

DICTATOR Door Operators

Customised Designs for Fire Protection Doors

DICTATOR offers a wide range of DICTAMAT door operators, from **semi-automatic door operators** (opening by hand, controlled closing by the DICTAMAT door operator) up to the **fully automatic door operator with microprocessor control system** for hinged and sliding doors, and for fire protection doors.

But even this **comprehensive product range** provides not a suitable standard operator for all applications. Often doors, wall and window elements, multimedia facilities not only have to be moved, they also have to conform to aesthetic requirements and architectural considerations.

Many years of experience enable DICTATOR to design and develop bespoke door operators for unusual applications and demanding specifications. Either by modifying a standard unit or by manufacturing a completely **bespoke unit** a suitable operator can be produced using our widely flexible manufacturing facilities.

On the following pages you will find some examples of our **customised designs for fire protection doors**.



Technical Data

Door sizes	0.5 m - 93 m (largest door at the moment)
Moving elements	hinged, folding, sliding, telescopic doors, windows, wall/façade elements, multi-media facilities
Motors	direct current, three-phase current, explosion-proof
Control systems	simple electric control systems up to SPS control systems with frequency converter, also with battery back-up
Components included	complete door operator with fixing accessories and control system (including installation, if necessary)



60 m, 80 m, 93 m Fire Protection Telescopic Sliding Doors

A special design of fire protection telescopic sliding doors has proved to be beneficial on four occasions in Spain. The fire protection doors have been installed in the **Madrid airport** and in shopping centres of the **Corte Inglés** and **Pryca**. The doors are opened in the morning and closed at night. By using these doors it is unnecessary to have fire walls that restrict access during the day. Airport visitors can wander freely through malls and concourses without hindrance from fire walls.

93 m Door in the Corte Inglés in Santander/Spain



Customer's Specification

The sliding fire protection doors open from the centre. Each side of the door consists of **up to six variable span wings**, each with a **width of up to 10 meters**. The whole **door system** extends from **rails on the ceiling**. On the floor there only is an approx. 30x30 mm wide guiding slot for one door wing. The door is opened in the morning and closed in the evening. It is operated by impulse with OPEN/STOP/CLOSE functions. As safety devices a contact edge is connected and a warning siren when the door closes. When the safety device is triggered, the door must stop within 10 cm. In the event of fire the door closes immediately (controlled via a central alarm). However, even **in the event of alarm** the door must stop immediately after a signal from the **safety device**. After the safety device has been **released** the door must continue to **close** by itself (time is adjustable).

Solution

Each side of the door is moved by a **three-phase motor**. The force is transferred via a **tensioned chain**, guided in special fittings that prevent sagging. Both sides of the **variable span wings are synchronised** with each other. Both motors are managed by an **SPS control system with a frequency converter**. This enables adjusting the functions to correspond to individual customer requirements. Further adjustments which may be required later can without difficulty be realised by the SPS control system.

The **fire protection function** is guaranteed by a **battery back-up**. In two of the examples this was set up by the customer and in the other two DICTATOR supplied the battery back-up with the control system.

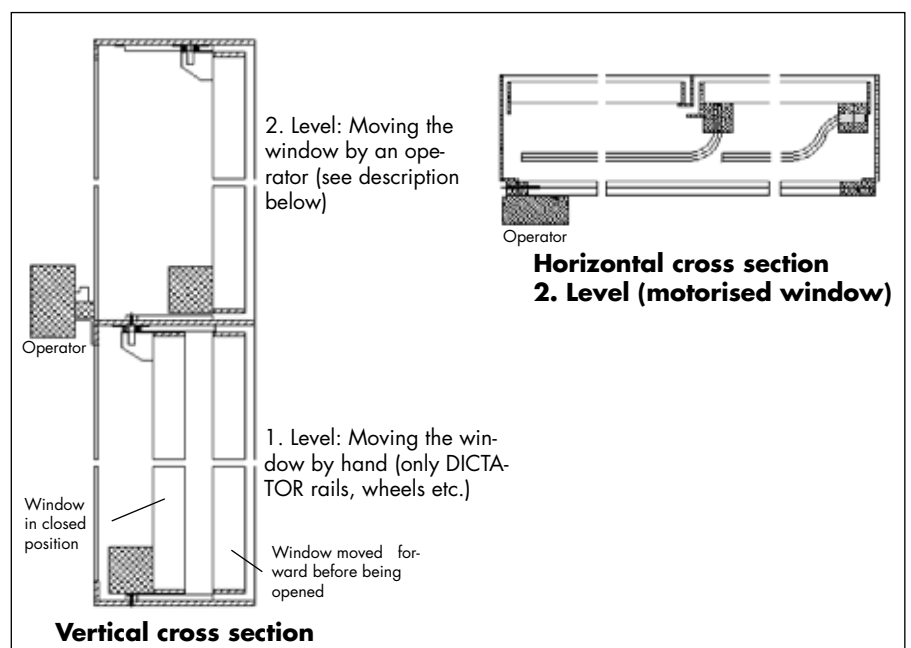


Sliding Window Fronts - for Ventilation / Smoke Evacuation

In modern architecture it is often necessary to have sliding window fronts. Sometimes they need to be moved aside for ventilation or smoke extraction, e.g. in the **Pinakothek der Moderne' in Munich.**

A frequently occurring problem is the lack of space, which means the drive unit has to be installed outside and therefore must be water-proof. Furthermore the window and façade components usually are very heavy and the drive unit must always function reliably, even during high winds exerting high pressure on the façade.

Basic Diagram of Motorised Window Construction in the Pinakothek der Moderne in Munich



Customer's Specification

In the case of the 'Pinakothek der Moderne' in Munich the sliding windows must be opened for ventilation and during smoke alarm. The **window elements** weigh 400 kg each and must firstly be moved **inwards** (towards the room) and **then to the side**. The windows are track mounted with a high level guide rail. Mechanical locking is not possible, but the window fronts have to remain closed even with **strong winds**. In direct sunlight the windows can quickly become **very hot**.

Solution

The task was solved with a customized version of our **DICTAMAT 4000** door operator with a 600 N force. The motor is suitable for temperatures up to 120 °C (60 min). The force is transferred by a chain. Electromagnets ensure the windows remain locked in the closed position. The magnet is automatically switched off by the **N5 control system** when the window opens or in the event of fire. In the case of power failure the control system continues to supply electricity to the magnet with a built-in battery back-up.

The most difficult problem to overcome was the required mobility of the window and to prevent it becoming stuck after a strong gust of wind. This was solved with a **custom-made track, guide rail, wheel, and flexible window hanger with articulated lever**. These were designed partly in AISI 316.

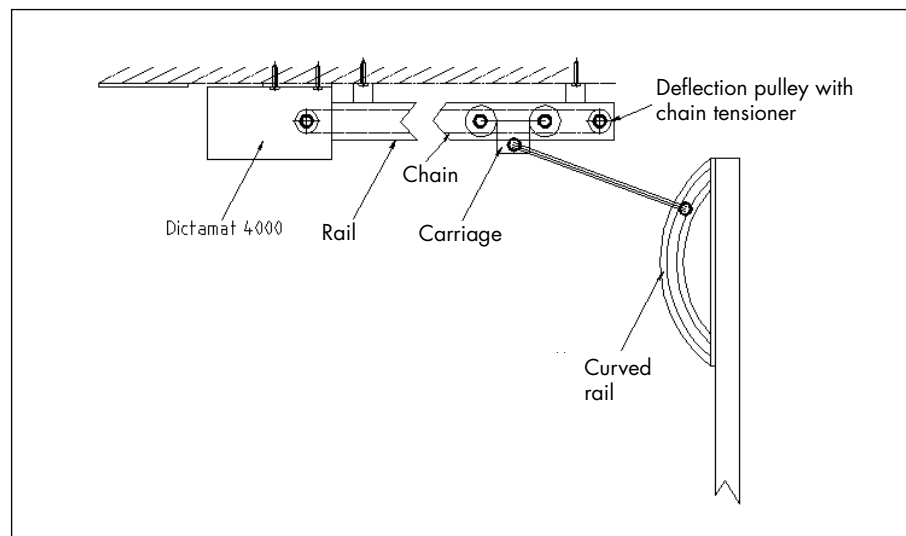


Up and Over Fire Protection Doors

Fire protection doors are generally hinged or sliding doors, but due to constructional reasons this is not always possible. If a custom-made door is installed, normal fire protection door operators cannot be used.

As in the case of the extra large sliding doors, Dictator can help with a customised design.

Up and Over Fire Protection Doors in the Federal Office Garage in Vienna



Customer's Specification

Up and over fire protection doors are much heavier than normal garage doors due to their **fire protection function**. They **weigh between 400 kg and 700 kg**, consequently the operator initially requires the **threefold force**. This force is considerably reduced as soon as the door is tilted as a sash weight takes over the counter weight demanded by the door.

In the event of fire the doors, which usually remain open at all times, must be closed (connected to a central fire alarm system) and people and vehicles be protected by a light barrier or a contact switch.

Solution

A **Dictamat 4000** door operator with a **specially developed transmission** was installed in a **construction** working with **chain**. To transfer the highest force possible when the door begins to open, a **special construction** was developed including a **guide rail and rail with special carriages**.

The **N4 emergency control system with additional relay** was used. It has a contact which connects to the Central Fire Alarm System. The drive unit closes the door automatically in the event of fire. Fail safe operation is maintained by the built-in **back-up battery** in the event of power failure. On receipt of an alarm signal a relay switches the function of the OPEN switch on the door to an emergency function. This allows the door to be opened briefly (allowing escape) but closes automatically after the pre-set time has elapsed. If the light barrier or contact switch are triggered when the door is closing during fire, the door remains where it is. If the light barrier is released, the door will automatically close by itself after the pre-set time has elapsed.