

# KITZ SCT

## KD-E Series

Replaceable Seat Valves



The KD-E series (replaceable seat valves) are KD series-based diaphragm valves the seat and diaphragm of which are structurally detachable and replaceable, realizing reduction in running costs.

## Features

### Minimized internal volume

Excellent gas displacement ability by minimized internal dead volume. (75% reduction from the WD series)



### Reduction in running costs

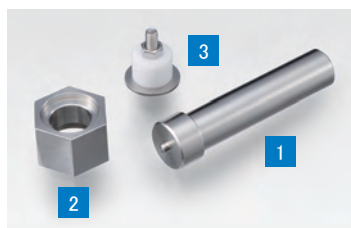
The valve body and actuator can be reused while seat and diaphragms are replaced. The RSV is ideal for precursor containers and other uses where valves are frequently replaced or maintained.

### Easy replacement of the seat and diaphragm

The seat and diaphragm can be replaced with ease and accuracy by using the dedicated set of replacement tools.

| Component name             | Type      |
|----------------------------|-----------|
| RSV-seat & diaphragm PCTFE | VPKD-0007 |
| RSV-seat & diaphragm PFA   | VPKD-0008 |

| Component name           |                     | Type             |                 |
|--------------------------|---------------------|------------------|-----------------|
|                          |                     | For single valve | For block valve |
| Set of replacement tools |                     | VPKD-0032        | VPKD-0036       |
| 1                        | Push rod            | VPKD-0034        | VPKD-0038       |
| 2                        | Bonnet              | VPKD-0033        | VPKD-0037       |
| 3                        | Extraction jig ASSY | VPKD-0035        |                 |



Watch the video and check out the features of the products.  
(Communication charge required)

#### Precautions

- 1) When removing and installing the seat, dedicated tools are required. (Optionally available)  
For details, see the components replacement procedure.
- 2) The diaphragm and seat should always be replaced at the same time.  
A used seat and diaphragm cannot be reused.

## Specifications

|                                      |   |  |  |
|--------------------------------------|---|--|--|
| Size                                 | KD4-E (1/4")                                |  |  |
| Cv *1                                | 0.27  |  |  |
| Maximum Operating Pressure           | 142 psig (0.98 MPa(G))                      |  |  |
| Wetted Area Volume *2                | 0.083in <sup>3</sup> (1.36cm <sup>3</sup> ) |  |  |
| Fluid Temperature                    | PCTFE -10℃～80℃<br>PFA -10℃～150℃             |  |  |
| Atmospheric Temperature              | -10℃～60℃                                    |  |  |
| Leak Rates *3                        | Across the Seat He Leak Rates               | ≤ 1 × 10 <sup>-9</sup> sccs (≤ 1 × 10 <sup>-10</sup> Pa·m <sup>3</sup> /s) |  |
|                                      | Inboard He Leak Rates                       | ≤ 1 × 10 <sup>-9</sup> sccs (≤ 1 × 10 <sup>-10</sup> Pa·m <sup>3</sup> /s) |  |
| Actuation pressure (Pneumatic valve) |   | 58～102 psig (0.4～0.7MPa(G))  |  |
| Cycle Life *4                        | Manual Valve                                | 1,000 cycles   |  |
|                                      | Pneumatic Valve                             | 100,000 cycles   |  |

|                   |   |    |  |
|-------------------|---|----|--|
| Grade             | STD   | EP | SEP  |
| Body Material     | SUS316L   |    | SUS316LE<br>(Double melt material)   |
| Surface Roughness | $\leq R_z 126 \mu\text{in}$ (3.2 $\mu\text{m}$ )<br>$\leq R_a 20 \mu\text{in}$ (0.5 $\mu\text{m}$ ) |    | $\leq R_z 28 \mu\text{in}$ (0.7 $\mu\text{m}$ )<br>$\leq R_a 5 \mu\text{in}$ (0.13 $\mu\text{m}$ ) |
| Polish            | Mechanical polished   |    | Electro polished   |
| Cleaning          | Degreasing + Precision cleaning   |    |  |
| Packaging         | Single bagged package   |    | Double bagged package  |
| Seat              | PCTFE, PFA  |    |  |
| Diaphragm         | Cobalt alloy  |    |  |

#### Precautions

- 1) The valves are designed to be used under atmospheric pressure. Usage such as under vacuum vessels are not guaranteed.
- 2) For high temperature applications, please select appropriate material for air-fittings and tubes to assure proper performance.

\*1 The minimum value is stated by Cv value measurement (room temperature) based on SEMASPEC-90120394B-STD.

\*2 Calculated value from the CVC male drawing dimensions (standard value)

\*3 Value when sprayed in 5S and confirmed in 15S by the vacuum spray method

\*4 Durability performance with nitrogen gas filled + PCTFE: 80°C, PFA: 150°C

## Type

| Model                          | Size     | Operation  | Valve Shape                                       | Connection   | Seat Shape                  | Seat Material      | Flow                                | Grade + Body Material  |
|--------------------------------|----------|--|---|--|-----------------------------|--------------------|-------------------------------------|--|
| KD                             | 4        | C  | S   | V  | E                           | C                  |                                     | EP-316L  |
| KD: KD-type<br>Diaphragm valve | 4 : 1/4" | M: 270-degree turn<br>manual valve<br>C: Normally closed | S: Straight<br>B: Branch<br>A: Angle<br>L: L-type | V: CVC male<br>VF: CVC female<br>S: Compression fitting<br>W: Butt welding | E: Seat replaceable<br>type | C: PCTFE<br>A: PFA | A: A flow<br>B: B flow<br>C: C flow | STD-316L: Mechanical polished + SUS316L<br>EP-316L: Electro polished + SUS316L<br>SEP-316LE: Electro polished + SUS316LE |

The VLD series simplified by minimizing the number of driving components and eliminating the panel mount mechanism is also available. Contact our sales representative.

## Dimensions

inch (mm)

| Model | Type       | Connection        | L              | L1             | H              | H1             | H2             | A              | B              | C              | M              | M1                          | M2        |
|-------|------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------------------|-----------|
|       | KD4MS-VEC  | 1/4" CVC male     | 2.24<br>(57.0) | —              | 2.68<br>(68.0) | 0.43<br>(11.0) | 1.06<br>(27.0) | 1.65<br>(42.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.20 (5.0) | M20 × 1.0 |
|       | KD4MS-VFEC | 1/4" CVC female   | 2.78<br>(70.6) | —              | 2.68<br>(68.0) | 0.43<br>(11.0) | 1.06<br>(27.0) | 1.65<br>(42.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.20 (5.0) | M20 × 1.0 |
|       | KD4MS-SEC  | 1/4" Compression  | 1.89<br>(48.0) | 0.31<br>(7.90) | 2.68<br>(68.0) | 0.43<br>(11.0) | 1.06<br>(27.0) | 1.65<br>(42.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.20 (5.0) | M20 × 1.0 |
|       | KD4MS-WEC  | 1/4" Butt welding | 2.13<br>(54.0) | —              | 2.68<br>(68.0) | 0.43<br>(11.0) | 1.06<br>(27.0) | 1.65<br>(42.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.20 (5.0) | M20 × 1.0 |

| Model | Type       | Connection        | L              | L1             | H              | H1             | A              | B              | C              | P     | M              | M1                          |
|-------|------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|----------------|-----------------------------|
|       | KD4CS-VEC  | 1/4" CVC male     | 2.24<br>(57.0) | —              | 2.64<br>(67.0) | 0.43<br>(11.0) | 1.56<br>(39.7) | 1.02<br>(26.0) | 0.98<br>(25.0) | Rc1/8 | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.20 (5.0) |
|       | KD4CS-VFEC | 1/4" CVC female   | 2.78<br>(70.6) | —              | 2.64<br>(67.0) | 0.43<br>(11.0) | 1.56<br>(39.7) | 1.02<br>(26.0) | 0.98<br>(25.0) | Rc1/8 | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.20 (5.0) |
|       | KD4CS-SEC  | 1/4" Compression  | 1.89<br>(48.0) | 0.31<br>(7.90) | 2.64<br>(67.0) | 0.43<br>(11.0) | 1.56<br>(39.7) | 1.02<br>(26.0) | 0.98<br>(25.0) | Rc1/8 | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.20 (5.0) |
|       | KD4CS-WEC  | 1/4" Butt welding | 2.13<br>(54.0) | —              | 2.64<br>(67.0) | 0.43<br>(11.0) | 1.56<br>(39.7) | 1.02<br>(26.0) | 0.98<br>(25.0) | Rc1/8 | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.20 (5.0) |

\*The L1 dimension is the tube insertion dimension of the compression fitting.



## 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 the 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 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, supplement/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 in the back of your catalog. For product selection, contact us to confirm whether your catalog is the latest version. In addition, when exporting our products, exporters should obtain an export permit from the Ministry of Economy, Trade and Industry based on the provisions of the Export Trade Control Order of the "Foreign Exchange and Foreign Trade Act." Contact us regarding any unclear points.

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