

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

 II 2G Ex h IIC T6...T3 Gb

MANDÍK[®]

INSTRUCTIONS FOR USE

REGULATION DAMPERS IN A NON-EXPLOSIVE DESIGN

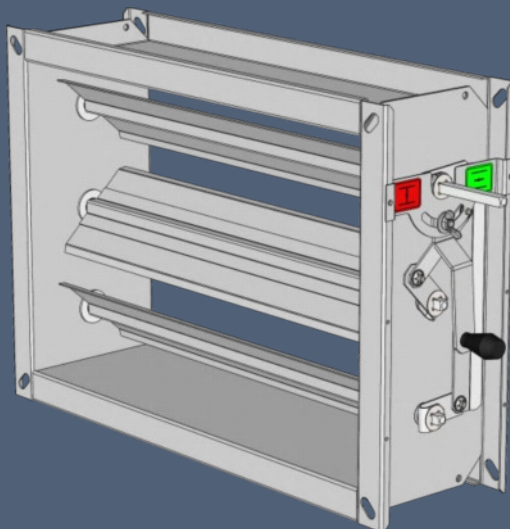
RKM – square damper acc. to TPM 009/00

RKTM – tight square damper acc. to TPM 012/00

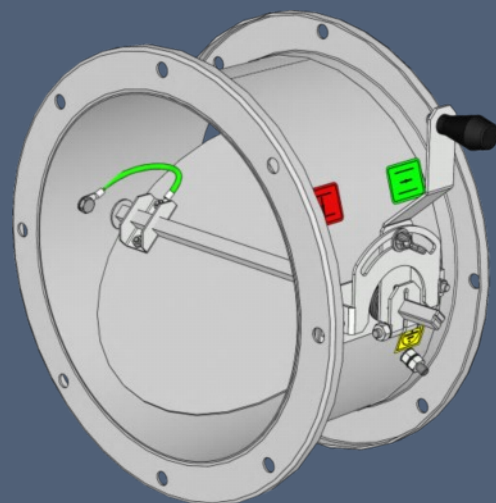
RKKM – round damper acc. TPM 030/03

RKKTM – tight round damper acc. TPM 031/03

RKM



RKKM



I. CONTENT

II. GENERAL INFORMATION	3
1. Description.....	3
2. Design.....	3
3. Placement and Assembly.....	4
4. Dimensions.....	5
III. TECHNICAL DATA	9
5. Material, surface protection.....	9
6. Product data.....	9
IV. PACKAGING, TRANSPORT, ACCEPTANCE, STORAGE, WARRANTY	9
7. Logistic terms.....	9
8. Warranty.....	9
V. INSTALLATION, OPERATION, MAINTENANCE, OPERATIONAL CHECK	9
9. Installation.....	9

II. GENERAL INFORMATION

1. Description

- 1.1. The dampers consist of blade frames and control mechanisms. It serves to regulate the air flow by throttling the cross section.
- 1.2. The dampers are intended for atmospheres protected against weather influences with climatic condition classification of class 3K5 with temperature limitation from -20°C to +50°C, without condensation, frost, ice, without water, including from other sources than from rain acc. to EN 60721-3-3 zmA2, and for atmospheres with explosion hazard of group and category 2G Ex h IIC T6...T3 Gb acc. to EN ISO 80079-36.
If the damper is fitted with electrical items, the temperature range shall be restricted acc. to the temperature range of the electrical items used. Then the group of non-explosiveness of the damper with electrical items depends on the non-explosive design of the electrical items installed on the damper. The electrical devices installed together with the damper must be made in the design corresponding to the given zone. The principle for determining the respective zones specifies that it shall not be distinguished whether the specified atmosphere is inside or outside the damper.

Tab. 1.2.1. Maximum surface temperature in relation to the temperature of the flowing agent

Max. temperature of the flowing agent	Temperature class
68°C	T6
98°C	T5
140°C	T3

- 1.3. The dampers are not intended for air masses with mechanical, dusty, fibrous and sticky admixtures.

2. Design

The dampers are delivered in the following non-explosive designs:

- Manual control
- Control for mounting the actuator

2.1. **The damper design is marked with two digits after the TP number**

Tab. 2.1.1. Damper design

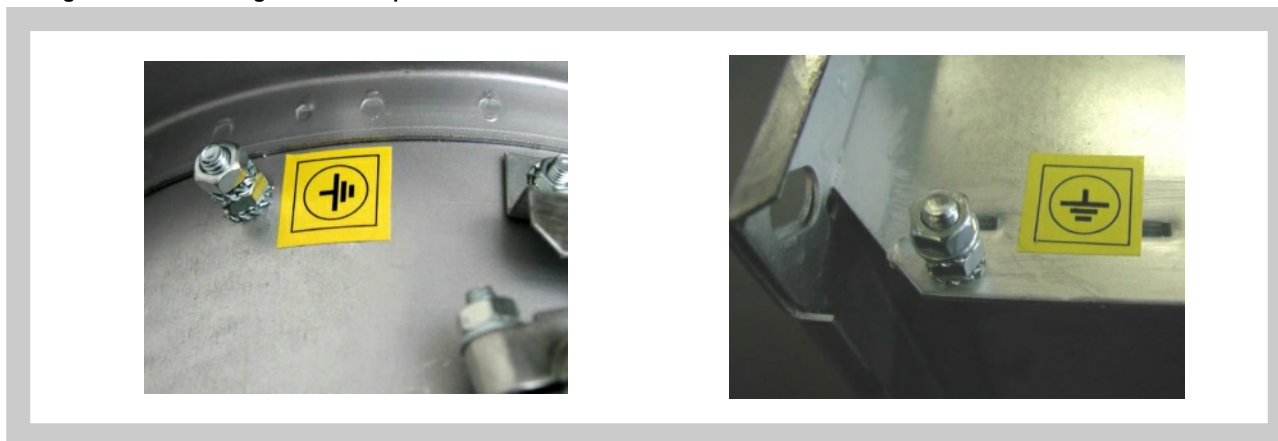
DAMPER DESIGN	TWO DIGITS AFTER TP NUMBER
manual	.02
for mounting the actuator*	.08

* If the damper is controlled with the help of actuator, it must be ensured that the damper closing speed remains below 1m/s.

3. Placement and Assembly

- 3.1. The dampers are intended for installation in air-conditioning piping. The operation position is arbitrary.
The minimum space for the control device is 200 mm (in blade rotation axis).
When assembling round dampers into the piping, respect the overlap of open blade "a" (tab. 4.3.1.).
- 3.2. **The dampers in non-explosive design must be grounded by one of the grounding bolts situated outside and inside the damper body.**

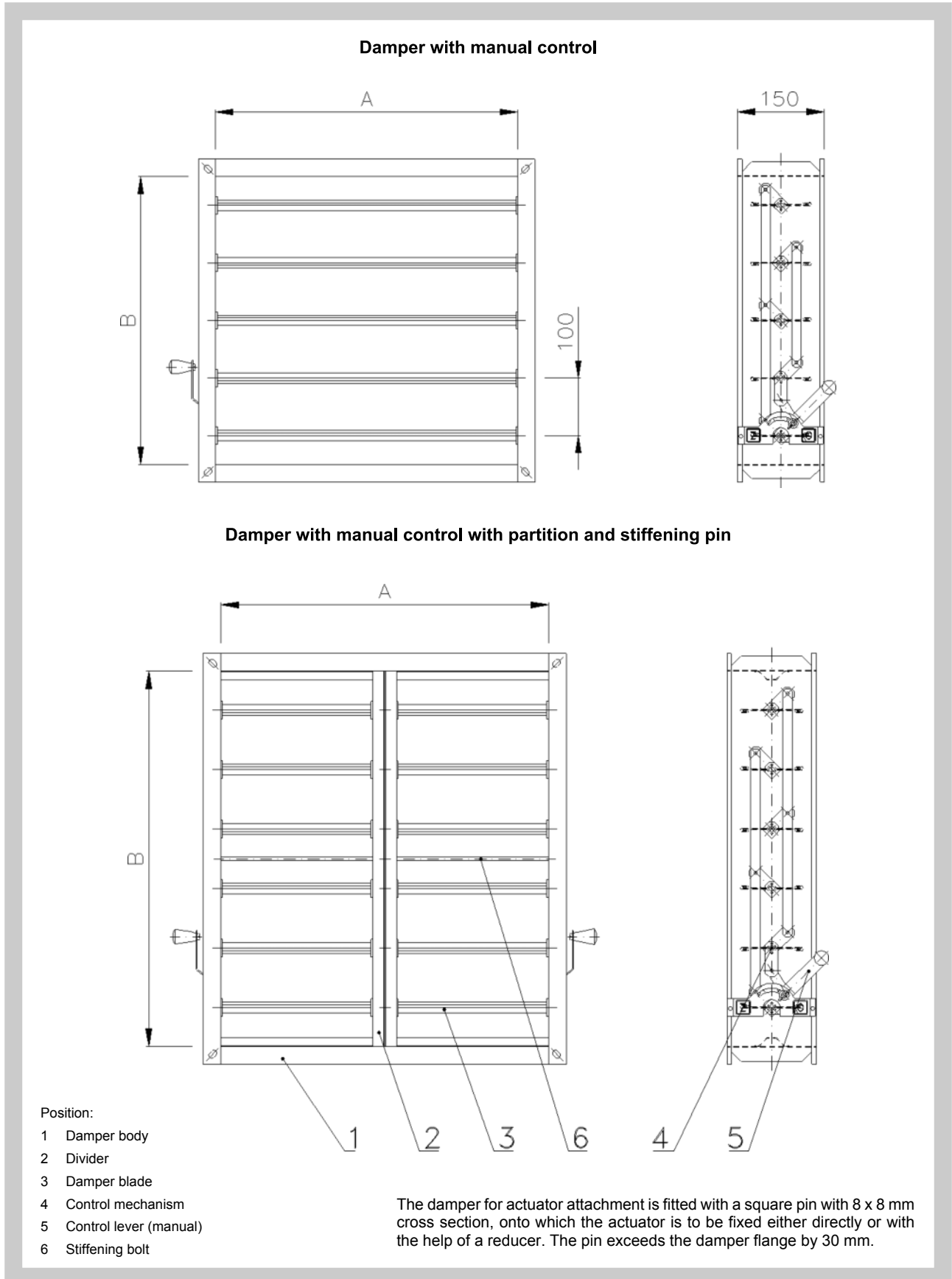
Fig. 1 Grounding bolt on damper



4. Dimensions

4.1. Square dampers

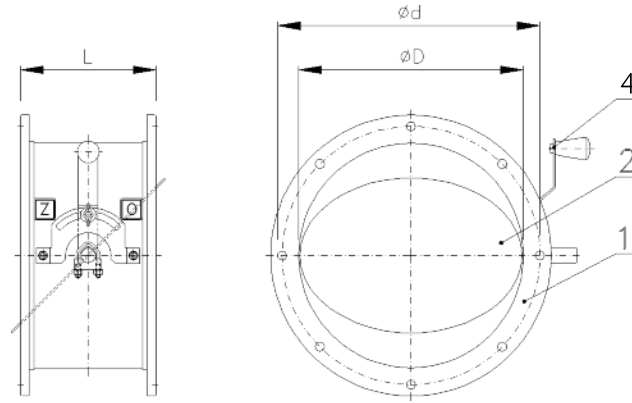
Fig. 2 RKM, RKTМ



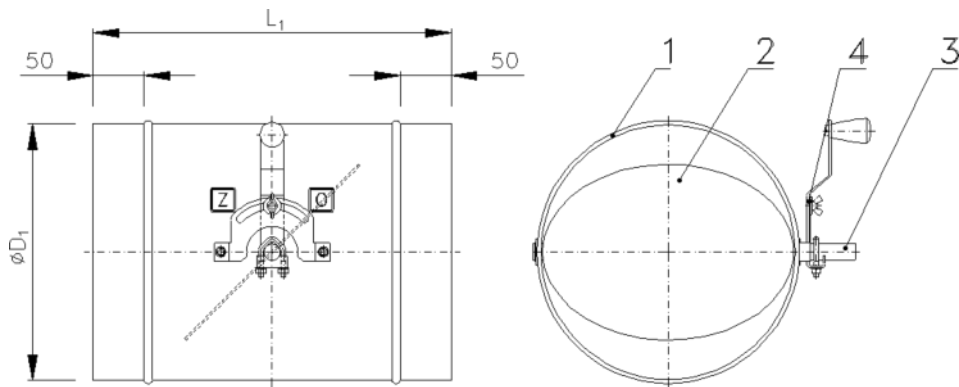
4.2. Round dampers

Fig. 3 RKKM, RKKTM

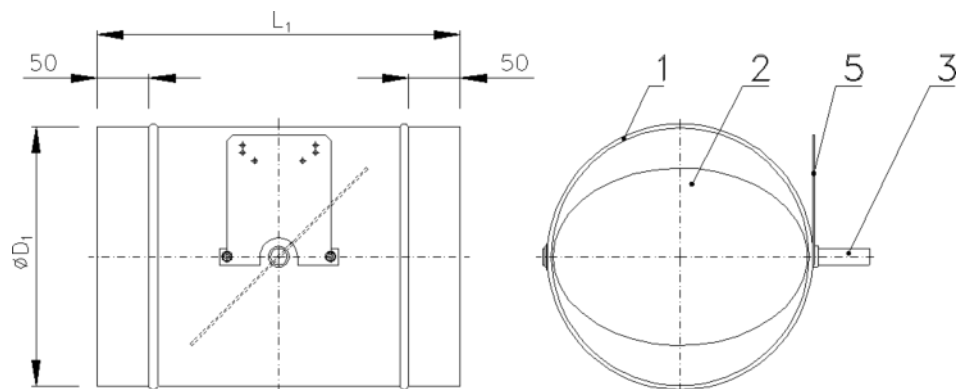
Damper for mounting to round piping with flanges acc. to EN 12 0505 with manual control



Damper for mounting to spiro with manual control



Damper for mounting to spiro on actuator mounting



Position:

- 1 Damper body
- 2 Damper blade
- 3 Pin
- 4 Control lever (manual)
- 5 Control lever (mechanical)

The damper for actuator attachment is fitted with a square pin with 10x10 mm diameter and 50 mm length.

4.3. The square dampers are made in the following size series (A x B):

RKM (RKTM): from 200 x 200 mm to 2000 x 2000 mm

The damper length is 150 mm.

Atypical sizes of square dampers must be discussed with the manufacturer in advance:

RKM: from 100 x 100 mm to 2400 x 2400 mm

RKTM: from 100 x 100 mm to 2400 x 2000 mm

RKKM round dampers and RKKTM tight dampers: from 80 mm to 800 mm diameter.

Atypical sizes of round dampers are not manufactured!

Tab. 4.3.1. Sizes - RKKM round dampers and RKKTM tight round dampers

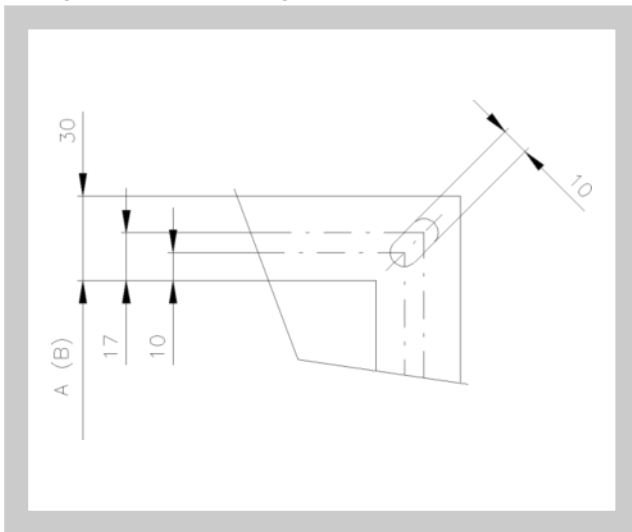
Nominal size ØD [mm]	Mounting to round piping with flanges				Mounting to spiro piping		
	L [mm]	a [mm]	ød [mm]	n [holes]	øD ₁ [mm]	L ₁ [mm]	a [mm]
80	150	-	110	4	79	240	-
100	150	-	130	4	99	240	-
110	150	-	140	4	109	240	-
125	150	-	155	8	124	240	-
140	150	-	170	8	139	240	-
150	-	-	-	-	149	240	-
160	150	-	195	8	159	240	-
180	150	10	215	8	179	240	-
200	150	20	235	8	199	240	-
225	150	32,5	260	8	224	240	-
250	150	45	285	8	249	240	-
280	150	60	315	8	279	240	15
300	150	70	335	12	299	240	25
310	-	-	-	-	309	240	30
315	150	77,5	350	12	314	240	32
355	150	97,5	390	12	354	240	52
400	200	95	445	12	399	300	45
450	200	120	495	12	449	300	70
500	200	145	545	16	499	300	95
560	200	175	605	16	559	300	125
630	200	210	680	16	629	300	160
710	200	250	760	20	709	300	200
800	200	295	860	20	799	300	245

„a“ blade overlap

4.4. Mounting to piping

Square dampers - flanges with 30 mm width are fitted with oval holes in corners

Fig. 4 Damper flange



Round dampers - mounting to:

- Round piping with flanges - flanges acc. to EN 12 0505
- Spiro piping with lip seal

III. TECHNICAL DATA

5. Material, surface protection

- 5.1. The frames, blades and control mechanism of the dampers are made of galvanized or stainless metal sheet, respectively; the blade pins of square dampers are made of plastic, the blade pins of round dampers are made of galvanized steel or stainless steel, respectively.

The dampers are delivered without further surface treatment.

The conductive connection of the damper parts must never be modified or dismantled from the damper!

6. Product data

- 6.1. **The data label is fixed to the damper body and contains the following data:**

- logo of company - manufacturer
- type and design
- number of technical specification
- serial number
- year of production
- certification
- company name and address
- size and weight

Furthermore, the damper is marked with the symbol of non-explosiveness.

IV. PACKAGING, TRANSPORT, ACCEPTANCE, STORAGE, WARRANTY

7. Logistic terms

- 7.1. The dampers are transported as bulk cargo in covered means of transport. The dampers can be transported on pallets or in crating upon accord with the customer. For handling during transport and storage, the dampers must be protected against mechanical damage. The potential packages will be considered non-returnable and their price will not be included in the damper price.

Unless another method of reception is specified in the purchase order, the handover of the dampers to the forwarder shall be understood as reception.

- 7.2. The dampers must be stored in covered buildings, in an environment without aggressive vapours, gases and dust. A temperature in a range of -5°C and +40°C and a relative humidity of max. 80% must be maintained in the buildings. For handling during storage, the dampers must be protected against mechanical damage.

8. Warranty

- 8.1. The manufacturer provides a warranty of 24 months from the date of dispatch for the dampers.
- 8.2. If the dampers are damaged by transport, a record must be written down with the forwarder at reception for later complaint.

V. INSTALLATION, OPERATION, MAINTENANCE, OPERATIONAL CHECK

9. Installation

- 9.1. The assembly consists in installation of the damper into the air-conditioning piping.
- 9.2. The assembly of the dampers must be carried out while observing all applicable safety standards and regulations.
- 9.3. The flange and screw connections must be conductively connected during assembly, for protection against hazardous contact according to EN 332000-4-41,-4-47 and -5-54. 2 fan-shaped washers in galvanized design are to be used for conductive connection; they are to be situated under the head of one bolt and under the screwed nut.
- 9.4. Before putting the dampers into operation and during subsequent operability inspections, the following points must be visually checked: correct incorporation of the damper, interconnection of all metal parts and, if actuator or limit switches are attached, correct connection.

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