Testing and CE-Marking – Industrial, commercial and garage doors and gates

SP is one of the leading bodies in the field of testing and certification. We issue certificates of compliance for a large number of standards. Our experienced auditors, our cutting edge competence and unique access to world class testing and research make us a partner you can rely on.
Put us to the test

CE-marking according to Construction products regulation (CPR) is mandatory for industrial doors, garage doors and gates on the European market. We are one of the leading bodies in the field of all necessary tests and assessments in accordance with the European harmonized product standard EN 13241-1:2003+A1:2011

We help you with everything you need related to testing of doors and gates. Our experience, our cutting edge competence and unique access to world-class testing and research in a large number of fields make us a partner you can rely on.

CE-marking of doors. This is how it works:

- Application to the notified body
- Set up of test programme to verify performances of the test object
- Execution of the tests, calculations, assessments
- Issuing of the test reports
- Declaration of performance (DoP) is drawn up by the manufacturer
- CE-marking is affixed to the product by the manufacturer
- Manufacturers continuous factory production control at the production site
Testing: Notified body's tasks

Air permeability, water tightness and resistance to wind load
A fully assembled door is tested in a test chamber. The tested door is normally one of the most frequently sold sizes on the market. The manufacturer should consider different configuration possibilities when choosing the test objects, for example different types of panels, windows, pass doors, reinforcement trusses etc. Wind load test for larger doors is performed by means of a 4-point bend test on single panels.

Release of dangerous substances
Assessments concerning the release of dangerous substances are carried out on the basis of the documentation provided by the customer, and are made according to requirements in the standard and/or applicable European legislation. Documents that are required include full composition and blue prints of the product/materials in question.

Thermal resistance
The objective is to determine the thermal transmittance of the complete door. The door consists of different kinds of materials, joined in different ways, and can exhibit numerous variations of geometrical shape and thermal properties. Thus, material and geometry give rise to thermal bridges around the perimeter and between elements which may significantly affect the thermal transmittance. Numerical calculations are applied in order to quantify the effect of thermal bridges. These calculations are based on the geometry, thermal conductivity and standardized boundary conditions. Measurement of thermal conductivity may be needed in order to determine thermal conductivity of unfamiliar materials.

Durability of the performance characteristics
The door shall be subjected to the number of test cycles corresponding to the economical working life of the door, which it has been designed for. The tests carried out to check this durability are air permeability, water tightness, thermal transmittance and the mechanical aspects, such as spring- and wire break and other types of wear. This information is needed by the manufacturers for their user manual and service program. The test can be performed at SP or on premises provided by the manufacturer.

Safe opening
The test is normally performed with the door mounted in the test chamber but can also be performed on site. The total weight of the moving parts of the door shall during this test be equal to the weight of the largest (heaviest) door sold on the market. To simulate the largest door, extra weights may be distributed over the panels. For an overhead door, a spring break is simulated by releasing one balancing spring and a lifting wire failure is simulated by cutting one wire.

Operating forces
The operational forces of the door, i.e primarily the crushing force at the main closing edge, needs to be checked in regards to specified levels in the test standard. Since the door can be sold with different operators, control units and safety edges, then all combinations must be tested or evaluated. The test is normally performed with the door mounted in the test chamber but can also be performed on site. The total weight of the moving parts of the door shall during this test be equal to the weight of the largest (heaviest) door sold on the market. To simulate the largest door, extra weights may be distributed over the panels.

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Testing: Manufacturer’s tasks

EN 13241-1 also contains a number of tests that do not need to be carried out by an notified body. However, we can of course help with these as well and guide you through the entire process of testing.

Geometry of glass
The standard EN 13241-1 states that if breakage of the transparent material used in the door occurs then it should not become dangerous. This is evaluated using the pendulum test carried out according to EN 12600. We can perform these tests on different types of doors and panels, for instance with fitted windows and full-vision panels.

Mechanical resistance
The door shall be constructed so that the combined strength of all the different parts of the door are sufficient to withstand any type of failure during normal operation. We can help with various types of tests, evaluations and calculations for this vital aspect of the door.

Electrical safety
Evaluation according to IEC/EN 60335-2-103. This standard covers tests such as protection against access to live parts, marking, leakage current and electrical strength, heating, mechanical tests, abnormal operation, wiring, earthing, clearance and creepage distances, resistance to heat and fire. Additionally door controls for outdoor use or for use in other locations where they may be exposed to water and/or dust shall be IP-classified.

Safety of machinery:
EN 12453 “Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Requirements” describes among other things which requirements that are placed on safety functions realized by E/E/PE (Electrical/Electronic/Programmable Electronic systems). Depending on the requirements on risk reduction for the safety functions different safety levels are defined. One important aspect when it comes to functional safety is to choose an appropriate category (fault tolerance level). The concept of category can be found in both the old standard EN 954-1 and in the new standard ISO 13849-1.

Electromagnetic compatibility (EMC)
General EMC requirements are specified by standards harmonized under the EMC-directive. The generic standards EN 61000-6-2 (immunity) and EN 61000-6-3 (emission) are normally used. These standards apply in both industrial, commercial and residential environments. The functional requirements during immunity tests are specified in general terms in EN 61000-6-2. EN 13241-1+A1:2011 (Industrial, commercial and garage doors and gates) refers to EN 61000-6-2 for immunity and gives more specific defined functional requirements applicable for machine operated gates.

Noise
The airborne sound insulation is determined by laboratory testing. The test is carried out to determine the door’s capability to protect against noise. The measurement is performed according to the current standard EN ISO 10140-2 (which replaces EN ISO 140-3) and is evaluated according to EN ISO 717-1.

Fire
The product standard EN 16034:2014* requires CE marking of products such as, for example, industrial, commercial, garage doors and gates. CE marking of these products with respect to fire is made after testing in accordance with EN 1634-1 and with respect to smoke control according to EN 1634-3. The constructions ability to stop fire and smoke is classified according to EN 13501-2 where the property is designated by a letter, E (integrity), I (insulation) and Sa / Sm (smoke control) and an index indicating the time that this property is maintained e.g. EI60-Sa.

Burglary resistance
Burglary resistance tests on industrial and garage doors are performed according to SSF 1074 - Norm for industrial doors - Classification, requirements and test methods. This norm for burglary resistance testing is issued by the Swedish Theft Prevention Association, certification in accordance with this norm can be issued by SP. We also provide testing of cylinders, locks and striking plates, building hardware, protected locking plates, handles, hinges, panic exit devices and emergency exit devices relating to complete doorsets. All test reports, which state burglary, bullet and explosive resistance classification, are issued according to the relevant European Standards or norms from SSF.

Initial Type Testing Report (ITTR)
A number of tests are carried out at our different test labs, and these are reported in separate detailed test reports which include description of the tested object, test methods, results, measurement uncertainty etc.

We then summarize the test results (as given in the test reports) in a short “Summary of Initial Type Testing Reports”. This summary report has a unique report number connected to SP’s number as Notified Body (0402), and can be used as basis for CE-marking according to the CPR Construction Products Regulation (EU) 305/2011 and the harmonized standard EN 13241-1.

*) EN 16034 is not yet published as a CE-marking standard (February 2015). For more information see www.sp.se/doors
SP Technical Research Institute of Sweden is a leading international research institute. We work closely with our customers to create value, delivering high-quality input in all parts of the innovation chain, and thus playing an important part in assisting the competitiveness of industry and its evolution towards sustainable development.

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