

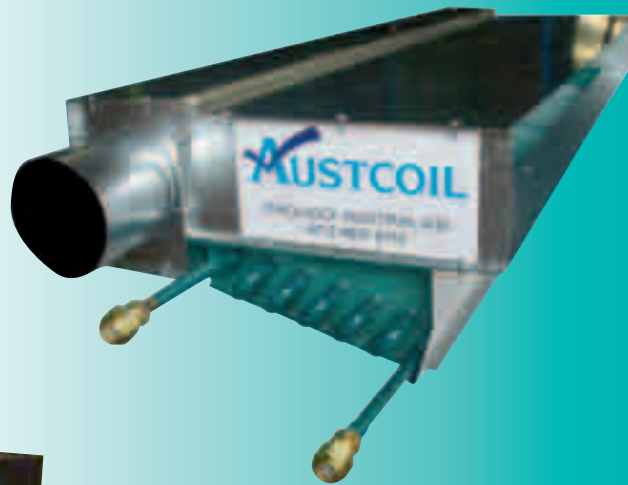
# AUSTCOIL PTY LTD

AUSTRALIAN MANUFACTURER

## AIU SERIES OF INDUCTION UNITS ©pending

The Austcoil range of Induction Units are manufactured wholly in Australia and provides the ultimate in design, construction and performance. The Austcoil units are designed to meet the needs of both the replacement and new project markets with Ceiling, Floor/Console and Horizontal models available.

Horizontal Mounted



Ceiling Mounted



### Models

**AIU-C Ceiling Mounted**

**AIU-H Horizontal Mounted**

**AIU-F Floor Mounted**

Austcoil AACB-H Units, including air flows and sound pressure levels have been NATA certified

NOW THERE IS AN ALTERNATIVE

# AUSTCOIL AIU SERIES OF

## DESIGN AND OPERATION

The AIU Series induction units provides energy savings over standard single ducted reheat systems and allows for control of perimeter space/zones via utilising waste heat both in the operation with low primary air temperatures and return chilled water temperatures. Savings in the overall carbon footprint can be achieved.

The induction unit has no fans and the air movement through coil is induced by high-pressure primary air being delivered from a central air handling unit.

The primary air is passed through an specially designed nozzles located within the induction unit creating a venturi effect on the secondary air. This induction of secondary air draws back from the conditioned space/zone through the AIU coil. The secondary air fuses with the primary air and is then discharged into the conditioned space/zone. The cooling and /or heating coil operates with either chilled or hot water delivery.

Refer: to the installation/Maintenance Manual for typical piping schematics.

The space/zone temperature is controlled by a sensor regulating or closing an in-line Chilled/Hot water control valve. On a call for heating within the space/zone the coil in the induction unit cancels the cooling energy in the primary air. Should a high cooling load in a space/zone be required at the same time that other spaces/zones require heating, reheating of the primary air will take place in the spaces that require that heating. Moisture may form on the coil under varying air conditions and needs to be collected and drained to waste.

## MODEL IDENTIFICATION

<b>AIU</b>	<b>Product - Austcoil Induction Unit</b>
C-F-H	Configuration C - Ceiling Mounted F - Floor Mounted H - Horizontal Mounted
466	Length of Air discharge outlet: mm
A-B	Nozzle size
2-4-6	Rows deep coil

## SELECTION PROCEDURE

- Calculate the full heat load for each perimeter space/zone, considering the sensible/ latent and total air quantity requirement.
- Compute the Central Plant capabilities when considering the available primary air quantity and air temperature (generally between 12 and 16°C).
- Establish the Central Plant system static pressure at the induction unit primary air inlet.
- Establish the required space/zone V-max. Air quantities.
- Select required max. primary air flow (Qs) and consider the total mixed air quantities (Qt) into the space area from Table 1(A and B nozzles).
- Select the number and size of induction units required.
- Establish the available primary system sensible and latent cooling at each space/zone.
- Select from Table 2 (A and B nozzles) the required secondary sensible coil capacity and configuration/ number of rows deep to off-set the total load requirements when deducting the primary sensible load.

### Cooling Coil designs are based on:

Ent. Air 27°C db./ 19.0°C wb.  
Ent. Water 12°C - Lev. Water 18°C.  
394 fins/metre, 1 circuit, 6 tubes high.

$$Q_t = Q_s + Q_i$$

Qt = (Total Air Supply)  
Qs = (Primary Air)  
Qi = (Induced Secondary Air)

For further coil selections, ie multi-circuit, and variable water in/out temperatures/flow rates refer to the manufacturer.

- Consider from the unit selections the generated noise levels for suitability and impact to the space/zone environment. Ref: Tables 3-4-5 (A type nozzle) Table 6(B type nozzle). The noise data is based on Sound Pressure Levels of  $2 \times 10^5$  expressed in decibels (db) at max. Air flow fitted with a 2 row coil.
- Confirm the final selection and suitability with Austcoil.

		PRIMARY AIRFLOW (l/s)									
		SYSTEM PRESSURE pa									
MODEL		150		200		225		250		300	
NUMBER		Qs	Qt	Qs	Qt	Qs	Qt	Qs	Qt	Qs	Qt
AIU-466-A2		12	49	14	57	15	64	16	72	17	83
AIU-466-A4		12	44	14	52	15	59	16	67	17	76
AIU-466-A6		12	38	14	46	15	53	16	61	17	70
AIU-866-A2		22	92	25	106	24	118	27	134	31	155
AIU-866-A4		22	82	25	95	24	105	27	122	31	141
AIU-866-A6		22	71	25	84	24	94	27	110	31	129
AIU-1161-A2		30	124	34	142	36	159	38	179	41	208
AIU-1161-A4		30	110	34	128	36	145	38	165	41	188
AIU-1161-A6		30	95	34	113	36	130	38	150	41	173
AIU-1161-B2		42	136	47	182	50	208	52	237	56	273
AIU-1161-B4		42	122	47	168	50	194	52	223	56	259
AIU-1161-B6		42	107	47	153	50	179	52	208	56	144

Table 1 Qs (Primary Air) Qt (Total Air Leaving)

		SECONDARY COIL SENSIBLE COOLING CAPACITY (watts)									
		SYSTEM PRESSURE pa									
MODEL		150		200		225		250		300	
NUMBER		Qi	Watts	Qi	Watts	Qi	Watts	Qi	Watts	Qi	Watts
AIU-466-A2		37	420	43	470	49	510	56	560	66	620
AIU-466-A4		32	500	38	580	44	660	51	760	59	870
AIU-466-A6		26	440	32	530	38	630	45	730	53	850
AIU-866-A2		70	860	81	960	81	1070	107	1190	124	1320
AIU-866-A4		60	960	70	1100	81	1260	95	1450	110	1660
AIU-866-A6		49	840	59	1000	70	1180	83	1390	98	1610
AIU-1161-A2		94	1190	108	1320	123	1460	141	1610	161	1780
AIU-1161-A4		80	1280	94	1490	109	1710	127	1960	147	2240
AIU-1161-A6		65	1120	79	1340	94	1590	112	1880	132	2190
AIU-1161-B2		94	1190	135	1560	158	1750	185	1970	217	2180
AIU-1161-B4		80	1280	121	1870	144	2190	171	2560	203	2970
AIU-1161-B6		65	1120	106	1780	129	2140	156	2570	188	3030

Table 2 Qi (Induced Secondary Air)

# INDUCTION UNITS

IUC-466-A SOUND PRESSURE (db)					
OCTIVE BAND FREQ'Y (hz)	SYSTEM PRESSURE pa				
	150	200	250	300	350
125	37	38	39	40	41
250	40	41	43	44	45
500	38	41	42	43	45
1K	35	38	40	41	43
2K	29	33	35	37	39
4K	24	27	30	31	33
8K	14	19	22	24	26
NOISE	34	37	39	40	42
RATING (nc)					

Table 3 (A type nozzle)

IUC-116-B SOUND PRESSURE (db)					
OCTIVE BAND FREQ'Y (hz)	SYSTEM PRESSURE pa				
	150	200	250	300	350
125	44	47	47	48	49
250	48	50	51	52	53
500	47	50	51	52	54
1K	44	48	50	51	53
2K	39	43	45	46	48
4K	31	35	37	39	42
8K	21	26	28	30	33
NOISE	43	47	49	50	52
RATING (nc)					

Table 6 (B type nozzle)

IUC-866-A SOUND PRESSURE (db)					
OCTIVE BAND FREQ'Y (hz)	SYSTEM PRESSURE pa				
	150	200	250	300	350
125	36	37	38	39	40
250	38	41	42	43	45
500	37	41	42	43	44
1K	33	37	31	41	42
2K	28	33	34	36	38
4K	23	27	29	31	32
8K	13	18	21	23	26
NOISE	33	36	37	40	41
RATING (nc)					

Table 4 (A type nozzle)

IUC-1161-A SOUND PRESSURE (db)					
OCTIVE BAND FREQ'Y (hz)	SYSTEM PRESSURE pa				
	150	200	250	300	350
125	38	39	40	41	42
250	41	42	44	45	46
500	39	42	43	44	46
1K	36	39	41	42	44
2K	30	34	36	38	44
4K	25	28	31	32	34
8K	15	20	23	25	28
NOISE	35	38	39	40	42
RATING (nc)					

Table 5 (A type nozzle)

## CONSTRUCTION

The induction units are configured to suit ceiling tile and plaster layouts with three basic sizes enhancing the model range.

The Primary/Secondary Air Discharge Outlet is designed to match the required total supply air quantities with a standard manufactured Slot or Linear Bar diffuser. The discharge neck is sized to allow these diffusers to mount into a standard T-Bar ceiling construction.

The units are constructed to meet the needs of ceiling, floor and horizontal mounted configuration with vertical or horizontal air discharge. The units are designed to be built-in or as an option supplied with an external cabinet.

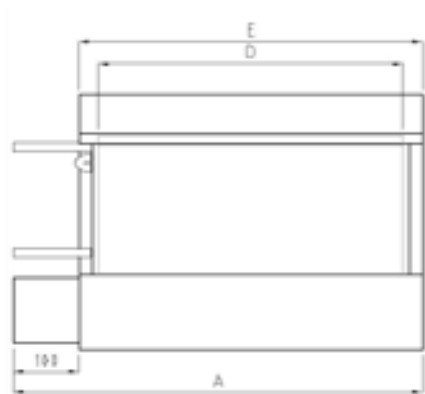
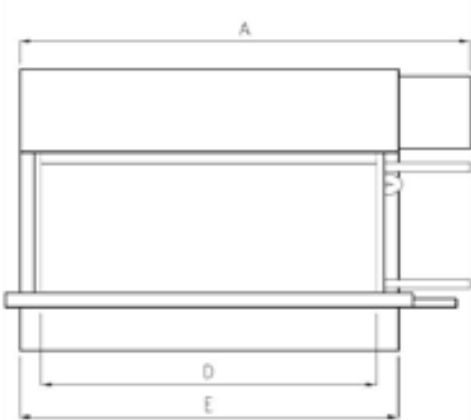
The Austcoil induction units are complete with:

- Galvanised panels manufactured and designed to be removable for access
- 6mm close cell insulation internally fixed to the panels and designed to provide acoustic and thermal properties.
- Primary Air encased and formed to provide the mixing with the secondary air flow via the specially designed discharge nozzles.
- Air Inducement nozzles designed and matched to meet the required ratio of primary and secondary air over the full model range at the selected required air flow.
- Secondary air cooling/heating coil constructed with galvanised end plates, copper tube and aluminum ribbed high efficient fins. The standard coil is 6 pipes high, 2 rows deep, single circuit and 394fins/m. Variations to these configurations are available and can be selected to meet your engineering needs.
- Cooling coil condensate tray (as required) is fitted and constructed from galvanised metal and is complete with a 12mm copper tube to facilitate the condensate to waste.
- Mixed air encasement with discharge neck for distribution to the conditioned space.

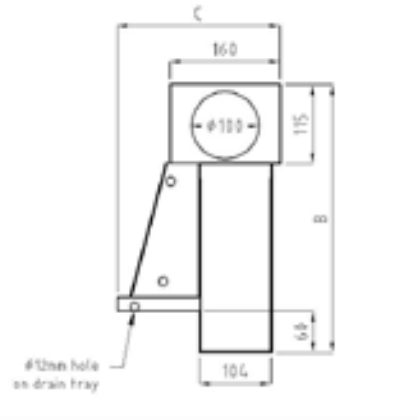
The primary air inlet and condensate tray connection is located on the right hand side when viewed from the coil inlet, as standard and is offered in different locations if nominate at the time of ordering.

## UNIT DIMENSIONS

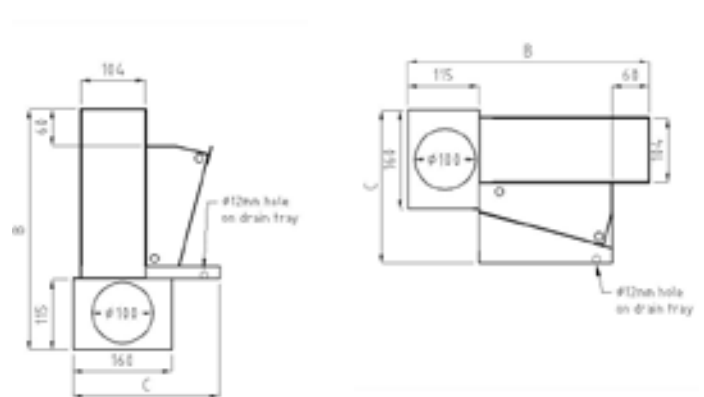
### Front Views



### Side Views



Models IUC Ceiling Mounted



Models AIUF Floor Mounted

Models AIUH Hor. Mounted

MODEL NUMBER	AIR DISCHARGE E x W (mm)		OVERALL A (mm)	OVERALL B (mm)	COIL FIN. LENGTH D (mm)	OVERALL C (mm)			GROSS W'GHT (kg)
						2 ROW	4 ROW	6 ROW	
AIU-466-2	466	104	590	390	430	237	290	340	6.6
AIU-466-4	466	104	590	390	430	237	290	340	8.3
AIU-466-6	466	104	590	390	430	237	290	340	10
AIU-866-2	866	104	990	390	830	237	290	340	10
AIU-866-4	866	104	990	390	830	237	290	340	13
AIU-866-6	866	104	990	390	830	237	290	340	16
AIU-1161-2	1161	104	1285	390	1125	237	290	340	13
AIU-1161-4	1161	104	1285	390	1125	237	290	340	17
AIU-1161-6	1161	104	1285	390	1125	237	290	340	21



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