

Series

**VENTS TT Silent-M**

Inline mixed-flow fans in sound- and heat-insulated casing with the air flow up to **6510 m<sup>3</sup>/h**

**Application**

New inline VENTS TT Silent-M fans are enclosed in a specially designed sound-insulated casing that ensures silent fan operation in combination with high aerodynamic characteristics. The fans are compatible with round air ducts from Ø 100 up to 450 mm. The VENTS TT Silent-M fans combine wide capabilities and high performance characteristics of both axial and centrifugal fans, thus providing powerful air flow and high pressure. The VENTS TT Silent-M fans are recommended as a component of the air handling systems for various commercial and industrial premises with high requirements to noise level, i.e. libraries, conference halls, educational institutions, kindergartens, etc.

**Design**

The external casing is made of polymer-coated steel. The inner casing perforation let sound waves pass through the holes and fall at a specific angle to the sound-absorbing layer. The casing is internally heat- and sound-insulated with 50 mm mineral wool layer. The specially perforated casing and sound-absorbing material provide sound attenuation in a broad frequency band. The inner casing and the impeller are made of high-quality durable plastic.



Due to the conic impeller and special blade profiling the circumferential air speed increases thus providing higher air pressure and capacity as compared to standard axial fans. The diffuser, the specially profiled impeller and the directing vanes at outlet from the fan casing distribute air flow in such a way as to attain the best combination of high performance and high pressure at low noise level. The fan casing is equipped with an airtight terminal box for connection to power mains.

**Motor**

Single phase energy efficient double-speed motor with low energy demand. The motor is equipped with thermal switches for the motor overheating protection. The ball bearings extend the motor service life up to 40 000 hrs. at non-stop operation. The motor has IPX4 ingress protection rating.

**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 Silent-M fan with a three-position speed switch

A built-in speed controller (P option), an external TRIAC or autotransformer speed controller (available upon separate order) enable smooth motor speed control when connected to the maximum speed terminal. T option models are equipped with an adjustable turn-off delay timer, adjustable from 2 to 30 minutes.



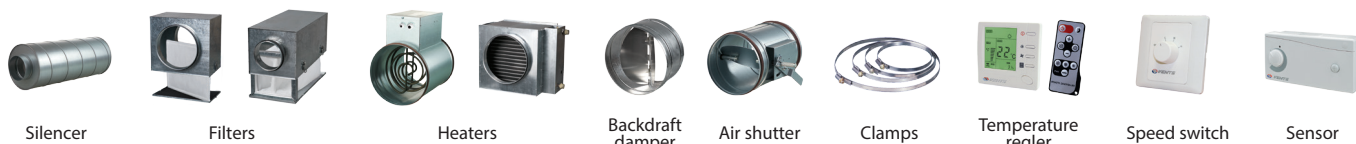
TT Silent-M fan with a built-in speed controller

**Mounting**

The fan may be mounted at any place and at any angle within the ductwork system. Several fans may be

**Designation key**

Series	Air duct diameter	Options	ErP data
<b>VENTS TT Silent-M</b>	100; 125; 150; 160; 200; 250; 315; 355; 400, 450	<p><b>T:</b> off-delay timer adjustable from 2 to 30 minutes.</p> <p><b>U:</b> speed controller with electronic thermostat and temperature sensor integrated into the air duct. Equipped with a power cable and IEC C14 electric plug. Temperature-based operation logic.</p> <p><b>Un:</b> speed controller with electronic thermostat and external temperature sensor fixed on 4 m cable. Equipped with a power cable and IEC C14 electric plug. Temperature-based operation logic.</p> <p><b>U1:</b> speed controller with electronic thermostat and temperature sensor integrated into the air duct. Equipped with a power cable and IEC C14 electric plug. Timer-based operation logic.</p> <p><b>U1n:</b> speed controller with electronic thermostat and external temperature sensor fixed on 4 m cable. Equipped with a power cable and IEC C14 electric plug. Timer-based operation logic.</p> <p><b>R:</b> power cord with IEC C14 electric plug.</p> <p><b>V:</b> three-position speed switch.</p> <p><b>P:</b> built-in smooth speed controller and a power cable with IEC C14 electric plug.</p>	<p>Overall efficiency <math>\eta</math>, [%]</p> <p>Measurement category MC</p> <p>Efficiency category EC</p> <p>Efficiency grade N</p> <p>Variable speed drive VSD</p> <p>Power [kW]</p> <p>Current [A]</p> <p>Air flow [m<sup>3</sup>/h]</p> <p>Static pressure [Pa]</p> <p>Speed [n/min<sup>-1</sup>]</p> <p>Specific ratio SR</p>

**Accessories**

Silencer

Filters

Heaters

Backdraft damper

Air shutter

Clamps

Temperature regler

Speed switch

Sensor

installed in one system in parallel to attain higher air flow or in series to increase operating pressure in the system. The fan casing is equipped with fixing brackets for fastening to the floor, wall or ceiling.

#### ■ 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 temperature control e.g. greenhouses. The fan with the electronic temperature and speed control module provides automatic control of motor speed (air flow) depending on the air temperature in the air duct or in the room.

The front panel of the electronic module has the following control knobs:

- speed control knob for setting the motor speed;
- thermostat control knob for setting the temperature set point;
- thermostat indicator light.

The fan is available in two modifications:

- with a temperature sensor integrated inside the fan air duct (U/U1 option);



- with an external temperature sensor fixed on the cable, 4 m long (Un / U1n option).



#### ■ Control logic of the fan with the electronic temperature and speed control module

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 lower speed as the temperature drops down below the set temperature point.

To avoid the frequent motor speed changes, 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 control logics 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

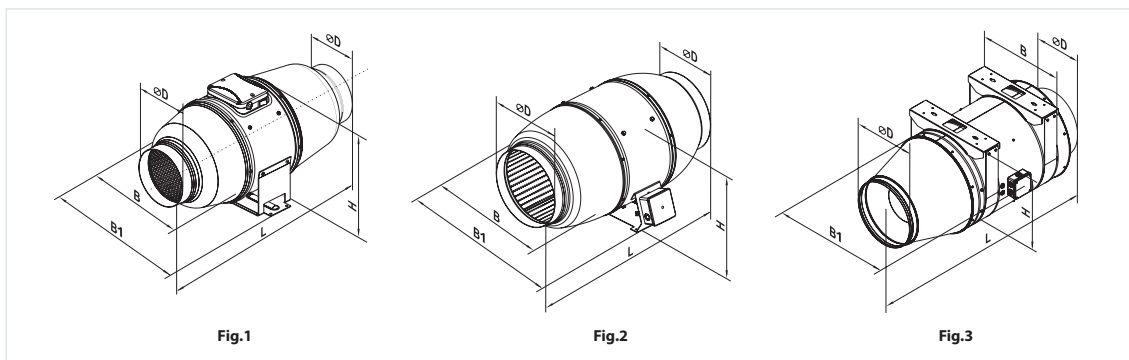
set point. The motor reverts to the pre-set lower speed as the air temperature drops below the thermostat set point. This control logic is used to keep air temperature to within 2 °C. In this case the motor speed switches are rare.

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 minutes. The motor reverts to lower speed as the air temperature drops down below the thermostat set point and only after the delay timer countdown.

This pattern is used for exact air temperature control. The speed switches for the fan with U1 option are more frequent as compared to the fan with U option, however the minimum operating cycle at one speed is 5 minutes.

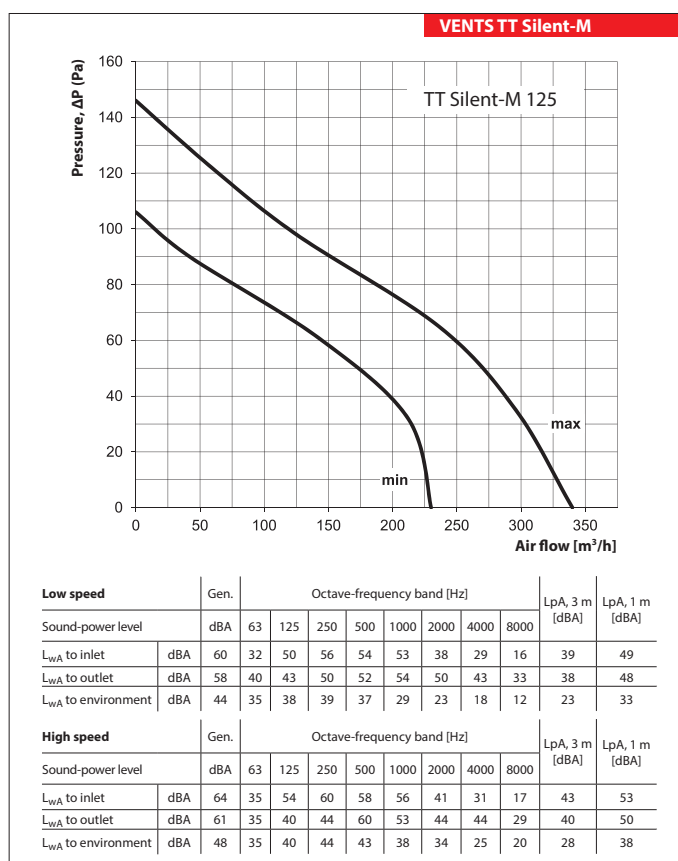
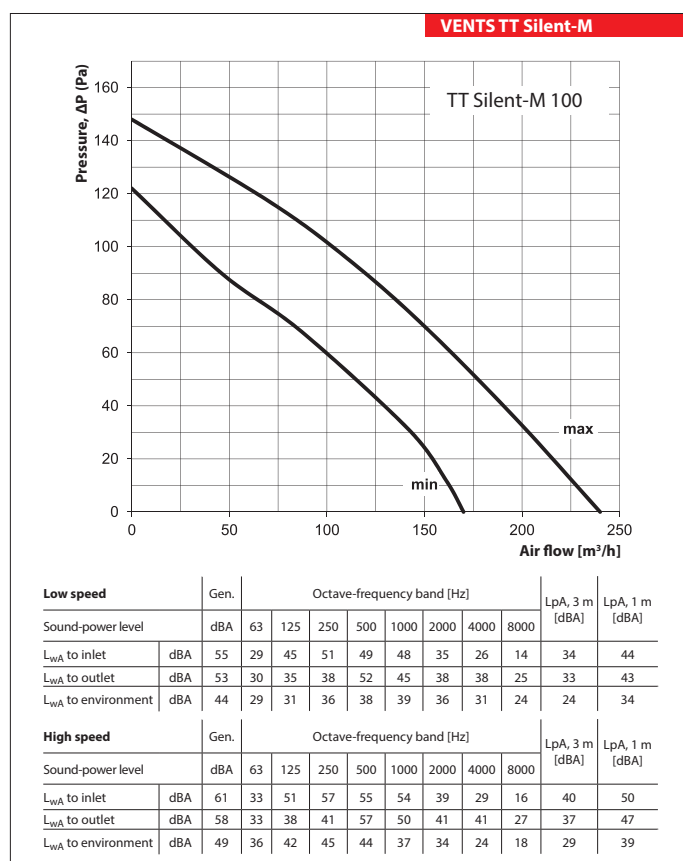
#### Fan overall dimensions

Type	Dimensions [mm]					Weight [kg]	Fig. no.
	ØD	B	B1	L	H		
TT Silent-M 100	98	215	243	505	237	4.6	1
TT Silent-M 125	123	215	243	474	237	4.6	1
TT Silent-M 150	147	247	274	580	260	6.1	1
TT Silent-M 160	157	247	274	580	260	6.1	1
TT Silent-M 200	198	293	386	550	295	8.0	2
TT Silent-M 250	248	358	445	658	360	15.0	2
TT Silent-M 315	313	432	520	780	434	25.0	2
TT Silent-M 355	353	512	563	1069	538	35	3
TT Silent-M 400	397	540	80	1320	510	35	3
TT Silent-M 450	447	640	80	1450	610	51	3



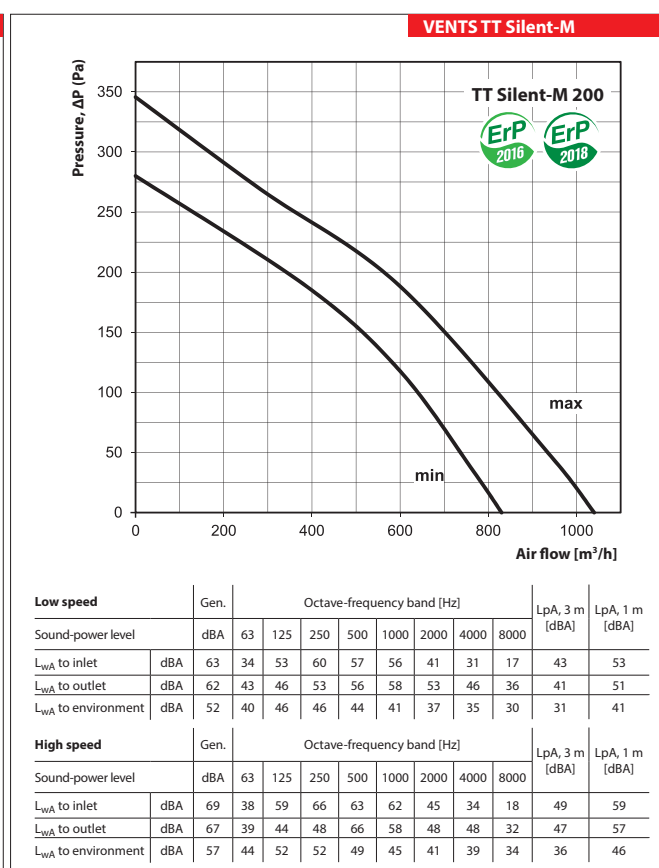
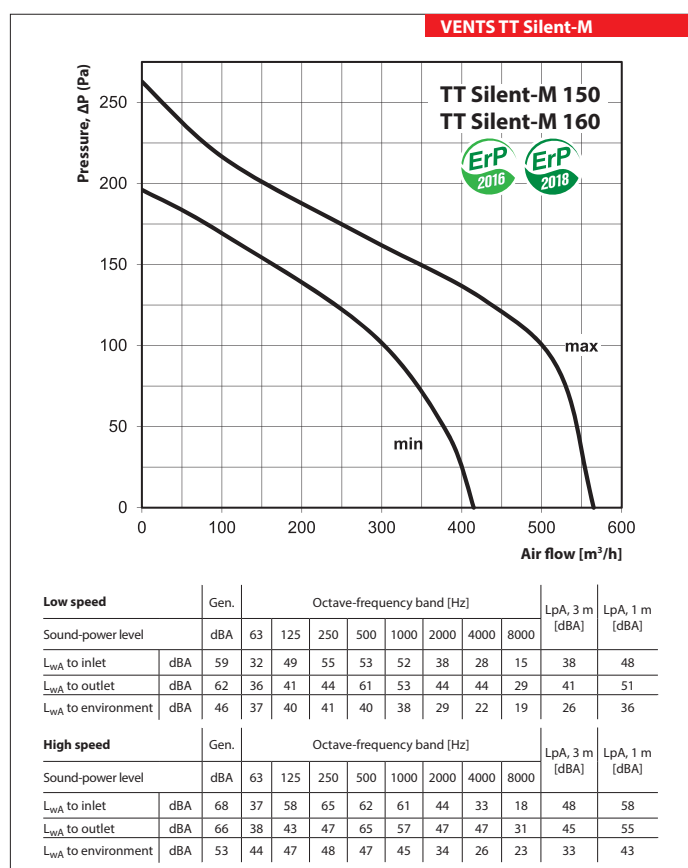
# Technical data

	TT Silent-M 100		TT Silent-M 125		TT Silent-M 150 TT Silent-M 160	
Speed	min	max	min	max	min	max
Voltage [V/50 (60) Hz]	1~ 230		1~ 230		1~ 230	
Power [W]	24	26	25	29	45	52
Current [A]	0.10	0.11	0.11	0.13	0.20	0.23
Max. air flow [m³/h]	170	240	230	340	405	555
RPM [min <sup>-1</sup> ]	2030	2630	1650	2310	1970	2645
Noise level at 3 m [dBA]	24	29	23	28	26	33
Max. transported air temperature [°C]	60		60		60	
SEC class	D		D		C	
Protection rating	IPX4		IPX4		IPX4	



# Technical data

	TT Silent-M 200		TT Silent-M 250		TT Silent-M 315	
Speed	min	max	min	max	min	max
Voltage [V/50 (60) Hz]	1~230		1~230		1~230	
Power [W]	78	110	125	177	230	320
Current [A]	0.35	0.49	0.54	0.79	1.0	1.42
Max. air flow [m³/h]	810	1020	1110	1400	1570	2050
RPM [min⁻¹]	2015	2445	1955	2440	1890	2430
Noise level at 3 m [dBA]	31	36	34	38	36	40
Max. transported air temperature [°C]	60		60		60	
SEC class	C		-		-	
Protection rating	IPX4		IPX4		IPX4	



## Technical data

	TT Silent-M 355-4E	TT Silent-M 355-4D	TT Silent-M 400-4E	TT Silent-M 400-4D	TT Silent-M 450-4E	TT Silent-M 450-4D
Voltage [V/50 (60) Hz]	1~230	3~400	1~230	3~400	1~230	3~400
Power [W]	578	585	580	590	1200	1230
Current [A]	3.42	1.77	3.43	1.78	7.72	3.43
Max. air flow [m³/h]	3310	3430	3545	3670	6260	6510
RPM [min⁻¹]	1480	1490	1480	1490	1475	1490
Noise level at 3 m [dBA]	49	49	50	50	59	59
Max. transported air temperature [°C]	60	60	60	60	60	60
SEC class	-	-	-	-	-	-
Protection rating	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4

