

HYDROGEN

Valves, Fittings and Tubing



BuTech High Quality Valves, Fittings and Tubing

BuTech high quality valves and components for hydrogen service are constructed of high-performance 316 Stainless Steel with a minimum of 12.5% Nickel content and engineered to withstand the demands of hydrogen service. Their durability and resistance to hydrogen embrittlement make them ideal for applications such as compression for hydrogen storage, transfer and dispensing, or fuel cell testing.



Hydrogen Valves, Fittings & Components

Hydrogen-Compatible Materials

BuTech hydrogen valves and components are constructed from high-performance 316 stainless steel with a minimum 12.5% nickel content, specifically selected to resist hydrogen embrittlement and maintain long-term material integrity in hydrogen service.

Engineered for Hydrogen Service

Products are purpose-designed for gaseous hydrogen applications, addressing challenges related to small molecular size, diffusivity, and repeated pressure cycling commonly found in hydrogen systems.

Leak-Tight Sealing Performance

BuTech hydrogen valve designs focus on reliable containment through optimized valve geometries, chevron packing systems, and sealing concepts intended to deliver consistent, leak-tight performance in hydrogen gas service.

Standards-Based Validation

Hydrogen-rated designs have been tested in accordance with applicable ISO hydrogen standards, including extensive pressure cycling using hydrogen-relevant gases to verify sealing and packing durability.

Medium- and High-Pressure Capability

BuTech hydrogen components are suitable for medium and high-pressure hydrogen environments, supporting demanding operating conditions across production, storage, transfer and dispensing systems.

Broad Hydrogen Applications

Hydrogen-qualified products are used across hydrogen compression, storage, transfer, and dispensing systems, including refueling infrastructure, fuel cell testing, gas distribution and R&D environments.

Why Operators Choose BuTech for Hydrogen?

✓ Designed Around Hydrogen Risk, Not Adapted Later

BuTech hydrogen solutions are developed with hydrogen service as a primary design requirement, addressing material behavior, sealing performance, and long-term reliability from the outset rather than adapting general-purpose valve designs.

✓ Built for Infrastructure-Scale and Testing Environments

From hydrogen refueling stations and compression systems to fuel cell testing and R&D facilities, BuTech supports hydrogen applications where consistency, repeatability and operational confidence are essential.

✓ Engineering Support for Application-Specific Requirements

Hydrogen systems often involve unique operating conditions and regulatory considerations. BuTech provides application-level support to help operators align product selection with system demands and safety expectations.

✓ Integrated Within a Broader High-Pressure Ecosystem

BuTech hydrogen valves and components are part of a wider portfolio of high-pressure technologies, supporting seamless integration with compression, storage, transfer and control systems.



Needle Valves and Air Actuators

20,000 PSI (1378 BAR)

Needle Valves

Available in a variety of body styles designed for operation at temperatures ranging from -58° to +392°F (-50° to +200°C). Extended stuffing box allows for operation down to -423°F (-253°C).

20,000 PSI (1378 BAR) 2-Way Straight Needle Valve

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig.
20UV41V-N-H2-S	Vee	1/4" M/P Tube	2.00"	1.00"	2.00"	4.50"	1.62"	1.19"	0.62"	0.38"	3.00"	0.25"	-	-	0.75"	1
20UV41R-N-H2-S	Reg		(50.8)	(25.4)	(50.8)	(114.3)	(41.1)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	-	-	(19.1)	1
20UV61V-N-H2-S	Vee	3/8" M/P Tube	2.00"	1.00"	2.00"	4.50"	1.62"	1.19"	0.62"	0.38"	3.00"	0.25"	-	-	0.75"	1
20UV61R-N-H2-S	Reg		(50.8)	(25.4)	(50.8)	(114.3)	(41.1)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	-	-	(19.1)	1
20UV91V-N-H2-S	Vee	9/16" M/P Tube	2.50"	1.25"	2.88"	6.32"	2.38"	1.75"	0.69"	0.50"	4.00"	0.34"	-	-	1.00"	1
20UV91R-N-H2-S	Reg		(63.5)	(31.8)	(73.2)	(160.5)	(60.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	-	-	(25.4)	1
20V121V-N-H2-S	Vee	3/4" M/P Tube	3.00"	1.50"	3.75"	8.75"	3.00"	2.25"	0.88"	0.62"	8.00"	0.43"	-	-	1.38"	1
20V121R-N-H2-S	Reg		(76.2)	(38.1)	(95.3)	(222.3)	(76.2)	(57.2)	(22.4)	(15.7)	(203.2)	(10.9)	-	-	(35.1)	1
20V161V-H2-S*	Vee	1" M/P Tube	4.12"	2.06"	4.75"	10.19"	3.75"	2.81"	1.25"	1.12"	10.00"	0.56"	-	-	1.75"	1
20V161R-H2-S*	Reg		(104.6)	(52.3)	(258.8)	(258.8)	(95.3)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	-	-	(44.5)	1

* -N Indicates material of construction being 316 SS with a minimum 12.5% Nickel content to resist hydrogen embrittlement.

* -H2 Indicates for Hydrogen Service

* -S Indicates 316 SS Stem

* Note: High Nickel not available in this size.

20,000 PSI (1378 BAR) 2-Way Angle Needle Valve

Catalog Number	Stem Style	Connection	A	B	C	D	E	F	G	H	I	J	K	L	Thk.	Fig.
20UV42V-N-H2-S	Vee	1/4" M/P Tube	2.00"	1.00"	2.00"	4.50"	1.62"	1.19"	0.62"	0.38"	3.00"	0.25"	-	-	0.75"	1
20UV42R-N-H2-S	Reg		(50.8)	(25.4)	(50.8)	(114.3)	(41.1)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	-	-	(19.1)	1
20UV62V-N-H2-S	Vee	3/8" M/P Tube	2.00"	1.00"	2.00"	4.50"	1.62"	1.19"	0.62"	0.38"	3.00"	0.25"	-	-	0.75"	1
20UV62R-N-H2-S	Reg		(50.8)	(25.4)	(50.8)	(114.3)	(41.1)	(30.2)	(15.7)	(9.7)	(76.2)	(6.4)	-	-	(19.1)	1
20UV92V-N-H2-S	Vee	9/16" M/P Tube	2.50"	1.25"	2.88"	6.32"	2.38"	1.75"	0.69"	0.50"	4.00"	0.34"	-	-	1.00"	1
20UV92R-N-H2-S	Reg		(63.5)	(31.8)	(73.2)	(160.5)	(60.5)	(44.5)	(17.5)	(12.7)	(101.6)	(8.6)	-	-	(25.4)	1
20V122V-N-H2-S	Vee	3/4" M/P Tube	3.00"	1.50"	3.75"	8.75"	3.00"	2.25"	0.88"	0.62"	8.00"	0.43"	-	-	1.38"	1
20V122R-N-H2-S	Reg		(76.2)	(38.1)	(95.3)	(222.3)	(76.2)	(57.2)	(22.4)	(15.7)	(203.2)	(10.9)	-	-	(35.1)	1
20V162V-H2-S*	Vee	1" M/P Tube	4.12"	2.06"	4.75"	10.19"	3.75"	2.81"	1.25"	1.12"	10.00"	0.56"	-	-	1.75"	1
20V162R-H2-S*	Reg		(104.6)	(52.3)	(258.8)	(258.8)	(95.3)	(71.4)	(31.8)	(28.4)	(254.0)	(14.2)	-	-	(44.5)	1

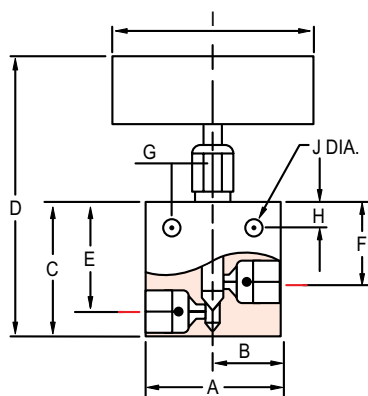
* -N Indicates material of construction being 316 SS with a minimum 12.5% Nickel content to resist hydrogen embrittlement.

* -H2 Indicates for Hydrogen Service

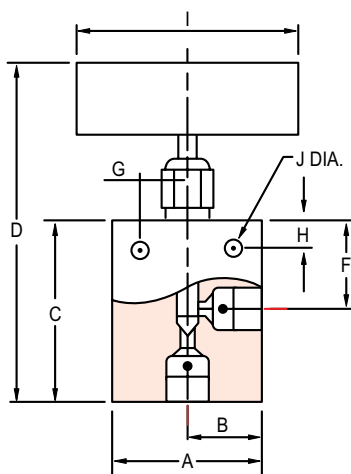
* -S Indicates 316 SS Stem

* Note: High Nickel not available in this size.

20,000 PSI (1378 BAR) 2-Way Straight Needle Valve



20,000 PSI (1378 BAR) 2-Way Angle Needle Valve



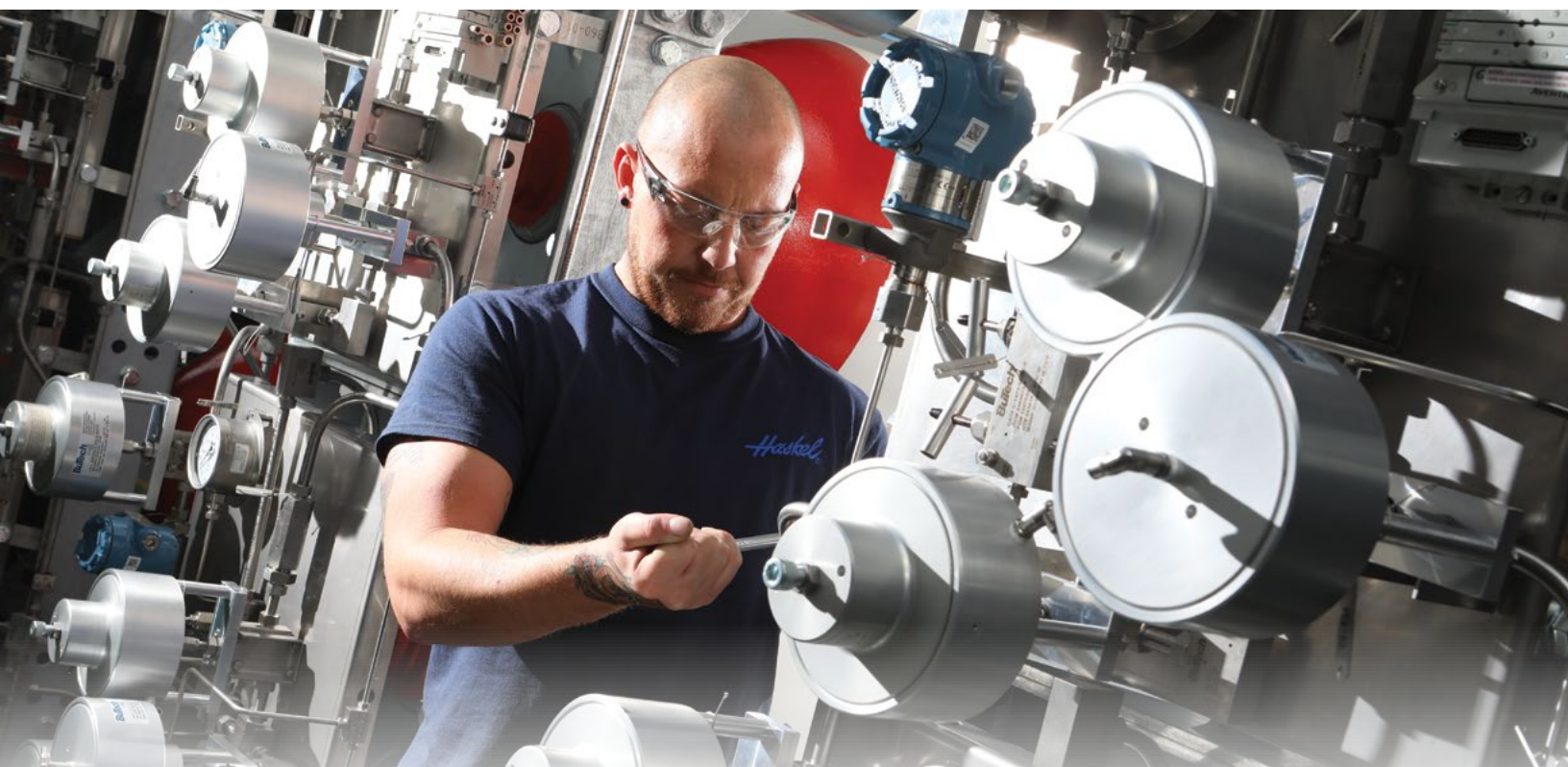
Air Actuators

Designed for remote control, BuTech air operators are virtually maintenance free – ideally suited for service in limited access areas. Their compact size and weight permits installation where space or weight is at a premium. Also available with limit switches and solenoid valves.

The single-acting actuators have a fail-safe feature: The Air-to-Open actuator closes the valve on loss of operating pressure, while the Air-to-Close actuator opens the valve on loss of operating pressure. These safety features are necessary in critical systems.

Product Details

Valve Model			Normally Open Air-to-Close Actuators psi (bar)			Normally Closed Air-to-Open Actuators psi (bar)			Double-Acting Pneumatic Actuators psi (bar)		
			ATC5	ATC8	2XATC5	ATO5	ATO8	2XATO5	DA5	DA8	2XDA5
20UV4- 20UV6	MAWP	PSI (BAR)	18,000 (1241)	-	-	18,000 (1241)	-	-	18,000 (1241)	-	-
	Req'd Actuator Pressure	PSI (BAR)	74 (5)	-	-	82 (6)	55 (4)	-	63 (4)	-	-
20UV9	MAWP	PSI (BAR)	18,000 (1240)	18,000 (1240)	18,000 (1240)	10,000 (689)	18,000 (1240)	18,000 (1240)	18,000 (1240)	-	18,000 (1240)
	Req'd Actuator Pressure	PSI (BAR)	100 (7)	49 (3)	55 (4)	84 (6)	58 (5)	67 (5)	98 (7)	-	49 (5)
20V12	MAWP	PSI (BAR)	-	18,000 (1240)	10,000 (689)	-	12,500 (860)	10,500 (720)	-	18,000 (1240)	12,000 (830)
	Req'd Actuator Pressure	PSI (BAR)	-	100 (7)	90 (6)	-	66 (1)	79 (5)	-	-	89 (2)
20V16	MAWP	PSI (BAR)	-	12,000 (830)	8,000 (550)	-	7,500 (520)	-	-	12,000 (830)	-
	Req'd Actuator Pressure	PSI (BAR)	-	100 (3)	52 (4)	-	66 (5)	-	-	89 (4)	-



Air-Operated Needle Valves Designed for Medium Pressure Gas Applications

Soft Seat Needle Valves

Traditional metal-to-metal seated needle valves often fall short when it comes to achieving a leak-tight seal with gases. BuTech's new Soft Seat Needle Valve (Patent Pending) combines the trusted performance of a traditional needle valve, with Chevron packing and a soft seat, delivering a true leak-tight seal when closed.

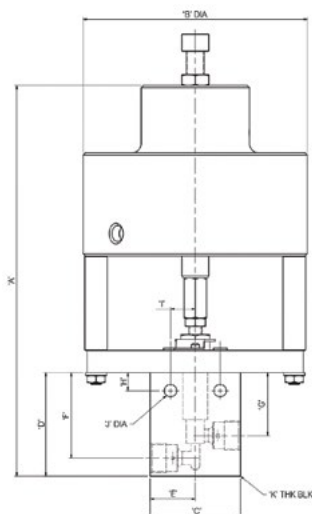
- ✓ Reliable containment for hydrogen and other gases
- ✓ Tested to ISO standards
- ✓ Ideal for Hydrogen refueling stations and compression systems, H2 generation, storage, and transfer, R&D lab gas distribution, test stands, tube trailer filling and general system shut off valves for most gases: Nitrogen, Hydrogen, Helium, Argon

Dimensional & Connection Data

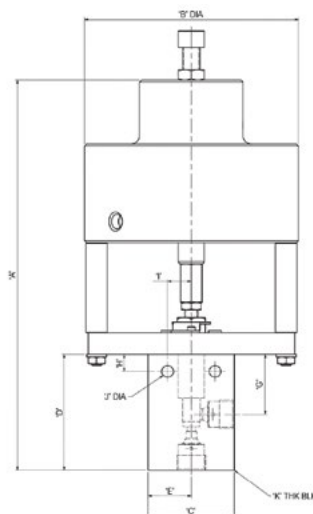
Catalog Number	Connection	MAWP	Min. Orifice	Cv	A	B	C	D	E	F	G	H	I	J	K
8.5SNVM91-P-H2-AT05	9/16" M/P	8,500 PSI	.25"	.78	10.88"	6.25"	2.50"	2.88"	1.25"	2.38"	1.75"	.50"	.69"	.34" Dia.	1.00"
8.5SNVM92-P-H2-AT05	9/16" M/P	8,500 PSI	.25"	1.17	11.37"	6.25"	2.50"	3.38"	1.25"	N/A	1.75"	.50"	.69"	.34" Dia.	1.00"
8.5SNVP81-P-H2-AT05	1/2" FNPT	8,500 PSI	.25"	.78	11.00"	6.25"	2.50"	3.00"	1.25"	2.38"	1.75"	.50"	.69"	.34" Dia.	1.00"
8.5SNVP82-P-H2-AT05	1/2" FNPT	8,500 PSI	.25"	1.17	11.37"	6.25"	2.50"	3.38"	1.25"	N/A	1.75"	.50"	.69"	.34" Dia.	1.00"

- **Material of construction:** 316 SS, PEEK, PTFE
- **Temperature Range:** -58°F to +392°F (-50°C to +200°C)
- Aluminum actuator (Air to Open)
- Available as 2-way straight and 2-way angle
- ATEX Approved

2-Way Straight Soft Seat Needle Valve



2-Way Angle Soft Seat Needle Valve



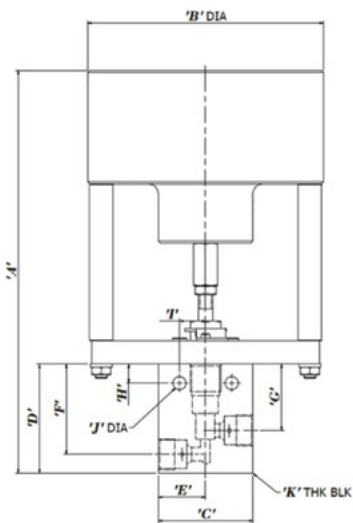
Patent Pending

This design was tested with Nitrogen and Helium per ISO-19880-3 to 102,000 pressure cycles with the original packing set and soft seat.

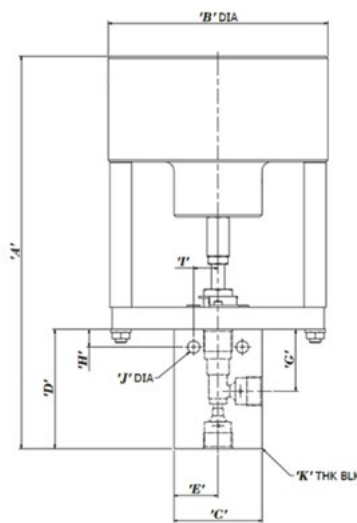
Dimensional & Connection Data

Catalog Number	Connection	MAWP	Min. Orifice	Cv	A	B	C	D	E	F	G	H	I	J	K
8.5SNVM91-P-H2-ATC5	9/16" M/P	8,500 PSI	.25"	.78	10.63"	6.25"	2.50"	2.88"	1.25"	2.38"	1.75"	.50"	.69"	.34" Dia.	1.00"
8.5SNVM92-P-H2-ATC5	9/16" M/P	8,500 PSI	.25"	1.17	11.13"	6.25"	2.50"	3.38"	1.25"	N/A	1.75"	.50"	.69"	.34" Dia.	1.00"
8.5SNVP81-P-H2-ATC5	1/2" FNPT	8,500 PSI	.25"	.78	10.75"	6.25"	2.50"	3.00"	1.25"	2.38"	1.75"	.50"	.69"	.34" Dia.	1.25"
8.5SNVP82-P-H2-ATC5	1/2" FNPT	8,500 PSI	.25"	1.17	11.13"	6.25"	2.50"	3.38"	1.25"	N/A	1.75"	.50"	.69"	.34" Dia.	1.25"

2-Way Straight Soft Seat Needle Valve

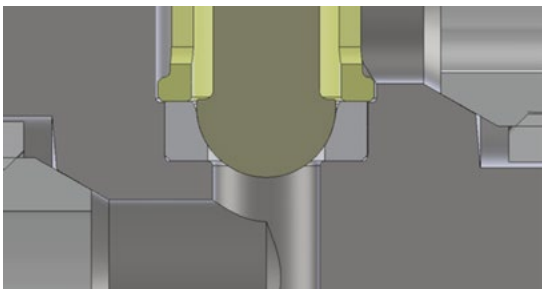


2-Way Angle Soft Seat Needle Valve



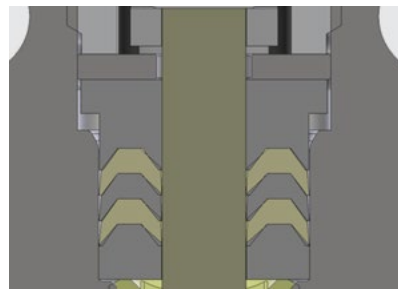
This design was tested with Nitrogen and Helium per ISO-19880-3 to 102,000 pressure cycles with the original packing set and soft seat.

Gas leaks aren't just costly - they're dangerous. BuTech's Soft Seat Needle Valves help to maintain system integrity by keeping your media securely contained upstream, and preventing pressure loss downstream.



Soft Seat

- Temperature Range: -58°F to +392°F (-50°C to +200°C)
- ATEX Approved
- Patent Pending



Chevron Packaging

- Material of Construction: 316 SS, PEEK, PTFE
- Aluminum Actuator (Air to Open & Air to Close)
- Available as 2-way straight and 2-way angle

Did you know we also supply Haskel Ball Valves for H2 & Other Gases

Engineered For Extreme Pressure

Haskel's high-pressure ball valves deliver unmatched reliability, safety, and performance for demanding industrial applications.

Built with advanced sealing technology and robust materials, these valves ensure zero fugitive emissions, fire-safe compliance, and long-term durability - even under the harshest conditions.

Why Choose Haskel Ball Valves?

- ✓ **High Pressure Capability:** Up to 15,000 psi for critical applications
- ✓ **Total HermetiX™ Integrity:** Certified for fugitive emissions and fire safety
- ✓ **Fully ATEX & UKEX Certified:** Approved under Directive 2014/34/EU for safe operation in potentially explosive atmospheres
- ✓ **Automation-Ready:** ISO 5211 mounting for easy actuation
- ✓ **Proven Durability:** Tested to 16,000 cycles in accordance with ISO 19880-3
- ✓ **Hydrogen-Ready:** Materials and seals fully compatible with H2 service

Applications:

Hydrogen fueling systems, high-pressure gas control, industrial isolation, and critical safety environments.



Technical Information

2H077 Series		
Maximum Working Pressure	Working Temperature	TPED / TPE
7,250 PSI (500 bar)	-76°F up to +392°F (-60°C up to +200°C)	-40°F up to +149°F (-40°C up to 65°C)

2H157 Series		
Maximum Working Pressure	Maximum Working Pressure TPED	Working Temperature
15,000 PSI (1,034 bar)	10,000 PSI (700 bar)*	-40°F up to +185°F (-40°C up to +85°C)

Testing & Certification

2H077 Series
TPED/TPE, according to ISO 23826*
100% shell & inline leak tested
ATEX & UKEX Certified: Approved under Directive 2014/34/EU

2H157 Series
ISO 19880-3: 2018 Gaseous hydrogen fueling
TPED/TPE certified according to ISO 23826*
100% shell & inline leak tested

* TPED / TPE – Transportable Pressure Equipment Directive, according to ISO 23826

ATEX & UKEX Certified: Approved under Directive 2014/34/EU

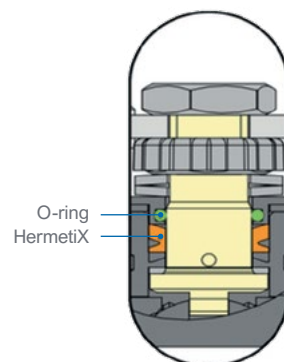
Design & Materials of Construction

2H077 & 2H157 Series
Threaded body
Automation-ready with standard ISO 5211 connecting plate
Total Hermetix integrity package with: ISO 15848-1 and API 641 emission standard certificated design ISO 10497 and API 607 fire-safe standard certificated design Double body sealing
Stainless steel body & end adapters
HNBR O-rings
PEEK ball seals
Integral handle locking device on hand operated valves
All materials compatible for Hydrogen use

Double Stem Sealing

Hermetix patented stem seal is used with additional O-ring sealing. The Hermetix polymeric, non-graphitic stem seal design is certified for ISO 15848-1 and API 641 fugitive emission prevention standards, tested with He. An additional O-ring stem seal is added as additional sealing point.

This design has been successfully tested to 16,000 open/close cycles in accordance with ISO 19880-3 and performs well in demanding hydrogen applications.



Registered EU Design
015025978-001

Ball Valve Technical Specifications

2H077 Series Ball Valve

Technical Information

Operation	Catalogue Number	Connection	MAWP	Ball Port	CV
Hand	2H077-H-H2-22-22	1/2" FNPT	7,250 PSI	.44"	21.95
Pneumatic	2H077-H-H2-22-22-C25SR2C	1/2" FNPT	7,250 PSI	.44"	21.95

Optional connection sizes available upon special request.

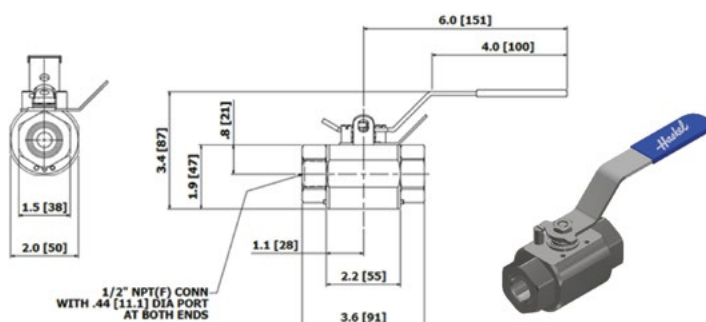
2H157 Series Ball Valve

Technical Information

Operation	Catalogue Number	Connection	MAWP	Ball Port	CV
Hand	2H 157-H-H2-18-18	9/16" M/P female	15,000 PSI	.44"	4.39
Pneumatic	2H 157-H-H2-18-18-C30SR2C	9/16" M/P female	15,000 PSI	.44"	4.39

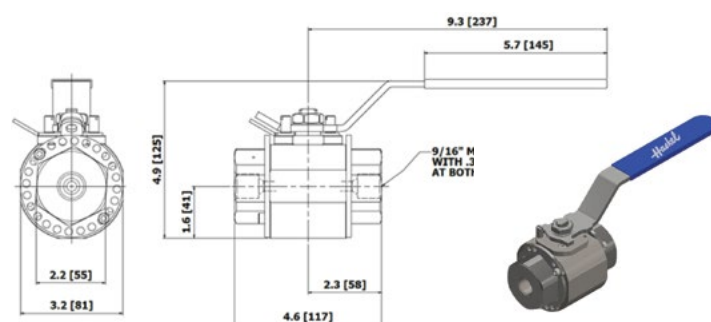
Hand-operated Valve Dimensions

ISO 5211 Interface

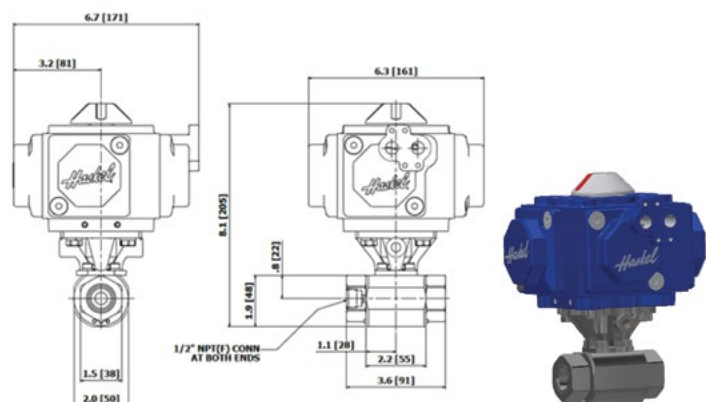


Hand-operated Valve Dimensions

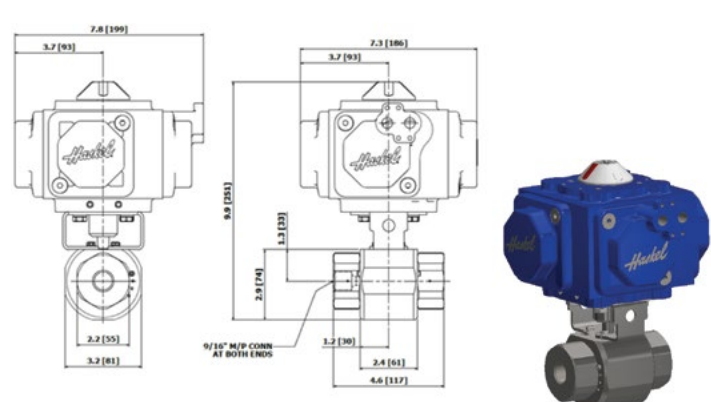
ISO 5211 Interface



Pneumatic Valve Dimensions



Pneumatic Valve Dimensions



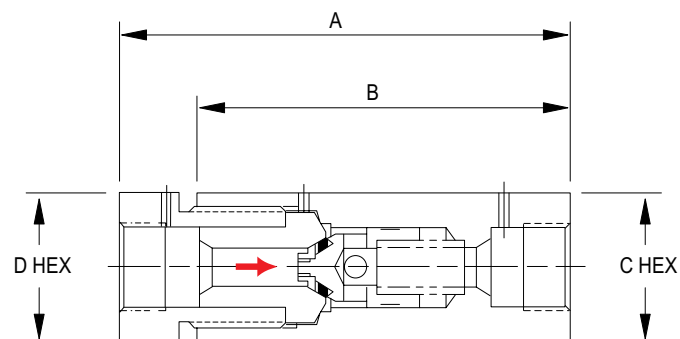
Disclaimer & Warning

It is always the system designer and the end-user responsibility to verify that all equipment used is properly selected to ensure safety and integrity of their systems. Haskel offers only general information based on common market knowledge and standard market adaptation for its valves. For each system and use, the system designer and end-user must consider the particular operating conditions, media parameters, and any other implications of their system for the proper selection of valves to be used.

Check Valves and Sintered Cup Filters

Check Valves

Rugged construction provides assurance of fail-safe operation at pressures up to 20,000 PSI (1378 BAR). For operation in temperatures ranging from -320° to 500°F (-195° to 260°C).



ex. 20SC6-N-TFE-2-H2-S

Product Details

Catalog Number	Connection	MAWP	Cv	A	B	C	D
20SC4-N-2-H2-S	1/4" M/P Tube	20,000 PSI (1378 BAR)	0.25	2.94" (74.7)	2.50" (63.5)	1.00" (25.4)	0.88" (22.4)
20SC6-N-2-H2-S	3/8" M/P Tube	20,000 PSI (1378 BAR)	0.8	3.12" (79.2)	2.62" (66.5)	1.12" (28.4)	0.88" (22.4)
20SC9-N-2-H2-S	9/16" M/P Tube	20,000 PSI (1378 BAR)	2.30	4.23" (107.4)	3.50" (88.9)	1.38" (35.1)	1.38" (35.1)
20SC12-N-2-H2-S	3/4" M/P Tube	20,000 PSI (1378 BAR)	3.40	5.89" (149.6)	4.75" (120.7)	1.75" (44.5)	1.38" (35.1)
20SC16-H2-S*	1" M/P Tube	20,000 PSI (1378 BAR)	7.4	6.50" (165.1)	5.55" (141.0)	2.12" (53.8)	1.75" (44.5)

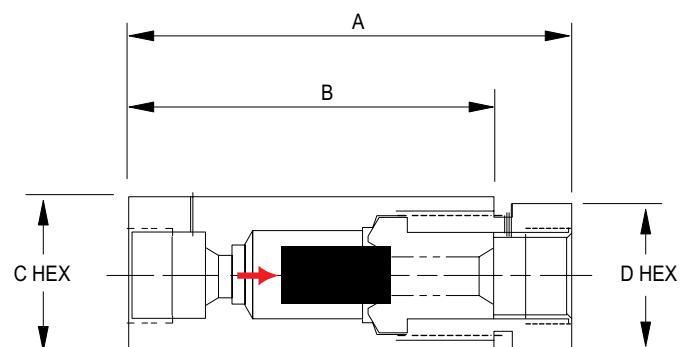
* Note: High Nickel not available in this size.

Operating Temperature Ranges

O-Ring Material	Operating Temp Range	Catalog Suffix
Viton	-40° to +500° F (-40° to +260° C)	-
Teflon	-320° to +400° F (-195° to +204° C)	-TFE

Sintered Cup Filters

Provide maximum filtration surface area for removal of contaminating particles from the fluid system. May be used in systems requiring high flow rates with minimum pressure drop. Available in nominal ratings of: 5, 10, 20, 40 and 100 micron.



Ex. 20SCF9-N-20

Product Details

Catalog Number	Connection	MAWP	Area*	A	B	C	D
20SCF4-N-*	1/4" M/P Tube	20,000 PSI (1378 BAR)	0.54 in ² 348 mm ²	3.22" (81.8)	2.50" (63.5)	1.00" (25.4)	0.88" (22.4)
20SCF6-N-*	3/8" M/P Tube	20,000 PSI (1378 BAR)	0.99 in ² 639 mm ²	3.12" (79.2)	2.50" (63.5)	1.38" (34.9)	1.12" (28.4)
20SCF9-N-*	9/16" M/P Tube	20,000 PSI (1378 BAR)	1.47 in ² 948 mm ²	4.22" (107.2)	3.50" (88.9)	1.38" (34.9)	1.38" (34.9)
20SCF12-N-*	3/4" M/P Tube	20,000 PSI (1378 BAR)	1.75 in ² 1129 mm ²	5.90" (149.9)	4.75" (120.7)	1.75" (44.5)	1.38" (34.9)
20SCF16-*	1" M/P Tube	20,000 PSI (1378 BAR)	4.86 in ² 3135 mm ²	6.48" (164.6)	5.55" (141.0)	2.12" (53.8)	1.75" (44.5)

*Required micron rating of the filter element (choose 5, 10, 20, 40 or 100 microns).

* Note: High Nickel not available in this size.

Tubing, Fittings and Components 20,000 PSI (1378 BAR)

Tubing

Description	Part No.
1/4" MP Tube 0.109" ID	20-109-316
3/8" MP Tube 0.203" ID	20-203-316
9/16" MP Tube 0.312" ID	20-312-316
3/4" MP Tube 0.438" ID	20-438-316
1" MP Tube 0.562" ID	20-562-316



Gland

Description	Part No.
1/4" MP Gland	20G4
3/8" MP Gland	20G6
9/16" MP Gland	20G9
3/4" MP Gland	20G12
1" MP Gland	20G16



Straight Coupling

Description	Part No.
1/4" MP Straight Coupling	20F4-N
3/8" MP Straight Coupling	20F6-N
9/16" MP Straight Coupling	20F9-N
3/4" MP Straight Coupling	20F12-N
1" MP Straight Coupling	20F16-N



Collar

Description	Part No.
1/4" MP Collar	20C4
3/8" MP Collar	20C6
9/16" MP Collar	20C9
3/4" MP Collar	20C12
1" MP Collar	20C16



Bulk Coupling

Description	Part No.
1/4" MP Bulkhead	20BF4-N
3/8" MP Bulkhead	20BF6-N
9/16" MP Bulkhead	20BF9-N
3/4" MP Bulkhead	20BF12-N
1" MP Bulkhead	20BF16*



Plug

Description	Part No.
1/4" MP Plug	20P4-N
3/8" MP Plug	20P6-N
9/16" MP Plug	20P9-N
3/4" MP Plug	20P12-N
1" MP Plug	20P16-N



Elbow

Description	Part No.
1/4" MP Elbow	20L4-N
3/8" MP Elbow	20L6-N
9/16" MP Elbow	20L9-N
3/4" MP Elbow	20L12-N
1" MP Elbow	20L16-N



Cap

Description	Part No.
1/4" MP Cap	20CA4-N
3/8" MP Cap	20CA6-N
9/16" MP Cap	20CA9-N
3/4" MP Cap	20CA12-N
1" MP Cap	20CA16-N



Tee

Description	Part No.
1/4" MP Tee	20T4-N
3/8" MP Tee	20T6-N
9/16" MP Tee	20T9-N
3/4" MP Tee	20T12-N
1" MP Tee	20T16-N



Anti-Vibration Collet Gland

Description	Part No.
1/4" MP Anti-Vibration Assembly	20AVCG4
3/8" MP Anti-Vibration Assembly	20AVCG6
9/16" MP Anti-Vibration Assembly	20AVCG9
3/4" MP Anti-Vibration Assembly	20AVCG12
1" MP Anti-Vibration Assembly	20AVCG16



Cross

Description	Part No.
1/4" MP Cross	20X4-N
3/8" MP Cross	20X6-N
9/16" MP Cross	20X9-N
3/4" MP Cross	20X12-N
1" MP Cross	20X16*



*Note: High Nickel not available in this size.

Tools and Assembly Procedure

Tools

Hand Tools

BuTech hand tools are designed to permit on-sight end preparation for tubing. The coning tool uses a precision collet to maintain concentricity between the tube and the cutter blades. The threading tool uses an adjustable split die and a precision guide bushing to cut a perfect thread.

Tube OD	Series	Coning Tool	Threading Tool
1/4"	20,000 PSI	20HCT4	THT4-H
3/8"	20,000 PSI	20HCT6	THT6-H
9/16"	20,000 PSI	20HCT9	THT9-H
3/4"	20,000 PSI	20HCT12	THT12-H
1"	20,000 PSI	20HCT16	THT16-H

Power Tools

BuTech power tools are designed to be used with a variable speed power hand drill. This unique feature makes them perfect for fast machining of several tube ends.

Tube OD	Series	Coning Tool	Threading Tool
1/4"	20,000 PSI	20CT4	THT4-P
3/8"	20,000 PSI	20CT6	THT6-P
9/16"	20,000 PSI	20CT9	THT9-P

Tube Vises

BuTech tube vises are the lightweight and inexpensive way to hold tubing tightly during coning and threading operations.

Tube Bender

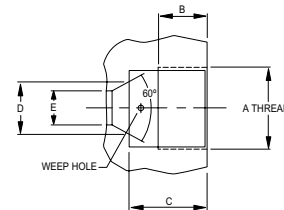
The BuTech tube bender is designed to provide fast, accurate and reliable bending of heavy wall tubing with only one setup.

Catalog Number	Tube OD
TV4	1/4"
TV6	3/8"
TV9	9/16"
TV12	3/4"
TV16	1"

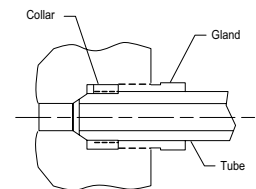
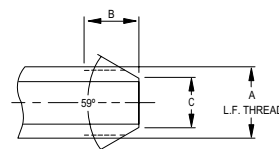
Catalog Number	Tube OD
MTB4	1/4"
MTB6	3/8"
MTB9	9/16"
MTB469	1/4", 3/8", 9/16"

Assembly Procedure

1. Slip gland nut onto tubing or nipple.
2. Screw collar onto threaded end of tubing or nipple. Allow one or two threads to be exposed on tubing or nipple between collar and coned tubing.
3. Lubricate male threads of gland nut with a non-hardening lubricant suitable for use on stainless steel. Lubricant chosen should also be compatible with working temperature requirements.
4. Insert tubing into female connection of valve or fitting. Screw gland into connection until finger-tight.
5. Tighten gland nut to torque value shown at right which corresponds to connection size being assembled.



Connection	A Thread	B	C	D	E
1/4" M/P	7/16" -20	0.28" (7.1)	0.50" (12.7)	0.19" (4.8)	0.109" (2.8)
3/8" M/P	9/16" -18	0.38" (9.7)	0.62" (15.7)	0.31" (7.9)	0.203" (5.2)
9/16" M/P	13/16" -16	0.44" (11.2)	0.75" (19.1)	0.50" (12.7)	0.312" (7.9)
3/4" M/P	3/4" -14 NPSM	0.50" (12.7)	0.94" (23.9)	0.62" (15.7)	0.437" (11.1)
1" M/P	1-3/8" -12	0.81" (20.6)	1.31" (33.3)	0.88" (22.4)	0.562" (14.3)



Connection	A Thread	B	C
1/4" M/P	1/4" -28	0.34" (8.6)	0.140" (3.6)
3/8" M/P	3/8" -24	0.44" (11.2)	0.250" (6.4)
9/16" M/P	9/16" -18	0.50" (12.7)	0.406" (10.3)
3/4" M/P	3/4" -14	0.62" (15.7)	0.562" (14.3)
1" M/P	1" -16	0.78" (19.8)	0.718" (18.2)

Tube Size	Engagement Allowance	Required Torque
1/4"	0.55" (14.0)	20 lb-ft (27 Nm)
3/8"	0.69" (17.5)	30 lb-ft (41 Nm)
9/16"	0.84" (21.3)	55 lb-ft (75 Nm)
3/4"	1.01" (25.7)	90 lb-ft (122 Nm)
1"	1.47" (31.3)	125 lb-ft (170 Nm)

BuTech delivers high-pressure valves, fittings, and tubing engineered for demanding applications across a range of industries.

For more information on our high-pressure products, visit butech-valve.com or contact your local BuTech representative at sales@haskel.com

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