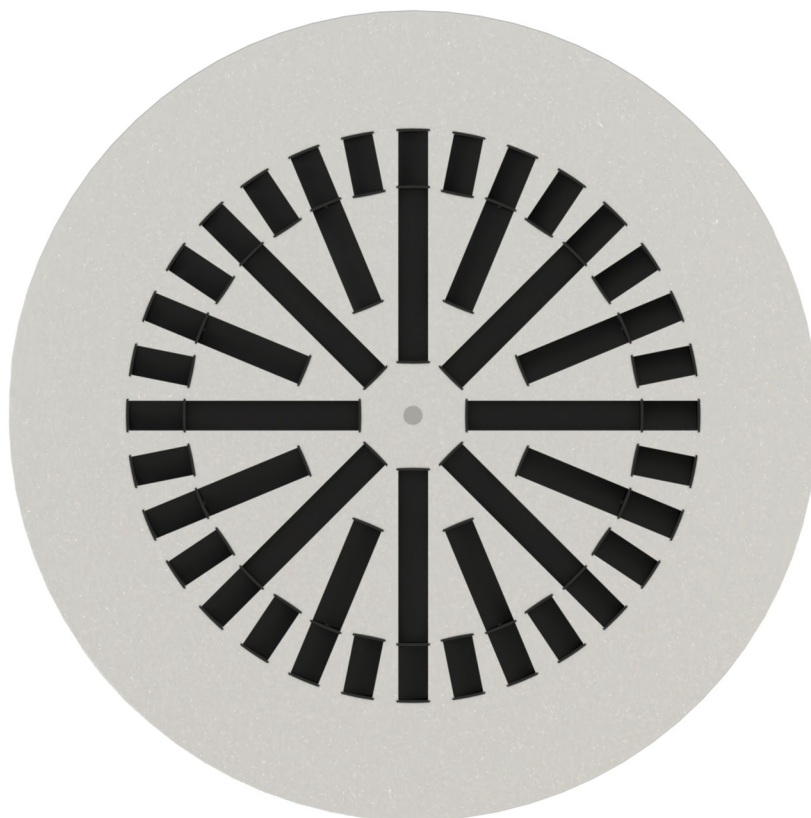




# Swirl diffuser

## DQJF



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## DQJF swirl diffuser

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## DQJF swirl diffuser

### Description

The swirl diffuser type DQJF is an air diffuser that is particularly suitable **for suspended use** in industrial halls and comfort rooms with high air change rates. Unlike conventional swirl diffusers, the built-in **blades can also be adjusted at a later stage**. This modification can be necessary, for example, if obstacles obstruct the air jet or if high air velocities occur in areas where this is not desired.

The air jet can be deflected from the horizontal to the vertical direction by adjusting individual blades. This can be important, for example, if the air jet is to be directed towards a certain point for heating. For example, if pillars are in the way, the air can be moved around them by adjusting the blades. In difficult cases, the adjustment

must be determined by tests. The return air model is not equipped with blades.

#### Variable volumetric flow (with $L_{WA}$ approx. 50 dB(A))

NW	310	400	500	600	800
$V_{min}$ (m <sup>3</sup> /h)	100	100	200	300	500
$V_{max}$ (m <sup>3</sup> /h)	350	450	800	1200	2000

The air diffuser is suitable for systems with variable volumetric flow. A stable air jet is guaranteed by the high outflow velocities, thus ensuring that the air jet does not become detached abruptly from the ceiling at small volumetric flows. The minimum and maximum volumetric flows are shown in the above table.

### Construction

#### Faceplate

- Sheet steel (-SB)
- painted to the RAL colour 9010 (white) (-9010).
- painted to a different RAL colour, freely selectable (-xxxx) (always with 4 digits).
- Galvanised sheet steel, without paint (-SV-0000).
- Stainless steel V2A, painted in the colour sand silver (-V2-SAND).

#### Blades

- Without blades (-00000, available only for return air)
- made of plastic:
  - similar to RAL colour 9005 (black) (-L9005).
  - similar to RAL colour 9006 (grey) (-L9006).
  - similar to RAL colour 9010 (white) (-L9010).
- made of aluminium, painted to a freely selectable RAL colour (-Axxxx) (subsequent adjustment of blades is not possible).

#### Blade fixing

- Painted sheet steel (for -SB / -AL model).
- Stainless steel V2A, 1.4301 (for -V2 model).

#### Blade holder

- Aluminium ducts / plastic for -V2.

#### Pole brace fastening (only with concealed mounting)

- Plastic / stainless steel for -V2.

#### Pole brace holder (only with concealed mounting)

- Galvanised sheet steel / stainless steel for -V2.

#### concealed mounting pole brace (only with concealed mounting)

- Aluminium / stainless steel for -V2.

### Model

- DQJF-R-SR... - round faceplate with radial blade pattern
- ...-Z-... - for supply air, with air deflection blades
- ...-A-... - for return air, without air deflection blades
- ...-PT-... - with divided air deflection blades (standard) (for supply air only, only possible for NW 500 to NW 800).
- ...-PS-... - with continuous air deflection blades (for supply air only, only possible for NW 310 and NW 400).
- ...-PO-... - without blades (only for return air).
- Nominal size: - NW 310 to 800
- Drill pattern:
- ...-000 - not reduced (standard).
- ...-310 to 600 - reduced drill pattern.

## DQJF swirl diffuser

### Accessories

Plenum box (-SKF), in round design, with fixing lugs.

- Type of air:
  - Supply air (-Z)
  - Return air (-A) (inside painted to RAL colour 9005 [black])
- Fastening:
  - Screw mounting (-SM, standard, screws must be provided on site).
  - Concealed mounting (-VM).
- Material / paint:
  - Sheet steel (-SB)
    - painted to the RAL colour 9010 (white) (-9010).
    - painted to a different RAL colour, freely selectable (-xxxx) (always with 4 digits).
  - Galvanised sheet steel, without paint (-SV-0000).
  - Stainless steel V2A, painted in the colour sand silver (-V2-SAND).
- Damper:
  - Without damper (-DK0) (standard).
  - With damper (-DK2), in the connection spigot, with cable-operated adjustment, made of galvanised sheet steel, adjustable, for simple air volume regulation.
- Rubber lip seal:
  - Without rubber lip seal (-GD0).
  - with rubber lip seal (-GD1), made of special rubber, at the connection spigot.
- Volumetric flow meter:
  - without volumetric flow meter (-VME0) (standard).
  - With volumetric flow meter (-VME1), in the plenum box at the connection spigot. Holder made of galvanised sheet steel. Aluminium connections.
- Insulation:
  - Without insulation (-I0).
  - with internal insulation (-Ii), thermal insulation inside the plenum box.
- Height of plenum box:
  - Standard height of plenum box (-KHS).
  - Height of plenum box in mm, can be freely selected (-xxx) (minimum height [KHS] with spigot position S1 / S2 / S3 = spigot diameter + 122 mm, but at least 220 mm, minimum height [KHS] with spigot position S0 at least 250 mm).
- Spigot diameter:
  - Standard spigot diameter (-SDS).
  - Spigot diameter in mm, can be freely selected (-xxx) (always with 3 digits).
- Spigot position:
  - 1 spigot from above (-S0, standard).
  - 1 lateral spigot on the box (-S1).
  - 2 lateral spigots, offset by 90° (-S2).
  - 2 lateral spigots, offset by 180° (-S3).

Cover (-A0 / -AD)

- without cover (-A0) (standard).
- with 1/4 cover (-AD)
  - only possible for supply air version.
  - Galvanised sheet steel
  - for 1 or 2 sided shielding.

### Fastening

Screw mounting (-SM)

- sideways, by means of slotted shallow-raised counter-sunk-head tapping screws DIN ISO 7049 pitch 3.9 x 13 (on site).

Concealed mounting (-VM)

- Pole brace fixing (at an extra charge) only possible in combination with a plenum box (-SKF).

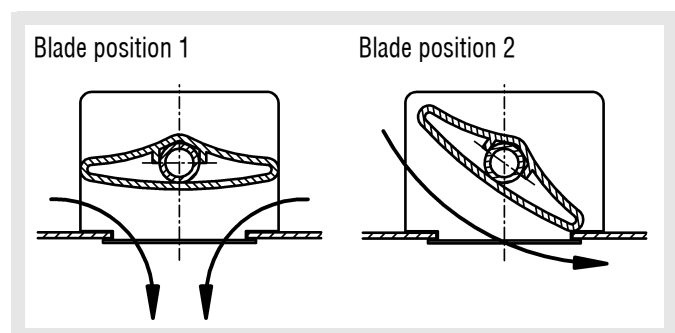
### Attention!

We would like to point out that for cleaning stainless steel models, only suitable cleaning materials may be used!

## Models and dimensions

### Air throw pattern

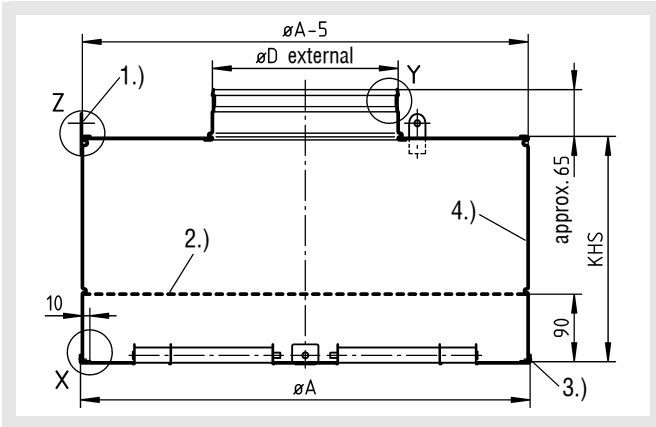
- Air throw pattern "A"** : All blades in position 2 (standard).
- Air throw pattern "C"** : Without blades (available only for return air).
- Air throw pattern "V"** : All blades in position 1 (heating mode only).



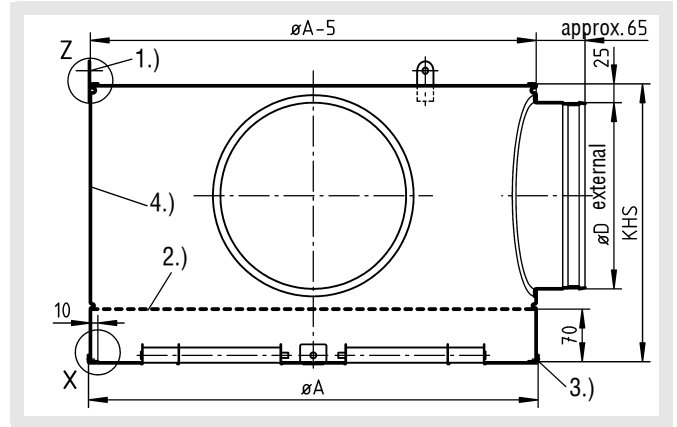
## DQJF swirl diffuser

### Dimensions

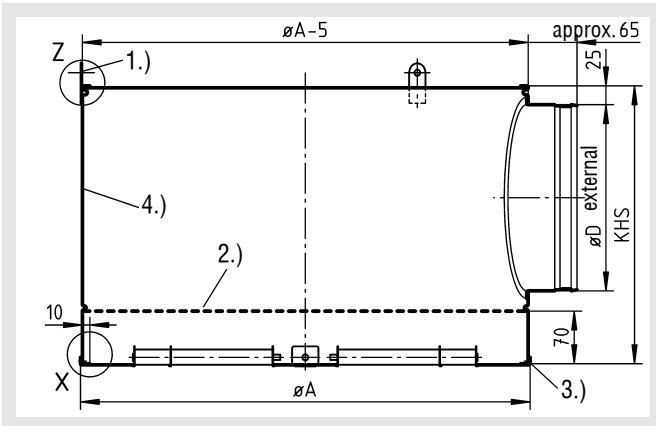
DQJF-R-SR-...-SKF-...-S0 (for supply air and return air)  
with plenum box, 1 spigot from above (standard)



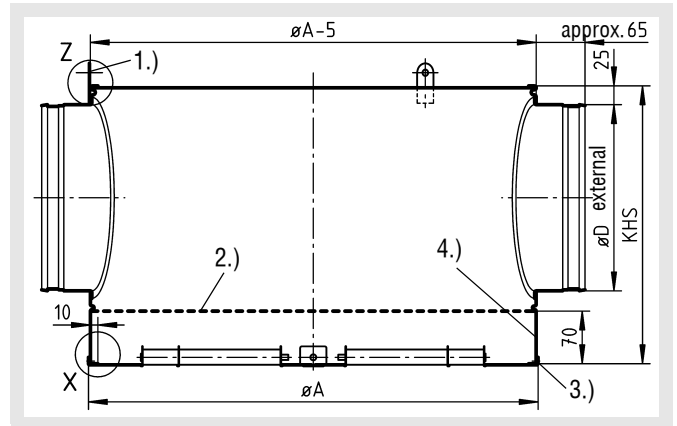
DQJF-R-SR-...-SKF-...-S2 (for supply air and return air)  
with plenum box, 2 spigots offset by 90°



DQJF-R-SR-...-SKF-...-S1 (for supply air and return air)  
with plenum box, 1 lateral spigot on the box



DQJF-R-SR-...-SKF-...-S3 (for supply air and return air)  
with plenum box, 2 spigots offset by 180°

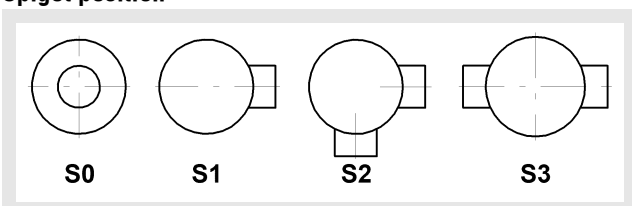


### Available sizes

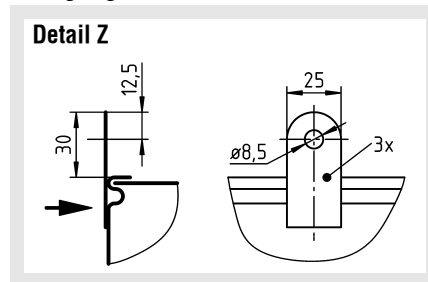
NW	$\varnothing A$	$\varnothing D$	KHS	
			With -S0	With -S1 / -S2 / -S3
310	410	158	250	280
400	500	158	250	280
500	600	248	300	370
600	700	248	300	370
800	900	353	350	475

- Minimum height [KHS] with spigot position S0 at least 250 mm.
- Minimum height [KHS] with spigot position S1 / S2 / S3 = Spigot diameter + 122 mm, but at least 220 mm.

### Spigot position



### Fixing lugs



- 1.) 3 fixing lugs
- 2.) Perforated sheet FQ = 46%
- 3.) Slotted shallow-raised countersunk-head tapping screws DIN ISO 7049 pitch 3.9 x 13 (on site)
- 4.) For the return air version inside painted to RAL colour 9005 (black)

KHS = standard height of plenum box

For detail X and Y, see page 6.

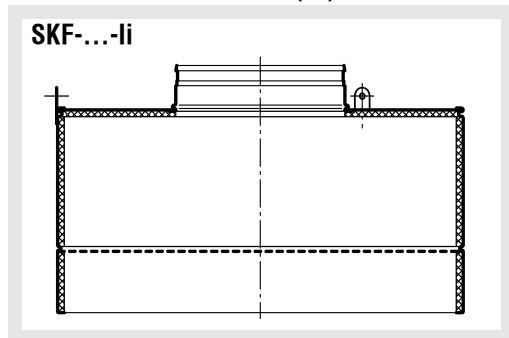
## DQJF swirl diffuser

### Dimensions of accessories

#### Insulation (-I0/-Ii), for SKF

- without insulation (-I0) (standard)
- with internal insulation (-Ii)

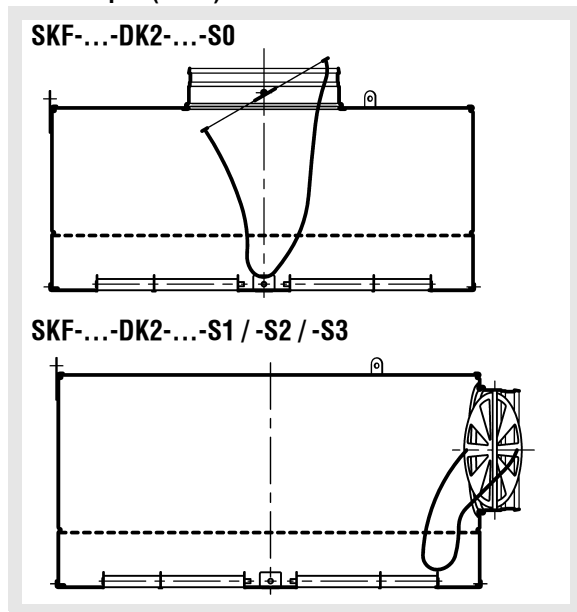
#### with box insulation inside (-Ii)



#### Damper (-DK0/-DK2), for SKF

- Without damper (-DK0) (standard).
- with damper and cable-operated adjustment (-DK2).

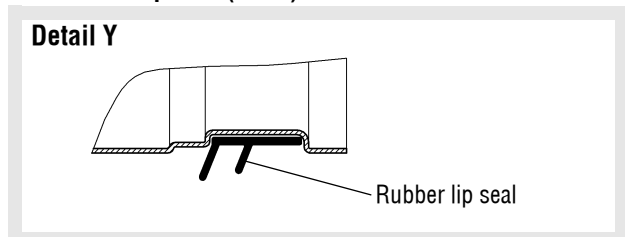
#### with damper (-DK2)



#### Rubber lip seal (-GD0 / -GD1), for SKF

- without rubber lip seal (-GD0) (standard).
- with rubber lip seal (-GD1)

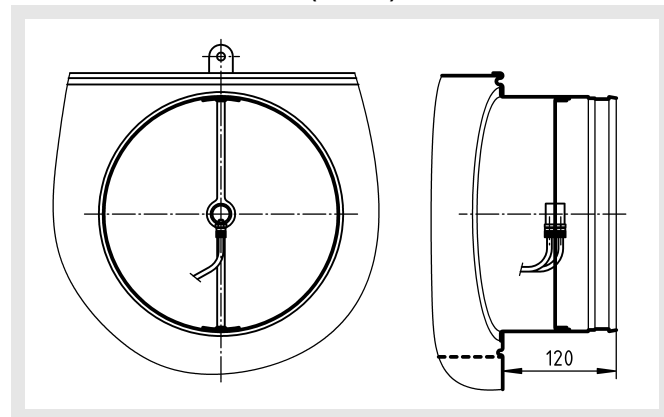
#### with rubber lip seal (-GD1)



#### Volumetric flow meter (-VME0/-VME1), for SKF

- without volumetric flow meter (-VME0) (standard).
- with volumetric flow meter (-VME1).

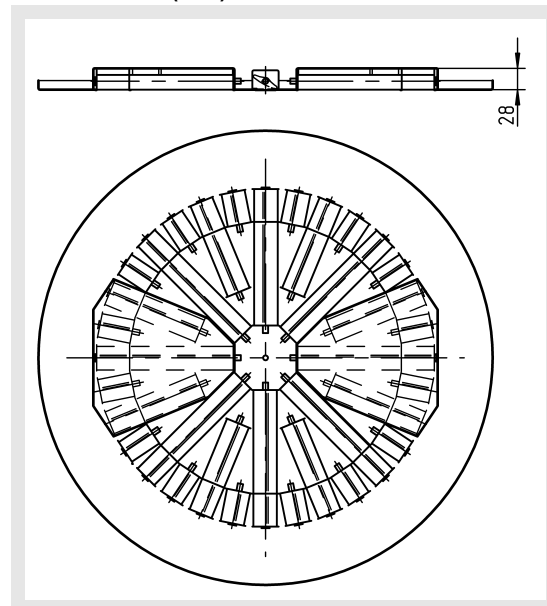
#### with volumetric flow meter (-VME1)



#### Cover (-A0 / -AD)

- without cover (-A0) (standard).
- with 1/4 cover (-AD) (only possible for supply air model).

#### with 1/4 cover (-AD)



#### Number of covered blades

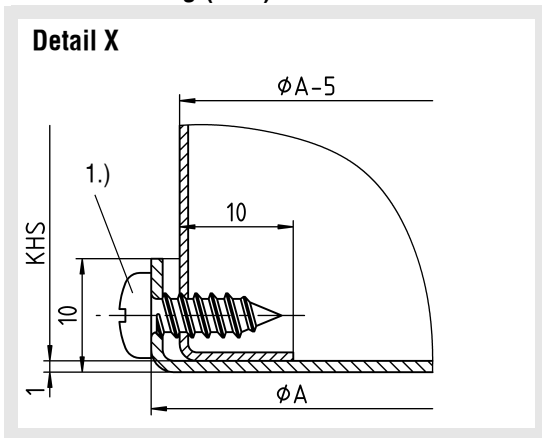
NW	Number of blades
310	3
400	3
500	5
600	5
800	5

Number of covered blades (x2) for two-sided shielding.

## DQJF swirl diffuser

### Fastening methods

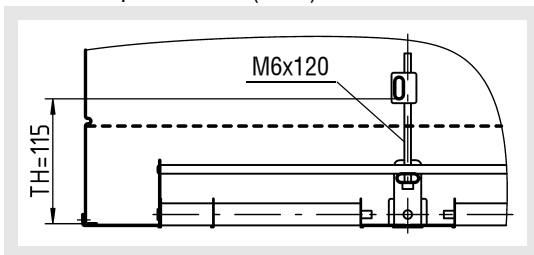
#### Screw mounting (-SM)



- 1.) Slotted shallow-raised countersunk-head tapping screws DIN ISO 7049 pitch 3.9 x 13 (on site)

#### Concealed mounting (-VM)

Pole brace fixing (at an extra charge) only possible in combination with a plenum box (-SKF).

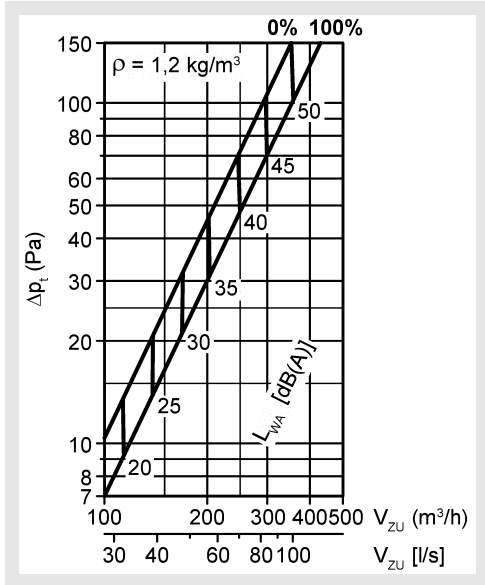


## DQJF swirl diffuser

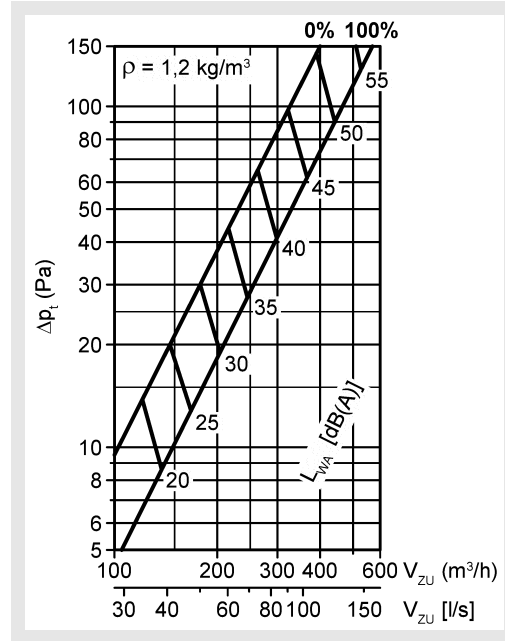
### Technical data

#### Pressure loss and noise level

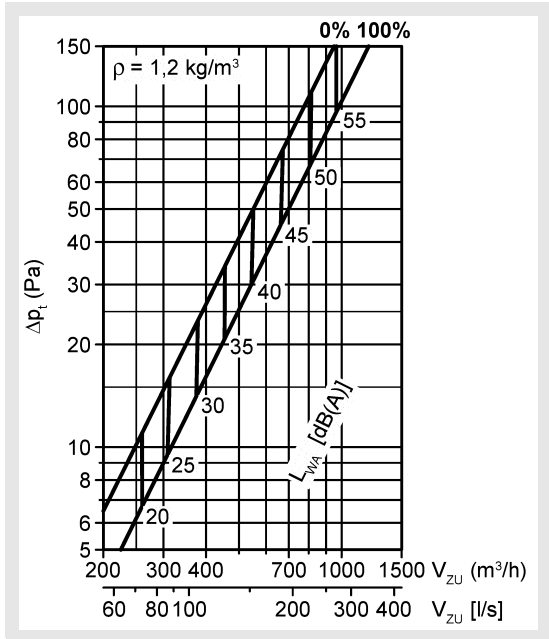
DQJF-...-Z-310-...-PS-...



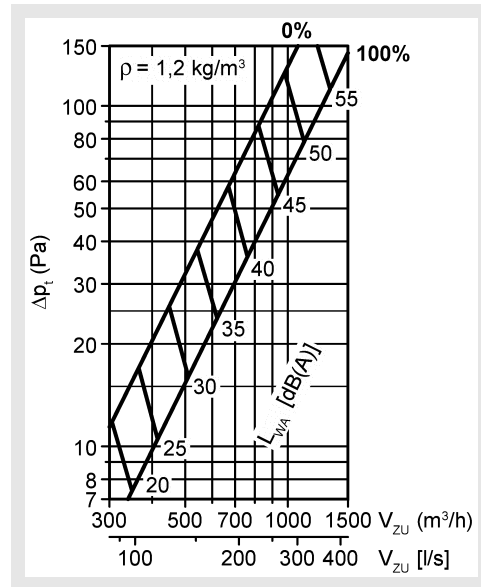
DQJF-...-Z-400-...-PS-...



DQJF-...-Z-500-...-PT-...



DQJF-...-Z-600-...-PT-...

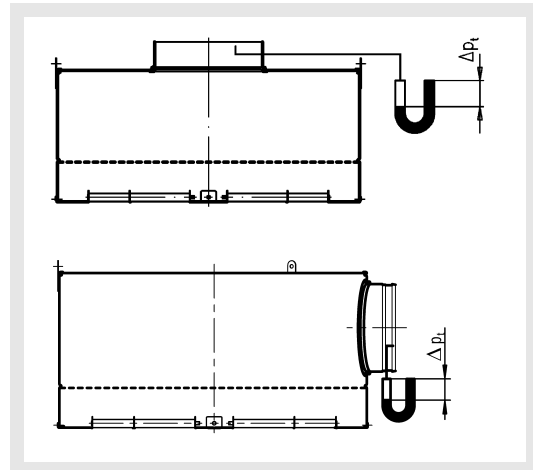
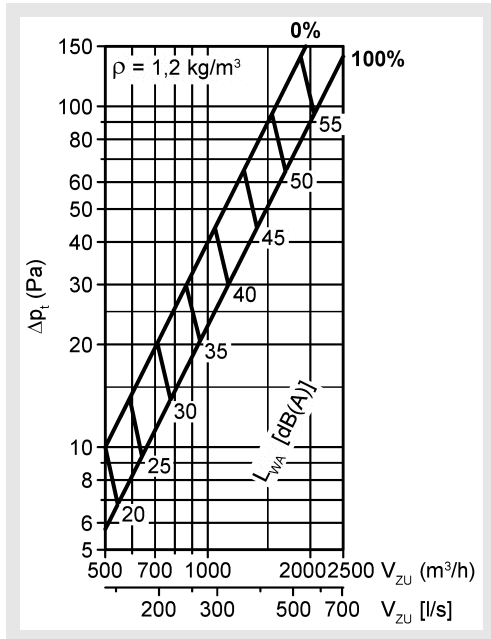


0% = Damper CLOSED  
100% = Damper OPEN



## DQJF swirl diffuser

DQJF-...-Z-800-...-PT-...



For technical data, pressure loss and noise level for return air, see Technical documentation DQJ

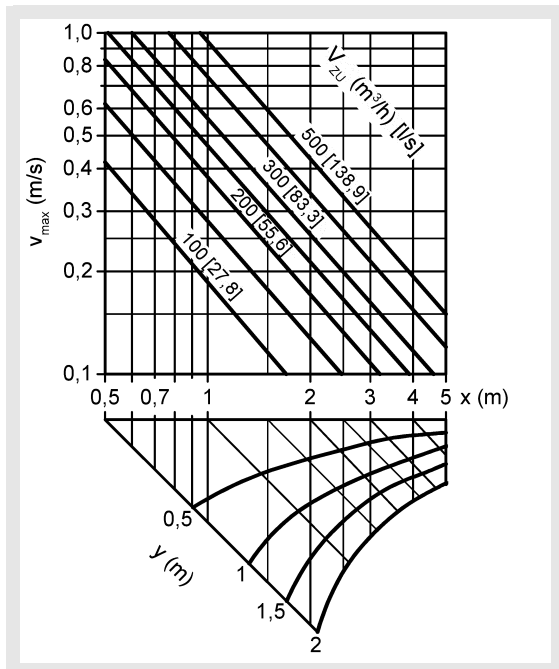
0% = Damper CLOSED

100% = Damper OPEN

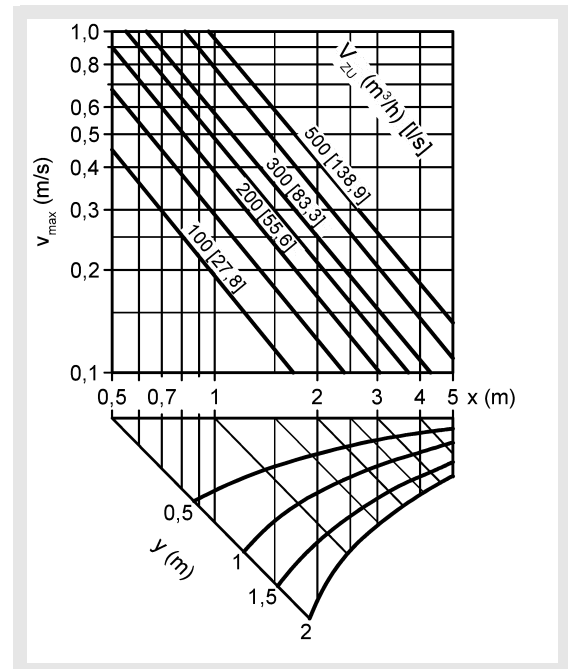
## Maximum end velocity of jet

Air throw pattern "A", without coanda effect (supply air)

DQJF-...-310-...-A-...

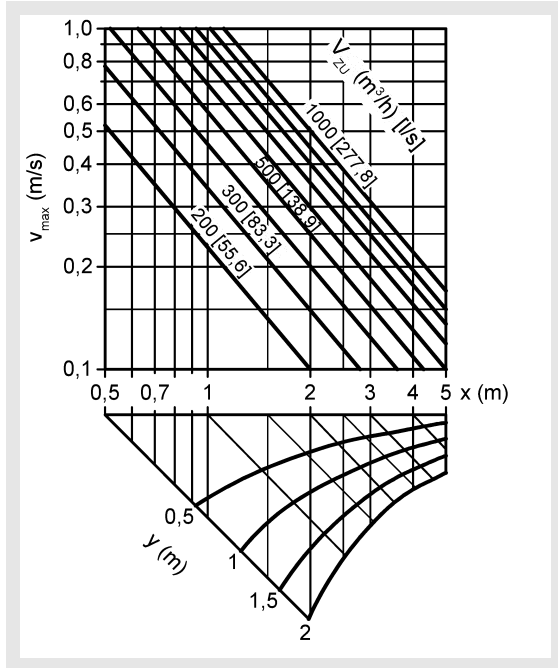


DQJF-...-400-...-A-...

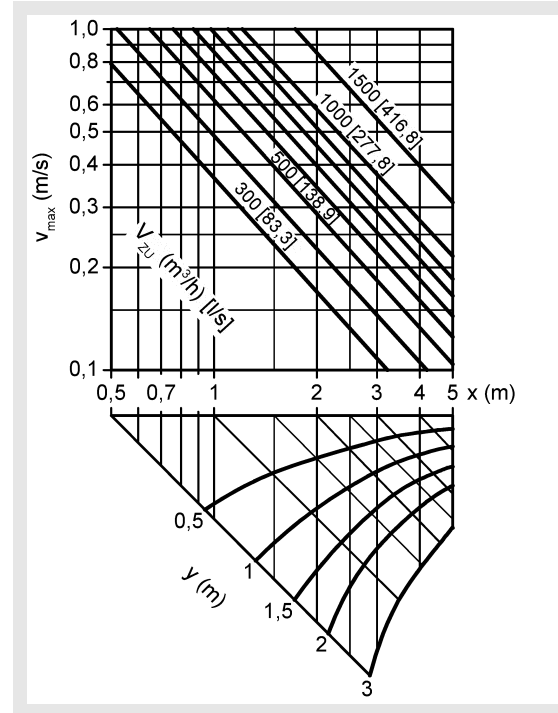


## DQJF swirl diffuser

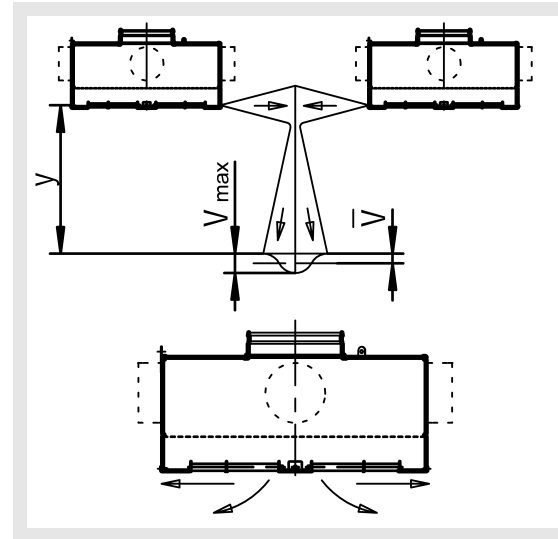
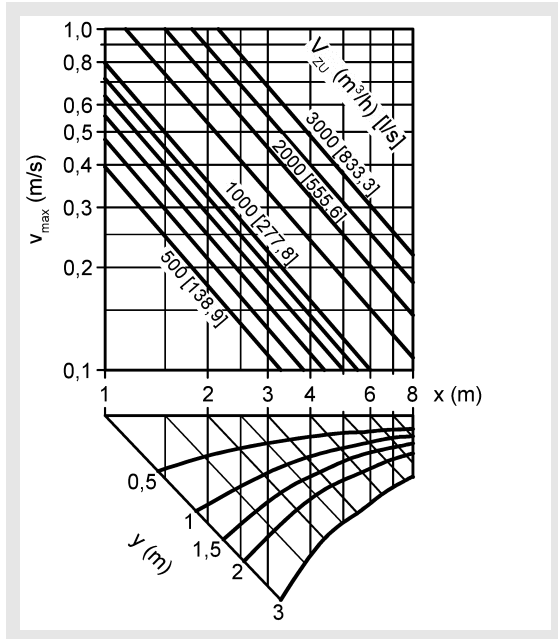
DQJF-...-500-...-A-...



DQJF-...-600-...-A-...



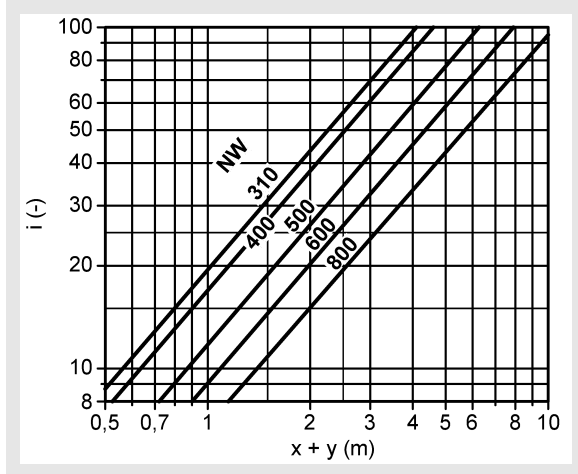
DQJF-...-800-...-A-...



## DQJF swirl diffuser

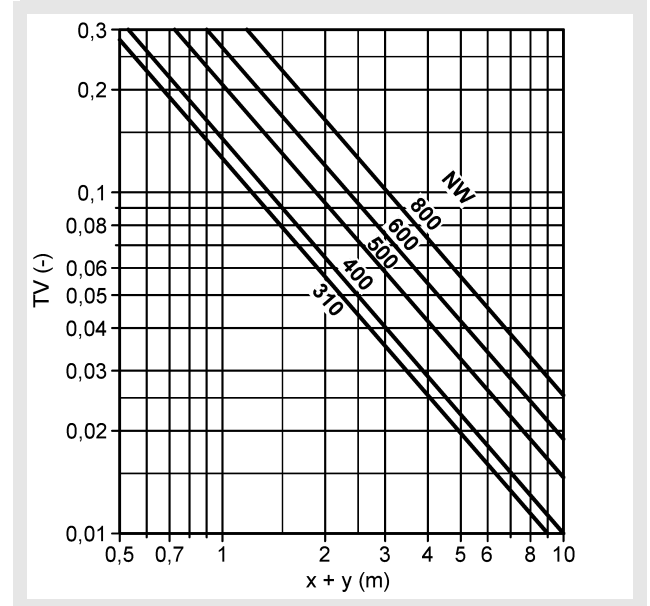
### Induction ratios

Air throw pattern "A", without coanda effect (supply air)



### Temperature ratios

Air throw pattern "A", without coanda effect (supply air)



### Legend

$V_{ZU}$	(m <sup>3</sup> /h)	= Supply air volume
$V_{ZU}$	[l/s]	= Supply air volume
$v_{max}$	(m/s)	= Maximum end velocity of jet
$x$	(m)	= horizontal throw
$y$	(m)	= vertical throw
$x+y$	(m)	= Horizontal and vertical throw
$\rho$	(kg/m <sup>3</sup> )	= Density
$\Delta p_t$	(Pa)	= Pressure loss
$L_{WA}$	[dB(A)]	= A-weighted sound power level
$i$	(-)	= Induction ratio ( $i = V_X / V_{ZU}$ )
$TV$	(-)	= Temperature ratio ( $TV = \Delta T_X / \Delta T_0$ )
$NW$	(mm)	= Nominal width
$V_X$	(m <sup>3</sup> /h)	= Total air jet volume at point x
$V_X$	[l/s]	= Total air jet volume at point x
$\Delta T_X$	(K)	= Temperature difference at point x
$\Delta T_0$	(K)	= Temperature difference between supply air temperature and room temperature ( $\Delta T_0 = t_{ZU} - t_R$ )
$t_{ZU}$	(°C)	= Supply air temperature
$t_R$	(°C)	= Room temperature

## DQJF swirl diffuser

### DQJF order code

01	02	03	04	05	06	07
Type	Model	Blade pattern	Air throw	Nominal size	Material	Paint
<b>Example</b>						
DQJF	-R	-SR	-Z	-500	-SB	-9010

08	09	10	11	12	13
Drill pattern reduced	Blades	Blade colour	Air throw pattern	Mounting	Cover
-000	-PT	-L9010	-A	-SM	-A0

All fields must be filled when ordering

### Sample

#### DQJF-R-SR-Z-500-SB-9010-000-PT-L9010-A-SM-A0

Ceiling swirl diffuser type DQJF | round faceplate | circular blade pattern | supply air | NW500 | faceplate made of sheet steel | Faceplate painted to RAL9010 | drill pattern not reduced | blades divided | blade colour similar to RAL 9010 white | air throw pattern A | screw mounting | without cover

### Order details

#### 01 - Type

DQJF = Ceiling swirl diffuser type DQJF

#### 02 – Model

R = round faceplate

#### 03 - Blade pattern

SR = circular blade pattern

#### 04 - Air throw

Z = Supply air

A = Return air

#### 05 – Nominal size

310 = NW 310

400 = NW 400

500 = NW 500

600 = NW 600

800 = NW 800

#### 06 - Material

SB = sheet steel (standard, only possible with paint)

SV = galvanised sheet steel

V2 = stainless steel (V2A)

#### 07 - Paint

0000 = without paint (galvanised sheet steel only).

9010 = RAL colour white (standard).

xxxx = RAL colour can be freely selected (always with 4 digits).

SAND = painted in the colour sand silver (only for V2A).

#### 08 - Drill pattern reduced

000 = Drill pattern not reduced (standard)

310 = reduced drill pattern 310

400 = reduced drill pattern 400

500 = reduced drill pattern 500

600 = reduced drill pattern 600

The selected pattern must be smaller than the nominal size selected.

#### 09 – Blades

PT = divided blades (available from NW500 – for supply air only).

PS = continuous blades (for supply air only, only possible with NW310 and NW400).

P0 = Without blades (available only for return air).

#### 10 - Blade colour

L9005 = Blades made of plastic similar to RAL 9005 (black).

L9006 = Blades made of plastic similar to RAL9006 (grey).

L9010 = Blades made of plastic similar to RAL9010 (white).

Axxxx = Aluminium, RAL colour can be freely selected.

00000 = Without blades (available only for return air).

#### 11 - Air throw pattern

A = All blades in position 2 (standard).

C = Without blades (available only for return air).

V = All blades in position 1 (heating mode only).

#### 12 - Mounting

SM = screw mounting (standard).

VM = concealed mounting (only possible in combination with -SKF).

#### 13 - Cover

A0 = without cover (standard).

AD = With 1/4 cover (only possible for supply air model).

## DQJF swirl diffuser

### SKF order code

01	02	03	04	05	06	07
Type	Type of air	Nominal size	Fastening	Material	Paint	Damper
<b>Example</b>						
SKF	-Z	-500	-SM	-SV	-0000	-DK2

08	09	10	11	12	13
Rubber lip seal	Volumetric flow meter	Insulation	Height of plenum box	Spigot diameter	Spigot position
-GD1	-VME0	-I0	-KHS	-SDS	-S1

All fields must be filled when ordering

#### Sample

**SKF-Z-500-SM-SV-0000-DK2-GD1-VME0-I0-KHS-SDS-S1**

Plenum box, round design for DQJF air diffuser | Supply air | NW 500 | With screw mounting | Galvanised sheet steel | Without paint | With damper with cable | With rubber lip seal | With volumetric flow meter | Without box insulation | Standard height of plenum box | Standard spigot diameter | 1 lateral spigot

#### Order details

##### 01 - Type

SKF = Plenum box, round design, for DQJF air diffuser

##### 02 - Type of air

Z = supply air

A = Return air (inside painted to RAL colour 9005 [black])

##### 03 – Nominal size

310 = NW 310

400 = NW 400

500 = NW 500

600 = NW 600

800 = NW 800

##### 04 - Fastening

SM = screw mounting (standard)

VM = Concealed mounting

##### 05 - Material

SB = sheet steel (standard, only possible with paint)

SV = galvanised sheet steel

V2 = stainless steel (V2A)

##### 06 - Paint

0000 = without paint (galvanised sheet steel only).

9010 = painted to the RAL colour 9010 (white, standard).

xxxx = painted to a different RAL colour, freely selectable (always with 4 digits).

SAND = painted in the colour sand silver (only for V2A)

##### 07 - Damper

DK0 = without damper (standard).

DK2 = with damper and cable-operated adjustment.

##### 08 - Rubber lip seal

GD0 = without rubber lip seal (standard).

GD1 = with rubber lip seal.

##### 09 – Volumetric flow meter

VME0 = without volumetric flow meter (standard).

VME1 = with volumetric flow meter, in the connection spigot.

##### 10 - Insulation

I0 = without insulation (standard).

Ii = with box insulation inside.

##### 11 - Height of plenum box

KHS = Standard height of plenum box.

xxx = Height of plenum box in mm, can be freely selected (minimum height [KHS] with spigot position -S1/-S2/-S3 = spigot diameter + 122 mm, but at least 220 mm, minimum height [KHS] with spigot position S0 at least 250 mm) (always with 3 digits).

##### 12 - Spigot diameter

SDS = Spigot diameter standard.

xxx = Spigot diameter in mm, can be freely selected (always with 3 digits).

##### 13 - Spigot position

S0 = spigot from above (standard).

S1 = 1 lateral spigot on the box.

S2 = 2 lateral spigots, offset by 90°.

S3 = 2 lateral spigots, offset by 180°.

## DQJF swirl diffuser

### Specification texts

DQJF swirl diffuser, particularly suitable for suspended use in industrial halls, comfort rooms with high air change rates and for VAV systems with variable volumetric flows (between 40-100%). Cooling and heating modes are possible.

With round faceplate, circular blade pattern. For supply air, with central pivoting, aerodynamic radially arranged divided air deflection blades in support blade profile sections made of plastic in a colour similar to RAL 9005 (-L9005, black, standard), similar to RAL 9006 (-L9006, grey), similar to RAL 9010 (-L9010, white) or made of aluminium painted to a freely selectable RAL colour (-Axxxx, subsequent adjustment of the blades is not possible). Each blade is adjustable from the diffuser faceplate without using any special tools or dismantling the diffuser. Free cross-section, resistance and sound power level remain constant in all blade positions.

#### Nominal sizes: NW 500 to 800

Product: SCHAKO type DQJF-R-SR-Z-...-PT-...

- For supply air, with central pivoting, aerodynamic radially arranged continuous air deflection blades in support blade profile sections made of plastic in a colour similar to RAL 9005 (-L9005, black, standard), similar to RAL 9006 (-L9006, grey), similar to RAL 9010 (-L9010, white) or made of aluminium painted in a RAL colour that can be freely selected (-Axxxx, subsequent adjustment of blades not possible).

#### Nominal size: NW 310 and NW 400

Product: SCHAKO type DQJF-R-SR-Z-...-PS-...

- For return air, without air deflection blades.

#### Nominal size: NW 310 to NW 800

Product: SCHAKO type DQJF-R-SR-A...-P0-..

#### Faceplate:

- Sheet steel (-SB)
  - painted to the RAL colour 9010 (white) (-9010)
  - painted to a different RAL colour, freely selectable (-xxxx) (always with 4 digits)
- Galvanised sheet steel, without paint (-SV-0000)
- Stainless steel V2A, painted in the colour sand silver (-V2-SAND)

#### Drill pattern:

- not reduced (-000, standard)
- reduced drill pattern:
  - drill pattern 310 (-310, NW >310)
  - drill pattern 400 (-400, NW >400)
  - drill pattern 500 (-500, NW >500)
  - drill pattern 600 (-600, NW >600)

#### Air throw pattern:

- For supply air model
  - "A" (-A), all blades in position 2
  - "V" (-V), all blades in position 1 (heating mode only)
- For return air model:
  - "C" (-C), without blades

#### Mounting:

- Screw mounting (-SM) (standard)
  - sideways, by means of slotted shallow-raised counter-sunk-head tapping screws DIN ISO 7049 pitch 3.9 x 13 (on site)
- Concealed mounting (-VM)
  - Pole brace fastening with an M6 cylinder screw (according to DIN EN ISO 4762) to the plenum box (-SKF). Only possible in combination with a plenum box.

#### Accessories:

- Plenum box (-SKF), in round design, with fixing lugs.
  - Type of air:
    - Supply air (-Z)
    - Return air (-A) (inside painted to RAL colour 9005 [black])
  - Fastening:
    - Screw mounting (-SM, standard, screws must be provided on site)
    - Concealed mounting (-VM)
  - Material / paint:
    - Sheet steel (-SB)
      - painted to the RAL colour 9010 (white) (-9010).
      - painted to a different RAL colour, freely selectable (-xxxx) (always with 4 digits).
    - Galvanised sheet steel, without paint (-SV-0000)
    - Stainless steel V2A, painted in the colour sand silver (-V2-SAND)
  - Damper:
    - Without damper (-DK0) (standard).
    - With damper (-DK2), in the connection spigot, with cable-operated adjustment, made of galvanised sheet steel, adjustable, for simple air volume regulation.
  - Rubber lip seal:
    - Without rubber lip seal (-GD0)
    - with rubber lip seal (-GD1), made of special rubber, at the connection spigot.
  - Volumetric flow meter:
    - Without volumetric flow meter (-VME0) (standard).
    - With volumetric flow meter (-VME1), in the plenum box at the connection spigot. Holder made of galvanised sheet steel. Aluminium connections.

## DQJF swirl diffuser

- Insulation:
  - Without insulation (-I0)
  - With box insulation inside (-Ii), thermal insulation at the inside of the plenum box.
- Height of plenum box:
  - standard height of plenum box (-KHS)
  - Height of plenum box in mm, can be freely selected (-xxx) (minimum height [KHS] with spigot position S1 / S2 / S3 = spigot diameter + 122 mm, but at least 220 mm, minimum height [KHS] with spigot position S0 at least 250 mm) (always with 3 digits).
- Spigot diameter:
  - Standard spigot diameter (-SDS).
  - Spigot diameter in mm, can be freely selected (-xxx) (always with 3 digits).
- Spigot position:
  - 1 spigot from above (-S0, standard)
  - 1 lateral spigot on the box (-S1)
  - 2 lateral spigots, offset by 90° (-S2)
  - 2 lateral spigots, offset by 180° (-S3)
- Cover (-A0 / -AD)
  - without cover (-A0) (standard).
  - with 1/4 cover (-AD)
    - only possible for supply air version.
    - Galvanised sheet steel
    - for 1 or 2 sided shielding.