

# Halton IAO

## Jet Nozzle Diffuser



- Compact jet air supply for cold, warm or isothermal air
- Wall or ceiling supply air especially in large enclosures
- Long throw pattern with low velocity decay
- Directional air pattern; maximum deflection angle of 30 degrees in all directions
- Circular duct connection with rubber gasket

### Product Models

- Model with adjustment damper
- Model with reversible nozzle (compact / wide jet)

### MATERIAL AND FINISHING

PART	MATERIAL	FINISHING
Circular frame, Ball joint	Thermo Plastic, Medium Impact "Flame Retardant" grade ABS 94V-0 rating per UL standard 94	White (Pearl)
Rear flange	Aluminium	Anodised
Gasket	Open cell polyester foam	

## QUICK SELECTION

qv	Pa	18	36	72	108	144	180	216	288	360	432	504	576	648	
	l/s	5	10	20	30	40	50	60	80	100	120	140	160	180	
	m <sup>3</sup> /h	18	36	72	108	144	180	216	288	360	432	504	576	648	
IAO/N-75	LpA	9	25	41											
	$\Delta P_{st}$	14	56	225											
	$\Delta P_{tot}$	15	29	237											
	L0.2 (+10 °C)	2,0	3,6	5,8											
IAO/N-1000	LpA		12	27	36	43									
	$\Delta P_{st}$		14	55	125	221									
	$\Delta P_{tot}$		15	59	133	237									
	L0.2 (+10 °C)		3,0	5,0	6,4	7,4									
IAO/N-150	LpA				16	23	28	32	39	44	48				
	$\Delta P_{st}$				14	25	39	56	100	156	225				
	$\Delta P_{tot}$				16	28	44	63	112	175	252				
	L0.2 (+10 °C)				4,0	5,2	6,4	7,6	9,6	11,2	12,6				
IAO/N-200	LpA					15	19	25	30	35	38	41	44		
	$\Delta P_{st}$					9	13	24	37	54	73	95	121		
	$\Delta P_{tot}$					11	16	28	43	62	85	111	140		
	L0.2 (+10 °C)					4,2	5,0	6,6	7,8	9,2	11,0	12,2	13,4		

LpA values presented with room attenuation 4 dB (red 10m<sup>2</sup> - sab). When using room attenuation 8 dB (red 25m<sup>2</sup> - sab): LpA - 4dB.

Pa Supply air heating capacity, W  
LpA A-weighted sound pressure level, reduced by total equivalent absorption surface of 10m<sup>2</sup>, dB(A) red 10m<sup>2</sup> - sab

$\Delta P_{st}$  Static pressure drop, Pa  
 $\Delta P_{tot}$  Total pressure drop, Pa  
L0.2 Isothermal throw length, m when residual velocity of supply air jet 0,2 m/s

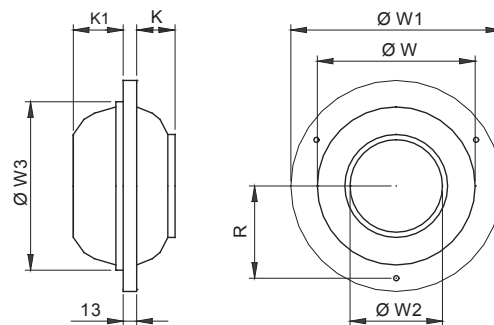
Room temperature (Tr) = 24 °C  
Supply air temperature (Ta) = 34 °C

## PRODUCT MODELS AND ACCESSORIES

PRODUCT MODEL	CODE	DESCRIPTION
IAO with annular damper	IAO/A	Adjustable airflow rate
Reversible IAO model	IAO/R	The discharge air pattern can be reversed from an efficient and accurate compact jet to a high aspiration and draftless diffusion air distributor.

## DIMENSIONS

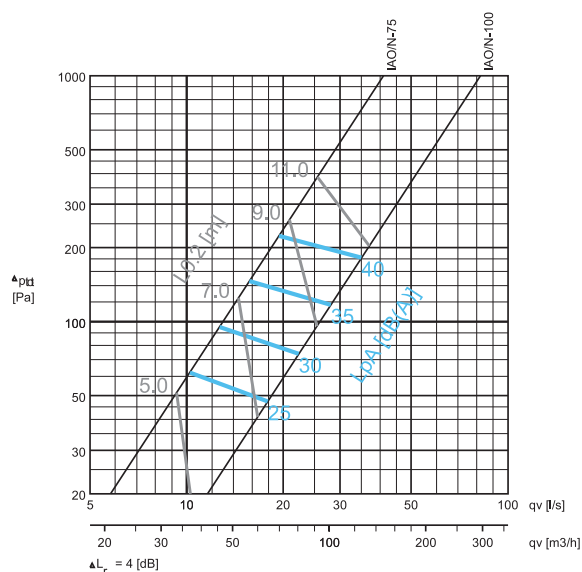
NS	ØW	ØW1	ØW2	ØW3	K	K1	R
75	76	127	37	86	19	16	51
100	102	152	51	112	27	24	63.5
150	152	203	89	162	37	41	89
200	203	254	127	213	50	60	114.5



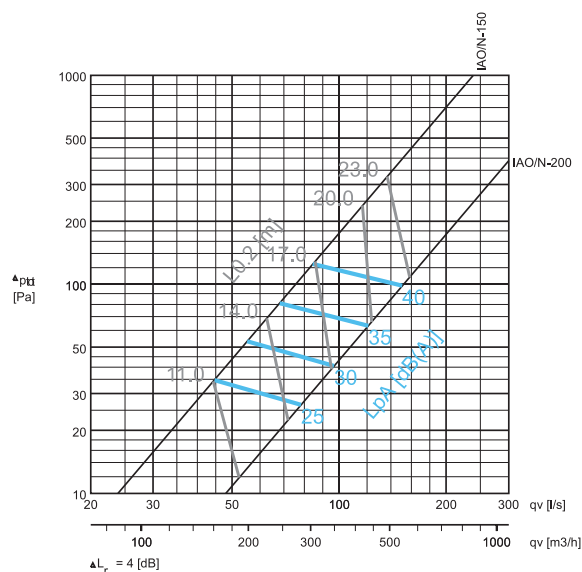
## Pressure drop, throw pattern and sound data

Wall installation close to the ceiling, horizontal jet

IAO-75, IAO-100



IAO-150, IAO-200



Selection example :

Requirements :

$qv = 100$  l/s

$Lp(A) < 35$  dB(A)

$L0.2 < 20.0$  m

Selection: IAO/N-200

$Lp(A) = 31$  dB(A)

$L0.2 = 17.5$  m

$\Delta P_{tot} = 43$  Pa

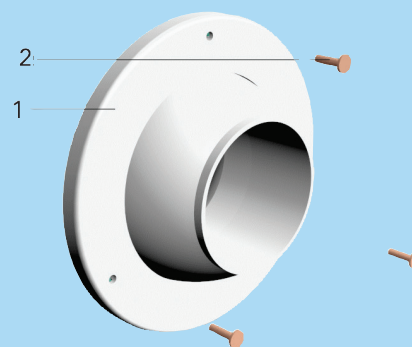
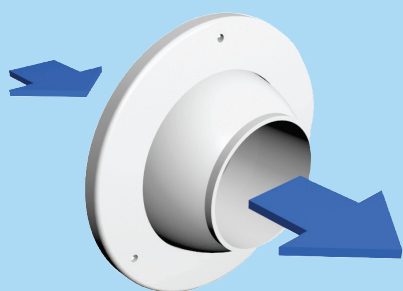
Note :

- Wall installation : when the distance between the IAO diffuser and the ceiling is more than 200 mm (no ceiling effect), the throw pattern is reduced approximately 30% of the value given in the diagram.
- Ceiling installation (vertical jet) : the throw pattern is reduced approximately 30% of the value given in the diagram.
- Throw patterns shown in the diagrams are based on isothermal air. When heated or chilled jets are considered, the distance of projection changes due to change in air density. Please refer to Halton HIT Design program.

### SOUND LEVEL DATA

	qv		$\Delta P_{st}$ (Pa)	$\Delta P_{tot}$ (Pa)	F (Hz)						LpA [dB(A)]	NR	NC	
	(l/s)	(m³/h)			125	250	500	1000	2000	4000				8000
IAO-75	10	36	59	114	31	24	24	24	24	16	11	25	23	20
	13	47	91	175	36	29	29	29	29	21	16	30	28	26
	16	58	139	269	41	34	34	34	34	26	21	35	33	31
	20	72	216	417	46	39	39	39	39	31	26	40	38	36
IAO-100	18	65	44	90	30	24	24	24	24	16	10	25	23	20
	22	79	69	141	35	29	29	29	29	21	15	30	28	25
	28	101	110	223	41	34	34	34	34	26	21	35	33	30
	35	126	170	346	46	39	39	39	39	31	26	40	38	35
IAO-150	45	162	30	61	31	25	24	24	24	16	11	25	23	21
	55	198	47	94	36	30	29	29	29	21	16	30	28	26
	69	248	72	144	41	34	34	34	34	26	21	35	33	31
	85	306	110	222	46	39	39	39	39	31	26	40	38	36
IAO-200	78	281	23	46	30	24	24	23	23	15	10	25	23	20
	96	346	35	70	35	29	29	28	28	20	15	30	27	25
	121	436	55	110	40	34	34	33	33	25	20	35	33	30
	149	536	85	168	45	39	39	38	38	30	25	40	37	35

LpA values presented with room attenuation 4 dB (red 10m<sup>2</sup> - sab). When using room attenuation 8 dB (red 25m<sup>2</sup> - sab): LpA - 4dB.  
NR/NC noise criteria



## Function

Air is supplied into the space at a high velocity.  
The supply air mixes efficiently with the room air, with a high induction effect.  
The supply air jet can be directed at an angle of 30° when the angle of roll is 360°.

The adjustment of the supply air pattern (model IAO/R) from radial jet position to compact jet position can be performed manually.

## Servicing

Remove the diffuser by unscrewing the visible fixing screws.  
Clean the parts by wiping them with a damp cloth.  
Push the diffuser back into place and screw in the fixing screws.

## Suggested Specifications

The circular flange of the front panel and the ball joint shall be made of plastic with a high fire resistance rating in accordance with the UL94 standard.  
The colour of the diffuser shall be white.  
The rear flange shall be made of anodised aluminium.  
The IAO diffuser shall be equipped with a sealing gasket.

It shall be possible to direct the supply air jet at an angle of 30° when the angle of roll is 360°.

The jet nozzle diffuser shall have a sufficient pressure drop for a self-balancing system with several units.

## Installation

### CODE DESCRIPTION

1	Frame
2	Fixing screws

The IAO jet nozzle diffuser is fastened to the duct or wall with screws.

Screw in the fixing screws in pre-drilled holes in the front panel.

### Dimensions of opening

NS	ØW3
75	86
100	112
150	162
200	213

### Product Code

IAO/S-D

S = Model

N	Standard
A	With damper
R	Reversible nozzle (Compact/wide jet)

D = Diameter of duct connection

S=A, S=N: 75, 100, 150, 200

S=R: 100, 150, 200

### Specifics and accessories

CO = Colour

W White

### Code example

IAO/N-75, CO=W