

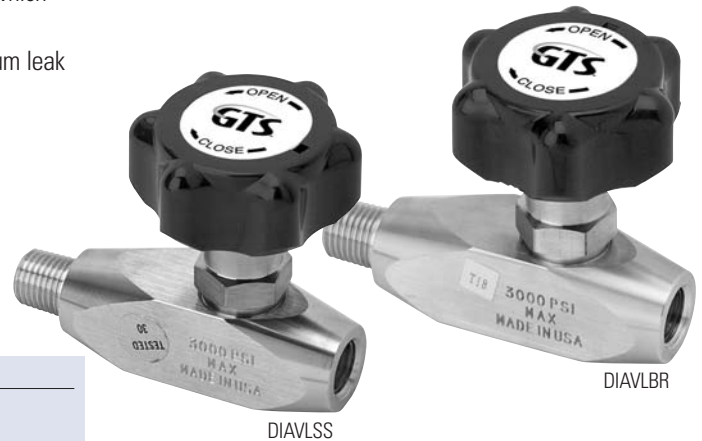
DIAPHRAGM PACKLESS VALVES

These high purity valves are recommended for gas handling systems and outlet valves for regulators where inboard diffusion of air or moisture must be kept to a minimum.

They are equipped with multiple metal diaphragms which provide permanent seal, capable of passing the helium leak test to 2×10^{-9} scc/sec.

SPECIFICATIONS

Maximum operating pressure	3500 PSIG
Materials	
Body	316 Stainless Steel or brass
Seat	Kel-F
Flow capacity	$C_v = 0.16$, orifice 0.094
Ambient operating temperature	-40°F to +200°F



PRODUCT CODE	MATERIAL
DIAVLVBR	Brass
DIAVLVSS	Stainless Steel

SERIES 520 DIAPHRAGM SEAL VALVES

Diffusion resistant diaphragm seal valves are recommended for high purity applications. These valves are available in either chrome plated brass or 316 SS. They have multiple metal diaphragms to provide a positive shutoff. They are capable of being certified to inboard helium leak rates of up to 2×10^{-9} scc/sec. The large polypropylene knob makes adjustments easy.

SPECIFICATIONS

Body	Chrome plated brass or 316 SS
Seat	Kel-F®
Gasket	Kel-F®
Diaphragms	316 SS
Inlet/Outlet	1/4" NPTF
Maximum inlet pressure	3000 PSIG
Temperature range	-40°F to +165°F
Flow coefficient	$C_v = .29$

OPTIONS

S850-B4	1/4" Swagelok® fittings Brass	PAGE 276
S850-S4	1/4" Swagelok® fittings 316 SS	276

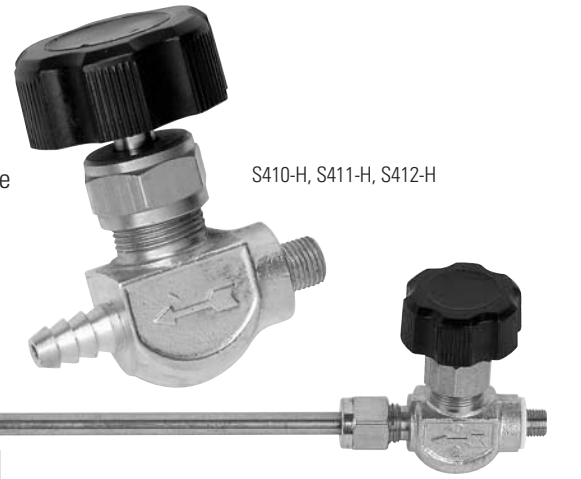
*Other fittings refer to page 275.

PRODUCT CODE	MATERIALS	INLET AND OUTLET
S520-B	Brass	1/4" NPTF
S520-S	316 SS	1/4" NPTF



SERIES 410, 411 & 412 LECTURE BOTTLE FLOW VALVE

These valves are specifically designed to mount directly to the outlet of a lecture bottle cylinder valve. They are primarily used to provide a means of flow control for applications where no pressure regulator is utilized. **Caution: closed systems could reach full cylinder pressure with the use of these devices.**



PRODUCT CODE	INLET CONNECTION	OUTLET CONNECTION
S411-T	CGA-110	1/4" OD Tube 12" Long
S411-H	CGA-110	Hose connection

Material: 316 SS

PRODUCT CODE	INLET CONNECTION	OUTLET CONNECTION
S412-T	CGA-110	1/4" OD Tube 12" Long
S412-H	CGA-110	Hose connection

Material: Monel®

PRODUCT CODE	INLET CONNECTION	OUTLET CONNECTION
S410-T	CGA-110	1/4" Tube 12" Long
S410-H	CGA-110	Hose connection

Material: Brass

SERIES 400, 402, 403 FLOW CONTROL VALVES

These precision valves are used to provide manual flow control for applications not requiring a pressure regulator. **Caution: closed systems could reach full cylinder pressure with the use of these devices.**



S400-2



S402-1



S403-2

PRODUCT CODE	OUTLET CONNECTION	MATERIAL	MAXIMUM PRESSURE
SERIES 400			
S400-1	Hose End	Brass	0-3000 PSIG
S400-2	1/4" Tube	Brass	0-3000 PSIG
S400-3	1/4" NPTF	Brass	0-3000 PSIG
SERIES 402			
S402-1	Hose End	316 SS	0-3000 PSIG
S402-2	1/4" Tube	316 SS	0-3000 PSIG
S402-3	1/4" NPTF	316 SS	0-3000 PSIG
SERIES 403			
S403-1	Hose End	Monel®	0-3000 PSIG
S403-2	1/4" Tube	Monel®	0-3000 PSIG

SERIES 660 MINIATURE FORGED NEEDLE VALVES

Miniature needle valves are used in a wide variety of applications such as shutoff valves for gases, instrument air lines, sampling lines for service with gas chromatography apparatus, and other laboratory or industrial applications wherever sensitive flow control is required.

FEATURES

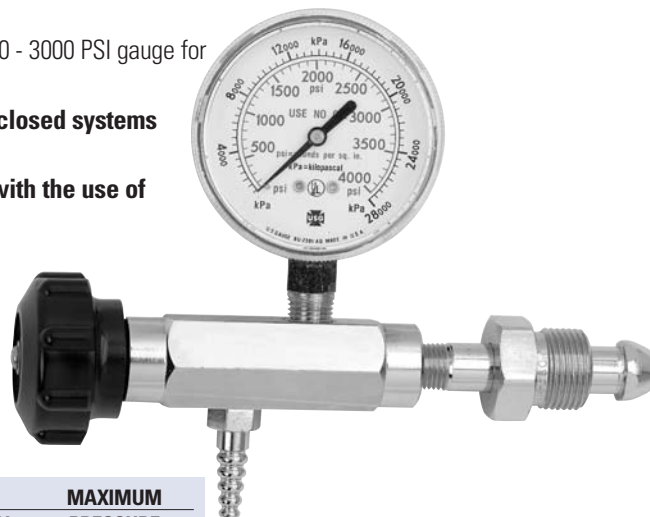
Each miniature needle valve is equipped with a ground and polished needle. These valves are available in brass, stainless steel, and monel®. They have Teflon® packing and are operable between -65°F and 450°F. Brass, stainless steel and monel® valves have a working pressure of 3000 PSIG.



PRODUCT CODE	CONNECTIONS		MATERIAL	ORIFICE SIZE	C _v FACTOR
	INLET	OUTLET			
S660-B1	1/8" NPT-M	1/8" NPT-M	Brass	.125	.21
S660-B2	1/4" NPT-M	1/4" NPT-M	Brass	.176	.40
S660-B3	1/4" NPT-F	1/4" NPT-F	Brass	.176	.40
S660-B4	1/4" NPT-M	1/4" CPI	Brass	.176	.40
S660-B5	1/4" CPI	1/4" CPI	Brass	.176	.40
S660-S1	1/4" NPT-M	1/4" NPT-M	316 SS	.176	.40
S660-M1	1/4" NPT-M	1/4" NPT-M	Monel®	.176	.40

SERIES 401 FLOW CONTROL VALVE

The 401 Series manual control valves are as similar to the 400, 402, and 403 but with the addition of a 0 - 3000 PSI gauge for monitoring cylinder pressure. **Caution: closed systems could reach full cylinder pressure with the use of these devices.**



PRODUCT CODE	OUTLET CONNECTION	MATERIAL	MAXIMUM PRESSURE
	S401-1		
S401-2	1/4" Tube	Brass	0-3000 PSIG
S401-3	1/4" NPTF	Brass	0-3000 PSIG