FIREMAC® GULF DMCC
passive fire protection systems

Firemac FM Fire Ducts: Case Study: Jakarta MRT

Jakarta MRT
Overhead Track Exhaust
Jakarta
Indonesia

Firemac FM Fire Ducts have been installed as part of the fire protection in the thirteen underground stations of the M1 North-South Line.

Firemac FM Fire Ducts, pictured here in the Dukuh Atas interchange station, are lightweight, require no curing time, and can be fabricated up to 10m wide.

The ducts are manufactured by fully trained ductworkers, and in a controlled environment. There is no requirement to out source the fire protection to a third party, meaning the full HVAC package can be delivered by a single supplier, with no loss of time on site.

Jakarta MRT: Performance Specifications of Firemac FM Fire Ducts
• Overhead Track Exhaust (OTE)

Fire resistance period
• 2 hours Uninsulated

Metro Applications

Across the world governments are investing heavily in mass rapid transit (MRT) programmes as a solution to congestion and environmental concerns. These projects often require complicated engineering solutions, due to limitations on space and the desire to avoid disruption to the existing infrastructure. As a consequence underground rail lines are frequently the most viable option, but these present significant fire safety challenges.

Underground metro stations are particularly high risk environments due to the potential high volume traffic, human behavior in emergencies, access difficulties for the fire service, and plant and rolling stock, high voltage cables and other hazards, contribute to substantial fire loading.

Firemac FM Fire Ducts are being installed in both the Jakarta Metro and Doha Metro Gold Line. To gain approval the system had to meet local Civil Defence / Fire Brigade standards, be Third Party Certificated by an internationally recognised body, demonstrate fire performance to BS476: Part 24: 1987 (ISO 6944:1985), and successfully pass impact, flame, smoke and toxicity tests. Firemac FM Fire Ducts have also passed the hose stream test as required in ASTM E119-16.

After comprehensive training of Indo Ducting, the approved ductwork provider for the Jakarta Metro, Firemac has continued to provide full technical support. This includes regular site visits to ensure correct duct fabrication and installation and the issuance of Certificates of Conformity.

Testing for Metro Approval

OTE ducts have to function in both normal and fire conditions, and have to withstand the rigours of an aggressive environment.

When used in Metro applications Firemac FM Fire Ducts, have to meet a demanding specification for approval. This includes:

- Fire Testing to BS 476: Part 24: 1987 (ISO 6944: 1985) for up to fours for both Duct Type A and Duct Type B
- Hose Stream Test to ASTM E119-16
- Hard Body Impact Test to EN 1128: 1996
- Classification of Reaction to Fire Performance to EN 13501-1 + A1
- Toxic Fumes Test to BS 6853 Annex B2
- Smoke Test to BS 6853, Annex D84

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