

# How quickly should fire doors close?

It's a question we get asked regularly: what are the prescribed closing times that we should set our door closers at? The question keeps coming up for the simple reason that there is no definitive answer within current regulations.

In this whitepaper, we take a look at what guidance is available and what regulations apply.



Note: this whitepaper only concerns closing times for mechanical closers, as opposed to automatic doors.

## Regulation

While there are very specific rules stating how long fire doors should keep fires at bay, there is very little specific guidance relating to door closing times. We've listed below what we have identified as the most direct references to door closing times.

**"After 5,000 test cycles and after 500,000 test cycles, the closing time, from door opening angle of 90°, shall be capable of adjustment to 3 seconds or less, and 20 seconds or more.**

BS EN1154 5.2.6 Closing time

**"Verify that the averaged closing time from 90°, at each temperature extreme, does not decrease to less than 3 s or increase to more than 25 s."**

BS EN1154 7.2.2 Test of temperature dependence

**"The overall closing time from an angle of 90 degrees to 0 degrees shall be 5 (+/- 2), although 5 is the preferred value. In case of door width > 1600mm, the closing time shall be adjusted as specified by the door manufacturer.**

BS EN1191 Annex H

**"If provided with a delayed closing function the door closer shall be capable of adjustment, by means of a separate regulator, such that the closing time from 90° to the end of the delay zone, at an ambient temperature of 20°C, is not less than 20 seconds. The delay zone shall not extend below the 65° open position."**

BS EN1154.5.2.14.1 Delayed closing (optional)

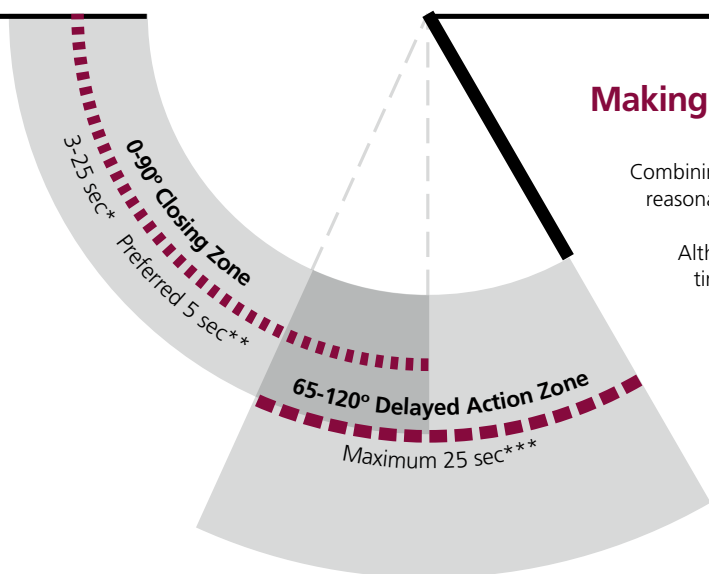
**Any incorporated delayed action function shall be capable of adjustment to less than 25 s, between the door closing angles of 120° and the end of the delay zone.**

BS EN1154 Annex A A.5

## Making sense of the timings given

Combining the different product performance directives, we have tried to visualise our reasonable interpretation of what those standards equate to in practical application.

Although no specific closer timings are stipulated by Building Regulations, the timings in the tests specified within the BS EN1154 standard imply that door closer times from 90 degrees to closed should range from no less than three seconds, to no more than 25 seconds, for doors without delay actions. When testing the door closer at different temperatures, BS EN1154 sets the baseline closing time, in a typical room temperature of 20°, at five seconds.



A certain amount of variance is then tolerated at widely different temperatures, but the choice of five seconds as a baseline suggests that this length of time for a door to close would be regarded as normal, which ties in with BS EN1191.

When a delayed action is incorporated, the delayed portion of the close between 65 and 120 degrees may add up to 25 seconds to the overall close time. Where a door opens wider than 120 degrees, there is no specific indication that we know of that specifies how long the delayed action zone is permitted to last.

## Real world situations

The focus on using door closers that have been tested to prescribed standards, rather than regulations that set specific speeds at which doors should close, reflects the fact that the scenarios in which fire doors and closers are deployed can vary enormously.

If doors close too quickly, this could create problems for users. Although fire doors are designed to resist the spread of fires, their primary ongoing purpose is to allow people to pass through them! The time people need will vary. The elderly, plus those people in wheelchairs or with mobility problems, will often take longer to get from one side of a door to the other than young, fully fit people. Door closing times need to allow enough time for all users.

As well as meeting the needs of individuals, certain locations impose other requirements. In hospitals, the time taken for patients and equipment to be wheeled through doors will need to be allowed for (automatic doors will often be installed in hospitals). In hotels, people will often be accompanied by luggage and need extra time to pass through. Safety of young children also needs to be considered in the speed that doors are set to close at.

If a door closes too quickly, it could also do damage to the door itself or the frame and reduce the overall fire resistance they offer as a result.

Conversely, there are good reasons for fire doors not to take too long to close. Until they are closed, they do not provide the intended protection against fire spreading. It would be of little use if a door offering a minimum of 30 minutes protection took so long to close that a fire would get through before the door had been sealed!

Prompt closing may also be desirable where there is a need to maintain a consistent temperature within a confined area or, in the interests of security, to minimise the chances of an unauthorised intruder following a legitimate user through a door.

It is precisely because these types of considerations exist that closers are not manufactured to close doors at a single, set speed. Rather, they have – as regulations require them to – adjustable settings within set ranges that enable them to be adapted to their various settings.

## Product standards versus wider regulation

It's important to note that none of the timings included in BS EN1154 apply specifically to doors in situ. BS EN1154 sets out a testing framework of product standards that door closers must meet, in order to be compliant with fire safety regulations. The Construction Products Regulations 2013 make it illegal to use products that have not achieved the required standards. For closers, this means that only those that have attained the BS EN1154 standard – and are marked accordingly – can be used. Some of the timings given are specific to a given test and must be viewed in that light.

BS EN1191 sets out performance standards relating to windows and doors and gives the preferred closing time for doors fitted with a door closer.

Building Regulations Approved Document B Volume 2 (2019) covers the requirements of Fire doorsets within Appendix C, and this does apply to doorsets in situ. However, this regulatory document makes no mention of door closing time requirements.





## Typical door closing times gleaned from Rutland's experience

Although the time each closer should take to close depends on its specific context, we thought it would be helpful if we shared the durations we have operating in different parts of our own building.

Situation	Considerations	Close time
Front entrance door with magnetic security lock	Short close time helps prevent unauthorised persons gaining access	5 seconds
Communal door to office	High usage, often by many people in quick succession	12 seconds
Pedestrian lift door	Low, occasional usage	6 seconds
Canteen door	High usage, but wanting to prevent cooking smells spreading	8 seconds
Door from reception area to warehouse	Longer closing time permits goods deliveries time to pass through	12 seconds

### Get in touch:

If you have any specific questions about door closer speeds, we are always happy to share our experience, so please call or email. Please bear in mind, though, that our suggestions have no legal status and responsibility for the correct operation of closers always remains with installers, maintenance staff, and those in overall charge of building safety.

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