



# Acoustic Ratings

Darley Aluminium Systems

A comprehensive guide to Darley Aluminium's Acoustic Ratings





# What are Rw Ratings?

## Acoustic Ratings Explained

*With increased population density and further development of high-rise buildings, acoustic qualities in windows and doors are becoming far more important. This brochure is a summary of all Darley Aluminium's system acoustic performances.*

For further information including test reports, please contact your nearest Darley Aluminium Office.

**Sound** is created when vibration of a surface is transferred into a medium such as air. This vibration causes air molecules to move, which is then interpreted by our ear drums. As such, sound can be defined as a longitudinal pressure wave caused by this vibration. The ear drums vibrate which is then interpreted by the brain as the sensation we hear.

**Noise** is unwanted sound. It can be caused by many things and can be unwanted for many reasons. Two examples of unwanted noise includes loud music during an inappropriate time (eg. sleep) and unpleasant sounds above safe decibel numbers (eg. construction work).

**Glass** properties and aluminium system designs can help reduce noise where needed. Sound is heard at different frequencies, and so standard calculation of sound needs to take this into consideration. To do this, *AS/NZS ISO 717.1:2004* sets out parameters for the Weighted Sound Reduction Index Rw.

Sound reduction performance of an aluminium system is measured in Rw. The process of determining this figure also produces two additional parameters C and Ctr. These adaptation terms are used to modify the Rw number to better represent the sound reduction of glass for different types of noise.

The "C" adaptation term is relevant to the following noise types:

1. Living activities (talking, music, radio, TV)
2. Children playing
3. Railway traffic at medium and high speed
4. Highway traffic with speeds >80km/hr
5. Jet aircraft at short distance
6. Factories emitting mainly medium and high frequency noise.

The "Ctr" adaptation term is relevant to the following noise types:

1. Urban road traffic
2. Railway traffic at low speeds
3. Aircraft which are propeller driven
4. Jet aircraft which are a large distance away
5. Disco music.

The following table summarises Darley Aluminium's acoustic ratings in Rw.

*For further information such as C and Ctr values, please contact your nearest Darley Aluminium office for a copy of our test reports or technical manuals.*



# A Guide

## Darley Aluminium's Window & Door Systems and their Rw Ratings

Darley's expansive range of window and door systems and their Rw ratings can be found below. Tested Darley systems can be issued with test reports.

SYSTEM	GLASS TYPE	SEAL	RW RATING	TEST NO.
<b>KlassicView</b>				
53mm KlassicView				N/A - See 76mm range below
76mm Sliding Window	6.38	Weatherstrip	30	Estimate based on TL666-03-1
	10.5 hush	Weatherstrip	36	TL666-03-1
	4/8/8.5 hush	Weatherstrip	37	TL666-04-1
76mm Awning	6.38	Bulb	29	Estimate based on TL769-09
	10.5 hush	Bulb	35	TL769-09
	4/8/8.5 hush	Bulb	33	TL666-08-1
76mm Fixed Frame	6.38		29	Estimate based on TL769-09
	10.38		32	Estimate based on TL769-09
	10.5 hush		35	TL769-09
	4/8/8.5 hush		33	TL666-08-1
76mm Double Hung	6.38	Weatherstrip	27	Estimate based on TL666-03-1
	10.5 hush	Weatherstrip	33	Estimate based on TL666-03-1
	4/8/8.5 hush	Weatherstrip	34	Estimate based on TL666-04-1
French Door	6.38 lam	QL48700	31	TL781-01
	12.5 hush	Qlon	33	Estimate based on DARWRHDA001
101.6mm Sliding Door	6.38 lam	Weatherstrip	31	Estimate based on TL666-03-1
	10.5 hush	Weatherstrip	37	TL666-02-1
	4/8/8.5 hush	Weatherstrip	37	TL666-01-1
<b>COMMERCIAL FRAMING</b>				
100 x 50mm Front Single Glazed	6.38		33	Estimate based on 4858-1
	10.38		36	Estimate based on 4858-1
	10.5 hush		38	Estimate based on 4858-2
100 x 50mm Front Double Glazed	8/10/10.5 hush		41	TL666-09-1
	6/12/6.38		32	Estimate based on TL666-09-1
150 x 50mm Front Single Glazed	6.38		33	Estimate based on 4858-1
	10.38		36	Estimate based on 4858-1
	10.5 hush		38	Estimate based on 4858-2
150 x 50mm Front Double Glazed	8/10/10.5 hush		41	Estimate based on TL666-09-1
	6/12/6.38		32	Estimate based on TL666-09-1
100 x 50mm Centre Single Glazed	6.38		31	Estimate based on TL769-08
	12.5 hush		38	TL769-08
101.6 x 45mm Centre Single Glazed	10.38		36	4858-1
	10.5 hush		38	4858-2
101.6 x 50mm Centre Double Glazed	8/10/10.5 hush		41	Estimate based on TL666-09-1
	6/12/6.38		32	Estimate based on TL666-09-1

SYSTEM	GLASS TYPE	SEAL	RW RATING	TEST NO.
<b>COMMERCIAL FRAMING</b>				
101.6 x 50mm Centre (50mm Pocket)	8/10/10.5 hush		41	Estimate based on TL666-09-1
101.6 x 50mm Centre (50mm Pocket)	8.5 hush /16/12.5 hush		44	Estimate (glass spec of RW47)
150 x 45mm Centre Single Glazed	6.38		33	Estimate based on 4858-1
	10.38		36	Estimate based on 4858-1
	10.5 hush		38	Estimate based on 4858-2
150 x 50mm Centre Double Glazed	8/10/10.5 hush		41	Estimate based on TL666-09-1
	6/12/6.38		32	Estimate based on TL666-09-1
103 x 50mm Capped Front Glaze Framing			N/A	
150 x 50mm Capped Front Glaze Framing			N/A	
<b>CITYVIEW</b>				
Sliding Window	6.38	Weatherstrip & Qlon	30	Estimate based on 4388-2
	10.38	Weatherstrip & Qlon	33	4388-2
	4/7.5/4	Weatherstrip & Qlon	30	4388-1
Sliding Window (Double System)	10.38	Weatherstrip & Qlon	42	4388-3
Double Hung	4/8/8.5 hush	Weatherstrip	35	Estimate based on TL666-04-1
35mm Awning Window	6.38	Bulb	33	Estimate based on 4858-1
	10.38	Bulb	36	4858-1
	10.5 hush	Bulb	38	4858-2
50mm Heavy Duty Awning + Casement Window	8/10/10.5 hush	Qlon	41	TL666-09-1
	6/12/6.38	Qlon	32	Estimate based on TL666-09-1
50mm Universal Hook Awning	12.5 hush	Qlon	38	TL769-08
	6/12/6.38	Qlon	32	Estimate based on TL769-08
Truth Awning + Casement Window	8/10/10.5 hush	Qlon	40	Estimate based on TL666-09-1
	6/12/6.38	Qlon	31	Estimate based on TL666-09-1
45mm Hinged Door	6.38	HV Bulb	31	TL769-02
	6/12/6.38	HV Bulb	32	Estimate based on TL769-02
	12.5 hush	HV Bulb	34	DARWRHDA001
45mm Hinged Door (No Threshold w/Drop Seal)	6.38	HV Bulb	23	TL769-04
Patio Door	6.38	Weatherstrip & Qlon	32	Estimate based on 4858-3
	10.38	Weatherstrip & Qlon	34	4858-3
	6.5 hush	Weatherstrip & Qlon	35	Estimate based on 4858-3
	10.5 hush	Weatherstrip & Qlon	37	4858-4
Patio Door (Double System)	10.38	Weatherstrip & Qlon	41	4388-3
	10.5 hush	Weatherstrip & Qlon	43	Estimate based on 4388-3



# Further Data

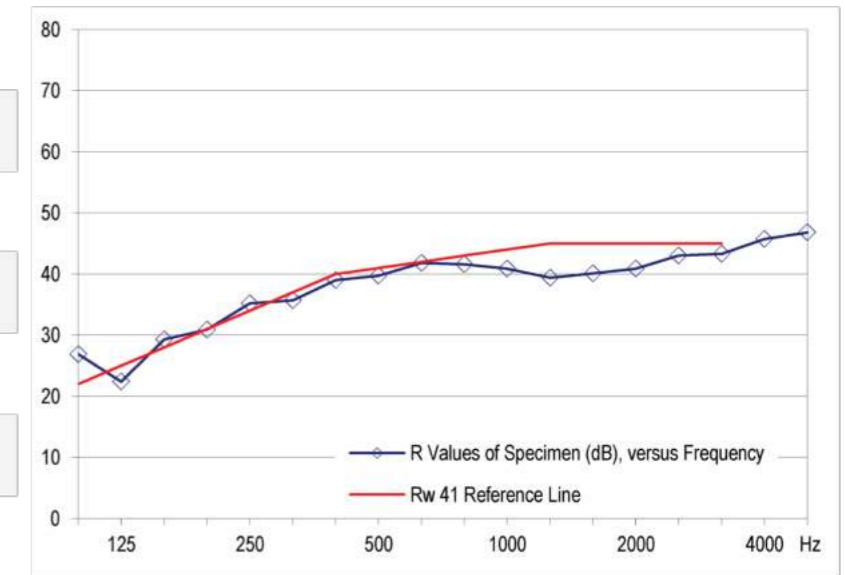
## Darley Aluminium's Window & Door Systems and their Rw Ratings

Darley may be able to provide our customers with acoustic test reports when required. All acoustic reports will include additional information such as images and details of the tested window, as well as tables and graphs providing further measurements such as frequency and dB, Rw(C; Ctr) and STC.

SYSTEM	GLASS TYPE	SEAL	RW RATING	TEST NO.
<b>CITYVIEW</b>				
Architectural Sliding Door	6.38	Weatherstrip & Qlon	33	4258-1
	10.38	Weatherstrip & Qlon	35	4258-2
	6.5 hush	Weatherstrip & Qlon	36	Estimate based on 4258-1
	10.5 hush	Weatherstrip & Qlon	38	Estimate based on 4858-3
	6/12/6.38	Weatherstrip & Qlon	34	4258-3
Architectural Sliding Door (Double System)	10.38	Weatherstrip & Qlon	42	Estimate based on 4388-3
	10.5 hush	Weatherstrip & Qlon	44	Estimate based on 4388-3
<b>HARBOURVIEW</b>				
Bottom Rolling Multi-Fold Door	6.38 lam	HV Bulb	30	Estimate based on TL781-02
Top Rolling Multi-Fold Door	6.38 lam	HV Bulb + head/stile seal	31	TL781-02
	6/12/6.38	HV Bulb + head/stile seal	32	Estimate based on TL781-02
	6.38 lam	HV Bulb	30	TL781-03
	12.5 hush	HV Bulb	36	Estimate based on TL781-02
<b>CLIMATEGUARD</b>				
100mm Centre Glazed	8/10/10.5 hush		41	Estimate based on TL666-09-1
150mm Centre Glazed	8/10/10.5 hush		41	Estimate based on TL666-09-1
100mm Front Glazed	8/10/10.5 hush		41	Estimate based on TL666-09-1
150mm Front Glazed	8/10/10.5 hush		41	Estimate based on TL666-09-1
50mm Hinged Door	12.5 hush	HV Bulb	33	Estimate (glass spec of RW40)
	8/10/10.5 hush	HV Bulb	36	Estimate based on TL666-09-1
Sliding Window	6/12/6.38	Weatherstrip & Qlon	34	Estimate based on 4258-3
Chainwinder Awning	8/10/10.5 hush	Qlon	41	Estimate based on TL666-09-1
Roto Awning + Casement	8/10/10.5 hush	Qlon	41	Estimate based on TL666-09-1
Apartment Door	6/12/6.38	Weatherstrip & Qlon	34	Estimate based on 4258-3
<b>ADDITIONAL SYSTEMS</b>				
Jockey Sash (with 100 FG single)	10.38 & 6.38	Qlon	44	14-160/PD
	12.76 & 6.38	Qlon	45	14-161/JW
Jockey Sash (with 150 FG single)	10.38 & 6.38	Qlon	45	14-168/PD
	12.76 & 6.38	Qlon	46	14-167/PD
Acoustic Frame 100mm	6 tough & 6.38 lam		42	TL781-04
	6 tough & 12.5 hush		46	TL781-05
	6 tough & 12.5 hush	+ Frame Cavity Insulation	47	Estimate based on TL781-07
Acoustic Frame 150mm	6 tough & 6.38 lam		43	TL781-06
	6 tough & 12.5 hush		47	Estimate based on TL781-05
	6 tough & 12.5 hush	+ Frame Cavity Insulation	48	TL781-07

### Measurement Details & Results

Freq (Hz)	Specimen R Value <sup>2</sup> (dB)		95 % Conf δ (dB)
	1/3 Octave	Whole Octave	
100	26.9		1.1
125	22.4	25.3	1.3
160	29.3		1.1
200	30.9		1.1
250	35.2	33.4	1.1
315	35.7		0.5
400	39.0		0.7
500	39.7	40.0	0.4
630	41.8		0.2
800	41.6		0.2
1000	40.9	40.5	0.2
1250	39.4		0.2
1600	40.1		0.1
2000	40.9	41.2	0.2
2500	43.0		0.2
3150	43.3		0.2
4000	45.7	45.0	0.3
5000	46.8		0.2



**Performance Index Numbers**  
 $R_w(C; C_{tr}) = 41 (-2; -4)$  dB  
 STC = 41

**Confidence Intervals (AS 1191, App B, 95 % Confidence)**  
 Measurement was carried out in both directions through the test specimen, using 3 loudspeaker positions in each chamber; giving 6 spatially independent sets of R values, from which average R values and confidence intervals have been calculated (confidence intervals rounded up to 1 decimal place).

**Measurement Conditions**  
 Date of measurement: 27 September 2018  
 200 m<sup>3</sup> chamber (north): 14 °C, 49 % R.H.  
 100 m<sup>3</sup> chamber (south): 14 °C, 55 % R.H.  
 Atmospheric pressure: 1003 mBar



## To find out more

Darley Aluminium's sales and technical support teams will be more than happy to help with inquiries and confirmations regarding Rw ratings over the phone or through email.

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