Sealing & Gasketing
USA Sealing manufactures the broadest and deepest selection of sealing solutions in the market. Within these categories we have thousands of sizes, styles, and formulations to choose from. Our seals can be fabricated from compounds certified by NSF, 3A, and USP Class VI to meet the most stringent of requirements.

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Tubing, Hose, Pipe & Fittings
USA Sealing’s selection of tubing and fittings provides a solution to any application requiring the movement of air, water, food, beverage, petroleum, or chemicals. We offer a deep selection of plastic and rubber tubing with lines developed specifically for high pressure, food processing, and high purity environments. We also offer a variety of metal and plastic tube, hose, and pipe fittings used to complete the connection on your line.

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Sealing & Gasketing
O-Rings

**Key**

**Sizes**
- Inch
- Metric

**Hardness**
- Soft: easier to compress for sealing at low pressures
- Standard
- Hard: better suited for abrasion and higher pressures

**Shapes**
- Round
- X-Ring: Four contact points for a better seal in dynamic applications
- Square: Flat edges for a better seal in static applications

**Grades**
- FDA: Made of FDA materials for food and beverage
- NSF: Certified for use with drinking water
- 3A: Certified for use with dairy, pharmaceutical, food and beverage
- USP Class VI: Certified for use with medical devices
- Metal Detectable: Broken fragments can be picked up by metal detection systems
- Clean Room: Cleaned and bagged in ISO Class 10,000 clean room
- Encapsulated: FEP shell enhances chemical and high temperature resistance
- Screen: Catches particulates to protect equipment and finished product
- Internally Lubricated: Makes installation easy and reduces drag
- Electrically Conductive: Conducts static electricity away to protect sensitive equipment
- Brown: Colored brown for easier identification

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**Usage**

- **Oils**
- **Chemicals**
- **High Temperature**
- **Water & Steam**
- **Chemicals & High Temperature**
- **Fuels & Low Temperature**
- **Abrasion**
- **Refrigerants**
- **Oils & Chemicals**
- **Chemicals & High Temperature**
- **Air Impermeable**

**Sizes**
- In mm

**Hardness**
- Soft
- Standard
- Hard

**Shapes**
- Round
- X-Ring
- Square

**Grades**
- FDA
- NSF
- 3A
- USP Class VI
- Metal Detectable
- Clean Room
- Encapsulated
- Screen
- Internally Lubricated
- Electrically Conductive
- Brown

---

Materials:

- **Buna-N**
- **Viton**
- **Silicone**
- **EPDM**
- **PTFE**
- **Fluorosilicone**
- **Polyurethane**
- **Neoprene**
- **Aflas**
- **FFKM**
- **HNBR**
- **Butyl**
## Cord Stock

<table>
<thead>
<tr>
<th>Material</th>
<th>Usage</th>
<th>Shapes</th>
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</thead>
<tbody>
<tr>
<td>Buna-N</td>
<td>Oils</td>
<td>Round, Square</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soft, Standard, Hard</td>
</tr>
<tr>
<td>FFKM</td>
<td>Chemicals &amp; High Temp</td>
<td>Round, X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soft, Standard, Hard</td>
</tr>
<tr>
<td>HNBR</td>
<td>Oils</td>
<td>Round</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soft, Standard, Hard</td>
</tr>
<tr>
<td>Butyl</td>
<td>Air Impermeable</td>
<td>Round</td>
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<tr>
<td></td>
<td></td>
<td>Soft, Standard, Hard</td>
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<tr>
<td>Neoprene</td>
<td>Refrigerants</td>
<td>Round</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soft, Standard, Hard</td>
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</tbody>
</table>

### Key
- **SIZES**
  - Inch
  - Metric
- **HARDNESS**
  - Soft: easier to compress for sealing at lower pressures
  - Standard
  - Hard: better suited for abrasion and higher pressures
- **Shapes**
  - Round: four contact points for a better seal in dynamic applications
  - Square: flat edges for a better seal in static applications
- **Grades**
  - Industrial: made of FDA materials for use with food and beverage
  - NSF: certified for use with drinking water
  - Metal Detectable: broken fragments can be picked up by metal detection systems
  - Internally Lubricated: makes installation easy and reduces drag
  - Electrically Conductive: conducts static electricity a way to protect sensitive equipment
  - Brown: colored brown for easy identification
### Flange Gaskets

#### Ring & Full-Face Style Flange Gaskets

<table>
<thead>
<tr>
<th>ARAMID</th>
<th>PLASTIC</th>
<th>GRAPHITE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buna-N</strong></td>
<td><strong>Neoprene</strong></td>
<td><strong>PTFE</strong></td>
</tr>
<tr>
<td>USAGE: Oils</td>
<td>USAGE: Refrigerants</td>
<td>USAGE: Chemicals &amp; High Temperature</td>
</tr>
<tr>
<td><strong>SBR</strong></td>
<td><strong>EPDM</strong></td>
<td><strong>Expanded PTFE</strong></td>
</tr>
<tr>
<td>USAGE: Abrasion</td>
<td>USAGE: Water &amp; Steam</td>
<td>USAGE: Chemicals &amp; High Temperature</td>
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<tr>
<td><strong>Neoprene</strong></td>
<td><strong>SBR</strong></td>
<td><strong>Flexible</strong></td>
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<tr>
<td>USAGE: Refrigerants</td>
<td>USAGE: Abrasion</td>
<td>USAGE: Extreme Temperature</td>
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<tr>
<td><strong>EPDM</strong></td>
<td><strong>Natural</strong></td>
<td><strong>Reinforced</strong></td>
</tr>
<tr>
<td>USAGE: Water &amp; Steam</td>
<td>USAGE: Chemicals</td>
<td>USAGE: Extreme Temperature &amp; Pressure</td>
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#### Rubber

<table>
<thead>
<tr>
<th>Buna-N</th>
<th>Silicone</th>
<th>EPDM</th>
<th>Neoprene</th>
<th>SBR</th>
<th>Natural</th>
<th>Viton</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRADE:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

#### Foam

<table>
<thead>
<tr>
<th>Buna-N</th>
<th>Silicone</th>
<th>EPDM</th>
<th>Neoprene</th>
<th>Viton</th>
<th>Microcellular Polyurethane</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRADE:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Felt

<table>
<thead>
<tr>
<th>Felt</th>
<th>Microcellular Polyurethane</th>
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</thead>
<tbody>
<tr>
<td>USAGE: Abrasion resistant</td>
<td>USAGE: Abrasion</td>
</tr>
<tr>
<td>GRADE: F1 / F3 / F5 / F9</td>
<td></td>
</tr>
</tbody>
</table>

#### Metallic Gaskets

<table>
<thead>
<tr>
<th>Spiral Wound</th>
<th>Kamprofile</th>
<th>Ring Joint</th>
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</thead>
<tbody>
<tr>
<td>USAGE: Extreme Temperature &amp; Pressure</td>
<td>USAGE: Extreme Temperature &amp; Pressure</td>
<td>USAGE: Extreme Temperature &amp; Pressure</td>
</tr>
<tr>
<td>FILLER MATERIAL: Graphite / PTFE / Ceramic</td>
<td>FILLER MATERIAL: Graphite / PTFE</td>
<td></td>
</tr>
</tbody>
</table>

### Key

- **Industrial**
- **FDA**
- **Ultra Strength**
- **Felt**
- **Microcellular Polyurethane**
- **High Strength**
- **Graphite**
- **PTFE**

- Most durable and longest life
- Made of FDA materials for use with food and beverage
- Withstands heavy compression
# Gasket Material

## Aramid

<table>
<thead>
<tr>
<th>ARAMID</th>
<th>USAGE</th>
<th>Oils</th>
<th>GARLOCK 3000</th>
<th>KLINGER 4401</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buna-N Binder</strong></td>
<td>USAGE</td>
<td>Abrasives</td>
<td>GARLOCK 3200</td>
<td>KLINGER 6400</td>
</tr>
<tr>
<td><strong>SBR Binder</strong></td>
<td>USAGE</td>
<td>Abrasives</td>
<td>GARLOCK 3700</td>
<td>KLINGER 7400</td>
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<tr>
<td><strong>EPDM Binder</strong></td>
<td>USAGE</td>
<td>Water &amp; Steam</td>
<td>GARLOCK 3300</td>
<td>KLINGER 5400</td>
</tr>
<tr>
<td><strong>Neoprene Binder</strong></td>
<td>USAGE</td>
<td>Refrigerants</td>
<td>GARLOCK 3300</td>
<td>KLINGER 5400</td>
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</tbody>
</table>

## Graphite

<table>
<thead>
<tr>
<th>GRAPHITE</th>
<th>USAGE</th>
<th>High Temperature &amp; Good Machinability</th>
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</thead>
<tbody>
<tr>
<td><strong>Compressible</strong></td>
<td>USAGE</td>
<td>High Temperature &amp; Good Pressure</td>
</tr>
<tr>
<td><strong>Stainless Steel Foil Reinforced</strong></td>
<td>USAGE</td>
<td>High Temperature &amp; Extreme Pressure</td>
</tr>
<tr>
<td><strong>Stainless Steel Tang Reinforced</strong></td>
<td>USAGE</td>
<td>High Temperature &amp; Extreme Pressure</td>
</tr>
<tr>
<td><strong>Expanded PTFE</strong></td>
<td>USAGE</td>
<td></td>
</tr>
</tbody>
</table>
Dynamic Seals

MATERIAL
- B: Buna-N Oil Resistant
- U: Polyurethane Abrasion resistant
- V: Viton Chemical resistant
- P: PTFE High temperature and chemical resistant
- G: Graphite-Filled PTFE Enhances wear resistance

MOTION
- Linear
- Rotary

TYPE
- SC: Single-Lip w/Spring, Rubber Covered OD
- TC: Double-Lip w/Spring, Rubber Covered OD
- VC: Single-Lip, Rubber Covered OD
- VB: Single-Lip, Metal OD
- TB: Double-Lip w/Spring, Metal OD
Compression Packing

PTFE
- **Usage**: Chemicals
- **Filler**: P
- **Reinforcement**: SC

Graphite-Filled PTFE
- **Usage**: Chemicals, High Temperatures & Pressures
- **Filler**: P, L
- **Reinforcement**: AC

Graphite
- **Usage**: High Temperatures & Pressures
- **Filler**: P, PD
- **Reinforcement**: I

Carbon
- **Usage**: High Pressures
- **Filler**: PD
- **Reinforcement**: I

Aramid
- **Usage**: Abrasion
- **Filler**: PD
- **Reinforcement**: I

**Key**
- **Filler**
  - Pure
  - Lubricated: increases flexibility and reduces wear
  - PTFE Dispersion: fills gaps between fibers to improve seal
  - Graphite Dispersion: fills gaps between fibers to improve seal at high temperatures
- **Reinforcement**
  - Silicone Core: absorbs vibration to control leakage
  - Aramid Corner: enhances strength and abrasion resistance
  - Inconel Wire: retains shape even in harsh environments
## Sanitary Gaskets

### PTFE
- **Resistant To**: Chemicals & High Temperature
- **Style**: TC, BS, JP, QL, IL, S5
- **Types**: T1, T2
- **Grades**: 3A, ID
- **Filter**

### Viton
- **Resistant To**: Chemicals
- **Style**: TC, BS, JP, QL, IL, S5
- **Types**: T1, T2
- **Grades**: 3A, ID
- **Filter**

### Silicone
- **Resistant To**: High Temperature
- **Style**: TC, BS, JP, QL, IL, S5
- **Types**: T1, T2
- **Grades**: 3A, ID
- **Filter**

### EPDM
- **Resistant To**: Water & Steam
- **Style**: TC, BS, JP, QL, IL, S5
- **Types**: T1, T2, T3
- **Grades**: 3A, ID
- **Filter**

### Buna-N
- **Resistant To**: Oils
- **Style**: TC, BS, JP, QL, IL, S5
- **Types**: T1, T2
- **Grades**: 3A, ID
- **Filter**

### Key

#### Style
- TC: Tri-clamp
- BS: Bevel Seat
- JP: John Perry
- QL: Q-Line
- IL: I-Line
- S5: ISO/DIN

#### Type
- T1: Standard (Type 1)
- T2: Flanged (Type 2)
- T3: Envelope (Type 3)

#### Grades
- FDA: meets FDA requirements for use with food and beverage
- 3A: certified for use with dairy, pharmaceutical, food and beverage
- USP Class VI: certified for use with medical devices
- Clean Room: cleaned and bagged in ISO Class 10,000 clean room

#### Filter
- Screen: screen mesh for small particle filtration
- Perforated: perforated plate for large particle filtration
- Sock: extended sock shape retains more particles
- Orifice: controls flow rates and pressure
### Cam-and-Groove Hose Gaskets

**Usage**

- **Oils**
- **Chemicals**
- **Water & Steam**
- **Refrigerants**
- **High Temperature**
- **High Temperature & Chemicals**

**Types**

- **Standard**
- **Envelope**
- **Encapsulated**
- **Extra Thick**
- **Screen**

**Grades**

- **Industrial**
- **FDA**
- **Metal Detectable**

#### Key

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Envelope</td>
<td>PTFE envelope enhances chemical and high temperature resistance</td>
</tr>
<tr>
<td>Encapsulated</td>
<td>FEP shell enhances chemical and high temperature resistance</td>
</tr>
<tr>
<td>Extra Thick</td>
<td>Maintains tight seal even through extended use</td>
</tr>
<tr>
<td>Screen</td>
<td>Screen embedded for additional filtering</td>
</tr>
<tr>
<td>Industrial</td>
<td>Industrial</td>
</tr>
<tr>
<td>FDA</td>
<td>Made of FDA materials for use with food and beverage</td>
</tr>
<tr>
<td>Metal Detectable</td>
<td>Broken fragments can be picked up by metal detection systems</td>
</tr>
</tbody>
</table>

**Types**

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buna-N</td>
<td></td>
</tr>
<tr>
<td>Viton</td>
<td></td>
</tr>
<tr>
<td>EPDM</td>
<td></td>
</tr>
<tr>
<td>Silicone</td>
<td></td>
</tr>
<tr>
<td>Neoprene</td>
<td></td>
</tr>
<tr>
<td>FFKM</td>
<td></td>
</tr>
</tbody>
</table>

**Usage**

- **Oils**
- **Chemicals**
- **Water & Steam**
- **Refrigerants**
- **High Temperature**
- **High Temperature & Chemicals**

**Types**

- **Standard**
- **Envelope**
- **Encapsulated**
- **Extra Thick**
- **Screen**

**Grades**

- **Industrial**
- **FDA**
- **Metal Detectable**

**Types**

- **Buna-N**
- **Viton**
- **EPDM**
- **Silicone**
- **Neoprene**
- **FFKM**
Push-In Grommets

Available in AN931/MS35489 Sizes

SBR
- Resistance: Abrasion
- Hardness: 50 – 90A
- Grades:

Buna-N
- Resistance: Oils
- Hardness: 50 – 90A
- Grades:

Silicone
- Resistance: High Temperature
- Hardness: 50 – 90A
- Grades:

EPDM
- Resistance: Water & Steam
- Hardness: 50 – 90A
- Grades:

Viton
- Resistance: Chemicals
- Hardness: 50 – 90A
- Grades:

Neoprene
- Resistance: Refrigerants
- Hardness: 50 – 90A
- Grades:

FFKM
- Resistance: High Temperatures & Chemicals
- Hardness: 70 – 90A
- Grades:

Key

- Grades
  - Industrial
  - FDA
    - made of FDA materials for use with food and beverage
<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>DUROMETERS</th>
<th>SPECIFICATIONS</th>
<th>GRADES</th>
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<tr>
<td>BUTYL</td>
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<td><img src="https://example.com" alt="ROHS, REACH, CA Prop 65" /> <img src="https://example.com" alt="Custom colors" /></td>
</tr>
</tbody>
</table>
Tubing, Hose, Pipe & Fittings
# Tubing

<table>
<thead>
<tr>
<th>PVC</th>
<th>Silicone</th>
<th>PTFE</th>
<th>Polyurethane</th>
<th>Nylon</th>
<th>Latex</th>
</tr>
</thead>
<tbody>
<tr>
<td>USAGE</td>
<td>USAGE</td>
<td>USAGE</td>
<td>USAGE</td>
<td>USAGE</td>
<td>USAGE</td>
</tr>
<tr>
<td>Multipurpose</td>
<td>High Temperature</td>
<td>High Temperature and Chemicals</td>
<td>Abrasion</td>
<td>Air</td>
<td>Flexible</td>
</tr>
<tr>
<td>GRADE</td>
<td>GRADE</td>
<td>GRADE</td>
<td>GRADE</td>
<td>GRADE</td>
<td>GRADE</td>
</tr>
<tr>
<td>3A</td>
<td>3A</td>
<td>3A</td>
<td>NSF</td>
<td>NSF</td>
<td>NSF</td>
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<tr>
<td>REINFORCED</td>
<td>REINFORCED</td>
<td>REINFORCED</td>
<td>REINFORCED</td>
<td>REINFORCED</td>
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## Key

<table>
<thead>
<tr>
<th>GRADES</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial</td>
<td>FDA made of FDA materials for use with food and beverage</td>
</tr>
<tr>
<td>3A</td>
<td>Certified for use with dairy, pharmaceutical, food and beverage</td>
</tr>
<tr>
<td>NSF</td>
<td>Certified for use with drinking water</td>
</tr>
<tr>
<td>Laboratory</td>
<td>High purity formulation that is free of phthalates and DEHP</td>
</tr>
<tr>
<td>DOT</td>
<td>Meets SAE J 44 for use in air brake systems</td>
</tr>
<tr>
<td>Polyester Braid</td>
<td>withstands High Pressure</td>
</tr>
<tr>
<td>Stainless Steel Wire</td>
<td>withstands Vacuum Pressure</td>
</tr>
<tr>
<td>Neoprene</td>
<td>Refrigerants</td>
</tr>
<tr>
<td>Grade</td>
<td>NSF</td>
</tr>
<tr>
<td>EPDM</td>
<td>Water &amp; Steam</td>
</tr>
<tr>
<td>Grade</td>
<td>NSF</td>
</tr>
</tbody>
</table>
Push-to-Connect Tube Fittings

Tubing slides into fitting and is held in place by an internal gripping ring.

**STRAIGHTS**

- **Union Straight**
  - Subtype: B
  - Tube Size: 0.5, 0.625

- **Male Straight**
  - Tube Size: 0.5, 0.625

- **Female Straight**
  - Tube Size: 0.5, 0.625

- **Caps**
  - Tube Size: 0.5, 0.625

- **Plugs**
  - Tube Size: 0.5, 0.625

**ELBOWS**

- **Union Elbow**
  - Tube Size: 0.5, 0.625

- **Male 90° Elbow**
  - Tube Size: 0.5, 0.625

- **Male 45° Elbow**
  - Tube Size: 0.5, 0.625

- **Female 90° Elbow**
  - Tube Size: 0.5, 0.625

**TEES**

- **Union Tee**
  - Tube Size: 0.5, 0.625

- **Male Branch Tee**
  - Tube Size: 0.5, 0.625

- **Male Run Tee**
  - Tube Size: 0.5, 0.625

- **Female Tee**
  - Tube Size: 0.5, 0.625

**WYES**

- **Union Wye**
  - Tube Size: 0.5, 0.625

- **Male Wye**
  - Tube Size: 0.5, 0.625

**CROSSES**

- **Union Cross**
  - Tube Size: 0.5, 0.625

**MANIFOLDS**

- **Manifold Union**
  - Tube Size: 0.5, 0.625

**Materials**

- **FITTINGS AVAILABLE**
  - Nylon
  - Polybutylene

- **THREADS**
  - NPT Thread
  - BSPT Thread

**Key**

- **SUBTYPE**
  - Bulkhead
  - Reducer

- **TUBE SIZE**
  - Inch
  - Metric

- **PTFE Thread Sealant**
  - Protects against leaks
Quick Disconnect Tube Fittings

Couplings easily connect and disconnect for applications where frequent line access is required.

**SOCKETS**

- **Hose Barb Straight**
  - SUBTYPE: BH

- **Compression End Straight**
  - SUBTYPE: BH

- **Male NPT Straight**
  - SUBTYPE: BH

**Features**

- **Acetal Body**
  - moisture resistant

- **316 Stainless Steel Latch**
  - corrosion resistant

- **Auto Shut-Off**
  - valve stops flow when the coupling is separated

**Key**

- **Bulkhead**
  - used to pass connection through wall or panel

**PLUGS**

- **Hose Barb Straight**
  - SUBTYPE: BH

- **Compression End Straight**
  - SUBTYPE: BH

- **Male NPT Straight**
  - SUBTYPE: BH

- **Hose Barb Elbow**
  - SUBTYPE: BH
Flared Tube Fittings

A sleeve bites into fluted tubing as you tighten the nut, which creates a seal that withstands extreme pressure.

**STRAIGHTS**

- Union Straight
- Male Straight
- Female Straight

**PLUGS & CAPS**

- Plug
- Cap

**ELBOWS**

- Male Elbow
- Union Elbow

**NUTS & SLEEVES**

- Nut
- Sleeves

**Material**

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>304 Stainless Steel</td>
<td>Very good corrosion resistance</td>
</tr>
<tr>
<td>316 Stainless Steel</td>
<td>Excellent corrosion resistance</td>
</tr>
<tr>
<td>Brass</td>
<td>Good strength and corrosion resistance</td>
</tr>
</tbody>
</table>
Compression Tube Fittings

A single sleeve bites into tubing as you tighten the nut, which creates a strong seal.

Instrumentation Tube Fittings

A nut with two sleeves gives these fittings extra gripping power and allows them to withstand higher pressures.

Material

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>304 Stainless Steel</td>
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</tr>
<tr>
<td>316 Stainless Steel</td>
<td>Excellent corrosion resistance</td>
</tr>
<tr>
<td>Brass</td>
<td>Good strength and corrosion resistance</td>
</tr>
<tr>
<td>Zinc-Plated Steel</td>
<td>Excellent Strength</td>
</tr>
</tbody>
</table>

STRAIGHTS

- Male Straight
- Female Straight
- Union Straight

ELBOWS

- Male Elbow
- Female Elbow
- Union Elbow

TEES

- Male Branch Tee
- Male Run Tee
- Union Tee

NUTS & SLEEVES

- Nut
- Sleeves

PLUGS & CAPS

- Plug
- Cap
Sanitary Fittings

A highly polished interior makes these ultra-smooth and eliminates crevices where bacteria could grow.

**TRI-CLAMP** Allows for easy assembly and breakdown of process lines

Full line of gaskets available

- Straights
- 90° Elbows
- 45° Elbows
- Tees
- 45° Tees
- Wyes
- Crosses
- Ferrules
- Tank Ferrules
- Roll-on Ferrules
- Pipe Adapters
- Hose Adapters
- Caps
- Clamps

**BUTT WELD** Permanently welded in place

Polished and Unpolished finish available

- Straights
- 90° Elbows
- 45° Elbows
- Tees
- Pipe Adapters
- Hose Adapters
- Caps

**PROCESSING EQUIPMENT**

Tri-Clamp and Butt Weld connections available

- Ball Valves
- Butterfly Valves
- Sight Glass

---

**Material**

- **304 Stainless Steel**
  - Very good corrosion resistance
- **316 Stainless Steel**
  - Excellent corrosion resistance

---

---
Ultra-High Vacuum Fittings

Have a centering ring that allows these fittings to withstand ultra-high vacuum pressures.

Material
304 Stainless Steel
Very good corrosion resistance

STRAIGHTS
- Straight Connector
- Straight Reducer

ELBOWS
- 90° Elbows
- 45° Elbows

CLAMPS
- Clamps

ADAPTERS
- Male Adapters
- Female Adapters
- Butt Weld Adapters
- Barbed Hose Adapters
- Socket Connect Adapter

HOSE
- Flexible Hose
- Rigid Hose

CENTERING RINGS
- Centering Ring
- Centering Ring with Screen

CAPS
- Caps
Pipe Fittings & Nipples

Used in pipe systems to connect straight sections of pipe or tube, adapt to different sizes or shapes, and regulate flow.

All male threads are available with a pre-applied PTFE thread sealant to protect against leaks and save time in the field.

Key

CLASS

150 for use in low pressure pipeline

3000 for use in high pressure pipeline

MATERIALS

304 Stainless Steel
very good corrosion resistance

316 Stainless Steel
excellent corrosion resistance

Black-Coated Steel
excellent strength

Aluminium
light weight and strong

SCHEDULE

40 for use in low pressure pipeline

80 for use in high pressure pipeline

Coupling

CLASS 150

MATERIALS 304 316 BC

Reducing Coupling

CLASS 150

MATERIALS 304 316 BC

Half Coupling

CLASS 150

MATERIALS 304 316 BC

Reducing Hex Bushing

CLASS 150

MATERIALS 304 316 BC

Hex Nipple

CLASS 150

MATERIALS 304 316 BC

Reducing Hex Nipple

CLASS 150

MATERIALS 304 316 BC

TEES

Tee

CLASS 150

MATERIALS 304 316 BC

Reducing Tee

CLASS 150

MATERIALS 304 316 BC

Elbow

CLASS 150

MATERIALS 304 316 BC

Reducing Elbow

CLASS 150

MATERIALS 304 316 BC

45° Elbow

CLASS 150

MATERIALS 304 316 BC

Street Elbow

CLASS 150

MATERIALS 304 316 BC

Locknut

CLASS 150

MATERIALS 304 316 BC

SCHEDULE

CAPS AND PLUGS

Cap

CLASS 150

MATERIALS 304 316 BC

Hex Socket Plug

CLASS 150

MATERIALS 304 316 BC

Hex Head Plug

CLASS 150

MATERIALS 304 316 BC

Square Head Plug

CLASS 150

MATERIALS 304 316 BC

Close Nipple

CLASS 40 80

MATERIALS 304 316 BC

Nipple Threaded on Both Ends

CLASS 40 80

MATERIALS 304 316 BC

Nipple Threaded on One End

CLASS 80

MATERIALS 304 316 BC

NIPPLES

All male threads are available with a pre-applied PTFE thread sealant to protect against leaks and save time in the field.
Pipe Flanges

Used in pipe systems to provide increased support for strength, block off a pipeline, or allow for attachment of more items.

**AVAILABLE IN THE FOLLOWING PRESSURE CLASSES: 150, 300, 400, 600, 900, 1500 AND 2500**

**Materials**
- 304 Stainless Steel
  - very good corrosion resistance
- 316 Stainless Steel
  - excellent corrosion resistance
- Carbon Steel
  - good strength and durability
# Valves

Valves used in pipe systems to regulate, direct or control the flow of fluid.

## Key

**Materials**

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>304 Stainless Steel</td>
<td>Very good corrosion resistance</td>
</tr>
<tr>
<td>316 Stainless Steel</td>
<td>Excellent corrosion resistance</td>
</tr>
</tbody>
</table>

## Standard Port Ball Valve

<table>
<thead>
<tr>
<th>No. of Pieces</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1000 psi, 3000 psi</td>
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</tbody>
</table>

## Full Port Ball Valve

<table>
<thead>
<tr>
<th>No. of Pieces</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2, 3</td>
<td>1000 psi, 2000 psi</td>
</tr>
</tbody>
</table>
Instrumentation Pipe Fittings

Used in pipe systems that require extreme working pressures and tight tolerances.

**CAPS AND PLUGS**
- Cap
- Hex Socket Plug
- Hex Head Plug
- Female Cross

**CROSSES**
All male threads are available with a pre-applied PTFE thread sealant to protect against leaks and save time in the field.

**STRAIGHTS**
- Hex Coupling
- Reducing Hex Coupling
- Close Nipple
- Hex Nipple
- Reducing Hex Nipple
- Adapter
- Reducing Adapter
- Reducing Hex Bushing

**ELBOWS**
- Female Elbow
- Male Elbow
- Street Elbow

**TEES**
- Female Tee
- Male Tee
- Branch Tee
- Run Tee

**Key**

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>316 Stainless Steel</td>
<td>excellent corrosion resistance</td>
</tr>
<tr>
<td>Galvanized Steel</td>
<td>excellent strength</td>
</tr>
<tr>
<td>Brass</td>
<td>good strength and corrosion resistance</td>
</tr>
</tbody>
</table>
Cam-and-Groove Hose Fittings

Meet A-A59326 / MIL-C-27487 Standards

Fitting Type

A  Female NPT x Male Adapter
B  Female Coupler x Male NPT
C  Female Coupler x Hose Shank
D  Female Coupler x Female NPT
E  Male Adapter x Hose Shank
F  Male Adapter x Male NPT
G  Female Coupler x Male Adapter

316 Stainless Steel
Usage: Food and Chemicals

304 Stainless Steel
Usage: Food and Chemicals

Brass
Usage: Water

Aluminum
Usage: Air & Water

Polypropylene
Usage: Chemicals

Nylon
Usage: Chemicals & Abrasives
Raw Materials
Plastics

MULTI-PURPOSE

Acetal  
UHMW Polyethylene  
HDPE  
Nylon 6/6  
ABS  
PVC  
Polypropylene

CLEAR  
HIGH TEMPERATURE

Cast Acrylic  
Polycarbonate  
PTFE  
ePTFE  
Polymide

Key

FDA
For use with food and beverage

Fire Retardant
Meets UL flame extinguishing specifications to prevent the spread of fire.
<table>
<thead>
<tr>
<th>Rubber Grade</th>
<th>Usage</th>
<th>Durometer (Hardness)</th>
<th>Tensile Strength (PSI)</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>Neoprene</td>
<td>Multipurpose</td>
<td>40A / 50A / 60A / 70A</td>
<td>1000 / 1500 / 2500</td>
<td></td>
</tr>
<tr>
<td>Silicone</td>
<td>High Temperatures</td>
<td>40A / 50A / 60A / 70A</td>
<td>700 / 1200</td>
<td></td>
</tr>
<tr>
<td>Buna-N</td>
<td>Oils</td>
<td>40A / 50A / 60A / 70A</td>
<td>1000 / 1500 / 2500</td>
<td></td>
</tr>
<tr>
<td>EPDM</td>
<td>Weather</td>
<td>40A / 50A / 60A / 70A</td>
<td>1000 / 1800</td>
<td></td>
</tr>
<tr>
<td>Viton</td>
<td>Chemicals</td>
<td>75A</td>
<td>1000 / 1500</td>
<td></td>
</tr>
<tr>
<td>Polyurethane</td>
<td>Wear Resistance</td>
<td>60A</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td>SBR</td>
<td>Abrasion Resistance</td>
<td>60A / 75A</td>
<td>400 / 800 / 1000</td>
<td></td>
</tr>
<tr>
<td>Natural Rubber</td>
<td>Elastic</td>
<td>40A</td>
<td>3000</td>
<td></td>
</tr>
</tbody>
</table>

**Key**
- **Grades**
  - Food made of FDA materials for use with food and beverage
  - Fabric Reinforced fabric insert increases resistance to high stress and flex
  - Non-Slip crisscross texture provides a nonslip gripping surface

**Rubber Key**
- Neoprene
- Silicone
- Buna-N
- EPDM
- Viton
- Polyurethane
- SBR
- Natural Rubber
Sealing & Gasketing

Neoprene
- Usage: Multipurpose
- Firmness: Soft (3-8 psi)
- Cell Type: Open Cell
- Grades: Food Grade

Silicone
- Usage: High Temperatures
- Firmness: Medium (9-13 psi)
- Cell Type: Closed Cell
- Grades: Black

Buna-N
- Usage: Oils
- Firmness: Firm (14+ psi)
- Cell Type: Closed Cell
- Grades: Fire Retardant

EPDM
- Usage: Weather
- Firmness: Medium (9-13 psi)
- Cell Type: Closed Cell
- Grades: Extended Life

Viton
- Usage: Chemicals
- Firmness: Firm (14+ psi)
- Cell Type: Closed Cell
- Grades: Antistatic

Cushioning & Insulating

Polyurethane
- Firmness: Medium (9-13 psi)
- Cell Type: Closed Cell
- Grades: Memory

Polyethylene
- Firmness: Medium (9-13 psi)
- Cell Type: Closed Cell
- Grades: Reticulated

EVA
- Firmness: Medium (9-13 psi)
- Cell Type: Closed Cell
- Grades: Memory
## GAROLITE

<table>
<thead>
<tr>
<th>Type</th>
<th>Grades</th>
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<tbody>
<tr>
<td>Glass-Based</td>
<td>G10, G11, G12, G13, G14, G15</td>
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</tbody>
</table>

## CARBON FIBER

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Unidirectional</td>
<td></td>
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<tr>
<td>Woven</td>
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</table>

## MEDIUM DENSITY FIBER BOARD

<table>
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<tbody>
<tr>
<td>Standard</td>
<td></td>
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<tr>
<td>Fire Retardant</td>
<td></td>
</tr>
<tr>
<td>Moisture Resistant</td>
<td></td>
</tr>
<tr>
<td>Felt Type</td>
<td>Vibration Absorption</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------</td>
</tr>
<tr>
<td>F1 Felt</td>
<td>High</td>
</tr>
<tr>
<td>F3 Felt</td>
<td>High</td>
</tr>
<tr>
<td>F5 Felt</td>
<td>Medium</td>
</tr>
<tr>
<td>F13 Felt</td>
<td>Low</td>
</tr>
</tbody>
</table>