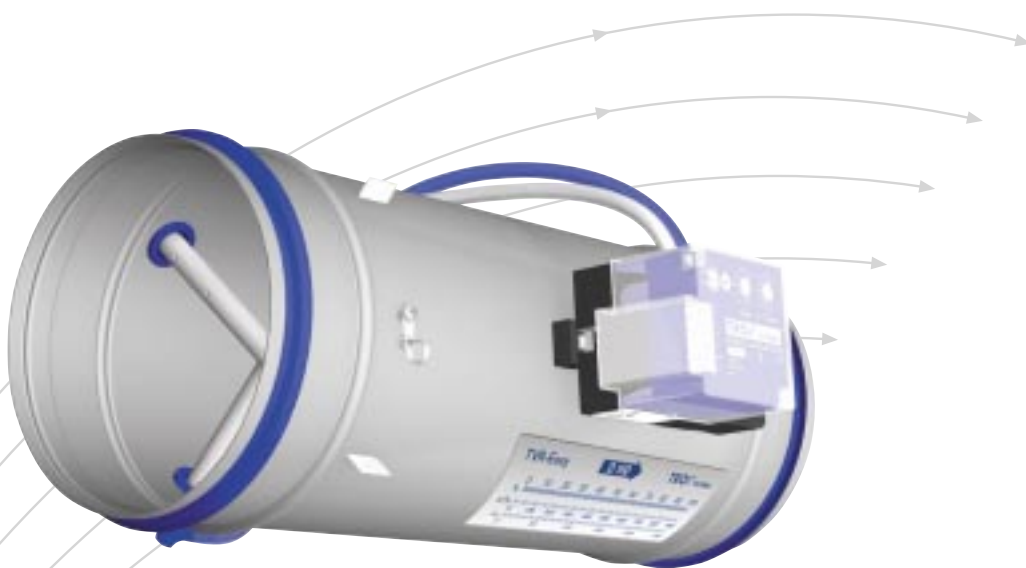


VARYCONTROL® VAV Controller

Type TVR-Easy



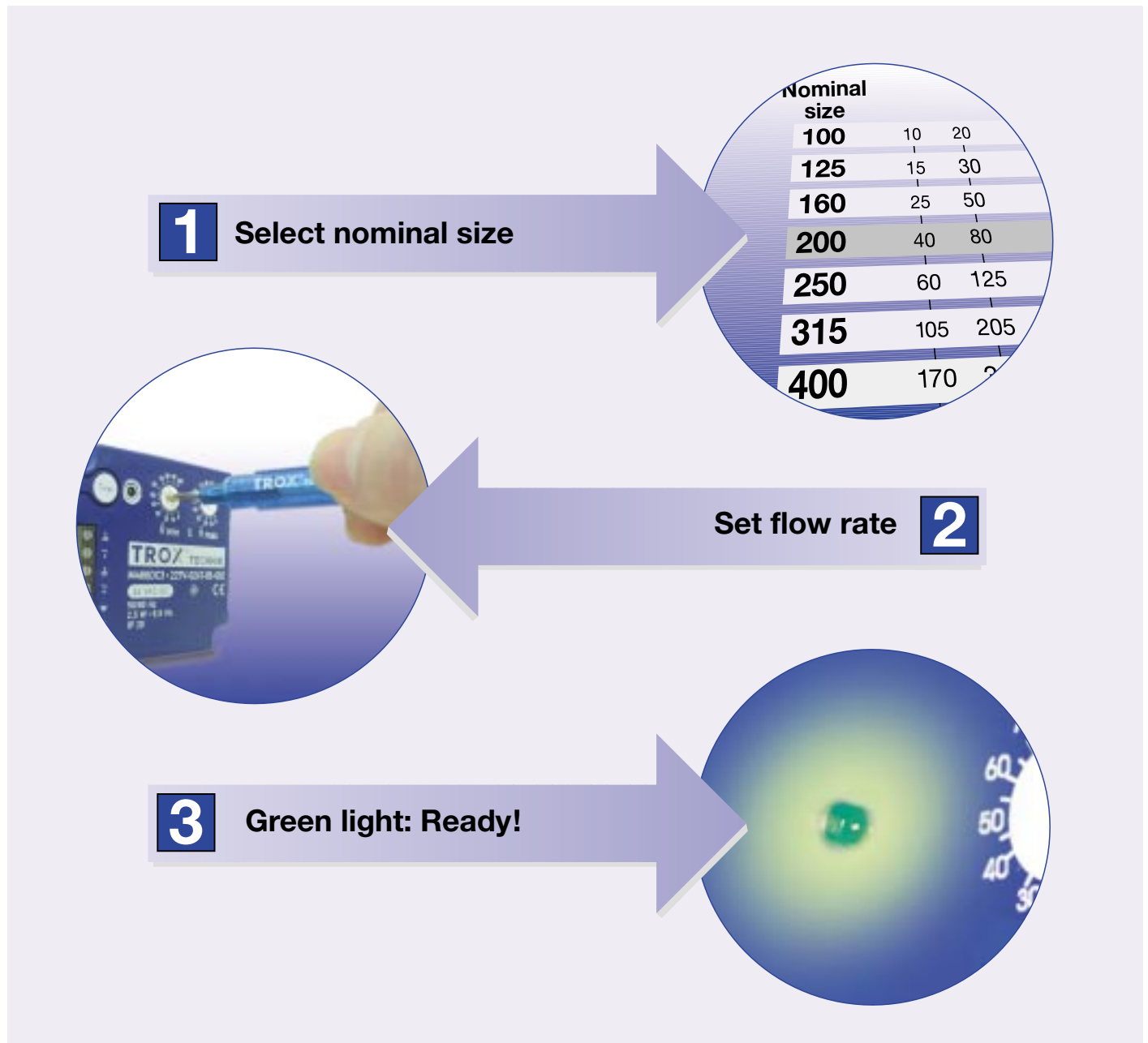
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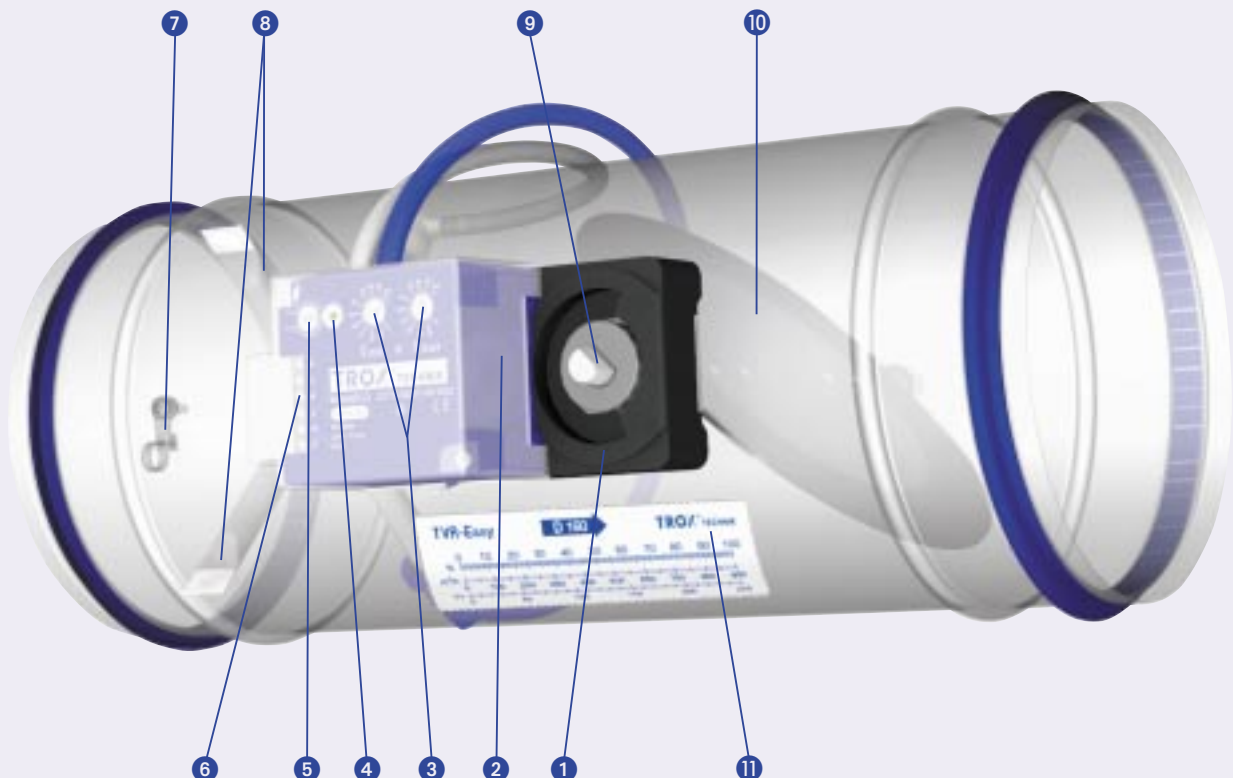


TROX TVR-Easy – the innovative solution

- **Easy** Selection according to nominal size of the duct system
- **Easy** Flow rate adjustment without adjustment tool
- **Easy** Functional testing with service button
- **Easy** Functional check by indicator light

The proven technology of the compact flow rate controller has been optimized. Valuable on site time saved by simple set up.

TVR-Easy, developed with consultants and customers!



- | | |
|---------------------------|-----------------------------------|
| ① TROX Compact-controller | ⑦ Wire clamping bracket |
| ② Protection cover | ⑧ Differential pressure grid |
| ③ Potentiometers | ⑨ Damper blade position indicator |
| ④ Indicator light | ⑩ Control damper blade |
| ⑤ Service button | ⑪ Flow rate scale |
| ⑥ Connection terminals | |

Construction · Dimensions

Characteristics

- Electronic flow rate control
- Green indicator light provides functional information:
 - permanently on = set
 - blinking = not set
 - off = no supply voltage
- Functional testing as follows:
 - Press service button for at least 1 second
 - Actuator opens damper blade
 - Actuator closes damper blade
 - Actuator returns damper blade to previous position
- High level of control accuracy for the flow rate settings, even if there is an elbow connection $R = 1 D$
- Transparent protection cover to prevent inadvertent resetting and provide general security
- Clamping bracket for wiring
- Differential pressure range 20 to 1000 Pa
- Suitable for non-aggressive air
- Independent of orientation
- Control damper closed blade leakage complies with DIN EN 1751, class 4 (nominal size 100 and 125, class 3)

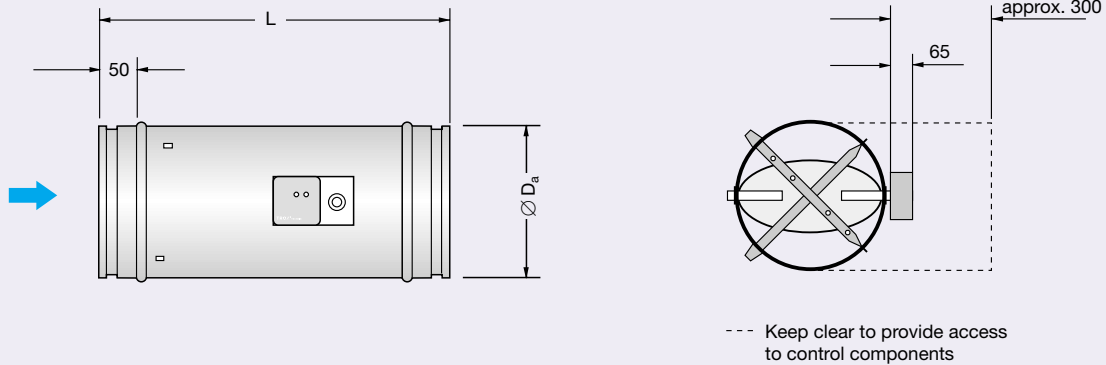
- For delivery, control damper blade in 45° position
- Spigot connections on both ends suitable for circular connecting ducts to DIN EN 1506 or DIN EN 13180 with groove for lip seal
- Casing air leakage flow rate complies with DIN EN 1751, class A
- The mechanical components are maintenance-free
- Operating temperature range 10 to 50 °C
- Storage temperature range -20 to +80 °C

General information

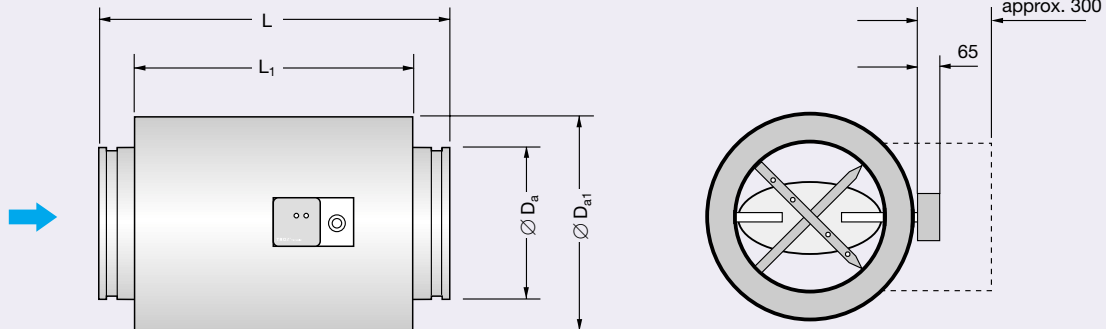
Standard filtration in air-conditioning systems allows the use of TROX Compact-controllers for the supply air without additional dust protection filters. Since a small volume flow is passed through the transducer in order to measure the flow rate, the following must be noted:

- With heavy dust levels in the room, suitable extract air filters must be provided.
- If the air is contaminated with fluff or sticky particles or contains aggressive media, units should be selected with the on-line design programme "Air terminal units".

TVR-Easy



TVRD-Easy



Nominal size	Dimensions in mm				Weight in kg	
	Ø D _a	Ø D _{a1}	L	L ₁	TVR-Easy	TVRD-Easy
100	99	200	310	232	1.4	2.9
125	124	220	310	232	1.7	3.4
160	159	260	400	317	2.2	4.8
200	199	300	400	317	2.6	5.7
250	249	355	400	317	3.3	7.1
315	314	415	500	417	4.8	10.5
400	399	500	500	417	6.1	13.4

TROX Compact-controller technical data

Supply voltage:	24 VAC \pm 20 %, 50/60 Hz or 24 VDC \pm 10 %
Power rating:	max. 5.5 VA (for a.c. voltage) max. 3 W (for d.c. voltage)
Control signal:	0 to 10 VDC, $R_i > 100 \text{ k}\Omega$
Flow rate actual value signal:	0 to 10 VDC linear, max. 0.5 mA
Transducer range:	2 to 300 Pa
Running time:	120 to 300 sec. for 87°
Torque:	min. 4 Nm, 6 Nm starting torque
Safety class:	III (Save voltage)
Protection level:	min. IP 20



Additional safety requirements for the TROX Compact-controller:

- Installation and assembly must be performed by qualified personnel. Assembly must be carried out in compliance with local legal regulations.
- Connect only to a safety transformer.
- The air terminal units of the TROX-Easy type with TROX Compact-controllers may not be used outside of their standard area of application (air conditioning systems). Use in aircraft is not allowed.

Nomenclature

f_m	in Hz:	Octave band centre frequency
L_W	in dB:	Sound power level of the air-regenerated noise in the room (low pressure) side ducting
L_{W2}	in dB:	Sound power level of the case-radiated noise
L_{W3}	in dB:	Sound power level of the case-radiated noise with additional acoustic cladding
L_{pA}	in dB(A):	A-weighted sound pressure level of air-regenerated noise in the room, system attenuation taken into account
L_{pA1}	in dB(A):	A-weighted sound pressure level of air-regenerated noise in the room with CS circular silencer, system attenuation taken into account
L_{pA2}	in dB(A):	A-weighted sound pressure level of case-radiated noise in the room, system attenuation taken into account
L_{pA3}	in dB(A):	A-weighted sound pressure level of case-radiated noise in the room with additional acoustic cladding, system attenuation taken into account
ΔL_W	in dB:	Correction value for case-radiated noise without additional acoustic cladding
ΔL_{W1}	in dB:	Correction value for case-radiated noise with additional acoustic cladding
\dot{V}_{Nom}	in l/s and m ³ /h:	Nominal flow rate (100 %)
\dot{V}	in l/s and m ³ /h:	Flow rate
$\Delta \dot{V}$	in \pm %:	Flow rate tolerance from setpoint value
$\dot{V}_{min \text{ unit}}$	in l/s and m ³ /h:	Minimum unit flow rate
\dot{V}_{max}	in l/s and m ³ /h:	Maximum flow rate setpoint
\dot{V}_{min}	in l/s and m ³ /h:	Minimum flow rate setpoint
Δp_g	in Pa:	Total pressure differential
$\Delta p_{g \text{ min}}$	in Pa:	Minimum total pressure differential
v	in m/s:	Velocity in the duct system
U	in Volt:	Actual value signal output (0 to 10 VDC)
w	in Volt:	Control signal input (0 to 10 VDC)
$\perp, -$:	Ground, neutral
$\sim, +$:	24 V supply voltage

All sound power levels are based on 1 pW, all sound pressure levels on 20 μ Pa.

All noise levels determined in a reverberation chamber. The sound power data was determined and corrected according to DIN EN ISO 5135, February 1999.

