



## **592 Series Electro-Hydraulic Servovalves**

Sapphire Technology



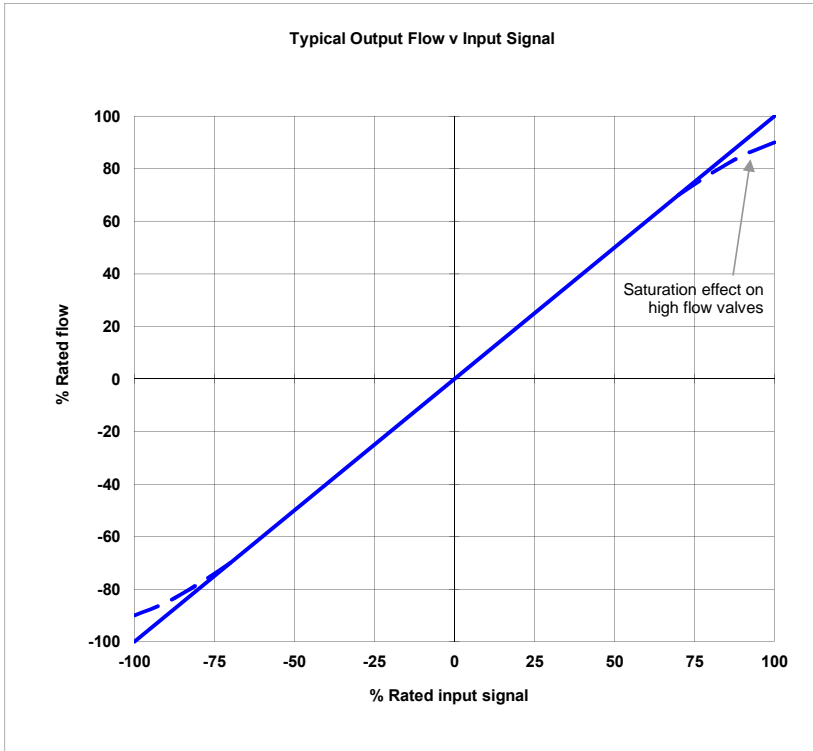
**2-stage mechanical feedback**  
**Low mass, high band-width torque motor**  
**High spool drive forces**  
**Long life "Sapphire Technology" design**  
**High resolution, low hysteresis**  
**Rated flows 4 to 20 l/min at 70 bar**  
**Very-High Response**  
**External pilot supply (5 port)**  
**ISO 10372 size 4**

Star Hydraulics Limited  
8 Beta Close  
Tewkesbury Business Centre  
Tewkesbury  
Gloucestershire  
GL20 8SR  
England (UK)

## Technical Data

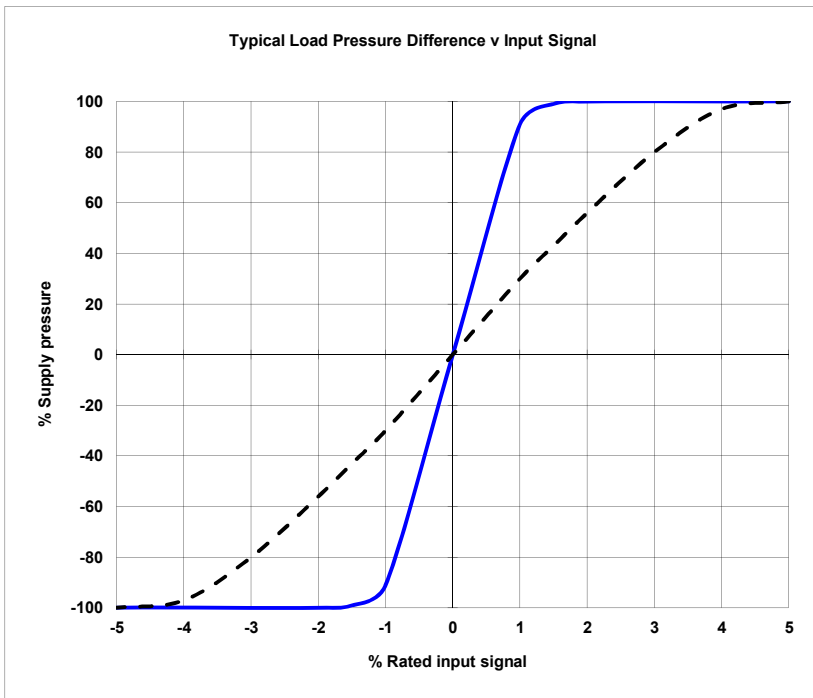
|                                            |                                                                               |
|--------------------------------------------|-------------------------------------------------------------------------------|
| Nominal flow ratings at 70 bar Dp          | 4, 10 & 20 l/min<br>For other flow ratings consult factory                    |
| Hysteresis                                 | < 3.0% without dither                                                         |
| Threshold                                  | < 0.5% without dither                                                         |
| Null shift                                 |                                                                               |
| with 40 °C temp change                     | < 2%                                                                          |
| with 70 bar supply pressure change         | < 2%                                                                          |
| with return pressure 0 to 35 bar           | < 2%                                                                          |
| Load pressure difference at 1% input       | ≥ 30% of supply pressure can be as high as 100%                               |
| Seal material options                      | FPM, NBR, EPDM                                                                |
| Temperature range (ambient)                | -29 to 135 °C<br>(subject to seal material)                                   |
| Proof pressure                             |                                                                               |
| at pressure port                           | 150% operating pressure                                                       |
| at return port                             | 100% operating pressure                                                       |
| Burst pressure                             | 250% max supply pressure                                                      |
| External leakage                           | zero                                                                          |
| Degree of protection EN 50529P             | IP 65                                                                         |
| Weight                                     | 1 kg                                                                          |
| Vibration                                  | 30 g, 3 axes                                                                  |
| Mounting position                          | Any, fixed or movable                                                         |
| Supply filtration                          |                                                                               |
| non by-pass                                | Beta 10 = 200 (10 µm abs)                                                     |
| cleanliness control filter                 | Beta 3 = 200 (3 µm abs)                                                       |
| Fluid cleanliness level per ISO 4406: 1999 |                                                                               |
| minimum                                    | 16/ 14/ 12                                                                    |
| recommended                                | 14/ 12/ 10                                                                    |
| Operating pressure (max)                   |                                                                               |
| EPDM                                       | 210 bar                                                                       |
| FPM, NBR                                   | 315 bar                                                                       |
| Supply pressure                            | Constant                                                                      |
| Fluid viscosity                            | 10 to 100 cSt                                                                 |
| Fluid type                                 | Petroleum based mineral oil<br>For operation with other media consult factory |

**Technical Data**

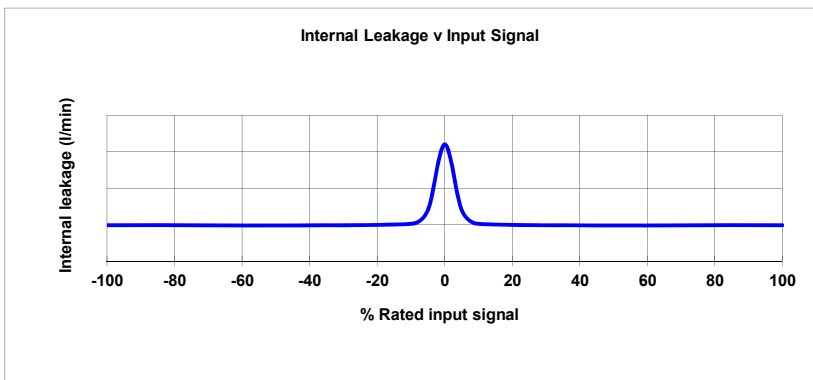


The flow tolerance for standard servovalves is  $\pm 10\%$  of the rated flow at 100% rated input signal.

The rated flow is quoted at 70 bar  $\Delta p$ , 100% rated input signal.



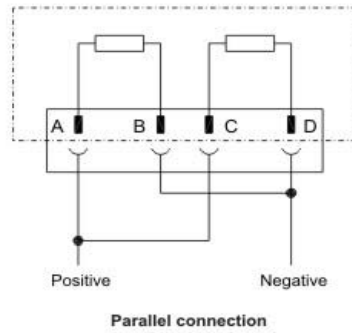
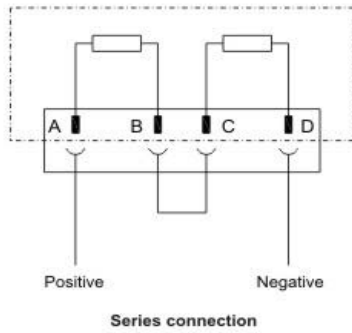
Pressure gain characteristic will vary with positive and negative lap conditions.



This comprises of both 1st stage flow (tare leakage) and the second stage null leakage.

Figures vary in accordance with rated flow, spool lap and performance characteristics.

## Electrical Details



### Output flow polarity

Flow in the direction of P » C2, C1 » R when coils connected as shown

### Coil options

| Rated current<br>mA | Resistance / coil<br>Ω | Series connection   |                           | Parallel connection |                           |
|---------------------|------------------------|---------------------|---------------------------|---------------------|---------------------------|
|                     |                        | Input current<br>mA | Effective resistance<br>Ω | Input current<br>mA | Effective resistance<br>Ω |
| 8                   | 1000                   | 4                   | 2000                      | 8                   | 500                       |
| 10                  | 1000                   | 5                   | 2000                      | 10                  | 500                       |
| 15                  | 200                    | 7.5                 | 400                       | 15                  | 100                       |
| 15                  | 350                    | 7.5                 | 700                       | 15                  | 175                       |
| 15                  | 600                    | 7.5                 | 1200                      | 15                  | 300                       |
| 20                  | 1200                   | 10                  | 2400                      | 20                  | 600                       |
| 30                  | 300                    | 15                  | 600                       | 30                  | 150                       |
| 30                  | 800                    | 15                  | 1600                      | 30                  | 400                       |
| 40                  | 80                     | 20                  | 160                       | 40                  | 40                        |
| 50                  | 80                     | 25                  | 160                       | 50                  | 40                        |
| 60                  | 40                     | 30                  | 80                        | 60                  | 20                        |
| 60                  | 320                    | 30                  | 640                       | 60                  | 160                       |
| 80                  | 22                     | 40                  | 44                        | 80                  | 11                        |
| 100                 | 27                     | 50                  | 54                        | 100                 | 13.5                      |
| 200                 | 22                     | 100                 | 44                        | 200                 | 11                        |

### Electrical connector

Standard connector is MS3102E-14S-2P (MIL-5015)

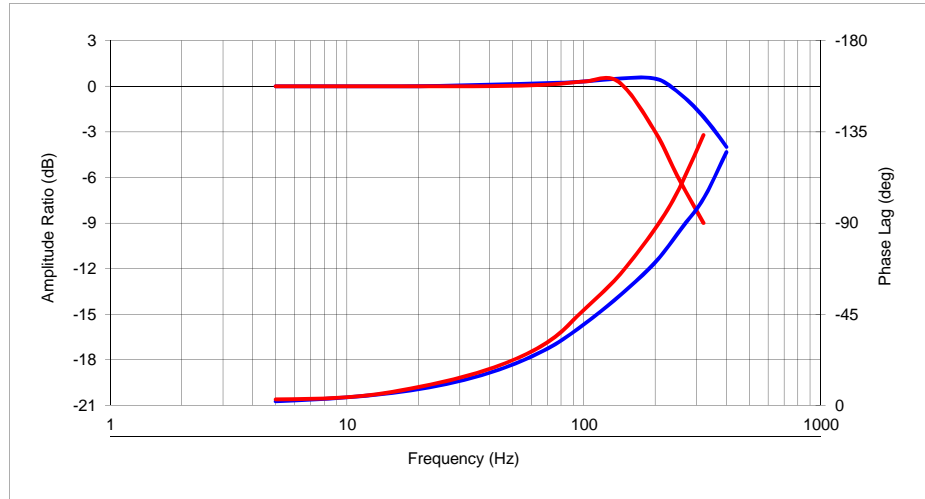
Please contact factory for more options

# Frequency Response

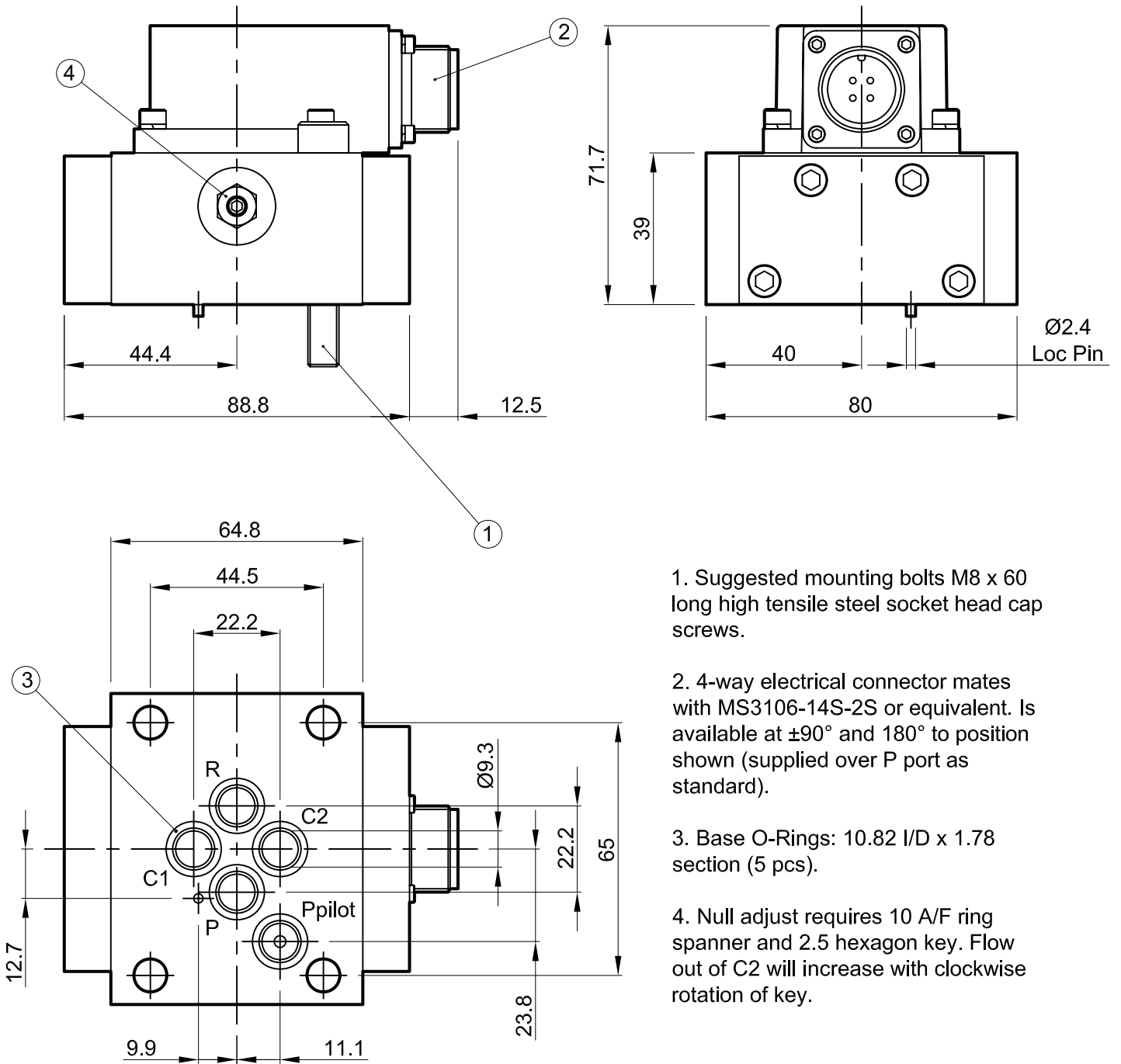
25% In —

100% In —

Rated Flow (l/m) ... 4 ~ 20



Typical performance curves optimised per 210 bar supply pressure, fluid viscosity 32 cSt at 40 °C



1. Suggested mounting bolts M8 x 60 long high tensile steel socket head cap screws.

2. 4-way electrical connector mates with MS3106-14S-2S or equivalent. Is available at  $\pm 90^\circ$  and  $180^\circ$  to position shown (supplied over P port as standard).

3. Base O-Rings: 10.82 I/D x 1.78 section (5 pcs).

4. Null adjust requires 10 A/F ring spanner and 2.5 hexagon key. Flow out of C2 will increase with clockwise rotation of key.

## Installation Details Model 592

Dimensions in millimeters  
3rd angle projection

ID592-2Q10-En

