

UHP Valves, Fittings & System Integration

KITZ SCT

TD-S Series

SCV Submersible Valves®



KITZ
Group

UHP Gas Series

The TD-S series of SCV submersible valves[®], incorporating our unique technology, can be used in high-temperature environments compatible with integrated gas systems. They are suitable for supplying precursors in atomic layer deposition (ALD) processes where consistent flow rate reproducibility is required.

“Submersible valve” : a valve that can be used in a high-temperature environment.

*SCV[®] submersible valve is a registered trademark of KITZ SCT Corporation.

■ Features

■ Compatible with high-temperature environments

Efficient heating is possible because the entire valve can be used in high-temperature environments up to 200°C.

■ Stable Cv value

Cv values are 100% factory-adjusted. With little variation in the Cv value during use, stable gas flow rates can be obtained.

Initial Cv value error within $\pm 5\%$; variation during use within $\pm 10\%$

■ Adoption of PFA seat

PFA with excellent heat resistance and corrosion resistance is adopted as a seat material. It can be used for a wide variety of gases.

■ High durability

Performance value of 20 million cycles*

Compared with the metal seat type, adoption of the PFA seat improves durability performance, including excellent seat leak rates and extended life cycles in high-temperature environments.

*Our pneumatic valve test performance (test conditions): fluid: N₂, charged pressure: 0.7MPa(G), atmospheric temperature: 200°C

User Friendly Concept

■ Pneumatic valve



Optimized actuator design for improved heat efficiency.

With the location of the actuator's air vent port on the top, the heater jacket comes into closer contact with the actuator.

■ Manual valve



With the LOTO (Lock-Out, Tag-Out) mechanism installed, heat-resistant spec handle design allows for visual inspection of the open/closed state

The handle is designed for maximum valve temperature. Therefore, it is possible to bake-out without removing the handle. The equipped LOTO mechanism enables locking when the handle is closed, so that safety measures can be taken by using a padlock. The LOTO is not designed to lock in the valve's open position.

Specifications

Size	TD4S (1.125")	TD8S (1.5" HF)
Cv at 200°C *1	0.19	0.5
Maximum Operating Pressure	101.5psig (0.7 MPa(G))	
Wetted Area Volume *2	0.0372in ³ (0.61 cm ³) (C-seal, 2-port)	0.1123in ³ (1.84 cm ³) (C-seal, 3-port)
Fluid Temperature	60°C~200°C *3	
Atmospheric Temperature	60°C~200°C *3	
Leak Rates (Room temperature when shipped)	Across the Seat He Leak Rates	$\leq 1 \times 10^{-10}$ Pa · m ³ /s
	Inboard He Leak Rates	$\leq 1 \times 10^{-10}$ Pa · m ³ /s
Actuation Pressure (Pneumatic valve)	Manual Valve	10,000 cycles
	Pneumatic Valve	20 million cycles

Grade	STD	EP	SEP
Body Material	SUS316L		SUS316LE (Double melt material)
Surface Roughness	$\leq Rz 3.2 \mu m$	$\leq Rz 0.7 \mu m$	
Polish	Mechanical polished	Electro polished	
Cleaning	Degreasing + Precision cleaning		
Packaging	Single bagged package	Double bagged package	
Seat	PFA		
Diaphragm	Cobalt alloy		

*1 The minimum value is stated by Cv value measurement (200°C) based on SEMASPEC-90120394B-STD.

*2 Calculated value from the C-seal surface mount drawing dimensions

*3 If not in continuous use, normal temperature to 200°C.

*4 N.C. valve: In-house durability test performance value in a 200°C constant temperature bath with N2 charged at 0.7MPa(G).

Manual valve: In-house durability test performance value by heating the body section at 200°C

Precautions

- The pneumatic valve's exterior is designed to be used under atmospheric pressure. If the valve's actuator is within a vacuum environment then the performance is not guaranteed.
- For high temperature applications, please select appropriate material for the actuator's air-fittings and tubes to assure proper performance.


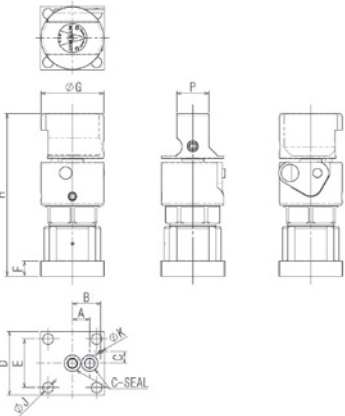
Type

Model	Size	Temperature	Operation	Valve Shape	Connection	Seat Material	Cv Adjustment (Pneumatic valve only)	Handle Color	Grade
TD	4	S	C	S	G	A			EP-316L
TD : TD-type Diaphragm valve	4 : 1.125" 8 : 1.5" HF	S : 200°C 0.7MPa Highly durable	Q : LOTO C : Normally closed	S : Straight B : Branch	G : C-seal Surface mount	A : PFA	Not shown: Adjusted N : Not adjusted	Not shown: Base material color Color *	STD-316L: Mechanical polished + SUS316L EP-316L: Electro polished + SUS316L SEP-316LE: Electro polished + Double melt material

* For colors, contact our sales representative.

Dimensions

Unit:inch(mm)

Model	Type	Connection	A	B	C	D	E	F	G	H	J	K	P
	TD4SCS-GA	C-1.125" Surface mount	0.305 (7.75)	0.500 (12.7)	0.205 (5.2)	1.126 (28.6)	0.856 (21.74)	0.260 (6.6)	1.122 (28.5)	3.15 (80)	0.187 (4.75)	0.061 (1.55)	Rc1/8
	TD8SCS-GA	C-1.5" HF Surface mount	0.455 (11.56)	0.645 (16.38)	0.330 (8.38)	1.490 (37.85)	1.188 (30.18)	0.315 (8)	1.496 (38)	3.90 (99)	0.203 (5.16)	0.079 (2)	
	TD4SQS-GA	C-1.125" Surface mount	0.305 (7.75)	0.500 (12.7)	0.205 (5.2)	1.126 (28.6)	0.856 (21.74)	0.260 (6.6)	1.102 (28)	2.87 (73)	0.187 (4.75)	0.061 (1.55)	0.551 (14)
	TD8SQS-GA	C-1.5" HF Surface mount	0.455 (11.56)	0.645 (16.38)	0.330 (8.38)	1.490 (37.85)	1.188 (30.18)	0.315 (8)	1.496 (38)	3.31 (84)	0.203 (5.16)	0.079 (2)	

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Caution

Product specifications and performance values described in this catalog are based on our design calculations, in-house testing, product usage performance, and public standards and specifications, and are posted as a user's guide under general usage conditions of the product. If the product is used outside of the described usage conditions or under special usage conditions, you should receive our technical advice in advance or it will be necessary to first conduct research and evaluation for performance verification at the users' own responsibility. Even if physical or personal damage occurs without use of this procedure, we shall assume no responsibility. Although this catalog has been edited with the utmost care possible, contact us if there are any unclear points or if you come across any questionable matter. In addition, information described in this catalog will be revised without notice due to reasons that include correction of errors, supplementation/improvement of insufficient content, improvement in product performance, design change, and discontinuation of production of products, etc., when deemed necessary. This invalidates the product catalog of the previous version. The issue code is described on the back of your catalog. For product selection, contact us to confirm whether your catalog is the latest version.

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