

**Overview**

**12 Months**  
Warranty

**MANUFACTURED RANGE**

**Double and Single Deflection Registers**

**Description**

For supply air, having a double or single set of fully adjustable blades to give directional control of the air pattern in up to four directions if required. Suitable for wall and duct mounting. Removable core is also available for ease of installation.

**Construction**

From extruded aluminium sections, ensuring functional strength and performance that also gives an attractive and aesthetically pleasing appearance. Incorporating double or single set of individually adjustable blades, the front blades may be set either horizontally or at angles either up or down. Rear blades are adjusted in a similar way but only in a vertical plane. Powder coated white as standard.

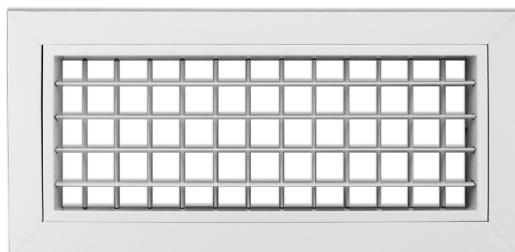
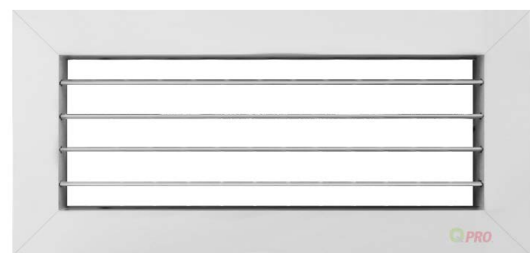
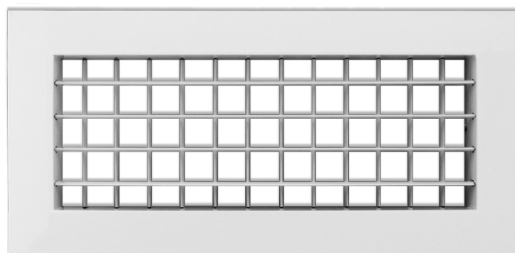
PRODUCT CODE	DESCRIPTION
DDR	Double Deflection Registers
RCDDR	Removable Core Double Deflection Registers
CDDR	Curved Face Double Deflection Registers (to be used with circular spiral duct)
SDR	Single Deflection Registers
RCSDR	Removable Core Single Deflection Registers

**Note DDR/RCDDR/CDDR:**

- Made to order
- Custom sizes and colours are available
- [Performance data, see pages 330 - 334](#)

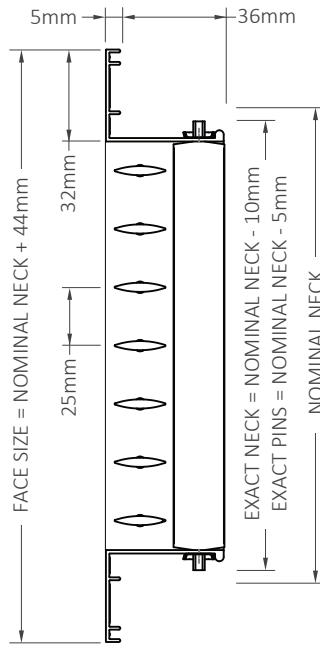
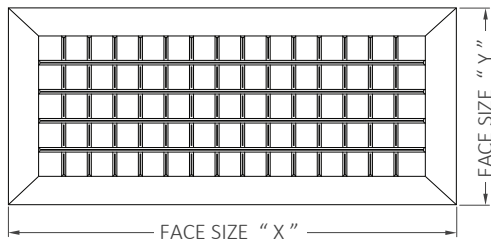
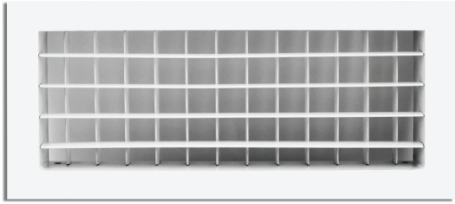
**Note SDR/RCSDR:**

- Made to order
- Custom sizes and colours are available
- [Performance data is currently not available for this product](#)



QAE strive to provide products that best suit the market's requirements. As such, QAE reserve the right to supply products which may differ slightly from those shown in this and other publications. For product warranties please refer to our standard terms and conditions.

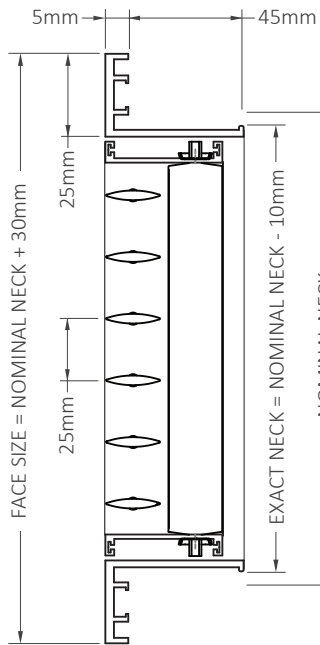
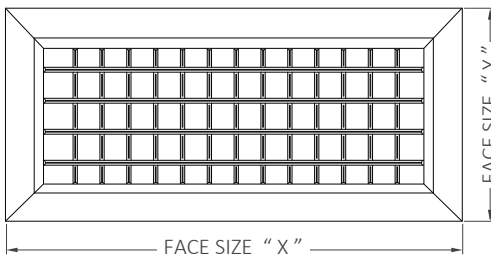
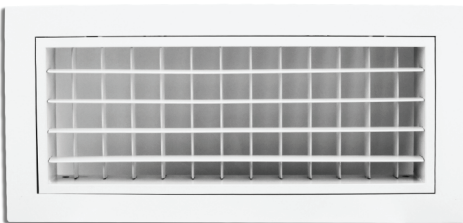
## Double Deflection Register: DDR



### FIELDS REQUIRED PRIOR TO ORDERING

Quantity	
Width (W) (Front Blade Length)	
Height (H)	
Exact Pins	Choose One
Nominal Neck/ Cut Out Size	
Face Size	
White	Choose One
Natural Anodised	
Special Colour	
Mill Finish	

## Removable Core Double Deflection Register: RCDDR



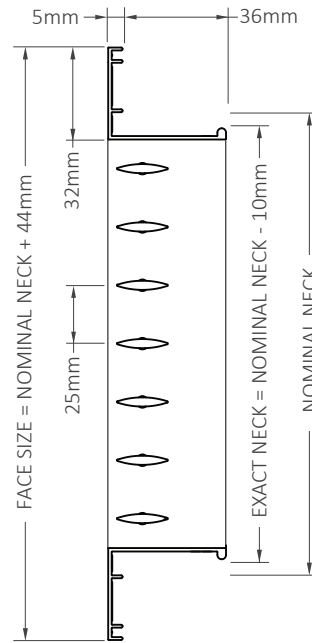
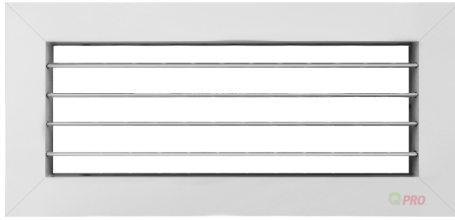
### FIELDS REQUIRED PRIOR TO ORDERING

Quantity	
Width (W) (Front Blade Length)	
Height (H)	
Exact Neck Size	Choose One
Nominal Neck Size/ Cut Out Size	
Face Size	
White	Choose One
Natural Anodised	
Special Colour	
Mill Finish	

### Related Products for Double Deflection Registers

UB	SB	EB	ALPBM	ALPBF	OBD	LSPRING	SS
see pg.266	see pg.266	see pg.266	see pg.227	see pg.226	see pg.127	see pg.79	see pg.273

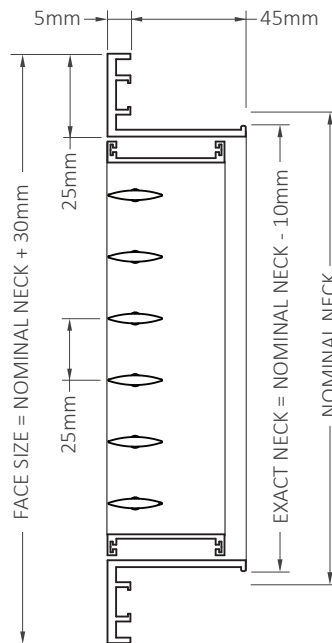
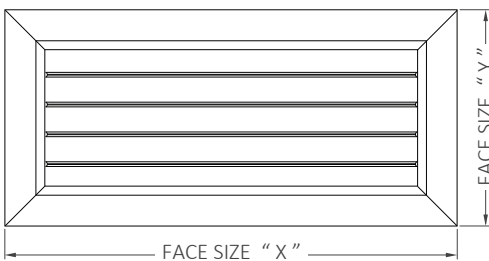
**Single Deflection Register: SDR**



**FIELDS REQUIRED  
PRIOR TO ORDERING**

Quantity	
Width (W) (Blade Length)	
Height (H)	
Exact Pins X Exact Neck	Choose One
Nominal Neck/ Cut Out Size	
Face Size	
White	Choose One
Natural Anodised	
Special Colour	
Mill Finish	

**Removable Core Single Deflection Register: RCSDR**



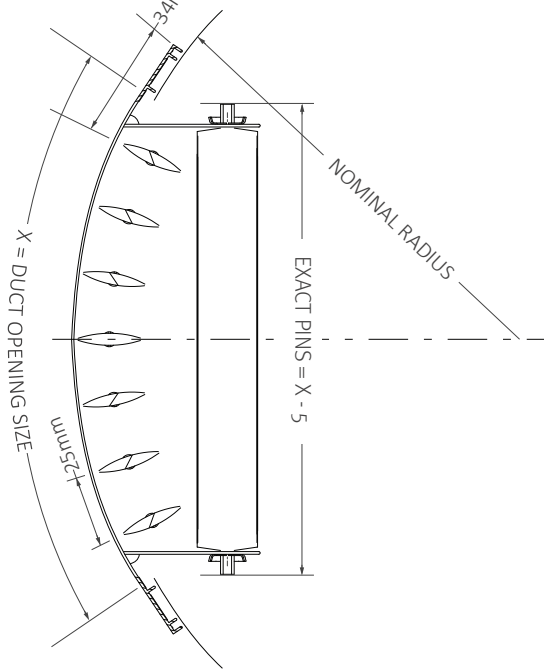
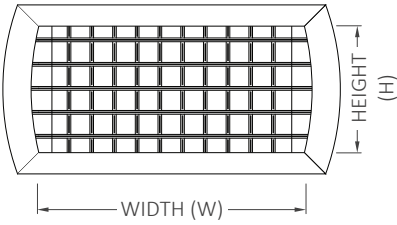
**FIELDS REQUIRED  
PRIOR TO ORDERING**

Quantity	
Width (W) (Blade Length)	
Height (H)	
Exact Neck Size	Choose One
Nominal Neck Size/ Cut Out Size	
Face Size	
White	Choose One
Natural Anodised	
Special Colour	
Mill Finish	

**Related Products for Single Deflection Registers**

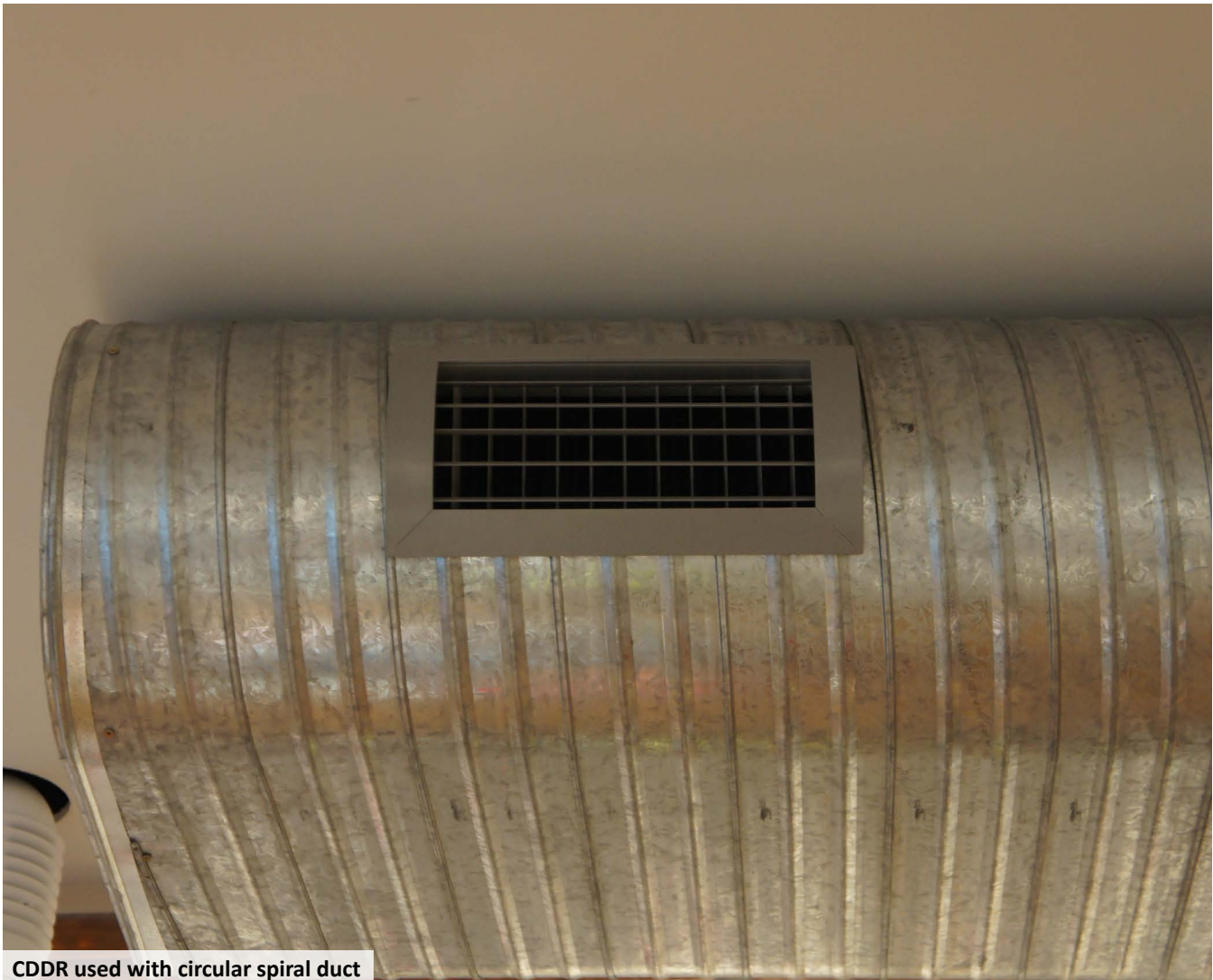
UB	SB	EB	ALPBM	ALPBF	OBD	LSPRING	SS
see pg.266	see pg.266	see pg.266	see pg.227	see pg.226	see pg.127	see pg.79	see pg.273

**Curved Double Deflection Register: CDDR**



**FIELDS REQUIRED PRIOR TO ORDERING**

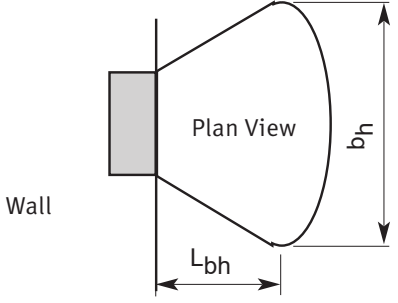
Quantity	
Width (W) (Front Blade Length)	
Height (H)	
Nominal Neck (Standard)	
Duct DIA	
White	
Special Colour	
Mill Finish	



CDDR used with circular spiral duct

Fixed and Removable Core Double Deflection Registers: DDR/RCDDR

Air Patterns and Throw



Plan View

Wall

$L_{bh}$

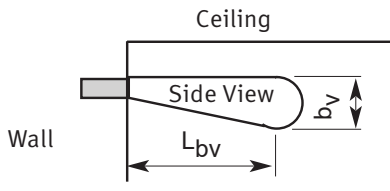
$b_h$

0° blowing  
 $b_h = \text{Active Length} + (L_{0.25} \times 0.03)$   
 $L_{bh} = L_{0.25} \times 0.5$

45° blowing  
 $b_h = \text{Active Length} + (L_{0.25} \times 1.5)$   
 $L_{bh} = L_{0.25} \times 0.5$

**Note:**

- L = Throw in M (refer graphs)
- $L_{0.25}$  = Throw at 0.25m/s terminal velocity
- Active Length = supply air plenum Length
- Active Height = supply air plenum Height



Side View

Wall

Ceiling

$L_{bv}$

$b_v$

0° blowing  
 $b_v = \text{Active Height} + (L_{0.25} \times 0.09)$   
 $L_{bv} = L_{0.25} \times 0.4$

45° blowing  
 $b_v = \text{Active Height} + (L_{0.25} \times 1.5)$   
 $L_{bv} = L_{0.25} \times 0.4$

Calculation of other terminal velocities

The throw  $L_x$  at different velocities within a limited zone, the jet core can be calculated:

$$L_x = L_{0.25} \times \frac{0.25}{v_x}$$

Example: An air throw of 6m with a terminal velocity of 0.25 m/s gives an air throw of 3 m at a terminal velocity of 0.50 m/s

$$L_{0.05} = 6 \times \frac{0.25}{0.50} = 3M$$

Test Conditions

Throw values are based on Registers installed in the sidewall not more than 600mm below a flat ceiling. Terminal velocities are based on 0.25m/s. NC levels and pressure drops are given for registers with all blades set at a 0°, 22.5° and 45° deflection and no dampers attached.

Note:

- Please refer to the table “Comparing Noise Criteria” on page no. 297 when evaluating “sound pressure level dB(A).”

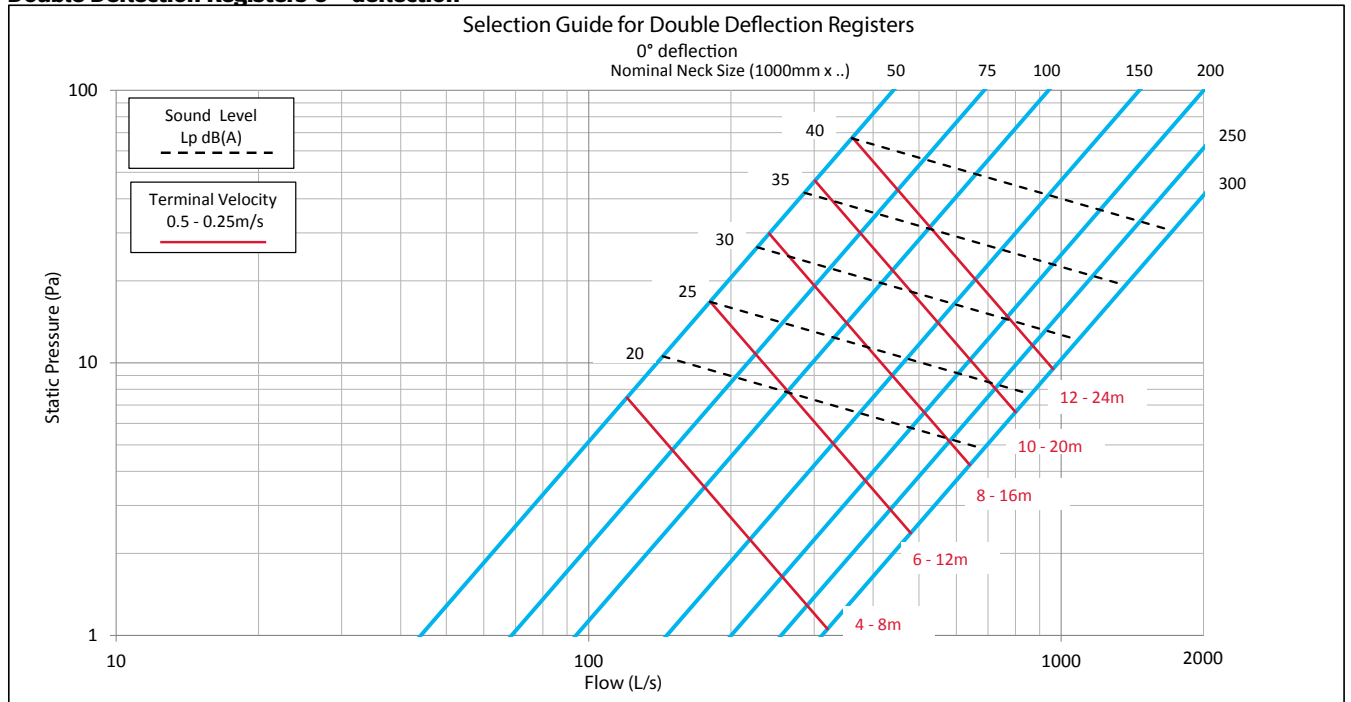
Extract air:

- When used for air extraction the sound level increases by approx. 5dB and the pressure drop falls by 10%.

Supply air:

- When used with chilled air, recommended height H (from ceiling) is ≤ 200mm and max chilled air  $\Delta t$  = approx. -5 °C.
- Supply air. Where grille is placed 800mm from ceiling throw would reduce by 30 – 35%.

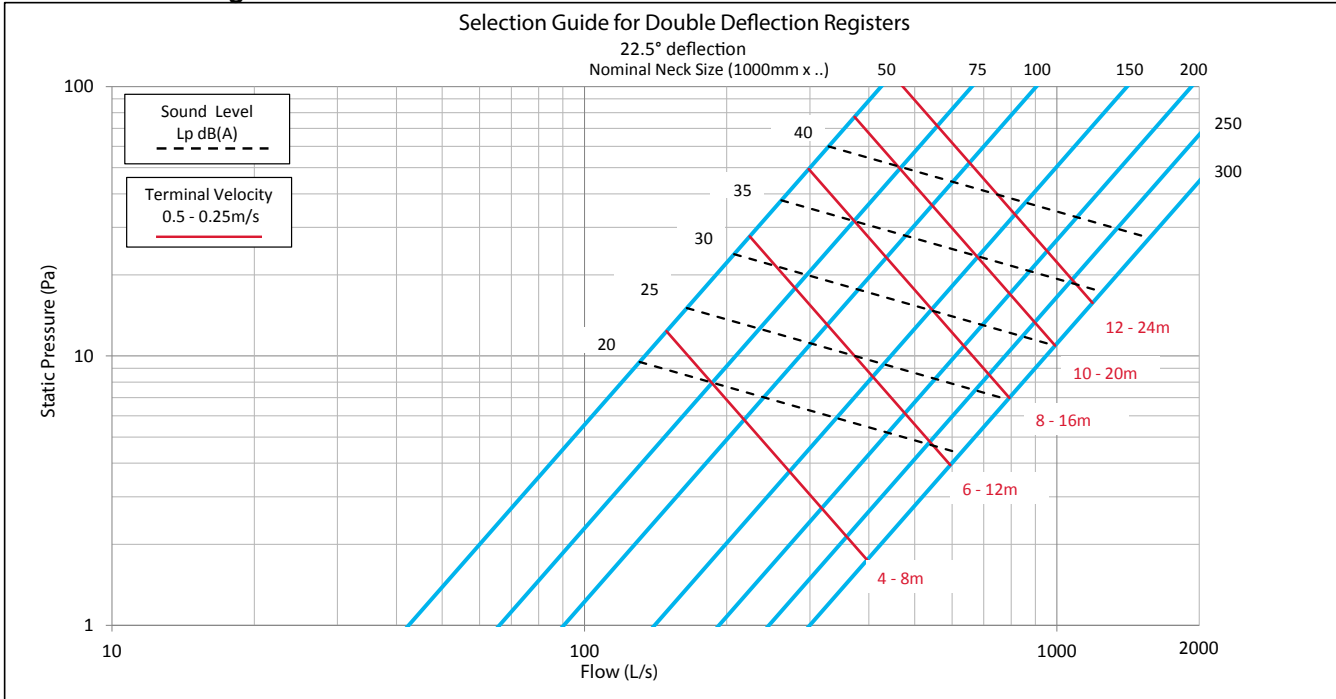
Double Deflection Registers 0° deflection



These graphs are for selection only and should not be used for commissioning.

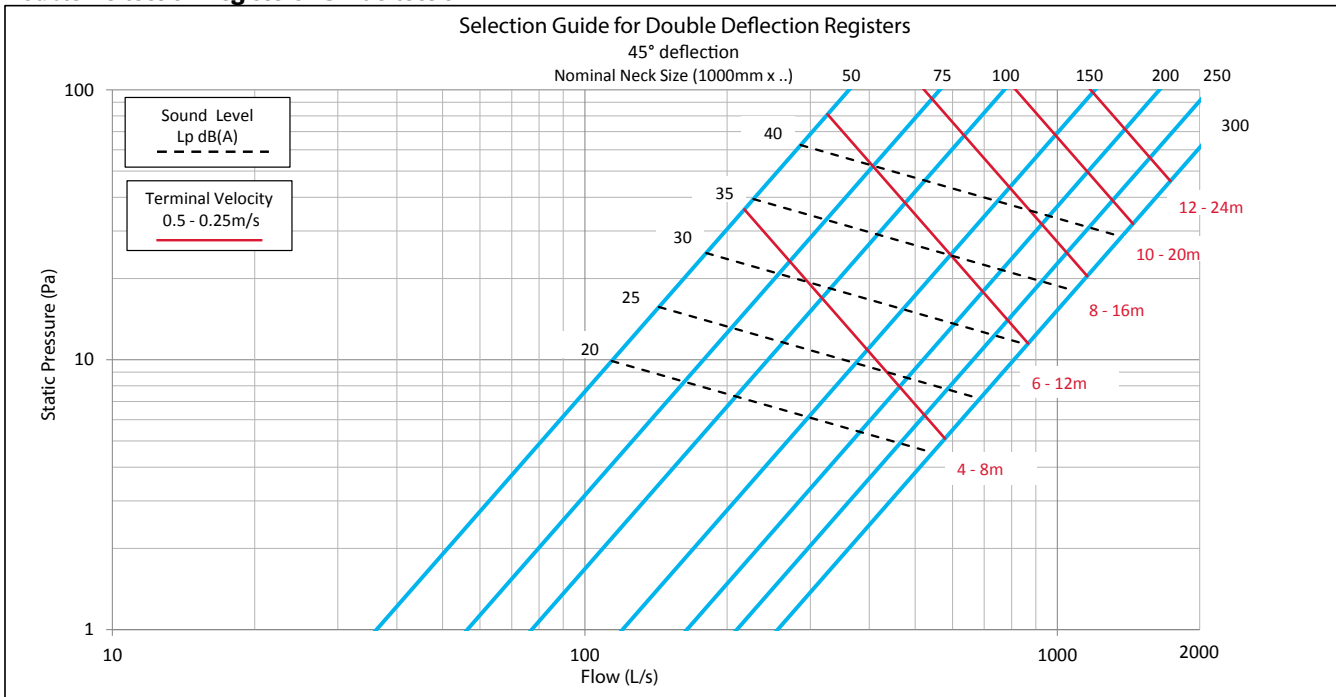
Fixed and Removable Core Double Deflection Registers: DDR/RCDDR

Double Deflection Registers 22.5° deflection



These graphs are for selection only and should not be used for commissioning.

Double Deflection Registers 45° deflection



These graphs are for selection only and should not be used for commissioning.



**Fixed and Removable Core Double Deflection Registers: DDR/RCDDR**

**Free Area**

DOUBLE DEFLECTION REGISTERS	DDR84	DDR86	DDR146	DDR168	DDR306	DDR2412	DDR3210	DDR4816
Nom. Width (")	8	8	14	16	30	24	32	48
Nom. Height (")	4	6	6	8	6	12	16	16
Nominal Neck Width (mm)	200	200	350	400	750	600	800	1200
Nominal Neck Height (mm)	100	150	150	200	150	300	400	400
Nominal Neck Area (m <sup>2</sup> )	0.02	0.03	0.0525	0.08	0.1125	0.18	0.32	0.48
QAE Free Area Factor	0.576	0.598	0.629	0.654	0.675	0.704	0.742	0.770
Free Area (m <sup>2</sup> )	0.012	0.018	0.033	0.052	0.076	0.127	0.237	0.370

Nominal Neck (mm)		Free Area (m <sup>2</sup> )	Face Velocity (m/s)		2	3	4	5	6	7	8
Width	Height		Static Pressure (Pa) †		2	5	8	13	18	25	32
200	100	0.012	Flow Rate (L/s)		23	35	46	58	69	81	92
			Sound Level dB(A)		<20	<20	<20	<20	22	25	28
			Throw (m), 0° Deflection		2.5	3.8	5.0	6.3	7.6	8.8	10.1
			Throw (m), 22.5° Deflection		2.0	3.1	4.1	5.1	6.1	7.1	8.2
			Throw (m), 45° Deflection		1.4	2.1	2.8	3.5	4.2	4.9	5.6
300	100	0.018	Flow Rate (L/s)		36	54	72	90	108	126	144
			Sound Level dB(A)		<20	<20	<20	<20	23	27	30
			Throw (m), 0° Deflection		3.1	4.7	6.3	7.9	9.4	11.0	12.6
			Throw (m), 22.5° Deflection		2.5	3.8	5.1	6.4	7.6	8.9	10.2
			Throw (m), 45° Deflection		1.7	2.6	3.5	4.4	5.2	6.1	7.0
400	100	0.025	Flow Rate (L/s)		49	74	98	123	147	172	196
			Sound Level dB(A)		<20	<20	<20	21	25	28	31
			Throw (m), 0° Deflection		3.7	5.5	7.4	9.2	11.1	12.9	14.7
			Throw (m), 22.5° Deflection		3.0	4.5	6.0	7.4	8.9	10.4	11.9
			Throw (m), 45° Deflection		2.0	3.1	4.1	5.1	6.1	7.1	8.2
150	150	0.013	Flow Rate (L/s)		26	39	52	66	79	92	105
			Sound Level dB(A)		<20	<20	<20	<20	22	25	28
			Throw (m), 0° Deflection		2.7	4.0	5.4	6.7	8.1	9.4	10.8
			Throw (m), 22.5° Deflection		2.2	3.3	4.3	5.4	6.5	7.6	8.7
			Throw (m), 45° Deflection		1.5	2.2	3.0	3.7	4.5	5.2	6.0
200	150	0.018	Flow Rate (L/s)		36	54	72	90	108	126	144
			Sound Level dB(A)		<20	<20	<20	<20	23	27	30
			Throw (m), 0° Deflection		3.1	4.7	6.3	7.9	9.4	11.0	12.6
			Throw (m), 22.5° Deflection		2.5	3.8	5.1	6.4	7.6	8.9	10.2
			Throw (m), 45° Deflection		1.7	2.6	3.5	4.4	5.2	6.1	7.0
250	150	0.023	Flow Rate (L/s)		46	69	92	114	137	160	183
			Sound Level dB(A)		<20	<20	<20	21	25	28	31
			Throw (m), 0° Deflection		3.6	5.3	7.1	8.9	10.7	12.4	14.2
			Throw (m), 22.5° Deflection		2.9	4.3	5.7	7.2	8.6	10.1	11.5
			Throw (m), 45° Deflection		2.0	3.0	3.9	4.9	5.9	6.9	7.9
300	150	0.028	Flow Rate (L/s)		56	84	112	140	168	196	223
			Sound Level dB(A)		<20	<20	<20	21	25	29	32
			Throw (m), 0° Deflection		3.9	5.9	7.9	9.8	11.8	13.7	15.7
			Throw (m), 22.5° Deflection		3.2	4.8	6.3	7.9	9.5	11.1	12.7
			Throw (m), 45° Deflection		2.2	3.3	4.4	5.4	6.5	7.6	8.7
350	150	0.033	Flow Rate (L/s)		66	99	132	165	198	231	264
			Sound Level dB(A)		<20	<20	<20	22	26	29	32
			Throw (m), 0° Deflection		4.3	6.4	8.5	10.7	12.8	15.0	17.1
			Throw (m), 22.5° Deflection		3.5	5.2	6.9	8.6	10.4	12.1	13.8
			Throw (m), 45° Deflection		2.4	3.5	4.7	5.9	7.1	8.3	9.5
400	150	0.038	Flow Rate (L/s)		76	115	153	191	229	268	306
			Sound Level dB(A)		<20	<20	<20	23	27	30	33
			Throw (m), 0° Deflection		4.6	6.9	9.2	11.5	13.8	16.1	18.4
			Throw (m), 22.5° Deflection		3.7	5.6	7.4	9.3	11.1	13.0	14.8
			Throw (m), 45° Deflection		2.5	3.8	5.1	6.4	7.6	8.9	10.2

## Fixed and Removable Core Double Deflection Registers: DDR/RCDDR

Nominal Neck (mm)		Free Area (m <sup>2</sup> )	Face Velocity (m/s)		2	3	4	5	6	7	8
Width	Height		Static Pressure (Pa) †		2	5	8	13	18	25	32
450	150	0.043	Flow Rate (L/s)		87	130	174	217	261	304	348
			Sound Level dB(A)		<20	<20	<20	23	27	31	34
			Throw (m), 0° Deflection		4.9	7.4	9.8	12.3	14.7	17.2	19.6
			Throw (m), 22.5° Deflection		4.0	5.9	7.9	9.9	11.9	13.9	15.8
			Throw (m), 45° Deflection		2.7	4.1	5.4	6.8	8.1	9.5	10.9
500	150	0.049	Flow Rate (L/s)		98	146	195	244	293	341	390
			Sound Level dB(A)		<20	<20	<20	24	28	31	34
			Throw (m), 0° Deflection		5.2	7.8	10.4	13.0	15.6	18.2	20.8
			Throw (m), 22.5° Deflection		4.2	6.3	8.4	10.5	12.6	14.7	16.8
			Throw (m), 45° Deflection		2.9	4.3	5.7	7.2	8.6	10.1	11.5
600	150	0.059	Flow Rate (L/s)		119	178	238	297	357	416	476
			Sound Level dB(A)		<20	<20	<20	25	29	32	35
			Throw (m), 0° Deflection		5.7	8.6	11.5	14.3	17.2	20.1	22.9
			Throw (m), 22.5° Deflection		4.6	6.9	9.3	11.6	13.9	16.2	18.5
			Throw (m), 45° Deflection		3.2	4.8	6.4	7.9	9.5	11.1	12.7
200	200	0.025	Flow Rate (L/s)		49	74	98	123	147	172	196
			Sound Level dB(A)		<20	<20	<20	21	25	28	31
			Throw (m), 0° Deflection		3.7	5.5	7.4	9.2	11.1	12.9	14.7
			Throw (m), 22.5° Deflection		3.0	4.5	6.0	7.4	8.9	10.4	11.9
			Throw (m), 45° Deflection		2.0	3.1	4.1	5.1	6.1	7.1	8.2
250	200	0.031	Flow Rate (L/s)		63	94	125	157	188	219	251
			Sound Level dB(A)		<20	<20	<20	22	26	29	32
			Throw (m), 0° Deflection		4.2	6.2	8.3	10.4	12.5	14.6	16.6
			Throw (m), 22.5° Deflection		3.4	5.0	6.7	8.4	10.1	11.8	13.4
			Throw (m), 45° Deflection		2.3	3.5	4.6	5.8	6.9	8.1	9.2
300	200	0.038	Flow Rate (L/s)		76	115	153	191	229	268	306
			Sound Level dB(A)		<20	<20	<20	23	27	30	33
			Throw (m), 0° Deflection		4.6	6.9	9.2	11.5	13.8	16.1	18.4
			Throw (m), 22.5° Deflection		3.7	5.6	7.4	9.3	11.1	13.0	14.8
			Throw (m), 45° Deflection		2.5	3.8	5.1	6.4	7.6	8.9	10.2
350	200	0.045	Flow Rate (L/s)		90	136	181	226	271	317	362
			Sound Level dB(A)		<20	<20	<20	24	27	31	34
			Throw (m), 0° Deflection		5.0	7.5	10.0	12.5	15.0	17.5	20.0
			Throw (m), 22.5° Deflection		4.0	6.1	8.1	10.1	12.1	14.1	16.1
			Throw (m), 45° Deflection		2.8	4.2	5.5	6.9	8.3	9.7	11.1
400	200	0.052	Flow Rate (L/s)		105	157	209	262	314	366	419
			Sound Level dB(A)		<20	<20	<20	24	28	31	34
			Throw (m), 0° Deflection		5.4	8.1	10.8	13.4	16.1	18.8	21.5
			Throw (m), 22.5° Deflection		4.3	6.5	8.7	10.9	13.0	15.2	17.4
			Throw (m), 45° Deflection		3.0	4.5	6.0	7.4	8.9	10.4	11.9
450	200	0.059	Flow Rate (L/s)		119	178	238	297	357	416	476
			Sound Level dB(A)		<20	<20	<20	25	29	32	35
			Throw (m), 0° Deflection		5.7	8.6	11.5	14.3	17.2	20.1	22.9
			Throw (m), 22.5° Deflection		4.6	6.9	9.3	11.6	13.9	16.2	18.5
			Throw (m), 45° Deflection		3.2	4.8	6.4	7.9	9.5	11.1	12.7
500	200	0.067	Flow Rate (L/s)		133	200	267	334	400	467	534
			Sound Level dB(A)		<20	<20	20	25	29	32	35
			Throw (m), 0° Deflection		6.1	9.1	12.1	15.2	18.2	21.3	24.3
			Throw (m), 22.5° Deflection		4.9	7.4	9.8	12.3	14.7	17.2	19.6
			Throw (m), 45° Deflection		3.4	5.0	6.7	8.4	10.1	11.8	13.5
600	200	0.081	Flow Rate (L/s)		163	244	326	407	489	570	651
			Sound Level dB(A)		<20	<20	21	26	30	33	36
			Throw (m), 0° Deflection		6.7	10.1	13.4	16.8	20.1	23.5	26.8
			Throw (m), 22.5° Deflection		5.4	8.1	10.8	13.5	16.3	19.0	21.7
			Throw (m), 45° Deflection		3.7	5.6	7.4	9.3	11.1	13.0	14.9



Fixed and Removable Core Double Deflection Registers: DDR/RCDDR

Nominal Neck (mm)		Free Area (m2)	Face Velocity (m/s)	2	3	4	5	6	7	8
Width	Height		Static Pressure (Pa) †	2	5	8	13	18	25	32
250	250	0.040	Flow Rate (L/s)	80	120	160	200	240	280	320
			Sound Level dB(A)	<20	<20	<20	23	27	30	33
			Throw (m), 0° Deflection	4.7	7.0	9.4	11.7	14.1	16.4	18.8
			Throw (m), 22.5° Deflection	3.8	5.7	7.6	9.5	11.4	13.3	15.2
			Throw (m), 45° Deflection	2.6	3.9	5.2	6.5	7.8	9.1	10.4
300	250	0.049	Flow Rate (L/s)	98	146	195	244	293	341	390
			Sound Level dB(A)	<20	<20	<20	24	28	31	34
			Throw (m), 0° Deflection	5.2	7.8	10.4	13.0	15.6	18.2	20.8
			Throw (m), 22.5° Deflection	4.2	6.3	8.4	10.5	12.6	14.7	16.8
			Throw (m), 45° Deflection	2.9	4.3	5.7	7.2	8.6	10.1	11.5
350	250	0.058	Flow Rate (L/s)	115	173	231	288	346	404	462
			Sound Level dB(A)	<20	<20	<20	25	29	32	35
			Throw (m), 0° Deflection	5.6	8.5	11.3	14.1	16.9	19.8	22.6
			Throw (m), 22.5° Deflection	4.6	6.8	9.1	11.4	13.7	16.0	18.2
			Throw (m), 45° Deflection	3.1	4.7	6.3	7.8	9.4	10.9	12.5
400	250	0.067	Flow Rate (L/s)	133	200	267	334	400	467	534
			Sound Level dB(A)	<20	<20	20	25	29	32	35
			Throw (m), 0° Deflection	6.1	9.1	12.1	15.2	18.2	21.3	24.3
			Throw (m), 22.5° Deflection	4.9	7.4	9.8	12.3	14.7	17.2	19.6
			Throw (m), 45° Deflection	3.4	5.0	6.7	8.4	10.1	11.8	13.5
450	250	0.076	Flow Rate (L/s)	152	228	304	379	455	531	607
			Sound Level dB(A)	<20	<20	21	26	30	33	36
			Throw (m), 0° Deflection	6.5	9.7	13.0	16.2	19.4	22.7	25.9
			Throw (m), 22.5° Deflection	5.2	7.8	10.5	13.1	15.7	18.3	20.9
			Throw (m), 45° Deflection	3.6	5.4	7.2	9.0	10.8	12.6	14.3
500	250	0.085	Flow Rate (L/s)	170	255	341	426	511	596	681
			Sound Level dB(A)	<20	<20	21	26	30	34	36
			Throw (m), 0° Deflection	6.9	10.3	13.7	17.1	20.6	24.0	27.4
			Throw (m), 22.5° Deflection	5.5	8.3	11.1	13.8	16.6	19.4	22.2
			Throw (m), 45° Deflection	3.8	5.7	7.6	9.5	11.4	13.3	15.2
600	250	0.104	Flow Rate (L/s)	208	312	416	519	623	727	831
			Sound Level dB(A)	<20	<20	22	27	31	34	37
			Throw (m), 0° Deflection	7.6	11.4	15.2	18.9	22.7	26.5	30.3
			Throw (m), 22.5° Deflection	6.1	9.2	12.2	15.3	18.4	21.4	24.5
			Throw (m), 45° Deflection	4.2	6.3	8.4	10.5	12.6	14.7	16.8
300	300	0.059	Flow Rate (L/s)	119	178	238	297	357	416	476
			Sound Level dB(A)	<20	<20	<20	25	29	32	35
			Throw (m), 0° Deflection	5.7	8.6	11.5	14.3	17.2	20.1	22.9
			Throw (m), 22.5° Deflection	4.6	6.9	9.3	11.6	13.9	16.2	18.5
			Throw (m), 45° Deflection	3.2	4.8	6.4	7.9	9.5	11.1	12.7
400	300	0.081	Flow Rate (L/s)	163	244	326	407	489	570	651
			Sound Level dB(A)	<20	<20	21	26	30	33	36
			Throw (m), 0° Deflection	6.7	10.1	13.4	16.8	20.1	23.5	26.8
			Throw (m), 22.5° Deflection	5.4	8.1	10.8	13.5	16.3	19.0	21.7
			Throw (m), 45° Deflection	3.7	5.6	7.4	9.3	11.1	13.0	14.9
500	300	0.104	Flow Rate (L/s)	208	312	416	519	623	727	831
			Sound Level dB(A)	<20	<20	22	27	31	34	37
			Throw (m), 0° Deflection	7.6	11.4	15.2	18.9	22.7	26.5	30.3
			Throw (m), 22.5° Deflection	6.1	9.2	12.2	15.3	18.4	21.4	24.5
			Throw (m), 45° Deflection	4.2	6.3	8.4	10.5	12.6	14.7	16.8
600	300	0.127	Flow Rate (L/s)	253	380	507	634	760	887	1014
			Sound Level dB(A)	<20	<20	23	28	32	35	38
			Throw (m), 0° Deflection	8.4	12.6	16.7	20.9	25.1	29.3	33.5
			Throw (m), 22.5° Deflection	6.8	10.1	13.5	16.9	20.3	23.7	27.0
			Throw (m), 45° Deflection	4.6	7.0	9.3	11.6	13.9	16.2	18.5