



SWING JOINT TECHNICAL DATA



• Temperature / Pressure Rating

Spears® Swing Joint Riser Assemblies carry a rated working pressure of 315 psi at 73° F and are pressure tested to Schedule 80 specifications per ASTM D 1599, long term (1000 hours) and pressure tested to Class 315 specifications per ASTM D 1598.*

• Schedule 80+ Wall Thickness

The wall thickness of these assemblies is Schedule 80+ which is substantially thicker than other PVC swing joints manufactured to Schedule 40 or Class 200 specifications. This provides more material in critical areas that are more susceptible to stress. Spears® assemblies have been cyclic pressure tested from 0 - 600 psi at the rate of ten cycles per minute.*

• Variety of Inlet/Outlet Configurations

Spears® offers the broadest selection of inlet and outlet connections including a specially designed inlet tee, a female brass thread outlet adapter and a male acme thread O-ring seal outlet adapter.

• Double O-ring Seal

Spears® Manufacturing Company uses two O-rings in its swing joint assembly. The larger, inner O-ring provides a leak-free pressure seal. The outer O-ring prevents dirt, dust, sand, etc., from entering the threads and causing damage to the swing joint components. The swing joint components are manufactured with no mold parting lines in critical areas. The Swing Joint assemblies are leak tested to Class 315 specifications per ASTM D 3139, with only the primary O-rings installed.*

• Strong Buttress Style Threads

Spears® uses a buttress style form of thread in its assembly. This thread has the advantage in applications involving high stresses along the thread axis in one direction. Due to the design, the buttress thread offers a greater degree of safety from surge type failures and allows free movement of the joints without restriction.

• Sweep Style Fittings

The medium sweep style fitting design offers less friction loss than conventional block or square elbow patterns. The Cv factors are: 1" = 13 gpm; 1-1/4" = 24 gpm and 1-1/2" = 35 gpm.* Large finger knurls are provided for ease of installation or adjustments eliminating the need for wrenches or other tools.

• Lifetime Warranty

Spears® Swing Joint Riser Assemblies have a Limited Lifetime Warranty against any defects in materials or workmanship.



STANDARDS AND TESTING CRITERIA FOR SPEARS® EverTUFF® TURF™ SWING JOINT RISER ASSEMBLIES

Spears® Swing Joint Riser Assemblies are tested to the following specifications and standards.

Test	Reference Standard	Requirement
HYDROSTATIC BURST Test per ASTM D 1599, 60-70 seconds	ASTM D 1785 / D 2464 / D 2467 (Schedule 80 Pipe & Fittings)	1" = 2020 psi, minimum 1-1/4" = 1660 psi, minimum 1-1/2" = 1510 psi, minimum
SUSTAINED PRESSURE Test per ASTM D 1598, 1000 hours	ASTM D 2241, SDR 13.5 (315 psi Pressure Rating)	All sizes = 670 psi, minimum
HYDROSTATIC LEAK* Test per ASTM D 3139, 1 hour @ 2.5 x Pressure Rating	ASTM D 3139	No Pressure Loss
VACUUM* Test per ASTM D 3139, 1 hour @ 22 in. Hg	ASTM D 3139	No Leakage
DIMENSIONS Measured per ASTM D 2122	ASTM D 2464 / D 2467	Sockets = Schedule 80 Wall = Exceeds Schedule 80
O-RING TYPE (Dimensions per AS 568A)	ASTM D 2464 / D 2467	Nitrile (Buna-N)

SPEARS® SWING JOINT ASSEMBLY Cv FACTORS**

Cv factors are based on assemblies using 12" riser and 6" inlet nipples

1"	=	13 gpm
1-1/4"	=	24 gpm
1-1/2"	=	35 gpm

SWING JOINT ASSEMBLY CYCLIC PRESSURE TEST**

0 - 600 psi, 10 cpm @ 73°F

1" avg	=	29,500 cycles
1-1/2" avg	=	13,000 cycles

* Test conducted with primary O-ring only on each assembly joint (secondary O-ring is to protect joint-threads from external debris)
 ** Friction loss and cyclic pressure testing was conducted by the Agricultural Engineering Department of CAL Poly University, Pomona, California.

SWING JOINT TECHNICAL DATA



- **Temperature / Pressure Rating**

Spears® Swing Joint Riser Assemblies carry a rated working pressure of 315 psi at 73° F and are pressure tested to Schedule 80 specifications per ASTM D 1599, long term (1000 hours) and pressure tested to Class 315 specifications per ASTM D 1598.*

- **Schedule 80+ Wall Thickness**

The wall thickness of these assemblies is Schedule 80+ which is substantially thicker than other PVC swing joints manufactured to Schedule 40 or Class 200 specifications. This provides more material in critical areas that are more susceptible to stress. Spears® assemblies have been cyclic pressure tested from 0 - 600 psi at the rate of ten cycles per minute.*

- **Variety of Inlet/Outlet Configurations**

Spears® offers the broadest selection of inlet and outlet connections including a specially designed inlet tee, a female brass thread outlet adapter and a male acme thread O-ring seal outlet adapter.

- **Double O-ring Seal**

Spears® Manufacturing Company uses two O-rings in its swing joint assembly. The larger, inner O-ring provides a leak-free pressure seal. The outer O-ring prevents dirt, dust, sand, etc., from entering the threads and causing damage to the swing joint components. The swing joint components are manufactured with no mold parting lines in critical areas. The Swing Joint assemblies are leak tested to Class 315 specifications per ASTM D 3139, with only the primary O-rings installed.*

- **Strong Buttress Style Threads**

Spears® uses a buttress style form of thread in its assembly. This thread has the advantage in applications involving high stresses along the thread axis in one direction. Due to the design, the buttress thread offers a greater degree of safety from surge type failures and allows free movement of the joints without restriction.

- **Sweep Style Fittings**

The medium sweep style fitting design offers less friction loss than conventional block or square elbow patterns. The Cv factors are: 1" = 13 gpm; 1-1/4" = 24 gpm and 1-1/2" = 35 gpm.* Large finger knurls are provided for ease of installation or adjustments eliminating the need for wrenches or other tools.

- **Lifetime Warranty**

Spears® Swing Joint Riser Assemblies have a Limited Lifetime Warranty against any defects in materials or workmanship.



STANDARDS AND TESTING CRITERIA FOR SPEARS® EverTUFF® TURF™ SWING JOINT RISER ASSEMBLIES

Spears® Swing Joint Riser Assemblies are tested to the following specifications and standards.

Test	Reference Standard	Requirement
HYDROSTATIC BURST Test per ASTM D 1599, 60-70 seconds	ASTM D 1785 / D 2464 / D 2467 (Schedule 80 Pipe & Fittings)	1" = 2020 psi, minimum 1-1/4" = 1660 psi, minimum 1-1/2" = 1510 psi, minimum
SUSTAINED PRESSURE Test per ASTM D 1598, 1000 hours	ASTM D 2241, SDR 13.5 (315 psi Pressure Rating)	All sizes = 670 psi, minimum
HYDROSTATIC LEAK* Test per ASTM D 3139, 1 hour @ 2.5 x Pressure Rating	ASTM D 3139	No Pressure Loss
VACUUM* Test per ASTM D 3139, 1 hour @ 22 in. Hg	ASTM D 3139	No Leakage
DIMENSIONS Measured per ASTM D 2122	ASTM D 2464 / D 2467	Sockets = Schedule 80 Wall = Exceeds Schedule 80
O-RING TYPE (Dimensions per AS 568A)	ASTM D 2464 / D 2467	Nitrile (Buna-N)

SPEARS® SWING JOINT ASSEMBLY Cv FACTORS**

Cv factors are based on assemblies using 12" riser and 6" inlet nipples

1"	=	13 gpm
1-1/4"	=	24 gpm
1-1/2"	=	35 gpm

SWING JOINT ASSEMBLY CYCLIC PRESSURE TEST**

0 - 600 psi, 10 cpm @ 73°F

1" avg	=	29,500 cycles
1-1/2" avg	=	13,000 cycles

* Test conducted with primary O-ring only on each assembly joint (secondary O-ring is to protect joint-threads from external debris)
 ** Friction loss and cyclic pressure testing was conducted by the Agricultural Engineering Department of CAL Poly University, Pomona, California.