

CONNOLS-AIR **LINEAR GRILLES & REGISTERS**



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SLIM, ATTRACTIVE & STREAMLINED APPEARANCE

Connols-Air Return Linear Grilles may be supplied with specially designed concealed hinges and latches, which permits quick and easy removal of the air filter for cleaning.

Contemporary Design

Stylishly designed with a slim, streamlined and modern look, Connols-Air linear air grilles and registers are most suitable for buildings which require long and continuous linear air grilles to blend into its interior.

Quick and Easy Cleaning

The linear grilles may be supplied with specially designed concealed hinges and latches, which permits quick and easy removal of the air filter for cleaning.

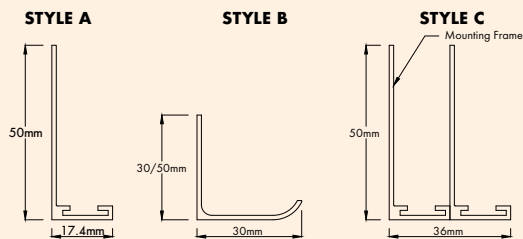
Streamlined Appearance

Available in standard lengths ranging from 600mm to 2,400mm, at 300mm increments. Other lengths are also available upon request.

For continuous installation, 2,400mm long grilles may be butted together during on-site installation with joining kits provided. These joining kits will ensure neat and strong joints, to create a straight and continuous line that will not distort over time.

FRAME/BLADE STYLES, SIZES & FINISH

FIGURE 1: Frame Styles



FRAME STYLES

Connols-Air linear grilles and registers are available in different frame styles. Refer to Figure 1: Frame Styles.

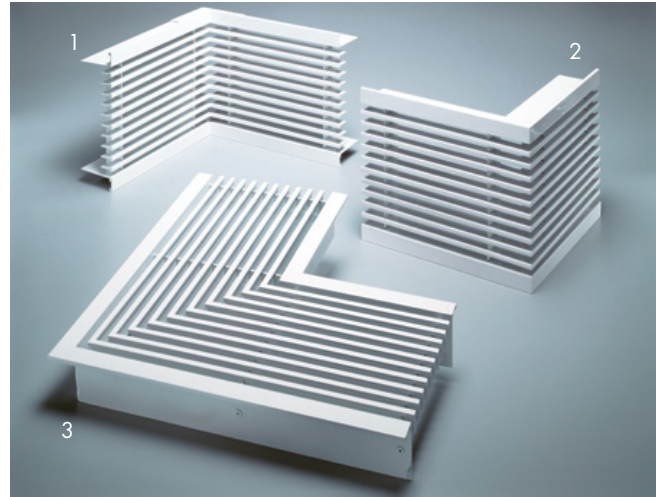
- Style A frames:** 17.4mm flat face.
Suitable for surface mounting.
Suitable for corner installations using mitre corners.
- Style B frames:** 30mm wide face with curved edges.
Suitable for surface mounting.
Available in heights of 30mm and 50mm.
50mm frames are suitable for use with deflector.
Suitable for straight length and floor/ceiling mitre corner.
- Style C frames:** Suitable for use with concealed hinges and latches
Mainly for access to air filter and ceiling space

BLADE STYLE

Connols-Air linear grilles and registers are available in 4 different blade styles:

- 5mm bars with 0° deflection
- 3mm bars with 0° deflection
- 5mm bars with 15° deflection
- 3mm bars with 15° deflection

The 15° deflection bars may be utilized to provide the necessary air deflection as a result of installation constraints as in the case where the linear grille cannot be installed near the ceiling, the air may need to be deflected toward the ceiling to achieve the Coanda Effect. Conversely, if the linear grille is installed on high wall, it may be



1: Side wall Interior Mitred Corner; 2: Side wall Exterior Mitred Corner; 3: Floor or Ceiling Mitred Corner

necessary to deflect the air slightly down to achieve sufficient room residual air velocity within the occupied zone. For rooms with normal ceiling heights of about 3 meters where the linear air grilles can be installed near to the ceiling, it is not necessary to use 15° deflection bars. Linear return air grilles do not require the use of 15° deflection bars and return air performance data are available for 0° deflection bars only.

STANDARD SIZES

All linear grilles are supplied in standard widths of 50mm to 600mm for grilles with blade spacing of 12.7mm, and 450mm for grilles with blade spacing of 6.25mm. They are available in standard lengths of 600mm to a maximum of 2,400mm, at 300mm increments. Return linear grilles may be supplied in larger widths up to 1,200 mm, depending on the lengths required. However, hinged type return linear grille will have minimum widths of 300mm. It is recommended that our standard incremental widths be used to achieve equal spacing between blades and between blades and frames.

FINISHES

All of our grilles are subject to cleaning, de-oiling, phosphating before the finishing coats are applied and baked to ensure paint adhesion.

- Available in standard baked white enamel (RAL 9010)
- Other colours are available upon request.
- Special finishes such as stainless hairline or non-standard coloured grilles, are also available at additional cost and longer lead-time will be required.

ALUMINIUM-OPPOSED BLADE DAMPERS

- Available in standard mill finishes.
- Matt black enamel finish is also available at additional cost.

CUSTOMISED DESIGNS & SPECIAL APPLICATIONS

Connols-Air Supply Linear Air Grilles may be supplied with an engineered plenum, designed to achieve uniform air flow across the grilles and attenuate upstream ductborne noise.

Colour Schemes

Selecting only the best colour schemes to match your interior, our continuous linear grilles with mitre joints can greatly enhance the look and feel of any interiors of a building premise. Non-standard or customised designs such as curved linear grilles are also available upon special request.

Matching Returns

The supply linear air grilles and registers may be supplied with matching returns.

Engineered Plenum

The supply linear air grilles may be supplied with an engineered plenum, designed to achieve uniform air flow across the grilles and attenuate upstream duct borne noise.

Hinged-type linear return air grilles

- A standard range (with concealed latches) is available for applications where return linear grilles may be used for access to the ceiling space or air filters.
- These linear return grilles are best suited for use in air-conditioning systems with fan coil units as found in most high-end residential or hotel projects.
- Air filters can be removed easily from these return linear grilles for cleaning and maintenance.

ACCESSORIES

DAMPERS

- Linear registers are fitted with extruded aluminium opposed blade damper, which is adjustable from the face of the grilles without special tools. (Refer to Figure 2).
- Linear grilles smaller than 150mm may be supplied with an inexpensive steel adjustable flapped damper in matt black finish. (Refer to Figure 1).

EQUALIZING-THERMAL-ACOUSTIC (ETA) PLENUM

The supply air linear grille may be supplied with an engineered plenum designed to achieve uniform airflow across the full length of the grille. The engineered plenum is internally lined with high-density semi-rigid board to provide the required thermal insulation. The equalizer incorporated within the plenum effectively ensures uniform air distribution. As a result, pressure loss and noise generated by the linear grilles are reduced. With the equalizer and high-density insulation, the plenum provides significant noise absorption, effective in attenuating upstream ductbourne noise, including noise generated by throttling dampers. When ordering, specify ETA if equalizing-thermal-acoustic plenum is required. If you require non-ETA plenums, specify P.

AIR FILTER

Connors-Air standard air filters are designed for easy removal from the linear grilles during maintenance. The air filter frame is constructed of 12.5mm extruded aluminum suitable for 6mm thick washable filter, which has a filtration efficiency of 78% according to Ashrae 52-76. The filtered media is inserted between a layer of expanded metal and flexible wire that can be easily removed for access to the media. When ordering air filter, specify F78.

BLANK-OFF

Blank-off panels may be fitted at the rear of linear grilles. They are constructed of 0.5mm thick cold-formed steel channels in matt black finish as shown in Figure 3. When ordering blank-offs, specify B.

Figure 1
LINEAR REGISTER WITH FLAPPED DAMPER
(Specify D1)

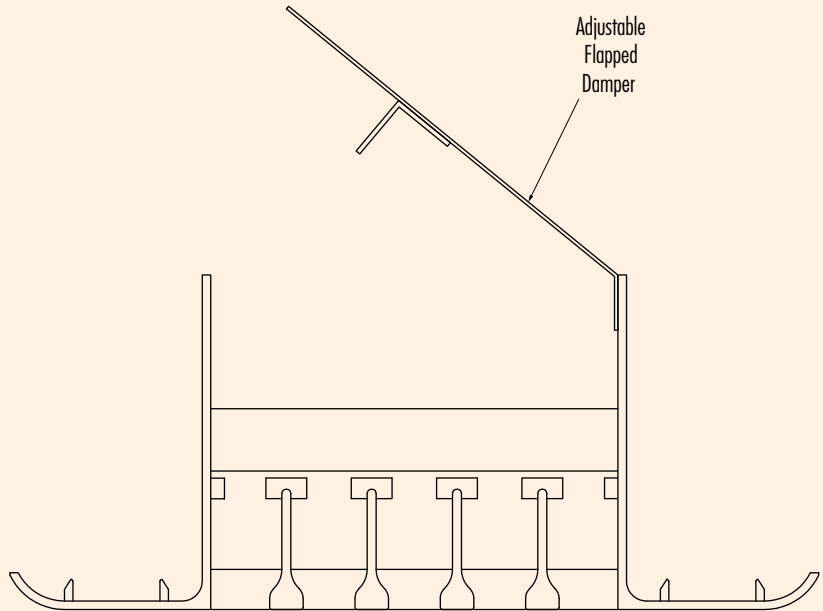


Figure 2
EXTRUDED ALUMINUM OPPOSED
BLADE DAMPER (Specify D)

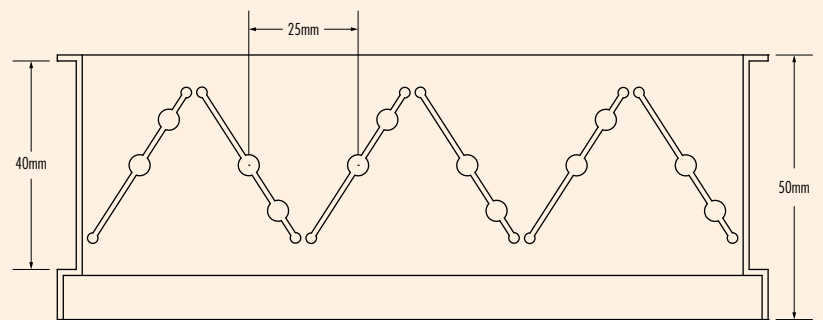
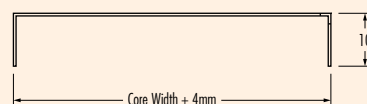


Figure 3
BLANK-OFF (Specify B)



MODEL TYPES



S 2200 Series

Models:
S 2200
SV 2200

S 2215 Series

Models:
S 2215
SV 2215

S 1200 Series

Models:
S 1200
SV 1200

S 1215 Series

Models:
S 1215
SV 1215

S 1100 Series

Models:
S 1100
SV 1100

S 1115 Series

Models:
S 1155
SV 1155

RS 2200 Series

Models:
RS 2200
RSV 2200

RS 2215 Series

Models:
RS 2215
RSV 2215

RS 1200 Series

Models:
RS 1200
RSV 1200

RS 1215 Series

Models:
RS 1215
RSV 1215

RS 1100 Series

Models:
RS 1100
RSV 1100

RS 1115 Series

Models:
RS 1115
RV 1115

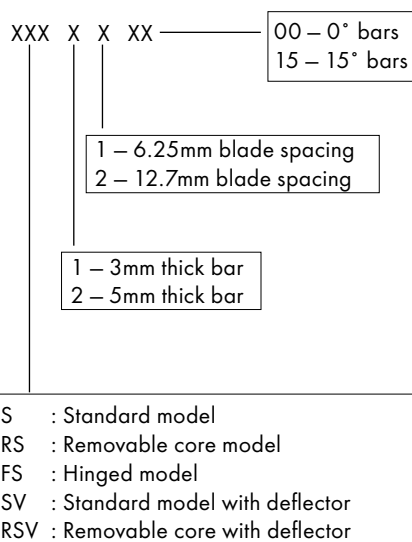
Filter Series

Models:
FS 2200
FS 1200
FS 1100

- | | |
|-------------------------|-------------|
| 1. S 2200 | 6. FS 1100 |
| 2. RS 2200 | 7. FS 2200 |
| 3. SV 2200 | 8. S 1100 |
| 4. S 1200 | 9. RSV 1100 |
| 5. S 2200 Mitred corner | |

To specify the model you wish to order, refer to the following chart:

MODELS



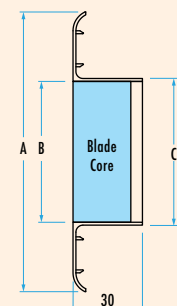
Example:
S 2200 refers to linear grille with 0°, 5mm thick bars spaced at 12.7mm centers.

SUPPLY AND RETURN AIR

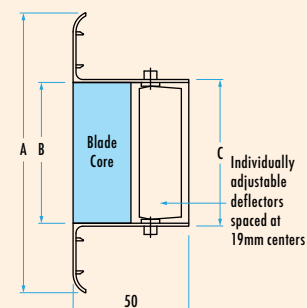
S1100

S1115

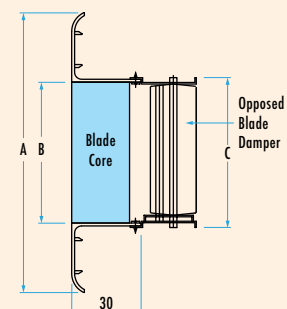
SERIES



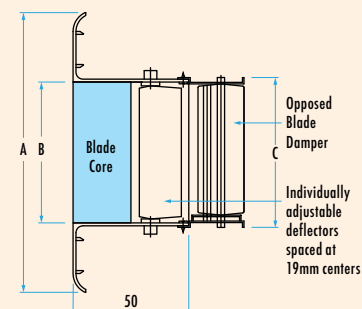
S1100 / S1115



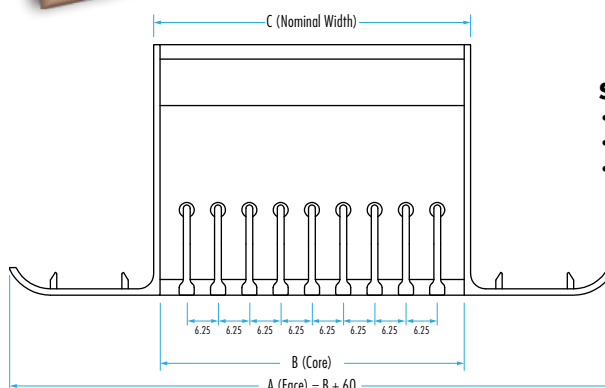
SV1100 / SV1115



S1100-D / S1115-D



SV1100-D / SV1115-D

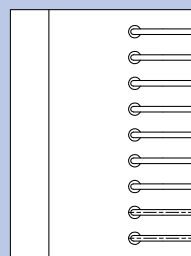


SIZES

- Minimum width: 50mm
- Maximum width: 450mm
- Maximum length (one piece): 2,400mm

BLADE CORE

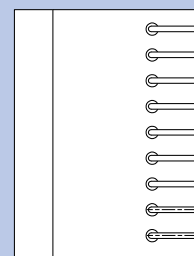
S1100 Series



S 1100:
3mm bars;
6.25mm spacing;
0° deflection

SV 1100:
3mm bars;
6.25mm spacing;
0° deflection
complete with
adjustable deflector
blades

S1115 Series



S 1115:
3mm bars;
6.25mm spacing;
15° deflection

SV 1115:
3mm bars;
6.25mm spacing;
15° deflection
complete with
adjustable deflector
blades

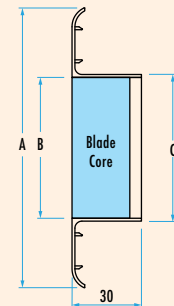
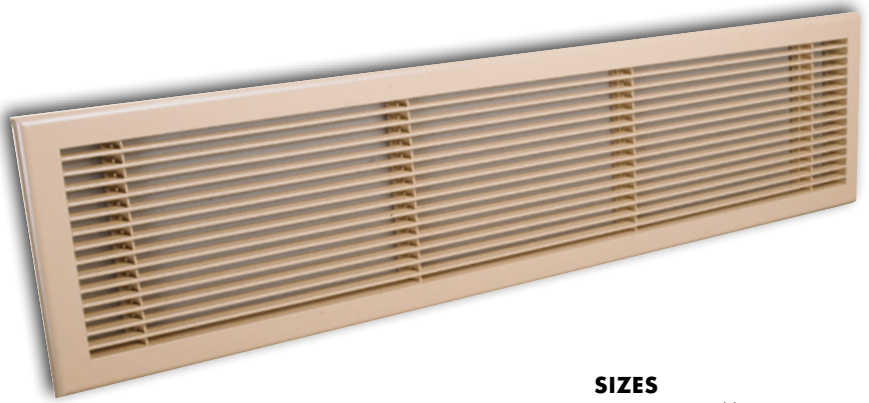
Normal Width	No. of Blades	Core Width	Face Width (Style A Frame)	Face Width (Style B Frame)
50	6	41	75	101
75	10	66	100	126
100	14	91	125	151
125	18	116	150	176
150	22	141	175	201
175	26	166	200	226
200	30	191	225	251
225	34	216	250	276
250	38	241	275	301
275	42	266	300	326
300	46	291	325	351
325	50	316	350	376
350	54	341	375	401
375	58	366	400	426
400	62	391	425	451
425	66	416	450	476
450	70	441	475	501

SUPPLY AND RETURN AIR

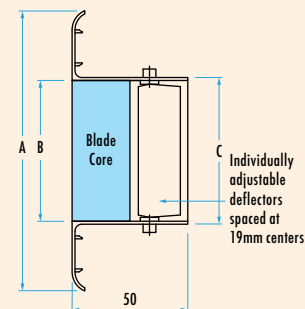
S1200

S1215

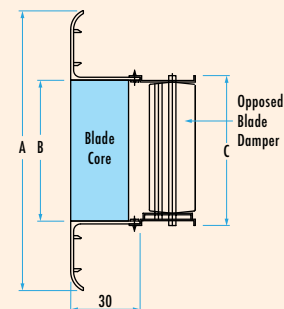
SERIES



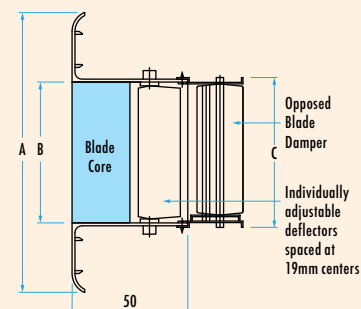
S1200 / S1215



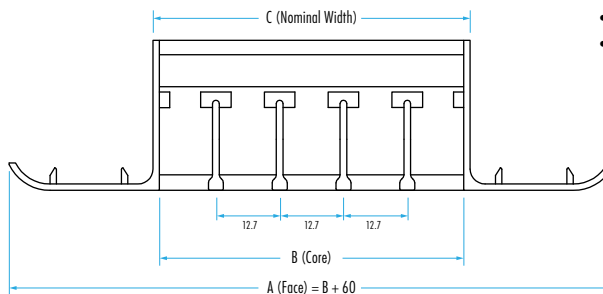
SV1200 / SV1215



S1200-D / S1215-D



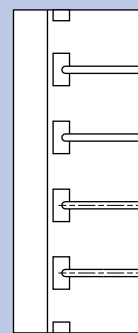
SV1200-D / SV1215-D



SIZES

- Minimum width: 50mm
- Maximum width: 600mm
- Maximum length (one piece): 2,400mm

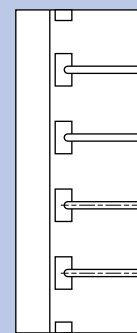
BLADE CORE



S1200 Series

S 1200:
3mm bars;
12.7mm spacing;
0° deflection

SV 1200:
3mm bars;
12.7mm spacing;
0° deflection
complete with
adjustable
deflector blades



S1215 Series

S 1215:
3mm bars;
12.7mm spacing;
15° deflection

SV 1215:
3mm bars;
12.7mm spacing;
15° deflection
complete with
adjustable
deflector blades

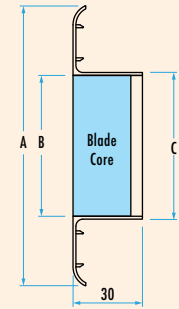
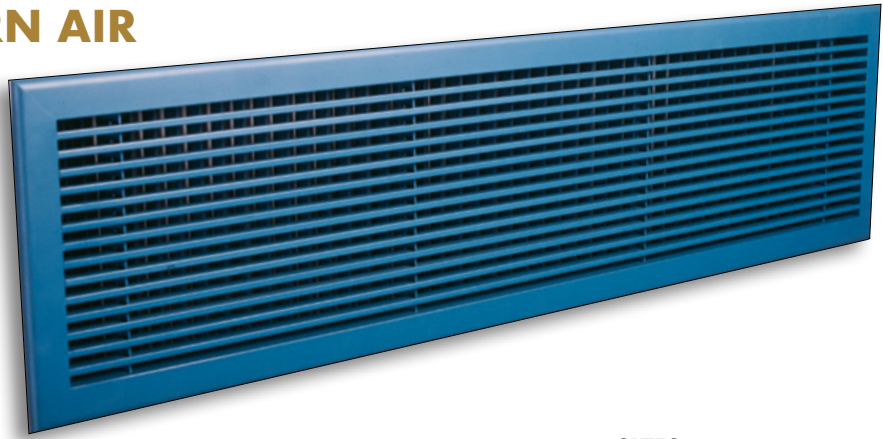
Normal Width	No. of Blades	Core Width	Face Width (Style A Frame)	Face Width (Style B Frame)
50	2	36	70	96
75	4	61	95	121
100	6	87	121	147
125	8	112	146	172
150	10	137	171	197
175	12	163	197	223
200	14	188	222	248
225	16	213	247	273
250	18	238	272	298
275	20	263	297	323
300	22	289	323	349
325	24	314	348	374
350	26	340	374	400
375	28	365	399	425
400	30	391	425	451
425	32	416	450	476
450	34	441	475	501
475	36	467	501	527
500	38	492	526	552
525	40	517	551	577
550	42	542	576	602
575	44	567	601	627
600	46	592	626	652

SUPPLY AND RETURN AIR

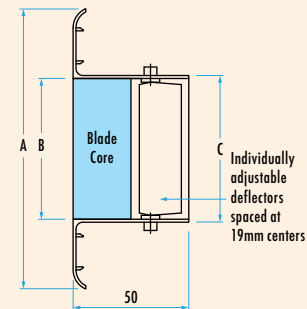
S2200

S2215

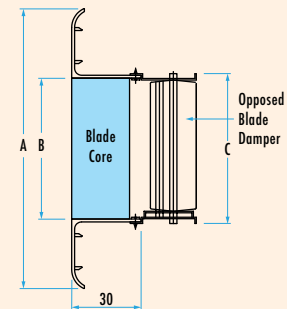
SERIES



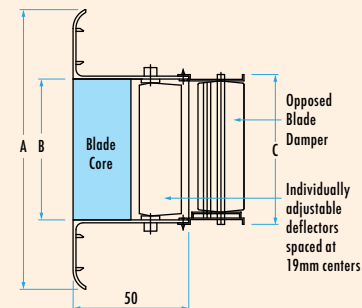
S2200 / S2215



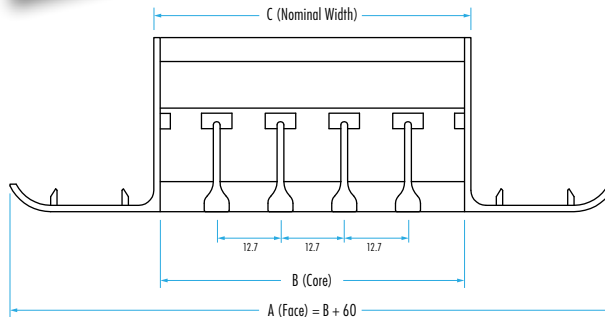
SV2200 / SV2215



S2200-D / S2215-D



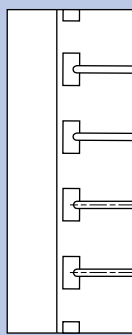
SV2200-D / SV2215-D



SIZES

- Minimum width: 50mm
- Maximum width: 600mm
- Maximum length(one piece): 2,400mm

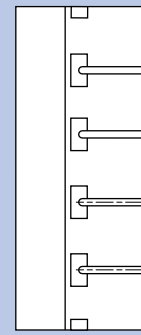
BLADE CORE



S2200 Series

S 2200:
5mm bars;
12.7mm spacing;
0° deflection

SV 2200:
5mm bars;
12.7mm spacing;
0° deflection
complete with adjustable
deflector blades



S2215 Series

S 2215:
5mm bars;
12.7mm spacing;
15° deflection

SV 2215:
5mm bars;
12.7mm spacing;
15° deflection
complete with adjustable
deflector blades

Normal Width	No. of Blades	Core Width	Face Width (Style A Frame)	Face Width (Style B Frame)
50	2	36	70	96
75	4	61	95	121
100	6	86	120	146
125	8	111	145	171
150	10	136	170	196
175	12	161	195	221
200	14	186	220	246
225	16	212	246	272
250	18	237	271	297
275	20	262	296	322
300	22	288	322	348
325	24	313	347	373
350	26	338	372	398
375	28	363	397	423
400	30	389	423	449
425	32	415	449	475
450	34	440	474	500
475	36	465	499	525
500	38	490	524	550
525	40	515	549	575
550	42	540	574	600
575	44	566	600	626
600	46	591	625	651

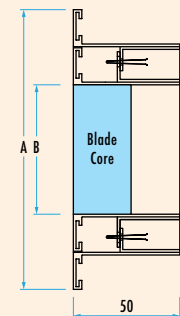
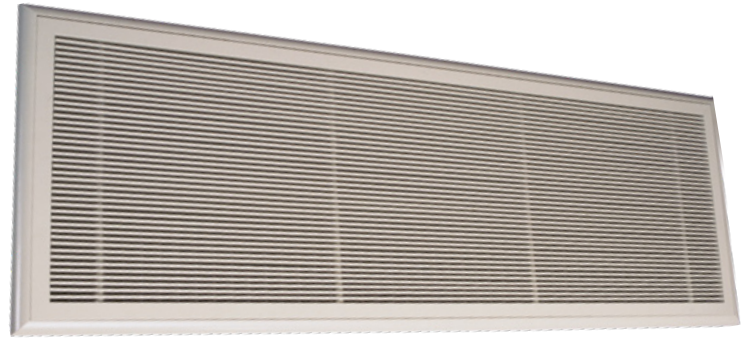
Note: Grille with 5mm thick bars cannot be supplied with 6.25mm blades spacings.

SUPPLY AND RETURN AIR

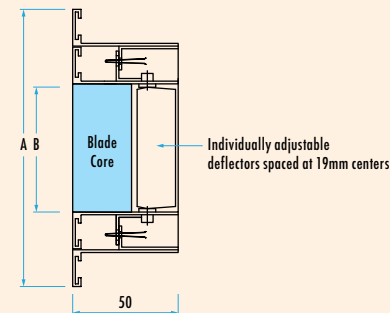
RS1100

RS1115

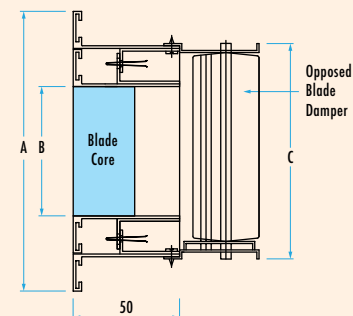
SERIES



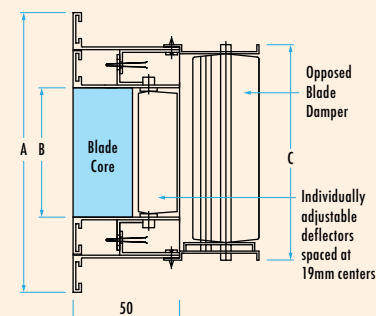
RS1100 / RS1115



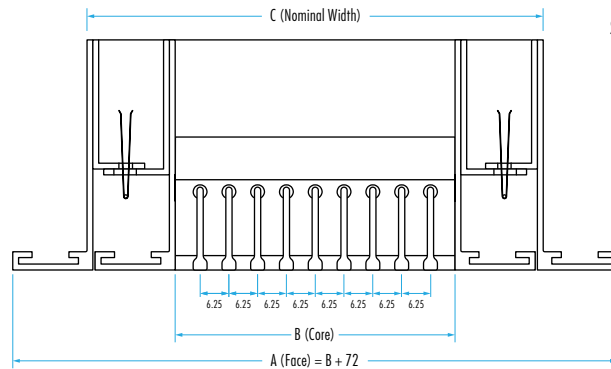
RSV1100 / RSV1115



RS1100-D / RS1115-D



RSV1100-D / RSV1115-D

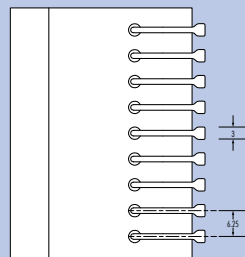


SIZES

- Minimum width: 75mm
- Maximum width: 450mm
- Maximum length (one piece): 2,400mm

BLADE CORE

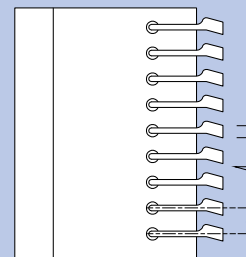
RS1100 Series



RS 1100:
3mm bars;
6.25mm spacing;
0° deflection

RSV 1100:
3mm bars;
6.25mm spacing;
0° deflection
complete with
adjustable
deflector blades

RS1115 Series



RS 1115:
3mm bars;
6.25mm spacing;
15° deflection

RSV 1115:
3mm bars;
6.25mm spacing;
15° deflection
complete with
adjustable
deflector blades

Normal Width	No. of Blades	Core Width	Face Width (Style C Frame)
75	5	35	107
100	9	60	132
125	13	85	157
150	17	110	182
175	21	135	207
200	25	160	232
225	29	185	257
250	33	210	282
275	37	235	307
300	41	260	332
325	45	285	357
350	49	310	382
375	53	335	407
400	57	360	432
425	61	385	457
450	65	410	482

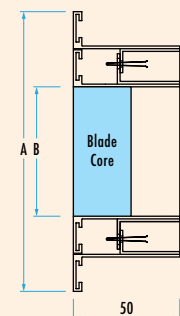
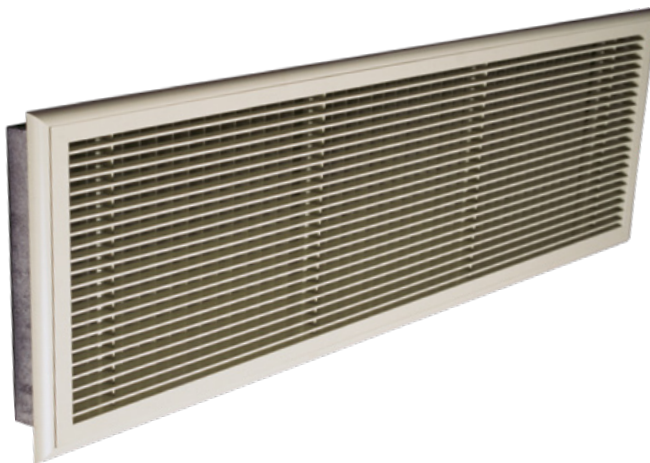
Note: Dampers will be supplied separately for installation on ductwork by contractor.

SUPPLY AND RETURN AIR

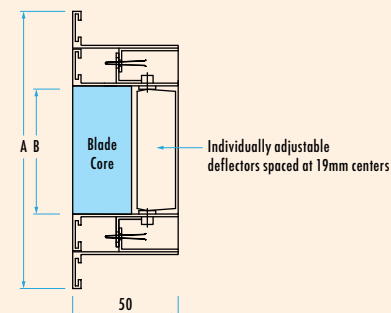
RS1200

RS1215

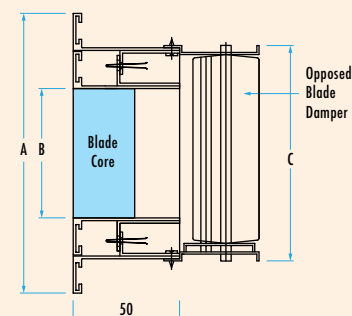
SERIES



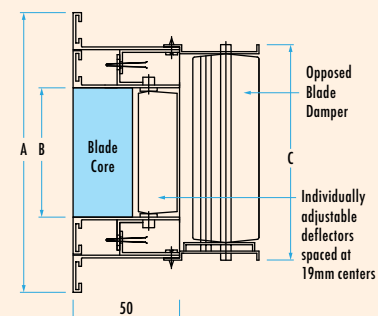
RS1200 / RS1215



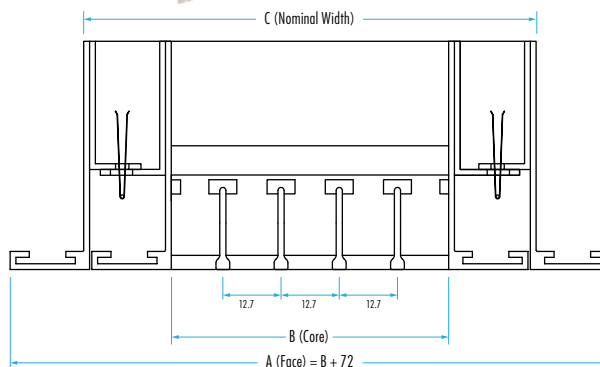
RSV1200 / RSV1215



RS1200-D / RS1215-D



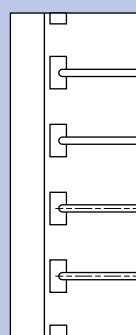
RSV1200-D / RSV1215-D



SIZES

- Minimum width: 75mm
- Maximum width: 600mm
- Maximum length (one piece): 2,400mm

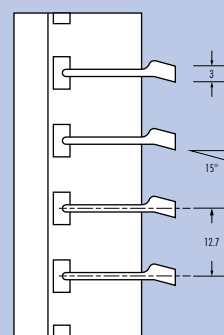
BLADE CORE



RS1200 Series

RS 1200:
3mm bars;
12.7mm spacing;
0° deflection

RSV 1200:
3mm bars;
12.7mm spacing;
0° deflection
complete with
adjustable
deflector blades



RS1215 Series

RS 1215:
3mm bars;
12.7mm spacing;
15° deflection

RSV 1215:
3mm bars;
12.7mm spacing;
15° deflection
complete with
adjustable
deflector blades

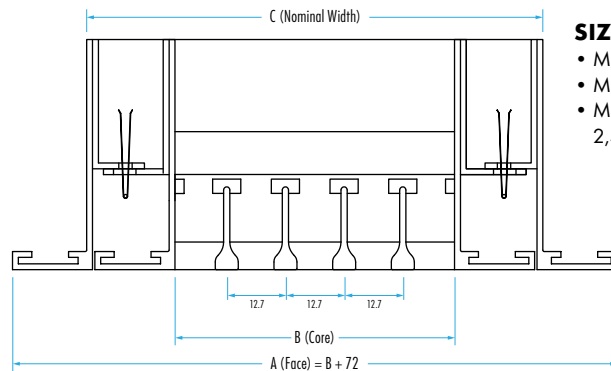
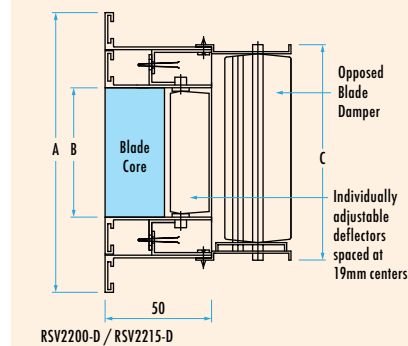
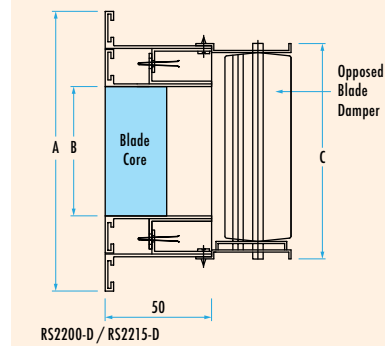
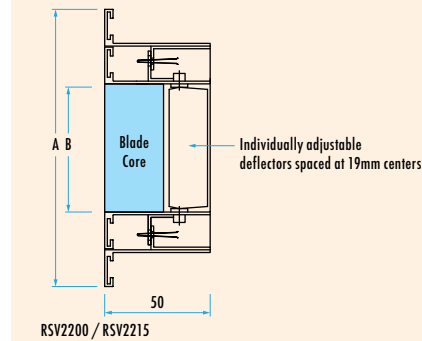
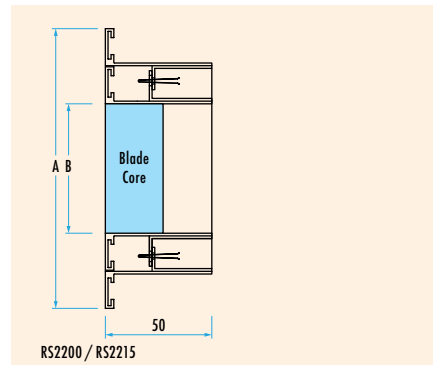
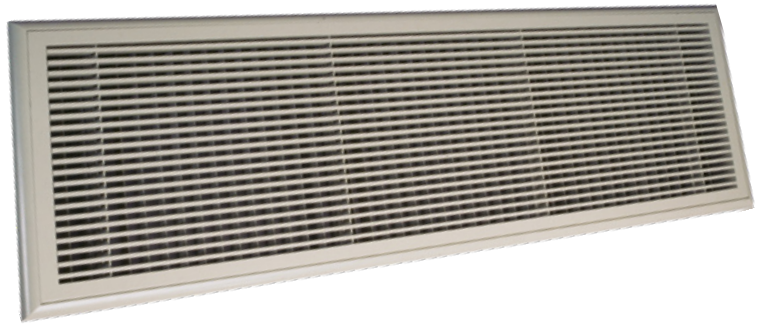
Normal Width	No. of Blades	Core Width	Face Width (Style C Frame)
75	2	34	106
100	4	60	132
125	6	85	157
150	8	110	182
175	10	136	208
200	12	161	233
225	14	186	258
250	16	212	284
275	18	237	309
300	20	262	334
325	22	287	359
350	24	312	384
375	26	337	409
400	27	356	428
425	29	381	453
450	31	406	478
475	33	431	503
500	35	456	528
525	37	481	553
550	39	506	578
575	41	531	603
600	43	556	628

SUPPLY AND RETURN AIR

RS2200

RS2215

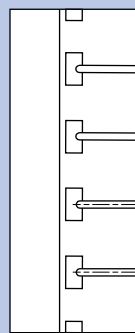
SERIES



SIZES

- Minimum width: 75mm
- Maximum width: 600mm
- Maximum length (one piece): 2,400mm

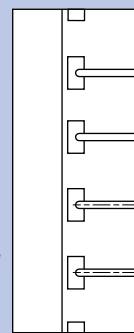
BLADE CORE



RS2200 Series

RS 2200:
5mm bars;
12.7mm spacing;
0° deflection

RSV 2200:
5mm bars;
12.7mm spacing;
0° deflection complete
with adjustable
deflector blades



RS2215 Series

RS 2215:
5mm bars;
12.7mm spacing;
15° deflection

RSV 2215:
5mm bars;
12.7mm spacing;
15° deflection complete
with adjustable
deflector blades

Normal Width	No. of Blades	Core Width	Face Width (Style C Frame)
75	2	33	105
100	4	58	130
125	6	83	155
150	8	108	180
175	10	134	206
200	12	159	231
225	14	184	256
250	16	210	282
275	18	235	307
300	20	261	333
325	22	286	358
350	24	311	383
375	26	337	409
400	28	362	434
425	30	387	459
450	32	412	484
475	34	437	509
500	36	462	534
525	37	481	553
550	39	506	578
575	41	531	603
600	43	556	628

Note: Grille with 5mm thick bars cannot be supplied with 6.25mm blades spacings.

RETURN AIR WITH CONCEALED HINGES AND LATCHES

FS1100 FS1200 FS2200 SERIES



FS1100

Normal Width	No. of Blades	Core Width	Face Width (Style C Frame)
250	33	210	282
275	37	235	307
300	41	260	332
325	45	285	357
350	49	310	382
375	53	335	407
400	57	360	432
425	61	385	457
450	65	410	482

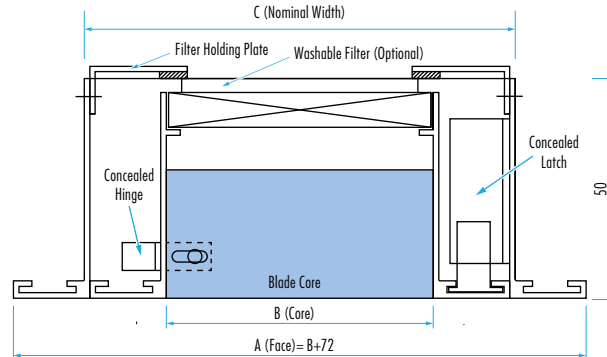
FS1200

Normal Width	No. of Blades	Core Width	Face Width (Style C Frame)
250	16	212	284
275	18	237	309
300	20	262	334
325	22	287	359
350	24	312	384
375	26	337	409
400	27	356	428
425	29	381	453
450	31	406	478
475	33	431	503
500	35	456	528
525	37	481	553
550	39	506	578
575	41	531	603
600	43	556	628

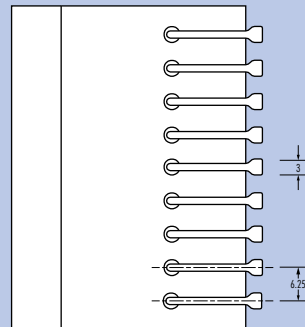
FS2200

Normal Width	No. of Blades	Core Width	Face Width (Style C Frame)
250	16	210	282
275	18	235	307
300	20	261	333
325	22	286	358
350	24	311	383
375	26	337	409
400	28	362	434
425	30	387	459
450	32	412	484
475	34	437	509
500	36	462	534
525	37	481	553
550	39	506	578
575	41	531	603
600	43	556	628

Note: Grill with 5mm thick bars cannot be supplied with 6.25mm blades spacing.

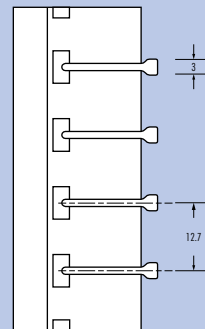


BLADE CORE



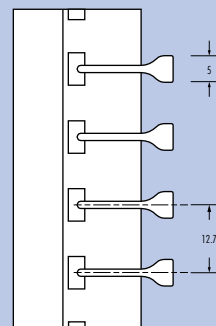
FS1100 Series

FS1100:
3mm bars; 6.25mm spacing;
0° deflection complete with
concealed hinges and latches.



FS1200 Series

FS1200:
3mm bars; 12.7mm spacing;
0° deflection complete with
concealed hinges and latches.



FS2200 Series

FS2200:
5mm bars; 12.7mm spacing;
0° deflection complete with
concealed hinges and latches.

ORDERING INSTRUCTIONS

Model	Nominal Length	Nominal Width	Frame Styles	Finish	Accessories
See Page 7	60 – 600mm 90 – 900mm 100 – 1,000mm 120 – 1,200mm 150 – 1,500mm 180 – 1,800mm 210 – 2,100mm 240 – 2,400mm	50 – 50mm 75 – 75mm 100 – 100mm 200 – 200mm 300 – 300mm 600 – 600mm	17 : 17.4 mm flat face frame 30 : 30 mm curved face frame 36 : Removable / Hinged-Type frame	W : Standard white O : Other colours A : Anodised S : Stainless steel finish	D : Opposed blade damper D1 : Flapped damper ETA : Equalising-thermal-acoustic plenum P : Non-ETA plenum B : Blank-off F78 : 13mm washable filter

Specifications

Linear supply air grilles shall be constructed of extruded frame of minimum 1.25mm thick aluminium alloy 6063 tempered to T5. All linear air grilles shall be designed with semi-airfoil blades of X*degree deflection (10° or 15°) and Y*mm thick (3mm or 5mm) bars spaced at Z*mm centers (6.25mm or 12.75mm) that will give it a streamlined appearance. All parallel blades shall be securely fastened onto specially designed support bars to prevent rattling. The linear air grille shall have concealed mounting with adjustable mounting bracket for fine adjustments to ensure perfect butting on the wall or ceiling. Matching grilles shall be used for return air.

Where air distribution with short throw and wider spread are required to suit the room configuration, individually adjustable airfoil deflectors shall be added onto the rear of the grille. The deflectors shall be constructed of airfoil extruded aluminum blades securely fastened onto the frame with plastic bushes to ensure precise blade adjustment and to prevent rattling. Using steel wire as a means of preventing rattling of the blades is not acceptable.

For area utilizing fan coil unit with ceiling return, the return grille shall be supplied with acoustic plenum to minimize noise from the equipment through the grille. Where plenum is required as shown on the drawing, the plenum shall be engineered to provide uniform air distribution and shall have good noise attenuation property. Engineered plenum shall be of proprietary made by approved manufacturers. Data on plenum attenuation property and air distribution performance must be submitted for approval.

Damper shall be of the opposed blade type with blade parallel to short side and shall be adjustable from the face of the grille without special tool. Damper shall be required for all linear supply or return registers.

Where the duct take-off is shorter than two times the horizontal dimension of the linear air grilles, an air volume extractor shall be used instead of a volume damper. Installed at the take-off on the upstream side, the air volume extractor Model E25 type 1 extracts, equalizes and provides volume control of air flow into the supply linear grille, reducing air turning pressure loss and ensuring a quieter system operation. The air volume extractor shall be constructed of steel vanes assembled at 25mm centers, gang-operated and synchronized to remain parallel with airflow, regardless of the extractor angle. All supply linear air grilles performance shall be rated in accordance to ISO 5219-1984.

LINEAR FILTER RETURN AIR GRILLES

The return linear air grille shall be of the hinged type with washable filter specially designed for this type of grille. The grilles shall be constructed of two extruded aluminum frames, an inner core frame and a mounting frame. The semi-airfoil blades of Y*mm thick (3mm or 5mm) spaced at Z*mm (6.25mm or 12.75mm) centers shall be securely fastened onto the inner core frame with special support bars to prevent rattling. The core consisting of the inner core frame and semi airfoil blades shall be attached at one side to the mounting frame with concealed hinges – exposed hinges are not acceptable. The hinged-type return air grilles shall also incorporate specially designed concealed core latches and filter retainer clips which permit quick and easy removal of filter for cleaning without special tools. Filtered frame shall be constructed of extruded aluminum with washable media similar to model 78/4 as manufactured by Connols-Air. The filtered media shall be retained in the filter frame such that the media can be easily removed for cleaning, by simply releasing the flexible wire. The filter shall have a dust extraction efficiency of 70% according to ASHRAE 52-76. All return air grilles performance shall be rated in accordance to ISO 5219-1984.

* Specify the required blade deflection, thickness and spacing.

SUPPLY AIR PERFORMANCE

S2200 STANDARD MODEL WITH NO ADJUSTABLE BLADE

RS2200 REMOVABLE CORE MODEL WITH NO ADJUSTABLE BLADE

Neck Velocity (m/s)		1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5
Nominal Width (mm)	Static Pressure (Pa)	-	-	-	-	6	8	11	15	19	23	28	34
50	Flow (CMH/m)	180	270	360	450	540	630	720	810	900	990	1080	1170
	NC	-	-	-	-	-	-	21	24	26	28	30	31
	Throw (m)	1.5	2.3	3	3.8	4.5	5.3	6.1	6.9	7.7	8.5	9.2	10
75	Flow (CMH/m)	270	405	540	675	810	945	1080	1215	1350	1485	1620	1755
	NC	-	-	-	-	-	20	23	26	28	30	32	33
	Throw (m)	1.6	2.4	3.2	4.1	4.9	5.8	6.6	7.5	8.3	9.2	10	10.9
100	Flow (CMH/m)	360	540	720	900	1080	1260	1440	1620	1800	1980	2160	2340
	NC	-	-	-	-	-	21	24	27	29	31	33	34
	Throw (m)	1.9	2.9	3.9	4.9	5.9	6.9	7.9	8.9	9.9	11	12	13
125	Flow (CMH/m)	450	675	900	1125	1350	1575	1800	2025	2250	2475	2700	2925
	NC	-	-	-	-	-	22	25	28	30	32	34	35
	Throw (m)	2.2	3.3	4.4	5.6	6.7	7.9	9	10.2	11.4	12.5	13.7	14.9
150	Flow (CMH/m)	540	810	1080	1350	1620	1890	2160	2430	2700	2970	3240	3510
	NC	-	-	-	-	20	23	26	29	31	33	35	36
	Throw (m)	2.4	3.7	4.9	6.2	7.4	8.7	10	11.3	12.6	13.9	15.2	16.5
175	Flow (CMH/m)	630	945	1260	1575	1890	2205	2520	2835	3150	3465	3780	4095
	NC	-	-	-	-	21	24	27	30	32	34	36	38
	Throw (m)	2.7	4.2	5.6	7	8.5	9.9	11.4	12.9	14.3	15.8	17.3	18.8
200	Flow (CMH/m)	720	1080	1440	1800	2160	2520	2880	3240	3600	3960	4320	4680
	NC	-	-	-	-	21	24	27	30	32	34	36	37
	Throw (m)	2.9	4.5	6	7.5	9.1	10.6	12.2	13.8	15.3	16.9	18.5	20.1
225	Flow (CMH/m)	810	1215	1620	2025	2430	2835	3240	3645	4050	4455	4860	5265
	NC	-	-	-	-	22	25	28	31	33	35	37	38
	Throw (m)	3.1	4.8	6.3	8	9.6	11.3	12.9	14.6	16.3	17.9	19.6	21.3
250	Flow (CMH/m)	900	1350	1800	2250	2700	3150	3600	4050	4500	4950	5400	5850
	NC	-	-	-	-	22	25	28	31	33	35	37	38
	Throw (m)	3.3	5	6.7	8.4	10.1	11.9	13.6	15.4	17.1	18.9	20.7	22.5
275	Flow (CMH/m)	990	1485	1980	2475	2970	3465	3960	4455	4950	5445	5940	6435
	NC	-	-	-	-	23	26	29	32	34	36	38	39
	Throw (m)	3.4	5.3	7	8.8	10.6	12.4	14.3	16.1	18	19.8	21.7	23.6
300	Flow (CMH/m)	1080	1620	2160	2700	3240	3780	4320	4860	5400	5940	6480	7020
	NC	-	-	-	-	23	26	29	32	34	36	38	39
	Throw (m)	3.6	5.5	7.3	9.2	11.1	13	14.9	16.8	18.8	20.7	22.7	24.6
325	Flow (CMH/m)	1170	1755	2340	2925	3510	4095	4680	5265	5850	6435	7020	7605
	NC	-	-	-	20	23	27	29	32	34	36	38	40
	Throw (m)	3.7	5.7	7.6	9.6	11.5	13	15.5	17.5	19.5	21.6	23.6	25.6
350	Flow (CMH/m)	1260	1890	2520	3150	3780	4410	5040	5670	6300	6930	7560	8190
	NC	-	-	-	20	24	27	30	33	35	37	39	41
	Throw (m)	3.9	6	7.9	9.9	12	14	16.1	18.2	20.3	22.4	24.5	26.6
375	Flow (CMH/m)	1350	2025	2700	3375	4050	4725	5400	6075	6750	7425	8100	8775
	NC	-	-	-	20	24	27	30	33	35	37	39	40
	Throw (m)	4	6.2	8.2	10.3	12.4	14.5	16.7	18.8	21	23.2	25.3	27.5
400	Flow (CMH/m)	1440	2160	2880	3600	4320	5040	5760	6480	7200	7920	8640	9360
	NC	-	-	-	20	24	27	30	33	35	37	39	40
	Throw (m)	4.1	6.4	8.4	10.6	12.8	15	17.2	19.4	21.7	23.9	26.2	28.4

Remarks :

- "-" for NC represent level below 20dB
- "-" for pressure loss represent loss below 5Pa
- All throw are based on terminal velocity of 0.25m/s
- All throw are based on isothermal conditions, for conversion factor, please refer to note 6 on page 19
- All performance data are based on 1,000mm grille length

SUPPLY AIR PERFORMANCE

SV2200 STANDARD MODEL WITH REAR ADJUSTABLE BLADE

RSV2200 REMOVABLE CORE MODEL WITH REAR ADJUSTABLE BLADE

Neck Velocity (m/s)		1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5
Nominal Width (mm)	Static Pressure (Pa)	-	-	6	9	2	16	21	26	31	27	43	50
50	Flow (CMH/m)	180	270	360	450	540	630	720	810	900	990	1080	1170
	NC	-	-	-	-	-	22	25	28	31	33	36	38
	Throw (m)	1.4	2.1	2.8	3.5	4	4.9	5.6	6.4	7.1	7.8	8.5	9.2
75	Flow (CMH/m)	270	405	540	675	810	945	1080	1215	1350	1485	1620	1755
	NC	-	-	-	-	-	23	27	30	32	35	37	39
	Throw (m)	1.5	2.2	2.9	3.8	4.5	5.3	6.1	6.9	7.6	8.5	9.2	10.0
100	Flow (CMH/m)	360	540	720	900	1080	1260	1440	1620	1800	1980	2160	2340
	NC	-	-	-	-	21	25	28	31	34	36	39	41
	Throw (m)	1.7	2.6	3.5	4.3	5.2	6.1	7.0	7.9	8.8	9.7	10.6	11.5
125	Flow (CMH/m)	450	675	900	1125	1350	1575	1800	2025	2250	2475	2700	2925
	NC	-	-	-	-	22	26	29	32	35	37	39	41
	Throw (m)	1.9	2.9	3.9	5.0	5.9	7.0	8.0	9.0	10.1	11.1	12.1	13.2
150	Flow (CMH/m)	540	810	1080	1350	1620	1890	2160	2430	2700	2970	3240	3510
	NC	-	-	-	-	22	26	30	33	35	38	40	42
	Throw (m)	2.1	3.3	4.3	5.5	6.5	7.7	8.8	10.0	11.2	12.3	13.5	14.6
175	Flow (CMH/m)	630	945	1260	1575	1890	2205	2520	2835	3150	3465	3780	4095
	NC	-	-	-	-	23	27	30	34	36	39	41	43
	Throw (m)	2.4	3.7	5.0	6.2	7.5	8.8	10.1	11.4	12.7	14.0	15.3	16.6
200	Flow (CMH/m)	720	1080	1440	1800	2160	2520	2880	3240	3600	3960	4320	4680
	NC	-	-	-	-	28	28	31	34	37	39	42	44
	Throw (m)	3.3	5.1	6.8	8.5	10.3	12.0	13.8	15.6	17.3	19.1	20.9	22.7
225	Flow (CMH/m)	810	1215	1620	2025	2430	2835	3240	3645	4050	4455	4860	5265
	NC	-	-	-	20	25	29	3235	35	38	40	43	45
	Throw (m)	2.7	4.2	5.6	7.1	8.5	10.0	11.4	12.9	14.4	15.8	17.3	18.8
250	Flow (CMH/m)	900	1350	1800	2250	2700	3150	3600	4050	4500	4950	5400	5850
	NC	-	-	-	21	26	30	33	36	39	41	43	45
	Throw (m)	2.9	4.4	5.9	7.4	8.9	10.5	12.0	3.6	151.0	16.7	18.3	19.9
275	Flow (CMH/m)	990	1485	1980	2475	2970	3465	3960	4455	4950	5445	5940	6435
	NC	-	-	-	21	26	30	33	36	39	42	44	46
	Throw (m)	3.1	4.9	6.4	8.1	9.8	11.4	13.2	14.8	16.6	18.2	20.0	21.7
300	Flow (CMH/m)	1080	1620	2160	2700	3240	3780	4320	4860	5400	5940	6480	7020
	NC	-	-	-	22	27	31	34	37	40	42	44	46
	Throw (m)	3.2	4.9	6.5	8.1	9.8	11.5	13.2	14.9	16.6	18.3	20.1	21.8
325	Flow (CMH/m)	1170	1755	2340	2925	3510	4095	4680	5265	5850	6435	7020	7605
	NC	-	-	-	22	27	31	34	37	40	42	45	47
	Throw (m)	3.3	5.0	6.7	8.5	10.2	11.5	13.7	15.5	17.3	19.1	20.9	22.7
350	Flow (CMH/m)	1260	1890	2520	3150	3780	4410	5040	5670	6300	6930	7560	8190
	NC	-	-	-	22	27	31	34	38	40	43	45	47
	Throw (m)	3.5	5.5	7.0	8.8	10.6	12.4	14.2	16.1	18.0	19.8	21.7	23.5
375	Flow (CMH/m)	1350	2025	2700	3375	4050	4725	5400	6075	6750	7425	8100	8775
	NC	-	-	-	23	27	31	35	38	41	43	45	47
	Throw (m)	3.5	5.5	7.3	9.1	11.0	12.8	14.8	16.6	18.6	20.5	22.4	24.3
400	Flow (CMH/m)	1440	2160	2880	3600	4320	5040	5760	6480	7200	7920	8640	9360
	NC	-	-	-	23	28	32	35	38	41	43	46	48
	Throw (m)	3.8	5.9	7.7	9.8	11.8	13.8	15.8	17.9	20.0	22.0	24.1	26.1

Remarks :

- "-" for NC represent level below 20dB
- "-" for pressure loss represent loss below 5Pa
- All throw are based on terminal velocity of 0.25m/s
- All throw are based on isothermal conditions, for conversion factor, please refer to note 6 on page 19
- All performance data are based on 1,000mm grille length

RETURN AIR PERFORMANCE

S2200 STANDARD MODEL WITH NO ADJUSTABLE BLADE

RS2200 REMOVABLE CORE MODEL WITH NO ADJUSTABLE BLADE

Neck Velocity (m/s)		1.5	2	2.5	3	3.5	4	4.5	5
Nominal Width (mm)	Static Pressure (Pa)	-	5	7	10	14	18	22	27
50	Flow (CMH/m)	270	360	450	540	630	720	810	900
	NC	-	-	21	24	27	30	33	36
75	Flow (CMH/m)	405	540	675	810	945	1080	1215	1350
	NC	-	-	21	25	28	31	34	37
100	Flow (CMH/m)	540	720	900	1080	1260	1440	1620	1800
	NC	-	-	22	26	29	32	35	38
125	Flow (CMH/m)	675	900	1125	1350	1575	1800	2025	2250
	NC	-	-	23	23	30	33	36	39
150	Flow (CMH/m)	810	1080	1350	1620	1890	2160	2430	2700
	NC	-	20	24	27	31	34	38	41
175	Flow (CMH/m)	945	1260	1575	1890	2205	2520	2835	3150
	NC	-	20	24	27	31	34	38	41
200	Flow (CMH/m)	1080	1440	1800	2160	2520	2880	3240	3600
	NC	-	21	25	29	33	36	40	43
225	Flow (CMH/m)	1215	1620	2025	2430	2835	3240	3645	4050
	NC	-	22	26	30	34	37	41	44
250	Flow (CMH/m)	1350	1800	2250	2700	3150	3600	4050	4500
	NC	-	22	26	31	34	38	42	45
275	Flow (CMH/m)	1485	1980	2475	2970	3465	3960	4455	4950
	NC	-	23	27	31	35	39	43	46
300	Flow (CMH/m)	1620	2160	2700	3240	3780	4320	4860	5400
	NC	-	23	28	32	36	40	44	47
325	Flow (CMH/m)	1755	2340	2925	3510	4095	4680	5265	5850
	NC	-	24	28	32	336	40	44	48
350	Flow (CMH/m)	1890	2520	3150	3780	4410	5040	5670	6300
	NC	-	24	29	33	37	41	45	49
375	Flow (CMH/m)	2025	2700	3375	4050	4725	5400	6075	6750
	NC	20	24	29	33	38	42	46	50
400	Flow (CMH/m)	2160	2880	3600	4320	5040	5760	6480	7200
	NC	20	25	30	34	38	43	47	51
425	Flow (CMH/m)	2295	3060	3825	4590	5355	6120	6885	7650
	NC	20	25	30	34	39	43	47	51
450	Flow (CMH/m)	2430	3240	4050	4860	5670	6480	7290	8100
	NC	20	26	30	35	39	44	48	52
475	Flow (CMH/m)	2565	3420	4275	5130	5985	6840	7695	8550
	NC	21	26	31	35	40	44	49	55
500	Flow (CMH/m)	2700	3600	4500	5400	6300	7200	8100	9000
	NC	21	26	31	36	40	45	49	53
525	Flow (CMH/m)	2835	3780	4725	5670	6615	7560	8505	9450
	NC	21	26	31	36	41	45	50	54
550	Flow (CMH/m)	2970	3960	4950	5940	6930	7920	8910	9900
	NC	21	27	32	37	41	46	50	55
575	Flow (CMH/m)	3105	4140	5175	6210	7245	8280	9315	10350
	NC	22	27	32	37	42	46	51	55
600	Flow (CMH/m)	3240	4320	5400	6480	7560	8640	9720	10800
	NC	22	27	33	37	42	47	51	56

- Remarks:
- "-" for NC represent level below 20dB.
- "-" for pressure loss represent loss below 5Pa.
- All performance data are based on 1,000mm grille length.

RETURN AIR PERFORMANCE

FS2200 Hinged Model with Filter

Nominal Neck Size (mm)	Neck Velocity (m/s)	1	1.5	2	2.5
	Static Pressure (Pa)	20	25	30	50
600 x 300	Flow (CMH/m)	648	972	1296	1620
	NC	-	-	24	29
600 x 325	Flow (CMH/m)	702	1053	1404	1755
	NC	-	20	25	30
600 x 350	Flow (CMH/m)	756	1134	1512	1890
	NC	-	20	25	31
600 x 375	Flow (CMH/m)	810	1215	1620	2025
	NC	-	21	26	31
600 x 400	Flow (CMH/m)	864	1296	1728	2160
	NC	-	21	26	32
600 x 425	Flow (CMH/m)	918	1377	1836	2295
	NC	-	22	26	32
600 x 450	Flow (CMH/m)	972	1458	1944	2430
	NC	-	22	27	33
600 x 475	Flow (CMH/m)	1026	1539	2052	2565
	NC	-	22	27	33
600 x 500	Flow (CMH/m)	1080	1620	2160	2700
	NC	-	22	28	33
600 x 525	Flow (CMH/m)	1134	1701	2268	2835
	NC	-	23	28	34
600 x 550	Flow (CMH/m)	1188	1782	2376	2970
	NC	-	23	28	34
600 x 575	Flow (CMH/m)	1242	1863	2484	3105
	NC	-	23	28	34
600 x 600	Flow (CMH/m)	1296	1944	2592	3240
	NC	-	24	29	35

FS2200 Hinged Model without Filter

Nominal Neck Size (mm)	Neck Velocity (m/s)	1	1.5	2	2.5
	Static Pressure (Pa)	15	20	25	40
600 x 300	Flow (CMH/m)	648	972	1296	1620
	NC	-	-	20	24
600 x 325	Flow (CMH/m)	702	1053	1404	1755
	NC	-	-	21	25
600 x 350	Flow (CMH/m)	756	1134	1512	1890
	NC	-	-	21	26
600 x 375	Flow (CMH/m)	810	1215	1620	2025
	NC	-	-	22	26
600 x 400	Flow (CMH/m)	864	1296	1728	2160
	NC	-	-	22	27
600 x 425	Flow (CMH/m)	918	1377	1836	2295
	NC	-	-	22	27
600 x 450	Flow (CMH/m)	972	1458	1944	2430
	NC	-	-	23	28
600 x 475	Flow (CMH/m)	1026	1539	2052	2565
	NC	-	-	23	28
600 x 500	Flow (CMH/m)	1080	1620	2160	2700
	NC	-	-	24	28
600 x 525	Flow (CMH/m)	1134	1701	2268	2835
	NC	-	20	24	29
600 x 550	Flow (CMH/m)	1188	1782	2376	2970
	NC	-	20	24	29
600 x 575	Flow (CMH/m)	1242	1863	2484	3105
	NC	-	20	24	29
600 x 600	Flow (CMH/m)	1296	1944	2592	3240
	NC	-	21	25	30

Notes:

1. NC values are based on 10 dB room absorption.
2. Throw data are based on 0.25 m/s terminal velocity.
3. NC Values are based on 1,000mm length grilles. For grilles of other lengths add the correction factor as shown in Table 1 below.
4. NC values are applicable to register with damper in full open position. Effect of damper closure on noise generated by the register is shown in table 2 below.
5. NC values are based on noise generated by a single grille or register. When more than one grille is present it may be necessary to add the appropriate value from table 3 below for the effect of multiple grilles and register.
6. Throw data are based on isothermal conditions. To determine throw for temperature differential of 10 degrees, multiply a factor of 0.78 to the throw values.
7. Data obtained above are based in the tests conducted in the reverberation laboratory according to ISO 5135, ISO 3741, ISO 5219.

Table 1: NC correction for length

300	600	900	1000	1200	1500	1800	2100	2400
-2	-1	0	0	0	+1	+1	+2	+2

Table 2: NC correction for damper throttling

Effective Damper Opening	Total Resistance	dB To be added
100%	100%	0dB
80%	150%	5dB
70%	200%	8dB
50%	400%	16dB

Table 3 : NC correction for multiple grilles/register

Sound Power Level Difference Grilles	0	1	2	3	4	5	6	7	8	9	10
Sound Power Level to be added	3	2.5	2	1.5	1.5	1	1	0.5	0	0	0

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