

Solenoid actuator MB 7

Technical Information · GB

3 Edition 08.14

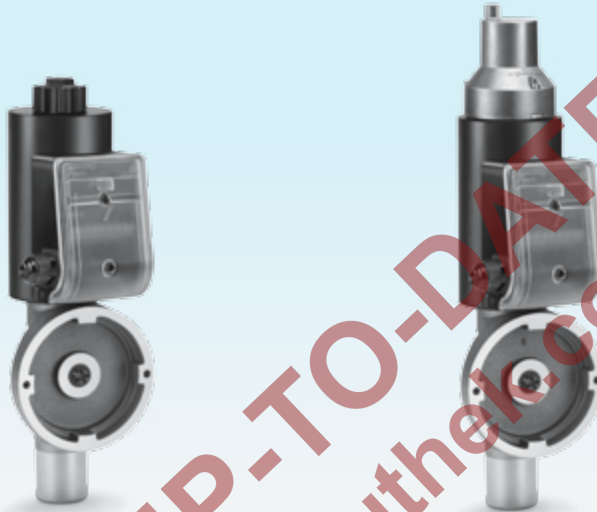


- Robust design for a long service life
- Simple installation using fastening set
- Valve disc position indicator
- Burner capacity adjustment by integrated air volume control for low-fire and high-fire rate
- Suitable for intermittent operation due to large number of operating cycles



Contents

- Solenoid actuator MB 7 1
- Contents 2
- 1 Application 3
 - 1.1 Examples of application 5
 - 1.1.1 Cooling air for bogie hearth furnace 5
 - 1.1.2 Large number of operating cycles for intermittent operation 5
 - 1.1.3 Air supply to forging furnace 5
- 2 Certification 6
- 3 Function 7
 - 3.1 Connection diagram 8
- 4 Replacement possibilities for solenoid actuator 9
 - 4.1 M is to be replaced by MB 7 9
- 5 Selection 10
 - 5.1 Selection table 10
 - 5.2 Type code 10
 - 5.3 Differential pressure 10
- 6 Project planning information 11
 - 6.1 Installation 11
 - 6.2 Installation position 11
- 7 Accessories 12
 - 7.1 Heat deflectors 12
 - 7.2 Fastening set 12
- 8 Technical data 13
 - 8.1 Dimensions of MB 7 + BVHM 14
 - 8.2 Converting units 15
- Feedback 16
- Contact 16



MB 7N: quick opening, quick closing

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

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

*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*

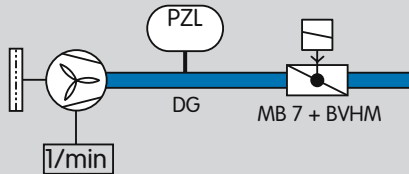


*Bogie hearth
annealing furnace*



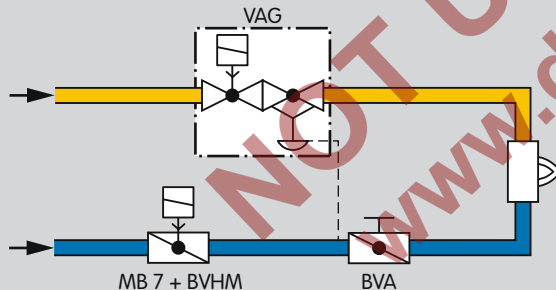
1.1 Examples of application

1.1.1 Cooling air for bogie hearth furnace



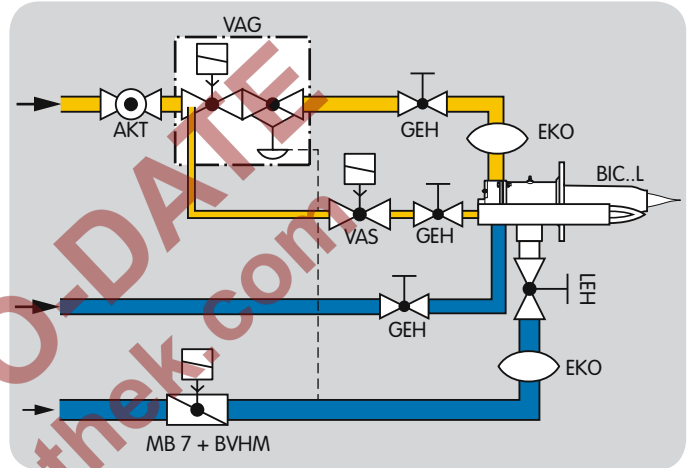
A fan introduces additional cooling air into the furnace through air nozzles. The air volume is controlled by the solenoid actuator MB 7 without damping unit and the butterfly valve BVHM.

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



Meets the requirements of the

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

FM approved



Factory Mutual Research Class: 7400 Safety overpressure slam shut valves.

Designed for applications pursuant to NFPA 85 and NFPA 86.
www.approvalguide.com

Eurasian Customs Union



The products MB 7 and BVHM meet the technical specifications of the Eurasian Customs Union (the Russian Federation, Belarus, Kazakhstan).

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. A large number of operating cycles enables intermittent operation.

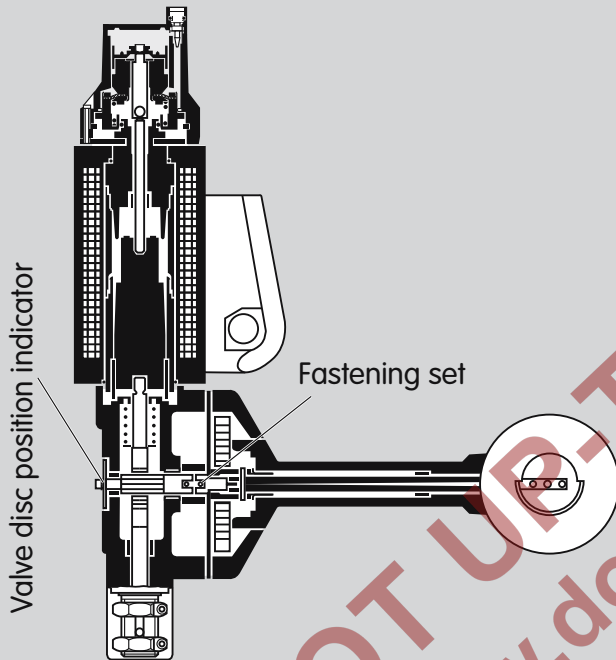
In the event of a mains voltage failure, the solenoid actuator closes the butterfly valve. This prevents air from flowing into the furnace without being under control.

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.

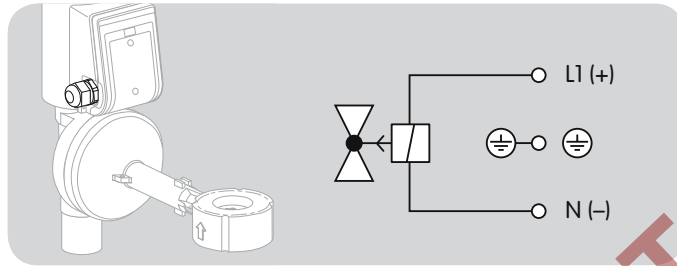


3.1 Connection diagram

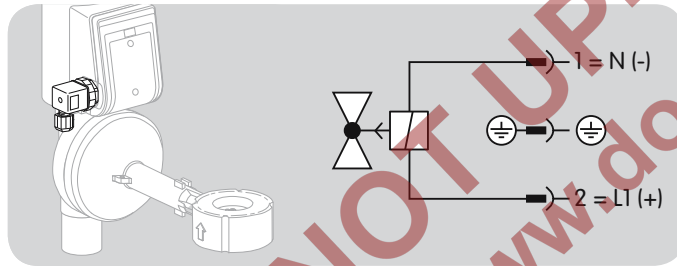
Wiring to EN 60204-1.

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

MB 7 with M20 cable gland



MB 7 with plug



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			
6	Actuator size	Actuator size	7
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.

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	Slow opening, slow closing
L	Slow opening, quick closing
N	Quick opening, quick closing
W	Mains voltage: 230 V AC, 50/60 Hz
Q	120 V AC, 50/60 Hz
K	24 V DC
3	Electrical connection: terminal connection box, IP 65
6	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 Δp :

Type	Max. inlet pressure p_u	max. Δp_{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

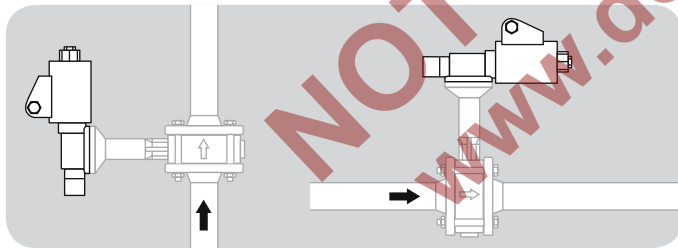
Actuator MB 7 and butterfly valve BVHM are supplied separately. Easy assembly with the butterfly valve BVHM using the fastening set, see page 12 (Accessories), consisting of coupling pin, coupling ring and 2 screws, can be carried out either before or after installation of the butterfly valve in the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

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

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

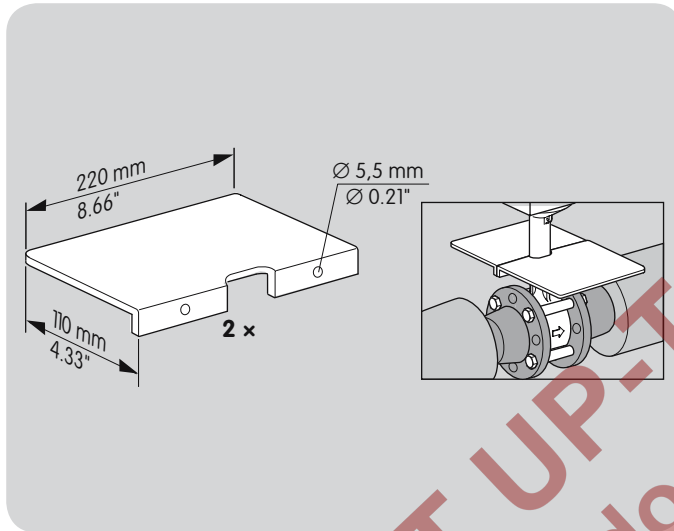


Black solenoid actuator in the vertical upright position or tilted up to the horizontal, not upside down.

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

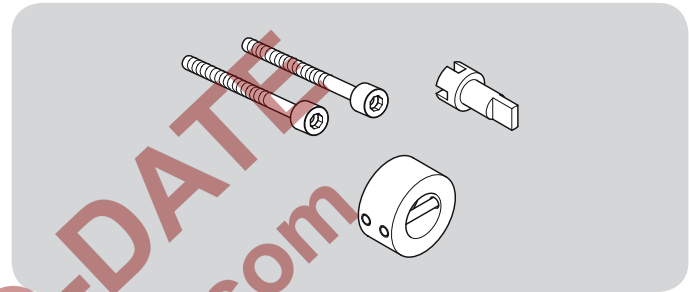


In conjunction with the butterfly valve BVHM, the solenoid actuator can be used for hot air of:
up to 250°C (480°F) or
up to 450°C (840°F) when heat deflectors are installed.

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

Number of operating cycles: high

Actuator MB 7 for valve housing BVHM 40 to BVHM 100

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	83 W
120 V AC	90 W
24 V DC	75 W

Current consumption:

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

Ambient temperature:

-20 to +60°C (-4 to +140°F),

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,

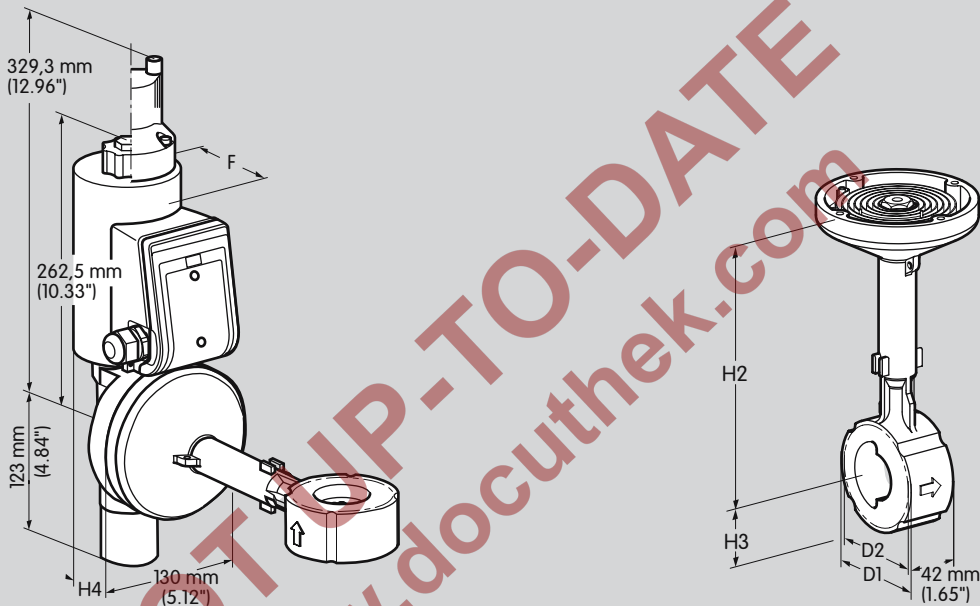
Quick closing: < 1 s.

MB 7L

Slow opening: approx. 2 to 4 s,

Quick closing: < 1 s.

8.1 Dimensions of MB 7 + BVHM



Type	H2	H3	H4	DIN		ANSI		F	Weight kg (lbs)
	mm (inch)	mm (inch)	mm (inch)	D1 mm (inch)	D2 mm (inch)	D1 mm (inch)	D2 mm (inch)	mm (inch)	
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)

8.2 Converting units

see www.adlatus.org

SI unit ×	multiplier =	US unit
m ³ /h	35.31	CFH
mbar	0.0145	psi
mbar	0.39	"WC
mm	0.039	inch
kg	2.2	lbs
litres	0.26	gal
m/s	3.28	ft/s

US unit ×	multiplier =	SI unit
CFH	0.0283	m ³ /h
psi	68.89	mbar
"WC	2.54	mbar
inch	25.4	mm
lbs	0.45	kg
gal	3.79	litres
ft/s	0.3048	m/s

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times \frac{5}{9}$$

$$^{\circ}\text{F} = (^{\circ}\text{C} \times \frac{9}{5}) + 32$$

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

(Adobe Reader 7 or higher required)
www.adobe.com



elster
Kromschroeder

Contact

Elster GmbH
Postfach 2809 · 49018 Osnabrück
Strothweg 1 · 49504 Lotte (Büren)
Germany
T +49 541 1214-0
F +49 541 1214-370
info@kromschroeder.com
www.kromschroeder.com

The current addresses of our international agents are available on the Internet:
www.kromschroeder.de/index.php?id=718&L=1

We reserve the right to make technical modifications in the interests of progress.
Copyright © 2014 Elster GmbH
All rights reserved.