

NEW EDITION
NOVEMBER 2019



G7 Series Solenoid Valves

The Evolution of Gold Ring™ & Skinner®



ENGINEERING YOUR SUCCESS.



WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN, OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems. The product described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.



Parker Safety Guidelines for Selecting and Using Fluid Control Division Products Including Valves, Assemblies and Related Accessories

Warning: Failure or improper selection or improper use of Parker Fluid Control Division Products, including valves, assemblies or related accessories ("Products") can cause death, personal injury and property damage.

Possible consequences of failure or improper use of these Products include but are not limited to:

- Gas leakage leading to explosion or rupture of a pressure vessel.
- Leakage or other release of toxic or otherwise hazardous liquids or gases.
- Unintended or mistimed cycling or motion of machine members, or failure of machine members to cycle.
- Sudden moving or falling objects.
- Work piece or component parts being thrown off at high speeds.
- Failure of a device to function properly. For example, failure to clamp or unclamp an associated item or device.
- Electrical shorts, burns, burn out of equipment or fires.

Before selecting or using any of these Products, it is important that you read and follow the instructions on page 23.



CALIFORNIA PROP 65: WARNING:

This product can expose you to chemicals including lead which is known to the State of California to cause cancer and birth defects, or other reproductive harm.

For more information go to www.P65Warnings.ca.gov

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ValveFinder & Parker Tracking System

Connecting you to Parker Fluid Control Division



ValveFinder App

Fluid Control Division's ValveFinder app is an innovative and user-friendly valve configuration and competitor cross-reference tool.

By creating a faster, more efficient valve selection process, Parker makes it easier than ever before to find the valve you need quickly and easily!

Get started with ValveFinder now at www.parker.com/ValveFinder

Access ValveFinder for smart phone, tablet, or computer:



Parker Tracking System (PTS)

PTS is an innovative component tagging and tracking solution. By creating a smarter, more connected product, Parker is driving new levels of productivity, efficiency, and reliability.

PTS delivers an unparalleled asset management and traceability ecosystem, reduces system down time, and ensures all relevant technical information is just a click away.

See Parker Tracking System in action at www.parker.com/PTS



Download PTS Mobile for smart phone or tablet:



G7 Series Solenoid Valves

THE EVOLUTION OF **GOLD RING™**
SKINNER® 7000 SERIES

**Tougher.
Faster.
Smarter.**

Series Overview

Family Designator in Part No.

23RC08UV7C7F

- 20 = 2-Way Direct Acting
- 30 = 3-Way Direct Acting
- 22 = 2-Way Internally Piloted
- 23 = 2-Way Direct Lift

Specifications

- **Sizes:** 1/8" - 3/4" NPT
- **Pressures:** Up to 2,200 psi
- **Flows:** Up to 5.0 Cv
- **Body Materials:**
 - Lead-Free Brass[□]
 - 303 Stainless Steel
 - 316L Stainless Steel

Features & Benefits

Tougher

- Industry-Leading Performance
- Long Life, up to 20 Million Cycles•
- Environmentally Resistant up to IP69
- Corrosion Resistant

Faster

- 24-Hour Express Ship Program
- Simplified Installation & Service
- Durable, Laser-Marked Identification

Smarter

- SDWA Compliant[□]
- Parker Tracking System (PTS)



Assembled in USA



IP69



CE



[□] Compliant to SDWA Section 1417(d)

• Under laboratory conditions, certain valve constructions have survived up to 20 million cycles. Consult factory for more information.

Design Your Solution

3 Easy Steps



Example:

23RC08UV7 + **C7F** = **23RC08UV7C7F**

Reference tables on pages 7-16 for desired construction, performance, and voltage type.

Reference Electrical Suffix Chart associated with prefix chosen, starting on page 17.

Combine Mechanical Prefix and Electrical Suffix to form Valve Ordering Number.

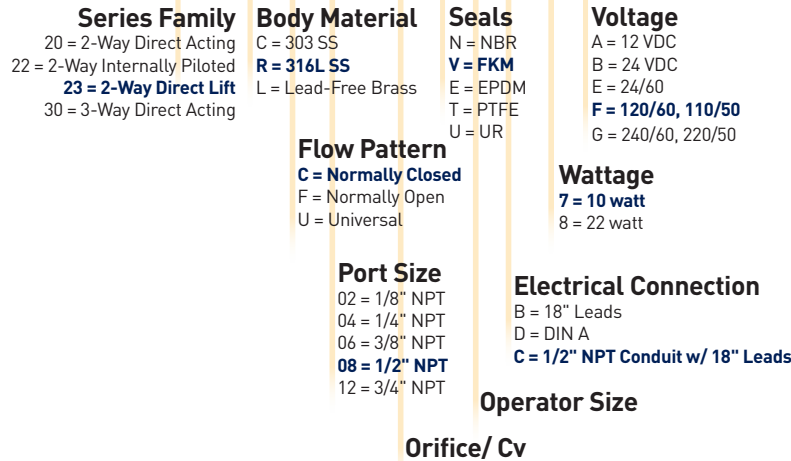
This is the prefix of a Valve Ordering Number (Pressure Vessel)

This is the suffix of a Valve Ordering Number (Solenoid Coil)

This is the complete Valve Ordering Number (Valve Assembly)

Series Nomenclature

23RC08UV7C7F



Need it Fast?

Follow the ⚡ symbols in this catalog for 24 Hour Express Ship Program eligibility. Additional configurations may be available quickly from the factory or through a local distributor.

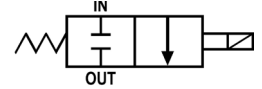
Configure and Cross-Reference



www.parker.com/ValveFinder



2-Way Normally Closed, Direct Acting - 303 Stainless Steel



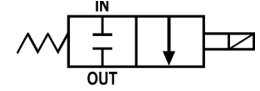
Port Size	Orifice Dia.	Flow Factor	Operating Pressure Differential (MOPD) psi				Max. Media Temp.	Seal Material	Power Watts	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref.	Agency
			Min	Air, Inert Gas	Water	Light Oil							
1/8	3/64	0.05	0	2200	2200	2200	140	UR*	10	20CC02EP7	A	1	●
1/8	1/16	0.10	0	1400	1400	1400	140	UR*	10	20CC02GP7	A	1	●
1/8	1/16	0.10	0	750	750	750	185	FKM	10	20CC02GV7	A	1	■
1/8	3/32	0.18	0	550	550	550	185	FKM	10	20CC02LV7	A	1	■
1/8	1/8	0.29	0	375	375	375	185	FKM	10	20CC02PV7	A	1	■
1/8	5/32	0.43	0	230	230	230	185	FKM	10	20CC02QV7	A	1	■
1/4	3/64	0.05	0	2200	2200	2200	140	UR*	10	20CC04EP7	A	2	●
1/4	1/16	0.10	0	1400	1400	1400	140	UR*	10	20CC04GP7	A	2	●
AC 1/4	1/16	0.10	0	750	750	750	185	FKM	10	✓ 20CC04GV7	A	2	■
1/4	3/32	0.18	0	550	550	550	185	FKM	10	✓ 20CC04LV7	A	2	■
1/4	1/8	0.29	0	375	375	375	185	FKM	10	✓ 20CC04PV7	A	2	■
1/4	5/32	0.43	0	230	230	230	185	FKM	10	✓ 20CC04QV7	A	2	■
1/4	7/32	0.79	0	110	110	110	185	FKM	10	✓ 20CC04TV7	A	2	■
1/4	9/32	1.06	0	40	40	40	185	FKM	10	✓ 20CC04IV7	A	2	■
3/8	5/32	0.43	0	230	230	230	185	FKM	10	20CC06QV7	A	3	■
3/8	7/32	0.79	0	110	110	110	185	FKM	10	✓ 20CC06TV7	A	3	■
3/8	9/32	1.06	0	40	40	40	185	FKM	10	20CC06IV7	A	3	■

Max. Ambient Temp. 150°F

- * UR plunger seal and FKM flange seal
- ✓ Express Ship Program eligible when configured with an eligible electrical suffix
- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations
- Safety Shutoff: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations



2-Way Normally Closed, Direct Acting - 303 Stainless Steel



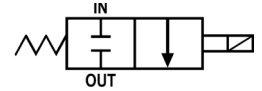
Port Size	Orifice Dia.	Flow Factor	Operating Pressure Differential (MOPD) psi			Max. Media Temp. °F	Seal Material	Power Watts	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref.	Agency		
			Min	Air, Inert Gas	Water								Light Oil	
DC	1/8	3/64	0.05	0	2200	2200	2200	140	UR*	10	20CC02EP7	B	1	●
	1/8	1/16	0.10	0	1250	1250	1250	140	UR*	10	20CC02GP7	B	1	●
	1/8	1/16	0.10	0	750	750	750	185	FKM	10	20CC02GV7	B	1	■
	1/8	3/32	0.18	0	660	660	660	185	FKM	22	20CC02LV7	C	1	■
	1/8	3/32	0.18	0	520	520	520	185	FKM	10	20CC02LV7	B	1	■
	1/8	1/8	0.29	0	280	280	280	185	FKM	22	20CC02PV7	C	1	■
	1/8	1/8	0.29	0	165	165	165	185	FKM	10	20CC02PV7	B	1	■
	1/8	5/32	0.43	0	130	130	130	185	FKM	22	20CC02QV7	C	1	■
	1/8	5/32	0.43	0	85	85	85	185	FKM	10	20CC02QV7	B	1	■
	1/4	3/64	0.05	0	2200	2200	2200	140	UR*	10	20CC04EP7	B	2	●
	1/4	1/16	0.10	0	1250	1250	1250	140	UR*	10	20CC04GP7	B	2	●
	1/4	1/16	0.10	0	750	750	750	185	FKM	10	20CC04GV7	B	2	■
	1/4	3/32	0.18	0	660	660	660	185	FKM	22	20CC04LV7	C	2	■
	1/4	3/32	0.18	0	520	520	520	185	FKM	10	20CC04LV7	B	2	■
	1/4	1/8	0.29	0	280	280	280	185	FKM	22	20CC04PV7	C	2	■
	1/4	1/8	0.29	0	165	165	165	185	FKM	10	20CC04PV7	B	2	■
	1/4	5/32	0.43	0	130	130	130	185	FKM	22	20CC04QV7	C	2	■
	1/4	5/32	0.43	0	85	85	85	185	FKM	10	20CC04QV7	B	2	■
	1/4	7/32	0.79	0	70	70	70	185	FKM	22	20CC04TV7	C	2	■
	1/4	9/32	1.06	0	60	60	60	185	FKM	22	20CC041V7	C	2	■
1/4	7/32	0.79	0	40	40	40	185	FKM	10	20CC04TV7	B	2	■	
1/4	9/32	1.06	0	15	15	15	185	FKM	10	20CC041V7	B	2	■	
3/8	5/32	0.43	0	130	130	130	185	FKM	22	20CC06QV7	C	3	■	
3/8	5/32	0.43	0	85	85	85	185	FKM	10	20CC06QV7	B	3	■	
3/8	7/32	0.79	0	70	70	70	185	FKM	22	20CC06TV7	C	3	■	
3/8	9/32	1.06	0	60	60	60	185	FKM	22	20CC061V7	C	3	■	
3/8	7/32	0.79	0	40	40	40	185	FKM	10	20CC06TV7	B	3	■	
3/8	9/32	1.06	0	15	15	15	185	FKM	10	20CC061V7	B	3	■	

Max. Ambient Temp. 150°F (10 watt) / 125°F (22 watt)

- * UR plunger seal and FKM flange seal
- ⚡ Express Ship Program eligible when configured with an eligible electrical suffix
- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations
- Safety Shutoff: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations



2-Way Normally Closed, Direct Acting - Lead-Free Brass



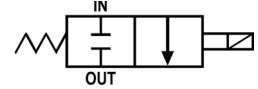
Port Size	Orifice Dia.	Flow Factor	Operating Pressure Differential (MOPD) psi			Max. Media Temp.	Seal Material	Power	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref.	Agency		
			Min	Air, Inert Gas	Water								Light Oil	°F
AC	1/8	1/16	0.10	0	750	750	750	185	NBR	10	20LC02GN7	A	4	■
	1/8	3/32	0.18	0	550	550	550	185	NBR	10	20LC02LN7	A	4	■
	1/8	1/8	0.29	0	375	375	375	185	NBR	10	20LC02PN7	A	4	■
	1/8	5/32	0.43	0	230	230	230	185	NBR	10	20LC02QN7	A	4	■
	1/4	1/16	0.10	0	750	750	750	185	NBR	10	20LC04GN7	A	5	■
	1/4	3/32	0.18	0	550	550	550	185	NBR	10	20LC04LN7	A	5	■
	1/4	1/8	0.29	0	375	375	375	185	NBR	10	20LC04PN7	A	5	■
	1/4	5/32	0.43	0	230	230	230	185	NBR	10	20LC04QN7	A	5	■
	1/4	7/32	0.79	0	110	110	110	185	NBR	10	20LC04TN7	A	5	■
	1/4	9/32	1.06	0	40	40	40	185	NBR	10	20LC04IN7	A	5	■
	3/8	5/32	0.43	0	230	230	230	185	NBR	10	20LC06QN7	A	6	■
	3/8	7/32	0.79	0	110	110	110	185	NBR	10	20LC06TN7	A	6	■
3/8	9/32	1.06	0	40	40	40	185	NBR	10	20LC06IN7	A	6	■	

Max. Ambient Temp. 150°F

- ✓ Express Ship Program eligible when configured with an eligible electrical suffix
- Safety Shutoff: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations



2-Way Normally Closed, Direct Acting - Lead-Free Brass



Port Size	Orifice Dia.	Flow Factor	Operating Pressure Differential (MOPD) psi				Max. Media Temp. °F	Seal Material	Power Watts	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref.	Agency	
			Min	Air, Inert Gas	Water	Light Oil								
DC	1/8	1/16	0.10	0	750	750	750	185	NBR	10	20LC02GN7	B	4	■
	1/8	3/32	0.18	0	660	660	660	185	NBR	22	20LC02LN7	C	4	■
	1/8	3/32	0.18	0	520	520	520	185	NBR	10	20LC02LN7	B	4	■
	1/8	1/8	0.29	0	280	280	280	185	NBR	22	20LC02PN7	C	4	■
	1/8	1/8	0.29	0	165	165	165	185	NBR	10	20LC02PN7	B	4	■
	1/8	5/32	0.43	0	130	130	130	185	NBR	22	20LC02QN7	C	4	■
	1/8	5/32	0.43	0	85	85	85	185	NBR	10	20LC02QN7	B	4	■
	1/4	1/16	0.10	0	750	750	750	185	NBR	10	20LC04GN7	B	5	■
	1/4	3/32	0.18	0	660	660	660	185	NBR	22	20LC04LN7	C	5	■
	1/4	3/32	0.18	0	520	520	520	185	NBR	10	20LC04LN7	B	5	■
	1/4	1/8	0.29	0	280	280	280	185	NBR	22	20LC04PN7	C	5	■
	1/4	1/8	0.29	0	165	165	165	185	NBR	10	20LC04PN7	B	5	■
	1/4	5/32	0.43	0	130	130	130	185	NBR	22	20LC04QN7	C	5	■
	1/4	5/32	0.43	0	85	85	85	185	NBR	10	20LC04QN7	B	5	■
	1/4	7/32	0.79	0	70	70	70	185	NBR	22	20LC04TN7	C	5	■
	1/4	9/32	1.06	0	60	60	60	185	NBR	22	20LC041N7	C	5	■
	1/4	7/32	0.79	0	40	40	40	185	NBR	10	20LC04TN7	B	5	■
	1/4	9/32	1.06	0	15	15	15	185	NBR	10	20LC041N7	B	5	■
3/8	5/32	0.43	0	130	130	130	185	NBR	22	20LC06QN7	C	6	■	
3/8	5/32	0.43	0	85	85	85	185	NBR	10	20LC06QN7	B	6	■	
3/8	7/32	0.79	0	70	70	70	185	NBR	22	20LC06TN7	C	6	■	
3/8	9/32	1.06	0	60	60	60	185	NBR	22	20LC061N7	C	6	■	
3/8	7/32	0.79	0	40	40	40	185	NBR	10	20LC06TN7	B	6	■	
3/8	9/32	1.06	0	15	15	15	185	NBR	10	20LC061N7	B	6	■	

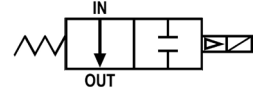
Max. Ambient Temp. 150°F (10 watt) / 125°F (22 watt)

⚡ Express Ship Program eligible when configured with an eligible electrical suffix

■ Safety Shutoff: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations



2-Way Normally Open PIBOS*, Direct Acting - 303 Stainless Steel



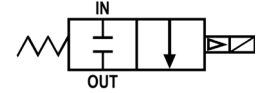
	Port Size	Orifice Dia.	Flow Factor	Operating Pressure Differential (MOPD) psi			Max. Media Temp.	Seal Material	Power	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref.	Agency
	NPT	Inch	Cv	Min	Air, Inert Gas	Water	Light Oil	°F	Watts				
AC DC	1/8	3/64	0.05	0	440	440	440	185	FKM	10	20CF02EV7	A or B	7 ●
	1/8	1/16	0.10	0	360	360	360	185	FKM	10	20CF02GV7	A or B	7 ●
	1/8	3/32	0.17	0	275	275	275	185	FKM	10	20CF02LV7	A or B	7 ●
	1/4	3/64	0.05	0	440	440	440	185	FKM	10	20CF04EV7	A or B	8 ●
	1/4	1/16	0.10	0	360	360	360	185	FKM	10	20CF04GV7	A or B	8 ●
	1/4	3/32	0.17	0	275	275	275	185	FKM	10	20CF04LV7	A or B	8 ●

Max. Ambient Temp. 150°F

- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations
- * PIBOS (Pressure In Body, Out Sleeve): An economical approach to 2-way normally open valves. Pressure enters body, exits through top of valve

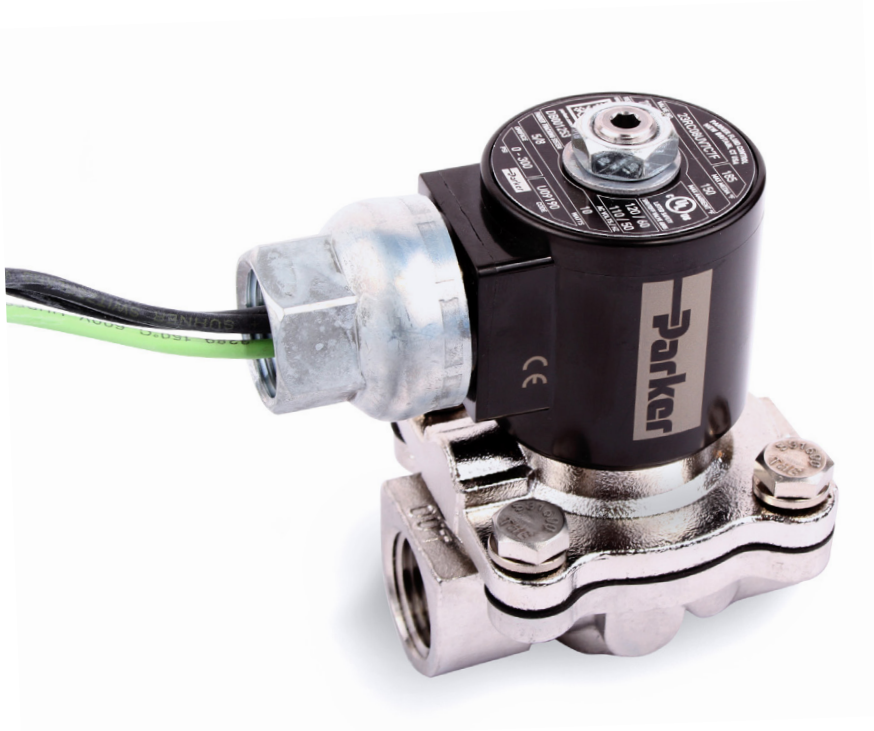


2-Way Normally Closed, Internally Piloted - 316L Stainless Steel

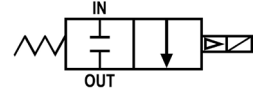


	Port Size	Orifice Dia.	Flow Factor	Operating Pressure Differential (MOPD) psi			Max. Media Temp. °F	Seal Material	Power Watts	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref.	Agency	
				Min	Air, Inert Gas	Water								Light Oil
AC	3/8	5/8	3.0	0 ▶	300	300	300	185	FKM	10	23RC06TV7 *	A	21	■
	1/2	5/8	4.0	0 ▶	300	300	300	185	FKM	10	23RC08UV7 *	A	22	■
	3/4	3/4	5.0	0 ▶	300	300	300	185	FKM	10	23RC12VW7 *	A	23	■
Max. Ambient Temp. (AC): 150°F														
DC	3/8	5/8	3.0	5	300	300	300	185	FKM	22	22RC06TV7 *	C	21	■
	3/8	5/8	3.0	0 ▶	250	250	250	185	FKM	22	23RC06TV7 *	C	21	■
	3/8	5/8	3.0	5	150	150	150	185	FKM	10	22RC06TV7 *	B	21	■
	1/2	5/8	4.0	5	300	300	300	185	FKM	22	22RC08UV7 *	C	22	■
	1/2	5/8	4.0	0 ▶	250	250	250	185	FKM	22	23RC08UV7 *	C	22	■
	1/2	5/8	4.0	5	150	150	150	185	FKM	10	22RC08UV7 *	B	22	■
	3/4	3/4	5.0	5	300	300	300	185	FKM	22	22RC12VW7 *	C	23	■
	3/4	3/4	5.0	0 ▶	250	250	250	185	FKM	22	23RC12VW7 *	C	23	■
	3/4	3/4	5.0	5	150	150	150	185	FKM	10	22RC12VW7 *	B	23	■
Max. Ambient Temp. (DC): 125°F														

- ▶ Direct Lift construction: 0 psi actuation with full flow at 5 psi differential
- ↗ Express Ship Program eligible when configured with an eligible electrical suffix
- Safety Shutoff: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations
- * Voltage-specific construction: To order pressure vessel only, add suffix "A" (denotes AC version) or suffix "D" (denotes DC version) to end of Ordering No. Mechanical Prefix eg. 23RC08UV7D (DC version). Suffix not required when ordering full valve eg. 23RC08UV7C8B.



2-Way Normally Closed, Internally Piloted - Lead-Free Brass

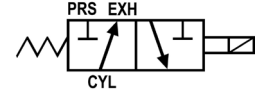


	Port Size	Orifice Dia.	Flow Factor	Operating Pressure Differential (MOPD) psi			Max. Media Temp. °F	Seal Material	Power Watts	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref.	Agency		
				Min	Air, Inert Gas	Water								Light Oil	
AC	3/8	5/8	3.0	0 ▶	300	300	300	185	NBR	10	↗	23LC06TN7 *	A	24	■
	1/2	5/8	4.0	0 ▶	300	300	300	185	NBR	10	↗	23LC08UN7 *	A	25	■
	3/4	3/4	5.0	0 ▶	300	300	300	185	NBR	10	↗	23LC12VN7 *	A	26	■
Max. Ambient Temp. (AC): 150°F															
DC	3/8	5/8	3.0	5	300	300	300	185	NBR	22		22LC06TN7 *	C	24	■
	3/8	5/8	3.0	0 ▶	250	250	250	185	NBR	22		23LC06TN7 *	C	24	■
	3/8	5/8	3.0	5	150	150	150	185	NBR	10		22LC06TN7 *	B	24	■
	1/2	5/8	4.0	5	300	300	300	185	NBR	22		22LC08UN7 *	C	25	■
	1/2	5/8	4.0	0 ▶	250	250	250	185	NBR	22		23LC08UN7 *	C	25	■
	1/2	5/8	4.0	5	150	150	150	185	NBR	10	↗	22LC08UN7 *	B	25	■
	3/4	3/4	5.0	5	300	300	300	185	NBR	22		22LC12VN7 *	C	26	■
Max. Ambient Temp. (DC): 125°F															

- ▶ Direct Lift construction: 0 psi actuation with full flow at 5 psi differential
- ↗ Express Ship Program eligible when configured with an eligible electrical suffix
- Safety Shutoff: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations
- * Voltage-specific construction: To order pressure vessel only, add suffix "A" (denotes AC version) or suffix "D" (denotes DC version) to end of Ordering No. Mechanical Prefix eg. 23LC08UN7D (DC version). Suffix not required when ordering full valve eg. 23LC08UV7C8B.



3-Way Normally Closed, Direct Acting - 303 Stainless Steel

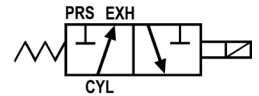


Port Size	Orifice Dia (PRS)	Orifice Dia (EXH)	Flow Factor (PRS)	Flow Factor (EXH)	Operating Pressure Differential (MOPD) psi		Max. Media Temp	Seal	Power	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref	Agency	
					Min	Air, Inert Gas, Water, Light Oil								°F
AC	1/8	3/64	3/64	0.05	0.05	0	440	185	NBR	10	30CC02EN7	A or B	9	●
	1/8	1/16	1/16	0.10	0.10	0	285	185	NBR	10	30CC02GN7	A or B	9	●
	1/8	3/32	3/32	0.18	0.17	0	160	185	NBR	10	30CC02LN7	A or B	9	●
	1/8	1/8	3/32	0.29	0.17	0	95	185	NBR	10	30CC02PN7	A or B	9	●
DC	1/4	3/64	3/64	0.05	0.05	0	440	185	NBR	10	30CC04EN7	A or B	10	●
	1/4	1/16	1/16	0.10	0.10	0	285	185	NBR	10	30CC04GN7	A or B	10	●
	1/4	3/32	3/32	0.18	0.17	0	160	185	NBR	10	30CC04LN7	A or B	10	●
	1/4	1/8	3/32	0.24	0.17	0	95	185	NBR	10	30CC04PN7	A or B	10	●

Max. Ambient Temp. 150°F

- ✦ Express Ship Program eligible when configured with an eligible electrical suffix
- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations

3-Way Normally Closed, Direct Acting - Lead-Free Brass



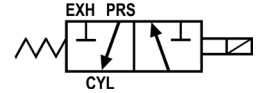
Port Size	Orifice Dia (PRS)	Orifice Dia (EXH)	Flow Factor (PRS)	Flow Factor (EXH)	Operating Pressure Differential (MOPD) psi		Max. Media Temp	Seal	Power	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref	Agency	
					Min	Air, Inert Gas, Water, Light Oil								°F
AC	1/8	3/64	3/64	0.05	0.05	0	440	185	NBR	10	30LC02EN7	A or B	15	●
	1/8	1/16	1/16	0.10	0.10	0	285	185	NBR	10	30LC02GN7	A or B	15	●
	1/8	3/32	3/32	0.18	0.17	0	160	185	NBR	10	30LC02LN7	A or B	15	●
	1/8	1/8	3/32	0.29	0.17	0	95	185	NBR	10	30LC02PN7	A or B	15	●
DC	1/4	3/64	3/64	0.05	0.05	0	440	185	NBR	10	30LC04EN7	A or B	16	●
	1/4	1/16	1/16	0.10	0.10	0	285	185	NBR	10	30LC04GN7	A or B	16	●
	1/4	3/32	3/32	0.18	0.17	0	160	185	NBR	10	30LC04LN7	A or B	16	●
	1/4	1/8	3/32	0.24	0.17	0	95	185	NBR	10	30LC04PN7	A or B	16	●

Max. Ambient Temp. 150°F

- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations



3-Way Normally Open, Direct Acting - 303 Stainless Steel

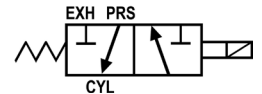


	Port Size	Orifice Dia (PRS)	Orifice Dia (EXH)	Flow Factor (PRS)	Flow Factor (EXH)	Operating Pressure Differential (MOPD) psi		Max. Media Temp	Seal	Power	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref	Agency
	NPT	Inch	Inch	Cv	Cv	Min	Air, Inert Gas, Water, Light Oil	°F		Watts				
AC DC	1/8	3/64	3/64	0.05	0.05	0	325	185	NBR	10	30CF02EN7	A or B	11	●
	1/8	1/16	1/16	0.10	0.10	0	300	185	NBR	10	30CF02GN7	A or B	11	●
	1/8	3/32	3/32	0.17	0.18	0	180	185	NBR	10	30CF02LN7	A or B	11	●
	1/4	3/64	3/64	0.05	0.05	0	325	185	NBR	10	30CF04EN7	A or B	12	●
	1/4	1/16	1/16	0.10	0.10	0	300	185	NBR	10	30CF04GN7	A or B	12	●
	1/4	3/32	3/32	0.17	0.18	0	180	185	NBR	10	30CF04LN7	A or B	12	●

Max. Ambient Temp. 150°F

- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations

3-Way Normally Open, Direct Acting - Lead-Free Brass



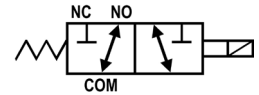
	Port Size	Orifice Dia (PRS)	Orifice Dia (EXH)	Flow Factor (PRS)	Flow Factor (EXH)	Operating Pressure Differential (MOPD) psi		Max. Media Temp	Seal	Power	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref	Agency
	NPT	Inch	Inch	Cv	Cv	Min	Air, Inert Gas, Water, Light Oil	°F		Watts				
AC DC	1/8	3/64	3/64	0.05	0.05	0	325	185	NBR	10	30LF02EN7	A or B	17	●
	1/8	1/16	1/16	0.10	0.10	0	300	185	NBR	10	30LF02GN7	A or B	17	●
	1/8	3/32	3/32	0.17	0.18	0	180	185	NBR	10	30LF02LN7	A or B	17	●
	1/4	3/64	3/64	0.05	0.05	0	325	185	NBR	10	30LF04EN7	A or B	18	●
	1/4	1/16	1/16	0.10	0.10	0	300	185	NBR	10	30LF04GN7	A or B	18	●
	1/4	3/32	3/32	0.17	0.18	0	180	185	NBR	10	30LF04LN7	A or B	18	●

Max. Ambient Temp. 150°F

- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations



3-Way Universal, Direct Acting - 303 Stainless Steel

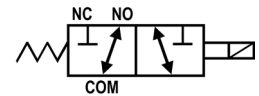


	Port Size	Orifice Dia (NC)	Orifice Dia (NO)	Flow Factor (NC)	Flow Factor (NO)	Operating Pressure Differential (MOPD) psi		Max. Media Temp	Seal	Power	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref	Agency
	NPT	Inch	Inch	Cv	Cv	Min	Air, Inert Gas, Water, Light Oil	°F		Watts				
AC DC	1/8	1/32	1/32	0.02	0.02	0	435	185	NBR	10	30CU02AN7	A or B	13	●
	1/8	3/64	3/64	0.05	0.05	0	190	185	NBR	10	30CU02EN7	A or B	13	●
	1/8	1/16	1/16	0.10	0.10	0	135	185	NBR	10	30CU02GN7	A or B	13	●
	1/8	3/32	3/32	0.18	0.17	0	80	185	NBR	10	30CU02LN7	A or B	13	●
	1/4	1/32	1/32	0.02	0.02	0	435	185	NBR	10	30CU04AN7	A or B	14	●
	1/4	3/64	3/64	0.05	0.05	0	190	185	NBR	10	30CU04EN7	A or B	14	●
	1/4	1/16	1/16	0.10	0.10	0	135	185	NBR	10	30CU04GN7	A or B	14	●
	1/4	3/32	3/32	0.18	0.17	0	80	185	NBR	10	30CU04LN7	A or B	14	●

Max. Ambient Temp. 150°F

- ✓ Express Ship Program eligible when configured with an eligible electrical suffix
- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations

3-Way Universal, Direct Acting - Lead-Free Brass






	Port Size	Orifice Dia (NC)	Orifice Dia (NO)	Flow Factor (NC)	Flow Factor (NO)	Operating Pressure Differential (MOPD) psi		Max. Media Temp	Seal	Power	Ordering No. Mechanical Prefix	Elect. Suffix Chart	Const. Ref	Agency
	NPT	Inch	Inch	Cv	Cv	Min	Air, Inert Gas, Water, Light Oil	°F		Watts				
AC DC	1/8	1/32	1/32	0.02	0.02	0	435	185	NBR	10	30LU02AN7	A or B	19	●
	1/8	3/64	3/64	0.05	0.05	0	190	185	NBR	10	30LU02EN7	A or B	19	●
	1/8	1/16	1/16	0.10	0.10	0	135	185	NBR	10	30LU02GN7	A or B	19	●
	1/8	3/32	3/32	0.18	0.17	0	80	185	NBR	10	30LU02LN7	A or B	19	●
	1/4	1/32	1/32	0.02	0.02	0	435	185	NBR	10	30LU04AN7	A or B	20	●
	1/4	3/64	3/64	0.05	0.05	0	190	185	NBR	10	30LU04EN7	A or B	20	●
	1/4	1/16	1/16	0.10	0.10	0	135	185	NBR	10	30LU04GN7	A or B	20	●
	1/4	3/32	3/32	0.18	0.17	0	80	185	NBR	10	30LU04LN7	A or B	20	●

Max. Ambient Temp. 150°F

- General Purpose: C-UL-US "Listed" with described seal material and conduit solenoid coil; C-UR-US "Recognized" in other coil configurations






Chart A

AC - 10 watt	Ordering No. Electrical Suffix	AC Voltages	Electrical Termination	Enclosure Rating*	Power (Watts)	Insulation Class
	⚡ C7F	120/60, 110/50	Easy-Install 1/2" NPT Conduit with 18" Leads (Incl. Ground Lead)	IP69	10	H
	C7G	240/60, 220/50				
	C7E	24/60				
	D7F	120/60, 110/50	DIN 43650A / ISO 4400	IP65 NEMA 4, 4X	10	H
	D7G	240/60, 220/50				
	D7E	24/60				
	B7F	120/60, 110/50	18" Leads (Incl. Ground Lead)	IP69	10	H
	B7G	240/60, 220/50				
	B7E	24/60				




* Enclosure rating requires proper installation and compliant mating connectors
 ⚡ Express Ship Program eligible when configured with an eligible mechanical prefix

Chart B

DC - 10 watt	Ordering No. Electrical Suffix	DC Voltages	Electrical Termination	Enclosure Rating*	Power (Watts)	Insulation Class
	C7A	12 VDC	Easy-Install 1/2" NPT Conduit with 18" Leads (Incl. Ground Lead)	IP69	10	H
	⚡ C7B	24 VDC				
	D7A	12 VDC	DIN 43650A / ISO 4400	IP65 NEMA 4, 4X	10	H
	D7B	24 VDC				
	B7A	12 VDC	18" Leads (Incl. Ground Lead)	IP69	10	H
	B7B	24 VDC				

* Enclosure rating requires proper installation and compliant mating connectors
 ✓ Express Ship Program eligible when configured with an eligible mechanical prefix

Chart C

DC - 22 watt	Ordering No. Electrical Suffix	DC Voltages	Electrical Termination	Enclosure Rating*	Power (Watts)	Insulation Class
	C8A	12 VDC	Easy-Install 1/2" NPT Conduit with 18" Leads (Incl. Ground Lead)	IP69	22	H
	⚡ C8B	24 VDC				
	D8A	12 VDC	DIN 43650A / ISO 4400	IP65 NEMA 4, 4X	22	H
	D8B	24 VDC				
	B8A	12 VDC	18" Leads (Incl. Ground Lead)	IP69	22	H
	B8B	24 VDC				

* Enclosure rating requires proper installation and compliant mating connectors
 ⚡ Express Ship Program eligible when configured with an eligible mechanical prefix

Mechanical and Electrical Accessories

	Ordering No. Accessory Kit	Compatibility	Description	Enclosure Rating**
Consult Factory for Dimensions	MECHB5	Valves Types: 20C-, 20L-, 30C-, 30L-	Mounting Bracket (Zinc-Plated Steel)	N/A
Consult Factory for Dimensions	MECHB7	Valves Types: 22L-, 23L-, 22R-, 23R-	Mounting Bracket (Zinc-Plated Steel)	N/A
	ELECDB	Coil Type: DIN 43650A / ISO 4400	DIN to 1/2" NPT Conduit Kit (Powder-Coated Aluminum)	IP65 NEMA 4, 4X
	ELECD2	Coil Type: DIN 43650A / ISO 4400	DIN to 1/2" NPT Conduit Kit (Plastic)	IP65 NEMA 4, 4X
	ELECD1	Coil Type: DIN 43650A / ISO 4400	DIN to PG9 Cable Gland Kit (Plastic)	IP65 NEMA 4, 4X
	ELECE5	Coil Type: DIN 43650A / ISO 4400	DIN Cord Set Kit with 72" Leads (Plastic)	IP65 NEMA 4, 4X
	ELECD4	Coil Type: DIN 43650A / ISO 4400 (24-240v AC/DC)	Timer and Cord Set Kit with 24" Leads (12 min. fixed OFF, 1-120 sec. variable ON, Plastic)	IP65 NEMA 4, 4X

** Enclosure rating requires proper installation and compliant mating connectors

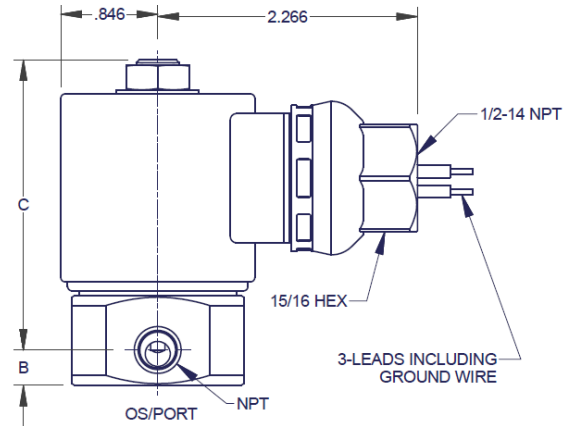
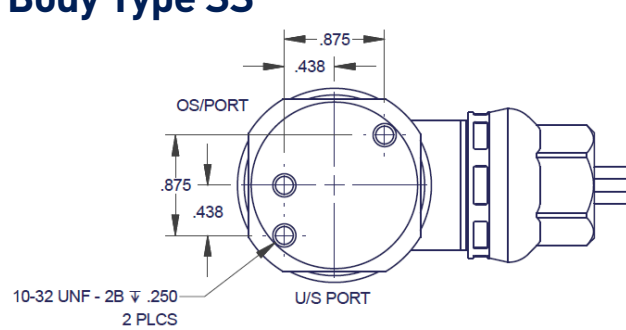
English Units

Ref.	Body Material	Body Type	Over Seat (O/S) Port	Under Seat (U/S) Port	Sleeve Port	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	Weight (lbs.)
1	303 Stainless Steel	SS	IN	OUT	-	-	0.309	2.534	1.501	1.810	2.843	1.20
2	303 Stainless Steel	SS	IN	OUT	-	-	0.375	2.694	1.661	2.036	3.069	1.25
3	303 Stainless Steel	SS	IN	OUT	-	-	0.469	2.757	1.724	2.193	3.226	1.35
4	Lead-Free Brass	BR	IN	OUT	-	-	0.309	2.534	1.501	1.810	2.843	1.00
5	Lead-Free Brass	BR	IN	OUT	-	-	0.375	2.694	1.661	2.036	3.069	1.05
6	Lead-Free Brass	BR	IN	OUT	-	-	0.469	2.757	1.724	2.193	3.226	1.10
7	303 Stainless Steel	SS	IN	-	OUT	-	0.309	3.225*	1.501	1.810	3.543*	1.20
8	303 Stainless Steel	SS	IN	-	OUT	-	0.375	3.385*	1.661	2.036	3.769*	1.25
9	303 Stainless Steel	SS	CYL	PRS	EXH	-	0.309	3.225*	1.501	1.810	3.543*	1.20
10	303 Stainless Steel	SS	CYL	PRS	EXH	-	0.375	3.385*	1.661	2.036	3.769*	1.25
11	303 Stainless Steel	SS	CYL	EXH	PRS	-	0.309	3.225*	1.501	1.810	3.543*	1.20
12	303 Stainless Steel	SS	CYL	EXH	PRS	-	0.375	3.385*	1.661	2.036	3.769*	1.25
13	303 Stainless Steel	SS	COM	NC	NO	-	0.309	3.225*	1.501	1.810	3.543*	1.20
14	303 Stainless Steel	SS	COM	NC	NO	-	0.375	3.385*	1.661	2.036	3.769*	1.25
15	Lead-Free Brass	BR	CYL	PRS	EXH	-	0.309	3.225*	1.501	1.810	3.543*	1.00
16	Lead-Free Brass	BR	CYL	PRS	EXH	-	0.375	3.385*	1.661	2.036	3.769*	1.05
17	Lead-Free Brass	BR	CYL	EXH	PRS	-	0.309	3.225*	1.501	1.810	3.543*	1.00
18	Lead-Free Brass	BR	CYL	EXH	PRS	-	0.375	3.385*	1.661	2.036	3.769*	1.05
19	Lead-Free Brass	BR	COM	NC	NO	-	0.309	3.225*	1.501	1.810	3.543*	1.00
20	Lead-Free Brass	BR	COM	NC	NO	-	0.375	3.385*	1.661	2.036	3.769*	1.05
21	316L Stainless Steel	BR/SS	IN	OUT	-	2.810	0.560	3.255	2.222	2.782	3.815	1.90
22	316L Stainless Steel	BR/SS	IN	OUT	-	2.810	0.560	3.255	2.222	2.782	3.815	1.80
23	316L Stainless Steel	BR/SS	IN	OUT	-	2.890	0.678	3.373	2.351	3.019	4.051	2.04
24	Lead-Free Brass	BR/SS	IN	OUT	-	2.810	0.560	3.297	2.264	2.783	3.815	2.00
25	Lead-Free Brass	BR/SS	IN	OUT	-	2.810	0.560	3.297	2.264	2.783	3.815	1.90
26	Lead-Free Brass	BR/SS	IN	OUT	-	2.910	0.678	3.360	2.327	3.005	4.038	2.15

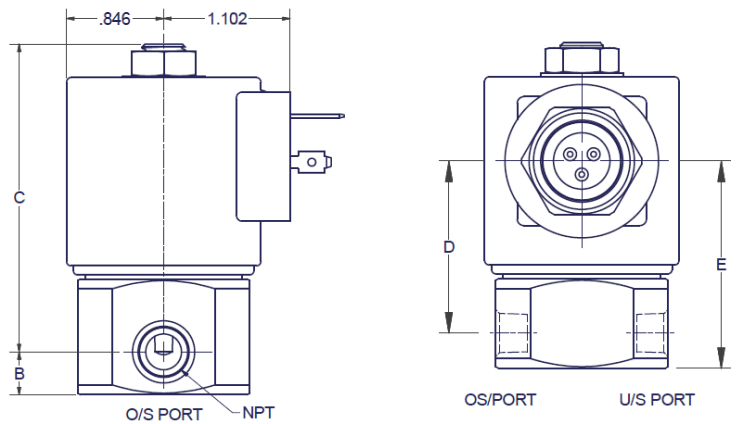
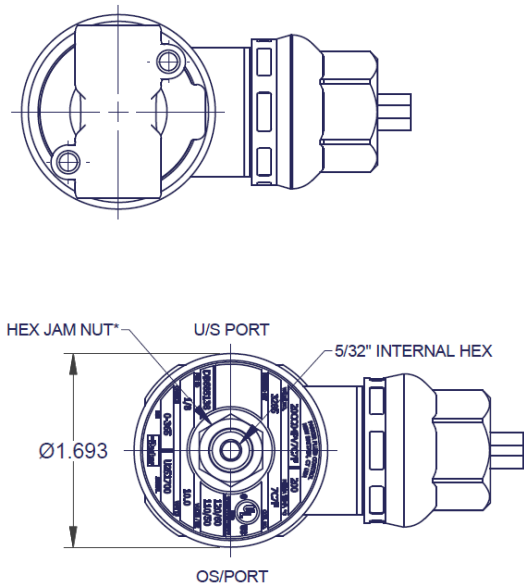
* These dimensions include hex sleeve port adapter in place of hex jam nut. The overall height increase of 0.700" (REF) is not pictured in subsequent dimensional drawings

References 1 - 20

Body Type SS

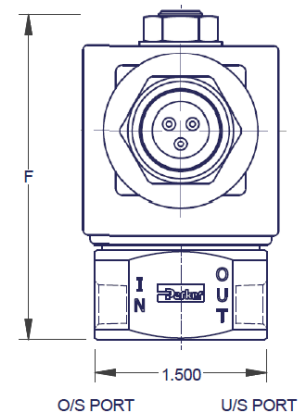


Body Type BR



Port Marking Scheme

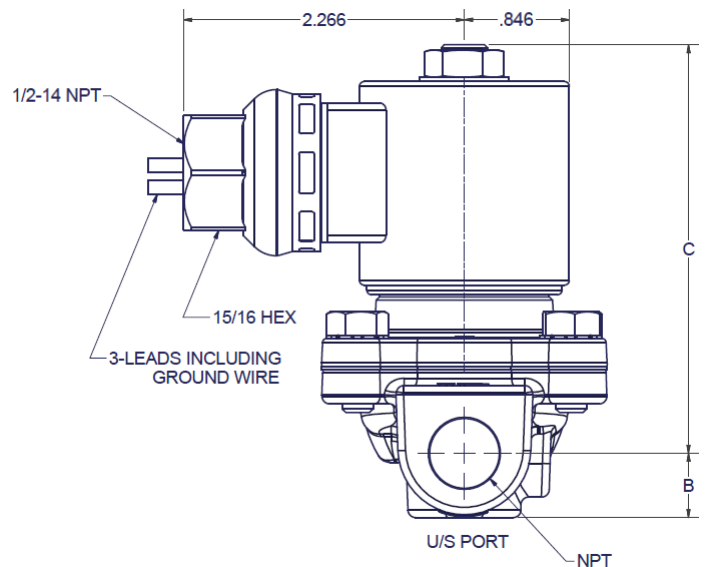
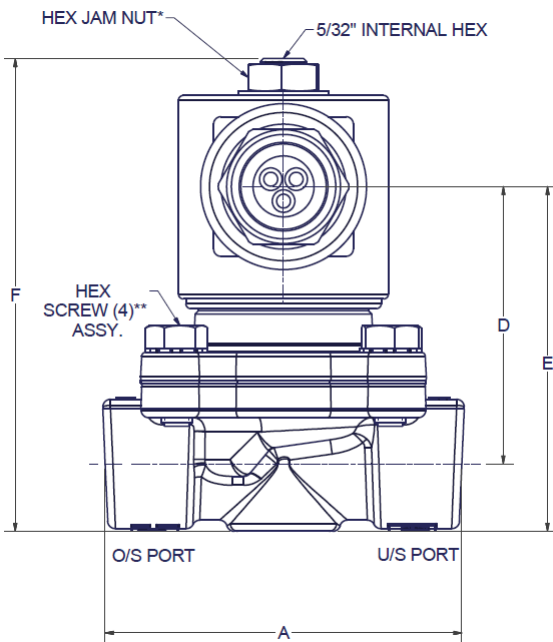
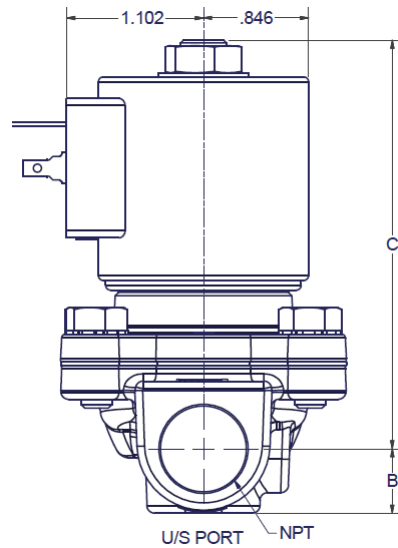
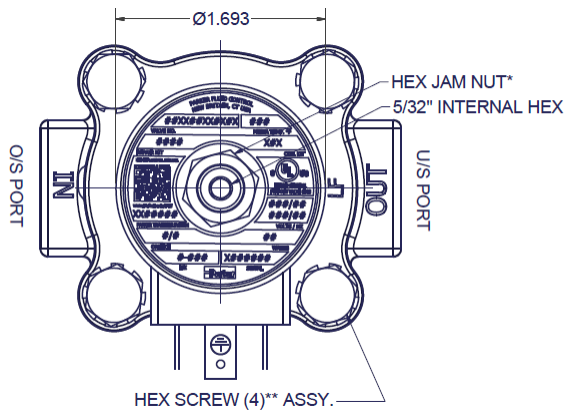
Valve Configuration	O/S Port	U/S Port	Sleeve Port
2-Way Normally Closed	"IN" (Inlet)	"OUT" (Outlet)	-
2-Way Normally Open	"IN" (Inlet)	-	"OUT" (Outlet)
3-Way Normally Closed	"CYL" (Cylinder)	"PRS" (Pressure)	"EXH" (Exhaust)
3-Way Normally Open	"CYL" (Cylinder)	"EXH" (Exhaust)	"PRS" (Pressure)
3-Way Universal	"COM" (Common)	"NC" (Normally Closed)	"NO" (Normally Open)



* 3/8-24 UNF 2B, 9/16" hex [2-Way Normally Closed] or 3/8-24 UNF 2B, 11/16" adapter (other configurations)

References 21 - 26

Body Type BR/SS



Port Marking Scheme

Valve Configuration	O/S Port	U/S Port
2-Way Normally Closed	"IN" (Inlet)	"OUT" (Outlet)

* 3/8-24 UNF 2B, 9/16" hex
 ** 1/4-20 UNC 2A, 7/16" hex

Materials of Construction

Wetted Materials	Valve Models							
Valve Component	20C-	30C-	20L-	30L-	22L-	23L	22R-	23R-
Body	303 SS		Lead-Free Brass				316L SS	
Plunger Assembly	430FR SS							
Sleeve Assembly	304 SS, 430FR SS							
Shading Ring	Copper (AC & DC) Silver avail. in 20CC- config.				Copper (AC only)		Silver (AC only)	
Diaphragm Assembly	N/A				Lead-Free Brass 304 SS		303 SS 304 SS	
Springs	18-8 SS							
Seals	Vary by Model **				Vary by Model ***			

Solenoid Coils
Class H Insulation
Epoxy Encapsulant
FKM Gland Seals

Consult Factory for Specialty Constructions
1/4-Turn Manual Override
Silver Shading Ring
Helium Leak Test
Hydrocarbon Cleaned for Oxygen Service
Vacuum Service
etc.

**** Standard Seals**
NBR
FKM
UR

***** Standard Seals**
NBR
FKM

Specialty Seals
EPDM
EPDM (NSF)
FFKM
PTFE

Agency & Compliance

UL 429 & CSA 22.2 139-13 (MH15507)
CE - Low Voltage Directive, EMC Directive
IP
NEMA
REACH
RoHS
SDWA Section 1417(d)
NSF/ ANSI 372

Agency-Approved Media Listing:

Identified in the following chart are the codes utilized by Underwriters Laboratories (UL) and the Canadian Standards Association (CSA) for various common fluids approved by the agencies for use with each valve type.

Valves may be chemically compatible with other media. Consult factory for more information.

Media		2-Way Valves			3-Way Valves	
Code	Media Type	NBR	FKM	UR	NBR	FKM
A	Air	●	●	●	●	●
AC	Acetylene	●	●		●	●
G	City gas	●	●		●	●
Ga	Gasoline	●	●		●	●
H0	Hydraulic oil*	●	●		●	●
O2	Nos. 1 and 2 oils**	●		●	●	
O2-06	Nos. 2-6 oils		●			●
W	Water	●	●	●	●	●
LP	Liquid Propane	●	●		●	●

* Petroleum-based oils with viscosities from 125 to 400 SSU at 38°C
** Fuel oils with viscosities not more than 40 SSU at 38°C

Consult factory for information pertaining to specialty seal materials

OFFER OF SALE – PARKER FLUID CONTROL DIVISION

1. **DEFINITIONS.** As used herein, the following terms have the meanings indicated.

Buyer: means any customer receiving a Quote for Products from Seller.

Goods: means any tangible part, system or component to be supplied by the Seller.

Products: means the Goods, Services and/or Software as described in a Quote provided by the Seller.

Quote: means the offer or proposal made by Seller to Buyer for the supply of Products.

Seller: means Parker-Hannifin Corporation, including all divisions and businesses thereof.

Services: means any services to be supplied by the Seller.

Software: means any software related to the Products, whether embedded or separately downloaded.

Terms: means the terms and conditions of this Offer of Sale or any newer version of the same as published by Seller electronically at www.parker.com/saleterms.

2. **TERMS.** All sales of Products by Seller are contingent upon, and will be governed by, these Terms and, these Terms are incorporated into any Quote provided by Seller to any Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms of purchase. No modification to these Terms will be binding on Seller unless agreed to in writing and signed by an authorized representative of Seller.

3. **PRICE; PAYMENT.** The Products set forth in Seller's Quote are offered for sale at the prices indicated in Seller's Quote. Unless otherwise specifically stated in Seller's Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices at any time to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). All sales are contingent upon credit approval and payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

4. **SHIPMENT; DELIVERY; TITLE AND RISK OF LOSS.** All delivery dates are approximate. Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the shipment carrier at Seller's facility. Unless otherwise agreed, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyers' request beyond the respective indicated shipping date will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.

5. **WARRANTY.** The warranty related to the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twenty four

(24) months from the date of shipment or 2,000 hours of use, whichever occurs first; Exception to this is the Angle Body Valve line and the FTS Pump system which have twelve (12) months warranty (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the completion of the Services by Seller; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. Warranties are void if the FTS PUMP is not used with a SOFT START or system which provides a soft start function in accordance with the Operation Manual provided with the product.

All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer:

DISCLAIMER OF WARRANTY: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED. BUYER AGREES AND ACKNOWLEDGES THAT UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".

6. **CLAIMS; COMMENCEMENT OF ACTIONS.** Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

7. **LIMITATION OF LIABILITY.** IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCT, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, NON-COMPLETION OF SERVICES, USE, LOSS OF USE OF, OR INABILITY TO USE THE PRODUCTS OR ANY PART THEREOF, LOSS OF DATA, IDENTITY, PRIVACY, OR CONFIDENTIALITY, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.

8. **LOSS TO BUYER'S PROPERTY.** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which are or become Buyer's property, will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using such property. Seller shall not be responsible

for any loss or damage to such property while it is in Seller's possession or control.

9. **SPECIAL TOOLING.** Special Tooling includes but is not limited to tooling, jigs, fixtures and associated manufacturing equipment acquired or necessary to manufacture Products. A tooling charge may be imposed for any Special Tooling. Such Special Tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in Special Tooling belonging to Seller that is utilized in the manufacture of the Products, even if such Special Tooling has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property in its sole discretion at any time.

10. **SECURITY INTEREST.** To secure payment of all sums due, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

11. **USER RESPONSIBILITY.** The Buyer through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. The Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and other technical information provided with the Product. If Seller provides Product options based upon data or specifications provided by the Buyer, the Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. Parker has no liability or responsibility in connection with: (a) improper selection, application, design, specification or other misuse of Products purchased by Buyer from Parker; (b) any act or omission, negligent or otherwise, of Buyer; or (c) Parker's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Products. In the event the Buyer is not the end-user, Buyer will ensure such end-user complies with this paragraph.

12. **USE OF PRODUCTS, INDEMNITY BY BUYER.** Buyer shall comply with all instructions, guides and specifications provided by Seller with the Products. Unauthorized Uses. If Buyer uses or resells the Products for any uses prohibited in Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products provided by Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, tooling, equipment, plans, drawings, designs or specifications or other information or things furnished by Buyer; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing or tampering with the Products for any reason; or (e) Buyer's failure to comply with these Terms. Seller shall not indemnify

OFFER OF SALE – PARKER FLUID CONTROL DIVISION

Buyer under any circumstance except as otherwise provided in these Terms.

13. CANCELLATIONS AND CHANGES. Buyer may not cancel or modify any order for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller, at any time, may change Product features, specifications, designs and availability.

14. LIMITATION ON ASSIGNMENT. Buyer may not assign its rights or obligations without the prior written consent of Seller.

15. FORCE MAJEURE. Seller does not assume the risk and is not liable for delay or failure to perform any of Seller's obligations by reason of events or circumstances beyond its reasonable control ("Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

16. WAIVER AND SEVERABILITY. Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of these Terms by legislation or other rule of law shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

17. TERMINATION. Seller may terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or one if filed by a third party (d) makes an assignment for the benefit of creditors; or (e) dissolves its business or liquidates all or a majority of its assets.

18. OWNERSHIP OF SOFTWARE. Seller retains ownership of all Software supplied to Buyer hereunder. In no event shall Buyer obtain any greater right in and to the Software than a right in the nature of a license limited to the use thereof and subject to compliance with any other terms provided with the Software.

19. INDEMNITY FOR INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on a third party claim that one or more of the Products sold hereunder infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by the Seller to the Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products sold hereunder is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products so as to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer; or (ii) directed to any Products provided hereunder for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products provided hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for such claims of infringement of Intellectual Property Rights.

20. GOVERNING LAW. These Terms and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

21. ENTIRE AGREEMENT. These Terms, along with the terms set forth in the main body of any Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and

exclusive expression of the terms of sale. In the event of a conflict between any term set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

22. COMPLIANCE WITH LAWS. Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer acknowledges that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Product from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws.

USER RESPONSIBILITY – PARKER FLUID CONTROL DIVISION

1.0 GENERAL INSTRUCTIONS

1.1 Scope: This safety guide is designed to cover general guidelines on the selection, installation, operation, and maintenance of these Products. This safety guide is a supplement to and is to be used with the specific Parker publication for the valve, assembly or related accessory being considered for use. Parker publications are available at www.parker.com or by calling 1-800-CPARKER.

1.2 Fail-Safe: All Products can and do fail without warning for many reasons. Design all systems in a fail-safe mode so that failure of the Products will not endanger persons or property.

1.3 Distribution: Provide a copy of this safety guide to each person that is responsible for installation, operation, and maintenance of these Products. Do not select or use these Products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the Products considered or selected.

1.4 User Responsibility: Due to the wide variety of operating conditions and applications for these Products, Parker, and its distributors do not represent or warrant that any particular Parker Fluid Control Product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a Product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the Product;
- Assuring that the user's requirements are met, and that the application presents no health or safety hazards;
- Providing all appropriate health and safety warnings on the equipment on which the Products are used; and
- Assuring compliance with all applicable government and industry standards.



CALIFORNIA PROP 65: WARNING:

This product can expose you to chemicals including lead which is known to the State of California to cause cancer and birth defects, or other reproductive harm.

For more information go to www.P65Warnings.ca.gov

1.5 Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the Product being considered or used, or call 1-800-CPARKER, or go to www.parker.com for telephone numbers of the appropriate technical service department.

2.0 PRODUCT SELECTION INSTRUCTIONS

2.1 Selection: Consult the specific Parker Fluid Control publication for the Product being considered for use. Confirm the choice of Product with Parker Fluid Control's technical consultants prior to placing orders for the Product or installing and using the Product.

2.2 Chemical Compatibility: Elastomer seal material used in the Products must be properly selected based on compatibility with the gases, liquids or additives being conveyed in the Product. Any exposure to non-compatible gases, liquids or additives may result in failure or degradation of the seals and leakage from the Product. Such failure or degradation could happen immediately or at any time over the life of the Product.

3.0 PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1 Inspection: Prior to assembly, all components must be checked for correct style, part number, and

physical properties such as size or the presence of physical damage. Do NOT use any component that displays any signs of non-conformance.

3.1.1 A careful examination of the Unit Valve and Unit Solenoid must be performed. If you purchase a Unit Valve and a Unit Solenoid, be sure that the last two digits of the Unit Valve match the first two digits of the Unit Solenoid. If they do not match, then do not install.

3.1.2 Check nameplate for correct catalog number, pressure, voltage and service. Do not install if unsuitable.

3.1.3 Valves to be installed in Hazardous Locations must be outfitted with Hazardous Location coils only. Verify nameplate data and coil part number before installing the valve.

3.2 Product Assembly: Do not assemble, install or use a Parker Fluid Control Division Product in any end use or application that exceeds the specified operating parameters as listed by Parker such as but not limited to, pressure, voltage and frequency, and medium. Do not mix components or solenoids from a Parker valve with valves or solenoids from another manufacturer. Do not mix components or solenoids from one Parker valve with components or solenoids from another Parker valve.

3.2.1 Threaded Connections: Proper procedures for the application of tape or liquid pipe sealant or thread compound must be followed so these contaminants do not enter the Product.

3.2.2 Sweating or Brazing: Products requiring the sweating or brazing of pipe connections must have precautions taken to protect the internal product components from excessive heat during the sweating or brazing operation. Follow the directions in the specific Parker Fluid Control Division publication for the Product in question.

3.2.3 Mounting: Check the specific Parker Fluid Control Division publication for the Product in question for limitations on mounting prior to mounting the Product.

3.2.4 Electrical Connection: Turn off electrical power before connecting or disconnecting the Product to the power source. Wiring must comply with local and national electrical codes.

3.2.5 Voltage: Some coils contain solid state components that can be damaged by voltage spikes, transient voltage, over temperature, over voltage, or improper assembly. To protect against premature failure, please read the instructions in the specific Parker Fluid Control Division publication for the Product in question.

3.2.6 Port Connection: Parker Product operating parameters assume that the user connects the fluid to the proper inlet, outlet and exhaust ports. Connecting to the wrong ports may result in a complete failure or degraded performance. Use caution when applying and activating the fluid connection. Take the necessary precautions to protect personnel and property from injury and damage when turning on the fluid to the Product. Make sure the voltage is in the correct state (on or off) to control the applied pressure as required for the application in question.

3.2.7 Screw Terminal Coil and Terminal Box Assembly: When the DIN or screw terminal coils are used with the terminal box assembly, be sure to apply a wrench to the wrench flats on the conduit hub when installing electrical conduit.

3.2.8 Pressure: Turn off line pressure and bleed off trapped pressure from the lines before installing, removing or disassembling the Product.

4.0 PRODUCT AND SYSTEM OPERATION INSTRUCTIONS

4.1 Pressure Differential: Pressure differential

dependent Products require a minimum pressure differential to operate properly. Make sure the chosen Product is sized properly for the application to maintain the required pressure differential across the Product.

4.2 System Check-Out: Once installed, the Product installation must be tested to insure proper operation and that no external leakage exists. All safety equipment must be in place including but not limited to safety glasses, helmets, ear protection, splash guards, coveralls and any shields on the equipment. All air entrapment must be eliminated, and the system pressurized to the maximum system pressure (at or below the Product maximum working pressure) and checked for proper function and freedom from leaks. Personnel must stay out of potentially hazardous areas while testing and using.

5.0 PRODUCT MAINTENANCE AND REPLACEMENT INSTRUCTIONS

5.1 Maintenance: Even with proper selection and installation, Product life or performance may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a possible Product failure, and experience with any Product failures in the application or in similar applications should determine the frequency of the inspection and the replacement for the Products so that Products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 5.1.1 through 5.1.3.

5.1.1 Product Lubrication and Filtration: Almost all products require filtration. Consult the specific Parker Fluid Control Division publication for the Product in question. Note, too, that some Products require lubrication or filtration or both as a regular maintenance item due to the nature of the application's environment. Consult the specific Fluid Control Division publication for the Product in question to determine this. Other Products, such as proportional valves, do not require any maintenance if the fluid is properly filtered. If a failure should occur, then these proportional valves should not be repaired but replaced.

5.1.2 Cleaning: Do not expose plastic or elastomeric materials to any type of commercial cleaning fluid. Parts should be cleaned with a mild soap and water solution.

5.1.3 Fluid Spills: Necessary precautions should be taken during maintenance to avoid exposing personnel or the surrounding area to any spilled fluid if the fluid is regulated, harmful, or damaging when exposed to or in contact with personnel or the surrounding environment.

5.2 Service and Repair:

5.2.1 General: Do not repair Products unless the specific Fluid Control Division publication for the Product in question allows this procedure. Not all Products can be safely repaired in the field. Repair and replacement must be in accordance with the specific Parker Fluid Control Division publication for the Product in question and any Parker replacement kit instructions.

5.2.2 Replacement Parts: If you purchase any replacement parts they must be original equipment manufactured by Parker Fluid Control Division.

5.2.3 Lock-Out / Tag-Out: Follow all lock-out and tag-out procedures before undertaking service or repairs. This includes de-energizing all electrical, fluid and mechanical energy sources.

5.2.4 Hazardous Location Coils -When replacing coils, Products equipped with Hazardous Location coils must use Hazardous Location replacement coils only. Verify nameplate data and coil part number before installing the replacement coil.

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