



500 Series Electro-Hydraulic Servovalves

Sapphire Technology



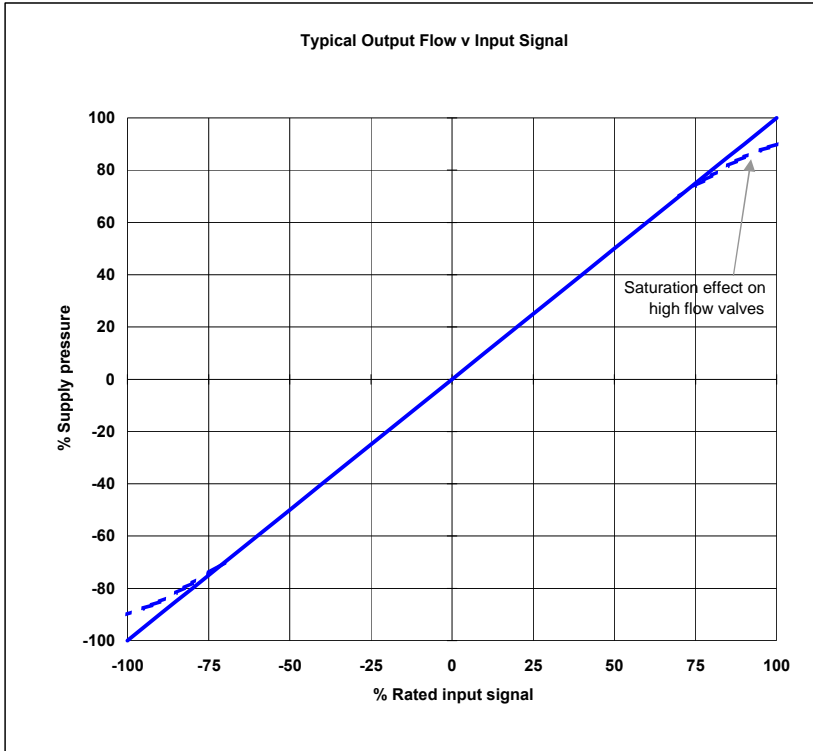
2-stage mechanical feedback
Up to 400 bar supply pressure
Low mass, high band-width torque motor
High spool drive forces
Long life "Sapphire Technology" design
High resolution, low hysteresis
Rated flows 4 to 70 l/min at 70 bar
Standard & High Response
Internal pilot supply (4 port)
ISO 10372 size 4

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

Technical Data

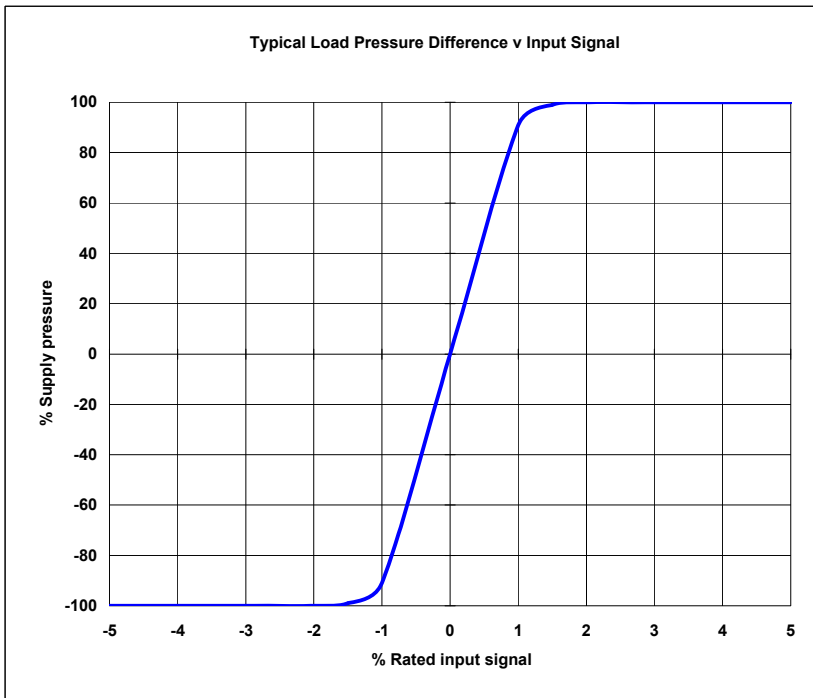
| | |
|--|---|
| Nominal flow ratings at 70 bar Dp | 4, 10, 20, 40, 60 & 70 l/min For other flow ratings consult factory |
| Hysteresis | < 3.0% without dither |
| Threshold | < 0.5% without dither |
| Null shift | |
| with 40 °C temp change | < 2% |
| with 70 bar supply pressure change | < 2% |
| with return pressure 0 to 35 bar | < 2% |
| Load pressure difference at 1% input | > 60% of supply pressure |
| Seal material options | FPM, NBR, EPDM |
| Temperature range (ambient) | -29 to 135 °C (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 | 2 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 | 400 bar |
| Supply pressure | Constant |
| Fluid viscosity | 10 to 100 cSt |
| Fluid type | Petroleum based mineral oil For operation with other media consult factory |

Technical Data

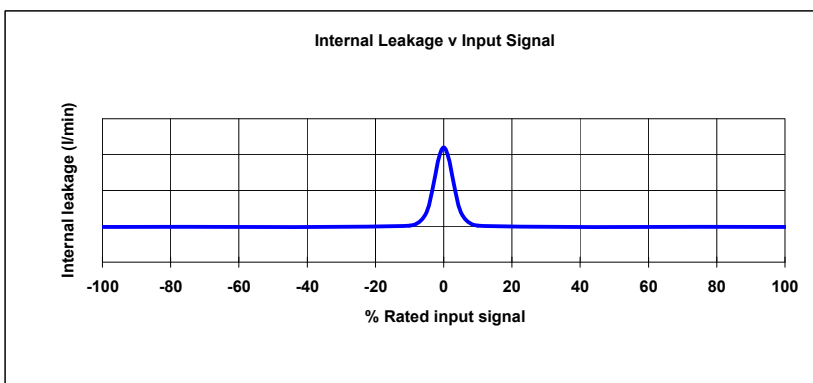


The flow tolerance for standard servovalves is $\pm 10\%$ of the rated flow at 100% rated input signal.

The rated flow is quoted at 70 bar Δp , 100% rated input signal.



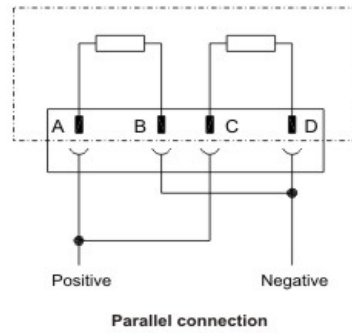
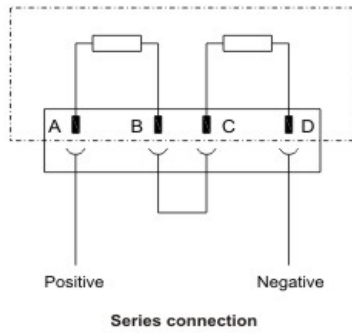
Pressure gain characteristic will vary with positive and negative lap conditions.



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 mA | Resistance / coil Ω | Series connection | | Parallel connection | |
|---------------------|------------------------|---------------------|---------------------------|---------------------|---------------------------|
| | | Input current mA | Effective resistance Ω | Input current mA | Effective resistance 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

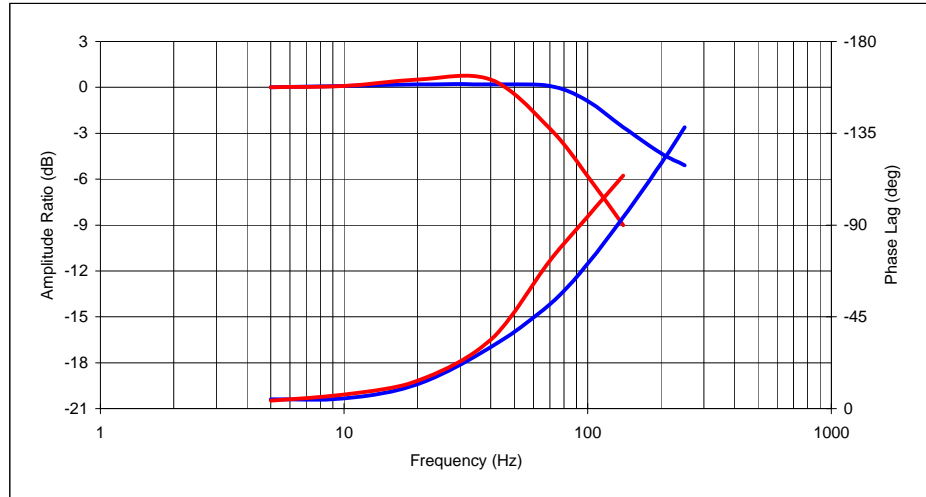
Standard connector is MS3102E-14S-2P (MIL-5015)

Please contact factory for more options

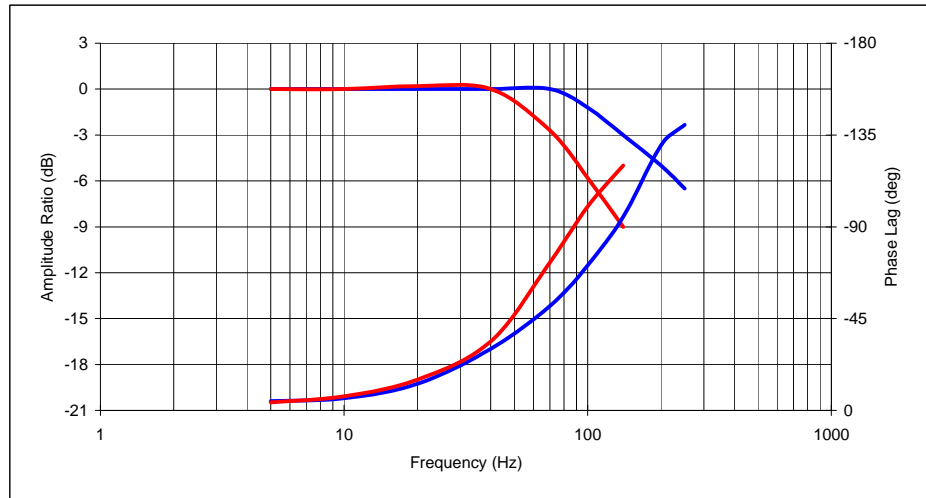
Standard Frequency Response

25% In — 100% In —

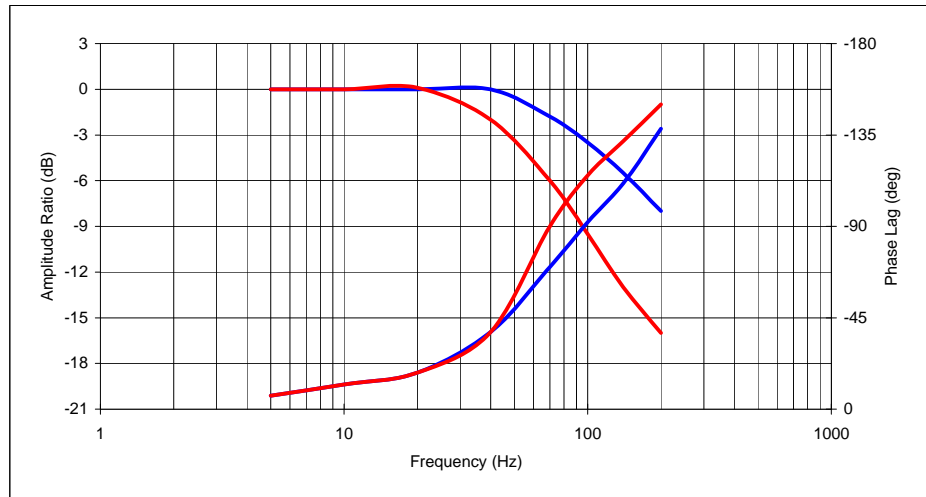
Rated Flow (l/m) ... 4 ~ 20



Rated Flow (l/m) ... 40



Rated Flow (l/m) ... 60

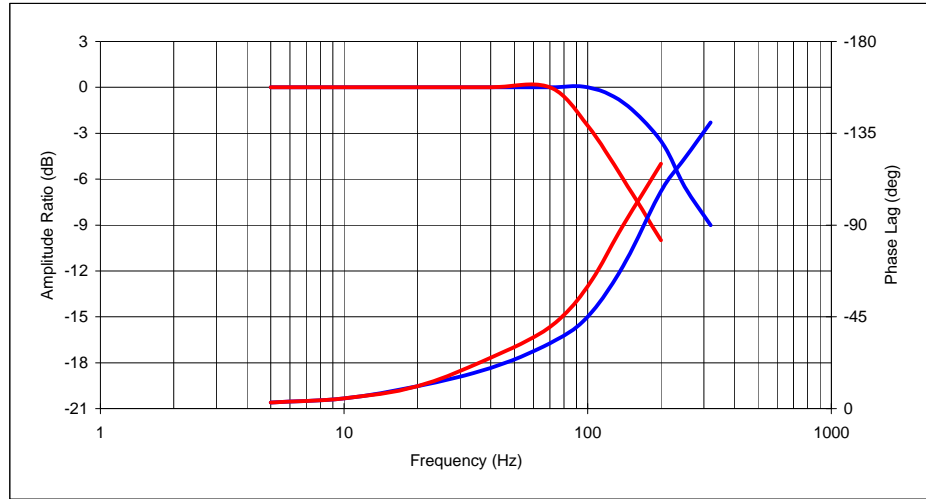


Typical performance curves optimised per 210 bar supply pressure, fluid viscosity 32 cSt at 40 °C

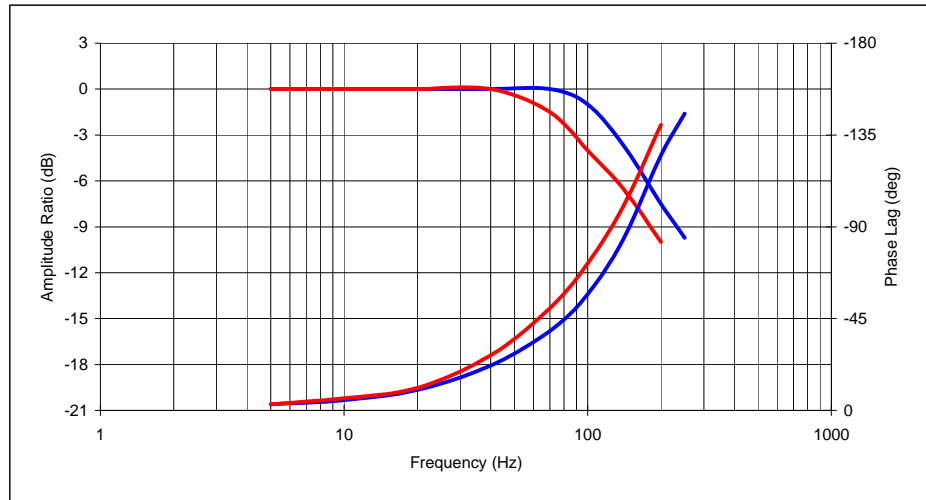
High Frequency Response

25% In — 100% In —

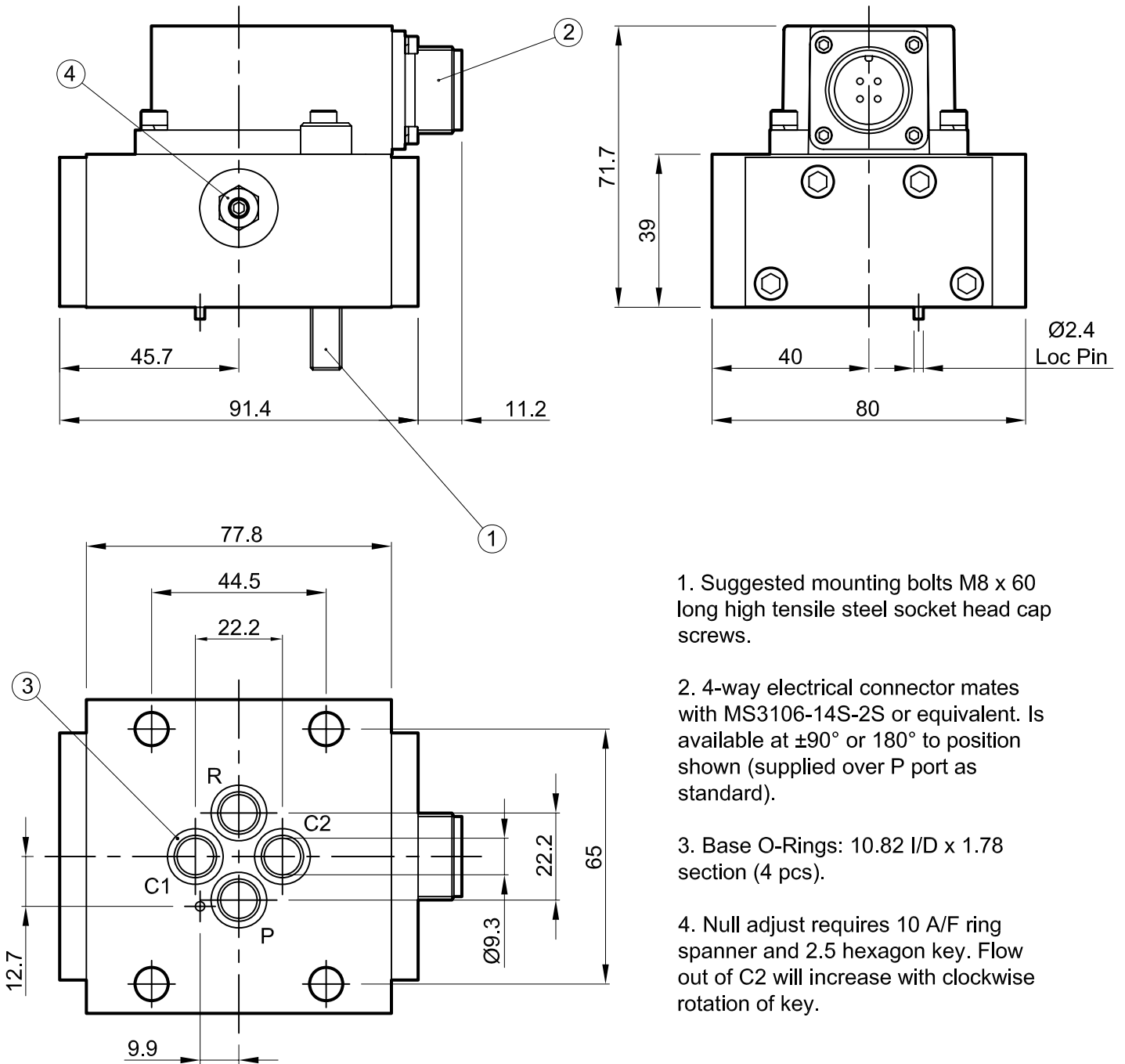
Rated Flow (l/m) ... 4 ~ 20



Rated Flow (l/m) ... 40



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 $\pm 90^\circ$ or 180° to position shown (supplied over P port as standard).

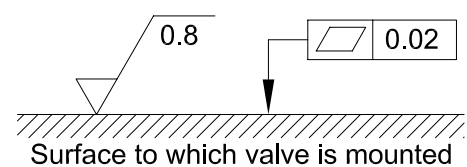
3. Base O-Rings: 10.82 I/D x 1.78 section (4 pcs).

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.

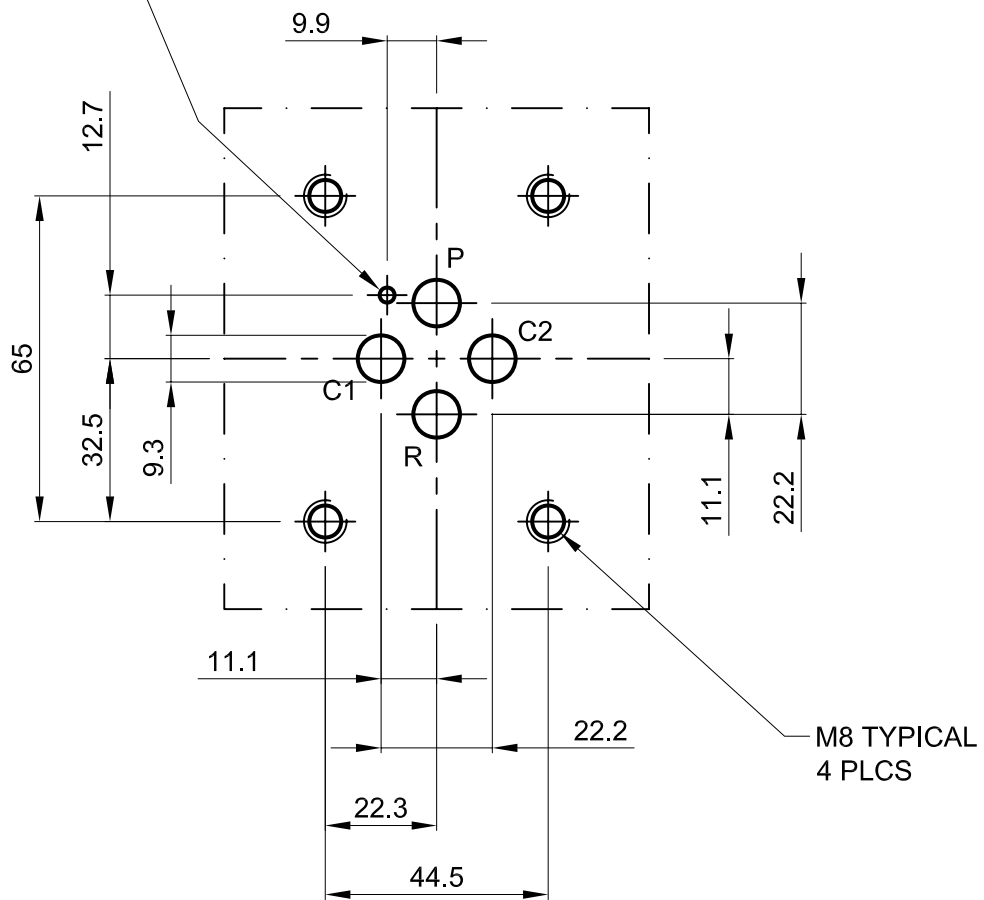
Installation Details Model 500

Dimensions in millimeters
3rd angle projection

ID500-2Q10-En



C/BORE FOR
LOC PIN
Ø3 X 5



Manifold Dimensions Model 500

Dimensions in millimeters
3rd angle projection

Filename

