



## SCISSOR SHOE PRIMARY SEAL

The HMT Scissor Shoe Primary Seal for aboveground storage tanks is the primary seal of choice for external floating roofs. The original scissor shoe seal was invented by HMT in 1987, and the design has been continuously refined since then. To this day, it remains the most widely utilized and successful primary seal in the industry. The reasons are clear: it works and it's extremely durable.

For a primary seal that will last, perform well through heavy use, adapt to tank roundness anomalies, span a wide range of rim spaces, and most importantly, maintain tank-shell contact resulting in no gaps, choose the HMT Scissor Shoe.

### Key benefits:

The HMT Scissor Shoe Primary Seal relies on innovative design features that contribute key benefits to the end user:

**Handles wide range of rim spaces** – scissor hanger design performs well in rim spaces ranging from 3.5" to 18" and can be custom-designed to handle rim spaces up to 24"

**No gapping** – good seal even with wide-ranging rim spaces and tank roundness anomalies

**Long life** – key components made from custom-hardened stainless steel, ensuring spring longevity and long-lasting seal performance

**Low maintenance** – workhorse design and materials

**In-service install** – no hot work required



### Key design features:

- Custom-hardened steel will not fatigue
- Ten pressure points per shoe create even pressure distribution across the entire shoe
- HMT's scissor shoe stays level as the rim space varies, ensuring a tight fit as roof travels
- Premium fabrics for long-life and durability of vapor barrier
- Bolt-on design allows for installation and repair while in service
- Each HMT seal is designed and sized to fit the specific tank and floating roof dimensions
- PTFE fabrics have excellent flame retardant properties; meets DIN 22118 standard

# DESIGN DETAILS

## THE HMT SCISSOR HANGER DESIGN

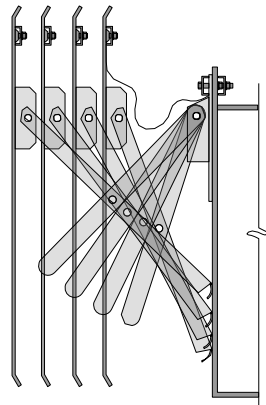
HMT's scissor hanger assembly design revolutionized primary seals and remains unsurpassed in function and performance. Here's why:

### 1. Even pressure application

Each shoe is equipped with three sets of pusher bars and pusher plates, for a total of ten pressure zones. This ensures even pressure distribution and allows the shoe to conform well to local anomalies in shell roundness. In addition, the pressure is distributed vertically on the shoe, ensuring excellent contact from top to bottom. There is no better shoe pressure application in the industry.

### 2. Remains level as rim space varies

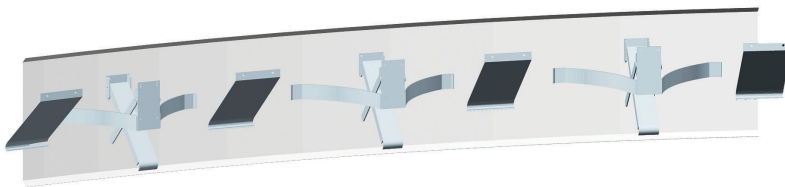
A unique design feature is that the shoe is held at the same level regardless of local rim-space variations. This ensures no "shoe-drop" in wider rim spaces (which could lead to gapping issues at shoe joints). This feature also allows for the use of low-profile secondary seals, which can add valuable capacity.



The HMT shoe remains level and has excellent working range (from 3.5" to 18").

### 3. Handles wide range of rim spaces

The HMT Scissor Shoe Seal handles rim spaces from 3.5" to 18", and can be customized to handle up to 24" rim spaces.



## OTHER KEY FEATURES AND BENEFITS

### Custom-hardened stainless steel

A critical ingredient in all our seals is the type of stainless steel we use. This steel, purchased direct in mill-run quantities, is custom-hardened to our specification to maximize spring pressure and longevity. While annealed or off-the-shelf "quarter-hard" steel can lose its spring, HMT components will spring back and avoid fatigue longer than any other seal on the market. This translates directly into longer life, lower maintenance, and most importantly—no gapping.

### Industry-leading PTFE fabrics

The other area where HMT outperforms the rest is in the quality and durability of our fabrics. We offer a variety of fabric choices, depending on your service requirements. Our standard PTFE fabrics are laminated, which are unsurpassed in terms of durability, permeability and service life. HMT's fabrics will wear extremely well in even the most aggressive services.

### Other benefits and options

- Stainless or galvanized shoe options
- PTFE or polyurethane fabric options
- Wax scrapers available
- Bolt-on design for in-service installation and repair
- Available for internal or external floating roofs
- Compliance with federal, state and local regulations
- Compatible with welded or riveted tanks
- No coil springs or under-roof counterweights
- Available with secondary seal systems
- Retrofit options available

## ABOUT HMT

HMT is the global leader in aboveground storage tank solutions. HMT provides advanced solutions to reduce emissions, optimize tank capacity, reduce stranded inventory and engineer a tank system that exceeds safety standards and extends maintenance intervals.

**HMT's full suite of tank products includes:** Internal/External Seal Systems - Internal/External Floating Roofs - Drain and Floating Suction Systems - Aluminum Domes - Emissions Reduction Devices.

**HMT's quality services include:** Tank Repair & Maintenance - Floating Roof & Seal Repair/Replacement - Installation Services - Fabrication Services - Project Management/Turnkey - Inspection, Calibration, Verticality & Roundness Studies - New Tank Construction - Engineering Services.

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