

UHP Valves, Fittings & System Integrate

**KITZ SCT**

**ZD Series**  
200°C high-temperature replaceable valves

**ZD-K Series**  
250°C high-temperature replaceable valves



**KITZ**  
GROUP

UHP Gas Series

The ZD series (high-temperature replaceable valves) are valves that can be used in high-temperature environments and the seats of which are structurally detachable and replaceable.

## Specifications

| Size                                              | ZD                                                                                                                                               |                                                  | ZD-K                                            |                                                  |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------|--------------------------------------------------|
|                                                   | 1/4"                                                                                                                                             | 1/2"                                             | 1/4"                                            | 1/2"                                             |
| Cv<br>Room Temperature (ZD: 200°C/ZD-K: 250°C) *1 | 0.27 (0.16)                                                                                                                                      | 1.3 (1.0)                                        | 0.27 (0.10)                                     | 1.3 (0.8)                                        |
| Maximum Operating Pressure                        | 44 psig (0.3 MPa(G))                                                                                                                             |                                                  |                                                 |                                                  |
| Wetted Area Volume *2                             | 0.099in <sup>3</sup><br>(1.63 cm <sup>3</sup> )                                                                                                  | 0.718in <sup>3</sup><br>(11.76 cm <sup>3</sup> ) | 0.099in <sup>3</sup><br>(1.63 cm <sup>3</sup> ) | 0.718in <sup>3</sup><br>(11.76 cm <sup>3</sup> ) |
| Fluid Temperature PFA                             | Room temperature ~ 200°C                                                                                                                         |                                                  | Room temperature ~ 250°C                        |                                                  |
| Atmospheric Temperature                           | Room temperature ~ 200°C                                                                                                                         |                                                  | Room temperature ~ 250°C                        |                                                  |
| Leak Rates                                        | Across the Seat He Leak Rates<br>Initial value/room temperature<br>$\leq 1 \times 10^{-9}$ SCCS ( $\leq 1 \times 10^{-10}$ Pa·m <sup>3</sup> /s) |                                                  |                                                 |                                                  |
|                                                   | Across the Seat He Leak Rates<br>ZD: at 200°C / ZD-K: at 250°C<br>$\leq 1 \times 10^{-6}$ SCCS ( $\leq 1 \times 10^{-7}$ Pa·m <sup>3</sup> /s)   |                                                  |                                                 |                                                  |
|                                                   | Inboard He Leak Rates<br>$\leq 1 \times 10^{-9}$ SCCS ( $\leq 1 \times 10^{-10}$ Pa·m <sup>3</sup> /s)                                           |                                                  |                                                 |                                                  |
| Actuation Pressure (Pneumatic Valve)              | 58 - 102 psig<br>(0.4 - 0.7 MPa(G))                                                                                                              | 73 - 102 psig<br>(0.5 - 0.7 MPa(G))              | 58 - 87 psig<br>(0.4 - 0.6 MPa(G))              | 73 - 102 psig<br>(0.5 - 0.7 MPa(G))              |
| Cycle Life *3                                     | Manual Valve                                                                                                                                     | —                                                |                                                 | 5,000 cycles                                     |
|                                                   | Pneumatic Valve                                                                                                                                  | 1,000,000 cycles                                 |                                                 | 800,000 cycles                                   |

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

\*1 Measured value with male fitting body and temperature elevated by our in-house facilities (guideline)

\*2 Calculated value from drawing dimensions

\*3 Test condition / Seat material : PFA, Gas : N<sub>2</sub>, Pressure : 44psig (0.3MPa(G))

## Type

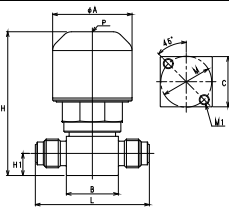
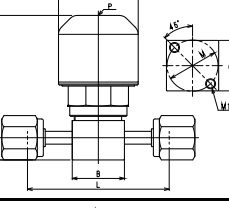
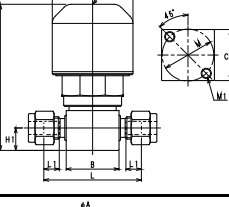
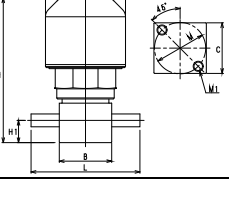
| Model                                           | Size                             | Operating Temperature                                 | Operation                                        | Valve Shape                                            | Connection                                                                 | Seat Material | Special Spec                   | Grade                                                                                                                                                 |
|-------------------------------------------------|----------------------------------|-------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------|---------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| ZD                                              | 4                                |                                                       | M                                                | S                                                      | V                                                                          | A             |                                | EP-316L                                                                                                                                               |
| ZD:<br>High-temperature<br>replaceable<br>valve | 4 : 1/4"<br>6 : 3/8"<br>8 : 1/2" | Not shown:<br>200°C-compatible<br>K: 250°C-compatible | M: 120-degree *1<br>manual<br>C: Normally closed | S: Straight<br>A: Angle<br>L: L-type<br>B: Branch-type | V: CVC male<br>VF: CVC female<br>S: Compression fitting<br>W: Butt welding | A: PFA        | Not shown:<br>Standard product | STD-316L : Mechanical polished + SUS316L<br>EP-316L : Electro polished + SUS316L<br>SEP-316LE : Electro polished + SUS316LE<br>(Double melt material) |

\*1 Only the ZD-K is capable of 120-degree manual operation.

## Dimensions [ZD series]

Unit: inch(mm)

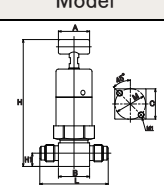
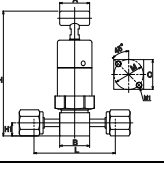
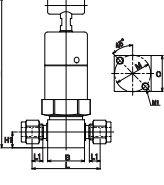
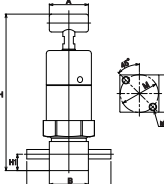
### ZD Pneumatic

| Model                                                                              | Type      | Connection               | L              | L1             | H             | H1             | A              | B              | C              | P     | M              | M1                      |
|------------------------------------------------------------------------------------|-----------|--------------------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|-------|----------------|-------------------------|
|  | ZD4CS-VA  | 1/4" CVC Male            | 2.24<br>(57.0) | —              | 2.83<br>(72)  | 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>0.2(5) |
|                                                                                    | ZD8CS-VA  | 1/2" CVC Male            | 3.03<br>(77.0) | —              | 4.57<br>(116) | 0.63<br>(16.0) | 1.73<br>(44.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | Rc1/8 | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|  | ZD4CS-VFA | 1/4" CVC Female          | 2.78<br>(70.6) | —              | 2.83<br>(72)  | 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>0.2(5) |
|                                                                                    | ZD8CS-VFA | 1/2" CVC Female          | 3.27<br>(83.0) | —              | 4.57<br>(116) | 0.63<br>(16.0) | 1.73<br>(44.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | Rc1/8 | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD4CS-SA  | 1/4" Compression fitting | 1.89<br>(48.0) | 0.31<br>(7.9)  | 2.83<br>(72)  | 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>0.2(5) |
|  | ZD6CS-SA  | 3/8" Compression fitting | 2.80<br>(71.0) | 0.37<br>(9.5)  | 4.57<br>(116) | 0.63<br>(16.0) | 1.73<br>(44.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | Rc1/8 | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD8CS-SA  | 1/2" Compression fitting | 2.80<br>(71.0) | 0.50<br>(12.7) | 4.57<br>(116) | 0.63<br>(16.0) | 1.73<br>(44.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | Rc1/8 | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD4CS-WA  | 1/4" Butt Welding        | 2.13<br>(54.0) | —              | 2.83<br>(72)  | 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>0.2(5) |
|  | ZD6CS-WA  | 3/8" Butt Welding        | 2.99<br>(76.0) | —              | 4.57<br>(116) | 0.63<br>(16.0) | 1.73<br>(44.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | Rc1/8 | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD8CS-WA  | 1/2" Butt Welding        | 2.99<br>(76.0) | —              | 4.57<br>(116) | 0.63<br>(16.0) | 1.73<br>(44.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | Rc1/8 | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |

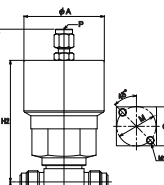
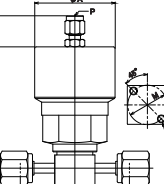
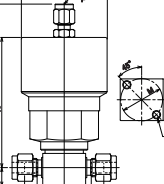
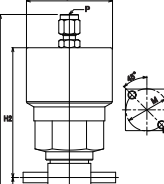
# Dimensions [ZD-K series]

Unit:inch(mm)

## ZD-K Manual

| Model                                                                              | Type       | Connection               | L              | L1             | H             | H 1            | A              | B              | C              | M              | M 1                     |
|------------------------------------------------------------------------------------|------------|--------------------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|   | ZD4KMS-VA  | 1/4" CVC Male            | 2.24<br>(57.0) | —              | 4.13<br>(105) | 0.43<br>(11.0) | 1.02<br>(26.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD8KMS-VA  | 1/2" CVC Male            | 3.03<br>(77.0) | —              | 4.80<br>(122) | 0.63<br>(16.0) | 1.97<br>(50.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|   | ZD4KMS-VFA | 1/4" CVC Female          | 2.78<br>(70.6) | —              | 4.13<br>(105) | 0.43<br>(11.0) | 1.02<br>(26.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD8KMS-VFA | 1/2" CVC Female          | 3.27<br>(83.0) | —              | 4.80<br>(122) | 0.63<br>(16.0) | 1.97<br>(50.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|   | ZD4KMS-SA  | 1/4" Compression fitting | 1.89<br>(48.0) | 0.31<br>(7.9)  | 4.13<br>(105) | 0.43<br>(11.0) | 1.02<br>(26.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD6KMS-SA  | 3/8" Compression fitting | 2.80<br>(71.0) | 0.37<br>(9.5)  | 4.80<br>(122) | 0.63<br>(16.0) | 1.97<br>(50.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD8KMS-SA  | 1/2" Compression fitting | 2.80<br>(71.0) | 0.50<br>(12.7) | 4.80<br>(122) | 0.63<br>(16.0) | 1.97<br>(50.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|  | ZD4KMS-WA  | 1/4" Butt Welding        | 2.20<br>(56.0) | —              | 4.13<br>(105) | 0.43<br>(11.0) | 1.02<br>(26.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD6KMS-WA  | 3/8" Butt Welding        | 2.99<br>(76.0) | —              | 4.80<br>(122) | 0.63<br>(16.0) | 1.97<br>(50.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                    | ZD8KMS-WA  | 1/2" Butt Welding        | 2.99<br>(76.0) | —              | 4.80<br>(122) | 0.63<br>(16.0) | 1.97<br>(50.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |

## ZD-K Pneumatic

| Model                                                                               | Type       | Connection               | L              | L1             | H             | H 1            | H 2          | A              | B              | C              | P                        | M              | M 1                     |
|-------------------------------------------------------------------------------------|------------|--------------------------|----------------|----------------|---------------|----------------|--------------|----------------|----------------|----------------|--------------------------|----------------|-------------------------|
|  | ZD4KCS-VA  | 1/4" CVC Male            | 2.24<br>(57.0) | —              | 4.29<br>(109) | 0.43<br>(11.0) | 3.07<br>(78) | 2.05<br>(52.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1/8" Compression fitting | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                     | ZD8KCS-VA  | 1/2" CVC Male            | 3.03<br>(77.0) | —              | 4.96<br>(126) | 0.63<br>(16.0) | 3.54<br>(90) | 2.44<br>(62.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1/8" Compression fitting | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|  | ZD4KCS-VFA | 1/4" CVC Female          | 2.78<br>(70.6) | —              | 4.29<br>(109) | 0.43<br>(11.0) | 3.07<br>(78) | 2.05<br>(52.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1/8" Compression fitting | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                     | ZD8KCS-VFA | 1/2" CVC Female          | 3.27<br>(83.0) | —              | 4.96<br>(126) | 0.63<br>(16.0) | 3.54<br>(90) | 2.44<br>(62.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1/8" Compression fitting | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|  | ZD4KCS-SA  | 1/4" Compression fitting | 1.89<br>(48.0) | 0.31<br>(7.9)  | 4.29<br>(109) | 0.43<br>(11.0) | 3.07<br>(78) | 2.05<br>(52.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1/8" Compression fitting | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                     | ZD6KCS-SA  | 3/8" Compression fitting | 2.80<br>(71.0) | 0.37<br>(9.5)  | 4.96<br>(126) | 0.63<br>(16.0) | 3.54<br>(90) | 2.44<br>(62.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1/8" Compression fitting | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                     | ZD8KCS-SA  | 1/2" Compression fitting | 2.80<br>(71.0) | 0.50<br>(12.7) | 4.96<br>(126) | 0.63<br>(16.0) | 3.54<br>(90) | 2.44<br>(62.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1/8" Compression fitting | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|  | ZD4KCS-WA  | 1/4" Butt Welding        | 2.20<br>(56.0) | —              | 4.29<br>(109) | 0.43<br>(11.0) | 3.07<br>(78) | 2.05<br>(52.0) | 1.02<br>(26.0) | 0.98<br>(25.0) | 1/8" Compression fitting | 1.00<br>(25.4) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                     | ZD6KCS-WA  | 3/8" Butt Welding        | 2.99<br>(76.0) | —              | 4.96<br>(126) | 0.63<br>(16.0) | 3.54<br>(90) | 2.44<br>(62.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1/8" Compression fitting | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |
|                                                                                     | ZD8KCS-WA  | 1/2" Butt Welding        | 2.99<br>(76.0) | —              | 4.96<br>(126) | 0.63<br>(16.0) | 3.54<br>(90) | 2.44<br>(62.0) | 1.69<br>(43.0) | 1.69<br>(43.0) | 1/8" Compression fitting | 1.10<br>(28.0) | 2-M5<br>Depth<br>0.2(5) |

\* L1 dimension for compression fitting is the dimension of how far tube inserted from end of body.

\* H and H2 dimensions are references.

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**Caution**

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