

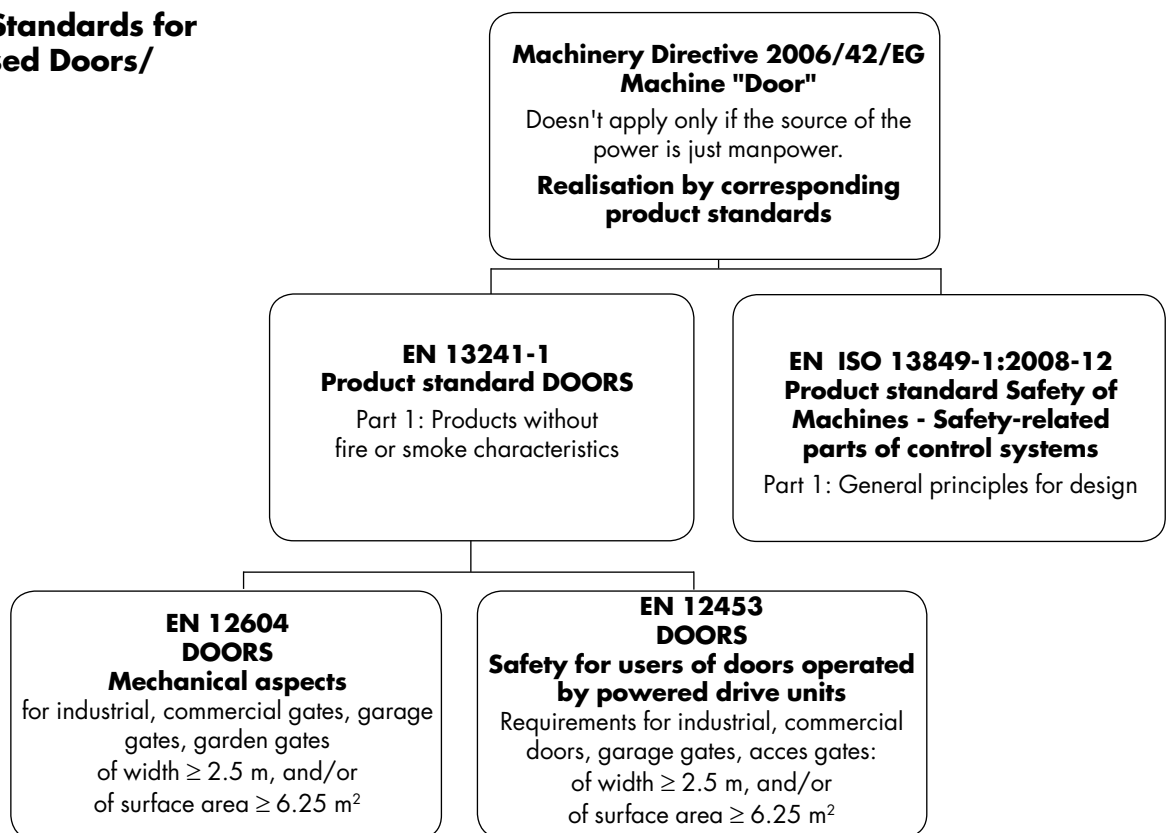


DICTATOR Door Operators - Compliance with Standards

The Machinery Directive 2006/42/EG and the related standards extremely affect doors and gates. As soon as a door is equipped with an door operator, it becomes a "machine". It is mandatory that the automated door complies with the Machinery Directive.

The "manufacturer" of the machine, i.e. the company who mounts the operator on the door, is obliged to issue a CE declaration of conformity for the "machine door". For this reason it is very important that the used door operators comply with the demands of the Machinery Directive respectively facilitate its compliance.

1. Relevant Standards for Automatised Doors/ Gates



2. Definition of "Door" according to EN 13241-1

The standard EN 13241-1 applies to doors..., which are intended to be used by people in access areas and whose main purpose is to allow for a safe access of goods and vehicles being accompanied or conducted by people in industrial, commercial or living areas.

To the following doors/gates the standard EN 13241-1 does **not** apply:

- Fire protection doors, doors in emergency exits
- Lift doors
- Doors for pedestrians moved horizontally by hand with a surface area of less than 6.25 m²
- Horizontally motor driven doors with a width of less than 2.5 m and a surface area of less than 6.25 m², intended mainly for pedestrians
- Doors used mainly for animals
- Vehicle doors, textile theatre curtains etc.



DICTATOR Door Operators - Compliance with Standards, cont.

The standard EN 12453 (see previous page) defines the specifications of power driven doors, its main intention being the general increase of safety. It focuses on the following four points.

3. Main Safety Requirements to Motor Operated Doors

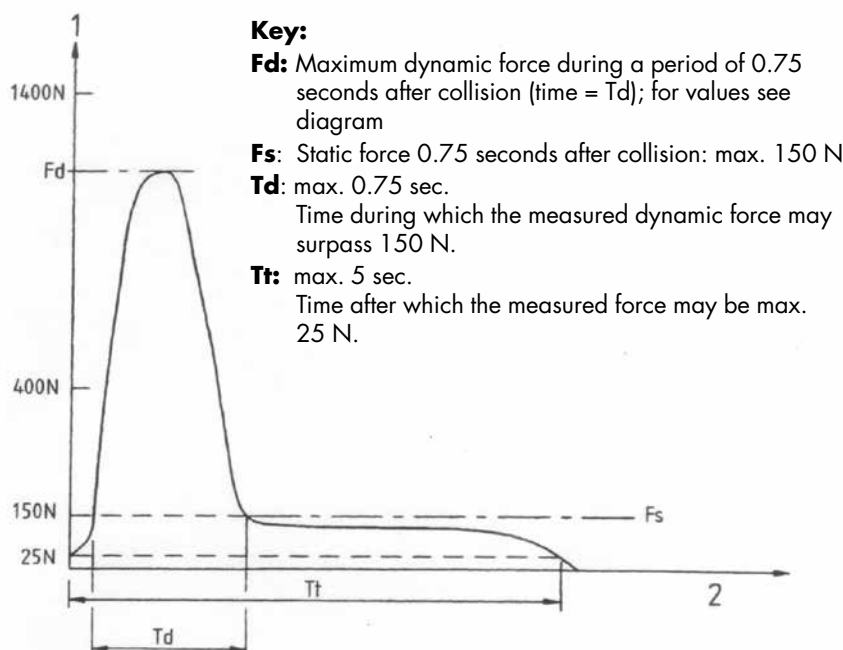
a) Preventing the danger (of squeezing, shearing, feeding and collision) by the automatised door.

b) Stopping the door within the following distances:

- Door opened 500 mm at the most slowing-down path \leq 50 mm
- Door opened more than 500 mm slowing-down path \leq 100 mm

c) Limitation of force

The force developing when the door hits a person, has to be reduced within a certain time to a not dangerous dimension (see force diagram).



Maximum dynamic force (**Fd**) allowed between both closing edges:

Opening width	50 - 500 mm	> 500 mm
	400 N	1400 N

d) Single error safety/Redundancy

In case an error occurs in one of the elements of the installation which could cause a dangerous situation, the control system has to recognise this and to shut down the complete system. The fault has to be remedied before the door may be power operated again.



DICTATOR Door Operators - Compliance with Standards, cont.

To meet the requirements of the standard EN 12453 to increase safety several measurements are combined. The safety installations used have to comply with much higher standards as well as the construction of the door drives has to be improved accordingly.

With regard to the safety devices the EN 12453 still refers to the old standard EN 954-1. In the meantime the EN 954-1 has been replaced by the standard EN 13849-1:2008-12. However, the standard EN 12453 has not been changed!

4. Approaches

a) Preventing squeezing, shearing, feeding or collision

Depending on the chosen/allowed mode of operation different minimum protections of the door are necessary.

Possible operation modes:

- **Dead man operation**

Handling only by instructed persons.

When moving the door it has to be possible to oversee the complete area.

- **Impulse/Automatic operation**

Alternative 1:

a) Safeguarding by safety distances at the secondary closing edges.

b) Protection of the main closing edge (obligatory) and of those secondary closing edges where safety distances cannot be observed by restricting forces (see 3/b).

c) Safety installation according to EN 954-1 respectively the subsequent standard EN 13849-1.

d) Additional safety devices in certain dangerous areas.

Alternative 2:

Use of safety devices preventing anybody to get in the range of the moving door.

Application Door operation mode	Domestic sector only instructed users <i>Type 1</i>	Public sector only instructed users <i>Type 2</i>	Public sector no restriction of users <i>Type 3</i>
Dead man operation (only allowed when door can be seen)	A	B	not allowed
Impulse operation with sight of the door	C or E	C or E	C + D or E
Impulse operation without sight of the door	C or E	C + D or E	C + D or E
Automatic operation	C + D or E	C + D or E	C + D or E

Key:

A: not holding button

B: not holding key switch

C: Safety device according to EN 954-1, category 2, 3 or 4

D: Safety device (no special requirements)

E: Safety device preventing anybody to get in the range of the moving door (e.g. a light curtain in a sufficient distance to the door)



DICTATOR Door Operators - Compliance with Standards, cont.

According to the Machinery Directive door and operator together form the "machine door". This means that for the whole installation a declaration of conformity has to be handed in. For all doors produced after May 1st, 2005 the manufacturer has to provide the CE sign. In case a door is automatised, a CE declaration of conformity has to be handed in also for the whole installation. Depending on whether there exists already an initial test for this unity or whether it has been upgraded, after automatising the door there have to be effected several additional tests on site.

4. Approaches - cont.

b) Restriction of the slowing-down path and the maximum force (see point 3/b and 3/c)

DICTATOR door operators according to EN 12453 are designed in a way to stop the doors also without current within the required distances of 100 or 50 mm.

The new DICTAMAT *MultiMove* operators assure this by using the - in this scope of application - completely novel capacitor technique. Even in case of a power cut the operators are absolutely smooth-running.

Other operating systems usually have to use an electromagnetic clutch or a mechanical cranking device to allow moving the door manually during a power failure.

c) Single error safety / Redundancy

The self-supervision of the control system guarantees that the failure of a component will not result in a dangerous situation. If the control system identifies a mistake, it automatically shuts itself down. Further automatic handling of the gate is not possible. Likewise the safety installations have to be largely self-supervising.

5. Conformity of the Whole Door System

According to the Machinery Directive has to be issued a **declaration of conformity** for the automatised door confirming that the whole system complies with the relevant standards. Mainly, there exist three different situations.

a) In the simplest case the **door (produced after May 1st, 2005)** has already been **type-tested together with the drive unit**. Here issuing a declaration of conformity will be relatively easy.

b) In case the DICTATOR door operator is **retrofit** to a door for which together with the door operator exists **no type-test**, there are two possibilities:

- If **for the door itself already exists a conformity declaration** (door complies with EN 13241-1 and EN 12604), the complete installation has to be tested thoroughly according to EN 12445. These tests also include the door where has to be verified especially if it will withstand the higher strain of automatisation. Having passed all tests successfully the declaration of conformity will be issued.

- In case of a door having been installed **before May 1st, 2005** and **not having a CE label** firstly you have to verify if the gate meets the requirements of the standards EN 13241-1 and EN 12604. This should normally be executed by door experts. Following this the tests as described above have to be passed.

A door where only an already existing door operator is exchanged will be subject to **preservation of the status quo**. A declaration of conformity has not to be issued.

IMPORTANT: All relevant documents concerning the conformity have to be kept for ten years (where the declaration of conformity has been issued). The operating company has to be instructed thoroughly in using the "machine door". Regular maintenance of the complete door system is stipulated by law.



The EC Machinery Directive 2006/42/EC Its Consequences - Questions and Answers

Often the importance of the Machinery Directive is still underestimated!

DICTATOR elaborates together with you not only the appropriate operating system for your door but also accompanies you on the way from the incomplete machine to the complete one. Already when choosing the door operator we attach special importance to providing the basis for an installation in accordance with the Directives by selecting the appropriate door operator and adapting it to the door.

Applying the Machinery Directive? Why?

- The Machinery Directive has legal force.
- Market surveillance controls more and more often if the directive is observed.
- Not observing the directives can have consequences, e.g.:
 - Prohibition of sale of the product line.
 - Complaints of users/customers.
 - Cost-intensive subsequent improvements.
 - Violation of safety and health demands.
 - Criminal penalties in case of personal injuries.

Manufacturer in Terms of the Machinery Directive

Manufacturer is who:

- produces machines for his own use.
- **Assembles machines or parts of machines**
(e.g. the door manufacturer or the company who upgrades a door with an operator => door + operator + control system = machine door).
- Imports machines.
- Essentially modifies machines by adding components or retrofitting them.

Meaning of the Machinery Directive to Manufacturers of Automated Sliding Doors

Which meaning has the Machinery Directive to manufacturers of automated sliding doors?

- **In terms of the directive a sliding door with a door operator is a machine.**
- The door operator and control system on their own are an incomplete machine.
- The **manufacturer of a machine** is **responsible for the conformity to the directives.**
- Therefore, these manufacturers are obliged to observe regulated conditions during setting up.

Concrete demands to the manufacturer

- The demands of Annex I of the Machinery Directive have to be met (risk evaluation).
- Technical documents (Annex VII) have to be made available.
- Operating instruction has to be provided.
- Conformity evaluation procedure according to article 12 has to be carried out.
- An EC declaration of conformity according to Annex II has to be issued and enclosed with the "machine door".
- The installation has to be labelled with the CE marking according to article 16.



The EC Machinery Directive 2006/42/EC **DICTAMAT MultiMove: the Problem Solver**

The new DICTAMAT MultiMove operating system assists the DICTATOR customers even more than other systems in meeting the demands of the Machinery Directive. Thanks to the following points the basis for an installation conform to the directives is provided already **well in advance** of the mounting and thus creating the "machine door".

Effective Structure for an Easy Risk Analysis

The manufacturer of a machine is obliged to operate a risk analysis to achieve the aims of the Machinery Directive.

That is exactly where the **intelligent and effective structure** of the **DICTAMAT MultiMove** comes in useful.

During analysing the risks of our components we always considered the "machine door", too. It was the crucial factor for designing and the **cooperation of the single components**. This is a big advantage for the manufacturer of a machine door as the DICTAMAT MultiMove operating system allows to exclude from the very beginning certain potential sources of injury and health risks. Of course, this is only possible when the system is used for the intended purpose and the operating instructions are observed.

Optimised Technical Documentation

According to the Machinery Directive an incomplete machine requires "only" a mounting instruction. A complete machine, however, requires a complete operation manual. With regard to a **simplified communication** between "manufacturer of the incomplete machine" and "manufacturer of the complete machine" DICTATOR offers for the DICTAMAT MultiMove system a complete operation manual. This manual not only directs the assembling without interfering with safety and health but also represents an essential part of the technical documentation of the complete machine.

Conformity

The manufacturer of a machine is obliged to subject the complete machine to a **conformity evaluation procedure**.

The **DICTAMAT MultiMove easily** allows to **meet** this **demand**. Because relevant standards – as e.g. the EN 12453 – have been the signposts already during development. The "incomplete machine operator" meets these harmonized standards which significantly contributes to achieving the "conformity of the machine door".

Individual Adjusting of the Operating and Controlling Unit

Besides these basic advantages the **DICTAMAT MultiMove** operating system offers another important advantage with regard to safety and the conformity to standards:

Each operator and each control system have individually been configured according to your requirements. This represents to the manufacturer of the "complete machine door" not only significant time-savings during setting up, but also maximum safety and thus an important basis for meeting the Machinery Directive.