



TRS-R/825x225

TRS-R

VENTILATION GRILLES, MADE OF GALVANISED SHEET STEEL, WITH INDIVIDUALLY ADJUSTABLE, VERTICAL BLADES, FOR INSTALLATION INTO CIRCULAR DUCTS

Ventilation grille with droplet shaped blades

- Nominal sizes 225 x 75 – 1225 x 225 mm
- Volume flow rate range 11 – 930 l/s or 40 – 3348 m³/h
- Grille face made of galvanised sheet steel
- Front border with countersunk holes, 27 mm wide

Optional equipment and accessories

- Grille face in RAL CLASSIC colours
- Attachments for volume flow rate balancing and air direction control

Application



Application

- Ventilation grille of Type TRS-R as supply air or extract air variant for comfort zones and industrial zones
- Directed supply air discharge for mixed flow ventilation
- Blades are adjustable to meet different local requirements
- For variable and constant volume flows
- For supply air to room air temperature differences from –12 to +4 K
- For installation into circular ducts

Special characteristics

- Individually adjustable blades

Nominal sizes

- Nominal length: 225, 325, 425, 525, 625, 825, 1025, 1225 mm
- Nominal height: 75, 125, 225 mm

Other dimensions upon request

Description



Variants

- TRS-R-RA: Grille face with vertical blades
- TRS-R-RD: Grille face with vertical and horizontal blades, individually adjustable

Parts and characteristics

- Sloped border with chamfered inside edge
- Individually adjustable, vertical blades
- Factory fitted perimeter seal
- RD: Individually adjustable, horizontal blades for air direction control

Attachments

- RS, R5: For volume flow rate balancing

Construction features

- Asymmetrically supported blades
- Front border with countersunk holes

Suitable circular duct diameter

- H = 75 mm: Ø150 – 400 mm (with attachment -5 and L from 825 mm: Ø224 – 400 mm)
- H = 125 mm: Ø300 – 900 mm
- H = 225 mm: Ø600 – 2400 mm

Materials and surfaces

- Border and blades made of galvanised sheet steel
- P1: Border and blades 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

TECHNICAL INFORMATION

Function, Technical data, Quick sizing, Specification text, Order code



Functional description

Ventilation grilles are air terminal devices for the supply air and extract air of ventilation and air conditioning systems. They direct the supply air into the room. Ventilation grilles with adjustable blades allow for adapting the discharge direction to the local conditions. The result is a mixed flow ventilation in comfort zones and industrial zones, with good overall room ventilation.

Induction slows the airflow down, i.e. the airflow velocity decreases as the distance from the grille increases. The distance at which the airflow velocity reaches a certain defined value, e.g. 0.2 m/s, is called throw distance. The supply air jet from wall grilles that are installed near the ceiling achieves a larger throw distance than a free jet (from a grille that is not installed near the ceiling). Single grilles, groups of grilles and continuous horizontal runs all achieve different throw distances.

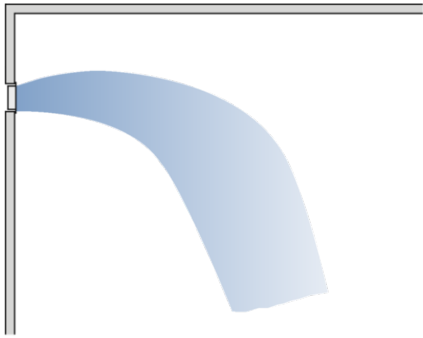
In cooling mode it is necessary to take account of the jet deviation towards the occupied zone, which increases as the supply air to room air temperature difference increases and the discharge velocity decreases. In heating mode the supply air jet deviates towards the ceiling. This has no negative effect on the airflow velocity in the occupied zone, but it may affect the complete ventilation of the room.

Schematic illustration of a ventilation grille with transverse blades



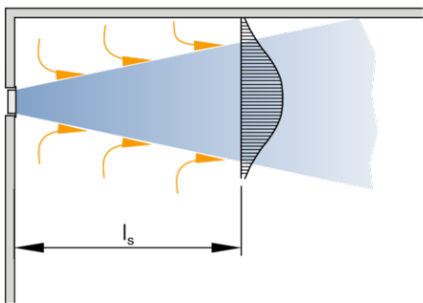
- ① Front border
- ② Transverse blades

Air pattern in cooling mode, without ceiling effect, sectional view



Distance from ceiling ≤ 0.8 m

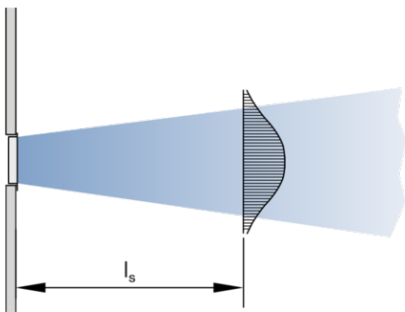
Air pattern without ceiling effect, sectional view



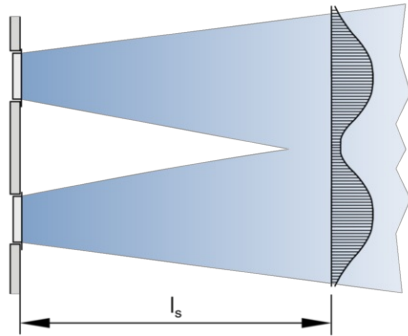
Distance from ceiling ≤ 0.8 m

Without a ceiling effect the way of the air jet is shorter than with a ceiling effect.

Air pattern without ceiling effect, top view

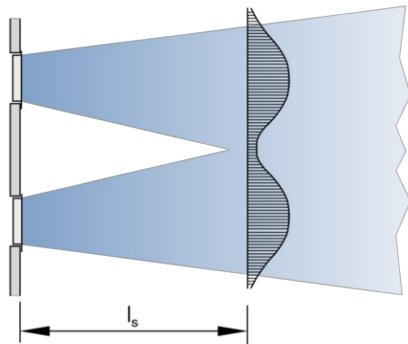


Air pattern with ceiling effect, group of grilles, top view



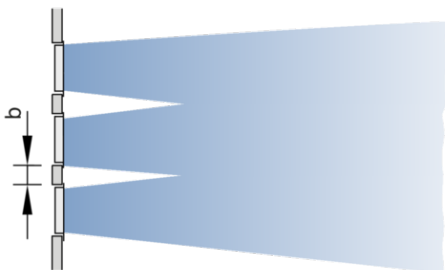
Distance between single grilles $\geq 0.15 \times l_s$

Air pattern without ceiling effect, group of grilles, top view



Distance between single grilles $\geq 0.2 \times l_s$

Air pattern, group of grilles, top view



$b < 0.1 \times l_s$

Several single grilles arranged in a row and with not much distance between them have the same effect as a continuous horizontal run.

Nominal sizes	225 × 75 to 1225 × 225 mm
Minimum volume flow rate	11 – 275 l/s or 40 – 990 m³/h
Maximum volume flow rate, with L _{WA} max. 40 dB(A) without attachments	62 – 930 l/s or 223 – 3348 m³/h
Supply air to room air temperature difference	-12 to +4 K

Volume flow rates apply to supply air

Geometric free area

H	L [mm]							
	225	325	425	525	625	825	1025	1225
H	A _{geo}							
mm	m²							
75	0.007	0.011	0.015	0.018	0.022	0.029	0.036	0.043
125	0.015	0.022	0.030	0.037	0.044	0.059	0.074	0.089
225		0.045	0.060	0.075	0.090	0.119	0.149	0.179

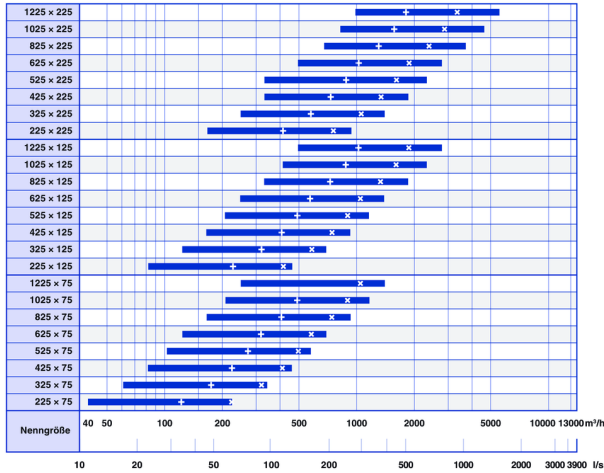
Effective air discharge area (supply air)

H	L [mm]							
	225	325	425	525	625	825	1025	1225
H	A _{eff}							
mm	m²							
75	0.007	0.011	0.014	0.018	0.021	0.029	0.036	0.043
125	0.014	0.021	0.029	0.036	0.043	0.057	0.072	0.086
225		0.043	0.057	0.072	0.086	0.114	0.142	0.172

Effective air discharge area

H	L [mm]							
	225	325	425	525	625	825	1025	1225
H	A _{eff}							
mm	m²							
75	0.006	0.009	0.011	0.014	0.016	0.022	0.028	0.033
125	0.011	0.016	0.022	0.028	0.033	0.044	0.055	0.066
225		0.033	0.044	0.055	0.066	0.090	0.110	0.134
325			0.066	0.083	0.100	0.134	0.170	0.200
425					0.134	0.180	0.220	0.270
525							0.280	0.340

TRS-R, volume flow rate ranges



× L_{WA} = 40 dB(A) with unrestricted airflow+ L_{WA} = 40 dB(A) with airflow restricted by 50 %

Ventilation grilles, rectangular, made of galvanised sheet steel, for supply and extract air. Aesthetic sloped border with chamfered inside edge Installation preferably in circular ducts.

Ready-to-install component which consists of a border and individually adjustable, vertical blades.

Countersunk holes for fixing the grille to the installation surface.

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

Special characteristics

- Individually adjustable blades

Materials and surfaces

- Border and blades made of galvanised sheet steel
- P1: Border and blades powder-coated, RAL CLASSIC colour

Technical data

- Nominal sizes: 225 x 75 to 1225 x 225 mm
- Minimum volume flow rate (supply air): 11 – 275 l/s or 40 – 990 m³/h
- Maximum volume flow rate (supply air), at L_{WA} max. 40 dB(A) without attachments: 62 – 930 l/s or 223 – 3348 m³/h
- Supply air to room air temperature difference: –12 to +4 K

Sizing data

- V _____ [m³/h]
- Δp_t _____ [Pa]

Air-regenerated noise

- L_{WA} _____ [dB(A)]

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

Order example: TRS-R-R5/825x225/P1-RAL 9010

Attachments	Damper unit, special hit and miss damper and air control blades
Nominal size	825 x 225 mm
Exposed surface	Powder-coated RAL 9010, pure white

TRS-R – R5 / 825x125 / P1 – RAL ...

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1 Type

TRS-R Single grille

2 Variants and attachments

Variants

- RA** Grille face with vertical blades
RD Grille face with individually adjustable vertical and horizontal blades for air direction control
- Attachments
- RS** Hit and miss damper for TRS-R-RA
R5 Slanting hit and miss damper for TRS-R-RD

3 Nominal size [mm]

L x H

4 Surface

- No entry: galvanised grille face
P1 Powder-coated, specify RAL CLASSIC colour

Gloss level
 RAL 9010 50 %
 RAL 9006 30 %
 All other RAL colours 70 %

Dimensions and weight, Product details



The weight table shows the available nominal sizes

TRS-R-RA

Nominal height mm H _N	T ₂ mm
75	37
125	41
225	52

TRS-R-RD

Nominal height mm H _N	T ₂ mm
75	45
125	49
225	60

TRS-R-RA

H	L [mm]							
	225	325	425	525	625	825	1025	1225
H	m							
mm	kg							
75	0.4	0.5	0.7	0.8	0.9	1.2	1.5	1.8
125	0.5	0.7	0.8	1.0	1.2	1.6	1.9	2.3
225		1.0	1.2	1.5	1.8	2.3	2.8	3.3

Weights apply to ventilation grilles without attachments

TRS-R-RD

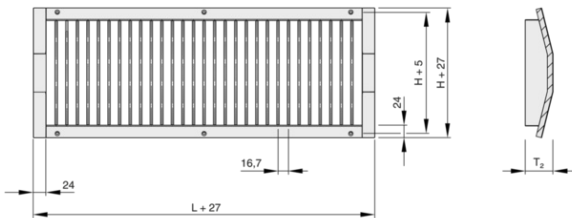
H	L [mm]							
	225	325	425	525	625	825	1025	1225
H	m							
mm	kg							
75	0.5	0.6	0.8	1.0	1.1	1.4	1.8	2.2
125	0.6	0.9	1.0	1.3	1.6	2.1	2.5	3.0
225		1.4	1.8	2.2	2.6	3.4	4.2	5.0

Weights apply to ventilation grilles without attachments

Circular duct dimensions

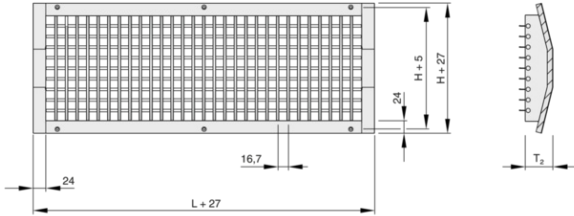
Nominal height	Variant	Minimum	Maximum
		mm	
75	TRSR	150	400
	TRSR-5 from L = 825 mm	224	400
125	All	300	900
225	All	600	2400

TRS-R, 27 mm wide front border



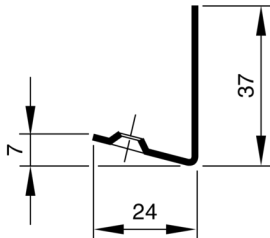
L Nominal length
H Nominal height

TRS-R-RD, 27 mm wide front border



L Nominal length
H Nominal height

Front border – longitudinal section (L), 24 mm



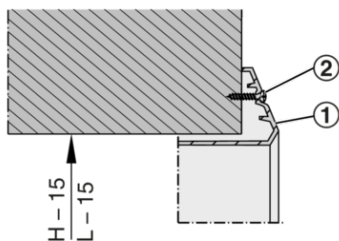
Installation details, Commissioning, Basic information and nomenclature



Installation and commissioning

- Installation preferably in circular ducts
- Installation with or without installation subframe
- If no installation subframe is used, the border should be fixed with screws
- If the grille is installed into a spiral duct of a larger diameter, the duct seams should be riveted

Ventilation grille with screw fixing



- ① Ventilation grille
- ② Fixing screw (by others)

Volume flow rate balancing

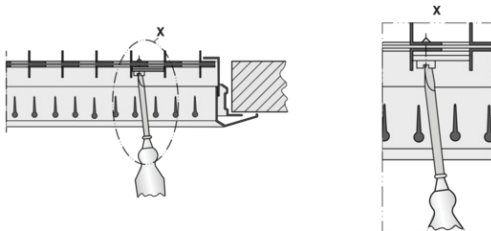
When several ventilation grilles are installed on the same duct, it may be necessary to balance the volume flow rates.

- AG: Damper unit with opposed action blades, adjustable, secured with a locking screw
- AS: Damper unit with hit and miss damper, adjustable, secured with a locking screw

Air pattern

- Adjustable blades: Set the air control blades individually or together and depending on the local conditions
- D, DG: Air control blades, fitted at 90° to the front blades, can be adapted to the local conditions

Volume flow rate balancing -S



Attachments -AS, -KS, -RS and Type ASW

Principal dimensions

L [mm]

Nominal length of the ventilation grille

H [mm]

Nominal height of the ventilation grille

m [kg]

Weight

Nomenclature

L_{WA} [dB(A)]

Sound power level of the air-regenerated noise

V [m³/h] and [l/s]

Volume flow rate

Δp_t [Pa]

Total differential pressure

l_s [m]

Distance from single grille or horizontal run section (throw distance)