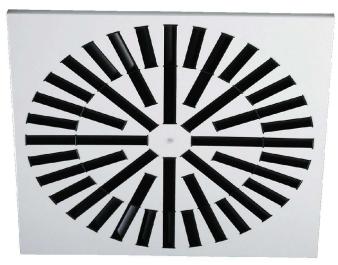


Additional operating instructions according to ATEX 2014/34/EU

Ceiling Swirl Diffuser Model DQJ





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General description and instructions



These additional operating instructions must be observed prior to mounting and commissioning the device.

These additional operating instructions contain basic information regarding its use in areas subject to explosion hazards to be observed during assembly, operation and maintenance.

Prior to mounting and commissioning and during maintenance work, the present additional operating instructions must be read by the installer and the responsible skilled personnel/system operator!

Personnel qualification and training

The personnel for assembly, inspection and maintenance must have the relevant qualification for this work.

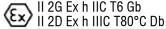
The area of responsibility, competence and monitoring of the personnel must be exactly regulated by the system operator. If the personnel does not have the required knowledge, it must be trained and instructed. Moreover, the system operator must ensure that the contents of the additional operating instructions are understood completely by the personnel.

Safety-conscious work

The safety instructions given in these additional operating instructions, the existing national and international regulations on explosion protection, accident prevention and the system operator's internal work, operating and safety regulations must be observed.

Designated use

The ceiling swirl diffuser has the following ATEX marking:



EPS 11 ATEX 2 306 X

The devices have been designed for use in ventilation systems in areas subject to explosion hazards according to ATEX of Category II, Zones 1, 2 and Category III, Zones 21, 22.

These devices are not suitable for use in unreleased Ex zones.

The operating safety of the delivered devices is only guaranteed when used in accordance with their designated use.

According to the ATEX marking, the diffuser may only be used for media with a maximum temperature of up to 80 °C.

Special conditions

It must be ensured that all metal components are properly and permanently connected to the ground potential.

The attached and installed electrical devices must have a suitable explosion-proof design. The combination of electrical and non-electrical devices must be examined again from a safety point of view.

To avoid propagating brush discharges on diffusers with RAL coating, it must be ensured that the air in the ventilation system is not heavily contaminated with non-conductive particles.

Type of ignition protection

The type of ignition protection of the diffuser is guaranteed by its safe design.

Quality

The SCHAKO production facilities are certified according to the QM procedure EN ISO 9001.

Delivery and storage

Upon receipt, the devices must be checked for completeness and transport damage. If delivered incompletely or damaged, the forwarding company and the SCHAKO KG have to be informed immediately.

The device must not be exposed directly to weather, solar radiation and moisture.

Mounting information

Mounting, electrical connection work and commissioning must be carried out by skilled personnel only and in accordance with the recognised technical rules and the safety and accident prevention regulations.

Maintenance

Only a device subjected to proper maintenance and kept in perfect condition can guarantee safe and reliable operation.

When defective parts are replaced with spare parts, only SCHA-KO original spare parts may be used. The SCHAKO KG cannot be held liable for any damage caused by using spare parts that are not original and will not give any warranty.

Hazard caused by non-observance of the safety instructions

Non-observance of the safety instructions can result both in putting persons and the environment and operating units at risk. Likewise, non-observance of the safety instructions will result in the loss of any claims for damages.

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Description

The ceiling swirl diffuser type DQJ-Q/S-SR-... / DQJ-Q/S-SQ-... / DQJ-R-... is particularly suitable for installation in **comfort rooms with high air change rates**. Unlike the conventional swirl diffusers, the **air deflection blades can also be adjusted at a later stage**. This can be necessary when obstacles on site obstruct the air flow.

The diagrams clearly show the influence the blade position has on the radial propagation of the jet. **The blades can be adjusted to achieve throw patterns from horizontal to vertical**. This can be important, for example, if the air jet is to be directed toward a specific point where high heat loads are present. In difficult cases, the position of the blades can be determined by carrying out flow tests at the SCHAKO laboratory. Various throw patterns can be set ex works. Unless stated otherwise, air throw pattern "B" will be delivered.

The air diffuser is particularly suitable **for installations with variable volumetric flow**. A **stable jet pattern** is guaranteed by the high exit velocities. Even at a low volumetric flow the jet does not sink abruptly from the ceiling.

If the "critical throw" x_{kr} (m) parameter is smaller than the "horizontal throw" x (m) parameter for your model, then the calculation for the maximum end velocity of jet V_{max} (m/s) is based on the "critical throw" x_{kr} and not on the "horizontal throw" x (m) parameter.

A plenum box with fixing lugs can be fitted to the ceiling swirl diffuser (SK-Q-... for DQJ-Q/S-SR-... / DQJ-Q/S-SQ-..., SK-R-... for DQJ-R/T-SR-...). / DQJ-Q/S-SQ-..., SK-R-... für DQJ-R-SR-...). A perforated straightener is installed in the supply air version and for the return air version, the plenum box is painted on the inside to RAL 9005 (black, standard). In addition, the plenum box can be fitted (at an extra charge) with various components such as damper (-DK...), volumetric flow meter (-VME1), ROB model (-ROB1) (only possible for SK-Q-... plenum box) and rubber lip seal (-GD1). The damper (-DK1) at the connection spigot is for air volume regulation and adjustable from below (only DQJ-Q/S-SR-... / DQJ-Q/S-SQ-...). For plenum boxes SK-Q-..., the damper (-DK1) can be mounted on the room side with mounted diffuser. For plenum boxes SK-R-..., the ceiling diffuser must be removed, before the damper can be adjusted. Alternatively, a cable-operated adjustment (-DK2) can be attached, which allows the damper to be adjusted on the room side even with mounted diffuser. In the connection spigot of the plenum box, a volumetric flow meter (-VME1) can be integrated. The measurement error of the volumetric flow meter is ± 5 % at a spigot velocity of 2-5 m/s and a straight flow pattern of at least 1 x D. The measurement is carried out with integrated diffuser. By adjusting the throttle damper, the required air volume of each diffuser can be set quickly and correctly.

To allow duct cleaning robots to be inserted from the room side, the distribution sheet in the ROB version (-ROB1) can be removed as well as the damper and the volumetric flow meter (if integrated).

Other accessories (at an extra charge) are hit-and-miss damper (-SS, only DQJ-Q/S-SR-... / DQJ-Q/S-SQ-...) for air volume regulation, ball-impact guard (-BS1, only DQJ-Q/S-SR-... / DQJ-Q/S-SQ-...), motor adjustment (-M1 (for NW 500-625) / -M2 (for NW 800), only DQJ-Q/S-SR / DQJ-Q/S-SR-Z-...-PS-...), 1/4 cover (-AD, only supply air model) and adjustable damper (-DV, only DQJ-R/T-SR-...).

TÜV SÜD has successfully inspected the ceiling swirl diffuser DQJ according to the following rules:

- VDI 6022, Sheet 1: Hygienic requirements of ventilation and air-conditioning systems
- VDI 6022, Sheet 2: Hygienic requirements of ventilation and air-conditioning systems Measurement methods and investigations during hygienic controls and hygienic inspections.
- DIN 1946, Sheet 2: Air-conditioning technology Health requirements

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

This ceiling swirl diffuser complies with the regulations of the ATEX directives and can be used in ventilation systems in areas subject to explosion hazards.

The ceiling swirl diffuser has been certified for the explosion protection group II for Zones 1, 2 and 21, 22.

Zones 1 and 2 represent the application range containing gases, while Zones 21 and 22 represent the application range containing dusts.

Classification by zone must be established by the system operator or planner in compliance with current standards.

Note:

In explosion-protected zones, only devices that have an ATEX approval for this use may be used.

Technical data, information

 the grounding terminal of the DQJ must be connected to the grounding terminal of the SK-Q-.../SK-R-... and to the equipotential bonding

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Additional operating instructions according to ATEX 2014/34/EU for ceiling swirl diffuser DQJ Models and dimensions

Air throw pattern

Blade adjustment options and screw mounting (SM)

Air throw pattern "A": all blades in position 2

Air throw pattern "B": blades in positions 1+2, preset by

manufacturer

Air throw pattern "C": Without blades (available only for re-

turn air)

Air throw pattern "V": all blades in position 1 (heating mode

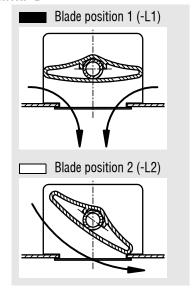
only)

- The ceiling swirl diffuser of NW 310 is only available with air throw "A".
- **DQJ-R-SR-... / DQJ-R-SR-Z-...-PS** with screw mounting (-SM) only available without plenum box, as a standard feature, this model is with concealed mounting (-VM).
- NW 310 with indentation for slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 3.9 (on site)

NW 400-625 with indentation for slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 4.8 (on site)

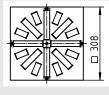
NW 800 is only available with concealed mounting

Air throw pattern "B"

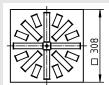


NW 310

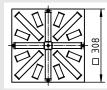
DQJ-Q/S-SR-Z-310-...-PS-...



DQJ-R-SR-Z-310-...-PS-...

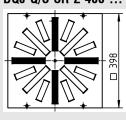


DQJ-Q/S-SQ-Z 310-...-PS-...

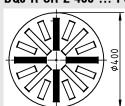


NW 400

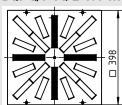
DQJ-Q/S-SR-Z-400-...-PS-...



DQJ-R-SR-Z-400-...-PS-...



DQJ-Q/S-SQ-Z-400-...

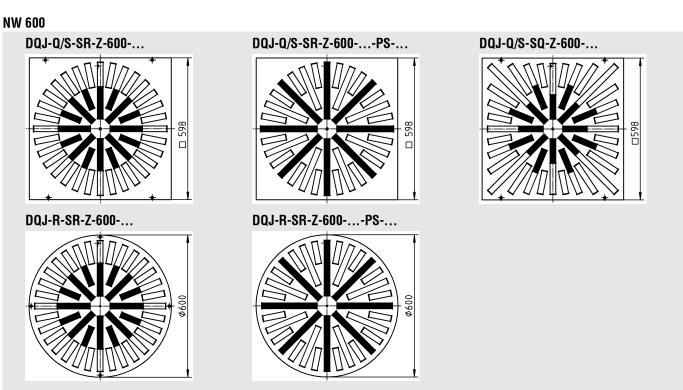


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NW 500

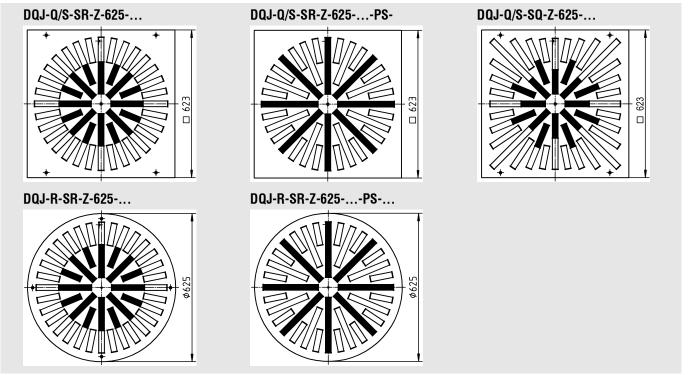
DQJ-Q/S-SR-Z-500-...-PS-... DQJ-Q/S-SR-Z-500-... DQJ-Q/S-SQ-Z-500-... DQJ-R-SR-Z-500-... DQJ-R-SR-Z-500-...-PS-...



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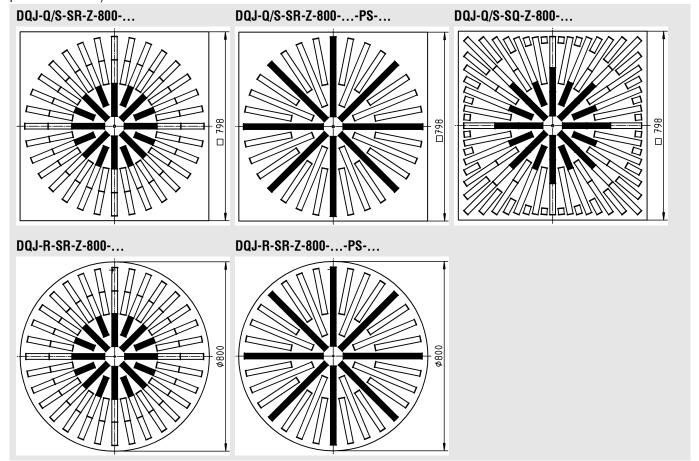


NW 625



NW 800

(without motor adjustment only available with concealed mounting, DQJ-Q-SR-Z-800-...PS-...-M2-... (with motor adjustment) only possible with SM)



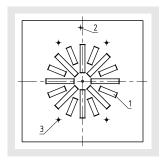
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Special model

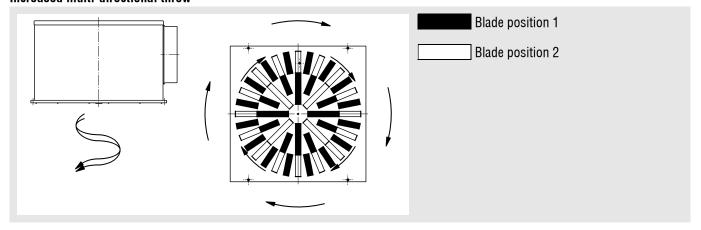
If, for constructional reasons (e.g. ceiling grid), a particular faceplate size has been defined, it is possible to punch a smaller swirl diffuser (1) into the faceplate. If a plenum box is required, it will be delivered, as a standard feature, in the same size as the punch and not in the size of the faceplate. However, if the plenum box is larger, on customer's special request, the standard hole (2) in the blade can be placed in the faceplate, to allow damper adjustment.

In case of a screw mounting, the screw holes (3) are adjusted to the plenum box.

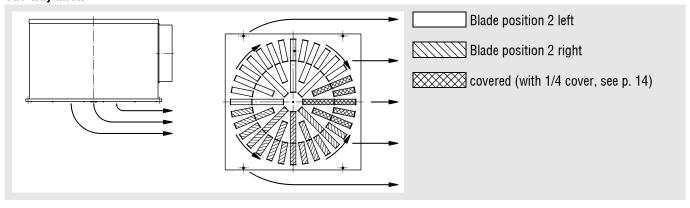


Special blade settings

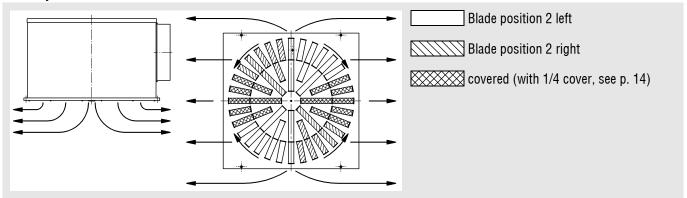
Increased multi-directional throw



One-way throw



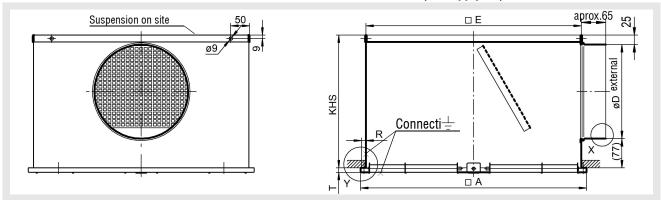
Two-way throw



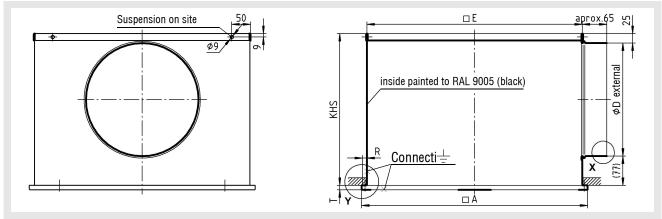
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DQJ-Q-SR-Z-... / DQJ-Q-SR-Z-...-PS-... / DQJ-Q-SQ-Z-..., with SK-Q-01-Z-... (for supply air)



DQJ-Q-SR-A-... / DQJ-Q-SQ-A-..., with SK-Q-01-A-... (for return air)

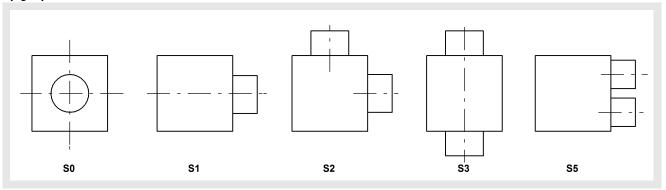


Available sizes

					SK-Q-01-Z		SK-Q-0	11-A	øD _{max}
NW	□A	σE	R	T	KHS	øD	KHS	øD	forS5
310	308	290	8	7	260	158	300	198	98
400	398	370			260	158	300	198	138
500	498	470	12		300	198	350	248	198
600	598	570		12	350	248	400	298	248
625	623	570	24		350	248	400	298	248
800	798	770	12		455	353	455	353	353

KHS= standard height of plenum box Special height of plenum box øD + 102mm, but at least

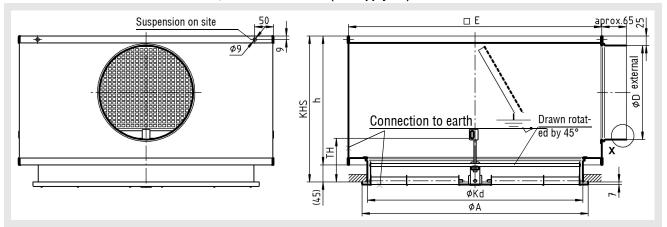
Spigot position



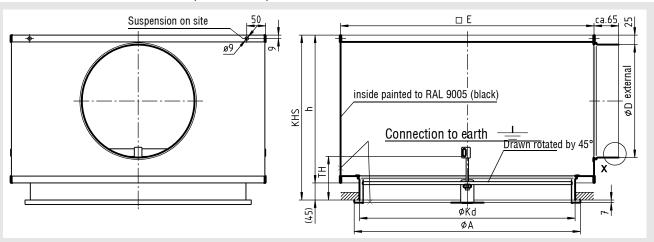
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DQJ-R-SR-Z-.../DQJ-R-SR-Z-...-PS-..., with SK-R-01-Z-... (for supply air)



DQJ-R-SR-A-..., with SK-R-01-A-... (for return air)



Available sizes

					SK	-R-01-Z-		SK	-R-01-A	·	øD _{max}
NW	øΑ	□E	øKd	TH	KHS	h	øD	KHS	h	øD	forS5
310	310	405	298		295	250	158	335	290	198	158
400	400	445	370		295	250	158	335	290	198	178
500	500	545	470	115	335	290	198	385	340	248	198
600	600	670	570	113	385	340	248	435	390	298	298
625	625	670	570		385	340	248	435	390	298	298
800	800	845	770		490	445	353	490	445	353	353

For the spigot position, see

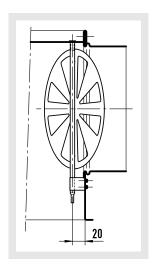
KHS= standard height of plenum box

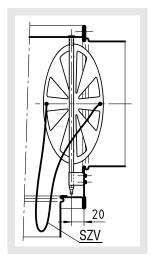
Special height of plenum box øD +

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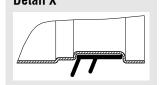
Dimensions of accessories Damper (-DK1)





SZV = Cable-operated adjustment (at an extra charge)

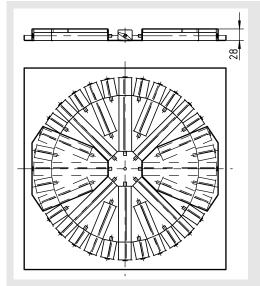
Rubber lip seal (-GD1)
Detail X



ROB version (-ROB1)

Removable diffuser plate, damper and volumetric flow meter.

1/4 cover (-AD) (only possible for supply air model) for 1- or 2-sided shielding



Number of covered blades

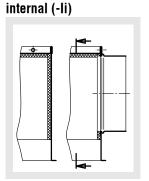
NW	DQJ-Q/S-SR-Z DQJ-Q/S-SR-Z PS DQJ-R-SR-Z DQJ-R-SR-Z PS	DQJ-Q/S-SQ-Z
310	3	3
400	3	3
500	5	5
600	5	5
625	5	5
800	5	9

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

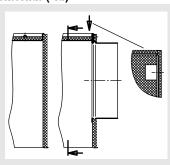
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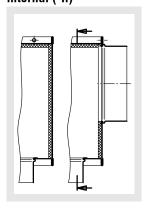
Insulation for SK-Q



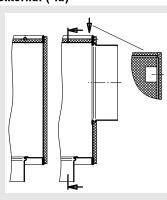
external (-la)



Insulation for SK-R internal (-li)

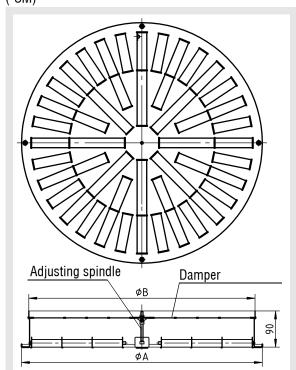


external (-la)



Adjustable damper (-DV)

only available for DQJ-R-SR-... / DQJ-R-SR-Z-...-PS with screw mounting (-SM)



The noise level increases by 4 dB (A) with an adjustable damper (-DV) compared with the diagram values with a plenum box.

Available sizes (-DV)

NW	øΑ	øΒ	
310	310	290	
400	400	370	
500	500	460	
600	600	560	
625	625	560	
800	800	760	

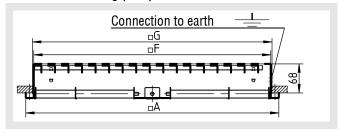
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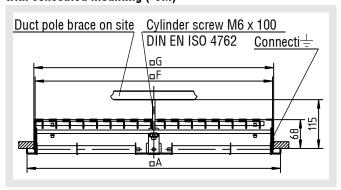
Hit-and-miss damper (-SS)

(only DQJ-Q-SR-... / DQJ-Q-SQ-...)

with screw mounting (-SM)



with concealed mounting (-VM)



Available sizes (-SS-K)

NW	□A	□F	□G
310	308	290	295
400	398	365	370
500	498	465	470
600	598	565	570
625	623	565	570
800	798	765	770

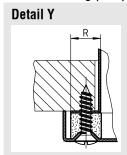
A hit-and-miss damper is only available for a sheet steel or aluminium faceplate together with SM mounting.

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Fastening methods

Screw mounting (-SM)



NW	R
310	8
400	12
500	12
600	12
625	24
020	

DQJ-Q-SR-... / DQJ-Q-SQ-...:

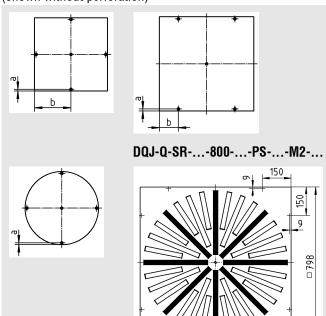
In case of screw mounting, the ceiling swirl diffuser is fastened to the plenum box with 4 on site countersunk screws (not available for NW 800).

DQJ-R-SR-...:

In case of screw mounting (SM), the ceiling swirl diffuser will be mounted to the ceiling with 4 on site countersunk screws, but this is only possible without a plenum box.

Indentation for slotted shallow-raised countersunk-head tapping screw

(shown without perforation)



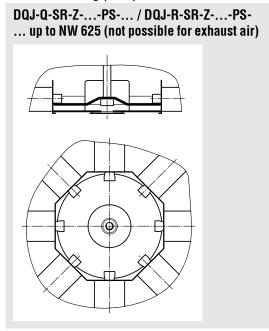
DQJ-Q-SR-... / DQJ-Q-SQ-... / DQJ-R-SR-...

NW	а	b	
310	7	154	
400			
500	9	80	
600		00	
625	21,5		

- **DQJ-R-SR-...** with screw mounting (-SM) only available without plenum box, as a standard feature, this model is with concealed mounting (-VM).
- NW 310 with indentation for slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 3.9 (on site)
- NW 400-625 with indentation for slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 4.8 (on site)
- NW 800 is only available in concealed mounting (exception: DQJ-Q-SR-Z-800-...-PS-...-M2-...)!

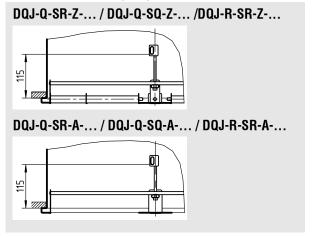


Central mounting (-MM)



In case of a central mounting, the ceiling swirl diffuser is fastened to the plenum box with a retaining plate and an Allen screw DIN EN ISO 4762 M6.

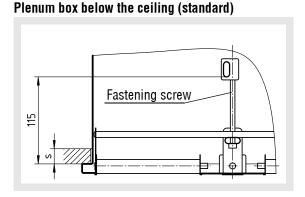
Concealed mounting (-VM)



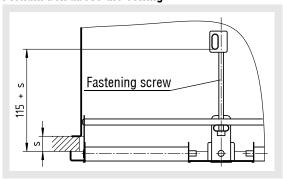
In concealed mounting, the swirl diffuser is fastened to the plenum box with a pole brace and an Allen screw DIN EN ISO 4762 M6 (standard for NW 800 with DQJ-Q-...).

Attention: The max. torque of the fastening screw is 0.4 Nm.

Installation



Plenum box above the ceiling



Attention:

In case of an installation above the ceiling you have to specify the thickness of the ceiling "s".

	Length of the fastening screw (mm)					
	Installation below the ceiling Installation above the ceiling					
	DQJ-Q-SR DQJ-Q-SR					
	DQJ-Q-SR-PS-Z DQJ-Q-SR-PS-Z					
	DQJ-Q-SQ DQJ-Q-SQ					
	DQJ-R-SR DQJ-R-SR					
	DQJ-R-SR-PS-Z	DQJ-R-SR-PS-Z				
NW 310-800	120	120 + s				

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Information regarding assembly and commissioning

Prior to being installed in the ventilation system, the ceiling swirl diffuser must be checked for damage. Damaged fire dampers must not be installed.

The device may only be used in accordance with its designated use in air ventilation systems for supply air and return air.

Use only approved fastening material for mounting.

No additional parts must be fastened to the diffuser.

The swirl diffuser must be connected to the ventilation duct network in electrically conducting manner.

In order to avoid the risk of static charges, the DQJ must be connected to the grounding connection with the SK-Q-.../SK-R-... grounding connection provided for this purpose. The SK-Q-.../SK-R-... must be connected to the on-site equipotential bonding. Make sure that the ventilation systems are not subjected to any anomalous operating conditions, such as vibrations, pressure surges or high proportions of solids in the medium.

If required, the electrical connection diagrams can be found in the respective SCHAKO additional information.

Electrical wiring and commissioning work must be performed by skilled personnel only.

Information regarding maintenance and inspection

Proper maintenance increases operational safety and the service life of the device. This is why the devices should be subjected to regular inspection.

If inspection dates are prescribed by law, they must be complied with.

The operating personnel must be informed, prior to starting maintenance and inspection work.

The personal safety measures must be looked up in the safety data sheet. Hazard caused by contact or inhaling hazardous substances must be excluded by taking appropriate safety measures. Prior to maintenance or inspection, all system components up- and downstream of the device must be switched off and secured against being switched on again.

The following maintenance and inspection criteria must be observed:

- The air diffusers must be cleaned as required or at the defined cleaning intervals. There must be no dust deposits on the air diffusers
- Visual inspection of the device
- Check the fastening of the device
- Check the grounding connection for tight fit and good contact
- Functional check
- For additional inspections, please refer to the technical documentation or additional maintenance instructions



Attention:

Danger due to electrostatic charges. Clean with moist cloth only.

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CLUV	VAX
3/UN	KO

Deckenimpulsauslässe Typ DQJ..

Baugröße	
Baujahr	
Auftragsnummer	
Positionsnummer	
Seriennummer	

E	II 2G Ex h IIC T6 Gb
(CX)	II 2G Ex h IIC T6 Gb II 2D Ex h IIIC T80°C Db

C€ EPS 11 ATEX 2 306X

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Additional operating instructions according to ATEX 2014/34/EU for ceiling swirl diffuser DQJ Certificate of conformity



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