FIREMAC® GULF DMCC
passive fire protection systems

Firemac FM Fire Ducts: Case Study: Doha Metro Gold Line

Doha Metro Gold Line
Overhead Track Exhaust
Doha
Qatar

The Gold Line comprises 13 underground stations, and 16km of twin bore tunnels, and forms part of the larger Qatar Rail network.

Over 45,000 square metres of Firemac FM Fire Ducts have been installed, and to an incredibly tight timeframe. Fabrication of the ducts began in September 2017, with installation across all stations completed by December 2017.

Firemac FM Fire Ducts require no curing time, meaning that the ducts could be manufactured and supplied to site with no delay. In addition Firemac FM Fire Ducts can be fabricated up to 10m wide, giving flexibility in both design and installation.

Doha Metro Gold Line: Performance Specifications of Firemac FM Fire Ducts
• Overhead Track Exhaust (OTE)

Fire resistance period
• 2 hours Uninsulated

Metro Applications

The design of fire safety systems in new or existing mass transit systems, including rail and tunnel projects, can be particularly challenging due to the potential high volume traffic, human behavior in emergencies, and access difficulties for the fire service.

Inherent risks include the possibility of plant and rolling stock fires, high voltage cables and other hazards, contributing to substantial fire loading. This means that fire suppression systems and effective compartmentation are required to protect life and infrastructure.

The impact of national regulations, and the lessons learned from catastrophic fires from around the world have meant that fire safety is a critical consideration in the planning of metro and tunnel projects.

Firemac FM Fire Ducts are being installed in both the Doha Metro Gold Line, and Jakarta Metro systems. 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.

Firemac Inspectors have regularly visited the instalation to confirm conformity in both fabrication and installation of Firemac FM Fire Ducts.

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.

Firemac FM Fire Ducts, in both Doha and Jakarta (pictured below) had 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

Firemac Gulf DMCC
PO Box 336262, 1207, Jumeirah Bay X2, Cluster X, Jumeirah Lakes Towers, Dubai, United Arab Emirates
T: +971 4 514 6558
E: info@firemacgulf.com
W: www.firemacgulf.com