MVG25 Valve Gate
Assembly Overview

**Key Features**

- Suitable for most materials
- Conical (1) or Cylindrical (2) shut off
- Ø2.0mm and Ø2.5mm pin
- Pneumatic actuation

**IMPORTANT!!**

The back plate must be cooled and must not exceed 150°C.
The cylinder should be in the closed position at all times except during injection and packing.

**Air quality:** Filtered to 40 μM and lubricated

**Minimum air:** pressure 4 Bar

**Maximum air:** pressure 10 Bar

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**figure. 1**

MVG25 Blanking Plate
MVG25 Cylinder Assembly
MVG25 Spacer
MVG25 Valve Pin

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Spacing Layout

![Diagram showing spacing layout with labels for Cooling, Airways, and Standard with modified blanking plate. Dimensions are marked with lines and annotations. Diagram is labeled figure 2.]
MVG25 Overall Dimensions

Note: Pins are supplied in standard length and must be cut to required length before installation.

Pins can be supplied finished ready to use by Mastip

Refer to page MVG25-6 Pin Calculations section to calculate required final pin lengths

<table>
<thead>
<tr>
<th>Description</th>
<th>Nozzle</th>
<th>Nozzle Length</th>
<th>Supplied Pin Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVG25-P1 Headed Pin</td>
<td>MX13</td>
<td>45 - 175</td>
<td>Ø2.0</td>
</tr>
<tr>
<td></td>
<td>BX13</td>
<td>45 - 225</td>
<td>Ø2.0</td>
</tr>
<tr>
<td></td>
<td>MX16</td>
<td>45 - 175</td>
<td>Ø2.5</td>
</tr>
<tr>
<td></td>
<td>BX16</td>
<td>45 - 250</td>
<td>Ø2.5</td>
</tr>
</tbody>
</table>
Fitment

Figure 4

Figure 5
Pin Details

Caution: The gap between the gate and the pin in a hot state is critical. If the gap is too large there will be a poor gate vestige and drooling from the nozzle may occur. If the gap is too small, the pin can strike the gate and may decrease the gate life.

To calculate final pin length use the following equation:

\[ \text{Pin Length} = 25.0 + 10.0 + X + L4 + L + 0.05 \]

Conical and Cylindrical Valve Gate Recommendations

<table>
<thead>
<tr>
<th></th>
<th>Conical Valve Gate</th>
<th>Cylindrical Valve Gate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gate Quality</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Pin Cooling</td>
<td>***</td>
<td>*</td>
</tr>
<tr>
<td>Filled Materials</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Material with Small Moulding Window</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Ease of Pin Setup</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Ease of Gate Manufacture</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td>Gate Life</td>
<td>***</td>
<td>*</td>
</tr>
</tbody>
</table>

Key

- * Lowest Rating
- *** Highest Rating
Conical Valve Gate

The pin will form a 0.1mm deep dimple on the part.
Pin and gate to be lapped to ensure clean shutoff.
Recommended for amorphous polymers.

<table>
<thead>
<tr>
<th>D</th>
<th>d1</th>
<th>d2</th>
<th>AF</th>
<th>CP</th>
<th>AT</th>
<th>qT</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>1.3</td>
<td>1.25</td>
<td>1.80</td>
<td>8</td>
<td>1.30</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>2.5</td>
<td>1.8</td>
<td>1.75</td>
<td>2.30</td>
<td>8</td>
<td>1.80</td>
<td>1.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Cylindrical Valve Gate

The pin will form a 0.1mm deep dimple on the part. Recommended for semi-crystalline and filled polymers.

<table>
<thead>
<tr>
<th>Description</th>
<th>D</th>
<th>AP</th>
<th>BP</th>
<th>AF</th>
<th>CP</th>
<th>GP</th>
<th>qP</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVG25-P1 Headed Pin</td>
<td>2.0</td>
<td>1.292</td>
<td>2.0</td>
<td>1.6</td>
<td>5</td>
<td>1.305</td>
<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>MVG25-P1 Headed Pin</td>
<td>2.5</td>
<td>1.792</td>
<td>2.0</td>
<td>2.1</td>
<td>5</td>
<td>1.805</td>
<td>0.7</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Guided Cylindrical Valve Gate (GVG5) or YV2 Nut

The pin will form a 0.1mm deep dimple on the part. Recommended for semi-crystalline and filled polymers.

<table>
<thead>
<tr>
<th>Description</th>
<th>D</th>
<th>AP</th>
<th>BP</th>
<th>AF</th>
<th>CP</th>
<th>DP</th>
<th>GP</th>
<th>qP</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVG25-P1 Headed Pin</td>
<td>2.0</td>
<td>1.292</td>
<td>2.0</td>
<td>1.70</td>
<td>8</td>
<td>1.892</td>
<td>1.305</td>
<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>MVG25-P1 Headed Pin</td>
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<td>1.792</td>
<td>2.2</td>
<td>2.20</td>
<td>8</td>
<td>2.392</td>
<td>1.805</td>
<td>0.7</td>
<td>2.0</td>
</tr>
</tbody>
</table>
Installation and Pin Adjustment Guide

PRE INSTALLATION

1. Verify the actuator pockets and air circuits are machined in the back plate as shown in figure 5.
2. Ensure there are no sharp edges or burrs in the actuator pockets.
3. Ensure the actuator pocket and air circuits are clean.
4. Cut pins to length and profile end to conical or cylindrical form (refer nozzle approval drawing)
5. Assemble the fixed half of the mould including hot runner nozzles and manifold excluding backplate.
   → Refer to the Technical Specifications section of the Technical Guide
   Pin and seal are a matched set and must remain paired.

INSTALLATION

ONE
Ensure all components are clean

TWO
Fit the Cylinder End Seal 13 to the Cylinder 12
Apply grease* to Cylinder End Seal 13

THREE
Fit the Cylinder 12 and Locating Spacer 14 to the mould backplate and retain using the Circlip 11
Ensure Cylinder 12 is compressing Cylinder End Seal 13 to fit Circlip 11 securely in groove on Locating Spacer 14

FOUR
Apply grease* to the sealing bores of the Locating Spacer 14 and Cylinder 12 and to the pre fitted Piston Seals 8 & 10
Fit Piston 9 to the Cylinder 12

* Mastip recommends using high temperature silicon grease
INSTALLATION CONT.....

FIVE

Centralise Cylinder Assembly A to the Actuator pocket.

SIX

Clean any residual material from the pin seal pocket and thread in the manifold.

Apply heat resistant nickel based anti-seize to the thread of the new pin seal and screw into the manifold and tighten to 20Nm.

Ensure pins slide smoothly through the pin seal after tightening.
Fit mould backplate to mould and fasten.

Note: If backplate location guides start to locate first, then the cylinder assembly should self locate to the manifold. However in some cases it may be necessary to move the cylinder assemblies in the actuator pocket to locate them with the manifold.
Insert the Valve Pin Adjustment Packers 6a, 6c & 6d onto the Valve Pin 7.
Ensure the correct packer thickness is in the correct position. (Recommend starting with the thinnest packer above the pin head, then adjust to suit if necessary).

Fit the Valve Pin 7 to Piston 9.
Fit the remaining Valve Pin Adjustment Packer 5a above the pin head.
Fit the Pin Head Seal 5 to the Piston 9.
Fit the Pin Locking Screw 4 to the Piston 9 and tighten to 40Nm.

Fit Blanking Plate Seal 3 to Blanking Plate 2a or 2b.
Fit Blanking Plate 2 or 3 to the mould backplate and fasten using Blanking Plate Screws 1.
PIN HEIGHT ADJUSTMENT

ONE

Remove Blanking Plate 2a or 2b
Remove the Pin Locking Screw
Remove the Valve Pin Adjustment Packer
Remove the Valve Pin
Remove the remaining Valve Pin Adjustment Packers

TWO
PIN HEIGHT ADJUSTMENT CONT.....

MINOR ADJUSTMENT

SWAP VALVE PIN ADJUSTMENT PACKERS

\(6a, 6b, 6c, \text{ and } 6d\) to achieve small pin adjustments
(different packer = different height)

MAJOR ADJUSTMENT

MOVE ONE OR MORE VALVE PIN ADJUSTMENT PACKERS

\(6a, 6b, 6c, \text{ and } 6d\) from below the pin head to above the pin head to achieve large pin adjustment
Assemble Valve Pin 7 (ensure pins are matched to seals), Valve Pin Adjustment Packers 6a, 6b, 6c & 6d and the Pin Locking Screw 4 and tighten to 40Nm.
PIN HEIGHT ADJUSTMENT CONT.....

Fit Blanking Plate 2 or 3 to the mould backplate and fasten using Blanking Plate Screws 1.