



## IGA

Air diffuser for large air volumes

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### PERFORMANCE DATA

- **NW 500**
  - air volumes at 45 dB(A) of 2100 m<sup>3</sup>/h
  - air volumes at 45 dB(A) of 583 l/s.
- **NW 630**
  - air volumes at 45 dB(A) of 4160 m<sup>3</sup>/h
  - air volumes at 45 dB(A) of 1156 l/s.
- **NW 800**
  - air volumes at 45 dB(A) of 5300 m<sup>3</sup>/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 <sub>zu</sub> (m <sup>3</sup> /h)	L <sub>WA</sub> [dB(A)]	Δp <sub>t</sub> (Pa)
2100	45	34
2450	50	46
2800	55	60

#### Heating mode position

V <sub>zu</sub> (m <sup>3</sup> /h)	L <sub>WA</sub> [dB(A)]	Δp <sub>t</sub> (Pa)
2150	45	57
2500	50	77
3000	55	111

### IGA-630

#### Cooling mode position

V <sub>zu</sub> (m <sup>3</sup> /h)	L <sub>WA</sub> [dB(A)]	Δp <sub>t</sub> (Pa)
4200	45	29
4900	50	39
5700	55	53

#### Heating mode position

V <sub>zu</sub> (m <sup>3</sup> /h)	L <sub>WA</sub> [dB(A)]	Δp <sub>t</sub> (Pa)
2800	45	28
3500	50	43
4300	55	65

### IGA-800

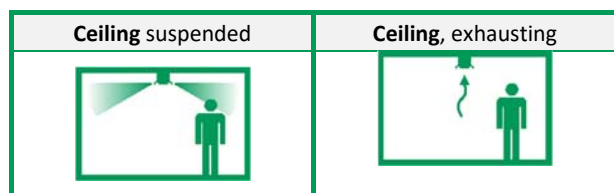
#### Cooling mode position

V <sub>zu</sub> (m <sup>3</sup> /h)	L <sub>WA</sub> [dB(A)]	Δp <sub>t</sub> (Pa)
5300	45	27
6300	50	38
7500	55	54

#### Heating mode position

V <sub>zu</sub> (m <sup>3</sup> /h)	L <sub>WA</sub> [dB(A)]	Δp <sub>t</sub> (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), made of special rubber.

### Rubber lip seal (-GD0 / -GD1)

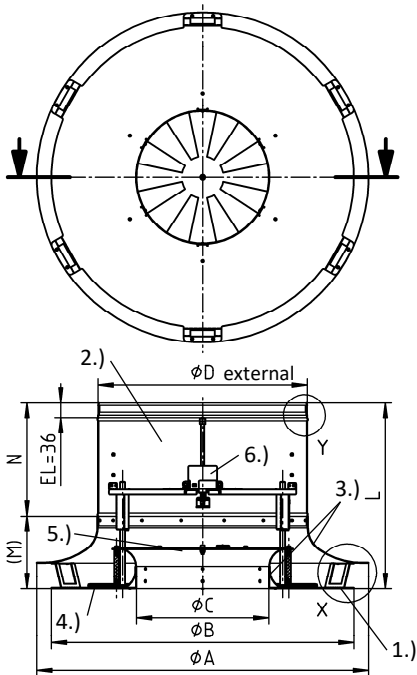
- without rubber lip seal (-GD0) (standard).
- with rubber lip seal (-GD1), made of special rubber.

## MOUNTING

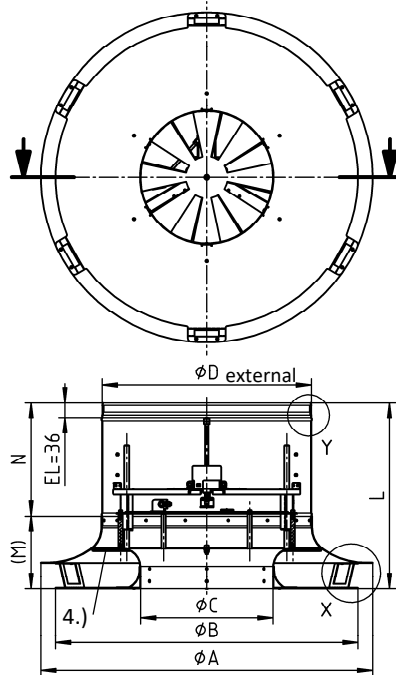
Suspension via threaded rods (on site)

## DIMENSIONS

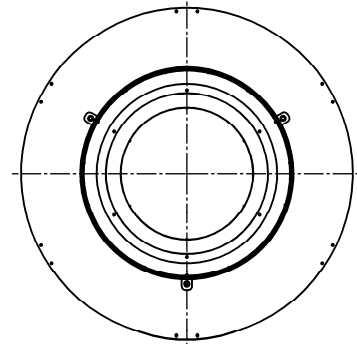
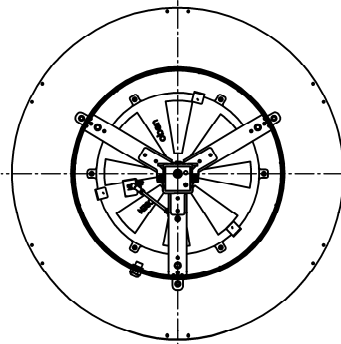
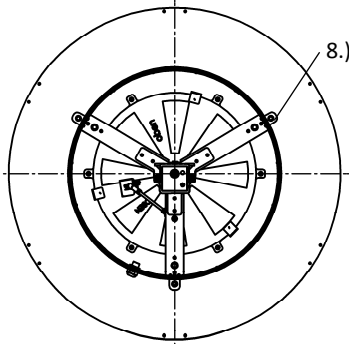
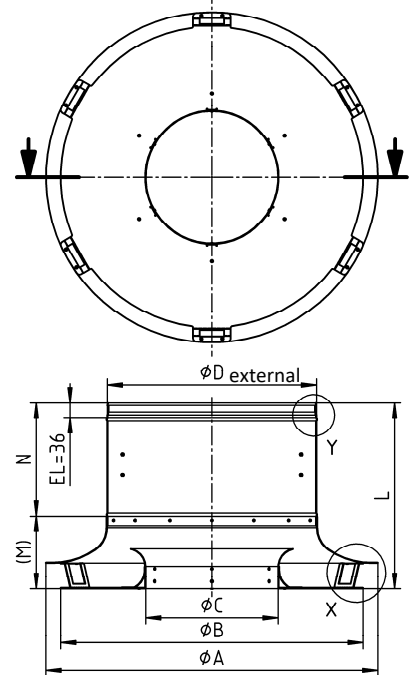
IGA-...-Z (supply air), cooling mode



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

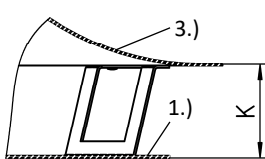


IGA-...-A (return air)

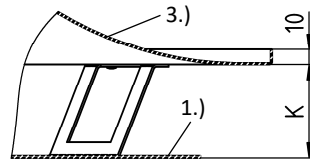


### Detail X

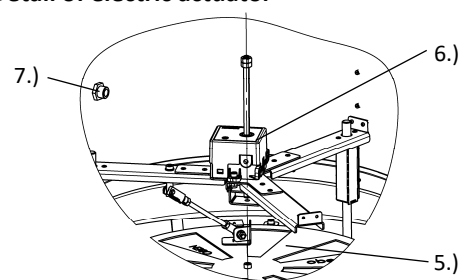
IGA-500 / IGA-630



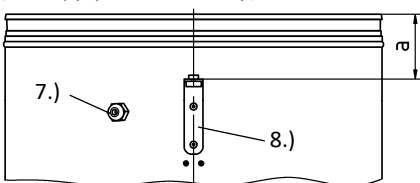
IGA-800



### Detail of electric actuator



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



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

### Available sizes

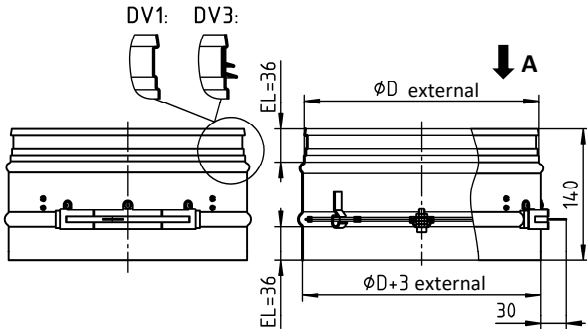
NW	øD	øA	øB	øC	K	M	N	a	L
500	498	790	720	315	62	175	270	85	445
630	628	998	910	396	67.5	209	280	75	489
800	798	1275	1180	496	62	270	368	168	638

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), made of special rubber.



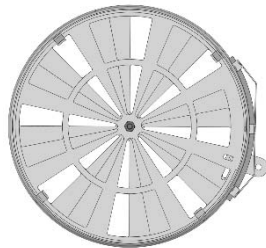
**View A**

**“OPEN” position:**

Free cross-section approx. 75%

**“CLOSED” position:**

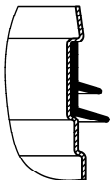
Free cross-section approx. 25%



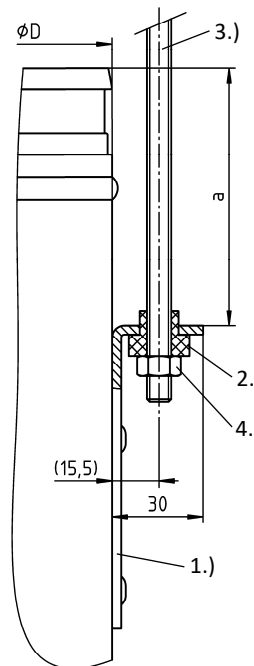
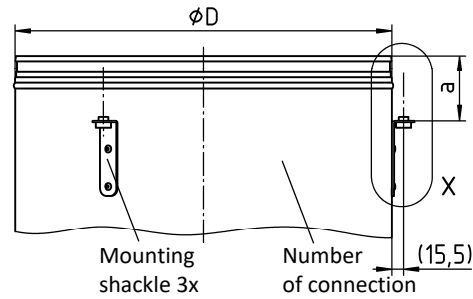
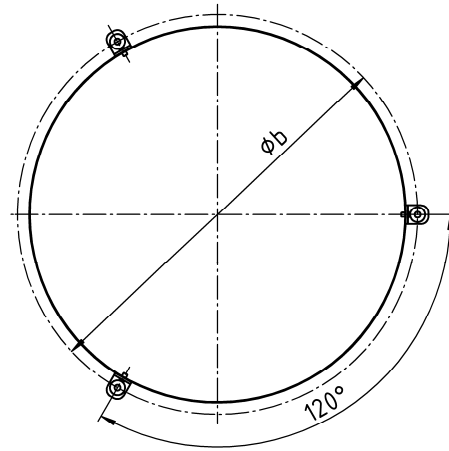
**Rubber lip seal (-GD0/-GD1)**

- without rubber lip seal (-GD0) (standard).
- with rubber lip seal (-GD1), made of special rubber

**Detail Y**



**MOUNTING (SUSPENSION)**



**Mounting shackle**



**Available sizes**

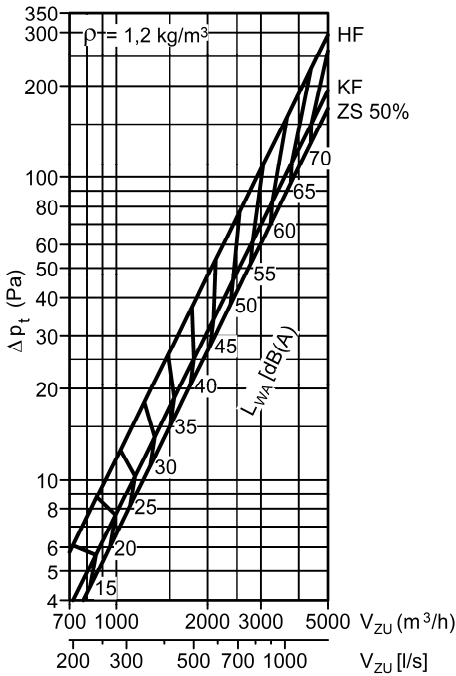
NW	$\phi D$	a	$\phi b$
500	498	85	529
630	628	75	659
800	798	168	829

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

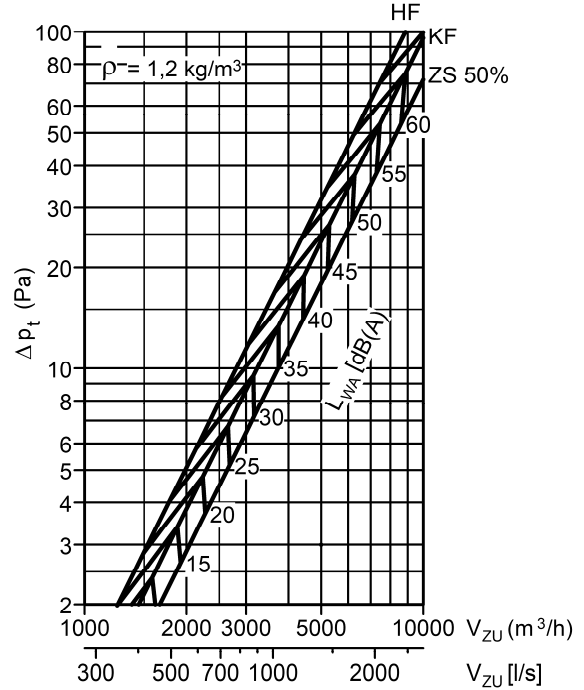
**TECHNICAL DATA**

**Pressure loss and noise level**

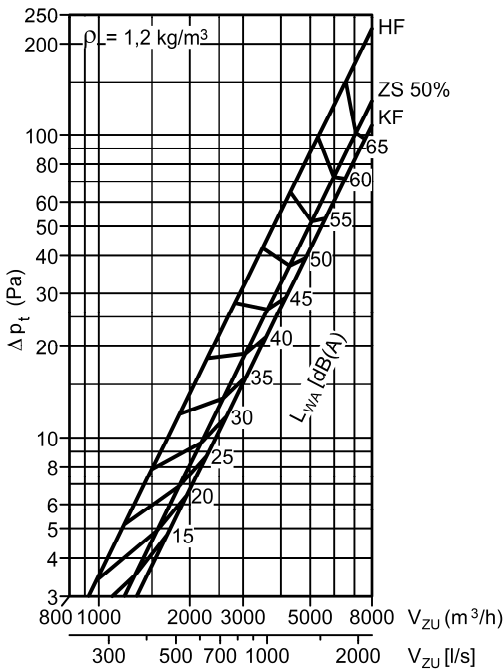
**IGA-500-Z (supply air)**



**IGA-800-Z (supply air)**

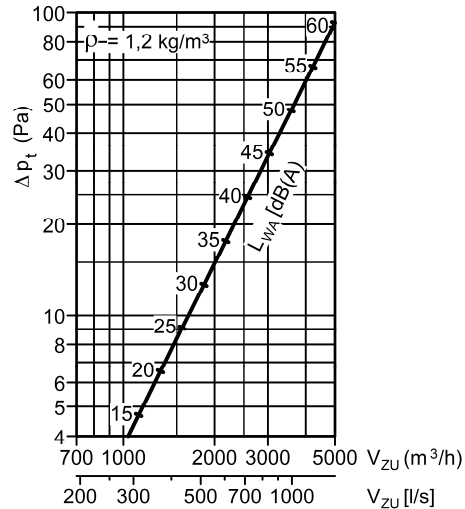


**IGA-630-Z (supply air)**



HF = heating mode  
 KF = cooling mode  
 ZS 50% = intermediate position 50%

**IGA-500-A (return air)**



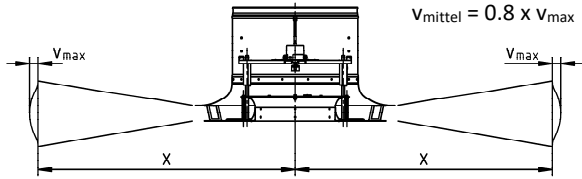
**Correction factors for IGA-630/800-A (return air)**

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

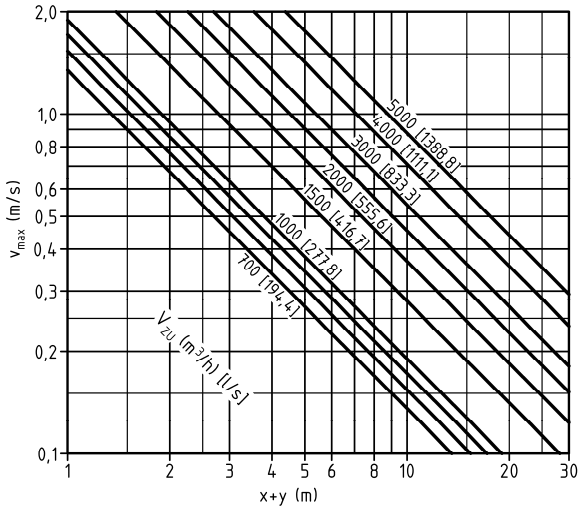
$V_{ab}$ (return air volume)	$V_{ab}$ (in $m^3/h$ ) = $V_{zu}$ (in $m^3/h$ ) x 1.4
Total pressure loss in Pa	Return air total pressure loss: supply air total pressure loss x 0.227

### Maximum end velocity of jet

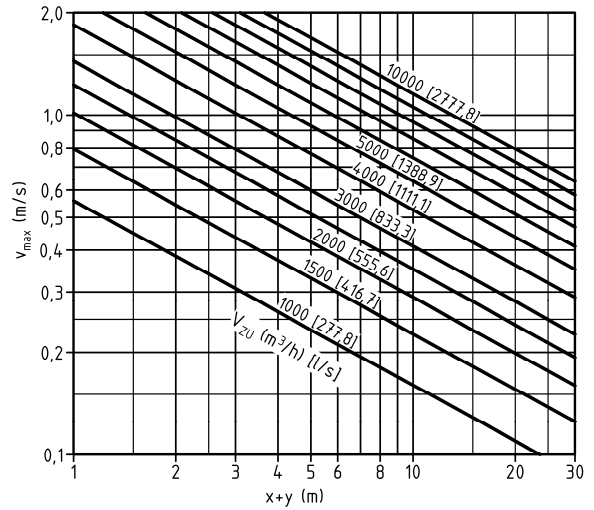
without coanda effect



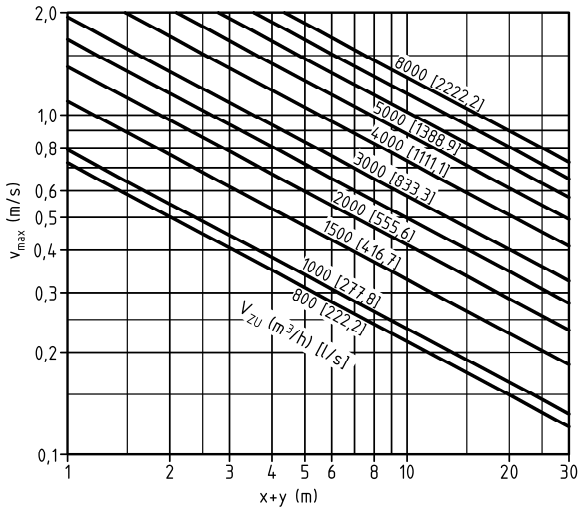
**IGA-500-Z (supply air)**



**IGA-800-Z (supply air)**

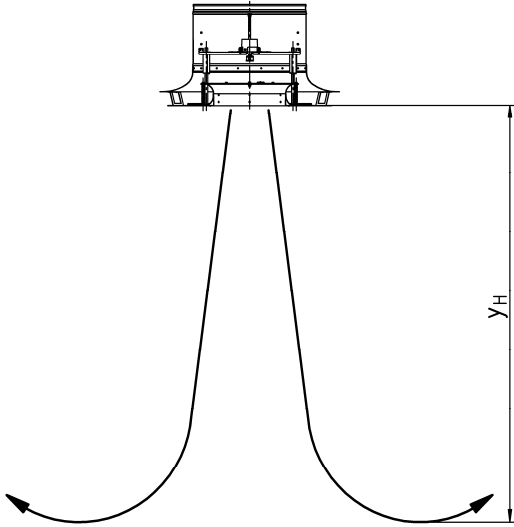


**IGA-630-Z (supply air)**

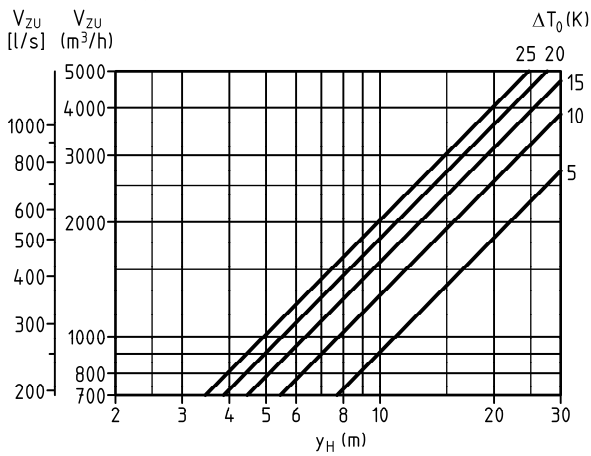


### Maximum penetration

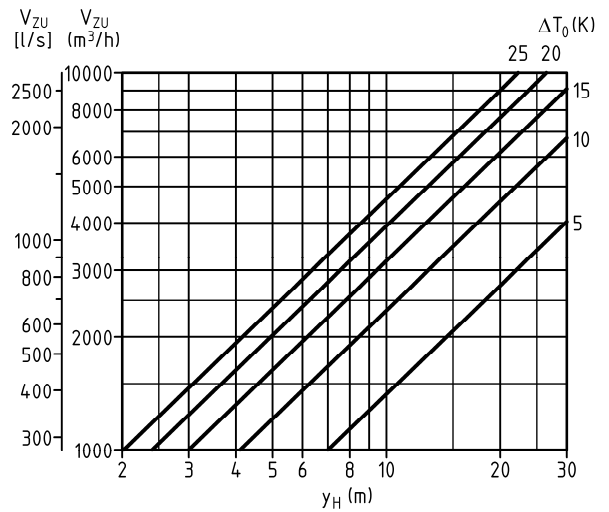
In heating mode



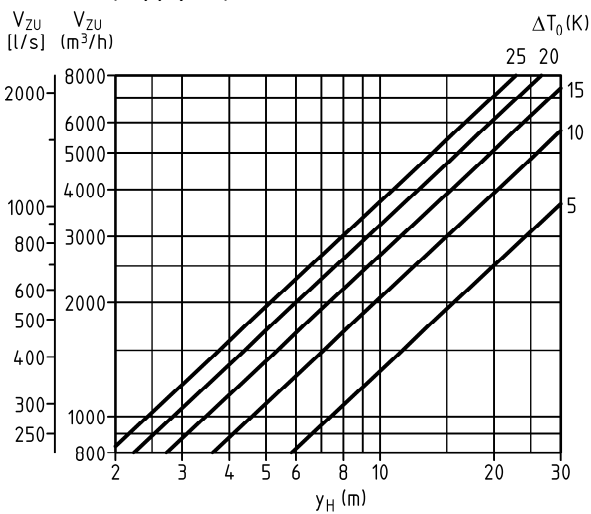
**IGA-500-Z (supply air)**



**IGA-800-Z (supply air)**

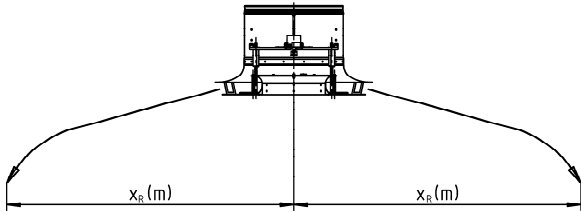


**IGA-630-Z (supply air)**

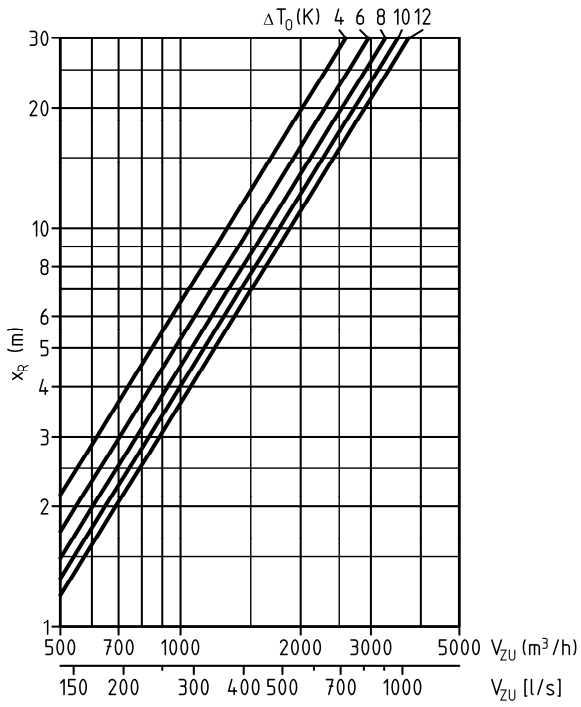




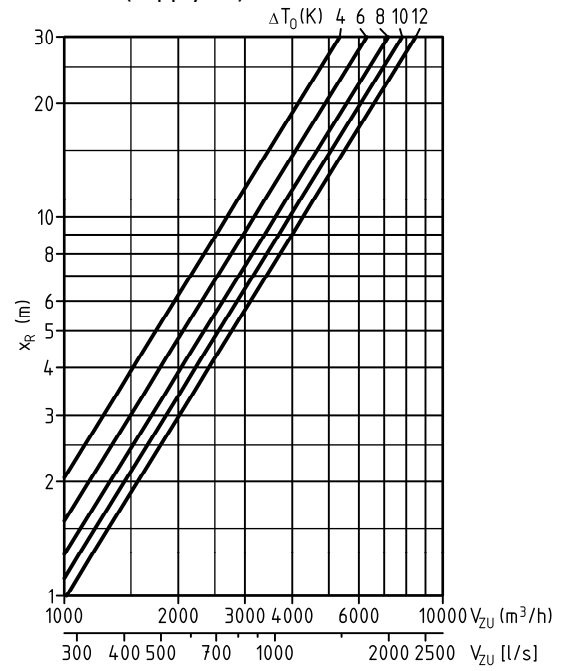
**Jet path**



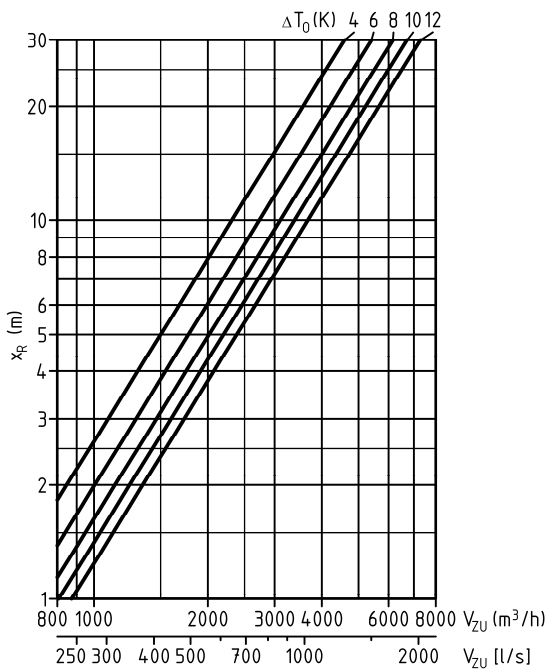
**IGA-500-Z (supply air)**



**IGA-800-Z (supply air)**

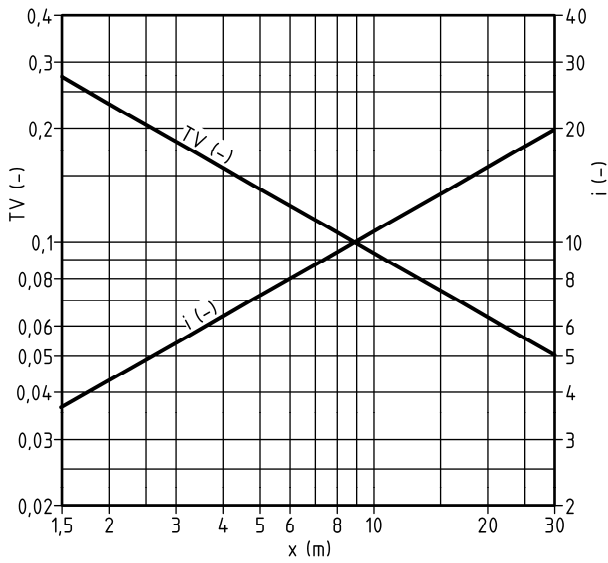


**IGA-630-Z (supply air)**

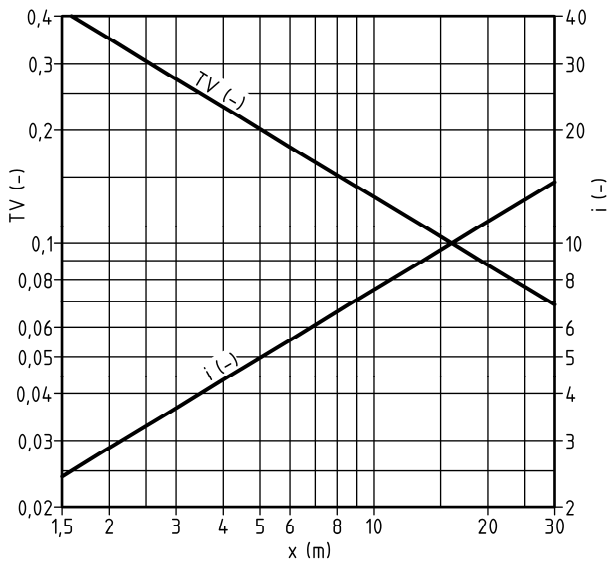


**Temperature and induction ratios**

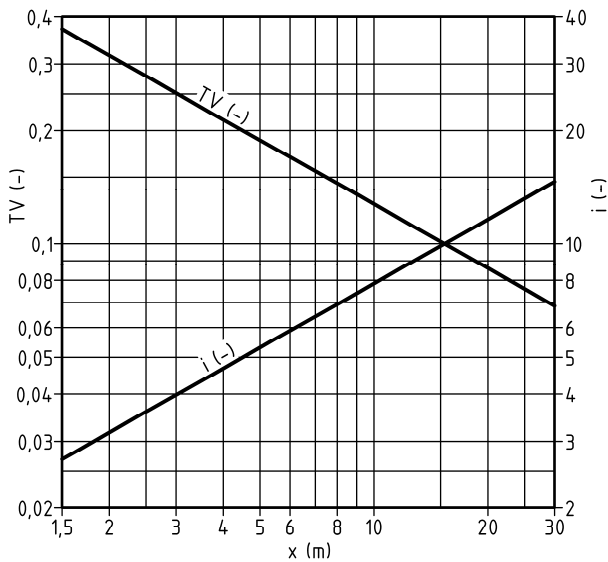
**IGA-500-Z (supply air)**



**IGA-630-Z (supply air)**

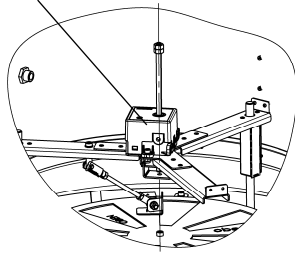


**IGA-800-Z (supply air)**



## TECHNICAL DATA CONTROL COMPONENTS

### Gruner actuator

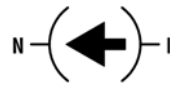


#### Mode switch

Mode switch on the housing with two positions:

N = Normal

I = Inverse

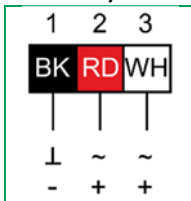


### Connection diagrams of electric actuators

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

- IGA-500: - E085 (309-024-150/SL13)

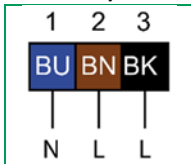
- IGA-630 / IGA-800: - E086 (309-024-150/SL20)



#### 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 <sup>2</sup> (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 <sup>2</sup> (halogen-free)

## LEGEND

$V_{ZU}$	(m <sup>3</sup> /h) [l/s]	=	supply air volumetric flow
$V_{AB}$	(m <sup>3</sup> /h) [l/s]	=	return air volumetric flow
$\Delta p_t$	(Pa)	=	Pressure loss
$L_{WA}$	[dB(A)]	=	A-weighted sound power level ( $L_{WA} = L_{WA1} + KF$ )
KF	(-)	=	Correction factor
$\rho$	(kg/m <sup>3</sup> )	=	density
$V_{max}$	(m/s)	=	maximum end velocity of jet
$V_{mittel}$	(m/s)	=	average end velocity of jet
$\Delta T_O$	(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
<b>Example</b>						
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.

### 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), made of special rubber.
- Rubber lip seal:
  - without rubber lip seal (-GD0) (standard).
  - with rubber lip seal (-GD1) made of special rubber, at the connection spigot.