temperzone
QUALITY AIR CONDITIONING

eco series

Chilled Water Units
In-Situ Sound Data
IMDL 40Y–130Y (Eco)

Nominal Airflows
200 l/s - 650 l/s

Chilled Water air conditioners

Contents

Introduction

Temperzone is a major manufacturer of chilled water air conditioners to the Australasian market. This document has been produced as a suppliment to the main Technical Data pamphlet found at www.temperzone.biz and provides In-Situ Sound Level data not already published.

Acoustics

'In Situ' sound pressure data is provided to give an idication of the actual sound levels experienced with an installed unit in a typical room. Sound levels will vary depending on the different installation characteristics.,eg. duct length, insulation, hard and soft materials, distance to occupants, etc.

'In Situ' data is derived from measured sound power data which follows the British standard BS 848-2.2:2004

Refer Technical Data brochure for air handling curves.

Nominal Air Flows

Model	l/s
IMDL 40Y	200
IMDL 60Y	325
IMDL 90Y	400
IMDL 130Y	650

Chilled Water air conditioners

Performance Data

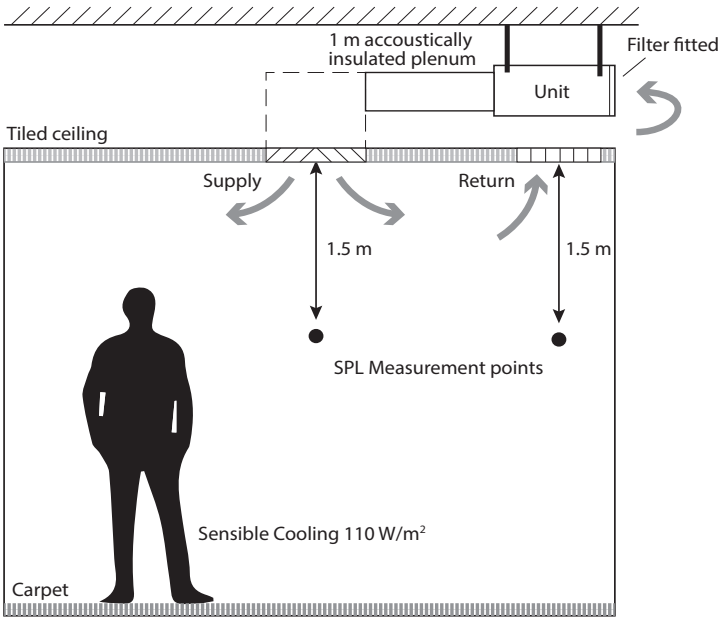
'IN SITU' SOUND LEVELS

Temperzone 'in-situ' sound pressure data should be used as a guide and adjusted to fit your project specific application. This 'in-situ' data is derived from measured sound power data following the British standard BS 848 PT2. 1985. (Raw data to this standard is available on request). A model has been applied to this sound data to simulate the actual noise level experienced in a room.

SPL is specified at 1.5m from the supply/return air duct outlet.

These 'in-situ' noise levels are based on the following criteria:

- A ceiling height of 2.7 m.
- A room sized on a sensible cooling of 110 W/m^2.
- A ceiling with standard fibrous tiles giving a Noise Reduction Coefficient (NRC) of 0.7.
- A floor laid with quality carpet having a NRC of 0.3.
- Walls are less than 50% glass by surface area.
- A reverberant time of 0.6 seconds or less
- Diffuser is located central to the room.
- Units are installed as per our installation guidelines and good practice.
- Nominal air flow is for a unit operating with approx. 50Pa external static pressure; filter fitted.
- Supply air has 1m straight, solid, acoustically insulated (25mm), rectangular ductwork.
- Return air ductwork is not fitted, however insulated ductwork on the return air is suggested for further reducing noise.



Not to Scale

Chilled Water air conditioners

Performance Data

Adjustment Factors used for 'In Situ' Sound Pressure Levels (SPL)

Table for typical sound reduction factors across the SPL spectrum applied in this 'in situ' SPL conversion.

		OCTAVE BAND FREQUENCY Hz					
		125	250	500	1k	2k	4k
MODEL		ADJUSTMENT FACTORS dB					
IMDL 40Y	Overall Room Effect	-3	-5	-5	-5	-5	-4
	Duct Attenuation for supply air	-1	-3	-10	-16	-20	-20
IMDL 60Y	Overall Room Effect	-4	-6	-6	-6	-6	-5
	Duct Attenuation for supply air	-1	-2	-9	-15	-18	-18
IMDL 90Y	Overall Room Effect	-6	-7	-7	-8	-7	-7
	Duct Attenuation for supply air	0	-2	-7	-12	-15	-14
IMDL 130Y	Overall Room Effect	-6	-8	-8	-8	-8	-7
	Duct Attenuation for supply air	0	-2	-7	-11	-13	-13

Other Potential dB(A) Reductions or Additions under different installation conditions

If your project has any of the environment considerations below, the additions or reductions should be made.

Installation Environment	dB(A) changes
Acoustic art fixtures on the wall	-1
Large number of occupants and/or furniture	-1 ~ -3
Hard floors – wood, titles, marble or similar	+1~+2
Large glass area on walls	+1
Every extra metre of ductwork fitted	-2
Supply Air plenum with spigots	-2
Flexible ducting - insulated (1m)	-7
Return air ductwork (1m)	-4 ~ -6
Different duct shapes/ sizes	May cause an effect +/-

IN SITU : SUPPLY AIR OUTLET

In Situ Data: Measured in decibels re 1 picowatt.

* Voltage to achieve nominal airflow (p.2)

			OCTAVE BAND FREQUENCY Hz					
			125	250	500	1k	2k	4k
Models	FAN SPEED	SPL dB(A)	SOUND PRESSURE LEVELS (SPL) dB					
IMDL 40Y	9~10V	50	61	55	45	37	35	29
	8V	50	61	55	45	37	35	29
	7V	48	59	54	44	37	34	28
	6V*	46	57	51	41	35	31	24
	5V	42	53	47	37	32	27	20
	4V	39	49	45	34	28	23	16
	3V	34	45	40	29	22	15	7
	2V	33	46	38	24	14	7	0
	1.5V	30	43	36	22	12	5	0
IMDL 60Y	10V	50	59	55	48	40	35	30
	9V	49	59	54	47	39	34	29
	8V	47	57	52	45	37	32	27
	7V*	46	56	51	43	35	30	24
	6V	43	52	48	40	33	26	20
	5V	39	50	44	37	28	22	15
	4V	37	47	42	34	24	18	10
	3V	33	43	40	29	17	10	5
	2V	33	46	39	25	11	7	4
	1.5V	33	44	38	23	10	6	2
IMDL 90Y	9~10V	51	60	55	49	43	37	33
	8V*	49	59	53	46	41	34	30
	7V	47	57	51	43	38	32	27
	6V	44	54	48	41	34	29	24
	5V	41	51	45	38	32	25	19
	4V	37	47	40	35	26	21	12
	3V	33	42	40	28	19	13	4
	2.5V	33	47	37	26	17	11	4
	2V	31	45	35	24	15	9	2
	1.5V	31	44	34	22	14	7	2
IMDL 130Y	9~10V	56	63	61	53	49	46	40
	8V*	56	63	59	53	48	45	39
	7V	55	62	59	52	47	45	39
	6V	52	59	56	48	45	42	36
	5V	49	56	53	46	42	39	32
	4V	46	53	50	42	38	35	28
	3V	42	53	46	36	32	29	20
	2V	36	46	42	32	25	20	12
	1.5V	35	44	40	29	23	18	9

Note: 4V is the lowest fan speed for a unit supplied with electric heater elements.

IN SITU : RETURN AIR + CASE BREAKOUT

In Situ Data: Measured in decibels re 1 picowatt.

* Voltage to achieve nominal airflow (p.2)

			OCTAVE BAND FREQUENCY Hz					
			125	250	500	1k	2k	4k
Models	FAN SPEED	SPL dB(A)	SOUND PRESSSURE LEVELS (SPL) dB					
IMDL 40Y	9~10V	56	56	57	55	50	48	46
	8V	56	56	58	54	50	48	47
	7V	56	56	58	54	49	47	46
	6V*	53	53	55	51	47	44	42
	5V	49	50	51	47	44	40	38
	4V	46	48	48	44	41	36	33
	3V	40	46	42	39	35	29	25
	2V	35	41	38	33	28	24	21
	1.5V	32	38	36	30	25	21	18
IMDL 60Y	10V	57	58	59	55	52	48	44
	9V	57	57	58	55	51	48	43
	8V	57	56	58	55	51	48	43
	7V*	55	54	56	53	49	46	41
	6V	53	52	54	51	47	43	38
	5V	50	48	52	48	44	40	34
	4V	46	46	48	45	40	36	29
	3V	42	42	44	42	35	32	25
	2V	35	44	40	32	26	24	18
	1.5V	34	42	39	30	25	23	17
IMDL 90Y	9~10V	58	60	60	55	51	49	45
	8V*	56	58	59	53	50	47	42
	7V	53	56	56	51	47	44	40
	6V	51	54	54	48	44	41	36
	5V	47	49	49	45	40	37	31
	4V	43	46	46	42	35	32	24
	3V	39	43	43	37	31	28	20
	2.5V	37	45	41	34	28	24	17
	2V	35	43	39	32	26	22	15
	1.5V	33	41	37	30	25	20	14
IMDL 130Y	9~10V	62	62	64	60	56	54	52
	8V*	61	61	63	59	54	52	51
	7V	61	61	63	58	54	52	51
	6V	57	58	60	54	51	49	48
	5V	55	55	57	52	49	46	45
	4V	51	51	54	49	45	42	40
	3V	46	47	48	44	40	36	33
	2V	40	45	44	37	32	28	23
	1.5V	37	43	41	35	30	25	21

Note: 4V is the lowest fan speed for a unit supplied with electric heater elements.

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Note
Specifications are subject to change without notice due to the manufacturer's ongoing research and development programme.

Available from

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