



Chilled Water Units
In-Situ Sound Data
IMDL 40-130

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 supplement 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 indication 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 40	205
IMDL 60	335
IMDL 90	480
IMDL 130	650

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Performance Data



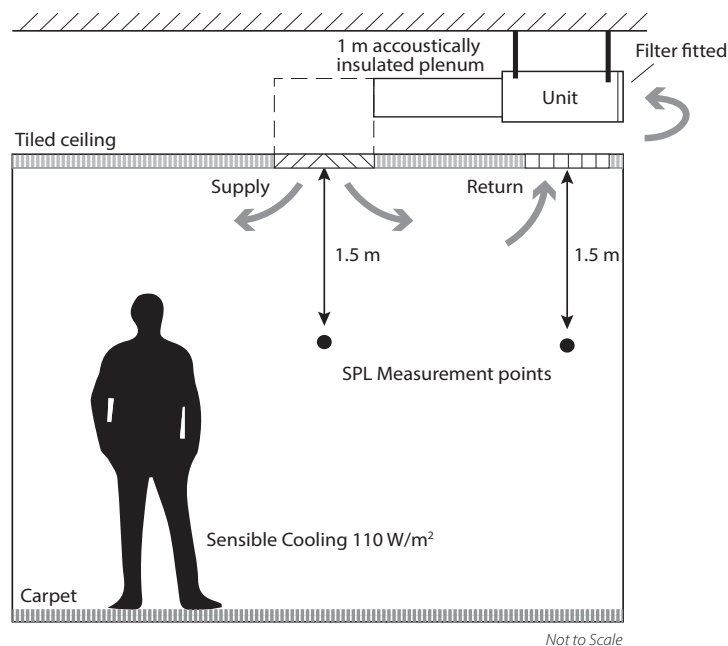
'IN SITU' SOUND LEVELS

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/m².
- 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.



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Sound Levels



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.

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

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, tiles, 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 +/-

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Sound Levels



IN SITU : SUPPLY AIR OUTLET

In Situ Data: Measured in decibels re 1 picowatt.

Models	FAN SPEED	SPL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1k	2k	4k
			SOUND PRESSURE LEVELS (SPL) dB					
IMDL 40-M	HIGH	43	53	49	38	29	24	17
	MED	39	50	45	35	27	21	13
	LOW	37	48	43	33	25	18	10
IMDL 40-H	HIGH	45	57	50	40	31	25	19
	MED	42	52	48	38	29	23	17
	LOW	40	51	45	35	26	20	13
IMDL 60-S	HIGH	45	56	48	43	33	27	18
	MED	40	50	45	39	28	21	11
	LOW	38	49	41	35	23	17	8
IMDL 60-M	HIGH	45	54	50	44	35	29	20
	MED	42	51	46	40	31	24	15
	LOW	40	49	44	38	27	20	10
IMDL 60-H	HIGH	47	55	52	45	37	31	24
	MED	44	51	49	43	33	28	19
	LOW	43	50	48	42	31	25	16
IMDL 90-S	HIGH	45	56	49	42	34	28	20
	MED	41	51	44	38	29	23	14
	LOW	38	49	41	36	24	18	8
IMDL 90-M	HIGH	45	54	49	43	36	29	23
	MED	41	51	45	39	31	25	16
	LOW	39	50	43	37	28	22	12
IMDL 90-H	HIGH	49	57	53	47	41	35	30
	MED	47	55	51	44	38	32	26
	LOW	44	53	48	42	35	30	22
IMDL 130-M	HIGH	47	55	52	44	38	32	25
	MED	44	54	49	41	34	28	20
	LOW	43	53	48	40	32	26	17
IMDL 130-H	HIGH	50	57	55	48	42	37	30
	MED	48	55	52	46	40	34	26
	LOW	46	55	50	44	37	31	23

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Sound Levels



IN SITU : RETURN AIR + CASE BREAKOUT

In Situ Data: Measured in decibels re 1 picowatt.

Models	FAN SPEED	SPL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1k	2k	4k
			SOUND PRESSURE LEVELS (SPL) dB					
IMDL 40-M	HIGH	52	54	56	49	46	43	36
	MED	49	51	52	46	43	39	33
	LOW	46	50	49	44	41	36	29
IMDL 40-H	HIGH	54	59	57	52	49	44	37
	MED	51	54	54	50	46	41	34
	LOW	49	55	51	47	43	38	30
IMDL 60-S	HIGH	49	59	50	47	43	38	30
	MED	46	59	45	43	38	33	24
	LOW	43	57	42	40	34	27	19
IMDL 60-M	HIGH	52	55	53	50	46	43	34
	MED	49	55	50	48	43	38	29
	LOW	46	57	46	43	38	33	24
IMDL 60-H	HIGH	53	55	54	52	48	44	37
	MED	50	52	52	49	45	41	33
	LOW	47	51	49	46	42	37	29
IMDL 90-S	HIGH	53	55	54	51	47	44	37
	MED	48	51	49	47	42	38	30
	LOW	45	54	46	44	37	33	25
IMDL 90-M	HIGH	53	52	53	51	49	45	38
	MED	49	46	50	48	43	40	33
	LOW	45	47	46	45	39	35	28
IMDL 90-H	HIGH	56	58	56	55	50	47	43
	MED	55	60	56	53	49	46	40
	LOW	52	58	54	50	46	44	37
IMDL 130-M	HIGH	52	56	54	51	46	43	35
	MED	50	55	52	49	43	40	32
	LOW	48	53	50	46	41	37	29
IMDL 130-H	HIGH	55	59	58	54	48	44	39
	MED	53	57	55	52	47	41	36
	LOW	51	55	54	50	43	39	33

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

Available from