

### $El_230-C5-S_{200}$ – do you know what it means?

#### EN 16034 - CE instead of approval -

Opportunities for manufacturers and trading to enter new markets in Europe

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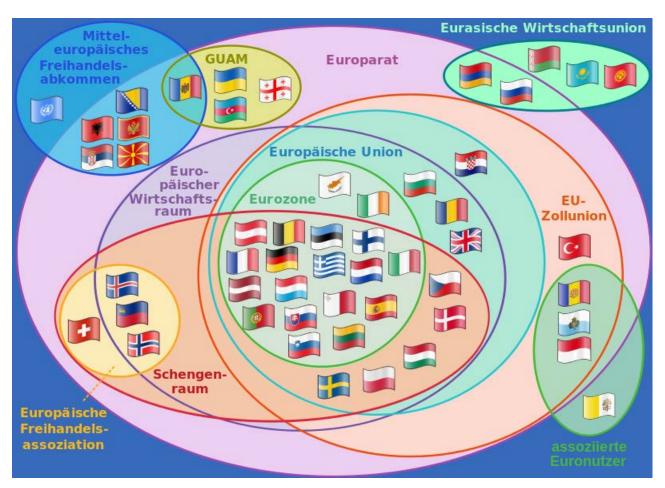
Congress Eurofereastra – Bucharest 23. May 2017







### New markets in Europe - opportunities for trade



Source: Supranational European Bodies-de by Supranational European Bodies-en.svg:





### Start and durance of coexistence period

CEN	EN 16034:2014	1.11.2016	1.11.2019
	Pedestrian doorsets, industrial, commercial, garage doors and openable windows - Product standard, performance characteristics - Fire resisting and/or smoke control characteristics		

NOTE: EN 16034:2014 shall only be applied together with either EN 13241-1:2003+A2:2016 or EN 14351-1:2006+A2:2016.

#### Main product requirements:

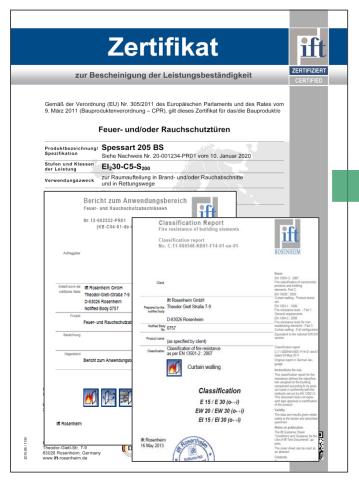
- 1. Fire resistance
- 2. Smoke Control
- 3. self-closing
- 4. "ability to release" (hold-open system, no escape door or exit door)

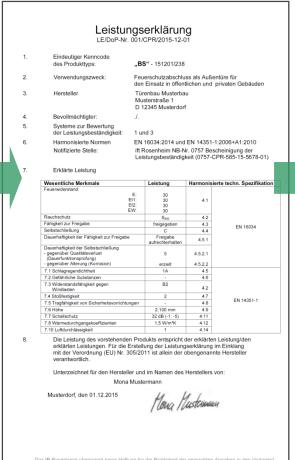
Further characteristics has to be tested and declared by other product standards such as gates, windows or doors





### Way to CE marking

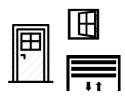


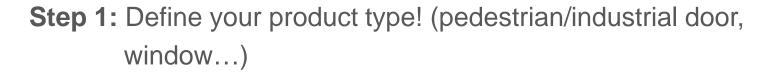






### The 10 steps to CE marking – your checklist!





Step 2: Determine your product families!

**Step 3:** Do you already have valid evidence? If not, then agree the necessary test specimen planning with the Notified Product Certification body (NPC body)!

**Step 4:** Do you already have valid EXAP reports?

**Step 5:** Do you already have classification reports?





### The 10 steps to CE marking – your checklist!

- **Step 6:** Describe the technical documentation for surveillance and, as manufacturer, introduce factory production control!
- **Step 7:** Initial audit then continuous surveillance by the NPC body
- **Step 8:** Conformity assessment by the NPC body
- Step 9: Certificate of constancy of performance issued by the NPC body
- **Step 10:** CE marking and creation of the declaration of performance by the manufacturer



### Step 1: Define product type (scope)

- 1. Exterior doors and windows (EN 14351-1)
- 2. Gates and rolling shutters (EN 13241-1)
- 3. Automatic doors (EN 16361)
- 4. Interior doors (prEN 14351-2)

industrial, commercial and/or garage doorsets, rolling shutters or operable fabric curtains intended for the installation in areas in the reach of persons and for which the main intended uses are giving safe access for goods and vehicles accompanied or driven by persons or

rolling shutters or operable fabric curtains used in retail premises which are mainly provided for the access of persons rather than vehicles or goods or

pedestrian doorsets and/or openable windows and/or inspection hatches which are hinged or sliding, intended for the installation in areas in the reach of persons, and for which the main intended uses are giving safe access for persons



### Step 1: Performance of 7 characteristics

 $EI_2 30 - C5 - S_{200}$ 

EN 15269-5 prEN 17020-1 EN 15269-20

## Type: Fire and smoke control shutters and Performance according 16034:

- 1. Resistance to fire (E / EW / EI<sub>1</sub> / EI<sub>2</sub>)
- Smoke control (S<sub>a</sub> / S<sub>200</sub>)
- 3. Self-closing function
- 4. Durabiliy of self closing (cycle test C class 0-5)
- 5. Durability of self closing (quality corrosion) (achieved)
- 6. Ability to release (release)
- 7. Duralbility of ability to release (release remains)







Abdichtung

endungs- Brandve ereich







leitung

Dauc

unktion Feuerwiders fähigke







Mechanische Festigkeit

Rauchdicht

Selbstschließu







Temperaturerhöhung I

Tragfähigke

gkeit R Wärmedämm



- E Integrity resistance against fire from one or both sides (EN 16034 Abs. 4.1, EN 13501-2 Abs. 5.2.2)
- Insulation avoiding heat transmission through shutter (EN 16034 Abs. 4.1, EN 13501-2 Abs. 5.2.3).
   I<sub>1</sub> means not measure a strip of 25 mm,
   I<sub>2</sub> 100 mm strip of panel or door
- Smoke control Tightness of smoke (EN 16034 Abs. 4.2)
   S<sub>a</sub> means smoke with room temperature
   S<sub>200</sub> means smoke with temperature 200 °C.
  - **Ability to release** closing of door in case of fire or smoke, even if without electricity (EN 16034 Abs. 4.3)
- **C** Self closing tight closing of door in case of fire or smoke (EN 16034 Abs. 4.4 und 4.5, EN 13501-2 Abs. 5.2.6)
  - C self closing without testing the durability (cycle test)
  - **C0 C5** (from 1 up to 200.000 cycles)
  - **Durability of Ability to release** result after cycle test and test of corrosion (EN 16034 Abs. 4.5 bzw. Abs. 5.2)
- **W** Limitation of heat radiation (EN 16034 Abs. 4.1, EN 13501-2 Abs. 5.2.4) **Classification of time for resistance** 10, 15, 20, 30, 45, 60, 90, 120, 180, 240 or 360 in minutes (EN 16034 Abs. 4.1, EN 13501-2 Abs. 6.1)

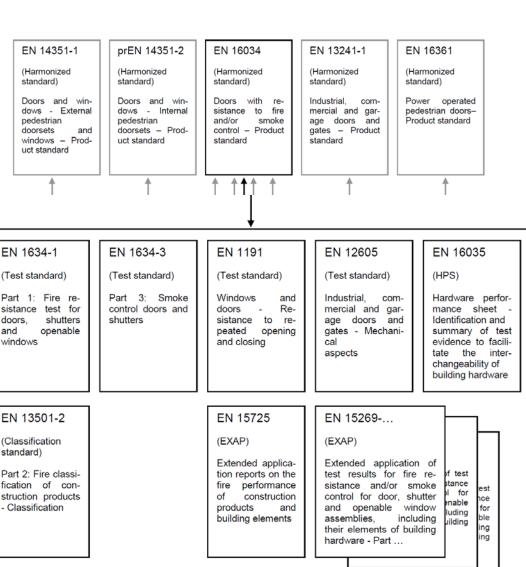




# Step 2: Product families Harmonised product standards

test standards incl. field of direct application

Classification standard and Standards for extended field of application





### Step 4: performance characteristics Fire resistance (E / EW / EI<sub>1</sub> / EI<sub>2</sub>)

- E means integrity / resistance against fire from one or both sides
- EW means radiation (limitation of heat transmission)
- I means insulation avoiding heat transmission through shutter (I<sub>1</sub> means not measure a strip of 25 mm, I<sub>2</sub> 100 mm strip of panel or door)



E	15	20	30	45	60	90	120	180	240
EI <sub>1</sub>	15	20	30	45	60	90	120	180	240
El <sub>2</sub>	15	20	30	45	60	90	120	180	240
EW		20	30		60				



### Step 4: performance self-closing properties

One of the essential requirements for doorsets and openable windows is that components that are not normally maintained locked in the closed position must be **self-closing**.

Use category	Cycles
5	≥ 200 000
4	≥ 100 000
3	≥ 50 000
2	≥ 10 000
1	≥ 500
0	1 to 499





### Step 4: Extended application (Exap) – list of standards

Standard	Topic	Status	Pages
EN 15269-1	General requirements	2010-03 in revision	24
EN 15269-2	Hinged and pivoted steel doorsets	2012-09	112
EN 15269-3	hinged and pivoted timber doorsets and openable timber framed windows	2012-08	80
EN 15269-5	hinged and pivoted metal framed glazed doorsets and openable windows	2014-06	125
prEN 15269-6	Sliding timber doorsets	2014-06	75
EN 15269-7	Steel sliding doorsets	2009-11	155
EN 15269-10	Steel rolling shutter assemblies	2011-04	69
prEN 15269-11	Operable fabric curtains	2013-05	75
EN 15269-20	Smoke Control	2009-09 In revision	46





### Step 4: Extended application (Exap) – list of standards

Standard	Topic	Inquiry	Pages
prEN 17020-1	Hinged and pivoted steel doorsets	Ended Sep. 16	ca. 41
prEN 17020-2	Steel rolling shutter assemblies	Ended Sep. 16	ca. 64
prEN 17020-3	Steel sliding doorsets	Ended Sep. 16	ca. 60
prEN 17020-4	Hinged and pivoted metal framed glazed doorsets and openable windows	Ended Sep. 16	ca. 42
prEN 17020-5	Hinged and pivoted timber doorsets	Work not startet.	



### Step 4: EXAP Hardware – interchangeability of hardware

- 1. In this regard, a **hardware performance sheet** (HPS) is prepared for building hardware according to the standard EN 16035 (HPS).
- 2. This document is a **summary** of all test evidence,
- 3. designed to facilitate the interchangeability of building hardware on the basis of this standardized compilation of data.





### Step 4: EXAP Hardware – interchangeability of hardware

- 1. In Agreement with **Product Certification Body** (PCB)
- 2. Group hardware in **product families**
- **3. HPS** hardware performance sheet of hard ware recomended
- 4. Submission of **test reports** as selected from PCB
- **5. Assessment** by PCB
- Inclusion of hard ware in report of extended field of application
- 7. Result: Use of hard ware is possible





### Step 4: EXAP Hardware – interchangeability of hardware – ift services

- 1. Support for preparation and organisation of HPS through ift Rosenheim possible
- Confidential use of test reports, open only for neutral bodys
- 3. Deposit of test reports at ift, closed for (competitive) manufacturer
- Support for collection of charcateristic values of hard ware according to exap standards





### Step 5: Classification

Here the main classification standards are EN 13501-2 and (EN 14600). These standards give the classes, e.g.  $El_2$  30 for **fire resistance**,  $S_{200}$  for **smoke leakage**, and C5 for **self-closing** properties.

- E (Etanchéité/integrity/protection against fire) for doors/shutters
- El (Isolation) for doors/shutters and thermal insulation
- **EW** (Radiation) for doors/shutters and limitation of radiation penetration
- C (Closing) for self-closing
- **S** (Smoke) for limitation of leakage rate

Comparison: "T 30-1 door" in future "EI<sub>2</sub> 30-C5-S<sub>a</sub>"

Classes "T 30-1 RS door" in future "EI<sub>2</sub> 30-C5-S<sub>200</sub>"



### Step 6 + 7: Classification and technical documentation of surveillance

### **Documentary evidence**

- After testing the building components, test reports are produced.
- 2. The test reports contain details on the field of **direct application**.
- These details in the test reports and the details in the extended application reports are taken into account in the
- 4. Classification report by an notified body!





### Step 6 + 7: Classification report

- The classification report describes the diversity of variants and the achieved classes of the construction
- With other technical documents, serves as basis for the factory production control (FPC)
- 3. Third-party surveillance
- 4. **CE** marking.





# Step 8: Evaluation of conformity (assessment of constancy of performance)

### **Procedures of conformity**

		Tasks of the manufacturer			Tasks of the notified body				
System conform		Production control (FPC)	Initial Type Testing (ITT)	Sampling tests	Initial inspection of factory+FPC	Initial Type Testing (ITT)	Continuous external surveillance	Sampling tests	
1+		Х		Х	Х	X	Х	Х	
1		Х			Х	Х	Х		
2+		Х	X	Х	Х		Х		
3		Х				Х			
4		Х	Х						



### Step 8: Process of evaluation of conformity

A substantial part of the standard is devoted to the **evaluation of conformity / assessing the constancy of performance**.

The conformity evaluation procedure consists of the following 4 elements:

- Type Testing (TT)
- 2. Factory production control (**FPC**)
- 3. Initial inspection of factory and FPC by a notified body
- 4. Continuous surveillance and approval of FPC by a notified body



### Step 8: Type Testing (TT)

An type test is a complete **set of tests** or other procedures in respect of the performance characteristics to be evaluated. It consists of:

- Definition of product families (test standards, EN 16034, (pr)EN 15269)
- 2. Selection of representative test specimens
- Use of historical data/calculated values and designs
- **4. Sampling** (report, labelling, description, storage)
- **5. Testing** (test report, retention times)







### Step 8: Cascading ITT and FPC

In EN 16034, a detailed description is provided of the possibility of **transferring type tests** from the licenser (component manufacturer, designer, system supplier, body) to a licensee (manufacturer):

- 1. A written agreement must exist between the two parties,
- 2. The licenser must provide the licensee with **training**,
- 3. The licensee may only fit the components defined by the licenser,
- 4. The licenser must prepare **instructions** for assembly that can be used as an integral part of the FPC for the licensee,
- 5. The licensee is **responsible** for placing the product on the market.



### Step 8: Factory production control (FPC)

The manufacturer must establish, document and maintain an FPC system to ensure that the products placed on the market comply with the stated performance characteristics. This is to consist of:

- 1. General (records, retention times, installation/assembly)
- 2. Staff (responsibilities, authority, qualification, matrix)
- 3. Equipment (calibration, inspections, maintenance)
- 4. Raw **materials** and **components** (incoming raw materials, harmonised specifications)
- 5. Production process control (stages, quality control plan)
- 6. Traceability and marking (identification)
- 7. Non-conforming products
- Corrective action
- Handling, storage, packaging



### Step 8: FPC – initial inspection

### The initial inspection must verify that:

- procedures are documented as required,
- appropriate manufacturing and test equipment is available,
- staff are sufficiently qualified,
- 4. manufacturing and test equipment is checked regularly for accuracy,
- documented processes are carried out in accordance with the documented procedures,
- 6. results from the initial type test are available,
- a procedure exists for dealing with non-conformity of component(s) or product(s).



### Step 8: FPC – continuous inspection

Continuous inspections must be undertaken no less than once a year and must consist of at least the following:

- checking of the factory production controls performed,
- 2. checking of the equivalence of the product manufactured with the product **described in the ITT**
- **3. processing of comments**, recommendations and non-conformances from previous surveillances,
- Analysis and documentation of significant changes to the production process, raw materials, components, suppliers and their influence on the performance characteristics,
- checking of adequacy of the technical documents for performance of the factory production control.



### Step 9: The certificate of constancy of performance

Annex ZA of the product standard specifies the methods for the assessment and verification of the constancy of performance.

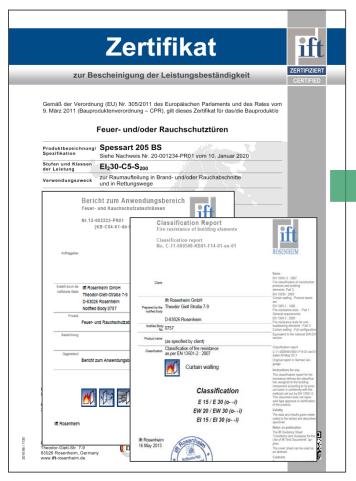
- Certificate of constancy of performance by the notified product certification body (PCB).
- The manufacturer issues a declaration of performance for each product covered by a harmonised standard.
- This declaration of performance must accompany the product.
- The CE mark with details of the notified body must be affixed to the product.
- the manufacturer must make sufficient information available to ensure the traceability of its product, in addition to the CE-marking as per Annex ZA.

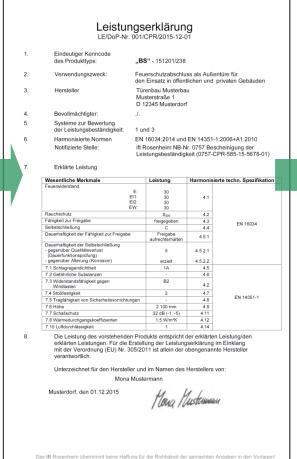






### Step 10: CE marking







### Leistungserklärung LE/DoP-Nr. 001/CPR/2015-12-01

1. Eindeutiger Kenncode

> des Produkttyps: "BS" - 151201/238

Verwendungszweck: 2. Feuerschutzabschluss als Außentüre für

den Einsatz in öffentlichen und privaten Gebäuden

3. Hersteller Türenbau Musterbau

Musterstraße 1 D 12345 Musterdorf

Bevollmächtigter: 4.

5. Systeme zur Bewertung

der Leistungsbeständigkeit: 1 und 3

Harmonisierte Normen 6. EN 16034:2014 und EN 14351-1:2006+A1:2010

> Notifizierte Stelle: ift Rosenheim NB-Nr. 0757 Bescheinigung der

Leistungsbeständigkeit (0757-CPR-585-15-5678-01)

#### 7. Erklärte Leistung

8.

Wesentliche Merkmale	Leistung	Harmonis	Harmonisierte techn. Spezifikation			
Feuerwiderstand: E: E: E11: E12: EW:	30 30 30 30 30	4.1				
Rauchschutz	S <sub>200</sub>	4.2				
Fähigkeit zur Freigabe	freigegeben	4.3	EN 16034			
Selbstschließung	С	4.4	214 10034			
Dauerhaftigkeit der Fähigkeit zur Freigabe	Freigabe aufrechterhalten	4.5.1				
Dauerhaftigkeit der Selbstschließung - gegenüber Qualitätsverlust (Dauerfunktionsprüfung)	5	4.5.2.1				
- gegenüber Alterung (Korrosion)	erzielt	4.5.2.2				
7.1 Schlagregendichtheit	1A	4.5				
7.2 Gefährliche Substanzen	-	4.6				
7.3 Widerstandsfähigkeit gegen Windlasten	B2	4.2				
7.4 Stoßfestigkeit	2	4.7				
7.5 Tragfähigkeit von Sicherheitsvorrichtungen	-	4.8	EN 14351-1			
7.6 Höhe	2.100 mm	4.9				
7.7 Schallschutz	32 dB (-1; -5)	4.11				
7.8 Wärmedurchgangskoeffizienten	1,5 W/m²K	4.12				
7.10 Luftdurchlässigkeit	1	4.14				

Die Leistung des vorstehenden Produkts entspricht der erklärten Leistung/den erklärten Leistungen. Für die Erstellung der Leistungserklärung im Einklang mit der Verordnung (EU) Nr. 305/2011 ist allein der obengenannte Hersteller verantwortlich.

Unterzeichnet für den Hersteller und im Namen des Herstellers von:

Mona Mustermann

Musterdorf, den 01.12.2015







0757

15

Türenbau Musterbau Musterstraße 1 D-12345 Musterdorf Deutschland

"BS" - 151201/238

LE/DoP-Nr.: 001/CPR/2015-12-01

Feuerschutzabschluss als Außentüre für den Einsatz in öffentlichen und privaten Gebäuden

EN 16034:2014

ı	Feuerwiderstand:	E: 30	
ı	rederwiderstand.		
ı		EI₁: 30	
ı		El <sub>2</sub> : 30	
ı		EW:30	
ı	Rauchschutz:	S <sub>200</sub>	
ı	Fähigkeit zur Freigabe:	freigegeben	
ı	Selbstschließung:	С	
ı	Dauerhaftigkeit der Fähigkeit zur Freigabe:	Freigabe auf	echterhalten
ı	Dauerhaftigkeit der Selbstschließung:		
ı	- gegenüber Qualitätsverlust :	5	
ı	(Dauerfunktionsprüfung)		
ı	- gegenüber Alterung (Korrosion):	erzielt	

#### EN 14351-1:2006+A1:2010

1

Schlagregendichtigkeit 1A Widerstandsfähigkeit gegen Windlast B2 Stoßfestigkeit Höhe 2100 mm Schallschutz 32 dB (-1; -5) Wärmedurchgang U<sub>D</sub> 1,5 W/m<sup>2</sup>K

Luftdurchlässigkeit

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