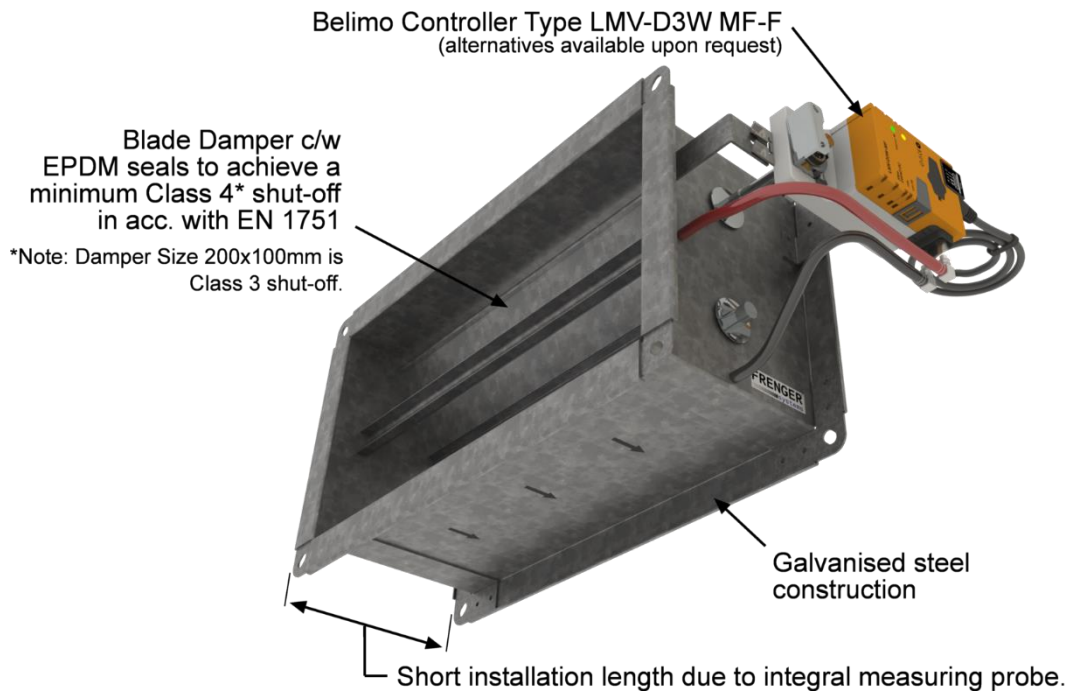


### Rectangular Variable Air Volume Controller

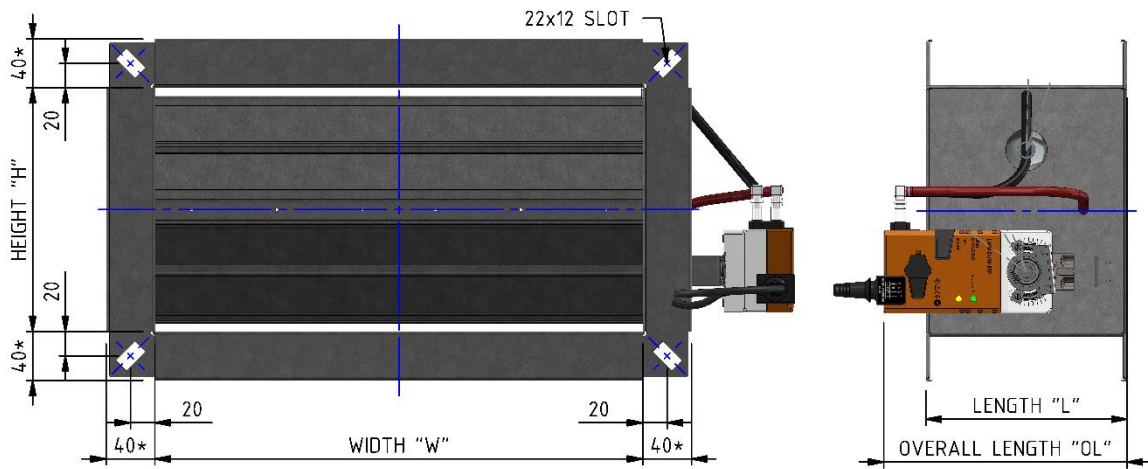
The Variable Air Volume (VAV) Controller type RCT is a rectangular, compact blade type damper c/w integral measuring probe sensor and Belimo controller. The VAV controller type RCT can provide constant and variable air flows, the controller measures the differential pressure using two pressure integrating probes located within the damper casing. One probe is located at the front of the damper measuring total pressure, with the second probe located after the damper in the accelerated airflow path.



### Key Features

- High level of control accuracy: + - 5% at nom. velocities (10 m/s).
- Short installation length due to integral measuring probe.
- Rectangular duct sizes in accordance with EN 1505 c/w flanges.
- Operating temperature range 0 to 50°C at 5 to 95% RH in accordance with EN 60730-1
- Energy savings due to low minimum pressure loss.
- Optional insulating case to reduce sound and heat transfer (supplied loose for on-site fitting).
- Optional silencers (type RCT-SIL-1000) for reduced noise levels.

**Dimensioning**



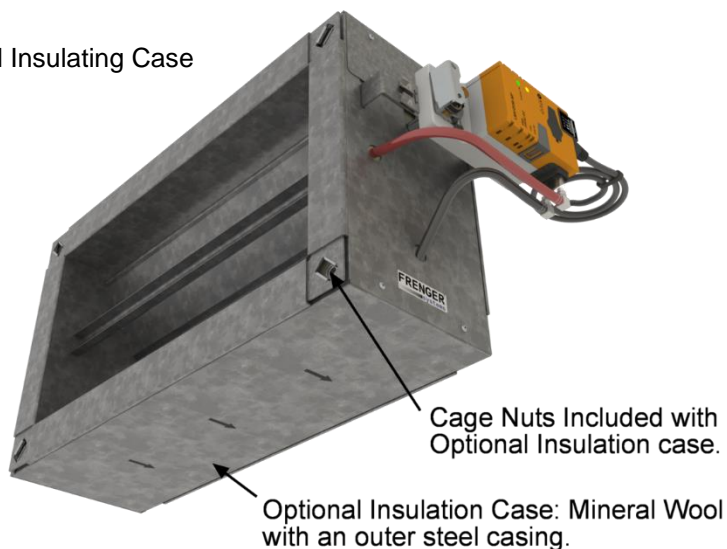
\*NOTE: OVERALL DIMENSIONS INCREASE BY UP TO 5mm IF FITTED WITH OPTIONAL INSULATION CASE.

Height "H"	Width "W"	Length "L"	Overall Length "OL"	Rec. Flow Range		Max Torque	Max. Weight	
				Min.	Nominal		Standard	With Insulated Casing
(mm)	(mm)	(mm)	(mm)	(l/s)	(l/s)	(Nm)	(mm)	(mm)
100	200	135	195	20	200	5	3.2	4.5
	300			30	300		3.9	5.7
	400			40	400		4.6	6.8
	500			50	500		5.3	7.8
	600			60	600		6.1	8.6
150	300	170	230	45	450	5	4.6	6.8
	400			60	600		5.4	7.9
	500			75	750		6.3	9.2
	600			90	900		7.1	10.6
200	200	220	250	40	400	5	4.5	7.0
	300			60	600		5.5	8.6
	400			80	800		6.6	9.9
	500			100	1000		7.6	11.6
	600			120	1200		8.6	13.1
	800			160	1600		10.6	15.8

Height "H"	Width "W"	Length "L"	Overall Length "OL"	Rec. Flow Range		Max Torque	Max. Weight	
				Min.	Nominal		Standard	With Insulated Casing
(mm)	(mm)	(mm)	(mm)	(l/s)	(l/s)	(Nm)	(mm)	(mm)
250	300	270	300	75	750	5	6.6	11.7
	400			100	1000		7.7	12.8
	500			125	1250		8.8	16.2
	600			150	1500		10	18.2
	800			200	2000		12.1	22.6
300	300	325	325	90	900	10	8.1	13.5
	400			120	1200		9.6	16.1
	500			150	1500		10.6	18.2
	600			180	1800		13.3	20.7
	800			240	2400		16.3	24.4
	1000			300	3000		19.4	28.5
400	400	430	430	160	1600	10	13.2	20.7
	500			200	2000		15.1	23.3
	600			240	2400		16.9	27.0
	800			320	3200		20.6	31.6
	1000			400	4000		24.4	36.3
	1200			480	4800		28.1	41.4

Note: Min flow rate based on a velocity of 1.0 m/s and nominal flowrate based on a velocity of 10 m/s.

RCT Damper with optional Insulating Case  
(for illustration purposes only)



**Materials of Construction**

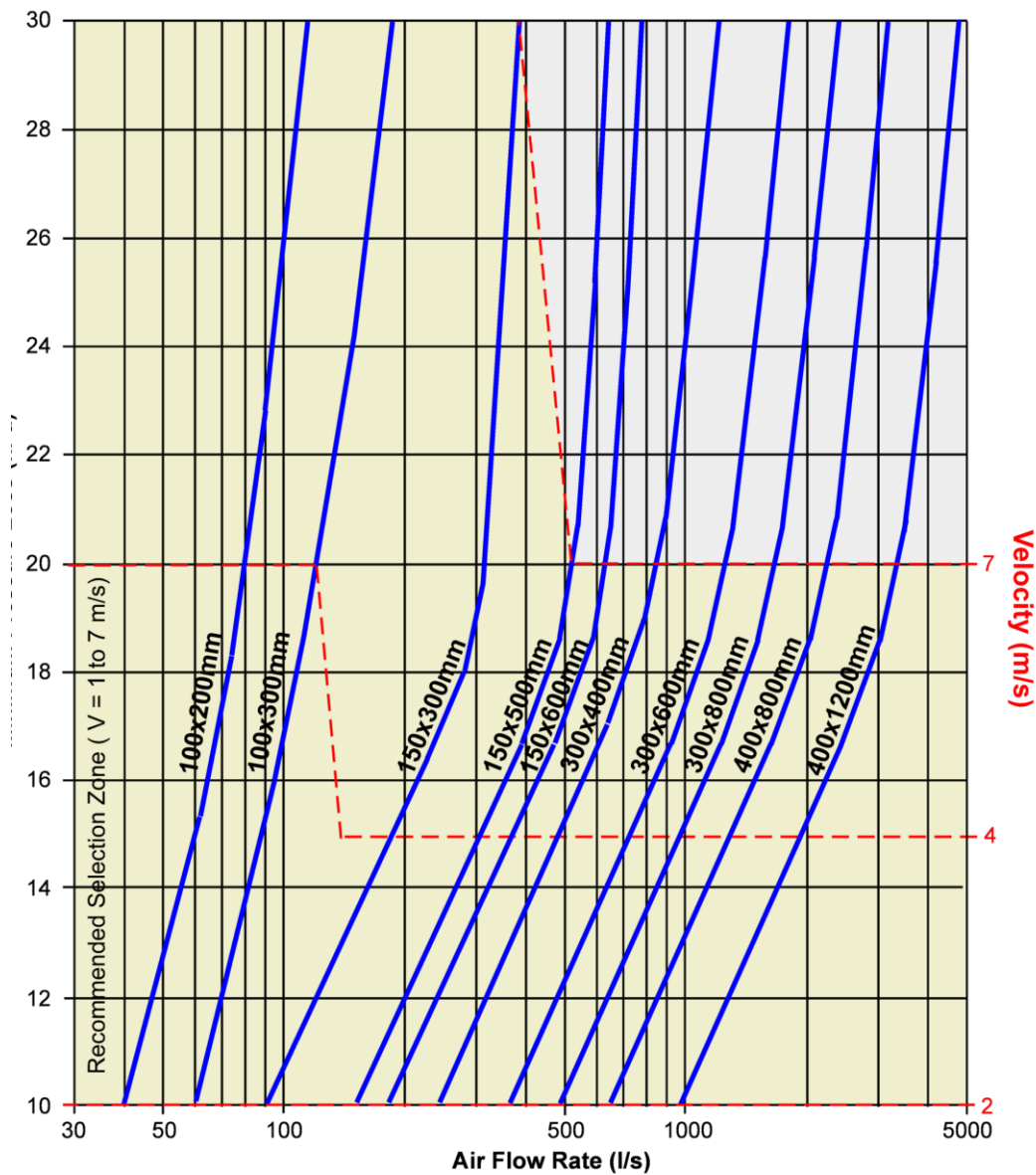
The VAV Controller body is manufactured from several different materials:

- Main Body, damper – Galvanised Steel.
- Measuring Probes - Aluminium
- Sealings – EPDM.
- Damper bearings – POM Plastic.

As standard all materials are supplied “self-finish”, however alternative materials and coatings can be produced as special-order items; please contact Frenger with your requirements to check availability.

**Minimum Pressure Loss**

The minimum pressure loss at various flowrates can be determined using the following chart:



To ensure best practice selection, for controllability and noise we recommend that the VAV type RCT selection should ensure a design velocity of between 1.0 and 7.0 m/s at the design flow rate.

### Sound Pressure Levels (LpA)

The VAV Controller type airborne sound pressure levels at total static pressure differences of 100Pa, 200Pa and 600Pa can be seen in the following table:

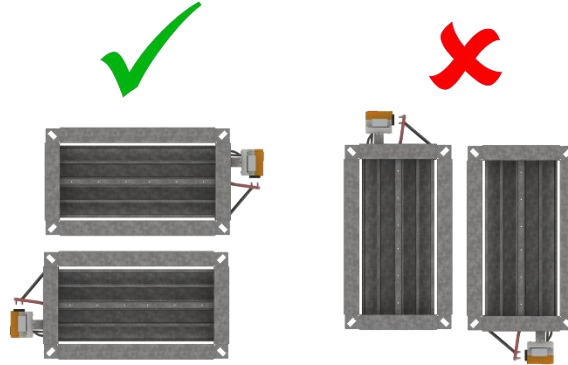
Nom. Size [W x H]  (mm)	Flow rate  (l/s)	A - Weighted Sound Pressure Level [LpA] Without Silencer (dB{A})			A - Weighted Sound Pressure Level [LpA] With Silencer (dB{A})		
		$\Delta P =$ 100Pa	$\Delta P =$ 200Pa	$\Delta P =$ 600Pa	$\Delta P =$ 100Pa	$\Delta P =$ 200Pa	$\Delta P =$ 600Pa
<b>300 x 100</b>	<b>30</b>	37	42	48	19	23	29
	<b>60</b>	38	45	53	22	28	33
	<b>120</b>	40	47	56	24	29	36
	<b>210</b>	45	51	58	32	36	40
	<b>300</b>	49	54	58	34	38	41
<b>400 x 150</b>	<b>216</b>	42	48	58	25	29	39
	<b>432</b>	44	54	62	28	37	46
	<b>864</b>	45	54	63	30	39	47
	<b>1512</b>	46	53	63	32	40	49
	<b>2160</b>	48	53	64	34	41	50
<b>600 x 200</b>	<b>432</b>	49	59	63	29	35	41
	<b>864</b>	50	54	63	29	34	43
	<b>1728</b>	46	53	61	26	34	42
	<b>3024</b>	45	53	62	29	35	44
	<b>4320</b>	43	51	60	27	35	44
<b>600 x 250</b>	<b>540</b>	50	59	64	29	35	42
	<b>1080</b>	49	54	63	29	34	43
	<b>2160</b>	46	53	61	27	35	41
	<b>3780</b>	45	53	61	29	35	44
	<b>5400</b>	44	51	60	28	35	44
<b>600 x 300</b>	<b>648</b>	51	58	64	29	35	42
	<b>1296</b>	49	54	63	29	33	42
	<b>2592</b>	46	52	61	28	34	41
	<b>4536</b>	46	52	61	30	35	43
	<b>6480</b>	44	51	60	29	36	44
<b>800 x 400</b>	<b>1152</b>	52	58	67	30	35	44
	<b>2304</b>	49	56	68	31	34	43
	<b>4608</b>	47	54	65	31	36	41
	<b>8064</b>	46	52	65	30	35	43
	<b>11520</b>	47	53	62	33	37	44

### Optional Silencer RCT-SIL-1000

The optional silencer used to reduce airborne sound pressure levels (see the above table) has overall dimensions of W x H = (RCT Nom. Size + 3mm), overall length = 1000mm. The silencer is manufactured with a splitter frame manufactured from mineral wool with glass silk covering to give low pressure loss.

**Installation**

The VAV Controller type RCT should be installed with the damper axis in the horizontal plane only, as per the diagram below:

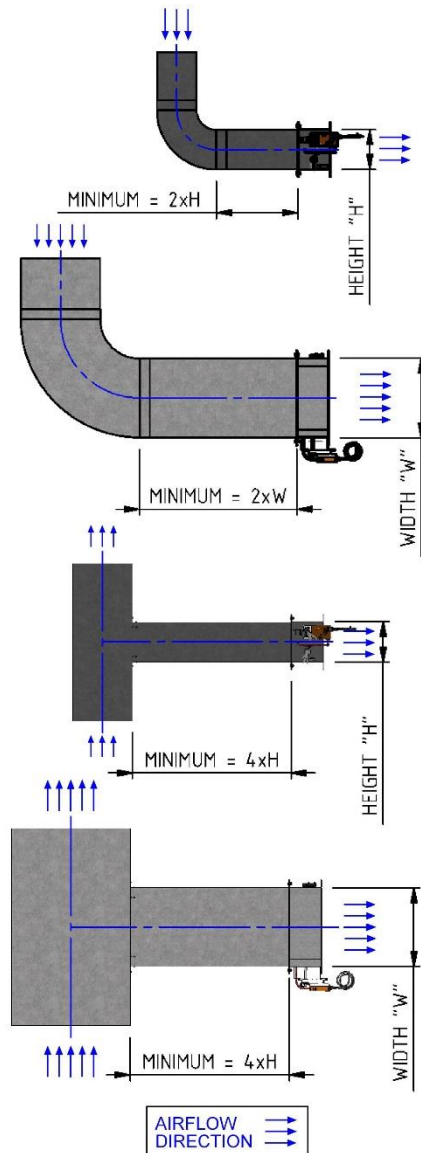


To achieve adequate accuracy of the airflow measurement the VAV controller requires a straight minimum distance on the inlet side of between 2 and 4 times the nominal diameter.

The exact minimum length depends upon the supply ductwork arrangement, note unique combinations of upstream components can introduce increased turbulent airflow resulting in requiring and increased straight upstream distance.

The images to the right detail typical minimum straight distances

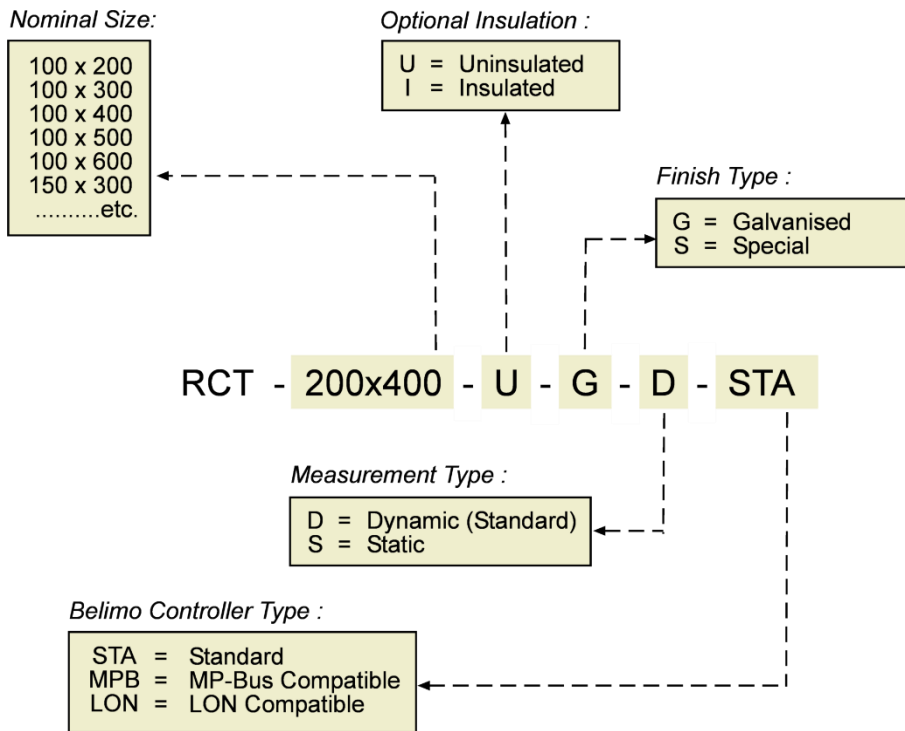
The VAV controller has no minimum straight distance requirements on the outlet side.



**Product Order Codes**

As standard the VAV Controller Type RCT is supplied for a 0 to 10V control signal using Belimo actuators; should you have any specific requirements for alternative actuators or control methods please contact Frenger to confirm availability.

The VAV Controller type RCT is available in numerous versions, the standard versions and order codes can be found as follows:



At time of order please specify the required minimum and maximum flowrates ( $V_{min}$ ,  $V_{max}$ ) to enable factory setting; failure to provide the specification at time of order will result in units being delivered based on  $V_{min} = 0$ ,  $V_{max} =$  See Table pages 2 & 3.

An ordering example for a typical VAV controller, c/w insulation and silencer can be seen below:

**RCT – 200x400 – I – G – D – STA + RCT-SIL-1000,  $V_{min} = 150$  l/s,  $V_{max} = 300$  l/s.**