IF IN DOUBT ASK!

**INTRODUCTION**

The STAR \(\ldots\) range of Electro-Hydraulic Servo Valves are designed, manufactured and tested in compliance with ATEX and IECEx standards for use in explosive atmospheres. These valves provide position, velocity, pressure and force control in hydraulic systems and are available in a variety of manifold interfaces, coil ratings and electrical connections.

**PRODUCT MARKINGS**

Electrohydraulic Servo valves series \(\ldots\) for Intrinsically Safe and Increased Safety (formerly type 'r', non-sparking).

Above code is prefixed with 3 or 4 digit model number based on required flow rate and hydraulic manifold preference:-

e.g. 455T..., 1550T..., 890T..., etc.

Code is also suffixed with 4 or 5 digit code to denote mechanical variations which do not affect certification.

When used in type of protection Intrinsically safe 'i' the appropriate box on the valve label to be permanently marked by the user. When used in Improved safety 'e' the appropriate box on the valve label to be permanently marked by the user. After use in type of protection 'r' the unit should not be used for protection type Intrinsic safety 'T'.

**SAFETY NOTICE**

The user is solely responsible for making final selection of components for use in explosive atmospheres, ensuring that all products carry the correct safety ratings.

**ATEX/IECEx CLASSIFICATION**

The following certifications and protection concepts apply:-

- Certificate No.: IECEx ITS 17.0015X
- Certificate No.: CE ITS 17 ATEX 201792X
- Certificate No.: CE ITS 17 ATEX 301793X

**INSTALLATION**

May be mounted in any orientation providing the valve and manifold interface porting, locating pin and fixing positions match. Mounting patterns for each model type are available at our website. Use high tensile fasteners and apply oil film to threads and apply the following torque values:-

- 8 Nm - M4 threads
- 12 Nm - M6 threads
- 15 Nm - M8 threads
- 25 Nm - M10 threads

Earth bonding should be made using a connection method that meets the EPL requirements of the location.

For improved safety 'e' flying lead connections to be terminated in an appropriate manner.

Set mechanical null or bias offset taking into account any electrical bias that may exist from any external drive amplifier.

**MAINTENANCE**

All electrical connections should be visually checked for damage. Do not allow deposits to build up on the surfaces that may cause loss in heat emission. Do not obscure markings with any coatings. If any signs of external damage or corrosion are detected then the device should be taken out of service.

DO NOT try to open or repair these devices. Only trained personnel are authorised to repair STAR products marked for use in hazardous locations. Unauthorised repair will immediately invalidate certification and rating.

**TRANSPORT & SERVICE**

Store in boxes and protect against moisture that may cause corrosion.

For coils connected in series or individually:

\[
\text{Coil Signal Current (mA)} = \frac{\text{Nominal Rated Current (In)}}{\text{Number of Coils Driven}}
\]

For coils connected in parallel:

\[
\text{Coil Signal Current (mA)} = \frac{\text{Nominal Rated Current (In)}}{2}
\]

**MASS SPECIFICATION**

<table>
<thead>
<tr>
<th>Material</th>
<th>Nominal Rated Current (In)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16A Rs</td>
<td>200 mA</td>
</tr>
<tr>
<td>10A Rs</td>
<td>100 mA</td>
</tr>
<tr>
<td>5A Rs</td>
<td>50 mA</td>
</tr>
</tbody>
</table>

**MACHINING**

SURFACE FINISH

- MACHINING 10" (254mm)
- MACHINED 10" (254mm)

**CONTACTS**

**WEIGHT**

**ADDITIONAL INFORMATION**

- www.star-hydraulics.co.uk
- sales@star-hydraulics.co.uk
- Tel: +44 (0)1684 296 176
- Fax: +44 (0)1684 850 714

Hydraulic Servo Valves series \(\ldots\) for Intrinsically Safe and Increased Safety (formerly type 'r', non-sparking).
## Coil Parameters

<table>
<thead>
<tr>
<th>Coil PN</th>
<th>Connection Mode</th>
<th>d.c. Coil Resistance (nom) (Ω)</th>
<th>Ui /Ii max (V)</th>
<th>Li /Imax (mA)</th>
<th>Eff. Inductance (mH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRS3140</td>
<td>single coil</td>
<td>80</td>
<td>30</td>
<td>26</td>
<td>48</td>
</tr>
<tr>
<td>SRS3141</td>
<td>parallel coil</td>
<td>100</td>
<td>30</td>
<td>37</td>
<td>34</td>
</tr>
<tr>
<td>SRS3118</td>
<td>series coil</td>
<td>40</td>
<td>30</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>SRS3139</td>
<td>parallel coil</td>
<td>100</td>
<td>30</td>
<td>19</td>
<td>88</td>
</tr>
<tr>
<td>SRS3139</td>
<td>series coil</td>
<td>500</td>
<td>30</td>
<td>20</td>
<td>87</td>
</tr>
<tr>
<td>SRS3140</td>
<td>single coil</td>
<td>160</td>
<td>30</td>
<td>18</td>
<td>89</td>
</tr>
<tr>
<td>SRS3139</td>
<td>series coil</td>
<td>400</td>
<td>30</td>
<td>12.7</td>
<td>200</td>
</tr>
<tr>
<td>SRS3139</td>
<td>series coil</td>
<td>2000</td>
<td>30</td>
<td>10</td>
<td>280</td>
</tr>
</tbody>
</table>

## Entity Parameters

<table>
<thead>
<tr>
<th>Coil &amp; Connection Mode</th>
<th>Gas Group</th>
<th>Ui</th>
<th>Ii</th>
<th>Li</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRS3118 single</td>
<td>IIC</td>
<td>16 V</td>
<td>160mA</td>
<td>6mH</td>
</tr>
<tr>
<td>SRS3118 single</td>
<td>IIC</td>
<td>24 V</td>
<td>85mA</td>
<td>5mH</td>
</tr>
<tr>
<td>SRS3118 single</td>
<td>IIC</td>
<td>30 V</td>
<td>28mA</td>
<td>39mH</td>
</tr>
<tr>
<td>SRS3118 parallel</td>
<td>IIC</td>
<td>30 V</td>
<td>28mA</td>
<td>39mH</td>
</tr>
<tr>
<td>SRS3118 series</td>
<td>IIC</td>
<td>30 V</td>
<td>14mA</td>
<td>159mH</td>
</tr>
<tr>
<td>SRS3139 single</td>
<td>IIC</td>
<td>16 V</td>
<td>160mA</td>
<td>6mH</td>
</tr>
<tr>
<td>SRS3139 single</td>
<td>IIC</td>
<td>24 V</td>
<td>85mA</td>
<td>5mH</td>
</tr>
<tr>
<td>SRS3139 single</td>
<td>IIC</td>
<td>30 V</td>
<td>37mA</td>
<td>24mH</td>
</tr>
<tr>
<td>SRS3139 parallel</td>
<td>IIC</td>
<td>30 V</td>
<td>20mA</td>
<td>87mH</td>
</tr>
<tr>
<td>SRS3139 series</td>
<td>IIC</td>
<td>30 V</td>
<td>10mA</td>
<td>289mH</td>
</tr>
<tr>
<td>SRS3140 single, series</td>
<td>IIB</td>
<td>12 V</td>
<td>120mA</td>
<td>10mH</td>
</tr>
<tr>
<td>SRS3140 single, parallel</td>
<td>IIB</td>
<td>30 V</td>
<td>26mA</td>
<td>48mH</td>
</tr>
<tr>
<td>SRS3140 series</td>
<td>IIB</td>
<td>30 V</td>
<td>18mA</td>
<td>89mH</td>
</tr>
<tr>
<td>SRS3141 single, parallel</td>
<td>IIB</td>
<td>12 V</td>
<td>240mA</td>
<td>2.5mA</td>
</tr>
<tr>
<td>SRS3141 single, parallel</td>
<td>IIB</td>
<td>30 V</td>
<td>19mA</td>
<td>89mH</td>
</tr>
<tr>
<td>SRS3141 series</td>
<td>IIB</td>
<td>30 V</td>
<td>13mA</td>
<td>159mH</td>
</tr>
</tbody>
</table>

* Nominal drive current is the current required to drive the valve to full flow in DC current conditions for the given 'Coil Connection Mode'.

** This combination of barrier and coil will not allow the valve to be driven fully open for the nominal coil rate when driving only a single coil.
Explosion proof certified product. This document is controlled and can only be amended by the responsible authority.

HAZARDOUS AREA

NON-HAZARDOUS AREA

UNUSED COILS CAN REMAIN UNCONNECTED

COILS ON TERMINALS C-D CAN BE CONNECTED TO BARRIERS OF THE SAME SPECIFICATION.

SHEilded CABLE SHOULD BE CONNECTED TO EARTH GROUND AT ONE POINT ONLY IN THE NON-HAZARDOUS AREA

BARRIERS TO BE MOUNTED AND CONNECTED PER EN 60079-14 INSTALLATION DIRECTIVE

A

B

C

D

E

F

EXPLOSION PROOF CERTIFIED PRODUCT. THIS DOCUMENT IS CONTROLLED AND CAN ONLY BE AMENDED BY THE RESPONSIBLE AUTHORITY.

BARRIERS TO BE MOUNTED AND CONNECTED PER EN 60079-14 INSTALLATION DIRECTIVE

IN THE NON-HAZARDOUS AREA

GROUND AT ONE POINT ONLY

CONNECTED TO EARTH

SHIELDED CABLE SHOULD BE

CONNECTED TO EARTH

GROUND AT ONE POINT ONLY

IN THE NON-HAZARDOUS AREA

sales@star-hydraulics.co.uk

WWW.star-hydraulics.co.uk

Tel: +44 (0)1684 296 176

Fax: +44 (0)1684 850 714

(SPECIFIED IN MODEL)

EX003

WEIGHT:

MATERIAL:

FINISH:

SURFACE FINISH: 16,4Ra

MACHINING: ±1/32 in

MACHINING CHECK: ±1/32 in

FABRICATION: ±1/32 in

MACHINING BOXED: 0.25mm ±0.10mm

FABRICATION BOXED: 3.0mm ±0.5mm

MACHINING COMPILATION: 0.10 mm

STAR HYDRAULICS LTD.

97A New Road

Leominster

Herefordshire

HR6 9BD

Tel: 01584 863 777

Fax: 01584 863 778

www.star-hydraulics.co.uk

This drawing is the property of Star Hydraulics Ltd and is not to be used for the purpose of any other purpose and not to copy it, or pass it on to a third party without written permission.

Any other purpose and not to copy it, or pass it on to a third party.

Released for Manufacture - Ex Approval

Roy Mountford

01 06 Jun 17

1.6 µM Ra

MACHINING BOXED: [0.25mm] [0.10mm]

FABRICATION BOXED: 3.0mm [0.5mm]

MACHINING COMPILATION: 0.10mm

EX003

NAME:

DESCRIPTION:

FILE NAME:

REV

DATE

APPROVER

CHANGE COMMENT

MATERIAL: (SPECIFIED IN MODEL)

FINISH

01

06 Jun 17

Roy Mountford

Released for Manufacture - Ex Approval

RELEASED

01  06 Jun 17

Martin Gaze

01  20 Feb 17

APPROVED BY

CHECKED BY

APPROVED DATE

CHECKED DATE

DRAWN DATE

06 Jun 17

20 Feb 17

06 Jun 17

Sheet3

3

4

3 or 4

1

2

1

3

2

4

5

6

7

8

1

2

3

4

5

6

7

8

F

E

D

C

B

A

DO NOT SCALE DRAWING

IF IN DOUBT ASK!
UNUSED COILS CAN REMAIN UNCONNECTED

S318 COILS ONLY (TRIPLE COILS)

EXPLOSION PROOF CERTIFIED PRODUCT.

SHIELDED CABLE SHOULD BE CONNECTED TO EARTH GROUND AT ONE POINT ONLY IN THE NON-HAZARDOUS AREA.

BARRIERS TO BE MOUNTED AND CONNECTED PER EN 60079-14 INSTALLATION DIRECTIVE.

EXPLOSION PROOF CERTIFIED PRODUCT. THIS DOCUMENT IS CONTROLLED AND CAN ONLY BE AMENDED BY THE RESPONSIBLE AUTHORITY.

IF IN DOUBT ASK!

DO NOT SCALE DRAWING

EXPLOSION PROOF CERTIFIED PRODUCT. THIS DOCUMENT IS CONTROLLED AND CAN ONLY BE AMENDED BY THE RESPONSIBLE AUTHORITY.

EXPLOSION PROOF CERTIFIED PRODUCT. THIS DOCUMENT IS CONTROLLED AND CAN ONLY BE AMENDED BY THE RESPONSIBLE AUTHORITY.

IF IN DOUBT ASK!

DO NOT SCALE DRAWING

EXPLOSION PROOF CERTIFIED PRODUCT. THIS DOCUMENT IS CONTROLLED AND CAN ONLY BE AMENDED BY THE RESPONSIBLE AUTHORITY.