mercor®

FIRE VENTILATION SYSTEMS

FIRE DAMPERS AND FIRE VALVES

downloadable models
on the website
under the designer zone tab

1396-CPR-0092

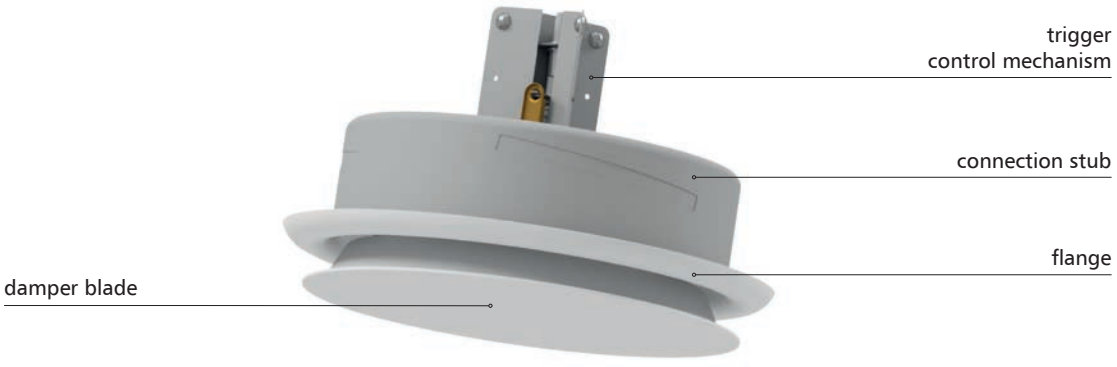
HYGIENIC CERTIFICATE

» **EIS120**
» Fire resistance class: EI120 (v_e h_o o→i)S, EI120 (v_e i→o), EI180 (v_e o→i)S.
» Certificate of constancy of performance 1396-CPR-0092.
» Valves certified for compliance with EN 15650.
» Valves qualified under EN 13501-3 and tested under EN 1366-2.
» Airflow adjustment function and cut-off damper in one device

8.1| Application

The mcr ZIPP cut-off fire valves are designed for installation at the terminal points of general ventilation systems, where those systems pass through construction partitions. They are used to separate a fire hazard zone from other parts of the building and to transfer air through construction partitions. During normal system operation, the valves are open. In case of fire, the valves close.
Furthermore, mcr ZIPP cut-off fire valves may be used to close transfer openings, in which case they are installed without connection ducts.
Valves may also be used in the systems which are protecting egress routes from smoke, in which case they remain open during the fire and ensure a supply of fresh air to egress routes. As the fire develops further, the valves are automatically closed as a result of thermal trigger tripping, which prevents the spreading of fire and smoke to other rooms.

8.2| Design



mcr ZIPP cut-off valves consist of a casing with a circular cross-section, a moving blade (cover), a connection stub and a trigger control mechanism activated when the thermal or electromagnetic trigger trips, whereby the automatic trip of the thermal trigger overrides remote power supply or disconnection.
The connection stub is made of galvanized steel sheet. The valve flange is made of powder-painted steel sheets. The insulation blade of the valve is made of a material that provides fire protection, coated on the outside with powder-painted steel sheets. The blade is placed on a treaded, moving guiding pin, which enables the adjustment of performance (active surface) of the valve by tightening the cover.
During normal operation, cut-off valves remain open. The valve switches to safe mode (closes):
» automatically, by means of thermal trigger tripping (RST trigger control mechanism),
» remotely, by means of electromagnetic and thermal trigger tripping (RST+EK trigger control mechanism). As a standard, the valves are painted in RAL 9010.

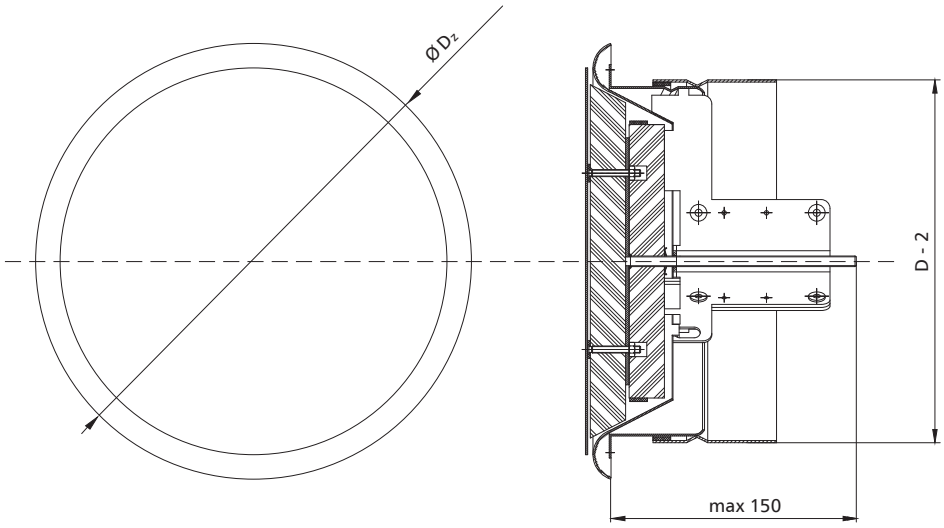
8.3 | Versions

8.3.1 | mcr ZIPP RST – cut-off fire valve for ventilation ducts with a thermal trigger

During normal operation, the insulation blade of the fire valve remains open. In case of fire, the blade closes automatically.

mcr ZIPP RST valves are equipped with an **RST** trigger and control mechanism with a 74˚C thermal trigger (it is possible to use a thermal trigger with the nominal tripping temperature of 95˚C as an option) and drive spring. Once the nominal temperature is exceeded, the thermal trigger is tripped and the blade closes. It is possible to equip the valves with a WK1 limit switch used to signal the blade position.

» **closed valve blade**



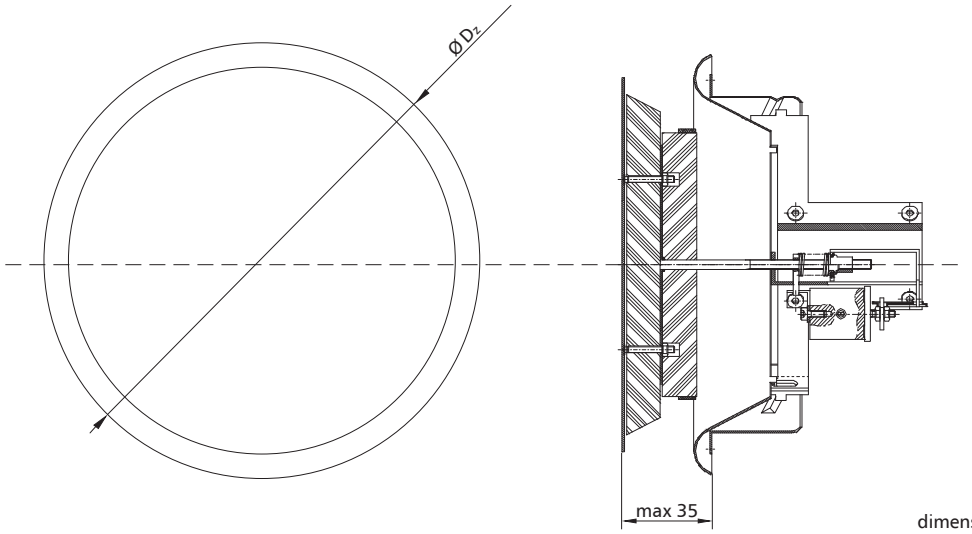
dimensions in [mm]

8.3.2 | mcr ZIPP RST+EK – cut-off fire valve for ventilation ducts with an electromagnetic and thermal trigger

During normal operation, the insulation blade of the fire valve remains open. In case of fire, the blade closes automatically or remotely when power is supplied or cut off.

mcr ZIPP RST+EK valves are equipped with a trigger control mechanism with a 74°C thermal trigger (optionally 95°C), a spring drive and an electromagnetic trigger tripped by the power supply application (“pulse”) or removal (“break”).

» **open valve blade**



dimensions in [mm]

8.4 | Dimensions

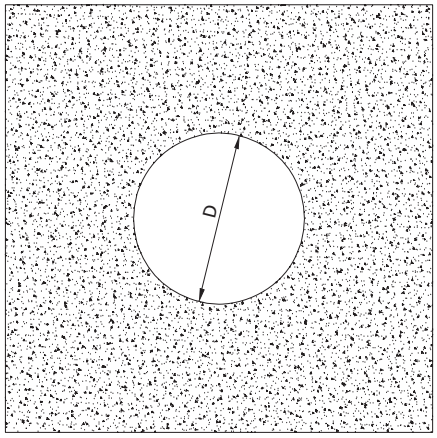
» **Circular valves:**
nominal diameter D: 100 mm, 125 mm, 160 mm, 200 mm.

8.5 | Installation

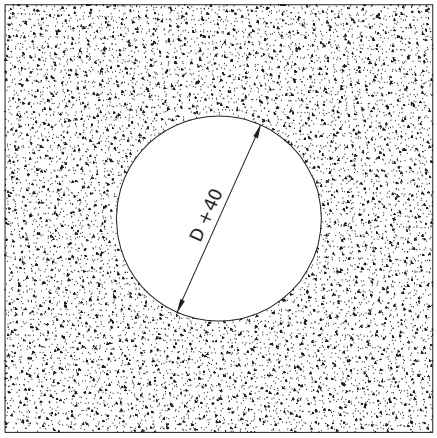
mcr ZIPP valves are rated EI120(v_e h_o o→i)S if installed in concrete partitions, partitions made of full bricks or aerated concrete blocks with a thickness of at least 110 mm, gypsum board light walls on a steel framework with a thickness of min. 125 mm and EI120 or higher fire rating, as well as concrete floor slabs with a thickness of at least 150 mm.

8.5.1 | Preparation of installation openings

» **in light gypsum board walls – preferred opening**



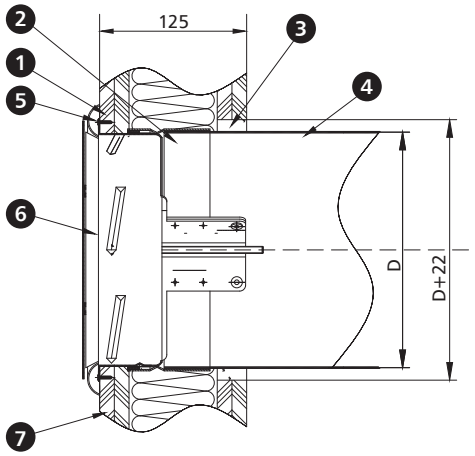
» **in rigid walls and floor slabs – preferred opening**



dimensions in [mm]

8.5.2 | Sample installation in gypsum board light walls on a steel framework

» **duct installation**



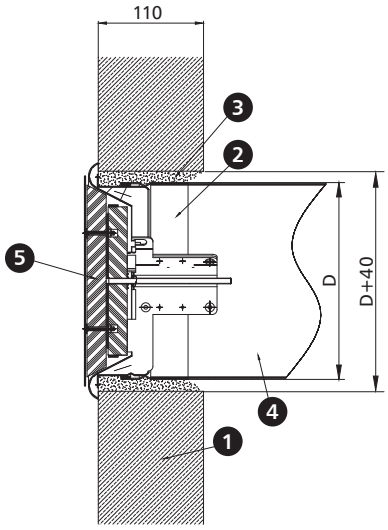
dimensions in [mm]

1. gypsum board
2. extension stub
3. assembly mortar*
4. ventilation duct
5. gypsum board screw
6. mcr ZIPP valve
7. gypsum board light wall

*it is possible to use a different filling that ensures the required fire resistance

8.5.3 | Sample installation in brick and concrete walls

» duct installation



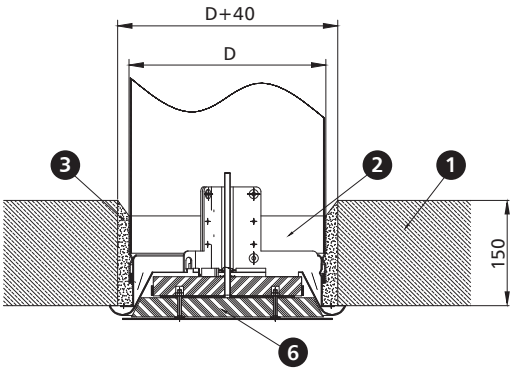
1. rigid concrete or masonry wall
2. extension stub
3. sealing - plaster or assembly mortar*
4. duct
5. mcr ZIPP valve

*it is possible to use a different filling that ensures the required fire resistance

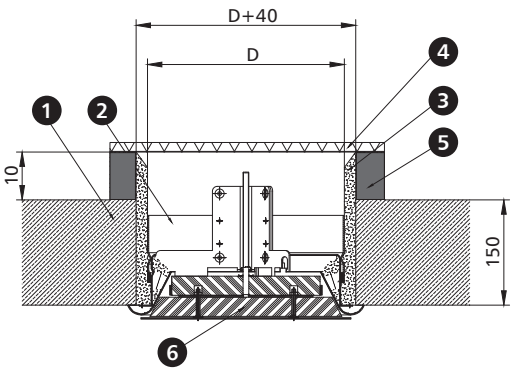
dimensions in [mm]

8.5.4 | Sample installation in floor slabs

» duct installation



» ductless installation



dimensions in [mm]

1. floor slab
2. extension stub
3. sealing - plaster or cement mortar*
4. masking grille (not included)
5. circumferential trim or masking grille with suitable height
6. mcr ZIPP valve

*it is possible to use a different filling that ensures the required fire resistance

8.6 | mcr ZIPP valves technical parameters

S_e – valve active cross-section [m²]
S_k – duct cross-section [m²]
D – nominal diameter [mm]

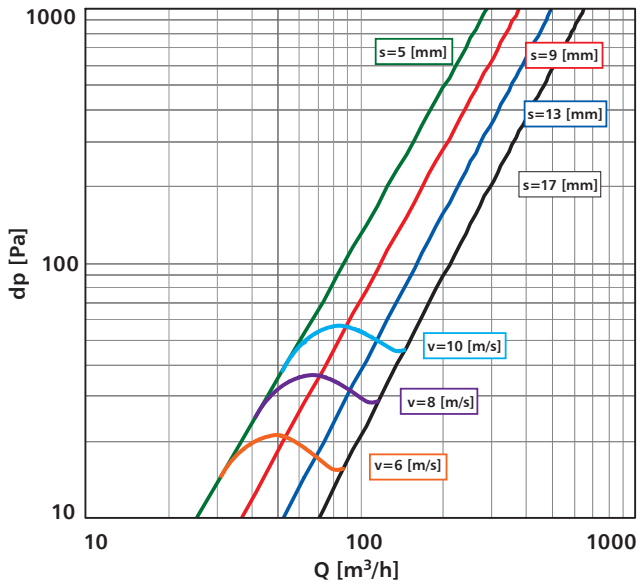
diameter D [mm]	100	125	160	200
S_e	0,0027	0,0055	0,0111	0,0191
S_k	0,0079	0,0123	0,0201	0,0314

» Flow characteristics

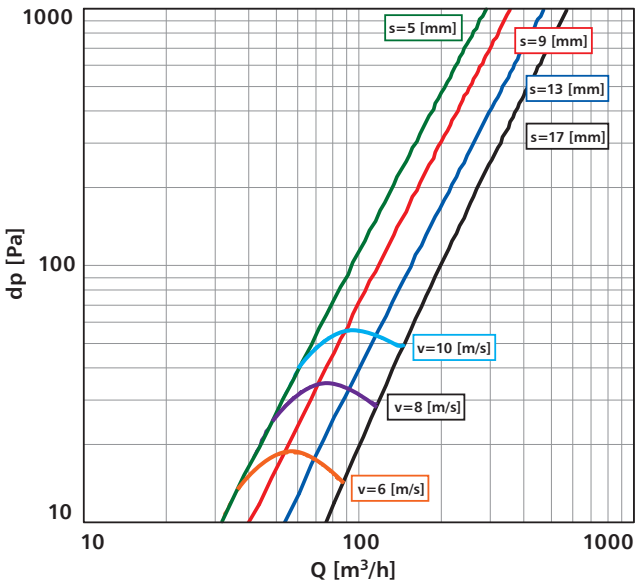
d_p – pressure drop [Pa] **s** – valve opening [mm] **v** – velocity [m/s] Q – flow [m³/h]

» mcr ZIPP 100 flow characteristics

supply

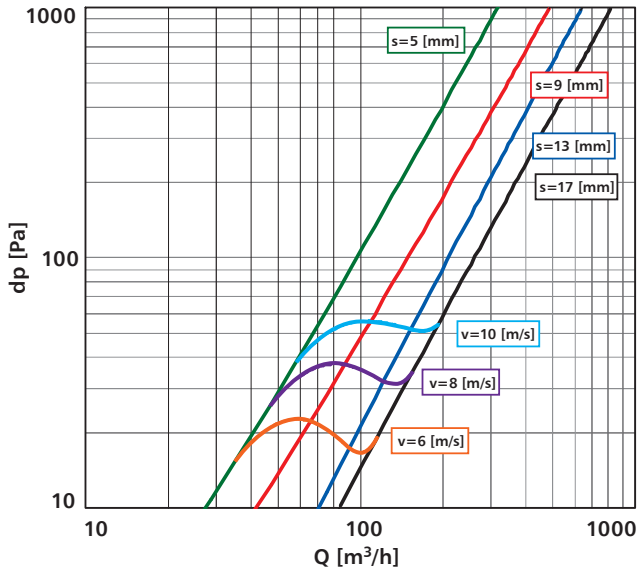


exhaust

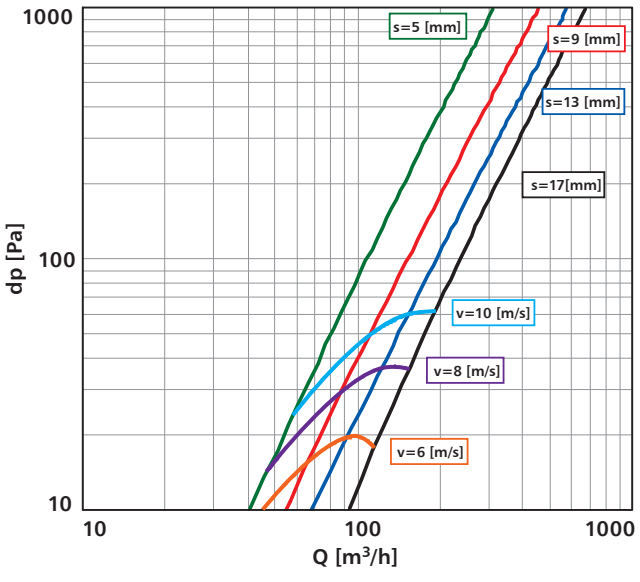


» mcr ZIPP 125 flow characteristics

supply



exhaust

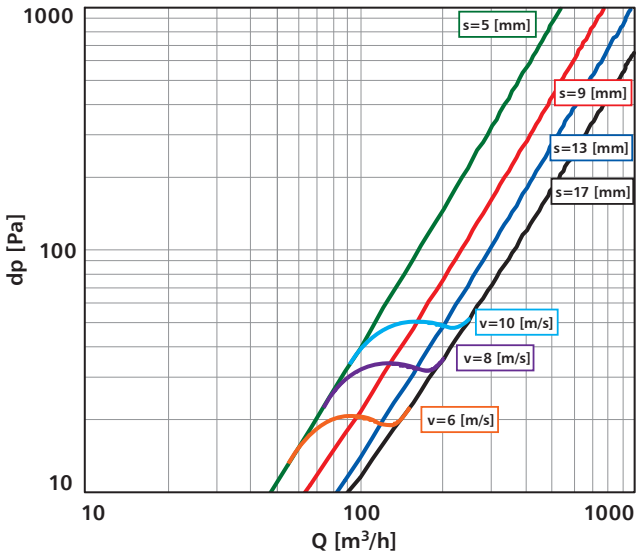


» Flow characteristics

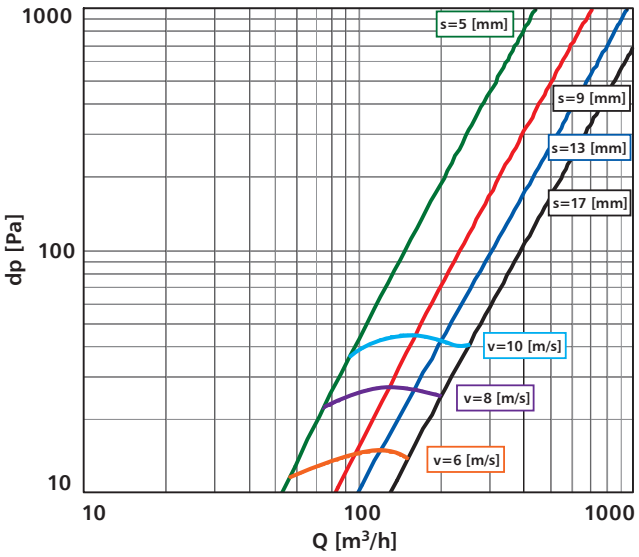
d_p – pressure drop [Pa] **s** – valve opening [mm] **v** – velocity [m/s] Q – flow [m³/h]

» mcr ZIPP 160 flow characteristics

supply

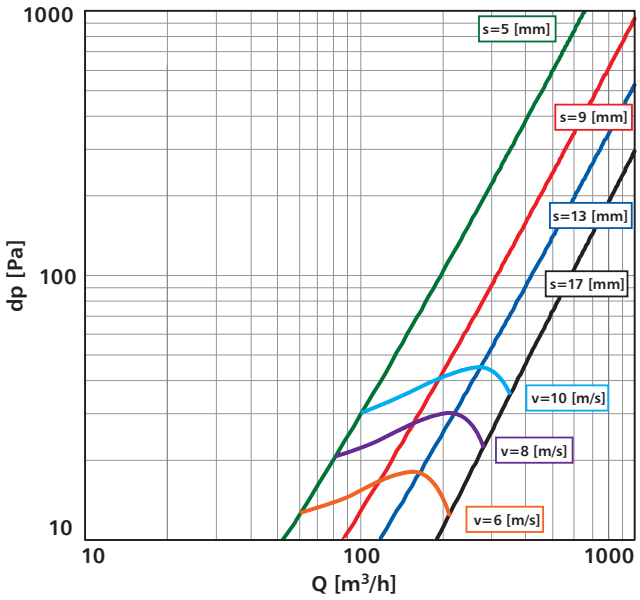


exhaust

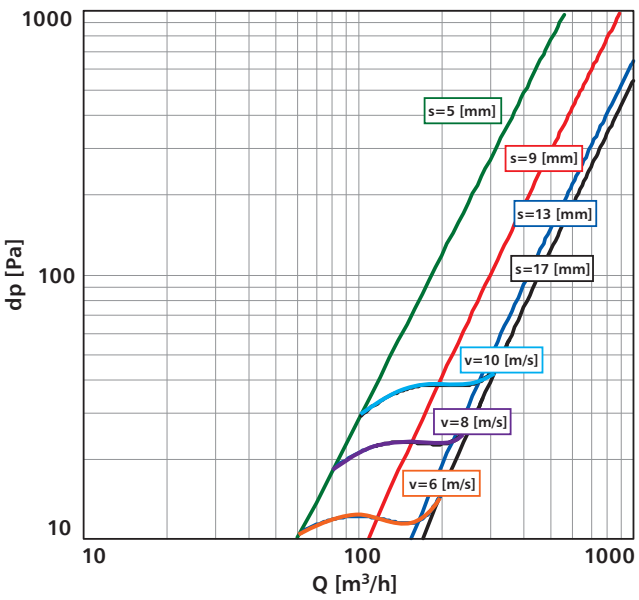


» mcr ZIPP 200 flow characteristics

supply



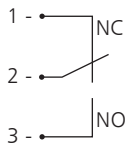
exhaust



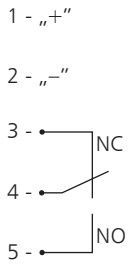
8.7 | Trigger control mechanisms – specifications and connections diagram

execution type	RST	RST+WK1	RST+EKI24+WK1	RST+EKI230+WK1	RST+EKP24+WK1	RST+EKP240+WK1
thermal trigger	+	+	+	+	+	+
limit switch	-	250 V AC / 5A	250 V AC / 5A	250 V AC / 5A	250 V AC / 5A	250 V AC / 5A
rated voltage	-	-	24 V DC / pulse	230V AC / pulse	24 V DC / break	230V AC / break
power consumption	-	-	3.5 W	3.5 W	1.8 W	1.8 W

» electrical connections diagram for the mcr ZIPP RST+WK1 valve



» electrical connections diagram for the mcr ZIPP RST+EKI valve or RST+EKP+WK1
»

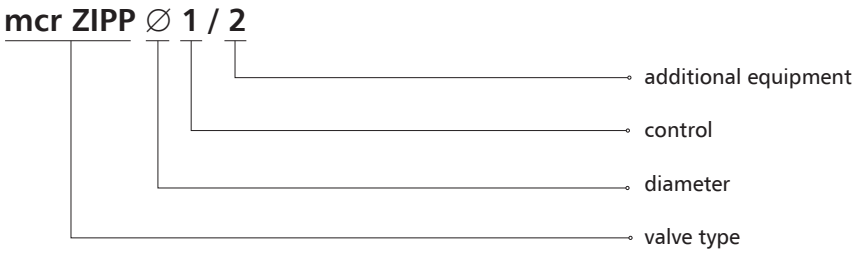


NOTE: the position of limit switch in standby (valve open)

8.8 | Weights of the mcr ZIPP valves [kg]

D [mm]	RST	RST+EK
100	0.9	1
125	1.5	1.6
160	1.7	1.8
200	2.7	2.8

8.9 | Marking



1 - control:

» **RST trigger control mechanism**
RST – thermal trigger
» **RST+EK trigger control mechanism**
RST+EKI24 – thermal trigger + "pulse" electromagnetic trigger, U = 24 V DC
RST+EKI230 – thermal trigger + "pulse" electromagnetic trigger, U = 230 V AC
RST+EKP24 – thermal trigger + "break" electromagnetic trigger, U = 24 V DC
RST+EKP230 – thermal trigger + "break" electromagnetic trigger, U = 230 V AC

2 - additional equipment:

WK1 – limit switch (closed blade signal)
RMK – extension stub
T95 – thermal trigger for 95°C

NOTE: **separate additional equipment entered with the "/" sign**

example marking:

mcr ZIPP Ø125 RST
EIS120 cut-off fire valve with a thermal trigger rated at 74°C.

mcr ZIPP Ø125 RST + WK1
EIS120 cut-off fire valve with a thermal trigger rated at 74°C and a limit switch.

mcr ZIPP Ø125 RST + EKP24 + WK1
EIS120 cut-off fire valve with a thermal trigger rated at 74°C and a „break" electromagnetic trigger, U = 24 V DC and a limit switch.

Chapter 18 in Technical Catalogue - power supply and control (p. 350) contains the following information:
- technical specifications and connection diagrams **for the trigger control mechanisms supporting the damper.**

Mercor Light&Vent Sp. z o.o.
ul. Grzegorza z Sanoka 2
80-408 Gdańsk
(+48) 58 341 42 45
hw.export@mercor.com.pl

www.mercor.com.pl/en

www.facebook.com
/mercorlv

www.linkedin.com
/company/mercorlv

www.youtube.com
/@mercorlv