



Round duct compact grille KGRR



SCHAKO KG
Steigstraße 25-27
D-78600 Kolbingen
Telephone +49 (0) 74 63 - 980 - 0
Fax +49 (0) 74 63 - 980 - 200
info@schako.de
schako.com

Round duct compact grille type KGRR

Contents

Description	3
Construction	3
Model	3
Fastening methods	3
Accessories	3
Blade position	4
Correction factor (for scattered air jet)	4
Mounting position	4
Models and dimensions	5
Dimensions	5
Division of length	6
Accessories	6
Fastening methods	6
Technical data	7
Pressure loss and noise level	7
Maximum end velocity of jet	10
Jet path	11
Critical throw	11
Maximum penetration	12
Temperature and induction ratios	13
Legend	14
Order code KGRR	15
Specification texts	17

Round duct compact grille type KGRR

Description

In modern architecture, sheet metal and spiral ducts of air-conditioning systems are often incorporated in the design of the room. Emphasis is often placed deliberately on parts of the supply system. In this visible installation of the ventilation ducts, it is a good idea to integrate the air diffusers into the ducts.

The round duct compact grille type KGRR is suitable for installation in supply or return air systems. The air volume throughput can be regulated by using an integrated hit-and-miss damper. The integrated hit-and-miss damper ensures a uniform distribution of supply air along the whole length of the grille. The round duct grille can be installed at any point of the duct system. The front side horizontal and vertical blades can be adjusted. A divergent air throw pattern can be set. This widens the air jet, supplying a larger area of the occupied zone with fresh air. During the installation, the round duct grille must be mounted in accordance with the desired air direction.

The blades and the hit-and-miss damper are positioned on the round duct at 3 o'clock (-3U), 6 o'clock (-6U, standard), 9 o'clock (-9U) or 12 o'clock (0U).

Accessories, such as dummy pipes, end covers and connection sleeves complete the range for this diffuser (only available for up to NW500; see documentation for round duct system RR-Complete or round duct systems accessories).

Layout

The round duct grille type KGRR is designed according to the diagrams of the compact grille type KG.

Construction

Round duct and blades

- Galvanised sheet steel (-SV-0000)
- Sheet steel painted to RAL colour 9010 (white, standard) (-SB-9010)
- Sheet steel painted to a freely selectable RAL colour (-SB-XXXX) (colour always with 4 digits)

Hit-and-miss damper

- without hit-and-miss damper (-SN)
- with integrated hit-and-miss damper (-SS, standard) for simple air volume and ductwork regulation, made of galvanised sheet steel.

Model

- | | |
|-------------------|---|
| KGRR-08-... | - with horizontal, pivoting air deflection blades and hit-and-miss damper |
| KGRR-15-... | - with vertical, pivoting air deflection blades and hit-and-miss damper |
| KGRR-...-3U-... | - horizontal throw right (3 o'clock) |
| KGRR-...-6U-... | - vertical throw downward (6 o'clock) (standard) |
| KGRR-...-9U-... | - horizontal throw left (9 o'clock) |
| KGRR-...-0U-... | - vertical throw upward (12 o'clock) |
| KGRR-...-L000-... | - Blade position straight (standard) |
| KGRR-...-L00R-... | - horizontal blade position, one-way right |
| KGRR-...-L00L-... | - horizontal blade position, one-way left |
| KGRR-...-L044-... | - Blade position 44° diverging |
| KGRR-...-L084-... | - Blade position 84° diverging |
| KGRR-...-LGEG-... | - Blade position opposite to one another |

Fastening methods

Fastening hole (-B0/-BB)

- without fastening hole (-B0)
- With fastening hole $\varnothing 11.5$ mm (-BB) (standard). Prepared for suspended installation by using an M8 threaded rod and an M nut to be provided on site.

Accessories

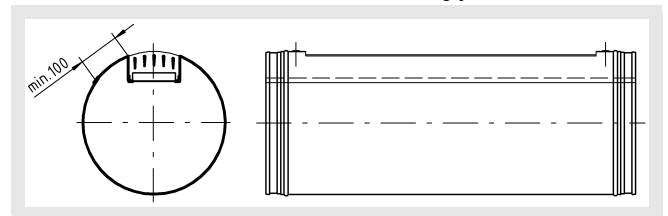
Rubber lip seal (-GD0/-GD1)

- without rubber lip seal (-GD0) (standard)
- with rubber lip seal (-GD1), on both sides, made of EPDM

Accessories

- separate documentation "Round duct system accessories"

Please note that for the vertical throw a distance of at least 100 mm is necessary between the weld seam and the diffuser. This means that the weld seam must be offset accordingly.



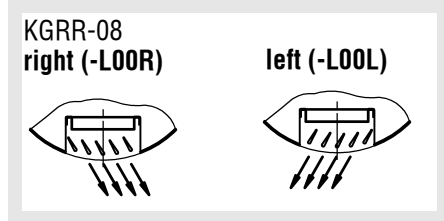
Round duct compact grille type KGRR

Blade position

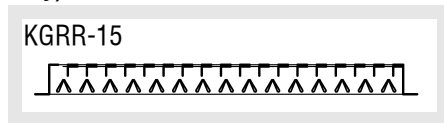
Throw directions (mounting position 6 o'clock)

KGRR-8 vertical air deflection blades

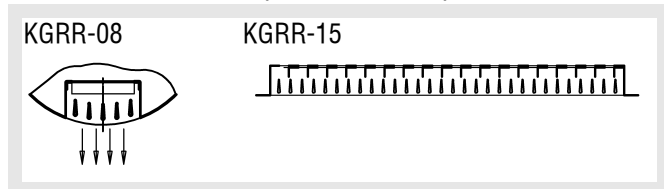
Horizontal blade position, one-way (only KGRR-08-...)



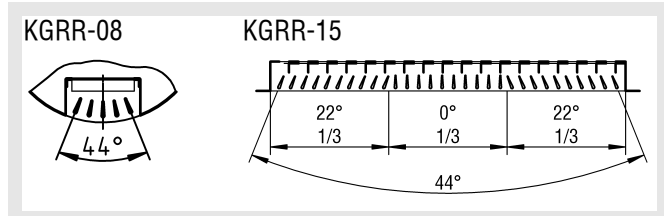
Blade position opposite to one another (-LGEG, KGRR-15-... only)



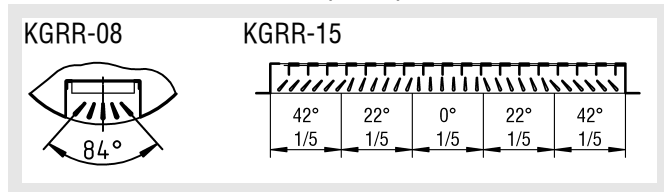
Blade position straight (-L000, standard)



Blade position 44° diverging (-L044)

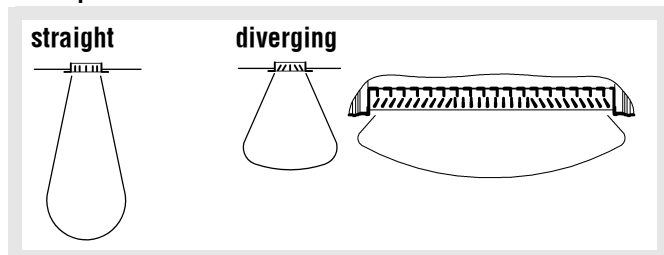


Blade position 84° diverging (-L084)



The angle of propagation of the air jet and thus the length of throw can be affected by adjusting the vertical air deflection blades.

Blade position

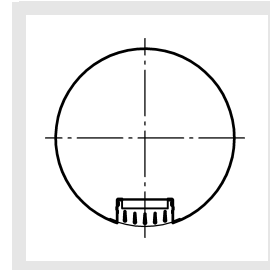


Correction factor (for scattered air jet) with or without coanda effect

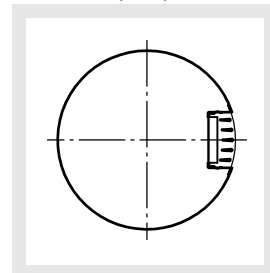
Blade position	44°	84°
End velocity of jet	$v_{\max} \text{ (m/s)} \times 0.65$	$v_{\max} \text{ (m/s)} \times 0.5$
$TV = \Delta T_x / \Delta T_0$	$\times 0.65$	$\times 0.5$
Induction ratio	$i \times 1.3$	$i \times 2$
Jet drop - Jet rise	$y \times 1.3$	$y \times 2$
Grille distance z (m) >	$x \times 0.20$	$x \times 0.25$

Mounting position

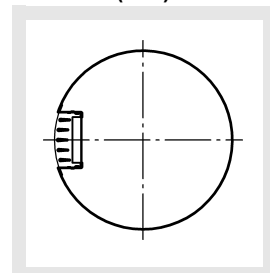
6 o'clock (-6U, standard)



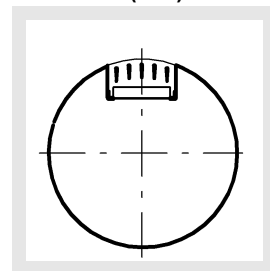
3 o'clock (-3U)



9 o'clock (-9U)



12 o'clock (-0U)

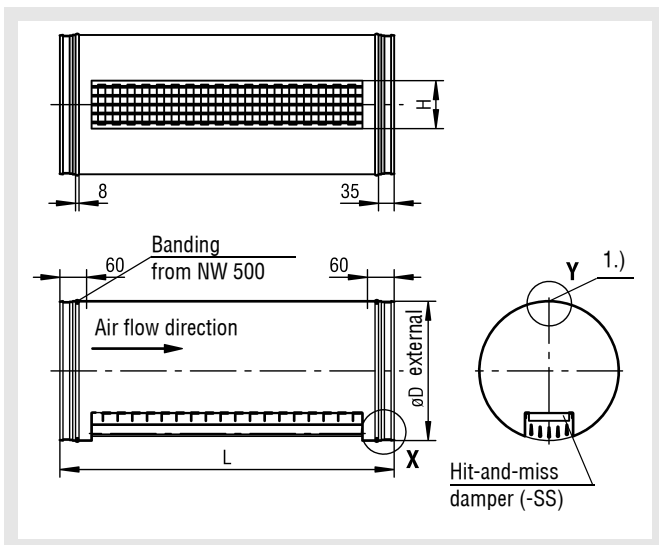


Round duct compact grille type KGRR

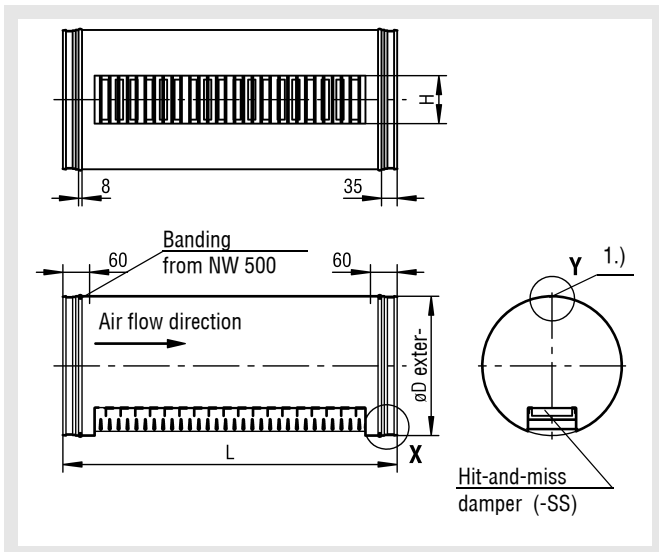
Models and dimensions

Dimensions

KGRR-08-...-6U-...



KGRR-15-...-6U-...



1.) Fastening hole $\text{ø}11.5$ mm (standard)

Available sizes

NW	øD	Height H			
		65	115	215	315
200	198	x	x	-	-
224	222	x	x	-	-
250	248	x	x	x	-
280	278	x	x	x	-
315	313	x	x	x	-
355	353	x	x	x	x
400	398	x	x	x	x
450	448	x	x	x	x
500	498	x	x	x	x
560	558	x	x	x	x
630	628	x	x	x	x

All combined lengths and nominal widths available!

x = available

- = not available

Accessories only available for up to NW500 (see documents for round duct system RR-COMPLETE or accessories for round duct systems).

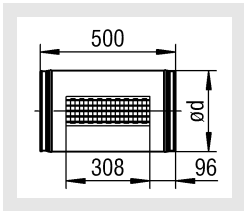
	Length L	Number of slots lengthwise
1-part	500	1
	750	2
	1000	3
2-part	1500	4
	1750	5
	2000	6

Round duct compact grille type KGRR

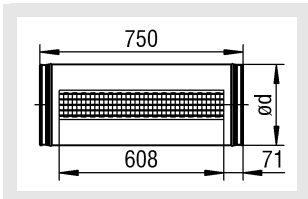
Division of length

1-part:

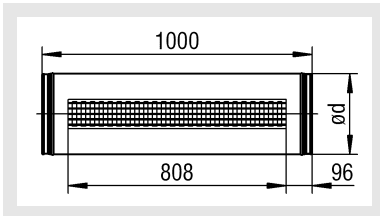
Length 500



Length 750

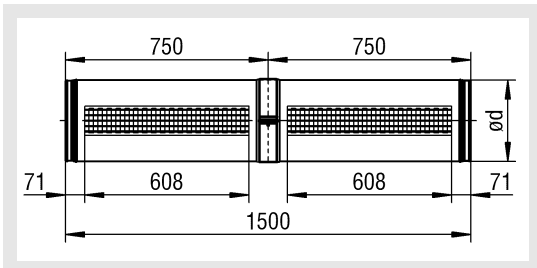


Length 1000

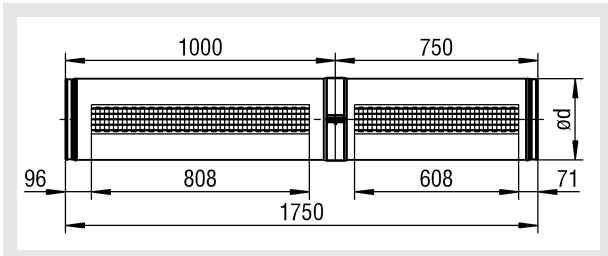


2-part:

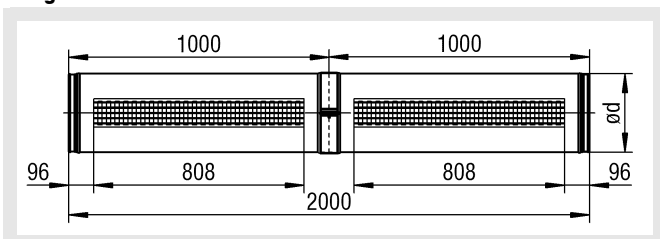
Length 1500



Length 1750



Length 2000



Round duct diffusers with a length of > 1000 mm are produced in two parts and joined in-factory with a connection sleeve. The dimensions of the dummy pipe fit the dimensions of the round duct grille type KGRR.

A different division of length is possible on special request.

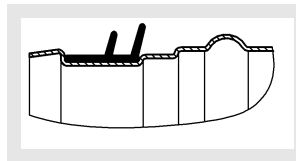
However, the maximum length for a middle or end piece is 1000 mm.

Accessories

Rubber lip seal (-GD0 / -GD1)

- without rubber lip seal (-GD0) (standard)
- with rubber lip seal (-GD1), on both sides, made of EPDM

Detail X



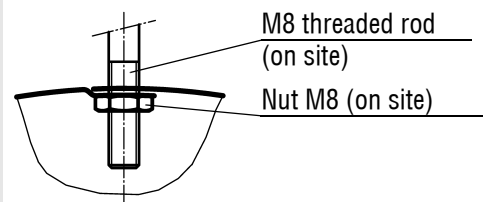
Fastening methods

Fastening hole (-B0 / -BB)

- without fastening hole (-B0)
- with fastening hole $\varnothing 11.5$ mm (-BB) (standard)

Suspension on site

Detail Y



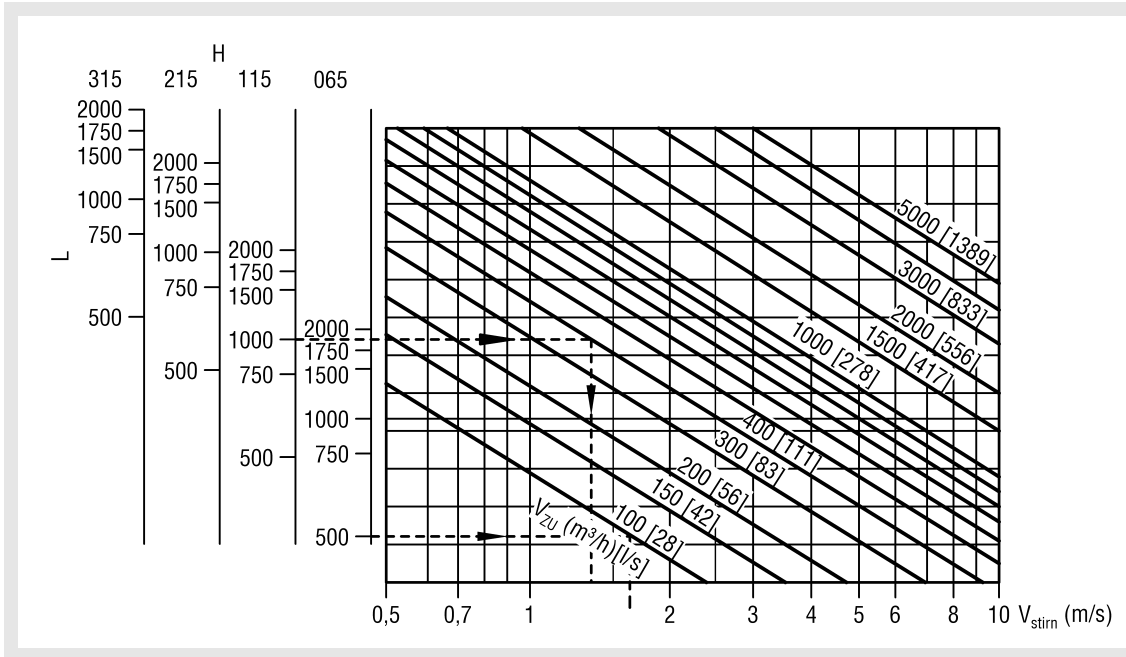
Prepared for suspended installation by using an M8 threaded rod and an M8 nut to be provided by the customer.

Round duct compact grille type KGRR

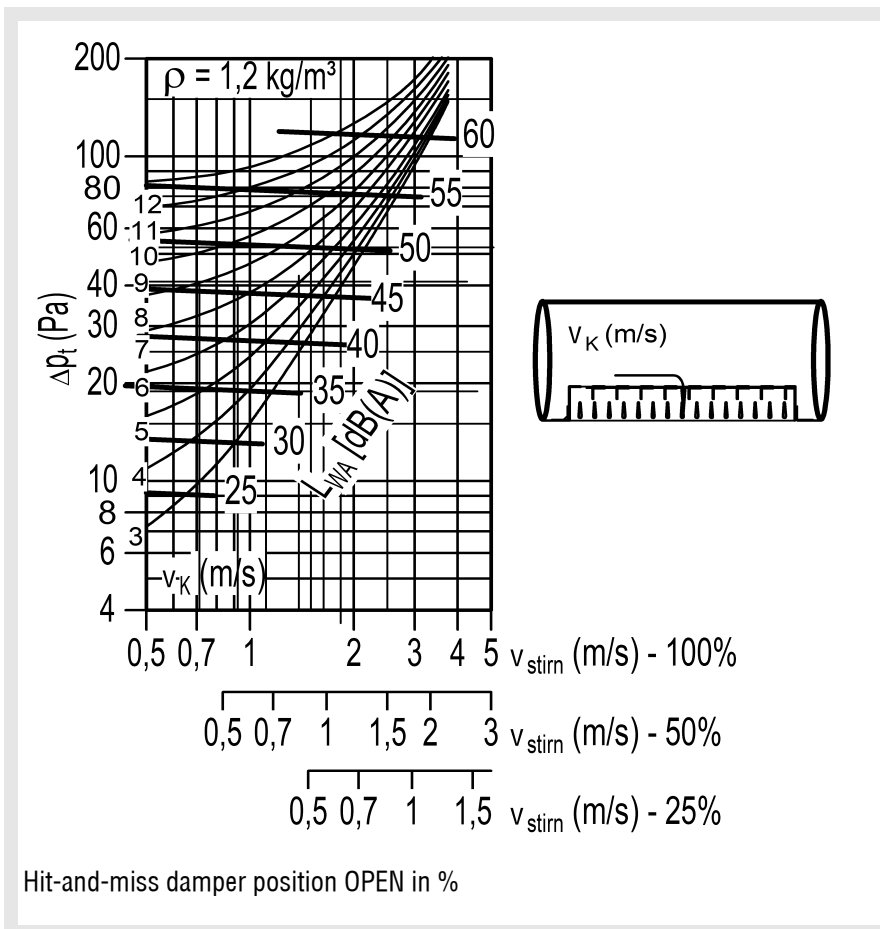
Technical data

Pressure loss and noise level

Supply air face velocity



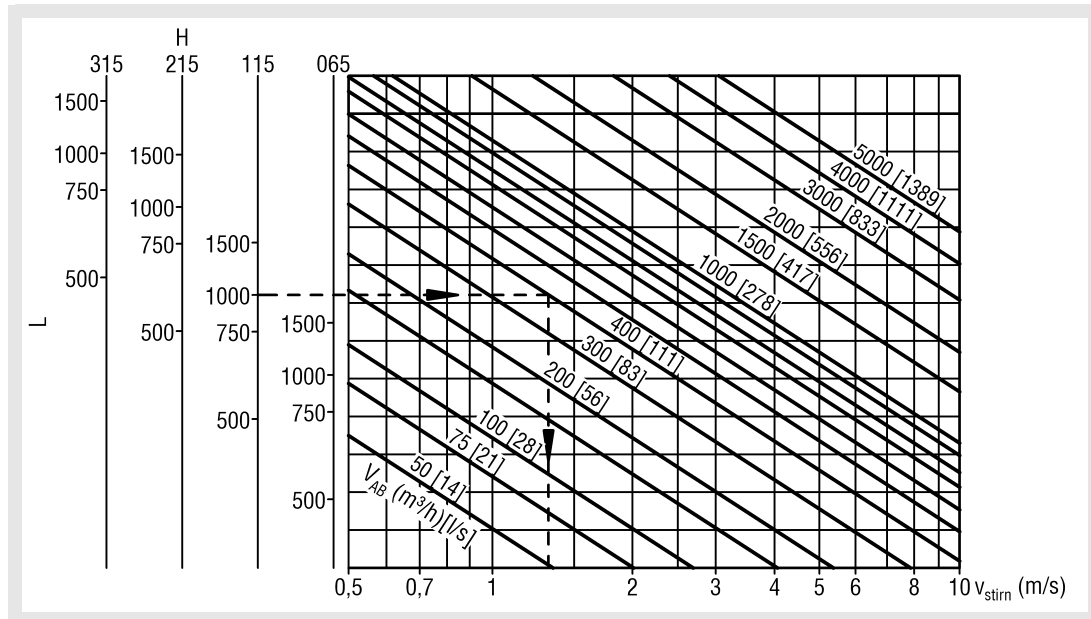
Supply air



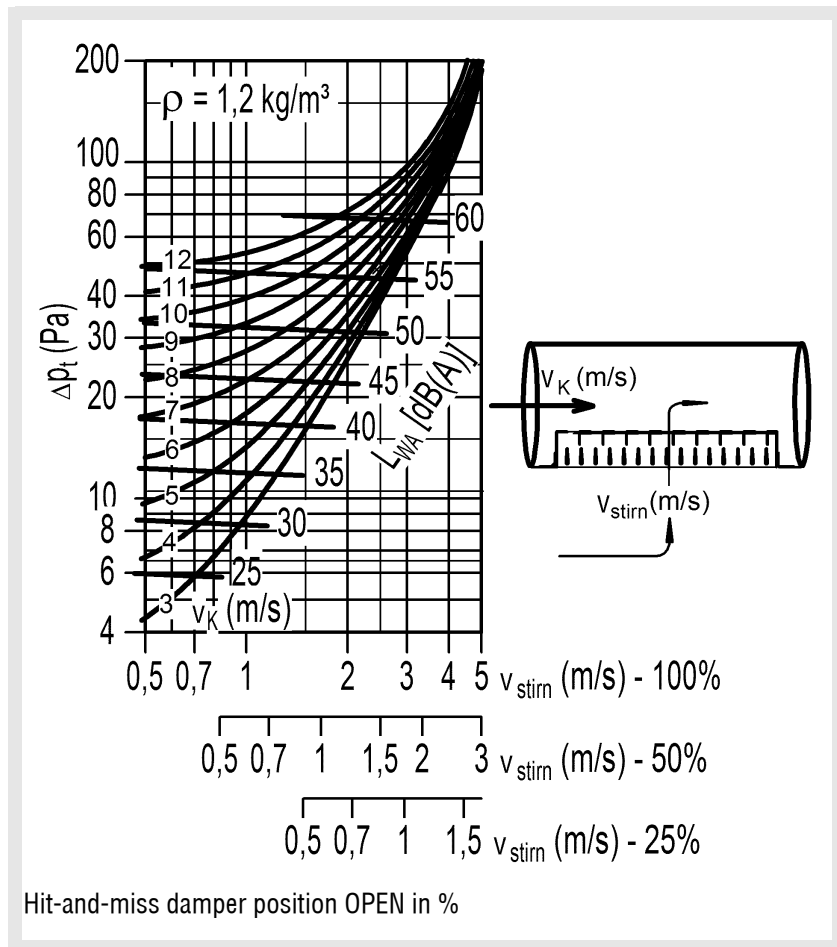
Hit-and-miss damper position OPEN in %

Round duct compact grille type KGRR

Return air face velocity



Return air



Hit-and-miss damper position OPEN in %

Round duct compact grille type KGRR

FQ in m² at the hit-and-miss damper

NW	H	L					
		1-part			2-part		
		500	750	1000	1500	1750	2000
250 / 315	065	0,0090	0,0135	0,0180	0,0270	0,0315	0,0360
	115	0,0180	0,0270	0,0360	0,0540	0,0630	0,0720
250 / 280 / 315	065	0,0090	0,0135	0,0180	0,0270	0,0315	0,0360
	115	0,0180	0,0270	0,0360	0,0540	0,0630	0,0720
	215	0,0360	0,0540	0,0720	0,1440	0,1800	0,2160
355 / 400 / 450	065	0,0090	0,0135	0,0180	0,0270	0,0315	0,0360
	115	0,0180	0,0270	0,0360	0,0540	0,0630	0,0720
500 / 560 / 630	215	0,0360	0,0540	0,0720	0,1080	0,1260	0,1440
	315	0,0540	0,0810	0,1080	0,1620	0,1890	0,2160

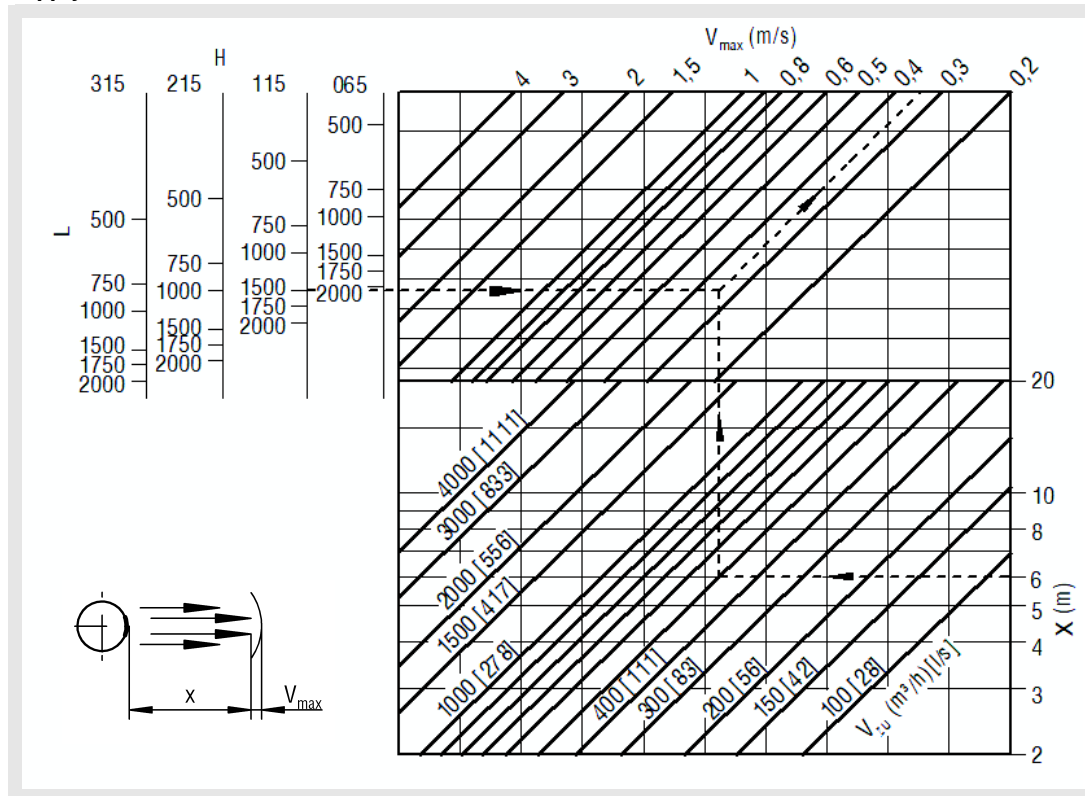
Face area (m²)

NW	H	L					
		1-part			2-part		
		500	750	1000	1500	1750	2000
250 / 315	065	0,0240	0,0350	0,0470	0,0710	0,0820	0,0940
	115	0,0440	0,0660	0,0870	0,1310	0,1530	0,1740
250 / 280 / 315	065	0,0240	0,0350	0,0470	0,0710	0,0820	0,0940
	115	0,0440	0,0660	0,0870	0,1310	0,1530	0,1740
	215	0,0850	0,1260	0,1680	0,2530	0,2940	0,3360
355 / 400 / 450	065	0,0240	0,0350	0,0470	0,0710	0,0820	0,0940
	115	0,0440	0,0660	0,0870	0,1310	0,1530	0,1740
500 / 560 / 630	215	0,0850	0,1260	0,1680	0,2530	0,2940	0,3360
	315	0,1260	0,1870	0,2480	0,3740	0,4350	0,4960

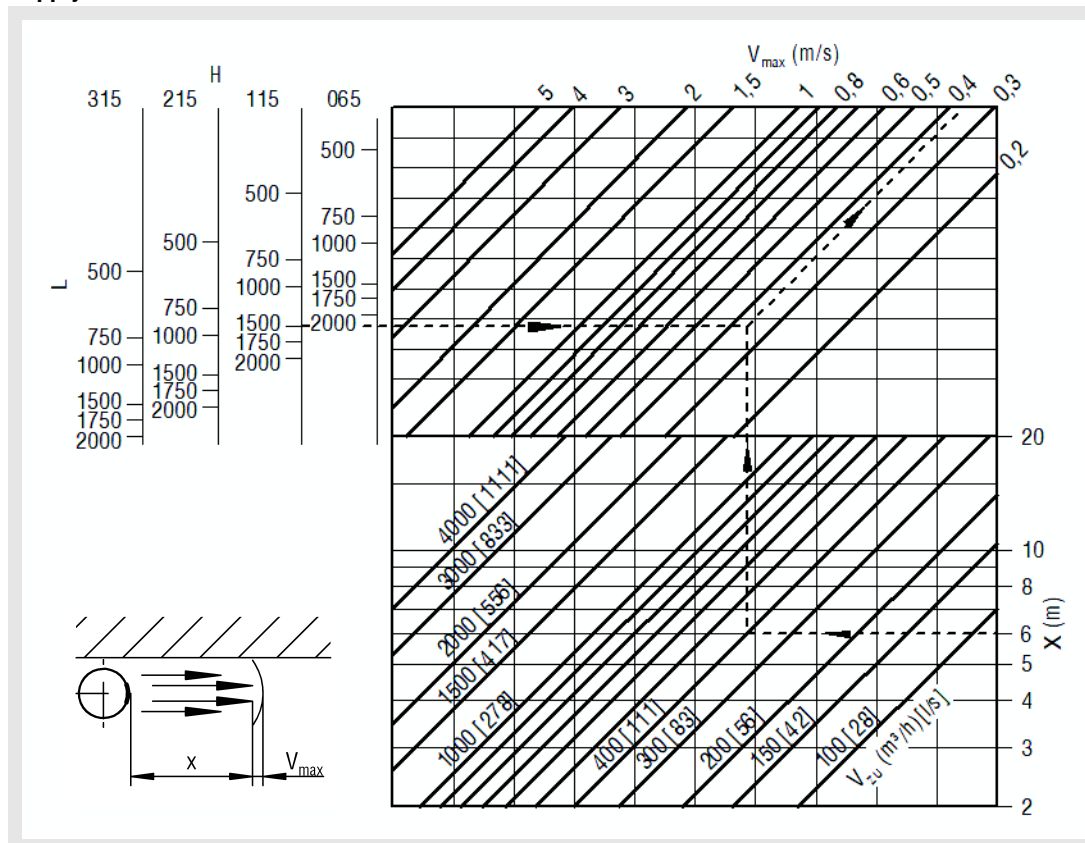
Round duct compact grille type KGRR

Maximum end velocity of jet

Supply air without coanda effect



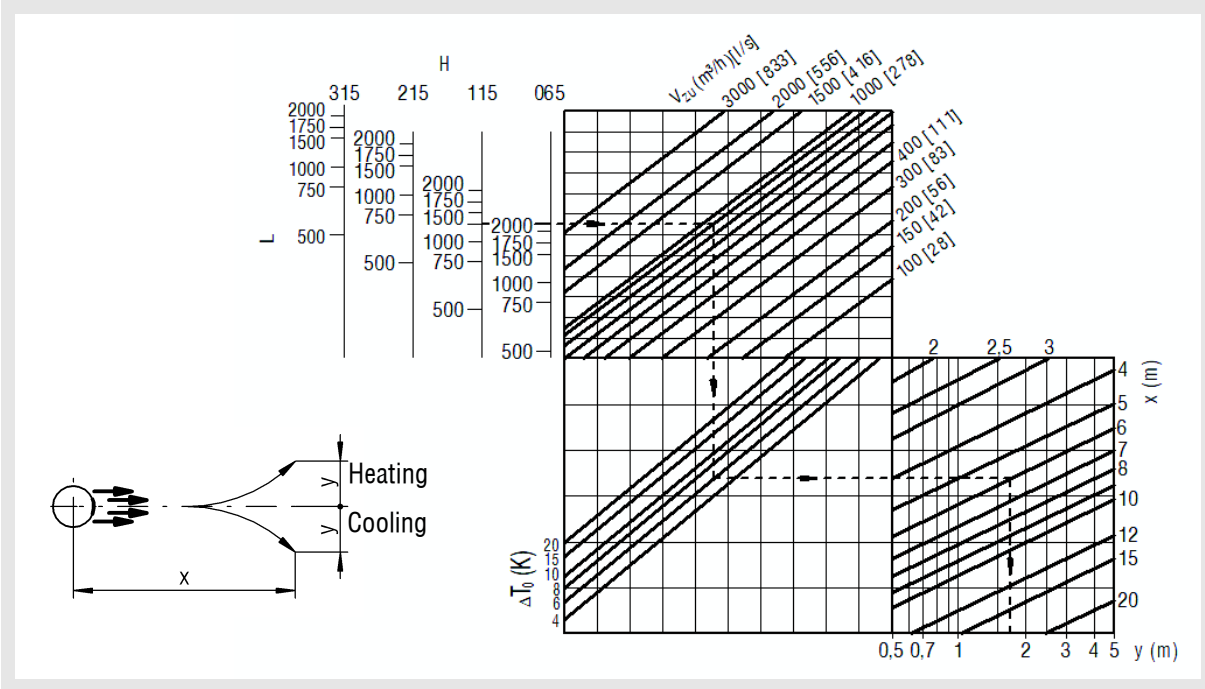
Supply air with coanda effect



Round duct compact grille type KGRR

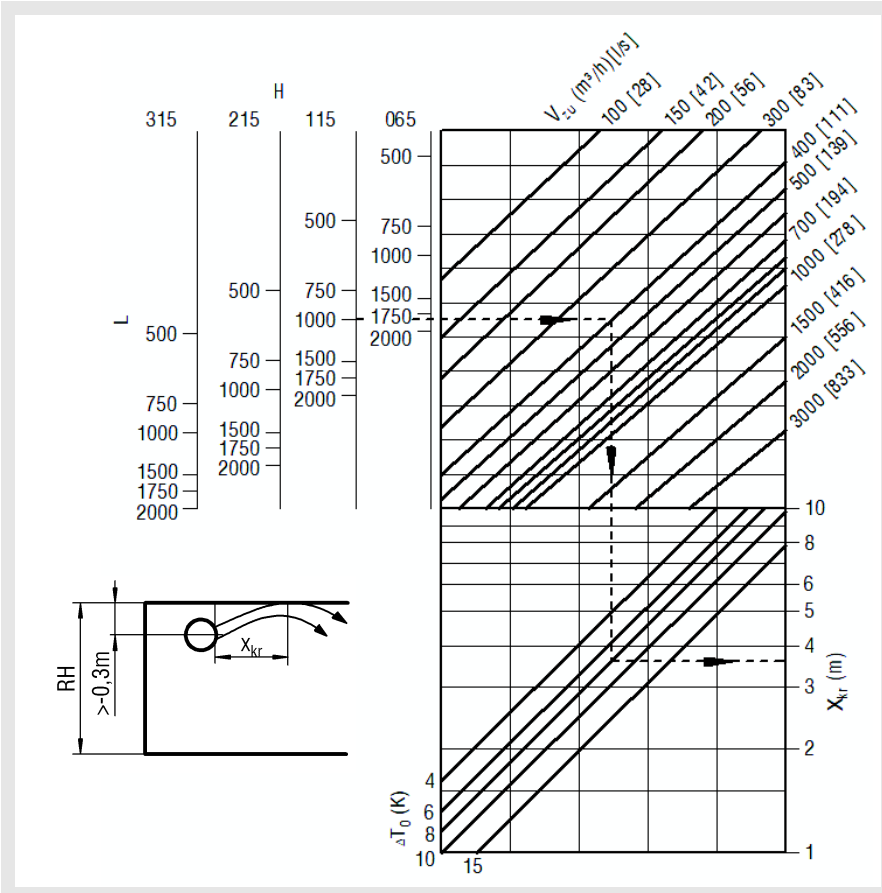
Jet path

Supply air without coanda effect



Critical throw

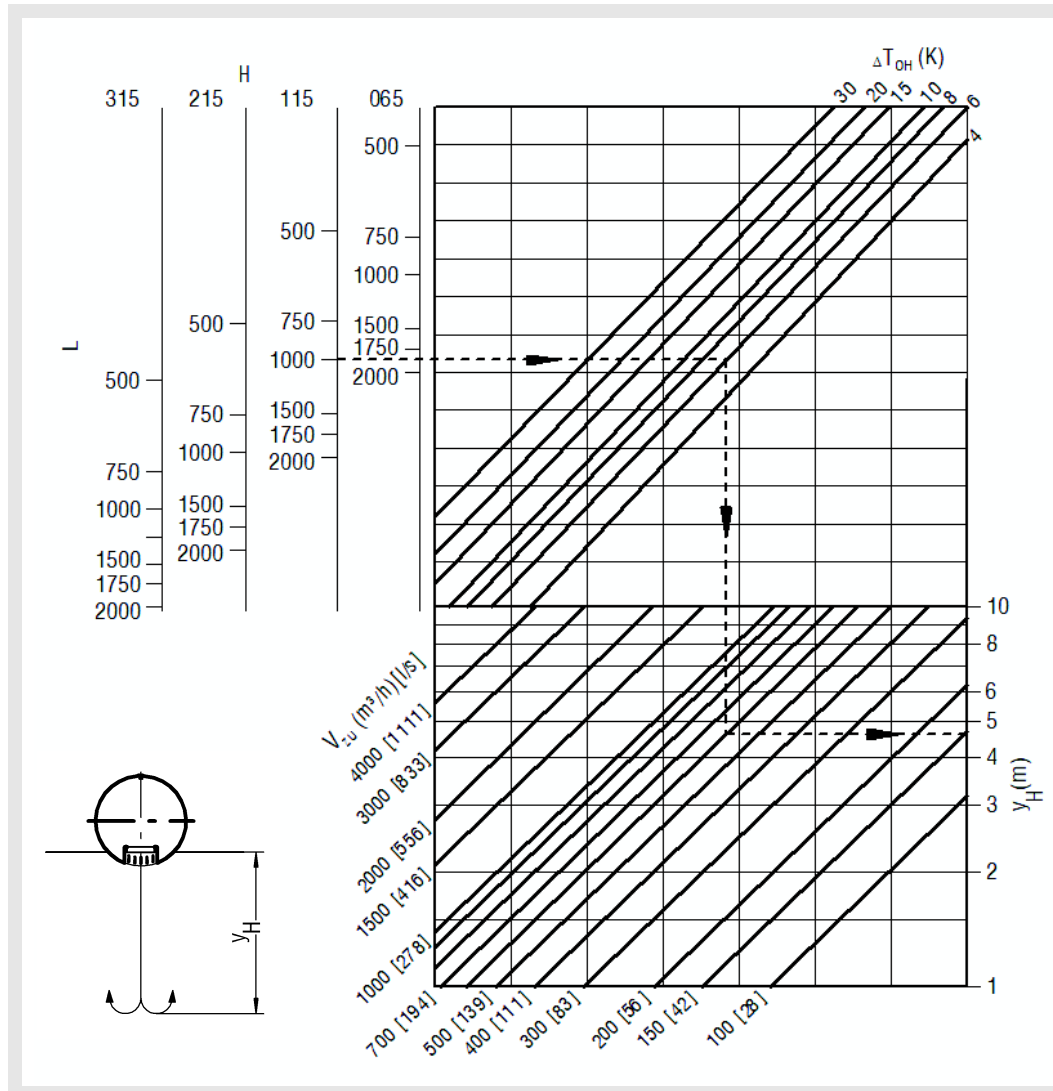
Supply air with coanda effect



Round duct compact grille type KGRR

Maximum penetration

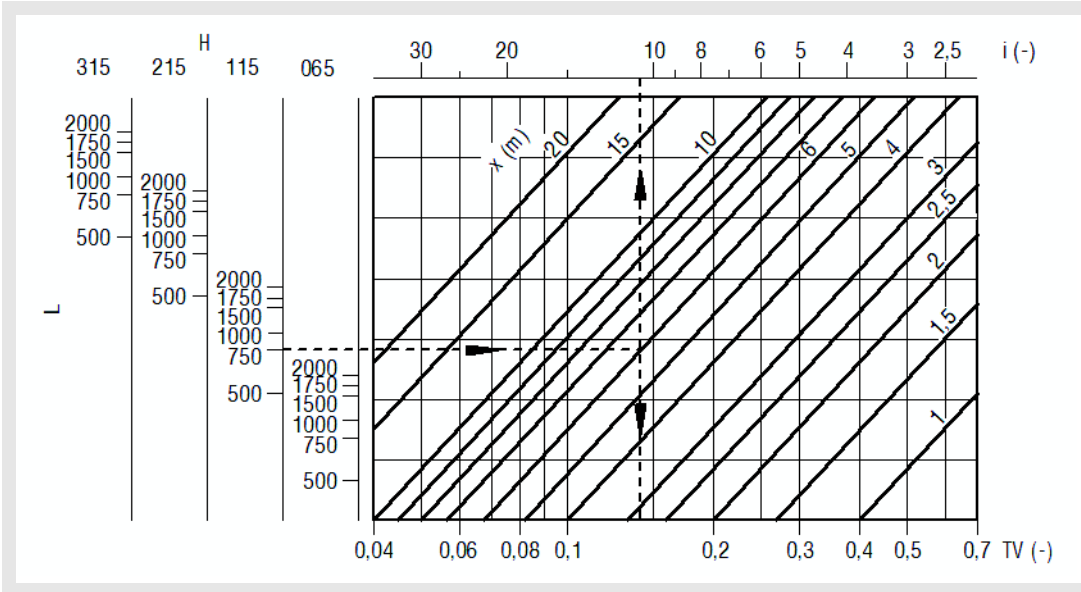
Max. vertical penetration (in heating mode):



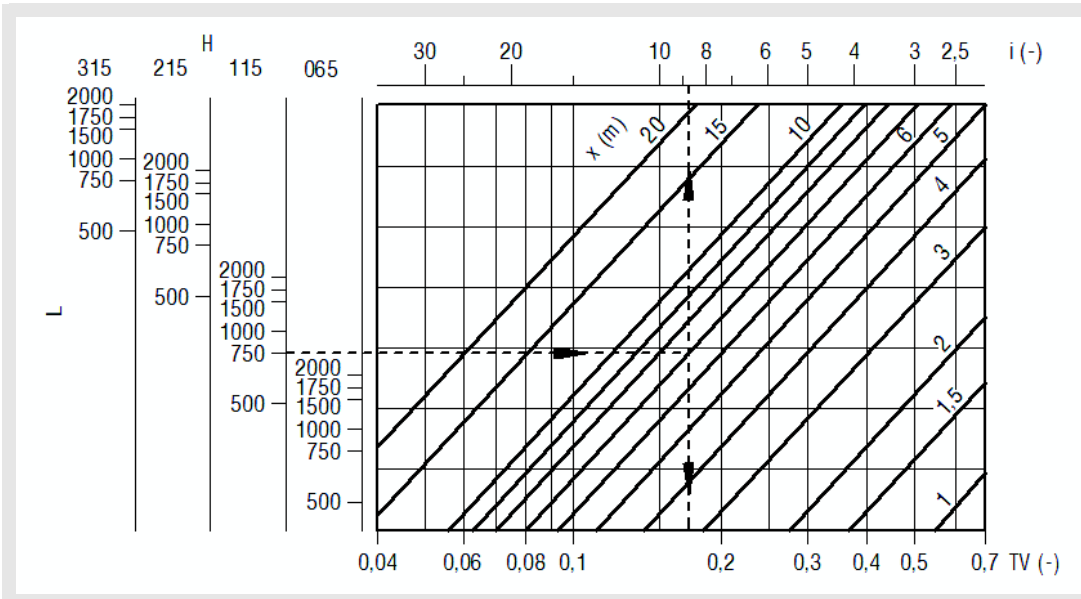
Round duct compact grille type KGRR

Temperature and induction ratios

Supply air without coanda effect



Supply air with coanda effect



Round duct compact grille type KGRR

Legend

V_{ZU}	(m ³ /h) [l/s]	= Supply air volume
V_x	(m ³ /h) [l/s]	= total air jet volume at point x
V_{AB}	(m ³ /h) [l/s]	= Return air volume
v_{max}	(m/s)	= Maximum end velocity of jet
v_K	(m/s)	= Duct velocity
v_{stirn}	(m/s)	= Intake velocity, blower stream velocity, outflow velocity, relative to A_{stirn}
A_{stirn}	(m ²)	= Face area
x	(m)	= horizontal throw
x_{kr}	(m)	= Critical throw
y	(m)	= Vertical throw
y_H	(m)	= Maximum penetration in heating mode
x_{kr}	(m)	= Critical throw
ρ	(kg/m ³)	= Density
Δp_t	(Pa)	= Pressure loss
L_{WA}	[dB(A)]	= A-weighted sound power level ($L_{WA} = L_{WA1} + KF$)
ΔT_{OH}	(K)	= Temperature difference between air supply and room temperature in heating mode ($\Delta T_{OH} = t_{ZUH} - t_{RH}$)
t_{ZU}	(°C)	= Supply air temperature
t_R	(°C)	= Room temperature
i	(-)	= Induction ratio ($i = V_x / V_{ZU}$)
TV	(-)	= Temperature ratio ($TV = \Delta T_x / \Delta T_0$)
ΔT_x	(K)	= Temperature difference at point x ($\Delta T_x = \Delta T_0 \times TV$)
ΔT_0	(K)	= Temperature difference between supply air temperature and room temperature ($\Delta T_0 = t_{ZU} - t_R$)
RH	(mm)	= Room height
H	(mm)	= Height
L	(mm)	= Length
FQ	(m ²)	= Free cross-section in m ²

Round duct compact grille type KGRR

Order code KGRR

01	02	03	04	05
Type	Blades	Nominal width	Length	Height
Example				
KGRR	-08	200	-1000	-115

06	07	08	09	10	11
Air throw pattern	Material	Paint	Mounting position	Rubber lip seal	Fastening methods
-L000	-SB	-9010	-6U	-GD0	-BB

All fields must be filled when ordering

Sample

KGRR-08-200-1000-115-L000-SB-9010-6U-GD0-BB

Round duct compact grille KGRR | With horizontal, pivoting air deflection blades and hit-and-miss damper | Nominal width 200 mm | Length 1000 mm | Grille height 115 mm | Blade position straight | Sheet steel | Painted to RAL colour 9010 (white) | Mounting position 6 o'clock | Without rubber lip seal | With fastening hole \varnothing 11.5 mm

ORDER DETAILS

01 - Type

KGRR = Round duct compact grille KGRR

02 - Blades

- 08 = with horizontal, pivoting air deflection blades and hit-and-miss damper.
 15 = with vertical, pivoting air deflection blades and hit-and-miss damper.

03 - Nominal width

- 200 = 200 mm
 224 = 224 mm
 250 = 250 mm
 280 = 280 mm
 315 = 315 mm
 355 = 355 mm
 400 = 400 mm
 450 = 450 mm
 500 = 500 mm
 560 = 560 mm
 630 = 630 mm

04 - Length

- 0500 = 500 mm (1-part)
 0750 = 750 mm (1-part)
 1000 = 1000 mm (1-part)
 1500 = 1500 mm (2-part)
 1750 = 1750 mm (2-part)
 2000 = 2000 mm (2-part)

05 - Height

- 065 = 65 mm
 115 = 115 mm
 215 = 215 mm
 315 = 315 mm

06 - Air throw pattern

- L000 = Blade position straight (standard).
 L00R = horizontal blade position, one-way right (KGRR-08-... only).
 L00L = horizontal blade position, one-way left (KGRR-08-... only).
 L044 = Blade position 44° diverging.
 L084 = Blade position 84° diverging.
 LGEG = Blade position opposite to one another.

07 - Material

- SB = Sheet steel (standard with paint).
 SV = Galvanised sheet steel

Round duct compact grille type KGRR

08 - Paint

0000 = Without paint.

9010 = painted to the RAL colour 9010 (white, standard).

xxxx = painted to a freely selectable RAL colour (always with 4 digits).

09 - Mounting position

3U = 3 o'clock

6U = 6 o'clock (standard)

9U = 9 o'clock

0U = 12 o'clock

10 - Rubber lip seal

GD0 = without rubber lip seal (standard).

GD1 = with rubber lip seal.

11 - Fastening methods

B0 = without fastening hole.

BB = with fastening hole $\varnothing 11.5$ mm (standard).

Round duct compact grille type KGRR

Specification texts

Round duct compact grille **KGRR** for supply and return air suitable for connection to DIN ducts. With integrated, manually adjustable hit-and-miss damper made of galvanised sheet steel, for simple air volume and ductwork regulation.

- With horizontal front side adjustable air deflection blades.
Product: SCHAKO type **KGRR-08-...**
- With vertical front side adjustable air deflection blades.
Product: SCHAKO type **KGRR-15-...**
- Nominal width
 - 200 mm (-200)
 - 224 mm (-224)
 - 250 mm (-250)
 - 280 mm (-280)
 - 315 mm (-315)
 - 355 mm (-355)
 - 400 mm (-400)
 - 450 mm (-450)
 - 500 mm (-500)
 - 560 mm (-560)
 - 630 mm (-630)
- Length
 - 1-part: 500 / 750 / 1000 (-0500/-0750/-1000)
 - 2-part: 1500 / 1750 / 2000 (-1500/-1750/-2000)
- Grille height
 - 65 (-065)
 - 115 (-115)
 - 215 (-215)
 - 315 (-315)
- Air throw pattern
 - Blade position straight (-L000) (standard).
 - Horizontal blade position, one-way right (L00R) (KGRR-08-... only).
 - Horizontal blade position, one-way left (-L00L) (KGRR-08-... only).
 - Blade position 44° diverging (-L044).
 - Blade position 84° diverging (-L084).
 - Blade position opposite to one another (-LGEG).
- Material and paint (round duct):
 - Galvanised sheet steel (-SV-0000) (at an extra charge).
 - Sheet steel painted to RAL 9010 (white) (standard, -SB-9010).
 - Sheet steel painted to a freely selectable RAL colour (-SB-xxxx) (colour always with 4 digits).
- Mounting position
 - 3 o'clock (-3U)
 - 6 o'clock (-6U, standard)
 - 9 o'clock (-9U)
 - 12 o'clock (-0U)
- Fastening methods:
 - fastening hole
 - without fastening hole (-B0)
 - With fastening hole $\varnothing 11.5$ mm (-BB, standard). (Prepared for suspended installation by using an M8 threaded rod and an M8 nut to be provided on site).

Accessories (at an extra charge):

- Rubber lip seal (-GD0/-GD1)
 - without rubber lip seal (-GD0, standard).
 - with rubber lip seal (-GD1), on both sides, made of EPDM.

For more accessories, please refer to the separate documentation "Round duct system accessories".