



Specification for FLP-series Fusible Link Packages

1. **Scope**
 - 1.1. This specification covers the standards, design, & manufacture of the FLP fusible link packages from BI-TORQ® Valve Automation.
2. **Standards**
 - 2.1. The fusible link assembly portion shall be FM approved.
 - 2.2. Fusible links shall be the model FL-1 for 1/2" through 3" packages and be UL & C-UL listed, FM approved. Fusible links for the 4" package shall be the K-Style link and be UL listed.
 - 2.3. Valves used shall be API 607 fire safe certified and API 598 inspected & tested.
 - 2.4. Spring packs shall be ATEX approved.
3. **Assembly Design**
 - 3.1. Each FLP-series shall consist of a FL series fusible link assembly and an API 607 fire safe ball valve.
 - 3.2. Packages shall utilize a soldered fusible link and spring pack to drive the close valve open or closed when the fusible link separates.
 - 3.3. Different spring packs shall be used to correspond with ball valves torques plus safety factor.
 - 3.4. The spring pack shall be weatherproof.
 - 3.5. A safety link shall be provided with every assembly for shipping & maintenance.
 - 3.6. Fusible links shall be offered in in a variety of link temperatures; 165°F(74°C), 212°F(100°C), 286°F(141°C)/280°F(138°C), or 360°F(162°C)
 - 3.7. All assemblies shall be factory designed as fail close or fail open.
 - 3.8. The assembly shall be designed so that the valve can manually operated with lever for 1/2" though 2" packages and after disarming the device for 2-1/2" through 4" packages.
4. **Valve Design**
 - 4.1. The valves shall utilize a primary RTFE seat and secondary metal-to-metal seat to prevent leakage during a fire.
 - 4.2. Body seals and packing shall be graphite high temperature resistance during a fire.
 - 4.3. The valves shall incorporate anti-static devices, blow-out proof stems as additional safety protection.
 - 4.4. Self-adjusting packing shall be used to as a deterrent to stem leakage.
 - 4.5. Valves shall be full port design.
 - 4.6. Available end connections shall be NPT, socket weld, or ANSI 150# flanged.

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5. Assembly Materials

- 5.1. Valve mounting bracket: carbon steel; optional 304 stainless steel
- 5.2. Spring pack: corrosion resistant zinc alloy with epoxy stove enamel coating
- 5.3. Arming device: 304 stainless steel
- 5.4. Fusible link: stainless steel for link halves; solder, copper, & stainless steel for model FL-1 & bronze for the K-style.
- 5.5. Declutch gear override: cast iron

6. Valve Materials

- 6.1. Bodies: 316 stainless steel or carbon steel
- 6.2. Ball & stem: 316 stainless steel
- 6.3. Seats: RTFE/stainless
- 6.4. Stem packing: graphite

7. Assembly Models

- 7.1. FLP-LT-059 models: 1/2" through 1" valves
- 7.2. FLP-MT-079 models: 1-1/4" & 1-1/2" valves
- 7.3. FLP-MT-089 models: 2" valves
- 7.4. FLP-HT-109 models: 3" valves
- 7.5. FLP-HT-129 models: 4" valves

8. Valve Models

- 8.1. FS series: 1/2" through 2" NPT or socket weld valves with 316 stainless steel bodies
- 8.2. FW series: 1/2" through 2" NPT or socket weld valves with carbon steel bodies
- 8.3. ED50 series: 1/2" through 4" ANSI 150# flanged valves with 316 stainless steel bodies
- 8.4. W50 series: 1/2" through 4" ANSI 150# flanged valves with carbon steel bodies

9. Manufacture

- 9.1. The manufacture shall have demonstrated experience in the manufacture of fusible link devices for at least 10 years.
- 9.2. Each assembly shall be marked with the manufacturer's name, product serial number, & FM logo.
- 9.3. Assemblies shall be BI-TORQ® Valve Automation FLP-series or approved equal.

Dated: 10/06/2013



Specification for LT-series Fusible Link Assemblies (Model FL-LT-059)

1. **Scope**
 - 1.1. This specification covers the standards, design, & manufacture of the LT-series fusible link assemblies from BI-TORQ® Valve Automation.
2. **Standards**
 - 2.1. The full assembly shall be FM approved.
 - 2.2. Fusible links shall be FL-1 series and be UL & C-UL listed, FM approved.
 - 2.3. Valves used on the LT-series shall be API 607 fire safe certified.
 - 2.4. Spring packs shall be ATEX approved.
3. **Design**
 - 3.1. The assembly shall consist of main components, valve mounting bracket with firing arm, spring pack, arming device, & fusible link.
 - 3.2. The valve mounting bracket with firing arm shall be designed so that the arm closes the valve handle when the fusible link separates and releases the spring pack.
 - 3.3. Torque range of the spring pack shall be 78 through 155 in/lbs.
 - 3.4. The spring pack shall be weatherproof.
 - 3.5. A safety link shall be provided with every assembly for shipping & maintenance.
 - 3.6. Fusible links shall be offered in a variety of link temperatures; 165°F(74°C), 212°F(100°C), 286°F(141°C), or 360°F(162°C).
 - 3.7. All assemblies shall be factory designed as fail close or fail open.
 - 3.8. The assembly shall be designed so that the valve can manually operated with a lever while the unit is armed.
4. **Materials**
 - 4.1. Valve mounting bracket: carbon steel; optional 304 stainless steel
 - 4.2. Spring pack: corrosion resistant zinc alloy with epoxy stove enamel coating
 - 4.3. Arming device: 304 stainless steel
 - 4.4. Fusible link: stainless steel for link halves; solder, copper, & stainless steel for fusible assembly
5. **Manufacture**
 - 5.1. The manufacture shall have demonstrated experience in the manufacture of fusible link devices for at least 10 years.
 - 5.2. Each assembly shall be marked with the manufacturer's name, product serial number, & FM logo.
 - 5.3. Assemblies shall be BI-TORQ® Valve Automation LT-series or approved equal.

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Specification for MT-series Fusible Link Assemblies (Models FL-MT-079, FL-MT-089, & FL-MT-099)

1. Scope

- 1.1. This specification covers the standards, design, & manufacture of the MT-series fusible link assemblies from BI-TORQ® Valve Automation.

2. Standards

- 2.1. The full assembly shall be FM approved.
- 2.2. Fusible links shall be model FL-1 and be UL & C-UL listed, FM approved.
- 2.3. Valves used on the MT-series shall be API 607 fire safe certified.
- 2.4. Spring packs shall be ATEX approved.

3. Design

- 3.1. The assembly shall consist of the following main components; valve mounting bracket with firing arm, spring pack, arming device, & fusible link for ball valve assemblies. Butterfly valve assemblies shall utilize a standard mounting bracket and employ a declutchable gear override as an additional part of the assembly.
- 3.2. Ball valve assemblies shall utilize the firing arm to close the valve handle when the fusible link separates and releases the spring pack. Butterfly valve assemblies shall be designed so that when the fusible link separates & releases the spring pack, the drive coupling in the declutch gear will close the valve.
- 3.3. Spring packs shall have three different torque ranges for accurate sizing; 156 through 375 in/lbs for the MT-079 series, 376 through 530 in/lbs for the MT-089 series, & 531 through 830 in/lbs for the MT-099 series.
- 3.4. The spring pack shall be weatherproof.
- 3.5. A safety link & arming handle shall be provided with every assembly for shipping & maintenance.
- 3.6. Fusible links shall be offered in a variety of link temperatures; 165°F(74°C), 212°F(100°C), 286°F(141°C), or 360°F(162°C).
- 3.7. All assemblies shall be factory designed as fail close or fail open.
- 3.8. The assembly shall be designed so that the valve can manually operated with a lever while the unit is armed with ball valves. Butterfly valves require units to be disarmed.

4. Materials

- 4.1. Valve mounting bracket: carbon steel; optional 304 stainless steel
- 4.2. Spring pack: corrosion resistant zinc alloy with epoxy stove enamel coating
- 4.3. Arming device: 304 stainless steel
- 4.4. Fusible link: stainless steel for link halves; solder, copper, & stainless steel for fusible assembly
- 4.5. Declutch gear override: cast iron

5. Manufacture

- 5.1. The manufacture shall have demonstrated experience in the manufacture of fusible link devices for at least 10 years.
- 5.2. Each assembly shall be marked with the manufacturer's name, product serial number, & FM logo.
- 5.3. Assemblies shall be BI-TORQ® Valve Automation MT-series or approved equal.

Dated: 10/06/2013



Specification for HT-series Fusible Link Assemblies (Models FL-HT-109 & FL-HT-129)

1. Scope

- 1.1. This specification covers the standards, design, & manufacture of the HT-series fusible link assemblies from BI-TORQ® Valve Automation.

2. Standards

- 2.1. The full assembly shall be FM approved.
- 2.2. Fusible links for the HT-109 series shall be the model FL-1 and be UL & C-UL listed, FM approved. Fusible links for the HT-129 series shall be the K-Style and be UL listed.
- 2.3. Valves used on the HT-series shall be API 607 fire safe certified.
- 2.4. Spring packs shall be ATEX approved.

3. Design

- 3.1. The assembly shall consist of 5 main components, valve mounting bracket, declutchable gear override, spring pack, arming device, & fusible link.
- 3.2. Valve assemblies shall be designed so that when the fusible link separates & releases the spring pack, the drive coupling in the declutch gear will close the valve.
- 3.3. Spring packs shall have two different torque ranges for accurate sizing; 831 through 1270 in/lbs for the HT-109 series & 1271 through 1810 in/lbs for the HT-129 series
- 3.4. The spring pack shall be weatherproof.
- 3.5. A safety link shall be provided with every assembly for shipping & maintenance.
- 3.6. Fusible links shall be offered in a variety of link temperatures; 165°F(74°C), 212°F(100°C), 280°F(138°C) /286°F(141°C), or 360°F(162°C).
- 3.7. All assemblies shall be factory designed as fail close or fail open.
- 3.8. The assembly shall be designed so that the valve can manually operated when the unit is disarmed.

4. Materials

- 4.1. Valve mounting bracket: carbon steel; optional 304 stainless steel
- 4.2. Spring pack: corrosion resistant zinc alloy with epoxy stove enamel coating
- 4.3. Arming device: 304 stainless steel
- 4.4. Fusible link: stainless steel for link halves; solder, copper, & stainless steel for model FL-1 & bronze for the K-style.
- 4.5. Declutch gear override: cast iron

5. Manufacture

- 5.1. The manufacture shall have demonstrated experience in the manufacture of fusible link devices for at least 10 years.
- 5.2. Each assembly shall be marked with the manufacturer's name, product serial number, & FM logo.
- 5.3. Assemblies shall be BI-TORQ® Valve Automation HT-series or approved equal.

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Specification for BT-series Fusible Link Assemblies (Models FL-BT-149X & FL-BT-149)

1. **Scope**
 - 1.1. This specification covers the standards, design, & manufacture of the BT-series fusible link assemblies from BI-TORQ® Valve Automation.
2. **Standards**
 - 2.1. The full assembly shall be FM approved.
 - 2.2. Fusible links shall be the K-style & be UL listed.
 - 2.3. Valves used shall be API 607 fire safe certified.
 - 2.4. Spring packs shall be ATEX approved.
3. **Design**
 - 3.1. The assembly shall consist of 5 main components, valve mounting bracket, declutchable gear override, spring pack, arming device, & fusible link.
 - 3.2. The assembly shall be designed so that when the fusible link separates & releases the spring pack, the drive coupling in the declutch gear will close the valve.
 - 3.3. Spring packs shall have different torque ranges for accurate sizing.
 - Model BT-149X shall have 1,811 through 3,960 in/lbs of torque.
 - Model BT-149 shall have 3,961 through 4,230 in/lbs of torque.
 - 3.4. The spring pack shall be weatherproof.
 - 3.5. A safety link shall be provided with every assembly for shipping & maintenance.
 - 3.6. Link temperatures shall be offered in a variety of temperatures; 165° F(74° C), 212° F(100° C), 280° F(138° C), or 360° F(162° C).
 - 3.7. All assemblies shall be factory designed as fail close or fail open.
 - 3.8. The assembly shall be designed so that the valve can be manually operated when the unit is disarmed.
4. **Materials**
 - 4.1. Valve mounting bracket: carbon steel; optional 304 stainless steel
 - 4.2. Spring pack: corrosion resistant zinc alloy with epoxy stove enamel coating
 - 4.3. Arming device: 304 stainless steel
 - 4.4. Fusible link: bronze
 - 4.5. Declutch gear override: cast iron
5. **Manufacture**
 - 5.1. The manufacture shall have demonstrated experience in the manufacture of fusible link devices for at least 10 years.
 - 5.2. Each assembly shall be marked with the manufacturer's name, product serial number.
 - 5.3. Assemblies shall be BI-TORQ® Valve Automation models FL-BT-149X, FL-BT-149, or approved equal.

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Specification for BT-series Fusible Link Assemblies (Models FL-BT-169X, FL-BT-169, & FL-BT-189)

1. **Scope**
 - 1.1. This specification covers the standards, design, & manufacture of the BT-169X, BT-169, & BT-189 fusible link assemblies from BI-TORQ[®] Valve Automation.
2. **Standards**
 - 2.1. Valves used on the assemblies shall be API 607 fire safe certified.
 - 2.2. Spring packs shall be ATEX approved.
3. **Design**
 - 3.1. The assembly shall consist of 5 main components, valve mounting bracket, declutchable gear override, spring pack, arming device, & fusible link.
 - 3.2. The assembly shall be designed so that when the fusible link separates & releases the spring pack, the drive coupling in the declutch gear will close the valve.
 - 3.3. Spring packs shall have three different torque ranges for accurate sizing.
 - Model BT-169X shall have 4,231 through 5,914 in/lbs of torque.
 - Model BT-169 shall have 5,915 through 9,567 in/lbs of torque.
 - Model BT-189 shall have 9,568 through 21,930 in/lbs of torque.
 - 3.4. The spring pack shall be weatherproof.
 - 3.5. A safety link shall be provided with every assembly for shipping & maintenance.
 - 3.6. Fusible links shall be offered in a variety of link temperatures; 162°F(72°C), 200°F(93°C), 286°F(141°C), or 327°F(162°C).
 - 3.7. All assemblies shall be factory designed as fail close or fail open.
 - 3.8. The assembly shall be designed so that the valve can manually operated when the unit is disarmed.
4. **Materials**
 - 4.1. Valve mounting bracket: carbon steel; optional 304 stainless steel
 - 4.2. Spring pack: corrosion resistant zinc alloy with epoxy stove enamel coating
 - 4.3. Arming device: 304 stainless steel
 - 4.4. Fusible link: stainless steel
 - 4.5. Declutch gear override: cast iron
5. **Manufacture**
 - 5.1. The manufacture shall have demonstrated experience in the manufacture of fusible link devices for at least 10 years.
 - 5.2. Each assembly shall be marked with the manufacturer's name, & product serial number.
 - 5.3. Assemblies shall be BI-TORQ[®] Valve Automation models FL-BT-169X, FL-BT-169, FL-BT-189, or approved equal.

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