EliteValve

elitevalve.com

TH2500 Triple Offset Class 150 Butterfly Valve

Technical Brochure

Customized valve solutions
for the toughest applications.

Introduction

TH2500 Triple Offset Butterfly Valve

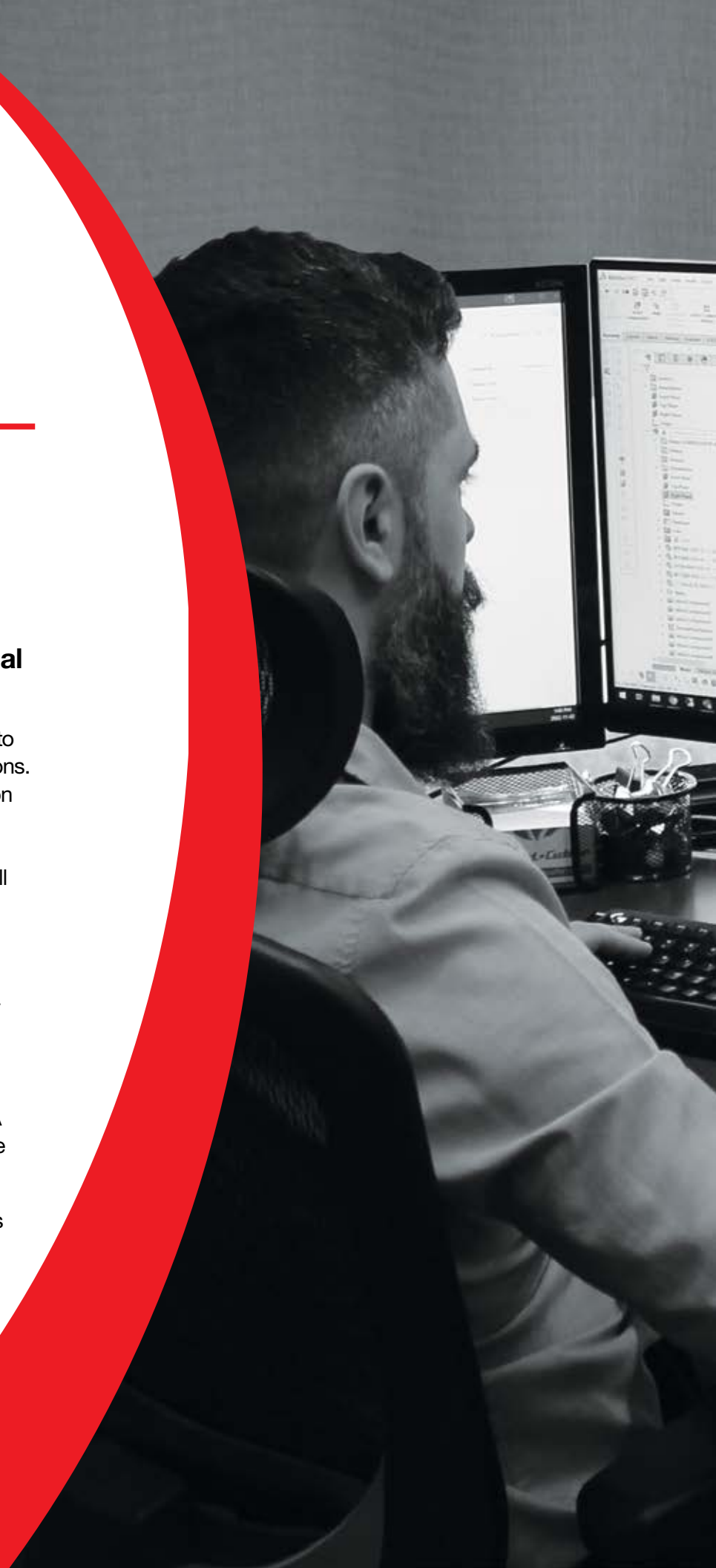
About Elite Valve

Elite Valve is a Canadian valve manufacturer, recognized for delivering engineered valve solutions to process industries worldwide. With decades of experience, Elite Valve has built a reputation for providing exceptional quality and reliable products.

We specialize in offering engineered solutions to address the critical needs of specific applications. This helps ensure long lasting, reliable operation which increases productivity, and profitability, by reducing maintenance and downtime. Our sales personnel, engineers and trained staff will collaborate with you to identify and design the best solutions for your process applications.

Elite Valve is an ISO 9001 registered company, and we strive to deliver world-class support by providing excellent customer service with fast response times for quote requests, application support and technical inquiries. We are also a member of AWWA and coauthor of the AWWA Manual of Water Supply Practices, M72, for the selection and operation of knife gate valves.

We maintain high stock levels for fast deliveries with over 190,000 sq ft of warehouse space in North America, and offer a convenient online resource for standard, ready-to-ship products.



We Provide Engineered Solutions

Elite Valve specializes in providing customized solutions for corrosive, high pressure, and demanding process applications that help our customers improve their process reliability and productivity.

We are committed to pursuing innovation and engineering excellence by pushing the boundaries of valve technology and developing cutting-edge solutions for challenging applications.

Different applications require different types of valves. Elite Valve offers a diverse range of valve products to provide the most appropriate valve solution for reliable operation. We can also customise our products to suit specific process requirements by using alternate materials or applying coatings and treatments to ensure reliability and compatibility.

Elite Valve provides complete valve assemblies that include actuators, sensors, positioners, guarding, and extensions, fully tested prior to delivery.

Sometimes the best solution has not even been designed yet! Utilising our extensive knowledge and experience of valve design, we can even deliver one-off and custom valves to solve unique and challenging applications.

For all our engineered solutions we offer certified drawings, 3D models, full submittal packages as well as copies of any applicable material test reports and certifications. We can also offer leak test and hydro test certificates, certificates of conformance, and AIS compliance certificates on request.

Industries Served

For over 25 years, Elite Valve has committed its efforts to the design and manufacturing of valves for critical and aggressive applications.

We specialize in providing solutions for demanding services in these industries:

- Pulp & Paper
- Mining
- Water & Wastewater
- Steel Manufacturing
- Biofuel
- Chemical
- Oil Sands
- Power Generation
- Oil & Gas
- Paint Manufacturing


Mining & Mineral Processing


Steel Manufacturing


Biofuel


Power Generation


Oil Sands

Triple Offset Butterfly Valve

The TH2500 Triple Offset Butterfly Valve provides long-term reliability and efficiency for steam, gas, solids, and corrosive applications in the oil and gas, chemical, power generation, steel manufacturing, and marine industries. The triple offset design ensures a zero-leakage seal and the high grade materials provide a durable solution for high pressure and high temperature applications.

Sizes Available

3” to 48” (80mm to 1200mm)
(larger sizes available on request)

Pressure Rating

ASME Class 150

Temperature Rating

-20°F to 800°F
(-29°C to 425°C)

Standard Design and Construction

(See page 11 for options)

- CF8M or WCB body
- CF8M or WCB disc
- Stellite 6 body seat
- 17-4PH shaft
- Nitrided 316SS bushings
- Laminated 2205SS + graphite disc seat
- API 622 Low FE graphite packing

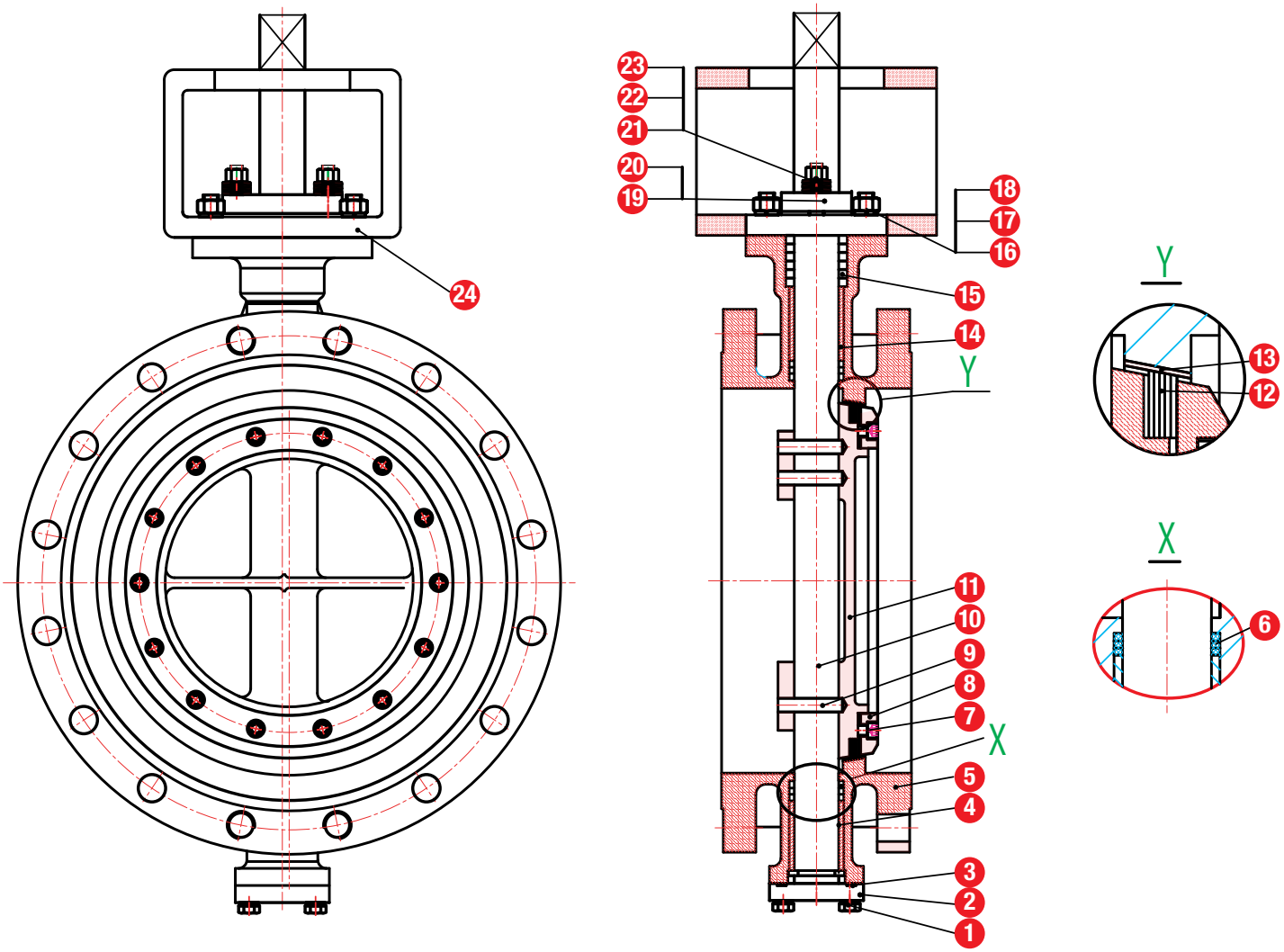
Standards and Approvals

Design:	API 609
Flanges:	ASME B16.5 (3” to 24”) ASME B16.47 Series A (30” to 48”)
Face to Face:	API 609 CAT. B
Testing:	API 598
Markings:	MSS SP-25
Quality:	MSS SP-55, ISO 9001:2015
Registration:	CRN

Key Features and Benefits

- Triple offset design minimizes wear and provides 100% bidirectional shutoff
- Nitrided SS316 bushings ensure minimal wear and reliable operation
- Graphite wiper seals protect bearing integrity
- Stellite 6 body seat provides exceptional wear properties for long-term reliability
- Laminated Duplex and graphite seat ring provides excellent sealing and wear resistance
- API 622 Low Fugitive Emission graphite packing minimizes atmospheric emissions

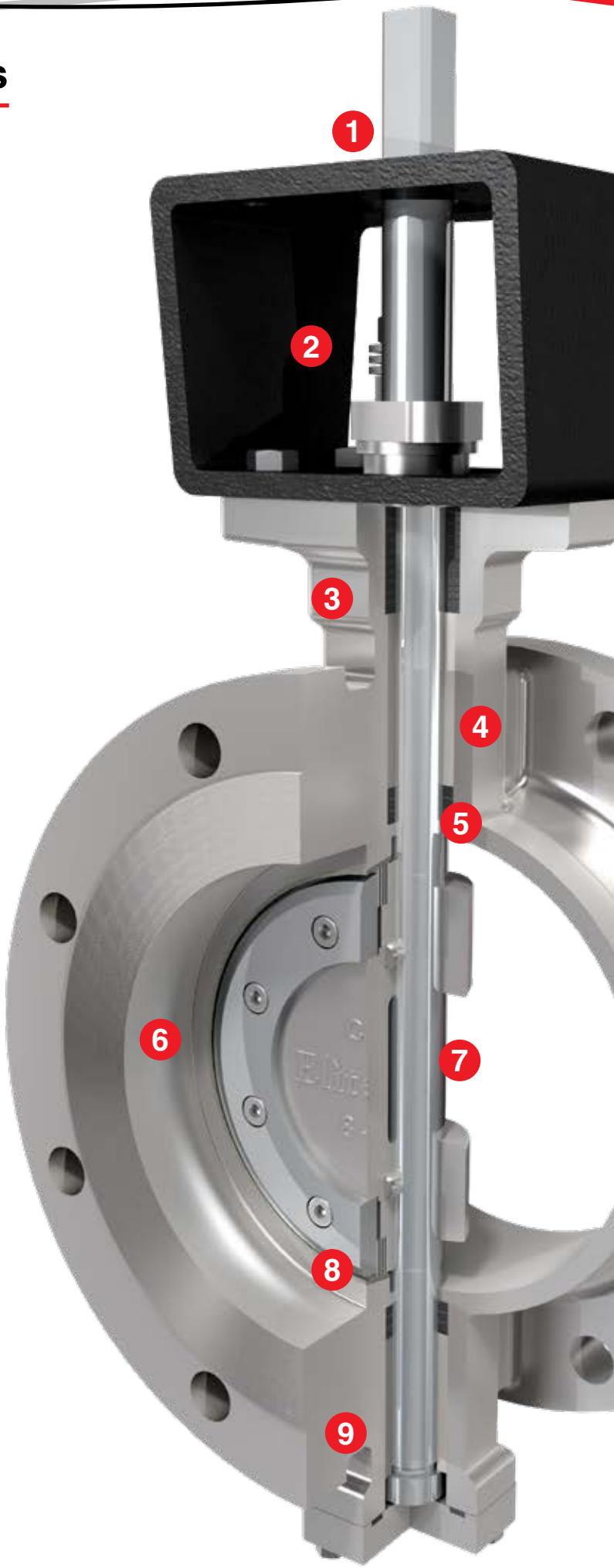
TH2500: Standard Material Specifications



Material Specification							
#	Part	Material		#	Part	Material	
1	Hardware, Bolt	ASTM A193 B7	ASTM A193 B8M	13	Body Seat	Stellite 6	
2	Bottom Cap	ASTM A105N	316 SS	14	Top Bushing	Nitrided 316 SS	
3	Gasket	Graphite		15	Packing	API 622 Graphite	
4	Bottom Bushing	Nitrided 316 SS		16	Hardware, Nut	ASTM A194 2H	ASTM A194 8M
5	Body	ASTM A216 WCB	ASTM A351 CF8M	17	Hardware, Washer	AISI 1566	316 SS
6	Wiper	Graphite		18	Hardware, Stud	ASTM A193 B7	ASTM A193 B8M
7	Hardware, Screw	ASTM A193 B7	ASTM A193 B8M	19	Backing Gland Bushing	AISI 1045	316 SS
8	Disc Seat Retaining Ring	ASTM A105N	A182 F316	20	Packing Gland	ASTM A105	316 SS
9	Pin	17-4PH	316 SS	21	Hardware, Nut	ASTM A194 2H	ASTM A194 8M
10	Stem	17-4PH H1150D		22	Hardware, Disc Spring	304 SS	316 SS
11	Disc	ASTM A216 WCB	ASTM A351 CF8M	23	Hardware, Stud	ASTM A193 B7	ASTM A193 B8M
12	Disc Seat	Laminated 2205 SS + Graphite		24	Bracket	AISI 1020	

TH2500: Features and Benefits

1. ISO 5211 mounting allows easy installation of various operators and actuators.
2. Adjustable packing gland also permits field repairs to be completed.
3. API 622 Low Fugitive Emission graphite packing provides superior sealing minimizing atmospheric emissions.
4. Upper and lower bushings are made from nitrided 316SS to ensure minimal wear and reliable operation.
5. Graphite bearing wiper seals prevent intrusion of contaminants to protect bearing integrity.
6. Stellite 6 body seat provides exceptional wear properties for long-term reliability.
7. Single piece shaft is constructed from 17-4PH H1150D for maximum strength and corrosion resistance.
8. The laminated Duplex and graphite seat ring provides excellent sealing and wear resistance to ensure 100% shut off.
9. All metal and graphite construction is inherently fire safe.



TH2500: Part Number Reference

THF	Pressure Class	Size	Body Material	Disc Material	Seat Material	Shaft Material	Bushing Material	Seal Ring Material	Packing	Operator	Options
THF	15	06	1	1	6	3	5	5	1	X	

Models

Code	
✓ THF	**Flanged**
✓ THL	**Lugged**
✓ THW	**Wafer**

Pressure Class

Code	
✓ 15	**150**

Sizes

Code	
✓ 03	**3"**
✓ 04	**4"**
✓ 05	**5"**
✓ 06	**6"**
✓ 08	**8"**
✓ 10	**10"**
✓ 12	**12"**
14	14"
16	16"
18	18"
20	20"
24	24"
30	30"
36	36"
42	42"
48	48"

Body Materials

Code	
✓ 1	**A216 WCB**
✓ 2	**A351 CF8M**
4	2205 SS

Disc Materials

Code	
✓ 1	**A216 WCB**
✓ 2	**A351 CF8M**
4	2205 SS

Body Seat Materials

Code	
✓ 6	**Stellite 6**
0	Stellite 21

Shaft Materials

Code	
✓ 3	**17-4 PH H1150D**
4	2205 SS
7	Inconel 718

Bushing Materials

Code	
✓ 5	**316 SS + Nitriding**
6	Alloy 660 + Chrome

Disc Seat Materials

Code	
✓ 5	**2205 SS + Graphite**
3	Inconel 718

Packing

Code	
✓ 1	**API 622 Low FE Graphite**
2	PTFE

Operators & Actuators

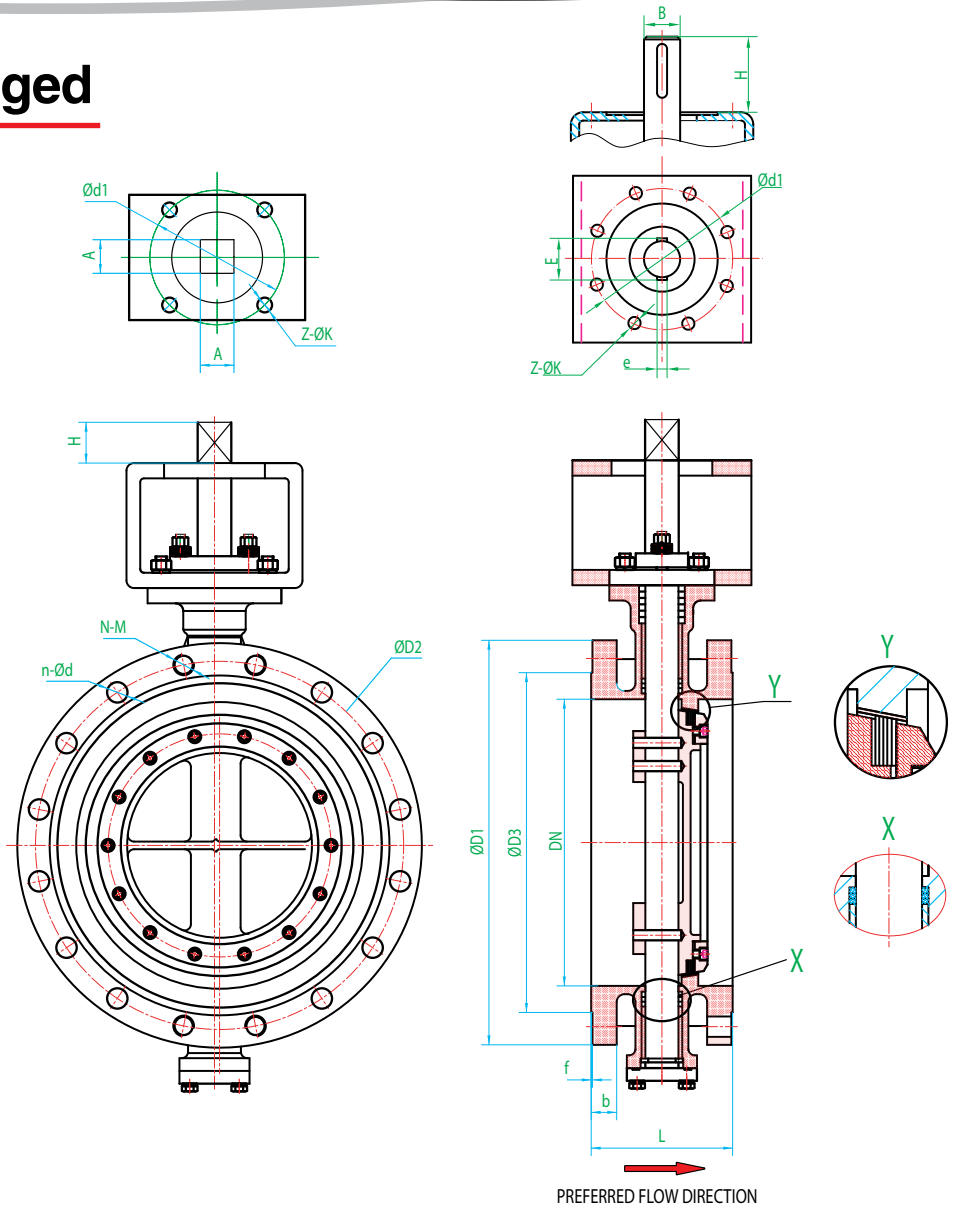
Code	
✓ X	**Bare Stem**
5	Gearbox
6	Rack & Pinion - Double Acting
7	Rack & Pinion - Fail Close
8	Rack & Pinion - Fail Open
9	Electric Actuator On/Off
9(M)	Electric Actuator Modulating
C	Chainwheel
S	Scotch Yoke - Double Acting
S(F)	Scotch Yoke - Fail Close

Options

Code	
✓	**None**
8	Low Temp Rack & Pinion
9	High Temp Rack & Pinion
B	Lockout Bracket
E	Stem Extension
F	Air Filter / Reg
P	Positioner
U	Positioner + Feedback
S	Solenoid Valve
O	Oversized Rack & Pinion
L	Mech Limit Switch
D	Declutching Gear

✓ **Standard**

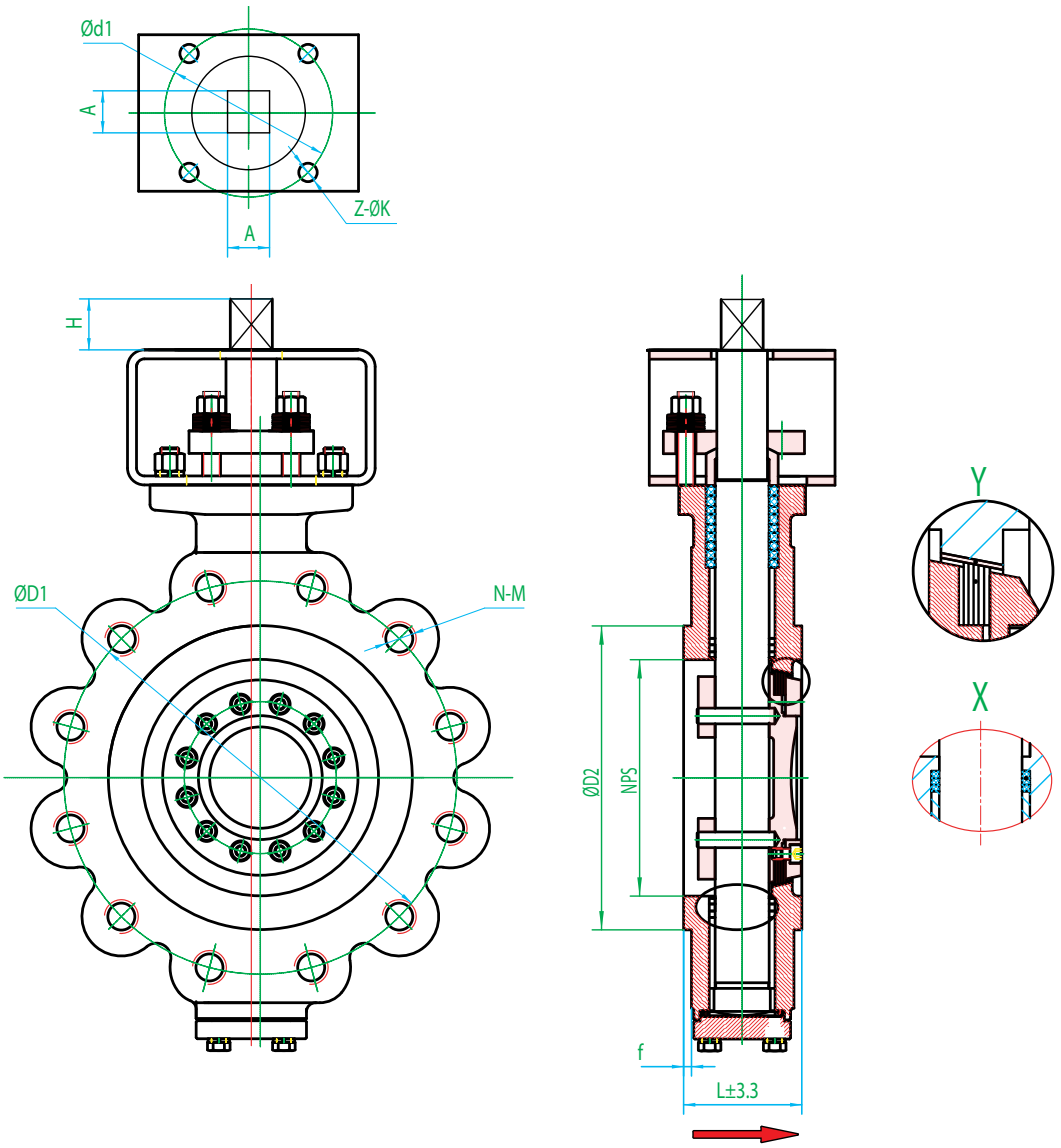
TH2500: Flanged



PREFERRED FLOW DIRECTION

Dimensions																	
NPS	DN	L	D1	D2	D3	b	f	n-Ød	N-M	ISO	d1	Z-ØK	A	ØB	e	E	H
		inch	inch	inch	inch	inch	inch	inch	inch	5211	inch	inch	inch	inch	inch	inch	inch
3	80	4.5	7.5	6.0	5.0	1.0	0.08	4xØ19	-	F07	2.76	4xØ0.39	0.55				1.57
4	100	5.0	9.1	7.5	6.2	1.0	0.08	8xØ19	-	F07	2.76	4xØ0.39	0.67				1.57
6	150	5.6	11.0	9.5	8.5	1.0	0.08	8xØ22	-	F10	4.02	4xØ0.47	0.87				1.97
8	200	6.0	13.6	11.8	10.6	1.1	0.08	8xØ22	4x7/8-9UNC	F12	4.92	4xØ0.55	1.06				1.97
10	250	6.5	15.9	14.3	12.7	1.2	0.08	8xØ25.5	4x7/8-9UNC	F12	4.92	4xØ0.55	1.06				2.36
12	300	7.0	19.1	17.0	15.0	1.3	0.08	8xØ25.5	4x1-8UNC	F14	5.51	4xØ0.71	1.42				2.36
14	350	7.5	21.1	18.8	16.3	1.4	0.08	8xØ28.5	4x1-8UNC	F14	5.51	4xØ0.71	1.42				2.36
16	400	8.5	23.4	21.3	18.5	1.5	0.08	12xØ28.5	4x1-1/8-8UN8	F16	6.50	4xØ0.87	1.81				3.15
18	450	8.7	25.0	22.8	21.0	1.6	0.08	12xØ32	4x1-1/8-8UN8	F16	6.50	4xØ0.87	1.81				3.15
20	500	9.0	27.6	25.0	23.0	1.7	0.08	16xØ32	4x1-1/4-8UN8	F25	10.00	8xØ0.71	1.81				3.15
24	600	10.5	32.1	29.5	27.3	1.9	0.08	16xØ35	4x1-1/4-8UN8	F25	10.00	8xØ0.71	2.17				3.54
30	750	12.5	38.8	36.0	33.7	2.9	0.08	24xØ35	4x1-1/2-8UN8	F30	11.73	8xØ0.86		3.54	0.98	3.94	5.12
36	900	13.0	46.1	42.7	40.2	3.6	0.08	28xØ41	4x1-1/2-8UN8	F35	14.0	8xØ1.30		4.33	1.10	4.80	6.69
42	1050	16.1	53.0	49.5	47.0	3.8	0.08	32xØ41	4x1-1/2-8UN8	F35	14.02	8xØ1.30		4.33	1.10	4.80	6.69
48	1200	18.5	59.4	56.0	53.5	4.2	0.08	40xØ41	4x1-1/2-8UN8	F40	15.98	8xØ1.54		5.51	1.42	6.14	7.87

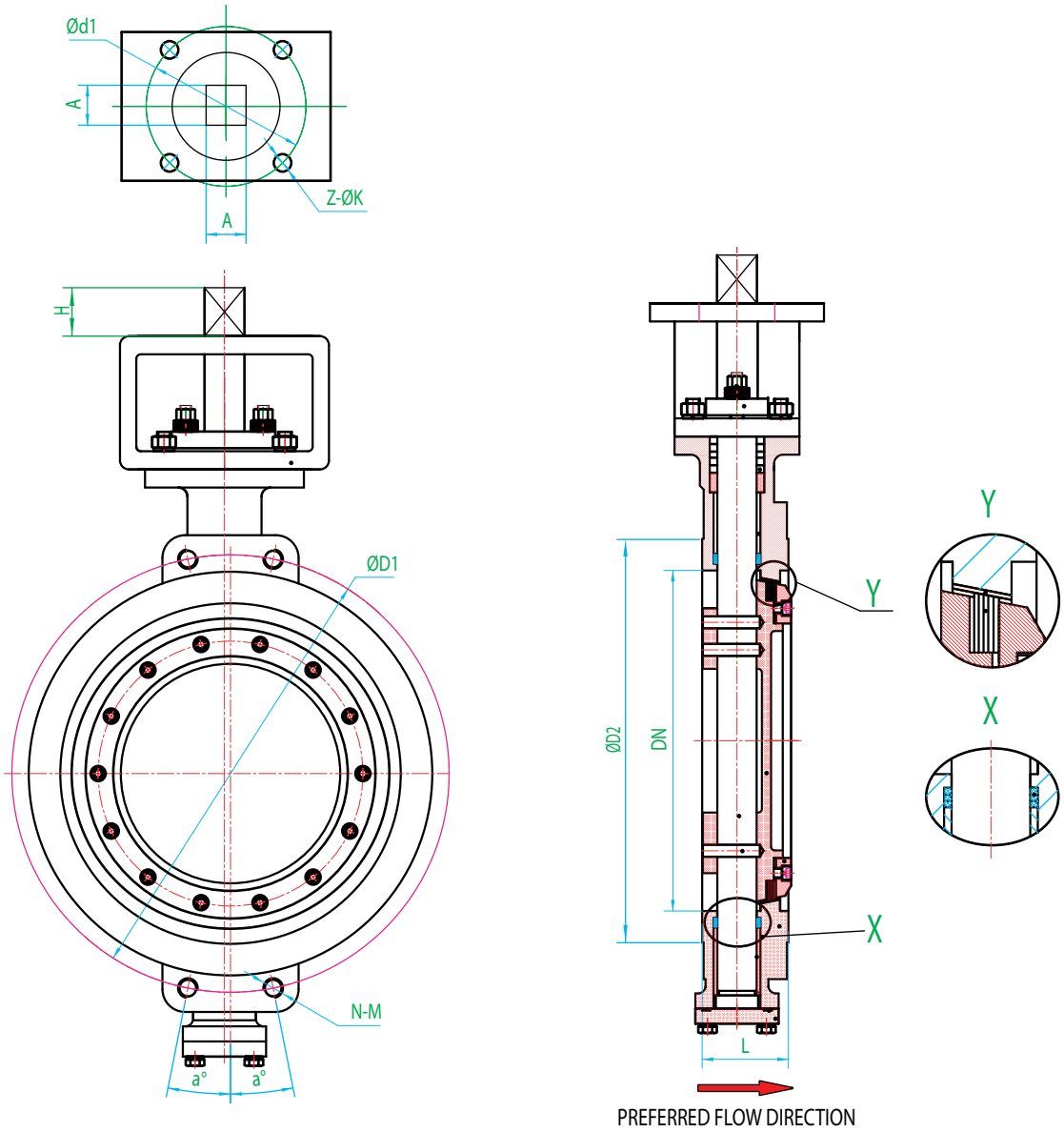
TH2500: Lugged



PREFERRED FLOW DIRECTION

Dimensions											
NPS	DN	L	D1	D2	f	N-M	ISO	d1	Z-ØK	A	H
		inch	inch	inch	inch	inch	5211	inch	inch	inch	inch
3	80	1.9	6.0	5.0	0.08	4x5/8-11 UNC	F07	2.76	4xØ0.39	0.55	1.57
4	100	2.1	7.5	6.2	0.08	8x5/8-11 UNC	F07	2.76	4xØ0.39	0.67	1.57
6	150	2.2	9.5	8.5	0.08	8x3/4-10 UNC	F10	4.02	4xØ0.47	0.87	1.97
8	200	2.5	11.8	10.6	0.08	8x3/4-10 UNC	F12	4.92	4xØ0.55	1.06	1.97
10	250	2.8	14.3	12.7	0.08	12x7/8-9 UNC	F12	4.92	4xØ0.55	1.06	2.36
12	300	3.2	17.0	15.0	0.08	12x7/8-9 UNC	F14	5.51	4xØ0.71	1.42	2.36
14	350	3.6	18.8	16.3	0.08	12x1-8 UNC	F14	5.51	4xØ0.71	1.42	2.36
16	400	4.0	21.3	18.5	0.08	16x1-8 UNC	F16	6.50	4xØ0.87	1.81	3.15
18	450	4.5	22.8	21.0	0.08	16x1-1/8-8 UN8	F16	6.50	4xØ0.87	1.81	3.15
20	500	5.0	25.0	23.0	0.08	20x1-1/8-8 UN8	F25	10.00	8xØ0.71	1.81	3.15
24	600	6.1	29.5	27.3	0.08	20x1-1/4-8 UN8	F25	10.00	8xØ0.71	2.17	3.54

TH2500: Wafer



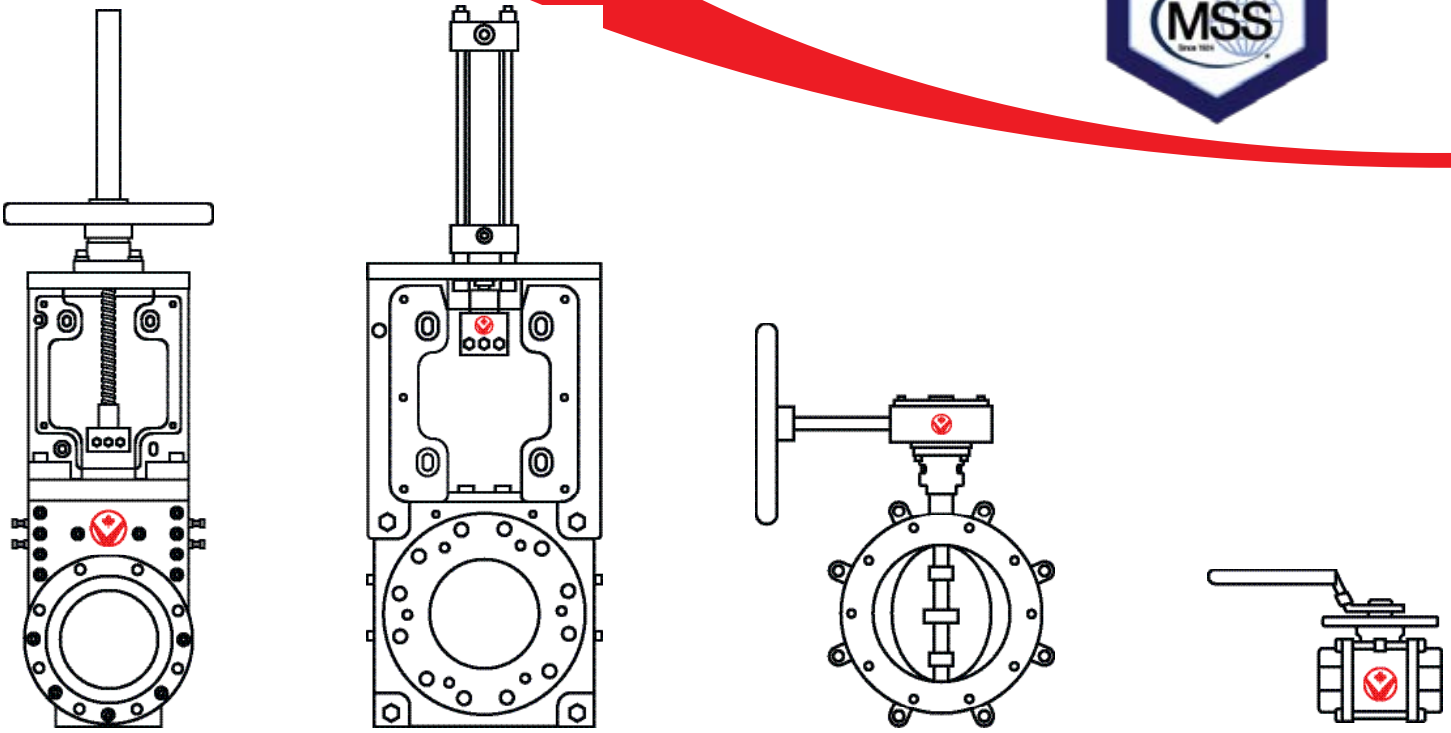
Dimensions											
NPS	DN	L	D1	D2	a°	N-M	ISO	d1	Z-ØK	A	H
		inch	inch	inch	inch	inch	5211	inch	inch	inch	inch
3	80	1.9	6.0	5.0	-	-	F07	2.76	4xØ0.39	0.55	1.57
4	100	2.1	7.5	6.2	-	-	F07	2.76	4xØ0.39	0.67	1.57
6	150	2.2	9.5	8.5	-	-	F10	4.02	4xØ0.47	0.87	1.97
8	200	2.5	11.8	10.6	-	-	F12	4.92	4xØ0.55	1.06	1.97
10	250	2.8	14.3	12.7	-	-	F12	4.92	4xØ0.55	1.06	2.36
12	300	3.2	17.0	15.0	15°	4x7/8-9 UNC	F14	5.51	4xØ0.71	1.42	2.36
14	350	3.6	18.8	16.3	15°	4x1-8 UNC	F14	5.51	4xØ0.71	1.42	2.36
16	400	4.0	21.3	18.5	9°	4x1-8 UNC	F16	6.50	4xØ0.87	1.81	3.15
18	450	4.5	22.8	21.0	9°	4x1-1/8-8 UN8	F16	6.50	4xØ0.87	1.81	3.15
20	500	5.0	25.0	23.0	11.25°	4x1-1/8-8 UN8	F25	10.00	8xØ0.71	1.81	3.15
24	600	6.1	29.5	27.3	11.25°	4x1-1/4-8 UN8	F25	10.00	8xØ0.71	2.17	3.54

ASME B16.34 Class 150 Pressure-Temperature Chart

	Cast	A351 CF8 [1]	A351 CF8M [1]	A351 CG8M [3]	A351 CK3MCuN	A494 CY40	A494 CW-12MW [3][5]	A351 CN7M [5]	A995 Gr. 4A CD3MN	A995 Gr. 5A CE3MN	A216 WCB [7]	A352 LCC [8]
	UNS	J92600	J92900	J93000	J93254	N06040	N30002	N08007	J92205	J93404	J03002	-
	Wrought	A240	A240	A240	254 SMO	B168	B575	B463	A240	A240	-	-
	Wrought UNS	S30400	S31600	S31700	S31254	N06600 [4]	N10002	N08020	S31803 [6]	S32750 [6]	G10300	-
	Common Name	304ss	316ss	317ss	254 SMO	Inconel 600	Hastelloy C276	Alloy 20	2205ss	2507ss	WCB	LCC
Temp.	Material Group	2.1	2.2	2.2	2.8	3.5	3.15	3.17	2.8	2.8	1.1	1.2
°C	°F											
-29	-20	275	275	275	290	290	230	230	290	290	285	290
38	100	275	275	275	290	290	230	230	290	290	285	290
93	200	230	235	235	260	260	210	200	260	260	260	260
149	300	205	215	215	230	230	200	180	230	230	230	230
204	400	190	195	195	200	200	190	160	200	200	200	200
260	500	170	170	170	170	170	170	150	170	170	170	170
316	600	140	140	140	140	140	140	140	140	140	140	140
343	650	125	125	125	125	125	125		125	125	125	125
371	700	110	110	110	110	110	110		110	110	110	110
399	750	95	95	95	95	95	95		95	95	95	95
427	800	80	80	80		80	80				80	80
454	850	65	65	65		65	65				65	65
482	900	50	50	50		50	50				50	50
510	950	35	35	35		35	35				35	35
538	1000	20	20	20		20	20				20	20
566	1050	20 [2]	20	20		20 [2]	20 [2]					
593	1100	20 [2]	20 [2]	20 [2]		20 [2]	20 [2]					
621	1150	20 [2]	20 [2]	20 [2]		20 [2]	20 [2]					
649	1200	20 [2]	20 [2]	20 [2]		20 [2]	20 [2]					
677	1250	20 [2]	20 [2]	20 [2]			20 [2]					
704	1300	20 [2]	20 [2]	20 [2]			20 [2]					
732	1350	20 [2]	20 [2]	20 [2]			20 [2]					
760	1400	20 [2]	20 [2]	20 [2]			20 [2]					
788	1450	20 [2]	20 [2]	20 [2]			20 [2]					
816	1500	15 [2]	15 [2]	15 [2]			15 [2]					

(1) At temperatures over 1,000°F, use only when the carbon content is 0.04% or higher.
(2) Flanged-end valve ratings terminate at 1,000°F.
(3) Not to be used over 1,000°F.
(4) Use annealed material only.
(5) Use solution annealed material only.
(6) This steel may become brittle after service at moderately elevated temperatures. Not to be used over 600°F.
(7) Upon prolonged exposure to temperatures above 800°F, the carbide phase of steel may be converted to graphite. Permissible, but not recommended for prolonged use above 800°F
(8) Not to be used over 650°F.

Elite Valve is a proud member of the Manufacturers Standardization Society of the Valve and Fitting Industry Inc.



EliteValve

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Our North American manufacturing and testing facility is located in Oakville, Ontario and houses over 190,000 sq ft of inventory.

Contact us at sales@elitevalve.com and our engineering team will work with you to address your process application needs.

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