

# General Utility Service Needle Valves



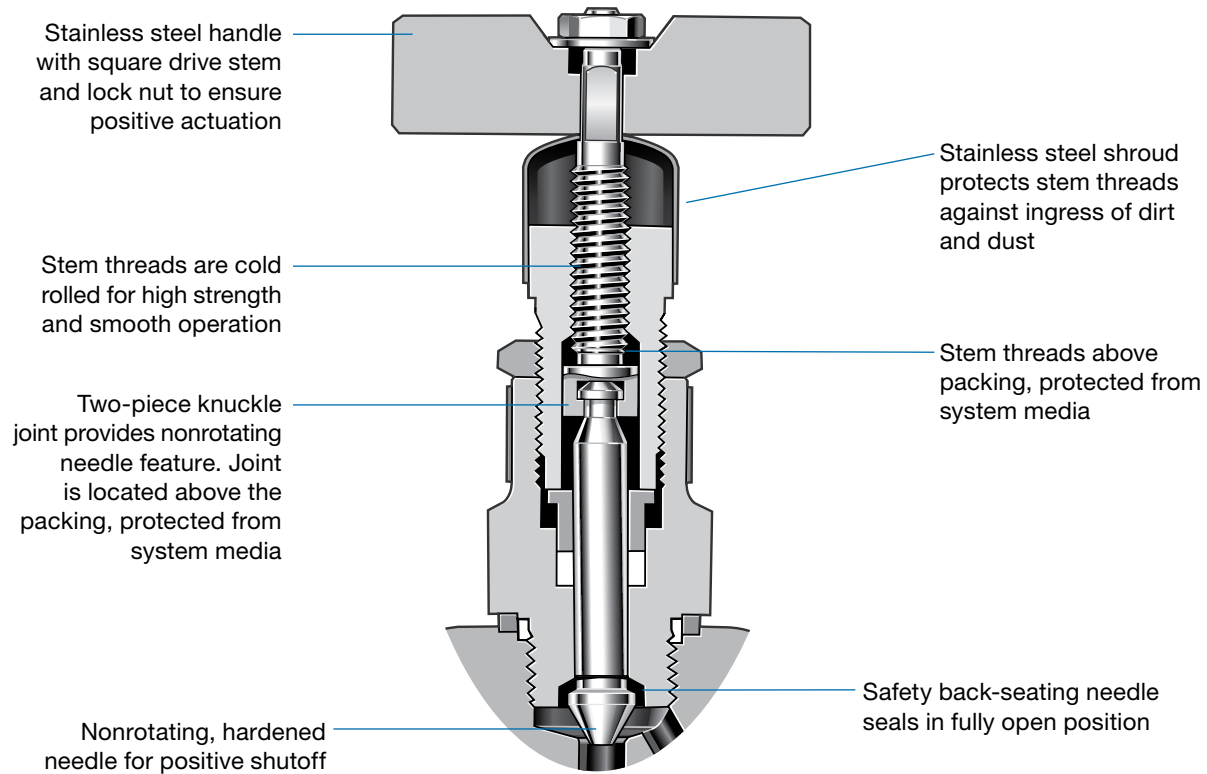
## GU Series

- Straight and angle patterns
- Stainless steel and carbon steel body material
- Pressures up to 6000 psig (413 bar)
- Temperatures up to 450°F (232°C) with PTFE packing; up to 650°F (343°C) with optional graphite packing

## Features

GU series needle valves are for use in general-purpose applications to isolate or vent system media. The hardened stainless steel, nonrotating needle promotes leak-tight shutoff and long service life. The valve stem threads are isolated from the media.

- Compact design
- Stainless steel stop pin
- High-temperature packing and bonnet seal option available
- Antitamper and lockable handle features available
- Suitable for sour gas service; materials are selected in accordance with NACE MR0175/ISO 15156.
- Low Emissions certification per API 624 available



## Materials of Construction

Component	Valve Body Material	
	Stainless Steel	Carbon Steel
	Material Grade/ASTM Specification	
Body	316 SS/ A479	Zinc plated <sup>①</sup> carbon steel/ AISI 1018
Bonnet		316 SS/A479
Needle	S17400 SS/A564 Condition H1150D	
Packing, bonnet seals	Carbon/glass-filled PTFE or graphite	
Lubricant	Fluorinated base with PTFE and tungsten disulfide	
Bonnet seal ring, gland nut, shroud, stem, gland, handle, handle lock nut, handle washer, locking pin	316 SS	
Gland lock nut	Powdered metal 300 series SS	

Wetted components listed in *italics*.

① Bodies with weld end connections receive a rust-preventive coating instead of zinc plating.

## Pressure-Temperature Ratings

Temperature, °F (°C)	Packing Material	
	PTFE	Graphite
	Working Pressure, psig (bar)	
-20 (-28) to 0 (-17)	—	6000 (413)
0 (-17) to 100 (37)	6000 (413)	6000 (413)
200 (93)	5160 (355)	5160 (355)
300 (148)	4680 (322)	4680 (322)
400 (204)	4260 (293)	4260 (293)
450 (232)	4110 (283)	4110 (283)
500 (260)	—	3960 (272)
600 (315)	—	3780 (260)
650 (343)	—	3660 (252)

## Testing

Every Swagelok GU series needle valve is factory tested with nitrogen at 1000 psig (69 bar). Seats have a maximum allowable leak rate of 0.1 std cm<sup>3</sup>/min. Shell testing is performed to a requirement of no detectable leakage with a liquid leak detector.

## Cleaning and Packaging

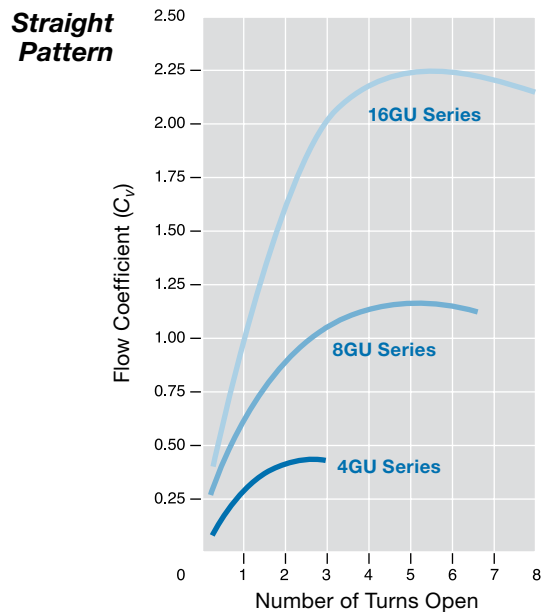
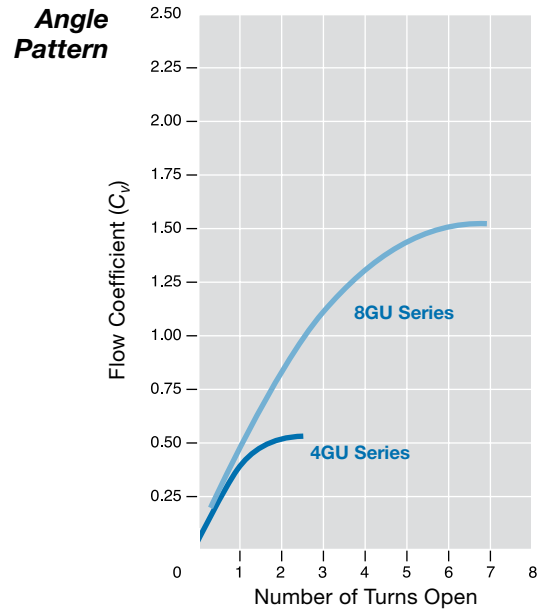
Every Swagelok GU series needle valve is cleaned and packaged in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)*, MS-06-62.

## Low Fugitive Emissions

The American Petroleum Institute's API 624 tests for fugitive emissions to atmosphere for rising stem valves. The tests are conducted at a third party lab and certify that at no point in the test did the valve leak in excess of 100 ppm of methane. Certificates stating that the valve is certified for Low Emissions service are available for valves with PTFE packing. For more information, contact your authorized Swagelok sales and service representative.

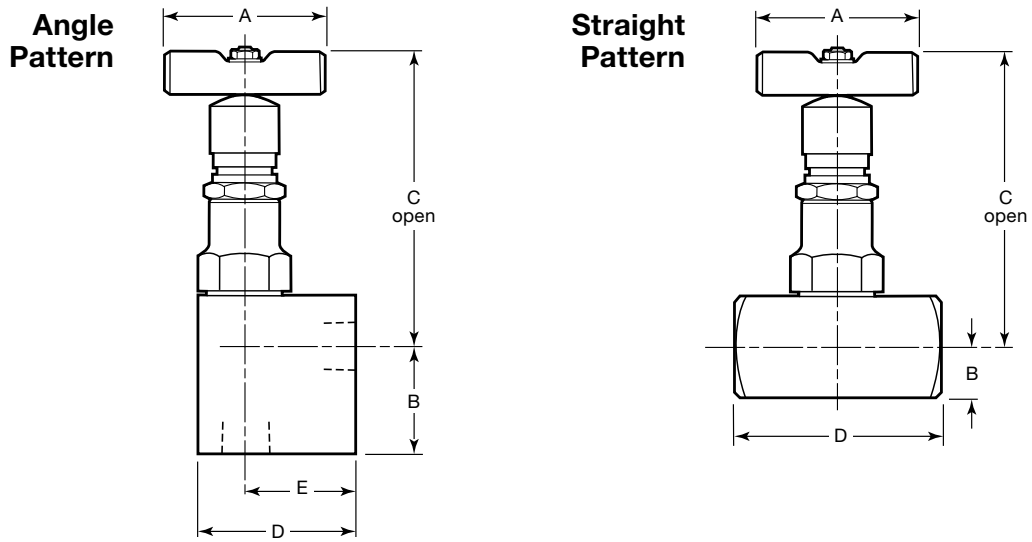
## Flow Data

### Flow Coefficient at Turns Open



## Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.



### Angle Pattern

End Connections		C <sub>v</sub>	Orifice in. (mm)	Ordering Number		Dimensions, in. (mm)				
Type	Size			Stainless Steel	Carbon Steel	A	B	C	D	E
Female NPT	1/4 in.	0.55	0.20 (5.0)	SS-4GUF4-A	S-4GUF4-A	1.75 (44.5)	0.85 (21.6)	3.20 (81.2)	1.50 (38.1)	1.00 (25.4)
	3/8 in.			SS-4GUF6-A	S-4GUF6-A		1.10 (27.9)		1.75 (44.5)	1.25 (31.8)
	1/2 in.			SS-4GUF8-A	S-4GUF8-A		1.23 (31.2)		3.33 (84.6)	2.00 (51.0)
	1/2 in.	1.60	0.31 (8.0)	SS-8GUF8-A	S-8GUF8-A	2.00 (51.0)	1.23 (31.2)	3.87 (98.3)	2.00 (51.0)	1.38 (35.1)
	3/4 in.			SS-8GUF12-A	S-8GUF12-A		3.98 (101)		2.50 (63.5)	1.50 (38.1)
	1 in.			SS-8GUF16-A	S-8GUF16-A		4.25 (108)		2.76 (70.0)	1.75 (44.5)

## Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.

### Straight Pattern

End Connections		C <sub>v</sub>	Orifice in. (mm)	Ordering Number		Dimensions, in. (mm)				
Type	Size			Stainless Steel	Carbon Steel	A	B	C	D	
Female NPT	1/4 in.	0.45	0.20 (5.0)	SS-4GUF4	S-4GUF4	1.75 (44.5)	0.50 (12.7)	3.20 (81.2)	2.13 (54.1)	
				SS-4GUF6	S-4GUF6				2.25 (57.2)	
	1/2 in.	0.45	0.20 (5.0)	SS-4GUF8	S-4GUF8	1.75 (44.5)	0.63 (16.0)	3.33 (84.6)	2.63 (66.8)	
				SS-8GUF8	S-8GUF8				2.00 (51.0)	2.76 (70.0)
	3/4 in.	1.20	0.31 (8.0)	SS-8GUF12	S-8GUF12	2.00 (51.0)	0.75 (19.1)	3.98 (101)	3.00 (76.2)	
				SS-16GUF12	S-16GUF12				3.00 (76.2)	3.25 (82.6)
	1 in.	1.20	0.31 (8.0)	SS-8GUF16	S-8GUF16	2.00 (51.0)	1.00 (25.4)	4.25 (108)	3.50 (88.9)	
				SS-16GUF16	S-16GUF16				3.00 (76.2)	4.02 (102)
Male NPT/ female NPT	1/4 in.	0.45	0.20 (5.0)	SS-4GUM4-F4	S-4GUM4-F4	1.75 (44.5)	0.50 (12.7)	3.20 (81.2)	2.38 (60.5)	
				SS-4GUM6-F6	S-4GUM6-F6					
	1/2 in.	0.45	0.20 (5.0)	SS-4GUM8-F8	S-4GUM8-F8	1.75 (44.5)	0.63 (16.0)	3.33 (84.6)	2.76 (70.0)	
				SS-8GUM8-F8	S-8GUM8-F8				2.00 (51.0)	3.00 (76.2)
	3/4 in.	1.20	0.31 (8.0)	SS-8GUM12-F12	S-8GUM12-F12	2.00 (51.0)	0.75 (19.1)	3.98 (101)	3.13 (79.6)	
				SS-16GUM12-F12	S-16GUM12-F12				3.00 (76.2)	3.50 (88.9)
	1 in.	1.20	0.31 (8.0)	SS-8GUM16-F16	S-8GUM16-F16	2.00 (51.0)	1.00 (25.4)	4.25 (108)	3.50 (88.9)	
				SS-16GUM16-F16	S-16GUM16-F16				3.00 (76.2)	4.02 (102)
Fractional tube socket weld	1/4 in.	0.45	0.20 (5.0)	SS-4GUSW4T	S-4GUSW4T	1.75 (44.5)	0.50 (12.7)	3.20 (81.3)	2.00 (50.8)	
				SS-4GUSW6T	S-4GUSW6T					
	1/2 in.	0.45	0.20 (5.0)	SS-4GUSW8T	S-4GUSW8T	1.75 (44.5)	0.50 (12.7)	3.20 (81.3)	2.25 (57.2)	
				SS-8GUSW8T	S-8GUSW8T				2.00 (51.0)	2.63 (66.8)
	3/4 in.	1.20	0.31 (8.0)	SS-8GUSW12T	S-8GUSW12T	2.00 (51.0)	0.63 (16.0)	3.87 (98.3)	2.63 (66.8)	
				SS-16GUSW12T	S-16GUSW12T				3.00 (76.2)	3.25 (82.6)
	1 in.	1.20	0.31 (8.0)	SS-8GUSW16T	S-8GUSW16T	2.00 (51.0)	0.75 (19.1)	3.98 (101)	2.63 (66.8)	
				SS-16GUSW16T	S-16GUSW16T				3.00 (76.2)	3.25 (82.6)
Fractional pipe socket weld	1/4 in.	0.45	0.20 (5.0)	—	S-4GUSW4P	1.75 (44.5)	0.50 (12.7)	3.20 (81.2)	2.25 (57.2)	
					S-4GUSW6P					0.63 (16.0)
	1/2 in.	0.45	0.20 (5.0)		S-4GUSW8P	1.75 (44.5)	0.75 (19.1)	3.45 (87.6)	2.50 (63.5)	
					S-8GUSW8P	2.00 (51.0)			3.98 (101)	2.63 (66.8)
	3/4 in.	1.20	0.31 (8.0)		S-8GUSW12P	2.00 (51.0)	0.88 (22.4)	4.13 (105)	3.25 (82.6)	
					S-16GUSW12P	3.00 (76.2)			5.24 (133)	3.50 (88.9)
	1 in.	1.20	0.31 (8.0)		S-8GUSW16P	2.00 (51.0)	1.00 (25.4)	4.25 (108)	3.50 (88.9)	
					S-16GUSW16P	3.00 (76.2)			5.35 (136)	
Metric tube socket weld	6 mm	0.45	0.20 (5.0)	SS-4GUSW6MMT	—	1.75 (44.5)	0.50 (12.7)	3.20 (81.2)	2.38 (60.5)	
	8 mm			SS-4GUSW8MMT						2.00 (51.0)
	10 mm			SS-4GUSW10MMT						
	12 mm	0.45	0.20 (5.0)	SS-4GUSW12MMT		1.75 (44.5)	0.50 (12.7)	3.20 (81.2)	2.25 (57.2)	
		1.20	0.31 (8.0)	SS-8GUSW12MMT		2.00 (51.0)	0.63 (16.0)	3.87 (98.2)	2.63 (66.8)	
	14 mm	1.20	0.31 (8.0)	SS-8GUSW14MMT		2.00 (51.0)	0.63 (16.0)	3.87 (98.2)	2.63 (66.8)	
		2.25	0.43 (11.0)	SS-16GUSW14MMT		3.00 (76.2)	0.88 (22.4)	5.24 (133)	3.75 (95.3)	
	16 mm	1.20	0.31 (8.0)	SS-8GUSW16MMT		2.00 (51.0)	0.63 (16.0)	3.87 (98.2)	2.63 (66.8)	
		2.25	0.43 (11.0)	SS-16GUSW16MMT		3.00 (76.2)	0.88 (22.4)	5.24 (133)	3.50 (88.9)	
	18 mm	2.25	0.43 (11.0)	SS-16GUSW18MMT		3.00 (76.2)	0.88 (22.4)	5.24 (133)	3.25 (82.6)	
25 mm	SS-16GUSW25MMT									

## Options

To order valves with multiple options, add the appropriate designator in *alphabetical* order.

### High-Temperature Stem Packing, Bonnet Seal

Graphite stem packing and bonnet seal material is available for temperatures up to 650°F (343°C).

To order valves with graphite material, add **-G** to the valve ordering number:

Example: SS-4GUF4-**G**

### Antitamper Handle

The antitamper handle reduces the risk of human error and deliberate tampering. The valve can be operated with the antitamper key, sold separately.

To order valves with antitamper handles, add **-AT** to the valve ordering number.

Example: SS-4GUF4-**AT**



### Round Lockable Handles

The lockable handles can lock the valve in any position. These round handles accommodate shackle diameters smaller than 0.22 in. (5.7 mm) for 4GU and 8GU series valves and 0.28 in. (7.0 mm) for 16GU series valves.



### Nylon

A nylon lockable handle is available for ambient temperatures up to 250°F (121°C) and process temperatures up to 450°F (232°C).

To order, add **-NLH** to the valve ordering number.

Example: SS-4GUF8-**NLH**

### Stainless Steel

A stainless steel lockable handle is available for marine service.

To order, add **-SLH** to the valve ordering number.

Example: SS-4GUF8-**SLH**

⚠ **A packing adjustment may be required periodically to increase service life and to prevent leakage.**

⚠ **Valves that have not been cycled for a period of time may have a higher initial actuation torque.**

## Accessories

### Antitamper Key

- Fits all vent valves within the system
- Order separately



Valve Series	Ordering Number
4GU	S004468
8GU	
16GU	S007240

### Handle Kits

Standard stainless steel bar handle kits contain a handle, washer, lock nut, and instructions.

Optional round lockable nylon or stainless steel handle kits contains a handle, lock shield, retaining ring, label, washer, lock nut, and instructions.

Handle Style	Valve Series	Kit Ordering Number
Stainless steel bar	4GU	SS-5K-4GU
	8GU	SS-5K-8GU
	16GU	SS-5K-16GU
Round lockable nylon	4GU	SS-5K-4GU-NLH
	8GU	SS-5K-8GU-NLH
	16GU	SS-5K-16GU-NLH
Round lockable stainless steel	4GU	SS-5K-4GU-SLH
	8GU	SS-5K-8GU-SLH
	16GU	SS-5K-16GU-SLH

⚠ **To increase service life, ensure proper valve performance, and prevent leakage, apply only as much torque as is required to achieve positive shutoff.**



**Safe Product Selection**

**When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.**

**Caution: Do not mix or interchange parts with those of other manufacturers.**

**Warranty Information**

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit [swagelok.com](http://swagelok.com) or contact your authorized Swagelok representative.