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OPERATION AND MAINTENANCE MANUAL

NAF diffuser with particulate filter

1. INTRODUCTION

The purpose of this Operation and Maintenance Manual is to familiarize the user with the intended use, design, operating principle, installation and operation of the product.

2. INTENDED USE

NAF diffusers are designed for low and medium pressure ventilation systems. They are used in facilities with increased air quality requirements e.g. hospitals, laboratories (in order to keep the purity of tested samples and limit the escape of harmful pollutants), food industry and pharmaceutical premises, and microelectronics assembly premises. By using an H13 class particulate filter, they provide a very high degree of supply air purity.

3. TECHNICAL DESCRIPTION

Execution – plenum box

NAF are equipped with a plenum box with a side or top circular connector with a damper. The damper is fitted with an adjusting lever inside the box, with adjustment next to the connector, outside the box. The standard plenum box is made of galvanized steel coated with RAL 9010. On request it is possible to make it of stainless steel. In standard execution, there are spigots for connecting a differential pressure gauge, installed in the plenum box casing.

In standard execution, the box is equipped with a nipple fittings for filter integrity testing (tracer-gas leak testing method), and optionally with a nipple fittings for filter gasket tightness testing. The construction of the box allows the use of test methods in accordance with ISO 14644: Cleanrooms and associated controlled environments – Part 3: Test methods.

Execution – air filter

The filter is classified as H13 according to EN 1822: 2009, in a casing made of galvanized steel with an 8 mm flat gasket, made of high quality neoprene. Verification of the filter pollution level is possible using a differential pressure switch connected to the nipple fittings mounted in the box casing. It is recommended to use the differential pressure gauge for the optimum operation of the diffuser.

Execution – diffuser

Plenum boxes are equipped with diffusers for ceiling mounting: SDA4, NS-4, NS-5, NS-8, NS-9 or with grilles for wall mounting: type series ST and AL. Standard diffusers are made of powder-coated steel in RAL 9010 white. On request it can also be coated with another RAL colour.

Guidelines for designing

For proper operation of the diffuser, the recommended airflow velocity through the H13 class 150 mm filter should not exceed 0.75 m/s, and for the 292 mm filter – 1.5 m/s.

The final airflow resistivity should not exceed 500 Pa. The maximum operation temperature 70 °C.

It is recommended to replace the air filters when the pressure drop measured at the filter in use exceeds twice the value of the pressure drop declared for a new filter.

4. INSTALLATION CONDITIONS

There are four Ø8 holes in the NAF box for installation by means of slings. If the filter is square-shaped (dimensions $A=B$, Fig. 1), the diffuser is mounted to the plenum box by means of the central screw, and for rectangular-shaped filter (dimensions $A \neq B$, Fig. 2) with screws through the holes in the diffuser frame.

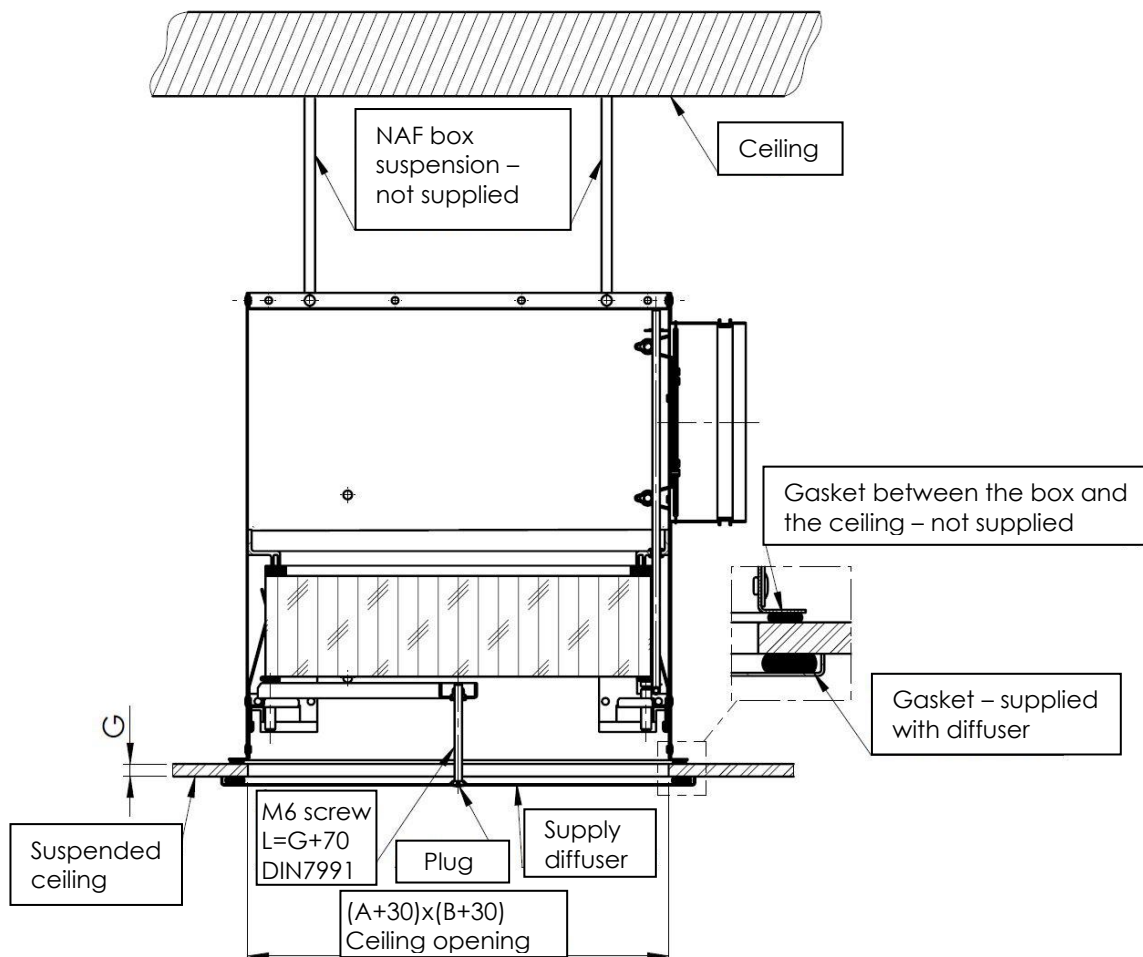


Fig. 1. Example of the NAF box mounted in the ceiling.

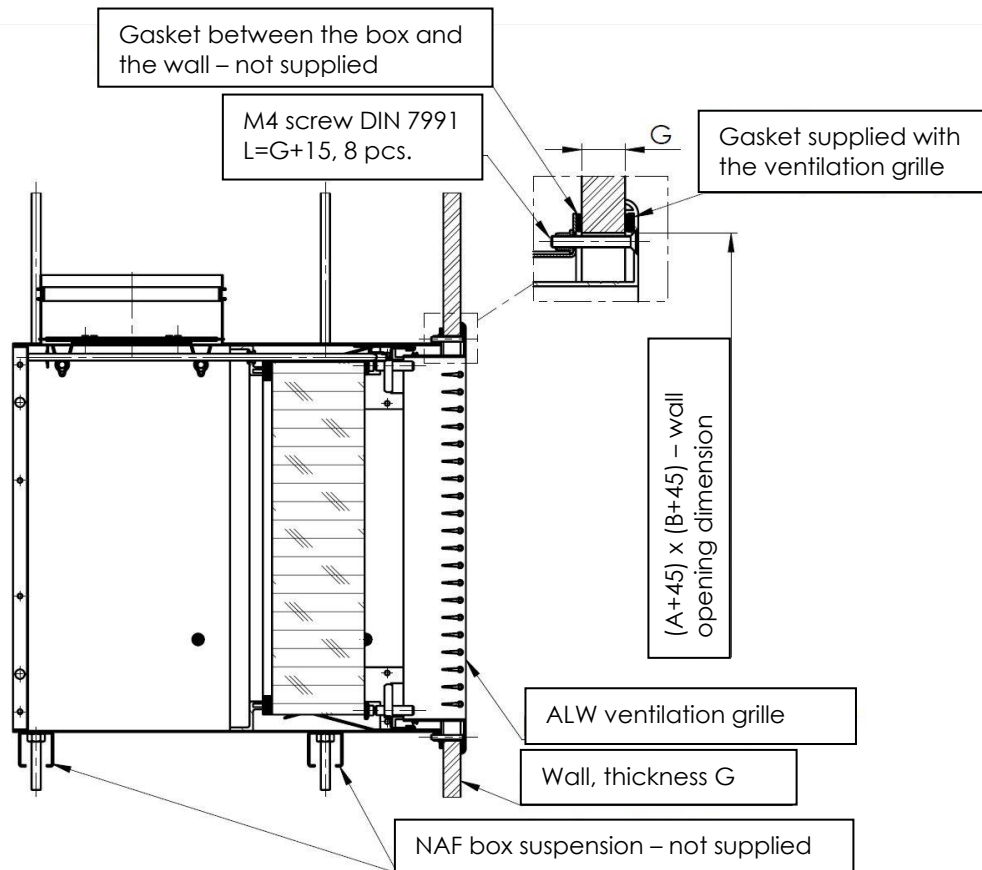


Fig. 2. Example of the NAF box mounted in the wall.

Filter installation

The filter should be delivered to the installation site in its original cardboard box. The filter can be grabbed by the frame only; it is forbidden to touch the filtering package even if the filter is equipped with a protective mesh.

The installation of the filter in the box is done by carefully grasping the filter frame and inserting it into the plenum box until the safety spring is engaged which locks the filter against falling out of the box. Once the spring has been engaged, two opposite corners should be mounted and tightened with a 4 mm hexagonal wrench; the other two corners should have been mounted beforehand with the assembly console as shown in Fig. 3 (the console must be located between the self-aligning foot and the corner, with the channel wings of the console facing the set foot). The four set screws should be tightened evenly to ensure a tight connection between the filter and the box; usually 3 full revolutions of each of the four screws are enough once the gasket has touched the retaining frame.

In case of rectangular plenum boxes for the A≠B filters, the filter is secured by means of four corners with the set feet without a console.

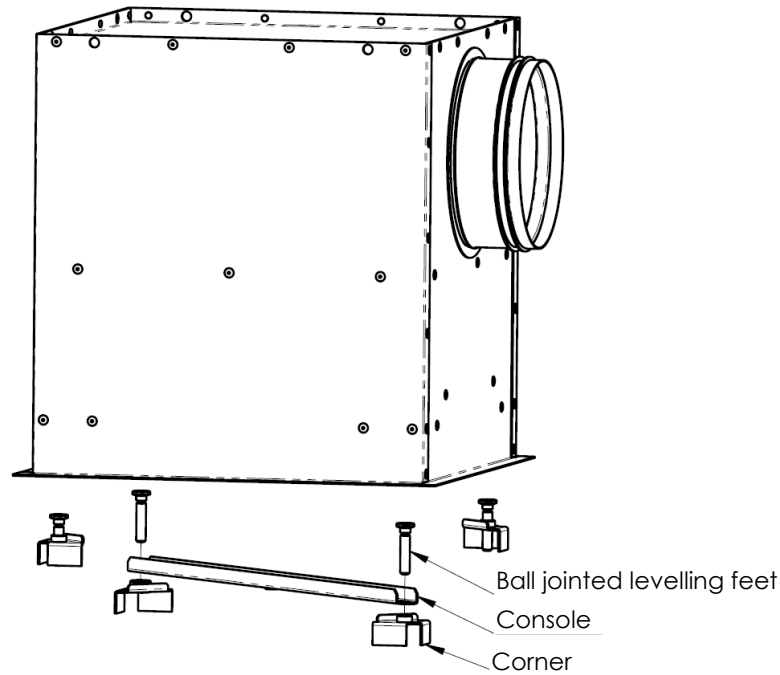


Fig. 3. Console installation inside the NAF box.

5. TRANSPORT AND STORAGE CONDITIONS

The NAF diffusers are supplied on pallets, wrapped in plastic.

The product should be stored in closed rooms providing protection against weather conditions.

Always secure the product against moving during transport. It is not allowed to stack the products.

The products should be protected against weather conditions during transport. After every delivery it is necessary to carry out a visual inspection of the elements. Do not expose to mechanical damage.

6. WARRANTY TERMS

- The Manufacturer warrants the products supplied according to the provisions of the Agreement or the General Warranty Terms and Conditions of Smay Sp. z o.o.
- The Warranty does not cover defects caused by improper storage, transport, installation of the elements and especially mechanical damage and defects of the anti-corrosion coatings.
- The Warranty is void when it is found that the User made structural modifications on their own or installed the product not in accordance with the Operation and Maintenance Manual.