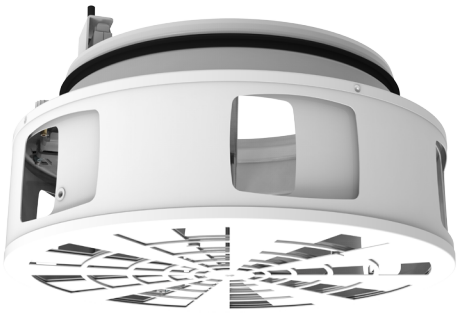
BURE

Circular ceiling high capacity diffuser with dual adjustable vents for high installations



Ordering codes

BURE -

Nominal size	DN supply connection (mm)	250 315 400 500 630
Type of control	Manual control	HC
	Thermal actuator, continuous control	TC
	Electric actuator AC 230V, 2-point/3-point control	M2
	Electric actuator AC 24V, DC 0-10V continuous control	MC
Surface treatment [1)]	RAL9010 white, gloss 30%	RAL9010
	Other colours RAL...	RALXXXX

Example of the ordering codes:

BURE - 400 - MC

High capacity diffuser BURE, supply connection nominal size 400 mm, with AC 24 V electric drive for DC (0 ÷ 10) V continuous control. White colour coating RAL9010 gloss 30 %.

NOTE:

1. If the ordering code does not contain surface treatment, so RAL9010, gloss 30 % will be delivered as standard.

Description

BURE is suited for comfort high capacity ventilation of big halls and industrial buildings. Suitable for heating and cooling using the adjustable construction. Installation height is between 4 m and 12 m.

The air stream pattern (horizontal or vertical) can be adjusted manually (BURE-HC...) or by an autonomous thermal (BURE-TC...) or an electric actuator (BURE-M2 for 2-point or 3-point/ AC 230 V actuator and BURE-MC for continuous AC 24 V actuator with DC (0 ÷ 10) V control signal. The BURE consists of an inlet spigot and an inner and outer cage with openings for supply air in the peripheral surface and the underside. Dependent of the operation method the openings in the peripheral surface (cooling, horizontal air stream) or the underside (heating, vertical air stream) are opened.

The control mechanism in HC and MC version adjusts the flow pattern in any selected position on the adjustment scale (at the connection side of the product) between position 1 (fully horizontal) and 5 (fully vertical). The TC and M2 version controls in a section of the range that can be shifted on the adjustment scale towards the horizontal flow pattern (in direction of pos. 1) or towards the vertical flow pattern (direction of pos. 5).

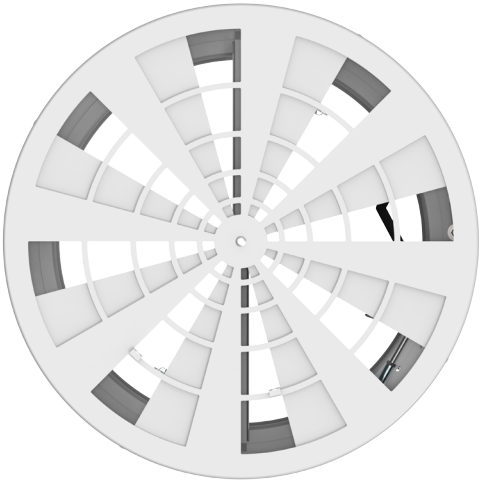
Horizontal flow pattern

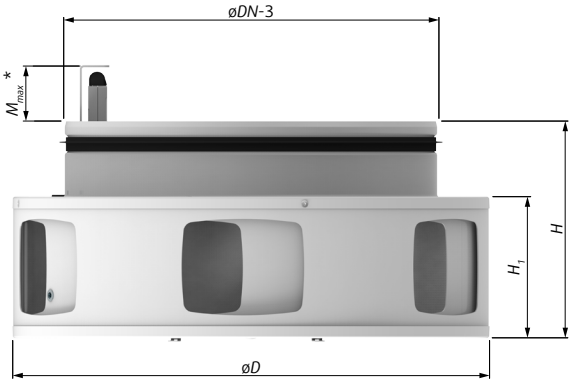
Vertical flow pattern

Fig. 1: Air flow visualisation

Design

The BURE is made of powder coated steel (RAL 9010) and is available in the duct connection sizes 250 mm, 315 mm, 400 mm, 500 mm and 630 mm. At underside the double segment blinds allow the free area of more than 50 %.





* (BURE-M2 or BURE-MC with an electric actuator)

Fig. 1: Dimensions of the BURE

Dimensions

DN	øD	H	H_1	M_{max}*	BURE... -HC	BURE... -TC	BURE... -MC/-M2
(mm)					(kg)		
250	315	160	99	50	2,6	3	3,1
315	400	182	119	48	3,8	4,3	4,3
400	500	204	144	-	5,7	6,6	7,2
500	600	223	163		7,9	8,9	9,5
630	800	271	211		12,8	14,2	14,5

Tab. 1: BURE table of dimensions and weight

Technical parameters

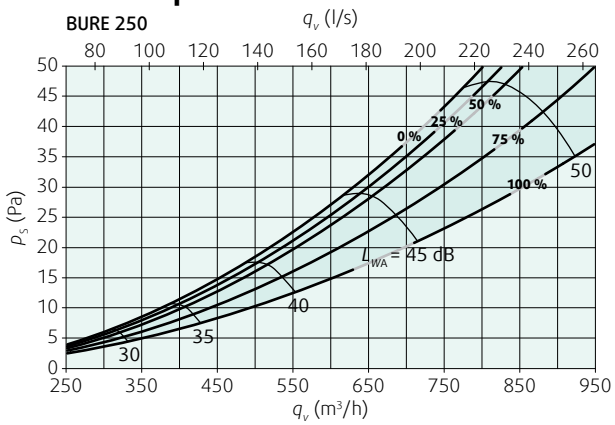


Diagram 1a: Pressure drop and sound power level (all BURE diffuser types)

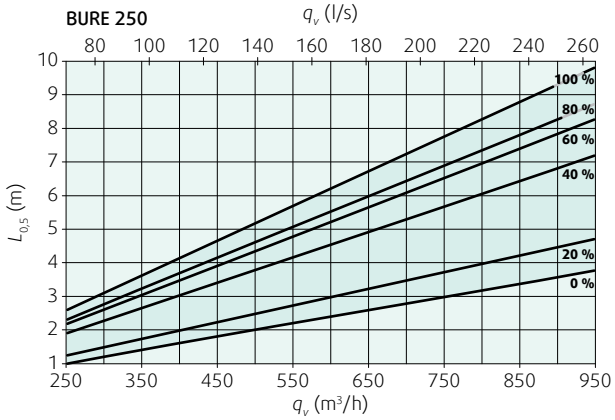


Diagram 1b: Isothermal vertical throw length; measured for terminal velocity 0,5 m/s (all BURE diffuser types)

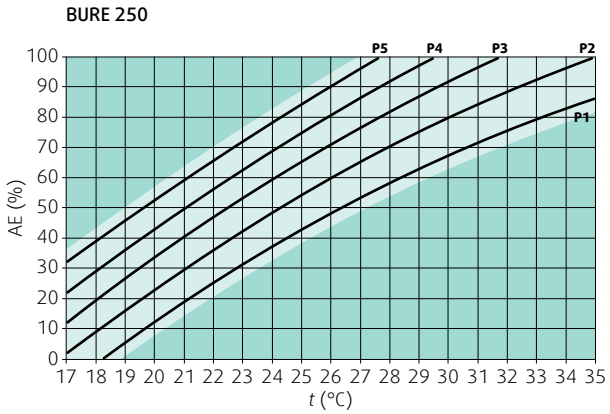


Diagram 1c: BURE-TC non-isothermal throw setup diagram

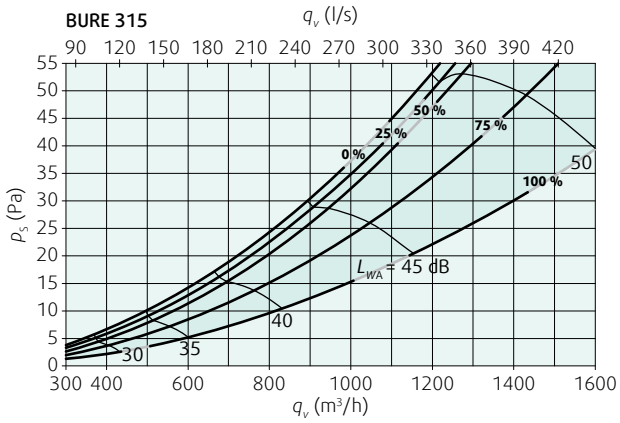


Diagram 2a: Pressure drop and sound power level (all BURE diffuser types)

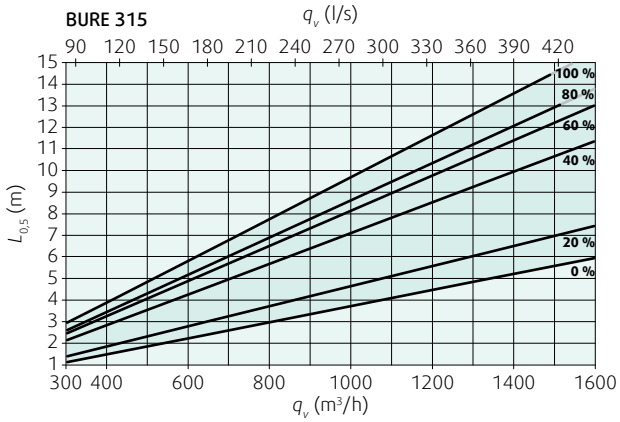


Diagram 2b: Isothermal vertical throw length; measured for terminal velocity 0,5 m/s (all BURE diffuser types)

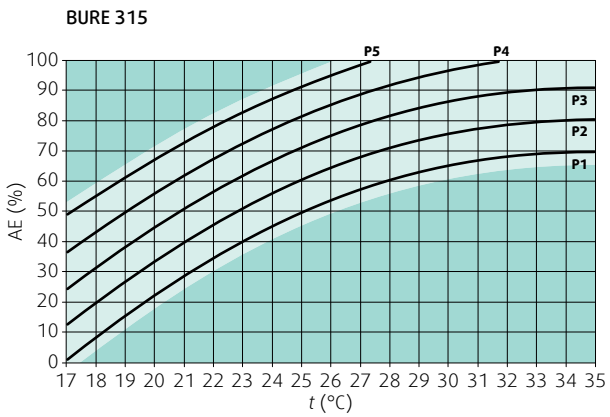


Diagram 2c: BURE-TC non-isothermal throw setup diagram

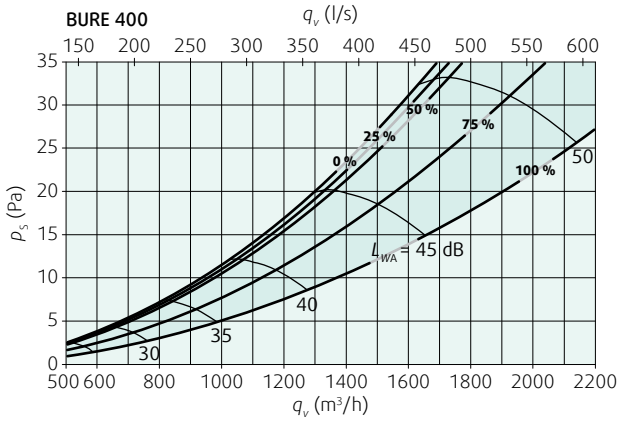


Diagram 3a: Pressure drop and sound power level (all BURE diffuser types)

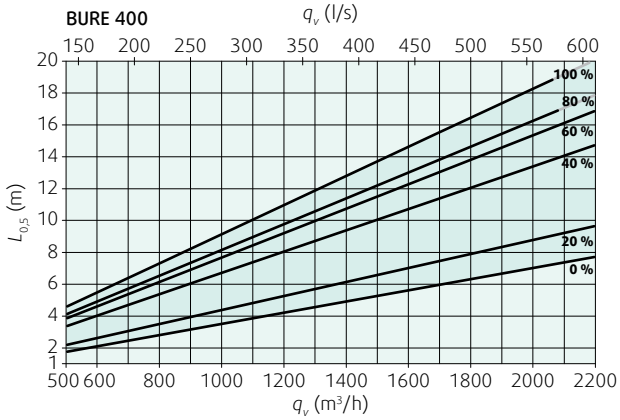


Diagram 3b: Isothermal vertical throw length; measured for terminal velocity 0,5 m/s (all BURE diffuser types)

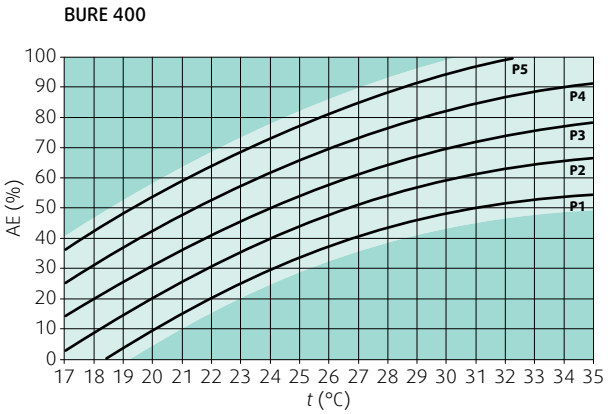


Diagram 3c: BURE-TC non-isothermal throw setup diagram

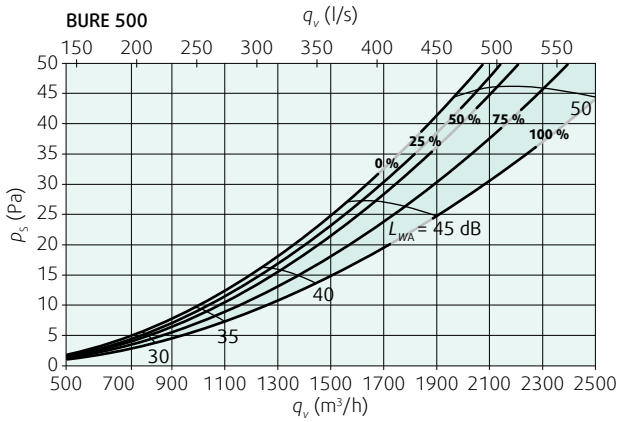


Diagram 4a: Pressure drop and sound power level (all BURE diffuser types)

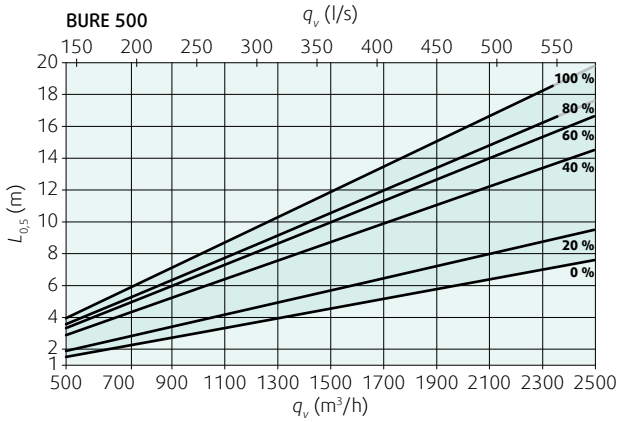


Diagram 4b: Isothermal vertical throw length; measured for terminal velocity 0,5 m/s (all BURE diffuser types)

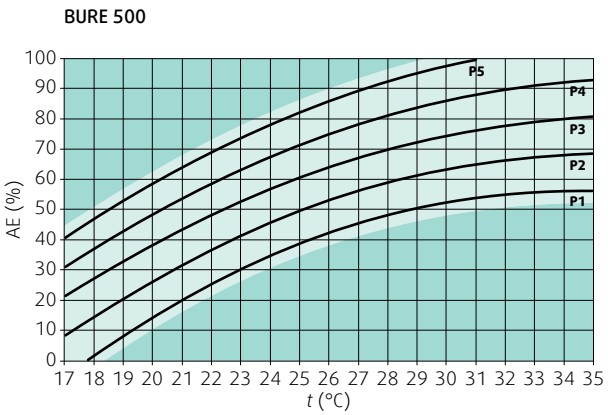


Diagram 4c: BURE-TC non-isothermal throw setup diagram

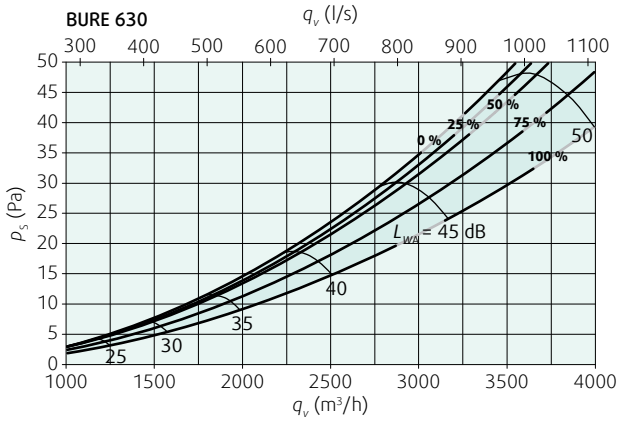


Diagram 5a: Pressure drop and sound power level (all BURE diffuser types)

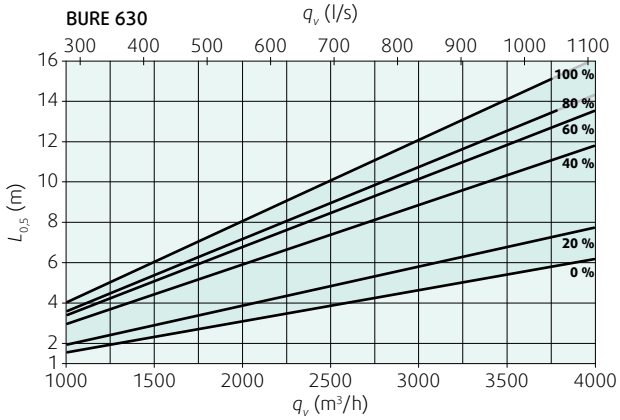


Diagram 5b: Isothermal vertical throw length; measured for terminal velocity 0,5 m/s (all BURE diffuser types)

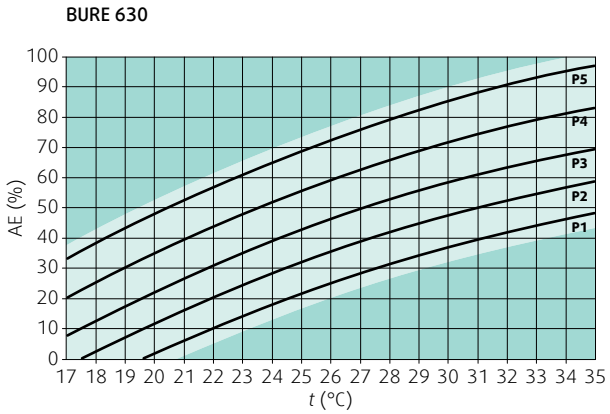


Diagram 5c: BURE-TC non-isothermal throw setup diagram

Legend

1, 2, 3, 4, 5	flow direction adjustment mechanism positions
0%	bottom vents closed and side vents open = only horizontal flow
100%	bottom vents open and side vents closed = only vertical flow
t	equithermal temperature same value as room temperature (t_R) and supply air temperature (t_{SUP})
	out of working area
AE	Equivalent opening position for vertical air flow. This virtual value in diagram for constant non-isothermal throw setup on BURE-TC helps selecting the correct setup-position P1-P5. See the exaple below.

NOTES:

Adjustment positions P1 ... P5

- **BURE-HC**
  0 % (P1) - 100 % (P5) opening for vertical air flow
- **BURE-M2/BURE-TC**
  Manual shift of electro or thermal actuating mechanism towards the horizontal flow direction (P1) or towards the vertical flow direction (P5). This shift can be max. 50 % of the full movement between fully vertical and fully horizontal flow position. The resting 50 % of the movement range is covered by the actuator.
- **BURE-MC**
  For BURE-MC the control signal influences the opening of the vertical flow direction. DC 0 V ... 10 V changes the vertical flow opening from 0 % to 100 %.

Δ*T* - Heating	5 K	10 K	15 K	20 K	25 K
K_T - Correction factor	· 0,57	· 0,40	· 0,33	· 0,28	· 0,25

Throw (m) = $L_{0,5} \cdot K_T$

Tab. 2: Throw length correction for non-isothermal vertical flow in fixed air flow pattern adjustment on BURE-HC, -M2, -MC

BURE-TC	**Heating**			**Cooling**		
	Δ*T* = 5 K	**Δ*T* = 10 K**	**Δ*T* = 15 K**	**Δ*T* = -5 K**	**Δ*T* = -10 K**	**Δ*T* = -15 K**
250	0,9	1,1	1,2	0,9	0,9	0,7
315	1	1,1	1,2	1	0,9	0,8
400	1	1	1,1	1	0,8	0,7
500	1	1,1	1,1	1	0,9	0,8
630	0,9	1	1	0,9	0,8	0,7

Tab. 3: Throw length correction for non-isothermal vertical flow in temperature-depending variable air flow pattern on BURE-TC

Selection and set-up example for BURE-TC

Given parameters:

Diffuser installation height:	10 m
Designed air flow volume:	1000 m³/h
Variating supply air temperature:	17 °C to more than 30 °C
Room temperature:	20 °C

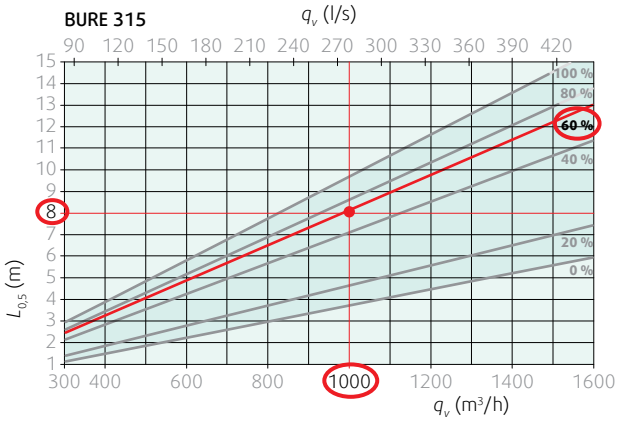
Requested parameters:

The diffuser shall maintain the approximately constant vertical throw length in the whole range of supply air temperatures (non-isothermal air supply) if the air flow volume is constant.

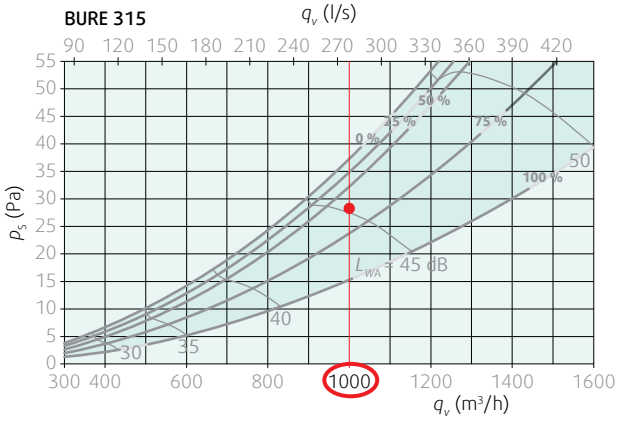
Solution:

The vertical throw length shall enable terminal air velocity of 0,5 m/s in the occupied zone app. 2 m above floor. The throw length for installation height 10 m will be *L* = 8 m.

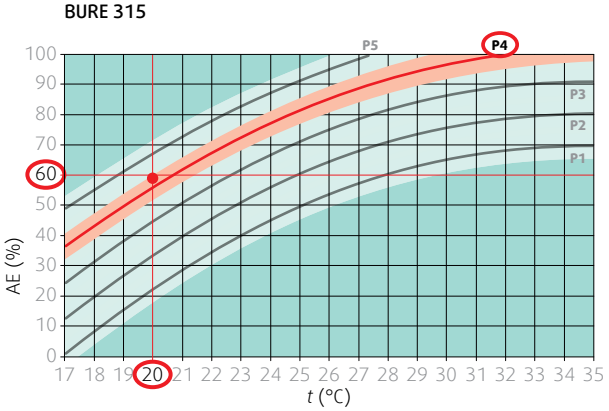
A suitably sized diffuser will be BURE-315-TC.



1. Choose isothermal throw length line for chosen flow volume (1000 m³/h) with proper vertical throw length (8 m).
The line represents vertical throw in certain flow ratio for vertical air flow. In this case the isothermal temperature (room temperature as well as supply air temperature) is 20 °C.



2. Check the working point for isothermal air flow from flow diagram...



3. See the percentage vertical flow at right vertical axis. Take the chosen 60 % line and cross it with the line of actual isothermal air temperature of BURE thermal actuator.
In this case t = 20 °C. The nearest adjustment position line is P4. Set the position P4 by the adjustment knob.
BURE will now have constant vertical throw length of app. 8 m in the whole adjustable supply air temperature range between 17 °C and 32 °C (ends of the red line).

Installation, maintenance and operation

The BURE is mounted directly in a spiro duct by a rubber gasket tight connection. More details see in Installation, maintenance and operation manual (InstalMaintenOperInstr_PP-102_BURE).

Transport and storage

Dry indoor conditions with temperature range - 20 °C to + 40 °C

Warranty

The manufacturer provides a 24 month warranty period, which begins on the day of the expedition noted in the delivery note.

Supplement

Any deviations from the technical specifications contained herein and the terms should be discussed with the manufacturer. We reserve the right to make any changes to the product without prior notice, provided that these changes do not affect the quality of the product and the required parameters. Current information on all products are available at www.systemair.com.

High induction diffusers - Related product

DGV

High induction swirl diffuser with adjustable blades for variable air flow pattern

Product information is available at www.systemair.com