

# Honeywell

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## Solenoid actuator MB 7

Technical Information · GB  
3 Edition 12.16

- Robust design for a long service life
- Simple installation using fastening set
- Valve disc position indicator
- Burner capacity adjustment by integrated air volume control for low-fire and high-fire rate
- Suitable for intermittent operation due to large number of operating cycles



EAC CE

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*MB 7N: quick opening, quick closing*

### 1 Application

The solenoid actuator MB 7 serves as a drive for the butterfly valve BVHM. The unit made up of solenoid actuator MB 7 and butterfly valve BVHM can be used for staged control of industrial installations in cold- or hot-air operating mode.

Solenoid actuator MB 7 indicates the position of the valve disc. The air volumes for low and high fire can be controlled independently.



*MB 7L: slow opening, quick closing,  
MB 7R: slow opening, slow closing*

Due to the large number of operating cycles of solenoid actuator MB 7, the butterfly valve BVHM is suitable for intermittent operation.

See Technical Information BVHM, [www.docuthek.com](http://www.docuthek.com), Butterfly valves BVG, BVA, BVH..., IB...

*Solenoid actuator  
MB 7 on butterfly  
valve BVHM for  
staged control of  
hot or cold air*



*Butterfly valve  
BVHM on forging  
furnace to reduce  
the oxygen level*

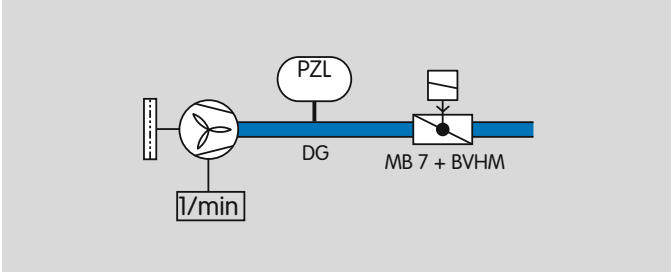


*Bogie hearth  
annealing furnace*



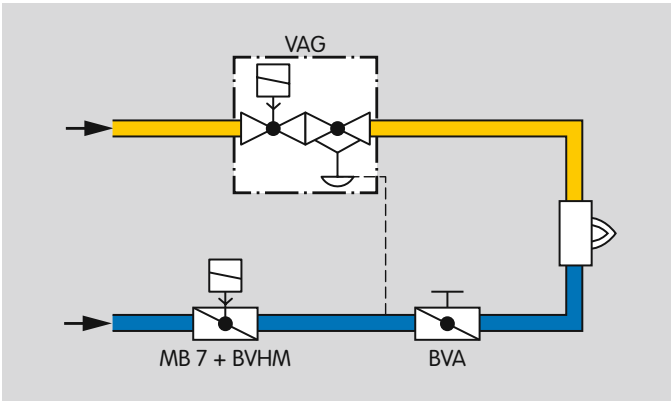
## 1.1 Examples of application

### 1.1.1 Cooling air for bogie hearth furnace



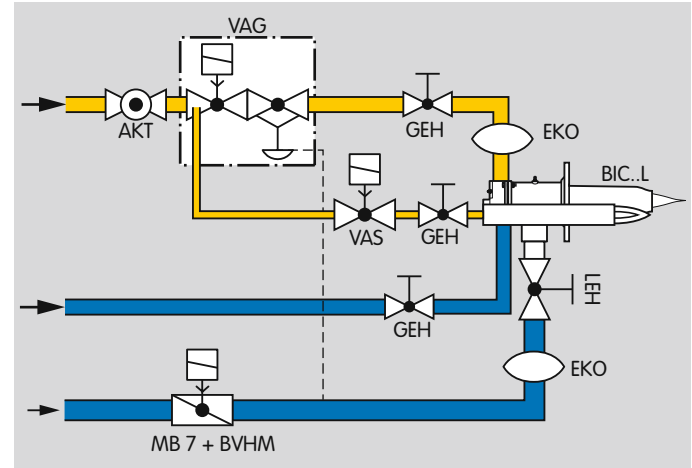
A fan introduces additional cooling air into the furnace through air nozzles. The air volume is controlled by the solenoid actuator MB 7 without damping unit and the butterfly valve BVHM.

### 1.1.2 Large number of operating cycles for intermittent operation



Solenoid actuator MB 7 with butterfly valve BVHM is suitable for intermittent operation. The air volumes for low and high fire can be set independently on the solenoid actuator MB 7.

### 1.1.3 Air supply to forging furnace



The air supply to the forging furnace is controlled by the solenoid actuator MB 7 with slow opening and slow closing damping unit in conjunction with the butterfly valve BVHM. Since the valve disc is provided with a stop, the oxygen level in the furnace atmosphere is reduced in order to prevent scale formation on the material to be treated to an even larger extent.

## **2 Certification**

**EU certified pursuant to**

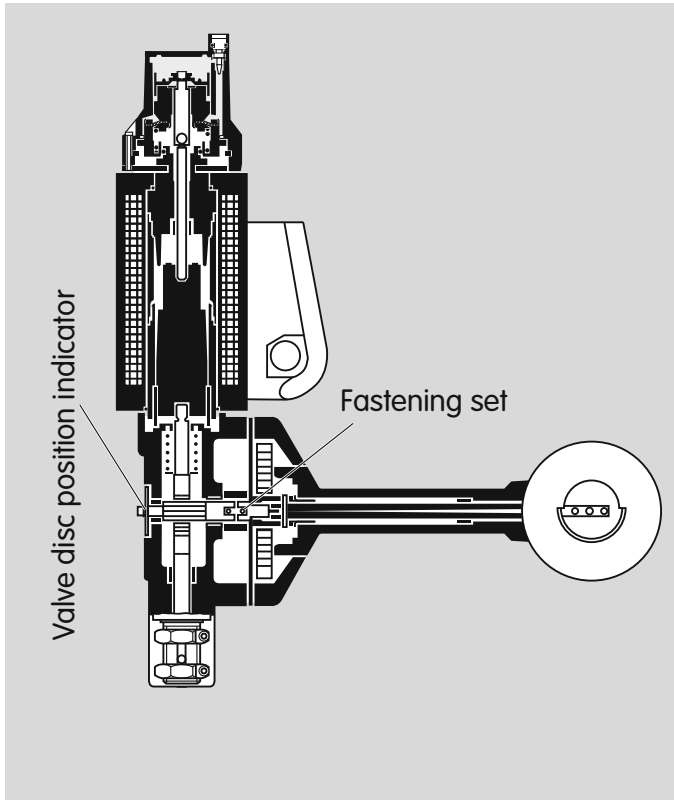


- Low Voltage Directive (2006/95/EC),
- EMC Directive (2004/108/EC).

**Eurasian Customs Union**



The products MB 7 and BVHM meet the technical specifications of the Eurasian Customs Union.



### 3 Function

The solenoid actuator MB 7 is tailored to the butterfly valve BVHM. Via a coupling pin and ring, the solenoid actuator moves the butterfly valve to the open or closed position, see page 12 (Fastening set). The position of the valve can be read on a valve disc position indicator on the outside of the solenoid actuator.

In the event of a mains voltage failure, the solenoid actuator closes the butterfly valve. This prevents air from flowing into the furnace without being under control.

The solenoid actuator can be supplied in three versions:

MB 7N: quick opening, quick closing,

MB 7R: slow opening, slow closing, for High/Low control,

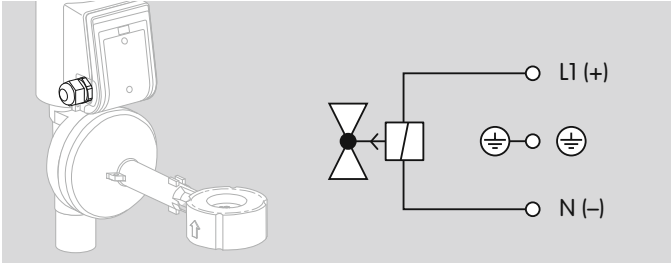
MB 7L: slow opening, quick closing, for On/Off control.

### 3.1 Connection diagram

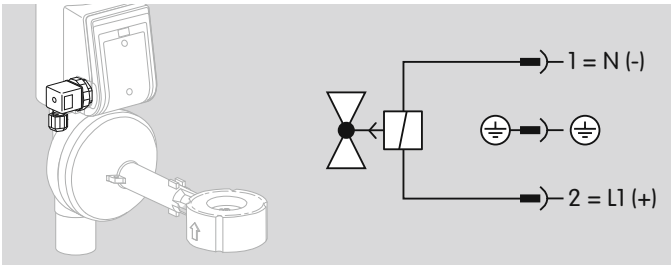
Wiring to EN 60204-1.

The actuator with butterfly valve is closed when de-energized.

#### MB 7..3 with cable gland



#### MB 7..6 with standard socket





## 4 Replacement possibilities for solenoid actuator

### 4.1 M is to be replaced by MB 7

| Type |  |  | Type |
|------|--|--|------|
| M    | Solenoid actuator for butterfly valve K* | Solenoid actuator for butterfly valve BVHM | MB   |
| 5    | Actuator size                            | Actuator size                              | 7    |
| 6    |  |  |      |
| 6    |  |  |      |
| R    | Slow opening, slow closing               | Slow opening, slow closing                 | R    |
| L    | Slow opening, quick closing              | Slow opening, quick closing                | L    |
| N    | Quick opening, quick closing             | Quick opening, quick closing               | N    |
| T    | Mains voltage: 220/240 V AC, 50/60 Hz    | Mains voltage: 230 V AC, 50/60 Hz          | W    |
| Q    | 110/120 V AC, 50/60 Hz                   | 120 V AC, 50/60 Hz                         | Q    |
|      |  | 24 V DC                                    | K    |
| 3    | Electrical connection via terminals      | Electrical connection via terminals        | 3    |
| 6    | With 3-pin standard socket               | With 3-pin standard socket                 | 6    |
| 6L   | With 3-pin standard socket, with lamp    |  | -    |
| 9    | Metal connection box                     |  | -    |

#### Example

M 6LT3

#### Example

MB 7LW3

\* For possibilities to replace butterfly valve K by BVHM, see Technical Information BV., IB.. → [www.docuthek.com](http://www.docuthek.com).

## 5 Selection

### 5.1 Selection table

| Type | R | L | N | W | Q | K | 3 | 6 |
|------|---|---|---|---|---|---|---|---|
| MB 7 | ● | ● | ● | ● | ● | ○ | ● | ○ |

● = standard, ○ = available

#### Order example

MB 7LW3

### 5.2 Type code

| Code        | Description  |
|-------------|--|
| MB          | Solenoid actuator  |
| 7           | Actuator size 7 for DN 40 – 100  |
| R<br>L<br>N | Slow opening, slow closing<br>Slow opening, quick closing<br>Quick opening, quick closing                  |
| W<br>Q<br>K | Mains voltage:<br>230 V AC, 50/60 Hz<br>120 V AC, 50/60 Hz<br>24 V DC                                      |
| 3<br>6      | Electrical connection:<br>terminal connection box, IP 65<br>terminal box with 3-pin standard socket, IP 65 |

### 5.3 Differential pressure

The actuators with butterfly valve are designed for the following maximum differential pressures  $\Delta p$ :

| Type            | Max. inlet pressure $p_u$ | max. $\Delta p_{100}$ |
|-----------------|---------------------------|-----------------------|
| MB 7 + BVHM 40  | 150 mbar (2.18 psi)       | 150 mbar (2.18 psi)   |
| MB 7 + BVHM 50  | 150 mbar (2.18 psi)       | 130 mbar (1.88 psi)   |
| MB 7 + BVHM 65  | 150 mbar (2.18 psi)       | 95 mbar (1.38 psi)    |
| MB 7 + BVHM 80  | 150 mbar (2.18 psi)       | 55 mbar (0.80 psi)    |
| MB 7 + BVHM 100 | 150 mbar (2.18 psi)       | 20 mbar (0.29 psi)    |

## 6 Project planning information

### 6.1 Installation

Actuator MB 7 and butterfly valve BVHM are supplied separately. Easy assembly with the butterfly valve BVHM using the fastening set, see page 12 (Accessories), consisting of coupling pin, coupling ring and 2 screws, can be carried out either before or after installation of the butterfly valve in the pipework.

Solenoid actuator MB 7 and butterfly valve BVHM must not be in contact with masonry – minimum distance 20 mm (0.79 inch).

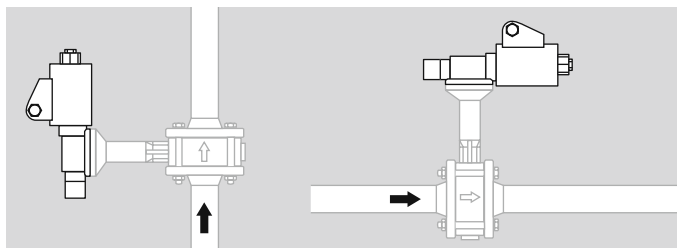
The solenoid actuator heats up during operation. Surface temperature approx. 85°C (approx. 185°F) pursuant to EN 60730-1.



In conjunction with butterfly valve BVHM for hot air, the solenoid actuator can be used in temperatures of up to 250°C (480°F), with additional heat deflectors, see page 12 (Accessories), it can be used in temperatures of up to 450°C (840°F).

If insulated pipelines are used, ensure that the flanges and the butterfly valve BVHM are kept free of insulating material.

### 6.2 Installation position

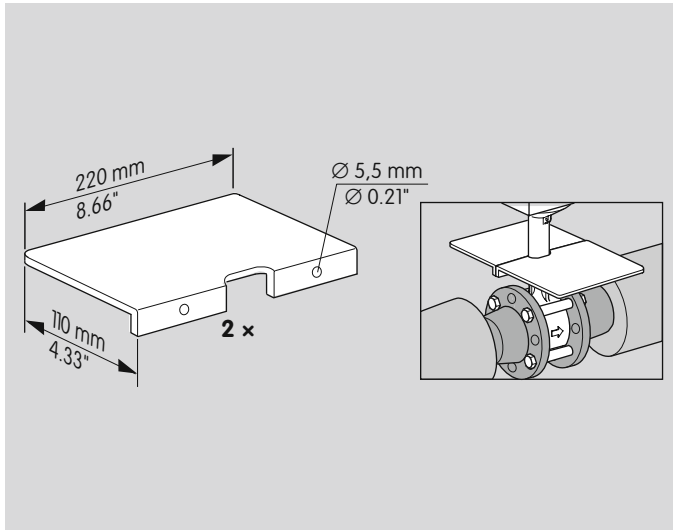


Black solenoid actuator in the vertical upright position or tilted up to the horizontal, not upside down.

When built into a vertical pipe, dirt may accumulate on the stop bar of butterfly valve BVHM, which may prevent the valve from closing properly. This is why we recommend selecting the direction of flow from bottom to top.

## 7 Accessories

### 7.1 Heat deflectors

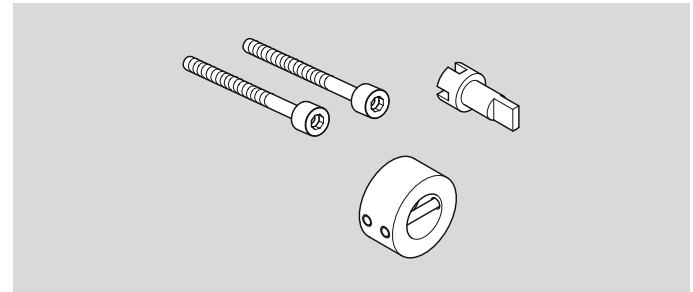


In conjunction with the butterfly valve BVHM, the solenoid actuator can be used for hot air of:  
up to 250°C (480°F) or  
up to 450°C (840°F) when heat deflectors are installed.

If you are using an insulated pipeline, ensure that there is sufficient installation space to access the heat deflectors and the screw connectors near the valve.

Order number: 74921670

### 7.2 Fastening set



This is required to attach the solenoid actuator MB 7 to the butterfly valve BVHM. The fastening set is delivered enclosed as an additional item.

Order number: 74922222

## 8 Technical data

Mains voltage:

230 V AC, +10/-15%, 50/60 Hz,

120 V AC, +10/-15%, 50/60 Hz,

24 V DC, +20/-20%.

The electrical power is the same, both when switching on and in continuous operation.

| Voltage  | Power |
|----------|-------|
| 230 V AC | 100 W |
| 120 V AC | 108 W |
| 24 V DC  | 85 W  |

Current consumption:

$$\text{Current } I = \frac{\text{power consumption VA}}{\text{voltage V}}$$

Ambient temperature:

-20 to +60°C (-4 to +140°F).

Long-term use in the upper ambient temperature range accelerates the ageing of the elastomer materials and reduces the service life (please contact manufacturer).

Storage temperature:

-20 to +40°C (-4 to +104°F).

Enclosure: IP 65.

### MB 7R

Slow opening: approx. 2 to 4 s

Slow closing: approx. 2 to 4 s

### MB 7N

Quick opening: < 1 s

Quick closing: < 1 s

### MB 7L

Slow opening: approx. 2 to 4 s,

Quick closing: < 1 s

### Number of operating cycles

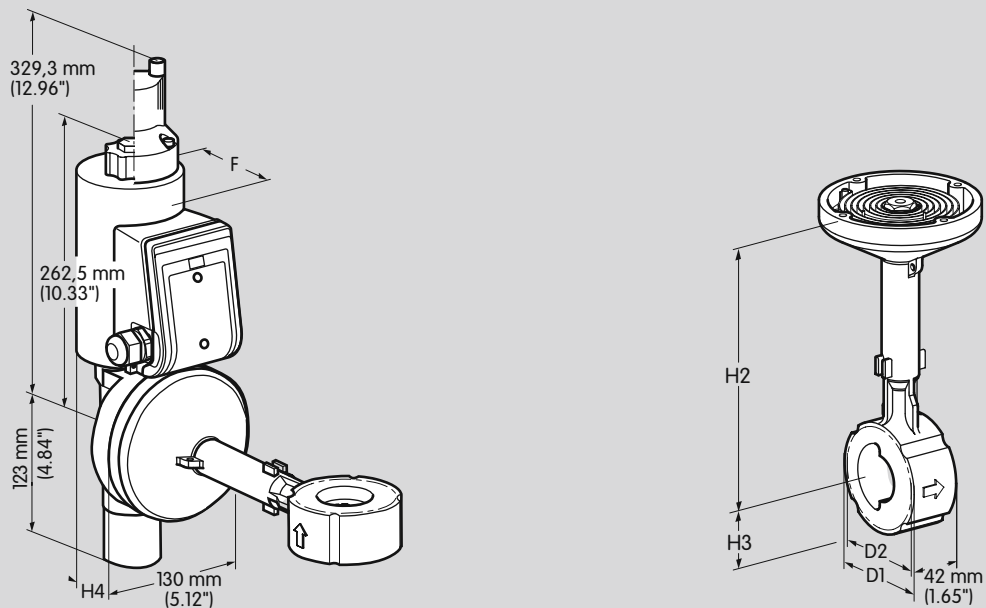
The solenoid actuators have been designed for a typical number of operating cycles as described below, pursuant to Elster internal design and construction specifications.

These values are purely for information purposes and are not intended by Elster to be legally binding. Elster cannot accept liability for the durability or condition of the product beyond the scope described in the Standards.

The information given refers to an ambient temperature of +20°C (+68°F).

| Type            | Switching operations | $\Delta p$          |
|-----------------|----------------------|---------------------|
| MB 7 + BVHM 40  | 5,000,000            | 150 mbar (2.18 psi) |
| MB 7 + BVHM 50  | 4,000,000            | 130 mbar (1.88 psi) |
| MB 7 + BVHM 65  | 3,000,000            | 95 mbar (1.38 psi)  |
| MB 7 + BVHM 80  | 2,000,000            | 55 mbar (0.80 psi)  |
| MB 7 + BVHM 100 | 1,000,000            | 20 mbar (0.29 psi)  |

## 8.1 Dimensions of MB 7 + BVHM



| Type            | H2          | H3        | H4          | DIN             |                 | ANSI            |                 | F         | Weight        |
|-----------------|-------------|-----------|-------------|-----------------|-----------------|-----------------|-----------------|-----------|---------------|
|                 | mm (inch)   | mm (inch) | mm (inch)   | D1<br>mm (inch) | D2<br>mm (inch) | D1<br>mm (inch) | D2<br>mm (inch) | mm (inch) | kg (lbs)      |
| BVHM 40 + MB 7  | 234 (9.21)  | 46 (1.81) | 91.5 (3.58) | 92 (3.6)        | -               | 92 (3.6)        | 85.7 (3.37)     | 92 (3.62) | 11.79 (26.00) |
| BVHM 50 + MB 7  | 239 (9.40)  | 54 (2.12) | 91.5 (3.58) | 107 (4.2)       | -               | 107 (4.2)       | 105 (4.13)      | 92 (3.62) | 12.17 (26.83) |
| BVHM 65 + MB 7  | 243 (9.56)  | 64 (2.51) | 91.5 (3.58) | 127 (5.0)       | -               | 127 (5.0)       | 124 (4.88)      | 92 (3.62) | 13.05 (28.77) |
| BVHM 80 + MB 7  | 254 (10.00) | 71 (2.80) | 91.5 (3.58) | 142 (5.6)       | -               | 142 (5.6)       | 137 (5.39)      | 92 (3.62) | 13.59 (29.96) |
| BVHM 100 + MB 7 | 265 (10.43) | 88 (3.46) | 91.5 (3.58) | 175 (6.9)       | 162 (6.4)       | 175 (6.9)       | -               | 92 (3.62) | 14.97 (33.00) |

## **9 Converting units**

see [www.adlatus.org](http://www.adlatus.org)

## **10 Maintenance cycles**

The butterfly valve BVHM require little maintenance.

We recommend a function check once a year.

## Feedback

Finally, we are offering you the opportunity to assess this “Technical Information (TI)” and to give us your opinion, so that we can improve our documents further and suit them to your needs.

### Clarity

- Found information quickly
- Searched for a long time
- Didn't find information
- What is missing?
- No answer

### Comprehension

- Coherent
- Too complicated
- No answer

### Scope

- Too little
- Sufficient
- Too wide
- No answer



### Use

- To get to know the product
- To choose a product
- Planning
- To look for information

### Navigation

- I can find my way around
- I got “lost”
- No answer

### My scope of functions

- Technical department
- Sales
- No answer

### Remarks

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[www.kromschroeder.de/Weltweit.20.0.html?&L=1](http://www.kromschroeder.de/Weltweit.20.0.html?&L=1)

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