

Stratoflex

*High Pressure Swivel Joints
for the Aerospace Industry*

*Catalog 106-SWIV
August 1996*



The World Standard

WARNING

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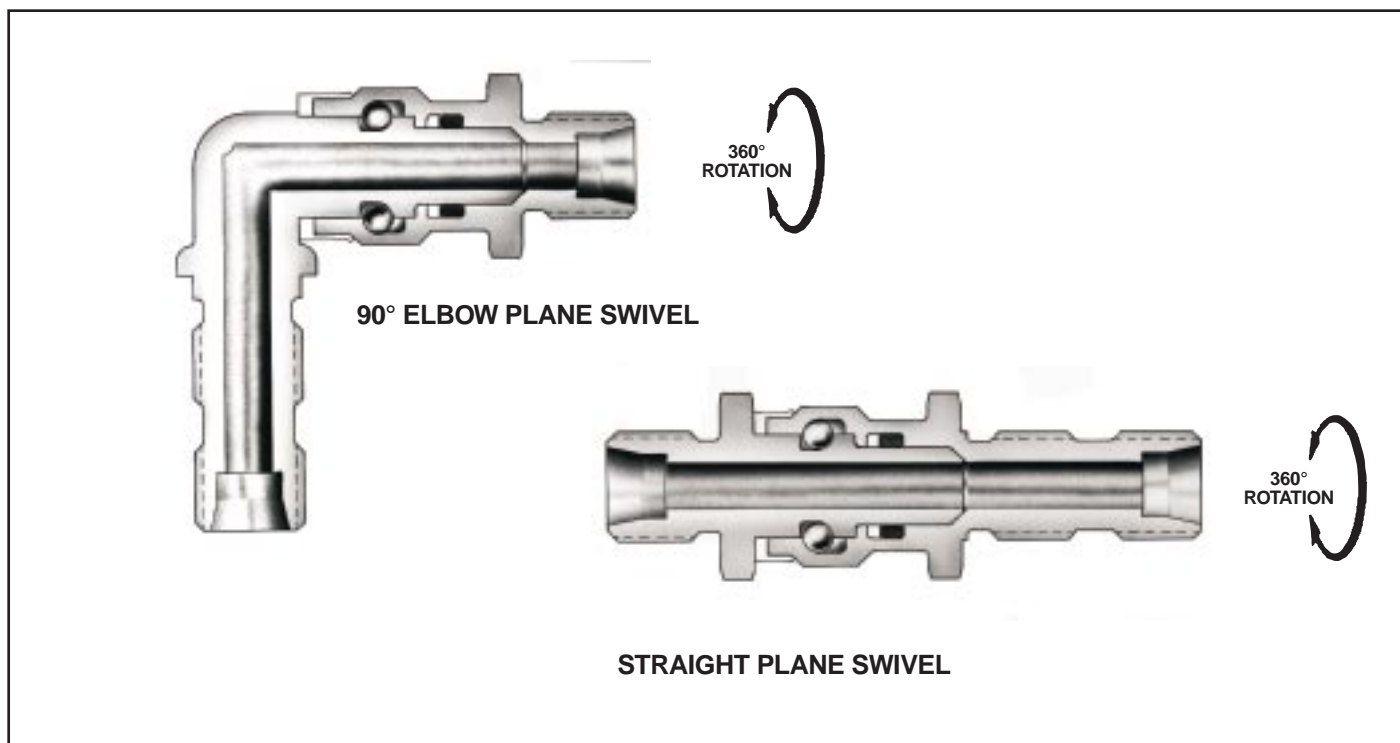
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Stratoflex High Pressure Swivel Joints



APPLICATIONS:

Symetrics high pressure swivel joints are used in liquid or pneumatic systems where torsional rotation between lines is necessary. Typical installations include retractable landing gears, cargo door actuators and any pivoting pressure line. Typical fluid systems include MIL-H-83282 and Skydrol hydraulics, liquid cooling and fuel lines. For compatible mating flex hose applications, refer to Stratoflex catalog 106.

MATERIALS:

BODY - Titanium or CRES

BALL - CRES 440 per QQ-S-763

SEAL - Per fluid/temperature requirements

SIZES:

FITTING ENDS: Per customer requirement

Note: Modified or custom designs are available for special applications.

OPERATION:

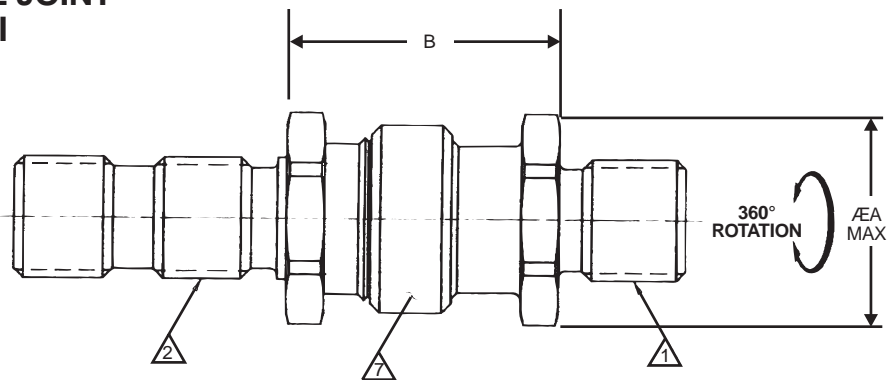
Ball bearing operation gives smooth low torque operation. Qualified at over 100,000 swivel cycles in the side-loading condition per MIL-J-5513C style A Type II for 4000 PSIG systems.

ACCESSORIES:

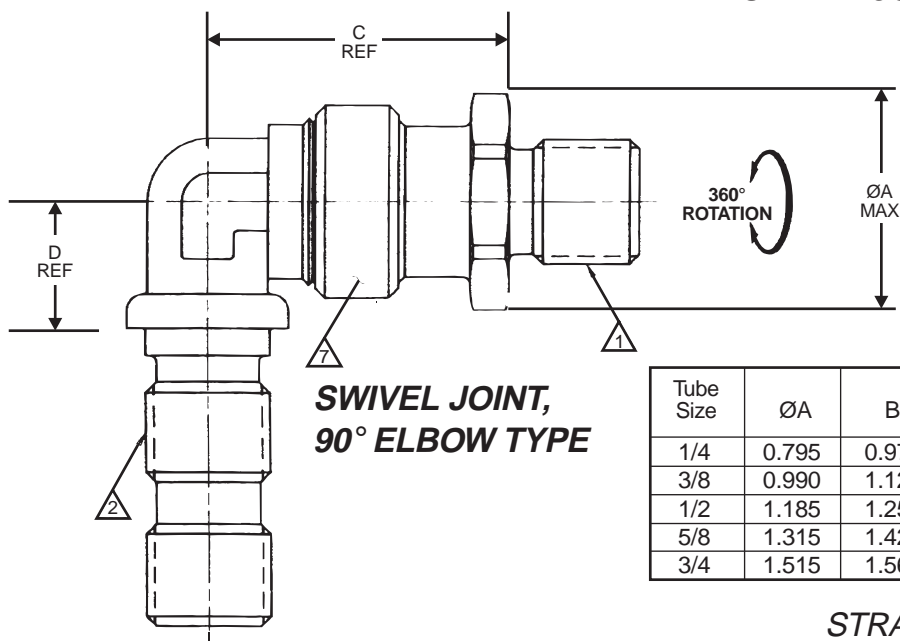
Available with integral PTFE lined hoses per MIL-H-38360, MIL-H-25579, AS614 or AS1975.

Stratoflex High Pressure Swivel Joints

HYDRAULIC SWIVEL JOINT ASSEMBLY, 4000 PSI



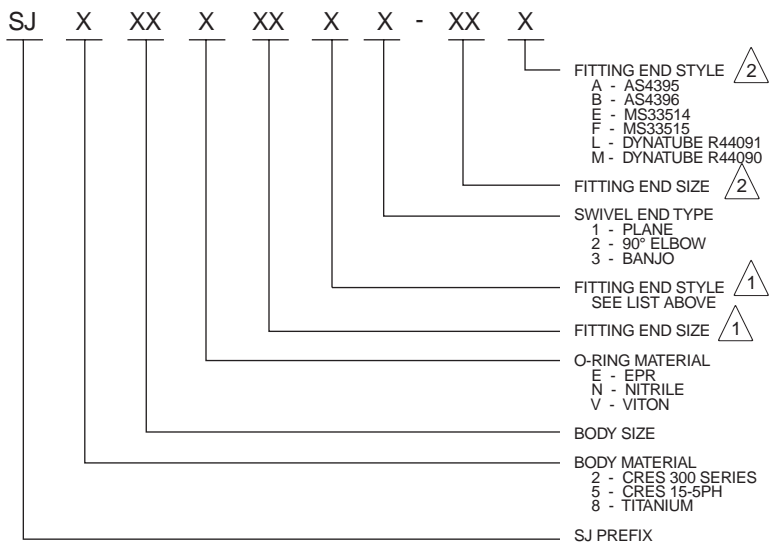
SWIVEL JOINT, PLANE TYPE



SWIVEL JOINT, 90° ELBOW TYPE

Tube Size	ØA	B	C	D	Torque at 4000 PSI In-lbs max	Plane SJ Weight Lbs max
1/4	0.795	0.97	1.11	0.44	2.0	0.08
3/8	0.990	1.12	1.31	0.53	6.0	0.12
1/2	1.185	1.25	1.54	0.60	8.0	0.21
5/8	1.315	1.42	1.75	0.70	12.0	0.29
3/4	1.515	1.56	2.00	0.80	22.0	0.48

STRATOFLEX PART NUMBER



OPERATING CHARACTERISTICS

1. THIS HYDRAULIC SWIVEL JOINT ASSEMBLY MEETS OR EXCEEDS THE APPLICABLE REQUIREMENTS OF MIL-J-5513.
2. FLUID: HYDRAULIC PER CUSTOMER REQUIREMENT.
3. PRESSURE RANGE: OPERATING: 4,000 PSIG
PROOF: 6,000 PSIG
BURST: 12,000 PSIG
4. OPERATING TEMPERATURE: -65°F TO +275°F.
5. AVAILABLE MATERIALS: BODY - TITANIUM OR CRES
BALL - CRES 400 PER QQ-S-763
SEAL - AS PER REQUIREMENT
6. FITTING ENDS: PER CUSTOMER REQUIREMENT.
7. ELECTROETCH IDENTIFICATION ON THIS SURFACE.

Inquire for Special Fitting Ends or Other Design Features.

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3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

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7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes in the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and options, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

Stratoflex Products Division Sales Offices

Most Symetrics products can be integrated with most Stratoflex hose. For technical information on any Symetrics or Stratoflex product, please contact any location listed below.

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