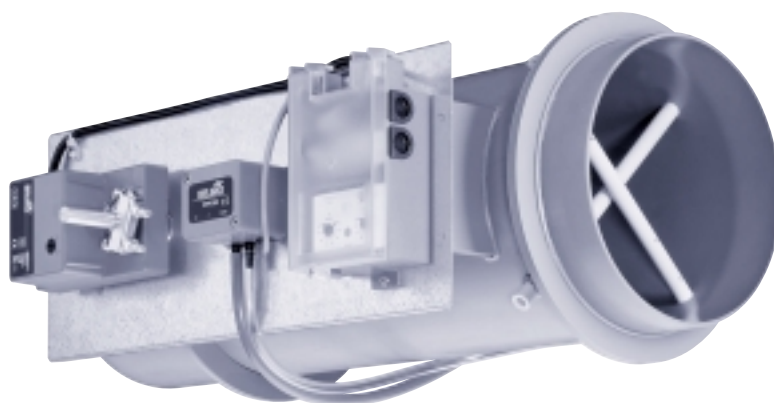


VARYCONTROL Plastic VAV Controller

for aggressive media

Type TVRK



TROX[®] TECHNİK

Contents · Description

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VAV Controller Type TVRK, electronic



Trox VARYCONTROL VAV controllers in polypropylene plastic type TVRK are circular volume flow control units for variable extract air volume flow systems. Also for use as room or duct pressure controllers when air contains aggressive media.

TVRK controllers consist of a circular duct with control damper with plastic seal, and differential pressure grid to measure volume flow rate. The materials used have been selected from experience and have proved successful in practice. In critical cases, a materials compatibility test should be carried out on the TVRK controller and transducer.

VAV Controller Type TVRK, pneumatic, with flanges



The control components (velocity controller, diaphragm-pressure transducer, actuator) are factory fitted complete with tubing and wiring.

Trox VAV controllers can be supplied with a wide range of control components, which are selected according to the project specification.

Each VAV control is factory adjusted to the required volume flow rates. This is carried out using an air system testing.

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

For lower discharge noise requirements the circular attenuator, type CAK, should be used.

Construction · Dimensions

Design Features

Casing

- With same connection diameter both ends (standard construction)
- Optional with flanges both ends
- Air flow leakage to Class II VDI 3803 or DIN 24 194

Volume Flow Control

- Either pneumatic or electronic
- Suitable for supply or extract air
- Volume flow range approx. 5 : 1 depending on type of controller
- High accuracy of set volumes by use of differential pressure grid even with extreme inlet conditions (see page 5)
- Differential pressure range 20 to 1500 Pa
- Control damper can be fully closed (control switch by others)
- Installation orientation must be as shown on the label
- Volume flow preset in factory and each VAV controller tested with air flow

- Volume flow measurement and adjustment of set points possible on site
- Damper mechanism of the VAV controller is maintenance-free
- Operating temperature range 10 to 50 °C

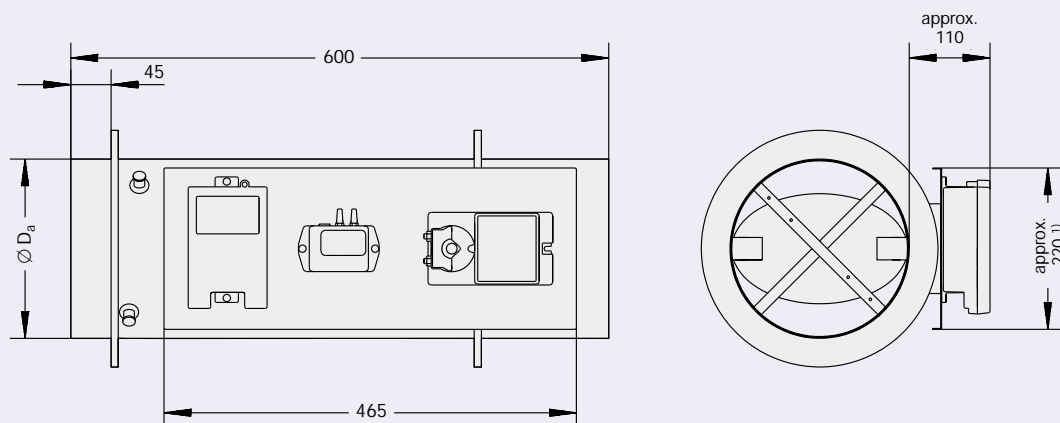
Pressure Control

- Duct or room pressure control
- Positive/negative pressures
- Differential pressure value factory-set, can be site adjusted
- Adjustment range dependent on controller type

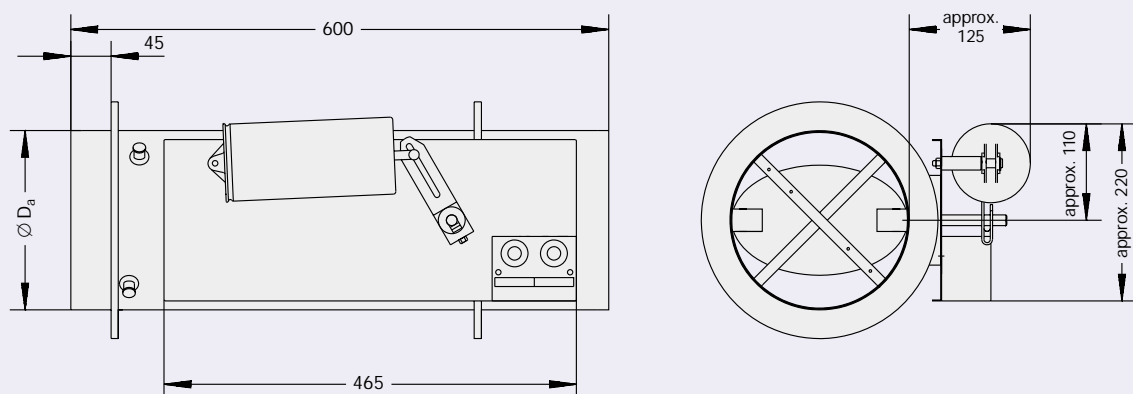
Materials

- Casing and damper blade in non-flammable polypropylene (PPs)
- Plain bearings in polypropylene (PP)
- Damper blade seals in chloroprene rubber (CR)
- Star-shaped differential pressure grid in plastic (POM/PVC)

TVRK, electronic



TVRK, pneumatic



1) 270 for construction with LABCONTROL
230 for construction with spring return actuator

Table 1: Dimensions in mm

Size	TVRK						CAK				
	$\varnothing D_a$	$\varnothing D_1$	$\varnothing D_2$	s	$\varnothing d$	n ²⁾	$\varnothing D_a$	$\varnothing D_{a1}$	L = 595	L = 1095	L = 1595
125	125	185	160	12	9	6	125	225	x	x	x
160	160	220	195	12	9	8	160	250	x	x	x
200	200	260	235	12	9	10	200	280	x	x	x
250	250	310	285	15	9	10	250	355	x	x	x
315	315	375	350	15	9	12	315	415	x	x	x

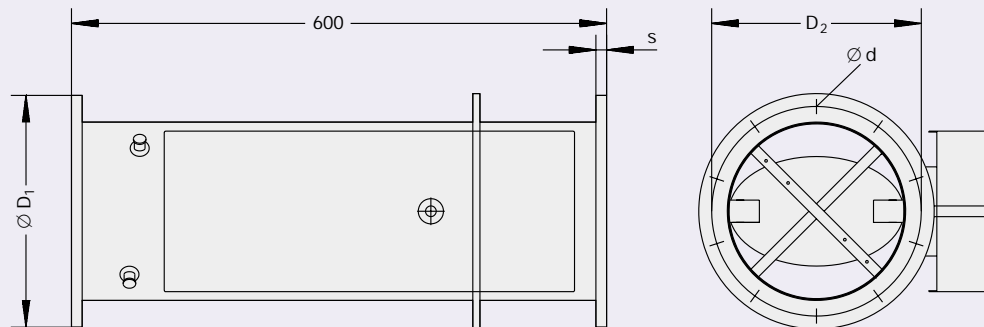
2) n = Number of flange holes

x = lengths available

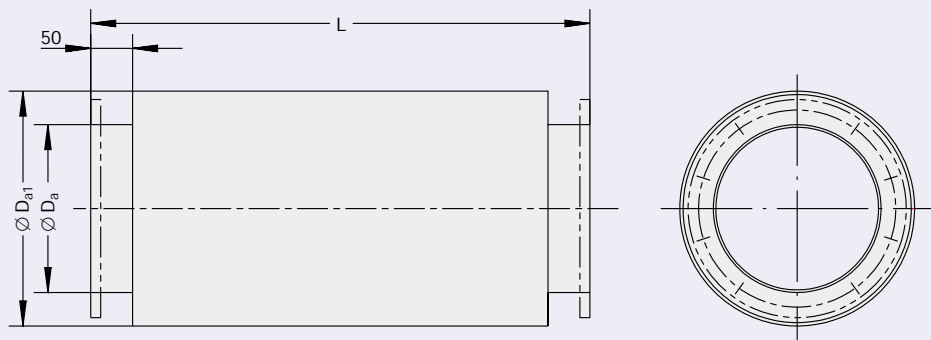
Table 2: Weights in kg

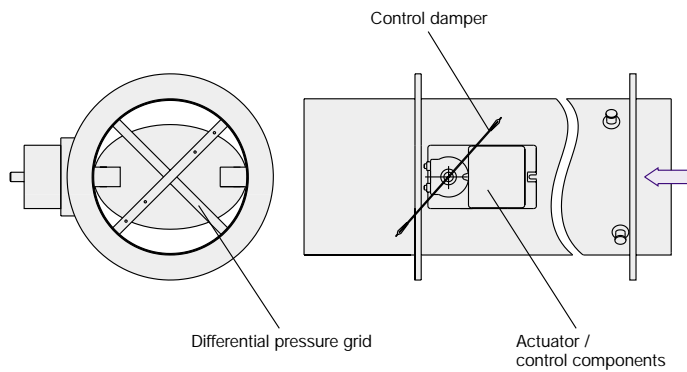
Size	TVRK	CAK			Additional weight Flange
		L = 595	L = 1095	L = 1595	
125	3,0	2,2	4,1	5,9	0,3
160	3,4	2,6	4,7	6,8	0,4
200	3,6	3,2	5,8	8,5	0,4
250	4,6	4,3	7,6	10,9	0,6
315	6,0	4,6	8,6	12,5	0,7

Flange Construction



CAK





Depending on the application, there are three types of controls; volume flow control, duct pressure and room pressure control.

Volume Flow Control

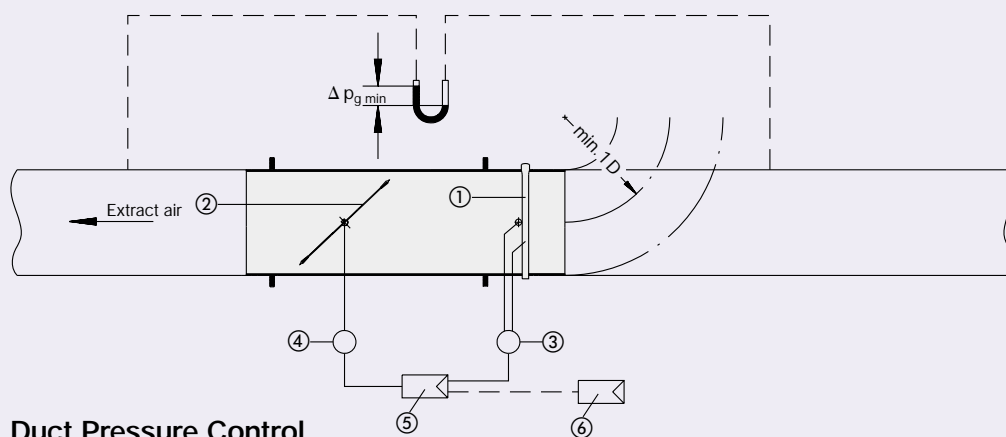
The pressure differential Δp_w measured at the differential pressure grid is transmitted to the electronic or pneumatic controller. The controller compares the actual value with the set value. If there is a discrepancy, the actuator adjusts the control damper accordingly, thus keeping the volume flow constant within close tolerances over the entire differential pressure range.

Pressure Control

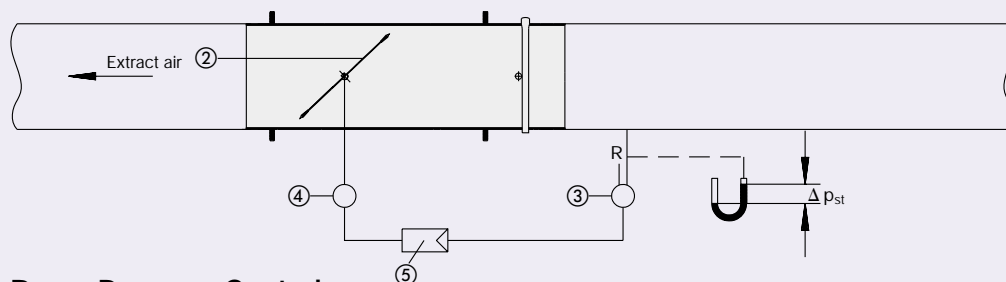
TVRK controllers are suitable for use as duct or room pressure controllers. Here the differential pressure either between the duct and the surrounding area or between two rooms is measured and transmitted to the controller as a reference signal.

- ① Differential pressure grid
- ② Control damper
- ③ Transducer
- ④ Actuator
- ⑤ Volume flow controller
- ⑥ Room temperature controller (by others)
- Wiring or piping by others

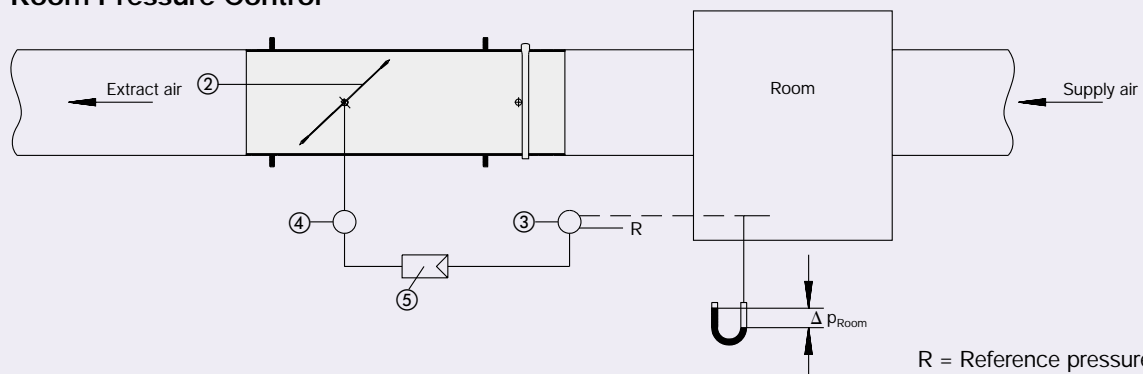
Volume Flow Control



Duct Pressure Control



Room Pressure Control



Nomenclature · Dimensions

Nomenclature

f_m	in Hz: Octave band centre frequency
L_w	in dB: Sound power level: in duct flow generated noise in duct connection
L_{w1}	in dB: Sound power level: Case radiated noise with 3 m plastic duct connected on both sides of controller (All levels measured in reverberation chamber. Sound power data calculated and corrected to ISO 5135, December 1997)
L	in dB(A): A-weighted sound pressure level (re 20 μ Pa): flow generated noise including end reflection attenuation and 8 dB/oct. room attenuation
L_1	in dB(A): A-weighted sound pressure level (re 20 μ Pa): case radiated noise including 8 dB/oct. room attenuation

NC	: NC rating of sound pressure spectrum, including 8 dB/oct. room attenuation
Δp_{st}	in Pa: Static pressure differential for duct pressure control
Δp_g	in Pa: Total pressure differential
$\Delta p_{g \min}$	in Pa: Minimum total pressure differential
\dot{V}	in l/s and m ³ /h: Volume flow rates
$\Delta \dot{V}$	in \pm %: Accuracy of set volume flow rates
B	in m: Total length of Trox circular attenuator, Type CAK
Δp_{Room}	in Pa: Room pressure

Table 3: Volume flow range, -accuracy and minimum pressure differential

Size	\dot{V}		$\Delta p_{g \min}$ in Pa		$\Delta \dot{V}$ ²⁾ in \pm %
	in l/s	in m ³ /h	TVRK	CAK ¹⁾	
125	30	108	20	-	9
	60	216	30	-	7
	105	378	60	5	6
	150	540	90	10	5
160	50	180	20	-	9
	80	288	30	-	8
	145	522	50	5	7
	250	900	80	10	5
200	80	288	20	-	9
	180	648	30	-	7
	310	1116	40	5	5
	405	1458	70	10	5
250	120	432	20	-	9
	270	972	30	-	7
	470	1692	40	5	5
	615	2214	50	10	5
315	210	756	20	-	9
	425	1530	20	-	7
	740	2664	30	5	6
	1025	3690	40	10	5

1) Based on length of 1095 mm

2) Typical values

Flow Generated Noise

with Circular Attenuator Type CAK

Example

Given: Size 125
 $\dot{V} = 60 \text{ l/s or } 216 \text{ m}^3/\text{h}$
 $\Delta p_g = 250 \text{ Pa}$
 Specified sound pressure level in room 35 dB(A)
 with 4 dB room attenuation

Required: Flow generated noise in room

Calculation:

f_m	63	125	250	500	1k	2k	4k	8k
L_w ¹⁾	42	52	49	48	50	47	41	30
Duct length attenuation deflection ¹⁾	0	0	0	0	1	2	3	4
End Reflection attenuation	20	14	8	4	1	0	0	0
	22	38	41	44	48	45	38	26
Room attenuation ¹⁾	4	4	4	4	4	4	4	4
	18	34	37	40	44	41	34	22
A-weighting	-26	-16	-9	-3	0	1	1	-1
Corrected level	-8	18	28	37	44	42	35	21

Result: L approx. 47 dB(A) by logarithmic addition.
 Specification is not met without attenuator,
 500 mm long attenuator required.
 Repeating the calculation gives:
 L approx. 29 dB(A), specification is met.

*) See e.g. VDI 2081

1) For values see Page 8

Table 4: Flow generated noise with circular attenuator in ducting between room and controller

Size	\dot{V}		B	$\Delta p_g = 100 \text{ Pa}$										$\Delta p_g = 250 \text{ Pa}$										$\Delta p_g = 500 \text{ Pa}$										$\Delta p_g = 1000 \text{ Pa}$																
				L_w in dB										L_w in dB										L_w in dB										L_w in dB																
				f_m in Hz										f_m in Hz										f_m in Hz										f_m in Hz																
				63	125	250	500	1000	2000	4000	8000	L in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L in dB(A)	NC							
125	15	54	0,5	49	37	30	21	<	<	<	<	<	<	<	<	<	<	<	<	<	29	21	28	24	15	<	<	15	<	<	27	31	32	29	22	23	27	19	23	21	31	38	39	38	34	31	34	31	31	29
	60	216	0,5	58	55	44	33	22	15	17	15	24	<	42	48	44	34	25	23	28	18	26	22	41	49	48	39	29	28	33	27	30	27	43	50	50	44	33	34	38	31	35	33							
	105	378	0,5	58	59	51	41	31	20	20	16	30	23	51	55	53	42	33	27	32	27	33	26	49	57	56	44	34	32	38	30	36	33	50	59	60	51	38	37	43	39	41	38							
	105	378	1	58	57	46	37	28	17	<	15	27	19	46	52	47	34	26	17	20	18	25	17	47	56	51	37	28	20	28	28	30	23	47	56	55	41	29	22	33	32	33	27							
	150	540	0,5	60	56	52	47	40	31	28	27	35	29	54	56	57	48	40	32	34	29	37	30	55	62	62	51	41	36	41	37	41	35	55	64	65	55	43	40	46	41	46	41							
	150	540	1	53	50	46	45	39	31	23	18	34	28	51	53	51	42	37	29	25	27	32	26	51	59	56	42	36	29	31	37	35	33	52	60	59	46	38	31	36	39	38	34							
160	25	90	1	46	40	26	17	<	<	<	<	<	<	35	34	29	19	<	<	<	<	<	32	35	30	22	<	<	18	18	15	<	38	41	40	36	23	15	28	34	28	30								
	80	288	1	56	53	39	25	<	<	<	15	20	<	43	47	43	29	<	<	17	19	22	<	42	48	47	34	18	<	24	25	26	20	43	48	46	37	22	18	31	34	30	30							
	145	522	1	62	60	47	35	26	19	15	17	29	19	50	54	46	35	24	20	24	29	28	25	52	58	53	41	26	22	29	33	33	29	52	59	56	47	29	24	35	38	37	33							
	250	900	1	62	59	51	48	41	36	32	29	38	32	56	59	53	46	39	35	32	31	37	30	61	64	60	48	40	36	36	40	41	35	58	67	63	52	40	35	40	45	44	40							
200	40	144	1	58	49	41	30	20	<	15	<	23	<	47	48	44	34	23	<	25	24	26	20	48	52	49	39	25	17	30	35	32	31	49	53	52	44	31	23	39	44	39	40							
	180	648	1	57	52	44	33	24	<	<	<	25	16	50	51	46	37	27	16	29	28	29	24	53	57	53	43	30	21	34	36	35	31	53	58	57	48	34	25	40	44	41	40							
	310	1116	1	52	52	49	43	34	29	25	18	33	28	53	56	51	44	35	27	31	29	35	28	61	64	57	47	37	30	39	39	40	34	59	68	64	53	40	33	45	47	46	42							
	405	1458	1	49	52	52	48	40	38	30	20	38	33	46	50	50	48	43	38	35	32	39	33	64	64	61	52	44	38	41	41	44	37	66	71	68	55	45	40	48	48	49	45							
250	60	216	1	45	40	32	24	<	<	<	<	16	<	32	37	34	28	<	23	22	<	21	17	38	38	36	32	19	31	35	37	32	32	42	41	39	38	28	36	45	47	41	42							
	270	972	1	59	55	44	38	18	<	16	<	29	22	52	53	46	40	24	30	32	28	32	27	54	58	52	44	28	37	41	37	39	35	53	59	56	49	32	42	47	46	44	42							
	470	1692	1	52	48	45	41	32	27	22	16	31	26	56	60	52	47	33	30	32	36	38	32	63	64	57	49	35	39	45	39	43	39	62	68	64	54	37	45	53	48	50	47							
	615	2214	1	49	46	46	42	38	34	25	18	35	29	54	56	54	50	42	38	35	32	41	36	66	66	62	53	42	41	45	39	46	39	68	71	67	57	42	47	56	51	53	50							
315	105	378	1	41	34	32	21	<	<	<	16	15	<	32	39	39	28	15	25	25	20	25	20	36	41	43	35	20	36	37	38	35	33	40	44	46	42	28	41	45	55	47	50							
	425	1530	1	63	54	47	42	21	29	30	28	33	28	57	53	50	42	25	35	41	34	38	36	57	57	55	45	29	40	47	44	43	41	57	60	59	49	33	45	52	51	48	46							
	740	2664	1	66	62	57	49	31	32	33	31	41	36	62	60	59	51	34	42	45	40	44	39	67	65	62	51	35	45	52	48	49	46	66	69	67	55	39	50	58	55	54	52							
	1025	3690	1	67	60	59	52	40	37	37	36	44	39	64	62	64	55	40	44	46	43	48	43	70	68	67	57	43	49	53	51	52	47	73	72	71	58	43	52	59	57	57	53							

< indicates values below 15

Flow Generated Noise

Example

Given: Size 200
 \dot{V} = 180 to 310 l/s or 648 to 1116 m³/h
 Δp_g = 100 Pa
 Specified sound pressure level in room 40 dB(A)
 with 8 dB room attenuation

Required: Flow generated noise in room
 dB(A) at \dot{V} = 310 l/s or 1116 m³/h

Result: L = 38 dB(A) specification is met

Table 5: Flow generated noise in duct, room side

Size	\dot{V}		$\Delta p_g = 100$ Pa										$\Delta p_g = 250$ Pa										$\Delta p_g = 500$ Pa										$\Delta p_g = 1000$ Pa										
			L _w in dB										L _w in dB										L _w in dB										L _w in dB										
			f _m in Hz										f _m in Hz										f _m in Hz										f _m in Hz										
			63	125	250	500	1000	2000	4000	8000	L in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L in dB(A)	NC	
125	15	54	45	40	38	35	32	24	<	15	26	21	28	30	36	38	39	36	27	17	33	28	29	36	40	45	46	45	41	33	42	37	37	41	47	54	59	55	50	47	53	48	
	60	216	57	60	51	47	48	39	31	27	41	38	42	52	49	48	50	47	41	30	44	40	42	55	54	53	54	51	46	37	48	43	45	54	56	57	58	56	52	46	53	48	
	105	378	64	67	59	54	56	44	37	31	48	45	49	61	58	55	58	51	45	38	50	47	51	64	62	58	60	56	52	43	54	49	50	65	66	64	63	61	57	50	58	53	
	150	540	63	67	61	56	60	49	42	38	52	50	55	63	65	62	64	56	50	43	57	54	55	69	70	65	66	60	55	48	59	55	55	70	73	69	68	64	60	53	62	57	
160	25	90	43	43	37	36	35	29	16	16	29	24	24	36	36	38	39	38	28	22	34	30	25	37	38	42	43	43	40	34	40	35	42	44	52	57	56	51	48	50	51	46	
	80	288	60	57	47	45	46	39	28	21	39	36	48	51	50	48	48	45	38	33	43	37	46	52	55	53	51	49	45	41	47	41	44	51	55	56	55	54	51	50	51	46	
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	250	900	65	66	61	58	59	49	43	40	52	49	58	64	63	62	63	56	49	46	57	54	62	68	69	65	65	60	54	52	59	55	61	72	74	71	68	65	60	58	64	58	
200	40	144	56	51	48	46	45	38	31	22	39	35	47	51	50	50	49	45	41	36	44	39	46	54	55	54	53	49	47	47	49	43	50	55	58	60	58	56	56	56	56	51	
	180	648	56	55	50	48	48	37	30	27	41	38	49	54	51	52	52	47	44	38	47	43	53	59	59	58	57	53	50	48	52	47	53	60	62	62	60	58	57	55	57	51	
	310	1116	46	51	51	45	42	37	29	27	38	32	52	58	57	58	58	51	46	43	52	49	61	66	63	62	61	58	53	50	56	52	62	71	70	67	65	63	61	58	62	56	
	405	1458	42	49	52	44	38	37	29	27	36	30	49	54	56	58	62	52	47	43	55	52	63	68	67	65	65	60	55	54	60	56	64	73	73	69	67	65	61	59	63	57	
250	60	216	50	44	39	39	38	35	25	<	34	29	38	41	43	42	44	47	38	29	42	39	42	43	46	47	49	53	52	52	50	47	39	45	49	54	60	60	60	60	58	55	
	270	972	59	58	52	55	46	40	33	27	44	41	51	56	53	55	54	53	46	39	50	45	52	61	60	58	56	57	54	48	54	50	52	62	63	62	61	62	61	57	60	55	
	470	1692	50	51	50	50	47	43	37	29	43	38	55	63	60	63	58	53	47	41	54	50	62	69	65	64	63	62	58	51	60	54	60	72	70	68	66	67	66	60	65	59	
	615	2214	45	48	49	48	48	45	39	31	43	38	52	61	62	65	60	56	51	47	56	52	64	70	69	68	66	63	58	52	52	57	67	75	74	72	69	69	67	61	67	61	
315	105	378	44	42	38	35	41	28	18	16	33	31	41	42	46	43	46	47	37	29	43	39	39	40	47	49	49	51	47	46	47	43	45	45	53	58	57	58	58	62	57	57	
	425	1530	67	59	53	55	51	46	42	32	47	42	61	59	57	57	57	53	52	44	53	48	61	61	61	61	59	59	57	56	52	56	50	60	62	65	63	63	62	62	59	61	56
	740	2664	70	67	61	63	57	50	47	41	54	50	65	65	63	64	62	57	55	48	58	53	68	69	68	65	65	62	62	56	62	56	69	72	73	69	69	67	68	63	66	61	
	1025	3690	71	66	67	67	62	55	51	47	58	55	69	67	70	69	67	61	58	53	63	58	74	73	74	70	70	66	64	59	66	61	74	75	78	73	71	70	70	66	69	64	

< indicates values below 15

Case radiated noise

Example

Given: Size 160
 \dot{V} = 25 to 80 l/s or 90 to 288 m³/h
 Δp_g = 500 Pa
 Specified sound pressure level in room 40 dB(A)
 with 4 dB room attenuation
 and 4 dB ceiling attenuation

Required: Flow generated noise in room in dB(A)-value
 at \dot{V} = 80 l/s or 288 m³/h

Calculation:

f_m	63	125	250	500	1k	2k	4k	8k
L_w ¹⁾	27	31	29	29	30	38	43	39
Ceiling attenuation ¹⁾	4	4	4	4	4	4	4	4
Room attenuation ¹⁾	4	4	4	4	4	4	4	4
	19	23	21	21	22	30	35	31
A-weighting	-26	-16	-9	-3	0	1	1	-1
Corrected level	-7	7	12	18	22	31	36	30

1) See e.g. VDI 2081

Result: L_1 approx. 38 dB(A) by logarithmic addition,
 specification is met.

Table 6: Case radiated noise

Size	\dot{V}		$\Delta p_g = 100$ Pa										$\Delta p_g = 250$ Pa										$\Delta p_g = 500$ Pa										$\Delta p_g = 1000$ Pa										
			L_{W1} in dB										L_{W1} in dB										L_{W1} in dB										L_{W1} in dB										
			f_m in Hz										f_m in Hz										f_m in Hz										f_m in Hz										
			63	125	250	500	1000	2000	4000	8000	L_1 in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L_1 in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L_1 in dB(A)	NC	63	125	250	500	1000	2000	4000	8000	L_1 in dB(A)	NC	
125	15	54	27	<	<	<	<	<	<	16	<	<	26	<	<	<	<	24	23	19	20	18	28	20	17	16	18	32	38	33	33	32	36	35	29	27	31	46	47	47	44	42	
	60	216	26	17	20	16	21	25	23	18	21	17	27	23	26	21	24	33	34	30	31	29	28	30	31	27	28	37	42	40	37	36	34	36	35	33	34	44	48	48	44	43	
	105	378	28	24	30	25	32	30	28	23	28	23	35	34	38	30	34	39	38	34	36	33	39	39	41	34	35	43	46	43	42	41	42	39	43	41	40	48	53	51	49	47	
	150	540	28	33	33	30	37	34	30	33	33	28	36	37	43	36	40	43	42	39	40	36	39	43	48	40	42	48	48	45	45	43	42	45	50	45	44	52	55	53	51	49	
160	25	90	24	16	<	<	<	<	<	<	<	25	27	18	<	19	26	23	17	22	19	25	24	<	<	24	34	37	27	32	32	34	34	29	26	33	40	43	45	40	40		
	80	288	24	18	<	<	21	29	26	<	24	21	24	25	23	22	25	33	36	29	32	31	27	31	29	29	30	38	43	39	38	37	38	37	36	36	39	46	50	48	46	44	
	145	522	24	32	25	24	31	33	29	19	29	25	33	38	31	29	33	41	41	34	37	35	29	40	38	36	37	45	48	43	44	42	44	43	44	45	44	50	53	51	49	48	
	250	900	26	38	36	33	39	38	30	24	35	30	44	45	42	39	43	48	44	38	43	40	46	47	47	42	45	51	51	45	48	45	45	50	51	49	49	55	57	53	53	51	
200	40	144	25	26	22	23	28	30	26	<	26	22	33	33	33	34	37	39	36	28	35	31	34	36	39	41	42	44	42	42	41	37	41	41	43	46	49	52	50	50	49	45	
	180	648	30	31	24	26	32	32	27	17	29	25	41	39	34	35	40	41	39	30	38	34	41	42	43	45	46	48	46	40	45	40	44	44	45	48	52	51	53	52	48	51	46
	310	1116	31	35	29	30	39	30	21	<	32	29	35	42	38	37	43	42	38	30	40	35	48	50	46	47	49	51	48	41	48	44	50	53	54	57	56	57	55	49	55	50	
	405	1458	31	38	31	33	42	28	18	<	35	33	25	42	39	40	48	40	32	27	42	39	47	51	48	47	52	53	48	42	49	45	53	56	56	58	57	59	57	50	56	52	
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	270	972	42	33	26	32	33	30	21	<	29	24	45	38	33	33	40	44	35	27	39	37	48	45	42	40	44	50	44	38	45	42	50	48	49	49	51	55	51	49	51	47	
	470	1692	40	35	33	41	38	35	23	16	34	28	49	44	40	43	47	44	35	30	42	38	57	50	46	44	51	53	46	40	49	46	56	56	54	53	55	59	55	51	55	52	
	615	2214	39	36	37	45	40	37	24	18	37	32	44	41	43	49	46	44	33	27	43	37	62	52	49	49	55	55	46	42	51	47	63	58	56	54	57	61	55	51	57	54	
315	105	378	32	30	22	17	29	30	<	16	25	22	46	36	27	26	34	40	26	22	34	33	36	30	34	36	40	45	38	41	41	38	41	35	39	45	49	50	47	48	47	43	
	425	1530	43	36	27	34	39	38	27	21	35	31	43	38	33	37	45	46	38	34	42	38	43	42	40	42	49	52	46	45	47	44	44	45	46	49	53	56	52	50	52	49	
	740	2664	47	43	40	46	48	44	35	32	43	39	50	46	42	45	51	50	42	40	47	42	56	51	48	47	54	56	49	48	52	49	52	53	51	52	57	61	56	54	57	54	
	1025	3690	46	43	47	53	51	47	36	38	47	42	54	49	51	53	57	54	46	44	52	48	58	54	53	52	59	59	52	50	56	52	59	57	56	56	60	64	57	56	59	56	

< indicates values below 15

Order Details

Specification Text Type TVRK

VAV circular controller in PPs plastic for variable extract air volume flow systems. Suitable for use with aggressive media as all parts in contact with the air flow are made of plastic (no metal components). Consists of casing with control damper, low leakage to the requirements DIN 1996 Part 4, an integral mean value differential pressure grid and with factory installed prewired control components. Each VAV controller is factory tested and the desired flow rates set or programmed. Site measurement and adjustment of factory-set minimum and maximum values can be made.

Controls:

- Variable volume flow rate, electronic controller with dial set point and feedback signal relating to actual value, static pressure differential measurement, supply voltage 24 VAC, signal voltage 2...10 VDC
- Variable volume flow rate, pneumatic controller with dial set point, differential pressure control, PI characteristics, control signal 0.2 to 1.0 bar, normally open, normally closed, direct or indirect acting.

Casing air flow leakage to Class II, VDI 3803 or DIN 24 194, differential pressure range 20 to 1500 Pa, volume flow range depending on type of controller up to 5:1.

Materials:

Casing and damper blade in polypropylene, non-flammable (PPS), plain bearings in polypropylene (PP), damper blade seal in chloroprene rubber (CR), plastic grid (PP).

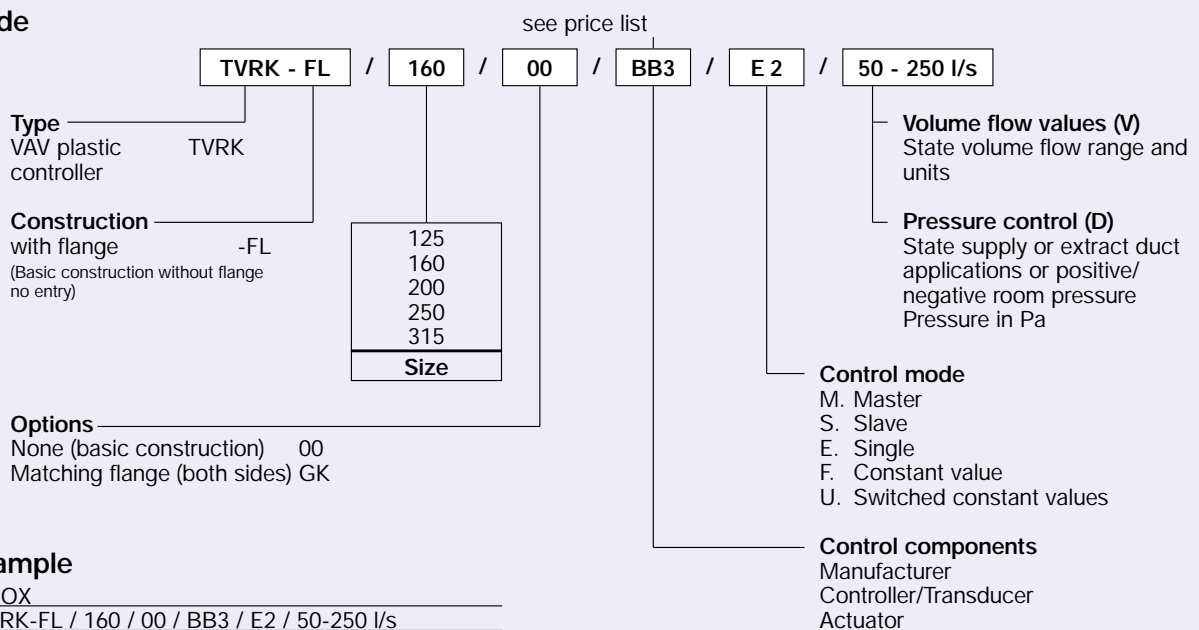
Specification Text Type CAK

Plastic circular attenuator in PPs for use in ventilation systems with aggressive media for the attenuation of fan and regenerated noise, e.g. caused by volume flow control units.

Construction:

External casing and perforated inner duct in non-flammable grade polypropylene. Mineral wool non-combustible to DIN 4102 A2. Protected glass tissue facing suitable for air velocities up to 20 m/s. Standard construction with common connection diameter at both ends. Optional flange connections.

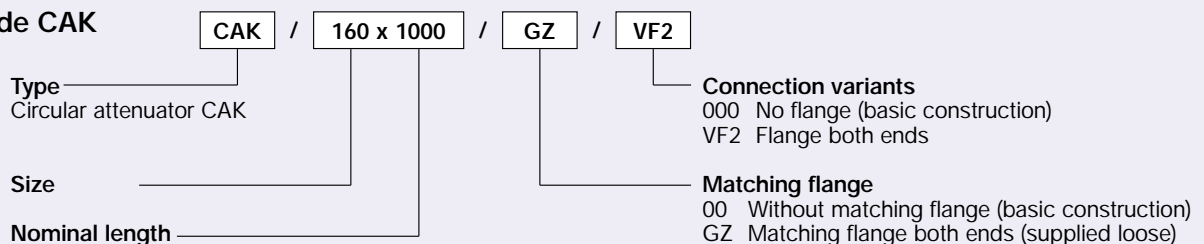
Order Code



Order Example

Make: TROX
Type: TVRK-FL / 160 / 00 / BB3 / E2 / 50-250 l/s

Order Code CAK



Order Example

Make: TROX
Type: CAK / 160 x 1000 / GZ / VF2