EN

USER MANUAL

Roof fans SMART-SN

CONTENTS

Manufacturer: KLIMAWENT S.A.
Poland, 81-571 Gdynia, 194 Chwaszczyńska street
phone: 58 629 64 80, 58 771 43 40
fax: 58 629 64 19
e-mail: klimawent@klimawent.com.pl

KLIMAWENT

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www.klimawent.com.pl

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1. INTRODUCTION

This user manual is intended for the user of the **SMART-SN** device. Its purpose is to provide the user with instructions on the use, assembly, commissioning and operation of the device.

Carefully read this manual before installing the device at the workplace and using it.

Due to the continuous improvement of its products, the manufacturer reserves the right to introduce construction changes to increase the utility values and safety of use.

The design of the **SMART-SN** device takes into account the current state of knowledge and technology level and is in accordance with normative principles and regulations, and above all with the principles of safety and health protection set out in the following legal acts:

- ✓ **Directive 2006/42/EC** of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (Official Journal L 157 of 09.06.2006, page 24)
- ✓ **Directive 2014/35/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (recast) (Official Journal L 96 of 29.03.2014, page 357)
- ✓ **Directive 2009/125/EC** of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (recast) (Official Journal L 285 of 31.10.2009, page 10)
- ✓ **Commission Regulation (EU) No 327/2011 of 30 March 2011** implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for fans driven by motors with an electric input power between 125 W and 500 kW (Text with EEA relevance) (Official Journal L 90 of 6.4.2011, page 8)
- ✓ **Regulation of the Polish Minister of Economy of 21 October 2008** on requirements for machines (Journal of Laws No. 199 of 2008, item 1228)

Also meets the requirements of the following harmonised standards:

- ✓ **PN-EN ISO-12100:2012** Safety of machinery – General principles for design – Risk assessment and risk reduction
- ✓ **PN-EN 60204-1:2018-12P** Safety of machinery – Electrical equipment of machines – Part 1: General requirements
- ✓ **PN-EN 60034-1:2011** Rotating electrical machines – Part 1: Rating and performance
- ✓ **PN-EN ISO 5802:2008/A1:2015-07E** Industrial fans – Performance testing in situ – Amendment 1
- ✓ **PN-EN ISO-13857:2020-03** Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
- ✓ **PN-EN 60529:2003/A2:2014-07** Degrees of protection provided by enclosures (IP Code)

2. APPLICATION

Roof fans **SMART-SN** are intended for general ventilation of rooms of general and industrial construction. They can also be used in technological (workplace) ventilation systems. Due to the available static pressure, they can be included in the ventilation duct network.

SMART-SN fans can be used for forcing dry air with dustiness NOT greater than 0.3 g/m3 and maximum temperature +60°C, without sticky, corrosive or explosive pollution!

3. MANUFACTURER'S DISCLAIMER

3.1. General disclaimers

- The manufacturer is not liable for damages resulting from the incorrect connection of the power supply and improper use of the device.
- It is unacceptable to install any additional elements not included in the device or equipment on the device.
- Unauthorized alterations and modifications to the device are not allowed.
- The device should be operated and repaired by an authorized and trained person.
- Protect all machine components against mechanical damage.
- The manufacturer is not responsible for bodily injury resulting from incorrect use.
- Before installing the device, check the load capacity of the structural components to which it will be attached. Incorrect, careless or unstable mounting of the device may damage it, and also pose a real threat to people nearby.

3.2. **Specific disclaimers**

- Roof fans **SMART-SN** cannot be used to flowing the flammable mixtures with air in the form of gas, vapor, mist or dust, which may create an **explosive atmosphere**.
- Roof fans **SMART-SN** cannot be used to flowing the air containing **sticky** impurities that can settle on the impeller and inside.
- Roof fans **SMART-SN** cannot be used to flowing the air containing **caustic** impurities that may have an adverse effect on the device.
- Roof fans **SMART-SN** cannot be used to flowing the air with a **temperature higher than +60°C**.
- When using **SMART-SN** fans with frequency converters (inverters), the maximum rotor speed may NOT be higher than the nominal speed of the motor of the given fan type.

4. TECHNICAL DATA

Table 1 Technical data of roof fans SMART-SN

Type of fan	Part no.	Maximum volume flow [m^3/h]	Maximum vacuum [Pa]	Synchronous rotation [rpm]	Motor rate [kW]	Supply voltage [V, Hz]	Mass [kg]
SMART-160/3000-SN	**813W30**	2 300	740	3000	**0,55**	3×400V, 50Hz	16
SMART-200/3000-SN	**813W33**	3 550	800		**0,55**		16
SMART-250/3000-SN	**813W36**	4 750	735		**0,55**		15
SMART-315/3000-SN	**813W40**	4 710	440		**0,37**		16
SMART-200/1500-SN	**813W32**	3 300	690	1500	**0,55**		57
SMART-250/1500-SN	**813W35**	4 600	690		**1,1**		64
SMART-315/1500-SN	**813W39**	9 400	790		**1,5**		66
SMART-400/1500-SN	**813W41**	12 500	860		**2,2**		75
SMART-200/1000-SN	**813W31**	2 540	370	1000	**0,37**		58
SMART-250/1000-SN	**813W34**	3 000	350		**0,37**		57
SMART-315/1000-SN	**813W38**	4 800	260		**0,55**		56
SMART-400/1000-SN	**813W42**	8 300	380		**0,75**		64
SMART-500/1000-SN	**813W44**	15 000	520		**1,5**		89
SMART-630/1000-SN	**813W46**	23 300	540		**3,0**		150
SMART-710/1000-SN	**813W48**	36 000	790		**5,5**		175
SMART-400/750-SN	**813W43**	6 000	200	750	**0,37**		62
SMART-500/750-SN	**813W45**	11 800	240		**1,1**		81
SMART-630/750-SN	**813W47**	18 500	350		**1,5**		135
SMART-710/750-SN	**813W49**	29 000	450		**2,2**		152

Note: Ingress protection code of electrical motor – **IP 54**.

It is recommended to use TPD-N or TPDC-N sound-absorbing roof bases and TK channel silencers to reduce noise levels.

4.1. Flow characteristics

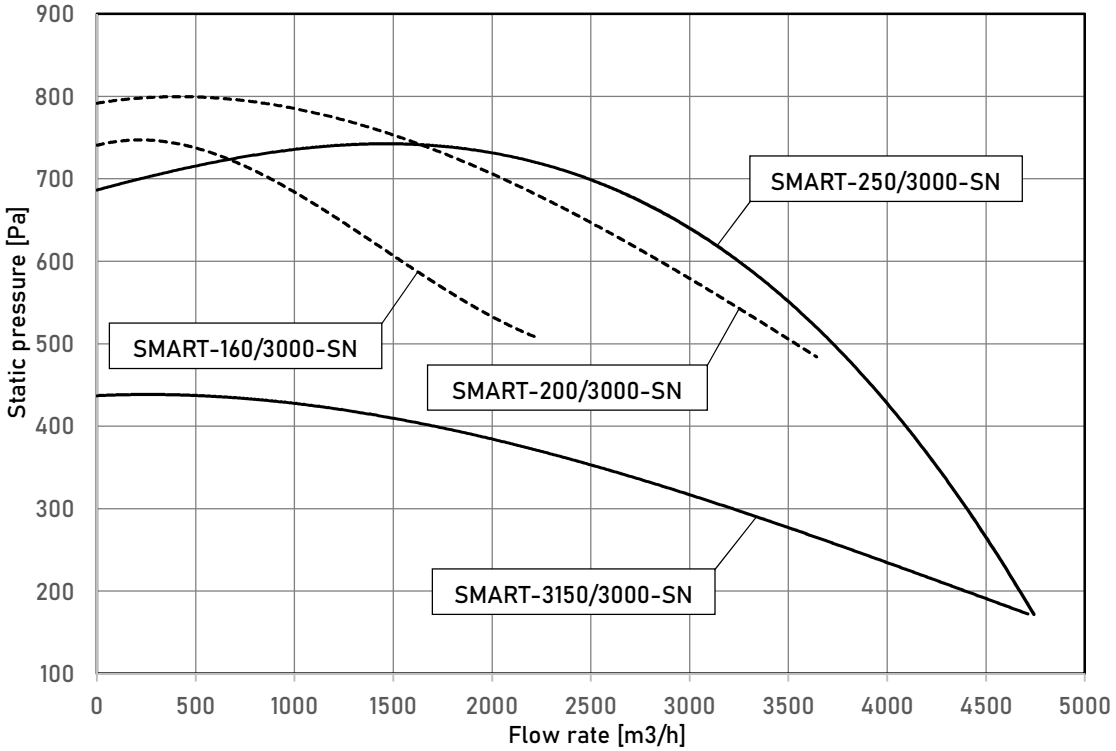


Chart 1 Flow characteristics of SMART/3000-SN roof fans

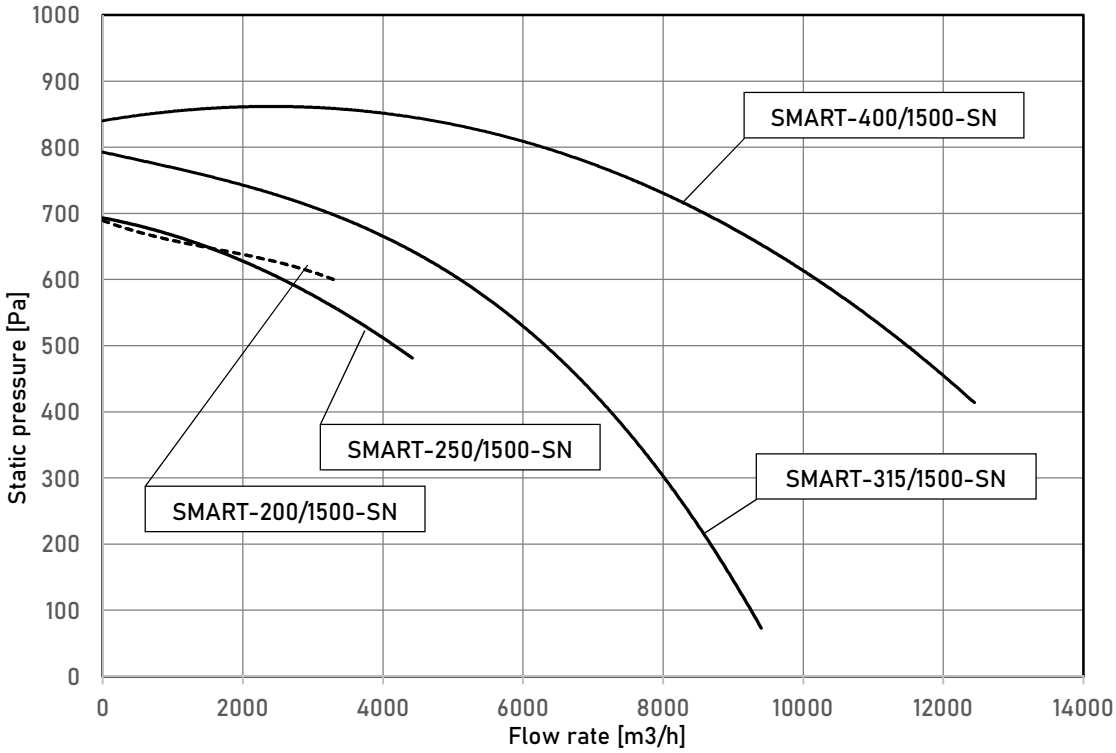


Chart 2 Flow characteristics of SMART/1500-SN roof fans

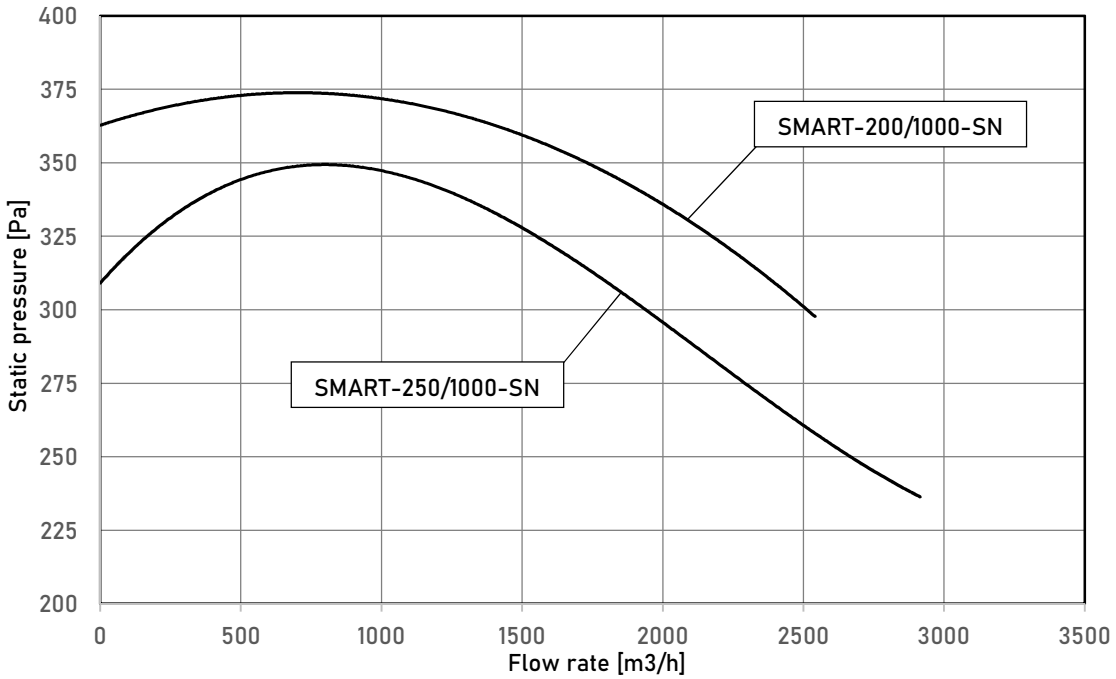


Chart 3 Flow characteristics of SMART/1000-SN roof fans, part 1 of 2

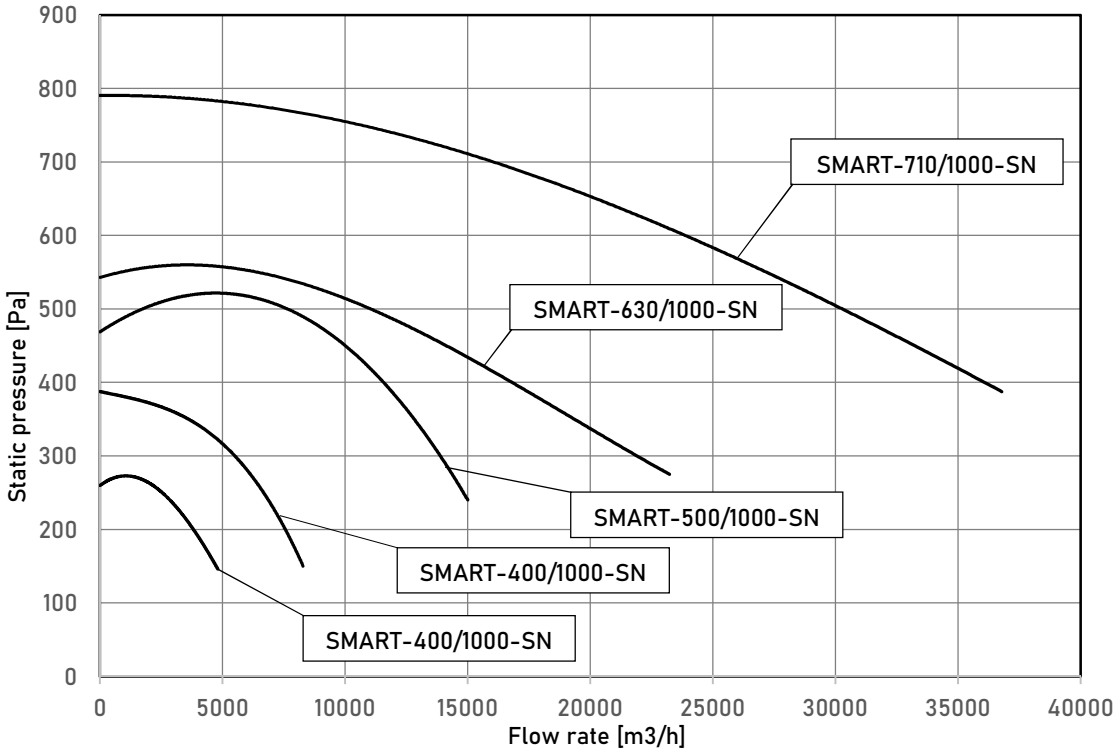


Chart 4 Flow characteristics of SMART/1000-SN roof fans, part 2 of 2

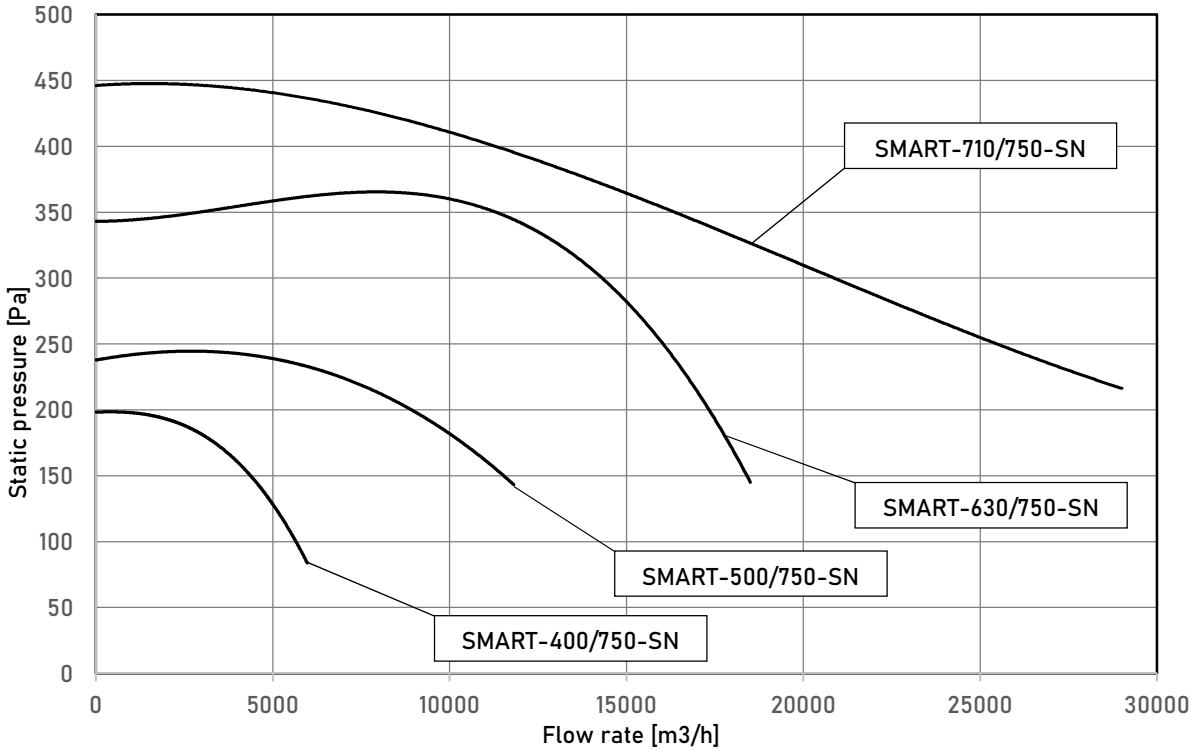


Chart 5 Flow characteristics of SMART/750-SN roof fans

Table 2 Sound pressure level [dB(A)] of SMART-SN roof fans

Type of roof fan																		
Outlet	160/3000	200/3000	250/3000	315/3000	200/1500	250/1500	315/1500	400/1500	200/1000	250/1000	315/1000	400/1000	500/1000	630/1000	710/1000	400/750	500/750	630/750	710/750
1m	79	79	80	80	74	75	80	85	67	65	68	73	78	84	87	63	69	77	81
5m	70	69	70	70	64	66	70	75	56	56	59	62	68	74	77	55	59	67	71
10m	62	62	63	63	57	58	63	68	50	48	51	56	61	67	70	46	52	60	64
15m	59	59	60	60	54	55	60	64	46	44	48	52	58	64	66	43	49	56	61
Inlet																			
1m	71	71	74	74	60	65	74	72	51	53	59	62	69	77	78	53	61	70	71

4.2. **Energy efficiency**

Information on energy efficiency for fans in accordance with **Commission Regulation (EU) No. 327/2011**.

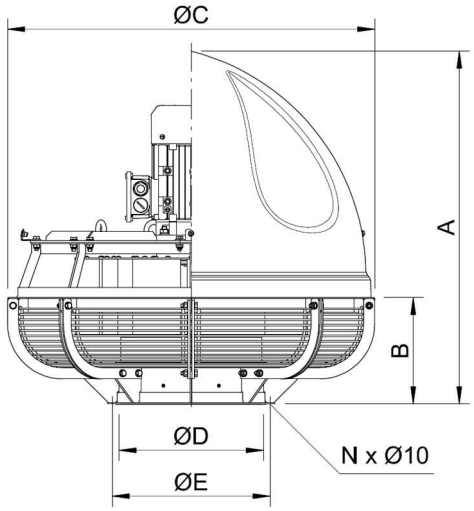
Table 4 Energy performance of roof fans SMART-SN

Product information	**160/3000**	**200/3000**	**250/3000**	**315/3000**	**200/1500**	**250/1500**	**315/1500**	**400/1500**	**200/1000**	**250/1000**	**315/1000**	**400/1000**	**500/1000**	**630/1000**	**710/1000**	**400/750**	**500/750**	**630/750**	**710/750**
1) Overall efficiency (%)	53.1	76.4	58.9	48.8	55.6	56.1	59.7	66.4	48.5	50.4	47.5	67.6	75.6	57.7	79.6	46.9	57.9	77.5	70.8
2) Measurement category	C																		
3) Efficiency category	static																		
4) Efficiency grade at optimum energy efficiency point (%)	48.1	48.5	50.2	47.6	50.5	50.7	52.3	54.7	46.8	46.1	46.9	48.8	53.1	56.0	58.3	46.0	49.8	52.5	54.7
5) Has the speed control system been included in the energy efficiency calculations?	NO																		
6) Year of manufacture	see device nameplate																		
7b) Manufacturer's name	KLIMAWENT S.A.																		
7b) Serial number	see device nameplate																		
7c) Production place	see device nameplate																		
8) Products model number	see device nameplate																		
9a) Rated motor power input at optimum energy efficiency (kW)	0.55	0.55	0.55	0.37	0.55	0.55	1.5	2.2	0.37	0.37	0.55	0.75	1.5	3.0	5.5	0.37	1.1	1.5	2.2
9b) Rated flow rate at optimum energy efficiency (m3/h)	2220	3640	3310	4065	3323	4415	4948	8143	2540	2914	3844	5519	13359	21210	35205	4026	10815	15374	25228
9c) Rated pressure rare at optimum energy efficiency (Pa)	508	491	603	231	602	481	639	733	301	237	203	303	363	329	448	156	166	279	255
10) Rotations per minute at optimum energy efficiency (rpm)	2740	2740	2740	2800	1390	1390	1440	1435	930	885	935	935	955	960	968	670	690	700	707
11) The „specific ratio"	1.007																		
12) Installation, use, maintenance, and recycling information	see chapter no. 9 – MAINTENANCE AND RECYCLING INSTRUCTIONS																		
13) Information relevant to minimizing environmental impact and ensuring an optimal lifetime	see chapter no. 9 – MAINTENANCE AND RECYCLING INSTRUCTIONS																		
14) Additional items used determining the fan efficiency	not supplied with the fan																		

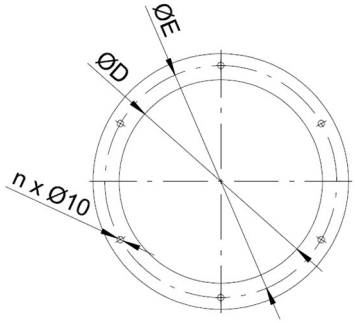
5. STRUCTURE AND FUNCTION

SMART-SN roof fans have a multi-spoke steel frame, which creates a streamlined and very mechanically durable housing, covered from below with an openwork protective cover preventing access to the interior of the fan, meeting the **ISO-13857** standard – see below – Picture 1 and Picture 3.

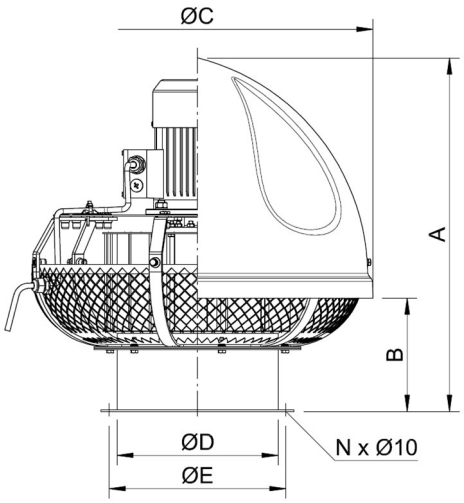
Inside the housing is a flange motor with a radial impeller mounted directly on the shaft, which is statically and dynamically balanced in accordance with **ISO 14694**, obtaining class **G 2.5**. Each **SMART-SN** fan is equipped with an inlet with a round flange with holes, which allows the fan to be mounted with threaded fasteners – see below – Picture 2 and Table 3. The top side of the fans is protected by a plastic cover from the weather conditions.



Picture 1 Characteristic dimensions of fans SMART-SN with rotation speeds 750 rpm, 1000 rpm, and 1500 rpm



Picture 2 Inlet connector



Picture 3 Characteristic dimensions of fans SMART-SN with 3000 rpm

Table 3 Characteristic dimensions of SMART-SN type fans at 750 rpm, 1000 rpm and 1500 rpm

Type of fan	A [mm]	B [mm]	ØC [mm]	ØD [mm]	ØE [mm]	N [pcs]
SMART-200-SN	770	230	800	200	224	8
SMART-250-SN				250	274	
SMART-315-SN				315	344	
SMART-400-SN				400	430	
SMART-500-SN	845	240	905	500	530	
SMART-630-SN	1050	325	1100	630	660	12
SMART-710-SN				710	740	

Table 4 Characteristic dimensions of SMART-SN type fans from 3000 rpm

Type of fan	A [mm]	B [mm]	ØC [mm]	ØD [mm]	ØE [mm]	N [pcs]
SMART-160-SN	590	220	545	160	194	6
SMART-200-SN				200	224	8
SMART-250-SN				250	274	
SMART-315-SN				315	344	

Table 5 Sound-absorbing roof bases TPD-N and TPDC-N

Type		Part no.	Name	Application
	**TPD-N**	**843P40**	**TPD-160-N**	SMART-160/3000-SN
		843P41	**TPD-200-N**	SMART-200/3000, 1500, 1000-SN
		843P42	**TPD-250-N**	SMART-250/3000, 1500, 1000-SN
		843P43	**TPD-315-N**	SMART-315/3000, 1500, 1000-SN
		843P44	**TPD-400-N**	SMART-400/1500, 1000, 750-SN
		843P45	**TPD-500-N**	SMART-500/1000, 750-SN
		843P46	**TPD-630-N**	SMART-630/1000, 750-SN
		843P47	**TPD-710-N**	SMART-710/1000, 750-SN
	**TPDC-N**	**843P50**	**TPDC-160-N**	SMART-160/3000-SN
		843P51	**TPDC-200-N**	SMART-200/3000, 1500, 1000-SN
		843P52	**TPDC-250-N**	SMART-250/3000, 1500, 1000-SN
		843P53	**TPDC-315-N**	SMART-315/3000, 1500, 1000-SN
		843P54	**TPDC-400-N**	SMART-400/1500, 1000, 750-SN
		843P55	**TPDC-500-N**	SMART-500/1000, 750-SN
		843P56	**TPDC-630-N**	SMART-630/1000, 750-SN
		843P57	**TPDC-710-N**	SMART-710/1000, 750-SN

Table 6 Additional equipment

	Type	Part no.	Description
 **Service switch**	**IS**	**843W30**	It is used to disconnect the single-phase or three-phase electric motors power supply circuit with rated current up to **16 A**. Locking the knob in the **0** or **OFF** position.
 **Motor starter**	**RS**	**816R...** *(depending on the power)*	It is used to directly switch on and off single- and three-phase motors. It performs the function of protection against overload and undervoltage and signals the on state.

	Type	Part no.	Description
 **Motor circuit breaker**	**WS**	**843W...** *(depending on the power)*	It is used to directly switch on and off single- and three-phase motors. It has short-circuit and overload protection. It protects the motor against damage as a result of blocked starting, overload, short circuit and lack of one phase in three-phase networks.
 **Inverter**	**FA**	**816F...** *(depending on the power)*	It is used to regulate the rotational speed of fans with three-phase electric motors. It is possible to program a specific application proposed by the customer.

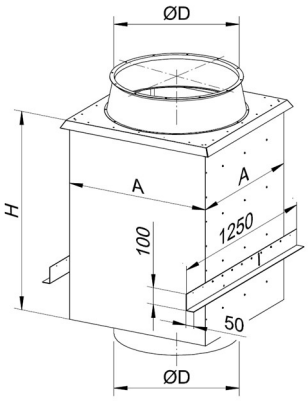
6. INSTALLATION AND COMMISSIONING

6.1. Installation

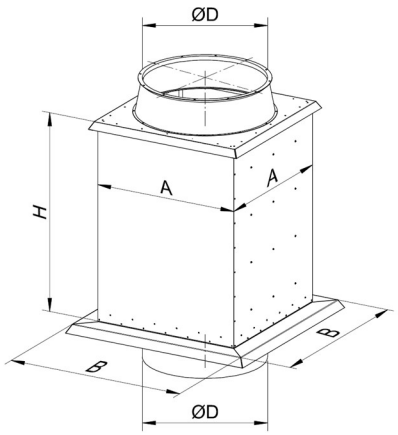
The fans should be mounted on plinths equipped with appropriate roof bases. To reduce the sound pressure (noise), it is recommended to use **TPD-N** or **TPDC-N** type sound-absorbing roof bases of appropriate sizes and **TK** type channel silencers. The use of a sound-absorbing roof base reduces the noise reaching the room by approx. **12-18dB(A)**.

SMART-SN fans should be transported on a pallet or using transport handles located under the cover on the fan motor plate.

The fan must not be transported using the motor's transport eye! Use only the eyes mounted on the fan motor plate.



Picture 4 TPD-N sound-absorbing roof base



Picture 5 TPDC-N sound-absorbing roof base

Table 7 Characteristic dimensions of TPD-N and TPDC-N attenuating roof bases

Type	Part no.	D [mm]	A [mm]	H [mm]	Type	Part no.	D [mm]	A [mm]	B [mm]	H [mm]
TPDC-160-N	**843P50**	160	430	625	**TPD-160-N**	**843P40**	160	430	630	625
TPDC-200-N	**843P51**	200			**TPD-200-N**	**843P41**	200			
TPDC-250-N	**843P52**	250	530	950	**TPD-250-N**	**843P42**	250	530	730	950
TPDC-315-N	**843P53**	315			**TPD-315-N**	**843P43**	315			
TPDC-400-N	**843P54**	400	790	1200	**TPD-400-N**	**843P44**	400	790	990	1200
TPDC-500-N	**843P55**	500			**TPD-500-N**	**843P45**	500			
TPDC-630-N	**843P56**	630	890	1200	**TPD-630-N**	**843P46**	630	890	1090	1200
TPDC-710-N	**843P57**	710			**TPD-710-N**	**843P47**	710			

Inlet diameters, number of mounting holes and pitch diameters in the roof base flanges of type TPD-N and TPDC-N are adapted to the respective SMART-SN fans – see above – Picture 2.

Sound-absorbing roof bases type TPD-N, TPDC-N and silencers type TK are delivered based on a separate order.

6.2. Connecting the power supply

The power connection to the **SMART-SN** fan is made by the user on his own – see the instructions in point 6.3. This should be done by an employee with proven qualifications.

On a separate customer order, the manufacturer provides a **service switch**, which is necessary to disconnect power during installation and service – see above – Table 6.

The customer installs the service switch himself. The way of connecting the service switch is shown below – see Diagram 1 and Diagram 2.

Before connecting the fan to the power supply, remove the fan cover to gain access to the motor junction box. After completing the connections, replace the fan cover.

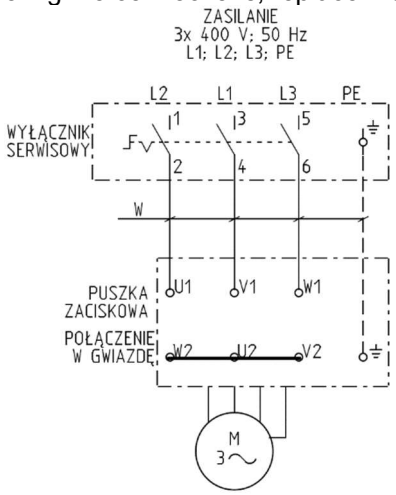


Diagram 1 Star motor connection Y

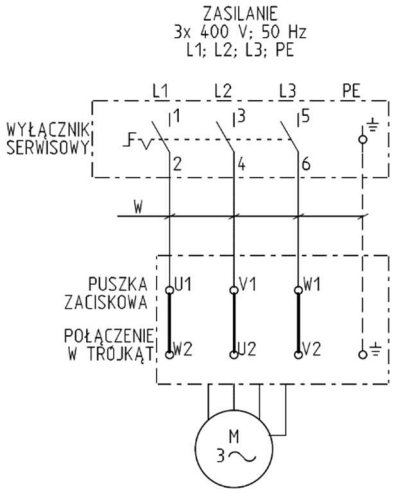


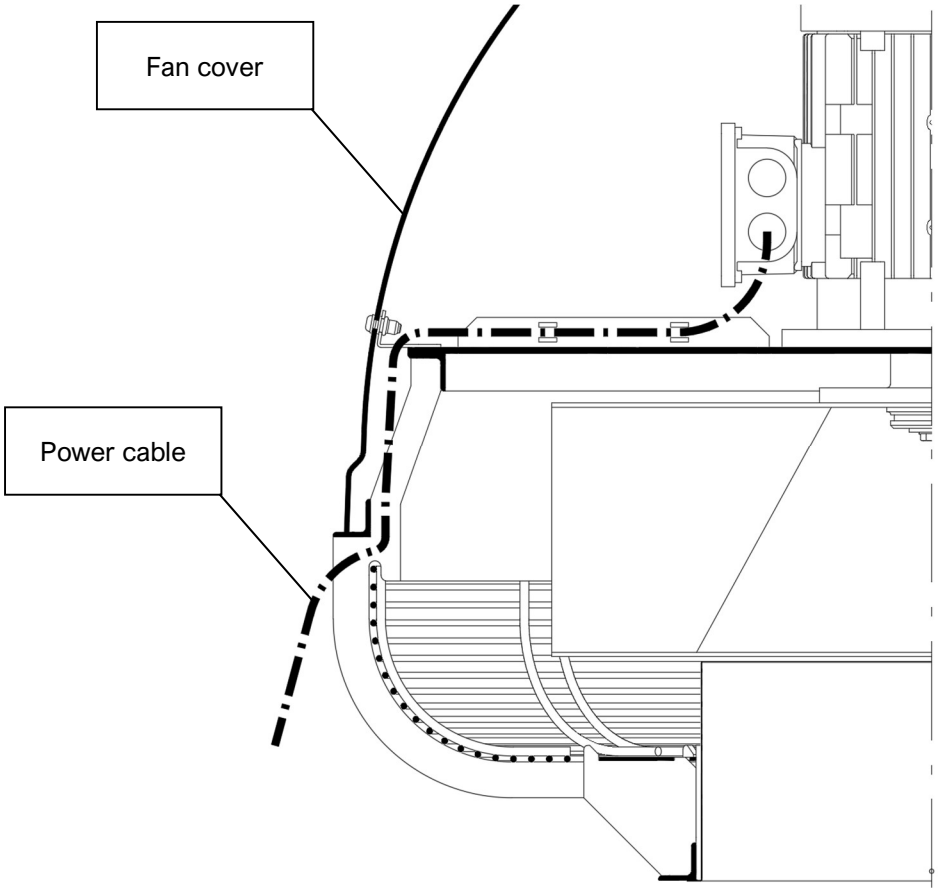
Diagram 2 Triangle motor connection Δ

SERVICE SWITCHES are delivered based on a separate order.

6.3. Power connection manual, version "A" (Performed by the user)

For **SMART-SN** fans at **750 rpm**, **1000 rpm** or **1500 rpm**, connect as follows.

1) Remove the fan cover, unscrew and reveal the terminals in the motor connection box.
2) Connect the motor windings according to the motor diagram.
3) Route the power cable from the motor junction box outside the fan to the motor breaker, fixing it on the way to the fan components, preventing contact with the impeller and other moving parts - see Picture 6. It is also recommended to use a service switch.
4) When using the service switch, place it near the fan in a location convenient for use, preferably in the immediate vicinity.
5) Set the motor protection to 1.1 × electric current at the fan duty point, with a limit not exceeding:
   It = 1.1×In, where: In is the rated motor current.
6) Close and secure the motor junction box. Install the fan cover.



Picture 6 How to route the power cord for SMART-SN fans at 750 rpm, 1000 rpm, and 1500 rpm

6.4. Power connection manual, version "B" (Performed by the user)

For **SMART-SN** fans with **3000 rpm**, the motor's electrical connection is made by the manufacturer and the power cord is routed outside the fan. The user connects the guidewire to the circuit breaker by following the instructions below.

1) Route the power cable from the fan to the motor breaker. It is also recommended to use the service switch.
2) If a service switch is used, it should be placed near the fan in a location convenient for use, preferably in the immediate vicinity.
3) Set the motor protection to 1.1 × electric current at the fan duty point, with a limit not exceeding: **It = 1.1 × In**, where: In is the rated motor current.

6.5. Control and commissioning

Before starting the fan:

A. Check the matching of the electrical network parameters to the engine.
B. Check the correctness and durability of the PE protective conductor connection.
C. Check the correct selection of overload protection in the fan power circuit.
D. Check the direction of rotation of the fan – it must match the arrow on the fan housing. The wrong direction of rotation should be changed by changing the power phase connection. Check by doing a short test.
E. Start the fan with a suitable starting system – see above – Table 6.
F. Perform necessary electrical measurements to confirm proper fan operation.

Do not start the fan (even on trial) before installing the fan guard!

7. OPERATIONAL USE

The **SMART-SN** fans design enables the device to work without constant operation in continuous operation. To start the fan, use (see above – Table 6):

- **RS** type motor starter,
- **WS** type motor breaker,
- **FA/3** inverter.

The choice of how to start SMART-SN fans depends on many factors, such as the power of the electric motor, nature of the motor frequency control, type of motor overload protection, etc.

Incorrect use does not take into account the manufacturer's disclaimers (see item 3 "MANUFACTURER'S DISCLAIMER") and is considered improper (see item 2 “APPLICATION”). Improper use may cause damage to the motor bearings, loss of balance of rotating elements, the appearance of excessive vibrations, impeller deformation, damage caused by friction, and ultimately destruction of the fan.

8. TROUBLESHOOTING GUIDE

If you notice any signs of device malfunction (e.g. increase in noise, vibration, reduced performance), disconnect the fan from the power supply and check for the cause of the interference. Common disorders and their causes are presented below – see – Table 8.

Table 8 Typical disturbances and remedies

Disturbances	Possible causes	Remedies
no possibility to start the fan	failure of one phase or too low voltage or blocked impeller or damaged motor	supply voltage, check electrical protection, remove impeller blocking object, replace motor with new one
the appearance of vibration and vibration of the fan	object obstructing the fan	disconnect the fan from the power supply, remove the engine cover and remove the object
	rotor damage	replace the impeller with a new one
poor efficiency	wrong rotor rotation direction	change the impeller rotation direction by changing the phase order
loud fan operation	destruction of engine bearings	replace the engine with a new one
	distortion of impeller inlet parts and friction	replace deformed elements

9. MAINTENANCE AND RECYCLING INSTRUCTIONS

9.1. Maintenance

The design of the fan enables continuous operation, provided that it is used correctly and periodic inspections and maintenance are carried out.

The user carries out checks and general maintenance on his own!

At least every **12 months**, check the technical condition of the fan and the motor following the principles of operating electric drive devices.

Inspections of the fan may be performed by a qualified person with appropriate qualifications and only after disconnecting the device from the power supply. To disconnect the fan from the main circuit, a **service switch** is used, the purchase, installation, and placement of which is the responsibility of the fan user. **Service switches** from **KLIMAWENT S.A.** offer as optional equipment - see above, Table 6.

As part of the fan check, check the following. If necessary, remove the fan from the roof base:

A. Check the correctness and accuracy of tightening the mechanical and electrical connections.
B. Check the condition of the impeller and the inside of the fan and detect and remove accumulated dirt or foreign bodies.
C. Check the alignment of the impeller relative to the inlet fitting (equal distance over the entire circumference between the impeller inlet and the fan inlet fitting).
D. In case of vibration or noise during fan operation, measure the vibration and checking that there is no contact between the rotating impeller components and the inlet sleeve or other housing components.

The fan can be restarted after the checking procedure described in section 6 - INSTALLATION AND COMMISSIONING. Exceptions are activities that can be performed only during operation of the device, in strict compliance with safety regulations - e.g. electrical measurements or vibration measurements, during which the engine cover and exposed space for access to the rotor are removed. During the inspection work, safety regulations must be strictly observed, because non-compliance with them may pose a threat to health and life - see below - point 10 - OHS MANUAL.

9.2. **Recycling and cassation**

At the time of delivery of the product for cassation, the provisions regarding the cassation of machines withdrawn from the use and recycling of waste should be observed. No part of the **SMART-SN** fan construction is classified as hazardous waste.

10. OHS MANUAL

Commissioning and operation of the device may take place only after reading this manual. The device is not dangerous, provided it is carefully installed following this manual!

The machine meets the safety requirements of Directive 2006/42/EC and does not require additional safeguards for safe use!

All inspections and repairs should be carried out only after disconnecting the device from the power supply. Electrical connection may only be carried out by qualified personnel!

When operating, assembling, electrically connecting, commissioning and service repairs, comply with safety regulations, standards and generally accepted technical rules!
Due to the presence of sharp edges and corners, during any work such as assembly, disassembly, repair or inspection, it is necessary to use personal protective equipment as well as work clothing and footwear!

11. TRANSPORT AND STORAGE

The device is transported on a pallet and wrapped in foil. Protect the device against damage, slipping, dents and rain during transport. The device should be stored in a dry and ventilated room. Transport and recharging should take place in a way that eliminates damage or dents to the device, as well as damage to the packaging or blurring of markings on it.

Transport the fan with the transport eyes mounted on the engine plate under the engine cover! Do not use the engine ear!

Storage should be in accordance with the following rules:

A. The device should be stored in the transport packaging, which protects against external factors.
B. The place of storage should be dry and free from dust at a temperature of **- 10ºC** to **+ 40ºC**.

12. TERMS OF WARRANTY

The warranty period is specified in the device **Warranty Card**.

The warranty does not cover:

- mechanical and electrical damages of the device caused by the user,
- damage resulting from improper use or failure to comply with the operating instructions,
- damage resulting from improper transport, storage or improper maintenance.

Non-compliance with point 3 “MANUFACTURER'S DISCLAIMER” of this manual, especially the unauthorized modification of the device or its improper use will void the warranty!

13. EXAMPLE OF EC DECLARATION OF CONFORMITY

CE

KLIMAWENT

EC DECLARATION OF CONFORMITY

NO. _____

Manufacturer (eventually also the authorized representative/importer):
name: **KLIMAWENT S.A.**
address: **POLAND, 81-571 GDYNIA, 194 Chwaszczyńska street**

A person, authorized for issuing the technical documentation:
name and address: Teodor Świrbutowicz, **KLIMAWENT S.A.**

hereby declares that the product: **Roof fans**

type / model: **SMART-SN**

*serial number:*_____ *year of production:* _____

Meets the requirements of the subsequent European Directives:
Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (Official Journal L 157 of 09.06.2006, page 24)
Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (recast) (Official Journal L 96 of 29.03.2014, page 357)
Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (recast) (Official Journal L 285 of 31.10.2009, page 10)
Commission Regulation (EU) No 327/2011 of 30 March 2011 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for fans driven by motors with an electric input power between 125 W and 500 kW (Text with EEA relevance) (Official Journal L 90 of 6.4.2011, page 8)
Regulation of the Polish Minister of Economy of 21 October 2008 on requirements for machines (Journal of Laws No. 199 of 2008, item 1228)

Meets the requirements of the following harmonised standards:
PN-EN ISO-12100:2012 Safety of machinery – General principles for design – Risk assessment and risk reduction
PN-EN 60204-1:2018-12P Safety of machinery – Electrical equipment of machines – Part 1: General requirements
PN-EN 60034-1:2011 Rotating electrical machines – Part 1: Rating and performance
PN-EN ISO 5802:2008/A1:2015-07E Industrial fans – Performance testing in situ – Amendment 1
PN-EN ISO-13857:2020-03 Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
PN-EN 60529:2003/A2:2014-07 Degrees of protection provided by enclosures (IP Code)

place, date	*signature of the authorized person*	*name, surname, a function of the signatory*