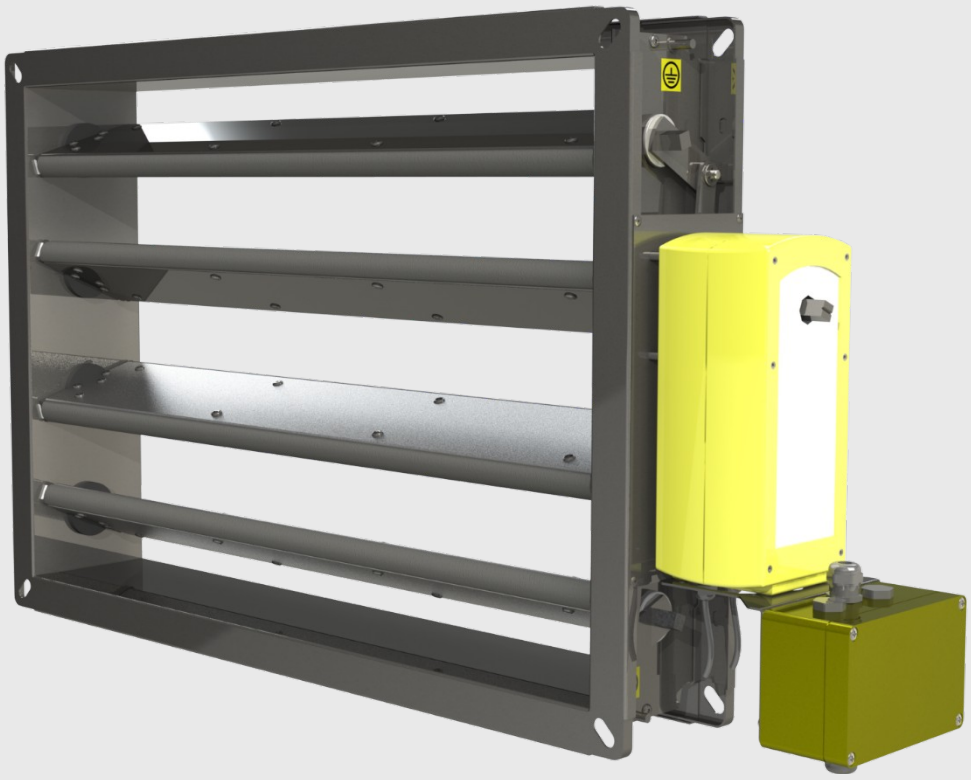
PWIIS-Ex

Air damper in
explosion-proof version
Type PWIIS-Ex

Operation and Maintenance Manual



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Version 1.00

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TABLE OF CONTENTS

1. INTRODUCTION....2
2. INTENDED USE....2
3. TECHNICAL DESCRIPTION....2
4. VERSIONS....2
5. TRANSPORT AND STORAGE CONDITIONS....3
6. INSTALLATION GUIDELINES....3
7. NAMEPLATE TEMPLATE – DRAFT....4
8. PERIODIC SERVICING AND MAINTENANCE....5
9. WARRANTY CONDITIONS....5

1. INTRODUCTION

The purpose of this Operation and Maintenance Manual (O&M Manual) is to familiarise the user with the intended use, design, operating principle, installation, periodic maintenance and operation of the product.

2. INTENDED USE

PWIIS-Ex multi-blade dampers with opposed blades are used to control or shut off the airflow. The devices provide a high level of safety and are intended for use in locations where explosive atmospheres caused by gases, vapours, mists or air–dust mixtures are likely to occur. The dampers are Group II, Category 2 equipment intended for use in potentially explosive atmospheres, which makes them suitable for use in Zones 1 and 2, as well as Zones 21 and 22.

The damper design ensures tightness Class 3 in accordance with EN 1751. The version with a manual mechanism is designed for operation at temperatures from −20 °C to 80 °C for T6 and from −20 °C to 90 °C for T5; the version with an actuator – from −20 °C to 40 °C for T6 and from −20 °C to 50 °C for T5.

The damper complies with the requirements of the following standards:

- PN-EN ISO 80079-36:2016-07
- PN-EN ISO 80079-37:2016-07

The damper has the following classification:

II 2G Ex h IIC T6,T5 Gb
II 2D Ex h IIIC T80°C…T100°C Db

The damper meets the requirements of the constructional safety type of protection "c".

3. TECHNICAL DESCRIPTION

The housing, blades, and the system of drive levers and linkage rods of the PWIIS-Ex damper are made of galvanised steel sheet or, on special order, of stainless steel grade 1.4301, 1.4401 or 1.4404. The blades are fitted along their entire length with EPDM-based rubber gaskets, and with sealing inserts at their ends. On one side of the blade, steel axles are seated in the inserts and fastened to the blade with a steel rivet. The blades are supported in plain bearings mounted in the housing. One of the levers (the drive lever) is fitted with a longer rod. The drive is transmitted to the remaining blades by a system of steel levers and linkage rods. The sealing inserts and plain bearings are made of electrically conductive plastic.

The dampers are equipped with additional spring steel sliders on the linkage rods, ensuring a reliable electrical connection between the rods and the housing, as well as with earthing terminals on the housing. This solution eliminates the possibility of a potential difference occurring between the individual damper components, as well as between the damper itself and earth, during normal operation.

The damper is regulated/closed by rotating the drive shaft within the range of 0–90 degrees.

4. VERSIONS

The dampers are manufactured in the opposed-blade version. Depending on the intended application, they are equipped with a manual mechanism or with an actuator together with a junction box in explosion-proof design.

Additional accessories for the Schischek actuator, i.e. ExSwitch auxiliary switches, may be used. The accessories must be installed by qualified personnel.

Schischek electric actuators:
Certificate no.: EPS 17 ATEX 1 132 X
Marking: II 2(2)G Ex db [ib Gb] IIC T6, T5, T4 Gb
II 2(2)D Ex tb [ib Db] IIIC T80°C, T95°C, T130°C Db

List of actuators used:

ExMax-5.10, ExMax-15.30, ExMax-5.10-S, ExMax-15.30-S, ExMax-5.10-Y, ExMax-15.30-Y, ExMax-5.10-F, ExMax-15-F, ExMax-5.10-SF, ExMax-15-SF, ExMax-5.10-YF, ExMax-15-YF
Schischek junction boxes:
Certificate no.: EPS 14 ATEX 1 766 X

Marking: II 2G Ex eb IIC T6,T5,T4 Gb
II 2D Ex tb IIIC T85°C, T100°C, T135°C Db IP66

List of junction boxes used:

ExBox-3P, ExBox-Y/S

Schischek auxiliary switches:
Certificate no.: EPS 14 ATEX 1 766 X
Marking: II 2G Ex d IIC T6,T5 Gb
II 2D Ex tb IIIC T80°C,T95°C Db

List of auxiliary switches used:

ExSwitch

5. TRANSPORT AND STORAGE CONDITIONS

During transport, the dampers shall be protected against weather conditions and against shifting. Upon delivery, the products shall be visually inspected. The devices must not be struck or dropped abruptly. The dampers shall be stored in enclosed rooms providing protection against weather conditions.

6. INSTALLATION GUIDELINES

The damper is intended for installation in air handling units, ventilation ducts or supply air units. Installation shall be carried out with due care by qualified technical personnel. Before commencing work, the damper shall be inspected to check whether it has been damaged in transit, whether the drive transmission mechanism operates correctly, whether the spring sliders located between the linkage rods and the housing are in contact with the housing, and whether the PE earthing conductor connection points are securely fixed in the damper housing.

During installation, the mounting elements must not interfere with the drive transmission components or the damper blades in any operating position of the damper. The damper may be fastened only by its frame, using bolts with nuts, mounting clamps or screws. The dampers shall be mounted onto flat surfaces so that the casing is not distorted when bolted, as this may cause the damper to jam and, consequently, to be damaged. An earthing conductor terminated with a ring terminal shall be reliably connected to one of the earthing terminals. The damper is a Group II, Category 2 device intended for potentially explosive atmospheres. The device shall be earthed at the place of installation.

If a damper larger than the maximum permissible dimensions is required, a combined damper consisting of two smaller dampers is manufactured. The dampers have independent drive axes (two separate manual mechanisms or actuators on opposite sides). The devices are joined together on site by qualified personnel. During such installation, an adequate earthing connection shall be provided for each device.

Where the damper is to be connected to a circular duct, circular spigots from the PWR damper may be used, provided that an adequate earthing connection of the device is ensured.

After installation or servicing, it shall be checked that no unsecured metal parts have been left inside the device.

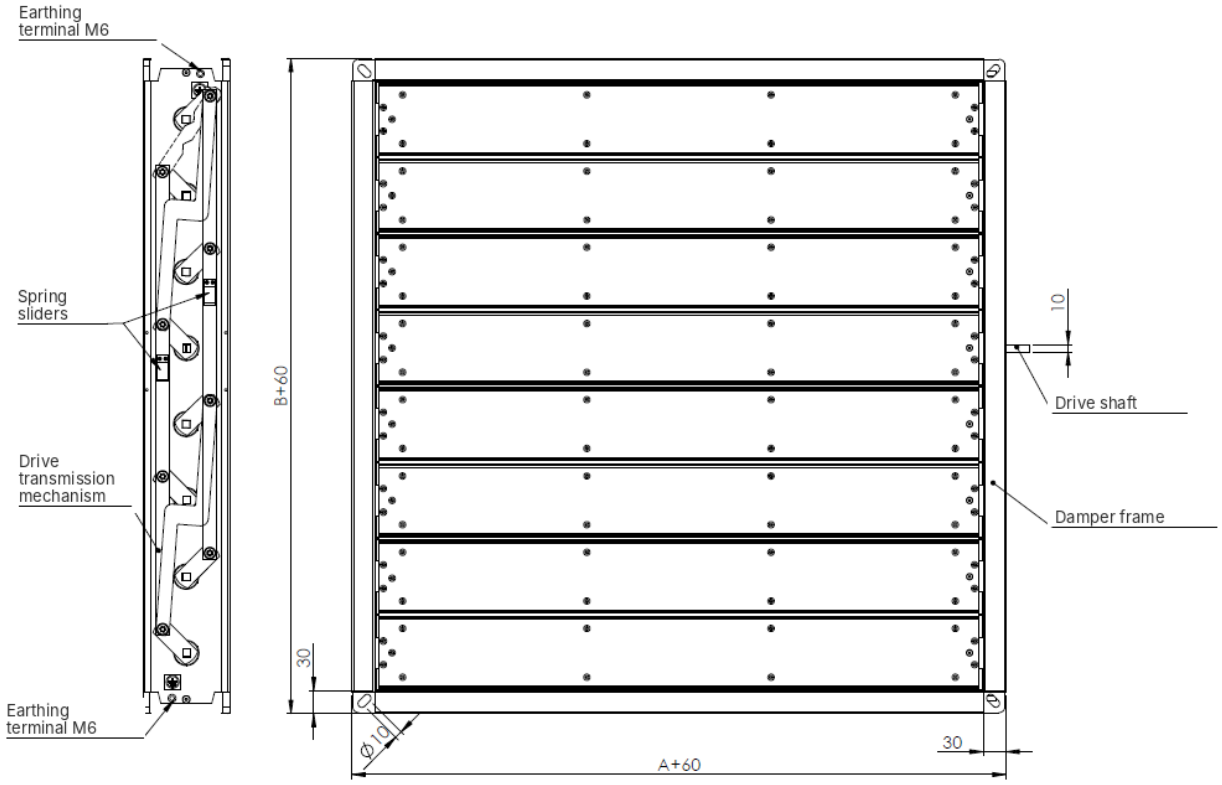
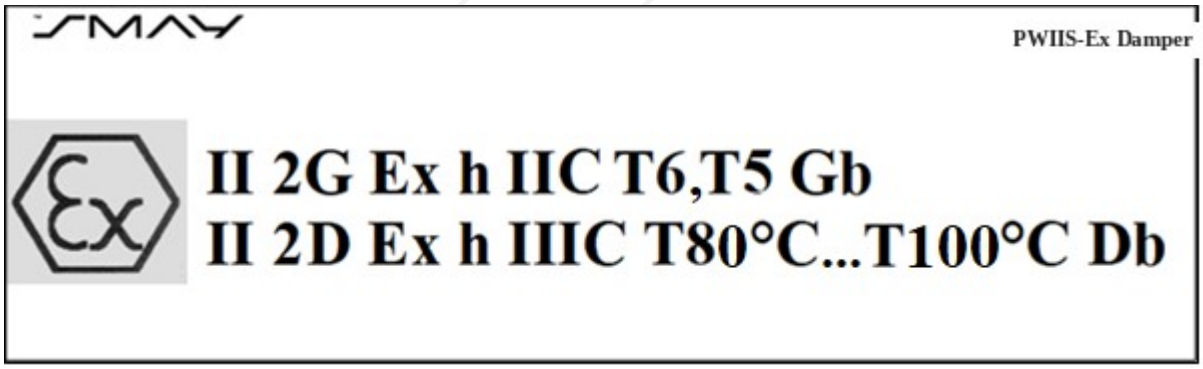


Figure 1. PWIIS-Ex damper (opposed-blade version)

7. NAMEPLATE TEMPLATE – DRAFT





8. PERIODIC SERVICING AND MAINTENANCE

The damper requires an annual inspection of the condition of the drive transmission mechanism, the degree of contamination of the blades and the reliability of the earthing connections. Where the damper operates in a moderately or heavily contaminated environment, inspections shall be carried out every 2 months.

During periodic inspections of the device, it shall be checked whether any play has developed in the connections, and any play found shall be eliminated. It shall be checked that the pins are not damaged and that no foreign objects have entered the mechanism.

9. WARRANTY CONDITIONS

The manufacturer shall not be liable for any damage resulting from incorrect installation or improper use of the device. Unauthorised servicing shall void the warranty. The General Warranty Terms are available on the website www.smay.pl.