MANDÍK

MAN 171/25
Version 2026-11-06

# RKKM - regulation damper

# RKKTM - tight regulation damper

## in design variants intended for use in potentially explosive atmospheres

## Instructions for use



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# I. GENERAL

Those Instructions for use are valid for damper types RKKM and RKKTM **in design variants intended for use in in potentially explosive atmospheres** (named hereinafter also shortly as the “dampers”) according to ATEX directive 2014/34/EU and they complement the Technical specifications TPM 030/03, and TPM 031/03, respectively.

This means that the mentioned Technical Specifications are valid for these dampers, subject to the proviso that in the event of any conflict with this document, this document shall apply.

The document applies to both dampers without an actuator and dampers with an actuator (damper and actuator assemblies), when

- the dampers themselves are designed, classified, certified, manufactured and marked according to EN IEC 60079-0:2018 and EN ISO 80079-36:2016 standards by the manufacturer MANDÍK,
- any actuator is designed, classified, certified, manufactured and marked according to EN IEC 60079-0:2018, EN IEC 60079-1:2014, EN IEC 60079-11:2012, EN IEC 60079-11:2014 standards by the manufacturer SCHISCHEK and the resulting damper and actuator assembly is designed, classified, manufactured and marked by the manufacturer MANDÍK in accordance with the ATEX directive 2014/34/EU.

Use the manufacturer's documentation to connect the actuator.

# Conditions of use

**The dampers may be used under the following conditions**

a) the dampers installed, commissioned, operated and maintained in accordance with those Instructions for use and in the case of dampers with a actuator also according to the operating instructions of the actuator manufacturer and

b) the damper orientation with blade either in horizontal, or vertical position and

c) mean air velocity in the duct of 12 m/s and the duct overpressure or underpressure of max. 1500 Pa, and

d) damper control pressure drop, difference of the static pressure in duct section before and after the damper according to the relevant TPM.

e) environment protected against weather effects 3K5 according to EN 60721-3-3 mod. A2, without condensation, icing, ice formation and without water from sources other than rain, and

f) environment without abrasive, adhesive, electrically charged, chemically active and radioactive particles or droplets, without chemically active or radioactive gases. Under no circumstances should exothermic reactions or precipitation of condensate or the excretion of solid coatings or particles occur during normal operation, and corrosion, especially of the copper and brass components of the damper, may not occur. And further

g) ambient temperature according to the given equipment category, see point k), whereas

h) in the case of subsequent fitting of the damper with an actuator or other electrical elements, the temperature range is narrowed according to the temperature range of the electrical elements used, and

i) the duct flange to which the damper flange is mounted must be flat in order to avoid reducing the tightness of the duct and/or the risk of damage to the damper when closing. The damper must be attached to a flange on at least one side. This also applies to when actuator is being set. While

j) for dampers supplied with a preparation for an actuator, correct adjustment of the limit positions of the actuator is necessary to prevent mechanical damage to the damper, and further

k) dampers can be used in the relevant zone with an explosion hazard under conditions in accordance with the Ex equipment category specified in this point, when the condition for temperature Ta applies both to the outside of the damper and to the transported air.

| Damper design | Actuator manufacturer and type series | Category of equipment | Temperature of use | Allowed uses |
|---|---|---|---|---|
| **Dampers with manual control** | (not relevant) | II 2G Ex h IIC T6 Gb | –20° ≤ Ta ≤ +70° | zones 1 and 2 |
| **Dampers with preparation for actuator** | (not relevant) | II 2G Ex h IIC T6 Gb | –20° ≤ Ta ≤ +70° | zones 1 and 2 |
| **Dampers with actuator** | SCHISCHEK ExMax-… | II 2G Ex IIC T6 Gb | –20° ≤ Ta ≤ +40° | zones 1 and 2 |
| | | II 2G Ex IIC T5 Gb | –20° ≤ Ta ≤ +50° | |
| | | II 2G Ex IIC T4 Gb | –20° ≤ Ta ≤ +60° | |
| | SCHISCHEK RedMax-… | II 3G Ex IIC T6 Gc | –20° ≤ Ta ≤ +40° | zone 2 |
| | | II 3G Ex IIC T5 Gc | –20° ≤ Ta ≤ +50° | |
| | | II 3G Ex IIC T4 Gc | –20° ≤ Ta ≤ +60° | |

l) Manually operated dampers may only be operated by hand with a smooth movement.

m) Dampers for fitting an actuator may only be used with actuators intended to be used in potentially explosive atmospheres of the Ex category corresponding to the Ex category of the damper, and

n) angular velocity ot the actuator must not exceed 30°/s, or 5 rpm, which satisfies the condition of the ATEX certificate of 1 m/s maximum relative velocity of the moving parts surfaces, and

o) the actuator torque shall not exceed the limit shown below.

p) For dampers with an actuator (assembly manufactured by the manufacturer), the prescribed parameters of the supply voltage and control voltage and voltage and current on the limit switches must be observed, and

q) the motor speed setting, spring mechanism speed and torque setting may only be changed so that the actuator setting is in accordance with this document and

r) if the damper is electrically connected directly in areas with a risk of explosion, an Ex terminal block intended for the given zone must be used for the connection, and

s) connection of intrinsically safe circuits according to EN 60079-25, and

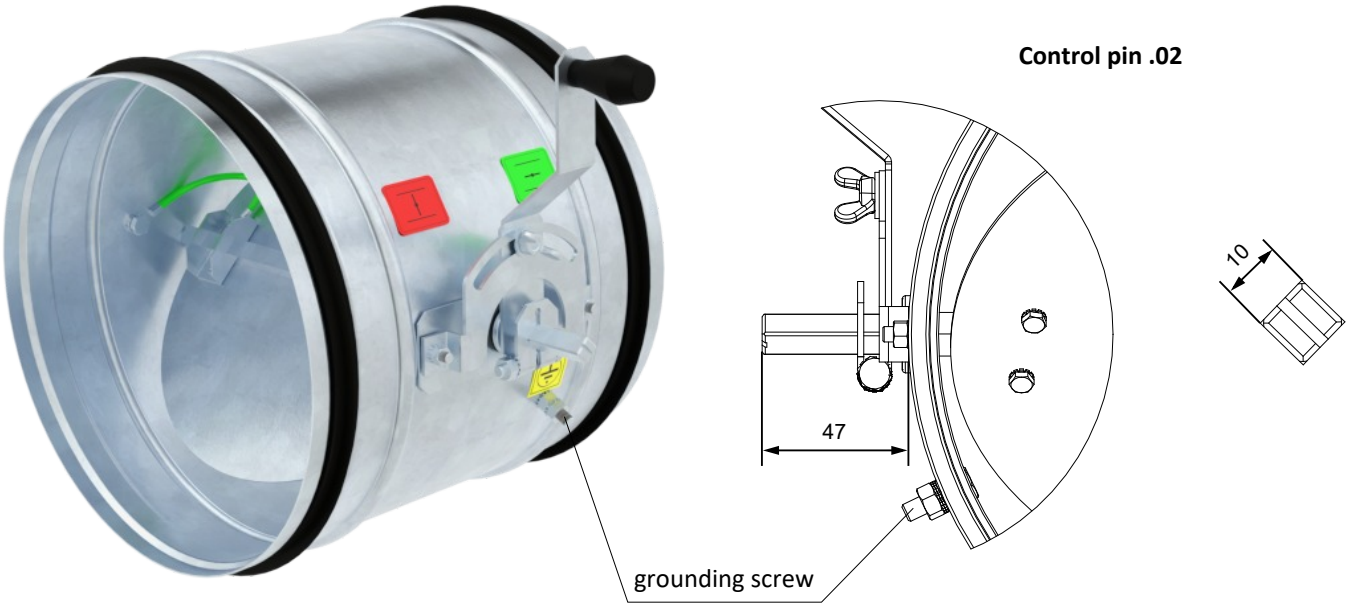
t) all devices connected to the damper must comply the given Ex category.

# II. DESIGN

**The dampers are manufactured in these design variants intended to be used in potentially explosive atmospheres**

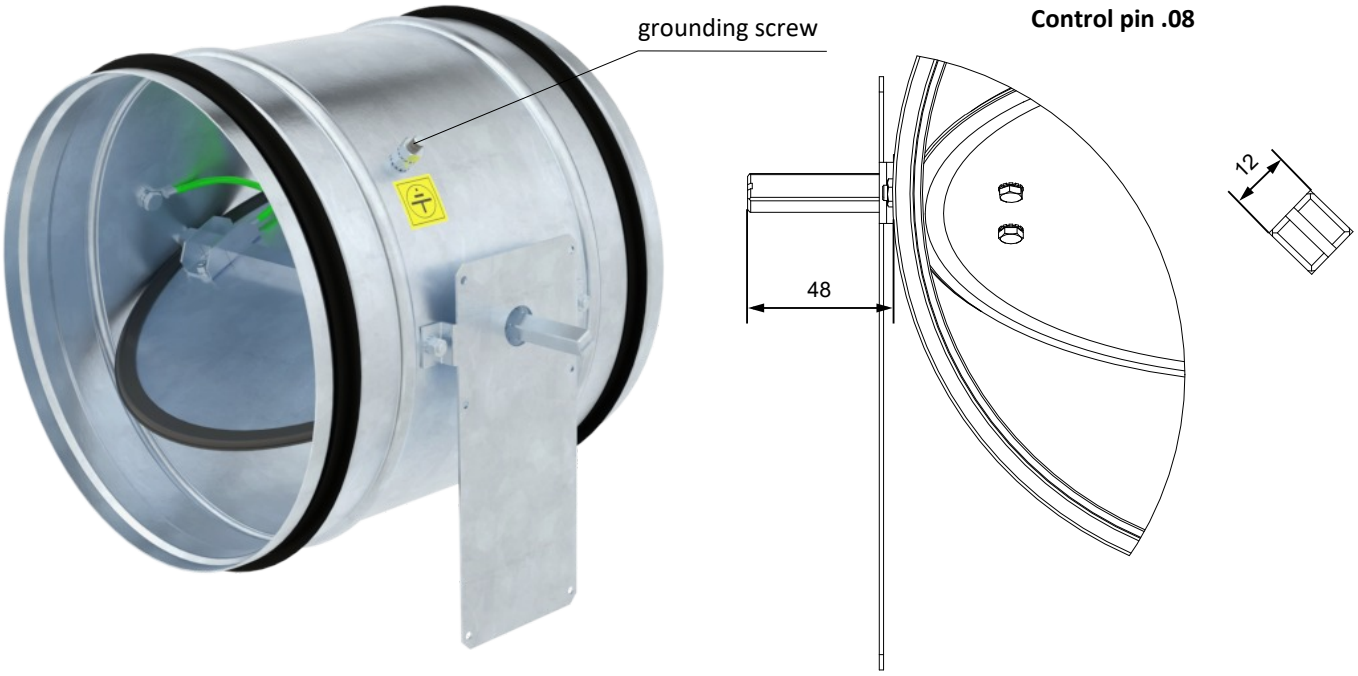
| Damper design variant – control type | Design variant ID code in the damper ordering code | |
|---|---|---|
| | For zones 1 and 2 | For zone 2 |
| manual (zone 1 and 2) | .02 | – |
| for actuator mounting (zone 1 and 2) | .08 | – |
| with actuator, 3-point control | .70 | .80 |
| with actuator, 3-point control, limit switches | .71 | .81 |
| with actuator, continuous regulation 0…10 V | .72 | .82 |
| with actuator, 3-point control, return spring safety position CLOSED | .73 | .83 |
| with actuator, 3-point control, return spring safety position OPEN | .73A | .83A |
| with actuator, 3-point control, return spring safety position CLOSED, limit switches | .74 | .84 |
| with actuator, 3-point control, return spring safety position OPEN, limit switches | .74A | .84A |
| with actuator, continuous regulation 0…10 V, return spring safety position CLOSED | .75 | .85 |
| with actuator, continuous regulation 0…10 V, return spring safety position OPEN | .75A | .85A |

**Design .02 - manual**



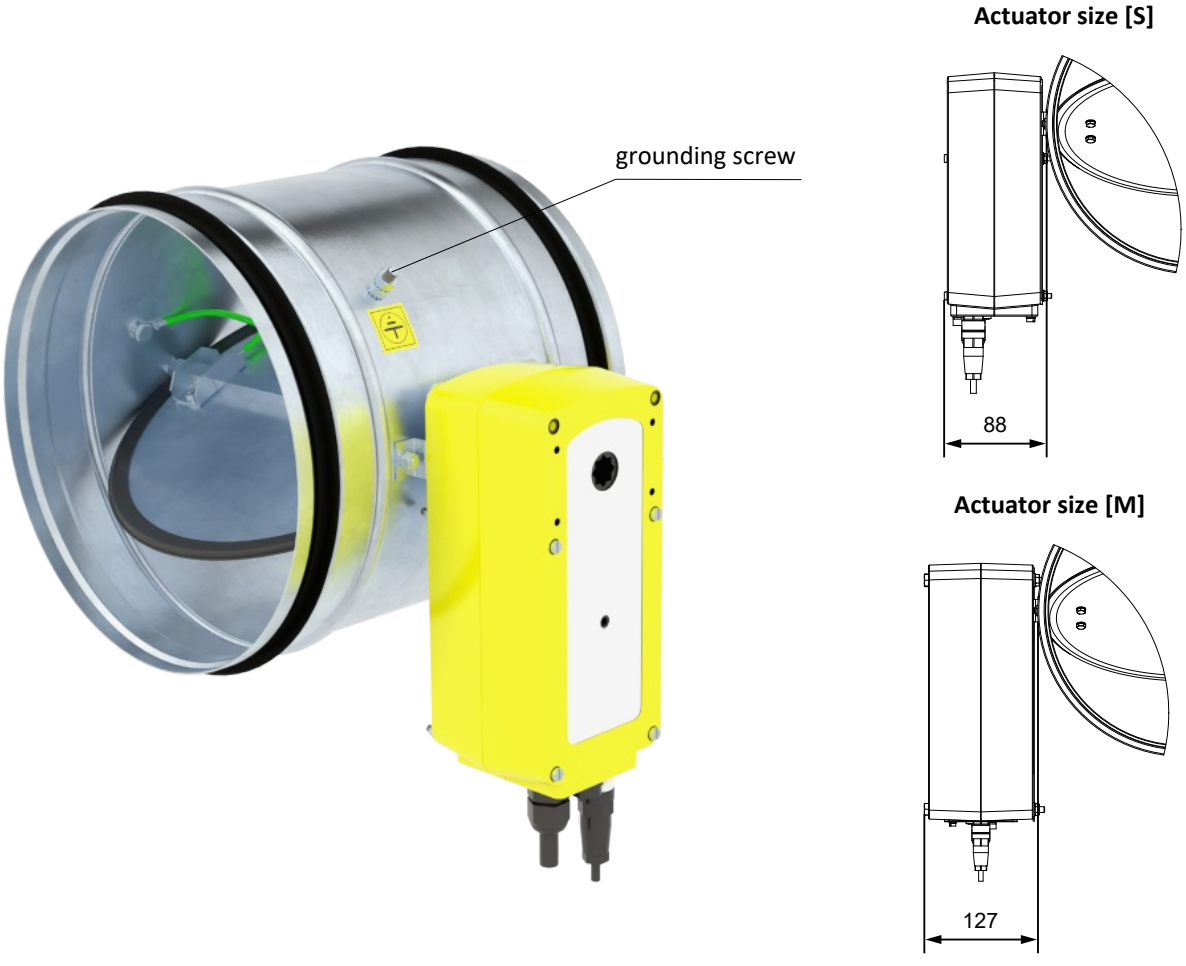

- The damper blade is conductively connected to the damper casing (body) using a copper grounding conductor.
- The minimum space for an actuator is 250 mm (in the direction of the blade rotation axis), but some actuators may require more space.

**Design .08 - for fitting an actuator**




**Design with actuator**

- In the case of a damper with a SCHISCHEK actuator size M, an adapter from a 12 x 12 pin to a 16 x 16 mm pin is used.




- The damper blade is conductively connected to the damper casing (body) using a copper grounding conductor.
- The minimum space for an actuator is 250 mm (in the direction of the blade rotation axis), but some actuators may require more space.

**Grounding wire assembly**

- The Damper is equipped with one grounding screw M6 x 35 mm on the control side.



# III. TECHNICAL DATA

## Actuator torques

**Necessary … the highest permissible torques of actuators for RKKM and RKKTM dampers**

| Diameter DN | Torque [N.m] |
|---|---|
| 80…315 | 5…10 |
| 355…500 | 10…15 |
| 500…630 | 15…30 |

## Assignment and setting of actuators SCHISCHEK ExMax-… and RedMax…

**Types of actuators manufactured by SCHISCHEK**

| Damper design (assemblies) | Actuator type | Actuator size | Torque | Return spring | Limit switches | Continuous regulation 0…10 V |
|---|---|---|---|---|---|---|
| .70 | ExMax-5.10 | S | 5/10 Nm | no | no | no |
| | ExMax-15.30 | S | 15/30 Nm | no | no | no |
| | ExMax-50.75 | M | 50/75 Nm | no | no | no |
| .71 | ExMax-5.10-S | S | 5/10 Nm | no | yes | no |
| | ExMax-15.30-S | S | 15/30 Nm | no | yes | no |
| .72 | ExMax-5.10-Y | S | 5/10 Nm | no | no | yes |
| | ExMax-15.30-Y | S | 15/30 Nm | no | no | yes |
| | ExMax-50.75-Y | M | 50/75 Nm | no | no | yes |
| .73 .73A | ExMax-5.10-F | S | 5/10 Nm | yes | no | no |
| | ExMax-15-F | S | 15 Nm | yes | no | no |
| | ExMax-30-F | M | 30 Nm | yes | no | no |
| | ExMax-50-F | M | 50 Nm | yes | no | no |
| .74 .74A | ExMax-5.10-SF | S | 5/10 Nm | yes | yes | no |
| | ExMax-15-SF | S | 15 Nm | yes | yes | no |
| | ExMax-30-SF | M | 30 Nm | yes | yes | no |
| | ExMax-50-SF | M | 50 Nm | yes | yes | no |
| .75 .75A | ExMax-5.10-YF | S | 5/10 Nm | yes | no | yes |
| | ExMax-15-YF | S | 15 Nm | yes | no | yes |
| | ExMax-30-YF | M | 30 Nm | yes | no | yes |
| | ExMax-50-YF | M | 50 Nm | yes | no | yes |
| .80 | RedMax-5.10 | S | 5/10 Nm | no | no | no |
| | RedMax-15.30 | S | 15/30 Nm | no | no | no |
| | RedMax-50.75 | M | 50/75 Nm | no | no | no |
| .81 | RedMax-5.10-S | S | 5/10 Nm | no | yes | no |
| | RedMax-15.30-S | S | 15/30 Nm | no | yes | no |
| .82 | RedMax-5.10-Y | S | 5/10 Nm | no | no | yes |
| | RedMax-15.30-Y | S | 15/30 Nm | no | no | yes |
| | RedMax-50.75-Y | M | 50/75 Nm | no | no | yes |
| .83 .83A | RedMax-5.10-F | S | 5/10 Nm | yes | no | no |
| | RedMax-15-F | S | 15 Nm | yes | no | no |
| | RedMax-30-F | M | 30 Nm | yes | no | no |
| | RedMax-50-F | M | 50 Nm | yes | no | no |
| .84 .84A | RedMax-5.10-SF | S | 5/10 Nm | yes | yes | no |
| | RedMax-15-SF | S | 15 Nm | yes | yes | no |
| | RedMax-30-SF | M | 30 Nm | yes | yes | no |
| | RedMax-50-SF | M | 50 Nm | yes | yes | no |
| .85 .85A | RedMax-5.10-YF | S | 5/10 Nm | yes | no | yes |
| | RedMax-15-YF | S | 15 Nm | yes | no | yes |
| | RedMax-30-YF | M | 30 Nm | yes | no | yes |
| | RedMax-50-YF | M | 50 Nm | yes | no | yes |

**Possible types and prescribed settings of actuators for dampers of types RKKM and RKKTM equipped with actuators**

| Designation in the table below | Allowed actuator types | Allowed torque settings | Forbidden torque settings | Allowed engine speed settings | Forbidden engine speed settings | Allowed spring speed settings (if the actuator is equipped with one) | Forbidden spring speed settings | Allowed switch positions | Forbidden switch positions |
|---|---|---|---|---|---|---|---|---|---|
| 5 | ExMax-5.10... [S]<br>RedMax-5.10... [S] | 5 Nm | 10 Nm | 15/**30**/60/120 s | 3 s | 10 s | 3 s | 01, **02**, 03, 04 | 00, 05, 06, 07, 08, 09 |
| 5-10 | ExMax-5.10... [S]<br>RedMax-5.10... [S] | **5**/10 Nm | – | 15/**30**/60/120 s | 3 s | 10 s | 3 s | 01, **02**, 03, 04, 06, 07, 08, 09 | 00, 05 |
| 10-15 | **ExMax-5.10... [S]**<br>**RedMax-5.10... [S]** | 10 Nm | 5 Nm | 15/**30**/60/120 s | 3 s | 10 s | 3 s | 06, **07**, 08, 09 | 00, 01, 02, 03, 04, 05 |
| | ExMax-15.30... [S]<br>RedMax-15.30... [S] | 15 Nm | 30 Nm | | | | | 01, **02**, 03, 04 | 00, 05, 06, 07, 08, 09 |
| | ExMax-15... [S]<br>RedMax-15... [S] | | – | | | | | 01, **02**, 03, 04, 06, 07, 08, 09 | 00, 05 |
| 15-30 | **ExMax-15.30... [S]**<br>**RedMax-15.30... [S]** | **15**/30 Nm | – | 15/**30**/60/120 s | 3 s | 10 s | 3 s | 01, **02**, 03, 04, 06, 07, 08, 09 | 00, 05 |
| | ExMax-15... [S]<br>RedMax-15... [S] | 15 Nm | | | | | | | |
| | ExMax-30-YF [M]<br>RedMax-30-YF [M] | 30 Nm | | 40/**60**/90/120/150 s | – | 20 s | – | | |
| 30 | ExMax-15.30... [S]<br>RedMax-15.30... [S] | 30 Nm | 15 Nm | 15/**30**/60/120 s | 3 s | 10 s | 3 s | 06, **07**, 08, 09 | 00, 01, 02, 03, 04, 05 |
| | ExMax-30-YF [M]<br>RedMax-30-YF [M] | | – | 40/**60**/90/120/150 s | – | 20 s | – | 00, **01**, 02, 03, 04, 05, 06, 07, 08, 09 | – |
| 30-50 | **ExMax-15.30... [S]**<br>**RedMax-15.30... [S]** | 30 Nm | 15 Nm | 15/**30**/60/120 s | 3 s | 10 s | 3 s | 06, **07**, 08, 09 | 00, 01, 02, 03, 04, 05 |
| | **ExMax-30-YF [M]**<br>**RedMax-30-YF [M]** | | – | 40/**60**/90/120/150 s | – | 20 s | – | 00, **01**, 02, 03, 04, 06, 07, 08, 09 | – |
| | ExMax-50.75... [M]<br>RedMax-50.75... [M] | 50 Nm | 75 Nm | 40/**60**/90/120/150 s | | | | 00, **01**, 02, 03, 04 | 05, 06, 07, 08, 09 |
| | ExMax-50... [M]<br>RedMax-50... [M] | | – | | | | | 00, **01**, 02, 03, 04, 05, 06, 07, 08, 09 | – |

- **Blue** - default setting
- [S], [M] - actuator size

**Assignment of actuators to RKKM and RKKTM damper sizes**

| Diameter DN | Actuator in table above |
|---|---|
| 80…315 | 5-10 |
| 355…500 | 10-15 |
| 500…630 | 15-30 |

# IV. MATERIALS, SURFACE TREATMENT

- The material designs are the same as the regular damper designs, including galvanized / A2 / A4 designs.
- It is not possible to deliver damper with protected by a paint.

  In the case of dampers with the actuator, the actuator cover is:
  - as standard made of aluminum alloy, painted, or
  - in the case of a special customer request
    - made of aluminum alloy painted with seawater-resistant paint with nickel-plated brass cable glands (actuator …-CTS, or -CTM), or
    - made of AISI 316 stainless steel with nickel-plated brass cable glands (actuator …-VAS, or …-VAM).

# V. QUALITY INSPECTION, TESTING BY THE MANUFACTU.

- The dimensions are checked with common measuring devices according to the standard of non-tolerated dimensions used in HVAC.
- Interoperation checks of parts and main dimensions are carried out according to the manufacturing documentation.

  The final control includes:
  - control of damper opening and closing, and
  - checking the electrical connection of damper blade with the damper body using an electrical detection device.
- The damper assembly with the actuator is connected to voltage, the extreme working positions are defined and the operation of the damper and the function of the limit switches (if included) are tested.

# VI. INSTALLATION, COMMISSIONING, OPERATION, MAINTENANCE, OPERATIONAL CHECKS

**The installation consists of:**

- installation of the damper in the air duct
- grounding and conductive connection with the neighbour duct pieces
- eventually, installation of the actuator (not part of the damper)
- or for the electrical connection of the actuator (in the case of a damper with an actuator).

- All effective safety standards and directives must be observed during damper assembly.
- **The dampers must be earthed with an M6 earthing screw, using a nut and a spring washer** (these parts are included in the delivery of the damper).
- According to EN 332000-4-41,-4-47 and -5-54, flange connections must be conductively connected during the installation to protect against dangerous contact. For the conductive connection, 2 pcs of spring washers in galvanized design are used, which are placed under the head of one screw and under the screwed-on nut.
- Before putting the dampers into operation, it is necessary to perform a visual check of the correct installation of the damper and a check of the interconnection of all metal components.

**In the case of subsequent mounting of the damper with an actuator, it is necessary:**

- verify that the speed and torque of the actuator are in accordance with this document
- adjust the limit positions of the actuator and
- check that the actuator cannot be released from the holder and that the damper control pin cannot slip.

**In the case of a damper with manual control, it is necessary to check the smooth operation of the damper.**

In the case of a damper with a actuator, it is necessary to connect the actuator electrically and test the operation of the damper. **If the electrical connection of the damper is located in an area with a risk of explosion, it is necessary to use an Ex terminal block corresponding to the given zone.** For actuators with return spring **the electrical connection must correspond to the permitted spring closing time.**

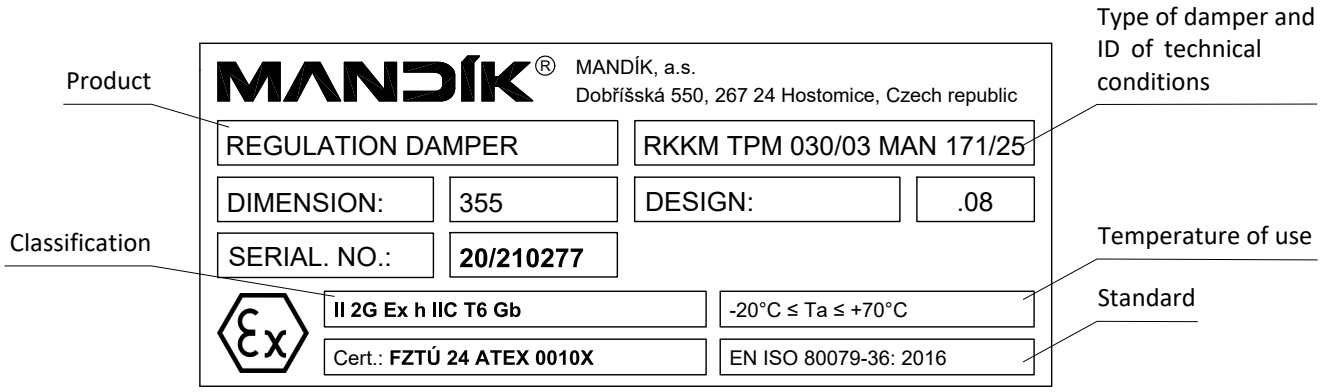
During operability checks, it is necessary to check the mutual conductive connection of all metal components, including damper blade with the damper body (casing) of the damper.The grounding damper blade needs to be checked using an electrical measuring or detection device:

- during commissioning
- as part of every inspection, maintenance, as well as every possible repair or other intervention on the damper
- at the latest after 1 year from commissioning
- if no blade grounding defect is found after 1 year from commissioning, then periodically at least every 5 years thereafter, otherwise annually.

# VII. DAMPER IDENTIFICATION

**The dampers are equipped with a durable identification label. It contains the following information:**

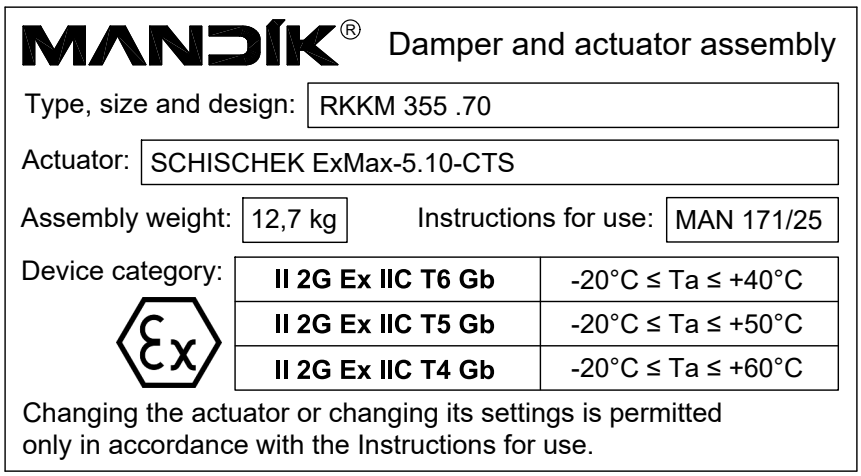
- manufacturer's logo
- name and addresse of the manufacturer
- product type and design variant
- size and weight
- serial number and year of manufacture
- number of the technical specifications
- number of the instructions for use
- Ex device category
- Ex certificate number
- sign Ex.




**In the case of a damper equipped with an actuator, the assembly is additionally marked with an assembly label containing:**

- manufacturer's logo
- statement that it is a damper and actuator assembly
- type, size and design number of the assembly (the name of the assembly type is identical to the name of the damper type)
- manufacturer and type of actuator
- weight of assembly
- information that changing the actuator settings is only permitted in accordance with MAN 171/25
- Ex category device (assemblies)
- sign Ex..

- This assembly label is located near the damper identification label (example)



The producer reserves the right for innovations of the product.
For actual product information see www.mandik.com

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