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**B 1 – PVC FITTINGS – Schedule 40:**

Effective Date: 01-01-19

Revision #: 2

**SPECIFICATION/MATERIAL:**

Schedule 40 PVC fittings shall meet or exceed the performance specifications of:

- ASTM Standards D2466, this standard covers Schedule 40 PVC threaded and socket pressure fittings. The standard stipulates thread and socket specifications as well as minimum lengths, wall thicknesses, burst pressures, material classification, quality, and requirements for marking identification.
- Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines, when used in a potable water installation.

**CONNECTIONS:**

- **Tees** - Solvent Weld (slip) X Solvent Weld (slip)
- **Union** - Solvent Weld (slip) X Solvent Weld (slip), Female Pipe Thread (FPT) X Female Pipe Thread (FPT)
- **Elbow** - Solvent Weld (slip) X Solvent Weld (slip)
- **Cross** - Solvent Weld (slip) X Solvent Weld (slip)
- **Couplings** - Solvent Weld (slip) X Solvent Weld (slip)
- **Riser Extender** - Male Pipe Thread (MPT) X Female Pipe Thread (FPT)
- **Adapters** - Male Pipe Thread (MPT) X Solvent weld (slip)
- **Bushing** – Spigot X Solvent Weld (slip), Spigot X Female Pipe Thread (FPT), Male Pipe Thread (MPT) X Female Pipe Thread (FPT)
- **Cap** - Solvent Weld (slip), Female Pipe Thread (FPT)
- **Plug** - Spigot, Male Pipe Thread (MPT)
- **Wye** - Solvent Weld (slip) X Solvent Weld (slip) X Solvent Weld (slip)

**RESTRICTIONS:**

- 4" and 6" sewer service laterals from main to service cleanout at right-of-way
- 2" water blow-offs

**COLOR-CODED:**

- White- all services
- Gray- all services

**SIZES:**

- 2"
- 4"
- 6"



TEE

UNION

ELBOW

CROSS



COUPLING

RISER EXTENDER

ADAPTER

BUSHING







































CAP

PLUG


WYE

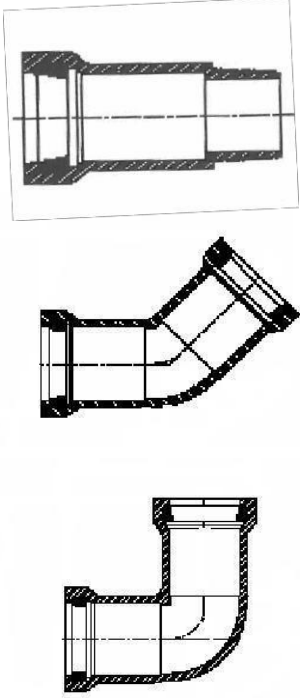
**MANUFACTURER:**


- COLONIAL
- CHARLOTTE PIPE AND FOUNDRY
- IPEX
- LASCO
- SPEARS

<b>B 2 – PVC FITTINGS – Schedule 80:</b>		Effective Date: <u>01-01-19</u> Revision #: <u>2</u>																							
<p><b><u>SPECIFICATION/MATERIAL:</u></b> Schedule 80 fittings shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• ASTM Standards D-2467, solvent weld and pressure fittings, dimensions, thread gauging, minimum wall thickness and burst pressure, material classification, various quality aspects and requirements for marking identification for plugs.</li> <li>• ASTM Standards D-1784, manufactured from compounds with cell classification 12454B (type 1, grade 1 material) for nipples &amp; plugs.</li> <li>• ASTM Standards D-1785, dimensional requirements, minimum burst and sustained pressure requirements, maximum operating pressure, and test procedures for determining pipe quality with respect to workmanship and materials for nipples.</li> <li>• Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines.</li> </ul> <p><b><u>CONNECTION:</u></b></p> <ul style="list-style-type: none"> <li>• <b>Tees</b> - Solvent Weld (slip) X Solvent Weld (slip)</li> <li>• <b>O-Ring</b></li> <li>• <b>Elbow</b> - Solvent Weld (slip) X Solvent Weld (slip)</li> <li>• <b>Cross</b> - Solvent Weld (slip) X Solvent Weld (slip)</li> <li>• <b>Couplings</b> - Solvent Weld (slip) X Solvent Weld (slip)</li> <li>• <b>Adapters</b> - Male Pipe Thread (MPT) X Solvent weld (slip), Female Pipe Thread (FPT) X Solvent weld (slip)</li> <li>• <b>Bushing</b> – Spigot X Solvent Weld (slip), Spigot X Female Pipe Thread (FPT), Male Pipe Thread (MPT) X Female Pipe Thread (FPT)</li> <li>• <b>Cap</b> - Solvent Weld (slip), Female Pipe Thread (FPT)</li> <li>• <b>Plug</b> - Spigot, Male Pipe Thread (MPT)</li> <li>• <b>Flange</b> - Solid Style, Blind, Loose Ring</li> <li>• <b>Wye</b> - Solvent Weld (slip) X Solvent Weld (slip) X Solvent Weld (slip)</li> <li>• <b>Union</b> - Solvent Weld (slip) X Male Pipe Thread (MPT), Solvent Weld (slip) X Solvent Weld (slip), Female Pipe Thread (FPT) X Female Pipe Thread (FPT), Solvent Weld (slip) X Female Pipe Thread</li> </ul>	<p><b><u>SIZES:</u></b></p> <ul style="list-style-type: none"> <li>• 3/4"</li> <li>• 1"</li> <li>• 1-1/2"</li> <li>• 2"</li> </ul> <p><b><u>COLOR-CODED:</u></b></p> <ul style="list-style-type: none"> <li>• White- all services</li> <li>• Gray- all services</li> </ul> <table border="0"> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">TEE</td> <td style="text-align: center;">O-RING</td> <td style="text-align: center;">ELBOW</td> <td style="text-align: center;">CROSS</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">COUPLING</td> <td style="text-align: center;">ADAPTER</td> <td style="text-align: center;">BUSHING</td> <td style="text-align: center;">CAP</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">PLUG</td> <td style="text-align: center;">FLANGE</td> <td style="text-align: center;">WYE</td> <td style="text-align: center;">UNION</td> </tr> </table>					TEE	O-RING	ELBOW	CROSS					COUPLING	ADAPTER	BUSHING	CAP					PLUG	FLANGE	WYE	UNION
																									
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<p><b><u>RESTRICTIONS:</u></b></p> <ul style="list-style-type: none"> <li>• Pump station chemical feed applications downstream from backflow prevention devices</li> </ul>	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• CHEMTROL/ NIBCO</li> <li>• CHARLOTTE PIPE AND FOUNDRY</li> <li>• IPEX</li> <li>• LASCO</li> <li>• SPEARS</li> </ul>																								

<p><b>B 3 – HIGH DENSITY POLYETHYLENE (HDPE) FLANGE AND MECHANICAL JOINT ADAPTERS (AWWA C906):</b></p>		<p>Effective Date: <u>01-01-19</u> Revision #: <u>2</u></p>
<p><b><u>SPECIFICATION/MATERIAL:</u></b> High Density Polyethylene (HDPE) fittings shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• PE-3608 Resin listed in Plastic Pipe Institute TR4.</li> <li>• Cell classification per ASTM Standards D-3350 = 345464C or 345464C (black).</li> <li>• ASTM Standards D3035, minimum wall values.</li> <li>• AWWA C906.</li> <li>• Stainless Steel inserts are required.</li> <li>• MFG. Shall be listed with the Plastic Pipe Institute as meeting the recipe and mixing requirements for pipe in this classification.</li> </ul> <p><b><u>POTABLE WATER REQUIREMENTS:</u></b></p> <ul style="list-style-type: none"> <li>• Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 14, 61 or "NSF-pw".</li> </ul> <p><b><u>COLOR-CODED:</u></b></p> <ul style="list-style-type: none"> <li>• Black- all service</li> </ul> <p><b><u>DIMENSIONS:</u></b></p> <ul style="list-style-type: none"> <li>• Ductile iron pipe size O.D., D.I.P.S.</li> <li>• DR-9, DR-11</li> </ul> <p><b><u>SIZES:</u></b></p> <ul style="list-style-type: none"> <li>• 4" thru 24"</li> </ul> <p><b><u>PRESSURE RATING:</u></b></p> <ul style="list-style-type: none"> <li>• 160-psi. operating pressure @ 73.4 F for DR-11.</li> <li>• 200-psi. operating pressure @ 73.4 F for DR-9.</li> </ul> <p><b><u>DESIGN:</u></b></p> <ul style="list-style-type: none"> <li>• Plain end (PE) X mechanical joint (MJ).</li> <li>• Plain end (PE) X flange joint (FL).</li> </ul> <p><b><u>INCLUDE:</u></b></p> <ul style="list-style-type: none"> <li>• Ductile iron gland ring.</li> <li>• Rubber gasket.</li> <li>• Proper size, length and number of 316 SS bolts and nuts.</li> </ul>	<p><b><u>FIRE MAIN PRESSURE RATING &amp; REQUIREMENTS:</u></b></p> <ul style="list-style-type: none"> <li>• Dimension Ratio (DR) DR-9, pressure class 200 for fire mains.</li> <li>• Factory Mutual Approved (FM).</li> <li>• Stainless Steel insert stiffener required.</li> </ul> <p style="text-align: center;"><b><u>FLANGE ADAPTER</u></b></p>  <p style="text-align: center;"><b><u>MECHANICAL JOINT ADAPTER</u></b></p>  	
<p><b><u>RESTRICTIONS:</u></b></p> <ul style="list-style-type: none"> <li>• Mechanical joint adapters for butterfly valves must be specified to ensure proper valve operation.</li> </ul>	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• CENTRAL PLASTICS</li> <li>• CP CHEMICAL/PERFORMANCE PIPE</li> <li>• IPEX/FRIATEC</li> <li>• INDEPENDENT PIPE PRODUCTS</li> <li>• ORION ENTERPRISES, INC.</li> <li>• SPECIFIED FITTINGS</li> <li>• DRISCO PLEX</li> </ul>	

<p><b>B 4 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE WALL STIFFENERS:</b></p>		<p>Effective Date: <u>01-01-19</u>                  Revision #: <u>2</u></p>
<p><b><u>SPECIFICATION/MATERIAL:</u></b>                  High Density Polyethylene (HDPE) pipe wall stiffeners shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• Stiffeners shall be suitable for use with HDPE pipe made in accordance with ANSI/AWWA C906, SDR 9 and 11.</li> <li>• Shall be suitable for use with standard mechanical joint pipe or fittings made in accordance with ANSI/AWWA C111/A21.11, or ANSI/AWWA C153/A21.53 of the latest revision.</li> <li>• ASTM Standard A 240 type 304 or 316 stainless steel.</li> </ul> <p><b><u>DESIGN:</u></b></p> <ul style="list-style-type: none"> <li>• Shall be either one or two-piece design.</li> <li>• Shall fit securely in the inside of pipe.</li> </ul> <p><b><u>PRESSURE RATING:</u></b></p> <ul style="list-style-type: none"> <li>• Stiffeners shall be suitable for use at pressures up to 150 psi.</li> </ul>	 <p><b>STYLE CPS-IPS</b></p> <p><b>JCM 230/231 Stiffener</b></p>	
<p><b><u>RESTRICTIONS:</u></b></p>	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• CASCADE- CPS-IPS SERIES</li> <li>• JCM- 230 &amp; 231 SERIES</li> <li>• ROMAC STAINLESS STEEL STIFFENER</li> <li>• DRISCO PLEX</li> <li>• A.Y. MCDONALD</li> <li>• FORD METER BOX</li> </ul>	

<b>B 5 – PLASTIC FITTINGS (SDR-21):</b>		Effective Date: <u>01-01-19</u> Revision #: <u>2</u>
<p><b><u>SPECIFICATION/MATERIAL:</u></b> Plastic fittings (SDR-21) shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• ASTM Standards D 1784, manufactured from compounds with cell classification 12454B (type 1, grade 1 material).</li> <li>• Joints per ASTM Standards D 3139 testing requirements.</li> <li>• Gaskets per ASTM Standards F477.</li> <li>• No solvent-cement weld pipe or fittings will be accepted.</li> <li>• Standard Dimension Ratio (SDR) 21.</li> <li>• Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines.</li> </ul> <p><b><u>PRESSURE RATING:</u></b></p> <ul style="list-style-type: none"> <li>• 200 psi. at 23 Degrees C (73.4 Degrees F)</li> </ul> <p><b><u>CONNECTIONS:</u></b></p> <ul style="list-style-type: none"> <li>• Male Iron Pipe Thread (MIPT) X Push-on integral bell type supplied with elastomeric gaskets installed.</li> <li>• Push-on integral bell X Push-on integral bell supplied with elastomeric gaskets installed.</li> </ul> <p><b><u>COLOR-CODED:</u></b></p> <ul style="list-style-type: none"> <li>• White- all services</li> </ul> <p><b><u>DIMENSIONS:</u></b></p> <ul style="list-style-type: none"> <li>• Iron pipe size (IPS) Outside diameter controlled.</li> </ul>		
<p><b><u>RESTRICTIONS:</u></b></p> <ul style="list-style-type: none"> <li>• Only male threads will be accepted in this section.</li> <li>• Use of this product is limited to two-inch diameter pressure applications.</li> <li>• Prior approval required.</li> </ul>	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• FLO-CONTROL</li> <li>• HARCO</li> <li>• MULTI FITTING- CYCLE TOUGH 4000</li> </ul>	

<b>B 6 – PVC FITTINGS - GASKETED PVC (AWWA C 900):</b>		Effective Date: <u>01-01-19</u> Revision #: <u>2</u>
<p><b><u>SPECIFICATION/MATERIAL:</u></b> Plastic fittings (AWWA C 900) shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• Shall be manufactured in one piece of injection molded or fabricated from a PVC compound meeting ASTM Standards D 1784.</li> <li>• Gaskets per ASTM Standards F477.</li> <li>• ASTM Standards D 1784, manufactured from compounds with cell classification 124548 (type 1, grade 1 material).</li> <li>• No solvent-cement weld pipe or fittings will be accepted on sizes less than or equal to 8".</li> <li>• Fabricated fittings are acceptable for sizes equal to and larger than 10".</li> <li>• Joint per ASTM Standards D3139 bell joint using elastomeric gaskets.</li> </ul> <p><b><u>WALL THICKNESS DIMENSIONS:</u></b></p> <ul style="list-style-type: none"> <li>• C-900 DR18, 150 psi, minimum requirement.</li> </ul> <p><b><u>CONNECTIONS:</u></b></p> <ul style="list-style-type: none"> <li>• Male Iron Pipe Thread (MIPT) X Push-on integral bell type supplied with elastomeric gaskets installed.</li> <li>• Female Iron Pipe Thread (FIPT) X Push-on integral bell type supplied with elastomeric gaskets installed.</li> <li>• Push-on integral bell X Push-on integral bell supplied with elastomeric gaskets installed.</li> <li>• Spigot X Push-on integral bell supplied with elastomeric gaskets installed.</li> </ul>		
<p><b><u>RESTRICTIONS:</u></b></p> <ul style="list-style-type: none"> <li>• Only for use with gravity sewer laterals and mains.</li> </ul>	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• FREEDOM PLASTICS, INC.</li> <li>• HARCO</li> <li>• MACON PLASTICS, INC .</li> <li>• MUL TI-FITTINGS</li> <li>• PLASTIC TRENDS, INC .</li> <li>• SPECIFIED FITTINGS, INC.</li> <li>• GPK PRODUCTS</li> </ul>	



**B 7 – BRASS FITTINGS/ MISCELLANEOUS:**

Effective Date: 01-01-19  
 Revision #: 2

**SPECIFICATION/MATERIAL:**

Nipples, caps, plugs, tees, bend, and bushings shall meet or exceed the performance specifications of:

- Brass body conforming to AWWA C800 (ASTM Standards B62 85-5-5-5) or the latest revisions thereof.
- All threads shall be standard iron pipe thread.
- All nipples shall conform to ASTM Standards B43 (Red Brass Nipples) or latest revision thereof.

**CONNECTIONS:**

- Male iron pipe thread X male iron pipe thread.
- Female iron pipe thread X female iron pipe thread.
- Male iron pipe thread X female iron pipe thread.




**MANUFACTURER:**

- A.Y. MCDONALD
- BOSHART INDUSTRIES
- CAMBRIDGE BRASS
- FORD
- LEE BRASS
- MERIT BRASS

**RESTRICTIONS:**



<b>B 8 – FLANGED JOINT FITTINGS (AWWA C110):</b>		Effective Date: <u>01-01-19</u> Revision #: <u>2</u>
<p><b><u>SPECIFICATION/MATERIAL:</u></b> Flanged fittings shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• Fittings shall be ductile iron per ASTM A536 or cast iron per ASTM A 126.</li> <li>• Shall be produced in accordance with laying lengths specified in ANSI/ AWWA C110/ A 21.1 0.</li> <li>• Rubber gasket joints in accordance with ANSI/AWWA C111/A21.11.</li> <li>• Flange surface shall be faced and drilled in accordance with ANSI Class 125 B16.1.</li> <li>• Nuts, bolts and gaskets shall be designed to withstand the design and test pressures of the pipe.</li> <li>• All fittings shall have distinctly cast upon them the manufacture's identification, pressure rating, nominal diameter and number of degrees or fraction of a circle on all bends.</li> <li>• Fittings supplied must have ISO 9001 or later certification, or poured in a foundry located in the U.S.A.</li> <li>• Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 61.</li> <li>• Factory Mutual Approved (FM) and Underwriter Laboratory Listed (UL) as noted by (UUFM) for sizes four 4" thru 12". Markings must be cast on the fitting at time of manufacture to meet this requirement.</li> <li>• Affidavit of compliance to this specification shall be available upon request.</li> <li>• Bosses and base elbows may be required.</li> </ul> <p><b><u>PRESSURE RATING:</u></b></p> <ul style="list-style-type: none"> <li>• Minimum of 250-psi. for sizes 4" thru 24".</li> </ul>	<p><b><u>COATING &amp; LINING:</u></b> <b>Potable and Reclaimed Water:</b></p> <ul style="list-style-type: none"> <li>• Exterior coating: asphaltic or red epoxy coating.</li> <li>• AWWA C104 (ANSI-A21.4), cement mortar lining and asphaltic coating.</li> <li>• AWWA C116 (ANSI-A21 .16) epoxy coating both inside and out.</li> </ul> <p><b>Sanitary Sewer and Force Mains:</b></p> <ul style="list-style-type: none"> <li>• Exterior coating: asphaltic or red epoxy coating.</li> <li>• Sewer pipe shall have the interior coated (factory applied) or approved equal with an amine cured novolac epoxy, containing at least 20% by volume of ceramic quartz pigment "PROTECTO 401" (40 mils nominal) or polyamine ceramic epoxy containing at least 20% by volume ceramic hollow microspheres "TNEMEC SERIES 431 PERMASHIELD PL" (40 mils nominal).</li> </ul> <div style="text-align: center;">  </div>	
<b><u>RESTRICTIONS:</u></b>	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• AMERICAN CAST IRON</li> <li>• CLOW</li> <li>• MCWANE, INC.</li> <li>• SIGMA CORP</li> <li>• STAR PIPE PRODUCTS</li> <li>• TYLER UNION FOUNDRY</li> <li>• US PIPE</li> <li>• SIP INDUSTRIES</li> </ul>	

<b>B 8.1 – FLANGE JOINT ACCESSORY KITS:</b>		Effective Date: <u>01-01-19</u> Revision #: <u>2</u>
<p><b><u>SPECIFICATION/MATERIAL:</u></b> Flange Joint Accessory Kits shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• Designed to work with flange pipe and fittings per ANSI/ AWWAC110/A21.10 and ANSI B16.1 125 pound class.</li> <li>• Rubber gasket joints in accordance with ANSI/AWWA C111/A21.11.</li> <li>• Nuts, bolts and gaskets shall be designed to withstand the design and test pressures of the pipe.</li> <li>• Flat ring gaskets are acceptable, but full face gaskets are preferred.</li> </ul> <p><b><u>HEX BOLTS, NUTS &amp; LOCK WASHERS:</u></b></p> <ul style="list-style-type: none"> <li>• Threads per ANSI B1 .1 course thread series, Class 2A external and Class 2B internal.</li> <li>• Stainless steel, Type 316.</li> </ul> <p><b><u>GASKET:</u></b></p> <ul style="list-style-type: none"> <li>• Synthetic red rubber per ASTM 13303.</li> <li>• SBR- Buna-S.</li> <li>• EPDM (ethylene propylene).</li> <li>• NBR- Nitrile Buna-N.</li> <li>• Viton; Fluorel (FKM).</li> </ul> <p><b><u>REQUIREMENTS:</u></b></p> <ul style="list-style-type: none"> <li>• Each accessory kit shall be a boxed package.</li> </ul>	<p><b><u>INCLUDE:</u></b></p> <ul style="list-style-type: none"> <li>• One (1) rubber gasket.</li> <li>• Proper number and size of bolts and nuts required for each pipe fitting face.</li> <li>• Proper number and size lock washers when required.</li> </ul> <p><b><u>ADDITIONAL REQUIREMENTS:</u></b></p> <ul style="list-style-type: none"> <li>• Lock washers are required when installed as part of a sewer pumping facility.</li> </ul> <div style="text-align: center;">  </div>	
<p><b><u>RESTRICTIONS:</u></b> _</p>	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• AMERICAN CAST IRON</li> <li>• CLOW</li> <li>• GRIFFIN PIPE PRODUCTS</li> <li>• MCWANE, INC.</li> <li>• SIGMA CORP.</li> <li>• STAR PIPE PRODUCTS</li> <li>• TYLER UNION FOUNDRY</li> <li>• US PIPE</li> </ul>	

<b>B 9 – MECHANICAL JOINT FITTINGS (AWWA C110 FULL BODY), (4" THRU 36"):</b>		Effective Date: <u>01-01-19</u> Revision #: <u>2</u>
<p><b><u>SPECIFICATION/MATERIAL:</u></b> Mechanical joint, full body, fittings shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• Fittings shall be ductile iron per ASTM A536.</li> <li>• Shall be produced in accordance with laying lengths and body thickness specified in ANSI/ AWWA C110/ A 21.10.</li> <li>• Rubber gasket joints in accordance with ANSI/ AWWA C111/A21.11.</li> <li>• All fittings shall have distinctly cast upon them the manufacture's identification, pressure rating, nominal diameter and number of degrees or fraction of a circle on all bends.</li> <li>• Ductile iron fittings shall have the letters "01" or "Ductile" cast on them.</li> <li>• Fittings supplied must have ISO 9001 or later certification, or poured in a foundry located in the U.S.A.</li> <li>• Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 61.</li> <li>• Sizes four (4") thru twelve (12") inch Factory Mutual Approved (FM) or Underwriter Laboratory Listed (UL) is required. Marking must be cast on the fitting at time of manufacture to meet this requirement.</li> <li>• Affidavit of compliance to this specification shall be available upon request.</li> </ul> <p><b><u>COATING &amp; LINING:</u></b> <b>Potable and Reclaimed Water:</b></p> <ul style="list-style-type: none"> <li>• Exterior coating: asphaltic coating.</li> <li>• AWWA C104 (ANSI-A21.4), cement mortar lining and asphaltic coating.</li> <li>• AWWA C116 (ANSI-A21.16) epoxy coating both inside and out.</li> </ul> <p><b>Sanitary Sewer and Force Mains:</b></p> <ul style="list-style-type: none"> <li>• Exterior coating: asphaltic coating.</li> <li>• Sewer pipe shall have the interior coated (factory applied) or approved equal with an amine cured novolac epoxy, containing at least 20% by volume of ceramic quartz pigment "PROTECTO 401" or "PERMOX CTF" (40 mils nominal) or polyamine ceramic epoxy containing at least 20% by volume ceramic hollow microspheres "TNEMEC SERIES 431 PERMASHIELD PL" (40 mils nominal).</li> </ul>	<p><b><u>PRESSURE RATING:</u></b></p> <ul style="list-style-type: none"> <li>• Minimum of 350-psi. for sizes 4" thru 24".</li> <li>• Minimum of 250-psi. for sizes 30" thru 36".</li> </ul> 	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• AMERICAN CAST IRON</li> <li>• CLOW</li> <li>• MCWANE, INC.</li> <li>• SIGMA CORP.</li> <li>• STAR PIPE PRODUCTS</li> <li>• TYLER UNION FOUNDRY</li> <li>• US PIPE</li> </ul>

<p><b>B 9 – CONTINUED:</b></p>	
<p><b><u>RESTRICTIONS:</u></b></p>	

<b>B 10 – MECHANICAL JOINT FITTINGS (AWWA C153 COMPACT BODY), (4" THRU 48"):</b>		Effective Date: <u>01-01-19</u> Revision #: <u>2</u>
<p><b><u>SPECIFICATION/MATERIAL:</u></b> Mechanical joint, compact or short body, fittings shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>• Fittings shall be ductile iron.</li> <li>• Shall be produced in accordance with laying lengths and body thickness specified in ANSI/ AWWA C153/ A 21.53.</li> <li>• Rubber gasket joints in accordance with ANSI/ AWWA C111/ A21 .11.</li> <li>• Exterior shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of zinc shall be 200 g/m2 of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The zinc coating system shall conform to ISO 8179-1 "Ductile iron pipe – External zinc based coating – Part 1: Metallic zinc with finishing layer.</li> <li>• All fittings shall have distinctly cast upon them the manufacture's identification, pressure rating, nominal diameter and number of degrees or fraction of a circle on all bends.</li> <li>• Ductile iron fittings shall have the letters "DI" or "Ductile" cast on them.</li> <li>• Fittings supplied must have ISO 9001 or later certification, or poured in a foundry located in the U.S.A.</li> <li>• Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 61.</li> <li>• Sizes 4" thru 12" Factory Mutual Approved (FM) or Underwriter Laboratory Listed (UL) is required. Marking must be cast on the fitting at time of manufacture to meet this requirement.</li> <li>• Affidavit of compliance to this specification shall be available upon request.</li> </ul> <p><b><u>PRESSURE RATING:</u></b></p> <ul style="list-style-type: none"> <li>• Minimum of 350-psi. for sizes 4" thru 24".</li> <li>• Minimum of 250-psi. for sizes 30" thru 36".</li> </ul>	<p><b><u>COATING &amp; LINING:</u></b> <b>Potable Water:</b></p> <ul style="list-style-type: none"> <li>• Exterior - AWWA C151 (ANSI-A21.51) per above ISO 8179- 1 requirements.</li> <li>• Interior - AWWA C104 (ANSI-A21.4), cement mortar lining and asphaltic coating.</li> </ul> <p><b>Sanitary Sewers and Force Mains:</b></p> <ul style="list-style-type: none"> <li>• Exterior - AWWA C151 (ANSIA21.51) per above ISO 8179-1 requirements.</li> <li>• Interior - Coated (factory applied) or approved equal with an amine cured novolac epoxy, containing at least 20% by volume of ceramic quartz pigment "PROTECTO 401" or "PERMOX CTF" (40 mils nominal) or polyamine ceramic epoxy containing at least 20% by volume ceramic hollow microspheres "TNESEC SERIES 431 PERMA-SHIELD PL" (40 mils nominal).</li> <li>• The inside of the bell socket including a portion of the gasket cavity and a portion of the pipe barrel are coated with 8-mils (minimum) of epoxy.</li> </ul> <div style="text-align: center;">  </div>	
<p><b><u>RESTRICTIONS:</u></b></p>	<p><b><u>MANUFACTURER:</u></b></p> <ul style="list-style-type: none"> <li>• AMERICAN CAST IRON</li> <li>• CLOW</li> <li>• MCWANE, INC.</li> <li>• SIGMA CORP.</li> <li>• STAR PIPE PRODUCTS</li> <li>• TYLER UNION FOUNDRY</li> <li>• US PIPE</li> <li>• SIP INDUSTRIES</li> </ul>	

**B 11 – MECHANICAL JOINT ACCESSORY KITS:**

Effective Date: 01-01-19  
 Revision #: 2

**SPECIFICATION/MATERIAL:**

Mechanical Joint Ductile Iron Pipe Fitting Accessory Kits shall meet or exceed the performance specifications of:

- Rubber gasket joints in accordance with ANSI/AWWA C111/A21.11 and the latest revisions thereto.
- Accessory kits for 4" through 12" sizes shall also conform to ANSI/AWWA C153/A21.53 and the latest revisions thereto.
- Accessory kits for 14" through 36" sizes shall also conform to ANSI/AWWA C110/A21.10 and the latest revisions thereto.
- Nuts, bolts and gaskets shall be designed to withstand the design and test pressures of the pipe.
- Mechanical joint glands shall be ductile iron.
- Tee bolts and nuts shall be 316 SS.
- Glands supplied must have ISO 9001 or later certification, or poured in a foundry located in the U.S.A.



**GASKET MATERIAL:**

- SBR- Buna-S.
- EPDM (ethylene propylene).
- NBR- Nitrile Buna-N.
- Viton; Fluorel (FKM).

**INCLUDE:**

- One (1) ductile iron gland.
- One (1) rubber gasket:
- Proper number of 316SS bolts and nuts required for each pipe fitting face.

**MANUFACTURER:**

- AMERICAN CAST IRON
- CLOW
- GRIFFIN PIPE PRODUCTS
- MCWANE, INC.
- SIGMA CORP.
- STAR PIPE PRODUCTS
- TYLER UNION FOUNDRY
- US PIPE
- MIDWEST (BOLTS)
- ACTIVE SCREW (BOLTS)

**RESTRICTIONS:**



**B 12 – MECHANICAL JOINT CONNECTOR:**

Effective Date: 01-01-19  
 Revision #: 2

**SPECIFICATION:**

- Material supplied must have ISO 9001 or later certification, or poured in a foundry located in the U.S.A.
- Restraint devices for nominal pipe sizes 4” thru 24” shall consist of joining two mechanical joint fittings or a fitting to a valve, incorporated into a gland that shall meet or exceed the following:

**MATERIAL:**

- Ductile iron conforming to ASTM Standards A 80-55-06 and the Latest revision thereto.
- Supplied with a fusion epoxy coating both inside and out in accordance with AWWA C116 (ANSIA21.16).

**NUTS AND BOLTS:**

- 316 stainless steel conforming to AWWA C111/A21.11 AND ASTM Standards A242.

**GASKET:**

Standard mechanical joint (MJ) gaskets conforming to:

- AWWA C111/ ASTM Standards F-477, made of:
- SBR– Buna-S.
- EPDM– Ethylene Propylene.
- NBR– Nitrile Buna-N.

**INCLUDE:**

- 1 each – Foster Adaptor.
- 2 each – Proper size MJ Gaskets.
- Proper number and size 316 stainless steel bolts and nuts.




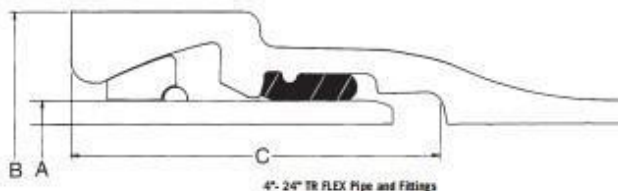
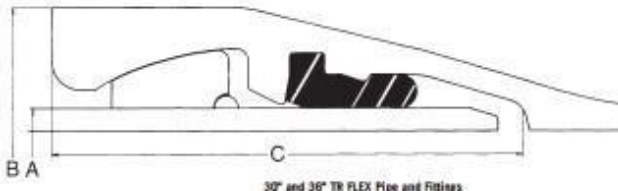
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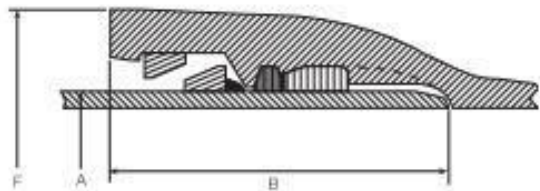
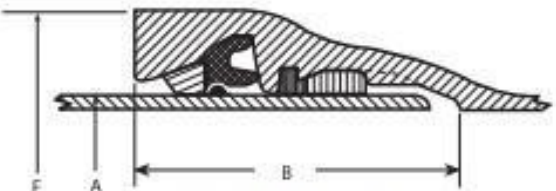
- INFACOT CORPORATION– FOSTER ADAPTER
- OPEN

**RESTRICTIONS:**

- May not fit both “run” and “branch” on compact tees or crosses.
- Must have epoxy coating (not visible in all photos).
- CFPUA approval required.



<b>B 13 – PUSH-ON JOINT RESTRAINED FITTINGS (4" THRU 36") TR FLEX:</b>		Effective Date: <u>01-01-19</u> Revision #: <u>2</u>
<p><b>SPECIFICATION/MATERIAL:</b> Push-on restrained fittings shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>Fittings shall be ductile iron, per ASTM A536, and have a modified Tyton Joint socket connection.</li> <li>Shall use ductile iron locking segments, inserted through a slot (or slots) in the bell face, to provide a positive axial lock between the bell interior surface and a retainer weldment on the spigot end of the pipe.</li> <li>Shall be produced in accordance with principals specified in ANSI/ AWWA C110/ A 21.10 and ANSI/ AWWA C153/ A21.53.</li> <li>Exterior shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of zinc shall be 200 g/m<sup>2</sup> of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The zinc coating system shall conform to ISO 8179-1 "Ductile iron pipe – External zinc based coating – Part 1: Metallic zinc with finishing layer.</li> <li>Rubber gasket joints in accordance with ANSI/ AWWA C111/A21.11.</li> <li>All fittings shall have distinctly cast upon them the manufacture's identification, pressure rating, nominal diameter and number of degrees or fraction of a circle on all bends.</li> <li>Fittings supplied must have ISO 9001 or later certification, or poured in a foundry located in the U.S.A.</li> <li>Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 61.</li> <li>Affidavit of compliance to this specification shall be available upon request.</li> </ul> <p><b>PRESSURE RATING:</b></p> <ul style="list-style-type: none"> <li>Minimum of 350-psi for sizes 4" thru 24".</li> <li>Minimum of 250-psi for sizes 30" thru 36".</li> </ul>	<p><b>COATING &amp; LINING:</b> <b>Potable Water:</b></p> <ul style="list-style-type: none"> <li>Exterior - AWWA C151 (ANSI-A21.51) per above ISO 8179- 1 requirements.</li> <li>Interior - AWWA C104 (ANSI-A21.4), cement mortar lining and asphaltic coating.</li> </ul> <p><b>Sanitary Sewers and Force Mains:</b></p> <ul style="list-style-type: none"> <li>Exterior - AWWA C151 (ANSIA21.51) per above ISO 8179-1 requirements.</li> <li>Interior - Coated (factory applied) or approved equal with an amine cured novolac epoxy, containing at least 20% by volume of ceramic quartz pigment "PROTECTO 401" or "PERMOX CTF" (40 mils nominal) or polyamine ceramic epoxy containing at least 20% by volume ceramic hollow microspheres "TNEMEC SERIES 431 PERMA-SHIELD PL" (40 mils nominal).</li> </ul> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div>	
<p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>US Pipe-Red Field Lok 350 gasket shall be used for field cut pipe connections which do not have a factory weldment.</li> <li>Plain end fittings not allowed.</li> </ul>	<p><b>MANUFACTURER:</b></p> <ul style="list-style-type: none"> <li>AMERICAN CAST IRON – FLEX-RING</li> </ul>	

<p><b>B 14 – PUSH-ON JOINT RESTRAINED FITTINGS (4" THRU 48") FLEX-RING:</b></p>		<p>Effective Date: <u>01-01-19</u> Revision #: <u>2</u></p>
<p><b>SPECIFICATION/MATERIAL:</b> Push-on restrained fittings shall meet or exceed the performance specifications of:</p> <ul style="list-style-type: none"> <li>Fittings shall be ductile iron, per ASTM A536, and have a modified Fastite Joint socket connection.</li> <li>Shall use ductile iron locking segments, inserted through a slot (or slots) in the bell face, to provide a positive axial lock between the bell interior surface and a retainer weldment on the spigot end of the pipe.</li> <li>Shall be produced in accordance with principals specified in ANSI/ AWWA C110/ A 21.10 and ANSI/ AWWA C153/ A21.53.</li> <li>Exterior shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of zinc shall be 200 g/m<sup>2</sup> of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The zinc coating system shall conform to ISO 8179-1 "Ductile iron pipe – External zinc based coating – Part 1: Metallic zinc with finishing layer.</li> <li>Rubber gasket joints in accordance with ANSI/ AWWA C111/A21.11.</li> <li>All fittings shall have distinctly cast upon them the manufacture's identification, pressure rating, nominal diameter and number of degrees or fraction of a circle on all bends.</li> <li>Fittings supplied must have ISO 9001 or later certification, or poured in a foundry located in the U.S.A.</li> <li>Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 61.</li> <li>Affidavit of compliance to this specification shall be available upon request.</li> </ul> <p><b>PRESSURE RATING:</b></p> <ul style="list-style-type: none"> <li>Minimum of 350-psi for sizes 4" thru 24".</li> <li>Minimum of 250-psi for sizes 30" thru 48".</li> </ul>	<p><b>COATING &amp; LINING:</b> <b>Potable Water:</b></p> <ul style="list-style-type: none"> <li>Exterior - AWWA C151 (ANSI-A21.51) per above ISO 8179- 1 requirements.</li> <li>Interior - AWWA C104 (ANSI-A21.4), cement mortar lining and asphaltic coating.</li> </ul> <p><b>Sanitary Sewers and Force Mains:</b></p> <ul style="list-style-type: none"> <li>Exterior - AWWA C151 (ANSIA21.51) per above ISO 8179-1 requirements.</li> <li>Interior - Coated (factory applied) or approved equal with an amine cured novolac epoxy, containing at least 20% by volume of ceramic quartz pigment "PROTECTO 401" or "PERMOX CTF" (40 mils nominal) or polyamine ceramic epoxy containing at least 20% by volume ceramic hollow microspheres "TNEMEC SERIES 431 PERMA-SHIELD PL" (40 mils nominal).</li> </ul> <div style="text-align: center;">  <p><b>4"-12" Flex-Ring</b></p>  <p><b>16"-48" Flex-Ring</b></p> </div>	
<p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>American Amarillo Fast Grip gaskets shall be used for field cut pipe connections, which do not have a factory weldment.</li> <li>Plain end fittings are not allowed.</li> </ul>	<p><b>MANUFACTURER:</b></p> <ul style="list-style-type: none"> <li>AMERICAN CAST IRON – FLEX-RING</li> </ul>	

**B 15 - UNI-FIT WIDE RANGE ADAPTER:**

Effective Date: 01-01-19

Revision #: 2

**SPECIFICATION:**

Uni-fit wide range adapter shall meet or exceed the performance specifications of:

- Fittings shall be ductile iron per ASTM A536.
- Shall be manufactured in accordance with AWWA C110.
- Flange surface shall be flat faced and drilled in accordance with ANSI Class 125 B16.1.
- Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 61.

**MATERIAL:**

**Gasket:**

- EPDM (ethylene propylene)
- Styrene Butadiene Rubber (SBR)

**Bolts:**

- Stainless Steel Type 304

**Nuts and Washers:**

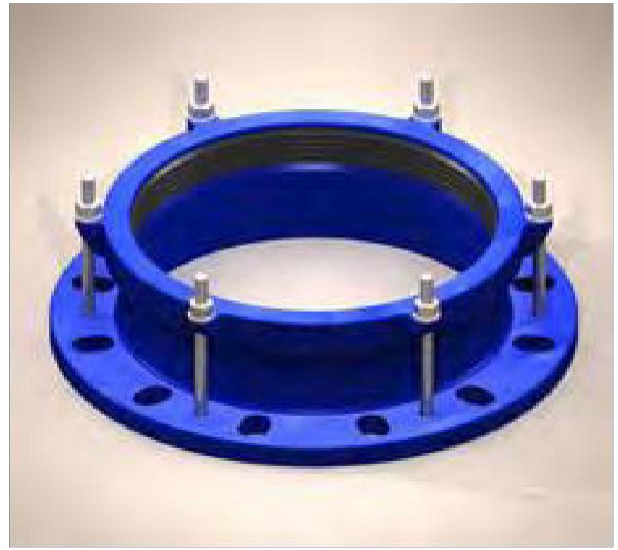
- Stainless Steel Type 304

**Coating:**

- Fusion Bonded Epoxy Coating Brass in compliance with AWWA C550

**REQUIREMENTS:**

- Minimum working pressure of 150 psi.



**MANUFACTURER:**

- NAPAC, INC. - Model 4428

**RESTRICTIONS:**

Use of this product is limited to:

- Installation of 3" and larger water meters