

# Use and Maintenance Manual



## Radial roof fans **BULLET-N**

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807W07 BULLET-160-N 31.05.2019/EN  
 807W08 BULLET-200-N 31.05.2019/EN  
 807W09 BULLET-250-N 31.05.2019/EN  
 807W10 BULLET-315-N 31.05.2019/EN

## 1. Introductory Remarks

The purpose of the present Use and Maintenance Manual is to supply User with directions within the range of application, installation, start-up and the operational use of the **BULLET-N radial roof fans**.

**Installing, start up and operational use are exclusively admissible after getting acquainted with the contents of the Use and Maintenance Manual.**

With regard to continuity of work carried on improvement of our products, we reserve for ourselves the revision possibility of the draft and technological changes improving their functional features and safety.

The construction of the **BULLET-N radial roof fans** meets the requirements of the current state of technology as well as the safety and health assurances included in:

- **2006/42/EC Machinery Directive** of the European Parliament and of the Council of May 17<sup>th</sup>, 2006 on machinery – amending the 95/16/EC (recast) /*Journal of Laws EC L157 of 09.06.2006, page 24*/
- **2014/35/EC Directive** of the European Parliament and of the Council of February 26<sup>th</sup>, 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. /*Journal of Laws EC L96 of 29.03.2014*/

The appliance meets the requirements included in:

- **2009/125/EC (ErP) Directive** of the European Parliament and of the Council of October 21<sup>th</sup>, 2009 establishing a framework for the setting of ecodesign requirements for energy-related products / *Journal of Laws L 285 of 31.10.2009* /
- **327/2011 (EU) Regulation** of March 30<sup>th</sup>, 2011 on implementing the **2009/125/EC Directive** of the European Parliament and of the Council with regard to ecodesign requirements for fans driven by motors with an electric input power between 125W and 500 kW / *Journal of Laws L No. 90 of 06.04.2011* /

The device has been constructed and produced on the basis of following harmonized standards:

- **EN ISO-12100:2012** – “Safety of machinery. Basic concepts, general principles for design. Risk assessment and risk reduction”
- **EN 60204-1:2018-12** – “Safety of machinery – Electrical equipment of machines. Part 1: General requirements”
- **EN 60034-1:2011** – “Rotating electrical machines – Part 1: Rating data and parameters”
- **EN ISO 5802:2008/A1:2015-07** – “Industrial Fans – Performance testing in situ of installing
- **EN ISO 13857:2010** – “Safety of machinery – Safe distances to prevent hazard zones being reached by upper and lower limbs”.

## 2. Application

BULLET roof fans are constructed for general ventilation of buildings. They are meant for conveying dry air of maximum temperature +40°C and dustiness not exceeding 0,3 g/m<sup>3</sup>.

The fans are not appropriate for forwarding the atmosphere containing viscous pollutants or aggressive compounds neither including substances that could cause explosion risk.

## 3. Reservations of Producer

- A.** Manufacturer accepts no liability for any consequences following from the operational use that is in contradiction to the purpose of application.
- B.** It is unacceptable to install on the device structure any additional elements not belonging to its normal construction or accessory set.
- C.** Do not introduce any structural changes or modification of the appliance on one's own.
- D.** Protect the housing from mechanical damage.
- E.** Prior to installing check the load capacity of the constructional elements where the fan will be mounted. Unsure mounting could cause risk to personnel / people in vicinity and effect in damage of the device.

- F. BULLET-N fans cannot be used for conveying the air contaminated with a mixture of flammable substances in form of gas, vapour, mist and dust, that in connection with the air could create the explosive atmosphere.
- G. Do not use the fans for conveying the air containing viscous impurities that could accumulate on the device surface, especially on the impeller.
- H. Neither use it for forwarding the air with aggressive pollutants which will destructively effect the device structure.
- I. During operation, the maximum impeller rotations should not exceed the nominal rotations.
- J. Producer is not responsible for wounds, injuries, body laceration experienced by User or personnel during the improper operational use.

## 4. Technical Data

Table No.1

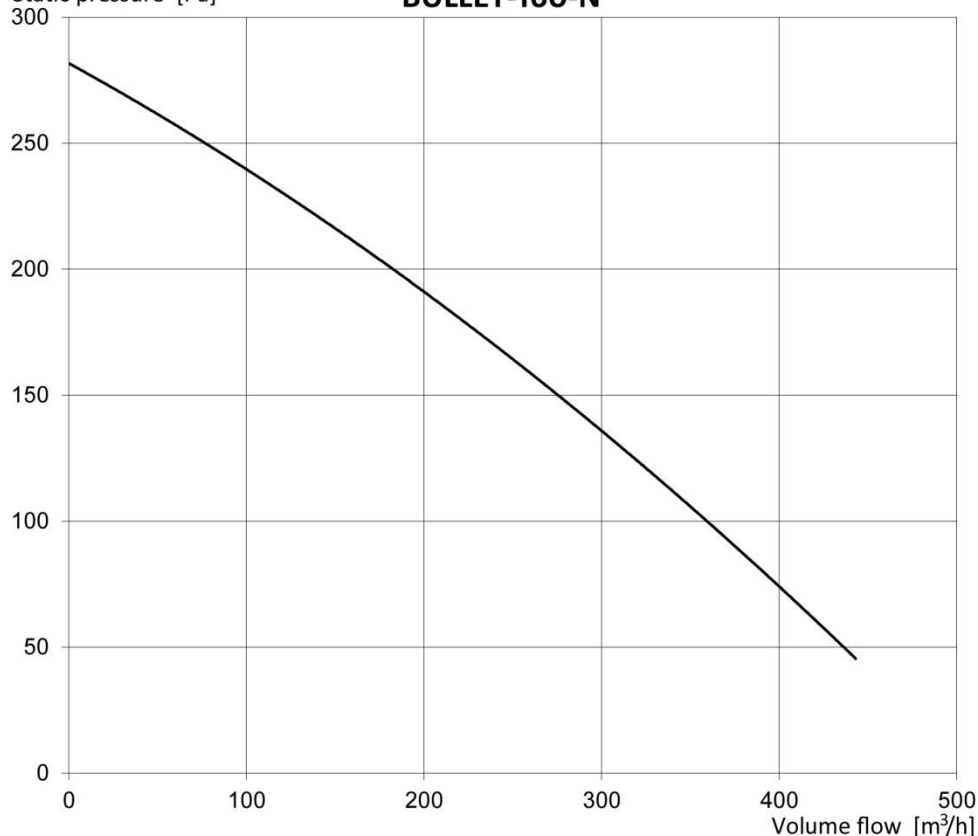
Type	Supply voltage	Rotations	Motor rate	Maximum volume flow	Maximum vacuum	Weight
	[v / Hz]	[1/min]	[W]	[m <sup>3</sup> /h]	[Pa]	[kg]
<b>BULLET-160</b>	230 / 50	2220	<b>54</b>	440	280	6,0
<b>BULLET-200</b>	230 / 50	2670	<b>124</b>	1000	520	7,0
<b>BULLET-250</b>	230 / 50	2600	<b>160</b>	1300	600	8,0
<b>BULLET-315</b>	230 / 50	2480	<b>242</b>	1500	730	8,3

**CAUTION:** Ingress protection IP44

Synchronous rotations – 300 r.p.m

Static pressure [Pa]

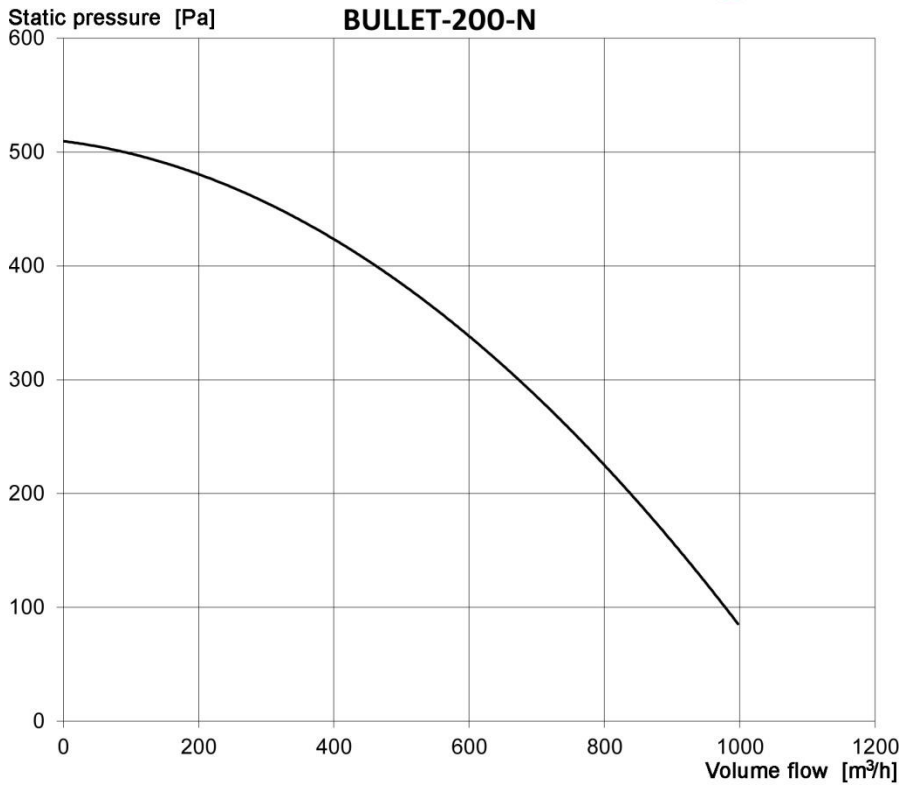
**BULLET-160-N**



**Flow chart – BULLET-160-N**

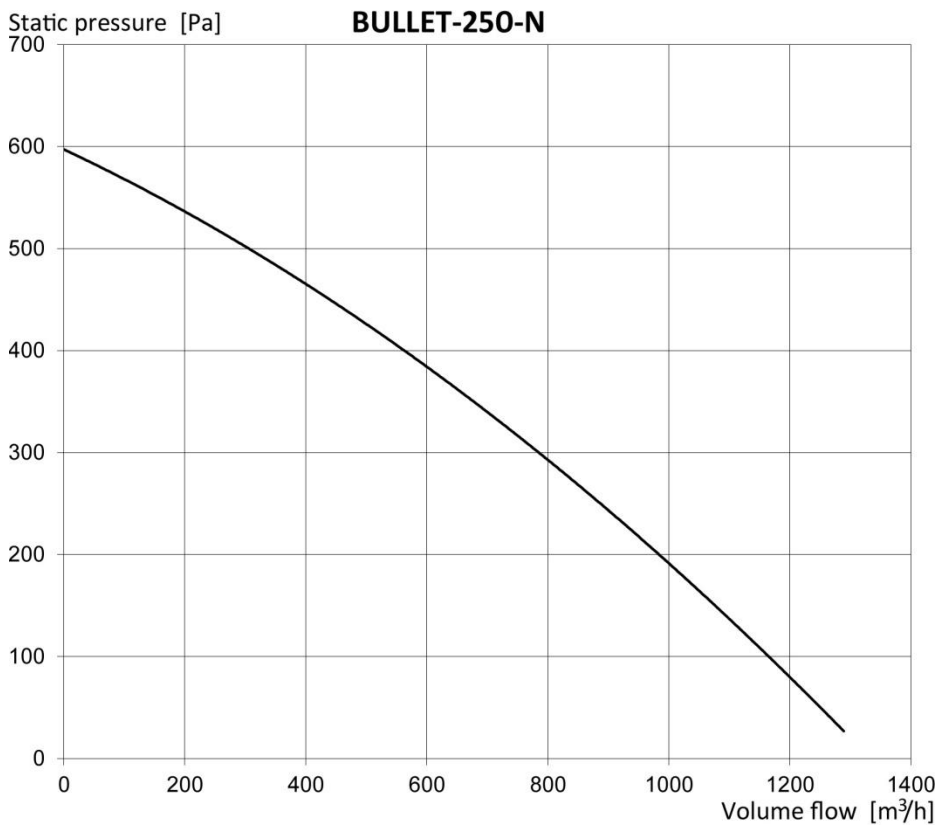
**Table No.2 – Acoustic pressure level [dB(A)] BULLET-160-N**

outlet				inlet
1 [m]	5 [m]	10 [m]	15 [m]	1 [m]
57	47	40	36	48



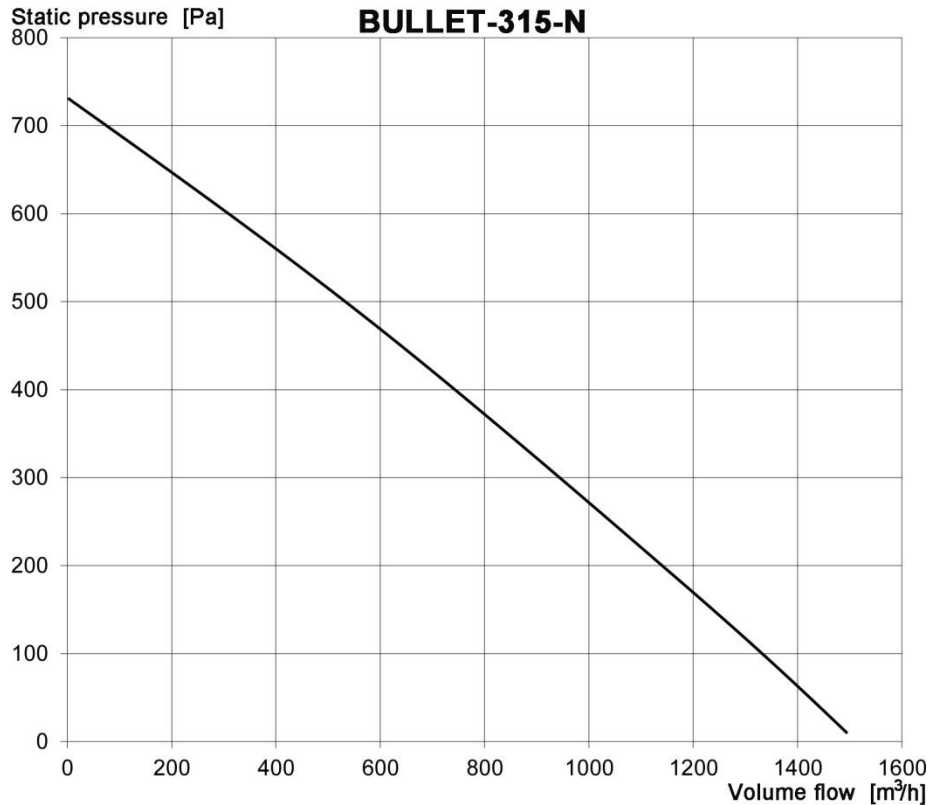
**Flow chart – BULLET-200-N**

<b>Table No.3 – Acoustic pressure level [dB(A)] BULLET-200-N</b>				
outlet				inlet
1 [m]	5 [m]	10 [m]	15 [m]	1 [m]
63	53	46	43	55



**Flow chart – BULLET-250-N**

<b>Table No.4 – Acoustic pressure level [dB(A)] BULLET-250-N</b>				
outlet				inlet
1 [m]	5 [m]	10 [m]	15 [m]	1 [m]
66	57	49	46	58



**Flow chart – BULLET-315-N**

<b>Table No.5 – Acoustic pressure level [dB(A)] BULLET-315-N</b>				
outlet				inlet
1 [m]	5 [m]	10 [m]	15 [m]	1 [m]
65	57	48	45	58

**CAUTION:**

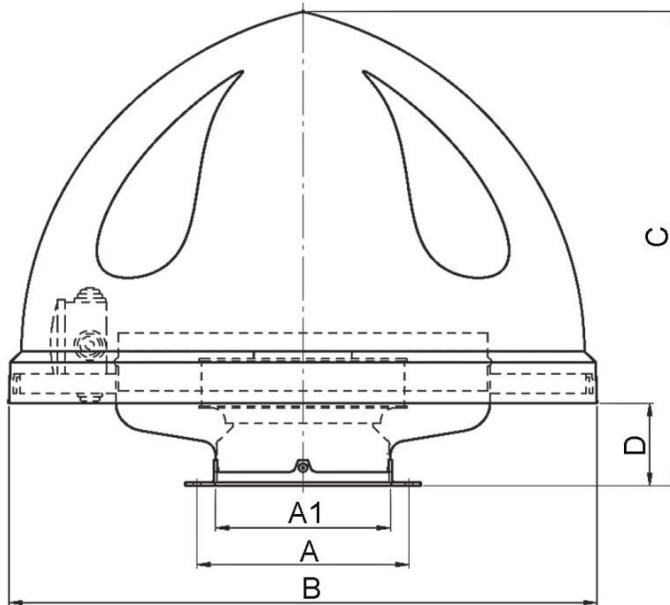
The flow charts above have been prepared for fans installed on sound-absorbing roof bases **TPD-N** or **TPDC-N**; to reduce more the noise level a TK silencer can be introduced underneath the roof bases **TPD-N** or **TPDC-N**.

## 5. Structure and Function

A cylindrical ABS plastic housing contains a radial impeller with a motor. The housing is protected with a plastic hood of high mechanical strength, as a guard against atmospheric factors. Under the cylindrical housing is located an inlet connection fitting piece with a flange, by means of which the fan can be installed on a roof base.

It is recommended to install the fan on a sound-adsorbing roof bases **TPD** or **TPDC**, eventually on standard roof bases **BI** or **BII**.

On demand, the fan can be equipped with a speed governor **RP** for a step-less rotation control.



**Fig. No.1 – BULLET-N – Structure and dimensions**

**Table No.6 – Dimensions**

Type of the fan	A [mm]	A1 [mm]	B [mm]	C [mm]	D [mm]
BULLET-160-N	194 (6xØ7)	160	538	460	80
BULLET-200-N	224 (8xØ9)	200	538	460	80
BULLET-250-N	274 (8xØ9)	250	538	460	80
BULLET-315-N	344 (8xØ9)	315	538	460	80

## 6. Assembly and Start-up

BULLET-N are designed for use outside the buildings (outdoor application). It is recommended to install them on roof bases or wall brackets (delivery on separate order).

To reduce more the noise level, apply the sound-absorbing roof bases.

After the fan is installed on a roof base, all the mounting bolts of the fan flange should be screwed up to the roof base (6 or 8 screws M8). Connection to the power supply ought to be carried out by User on one's own.



**Connection to the power supply system has to be carried out by an authorized person with adequate qualifications.**

Install the IS isolating switch, to cut off the power supply during the servicing. Isolating switches are in the assortment of KLIMAWENT S.A. as additional equipment (delivery on separate order). The switch ought should be installed by User on one's own, in a place as convenient place. The way of connection is illustrated in Fig. No.2. First, take off the fan hood, to get access to the terminal box of the fan motor. After all the connections are carried out, re-install the fan hood.

It is important to select the appropriate sort and section of the supply cable and the protection from the short-circuit and overload effect, according to the local conditions.

**Check subsequent aspects before the start-up:**

- **rated voltage of the system and the motor**
- **proper and firm connection to the PE protective cable**
- **application of suitable protection within the power supply system.**

In case when rotational speed adjustment of the fan is required, apply the electronic speed governor type RP-5-K, delivered by manufacturer upon separate order. Mode of connection to the supply (in version with the speed governor and without the speed governor), is illustrated in the Fig. No.2.

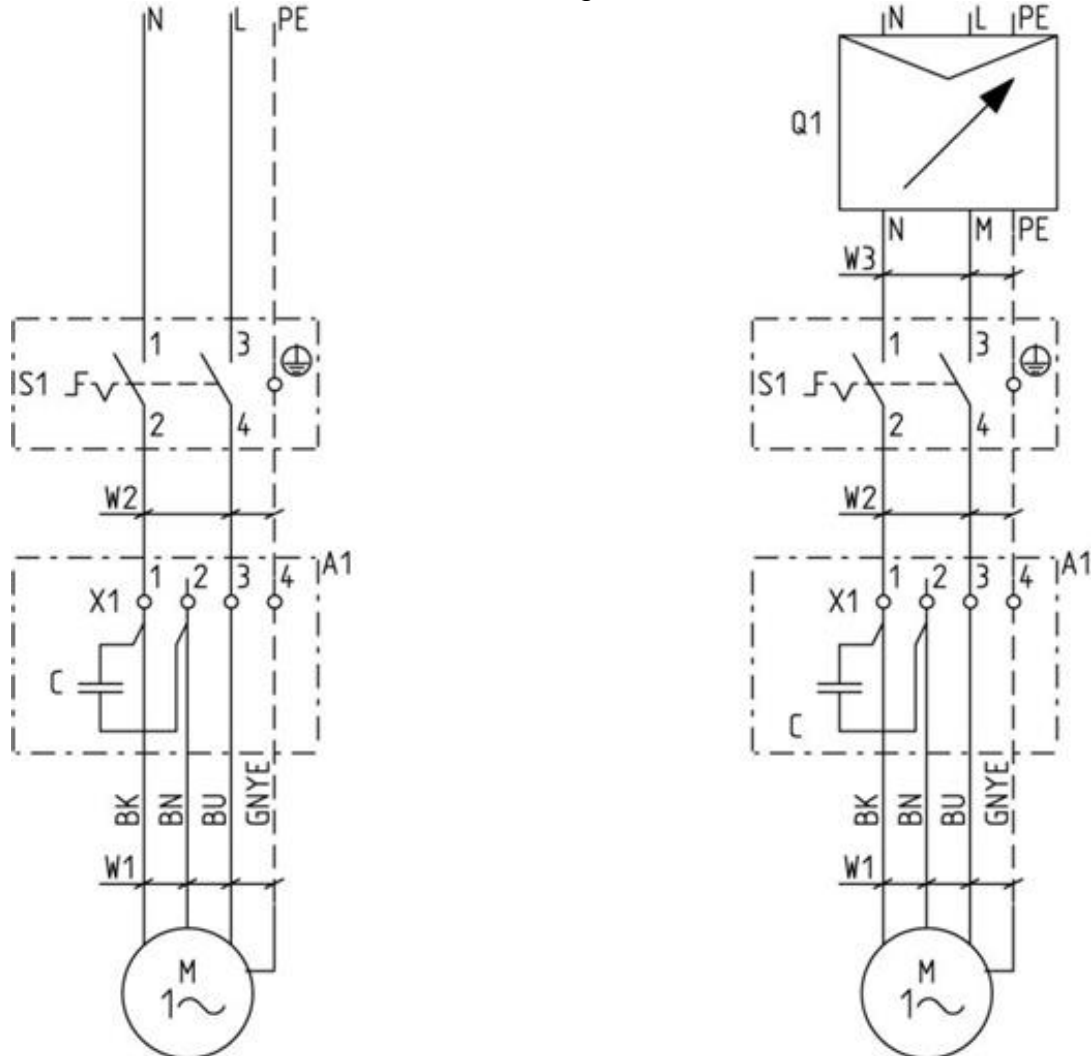


Rotational speed adjustment by means of the RP-5-K governor:

The governor is equipped with an “ON / OFF” switch and a signalling lamp, indicating the supply switched on. Rotations are set by means of a potentiometer. After it is set into position “ON”, the fan reaches maximum rotations after 6-7 seconds.

Subsequently, the speed can be adjusted with the wheel (potentiometer).

Mode of electrical connections is illustrated on Fig. No.2.



**Fig. No.2 – Connection Diagram**

**CAUTION:**

1. Overload protection has to be selected by the investor
2. Suggested installing place of the isolating switch – near the fan
3. Insulation class I
4. Ingress protection **IP44**

Fan	Motor rate	Turbine model	Condenser C	Terminal box A1	Terminal strip XI	Speed governor
BULLET-160-N	66 W	YWF.B25-190-060AB06	2,5 µF	FA200003 IP44 PAWBOL	LZ4 4 terminals	SLM-0-60-AT SENTERA ONTROLS
BULLET-200-N	130 W	YWF.B25-225-075AB00	4 µF		LZ4 terminals	SLM-0-60-AT SENTERA ONTROLS
BULLET-250-N	168 W	YWF.B25-250-080AB00	6 µF		LZ4 4 terminals	SLM-0-60-AT SENTERA ONTROLS
BULLET-315-N	240 W	YWF.B25-280-080AB00	8 µF		LZ4 4 terminals	SLM-0-60-AT SENTERA ONTROLS

Przewody: W1 - RVV 300/500 4G1

W2 - YDYzo 3G1

W3 - YDYzo 3G1

## 7. Operational Use

Construction of the device guarantees its operational use and reliable function without the continuous everyday technical supervision.

For improper use is considered: application of the fan in contradiction with its purpose (see Section 2 of the present Use and Maintenance Manual) and when the reservations of producer are not observed (see Section 3 of the present Use and Maintenance Manual).

### Consequences of incorrect application:

- breakage of bearings
- balance loss of the rotary elements
- vibrations
- deformations
- damages caused by friction.

If failures or incorrect function are by noise or visually spotted (i.e. increased noise, vibrations of the ventilation system) – disconnect the fan from the power system, examine it and remove the failure reason.

Most typical operational malfunctions, and their reasons are listed in the Section 8 of the present Use and Maintenance Manual.

## 8. Trouble Shooting Guide

Table No.7

	Problem	Possible reason	Corrective action
1.	Sudden and significant decrease in the intake volume flow	Hindrance objects, pollutants reducing the air flow got stuck in the duct or in the inlet	Disconnect the fan from the power supply, take off the protective hood and remove the barrier object / obstacle
		the impeller is faulty	replace the impeller for a new

## 9. Maintenance

Construction provides operational longevity, robustness, reliable function, under the condition of appropriate operational use.

To obtain correct function of the fan and to observe the principles of Occupational Health and Safety, it is recommended to carry out the technical revisions of the fan in regular periods (e.g. once a year). Additionally, pay attention that the fan runs without obstacles and examine the technical state of the fan.



**All the activities connected with technical revisions on the fan have to be carried out by an authorised person with adequate qualifications and necessarily after disconnection from the power supply system. Observe the rules of Occupational Health and Safety (if these principles are not followed, hazard to life and health might occur).**

To disconnect the fan from the power supply system apply the IS isolating switch, its purchase and installing belongs to User. Isolating switch ought to be installed in a convenient place near the reach of hand of the servicing person.

IS Isolating switches are in the assortment of KLIMAWENT S.A. as additional accessories. The mode of connection is shown in the Users Manual of the IS isolating switch.

### In the scope of technical revision are:

- Examine and tighten up the mechanical and electrical connections;
- Check the mountings of the motor and the fan – especially pay attention that the clearance between the impeller and the non-rotating elements is even within the whole circumference;
- Remove the impurities that eventually accumulated on the structure inside the fan.



The fan can be restarted after the control steps are carried out, as described in the Section 6 “Assembly and Start-up” in the present Use and Maintenance Manual.

**Exclusion from this are activities that should be performed at the running fan, and with strict observance of the rules of Occupational Health and Safety – e.g. measuring of the vibrations.**

## 10. Occupational Health and Safety

**Start up and the operational use is only admissible exclusively after getting acquainted with the contents of the present Use and Maintenance Manual.** The fan will not cause any hazard to User / personnel, if it is stably installed on the roof base or another supporting structure of appropriate load carrying capacity.

Connect the fan to the power supply system, strictly according to the enclosed Connection Diagram and the guidelines shown in Section 6 of the present Use and Maintenance Manual. **This ought to be carried out exclusively by a qualified person, and in accordance with the valid regulations / rules of the Occupational Health and Safety.** During the operational use, check the state of the PE protective cable.

**WARNING** Any technical revisions and activities connected with repair, have to be executed, necessarily after the device disconnection from the power supply system (isolating switch).

## 11. Transport and Storage

The fans are wrapped with foil and placed in cardboard packages. On the package surface are indicated their weights. During the loading, re-loading and transport, the packages should not be overturned, thrown. Do not put any load on the package. Stacking of packages is forbidden. During the transport it is important to protect the devices from weather conditions and damage. Storage area: dry rooms and areas of efficient ventilation.

## 12. Terms of warranty

The period of warranty for the purchased device is indicated in the “Card of Warranty”. The warranty does not comprise:

- mechanical damage and dysfunctions caused by User,
- device failures caused during use which was in contradiction with the purpose of operational use and the present Use and Maintenance Manual,
- any damages being effected during the improper transport, storage or incorrect maintenance.

**Infringement of the Section 3 “Reservations of producer” of the User’s Manual and especially modifications undertaken by User on one’s own or operational use that is in contradiction with its purpose shall cause the loss of warranty validity.**

### 13. Sample of the Declaration of Conformity

**Declaration of conformity EC No. ....**

Manufacturer (eventually the authorized representative / importer):

name: **KLIMAWENT S.A.**

address: **81-571 Gdynia, Chwaszczyńska 194**

A person, authorized for issuing the technical documentation: Teodor Świrbutowicz, KLIMAWENT S.A.

hereby declares that the appliance:

name: **Radial roof fan**

type/model: **BULLET-N**

serial number: ..... year of production: .....

meets the requirements of the subsequent European Directives:

- **2006/42/EC Machinery Directive** of the European Parliament and of the Council of 17 May, 2006 on machinery – amending the 95/16/EC (recast) */Journal of Laws EC L157 of 09.06.2006, page 24/*
- **2014/35/EC Directive** 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. */Journal of Laws EC L96 of 29.03.2014/*

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- **327/2011 (EU) Guideline** of March 30<sup>th</sup>, 2011 on implementing the **2009/125/EC Directive** of the European Parliament and of the Council with regard to ecodesign requirements for fans driven by motors with an electric input power between 125W and 500 kW */Journal of Laws L No. 90 of 06.04.2011/*

The device has been constructed and produced on the basis of following harmonized standards:

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- **EN ISO 5802:2008/A1:2015-07** - “Industrial Fans – Performance testing in situ of installing
- **EN ISO 13857:2010** - “Safety of machinery – Safe distances to prevent hazard zones being reached by upper and lower limbs”.

.....  
place, date

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.....  
signature of authorised person

District Court Gdańsk-Północ  
in Gdańsk, VII Wydział Gospodarczy  
of the National Register of Court  
KRS 0000308902 company stock  
13.779.200 zł paid in total

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name, surname, function  
of the signatory

NIP: 958 159 21 35  
REGON: 220631262  
Bank Account: **Santander Bank Polska S.A.**  
56 1500 1025 1210 2007 8845 0000

**NOTES:**

**NOTES:**