Tanktite® Detachable Handle
B-522-50/523-50 Series for Midland Plug Valves

Installation, Operation & Maintenance (IOM) Manual
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1 Regulations and Safety Requirements

1.1 Regulations

Midland valves, fittings and accessories are used in connection with a variety of commodities. Many of those are hazardous materials and could cause serious injury or damage if mishandled.

This Midland product should only be installed, operated and maintained by qualified personnel. Read all of these instructions carefully before proceeding.

1.2 Safety Warnings and Precautions

Please carefully read each of the following warnings and cautions prior to performing any work.

**WARNING:** Toxic Hazard. Always use extreme caution and proper equipment when involved with hazardous materials. To avoid exposure to toxic or hazardous materials, make sure the tank car is empty and clean, and that the work area is free of hazardous chemicals before removing or installing any fitting or assembly.

- Wear protective clothing and equipment suitable for withstanding the materials to which you may be exposed
- Position yourself on the upwind side of the valve when possible
- Work in a well-ventilated area
- Work with a partner who can help you in the event of an emergency
- Follow approved safety precautions for hazardous or toxic materials

**NOTICE:** For Tanktite handles designed as “special” or with unique customer requirements, please contact Midland Customer Support with the complete handle part number for your application to receive applicable drawings and part lists.

**NOTICE:** Throughout these instructions, the bracket assembly shown is for the Tanktite handle with CW to open operation. A handle that operates CCW to open is the mirror image to the instructions shown in this manual; however, all associated steps are identified within the following instructions.
2 Introduction

The B-522-50/523-50 Series Tanktite Detachable Handle prevents Midland plug valves from being unintentionally opened, even in the event of a rollover and derailment.

The assembly features:

- Shaft and supports are cable-lock ready
- Secures handle for safe transport
- Engineered to handle extreme shock and vibration

2.1 Handle Dimensions

![Diagram of handle dimensions]

Figure 2-1 Dimensions (Top View) - B-522-50-CS Shown
Figure 2-2 Dimensions (Side View) - B-522-50-CS Shown

Figure 2-3 Dimensions (Front View) - B-522-50-CS Shown
## 2.2 Handle Details – Component Identification and Parts Listing

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>PART DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>BEARING, TEFILON</td>
<td>551-605-TF</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>BOLT, HANDLE BALL VALVE, 7/16-20 UNC-2A, 3&quot; LONG</td>
<td>520-172-CS</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>MAIN BRACKET ASSEMBLY</td>
<td>522-50517-CS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*</td>
<td>523-50517-CS *</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>BUSHING</td>
<td>522-60602-SS</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>COUPLING</td>
<td>520-185-CS</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>EXTENSION SHAFT</td>
<td>522PL-50504-SS</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>HANDLE ASSEMBLY, WELDMENT</td>
<td>522-50505-CS</td>
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<td></td>
<td></td>
<td>*</td>
<td>523-50505-CS *</td>
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<tr>
<td>8</td>
<td>2</td>
<td>NYLON INSERT, LOCKNUT, 7/16-20 UNF-2B</td>
<td>520-162-CS</td>
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<td>9</td>
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<td>RETAINING RING</td>
<td>549-604-SS</td>
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<td>10</td>
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<td>PACKING WASHER</td>
<td>551-604-CS</td>
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<td>11</td>
<td>1</td>
<td>INDICATOR</td>
<td>522-50515-CS</td>
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<tr>
<td></td>
<td></td>
<td>*</td>
<td>523-50515-CS *</td>
</tr>
<tr>
<td>12</td>
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<td>BOLT, 1/4-20 UNC-2A, 2&quot; LONG</td>
<td>522-60616-CS</td>
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<td>13</td>
<td>1</td>
<td>ANGLE BRACKET</td>
<td>522-60618-CS</td>
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<tr>
<td>14</td>
<td>1</td>
<td>NYLON INSERT, LOCKNUT, 1/4-20 UNC-2B</td>
<td>522-60619-CS</td>
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<tr>
<td>15</td>
<td>1</td>
<td>EXTERNAL RETAINING RING, SST, 1-1/8 DIA.</td>
<td>522-60605-SS</td>
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<td>16</td>
<td>1</td>
<td>BOLT, M4 X 0.7 MM</td>
<td>522-60622-SS</td>
</tr>
<tr>
<td>17</td>
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<tr>
<td>18</td>
<td>1</td>
<td>HANDLE GRIP</td>
<td>549-72</td>
</tr>
</tbody>
</table>

Figure 2-4 Handle Parts Listing

* For assembly B-523-50-CS

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**NOTICE:** For Tanktite handles designed as “special” or with unique customer requirements, please contact Midland Customer Support with the complete handle part number for your application to receive applicable drawings and part lists.
Figure 2-5 Components (Side View) - B-522-50-CS Shown

Figure 2-6 Components (Isometric View) - B-522-50-CS Shown
3 Handle Installation

3.1 Installation Procedure and Required Tools

Before arriving at the installation site, obtain the required tools and supplies prior to performing the procedures indicated in this guide.

<table>
<thead>
<tr>
<th>Recommended Wrenches</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SAE</strong></td>
</tr>
<tr>
<td>5/8” Socket and Open-End Wrench</td>
</tr>
<tr>
<td>7/16”</td>
</tr>
<tr>
<td>Retaining Ring Pliers</td>
</tr>
</tbody>
</table>

Table 3-1 Required Tools with Torque Specifications

<table>
<thead>
<tr>
<th>Other Tools and Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screwdrivers</td>
</tr>
<tr>
<td>Wire Brush</td>
</tr>
<tr>
<td>Lift Table</td>
</tr>
</tbody>
</table>

Table 3-2 Additional Recommended Tools and Supplies

**NOTICE:** Throughout these instructions, the bracket assembly shown is for the Tanktile handle with CW to open operation. A handle that operates CCW to open is the mirror image to the instructions shown in this manual.

3.2 Painting Consideration

For proper operation of the Tanktile handle system, select areas of the assembly’s machined components must be kept clean and free of any paint or coating.

Midland can provide appropriate component drawings, as needed, showing critical components and machining requirements. In general, the following guidelines apply.

3.2.1 Handle Assembly (Item 7)

![Figure 3-1 Handle Assembly Painting Exemptions](image-url)
3.2.2 Main Bracket Assembly (item 3)

Figure 3-2 Bracket Assembly Painting Exemptions

3.2.3 Coupling (item 5)

Figure 3-3 Coupling Painting Exemptions

3.2.4 Dial Indicator (item 11)

Figure 3-4 Dial Indicator Painting Exemptions

3.2.5 Extension Shaft (item 6)

Figure 3-5 Extension Shaft Painting Exemptions
3.3 Shaft Extensions and Coupling

3.3.1 Confirm that the Tanktite handle kit is for the intended operation (i.e., CW versus CCW to open). The B-522-50-CS model is clockwise (CW) to open; the B-523-50-CS model is counterclockwise (CCW) to open.

3.3.2 Confirm that the valve to which the Tanktite handle is to be attached is in the fully closed position.

3.3.3 Install the coupling (item 5) on the valve stem. Secure the coupling with a bolt (item 16) and lock washer (item 17).

3.3.4 Install the indicator (item 11) on the shaft (item 6). Secure the indicator to the shaft with the bolt (item 13) and nylon-insert locknut (item 15).

3.3.5 Connect the end of the extension shaft (item 6) to the coupling (item 5). Secure the extension shaft with a bolt (item 2) and nylon-insert locknut (item 8).
3.4 Main Bracket Assembly

3.4.1 Skip this step if the packing is preassembled.

3.4.2 Otherwise, place in order the following order: a packing washer (item 10), Teflon® bearing (item 1), packing washer (item 10) and retaining ring (item 9) in the bracket assembly center bushing. Be careful concerning packing washer orientation and fit with Teflon bearings.

3.5 Handle and Bracket Assembly

3.5.1 Place the handle assembly (item 7) in the bushing of the main bracket assembly (item 3) and rotate the handle 90 degrees down so it is in a **vertical** position.
3.5.2 Using a temporary support with a lift or jack, insert the handle/bracket assembly onto the shaft assembly.

Figure 3-11 Insert Handle Bracket Assembly onto Shaft Assembly

3.5.3 Align the holes in the handle (item 7) and main bracket assembly (item 3) and slide them over the extension shaft (item 6) until they stop against the indicator (item 11).

Figure 3-12 Align and Install Handle Assembly

3.5.4 Secure the assembly with a lift table or jack and align the extension shaft (item 6) with the valve stem. The Level C channel in the main bracket assembly (item 3) should be in the horizontal position.
3.5.5 Rotate the handle (item 7) 90 degrees CCW and pull it all the way back against the handle support in the main bracket assembly (item 3) as shown.

![Figure 3-13 Disengage and Secure Handle](image)

3.5.6 Install a bolt (item 2) and two (2) sleeve bushings (item 4) on the shaft and secure with a locknut (item 8).

**NOTICE:** Do not over-tighten locknut (item 8). Sleeve bearing should float.

![Figure 3-14 Install Bolt and Bushings](image)

3.5.7 Secure the handle (item 7) on the shaft with the external retaining ring (item 15).

![Figure 3-15 Install Retaining Ring](image)

3.5.8 Remove the pin and slide the handle assembly (item 7) back and forth to check and verify engagement with the shaft bolt and main racket assembly (item 3). Make sure that the “D” shaped end on the handle assembly (item 7) busing slides inside the “D” shaped opening in the main bracket assembly (item 3). If the handle assembly slides smoothly, pull the handle assembly back against the handle support and secure it with a pin.

3.5.9 Complete welding the main bracket assembly to the tank.
3.6 Level and Tack Weld

**NOTICE:** Assembly must be level before proceeding with the following steps.

3.6.1 With main bracket assembly (item 3) located and leveled, hold two supplied angle brackets in place to locate weld pads (supplied by third party) and mark the angle bracket with the appropriate angle to cut for best fit.

3.6.2 Remove angle brackets and cut or trim as needed.

3.6.3 Tack weld pads into place on the tank car.
3.6.4 Clamp the two angle brackets to the main weldment and tack weld into place.

3.6.5 Reconfirm level mounting and alignment. Cycle valve handle open and close to ensure that the mechanism aligns and that there is no binding.

3.6.6 Final weld pads and assembly into place. Remove all clamps.
4 Operating Procedure

4.1 To Open Valve/Engage Handle

4.1.1 Remove pin.

4.1.2 Grip the handle with both hands (one hand on the left side of the handle extension and the other hand on the right side of the handle lever) and push (slide) to fully engage with the shaft pin.

4.1.3 Make sure that the “D” shape end (on the handle bushing) slides inside the “D” shaped opening in the shaft bracket.

4.1.4 Rotate the handle clockwise to the fully open position. When open, the handle should be in a vertical orientation and engaged with the shaft in a secured position.
4.1.5 Pull the cap screw to full out position to secure the handle.

4.2 To Close Valve/Disengage and Secure Handle

4.2.1 Push the cap screw to full in position.

4.2.2 Rotate the handle CCW to the fully closed position.
4.2.3 Pull the handle and disengage it from the shaft.

![Figure 4-7 Disengage Handle from Shaft]

4.2.4 Secure the handle by placing a pin in the handle bracket.

![Figure 4-8 Secure the Handle]
5 Routine Maintenance

**NOTICE:** No regular or periodic maintenance is required. Midland recommends periodic visual inspection to make sure that fitted parts are free of contaminants, particles, and obstructions that might prevent proper operation of moving parts.