CRANE CRYOGENICS

CRYOWorks

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CRYOGENIC VALVES

www.cranecryogenics.com

WE KNOW CRYO®

REDUCED HEAT FLUX. INCREASED FLOW RATE.

CRANE® Cryogenics™ Vacuum Jacketed, Bellows Seal Globe, and Lift-Check Valves minimize heat transfer rates, reduce pipeline latency in liquid transfer applications and leverage 170 years of Crane® valve technology for zero-leak design


WE KNOW CRYO®

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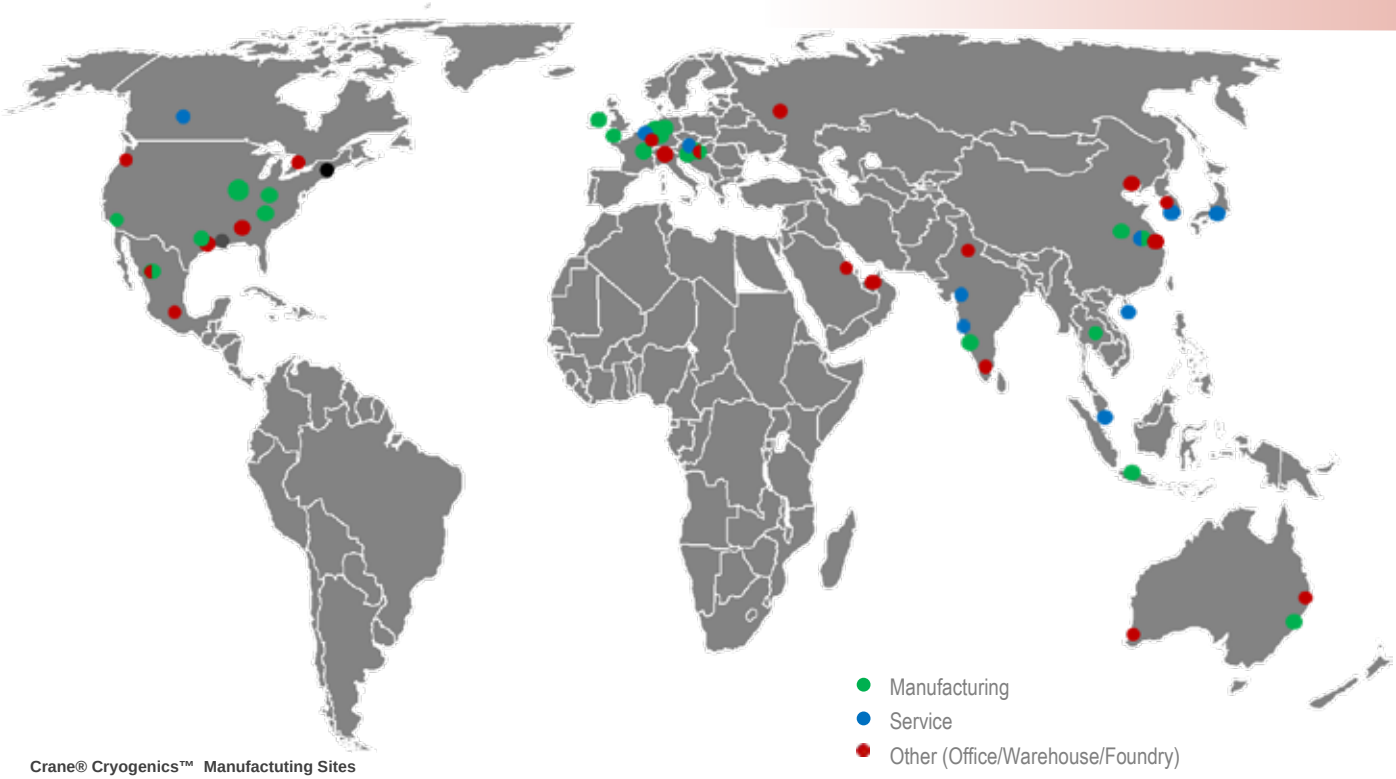
Crane ChemPharma & Energy

INTRODUCTION

Crane Co. is a diversified manufacturer of highly engineered industrial products with a substantial presence in a number of focused niche markets. We are dedicated to integrity and honest dealings in all that we do.

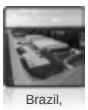
Crane CP&E designs and manufactures a variety of high performance products including: highly-engineered check valves, sleeved plug valves, lined valves, process ball valves, high performance butterfly valves, bellows sealed globe valves, aseptic and industrial diaphragm valves, multi/quarter-turn valves, actuation, sight glasses, lined pipe, fitting and hoses, and air-operated diaphragm and peristaltic pumps. Its trusted brands are in use worldwide in many industries, including Oil & Gas, Oil Refining, Petrochemical, Power Generation, Chemical Processing, Biotechnology, and Pharmaceutical.

Crane CP&E
WORLDWIDE



Crane® Cryogenics™ Manufactuting Sites


Jurupa Valley, CA


Brazil, IN


Conroe, TX


Cincinnati, OH

CPE MANUFACTURING SITES


Marion, NC


Saddle Brook, NJ


Muta, SL


Lindau, DE


Kreuztal, DE


Duesseldorf, DE


Cwmbran, UK


Satara, India


Suzhou, China


Ningjin, China


Singapore

AMERICAS

CHIHUAHUA, MEX • CINCINNATI,OH • CULLMAN, AL • EDMONTON, AB GONZALES, LA • HOUSTON, TX • MARION, NC MEXICO CITY,MEX • PORTLAND, OR • SADDLE BROOK, NJ • SPARTANBURG, SC, HQ: THE WOODLANDS (HOUSTON), TX

EUROPE

BELFAST, UK • CWMBRAN, UK, CRONING , SL • DÜSSELDORF, DE • KREUZTAL, DE • LINDAU, DE • SZÉKESVERHÉRVÁR, HU MUTA, SL • MAXDORF, DE • MONZA, IT • MULHOUSE, FR • BERGSCHENHOEK, NL WAALWIJK, NL • WAVRE, BE • WR. NEUDORF, AT

ASIA

BEIJING, PRC • CHENNAI (MADRAS), INDIA KANAGAWA, JAPAN • NINJIN, PRC • PUNE, INDIA SATARA, INDIA • SHANGHAI, PRC SINGAPORE • SUZHOU, PRC • VIRALIMALAI, INDIA

AUSTRALIA

BRISBANE • KEWDALE • MELBOURNE • ST. MARYS

MIDDLE EAST

AL KHOBAR, SAUDI ARABIA • DUBAI, UAE

Process Flow Technologies
VALVE GROUP

BRANDS YOU TRUST

Cryogenics

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Chemical Process & Pharma

XOMOX · revo · RESISTOFLEX · TUFLINE · Saunders · DEPA · w.t.a. · ELRO · ResistoPure · WESTLOCK · BAUM

Energy

CRANE · STOCKHAM · ALOYCO · DUO-CHEK · NOZ-CHEK · KROMBACH · HOKE · GO · DOPAK · VOTES

Local SERVICE

CRANE is committed to delivering efficient service and local technical expertise.

Crane is built on quality principles and practices to achieve the best safety, quality, performance, delivery, service and total cost.

Our vision as a global provider is to be the Supplier of Choice for on/off process valve solutions in chemical, power and refining, known for best-in-class customer responsiveness.

- **Quick access to high-demand stock**
- **Engineering support**
- **System design and drawings**
- **MRO services**
- **Training and testing**

ABOUT
CRANE® CRYOGENICS

For cryogenic systems to perform with maximum reliability and efficiency across advanced applications, industries like semiconductors, aerospace, space launch, pharmaceuticals, hydrogen energy, and food preservation rely on precision-engineered PVF (Pipe, Valves, and Fittings) components. Crane Cryogenics™ brings decades of expertise in extreme temperature and severe service environments, delivering solutions where precision, safety, and performance are non-negotiable.

Crane® Solutions for Cryogenics:

- Aerospace and Space Launch
- Pharmaceuticals & Medical
- Semiconductors
- Food & Scientific Research
- Liquid Hydrogen Applications & Clean Energy

CRYOGENICS VS UNIVERSAL **COSMIC COLD**

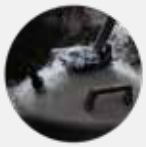
How cryogenic fluids compare to low temperatures across the universe

0°C
MELTING POINT OF ICE

-56°C
AVERAGE TEMPERATURE IN EARTH'S STRATOSPHERE

-162°C
LNG'S BOILING POINT

-183°C
OXYGEN'S BOILING POINT



-186°C
ARGON'S BOILING POINT

-196°C
NITROGEN'S BOILING POINT

-253°C
HYDROGEN'S BOILING POINT

-269°C
HELIUM'S BOILING POINT

-270°C
AVERAGE TEMPERATURE OF COSMIC BACKGROUND RADIATION

-273°C
ABSOLUTE ZERO

INTRODUCING CRYOGENIC VALVE SOLUTIONS

Crane Cryogenics™ offers a distinguished product lineup of vacuum-jacketed valve solutions designed for cryogenic applications, delivering specialized and efficient solutions for the industry.

Bellows Seal T-Globe Valve

Crane® has launched a new line of bellows seal globe valves for hydrogen transfer. The valves feature a number of innovative design features that make them ideal for hydrogen transfer applications and are available in a variety of sizes and configurations to meet the needs of different applications. They are also backed by Crane's® comprehensive warranty and support program.

Bellows Seal Y-Globe Valve

Introducing the Crane® Bellows Seal Y-Globe Valve: Engineered for superior performance, our Y-pattern globe valve delivers a significantly lower pressure drop compared to traditional vertical globe valves. The innovative non-rotating stem design minimizes friction on moving components, extending the life of the stem packing. Experience effortless operation and reliable tight shutoff, even under extreme pressure conditions, with the Crane® Bellows Seal Y-Globe Valve.

Angle Valve

Crane Cryogenics™ has engineered a Bellows Seal Angle Valve for compact flow systems. With the inlet and outlet 90 degrees apart, this valve acts as an elbow to redirect flow. This combined design allows it to occupy less space and have a higher CV compared to a standard valve and elbow pair. With multiple trims offered, Crane Angle valves are ideal for flow control operations.

Lift Check Valve

Crane® Lift Check Valve is designed to eliminate the risks of system backflow. This valve allows fluid flow in one direction while preventing reverse flow, ensuring unidirectional fluid flow. Ideal for liquid hydrogen, oxygen and other cryogenic applications, the Crane® Lift Check Valve offers exceptional reliability and versatility. With its proven durability and resistance to extreme temperatures, it guarantees leak-free operation in even the most demanding environments.

Crane Cryogenics™ offers a specialized lineup of vacuum-jacketed valves engineered for high-performance cryogenic applications. Delivered through our legacy **TECHNIFAB®** product line, these solutions reflect a trusted heritage of precision, efficiency, and durability in cryogenic flow control.

Techflow TV - Series

Engineered for ultra-low cryogen loss, the Techflow TV Series delivers reliable performance and long-term cost savings. Built by Technifab and offered through Crane Cryogenics™ , these vacuum jacketed valves feature bubble-tight closure, low torque operation, and modular design for enhanced safety. Ideal for bulk tank shut-offs, point-of-use isolation, and system expansion, the TV Series combines precision engineering with durable construction. Linear flow plug options and automated actuation are available to meet diverse system needs

Techflow TV - Tube Series

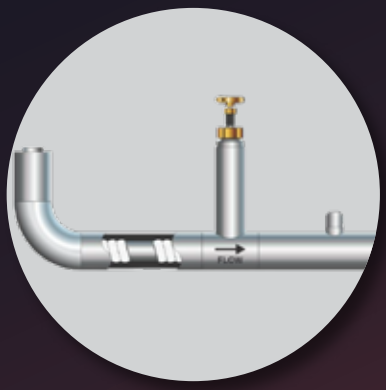
Precision-built for cryogenic efficiency, these compact vacuum jacketed valves deliver bubble-tight closure and low-torque operation for easy control in tight spaces. Ideal for transfer hose shut-offs, lab use, and point-of-use delivery, they offer quick seal replacement and optional flow control for versatile cryogen management. Designed and manufactured by Technifab to reduce heat leak and cryogen loss across high-performance systems.

Techflow TE - Series

Designed for safe, high-performance cryogenic flow control, the TE Series features bubble-tight closure, low-torque operation, and a high Cv for improved throughput. With ASME B16.34 compliance and stainless steel construction, these valves are built to withstand caustic environments while enabling easy installation and seal replacement. Ideal for bulk tank shut-offs, trailer loading/unloading, and system expansion across liquefied and gaseous applications.

Emergency Shut-Off Valves

Designed for rapid response in critical situations, this valve ensures immediate cessation of cryogen flow to protect personnel and equipment. Featuring a flexible, self-aligning PCTFE seat and options for pneumatic or electric actuation, it integrates seamlessly into new or existing systems. Ideal for safety-centric cryogenic setups, with ASME B16.34 compliance and modular installation flexibility.



Bulk Tank Withdrawal Valve

Engineered for frost-free performance, this vacuum insulated valve connects bulk or microbulk tanks to cryogenic systems with minimal heat leak. Its advanced insulation preserves high-quality liquid at colder temperatures, reducing two-phase flow and cryogen loss for cost-efficient operation. Designed to eliminate ice ball formation and ease manual shut-off, it supports safe, low-maintenance use across demanding environments.

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TECHFLOW TV-SERIES

Vacuum Jacketed Cryogenic Valves

BENEFITS

- Twenty times less cryogen loss versus non-vacuum jacketed cryogenic valves equates to lower operation costs.
- Bubble tight closure means tighter seal at cryogenic temperatures preventing possible equipment problems.
- Vacuum jacketing insures safe to touch usage. Low torque for easy on/off operation.
- Quick and easy seal replacement reduces downtime.
- ***Linear Flow Plug option available for Model 840***
- ***Modular Shutoff Valves Available***
  Modular and Integrated for upgraded safety

KEY FEATURES

- Self-aligning, PCTFE seat designed for flexibility and solid closure at cryogenic temperatures.
- Port on bonnet for relief valve, purge valve, or pressure gauge installation.
- Pneumatic or electric actuators available for automated operation.
- ASME B16.34 code compliance available.
- One year warranty if sold separately.

APPLICATIONS

Bulk Tank Shut-offs.

System Branches for Pipe and Equipment Isolation.

Point-of-Use Valves.

System Expansion / Re-Routing Connections.

Cold Boxes

Minimized Cryogen Loss

Vacuum insulation cuts losses by up to 20×, boosting efficiency.

Smart, Safe Design

Bubble-tight seal, low-torque operation, modular safety options.

Automation Ready

Compatible with electric/ pneumatic actuators and system upgrades.

TV PIPE SERIES VALVE
SPECIFICATIONS

Temperature Range

-450°F to 100°F (-267°C to 37.78°C)

Operating Pressure

- Bubble-tight tested to 150 psig (10.3 Bar)

Valve Class (ASME B16.34):

- Standard Class 300

Model	840	1315	2375	4500
Inner Pipe Size	1/2" NPS	1" NPS	2" NPS	4" NPS
Pipe Inner Diameter	.710 in (18.0 mm)	1.185 in (30.1 mm)	2.209 in (57.0 mm)	4.125 in (104.8 mm)
C_v (K_v) - Globe	2.4 (4.02)	14 (14.8)	20 (17.2)	191 (165.2)
C_v (K_v) - "Y" pattern	3.0 (4.28)	15.6 (5.17)	N/A	N/A
Heat Leak in BTU/Hr (Watts)	4.8 (1.0)[1]	7 (1.86)[1]	7.9 (1.89)[1]	21 (4.5)[1]

[1]At 400°F (220°C) ΔT using Liquid Nitrogen.

Additional dimensions on the back of this sheet.

HOW TO **ORDER**

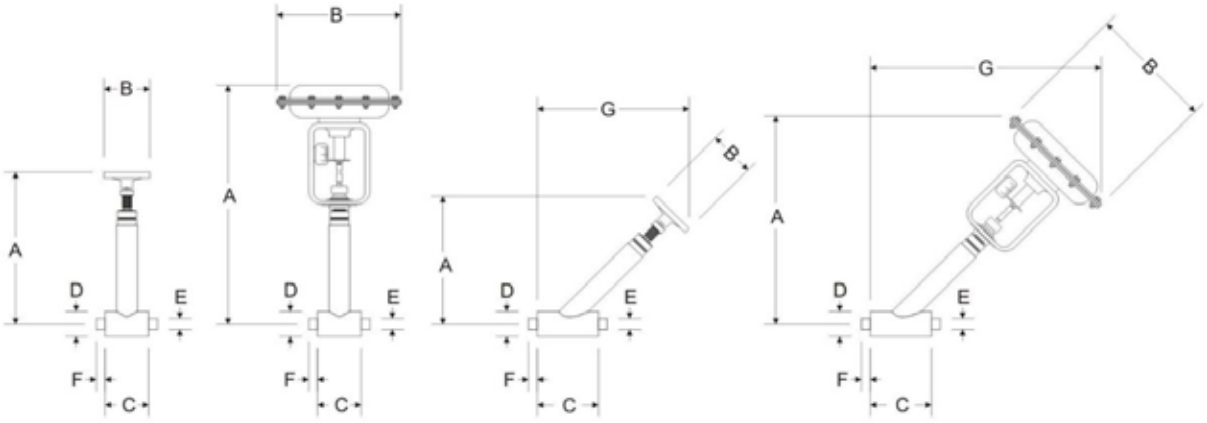

FIGURE 1 FIGURE 2 FIGURE 3 FIGURE 4

All Dimensions in Inches (mm)

Model		A	B	C	D	E	F	G
TV-GM-0840	Figure 1	14.1 (358)[1]	2.6 (66)	3.0 (76)	2.375 (60.3)	.840 (21.3)	0.5 (13)	N/A
TV-GP-0840	Figure 2	19.6 (498)	9 (229)	3.0 (76)	2.375 (60.3)	.840 (21.3)	0.5 (13)	N/A
TV-YM-0840	Figure 3	11.2 (284)[1]	2.6 (66)	4.0 (102)	2.375 (60.3)	.840 (21.3)	0.5 (13)	12.4 (315)[1]
TV-YP-0840	Figure 4	16.6 (422)	9 (230)	4.0 (102)	2.375 (60.3)	.840 (21.3)	0.5 (13)	17.8 (452)
TV-GM-1315	Figure 1	18.7 (476)[1]	6 (150)	5.0 (127)	2.875 (73)	1.315 (33.4)	1.0 (25)	N/A
TV-GP-1315	Figure 2	24.6 (625)	11 (279)	5.0 (127)	2.875 (73)	1.315 (33.4)	1.0 (25)	N/A
TV-YM-1315	Figure 3	15.8 (402)[1]	6 (152)	7.0 (178)	2.875 (73)	1.315 (33.4)	1.0 (25)	19.6 (498)[1]
TV-YP-1315	Figure 4	20.2 (513)	11 (279)	7.0 (178)	2.875 (73)	1.315 (33.4)	1.0 (25)	24.0 (610)
TV-GM-2375	Figure 1	23.8 (605)[1]	6 (152)	7.0 (178)	4.50 (115)	2.375 (60.3)	1.5 (38)	N/A
TV-GP-2375	Figure 2	31.3 (795)	13.1 (333)	7.0 (178)	4.50 (115)	2.375 (60.3)	1.5 (38)	N/A
TV-GM-4500	Figure 1	36.2 (920)	10 (254)	14.0 (356)	6.625 (169)	4.5 (114)	1.5 (38)	N/A
TV-GP-4500	Figure 2	59.3 (1506)	16 (406)	14.0 (356)	6.625 (169)	4.5 (114)	1.5 (38)	N/A

[1] Fully Open

VALVE NOMENCLATURE

T V **0840** **Y** **M** **P** **1** **_** **_**

0840	Y	M	P	1
0840 = ½" 1315 = 1" 2375 = 2" 4500 = 4"	G = Globe Y = Pattern (1/2" – 1" only)	M = Manual O = Actuated Normally Open P = Actuated Normally closed	P = Pipe end T = Female NPT	1 = ASME 2 = Non jacketed 3 = Cold Box Cuff 5 = LOX Cleaning 6 = SRV 7 = 120VAC Kit* 8 = 240VAC Kit* 9 = 24VDC Kit*

**Kit includes solenoid, coil connector, regulator and pressure gauge.*

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TECHFLOW TV-TUBE SERIES

Vacuum Jacketed Cryogenic Valves

BENEFITS

- Twenty times less cryogen loss versus non-vacuum jacketed cryogenic valves equates to lower operation costs.
- The bubble tight closure reduces potential equip ment problems at cryogenic temperatures.
- Compact design offers control for smaller diameter pipe, lower flow requirements, and limited space ap plications.
- Low torque provides easier on/off operation.
- Quick and easy seal replacement lessens down-time.
- Optional: flow plug allows control for variable cryogen delivery to end use equipment.

KEY FEATURES

- Self-aligning, PCTFE seat designed for flexibility and solid closure at cryogenic temperatures.
- Pneumatic or electric actuators available for automated operation.
- Pneumatic or electric actuators available for automated operation.
- Shallow plug style valve functions best for quick opening applications.
- One-year limited warranty if sold separately.

APPLICATIONS

Transfer Hose Shut-offs

Point-of-Use Valves

Laboratory Uses

Liquid Helium Stingers

Superior Cryogen Efficiency

Up to 20× less cryogen loss than non-vacuum jacketed valves—cutting costs and maximizing liquid preservation.

Compact & Flexible Control

Low-torque operation and shallow plug design enable fast actuation in tight-space applications like labs and transfer hoses.

Quick Maintenance & Flow Versatility

Easy seal replacement minimizes downtime; optional flow plug supports variable delivery for end-use precision.

TV TUBE SERIES VALVE
SPECIFICATIONS

Temperature Range

-450°F to 150°F (-267°C to 65.6°C)

Operating Pressure

- Bubble-tight tested to 150 psig (10.3 Bar)

Cryogenic Tubing Diameter	1/2" ODT .43" (11mm) ID
Operating Pressure: 'Bubble Tight' Proof Pressure	150 psig (10.3 Bar)[1] 300 psig (20 Bar)
Heat Leak	5.6 BTU/Hr at 40°FΔT
Heat Leak with Nitrogen	1.6 W at 220°c ΔT

	Flow Coefficient (Cv)	Flow Factor (Kv)
0500-GM & GP[1]	.84	.72
0500-GM & GP[1]. FC	.33	.28
0500-AM & AP[1]	1.16	1.0
0500-AM & AP[1] . FC	.59	.51
0500-YM &YP	1.2	1.0

[1]60 psig Actuated Valves

HOW TO **ORDER**

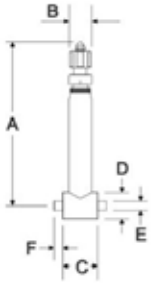

Figure 1
0500-GM
0500-GM-FC

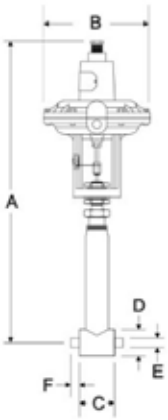

Figure 2
0500-GP
0500-GP-FC

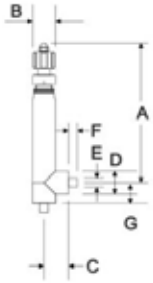

Figure 3
0500-AM
0500-AM-FC

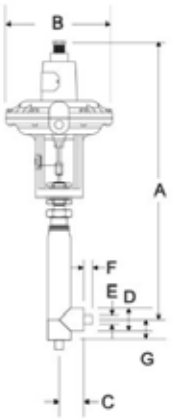

Figure 4
0500-AM
0500-AM-FC

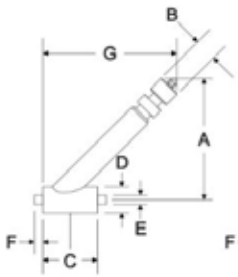

Figure 5
0500-YM

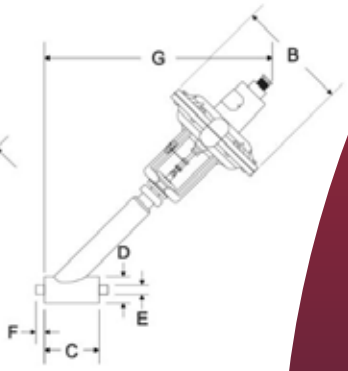

Figure 6
0500-YP

	Model	A	B	C	D	E	F	G
Figure 1	0500-GM	9.3 (236.2)[1]	1.3 (33)	2 (50.8)	1.5 (38.1)	1/2	.5 (13)	N/A
Figure 1	0500-GM-FC	9.3 (236.2)[1]	1.3 (33)	2 (50.8)	1.9 (48.3)	1/2	.5 (13)	N/A
Figure 2	0500-GP	16.7 (424.2)	6.5 (165.1)	2 (50.8)	1.5 (38.1)	1/2	.5 (13)	N/A
Figure 2	0500-GP-FC	16.7 (424.2)	6.5 (165.1)	2 (50.8)	1.9 (48.3)	1/2	.5 (13)	N/A
Figure 3	0500-AM 0500-AP-FC	8 (203.2)[1]	1.3 (33)	1.4 (35.6)	1.3 (32)	1/2	.5 (13)	1.2 (30.5)
Figure 4	0500-AP 0500-AP-FC	16.5 (419.1)	6.5 (165.1)	1.4 (35.6)	1.3 (32)	1/2	.5 (13)	1.2 (30.5)
Figure 5	0500-YM	6.95 (176.5)	1.3 (33)	3.12 (79.2)	1.5 (38.1)	1/2	.5 (13)	N/A
Figure 6	0500-YP	12.3 (312.4)	6.5 (165.1)	3.12 (79.2)	1.5 (38.1)	1/2	.5 (13)	N/A

Dimensions in Inches (mm)

[1] Fully open

Valve Nomenclature

0500	G	M	S	- -
1/2" ODT Tube Valve	G = Globe A = Angle Y = WYE	M = Manual O = Actuated Normally Open P = Actuated Normally Closed	S = Tube Stub	3 = Cold Box Cuff 4 = Flow Plug

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TECHFLOW TE-SERIES

Extended Stem Cryogenic Valves

BENEFITS

- ASME B16.34 code compliance certifies safe operation.
- Bubble tight closure means tighter seal at cryogenic temperatures preventing possible equipment problems.
- Low Torque for easy on/off operation.
- High Cv improves flow and liquid quality at use point.
- Quick and easy seal replacement reduces downtime.

KEY FEATURES

- Self-aligning, PCTFE seat designed for flexibility and solid closure at cryogenic temperatures.
- Bonnet port for relief valve, purge valve or pressure gauge installation.
- Stainless steel body allows for all locations including caustic environments.
- LOX cleaning available.
- One year warranty.

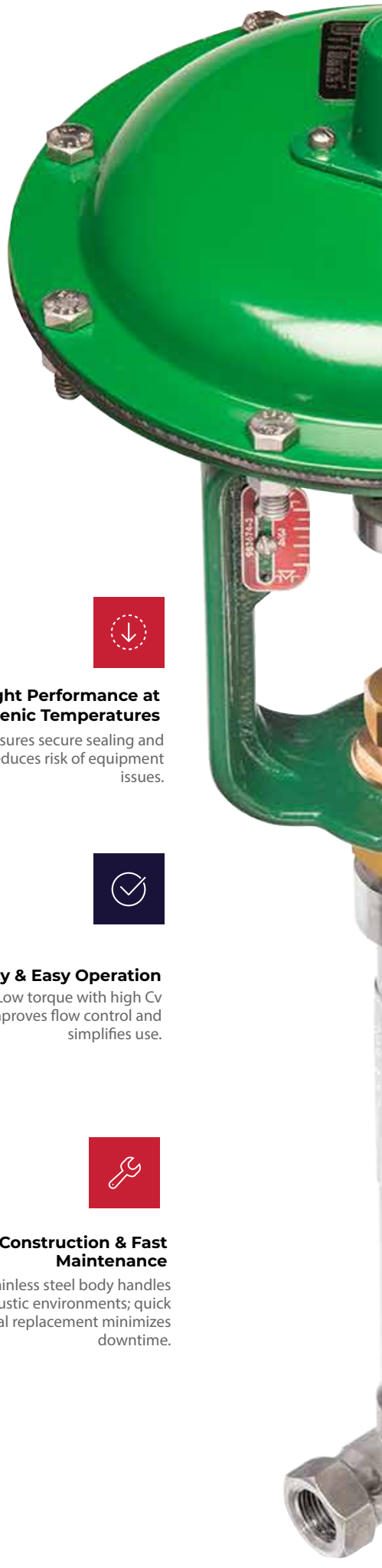
APPLICATIONS

Bulk Tank Shut-offs.

Systems expansion / re-routing connections.

Loading and unloading trailers and trucks.

Liquefied and gaseous atmospheric applications.



Bubble-Tight Performance at Cryogenic Temperatures

Ensures secure sealing and reduces risk of equipment issues.

High Flow Efficiency & Easy Operation

Low torque with high Cv improves flow control and simplifies use.

Robust Construction & Fast Maintenance

Stainless steel body handles caustic environments; quick seal replacement minimizes downtime.

TE SERIES VALVE
SPECIFICATIONS

Temperature Range

-325°F to 150°F (-198°C to 65°C)

Operating Pressure

- 720 psig (49.6 Bar)

Valve Class (ASME B16.34):

- Standard Class 300

Model	Pipe Size NPS	Pipe Inner Diameter	C_v (K_v)
0840	1/2" (15 mm)	.710 in (18 mm)	2.4 (4.02)
1315	1" (25 mm)	1.185 in (30.1 mm)	14 (14.8)
2375	2" (50 mm)	2.209 in (57 mm)	20 (17.2)
4500	4" (100 mm)	4.50" (114.8 mm)	191 (165.2)

HOW TO **ORDER**

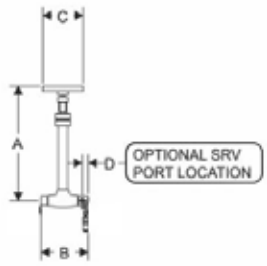


Fig. 1

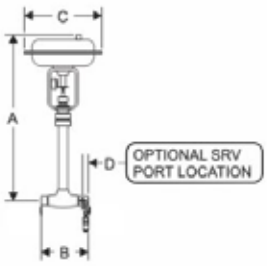


Fig. 2

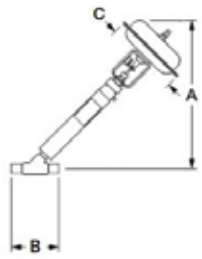


Fig. 3

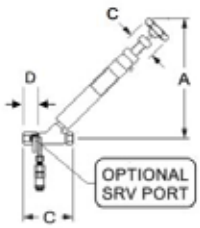


Fig.4

MODEL	PIPE SIZE	CONTROL	A	B	C	D	Figure
TE-0840-GM	1/2"	Manual	14.1"	4"	2.6"	0.95"	Fig. 1
TE-0840-GP	1/2"	Actuated	21.4"	4"	2.6"	0.95"	Fig. 2
TE-0840-YM	1/2"	Manual	10.8"	4.4"	2.6"	0.95"	Fig. 4
TE-0840-YP	1/2"	Actuated	16.33"	4.4"	8.5"	0.95"	Fig. 3
TE-1315-GM	1"	Manual	18.72"	7.75"	6"	1.52"	Fig. 1
TE-1315-GP	1"	Actuated	24.6"	11.4"	11.5"	1.52"	Fig. 2
TE-1315-YM	1"	Manual	15.84"	7.6"	6"	1.52"	Fig. 3
TE-1315-YP	1"	Actuated	20.20"	7.6"	11.5"	1.52"	Fig. 2
TE-2375-GM	2"	Manual	23.82"	10"	6"	N/A	Fig. 4
TE-2375-GP	2"	Actuated	31.3"	10"	13.5"	N/A	Fig. 2
TE-4500-GM	4"	Manual	36.23"	17"	10"	N/A	Fig. 1

All dimensions in inches.

VALVE NOMENCLATURE

T E	0840	G	M	P	6	–	–
	0840 = ½" 1315 = 1" 2375 = 2" 4500 = 4"	G = Globe Y = Y pattern	M = Manual O = Actuated Normally Open P = Actuated Normally closed	P = Pipe end T = Female NPT F = Flange	5 = LOX cleaning 6 = SRV 7 = 120VAC Kit* 8 = 240VAC Kit* 9 = 24VDC Kit*		

**Kit includes solenoid, coil connector, regulator and pressure gauge.*

CRANE CRYOGENICS™

Bellows Seal T & Y-Globe Valve

BENEFITS

- Zero-Leak Seal: Bellows tested to 10,000 cycles for leak-free performance.
- Reduced Heat Leak: Engineered to minimize thermal loss in cryogenic systems.
- Improved Flow Efficiency: Higher CV for faster liquid transfer and reduced latency.
- In-Line Repairability: Cartridge design allows quick seal replacement without full disassembly.
- Cryogenic Integrity: PCTFE seat and ANSI Class VI leak rate ensure tight closure at extreme temperatures.

KEY FEATURES

- Valve Styles: T-Globe, Y-Globe, Angle Valve.
- Compliance: MSS-SP-134, ISO-28921, KGS, CRN, ISO 15848, CGA G-4.1.
- Stainless steel body allows for all locations including caustic environments.
- Configurations: Vacuum Jacketed & Non-Jacketed; Extended bonnet/stem options.
- Materials: CF8M, CF3M bodies; 304ss, 316/316L discs and piping.
- Y-Pattern valves offer highest CV in valve family.

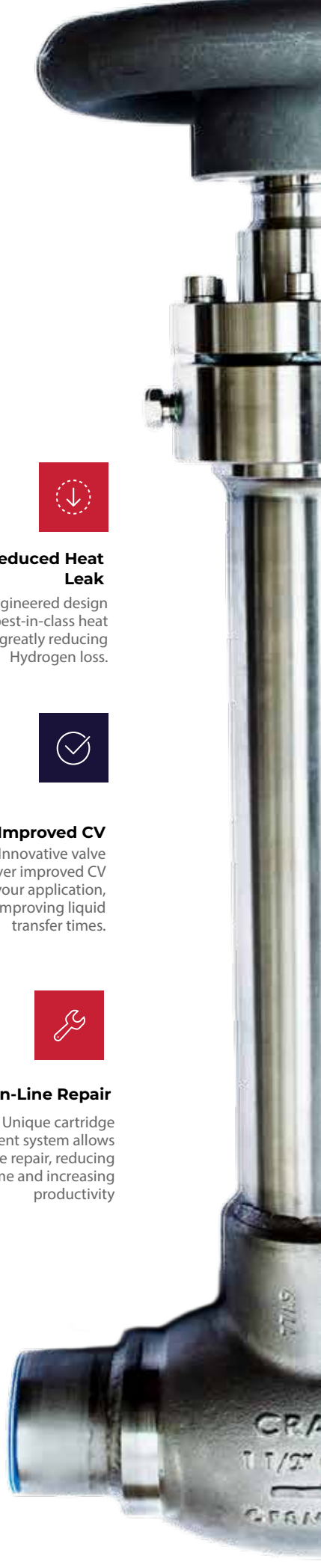
APPLICATIONS

Hydrogen and helium transfer systems.

Aerospace and semiconductor cryogenic pipelines.

Bulk tank shut-offs and distribution manifolds.

Liquefied gas storage and transport systems.



Reduced Heat Leak

Enhanced engineered design offers best-in-class heat transfer, greatly reducing Hydrogen loss.

Improved CV

Innovative valve internals deliver improved CV in your application, improving liquid transfer times.

In-Line Repair

Unique cartridge replacement system allows for in-line repair, reducing down-time and increasing productivity

T & Y Globe
SPECIFICATIONS

Temperature Range

- -452°F to 212°F (-269°C to 100°C).

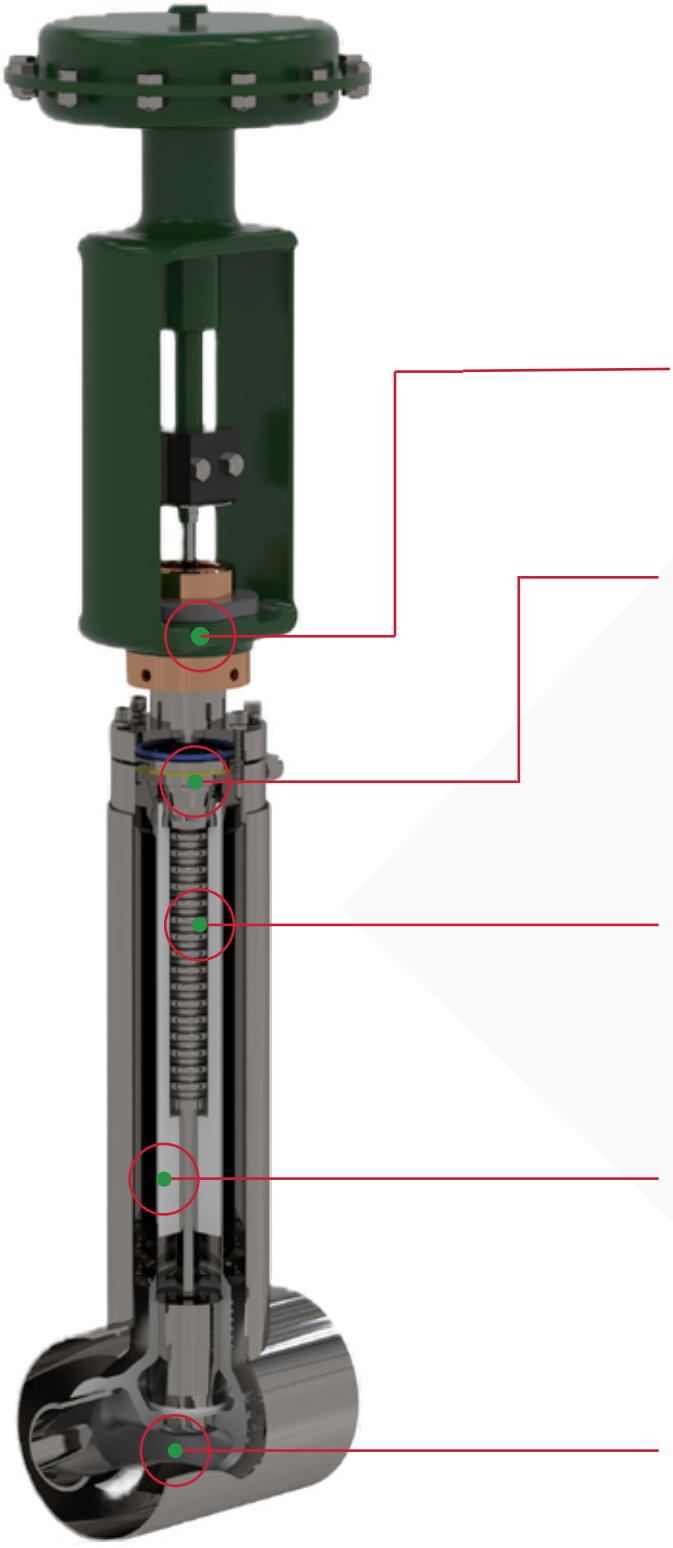
Operating Pressure

- 150, 300, 400 psi MAWP

Bubble tight

- Bubble tight seal up to 400psi

CRANE CRYOGENICS™
BELLOWS SEAL VALVES



Pressure Ratings

- 150, 300, 400 psi MAWP

Assembly Configurations

- Vacuum Jacketed and Non-Jacketed
- Extended bonnet/stem per MSS-SP-134
- Custom extended bonnets/stems available
- Cold-box Cuff option

Typical Applications

- Productions, transportation, transfer, and storage of Hydrogen and other cryogenics.

Easily convert from manual hand-wheel to actuation.

Unique cartridge replacement system for efficient in-line maintenance

Proven bellows design for high life cycle

Vacuum barrier and Improved design minimizes heat leak and media boil-off.

Innovative valve internals deliver improved CV while maintaining highest industry bubble-tight shut-off standards.

Operating Option
- Light-Weight Handwheel
- Pneumatic Actuation
- Electric Actuation

Compliance
- Designed and Tested to MSS-SP-134 and ISO-28921
- Korean Gas Safety (KGS) Approval
- Canadian Registration (CRN)
- ISO-15848 Fugitive Emissions
- Oxygen clean option per CGA G-4.1
- Fire Safe Design

End Connection
- Pipe stub ends
- Butt weld

IN-LINE **REPAIR**

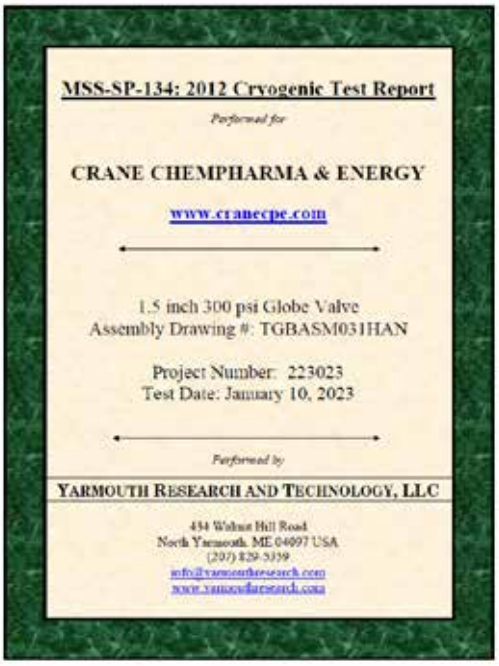
The Crane Cryogenics™ valve's unique design utilizes a cartridge replacement system, allowing for efficient in-line maintenance, minimizing operational disruptions, and enhancing productivity. The cartridge replacement system is provided as a complete unit with the seat, disc, and full stem assembly.

TESTING

Research and development, together with practical experience in reconditioning all types of valves, have contributed to the design and manufacture of Crane Cryogenics™ Bellows Seal Globe Valves. High quality materials and workmanship, combined with the modern manufacturing methods used in producing these valves are your assurance of a dependable, uniform product.

MSS-SP-134 prototype approval tests have been performed on all sizes of the Crane Cryogenics™ Bellows Seal Globe Valve. These tests include operating cycles, measurements at ambient, high and low temperatures, and fugitive emission testing in static and dynamic states. Each valve was dismantled, the components inspected and studied by an independent QA/QC inspector, to validate the robustness and integrity of the parts after testing. The end user can rest assured that each valve will perform optimally throughout its lifetime.

MSS-SP-134 Test Report


MSS-SP-134: 2012 Cryogenic Test Report

Performed for

CRANE CHEMPHARMA & ENERGY

www.cranecpe.com

1.5 inch 300 psi Globe Valve
Assembly Drawing #: TGBASM031HAN

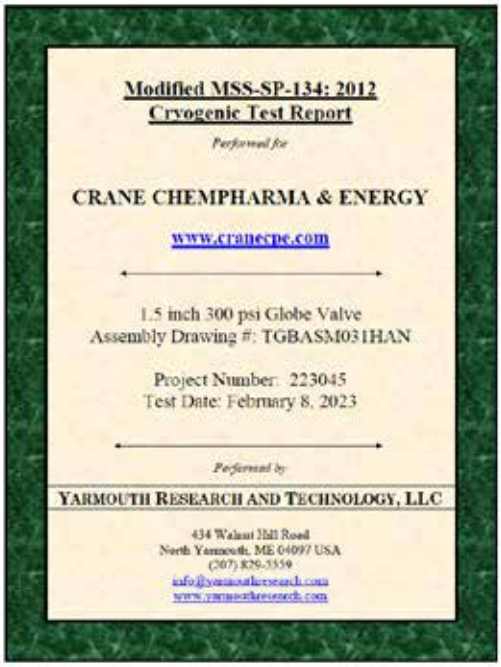
Project Number: 223023
Test Date: January 10, 2023

Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

434 Walnut Hill Road
North Yarmouth, ME 04097 USA
(207) 829-5559

Modified MSS-SP-134 (4000 Cycles)


Modified MSS-SP-134: 2012 Cryogenic Test Report

Performed for

CRANE CHEMPHARMA & ENERGY

www.cranecpe.com

1.5 inch 300 psi Globe Valve
Assembly Drawing #: TGBASM031HAN

Project Number: 223045
Test Date: February 8, 2023

Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

434 Walnut Hill Road
North Yarmouth, ME 04097 USA
(207) 829-5559

5,000 Cycles in Liquid Hydrogen

- Valve tested to 4,000 cycles in Liquid Nitrogen, passing MSS-SP-134
- No valve sweating in liquid hydrogen
- No seat leakage or emissions to atmosphere detected

Bellows tested to 10,000 cycles in liquid nitrogen

WE KNOW CRYO®

CRANE CRYOGENICS

CRYOWorks

tf technifab PRODUCTS

CRANE CRYOGENICS™

Bellows Seal Angle Valve

BENEFITS

- Engineered for hydrogen service with high safety standards
- Low heat leak design enhances system efficiency
- Reliable shutoff ensures containment and operational integrity
- In-line repairable for reduced maintenance downtime
- Manual and actuated configurations for flexible control

KEY FEATURES

- Optimized flow path for high Cv and efficient hydrogen throughout
- Leak-tight seal for safe cryogenic operation
- Stainless steel body suitable for harsh environments
- In-line repair capability minimizes service disruption
- Available with LOX cleaning and custom actuation options

APPLICATIONS

Hydrogen bulk tank shut-offs

System expansion and re-routing

Cryogenic and gaseous hydrogen distribution

Reduced Heat Leak

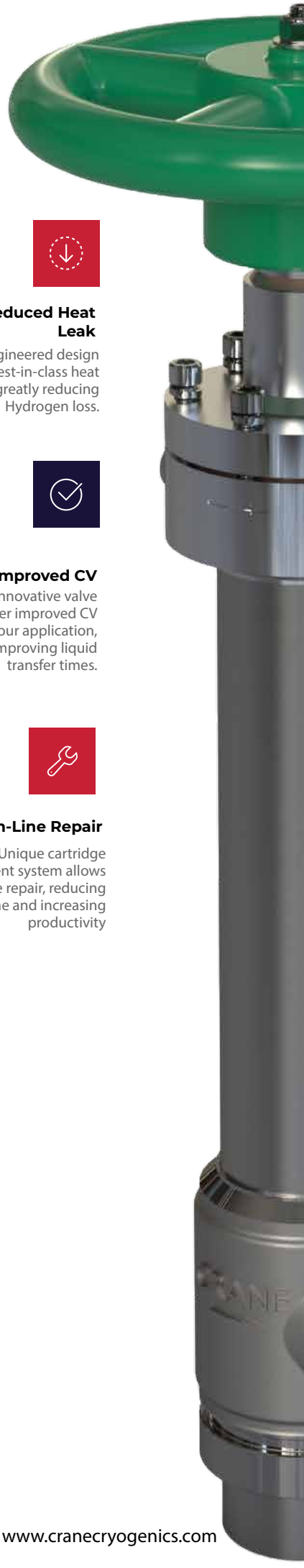
Enhanced engineered design offers best-in-class heat transfer, greatly reducing Hydrogen loss.

Improved CV

Innovative valve internals deliver improved CV in your application, improving liquid transfer times.

In-Line Repair

Unique cartridge replacement system allows for in-line repair, reducing down-time and increasing productivity



ANGLE VALVE
SPECIFICATIONS

Temperature Range

- -452°F to 212°F (-269°C to 100°C).

Operating Pressure

- 150, 300, 400 psi MAWP

Bubble tight

- Bubble tight seal up to 400psi

WE KNOW CRYO®

CRANE CRYOGENICS | CRYOWorks | tf technifab PRODUCTS

CRANE CRYOGENICS™

Lift Check Valve

BENEFITS

- Engineered for hydrogen service with zero-leakage performance
- False flange bolted bonnet design accommodates thermal expansion
- Precision cone seat ensures absolute shut-off for safety and reliability
- Reduced heat leak minimizes hydrogen loss and improves system efficiency
- In-line repairable cartridge system reduces downtime and boosts productivity

Reduced Heat Leak

Enhanced engineered design offers best-in-class heat transfer, greatly reducing Hydrogen loss.

Improved CV

Innovative valve internals deliver improved CV in your application, improving liquid transfer times.

In-Line Repair

Unique cartridge replacement system allows for in-line repair, reducing down-time and increasing productivity

KEY FEATURES

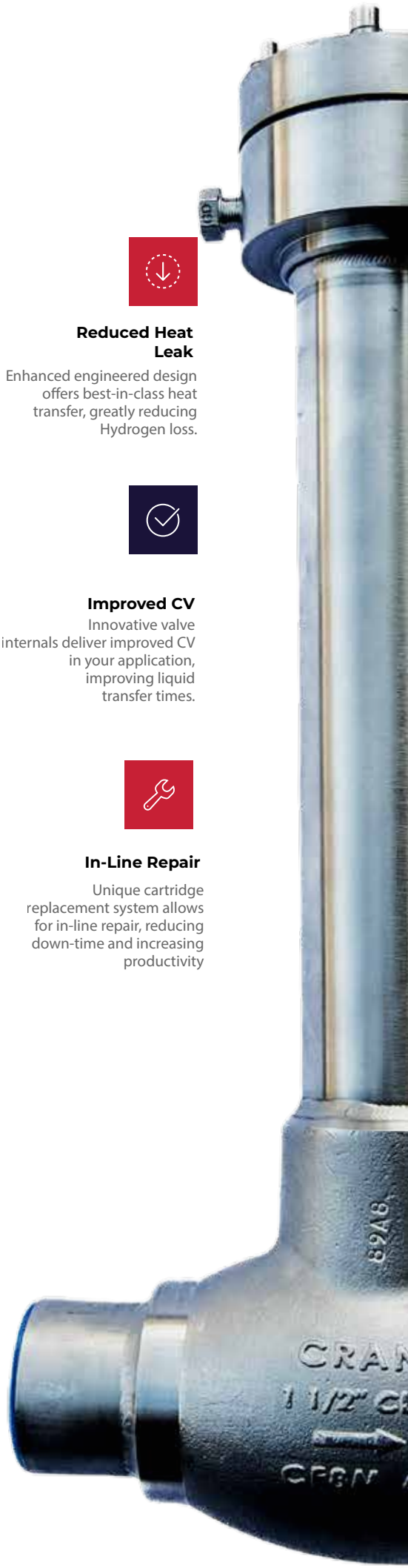
- Lift-check style with optimized internal flow path
- Improved Cv for faster liquid transfer and operational efficiency
- Self-centering PCTFE seat for reliable sealing
- Available in vacuum jacketed and non-jacketed configurations
- Extended bonnet/stem per MSS-SP-134 for cryogenic applications

APPLICATIONS

Maintains unidirectional flow in liquid hydrogen.

Secures flow control in liquid nitrogen dosing system.

Prevents reverse flow during tank changeovers or system flushing.



LIFT CHECK VALVE
SPECIFICATIONS

Temperature Range

-452°F to 212°F (-269°C to 100°C)

Operating Pressure

• 150, 300, 400 psi MAWP

Size Range

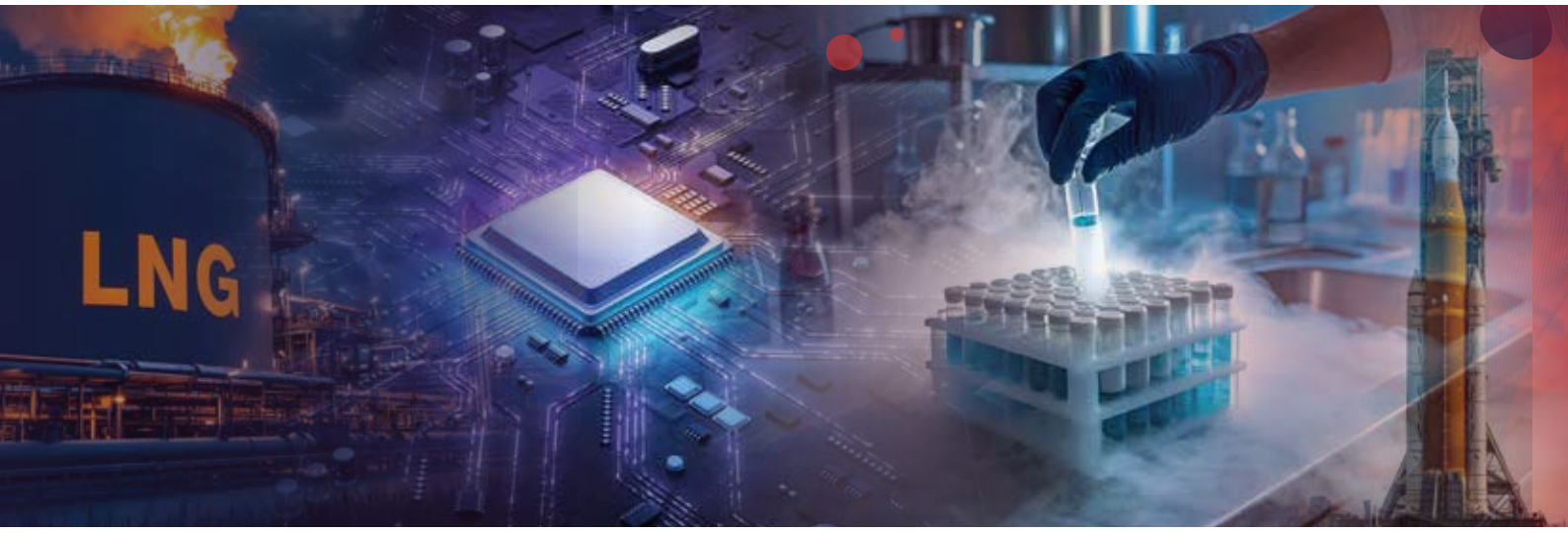
• 1/2"- 6"

ACTUATION AND **AUTOMATION**

Crane Cryogenics™ Valves can be fitted with actuators for excellent flow control. Valves are shipped preassembled and tested with the actuators to ensure sealing--No field assembly required! Valves can be fitted with spring-diaphragm or spring-piston pneumatic actuators. Pneumatic actuators can be single or double acting and can be fail-open or fail-closed. Valves can also be fitted with electric actuators based on customer requirements.

Crane Cryogenics™ Valve plugs/discs are available* in Quick Open, Linear, or Equal percentage trim. Quick Opening is recommended for On/Off control. Appropriate trim for throttling can be selected based on system application.

*See ordering sheet for full actuator and accessory offerings.



WE KNOW CRYO®

HOW TO ORDER

BELLOWS SEAL T-GLOBE, Y-GLOBE, LIFT CHECK, & ANGLE VALVE

** ORDER EXAMPLE AVAILABLE BELOW*

CF01 **T** **3** **A** **Q** **1**

VALVE SIZE	
0H	1/2”
01	1”
1H	1.5”
02	2”
03	3”
04	4”
06	6”
08	8”
10	10”
12	12”

VALVE TYPE	
T	Bellows Seal T-Globe
Y	Bellows Seal Y-Globe
L	Lift Check Valve
R	Angle

MAWP	
3	300 PSIG
X	Custom

MOC	
A	CF8M body, 304ss disc, 304 pipe,
C	CF8M body, 316 disc & pipe,
X	Custom

FLOW CONTROL PLUG	
Q	PCTFE seat, Quick Opening
L	PCTFE seat, Linear
E	PCTFE seat, Equal Percent

GASKET	
1	Graphite & PTFE gasket,
x	Other gasket option,

3 **C** **N** **N**

SYSTEM PRESSURE	
3	300 psi
X	Custom

FAIL POSITION	
C	Close
X	Custom

POSITIONER	
N	None
X	Custom

LIMIT	
N	None
X	Custom

ORDER EXAMPLE:

VALVE NOMENCLATURE

CF03	T	3	-	C	L	1	A	-	N	S2	-	HW	3	C	N	N
VALVE SIZE	VALVE TYPE	MAWP		MOC	FCP	GASKET	EC		JACKETING	SPECIAL ADD ONS		ACTUATION	SYSTEM PRESSURE	FAIL POSITION	POSITIONER	LIMIT

A	V	ST	S

END CONNECTION	
A	Pipe Sch. 10
X	Custom

JACKETING	
N	Non-Jacketed
V	Vacuum Jacketed, Insulated for H2
C	Cold Box Cuff

SPECIAL ADD-ONS	
ST	Standard Process Clean
S2	O2 Clean
CR	Cartridge Replacement,
SG	T,Y, & Angle Globe Soft Goods Kit (Gaskets & Seals),
X	Custom,

ACTUATION TYPE	
00	None
HW	Manual - HW
S	Single Acting Piston
X	Custom,

ORDER EXAMPLE:

Part Number CF01T3-AQ1A-VST-S3CNN

1.5" Bellow Seal T-Globe, 300 psi MAWP, CF8MBody, 304ss disc, 304/304L pipe, PCTFE Quick Opening Disk, Graphite Gasket, Pipe Sched 10, Vacuum Jacketed, Standard Process Clean, Single Acting Piston, 300 psi System Pressure, Fail Closed, No Positioner, No Limit Switch

OPTIONS

Contact sales representative for custom offering information and availability

sales@cranecryogenics.com

INNOVATION DRIVEN BY YOUR NEEDS

Our businesses are known for proprietary and differentiated technology, quality and reliability, deep vertical expertise, and responsiveness to unique customer needs.

brands you trust.

ALOYCO · CENTER LINE · COMPAC-NOZ · CRANE · DEPA
ELRO · DUO-CHEK · FLOWSEAL · JENKINS · KROMBACH ARMATUREN
NOZ-CHEK · RV · RESISTOFLEX · revo · Saunders the science inside
STOCKHAM · UNI-CHEK · WESTLOCK CONTROLS · w.t.a. · XOMOX

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