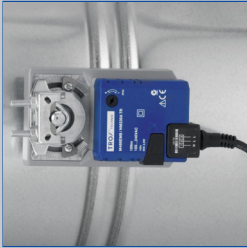


# Jet nozzles

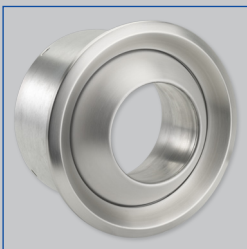
## Type DUK



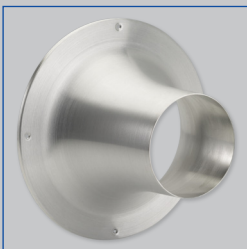
Actuator



Connection to circular ducts



DUK-V



DUK-F



### For installation into walls and onto rectangular and circular ducts, adjustable and fixed – made of aluminium

Adjustable and fixed jet nozzles achieve long throw distances and have excellent acoustic properties

- Nominal sizes: 100, 125, 160, 200, 250, 315 and 400 mm
- Volume flow rate range: 15 to 400 l/s or 54 to 1440 m<sup>3</sup>/h
- Visible parts made of aluminium
- For variable and constant volume flows
- Low sound power levels due to aerodynamically optimised nozzle contours
- Discharge angle can be adjusted manually or with an actuator
- Quick and easy to fix, concealed fixing

#### Optional equipment and accessories

- Exposed surface in RAL CLASSIC colours
- Circular spigot
- Connection pieces for circular and rectangular ducts
- Internal or external actuators for adjusting the discharge angle

Type		Page
DUK	General information	DUK – 2
	Function	DUK – 3
	Technical data	DUK – 8
	Quick sizing	DUK – 9
	Specification text	DUK – 12
	Order code	DUK – 13
	Variants	DUK – 14
	Dimensions and weight	DUK – 16
	Product details	DUK – 21
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	Basic information and nomenclature	DUK – 25

## Application

### Application

- Type DUK 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; also for installation into walls and bulkheads

### Special characteristics

- High discharge momentum, hence large penetration depth in heating mode
- Optimised nozzle contours
- Fixed and adjustable variants
- Discharge angle can be adjusted from –30° to +30°, either manually or with an actuator
- Electric actuator as an option

### Nominal sizes

- 100, 125, 160, 200, 250, 315, 400 mm
- From nominal size 160 with actuator

## Description

### Variants

- F: Fixed jet nozzle
- V: Adjustable jet nozzle

### Connection

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

### Actuator

- Manual adjustment
- E\*: Internal or external electric actuator

### Parts and characteristics

- Nozzle with acoustically optimised contours

### Useful additions

- TDC temperature difference control module

### Construction features

- Spigot (optional) suitable for circular ducts to EN 1506 or EN 13180.

### Materials and surfaces

#### Fixed

- Nozzle made of aluminium
- Untreated surface

### Adjustable

- Nozzle and face cover ring made of aluminium
- Spherical nozzle casing ring, casing, saddle connector and spigot made of galvanised sheet steel
- Spherical nozzle casing made of plastic, UL 94, V-0, flame retardant, heat resistant up to 50 °C
- Nozzle and face cover ring untreated
- Spherical nozzle casing similar to RAL 9010, white
- P0: Nozzle and face cover ring powder-coated RAL 9010, pure white
- P1: Nozzle and face cover ring powder-coated, RAL CLASSIC colour

### 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

## DUK

### 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  $30^\circ$ . 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  $-30^\circ$  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 an electric actuator.

## DUK-F

### 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. Fixed jet nozzles can be used for heating and cooling. The supply air to room air temperature difference may range from  $-12$  to  $+20$  K.

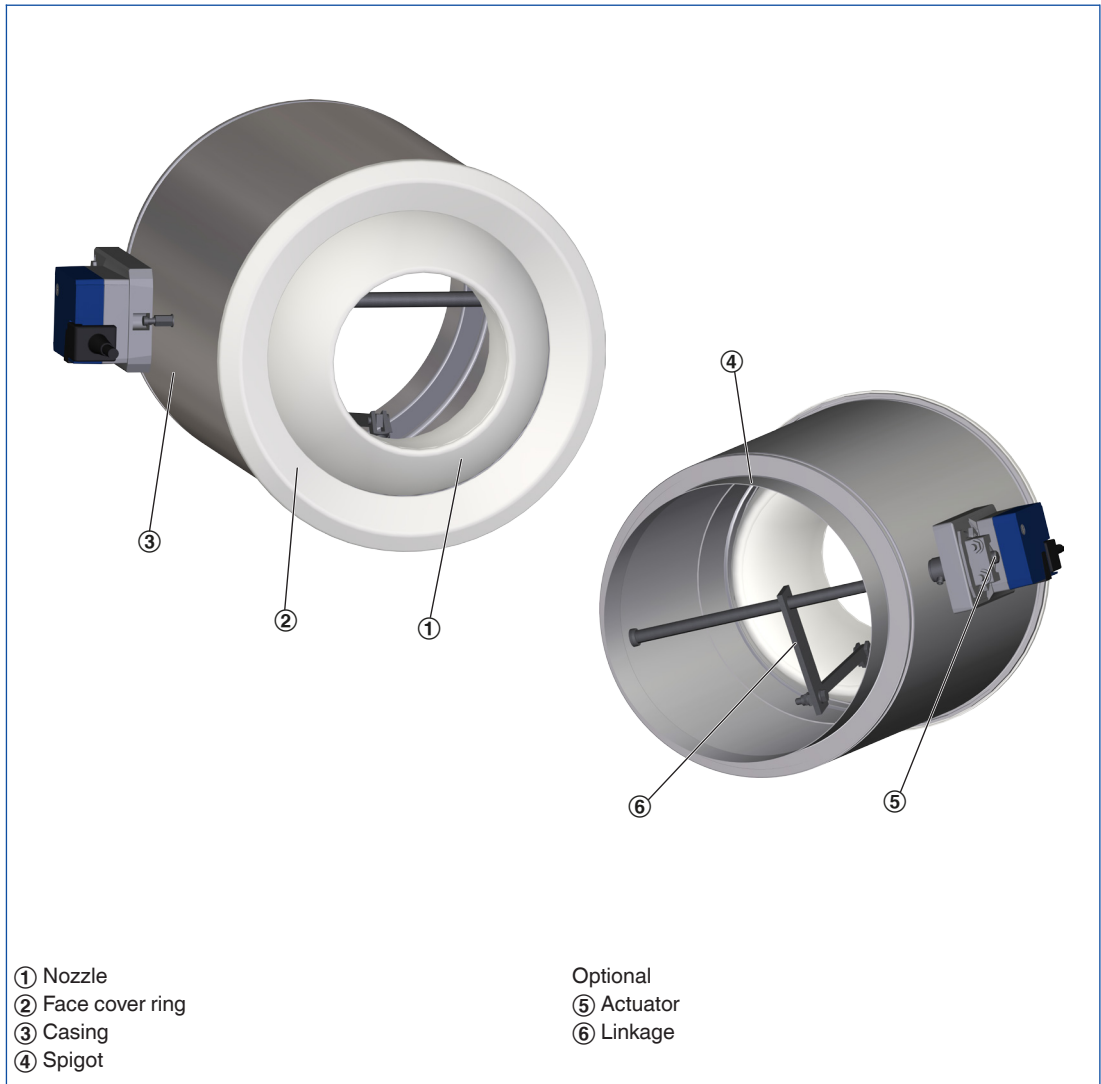
#### Cooling mode

The supply air is discharged horizontally, 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.

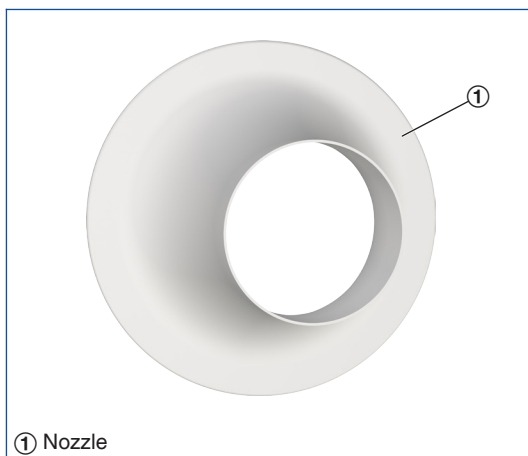
#### Heating mode

The supply air is discharged horizontally, but 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.

Schematic illustration of DUK-V for push fitting directly onto circular ducts

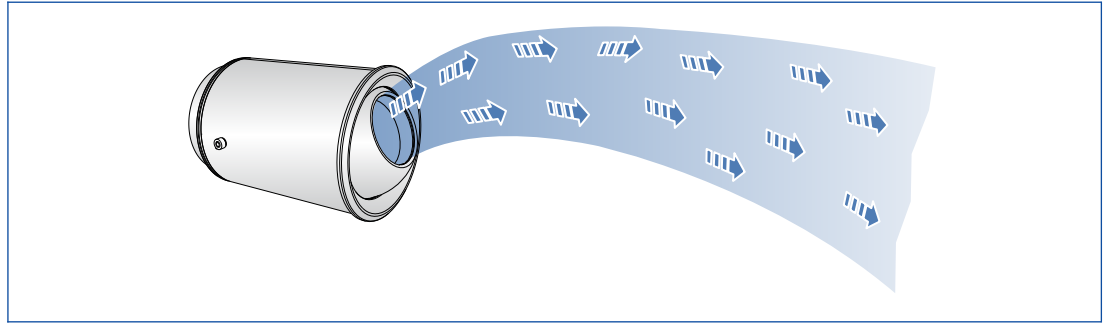


Schematic illustration of DUK-F

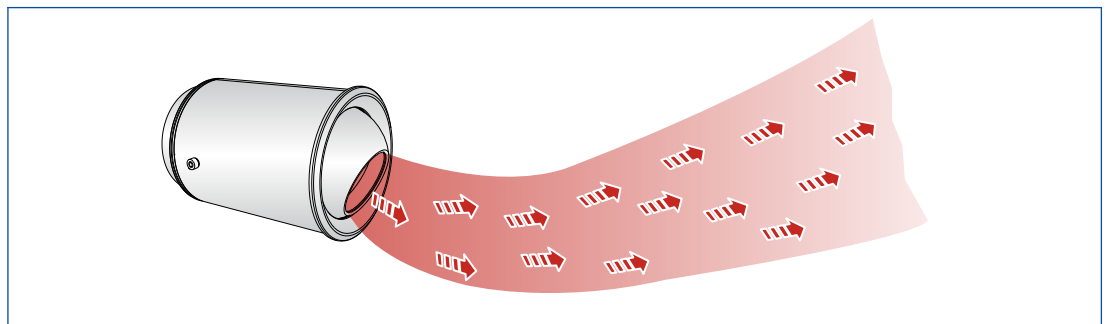


Air patterns

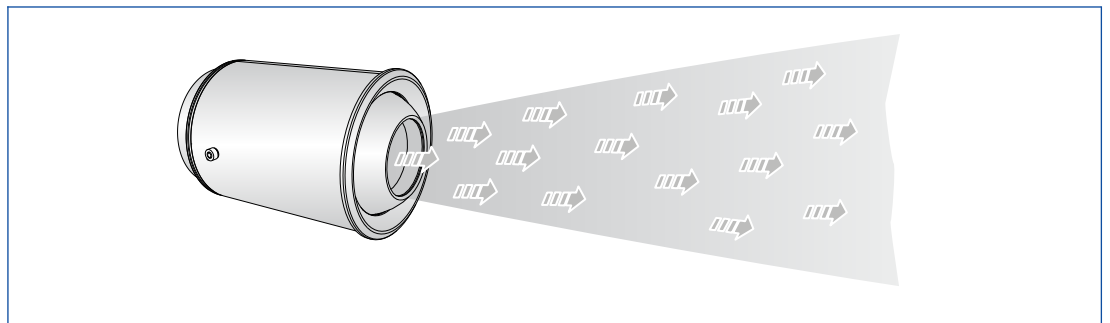
DUK-V air pattern in cooling mode



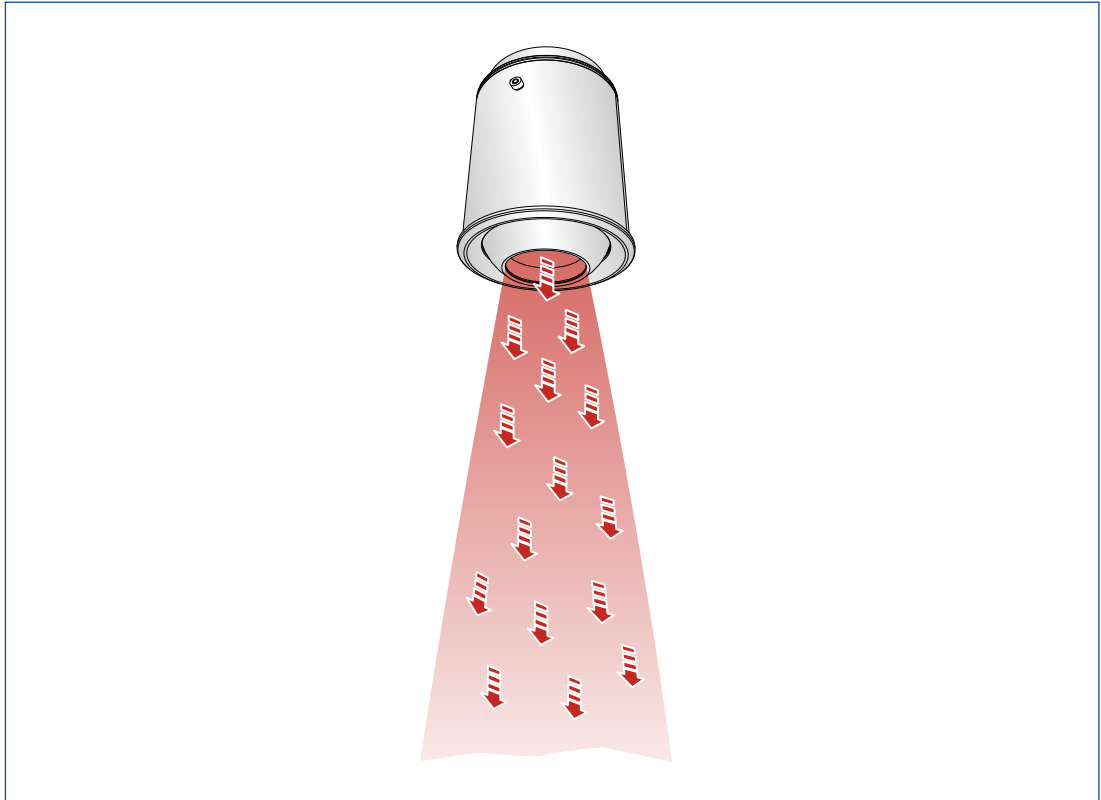
DUK-V air pattern in heating mode



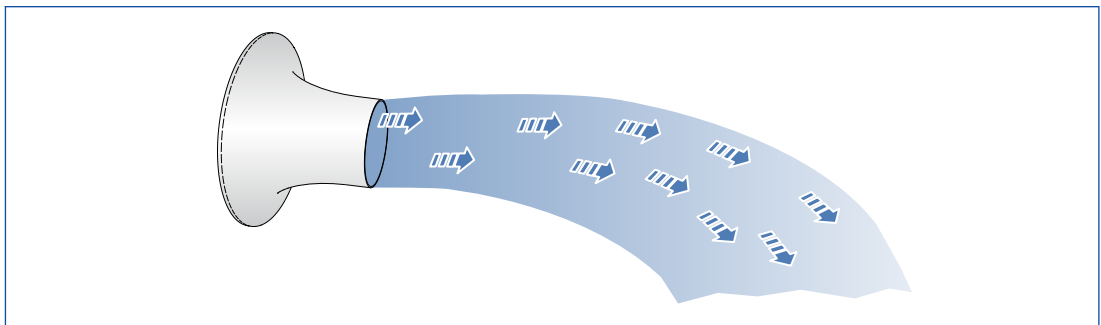
DUK-V air pattern with isothermal ventilation



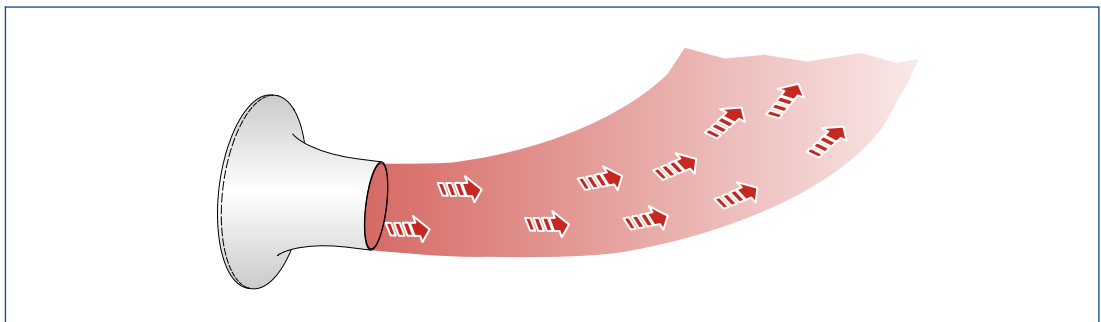
DUK-V air pattern with vertical discharge, heating mode



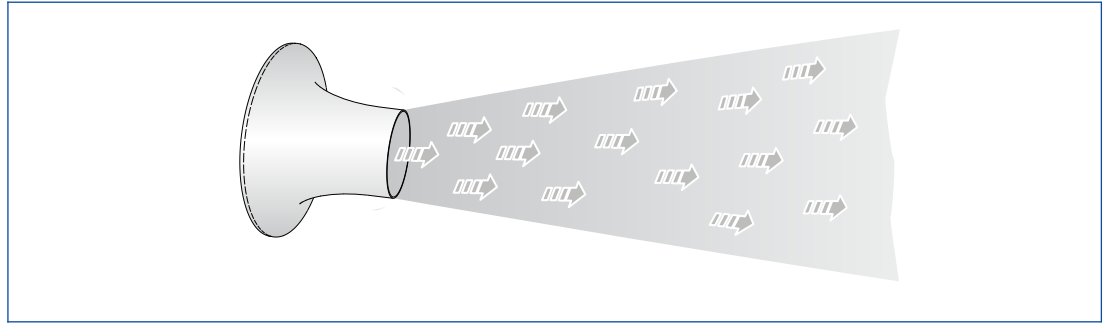
DUK-F air pattern in cooling mode



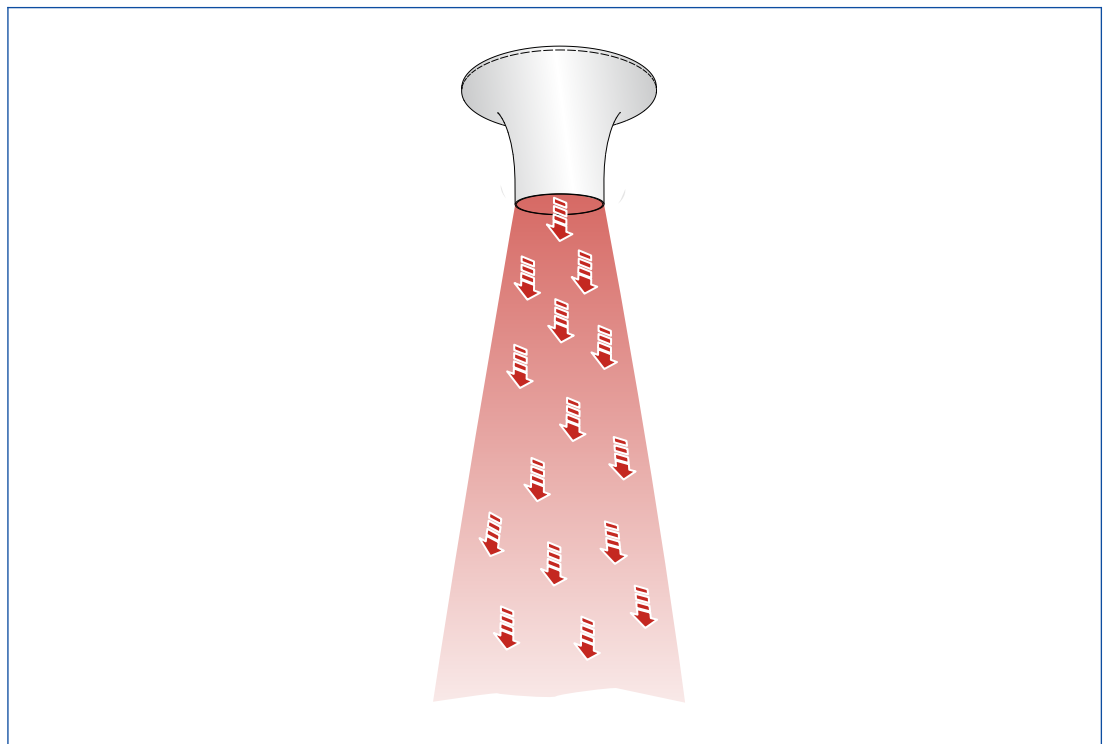
DUK-F air pattern in heating mode



DUK-F air pattern with isothermal ventilation



DUK-F air pattern with vertical discharge, heating mode



Nominal sizes	100, 125, 160, 200, 250, 315, 400 mm
Volume flow rate range	15 – 400 l/s or 54 – 1440 m <sup>3</sup> /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.

**DUK-V, DUK-V-A, DUK-V-A-(E1, E2, E3), DUK-V-K, DUK-V-K-(E1, E2, E3), DUK-V-R, DUK-V-R-(E1, E2, E3), sound power level and total differential pressure**

Nominal size	Volume flow rate	Volume flow rate	$\Delta p_t$	$L_{WA}$	$v_L$	
					0.5 m/s	1.0 m/s
	l/s	m <sup>3</sup> /h	Pa	dB(A)	L	
					m	
100	8	28	11	<15	<5	<5
	15	54	38	<15	5	<5
	20	72	68	<15	7	<5
	30	108	152	30	10	5
125	15	54	13	<15	<5	<5
	30	108	49	<15	8	<5
	45	162	110	31	12	6
	60	216	196	42	16	8
160	20	72	9	<15	<5	<5
	40	144	36	<15	8	<5
	60	216	81	19	13	6
	80	288	144	30	17	8
200	35	126	10	<15	6	<5
	70	252	37	<15	11	6
	105	378	82	23	17	9
	140	504	145	35	23	11
250	55	198	9	<15	7	<5
	110	396	35	<15	14	7
	165	594	77	22	21	11
	220	792	137	34	28	14
315	90	324	9	<15	9	<5
	185	666	37	<15	18	9
	265	954	75	23	26	13
	360	1296	137	35	>30	18
400	155	558	6	<15	12	6
	310	1116	34	<15	24	12
	465	1674	75	29	>30	18
	620	2232	133	40	>30	24

All values apply to discharge angle 0°  
L: Throw distance with isothermal operation

DUK-V-A-(E4, E5, E6), DUK-V-K-(E4, E5, E6), DUK-V-R-(E4, E5, E6), sound power level and total differential pressure

Nominal size	Volume flow rate	Volume flow rate	$\Delta p_t$	$L_{WA}$	$v_L$	
					0.5 m/s	1.0 m/s
	l/s	m <sup>3</sup> /h	Pa	dB(A)	L	
					m	
160	20	72	9	<15	<5	<5
	40	144	36	18	8	<5
	60	216	81	31	13	6
	80	288	144	41	17	8
200	35	126	10	<15	6	<5
	70	252	37	22	11	6
	105	378	82	35	17	9
	140	504	145	44	23	11
250	55	198	9	<15	7	<5
	110	396	35	20	14	7
	165	594	77	33	21	11
	220	792	137	43	28	14
315	90	324	9	<15	9	<5
	185	666	37	22	18	9
	265	954	75	33	26	13
	360	1296	137	43	>30	18
400	155	558	6	<15	12	6
	310	1116	34	22	24	12
	465	1674	75	35	>30	18
	620	2232	133	44	>30	24

All values apply to discharge angle 0°

L: Throw distance with isothermal operation

DUK-F, sound power level and total differential pressure

Nominal size	Volume flow rate	Volume flow rate	$\Delta p_t$	$L_{WA}$	$v_L$	
					0.5 m/s	1.0 m/s
	l/s	m <sup>3</sup> /h	Pa	dB(A)	L	
					m	
100	8	28	6	<15	3	<5
	15	54	33	<15	5	<5
	20	72	61	<15	7	4
	30	108	142	19	11	5
125	15	54	10	<15	4	<5
	30	108	52	<15	9	<5
	45	162	122	16	13	6
	60	216	220	26	17	9
160	20	72	5	<15	4	<5
	40	144	31	<15	9	<5
	60	216	74	<15	13	7
	80	288	134	20	17	9
200	35	126	6	<15	6	<5
	70	252	33	<15	12	6
	105	378	79	<15	17	9
	140	504	143	24	23	12
250	55	198	6	<15	7	<5
	110	396	34	<15	14	<5
	165	594	80	18	22	11
	220	792	145	28	29	14
315	90	324	6	<15	9	5
	185	666	36	<15	19	10
	265	954	77	22	27	14
	360	1296	145	33	37	19
400	155	558	6	<15	12	6
	310	1116	34	17	24	12
	465	1674	81	30	35	18
	620	2232	148	40	>30	24

L: Throw distance with isothermal operation

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

Fixed and 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. For horizontal air discharge; variants with fixed discharge angle, adjustable air discharge (360°), or air discharge with nozzle that tilts between -30 and +30°.

Fixed nozzles with acoustically optimised contours and countersunk holes for screw-fixing to a plane surface

Adjustable jet nozzles have an additional spherical casing and a casing with a spigot, raised edges or saddle connector.

For push fitting directly onto circular ducts or as a branch off circular or rectangular ducts; also for installation on plane surfaces.

### Special characteristics

- High discharge momentum, hence large penetration depth in heating mode
- Optimised nozzle contours
- Fixed and adjustable variants
- Discharge angle can be adjusted from -30° to +30°, either manually or with an actuator
- Electric actuator as an option

### Materials and surfaces

Fixed

- Nozzle made of aluminium
- Untreated surface

Adjustable

- Nozzle and face cover ring made of aluminium
- Spherical nozzle casing ring, casing, saddle connector and spigot made of galvanised sheet steel
- Spherical nozzle casing made of plastic, UL 94, V-0, flame retardant, heat resistant up to 50 °C
- Nozzle and face cover ring untreated
- Spherical nozzle casing similar to RAL 9010, white
- P0: Nozzle and face cover ring powder-coated RAL 9010, pure white
- P1: Nozzle and face cover ring powder-coated, RAL CLASSIC colour

### Technical data

- Nominal sizes: 100, 125, 160, 200, 250, 315, 400 mm
- Volume flow rate range: 15 to 400 l/s or 54 to 1440 m<sup>3</sup>/h
- Adjustable discharge angle: -30 to +30°
- Supply air to room air temperature difference: -12 to +20 K

### Sizing data

- $V$  \_\_\_\_\_  
[m<sup>3</sup>/h]
  - $\Delta p_t$  \_\_\_\_\_  
[Pa]
- Air-regenerated noise
- $L_{WA}$  \_\_\_\_\_  
[dB(A)]

DUK

<b>DUK – V – R – E1 / 250 – 630 / P1 – RAL ...</b>						
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**1** Type

**DUK** Jet nozzle

**2** Discharge direction

**F** Fixed  
**V** Adjustable

**3** Connection

Only for variant V

No entry: without spigot  
**A** Spigot to fit onto the end of circular ducts  
**K** Spigot to fit onto rectangular ducts  
**R** Saddle connector, specify duct diameter under **6**

**4** Adjustment

No entry: manual adjustment

From nominal size 160  
External electric actuator  
**E1** 230 V AC, 3-point  
**E2** 24 V AC/DC, 3-point  
**E3** 24 V AC/DC, modulating 2 – 10 V DC  
Internal electric actuator  
**E4** 230 V AC, 3-point  
**E5** 24 V AC, 3-point

**5** Nominal size [mm]

**100**  
**125**  
**160**  
**200**  
**250**  
**315**  
**400**

**6** Circular duct diameter [mm]

Specify only for variant -R  
**200** Only for nominal size 100  
**250** Only for nominal size 125  
**315** Only for nominal size 160  
**500** Only for nominal sizes 160 –315  
**630** From nominal size 160  
**800** From nominal size 160

**7** Exposed surface

No entry: untreated  
**P0** Powder-coated RAL 9010, pure white  
**P1** Powder-coated, specify RAL CLASSIC colour  
  
Gloss level  
RAL 9010 50 %  
RAL 9006 30 %  
All other RAL colours 70 %

**Order example: DUK-V-K-E1/250/P1 – RAL 9016**

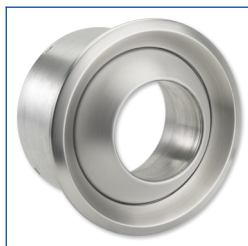
<b>Discharge direction</b>	Adjustable
<b>Connection</b>	Spigot to fit onto rectangular ducts
<b>Adjustment</b>	230 V AC
<b>Nominal size</b>	250 mm
<b>Exposed surface</b>	White aluminium, similar to RAL 9006

**DUK-F**



Fixed jet nozzle

**DUK-V**



Adjustable jet nozzle

**DUK-V-A-E1**



DUK for the direct connection onto circular ducts

**DUK-V-K-E1**



DUK for the connection to rectangular ducts

**DUK-V-R-E1**



DUK for the connection to circular ducts

**DUK-V**

**Variant**

- Adjustable jet nozzle for wall and bulkhead installation

**Nominal sizes**

- 100, 125, 160, 200, 250, 315, 400

**Parts and characteristics**

- Nozzle with acoustically optimised contours
- Nozzle can be manually rotated inside the spherical casing by 360°
- Screw fixing concealed by face cover ring

**DUK-V-A**

**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**

- Adjustable jet nozzle for the connection to circular ducts

**Nominal sizes**

- 100, 125, 160, 200, 250, 315, 400 mm
- From nominal size 160 with actuator

**Parts and characteristics**

- Nozzle with acoustically optimised contours
- Nozzle can be manually rotated inside the spherical casing by 360°
- Screw fixing concealed by face cover ring
- Casing and spigot
- The discharge angle can be adjusted from –30° to +30° with an electric actuator (optional)
- E1, E2, E3: External actuator
- E4, E5, E6: Internal actuator with spindle

**Construction features**

- Spigot suitable for circular ducts to EN 1506 or EN 13180

**DUK-V-K**

**Variant**

- Adjustable jet nozzle for the connection to rectangular ducts

**Nominal sizes**

- 100, 125, 160, 200, 250, 315, 400 mm
- From nominal size 160 with actuator

**Parts and characteristics**

- Nozzle with acoustically optimised contours
- Nozzle can be manually rotated inside the spherical casing by 360°
- Screw fixing concealed by face cover ring
- Casing with raised edges
- The discharge angle can be adjusted from –30° to +30° with an electric actuator (optional)
- E1, E2, E3: External actuator
- E4, E5, E6: Internal actuator with spindle

#### DUK-V-R

##### Variant

- Adjustable jet nozzle for the connection to circular ducts

##### Nominal sizes

- 100, 125, 160, 200, 250, 315, 400 mm
- From nominal size 160 with actuator

##### Parts and characteristics

- Nozzle with acoustically optimised contours
- Nozzle can be manually rotated inside the spherical casing by 360°
- Screw fixing concealed by face cover ring
- Casing and saddle connector
- The discharge angle can be adjusted from -30° to +30° with an electric actuator (optional)
- E1, E2, E3: External actuator
- E4, E5, E6: Internal actuator with spindle

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#### DUK-F

##### Variant

- Fixed jet nozzle

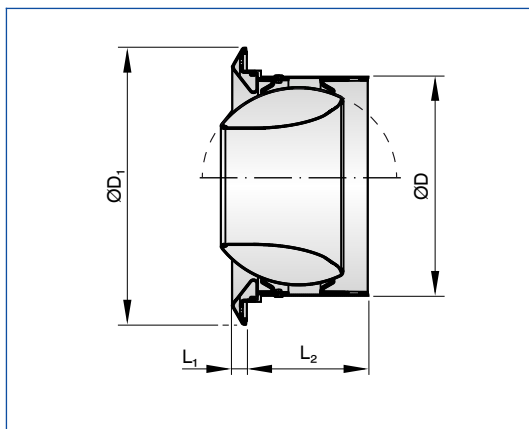
##### Nominal sizes

- 100, 125, 160, 200, 250, 315, 400

##### Parts and characteristics

- Nozzle with acoustically optimised contours
- Countersunk holes for screw-fixing the nozzle to a plane surface

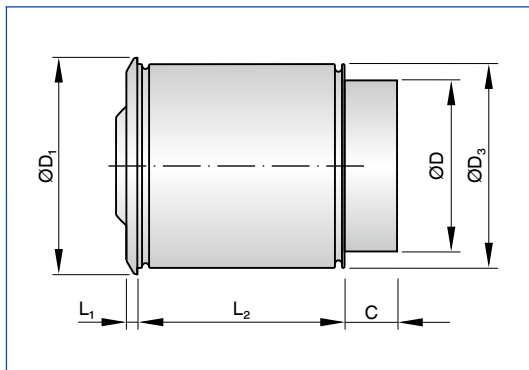
DUK-V



DUK-V

Nominal size	ØD <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	ØD	m
	mm	mm	mm	mm	kg
100	146	11	76	98	0.4
125	169	11	85	123	0.5
160	200	11	94	158	0.8
200	257	16	110	198	1.4
250	302	16	146	248	2.5
315	384	23	153	313	4.0
400	467	24	177	398	6.0

DUK-V-A

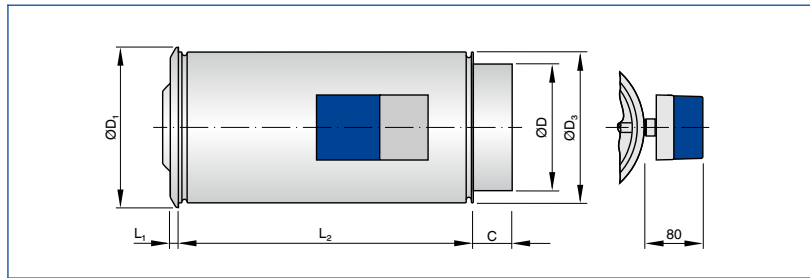


DUK-V-A

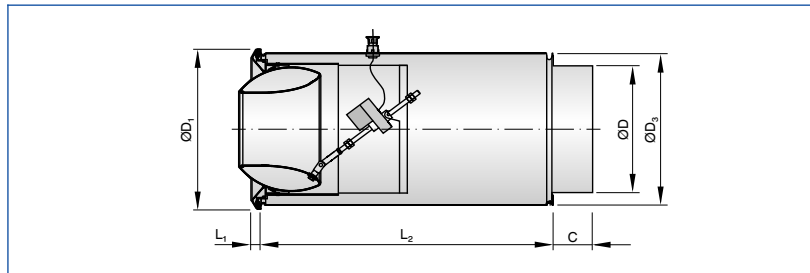
Nominal size	ØD <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	ØD <sub>3</sub>	ØD	C	m
	mm	mm	mm	mm	mm	mm	kg
100	146	11	84	134	98	50	0.8
125	169	11	94	157	123	50	1.0
160	200	11	114	188	158	50	1.6
200	257	16	143	242	198	50	2.5
250	302	16	172	287	248	50	4.0
315	384	23	223	358	313	50	6.0
400	467	24	262	441	398	50	9.0



DUK-V-A-E1, DUK-V-A-E2, DUK-V-A-E3



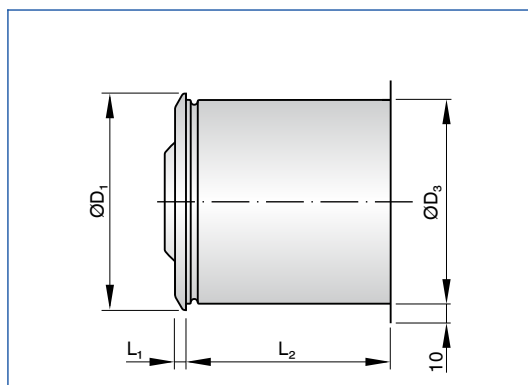
DUK-V-A-E4, DUK-V-A-E5, DUK-V-A-E6



DUK-V-A-E\*

Nominal size	ØD <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	ØD <sub>3</sub>	ØD	C	m
	mm	mm	mm	mm	mm	mm	kg
160	200	11	365	188	158	50	3.0
200	257	16	365	242	198	50	4.0
250	302	16	365	287	248	50	5.5
315	384	23	365	358	313	50	7.5
400	467	24	365	441	398	50	10.2

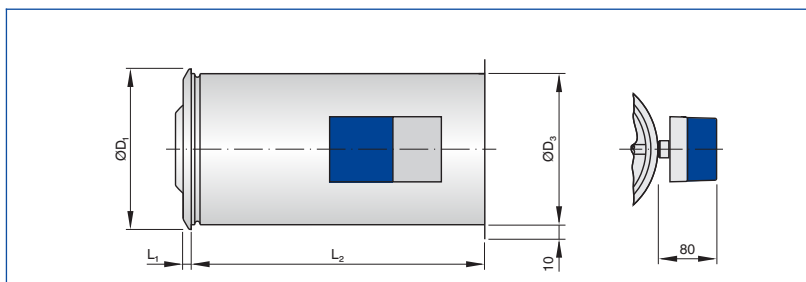
DUK-V-K



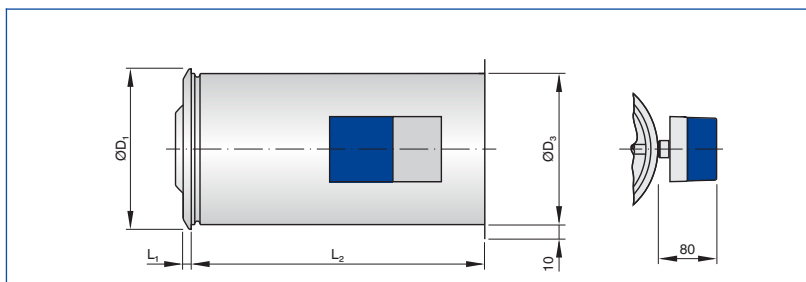
DUK-V-K

Nominal size	ØD <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	ØD <sub>3</sub>	C	m
	mm	mm	mm	mm	mm	kg
100	146	11	84	134	50	0.8
125	169	11	94	157	50	1.0
160	200	11	114	188	50	1.5
200	257	16	143	242	50	2.3
250	302	16	172	287	50	4.0
315	384	23	223	358	50	6.0
400	467	24	262	441	50	9.0

DUK-V-K-E1, DUK-V-K-E2, DUK-V-K-E3



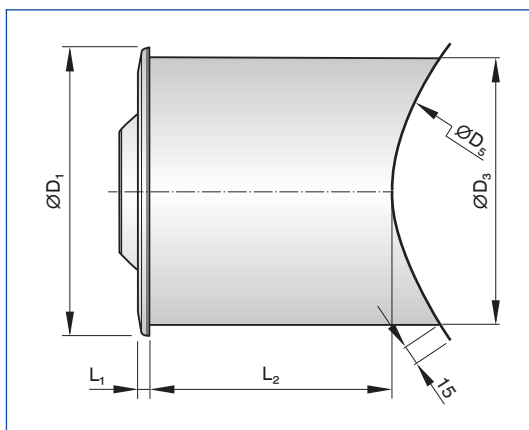
DUK-V-K-E1, DUK-V-K-E2, DUK-V-K-E3



DUK-V-K-E\*

Nominal size	$\varnothing D_1$	$L_1$	$L_2$	$\varnothing D_3$	C	m
	mm	mm	mm	mm	mm	kg
160	200	11	365	188	50	3.0
200	257	16	365	242	50	4.0
250	302	16	365	287	50	5.5
315	384	23	365	358	50	7.5
400	467	24	365	441	50	10.0

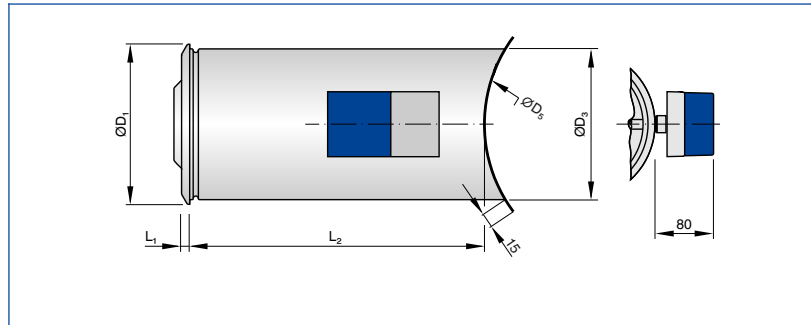
DUK-V-R



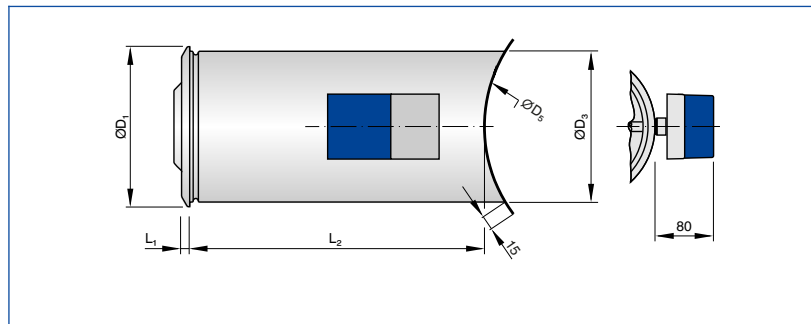
**DUK-V-R**

Nominal size	$\varnothing D_1$	$L_1$	$L_2$	$\varnothing D_3$	$C$	$m$
	mm	mm	mm	mm	mm	kg
100	146	11	84	134	50	0.7
125	169	11	94	157	50	0.9
160	200	11	114	188	50	1.3
200	257	16	143	242	50	2.2
250	302	16	172	287	50	3.7
315	384	23	223	358	50	5.9
400	467	24	262	441	50	8.7

**DUK-V-R-E1, DUK-V-R-E2, DUK-V-R-E3**



**DUK-V-R-E1, DUK-V-R-E2, DUK-V-R-E3**



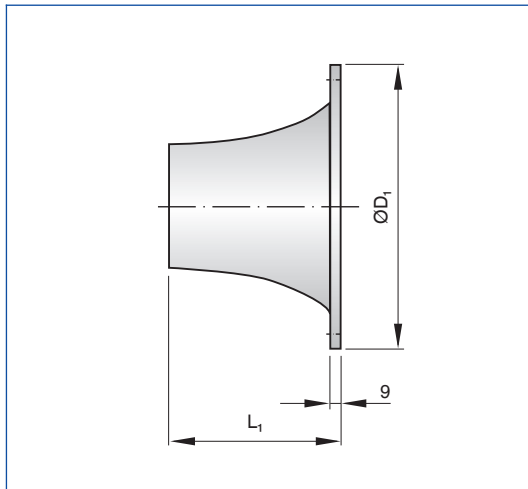
**DUK-V-R-E\***

Nominal size	$\varnothing D_1$	$L_1$	$L_2$	$\varnothing D_3$	$C$	$m$
	mm	mm	mm	mm	mm	kg
160	200	11	365	188	50	3.2
200	257	16	365	242	50	4.4
250	302	16	365	287	50	5.7
315	384	23	365	358	50	8.0
400	467	24	365	441	50	11.5

**Circular duct diameter  $\varnothing D_5$  [mm]**

Nominal size	200	250	315	500	630	800
	100	+				
125		+				
160			+	+	+	+
200				+	+	+
250				+	+	+
315				+	+	+
400					+	+

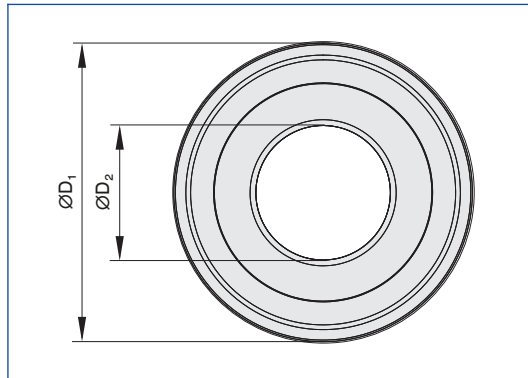
DUK-F



DUK-F

Nominal size	$\varnothing D_1$	$L_1$	$m$
	mm	mm	kg
100	138	94	0.1
125	161	112	0.1
160	225	122	0.2
200	265	153	0.3
250	315	187	0.4
315	400	224	0.6
400	485	287	0.9

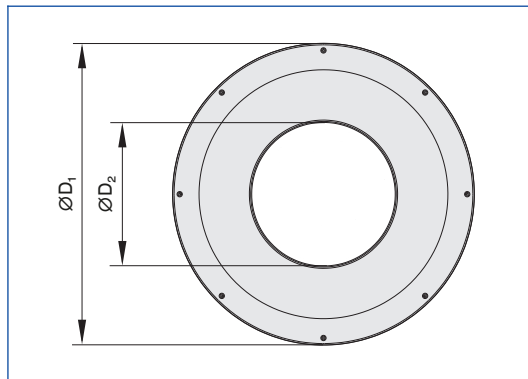
DUK-V front view



DUK-V

Nominal size	ØD <sub>1</sub>	ØD <sub>2</sub>	A <sub>eff</sub>
	mm	mm	m <sup>2</sup>
100	146	50	0.00190
125	169	64	0.00310
160	200	82	0.00500
200	257	108	0.00850
250	302	136	0.01350
315	384	174	0.02250
400	467	230	0.03850

DUK-F front view



DUK-F

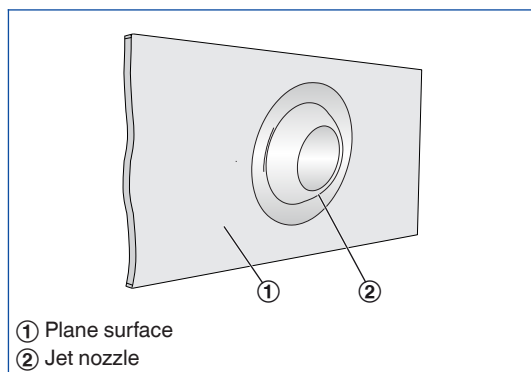
Nominal size	ØD <sub>1</sub>	ØD <sub>2</sub>	A <sub>eff</sub>
	mm	mm	m <sup>2</sup>
100	138	50	0.00174
125	161	64	0.00277
160	225	82	0.00469
200	265	108	0.00813
250	315	136	0.01289
315	400	174	0.02110
400	485	230	0.03683

### Installation and commissioning

- Ensure correct installation orientation
- Installation directly onto circular ducts or as a branch off circular or rectangular ducts
- DUK-F and DUK-V can also be installed on the face of plane surfaces, e.g. walls and bulkheads

These are only schematic diagrams to illustrate installation details.

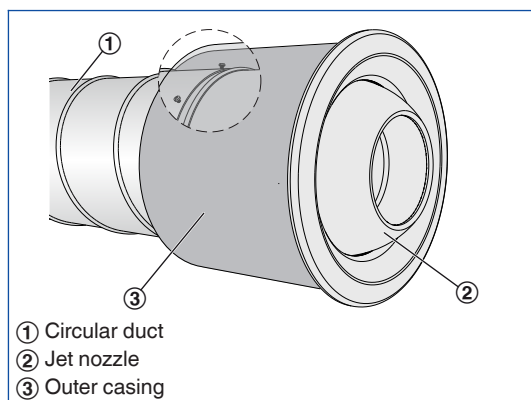
### Installation onto a plane surface



TJN, DUK-V

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

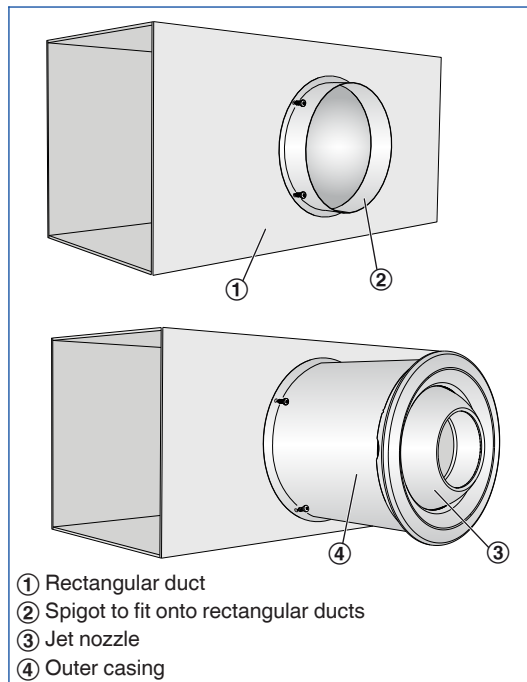
### Installation in circular ducts, with outer casing



TJN/.../C

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

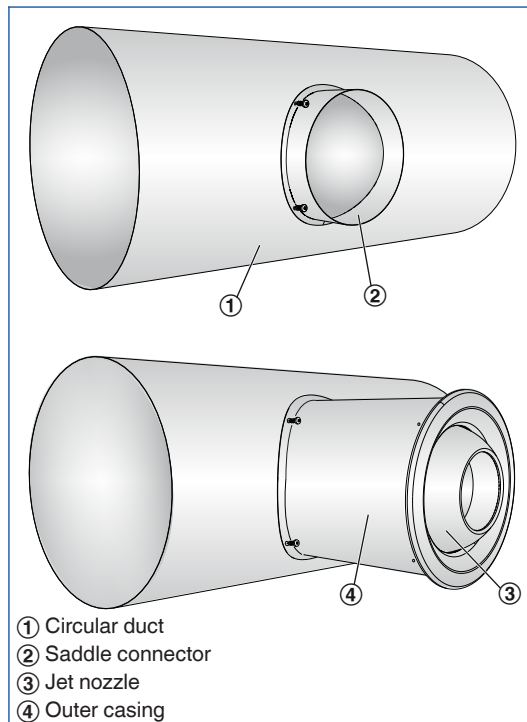
**Installation on rectangular ducts, with outer casing**



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

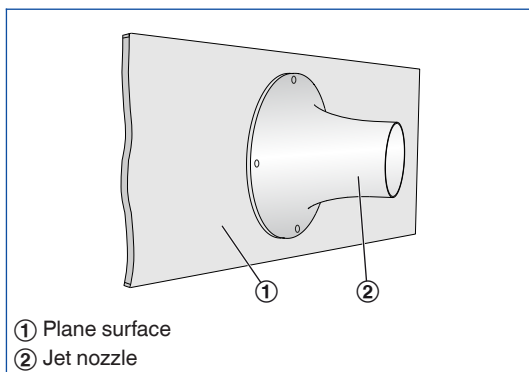
**Installation on circular ducts, with outer casing**



TJN-R/.../C

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

Installation onto a plane surface



DUK-F

- No duct connection
- Screw fix the nozzle to the installation surface



### 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

**$\Delta t_z$  [K]**

Supply air to room air temperature difference

**$\Delta p_t$  [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.