



High Vacuum Valves  
*Leader in Quality and Value*

# 81000 Series

## Aluminum Gate Valve

HVA is the premier manufacturer and supplier to the world's leading vacuum technology innovators. Renowned for our world class manufacturing of high quality precision stainless steel vacuum valves, we have used our design and engineering expertise to produce a reliable, high performance aluminum gate valve range.



System integrators, designers and OEM's within Semiconductor, Solar, LED/FPD, Coating and BioPharm industries can take advantage of the HVA robust design.

**Precision machined high strength aluminum body from solid 6061-T6 billet**  
 - Eliminates pinholes and virtual leaks that can appear from cast/welded aluminum valves

**Dual quad ring long life shaft seals**  
 - Improved system uptime to 400,000 cycles  
 - Improved leak integrity

**High performance PEEK components**  
 - Reduced friction and lower particle levels



**Lower H2 outgassing than equivalent sized stainless steel valve**

**Direct drive 304SS large diameter shaft**  
 - Reduced vibration

**Optimized split body design for easier on-tool maintenance**



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### Standard Technical Specifications

#### Materials

|                             |                                  |
|-----------------------------|----------------------------------|
| Valve body and mechanism    | 6061-T6 aluminum                 |
| Shaft                       | [DN40-80] Al / [DN100-500] 304SS |
| Carriage                    | 6061-T6 Aluminum / PEEK          |
| Bonnet / gate / shaft seals | Viton®                           |

#### Vacuum

|                                  |                                    |
|----------------------------------|------------------------------------|
| Pressure range                   | $1 \times 10^{-7}$ mbar            |
| Leak rate: gate                  | $< 2 \times 10^{-9}$ mbar l/sec    |
| Differential pressure            | $\leq 1.6$ bar in either direction |
| Differential pressure at opening | $\leq 30$ mbar                     |

#### Temperature

|                     |                            |
|---------------------|----------------------------|
| Valve Body and Gate | $\leq 120^{\circ}\text{C}$ |
| Actuator            | $\leq 80^{\circ}\text{C}$  |
| Solenoid            | $\leq 60^{\circ}\text{C}$  |

#### Mechanism

|                         |                          |
|-------------------------|--------------------------|
| Air Service             | 80 psig max              |
| Solenoid                | 120 VAC, 24V DC 50/60 Hz |
| Position indicator, max | 115 VAC or 28VDC, 20mA   |

#### Mounting Position

any

#### Cycles

|                      |                             |
|----------------------|-----------------------------|
| Cycles until service | [DN40 -160] 400,000 cycles  |
|                      | [DN200 -320] 250,000 cycles |

### Ordering Guides

#### Manual

| DN<br>mm | inch | Model No<br>KF / ISO-K | Model No<br>ISO-F | Model No<br>JIS | Model No<br>CF-F* |
|----------|------|------------------------|-------------------|-----------------|-------------------|
| 40       | 1.5  | 81110-0153             | —                 | —               | 81110-0150        |
| 50       | 2.0  | 81110-0203             | —                 | 81110-0205      | 81110-0200        |
| 63       | 2.5  | 81110-0256             | 81110-0253        | 81110-0255      | 81110-0250        |
| 80       | 3.0  | 81110-0306             | 81110-0303        | 81110-0305      | 81110-0300        |
| 100      | 4.0  | 81110-0406             | 81110-0403        | 81110-0405      | 81110-0400        |
| 160      | 6.0  | 81110-0606             | 81110-0603        | 81110-0605      | 81110-0600        |
| 200      | 8.0  | 81110-0806             | 81110-0803        | 81110-0805      | 81110-0800        |

\*For Metric change last '0' to '4'

#### Pneumatic (includes reed switch position indicators)

| DN<br>mm | inch | Model No<br>KF / ISO-K | Model No<br>ISO-F | Model No<br>JIS | Model No<br>CF-F* |
|----------|------|------------------------|-------------------|-----------------|-------------------|
| 40       | 1.5  | 81210-0153R            | —                 | —               | 81210-0150R       |
| 50       | 2.0  | 81210-0203R            | —                 | 81210-0205R     | 81210-0200R       |
| 63       | 2.5  | 81210-0256R            | 81210-0253R       | 81210-0255R     | 81210-0250R       |
| 80       | 3.0  | 81210-0306R            | 81210-0303R       | 81210-0305R     | 81210-0300R       |
| 100      | 4.0  | 81210-0406R            | 81210-0403R       | 81210-0405R     | 81210-0400R       |
| 160      | 6.0  | 81210-0606R            | 81210-0603R       | 81210-0605R     | 81210-0600R       |
| 200      | 8.0  | —                      | 81210-0803R       | 81210-0805R     | 81210-0800R       |
| 250      | 10.0 | —                      | 81210-1003R       | 81210-1005R     | 81210-1000R       |
| 320      | 12.0 | —                      | 81210-1203R       | 81210-1205R     | 81210-1200R       |

For 24V DC solenoid: 81211  
For 120V AC solenoid: 81212

\*For Metric change last '0' to '4'

#### Options

- Hard anodizing
- Custom and ASA flanges
- Roughing ports
- Alternate o-ring materials
- Installation kits and accessories
- Heater and insulating jacket
- 220VAC & 24VAC solenoids