Spears FlameGuard® SourceBook



Understanding Column Header & Configuration Information

A variety of Column Header layouts are used to list product part numbers, options and product codes. The following are the most typical used: **Typical Fitting Column Header** label identifies the following product particulars:

Size Nominal diameter of pipe with which the fitting is to be used. NOTE: Fittings may be same size (only one size designation) or

reducing (multiple sizes designated).

Standard Pack (Std Pk)

The quantity of parts packaged in an individual box or bag.

Master Carton (Mstr Ctn)

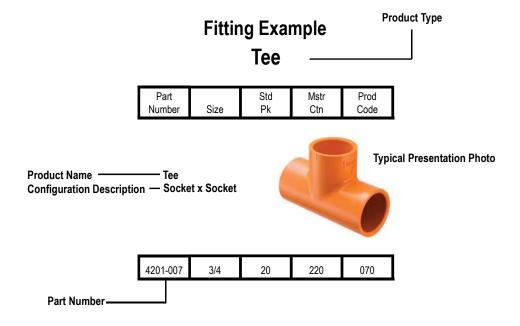
The total quantity of parts contained in individual boxes or bags which are packaged together.

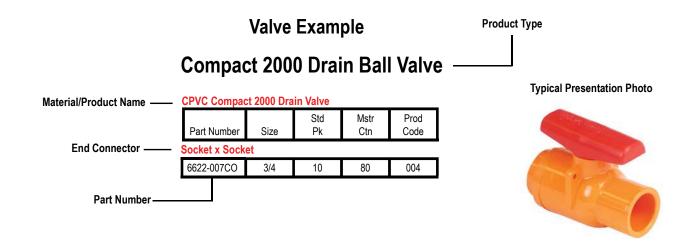
Product Code (Prod Code)

This is a Product Group code and is not a calculation of discount. Product codes are not the same for all products contained

in this product sourcebook.

Fitting and Valve Configuration Illustrations are accompanied by the product's name and a configuration description of the fitting outlet connections. Illustrations are general representations of the fittings in the group, but may not be an exact depiction of all configurations listed. As with the nominal size designations, only one description is given when all outlets are the same. Reducing sizes list run configuration x branch configuration.







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Please see our website at www.spearsmfg.com for the most current and up-to-date information regarding compatibility, warranties, product information and programs.



FlameGuard[®] System Overview

Spears® FlameGuard® . . . The Leader in Innovative **CPVC Fire Sprinkler System Products**

Corrosion Resistant CPVC Material Does Not Sustain Biological Growth

Unlike metal systems, FlameGuard® CPVC products never rust, scale or pit and do not sustain biological growth - a cause of Microbiologically Influenced Corrosion (MIC) which can destroy metal fire sprinkler systems from the inside out.

Superior Flow Characteristics for Lower Friction Losses

The smooth-wall interior surfaces of FlameGuard® CPVC systems result in reduced friction loss over metal systems. The design flow characteristics remain constant throughout the life of the product because there is no interior corrosion in the system due to microbiological activity.

Pressure Rated to 175 psi (1.21 Mpa) @ 150°F (66°C)

FlameGuard® CPVC Products are produced in combinations of Schedule 40 and Schedule 80 Fitting configurations conforming to ASTM F 438 or F 439 standards and FlameGuard® SDR 13.5 CPVC Fire Sprinkler Pipe conforming to ASTM F 442 standards. UL® Rated working pressure is 175 psi (1.21 Mpa) @ 150°F (66°C) (LPCB rated to 120°F) (49°C).

Easy Installation for Lower Costs

FlameGuard® CPVC system installations significantly reduce costs over conventional metal piping by virtually eliminating prefabrication. Systems can be fully installed on site using solvent cement joining methods.

UL® Listed for U.S. and Canada in NFPA 13, 13R & 13D Systems

FlameGuard® CPVC Fire Sprinkler Products are UL® listed for U.S. and Canada applications for Light Hazard occupancies as defined in NFPA 13, Residential occupancies up to and including 4-stories as defined in NFPA 13R, and Residential occupancies for one and two family dwellings and manufactured homes as defined in NFPA 13D. Consult Spears® FlameGuard® CPVC Fire Sprinkler Products Installation Instructions and NFPA Standards for additional applications including air plenum, system risers, concealed, exposed, underground, combustible attic, garage, basement and low pressure dry piping installations.

Full Limited Lifetime Warranty

FlameGuard® CPVC Fire Sprinkler Products carry a limited lifetime warranty against defects in material or workmanship. Consult Spears® warranty for additional details.

Pioneer in Molded-in Metal Insert Head Adapters

Spears® pioneered the development of the FlameGuard® molded-in-place metal thread insert for connection of sprinkler heads to CPVC fire sprinkler systems, plus Metal FIPT threaded female adapters for metal-to-plastic transitions.

Developed the Special Reinforced (SR) Head Adapters

Spears® FlameGuard® continuous improvement program developed the technology to produce a superior patented plastic threaded fitting - the Special Reinforced (SR) Design. This unique design incorporates a patented thermoplastic compression process that equalizes stresses generated by tapered thread joint make-up. All CPVC plastic body and threads provide a more uniform construction and improved corrosion resistance.



Spears® Manufacturing Company

FlameGuard® System Overview



Now, the Revolutionary TorqueSafe[™] Gasket Sealed Head Adapter

• Requires NO Thread Sealants • Eliminates Stress • Prevents Over Tightening • Provides Easy Frame Alignment • Spears® revolutionary design features a special molded-in-place Brass Thread Insert fitted with an elastomer gasket seal at the base of the threads. The gasket seal allows a modified thread design that eliminates radial stress and associated problems typical with tapered thread joint make up. The insert is designed to rotate for easy sprinkler frame alignment without overtightening.

Full Assortment of Specialty Products & Fitting Configurations

Spears® **FlameGuard®** provides the specialty fittings needed in today's fire sprinkler systems, such as the adjustable drop nipple for fine-tuning to finished ceiling height, and ringed head adapter for ease of locating during installation. Plus, Spears® **FlameGuard®** line offers a full assortment of CPVC fire sprinkler fitting configurations including Tees, Elbows, Flanges, Couplings, Repair Couplings, Caps, Male Adapters, Grooved Coupling Adapters and Unions, sizes 3/4" through 3"and an expanded assortment of GripLoc™ Couplings, Repair Couplings, Tees, 90° Elbows and Caps.

Complete Size Range of CPVC Pipe

Spears[®] FlameGuard[®] CPVC Fire Sprinkler Pipe is available in sizes 3/4" to 3". Conforms to ASTM F 442 standard for SDR 13.5 CPVC pipe.



Spears® Solvent Cements & Thread Sealant

FlameGuard® products should be installed using Spears® FS-5 One-Step Solvent Cement. For threaded joints, use Spears® **BLUE 75™** Thread Sealant that has been tested for compatibility with **FlameGuard®** CPVC Fire Sprinkler Products. Spears® **TorqueSafe™** Gasket Sealed Adapter requires no sealant. Consult sprinkler head manufacturer prior to use.





FlameGuard[®] System Overview

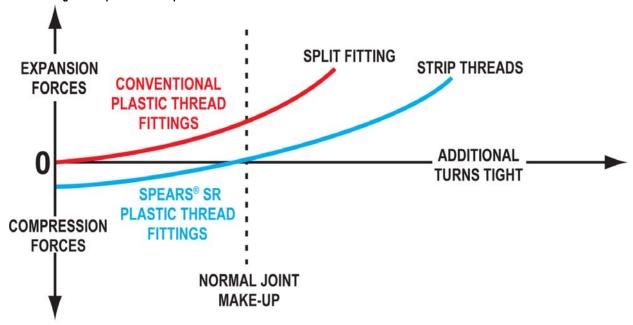
SPEARS® Patented SR Design Sprinkler Head Adapters



SPEARS® Patented Special Reinforced (SR) plastic female thread design is one of the most significant advancements in the use of CPVC Fire Sprinkler System threaded fittings. Not just an added ring, this unique precompression design compensates for expansion forces generated from tapered pipe thread joint make-up. Radial stress is no longer a problem in normal installations and easily managed in severe over-tightening situations.

Contains and Compensates for Radial Stress...

Radial stress, generated by tightening of tapered pipe threads, exerts tremendous expansion force on female plastic thread fittings. When subjected to over-tightening - even accidentally - these forces can literally split the fitting. Spears® patented SR Adapter design not only alleviates this problem by containing expansion forces with its special reinforced collar, but additionally compensates for expansion stress through thermoplastic material compression. Stresses are equalized at normal joint make-up. The following graph illustrates this effect in a comparison of conventional plastic female thread fittings with Spears® SR adapters when taken to failure.



Another Quality SPEARS® Product Designed for Performance, Customer Satisfaction and Service.



FlameGuard[®] CPVC Fire Sprinkler Products



PRODUCTS

See Spears® On-line Catalog @ www.spearsmfg.com for Pricing

Contact Spears® for any Information not found.



FlameGuard[®] CPVC Fire Sprinkler Piping Products

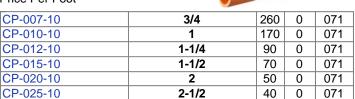
FlameGuard® CPVC Fire Sprinkler Piping Products

| Part Number | Size | Std | Mstr | Prod |
|-------------|------|-----|------|------|
| Part Number | Size | Pk | Ctn | Code |

Pipe - FlameGuard® CPVC Fire Sprinkler Plain End

SDR 13.5 10' Lengths

Price Per Foot



3

Pipe - FlameGuard® CPVC Fire Sprinkler Plain End

SDR 13.5, 15' Lengths

Price Per Foot

CP-030-10



30

0

071

| 3/4 | 390 | 0 | 071 |
|-------|-----------------------------------|---|---|
| 1 | 255 | 0 | 071 |
| 1-1/4 | 135 | 0 | 071 |
| 1-1/2 | 105 | 0 | 071 |
| 2 | 75 | 0 | 071 |
| 2-1/2 | 60 | 0 | 071 |
| 3 | 45 | 0 | 071 |
| | 1 1-1/4 1-1/2 2 2-1/2 | 1 255 1-1/4 135 1-1/2 105 2 75 2-1/2 60 | 1 255 0 1-1/4 135 0 1-1/2 105 0 2 75 0 2-1/2 60 0 |

Tee

Socket x Socket x Socket

| 4201-007 | 3/4 | 20 | 220 | 070 |
|----------|-------|----|-----|-----|
| 4201-010 | 1 | 15 | 105 | 070 |
| 4201-012 | 1-1/4 | 10 | 0 | 070 |
| 4201-015 | 1-1/2 | 10 | 0 | 070 |
| 4201-020 | 2 | 10 | 0 | 070 |
| 4201-025 | 2-1/2 | 10 | 0 | 070 |
| 4201-030 | 3 | 5 | 0 | 070 |

GripLoc™ Tee

WARNING: DO NOT INSERT FINGERS EPDM Gasket

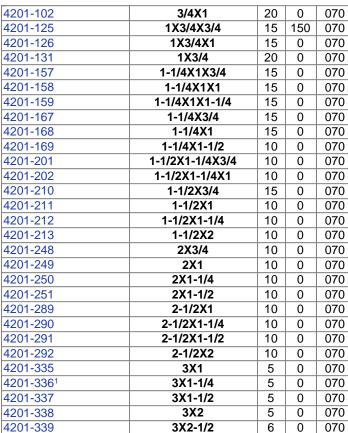
Uses No Solvent Cement - NSF® Certified Lead Free

| 175 psi (1.21 Mpa) @ 15 | 50° F (66°C) | | | |
|-------------------------|--------------|----|----|-----|
| GL4201-007 | 3/4 | 15 | 0 | 134 |
| GL4201-010 | 1 | 1 | 15 | 134 |



Reducing Tee

Socket x Socket x Socket



¹ Outlet sized with Bushing GripLoc™ Extension Tee

Socket x Socket x GripLoc™
WARNING: DO NOT INSERT FINGERS
EPDM Gasket

Uses No Solvent Cement - NSF_® Certified Lead Free 175 psi (1.21 Mpa) @ 150° F (66°C)

GLS4201-010 1 1 15 134

SofTorque™ SR Sprinkler Head Tee - Gasket Sealed Special Reinforced Plastic Thread Style Socket x SR Fipt - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant



| 4202-101GSR | 3/4X1/2 | 50 | 0 | 076 |
|-------------|-----------|----|---|-----|
| 4202-124GSR | 1X3/4X1/2 | 50 | 0 | 076 |
| 4202-130GSR | 1X1/2 | 20 | 0 | 076 |





FlameGuard® CPVC Fire Sprinkler Piping Products



FlameGuard® CPVC Fire Sprinkler Piping Products

| Size | | | |
|------|------|--|--------------------------------|
| | Size | | Size Std Mstr Prod Pk Ctn Code |

TorqueSafe™ Sprinkler Head Tee - Gasket Sealed **Brass Thread Insert Style**



| 4202-101 G | 3/4X1/2 | 50 | 0 | 076 |
|------------|-----------|----|---|-----|
| 4202-124 G | 1X3/4X1/2 | 50 | 0 | 076 |
| 4202-130 G | 1X1/2 | 50 | 0 | 076 |
| 4202-131 G | 1X3/4 | 50 | 0 | 076 |
| 4202-166 G | 1-1/4X1/2 | 15 | 0 | 076 |
| 4202-209 G | 1-1/2X1/2 | 10 | 0 | 076 |
| 4202-247 G | 2X1/2 | 10 | 0 | 076 |

FIPT With Elastomer Seal - Use NO Thread Sealant.

Not intended to convey or dispense water for human consumption through drinking or cooking

Sprinkler Head Tee - Brass Thread Insert Style

Socket x Socket x Fipt

| 4202-101 | 3/4X1/2 | 50 | 0 | 076 |
|----------|-----------------|----|----|-----|
| 4202-124 | 1X3/4X1/2 | 50 | 0 | 076 |
| 4202-130 | 1X1/2 | 50 | 0 | 076 |
| 4202-010 | 1 | 10 | 40 | 076 |
| 4202-156 | 1-1/4X1X1/2 | 15 | 0 | 076 |
| 4202-166 | 1-1/4X1/2 | 15 | 0 | 076 |
| 4202-199 | 1-1/2X1-1/4X1/2 | 10 | 0 | 076 |
| 4202-209 | 1-1/2X1/2 | 10 | 0 | 076 |
| 4202-237 | 2X1-1/2X1/2 | 10 | 0 | 076 |
| 4202-247 | 2X1/2 | 10 | 0 | 076 |

Not intended to convey or dispense water for human consumption through drinking or cooking

Sprinkler Head Tee - Special Reinforced Plastic Thread Style

Socket x Socket x SR Fipt - Stainless Steel Collar

NSF Certified Lead-Free

| NSF® Certified Lead-Free | | | | | | |
|--------------------------|---|--|---|--|--|--|
| 1 | 15 | 0 | 076 | | | |
| 3/4X1/2 | 50 | 0 | 076 | | | |
| 1X3/4X1/2 | 50 | 0 | 076 | | | |
| 1X1/2 | 50 | 0 | 076 | | | |
| 1X3/4 | 15 | 0 | 076 | | | |
| 1-1/4X1X1/2 | 15 | 0 | 076 | | | |
| 1-1/4X1/2 | 15 | 0 | 076 | | | |
| 1-1/4X1 | 15 | 0 | 076 | | | |
| 1-1/2X1-1/4X1/2 | 10 | 0 | 076 | | | |
| 1-1/2X1/2 | 25 | 0 | 076 | | | |
| 1-1/2X1-1/2X1 | 10 | 0 | 076 | | | |
| 2X1-1/2X1/2 | 10 | 0 | 076 | | | |
| 2X1/2 | 10 | 0 | 076 | | | |
| 2-1/2X1/2 | 10 | 0 | 076 | | | |
| | 1 3/4X1/2 1X3/4X1/2 1X1/2 1X3/4 1-1/4X1X1/2 1-1/4X1/2 1-1/4X1 1-1/2X1-1/4X1/2 1-1/2X1-1/2X1/2 2X1-1/2X1/2 | 1 15 3/4X1/2 50 1X3/4X1/2 50 1X1/2 50 1X1/2 50 1X3/4 15 1-1/4X1X1/2 15 1-1/4X1/2 15 1-1/4X1 15 1-1/2X1-1/4X1/2 10 1-1/2X1/2 25 1-1/2X1/2 10 2X1-1/2X1/2 10 | 1 15 0 3/4X1/2 50 0 1X3/4X1/2 50 0 1X3/4X1/2 50 0 1X1/2 50 0 1X3/4 15 0 1-1/4X1X1/2 15 0 1-1/4X1/2 15 0 1-1/4X1 15 0 1-1/2X1-1/4X1/2 10 0 1-1/2X1/2 25 0 1-1/2X1/2 10 0 2X1-1/2X1/2 10 0 2X1/2 10 0 | | | |

| Part Number | Size | Std | Mstr | Prod | |
|-------------|---------------|------|------|------|------|
| | rait Nullibei | Size | Pk | Ctn | Code |

SofTorque™ SR Sprinkler Head Tee - Gasket Sealed Special Reinforced Plastic Thread Style Socket x SR Fipt x Socket - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant



NSF® Certified Lead Free

| 4203-122GSR | 1X1/2X1 | 50 | 0 | 076 |
|-------------|---------|----|---|-----|
|-------------|---------|----|---|-----|

TorqueSafe™ Sprinkler Head Tee - Gasket Sealed **Brass Thread Insert Style**

Socket x Gasket Fipt x Socket With Elastomer Seal - Use NO Thread Sealant

through drinking or cooking

1202 122 C

| 4203-122 G | 171/271 | 50 | 0 | 070 |
|----------------------------|-----------------------|-------|--------|--------|
| FIPT With Elastomer Seal - | Jse NO Thread Sealant | | | |
| Not intended to convey | or dispense water for | human | consur | nption |

4 V 4 IOV 4

TorqueSafe™ Back-To-Back Sidewall Sprinkler **Head Tee - Gasket Sealed Brass Thread Insert** Style (1-3/16 Take Out)

Gasket Fipt x Gasket Fipt x Socket With **Elastomer Seal - Use NO Thread Sealant**

| 4243S-075 G | 1/2X1 | 50 | 0 | 076 |
|------------------------------|-------|----|---|-----|
| FIPT with Flastomer Seal - L | | | | |

Not intended to convey or dispense water for human consumption through drinking or cooking

TorqueSafe™ Back-To-Back Sidewall Sprinkler **Head Tee - Gasket Sealed Brass Thread Insert** Style (1-5/16 Take Out)

Gasket Fipt x Gasket Fipt x Socket With Elastomer Seal - Use NO Thread Sealant

| 4243L-075 G | 1/2X1 | 50 | 0 | 076 |
|-------------|-------|----|---|-----|
| | | | | |

FIPT With Elastomer Seal - Use NO Thread Sealant Not intended to convey or dispense water for human consumption through drinking or cooking

Sprinkler Head Tee - Brass Thread Insert Style

Socket x Fipt x Socket

| 4203-122 | 1X1/2X1 | | | | 50 | 0 076 | | |
|---|---------|----------|-------|-----|----|-------|-------|---------|
| Not intended to convey through drinking or cooking | | dispense | water | for | h | uman | consu | ımption |

Sprinkler Head Tee - Special Reinforced Plastic **Thread Style**

Socket x SR Fipt x Socket - Stainless Steel

NSF® Certified Lead-Free

| 4203-122SR 1X1/2X1 50 0 076 | | | | | |
|-----------------------------|------------|---------|----|---|-----|
| | 4203-122SR | 1X1/2X1 | 50 | 0 | 076 |







FlameGuard® CPVC Fire Sprinkler Piping Products

FlameGuard® CPVC Fire Sprinkler Piping Products

| Part Number | Size | | | Prod Code | |
|-------------|------|--|--|--------------|--|
|-------------|------|--|--|--------------|--|

Street Tee

Spigot x Socket x Socket

| 4244-007 | 3/4 | 15 | 105 | 070 |
|----------|-------|----|-----|-----|
| 4244-010 | 1 | 15 | 0 | 070 |
| 4244-012 | 1-1/4 | 10 | 0 | 070 |
| 4244-015 | 1-1/2 | 10 | 0 | 070 |
| 4244-020 | 2 | 10 | 0 | 070 |



90° EII

Socket x Socket

| 4206-007 | 3/4 | 30 | 300 | 070 |
|----------|-------|----|-----|-----|
| 4206-010 | 1 | 20 | 200 | 070 |
| 4206-012 | 1-1/4 | 10 | 100 | 070 |
| 4206-015 | 1-1/2 | 10 | 0 | 070 |
| 4206-020 | 2 | 25 | 0 | 070 |
| 4206-025 | 2-1/2 | 5 | 0 | 070 |
| 4206-030 | 3 | 5 | 0 | 070 |

90° EII - Sweep

Socket x Socket

| 3/4 | 25 | 100 | 070 |
|-------|-----------------------------------|--|--|
| 1 | 30 | 0 | 070 |
| 1-1/4 | 25 | 0 | 070 |
| 1-1/2 | 20 | 0 | 070 |
| 2 | 25 | 0 | 070 |
| 2-1/2 | 10 | 0 | 070 |
| 3 | 10 | 0 | 070 |
| | 1 1-1/4 1-1/2 2 2-1/2 | 1 30 1-1/4 25 1-1/2 20 2 25 2-1/2 10 | 1 30 0 1-1/4 25 0 1-1/2 20 0 2 25 0 2-1/2 10 0 |



GripLoc™ 90° EII

WARNING: DO NOT INSERT FINGERS EPDM Gasket

| 175 psi (1.21 Mpa) @ 15 | 50° F (66°C) | | | |
|-------------------------|--------------|----|----|-----|
| GL4206-007 | 3/4 | 20 | 0 | 134 |
| GL4206-010 | 1 | 1 | 20 | 134 |

Uses No Solvent Cement - NSF® Certified Lead Free



Socket x Socket

| 4206-131 | 1X3/4 | 20 | 240 | 070 |
|----------|---------|----|-----|-----|
| 4206-168 | 1-1/4X1 | 15 | 0 | 070 |



SofTorque™ SR 90° Sprinkler Head Elbow -Gasket Sealed Special Reinforced Plastic Thread Style

Socket x SR Fipt - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant

NSF® Certified Lead-Free

| | •• | | | |
|-------------|-----------|----|-----|-----|
| 4207-101GSR | 3/4X1/2 | 20 | 140 | 076 |
| 4207-130GSR | 1X1/2 | 20 | 80 | 076 |
| 4207-166GSR | 1-1/4X1/2 | 15 | 60 | 076 |

TorqueSafe™ 90° Sprinkler Head Elbow - Gasket Sealed Brass Thread Insert Style

Socket x Gasket Fipt With Elastomer Seal - Use NO Thread Sealant



FIPT With Elastomer Seal - Use NO Thread Sealant.

Not intended to convey or dispense water for human consumption through drinking or cooking

Sprinkler Head 90° Ell - Brass Thread Insert Style

Socket x Fipt



Not intended to convey or dispense water for human consumption through drinking or cooking

Sprinkler Head 90° Ell - Special Reinforced Plastic Thread Style

Socket x SR Fipt - Stainless Steel Collar

NSF® Certified Lead-Free

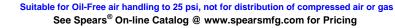
| NOI ® Certified Lead-1 16 | - | | | |
|---------------------------|-----------|----|-----|-----|
| 4207-101SR | 3/4X1/2 | 20 | 180 | 076 |
| 4207-130SR | 1X1/2 | 10 | 150 | 076 |
| 4207-131SR | 1X3/4 | 50 | 0 | 076 |
| 4207-166SR | 1-1/4X1/2 | 25 | 0 | 076 |

90° Street Ell

Spigot x Socket

| 4209-007 | 3/4 | 50 | 0 | 070 |
|----------|-------|----|---|-----|
| 4209-010 | 1 | 50 | 0 | 070 |
| 4209-012 | 1-1/4 | 25 | 0 | 070 |
| 4209-015 | 1-1/2 | 10 | 0 | 070 |
| 4209-020 | 2 | 25 | 0 | 070 |





FlameGuard® CPVC Fire Sprinkler Piping Products



FlameGuard® CPVC Fire Sprinkler Piping Products

| Part Number | Size | Std | Mstr | Prod |
|-------------|------|-----|------|------|
| Fait Number | Size | Pk | Ctn | Code |

| Part Number | Size | | | Prod Code |
|----------------------------|------|----|---|--------------|
| 45° Street Ell (continued) | | | | |
| Spigot x Socket | | | | |
| 4227-020 | 2 | 20 | 0 | 070 |

Side Outlet Ell

Socket x Socket x Socket

| 4213-007 | 3/4 | 50 | 0 | 070 |
|----------|-----|----|---|-----|
| 4213-010 | 1 | 25 | 0 | 070 |



Socket x Socket x Socket



| 4213-010 | 1 | 25 | 0 | 070 |
|----------|---|----|---|-----|
| | | | | |

22-1/2° EII

Socket x Socket

| 4216-007 | 3/4 | 20 | 360 | 070 |
|----------|-------|----|-----|-----|
| 4216-010 | 1 | 20 | 240 | 070 |
| 4216-012 | 1-1/4 | 20 | 0 | 070 |
| 4216-015 | 1-1/2 | 20 | 0 | 070 |
| 4216-020 | 2 | 20 | 0 | 070 |
| 4216-025 | 2-1/2 | 5 | 0 | 070 |
| 4216-030 | 3 | 5 | 0 | 070 |

| 4220-007 | 3/4 | 20 | 0 | 070 |
|----------|-------|----|---|-----|
| 4220-010 | 1 | 15 | 0 | 070 |
| 4220-012 | 1-1/4 | 10 | 0 | 070 |
| 4220-015 | 1-1/2 | 10 | 0 | 070 |
| 4220-020 | 2 | 8 | 0 | 070 |
| 4220-025 | 2-1/2 | 5 | 0 | 070 |
| 4220-030 | 3 | 5 | 0 | 070 |

Reducing Cross

Socket x Socket x Socket



| 4216-007 | 3/4 | 20 | 360 | 070 |
|----------|-------|----|-----|-----|
| 4216-010 | 1 | 20 | 240 | 070 |
| 4216-012 | 1-1/4 | 20 | 0 | 070 |
| 4216-015 | 1-1/2 | 20 | 0 | 070 |
| 4216-020 | 2 | 20 | 0 | 070 |
| 4216-025 | 2-1/2 | 5 | 0 | 070 |
| 4216-030 | 3 | 5 | 0 | 070 |

| 4220-131 | 1X3/4 | 20 | 0 | 070 |
|----------|-----------|----|---|-----|
| 4220-167 | 1-1/4X3/4 | 25 | 0 | 070 |
| 4220-210 | 1-1/2X3/4 | 15 | 0 | 070 |
| 4220-248 | 2X3/4 | 10 | 0 | 070 |
| 4220-289 | 2-1/2X1 | 15 | 0 | 070 |

22-1/2° Street Ell

Spigot x Socket

| 4242-007 | 3/4 | 50 | 0 | 070 |
|----------|-------|----|---|-----|
| 4242-010 | 1 | 50 | 0 | 070 |
| 4242-012 | 1-1/4 | 20 | 0 | 070 |
| 4242-015 | 1-1/2 | 25 | 0 | 070 |
| 4242-020 | 2 | 20 | 0 | 070 |
| 4242-025 | 2-1/2 | 5 | 0 | 070 |
| 4242-030 | 3 | 5 | 0 | 070 |

3/4

1

1-1/4

1-1/2

2

2-1/2

3

20

15

10

10

10

5

5

360

210

120

0

0

0

0

070

070

070

070

070

070

070

TorqueSafe™ Back-To-Back Sidewall Sprinkler **Cross - Gasket Sealed Brass Thread Insert Style** (1-3/16 Take Out)

Gasket Fipt x Gasket Fipt x Socket x Socket With



076

Elastomer Seal - Use NO Thread Sealant 4221S-075 G 1/2X1 15

| FIPT with Elast | ome | er Seal - I | Jse | NO Thread | l Sealar | nt | | |
|-----------------|-----|-------------|-----|-----------|----------|-----|-------|-------------|
| Not intended | to | convey | or | dispense | water | for | human | consumption |
| through drink | ing | or cookii | ng | | | | | |

TorqueSafe™ Back-To-Back Sidewall Sprinkler **Cross - Gasket Sealed Brass Thread Insert Style**

(1-5/16 Take Out)

Gasket Fipt x Gasket Fipt x Socket x Socket With



Elastomer Seal - Use NO Thread Sealant

| 4221L-075 G | 1/2X1 | 15 | 0 | 076 |
|------------------------------|-----------------------|-------|-------|---------|
| FIPT with Elastomer Seal - U | Jse NO Thread Sealant | | | |
| Not intended to convey | or dispense water for | human | consu | ımption |

through drinking or cooking

45° Street Ell

45° EII

4217-007

4217-010

4217-012

4217-015

4217-020

4217-025

4217-030

Socket x Socket

Spigot x Socket

| 4227-010 | 1 | 50 | 0 | 070 |
|----------|-------|----|---|-----|
| 4227-012 | 1-1/4 | 25 | 0 | 070 |
| 4227-015 | 1-1/2 | 25 | 0 | 070 |

Coupling

Socket x Socket







4229-030

4229-131

4229-167

4229-168

4229-210

4229-211

4229-212

4229-248

4229-249

4229-250

4229-251

4229-291

4229-292

4229-337

4229-339

Reducer Coupling

Socket x Socket

FlameGuard® Product

FlameGuard® CPVC Fire Sprinkler Piping Products

Part Number

FlameGuard® CPVC Fire Sprinkler Piping Products

| Part Number | Size | Std Pk | Mstr Ctn | Prod |
|--------------------------------------|-------|-----------|-------------|------|
| Coupling (continued) Socket x Socket | | | | |
| 4229-020 | 2 | 20 | 0 | 070 |
| 4229-025 | 2-1/2 | 10 | 0 | 070 |

3

1X3/4

1-1/4X3/4

1-1/4X1

1-1/2X3/4

1-1/2X1

1-1/2X1-1/4

2X3/4

2X1

2X1-1/4

2X1-1/2

2-1/2X1-1/2

2-1/2X2

3X1-1/2

3X2-1/2

5

15

25

10

25

10

10

10

25

10

10

10

10

5

10

120

80

0

60

100

0

0

070

070

070

070

070

070

070

0

070



QuickTorque™ SR Female Sprinkler Head Adapter - Gasket Sealed Special Reinforced Metal Thread

Style

Socket x SR Fipt - Stainless Steel Collar With **Elastomer Seal - Use NO Thread Sealant**

NSF® Certified Lead Free

| 4235-101GMR | 3/4X1/2 | 50 | 0 | 076 |
|-------------|---------|----|---|-----|
| 4235-130GMR | 1X1/2 | 50 | 0 | 076 |

SofTorque™ SR Female Sprinkler Head Adapter -**Gasket Sealed Special Reinforced Plastic Thread**



| 4235-101GSR | 3/4X1/2 | 50 | 0 | 076 |
|-------------|---------|----|---|-----|
| 4235-130GSR | 1X1/2 | 50 | 0 | 076 |

TorqueSafe™ Female Sprinkler Head Adapter -**Gasket Sealed Brass Thread Insert Style**

Socket x Gasket Fipt With Elastomer Seal - Use **NO Thread Sealant**

| 4235-101 G | 3/4X1/2 | 50 | 0 | 076 |
|------------|---------|----|---|-----|
| 4235-130GS | 1X1/2 | 50 | 0 | 076 |
| 4235-131 G | 1X3/4 | 50 | 0 | 076 |

FIPT With Elastomer Seal - Use NO Thread Sealant.

Not intended to convey or dispense water for human consumption through drinking or cooking



GripLoc™ Coupling

WARNING: DO NOT INSERT FINGERS EPDM Gasket

Uses No Solvent Cement - NSF® Certified Lead Free 175 nsi (1 21 Mna) @ 150° F (66°C)

| 170 por (1.21 mpa) @ 10 | 70 1 (00 0) | | | |
|-------------------------|-------------|---|----|-----|
| GL4229-007 | 3/4 | 1 | 30 | 134 |
| GL4229-010 | 1 | 1 | 20 | 134 |
| GL4229-020 | 2 | 1 | 10 | 134 |

GripLoc™ TorqueSafe™ Female Sprinkler Head Adapter - Gasket Sealed Brass Thread Insert Style

WARNING: DO NOT INSERT FINGERS EPDM Gasket

| ises no solvent cemer | it or Trifeau Sealant | | | |
|-----------------------|-----------------------|----|---|-----|
| GL4235-101 G | 3/4X1/2 | 25 | 0 | 134 |
| GL 4235-130 G | 1 X 1 / 2 | 24 | n | 134 |

FIPT With Elastomer Seal - Use NO Thread Sealant

Not intended to convey or dispense water for human consumption through drinking or cooking Uses No Solvent Cement 175 psi (1.21 Mpa) @ 150° F (66°C)



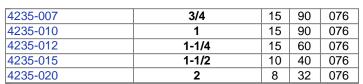
Groove x Socket

| 4233-012 | 1-1/4 | 10 | 40 | 076 |
|----------|-------|----|----|-----|
| 4233-015 | 1-1/2 | 10 | 40 | 076 |
| 4233-020 | 2 | 8 | 32 | 076 |
| 4233-025 | 2-1/2 | 5 | 0 | 076 |
| 4233-030 | 3 | 5 | 0 | 076 |

Not intended to convey or dispense water for human consumption through drinking or cooking

Female Adapter - Brass Thread Insert Style

Socket x Fipt



Not intended to convey or dispense water for human consumption through drinking or cooking







FlameGuard® CPVC Fire Sprinkler Piping Products



FlameGuard® CPVC Fire Sprinkler Piping Products

| Part Number | Size | Std | Mstr | Prod |
|-------------|------|-----|------|------|
| Part Number | Size | Pk | Ctn | Code |

Female Sprinkler Head Adapter - Brass Thread **Insert Style**



Socket x Fipt

| 4235-131 | 1X3/4 | 50 | 0 | 076 |
|----------|---------|----|---|-----|
| 4235-130 | 1X1/2 | 50 | 0 | 076 |
| 4235-101 | 3/4X1/2 | 50 | 0 | 076 |

Not intended to convey or dispense water for human consumption through drinking or cooking

Female Sprinkler Head Adapter - Special **Reinforced Plastic Thread Style**



Socket x SR Fipt - Stainless Steel Collar

NSF® Certified Lead-Free

| 4235-101SR | 3/4X1/2 | 50 | 200 | 076 |
|------------|---------|----|-----|-----|
| 4235-130SR | 1X1/2 | 50 | 0 | 076 |
| 4235-131SR | 1X3/4 | 50 | 0 | 076 |

Female Sprinkler Head Adapter - Special Reinforced Plastic Thread Style with Socket Body **Wrench Flats**



Socket x SR Fipt - Stainless Steel Collar

NSF® Certified Lead-Free

| W4235-101SR | 3/4X1/2 | 50 | 0 | 076 |
|-------------|---------|----|---|-----|
| W4235-130SR | 1X1/2 | 50 | 0 | 076 |

Female Sprinkler Head Adapter - Brass Thread Insert Style with Long Body



Socket x Fipt

| 0 | 50 | 50 | 1/2 | 1X | | | 35-130 | L42 | |
|--------------------------------------|----|----|----------|----|-----------------------------|--|--------|-----|--|
| lispense water for human consumption | | | dispense | | | | | | |
| | | | | • | through drinking or cooking | | | | |

Female Sprinkler Head Adapter - Brass Thread **Insert Style with Positioning Ring**



Socket x Fipt

| R4235-101 | 3/4X1/2 | 50 | 0 | 076 |
|----------------------------|---------|-------|-------|---------|
| Not intended to convey | | human | consu | ımption |
| through drinking or cookin | a | | | |

Female Sprinkler Head Adapter - Special **Reinforced Plastic Thread Style with Positioning** Ring



Socket x SR Fipt - Stainless Steel Collar

| R4235-101SR | 3/4X1/2 | 25 | 300 | 076 |
|-------------|---------|----|-----|-----|

Std | Mstr Part Number Size Pk Ctn Code

Female Adapter - Special Reinforced Plastic **Thread Style**



Socket x SR Fipt - Stainless Steel Collar

NSF® Certified Lead-Free

| | • | | | |
|------------|-------|----|-----|-----|
| 4235-007SR | 3/4 | 25 | 300 | 076 |
| 4235-010SR | 1 | 25 | 200 | 076 |
| 4235-012SR | 1-1/4 | 10 | 60 | 076 |

Transition Male Adapter with Brass Thread



Mipt x Socket

NSF® Certified Lead-Free

| 4236-007 | 3/4 | 40 | 160 | 076 |
|----------|-------|----|-----|-----|
| 4236-010 | 1 | 10 | 60 | 076 |
| 4236-012 | 1-1/4 | 10 | 40 | 076 |
| 4236-015 | 1-1/2 | 10 | 40 | 076 |
| 4236-020 | 2 | 8 | 32 | 076 |

TorqueSafe™ Female Spigot Sprinkler Head Adapters - Gasket Sealed Brass Thread Insert Style





| 4238-101 G | 3/4X1/2 | 50 | 200 | 076 |
|------------|---------|----|-----|-----|
| 4238-130 G | 1X1/2 | 50 | 0 | 076 |

FIPT With Elastomer Seal - Use NO Thread Sealant. Not intended to convey or dispense water for human consumption through drinking or cooking

SofTorque™ Reducer Bushing - Gasket Sealed **Plastic Thread Style**



Spigot x Fipt - With Elastomer Seal - Use NO **Thread Sealant**

| 4238-130GSR | 1X1/2 | 50 | 300 | 076 |
|-------------|-------|----|-----|-----|
| | | | | |

TorqueSafe™ Bushing - Gasket Sealed Brass

Thread Insert Style Spigot x Gasket Fipt With Elastomer Seal - Use



NO Thread Sealant

| 4238-130BR G | 1X1/2 | 50 | 200 | 076 | | | | |
|---|-----------------------|-------|-------|---------|--|--|--|--|
| FIPT With Elastomer Seal - Use NO Thread Sealant. | | | | | | | | |
| Not intended to convey | or dispense water for | human | consu | ımption | | | | |
| through drinking or cooking | | | | | | | | |

Bushing - with Brass Thread Insert



Spigot x Fipt

| 4238-130BR | 1X1/2 | 50 | 200 076 |
|-----------------------------|-------------------|-----------|-------------|
| Not intended to convey of | or dispense water | for human | consumption |
| through drinking or cooking | 9 | | |



FlameGuard® CPVC Fire Sprinkler Piping Products

FlameGuard® CPVC Fire Sprinkler Piping Products

| Part Number | Size | Std | Mstr | Prod |
|-------------|------|-----|------|------|
| Fait Number | | Pk | Ctn | Code |

| Part Number | Size | L - Max | | | Prod Code |
|-------------|------|---------|--|--|--------------|
|-------------|------|---------|--|--|--------------|

Spigot Female Sprinkler Head Adapters - Brass Thread Insert Style



Adjustable Sprinkler Head Adapters -**Special Reinforced Plastic Thread Style**

Socket x SR Fipt - Stainless Steel Collar TRAVEL = 1-9/16"

Spigot x Fipt

| 4238-101 | 3/4X1/2 | 50 | 200 | 076 |
|------------------------|-------------------------|-------|-------|---------|
| 4238-130 | 1X1/2 | 50 | 0 | 076 |
| Not intended to convey | or dispense water for l | numan | consu | ımption |

through drinking or cooking

NSF® Certified Lead-Free

| 42001SR | 3/4X1/2 | 8-1/4 | 12 | 0 | 076 |
|----------------------------------|---------|-------|----|---|-----|
| 42011SR | 1X1/2 | 8-3/8 | 12 | 0 | 076 |
| -May - Maximum Adjustable Longth | | | | | |

SofTorque™ Spigot Female Adapter - Gasket Sealed Special Reinforced Plastic Thread Style



NSF® Certified Lead Free

| 4278-101GSR | 3/4X1/2 | 50 | 0 | 076 |
|-------------|---------|----|---|-----|
| 4278-130GSR | 1X1/2 | 50 | 0 | 076 |

Adjustable Sprinkler Head Adapters -**Special Reinforced Plastic Thread Style**

Spigot x SR Fipt - Stainless Steel Collar



Spigot Female Adapter - Brass Thread Insert Style



Spigot x Fipt

| 4278-007 | 3/4 | 25 | 150 | 076 |
|------------------------|-----|------|-------|--------|
| 4278-010 | 1 | 15 | 90 | 076 |
| Not intended to convey | • | uman | consu | mption |

NSF® Certified Lead-Free

TRAVEL = 1-5/8"

| 42004SR | 3/4X1/2 | 8-1/4 | 12 | 0 | 076 |
|-------------------------------------|---------|-------|----|---|-----|
| 42014SR | 1X1/2 | 8-1/4 | 12 | 0 | 076 |
| I -May - Mayimum Adjustable I ength | | | | | |

| Part Number | Size | | | Prod Code |
|-------------|------|----|-----|--------------|
| | | PK | Ctn | Loae |

Spigot Female Adapter - Special Reinforced Plastic **Thread Style**



Spigot x SR Fipt - Stainless Steel Collar

NSF® Certified Lead-Free

| - 10 · (b) 0 0 1 1 1 1 0 0 1 2 0 0 0 1 1 1 0 | · • | | | |
|--|-----|----|-----|-----|
| 4278-007SR | 3/4 | 25 | 300 | 076 |
| 4278-010SR | 1 | 50 | 0 | 076 |

Reducer Bushing - Flush Style



| 0 | | | | |
|------------|-----|----|-----|-----|
| 4278-007SR | 3/4 | 25 | 300 | 076 |
| 4278-010SR | 1 | 50 | 0 | 076 |



Spigot x Socket

| 4237-131 | 1X3/4 | 50 | 700 | 070 |
|----------|-------------|----|-----|-----|
| 4237-167 | 1-1/4X3/4 | 25 | 200 | 070 |
| 4237-168 | 1-1/4X1 | 25 | 350 | 070 |
| 4237-210 | 1-1/2X3/4 | 25 | 125 | 070 |
| 4237-211 | 1-1/2X1 | 25 | 150 | 070 |
| 4237-212 | 1-1/2X1-1/4 | 25 | 300 | 070 |
| 4237-248 | 2X3/4 | 10 | 150 | 070 |
| 4237-249 | 2X1 | 10 | 160 | 070 |
| 4237-250 | 2X1-1/4 | 10 | 160 | 070 |
| 4237-251 | 2X1-1/2 | 10 | 160 | 070 |
| 4237-290 | 2-1/2X1-1/4 | 10 | 40 | 070 |
| 4237-291 | 2-1/2X1-1/2 | 10 | 40 | 070 |
| 4237-292 | 2-1/2X2 | 15 | 0 | 070 |
| 4237-338 | 3X2 | 10 | 0 | 070 |
| 4237-339 | 3X2-1/2 | 10 | 0 | 070 |

Replacement Gaskets for all TorqueSafe™ Gasket **Sealed Head Adapters**

Pack of 25 EPDM Gaskets



| or odd in 1/2 or o/ r cabiot coaled riffead | | | | | |
|---|-----|---|-----|-----|---|
| RGSK-005 | 1/2 | 1 | 100 | 299 | |
| RGSK-007 | 3/4 | 1 | 100 | 299 | ı |

Spigot Female Sprinkler Head Adapters - Special Reinforced Plastic Thread Style



Spigot x SR Fipt - Stainless Steel Collar

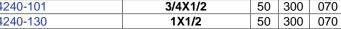
NSF® Certified Lead-Free

| 4238-101SR | 3/4X1/2 | 50 | 400 | 076 |
|------------|---------|----|-----|-----|
| 4238-130SR | 1X1/2 | 50 | 0 | 076 |

Transition Bushing

IPS Spigot x CTS Socket

| 4240-101 | 3/4X1/2 | 50 | 300 | 070 |
|----------|---------|----|-----|-----|
| 4240-130 | 1X1/2 | 50 | 300 | 070 |



FlameGuard® CPVC Fire Sprinkler Piping Products



FlameGuard® CPVC Fire Sprinkler Piping Products

| Part Number | Size | | | Prod Code | |
|-------------|------|--|--|--------------|--|
|-------------|------|--|--|--------------|--|



Cap

Socket



| 4247-007 | 3/4 | 25 | 400 | 070 |
|----------|-------|----|-----|-----|
| 4247-010 | 1 | 25 | 450 | 070 |
| 4247-012 | 1-1/4 | 10 | 60 | 070 |
| 4247-015 | 1-1/2 | 10 | 160 | 070 |
| 4247-020 | 2 | 10 | 60 | 070 |
| 4247-025 | 2-1/2 | 5 | 40 | 070 |
| 4247-030 | 3 | 5 | 0 | 070 |

GripLoc™ Cap

WARNING: DO NOT INSERT FINGERS EPDM Gasket



Uses No Solvent Cement - NSF® Certified Lead Free 175 psi (1.21 Mpa) @ 150° F (66°C)

| GL4247-007 | 3/4 | 1 | 25 | 134 |
|------------|-------|---|----|-----|
| GL4247-010 | 1 | 1 | 50 | 134 |
| GL4247-012 | 1-1/4 | 1 | 25 | 134 |
| GL4247-015 | 1-1/2 | 1 | 25 | 134 |
| GL4247-020 | 2 | 1 | 25 | 134 |

Test Plug - O-ring Sealed

Mipt - For Pressure Testing Only. NOT for use with TorqueSafe™ or Z4235 Series Adapters



| FTP-005 | 1/2 | 50 | 400 | 079 |
|---|-----|----|-----|-----|
| DO NOT use with Tape or Paste thread sealants | | | | |

Test Plug Replacement O-ring

Buna-N, For O-ring Sealed Test Plug Only

Pack of 100

| Pack of 100 | | | | |
|--------------------------------|-----|---|----|-----|
| BPB-116 | 116 | 1 | 10 | 891 |
| For Use With FTP-005 Test Plug | | | | |

Test Plug for TorqueSafe™ & SofTorque™ Gasket **Sealed Head Adapters**

Mipt - For Pressure Testing Only. Use ONLY with



Test Plug - White PVC

Mipt - For Pressure Testing Only

| 4250-005 | 1/2 | 50 | 400 | 070 |
|----------------------------------|-----|----|-----|-----|
| Requires use of a thread sealant | | | | |

Flange - One Piece

Socket - 4 Bolt Holes - 175 psi (1.21 Mpa) @ 150° F (66°C)

| 4251-007 | 3/4 | 25 | 0 | 070 |
|----------|-------|----|---|-----|
| 4251-010 | 1 | 15 | 0 | 070 |
| 4251-012 | 1-1/4 | 15 | 0 | 070 |
| 4251-015 | 1-1/2 | 15 | 0 | 070 |
| 4251-020 | 2 | 10 | 0 | 070 |
| 4251-025 | 2-1/2 | 10 | 0 | 070 |

Blind Flange

4 Bolt Holes - 175 psi (1.21 Mpa) @ 150° F (66°C)

| 4253-007 | 3/4 | 25 | 0 | 070 |
|----------|-------|----|---|-----|
| 4253-010 | 1 | 15 | 0 | 070 |
| 4253-012 | 1-1/4 | 15 | 0 | 070 |
| 4253-015 | 1-1/2 | 15 | 0 | 070 |
| 4253-020 | 2 | 10 | 0 | 070 |
| 4253-025 | 2-1/2 | 10 | 0 | 070 |
| 4253-030 | 3 | 10 | 0 | 070 |

Flange - Van Stone Style

Socket - 4 Bolt Holes - 175 psi (1.21 Mpa) @ 150° F (66°C)

| 4254-030 | 3 | 10 | 0 | 070 |
|----------|---|----|---|-----|

Flange - Van Stone Style

Spigot - 4 Bolt Holes - 175 psi (1.21 Mpa) @ 150° F (66°C)

| 4256-007 | 3/4 | 25 | 0 | 070 |
|----------|-------|----|---|-----|
| 4256-010 | 1 | 15 | 0 | 070 |
| 4256-012 | 1-1/4 | 15 | 0 | 070 |
| 4256-015 | 1-1/2 | 15 | 0 | 070 |
| 4256-020 | 2 | 10 | 0 | 070 |
| 4256-025 | 2-1/2 | 10 | 0 | 070 |
| 4256-030 | 3 | 10 | 0 | 070 |







FlameGuard[®] CPVC Fire Sprinkler Piping Products

FlameGuard® CPVC Fire Sprinkler Piping Products

| Part Number | Size | | Prod Code | |
|-------------|------|--|--------------|--|
| | | | | |

| | | | | |
|-------------|------|------------|------|--------------|
| Part Number | Size | Travel - T | | Prod Code |



Socket x Socket



GripLoc™ Repair Coupling

WARNING: DO NOT INSERT FINGERS EPDM Gasket

175 psi (1.21 Mpa) @ 150° F (66°C)

| 4257-007 | 3/4 | 10 | 80 | 070 |
|----------|-------|----|----|-----|
| 4257-010 | 1 | 10 | 40 | 070 |
| 4257-012 | 1-1/4 | 5 | 20 | 070 |
| 4257-015 | 1-1/2 | 5 | 0 | 070 |
| 4257-020 | 2 | 5 | 0 | 070 |

Uses No Solvent Cement - NSF® Certified Lead Free 175 psi (1.21 Mpa) @ 150° F (66°C)

| SG118-07CO | 3/4 | 2-15/16 | 1 | 25 | 134 | |
|-----------------------------|-----|---------|---|----|-----|--|
| SG118-10CO | 1 | 3 | 1 | 25 | 134 | |
| Unit Must De Thrust Bleeked | | | | | | |

Unit Must Be Thrust Blocked T = Repair Coupling Travel

| Part Number | Size Std Mstr F | | | |
|----------------|-----------------|----|-----|------|
| rait inullibel | Size | Pk | Ctn | Code |

Transition Union - Metal Thread Insert Style

Socket x Fipt



| 170 per (1:21 mpa) © 100 1 (00 0) | | | | |
|-----------------------------------|-------|----|----|-----|
| 4259-007BR | 3/4 | 10 | 40 | 076 |
| 4259-010BR | 1 | 10 | 0 | 076 |
| 4259-012BR | 1-1/4 | 5 | 20 | 076 |
| 4259-015BR | 1-1/2 | 5 | 0 | 076 |
| 4259-020BR | 2 | 5 | 0 | 076 |

Not intended to convey or dispense water for human consumption

| through drinking | | Jense water | 101 1 | dillali | CONSC | шриоп |
|------------------|------|-------------|-------|---------|-------|-------|
| | | | | | | |
| Part Number | Size | Travel | т | Std | Mstr | Prod |
| Fait Number | Size | Havei | - 1 | Pk | Ctn | Code |







Short Repair Couplings

Spigot x Socket

175 psi (1 21 Mpa) @ 150° F (66°C)

| 170 psi (1:21 Mpa) @ 100 1 (00 0) | | | | | | |
|-----------------------------------|-----|--------|----|---|-----|--|
| SH118-07CO | 3/4 | 2-3/16 | 30 | 0 | 078 | |
| SH118-10CO | 1 | 2 | 35 | 0 | 078 | |
| _ | | | | | 1 | |

Unit Must Be Thrust Blocked T = Repair Coupling Travel

FS-5 One-Step Cement

| FS5-020 | Pint | 12 | 0 | 703 |
|---------|-------|----|---|-----|
| FS5-030 | Quart | 12 | 0 | 703 |

Empty Cans

MT-654

MT-651

MT-653





MT-651 & MT-654 cans have 1-3/4" Screw Neck size MT-653 is a TT Paint Type can



FlameGuard® CPVC Fire Sprinkler Piping Products



FlameGuard® CPVC Fire Sprinkler Piping Products



Brush

Cone Type for pipe 1/2" - 2"

Deburring Tool

| DEB-2 | 1/2" to 2" Pipe | 1 | 6 | 710 |
|----------------------------|--------------------|-----|-------|-----|
| Spears [®] Sprink | ler Head Adapter R | emo | val K | it |

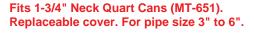
Occasionally a Sprinkler Head Adapter may need to be removed for relocation, extension or repair. Kit includes Cutter, Deburring Tool and Wrench. Cutter provides easy cutting of pipe from the inside (using a power drill) to remove adapters without

disturbing ceiling or side wall. Deburring Tool allows removal of burrs in cut pipe. Wrench is designed to hold Spears® TorqueSafe™ Head Adapter brass insert from

For Pint and Quart Cans

KD-110 4-1/2" Length 25 0 710 KD-112 5-1/2" length 25 0 710 1" Brush w/1-3/4" Screw Cap, for pipe size 3/4" - 2"

Roller - Small Cap





| 6020 4" length | 24 | 0 | 710 |
|----------------|----|---|-----|
|----------------|----|---|-----|

Roller Replacement Covers





| | Fits 5520 & 6020 | | 7. | 740 |
|--------|------------------|---|----|-----|
| 5520-1 | Roller | ' | /5 | 710 |



| Inside Pipe Cutter Only | | | | | |
|-------------------------|----------------|----|---|-----|--|
| GSC-005 | 3/4" & 1" Pine | 25 | 0 | 299 | |

Cap Dauber

| DP-75 | 3/4" for Pint | 50 | 0 | 710 | | |
|--|------------------|----|---|-----|--|--|
| DP-125 | 1-1/4" for Pint | 50 | 0 | 710 | | |
| DQ-125 | 1-1/4" for Quart | 50 | 0 | 710 | | |
| * 3/4" Diameter fits Pint Cans, for pipe sizes 3/4" - 1-1/2" | | | | | | |

* 1-1/4" Diameter fits Pint Cans, for pipe sizes 1-1/2" - 3" ***1-1/4" Diameter fits Quart Cans, for pipe sizes 1-1/2" - 3"

Can-Mate Dauber





| CM-75 | 3/4" | 50 | 0 | 710 |
|--------|--------|----|---|-----|
| CM-150 | 1-1/4" | 50 | 0 | 710 |
| | | | | |

3/4" Diameter fits Pint or Quart Cans, for pipe sizes 3/4" - 1-1/4" 1-1/4" Diameter fits Pint or Quart Cans, for pipe sizes 1-1/2" - 3"

Complete Kit

Inside Pipe Cutter, Deburring Tool and Wrench

rotating to aid in sprinkler head removal from adapter, if required.



| SHRK-005 | 3/4" & 1" Pipe | 1 | 15 | 299 |
|----------|----------------|---|----|-----|
|----------|----------------|---|----|-----|



Deburring Tool Only

| GSB-005 | 3/4" & 1" Pipe | 25 | 0 | 299 |
|---------|----------------|----|---|-----|
| | | | | |



| Wrenc | h On | ly |
|-------|------|----|
| COM | OOE. | |

| GSW-005 | For 1/2 | 1 | 50 | 299 |
|---------|---------|---|----|-----|



FlameGuard® CPVC Fire Sprinkler Piping Products

CPVC Riser Drain Valves For NFPA 13D Installations Only

| Part Number | Size | | Mstr Ctn | Prod Code |
|-------------|------|--|-------------|--------------|
|-------------|------|--|-------------|--------------|

FlameGuard® CPVC Drain & Check Valves For NFPA 13D **Applications Only**

Application: FlameGuard® CPVC Orange Check Valves and PVC/CPVC True Union Drain Valves are for use in configuring CPVC Fire Sprinkler System connection to water supply (riser/drain assembly) in NFPA 13D installations only. These valves are not UL Listed and NOT for use in any other locations within the fire sprinkler system.

| Part Number | Size | | | Prod Code | |
|-------------|------|--|--|--------------|--|
|-------------|------|--|--|--------------|--|

CPVC Swing Check Valves



Socket x Socket

CPVC Swing Check Valves

Socket x Socket

| OCCITOR A COCITOR | | | | |
|-------------------|-------|----|---|-----|
| S1520-07CO | 3/4 | 35 | 0 | 077 |
| S1520-10CO | 1 | 20 | 0 | 077 |
| S1520-12CO | 1-1/4 | 12 | 0 | 077 |
| S1520-15CO | 1-1/2 | 12 | 0 | 077 |
| Not UL Listed | | | | |

True Union Industrial Drain Valve With Locking Handle

Socket x Socket

CPVC Gray Valve with CPVC Orange End Connector

| of vo dray valve with or vo drange End connector | | | | | |
|--|-------|---|----|-----|--|
| 1822-007CFG | 3/4 | 1 | 18 | 077 | |
| 1822-010CFG | 1 | 1 | 12 | 077 | |
| 1822-012CFG | 1-1/4 | 1 | 8 | 077 | |
| 1822-015CFG | 1-1/2 | 1 | 8 | 077 | |
| 1822-020CFG | 2 | 1 | 4 | 077 | |
| Not III Listed | | | | | |

CPVC Special Reinforced Thread Inlet Swing Check Valves

SR Fipt x Socket

| S1520-10FSRSCO | 1 | 20 | 0 | 077 |
|----------------|-------|----|---|-----|
| S1520-12FSRSCO | 1-1/4 | 12 | 0 | 077 |
| S1520-15FSRSCO | 1-1/2 | 12 | 0 | 077 |
| Not UL Listed | | | | |

General Installation Information: Socket end connections should be installed using Spears® FS-5 One-Step Cement for use with Spears® CPVC Fire Sprinkler Products. Threaded connections should be made using Spears® **BLUE 75™** Thread Sealant tested for compatibility with CPVC materials. PVC True Union Drain Valves are to be installed with system connection to Valve CPVC End Connector. Swing check valves are designed for horizontal installations, but may be installed in up-flow only vertical position. Check valves MUST be installed with the valve's FLOW arrow pointing in the direction of the flow. Do not install valve upside down.

True Union Standard Drain Valves

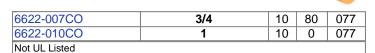
Socket x Socket

PVC Grav Valve with CPVC Orange End Connector

| 3622-007FG | 3/4 | 1 | 18 | 077 |
|---------------|-----|---|----|-----|
| 3622-010FG | 1 | 1 | 12 | 077 |
| Not UL Listed | | | | |

Compact 2000 Drain Valve

Socket x Socket





FlameGuard[®] CPVC Fire Sprinkler Products Technical Information



ENGINEERING GUIDE

Contact Spears® for any Information not found.



FlameGuard[®] CPVC Fire Sprinkler Products Technical Information



ENGINEERING GUIDE

Contact Spears® for any Information not found.

FlameGuard® System Overview



Complete System of Pipe, Fittings & Solvent Cement Corrosion Resistant • Superior Flow • Ease of Installation



Spears® **FlameGuard**® CPVC Fire Sprinkler Products provide a cost effective alternative to metal systems with advantages of high corrosion resistance, improved system hydraulics, ease of installation and quick assembly with readily available tools. CPVC Fire Sprinkler Systems are based on proven products that have been in continuous service for over 40 years. Spears® **FlameGuard®** products are approved by UL®, FM® Global, LPCB and Certified by NSF International for potable water use. Check local codes for restrictions and limitations.





FlameGuard® General Information

The information contained in this section is based on current information and product design at the time of publication and is subject to change without notification. Our ongoing commitment to product improvement may result in some variation. No representations, quarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or results to be obtained therefrom. For verification of technical data or additional information not contained herein, please contact Spears® Technical Services Department [West Coast: (818) 364-1611-East Coast: (678) 985-1263].

General Information

RECOMMENDATIONS FOR INSTALLERS AND USERS:

Plastic piping systems should be ENGINEERED, INSTALLED and OPERATED in accordance with ESTABLISHED DESIGN AND ENGINEERING STANDARDS AND PROCEDURES for plastic piping systems. Suitability for the intended service application should be determined by the installer and/or user prior to installation of a plastic piping system. All installation and maintenance personnel should be trained in the proper handling and installation requirements and precautions of plastic piping systems. PRIOR TO ASSEMBLY, all piping system components should be inspected for damage or irregularities. Mating components should be checked to assure tolerances and engagements are compatible. Do not use any components that appear irregular or do not fit properly. Contact the appropriate manufacturer of the component product in question to determine usability. Consult all applicable codes and regulations for compliance prior to installation.

> Installation must be made in accordance with Spears® Manufacturing Company FlameGuard® CPVC Fire Sprinkler Piping Products Installation Instructions - FG-3

NOTE - Individual or group instruction in correct solvent welding procedures is available by contacting your local distributor or your servicing Spears® Regional Distribution Center.

SOLVENT CEMENT CONNECTIONS - Spears® Manufacturing Company recommends the use of Spears® FS-5 One Step solvent cement for joining Spears® products. Use of solvent cementing products not approved for CPVC fire sprinkler systems, or failure to follow installation instructions will automatically void the warranty.

THREADED CONNECTION - Spears® Manufacturing Company recommends the use of Spears® BLUE 75™ Thread Sealant. This product has been tested by Spears® and the sealant manufacturer for compatibility with the Spears® CPVC fire sprinkler products. Consult the sprinkler head manufacturer before using this product. WARNING: OTHER PIPE JOINT COMPOUNDS OR PASTES MAY CONTAIN SUBSTANCES THAT COULD CAUSE STRESS CRACKING IN THE CPVC OR OTHER FITTING COMPONENTS. Care must be taken to avoid over torquing - generally 1 to 2 turns beyond finger tight is all that is required to make up a threaded connection. Factory testing has indicated 10-25 ft. lbs. of torque is adequate to obtain a leak free seal.

GASKET SEALED THREAD CONNECTIONS - This type of connection can only be made with Spears® TorqueSafe™ style Gasket Sealed Female Sprinkler Adapters. DO NOT USE ANY TYPE OF THREAD SEALANT WHEN INSTALLING THIS TYPE OF ADAPTER. Tape or paste may impair proper sealing and function. Testing has shown that hand tight until snug is all that is needed to seal this special connection.

Installation Training Available - Contact Spears® Technical Services for Details

FlameGuard® Products must be installed in accordance with Spears® CPVC Fire Sprinkler Piping Products Installation Instructions, National Fire Protection Association Standards 13, 13R, 13D, and in accordance with local codes. Code requirements and field conditions may differ. It is the responsibility of the installing contractor to ensure that the product is suitable to meet these requirements.

Dimension Reference

G = (LAYING LENGTH) Intersection of center lines to bottom of socket/thread; 90° elbows, tees, crosses; ± 1/32 inch.

H = Intersection of center lines to face of fitting; 90° elbows tees, crosses; ±1/32 inch.

J = Intersection of center lines to bottom of socket/thread; 45° elbows;

L = Overall length of fittings; $\pm 1/16$ inch.

 $\mathbf{M} = \text{Outside diameter of socket/thread hub}$; $\pm 1/16$ inch.

N =Socket bottom to socket bottom; couplings; $\pm 1/16$ inch.

 \mathbf{Q} = Width of flats; $\pm 1/16$ inch.

W = Height of cap; $\pm 1/16$ inch.

| OF VOITING SERVIN | MILLIX FIFT | - 3017 13 | .5 (A511811 | 442) | | | |
|-------------------|-------------|-----------|-------------|--------|--------------|--------|-------------------------|
| Part Number | Nomina | I Size | Average | e O.D. | Averag | e I.D. | Approx. Weight Lbs./Ft. |
| rait Nullibei | Inches | (mm) | Inches | (mm) | Inches | (mm) | Approx. Weight Lbs./Ft. |
| CP-007 | 3/4 | (19.1) | 1.050 | (26.7) | .874 | (22.5) | 0.170 |
| CP-010 | 1 | (25.4) | 1.315 | (33.4) | 1.101 | (28.2) | 0.262 |
| CP-012 | 1-1/4 | (31.8) | 1.660 | (42.2) | 1.394 (35.6) | | 0.397 |
| CP-015 | 1-1/2 | (38.1) | 1.900 | (48.3) | 1.598 | (40.7) | 0.529 |
| CP-020 | 2 | (50.8) | 2.375 | (60.3) | 2.003 | (50.9) | 0.859 |
| CP-025 | 2-1/2 | (63.5) | 2.875 | (73.0) | 2.423 | (61.5) | 1.257 |
| CP-030 | 3 | (76.2) | 3.500 | (88.9) | 2.950 | (75.0) | 1.867 |

"Lead Free" low lead certification - unless otherwise specified, all Spears® FlameGuard® fittings specified here-in are certified by NSF International to ANSI/NSF® Standard 61, Annex G and is in compliance with California's Health & Safety Code Section 116825 (commonly known as AB1953) and Vermont Act 193. Weighted average lead content <=0.25%. Spears® PVC and CPVC Pipe. Fittings and Valves have always been lead-free and Certified by NSF International for use in potable water systems. Spears® offers a wide range of lead-free specialty fittings and transition adapters for plumbing applications. However, certain brass threaded adapter fittings for applications that are not intended to convey water for human consumption through drinking or cooking are still produced and available.

Hydraulic Design & Hangers & Supports



Hydraulic Design

Hydraulic calculations for the sizing of systems incorporating Spears® FlameGuard® CPVC Fire Sprinkler Products must be calculated using a Hazen-Williams C value of 150. Pipe friction loss calculations must be made according to NFPA Standard 13. The following table shows the allowance for friction loss for fittings, expressed as equivalent length of pipe. For additional information regarding friction loss, contact Spears®.

Friction Loss Through Fittings

Equivalent Feet (meters) of Pipe

| | 3/4" 26,7mm | 1" 33,7mm | 1-1/4" 42,4mm | 1-1/2" 48,3mm | 2" 60,3mm | 2-1/2" 73,0mm | 3" 88,9mm |
|-----------------|----------------|--------------|------------------|------------------|--------------|------------------|--------------|
| Tee Run | 1 (0,3) | 1 (0,3) | 1 (0,3) | 1 (0,3) | 1 (0,3) | 2 (0,6) | 2 (0,6) |
| Tee Branch | 3 (0,9) | 5 (1,5) | 6 (1,8) | 8 (2,4) | 10 (3,1) | 12 (3,7) | 15 (4,6) |
| 90° Elbow | 4 (1,2) | 5 (1,5) | 6 (1,8) | 7 (2,1) | 9 (2,7) | 12 (3,7) | 13 (4,0) |
| 90° Elbow-Sweep | 1.2 (0,36) | 1.5 (0,45) | NA | 1.9 (0,57) | 2 (0,6) | NA | 5.8 (1,7) |
| 45° Elbow | 1 (0,3) | 1 (0,3) | 2 (0,6) | 2 (0,6) | 2 (0,6) | 3 (0,9) | 4 (1,2) |
| Coupling | 1 (0,3) | 1 (0,3) | 1 (0,3) | 1 (0,3) | 1 (0,3) | 2 (0,6) | 2 (0,6) |

Hanger & Supports

Since CPVC Fire Sprinkler pipe is rigid, it requires fewer supports than flexible, plastic systems. Spears® recommends use of hangers that are designed and listed for supporting the CPVC Fire Sprinkler pipe. However, some hangers designed for steel pipe may be used if their suitability is clearly established. These hangers must have a minimum 1/2-inch, load-bearing surface, and they must be selected to accommodate the specific pipe size. In addition, they cannot contain rough or sharp edges that contact the pipe, and they must not bind the pipe from axial movement. Vertical runs must be supported so that the weight of the run is not on a fitting or a joint.

Horizontal runs must be braced so that the stress loads (caused by bending or snaking pipe) will not be placed on a fitting or a joint. Support spacing is shown in the following table.

| Pipe Size Nominal inches | Maximum Support Spacing feet (meters) | Wt. Water Filled Pipe lbs/ft (kg/m) |
|-----------------------------|---------------------------------------|--|
| 3/4 (DN20) | 5-1/2 (1,7) | 0.427 (0,635) |
| 1 (DN25) | 6 (1,8) | 0.674 (1,003) |
| 1-1/4 (DN32) | 6-1/2 (2,0) | 1.078 (1,604) |
| 1-1/2 (DN40) | 7 (2,1) | 1.412 (2,101) |
| 2 (DN50) | 8 (2,4) | 2.223 (3,308) |
| 2-1/2 (DN65) | 9 (2,7) | 3.254 (4,842) |
| 3 (DN80) | 10 (3,0) | 4.831 (7,189) |

NFPA 13D permits "support methods comparable to those required by local plumbing codes." The above hanger/support requirements must also be followed on NFPA 13D systems.

CAUTION: DO NOT use hanger items such as plumber's tape or "nailon" devices. Pipe hanger must comply with NFPA 13, 13D and 13R.

When a sprinkler head activates, a significant reactive force can be exerted on the pipe. With a pendent head, this reactive force can cause the pipe to lift vertically if it is not secured properly, especially if the sprinkler drop is from small diameter pipe. The pipe must be braced against the vertical lift-up with the closest hanger. Refer to the following illustration and Table A & B.

FlameGuard® Technical Hangers & Supports

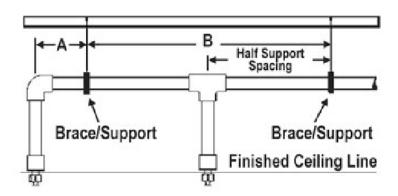


Table A - Maximum Support Spacing Distance

End Line Sprinkler Head Drop Elbow

| Pipe Size Nominal Inches | Line Pressure <100 psi (<689kPa) | Line Pressure >100 psi (>689kPa) |
|-----------------------------|-------------------------------------|-------------------------------------|
| 3/4 (DN20) | 9 inches (228,6mm) | 6 inches (168,3mm) |
| 1 (DN25) | 12 inches (304,8mm) | 9 inches (228,6mm) |
| 1-1/4 (DN32) | 16 inches (406,4mm) | 12 inches (304,8mm) |
| 1-1/2 - 3 (DN40 - DN80) | 24 inches (610,0mm) | 12 inches (304,8mm) |

Note: Support spacing can be increased by approximately 50% for lower pressures.

Table B - Maximum Support Spacing Distance
Inline Sprinkler Head Drop Tee

| Pipe Size Nominal Inches | Line Pressure <100 psi (<689kPa) | Line Pressure >100 psi (>689kPa) |
|-----------------------------|-------------------------------------|-------------------------------------|
| 3/4 (DN20) | 4 feet (1,22 meters) | 3 feet* (0,91 meters) |
| 1 (DN25) | 5 feet (1,52 meters) | 4 feet* (1,22 meters) |
| 1-1/4 (DN32) | 6 feet (1,83 meters) | 5 feet* (1,52 meters) |
| 1-1/2 - 3 (DN40 - DN80) | 7 feet (2,13 meters) | 7 feet (2,13 meters) |

Note: *Support spacing can be increased by one-foot (1 ft.) for lower pressures.

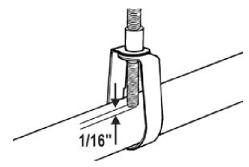
Hangers & Supports



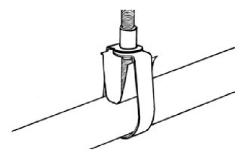
Numerous common methods are used to brace Fire Sprinkler Pipe. A few acceptable methods include: use of a standard band hanger by positioning the threaded support rod to 1/16-inch above the pipe (however, it is important that the rod does not contact the pipe), a wraparound U-hanger, a special escutcheon which prevents upward movement of the sprinkler through the ceiling or band hangers with Surge Restraints to provide surge protection for the system.

Pipe hangers are available that are tested and UL Listed for fire sprinkler service. These hangers comply with NFPA 13 requirements for use with CPVC fire sprinkler piping systems. The following illustrations depict several of these.

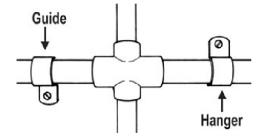
Band Hanger - designed to support CPVC piping systems when used in conjunction with a hanging steel threaded rod that is suspended from a ceiling or other flat, horizontal surface. The threaded rod must be leveled properly before installing the hanger and restraint.



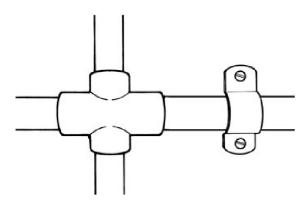
Surge Restraint - when installed with the Band Hanger, as shown below, provides surge protection for the system.



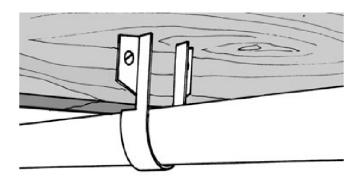
One Hole Wrap-Around Strap - designed to support CPVC piping systems only when the hanger tab is in the vertical position, and the screw-type fastener is in the horizontal position. The one-hole strap can be used as a pipe restrainer when the hanger tab is in the downward position, but it cannot be used as a hanger to hold any weight of the system. In addition, the one-hole strap can be used as a piping system guide when the system lies on top of the beam, and the beam supports the system's weight. The one-hole strap is not intended to support the CPVC piping system from under a ceiling or any other flat, horizontal surface. For this application, install two-hole strap.



Hangers & Supports



Two-Hole 90° Side Mount Strap - designed to support CPVC piping systems when attached to a horizontal beam with the screw-type fasteners in the horizontal position and the pipe hanging below the beam. The fastener's mounting edges are designed to allow the screws to be installed horizontally. This is a benefit when overhead clearance is limited. In addition, the 90° side mount strap can be used in a restrainer fashion when it is attached to the top of a beam, and the system lies on top of the beam.



Riser Supports

Risers must be supported by pipe clamps or by hangers located on the horizontal connection close to the riser. Only Listed hangers and clamps can be used. Vertical lines must be supported at intervals to avoid placing excessive load on a fitting at the lower end. This can be done by using riser clamps or double-bolt pipe clamps listed for this service.

Hangers and supports must not compress, distort, cut, or abrade the piping, and they must allow free movement of the pipe for thermal expansion and contraction. DO NOT use riser clamps that squeeze the pipe and depend on compression of the pipe to support the weight.

Maintain vertical piping in straight alignment with supports at each floor level or 10-foot intervals, whichever is less. CPVC risers in vertical shafts or buildings with ceilings over 25 feet must be aligned straight and supported at each floor level or 10-foot intervals, whichever is less.

WARNING: CPVC pipe and/or system components must not be used to provide structural support for the system. Care should be used when installing, hanging, or bracing to prevent unnecessary stress loads on the CPVC piping system.

Material Properties & Expansion & Contraction



Material Properties

Table I: Modulus of Elasticity & Stress vs. Temperature For Spears® FlameGuard® CPVC Fire Sprinkler Pipe

| Property | | | | Tempera | ture ° F | | | |
|---|-------|-------|-------|---------|----------|-------|------|------|
| | 73 | 80 | 90 | 100 | 110 | 120 | 140 | 150 |
| Modulus of Elasticty "E" x 10 ⁵ psi | 3.90 | 3.94 | 3.78 | 3.70 | 3.46 | 3.21 | 3.05 | 2.84 |
| Working Stress "S" psi | 1,900 | 1,785 | 1,630 | 1,1485 | 1,345 | 1,270 | 950 | 875 |

Table II: Physical & Thermal Properties

| Property | | Spears® FlameGuard® CPVC Pipe | ASTM |
|--|-----------|-------------------------------|--------|
| Specific Gravity | "Sp. Gr." | 1.51 | D 792 |
| IZOD Impact Strength (ft. lbs/inch of notch) | | 5.0 | D 256 |
| Modulus of Elasticity, psi | "E" | 3.9 x 10 ⁵ | D 638 |
| Ultimate Tensile Strength, psi | | 8,000 | D 638 |
| Compressive Strength, psi | | 9,000 | D 695 |
| Poisson's Ratio | | .3538 | |
| Working Stress @ 73° F, psi | | 1,900 | D 1598 |
| Hazen-Williams "C" Factor | | 150 | |
| Coefficient of Linear Expansion in./(in. °F) | "e" | 3.2 x 10 ⁻⁵ | D 696 |
| Thermal Conductivity BTU/hr/ft²/°F/in. | "k" | 0.95 | C 177 |
| Upper Temperature Limit | "° F" | 205 | |
| Flammability | | Flame Retardant | |
| Electrical Conductivity | | Non Conductor | |

Expansion and Contration

Spears® FlameGuard® CPVC Fire Sprinkler Products, like all piping materials, expand and contract with changes in temperature. If the coefficient of linear expansion is 3.2 x 10⁻⁵ inch/inch °F. A 25° F change in temperature will cause an expansion of 1 inch for a 100-foot straight length. For most operating and installation conditions, expansion and contraction can be accommodated at changes of direction.

Table III: Thermal Expansion in Inches For Spears® FlameGuard® CPVC Fire Sprinkler Pipe

| Temp. | | | | | | Len | gth of | Run i | n Feet | | | | | |
|--------|------|----------------------------|------|------|------|------|--------|-------|--------|------|------|------|------|------|
| Change | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 70 | 90 | 120 | 160 |
| ΔT °F | | Thermal Expansion ΔL (in.) | | | | | | | | | | | | |
| 20 | 0.04 | 0.08 | 0.12 | 0.15 | 0.19 | 0.23 | 0.27 | 0.31 | 0.35 | 0.38 | 0.54 | 0.69 | 0.92 | 1.23 |
| 30 | 0.06 | 0.12 | 0.17 | 0.23 | 0.29 | 0.35 | 0.40 | 0.46 | 0.52 | 0.81 | 1.08 | 1.04 | 1.38 | 1.84 |
| 40 | 0.08 | 0.15 | 0.23 | 0.31 | 0.38 | 0.46 | 0.54 | 0.61 | 0.69 | 0.77 | 1.08 | 1.38 | 1.84 | 2.46 |
| 50 | 0.10 | 0.19 | 0.29 | 0.38 | 0.48 | 0.58 | 0.67 | 0.77 | 0.86 | 0.96 | 1.34 | 1.73 | 2.30 | 3.07 |
| 60 | 0.12 | 0.23 | 0.35 | 0.46 | 0.58 | 0.69 | 0.81 | 0.92 | 1.04 | 1.15 | 1.61 | 2.07 | 2.76 | 3.69 |
| 70 | 0.13 | 0.27 | 0.40 | 0.54 | 0.67 | 0.81 | 0.94 | 1.08 | 1.21 | 1.34 | 1.88 | 2.42 | 3.23 | 4.30 |
| 80 | 0.15 | 0.31 | 0.46 | 0.61 | 0.77 | 0.92 | 1.08 | 1.23 | 1.38 | 1.54 | 2.15 | 2.76 | 3.69 | 4.92 |
| 90 | 0.17 | 0.35 | 0.52 | 0.69 | 0.86 | 1.04 | 1.21 | 1.38 | 1.56 | 1.73 | 2.42 | 3.11 | 4.15 | 5.53 |
| 100 | 0.19 | 0.38 | 0.58 | 0.77 | 0.96 | 1.15 | 1.34 | 1.54 | 1.73 | 1.92 | 2.69 | 3.46 | 4.61 | 6.14 |



Expansion & Contraction

e = 3.2 X 10⁻⁵ in./in.° F (Coefficient of Linear Expansion for Spears® FlameGuard® CPVC Fire Sprinkler Pipe)

= Length of Run in Feet

 ΔT = Temperature Change in °F

Example: How much will a 40 ft. run of 2" Spears® FlameGuard® CPVC Fire Sprinkler Pipe expand if the expected ambient temperature will range from 45° F to 85° F?

 $\Delta L = 12eL (\Delta T)$

 $\Delta L = 12(.000032) \times 40 \times 40$

 $\Delta L = .61''$

Expansion Loop & Offset Configurations

Hangers or guides should only be placed in the loop, offset or change of direction as indicated below. Piping supports should restrict lateral movement and should direct axial movement into the expansion loop.

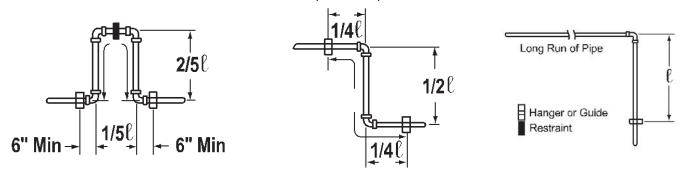


Table IV: Expansion Loop Length In Inches For Spears® FlameGuard® CPVC Fire Sprinkler Pipe

| | | | | | | | Ler | gth c | of Rui | n in F | eet | | | | | | | | | |
|-----------------|-------|----|---|----|----|----|-----|-------|--------|--------|-----|----|----|-----|-----|--|--|--|--|--|
| Nominal Pipe | Avg. | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 70 | 90 | 120 | 160 | | | | | |
| Size | O.D. | | Length of Loop (in.) Temperature = 100° F - 30° F, ΔT = 70° F | | | | | | | | | | | | | | | | | |
| 3/4 | 1.050 | 7 | 10 | 13 | 15 | 16 | 18 | 19 | 21 | 22 | 23 | 27 | 31 | 36 | 41 | | | | | |
| 1 | 1.315 | 8 | 11 | 14 | 16 | 18 | 20 | 22 | 23 | 24 | 26 | 30 | 34 | 40 | 46 | | | | | |
| 1-1/4 | 1.660 | 9 | 13 | 16 | 18 | 20 | 22 | 24 | 26 | 27 | 29 | 34 | 39 | 45 | 52 | | | | | |
| 1-1/2 | 1.900 | 10 | 14 | 17 | 20 | 22 | 24 | 26 | 28 | 29 | 31 | 37 | 41 | 48 | 55 | | | | | |
| 2 | 2.375 | 11 | 15 | 19 | 22 | 24 | 27 | 29 | 31 | 33 | 35 | 41 | 46 | 54 | 62 | | | | | |
| 2-1/2 | 2.875 | 12 | 17 | 21 | 24 | 27 | 30 | 32 | 34 | 36 | 38 | 45 | 51 | 59 | 68 | | | | | |
| 3 | 3.500 | 13 | 19 | 23 | 27 | 30 | 33 | 35 | 38 | 40 | 42 | 50 | 56 | 65 | 75 | | | | | |

Note: Table is based on Stress & Modulus Elasticity at 100° F

$$\ell = \sqrt{3ED(\Delta L)}$$
2S

= Length of Expansion Loop in Inches

 ΔL = Change in Length of Pipe Due to Change in Temperature (Table III)

S = Working Stress (Table I)

= Modulus of Elasticity (Table I) = Average O.D. of Pipe

Example: How much expansion can be expected in a 200 ft. run of 2" Spears® FlameGuard® CPVC Fire Sprinkler Pipe and how long should the expansion loop be to compensate for this expansion? (The expected temperature range will be from 40° F to 110° F).

First Find:

 $\Delta T = (Change in Temperature)$

 $\Delta T = T2 - T1$

 $\Delta T = 100^{\circ} F - 40^{\circ} F$

 $\Delta T = 70^{\circ} F$

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To Find:

 $\Delta L = (Amount of Expansion in inches from Table III)$

 $\Delta L = \Delta L$ of 160 ft. with a ΔT of 70° F + ΔL of 40 ft. with a ΔT of 70° F

 $\Delta L = 4.30" + 1.08"$

 $\Delta L = 5.38$ "

-- OR --

 $\Delta L = 12el(\Delta T)$

 $e = 3.2 \times 10^{-5}$ (from Table II)

L = Length of Run in Feet

ΔT = Change in Temperature in ° F

 $\Delta L = 12 \times .000032 \times 200 \times 70$

 $\Delta L = 5.38$ "

Joining Methods - Solvent Cementing



Use With Other Manufacturers' Pipes, Fittings, & Solvent Cements

Spears® FlameGuard® CPVC Fire Sprinkler Products may be used only in connection with UL, FM and NSF certified CPVC products of other manufacturers. Use of Spears® FlameGuard® CPVC Fire Sprinkler Products in connection with CPVC products of other manufacturers which are not UL, FM and NSF certified may result in inappropriate product application and inconsistent determinations in the event of warranty claims.

Spears® FlameGuard® CPVC Fire Sprinkler Products are UL Listed for use in combination with UL Listed CPVC sprinkler products manufactured by GF Harvel (pipe), Ipex (pipe and fittings), TYCO Fire Products (pipe and fittings), Viking (pipe), or Nibco (fittings).

NOTICE: While Spears® FlameGuard® CPVC Fire Sprinkler Products are UL Listed for use in combination with other listed manufacturers' products, specific application approvals may not be the same amongst manufacturers. It is the installer's responsibility to verify suitability of products used in combination according to each manufacturer's installation instructions. Contact Spears® if you have questions on any application not addressed in this manual.

Spears® recommends the use of FS-5 One Step Low VOC Solvent Cement. However, Ipex BM-5; Nibco FP-1000 and TYCO Fire Products TFP-500 CPVC Solvent Cements can also be used in place of the FS-5 One Step Low VOC Solvent Cement, provided that the assembly and curing information referenced within this manual is used.

Installation & Joining

Make sure you follow all assembly and curing information referenced within this manual when installing Spears® FlameGuard® CPVC Fire Sprinkler Products. Failure to follow this instruction could cause improper curing, resulting in serious personal injury, significant property damage, joint leakage, or joint failure.

Before assembling any Spears® FlameGuard® CPVC Fire Sprinkler Products, you must inspect all components for cuts, scratches, gouges, split ends, or any other irregularities that have occurred during shipping and handling.

Solvent Cement Welded Joints

STEP 1 CUT PIPE SQUARE.

CPVC pipe can be easily cut with a ratchet cutter, a wheel-type plastic tubing cutter, a power saw or a fine-toothed saw. Tools used to cut CPVC must be designed for plastic use and must be in good condition in accordance with the tool manufacturer's recommendations. It is important to cut the pipe square. A square cut provides the surface of the pipe with maximum bonding area.

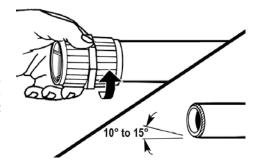
If any indication of damage or cracking is evident at the pipe end, cut off at least 2 inches (50 mm) beyond any visible crack.

Notice: Avoid splitting the pipe when using ratchet cutters. Failure to do so may result in pipe failure or leakage.

- Only use ratchet cutters that contain a sharp blade (blades dull quickly).
- Only use ratchet cutters at temperatures of 50° F (10° C) or warmer.
- Only use well-maintained, good quality ratchet cutters capable of consistently cutting the pipe squarely.

STEP 2 DEBURR & BEVEL PIPE.

Burrs and filings can prevent proper contact between pipe and fitting during assembly, and must be removed from the outside and the inside of the pipe. A chamfering/ reaming tool or a file is suitable for this purpose. A slight bevel (approximately 10° to 15°) shall be placed at the end of the pipe to ease entry of the pipe into the socket. This will minimize the chance that the edges of the pipe will wipe solvent cement from the fitting socket during the insertion of the pipe.



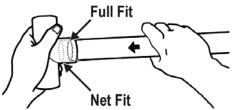




Joining Methods - Solvent Cementing

STEP 3 FITTING PREPARATION

The pipe should enter the fitting socket easily one-third to two- thirds of the way (full interference fit). Contact between the pipe and fitting is essential in making a good joint. If the pipe bottoms with little interference (net fit), use extra solvent cement in making the joint. This contact allows the solvent cement (which is applied in the next step) to effectively join the pipe and fitting.



Using a clean, dry rag, wipe loose dirt and moisture from the fitting socket and pipe end.

Moisture can slow the cure time and at this stage of assembly, excessive water can reduce joint strength.

STEP 4 SOLVENT CEMENT APPLICATION

CAUTION: Prior to using Spears® FS-5 One-Step CPVC solvent cement, or other approved CPVC fire sprinkler cement, review and follow all precautions found on the container labels, material safety data sheet, and Standard Practice for Safe Handling ASTM F 402. Failure to follow precautions may result in injury.

Special care shall be exercised when assembling CPVC fire sprinkler systems in temperatures below 40° F (4° C). In colder temperatures extra time must be allowed for the solvent cement to set and cure. Extra care should be taken to prevent damaging the pipe during handling. When solvent welding pipe and fittings in colder temperatures, make certain that the cement has not become lumpy or has "gelled". Gelled cement must be discarded.

At temperatures above 80° F (27° C) make sure both surfaces to be joined are still wet with cement during assembly. Higher temperatures and/or wind accelerate the evaporation of the volatile solvents in the cement. Pipe stored in direct sunlight may have surface temperatures 20° F to 30° F above the air temperature. If possible store the pipe and fittings, or, at least, the ends to be solvent welded, out of the direct sunlight prior to cementing. The solvents will penetrate hot surfaces more deeply. In conditions like this it is very important to avoid puddling the solvent cement inside the fitting socket.

Use a dauber that is properly sized for the pipe, no less than 1/2 the diameter of the pipe being assembled.

Only use solvent cements that have been specifically formulated and listed/ approved for use with CPVC fire sprinkler systems and approved by the pipe and fitting manufacturers.

Vigorously apply a heavy, even coat of cement to the outside pipe end. Apply a medium coat to the fitting socket. Pipe sizes 1-1/4 inch (DN32, 32mm) and above shall always receive a second cement application on the pipe end. FIRST APPLY CEMENT ON THE PIPE END. THEN IN THE FITTING SOCKET, AND, FINALLY, ON THE PIPE END AGAIN.





NOTICE: Too much solvent cement can cause clogged waterways or weaken the wall of the pipe or fitting and result in pipe failure or leakage.

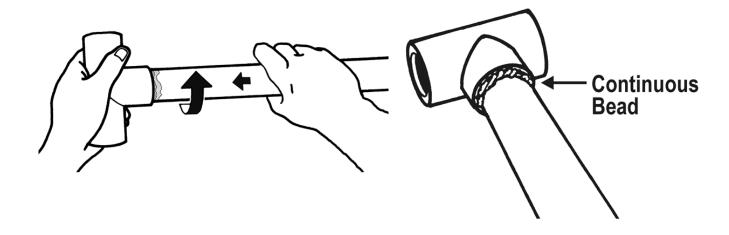
- Do not allow excess cement to puddle in the pipe and fitting assembly. To prevent this puddling, apply a lighter coating of solvent cement to the inside of the fitting socket than the outside of the pipe.
- Wipe off excess cement on the outside of the joint. The solvents will evaporate, but the solvent cement inside the fitting will stay
 there.
- Take care to prevent cement from running into the threads of Sprinkler Head Adapters and Adjustable Sprinkler Head Adapters. Where possible, it is recommended to pre-install head adapters on to pre-cut Drops (section of pipe) and allow to achieve initial set in the inverted position. The head adapter and drop combination can then be installed into the system fitting.

Joining Methods - Solvent Cementing



STEP 5 ASSEMBLY

After applying cement, immediately insert the pipe into the fitting socket, while rotating the pipeone-quarter turn untilthe pipe bottoms out at the fitting stop. Rotate the pipe as it is inserted into the fitting not after it has bottomed out in the fitting. Properly align the fitting for the installation at this time. Pipe must bottom to the stop. Hold the assembly for 30 seconds to ensure initial bonding. A bead of solvent cement should be evident around the pipe and fitting juncture. If this bead is not continuous around the socket shoulder, it may indicate that insufficient cement was applied. If insufficient cement is applied, the fitting must be cut out and discarded. Cement in excess of the bead should be wiped off with a rag.



NOTICE: Failure to allow sprinkler head adapter fitting joints to cure before installing sprinklers may result in cement in the sprinkler waterway.

Install sprinkler heads only after all the CPVC pipe and fittings, including the sprinkler head adapters, are solvent welded and allowed to cure for a minimum of 30 minutes.

Do not install sprinklers in the fittings prior to the fittings being cemented in place.

STEP 6 SET AND CURE TIMES

NOTICE: Inadequate curing of solvent cement joints may cause pipe failure or leakage. Solvent cement set and cure times are a function of pipe size, temperature, relative humidity, and tightness of fit.

Cure times should be increased when moisture is present such as during cut-ins to live sprinkler lines. (NOTE: refer to Recommended Cut-In Procedures for System Modification or Repair section in this manual.) The assembly must be allowed to set, without any stress on the joint, for 5 minutes, depending on pipe size and temperature. Following the initial set period, the assembly can be handled carefully, avoiding significant stresses to the joint.

Joining Methods - Solvent Cementing

| Table 1: Minimum Cure Time Table for Pressure Test up to 225 psi (15.5 bar) Ambient Temperature During Cure | | | | |
|---|----------------------------------|--------------------------------|--------------------------------|--|
| Nominal Pipe Sizes | 60° F to 120° F (16° C to 49° C) | 40° F to 59° F (4° C to 15° C) | 0° F to 39° F (-18° C to 3° C) | |
| 3/4" (DN20) | 1 hour | 4 hours | 48 hours | |
| 1" (DN25) | 1-1/2 hours | 4 hours | 48 hours | |
| 1-1/4" & 1-1/2"" (DN32 & DN40) | 3 hours | 4 hours | 48 hours | |
| 2" (DN50) | 8 hours | 48 hours | Note 1 | |
| 2-1/2" & 3" (DN65 & DN80) | 24 hours | 96 hours | Note 1 | |

| Table 2: Minimum Cure Time Table for Pressure Test up to 200 psi (13.8 bar) Ambient Temperature During Cure | | | | |
|---|----------------------------------|--------------------------------|--------------------------------|--|
| Nominal Pipe Sizes | 60° F to 120° F (16° C to 49° C) | 40° F to 59° F (4° C to 15° C) | 0° F to 39° F (-18° C to 3° C) | |
| 3/4" (DN20) | 45 minutes | 1-1/2 hours | 24 hr. | |
| 1" (DN25) | 45 minutes | 1-1/2 hours | 24 hr. | |
| 1-1/4" & 1-1/2"" (DN32 & DN40) | 1-1/2 hours | 16 hours | 120 hours | |
| 2" (DN50) | 6 hours | 36 hours | Note 1 | |
| 2-1/2" & 3" (DN65 & DN80) | 8 hours | 72 hours | Note 1 | |

Note 1: For these sizes, the solvent cement can be applied at temperatures below 40° F (4° C). However, the sprinkler system temperature must be raised to a temperature of 40° F (4° C) or above and allowed to cure per the above recommendations prior to pressure testing.

| Table 3: Minimum Cure Time Table for Pressure Test up to 100 psi (6.9 bar) Ambient Temperature During Cure | | | | |
|--|----------------------------------|--------------------------------|--------------------------------|--|
| Nominal Pipe Sizes | 60° F to 120° F (16° C to 49° C) | 40° F to 59° F (4° C to 15° C) | 0° F to 39° F (-18° C to 3° C) | |
| 3/4" (DN20) | 15 minutes | 15 minutes | 30 minutes | |
| 1" (DN25) | 15 minutes | 30 minutes | 30 minutes | |
| 1-1/4" (DN32) | 15 minutes | 30 minutes | 2 hours | |

Notice: 1-1/2-inch and larger must be tested ONLY in accordance with Table 1 and Table 2.

WARNING: Make sure you allow the cement to cure according to the times listed in the charts for the pipe size and ambient temperature. These cure times have been tested and approved for Spears® FlameGuard® CPVC Fire Sprinkler products. DO NOT install any sprinkler heads until the piping system has cured for a minimum of 30 minutes.

The following guidelines provide an estimate of the quantities of Spears® FS-5 Low VOC Solvent Cement that you will need to complete the assembly.

Solvent Cement Requirements

| Nominal Fitting Sizes | Solvent Cement Number of Joints Per Quart (estimated) |
|-----------------------|---|
| 3/4" (DN20) | 270 |
| 1" (DN25) | 180 |
| 1-1/4" (DN32) | 130 |
| 1-1/2" (DN40) | 100 |
| 2" (DN50) | 70 |
| 2-1/2" (DN65) | 50 |
| 3" (DN80) | 40 |

Joining Methods - Threaded Connections



Threaded Connections

WARNING: Use only thread sealant recommended by Spears®. Other joint compounds or pastes may contain substances that could cause stress cracks in the CPVC. Cutting oils used in metal pipe threading cause stress cracking in CPVC materials. All cutting oils must be removed (Spears® recommends using a commercially available dishwashing soap). THE METAL PIPE MUST BE THOROUGHLY FLUSHED and degreased prior to assembly with CPVC systems. Some soap residues can damage CPVC piping.

STEP 1 APPLY SEALANT ONLY TO MALE THREAD

DO NOT used a combination of tape and paste sealants.

DO NOT clog waterway with excessive sealant.

DO NOT use any sealant on any Gasket Sealed Head Adapters.

RECOMMENDED SEALANT:

Spears[®] Manufacturing Company recommends the use of Spears[®] BLUE 75[™] thread sealant, which has been tested for compatibility with Spears[®] products. Please follow the sealant Manufacturer's Application/Installation instructions. Choice of another appropriate thread sealant is at the discretion of the installer.

STEP 2 ASSEMBLE JOINT BY HAND

Thread Sprinkler Head in "finger tight" for initial assembly.

STEP 3 WRENCH MAKE-UP

Use an adjustable wrench on the flats of the Head Adapter and Wrench recommended by Sprinkler Manufacturer for the Head. Generally, wrench make-up of 1 to 2 turns beyond finger tight is sufficient. Avoid "backing up" the wrenched assembly.

For Sprinkler Head Adapter connections:

Standard Metal Thread 15 ft.-lbs. 20 ft.-lbs.

For Female Adapter transitions to metal pipe, tighten hand-tight plus 1-1/2 turns.

DO NOT over-tighten.

IF A TAPE SEALANT MUST BE USED:

Min. Torque:

Max. Torque:

- 1. Use PTFE tape no less than 3.5 mil thick.
- 2. Initial wrap must fully cover the thread end.
- 3. Wrap clockwise with standard pipe threads.
- 4. For Head Adapters, use ONLY 2 3 wraps of tape and tighten to specified torque.
- 5. For Female Adapter transition to metal pipe, use ONLY 5 5-1/2 wraps of tape and tighten hand-tight plus 1-1/2 turns.

Special Reinforced (SR) Plastic Thread 5 ft.-lbs. 10 ft.-lbs.



Do Not use any sealant on any Gasket Sealed Head Adapters.

WARNING: Always use commercially available strap wrenches. Do not use conventional pipe wrenches that can damage fitting.

WARNING: DO NOT over-torque any threaded connections. Generally, one to two turns beyond finger-tight are required to make a threaded connection. Factory testing has indicated that 15 - 20 ft-lbs of torque on Metal Thread Head Adapters and 5 - 10 ft-lbs on Special Reinforced (SR) Plastic Thread Head Adapters is adequate to obtain a leak free seal for Sprinkler Head Installations. Transitions to metal pipe using Female Adapters should be hand tight plus 1-1/2 turns.

NOTICE: Sprinkler heads must be installed only after all fire sprinkler pipe fittings, including the sprinkler head adapters, are cemented to the piping and have been allowed to cure for a minimum of 30 minutes. Plastic, threaded plugs are available for use in pressure testing. Before installing the sprinkler head, the sprinkler head fittings must be visually inspected or probed with a wooden dowel to ensure that the waterway and threaded areas are free of any excess cement that may restrict the flow of water



Joining Methods - Threaded Connections

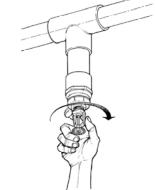
TorqueSafe® Gasket Sealed Thread Connections

This type of connection can only be made when using the FlameGuard® TorqueSafe™ Gasket Female Sprinkler Head Adapter. This special adapter has a special thread with gasket for sealing the sprinkler head. The adapter provides a special thread insert that can be rotated for proper frame alignment during installation. Warning: DO NOT USE ANY TYPE OF THREAD SEALANT when installing this adapter. Use of tape or paste sealant may impair proper sealing and function of the adapter.

STEP 1 INSTALL SPRINKLER HEAD BY HAND

Check that elastomer gasket and threads are clean, dry and gasket is seated at the base of the adapter thread. Install sprinkler head hand tight into adapter. **DO NOT use any thread sealant.**





NO Tape -- NO Paste

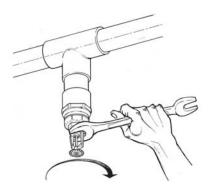
Hand install until snug

STEP 2 WRENCH ALIGNMENT

With wrench on sprinkler head, rotate sprinkler head clockwise until frame is properly aligned (Brass insert and Sprinkler head will rotate together. This will require approximately 10 to 25 ft-lbs torque at final orientation). **Caution: DO NOT use back-up wrench on brass insert flats.**

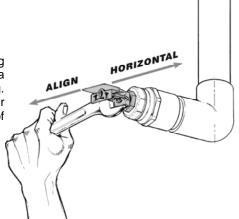
Back-up wrench may be applied to brass insert flats ONLY for removal of sprinkler head if required.

NOTE: Align Sprinkler Head Frame with Pipe Centerline



NOTICE: Sprinkler heads must be installed only after all fire sprinkler pipe fittings, including the sprinkler head adapters, are cemented to the piping and have been allowed to cure for a minimum of 30 minutes. Plastic, threaded plugs are available for use in pressure testing. Before installing the sprinkler head, the sprinkler head fittings must be visually inspected or probed with a wooden dowel to ensure that the waterway and threaded areas are free of any excess cement that may restrict the flow of water.

NOTE: Align Sidewall Sprinkler Head & Frame Horizontally



Joining Methods - Thread Connections



QuickTorque™ & SofTorque™ Gasket Sealed Thread Connections

This type of connection can only be made when using the FlameGuard® QuickTorque™ or SofTorque™ Gasket Female Sprinkler Head Adapter. These adapters both install the same. The difference being that the QuickTorque™ has a metal thread and the SofTorque™ has the patented Special reinforced (SR) thread. These special adapters have a special compressible gasket for sealing the sprinkler head. The Gasket can be compressed as specified for installation and can be further compressed for proper frame alignment during installation.Warning: DO NOT USE ANY TYPE OF THREAD SEALANT when installing these adapters. Use of tape or paste sealant may impair proper sealing and function of the adapter.

STEP 1 INSTALL SPRINKLER HEAD BY HAND Check that elastomer gasket and threads are clean, dry. Install sprinkler head finger tight into adapter. DO NOT use any thread sealant.





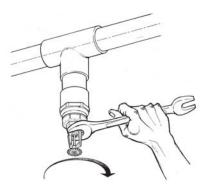
NO Tape -- NO Paste

Hand install until snug

STEP 2 WRENCH TIGHTEN 1-TURN

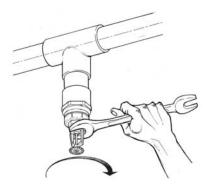
With wrench on sprinkler head, rotate sprinkler head clockwise 1-Turn.

NOTE: Align Sprinkler Head Frame with Pipe Centerline



STEP 3 WRENCH ALIGNMENT

With wrench on sprinkler head, additionally rotate sprinkler head clockwise a maximum of 1 additional turn until frame is properly aligned. Follow this step for either vertical or horizontal head alignment. NOTE: Align Sprinkler Head Frame with Pipe Centerline.



NOTICE Back-up wrench may be applied to the Adapter flats for removal of sprinkler head if required.



Joining Methods - GripLoc[™] Connections



GripLoc™ Fitting Connection - APPROV

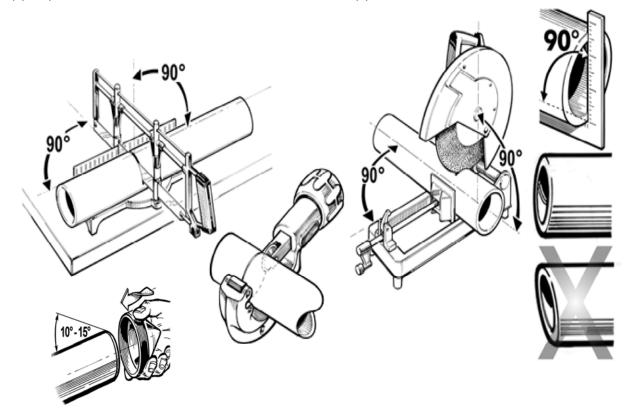
Spears® GripLoc™ fittings include a variety of configurations including head adapters, repair couplings, tees, elbows and caps. These use an engineered joint that incorporates a stainless steel gripper and gasket for direct connection to CPVC pipe using NO SOLVENT CEMENT. It is designed for quick fitting connections when adding or repairing system components.

Note: Spears® GripLoc[™] fittings are not UL listed.

WARNING: DO NOT INSERT FINGERS INTO GRIPPER END. Gripper teeth are quite sharp.

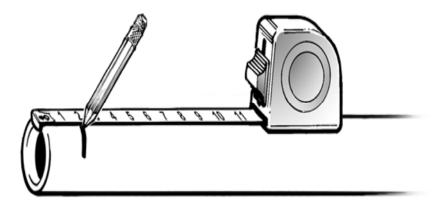
STEP 1 CUT, CLEAN & BEVEL PIPE END

Cut pipe square at 90°. Remove all dirt and debris, deburr and bevel pipe end 10°-15°.



STEP 2 MEASURE FITTING & MARK PIPE

Measure depth of fitting to its pipe stop. Mark this distance on pipe end.



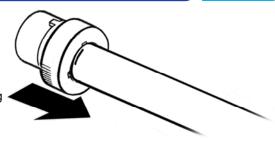
Joining Methods - GripLoc[™] & Flanged Connections



STEP 3 INSTALL PIPE

Insert pipe and Push in all the way to mark on pipe end.

NOTICE: GripLoc[™] Expansion Repair Couplings will require thrust blocking restraints to keep unit from expanding under pressure.



Painting Pipe & Fittings

CAUTION: The UL Listing DOES NOT cover painted CPVC fire sprinkler piping products. Use of certain paints, such as oil-based, can damage CPVC fire sprinkler piping products. **Use only a water-based latex paint. Before painting any CPVC fire sprinkler piping products, you must consult with your local authority having jurisdiction for restrictions.**

Cleaning

Spears® FlameGuard® CPVC Fire Sprinkler Products can be cleaned using clean water and a soft towel. **DO NOT use ammonia or other harsh chemical cleaners.**

Transitions to Other Materials

Specifically designed female threaded adapters, grooved coupling adapters, and flanges are Listed for connecting systems incorporating Spears® FlameGuard® CPVC Fire Sprinkler Products to other materials, valves, and accessories. A special, reinforced female threaded adapter is available for connection to the sprinkler head.

Flanged Connections

Piping runs joined to the flanges must be installed in a straight line in relation to the flange to avoid stress at the flange due to misalignment. In addition, piping must be secured and supported to prevent lateral movement, which can create stress and damage the flange. Use only full-faced, Grade E, EPDM, 1/8" thick flange gaskets.

STEP 1 ATTACH FLANGE TO PIPE.

The flange must be attached to UL Listed CPVC pipe following procedures for Solvent Cement Welded Joints in this manual.

NOTICE: When using "One-Piece" type flanges (fixed flange ring), care must be taken to align bolt holes with mating flange during solvent welding installation to pipe, or assure that pipe in system can be adequately rotated for correct hole alignment.

STEP 2 POSITION GASKET & ALIGN FLANGES.

With gasket between flanges, align gasket and mating flange bolt holes by rotating flange ring (see notice above).

STEP 3 INSTALL BOLTS, NUTS, & WASHERS.

Bolts should be lubricated with an acceptable anti-seize lubricant (such as IMS Copper Flake [K-Factor 0.15]). Insert required bolts through flange bolt holes being sure to use two (2) flat washers per bolt, one at head and one below nut. Make sure that mating flanges are flush against gasket and properly aligned. Tighten nuts by hand until snug.

WARNING: Certain lubricants can cause stress cracking in CPVC materials.

STEP 4 TIGHTEN FLANGE BOLTS.

Establish uniform pressure over the flange face by tightening bolts in 5-ft. lbs. increments using the sequence shown in Figure 1 and specified torque values.

CAUTION: : DO NOT use bolts to draw together improperly mated flanges. Care must be taken to avoid "bending" the flange ring when attached to a raised-face flange or wafer style valves.

Joining Methods - Flanged & Grooved Mechanical Couplings

Flange Data & Bolt Torque

The following recommendations are based on the use of two standard flat washers, standard nuts, and 1/8-inch thick EPDM full- face gasket. Actual field conditions may require a variation in these recommendations.

FIG. 1



| Flange Size | Recommended |
|---------------|---------------|
| Nominal In. | Torque ft-lbs |
| 3/4 to 1-1/2 | 12 |
| (DN20 - DN40) | (16,3) |
| 2 to 3 | 25 |
| (DN50 - DN80) | (33,9) |

| Flange Size | Bolt | Bolt Diameter inches (mm) | Minimum Bolt | | |
|--------------|-------|---------------------------|--------------------|--|--|
| Nominal in. | Holes | | Length inches (mm) | | |
| 3/4 | 4 | 1/2 | 2 | | |
| (DN20) | | (12,7) | (50,8) | | |
| 1 | 4 | 1/2 | 2-1/4 | | |
| (DN25) | | (12,7) | (57,2) | | |
| 1-1/4 | 4 | 1/2 | 2-1/4 | | |
| (DN32) | | (12,7) | (57,2) | | |
| 1-1/2 | 4 | 1/2 | 2-1/2 | | |
| (DN40) | | (12,7) | (63,5) | | |
| 2 | | 5/8 | 3 | | |
| (DN50) 4 | | (15,9) | (76,2) | | |
| 2-1/2 & 3 | 4 | 5/8 | 3-1/4 | | |
| (DN65 &DN80) | |)15,9) | (85,6) | | |

Grooved Coupling Adapters

Spears® FlameGuard® CPVC Grooved Coupling Adapters are designed for use with Victaulic Style 75 and Style 77 Flexible Couplings. Other UL Listed couplings of similar flexible design may be used.

CAUTION: The use of rigid style couplings will damage the Grooved Coupling Adapter. Consult coupling manufacturer for proper selection.

STEP 1 INSPECT PIPE & ADAPTER.

Check to ensure that both pipe and Grooved Coupling Adapter are free of indentations, projections, or roll marks on the gasket seating areas. Pipe end must be cut square and any loose scale, paint or dirt removed.

NOTICE: Use a standard grade "E" (EPDM) compound gasket with a green stripe or a grade "E," type "A" gasket with a purple stripe that is suitable for wet fire sprinkler service.

Joining Methods - Grooved Mechanical Couplings



STEP 2 INSPECT & LUBRICATE GASKET.

Be sure the gasket is clean and free of any cracks, cuts, or other defects that could cause leaks. DO NOT allow solvent cement to contact the sealing surface of the gasket. Lubricate the gasket with a compatible lubricant to prevent pinching and to assist in the seating and alignment process. Apply a thin layer of lubricant to the gasket lips and exterior surface. Pre-lubricated gaskets may be used. It is the installer's responsibility to determine both the gasket suitability and chemical compatibility of any lubricants. Consult gasket and lubricant manufacturers.

WARNING: When using "Certain lubricants may contain petroleum based or other chemical that can damage the gasket or adapter. Verify the suitability of the lubricant with the manufacturer before use.

STEP 3 ALIGN COMPONENTS & INSTALL GASKET.

Place the gasket over the pipe end making sure the gasket lip does not overhang the end of the pipe. Align the grooved coupling adapter with the end of the pipe and slide the gasket over the seating surface of the adapter, centering the gasket between the two grooves. Make sure the gasket is not pinched between the pipe and the adapter fitting. No portion of the gasket should extend into the grooves.

STEP 4 INSTALL COUPLING.

Place the coupling housings over the gasket, making sure the housing keys engage into the grooves of the pipe and the adapter fitting. Insert the bolts and apply the nuts finger-tight. Using a socket wrench or other appropriate tool, tighten the nuts alternately and equally until you achieve metal-to-metal contact at the housings' bolt pads.

WARNING: You must tighten the bolts alternately and evenly to achieve metal-to-metal contact at the housings' bolt pads.

Inspect the joints before and after pressure testing. Look for gaps between the bolt pads and for housing keys that are not inside the grooves. Ensure that the pipe alignment does not place undue stress on the grooved coupling adapters. The maximum recommended pipe hanger distance from the grooved coupling adapter fitting is shown in the following table.

| Nominal Pipe Sizes | Maximum Recommended Hanger Spacing feet (meters) |
|--------------------|--|
| 1-1/4 | 6-1/2 |
| (DN32) | (2,0) |
| 1-1/2 | 7 |
| (DN40) | (2,1) |
| 2 | 8 |
| (DN50) | (2,4) |
| 2-1/2 | 9 |
| (DN65) | (2,7) |
| 3 | 10 |
| (DN80) | (3,0) |

As an added precaution to enhance the structural design of the system, it is suggested that a hanger or support be located at or near the grooved coupling adapter joint. This hanger or support can be on either side of the coupling. However, this is not a requirement, since the hanger spacing shown in the above table meets the minimum requirements established by UL.

SPEARS Installation - Adjusta

FlameGuard® Technical

Installation - Adjustable Head Adapters & Cut-In Procedures

Adjustable Sprinkler Head Adapter Installation

Spears® FlameGuard® CPV Adjustable Fire Sprinkler Head Adapter comes pre-assembled. There is no need for lubrication. It is recommended that the adjustable sprinkler head adapter be adjusted completely "in" by hand before beginning the installation process.

STEP 1 INSTALL ADAPTER ON DROP.

The Adjustable Sprinkler Head Adapter must be installed in accordance with the approved procedures for Solvent Cement Welded Joints, as outlined in this manual. It is recommended that the drop/riser pipe be solvent cemented into the adjustable sprinkler head adapter first, and then into the drop/riser tee or elbow.

CAUTION: Care must be taken to prevent solvent cement from coming in contact with the internal O-ring seal or sealing surface. All pipe shavings, dirt and debris must be flushed from the drop prior to adjustment. DO NOT over extend the adjustment barrel. Extend only to the point that free movement stops or damage to internal sealing components may result.

STEP 2 INSTALL SPRINKER HEAD.

Sprinkler head installation must be in accordance with the approved procedures for Threaded Connections, as outlined in this manual. The Adjustable Sprinkler Head Adapter has multiple wrench flats provided to hold the adjustment barrel while installing the sprinkler head. These same wrench flats must be used to adjust the sprinkler head adapter to its required position.

CAUTION: Never use wrenches, pliers, or any other tool on the threaded portion of the adjustment barrel. DO NOT over extend the adjustment barrel.

STEP 3 ADJUST FINISHED HEIGHT.

The maximum range of travel is 1-5/8". Always use multiple wrench flats for making adjustments. Make adjustments slowly if system is pressurized in order to avoid inadvertently over extending adjustment barrel.

CAUTION: Care must be taken not to extend or retract the adjustment barrel excessively, since this may result in damage to the adapter. Adjust only to the point that free movement stops.

For the purpose of hydraulic calculations, the adjustable sprinkler head **equivalent length of pipe in feet are as follows:** 3/4"x1/2" = 6-ft., 1"x1/2" = 9-ft.

Recommended Cut-in Procedures for System Modification or Repair

Existing system modifications or repairs can be made using Spears® FlameGuard® CPVC Fire Sprinkler Products. In order to maintain full system integrity, the following procedure must be followed when making a system tie-in or repair by cutting into an existing system line. A careful review of all Joining Procedures must be made prior to making a cut-in on an existing system and the Minimum Cut-in Cure Times schedule listed below must be followed. A variety of fitting combinations can be used to tie into an existing system or replace a section between fixed cut-in points. These include using a socket Tee for add-ons or a socket Coupling for repairs in combination with a mechanical joint such as a union, grooved coupling adapter, or flange. Regardless of the components selected, the following must be adhered to:

STEP 1

System modification cut-ins should be made on the smallest diameter pipe section, in close proximity to the area of modification, capable of properly supplying the system change.

STEP 2

Carefully plan and measure prior to cutting into existing system. Be sure to provide adequate space and insure that full insertion into fitting sockets can be made during assembly.

Note: Allowance must be made for making a 1/4-turn twist when inserting the pipe into the fitting during assembly of the tee (or other component), especially on 1-1/2" and larger pipe sizes. This may require assembly of components in combination with the cut-in tee to create a short spool piece for final connection using socket unions, flanges, or grooved coupling adapters.

STEP 3

Review all Installation & Joining procedures prior to commencing cut- in (including square cutting, deburring & beveling, cleaning, dry fit checks).

Installation - Cut-In Procedures



STEP 4

Depressurize and drain existing line prior to making the cut-in.

STEP 5

Connect to the existing system prior to proceeding with the modification or repair.

STEP 6

All pipe shavings, dirt, debris must be removed from the cut-in system and, water and residual moisture must be removed from all solvent cement areas. Vacuum lines and wipe dry with a clean dry rag. Moisture and dirt will slow the curing and can affect joint strength.

STEP 7

Use only a new can of approved solvent cement when making cut-in connections. Verify cement expiration date on can prior to use.

STEP 8

Cut-ins for modifications or system repairs are often made under less than ideal situations as compared to new installations. As a result, the following specified Minimum Cut-in Cure times must be used.

Minimum Cut-in Cure Times

| Pipe Size Nominal In. | 60° F to 120° F (16° C to 49° C) | | | | | |
|----------------------------------|-------------------------------------|----------|----------|--|--|--|
| 3/4" (DN20) | 1 hours | 4 hours | 48 hours | | | |
| 1" (DN25) | 1-1/2 hours | 4 hours | 48 hours | | | |
| 1-1/4" & 1-1/2" (DN32 - DN40) | 3 hours | 32 hours | 10 Days | | | |
| 2" (DN50) | 8 hours | 48 hours | Note 1 | | | |
| 2-1/2" & 3" (DN65 - DN80) | 24 hours | 96 hours | Note 1 | | | |

Note 1:Solvent cement can be applied at temperatures below 40° F (4° C) in all sizes. For the 2-1/2" & larger, the temperature must be raised to 40° F (4° C) or above and allowed to cure for the recommended times before the system is filled and pressurized. Cement, pipe or fittings brought in from colder outside temperatures must be brought up to room temperature before using the 60° F to 120° F cure schedule.

STEP 9

Following completion and proper cure, inspect for proper alignment and hanger placement prior to pressure testing.

STEP 10

To pressure test the system, slowly fill the system with water and make sure that all air is bled from the farthest and highest point before test pressure is applied. The system MUST be pressure tested in accordance with NFPA 13, NFPA 24, or any other applicable NFPA standard requirements. The system must be tested with water. The purpose of the hydrostatic pressure test is to check for leakage, and it may not identify improperly assembled joints. This test MUST NOT be considered a substitute for full compliance to these published installation instructions.

It is recommended that the portion of the sprinkler system containing the cut-in tee be isolated for pressure test where possible. The applied test pressure should not exceed 50 psi over the system pressure in order to minimize water damage in the event that a leak occurs.

WARNING: Spears® FlameGuard® CPVC Fire Sprinkler Products must never be used in a system for distribution of compressed air or other gases. Air must be removed from piping systems. Entrapped air can generate excessive surge pressures, regardless of the piping materials used. Failure to follow this warning could result in product failure, property damage and severe personal injury or death.



FlameGuard® Technical System Testing

System Flushing Recommendation

Spears® recommends the entire system, including drops, be thoroughly flushed to remove all pipe shavings, dirt and debris left from installation prior to installing any sprinklers and testing. Fill lines slowly and bleed air from the farthest and highest point, then flush with full flow.

System Acceptance Testing (Hydrostatic Pressure Test)

Once an installation is completed and joints are properly cured per the above recommendations, the system should be hydrostatically pressure tested with water at 200 psi (13.8 bar) for 2 hours. See Table II for curing conditions at 200 psi (13.8 bar).

The system should be pressure tested with water at 50 psi (3.4 bar) in excess of maximum pressure when the maximum system pressure is to be maintained in excess of 150 psi (10.3 bar). See Table I for curing conditions at 225 psi (15.5 bar).

Sprinkler systems in one- and two-family dwellings and mobile homes may be pressure tested with water at line pressure, after following Table III curing conditions.

When pressure testing, the sprinkler system shall be slowly filled with water and the air bled from the highest and farthest sprinkler heads before pressure testing is applied. Air must be removed from piping systems (plastic or metal) to prevent it from being locked in the system when pressure is applied. Entrapped air can generate excessive surge pressures that can result in bodily injury and/or property damage, regardless of the piping materials used.

If a leak is found, the fitting must be cut out and discarded. A new section can be installed using couplings or a union. Unions should be used in accessible areas only.

System Pre-Acceptance Air Test Provision

Spears® FlameGuard® systems can be tested with Oil Free Air (OFA) at a maximum of 25psi. This is not a substitute for the NFPA hydrostatic test of the system (see System Acceptance Testing), which is still required. This is to help contractors quickly test the system to make sure all components are not leaking.

The following safety concerns must be practiced and followed:

- 1. Use eye protection and other appropriate safety equipment.
- 2. Use only Oil-Free Air or Nitrogen.
- 3. Use only regulated pressure with a 25 psi over-pressure relief valve.

Follow NFPA requirements for System Acceptance Hydrostatic testing.

Warning: Compressed air use in PVC and CPVC plastic systems is potentially hazardous and in most jurisdictions is prohibited for use in transport, storage or distribution of compressed air or gasses. Air is a compressible gas that can store far more energy than water when put under pressure because it can release this energy so rapidly. This potentially explosive nature can result in serious injury. All safety practices above MUST be followed.



FlameGuard[®] Product Weights & Dimensions



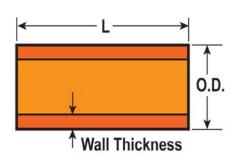
ENGINEERING GUIDE

Contact Spears® for any Information not found.



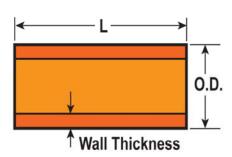
Pipe - FlameGuard[®] CPVC Fire Sprinkler Plain End

SDR 13.5 10' Lengths



| Part Number | Size | L | AVG.O.D. | Minimum Wall | Approx. Wt. (Lbs./Ft) |
|-------------|-------|----|----------|-----------------|--------------------------|
| CP-007-10 | 3/4 | 10 | 1.050 | .078 | .16 |
| CP-010-10 | 1 | 10 | 1.315 | .097 | .26 |
| CP-012-10 | 1-1/4 | 10 | 1.660 | .123 | .39 |
| CP-015-10 | 1-1/2 | 10 | 1.900 | .141 | .52 |
| CP-020-10 | 2 | 10 | 2.375 | .176 | .85 |
| CP-025-10 | 2-1/2 | 10 | 2.875 | .213 | 1.25 |
| CP-030-10 | 3 | 10 | 3.500 | .259 | 1.86 |

Pipe - FlameGuard® CPVC Fire Sprinkler Plain End SDR 13.5, 15' Lengths



| Part Number | Size | L | AVG.O.D. | Minimum Wall | Approx. Wt. (Lbs./Ft) |
|-------------|-------|----|----------|-----------------|--------------------------|
| CP-007 | 3/4 | 15 | 1.050 | .078 | .16 |
| CP-010 | 1 | 15 | 1.315 | .097 | .26 |
| CP-012 | 1-1/4 | 15 | 1.660 | .123 | .39 |
| CP-015 | 1-1/2 | 15 | 1.900 | .141 | .52 |
| CP-020 | 2 | 15 | 2.375 | .176 | .85 |
| CP-025 | 2-1/2 | 15 | 2.875 | .213 | 1.25 |
| CP-030 | 3 | 15 | 3.500 | .259 | 1.86 |

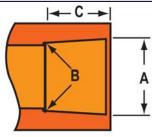
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FlameGuard® Product Weights & Dimensions



Socket Dimensions

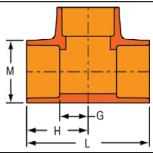
SCH 40 - ASTM F438 SCH 80 - ASTM F439



| Size | Socket Entrance A | Socket Bottom B | Tolerance | SCH 40 Minimum Socket Length C | SCH 80 Minimum Socket Length C |
|-------|----------------------|--------------------|-----------|-----------------------------------|-----------------------------------|
| 3/4 | 1.058 | 1.046 | ± .004 | .719 | 1.000 |
| 1 | 1.325 | 1.130 | ± .005 | .875 | 1.125 |
| 1-1/4 | 1.670 | 1.655 | ± .005 | .938 | 1.250 |
| 1-1/2 | 1.912 | 1.894 | ± .006 | 1.094 | 1.375 |
| 2 | 2.387 | 2.369 | ± .005 | 1.156 | 1.500 |
| 2-1/2 | 2.889 | 2.868 | ± .007 | 1.750 | 1.750 |
| 3 | 3.516 | 3.492 | ± .008 | 1.875 | 1.875 |

Tee

Socket x Socket x Socket

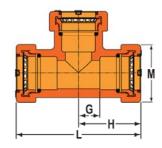


| Part Number | Size | G | Н | L | М | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|---------|---------|-----------------------|
| 4201-007 | 3/4 | 9/16 | 1- 1/2 | 2-31/32 | 1- 5/16 | .11 |
| 4201-010 | 1 | 7/8 | 1-13/16 | 3- 5/8 | 1- 5/8 | .19 |
| 4201-012 | 1-1/4 | 29/32 | 2- 1/8 | 4- 1/4 | 2 | .29 |
| 4201-015 | 1-1/2 | 1- 5/32 | 2-35/64 | 5- 3/32 | 2-11/32 | .53 |
| 4201-020 | 2 | 1-13/32 | 2-15/16 | 5- 7/8 | 2- 7/8 | .79 |
| 4201-025 | 2-1/2 | 1-23/32 | 3- 1/2 | 7 | 3-15/32 | 1.61 |
| 4201-030 | 3 | 2- 1/16 | 3-31/32 | 7-15/16 | 4- 5/32 | 2.50 |

GripLoc™ Tee
WARNING: DO NOT INSERT FINGERS

EPDM Gasket

Uses No Solvent Cement - NSF® Certified Lead



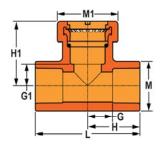
| Part Number | Size | G | Н | L | M | Approx. Wt. (Lbs.) |
|-------------|------|-------|-------|---|--------|-----------------------|
| GL4201-010 | 1 | 27/32 | 2-1/2 | 5 | 2-5/16 | .73 |



FlameGuard® Product Weights & Dimensions

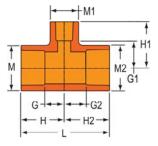
Socket x GripLoc[™] Tee Socket x GripLoc[™]

Uses No Solvent Cement On GripLoc™ Branch -Cement Sockets on Tee Run Only, NSF® Certified Lead Free 175 psi (1.21 Mpa) @ 150°F (66°C)



| Part Number | Size | G | G1 | Н | H1 | L | M | M1 | Approx. Wt. (Lbs.) |
|-------------|------|-------|-----|---|-------|---|-------|--------|-----------------------|
| GLS4201-010 | 1 | 15/16 | 7/8 | 2 | 2-1/2 | 4 | 1-7/8 | 2-5/16 | .48 |

Reducing Tee Socket x Socket x Socket



| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | М | M1 | M2 | Approx. Wt. (Lbs.) |
|-------------------------|-----------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|-----------------------|
| 4201-102 | 3/4X1 | 3/4 | 11/16 | 3/4 | 1-11/16 | 1-3/4 | 1-11/16 | 3- 13/32 | 1- 5/16 | 1-5/8 | 1- 5/16 | .12 |
| 4201-125 | 1X3/4X3/4 | 23/32 | 13/16 | 23/32 | 1-25/32 | 1-13/16 | 1-21/32 | 3-7/16 | 1-19/32 | 1-5/16 | 1- 5/16 | .15 |
| 4201-126 | 1X3/4X1 | 23/32 | 23/32 | 3/4 | 1-27/32 | 1-27/32 | 1-3/4 | 3-19/32 | 1-5/8 | 1-5/8 | 1-5/16 | .16 |
| 4201-131 | 1X3/4 | 11/16 | 13/16 | 11/16 | 1-13/16 | 1-7/8 | 1-13/16 | 3- 5/8 | 1- 5/8 | 1- 5/16 | 1- 5/8 | .16 |
| 4201-157 | 1-1/4X1X3/4 | 11/16 | 1- 1/32 | 11/16 | 1-15/16 | 2- 1/32 | 1-13/16 | 3-25/32 | 2- 3/32 | 1-13/32 | 1-23/32 | .32 |
| 4201-158 | 1-1/4X1X1 | 27/32 | 29/32 | 25/32 | 2- 1/16 | 2- 1/32 | 1-29/32 | 3-15/16 | 1-31/32 | 1- 5/8 | 1- 5/8 | .25 |
| 4201-159 | 1-1/4X1X1-1/4 | 31/32 | 7/8 | 31/32 | 2- 7/32 | 2- 1/8 | 2- 3/32 | 4-11/32 | 2- 3/32 | 2- 3/32 | 1-23/32 | .36 |
| 4201-167 | 1-1/4X3/4 | 21/32 | 1 | 21/32 | 1-29/32 | 2 | 1-29/32 | 3-13/16 | 2 | 1- 5/16 | 2 | .21 |
| 4201-168 | 1-1/4X1 | 13/16 | 1 | 13/16 | 2- 1/16 | 2-1/8 | 2- 1/16 | 4- 1/8 | 2 | 1-5/8 | 2 | .24 |
| 4201-169 | 1-1/4X1-1/2 | 1- 1/8 | 15/16 | 1- 1/8 | 2- 3/8 | 2-11/32 | 2- 3/8 | 4- 3/4 | 2- 3/32 | 2-11/32 | 2- 3/32 | .50 |
| 4201-201 | 1-1/2X1-1/4X3/4 | 11/16 | 1-3/32 | 11/16 | 2- 1/16 | 2- 3/32 | 1-15/16 | 4 | 2- 5/16 | 1- 3/8 | 2- 1/16 | .40 |
| 4201-202 | 1-1/2X1-1/4X1 | 27/32 | 1- 1/32 | 1 | 2- 7/32 | 2- 5/32 | 2- 1/4 | 4-15/32 | 2- 5/16 | 1-11/16 | 2- 1/16 | .42 |
| 4201-210 | 1-1/2X3/4 | 11/16 | 1- 1/32 | 11/16 | 2- 1/16 | 2- 1/32 | 2- 1/16 | 4- 5/32 | 2-11/32 | 1-3/8 | 2-11/32 | .39 |
| 4201-211 | 1-1/2X1 | 13/16 | 1-3/32 | 13/16 | 2- 3/16 | 2-1/4 | 2- 3/16 | 4- 3/8 | 2-11/32 | 1-3/4 | 2-11/32 | .41 |
| 4201-212 | 1-1/2X1-1/4 | 1-1/32 | 1 | 1-1/32 | 2-13/32 | 2-1/4 | 2-13/32 | 4-13/16 | 2-11/32 | 2-1/8 | 2-11/32 | .48 |
| 4201-213 | 1-1/2X2 | 1-9/32 | 1-1/4 | 1-9/32 | 2-21/32 | 2-3/4 | 2-21/32 | 5-11/32 | 2-11/32 | 2-7/8 | 2-11/32 | .64 |
| 4201-248 | 2X3/4 | 11/16 | 1-7/16 | 11/16 | 2- 7/32 | 2- 7/16 | 2- 7/32 | 4- 7/16 | 2-27/32 | 1- 3/8 | 2-27/32 | .51 |
| 4201-249 | 2X1 | 27/32 | 1-13/32 | 27/32 | 2-11/32 | 2- 9/16 | 2-11/32 | 4-23/32 | 2- 7/8 | 1- 3/4 | 2- 7/8 | .58 |
| 4201-250 | 2X1-1/4 | 1-1/32 | 1-11/32 | 1-1/32 | 2-9/16 | 2-19/32 | 2-9/16 | 5- 3/32 | 2-7/8 | 2-3/32 | 2-7/8 | .64 |
| 4201-251 | 2X1-1/2 | 1- 3/16 | 1-7/16 | 1- 3/16 | 2-11/16 | 2-27/32 | 2-11/16 | 5- 3/8 | 2-7/8 | 2-3/8 | 2-7/8 | .79 |
| 4201-289 | 2-1/2X1 | 7/8 | 1-11/16 | 7/8 | 2- 5/8 | 2-13/16 | 2- 5/8 | 5- 1/4 | 3-1/2 | 1-23/32 | 3-1/2 | 1.03 |
| 4201-290 | 2-1/2X1-1/4 | 1- 1/32 | 1-23/32 | 1- 1/32 | 2-27/32 | 3 | 2-27/32 | 5-11/16 | 3-1/2 | 2- 3/32 | 3-1/2 | 1.14 |
| 4201-291 | 2-1/2X1-1/2 | 1- 3/16 | 1- 7/16 | 1- 3/16 | 2-15/16 | 3-1/8 | 2-15/16 | 5- 7/8 | 3-1/2 | 2-11/32 | 3-1/2 | 1.25 |
| 4201-292 | 2-1/2X2 | 1-13/32 | 1- 5/8 | 1-13/32 | 3- 3/16 | 3- 1/8 | 3- 3/16 | 6-3/8 | 3- 1/2 | 2- 7/8 | 3- 1/2 | 1.37 |
| 4201-335 | 3X1 | 7/8 | 1-13/16 | 7/8 | 2- 3/4 | 3 | 2- 3/4 | 5-15/32 | 4- 3/16 | 1-23/32 | 4- 3/16 | 1.33 |
| 4201-336 ¹ | 3X1-1/4 | 1- 3/8 | 2-5/16 | 1- 3/8 | 3- 5/16 | 3- 5/8 | 3- 5/16 | 6- 5/8 | 4- 3/16 | 2- 7/8 | 4- 3/16 | 1.88 |
| 4201-337 | 3X1-1/2 | 1- 5/32 | 2- 1/16 | 1- 5/32 | 3- 1/32 | 3- 7/16 | 3- 1/32 | 6- 3/32 | 4- 3/16 | 2- 3/8 | 4- 3/16 | 1.46 |
| 4201-338 | 3X2 | 1- 7/16 | 1-15/16 | 1- 7/16 | 3- 5/16 | 3- 7/16 | 3- 5/16 | 6-5/8 | 4- 3/16 | 2- 7/8 | 4- 3/16 | 1.67 |
| 4201-339 | 3X2-1/2 | 1- 3/4 | 2 | 1- 3/4 | 3- 5/8 | 3-3/4 | 3- 5/8 | 7- 1/4 | 4- 3/16 | 3-17/32 | 4- 3/16 | 2.11 |
| 1 Outlet sized with Bus | shing | | | - | • | • | • | • | • | | | |

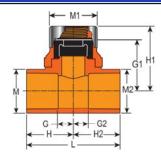
FlameGuard[®] Technical

FlameGuard® Product Weights & Dimensions



SofTorque™ SR Sprinkler Head Tee - Gasket Sealed Special Reinforced Plastic Thread Style

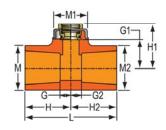
Socket x SR Fipt - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant NSF® Certified Lead Free



| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | М | M1 | M2 | Approx. Wt. (Lbs.) |
|-------------|-----------|------|-------|------|-------|-------|--------|---------|--------|---------|--------|-----------------------|
| 4202-101GSR | 3/4X1/2 | 7/16 | 1-1/2 | 7/16 | 1-3/8 | 1-7/8 | 1-3/8 | 2-3/4 | 1-5/16 | 1-3/8 | 1-5/16 | .16 |
| 4202-124GSR | 1X3/4X1/2 | 7/16 | 2 | 1/2 | 1-1/2 | 2-3/8 | 1-7/16 | 2-15/16 | 1-5/8 | 1-11/16 | 1-5/16 | .19 |
| 4202-130GSR | 1X1/2 | 7/16 | 1-5/8 | 7/16 | 1-1/2 | 2 | 1-1/2 | 3 | 1-5/8 | 1-3/8 | 1-5/8 | .23 |

TorqueSafe™ Sprinkler Head Tee - Gasket Sealed Brass Thread Insert Style

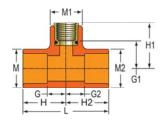
Socket x Socket x Gasket Fipt
With Elastomer Seal - Use NO Thread Sealant



| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | M | M1 | M2 | Approx. Wt. (Lbs.) | |
|-----------------------|--|-------|---------|-------|---------|---------|---------|--------|---------|--------|---------|-----------------------|--|
| 4202-101 G | 3/4X1/2 | 7/16 | 1-5/32 | 7/16 | 1- 7/16 | 1-9/16 | 1-7/16 | 2-7/8 | 1- 3/8 | 1- 3/8 | 1- 3/8 | .22 | |
| 4202-124 G | 1X3/4X1/2 | 7/16 | 1-9/32 | 9/16 | 1- 9/16 | 1-11/16 | 1- 9/16 | 3- 1/8 | 1-11/16 | 1- 3/8 | 1- 3/8 | .25 | |
| 4202-130 G | 1X1/2 | 7/16 | 1-9/32 | 7/16 | 1- 9/16 | 1-11/16 | 1- 9/16 | 3- 1/8 | 1-23/32 | 1- 3/8 | 1-23/32 | .28 | |
| 4202-131 G | 1X3/4 | 17/32 | 1-7/32 | 17/32 | 1-11/16 | 1-5/8 | 1-11/16 | 3-3/8 | 1-23/32 | 1-9/16 | 1-23/32 | .37 | |
| 4202-166 G | 1-1/4X1/2 | 7/16 | 1- 9/16 | 7/16 | 1-11/16 | 1-15/16 | 1-11/16 | 3- 3/8 | 2- 1/16 | 1- 3/8 | 2- 1/16 | .34 | |
| 4202-209 G | 1-1/2X1/2 | 1/2 | 1-11/16 | 1/2 | 1- 7/8 | 2- 3/32 | 1- 7/8 | 3- 3/4 | 2-5/16 | 1- 3/8 | 2-5/16 | .40 | |
| 4202-247 G | 2X1/2 | 1/2 | 1-15/16 | 1/2 | 2 | 2-11/32 | 2 | 4 | 2-27/32 | 1- 3/8 | 2-27/32 | .53 | |
| Not intended to conve | lot intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | | | | | | |

Sprinkler Head Tee - Brass Thread Insert Style

Socket x Socket x Fipt



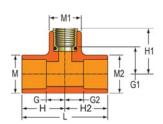
| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | М | M1 | M2 | Approx. Wt. (Lbs.) |
|-------------|-----------------|-------|---------|-------|---------|---------|---------|---------|----------|---------|----------|-----------------------|
| 4202-101 | 3/4X1/2 | 7/16 | 1-3/32 | 7/16 | 1-7/16 | 1- 5/8 | 1-7/16 | 2-7/8 | 1-3/8 | 1- 3/16 | 1-3/8 | .20 |
| 4202-124 | 1X3/4X1/2 | 7/16 | 1-1/4 | 9/16 | 1- 9/16 | 1-13/16 | 1- 9/16 | 3- 1/8 | 1-23/32 | 1- 3/16 | 1- 3/8 | .24 |
| 4202-130 | 1X1/2 | 7/16 | 1-1/4 | 7/16 | 1- 9/16 | 1-13/16 | 1- 9/16 | 3- 1/8 | 1- 23/32 | 1- 3/16 | 1- 23/32 | .26 |
| 4202-010 | 1 | 21/32 | 1-3/16 | 21/32 | 1-25/32 | 1-29/32 | 1-25/32 | 3-19/32 | 1-23/32 | 1-23/32 | 1-23/32 | .37 |
| 4202-156 | 1-1/4X1X1/2 | 3/8 | 1-1/2 | 9/16 | 1-11/16 | 2- 1/32 | 1-11/16 | 3- 3/8 | 2- 3/32 | 1- 3/16 | 1-23/32 | .29 |
| 4202-166 | 1-1/4X1/2 | 7/16 | 1-15/32 | 7/16 | 1-11/16 | 2-1/32 | 1-11/16 | 3-3/8 | 2- 3/32 | 1- 3/16 | 2- 3/32 | .25 |
| 4202-199 | 1-1/2X1-1/4X1/2 | 1/2 | 1-5/8 | 9/16 | 1- 7/8 | 2- 3/16 | 1-13/16 | 3-11/16 | 2-5/16 | 1- 3/16 | 2- 1/16 | .36 |



FlameGuard® Product Weights & Dimensions

Sprinkler Head Tee - Brass Thread Insert Style

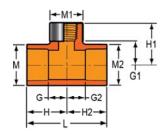
Socket x Socket x Fipt



| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | М | M1 | M2 | Approx. Wt. (Lbs.) |
|------------------------|---|-----|-------|-------|--------|---------|---------|---------|---------|---------|---------|-----------------------|
| 4202-209 | 1-1/2X1/2 | 1/2 | 1-5/8 | 1/2 | 1- 7/8 | 2- 3/16 | 1- 7/8 | 3- 3/4 | 2- 5/16 | 1-3/16 | 2-5/16 | .37 |
| 4202-237 | 2X1-1/2X1/2 | 1/2 | 1-7/8 | 17/32 | 2 | 2-7/16 | 1-15/16 | 3-15/16 | 2- 7/8 | 1- 3/16 | 2-11/32 | .46 |
| 4202-247 | 2X1/2 | 1/2 | 1-7/8 | 1/2 | 2 | 2- 7/16 | 2 | 4 | 2-27/32 | 1-3/16 | 2-27/32 | .50 |
| Not intended to convey | ot intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | | | | | |

Sprinkler Head Tee - Special Reinforced Plastic Thread Style

Socket x Socket x SR Fipt - Stainless Steel Collar NSF® Certified Lead-Free



| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | M | M1 | M2 | Approx. Wt. (Lbs.) |
|-------------|-----------------|-------|---------|-------|---------|---------|----------|---------|---------|---------|---------|-----------------------|
| 4202-010SR | 1 | 21/32 | 3/4 | 21/32 | 1-25/32 | 1- 5/8 | 1-25/32 | 3-19/32 | 1-23/32 | 1-11/16 | 1-23/32 | .27 |
| 4202-101SR | 3/4X1/2 | 19/32 | 23/32 | 19/32 | 1-19/32 | 1- 7/16 | 1-19/32 | 3- 7/32 | 1-13/32 | 1- 3/16 | 1-13/32 | .15 |
| 4202-124SR | 1X3/4X1/2 | 7/16 | 29/32 | 9/16 | 1-19/32 | 1- 5/8 | 1- 9/16 | 3- 5/32 | 1-23/32 | 1- 3/16 | 1-3/8 | .19 |
| 4202-130SR | 1X1/2 | 7/16 | 29/32 | 7/16 | 1- 9/16 | 1- 5/8 | 1- 9/16 | 3- 1/8 | 1-23/32 | 1- 3/16 | 1-23/32 | .19 |
| 4202-131SR | 1X3/4 | 5/8 | 13/16 | 5/8 | 1-13/16 | 1-17/32 | 1-13/16 | 3-5/8 | 1-23/32 | 1-3/8 | 1-23/32 | .22 |
| 4202-156SR | 1-1/4X1X1/2 | 7/16 | 1- 3/16 | 9/16 | 1-21/32 | 1- 7/8 | 1-23/32 | 3-3/8 | 2- 3/32 | 1- 3/16 | 1-23/32 | .25 |
| 4202-166SR | 1-1/4X1/2 | 7/16 | 1- 1/8 | 7/16 | 1-11/16 | 1-27/32 | 1-11/16 | 3- 3/8 | 2- 3/32 | 1- 3/16 | 2- 3/32 | .26 |
| 4202-168SR | 1-1/4X1 | 27/32 | 1- 1/32 | 27/32 | 2-1/8 | 1-29/32 | 2-1/8 | 4-1/4 | 2- 3/32 | 1-11/16 | 2- 3/32 | .35 |
| 4202-199SR | 1-1/2X1-1/4X1/2 | 1/2 | 1-1/4 | 21/32 | 1-7/8 | 2 | 1-27/32 | 3-23/32 | 2-11/32 | 1- 3/16 | 2- 3/32 | .33 |
| 4202-209SR | 1-1/2X1/2 | 1/2 | 1- 1/4 | 1/2 | 1- 7/8 | 1-31/32 | 1- 7/8 | 3- 3/4 | 2-11/32 | 1- 3/16 | 2-11/32 | .34 |
| 4202-211SR | 1-1/2X1-1/2X1 | 27/32 | 1- 3/16 | 27/32 | 2- 7/32 | 2- 3/32 | 2- 7/32 | 4-7/16 | 2-11/32 | 1-23/32 | 2-11/32 | .44 |
| 4202-237SR | 2X1-1/2X1/2 | 17/32 | 1- 9/16 | 9/16 | 2- 1/32 | 2- 1/4 | 1- 15/16 | 3-31/32 | 2- 7/8 | 1- 3/16 | 2-11/32 | .45 |
| 4202-247SR | 2X1/2 | 1/2 | 1-17/32 | 1/2 | 2 | 2-1/4 | 2 | 4 | 2- 7/8 | 1- 3/16 | 2- 7/8 | .48 |
| 4202-287SR | 2-1/2X1/2 | 17/32 | 1- 3/4 | 17/32 | 2- 9/32 | 2- 1/2 | 2- 9/32 | 4-19/32 | 3- 1/2 | 1-3/16 | 3- 1/2 | .77 |

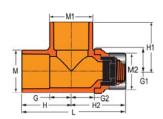
(Continued)

FlameGuard® Product Weights & Dimensions



SofTorque[™] SR Sprinkler Head Tee - Gasket Sealed Special Reinforced Plastic Thread Style

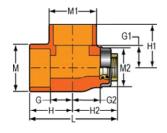
Socket x SR Fipt x Socket - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant NSF® Certified Lead-Free



| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | M | M1 | M2 | Approx. Wt. (Lbs.) |
|-------------|---------|-------|-------|-------|---------|---------|---------|---------|-------|-------|-------|-----------------------|
| 4203-122GSR | 1X1/2X1 | 13/16 | 13/16 | 1-5/8 | 1-27/32 | 1-27/32 | 1-31/32 | 3-13/16 | 1-5/8 | 1-5/8 | 1-3/8 | .22 |

TorqueSafe™ Sprinkler Head Tee - Gasket Sealed Brass Thread Insert Style

Socket x Gasket Fipt x Socket
With Elastomer Seal - Use NO Thread Sealant

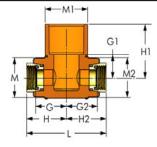


| Part N | umber | Size | G | G1 | G2 | Н | H1 | H2 | L | M | M1 | M2 | Approx. Wt. (Lbs.) |
|--------|-------|---------|-------|-------|---------|---------|---------|--------|---------|--------|--------|--------|-----------------------|
| 4203- | 122 G | 1X1/2X1 | 19/32 | 13/16 | 1-13/32 | 1-19/32 | 1-27/32 | 1- 3/4 | 3-11/32 | 1- 5/8 | 1- 5/8 | 1- 3/8 | .26 |

Not intended to convey or dispense water for human consumption through drinking or cooking

TorqueSafe™ Back-To-Back Sidewall Sprinkler Tee - Gasket Sealed Brass Thread Insert Style

Gasket Fipt x Gasket Fipt x Socket With Elastomer Seal - Use NO Thread Sealant



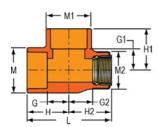
| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | M | M1 | M2 | Approx. Wt. (Lbs.) |
|-------------|-------|--------|------|--------|---------|---------|---------|--------|-------|-------|-------|-----------------------|
| 4243S-075 G | 1/2X1 | 1-3/16 | 7/8 | 1-3/16 | 1-17/32 | 1-15/16 | 1-17/32 | 3-1/16 | 1-3/8 | 1-5/8 | 1-3/8 | .33 |
| 4243L-075 G | 1/2X1 | 1-5/16 | 9/16 | 1-5/16 | 1-21/32 | 1-5/8 | 1-21/32 | 3-5/16 | 1-3/8 | 1-5/8 | 1-3/8 | .32 |

Not intended to convey or dispense water for human consumption through drinking or cooking G, G2 = Take Out



Sprinkler Head Tee - Brass Thread Insert Style

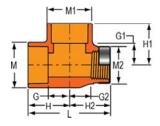
Socket x Fipt x Socket



| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | М | M1 | M2 | Approx. Wt. (Lbs.) |
|--|---------|-------|-------|---------|---------|---------|---------|-------|---------|-------|--------|-----------------------|
| 4203-122 | 1X1/2X1 | 11/16 | 11/16 | 1-13/32 | 1-19/32 | 1-19/32 | 1-29/32 | 3-1/2 | 1-11/16 | 1-3/4 | 1-3/16 | .24 |
| Not intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | | | | | | |

Sprinkler Head Tee - Special Reinforced Plastic Thread Style

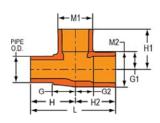
Socket x SR Fipt x Socket - Stainless Steel Collar NSF® Certified Lead-Free



| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | M | M1 | M2 | Approx. Wt. (Lbs.) |
|-------------|---------|-------|-------|---------|---------|--------|---------|---------|--------|--------|---------|-----------------------|
| 4203-122SR | 1X1/2X1 | 23/32 | 23/32 | 1- 3/32 | 1-19/32 | 1- 5/8 | 1-25/32 | 3-13/32 | 1- 3/4 | 1- 3/4 | 1- 3/16 | .21 |

Street Tee

Spigot x Socket x Socket



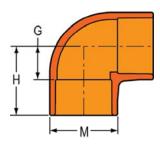
| Part Number | Size | G | G1 | G2 | Н | H1 | H2 | L | M1 | M2 | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|---------|---------|----------|---------|---------|----------|----------|-----------------------|
| 4244-007 | 3/4 | 7/8 | 5/8 | 27/32 | 1-13/16 | 1- 11/16 | 1-11/16 | 3- 5/8 | 1-13/32 | 1-13/32 | .16 |
| 4244-010 | 1 | 1- 1/16 | | 7/8 | 2- 3/16 | 1-15/16 | | 4- 3/16 | 1- 23/32 | 1- 23/32 | .27 |
| 4244-012 | 1-1/4 | 1- 5/16 | 15/16 | 1 | 2- 9/16 | 2- 1/4 | 2- 9/32 | 4-27/32 | 2- 3/32 | 2- 3/32 | .41 |
| 4244-015 | 1-1/2 | 1-13/16 | 1- 1/8 | 1- 1/8 | 2- 3/4 | 2- 9/16 | 2- 5/8 | 5-3/8 | 2-11/32 | 2-11/32 | .55 |
| 4244-020 | 2 | 1-3/4 | 1- 5/16 | 1-13/32 | 3- 1/4 | 2-7/8 | 2-15/16 | 6- 5/32 | 2- 7/8 | 2- 7/8 | .83 |

FlameGuard® Product Weights & Dimensions



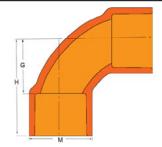
90° EII

Socket x Socket



| Part Number | Size | G | Н | M | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|---------|-----------------------|
| 4206-007 | 3/4 | 9/16 | 1- 1/2 | 1- 5/16 | .07 |
| 4206-010 | 1 | 3/4 | 1- 5/8 | 1- 5/8 | .12 |
| 4206-012 | 1-1/4 | 15/16 | 2-3/16 | 2 | .21 |
| 4206-015 | 1-1/2 | 1- 5/32 | 2-17/32 | 2-11/32 | .41 |
| 4206-020 | 2 | 1-13/32 | 2-29/32 | 2- 7/8 | .62 |
| 4206-025 | 2-1/2 | 1-1/2 | 3- 3/8 | 3- 1/2 | 1.14 |
| 4206-030 | 3 | 2-1/16 | 4 | 4-3/16 | 1.70 |

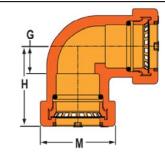
90° Elbow, Sweep Socket x Socket



| Part Number | Size | G | Н | M | Approx. Wt. (Lbs.) |
|-------------|-------|--------|---------|---------|-----------------------|
| 4206-007S | 3/4 | 1-1/16 | 2-1/16 | 1-13/32 | .09 |
| 4206-010S | 1 | 1-5/16 | 2-3/8 | 1-5/8 | .15 |
| 4206-012S | 1-1/4 | 1-9/16 | 2-27/32 | 2-3/32 | .24 |
| 4206-015S | 1-1/2 | 1-3/4 | 3-5/32 | 2-3/8 | .48 |
| 4206-020S | 2 | 2-5/16 | 3-13/16 | 2-7/8 | .80 |
| 4206-025S | 2-1/2 | 2-9/16 | 4-5/16 | 3-9/16 | 1.38 |
| 4206-030S | 3 | 3-7/32 | 5-3/32 | 4-5/16 | 2.07 |

GripLoc[™] 90° EII WARNING: DO NOT INSERT FINGERS

Uses No Solvent Cement - NSF® Certified Lead Free

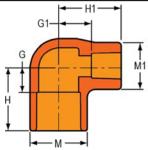


| Part Number | Size | G | н | М | Approx. Wt. (Lbs.) |
|-------------|------|-------|-------|--------|-----------------------|
| GL4206-010 | 1 | 27/32 | 2-1/2 | 2-5/16 | .53 |





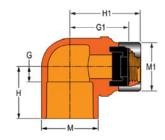
Socket x Socket



| Part Number | Size | G | G1 | Н | H1 | М | M1 | Approx. Wt. (Lbs.) |
|-------------|---------|-------|--------|---------|---------|---------|---------|-----------------------|
| 4206-131 | 1X3/4 | 21/32 | 13/16 | 1-25/32 | 1-13/16 | 1-19/32 | 1- 5/16 | .11 |
| 4206-168 | 1-1/4X1 | 15/16 | 1-7/32 | 2-3/16 | 2-3/8 | 2 | 2 | .17 |

SofTorque[™] SR 90° Sprinkler Head Elbow - Gasket Sealed Special Reinforced Plastic Thread Style

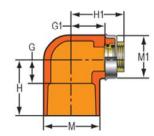
Socket x SR Fipt - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant NSF® Certified Lead-Free



| Part Number | Size | G | G1 | Н | H1 | M | M1 | Approx. Wt. (Lbs.) |
|-------------|-----------|------|---------|---------|---------|---------|-------|-----------------------|
| 4207-101GSR | 3/4X1/2 | 7/16 | 1-17/32 | 1-3/8 | 1-27/32 | 1-11/32 | 1-3/8 | .16 |
| 4207-130GSR | 1X1/2 | 7/16 | 1-11/16 | 1-1/2 | 2 | 1-21/32 | 1-3/8 | .18 |
| 4207-166GSR | 1-1/4X1/2 | 7/16 | 1-1/2 | 1-11/16 | 2-1/16 | 2 | 1-3/8 | .22 |

TorqueSafe[™] 90° Sprinkler Head Elbow - Gasket Sealed Brass Thread Insert Style

Socket x Gasket Fipt With Elastomer Seal - Use NO Thread Sealant



| Part Number | Size | G | G1 | Н | H1 | М | M1 | Approx. Wt. (Lbs.) |
|---------------------|---------------------|---------------------|---------------------|---------------|---------|---------|--------|-----------------------|
| 4207-101 G | 3/4X1/2 | 3/8 | 1- 7/32 | 1-13/32 | 1-9/16 | 1-3/8 | 1- 3/8 | .19 |
| 4207-130 G | 1X1/2 | 7/16 | 1-3/8 | 1- 9/16 | 1-11/16 | 1-11/16 | 1- 3/8 | .23 |
| 4207-166 G | 1-1/4X1/2 | 15/32 | 1-19/32 | 1-11/16 | 1-15/16 | 2- 3/32 | 1- 3/8 | .29 |
| Not intended to con | vev or dispense wat | er for human consun | ntion through drink | na or cookina | | | | |

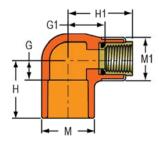
FlameGuard[®] Technical

FlameGuard® Product Weights & Dimensions



Sprinkler Head 90° Ell - Brass Thread Insert Style

Socket x Fipt

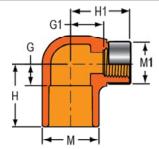


| Part Number | Size | G | G1 | Н | H1 | М | M1 | Approx. Wt. (Lbs.) |
|-------------|-----------|-------|---------|---------|---------|---------|---------|-----------------------|
| 4207-101 | 3/4X1/2 | 1/2 | 1- 3/32 | 1- 1/2 | 1- 5/8 | 1-13/32 | 1- 3/16 | .17 |
| 4207-130 | 1X1/2 | 7/16 | 1-7/32 | 1-19/32 | 1-25/32 | 1-23/32 | 1- 3/16 | .20 |
| 4207-131 | 1X3/4 | 17/32 | 1-1/4 | 1-21/32 | 1-31/32 | 1-23/32 | 1- 3/8 | .25 |
| 4207-166 | 1-1/4X1/2 | 7/16 | 1-1/2 | 1-11/16 | 2-1/16 | 2- 3/32 | 1-3/16 | .24 |

Not intended to convey or dispense water for human consumption through drinking or cooking

Sprinkler Head 90° EII - Special Reinforced Plastic Thread Style

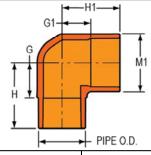
Socket x SR Fipt - Stainless Steel Collar NSF® Certified Lead-Free



| Part Number | Size | G | G1 | Н | H1 | М | M1 | Approx. Wt. (Lbs.) |
|-------------|-----------|-------|---------|---------|---------|---------|---------|-----------------------|
| 4207-101SR | 3/4X1/2 | 1/2 | 13/16 | 1-15/32 | 1- 1/2 | 1-13/32 | 1- 3/16 | .13 |
| 4207-130SR | 1X1/2 | 7/16 | 11/16 | 1- 9/16 | 1- 1/2 | 1-23/32 | 1- 3/16 | .15 |
| 4207-131SR | 1X3/4 | 17/32 | 7/8 | 1-21/32 | 1-19/32 | 1-23/32 | 1- 3/8 | .16 |
| 4207-166SR | 1-1/4X1/2 | 13/32 | 1- 1/32 | 1-21/32 | 1-23/32 | 2- 3/32 | 1- 7/32 | .18 |

90° Street Ell

Spigot x Socket

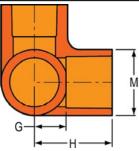


| Part Number | Size | G | G1 | Н | H1 | M1 | Approx. Wt. (Lbs.) |
|-------------|-------|---------|--------|---------|---------|---------|-----------------------|
| 4209-007 | 3/4 | 29/32 | 11/16 | 1-15/16 | 1-11/16 | 1-13/32 | .12 |
| 4209-010 | 1 | 1-3/32 | 27/32 | 2-7/32 | 2 | 1-23/32 | .20 |
| 4209-012 | 1-1/4 | 1- 1/4 | 1 | 2-9/16 | 2- 1/4 | 2- 3/32 | .32 |
| 4209-015 | 1-1/2 | 1-15/32 | 1-3/16 | 2-27/32 | 2- 9/16 | 2-3/8 | .42 |
| 4209-020 | 2 | 1-23/32 | 1- 1/2 | 3- 7/32 | 3 | 2-27/32 | .64 |



Side Outlet Ell

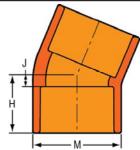
Socket x Socket x Socket



| Part Number | Size | G | Н | M | Approx. Wt. (Lbs.) |
|-------------|------|-----|--------|---------|-----------------------|
| 4213-007 | 3/4 | 5/8 | 1-9/16 | 1- 5/16 | .09 |
| 4213-010 | 1 | 3/4 | 1- 7/8 | 1- 5/8 | .17 |

22-1/2° EII

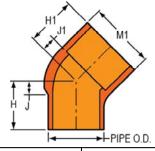
Socket x Socket



| Part Number | Size | Н | J | М | Approx. Wt. (Lbs.) |
|-------------|-------|---------|-------|---------|-----------------------|
| 4216-007 | 3/4 | 1- 3/16 | 7/32 | 1-13/32 | .08 |
| 4216-010 | 1 | 1- 3/8 | 9/32 | 1-23/32 | .14 |
| 4216-012 | 1-1/4 | 1- 1/2 | 1/4 | 2- 3/32 | .20 |
| 4216-015 | 1-1/2 | 1-21/32 | 9/32 | 2-11/16 | .27 |
| 4216-020 | 2 | 1- 7/8 | 3/8 | 2-27/32 | .43 |
| 4216-025 | 2-1/2 | 2-7/32 | 15/32 | 3-1/2 | .72 |
| 4216-030 | 3 | 2- 3/8 | 1/2 | 4- 5/32 | .76 |

22-1/2° Street Ell

Spigot x Socket



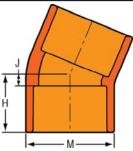
| Part Number | Size | Н | H1 | J | J1 | M1 | Approx. Wt. (Lbs.) |
|-------------|-------|----------|---------|-------|-------|---------|-----------------------|
| 4242-007 | 3/4 | 1- 5/16 | 1- 1/8 | 5/16 | 1/8 | 1- 3/8 | .08 |
| 4242-010 | 1 | 1- 1/2 | 1-11/32 | 3/8 | 7/32 | 1-23/32 | .14 |
| 4242-012 | 1-1/4 | 1- 11/16 | 1-1/2 | 7/16 | 1/4 | 2- 1/16 | .21 |
| 4242-015 | 1-1/2 | 1-13/16 | 1-23/32 | 7/16 | 11/32 | 2-11/32 | .28 |
| 4242-020 | 2 | 2-1/16 | 1-7/8 | 17/32 | 3/8 | 2- 7/8 | .41 |
| 4242-025 | 2-1/2 | 2- 7/32 | 2- 7/32 | 1/2 | 15/32 | 3- 1/2 | .76 |
| 4242-030 | 3 | 2-13/32 | 2-13/32 | 17/32 | 17/32 | 4- 5/32 | .98 |

FlameGuard® Product Weights & Dimensions



45° EII

Socket x Socket



| Part Number | Size | Н | J | M | Approx. Wt. (Lbs.) |
|-------------|-------|---------|-------|---------|-----------------------|
| 4217-007 | 3/4 | 1-11/32 | 13/32 | 1- 5/16 | .07 |
| 4217-010 | 1 | 1-13/32 | 3/8 | 1- 5/8 | .11 |
| 4217-012 | 1-1/4 | 1- 5/8 | 3/8 | 2- 1/8 | .23 |
| 4217-015 | 1-1/2 | 1-13/16 | 7/16 | 2-3/8 | .29 |
| 4217-020 | 2 | 2-1/8 | 5/8 | 2-7/8 | .47 |
| 4217-025 | 2-1/2 | 2-7/16 | 11/16 | 3- 1/2 | .82 |
| 4217-030 | 3 | 2-3/4 | 29/32 | 4- 5/32 | 1.21 |

45° Street EII

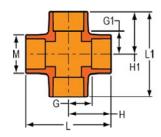
Spigot x Socket



| Part Number | Size | Н | Н1 | J | J1 | M1 | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|-------|-------|---------|-----------------------|
| 4227-010 | 1 | 1- 1/2 | 1- 3/8 | 1/2 | 1/4 | 1- 5/8 | .09 |
| 4227-012 | 1-1/4 | 1-25/32 | 1- 9/16 | 9/16 | 11/32 | 1-31/32 | .15 |
| 4227-015 | 1-1/2 | 2- 1/32 | 1-3/4 | 11/16 | 3/8 | 2-11/32 | .28 |
| 4227-020 | 2 | 2- 5/16 | 1-15/16 | 7/8 | 13/32 | 2- 7/8 | .43 |

Cross

Socket x Socket x Socket x Socket

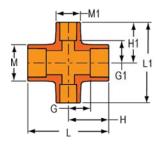


| Part Number | Size | G | G1 | Н | H1 | L | L1 | M | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|---------|---------|---------|---------|---------|-----------------------|
| 4220-007 | 3/4 | 5/8 | 5/8 | 1-5/8 | 1-5/8 | 3- 1/4 | 3-1/4 | 1-13/32 | .21 |
| 4220-010 | 1 | 3/4 | 3/4 | 1- 5/8 | 1- 5/8 | 3- 1/4 | 3- 1/4 | 1-23/32 | .22 |
| 4220-012 | 1-1/4 | 1-3/32 | 1-3/32 | 2- 3/8 | 2- 3/8 | 4- 3/4 | 4- 3/4 | 2-1/8 | .62 |
| 4220-015 | 1-1/2 | 1-13/64 | 1- 7/32 | 2-39/64 | 2- 5/8 | 5-1/4 | 5-1/4 | 2- 3/8 | .80 |
| 4220-020 | 2 | 1- 1/2 | 1- 1/2 | 3 | 3 | 6 | 6 | 3 | 1.40 |
| 4220-025 | 2-1/2 | 1-11/16 | 1-11/16 | 3- 7/16 | 3- 7/16 | 6- 7/8 | 6- 7/8 | 3-17/32 | 2.11 |
| 4220-030 | 3 | 2- 3/32 | 2- 3/32 | 3-31/32 | 3-31/32 | 7-15/16 | 7-15/16 | 4- 7/16 | 3.37 |



Reducing Cross

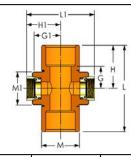
Socket x Socket x Socket x Socket



| Part Number | Size | G | G1 | Н | H1 | L | L1 | М | M1 | Approx. Wt. (Lbs.) |
|-------------|-----------|-------|---------|---------|---------|---------|---------|---------|---------|-----------------------|
| 4220-131 | 1X3/4 | 23/32 | 5/8 | 1- 5/8 | 1- 5/8 | 3- 1/4 | 3- 1/4 | 1- 7/8 | 1- 1/2 | .35 |
| 4220-167 | 1-1/4X3/4 | 3/4 | 1-1/32 | 2 | 2- 3/64 | 4 | 4- 3/32 | 2- 1/16 | 1-3/8 | .35 |
| 4220-210 | 1-1/2X3/4 | 11/16 | 1- 5/32 | 2- 3/32 | 2-11/64 | 4- 3/16 | 4-11/32 | 2- 3/8 | 1-13/32 | .41 |
| 4220-248 | 2X3/4 | 11/16 | 1-7/16 | 2-13/64 | 2-7/16 | 4-13/32 | 4-7/8 | 2-29/32 | 1-13/32 | .55 |
| 4220-289 | 2-1/2X1 | 29/32 | 1- 3/4 | 2-43/64 | 2- 7/8 | 5-11/32 | 5- 3/4 | 3- 1/2 | 1- 3/4 | .98 |

TorqueSafe™ Back-To-Back Sidewall Sprinkler Cross -Gasket Sealed Brass Thread Insert Style

Gasket Fipt x Gasket Fipt x Socket x Socket With Elastomer Seal - Use NO Thread Sealant

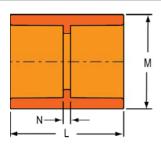


| Part Number | Size | G | G1 | Н | H1 | L | L1 | M | M1 | Approx. Wt. (Lbs.) |
|-------------|-------|------|--------|--------|---------|---------|--------|-------|-------|-----------------------|
| 4221S-075 G | 1/2X1 | 7/8 | 1-3/16 | 1-5/16 | 1-29/32 | 3-13/16 | 3-1/16 | 1-5/8 | 1-3/8 | .38 |
| 4221L-075 G | 1/2X1 | 9/16 | 1-5/16 | 1-5/8 | 1-21/32 | 3-1/4 | 3-5/16 | 1-5/8 | 1-3/8 | .35 |

Not intended to convey or dispense water for human consumption through drinking or cooking G1 = Take Out

Coupling

Socket x Socket

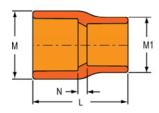


| Part Number | Size | L | М | N | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|------|-----------------------|
| 4229-007 | 3/4 | 1-31/32 | 1-5/16 | 3/32 | .04 |
| 4229-010 | 1 | 2- 3/16 | 1- 5/8 | 3/32 | .07 |
| 4229-012 | 1-1/4 | 2-19/32 | 2 | 3/32 | .12 |
| 4229-015 | 1-1/2 | 2- 7/8 | 2-11/32 | 3/32 | .22 |
| 4229-020 | 2 | 3- 1/8 | 2-27/32 | 3/32 | .32 |
| 4229-025 | 2-1/2 | 3-11/16 | 3-15/32 | 3/16 | .58 |
| 4229-030 | 3 | 4 | 4- 3/16 | 3/16 | .85 |

FlameGuard® Product Weights & Dimensions



Reducer Coupling Socket x Socket



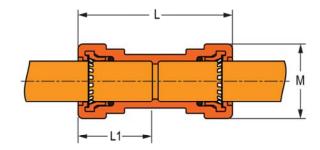
| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|-------------|-------------|---------|---------|---------|-------|-----------------------|
| 4229-131 | 1X3/4 | 2- 3/8 | 1-23/32 | 1-13/32 | 7/32 | .11 |
| 4229-167 | 1-1/4X3/4 | 2-19/32 | 2- 3/32 | 1- 5/8 | 11/32 | .14 |
| 4229-168 | 1-1/4X1 | 2-11/16 | 2- 3/32 | 1-23/32 | 5/16 | .17 |
| 4229-210 | 1-1/2X3/4 | 2-13/16 | 2-11/32 | 1-13/32 | 15/32 | .18 |
| 4229-211 | 1-1/2X1 | 2- 7/8 | 2-13/32 | 1-15/16 | 3/8 | .27 |
| 4229-212 | 1-1/2X1-1/4 | 2-13/16 | 2-13/32 | 2- 1/8 | 5/32 | .22 |
| 4229-248 | 2X3/4 | 3- 3/16 | 2- 7/8 | 1- 7/16 | 23/32 | .32 |
| 4229-249 | 2X1 | 3-1/2 | 3 | 1-23/32 | 27/32 | .38 |
| 4229-250 | 2X1-1/4 | 3- 3/16 | 2- 7/8 | 2- 1/8 | 17/32 | .33 |
| 4229-251 | 2X1-1/2 | 3- 3/16 | 2-27/32 | 2-11/32 | 1/4 | .30 |
| 4229-291 | 2-1/2X1-1/2 | 3-23/32 | 3-15/32 | 2-11/32 | 9/16 | .50 |
| 4229-292 | 2-1/2X2 | 3-21/32 | 3- 1/2 | 2- 7/8 | 13/32 | .51 |
| 4229-337 | 3X1-1/2 | 3-1/2 | 4-3/16 | 2-3/8 | 7/32 | .69 |
| 4229-339 | 3X2-1/2 | 3-27/32 | 4- 3/16 | 3- 1/2 | 1/4 | .79 |

GripLocTM Coupling WARNING: DO NOT INSERT FINGERS

EPDM Gasket

Uses No Solvent Cement - NSF® Certified Lead

Free



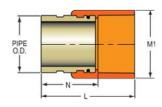
| Part Number | Size | L | L1 | M | Approx. Wt. (Lbs.) |
|-------------|------|--------|---------|---------|-----------------------|
| GL4229-007 | 3/4 | 4-1/16 | 1-15/16 | 1-15/16 | .27 |
| GL4229-010 | 1 | 4-3/16 | 2 | 2-5/16 | .37 |
| GL4229-020 | 2 | 4-7/16 | 2-1/8 | 3-5/8 | .88 |



FlameGuard® Product Weights & Dimensions

Grooved Coupling Adapter

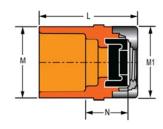
Groove x Socket



| Part Number | Size | L | M1 | N | Pipe O.D. | Approx. Wt. (Lbs.) | | | | |
|---------------------------|---|---------|---------|---------|-----------|-----------------------|--|--|--|--|
| 4233-012 | 1-1/4 | 3- 5/8 | 2- 3/32 | 2-11/32 | 1.660 | .71 | | | | |
| 4233-015 | 1-1/2 | 3- 3/4 | 2-11/32 | 2-11/32 | 1.900 | .83 | | | | |
| 4233-020 | 2 | 3-27/32 | 2-27/32 | 2-11/32 | 2-3/8 | 1.29 | | | | |
| 4233-025 | 2-1/2 | 4- 3/16 | 3-15/32 | 2- 7/16 | 2-7/8 | 2.01 | | | | |
| 4233-030 | 3 | 4- 5/16 | 4- 5/32 | 2- 7/16 | | 2.72 | | | | |
| Not intended to convey of | at intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | | | |

QuickTorque™ SR Female Sprinkler Head Adapter -**Gasket Sealed Special Reinforced Metal Thread Style**

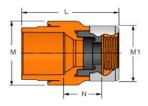
Socket x SR Fipt - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant NSF® Certified Lead Free



| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|-------------|---------|---------|--------|--------|-------|-----------------------|
| 4235-101GMR | 3/4X1/2 | 1-15/16 | 1-5/16 | 1-9/16 | 15/16 | .16 |
| 4235-130GMR | 1X1/2 | 2-1/4 | 1-5/8 | 1-9/16 | 15/16 | .19 |

SofTorque™ SR Female Sprinkler Head Adapter -**Gasket Sealed Special Reinforced Plastic Thread Style**

Socket x SR Fipt - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant NSF® Certified Lead-Free



| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|-------------|---------|--------|----------|--------|-------|-----------------------|
| 4235-101GSR | 3/4X1/2 | 2-1/8 | 1-23/32 | 1-3/8 | 31/32 | .10 |
| 4235-130GSR | 1X1/2 | 2- 3/8 | 1- 23/32 | 1- 3/8 | 1 | .12 |

FlameGuard[®] Technical

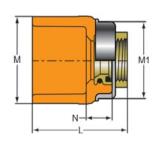
FlameGuard® Product Weights & Dimensions



TorqueSafe™ Female Sprinkler Head Adapter - Gasket Sealed Brass Thread Insert Style

Socket x Gasket Fipt

With Elastomer Seal - Use NO Thread Sealant



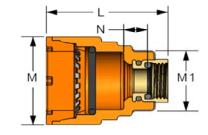
| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|-------------|---------|--------|---------|---------|-------|-----------------------|
| 4235-101 G | 3/4X1/2 | 1- 7/8 | 1-13/32 | 1- 3/8 | 17/32 | .13 |
| 4235-130GS | 1X1/2 | 2-1/32 | 1-11/16 | 1- 3/8 | 17/32 | .16 |
| 4235-131 G | 1X3/4 | 2 | 1-11/16 | 1- 9/16 | 9/16 | .25 |

Not intended to convey or dispense water for human consumption through drinking or coo

GripLoc™ TorqueSafe™ Female Sprinkler Head Adapter - Gasket Sealed Brass Thread Insert Style

Socket x Gasket Fipt

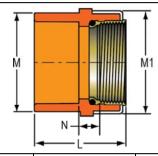
With Elastomer Seal - Use NO Thread Sealant



| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) | | | | |
|--------------------------|---|--------|---|-------|-------|-----------------------|--|--|--|--|
| GL4235-130 G | 1X1/2 | 2-7/16 | 2 | 1-3/8 | 15/32 | .22 | | | | |
| Not intended to convey o | of intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | | | |

Female Adapter - Brass Thread Insert Style

Socket x Fipt



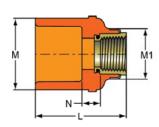
| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|--------------------------|-----------------------------|---------------------------|------------------|---------|-------|-----------------------|
| 4235-007 | 3/4 | 2- 1/8 | 1-13/32 | 1- 3/8 | 3/8 | .16 |
| 4235-010 | 1 | 2-7/32 | 1- 3/4 | 1-11/16 | 11/32 | .24 |
| 4235-012 | 1-1/4 | 2- 3/8 | 2- 3/32 | 2- 1/16 | 1/4 | .34 |
| 4235-015 | 1-1/2 | 2-17/32 | 2-13/32 | 2- 7/16 | 13/32 | .48 |
| 4235-020 | 2 | 2-25/32 | 2-27/32 | 3- 3/16 | 3/8 | 1.00 |
| Not intended to convey o | or dispense water for human | n consumption through dri | nking or cooking | - | • | |



Female Sprinkler Head Adapter

- Brass Thread Insert Style

Socket x Fipt

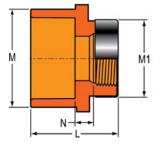


| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|--------------------------|---------------------------|-------------------------|------------------|---------|-------|-----------------------|
| 4235-101 | 3/4X1/2 | 2-1/16 | 1-13/32 | 1-3/16 | 15/32 | .13 |
| 4235-130 | 1X1/2 | 2-11/32 | 1-11/16 | 1- 3/16 | 5/8 | .16 |
| 4235-131 | 1X3/4 | 2- 5/16 | 1-11/16 | 1- 3/8 | 17/32 | .18 |
| Not intended to convey o | r dienance water for huma | concumption through dri | nking or cooking | | | |

Female Sprinkler Head Adapter - Special Reinforced Plastic

Thread Style

Socket x SR Fipt - Stainless Steel Collar NSF® Certified Lead-Free

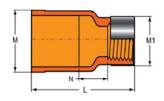


| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|-------------|---------|---------|---------|---------|-------|-----------------------|
| 4235-101SR | 3/4X1/2 | 1-29/32 | 1-13/32 | 1- 3/16 | 1/8 | .07 |
| 4235-130SR | 1X1/2 | 2-7/32 | 1-23/32 | 1-3/16 | 11/32 | .10 |
| 4235-131SR | 1X3/4 | 2- 3/32 | 1- 3/4 | 1- 3/8 | 1/4 | .12 |

Female Sprinkler Head Adapter

- Special Reinforced Plastic Thread Style with Socket Body Wrench Flats

Socket x SR Fipt - Stainless Steel Collar NSF® Certified Lead-Free



M = Flat to Flat Dimension

| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|-------------|---------|---------|---------|---------|-------|-----------------------|
| W4235-101SR | 3/4X1/2 | 2- 9/32 | 1-13/32 | 1- 3/16 | 17/32 | .09 |
| W4235-130SR | 1X1/2 | 2- 9/32 | 1-3/8 | 1- 3/16 | 13/32 | .11 |

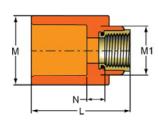
FlameGuard® Product Weights & Dimensions



Female Sprinkler Head Adapter

- Brass Thread Insert Style with Long Body

Socket x Fipt

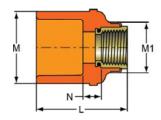


| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) | | |
|---------------------------|--|---------|---------|---------|-----|-----------------------|--|--|
| L4235-130 | 1X1/2 | 2- 3/16 | 1-23/32 | 1- 7/32 | 1/2 | .18 | | |
| Not intended to convey of | Not intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | |

Female Sprinkler Head Adapter

- Brass Thread Insert Style with Positioning Ring

Socket x Fipt

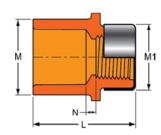


| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) | |
|--------------------------|--|---------|---------|---------|-------|-----------------------|--|
| R4235-101 | 3/4X1/2 | 2- 1/32 | 1- 7/16 | 1- 3/16 | 15/32 | .14 | |
| Not intended to convey o | lot intended to convey or dispense water for human consumption through drinking or cooking | | | | | | |

Female Sprinkler Head Adapter

 Special Reinforced Plastic Thread Style with Positioning Ring

Socket x SR Fipt - Stainless Steel Collar



| Part Number | Size | L | М | M1 | N | Approx. Wt. (Lbs.) |
|-------------|---------|---------|---------|---------|------|-----------------------|
| R4235-101SR | 3/4X1/2 | 1-15/16 | 1- 7/16 | 1- 7/32 | 7/32 | .09 |

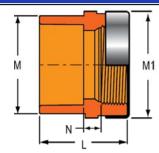


FlameGuard[®] Technical

FlameGuard® Product Weights & Dimensions

Female Adapter - Special Reinforced Plastic Thread Style

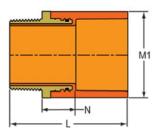
Socket x SR Fipt - Stainless Steel Collar NSF® Certified Lead-Free



| Part Number | Size | L | M | M1 | N | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|----------|------|-----------------------|
| 4235-007SR | 3/4 | 1- 7/8 | 1-13/32 | 1- 3/8 | 3/32 | .08 |
| 4235-010SR | 1 | 2- 5/32 | 1-23/32 | 1- 11/16 | 3/32 | .12 |
| 4235-012SR | 1-1/4 | 2- 5/16 | 2- 1/8 | 2- 1/16 | 3/16 | .20 |

Transition Male Adapter with Brass Thread

Mipt x Socket NSF® Certified Lead-Free

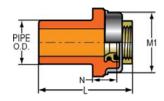


| Part Number | Size | L | M1 | N | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|-------|-----------------------|
| 4236-007 | 3/4 | 2-17/32 | 1-13/32 | 13/16 | .26 |
| 4236-010 | 1 | 2-15/16 | 1-23/32 | 29/32 | .42 |
| 4236-012 | 1-1/4 | 3- 1/8 | 2- 3/32 | 31/32 | .66 |
| 4236-015 | 1-1/2 | 3- 9/32 | 2-11/32 | 31/32 | .79 |
| 4236-020 | 2 | 3- 7/16 | 2-27/32 | 1 | 1.09 |

TorqueSafe[™] Female Spigot Sprinkler Head Adapters -Gasket Sealed Brass Thread Insert Style

Spigot x Gasket Fipt

With Elastomer Seal - Use NO Thread Sealant



| | Part Number | Size | L | М | N | Approx. Wt. (Lbs.) |
|----|--|---------|---------|--------|---------|-----------------------|
| | 4238-101 G | 3/4X1/2 | 1-15/16 | 1- 3/8 | 1-17/32 | .14 |
| | 4238-130 G | 1X1/2 | 2- 1/16 | 1- 3/8 | 1-21/32 | .15 |
| No | Not intended to convey or dispense water for human consumption through drinking or cooking | | | | | |

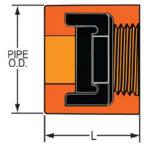
FlameGuard[®] Technical

FlameGuard® Product Weights & Dimensions



SofTorque™ Reducer Bushing - Gasket Sealed Plastic Thread Style

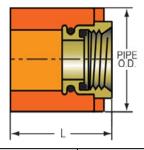
Spigot x Fipt - With Elastomer Seal - Use NO Thread Sealant



| Part Number | Size | L | Approx. Wt. (Lbs.) |
|-------------|-------|--------|-----------------------|
| 4238-130GSR | 1X1/2 | 1-5/32 | .05 |

TorqueSafe™ Bushing - Gasket Sealed Brass Thread Insert Style

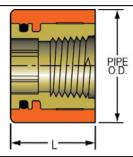
Spigot x Gasket Fipt With Elastomer Seal - Use NO Thread Sealant



| Part Number | Size | L | Approx. Wt. (Lbs.) | | | | | |
|--|--|-------|-----------------------|--|--|--|--|--|
| 4238-130BR G | 1X1/2 | 1-1/4 | .09 | | | | | |
| Not intended to convey or dispense water for | lot intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | |

Bushing - with Brass Thread Insert

Spigot x Fipt

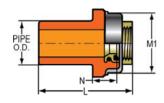


| Part Number | Size | L | Approx. Wt. (Lbs.) | | |
|--|-------|---|-----------------------|--|--|
| 4238-130BR | 1X1/2 | 1 | .21 | | |
| Not intended to convey or dispense water for human consumption through drinking or cooking | | | | | |



Spigot Female Sprinkler Head Adapters - Brass Thread Insert Style

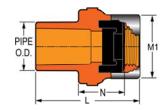
Spigot x Fipt



| Part Number | Size | L | M1 | N | Approx. Wt. (Lbs.) | | |
|--|---------|---------|---------|-------|-----------------------|--|--|
| 4238-101 | 3/4X1/2 | 2- 5/32 | 1- 7/32 | 19/32 | .12 | | |
| 4238-130 | 1X1/2 | 2- 1/4 | 1- 3/16 | 9/16 | .13 | | |
| Not intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | |

SofTorque[™] Spigot Female Adapter - Gasket Sealed Special Reinforced Plastic Thread Style

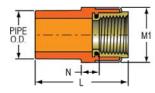
Spigot x SR Fipt - Stainless Steel Collar With Elastomer Seal - Use NO Thread Sealant NSF® Certified Lead Free



| Part Number | Size | L | M1 | N | Approx. Wt. (Lbs.) |
|-------------|---------|-------|-------|-------|-----------------------|
| 4278-101GSR | 3/4X1/2 | 2-1/4 | 1-3/8 | 1 | .11 |
| 4278-130GSR | 1X1/2 | 2-3/8 | 1-3/8 | 11/16 | .12 |

Spigot Female Adapter - Brass Thread Insert Style

Spigot x Fipt



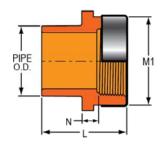
| Part Number | Size | L | M1 | N | Approx. Wt. (Lbs.) | | |
|--|------|---------|---------|------|-----------------------|--|--|
| 4278-007 | 3/4 | 2- 5/32 | 1- 3/8 | 1/2 | .17 | | |
| 4278-010 | 1 | 2- 9/32 | 1-11/16 | 7/16 | .22 | | |
| Not intended to convey or dispense water for human consumption through drinking or cooking | | | | | | | |

FlameGuard® Product Weights & Dimensions



Spigot Female Adapter -Special Reinforced Plastic Thread Style

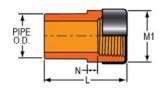
Spigot x SR Fipt - Stainless Steel Collar NSF® Certified Lead-Free



| Part Number | Size | L | M1 | N | Approx. Wt. (Lbs.) |
|-------------|------|---------|---------|------|-----------------------|
| 4278-007SR | 3/4 | 1-15/16 | 1- 3/8 | 5/16 | .07 |
| 4278-010SR | 1 | 2- 1/4 | 1-23/32 | 5/16 | .13 |

Spigot Female Sprinkler Head Adapters - Special Reinforced Plastic Thread Style

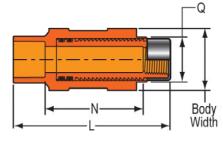
Spigot x SR Fipt - Stainless Steel Collar NSF_® Certified Lead-Free



| Part Number | Size | L | M1 | N | Approx. Wt. (Lbs.) |
|-------------|---------|---------|---------|------|-----------------------|
| 4238-101SR | 3/4X1/2 | 1-29/32 | 1- 7/32 | 1/8 | .06 |
| 4238-130SR | 1X1/2 | 2- 1/32 | 1- 7/32 | 7/32 | .08 |

Adjustable Sprinkler Head Adapters - Special Reinforced Plastic Thread Style

Socket x SR Fipt - Stainless Steel Collar TRAVEL = 1-9/16"
NSF® Certified Lead-Free



| Part Number | Size | L-Max | L-Min | N-Max | N-Min | Q | Body Width | Approx. Wt. (Lbs.) |
|-------------|---------|-------|-------|--------|-------|--------|------------|-----------------------|
| 42001SR | 3/4X1/2 | 8-1/4 | 6-5/8 | 6-9/16 | 4-7/8 | 1- 1/4 | 2-3/16 | .65 |
| 42011SR | 1X1/2 | 8-3/8 | 6-3/4 | 6-9/16 | 4-7/8 | 1- 1/4 | 2-3/16 | .66 |

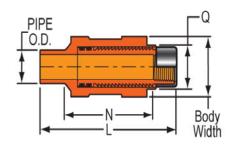


Adjustable Sprinkler Head Adapters - Special Reinforced Plastic Thread Style

Spigot x SR Fipt - Stainless Steel Collar

TRAVEL = 1-5/8"

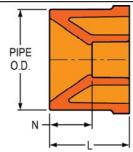
NSF® Certified Lead-Free



| Part Number | Size | L-Max | L-Min | N-Max | N-Min | Q | Body Width | Approx. Wt. (Lbs.) |
|-------------|---------|-------|-------|-------|-------|--------|------------|-----------------------|
| 42004SR | 3/4X1/2 | 8-1/4 | 6-3/4 | 7-1/2 | 6 | 1- 1/4 | 2-3/16 | .63 |
| 42014SR | 1X1/2 | 8-1/4 | 6-3/4 | 7-1/2 | 6 | 1- 1/4 | 2-3/16 | .66 |

Reducer Bushing - Flush Style

Spigot x Socket

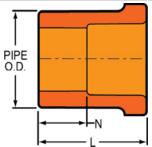


| Part Number | Size | L | N | Approx. Wt. (Lbs.) |
|-------------|-------------|---------|-------|-----------------------|
| 4237-131 | 1X3/4 | 1- 1/4 | 1/4 | .03 |
| 4237-167 | 1-1/4X3/4 | 1- 7/16 | 7/16 | .09 |
| 4237-168 | 1-1/4X1 | 1-13/32 | 9/32 | .06 |
| 4237-210 | 1-1/2X3/4 | 1- 5/8 | 5/8 | .16 |
| 4237-211 | 1-1/2X1 | 1-17/32 | 13/32 | .12 |
| 4237-212 | 1-1/2X1-1/4 | 1- 9/16 | 5/16 | .06 |
| 4237-248 | 2X3/4 | 1-29/32 | 29/32 | .28 |
| 4237-249 | 2X1 | 1-23/32 | 9/16 | .24 |
| 4237-250 | 2X1-1/4 | 1-11/16 | 7/16 | .20 |
| 4237-251 | 2X1-1/2 | 1-11/16 | 5/16 | .15 |
| 4237-290 | 2-1/2X1-1/4 | 2- 5/32 | 7/8 | .46 |
| 4237-291 | 2-1/2X1-1/2 | 2- 5/32 | 3/4 | .39 |
| 4237-292 | 2-1/2X2 | 2-1/4 | 3/4 | .29 |
| 4237-338 | 3X2 | 2- 7/32 | 11/16 | .62 |
| 4237-339 | 3X2-1/2 | 2- 5/16 | 1/4 | .43 |

FlameGuard® Product Weights & Dimensions

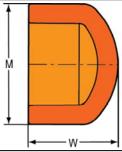


Transition Bushing IPS Spigot x CTS Socket



| Part Number | Size | L | N | Approx. Wt. (Lbs.) |
|-------------|---------|--------|-----|-----------------------|
| 4240-101 | 3/4X1/2 | 1- 1/8 | 5/8 | .03 |
| 4240-130 | 1X1/2 | 1- 1/4 | 3/4 | .05 |

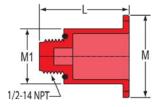
Cap Socket



| Part Number | Size | М | w | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|-----------------------|
| 4247-007 | 3/4 | 1-5/16 | 1-5/16 | .03 |
| 4247-010 | 1 | 1- 5/8 | 1- 9/16 | .06 |
| 4247-012 | 1-1/4 | 2- 3/32 | 1-27/32 | .12 |
| 4247-015 | 1-1/2 | 2-11/32 | 2 | .16 |
| 4247-020 | 2 | 2-27/32 | 2- 9/32 | .26 |
| 4247-025 | 2-1/2 | 3-17/32 | 2- 5/8 | .47 |
| 4247-030 | 3 | 4- 3/8 | 3 | .91 |

Test Plug - O-ring Sealed

Mipt - For Pressure Testing Only. NOT for use with TorqueSafe™ or Z4235 Series Adapters



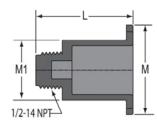
| Part Number | Size | L | М | M1 | Approx. Wt. (Lbs.) |
|-------------------------------|-----------------|---------|---------|--------|-----------------------|
| FTP-005 | 1/2 | 1-27/32 | 1-15/16 | 1- 1/4 | .03 |
| DO NOT use with tape or paste | thread sealants | | | - | - |



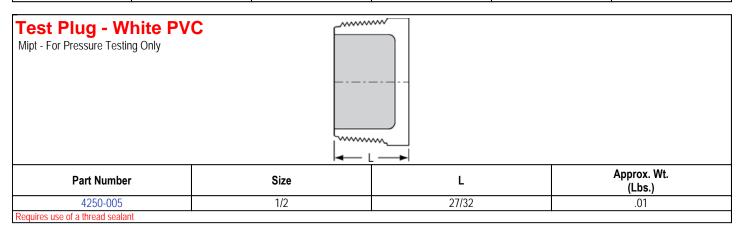
FlameGuard® Product Weights & Dimensions

Test Plug for TorqueSafe™ & SofTorque™ Gasket Sealed Head Adapters

Mipt - For Pressure Testing Only.
Use ONLY with Gasket Sealed Adapters

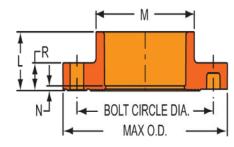


| Part Number | Size | L | М | M1 | Approx. Wt. (Lbs.) |
|-------------|------|---------|---------|--------|-----------------------|
| FTP-005GS | 1/2 | 1-25/32 | 2- 1/32 | 1- 1/4 | .05 |



Flange

Socket - 4 Bolt Holes - 175 psi (1.21 Mpa) @ 150°F (66°C)



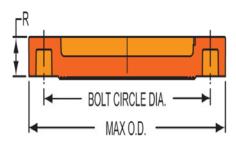
| Part Number | Size | L | М | N | R | Bolt Circle Dia. | Bolt Size | Max. O.D. | Min. Bolt Length | No of Bolts | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|------|---------|---------------------|-----------|-----------|---------------------|----------------|-----------------------|
| 4251-007 | 3/4 | 1- 5/32 | 1- 1/2 | 1/8 | 5/8 | 2- 3/4 | 1/2 | 3-29/32 | 2 | 4 | .31 |
| 4251-010 | 1 | 1- 9/32 | 1-13/16 | 3/32 | 21/32 | 3- 1/8 | 1/2 | 4-9/32 | 2-1/4 | 4 | .35 |
| 4251-012 | 1-1/4 | 1-13/32 | 2- 7/32 | 5/32 | 11/16 | 3- 1/2 | 1/2 | 4-5/8 | 2-1/4 | 4 | .44 |
| 4251-015 | 1-1/2 | 1-5/8 | 2- 1/2 | 3/16 | 23/32 | 3-7/8 | 1/2 | 5-1/16 | 2-1/2 | 4 | .51 |
| 4251-020 | 2 | 1-27/32 | 3 | 5/16 | 27/32 | 4- 3/4 | 5/8 | 5-31/32 | 3 | 4 | .94 |
| 4251-025 | 2-1/2 | 2- 7/32 | 3- 1/2 | 7/16 | 1- 1/32 | 5- 1/2 | 5/8 | 7 | 3-1/4 | 4 | 1.57 |

FlameGuard® Product Weights & Dimensions



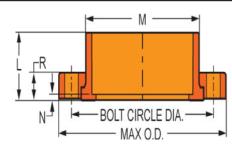
Blind Flange

4 Bolt Holes - 175 psi (1.21 Mpa) @ 150°F (66°C)



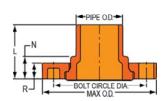
| Part Number | Size | R | Bolt Circle Dia. | Bolt Size | Max. O.D. | Min. Bolt Length | No of Bolts | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------------------|-----------|-----------|---------------------|----------------|-----------------------|
| 4253-007 | 3/4 | 5/8 | 2- 3/4 | 1/2 | 3-27/32 | 2 | 4 | .29 |
| 4253-010 | 1 | 23/32 | 3- 1/8 | 1/2 | 4-1/4 | 2-1/4 | 4 | .34 |
| 4253-012 | 1-1/4 | 21/32 | 3- 1/2 | 1/2 | 4-5/8 | 2-1/4 | 4 | .39 |
| 4253-015 | 1-1/2 | 23/32 | 3-7/8 | 1/2 | 5-1/16 | 2-1/2 | 4 | .65 |
| 4253-020 | 2 | 27/32 | 4- 3/4 | 5/8 | 5-31/32 | 3 | 4 | .88 |
| 4253-025 | 2-1/2 | 1- 1/32 | 5- 1/2 | 5/8 | 6-15/16 | 3-1/4 | 4 | 1.70 |
| 4253-030 | 3 | 1-1/16 | 6 | 5/8 | 7-5/8 | 3-1/4 | 4 | 1.78 |

Flange - Van Stone Style Socket - 4 Bolt Holes - 175 psi (1.21 Mpa) @ 150°F (66°C)



| Part Number | Size | L | M | N | R | Bolt Circle Dia. | Bolt Size | Max. O.D. | Min. Bolt Length | No of Bolts | Approx. Wt. (Lbs.) |
|-------------|------|--------|--------|------|--------|---------------------|-----------|-----------|---------------------|----------------|-----------------------|
| 4254-030 | 3 | 2-1/16 | 4- 1/4 | 3/16 | 1-1/16 | 6 | 5/8 | 7-17/32 | 3-1/4 | 4 | 1.76 |

Flange - Van Stone Style Spigot - 4 Bolt Holes - 175 psi (1.21 Mpa) @ 150°F (66°C)



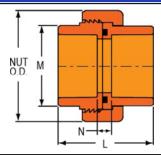
| Part Number | Size | L | N | R | Bolt Circle Dia. | Bolt Size | Max. O.D. | Min. Bolt Length | No of Bolts | Approx. Wt. (Lbs.) |
|-------------|-------|---------|--------|---------|---------------------|-----------|-----------|---------------------|----------------|-----------------------|
| 4256-007 | 3/4 | 1-15/16 | 13/16 | 9/16 | 2- 3/4 | 1/2 | 3-27/32 | 2 | 4 | .29 |
| 4256-010 | 1 | 2-1/8 | 15/16 | 5/8 | 3- 1/8 | 1/2 | 4-1/4 | 2-1/4 | 4 | .40 |
| 4256-012 | 1-1/4 | 2-1/4 | 1 | 5/8 | 3- 1/2 | 1/2 | 4-5/8 | 2-1/4 | 4 | .50 |
| 4256-015 | 1-1/2 | 2- 7/16 | 1 | 23/32 | 3- 7/8 | 1/2 | 4-31/32 | 2-1/2 | 4 | .64 |
| 4256-020 | 2 | 2-3/4 | 1-1/4 | 13/16 | 4- 3/4 | 5/8 | 5-31/32 | 3 | 4 | 1.00 |
| 4256-025 | 2-1/2 | 3- 1/16 | 1- 1/4 | 1 | 5- 1/2 | 5/8 | 6-15/16 | 3-1/4 | 4 | 1.65 |
| 4256-030 | 3 | 3-5/16 | 1-9/32 | 1- 1/32 | 6 | 5/8 | 7-9/16 | 3-1/4 | 4 | 1.93 |



FlameGuard® Product Weights & Dimensions

Union

Socket x Socket 175 psi (1.21 Mpa) @ 150°F (66°C)

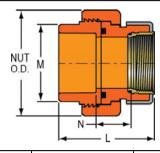


| Part Number | Size | L | M | N | NUT O.D. | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|-------|----------|-----------------------|
| 4257-007 | 3/4 | 2- 3/8 | 1-1/2 | 3/8 | 2- 1/2 | .27 |
| 4257-010 | 1 | 2- 9/16 | 1-7/8 | 5/16 | 2- 7/8 | .38 |
| 4257-012 | 1-1/4 | 2-7/8 | 2- 7/32 | 11/32 | 3- 5/16 | .50 |
| 4257-015 | 1-1/2 | 3-5/32 | 2- 1/2 | 1/2 | 3-17/32 | .64 |
| 4257-020 | 2 | 3- 5/8 | 3 | 9/16 | 4- 3/16 | 1.01 |

Transition Union - Metal Thread Insert Style

Socket x Fipt

175 psi (1.21 Mpa) @ 150°F (66°C)

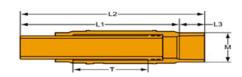


| Part Number | Size | L | M | N | NUT O.D. | Approx. Wt. (Lbs.) |
|--------------------------|---------------------------|-------------------------|------------------|---------|----------|-----------------------|
| 4259-007BR | 3/4 | 2-11/16 | 1-17/32 | 1 | 2-1/2 | .36 |
| 4259-010BR | 1 | 2-13/16 | 1- 7/8 | 1 | 2- 7/8 | .52 |
| 4259-012BR | 1-1/4 | 3-5/16 | 2-7/32 | 1-9/32 | 3-5/16 | .96 |
| 4259-015BR | 1-1/2 | 3- 1/2 | 2-9/16 | 1-11/32 | 3-17/32 | 1.20 |
| 4259-020BR | 2 | 3- 5/8 | 2- 7/8 | 1- 1/4 | 4- 5/16 | 1.59 |
| Not intended to convey o | r dienance water for huma | consumption through dri | nking or cooking | - | • | |

Short Repair Couplings

Spigot x Socket

175 psi (1.21 Mpa) @ 150°F (66°C)



| Part Number | Size | L1 | L2 | L3 | М | Т | Approx. Wt. (Lbs.) |
|-------------|------|---------|-------|-------|-------|--------|-----------------------|
| SH118-07CO | 3/4 | 4-11/16 | 5-3/8 | 3/4 | 1-3/4 | 2-3/16 | .30 |
| SH118-10CO | 1 | 4-13/16 | 5-3/4 | 15/16 | 1-7/8 | 2 | .41 |

Unit Must Be Thrust Blocked

FlameGuard® Product Weights & Dimensions

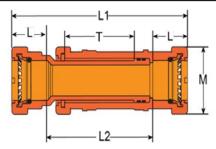


GripLoc[™] Repair Coupling WARNING: DO NOT INSERT FINGERS

EPDM Gasket

Uses No Solvent Cement - NSF® Certified Lead

175 psi (1.21 Mpa) @ 150°F (66°C)



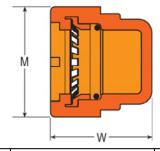
| Part Number | Size | L | L1 | L2 | М | Т | Approx. Wt. (Lbs.) | | | |
|-----------------------|------------------------------|-------|--------|--------|---------|---------|-----------------------|--|--|--|
| SG118-07CO | 3/4 | 1-1/2 | 7-9/16 | 4-1/2 | 1-29/32 | 2-15/16 | .65 | | | |
| SG118-10CO | 1 | 1-1/2 | 7-7/16 | 4-7/16 | 2-5/16 | 3 | .78 | | | |
| Unit Must De Thrust D | Init Must De Thrust Diselved | | | | | | | | | |

GripLoc™ Cap WARNING: DO NOT INSERT FINGERS

EPDM Gasket

Uses No Solvent Cement - NSF® Certified Lead

175 psi (1.21 Mpa) @ 150°F (66°C)



| Part Number | Size | М | W | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|-----------------------|
| GL4247-007 | 3/4 | 1-15/16 | 1-11/16 | .14 |
| GL4247-010 | 1 | 2-5/16 | 2 | .20 |
| GL4247-012 | 1-1/4 | 2-23/32 | 2-1/8 | .29 |
| GL4247-015 | 1-1/2 | 3 | 2-3/16 | .35 |
| GL4247-020 | 2 | 3-5/8 | 2-7/16 | .54 |



FlameGuard® Product Weight & Dimensions

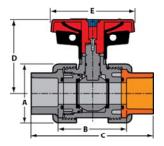
FlameGuard® CPVC Drain & Swing Check Valves for NFPA 13D Application Only

Application: FlameGuard[®] CPVC Orange Swing Check Valves and PVC/CPVC True Union Drain Valves are for use in Configuring CPVC Fire Sprinkler System connection to water supply (riser/drain assembly) in NFPA 13D installations only. These valves are not UL listed and NOT for use in any other locations within the fire sprinkler system.

True Union Industrial Drain Valve With Locking Handle

Socket x Socket

CPVC Gray Valve with CPVC Orange End Connector



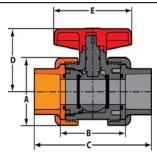
Not UL Listed

| Part Number | Size | Α | В | С | D | E | Approx. Wt. (Lbs.) |
|-------------|-------|--------|---------|---------|--------|--------|-----------------------|
| 1822-007CFG | 3/4 | 2-3/8 | 2-13/16 | 4-13/16 | 2-7/8 | 3-3/8 | .62 |
| 1822-010CFG | 1 | 2-5/8 | 2-15/16 | 5-3/16 | 3-1/8 | 3-7/16 | .83 |
| 1822-012CFG | 1-1/4 | 3-3/16 | 3-1/4 | 5-13/16 | 3-5/8 | 3-7/8 | 1.24 |
| 1822-015CFG | 1-1/2 | 3-9/16 | 3-9/16 | 6-5/16 | 4 | 4-3/16 | 1.62 |
| 1822-020CFG | 2 | 4-1/4 | 4-3/4 | 7-13/16 | 4-7/16 | 5-1/8 | 2.86 |

True Union Standard Drain Valves

Socket x Socket

PVC Gray Valve with CPVC Orange End Connector

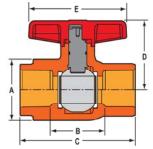


Not UL Listed

| Part Number | Size | Α | В | С | D | E | Approx. Wt. (Lbs.) |
|-------------|------|-------|---------|---------|--------|--------|-----------------------|
| 3622-007FG | 3/4 | 2-3/8 | 2-13/16 | 4-13/16 | 2 | 3 | .57 |
| 3622-010FG | 1 | 2-5/8 | 2-15/16 | 5-3/16 | 2-5/16 | 3-5/16 | .74 |

Compact 2000 Drain Valve

Socket x Socket



Not UL Listed

| Part Num | ber | Size | Α | В | С | D | E | Approx. Wt. (Lbs.) |
|----------|-----|------|--------|---------|---------|--------|-------|-----------------------|
| 6622-007 | CO | 3/4 | 1-3/4 | 1-1/2 | 3-1/2 | 2 | 3 | .30 |
| 6622-010 | CO | 1 | 2-1/16 | 1-11/16 | 3-15/16 | 2-5/16 | 3-3/8 | .46 |

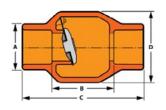
FlameGuard® Technical

FlameGuard® Product Weight & Dimensions



CPVC Swing Check Valves

Socket x Socket

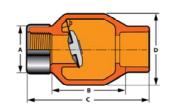


Not UL Listed

| Part Number | Size | Α | В | С | D | Approx. Wt. (Lbs.) |
|-------------|-------|---------|---------|---------|-------|-----------------------|
| S1520-07CO | 3/4 | 1-3/8 | 1-15/16 | 3-3/4 | 2-1/8 | .21 |
| S1520-10CO | 1 | 1-11/16 | 2-7/16 | 4-11/16 | 2-5/8 | .38 |
| S1520-12CO | 1-1/4 | 2-1/16 | 3 | 5-1/2 | 3-3/8 | .72 |
| S1520-15CO | 1-1/2 | 2-7/16 | 3 | 5-5/8 | 3-3/8 | .77 |

CPVC Special Reinforced Thread Inlet Swing Check Valves

SR Fipt x Socket



Not UL Listed

| Part Number | Size | Α | В | С | D | Approx. Wt. (Lbs.) |
|----------------|-------|---------|---------|-------|-------|-----------------------|
| S1520-10FSRSCO | 1 | 1-11/16 | 2-11/16 | 4-3/4 | 2-5/8 | .41 |
| S1520-12FSRSCO | 1-1/4 | 2-1/16 | 3-3/8 | 5-1/2 | 3-3/8 | .76 |
| S1520-15FSRSCO | 1-1/2 | 2-7/16 | 3-7/16 | 5-5/8 | 3-3/8 | .83 |







FlameGuard[®] TorqueSafe[™] Gasket Sealed Sprinkler Head Adapters with Brass Thread Inserts



TorqueSafe[™]

- Eliminates Radial Stress
- Requires No Thread Sealants
- Eliminates Sealant Incompatibility
- Prevents OverTightening
- Provides Easy Frame Alignment
- UL® Listed for U.S. and Canada
- FM® Approved

Spears® **TorqueSafe**™ revolutionary design features a special molded-in-place Brass Thread Insert fitted with an elastomer gasket seal at the base of the threads. The gasket seal allows a modified thread design that eliminates radial stress and associated problems typical with tapered thread joint make up. The insert is designed to rotate during head installation for easy sprinkler frame alignment without over tightening.

No Sealant = No More Problem's

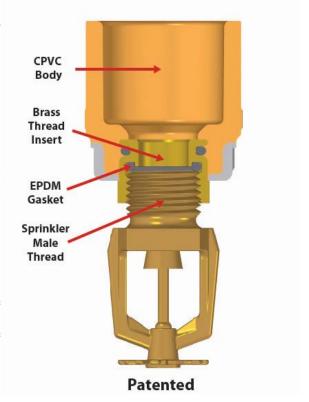
Using incompatible thread pastes and pipe dopes is the major cause of environmental stress cracking in plastics. Tape sealants are far too frequently improperly or excessively applied. These problems are fully eliminated.

No-Stress Thread Design

The modified straight thread design is engineered to provide a tight joint at full engagement without radial stress from tapered thread expansion. An internal gasket retaining lip serves as a positive stop against overtightening. No stress assures years of long, trouble free service.

Gasket Sealing

An EPDM gasket has been engineered for sealing against the sprinkler head. The NPT male thread starts on all sprinkler heads provide a uniform surface for positive, reliable seal. Hundreds of tests have been performed using virtually all brands of heads and even rough, galvanized pipe nipples without any damage or loss of sealing.



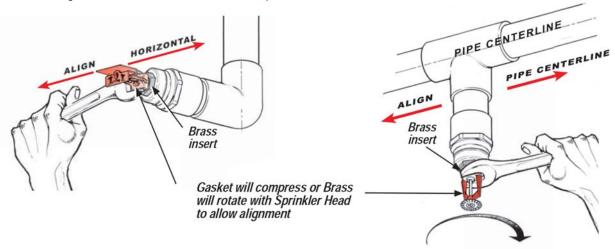
FlameGuard[®] TorqueSafe[™] Gasket Sealed Sprinkler Head Adapters with Brass Thread Inserts



Simply Hand Install Head & Align

Wrench Alignment

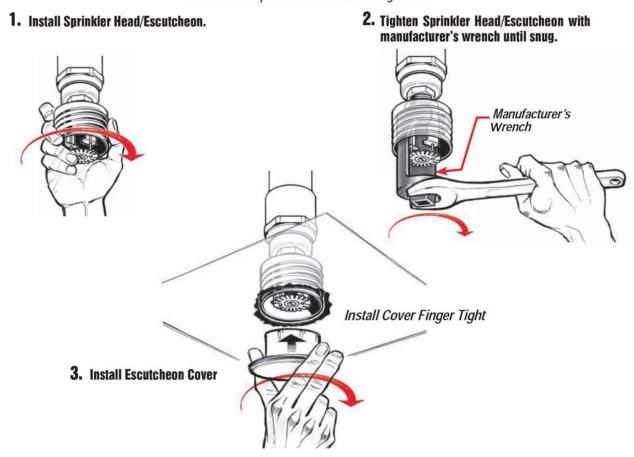
If necessary for alignment, rotate sprinkler head clockwise until frame is properly aligned. Gasket will compress or brass will rotate with sprinkler head until aligned. Caution: DO NOT use back-up wrench on brass insert hex.



DO NOT Reverse or Back up Threaded Assembly. If over-adjusted, continue to rotate clockwise until properly aligned.

Installing Concealed Sprinkler Escutcheons

Follow these steps to assure extra firm seating of Head





FlameGuard[®] SofTorque[™] SR One-Piece Gasket Sealed, Special Reinforced Sprinkler Head Adapter

SofTorque[™] **SR**



Patented

Spears® Combines Patented Special Reinforced (SR) Plastic Thread & Gasket Sealed Technology. . .

- Unitized One-Piece Design
- No Lead NSF® Certified
- No Radial Stress
- No Paste or Tape Sealants
- No Leaks
- No OverTightening
- Provides Easy Frame Alignment
- Suitable For Multipurpose Systems
- FM® Approved
- Easiest Installation Finger Tight Plus 1-Turn Then Align Sprinkler Head

Spears® new **SofTorque™ SR** design features a special formed-in-place elastomer gasket seal at the base of Special Reinforced (SR) plastic threads. The thread design and gasket seal eliminate radial stress typical in tapered thread joint make up, plus gasket compresses to allow sprinkler frame alignment without overtightening. Special SR design provides additional strength and thread reinforcement. **Available in size 1" Socket x 1/2" SR FIPT, Spears® Part Number 4235-130GSR. For additional sizes and configurations, contact Spears®.**

Unitized Construction

One-Piece all CPVC construction eliminates potential for problems from conventional 2-piece construction designs. No metal water contact eliminates corrosion.

No Lead - NSF® Certified

All plastic construction is NSF_® Standard 61 Annex G, Certified Lead Free in compliance with US Safe Drinking Water Act (SDWA)

Special Gasket Sealing & Alignment Feature

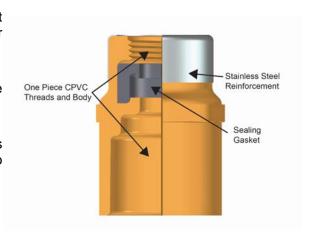
EPDM gasket has been engineered not only for proper sealing, but provides proportional compression as threads are tightened for sprinkler head frame or sidewall deflector alignment.

No Sealant = No More Problems

Eliminates problems from incompatible thread pastes and pipe dopes or improperly applied thread tape.

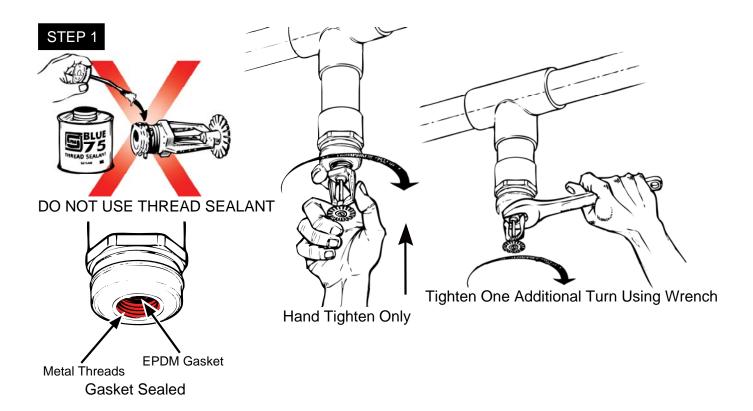
Reinforced No Stress Thread Design

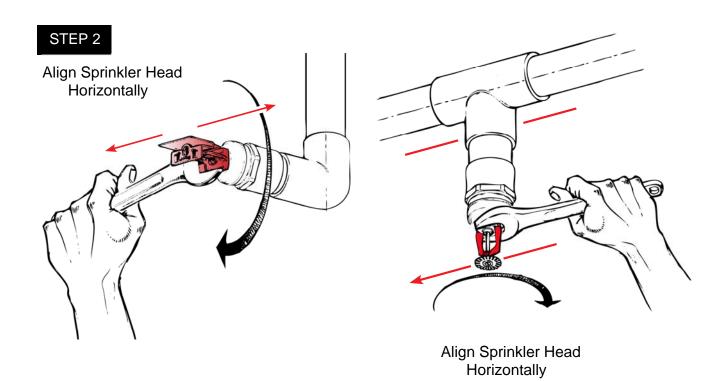
Spears® patented Special Reinforced (SR) thread design eliminates radial stress and reinforces against splitting plastic threads. No stress assures years of long, trouble free service.



FlameGuard[®] SofTorque[™] SR One-Piece Gasket Sealed, Special Reinforced Sprinkler Head Adapter









FlameGuard[®] QuickTorque[™] SR Gasket Sealed, Special Reinforced Sprinkler Head Adapter with Metal Threads

QuickTorque "



Spears[®] New FlameGuard[®] QuickTorque[™] CPVC Sprinkler Head Adapter uses a combination of high-strength materials to provide the most reliable, worry-free adapter in the industry:

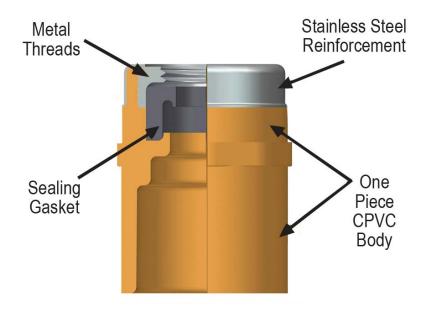
CPVC Body for Unsurpassed
Corrosion Resistance
High grade EPDM Gasket for Reliable Sealing
Metal Thread & Exterior Reinforcement for
Superior Strength

The thread design and gasket seal eliminate radial stress found in tapered thread joint make up, the gasket compresses to allow sprinkler frame alignment without over tightening.

4235-101GMR 3/4"x1/2" 4235-130GMR 1"x1/2"

- ✓ Metal Thread Eliminates Cross Threading
- ✓ Requires No Thread Sealant
- ✓ High Grade EPDM Compression Gasket Allows Quick, Easy Head Alignment
- ✓ Easiest Installation, Finger Tight Plus 1-Turn Then Align Sprinkler Head
- √ NSF_® Certified Lead-Free for Use in Potable Water Systems - Suitable for Use in Multi-purpose Systems

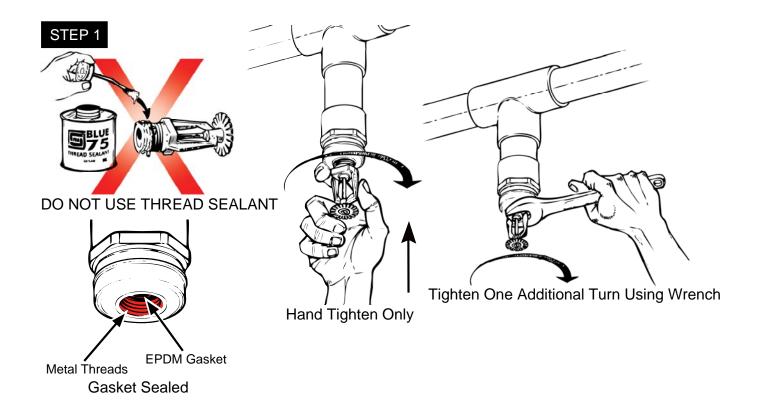
Progressive Products From Spears® Innovation & Technology

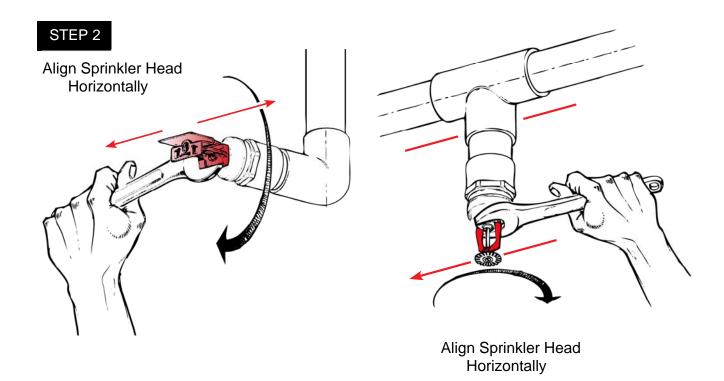


QuickTorque™ Female Sprinkler Head Adapter - Gasket Sealed Metal Thread Style.

FlameGuard[®] QuickTorque[™] SR Gasket Sealed, Special Reinforced Sprinkler Head Adapter with Metal Threads









FlameGuard® Technical

Spears® FlameGuard® Installer Protection Plan

The Spears® Installer Protection Plan (IPP) is offered to assist Installing Contractors of Spears® FlameGuard® CPVC Fire Protection Products in the event of system failures following initial installation, AHJ final approval and registration acceptance of a system into the Plan. The IPP program is intended to assist the Installing Contractor in resolution related to verified claims resulting from system failures due to circumstances and conditions that occur following the release of the project, that are beyond the control or cause of the Installing Contractor or Spears®. While the ultimate responsibility for all trades within a project is that of the General Contractor or Contracting Party; Spears® will assist the Installing Contractor in their defense of verified claims with the support associated through investigation, review, analysis, replacement / repair and determination of the cause of failure, including providing Spears® replacement parts.



Please see our website at www.spearsmfg.com for the most current and up-to-date information regarding compatibility, warranties, product information and programs.

FlameGuard® Technical Terms & Conditions



Revised: March 1, 2024

TERMS AND CONDITIONS. Unless accepted in writing by the corporate home office of this Company, no term or condition (including but not limited to all terms and conditions set forth in any offer, purchase order, confirmation or other document) other than the terms and conditions set forth in this document and any applicable invoice or order, shall be binding upon Company. All other terms and conditions are hereby explicitly rejected and acceptance is limited to the terms and conditions herein stated. All conflicts with the terms and conditions herein shall be resolved in favor of this document. Upon acceptance of the subject goods and services, Customer thereby acknowledges and agrees that the prices and charges set forth in this document for the goods and services are the reasonable value for such goods and services and the other terms and conditions herein set forth are consistent with the parties' prior course of dealing, prior course of performance and/or usage of trade. If any term or condition herein is not acceptable, Customer shall give this Company written notice thereof within ten (10) business days after receipt of the respective goods and services and if not, Customer shall be deemed to have unconditionally accepted the respective goods and services upon and subject to the terms and conditions hereof.

PRICING POLICY. Spears® maintains a policy to try and provide stable pricing for its products which can reasonably be relied upon by customers and end users. Irrespective of such policy, unforeseen events could occur which may necessitate immediate price increases without notice and/or cause interruption of Spears® ability to furnish products on a timely basis. Unforeseen events may be destructive acts of nature, labor disruptions, raw material or power shortages. In the event of the situations described, Spears® cannot be held liable for effecting immediate price increases or for costs incurred due to delays in delivery of products.

SPECIAL ORDERS. Orders for non-current products or exceptional runs of current products are custom orders, and as such, cannot be canceled or returned by Customer except upon This Company prior written approval. This Company reserves the right to charge back Customer all costs incurred in the cancellation or return of such custom orders, including without limitations the charges applicable to returned goods.

CUSTOM PRODUCTS. Orders for custom-made products are accepted only under the following conditions:

- A. Determination of the custom products' suitability for the user's intended application is the sole responsibility of the purchaser or end user.
- B. Spears® warranty for custom products is strictly limited to workmanship. Buyout components, devices, raw materials, etc. are covered by the warranties of those manufacturers.
- C. Custom products are non-cancelable, non-returnable once production has commenced. Customers will be charged for all expenses incurred up to the time of notification to Spears® to cancel a custom product order.
- D. Prior to production of custom products, the following documents must be submitted to Spears®:
 - Customer's signed acceptance of Spears® part drawing submittal;
 - Customer's purchase order acknowledging acceptance of Spears® custom product conditions and any other conditions as may be set forth in the Spears® custom product quotation.

PACKAGING. Spears[®] standard method of packaging will apply for all orders shipping via normal surface means at no additional charge.

SPECIAL PACKAGING. Packaging charges will be invoiced on orders for

- · Custom Products;
- Any packaging requirement specifications submitted to Spears® that exceed Spears® standard methods of packaging.

ORDER CANCELLATION. Cancellation of a purchase order must be submitted in writing and confirmation of the cancellation received in writing from Spears®. Cancelled orders may be subject to restock charges and applicable handling or freight, pending stage of the entered order.

MINIMUM INVOICE. \$50.00 Net

SALES TAX. Spears® is required to charge applicable national, state, and local tax on all purchased items for which a U.S. sales tax exemption certificate for the Purchaser is not on file. When ordering, please indicate clearly which items are tax exempt and provide the required valid resale certificate and/or number.

TERMS OF PAYMENT. Terms of payment are 2% 35 days, net 45 days from date of invoice, past due at 46 days on open accounts unless otherwise agreed in writing. This Company's monthly cut-off is the 25th, and as such, all invoices dated after the 25th will be considered the next month's business. Freight charges are net and not subject to any discount. THERE IS NO 2% CASH DISCOUNT ON C.O.D. OR C.I.A. ORDERS. This Company reserves the right to levy a late charge on any past due balances equal to the lower of one point five percent (1.5%) per month or the highest rate permitted by law. Customer agrees to pay all costs of collection incurred by Company, including all reasonable attorney's fees and costs but in no event less than Seven Hundred Fifty Dollars (\$750) and costs, regardless of whether formal legal action is instituted. Customer agrees to honor and to pay this Document according to the terms of

FlameGuard® Technical

Terms & Conditions

payment contained herein. All payments must be made in U.S. legal currency and by readily available funds. In the event shipment is made hereunder in multiple lots, payment for each lot received shall be made in accordance therewith. Furthermore, Customer agrees not to debit or offset against any amount due Customer from This Company on account of any claim or defense that Customer now has or may have in the future against This Company. In the event Customer's account is assigned to a collection agency or commercial lender, Customer also agrees not to assert any such claims or defenses against its account with such collection agency or commercial lender.

FREIGHT AND DELIVERY. All orders are FOB point of shipment. Title of goods and risk of loss passes to Customer when order is picked up by freight carrier. Company shall determine the type of container and arrange for suitable packing of the goods for transport and delivery. Company will attempt to expedite all back-ordered items. All back-ordered items will be subject to product availability and Company does not assume any liability for any damage or additional cost resulting from non-delivery or late delivery.

FREIGHT TERMS:

Prepaid and Allowed: Pipe Excluded. (Freight Charges Borne by Spears® AKA - FFA). Freight charges will be prepaid and allowed on customer orders for Spears® products when the following conditions are met (see exclusions):

- A. Complete shipment is to a single destination from the designated Spears® servicing Regional Distribution Center.
- B. Shipment is by surface means via a freight carrier selected by Spears®
- C. \$2,500.00 USD net order value is met for shipments within the Continental USA and to the nearest port for Alaskan shipments. Customer is responsible for freight from the port to the Alaskan destination.
- D. \$3,500.00 USD net order value is required for exclusive orders of PVC-DWV Molded Fittings. (Mixed orders of PVC-DWV and other Spears® products qualify for \$2,500.00 prepaid and freight-allowed.) Alaska orders ship to nearest port. Customer is responsible for freight from the port to the Alaskan destination.
- E. \$5,000.00 USD net order value is required for exclusive orders of Standard (non-custom) Fabricated (non-molded) Fittings. (Mixed orders of qualifying Fabricated Fittings and other Spears® products must reach a minimum of \$4,000.00 USD net order value to qualify for freight prepaid and allowed.)
- F. Hawaii and The Caribbean No FFA for orders shipping to HI or The Caribbean. All orders will ship 3rd Party or Collect. Qualifying orders meeting a minimum \$2,500.00 USD net order value will be eligible for a freight credit of 5% net invoice price for shipments to either Hawaii or The Caribbean.
- G. \$4,000.00 USD net order value is required for exclusive orders of PVC-DWV Molded Fittings to Canada. (Mixed orders of PVC-DWV and other Spears® products qualify for the \$3,500.00 net order value for freight prepaid and allowed.)

Exclusions. Any and all carrier accessorial charges, not included in the carrier's standard freight charges, will be invoiced back to the customer. Typical accessorial charges include, but are not limited to; additional length / girth, by appointment deliveries, residential and government facility deliveries, inside deliveries and those requiring special / additional handling (lift gate, ETC). No FFA Drop Ship orders to Lanai or Molokai.

Prepaid and Allowed — Pipe Included (SEE ADDITIONAL CONDITIONS BELOW*):

- A. Pipe Only, \$10,000.00 Continental US and nearest port for Alaska; \$11,000.00 Canada.
- B. Pipe, with qualified Spears® product, \$9,000.00 Continental US and nearest port of Alaska; \$10,000.00 Canada.
- C. Hawaii No Prepaid and Allowed Shipments.

*Pipe Shipments. In order to contain shipping costs, the following conditions have been implemented:

- A. Pipe orders for 10,000 pounds or more will generally be shipped on flatbed trailers at Spears® discretion and expense.
- B. Orders for smaller quantities of pipe, which qualify for Full Freight Allowed shipment, will generally be shipped in closed containers or via Hot-Shot carriers at Spears® discretion.
- C. Customers may request flatbed delivery of any shipment of pipe. However, despite an order qualifying for FFA under our normal terms, any increase in shipping cost over the cost of a closed truck will be invoiced to the customer. If requested, customer will be advised of this cost prior to shipment. It should also be noted that, due to limited availability of flatbed trailers in some areas, delays in shipping and delivery may occur.
- D. Company does not accept returned pipe of any material or type. (See Returned Goods Policy).

Exclusions. The following products do not qualify for freight allowance regardless of net order value amount or if included in an order with other Spears® products. Actual freight charges will be billed on orders for these products. Upon request, a freight charge estimate will be provided on inquiries or orders for these products.

Fabricated Duct Fittings and Duct Pipe Custom Molded & Fabricated Fittings

Custom Fabricated Manifolds Custom Manual & Actuated Valves **Neutralization Tanks**

FlameGuard® Technical Terms & Conditions



Prepaid and Charged Back (Charges Borne by Customer). All orders not meeting the requirements for freight charges being allowed will be invoiced with the carrier's actual freight / accessorial charges. These charges, without restraint of time, include, but are not limited to; excessive length, by appointment deliveries, residential and government facility deliveries, inside deliveries and those requiring special / additional handling (lift gate, ETC).

Exceptions to this policy are noted below and will be invoiced the actual freight charges incurred:

- A. All orders shipping to Alaska or Hawaii with a net value less than \$3,500.00. (\$4,000.00 for PVC-DWV exclusive orders.)
- B. All orders shipped to Hawaii via customer's requested carrier.
- C. Customer-requested special freight regardless of order's net value (Air Freight, Bus, etc.).
- D. Original orders and backorders regardless of net value that are shipped at the customer's request from a Spears® warehouse other than the designated servicing warehouse.
- E. All C.O.D. shipments not meeting minimum for full freight allowance.

Freight Collect:

- A. All orders shipping to CANADA with a net value of less than \$3,500.00 USD. (\$4,000.00 for PVC-DWV exclusive orders.)
- B. As requested by the customer.
- C. Customer-requested routings for shipment of goods via a non-contracted freight carrier (not normally used by Spears® Manufacturing Company) regardless of value.

Freight carrier fees and small package carrier fees on all C.O.D. shipments must be paid by the customer upon delivery of the order. FREIGHT TERMS FOR ORDERS SHIPPPED OUTSIDE THE CONTINENTAL USA, OTHER THAN THOSE LOCATIONS NOTED ABOVE, WILL BE QUOTED ON A "PER ORDER BASIS".

INSPECTION AND REJECTION. Customer shall inspect all goods promptly upon delivery. If Customer does not object in writing, stating all its reasons, to the goods as delivered and/or the services provided within ten (10) days of delivery, Customer shall be deemed to have irrevocably accepted the goods and services as satisfactory and in full compliance with its requirements, and to have waived all objections thereto which may be patently observable by a thorough and reasonable inspection. In the event Customer timely rejects any of the goods or is otherwise entitled to reject any of the goods, Customer agrees to and shall hold such rejected goods, free of charge, at Customer's place of business until Company has been notified in writing of the rejection and has had a reasonable opportunity to arrange for suitable transportation. Customer shall, under no circumstance, be entitled to resell, destroy, or discard any rejected goods without the prior written consent of Company.

CARRIER CLAIMS. Company will not be liable for any damage, loss or delay caused by any freight carrier. Claims for damaged goods, suspected damages, container shortages or pilferage within the container on delivery must be so noted on the carrier's delivery receipt and the carrier's claims representative should be notified immediately. Upon receipt of this Document, Customer shall make timely payment to Company notwithstanding any claims due to any carrier responsibility. Claims proven to be the responsibility of Company shall be resolved as expeditiously as possible through replacement or credit of goods involved. Maximum Carrier Liability Restrictions apply.

RETURNED GOODS. No goods shall be returned to Company for credit without the prior written consent of Company. Company reserves the right to levy a minimum handling and re-stocking charge of thirty percent (30%) on all returns (due to Customer's option). There may be additional charges or deductions from the credit for cleaning and reboxing costs. Company does not accept returned Pipe, Cements or Primers of any material or type. All returned goods shall be sent prepaid unless Company otherwise agrees in writing. Except for large quantities of slow-moving goods, for returns of goods, on a cumulative basis, in excess of Two Thousand Five Hundred Dollars (\$2,500) and as herein otherwise provided. Customer's requests to return goods are normally granted provided the proposed return is in compliance with Company's Current Return Goods Policy. Said policy requires returned goods to be limited to only goods manufactured or currently sold by Company, all returned goods must be clean, in resalable condition and of current design and color. Except for defective or damaged goods due to the sole fault of Company, Customer shall be entitled only to a credit against further sales for returned goods. The credit shall apply only to returned goods actually received by Company with credit to be issued based on the lowest price in effect within the prior twelve (12) month period, unless the original Invoice numbers and verification is provided by Customer. For further information on this policy, please consult with Company's servicing Regional Distribution Center.

SPEARS

FlameGuard® Technical

Terms & Conditions

FORCE MAJEURE. Spears® shall not be liable for any delay in or impairment of performance resulting in whole or in part from Acts of God, severe weather conditions, labor disruptions, governmental decrees or controls, insurrections, war risks, shortages, inability to procure or ship product or obtain permits and licenses, supplies or raw materials, or any other circumstances or causes beyond the control of Spears® in the conduct of its business.

RECOMMENDATIONS FOR INSTALLERS AND USERS. PLASTIC PIPING SYSTEMS SHOULD BE ENGINEERED, INSTALLED, AND OPERATED IN ACCORDANCE WITH INDUSTRY ESTABLISHED DESIGN AND ENGINEERING STANDARDS AND PROCEDURES. SUITABILITY FOR THE INTENDED SERVICE APPLICATION SHOULD BE DETERMINED PRIOR TO INSTALLATION. WITH RESPECT TO SOLVENT WELD CONNECTIONS, USE A QUALITY GRADE OF PRIMER AND SOLVENT CEMENT FORMULATED FOR THE TYPE OF CONNECTION, WITH THE CORRECT SIZE APPLICATOR. READ AND FOLLOW ALL OF THE SOLVENT CEMENT MANUFACTURER'S APPLICATION INSTRUCTIONS. WITH RESPECT TO THREADED CONNECTIONS, COMPANY RECOMMENDS THE USE OF SPEARS® BLUE 75™ THREAD SEALANT. CHOICE OF OTHER THREAD SEALANT IS AT THE DISCRETION OF THE INSTALLER. THE MANUFACTURER'S LITERATURE FOR THESE PRODUCTS SHOULD BE REVIEWED FOR PROPER SELECTION AND APPLICATION PROCEDURES. WARNING: SOME PIPE JOINT COMPOUNDS OR PTFE PASTES MAY CONTAIN SUBSTANCES, WHICH COULD CAUSE STRESS CRACKING TO PLASTIC ONE (1) OR TWO (2) TURNS BEYOND FINGER TIGHT IS GENERALLY ALL THAT IS REQUIRED TO MAKE A SOUND PLASTIC THREADED CONNECTION. UNNECESSARY OVER TIGHTENING WILL CAUSE DAMAGE TO BOTH PIPE AND FITTING. CUSTOMER SHALL BE SOLELY RESPONSIBLE FOR INFORMING ALL INSTALLERS AND OTHER END USERS OF THE FOREGOING AND ALL OTHER PRECAUTIONARY INSTRUCTIONS AND DISCLOSURES. CONSULT SPEARS® ON QUESTIONS REGARDING CHEMICAL COMPATIBILITY WITH PVC AND CPVC PRODUCTS.

LIMITED WARRANTY. Except as otherwise mandated by law or herein provided, Spears® Manufacturing Company ("Company") warrants Standard Catalog Products ("Products") which have been directly manufactured by them to be free from defects in material and workmanship for as long as the original end user of the Products ("End User") retains ownership and possession of the Products in accordance with this Warranty ("Warranty Period"). Products installed with pipe, fittings, valves, solvent cements, threads sealants or other related products, not manufactured by this company, are subject to review and may be exempt at the sole discretion of the Company. Each other person or entity acquiring or employing the Products, including buyers, contractors and installers ("Buyer") and End Users ("Buyer/End User") agrees that this Warranty shall be effective only during the Warranty Period so long as the Products are used solely for the normal purposes for which they are intended and in conformance with industry established standards, engineering, installation, operating, and maintenance specifications, recommendations and instructions including explicit instructions by the Company; the Products are properly installed, operated and used, and have not been modified; and all the other terms of this Warranty are complied with. Any violation thereof shall void this Warranty and relieve Company from all obligations arising from this Warranty and the Products.

Upon receipt or discovery of any Products that appear questionable or defective each Buyer/End User shall promptly inspect and return any such Product to the Company at 15853 Olden Street, Sylmar, California 91342, accompanied by a letter stating the nature of any problems. If the Products are determined by Company to be defective in materials or workmanship directly provided by Company, Company, at its sole option, may either repair or replace the defective Products, or reimburse applicable Buyer/End User for the cost of such Products. The applicable Buyer/End User shall bear all applicable shipping costs. THIS SHALL BE BUYERS/END USERS' SOLE REMEDY. EACH BUYER/END USER AGREES THAT COMPANY WILL NOT BE RESPONSIBLE FOR ANY OTHER OBLIGATIONS RELATING TO THE PRODUCTS, INCLUDING ANY OTHER MATERIALS OR LABOR COSTS, LOSS OF USE OR ANY OTHER ITEM OR FOR ANY DELAYS IN COMPLYING WITH THIS WARRANTY BEYOND COMPANY'S REASONABLE CONTROL.

COMPANY SHALL NOT BE LIABLE FOR, DOES NOT ASSUME, AND EXPRESSLY DISCLAIMS, ANY LIABILITY, RESPONSIBILITY AND DAMAGES: DUE TO ANY BUYER/END USER 'S FAILURE TO COMPLY WITH THIS WARRANTY, INCLUDING IMPROPER INSTALLATION, USE OR OPERATION; USE WITH PRODUCTS FROM OTHER MANUFACTURERS THAT DO NOT MEET ASTM OR OTHER APPLICABLE PRODUCT STANDARDS; IMPROPER CONTROL OF SYSTEM HYDRAULICS, IMPROPER WINTERIZATION PROCEDURES, IMPROPER VOLTAGE SUPPLY, CONTACT WITH INCOMPATIBLE MATERIALS, CHEMICALS OR CABLES, EXCAVATION/DIGGING, EXCESSIVE WEIGHT, AND VANDALISM; DUE TO REASONABLE WEAR AND TEAR AND DUE TO ANY ACTS OF NATURE, INCLUDING LIGHTNING, EARTHQUAKES, GROUND MOVEMENT, FROST HEAVE, OR FLOODS.

COMPANY EXTENDS ONLY THIS WARRANTY AND EXPLICITLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER IMPLIED OR OTHERWISE EXPRESSED, WHETHER ORAL, STATUTORY OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTIES OR AFFIRMATIONS FOR SUITABILITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO AFFIRMATION BY COMPANY OR ANY OF ITS REPRESENTATIVES, BY WORDS, CONDUCT OR OTHERWISE, SHALL CONSTITUTE A WARRANTY. THIS WARRANTY MAY NOT BE TRANSFERRED, EXTENDED, ALTERED OR OTHERWISE MODIFIED IN ANY MANNER, EXCEPT BY WRITTEN AGREEMENT SIGNED BY COMPANY.

FlameGuard® Technical Terms & Conditions



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Having previously independently inspected the Products, or a sample, as fully as desired, or having the opportunity to and having not done so, upon acceptance of delivery of the Products, and except as otherwise herein explicitly provided, each Buyer/End User by acceptance or use of the Products accepts them in their "AS IS" and "WITH ALL FAULTS" condition without any other warranty, expressed, implied or otherwise, and accepts and assumes the entire risk and cost of all servicing, remediation and consequences thereof. This Warranty shall be governed by Nevada law and any unenforceable provisions severed without affecting the remaining provisions. As used herein, "including" includes "without limitation."

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SPEARS

FlameGuard® Technical

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