B-LOC® Keyless Locking Devices provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Referring to the series, please follow these Installation & Removal Instructions carefully to ensure proper performance of your B-LOC® unit.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>B103</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>B106</td>
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</tr>
<tr>
<td>B109</td>
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<td>B113</td>
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<td>5</td>
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<tr>
<td>B115</td>
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<td>6</td>
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<td>B117</td>
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<td>7</td>
</tr>
<tr>
<td>B400</td>
<td></td>
<td>8</td>
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<tr>
<td>B800</td>
<td>Shrink Discs</td>
<td>9</td>
</tr>
<tr>
<td>B117</td>
<td>Split Shrink Discs</td>
<td>10</td>
</tr>
<tr>
<td>B800</td>
<td>Half Shrink Discs</td>
<td>11</td>
</tr>
<tr>
<td>B400</td>
<td>SD40</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>WK Rigid Couplings</td>
<td>13</td>
</tr>
</tbody>
</table>

For technical assistance, please call 1-717-665-2421 or email our Applications Engineering Group: ae@fennerdrives.com.
**B-LOC®** Keyless Bushings provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this B-LOC® unit.

---

**WARNING**

When installing or removing B-LOC® products, always adhere to the following safety standards:

1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

---

**INSTALLATION**

(Refer to Figure 1)

**B-LOC®** Series B103 and B106 Keyless Bushings are supplied lightly oiled and ready for installation. They are self-centering and fit straight-thru hub bores. Note that Series B103 units permit axial hub movement during installation. In contrast, the extended flange on Series B106 units results in an axially fixed hub position during assembly. When reinstalling a used unit, make sure that all slits are aligned. The frictional torque capacity of these devices is based on a coefficient of friction of 0.12 for lightly oiled screw, taper, shaft and bore contact areas.

Therefore, it is important not to use Molybdenum Disulfide (e.g., Molykote, Never-Seeze or similar lubricants) in any Keyless Bushing installation.

---

**LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE Mₐ**

<table>
<thead>
<tr>
<th>Metric Series</th>
<th>Inch Series</th>
<th>Tightening Torque Mₐ (ft lb)</th>
<th>Screw Size</th>
<th>Hex Key Size (nm)</th>
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</thead>
<tbody>
<tr>
<td>20 x 47</td>
<td>40 x 65</td>
<td>3/4 to 1-1/2</td>
<td>B106</td>
<td>B103</td>
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<tr>
<td>45 x 75</td>
<td>65 x 95</td>
<td>1-5/8 to 2-9/16</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>70 x 110</td>
<td>95 x 153</td>
<td>2-11/16 to 3-3/4</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>100 x 145</td>
<td>120 x 165</td>
<td>3-15/16 to 4-3/4</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>130 x 180</td>
<td>200 x 260</td>
<td>4-15/16 to 8</td>
<td>166</td>
<td>135</td>
</tr>
<tr>
<td>220 x 285</td>
<td>260 x 325</td>
<td>2-1/2</td>
<td>257</td>
<td>219</td>
</tr>
<tr>
<td>280 x 355</td>
<td>300 x 375</td>
<td>3-1/2</td>
<td>350</td>
<td>290</td>
</tr>
<tr>
<td>320 x 405</td>
<td>340 x 425</td>
<td>4-1/2</td>
<td>500</td>
<td>420</td>
</tr>
<tr>
<td>360 x 455</td>
<td>400 x 495</td>
<td>4-3/4</td>
<td>675</td>
<td>560</td>
</tr>
</tbody>
</table>

---

**INSTALLATION AND REMOVAL INSTRUCTIONS**

FOR B-LOC® KEYLESS BUSHING SERIES B106 & B103

The Keyless Bushing should be positioned so that slits in Keyless Bushing collars that contact the shaft are located approximately opposite the keyway. In addition, a locking screw should be centered directly over the keyway.

When tightening locking screws, it is important to follow the installation procedure outlined above, which specifies equal 1/4 turns of each locking screw. Failure to follow these instructions could result in excessive tightening of the screw over the keyway, possibly causing permanent deformation of the Keyless Bushing collars.

**REMOVAL**

(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Keyless Bushing, shaft or any mounted components.

1. **Check to ensure that** axial movement of collars - necessary for release of connection - is not restricted. Likewise, ensure that push-off threads are in good condition.

2. Relax all locking screws by approx. four (4) complete turns and transfer screws to all push-off threads located in flange of collar Item 1.

3. Release connection by evenly tightening all push-off screws (not exceeding 1/4 turns) in a diametrically opposite sequence.

---

**NOTE:**

1. It is not necessary to re-check tightening torque after equipment has been in operation.

2. The torque capacity of these units can be increased by approximately 25% by thoroughly cleaning the shaft and Keyless Bushing bore of any lubricant. In applications subject to extreme corrosion, the slits in all collars should be sealed with a suitable caulkng compound or equivalent. Likewise, push-off threads should be protected from corrosion.
B-LOC® Keyless Bushings provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this B-LOC® unit.

### WARNING
When installing or removing B-LOC® products, always adhere to the following safety standards:
1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

### INSTALLATION
(Refer to Figure 1)

**B-LOC® Series B109 Keyless Bushings** are supplied lightly oiled and ready for installation. They are self-centering and fit straight-thru hub bores. Note that the extended flange on Series B109 units results in an axially fixed hub position during assembly. When reinstalling a used unit, make sure that all slits are aligned. The frictional torque capacity of these devices is based on a coefficient of friction of 0.12 for lightly oiled screw, taper, shaft and bore contact areas.

Therefore, it is important **not** to use Molybdenum Disulfide (e.g., Molykote, Never-Seeze or similar lubricants) in any Keyless Bushing installation.

![Figure 1](image1.png)

1. Make sure that locking screw, taper, shaft and bore contact areas are clean and lightly oiled with a light machine oil and that all collar slits are aligned.
2. Loosen all locking screws by a minimum of four (4) turns and transfer at least three (3) screws into push-off threads in order to keep Parts 1 and 2 separated during assembly (see Figure 2).
3. After inserting Keyless Bushing into hub bore, relocate locking screw(s) used for separating Parts 1 and 2.
4. Hand tighten locking screws and confirm that collar Item 1 is parallel and in full contact with face of part to be attached to shaft.
5. Use torque wrench and set it approximately 5% higher than specified tightening torque (Mₐ). Tighten locking screws in either a clockwise or counterclockwise sequence (it is not necessary to tighten in a diametrically opposite pattern), using only 1/4 (i.e., 90°) turns for several passes until 1/4 turns can no longer be achieved.
6. Continue to apply overtorque for 1 to 2 more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified tightening torque.
7. Reset torque wrench to specified torque (Mₐ) and check all locking screws. No screw should turn at this point, otherwise repeat Steps 6 and 7.

**NOTE:**
1. It is not necessary to re-check tightening torque after equipment has been in operation.
2. The torque capacity of these units can be increased by approximately 25% by thoroughly cleaning the shaft and Keyless Bushing bore of any lubricant. In applications subject to extreme corrosion, the slits in all collars should be sealed with a suitable caulking compound or equivalent. Likewise, push-off threads should be protected from corrosion.

### INSTALLATION OF B-LOC® KEYLESS BUSHING OVER SHAFT KEYWAYS

The Keyless Bushing should be positioned so that slits in Keyless Bushing collars that contact the shaft are located approximately opposite the keyway. In addition, a locking screw should be centered directly over the keyway.

When tightening locking screws, it is important to follow the installation procedure outlined above, which specifies equal 1/4 turns of each locking screw. Failure to follow these instructions could result in excessive tightening of the screw over the keyway, possibly causing permanent deformation of the Keyless Bushing collars.

### REMOVAL
(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Keyless Bushing, shaft or any mounted components.

**IMPORTANT!** Make sure ends of locking screws used for removal are ground flat and are slightly chamfered to prevent damage to screw and collar threads during push-off.

1. Check to ensure that axial movement of collars — necessary for release of connection — is not restricted. Likewise, ensure that push-off threads are in good condition.
2. Relax all locking screws by approx. four (4) complete turns and transfer screws to all push-off threads located in flange of collar Item 1.
3. Release connection by evenly tightening all push-off screws (not exceeding 1/4 turns) in a diametrically opposite sequence.

![Figure 2](image2.png)

### LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE Mₐ

<table>
<thead>
<tr>
<th>Metric Series</th>
<th>Inch Series</th>
<th>Tightening Torque Mₐ (in lb)</th>
<th>Screw Size</th>
<th>Hex Key Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mm</td>
<td>1/4</td>
<td>36</td>
<td>M4</td>
<td>3</td>
</tr>
<tr>
<td>8mm to 19mm</td>
<td>5/16 to 3/4</td>
<td>42.5</td>
<td>M4</td>
<td>3</td>
</tr>
<tr>
<td>20mm to 35mm</td>
<td>7/8 to 1-3/8</td>
<td>87</td>
<td>M5</td>
<td>4</td>
</tr>
</tbody>
</table>

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**INSTALLATION AND REMOVAL INSTRUCTIONS FOR B-LOC® KEYLESS BUSHING SERIES B112**

**B-LOC®** Keyless Bushings provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this B-LOC® unit.

---

**WARNING**

When installing or removing B-LOC® products, always adhere to the following safety standards:

1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

---

**INSTALLATION**

(Refer to Figures 1 and 2)

**B-LOC®** Keyless Bushings are supplied lightly oiled and ready for installation. When reinstalling a used unit, make sure that all slits are aligned and that front and rear clamp collars are not reversed (when assembled correctly there are no holes or threads behind taps in clamp collar Item 1, and no threads behind taps in center collar Item 3). The frictional torque capacity of these devices is based on a coefficient of friction of 0.12 for lightly oiled screw, taper, shaft and bore contact areas.

Therefore, it is important *not* to use Molybdenum Disulfide (e.g., Molykote, Never-Seeze or similar lubricants) in any Keyless Bushing installation.

1. Make sure that locking screw, taper, shaft and bore contact areas are clean and lightly oiled and that all collar slits are aligned.

2. Loosen all locking screws by a minimum of four (4) turns and transfer at least two (2) screws to push-off threads in clamp collar Item 1 to disengage this part from center collar Item 3. Similarly, transfer at least two (2) screws to push-off threads in center collar Item 3 to disengage this part from clamp collar Item 2 (see Figure 2).

3. Completed assembly can now be placed on shaft and inserted into hub bore by pushing against face of collar Item 1 and heads of locking screws threaded into collar Item 2. This ensures collar Item 2 is not engaged at tapers during this phase.

4. After placement of Keyless Bushing, relocate locking screws used for separation of collars.

5. Hand tighten connection and confirm that clamp collar Item 1 is parallel with face of part to be attached to shaft and/or with the front facing edge of center collar Item 3.

6. Use torque wrench and set it approximately 5% higher than specified tightening torque ($M_a$). Tighten locking screws in either a clockwise or counterclockwise sequence (it is not necessary to tighten in a diametrically opposite pattern), using only 1/4 (i.e., 90°) turns for several passes until 1/4 turns can no longer be achieved.

7. Continue to apply overtorque for 1 to 2 more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified tightening torque.

8. Reset torque wrench to specified tightening without any noticeable separation of clamp collars. Although it seems that the screws cannot be tightened further, several more rounds of torquing in either a clockwise or counterclockwise sequence will increase the push-off force in the system and ultimately release part of the front collar. Afterwards, only the screws which are still tight should be tightened further until complete dismounting is achieved. Remove clamp collar Item 1.

4. Transfer locking screws used for dismounting of clamp collar Item 1 into all push-off threads in center collar Item 3 (see Figure 2). Release clamp collar Item 2 by repeating procedures outlined in Step 3.

---

**LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE $M_a$ B112 KEYLESS BUSHING**

<table>
<thead>
<tr>
<th>Metric Series</th>
<th>Inch Series</th>
<th>Tightening Torque ($M_a$) (ft lb)</th>
<th>Screw Size</th>
<th>Hex Key Size (mm)</th>
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</thead>
<tbody>
<tr>
<td>25 x 55</td>
<td>35 x 60</td>
<td>1 to 1-7/16</td>
<td>12</td>
<td>M6</td>
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<tr>
<td>40 x 75</td>
<td>65 x 95</td>
<td>1-1/2 to 2-9/16</td>
<td>30</td>
<td>M8</td>
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<tr>
<td>70 x 110</td>
<td>90 x 130</td>
<td>2-5/8 to 3-5/8</td>
<td>60</td>
<td>M10</td>
</tr>
<tr>
<td>100 x 145</td>
<td>120 x 165</td>
<td>3-3/4 to 4-3/4</td>
<td>105</td>
<td>M12</td>
</tr>
<tr>
<td>130 x 180</td>
<td>160 x 210</td>
<td>4-15/16 to 6</td>
<td>166</td>
<td>M14</td>
</tr>
<tr>
<td>170 x 225</td>
<td>260 x 325</td>
<td>6-7/16 to 8</td>
<td>257</td>
<td>M16</td>
</tr>
<tr>
<td>280 x 355</td>
<td>340 x 425</td>
<td>9-1/4 to 11/2</td>
<td>500</td>
<td>M20</td>
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<tr>
<td>360 x 455</td>
<td>600 x 695</td>
<td>10-15/16 to 12/16</td>
<td>675</td>
<td>M22</td>
</tr>
</tbody>
</table>

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**REMOVAL**

(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Keyless Bushing, shaft or any mounted components.

**IMPORTANT!** Make sure ends of locking screws used for removal are ground flat and are slightly chamfered to prevent damage to screw and collar threads during push-off.

1. Check to ensure that axial movement of clamp collars - necessary for release of connection - is not restricted. Likewise, ensure that push-off threads are in good condition.

2. Remove all locking screws. Transfer required number of screws into all push-off threads of clamp collar Item 1 (see Figure 2).

3. Release collar Item 1 by progressively tightening all push-off screws. Typically, the push-off screws appear to be completely tight after just one pass of tightening without any noticeable separation of clamp collars. Although it seems that the screws cannot be tightened further, several more rounds of torquing in either a clockwise or counterclockwise sequence will increase the push-off force in the system and ultimately release part of the front collar. Afterwards, only the screws which are still tight should be tightened further until complete dismounting is achieved. Remove clamp collar Item 1.

4. Transfer locking screws used for dismounting of clamp collar Item 1 into all push-off threads in center collar Item 3 (see Figure 2). Release clamp collar Item 2 by repeating procedures outlined in Step 3.

---

**INSTALLATION OF B-LOC® KEYLESS BUSHING OVER SHAFT KEYWAYS**

The Keyless Bushing should be positioned so that slits in Keyless Bushing collars that contact the shaft are located approximately opposite the keyway. In addition, a locking screw should be centered directly over the keyway.

When tightening locking screws, it is important to follow the installation procedure outlined above, which specifies equal 1/4 turns of each locking screw. Failure to follow these instructions could result in excessive tightening of the screw over the keyway, possibly causing permanent deformation of the Keyless Bushing collars.

---

For technical assistance, please call +1-717-665-2421

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**B-LOC® Keyless Bushings**

**WARNING**

When installing or removing B-LOC® products, always adhere to the following safety standards:

1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

**INSTALLATION AND REMOVAL INSTRUCTIONS**

**INSTALLATION**

(Refer to Figure 1)

- **B-LOC® Keyless Bushings** are supplied lightly oiled and ready for installation. When reinstalling a used unit, make sure that all slits are aligned and that front and rear clamp collars are not reversed. The frictional torque capacity of these devices is based on a coefficient of friction of 0.12 for lightly oiled screw, taper, shaft and bore contact areas.

Therefore, it is important **not** to use Molybdenum Disulfide (e.g., Molykote, Never-Seeze or similar lubricants) in any Keyless Bushing installation.

1. Make sure that locking screw, taper, shaft and bore contact areas are clean and lightly oiled and that all collar slits are aligned.
2. Loosen all locking screws by a minimum of four (4) turns and transfer at least three (3) screws to equally spaced push-off threads in clamp collar Item 1 to disengage this part from center collar Item 3. To disengage collar Item 2 from taper interface, lightly tap heads of three (3) equally spaced locking screws that have been engaged at least four (4) turns into collar Item 2 (see Figure 1).

3. Completed assembly can now be placed on shaft and inserted into hub bore by pushing against face of collar Item 1 and heads of locking screws threaded into collar Item 2. This ensures collar Item 2 is not engaged at tapers during this phase.
4. After placement of Keyless Bushing, relocate locking screws used for separation of collars.
5. Hand tighten connection and confirm that clamp collar Item 1 is parallel with face of part to be attached to shaft and/or with the front facing edge of center collar Item 3.
6. Use torque wrench and set it approximately 5% higher than specified tightening torque ($M_a$). Tighten screws in either a clockwise or counterclockwise sequence (it is not necessary to tighten in a diametrically opposite pattern), using only 1/4 (i.e., 90°) turns for several passes until 1/4 turns can no longer be achieved.
7. Continue to apply overtorque for 1 to 2 more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified tightening torque.
8. Reset torque wrench to specified torque ($M_a$) and check all locking screws.

**NOTES:**

1. It is not necessary to re-check tightening torque after equipment has been in operation.
2. In installations subjected to extreme corrosion, the slits in clamp collars Item 1 and Item 2, as well as in center collars, should be sealed with a suitable caulking compound or equivalent. Likewise, push-off threads should also be protected from corrosion.

**SPECIFIED TIGHTENING TORQUE $M_a$ B113 KEYLESS BUSHINGS**

<table>
<thead>
<tr>
<th>Metric Series</th>
<th>Tightening Torque $M_a$ (ft lb)</th>
<th>Screw Size Din 912 Grade 12.9</th>
<th>Hex Key Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>180 X 285 to 220 X 325</td>
<td>675</td>
<td>M22 x 180</td>
<td>17</td>
</tr>
<tr>
<td>240 X 355 to 300 X 425</td>
<td>870</td>
<td>M24 x 180</td>
<td>19</td>
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<tr>
<td>320 X 455 to 560 X 695</td>
<td>1300</td>
<td>M27 x 220</td>
<td>19</td>
</tr>
</tbody>
</table>

**REMOVAL**

(Refer to Figures 2 and 3)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Keyless Bushing, shaft or any mounted components.

1. Check to ensure that axial movement of clamp collars — necessary for release of connection — is not restricted. Likewise, ensure that push-off threads are in good condition.
2. Remove all locking screws. **Transfer required number of screws into all push-off threads of clamp collar Item 1 (see Figure 2).**
3. Release collar Item 1 by progressively tightening all push-off screws. Typically, the push-off screws appear to be completely tight after just one pass of tightening without any noticeable separation of clamp collars. Although it seems that the screws cannot be tightened further, several more rounds of torquing in either a clockwise or counterclockwise sequence will increase the push-off force in the system and ultimately release part of the front collar. Afterwards, only the screws which are still tight should be tightened further until complete dismounting is achieved. Remove collar Item 1 and cover plate Item 4 (cover plate Item 4 is supplied with multiple smaller threads at the collar face for this purpose).
4. **Transfer locking screws used for dismounting of collar Item 1 into all push-off threads in center collar Item 3 (see Figure 3).** Release collar Item 2 by repeating procedures outlined in Step 3.

**LOCKING SCREW SIZES**

For additional assistance, please call +1-717-665-2421
**B-LOC® Keyless Bushings provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this B-LOC® unit.**

**WARNING**

When installing or removing B-LOC® products, always adhere to the following safety standards:
1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

**INSTALLATION**

(Refer to Figures 1 and 2)

B-LOC® Keyless Bushings are supplied lightly oiled and ready for installation. When reinstalling a used unit, make sure that all slits are aligned and that front and rear clamp collars are not reversed (when assembled correctly there are no holes or threads behind taps in clamp collar Item 1, and no threads behind taps in center collar Item 3). The frictional torque capacity of these devices is based on a coefficient of friction of 0.12 for lightly oiled screw, taper, shaft and bore contact areas.

There are several screws that are used to clamp the bushing in position and they must be tightened in a proper sequence. The tightening sequence is as follows:

1. **Loosen all locking screws** by a minimum of four (4) turns and transfer at least two (2) screws to push-off threads in clamp collar Item 1 to disengage this part from center collar Item 3. Similarly, transfer at least two (2) screws to push-off threads in center collar Item 3 to disengage this part from clamp collar Item 2 (see Figure 2).

2. Completed assembly can now be placed on shaft and inserted into hub bore by pushing against face of collar Item 1 and heads of locking screws threaded into collar Item 2. This ensures collar Item 2 is not engaged at tapers during this phase.

3. **Release collar Item 1** by progressively tightening all push-off screws. Typically, the push-off screws appear to be completely tight after just one pass of tightening without any noticeable separation of clamp collars. Although it seems that the screws cannot be tightened further, several more rounds of torquing in either a clockwise or counterclockwise sequence will increase the push-off force in the system and ultimately release part of the front collar. Afterwards, only the screws which are still tight should be tightened further until complete dismounting is achieved. Remove clamp collar Item 1.

4. Transfer locking screws used for dismounting of clamp collar Item 1 into all push-off threads in center collar Item 3 (see Figure 2). Release clamp collar Item 2 by repeating procedures outlined in Step 3.

**REMOVAL**

(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Keyless Bushing, shaft or any mounted components.

**IMPORTANT!** Make sure ends of locking screws used for removal are ground flat and are slightly chamfered to prevent damage to screw and collar threads during push-off.

1. **Check to ensure that axial movement of clamp collars - necessary for release of connection - is not restricted. Likewise, ensure that push-off threads are in good condition.**

2. **Remove all locking screws. Transfer required number of screws into all push-off threads of clamp collar Item 1** (see Figure 2).

3. **Release collar Item 1** by progressively tightening all push-off screws. Transfer remaining screws which are still tight should be tightened further until complete dismounting is achieved. Remove clamp collar Item 1.

4. **Transfer locking screws used for dismounting of clamp collar Item 1** into all push-off threads in center collar Item 3 (see Figure 2). Release clamp collar Item 2 by repeating procedures outlined in Step 3.

**LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE MA**

**B115 KEYLESS BUSHING**

<table>
<thead>
<tr>
<th>Metric Series</th>
<th>Inch Series</th>
<th>Tightening Torque Mα (ft lb)</th>
<th>Screw Size</th>
<th>Hex Key Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 x 110</td>
<td>90 x 130</td>
<td>2-3/4 to 3-1/2</td>
<td>60</td>
<td>M10</td>
</tr>
<tr>
<td>100 x 145</td>
<td>160 x 210</td>
<td>3-15/16 to 6</td>
<td>105</td>
<td>M12</td>
</tr>
<tr>
<td>170 x 225</td>
<td>200 x 260</td>
<td>6-7/16 to 8</td>
<td>166</td>
<td>M14</td>
</tr>
<tr>
<td>220 x 285</td>
<td>260 x 325</td>
<td>8-11/16 to 10</td>
<td>257</td>
<td>M16</td>
</tr>
<tr>
<td>280 x 355</td>
<td>340 x 425</td>
<td>10-13/16 to 12</td>
<td>500</td>
<td>M20</td>
</tr>
<tr>
<td>360 x 455</td>
<td>600 x 695</td>
<td>12-15/16 to 14</td>
<td>675</td>
<td>M22</td>
</tr>
</tbody>
</table>

**FOR B-LOC® KEYLESS BUSHING SERIES B115**

The Keyless Bushing should be positioned so that slits in Keyless Bushing collars that contact the shaft are located approximately opposite the keyway. In addition, a locking screw should be centered directly over the keyway.

When tightening locking screws, it is important to follow the installation procedure outlined above, which specifies equal 1/4 turns of each locking screw. Failure to follow these instructions could result in excessive tightening of the screw over the keyway, possibly causing permanent deformation of the locking assembly collars.

**INSTALLATION OF B-LOC® KEYLESS BUSHING OVER SHAFT KEYWAYS**

**OVER SHAFT KEYWAYS**

The Keyless Bushing should be positioned so that slits in Keyless Bushing collars that contact the shaft are located approximately opposite the keyway. In addition, a locking screw should be centered directly over the keyway.

When tightening locking screws, it is important to follow the installation procedure outlined above, which specifies equal 1/4 turns of each locking screw. Failure to follow these instructions could result in excessive tightening of the screw over the keyway, possibly causing permanent deformation of the locking assembly collars.
**B-LOC® Keyless Bushings** provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this **B-LOC®** unit.

**WARNING**

When installing or removing **B-LOC®** products, always adhere to the following safety standards:
1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

**INSTALLATION**

(Refer to Figure 1)

**B-LOC®** Series B117 Keyless Bushings are supplied lightly oiled and ready for installation. They are self-centering and fit straight-thru hub bores. The extended flange on Series B117 results in an axially fixed hub position during assembly. When reinstalling a used unit, make sure that all slits are aligned. The frictional torque capacity of these devices is based on a coefficient of friction of 0.12 for lightly oiled screw, taper, shaft and bore contact areas.

Therefore, it is important not to use Molybdenum Disulfide (e.g., Molykote, Never-Seeze or similar lubricants) in any Keyless Bushing installation.

**LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE Mₘₐ**

<table>
<thead>
<tr>
<th>Metric Series (mm)</th>
<th>Locking Screws</th>
<th>Size 1 Install Torque Mₘₐ (Nm)</th>
<th>Size 2 Install Torque Mₘₐ (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>180 x 250 to 260 x 330</td>
<td>M20</td>
<td>678</td>
<td>M16 348</td>
</tr>
<tr>
<td>280 x 365 to 600 x 685</td>
<td>M24</td>
<td>1180</td>
<td>M20 678</td>
</tr>
</tbody>
</table>

1. Make sure that locking screws, taper, shaft and bore contact areas are clean and lightly oiled with a light machine oil and that all collar slits are aligned.
2. Loosen all locking screws by a minimum of two (2) turns and transfer at least two (2) larger screws (item 4) into push-off threads in the collar (item 1) in order to keep tapers of Parts 1, 2 and 3 disengaged during assembly (see Figure 1).
3. After inserting Keyless Bushing into hub bore, relocate locking screws used for separating Parts 1, 2 and 3.
4. Hand tighten all locking screws and confirm that flanged collar (item 1) is parallel and in full contact with face of part to be attached to shaft.
5. Use a torque wrench and set to approximately 5% higher than specified tightening torque Mₘₐ for large screws (item 4). Tighten large locking screws in a clockwise or counterclockwise sequence (it is not necessary to tighten in a diametrically opposite pattern), using only 1/4 (i.e., 90°) turns for several passes until 1/4 turns can no longer be achieved.
6. Continue to apply overtorque for 1 to 2 more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified tightening torque.
7. Repeat steps 5 and 6 for smaller locking screws (item 5), but setting 5% higher of specified tightening torque Mₘₐ for the smaller screws.
8. Reset torque wrench to specified torque (Mₘₐ) and check all large locking screws and then reset torque wrench Mₘₐ and check all small locking screws.

**NOTES**:
1. It is not necessary to re-check tightening torque after equipment has been in operation.
2. The torque capacity of these units can be increased by approximately 25% by thoroughly cleaning the shaft and Keyless Bushing bore of any lubricant. In applications subject to extreme corrosion, the slits in all collars should be sealed with a suitable caulk compound or equivalent. Likewise, push-off threads should be protected from corrosion.
**B-LOC® Keyless Bushings** provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this B-LOC® unit.

### WARNING

When installing or removing B-LOC® products, always adhere to the following safety standards:
1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

**INSTALLATION**

(Refer to Figure 1)

B-LOC® Keyless Bushings are supplied lightly oiled and ready for installation. The frictional torque capacity of these devices is based on a coefficient of friction of 0.12 for lightly oiled screw, taper, shaft and bore contact areas.

Therefore, it is important **not** to use Molybdenum Disulfide (e.g., Molykote, Never-Seeze or similar lubricants) in any Keyless Bushing installation.

**NOTE:**

1. It is not necessary to re-check tightening torque after equipment has been in operation.
2. In applications subject to extreme corrosion, the slits in all collars can be sealed with a suitable caulking compound or equivalent.

---

**LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE Mₐ B400 KEYLESS BUSHINGS**

The Keyless Bushing should be positioned so that slits in Keyless Bushing collars that contact the shaft are located approximately opposite the keyway. In addition, a locking screw should be centered directly over the keyway.

When tightening locking screws, it is important to follow the installation procedure outlined above, which specifies equal 1/4 turns of each locking screw. Failure to follow these instructions could result in excessive tightening of the screw over the keyway, possibly causing permanent deformation of the Keyless Bushing collars.

**REMOVAL**

(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Keyless Bushing, shaft or any mounted components.

1. Loosen locking screws in several stages by using approx. 1/4 turns, following either a clockwise or counterclockwise sequence.

**NOTE:** B-LOC® Series B400 Keyless Bushings feature self-releasing tapers, meaning collars should release during Step 1. However, if for some reason the thrust collars jam, a light tap on three (3) equally spaced heads of loosened locking screws will positively release the connection.

2. Hub and Keyless Bushing are normally removed together. Removal of Keyless Bushing only from deep counterbores is accomplished by inserting pull-off screws (not provided) into threads located under plated locking screws. These threads are **NOT** to be used for high pulling forces, as thrust collar is only partially threaded.

<table>
<thead>
<tr>
<th>Metric Series</th>
<th>Inch Series</th>
<th>Tightening Torque Mₐ (ft lb)</th>
<th>Screw Size</th>
<th>Hex Key Size (mm)</th>
<th>Pull-off Thread dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 x 47 to 40 x 65</td>
<td>3/4 to 1-1/2</td>
<td>11</td>
<td>M6</td>
<td>5</td>
<td>M8</td>
</tr>
<tr>
<td>42 x 75 to 65 x 95</td>
<td>1-5/8 to 2-9/16</td>
<td>26</td>
<td>M8</td>
<td>6</td>
<td>M10</td>
</tr>
<tr>
<td>70 x 110 to 95 x 135</td>
<td>2-5/8 to 3-3/4</td>
<td>51</td>
<td>M10</td>
<td>8</td>
<td>M12</td>
</tr>
<tr>
<td>100 x 145 to 160 x 210</td>
<td>3-7/8 to 6</td>
<td>138</td>
<td>M14</td>
<td>12</td>
<td>M16</td>
</tr>
<tr>
<td>170 x 225 to 200 x 260</td>
<td>6-7/16 to 8</td>
<td>214</td>
<td>M16</td>
<td>14</td>
<td>M20</td>
</tr>
<tr>
<td>220 x 285 to 280 x 325</td>
<td></td>
<td>293</td>
<td>M18</td>
<td>14</td>
<td>M22</td>
</tr>
<tr>
<td>280 x 355 to 300 x 375</td>
<td></td>
<td>420</td>
<td>M20</td>
<td>17</td>
<td>M24</td>
</tr>
<tr>
<td>320 x 405 to 340 x 425</td>
<td></td>
<td>565</td>
<td>M22</td>
<td>17</td>
<td>M27</td>
</tr>
<tr>
<td>360 x 455 to 420 x 515</td>
<td></td>
<td>725</td>
<td>M24</td>
<td>19</td>
<td>M30</td>
</tr>
</tbody>
</table>

**dB** = pull-off thread, located only under cadmium plated screws of front thrust collar
**B-LOC® Keyless Bushings**

Keyless Bushings provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this B-LOC® unit.

---

**WARNING**

When installing or removing B-LOC® products, always adhere to the following safety standards:
1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

---

**INSTALLATION**

(Refer to Figure 1)

B-LOC® Keyless Bushings are supplied lightly oiled and ready for installation. When reinstalling a used unit, make sure that all slits are aligned. The frictional torque capacity of these devices is based on a coefficient of friction of 0.12 for lightly oiled screw, taper, shaft and bore contact areas.

Therefore, it is important **not** to use Molybdenum Disulfide (e.g., Molykote, Never-Seeze or similar lubricants) in any Keyless Bushing installation.

---

**INSTALLATION OF B-LOC® KEYLESS BUSHING OVER SHAFT KEYWAYS**

The Keyless Bushing should be positioned so that slits in Keyless Bushing collars that contact the shaft are located approximately opposite the keyway. In addition, a locking screw should be centered directly over the keyway.

When tightening locking screws, it is important to follow the installation procedure outlined above, which specifies equal 1/4 turns of each locking screw. Failure to follow these instructions could result in excessive tightening of the screw over the keyway, possibly causing permanent deformation of the Keyless Bushing collars.

**REMOVAL**

(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Keyless Bushing, shaft or any mounted components.

**IMPORTANT!**

Make sure ends of locking screws used for removal are ground flat and are slightly chamfered to prevent damage to screw and collar threads during push-off.

1. Check to ensure that axial movement of collars - necessary for release of connection - is not restricted. Likewise, ensure that push-off threads are in good condition.
2. Loosen locking screws in several stages by using approx. 1/4 turns, following either a clockwise or counterclockwise sequence. Transfer required number of screws into all push-off threads of clamp collar Item 1 (see Figure 2).
3. Release connection by evenly tightening all push-off screws (not exceeding 1/4 turns) in either a clockwise or counterclockwise sequence.

---

**LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE M6 B800 KEYLESS BUSHING**

<table>
<thead>
<tr>
<th>Metric Series</th>
<th>Inch Series</th>
<th>Tightening Torque M6 (ft lb)</th>
<th>Screw Size</th>
<th>Hex Key Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 x 14 to 14 x 23</td>
<td>1/4 to 1/2</td>
<td>3.55</td>
<td>M4</td>
<td>3</td>
</tr>
<tr>
<td>15 x 24 to 42 x 55</td>
<td>5/8 to 1-5/8</td>
<td>12</td>
<td>M6</td>
<td>5</td>
</tr>
<tr>
<td>45 x 59 to 65 x 84</td>
<td>1-11/16 to 2-1/2</td>
<td>30</td>
<td>M8</td>
<td>6</td>
</tr>
<tr>
<td>70 x 90 to 95 x 120</td>
<td>2-5/8 to 3-3/4</td>
<td>60</td>
<td>M10</td>
<td>8</td>
</tr>
<tr>
<td>100 x 125 to 130 x 165</td>
<td>3-7/8 to 4-15/16</td>
<td>105</td>
<td>M12</td>
<td>10</td>
</tr>
</tbody>
</table>

---

**Figure 1**

1. Make sure that locking screw, taper, shaft and bore contact areas are clean and lightly oiled with a light machine oil and that all collar slits are aligned.
2. Loosen all locking screws by a minimum of two (2) turns and transfer at least three (3) screws into push-off threads in order to keep Parts 1 and 2 separated during assembly (see Figure 2).
3. After inserting Keyless Bushing into hub bore, relocate locking screws used for separating Parts 1 and 2.
4. Hand tighten locking screws and confirm that collar Item 1 is parallel with face of part to be attached to shaft, and that spacer sleeve fully contacts both part and Keyless Bushing face.
5. Use torque wrench and set it approximately 5% higher than specified tightening (M6). Tighten locking screws in either a clockwise or counterclockwise sequence (it is not necessary to tighten in a diametrically opposite pattern), using only 1/4 (i.e., 90°) turns for several passes until 1/4 turns can no longer be achieved.
6. Continue to apply overtorque for 1 to 2 more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified tightening torque.
7. Reset torque wrench to specified torque (M6) and check all locking screws. No screw should turn at this point, otherwise repeat Steps 6 and 7.

**NOTE:**

1. It is not necessary to re-check tightening torque after equipment has been in operation.
2. In applications subject to extreme corrosion, the slits in all collars should be sealed with a suitable caulking compound or equivalent. Likewise, push-off threads should be protected from corrosion.

---

**Figure 2**

4. Tighten locking screws in either a clockwise or counterclockwise sequence (it is not necessary to tighten in a diametrically opposite pattern), using only 1/4 (i.e., 90°) turns for several passes until 1/4 turns can no longer be achieved.
**INSTALLATION AND REMOVAL INSTRUCTIONS FOR B-LOC® SHRINK DISCS**

*B-LOC®* Shrink Discs provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this *B-LOC®* unit.

### WARNING

When installing or removing *B-LOC®* products, always adhere to the following safety standards:

1. Be sure that the system is de-energized using proper lockout tagout procedures.
2. Wear proper personal protective equipment.

### INSTALLATION

(Refer to Figure 1)

*B-LOC®* Shrink Discs are supplied ready for installation. However, prior to tightening of locking screws it is necessary to remove wooden spacers that may have been used during shipping.

**Important:** Never tighten locking screws before shaft installation, as inner ring of Shrink Disc and/or hub can be permanently contracted even at relatively low tightening torques.


2. Carefully clean shaft and hub bore of any lubricant using a non-petroleum based solvent prior to mounting hub onto shaft. This step is critical, as any lubricant on the shaft/hub bore interface will greatly reduce the torque transmitting capacity of a *B-LOC®* Shrink Disc connection.

3. After confirming correct position of hub and Shrink Disc, hand-tighten three (3) or four (4) equally spaced locking screws and make sure that outer collars of Shrink Disc are parallel. Hand-tighten remaining locking screws.

4. Use torque wrench and set it approximately 5% higher than specified tightening torque ($M_a$). Tighten locking screws in either a clockwise or counterclockwise sequence, using approx. 1/4 (i.e., 90°) turns (even if initially some locking screws require a very low tightening torque to achieve 1/4 turns) for several passes until 1/4 turns can no longer be achieved.

5. Continue to apply overtorque for 1 to 2 more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified tightening torque.

6. Reset torque wrench to specified torque ($M_a$) and check all locking screws. No screw should turn at this point, otherwise repeat Steps 5 and 6.

### REMOVAL

(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Shrink Disc, shaft or any mounted components.

1. Loosen all locking screws in several stages by using approx. 1/2 (i.e., 180°) turns, following either a clockwise or counterclockwise sequence, until Shrink Disc can be moved on hub. The Shrink Disc, hub and shaft will return to their original clearance fits.

### WARNING

**DO NOT** completely remove locking screws before outer collars are disengaged from inner ring. A sudden release of the outer collars involves high separating forces and could result in permanent injury or death. Be certain that outer collars are disengaged from inner ring before completely removing locking screws.

### REINSTALLATION OF SHRINK DISCS

In relatively clean operating conditions, Shrink Discs can be re-used without prior cleaning. Shrink Discs used under severe conditions, however, require thorough cleaning and re-lubrication with Dow Corning® Molykote® G-Rapid Plus Paste or equivalent.

### LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE $M_a$

<table>
<thead>
<tr>
<th>Screw Size</th>
<th>M5</th>
<th>M6</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
<th>M16</th>
<th>M20</th>
<th>M24</th>
<th>M27</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tightening Torque</strong> $M_a$ (ft lb)</td>
<td>3.6</td>
<td>8.7</td>
<td>22</td>
<td>44</td>
<td>74</td>
<td>185</td>
<td>362</td>
<td>620</td>
<td>922</td>
</tr>
<tr>
<td><strong>Wrench Size Across Flats</strong> (mm)</td>
<td>8</td>
<td>10</td>
<td>13</td>
<td>17</td>
<td>19</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>41</td>
</tr>
</tbody>
</table>
**INSTALLATION AND REMOVAL INSTRUCTIONS**

**B-LOC® Split Shrink Discs** provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this **B-LOC®** unit.

### WARNING

When installing or removing **B-LOC®** products, always adhere to the following safety standards:

1. Be sure that the system is de-energized using proper lockout tagout procedures.
2. Wear proper personal protective equipment.

**INSTALLATION**

(Refer to Figure 1)

Remove **B-LOC®** Split Shrink Disc from protective wrapping and check to ensure tapered surfaces are coated with Molykote. Using Molykote G-Rapid Plus paste provided with the unit apply to screw threads and underside of screw head.

**Important:** Never tighten locking screws before shaft installation, as inner ring of Split Shrink Disc and/or hub can be permanently contracted even at relatively low tightening torques.

2. Carefully clean shaft and hub bore of any lubricant using a non-petroleum based solvent prior to mounting hub onto shaft. *This step is critical, as any lubricant on the shaft/hub bore interface will greatly reduce the torque transmitting capacity of a **B-LOC®** Split Shrink Disc connection.*
3. Slide each Split Shrink Disc half over the hub projection and align mounting holes as required. Insert the capscrews into the clearance holes of the outer ring and hub web; thread them into the tapped holes of the opposite outer ring.
4. After confirming correct position of hub and Split Shrink Disc, hand-tighten three (3) or four (4) equally spaced locking screws and make sure that outer rings of Split Shrink Disc are parallel or perpendicular to hub web or shaft respectively. Hand-tighten remaining locking screws.
5. Use torque wrench and set it approximately 5% higher than specified tightening torque ($M_a$). Tighten locking screws in either a clockwise or counterclockwise sequence, using approx. 1/4 (i.e., 90°) turns (even if initially some locking screws require a very low tightening torque to achieve 1/4 turns) for several passes until 1/4 turns can no longer be achieved.
6. Continue to apply overtorque for 1 to 2 more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified tightening torque.
7. Reset torque wrench to specified torque ($M_a$) and check all locking screws. No screw should turn at this point, otherwise repeat Step 5 and 6.

### REMOVAL

(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Split Shrink Disc, shaft or any mounted components.

1. Loosen all locking screws in several stages by using approx. 1/2 (i.e., 180°) turns, following either a clockwise or counterclockwise sequence, until Split Shrink Disc halves can be moved on hub. The Split Shrink Disc, hub and shaft will return to their original clearance fits.

### WARNING

**DO NOT** completely remove locking screws before outer rings are disengaged from inner rings. A sudden release of the outer ring involves high separating forces and could result in permanent injury or death. Be certain that outer rings are disengaged from inner rings before completely removing locking screws.

**REINSTALLATION OF SPLIT SHRINK DISCS**

In relatively clean operating conditions, Split Shrink Discs can be re-used without prior cleaning. Split Shrink Discs used under severe conditions, however, require thorough cleaning and re-lubrication with Dow Corning® Molykote® G-Rapid Plus Paste or equivalent.

### LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE

<table>
<thead>
<tr>
<th>Screw Size</th>
<th>M5</th>
<th>M6</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
<th>M16</th>
<th>M20</th>
<th>M24</th>
<th>M27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque (ft lb)</td>
<td>3.6</td>
<td>8.7</td>
<td>22</td>
<td>44</td>
<td>74</td>
<td>185</td>
<td>362</td>
<td>620</td>
<td>922</td>
</tr>
<tr>
<td>Wrench Size (mm)</td>
<td>8</td>
<td>10</td>
<td>13</td>
<td>17</td>
<td>19</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>41</td>
</tr>
</tbody>
</table>
**B-LOC**® Half Shrink Discs provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this **B-LOC**® unit.

### WARNING

When installing or removing **B-LOC**® products, always adhere to the following safety standards:

1. Be sure that the system is de-energized using proper lockout tagout procedures.
2. Wear proper personal protective equipment.

**Important:** Never tighten locking screws before shaft installation, as inner ring of Half Shrink Disc and/or hub can be permanently contracted even at relatively low tightening torques.

### INSTALLATION

(Refer to Figure 1)

Remove **B-LOC**® Half Shrink Disc from protective wrapping and check to ensure tapered surfaces are coated with Molykote. Using Molykote G-Rapid Plus paste provided with the unit apply to screw threads and underside of screw head.

2. Carefully clean shaft and hub bore of any lubricant using a non-petroleum based solvent prior to mounting hub onto shaft. *This step is critical, as any lubricant on the shaft/hub bore interface will greatly reduce the torque transmitting capacity of a **B-LOC**® Half Shrink Disc connection.*
3. Slide Half Shrink Disc over the hub projection and align mounting holes as required. For Half Shrink Disc Type HC: insert the capscrews into the clearance holes of the outer ring and thread them into the tapped holes of the mating web. For Half Shrink Disc Type HT: insert the capscrews through the mating web clearance holes and thread into tapped holes of outer ring.
4. After confirming correct position of hub and Half Shrink Disc, hand-tighten three (3) or four (4) equally spaced locking screws and make sure that outer ring of Half Shrink Disc is parallel or perpendicular to hub web or shaft respectively. Hand-tighten remaining locking screws.
5. Use torque wrench and set it approximately 5% higher than specified tightening torque ($M_a$). Tighten locking screws in either a clockwise or counterclockwise sequence, using approx. 1/4 (i.e., 90°) turns (even if initially some locking screws require a very low tightening torque to achieve 1/4 turns) for several passes until 1/4 turns can no longer be achieved.
6. Continue to apply overtorque for 1 to 2 more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified tightening torque.
7. Reset torque wrench to specified torque ($M_a$) and check all locking screws. No screw should turn at this point, otherwise repeat Step 5 and 6.

### REMOVAL

(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Half Shrink Disc, shaft or any mounted components.

1. Loosen all locking screws in several stages by using approx. 1/2 (i.e., 180°) turns, following either a clockwise or counterclockwise sequence, until Half Shrink Disc can be moved on hub. The Half Shrink Disc, hub and shaft will return to their original clearance fits.

### WARNING

**DO NOT** completely remove locking screws before outer ring is disengaged from inner ring. A sudden release of the outer ring involves high separating forces and could result in permanent injury or death. Be certain that outer ring is disengaged from inner ring before completely removing locking screws.

### REINSTALLATION OF HALF SHRINK DISCS

In relatively clean operating conditions, a Half Shrink Disc can be re-used without prior cleaning. Half Shrink Discs used under severe conditions, however, require thorough cleaning and re-lubrication with Dow Corning® Molykote® G-Rapid Plus Paste or equivalent.

### LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE ($M_a$)

<table>
<thead>
<tr>
<th>Screw Size</th>
<th>M5</th>
<th>M6</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
<th>M16</th>
<th>M20</th>
<th>M24</th>
<th>M27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tightening Torque ($M_a$ ft lb)</td>
<td>3.6</td>
<td>8.7</td>
<td>22</td>
<td>44</td>
<td>74</td>
<td>185</td>
<td>362</td>
<td>620</td>
<td>922</td>
</tr>
<tr>
<td>Wrench Size Across Flats (mm)</td>
<td>8</td>
<td>10</td>
<td>13</td>
<td>17</td>
<td>19</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>41</td>
</tr>
</tbody>
</table>
**INSTALLATION AND REMOVAL INSTRUCTIONS**  
FOR **B-LOC® SHRINK DISCS SERIES SD40**

**B-LOC®** Shrink Discs provide a high capacity, zero-backlash shaft/hub or coupling connection by means of a mechanical interference fit. Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this **B-LOC®** unit.

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### WARNING

When installing or removing **B-LOC®** products, always adhere to the following safety standards:

1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

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**INSTALLATION**  
(Refer to Figure 1)

**B-LOC®** SD40 Shrink Discs are supplied ready for installation. Therefore do not disassemble the unit.

**Important:** Never tighten locking screws before shaft installation, as inner ring of Shrink Disc and/or hub can be permanently contracted even at relatively low tightening torques.

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**REMOVAL**  
(Refer to Figure 2)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the Shrink Disc, shaft or any mounted components.

1. Loosen all locking screws in several stages by using approx. 1/2 (i.e., 180°) turns, following either a clockwise or counterclockwise sequence, until Shrink Disc can be moved on hub. If the shrink disc does not release, transfer the appropriate number of screws into the threaded backoff holes in the outer ring (Figure 2). Evenly and progressively tighten these screws, in either a clockwise or counter clockwise sequence, until outer ring releases. The shrink disc, hub and shaft will return to their original clearance fits.

**Important:** Prior to removal the ends of push off screws are to be ground flat and chamfered to prevent damage to screw and outer ring threads during backoff.

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**DO NOT** completely remove all locking screws before outer ring is disengaged from inner ring. A sudden release of the outer ring involves high separating forces and could result in permanent injury or death. Be certain that outer ring is disengaged from inner ring before completely removing locking screws.

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**REINSTALLATION OF SHRINK DISCS**

In relatively clean operating conditions, Shrink Discs can be re-used without prior cleaning. Shrink Discs used under severe conditions, however, require thorough cleaning and re-lubrication with Dow Corning® Molykote® G-Rapid Plus Paste or equivalent.

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**LOCKING SCREW SIZES AND SPECIFIED TIGHTENING TORQUE Mₐ**

<table>
<thead>
<tr>
<th>Screw Size</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
<th>M14</th>
<th>M16</th>
<th>M20</th>
<th>M24</th>
<th>M27</th>
<th>M30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tightening Torque Mₐ (ft lb)</td>
<td>25</td>
<td>52</td>
<td>89</td>
<td>140</td>
<td>214</td>
<td>420</td>
<td>730</td>
<td>1092</td>
<td>1460</td>
</tr>
<tr>
<td>Wrench Size Across Flats (mm)</td>
<td>13</td>
<td>17</td>
<td>19</td>
<td>21</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>41</td>
<td>46</td>
</tr>
</tbody>
</table>
Please follow these INSTALLATION AND REMOVAL INSTRUCTIONS carefully to ensure proper performance of this B-LOC® unit.

**WARNING**

When installing or removing B-LOC® products, always adhere to the following safety standards:
1. Be sure that the system is de-energized using proper lockout/tagout procedures.
2. Wear proper personal protective equipment.

**INSTALLATION**
(Refer to Figure 1)

B-LOC® WK Rigid Couplings are supplied ready for installation. For increased torque transmission, see Special Considerations.

**Important:** Never tighten locking screws before shaft installation, as the WK Rigid Coupling inner ring (3) can be permanently deformed even at relatively low tightening torques.

1. Using a non-petroleum based solvent, carefully clean shafts of any lubricants prior to mounting coupling on shafts. **This step is critical, as any contaminants on the shafts may alter the performance of a B-LOC® WK Rigid Coupling connection.**

2. Center coupling over shaft ends. Hand-tighten three or four equally spaced locking screws (4) assuring outer collars (1, 2) of WK Rigid Coupling are parallel. Hand-tighten remaining locking screws.

3. Use a torque wrench set to the overtorque valued listed in the chart. This value is ~5% higher than specified install torque, (Mₐ). Tighten locking screws in either a clockwise or counterclockwise sequence, using approximately 1/4 (i.e., 90°) turns (even if initially some locking screws require a very low tightening torque to achieve 1/4 turns) for several passes until 1/4 turns can no longer be achieved.

4. Continue to apply overtorque for one to two more passes. This is required to compensate for a system-related relaxation of locking screws since tightening of a given screw will always relax adjacent screws. Without overtorquing, an infinite number of passes would be needed to reach specified install torque.

5. Reset torque wrench to specified install torque (Mₐ) and check all locking screws. No screw should turn at this point, otherwise repeat Steps 4 and 5.

**REMOVAL**
(Refer to Figure 1)

Prior to initiating the following removal procedure, check to ensure that no torque or thrust loads are acting on the WK Rigid Coupling, shaft or any mounted components.

Loosen all locking screws in several stages by using approximately 1/2 turns, following either a clockwise or counterclockwise sequence, until the WK Rigid Coupling can be moved on the shafts. The WK Rigid Coupling will return to its original clearance fit.

**WARNING**

**DO NOT** completely remove locking screws (4) before outer collars (1, 2) are disengaged from inner ring (3). A sudden release of the outer collars involves high separating forces and could result in permanent injury or death. Be certain that outer collars are disengaged from inner ring before completely removing locking screws. Refer to Figure 1.

**REINSTALLATION OF WK RIGID COUPLINGS**

In relatively clean operating conditions, WK Rigid Couplings can be reused without prior cleaning. WK Rigid Couplings used under severe conditions, however, require thorough cleaning. Relubricate screws and tapers with Dow Corning® Molykote® G-n Metal Assembly Paste or equivalent. Lightly coat the remainder of the unit with standard machining oil. Upon doing so, install following INSTALLATION portion of this document.

**SPECIAL CONSIDERATIONS**

If your application requires increased torque transmission and/or thrust, in addition to using a non-petroleum based solvent to clean the shafts (as stated in step 1), the bore of the WK Rigid Coupling needs to be cleaned with a non-petroleum based solvent to produce an oil free connection. This in turn will result in up to a 20% increase in Mt and Th performance values.

**LOCKING SCREW SIZES & SPECIFIED INSTALL TORQUE Mₐ**

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>M6</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overtorque (ft lb)</td>
<td>9.1</td>
<td>23</td>
<td>46</td>
<td>78</td>
</tr>
<tr>
<td>Install Torque (ft lb)</td>
<td>8.7</td>
<td>22</td>
<td>44</td>
<td>74</td>
</tr>
<tr>
<td>Wrench Size Across Flats (mm)</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>18</td>
</tr>
</tbody>
</table>

These Screw Sizes Are Installed on the Following WK Series:

- M6 – WK 15, 20, 25, 30
- M8 – WK 40, 50, 60
- M10 – WK 70
- M12 – WK 80, 90, 100

Contact Fenner Drives Applications Engineering at ae@fennerdrives.com for additional details.