Series
VENTS TT

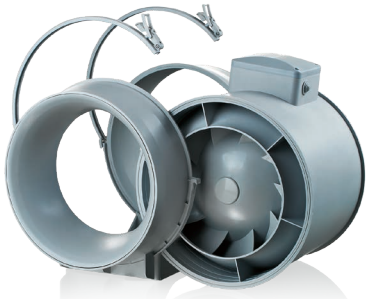
Inline mixed-flow fans with the air flow up to **520 m³/h**

Application

The VENTS TT and fans are featured with wide capabilities and high performance of axial and centrifugal fans and are specifically designed for supply and exhaust ventilation of premises requiring high pressure, powerful air flow and low noise level. The fans are compatible with round air ducts from Ø 100 to 160 mm. Exhaust ventilation systems based on the VENTS TT fans are the best solution for ventilation of bathrooms and kitchens and other humid premises as well for ventilation of flats, cottages, shops, cafes, etc.

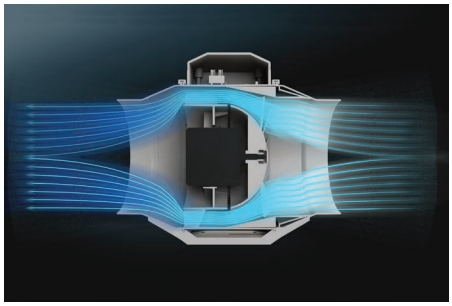
Design

The casing is made of high-quality durable plastic. The removable impeller and motor block with a terminal box is fixed to the casing assembled with the spigots by means of special clamps with latches. This makes the fan maintenance fast and easy. The fan maintenance does not require total disassembling. Just pull out the central block from the casing and perform required servicing. All the models may be equipped with a regulated timer with turn-off delay adjustable from 2 to 30 min.



Motor

The models of VENTS TT series are equipped with a single phase motor and are available in two speed modifications. Some dimension types are available with a more powerful motor (VENTS TT...S).
The motors have thermal overheating protection to prevent the motor overload. The ball bearings extend the motor service life up to 40 000 hrs. at non-stop operation. The motor has IPX4 ingress protection rating.



Speed control

The double-speed motors are controlled with a built-in switch (V option) or an external switch for multi-speed fans (available upon separate order).

TT fan with a three-position speed switch

An integrated speed controller (option P), an external TRIAC or autotransformer speed controller (available upon separate order) are used for smooth speed control when connected to the maximum speed terminal.

Designation key

Series	Air duct diameter	Options
VENTS TT	100; 125; 150; 160	**S**: high-powered motor. **T**: adjustable timer from 2 to 30 minutes. **U**: speed controller with an electronic thermostat and a temperature sensor integrated inside an air duct. Temperature-based operation logic. **Un**: speed controller with an electronic thermostat and a temperature sensor fixed on a 4 m cable. Temperature-based operation logic. **U1**: speed controller with an electronic thermostat and a temperature sensor integrated inside an air duct. Timer-based operation logic. **U1n**: speed controller with an electronic thermostat and a temperature sensor fixed on a 4 m cable. Timer-based operation logic. **U2n**: speed controller with an electronic thermostat and a temperature sensor fixed on a 4 m cable. Temperature-based switching on/off. **R1**: power cord with mains plug. **V**: threeposition speed switch. **P**: integrated smooth speed controller.

ErP data	
Overall efficiency	η [%]
Measurement category	MC
Efficiency category	EC
Efficiency grade	N
Variable speed drive	VSD
Power	kW
Current	A
Air flow	m^3/h
Static pressure	Pa
Speed	n/min^{-1}
Specific ratio	SR

Accessories

Silencer | Filters | Heaters | Backdraft damper | Air shutter | Clamps | Temperature regler | Speed switches

TT fan with a built-in speed controller

Mounting

The fans are suitable for mounting at any angle and point of the system. Several fans may be installed inside one system. Several fans may be installed inside one system:

– **parallel** mounting to increase air flow;

TTP kit for parallel connection

– **in series mounting** to increase operating pressure;

TTS kit for series connection

The fan case is equipped with a flat mounting plate to attach the fan to the wall. The mounting box may be installed in any position to facilitate mounting and wiring.

The fan with electronic module of the temperature sensor and speed controller (U option).

The ideal solution for ventilation of the premises with high demands to permanent indoor temperature level, e.g. greenhouses.

The fan with the electronic module of the temperature sensor and the speed controller is used for automatic speed control (air flow regulation) depending on the air temperature in the ventilation duct or inside a room.

The electronic module of the front panel incorporates:

– the speed control knob for the setting the impeller speed;

– the thermostat control knob for setting the temperature set point.

– thermostat LED light.

Three modifications are possible:

– temperature sensor integrated inside a fan duct (U/U1/U2 option);

– external temperature sensor fixed on 4 m power cable (Un/U1n option).

Operating logic of the fan with the electronic module of the temperature sensor and speed controller

Set the desired air temperature (set point of the thermostat) with the thermostat control knob. Set the required minimum impeller speed (air flow) with the speed control knob. The motor switches to maximum speed (maximum air flow) as the temperature reaches and exceeds the set temperature set point. The motor switches to the pre-set speed as the temperature drops down below the set temperature point.

To avoid the frequent motor switching, e.g. when the temperature in the supply air duct is equal to the threshold value, the switching delay time is activated.

There are two switch delay patterns for various cases:

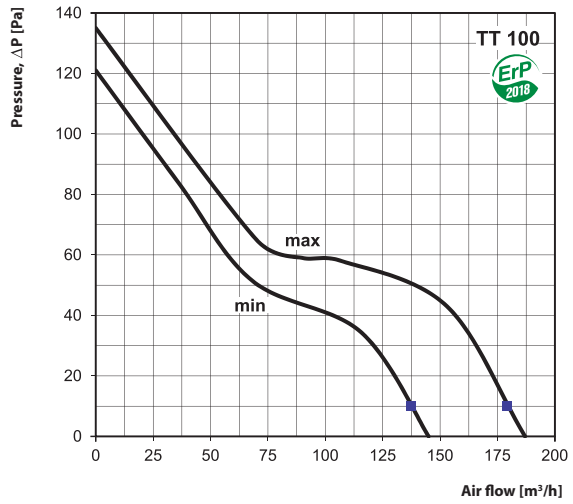
1. The temperature sensor-based switch delay (U option): the motor switches to higher speed as the air temperature exceeds 2 °C above the set thermostat set point. The motor revers to the pre-set lower speed as the air temperature drops below the thermostat set point.

This pattern is used to keep air temperature to within 2 °C. In this case the fan switches are rare.

2. The timer-based switch delay (U1 option): as the air temperature exceeds the set thermostat set point, the motor switches to higher speed and the switch delay timer is activated for 5 min. The motor reverts to lower speed as the air temperature drops down below the thermostat set point and only after the timer countdown.

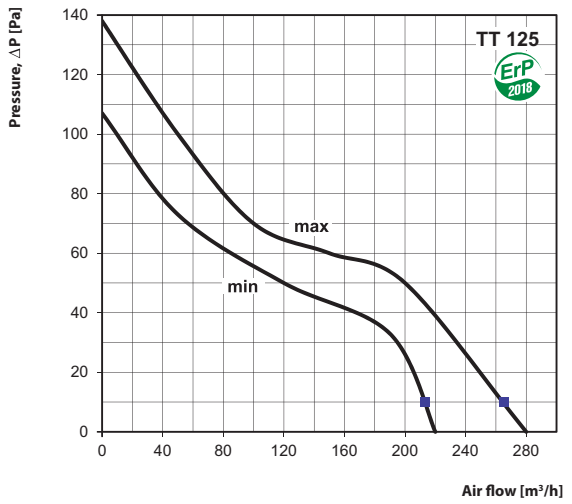
This pattern is used for exact air temperature control. The fan changes its speed more often as compared to the temperature sensor-based switch delay, however the minimum timer interval is 5 minutes.

VENTS TT



	Hz	general	63	125	250	500	1000	2000	4000	8000	Sound pressure level at 3 meters, A-filter applied, LpA, 3 m [dBA]	Sound pressure level at 1 meters, A-filter applied, LpA, 1 m [dBA]
Sound power level, A-filter applied												
Min speed												
L_{WA} to inlet	dBA	54	16	28	51	45	49	41	35	24	33	43
L_{WA} to outlet	dBA	53	15	27	50	44	48	40	35	23	32	42
L_{WA} to environment	dBA	48	11	23	44	40	43	36	31	21	27	37
Max speed												
L_{WA} to inlet	dBA	64	23	35	61	58	56	48	43	30	43	53
L_{WA} to outlet	dBA	63	22	34	60	57	55	48	42	29	42	52
L_{WA} to environment	dBA	56	17	29	53	51	50	43	38	26	36	46

VENTS TT



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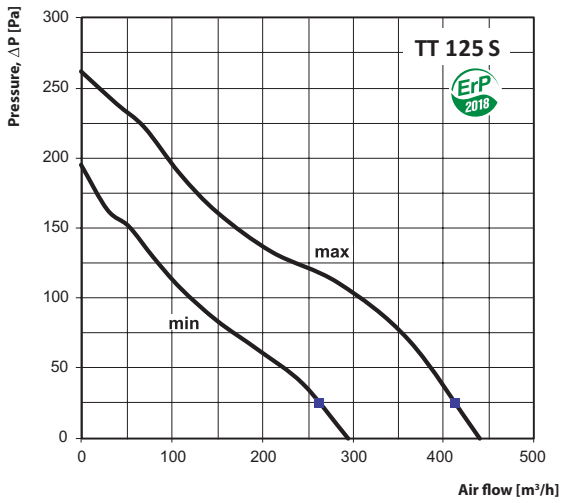
Sound power level, A-filter applied												
Min speed												
L_{WA} to inlet	dBA	53	17	30	48	48	48	43	35	22	33	43
L_{WA} to outlet	dBA	52	16	29	47	47	47	43	34	21	32	42
L_{WA} to environment	dBA	49	13	26	43	44	44	40	32	20	28	38
Max speed												
L_{WA} to inlet	dBA	62	28	38	57	58	57	52	43	29	42	52
L_{WA} to outlet	dBA	61	27	37	55	57	56	51	42	29	41	51
L_{WA} to environment	dBA	58	23	33	51	53	52	48	40	27	37	47

VENTS TT



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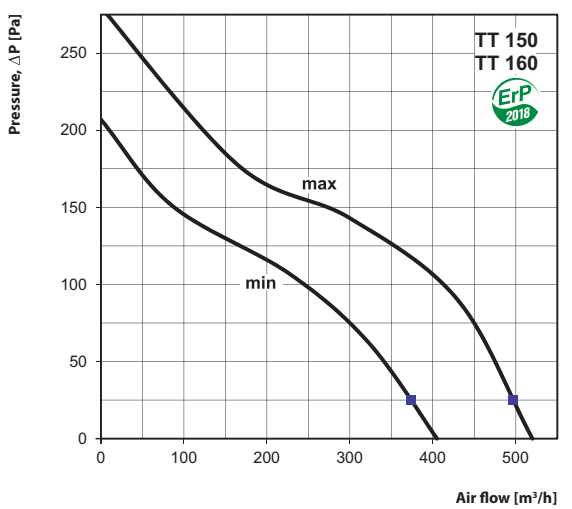
Sound power level, A-filter applied												
Min speed												
L_{WA} to inlet	dBA	56	28	38	53	51	49	46	37	24	36	46
L_{WA} to outlet	dBA	55	27	37	52	50	48	45	37	23	35	45
L_{WA} to environment	dBA	52	23	33	47	46	44	42	34	21	31	41
Max speed												
L_{WA} to inlet	dBA	67	38	49	63	63	60	57	50	38	47	57
L_{WA} to outlet	dBA	66	38	48	61	62	59	56	48	37	46	56
L_{WA} to environment	dBA	63	34	45	58	58	56	53	46	35	42	52

VENTS TT



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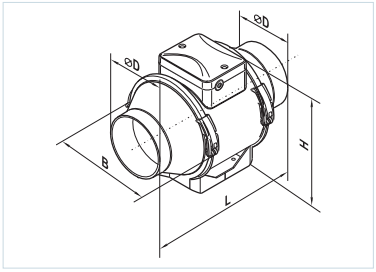
Sound power level, A-filter applied												
Min speed												
L_{WA} to inlet	dBA	66	35	46	63	60	57	53	43	28	45	55
L_{WA} to outlet	dBA	65	34	45	62	59	56	53	43	28	44	54
L_{WA} to environment	dBA	54	24	35	50	49	47	44	36	23	34	44
Max speed												
L_{WA} to inlet	dBA	75	42	52	71	69	67	64	56	43	54	64
L_{WA} to outlet	dBA	74	41	50	70	69	66	63	56	42	53	63
L_{WA} to environment	dBA	64	32	41	59	58	57	54	48	36	43	53

Technical data

	TT 100		TT 125		TT 125 S		TT 150/TT 160	
Speed	min	max	min	max	min	max	min	max
Voltage [V/50 (60) Hz]	1~230		1~230		1~230		1~230	
Power [W]	21	33	23	37	32	60	30	60
Current [A]	0.11	0.21	0.18	0.27	0.14	0.27	0.17	0.27
Max. air flow [m^3/h]	145	187	220	280	295	440	405	520
RPM [min^{-1}]	2180	2385	1950	2455	1850	2510	1680	2460
Noise level at 3 m [dBA]	27	36	28	37	31	42	33	44
Transported air temperature [°C]	-25...+60		-25...+60		-25...+60		-25...+60	
SEC class	C		B		C		B	
Protection rating	IPX4		IPX4		IPX4		IPX4	

Fan overall dimensions

Type	Dimensions [mm]				Mass [kg]
	ØD	B	H	L	
TT 100	96	167	190	246	1.45
TT 125	123	167	190	246	1.79
TT 125 S	123	223	250	295	3.14
TT 150	146	223	250	295	3.19
TT 160	158	233	250	295	3.22



Mounting examples

in the bathroom

in the office

parallel mounting of the fans in storage room increases air capacity