



DAMPER SOLUTIONS FOR THE TUNNEL INDUSTRY

SAFE AIR QUALITY AND SMOKE CONTROL

Enabling Wellbeing for People

Operating in the most arduous conditions and extremes of climate, Halton dampers have a proven record of reliability and high performance in operational service.

Our way of doing business

- Halton production emphasizes tailoring, which means that solutions can be adapted for each customer's specific needs
- Own manufacturing in 9 countries
- Flexible, high-tech production with certified welders
- Comprehensive project management & documentation capabilities
- Testing and simulation services
- The well-established but flexible company, offering long-term business relationships and after-sales service
- Holding up-to-date product certifications aligned with industry standards, including advanced certifications known for their demanding compliance criteria (ISO19443)

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**CERTIFIED TUNNEL
SAFETY SOLUTIONS—
FROM BLAST AND FIRE
DAMPERS TO UNDER-
PLATFORM EXTRACTION.**

Tunnel ventilation

In tunnel and metro systems, HVAC plays a vital role in ensuring thermal comfort, air quality, and emergency readiness. This brochure presents Halton's advanced HVAC products and solutions designed specifically for tunnel applications.

Fire and smoke dampers are essential components in tunnel ventilation, preventing the spread of fire, smoke, and hot gases during emergencies. Halton's dampers are certified to stringent international standards and trusted globally for their reliability in extreme conditions.

In emergency fire conditions, dampers perform a dual role: maintaining ventilation and controlling the spread of smoke and heat. When closed, they form an effective fire barrier; when open, they enable efficient extraction of toxic fumes to maintain survivable conditions and support firefighting operations.

Halton's dampers feature highly customisable control configurations to maximise free area, optimise airflow, and minimise pressure loss, even within confined installation spaces.

Over five decades of experience have built a strong foundation of knowledge in product performance, system safety, and installation best practices. Continuous development ensures that Halton's solutions are technically proven and tailored to specific applications.

Safety is the top priority for tunnel operators, consultants, and contractors. Halton's global track record in road, rail, and metro projects reflects Halton's deep understanding of industry needs and the commitment to delivering dependable, compliant solutions.



Past Projects

Contract	Country	Application
Heathrow Express	U.K.	Rail/Metro
Limehouse Link	U.K.	Road Tunnel
Rotherhithe	U.K.	Road Tunnel
Heathrow	U.K.	Cargo Tunnel
Norther Line Extension	U.K.	Metro
Crossrail	U.K.	Metro
Bell Common Tunnel M25	U.K.	Road Tunnel
Holmesdale Tunnel M25	U.K.	Road Tunnel
London Power Cable Tunnels	U.K.	Other
Thames Tideway Tunnel	U.K.	Other

Frejus Tunnel	Italy	Road Tunnel
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Ankara Metro	Turkey	Metro
Istanbul Metro	Turkey	Metro
TAG Tunnel	Turkey	Road Tunnel

Sydney Eastern	Australia	Road Tunnel
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TRUPO	Taiwan	Rail
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Bung Dang	Korea	Road Tunnel
Changwan	Korea	Road Tunnel
Backdal	Korea	Road Tunnel

Cointe	Belgium	Road Tunnel
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Athens Metro	Greece	Metro
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Hofberg	Germany	Road Tunnel
Farchant	Germany	Road Tunnel

Airport Express	Hong Kong	Metro
Central Station	Hong Kong	Metro
Tai Lam	Hong Kong	Road Tunnel
Taites Cairns	Hong Kong	Road Tunnel
Discovery Bay	Hong Kong	Road Tunnel
Quarry Bay	Hong Kong	Road Tunnel
Lantau and Airport Railway	Hong Kong	Metro
West Rail	Hong Kong	Metro
Tseun Kwan O	Hong Kong	Metro
West Rail	Hong Kong	Metro

Bangkok Metro	Thailand	Metro
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RATP	France	Metro
Mont Blanc	France	Road Tunnel
Chamoise	France	Road Tunnel
Tunnel du Siaix	France	Road Tunnel
Tunnel de Foix	France	Road Tunnel
A86 Auto Route Paris	France	Road Tunnel
Paris A1 Road Tunnel	France	Road Tunnel
Monaco Tunnel	France	Rail Tunnel

Riyadh Metro	Saudi Arabia	Metro
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Testing

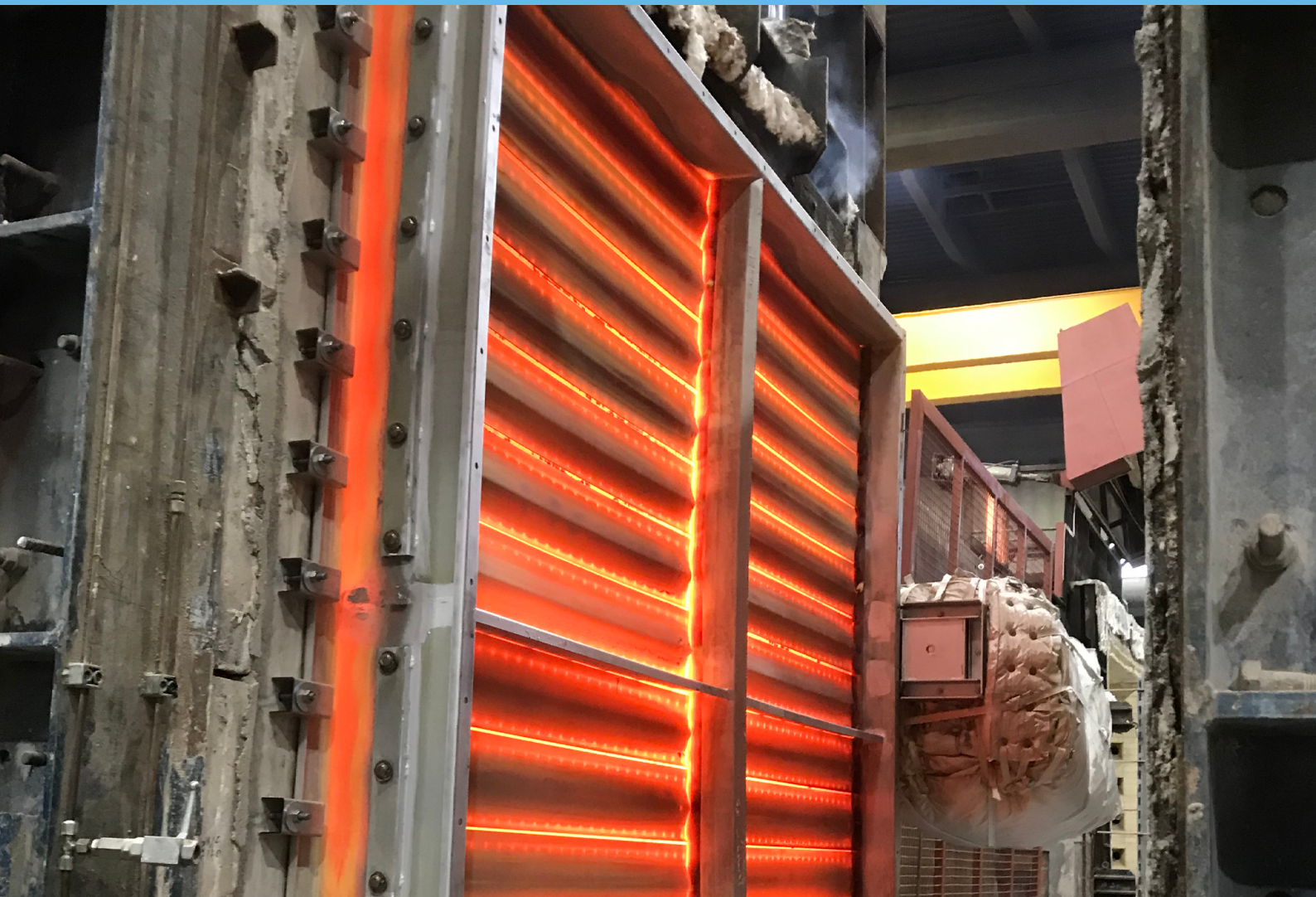
Halton's tunnel dampers are rigidly designed and are used to regulate the airflow in transit tunnels. They ensure that the air that is circulating through the tunnel is safe for passenger transit, without excessive build-up of exhaust gases. In normal conditions, tunnel dampers control the volumetric air flow in a transit tunnel.

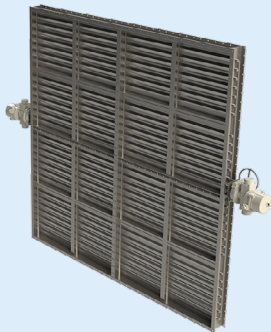
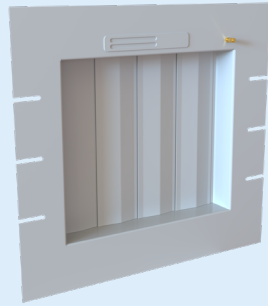
Testing considerations

- Damper operation at high temperature
- Leakage through the damper
- Mechanical resistance
- Operation at specific pressure differentials
- Speed of operation
- Operational life cycles

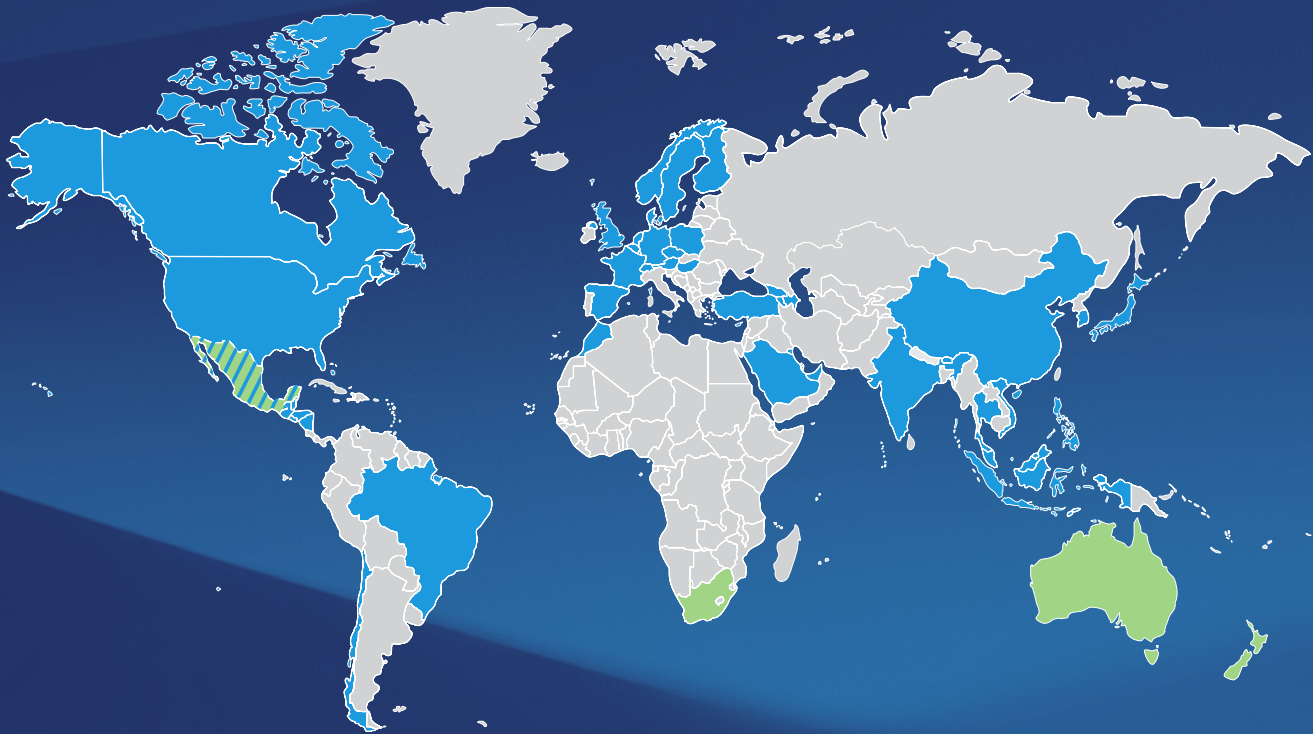
Halton Tunnel Dampers are tested rigorously

- Dampers tested in both vertical and horizontal orientations
- High temperature testing to 400°C for 2 hours, cycled every 10 minutes.
- CFD-02-TM additionally tested to UL 555 & BS 476 Pt 20, for 2 hrs at over 1,000°C, UL hose stream tested in accordance with ASTM E2226 15b.
- Testing with repetitive loading of the blades to 6,000 Pa x 7.8 million cycles
- Stress analysis of the blades and casing.
- 100,000 cycle durability testing
- Leakage testing in accordance with EN1751:2014 to Class 3 for blades and Class C for casing, including with forced blade deflection and case twist scenarios.



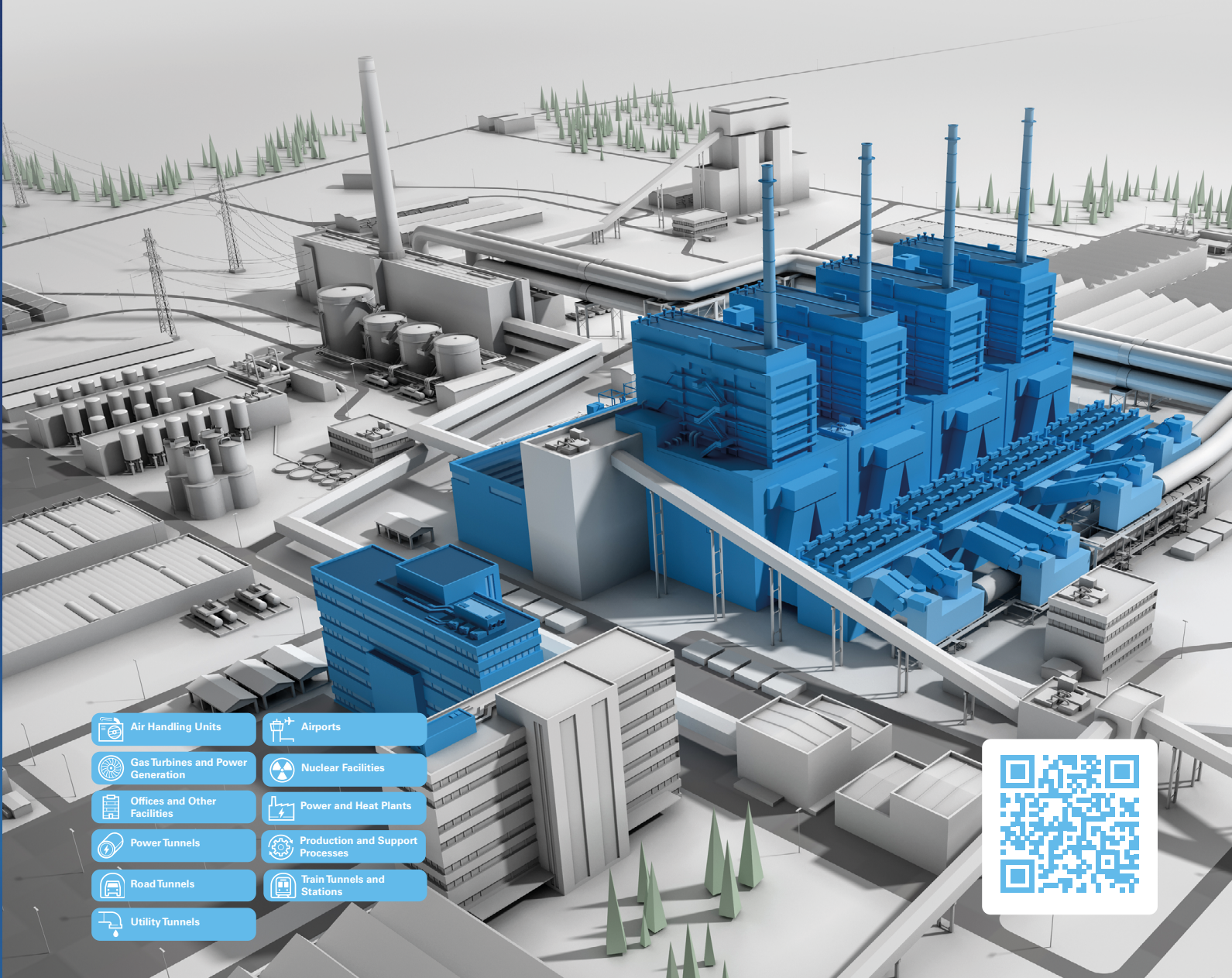
	DESCRIPTION	HIGH TEMPERATURE TUNNEL DAMPER	TUNNEL DAMPER
VENTILATION SAFETY	Uncontrolled fires pose serious risks to life, infrastructure, and operations. Halton's fire and smoke dampers stop fire and smoke from spreading through ventilation systems—protecting people and assets while maintaining operational continuity. ATEX-certified options are available for hazardous or explosive environments requiring top safety standards.		
		CFD-02TM	TDH
	DESCRIPTION	FIRE RESISTANT PRESSURE RELIEF DAMPER	
AIRFLOW MANAGEMENT	Heavy industry HVAC systems require precise airflow control and protection. Halton's pressure relief dampers maintain safe system pressures and ensure reliable performance in demanding environments. A wide range of configurations is available, with optional ATEX certification for hazardous or explosive applications.		
		CPR-01/2H	
	DESCRIPTION	UNDER PLATFORM EXTRACT GRILLE	
VENTILATION	Creating a safe, comfortable, and energy-efficient tunnel environment starts with effective air extraction. Halton's under-platform extraction grilles manage airflow efficiently—removing heat, smoke, and pollutants from station and tunnel areas. Designed for reliability and performance. Can be tailored to meet specific airflow, noise, and durability needs.		
		UPE (CCD-02)	

Where we operate



- Countries with Halton personnel
- Licensed manufacturing

- Family-owned company founded in 1969
- Revenue ca. 316 MEur in 2024
- 1900 people in over 35 countries
- Own production in 9 countries, 14 factories
- Group HQ in Finland, regional HQ in USA and Malaysia
- 10 R&D Centers, Halton Innovation Hubs, in 8 countries around the world



heavyindustriesolutions.halton.com

Heavy Industry 3D World

Halton's Heavy Industry 3D World provides users with a real-world visualisation of Halton's product offering while showcasing individual products and linking back to the main Halton website for more information. Users can explore comprehensive offerings

through a dynamic 3D experience, discovering products and benefits for applications such as nuclear facilities, power and heat plants, power tunnels and much more. Start exploring at heavyindustriesolutions.halton.com.

- Train Tunnels and Stations
- Road Tunnels

ABOUT US

Halton Group specializes in indoor environment solutions, ranging from public and commercial buildings to foodservice facilities. Founded in Finland in 1969, Halton operates today in over 35 countries around the world, with annual sales of ca. 316 MEUR and over 1900 employees. The company has production facilities in Brazil, Canada, China, France, Finland, Germany, Malaysia, the United Kingdom, and the USA.