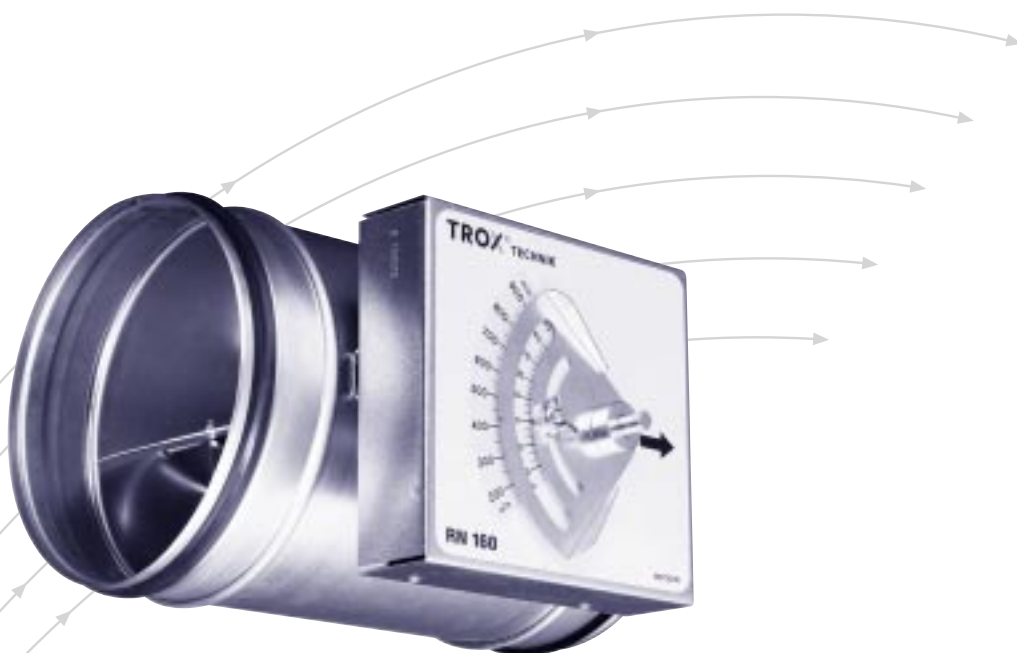


CONSTANTFLOW Volume Flow Controllers

for constant volume systems
Type RN



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Type RNS volume flow controller
Nominal size 80...125



Type RN volume flow controller
Nominal size 80...400



TROX Type RNS and RN volume flow controllers are mechanical system-powered controllers and were developed for the control of flow rates in constant volume systems. The controllers are suited for both supply air and extract air.

RNS: Compact installation height controllers for nominal sizes 80 to 125

RN: Controllers for nominal sizes 80 to 400

RND: Controllers for nominal sizes 80 to 400, with additional acoustic cladding

Each controller is set up to a reference flow rate and has been subjected to an aerodynamic function test.

The required flow rate can be easily set without tools using an external scale. To simplify installation, the controllers can be ordered and fitted by nominal size. The required flow rate can then be easily and accurately set during commissioning.

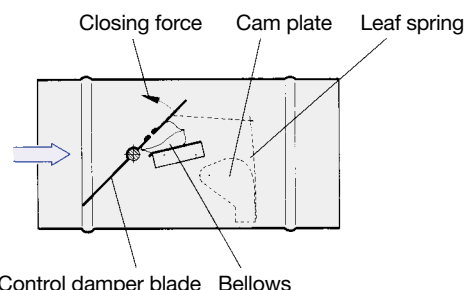
The RN controllers are also available with additional acoustic cladding to reduce case-radiated noise (RND). For more stringent noise requirements the CS and CF circular silencers can be used.

The controller operates without an external power supply. A control damper blade, shaft mounted supported on bearings, is adjusted by the aerodynamic forces such that the preset flow rate is held constant over the entire differential pressure range.

Aerodynamic forces from air flow create a closing force on the damper blade. A self inflating bellows amplifies this force, acting simultaneously as an oscillation damper. This closing force is counteracted by a leaf spring that unrolls over a cam plate. The cam plate is designed such that as the pressure differential changes, the damper blade adjusts to keep a constant flow rate within close tolerances.

Further, current information on application and selection can be found in the "Technical Documentation" download area of our website.

Also available on the Internet is the "Air terminal units" on-line programme for the design and selection of our units.



Inexpensive commissioning

By a simple step and without need for preliminary measurements, the required flow rate value can be set using the pointer against the externally mounted scale of the Type RN or RNS. The advantage over conventional balancing dampers is that there is no need for repeated measurement and readjustment by a qualified commissioning engineer.

Should the system pressure change, e.g. by opening or closing of duct sections, the flow rates in the entire system will alter if balancing dampers are used; however, this is not the case if the Type RNS and RN volume flow controllers are used.

The controller reacts immediately and adjusts the damper blade position directly, so that the flow rate set is kept constant over the entire differential pressure range.

The Type RN controllers can be fitted with an electric actuator for setpoint value readjustment.

Simplified installation

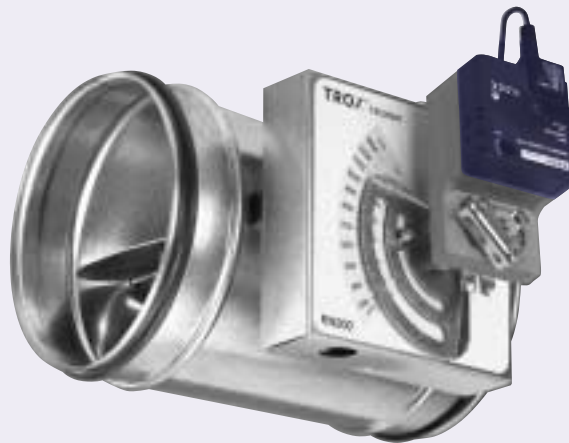
The TROX lip seal is available as an option for nominal sizes 80 to 400. Low leakage can be achieved at the joint without additional sealing materials giving low installation costs. The cut edges adjacent circular ductwork must be deburred and cleaned prior to the installation of the controller. Pretreating the lip seal with a lubricant makes it easier to push the seal up to the bead on the spigot connection.

It is recommended that the circular duct is fixed to the spigot by means of self tapping screws or air tight blind rivets evenly spaced around the circumference.

Acoustic requirements

Depending on requirements, a CS or CF circular silencer with 50 mm packing thickness may be supplied in nominal sizes 80 to 400 to reduce the air-regenerated noise.

Type RN volume flow controller with actuator



Type RND volume flow controller



Construction · Dimensions

Characteristics

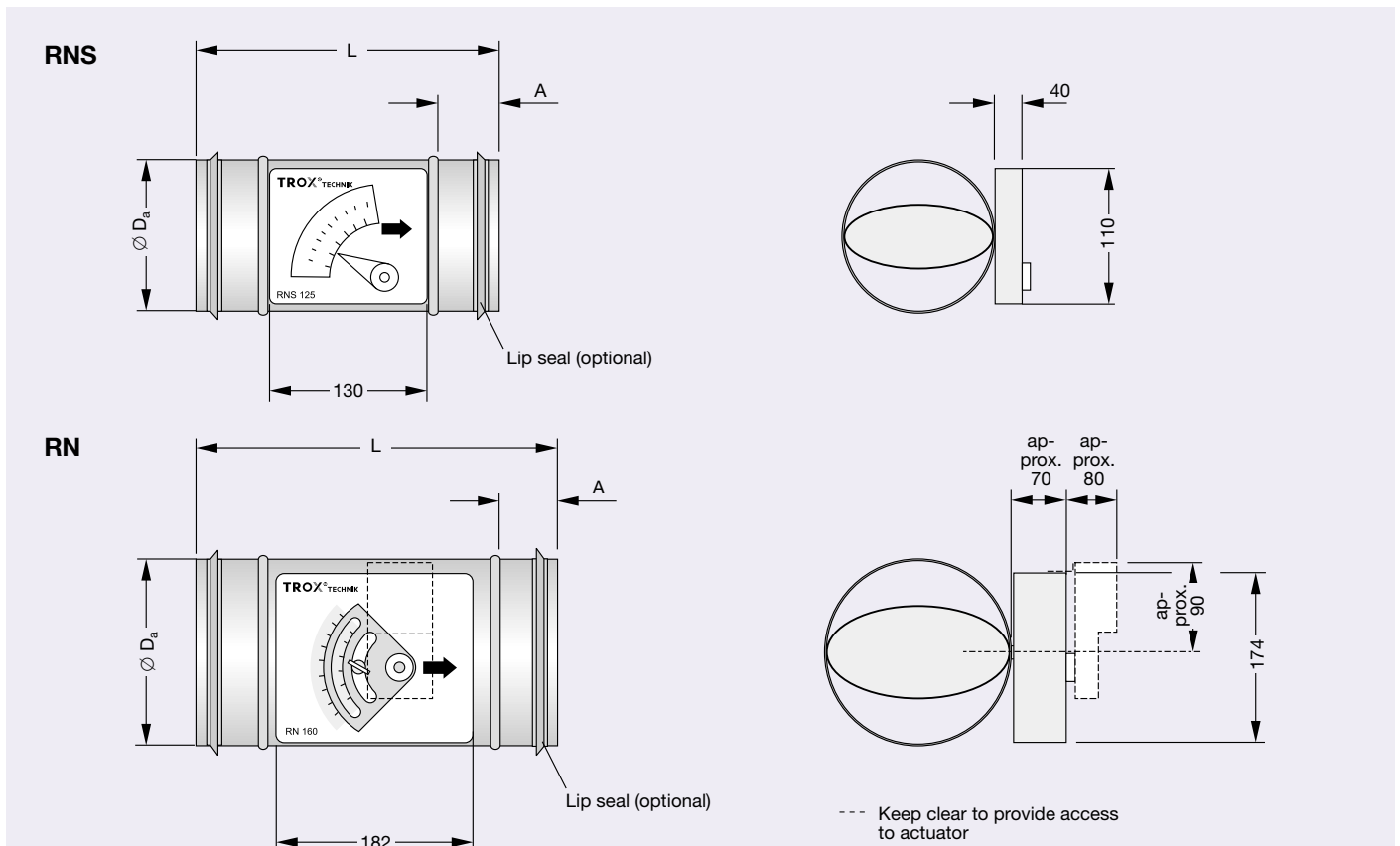
- Mechanical system-powered, without external power supply
- Suitable for supply or extract air
- Correct operation, even under unfavourable upstream and downstream conditions (straight length required upstream 1.5 D)
- Close tolerances on flow rate
- Flow rate setting using pointer on external scale, scale accuracy approximately $\pm 4\%$
- Flow rate range 4 : 1
- Damper blade shaft supported in bearings
- Bellows also acts as an oscillation damper
- Differential pressure range 50 to 1000 Pa
- Independent of orientation
- Damper blade mechanisms maintenance-free
- Operating temperatures 10 to 50 °C

Constructional features

- Spigot connections on both ends suitable for circular connecting ducts to DIN EN 1506 or DIN EN 13180 with groove for lip seal (if lip seals are required, these will be factory fitted)
- Optionally available with flanges complying with DIN EN 12220 on either end (not for RNS)
- Casing air leakage complies with DIN EN 1751, class A

Casing

- Casing and damper blade made of galvanised sheet steel
- Stainless steel leaf spring
- Polyurethane bellows
- Plain bearings with PTFE coating



Dimensions in mm															Weight in kg					
Nom. size	Ø D _a	RNS				RN							RNS	RN	RND	additional weight				
		Standard construction, P1	Construction D2, D2 + P1	Standard construction	Construction D2, P1	Ø D _{a1}	Ø D ₂	Standard construction, D2	Construction D2, D2 + P1	Flange construction	Standard construction, D2	Construction P1, D2 + P1				t	b	n ¹⁾	Flange	Actuator
80	79	250	332	30	40	181	-	310	332	-	50	40	-	-	-	1.4	1.4	2.2	-	1.0
100	99	250	250	50	50	200	132	310	310	290	50	50	3	25	4	1.8	1.8	3.6	0.6	1.0
125	124	250	250	50	50	220	157	310	310	290	50	50	3	25	4	2.0	2.0	4.0	0.7	1.0
160	159	-	-	-	-	262	192	310	310	290	50	50	4	25	6	-	2.5	5.0	1.0	1.0
200	199	-	-	-	-	300	233	310	310	290	50	50	4	25	6	-	3.0	6.0	1.4	1.0
250	249	-	-	-	-	356	283	400	400	380	50	50	4	25	6	-	3.5	7.3	1.8	1.0
315	314	-	-	-	-	418	352	400	400	380	50	50	4	30	8	-	4.8	9.8	2.5	1.0
400	399	-	-	-	-	500	438	400	400	380	50	50	4	30	8	-	5.7	11.8	3.9	1.0

1) n = Number of holes in flange

Construction · Dimensions

RND Acoustic cladding

- Outer cover in galvanised sheet steel
- Sound-absorbent lining
- Structure-borne noise isolation
- Cannot be retrofitted

Actuators (not RNS)

- For setpoint readjustment
- 24 VAC or 230 VAC power
- Factory-fitted
- Small footprint thanks to compact construction

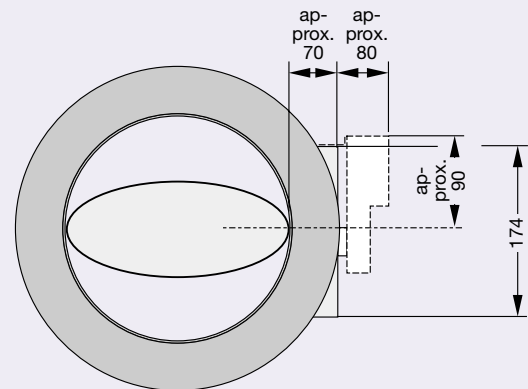
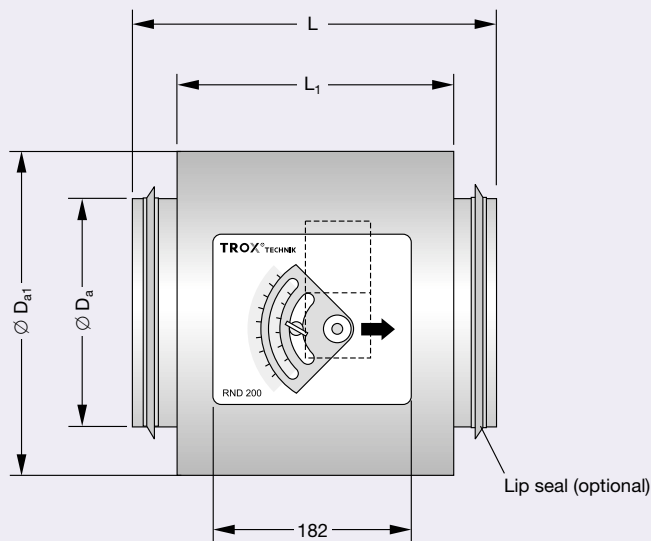
Secondary silencer

- Suitable for RN and RNS
- Rigid circular silencer Type CS
- Flexible circular silencer Type CF
- See leaflet 6/5/EN/... for dimensions and more technical data

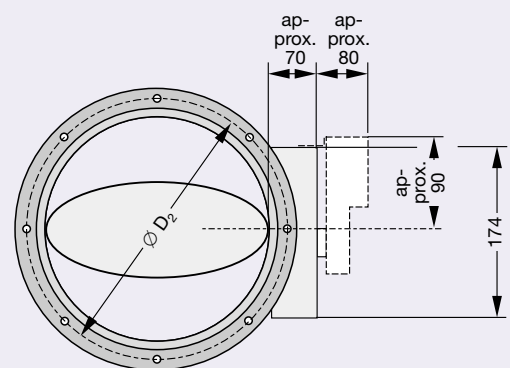
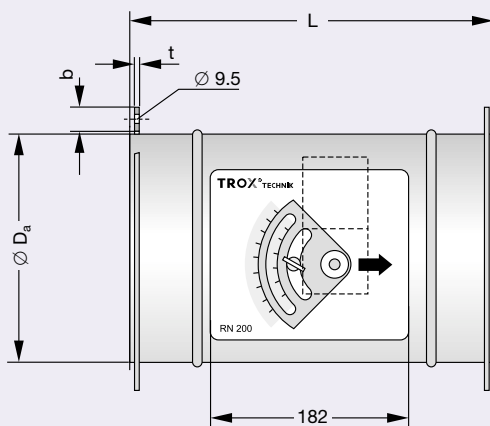
Air heater

- Suitable for RN and RNS
- See leaflet 5/20/EN/... for dimensions and technical data

RND



Flange construction



--- Keep clear to provide access to actuator

