



NANO DEFLECTOR

NANOTURBODEFLEKTOR LLC

Innovative energy-efficient natural ventilation
for a high-quality indoor climate

PRODUCT CARD 2020



COMPANY PRODUCTS



Nanodeflector ND 160

Installation on the pipe of 100, 110, 120, 125, 160, 200, 250 mm



New generation of autonomous ventilation. Made of UV-stabilized weather and impact resistant ABS plastic. It has no analogues in the world. Patented. It esthetically completes the overall look of even the most expensive roof. Has many advantages and no disadvantages compared to previous generations of natural ventilation:

- ✓ high performance
- ✓ smooth turbine rotation
- ✓ light weight
- ✓ resistant to extreme weather conditions
- ✓ resistant to drops and impacts
- ✓ quality bearings are installed
- ✓ noiseless rotation
- ✓ do not rust and oxidize
- ✓ extended service life
- ✓ precise adjustment due to the built-in level gauge

Dimensions 280*270 mm.

Colors:



Nanodeflector, ND 355

for pipes with a diameter of 315-500 mm



Used to ensure properly organized ventilation of premises due to natural draft. Protects the ventilation duct from atmospheric precipitation and foreign objects, protects the roof from the formation of condensation by lowering the air temperature in the attic, and prevents overheating of the interior.

- ✓ high performance
- ✓ smooth turbine rotation
- ✓ a light weight
- ✓ resistance to extreme weather conditions
- ✓ resistance to falls and bumps
- ✓ quality bearings installed
- ✓ silent rotation
- does not rust or oxidize
- extended service life
- precise adjustment due to integrated level

Colors:



PRODUCTS

Adapter for the pipe (100-125 mm)



This adapter will allow using the nano-deflector on pipes with a diameter of 100 to 125 mm. It is installed inside the support base of the deflector and not visible from the outside, so the nano-deflector with an adapter has esthetic beautiful appearance. The adapter is made of polyvinyl chloride. It is easy to install it on the pipe. Does not lose its properties in heat and cold. It does not require special fasteners, as it is drilled with self-tapping screws that attach the nano-deflector itself to the pipe.

Dimensions 160*35 mm.

Bearing SKF 6000-2Z



An original Italian-made single row ball bearing used in the automobile production.

Inner diameter, mm:10
Outer diameter, mm: 26
Width, mm:8

ZZ – Side metal plates of Z type from both sides of the bearing .

Essential competitive advantages of Nano-deflector (ND) compared to metal turbo-deflectors (TD):

01

Quality raw materials, that ensures long life cycle.

High-quality UV-stabilized ABS plastic is used for the production of ND. There is an important entry in the data sheet for plastic compound that it is WEATHER RESISTANT. We have successfully tested finished products at the Kipsal test center in Yekaterinburg at a temperature of + 90°C, at a temperature of -70°C, in UV chamber for 5 days at a temperature of + 80°C, and a test for a service life of at least 10 years old. These characteristics make it possible to use ND at any maximum and minimum temperatures possible on the planet's surface in areas inhabited by people. According to the Data Sheet for the plastic compound itself the products made of it can be used in automobile production. This plastic does not oxidize, rust, lose its operational properties in aggressive environments, including constant exposure to ultraviolet radiation, prolonged exposure to frost, constant high humidity, strong winds and objects falling on the turbine due to them, blows from hail, etc. Moreover, the product itself is very durable and lightweight. The use of a similar material in automobiles gives a real sense of how the plastic will behave over time. Perhaps after a couple of decades it will lose its appearance a little, but it is unlikely to lose its functionality. At the same time, the plastic does not crack or burst from impacts or drilling. Unlike plastic, any metal is prone to oxidation and rust, since many cuts, drills, joints, rivets with other metals are used in the production of TD, which ultimately gives oxide and rust, even if the product itself is made of stainless material.

02

Ideal balancing, smooth rotation

Often manual labor is used in the production of TD, so this strongly influences the accuracy of the parts, which results in a lot of defects. There are more production stages, as well as the employees, in the production of metal products, than in the production of ND. In the manufacture of metal products, it is impossible to make a perfectly rotating sample due to the peculiarities of the production itself. At the very beginning they are more or less unbalanced. In the process of further operation, TD lose their balance even more due to their weight and deformation of thin metal, which creates excessive pressure on the bearings and leads to their shortened service life. Our production is automated, all parts are casted on a production line, so any part has the perfect quality and any deflector rotates smoothly. The balancing does not change over time, the ND rotates well, bearings operate throughout their entire service life with a light weight and the same minimum pressure.

ADVANTAGES



03 Impact resistance

Thanks to the well-considered fastenings and numerous stiffeners, ND has a rigid structure and does not deform upon impact. Its characteristics allow it to withstand a stronger mechanical impact than TD can withstand. Clients are very impressed by the throwing of ND on the floor, it just jumps without getting any defects and without losing its properties. In the future, this eliminates many disputes between the supplier and the store during transportation or, for example, disputes between installers and customers during installation, and also preserves customer loyalty during use, since hail, birds, or foreign objects will not damage or disturb work of ND in case of strong winds. TD are made of very thin sheets of metal, which is why it is easy to deform them during falling, transportation, installation, and in most cases this deformation is fatal for the product itself and makes its further work impossible. Also, in the process of operation thin sheets of metal are deformed due to imbalance and lead to even greater imbalance and possible complete stop of the product.

04 Capacity

We tested ND with a bore diameter of 160 mm at KAI (KAZAN NATIONAL RESEARCH TECHNICAL UNIVERSITY NAMED AFTER A.N. TUPOLEV). We asked the KAI employees (for the purity of the tests, this is registered in the protocol, the check is attached) to purchase TD in Kazan and conduct the tests. Joint tests allowed us to compare the performance of our ND and TD made of metal. Tests have shown that all the figures presented over the Internet about the performance of TD are unreliable. Moreover, there is no test report over the Internet. We also could not find confirmed test reports on any website of TD manufacturers, although we know that the largest TD manufacturing plant in Russia was tested its products at the same KAI a couple of years ago. The test carried out at KAI showed that the performance of our sample is on average 35% higher at wind speed up to 8 m/s. The annual average wind speed in Russia is 3-5 m/s.

ADVANTAGES



05

Breakaway speed

Due to its weight, design features and aerodynamic characteristics, it has been documented through tests that the average wind speed for the start of rotation of the Nano-Deflector is 1.04 meters per second. The breakaway speed of the metal turbo deflector is 1.52 meters per second. This means that in calm weather the Nano-deflector will start rotating earlier and the total time of useful function will be longer. Considering that the performance of the Nano-deflector at 3 m/s is 35% higher and the breakaway speed is earlier, the overall performance of such a turbine is much more efficient than the operation of a turbo-deflector.

06

Thermal conductivity and clever design

The thermal conductivity of ABS plastic is 70 times lower than the thermal conductivity of steel. Thanks to this parameter, there is much less condensate on the surfaces of the deflector, which flows down the sleeve into the bearing and can lead to rapid oxidation and stop the turbine. This allows ND to work in the environment with high humidity, for example, in car washes or in a humid climate, since the ABS plastic itself is resistant to moisture. Also, the modified design of ND prevents from penetration of moisture, where previously open metal parts in metal products are mostly protected from aggressive media, but at the same time they are not closed tightly to avoid sweating and to ventilate metal parts.

07

Quality bearings

We use high-quality SKF bearings made in Italy (T mode is -20 - +100°C) and NSK bearings made in Japan (T mode is -40 - +120°C) in our products. We buy them from the official dealer of these companies in Russia - Rospodshipnik LLC, one of the three largest in Russia in bearing sales. According to our research of TD market in Russia, almost no one uses high-quality bearings, installing cheap Chinese bearings in their products. It should be realized that it is the bearings that primarily determine the service life of the product and its technical characteristics.

ADVANTAGES



08

Light weight

The weight of ND with a diameter of 160 mm is 990 grams, the weight of the metal deflector of the same diameter is 2.5 kg. This creates pressure on the bearings in addition to unbalancing, shortening their service life, increases the rotation imbalance of the deflector itself, creates, due to the heavy weight, the effect of a pendulum of the pipe on which it is installed, especially if the pipe is long or there are strong winds in the region, due to which the pipe can loosen. Moreover, the logistics of products weighing 2.5 times less will definitely be cheaper at the same volume.

09

Noiselessness

Due to smooth rotation, absence of imbalance, high-quality bearings, as well as plastic itself instead of metal, low-noise operation of ND is ensured throughout the entire service life, in contrast to metal deflectors, which can start making noise both at the very beginning of operation and after some time after installation.

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Easy bearing replacement

Even high-quality bearings have their own service life as they are consumables products. Therefore, sooner or later they need to be replaced. In metal TD, the landing sleeve is often deformed when trying to remove the bearing for replacement due to coking between the bearing and the metal of the product. In this case, the turbine is not suitable for further use. The process of removing the bearings, even without damaging the seat, is labor intensive and requires effort. In our ND bearings are not pressed, the coking is excluded; they are removed from the seat with a little effort. Also, the bolts with which the axle is attached in our turbine are protected from external influences and are subject to oxidation to a far lesser extent, which makes it easier to disassemble the deflector.

ADVANTAGES



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Easy installation

Light weight, built-in level gauge, drilling of ND using a standard screwdriver with a self-tapping screw allow even an inexperienced installer to install our deflector, using only instructions and a little ingenuity. Also, when replacing bearings after some time, the level gauge allows to set the product quite accurately, which allows the turbine to produce the declared performance and not load the bearings in case of improper installation, which can lead to their premature wear.

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Universal application

The number of color solutions, the ability to install ND with plastic ventilation outlets and pass elements within the unifying completed version on the roofing market allows ND to successfully compete not only with metal TD, but also with stationary deflectors, which were previously successfully used in the roofing market for low-rise construction, but where the metal turbines cannot be sold for lack of aesthetics. When building a house, the owners spend a lot of money on the roof of their cottages and want to see a good-looking, aesthetic, but at the same time productive solution when designing ventilation. All this can be done with our products.

APPLICATION



**Ventilation
of store rooms**



**Ventilation
of commercial premises**



**Ventilation of warehouses,
sheds, storage facilities**



**Ventilation
of production rooms**



**Ventilation
of habitable rooms
in low-height housing
constructions**



**Ventilation of municipal,
office and sporting
premises**



**Ventilation of high-rise
apartment houses**



**Ventilation
of premises for poultry
farming, breeding
and crop production**

QUALITY CONTROL



After manufacturing and assembly, each piece of products undergoes quality control for visual and manufacturing defects. Also, each deflector is checked for unbalance during rotation, breakaway speed and rotation speed. After passing the quality control, all products are labeled and packaged.

CUSTOMER SUPPORT

Technical support

After manufacturing and assembly, each piece of products undergoes quality control for visual and manufacturing defects. Also, each deflector is checked for unbalance during rotation, breakaway speed and rotation speed. After passing the quality control, all products are labeled and packaged.



Warranty and post-warranty support

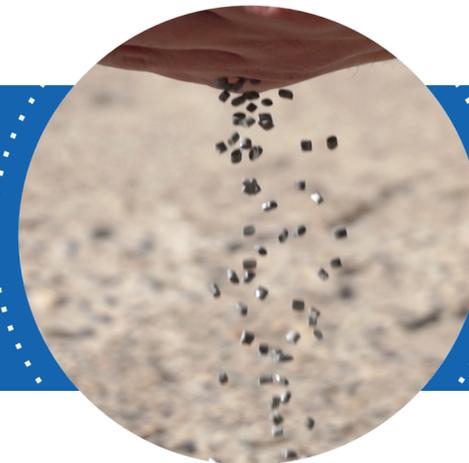
The product warranty is 1 year. If the product wears out during the warranty period, we replace the bearings or replace the product.
Post-warranty support - delivery of components after the warranty period and information support for operation, for example, replacement of bearings.

RESOURCE EFFECTIVENESS



Our products are classified as products of natural ventilation, which means that they work without the help of electricity, using the wind and the difference in pressure indoors and outdoors. This saves energy, which over time becomes a significant economic contribution and fully recompense the purchase and installation in comparison with the electric fans.

ECOLOGICAL PROPERTIES



The ABS plastic from which our products are made corresponds to TU 2214-006-05762341-97. Under normal conditions and proper storage, the product is stable and chemically inert. Does not have a harmful effect on the human body through direct contact with the product. The plastic compound from which the products are made has a hazard class - 4 (low-hazard compound) in accordance with GOST12.1.007.

CERTIFICATION



СИСТЕМА СЕРТИФИКАЦИИ ГОСТ Р
ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ

Добровольная
PG
сертификация

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Срок действия с 23.03.2020 по 22.03.2023
№ **0641958**

ОРГАН ПО СЕРТИФИКАЦИИ рег. № RA.RU.11НВ25
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Ротационная вентиляционная турбина (нанодэффлектор) пластиковая. Серийный выпуск

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23.32.12

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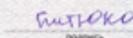
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ИЗГОТОВИТЕЛЬ
Общество с ограниченной ответственностью "НАНОТУРБОДЕФЛЕКТОР". Место нахождения: Российская Федерация, Чувашская Республика - Чувашия, 428000, город Чебоксары, улица Текстильщиков, дом 10, помещение 5, кабинет 4, идентификационный номер налогоплательщика: 2130208797, телефон: +79697590908, электронная почта: nanodeflector@mail.ru

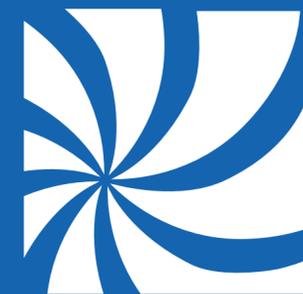
СЕРТИФИКАТ ВЫДАН
Общество с ограниченной ответственностью "НАНОТУРБОДЕФЛЕКТОР". Основной государственный регистрационный номер: 1192130003130, место нахождения: Российская Федерация, Чувашская Республика - Чувашия, 428000, город Чебоксары, улица Текстильщиков, дом 10, помещение 5, кабинет 4, телефон: +79697590908, электронная почта: nanodeflector@mail.ru

НА ОСНОВАНИИ
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Схема сертификации: Зс

 Руководитель органа  Е.И. Данилова
Эксперт  А.В. Битюков

Сертификат не применяется при обязательной сертификации



NANO DEFLECTOR

NANOTURBODEFLEKTOR LLC

CONTACTS



Filippov Alexey Vladimirovich

Director of Nanoturbodeflektor LLC



8 (800) 555 20 12

Russia, 428000,
Cheboksary, Tekstiltshikov 10,
office 4

nanodeflector@ya.ru
nanodeflector@mail.ru

Nanodeflector.com

8 (800) 555-2012

NANODEFLECTOR.COM



Russia
Cheboksary,
Tekstiltshchikov 10, office 4

nanodeflector@mail.ru