



Rectangular Silencer  
Cylindrical Duct Silencer  
and  
Acoustic Louvres

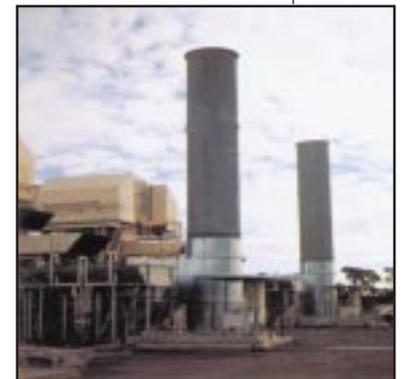
We solve all the noise problems by first listening to the customer. The need to curb the excessive noise is a critical factor in the design of a wide variety of buildings, facilities, Patrol boats, fast ferries and products. From mining plant and equipment to processing plant, factories and hospitals. With our vast experience in noise attenuation, we can develop a cost-effective solution that meets legislative requirement and provides the optimum result.



Incat 96m Catamaran  
"Bonanza Express"



Genset enclosure package  
and fuel tank base



Inlet silencers, Exhaust silencers and  
stacks for 35MW gas turbines

Our engineering department also involves our drawing office which operates with advanced CAD/CAM equipment. This allows us to undertake projects of my scope and develop solutions that suit specific acoustic requirements.



120MW gas turbine acoustic enclosures

## Completed projects

Barclay Engineering has been involved in a large number of projects in Australia and overseas. A few of the more notable projects are mentioned below.

**John Brown Engineering:** Salt Union & Seal Sands in the UK, Pasir Gudang & Sendang in Malaysia.

**Alstom:** Pinjar & Worsley in Western Australia, Mt. Isa in Queensland, Australia.

**Caterpillar:** Power Barge in Singapore.

**Van Der Horst:** Power Barge in Singapore.

**Energy Power Systems:** Windimurra, Wiluna, Stag, Nifty and Granny Smith in Australia.

**Wartsila/Detroit:** Carnarvon, Telfer and Argyle in Australia.

**Rolls Royce:** Exeter and Bristol in the UK.

**Cummins:** Goongewa and Coates Hire Fleet in Australia.

**Al-Bahar:** Al-ain, Al Sila, Dalma Islands, Dubai, Abu Dhabi and Abu Albiad Island in the Middle East.

Patrol boats for Fiji, Hong Kong, Kuwait, Singapore and Australia.

Fast ferries built in Australia for service around Australia and overseas.

**Barclay Engineering** has been manufacturing silencers since 1977. Our range of rectangular silencers have either 200mm or 300mm thick splitters, and are manufactured either as standard silencers suitable for commercial applications or as industrial silencers suitable for use in industrial situations through to specially manufactured silencers in PVC, aluminium or stainless steel for specific applications.

### Tested Results

Apart from the time proven performance of Barclay Engineering’s rectangular silencers, the tabulated acoustic performance are based on test which were carried out on our own test rig. All the tests were carried out in accordance with AS1277 and were witnessed by Herring Storer Acoustic, as an independent party.



Industrial - Rectangular Silencer

### Construction

Standard silencers for commercial applications are constructed of pre-galvanised sheet steel for the casing, splitter bullnose and splitter tail. The splitters are filled with high density acoustic mineral wool which is protected by perforated pre-galvanised sheet metal. A polyester membrane can be incorporated into the splitters for protection against oil, grease, dust or water.

Industrial silencers have heavier casings made from 3mm, 5mm, or thicker steel and can be painted to any paint specification as required. Aluminium and stainless steel construction is also available for corrosive and/or high temperature applications, while PVC is available for some acidic applications.

### Flanges

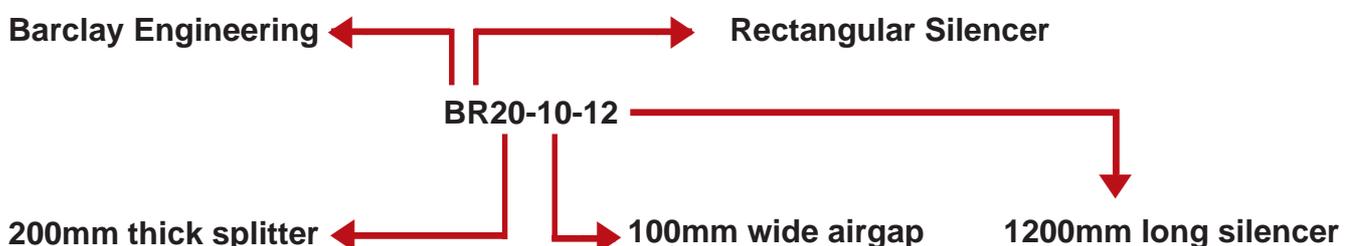
Our rectangular silencers are supplied with end flanges made from angle iron with long silencers having additional flanges fitted along the length to stiffen and support the casing. The angle flanges are normally finished in cold galvanised paint for protection, although special paint finishes are applied when the whole silencer case has to adhere to a special paint specification.

### Applications

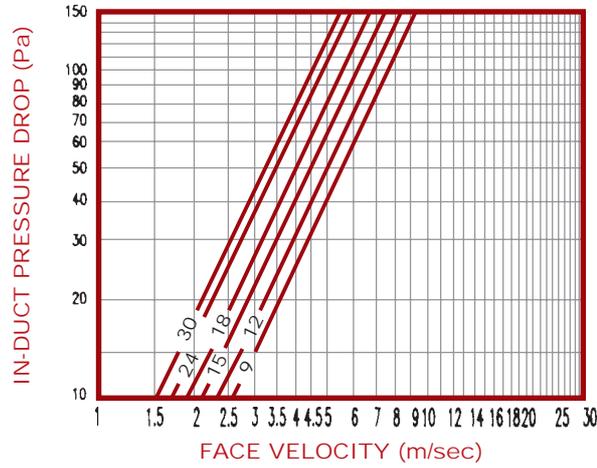
Rectangular silencers can be used in any air transfer application from a small rectangular silencer in air exhaust or air conditioning ducts to very large inlet and outlet silencers for gas turbines. Other typical applications include ventilations air for plant rooms, pumping stations and generator rooms, as well as inlet air to fans, boilers, kilns etc.

### Selection

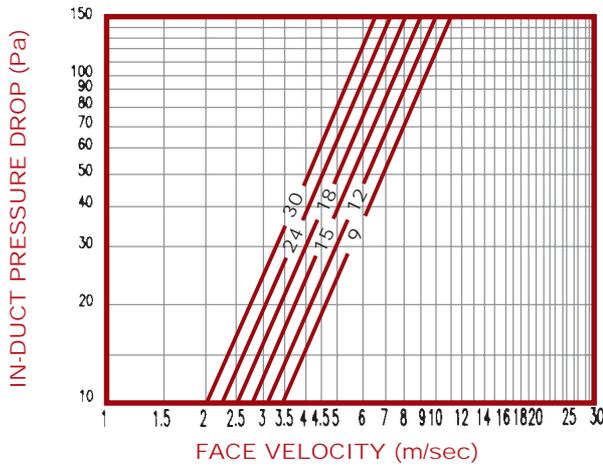
Firstly, select the model with the required insertion loss from the static insertion loss tables for the 20 series or 30 series. Secondly, the in-duct pressure loss can be determined from the aerodynamic performance charts for the model selected from either the 20 series or 30 series. If the pressure drop is found to be too high it may be lowered by increasing the width of the silencer, by adding more modules, or by increasing the height of the silencer. The model coding is explained below:-



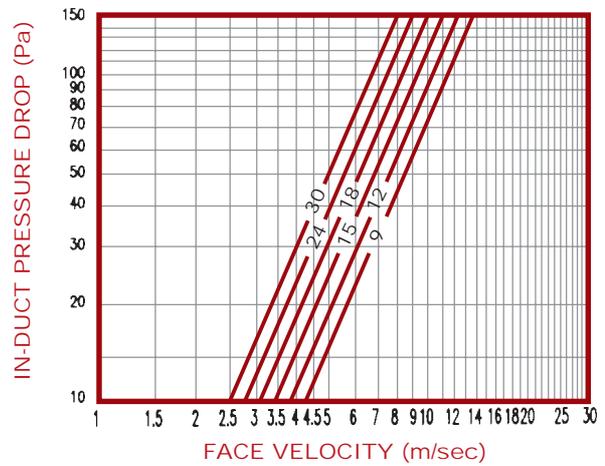
BR 20-10



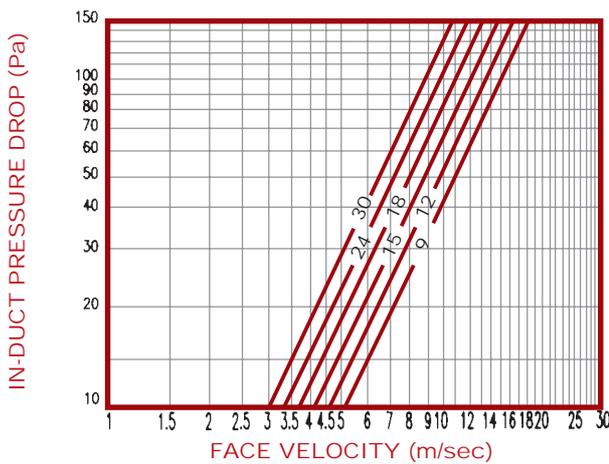
BR 20-12.5



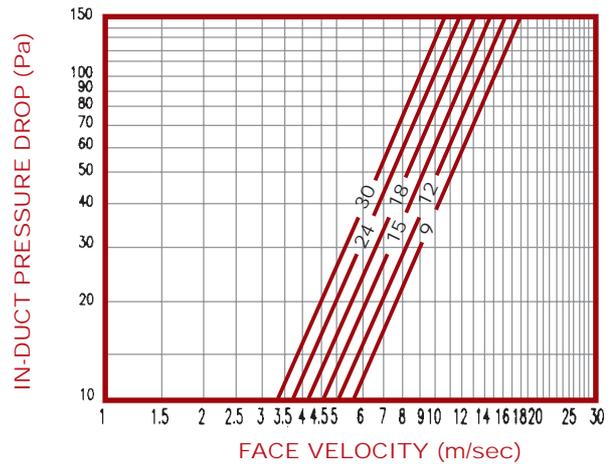
BR 20-15



BR 20-17.5



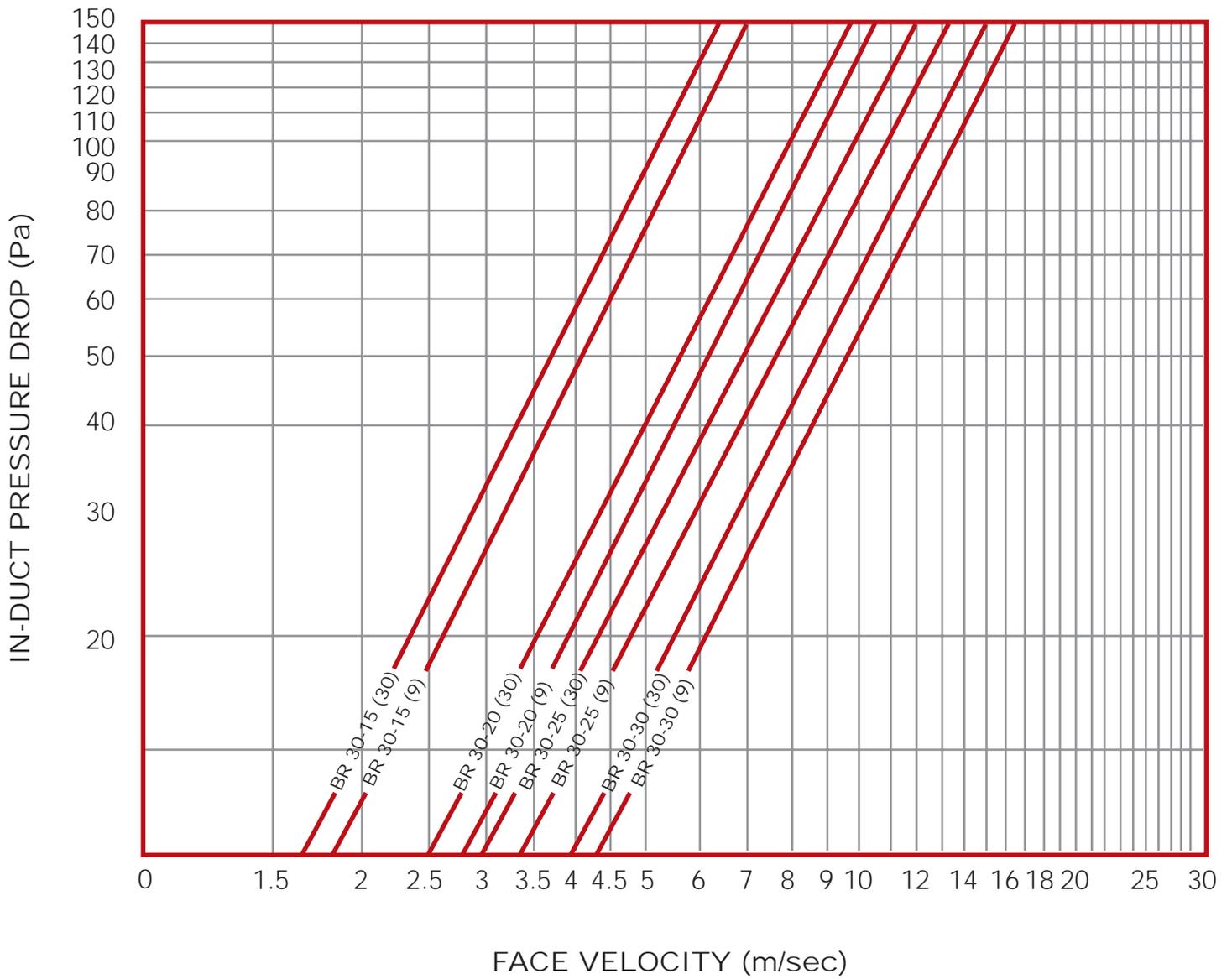
BR 20-20



**STATIC INSERTION LOSS (dB)**

Model	OCTAVE BAND CENTRE FREQUENCIES (HZ)							
	63	125	250	500	1K	2K	4K	8K
BR20-10-09	8	14	16	32	42	40	26	19
BR20-10-12	9	15	20	36	45	44	30	21
BR20-10-15	10	17	31	40	49	48	34	24
BR20-10-18	11	18	31	46	52	53	39	26
BR20-10-24	11	21	38	49	59	61	47	31
BR20-10-30	11	24	43	59	61	63	56	36
BR20-12.5-09	6	12	16	30	39	32	21	15
BR20-12.5-12	8	14	22	34	42	37	24	17
BR20-12.5-15	9	15	28	37	45	41	28	19
BR20-12.5-18	10	16	30	41	48	45	31	21
BR20-12.5-24	11	18	35	58	58	53	38	25
BR20-12.5-30	11	20	42	59	59	61	45	28
BR20-15-09	4	11	14	28	37	25	15	12
BR20-15-12	6	12	18	31	39	29	18	13
BR20-15-15	8	13	26	34	41	33	21	14
BR20-15-18	9	14	28	38	44	37	24	16
BR20-15-24	10	15	41	49	51	45	29	18
BR20-15-30	11	17	40	51	53	53	35	21
BR20-17.5-09	3	10	14	26	32	23	14	11
BR20-17.5-12	5	11	18	30	36	26	16	12
BR20-17.5-15	7	12	23	33	39	29	18	13
BR20-17.5-18	8	12	26	36	42	33	20	14
BR20-17.5-24	9	17	30	44	49	40	25	16
BR20-17.5-30	10	18	38	48	56	46	29	18
BR20-20-09	2	10	11	25	28	20	13	9
BR20-20-12	4	10	16	28	32	23	14	10
BR20-20-15	6	11	18	31	37	26	16	11
BR20-20-18	7	11	25	34	41	29	17	12
BR20-20-24	8	12	28	40	50	34	20	13
BR20-20-30	9	16	31	46	59	40	23	15

Selected silencers have been tested at BARCLAY ENGINEERING laboratory.  
Other values interpolated in accordance with AS 1277-1983 Appendix C.



**STATIC INSERTION LOSS (dB)**

Model	OCTAVE BAND CENTRE FREQUENCIES (HZ)							
	63	125	250	500	1K	2K	4K	8K
BR30-15-09	7	14	17	21	28	20	15	14
BR30-15-12	10	16	23	28	32	26	21	17
BR30-15-15	11	18	28	33	38	30	25	20
BR30-15-18	13	20	33	39	44	35	27	22
BR30-15-24	15	25	43	49	52	45	37	25
BR30-15-30	19	28	51	60	61	58	43	32
BR30-20-09	6	11	15	26	29	16	14	13
BR30-20-12	7	12	20	29	31	22	17	16
BR30-20-15	8	15	24	36	37	26	20	17
BR30-20-18	10	18	27	40	41	30	22	13
BR30-20-24	13	20	36	47	49	38	25	21
BR30-20-30	14	24	46	54	55	46	31	22
BR30-25-09	3	10	14	21	21	13	13	8
BR30-25-12	5	12	18	26	25	16	16	9
BR30-25-15	7	14	22	30	30	19	17	11
BR30-25-18	9	16	26	36	35	24	18	13
BR30-25-24	12	20	34	46	44	30	21	16
BR30-25-30	15	24	41	51	53	36	23	19
BR30-30-09	3	8	13	18	15	13	12	9
BR30-30-12	5	10	15	23	17	15	13	11
BR30-30-15	6	12	20	27	23	17	15	13
BR30-30-18	7	14	23	31	31	20	16	14
BR30-30-24	10	15	30	40	42	24	18	16
BR30-30-30	12	18	37	42	48	27	19	17

Selected silencers have been tested at BARCLAY ENGINEERING laboratory.  
Other values interpolated in accordance with AS 1277-1983 Appendix C.

Barclay Engineering's cylindrical silencers are available in 2 standard models, type BCDS (unpodded, straight through) and BCDS(P), podded.

The unpodded model provides sound attenuation with low pressure loss through the silencer. Podded model provides higher attenuation with reasonable pressure loss shown in the chart indicated. Both models are available in standard length of one diameter (1D) or two diameter (2D) length. Non-standard lengths are available if required.

## Constructions

Barclay standard silencer models are constructed with robust pregalvanised steel construction with end flanges tapped and drilled to suit fan flanges or ducting flanges dimensions.



The acoustic absorbent material is of high density fire resistant mineral wool, protected with a perforated pre-galvanised sheet.

Podded models have a centrally mounted pod with dome entry, supported by brackets connected to the main body of the silencer.

## Special Construction

Industrial silencers with 3mm, 5mm or thicker steel and painting to any specifications are also available on request. Other materials available are

Aluminium - corrosive environment

Stainless steel - corrosive or high temperature application

PVC - acid/corrosive application

Extended flanges from the silencer main body to provide access to both sides of the flanges for bolts and nuts for connections are available if required.

## Model Selection

Model selections are determined with the following examples

Brand	Internal Diameter	Pod
<b>BARCLAY - 610 BCDS(P) - 1D</b>		
	Cylindrical Silencer	Length (1 x Dia.) = 610

## ACOUSTIC PERFORMANCE • INSERTION LOSS (dB)

Model Designation - BCDS(P) - 1D

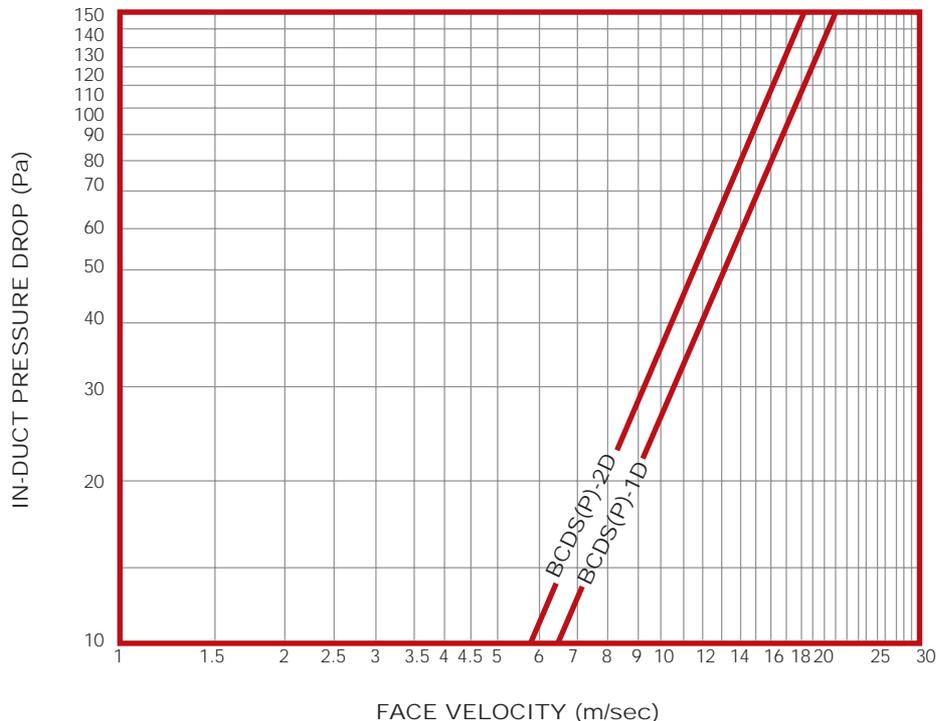
Barclay Cylindrical Silencer (Pod) - 1 Diameter Long

FAN DIAMETER	MODEL NO.	OCTAVE BAND CENTRE FREQUENCY (Hz)							
		63	125	250	500	1k	2k	4k	8k
#150,240 &300	BCDS-1D	2	3	4	8	14	14	10	8
	BCDS-2D	4	6	7	15	22	22	18	15
#380,480 &610	BCDS-1D	2	3	5	9	14	11	7	6
	BCDS-2D	4	6	10	17	22	18	11	10
	BCDS(P)-1D	4	6	8	14	19	19	16	12
	BCDS(P)-2D	8	11	15	22	31	32	25	21
#760,965 &1220	BCDS-1D	3	4	8	14	13	10	8	5
	BCDS-2D	6	8	14	22	20	15	11	9
	BCDS(P)-1D	4	6	10	18	21	19	15	12
	BCDS(P)-2D	8	11	19	30	34	29	20	15
#1525,1905 &2415	BCDS-1D	4	5	10	13	11	8	7	5
	BCDS-2D	8	9	15	21	17	13	10	8
	BCDS(P)-1D	4	7	12	19	20	19	14	11
	BCDS(P)-2D	8	13	21	31	32	29	20	15

\*Test performed in general accordance with AS 1277 - Acoustic Measurement Procedures for ducted silencers

## AERODYNAMIC PERFORMANCE

Note: BCDS Model Silencers produce the same pressure loss as equivalent length of straight duct



- High quality acoustic louvres
- Permit the flow of air whilst controlling noise
- Suitable for use in all industrial & commercial applications
- Available in a range of different acoustic & flow performance models
- Manufactured in a wide range of sizes & mounting configurations up to 2400mm x 2400mm
- Modular design allows simple installation
- Aesthetically pleasing appearance at low cost
- For larger apertures, multiple louvres arrays can be configured

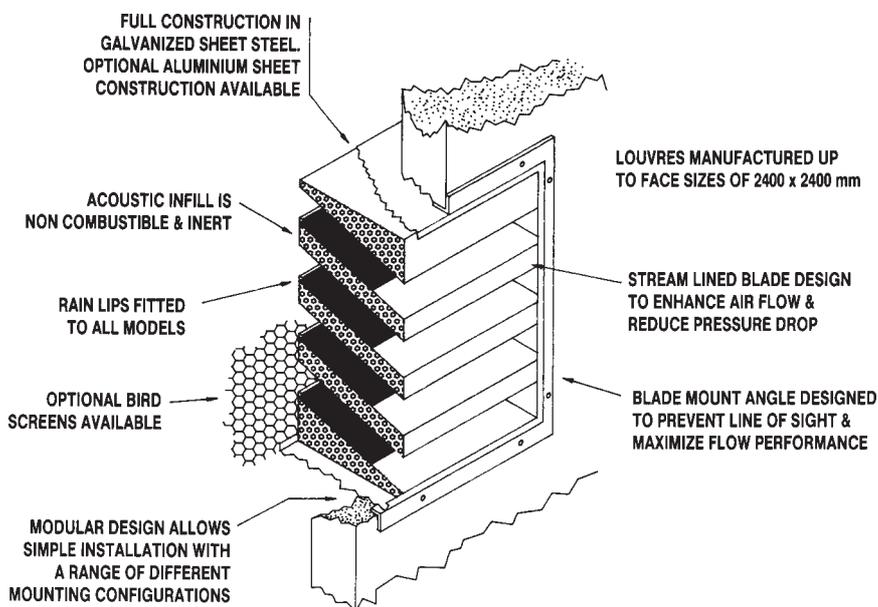
### APPLICATION RANGE

- Air intakes
- Plant rooms
- Compressor houses
- Refrigeration Plants
- Diesel Generator Vents
- Cooling towers
- Exhaust Plenum Chambers
- Air conditioning plants
- Natural vent systems
- Fan housings

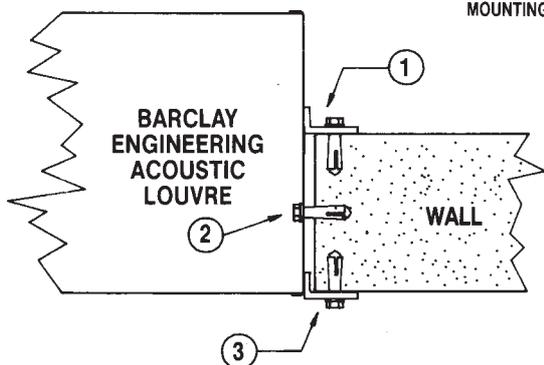


Acoustic louvre available in depths of 300 & 600mm with 100mm or 200mm thick splitters to provide a wide range of acoustic & flow performances.

Optional Finishes available:  
Colour or clear anodized aluminium  
Colour painted



### INSTALLATION METHODS



1. Internal mounting
2. Side mounting
3. Face mounting

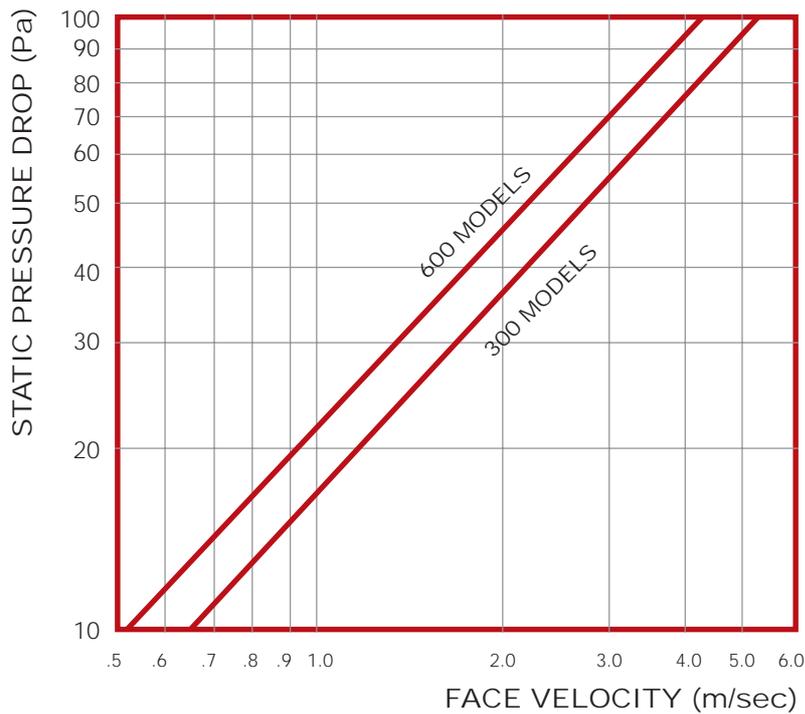
Allow a 10mm clearance gap between the louvre sides & cavity walls to aid installation. Fill all gaps with sealant after installation.

## ACOUSTIC PERFORMANCE

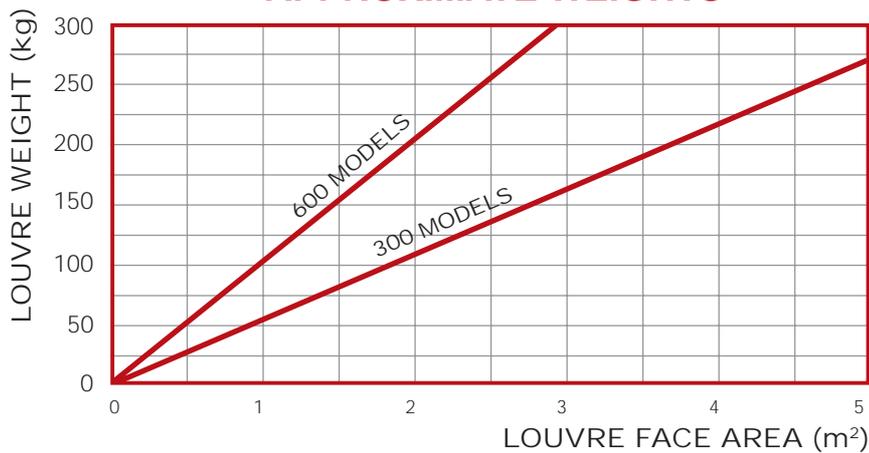
NOISE REDUCTION (dB)*								
OCTAVE BAND CENTRE FREQUENCY (Hz)	63	125	250	500	1k	2k	4k	8k
MODEL BFL 300-10	8	11	13	16	19	23	24	21
MODEL BFL 600-10	8	12	14	23	33	43	44	40
MODEL BAL 300-20	9	13	15	17	20	19	21	21
MODEL BAL 600-20	9	14	22	27	33	33	33	27

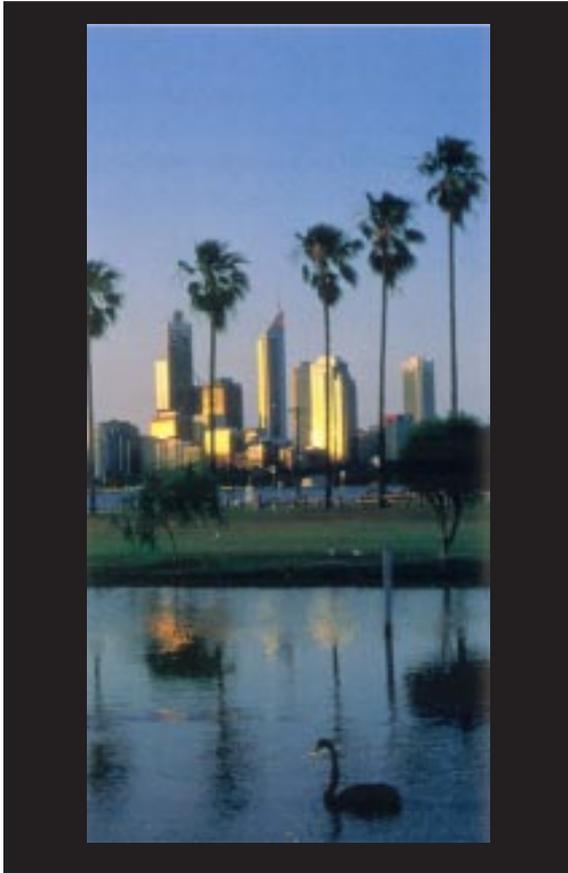
\*Noise reduction is the difference in sound levels between reverberant enclosure and the free field separated by the test partition

## AERODYNAMIC PERFORMANCE



## APPROXIMATE WEIGHTS





### **Projects of all sizes in all places**

No matter how demanding the noise control project, we can take total responsibility for the planning, design and manufacture and installation. With our extensive range of acoustic products, practically any noise problem can be solved. Projects have varied from a simple silencer to quieten the noise of a fan room through to turnkey projects for large gas turbine generators involving civil works, fire fighting, ventilation, filtration, enclosures, cranes, installation, lighting and electricals all around Australia and overseas in the UK, Middle East and Asia.

### **Total project management**

We can undertake project management of turnkey contracts, even if acoustic is just one component in the overall scope of works. Our engineers are experienced in designing mechanical services for large-scale facilities such as diesel and gas-driven power stations, including pumping, filtration, fire fighting, tankage and heat exchanging, as well as all the associated pipe and steel.

- Head office** Barclay Engineering  
**Australia** 12-16, Catalano Road, Canning Vale  
Perth, WA 6155, Australia  
Tel : 61-8-9456 0300  
Fax : 61-8-9456 0388  
Email : [info@barclayeng.com.au](mailto:info@barclayeng.com.au)
- Middle East** Mosaco Metal Products Manufacturing  
P.O. Box 37006, Dubai UAE  
Tel: 04 287 6910 - Fax: 04 287 6920  
Mobile : 050 -478 7269  
Email : [bedxb@emirates.net.ae](mailto:bedxb@emirates.net.ae)
- Singapore** Airtrade Systems Pte Ltd  
Blk 28E, Penjuru Close #01-03  
Singapore 609133  
Tel : 65-262 1672  
Fax : 65-262 1673  
Email : [airtrade@singnet.com.sg](mailto:airtrade@singnet.com.sg)