

High-Performance Door: Sprint 4.0 i – Entrance for Fast Lifts

UK



The process of urbanisation is on the rise throughout the world and Europe is no exception. The lack of available space for lateral expansion has resulted in increasingly high office blocks and residential buildings being built.

One problem this causes is how to transport large numbers of people in as short a time as possible throughout the high apartment buildings, a task which is all the more difficult in the morning and evening rush hour periods. It first of all requires lifts that are able to operate at higher speeds, up to 5m/sec.

Recent calculations of transportation capacity have revealed that this parameter is not solely based on a lift system's speed. The doors also play a central role – specifically the speed at which they are able to open and close.

New development – the Sprint 4.0 i door series

It is against this background that the innovative component producer from Munich, Meiller Aufzugtüren, has developed the new high-performance 'SPRINT 4.0 i' door. This fully new door series, which was presented at the Interlift 2019 in Augsburg, consists of a two-panel, centre-opening (C2), a two-panel, telescopic (T2) and a four-panel, centre-opening (C4) model.

Large rollers with a 90 mm diameter

The most prominent new feature of these doors is that they are the first of their kind to employ large rollers, with a diameter of 90 mm. These high-performance rollers (HL) are turned from cast polyamide semifinished articles, into which deep-groove ball bearings, which have been encapsulated on both sides, have been pressed. With a door width of 1,100 mm, these rollers require only 1.8 revolutions per door run. This ensures extremely quiet operation when the door is in motion. In addition, these rollers enjoy an increased service life, thanks to the lower level of stress they are subjected to. The transom heights of the landing and car doors are only 25 mm greater, as the larger rollers are not placed further inside on the hanger, to avoid juddering of the door panels.

New TM1-DV L skate system

A new variant has now been added to the long-popular TM-1 DV double skate system for centre-opening doors, known as the TM1-DV L. The 'L' here stands for 'large'. The skate arms have twice as much passage clearance on the hook bolt rollers than they did previously. This means that when the car is travelling through the shaft, its movements no longer cause any disturbances with the skate coming into contact with the hook bolt rollers.

Labyrinths on the door panels

Lateral labyrinths are fitted to the door panels of all door types for hooking with the door frames and at the top for hooking with the hangers. In addition, labyrinths of a size of 8 mm are integrated into the cladding sheets at the closing edge of all centre-opening doors. These labyrinths are not only needed for EN 81-58 approval, but they are also responsible for minimising the draft from passing lift cars as well as reducing travel noise.

Closing the gap between door panels and sill

A continuous plate has been installed between the two door panel guide shoes on the outer edge of the door panels to prevent a draft at the bottom. It also prevents whistling noises being produced whenever the car passes by a closed door.

The new Sprint 4.0 i doors correspond in their construction with EN 81-20/50 and they also have fire certification in accordance with EN 81-58 E120; in addition, these products have been subjected to blower door testing.

The Sprint 4.0 i door series is fitted with the MiDrive door drive – a system that is meanwhile extremely popular and successful. The special variation for the Sprint 4.0 i system has its own individual travel profile modified especially for this high performance door, given by the QR code attached to each car door. The opening speed is of the order of 1.0 m/sec, which corresponds with a door opening time of approx. 1.2 seconds for a 1,100 mm wide C2 door.

The Sprint 4.0 i door system is designed for maximum speed as well as a high level of smoothness in operation.

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