Mechanical Flow Restrictor
Catalog
Product Type
Equipment enables velocity control of valve pin opening for hydraulic valve gate hot runner systems.

1. Valve Gate Hot Runner System
Hydraulic valve gate hot runner system for nozzle series 12E, 16E, 22E with conical valve gate.

   a) Hydraulic actuator

2. Mechanical Flow Control
   b) Connection box
   c) Signal line
   d) Monitoring unit
   e) Hydraulic valve block
      The components b-d omitted when using the hydraulic actuator series HB4008 without limit switches (see page 2).

Operation Principle, Application, Benefits
♦ Manual adjustment of a velocity-regulated opening stroke of the valve gate pin for each zone.

Areas of Application
♦ Optimizing of the surface quality of sequential or cascade injection molding.

Attention:
Customer to provide cascade control signals.

Valve Gate Hot Runner System
with conical valve gate pin for nozzle series:
12E (Valve gate pin Ø5 mm, Ø6 mm)
16E (Valve gate pin Ø6 mm)
22E (Valve gate pin Ø8 mm)

Mechanical Flow Control
“Valve shown turned 180°”

Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.
**Available Versions**
HB2508, HB4016

**Product Description**
The HB Hydraulic Actuator series and PB Pneumatic Actuator series is bolted to the manifold.

Each Actuator is available with optional Thermocouple (TC) and patent pending Position Sensor (PS).

The Position Sensor detects pin position and sends a signal to activeGate™ products providing closed loop position control or pin position indication and speed monitoring with Valve Monitoring Interface (VMI).

All HB series actuators are provided with the following features:

♦ Automatic bleed for air removal in Hydraulic lines to provide consistent actuation
♦ Easy Valve Pin adjustment through cutout in top clamp plate
♦ Valve Pin quick coupling
♦ Valve Pin anti-rotation feature

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**Parameter** | HB2508          | HB4016          
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Valve Pin Diameter</td>
<td>3 mm, 3.8 mm</td>
<td>5 mm, 6 mm, 8 mm</td>
</tr>
<tr>
<td>Nozzle Series</td>
<td>06E, 09E</td>
<td>12E, 16E, 22E</td>
</tr>
<tr>
<td>Pin Adjustment</td>
<td>+/- 1 mm</td>
<td>+/- 1.5 mm</td>
</tr>
<tr>
<td>Min/Max Close Forces</td>
<td>1963/2945 N</td>
<td>5027/7540 N</td>
</tr>
<tr>
<td>Min/Max Open Forces</td>
<td>443/2267 N</td>
<td>3506/5259 N</td>
</tr>
<tr>
<td>Min/Max Hydraulic Pressure</td>
<td>40/60 bar (600/870psi)</td>
<td>40/60 bar (600/870psi)</td>
</tr>
<tr>
<td>Valve Pin Stroke</td>
<td>8 mm</td>
<td>16 mm</td>
</tr>
<tr>
<td>Hydraulic Connections</td>
<td>M10x1.0</td>
<td>M10x1.0</td>
</tr>
<tr>
<td>Cooling Temperature</td>
<td>30/60°C</td>
<td>30/60°C</td>
</tr>
<tr>
<td>Cooling Connections</td>
<td>M10x1.0</td>
<td>M12x1.5</td>
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</tbody>
</table>

Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.
Manual Flow Restrictor Valve “In-Line Version”

**Product Description**
A fully adjustable, pressure compensated mechanical flow control valve for adjusting manually the opening velocity of the valve pin.

Over a scale on the dial, an accurate comparison and repeatable setting of the flow rate can be made.

This setting can be locked by the locking ring.

The flow valve will be mounted in line to the hydraulic pipe.

**Operating Data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Flow rate</td>
<td>8 l/min</td>
</tr>
<tr>
<td>Count of turns between open and closed</td>
<td>5 turns</td>
</tr>
<tr>
<td>Maximum operating pressure</td>
<td>210 bar</td>
</tr>
<tr>
<td>Connections</td>
<td>G 3/8”</td>
</tr>
<tr>
<td>Oil type</td>
<td>Hydraulic oil DIN 51524-2, HLP 32</td>
</tr>
</tbody>
</table>

**Dimensions**

Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.

1. Example of a 6-fold valve block with six restricted zones
**Mechanical Flow Restrictor**

**Manual Flow Restrictor Valve “Sandwich Version, NG6”**

**Product Description**
One-side operated hydraulic valves, including manually operated flow control valves, to control the hydraulic cylinders for hot runner systems appropriately equipped.
The valve is used in the hydraulic valve block as shown below.
The hydraulic valve block, including oil pressure-gauge is mounted as one unit to the hot runner system.

**Attention:**
The customer’s cascade control signals are still required!

A fully adjustable, pressure compensated mechanical flow restrictor valve for adjusting manually the opening velocity of the valve pin.
Over a scale on the dial, an accurate comparison and repeatable setting of the flow rate can be made.
This setting can be locked by the locking ring.

**Operating Data**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate</td>
<td>8 l/min</td>
</tr>
<tr>
<td>Count of turns</td>
<td>5 turns</td>
</tr>
<tr>
<td>between open and</td>
<td></td>
</tr>
<tr>
<td>closed</td>
<td></td>
</tr>
<tr>
<td>Maximum operating</td>
<td>210 bar</td>
</tr>
<tr>
<td>pressure</td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>P, T: G 1/2”, A, B: G 3/8”</td>
</tr>
<tr>
<td>Oil type</td>
<td>Hydraulic oil DIN 51524-2, HLP 32</td>
</tr>
</tbody>
</table>

1. Example of a 2-fold valve block with one restricted zone
2. Example of a 4-fold valve block with two restricted zones
Valve Monitoring Interface Set-up

Components

Valve Monitoring Interface Set-up

1. Tool Side - Hot Runner System
   a) Actuator with Position Sensor
   b) Junction Box:
      SF3-12Z-JB-01 (12 Zone)
      SF3-24Z-JB-01 (24 Zone)
      See the VMI Product Catalog
      CAT-07-0004_EN-Rev##
   c) Mounting Bracket
      VMI-##ZJBE-MB

2. Machine Side
   d) Main Module:
      VMI-MMA01
      See the VMI Product Catalog
      CAT-07-0004_EN-Rev##
   
<table>
<thead>
<tr>
<th>Current</th>
<th>24 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A</td>
<td></td>
</tr>
</tbody>
</table>
   
   | Temperature | 0 - 50 °C (32 - 122 °F) |
   | Humidity     | <95 % no condensate    |
   
   e) Signal Cable:
      VMI-SC01-4000 (4 meter cable length)
      VMI-SC01-7000 (7 meter cable length)
   f) Power Supply: EMSA240075-P5P-SZ
      
      | Current input | 100 - 240 VAC |
      | Current output| 24 VDC 0.75 A |
      | Including     | US, UK, EU, AU, CC |
      |               | socket outlet adapters |

Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.
1. VMI Main Module Dimensions

- The Main Module of the Valve Monitoring Interface (VMI) has permanent magnets to enable mounting onto any magnetizable surface.

2. VMI Elements

- Provides up to 24 zones of visual status indication.
- An LCD displays time taken to go from Closed to Opened, for any two zones.
- Relay outputs provide fully opened and fully closed signals to other equipment via the DB50 connector.

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