

BRONZE EXTENDED CRYOGENIC SHUT-OFF VALVES

ES4 SERIES

0 to 600 PSIG



APPLICATIONS

- Cryogenic Storage Tanks
- Cryogenic Transportation Trailers
- Cryogenic Piping Systems
- ES4 for Continuous Use (i.e: Withdraw)
- ES4B for Intermittent (i.e: Fill & PB) and Cold Gas (i.e: Vent & Trycock) Use



FEATURES

- Solid Stainless Steel Stem
- Low Initial Cost - Low Maintenance
- Low Heat Leak Extension
- Bubble Tight Shut-off
- Self-centering Plug Seal
- Easy In-line Maintenance
- Each Valve is Cleaned and Bagged for Oxygen Service per CGA G-4.1
- Designed to Pressure Class 300# per MSS SP-80



OPTIONS

- Pneumatic and Electric Actuators
- Positioners & Limit Switches
- Linear & Equal % Flow Plugs
- Brazed in Sch 10 Stainless Steel BWE
- Fabricated Valve Assemblies
- Body Cast with Overseat Boss, suitable for Thermal Relief Port Tap
- British Standard Pipe Thread (BSPT)



Valve Size:

1/4" to 2"



OPERATING RANGES

Temperature..... -452° F to +300° F
(-269° C to +149° C)

Max. Operating Pressure 600 PSIG



TECHNICAL DATA

Materials of Construction:

Body	Bronze, ASTM B-61
Stem & Extension	Stainless Steel, 300 Series
Seat Seal	Kel-F, M400H
Packing	TFE, Chevron

Qualification Test:

Functionality	10,000 Full Stroke Cycles
Cryo Seat Leak	600 PSIG I.A.W CPC 43
Proof/Seat Leak	I.A.W. SPTI 170-02

Production Test (I.A.W. SPTI 170-02):

Functionality	Full Stroke
Proof Pressure	660 PSIG
Seat Leak	Bubble Tight @ 600 PSIG
All Valves Tested and Exceed MSS SP-80	

Every valve is individually boxed; installation & maintenance guide included.

Models:

ES4	- Standard Bonnet Extension
ES4B	- Short Bonnet Extension
ES4S	- Extended Stem Only

ORDERING GUIDE

ES4B - 088 - TP G - TW

BASE MODEL NUMBER

ES4 - Standard Length Bonnet
ES4B - Short Bonnet

VALVE SIZE

082 - 1/4"
083 - 3/8"
084 - 1/2"
086 - 3/4"
088 - 1"
812 - 1-1/2"
816 - 2"

CONFIGURATION

TP - Threaded Female Pipe
ST - Silver Brazed Socket, Copper Tube
(1/8" over nominal)
STP** - Silver Brazed Socket Under Seat by
FNPT Threaded Over-seat
TST** - FNPT Under-seat by Silver Brazed
Socket Over-seat

OPTIONS

(blank) - Manual Operated
SG* - Soft Goods Kit
TW* - Top Works Kit Only
PO** - Pneumatic Operated
EO** - Electric Operated

BODY STYLE

G - Manual
R - Right Angle Body 1-1/2" Size Only
(Special Orders Only)

* Top works is complete and assembled with seat, packing and handwheel but without union nut. Order 084 for all 1/4", 3/8" and 1/2" valves. Order 088 for all 3/4" and 1" valves.

** Consult Factory



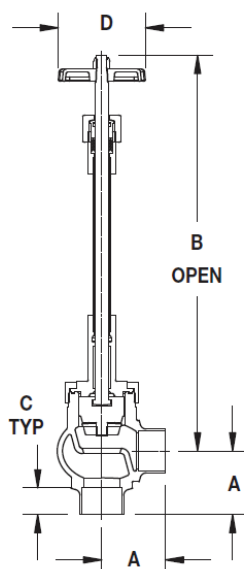
DIMENSIONS

FLOW COEFFICIENT (C_v)

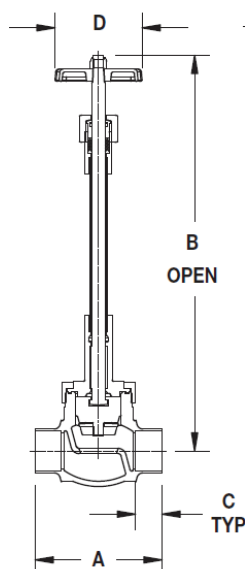
Size	STG	TPG	STR	TPR
1/4	1.2	1.7	-	-
3/8	2.4	3	-	-
1/2	3.9	4.2	-	-
3/4	9.2	10.3	-	-
1	15.2	15.2	-	-
1-1/2	30	30	38.5	38.5
2	50	50	-	-

DIMENSIONS inches AND WEIGHTS pounds

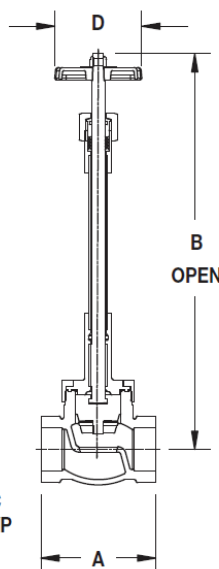
Size	Dimensions								Weight (Approx.)			
	STG	TPG	STR	TPR	ES4	ES4B	C STG STR	D	STG	TPG	STR	TPR
1/4	3.25	2.63	-	-	13.4	8	0.31	3	2.2	2.5	-	-
3/8	3.25	2.63	-	-	13.4	8	0.38	3	2.2	2.4	-	-
1/2	3.25	2.63	-	-	13.4	8	0.5	3	2.2	2.4	-	-
3/4	4.25	3.75	-	-	15.56	9	0.75	3	4.7	5.2	-	-
1	4.25	3.75	-	-	15.56	9	0.92	3	4.7	5	-	-
1-1/2	5.25	4.75	2.63	2.38	16.34	12	1.09	5	9.5	11.1	9.8	11.3
2	6.25	5.75	-	-	17.5	13	1.34	6	16.4	19.4	-	-



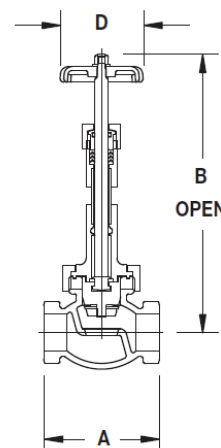
ES4 Right Angle
(1-1/2" Only)



ES4 Solder Tube
Globe



ES4 Threaded
Pipe Globe



ES4B Threaded
Pipe Globe