Ceiling diffuser
DQC
Ceiling diffuser DQC

Description
In ventilation and air-conditioning of production halls, increased demands are made on the room air flow. In cooling mode, there should not be a draught in the occupied zone, and, in heating mode, high rooms should also be heated up quickly.
Such supply air problems can only be solved by using motor adjustable diffusers. This is why the ceiling diffuser type DQC-... was developed. It is suitable for room heights ≥ 4.5 m.

For mounting in the ceiling, inspection openings for the electrical connection must be provided on site in sufficient number and size.

Blade position 1 (-V)

Blade position 2 (-H)

Construction
plenum box
- Galvanised sheet steel
Faceplate
- Sheet steel painted to the RAL colour 9010 (white)
Air deflection blades
- plastic, similar to RAL colour 9005 (black)(-LS9005)
- plastic, similar to RAL colour 9010 (white)(-LW9010)

Model
DQC-Z-...
- for supply air, with air deflection blades
DQC-A-...
- for return air, without air deflection blades, box inside painted to RAL 9005 (black)
DQC-Z-...-E013-...
- additionally with electric actuator 24V / 50Hz. 0....10V

Accessories
Plenum box (SK-Q-16-A-...-S1)
- with horizontal connection piece
Plenum box (SK-Q-16-A-...-S0)
- with vertical connection piece
Plenum box (SK-Q-16-Z-...-S1)
- with horizontal connection piece and integrated perforated straightener
Plenum box (SK-Q-16-Z-...-S0)
- with vertical connection piece and integrated air diffuser plate
Ball-impact guard (-BS)
- Steel painted to RAL 9010 (white), other RAL colours possible at an extra charge.
Rubber lip seal (-GD1)
- Special rubber
Damper (-DK1)
- made of galvanized sheet steel
- with plastic fixing
Internal insulation (-Ii)
- with thermal insulation inside the plenum box
External insulation (-Ia)
- with thermal insulation on the outside of the plenum box
ROB version (-ROB1)
- Removable diffuser plate, damper and volumetric flow meter

Fastening
Screw mounting (-SM)
- Standard, with raised countersunk head tapping screws (on-site)
Concealed mounting not possible!
Ceiling diffuser DQC

Models and dimensions

Dimensions

DQC-A-... with SK-Q-16-A-...-S1

DQC-Z-... with SK-Q-16-Z-...-S1

DQC-A-... with SK-Q-16-A-...-S0

DQC-Z-... with SK-Q-16-Z-...-S0

Available sizes

<table>
<thead>
<tr>
<th>NW</th>
<th>□A</th>
<th>SK-Q-...</th>
<th>□E</th>
<th>KHS</th>
<th>ød</th>
<th>R</th>
<th>ØD_{max} for ...-S5</th>
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<tbody>
<tr>
<td>600</td>
<td>598</td>
<td>S1</td>
<td>570</td>
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</table>

For information on spigot arrangement, please refer to page 5.

Detail Y

KHS = standard height of plenum box
Special height of plenum box = øD + 124mm, but at least 200mm

Detail Z (mounting holes)
Ceiling diffuser DQC

DQC-Z-...-E013-... (electric actuator)
24 V AC, 0…10 V activation
Activation possible via AGV-2

Technical data for -E013 (NM24A-SR (Belimo))
- Supply voltage: 24V AC 50/60 Hz
- Power consumption: 1.3 W in operation, 0.5 W in idle position
- Dimensioning: 3 VA
- Angle of rotation: max. 95° (adjustable, mechanical end stops)
- Protection type: IP 54 (cable routing at the bottom)
- Protection class: III (safety extra low voltage)
- Ambient temperature: -20...+50°C
- Maintenance: maintenance-free

Spigot position

S0  S1  S2  S3  S5
Ceiling diffuser DQC

Accessories - dimensions

- Damper (-DK1)
- Rubber lip seal (-GD1)
- Detail Q

Insulation for SK-Q-16-...
- Internal (-Ii)
- External (-Ia)

Ball-impact guard (-BS)
(model DQC-Z-...-E013-... not available with ball-impact guard)

Available sizes

<table>
<thead>
<tr>
<th>NW</th>
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<td>600</td>
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<tr>
<td>800</td>
<td>798</td>
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Construction subject to change. No return possible!
Ceiling diffuser DQC

Fastening methods
Screw mounting (-SM)
Size 600/625
with 4 raised countersunk head tapping screws (on-site)

Size 800
with 8 raised countersunk head tapping screws (on-site)

Detail V
Hole for the damper adjustment
(only available for the version with damper)

Technical data
Pressure loss and noise level
DQC-Z-600-....-S1 / DQC-Z-625-....-S1

<table>
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<tr>
<th>NW</th>
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<td>800</td>
<td>798</td>
<td>9</td>
<td>150</td>
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</table>

0% = damper "CLOSED"
100% = damper "OPEN"
Ceiling diffuser DQC

DQC-Z-600-...-S0 / DQC-Z-625-...-S0

Maximum end velocity of jet
DQC-Z-600/625-... (without coanda effect)

with coanda effect:
- diagram value x 1.41

DQC-Z-800-...-S0

DQC-Z-800-... (without coanda effect)

with coanda effect:
- diagram value x 1.41

Construction subject to change. No return possible!

Version: 23.09.2019
Ceiling diffuser DQC

Jet path
DQC-Z-600-... / DQC-Z-625-...

DQC-Z-800-...

Heating and cooling modes

Construction subject to change.
No return possible!
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Critical throw

Maximum penetration

DQC-Z-600-... / DQC-Z-625-...

DQC-Z-600-... / DQC-Z-625-...

DQC-Z-800-...

DQC-Z-800-...

Construction subject to change. No return possible!

05/10 - 10

Version: 23.09.2019
Ceiling diffuser DQC

**Induction ratio**

DQC-Z-600/625-... (without coanda effect)

![Graph](image1)

with coanda effect:
- diagram value x 0.71

DQC-Z-800-... (without coanda effect)

![Graph](image2)

with coanda effect:
- diagram value x 1.41

**Temperature ratio**

DQC-Z-600/625-... (without coanda effect)

![Graph](image3)

with coanda effect:
- diagram value x 0.71

DQC-Z-800-... (without coanda effect)

![Graph](image4)

with coanda effect:
- diagram value x 1.41
Ceiling diffuser DQC

Legend

\(V_{ZU}\) (m³/h) [l/s] = Supply air volume
\(V_X\) (m³/h) [l/s] = Total air jet volume at point x
\(v_{\text{max}}\) (m/s) = Maximum end velocity of jet
\(x\) (m) = horizontal throw
\(y\) (m) = vertical throw
\(x+y\) (m) = horizontal + vertical throw
\(i\) (-) = Induction ratio (\(i = V_X / V_{ZU}\))
\(TV\) (-) = Temperature ratio (\(TV = \Delta T_X / \Delta T_O\))
\(NW\) (mm) = Nominal value
\(x_{kr.}\) (m) = Critical jet path
\(\Delta T_O\) (K) = Temperature difference between supply air temperature and room temperature
(\(\Delta T_O = t_{ZU} - t_R\))
\(\Delta T_X\) (K) = Temperature difference at point x
\(t_{ZU}\) (°C) = Supply air temperature
\(t_R\) (°C) = Room temperature
\(\Delta p_t\) (Pa) = Pressure loss
\(\rho\) (kg/m³) = Density
\(L_{WA}\) [dB(A)] = A-weighted sound power level
\(\Delta T_{OH}\) = Temperature difference between air supply and room temperature in heating mode
\(\Delta T_{OK}\) = Temperature difference between supply air temperature and room temperature in cooling mode

Construction subject to change. No return possible!
Ceiling diffuser DQC

Order code DQC

<table>
<thead>
<tr>
<th>01</th>
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<th>03</th>
<th>04</th>
<th>05</th>
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<tr>
<td>Type</td>
<td>Air throw</td>
<td>Nominal size</td>
<td>Material</td>
<td>Paint</td>
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<tr>
<td>Example</td>
<td>DQC</td>
<td>-Z</td>
<td>-600</td>
<td>-SB</td>
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<thead>
<tr>
<th>06</th>
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<tbody>
<tr>
<td>Blade colour</td>
<td>Air throw pattern</td>
<td>Mounting</td>
<td>Motor adjustment</td>
<td>Ball-impact guard</td>
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<tr>
<td>-L9005</td>
<td>-H</td>
<td>-SM</td>
<td>-E000</td>
<td>-B0</td>
</tr>
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</table>

Sample

DQC-Z-600-SB-9010-H-SM-E000-B0

Ceiling diffuser type DQC I supply air I NW600 I faceplate made of sheet steel I faceplate painted to RAL9010 I blade colour similar to RAL9005 black I air throw pattern H I screw mounting I without motor adjustment I without ball-impact guard

Order details

**01 - Type**

DQC = ceiling diffuser with square faceplate

**02 - Air throw**

Z = Supply air
A = Return air

**03 - Nominal size**

600 = NW600
625 = NW625
800 = NW800

**04 - Material**

SB = Sheet steel (standard)
V2 = Stainless steel (V2A)

**05 - Paint**

0000 = without paint (galvanised sheet steel)
9010 = RAL colour white (standard)
xxxx = RAL colour can be freely selected
SAND = Sand silver (only for V2A)

**06 - Blade colour**

L9005 = Blades made of plastic similar to RAL 9005 (black)
L9010 = Blades made of plastic similar to RAL9010 (white)
00000 = without blades (only for return air)

**07 - Air throw pattern**

H = All blades in position 2
V = all blades in position 1, vertical throw
C = Without blades (available only for return air)

**08 - Mounting**

SM = Screw mounting (standard, concealed mounting not possible)

**09 - Motor adjustment**

E000 = Without motor adjustment (standard)
E013 = with actuator 24V, 0-10V

**10 - Ball-impact guard**

B0 = without ball-impact guard (standard)
BS = with ball-impact guard, painted same as faceplate
Ceiling diffuser DQC

Order code SK

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<tr>
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<td>Plenum box</td>
<td>model</td>
<td>Air diffuser</td>
<td>Type of air</td>
<td>Nominal size</td>
<td>Fastening</td>
<td>Material</td>
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<td><strong>Example</strong></td>
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<tr>
<td>Damper</td>
<td>Rubber lip seal</td>
<td>Volumetric flow meter</td>
<td>ROB model</td>
<td>Insulation</td>
<td>Height of plenum box</td>
<td>Spigot diameter</td>
<td>Spigot position</td>
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<td>-DK1</td>
<td>-GD1</td>
<td>-VME1</td>
<td>-ROB0</td>
<td>-I0</td>
<td>-KHS</td>
<td>-SDS</td>
<td>-S1</td>
</tr>
</tbody>
</table>

Sample

SK-Q-16-Z-600-SM-SV-DK1-GD1-VME1-ROB0-I0-KHS-SDS-S1

Plenum box, square design I for square air diffusers I air diffuser DQC I supply air I NW600 I with screw mounting I galvanised sheet steel I with damper I with rubber lip seal I with volumetric flow meter I without ROB model I without box insulation I standard height of plenum box I standard spigot diameter I 1 lateral spigot

Order details

01 - Plenum box

SK = Plenum box, square design

02 - Model

Q = for square air diffusers

03 - Air diffuser (must be ordered separately)

16 = suitable for DQC...

04 - Type of air

Z = Supply air

A = Return air

05 - Nominal size

600 = NW600

625 = NW625

800 = NW800

06 - Fastening

SM = Screw mounting (standard, concealed mounting not possible)

07 - Material

SV = Galvanised sheet steel (standard)

V2 = with stainless steel (V2A)

08 - Damper

DK0 = Without damper (standard)

DK1 = With damper

09 - Rubber lip seal

GD0 = Without rubber lip seal (standard)

GD1 = With rubber lip seal

10 - Volumetric flow meter

VME0 = Without volumetric flow meter (standard)

11 - ROB model

ROB0 = Without ROB version (standard)

ROB1 = With ROB version

12 - Insulation

I0 = Without insulation (standard)

li = With box insulation inside

la = With box insulation outside

13 - Height of plenum box

KHS = Height of plenum box standard

xxx = Height of plenum box in mm (Height_{min}= spigot diameter + 124 mm, but at least 200 mm)

14 - Spigot diameter

SDS = Standard spigot diameter

xxx = Spigot diameter in mm

Construction subject to change.

No return possible!
Ceiling diffuser DQC

15 – Spigot position

S0  =  Spigot from above
S1  =  1 lateral spigot on the box (standard)
S2  =  2 spigots offset by 90°
S3  =  2 spigots offset by 180°
S5  =  2 spigots arranged next to each other
Ceiling diffuser DQC

Specification texts

Ceiling diffuser type DQC-Z-..., for supply air consists of a square faceplate, RAL colour 9010 (white) with visible screw mounting (-SM), including four lamella fields each arranged offset by 90°. The plastic air deflection blades painted to a RAL colour similar to RAL 9005 (black, -LS9005) or RAL 9010 (white, -LW9010) are manually individually adjustable.
Product: SCHAKO type DQC-Z-...

Ceiling diffuser type DQC-A-..., for exhaust air consists of a square faceplate, RAL colour 9010 (white) with visible screw mounting (-SM), including four lamella fields each arranged offset by 90° without air deflection blades.
Product: SCHAKO type DQC-A-...

Ceiling diffuser type DQC-Z-...-E013-... for supply air consists of a square faceplate, RAL colour 9010 (white) with visible screw mounting (-SM), including four lamella fields each arranged offset by 90°. The plastic air deflection blades painted to a RAL colour similar to RAL 9005 (black, -LS9005) or RAL 9010 (white, -LW9010) are adjustable with an electrical servomotor at the same time.
Nominal voltage: AC 24V 50/60 Hz
Actuator signal: DC 0...10 V
Product: SCHAKO type DQC-Z-...-E013-...

Accessories:
- Plenum box (SK-Q-16-...) made of galvanised sheet steel, with fixing lugs.
- Supply air model with integrated perforated straightener.
- Return air model inside painted to RAL 9005 (black)
- with damper (-DK1) in plenum box, adjustable from below, for simple air volume regulation without dismounting the faceplate.
- with volumetric flow meter (-VME1).
- with ROB model (-ROB1), removable diffuser plate, damper and volumetric flow meter
- with rubber lip seal (-GD1), at the connection spigot made of special rubber.
- with thermal insulation
  - internal (-li)
  - external (-la)
- Height of plenum box can be freely selected, xxx in mm, minimum height = spigot diameter + 124 mm, but at least 200 mm
- Spigot diameter can be freely selected, xxx in mm
- Spigot position:
  - S0 = spigot from above
  - S1 = 1 lateral spigot on the box (standard)
  - S2 = 2 spigots offset by 90°
  - S3 = 2 spigots offset by 180°
  - S5 = 2 spigots arranged next to each other
- Ball-impact guard (-BS), made of steel painted to RAL 9010 (white), other RAL colours possible at an extra charge