



## ES4 SERIES

0 - 600 PSIG

1/4" - 2"



## BRONZE EXTENDED CRYOGENIC SHUTOFF VALVES

### Models

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

### Features

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

### Applications

- Cryogenic Storage Tanks
- Cryogenic Transportation Trailers
- Cryogenic Piping Systems
- ES4 for Continuous Use (i.e.: Withdraw)
- ES4B for Intermittant Use (i.e.: Fill & PB)
- ES4S for Cold Gas (i.e.: Vent & Trycock)

### Options

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

### Technical Data

#### Operating Ranges

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

Max. Operating Pressure 600 PSIG

#### Materials of Construction

Body .....Bronze, ASTM B-61

Stem and 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 individually boxed; installation & maintenance guide included.

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0 - 600 PSIG

## How To Order

ES4B - 088 - TPG - TW

**BASIC MODEL NUMBER**

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

**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 Thread Over Seat
- TST\*\* - FNPT Under Seat by Silver Brazed Socket Over Seat
- BS\*\* - BSPT British Standard Pipe Thread

**OPTIONS**

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

**BODY STYLE**

- G - Globe Body
- R - Right Angle Body 1-1/2" Size Only

**FLOW COEFFICIENT (Cv)**

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	—	—

\* 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 inches AND WEIGHTS pounds**

Size	Dimensions								Weight (Approx.)			
	STG	TPG BSG	STR	TPR BSR	ES4	ES4B ES4S	C STG STR	D	STG	TPG BSG	STR	TPR BSR
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	—	—	15.6	9	0.75	3	4.7	5.2	—	—
1	4.25	3.75	—	—	15.6	9	0.92	3	4.7	5	—	—
1-1/2	5.25	4.75	2.63	2.38	16.4	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	—	—

