Description

The HVA 28200 Series Direct Drive Rectangular Gate Valves offer one of the smallest interior surface areas in the vacuum valve industry. The body and internal components are vacuum furnace brazed at 1100°C ensuring maximum joint integrity. This eliminates the possibility of virtual leaks or entrapment areas and minimizes body distortion, which can occur in conventionally welded valves. Furnace brazing 304 stainless steel reduces its outgassing, which results in obtaining a system base pressure in a shorter time.

In the open position, the seal plate O-ring is completely out of sight preventing any particulate or media flow to accumulate on the sealing surface. In the closed position the one piece solid block design prevents any material buildup on the back side of the valve mechanism dramatically reducing service and maintenance requirements.

Application

This valve design is especially engineered to meet the mechanical interface and vacuum containment requirements of the industry. The 28200 Series Valve/Interface incorporates a Direct Drive Gate. Direct Drive eliminates mechanical linkages and greatly reduces internal valve components. Significant improvements in the gate valve design have resulted in exceptional uptime cycles and extremely low particulate generation even well past one million cycles. Valves have been tested for 1,000,000+ cycles with no failures.

In operation, the HVA 28200 Series Valves are quiet and reliable. Because they seal with lower pressure, they last longer, and there is less stress to make a perfect seal. To meet the specific needs of modular integrated processing systems, the HVA valves are designed to isolate vacuum pressure on either side of the gate. They can be used singly or in pairs to provide appropriate pass through or seal for any part of the system. A narrow profile design, including both actuator and controller, allows tight mounting between central, load-lock, handling and process chambers.

Product Features

- Virtually no particulate generation
- No vibration, smooth actuation
- Standard or custom flange options
- One million plus cycles before servicing, application dependent
Standard Specifications

Materials
- Valve body and mechanism: 304 stainless steel
- Welded bellows shaft seal: AM-350
- Drive shaft and pins: Hardened stainless steel
- Bonnet / gate seals: Viton® elastomer

Vacuum
- Pressure range: $1 \times 10^{-9}$ Torr
- Leak rate: $2 \times 10^{-9}$ AtmCC/Sec
- Differential pressure: 760 Torr in either direction
- Maximum Δ pressure before opening: 20 Torr

Bakeout Temperature
- Elastomer sealed bonnet: 150°C
- Actuator: 60°C

Mechanism
- Air service: 80 psig
- Solenoid: 4.3 Watts
- Latching-type solenoid, valve to remain in same position in the event of a power loss.
- supplied voltage: 120 VAC 50/60 Hz
- optional voltages: 24, 200, 240 VAC 50/60 Hz or 12, 24 VDC

Position indicator, max.
- Reed switch: 115 VAC or 28 VDC, 20 mA
- Microswitch, optional
  - optional voltages: 115 VAC, 5 A or 28 VDC, 5 A resistive load
  - 28 VDC, 3 A inductive load

Cycles until service
- All sizes, application dependent: 1,000,000+ cycles

Notes
- Dimensions given in U.S. System and [metric]
- Due to ongoing product development, prices, dimensions and specifications subject to change without notice

Options
- All 28200 Series Valves may be equipped with alternative flanges, solenoids and seals. Contact HVA to discuss your requirements.
  - Alternate voltage controls
  - Custom flange sizes
  - Gauge ports
  - Microswitches for position indicators
  - Roughing ports
  - High temperature components, including O-rings, microswitches and actuator
  - Custom materials, such as 316L, Inconel® or Kalrez®
28200 Series Stainless Steel Rectangular Valve
32x222-mm  1x9-inch  Bolt Style

Pneumatic

GATE (SEAL) SIDE

• .002 [10.2] dia x .072 [12.0] slot x .0384 [10.0] deep

• 8.00 [203.2]

• 1.81 [46.0] x 9.29 [236.0]

• O-ring groove ID with corners .25 [6.4] inside radius

• 6.38 [162.1]

• 1.97 [50.0]

CARRIAGE SIDE

• .394 [10.0] dia x .080 [20] inside radius

• 2.36 [60.0]

• 2.28 [58.0]

• M8 x 1.25 ISO-H x .394 [10.0] deep, 12 places each side

• .002 [10.2] dia x .0384 [10.0] deep, 2 places

• .393 [10.0] dia x .0794 [10.0] deep, 2 places

• 1.18 [30.0]

• 2.76 [70.0]

• 2.76 [70.0]

• 2.36 [59.0] interface seal zone

• 10.47 [266.0]

• 8.27 [210.0]

• 9.88 [251.0] interface seal zone

• 11.811 [300.0]

Other flange configurations available.
All dimensions given in inches [mm].

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www.highvac.com
sales@highvac.com

Toll free: (800) 551-4422
Fax: (775) 359-1369

MESC Flanges

<table>
<thead>
<tr>
<th>Bonnet-Gate</th>
<th>Flange Type</th>
<th>Ship Wt lbs [kg]</th>
<th>Model Number *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic</td>
<td>Viton-Viton</td>
<td>Bolt</td>
<td>28212-0109RJX</td>
</tr>
</tbody>
</table>

* R = Reed switch, standard
M = Microswitch, optional
28200 Series Stainless Steel Rectangular Valve
32x222-mm  1x9-inch  Clamp Style

Pneumatic

.400 [10.2] dia x
.472 [12.0] slot x
.394 [10.0] deep

1.81 [46.0] x
9.29 [236.0]
O-ring groove
ID with corners
.25 [6.4] inside
radius

6.38
1.97 [50.0]

13.39 [340.0]

11.811 [300.0]

.400 [10.2] dia x
.394 [10.0] deep

1.87 [47.6] usable
clamp area, 8 places

.975 [24.5]
5.00 [127.0]

.394 [10.0] typ.

DETAIl A

.197 [5.0] typ.

.079 [2.0] typ.

GATE (SEAL) SIDE

.975 [24.5]
5.00 [127.0]

1.750 [44.5]

1.750 [44.5]

CARRIAGE SIDE

.394 [10.0] dia x
.394 [10.0] deep,
2 places

APERTURE
1.67 [42.4]
useable clamp
area, 2 places

.393 [10.0] dia x
.394 [10.0] deep,
2 places

3.88 [98.4]
useable clamp
area, 2 places

9.68 [251.0]
interface seal
zone

2.36 [60.0]

11.811 [300.0]

.394 [10.0] typ.

.098 [2.5] typ.

Other flange configurations available.  All dimensions given in inches [mm].

<table>
<thead>
<tr>
<th>MESC Flanges</th>
<th>32x222-mm 1x9-Inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange Type</td>
<td>Ship Wt</td>
</tr>
<tr>
<td>Bonnet-Gate</td>
<td>[lb]</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>110 [50]</td>
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<tr>
<td>Viton-Viton</td>
<td>110 [50]</td>
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</tbody>
</table>

* R = Reed switch, standard
  M = Microswitch, optional
28200 Series Stainless Steel Rectangular Valve
32x332-mm  1x13-inch  Clamp Style

Pneumatic

Other flange configurations available.  All dimensions given in inches [mm].

### MESC Flanges

<table>
<thead>
<tr>
<th>Bonnet-Gate</th>
<th>Flange Type</th>
<th>Ship Wt. lbs [kg]</th>
<th>Model Number *</th>
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</thead>
<tbody>
<tr>
<td>Pneumatic</td>
<td>Clamp</td>
<td>115 [53]</td>
<td>28212-0113RXK</td>
</tr>
</tbody>
</table>

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  M = Microswitch, optional

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Toll free: (800) 551-4422
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28200 Series Stainless Steel Rectangular Valve
46x236-mm  2x9-inch  Bolt Style

Pneumatic

Other flange configurations available.  All dimensions given in inches [mm].

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**28200 Series Stainless Steel Rectangular Valve**

**46x236-mm  2x9-inch  Clamp Style**

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**Diagram:**

- **Pneumatic**
  - .400 [10.2] dia x .472 [12.0] slot x .394 [10.0] deep
  - 1.8-inch dovetail
  - O-ring groove

- **Gate (Seal) Side**
  - .400 [10.2] dia x .394 [10.0] deep
  - 11.811 [300.0] x 13.39 [340.0]

- **Carriage Side**
  - 1.67 [42.4] usable clamp area, 2 places
  - 3.88 [98.4] usable clamp area, 2 places

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**Other flange configurations available. All dimensions given in inches [mm].**

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**MESC Flanges**

<table>
<thead>
<tr>
<th>Flange Type</th>
<th>Model Number *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic</td>
<td>28212-0209RXK</td>
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<tr>
<td>Viton-Viton</td>
<td>115 [53]</td>
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</tbody>
</table>

* R = Reed switch, standard
M = Microswitch, optional

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**Contact:**

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Fax: (775) 359-1369
28200 Series Stainless Steel Rectangular Valve
50x336-mm  2x13-inch  Bolt Style

Pneumatic

Other flange configurations available. All dimensions given in inches [mm].

<table>
<thead>
<tr>
<th>MESC Flanges</th>
<th>50x336-mm 2x13-inch</th>
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<tbody>
<tr>
<td>Bonnet-Gate</td>
<td>Flange Type</td>
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<tr>
<td>Pneumatic</td>
<td>Viton-Viton</td>
</tr>
</tbody>
</table>

* R = Reed switch, standard
  M = Microswitch, optional
Pneumatic

GATE (SEAL) SIDE

CARRIAGE SIDE

DETAILED

MESC Flanges

<table>
<thead>
<tr>
<th>Bonnet-Gate</th>
<th>Flange Type</th>
<th>Ship Wt lbs [kg]</th>
<th>Model Number *</th>
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</thead>
<tbody>
<tr>
<td>Pneumatic</td>
<td>Clamp</td>
<td>124 [57]</td>
<td>28212-0213RXK</td>
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</tbody>
</table>

* R = Reed switch, standard
M = Microswitch, optional

Other flange configurations available. All dimensions given in inches [mm].