# mcr WIP/V
# mcr WIP/V-M

multi-blade smoke exhaust fire dampers for multi-zone fire ventilation systems

PRODUCT CONFIGURATOR AT WWW.MERCOR.COM.PL

1396-CPR-0117

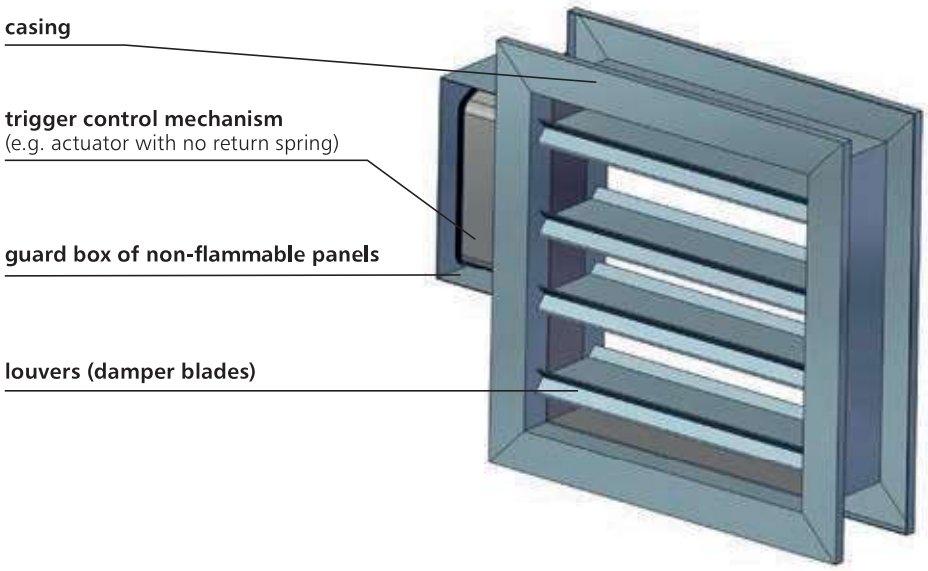
ATEST HIGIENICZNY

- EI120
- **Certificate of constancy of performance 1396-CPR-0117.**
- **Dampers certified for compliance with EN 12101-8.**
- **Dampers qualified under EN 13501-4 and tested under EN 1366-10.**
- **Narrow louvered fire dampers for fire ventilation systems.**

## 8.1. application

Multi-blade mcr WIP/V, mcr WIP/V-M fire dampers are designed for use in automatic fire ventilation systems. mcr WIP/V fire dampers are used in fire ventilation systems, mcr WIP/V-M fire dampers are used in mixed systems, combining both fire and comfort ventilation systems. The devices prevent fire, smoke and fire gases propagation to the adjacent areas. During normal operation, the fire damper is in open or closed position depending on its function. In the fire-covered area, the fire damper is open, whereas it remains closed in the other areas. mcr WIP/V, mcr WIP/V-M fire dampers due to their design are intended for use in systems, where the components such as a silencer, bend or supply/return grille are installed downstream of the fire damper.

## 8.2. design



mcr WIP/V, mcr WIP/V-M fire dampers consist of a rectangular casing, movable multiple blades rotating around their axis and a remote trigger control mechanism. Damper casing is made of galvanised or stainless steel sheet. Its integral part is a flange of silicate-cement panels. An intumescent seal and the ventilation seals are installed on the inside to ensure air tightness. The damper casing total length is 140 mm.

The louver surface (blades) is covered with galvanised or stainless steel sheet. Each louver with the thickness of 15 mm is filled with a plaster panel. The damper blades revolve on their axes, which consist of two steel pins.

Square and rectangular dampers are made with 50 mm flanges that enable the correct installation of dampers in ventilation ducts. In a circular duct, the damper is made as square with a circular connection.

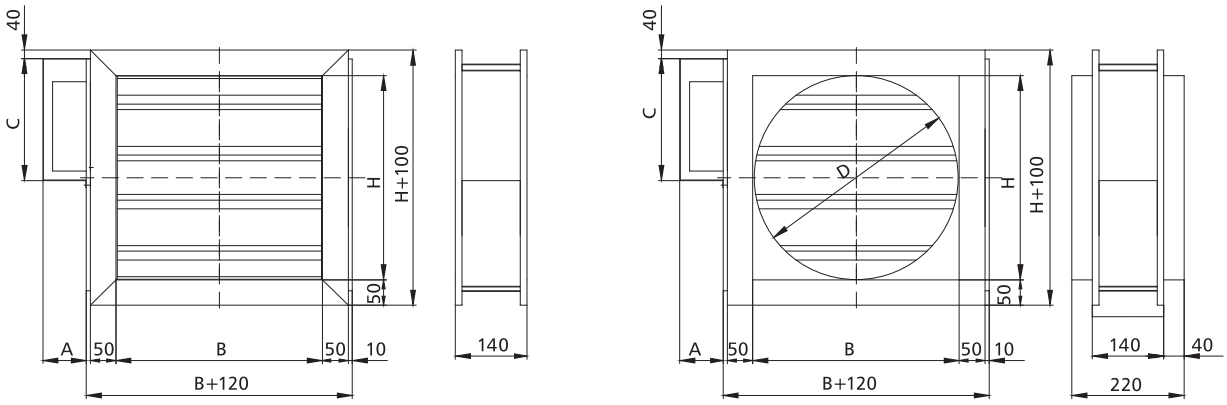
## 8.3. versions

### 8.3.1. **mcr WIP/V, mcr WIP/V-M** – smoke exhaust fire damper for multi-zone fire ventilation systems with an actuator – damper closing and opening with an actuator

**During normal operation, the fire dampers are opened or closed. In case of fire, the fire damper louvers are opened in the fire-covered area and closed in the other areas - the fire damper is released remotely by feeding the supply voltage to the trigger control mechanism.**

mcr WIP/V, mcr WIP/V-M fire dampers are equipped with a Belimo trigger control mechanisms **BLE, BE** axial actuator without the return spring (24 V AC/DC or 230 V AC). BLE, BE series actuators are equipped with limit switches used to monitor the damper blade position. Furthermore, the mechanical position indicator is placed on the actuator.

Fire dampers with Belimo BLE, BE actuators can be opened/closed by supplying voltage to the actuator terminals. Furthermore, dampers with those actuators may be opened/closed manually using a key.




| mechanism | A | C |
|---|---|---|
| **BLE** | 125 | 275 |
| **BE** | 125 | 325 |

## 8.4. dimensions

**Rectangular dampers:**

- nominal width B: from 120 mm to 1000 mm
- nominal height H: from 160 mm to 1000 mm
- the maximum cross-section surface of one damper up to 1 $m^2$

Apart from the standard dimensions, fire dampers may be manufactured with intermediate dimensions (in 1 mm increments, in the given range).

Square fire dampers may also be fitted with round connectors for the spigot connection to the round ducts.

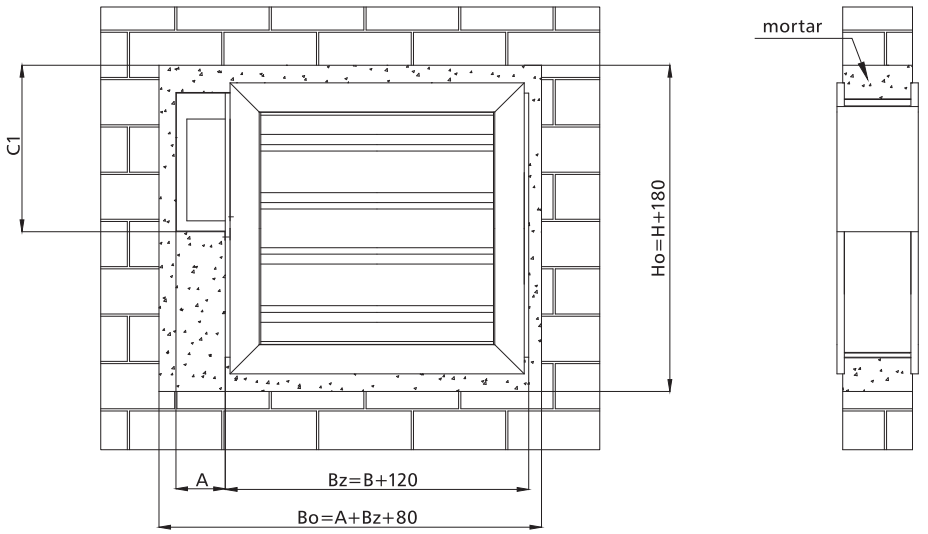
## 8.5. installation

Rectangular mcr WIP/V, mcr WIP/V-M fire dampers are class EI120($V_{ed}$ i↔o)1000$C_{10000}$AAmulti devices, if installed in a concrete partition, min. 110 mm thick made of full bricks or cellular concrete blocks, min. thickness 115 mm.

## 8.5.1. preparation of installation openings

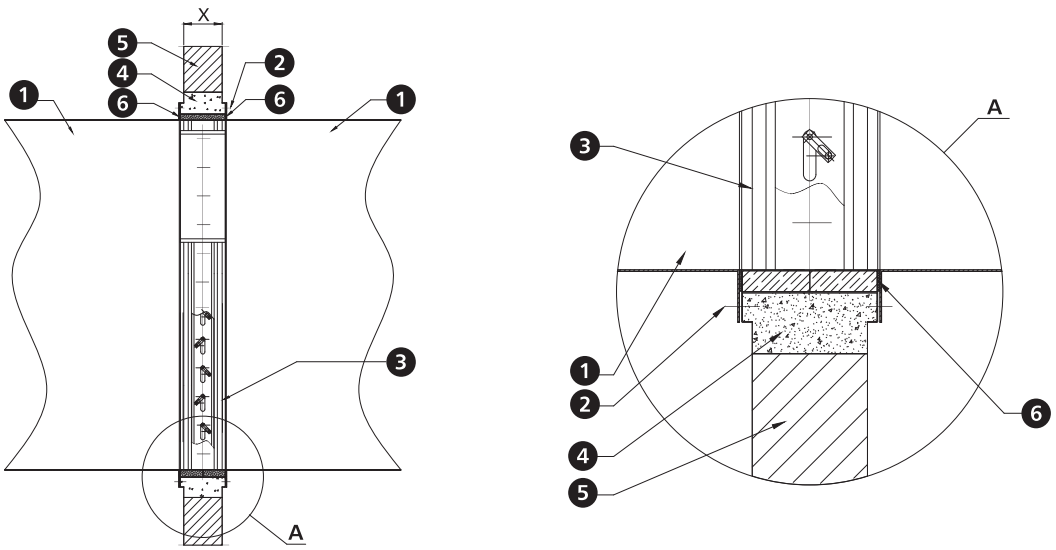
The minimum dimensions of the installation opening that permits correct installation of the mcr WIP/V, mcr WIP/V-M damper are:

**Bo = (A+Bz+80) mm**
**Ho = (H+180) mm**




| | BE | BLE |
|---|---|---|
| C1 [mm] | 385 | 335 |
| A [mm] | 125 | 125 |

## 8.5.2. sample installation in concrete or masonry walls

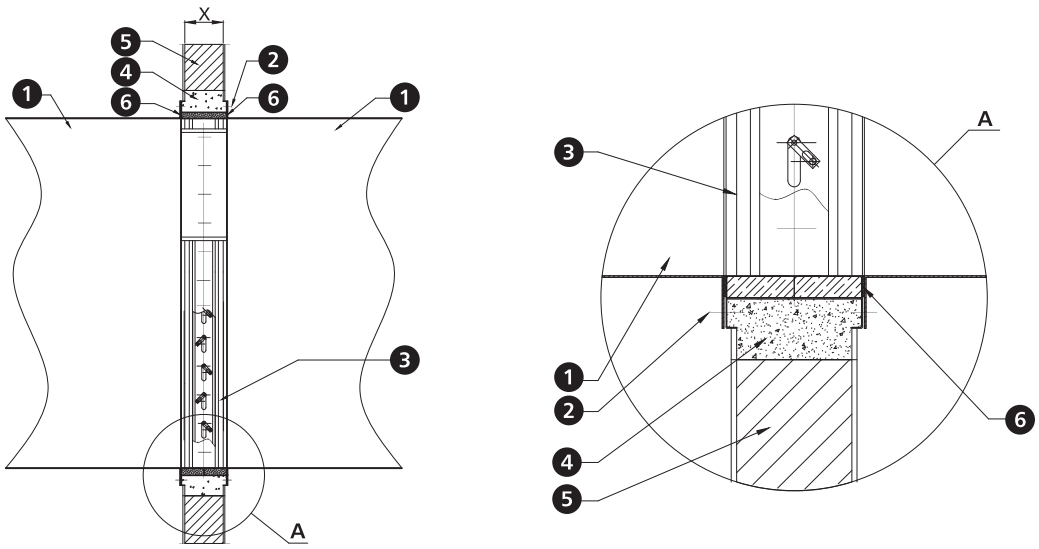



1. smoke ventilation duct
2. ST4.2x16 screw
3. fire damper mcr WIP
4. sealing - e.g. masonry cement mortar*
5. masonry wall
6. heat resistant gasket

X. wall thickness

*it is possible to use a different sealing which ensures the required fire resistance

## 8.5.3. sample installation in concrete block or full brick walls

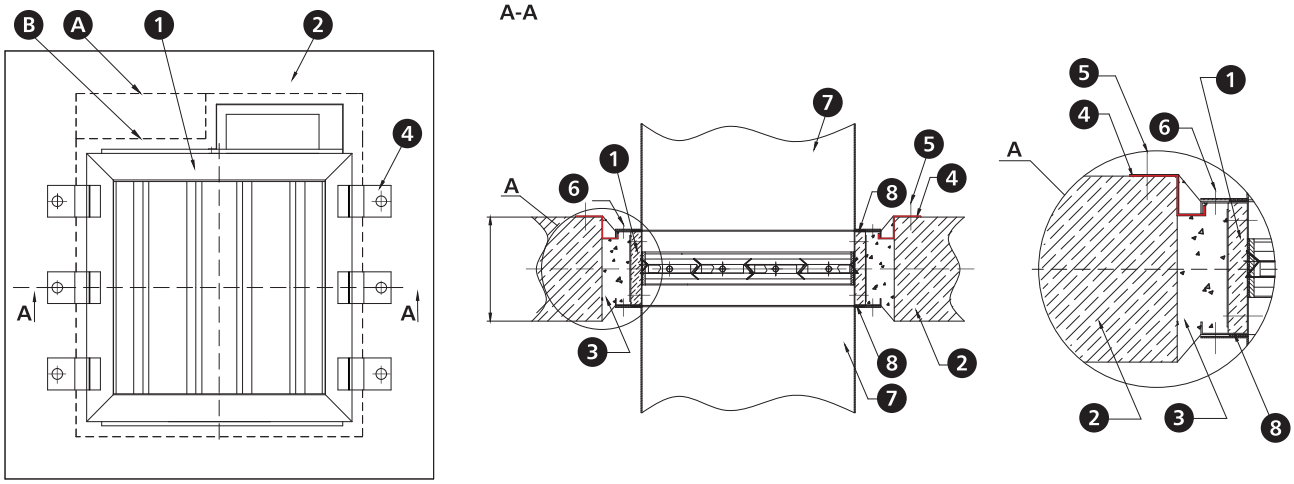



1. smoke ventilation duct
2. ST4.2x16 screw
3. fire damper mcr WIP
4. sealing - cement masonry mortar*
5. wall of concrete blocks or full bricks
6. heat resistant gasket

X. wall thickness

*it is possible to use a different sealing which ensures the required fire resistance

## 8.5.4. sample installation in ceiling

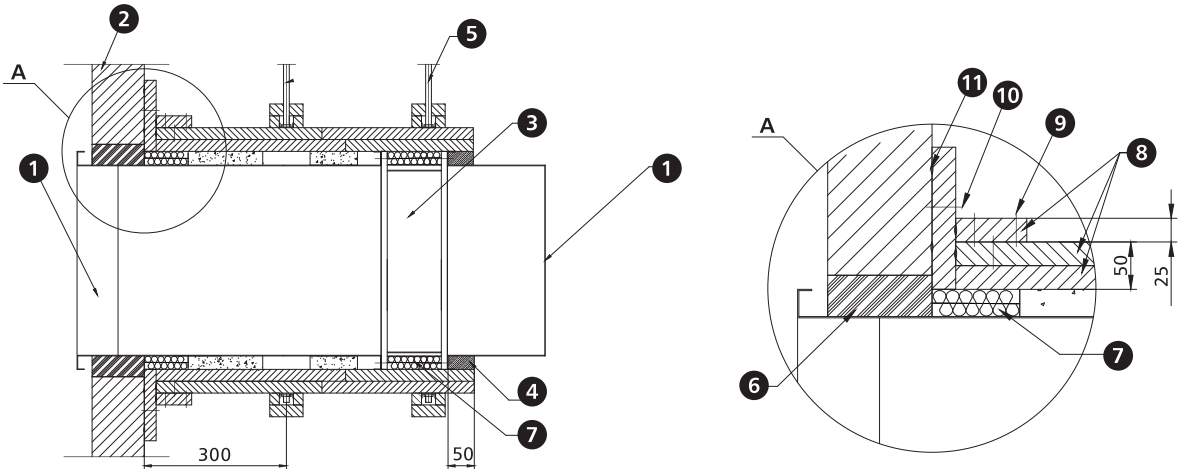



1. fire damper mcr WIP
2. ceiling
3. e.g. cement mortar*
4. mounting bracket
5. steel expansion anchor with M6 metal screw
6. ST4.2x16 screw
7. ventilation duct
8. heat resistant gasket

A./B. construction opening

*it is possible to use a different sealing which ensures the required fire resistance

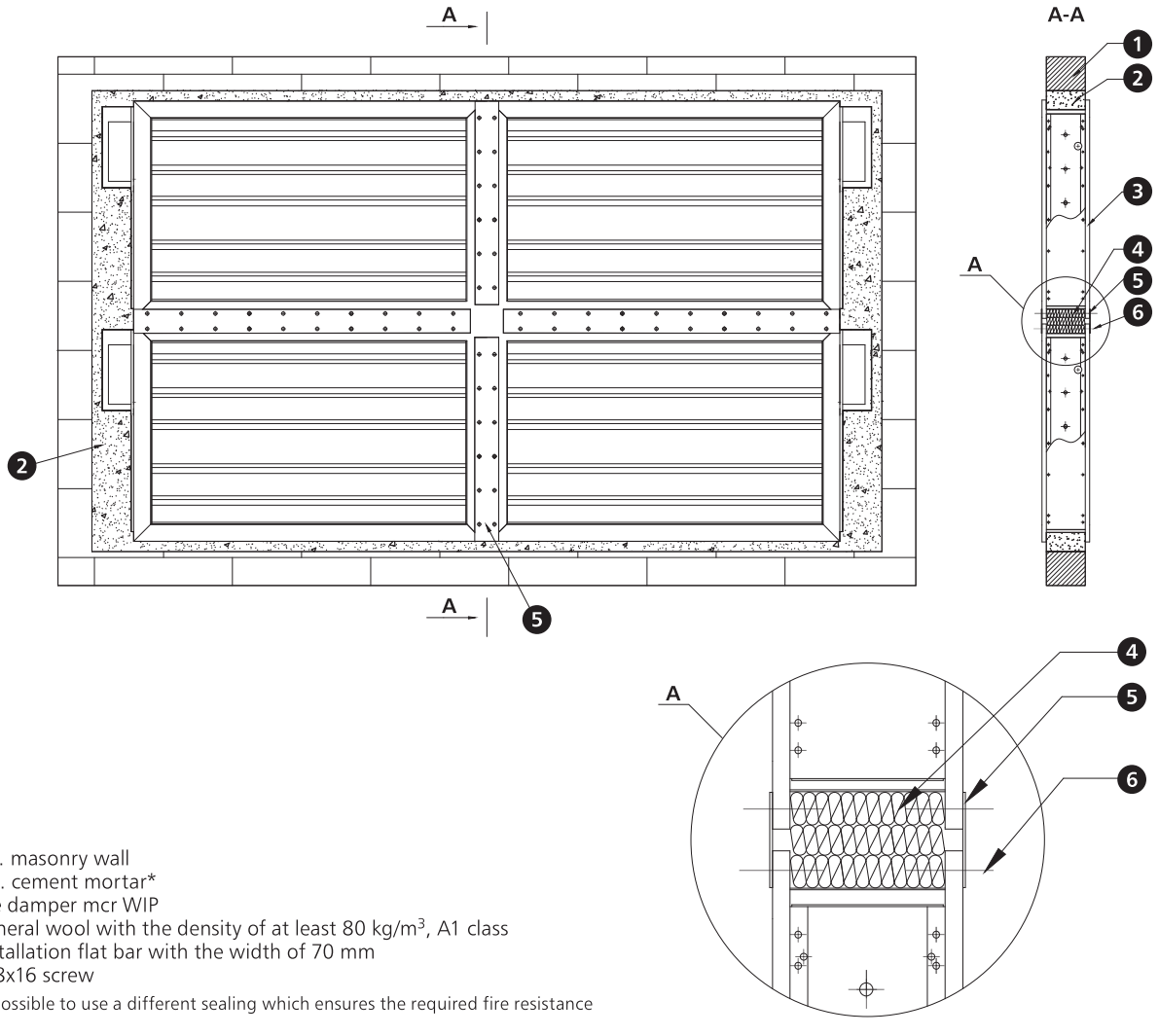
## 8.5.5. sample installation outside the fire partition




1. ventilation duct
2. partition
3. fire damper mcr WIP
4. gypsum filling
5. duct suspension
6. sealing (cement or cement-lime masonry mortar)*
7. mineral wool with the density of at least 80 kg/m$^3$, A1 class
8. Ridurit fire retardant board
9. screws 3.5 x 50 spacing: ~150 mm
10. steel expansion anchor Ø8 x 80 mm
11. board joints sealed with Conlit Glue

*it is possible to use a different sealing which ensures the required fire resistance

## 8.5.6. sample installation in a multiple set (a battery of four dampers)



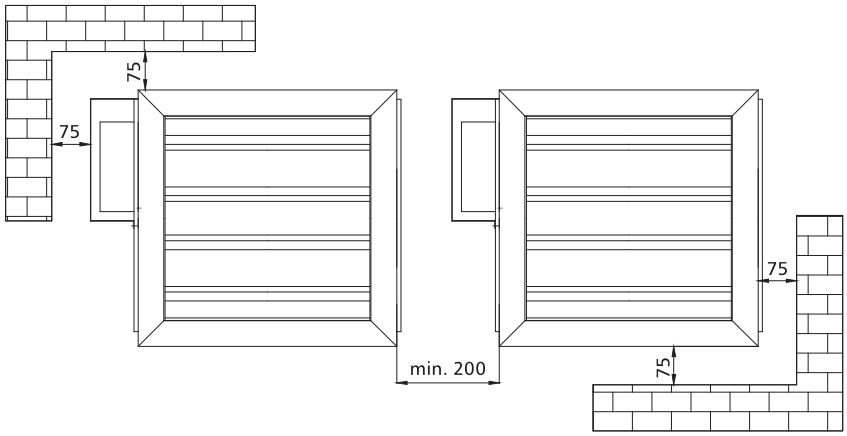

1. e.g. masonry wall
2. e.g. cement mortar*
3. fire damper mcr WIP
4. mineral wool with the density of at least 80 kg/m$^3$, A1 class
5. installation flat bar with the width of 70 mm
6. ST8x16 screw

*it is possible to use a different sealing which ensures the required fire resistance

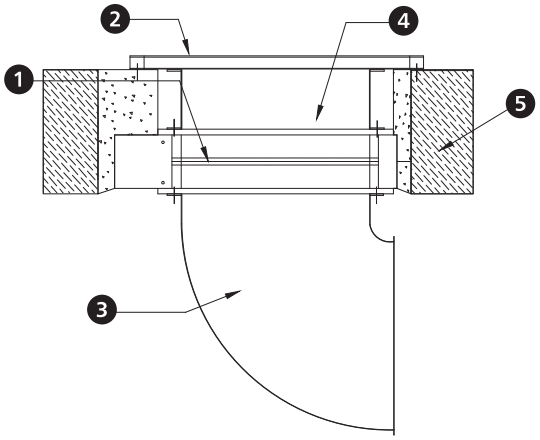
### Fire damper installation with vertical rotation axis of the louvers

The fire damper can operate with a vertical axis of louver rotation with the top or bottom-mounted mechanism.

### Distance between systems and partitions




### Example applications - installation with masking cover




1. fire damper mcr WIP
2. masking cover
3. ventilation duct
4. duct - ventilation straight connection pipe
5. wall, ceiling

If a mcr WIP/V, mcr WIP/V-M damper is used, thanks to the louvers (no single-plane partition) it is possible to use the space in front of and behind the damper for such system elements as a duct cover or a rectangular silencer or to route a duct along the wall using a duct bend or reduction.

## 8.6. technical parameters of mcr WIP/V, mcr WIP/V-M rectangular dampers

**B** – nominal width [mm]
**H** – nominal height [mm]

**v** – velocity [m/s]
**Sk** – duct cross-section [$m^2$]
**Se** – damper active cross-section [$m^2$]

**Q** – flow [$m^3/h$]
**dp** – pressure drop [Pa]
$L_{WA}$ – damper noise level [dB]

| width B [mm] | height H [mm] | v [m/s] | 200 Sk [$m^2$] | 200 Se [$m^2$] | 200 Q [$m^3/h$] | 200 dp [Pa] | 200 $L_{WA}$ [dB] | 250 Sk [$m^2$] | 250 Se [$m^2$] | 250 Q [$m^3/h$] | 250 dp [Pa] | 250 $L_{WA}$ [dB] | 300 Sk [$m^2$] | 300 Se [$m^2$] | 300 Q [$m^3/h$] | 300 dp [Pa] | 300 $L_{WA}$ [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 200 | 4 | 0.040 | 0.034 | 490 | 6 | 26 | 0.050 | 0.043 | 612 | 6 | 26 | 0.06 | 0.051 | 734 | 6 | 27 |
| | | 6 | | | 734 | 13 | 36 | | | 918 | 13 | 37 | | | 1 102 | 13 | 37 |
| | | 8 | | | 979 | 24 | 44 | | | 1 224 | 23 | 44 | | | 1 469 | 22 | 45 |
| | | 10 | | | 1 224 | 37 | 49 | | | 1 530 | 36 | 50 | | | 1 836 | 35 | 50 |
| | 250 | 4 | 0.050 | 0.043 | 612 | 6 | 26 | 0.063 | 0.053 | 765 | 6 | 27 | 0.075 | 0.064 | 918 | 6 | 28 |
| | | 6 | | | 918 | 13 | 37 | | | 1 148 | 13 | 38 | | | 1 377 | 13 | 38 |
| | | 8 | | | 1 224 | 23 | 44 | | | 1 530 | 23 | 45 | | | 1 836 | 22 | 46 |
| | | 10 | | | 1 530 | 36 | 50 | | | 1 913 | 36 | 51 | | | 2 295 | 35 | 51 |
| | 300 | 4 | 0.060 | 0.051 | 734 | 6 | 27 | 0.075 | 0.064 | 918 | 6 | 28 | 0.09 | 0.077 | 1 102 | 6 | 28 |
| | | 6 | | | 1 102 | 13 | 37 | | | 1 377 | 13 | 38 | | | 1 652 | 13 | 39 |
| | | 8 | | | 1 469 | 23 | 45 | | | 1 836 | 23 | 46 | | | 2 203 | 22 | 46 |
| | | 10 | | | 1 836 | 36 | 51 | | | 2 295 | 36 | 52 | | | 2 754 | 35 | 52 |
| | 350 | 4 | 0.070 | 0.060 | 857 | 6 | 27 | 0.088 | 0.074 | 1 071 | 36 | 52 | 0.105 | 0.089 | 1 285 | 5 | 29 |
| | | 6 | | | 1 285 | 13 | 38 | | | 1 607 | 13 | 39 | | | 1 928 | 12 | 39 |
| | | 8 | | | 1 714 | 22 | 45 | | | 2 142 | 22 | 46 | | | 2 570 | 22 | 47 |
| | | 10 | | | 2 142 | 35 | 51 | | | 2 678 | 35 | 52 | | | 3 213 | 34 | 52 |
| | 400 | 4 | 0.080 | 0.068 | 979 | 6 | 28 | 0.100 | 0.085 | 1 224 | 6 | 29 | 0.12 | 0.102 | 1 469 | 5 | 29 |
| | | 6 | | | 1 469 | 13 | 38 | | | 1 836 | 13 | 39 | | | 2 203 | 12 | 40 |
| | | 8 | | | 1 958 | 22 | 46 | | | 2 448 | 22 | 47 | | | 2 938 | 22 | 47 |
| | | 10 | | | 2 448 | 35 | 52 | | | 3 060 | 35 | 53 | | | 3 672 | 34 | 53 |
| | 450 | 4 | 0.090 | 0.077 | 1 102 | 6 | 28 | 0.113 | 0.096 | 1 377 | 6 | 29 | 0.135 | 0.115 | 1 652 | 5 | 30 |
| | | 6 | | | 1 652 | 13 | 39 | | | 2 066 | 13 | 40 | | | 2 479 | 12 | 40 |
| | | 8 | | | 2 203 | 22 | 46 | | | 2 754 | 22 | 47 | | | 3 305 | 22 | 48 |
| | | 10 | | | 2 754 | 35 | 52 | | | 3 443 | 35 | 53 | | | 4 131 | 34 | 54 |
| | 500 | 4 | 0.100 | 0.085 | 1 224 | 5 | 28 | 0.125 | 0.106 | 1 530 | 5 | 29 | 0.15 | 0.128 | 1 836 | 5 | 30 |
| | | 6 | | | 1 836 | 12 | 39 | | | 2 295 | 12 | 40 | | | 2 754 | 12 | 40 |
| | | 8 | | | 2 448 | 22 | 46 | | | 3 060 | 22 | 47 | | | 3 672 | 21 | 48 |
| | | 10 | | | 3 060 | 34 | 52 | | | 3 825 | 34 | 53 | | | 4 590 | 33 | 54 |
| | 550 | 4 | 0.110 | 0.094 | 1 346 | 5 | 29 | 0.138 | 0.117 | 1 683 | 5 | 30 | 0.165 | 0.140 | 2 020 | 5 | 31 |
| | | 6 | | | 2 020 | 12 | 39 | | | 2 525 | 12 | 40 | | | 3 029 | 12 | 41 |
| | | 8 | | | 2 693 | 22 | 47 | | | 3 366 | 22 | 48 | | | 4 039 | 22 | 49 |
| | | 10 | | | 3 366 | 34 | 53 | | | 4 208 | 34 | 54 | | | 5 049 | 34 | 54 |
| | 600 | 4 | 0.120 | 0.102 | 1 469 | 5 | 29 | 0.150 | 0.128 | 1 836 | 5 | 30 | 0.18 | 0.153 | 2 203 | 5 | 31 |
| | | 6 | | | 2 203 | 12 | 40 | | | 2 754 | 12 | 41 | | | 3 305 | 12 | 41 |
| | | 8 | | | 2 938 | 22 | 47 | | | 3 672 | 22 | 48 | | | 4 406 | 21 | 49 |
| | | 10 | | | 3 672 | 34 | 53 | | | 4 590 | 34 | 54 | | | 5 508 | 33 | 54 |
| | 650 | 4 | 0.130 | 0.111 | 1 591 | 5 | 30 | 0.163 | 0.138 | 1 989 | 5 | 30 | 0.195 | 0.166 | 2 387 | 5 | 31 |
| | | 6 | | | 2 387 | 12 | 40 | | | 2 984 | 12 | 41 | | | 3 580 | 12 | 41 |
| | | 8 | | | 3 182 | 22 | 48 | | | 3 978 | 22 | 49 | | | 4 774 | 21 | 49 |
| | | 10 | | | 3 978 | 34 | 53 | | | 4 973 | 34 | 54 | | | 5 967 | 33 | 55 |
| | 700 | 4 | 0.140 | 0.119 | 1 714 | 5 | 30 | 0.175 | 0.149 | 2 142 | 5 | 31 | 0.21 | 0.179 | 2 570 | 5 | 31 |
| | | 6 | | | 2 570 | 12 | 40 | | | 3 213 | 12 | 41 | | | 3 856 | 12 | 42 |
| | | 8 | | | 3 427 | 22 | 48 | | | 4 284 | 22 | 49 | | | 5 141 | 21 | 49 |
| | | 10 | | | 4 284 | 34 | 54 | | | 5 355 | 34 | 55 | | | 6 426 | 33 | 55 |
| | 750 | 4 | 0.150 | 0.128 | 1 836 | 5 | 30 | 0.188 | 0.159 | 2 295 | 5 | 31 | 0.225 | 0.191 | 2 754 | 5 | 31 |
| | | 6 | | | 2 754 | 12 | 40 | | | 3 443 | 12 | 41 | | | 4 131 | 12 | 42 |
| | | 8 | | | 3 672 | 21 | 48 | | | 4 590 | 21 | 49 | | | 5 508 | 21 | 49 |
| | | 10 | | | 4 590 | 33 | 54 | | | 5 738 | 33 | 55 | | | 6 885 | 32 | 55 |
| | 800 | 4 | 0.160 | 0.136 | 1 958 | 5 | 30 | 0.200 | 0.170 | 2 448 | 5 | 31 | 0.24 | 0.204 | 2 938 | 5 | 31 |
| | | 6 | | | 2 938 | 12 | 41 | | | 3 672 | 12 | 42 | | | 4 406 | 12 | 42 |
| | | 8 | | | 3 917 | 21 | 48 | | | 4 896 | 21 | 49 | | | 5 875 | 21 | 49 |
| | | 10 | | | 4 896 | 33 | 54 | | | 6 120 | 33 | 55 | | | 7 344 | 32 | 55 |
| | 850 | 4 | 0.170 | 0.145 | 2 081 | 5 | 30 | 0.213 | 0.181 | 2 601 | 5 | 31 | 0.255 | 0.217 | 3 121 | 5 | 31 |
| | | 6 | | | 3 121 | 12 | 40 | | | 3 902 | 12 | 41 | | | 4 682 | 11 | 42 |
| | | 8 | | | 4 162 | 21 | 48 | | | 5 202 | 21 | 49 | | | 6 242 | 20 | 49 |
| | | 10 | | | 5 202 | 32 | 54 | | | 6 503 | 32 | 55 | | | 7 803 | 31 | 55 |
| | 900 | 4 | 0.180 | 0.153 | 2 203 | 5 | 30 | 0.225 | 0.191 | 2 754 | 5 | 31 | 0.27 | 0.230 | 3 305 | 5 | 31 |
| | | 6 | | | 3 305 | 12 | 41 | | | 4 131 | 12 | 42 | | | 4 957 | 11 | 42 |
| | | 8 | | | 4 406 | 21 | 48 | | | 5 508 | 21 | 49 | | | 6 610 | 20 | 50 |
| | | 10 | | | 5 508 | 32 | 54 | | | 6 885 | 32 | 55 | | | 8 262 | 31 | 55 |
| | 1000 | 4 | 0.200 | 0.170 | 2 448 | 5 | 31 | 0.250 | 0.213 | 3 060 | 5 | 32 | 0.3 | 0.255 | 3 672 | 5 | 32 |
| | | 6 | | | 3 672 | 12 | 41 | | | 4 590 | 12 | 42 | | | 5 508 | 11 | 43 |
| | | 8 | | | 4 896 | 21 | 49 | | | 6 120 | 21 | 50 | | | 7 344 | 20 | 50 |
| | | 10 | | | 6 120 | 32 | 54 | | | 7 650 | 32 | 55 | | | 9 180 | 31 | 56 |

The mcr WIP fire damper selection program is available at **www.mercor.com.pl**, in the Architect and Designer Zone.

## 8.6. technical parameters of mcr WIP/V, mcr WIP/V-M rectangular dampers

**B** – nominal width [mm]
**H** – nominal height [mm]

**v** – velocity [m/s]
**Sk** – duct cross-section [$m^2$]
**Se** – damper active cross-section [$m^2$]

**Q** – flow [$m^3/h$]
**dp** – pressure drop [Pa]
**$L_{WA}$** – damper noise level [dB]

| width B [mm] | v [m/s] | height H [mm] 350 Sk [$m^2$] | 350 Se [$m^2$] | 350 Q [$m^3/h$] | 350 dp [Pa] | 350 $L_{WA}$ [dB] | 400 Sk [$m^2$] | 400 Se [$m^2$] | 400 Q [$m^3/h$] | 400 dp [Pa] | 400 $L_{WA}$ [dB] | 450 Sk [$m^2$] | 450 Se [$m^2$] | 450 Q [$m^3/h$] | 450 dp [Pa] | 450 $L_{WA}$ [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | 4 | 0.070 | 0.060 | 857 | 6 | 27 | 0.080 | 0.068 | 979 | 5 | 27 | 0.090 | 0.077 | 1 102 | 5 | 28 |
| | 6 | | | 1 285 | 13 | 38 | | | 1 469 | 12 | 38 | | | 1 652 | 12 | 38 |
| | 8 | | | 1 714 | 22 | 45 | | | 1 958 | 22 | 45 | | | 2 203 | 22 | 46 |
| | 10 | | | 2 142 | 35 | 51 | | | 2 448 | 34 | 51 | | | 2 754 | 34 | 52 |
| 250 | 4 | 0.088 | 0.074 | 1 071 | 6 | 28 | 0.100 | 0.085 | 1 224 | 5 | 28 | 0.113 | 0.096 | 1 377 | 5 | 29 |
| | 6 | | | 1 607 | 13 | 39 | | | 1 836 | 12 | 39 | | | 2 066 | 12 | 39 |
| | 8 | | | 2 142 | 22 | 46 | | | 2 448 | 22 | 46 | | | 2 754 | 22 | 47 |
| | 10 | | | 2 678 | 35 | 52 | | | 3 060 | 34 | 52 | | | 3 443 | 34 | 53 |
| 300 | 4 | 0.105 | 0.089 | 1 285 | 6 | 29 | 0.120 | 0.102 | 1 469 | 5 | 29 | 0.135 | 0.115 | 1 652 | 5 | 30 |
| | 6 | | | 1 928 | 13 | 40 | | | 2 203 | 12 | 40 | | | 2 479 | 12 | 40 |
| | 8 | | | 2 570 | 22 | 47 | | | 2 938 | 22 | 47 | | | 3 305 | 22 | 48 |
| | 10 | | | 3 213 | 35 | 53 | | | 3 672 | 34 | 53 | | | 4 131 | 34 | 54 |
| 350 | 4 | 0.123 | 0.104 | 1 499 | 5 | 29 | 0.140 | 0.119 | 1 714 | 5 | 29 | 0.158 | 0.134 | 1 928 | 5 | 30 |
| | 6 | | | 2 249 | 12 | 40 | | | 2 570 | 12 | 40 | | | 2 892 | 12 | 41 |
| | 8 | | | 2 999 | 22 | 47 | | | 3 427 | 21 | 48 | | | 3 856 | 21 | 48 |
| | 10 | | | 3 749 | 34 | 53 | | | 4 284 | 33 | 53 | | | 4 820 | 33 | 54 |
| 400 | 4 | 0.140 | 0.119 | 1 714 | 5 | 30 | 0.160 | 0.136 | 1 958 | 5 | 30 | 0.180 | 0.153 | 2 203 | 5 | 31 |
| | 6 | | | 2 570 | 12 | 40 | | | 2 938 | 12 | 41 | | | 3 305 | 12 | 41 |
| | 8 | | | 3 427 | 22 | 48 | | | 3 917 | 21 | 48 | | | 4 406 | 21 | 49 |
| | 10 | | | 4 284 | 34 | 54 | | | 4 896 | 33 | 54 | | | 5 508 | 33 | 54 |
| 450 | 4 | 0.158 | 0.134 | 1 928 | 5 | 30 | 0.180 | 0.153 | 2 203 | 5 | 31 | 0.203 | 0.172 | 2 479 | 5 | 31 |
| | 6 | | | 2 892 | 12 | 41 | | | 3 305 | 12 | 41 | | | 3 718 | 12 | 42 |
| | 8 | | | 3 856 | 22 | 48 | | | 4 406 | 21 | 49 | | | 4 957 | 21 | 49 |
| | 10 | | | 4 820 | 34 | 54 | | | 5 508 | 33 | 54 | | | 6 197 | 33 | 55 |
| 500 | 4 | 0.175 | 0.149 | 2 142 | 5 | 30 | 0.200 | 0.170 | 2 448 | 5 | 31 | 0.225 | 0.191 | 2 754 | 5 | 32 |
| | 6 | | | 3 213 | 12 | 41 | | | 3 672 | 12 | 42 | | | 4 131 | 12 | 42 |
| | 8 | | | 4 284 | 21 | 48 | | | 4 896 | 21 | 49 | | | 5 508 | 21 | 50 |
| | 10 | | | 5 355 | 33 | 54 | | | 6 120 | 33 | 55 | | | 6 885 | 33 | 55 |
| 550 | 4 | 0.193 | 0.164 | 2 570 | 5 | 31 | 0.220 | 0.187 | 2 693 | 5 | 31 | 0.248 | 0.210 | 3 029 | 5 | 32 |
| | 6 | | | 3 856 | 12 | 42 | | | 4 039 | 12 | 42 | | | 4 544 | 12 | 43 |
| | 8 | | | 5 141 | 22 | 49 | | | 5 386 | 21 | 49 | | | 6 059 | 21 | 50 |
| | 10 | | | 6 426 | 34 | 55 | | | 6 732 | 33 | 55 | | | 7 574 | 33 | 56 |
| 600 | 4 | 0.210 | 0.179 | 2 570 | 5 | 31 | 0.240 | 0.204 | 2 938 | 4 | 28 | 0.270 | 0.230 | 3 305 | 5 | 32 |
| | 6 | | | 3 856 | 12 | 42 | | | 4 406 | 8 | 37 | | | 4 957 | 12 | 42 |
| | 8 | | | 5 141 | 21 | 49 | | | 5 875 | 14 | 44 | | | 6 610 | 21 | 50 |
| | 10 | | | 6 426 | 33 | 55 | | | 7 344 | 32 | 55 | | | 8 262 | 32 | 56 |
| 650 | 4 | 0.228 | 0.193 | 2 785 | 5 | 32 | 0.260 | 0.221 | 3 182 | 5 | 32 | 0.293 | 0.249 | 3 580 | 5 | 32 |
| | 6 | | | 4 177 | 12 | 42 | | | 4 774 | 12 | 42 | | | 5 370 | 12 | 43 |
| | 8 | | | 5 569 | 21 | 50 | | | 6 365 | 21 | 50 | | | 7 160 | 21 | 50 |
| | 10 | | | 6 962 | 33 | 55 | | | 7 956 | 32 | 56 | | | 8 951 | 32 | 56 |
| 700 | 4 | 0.245 | 0.208 | 2 999 | 5 | 32 | 0.28 | 0.238 | 3 427 | 5 | 32 | 0.315 | 0.268 | 3 856 | 5 | 33 |
| | 6 | | | 4 498 | 12 | 42 | | | 5 141 | 12 | 43 | | | 5 783 | 12 | 43 |
| | 8 | | | 5 998 | 21 | 50 | | | 6 854 | 21 | 50 | | | 7 711 | 21 | 51 |
| | 10 | | | 7 497 | 33 | 56 | | | 8 568 | 32 | 56 | | | 9 639 | 32 | 56 |
| 750 | 4 | 0.263 | 0.223 | 3 213 | 5 | 32 | 0.3 | 0.255 | 3 672 | 5 | 32 | 0.338 | 0.287 | 4 131 | 5 | 33 |
| | 6 | | | 4 820 | 12 | 42 | | | 5 508 | 12 | 43 | | | 6 197 | 12 | 43 |
| | 8 | | | 6 426 | 21 | 50 | | | 7 344 | 21 | 50 | | | 8 262 | 21 | 51 |
| | 10 | | | 8 033 | 32 | 56 | | | 9 180 | 32 | 56 | | | 10 328 | 32 | 57 |
| 800 | 4 | 0.280 | 0.238 | 3 427 | 5 | 32 | 0.32 | 0.272 | 3 917 | 5 | 33 | 0.360 | 0.306 | 4 406 | 5 | 32 |
| | 6 | | | 5 141 | 12 | 43 | | | 5 875 | 11 | 43 | | | 6 610 | 11 | 42 |
| | 8 | | | 6 854 | 21 | 50 | | | 7 834 | 20 | 50 | | | 8 813 | 20 | 50 |
| | 10 | | | 8 568 | 32 | 56 | | | 9 792 | 31 | 56 | | | 11 016 | 31 | 56 |
| 850 | 4 | 0.298 | 0.253 | 3 641 | 5 | 32 | 0.34 | 0.289 | 4 162 | 5 | 32 | 0.383 | 0.325 | 4 682 | 5 | 31 |
| | 6 | | | 5 462 | 11 | 42 | | | 6 242 | 11 | 43 | | | 7 023 | 11 | 42 |
| | 8 | | | 7 283 | 20 | 50 | | | 8 323 | 19 | 50 | | | 9 364 | 19 | 49 |
| | 10 | | | 9 104 | 31 | 56 | | | 10 404 | 30 | 56 | | | 11 705 | 30 | 55 |
| 900 | 4 | 0.315 | 0.268 | 3 856 | 5 | 32 | 0.360 | 0.306 | 4 406 | 6 | 35 | 0.405 | 0.344 | 4 957 | 5 | 31 |
| | 6 | | | 5 783 | 11 | 43 | | | 6 610 | 12 | 44 | | | 7 436 | 11 | 42 |
| | 8 | | | 7 711 | 20 | 50 | | | 8 813 | 26 | 54 | | | 9 914 | 19 | 49 |
| | 10 | | | 9 639 | 31 | 56 | | | 11 016 | 30 | 56 | | | 12 393 | 30 | 55 |
| 1000 | 4 | 0.350 | 0.298 | 4 284 | 5 | 33 | 0.400 | 0.340 | 4 896 | 5 | 33 | 0.450 | 0.383 | 5 508 | 5 | 31 |
| | 6 | | | 6 426 | 11 | 43 | | | 7 344 | 11 | 43 | | | 8 262 | 11 | 42 |
| | 8 | | | 8 568 | 20 | 51 | | | 9 792 | 19 | 51 | | | 11 016 | 19 | 49 |
| | 10 | | | 10 710 | 31 | 56 | | | 12 240 | 30 | 57 | | | 13 770 | 30 | 55 |

The mcr WIP fire damper selection program is available at **www.mercor.com.pl**, in the Architect and Designer Zone.

## 8.6. technical parameters of mcr WIP/V, mcr WIP/V-M rectangular dampers

**B** – nominal width [mm]
**H** – nominal height [mm]

**v** – velocity [m/s]
**Sk** – duct cross-section [$m^2$]
**Se** – damper active cross-section [$m^2$]

**Q** – flow [$m^3/h$]
**dp** – pressure drop [Pa]
$L_{WA}$ – damper noise level [dB]

| width B [mm] | height H [mm] | v [m/s] | 500 Sk [$m^2$] | 500 Se [$m^2$] | 500 Q [$m^3/h$] | 500 dp [Pa] | 500 $L_{WA}$ [dB] | 550 Sk [$m^2$] | 550 Se [$m^2$] | 550 Q [$m^3/h$] | 550 dp [Pa] | 550 $L_{WA}$ [dB] | 600 Sk [$m^2$] | 600 Se [$m^2$] | 600 Q [$m^3/h$] | 600 dp [Pa] | 600 $L_{WA}$ [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | | 4 | 0.100 | 0.085 | 1 224 | 5 | 28 | 0.110 | 0.094 | 1 346 | 5 | 28 | 0.120 | 0.102 | 1 469 | 5 | 28 |
| | | 6 | | | 1 836 | 12 | 39 | | | 2 020 | 12 | 39 | | | 2 203 | 12 | 39 |
| | | 8 | | | 2 448 | 21 | 46 | | | 2 693 | 21 | 46 | | | 2 938 | 21 | 46 |
| | | 10 | | | 3 060 | 33 | 52 | | | 3 366 | 33 | 52 | | | 3 672 | 32 | 52 |
| 250 | | 4 | 0.125 | 0.106 | 1 530 | 5 | 29 | 0.138 | 0.117 | 1 683 | 5 | 29 | 0.150 | 0.128 | 1 836 | 5 | 29 |
| | | 6 | | | 2 295 | 12 | 40 | | | 2 525 | 12 | 40 | | | 2 754 | 12 | 40 |
| | | 8 | | | 3 060 | 21 | 47 | | | 3 366 | 21 | 47 | | | 3 672 | 21 | 47 |
| | | 10 | | | 3 825 | 33 | 53 | | | 4 208 | 33 | 53 | | | 4 590 | 32 | 53 |
| 300 | | 4 | 0.150 | 0.128 | 1 836 | 5 | 30 | 0.165 | 0.140 | 2 020 | 5 | 30 | 0.180 | 0.153 | 2 203 | 5 | 30 |
| | | 6 | | | 2 754 | 12 | 40 | | | 3 029 | 12 | 41 | | | 3 305 | 12 | 41 |
| | | 8 | | | 3 672 | 21 | 48 | | | 4 039 | 21 | 48 | | | 4 406 | 21 | 48 |
| | | 10 | | | 4 590 | 33 | 54 | | | 5 049 | 33 | 54 | | | 5 508 | 32 | 54 |
| 350 | | 4 | 0.175 | 0.149 | 2 142 | 5 | 30 | 0.193 | 0.164 | 2 356 | 5 | 30 | 0.210 | 0.179 | 2 570 | 5 | 30 |
| | | 6 | | | 3 213 | 12 | 41 | | | 3 534 | 12 | 41 | | | 3 856 | 11 | 41 |
| | | 8 | | | 4 284 | 21 | 48 | | | 4 712 | 21 | 49 | | | 5 141 | 20 | 48 |
| | | 10 | | | 5 355 | 32 | 54 | | | 5 891 | 32 | 54 | | | 6 426 | 31 | 54 |
| 400 | | 4 | 0.200 | 0.170 | 2 448 | 5 | 31 | 0.220 | 0.187 | 2 693 | 5 | 31 | 0.240 | 0.204 | 2 938 | 5 | 31 |
| | | 6 | | | 3 672 | 12 | 41 | | | 4 039 | 12 | 42 | | | 4 406 | 11 | 42 |
| | | 8 | | | 4 896 | 21 | 49 | | | 5 386 | 21 | 49 | | | 5 875 | 20 | 49 |
| | | 10 | | | 6 120 | 32 | 54 | | | 6 732 | 32 | 55 | | | 7 344 | 31 | 55 |
| 450 | | 4 | 0.225 | 0.191 | 2 754 | 5 | 31 | 0.248 | 0.210 | 3 029 | 5 | 32 | 0.270 | 0.230 | 3 305 | 5 | 31 |
| | | 6 | | | 4 131 | 12 | 42 | | | 4 544 | 12 | 42 | | | 4 957 | 11 | 42 |
| | | 8 | | | 5 508 | 21 | 49 | | | 6 059 | 21 | 50 | | | 6 610 | 20 | 50 |
| | | 10 | | | 6 885 | 32 | 55 | | | 7 574 | 32 | 55 | | | 8 262 | 31 | 55 |
| 500 | | 4 | 0.250 | 0.213 | 3 060 | 5 | 31 | 0.275 | 0.234 | 3 366 | 5 | 32 | 0.300 | 0.255 | 3 672 | 5 | 32 |
| | | 6 | | | 4 590 | 11 | 42 | | | 5 049 | 12 | 43 | | | 5 508 | 11 | 43 |
| | | 8 | | | 6 120 | 22 | 51 | | | 6 732 | 21 | 50 | | | 7 344 | 20 | 50 |
| | | 10 | | | 7 650 | 32 | 55 | | | 8 415 | 32 | 56 | | | 9 180 | 31 | 56 |
| 550 | | 4 | 0.275 | 0.234 | 3 672 | 5 | 32 | 0.303 | 0.257 | 4 039 | 5 | 32 | 0.330 | 0.281 | 4 406 | 5 | 32 |
| | | 6 | | | 5 508 | 12 | 43 | | | 6 059 | 12 | 43 | | | 6 610 | 11 | 43 |
| | | 8 | | | 7 344 | 21 | 50 | | | 8 078 | 21 | 50 | | | 8 813 | 20 | 50 |
| | | 10 | | | 9 180 | 32 | 56 | | | 10 098 | 32 | 56 | | | 11 016 | 31 | 56 |
| 600 | | 4 | 0.300 | 0.255 | 3 672 | 5 | 32 | 0.330 | 0.281 | 4 039 | 5 | 32 | 0.360 | 0.306 | 4 406 | 5 | 32 |
| | | 6 | | | 5 508 | 11 | 43 | | | 6 059 | 11 | 43 | | | 6 610 | 11 | 43 |
| | | 8 | | | 7 344 | 20 | 50 | | | 8 078 | 20 | 50 | | | 8 813 | 19 | 50 |
| | | 10 | | | 9 180 | 31 | 56 | | | 10 098 | 31 | 56 | | | 11 016 | 30 | 56 |
| 650 | | 4 | 0.325 | 0.276 | 3 978 | 5 | 33 | 0.358 | 0.304 | 4 376 | 5 | 33 | 0.390 | 0.332 | 4 774 | 5 | 33 |
| | | 6 | | | 5 967 | 12 | 43 | | | 6 564 | 11 | 43 | | | 7 160 | 11 | 43 |
| | | 8 | | | 7 956 | 21 | 51 | | | 8 752 | 20 | 51 | | | 9 547 | 19 | 51 |
| | | 10 | | | 9 945 | 31 | 56 | | | 10 940 | 31 | 57 | | | 11 934 | 30 | 57 |
| 700 | | 4 | 0.350 | 0.298 | 4 284 | 5 | 33 | 0.385 | 0.327 | 4 712 | 5 | 33 | 0.420 | 0.357 | 5 141 | 5 | 33 |
| | | 6 | | | 6 426 | 11 | 43 | | | 7 069 | 11 | 44 | | | 7 711 | 11 | 44 |
| | | 8 | | | 8 568 | 20 | 51 | | | 9 425 | 20 | 51 | | | 10 282 | 19 | 51 |
| | | 10 | | | 10 710 | 31 | 56 | | | 11 781 | 31 | 57 | | | 12 852 | 30 | 57 |
| 750 | | 4 | 0.375 | 0.319 | 4 590 | 5 | 33 | 0.413 | 0.351 | 5 049 | 5 | 33 | 0.450 | 0.383 | 5 508 | 5 | 33 |
| | | 6 | | | 6 885 | 11 | 43 | | | 7 574 | 11 | 44 | | | 8 262 | 11 | 44 |
| | | 8 | | | 9 180 | 20 | 51 | | | 10 098 | 20 | 51 | | | 11 016 | 19 | 51 |
| | | 10 | | | 11 475 | 31 | 57 | | | 12 623 | 31 | 57 | | | 13 770 | 30 | 57 |
| 800 | | 4 | 0.400 | 0.340 | 4 896 | 5 | 32 | 0.440 | 0.374 | 5 386 | 5 | 33 | 0.480 | 0.408 | 5 875 | 5 | 33 |
| | | 6 | | | 7 344 | 11 | 43 | | | 8 078 | 11 | 44 | | | 8 813 | 10 | 44 |
| | | 8 | | | 9 792 | 19 | 51 | | | 10 771 | 19 | 51 | | | 11 750 | 19 | 51 |
| | | 10 | | | 12 240 | 30 | 56 | | | 13 464 | 30 | 57 | | | 14 688 | 29 | 57 |
| 850 | | 4 | 0.425 | 0.361 | 5 202 | 5 | 32 | 0.468 | 0.397 | 5 722 | 5 | 33 | 0.510 | 0.434 | 6 242 | 4 | 33 |
| | | 6 | | | 7 803 | 10 | 43 | | | 8 583 | 10 | 44 | | | 9 364 | 10 | 43 |
| | | 8 | | | 10 404 | 19 | 50 | | | 11 444 | 19 | 51 | | | 12 485 | 18 | 51 |
| | | 10 | | | 13 005 | 29 | 56 | | | 14 306 | 29 | 57 | | | 15 606 | 28 | 57 |
| 900 | | 4 | 0.450 | 0.383 | 5 508 | 5 | 32 | 0.495 | 0.421 | 6 059 | 5 | 33 | 0.540 | 0.459 | 6 610 | 4 | 33 |
| | | 6 | | | 8 262 | 10 | 43 | | | 9 088 | 10 | 44 | | | 9 914 | 10 | 41 |
| | | 8 | | | 11 016 | 19 | 50 | | | 12 118 | 19 | 51 | | | 13 219 | 18 | 49 |
| | | 10 | | | 13 770 | 29 | 56 | | | 15 147 | 29 | 57 | | | 16 524 | 28 | 54 |
| 1000 | | 4 | 0.500 | 0.425 | 6 120 | 5 | 32 | 0.550 | 0.468 | 6 059 | 5 | 34 | 0.600 | 0.510 | 7 344 | 4 | 34 |
| | | 6 | | | 9 180 | 10 | 43 | | | 9 088 | 10 | 44 | | | 11 016 | 10 | 44 |
| | | 8 | | | 12 240 | 19 | 50 | | | 12 118 | 19 | 52 | | | 14 688 | 18 | 52 |
| | | 10 | | | 15 300 | 29 | 56 | | | 15 147 | 29 | 58 | | | 18 360 | 28 | 57 |

The mcr WIP fire damper selection program is available at **www.mercor.com.pl**, in the Architect and Designer Zone.

## 8.6. technical parameters of mcr WIP/V, mcr WIP/V-M rectangular dampers

**B** – nominal width [mm]
**H** – nominal height [mm]

**v** – velocity [m/s]
**Sk** – duct cross-section [$m^2$]
**Se** – damper active cross-section [$m^2$]

**Q** – flow [$m^3/h$]
**dp** – pressure drop [Pa]
**$L_{WA}$** – damper noise level [dB]

| width B [mm] | height H [mm] | v [m/s] | 650 Sk [$m^2$] | 650 Se [$m^2$] | 650 Q [$m^3/h$] | 650 dp [Pa] | 650 $L_{WA}$ [dB] | 700 Sk [$m^2$] | 700 Se [$m^2$] | 700 Q [$m^3/h$] | 700 dp [Pa] | 700 $L_{WA}$ [dB] | 750 Sk [$m^2$] | 750 Se [$m^2$] | 750 Q [$m^3/h$] | 750 dp [Pa] | 750 $L_{WA}$ [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 200 | 4 | 0.130 | 0.111 | 1 591 | 5 | 29 | 0.140 | 0.119 | 1 714 | 5 | 29 | 0.150 | 0.128 | 1 836 | 5 | 29 |
| | | 6 | | | 2 387 | 12 | 39 | | | 2 570 | 11 | 39 | | | 2 754 | 11 | 40 |
| | | 8 | | | 3 182 | 21 | 47 | | | 3 427 | 20 | 47 | | | 3 672 | 20 | 47 |
| | | 10 | | | 3 978 | 32 | 53 | | | 4 284 | 31 | 52 | | | 4 590 | 31 | 53 |
| | 250 | 4 | 0.163 | 0.138 | 1 989 | 5 | 30 | 0.175 | 0.149 | 2 142 | 5 | 30 | 0.188 | 0.159 | 2 295 | 5 | 30 |
| | | 6 | | | 2 984 | 12 | 40 | | | 3 213 | 11 | 40 | | | 3 443 | 11 | 40 |
| | | 8 | | | 3 978 | 21 | 48 | | | 4 284 | 20 | 48 | | | 4 590 | 20 | 48 |
| | | 10 | | | 4 973 | 32 | 54 | | | 5 355 | 31 | 53 | | | 5 738 | 31 | 54 |
| | 300 | 4 | 0.195 | 0.166 | 2 387 | 5 | 30 | 0.210 | 0.179 | 2 570 | 5 | 30 | 0.225 | 0.191 | 2 754 | 5 | 31 |
| | | 6 | | | 3 580 | 12 | 41 | | | 3 856 | 11 | 41 | | | 4 131 | 11 | 41 |
| | | 8 | | | 4 774 | 21 | 49 | | | 5 141 | 20 | 48 | | | 5 508 | 20 | 49 |
| | | 10 | | | 5 967 | 32 | 54 | | | 6 426 | 31 | 54 | | | 6 885 | 31 | 55 |
| | 350 | 4 | 0.228 | 0.193 | 2 785 | 5 | 31 | 0.245 | 0.208 | 2 999 | 5 | 31 | 0.263 | 0.223 | 3 213 | 5 | 31 |
| | | 6 | | | 4 177 | 11 | 41 | | | 4 498 | 11 | 41 | | | 4 820 | 11 | 42 |
| | | 8 | | | 5 569 | 20 | 49 | | | 5 998 | 19 | 49 | | | 6 426 | 19 | 49 |
| | | 10 | | | 6 962 | 31 | 55 | | | 7 497 | 30 | 54 | | | 8 033 | 30 | 55 |
| | 400 | 4 | 0.260 | 0.221 | 3 182 | 5 | 31 | 0.280 | 0.238 | 3 427 | 5 | 31 | 0.300 | 0.255 | 3 672 | 5 | 32 |
| | | 6 | | | 4 774 | 11 | 42 | | | 5 141 | 11 | 42 | | | 5 508 | 11 | 42 |
| | | 8 | | | 6 365 | 20 | 49 | | | 6 854 | 19 | 49 | | | 7 344 | 19 | 50 |
| | | 10 | | | 7 956 | 31 | 55 | | | 8 568 | 30 | 55 | | | 9 180 | 30 | 55 |
| | 450 | 4 | 0.293 | 0.249 | 3 580 | 5 | 32 | 0.315 | 0.268 | 3 856 | 5 | 32 | 0.338 | 0.287 | 4 131 | 5 | 32 |
| | | 6 | | | 5 370 | 11 | 42 | | | 5 783 | 11 | 42 | | | 6 197 | 11 | 43 |
| | | 8 | | | 7 160 | 20 | 50 | | | 7 711 | 19 | 50 | | | 8 262 | 19 | 50 |
| | | 10 | | | 8 951 | 31 | 56 | | | 9 639 | 30 | 56 | | | 10 328 | 30 | 56 |
| | 500 | 4 | 0.325 | 0.276 | 3 978 | 5 | 32 | 0.350 | 0.298 | 4 284 | 5 | 32 | 0.375 | 0.319 | 4 590 | 5 | 32 |
| | | 6 | | | 5 967 | 11 | 43 | | | 6 426 | 11 | 43 | | | 6 885 | 11 | 43 |
| | | 8 | | | 7 956 | 20 | 50 | | | 8 568 | 19 | 50 | | | 9 180 | 19 | 51 |
| | | 10 | | | 9 945 | 31 | 56 | | | 10 710 | 30 | 56 | | | 11 475 | 30 | 56 |
| | 550 | 4 | 0.358 | 0.304 | 4 774 | 5 | 33 | 0.385 | 0.327 | 4 712 | 5 | 33 | 0.413 | 0.351 | 5 049 | 5 | 33 |
| | | 6 | | | 7 160 | 11 | 43 | | | 7 069 | 11 | 43 | | | 7 574 | 11 | 43 |
| | | 8 | | | 9 547 | 20 | 51 | | | 9 425 | 19 | 51 | | | 10 098 | 19 | 51 |
| | | 10 | | | 11 934 | 31 | 57 | | | 11 781 | 30 | 56 | | | 12 623 | 30 | 57 |
| | 600 | 4 | 0.390 | 0.332 | 4 774 | 5 | 33 | 0.420 | 0.357 | 5 141 | 5 | 33 | 0.450 | 0.383 | 5 508 | 5 | 33 |
| | | 6 | | | 7 160 | 11 | 44 | | | 7 711 | 11 | 44 | | | 8 262 | 11 | 44 |
| | | 8 | | | 9 547 | 20 | 51 | | | 10 282 | 19 | 51 | | | 11 016 | 19 | 51 |
| | | 10 | | | 11 934 | 31 | 57 | | | 12 852 | 30 | 57 | | | 13 770 | 30 | 57 |
| | 650 | 4 | 0.423 | 0.359 | 5 171 | 5 | 33 | 0.455 | 0.387 | 5 569 | 5 | 33 | 0.488 | 0.414 | 5 967 | 5 | 33 |
| | | 6 | | | 7 757 | 11 | 44 | | | 8 354 | 10 | 43 | | | 8 951 | 10 | 44 |
| | | 8 | | | 10 343 | 19 | 51 | | | 11 138 | 19 | 51 | | | 11 934 | 19 | 51 |
| | | 10 | | | 12 929 | 30 | 57 | | | 13 923 | 29 | 57 | | | 14 918 | 29 | 57 |
| | 700 | 4 | 0.455 | 0.387 | 5 569 | 5 | 33 | 0.490 | 0.417 | 5 998 | 5 | 33 | 0.525 | 0.446 | 6 426 | 5 | 34 |
| | | 6 | | | 8 354 | 11 | 44 | | | 8 996 | 10 | 44 | | | 9 639 | 10 | 44 |
| | | 8 | | | 11 138 | 19 | 51 | | | 11 995 | 19 | 51 | | | 12 852 | 19 | 52 |
| | | 10 | | | 13 923 | 30 | 57 | | | 14 994 | 29 | 57 | | | 16 065 | 29 | 57 |
| | 750 | 4 | 0.488 | 0.414 | 5 967 | 5 | 34 | 0.525 | 0.446 | 6 426 | 5 | 34 | 0.563 | 0.478 | 6 885 | 5 | 34 |
| | | 6 | | | 8 951 | 11 | 44 | | | 9 639 | 10 | 44 | | | 10 328 | 10 | 44 |
| | | 8 | | | 11 934 | 19 | 52 | | | 12 852 | 19 | 52 | | | 13 770 | 19 | 52 |
| | | 10 | | | 14 918 | 30 | 57 | | | 16 065 | 29 | 57 | | | 17 213 | 29 | 58 |
| | 800 | 4 | 0.520 | 0.442 | 6 365 | 5 | 33 | 0.560 | 0.476 | 6 854 | 4 | 29 | 0.600 | 0.510 | 7 344 | 4 | 34 |
| | | 6 | | | 9 547 | 10 | 44 | | | 10 282 | 7 | 37 | | | 11 016 | 10 | 44 |
| | | 8 | | | 12 730 | 19 | 51 | | | 13 709 | 11 | 43 | | | 14 688 | 18 | 52 |
| | | 10 | | | 15 912 | 29 | 57 | | | 17 136 | 28 | 54 | | | 18 360 | 28 | 57 |
| | 850 | 4 | 0.553 | 0.470 | 6 763 | 4 | 33 | 0.595 | 0.506 | 7 283 | 4 | 34 | 0.638 | 0.542 | 7 803 | 4 | 34 |
| | | 6 | | | 10 144 | 10 | 43 | | | 10 924 | 10 | 44 | | | 11 705 | 10 | 44 |
| | | 8 | | | 13 525 | 18 | 51 | | | 14 566 | 18 | 52 | | | 15 606 | 18 | 52 |
| | | 10 | | | 16 907 | 28 | 57 | | | 18 207 | 28 | 57 | | | 19 508 | 28 | 58 |
| | 900 | 4 | 0.585 | 0.497 | 7 160 | 4 | 33 | 0.630 | 0.536 | 7 711 | 4 | 33 | 0.675 | 0.574 | 8 262 | 4 | 34 |
| | | 6 | | | 10 741 | 10 | 43 | | | 11 567 | 10 | 44 | | | 12 393 | 10 | 44 |
| | | 8 | | | 14 321 | 18 | 51 | | | 15 422 | 17 | 51 | | | 16 524 | 17 | 52 |
| | | 10 | | | 17 901 | 28 | 57 | | | 19 278 | 27 | 57 | | | 20 655 | 27 | 58 |
| | 1000 | 4 | 0.650 | 0.553 | 7 956 | 4 | 33 | 0.700 | 0.595 | 8 568 | 4 | 34 | 0.750 | 0.638 | 9 180 | 4 | 34 |
| | | 6 | | | 11 934 | 10 | 43 | | | 12 852 | 10 | 44 | | | 13 770 | 10 | 45 |
| | | 8 | | | 15 912 | 18 | 51 | | | 17 136 | 17 | 52 | | | 18 360 | 17 | 52 |
| | | 10 | | | 19 890 | 28 | 57 | | | 21 420 | 27 | 58 | | | 22 950 | 27 | 58 |

The mcr WIP fire damper selection program is available at **www.mercor.com.pl**, in the Architect and Designer Zone.

## 8.6. technical parameters of mcr WIP/V, mcr WIP/V-M rectangular dampers

**B** – nominal width [mm]
**H** – nominal height [mm]

**v** – velocity [m/s]
**Sk** – duct cross-section [$m^2$]
**Se** – damper active cross-section [$m^2$]

**Q** – flow [$m^3/h$]
**dp** – pressure drop [Pa]
**$L_{WA}$** – damper noise level [dB]

| width B [mm] | | height H [mm] | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 800 | | | | | 850 | | | | | 900 | | | | | 1000 | | | | |
| | | v [m/s] | Sk [$m^2$] | Se [$m^2$] | Q [$m^3/h$] | dp [Pa] | $L_{WA}$ [dB] | Sk [$m^2$] | Se [$m^2$] | Q [$m^3/h$] | dp [Pa] | $L_{WA}$ [dB] | Sk [$m^2$] | Se [m2] | Q [$m^3/h$] | dp [Pa] | $L_{WA}$ [dB] | Sk [$m^2$] | Se [$m^2$] | Q [$m^3/h$] | dp [Pa] | $L_{WA}$ [dB] |
| | 200 | 4 | 0.160 | 0.136 | 1 958 | 5 | 29 | 0.170 | 0.145 | 2 081 | 5 | 29 | 0.180 | 0.153 | 2 203 | 5 | 29 | 0.200 | 0.170 | 2 448 | 5 | 29 |
| | | 6 | | | 2 938 | 11 | 39 | | | 3 121 | 11 | 40 | | | 3 305 | 10 | 39 | | | 3 672 | 10 | 40 |
| | | 8 | | | 3 917 | 19 | 47 | | | 4 162 | 19 | 47 | | | 4 406 | 19 | 47 | | | 4 896 | 19 | 47 |
| | | 10 | | | 4 896 | 30 | 53 | | | 5 202 | 30 | 53 | | | 5 508 | 29 | 53 | | | 6 120 | 29 | 53 |
| | 250 | 4 | 0.200 | 0.170 | 2 448 | 5 | 30 | 0.213 | 0.181 | 2 601 | 5 | 30 | 0.225 | 0.191 | 2 754 | 5 | 30 | 0.250 | 0.213 | 3 060 | 5 | 30 |
| | | 6 | | | 3 672 | 11 | 40 | | | 3 902 | 11 | 41 | | | 4 131 | 10 | 40 | | | 4 590 | 10 | 41 |
| | | 8 | | | 4 896 | 19 | 48 | | | 5 202 | 19 | 48 | | | 5 508 | 19 | 48 | | | 6 120 | 19 | 48 |
| | | 10 | | | 6 120 | 30 | 54 | | | 6 503 | 30 | 54 | | | 6 885 | 29 | 54 | | | 7 650 | 29 | 54 |
| | 300 | 4 | 0.240 | 0.204 | 2 938 | 5 | 31 | 0.255 | 0.217 | 3 121 | 5 | 31 | 0.270 | 0.230 | 3 305 | 5 | 31 | 0.300 | 0.255 | 3 672 | 5 | 31 |
| | | 6 | | | 4 406 | 11 | 41 | | | 4 682 | 11 | 41 | | | 4 957 | 10 | 41 | | | 5 508 | 10 | 42 |
| | | 8 | | | 5 875 | 19 | 49 | | | 6 242 | 19 | 49 | | | 6 610 | 19 | 49 | | | 7 344 | 19 | 49 |
| | | 10 | | | 7 344 | 30 | 54 | | | 7 803 | 30 | 55 | | | 8 262 | 29 | 54 | | | 9 180 | 29 | 55 |
| | 350 | 4 | 0.280 | 0.238 | 3 427 | 5 | 31 | 0.298 | 0.253 | 3 641 | 5 | 31 | 0.315 | 0.268 | 3 856 | 4 | 31 | 0.350 | 0.298 | 4 284 | 4 | 31 |
| | | 6 | | | 5 141 | 10 | 41 | | | 5 462 | 10 | 42 | | | 5 783 | 10 | 41 | | | 6 426 | 10 | 42 |
| | | 8 | | | 6 854 | 19 | 49 | | | 7 283 | 19 | 49 | | | 7 711 | 18 | 49 | | | 8 568 | 18 | 49 |
| | | 10 | | | 8 568 | 29 | 55 | | | 9 104 | 29 | 55 | | | 9 639 | 28 | 55 | | | 10 710 | 28 | 55 |
| | 400 | 4 | 0.320 | 0.272 | 3 917 | 5 | 31 | 0.340 | 0.289 | 4 162 | 5 | 32 | 0.360 | 0.306 | 4 406 | 4 | 31 | 0.400 | 0.340 | 4 896 | 4 | 32 |
| | | 6 | | | 5 875 | 10 | 42 | | | 6 242 | 10 | 42 | | | 6 610 | 10 | 42 | | | 7 344 | 10 | 42 |
| | | 8 | | | 7 834 | 19 | 49 | | | 8 323 | 19 | 50 | | | 8 813 | 18 | 49 | | | 9 792 | 18 | 50 |
| | | 10 | | | 9 792 | 29 | 55 | | | 10 404 | 29 | 55 | | | 11 016 | 28 | 55 | | | 12 240 | 28 | 56 |
| | 450 | 4 | 0.360 | 0.306 | 4 406 | 5 | 32 | 0.383 | 0.325 | 4 682 | 4 | 32 | 0.405 | 0.344 | 4 957 | 4 | 31 | 0.450 | 0.383 | 5 508 | 4 | 32 |
| | | 6 | | | 6 610 | 10 | 42 | | | 7 023 | 10 | 42 | | | 7 436 | 10 | 42 | | | 8 262 | 10 | 42 |
| | | 8 | | | 8 813 | 19 | 50 | | | 9 364 | 18 | 50 | | | 9 914 | 17 | 50 | | | 11 016 | 17 | 50 |
| | | 10 | | | 11 016 | 29 | 56 | | | 11 705 | 28 | 56 | | | 12 393 | 27 | 55 | | | 13 770 | 27 | 56 |
| | 500 | 4 | 0.400 | 0.340 | 4 896 | 5 | 32 | 0.425 | 0.361 | 5 202 | 4 | 32 | 0.450 | 0.383 | 5 508 | 4 | 32 | 0.500 | 0.425 | 6 120 | 4 | 32 |
| | | 6 | | | 7 344 | 10 | 43 | | | 7 803 | 10 | 43 | | | 8 262 | 10 | 42 | | | 9 180 | 10 | 43 |
| | | 8 | | | 9 792 | 19 | 50 | | | 10 404 | 18 | 50 | | | 11 016 | 17 | 50 | | | 12 240 | 17 | 50 |
| | | 10 | | | 12 240 | 29 | 56 | | | 13 005 | 28 | 56 | | | 13 770 | 27 | 56 | | | 15 300 | 27 | 56 |
| | 550 | 4 | 0.440 | 0.374 | 5 386 | 5 | 33 | 0.468 | 0.397 | 5 722 | 4 | 33 | 0.495 | 0.421 | 6 059 | 4 | 32 | 0.550 | 0.468 | 6 732 | 4 | 33 |
| | | 6 | | | 8 078 | 10 | 43 | | | 8 583 | 10 | 43 | | | 9 088 | 10 | 43 | | | 10 098 | 10 | 43 |
| | | 8 | | | 10 771 | 19 | 51 | | | 11 444 | 18 | 51 | | | 12 118 | 17 | 50 | | | 13 464 | 17 | 51 |
| | | 10 | | | 13 464 | 29 | 57 | | | 14 306 | 28 | 56 | | | 15 147 | 27 | 56 | | | 16 830 | 27 | 57 |
| | 600 | 4 | 0.480 | 0.408 | 5 875 | 5 | 33 | 0.510 | 0.434 | 6 242 | 4 | 33 | 0.540 | 0.459 | 6 610 | 4 | 33 | 0.600 | 0.510 | 7 344 | 4 | 33 |
| | | 6 | | | 8 813 | 10 | 44 | | | 9 364 | 10 | 43 | | | 9 914 | 10 | 43 | | | 11 016 | 10 | 44 |
| | | 8 | | | 11 750 | 19 | 51 | | | 12 485 | 18 | 51 | | | 13 219 | 17 | 51 | | | 14 688 | 17 | 51 |
| | | 10 | | | 14 688 | 29 | 57 | | | 15 606 | 28 | 57 | | | 16 524 | 27 | 57 | | | 18 360 | 27 | 57 |
| | 650 | 4 | 0.520 | 0.442 | 6 365 | 5 | 33 | 0.553 | 0.470 | 6 763 | 4 | 33 | 0.585 | 0.497 | 7 160 | 4 | 33 | 0.650 | 0.553 | 7 956 | 4 | 34 |
| | | 6 | | | 9 547 | 10 | 44 | | | 10 144 | 10 | 44 | | | 10 741 | 10 | 44 | | | 11 934 | 10 | 44 |
| | | 8 | | | 12 730 | 19 | 52 | | | 13 525 | 18 | 51 | | | 14 321 | 17 | 51 | | | 15 912 | 17 | 52 |
| | | 10 | | | 15 912 | 29 | 57 | | | 16 907 | 28 | 57 | | | 17 901 | 27 | 57 | | | 19 890 | 27 | 57 |
| | 700 | 4 | 0.560 | 0.476 | 6 854 | 4 | 33 | 0.595 | 0.506 | 7 283 | 4 | 33 | 0.630 | 0.536 | 7 711 | 4 | 33 | 0.700 | 0.595 | 8 568 | 4 | 33 |
| | | 6 | | | 10 282 | 10 | 44 | | | 10 924 | 10 | 44 | | | 11 567 | 9 | 43 | | | 12 852 | 9 | 44 |
| | | 8 | | | 13 709 | 18 | 51 | | | 14 566 | 17 | 51 | | | 15 422 | 17 | 51 | | | 17 136 | 17 | 51 |
| | | 10 | | | 17 136 | 28 | 57 | | | 18 207 | 27 | 57 | | | 19 278 | 26 | 57 | | | 21 420 | 26 | 57 |
| | 750 | 4 | 0.600 | 0.510 | 7 344 | 4 | 34 | 0.638 | 0.542 | 7 803 | 4 | 33 | 0.675 | 0.574 | 8 262 | 4 | 33 | 0.750 | 0.638 | 9 180 | 4 | 34 |
| | | 6 | | | 11 016 | 10 | 44 | | | 11 705 | 10 | 44 | | | 12 393 | 9 | 44 | | | 13 770 | 9 | 44 |
| | | 8 | | | 14 688 | 18 | 52 | | | 15 606 | 17 | 51 | | | 16 524 | 17 | 51 | | | 18 360 | 17 | 52 |
| | | 10 | | | 18 360 | 28 | 57 | | | 19 508 | 27 | 57 | | | 20 655 | 26 | 57 | | | 22 950 | 26 | 57 |
| | 800 | 4 | 0.640 | 0.544 | 7 834 | 4 | 34 | 0.680 | 0.578 | 8 323 | 4 | 34 | 0.720 | 0.612 | 8 813 | 4 | 33 | 0.800 | 0.680 | 9 792 | 4 | 34 |
| | | 6 | | | 11 750 | 10 | 44 | | | 12 485 | 10 | 44 | | | 13 219 | 9 | 44 | | | 14 688 | 9 | 44 |
| | | 8 | | | 15 667 | 18 | 52 | | | 16 646 | 17 | 52 | | | 17 626 | 17 | 52 | | | 19 584 | 17 | 52 |
| | | 10 | | | 19 584 | 28 | 58 | | | 20 808 | 27 | 58 | | | 22 032 | 26 | 57 | | | 24 480 | 26 | 58 |
| | 850 | 4 | 0.680 | 0.578 | 8 323 | 4 | 34 | 0.723 | 0.614 | 8 843 | 4 | 33 | 0.765 | 0.650 | 9 364 | 4 | 34 | 0.850 | 0.723 | 10 404 | 4 | 34 |
| | | 6 | | | 12 485 | 10 | 44 | | | 13 265 | 9 | 44 | | | 14 045 | 9 | 44 | | | 15 606 | 9 | 45 |
| | | 8 | | | 16 646 | 17 | 52 | | | 17 687 | 17 | 52 | | | 18 727 | 17 | 52 | | | 20 808 | 17 | 52 |
| | | 10 | | | 20 808 | 27 | 58 | | | 22 109 | 26 | 57 | | | 23 409 | 26 | 58 | | | 26 010 | 26 | 58 |
| | 900 | 4 | 0.720 | 0.612 | 8 813 | 4 | 34 | 0.765 | 0.650 | 9 364 | 4 | 34 | 0.810 | 0.689 | 9 914 | 4 | 34 | 0.900 | 0.765 | 11 016 | 4 | 34 |
| | | 6 | | | 13 219 | 10 | 45 | | | 14 045 | 9 | 44 | | | 14 872 | 9 | 45 | | | 16 524 | 9 | 44 |
| | | 8 | | | 17 626 | 17 | 52 | | | 18 727 | 17 | 52 | | | 19 829 | 17 | 52 | | | 22 032 | 16 | 52 |
| | | 10 | | | 22 032 | 27 | 58 | | | 23 409 | 26 | 58 | | | 24 786 | 26 | 58 | | | 27 540 | 25 | 58 |
| | 1000 | 4 | 0.800 | 0.680 | 9 792 | 4 | 34 | 0.850 | 0.723 | 10 404 | 4 | 34 | 0.900 | 0.765 | 11 016 | 4 | 33 | 1.000 | 0.850 | 12 240 | 4 | 34 |
| | | 6 | | | 14 688 | 9 | 44 | | | 15 606 | 9 | 44 | | | 16 524 | 9 | 44 | | | 18 360 | 9 | 44 |
| | | 8 | | | 19 584 | 17 | 52 | | | 20 808 | 16 | 52 | | | 22 032 | 15 | 51 | | | 24 480 | 15 | 52 |
| | | 10 | | | 24 480 | 26 | 58 | | | 26 010 | 25 | 58 | | | 27 540 | 24 | 57 | | | 30 600 | 24 | 58 |

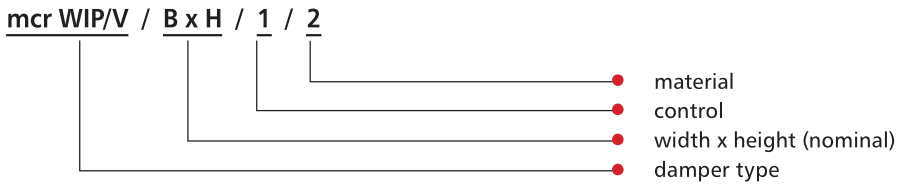
The mcr WIP fire damper selection program is available at **www.mercor.com.pl**, in the Architect and Designer Zone.

## 8.7. estimated weights of mcr WIP/V, mcr WIP/V-M dampers [kg]

| height H [mm] \ width B [mm] | 200 | 250 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---|---|---|---|---|---|---|---|---|---|---|
| **200** | 10 | 10 | 10 | 10 | 15 | 17 | 18 | 19 | 22 | 25 |
| **250** | 10 | 10 | 11 | 11 | 16 | 18 | 18 | 21 | 24 | 27 |
| **300** | 10 | 11 | 11 | 12 | 17 | 20 | 21 | 23 | 26 | 28 |
| **350** | 11 | 11 | 11 | 16 | 18 | 21 | 23 | 26 | 28 | 30 |
| **400** | 12 | 12 | 14 | 18 | 19 | 21 | 25 | 29 | 30 | 33 |
| **500** | 15 | 16 | 17 | 19 | 20 | 23 | 27 | 32 | 33 | 35 |
| **600** | 17 | 18 | 20 | 21 | 23 | 26 | 30 | 35 | 37 | 39 |
| **700** | 18 | 18 | 21 | 23 | 25 | 28 | 32 | 35 | 38 | 40 |
| **800** | 20 | 21 | 22 | 24 | 29 | 35 | 37 | 41 | 43 | 49 |
| **900** | 22 | 25 | 25 | 28 | 33 | 35 | 39 | 43 | 49 | 52 |
| **1000** | 23 | 29 | 32 | 33 | 36 | 42 | 43 | 47 | 53 | 60 |

The table shows the weights of dampers with trigger control mechanisms or actuators.

## 8.8. marking




**1 – control:**

– Belimo trigger control mechanism
**BE24** – actuator with no return spring, U = 24 V AC/DC
**BE24-ST** (with the BKNE230-24 option) – actuator with no return spring, U = 24 V AC/DC, with a SBS Control system
**BE230** – actuator with no return spring, U = 230 V AC/DC
**BLE24** – actuator with no return spring, U = 24 V AC/DC
**BLE24-ST** (with the BKNE230-24 option) – actuator with no return spring, U = 24 V AC/DC, with a SBS Control system
**BLE230** – actuator with no return spring, U = 230 V AC/DC

**2 – material:**

**[no symbol]** – galvanised steel, Zn 275 g/m$^2$ coating
**KN** – 1.4404 acid-proof stainless steel

**example marking:**

**mcr WIP/V 400 x 400 BLE24**

Louvered fire damper with a compact 24 V Belimo actuator with limit switches.

**Chapter 12 - power supply and control (p. 141) contains:**
**- technical specifications and connection diagrams for the trigger control mechanisms supporting the damper,**
**- location of trigger control mechanisms in relation to the damper - manufacture standards.**