SPF Anvil®
Figures C9-CL and C9-SL Rigid Couplings

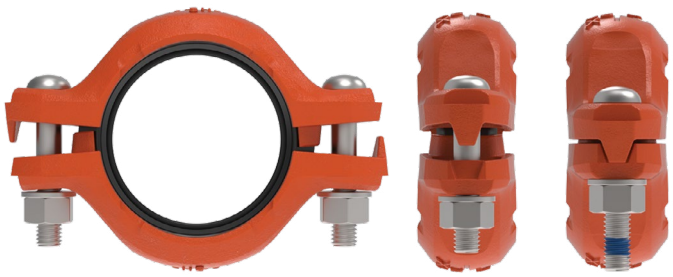

Fig. C9-CL

CenterLOK Pressure Responsive Gasket

Fig. C9-SL

SlideLOK Pressure Responsive Gasket

PRODUCT OVERVIEW

APPLICATION

- Designed for fire protection sprinkler systems
- Rigid, ready-for-installation coupling features patented ASC Sabertooth™ installation technology enabling rapid visual and tactile proper assembly confirmation and protection from over-tightening
- CenterLOK™ and SlideLOK® patented gasket options available as needed
- Designed to be used with roll, cut or swage grooved steel and stainless steel pipe in accordance with AWWA C606, as well as SPF/Anvil® grooved-end fittings, and valves. See Coupling Working Pressure Ratings Guide for more details.
- Provide a rigid connection enabling pipe hanging practices per ASME B31 Pipe Codes

SIZES

- 1-¼ inch through 6 inch

MAXIMUM WORKING PRESSURE

- From full vacuum (29.9 in Hg/760 mm Hg) up to 400 psi/ 27 bar (pipe material, size and wall thickness dependent)

OPERATING TEMPERATURES

- -40°F to 150°F (Service Temperature Range) (-40°C to 66°C)

PROJECT INFORMATION	APPROVAL STAMP
Project:	☐ Approved
Address:	☐ Approved as noted
Contractor:	☐ Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	

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MATERIALS

HOUSING MATERIAL

- Ductile iron conforming to ASTM A536, Grade 65-45-12

HOUSING COATING: (Select)

☐ Orange Rust-inhibiting Paint

☐ Hot-dipped Zinc Galvanized conforming to ASTM A123

GASKET TYPE

☐ CenterLOK™ Pressure Responsive Gasket (Figure C9-CL)

☐ SlideLOK® Pressure Responsive Gasket (Figure C9-SL)

GASKET / SEAL MATERIAL

- Properties as designated in accordance with ASTM D2000

☐ Pre-Lubricated Grade "E" EPDM, Type A Gasket (Violet color code) -40°F to 150°F (Service Temperature Range) (-40°C to 66°C) Recommended for wet and dry (oil free air) pipe fire protection sprinkler systems. For dry pipe systems and freezer applications, Gruvlok® Xtreme Lubricant is recommended.

HARDWARE

Bolts

- SAE J429, Grade 5, Zinc Electroplated (standard)

Nuts

- Heavy Hex Nut, ASTM A563 Grade A, with corrosion-resistant coating PER ASC-ES STD-7531

Speed Plates

- ANSI/ASME spec B18.22.1, Coating conforming to ASTM A123

HARDWARE KITS

☐ 304 Stainless Steel (available in sizes up to ½")

Kit includes:

- (2) Bolts per ASTM A193, Grade B8
- Heavy Hex Nuts Per ASTM A563 Grade A (UNS K05802)

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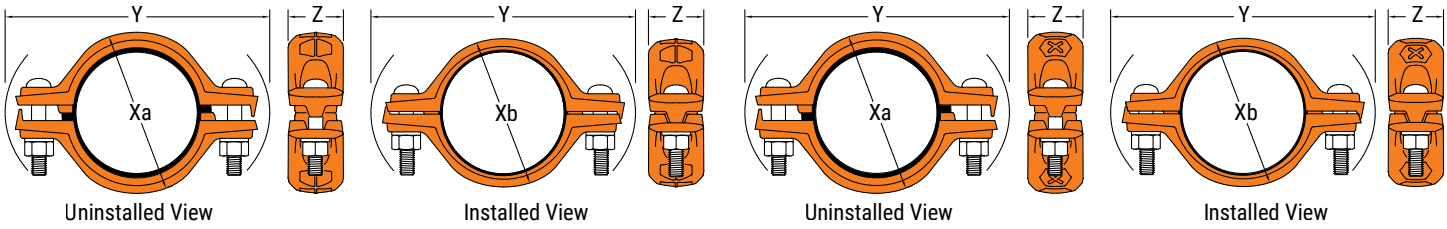

Fig. C9-CL

Fig. C9-SL

C9SL/CL Fire							Coupling Dimensions				Coupling Bolts		
Nominal Size	O.D.	Max. Working Pressure Sch 10	Max. Working Pressure Sch 40	Max. End Load	Max. End Load CL (in.)	Max Pipe End Separation SL (in.)	Xa	Xb	Y	Z	Qty.	Size	Approx Wt. Ea.
1 ¼	1.66	400	400	866	0.14	0.26	3.05	2.80	5.33	1.69	2	⅜ x 2¼	1.62
1 ½	1.90	400	400	1134	0.14	0.26	3.29	3.04	5.58	1.75	2	⅜ x 2¼	1.77
2	2.375	400	400	3323	0.13	0.26	3.73	3.47	6.13	1.75	2	½ x 3	2.34
2 ½	2.875	400	400	4869	0.13	0.26	4.36	4.04	6.62	1.75	2	½ x 3	2.60
3	3.50	400	400	7216	0.13	0.26	4.99	4.67	7.23	1.75	2	½ x 3	2.81
4	4.50	400	400	11928	0.15	0.31	5.95	5.71	8.59	1.95	2	½ x 3	3.82
5	5.563	400	400	18928	0.15	0.31	7.24	8.00	9.84	1.98	2	⅝ x 4¼	6.00
6	6.625	400	400	24130	0.15	0.31	8.29	9.84	11.00	1.98	2	⅝ x 4¼	7.02

Note:

- Maximum end load is defined as the max allowable force from the combination of internal pressure thrust at the pipe joint and external loads based on the use of standard ASME B36.10 pipe that is grooved in accordance with ASC's groove specification.
- Pressure ratings and end loads may differ for other pipe materials and/or wall thicknesses.
- See ASC Coupling Working Pressure Ratings document for pressure ratings on alternate pipe materials.
- Range of Pipe End Separation values are for system layout reference only. Actual installation spacing may vary based on pipe condition.
- For use in Dry Pipe Systems: The CenterLOK and SlideLOK pressure responsive gaskets are featured with four sealing surfaces to increase protection in low temperature applications.
- Once the CenterLOK or SlideLOK gasket is installed, the performance of the gasket is equivalent to the Gruvlok Flush Gap Gasket. Note: The Flush Gap Gasket is not interchangeable with the CenterLOK or SlideLOK gasket.
- WARNING: For dry pipe systems and freezer applications lubrication of the gasket is required, Gruvlok Xtreme Lubricant is recommended.

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Figures C9-CL and C9-SL Rigid Couplings

PERFORMANCE / DIMENSIONS

Manufacturer	Groove	Pipe	Size (in.)	Pressure Rating			
				cULus		FM	
				PSI/bar		PSI/bar	
C9-CL	Roll	Sch. 10*	1¼, 1½, 2, 2½, 3, 4, 5, 6	400	2757	400	2755
C9-CL	Roll, Cut	Sch. 40*	1¼, 1½, 2, 2½, 3, 4, 5, 6	400	2757	400	2755
C9-CL	Roll	Bull Moose Tube Eddy-Flow	1¼, 1½, 2, 2½, 3, 4	300	2068	300	2065
C9-CL	Roll	Bull Moose Tube Eddy-Thread 40	1¼, 1½, 2	300	2068	300	2065
C9-CL	Roll	Wheatland Tube Mega-Flow	1¼, 1½, 2, 2½, 3, 4, 5, 6	300	2068	300	2065
C9-CL	Roll	Wheatland Tube Mega-Thread	1¼, 1½, 2	300	2068	300	2065
C9-CL	Roll	Nucor Hydroflow	1¼, 1½, 2, 2½, 3, 4			300	2065
C9-CL	Roll	Youngstown Tube EZ-Thread	1¼, 1½, 2			300	2065
C9-CL	Roll	Youngstown Tube Fire-Flo	1½, 2, 2½, 3,4	300	2068	300	2065
C9-CL	Roll	Tex-Tube Co Tex-Flow	6			300	2065
C9-CL	Roll	Wuppermann Austria GmbH WGALWELD7	3,4			300	2065
C9-SL	Roll	Sch. 10*	1¼, 1½, 2, 2½, 3, 4, 5, 6	400	2757	400	2755
C9-SL	Roll	Sch. 40*	1¼, 1½, 2, 2½, 3, 4, 5, 6	400	2757	400	2755
C9-SL	Roll	Bull Moose Tube Eddy-Flow	1¼, 1½, 2, 2½, 3, 4	300	2068	300	2065
C9-SL	Roll	Bull Moose Tube Eddy-Thread 40	1¼, 1½, 2	300	2068	300	2065
C9-SL	Roll	Wheatland Tube Mega-Flow	1¼, 1½, 2, 2½, 3, 4, 5, 6	300	2068	300	2065
C9-SL	Roll	Wheatland Tube Mega-Thread	1 ¼, 1 ½, 2	300	2068	300	2065
C9-SL	Roll	Nucor Hydroflow	1¼, 1½, 2, 2½, 3, 4			300	2065
C9-SL	Roll	Youngstown Tube EZ-Thread	1 ¼, 1 ½, 2			300	2065
C9-SL	Roll	Youngstown Tube Fire-Flo	1 ½, 2, 2 ½, 3, 4	300	2068	300	2065
C9-SL	Roll	Tex-Tube Co Tex-Flow	6			300	2065
C9-SL	Roll	Wuppermann Austria GmbH WGALWELD7	3, 4			300	2065

Note:

- For the latest cULus pressure ratings, FM pressure ratings, and pipe approvals, please visit asc-es.com or contact your local ASC Engineered Solutions Representative.
- *Schedule 40 pipe to ASTM A795/A53/ASME B36.10 in accordance with NFPA-13.
- * Schedule 10 pipe to ASTM A135/A795/A53 in accordance with NFPA-13.

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CERTIFICATIONS / LISTINGS

c UL us LISTED

FM APPROVED

ADDITIONAL RESOURCES

- Technical Data Sheet: Working Pressure Ratings
- Technical Data Sheet: Gasket Styles
- Pipe Fitter's Handbook
- Gasket Information: ASC Gasket Compatibility Chart

SAFETY

WARNING

Read and understand all instructions before use.

Ensure system is drained and depressurized before installation or service.

Use appropriate personal protective equipment.

Failure to follow these instructions could result in serious personal injury and/or property damage.

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Building connections that last™

SPF Anvil®
Figures C9-CL and C9-SL Rigid Couplings

INSTALLATION

READY FOR INSTALLATION – RIGHT OUT OF THE BOX

Do not disassemble the SPF/Anvil® Figure C9-CL / C9-SL coupling – it is ready for installation. The bolts and gasket do not need to be removed.

PIPE PREPARATION

Pipe ends are to be rolled or cut grooved according to ASC Engineered Solutions™ specifications. Not for use on "EG" rolled or cut grooved pipe ends. The pipe end must be smooth and free from metal burrs, sharp edges or projections.

METHOD 1 ASSEMBLY – SPF ANVIL® FIGURE C9-CL WITH CENTERLOK™ GASKET

The SPF/Anvil Fig. C9-CL coupling gasket features an integrated center rib that serves as a positive stop during installation. As the coupling slides onto the pipe or fitting, the rib prevents it from over-traveling, automatically positioning it at the correct depth. This design eliminates the need for manual alignment of the coupling keys with the pipe grooves.

INSTALLATION STEPS

1. POSITION THE COUPLING

Slide the Fig. C9-CL coupling onto the pipe or fitting until the center rib contacts the pipe end. The coupling will naturally stop in the correct position with the keys aligned to the groove.

2. JOIN THE MATING PIPE OR FITTING

Bring the second pipe or fitting into place and slide it onto the opposite side of the center rib, ensuring it seats fully against the rib. Both pipe ends should be firmly butted against the center stop.

3. TIGHTEN THE BOLTS

Begin tightening the nuts alternately in the following sequence: First side half-way, second side fully tightened, first side fully tightened.

Notice: Once fully tightened, the gasket should not be visible between the coupling segments. Refer to the Maximum Bolt Torque Chart below.

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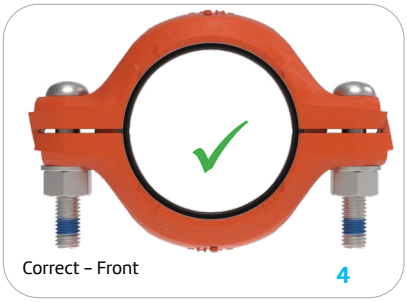
SPF Anvil®
Figures C9-CL and C9-SL Rigid Couplings

INSTALLATION



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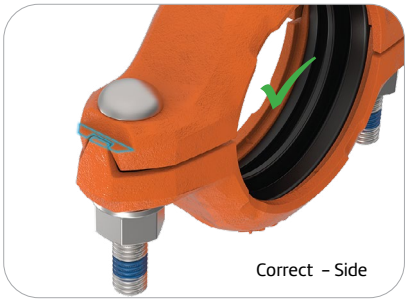

Correct - Side

4. CONFIRM PROPER INSTALLATION – VISUAL INDICATORS

Inspect the casting alignment indicators located on both sides of the coupling. When the coupling is properly installed, the male and female end of the indicator will form a straight line across the seam—on both sides.

- Coupling keys are fully engaged in both pipe grooves
- If either indicator is misaligned or bolt pad gaps are uneven, recheck pipe positioning and re-tighten as needed. The coupling must be visually aligned on both sides before being placed into service.

FOR DRY PIPE AND FREEZER APPLICATIONS:

Ensure the gasket is suitable for the intended application by referring to the ASC Gasket Compatibility Chart. Apply a light coating of Gruvlok® Lubricant to exposed gasket surfaces.

MAXIMUM BOLT TORQUE

Maximum Bolt Torque

Bolt Size (In.)	Wrench Size (In.)	Ft-Lbs
3/8	11/16	50
1/2	7/8	120
5/8	1 1/16	200
3/4	1 1/4	300

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Figures C9-CL and C9-SL Rigid Couplings

INSTALLATION

ASSEMBLY METHOD 2 – SPF/ANVIL® FIG. C9-SL WITH SLIDELOK™ GASKET

INSTALLATION STEPS

1. SLIDE COUPLING OVER PIPE END
Slide the Figure C9-SL coupling completely over the grooved pipe end. This will allow a clear and un-obstructed view of the pipe for correct alignment.

2. ALIGN PIPE ENDS
Align the mating pipe end. Align the two adjoining pipes together.

3. POSITION COUPLING
Slide the coupling back over the grooves so that the coupling keys are located over the respective grooves on both pipe ends.

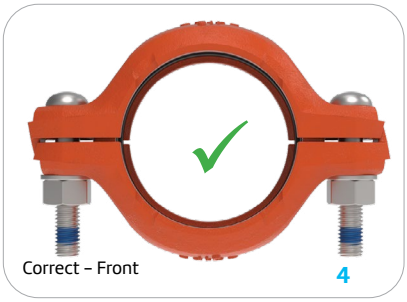
4. TIGHTEN THE BOLTS
Begin tightening the nuts alternately and evenly. Maintain uniform gaps between the bolt pads on both sides of the coupling as you tighten.

Notice: Uneven tightening can pinch or displace the gasket. Once fully tightened, the gasket should not be visible between the coupling segments. Refer to the Maximum Bolt Torque Chart below for proper torque values on page 7.

SPF Anvil®
Figures C9-CL and C9-SL Rigid Couplings

INSTALLATION (Continued)

METHOD 2 ASSEMBLY – SPF ANVIL® FIGURE C9-SL WITH SLIDELOK™ GASKET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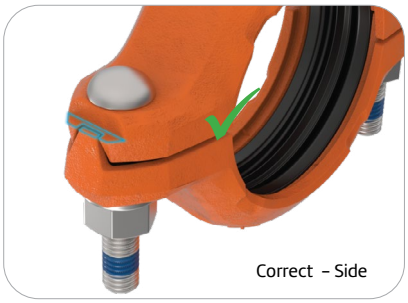
Correct – Side

5. CONFIRM PROPER INSTALLATION – VISUAL INDICATORS

Inspect the casting alignment indicators located on both sides of the coupling. When the coupling is properly installed, the male and female end of the indicator will form a straight line across the seam—on both sides.

- Coupling keys are fully engaged in both pipe grooves
- If either indicator is misaligned or bolt pad gaps are uneven, recheck pipe positioning and re-tighten as needed. The coupling must be visually aligned on both sides before being placed into service.

FOR DRY PIPE AND FREEZER APPLICATIONS:

Ensure the gasket is suitable for the intended application by referring to the ASC Gasket Compatibility Chart. Apply a light coating of Gruvlok® Lubricant to exposed gasket surfaces.

MAXIMUM BOLT TORQUE

Maximum Bolt Torque

Bolt Size (In.)	Wrench Size (In.)	Ft-Lbs
3/8	11/16	50
1/2	7/8	120
5/8	1 1/16	200
3/4	1 1/4	300

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