

# strulik

## Damper BTZ-2-K90

Test certificate  
Z-41.3-549

Resistance class K90/K30 in  
accordance with DIN 4102-6

### Important features

- The Strulik BTZ-2-K90 damper ideally combines the function of an infinitely variable supply and exhaust air valve with the fully effective properties of a damper having a K90 resistance class.
- The damper is mounted directly into the fire-protected zone. Thus the disk valve itself guarantees the effectiveness of fire protection.
- No special fixing arrangements are required (i.e. saving of time and high economy).
- Strulik dampers may even be mounted subsequently into ventilation systems, in order to meet the effective fire prevention requirements.

### Essential features

#### 1/ Safety classification.

- **Official classification:**  
**Resistance class K90**
- Maximum sealing

#### 2/ Low noise level

- Ideal aerodynamic characteristics
- Maximum insulation

- The damper is fully integrated within the disk valve and therefore does not interfere with the through-flow of air (ideal balancing ratio between air volume and noise level).

#### 3/ Adjustment of air volume

- Infinitely variable control of all required air volumes

### Ordering example:

BTZ-2-K90(U)/KKS/100/MS-C

#### Accessories (optional):

- MS-C - electrical limit switch
- VMT - disk valve for overflow opening

NW 100/125/160 or 200

#### Mounting frame for installation into:

- KKS - light partitions, brickwork or concrete floors
- KKL - as above, however lengthened, L = 140 mm
- KKL-ZX - F30/F90 supplement floors, shaft walls or classified ducts, L = 140 mm
- KKS-ZX - as above, however in short version for a floor thickness ≤ 30 mm
- ED-2 - solid walls (dry mounting)
- ED-Z2 - massive floors and supplement floors (dry mounting)
- EW-L2 - light partition walls (dry mounting)

For the installation into a F30/F90 supplement floor. If the mounting frame and floor thickness have not been specified, the KKL-ZX will be delivered with loose angles for fastening.



### DEUTSCHES INSTITUT FÜR BAUTECHNIK

Anstalt des öffentlichen Rechts

10829 Berlin, 6. März 1998  
Kolonnenstraße 30  
Telefon: (0 30) 7 87 30 - 344  
Telefax: (0 30) 7 87 30 - 320  
GesamZ.: 01 15-1 41 3-43/96

#### Allgemeine bauaufsichtliche Zulassung

Zulassungsnummer: Z-41.3-549

Antragsteller: Strulik GmbH  
Neesbacher Straße 13  
65597 Hürth-Eichen-Dauborn

Zulassungsgegenstand: Abperrvorrichtungen gegen Brandübertragung in Lüftungsleitungen  
Typ: BTZ Die Abperrvorrichtungen haben verwendungsbedingt die Feuerwiderstandsklasse K90, K30, K90-U oder K30-U

Geltungsdauer bis: 6. März 2003

Der obengenannte Zulassungsgegenstand wird hiermit allgemein bauaufsichtlich zugelassen.  
Diese allgemeine bauaufsichtliche Zulassung umfasst acht Seiten und 15 Anlagen.

### Safety

The Strulik BTZ-K90 dampers have been submitted to many test series in Germany and abroad. These test series did not only include the effectiveness of FIRE PROTECTION and FLAME TIGHTNESS, but also the STABILITY OF FLAMES and the correct functioning of the FUSIBLE LINK (see additional test certificate from the "Verband der Sachversicherer" in Cologne).

In Germany the damper has been tested against fire and smoke in accordance with the principles of construction and testing of the "Deutsches Institut für Bautechnik" in Berlin.

The expert opinion for a K90 resistance class has been prepared by the "Institut für Haustechnik" of the Technical University of Munich.

VdS in Cologne has prepared the test report on the release mechanism for an activation temperature of 72 °C in accordance with DIN 4102.

**strulik**

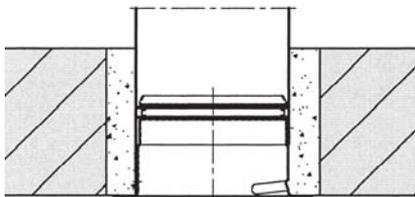
**Damper  
BTZ-2-K90**

Test certificate  
Z-41.3-549

Resistance class K90/K30

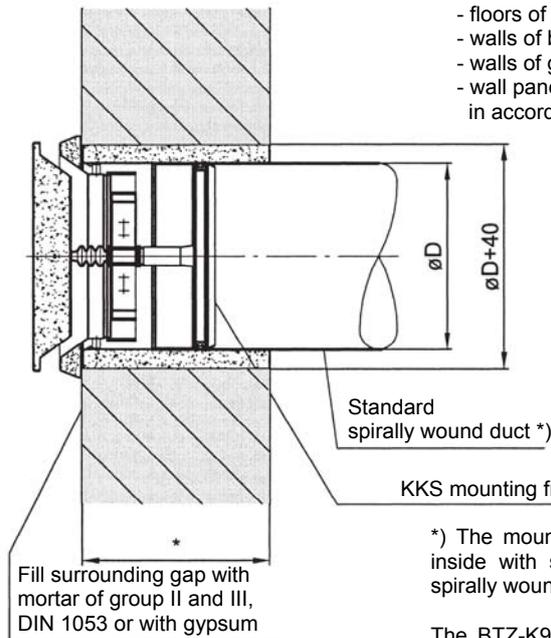
For the installation into  
brickwork or a concrete floor

**Installation detail:  
KKS mounting frame**



WFR plastered  
flush with the  
wall or floor

WFR connection  
at the rear third  
section



- \* Installation into
  - floors of concrete (min. 100 mm)
  - walls of brickwork (min. 115 mm)
  - walls of gas-formed concrete (min. 100 mm)
  - wall panels (min. 80 mm)in accordance with DIN 18163

D = NW 100 mm  
125 mm  
160 mm  
200 mm

\*) The mounting frame shall be riveted from the inside with steel rivets 3x6 within the standard spirally wound duct.

The BTZ-K90 damper shall be properly installed together with the supplied steel mounting frame.

A subsequent installation is also possible, if the installer has mounted a spirally wound duct flush with the wall and with 20 mm mortar or gypsum, the KKS mounting frame of the BTZ-K90 has been inserted into the WFR and riveted with at least three steel rivets 3x6 that are staggered by 120°.

**With overflow openings  
Installation for K90**

The mounting frame shall be lengthened by 1,5 x d.

100  $\varnothing$  L = 70 + 150 = 220 mm

125  $\varnothing$  L = 70 + 185 = 255 mm

160  $\varnothing$  L = 70 + 240 = 310 mm

200  $\varnothing$  L = 70 + 300 = 370 mm

Without extension resistance class K30.

Instead of the duct extension 1,5 x d, a VMT steel disk valve or metal-mesh grid, mesh size  $\leq 20$  mm<sup>2</sup> can be used to achieve the K90 resistance class without ventilation ducts. Please note that the release length is ca. 148 mm!

Lengthened mounting frame for installation as overflow opening

Total length of mounting frame

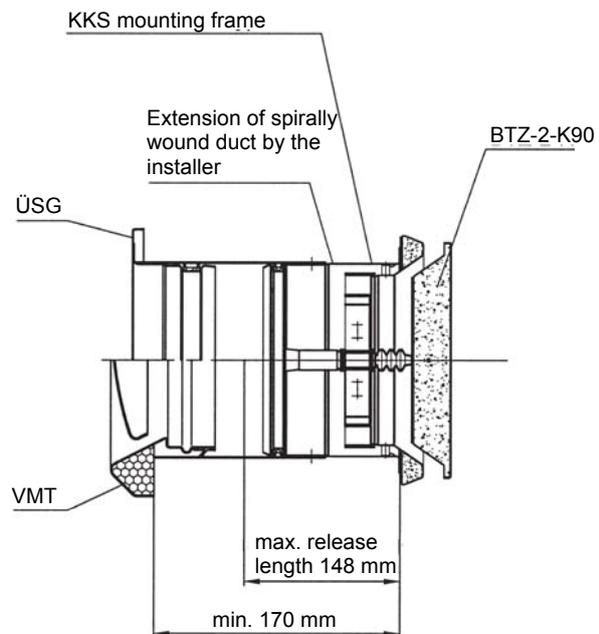
$\varnothing 100 \triangleq L 220$  mm

$\varnothing 125 \triangleq L 255$  mm

$\varnothing 160 \triangleq L 310$  mm

$\varnothing 200 \triangleq L 370$  mm

**Installation example: Overflow opening in brickwork or light partition walls with the VMT disk valve**



**strulik**

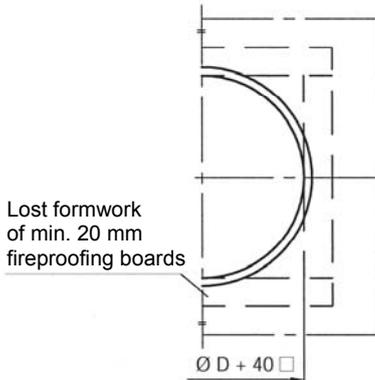
**Damper  
BTZ-K90**

Test certificate  
Z-41.3-549

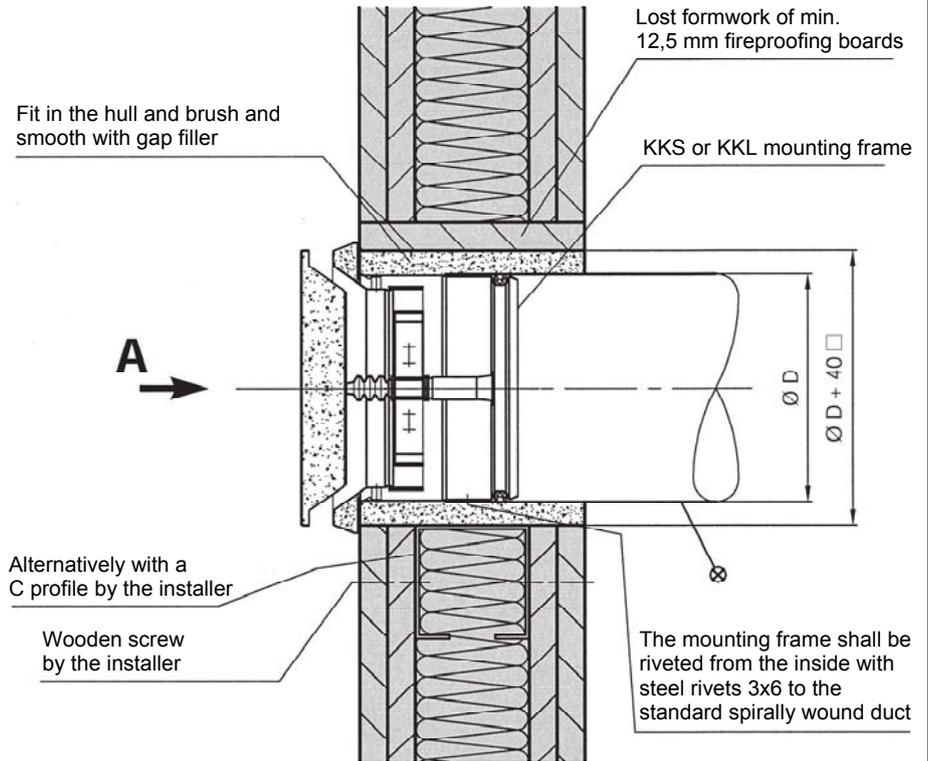
Resistance class K90/K30

For the subsequent installation  
into light F30-F90 partition walls

**Detail A**



**Installation into light partition walls in accordance with DIN 4102-4**



**Damper  
BTZ-K90**

Test certificate  
Z-41.3-549

Resistance class K90/K30

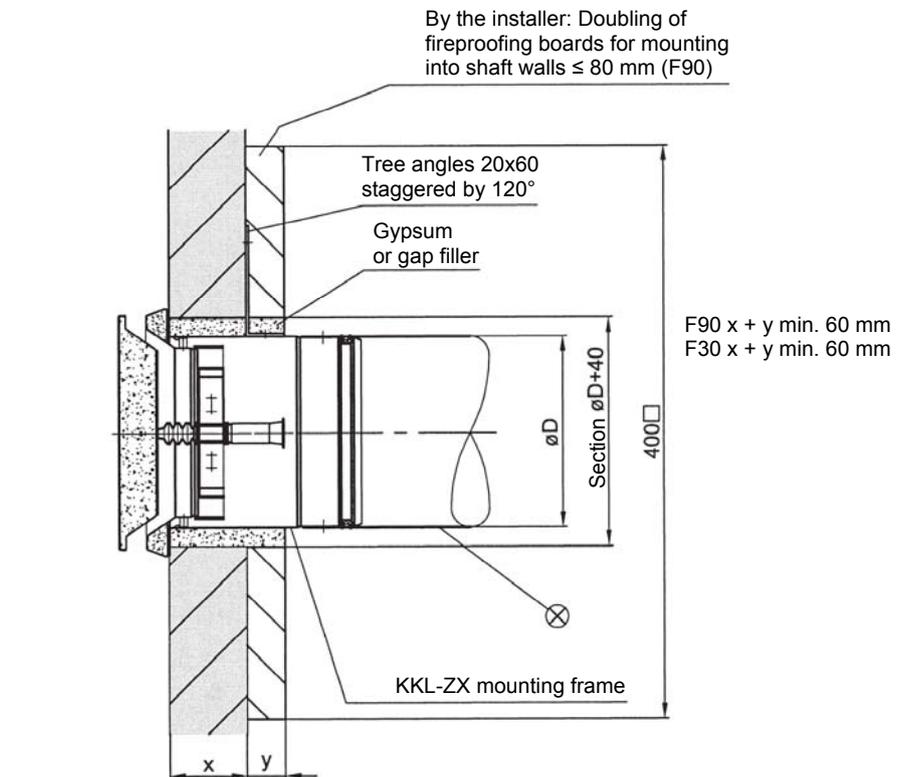
For the installation into F30-F90  
shaft walls

**Permissible ducts** ⊗

The dampers shall only be connected to ventilation ducts, which due to their design or laying, will not apply considerable forces to the dampers as a result of warming.

Ventilation ducts may be connected to dampers with a compensator or spigot of flexible aluminium ductwork that is at least 10 cm long (when installed).

This compensator may also be of standard flammable materials (class B2 according to DIN 4102), if it is directly connected to the specified ventilation duct of non-combustible materials.



x = F30-F90 shaft walls

**strulik**

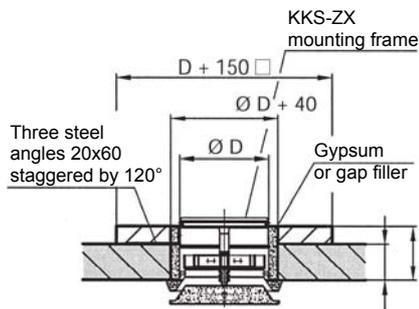
**Damper  
BTZ-2-K90**

Test certificate  
Z-41.3-549

Resistance class K90/K30

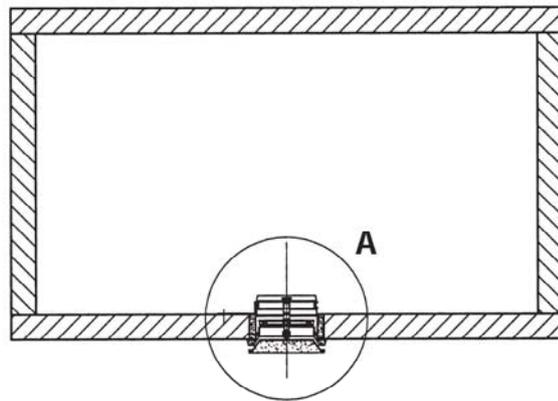
For the installation into  
fire resistant ventilation ducts  
and cable conduits

**Detail A for L30**



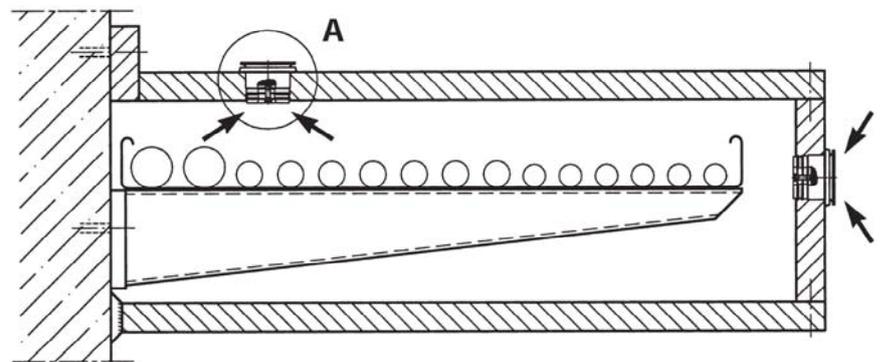
Depending on the wall thickness x, double the dimension y to min. 40 mm in total.

**Installation into fire resistant L30 – L90 ventilation ducts**



**Installation into cable conduits**

L90 drawing



**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K30U

For the installation into F30 fire  
resistant suspended ceilings,  
smoothed and screwed or as  
laid-in floor

**Dimensions**

Ø D	100	125	160	200
-----	-----	-----	-----	-----

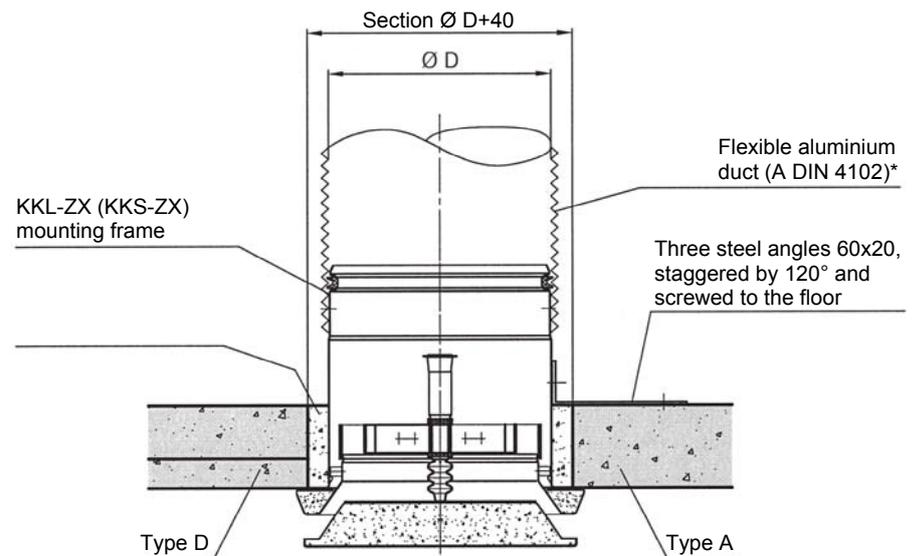
X = according to the required plate thickness of the floor. **Please state when ordering.**

**Technical data**

Installation into suspended F30 ceilings in accordance with the table on page 186 for type A + D and suspended metal ceilings in accordance with the test certificate.

**Installation into fire resistant suspended F30 ceilings**

as a F30 floor, screwed and smoothed, see table on page 186, type D or as a laid-in floor, see table on page 186, type A



\* not part of the scope of delivery

**strulik**

**Damper  
BTZ-2-K90**

Test certificate  
Z-41.3-549

Resistance class K30U

For the installation into  
fire resistant suspended F30  
DUO ceilings as laid-in floor

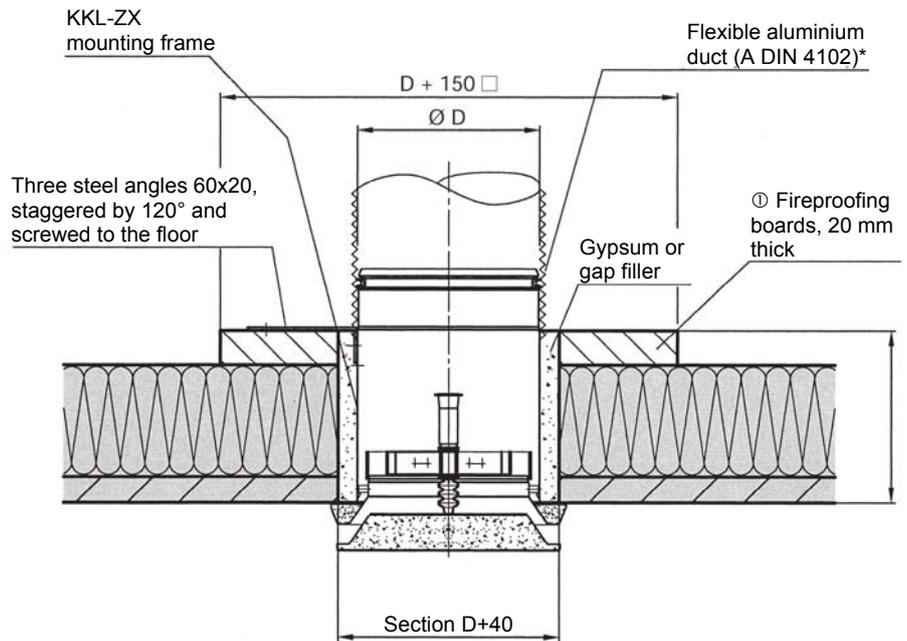
**Dimensions**

Ø D	100	125	160	200
-----	-----	-----	-----	-----

x = according to the required plate thickness of the floor. **Please state when ordering.**

Ⓛ Scope of delivery from Strulik or by the installer.

**Installation of a BTZ-K30U into an OWAcoustic F30 DUO floor as a laid-in floor, see table on page 186, type A**



\* not part of the scope of delivery

**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K30U

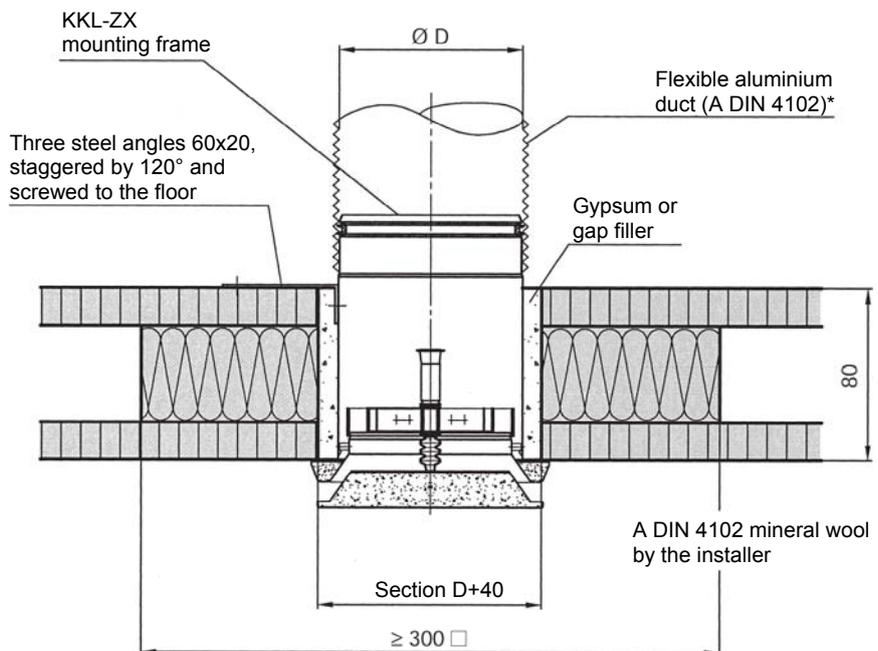
For the installation into  
fire resistant suspended  
F30 ceilings  
Type: BSE30

**Dimensions**

Ø D	100	125	160	200
-----	-----	-----	-----	-----

x = according to the required plate thickness of the floor. **Please state when ordering.**

**Installation of a BTZ-K30U into an OWAcoustic BSE30 floor (self-supporting)**



\* not part of the scope of delivery

**strulik**

**Damper  
BTZ-2-K90**

**Test certificate  
Z-41.3-549**

**Resistance class K30U**

**For the installation into  
suspended metal F30 ceilings**

**Approval of the floors**

in accordance with the test certificates

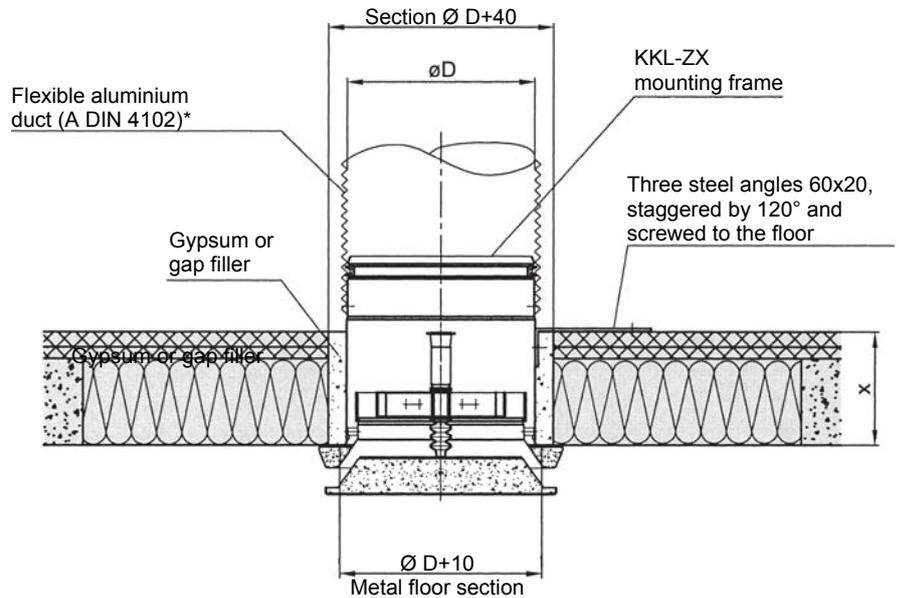
**Dimensions**

Ø D	125	160	200
-----	-----	-----	-----

X = according to the required plate thickness of the floor plus doubling. **Please state when ordering.**

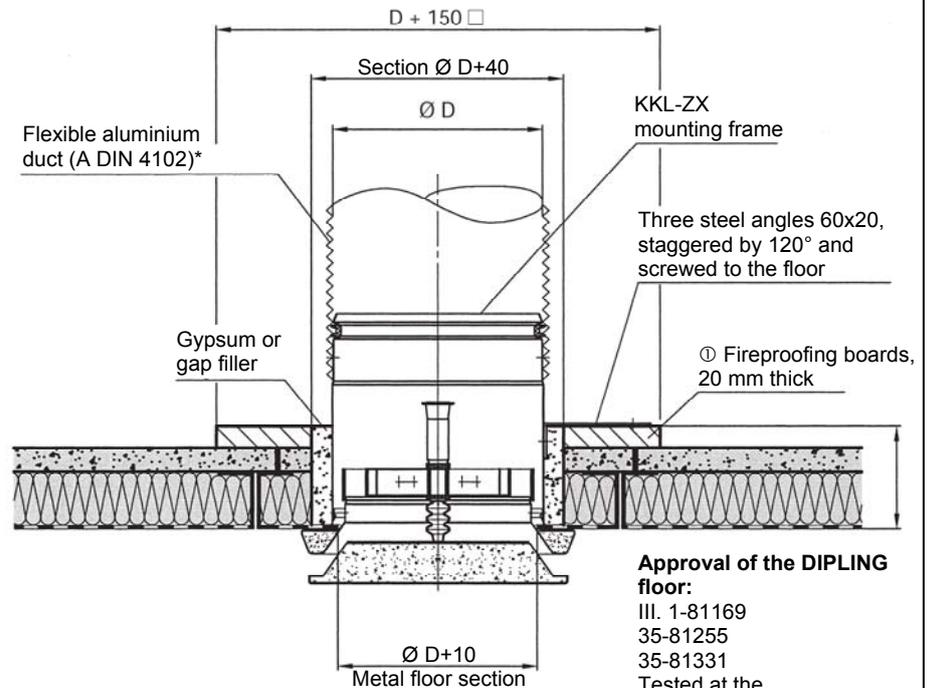
① Scope of delivery from Strulik or by the installer

**Installation into fire resistant suspended F30 ceilings as a metal floor**



\* not part of the scope of delivery

**Installation into fire resistant suspended metal DIPLING F30 ceilings**



**Approval of the DIPLING floor:**  
III. 1-81169  
35-81255  
35-81331  
Tested at the  
FMPA Stuttgart

\* not part of the scope of delivery

**strulik**

**Damper  
BTZ-2-K90**

Test certificate  
Z-41.3-549

Resistance class K90U

For the installation into  
fire resistant suspended  
F90 ceilings

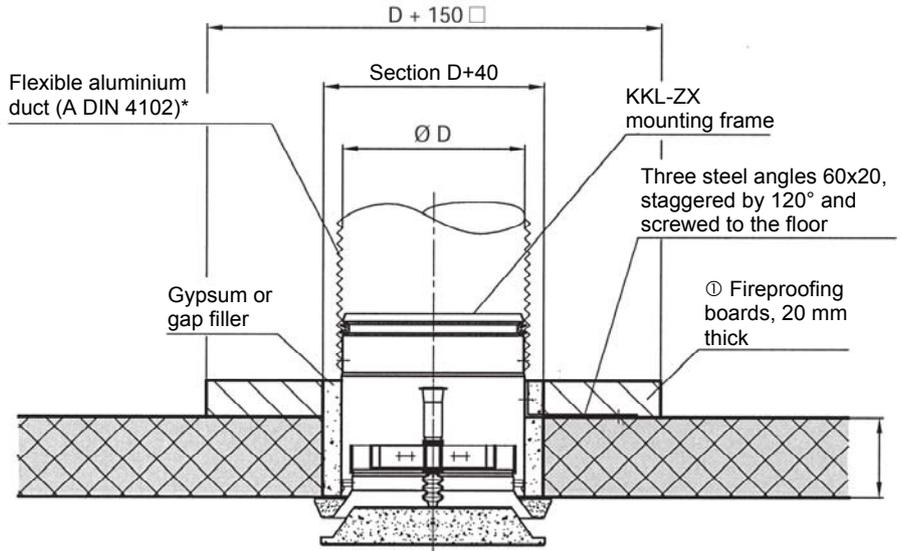
**Technical data**

The installation into a suspended F90 ceiling is performed according to the table on page 186, type E + F

x = according to the required plate thickness of the floor. **Please state when ordering.**

① Scope of delivery from Strulik or by the installer.

**Installation into a fire resistant suspended F90 Ceiling as a screwed and smoothed floor, see the table on page 186, type E + F**



\* not part of the scope of delivery

**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K90U

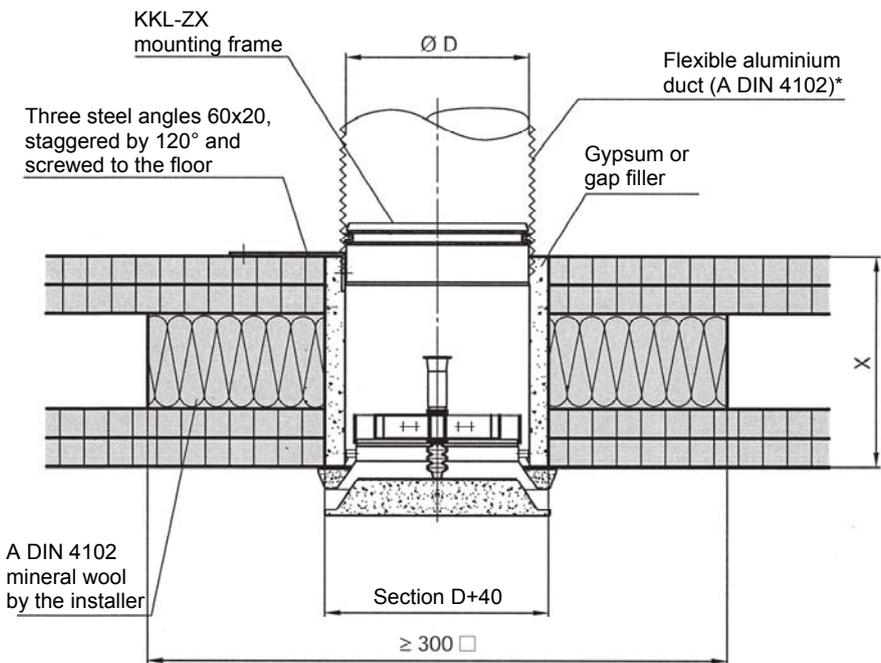
For the installation into  
fire resistant suspended  
F90 ceilings  
Type: BSE90

**Dimensions**

Ø D	100	125	160	200
-----	-----	-----	-----	-----

x = according to the required plate thickness of the floor. **Please state when ordering.**

**Installation of a BTZ-K90U into an OWAcoustic BSE90 floor (self-supporting)**



\* not part of the scope of delivery

**strulik**

**Damper  
BTZ-2-K90**

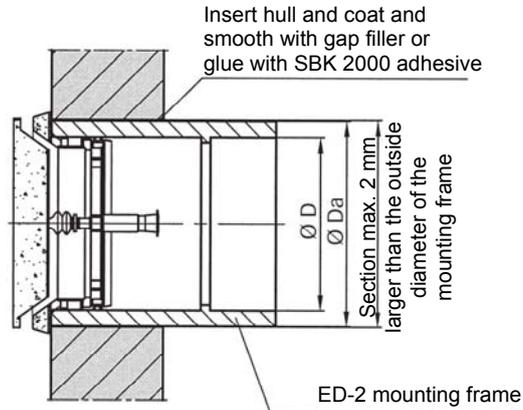
Test certificate  
Z-41.3-549

Resistance class K90/K30

For the installation into a  
solid wall or concrete floor  
Dry construction

Installation into a solid wall with  
the ED-2 mounting frame

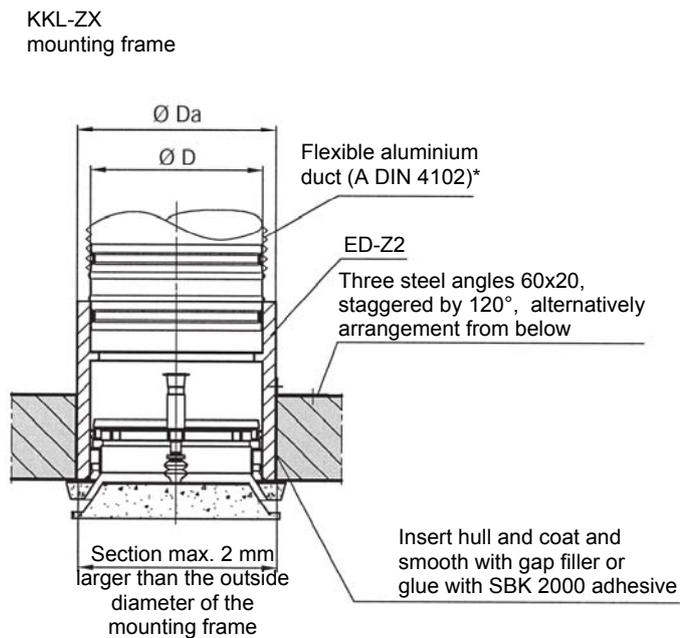
**Installation into solid walls of brickwork, concrete or gas concrete**



ØD	ØDa
100	131
125	156
160	191
200	232

Installation into ceilings with  
the ED-Z2 mounting frame

**Installation into concrete or gas concrete floors  
(dry construction)**



\* not part of the scope of deliver

**strulik**

**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K90/K30

For the installation into light  
F30-F90 partition walls

Dry construction

Mounting frame  
Type: EW-L2

Mounting frame  
Type: ED-2

**Permissible ducts**

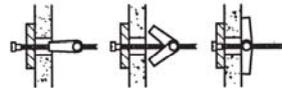
The dampers shall only be connected to ventilation ducts, which due to their design or laying, will not apply considerable forces to the dampers as a result of warming.

Ventilation ducts may be connected to dampers with a compensator or spigot of flexible aluminium ductwork that is at least 10 cm long (when installed).

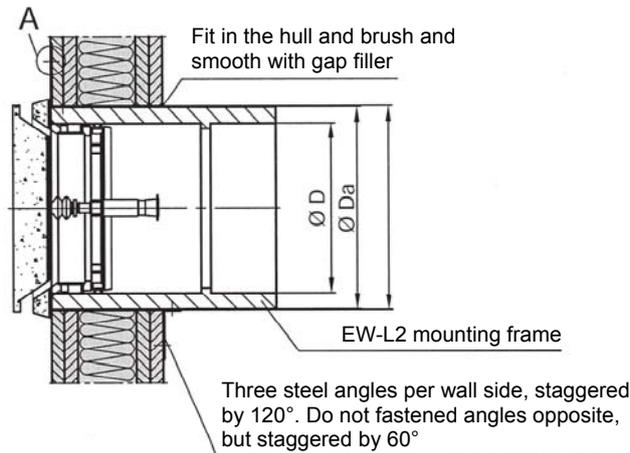
This compensator may also be of standard flammable materials (class B2 according to DIN 4102), if it is directly connected to the specified ventilation duct of non-combustible materials.

**Installation into light F90 partition walls**

Detail A  
Spring folding dowel

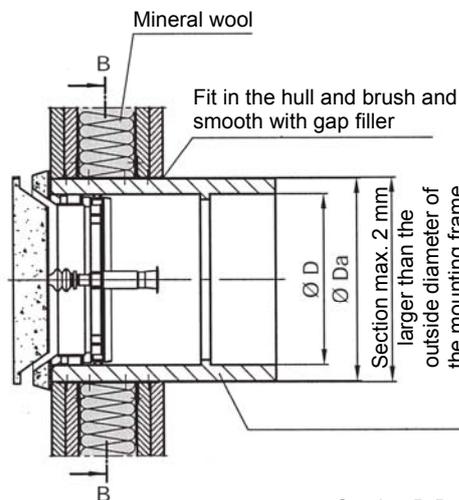


Alternatively instead of spring folding dowels, only fastening with wooden screws 4 x 45 or 4 x 25

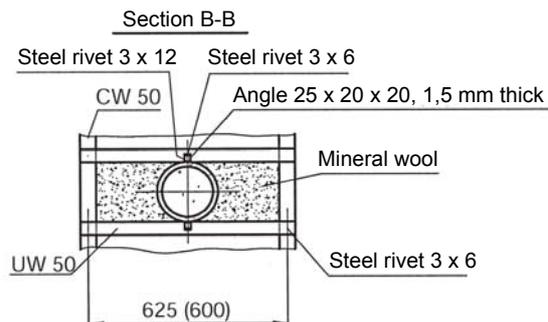


ØD	ØDa
100	131
125	156
160	191
200	232

**Installation into light F90 (F30) partition walls**



ØD	ØDa
100	131
125	156
160	191
200	232



**strulik**

**Damper  
BTZ-2-K90**

Test certificate  
Z-41.3-549

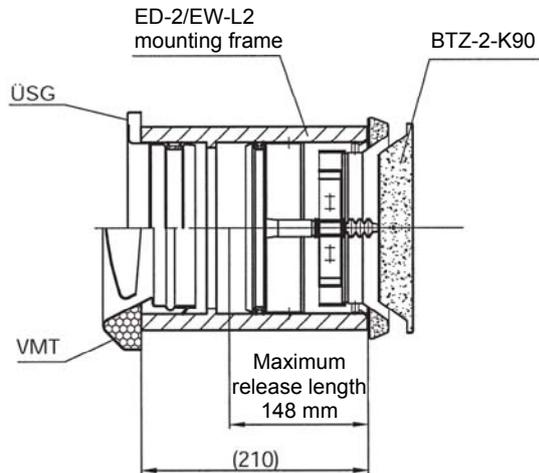
Resistance class K90/K30

Overflow opening

**Installation example as a K90  
overflow opening**

The other side of the BTZ-2 damper shall be covered with a sheet steel VMT disk valve, ÜSG overflow grille or a metal mesh grid, mesh size  $\leq 20$  mm □.

**Installation example: Overflow opening in brickwork or light partition walls together with the VMT disk valve**



**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K30U

For the installation into F30 fire resistant suspended ceilings, smoothed and screwed or as laid-in floor

Dry construction

**Dimensions**

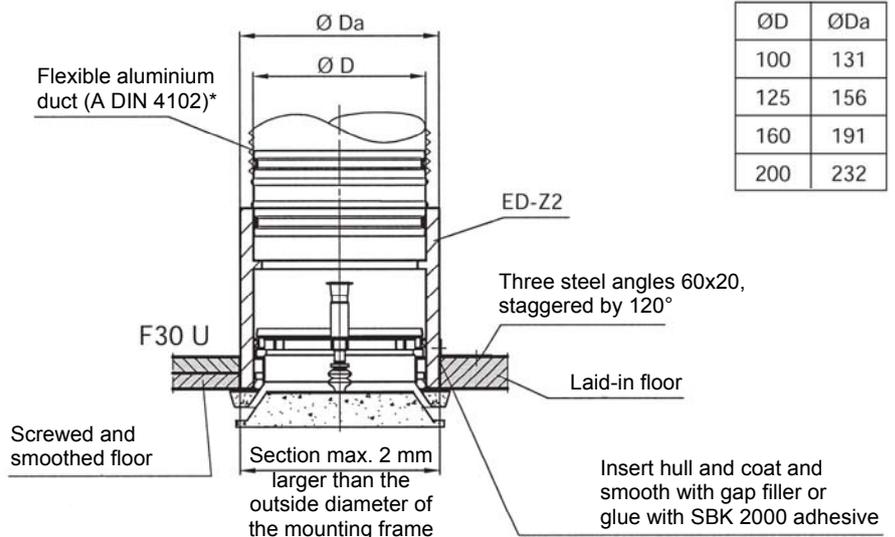
Ø D	100	125	160	200
-----	-----	-----	-----	-----

x = according to the required plate thickness of the floor. **Please state when ordering.**

**Technical data**

Installation into suspended F30 ceilings in accordance with the table on **page 186** for type A + D and suspended metal ceilings in accordance with the test certificate.

**Installation into independent, classified F30U supplement floors**



\* not part of the scope of delivery

**strulik**

**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K30U

For the installation into fire resistant suspended F30 DUO ceilings as a laid-in floor

Dry construction

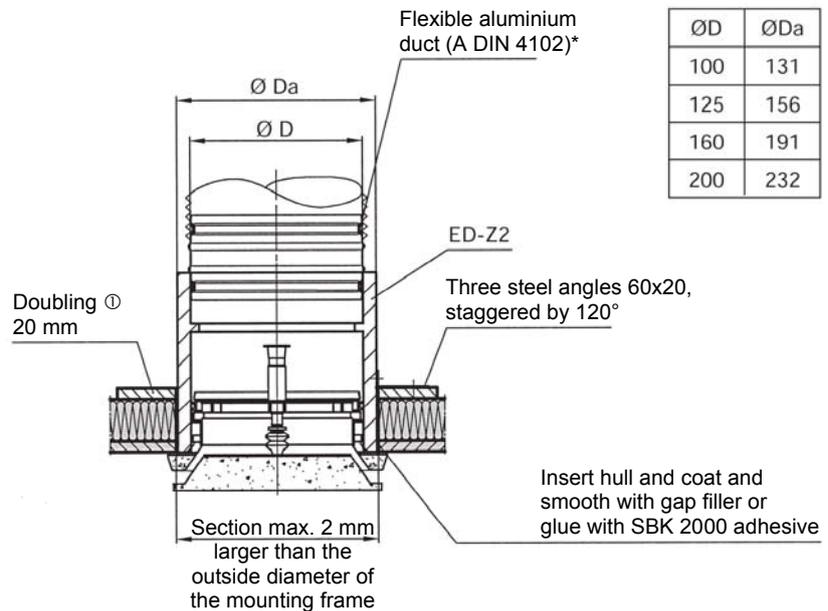
**Dimensions**

Ø D	100	125	160	200
-----	-----	-----	-----	-----

x = according to the required plate thickness of the floor. **Please state when ordering.**

Ⓛ Scope of delivery from Strulik or by the installer.

**Installation into an OWAacoustic F30 DUO ceiling as a laid-in floor**



\* not part of the scope of delivery

**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K30U

For the installation into fire resistant suspended F30 ceilings  
Type: BSE30

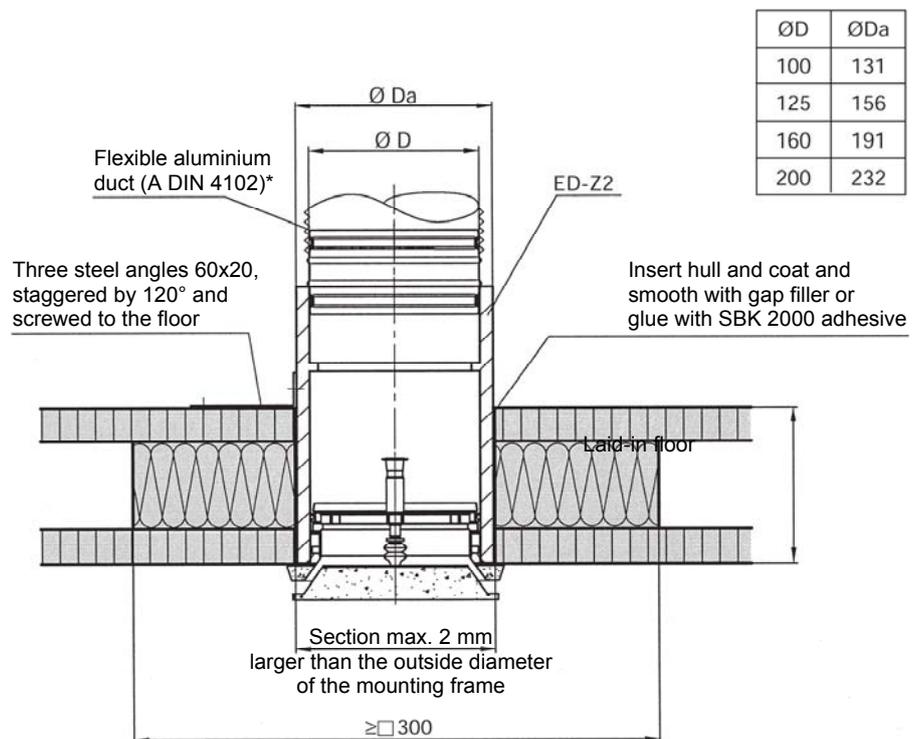
Dry construction

**Dimensions**

Ø D	100	125	160	200
-----	-----	-----	-----	-----

x = according to the required plate thickness of the floor. **Please state when ordering.**

**Installation of a BTZ-2-K30U into an OWAacoustic BSE30 ceiling (self-supporting)**



\* not part of the scope of delivery

**strulik**

**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K30U

For the installation into  
suspended metal F30 ceilings

Dry construction

**Approval of the floors**

in accordance with the test certificates

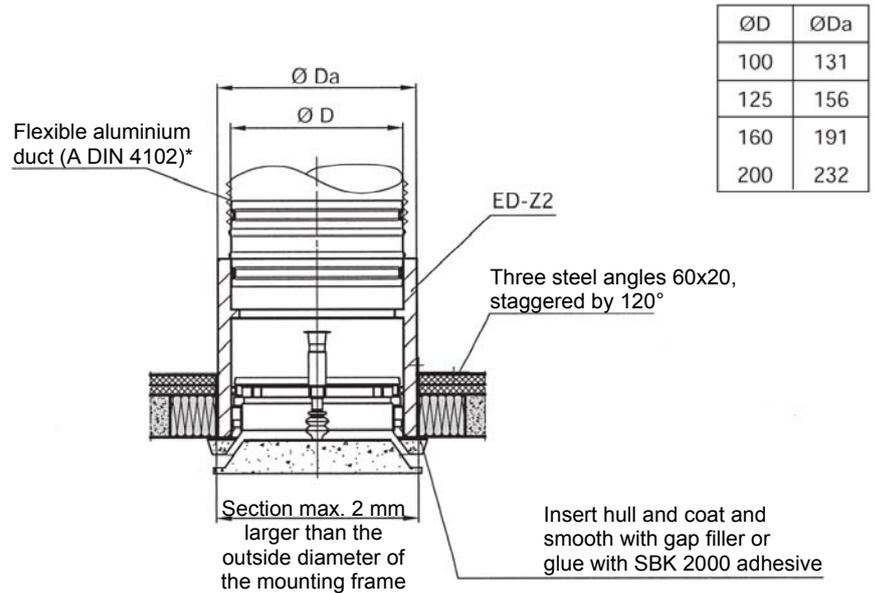
**Dimensions**

Ø D	100	125	160	200
-----	-----	-----	-----	-----

x = according to the required plate thickness of the floor. **Please state when ordering.**

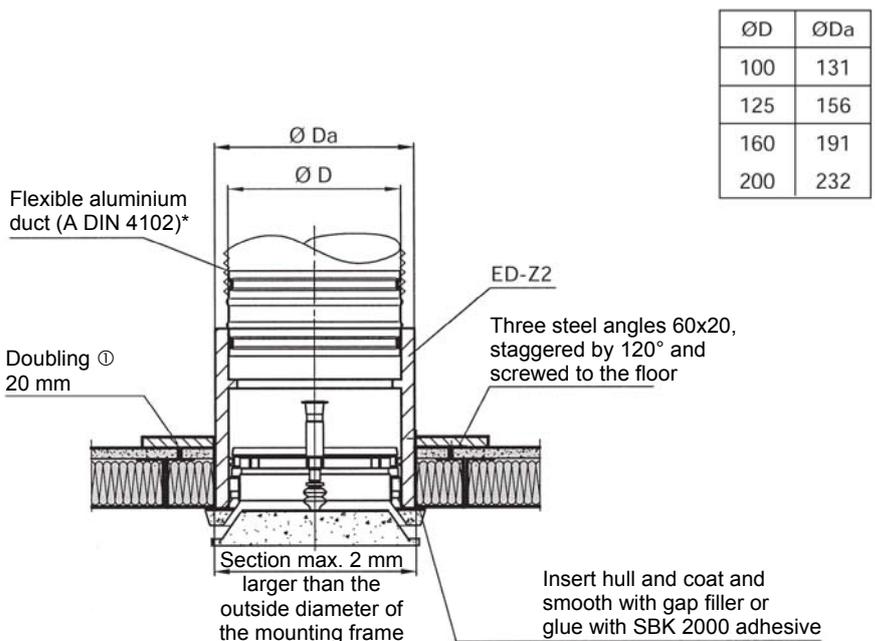
Ⓛ Scope of delivery from Strulik or by the installer.

**Installation into fire resistant, suspended F30 ceilings as a metal floor**



\* not part of the scope of delivery

**Installation into fire resistant suspending metal F30 DIPLING ceilings**



\* not part of the scope of delivery

**strulik**

**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K90U

For the installation into fire resistant suspended F90 ceilings

Dry construction

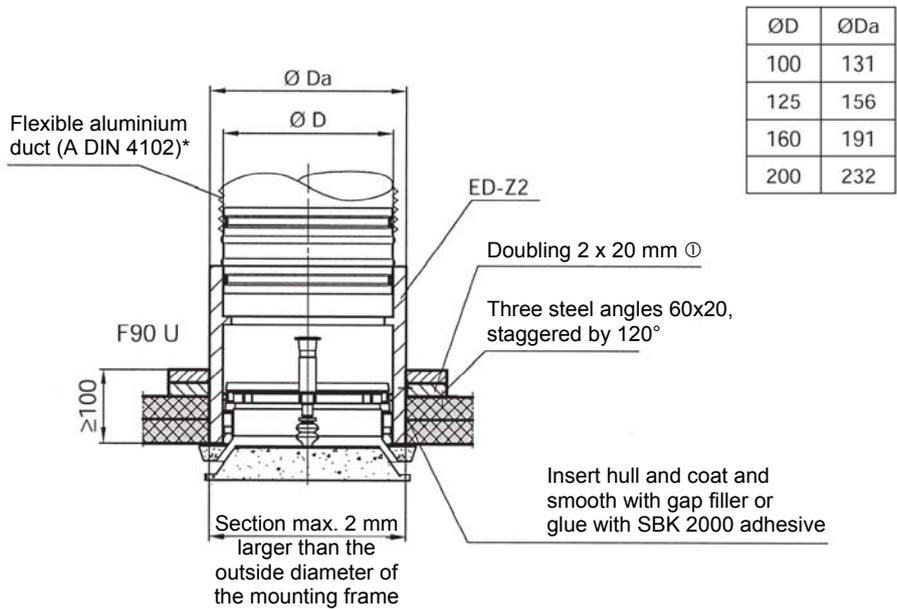
**Technical data**

Installation into suspended F90 ceilings in accordance with the table on page 186, type E + F

x = according to the required plate thickness of the floor. **Please state when ordering.**

Ⓞ Scope of delivery from Strulik or by the installer.

**Installation into independent, classified F90U supplement floors**



\* not part of the scope of delivery

**Damper  
BTZ-2-K90**

Test certificate Z-41.3-549

Resistance class K90U

For the installation into fire resistant suspended F90 ceilings  
Type: BSE30

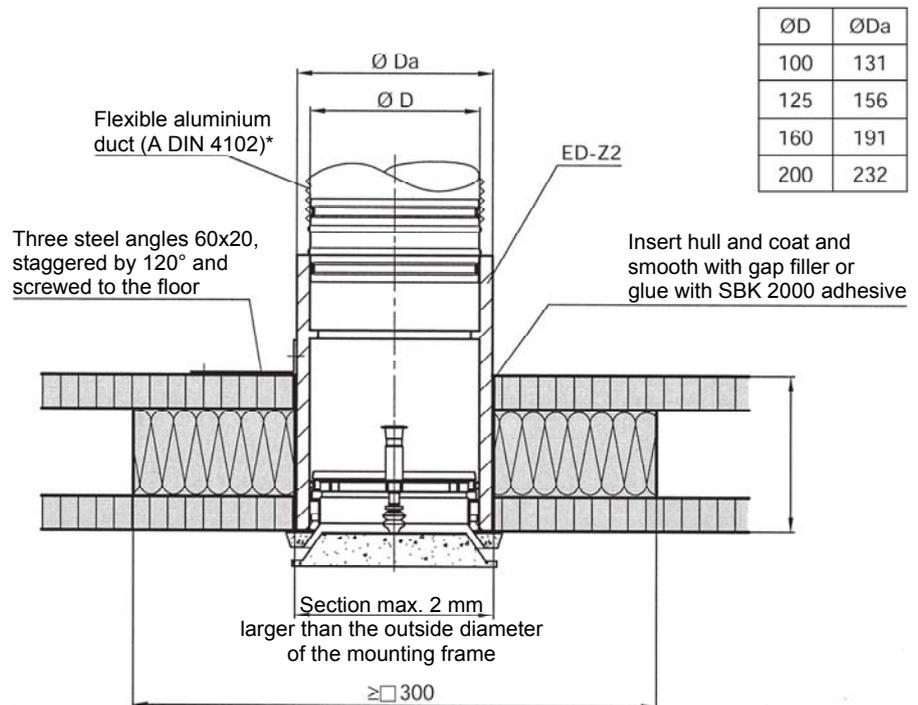
Dry construction

**Dimensions**

Ø D	100	125	160	200
-----	-----	-----	-----	-----

x = according to the required plate thickness of the floor. **Please state when ordering.**

**Installation of a BTZ-2-K90U into an OWAcoustic BSE30 ceiling (self-supporting)**



\* not part of the scope of delivery

**strulik**

**Damper  
BTZ-2-K90**

**Test certificate  
Z-41.3-329**

**Resistance class K90/K30**

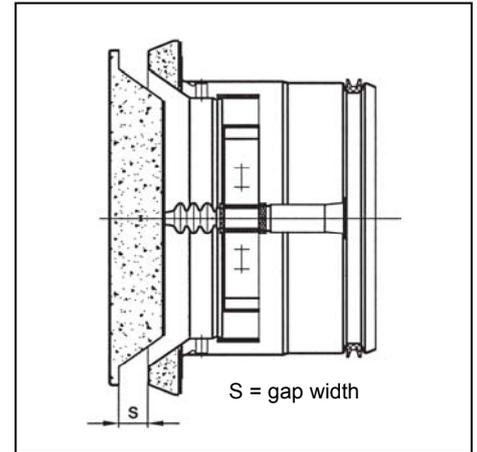
**Design diagrams**

**Pressure drop and noise level**

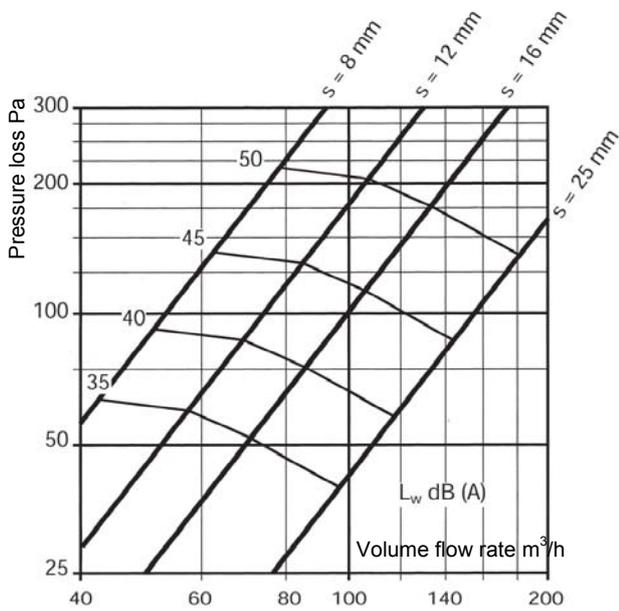
**Supply air**

**Adjustment of air volume**

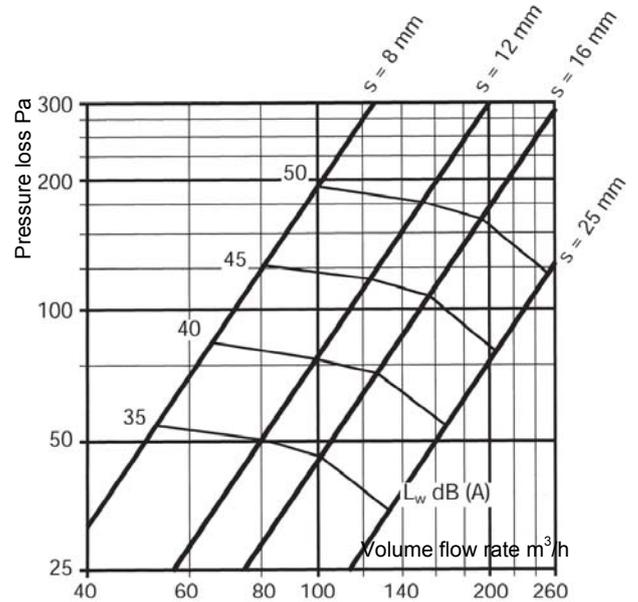
The Strulik damper allows an infinitely variable control of any required air volume. The adjustment is made according to the accompanying diagram. The valve core is locked with a counter nut in the chosen position.



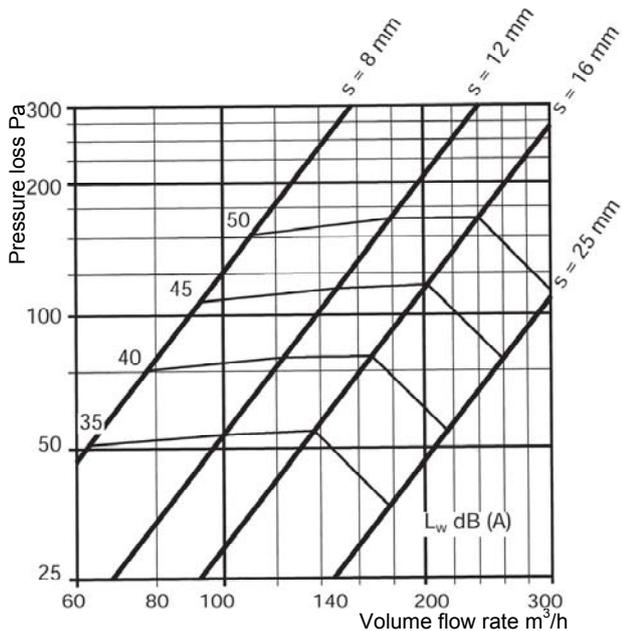
**DN 100**



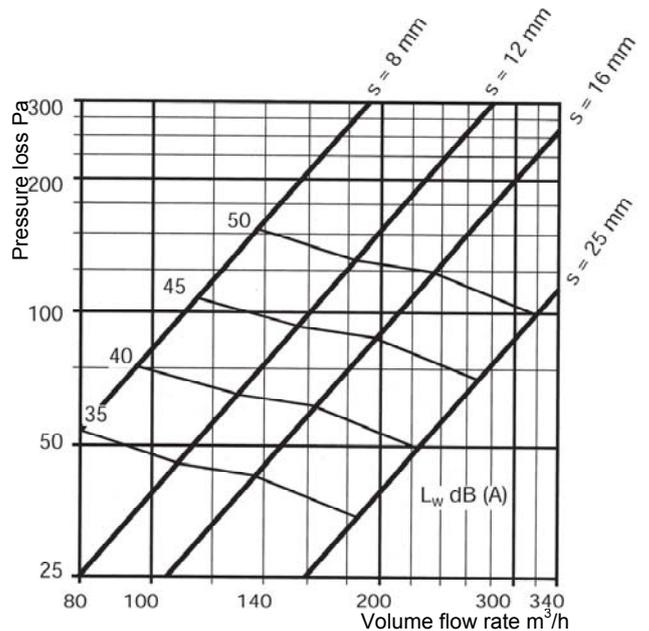
**DN 125**



**DN 160**



**DN 200**



**strulik**

**Damper  
BTZ-2-K90**

Test certificate  
Z-41.3-329

Resistance class K90/K30

**Technical data of the mounting  
frame**

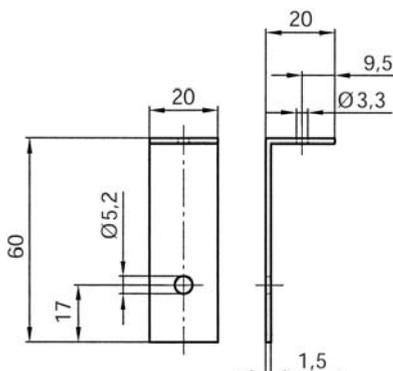
Dimensions mounting frame							
Type			KKS KKS-ZX	KKL KKL-ZX	ED-2 EW-L2 ED-Z2		
NW	A	E	H	H2	Di	Da	
100	96	121	62	140	101	131	
125	122	154	66		126	156	
160	156	187	67		161	191	
200	196	222	71		201	231	

Mounting of the angle brackets spot welded ex works, if dimension x has been specified; otherwise the angles are delivered loosely. Mounting material (steel rivets 3x6) are enclosed.

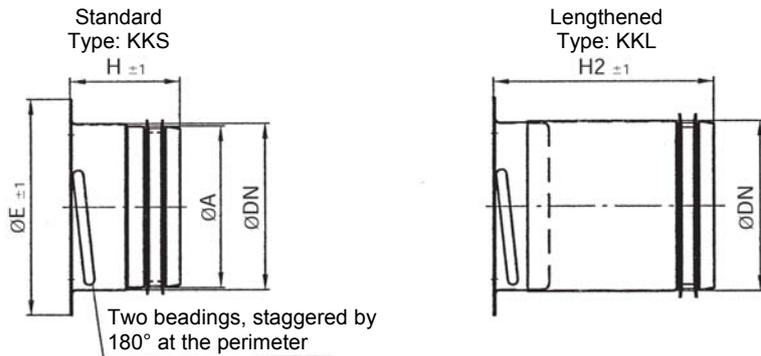
**Dry construction**

A 310 mm long mounting frame is available for light partition walls that have a wall thickness of  $\geq 190$  mm.

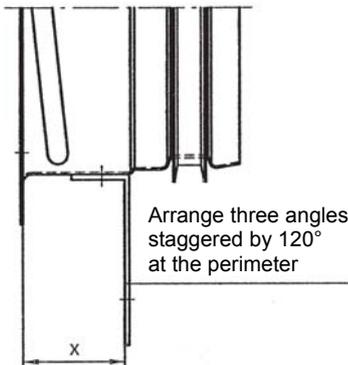
**Detail: angle bracket**



**Mounting frame for light partition walls, brickwork or concrete floors**



**Mounting frame for F30 or F90 supplement floors or shaft walls, dimensions as above, however with three angle brackets**

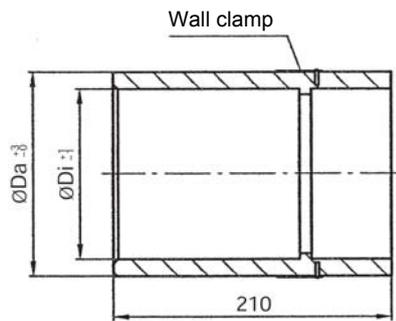


Up to a floor thickness of  $\leq 30$  mm  
Type: KKS-ZX

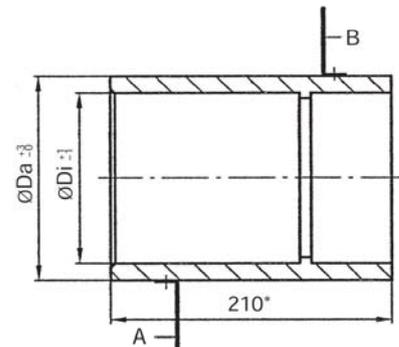
From a floor thickness of  $> 30$  mm  
to max. 115 mm  
Type: KKL-ZX

**Please note:** If the floor thickness is  $> 115$  mm, then KKS-ZX mounting frame with WFR elongation on both sides and male-male connector for the connection with a flexible aluminium duct.

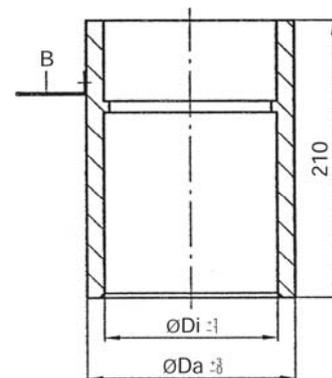
**ED-2 mounting frame  
for solid walls**



**EW-L2 mounting frame  
for light partition walls**



**ED-Z2 mounting frame for  
classified supplement floors and  
solid floors in general**



**strulik**

**Damper  
BTZ-2-K90**

**Test certificate  
Z-41.3-549**

**Resistance class K90/K30**

**Technical data and  
maintenance**

**Technical data**

- Outer diameter of the valve core

NW	100	125	160	200
Ø	142	170	202	243

- Maximum diameter of the valve body

NW	100	125	160	200
Ø	153	182	215	257

- Thickness of the valve core: 41 mm
- Valve body and valve disc: Steel and sheet steel design with fireproof casing
- Sealing at the front: Fire-resistant sealing ring
- Fusible link: Release at 72 °C
- Adjustable air volume: Infinitely variable

**Weight in kg**

Type	BTZ-2	KKS	ED-2
NW 100	~ 1,2	~ 0,14	~ 2
125	~ 1,5	~ 0,16	~ 2,4
160	~ 2,5	~ 0,22	~ 3
200	~ 3,2	~ 0,28	~ 3,7

**Detail A**

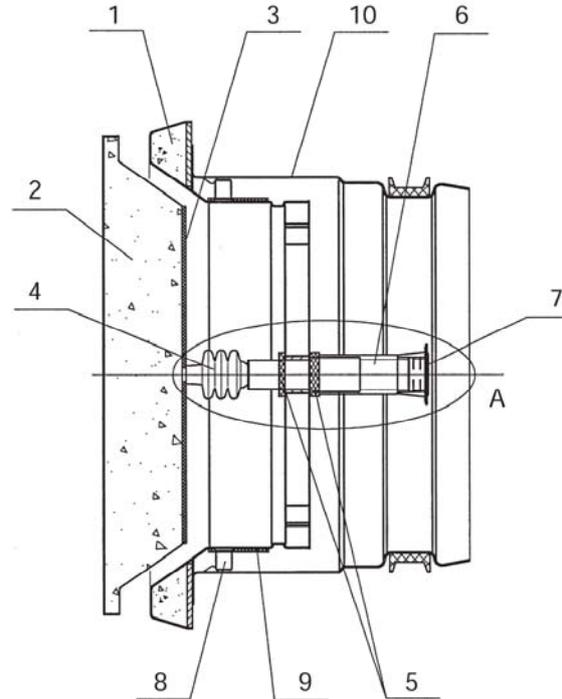


Working condition  
valve open



When released,  
valve closed and  
locked

**List of spare parts**



- 1 Valve body
- 2 Valve disk
- 3 Intumescent material
- 4 Bellows
- 5 Knurled nut
- 6 Device for stopping with guide spindle and guide bearing
- 7 Release device
- 8 Clamping rivet
- 9 Intumescent material
- 10 Mounting frame KKS/KKL, KKS/KKL-ZK
- 10a ED-EW-L2, ED-Z2

**Installation**

The Strulik dampers are supplied with a standard mounting frame that guarantees an easy and timesaving installation with a bayonet lock and allows an adjustment of the supply and exhaust air volume or an exchange of the fusible link at any time. Additional clamping rivets centre and lock the valve body inside the mounting frame.

**Installation, repair and  
maintenance**

Please ask for our operating manual.

**strulik**

**Damper  
BTZ-2-K90**

Test certificate  
Z-41.3-549

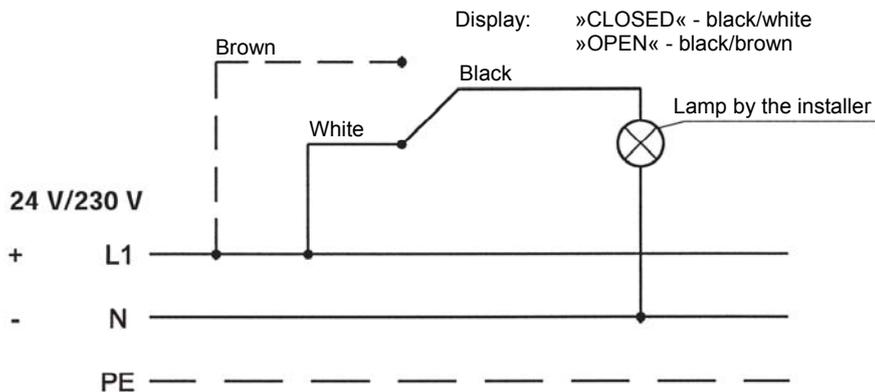
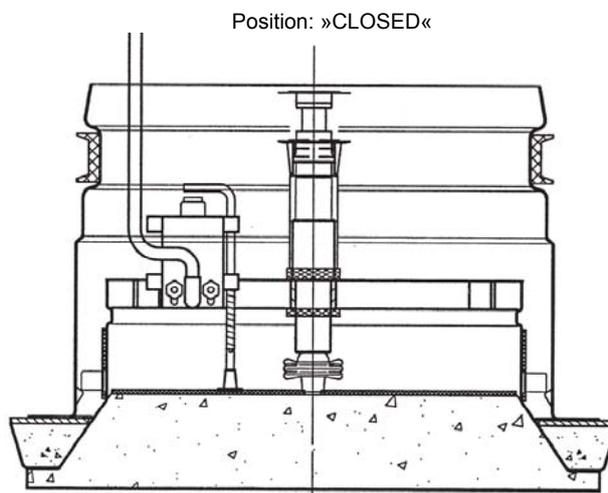
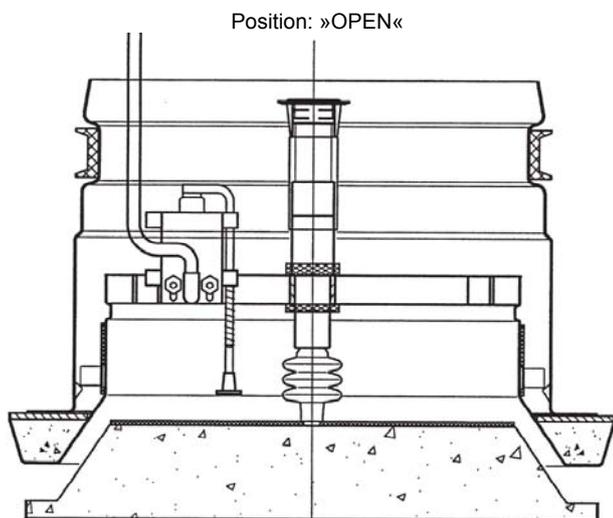
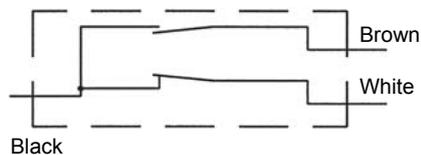
Resistance class K90/K30

Electrical limit switch  
Type: MS-C

**Wiring diagram: MS-C**

**Please note:**

For the purpose of inspection, leave min.  
500 mm lead as longitudinal compensation  
within the duct.



**Technical data**

Single-pole changer  
IP 65

Constant current/nominal insulation current:  
1.9 A/380 V or 3 A/230 V

Short circuit protection:  
Fuse 6A class gI in accordance with  
IEC 269-1, VDE 0660-200

Tested in accordance with IEC 947-5-1 and  
EN 60947-5-1

Cable length: 2 m  
Cross-sectional area: 3 x 0,34 mm<sup>2</sup>

# Tender Text

Item	Description	Unit Piece	Unit price EUR	Total EUR
	<p><b>Damper with test certificate Z-41.3-549</b> for a K90 resistance class for the installation into light partition walls as a supply and exhaust air valve with <b>infinitely variable control of the air volume</b>.</p> <p>The valve body of sheet steel is designed to take up the valve disc with fireproof casing.</p> <p>The mounting is easily performed by screwing into the mounting frame of sheet steel. The special sealing guarantees the exclusion of air and firm seat of the valve. Therefore easy exchange of the fusible link.</p> <p><b>The mounting frame can also be subsequently inserted into an existing spirally wound duct, if it has been plastered in accordance with the instructions (surrounding 20 mm mortar or gypsum band).</b></p> <p><b>Technical data:</b></p> <p>Diameter:     100 mm                          125 mm                          160 mm                          200 mm</p> <p>Length when released: ca. 150 mm</p> <p>Temperature of activation: 72 °C</p> <p>Air volume:</p> <p>Noise level:</p> <p>Manufacturer: <b>Strulik</b></p> <p>Type:           <b>BTZ-2-K90-KKS</b></p> <p>(including mounting frame)</p> <p><b>Accessories:</b></p> <p>Lengthened mounting frame           Type: <b>KKL</b>          Electrical limit switch               Type: <b>MS-C</b>          Disk valve for overflow opening     Type: <b>VMT</b></p>			

# Tender Text

Item	Description	Unit Piece	Unit price EUR	Total EUR
	<p><b>Damper with test certificate Z-41.3-549</b> for a K30-U/K90-U resistance class for the installation into F30/F90 supplement floors, for a K30/K90 resistance class for the installation into L30-L90 fire resistant ventilation ducts or for a K30/K90 resistance class for the installation into F30 to F90 shaft walls as a supply and exhaust air valve with <b>infinitely variable control of the air volume</b>.</p> <p>The valve body of sheet steel is designed to take up the valve disc with fireproof casing.</p> <p>The mounting is easily performed by screwing into the mounting frame of sheet steel. The special sealing guarantees the exclusion of air and firm seat of the valve. Therefore easy exchange of the fusible link.</p> <p><b>Technical data:</b></p> <p>Diameter:     100 mm                   125 mm                   160 mm                   200 mm</p> <p>Length when released: ca. 150 mm</p> <p>Temperature of activation: 72 °C</p> <p>Air volume:</p> <p>Noise level:</p> <p>Manufacturer: <b>Strulik</b></p> <p>Type:           <b>BTZ-2-K90-KKL-ZX</b></p> <p>(including mounting frame)</p> <p><b>Accessories:</b></p> <p>Short mounting frame                   Type: <b>KKS-ZX</b> Electrical limit switch                 Type: <b>MS-C</b> Disk valve for overflow opening       Type: <b>VMT</b></p>			





