APPLICATIONS

- Typical Uses
  - Joining and insulating plain-end pipe of same outside diameters
  - Replace split or excessively damaged pipe

- Standard Pipe Sizes
  - 2” to 24” nominal

- Type of Pipe
  - Carbon Steel, Stainless Steel, Cast Iron

- Working Pressure
  - 150 psi (standard design)

MATERIALS

- Followers *(see catalog for specific follower design)*
  - **Cast Follower**
    - Cast using Ductile Iron 65-45-12 per ASTM A536
    - Flexi-Coat® fusion bonded epoxy finish
    - Permanently marked with part number and pipe size range for proper selection
  - **Steel Follower**
    - Carbon Steel C1020 per ASTM A576
    - Flexi-Coat® fusion bonded epoxy finish
    - Integral bolt head pocket for one wrench installation

- **Sleeve**
  - Material: 2” – 5” nominal pipe size = Carbon Steel per ASTM A513 or A53
  - 6” – 60” nominal pipe size = Carbon Steel per ASTM A283C
  - Flexi-Coat® fusion bonded epoxy finish

- **Gasket**
  - Nitrile (Buna-N) per ASTM D2000
  - Temperature range: -20°F to +180°F
  - Permanently marked with part number and pipe size range for proper selection

- **Insulating Boot**
  - Nitrile (Buna-N) per ASTM D2000
  - NSF/ANSI 61 and 372 certified
  - Temperature range: -20°F to +180°F
 SPECIFICATION  
STEEL INSULATING COUPLING  
MODEL 416

- **Bolts**
  - HSLA Steel per AWWA C111/A21.11
  - Size: 2.50” nominal size(s) = 1/2”-13UNC, Oval Neck Track Head
  - 2” and 3” – 24” nominal size(s) = 5/8”-11UNC, Oval Neck Track Head
  - Rolled threads

- **Nut**
  - HSLA Steel per AWWA C111/A21.11
  - Size: 2.50” nominal size(s) = 1/2”-13UNC, Heavy Hex Semi-Finished
  - 2” and 3” – 24” nominal size(s) = 5/8”-11UNC, Heavy Hex Semi-Finished

**LISTINGS**
- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Meets applicable AWWA C219 standards
- Flexi-Coat® Fusion-Bonded Epoxy Coating meets requirements of AWWA C213

**OPTIONS**
- Other materials of construction (e.g. 304SS, 316SS, etc.)
- Type 304 Stainless Steel hardware with fluoropolymer coated nuts to prevent galling
- Type 316 Stainless Steel hardware with fluoropolymer coated nuts to prevent galling
- Alternative gasket material (e.g. Viton, EPDM, etc.)
- Protected gasket (brass spring molded into leading edge)
- Anode connector
- Anchor studs
- Pipe stops incorporated into sleeve
- Higher working pressure design
- Custom sleeve length and thickness
- Angled sleeve design (for deflections exceeding straight coupling deflection ranges)
- Transition gasket for undersized pipe
- Wall sleeve design (for building wall or bulkhead passage)

**NOTES**
- Xylem, Smith-Blair, SB stylized, and Flexi-Coat are registered trademarks of Xylem, Inc., or one of its subsidiaries
- These product specifications were correct at the time of publication and are subject to change without notice
- See the Smith-Blair website for part numbers and ordering information
- See the Smith-Blair website for warranty information
- See the Smith-Blair website for corrosion notice

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**WARNING**

THIS PRODUCT DOES NOT RESTRAIN PIPE MOVEMENT. Proper anchoring is required to prevent pipe pullout. Failure to anchor or improper anchoring can result in dangerous pipe content escape, property damage, serious injury, or death. Read the product installation instructions prior to installing this product.
### Recommended Pipe to Pipe Centerline Gaps

<table>
<thead>
<tr>
<th>Sleeve Length</th>
<th>Optimum Gaps</th>
<th>Maximum Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Straight Run</td>
<td>Deflected Joints</td>
</tr>
<tr>
<td>5&quot;</td>
<td>1/2&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td>7&quot;</td>
<td>1/2&quot;</td>
<td>1-1/2&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>1&quot;</td>
<td>2-1/4&quot;</td>
</tr>
<tr>
<td>Longer Than 10&quot;</td>
<td>1&quot;</td>
<td>2-3/4&quot;</td>
</tr>
</tbody>
</table>

Pipe gap to be centered in coupling sleeve.

### Total Maximum Allowable Axial Pipe Movement per Coupling

<table>
<thead>
<tr>
<th>Coupling Size</th>
<th>Allowable Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; to 2&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>2-1/2&quot; to 10&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>10-3/4&quot; and Larger</td>
<td>3/8&quot;</td>
</tr>
</tbody>
</table>

### Pipe End Tolerances

<table>
<thead>
<tr>
<th>Pipe OD</th>
<th>Minus Tolerance</th>
<th>Plus Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; up to 16&quot;</td>
<td>-0.06</td>
<td>+0.06</td>
</tr>
<tr>
<td>&gt;16&quot; up to 24&quot;</td>
<td>-0.08</td>
<td>+0.08</td>
</tr>
<tr>
<td>&gt;24&quot; up to 42&quot;</td>
<td>-0.10</td>
<td>+0.10</td>
</tr>
<tr>
<td>&gt;42&quot;</td>
<td>-0.06</td>
<td>+0.12</td>
</tr>
</tbody>
</table>

### Maximum Angular Deflection per Coupling

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>Center Sleeve Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5&quot;</td>
</tr>
<tr>
<td>1/2&quot; up to 2&quot;</td>
<td>7°</td>
</tr>
<tr>
<td>&gt;2&quot; up to 12&quot;</td>
<td>4°</td>
</tr>
<tr>
<td>&gt;12&quot; up to 24&quot;</td>
<td>2-1/2°</td>
</tr>
<tr>
<td>&gt;24&quot; up to 36&quot;</td>
<td>-</td>
</tr>
<tr>
<td>&gt;36&quot; up to 42&quot;</td>
<td>-</td>
</tr>
<tr>
<td>&gt;42&quot; up to 60&quot;</td>
<td>-</td>
</tr>
<tr>
<td>&gt;60&quot; up to 80&quot;</td>
<td>-</td>
</tr>
<tr>
<td>&gt;80&quot; up to 100&quot;</td>
<td>-</td>
</tr>
<tr>
<td>&gt;100&quot;</td>
<td>-</td>
</tr>
</tbody>
</table>
# Specification

## MODEL 416

Steel Insulating Coupling

<table>
<thead>
<tr>
<th>NOM. PIPE</th>
<th>COUPLING O.D. (INCHES)</th>
<th>RANGE</th>
<th>GRY</th>
<th>C</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2.27 TO 2.44</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>2.87 TO 3.24</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>3.44 TO 3.85</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>3.84 TO 4.24</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>4.4 TO 4.75</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>4.75 TO 5.12</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>5.12 TO 5.50</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>5.50 TO 5.88</td>
<td>9</td>
<td>9</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>5.88 TO 6.25</td>
<td>10</td>
<td>10</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

**Hardware**

- QTY.
- SIZE

## Notes

- .XX = .03
- .XXX = .015
- FRACTIONS =
- ANGLES =
- MACH. FIN =
- STEEL INSULATING COUPLING SPECIFICATION

### Section A-A

#### Sleevelength

- "A" = Installation Boot
- "B" = Sleevelength

### Wrench Size Chart

<table>
<thead>
<tr>
<th>NUT SIZE</th>
<th>NOM. PIPE SIZE</th>
<th>COUPLING O.D. RANGE</th>
<th>QTY.</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot;-18UN</td>
<td>3/8&quot;-16</td>
<td>0.216</td>
<td>2</td>
<td>5/8&quot; X 8.50&quot;</td>
</tr>
<tr>
<td>5/32&quot;-18</td>
<td>5/8&quot;-14</td>
<td>0.226</td>
<td>2</td>
<td>1/2&quot; X 7.38&quot;</td>
</tr>
<tr>
<td>3/32&quot;-16</td>
<td>7/16&quot;-14</td>
<td>0.237</td>
<td>2</td>
<td>5/8&quot; X 8.00&quot;</td>
</tr>
<tr>
<td>1/8&quot;-24</td>
<td>1/2&quot;-13</td>
<td>0.258</td>
<td>5</td>
<td>5/8&quot; X 8.00&quot;</td>
</tr>
<tr>
<td>5/32&quot;-12</td>
<td>5/8&quot;-11</td>
<td>0.258</td>
<td>5</td>
<td>5/8&quot; X 8.00&quot;</td>
</tr>
<tr>
<td>3/32&quot;-10</td>
<td>5/8&quot;-10</td>
<td>0.280</td>
<td>5</td>
<td>5/8&quot; X 8.00&quot;</td>
</tr>
<tr>
<td>1/16&quot;-24</td>
<td>5/8&quot;-9</td>
<td>0.301</td>
<td>5</td>
<td>5/8&quot; X 8.00&quot;</td>
</tr>
</tbody>
</table>

### Notes

- 1. STANDARD SLEEVE LENGTH COUPLING SHOWN OTHER SIZES SIMILAR

### Diagram

- Section A-A
- Sleevelength
- Installation Boot

---

**NOTES:**

- 1. STANDARD SLEEVE LENGTH COUPLING SHOWN OTHER SIZES SIMILAR
- **SMITH-BLAIR, INC.**
- **TEXARKANA, ARKANSAS**
- **SPEC 416.DRW**
- **DATE:** 2/28/19
- **SCALE:** N/A
- **DATE:** 1/13/16
- **DRAWN BY:** N/A
- **CHECKED BY:** N/A
- **TITLE:** MODEL 416
- **REV.:** N/A
- **DRN:** N/A
- **DATE:** N/A
- **NOTES:** REMOVE BURRS AND SHARP EDGES
- **DO NOT SCALE DWG.**
- **CK'D:** N/A

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**SPECIFICATION**

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**TOLERANCES U.N.O. APP'D**

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**SCALE:** N/A