



Product

MX and VCS-FL Brakes

Application

London Underground Escalators

Highlights

- Spring-applied, hydraulically released parking and emergency stop brakes
- MX models are rated at up to 14.3 kN braking force per brake
- VCS-FL models are rated at up to 55 kN braking force per brake
- Custom-designed, dual-circuit HPUs

For the past 25 years, Twiflex has supplied brakes and associated hydraulic control systems to London Underground Limited (LUL) and its contractors as part of numerous overhaul and upgrade programs. The 430 escalators in the network help passengers make more than 1.3 billion journeys every year. The longest, at 60 meters, is installed at Angel Station on the Northern Line. The busiest single station, Waterloo, has 23 escalators that carry nearly 90 million passengers a year. A "typical" Twiflex LUL escalator braking system consists of:

- A Model MX spring-applied, hydraulically released caliper brake that is utilized as the primary **service brake**, mounted on the high-speed (low torque) shaft between the main drive motor and the gearbox.
- Up to three Model VCS-FL spring-applied, hydraulically released disc brakes (depending on load) that serve as **auxiliary brakes** installed directly on the escalator's head shaft. These VCS models feature a unique, narrow footprint which is a major advantage for both new build and retro-fit/upgrade installations, since axial space on the head-shaft is usually constrained by the supporting structure.
- A Twiflex dual-circuit **hydraulic power unit** (HPU) that controls each of the brake systems.

In normal use, the service brake controls the deceleration of the escalator, with the auxiliary unit engaging after a defined delay to hold the machine in a stationary position. In the event of a failure in the gearbox or main drive chain, however, the delay is bypassed and the auxiliary brake must be able to stop the escalator by itself.

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