



Chilled Water Units
In-Situ Sound Data
IXDL 40Y-200Y (Eco)

Nominal Airflows
200 l/s - 1000 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

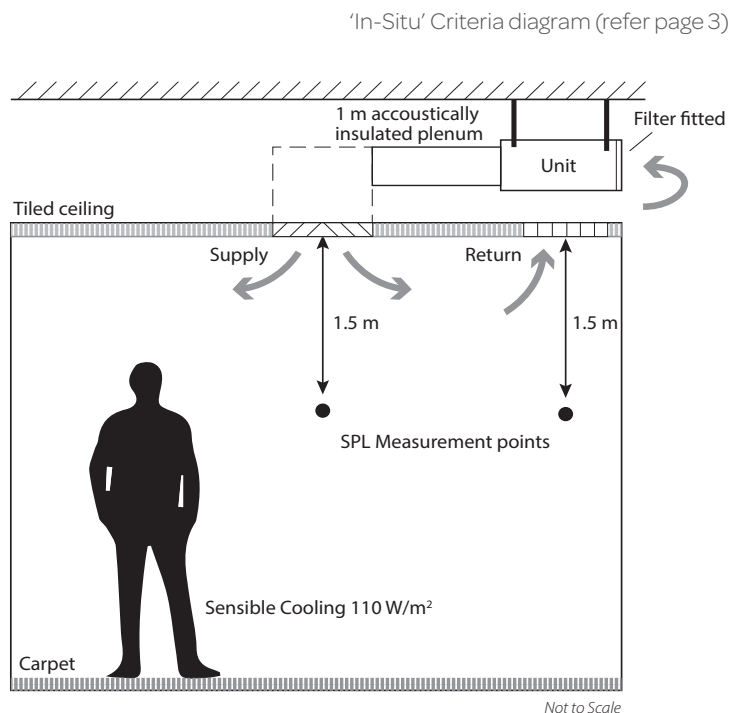
'In Situ' sound pressure data is provided to give an indication of the actual sound levels experienced with an installed unit in a typical room. Sound levels will vary depending on the different installation characteristics, eg. duct length, insulation, hard and soft materials, distance to occupants, 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
IXDL 40Y	200
IXDL 90Y	400
IXDL 130Y	600
IXDL 160Y	800
IXDL 200Y	1000



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'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.

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					
IXDL 40Y	Overall Room Effect	-3	-5	-5	-5	-5	-4
	Duct Attenuation for supply air	-1	-3	-10	-16	-20	-20
IXDL 60Y	Overall Room Effect	-5	-7	-7	-7	-7	-6
	Duct Attenuation for supply air	0	-2	-7	-12	-15	-14
IXDL 90Y	Overall Room Effect	-6	-8	-8	-8	-8	-7
	Duct Attenuation for supply air	0	-2	-7	-11	-13	-13
IXDL 130Y	Overall Room Effect	-7	-8	-9	-9	-8	-8
	Duct Attenuation for supply air	0	-1	-5	-8	-10	-10
IXDL 200Y	Overall Room Effect	-7	-9	-9	-9	-9	-8
	Duct Attenuation for supply air	0	-1	-5	-8	-9	-9

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
Flexible ducting - insulated (1m)	-7
Return air ductwork (1m)	-4 ~ -6
Different duct shapes/ sizes	May cause an effect +/-

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IN SITU : SUPPLY AIR OUTLET

In Situ Data: Measured in decibels re 1 picowatt.

* Voltage to achieve nominal airflow (p.2)

Models	FAN SPEED	SPL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1k	2k	4k
			SOUND PRESSURE LEVELS (SPL) dB					
IXDL 40Y	9V	52	65	57	43	35	32	29
	8V	52	65	57	43	35	32	32
	7V*	50	63	55	41	33	29	27
	6V	48	61	54	39	32	27	25
	5V	45	58	51	37	29	23	21
	4V	42	55	47	30	25	18	15
	3V	38	52	43	28	21	12	9
	2.55V	34	49	36	23	14	6	2
IXDL 90Y	9V	53	65	59	47	40	38	36
	8V	53	65	58	46	40	38	36
	7V*	51	63	56	44	38	36	33
	6V	49	61	55	41	36	32	30
	5V	46	57	51	38	33	28	26
	4V	42	55	47	34	29	23	20
	3V	38	50	43	30	24	17	13
	2.55V	33	47	35	24	16	11	6
IXDL 130Y	9V	61	73	66	54	47	45	42
	8V	61	73	65	53	46	44	41
	7V*	58	70	64	51	44	42	38
	6V	56	68	61	48	42	39	35
	5V	53	65	58	44	39	34	30
	4V	49	61	55	41	35	29	25
	3V	44	57	48	35	29	23	17
	2.55V	36	49	41	29	20	14	8

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

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IN SITU : SUPPLY AIR OUTLET (CONT'D)

In Situ Data: Measured in decibels re 1 picowatt.

* Voltage to achieve nominal airflow (p.2)

Models	FAN SPEED	SPL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1k	2k	4k
			SOUND PRESSURE LEVELS (SPL) dB					
IXDL 160Y	9V	67	78	72	60	53	52	49
	8V	66	78	72	60	52	51	48
	7V*	65	76	70	57	50	49	45
	6V	62	74	69	54	48	46	42
	5V	59	70	64	51	45	41	37
	4V	55	67	60	47	41	36	32
	3V	49	62	54	41	34	28	23
	2.55V	42	55	46	34	26	21	14
IXDL 200Y	9V	68	79	73	61	53	54	50
	8V	67	78	72	60	53	53	49
	7V*	65	76	70	58	51	50	46
	6V	63	74	69	55	49	47	43
	5V	60	71	65	51	45	43	38
	4V	56	67	61	48	42	38	32
	3V	50	62	54	41	35	30	24
	2.55V	42	55	46	35	27	22	15

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

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IN SITU : RETURN AIR + CASE BREAKOUT

In Situ Data: Measured in decibels re 1 picowatt.

* Voltage to achieve nominal airflow (p.2)

Models	FAN SPEED	SPL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1k	2k	4k
			SOUND PRESSURE LEVELS (SPL) dB					
IXDL 40Y	9V	57	64	61	55	47	46	42
	8V	57	64	61	55	46	46	42
	7V*	55	63	59	53	45	43	40
	6V	53	61	58	51	43	41	37
	5V	50	58	54	48	41	37	34
	4V	47	55	52	44	37	32	28
	3V	43	52	47	40	33	27	22
	2.55V	36	48	39	34	25	20	16
IXDL 90Y	9V	58	65	62	56	47	46	43
	8V	58	65	62	56	47	47	43
	7V*	56	63	60	54	45	44	40
	6V	53	60	58	51	43	41	37
	5V	50	58	54	48	40	37	33
	4V	47	55	52	44	37	32	28
	3V	42	50	47	39	31	26	21
	2.55V	35	47	38	32	24	19	15
IXDL 130Y	9V	64	71	69	63	54	53	49
	8V	64	71	69	62	53	52	48
	7V*	62	69	67	60	52	49	45
	6V	59	67	65	57	49	46	41
	5V	56	63	61	53	46	43	37
	4V	52	60	57	50	42	36	31
	3V	45	53	51	43	36	28	23
	2.55V	39	47	43	37	29	26	19

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

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IN SITU : RETURN AIR + CASE BREAKOUT (CONT'D)

In Situ Data: Measured in decibels re 1 picowatt.

* Voltage to achieve nominal airflow (p.2)

Models	FAN SPEED	SPL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1k	2k	4k
IXDL 160Y	9V	70	76	75	68	59	57	53
	8V	69	75	74	66	58	56	52
	7V*	67	73	72	64	56	53	49
	6V	64	71	70	61	54	50	45
	5V	60	67	66	58	50	45	40
	4V	56	63	61	54	46	40	35
	3V	50	58	56	48	40	34	30
	2.55V	43	52	48	41	33	30	26
IXDL 200Y	9V	71	77	76	68	60	57	54
	8V	69	76	74	67	59	56	53
	7V*	67	74	72	65	57	53	49
	6V	66	72	70	62	54	60	46
	5V	61	68	66	59	51	46	41
	4V	57	64	62	55	47	41	36
	3V	51	59	56	49	41	34	30
	2.55V	44	53	48	41	34	31	27

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