

UHP Valves, Fittings & System Integration

KITZ SCT

KD-S Series

SCV Submersible Valves®



KITZ
Group

UHP Gas Series

Our KD-S SCV Submersible Valves® series, using our unique technology, provides flow rate reproducibility in high-temperature environments; making them suitable for supplying precursors in atomic layer deposition (ALD) processes.

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

Features

Compatible with high-temperature environments

The entire valve can be submerged in high-temperature environments up to 200°C, allowing for efficient heating.

Flow rate reproducibility

Valve Cv values are factory-set. Flow rates stay stable during use and consistent with replacements.

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

PFA seat

PFA seat provides excellent heat and corrosion resistance, and is compatible with a wide variety of gases.

High durability

Cycle life of 5 million.*

PFA seat improves valve performance in comparison with a metal seat.

*Our pneumatic valve test performance (test conditions): fluid: N₂, charged pressure: 101psig (0.7MPa(G)), atmospheric temperature: 200°C

User-friendly Design

Pneumatic valve



Design for use with heater jacket

Placing the air vent port on top of the actuator allows the heater jacket to have close contact with the sides of the valve to minimize heat loss.

Manual valve



Heat resistant handle with open/close indicator

By making the handle and the open/close indicator window heat-resistant, it is possible to bake-out without removing the handle.

Specifications

Size	KD4S (1/4")	KD8S (1/2")
Cv *1	0.19	0.5
Maximum Operating Pressure	101psig (0.7MPa(G))	
Wetted Area Volume *2	0.083in ³ (1.36cm ³)	0.449in ³ (7.36cm ³)
Fluid Temperature	60°C~200°C ※3	
Atmospheric Temperature	60°C~200°C	
Leak Rates	Across the Seat He Leak Rates	≤ 1×10 ⁻⁹ sccs(≤ 1×10 ⁻¹⁰ Pa·m ³ /sec)
	Inboard He Leak Rates	≤ 1×10 ⁻⁹ sccs(≤ 1×10 ⁻¹⁰ Pa·m ³ /sec)
Actuation Pressure (Pneumatic valve)	58-101psig (0.4 - 0.7 MPa(G))	
Cycle Life *4	Manual Valve	10,000 cycles
	Pneumatic valve	5 million cycles

Grade	STD	EP	SEP
Body Material	SUS316L		SUS316LE (Double melt material)
Surface Roughness	≤ Rz 3.2 μm		≤ Rz 0.7 μm
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 CVC male 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 101psig (0.7MPa(G)).

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

Precautions

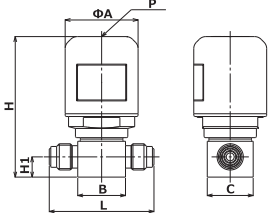
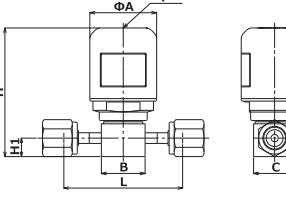
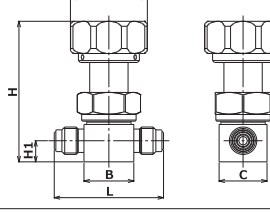
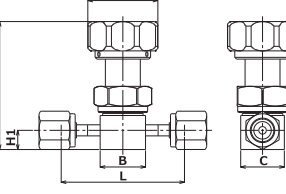
- 1) The pneumatic UHP valves are not guaranteed to function if their exterior is submerged inside a vacuum.
- 2) For high temperature applications, please select appropriate material for air-fittings and tubes to assure proper performance.

Type

Model	Size	Temperature	Operation	Valve Shape	Connection	Seat Material	Cv Adjustment (Pneumatic valve only)	Handle Color	Grade
KD	4	S	C	S	V	A			EP-316L
KD : KD-type Diaphragm valve	4 : 1/4" 8 : 1/2"	S : 200°C 101psig (0.7MPa(G)) C : Normally closed Highly durable	M : Manual valve C : Normally closed	S : Straight A : Angle L : L-shape B : Branch	V : CVC male VF : CVC female W : Tube end	A : PFA	Not shown : Adjusted N : Not adjusted	Not shown : Base material color BL : Blue	STD-316L : Mechanical polished + SUS316L EP-316L : Electro polished + SUS316L SEP-316LE : Electro polished + Double melt material

Dimensions

Unit : inch (mm)

Model	Type	Connection	L	H	H1	A	B	C	P	M	M1	
	KD4SCS-V□	1/4" CVC male	2.24 (57)	2.99 (76)	0.43 (11)	1.56 (39.7)	1.02 (26)	0.98 (25)	Rc1/8	1.00 (25.4)	2-M5 Depth 0.20 (5.0)	
	KD8SCS-V□	1/2" CVC male	3.03 (77)	4.06 (103)	0.63 (16)	2.17 (55)	1.42 (36)	1.42 (36)		1.10 (28)		
	KD4SCS-VF□	1/4" CVC Female	2.78 (70.6)	2.99 (76)	0.43 (11)	1.56 (39.7)	1.02 (26)	0.98 (25)		1.00 (25.4)		
	KD8SCS-VF□	1/2" CVC Female	3.27 (83)	4.06 (103)	0.63 (16)	2.17 (55)	1.42 (36)	1.42 (36)		1.10 (28)		
	KD4SMS-V□	1/4" CVC male	2.24 (57)	2.87 (73)	0.43 (11)	1.65 (42)	1.02 (26)	0.98 (25)		-		1.00 (25.4)
	KD8SMS-V□	1/2" CVC male	3.03 (77)	3.39 (86)	0.63 (16)		1.42 (36)	1.42 (36)				1.10 (28)
	KD4SMS-VF□	1/4" CVC Female	2.78 (70.6)	2.87 (73)	0.43 (11)		1.02 (26)	0.98 (25)	1.00 (25.4)			
	KD8SMS-VF□	1/2" CVC Female	3.27 (83)	3.39 (86)	0.63 (16)		1.42 (36)	1.42 (36)	1.10 (28)			

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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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