

**We are PIV – The Testing Institute Locks and Hardware Velbert**









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# THE QUALITY ASSURANCE ASSOCIATION LOCKS AND HARDWARE

The Quality Assurance Association Locks and Hardware (Gütegemeinschaft Schlösser und Beschläge e. V.) is an association of quality-conscious manufacturers and service providers in the field of locks and fittings. The quality association is an organisation for the implementation and monitoring of quality assurance. It is authorised to award the RAL quality mark to manufacturers of products and providers of services in the lock and fittings sector. The quality mark is a guarantee of high-quality products for the consumer and thus provides better guidance in product selection. Quality mark users must always maintain objectively verifiable quality criteria. They therefore voluntarily comply with the quality regulations and quality monitoring.

The requirements of the quality directives are based on the relevant national and international product standards, but frequently exceed them. Regular inspections by neutral, recognised testing bodies are an important element in the quality assurance and use of the quality mark.

The Quality Assurance Association Locks and Hardware establishes guidelines and publishes technical information. The guidelines are intended to assist in the use of locks and hardware for windows and French doors, as well as doors. They are drawn up together with the Association of German Lock and Fittings Manufacturers (Fachverband Schloss- und Beschlagindustrie), as well as the Testing Institute Locks and Hardware Velbert, and, if necessary, coordinated with the technical committee of the Association of Windows + Facades (Verband Fenster + Fassade) and other testing institutes. In this way, the experience and test results of several decades are incorporated into the development process.

## THE TESTING INSTITUTE LOCKS AND HARDWARE VELBERT

The Testing Institute Locks and Hardware [Prüfinstitut Schlösser und Beschläge Velbert (PIV)], a subsidiary of the Quality Assurance Association Locks and Hardware (Gütegemeinschaft Schlösser und Beschläge e. V.), is your partner for testing, certification and monitoring. It has been offering numerous tests since 1978.

As an accredited testing laboratory, PIV stands for independent and expert testing services. In addition to mechanical product testing of locks and hardware as well as windows and doors, PIV also tests mechatronics. These tests ensure the maintenance of quality standards. PIV has been testing, certifying and inspecting locks, hardware, windows and doors for over 40 years.

Moreover, PIV participates in domestic and international standardisation committees on these product groups. Test results are accepted worldwide thanks to accreditation in accordance with DIN EN ISO/IEC 17025. Furthermore, the Testing Institute's PIV CERT is a product certification body in compliance with DIN EN ISO/IEC 17065, is a recognised inspection and certification body in accordance with the North Rhine-Westphalia State Building Code, a notified testing centre and certification body in compliance with the Construction Products Regulation and an approved testing centre for DIN CERTCO. Similarly, the Testing Institute is authorised under subsection 2 of Article 46 (1) of Regulation (EU) No. 305/2011 to carry out on-site inspections at the customer's premises.

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**20 Testing of cylinder locks**
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Due to the numerous testing possibilities, the brochure only describes a selection of the tests offered by PIV. An overview of all tests is available on request.

# BURGLAR RESISTANCE TESTING
## ACC. TO EN 1627 – 1630 • DIN 18104-1 • DIN 18104-2 • DIN SPEC 18194

Burglar resistance testing is a highly complex subject. The tests are carried out in European testing institutes in a uniform manner, in accordance with the EN 1627-1630 series of standards or DIN SPEC 18194. This test range is firmly established at PIV and has been in use for over 20 years.

EN 1627 includes the requirements and classification of burglar resistant components for doors, windows, curtain walls, grilles and shutters. DIN SPEC 18194 includes the requirements and classification of burglar resistant doors. Standards EN 1628 through 1630 (DIN SPEC 18194 refers to EN 1628 to 1630) describe the three required partial test procedures: resistance to static loads, dynamic loads and manual burglary attempts. The classes differ mainly in their increasing static and dynamic requirements and in the area of manual tool attack by increasing the attack time and the use of defined tool sets. The products are classified according to the EN 1627 standard in one of the following resistance classes (RC): RC 1 N through RC 6.

PIV can also test burglar resistant retrofit products (screw-on or integrated in the rebate) for windows and doors according to DIN 18104-1 or DIN 18104-2.

If certification is desired (testing and inspection by PIV), this can be obtained through the respective PIV CERT certification programme. The PIV CERT certification association issues a certificate for individual components once they have successfully passed the test and the initial production site inspection has run smoothly.

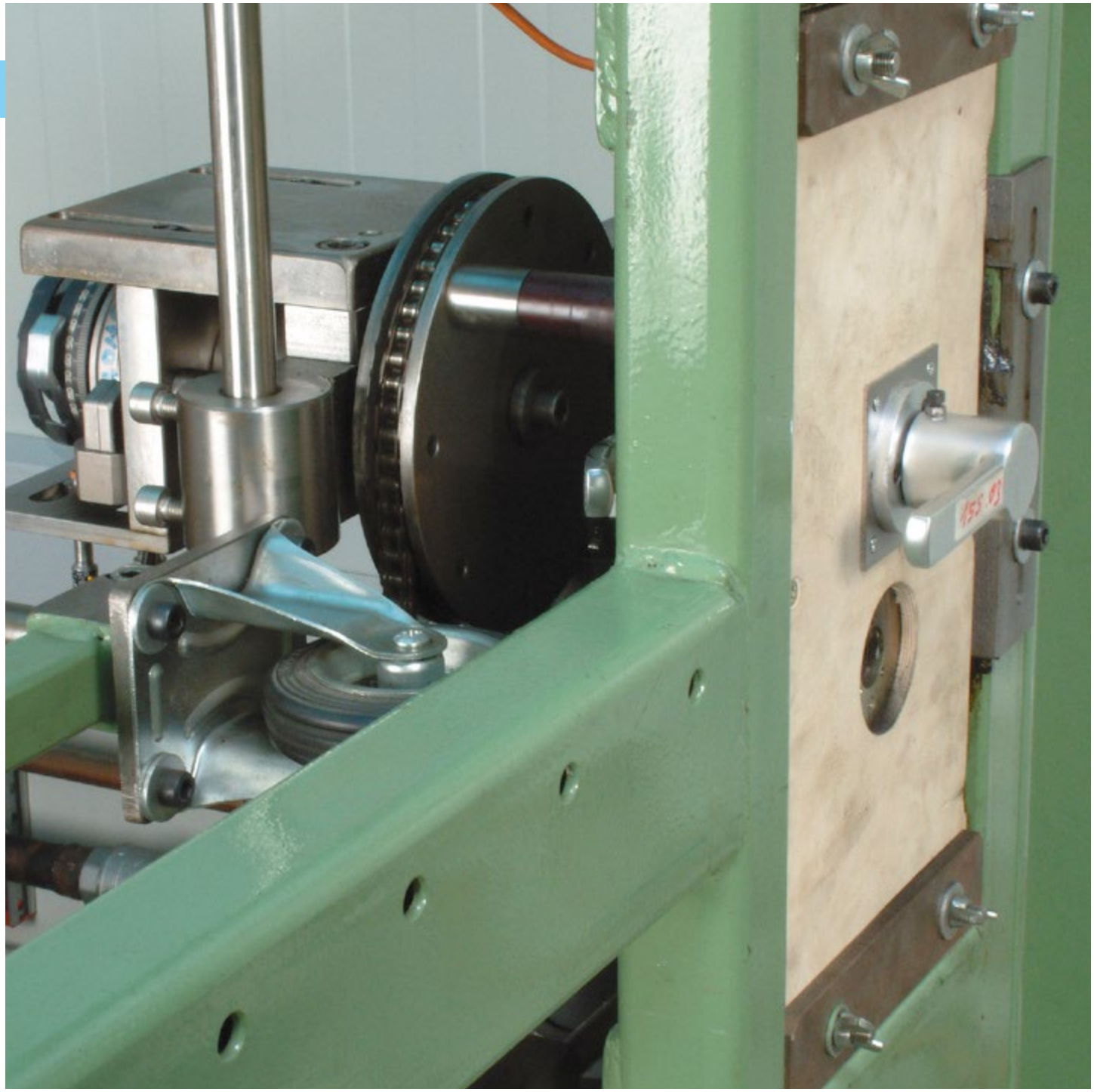
The Commission for Crime Prevention (KPK) regularly publishes lists of tested and certified burglar resistant products, as only these products are recommended by police departments. The KPK lists are available from the criminal investigation advisory centres. They are also available for download on the police department website.

# TESTING OF HINGES
## ACC. TO EN 1935 • RAL-GZ 607/8

Testing of hinges in accordance with EN 1935 is subdivided into 14 classes. The testing sequence comprises a long-term durability test, a static load test and a corrosion test.

A certificate of constancy of performance (CE mark) can be issued for successful test results in accordance with EN 1935. A certificate of constancy of performance is required for hinges that are to be used on doors to evacuation routes or on fire doors/smoke control doors. PIV has state-of-the-art testing equipment at its disposal for performing this test.

PIV offers a confirmation of conformity according to EN 1935 and also a RAL quality mark for door hinges. The RAL quality mark is associated with an inspection of the production site as well.



# TESTING OF LOCKS
## ACC. TO EN 12209 • EN 14846 • EN 15685 • DIN 18250 • DIN 18251-1 • DIN 18251-3

The test standards include continuous function testing, static and dynamic load testing as well as corrosion and climate testing and, if necessary, mechatronic testing. These tests are designed to ensure security and usability and can be carried out at PIV.

The DIN 18251 standard is divided into three parts:

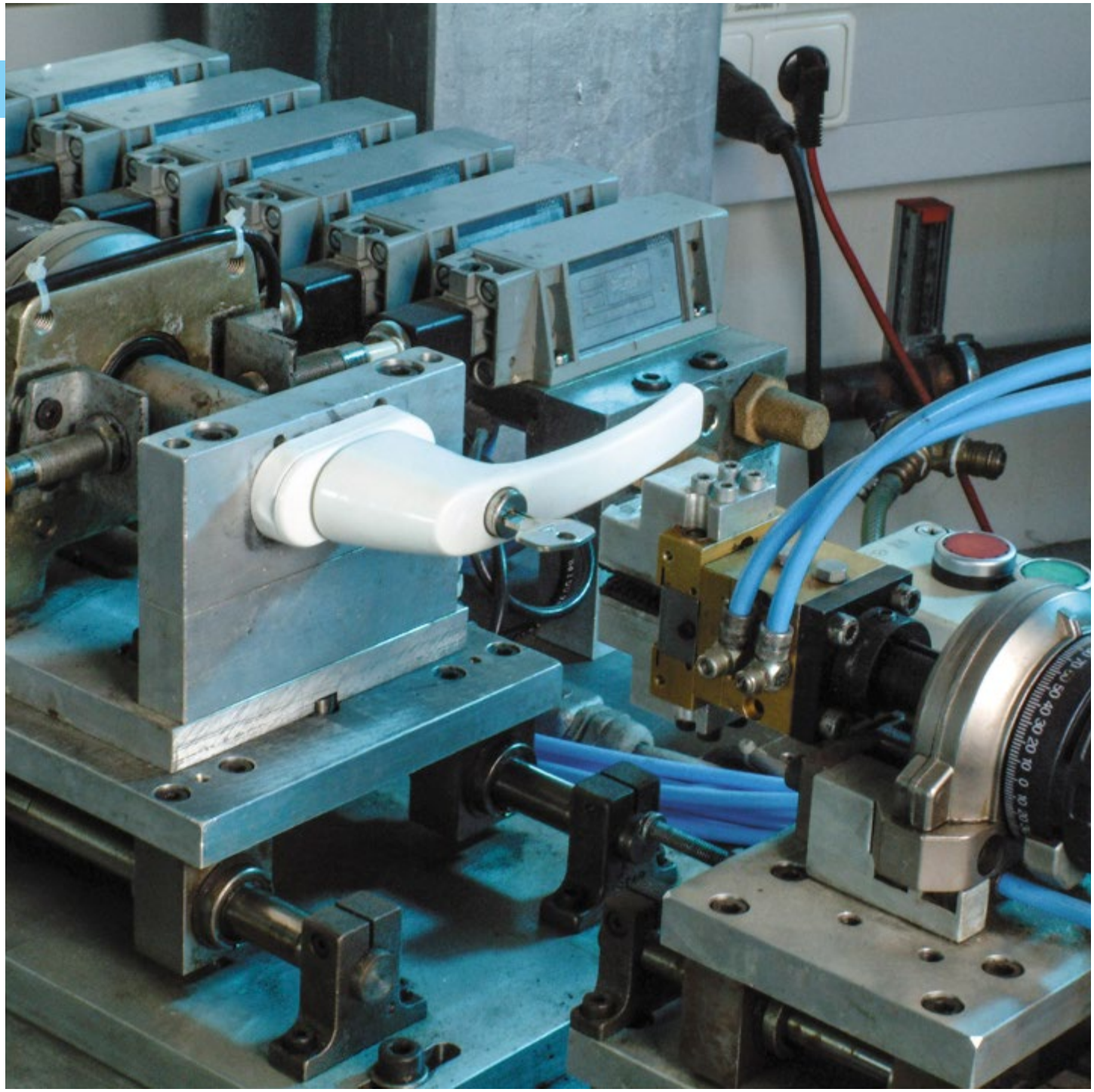
- Part 1:
  Mortise locks
  for rebate doors
- Part 2:
  Mortise locks
  for tube frame doors
- Part 3:
  Mortise locks
  for multi-point locks

The DIN 18250 standard describes the specific requirements for mortise locks used on fire doors and smoke control doors. A conformity mark is associated with this standard.

The European standard EN 12209 covers all mechanical mortise locks and striking plates. In addition to this standard, electromechanical locks and striking plates can be tested according to EN 14846.

An exception are multi-point locks, which are often used, and which can be tested according to the European standard EN 15685 as well as a variety of other specialised locking systems such as those used for safes.

If the testing requirements of EN 12209 or EN 14846 are met, a certificate of constancy of performance (CE mark) can be issued, but only in conjunction with a smoke/fire protection test.

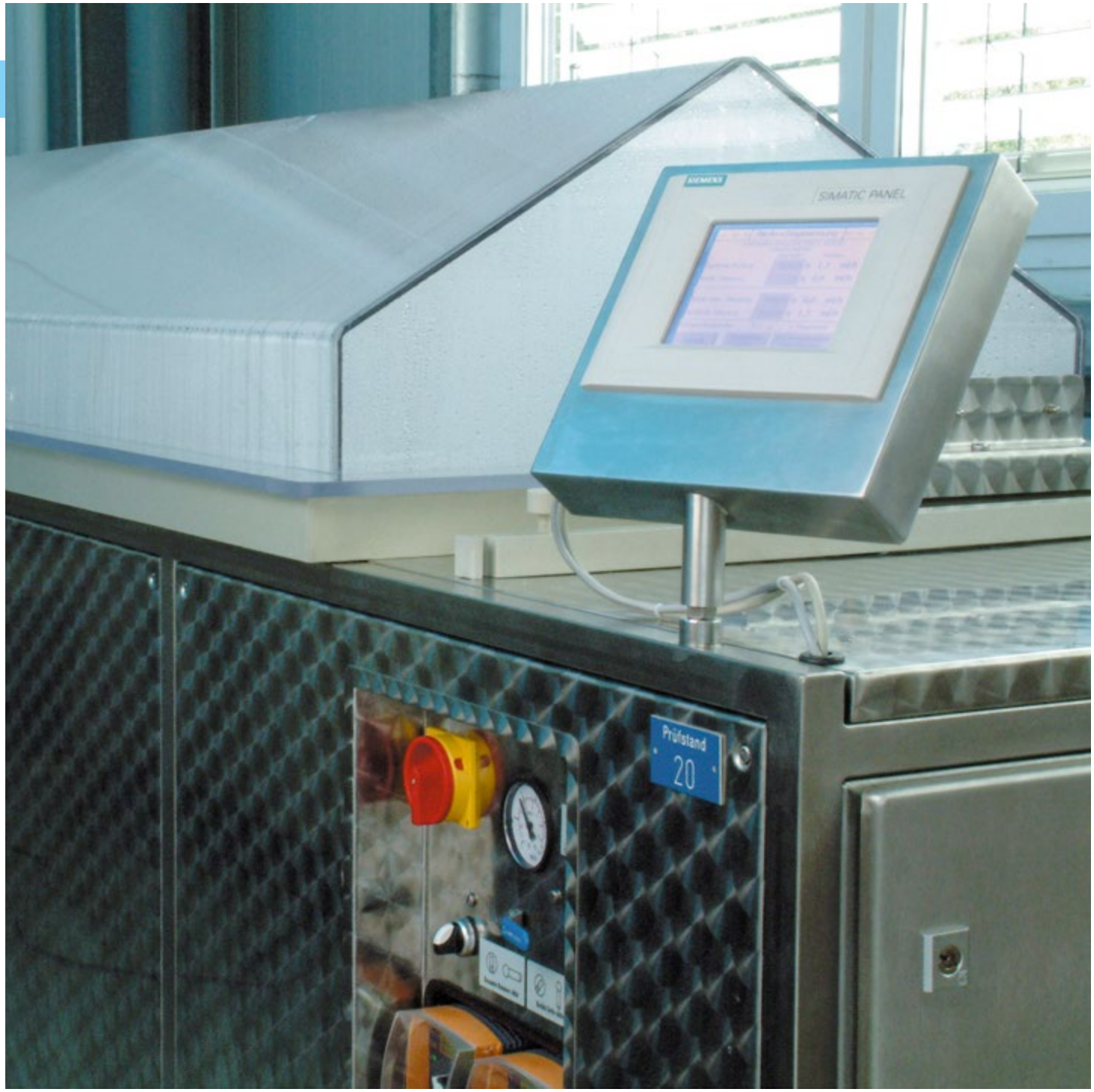


# TESTING OF WINDOW HANDLES
## ACC. TO EN 13126-3 • DIN 18267 • RAL-GZ 607/9

PIV has all of the testing facilities required for testing window handles. Clickable and lockable window handles are tested in accordance with the German standard DIN 18267, European standard EN 13126-3 and RAL 607/9. DIN 18267 stipulates a dimensional inspection of the products, in general an endurance test and corrosion test, as well as miscellaneous torsion and tensile tests.

The objective of these tests is to safeguard the durability of the characteristics as well as overall usability. Moreover, the use of window handles in burglar resistant windows is linked to certain requirements. These requirements can be verified and certified by PIV.

PIV also offers its customers PIV CERT certification in accordance with DIN 18267 or a RAL quality mark for window handles. In addition to the specific technical requirements stipulated in DIN 18267 or RAL-GZ 607/9, the RAL quality mark is associated with an inspection of the production site.


SIEMENS
SIMATIC PANEL
Prüfstand
20

# CORROSION TESTING
## ACC. TO EN 1670 • EN ISO 9227 • DIN 50017 • DIN 50018

The corrosion test is an integral part of nearly all product certification. It constitutes an important characteristic that PIV tests for its customers. The salt spray test is a widely used and well-established standard test procedure.

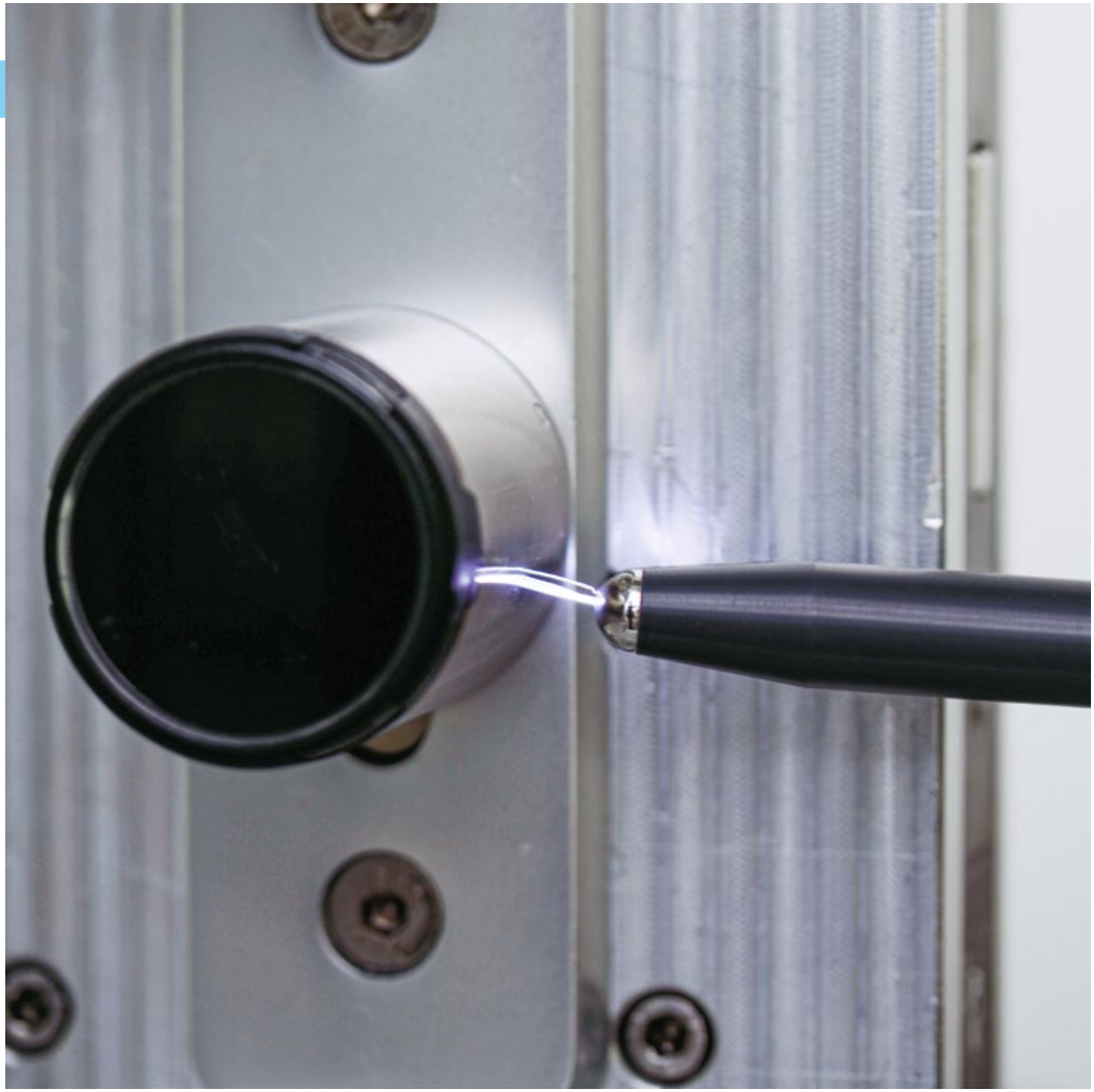
The EN 1670 standard is used as the basis for evaluating locks and hardware. It refers to EN ISO 9227 (Corrosion tests in artificial atmospheres – salt spray tests).

The neutral salt spray test in accordance with EN ISO 9227 applies to:

- Metals and their alloys
- Metallic coatings (anodically or cathodically effective)
- Conversion coatings
- Anodic oxide coatings
- Organic coatings on metallic materials

Our test chamber for the salt spray test is suitable for specimens of up to 1.9 m in length and a maximum width of 0.6 m.

Furthermore, PIV also offers tests in accordance with DIN 50018 (Testing in a saturated atmosphere in the presence of sulfur dioxide) and in accordance with DIN 50017 (Condensation water test atmospheres).

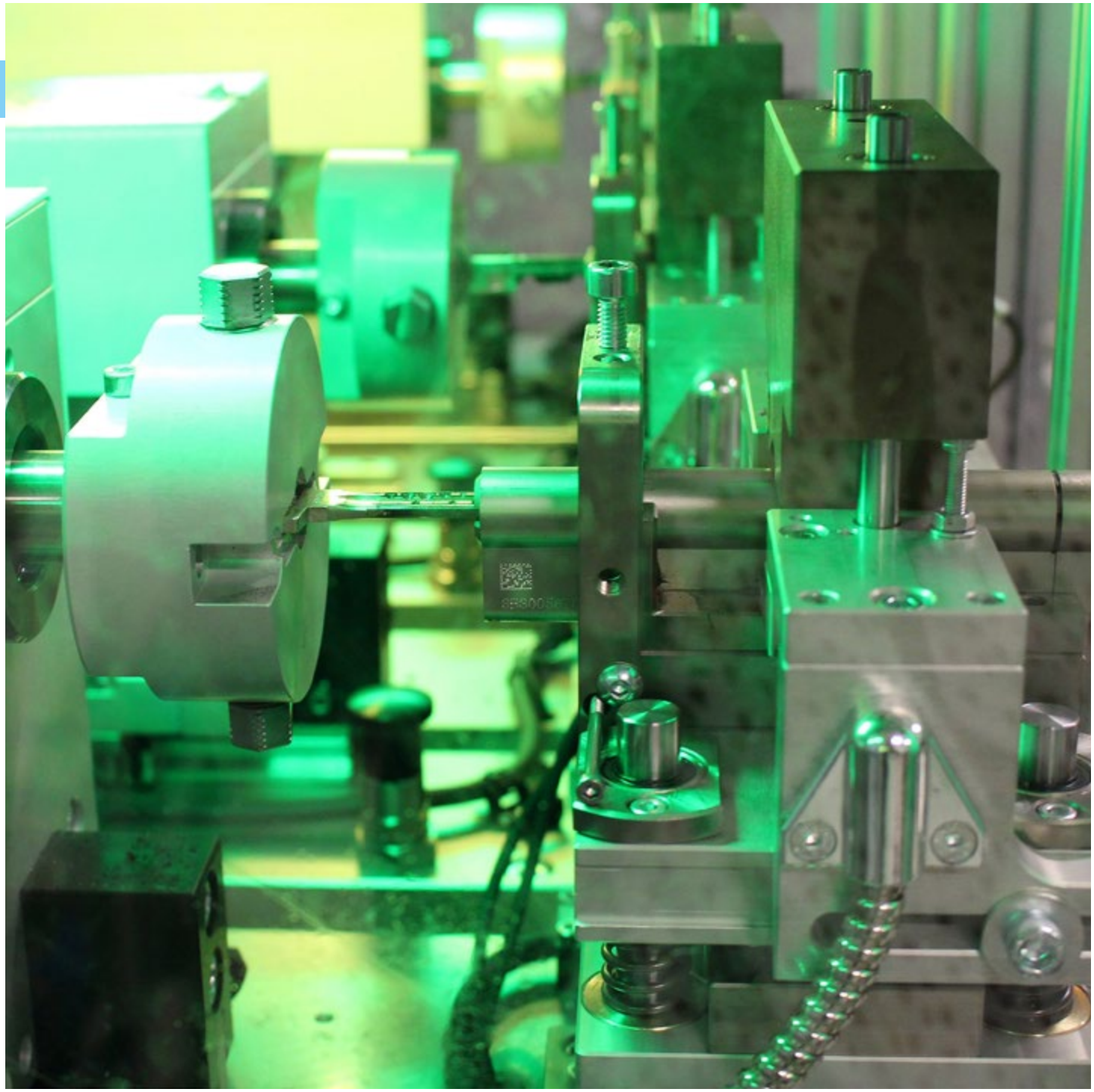


# TESTING OF MECHATRONICS
## EMC • ESD • VIBRATIONS

In addition to testing the purely mechanical properties of locks, hardware, windows and doors, PIV also offers testing of products' mechatronic and electronic performance characteristics. The standards that these tests are based on include EN 14846 (Electromechanically operated locks and striking plates) and DIN EN 15684 (Mechatronic cylinders).

The strength, protective effect and durability as well as the effectiveness of electrical and electronic components are tested in accordance with EN 14846 and DIN EN 15684.

If certification is desired (testing and inspection by PIV), this can be obtained through the respective PIV CERT certification programme. The PIV CERT certification association issues a certificate for cylinder locks once they have successfully passed the test and the initial production site inspection has run smoothly.



# TESTING OF CYLINDER LOCKS
## ACC. TO EN 1303 • EN 15684 • DIN 18252

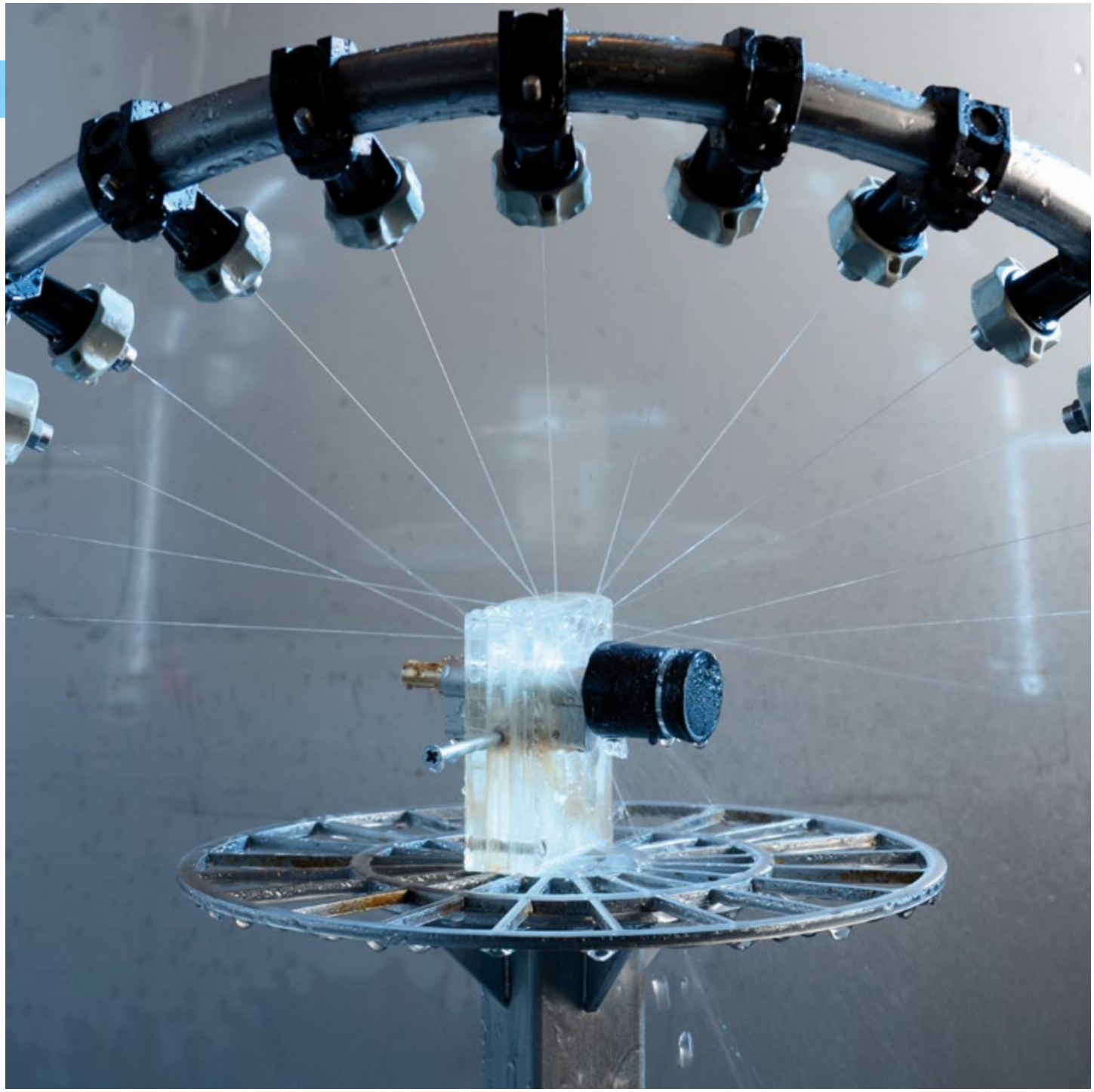
The European standards EN 1303 and EN 15684 are the test standards for mechanical and mechatronic cylinders. This represents the standard for these product groups. PIV offers this test as well. The 8-digit classification key is used to certify cylinder locks with a variety of functions and safety features.

The DIN 18252 standard must be followed if entire locking systems are to be tested or if the interchangeability of profile cylinders in locks (e.g. mortise locks in the DIN 18251 series of standards) is to be guaranteed. This is a collateral standard for EN 1303 for mechanical cylinders and EN 15684 for mechatronic cylinders.

The scope of testing comprises a durability test, corrosion protection test and environmental test as well as drilling/pull-out protection as needed.

If certification is desired (testing and inspection by PIV), this can be obtained through the respective PIV CERT certification programme. The PIV CERT certification association issues a certificate for cylinder locks once they have successfully passed the test and the initial production site inspection has run smoothly.

Cylinder locks may also be listed with the Commission for Crime Prevention (KPK). For this, the attack resistance classes specified in the list must be complied with.



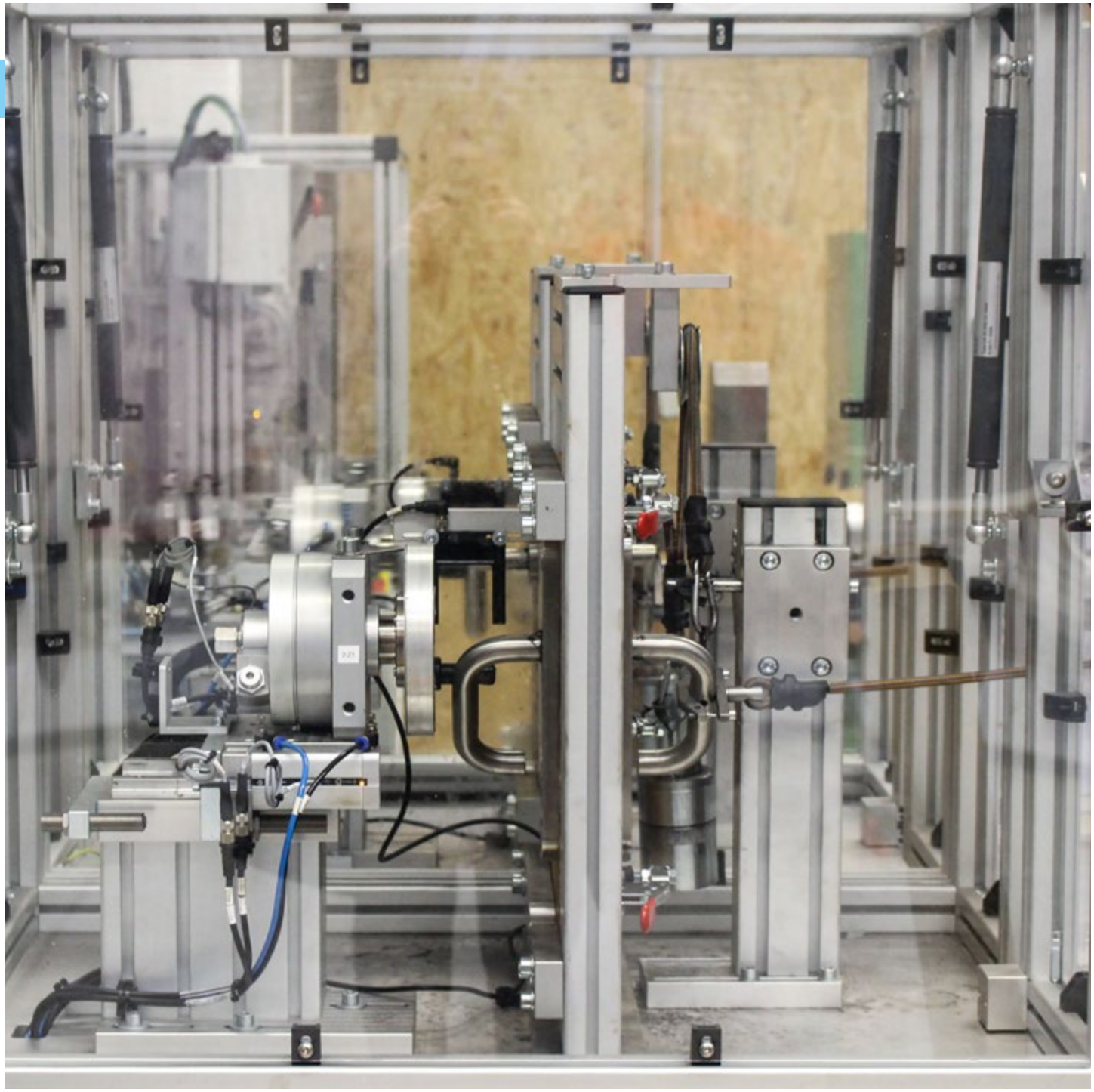
# IP PROTECTION CLASS TESTING
## ACC. TO EN 60529

PIV also carries out protection class testing. The requirements for ingress protection tests (IP code) are defined in the EN 60529 standard. This standard provides a system for classifying degrees of protection for electrical equipment enclosures. Determination and specification of the IP code for electrical equipment (e.g. an electromechanical locking system) is expedient and customary.

The IP code primarily consists of two digits. The first indicator denotes protection against ingress of solid foreign objects (e.g. dust); the second describes protection against ingress of water with harmful effects.

Example: "IP 54" means:

- "5", the first digit = dust protection
- "4", the second digit = protection against spray water from all sides



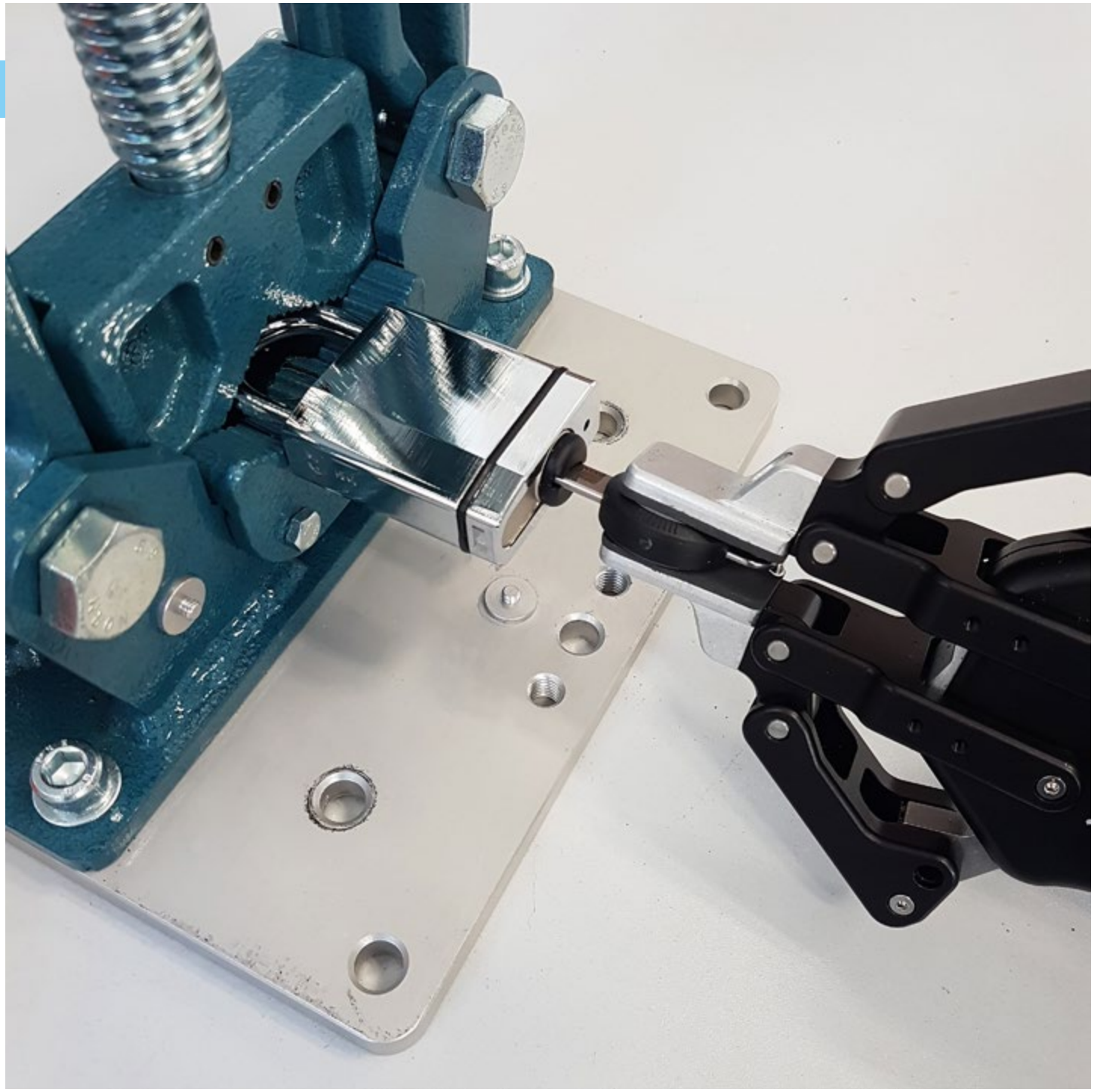
# DOOR HARDWARE TESTING
## ACC. TO EN 1906 • prEN 16867 • DIN 18257 • DIN 18273 • RAL-GZ 607/6

PIV has all of the testing facilities required for testing door handle fixtures. Mechanical door handle fixtures for use on fire doors and smoke control doors are tested according to DIN 18273 and can obtain a conformity mark with this standard.

Safety hardware can be tested either according to the RAL quality guideline RAL-GZ 607/6, the German DIN 18257 or the European standard EN 1906. Test components include dimensional checks, corrosion resistance testing, strength, torsion and resistance testing as well as continuous function tests.

Mechatronic door hardware falls within the scope of prEN 16867. The primary focus of testing for these products is on strength, continuous shock, vibration, torsion and resistance testing as well as electrostatic discharge testing, continuous function testing, tests of environmental resistance (corrosion, water, humidity, cold and heat) and authorisation security (ICC, PIN codes, biometrics and access cards).

If certification (testing and inspection by PIV) is desired, this can be obtained through the respective PIV CERT certification programme or RAL guideline RAL-GZ 607/6. A PIV CERT certificate or RAL quality mark will be issued for door handle fixtures once they have successfully passed the test and the initial production site inspection has run smoothly. Safety hardware may also be listed with the Commission for Crime Prevention (KPK). For this, the attack resistance classes specified in the list must be complied with.



# TESTING OF PADLOCKS AND PADLOCK FITTINGS
## ACC. TO EN 12320 • EN 16864

Padlocks are used, among other purposes, to protect and control doors (e.g. cellar doors, garden gates), cabinets or moveable objects. PIV also carries out testing of padlocks and padlock fittings.

The European standard EN 12320 describes the test methods to be applied to these products and specifies, among other things, requirements for the performance, strength, durability, corrosion resistance and safety of padlocks. A 4-digit classification key is used to certify padlocks with a variety of function and safety requirements.

EN 16864 is the addendum for mechatronics and describes the requirements for the performance and testing of mechatronic padlocks and their keys. The primary focus of testing for these products is on strength, torsion, shock and vibration tests as well as electrostatic discharge testing, continuous function testing, tests of environmental resistance (corrosion, water, humidity, cold and heat). An 8-digit classification key is used to certify mechatronic padlocks with a variety of function and safety requirements.

If certification is desired (testing and inspection by PIV), this can be obtained through the respective PIV CERT certification programme. The PIV CERT certification association issues a certificate for padlocks and padlock fittings once they have successfully passed the test and the initial production site inspection has run smoothly.


CTS
CLIMA
TEMPERATUR
SYSTEME

# ENVIRONMENTAL TESTING
## ACC. TO EN 60068-2-1 • EN 60068-2-2 • EN 60068-2-30 • EN 60068-2-78

Environmental testing is acquiring ever greater importance for products that contain electrical or electronic components and, at the same time, are subjected to environmental influences without additional protection. This is frequently the case with outer doors and windows, but unheated areas may also be subject to temperatures that affect component function.

PIV has an environmental chamber at its disposal, with sequence control for environmental testing in heat, cold and humidity. A special service opening is available for activating electrical or electronically operated test specimens.

# TESTING OF WINDOWS, DOORS AND FACADES
## ACC. TO EN 1191 • EN 13830 • EN 14351-1

The CE mark for windows and outer doors without flammability properties has been required for quite some time. EN 14351-1 describes the performance characteristics in conjunction with the CE mark. PIV is notified for this standard, i.e. it has Europe-wide approval to conduct these tests.

Customary characteristics include, for example:

- Air permeability
- Water tightness
- Wind load resistance
- Mechanical strength
- Durability test

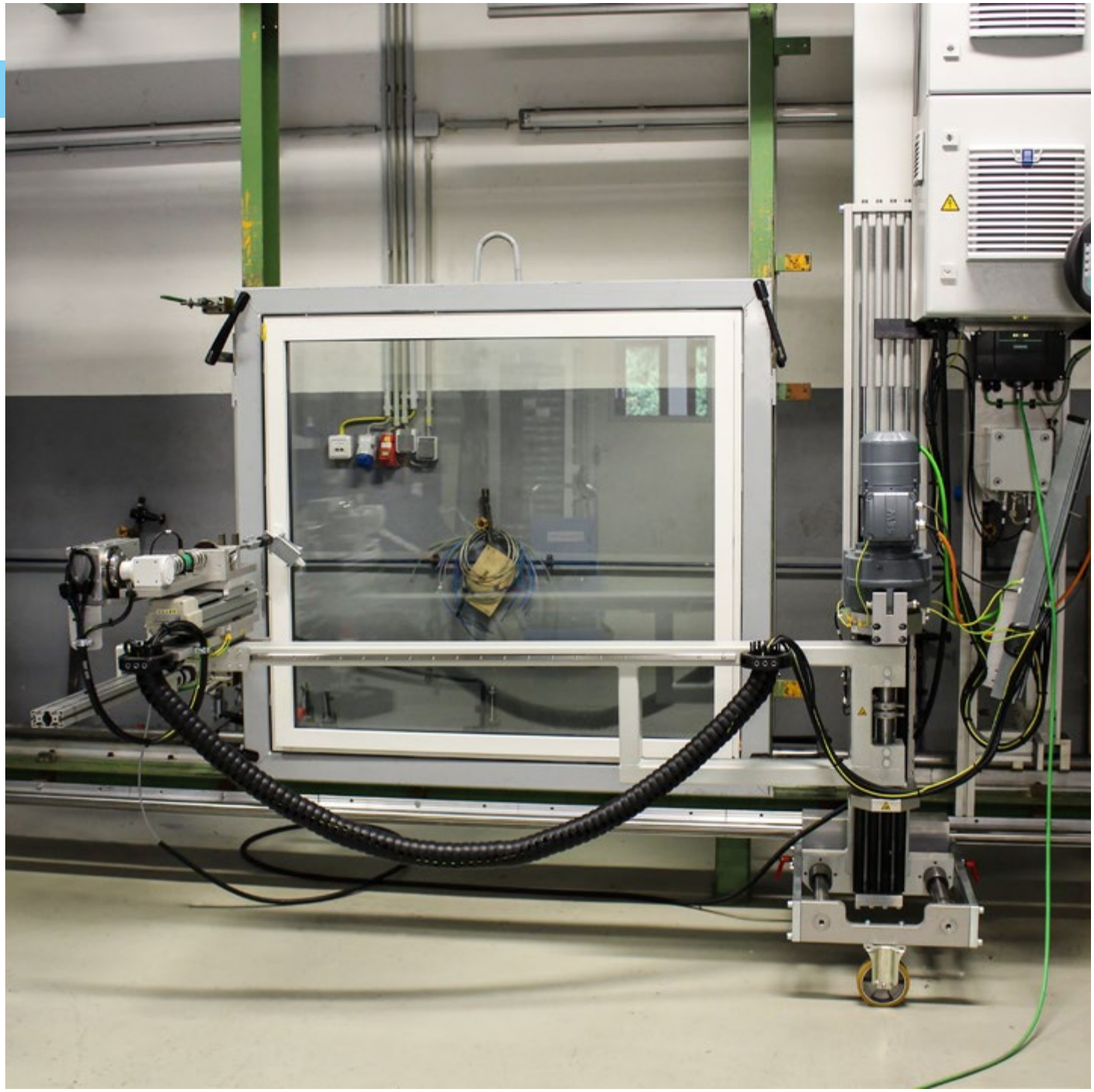
PIV has a test bench available for testing air permeability in accordance with EN 1026, water tightness in accordance with EN 1027 and wind load resistance in accordance with EN 12211. Devices with dimensions up to six by five metres can be tested here. The maximum test pressure is 5,000 pascals (depending on the size and density of the component).

State-of-the-art testing equipment is also available for testing mechanical strength and durability in accordance with EN 1191.

# TESTING OF PANIC AND EMERGENCY EXIT DEVICES
## ACC. TO EN 179 • EN 1125

The primary purpose of the requirements for usability that are set out in standards EN 179 and EN 1125 is to enable a safe, effective escape through a door either by using a single hand operation and/or by means of body pressure, thus opening a panic or emergency exit device with minimum exertion. EN 179 governs emergency exit devices with a door handle or impact plate; EN 1125 applies to panic exit devices with a horizontal control rod.

PIV has the requisite equipment to perform these tests and the notification for issuing a certificate of constancy of performance (CE mark). In addition to the mandatory durability test, tests for misuse, determination of release forces to activate the latch, a corrosion and temperature test are included as well.



# TILT AND TURN TESTING
## ACC. TO PARTS OF EN 13126 SERIES OF STANDARDS • RAL-GZ 607/3

Since its foundation, tilt and turn testing has been a core area of expertise at PIV.

Tilt and turn hardware is tested in accordance with EN 13126-8. The test comprises a durability test of the tilt and turn functions as well as a variety of load tests, such as the rebate obstacle test and embrasure test.

Moreover, PIV offers the RAL quality mark for tilt and turn hardware. RAL guideline RAL-GZ 607/3 combines two critical standards into a single test procedure. These are EN 13126-8 (Tilt/turn, turn/tilt and turn-only hardware) and EN 1191 (Fatigue test for comprehensive windows and doors). The RAL quality mark is incorporated into an inspection of the production site carried out by PIV and forms the basis for interchangeability of the hardware.

In addition to hardware for tilt and turn windows, other types of window hardware can be tested at PIV, e.g. lift and slide fittings, folding sliding doors and hardware for pivot windows.

# PIV CERT CERTIFICATION ASSOCIATION

PIV CERT is a product certification body for construction products. PIV offers a suitable certification programme for every type of lock or hardware. Burglar resistance certification can be arranged for windows, doors, curtain walls, grilles, shutters and gates.

The principles pertaining to the structure and maintenance of a product certification body are governed in standard DIN EN ISO/IEC 17065. As an accredited certification body, PIV must therefore undergo regular inspections by the German Accreditation Body (DAkkS).

A test performed by PIV (or another institute) in accordance with DIN EN ISO/IEC 17025 enables manufacturers to obtain certification of their construction product on a voluntary basis. Certification always includes an initial production site inspection as well as periodic follow-up inspections.

**PIV CERT**
**Zertifizierungsvereinigung**

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## CERTIFICATION PROGRAMMES OFFERED

- Door hardware / security plates / rosettes acc. to EN 1906
- Door hardware / security plates / rosettes acc. to EN 1906 plus (EN 1906 plus additional requirements)
- Burglar resistant windows, doors, curtain walls, grilles, shutters and additional shutters acc. to EN 1627 and DIN V ENV 1627
- Mortise locks for rebate doors acc. to DIN 18251-1
- Mortise locks for tube frame doors acc. to DIN 18251-2
- Mortise locks for multi-point locks acc. to DIN 18251-3
- Security plates / safety rosettes acc. to DIN 18257
- Profile cylinder for mortise locks acc. to DIN 18252
- Locking cylinders for locks acc. to EN 1303, EN 15684
- Screw-on retrofit products for windows and doors acc. to DIN 18104-1
- Retrofit products for windows and doors installed in the rebate acc. to DIN 18104-2
- Window handles, clickable and lockable window handles according to DIN 18267
- Locks and building hardware / mechanically operated locks and striking plates according to EN 12209

Further certification programmes can be found on our home page.

# CERTIFIED PRODUCTS
## CERTIFICATION BASIS: DIN AND EN STANDARDS

| | |
|---|---|
| EN 179 | Emergency exit devices operated by a lever handle or push pad |
| EN 1125 | Panic exit devices operated by a horizontal bar |
| EN 1303 | Cylinders for locks |
| EN 1627 - 1630 | Burglar resistance windows, doors and elements |
| EN 1906 | Lever handles and knob furniture |
| EN 1935 | Single-axis hinges |
| EN 12209 | Mechanically operated locks and locking plates |
| EN 14351-1 | Ability to release |
| EN 14846 | Electromechanically operated locks and striking plates |
| EN 15684 | Mechatronic cylinders |
| DIN 18104-1, -2 | Mechanical security equipment |
| DIN 18250 | Mortise locks for fire doors and smoke control doors |
| DIN 18251-1, -2, -3 | Mortise locks for rebated doors, tube frame doors and multi-point locks |
| DIN 18252 | Profile cylinder for door locks |
| DIN 18257 | Security plates |
| DIN 18267 | Clickable and lockable window handles |
| DIN 18273 | Lever handle sets for fire doors and smoke control doors |

## CERTIFIED PRODUCTS
## CERTIFICATION BASIS: RAL QUALITY GUIDELINES

| | |
|---|---|
| RAL-GZ 607/2 | Mortise locks, tube frame locks and multi-point locks |
| RAL-GZ 607/3 | Tilt & turn hardware |
| RAL-GZ 607/6 | Security plates |
| RAL-GZ 607/8 | Door and safety door hinges |
| RAL-GZ 607/9 | Window handles and window handles with a protective effect |
| RAL-GZ 607/12 | Fanlight hardware |

RAL GÜTEZEICHEN

The list of certified products is constantly updated as a result of the expansion of the certification programmes offered. The current overview is available on the home page.

# THE PIV LOCATION

The Testing Institute Locks and Hardware is based in Velbert.

The management and staff of the Institute are at your disposal.

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