



FLAMEGUARD® CPVC SWEEP 90° ELBOWS

FG90S-2-0723

Sweep 90° Elbows Provide Superior Flow Performance

Fire sprinkler designers are constantly aware of friction losses caused by change-of-direction fittings. They know that standard 90° pattern elbows can rob the fire sprinkler system of needed pressure created by turbulence and eddy currents from the compact elbow design. With the fire sprinkler industry in mind; Spears® has developed a patented FlameGuard® CPVC Sweep 90° Elbow to assist designers and installers of life-safety fire sprinkler systems with a means to provide better flow characteristics in both residential (NFPA 13D and 13R) and light hazard occupancy sprinkler applications as defined in NFPA 13. These **NEW** Sweep 90° Elbows deliver substantially lower friction loss by creating a smoother flow transition. Lower friction loss results in better overall hydraulic performance.

NEW FlameGuard® CPVC Sweep 90° Elbows are only available from Spears® Manufacturing Company.



4206-XXXS SERIES SPEARS® SWEEP 90° ELBOWS

Product Sizes & Material

The Spears® CPVC Sweep 90° Elbows are manufactured from the same quality FlameGuard® CPVC material as our standard FlameGuard® fittings and are compatible for use with other UL® listed and approved CPVC Fire Sprinkler Systems. The Spears® FlameGuard® Sweep 90° Elbows are available in sizes 3/4" through 3" and provide socket end connections that are easily solvent welded to CPVC fire sprinkler pipe.

Compare the Friction Loss Difference

Standard FlameGuard® 1-inch (33,7mm), 90° elbow friction loss = 5 feet (1,52m) in equivalent feet of pipe.¹

NEW Spears® FlameGuard® 1-inch (33,7mm) 90° Sweep Elbow friction loss = 1.5 feet (0,45m) in equivalent length of pipe. Independent laboratory verified.²

Results: A **70% improvement** over standard CPVC sprinkler 90° elbow fitting friction loss. See Friction Loss Table for more information.

1. Spears® FlameGuard® FG-3 Installation Instructions- page 42, version FG-3-0321
2. Underwriters Laboratories- UL 1821

SWEEP 90° ELBOW DESIGN



Sweep 90° Elbow Benefits

The FlameGuard® Sweep 90° Elbows minimize friction loss while enhancing system hydraulics in fire sprinkler systems¹. This enhancement in flow characteristics, in many cases, will enable the downsizing of supply piping which results in substantial labor and material savings. Additionally, the increase in fitting arc enhances the installer's ability to navigate obstructions in service, repair and retrofit applications.

1. Hydraulic design calculations for the sizing of Spears® FlameGuard® CPVC Fire Sprinkler Products must be calculated using a Hazen-Williams C value of 150.

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

FlameGuard® CPVC Fire Sprinkler Sweep 90° Elbows are UL® listed for U.S. applications in Light Hazard occupancies as defined by NFPA 13, residential occupancies up to and including 4-stories as defined by NFPA 13R, and occupancies for one-and-two family dwellings and manufactured homes as defined by NFPA 13D.

Full Limited Lifetime Warranty

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

PROGRESSIVE PRODUCTS FROM SPEARS® INNOVATION & TECHNOLOGY

Visit our website at www.spearsmfg.com

Allowance for Friction Loss Information & Comparison

Size	NEW Sweep 90° Elbow		Standard 90° Elbow	
	Friction Loss	Equiv. Feet of Pipe (Meters)	Friction Loss	Equiv. Feet of Pipe (Meters)
3/4		1.2 (0,36)		4 (1,2)
1		1.5 (0,45)		5 (1,5)
1-1/2		1.9 (0,57)		7 (2,1)
2		2 (0,6)		9 (2,7)
3		5.8 (1,7)		13 (4,0)

**FLAMEGUARD®
SWEEP 90° ELBOWS**

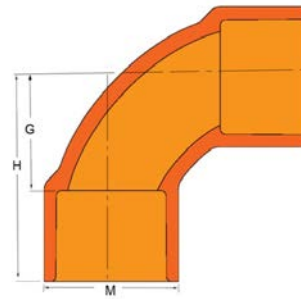
Spears® FlameGuard® Sweep 90° Elbows may allow for system main downsizing.

Compare The Numbers (Table Above)
A side-by-side friction loss comparison of the **NEW** FlameGuard® Sweep 90° elbows to traditional 90° elbows clearly indicates a multifold friction loss reduction in all sizes.

The realized friction loss savings may allow the designer to downsize supply piping while maintaining system hydraulic requirements.

SAVE MONEY

90° Elbow, Sweep
Socket x Socket



Part Number	Size	G	H	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



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