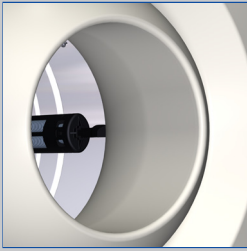


Jet nozzles

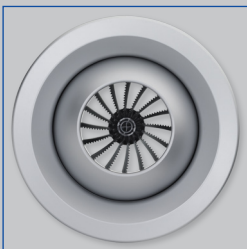
Type TJN



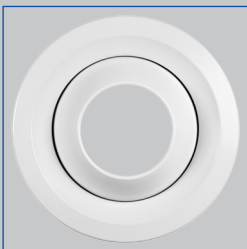
Thermal actuator with shape memory alloy



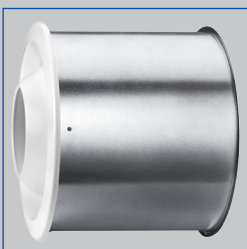
Discharge angle indicator



Swirl unit and cap for throw distance reduction



TJN in white, similar to RAL 9010



TJN with outer casing



Acoustically and technically optimised, for installation in walls and on rectangular and circular ducts, adjustable – made of plastic

The new TJN jet nozzle offers improved acoustic properties and is also more energy-efficient

- Nominal sizes: 160, 200, 250, 315 and 400 mm
- Volume flow rate range 20 – 1000 l/s or 72 – 3600 m³/h
- Visible parts made of high-grade polymer in RAL white aluminium or pure white
- Optimised nozzle contours
- Discharge angle indication, discharge angle limiting and setting from –30 to +30° on a concealed scale
- Easy to remove face cover ring with bayonet fixing

Optional equipment and accessories

- 5 nominal sizes, each with a circular spigot or, as an option, with a connection piece for circular or rectangular ducts
- Swirl unit with acoustically optimised air control blades with unique saw tooth edges and cap for two-step reduction of the throw distance
- External electric actuator of compact height
- Electric actuator allows for integration with the central BMS
- Internal thermal actuator with shape memory alloy for the self-powered adjustment of the discharge angle
- All variants also available with outer casing

Type		Page
TJN	General information	TJN – 2
	Function	TJN – 4
	Technical data	TJN – 7
	Quick sizing	TJN – 8
	Specification text	TJN – 9
	Order code	TJN – 10
	Variants	TJN – 11
	Dimensions and weight	TJN – 14
	Product details	TJN – 18
	Installation details	TJN – 19
	Basic information and nomenclature	TJN – 23

Application

Application

- Type TJN jet nozzles for supply air discharge, with a long throw distance
- For production halls, gymnasiums, theatres and conference rooms as well as for large internal spaces in airports, railway stations and shopping centres
- Attractive design element for building owners and architects with demanding aesthetic requirements
- For supply air to room air temperature differences from –12 to +20 K
- Adjustable discharge angle, from –30 to +30°, for switching between heating and cooling mode
- For push fitting directly onto circular ducts or as

a branch off circular or rectangular ducts

Special characteristics

- Easy to remove face cover ring with bayonet fixing
- Swirl unit with acoustically optimised air control blades with unique saw tooth edges and cap for two-step reduction of the throw distance
- Discharge angle indication, discharge angle limiting and setting from –30 to +30° on a concealed scale
- Electric or thermal actuator as options

Nominal sizes

- 160, 200, 250, 315, 400 mm

Description

Variants

Connection

- For circular ducts (direct connection)
- K: For rectangular ducts
- R: For circular ducts

Actuator

- Manual adjustment
- E*: Electric actuator
- T1: Thermal actuator

Parts and characteristics

- Nozzle with acoustically optimised contours and adjustable discharge angle (from –30 to +30°, in increments of 5°)
- Flange with position indicator (scale) and adjustable end positions, concealed by a face cover ring
- Spherical nozzle casing with spigot
- Outer casing (optional)
- Connection piece for circular and rectangular ducts (optional)
- Actuator (optional)

Attachments

- C: Outer casing

Accessories

- Swirl unit and cap for throw distance reduction

Useful additions

- TDC temperature difference control module

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Spigot with double lip seal

Materials and surfaces

- Flange, face cover ring, swirl unit and cap made of ABS plastic, UL 94, V-0, flame retardant
- Spherical nozzle casing made of galvanised sheet steel
- Connection pieces for circular or rectangular ducts made of galvanised sheet steel
- Double lip seal made of rubber
- Exposed surface is pure white, similar to RAL 9010
- S1: White aluminium, similar to RAL 9006

Standards and guidelines

- Sound power level of the air-regenerated noise measured according to EN ISO 5135

Maintenance

- Maintenance-free as construction and materials are not subject to wear
- Inspection and cleaning to VDI 6022

Functional description

Jet nozzles are the preferred solution wherever the supply air has to travel large distances from the point of discharge to the occupied zone. It is possible to adapt the discharge angle, and consequently the direction of the airflow, to heating or cooling mode. The supply air to room air temperature difference may range from -12 to $+20$ K.

Cooling mode

Cooling mode is possible with a positive discharge angle of up to 30° . The supply air jet is directed towards the ceiling, but the higher density of cold air results in an increasing deflection of the air jet towards the floor as the distance from the jet nozzle increases. When the supply air jet reaches the occupied zone, both the supply air to room air temperature difference and the airflow velocity

have been reduced to comfortable levels.

This principle of operation allows for long throw distances.

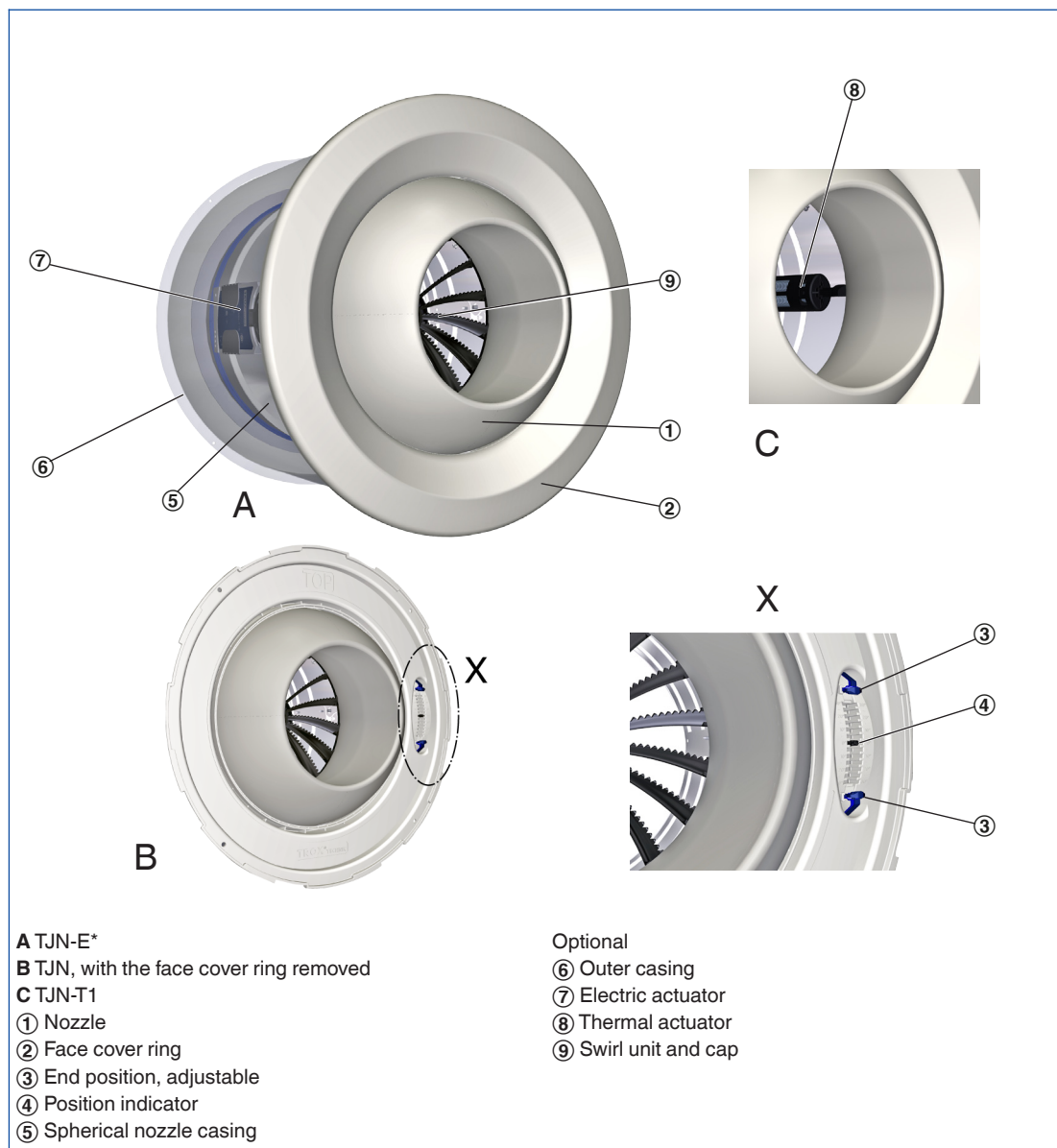
Heating mode

Heating mode is possible with a negative discharge angle of -30° or less. The supply air jet is directed towards the occupied zone. Due to the lower density of warm air the jet becomes buoyant. When the supply air jet reaches the occupied zone, both the supply air to room air temperature difference and the airflow velocity should ideally have been reduced.

The discharge angle can be changed manually or with a thermal or electric actuator.

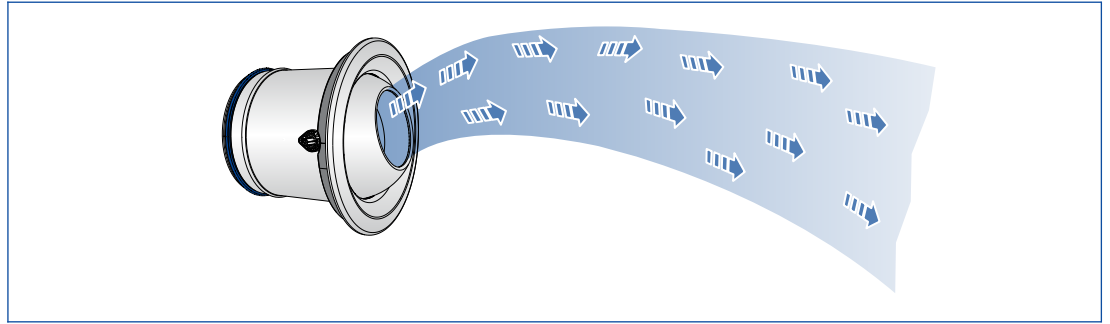
A swirl unit and cap (optional) allow for reducing the throw distance to 65 % or 75 %.

Schematic illustration of TJN

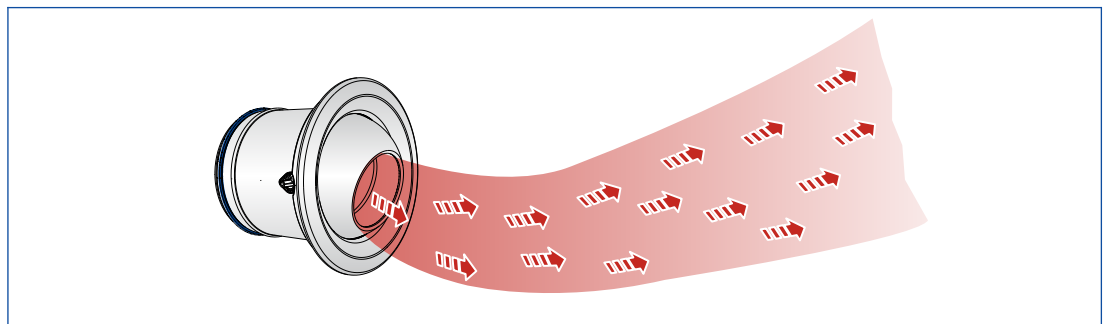


Air patterns

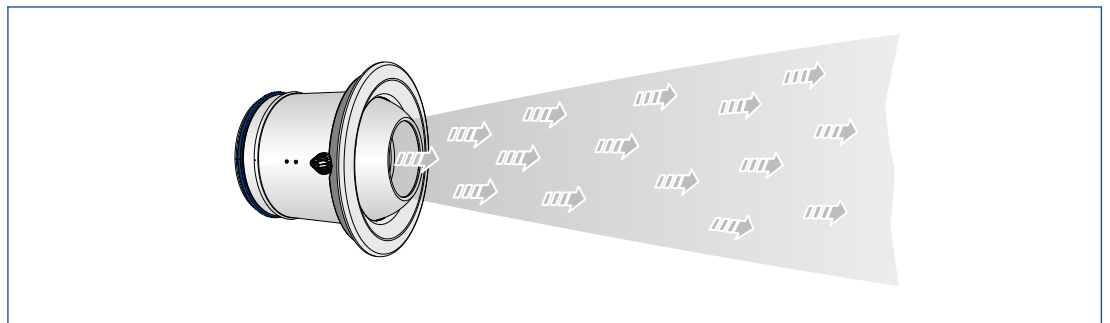
TJN air pattern in cooling mode



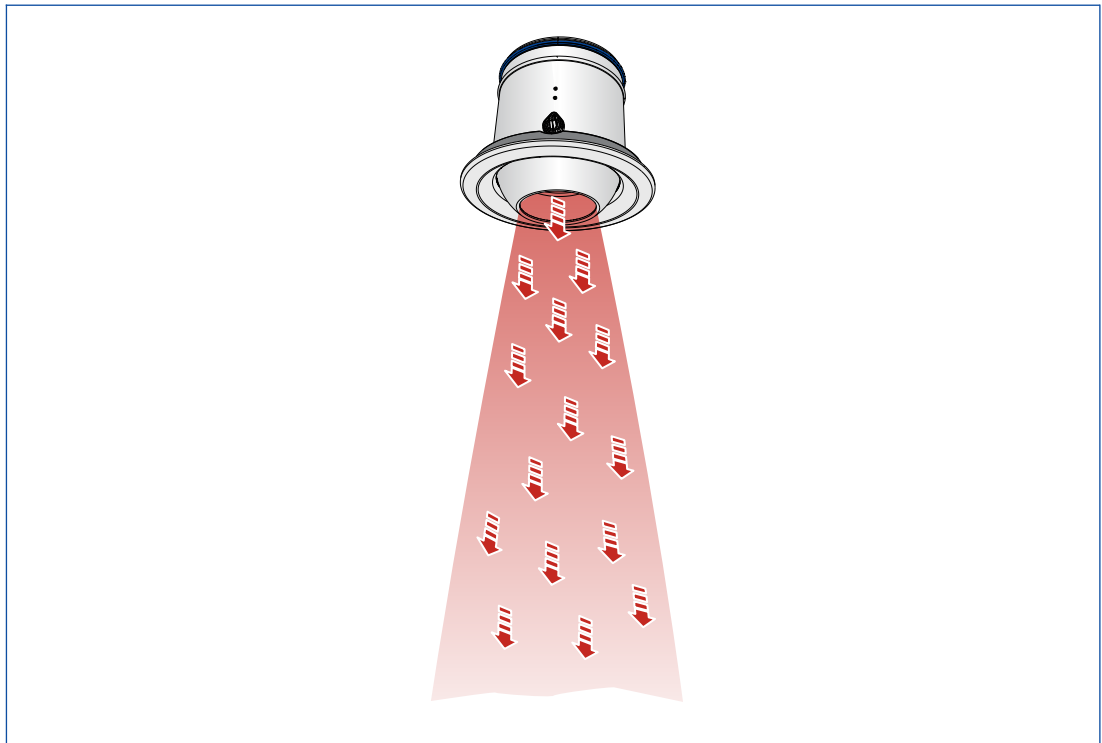
TJN air pattern in heating mode



TJN air pattern with isothermal ventilation



TJN air pattern with vertical discharge, heating mode



Nominal sizes	160, 200, 250, 315, 400 mm
Volume flow rate range	20 – 1000 l/s or 72 – 3600 m ³ /h
Adjustable discharge angle	–30 to +30°
Supply air to room air temperature difference	–12 to +20 K

Quick sizing tables provide a good overview of the volume flow rates and corresponding sound power levels and differential pressures. Exact values for all parameters can be determined with our Easy Product Finder design programme.

TJN, sound power level and total differential pressure

Nominal size	Volume flow rate	Volume flow rate	Δp_t	L_{WA}	v_L	
					0.5 m/s	1.0 m/s
	l/s	m ³ /h	Pa	dB(A)	L	
					m	
160	20	72	9	<15	<5	<5
	40	144	34	<15	8	<5
	60	216	76	15	13	6
	80	288	135	26	17	8
200	35	126	9	<15	6	<5
	70	252	35	<15	11	6
	105	378	78	19	17	9
	140	504	138	30	23	11
250	55	198	8	8	7	<5
	110	396	33	<15	14	7
	165	594	75	21	21	11
	220	792	132	33	28	14
315	90	324	8	<15	9	<5
	185	666	35	<15	18	9
	265	954	71	24	26	13
	360	1296	132	36	>30	18
400	155	558	8	<15	12	6
	310	1116	33	<15	24	12
	465	1674	75	27	>30	18
	620	2232	133	38	>30	24

All values apply to discharge angle 0°

L: Throw distance with isothermal operation, no throw distance reduction

Sizing example

Given data

$\dot{V} = 180$ l/s (648 m³/h)

Max. sound power level 35 dB(A)

Quick sizing

Type TJN

Nominal sizes: 250, 315

Selected: TJN/250

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Adjustable jet nozzles for the ventilation of large internal spaces such as halls and assembly rooms. Air discharge with long throw distance, excellent acoustic properties. Nozzles tilt from -30 to $+30^\circ$ for horizontal air discharge. Discharge angle indication, discharge angle limiting and setting on a concealed scale. Consists of a casing for the spherical discharge nozzle, flange, face cover ring and nozzle. For push fitting directly onto circular ducts or as a branch off circular or rectangular ducts.

Special characteristics

- Easy to remove face cover ring with bayonet fixing
- Swirl unit with acoustically optimised air control blades with unique saw tooth edges and cap for two-step reduction of the throw distance
- Discharge angle indication, discharge angle limiting and setting from -30 to $+30^\circ$ on a concealed scale
- Electric or thermal actuator as options

Materials and surfaces

- Flange, face cover ring, swirl unit and cap made of ABS plastic, UL 94, V-0, flame

- retardant
- Spherical nozzle casing made of galvanised sheet steel
- Connection pieces for circular or rectangular ducts made of galvanised sheet steel
- Double lip seal made of rubber
- Exposed surface is pure white, similar to RAL 9010
- S1: White aluminium, similar to RAL 9006

Technical data

- Nominal sizes: 160, 200, 250, 315, 400 mm
- Volume flow rate range: 20 to 1000 l/s or 72 to 3600 m³/h
- Adjustable discharge angle: -30 to $+30^\circ$
- Supply air to room air temperature difference: -12 to $+20$ K

Sizing data

- \dot{V} _____
[m³/h]
- Δp_i _____
[Pa]
- Air-regenerated noise
- L_{WA} _____
[dB(A)]

TJN

TJN – R – E7 / 160 – 315 / C / D / S1							
1	2	3	4	5	6	7	8

1 Type

TJN Adjustable jet nozzle

2 Connection piece

No entry: none

K For rectangular ducts

R For circular ducts (saddle connector), specify duct diameter under **5**

3 Actuator

No entry: manual adjustment

E7 230 V AC, 3-point

E8 24 V AC/DC, 3-point

E9 24 V AC/DC, modulating 2 – 10 V DC

T1 Thermal actuator

4 Nominal size [mm]

160

200

250

315

400

Order example: TJN-K-E9/250/C/D/S1

Type

TJN

Connection piece

For rectangular ducts

Actuator

Modulating, 2 – 10 V DC, 24 V AC

Nominal size

250 mm

Attachments

Outer casing

Accessories

Swirl unit and cap for throw distance reduction

Exposed surface

White aluminium, similar to RAL 9006

5 Circular duct diameter [mm]

Specify only for variant -R

315 Only for nominal size 160

500 Only up to nominal size 315

630

800

6 Attachments

No entry: none

C Outer casing

7 Accessories

No entry: none

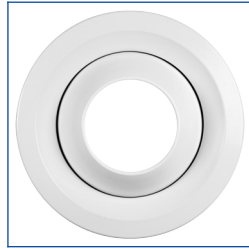
D Swirl unit and cap for throw distance reduction

8 Exposed surface

No entry: RAL 9010, pure white

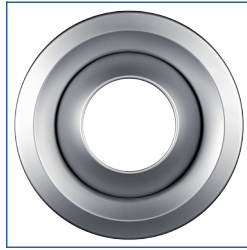
S1 Similar to RAL 9006, white aluminium

TJN



TJN in white, similar to RAL 9010

TJN.../S1



TJN in white aluminium, similar to RAL 9006

TJN



TJN for the direct connection onto circular ducts

TJN-K



TJN for the connection to rectangular ducts

TJN-R



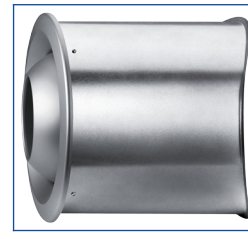
TJN for the connection to circular ducts

TJN-K/.../C



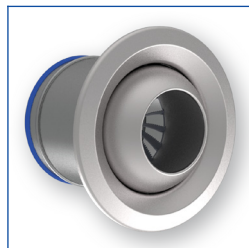
TJN for the connection to rectangular ducts, with outer casing

TJN-R/.../C



TJN for the connection to circular ducts, with outer casing

TJN



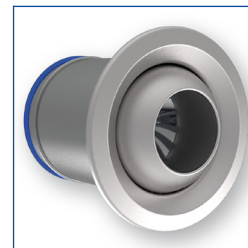
Manual adjustment

TJN-E*



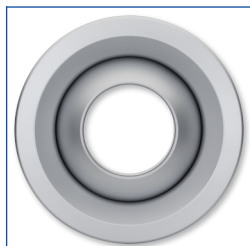
Electric actuator

TJN-T1



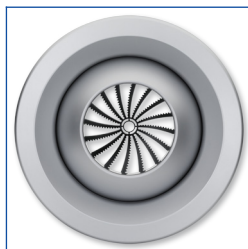
Thermal actuator

Throw distance 100 %



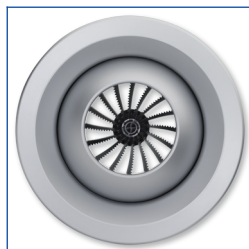
TJN without swirl unit

Throw distance 75 %



TJN with swirl unit

Throw distance 65 %



TJN with swirl unit and cap

TJN

Designed for high comfort

Together with renowned designers and architects we have developed ceiling, wall, staircase and floor diffusers and grilles that are not only aesthetic design elements, but also meet demanding ventilation and acoustic requirements.

Variant

- Jet nozzle for the connection to circular ducts

Nominal sizes

- 160, 200, 250, 315, 400 mm

Parts and characteristics

- Spherical nozzle casing with spigot

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Spigot with double lip seal

TJN/.../C

Designed for high comfort

Together with renowned designers and architects we have developed ceiling, wall, staircase and floor diffusers and grilles that are not only aesthetic design elements, but also meet demanding ventilation and acoustic requirements.

Variant

- Jet nozzle for the connection to circular ducts
- With outer casing

Nominal sizes

- 160, 200, 250, 315, 400 mm

Parts and characteristics

- Spherical nozzle casing with spigot
- Outer casing for visible areas

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Spigot with double lip seal

TJN-K

Variant

- Jet nozzle with connection piece for rectangular ducts

Nominal sizes

- 160, 200, 250, 315, 400 mm

Parts and characteristics

- Connection piece for the connection to rectangular ducts

Construction features

- Connection piece with raised edges to be screw-fixed to the duct

TJN-K/.../C

Variant

- Jet nozzle with connection piece for rectangular ducts
- With outer casing

Nominal sizes

- 160, 200, 250, 315, 400 mm

Parts and characteristics

- Connection piece for the connection to rectangular ducts
- Outer casing for visible areas

Construction features

- Connection piece with raised edges to be screw-fixed to the duct
- Outer casing with raised edges to be screw-fixed to the duct

TJN-R

Variant

- Jet nozzle with connection piece for circular ducts

Nominal sizes

- 160, 200, 250, 315, 400 mm

Parts and characteristics

- Connection piece (saddle connector) for the

connection to circular ducts

Construction features

- Connection piece with raised edges to be screw-fixed to the duct
- Connection piece (saddle connector) suitable for circular ducts to EN 1506 or EN 13180

TJN-R/.../C

Variant

- Jet nozzle with connection piece for circular ducts
- With outer casing

Nominal sizes

- 160, 200, 250, 315, 400 mm

Parts and characteristics

- Connection piece (saddle connector) for the

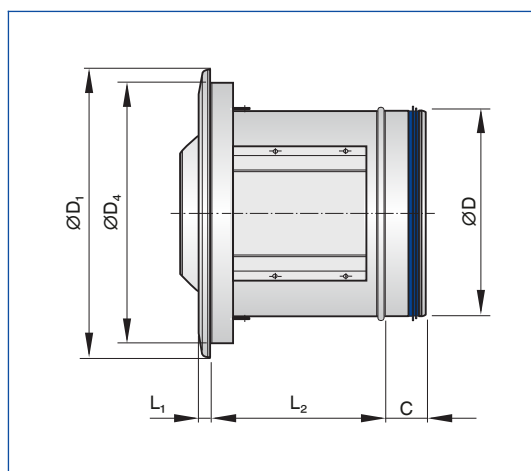
connection to circular ducts

- Outer casing for visible areas

Construction features

- Connection piece with raised edges to be screw-fixed to the duct
- Connection piece (saddle connector) suitable for circular ducts to EN 1506 or EN 13180
- Outer casing with raised edges to be screw-fixed to the duct

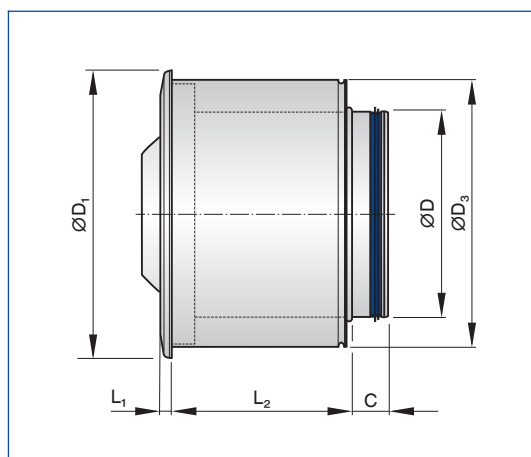
TJN



TJN

Nominal size	TJN		TJN-E*		TJN-T1		ØD ₁ mm	L ₁ mm	ØD ₄ mm	ØD mm	C mm
	L ₂	m	L ₂	m	L ₂	m					
	mm	kg	mm	kg	mm	kg					
160	192	1.9	192	2.1	252	2.3	258	15	227	158	50
200	200	2.3	200	2.5	260	2.8	298	14	263	198	50
250	210	3.1	210	3.3	270	3.7	348	14	315	248	50
315	225	4.0	225	4.2	285	4.8	413	15	379	313	50
400	235	4.6	235	4.8	295	5.5	501	16	468	398	50

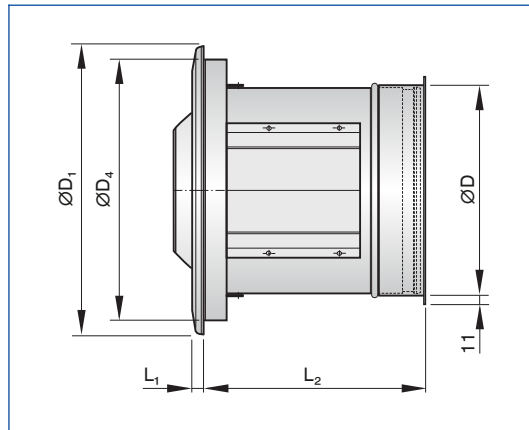
TJN/.../C



TJN/.../C

Nominal size	TJN/.../C		TJN-E*/.../C		TJN-T1/.../C		ØD ₁ mm	L ₁ mm	ØD ₃ mm	ØD mm	C mm
	L ₂	m	L ₂	m	L ₂	m					
	mm	kg	mm	kg	mm	kg					
160	192	2.7	192	2.9	252	3.4	258	15	228	158	50
200	200	3.4	200	3.6	260	4.2	298	14	265	198	50
250	210	4.4	210	4.6	270	5.3	348	14	316	248	50
315	225	5.8	225	6.0	285	7.0	413	15	381	313	50
400	235	8.0	235	8.2	295	9.5	501	16	469	398	50

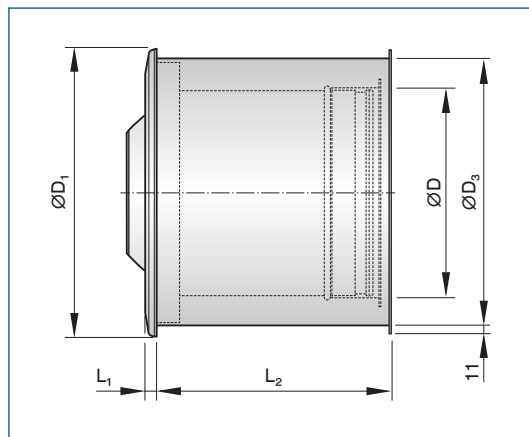
TJN-K



TJN-K

Nominal size	TJN-K		TJN-K-T1		TJN-E*/.../C		ØD ₁ mm	L ₁ mm	ØD ₄ mm	ØD mm	C mm
	L ₂	m	L ₂	m	L ₂	m					
	mm	kg	mm	kg	mm	kg					
160	248	2.1	308	2.5	248	2.3	258	15	227	158	50
200	257	3.2	317	3.7	257	3.4	298	14	263	198	50
250	265	3.4	325	4.0	265	3.6	348	14	315	248	50
315	281	4.6	341	5.4	281	4.8	413	15	379	313	50
400	292	6.5	352	7.4	292	6.7	501	16	468	398	50

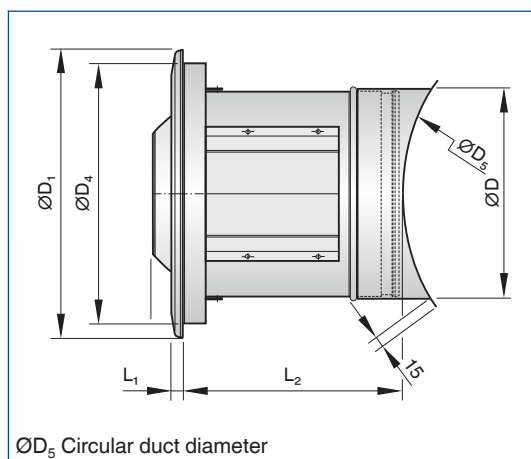
TJN-K/.../C



TJN-K/.../C

Nominal size	TJN-K/.../C		TJN-K-E*/.../C		TJN-K-T1/.../C		ØD ₁ mm	L ₁ mm	ØD ₃ mm	ØD mm	C mm
	L ₂	m	L ₂	m	L ₂	m					
	mm	kg	mm	kg	mm	kg					
160	258	3.5	258	3.7	318	4.2	258	15	228	158	50
200	267	4.3	267	4.5	327	5.1	298	14	265	198	50
250	276	5.5	276	5.7	336	6.4	348	14	316	248	50
315	291	7.2	291	7.4	351	8.4	413	15	381	313	50
400	302	9.9	302	10.1	362	11.4	501	16	469	398	50

TJN-R

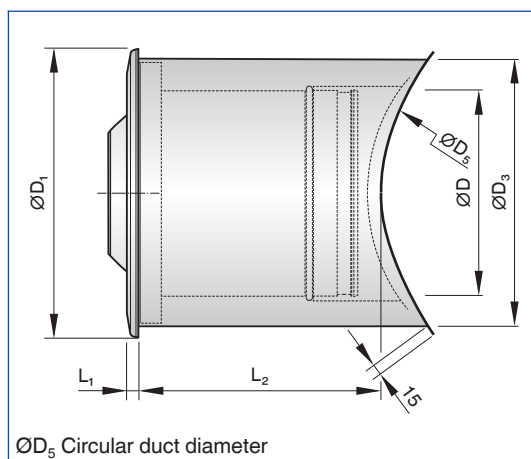


ØD_5 Circular duct diameter

TJN-R

Nominal size	TJN-R		TJN-R-E*		TJN-R-T1		ØD_1	L_1	ØD_4	ØD	C
	L_2 mm	m kg	L_2 mm	m kg	L_2 mm	m kg					
160	248	2.1	248	2.3	308	2.5	258	15	227	158	50
200	257	3.2	257	3.4	317	3.7	298	14	263	198	50
250	265	3.4	265	3.6	325	4.0	348	14	315	248	50
315	281	4.6	281	4.8	341	5.4	413	15	379	313	50
400	292	6.5	292	6.7	352	7.4	501	16	468	398	50

TJN-R/.../C



ØD_5 Circular duct diameter

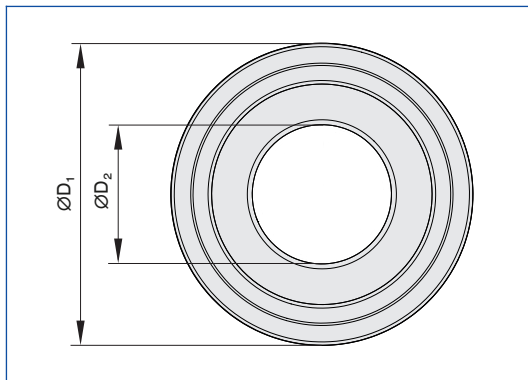
TJN-R/.../C

Nominal size	TJN-R/.../C		TJN-R-E*/.../C		TJN-R-T1/.../C		ØD_1	L_1	ØD_3	ØD	C
	L_2 mm	m kg	L_2 mm	m kg	L_2 mm	m kg					
160	261	3.5	261	3.7	321	4.2	258	15	228	158	50
200	270	4.3	270	4.5	330	5.1	298	14	265	198	50
250	279	5.5	279	5.7	339	6.4	348	14	316	248	50
315	294	7.2	294	7.4	354	8.4	413	15	381	313	50
400	305	9.9	305	10.1	365	11.4	501	16	469	398	50

Circular duct diameter ØD_5 [mm]

	315	500	630	800
Nominal size				
160	+	+	+	+
200		+	+	+
250		+	+	+
315		+	+	+
400			+	+

TJN front view



TJN

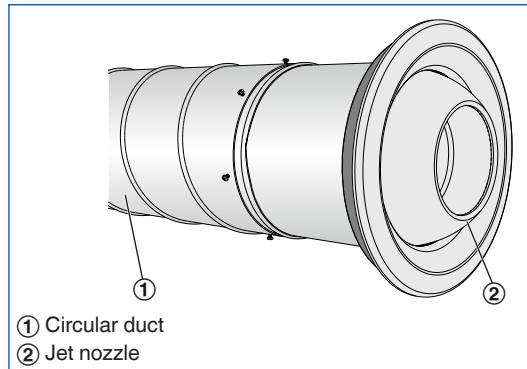
Nominal size	$\varnothing D_1$ mm	$\varnothing D_2$ mm	A_{eff} m^2
160	258	82	0.00500
200	298	108	0.00850
250	348	136	0.01350
315	413	174	0.02250
400	501	231	0.03850

Installation and commissioning

- The correct installation orientation is marked 'Top' on the flange
- Installation directly onto circular ducts or as a branch off circular or rectangular ducts
- If necessary, adjust the throw distance using the swirl unit, or the swirl unit and the cap

These are only schematic diagrams to illustrate installation details.

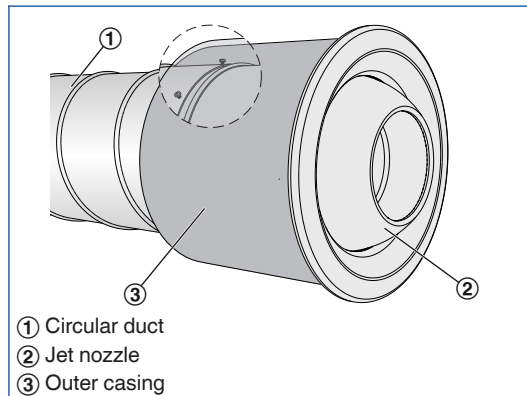
Installation in circular ducts, without outer casing



TJN, DUK-V

- Horizontal duct connection
- Screw fix the spigot to the circular duct

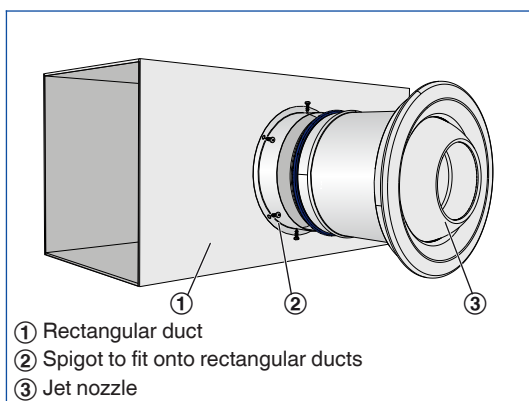
Installation in circular ducts, with outer casing



TJN.../C

- Horizontal duct connection
- Screw fix the spigot to the circular duct
- Attach the outer casing

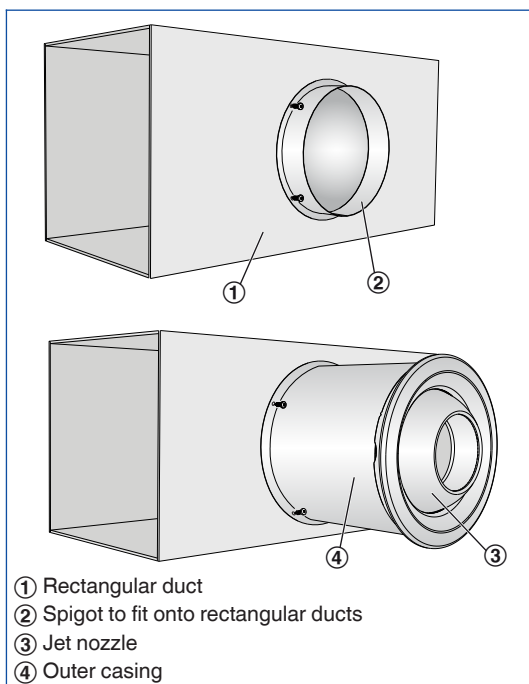
Installation on rectangular ducts, without outer casing



TJN-K, DUK-V-K

- Horizontal duct connection
- Screw fix the spigot or the connection piece with raised edges to the rectangular duct

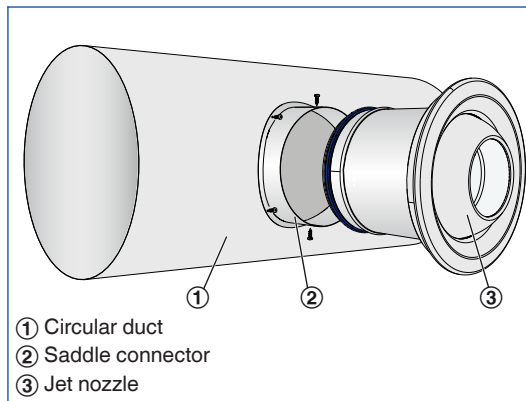
Installation on rectangular ducts, with outer casing



TJN-K/.../C

- Horizontal duct connection
- Screw fix the spigot or the connection piece with raised edges to the rectangular duct
- Attach the outer casing

Installation on circular ducts, without outer casing

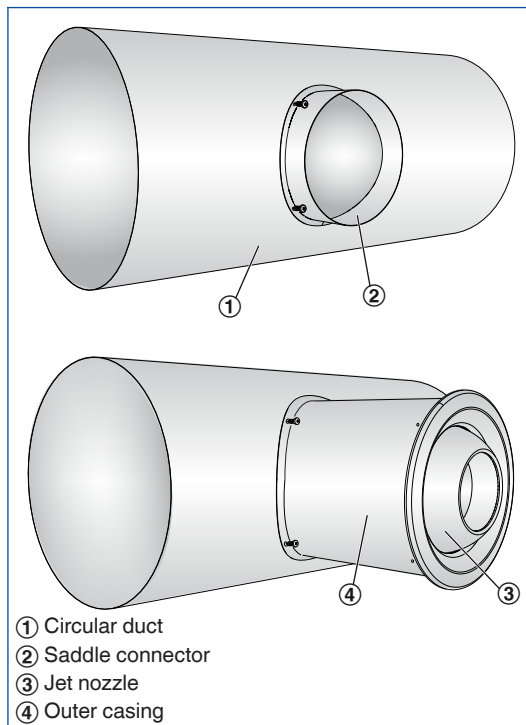


- ① Circular duct
- ② Saddle connector
- ③ Jet nozzle

TJN-R, DUK-V-R

- Horizontal duct connection
- Screw fix the saddle connector to the circular duct

Installation on circular ducts, with outer casing

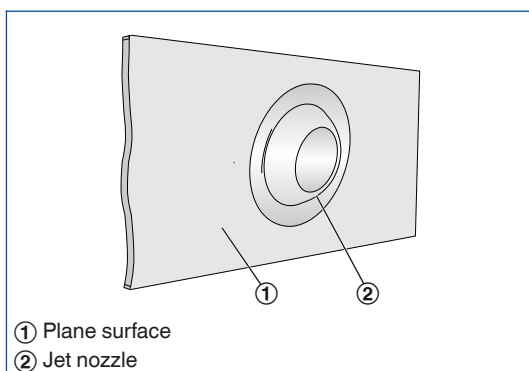


- ① Circular duct
- ② Saddle connector
- ③ Jet nozzle
- ④ Outer casing

TJN-R/.../C

- Horizontal duct connection
- Screw fix the saddle connector to the circular duct
- Attach the outer casing

Installation onto a plane surface



TJN, DUK-V

- No duct connection
- Screw fix the spherical nozzle casing to the installation surface
- Attach the face cover ring

Principal dimensions

 $\varnothing D_1$ [mm]

Outer diameter of the face cover ring

 $\varnothing D_2$ [mm]

Smallest nozzle diameter (at the discharge opening)

 $\varnothing D_3$ [mm]

Diameter of the nozzle casing

 $\varnothing D_4$ [mm]

Nominal width of the circular duct, for nozzles with saddle connector

 L_1 [mm]

Length of the face cover ring

 L_2 [mm]

Casing length

 m [kg]

Weight

Nomenclature

 L_{WA} [dB(A)]

Sound power level of the air-regenerated noise

 \dot{V} [m^3/h] and [l/s]

Volume flow rate

 Δt_z [K]

Supply air to room air temperature difference

 Δp_t [Pa]

Total differential pressure

 v_L [m/s]

Air velocity at throw distance L (measured at the centre of the airflow)

 L [m]

Throw distance with isothermal operation, no throw distance reduction

 A_{eff} [m^2]

Effective air discharge area

All sound power levels are based on 1 pW.