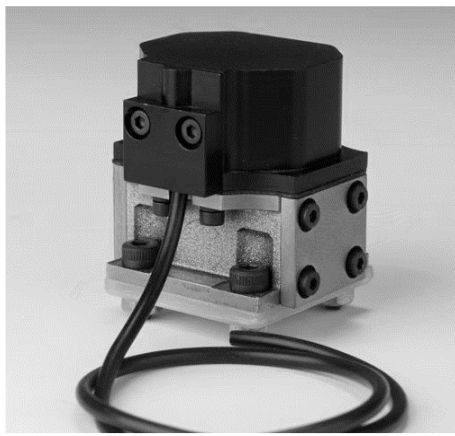


series  
**200**  
2-Stage Servo Valve  
Rated flows up to 7 l/m



### Features

- Miniature design
- Maximum operating pressure 315 bar
- ISO 10372-01-01-0-92 mounting pattern
- Internal pilot supply (4 port)
- Suitable for 3-way or 4-way applications
- Low hysteresis & zero point drift
- High spool drive forces
- Dry torque motor with mechanical feedback
- Long life Sapphire Technology



Star Hydraulics Limited  
Severn Drive  
Tewkesbury Business Park  
Tewkesbury  
Gloucestershire  
GL20 8SF  
England (UK)

[www.star-hydraulics.co.uk](http://www.star-hydraulics.co.uk)

ST-200-2017.2.2-En

# Benefits and Features

## Sapphire ball in slot design

- 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
- Extended warranties available



## Safety

- Flame proof
- Intrinsic safety
- Class, Div & Zone coverage
- Mechanical failsafe
- Double & triple coil redundancy



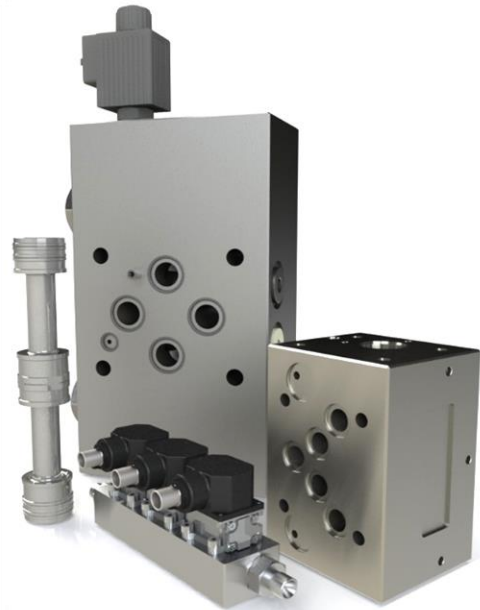
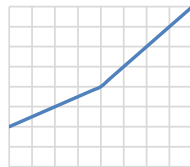
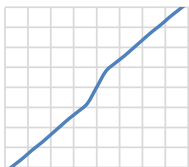
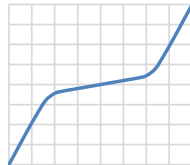
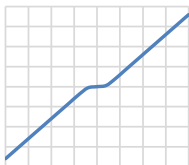
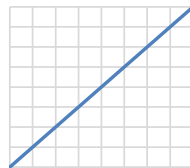
## Quality



- Independent audit process is our commitment on quality
- Focus on customer needs and expectations
- Delivery schedules on time
- Continual improvements on products and services
- Maintaining design and manufacturing integrity

## Custom spool lap & bushing port geometries

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



## Special projects

- Compact servo designs
- Special interfaces
- Modular components



## Sealing materials

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

## Sapphire flow

- Ensuring first stage stability
- Precisely matched flow properties
- Long life in extreme environments



## Special connectors

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

## Technical data

### Hydraulic

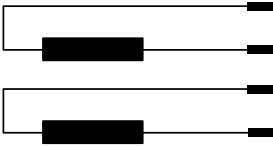
Nominal flow ratings [ $\pm 10\%$ ]	at 70 bar $\Delta p$	2, 4, 7 l/m
Operating pressure (max)	Ports	P, C1, C2, R
Seal material	NBR, FPM	315 bar
	EPDM	210 bar
Fluid viscosity range (recommended)		10 to 100 mm <sup>2</sup> /s (cSt)
Fluid type		Mineral oil to ISO 11158, DIN 51524 or equivalent MIL-H-5606 Others on request
Filter rating (recommended)	Pressure line	Beta 10 = 200 (10 $\mu$ m abs), non by-pass & indicator
	Off-line	Beta 2 = 1000 (2 $\mu$ m abs)
Fluid cleanliness	ISO 4406: 1999	
	minimum	16/ 14/ 11
	recommended	15/ 13/ 10

### Operational parameters

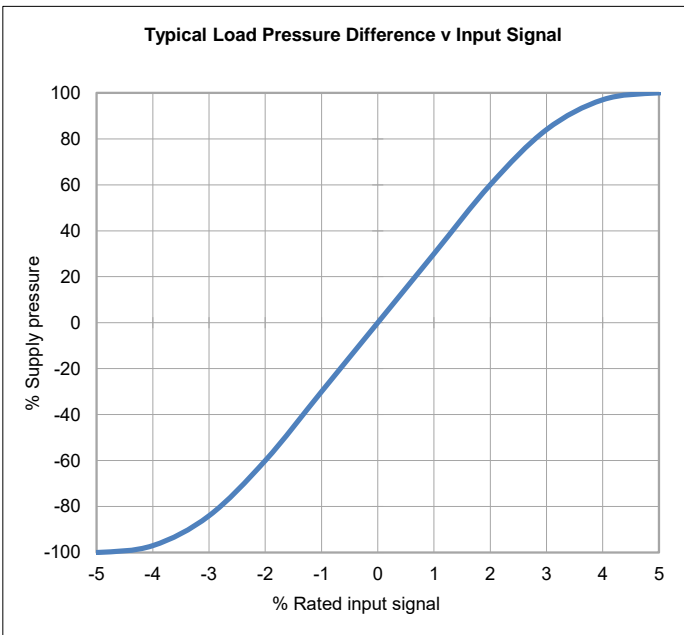
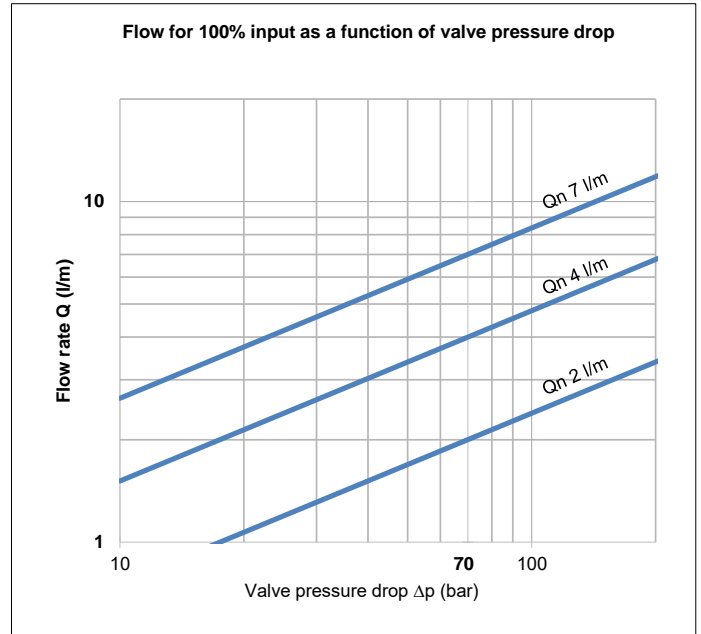
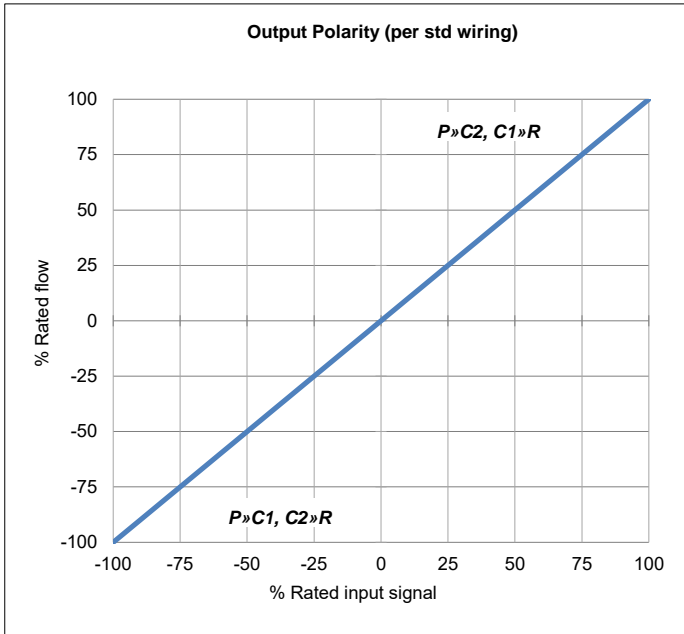
Hysteresis		$\leq 3.0\%$ without dither
Threshold		$\leq 1.0\%$ without dither
Null shift	$\Delta T$ 40°C	$\leq 2.0\%$
Internal leakage	140 bar supply (0.5% overlap)	
	2, 4 l/m	$\leq 0.55$ l/m
	7 l/m	$\leq 0.80$ l/m
Load pressure difference	2% input	$\geq 50\%$ of supply pressure
Response time	0-100% rated spool stroke	6 ms
Mounting pattern		ISO 10372-01-01-0-92
Mounting position		Any, fixed or movable
Weight	std unit	230 g
Design protection	EN 60529	IP 65
Shipping protection		Sealed base plate
Vibration		30 g all axis, 5 Hz to 2,000 Hz
Shock		30 g all axis
Seal material options		NBR, FPM, EPDM
Temperature range		-30 to 135 °C

## Technical data

### Electrical

Rated input ± (mA)	single (differential)	<b>10</b>	<b>30</b>	<b>40</b>
	series	5	15	20
	parallel	10	30	40
Coil resistance (Ω)	per coil	1000	300	80
Power (W)	single	0.1	0.270	0.128
	series	0.050	0.135	0.064
	parallel	0.050	0.135	0.064
Inductance (H)	single	1.82	0.31	0.1
	series	5.7	0.88	0.3
	parallel	1.44	0.22	0.07
Coil lead out identification		Blue Red White Black	White Red Green Yellow	Green Red Yellow Blue
Polarity P»C2, C1»R	single	Blue +, Red - or White +, Black -	White +, Red - or Green +, Yellow -	Green +, Red - Yellow +, Blue -
	series	Blue +, Black -, link Red & White	White +, Yellow -, link Red & Green	Green +, Blue - link Red & Yellow
	parallel	link Blue & White +, link Red & Black -	link White & Green +, link Red & Green -	link Green & Yellow + link Red & Blue -
Valve connection type	PTFE type A O/D 0.82 mm, core 7/0.15 mm 26 AWG 600 mm long flying lead			
Standard connector orientation	N/A			
	available over	P or R port; please advise when ordering		

# Technical data



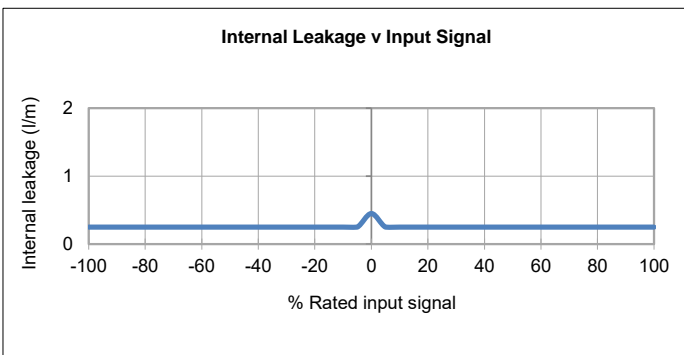
The flow tolerance for standard servovalves is  $\pm 10\%$  of the rated flow at 100% rated input signal.

Rated Signal [In] is the specified input voltage or current of either polarity to produce rated flow. Rated input does not include null bias values.

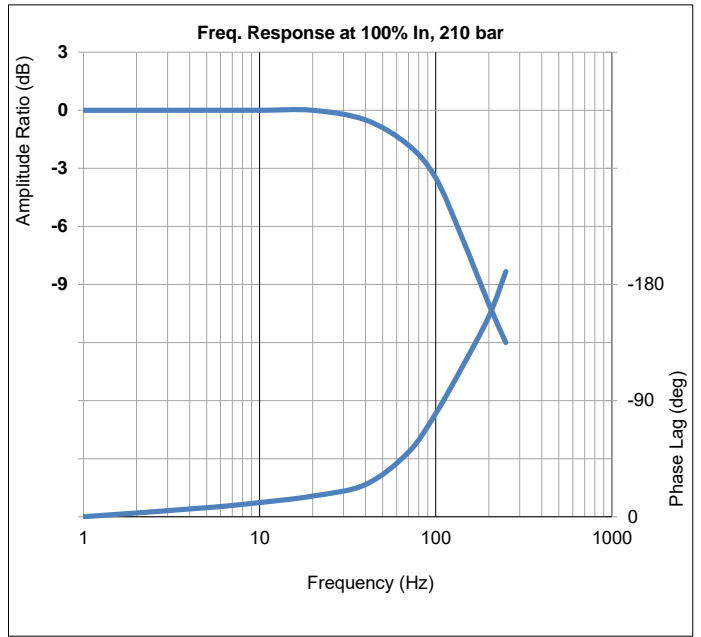
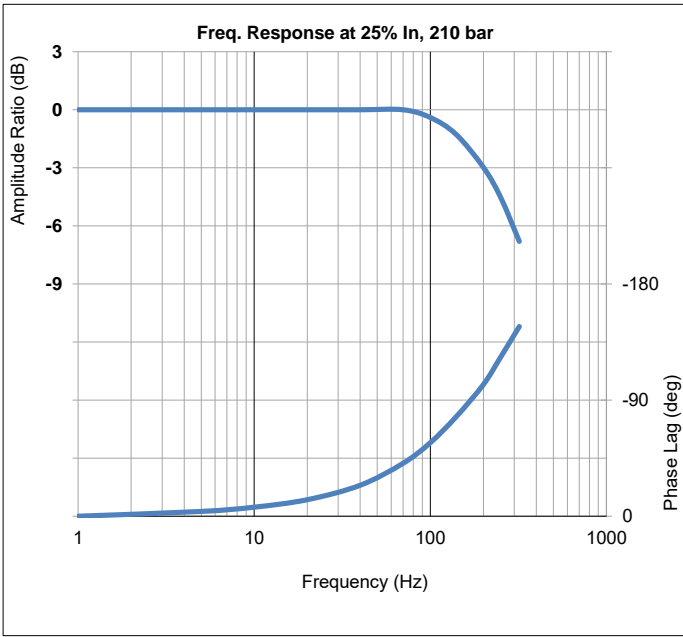
Rated flow corresponds to the flow at rated input at 10 bar or 70 bar, with no load, therefore in 4-way valves there will be a pressure drop of 5 bar or 35 bar respectively across each land.

Load pressure difference versus input signal indicates typical differential pressure gain between ports C1 (A) and C2 (B) for standard lap spools. Negative and positive overlap change this characteristic significantly.

Internal leakage comprises of tare first stage and laminar leakage between spool and sleeve. With critical lap conditions in 4-way designs the leakage peaks through the null region.



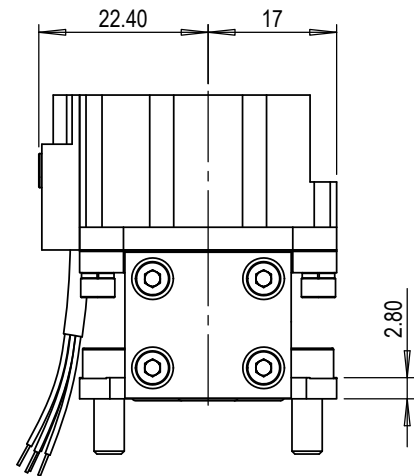
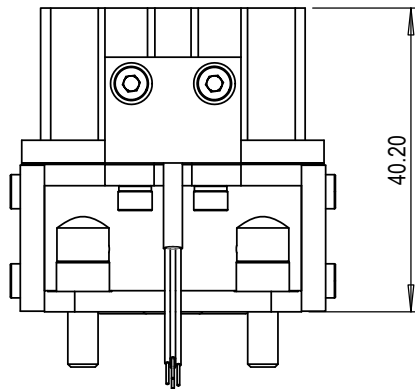
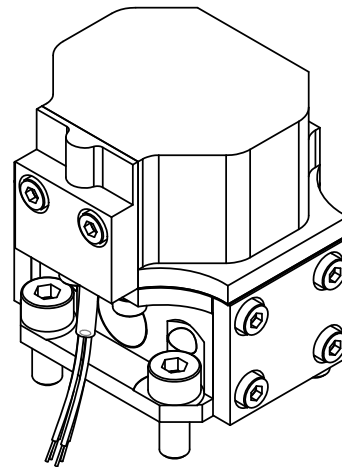
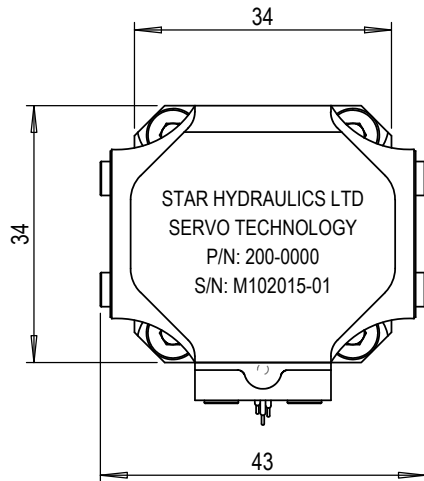
Technical data



200 series  
INSTALLATION DETAILS



Mounting screws	Skt head cap screws M4 x 10 10.9 ISO 4762
Null adjust (Mechanical)	N/A
Porting details	P, C1, C2, R ports $\varnothing 4.0$ , $\sqcap$ $\varnothing 8.0$ $\nabla 0.75$ on 12.2 P.C.D.
Interface seals	Ports P, C1, C2, R - ID 6.0 x $\varnothing 1.0$ O-Ring



Mounting interface conforms to ISO 10372-01-01-0-92 (without locating pin)								
	P	C1	C2	R	F1	F2	F3	F4
size	$\varnothing 3.8$	$\varnothing 3.8$	$\varnothing 3.8$	$\varnothing 3.8$	M4	M4	M4	M4
x	11.90	5.80	18	11.90	0	23.80	23.80	0
y	7	13.10	13.10	19.20	0	0	26.20	26.20
Surface flat within 0.01 / 100 : finish better than 0.8 $\mu\text{m}$								

