

# Star Hydraulics Servo Valves

Featuring Star's Innovative Sapphire Technology



## We're an Authorized Distributor & Service Center for Star Valves

Star® servo valves are engineered and manufactured with jeweled inlet orifices and feedback ball using Star's Sapphire Technology. The benefit to the operator is that the traditional inlet and ball wear erosion problems that have been seen in the past are now just that, a thing of the past. In addition to Star's sapphire technology, they have modernized many of the components within the valve, that coupled with every single spool and bushing being a hand matched pair enable Star servo valves to deliver and maintain higher performance for extended periods without failure. Depending on your current valve, Star servo valves can be direct interchange drop in replacements or a fit & function interchange solution. They cross/interchange common valve manufacturers such as Moog®, Atchley®, Abex®, Pegasus®, Ultra®, Vickers®, Rexroth® and CEI®.

- Maximum operating pressure 315 bar
- Internal pilot supply
- Suitable for 3-way or 4-way applications
- High spool drive forces
- Spool in bushing design
- Dry torque motor with mechanical feedback



# Looking for Extended Valve Life?

## 550 SERIES 2-STAGE SERVO VALVE



- Standard and high response versions
- Maximum operating pressure of 315 bar
- ISO 10372-04-04-0-92 mounting pattern
- Internal pilot supply (4 port)
- Suitable for 3-way or 4-way applications
- Low hysteresis & zero point drift
- High spool drive forces
- Spool in bushing design
- Dry torque motor with mechanical feedback
- Long life Sapphire Technology

### 550 Series Specifications

<b>Nominal Flow [±10%]</b> (at 70 bar)	Std. Response	2, 4, 10, 20, 40, 60, 75 lpm	
	High Response	4, 10, 20, 40 lpm	
<b>Operating Pressure*</b>	Ports	P, C1, C2	R
<b>Seal Material</b>	NBR, FPM	315 bar	315 bar
	EPDM	280 bar	210 bar
<b>Fluid Visc. Range (recommended)</b>	10 to 100 mm <sup>2</sup> /s (cSt)		

\*Maximum

## 650 SERIES SERVO PROPORTIONAL VALVE



- Maximum operating pressure of 315 bar
- ISO 10372-04-04-0-92 mounting pattern
- Internal pilot supply (4 port)
- Suitable for 3-way or 4-way applications
- High spool drive forces
- Spool in bushing design
- Dry torque motor with mechanical feedback
- Long life Sapphire Technology

### 650 Series Specifications

<b>Nominal Flow [±20%]</b> (at 70 bar)	4, 10, 20, 40, 60, 80 lpm		
<b>Operating Pressure*</b>	Ports	P, C1, C2, R	
<b>Seal Material</b>	NBR, FPM	315 bar	
<b>Fluid Visc. Range (recommended)</b>	10 to 100 mm <sup>2</sup> /s (cSt)		

\*Maximum

## 1550 SERIES 2-STAGE SERVO VALVE



- Standard and high response versions
- Maximum operating pressure of 315 bar
- ISO 4401-05 mounting pattern
- Internal pilot supply
- Suitable for 3-way or 4-way applications
- Low hysteresis & zero point drift
- High spool drive forces
- Spool in bushing design
- Dry torque motor with mechanical feedback
- Long life Sapphire Technology

### 1550 Series Specifications

<b>Nominal Flow [±10%]</b> (at 70 bar)	Std. Response	4, 10, 20, 40, 60, 70 lpm	
	High Response	4, 10, 20, 40 lpm	
<b>Operating Pressure*</b>	Ports	P, C1, C2	R
<b>Seal Material</b>	NBR, FPM	315 bar	315 bar
	EPDM	280 bar	210 bar
<b>Fluid Visc. Range (recommended)</b>	10 to 100 mm <sup>2</sup> /s (cSt)		

\*Maximum

# Choose a Star Valve.

## STAR VALVE CROSS REFERENCE DATA

Star Valve Model	lpm	Operating Pressure (bar)	ISO Pattern	Conn.	Abex	Atchley	CEI	Moog	Rexroth	Ultra	Vickers
200	7	315	10372-01-01-0-92	4 pin				30 .480 port cir			
300	19	315	10372-02-02-0-92	4 pin				31 .622 port cir			
454	20	315	10372-03-03-0-92	4 pin	410	208A, 209	JP-5	771, 77-1xx 3/16-32		4653	SM4-10
455	40	315	10372-03-03-0-92	4 pin	415	211A, 214	JP-10	772, 77-2xx 3/16-32		4655	SM4-12
456	55	315	10372-03-03-0-92	4 pin		218	JP-15	773, 73-3xx 1/4-20 bolt		4657	SM4-15
458	55	315	.750 port cir 1/4-20 bolt	4 pin				630			
460	20	315	4401-03-03-0-94 D03	4 pin					4WS2EM6 .689 port cir 3/16 -32		
550	75	315	10372-04-04-0-92	4 pin		215A	JP-20	760, A076, G761		4551	SM4-20
552	75	315	10372-04-04-0-92	4 pin		215A	JP-20	760, A076, G761		4551	SM4-20
553	75	315	10372-04-04-0-92	4 pin		215A	JP-20	760, A076, G761		4551	SM4-20
558	75	315	10372-04-04-0-92	4 pin		215A	JP-20	73		4551	SM4-20
590	60	280	10372-04-04-0-92	4 pin		215A	JP-20	760, A076, G761 Small spool		4551	SM4-20
592	60	280	10372-04-04-0-92	4 pin		215A	JP-20	760, A076, G761 Small spool		4551	SM4-20
1550	70	315	4401-05	4 pin				631	4WS2EM10		
1552	70	315	4401-05	4 pin				631	4WS2EM10		
1554	70	315	4401-05	4 pin							
500E2	60	400	10372-04-04-0-92	7 pin				G761 LVDT HP VALVES			
502E2	60	500	10372-04-04-0-92	7 pin				G761 LVDT HP VALVES			
500-2	60	400	10372-04-04-0-92	4 pin				760, A076, G761 HP VALVES			SM4-50
502-2	60	500	10372-04-04-0-92	4 pin				760, A076, G761 HP VALVES			SM4-50
507-2	60	500	10372-04-04-0-92	4 pin							SM4-20
550E	75	315	10372-04-04-0-92	7 pin				765,769			
552E	75	315	10372-04-04-0-92	7 pin				765,769			
590-1	20	315	10372-04-04-0-92	4 pin		215A	JP-20	760, A076, G761 Small spool		4551	SM4-20
592-1	20	315	10372-04-04-0-92	4 pin		215A	JP-20	760, A076, G761 Small spool		4551	SM4-20
593-1	20	315	10372-04-04-0-92	4 pin		215A	JP-20	760, A076, G761 Small spool		4551	SM4-20
650	80	315	10372-04-04-0-92	4 pin				62			

Models not outlined in blue are available by special order.

### CUSTOM GEOMETRIES

- Zero overlap
- Overlap (closed center)
- Underlap (open center)
- Dual gain
- Asymmetric gain

### SEALING MATERIALS

- Nitrile
- Fluorocarbon (Viton)
- Ethylene-Propylene
- Fluorosilicone

### SPECIAL CONNECTORS

- MIL-C-5015
- MIL-DTL-38999
- Conduit style male/female
- Hermetic

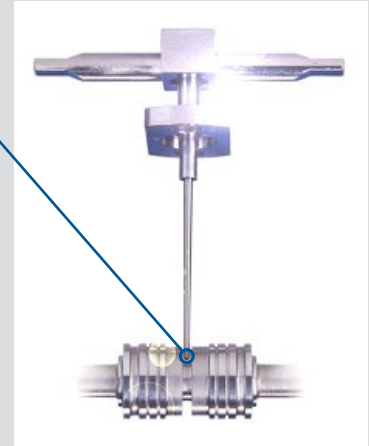
# Proven Performance

## Star's Sapphire Technology Benefits

This technology is centered around a high quality sapphire ball being used in a rotating spool which eliminates ball glitch. As opposed to the standard tungsten carbide ball in a non-rotating spool, which erodes the spool and deforms the ball.

- Incorporated into Star designs since 1988
- Many billions of cycles per service life
- Increased spool life due to spool rotation
- Ultra low coefficient of friction sapphire to steel
- Feedback mechanism unhindered by spool rotation
- Long service life in extreme environments

Visit [www.hydraulex.com](http://www.hydraulex.com) for more information.



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