

SERIES JSL-T

Thermally Activated
High Capacity Slot Diffuser

PUBLICATION

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Features

- Automatic adjustment of air distribution
- No electric or auxiliary power required
- Excellent air distribution with varying temperatures
- Faster warm up & reduced stratification
- 2 high-capacity slot widths
- Continuous single slot appearance



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Introduction

Gilberts JSL Series of Linear Slot Diffuser has been designed to meet the exacting performance requirements and standards of modern slot diffuser applications. Combining up to date styling and design technology to blend with modern architecture the JSL complements our standard slot diffuser range by offering ultra high-capacity slot design.

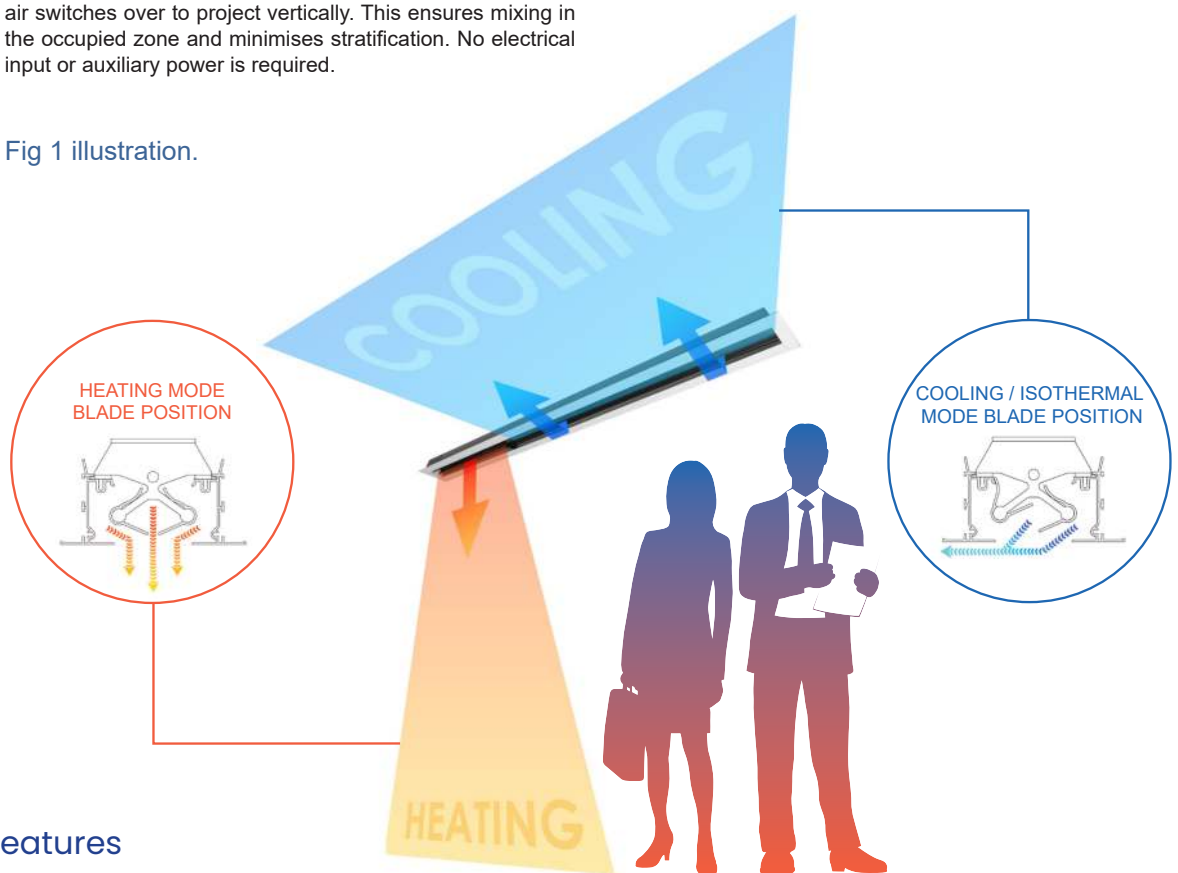
Offering the same benefits as the standard JSL the JSL-T provides additional automatic thermal transition, a unique feature for slot diffusers. The JSL-T utilises memory alloy componentry to alter the projection of supply air depending on its temperature. In cooling/isothermal mode supply air is projected horizontally as it would using a standard JSL. In full heating mode internal air paths adjust so that supply air switches over to project vertically. This ensures mixing in the occupied zone and minimises stratification. No electrical input or auxiliary power is required.

The JSL-T is discretely split into a 1m section and 0.5m section of blade - whilst still having the appearance of a single continuous slot. The JSL-T offers the same multi blade adjustment as the standard JSL, but typically the 1m section will be set to horizontal projection and the 0.5m section will be set to vertical projection [see fig 1 below].

The JSL-T is available in 60mm and 80mm wide slot sizes [JSL-T 60/80] with a set length of 1.5m and air volumes ranging from 65l/s to 140l/s. See performance data on page 6 for more information.

This product is only to be used with supply air below 40°C.

Fig 1 illustration.



Features

- Automatic adjustment of air distribution
- No electric or auxiliary power required
- Excellent air distribution with varying temperatures
- Faster warm up & reduced stratification
- 2 high-capacity slot widths
- Continuous single slot appearance

The standard border detail comprises a 35mm flange border with end flanges or end caps optionally available to complement contemporary ceiling design however, the JSL-T series is also available with alternative border styles to match different popular ceiling types. In addition, the JSL-T is complemented by a comprehensive range of purpose built plenum boxes. Manufactured from galvanised or zinc coated mild steel, the boxes can be supplied to suit all diffusers in sectional box lengths up to 1500mm. Importantly, the plenum box is an integral part of the product solution and is required with the diffuser.

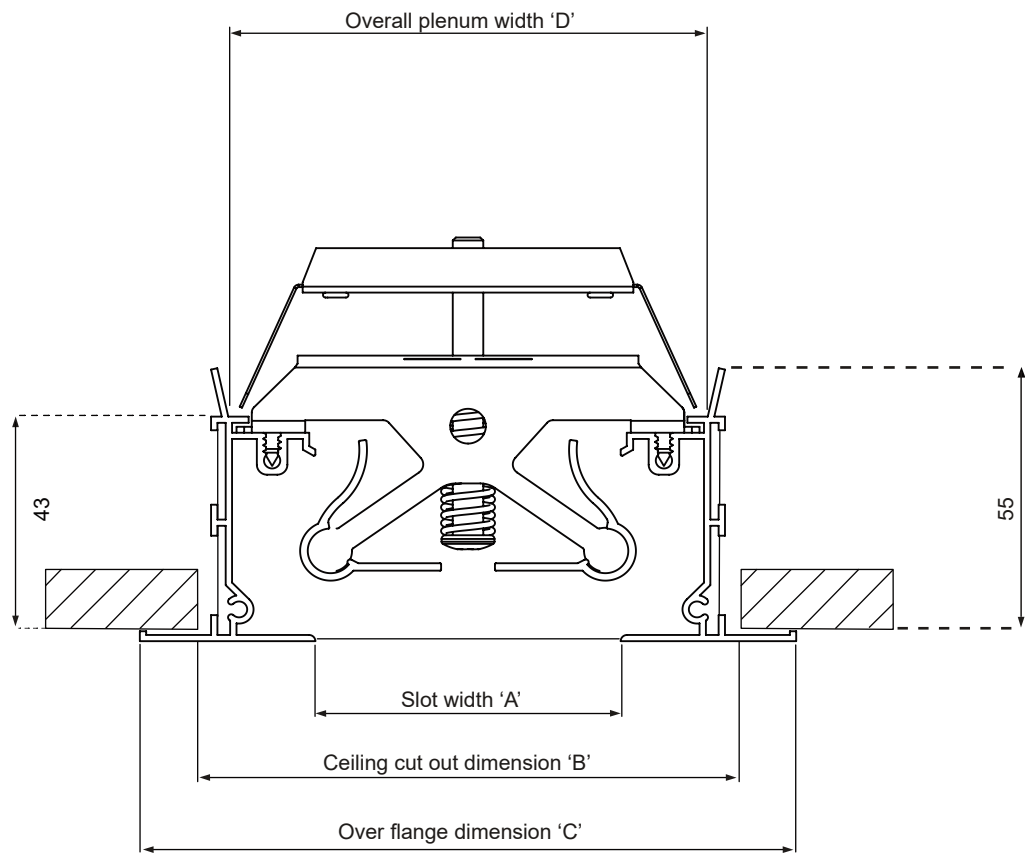
Connection between the boxes and the diffusers can be accomplished via concealed bracket fixings accessible through the diffuser face.

For volume control the standard plenum inlet can be fitted with quadrant or iris type dampers. Standard finish on JSL-T units with a border [JSL-T/A and JSL-T/B] is white polyester powder coated face with internal control vanes matt black. The borderless plaster model [JSL-T-P] is all in black. Other colours and finishes are available on request.

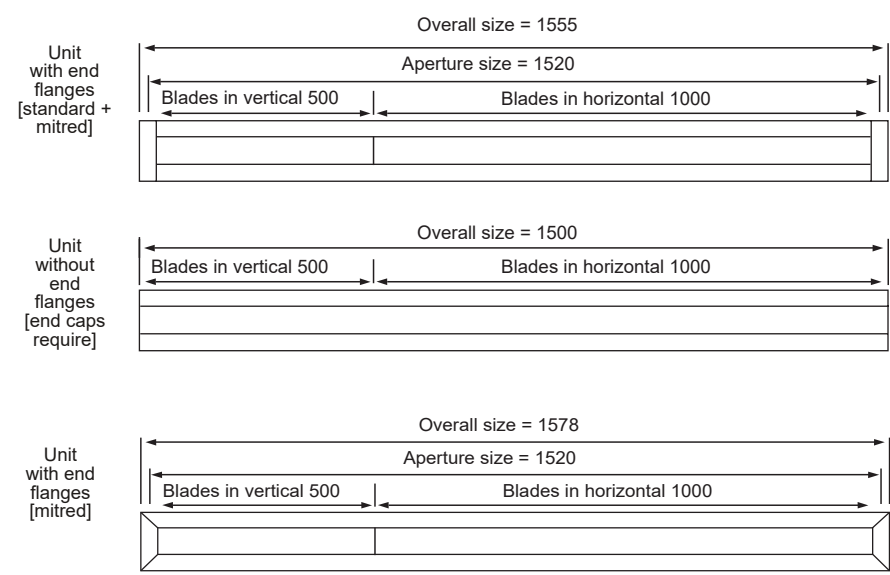
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Thermally Activated High Capacity Slot Diffuser

Standard
Border A



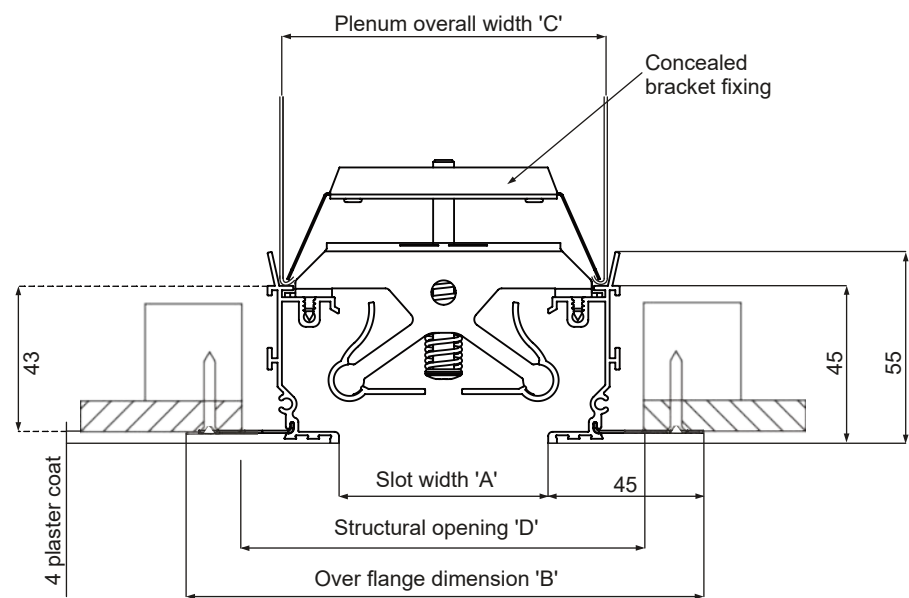
Type	Dim A	Dim B	Dim C	Dim D
JSL-T 60	60	115	129	94
JSL-T 80	80	135	149	114



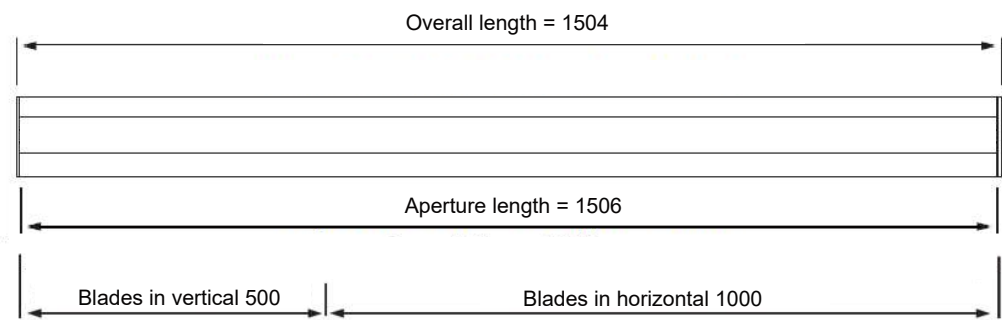
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Plaster Ceiling
[Option P]



Type	Dim A	Dim B	Dim C	Dim D
JSL-T 60	60	149	94	115
JSL-T 80	80	169	114	135

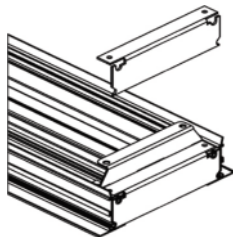


Single unit - as above [2PF].
 Lengths within continuous runs will require end caps [EC] in place of end plates.
 Overall length 1500mm for mid-section [2EC], 1502mm for end section [1PF/1EC]
 Contact Head Office for more information on continuous runs..

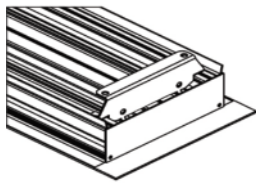
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End Flanges & End Caps



End caps
ref: EC



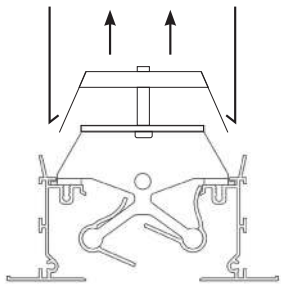
End flanges
ref: EF



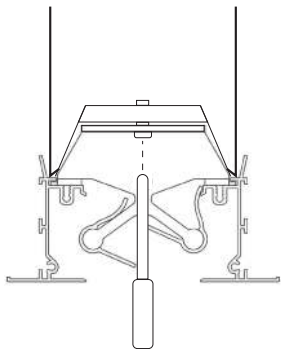
End plates
ref: PF

Fixing Method

JSL-T slot diffuser is fixed using concealed brackets. These are fitted to the rear of the diffuser and quickly push-fit into the plenum.



Push assembly into
plenum box

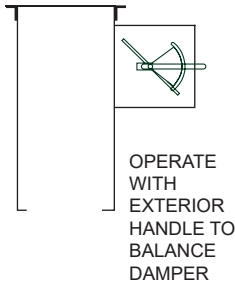


Tighten screws using
hex driver

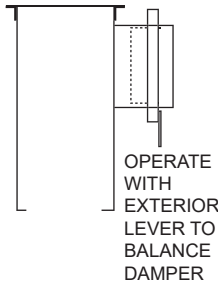
Volume Control

The JSL-T can utilise either a quadrant damper or iris damper for volume control.

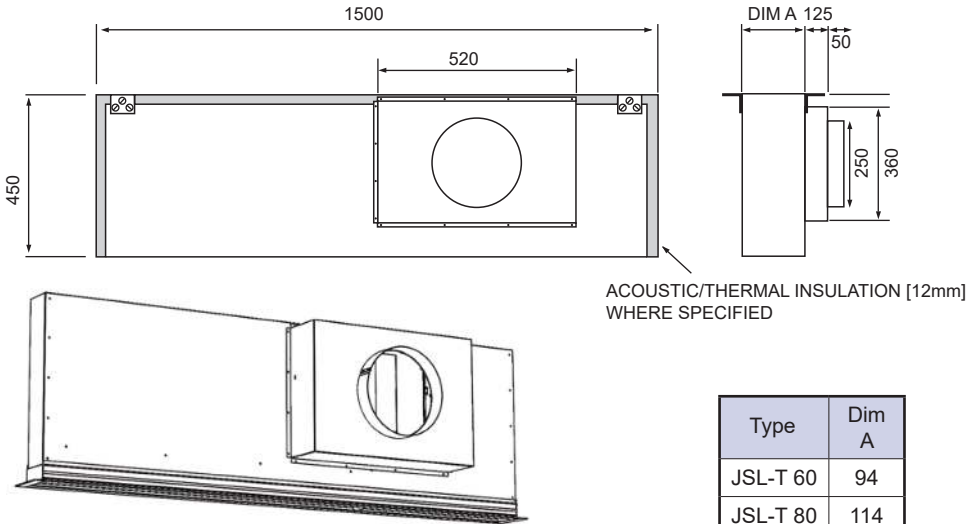
QUADRANT
REF. DQ



IRIS
REF. DI



Plenum Box



Type	Dim A
JSL-T 60	94
JSL-T 80	114

The plenum box is an integral part of the product solution and is required with the diffuser.

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Performance Data

Air volume JSL-T 60 [Vol l/s]		65	75	85	95	105	115	125
Air volume JSL-T 80 [Vol l/s]		80	90	100	110	120	130	140
Pressure drop static [PA]		9	14	18	24	30	37	46
Vertical [+10°Δt supply]	Throw in metres to 0.25m/s	2.2	2.6	2.9	3.2	3.7	4.2	4.7
	Throw in metres to 0.50m/s	1.3	1.6	2.0	2.3	2.7	3.2	3.7
Horizontal isothermal [For cooling see page 7]	Throw in metres to 0.25m/s	6.0	6.5	7.0	7.5	8.0	8.5	9.0
	Throw in metres to 0.50m/s	3.5	3.8	4.1	4.4	4.7	5.1	5.5
Noise [NC/dBA]		20/22	25/25	25/28	30/32	35/37	35/40	40/43

In cooling/isothermal mode supply air must be lower than 23°C to achieve full horizontal projection.
In heating mode, supply air temp must be higher than 30° to achieve full vertical projection.

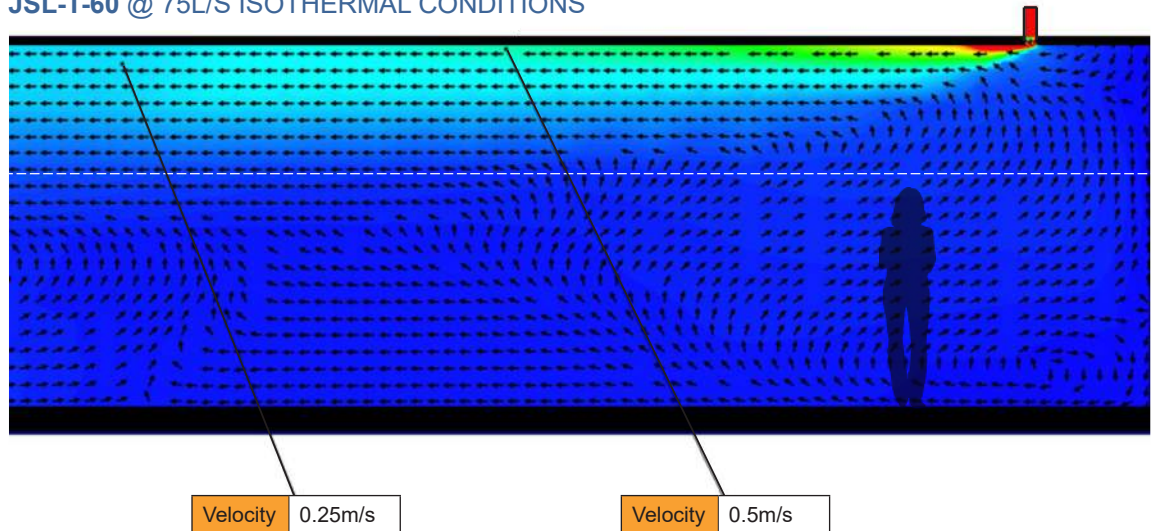
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Isothermal/
Cooling
Mode
Throw
Illustrations

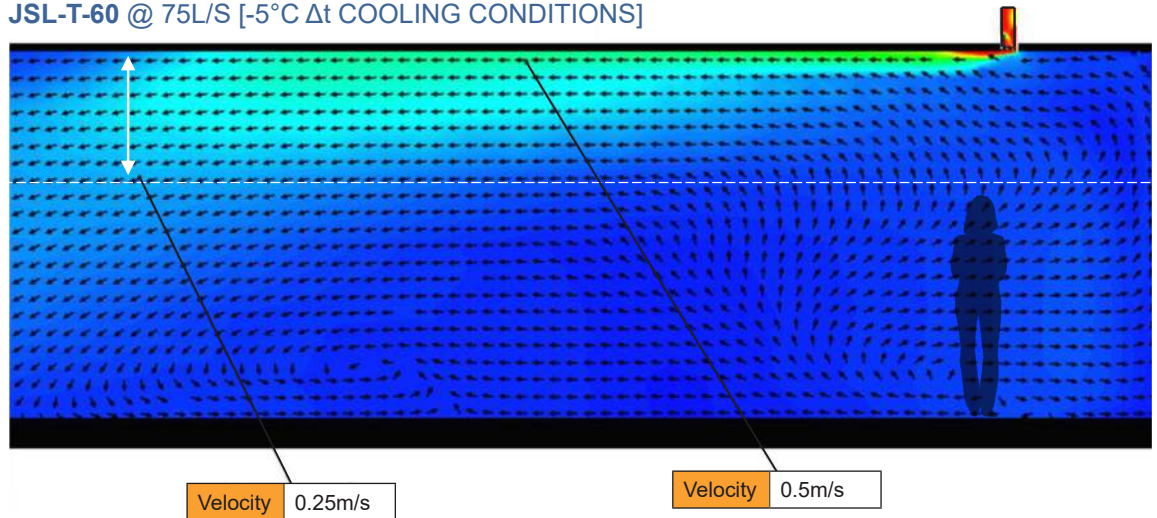
The CFD visuals below compare a horizontal throw from the JSL-T in isothermal conditions with the equivalent throw when a 5° cooling differential is applied.

JSL-T-60 @ 75L/S ISOTHERMAL CONDITIONS



Section through cutplot A: This shows a throw of 6.5m to 0.25m/s from the JSL-T at 75l/s in isothermal conditions. The plume reaches a terminal velocity of 0.25m/s whilst maintaining Coanda at ceiling level.

JSL-T-60 @ 75L/S [-5°C Δt COOLING CONDITIONS]



Section through cutplot B: With a 5° cooling differential a throw of 6.5m is achieved however the terminal velocity at 0.25m/s has dropped 1.0m from the ceiling due to the buoyancy effects of cooler air. A correction factor can be used to calculate the drop, see below:

THROW X 0.15 = DROP @ 5°C COOLING
SO FOR THE JSL-T AT 75L/S, 6.5 X 0.15 = 1.0M DROP

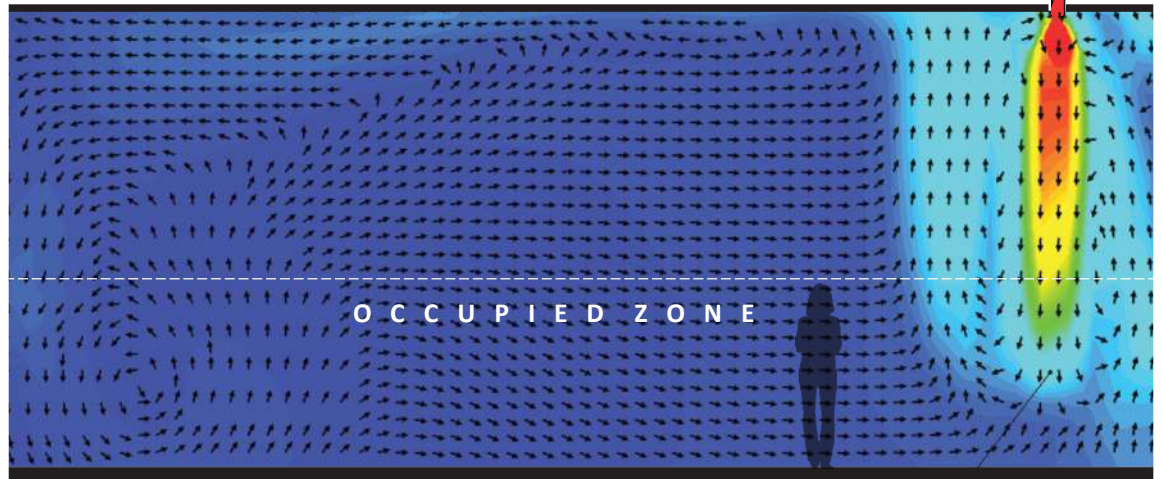
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Full Heating Mode Throw Illustrations

The CFD visuals below show the vertical throw of the JSL-T in typical heating mode [$+10^{\circ}\Delta t$]. They demonstrate suitable ceiling heights for each air volume to ensure penetration into the occupied zone [1.8m high].

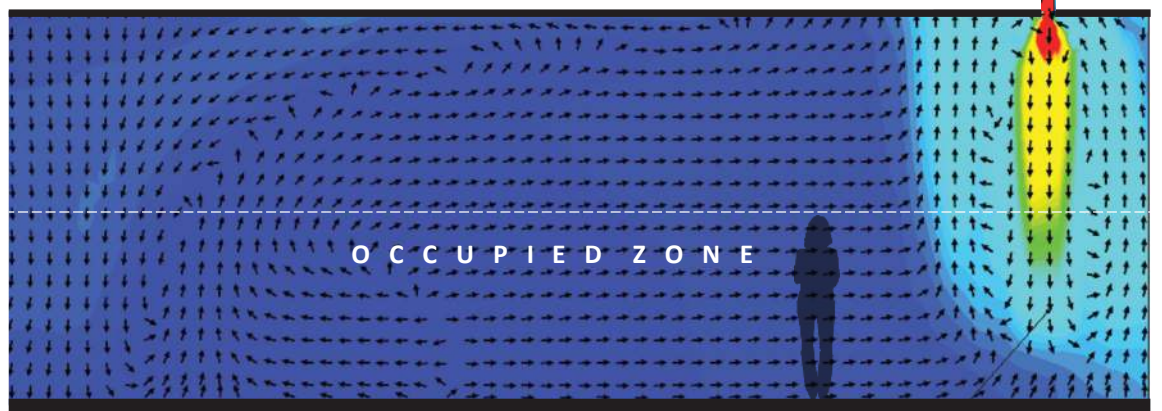
JSL-T-60 @ 115L/S: 4.2M VERTICAL THROW TO 0.25M/S [5.0M CEILING HEIGHT]



SECTION THROUGH DIFFUSER ~ VELOCITY CUTPLOT

Velocity 0.25m/s

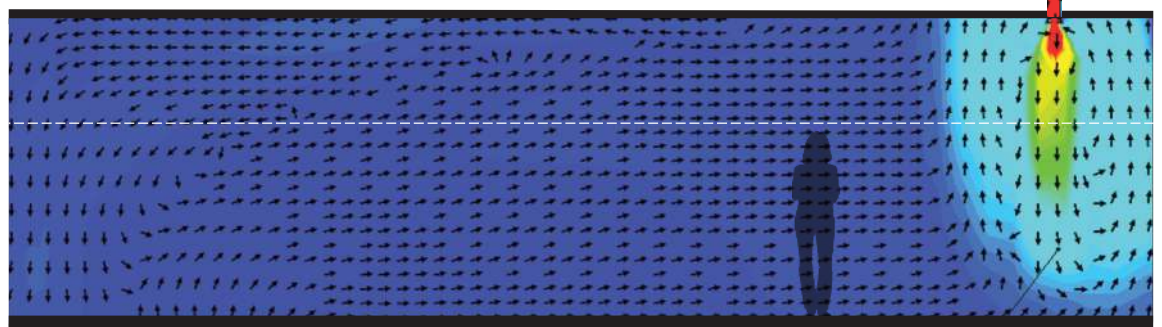
JSL-T-60 @ 95L/S: 3.2M VERTICAL THROW TO 0.25M/S [4.0M CEILING HEIGHT]



SECTION THROUGH DIFFUSER ~ VELOCITY CUTPLOT

Velocity 0.25m/s

JSL-T-60 @ 75L/S: 2.6M VERTICAL THROW TO 0.25M/S [3.0M CEILING HEIGHT]



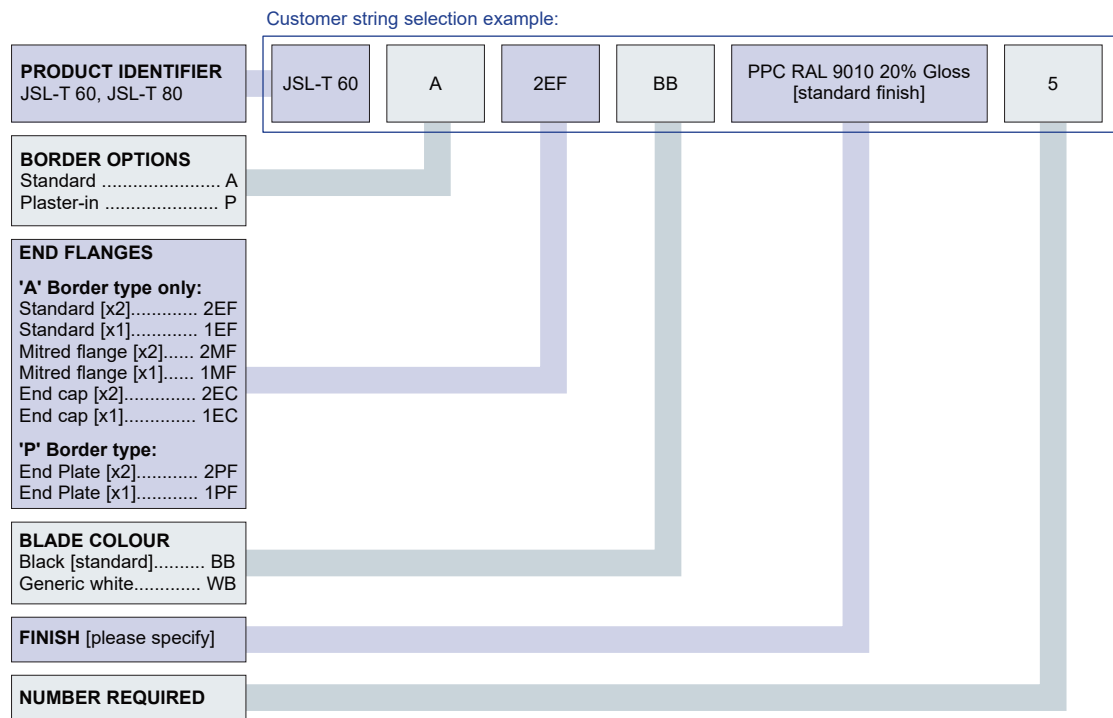
SECTION THROUGH DIFFUSER ~ VELOCITY CUTPLOT

Velocity 0.25m/s

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Ordering Specification [Diffuser]



Standard Finish

Units with a border [JSL-T/A and JSL-T/B] are polyester powder coat white RAL 9010 20% gloss with internal control vanes matt black, unless otherwise stated. The borderless plaster-in model [JSL-T/P] is finished all in black, unless otherwise stated.

Special Finishes

Polyester powder finish to stock BS/RAL colour.

Control Vanes

Internal control vanes are black although a white blade [ref: WB] or special colour [ref: UB] can also be specified.

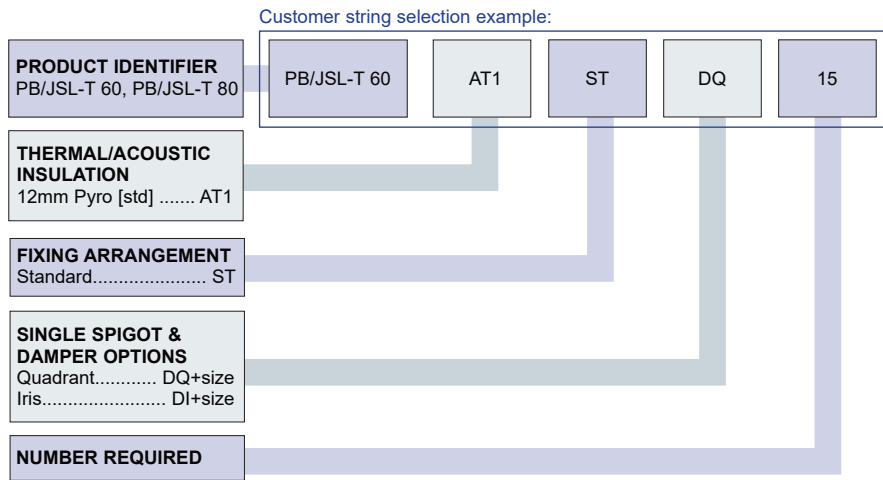
Fixing

Standard concealed brackets.

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Ordering Specification [Plenum]



Thermal/Acoustic Insulation [AT1]:

Plenum boxes are fully lined with 12mm "open cell" Pyrosorb insulation, which is always supplied as part of this assembly.

Exposed Plenums

Please advise where plenums are exposed. **Galvalike®** is the default finish for exposed plenum boxes. A unique powder coated finish formulated to best match British galvanised material, whilst protecting the products from finish variation and moisture damage etc. Plenums may also be powder coated to suit grille/diffuser finish. For alternative plenum finishes, please contact head office.

The plenum box is an integral part of the product solution and is required with the diffuser.

GILBERTS

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