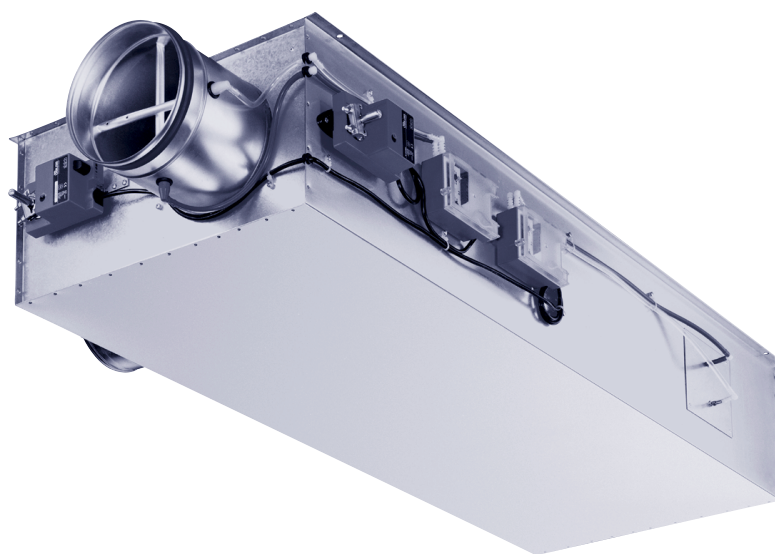


VARYCONTROL VAV Dual Duct Terminal Boxes

for variable volume systems

Type TVM



TROX[®] TECHNIK

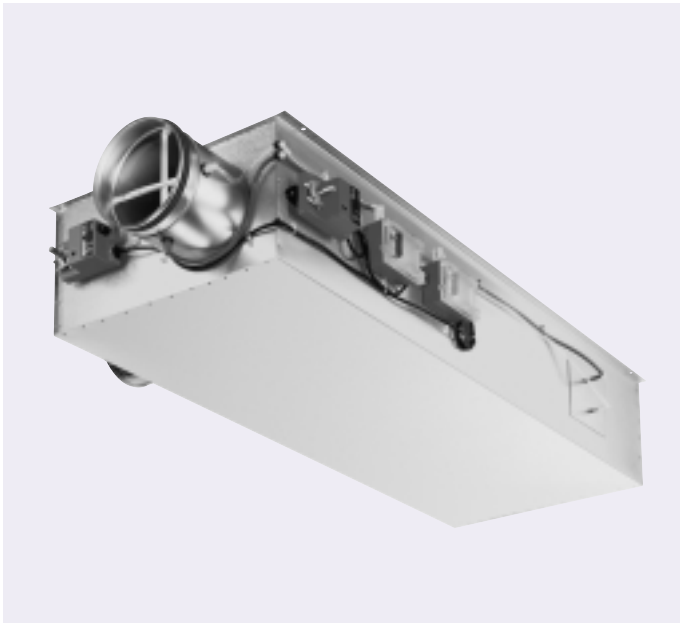
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VAV Dual Duct Terminal Box Type TVM



Trox VARYCONTROL VAV dual duct units Type TVM are volume flow control units for systems with constant or variable volume flow. The box consists of a casing with circular spigots for cold/warm air and right angle connection, integral attenuation for the reduction of air-regenerated noise, damper blade and differential pressure grid to measure the volume flow rate. The damper with elastomer seal has a leakage rate in the closed position which complies with DIN 1946 Part 4. The units can be supplied with acoustic cladding to reduce case-radiated noise. A secondary silencer, type TS, can be supplied to reduce discharge noise level.

VAV Dual Duct Terminal Box Type TVMD



The control components (velocity controller, transducer, actuator) are factory fitted complete with tubing and wiring. TROX VAV dual duct units can be supplied with a wide range of control components which are selected according to the project specification. Every controller is factory-tested and set to the required volume flow rates.

Further information on application, selection and the control components available is contained in the Product Information Leaflet "VARYCONTROL VAV UNITS".

Construction · Dimensions

Design Features

Casing

- Circular spigot on high pressure side suitable for ducts to DIN 24145 and DIN 24146 with groove for the lip seal (Lip seal can be fitted in the factory or on site by customer)
- Low pressure side suitable for angle flange or slide-on flanges
- Holes for support rods provided in edge of casing
- Casing leakage to Class II, VDI 3803 or DIN V 24194, Part 2
- Conforms with Clean Room Class 3, VDI 2083, and Class 100 US Standard 209 b

Volume Flow Control

- Pneumatic or electronic control
- Volume flow control range, depending on controller type
- High accuracy of set flow rate, even in cases of adverse upstream conditions, due to use of an averaging differential pressure sensor
- Differential pressure range 150 to 1500 Pa
- Control and shut off by means of individual hot and cold

control dampers

- Control dampers air-tight to DIN 1946, Part 4
- Can be mounted in any orientation (however, where membrane pressure sensors are used, install in position shown on label)
- Volume flow factory-set and each unit is air flow tested
- The mechanical components are maintenance free
- Operating temperature 10 to 50 °C

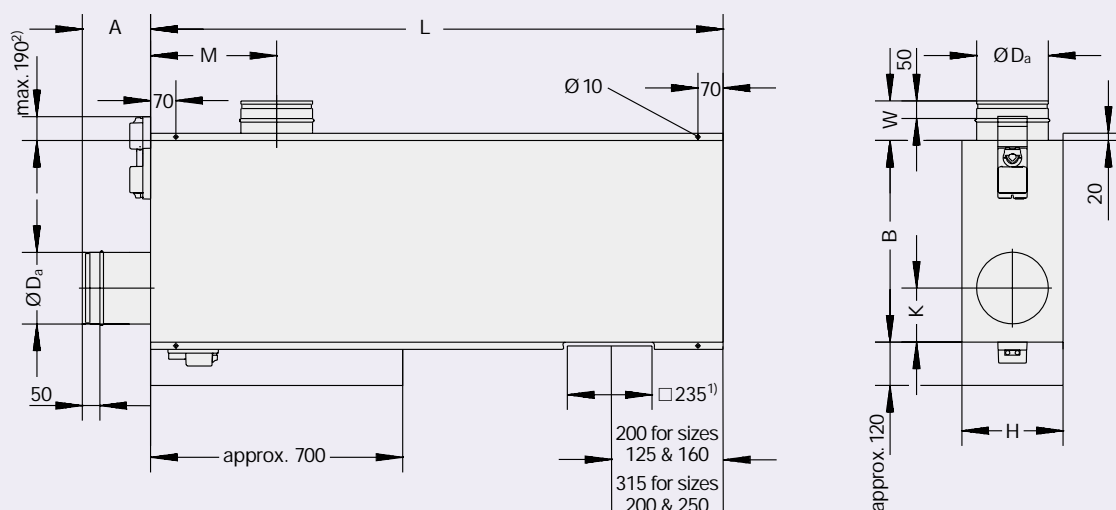
Mixing Section

- Optimum mixing of hot and cold air streams due to discharge at 90° and use of deflectors
- Temperature variation in mixed air approx. 10% when related to temperature difference between hot and cold air streams

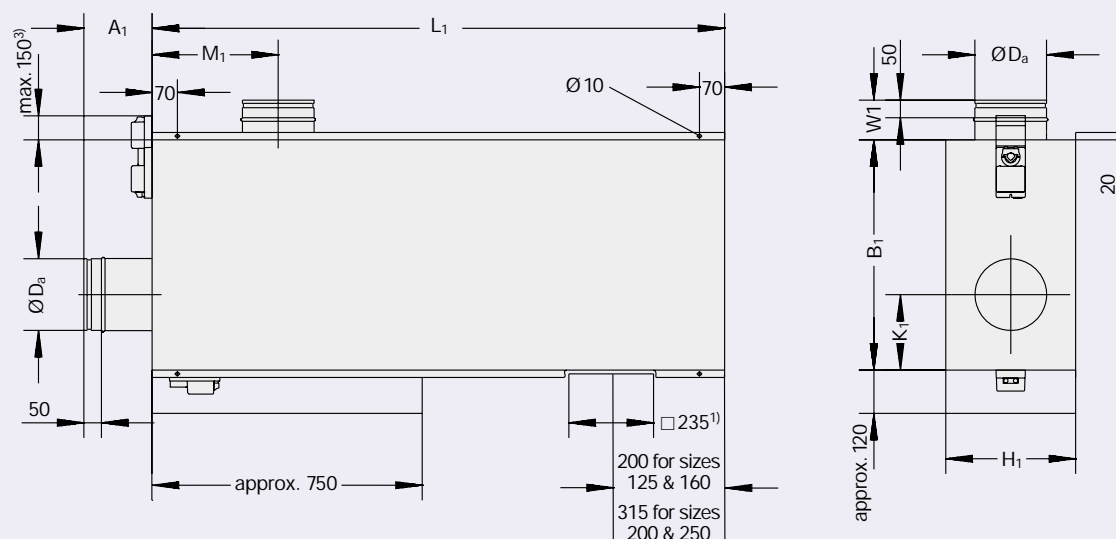
Additional Acoustic Cladding

- To reduce case-radiated noise
- External cover of galvanised sheet steel
- Sound-absorbent lining
- Rubber elements to provide isolation between inner and outer skins

TVM



TVMD



Ensure that the control components are accessible.

The control components are positioned on the right when viewed from the air flow direction (with the folded case-seam uppermost)

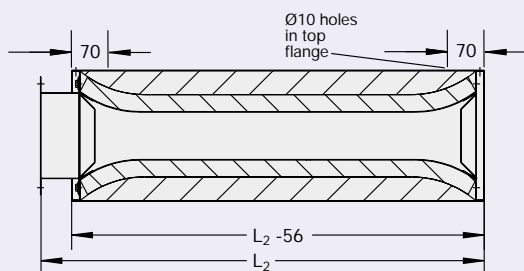
TS Secondary Silencer

- To reduce duct-transmitted, air-regenerated noise on low pressure side
- Casing in galvanised steel
- Acoustic infill mineral wool
- With angle flange or slide-on duct flanges

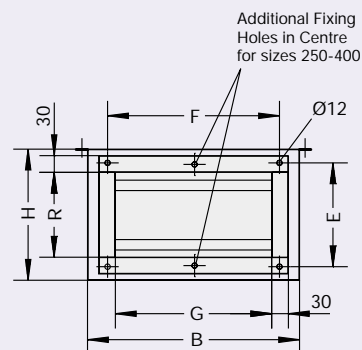
Materials

- Casing made of galvanised sheet steel
- Absorption material in silencer and control sections: mineral wool Class A2, DIN 4102
- Mineral wool in silencer section protected against erosion by glass fibre scrim suitable for air velocities of up to 20 m/s
- Mixing damper seal: thermoplastic elastomer
- Sensor tubes in aluminium
- Plastic plain bearings

TS Silencer



Connection to rectangular ducting



Connection ducting or TS

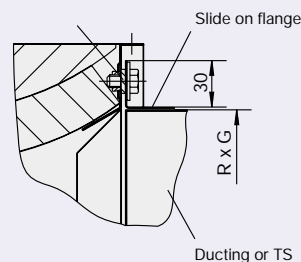
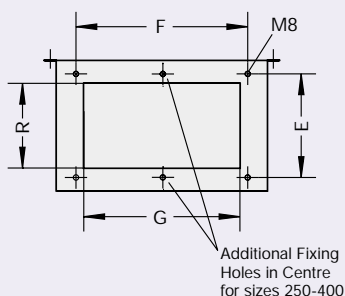


Table 1: Dimensions in mm

Size *	Duct connections					Casing														Size	W	W1
	øDa	E	F	R	G	A	A ₁	B	B ₁	H	H ₁	K	K ₁	L	L ₁	L ₂	M	M ₁				
125	124	186	232	152	198	150	110	300	380	236	316	125	165	1205	1245	806	240	280	125	170	130	
160	159	186	342	152	308	200	160	410	490	236	316	145	185	1255	1295	806	295	335	160	150	110	
200	199	244	492	210	458	200	160	560	640	281	361	170	210	1590	1630	956	350	390	200	125	85	
250	249	235	632	201	598	250	210	700	780	311	391	200	240	1765	1805	956	415	455	250	160	120	

1) Allow installation clearance (at least 0.5 x B or B₁) for removal and installation of sensors

2) Only on sizes 125 to 200 with electronic controls. On sizes 125 to 200 with pneumatic controls a maximum of 290

3) Only on sizes 125 to 200 with electronic controls. On sizes 125 to 200 with pneumatic controls a maximum of 250

* Dimensions of sizes 315 & 400 on request

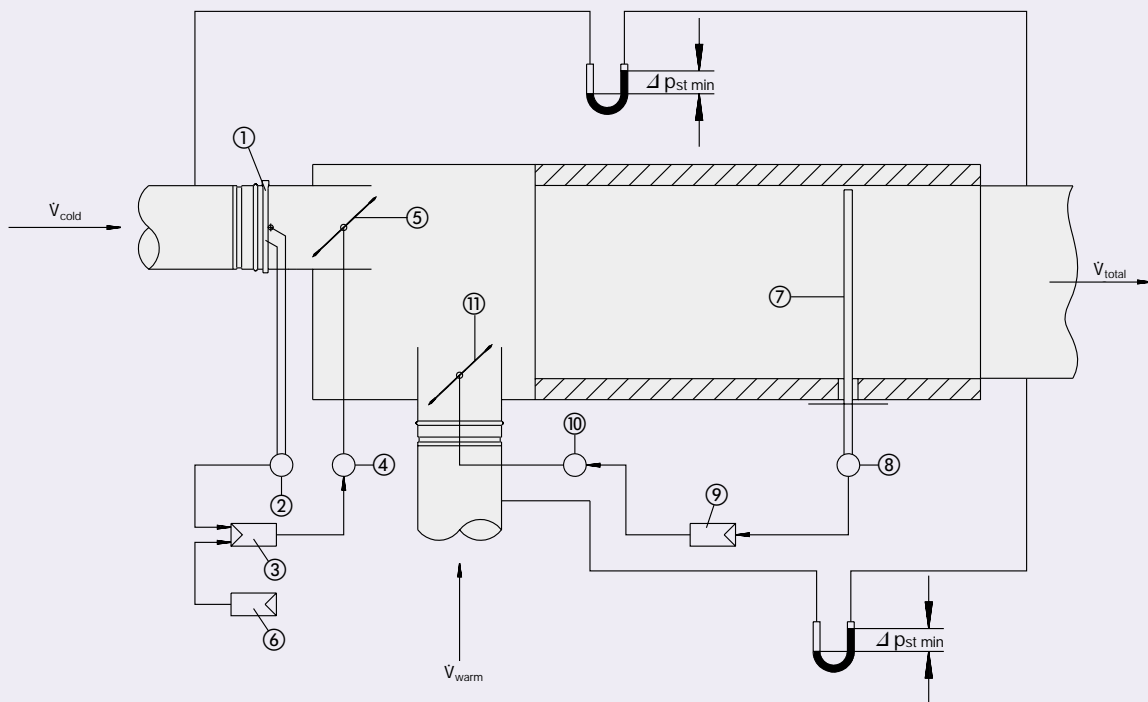
Table 2: Weights in kg

Size	TVM	TVMD	TS
125	28	42	10
160	34	51	15
200	50	78	22
250	65	103	37

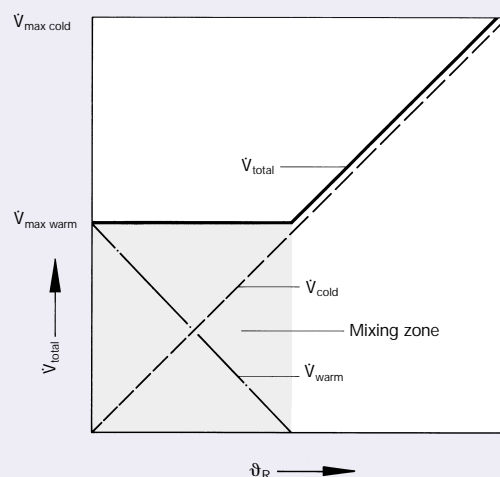
Control Characteristics

Control Characteristics

The room temperature sensor provides a signal for the controller of the cold air duct and changes its set point from 0 to 100% depending on the room temperature requirement. The actuator adjusts the damper. At the same time a pressure difference sensor prior to the box discharge monitors total volume flow and transmits a signal to the second controller via a pressure transmitter. This controller is set to a constant warm air flow (e.g. 50%) and controls the warm air damper by means of an actuator. This mixes in the corresponding proportion of warm air. As the need for cooling increases, the warm air damper closes, until only cold air is discharged.



- ① Differential pressure sensor for \dot{V}_{cold}
- ② Pressure transmitter for \dot{V}_{cold}
- ③ Controller for \dot{V}_{cold}
- ④ Actuator for cold duct
- ⑤ Damper for cold duct
- ⑥ Room temperature sensor (supplied by others)
- ⑦ Differential pressure sensor for \dot{V}_{total}
- ⑧ Pressure transmitter for \dot{V}_{total} .
- ⑨ Controller for \dot{V}_{warm} or \dot{V}_{total}
- ⑩ Actuator for hot duct
- ⑪ Damper for hot duct



Nomenclature · Aerodynamic Data

Nomenclature

f_m	in Hz: Octave centre frequency
L_W	in dB: Sound power level (re 1 pW) of air-regenerated noise in connection duct
L_{W1}	in dB: Sound power level (re 1 pW) of case-generated noise
L	in dB(A): A-weighted sound power level (re 20 μ Pa) of air-regenerated noise, assuming reflection attenuation and 8 dB/Oct. room attenuation
L_1	in dB(A): A-weighted sound power level (re 20 μ Pa) of case-radiated noise, assuming 8 dB/Oct. room attenuation
NC	: Noise criteria of sound pressure spectrum, assuming 8 dB/Oct. room attenuation
\dot{V}	in l/s or m ³ /h: Volume flow
\dot{V}_{total}	in l/s or m ³ /h: Total volume flow

Δp_{st}	in Pa: Static pressure differential
$\Delta P_{st\ min}$	in Pa: Minimum pressure differential between hot and cold air ducts and discharge
$\Delta \dot{V}$	in \pm %: Accuracy of total volume flow \dot{V}_{total} when operating in the mixing zone with duct pressures between 150 and 1500 Pa
ϑ_R	in °C: Room temperature

All noise levels determined in reverberant room. Sound power levels determined and corrected in accordance with ISO 5135, December 1997.

For further information on inlet conditions in the cold air duct, insertion loss and air-regenerated noise in the round duct, see leaflet VARYCONTROL VAV Controllers (type TVZ).

Table 3: Volume flow, volume flow accuracy and minimum pressure differentials

Size	$\dot{V}^{1)}$		$\Delta \dot{V}^{1)}$ in \pm %		$\Delta p_{st\ min}$ in Pa	
					TVM	TS*
	in l/s	in m ³ /h	cold air	warm air ²⁾		
125	45	162	8	17	150	–
	75	270	6	14		10
	105	378	5	11		20
	150	540	5	7		40
160	75	270	8	17	150	–
	110	396	7	15		5
	145	522	5	12		10
	250	900	5	7		20
200	120	432	8	17	150	–
	205	738	6	14		5
	310	1116	5	10		10
	405	1458	5	7		20
250	185	666	8	17	150	5
	330	1188	6	13		10
	470	1692	5	10		15
	615	2214	5	7		25

* additional allowance required

1) Typical values

2) Within the mixing zone

Quick Selection

Example

Given:

$\dot{V}_{total} = 45$ to 150 l/s or
 162 to 540 m³/h
 $\Delta p_{st} = 200$ Pa
 Permissible sound pressure level in the
 room 35 dB(A) with 8 dB/Oct., room
 attenuation

Size	L results in dB(A)		
	Air-regenerated Noise	Radiated Noise	Total Noise Level
125	30	38	39
160	25	30	31

Required:

Size, discharge radiated and combined
 noise level¹⁾ as dB(A)-value with
 $\dot{V}_{total} = 150$ l/s or 540 m³/h

Result: Size 160 complies with the acoustic specification
 without additional acoustic cladding and
 without secondary silencer TS

Method:

L values from table
 Intermediate values determined by means
 of interpolation

1) Total noise level is logarithmic addition of air-regenerated
 and radiated noise (which can be dependent on room
 characteristics)

Table 4: Air-Regenerated Noise

Size	\dot{V}_{total}		Without TS Secondary Silencer						With TS Secondary Silencer					
			Δp_{st} in Pa											
	in l/s	in m ³ /h	200		500		1000		200		500		1000	
		L in dB(A)	NC	L in dB(A)	NC	L in dB(A)	NC	L in dB(A)	NC	L in dB(A)	NC	L in dB(A)	NC	
125	45	162	<	<	19	20	25	29	<	<	<	<	16	19
	60	216	16	<	22	23	27	30	<	<	<	<	17	19
	100	360	21	<	26	23	31	32	17	<	19	<	22	22
	150	540	30	22	31	26	35	32	27	21	28	22	30	22
160	75	270	18	<	25	24	28	30	15	<	<	<	19	19
	100	360	21	<	26	23	31	31	<	<	19	15	23	23
	170	612	26	17	30	25	35	33	18	<	23	19	27	24
	250	900	34	25	36	28	39	34	26	17	28	20	31	25
200	120	432	17	<	22	15	24	24	<	<	<	<	16	17
	180	648	21	<	27	20	30	27	<	<	17	<	21	18
	280	1008	29	20	32	23	35	29	19	<	21	<	24	21
	405	1458	38	31	41	34	42	35	28	19	29	22	30	23
250	185	666	16	<	20	17	23	23	<	<	<	<	20	17
	270	972	21	<	26	18	29	27	<	<	15	<	20	18
	470	1692	33	27	34	28	37	30	24	17	24	17	26	18
	615	2214	40	34	44	38	44	38	33	28	34	27	34	28

Table 5: Case-Radiated Noise

Size	\dot{V}_{total}		Without Additional Acoustic Cladding						With Additional Acoustic Cladding					
			Δp_{st} in Pa											
	in l/s	in m ³ /h	200		500		1000		200		500		1000	
		L ₁ in dB(A)	NC	L ₁ in dB(A)	NC	L ₁ in dB(A)	NC	L ₁ in dB(A)	NC	L ₁ in dB(A)	NC	L ₁ in dB(A)	NC	
125	45	162	26	19	33	26	36	31	16	<	21	<	24	18
	60	216	28	20	35	29	39	33	18	<	24	18	27	20
	100	360	31	25	38	33	44	37	21	<	28	22	33	26
	150	540	38	30	41	35	47	42	27	19	31	24	36	31
160	75	270	26	18	33	26	38	32	18	<	23	15	27	20
	100	360	28	19	34	27	40	33	19	<	25	16	30	23
	170	612	31	23	37	30	42	35	23	<	28	20	33	25
	250	900	37	30	41	35	45	39	29	21	32	25	36	30
200	120	432	27	19	34	27	39	34	18	<	24	15	27	21
	180	648	28	19	36	30	42	35	21	<	27	18	31	23
	280	1008	32	22	38	32	44	37	24	<	29	20	34	25
	405	1458	38	30	42	37	47	42	30	22	33	25	37	30
250	185	666	27	19	36	30	42	36	18	<	25	19	30	22
	270	972	28	21	37	31	44	38	19	<	27	20	33	27
	470	1692	33	25	40	33	46	39	25	<	30	22	36	28
	615	2214	37	29	42	36	47	40	30	21	33	25	38	30

< indicates values less than 15

Air-Regenerated Noise

Example

Given: TVM size 160
 $V_{total} = 100$ to 250 l/s or 360 to 900 m³/h
 $\Delta p_{st} = 500$ Pa
 Permissible sound pressure level in the room
 35 dB(A) with 4 dB/Oct. room attenuation

Required: Air-regenerated noise in the room at
 $V_{total} = 250$ l/s or 900 m³/h

Calculation

f_m	63	125	250	500	1000	2000	4000	8000
L_W (without TS)	62	62	51	42	34	31	25	32
Reflection attenuation	14	9	4	1	0	0	0	0
Ducting attenuation ¹⁾	0	0	0	6	8	4	3	3
Room attenuation ¹⁾	4	4	4	4	4	4	4	4
A-weighting	44	49	43	31	22	23	18	25
Corrected level	-26	-16	-9	-3	0	+1	+1	-1
	18	33	34	28	22	24	19	24

1) see VDI 2081 for example

Result: L approx. 38 dB(A) by logarithmic addition.
 Specification is not met. TS Attenuator required.
 After repeating the calculation with TS the result
 L approx. 32 dB(A), specification is met.

Table 6: Air-Regenerated Noise without TS

Size	V_{total}		$\Delta p_{st} = 200$ Pa								$\Delta p_{st} = 500$ Pa								$\Delta p_{st} = 1000$ Pa							
			L_W in dB								L_W in dB								L_W in dB							
			f_m in Hz								f_m in Hz								f_m in Hz							
			63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000
in l/s	in m ³ /h																									
125	45	162	42	38	34	20	<	<	<	<	42	38	35	26	<	<	<	24	54	38	35	26	17	<	20	33
	60	216	43	34	37	21	<	<	<	<	46	38	39	28	15	<	<	27	56	40	39	29	20	15	23	34
	100	360	52	44	41	27	19	<	<	15	47	46	44	33	22	<	15	27	54	47	46	36	26	18	25	37
	150	540	55	50	46	37	33	27	19	17	51	52	49	38	32	26	21	30	62	53	52	41	33	27	26	37
160	75	270	56	45	34	22	<	<	<	<	56	46	40	33	<	<	<	28	56	48	41	34	19	16	19	34
	100	360	57	49	38	25	<	<	<	16	55	52	42	32	15	<	<	27	60	54	45	37	21	17	22	36
	170	612	59	53	42	32	23	17	<	19	59	58	46	36	25	18	17	29	62	60	50	41	27	21	26	38
	250	900	61	59	50	40	34	31	24	17	62	62	51	42	34	31	25	32	63	65	54	44	35	31	29	39
200	120	432	52	44	31	19	<	<	<	<	51	48	36	27	<	<	<	19	57	47	36	29	15	<	<	28
	180	648	56	47	35	25	16	<	<	15	54	52	41	31	21	<	<	24	56	55	42	36	23	15	18	31
	280	1008	54	53	41	35	30	22	<	15	56	55	44	38	32	24	15	27	58	60	47	41	35	27	21	33
	405	1458	59	59	49	44	40	35	30	21	59	61	53	47	43	38	32	32	64	64	53	49	44	39	33	35
250	185	666	49	43	29	16	<	<	<	<	48	43	33	25	<	<	<	21	51	44	35	26	19	<	<	27
	270	972	50	44	33	27	21	<	<	<	52	50	39	31	23	15	<	22	56	51	42	34	26	18	<	31
	470	1692	54	52	42	40	36	31	24	19	57	54	44	41	37	32	24	25	60	58	48	44	39	34	26	32
	615	2214	62	57	49	47	43	40	35	31	62	59	52	51	47	43	38	34	65	62	53	51	47	43	37	34

Table 7: Air-Regenerated Noise with TS

Size	\dot{V}_{total}		$\Delta p_{st} = 200$ Pa								$\Delta p_{st} = 500$ Pa								$\Delta p_{st} = 1000$ Pa							
			L_W in dB								L_W in dB								L_W in dB							
			f_m in Hz								f_m in Hz								f_m in Hz							
			63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000
in l/s	in m ³ /h																									
125	45	162	46	29	26	<	<	<	<	<	49	29	27	<	<	<	<	47	36	30	17	<	<	<	<	23
	60	216	44	37	32	16	<	<	<	<	46	41	32	17	<	<	<	15	46	41	33	19	<	<	<	23
	100	360	46	42	34	25	19	<	<	<	55	44	37	26	18	<	<	18	57	46	39	27	21	<	<	26
	150	540	56	48	41	35	32	24	<	<	59	50	43	35	33	25	<	18	64	52	46	36	33	25	<	26
160	75	270	50	47	29	<	<	<	<	<	50	40	32	18	<	<	<	<	61	44	34	20	<	<	<	23
	100	360	46	42	31	15	<	<	<	<	56	46	35	20	<	<	<	19	59	49	38	23	<	<	<	27
	170	612	55	46	35	18	<	<	<	<	59	52	39	22	<	<	<	23	60	55	43	27	16	<	<	28
	250	900	59	55	43	29	23	16	<	<	60	57	45	30	23	17	<	23	62	60	47	31	24	18	<	29
200	120	432	39	36	23	<	<	<	<	<	40	40	28	16	<	<	<	<	51	40	29	17	<	<	<	21
	180	648	41	40	27	15	<	<	<	<	45	44	30	19	<	<	<	15	57	47	34	22	<	<	<	22
	280	1008	41	47	31	17	<	<	<	<	54	48	34	21	<	<	<	16	53	50	37	25	16	<	<	25
	405	1458	59	54	41	30	26	19	<	<	58	56	43	31	26	19	<	18	59	57	44	32	27	20	<	26
250	185	666	41	32	19	<	<	<	<	<	46	34	21	16	<	<	<	<	50	47	27	19	<	<	<	21
	270	972	50	38	22	15	<	<	<	<	48	41	27	19	<	<	<	<	56	44	31	24	15	<	<	22
	470	1692	56	45	34	32	26	16	<	<	56	47	34	32	26	16	<	<	59	50	36	33	27	17	<	<
	615	2214	64	53	42	40	37	30	22	<	67	55	42	40	36	30	<	<	64	55	42	40	37	30	<	<

< indicates values less than 15

Case-Radiated Noise

Example

Given: TVM size 250
 $V_{total} = 270$ to 615 l/s or 972 to 2214 m³/h
 $\Delta p_{st} = 500$ Pa
 Permissible sound pressure level in the room
 45 dB(A) with 6 dB/oct. room attenuation

Required: Radiated noise in room at $V_{total} = 615$ l/s
 or 2214 m³/h

Calculation

f_m	63	125	250	500	1000	2000	4000	8000
L_{W1} (without additional acoustic cladding)	59	55	51	49	42	39	39	35
Ceiling noise reduction	3	3	3	3	3	3	3	3
Room attenuation ¹⁾	6	6	6	6	6	6	6	6
A-weighting	50	46	42	40	33	30	30	26
Corrected level	-26	-16	-9	-3	0	+1	+1	-1
Corrected level	24	30	33	37	33	31	31	25

1) see VDI 2081 for example

Result: L_1 approx. 42 dB(A) using logarithmic addition, specification achieved without additional acoustic cladding

Table 8: Radiated Noise without Acoustic Lagging

Size	V_{total}		$\Delta p_{st} = 200$ Pa								$\Delta p_{st} = 500$ Pa								$\Delta p_{st} = 1000$ Pa							
			L_{W1} in dB								L_{W1} in dB								L_{W1} in dB							
			f_m in Hz								f_m in Hz								f_m in Hz							
			63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000
in l/s	in m ³ /h																									
125	45	162	39	34	35	31	29	25	16	<	38	35	35	39	34	34	29	26	44	36	35	39	38	38	37	35
	60	216	36	38	38	32	30	26	18	15	45	40	40	42	36	35	32	29	45	41	40	44	41	39	39	37
	100	360	44	42	39	36	34	32	24	19	45	46	46	46	38	37	33	31	51	48	52	50	46	41	41	39
	150	540	49	49	45	43	40	37	34	28	51	51	48	48	41	40	38	36	54	53	53	54	48	43	43	43
160	75	270	44	43	36	31	27	25	17	15	40	43	39	39	35	33	27	23	44	45	43	43	41	39	36	32
	100	360	42	44	37	33	28	26	18	15	47	48	42	40	36	34	29	26	48	49	46	46	42	40	38	33
	170	612	46	48	42	36	30	30	21	17	50	51	46	43	37	35	33	28	52	55	51	48	43	41	40	35
	250	900	52	54	48	43	34	32	27	25	55	55	50	48	40	38	36	31	56	59	54	52	46	42	42	39
200	120	432	44	40	36	33	28	24	15	15	51	45	41	41	37	33	28	26	50	45	42	42	42	40	36	39
	180	648	53	42	38	33	29	26	17	16	52	50	45	43	37	34	30	29	55	51	48	48	44	41	39	38
	280	1008	53	47	43	36	32	29	22	21	56	50	47	45	38	36	32	32	58	55	51	50	45	41	40	40
	405	1458	59	53	48	43	35	32	29	27	60	55	51	50	40	38	35	35	63	58	53	54	47	43	42	42
250	185	666	42	37	38	33	29	24	18	18	42	41	41	43	38	34	31	29	46	43	43	46	45	42	39	38
	270	972	44	41	37	34	31	27	21	19	48	46	45	44	38	36	33	31	54	51	49	51	46	42	41	40
	470	1692	52	49	44	37	33	32	26	20	57	51	48	46	40	38	36	35	59	55	53	52	47	43	43	42
	615	2214	57	54	47	42	35	33	28	23	59	55	51	49	42	39	39	35	62	58	55	53	48	44	45	44

Table 9: Radiated Noise with Acoustic Lagging

Size	V_{total}		$\Delta p_{st} = 200$ Pa								$\Delta p_{st} = 500$ Pa								$\Delta p_{st} = 1000$ Pa							
			L_{W1} in dB								L_{W1} in dB								L_{W1} in dB							
			f_m in Hz								f_m in Hz								f_m in Hz							
			63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000
in l/s	in m ³ /h																									
125	45	162	37	25	28	21	17	<	<	<	36	26	28	29	22	21	<	<	42	27	28	29	26	25	22	21
	60	216	34	29	31	22	18	<	<	<	43	31	33	32	24	22	17	15	43	32	33	34	29	26	24	23
	100	360	42	33	32	26	22	19	<	<	43	37	39	36	26	24	18	17	49	39	45	40	34	28	26	25
	150	540	47	40	38	33	28	24	19	<	49	42	41	38	29	27	23	22	52	44	46	44	36	31	28	29
160	75	270	42	37	30	22	<	<	<	<	38	37	33	30	22	21	<	<	42	39	37	34	28	26	21	18
	100	360	40	38	31	24	15	<	<	<	45	42	36	31	23	22	<	<	46	43	40	37	29	28	23	19
	170	612	44	42	36	27	17	18	<	<	48	45	40	34	24	23	18	<	50	49	45	39	30	29	25	21
	250	900	50	48	42	34	21	20	<	<	53	49	44	39	27	26	21	17	54	53	48	43	33	30	27	25
200	120	432	42	37	29	22	<	<	<	<	49	42	34	30	23	20	<	<	48	42	35	31	28	27	21	25
	180	648	51	39	31	22	15	<	<	<	50	47	38	32	23	21	15	15	53	48	41	37	30	28	23	25
	280	1008	51	44	36	25	18	16	<	<	54	47	40	34	24	23	17	18	56	52	44	39	31	28	25	26
	405	1458	57	51	41	32	21	19	15	<	58	52	44	39	26	25	20	21	61	55	46	43	33	30	27	28
250	185	666	40	33	31	23	16	<	<	<	40	37	34	33	25	21	17	16	44	39	36	36	32	29	25	25
	270	972	42	37	30	24	18	<	<	<	46	42	38	34	25	23	19	18	52	47	42	41	33	29	27	27
	470	1692	50	45	37	27	20	19	<	<	55	47	41	36	27	25	22	22	57	51	46	42	34	30	29	29
	615	2214	55	50	40	32	22	20	<	<	57	51	44	39	29	26	25	22	60	54	48	43	35	31	31	31

< indicates values less than 15

Order Details

Specification Text

VAV dual duct units for variable volume flow systems, volume flow rates from 45 to 615 l/s and 162 to 2214 m³/h. Comprising casing with damper blade airtight to DIN 1946, Part 4 on cold and warm duct connections. Differential pressure grids to measure the cold duct and total flow rate. Every controller is factory tested and set to the required volume flow rates. Baffles are fitted behind the damper blade for optimum acoustic and aerodynamic performance. Casing with acoustic and thermal lining and spigots to fit DIN V ducts with groove for lip seal option. Casing leakage rate to class II, VDI 3803. DIN V 24194. Unit meets clean room class 3, VDI 2083 and class 100 to US standard 209b. Differential pressure range 150 to 1500 Pa. Volume flow rate range depends on make of control component. Temperature deviation of mixed air approx., 10% in relation to the temperature differential between cold and warm air supply.

Regulation:

- Variable volume flow control, electronic controller for connection of control signal. Actual signal value can be read. Dynamic/static differential pressure measurement, supply voltage 24 VAC., signal voltage 2...10 VDC/0...10 VDC.

- Variable volume flow control, pneumatic controller for connection of control signal. Static differential pressure measurement, PI-control, unit signal 0.2...1.0 bar, normally open/normally closed, direct acting/reverse acting.
- Room temperature and variable control, digital controller with integral/separate transducer. Communication by databus. Triac switching for 3 point control of actuator, communication available through room temperature sensor. Override switching, window switch; actuator; 24 VAC 3 point.

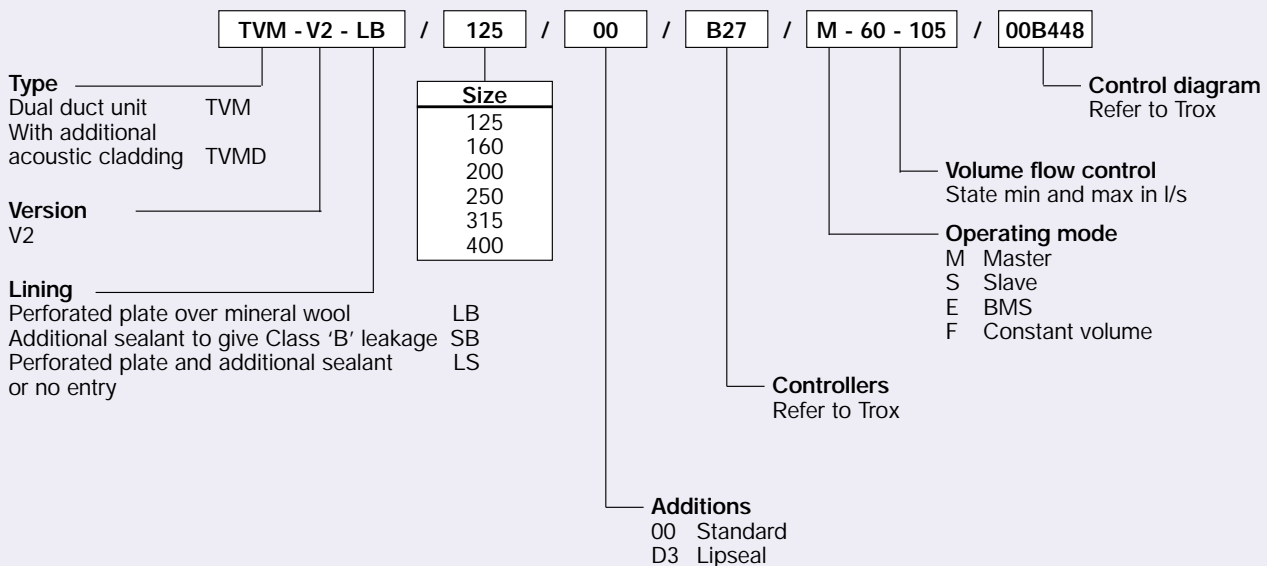
Materials:

Casing made of galvanised sheet steel, lining of acoustic section and mixing chamber with mineral wool, faced with fibre glass to protect against air velocity to approx., 20 m/s, non-combustible to DIN 4102 building materials, class A2. Damper blade with plastic seal TPE, sensor grid pipes of aluminium, plastic plain bearings. Optionally available with:

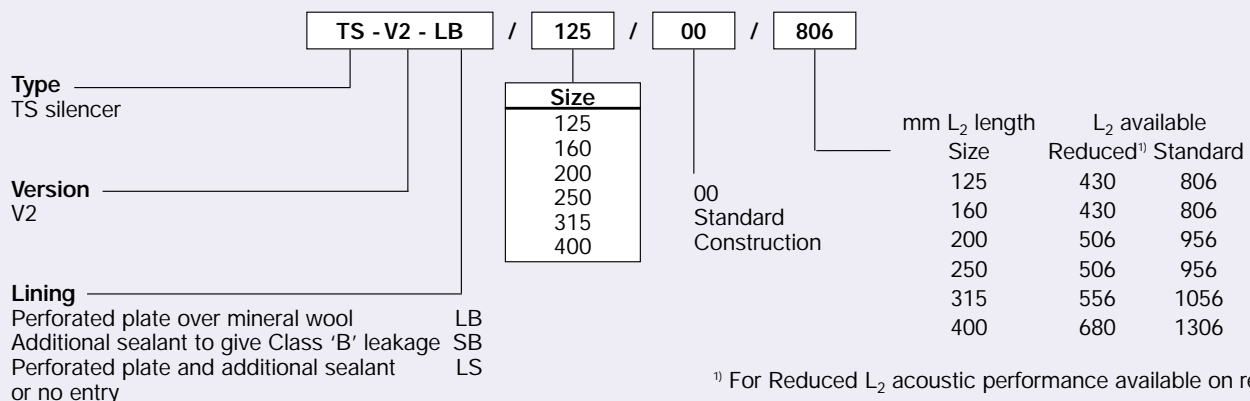
Acoustic lagging to reduce radiated noise made of 40 mm mineral wool and exterior casing of galvanised sheet steel.

TS Attenuator for the reduction of air-regenerated noise, made of mineral wool and casing of galvanised sheet steel, connectable to the box, suitable for connection to slide-on flanges.

Order Code



Order Details TS



¹⁾ For Reduced L₂ acoustic performance available on request.

Order Example

Make: TROX
Type: TVM-V2-LB / 125 / 00 / B27 / F-60-60 / 00B448

Order Example TS

Make: TROX
Type: TS-V2-LB/125/00/806