



ALL KEYWAYS ARE IN LINE WITH VALVE DISC

6			DRAWN BY DJD	TOLERANCES (Except as Noted)	 STEALTH INTERNATIONAL INC. www.stealthvalve.com			
5			DATE 03/10/03	DECIMAL ±.005				
4			CHECKED BY Bruce James	FRACTIONAL ±.015	The information contained herein shall not be copied, transferred, conveyed or displayed in any manner that would violate its proprietary nature without the express written permission of STEALTH INTERNATIONAL INC. 1273 North Service Road E. Unit F6 Oakville, Ont. L6H 1A7			
3			DATE -	ANGULAR ±1/2°				
2			APPROVED BY Bruce James	FINISH 125 AARH	FLANGED TORQUE TUBE GENERAL ARRANGEMENT			
1	CONVERTED TO 8.5 X 11	MAR 10/03	DATE -	FILLETS & RADII .031				
RFP			DATE -	BREAK SHARP EDGES	MATERIAL: 316 STAINLESS STEEL	DO NOT SCALE	DRAWING No.	REV
No.	ERN	DATE			PO# -	SCALE:	SVD02009	
REVISIONS					SO# -			

CALCULATIONS:

G=SHEAR MODULUS OF ELASTICITY

J=POLAR MOMENT OF INERTIA

L=LENGTH OF TUBE

4" SCH40 J=38.6595 in⁴

T=APPLIED TORQUE

4" SCH80 J=50.3366 in⁴

ro=OUTER RADIUS

6" SCH40 J=223.6366 in⁴

ri=INNER RADIUS

6" SCH80 J=314.9677 in⁴

∅ = ANGLE OF TWIST

t = MAXIMUM SHEAR STRESS

$$J = \frac{\pi}{2} (r_o^4 - r_i^4) \quad \emptyset = \frac{TL}{JG} \quad t = \frac{Tr_o}{J}$$

Specifications

General Assembly:

All torque tubes shall be fabricated preventing the weight of the inner and outer tube from being transmitted to the valve shaft. All inner and outer tubes shall be manufactured in a steady rest and machined finished and faced with all mounting flanges suitable for gasket sealing. Designs causing stagnant water are unacceptable. Torsional deflection calculations shall be submitted with all bids. All welds shall be continuous and full penetration. All torque tubes shall incorporate a permanent stainless steel tag with the maximum allowable torque to be applied to the assembly. All inner shafts shall be supported and designed for removal from the valve shaft while under non-flowing pressure. Packing retaining plates shall be incorporated in all designs. All torque tubes shall be designed and manufactured in Canada by Stealth International or reviewed equivalent.

Inner Torque Tube:

All inner torque tubes shall be designed for a maximum allowable torsional deflection of .50 degrees over the total required length. Both male and female hubs shall be 316 stainless steel, machined on the O.D., and inserted into the inner pipe a minimum of 75 M.M. (3 inches). All hubs shall be shouldered and fitted to the pipe prior to welding. The male hub shoulder O.D. shall be recessed below the outer tube mounting flange. The female hub length shall be equivalent to the valve shaft height in all cases. The Female hub shall be bored through and double keyed at 90 degrees and engage the entire length of the valve shaft. Blind or capped hubs are not acceptable. When acceptable, all inner torque tubes requiring HDG shall be drilled to prevent explosion. All inner torque tubes requiring HDG shall be tapped and plugged with stainless steel plugs prior to assembly. Stainless steel inner torque tubes do not require plugs.

Outer Torque Tube:

All outer torque tubes shall be designed for a maximum allowable torsional deflection of .50 degrees over the total required length. Both mounting flanges shall be aligned to suit the Valve and Actuator bolt patterns on the same axis. Both flanges shall be machined stepped to accommodate the pipe O.D. prior to welding. The upper mounting flange shall be designed to guide the inner male hub with a maximum clearance of 3.2 M.M. (.125 inches). All outer housing flanges shall be machined faced after assembly. Based on the valve design and mounting trunnion, the upper or lower flange shall incorporate an additional load bearing thrust flange or recess to accommodate the pre assembly of the inner torque tube. The thrust flange shall be 316 stainless steel and incorporate 316 stainless recessed steel mounting hardware. All length's exceeding 6.5 meters shall be coupled using flanges at each length and bolted as an assembly in the field. The internal drive between the connection shall be single key male and female hubs. The flange connection will not serve as the positive drive. All torque tubes shall be manufactured by Stealth International Inc.



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Project Name :

Customer :

P.O.#:

S.O.#:

Approved
By:

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Date Released
to Production

Dwg #: **SVD02009**