Series

VENTS TT Silent-M

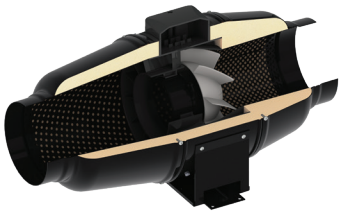
Inline mixed-flow fans in sound- and heat-insulated casing with the air flow up to **2050 m³/h**

Application

The 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 315 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 high-efficiency two-speed or three-speed (only for TT Silent-M 100, 125, 200) motors with low energy consumption are used. 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
VENTS TT Silent-M	100; 125; 150; 160; 200; 250; 315	**T**: off-delay timer adjustable 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-meter 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-meter cable. Timer-based operation logic. **U2n**: speed controller with an electronic thermostat and a temperature sensor fixed on a 4-meter cable. Temperature-based switching on/off. **R1**: power cord with a mains plug. **V**: three-position speed switch. **P**: integrated smooth speed controller.

Accessories

Silencer

Filters

Heaters

Backdraft damper

Air shutter

Clamps

Speed switches P_-1-300

Speed controllers RS...PS RS-1-400

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/U2 option);

– with an external temperature sensor fixed on the cable, 4 m long (Un/U1n/U2n 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 three 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 revers 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.

3. Switching ON/OFF by a temperature sensor (U2 option): when the air temperature exceeds by 2 °C the thermostat actuation set point, the fan starts operating at the set speed. The fan switches off when the temperature drops below the temperature set point.

Fan overall dimensions

Type	Dimensions [mm]						Mass [kg]	Fig. no.
	ØD	B	B1	H	L	L1		
TT Silent-M 100	98	231	243	220	505	42	4,7	Fig. 2
TT Silent-M 125	123	231	243	220	474	42	4,6	Fig. 2
TT Silent-M 150	148	261	314	249	581	44	6,2	Fig. 2
TT Silent-M 160	157	231	273	263	580	44	6,2	Fig. 1
TT Silent-M 200	198	310	392	295	560	115	7,9	Fig. 2
TT Silent-M 250	248	370	445	360	665	130	14,7	Fig. 2
TT Silent-M 315	313	450	526	434	785	180	29,6	Fig. 2

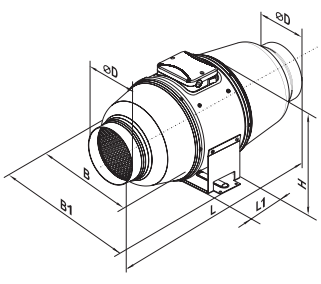


Fig.1

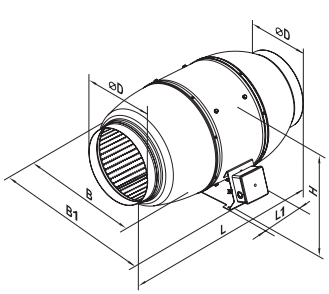


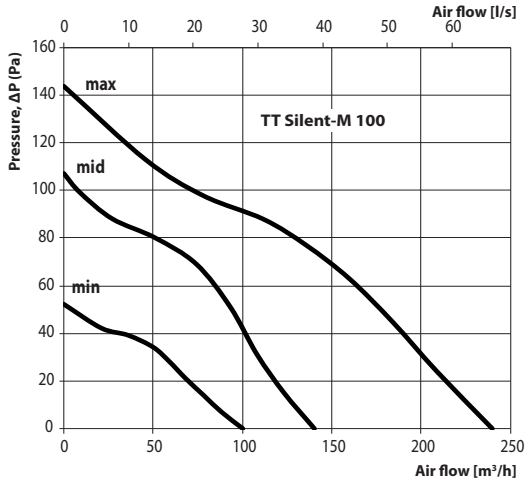
Fig.2

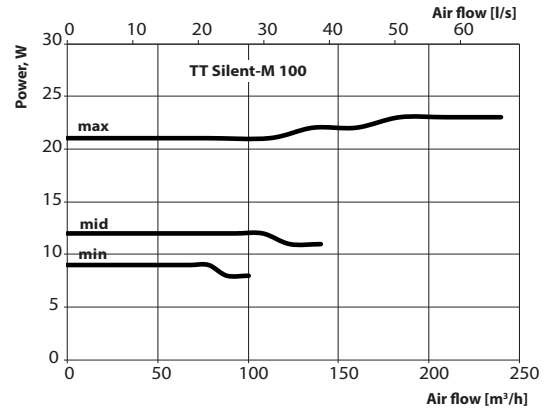
Technical data

	TT Silent-M 100			TT Silent-M 125		
Speed	min	med	max	min	med	max
Voltage [V/50 (60) Hz]		1~ 230			1~ 230	
Power [W]	9	12	23	9	12	23
Current [A]	0,08	0,09	0,10	0,08	0,09	0,10
Max. air flow [m³/h]	100	140	240	155	214	340
RPM [min⁻¹]	1695	2424	2785	1784	2473	2788
Noise level at 3 m [dBA]	16	21	27	16	21	25
Transported air temperature [°C]		60			60	
SEC class		C			C	
Protection rating		IP X4			IP X4	

To meet the requirements of ErP 2018, a speed controller and local demand control typology must be applied (connect a sensor).

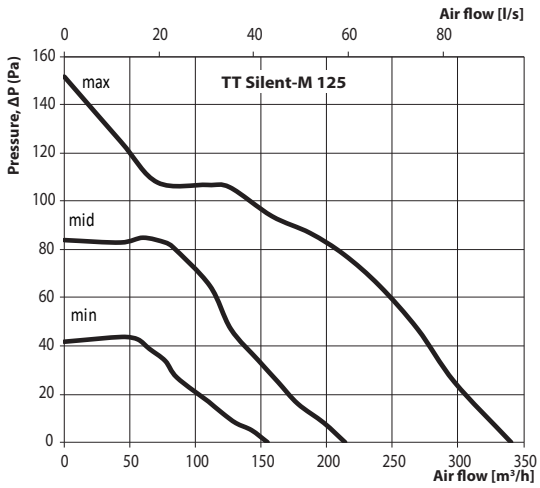
VENTS TT Silent-M

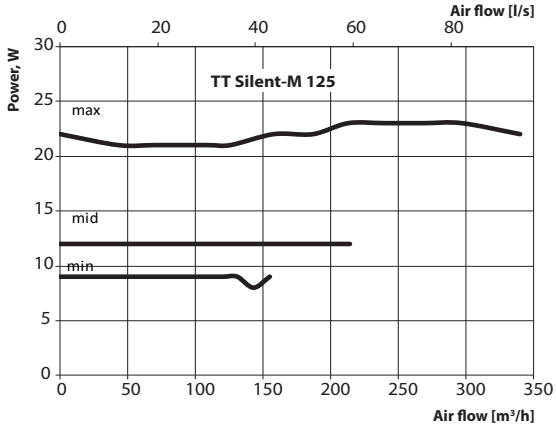




Low speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	56	36	49	53	49	47	43	36	29	36	46
L_{wA} to outlet	dBA	56	31	44	53	50	42	40	36	28	35	45
L_{wA} to environment	dBA	47	30	41	43	40	40	35	26	21	27	37

VENTS TT Silent-M





Low speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	56	36	49	53	49	46	42	36	28	36	46
L_{wA} to outlet	dBA	56	31	44	53	50	42	40	36	28	35	45
L_{wA} to environment	dBA	45	28	39	40	38	38	33	25	20	25	25

Technical data

	TT Silent-M 150 TT Silent-M 160		TT Silent-M 200		
Speed	min	max	min	mid	max
Voltage [V/50 (60) Hz]	1~230		1~230		
Power [W]	45	52	82	100	110
Current [A]	0.2	0.23	0.37	0.44	0.49
Max. air flow [m³/h]	405	555	731	961	1020
RPM [min⁻¹]	1970	2645	2376	2382	2445
Noise level at 3 m [dBA]	26	33	30	34	36
Transported air temperature [°C]	60		60		
SEC class	C		C		
Protection rating	IPX4		IPX4		

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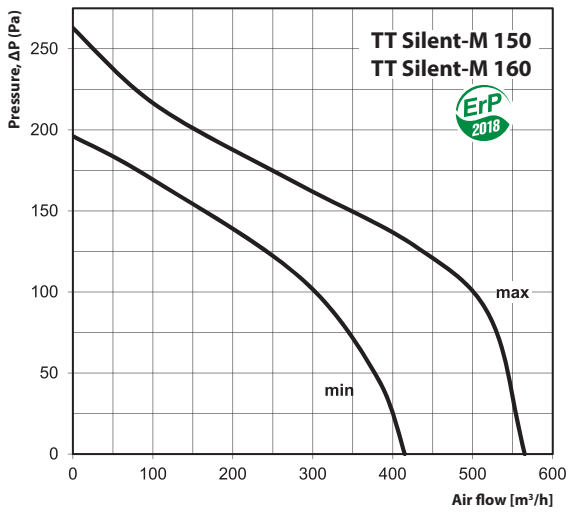
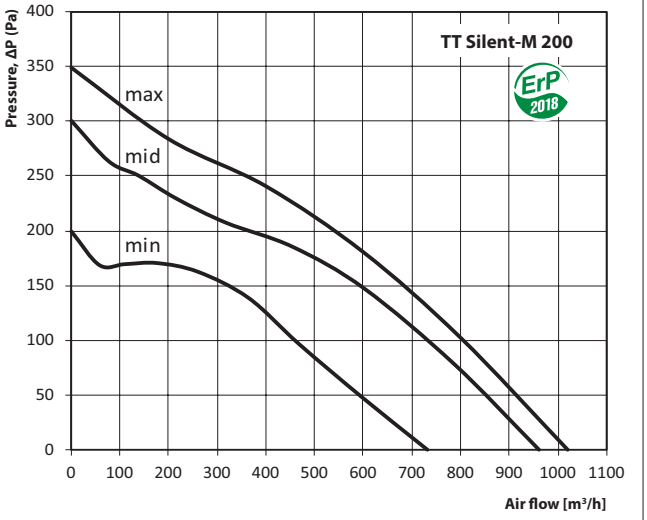


Low speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	59	32	49	55	53	52	38	28	15	38	48
L_{wA} to outlet	dBA	62	36	41	44	61	53	44	44	29	41	51
L_{wA} to environment	dBA	46	37	40	41	40	38	29	22	19	26	36

High speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	68	37	58	65	62	61	44	33	18	48	58
L_{wA} to outlet	dBA	66	38	43	47	65	57	47	47	31	45	55
L_{wA} to environment	dBA	53	44	47	48	47	45	34	26	23	33	43

VENTS TT Silent-M



Low speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	63	34	53	60	57	56	41	31	17	43	53
L_{wA} to outlet	dBA	62	43	46	53	56	58	53	46	36	41	51
L_{wA} to environment	dBA	52	40	46	46	44	41	37	35	30	31	41

High speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	69	38	59	66	63	62	45	34	18	49	59
L_{wA} to outlet	dBA	67	39	44	48	66	58	48	48	32	47	57
L_{wA} to environment	dBA	57	44	52	52	49	45	41	39	34	36	46

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

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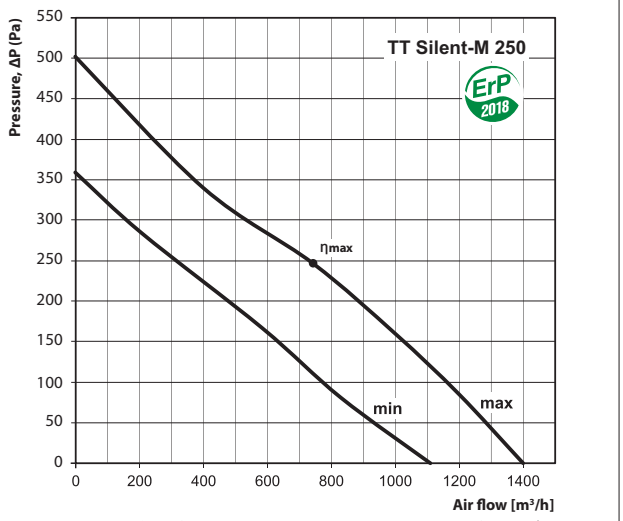

Low speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	66	36	56	63	60	59	43	32	17	45	55
L_{wA} to outlet	dBA	64	37	42	46	63	55	46	46	30	43	53
L_{wA} to environment	dBA	55	44	48	51	47	44	37	31	25	34	44

High speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	69	38	59	66	63	62	45	34	18	49	59
L_{wA} to outlet	dBA	75	43	50	54	74	65	54	54	36	54	64
L_{wA} to environment	dBA	58	47	49	53	53	49	44	39	31	38	48

η [%]	MC	EC	N	VSD	kW	A	m³/h	Pa	RPM	SR
30.9	A	Static	49.4	No	0.174	0.8	803	236	2505	1

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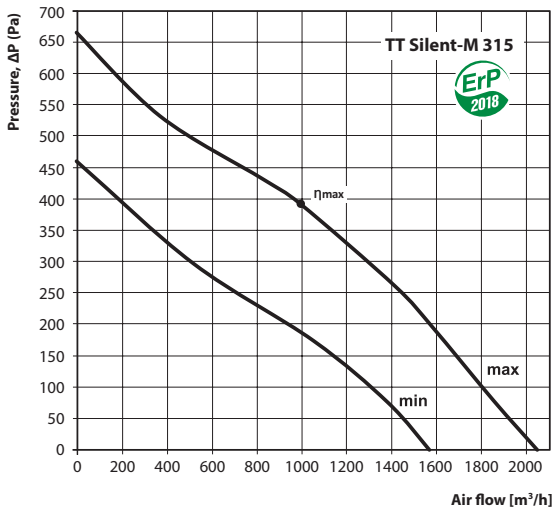

Low speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	67	36	57	63	61	59	43	32	18	46	56
L_{wA} to outlet	dBA	65	45	48	56	59	61	56	48	37	44	54
L_{wA} to environment	dBA	56	47	47	52	50	45	41	37	29	36	46

High speed		Gen.	Octave-frequency band [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]
Sound-power level		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to inlet	dBA	70	38	60	67	64	62	45	34	18	49	59
L_{wA} to outlet	dBA	71	50	53	62	65	67	62	53	41	50	60
L_{wA} to environment	dBA	60	51	52	54	55	50	46	43	35	40	50

η [%]	MC	EC	N	VSD	kW	A	m³/h	Pa	RPM	SR
32.4	A	Static	48.2	No	0.317	1.43	1112	326	2320	1