

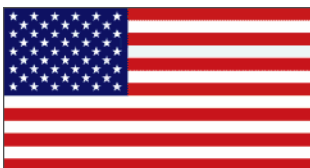


Water Hydraulics, Inc.

# High Pressure Water - Cartridge Program - *Quad-S™ Series*



*All Stainless Steel Construction  
Zero Leakage, Dirt Tolerant  
Raw Water, 5000 psi Operation  
DIN 16 (3/4") through DIN 200 (8")*



Proudly Made in USA

Visit Us on the Web At:  
[www.bocwaterhydraulics.com](http://www.bocwaterhydraulics.com)

**BOC Water Hydraulics Inc.**  
12024 Salem Warren Road  
P.O. Box 1028  
Salem, Ohio 44460

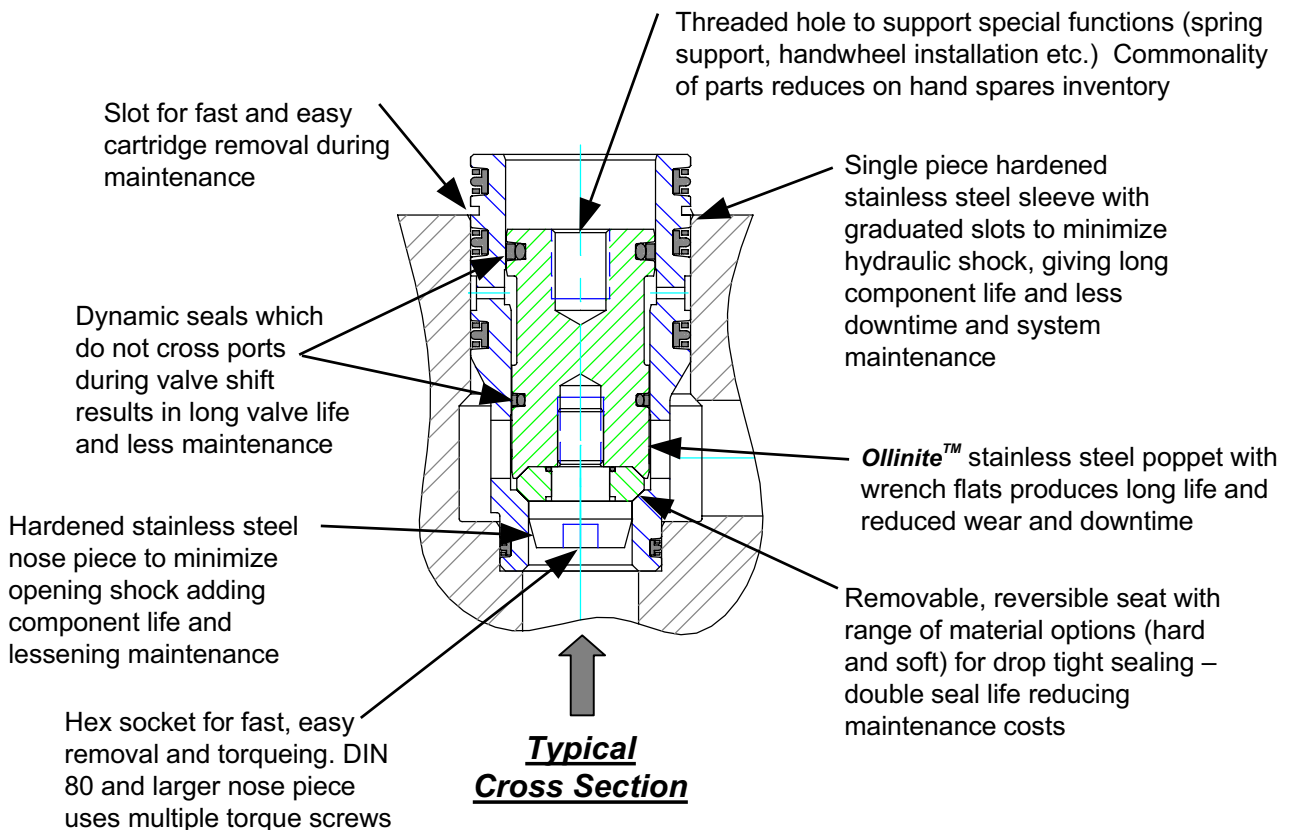
## Benefits and Features

BOC Water Hydraulics' **Quad-S™** (Stainless Steel, Soft Shift) cartridge line is the backbone of BOC's multi-faceted valve line. This highly durable and flexible cartridge is at the heart of BOC's descale valve, directional valve, and specialty valve offerings. The **Quad-S™** cartridge is designed, built, and tested for zero leakage in a dirty high pressure water environment. The **Quad-S™** cartridge offers numerous benefits over other spool or poppet type designs as highlighted below. High quality materials of construction and precision machining combine to make a long lasting valve cartridge for any challenging industrial application.

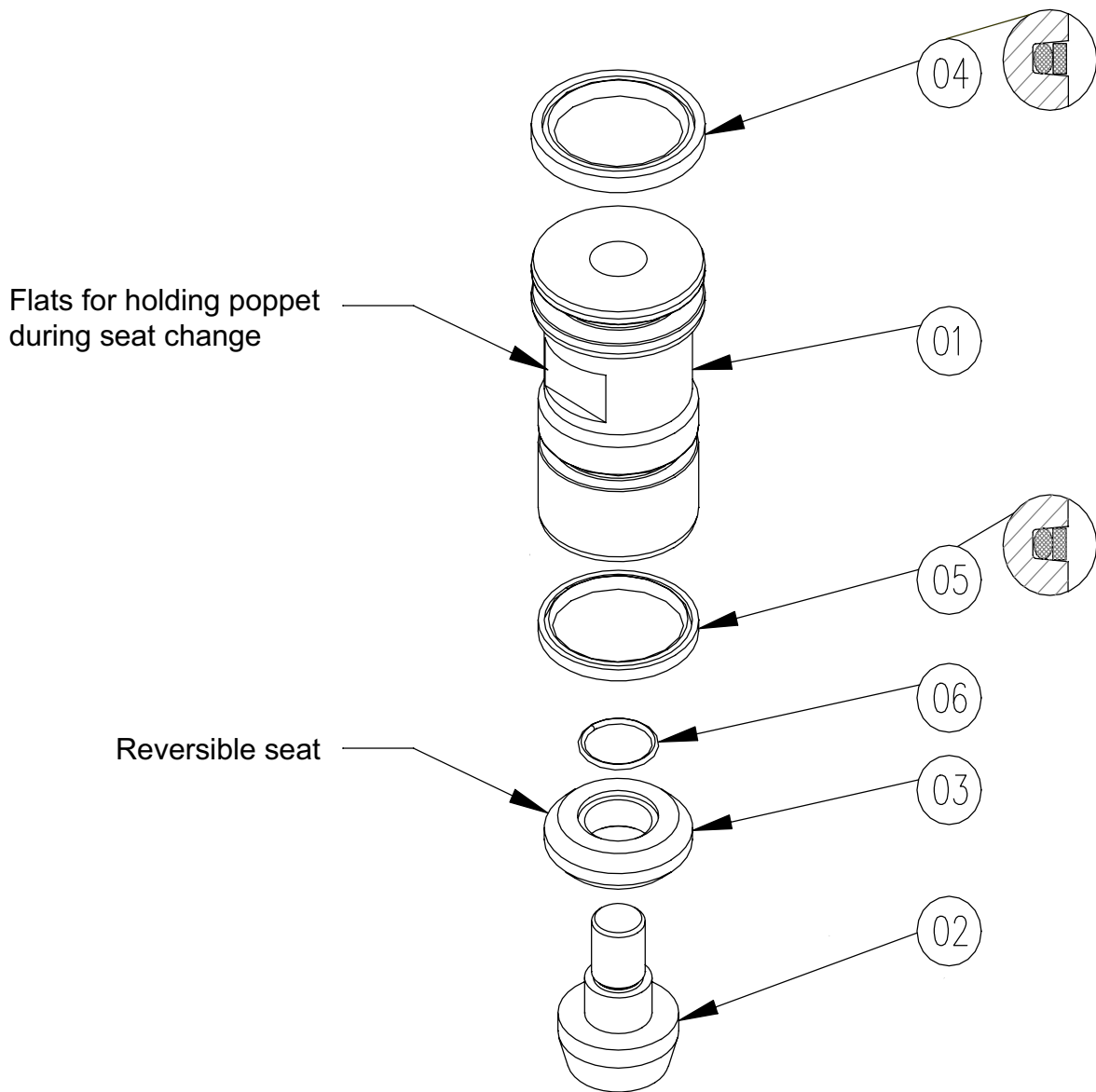
Maintenance features of the cartridge are far superior to other valves. Features include such innovations as a slots in the cartridge sleeve outer diameter to assist in complete cartridge removal from the housing. In selected maintenance cycles, it may only be necessary to remove the poppet assembly. Poppet removal is then accomplished simply by installing a bolt in the threaded hole on top of the poppet and pulling. In all cases, the valve is extremely more economical to service than traditional spool type valves with external air operators which require costly repairs on a frequent basis

All cartridges are capable of raw water operation up to 5000 psi. **Quad-S™** cartridges are available in sizes ranging from Din 16 (3/4") up through Din 200 (8").

### **Quad-S™ Cartridge** **(Stainless Steel, Soft Shift)**



## Exploded View Poppet Sub-Assembly DIN 16 – DIN 50



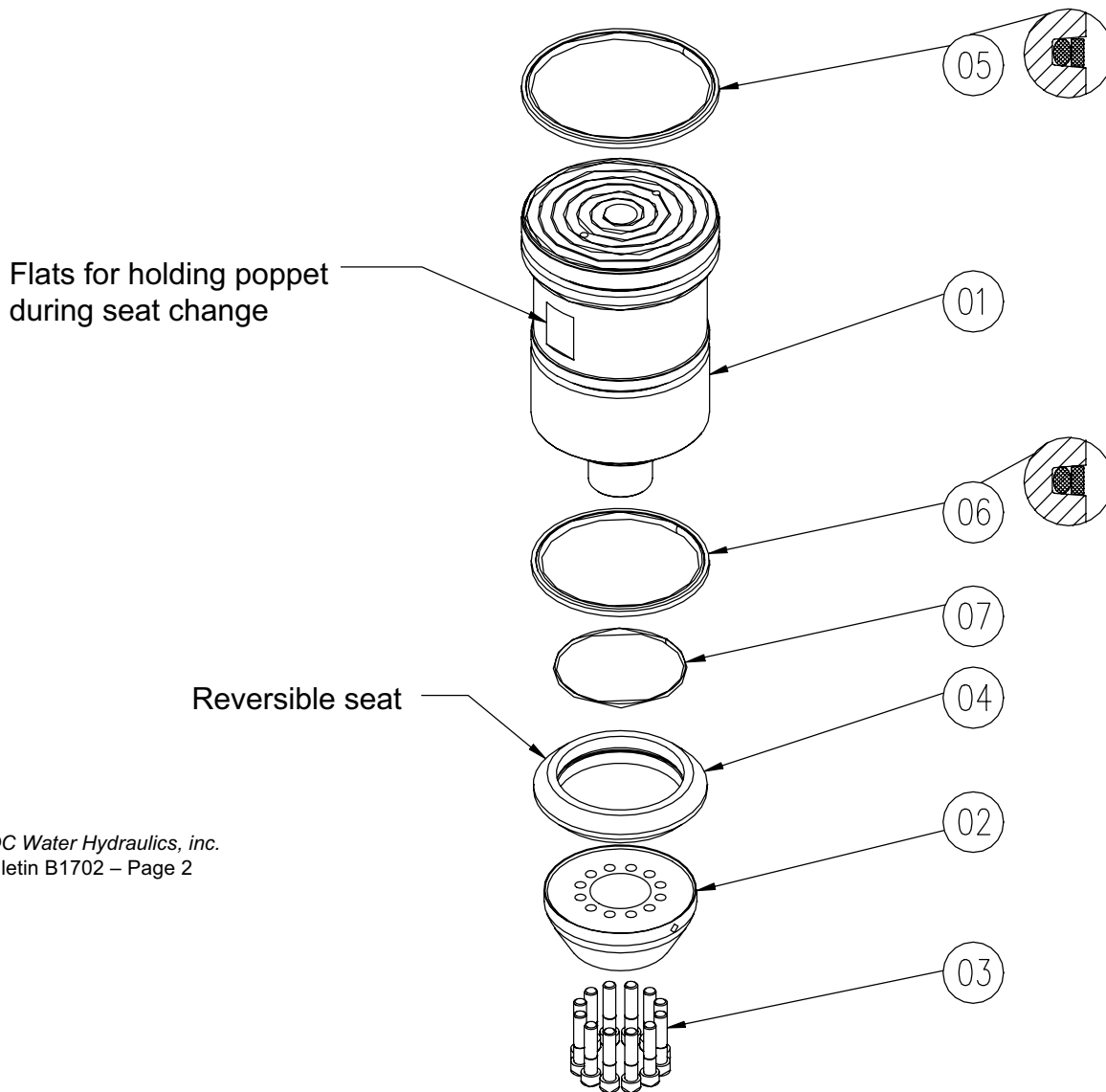
**POPPET SUB-ASSEMBLY - CV0XX-22-YP**

ITEM	DESCRIPTION	QTY	DIN CARTRIDGE SIZE				
			16	25	32	40	50
			PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
01	POPPET	1	V016.023.001	V025.023.001	V032.023.002	V040.023.001	V050.023.001
02	NOSE PIECE	1	V016.053.001	V025.053.001	V032.053.003	V040.053.001	V050.053.003
03	VALVE SEAT, HARD	1	V016.093.001	V025.093.002	V032.093.003	V040.093.001	V050.093.003
	VALVE SEAT, SOFT	1	V016.093.002	V025.093.001	V032.093.002	V040.093.002	V050.093.002
04	GLYDE RING (TOP)	1	GR.0.75UH	GR.1.25UH	GR.1.63UH	GR.2.13UH	GR.2.63UH
05	GLYDE RING (BOTTOM)	1	GR.0.68UH	GR.1.13UH	GR.1.50UH	GR.1.88UH	GR.2.38UH
06	O-RING (SEAT)	1	OR.011.90B	OR.014.90B	OR.016.90B	OR.022.90B	OR.026.90B

Where XX denotes DIN Cartridge Size and Y denotes seat type (1 = Soft, 2 = Hard)

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## Exploded View Poppet Sub-Assembly DIN 080 – DIN 200

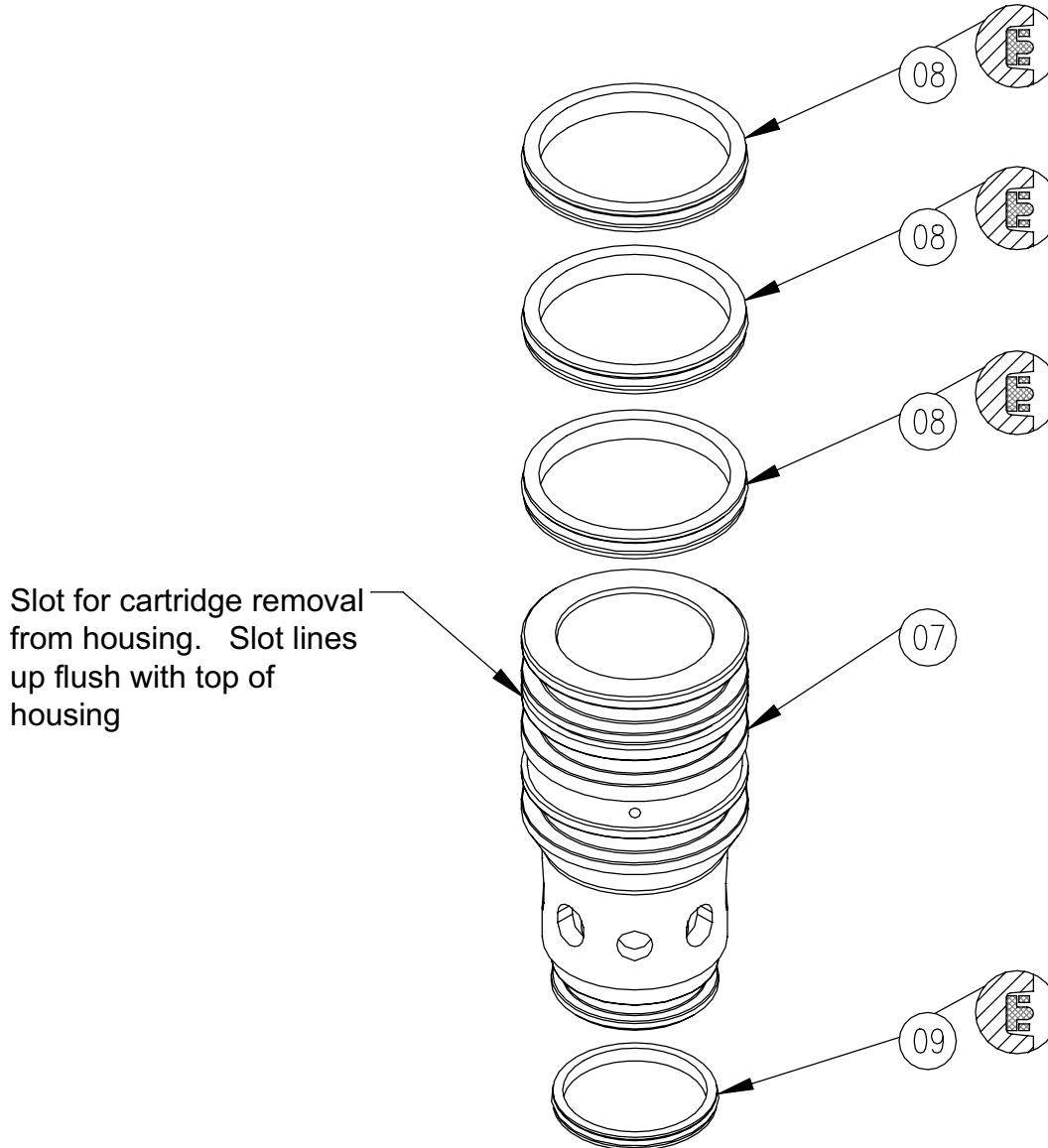


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<b>POPPET SUB-ASSEMBLY - CVXXX-22-YP</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>DIN CARTRIDGE SIZE</b>				
			<b>080</b>	<b>100</b>	<b>125</b>	<b>150</b>	<b>200</b>
			<b>PART NO.</b>	<b>PART NO.</b>	<b>PART NO.</b>	<b>PART NO.</b>	<b>PART NO.</b>
01	POPPET	1	V080.023.001	V100.023.001	V125.023.001	V150.023.001	V200.023.001
02	NOSE PIECE	1	V080.053.001	V100.053.001	V125.053.001	V150.053.001	V200.053.001
03	SOC HD CAP SCREW		SH.05.18.1.50SS	SH.06.16.2.00SS	SH.08.13.2.00SS	SH.08.13.2.50SS	SH.08.13.2.50SS
	QTY OF ITEM 03		10	10	10	12	16
04	VALVE SEAT, HARD	1	V080.093.001	V100.093.001	V125.093.001	V150.093.001	V200.093.001
05	GLYDE RING (TOP)	1	GR.4.25UH	GR.5.50UH	GR.6.50UH	GR.7.75UH	GR.10.00UH
06	GLYDE RING (BOTTOM)	1	GR.3.75UH	GR.5.00UH	GR.5.75UH	GR.7.00UH	GR.9.00UH
07	O-RING (SEAT)	1	OR.230.90B	OR.237.90B	OR.240.90B	OR.250.90B	OR.262.90B

Where XXX denotes DIN Cartridge Size and Y denotes seat type (1 = Soft, 2 = Hard)

## Exploded View Sleeve Sub-Assembly DIN 16 – DIN 50

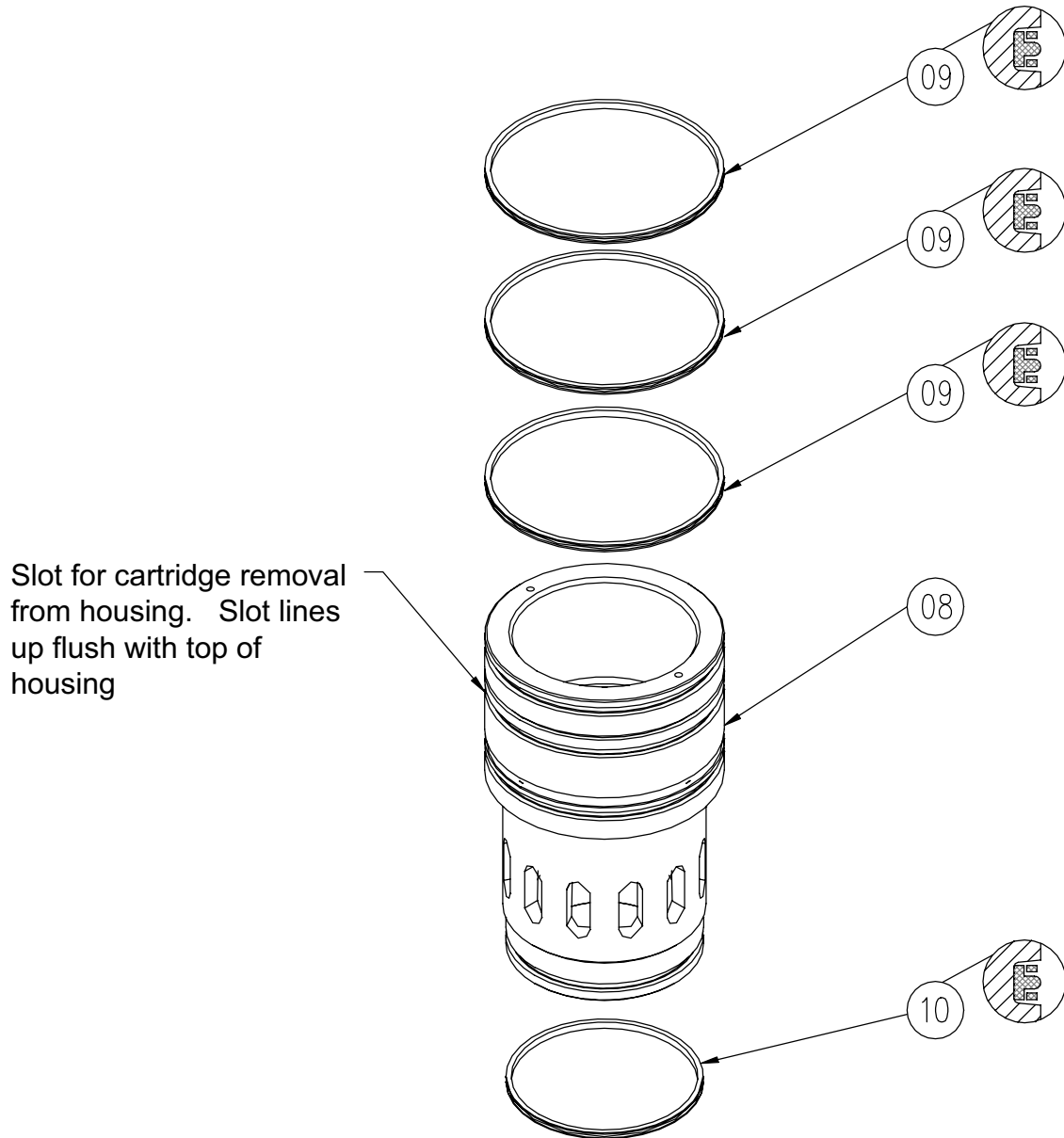


SLEEVE SUB-ASSEMBLY - CV0XX-22S							
ITEM	DESCRIPTION	QTY	DIN CARTRIDGE SIZE				
			16	25	32	40	50
			PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
07	SLEEVE	1	V016.033.001	V025.033.001	V032.033.001	V040.033.001	V050.033.001
08	T-SEAL (TOP)	3	TP.1.25B	TP.1.75B	TP.2.38B	TP.3.00B	TP.3.50B
09	T-SEAL (BOTTOM)	1	TP.1.00B	TP.1.31B	TP.1.75B	TP.2.25B	TP.2.75B

Where XX denotes DIN Cartridge Size (I.e 16 = DIN 16)

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## Exploded View Sleeve Sub-Assembly DIN 080 – DIN 200



SLEEVE SUB-ASSEMBLY - CVXXX-22S							
ITEM	DESCRIPTION	QTY	DIN CARTRIDGE SIZE				
			080	100	125	150	200
			PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
08	SLEEVE	1	V080.033.001	V100.033.001	V125.033.001	V150.033.001	V200.033.001
09	T-SEAL (TOP)	3	TP.5.75B	TP.7.25B	TP.9.00B	TP.10.00B	TP.13.00B
10	T-SEAL (BOTTOM)	1	TP.4.38B	TP.6.00B	TP.7.75B	TP.8.25B	TP.11.00B

Where XX denotes DIN Cartridge Size (I.e 16 = DIN 16)

## Engineering Data

### DIN 016 – DIN 200

### V0XX Cartridge Series

#### DIN 16 – DIN 50

ENGINEERING DATA						
DESCRIPTION OF MEASURE	UNITS	DIN CARTRIDGE SIZE				
		16	25	32	40	50
<b><i>Nose Piece Installation</i></b>						
NOSE PIECE BOLTS THREAD	UNC	1/4"-20	3/8"-16	1/2"-13	3/4"-10	1"-8
NOSE PIECE BOLT TORQUE	IN-LBS	95	300	750	1800	4496
NOSE PIECE BOLT TORQUE	FT-LBS	8	25	63	150	375
<b><i>Shift Characteristics</i></b>						
MAX. STROKE	IN	0.47	0.67	0.82	1.05	1.05
DIA. ON TOP OF POPPET	IN	0.75	1.25	1.63	2.13	2.63
AREA ON TOP OF POPPET	IN <sup>2</sup>	0.44	1.23	2.07	3.55	5.41
VOLUME TO SHIFT	IN <sup>3</sup>	0.21	0.82	1.70	3.72	5.68
<b><i>Flow Characteristics</i></b>						
CV FACTOR		3.90	9.40	15.50	25.30	46.10
FLOW AREA	IN <sup>2</sup>	0.25	0.60	0.99	1.62	2.95
FLOW AT 20 FT/SEC VELOCITY	GPM	15.5	37.3	61.9	101.0	184.0
FLOW AT 30 FT/SEC VELOCITY	GPM	23.3	56.2	92.8	152.0	277.0
FLOW AT 40 FT/SEC VELOCITY	GPM	21.0	75.0	124.0	293.0	369.0

### VXXX Cartridge Series

#### DIN 080 – DIN 200

ENGINEERING DATA						
DESCRIPTION OF MEASURE	UNITS	DIN CARTRIDGE SIZE				
		080	100	125	150	200
<b><i>Nose Piece Installation</i></b>						
NOSE PIECE BOLTS THREAD	UNC	5/16-18"	3/8"-16	1/2"-13	1/2"-13	1/2"-13
NO. OF NOSE PIECE BOLTS		10	10	10	12	16
NOSE PIECE BOLT TORQUE	IN-LBS	168	300	756	756	756
NOSE PIECE BOLT TORQUE	FT-LBS	14	25	63	63	63
<b><i>Shift Characteristics</i></b>						
MAX. STROKE	IN	1.75	2.25	2.75	3.19	3.69
DIA. ON TOP OF POPPET	IN	4.25	5.50	6.50	7.75	10.00
AREA ON TOP OF POPPET	IN <sup>2</sup>	14	24	33	47	79
VOLUME TO SHIFT	IN <sup>3</sup>	25	53	91	150	290
<b><i>Flow Characteristics</i></b>						
CV FACTOR		104	160	246	354	650
FLOW AREA	IN <sup>2</sup>	8.3	12.8	19.7	28.3	50.3
FLOW AT 20 FT/SEC VELOCITY	GPM	519	800	1230	1770	3142
FLOW AT 30 FT/SEC VELOCITY	GPM	778	1198	1843	2653	4713
FLOW AT 40 FT/SEC VELOCITY	GPM	1038	1598	2458	3538	6284

# Ordering Information

**CV 080 - 01 - 22 - 2 P**

**CARTRIDGE ELEMENT**

DIN SERIES		
016	16 mm	3/4"
025	25 mm	1"
032	32 mm	1 1/4"
040	40 mm	1 1/2"
050	50 mm	2"
080	80 mm	3"
100	100 mm	4"
125	125 mm	5"
150	150 mm	6"
200	200 mm	8"

CONFIGURATION	
(OMIT)	Complete Cartridge
P	Poppet Sub-Assembly Only
S	Sleeve Sub-Assembly Only

SEAT TYPE	
1	Soft Seat (E-PET)
2	Hard Seat (Stainless Steel)
3	Other - Specify

**2 WAY, 2 POSITION**

APPLICATION	
00	Special
01*	Raw Water Service
02*	95/5 HWBF Service
03	Manual Valve
04	Check Valve
* Typically 01 and 02 Cartridges are identical and fully interchangeable	

**Factory Assistance - Call**

**Phone: 330-332-4444**

**Fax: 330-332-1650**