



CE

**NEW**  
with hygiene certificate

## BV90 fire protection valves

- BV92 series -

Meet the current requirements and standards

- Maintenance-free: Due to complete enclosure of the operation unit and the release element, no function-preserving cleaning or recurring lubrication and adjustment is necessary
- Functional test: By simply opening and closing on site

# BV90 fire protection valves

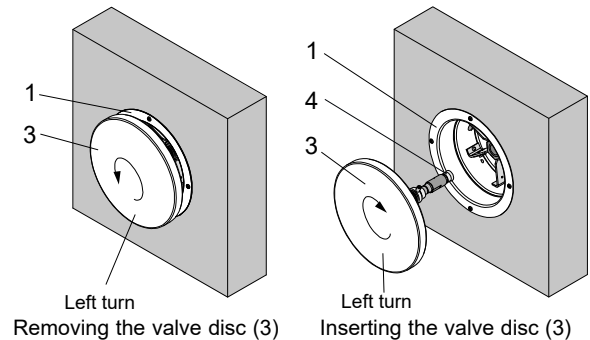
Function, volume flow setting

## Construction and function

- The fire protection valve is essentially made up of an integrated duct for installation in walls or ceilings (1).
- The valve disc (3) is inserted in it.
- In the event of fire the release element (4) reacts and closes the valve disc with springs (3).

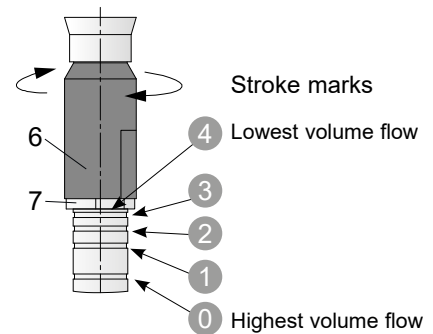
The interlocks (5) are released by unscrewing them. In the process the inner locking pins are released.

⇒ see operating instructions



## Setting the volume flow

- In the factory the stroke marks 4, i.e. the lowest volume flows, are preset. ⇒ Nomograms, page 5 or 6
- Other settings to the stroke marks can be made 0-1-2-3 on site:
  - To do so, remove the valve disc (3) from the integrated duct (1) by turning it to the left.
  - Unfasten the lock nut (7) and set the setting sleeve (6) to a mark which matches the desired volume flow.
  - Tighten the lock nut (7) up to the underside of the setting sleeve (6).
  - Turn the valve disc (3) to the right as far as it will go to insert it back into the integrated duct (1).

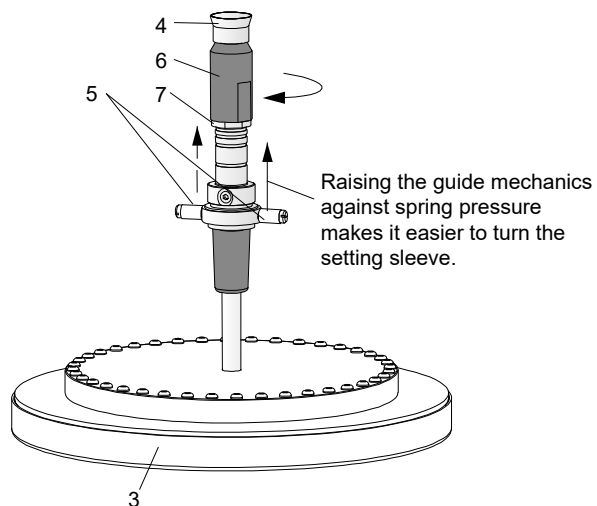


- Avoid setting a stroke mark greater than 4 !

The interlocks (5) then engage and the valve disc (3) is closed when screwing it into the integrated duct (1).

## Construction of the fire protection valves of the series BV92

- 1 Integrated duct
- 3 Valve disc
- 4 Release element with fusible link cap for 70°C
- 5 Interlock for closed valve position
- 6 Volume flow setting sleeve
- 7 Lock nut



# BV90 fire protection valves

## Description

### BV90 fire protection valves as per DIN EN 15650

New series BV92

Fire classifications:	EI 30/60/90 (ve - ho, i ↔ o) S
Fire resistance period:	30, 60 and 90 minutes
Declaration of performance:	DoP no.: CPR/BV90/002
Construction material certification non-combustible:	Certificate MPA-BS 6000/593/18
Installation in suspended ceilings:	General type approval Z-41.8-697

**Steel fire protection valve. Shade: pure white RAL 9010.**

**Installation housing with volume flow adjustable valve disc. A large free cross section makes for low pressure losses and low noise level.**

**Enclosed thermal release 70°C with stainless steel mechanics.**



#### Sizes

DN 100, DN 125, DN 160, DN 200

Product and installation details ⇒ Page 4

Dimensioning:

- Supply air (radial wall, ceiling or free stream) ⇒ Pages 5, 6
- Exhaust air ⇒ Page 7

Dry and wet installation in:

- rigid walls and ceilings ⇒ Page 8
- light shaft walls ⇒ Page 9
- metal stud walls ⇒ Pages 10, 11
- fire-resistant suspended ceilings ⇒ Pages 12, 13

#### Accessories (options):

- **Electrical limit switch.** For signalling "Valve is closed".

Changeover 250 V AC or 24 V DC, 5A, IP 67, with 1 m connection cable 3 x 0.5 mm<sup>2</sup>.

⇒ Page 14

- **Backing boards 30 mm or 50 mm in thickness,** made of mineral building material.

For dry installation in metal stud walls and in suspended ceilings.

- Sizes DN 100, DN 125, DN 160, DN 200

Outer dimensions DN + 150 mm

⇒ Pages 9, 12 and 14

- **Installation pipe 100 mm in length,** made of mineral building material.

For dry installation in metal stud walls and in metal suspended ceilings.

- Sizes DN 100, DN 125, DN 160, DN 200

Outer dimensions DN + 160 mm

⇒ Pages 11, 13 and 14

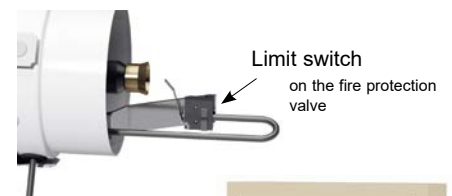
- **Insulating jacket** made of galvanized sheet steel.

With inner insulation 30 mm in thickness, made of mineral wool, 40 kg/m<sup>3</sup>.

- Sizes DN 100, DN 125, DN 160, DN 200

Outer dimensions DN + 75 mm

⇒ Pages 13, 14



Backing board



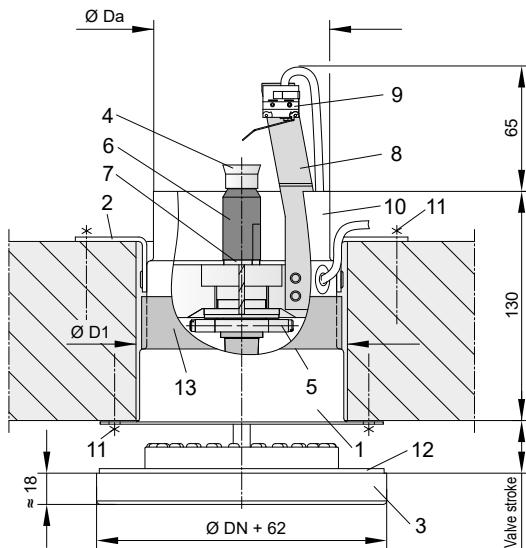
Installation pipe



Insulating jacket

# BV90 fire protection valves

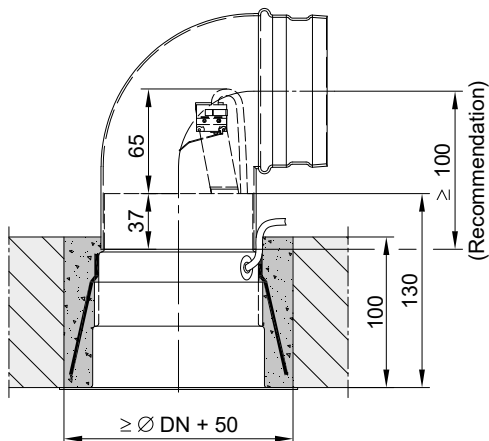
## Product and installation details



Example:

### Dry installation suspended in rigid ceilings

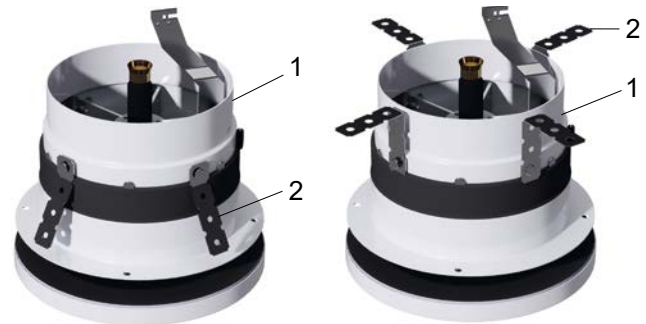
Holes  $\varnothing D1 \Rightarrow$  Pages 8 to 13



**Example** shown without valve disc

### Wet installation suspended in solid ceilings

Connecting elbow with socket on the fire protection valve, plug connection for pipe connection



- 1 Integrated duct
- 2 Wall anchor on integrated duct
- 3 Thermally insulated valve disc
- 4 Release element with fusible link cap for 70 °C
- 5 Interlock for closed valve position
- 6 Setting sleeve for volume flow
- 7 Lock nut
- 8 Spacer for release
- 9 Electrical limit switch
- 10 Connecting piece for ventilation duct
- 11 Screws min. 4 x 45 mm.

They must be installed with dowels as necessary.

8 pcs. Drywall screws 4 x 45 mm are included in the scope of delivery of the fire protection valves

- 12 Valve disc seal
- 13 Intumescent seal on integrated duct

Sizes DN	100	125	160	200
Connecting piece $\varnothing Da$ [mm]	99	124	159	199
Quantity of <b>wall anchors (2) on the integrated duct (1)</b>	3	3	4	4
Valve weight [kg]	1.7	2.2	3.0	3.8

**Wall anchors (2) on the integrated duct (1)** are hinged and rotatable.

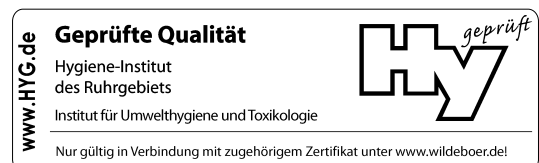
They can be used as mortar anchors (top image) or as fastening lugs at the rear (bottom image).

## BV90 fire protection valves

- satisfy the hygiene requirements according to VDI 6022-1, VDI 3803-1, DIN 1946-4, DIN EN 16798-3, SWKI VA 104-01, SWKI VA 105-01, ÖNORM H 6020, ÖNORM H 6021
- are resistant to microbes, and therefore **do not promote the growth of microorganisms (fungi, bacteria)** <sup>1)</sup>
- are **resistant to cleaning agents and disinfectants** <sup>2)</sup>
- are suitable for use in hospitals and similar facilities!
- meet the requirements for surface design and geometric design

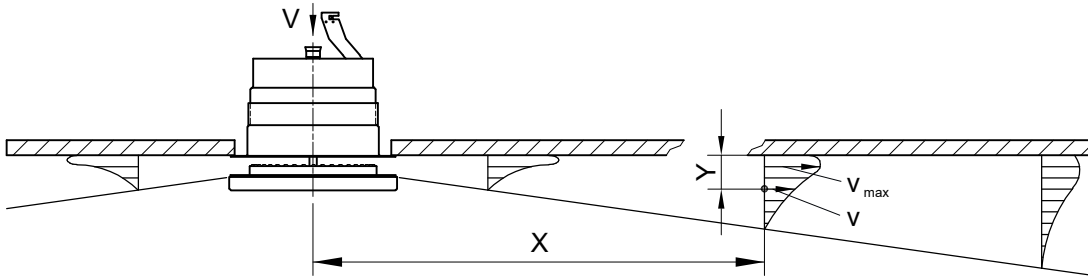
<sup>1)</sup> The resistance of the materials to fungi and bacteria has been verified by testing the microbial metabolic potential according to DIN EN ISO 846.

<sup>2)</sup> For further information see operating instructions BV90 fire protection valve



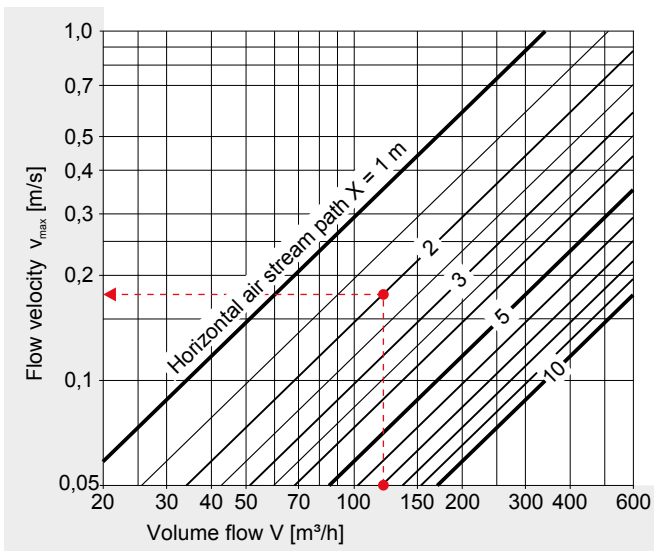
# BV90 fire protection valves

Dimensioning: Supply air underneath ceilings



- X [m] Horizontal air stream path
- Y [m] Vertical air stream path
- v [m/s] Flow velocity at point X,Y
- $v_{max}$  [m/s] Max. flow velocity downstream of air stream path X
- V [m³/h] Volume flow

## Maximum flow velocity



## Example

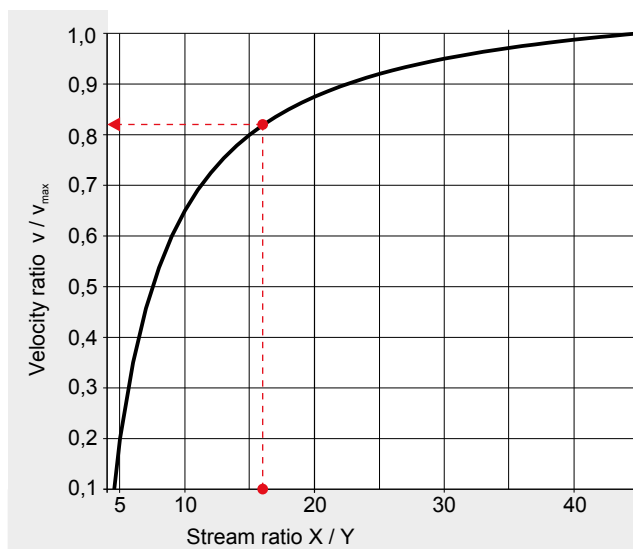
Specified:

- Volume flow  $V = 120 \text{ m}^3/\text{h}$
- Air stream path  $X = 2 \text{ m}$
- Air stream path  $Y = 0.125 \text{ m}$

Result:

- Max. flow velocity from diagram  
 $v_{max} = 0.18 \text{ m/s}$
- Calculate air stream path ratio  
 $X / Y = 2 / 0.125 = 16$
- Velocity ratio from diagram  
 $v / v_{max} = 0.82$
- Calculate the flow velocity at point X, Y  
 $v = (v / v_{max}) \cdot v_{max}$   
 $v = 0.82 \cdot 0.18 = 0.15 \text{ m/s}$

## Relative flow velocity



The flow velocities of a free stream are lower by a factor of 0.7.

The flow velocities apply for all sizes and lift strokes of the BV90 fire protection valves.

# BV90 fire protection valves

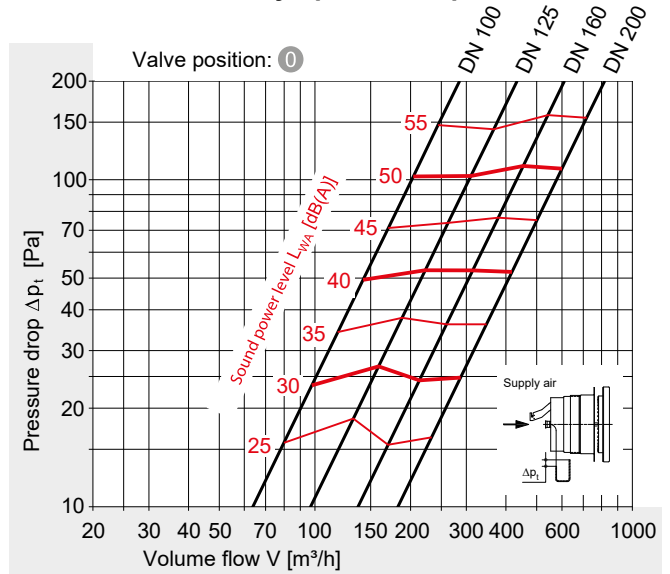
Dimensioning: Pressure drop, sound power level with supply air

$V$  [m<sup>3</sup>/h] Volume flow  
 $\Delta p_t$  [Pa] Total pressure drop  
 $L_{WA}$  [dB(A)] A-rated sound power level

## Example

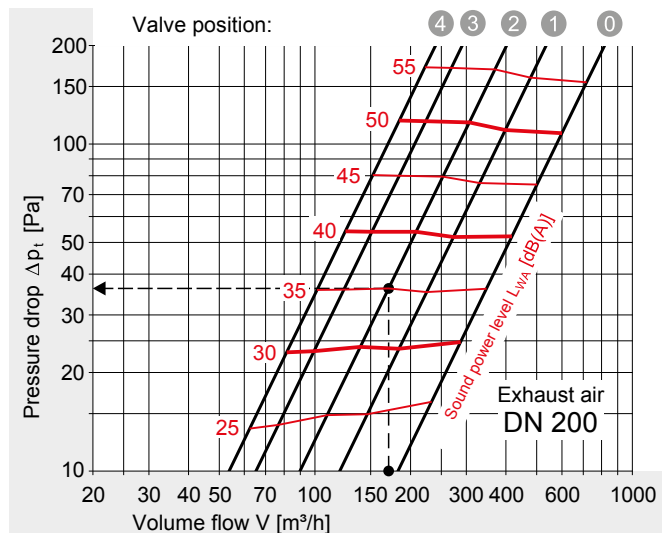
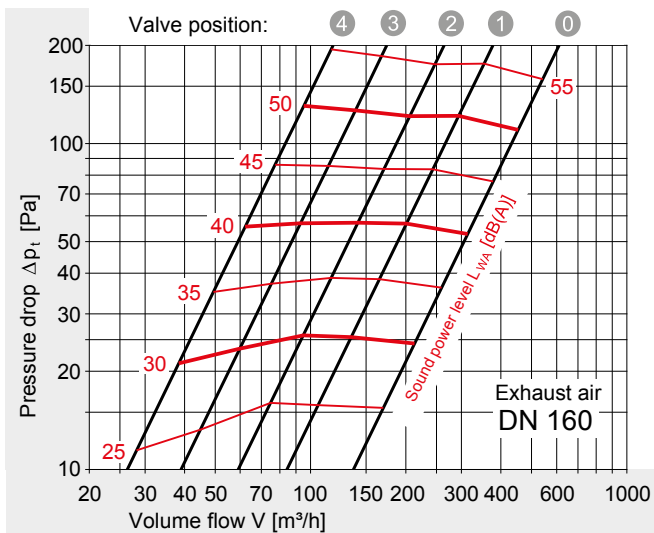
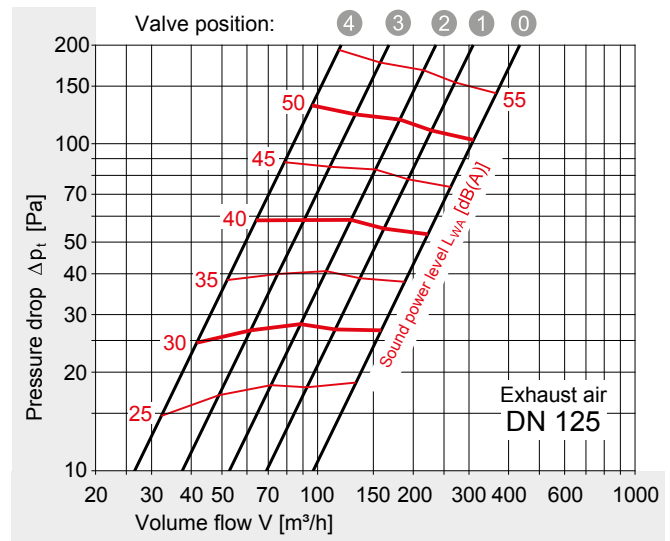
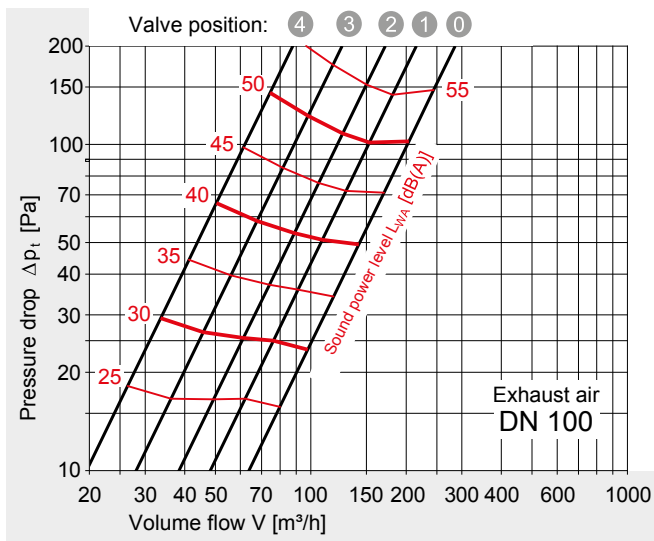
Size DN 200, valve position 2  
 Volume flow  $V = 171$  m<sup>3</sup>/h  
 Sound power level  $L_{WA} = 35$  dB(A)  
 Pressure drop  $\Delta p_t = 36$  Pa

## Volume flow with fully opened fire protection valve



## Volume flow

with fully and partially opened valve position (0)



# BV90 fire protection valves

Dimensioning: Pressure drop, sound power level with exhaust air

$V$  [m³/h] Volume flow  
 $\Delta p_s$  [Pa] Static pressure drop  
 $L_{WA}$  [dB(A)] A-rated sound power level

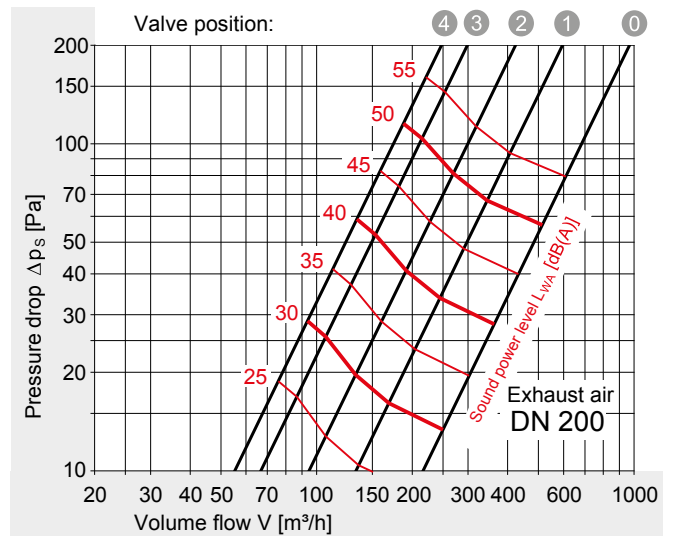
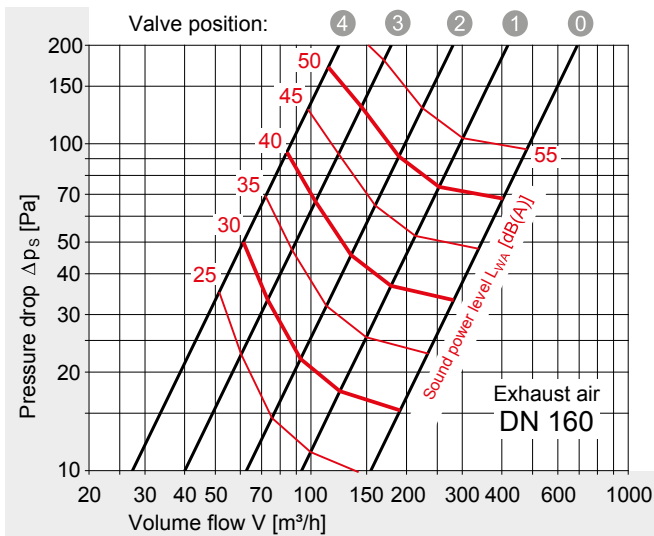
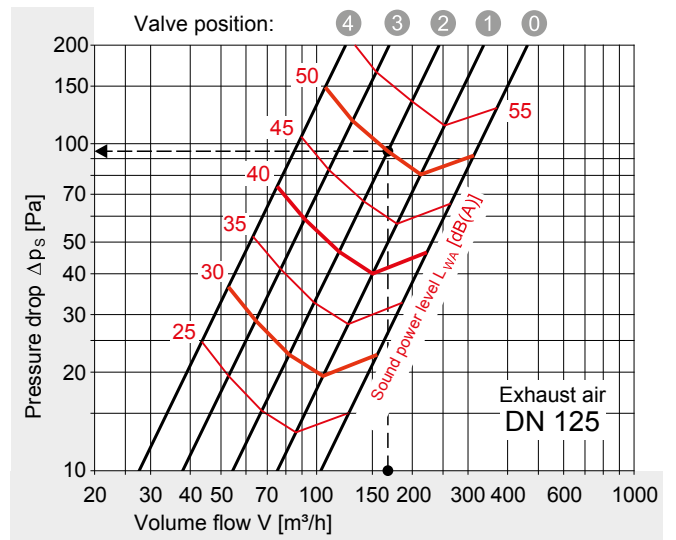
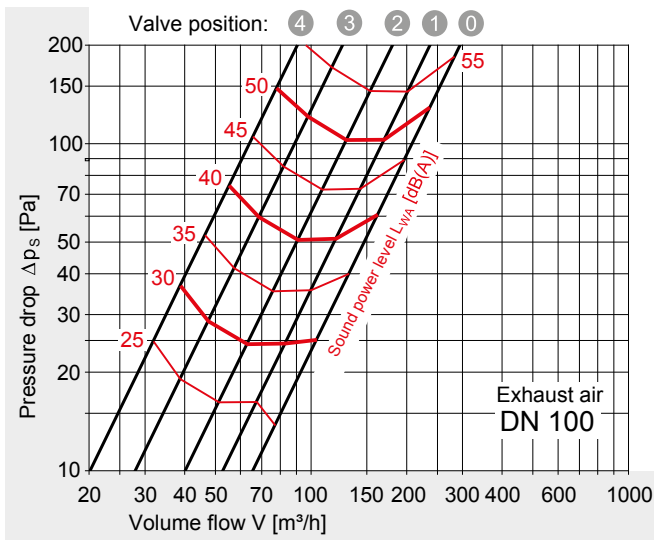
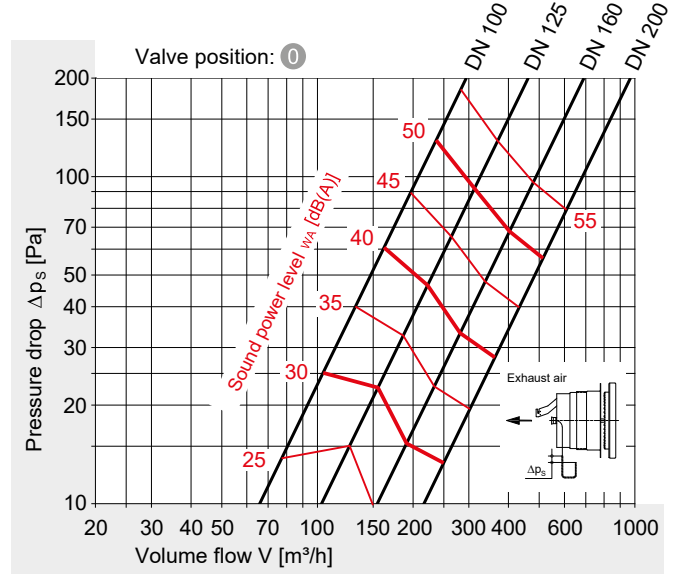
### Example

Size DN 125, valve position 2  
 Volume flow  $V = 168$  m³/h  
 Sound power level  $L_{WA} = 50$  dB(A)  
 Pressure drop  $\Delta p_s = 95$  Pa

### Volume flow

with fully and partially opened valve position (0)

### Volume flow with fully opened fire protection valve



# BV90 fire protection valves

Installation in rigid walls and ceilings

**Minimum thicknesses W, D [mm]** for installation of BV90 fire protection valves:

Required fire resistance duration in minutes	30, 60, <b>90</b>
Rigid walls W	≥ <b>95 mm</b>
Rigid ceilings D	≥ <b>100 mm</b>

The fire protection valves must be installed with spacing of ≥ 200 mm between the integrated ducts (1).

**Rigid walls** can be constructed as masonry or from wallboards. They can be manufactured from concrete, light-weight concrete, gypsum etc., and also be designed as fire walls, shaft walls, shafts, ducts etc. A minimum bulk density of 450 kg/m<sup>3</sup> is required.

Solid brick, perforated brick, hollow block and ever greater thicknesses, higher densities and multiple shells can also be used.

**Rigid ceilings** are generally made of cast-in-place concrete or light-weight concrete.

Installation gaps for **wet installation** must be fully sealed with mortar of group II or III according to DIN 1053 or mortar of classes M 2.5 to M 20 according to EN 998-2; or with appropriate fire protection mortar or gypsum mortar.

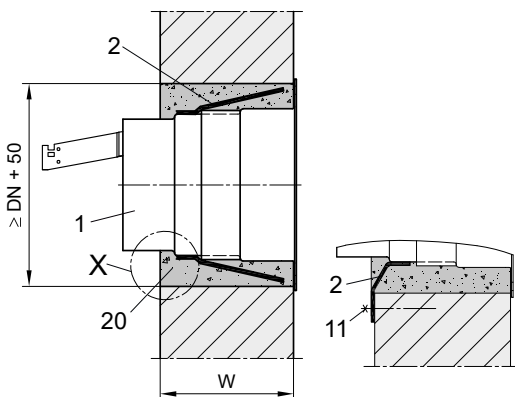
**Dry installation** requires exact-fitting holes Ø D1. The integrated ducts (2) must be fastened with screws (11).

## Installation examples

The fire protection valves are shown here without valve discs.

Installation openings DN [mm]	100	125	160	200
• for wet installation Opening round or rectangular	150	175	210	250
	DN + approximately 50 mm			
• (Core) hole Ø D1 [mm] for dry installation	120	142	180	220
	Tolerance + 2 mm			

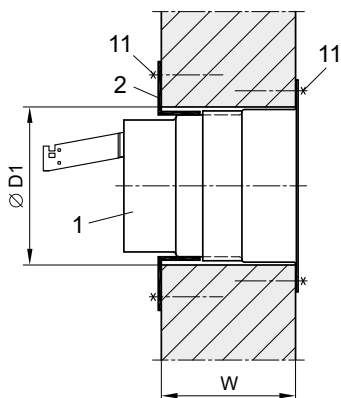
Dimensions in mm



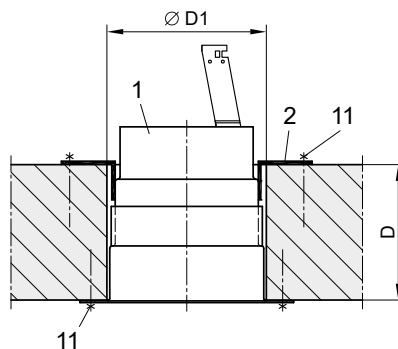
X alternative  
Wall anchor (2) turned, mortared and fastened with screws (11) at the rear.

### Wet installation in walls

Wet installation in rigid ceilings can be performed in the same way



### Dry installation in walls



### Dry installation suspended in ceilings

- 1 Integrated duct
- 2 Wall anchor on integrated duct
- 11 Screws min. 4 x 45 mm.  
They must be installed with dowels as necessary.  
8 pcs. Drywall screws 4 x 45 mm are included in the scope of delivery of the fire protection valves.
- 20 Gap filling with mortar



# BV90 fire protection valves

Installation in light shaft walls

**Minimum thicknesses W [mm]** for installation of BV90 fire protection valves:

Required fire resistance period in minutes	30, 60, <b>90</b>
Shaft walls made of gypsum or equivalent boards	≥ <b>40 mm</b>

The fire protection valves must be installed with spacing of ≥ 200 mm between the integrated ducts (1).

### Installation examples

The fire protection valves are shown here without valve discs.

The **shaft walls** must be made up of at least 2 x 20 mm DF gypsum boards according to EN 520 or equivalents. Metal studs and mineral wool can be arranged on one side.

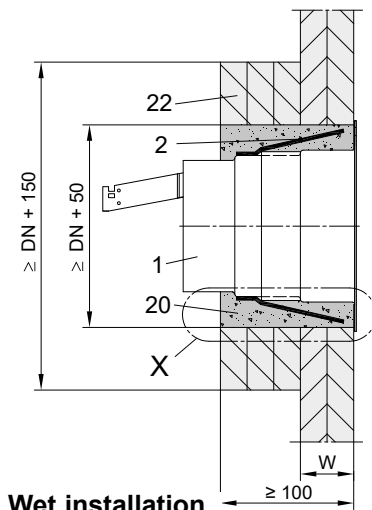
Installation gaps for **wet installation** must be fully sealed with mortar of group II or III according to DIN 1053 or mortar of classes M 2.5 to M 20 according to EN 998-2; or with appropriate fire protection mortar or gypsum mortar.

The walls are to be filled in the area of the installation openings with slabs of wall-building material, size ≥ DN + 150 mm.

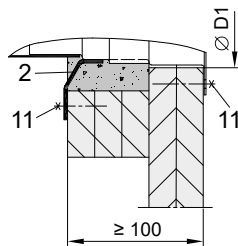
**Dry installation** requires exact-fitting holes Ø D1. Integrated duct (1) fastened with screws (11) at front and rear.

Installation openings DN [mm]	100	125	160	200
• for wet installation Round or square opening	150	175	210	250
	DN + approximately 50 mm			
• (Core) hole Ø D1 [mm] for dry installation with wall filling	120	142	180	220
	Tolerance + 2 mm			

Dimensions in mm

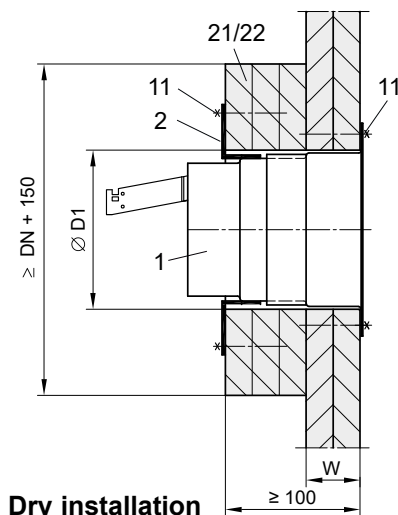
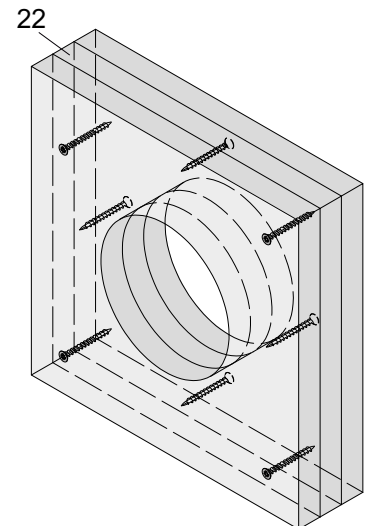


**Wet installation**



**X alternative**

Wall anchor (2) turned, mortared and fastened with screws (11) at the rear or on both sides.



**Dry installation**

- 1 Integrated duct
- 2 Wall anchor on integrated duct
- 11 Screws min. 4 x 45 mm, 8 pcs. Drywall screws 4 x 45 mm are included in the scope of delivery of the fire protection valves
- 20 Gap filling with mortar
- 21 Chuck plates 30 mm or 50 mm  
⇒ Pages 3, 14
- or
- 22 Panels of wall-building material

Double up **walls** in the area of the installation openings with panels ≥ DN + 150 mm made of wall-building material (22) to ≥ 100 mm; shown here screwed in 3 layers.

**Chuck plates** (21), 30 mm and 50 mm, can also be used.

For wet installation, their installation openings must be enlarged to ≥ DN + 50 mm!

Doubles and walls must be properly screwed together.

# BV90 fire protection valves

## Installation in metal stud walls clad on both sides (1) Standard installation

**Minimum thicknesses W [mm]** for the installation of BV90 fire protection valves:

Required fire resistance period in minutes	30, 60, <b>90</b>
Metal stud walls with at least 2-layer cladding on both sides	≥ <b>95 mm</b>

The fire protection valves must be installed with spacing of ≥ 200 mm between the integrated ducts (1).

The **metal stud walls** must be made up of at least 2 x 12.5 mm DF gypsum boards according to EN 520 or equivalents. The walls may be without or with mineral wool filling.

Installation gaps for **wet installation** must be fully sealed with mortar of group II or III according to DIN 1053 or mortar of classes M 2.5 to M 20 according to EN 998-2; or with appropriate fire protection mortar or gypsum mortar.

In the area of the installation openings, the walls are to be filled with panels made of the wall-building material, size ≥ DN + 150 mm.

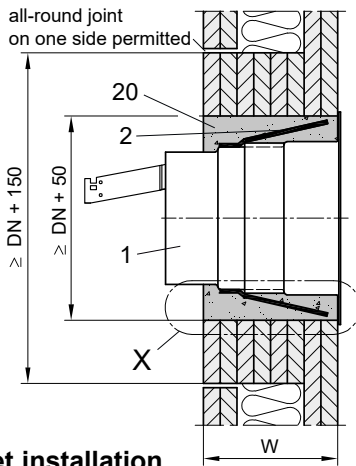
**Dry installation** requires exact-fitting holes  $\varnothing D1$ .

Installation openings DN [mm]	100	125	160	200
• for wet installation Round or square opening	150	175	210	250
• (Core) hole $\varnothing D1$ [mm] Dry installation with wall infill	120	142	180	220
	Tolerance + 2 mm			

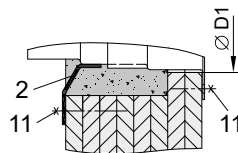
### Installation examples

The fire protection valves are shown here without valve discs.

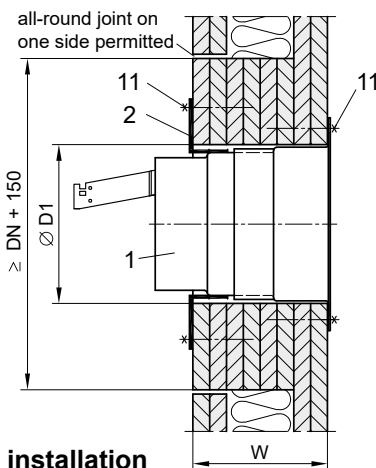
Dimensions in mm



**Wet installation**



**X alternative**  
Wall anchor (2) turned, mortared and fastened with screws (11) at the rear.



**Dry installation**

- 1 Integrated duct
- 2 Wall anchor on integrated duct
- 11 Screws min. 4 x 45 mm  
8 pcs. Drywall screws 4 x 45 mm are included in the scope of delivery of the fire protection valves
- 20 Gap filling with mortar

# BV90 fire protection valves

Installation in metal stud walls clad on both sides (2) Installation with installation tube

**Minimum thicknesses W [mm]** for the installation of BV90 fire protection valves:

Required fire resistance period in minutes	30, 60, <b>90</b>
Metal stud walls with at least 2 layer cladding on both sides	<b>70 mm</b> to <b>110 mm</b>

The fire protection valves must be installed with spacing of  $\geq 200$  mm between the integrated ducts (1).

The **metal stud walls** must be made up of at least 2 x 12.5 mm DF gypsum boards according to EN 520 or equivalents. The walls may be without or with mineral wool filling.

The **installation** of the installation pipes requires precisely fitting boreholes  $\varnothing D2$ .

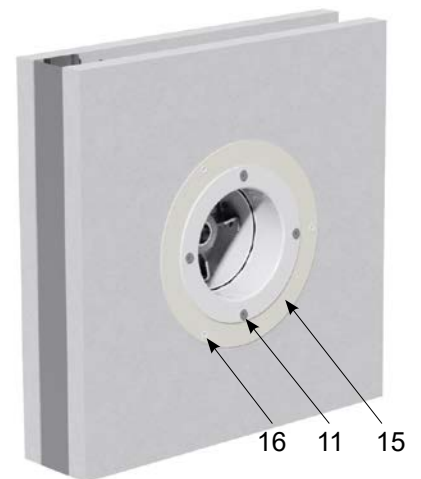
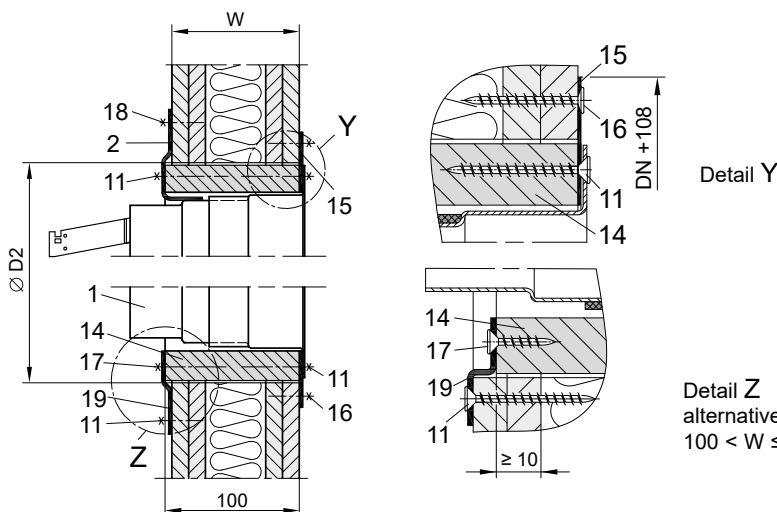
The mounting supports (1), mounting pipes (14) and cover plates (15) must be fastened with screws (11) or (16)!

Installation openings DN [mm]	100	125	160	200
• (Core) hole $\varnothing D2$ [mm] for dry installation with installation pipe	160	185	220	260
		Tolerance + 2 mm		

Dimensions in mm

## Installation examples

The fire protection valves are shown here without valve discs.



**Front installation view**  
shown without valve disc!



**Rear installation view**

- 1 Integrated duct
- 2 Wall anchor on integrated duct
- 11 Screws min. 4 x 45 mm 8 pcs. Drywall screws 4 x 45 mm are included in the scope of delivery of the fire protection valves

- 14 **Installation pipe** made of mineral building material  $\Rightarrow$  Pages 3, 13, 14
  - 15 Steel cover plate, painted, pure white colour - RAL 9010
  - 16 Pan head screw 4 x 40 mm, lacquered, pure white colour - RAL 9010
  - 17 Drywall screws 4 x 25 mm
  - 18 Drywall screws 4 x 45 mm
  - 19 Additional wall anchors
- Items 15 to 19 are included in the scope of delivery of the installation pipe (14).

Sizes DN		100	125	160	200
additional wall anchors (19) to the installation pipe (14)	Pieces	3	3	4	4

# BV90 fire protection valves

Installation in suspended or self-supporting, independently fire-resistant suspended ceilings (1)

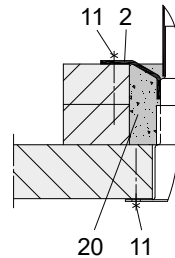
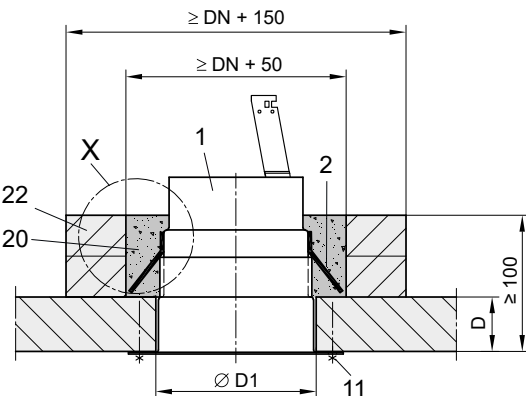
## Suspended ceilings made of screwed and trowelled slab building materials and slab ceilings as inlaid constructions with fire resistance classes F30, F60 or F90

Building materials of the suspended ceilings can be, for example, calcium silicate (Promat), vermiculite (Miprotec), gypsum (Rigips, Knauf, etc.).

The suspended ceilings must comply with a general building authority test certificate (AbP) or be designed in accordance with DIN 4102-4.

### Installation examples

The fire protection valves are shown here without valve discs.



### Installation openings for DN [mm]

	100	125	160	200
• for wet installation Round or square opening	150	175	210	250
	DN + approximately 50 mm			
• hole Ø D1 [mm] for dry installation	120	142	180	220
	Tolerance + 2 mm			

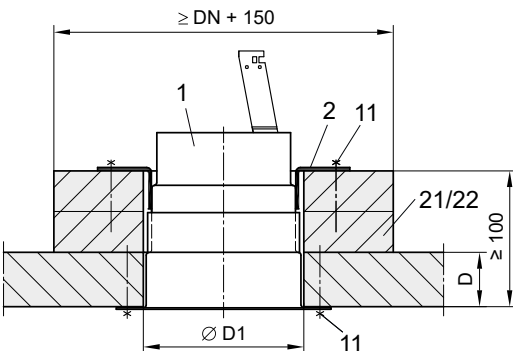
The fire protection valves must be installed with spacing of  $\geq 200$  mm between the integrated ducts (1).

Dimensions in mm

### X alternative

Wall anchor (2) turned, mortared and fastened with screws (11) at the rear or on both sides.

### Wet installation



### Dry installation

In the area of the installation openings, the **suspended ceilings** are to be doubled up to  $\geq 100$  mm with panels  $\geq DN + 150$  mm made of ceiling construction material (22).

**Chuck plates** (21), 30 mm and 50 mm, can also be used.

For wet installation, their installation openings must be enlarged to  $\geq DN + 50$  mm!

Doubles and suspended ceilings must be properly screwed together.

1 Integrated duct

2 Wall anchor on integrated duct

11 Drywall screw 4 x 45 mm

20 Gap filling with mortar

21 **Chuck plates** 30 mm or 50 mm thick.

⇒ Pages 3, 4

22 Multi-layer screwed slab building materials made of ceiling material

# BV90 fire protection valves

Installation in suspended or self-supporting, independently fire-resistant suspended ceilings (2)

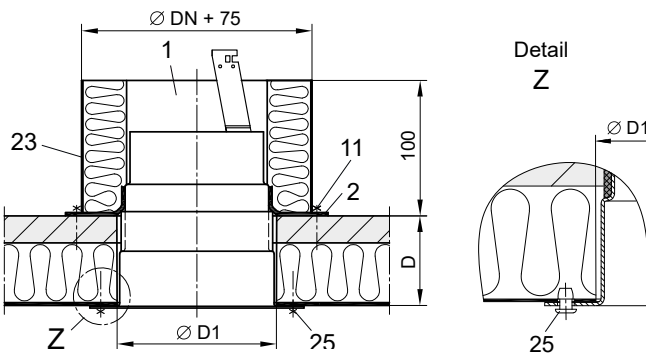
**Metal ceilings and suspended ceilings made of other building materials** with fire resistance classes F30, F60, F90. The suspended ceilings must comply with a general building inspection test certificate (AbP) or be CE-marked.

## Installation examples

The fire protection valves are shown here without valve discs.

### F30 metal ceilings

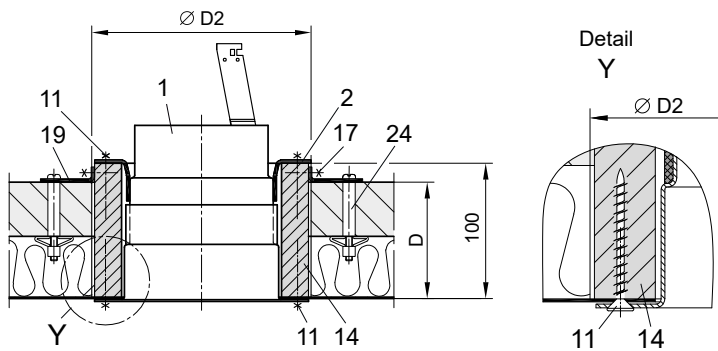
Spans ≤ 3 m and D ≥ 58 mm



Example: LINDNER type 1, 3 to 11

### F90 metal ceilings

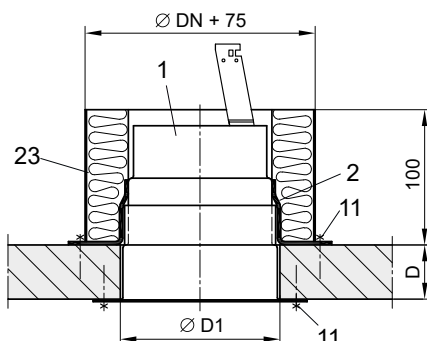
Spans ≤ 2.60 m, widths ≤ 400 mm and D ≥ 86 mm



Example: LINDNER type 2

### F30 suspended ceilings made of mineral building materials

with elements ≤ 625 x 1250 mm or with spans ≤ 1800 mm and widths ≤ 400 mm, D ≥ 40 mm.



Example: OWAcoustic - barrier and AMF

## Installation openings

for DN [mm]	100	125	160	200
• Borehole Ø D1 [mm] for dry installation	120	142	180	220
	Tolerance + 2 mm			
• Borehole Ø D2 [mm] for dry installation with installation pipe	160	185	220	260
	Tolerance + 2 mm			

These fire protection valves must be installed with spacing of ≥ 500 mm between the integrated ducts (1).

5 kg additional load is permitted per ceiling element.

Dimensions in mm

- 1 Integrated duct
  - 2 Wall anchor on integrated duct
  - 11 Screws min. 4 x 45 mm  
8 pcs. Drywall screws 4 x 45 mm are included in the scope of delivery of the fire protection valves
  - 23 Insulating jacket
  - 24 Cavity dowels (on-site)
  - 25 Steel cup blind rivet, 4 mm (on-site)
  - 14 **Installation pipe** made of mineral building material
- ⇒ Pages 3, 11, 14
- 17 Drywall screws 4 x 25 mm
  - 19 Additional wall anchors
- Items 15 to 19 are included in the scope of delivery of the installation pipe (14).

# BV90 fire protection valves

Installation / Maintenance / Electrical connections / Ordering data

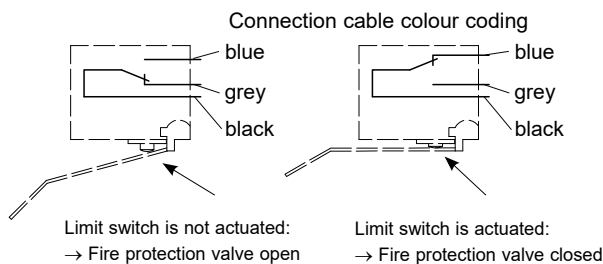
## Installation

- BV90 fire protection valves must be installed based on the instructions in this user manual.
- In addition, the relevant technical rules and regulations under national law for ventilation systems must be observed, in particular for the introduction of forces and loads.
- To compensate for elongation in case of fire, the fire protection valves should be elastically connected to ventilation ducts.

Elastic connecting pieces with a length of at least 10 cm when installed should be made of normally flammable building material (B2 according to DIN 4102-1) or of Aluflex pipe.

- Connect the **limit switch** (item 9) electrically

Electrical wiring must be installed on site.



## Functional testing/servicing

- BV90 Fire protection valves must be kept operational and maintained by the owner of the ventilation system.
- They are to be viewed regularly and checked if necessary.

The valve disc can be removed from the mounting spigot for this purpose. ⇒ page 2

If inspections reveal deficiencies, the causes must be investigated and remedied. Original spare parts must be used for repairs and maintenance.

- Cleaning work required in ventilation systems for hygiene reasons must be performed in an operation-dependent manner, and also includes the fire protection valve.
- An **operating manual** for the BV90 fire protection valve, series BV92, is available on the internet.

⇒ [www.wildeboer.de](http://www.wildeboer.de)

## Ordering:

**Sizes:** 100, 125, 160, 200

⇒ page 3

**Option: Limit switch**

⇒ page 3

**Option: Backing board**

50 mm thickness

30 mm thickness

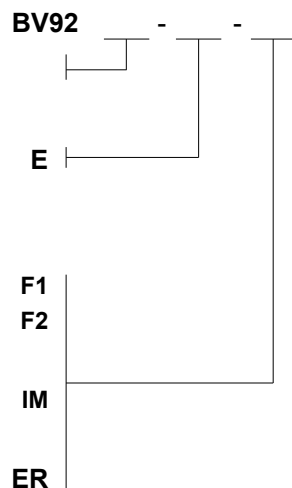
⇒ pages 3, 9, 12

**Option: Insulating jacket**

⇒ pages 3, 13

**Option: Installation pipe**

⇒ pages 3, 11, 13



When installing the BV90 fire protection valves in independently fire-resistant suspended ceilings, the installing contractor (installer) should issue the building owner with a declaration of conformity for professional installation and attach an identification plate to the suspended ceiling with the following information:

- Shut-off device type BV90
- Name (or code number, if applicable) of the installer who installed the shut-off device.
- if applicable, name of the installer.
- No. of the type approval Z 41.8 - 697
- Year of manufacture:

Forms for the declaration are available on the internet at [www.wildeboer.de](http://www.wildeboer.de).

# BV90 fire protection valves

## Specification text

Maintenance-free fire protection valve according to EN 15650 with declaration of performance and CE marking, up to 90-minute fire resistance period and fire classifications EI90 (ve - ho, i ↔ o) S, K30U and K90U. Maintenance-free: Due to complete enclosure of the operation unit and the release element, no function-preserving cleaning or recurring lubrication and adjustment is necessary. For supply air (radial wall, ceiling or free stream) and exhaust air. For wet and dry installation in solid walls and ceilings, in metal stud walls, shaft walls and in independently fire-resistant suspended ceilings made of panel building materials, drop-in ceilings and in metal ceilings. Valve disc and mounting spigot powder-coated coloured RAL 9010. Hermetically encapsulated release element 70°C made of stainless material. Stepless volume flow adjustment. Certificate as proof of conformity with the hygiene requirements according to VDI 6022-1, VDI 3803-1, DIN 1946-4, DIN EN 16798-3, SWKI VA104-01, SWKI VA105-01, ÖNORM H6020 and ÖNORM H6021.

- Accessories:
- Electrical limit switch for CLOSE signalling.
  - Lining panels 30 mm / 50 mm for walls and suspended ceilings.
  - Installation pipe for walls and suspended ceilings
  - Insulating jacket for suspended ceilings.

..... **Pc.**

**Size:** DN ..... mm  
**Volume flow:** ..... m<sup>3</sup>/h  
**Pressure drop:** ..... Pa  
**Sound power level:** ..... dB(A)  
**Manufacturer:** WILDEBOER  
**Type:** BV90 (series BV92)  
**Supply and install complete with fastenings and other accessories.**  
**deliver:.....**  
**install:.....**

Select texts not highlighted in bold as required!

**WILDEBOER®**

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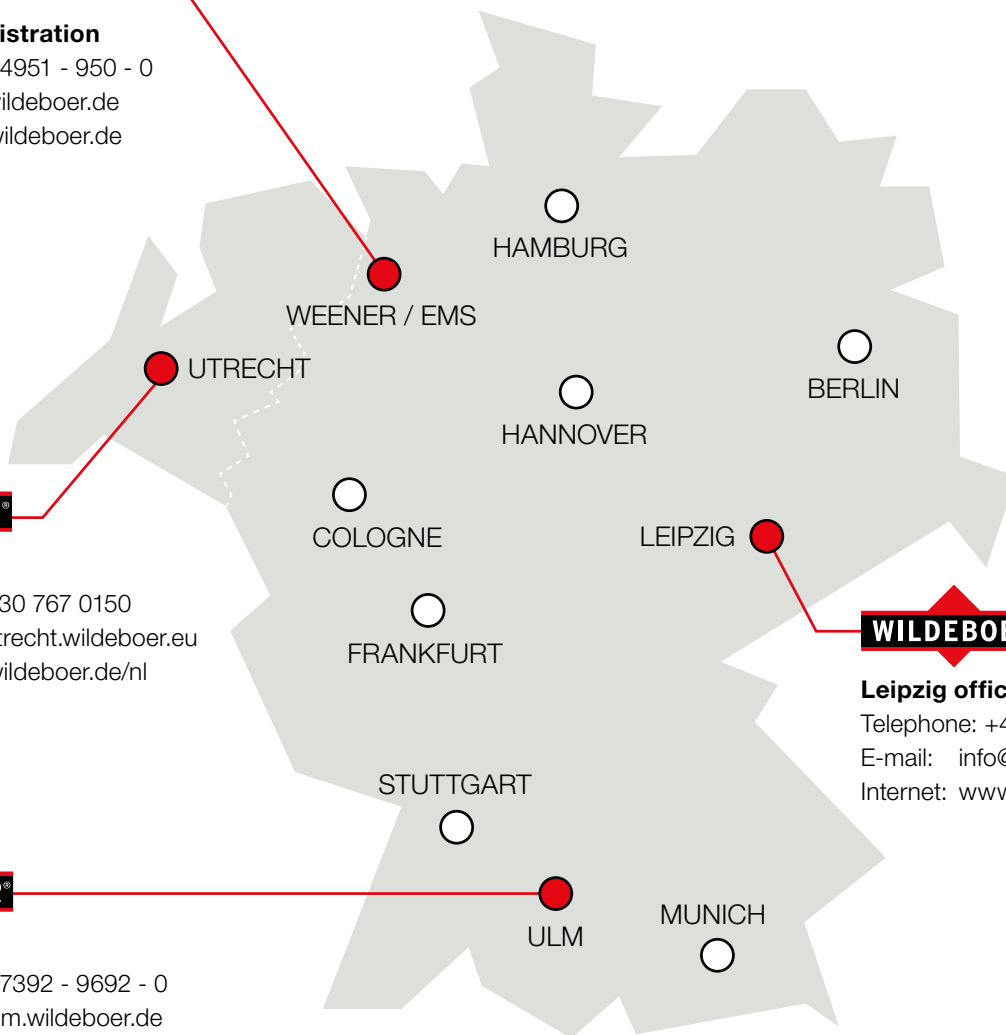
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