



Thermal & Environmental Protection Solutions

Flare Tower Platform Heat Shields

Certified Performance & 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.

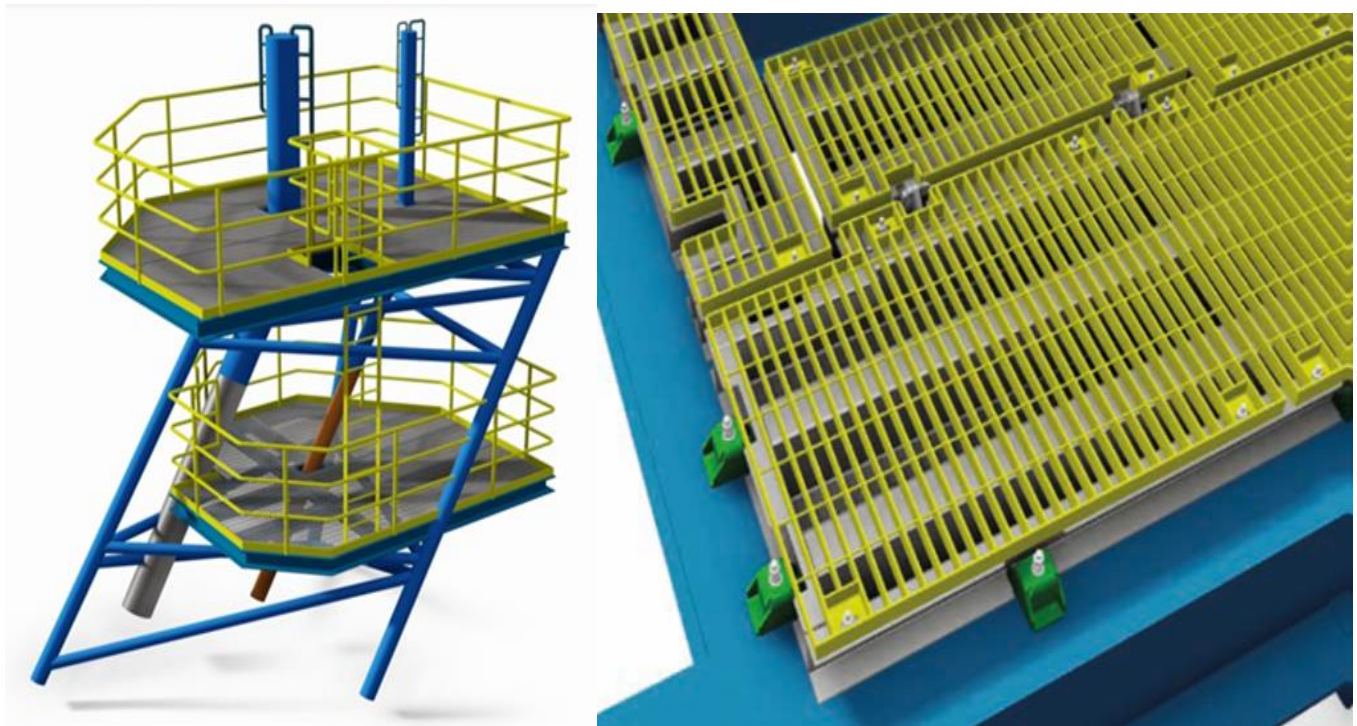
MTE Flare Tower Platform Heat Shields performance data is extrapolated from our extensive heat shield testing program, this demonstrates the proven performance, reliability, and engineering integrity of MTE's Flare Tower Platform heat shield systems in demanding operational environments.

High Temperature Flare Shield System

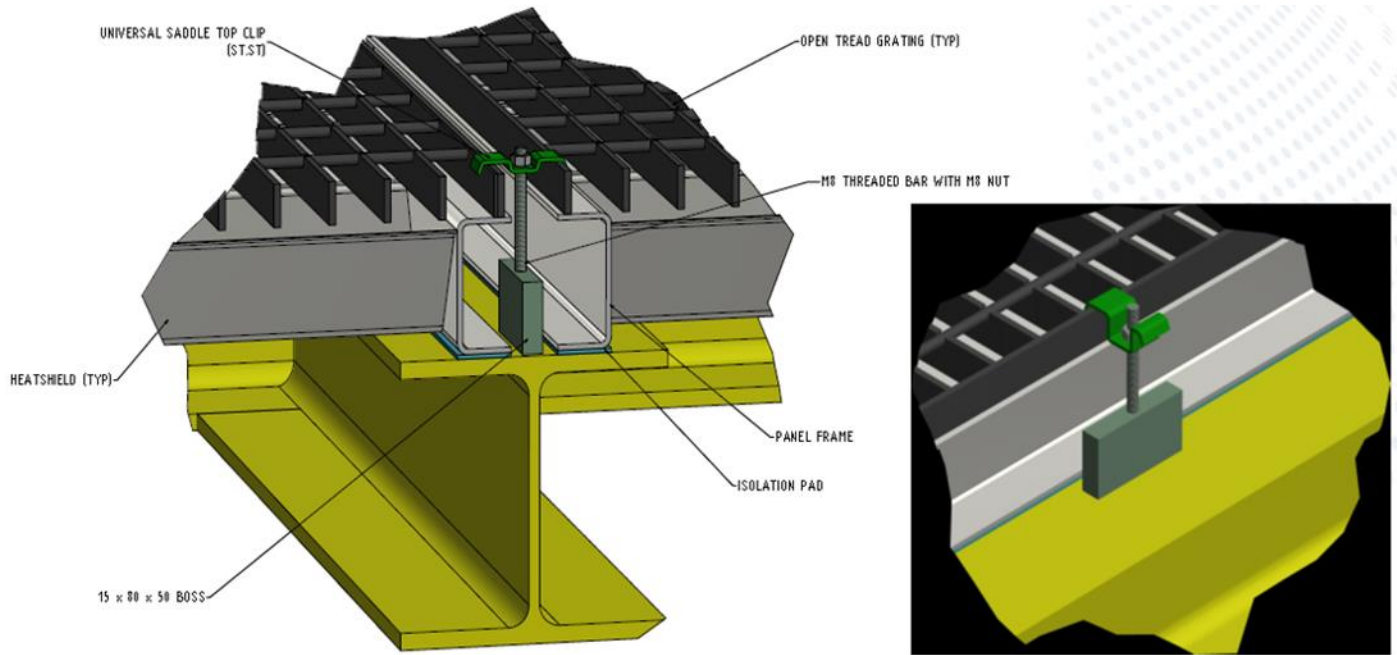
MTE's high grade 310S stainless steel heat shield system is purpose built to withstand the extreme radiant temperatures generated during flaring.

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



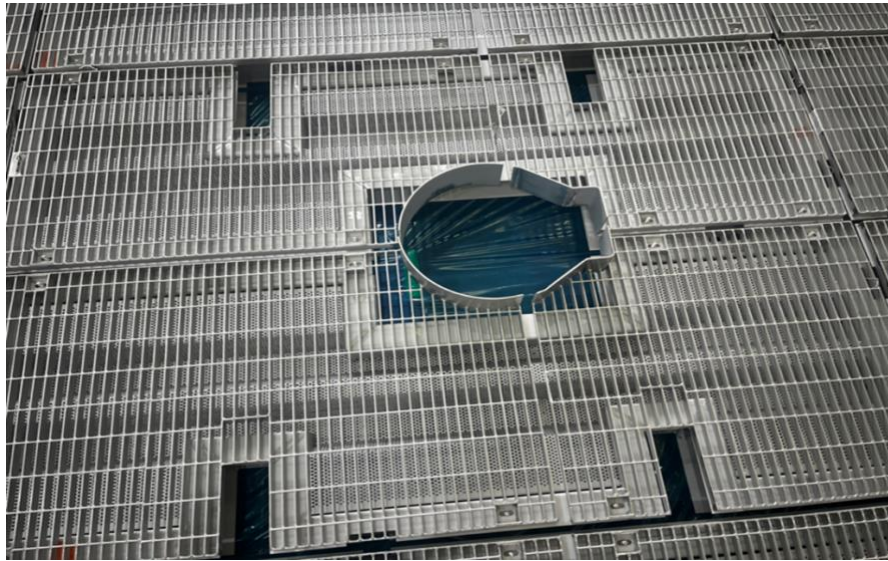
STANDARD FIXING DETAIL
(PANEL TO PANEL)



The perforated stainless steel plate construction provides a proven, strong, corrosion resistant and lightweight solution. In addition, the perforated nature of the shields provides natural ventilation and visibility.



MTE offer design calculations to prove heat flux and temperature reductions for given incident heat flux conditions and shield to object separation gaps, as well as structural calculations to prove the integrity of the design for any known environmental conditions.



Due to the onerous nature of the application and the extreme high temperatures, the flare stack heatshield has been designed to best suit the higher heat fluxes being produced by the flare stack and the panels are fully framed via the use of channel section.



The heatshield also acts as a walkway for personnel when the flare stack is not in operation. A stainless-steel grating is used to provide this base, as the perforated sheet would not be suitable to hold this live load. Typically, a platform grating would be designed to withstand a 5kN/m² UDL – however greater loads can be withstood and designed for upon request.

The grating and heatshield use an MTE specially designed clamp system to hold the grating and heatshield in position, making use of a separation gasket between the channel frame and primary steel.

Panels can be individually removed / replaced – especially if access for maintenance is required.

Panels can be installed in the vertical position to assist the yard installation teams and remove the risk from working at height if installed in the horizontal final boom position.

FLARETOWER PLATFORM HEATSHIELD PERFORMANCE CRITERIA

Reference Table below for enhanced heat flux reduction values of Grating + heatshield systems over that of the normal heatshield panel system only.

The thermal and mechanical performance of Mech-Tool radiant heatshields and ventilated cladding have been verified by tests conducted at the UK Government sponsored Building Research Establishment with supplementary corrosion testing at British Steel Technical Laboratories in Swindon.

This section will show the reader the performance variation between the standard single skin and double skin MTE Heatshield 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 heatshield for MTE standard heatshield products. The typical trend that is seen is that the lower the percentage open area, the greater the heat flux reduction, with 40% open area having the lowest reductions and the solid heatshield having the greatest when looking at single skin systems. This effect is much more significant when closer to the back face of the panel. Using a double skin system provides an even greater 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 Heatshield

APPLICATIONS

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

There are several different applications where MTE's radiant heatshield systems can be used and some examples of which include: -

- Escape route / walkways,
- Muster points and embarkation areas
- Stair tower cladding,
- Perimeter walls,
- Flare Tower Platform Heat Shields
- Equipment Heat Shields

Testing and Certification

Independently Tested (Building Research Establishment 2010 and 2016)

Witnessed by Lloyds Register 2010

Independent Verification of Performance (Lloyds Register - Design Appraisal Document)

- 🔥 Heat Flux Reduction
- 🌀 Wind Velocity Reduction
- 🔊 No Noise Generation

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

Benefits of MTE Heat Shield System



The MTE Advantage

- ✓ **Proven Performance** – Designed to meet your environmental 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

Your Safety. Our Priority.

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