Flare Tower Platform Heat Shields

MTE

Mech-Tool Engineering Ltd

Certified Performance and Proven Engineering Excellence

For over five decades, Mech-Tool Engineering Ltd (MTE) has set the global benchmark in radiant heat shielding systems, delivering trusted solutions to both offshore and onshore industries worldwide.

MTE's Flare Tower Platform Heat Shield systems combine certified thermal protection, safe maintenance access, and long-term offshore durability. Performance data, extrapolated from MTE's extensive heat shield testing programme, demonstrates proven reliability and engineering integrity in demanding operational environments.

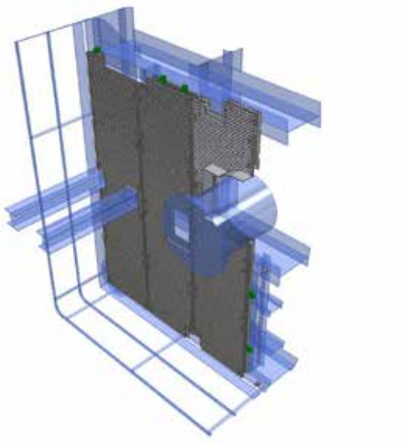
High Temperature Flare Shield System

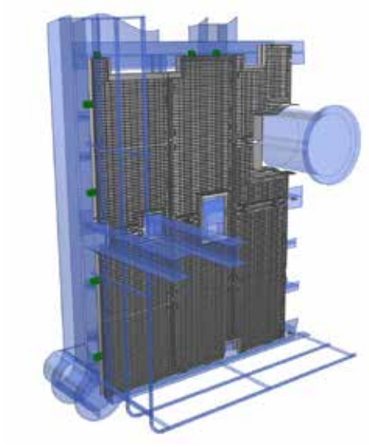
MTE's high-grade 310S stainless steel heat shield system is purpose-built to withstand the extreme radiant temperatures generated during flaring.

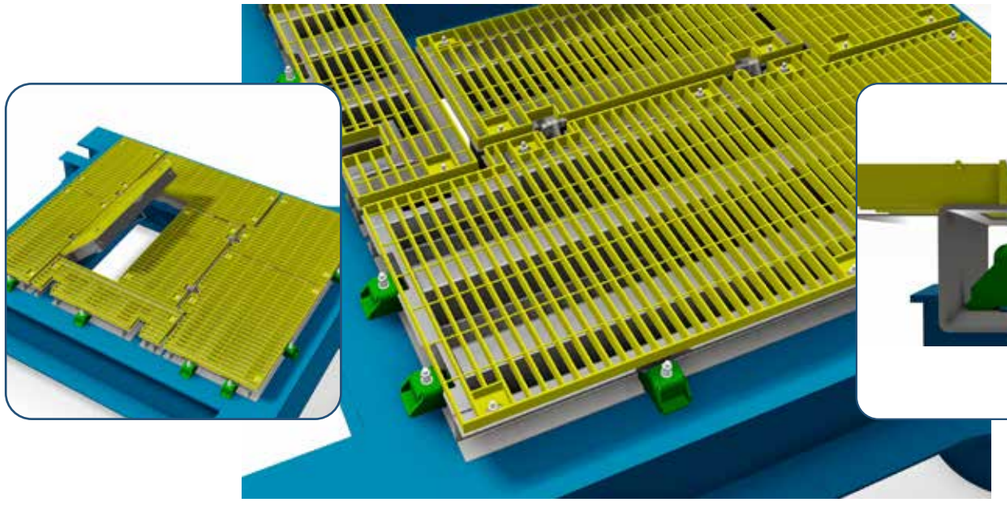
This specialist system combines exceptional thermal resilience with long-term offshore durability, ensuring reliable protection in one of the most demanding environments in the energy sector.

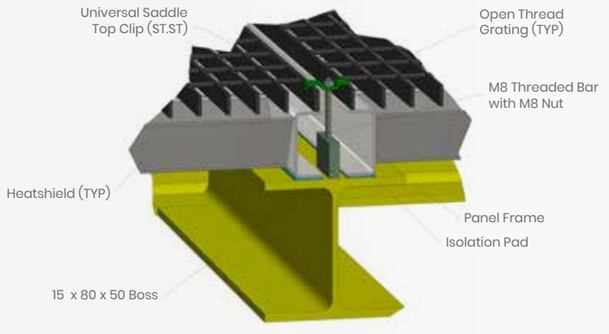
At the centre of the solution is an integrated stainless steel grating, designed to mount directly over the MTE heat shield panel. This configuration provides a safe and stable platform for flare-tip maintenance while delivering high-performance thermal protection during flaring events. The grating's corrosion-resistant construction ensures dependable service life, even under repeated thermal cycling and harsh offshore exposure.

Installation flexibility is provided through MTE's precision-engineered fixing system, which allows panels to be installed in either vertical or horizontal orientations before final flare boom erection. This supports efficient yard-based assembly while maintaining safety compliance. The fixing system is engineered for robust mechanical performance and optimised for offshore operational conditions, providing secure, stable support for both the heat shield and working platform.









Standard Fixing Detail Panel to Panel


Martin Linge

MTE provides design calculations to verify heat flux and temperature reductions for specified incident heat flux conditions and shield-to-object separation gaps. Structural calculations can also be provided to verify design integrity against known environmental conditions.

Due to the onerous nature of the application and the high operating temperatures involved, the flare stack heat shield is designed to suit the elevated heat fluxes generated by the flare stack. Panels are fully framed using channel sections to provide additional strength and durability.

The heat shield also acts as a walkway for personnel when the flare stack is not in operation. Stainless steel grating provides the walking surface, as the perforated sheet alone is not suitable for live loading. Platform grating is typically designed to withstand a 5 kN/m² uniformly distributed load, with higher loads available by design upon request.

The grating and heat shield are secured using MTE's specially designed clamp system, incorporating a separation gasket between the channel frame and primary steel.

Panels can be individually removed and replaced where maintenance access is required.

They can also be installed vertically during yard assembly to reduce work-at-height risk before the boom is positioned horizontally.

Flare Tower Platform Heat Shield Performance Criteria

The table below presents enhanced heat flux reduction values for combined grating and heat shield systems compared with standard heat shield panel systems.

The thermal and mechanical performance of Mech-Tool radiant heat shields and ventilated cladding has been verified through testing conducted at the UK Government-sponsored Building Research Establishment, with supplementary corrosion testing at British Steel Technical Laboratories in Swindon.

This section presents the performance variation between standard single-skin and double-skin MTE heat shield products. All figures are taken from MTE's Design Appraisal Document provided by Lloyd's Register.

Heat Flux Performance

Table 1 shows the average incident heat flux reduction at varying distances behind the heat shield for MTE standard heat shield products. The typical trend is that lower open-area percentages provide greater heat flux reduction, with 40% open area producing the lowest reduction and solid single-skin panels producing the greatest reduction. This effect is more significant closer to the back face of the panel. A double-skin system provides further heat flux reduction.

Panel Type	Average Incident Heat Flux Reduction (%)						
	Distance from Back Face of the Panel (mm)						
	1850	1500	1000	750	500	250	58
Single Skin – 40% Open Area	95	94	91	89	86	81	64
Single Skin – 32% Open Area	96	95	95	89	87	82	69
Single Skin – 23% Open Area	97	97	95	93	91	88	76
Double Skin Panel	98	98	97	95	95	94	91
Single Skin – 32% Open Area with Grating	95	94	92	91	89	96	84
Single Skin – Solid	97	97	96	96	94	90	84*
*Extrapolated Results							

Table 1: *Heat Flux Reduction behind heat shield*

MTE Heat Shield Offshore & Onshore Applications

MTE heat shields are typically used to provide on-site protection from weather and heat flux for personnel or equipment. The heat shield panels are suitable for both routine and incidental heat flux exposure.

Typical applications include:

- Escape routes and walkways
- Muster points and embarkation areas
- Stair tower cladding
- Perimeter walls
- Flare tower platform heat shields
- Equipment heat shields

Testing and Certification

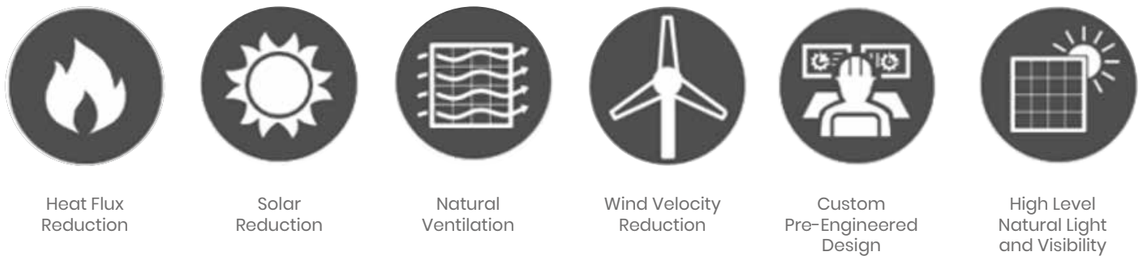
50+ years knowledge and expertise as the global leader in the design and build of high performance Heat and Solar Radiation Shielding Systems

- Independently Tested
- Witnessed by Lloyds Register
- Independent Verification of Performance (Lloyds Register – Design Appraisal Document)

Heat Flux Reduction

Wind Velocity Reduction

No Noise Generation



Your Safety. Our Priority.

The global leader in radiant heat shielding systems for over 50 years

The MTE Advantage

- ✓ **Proven Performance – Designed to meet your enviromental requirements**
- ✓ **Custom-Built Solutions – Tailored to your project needs**
- ✓ **Trusted Globally – Installed in major energy and industrial facilities worldwide**
- ✓ **Efficient Installation – No specialist tools required**

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