

Do You Have the Right Valves? Midland Can Help You Specify the Right Valves for Your Railcar Fleet

Tank Car DOT-117 Retrofit Source Guide

| SOURCE | IMPLEMENTATION DATE | PRESSURE RELIEF VALVE | BOTTOM OUTLET | VRV |
|-------------------------|---------------------|--------------------------------|---|---|
| New Car | October 1, 2015 | Smart-Flow | * A-522 with Enhanced Handle | Flange mount A-212 |
| DOT-111 / Non Jacketed | April 30, 2017 | | * Enhanced Handle Only * A-522 with Enhanced Handle (Best) | |
| DOT-111 / Jacketed | February 28, 2018 | Smart-Flow (Best) High-Flow | * Enhanced Handle - Retrofits Midland and Competitive Alternatives (Best) | Flanged mount A-212-FR20 with premium screen (Best) |
| CPC-1232 / Non Jacketed | March 31, 2020 | | * Enhanced Handle - Retrofits Midland and Competitive Alternatives (Best) | |
| CPC-1232 / Jacketed | April 30, 2025 | | * Enhanced Handle - Retrofits Midland and Competitive Alternatives (Best) | |

*Midland recommendation. Not part of DOT-117 regulations



No-Step

A-212 Enhanced Vacuum Relief Valves

As of March 2013, AAR prohibits the use of "step" vacuum relief valves for new cars or as replacements "in kind" for existing cars.

Midland Enhanced VRVs are the preferred solution for unit trains and crude-oil service. The A-212 is available with protective baffles and air inlet filters that ensure proper operation and protects your car for a nominal investment. Change to the Midland A-212-FR20 to safeguard your tank car and be compliant with AAR.

DELIVERING | WHAT'S NEXT



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DELIVERING | WHAT'S NEXT

Solutions for DOT 117 / 117R Railcars

Built to Deliver Maximum Performance and Safety for High-Hazard Flammable Trains (HHFTs) and High-Hazard Flammable Unit Trains (HHFUTs)



www.midlandmfg.com

Midland Proudly Provides the Most Complete Package of Railcar Fittings for the Latest DOT 117 and TC 117 Requirements



Beyond meeting regulations, through continuous voice-of-customer research, Midland creates the most innovative and safest products to match the desires of its customers. From external to internal devices to a variety of flow rates, Midland is willing and ready to go the extra mile. These customer-centric solutions will help you navigate through the challenges of the latest regulations for high-hazard flammable trains (HHFTs) and high-hazard flammable unit trains (HHFUTs) to make sure your railcars and profits keep rolling.

Smart-Flow® PRV

The newest PRV designed for DOT 117 / TC 117 regulations, the Smart-Flow produces a flow rate of 10,730 SCFM with a repeatable 75 psig set-to-discharge. Thermal protection systems utilizing the Smart-Flow PRV perform better than those using higher flow valves based on survival in a 100-minute pool fire. Smart-Flow minimizes the amount of product discharged that could feed a fire, minimizing the environmental impact of a potential release.

- ◆ External design
- ◆ High-quality stainless-steel construction
- ◆ Lower flow rate to minimize product loss and environmental challenges
- ◆ AFTAC model verified for latest pool fire and jet fire requirements

| FEATURE | BENEFIT |
|---|---|
| 75 psig repeatable set-to-discharge | Fast response to tank pressure |
| Compact low profile (< 9") | Helps prevent shearing / Suitable for retrofits |
| Stainless-steel construction | Protects against corrosion |
| 6½" x 10¼" B. C. versions tongue-and-groove and flat-face | Easy retrofit, industry-standard mount |



Smart-Flow
PRESSURE RELIEF VALVE



High-Flow
PRESSURE RELIEF VALVE

High-Flow® PRV

For the best internal pressure relief valve, the only choice is the High-Flow PRV. A flow rate of 29,550 SCFM, repeatable 75 psig set-to-discharge, with corrosion-resistant design, the High-Flow is designed for crude oil, ethanol, and a variety of harsh commodities. Easy-to-replace seals and mounting configurations for retrofits reduce downtime and costs.

- ◆ Proven in crude-oil application
- ◆ High integrity stainless-steel and plated components for reliable performance over the life of the valve

| FEATURE | BENEFIT |
|--|--|
| 75 psig set-to-discharge | Fast response to tank pressure |
| Optional guide tube | Allows mounting to pressure plate with no nozzle |
| Available in both tongue-and-groove and flat-face configurations | Designed for easy mounting |
| Stainless-steel construction | Protects against corrosion |
| Easy-to-replace seal design | Saves time in labor |



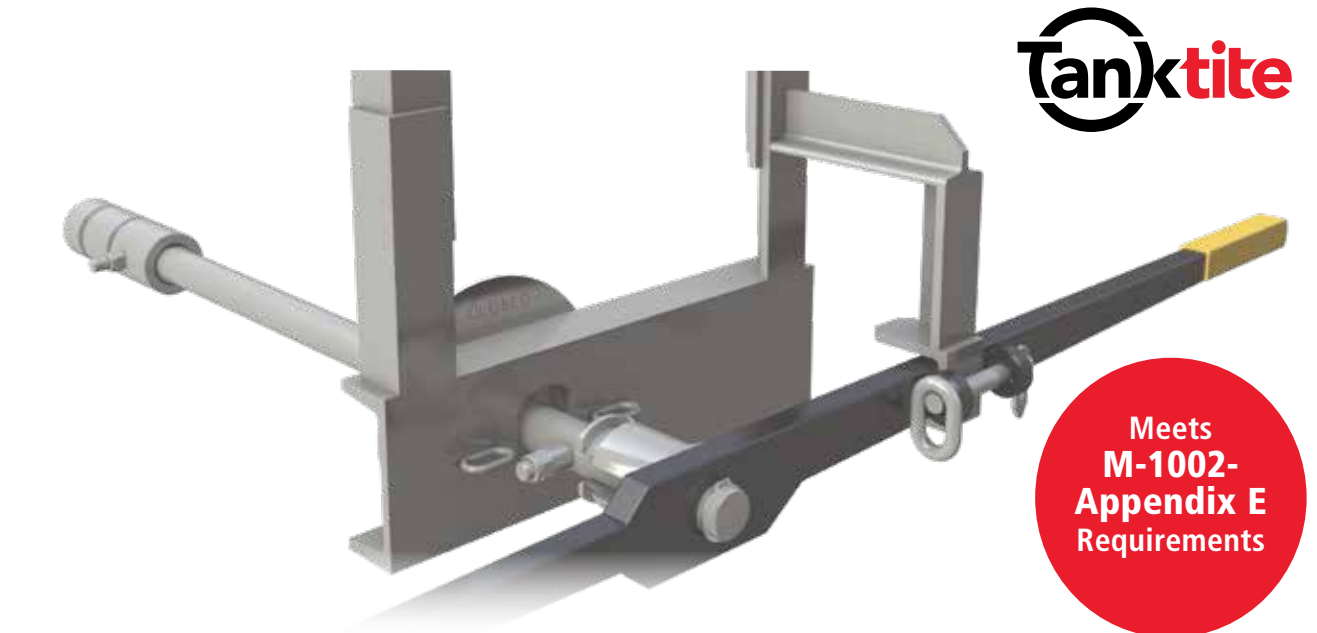
Ball Valve

Midland's A-520/522 Ball Valves are constructed of durable stainless or carbon steel to withstand the corrosive properties of crude oil and associated commodities. DuraSteel ball valve seats offer greater resistance to abrasion and reduce the risk of leakage.

| FEATURE | BENEFIT |
|--------------------------------|--|
| Main shaft wiper seal | Prevents contaminants from entering seal area |
| Compact design | Fits all current API adaptors and vapor fittings |
| Universal mounting | Fits all current API adaptors and vapor fittings |
| Rigid mounting | Extends valve life |
| Easy to use | Only requires quarter turn to fully open and close valve |
| Unrestricted full port opening | Allows high-flow rates for faster unloading |
| Special seat designs | Available for highly viscous products |

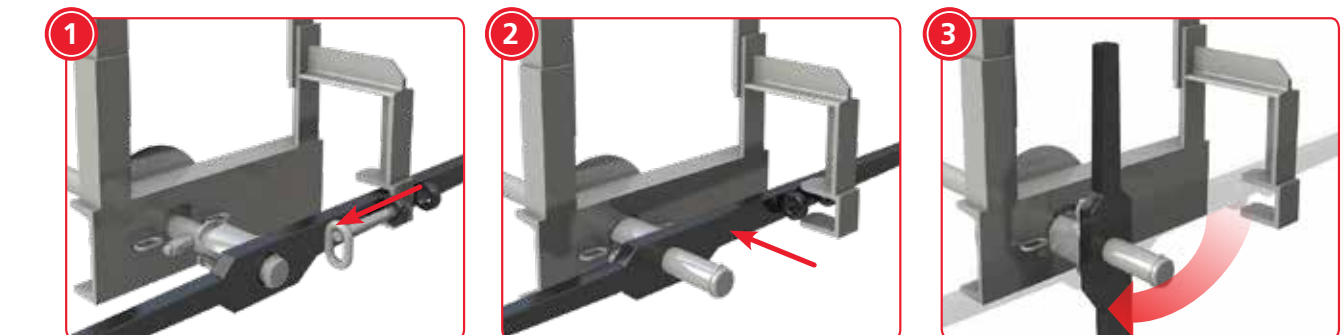
Tanktite™ Detachable Handle for Railcars

Engineered to handle extreme shock and vibration, prevents bottom outlets on railcars from being unintentionally opened. The simple design allows you to easily install and seamlessly integrate with Midland A-520/522 Ball Valves.



- ◆ Couples with Midland A-520/522 Ball Valves
- ◆ Heavy-duty locking pin keeps the handle secure for safe transport
- ◆ Handle positively couples with ball valve when opened until fully closed
- ◆ Easy to operate

3-Step Connection Process Keeps You in Compliance



1. Handle detached, disengaged, and locked in the closed position – bottom outlet ball valve and commodity are safe and secure for transport

2. Handle actively engaged to operate and open valve ONLY when intended

3. Tanktite's unique handle-capture design is simple, reliable, and easy to use