TSOI

Perforated diffuser for T-Bar supply ceiling application

Introduction

The TSOI-S & TSOI-T is a high induction multi directional (through blanking plate arrangement) ceiling diffuser with a perforated front plate. The diffuser is suitable for both supply and extract applications, with chilled, warm or isothermal air. An acoustically lined plenum can be supplied as optional.

Product Description

TSOI-S : Side-Entry Perforated Plate Supply Diffuser
TSOI-T : Top-Entry Perforated Plate Supply Diffuser

Features

- Supply and extract functionality
- Suitable for chilled, isothermal or warmed air
- Ideal for modular ceiling tile replacement
- High entrainment and mixing of surrounding air
- Short throw

Finish

- Powder coated to off white colour as standard.
- Other colours are available on request.

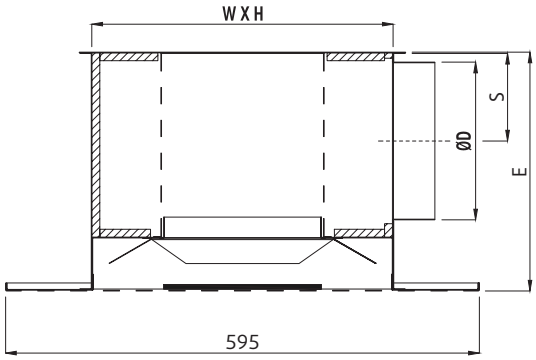
Selection Criteria

Ceiling Height 2.7m
Temperature Differential (Room/Supply air) –10K
Air Velocity in the Comfort Zone 0.15m/s
Lp dB(A) = Lw less 8 dB Room Damping

Selection Example

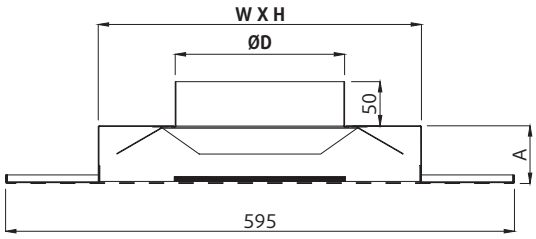
TSOI-S-4-250
Air Volume 111l/s or 400 m3/h
Throw 1.1 m
Pressure Drop 9 Pa
Sound Level < NR 20

TSOI-T-ØD-S



Sizes	WxH	ØD	S	E
125	240 X 240	123	72	227
160	300 X 300	158	90	270
200	380 X 380	198	110	300
250	480 X 480	248*	102	300
315	560 X 560	394*	99	295

TSOI-T-ØD-T



Sizes	WxH	ØD	A
125	240X240	123	61
160	300X300	158	61
200	380X380	198	65
250	480X480	248	80
315	560X560	313	86

Ordering codes

		TSOI	T	ØD	S
Product series					
Plaster ceiling installation	P				
T-Bar ceiling 595x595 installation	T				
Inlet size	125 160 200 250* 315*				
Top entry plenum	T				
Side entry plenum	S				

Selection Criteria
Ceiling Height 2.7 m
Temperature Differential (Room/Supply air) -10K

Air Velocity In The Comfort Zone 0.15 m/s Noise level is based on diffuser sound power level less 8db room absorption.

All selections include the plenum

Selection Example
TSOI-T-ØD-S
Air Volume 111 l/s or 400 m^3/h
Throw 1.1 m
Pressure Drop 9Pa
Noise Level <25dBA

TSOI			2-Way Supply				
m^3/h	l/s		125	160	200	250	315
100	28	$L_{t0.25}$	0.6				
		ΔP_t(Pa)	17				
		L_{WA}	29				
150	42	$L_{t0.25}$	1.3	0.9			
		ΔP_t(Pa)	40	16			
		L_{WA}	42	-			
200	56	$L_{t0.25}$	2	1.1	0.8		
		ΔP_t(Pa)	68	30	12		
		L_{WA}	53	37	-		
250	69	$L_{t0.25}$		1.6	1	0.7	
		ΔP_t(Pa)		44	17	8	
		L_{WA}		44	31	-	
300	83	$L_{t0.25}$		2.1	1.3	1.1	
		ΔP_t(Pa)		64	27	11	
		L_{WA}		52	36	-	
400	111	$L_{t0.25}$			2.1	1.3	1
		ΔP_t(Pa)			48	20	8
		L_{WA}			44	36	-
500	139	$L_{t0.25}$				2.6	2.1
		ΔP_t(Pa)				30	11
		L_{WA}				42	32
600	167	$L_{t0.25}$				3.5	2.6
		ΔP_t(Pa)				44	18
		L_{WA}				48	37
750	208	$L_{t0.25}$					3.3
		ΔP_t(Pa)					28
		L_{WA}					44
1000	278	$L_{t0.25}$					
		ΔP_t(Pa)					
		L_{WA}					

$L_{t0.25}$ = Throw value (m) with terminal velocity of 0.25 m/s
L_{WA} = Sound Power level in dB (A)
ΔPt = Pressure Drop (Pa)
With room height of 2.7m, average occupied room velocity of 0.15m/s can be assumed

TSOI			3-Way Supply				
m^3/h	l/s		125	160	200	250	315
100	28	$L_{t0.25}$	0.5	0.4			
		ΔP_t(Pa)	11	5			
		L_{WA}	-	-			
150	42	$L_{t0.25}$	0.8	0.7			
		ΔP_t(Pa)	24	10			
		L_{WA}	32	-			
200	56	$L_{t0.25}$	1.1	0.9	0.8		
		ΔP_t(Pa)	24	18	8		
		L_{WA}	46	33	-		
250	69	$L_{t0.25}$		1.1	0.8	0.5	
		ΔP_t(Pa)		28	12	5	
		L_{WA}		40	-	-	
300	83	$L_{t0.25}$		1.3	1.1	0.9	
		ΔP_t(Pa)		40	18	7	
		L_{WA}		47	36	-	
400	111	$L_{t0.25}$			1.4	1.3	1
		ΔP_t(Pa)			30	12	5
		L_{WA}			41	31	-
500	139	$L_{t0.25}$				1.7	1.3
		ΔP_t(Pa)				20	7
		L_{WA}				39	28
600	167	$L_{t0.25}$				2.1	1.6
		ΔP_t(Pa)				28	17
		L_{WA}				44	32
750	208	$L_{t0.25}$					2
		ΔP_t(Pa)					18
		L_{WA}					41
1000	278	$L_{t0.25}$					2.7
		ΔP_t(Pa)					28
		L_{WA}					49

$L_{t0.25}$ = Throw value (m) with terminal velocity of 0.25 m/s
L_{WA} = Sound Power level in dB (A)
ΔPt = Pressure Drop (Pa)
With room height of 2.7m, average occupied room velovity of 0.15m/s can be assumed

TSOI			4-Way Supply				
m^3/h	l/s		125	160	200	250	315
100	28	$L_{t0.25}$	0.5	0.4			
		ΔP_t(Pa)	8	3			
		L_{WA}	-	-			
150	42	$L_{t0.25}$	0.8	0.6			
		ΔP_t(Pa)	16	7			
		L_{WA}	35	-			
200	56	$L_{t0.25}$	1	0.8	0.7		
		ΔP_t(Pa)	33	12	5		
		L_{WA}	43	29	-		
250	69	$L_{t0.25}$	1.3	1	0.8	0.5	
		ΔP_t(Pa)	48	18	8	3	
		L_{WA}	52	37	-	-	
300	83	$L_{t0.25}$		1.2	1	0.8	
		ΔP_t(Pa)		28	12	5	
		L_{WA}		46	28	-	
400	111	$L_{t0.25}$			1.3	1.1	0.9
		ΔP_t(Pa)			20	9	4
		L_{WA}			39	-	-
500	139	$L_{t0.25}$			1.6	1.4	1.2
		ΔP_t(Pa)			32	13	6
		L_{WA}			45	33	-
600	167	$L_{t0.25}$				1.7	1.4
		ΔP_t(Pa)				18	9
		L_{WA}				40	29
750	208	$L_{t0.25}$					1.7
		ΔP_t(Pa)					13
		L_{WA}					37
1000	278	$L_{t0.25}$					23
		ΔP_t(Pa)					24
		L_{WA}					48

$L_{t0.25}$ = Throw value (m) with terminal velocity of 0.25 m/s
L_{WA} = Sound Power level in dB (A)
ΔPt = Pressure Drop (Pa)
With room height of 2.7m, average occupied room velocity of 0.15m/s can be assumed