Air Distribution Products

BURE

Variable Geometry Diffuser

Data Sheet

systemair

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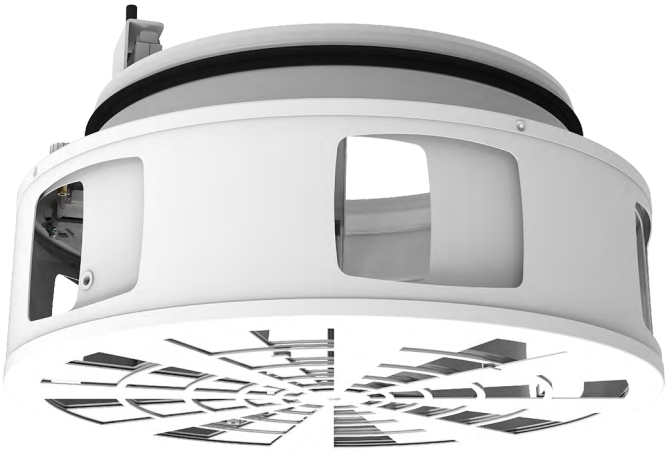
Good to know

Current information on all products is available at www.design.systemair.com



Description

BURE is the adjustable geometry diffuser for comfort high capacity ventilation of big halls and industrial buildings. Suitable for heating and cooling. Installation height is between 4 m and 12 m.
The air discharge pattern (horizontal or vertical) can be adjusted manually (BURE-HC...) or by 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 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).

Highlights

- High capacity and very compact dimensions
- Large throw length at vertical discharge
- Small influence of geometry adjustment on pressure drop variation
- No influence of installation behind tee or elbow on the discharge pattern symmetry

Product Types

- BURE-HC: Diffuser with manual geometry adjustment
- BURE-M2: Diffuser with 2-point or 3-point motorized geometry adjustment
- BURE-MC: Diffuser with continuous motorized geometry adjustment

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%.

Product Parts

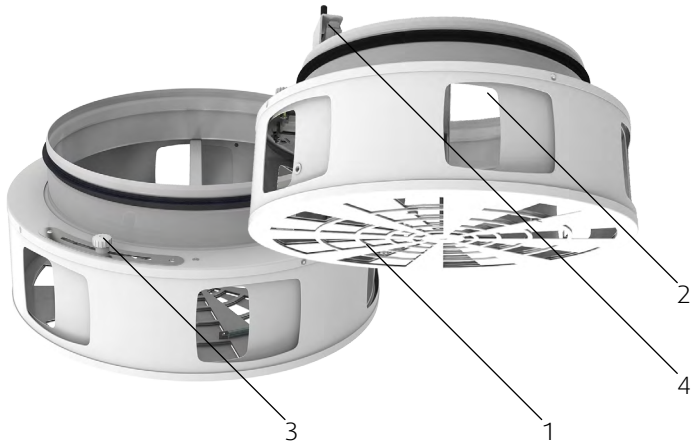


Fig. 2: Components of the BURE

Legend

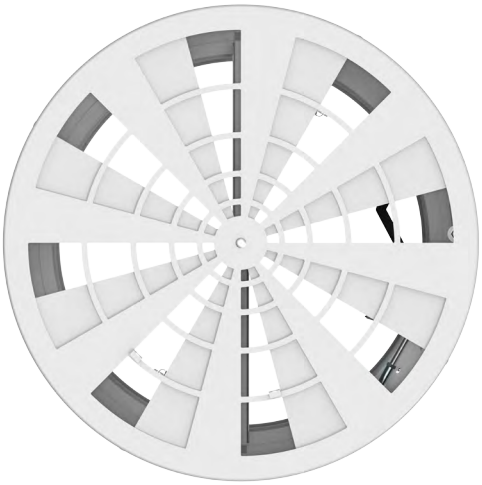
1	Vertical discharge vents
2	Horizontal discharge vents
3	Manual adjustment dial (BURE-HC, -M2)
4	Adjustment actuator (BURE-M2, -MC)

Setup Possibilities

Adjustment Positions P1 ... P5

- **BURE-HC**
  0% (P1) ... 100% (P5) opening for vertical air flow
- **BURE-M2**
  Manual shift of electro 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 and horiyontal flow direction.
  DC 0 V ... 10 V changes the vertical flow opening from 0% to 100% and in the same time the horizontal opening in the inverse proportion 100% to 0%.

Dimensions



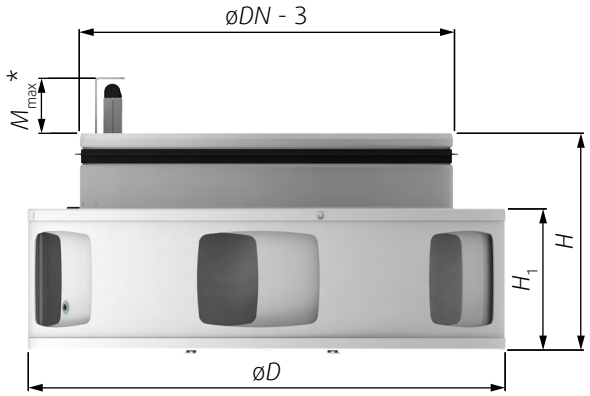


Fig. 3: Dimensions of the BURE

NOTE: * BURE-M2 or BURE-MC with an electric actuator

Tab. 1: Dimensions of the BURE

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

Ordering Codes

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

NOTE: * If no Surface finish is defined, white RAL9010 powder coating will be delivered.

Example of the Ordering Code

BURE-400-MC

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

Quick Selection

	Air Flow Volume at Different Sound Power Levels L_{WA}							
	30 dB		35 dB		40 dB		45 dB	
Type	m³/h	l/s	m³/h	l/s	m³/h	l/s	m³/h	l/s
BURE-250-...	357	99	466	129	595	165	756	210
BURE-315-....	560	156	731	203	922	256	1144	318
BURE-400-...	1090	303	1315	365	1564	434	1846	513
BURE-500-...	1184	329	1442	401	1740	483	2086	579
BURE-630-...	1910	531	2337	649	2793	776	3321	923

NOTE: The working points were measured with fully open bottom vents for vertical discharge (100% curve in diagram).

Technical Parameters

Legend

p_s	Pa	Pressure drop
q_v	m^3/h l/s	Air flow volume
L_{WA}	dB	A-weighted total radiated sound power level
L_{pA}	dB	A-weighted total sound pressure level expressed for 10 m^2 room absorption area
L_W	dB	Non weighted total sound power level
$L_{0,5}$	m	Air throw length with terminal velocity 0,5 m/s
L_x	m	Air throw length calculated for specific terminal velocity
x	m/s	Terminal velocity in range of 0,1 m/s ... 1 m/s
0%, 25%, 50%, 75%, 100%		The adjustment of vertical discharge vents opening in pressure drop/noise diagrams are represented as percentage. 0% is fully closed vertical discharge vents (only horizontal discharge). 100% is fully open vertical discharge vents (only vertical discharge).

Correction Table

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

ΔT - 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

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

Calculation of Air Throw for Different Terminal Velocities

$L_x = L_{0,5} \cdot 0,5/x$

SIZE 250

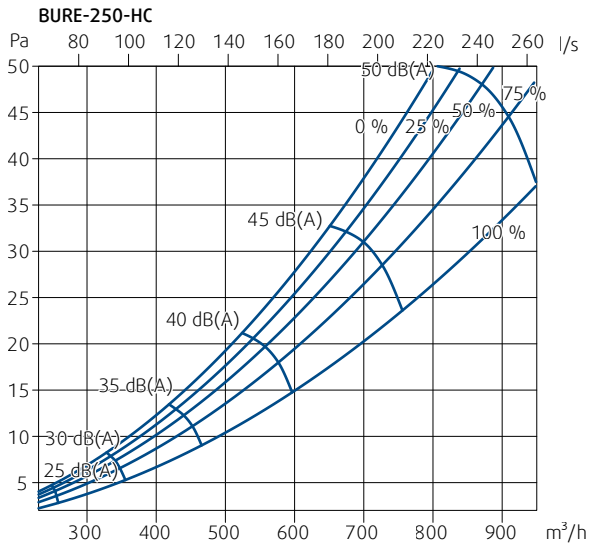


Diagram 1: Pressure drop & A-weighted total sound power level, depending on air flow volume

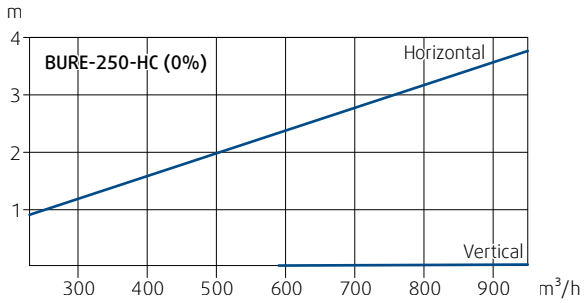


Diagram 2: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 0%

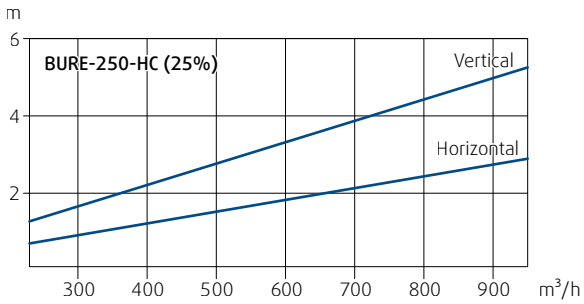


Diagram 3: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 25%

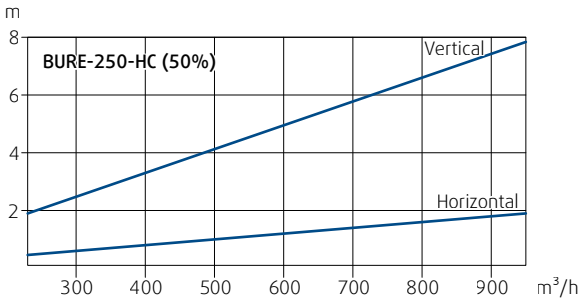


Diagram 4: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 50%

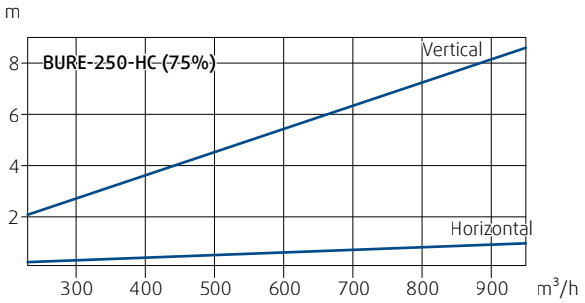


Diagram 5: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 75%

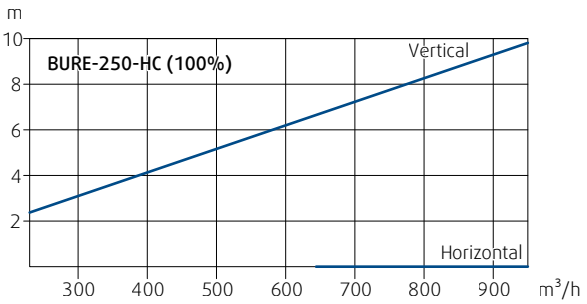


Diagram 6: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 100%

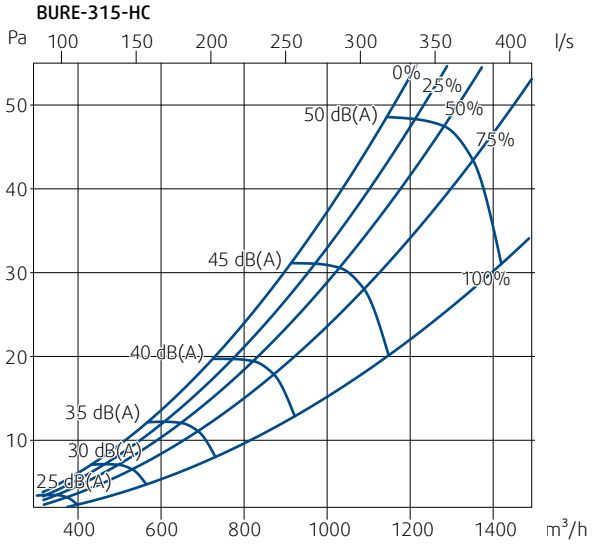


Diagram 7: Pressure drop & A-weighted total sound power level, depending on air flow volume

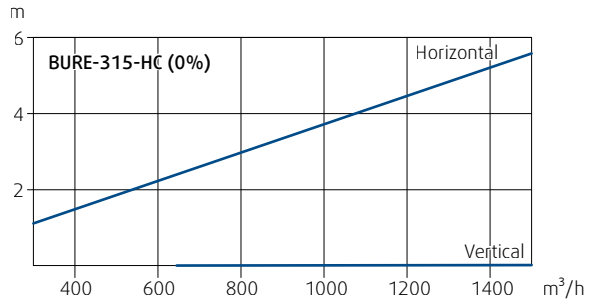


Diagram 8: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 0%

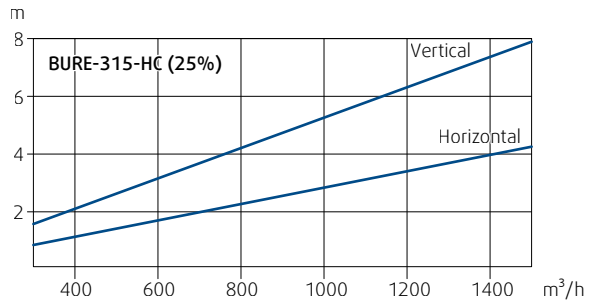


Diagram 9: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 25%

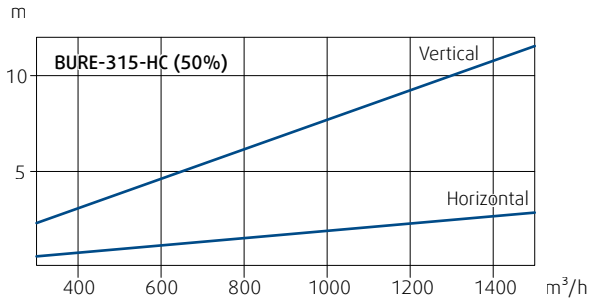


Diagram 10: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 50%

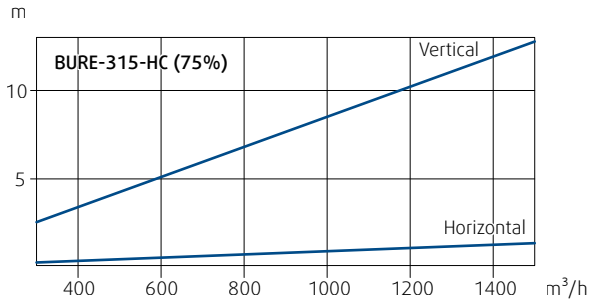


Diagram 11: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 75%

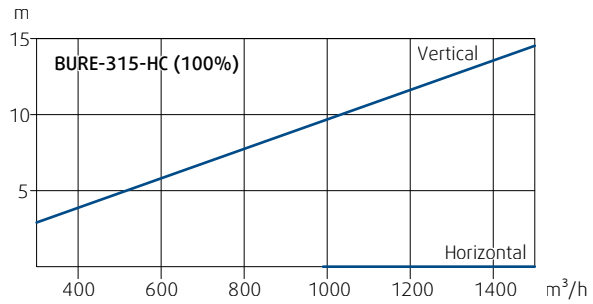


Diagram 12: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 100%

SIZE 400

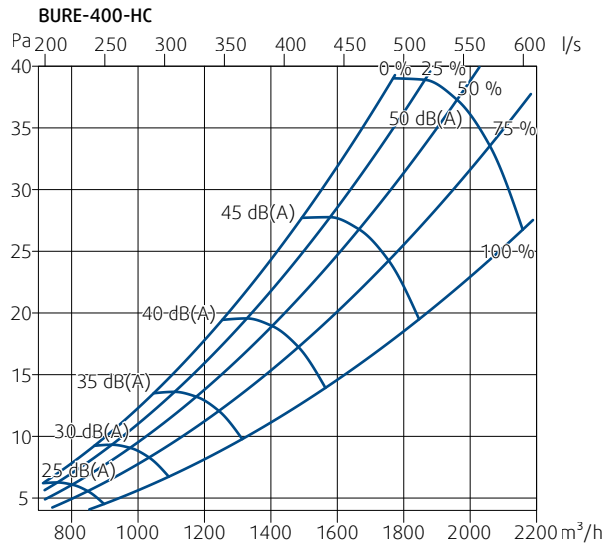


Diagram 13: Pressure drop & A-weighted total sound power level, depending on air flow volume

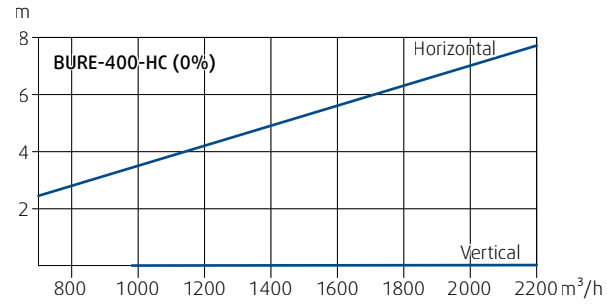


Diagram 14: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 0%

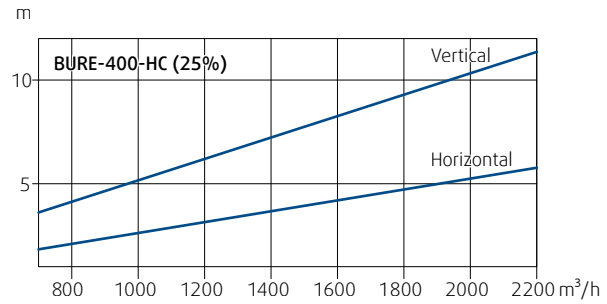


Diagram 15: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 25%

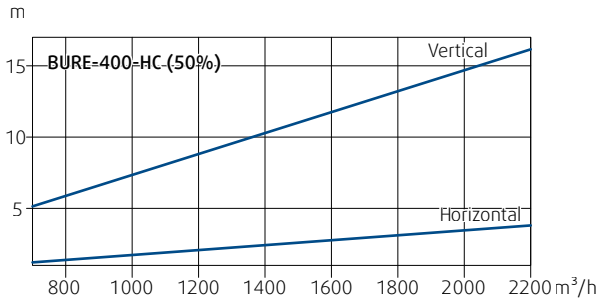


Diagram 16: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 50%

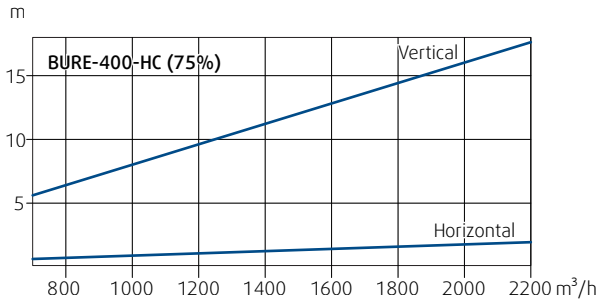


Diagram 17: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 75%

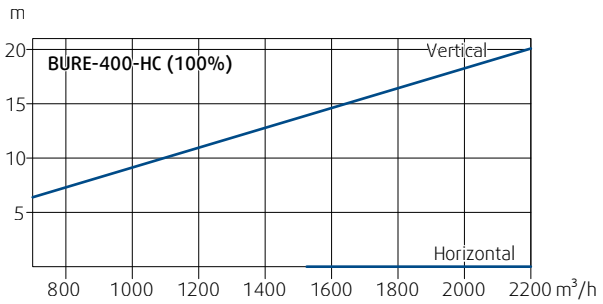


Diagram 18: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 100%

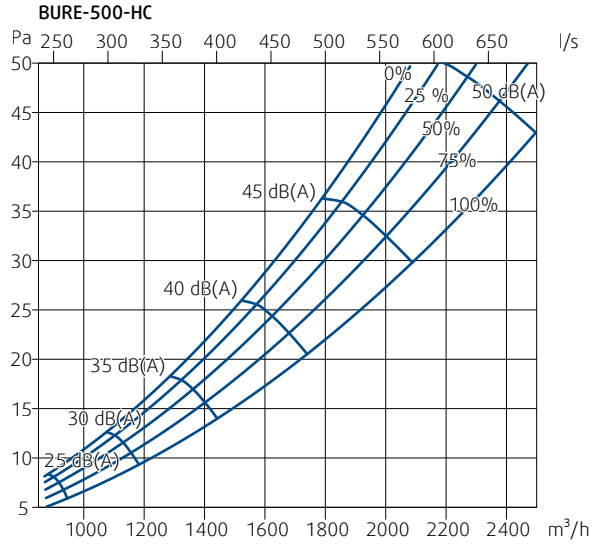


Diagram 19: Pressure drop & A-weighted total sound power level, depending on air flow volume

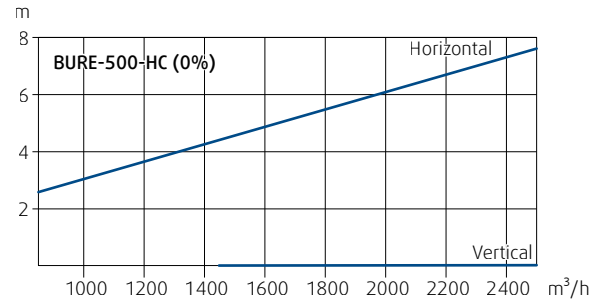


Diagram 20: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 0%

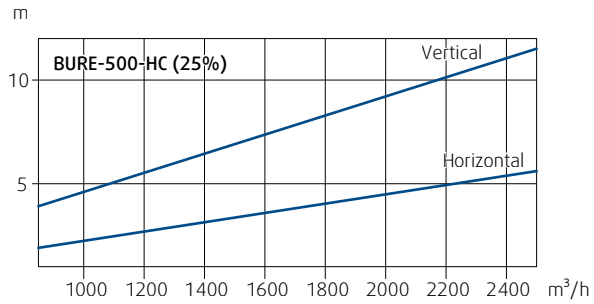


Diagram 21: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 25%

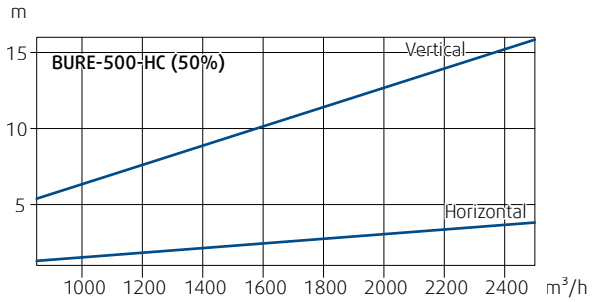


Diagram 22: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 50%

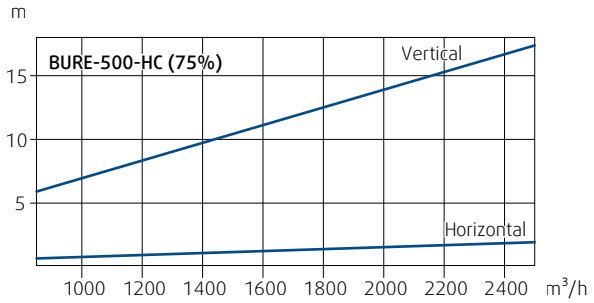


Diagram 23: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 75%

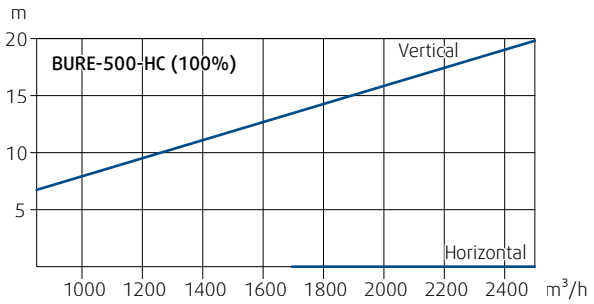


Diagram 24: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 100%

SIZE 630

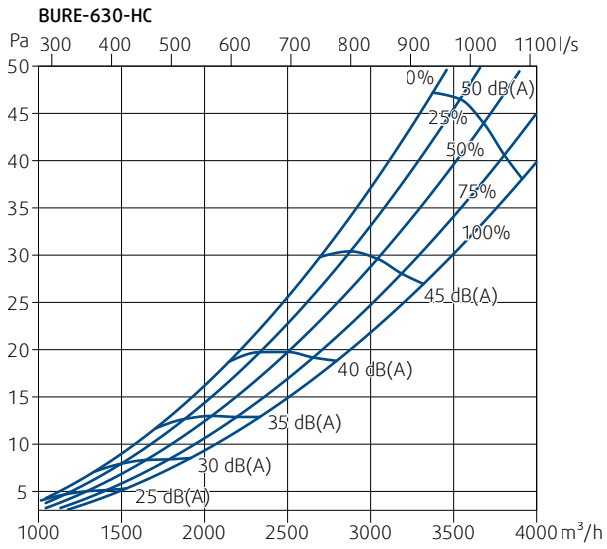


Diagram 25: Pressure drop & A-weighted total sound power level, depending on air flow volume

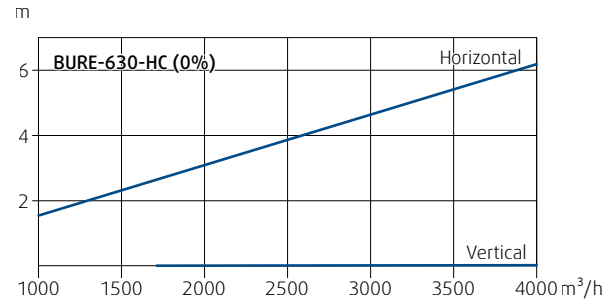


Diagram 26: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 0%

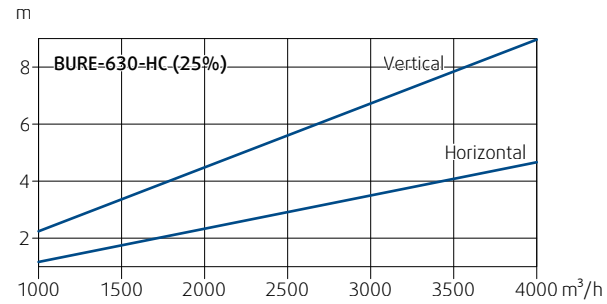


Diagram 27: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 25%

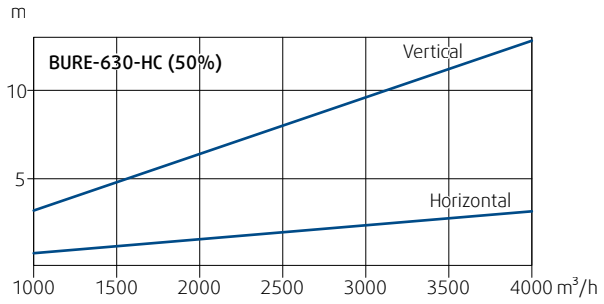


Diagram 28: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 50%

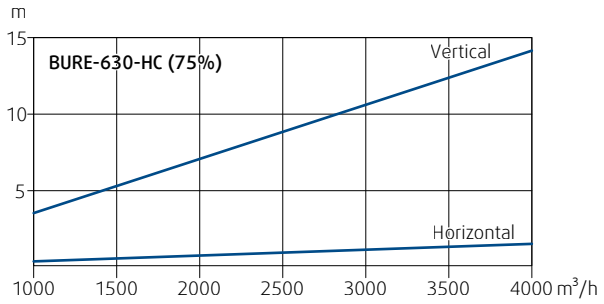


Diagram 29: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 75%

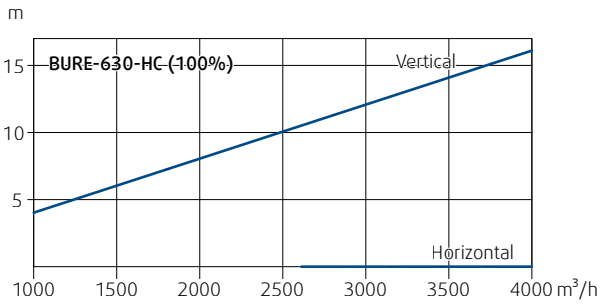


Diagram 30: Isothermal air throw lengths for vertical & horizontal radial discharge with terminal velocity 0,5 m/s, depending on air flow volume in adjustment position 100%

Installation, Maintenance & Operation

Information about installation, maintenance and operation is available in the "UserManual_BURE" document or find more at Systemair DESIGN.

Dry indoor conditions with an operation temperature range of -20°C to +70°C.

Transport & Storage

Dry indoor conditions with a temperature range of -40°C to +50°C.

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 is available at Systemair DESIGN.

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