MDV gas metering systems for the flexible production and flow control of fuel gases, oxygen or air; especially designed for surface-mix burners.

Benefits
- the flexible arrangement of metering valves (2 or 3 gases) provides the flexibility to meet the gas supply requirements of various types of processing machinery
- subsequent changes of machine parameters, e.g. capacities or number of burners, can be easily accomplished because of the modular design
- all parameters can be adjusted with the burners in sight due to the installation of the metering valves close to the burners
- the perfect repeatability of the parameter setting enables the initial setting of the burners before actually starting the process. This results in reduced set-up times as well as in minimised cost of rejects during start-up.

Type: MDV Systems for Surface-Mix Burners

Gases: fuel gases such as natural gas, methane, propane, hydrogen, acetylene with oxygen and/or air

Mixing range: dependent on the gases

Gas inlet pressures: 0.3 to max. 10 bar

Gas outlet pressures: dependent on the back pressure of the burners

Flow capacity (air): approx. 10 Nl/min to 1000 Nl/min (other quantities on request)

Repeatability: better ±1% abs.

Gas connections: dependent on valve block size

Material: aluminium, brass, stainless steel

Weight: dependent on number of valves

Dimensions (HxWxD): dependent on number of valves

Shut-off valves: solenoid valves, 24 V DC or 230 V AC

Approvals: Company certified according to ISO 9001
CE-marked according to:
- EMC 2014/30/EU
- Low Voltage Directive 2014/35/EU

Please indicate the individual gases as well as number and capacities of the required burners when ordering!
THERMAL PROCESSING
MDV systems for surface-mix burners

FLOW CALCULATION OF DIGIVOE-VALVES

Characteristic curve

![Characteristic curve](image)

Formulas

<table>
<thead>
<tr>
<th>Pressure drop</th>
<th>Gas flow in Nm$^3$/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta P &lt; \frac{P_v}{2}$</td>
<td>$Q_n = \frac{C_v \cdot 514}{\sqrt{\rho_n \cdot \vartheta_n \cdot \Delta P \cdot P_h}}$</td>
</tr>
<tr>
<td>$\Delta P &gt; \frac{P_v}{2}$</td>
<td>$Q_n = \frac{C_v \cdot 257 \cdot P_v}{\sqrt{\rho_n \cdot \vartheta_n}}$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Q_n$</td>
<td>Gas flow</td>
<td>Nm$^3$/h</td>
</tr>
<tr>
<td>$K_v$</td>
<td>Flow coefficient from curve</td>
<td>Nm$^3$/h</td>
</tr>
<tr>
<td>$\Delta P$</td>
<td>Pressure drop = $P_v - P_h$</td>
<td>bar</td>
</tr>
<tr>
<td>$P_v$</td>
<td>Inlet pressure</td>
<td>bar absolute</td>
</tr>
<tr>
<td>$P_h$</td>
<td>Outlet pressure</td>
<td>bar absolute</td>
</tr>
<tr>
<td>$\rho_n$</td>
<td>Density at norm conditions: 0 °Celsius, 1013 hPa</td>
<td>Kg/Nm$^3$</td>
</tr>
<tr>
<td>$\vartheta_n$</td>
<td>Gas temperature upstream the valve</td>
<td>Kelvin</td>
</tr>
</tbody>
</table>

Sectional drawing

![Sectional drawing](image)