



## THERMAL BLANKET ESSENTIALS: A HEAT-CRITICAL BLANKETS STRATEGY

BUILT TO PROTECT

Mine sites should establish a mandatory blanket specification for assets to isolate extreme-heated engine components from flammable liquids and reduce component outer surface temperatures below fuel flashpoints.

### PRIMARY OBJECTIVES OF THERMAL BLANKETS

- Provide a controlled physical barrier between hot engine and exhaust surfaces and flammable substances
- Improve operator and personnel safety by reducing the risk of severe burns
- Compliance with AS 5062:2016 Standard fire protection for mobile equipment and MDG 15 Guideline (NSW)

### OUR RECOMMENDATION: HEAT-CRITICAL BLANKETS SYSTEM

Some mine sites believe all they need are turbo blankets and perhaps manifold and junction blankets. In reality, there isn't a minimum blanket configuration that works for all mobile equipment.

Rather than focusing on a minimum blanket specification, Aletek recommends defining heat-critical blankets for each type of asset (trucks, excavators, dozers, etc.). You should also review your fire mitigation strategy to address other high-risk areas, such as fuel sources, ignition points, and radiant heat concerns.

On most mobile equipment, sites typically protect at least the turbo, manifolds and junctions with blankets due to the temperatures they operate at and the possibility of ignition.

### ESSENTIAL BLANKET PROTECTION FOR ASSETS

#### 1. MANIFOLD BLANKETS

Engine manifolds can reach up to 450°C under full load conditions (engine dependent). Typically, the manifold of an engine will run the hottest. The surface temperature exceeds the ignition flashpoint for oils and fluids in the vicinity. This risk compounds as manifolds usually have limited clearance and airflow.

It is essential to protect against these sources of extreme heat with a premium thermal blanket. Safeguard manifolds with an impenetrable, multi-layer thermal insulation blanket to reduce surface temperatures below flashpoint.

The design of Aletek blankets reduces hot spots and prevents oil and flammable liquid infiltration through section gaps and joins. Blankets must be properly installed with no gaps and secured with springs and tie-wires to prevent ingress.



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### ESSENTIAL BLANKET PROTECTION FOR ASSETS

#### 2. TURBO BLANKETS

By nature, turbochargers can operate at extreme temperatures, especially when under constant load (e.g. trucks hauling up a decline or out of a pit). Like the manifold, surface temperatures are often well above fuel flashpoint. In many cases, the risk can even be higher with turbos due to their location and risk of coming in contact with leaking fluids and burst hoses.

A practical solution to address these issues is a turbo-specific blanket, also known as a 'turbo snail'. Aletek thermal insulation blankets provide a snug fit that still allows access to critical components for maintenance, such as oil and fuel lines, inspection ports or inspection points.

### RECOMMENDED BLANKETS FOR ASSETS

#### 3. ENGINE PIPE BLANKETS FOR HIGH-RISK AREAS

In areas where engine pipes are likely to exceed or be close to fuel flashpoint, sites often utilise blankets to reduce the outer pipe surface temperature. Scenarios include engine pipes located inside or close to the engine bay, under the deck of excavators, or near equipment such as grease pumps. Junctions (T-sections) should be considered also due to their proximity to turbos.

For some assets, a critical requirement is to shield high voltage lines from contact with hot exhaust surfaces. Engine pipe blankets can help prevent heat damage to high voltage cables on electric drive trucks.

#### 4. BLANKETS TO SOLVE RADIANT HEAT ISSUES (E.G. MUFFLERS)

It is essential to reduce radiant heat to protect and extend the life of other components. Consider adding blankets if mufflers are close to the engine bay or radiant heat creates problems. Mufflers can radiate excessive heat into the driver's cab, cause the window panes to become too hot to touch, and require secondary air conditioners. In these situations, install blankets for shielding.

Aletek blankets offer crews protection during equipment cooldown periods. Having thermal blankets in engine bays also allows maintenance crews to access engine bays sooner. According to one client, "there's nothing worse than being bit by hot drill exhaust" that is left exposed.

### SUMMARY: A WINNING HEAT-CRITICAL BLANKETS STRATEGY

Investments in thermal blankets may be a small price to pay to prevent paying the price of fire. That price doesn't just include equipment and parts replacement. Ultimately, it is the safety of people, the confidence of operators, the reputation and scrutiny it attracts, and the hike in insurance premiums that are at stake.

Specifying essential blankets and asset-specific solutions for high-risk and radiant heat areas can help mine sites achieve a winning strategy. By understanding your onsite goals and challenges, Aletek can share insights relevant to your assets and help your crew make better decisions.

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