



IGA

Air diffuser for large air volumes

Contents

Overview of product versions.....	2
Function and use	2
Performance data	2
Air throw pattern.....	3
Field of application	3
Models.....	3
Processing.....	3
Accessories	3
Mounting.....	3
Dimensions	4
Dimensions of accessories.....	5
Mounting (suspension).....	5
Technical data.....	6
Technical data Control components.....	11
Legend	11
Order code IGA	12
Specification text	13

PERFORMANCE DATA

- **NW 500**
 - air volumes at 45 dB(A) of 2100 m³/h
 - air volumes at 45 dB(A) of 583 l/s.
- **NW 630**
 - air volumes at 45 dB(A) of 4160 m³/h
 - air volumes at 45 dB(A) of 1156 l/s.
- **NW 800**
 - air volumes at 45 dB(A) of 5300 m³/h
 - air volumes at 45 dB(A) of 1472 l/s.

SPECIAL FEATURES

Suitable for:

- supply and return air
- cooling and heating mode
- for large rooms
- for direct connection to the duct system
- adjustable by motor
- suspended

OVERVIEW OF PRODUCT VERSIONS

IGA-500



IGA-630



IGA-800



FUNCTION AND USE

The SCHAKO air diffuser IGA for large air volumes has been developed for use in supply and return air systems.

The air diffuser IGA has been specially developed for air-conditioning of large rooms with heights of up to 15 metres. The air diffuser is suitable for direct connection to the duct system and is suitable for VAV systems with variable volumetric flows of 40-100%.

The air diffuser is adjustable by motor as standard and can be used for both cooling and heating. In cooling mode, a very high induction is achieved, which effectively reduces the air velocity and temperature. The motorised changeover to heating mode produces a very compact, vertical air jet which ensures a high penetration depth even at large installation heights at high overtemperature.

The air diffuser IGA for large air volumes consists of several inlet funnels for the optimum discharge of supply air in cooling and heating mode.

PERFORMANCE DATA

IGA-500

Cooling mode position

V _{zu} (m³/h)	L _{WA} [dB(A)]	Δp _t (Pa)
2100	45	34
2450	50	46
2800	55	60

Heating mode position

V _{zu} (m³/h)	L _{WA} [dB(A)]	Δp _t (Pa)
2150	45	57
2500	50	77
3000	55	111

IGA-630

Cooling mode position

V _{zu} (m³/h)	L _{WA} [dB(A)]	Δp _t (Pa)
4200	45	29
4900	50	39
5700	55	53

Heating mode position

V _{zu} (m³/h)	L _{WA} [dB(A)]	Δp _t (Pa)
2800	45	28
3500	50	43
4300	55	65

IGA-800

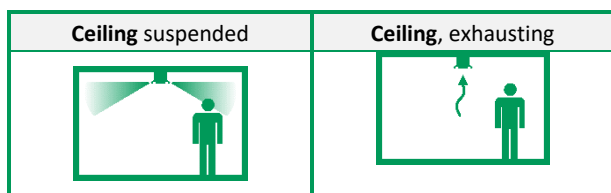
Cooling mode position

V _{zu} (m³/h)	L _{WA} [dB(A)]	Δp _t (Pa)
5300	45	27
6300	50	38
7500	55	54

Heating mode position

V _{zu} (m³/h)	L _{WA} [dB(A)]	Δp _t (Pa)
3600	45	17
4300	50	24
5200	55	35

AIR THROW PATTERN



FIELD OF APPLICATION

Air diffuser for air-conditioning of large rooms

MODELS

- IGA-...-Z-... supply air, with internal air volume regulation (incl. electrical regulator) and baffle plate.
Baffle plate position:
- top, for heating mode.
 - bottom, for cooling mode.
- intermediate positions possible.
- IGA-...-A-... return air, without air volume regulator and baffle plate.

PROCESSING

Faceplate

- sheet steel.
- painted to the RAL colour 9010 (white, standard) (-9010).
- painted to a different RAL colour, freely selectable (-xxxx, always with 3 digits).

Number of connection

- sheet steel painted to the RAL colour of the faceplate.

Inlet nozzle (outside/inside)

- aluminium, painted to the colour of the faceplate.

baffle plate

- sheet steel painted to the RAL colour of the faceplate.
- for supply air model only

Air volume regulation

- aluminium, painted to the colour of the faceplate.
- for supply air model only

Electric actuator

- without actuator (-E000) (standard for return air).
- with actuator 24 V AC/DC, 2/3-point (for supply air)
 - IGA-500 (-E085)
 - IGA-630 / IGA-800 (-E086)
- with actuator 230 V AC/DC, 2/3-point (for supply air)
 - IGA-500 (-E083)
 - IGA-630 / IGA-800 (-E084)

ACCESSORIES

Damper (-DV0 / -DV1 / -DV3)

- without damper (-DV0) (standard).
- with adjustable damper, for air volume regulation, with side adjustment lever, made of galvanised sheet steel, painted to the IGA colour on the outside:
 - connection without rubber lip seal (-DV1) (standard for model with damper).
 - connection with rubber lip seal (-DV3).

Rubber lip seal (-GD0 / -GD1)

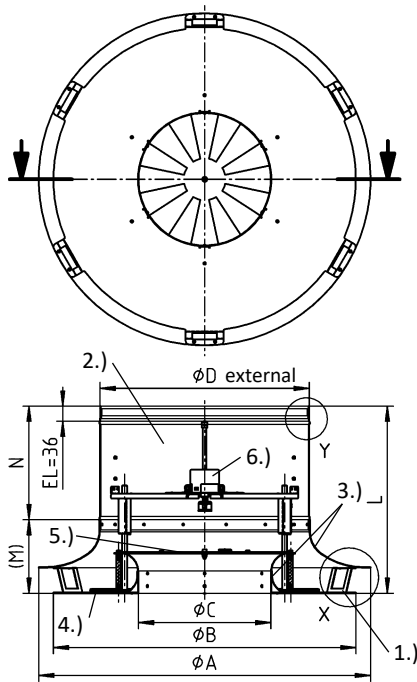
- without rubber lip seal (-GD0) (standard).
- with rubber lip seal (-GD1) (not possible in combination with dampers -DV1 und -DV3).

MOUNTING

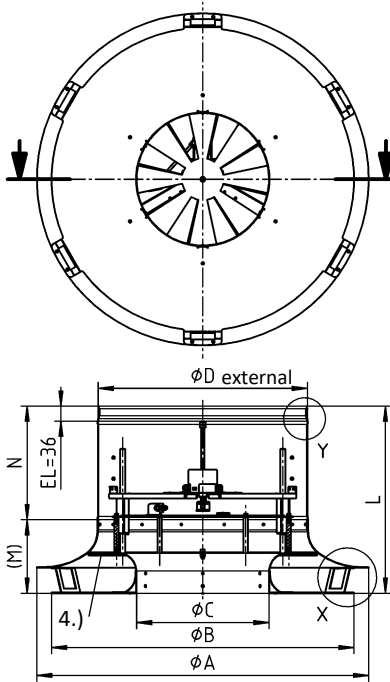
Suspension via threaded rods (on site)

DIMENSIONS

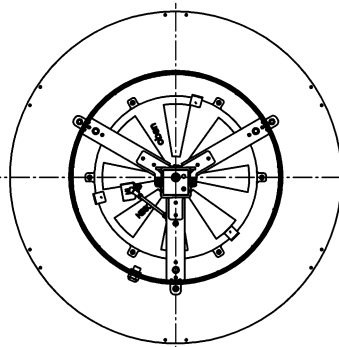
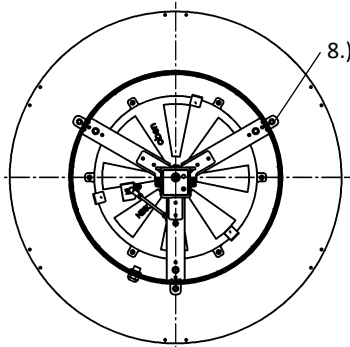
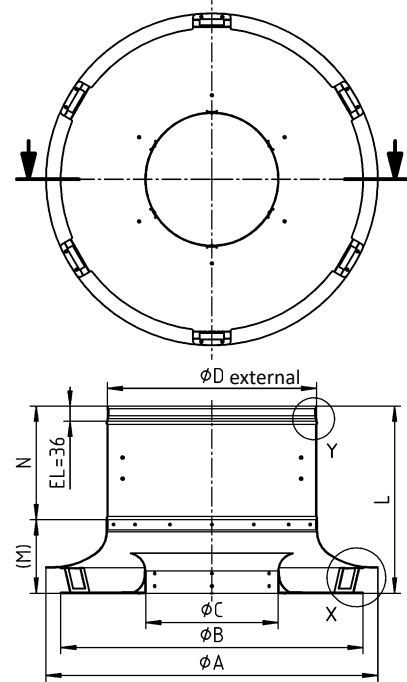
IGA-...-Z (supply air), cooling mode



IGA-...-Z (supply air), heating mode

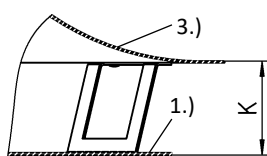


IGA-...-A (return air)

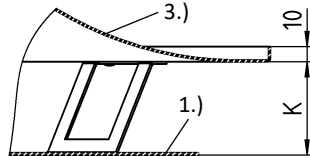


Detail X

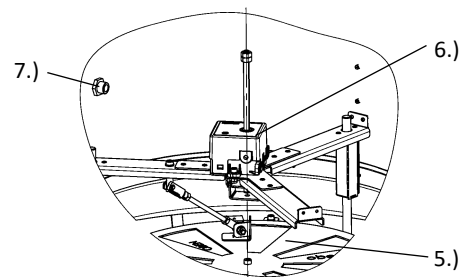
IGA-500 / IGA-630



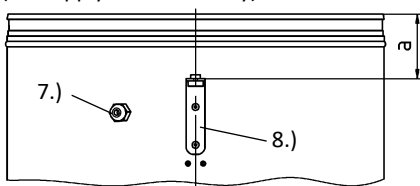
IGA-800



Detail of electric actuator



Cable routing for electric actuator (for supply air model only)



- | | |
|-----------------------------------|--------------------------------------|
| 1.) Faceplate | 5.) Air volume regulator |
| 2.) Spigot | 6.) Actuator |
| 3.) Inlet nozzle outside / inside | 7.) Cable routing |
| 4.) Baffle plate | 8.) Mounting shackle 3x (suspension) |

Available sizes

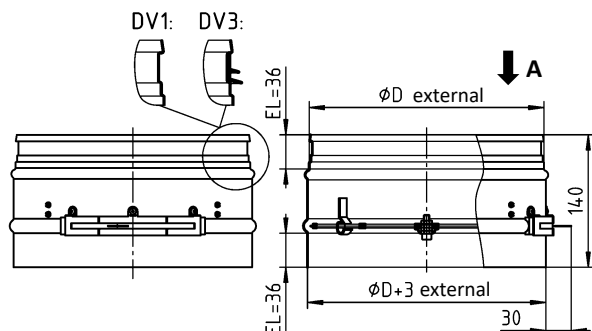
NW	øD	øA	øB	øC	K	M	N	a	L
500	498	790	720	315	62	175	270	85	445
630	628	998	910	396	67,5	209	280	75	489
800	798	1275	1180	496	62	270	368	168	638

See page 5 for detail Y.

DIMENSIONS OF ACCESSORIES

Damper (-DV0/-DV1/-DV3)

- without damper (-DV0) (standard).
- with adjustable damper, for air volume regulation, with side adjustment lever, made of galvanised sheet steel, painted to the IGA colour on the outside:
 - connection without rubber lip seal (-DV1) (standard for model with damper).
 - connection with rubber lip seal (-DV3).



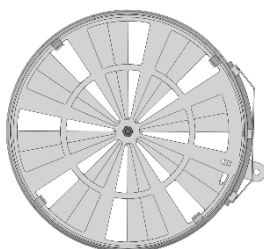
View A

“OPEN” position:

Free cross-section approx. 75%

“CLOSED” position:

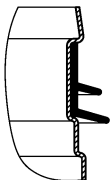
Free cross-section approx.
25%



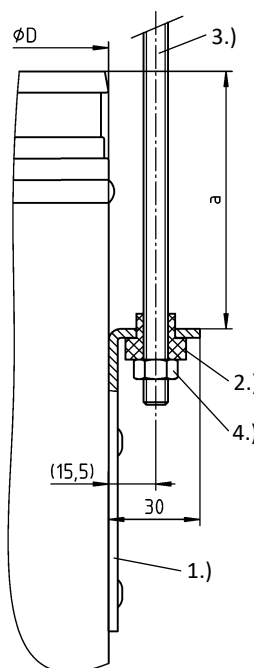
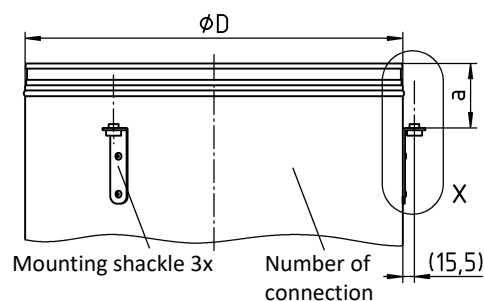
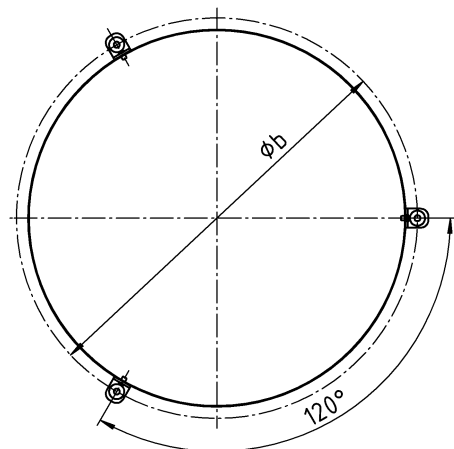
Rubber lip seal (-GD0/-GD1)

- without rubber lip seal (-GD0) (standard).
- with rubber lip seal (-GD1) (not possible in combination with dampers -DV1 und -DV3).

Detail Y



MOUNTING (SUSPENSION)



Mounting shackle



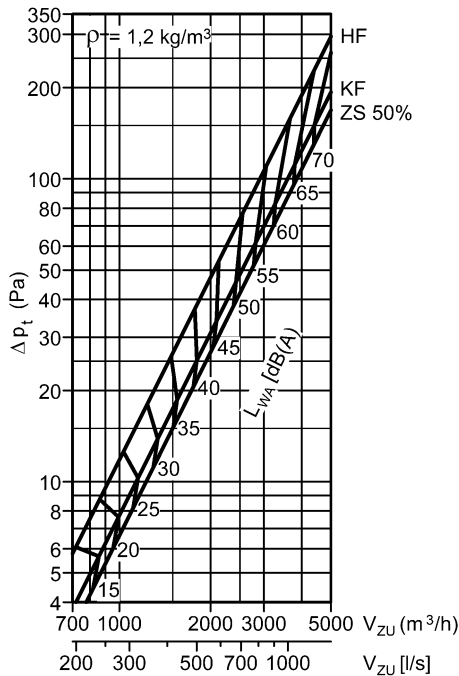
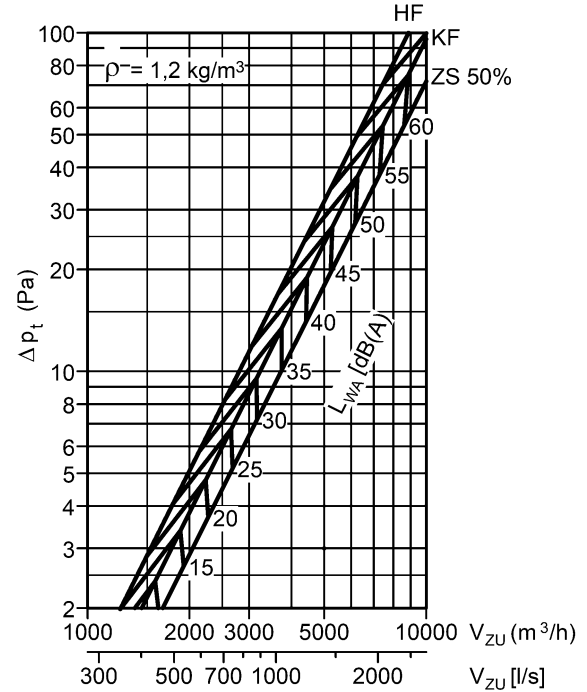
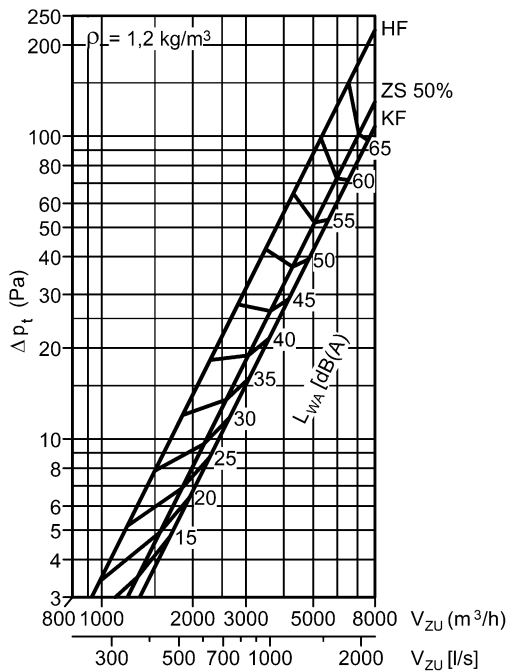
Available sizes

NW	øD	a	øb
500	498	85	529
630	628	75	659
800	798	168	829

- 1.) Mounting shackle
- 2.) Rubber isolator (GP M8)
- 3.) Threaded rod M8 (on site)
- 4.) Hexagon nut M8 (on site)

TECHNICAL DATA

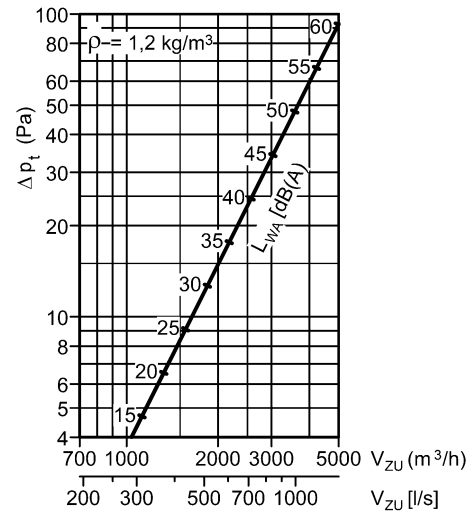
Pressure loss and noise level

IGA-500-Z (supply air)

IGA-800-Z (supply air)

IGA-630-Z (supply air)


HF = heating mode

KF = cooling mode

ZS 50% = intermediate position 50%

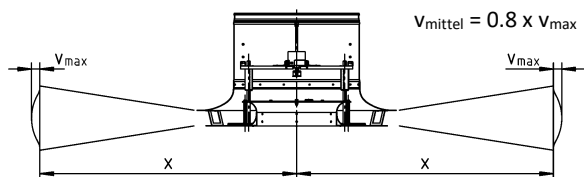
IGA-500-A (return air)

Correction factors for IGA-630/800-A (return air)

Apply correction factors from the supply air diagrams in the cooling mode position!

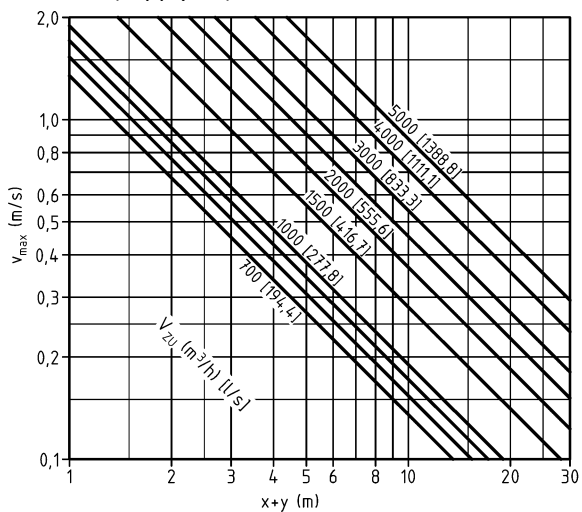
V _{ab} (return air volume)	V _{ab} (in m³/h) = V _{zu} (in m³/h) x 1.4
Total pressure loss in Pa	Return air total pressure loss: supply air total pressure loss x 0.227

Maximum end velocity of jet

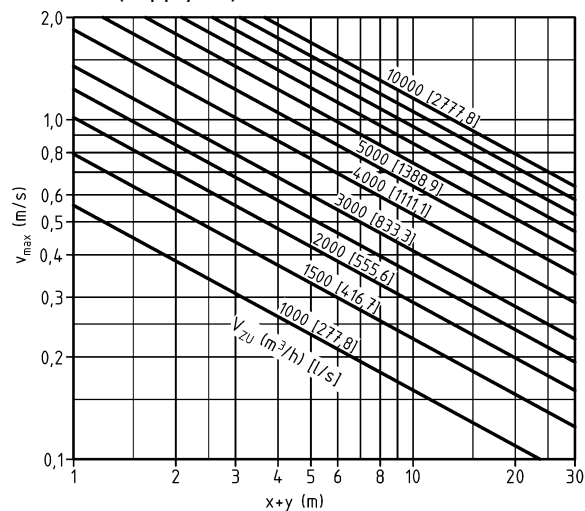
without coanda effect



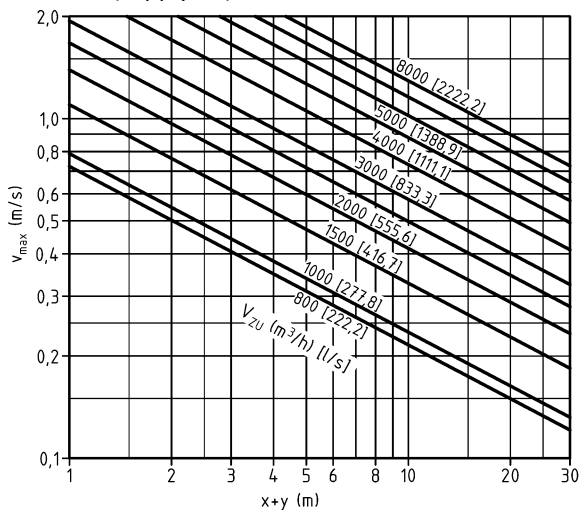
IGA-500-Z (supply air)



IGA-800-Z (supply air)

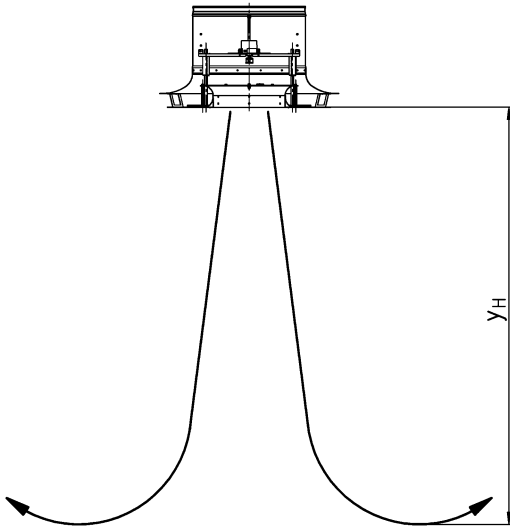


IGA-630-Z (supply air)

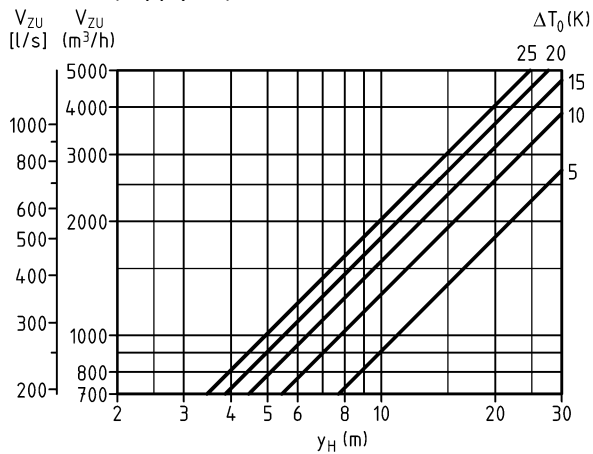


Maximum penetration

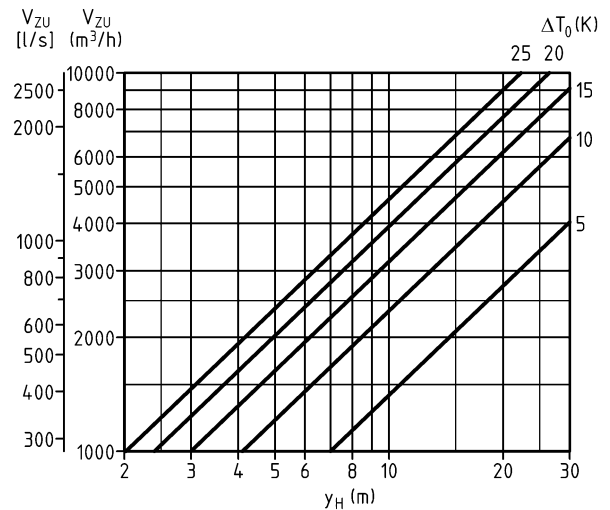
In heating mode



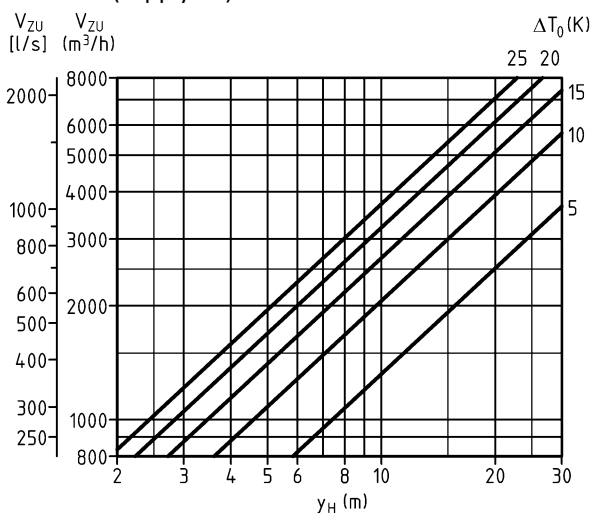
IGA-500-Z (supply air)



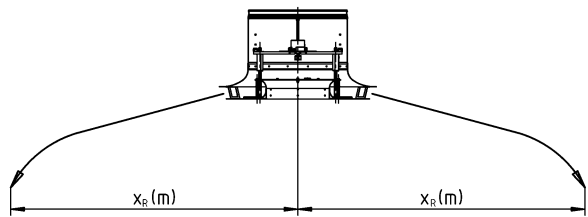
IGA-800-Z (supply air)



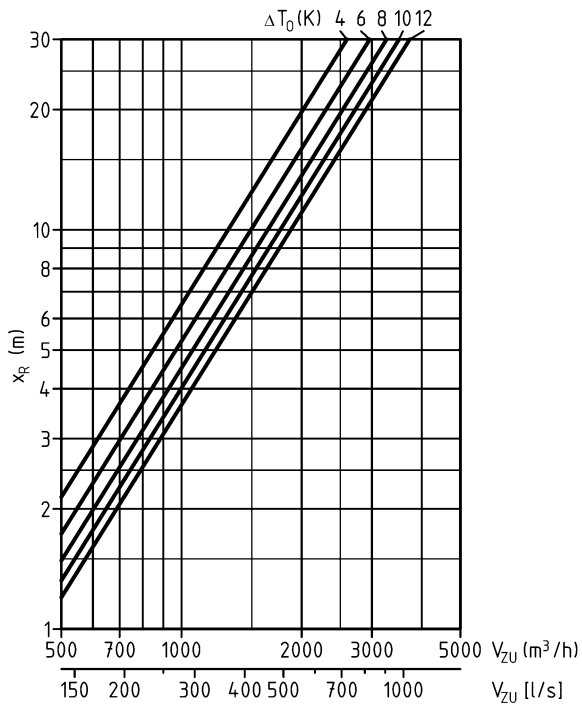
IGA-630-Z (supply air)



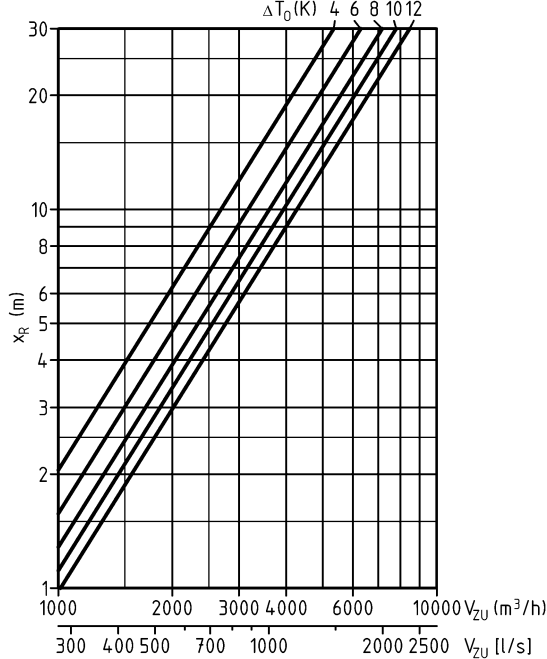
Jet path



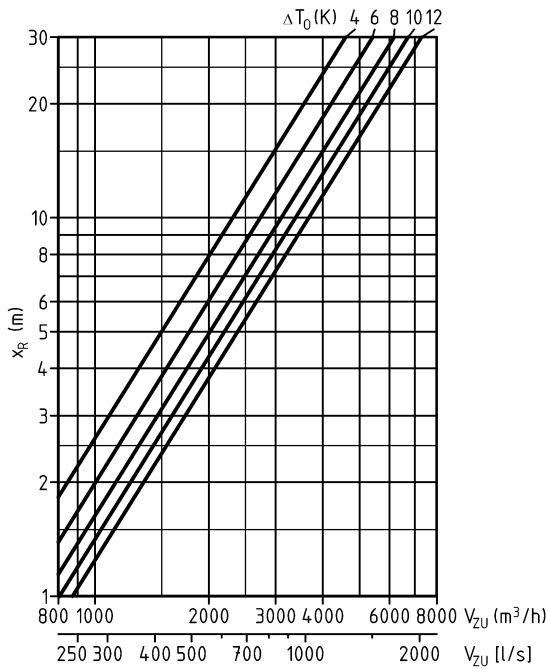
IGA-500-Z (supply air)



IGA-800-Z (supply air)

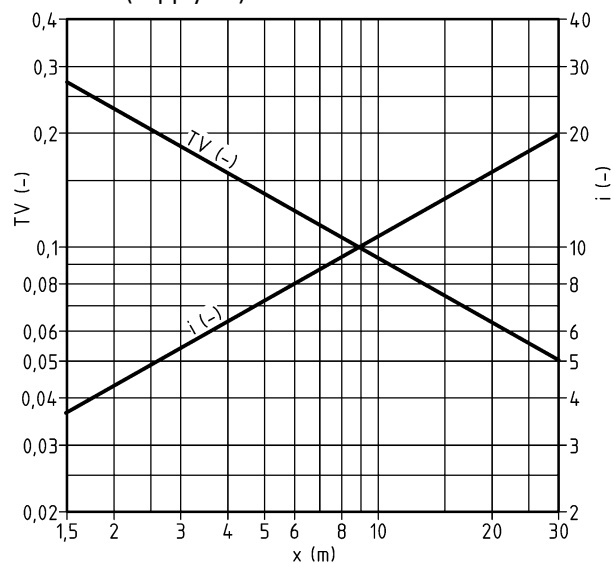


IGA-630-Z (supply air)

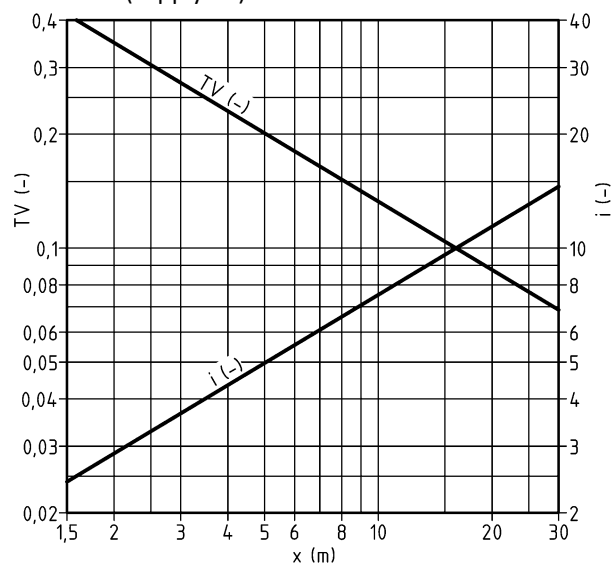


Temperature and induction ratios

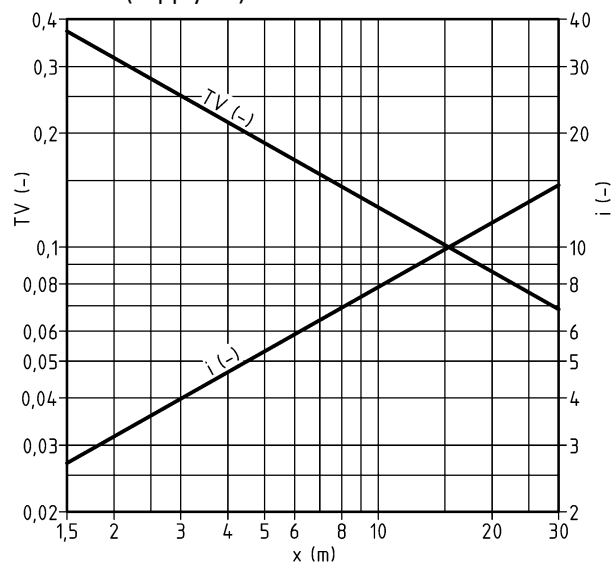
IGA-500-Z (supply air)



IGA-630-Z (supply air)

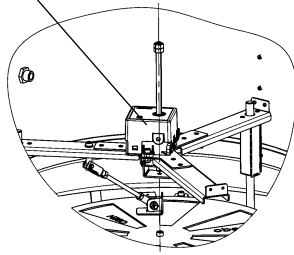


IGA-800-Z (supply air)



TECHNICAL DATA CONTROL COMPONENTS

Gruner actuator

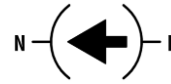


Mode switch

Mode switch on the housing with two positions:

N = Normal

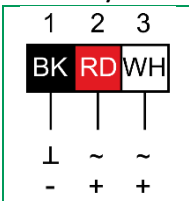
I = Inverse



Connection diagrams of electric actuators

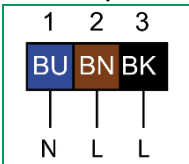
Product Gruner (24 V AC/DC, 2-3-point)

- IGA-500: - E085 (309-024-150/SL13)
- IGA-630 / IGA-800: - E086 (309-024-150/SL20)



Product Gruner (230 V AC/DC, 2-3-point)

- IGA-500: - E083 (309-230-150/SL13)
- IGA-630 / IGA-800: - E084 (309-230-150/SL13)



Technical data of electric actuators

Product Gruner -E085/E086 (309-024-150/SL**)

Rated voltage:	24 V AC/DC, 50/60 Hz
Functional range:	19...29 V AC/DC
Power consumption	2.5 W
Motor (motion):	
Standby power consumption (end position):	1.0 W
Dimensioning:	5.0 VA
Activation:	2/3-point
Feedback signal:	-
Motor connection:	cable 1000 mm, 3 x 0.75 mm ² (halogen-free)

Product Gruner -E083/E084 (309-230-150/SL**)

Rated voltage:	230 V AC/DC, 50/60 Hz
Functional range:	85...265 V AC/DC
Power consumption	3.0 W
Motor (motion):	
Standby power consumption (end position):	1.0 W
Dimensioning:	5.5 VA
Activation:	2/3-point
Feedback signal:	-
Motor connection:	cable 1000 mm, 3 x 0.75 mm ² (halogen-free)

LEGEND

V_{ZU}	(m ³ /h) [l/s]	= supply air volumetric flow
V_{AB}	(m ³ /h) [l/s]	= exhaust air volumetric flow
Δp_t	(Pa)	= Pressure loss
L_{WA}	[dB(A)]	= A-weighted sound power level ($L_{WA} = L_{WA1} + KF$)
KF	(-)	= Correction factor
ρ	(kg/m ³)	= density
V_{max}	(m/s)	= maximum end velocity of jet
V_{mittel}	(m/s)	= average end velocity of jet
ΔT_O	(K)	= temperature difference between supply air temperature and room temperature ($\Delta T_O = t_{ZU} - t_R$)
TV	(-)	= Temperature ratio ($TV = \Delta T_x / \Delta T_O$)
i	(-)	= induction ratio ($i = V_x / V_{ZU}$)
x+y	(m)	= horizontal and vertical throw
x	(m)	= horizontal throw
x_R	(m)	= horizontal jet radius
y_H	(m)	= vertical throw
NW	(mm)	= Nominal size
HF		= heating mode
KF		= cooling mode
ZS 50%		= intermediate position 50%

ORDER CODE IGA

01	02	03	04	05	06	07
Type	Nominal size	Air throw	Paint	Damper	Rubber lip seal	Actuator
Example						
IGA	-500	-Z	-9010	-DV0	-GD0	-E085

All fields must be filled when ordering.

Sample

IGA-500-Z-9010-DV0-GD0-E085

Air diffuser IGA for large air volumes | NW 500 | supply air | RAL colour 9010 (white) | without damper | without rubber lip seal | with actuator 24 V AC/DC, 2/3-point

ORDER DETAILS

01 - Type

IGA = air diffuser IGA for large air volumes

02 - Nominal size

500 = NW 500

630 = NW 630

800 = NW 800

03 - Air throw

Z = supply air (with baffle plate, air volume regulator and electric actuator)

A = return air

04 - Paint (faceplate)

9010 = RAL colour 9010 (white) (standard).

xxxx = RAL colour can be freely selected (always with 4 digits).

05 - Damper

DV0 = without damper (standard).

DV1 = with damper.

DV3 = with damper and rubber lip seal.

06 - Rubber lip seal

GD0 = without rubber lip seal (standard).

GD1 = with rubber lip seal (not possible in combination with dampers -DV1 und -DV3).

07 - Actuator

E000 = without actuator (standard for return air).

E083 = with actuator 230 V AC, 2/3-point
(for supply air IGA-500 – 1 piece).

E084 = with actuator 230 V AC, 2/3-point
(for supply air IGA-630 / IGA-800 – 3 pieces).

E085 = with actuator 24 V AC/DC, 2/3-point
(for supply air IGA-500 – 1 piece).

E086 = with actuator 24 V AC/DC, 2/3-point
(for supply air IGA-630 / IGA-800 – 3 pieces).

SPECIFICATION TEXT

The SCHAKO air diffuser IGA for large air volumes for use in supply and return air systems.

The SCHAKO air diffuser IGA for large air volumes is suitable for use in supply and return air systems for air-conditioning of large rooms with heights of up to 15 m. The air diffuser is connected directly to the duct system and is suitable for VAV systems with variable volumetric flows of 40-100%.

The air diffuser is adjustable by motor as standard and can be used for both cooling and heating. In cooling mode, a very high induction is achieved, which effectively reduces the air velocity and temperature. The motorised changeover to heating mode produces a very compact, vertical air jet which ensures a high penetration depth even at large installation heights at high overtemperature.

The air diffuser IGA for large air volumes consists of several inlet funnels for the optimum discharge of supply air in cooling and heating mode.

The air diffuser IGA consists of a painted faceplate made of sheet steel. With outer and inner inlet nozzle made of aluminium painted to the colour of the faceplate. Connection via spigot made of galvanised sheet steel.

Supply air model with internal air volume regulator made of aluminium (painted to the colour of the faceplate) including electrical regulator and height-adjustable baffle plate. Baffle plate position: top for heating mode / bottom for cooling mode.

Product: SCHAKO **type IGA-...-Z**

Return air model without air volume regulator and baffle plate

Product: SCHAKO **type IGA-...-A**

Paint (faceplate):

- RAL colour 9010 (white) (-9010) (standard).
- RAL colour can be freely selected (-xxxx) (always with 4 digits).

Actuator (standard for supply air):

- without actuator (-E000) (standard for return air).
- with actuator 24 V AC/DC, 2/3-point
 - IGA-500 (-E085)
 - IGA-630 / IGA-800 (-E086)
- with actuator 230 V AC, 2/3-point
 - IGA-500 (-E083)
 - IGA-630 / IGA-800 (-E084)

Accessories:

- Damper:
 - without damper (-DV0) (standard).
 - with adjustable damper, for air volume regulation, with side adjustment lever, made of galvanised sheet steel, painted to the IGA colour on the outside:
 - connection without rubber lip seal (-DV1) (standard for model with damper).
 - connection with rubber lip seal (-DV3).
- Rubber lip seal:
 - without rubber lip seal (-GD0) (standard).
 - with rubber lip seal (-GD1) on the connection spigot (not possible in combination with dampers -DV1 und -DV3).