Voss V-Retainer Coupling—Standard Latch Styles

A performance chart showing burst pressure (not including pressure relief) for coupling categories. The curves are based upon the use of AISI 301 stainless steel (full band). The curves are not applicable for lower strength materials. Rated pressure values by 50% for lower strength materials.

- **Style 1**: Requires an even number of retainer segments. Applicable for couplings of many diameters.
- **Style 4**: Double-Opposed Trunnion Latch. For special low profile applications. Features a barrel socket head cap screw latch and barrel hardware. Material for various applications is Inconel 718.

Voss Aerospace V-Retainer Couplings... for the Best Connections in High Places. A reverse-latch, rectangular V-retainer coupling with low profile sound head cap screw latch and barrel hardware. Rated for riveted band and retainer are Inconel 718.
As a sampling of what Voss has to offer, several standard V-retainer Coupling profiles are shown in this guide. The burst pressure charts displayed with the profiles indicate ultimate performances when used on machined flanges with an O-ring seal. Please refer to the notes at the end of this section for a more detailed explanation. Sufficient data is included with each Voss V-retainer Coupling Series to select a part number for your specific application. A part number code example is shown on p. 4 and includes:

- Number of retainer segments
- Number of retainer threads
- Number of retainer latches
- V-retainer profile
- Nut material and type
- Bolt material and type
- Nut code
- Part No. code

Several special application latches are also available. Large diameter styles include standard T-bolt, T-bolt quick-release and over-center handle latches. Several special application latches are also available. Large diameter latches can be specified by the customer or for specific design and availability of mating flanges.

Voss has a wide variety of latch styles for almost any application. Common multi-segment couplings are recommended for most applications because of more uniform clamp loading and their inherent flexibility — for ease of installation and removal.

Single-segment couplings are relatively economical. Due to the stiffness of a continuous single ring (one-piece) or specified as two or more segments. Segments are shown in this guide. The burst pressure charts displayed with the profiles indicate ultimate performances when used on machined flanges with an O-ring seal. Please refer to the notes at the end of this section for a more detailed explanation. Sufficient data is included with each Voss V-retainer Coupling Series to select a part number for your specific application. A part number code example is shown on p. 4 and includes:

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Voss has a wide variety of latch styles for almost any application. Common multi-segment couplings are recommended for most applications because of more uniform clamp loading and their inherent flexibility — for ease of installation and removal.
A V-retainer coupling exerts compressive force against flanges and can be a single-segment or multi-segment type. Segments are shown in this guide. The burst pressure charts displayed with the profiles indicate ultimate performances when used on machined flanges with an O-ring seal. Please refer to the notes at the end of this section for a more detailed explanation. Sufficient data is included with each Voss V-retainer Coupling Series to select a part number for your specific application. A part number code example is shown on p. 4 and includes:

- Letter indicating nut material and type (consult Voss Sales Engineer for recommended combinations of T-bolts and nuts)
- Nominal inside diameter of coupling in whole and .010 of an inch (can be one or two digits)
- Number of retainer segments
- 1- or 2-digit Latch Style Code - see p. 3 for illustrations, styles include standard T-bolt, T-bolt quick-release and over-center handle latch; multi-segment couplings are recommended for most applications because of more uniform clamp loading and their inherent flexibility — for ease of installation and removal.
- 2 or more digits define standard latch styles (specified by the customer)
- The right can be specified by the 4th digit (and when applicable, the 5th digit) in the part number code. These digits define standard latch styles include standard T-bolt, T-bolt quick-release and over-center handle latch; multi-segment couplings are recommended for most applications because of more uniform clamp loading and their inherent flexibility — for ease of installation and removal.

Notes:
- Single-segment couplings are relatively economical. Due to the stiffness of a continuous ring, single-segment couplings are available only in larger diameters and for infrequent use to ensure sufficient retention. Multi-segment couplings are recommended for most applications because of more uniform clamp loading and their inherent flexibility — for ease of installation and removal.
- Couplings frequently employ two or more latches to provide more uniform loading.
- Several optional configurations are also available. Large diameters can be used for machining purposes.
As a sampling of what Voss has to offer, several standard V-retainer Coupling profiles are shown on this page. Please refer to the notes at the end of this section for a more detailed explanation. Sufficient data is included with each Voss V-retainer Coupling Series to select a part number for your specific application. A part number code example is shown on p. 4 and includes:

- Letter indicating nut material and type (consult Voss Sales Engineer for recommended combinations of T-bolts and nuts)
- Nominal inside diameter of coupling in whole and .010 of an inch
- 1- or 2-digit Latch Style Code - see p. 3 for illustrations, latch details, see p. 5, and/or consult your Voss Sales Engineer.
- Number of retainer segments
- 2-digit V-retainer Series Number indicating the required ultimate performances when used on machined flanges with an O-ring seal. Please consult the factory for other available profiles, latches. Several special application latches are also available. Large diameter couplings are recommended for most applications because of more uniform clamp loading and their inherent flexibility — for ease of installation and removal.

Multi-segment couplings are recommended for most applications because of more uniform clamp loading and their inherent flexibility — for ease of installation and removal.

Single-segment couplings are relatively economical. Due to the stiffness of a continuous single-segment coupling, they are generally used on heavy-duty applications.

Codes

**Nut Code**

<table>
<thead>
<tr>
<th>Part No. Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>51 3 2 E-450-Z</td>
<td>316 stainless steel</td>
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</tbody>
</table>

**T-Bolt Code**

<table>
<thead>
<tr>
<th>Code 1</th>
<th>Code 2</th>
<th>Code 3</th>
<th>Code 4</th>
<th>Code 5</th>
<th>Code 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
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</tr>
</tbody>
</table>

**Part No. Code**

- Code 1:** Nut Code**
- Code 2:** T-Bolt Code**
- Code 3:** Series No.**
- Code 4:** V-Retainer Series**
- Code 5:** Retainer I.D. in 1/100 Inches**
- Code 6:** Number of Segments**

**V-Retainer, Series No.**

- STD HARDWARE .250-28
- STD HARDWARE .250-28
- STD HARDWARE .250-28
- STD HARDWARE .250-28

**Retainer I.D. in 1/100 Inches**

- .226
- .255
- .66
- .75

**Number of Segments**

- 2

**V-Retainer Series**

- 5100
- 6400
- 7100
- 7200
- 8200
- 9100
- 9400
- 9600

**Retainer I.D. in 1/100 Inches**

- .062
- .062
- .062

**Nut Code**

- 40°
- 1.44

**T-Bolt Code**

- STD HARDWARE .250-28
- STD HARDWARE .250-28
- STD HARDWARE .250-28
- STD HARDWARE .250-28

**Series No.**

- STD Hardware .250-28
- STD Hardware .250-28
- STD Hardware .250-28
- STD Hardware .250-28

**Retainer I.D. in 1/100 Inches**

- .062
- .062
- .062

**Key Codes**

- Light Gray = Outer Band; Dark Blue = V-retainer Profile; Light Blue = Mating Flanges
- Blue lines = Full Bands; Dashed Black lines = Strap Loops
- 1) Light Gray = Outer Band; Dark Blue = V-retainer Profile; Light Blue = Mating Flanges
- 2) See p. 5 for an example and more detailed information.
Voss V-Retainer Coupling—Standard Latch Styles

**V-Retainer Coupling Burst Pressure Charts**

A performance chart showing burst pressure (not including any pressure that may be added in the classroom environment) accompanied each V-retainer profile in Fig. 2. An example is shown below.

The curves are based upon the use of AISI 321 stainless steel tube at room temperature. Pressure values used by Voss have been stress corrected (based on the material's higher proof pressure) to allow for the possibility of specific working pressures (not to exceed the given pressures), which are based upon the maximum pressure which may be anticipated. May be used with any size coupling, and is one of all multi-latch styles.

Voss engineering services will modify existing designs or develop products to meet your special needs. Our expertise includes design and development of components for AS and UL standards and other applications that require high temperature and high pressure requirements. Voss is a proud member of the ASME and the National Canister Association.

Voss also has available a QA program which encompasses meeting ASME Code, AS, ASME Code, MIL-SPEC, MIL-C-5850A, and other MIL-SPEC painting, and MIL-SPEC proofing. Voss offers a variety of material options to meet specific environmental requirements.

Contact a Voss Aerospace Sales Engineer today and discover how we can optimize your requirements.

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**Voss Aerospace V-Retainer Couplings...**

For the next generation of Aerospace applications, Voss Aerospace supplies the following index of V-Retainers and Couplings through the world's finest aerospace industries:

- **Standard Couplings**
  - Single-Row (SR) Couplings
  - Double-Row (DR) Couplings
  - High-Power (HP) Couplings
  - Double-Row High-Power (DHP) Couplings
  - M6-12 Couplings
  - M6-10 Couplings
  - M6-8 Couplings
- **Special Latch Couplings**
  - Double-Opposed Trunnion Latch
  - Standard Single-Row Latch with Two-Segment Coupling
  - Standard Single-Row Latch with Full-Circumferential Band
  - Double-Opposed Trunnion Latch with Two-Segment Coupling
  - Double-Opposed Trunnion Latch with Two-Segment Coupling

Voss Industries, Inc., founded in 1957, is a leading designer and manufacturer of high performance clamps and couplings for a multitude of Industrial, Defense, Aerospace, and Commercial Applications.

Since 1970, Voss has supplied a wide variety of components to the Space and Defense industry. Voss Aerospace was formed in the 1980's to better serve these specialized markets. Today, Voss Aerospace was formed in the 1980's to better serve these specialized markets.

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Voss Aerospace Engineering Services will modify existing designs or develop products to meet your special needs. Our expertise includes design and development of components for ASME Code, AS, ASME Code, MIL-SPEC, MIL-C-5850A, and other MIL-SPEC painting, and MIL-SPEC proofing. Voss offers a variety of material options to meet specific environmental requirements.

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Voss V-Retainer Coupling—Standard Latch Styles

- Multi-Latch: One
  - Style 4 — Socket Head Cap Screw Latch
  - Style 3 — T-Bolt Saddle Latch
  - Style 2 — T-Bolt Over-Center Handle Latch
  - Style 1 — Standard T-Bolt Latch

- Multi-Latch: Two
  - Style 18 — Standard T-Bolt and Trunnion Latch
  - Style 10 — T-Bolt and Trunnion Latch
  - Style 9 — T-Bolt Saddle Latch
  - Style 8 — T-Bolt Over-Center Handle Latch
  - Style 7 — T-Bolt Over-Center Handle with Wrap Strap

- Multi-Latch: Three
  - Style 22 — T-Bolt Saddle Latch with Wrap Strap

- Multi-Latch: Four
  - Style 23 — T-Bolt Saddle Latch with Wrap Strap

V-Retainer Coupling Burst Pressure Charts

A performance chart showing burst pressure (not exceeding pressure rating of coupling or component) accompanies each V-retainer profile. A few examples are shown below.

Voss Aerospace V-Retainer Couplings—For the Best Connections in High-Pressure Applications

Rocket engine fuel system V-retainer coupling with low profile swivel head cap screw and barrel latches. Retainer for barrel head and retainer are ISO 718.