

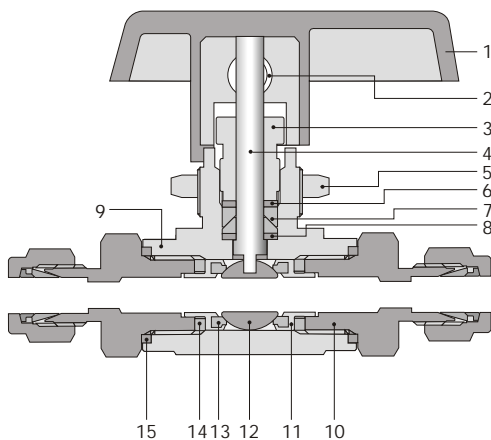
Features

D-Pro VH86 2-way and 3-way ball valves are high flow in a compact design. Blow-Out proof with internally loaded ball stem.

- High pressure capacity designed for Blow-Out Proof with internally loaded ball stem.
- Micro-finished ball provides a positive seal.
- 90 degree actuation for 2-way and 180 degree actuation for 3-way ball valves.
- Panel mount as standard.
- Chevron stem seal, adjustable with the handle disassembled.
- Handle indicates flow direction.
- Low operating torques and Positive handle stops.
- Optional pneumatic actuation.
- Various ends: Reliable DK-LOK[®], ISO, NPT, BSP male & female pipe threads.



Materials of Construction



| Component | Valve Body Material |
|------------------------------|-------------------------------------|
| | |
| | Grade/ASTM Specification |
| 1. Handle | Nylon with brass insert |
| 2. Set Screw | 17-4PH/A564 |
| 3. Packing bolt ^① | |
| 4. Stem | S316/A276 or A479 |
| 5. Panel Nut | |
| 6. Upper Gland | |
| 7. Stem Chevron Packing | PTFE/D1710 type 1, Grade 1, Class B |
| 8. Lower Gland | |
| 9. Body | |
| 10. End Connector | S316/A276 or A479 |
| 11. Retainer | |
| 12. Ball | |
| 13. Seat | PCTFE, optional PTFE, PEEK |
| 14. Retainer Seal | |
| 15. End Connector Seal | PTFE/D1710 type 1, Grade 1, Class B |

① Molybdenum disulfide with hydrocarbon coating
* Note 1. Wetted parts and lubricants are listed in blue.
2. Lubricant is Fluorinated-based.

Operation & Packing Adjustment

- VH86 valves are designed to control fluid in full open and closed position, using VH86 valves to throttle the flow may reduce the valve life.
- Stem packing can be adjustable leaving the handle disassembled. Tighten packing bolt clockwise to tighten the stem packing.
- Service in high pressure may reduce the seat sealing performance in low pressure service.
- Valves that have not been actuated for a period of time may have a higher initial actuation torque.
- If the valve system needs to be tested at higher pressure than the valve maximum pressure, the valve must be in open position during the test so as not to damage the valve seat.
- Optional Sour Gas Service to NACE MR-0175 latest version.
- Optional Pneumatic Actuator is available. See Pneumatic Actuator on page 4.

Application

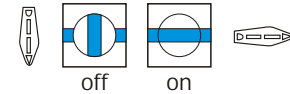
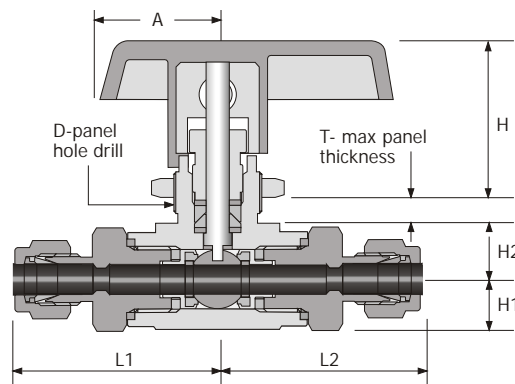
- VH86 series ball valve offers a safe and reliable performance in a wide range of onshore and offshore applications: Water, oil, gas, petrochemical in heavy duty applications.

Factory Test

- Every valve is factory tested with the nitrogen at 1000 psig (68.9 bar) for leakage to a maximum allowable leak rate of 0.1 scc/min. at all of seal.

Bi-directional 2-way Ball Valves

In-line pattern



Technical Data

| Valve Series | Sealing Materials | | | Pressure Rating @-27 to 37 °C (-20 to 100°F) | Temperature Rating |
|--------------|-------------------|--------------|---------------|--|-------------------------------|
| | Seat | Stem Packing | Retainer Seal | | |
| VH86B | PCTFE | PTFE | PTFE | 6000 psig (413 bar) | -30 to 180 °C (-22 to 355°F) |
| | PEEK | PTFE | PTFE | 6000 psig (413 bar) | -54 to 230 °C (-65 to 446°F) |
| | PTFE | PTFE | PTFE | 1500 psig (103 bar) | -30 to 176 °C (-22 to 349°F) |
| VH86C | PCTFE | PTFE | PTFE | 6000 psig (413 bar) | -30 to 180 °C (-22 to 355°F) |
| | PEEK | PTFE | PTFE | 6000 psig (413 bar) | -54 to 230 °C (-65 to 446°F) |
| | PTFE | PTFE | PTFE | 1500 psig (103 bar) | -30 to 176 °C (-22 to 349°F) |

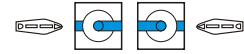
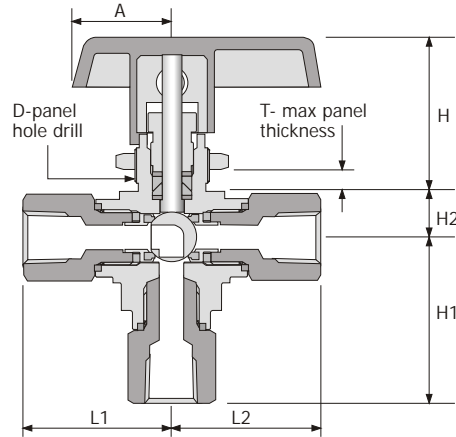
• PCTFE as standard seat material.

Ordering Information and Table of Dimensions

| Basic Ordering Number | End Connections | | Orifice | | Cv | Dimensions mm (inches) | | | | | | | | |
|-----------------------|-----------------|-----------------|-----------------|------|-------|------------------------|-------------|-------------|---------------|---------------|----------------|----------------|---------------|--------------|
| | Inlet | Outlet | mm | Inch | | L1 | L2 | H1 | H2 | H | A | D | T | |
| VH86B- | D-2T- | 1/8" Dk-Lok | | 2.4 | 0.093 | 0.26 | 41.9 (1.65) | | | | | | | |
| | D-4T- | 1/4" Dk-Lok | | | | | | 44.2 (1.74) | | | | | | |
| | MD-4N4T- | 1/4 Male NPT | 1/4" Dk-Lok | 4.7 | 0.187 | 1.04 | 44.2 (1.74) | 41.1 (1.62) | 10.7 (.42) | 11.9 (.47) | 38.9 (1.53) | 25.4 (1.00) | 19.6 (.77) | 6.4 (.25) |
| | FD-4F4T- | 1/4" Female NPT | 1/4" Dk-Lok | | | | | | | | | | | |
| | F-4N- | 1/4" Female NPT | | | | | 38.4 (1.51) | | | | | | | |
| | M-4N- | 1/4" Male NPT | | | | | 41.1 (1.62) | | | | | | | |
| | MF-4N- | 1/4" Male NPT | 1/4" Female NPT | | | | 38.4 (1.51) | | | | | | | |
| | MD-4N6T- | 1/4" Male NPT | 3/8" Dk-Lok | 6.4 | 0.25 | 2.34 | 45.7 (1.8) | 38.4 (1.51) | | | | | | |
| | FD-4N6T- | 1/4" Female NPT | 3/8" Dk-Lok | | | | | | | | | | | |
| | D-6T- | 3/8" Dk-Lok | | | | | 45.7 (1.8) | | | | | | | |
| | M-6N- | 3/8" Male NPT | | | | | 41.1 (1.62) | | | | | | | |
| | D-6M- | 6 mm Dk-Lok | | 4.7 | 0.187 | 1.04 | 44.5 (1.75) | | | | | | | |
| | D-8M- | 8 mm Dk-Lok | | 6.4 | 0.25 | 2.34 | 45.2 (1.78) | | | | | | | |
| D-10M- | 10 mm Dk-Lok | | 46.0 (1.81) | | | | | | | | | | | |
| VH86C- | F-6N- | 3/8" Female NPT | | | | | 49.5 (1.95) | | | | | | | |
| | F-8N- | 1/2" Female NPT | | | | | 54.6 (2.15) | | | | | | | |
| | D-8T- | 1/2" Dk-Lok | | 10.3 | 0.406 | 6.42 | 59.4 (2.34) | | | | | | | |
| | M-8N- | 1/2" Male NPT | | | | | 56.4 (2.22) | | | | | | | |
| | D-12T- | 3/4" Dk-Lok | | | | | | | | | | | | |
| | D-12M- | 12 mm Dk-Lok | | 9.5 | 0.375 | 5.57 | 59.2 (2.33) | 59.2 (2.33) | | | | | | |
| | D-16M- | 16 mm Dk-Lok | | 10.3 | 0.406 | 6.42 | | | | | | | | |

All dimensions shown are for reference only and are subject to change. Dimensions with DK-LOK nuts are in finger-tight position.

3-way switching Valves



3-way ball valve

D-Pro VH86 3-way Ball Valve is designed to switch media through the bottom port and direct it to out of two outlet ports.

Technical Data

| Valve Series | Sealing Materials | | | Pressure Rating @-27 to 37 °C (-20 to 100°F) | Temperature Rating |
|--------------|-------------------|--------------|----------|--|-------------------------------|
| | Seat | Stem Packing | End Seal | | |
| VH86B-3B | PCTFE | PTFE | PTFE | 4000 psig (275 bar) | -50 to 180 °C (-58 to 355°F) |
| | PEEK | PTFE | PTFE | 6000 psig (413 bar) | -54 to 230 °C (-65 to 446°F) |
| | PTFE | PTFE | PTFE | 1500 psig (103 bar) | -30 to 176 °C (-22 to 349°F) |
| VH86C-3B | PCTFE | PTFE | PTFE | 4000 psig (275 bar) | -50 to 180 °C (-58 to 355°F) |
| | PEEK | PTFE | PTFE | 6000 psig (413 bar) | -54 to 230 °C (-65 to 446°F) |
| | PTFE | PTFE | PTFE | 1500 psig (103 bar) | -30 to 176 °C (-22 to 349°F) |

- PCTFE as standard seat material.

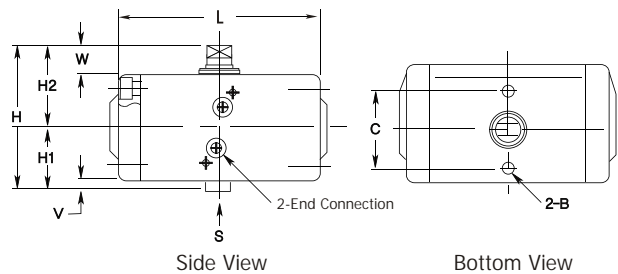
Ordering Information and Table of Dimensions

| Basic Ordering Number | End Connections | Orifice | | Cv | Dimensions mm (inches) | | | | | | | | | | | |
|-----------------------|-----------------|-------------------------------|-------------|-------------|------------------------|-------------|-------------|-------------|---------------|----------------|----------------|---------------|--------------|-------------|-------------|-------------|
| | | mm | Inch | | L1 | L2 | H1 | H2 | H | A | D | T | | | | |
| VH86B-3B- | D-2T- | 1/8" Dk-Lok | 2.4 | 0.093 | 0.21 | 41.9 (1.65) | 41.9 (1.65) | 45.5 (1.79) | 11.9 (.47) | 38.9 (1.53) | 25.4 (1.00) | 19.6 (.77) | 6.4 (.25) | | | |
| | D-4T- | 1/4" Dk-Lok | 4.7 | 0.187 | 0.7 | 44.2 (1.74) | 44.2 (1.74) | 47.8 (1.88) | | | | | | | | |
| | F-4N- | 1/4" Female NPT | 5 | 0.196 | 0.87 | 38.4 (1.51) | 38.4 (1.51) | 41.9 (1.65) | | | | | | | | |
| | DDM-4T4N- | *1/4" Dk-Lok, 1/4" Male NPT | 4.7 | 0.187 | 0.7 | 44.2 (1.74) | 44.2 (1.74) | 47.8 (1.88) | | | | | | | | |
| | M-4N- | 1/4" Male NPT | 5 | 0.196 | 0.87 | 41.1 (1.62) | 41.1 (1.62) | 44.7 (1.76) | | | | | | | | |
| | D-6T- | 3/8" Dk-Lok | | | | 45.7 (1.8) | 45.7 (1.8) | 49.3 (1.94) | | | | | | | | |
| | M-6N- | 3/8" Male NPT | 41.1 (1.62) | 41.1 (1.62) | 44.7 (1.76) | | | | | | | | | | | |
| | D-6M- | 6 mm Dk-Lok | 4.7 | 0.187 | 0.7 | 44.5 (1.75) | 44.5 (1.75) | 47.8 (1.88) | | | | | | | | |
| | D-8M- | 8 mm Dk-Lok | 5 | 0.196 | 0.87 | 45.2 (1.78) | 45.2 (1.78) | 48.5 (1.91) | | | | | | | | |
| | D-10M- | 10 mm Dk-Lok | 46.0 (1.81) | | | 46.0 (1.81) | 49.5 (1.95) | | | | | | | | | |
| VH86C-3B- | F-6N- | 3/8" Female NPT | 10.3 | 0.406 | 3.62 | 49.5 (1.95) | 49.5 (1.95) | 58.2 (2.29) | 17.8 (.70) | 44.2 (1.74) | 38.1 (1.50) | 22.9 (.90) | 9.7 (.38) | | | |
| | F-8N- | 1/2" Female NPT | | | | 54.6 (2.15) | 54.6 (2.15) | 63.2 (2.49) | | | | | | | | |
| | D-8T- | 1/2" Dk-Lok | | | | 59.4 (2.34) | 59.4 (2.34) | 68.1 (2.68) | | | | | | | | |
| | DDF-8T8F- | *1/2" Dk-Lok, 1/2" Female NPT | | | | 63.2 (2.49) | | | | | | | | | | |
| | M-8N- | 1/2" Male NPT | | | | 56.4 (2.22) | 56.4 (2.22) | 65.8 (2.59) | | | | | | | | |
| | D-12T- | 3/4" Dk-Lok | | | | 68.1 (2.68) | | | | | | | | | | |
| | D-12M- | 12 mm Dk-Lok | | | | 9.5 | 0.375 | 3.46 | | | | | | 59.2 (2.33) | 59.2 (2.33) | 67.8 (2.67) |
| | D-16M- | 16 mm Dk-Lok | | | | 10.3 | 0.406 | 3.62 | | | | | | 56.9 (2.33) | 56.9 (2.33) | 65.5 (2.67) |

All dimensions shown are for reference only and are subject to change. Dimensions with DK-LOK nuts are in finger-tight position.

* VH86 3-way ball valves are described by first the outlet ports (1), (2) and next the bottom port (3).

Pneumatic 90 degree Actuating "P" Series Actuator



DK offers P series rack and pinion aluminum pneumatic actuators for use with VH86 series.

Indicator



A highly visible indicator with flow direction is snapped to the pinion.

Features

- Polyurethane finished aluminum body
- Every actuator is factory tested.

Actuator Dimensions

mm (inches)

| Model | L | H | H1 | H2 | W | V | C | 2-B* |
|-----------|-------------|------------|-------------|-------------|-----------|-----------|-------------|------|
| PD05 | 107 (4.21) | 72 (2.83) | 31.5 (1.24) | 40.5 (1.59) | 14 (0.55) | 5 (0.20) | 38 (1.50) | M6 |
| PD1 | 130 (5.12) | 91 (3.58) | 43 (1.69) | 48 (1.89) | 17 (0.67) | 12 (0.47) | 49.5 (1.95) | M6 |
| PCS1/POS1 | 228 (8.98) | 91 (3.58) | 43 (1.69) | 48 (1.89) | 17 (0.67) | 12 (0.47) | 49.5 (1.95) | M6 |
| PCS2/POS2 | 264 (10.39) | 116 (4.57) | 56 (2.20) | 60 (2.36) | 20 (0.79) | 17 (0.67) | 55.2 (2.17) | M8 |

* Bracket Mount Metric Female Threads.

Actuator Designator Table

| Designator | P | D | CS | OS |
|-------------|--|---------------|-------------------------------|-----------------------------|
| Description | Pneumatic Actuator 90 degree actuation | Double acting | normally closed spring return | normally open spring return |

Actuators for Factory Assembled onto VH86 series Valves

| Actuation Mode | Actuator Ordering Number | End Connection | Max. Actuation Torque Kgf·m (lb·ft)* | Weight Kg (lb.) | Applicable D-Pro Valve | Actuator Pressure | Actuator Temp. Range |
|-----------------|--------------------------|-----------------|--------------------------------------|-----------------|------------------------|------------------------|----------------------------|
| Double Acting | PD05 | Female 1/8" NPT | 1.4 (10.13) | 0.7 (1.55) | VH86B series | 29-150 psig (2-10 bar) | -20 to 100°C (-4 to 212°F) |
| | PD1 | Female 1/4" NPT | 2.9 (20.98) | 1.25 (2.76) | VH86C series | | |
| Normally Closed | PCS1 | Female 1/4" NPT | 1.77 (12.81) | 1.89 (4.17) | VH86B series | 58-150 psig (4-10 bar) | |
| | PCS2 | Female 1/4" NPT | 5.1 (36.89) | 3.8 (8.38) | VH86C series | | |
| Normally Open | POS1 | Female 1/4" NPT | 1.77 (12.81) | 1.89 (4.17) | VH86B series | | |
| | POS2 | Female 1/4" NPT | 5.1 (36.89) | 3.8 (8.38) | VH86C series | | |

* Actuation torque is measured at the actuator pressure 101 psig. (7 bar.)

- For actuator actuating, non-corrosive clean dry medium should be used i.e., clean dry air.

How to Order

Select applicable valve pattern, options and body material from designators listed below.

VH86C-D-6T

-PK

-SG

-PD05

-S

VH86B-D-4T

-S

| Seat Material | Sour Gas Designator | Pneumatic Actuator / Factory Assembled | Valve Material |
|--|--|--|---|
| <ul style="list-style-type: none"> • Nil: PCTFE • PK: PEEK • PE: PTFE | <ul style="list-style-type: none"> • Nil: no sour gas • SG: Sour Gas | <ul style="list-style-type: none"> • Nil: no actuator • PD05 for VH86B series • PD01 for VH86C series • PCS1 for VH86B series • PCS2 for VH86C series • POS1 for VH86B series • POS2 for VH86C series | <ul style="list-style-type: none"> • S: S316 |

Safe Valve Selection

The selection of a valve for any application or system design must be considered to ensure safe performance. Valve function, valve rating, material compatibility proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. DK Tech accepts no liability for any improper selection, installation, operation or maintenance.

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