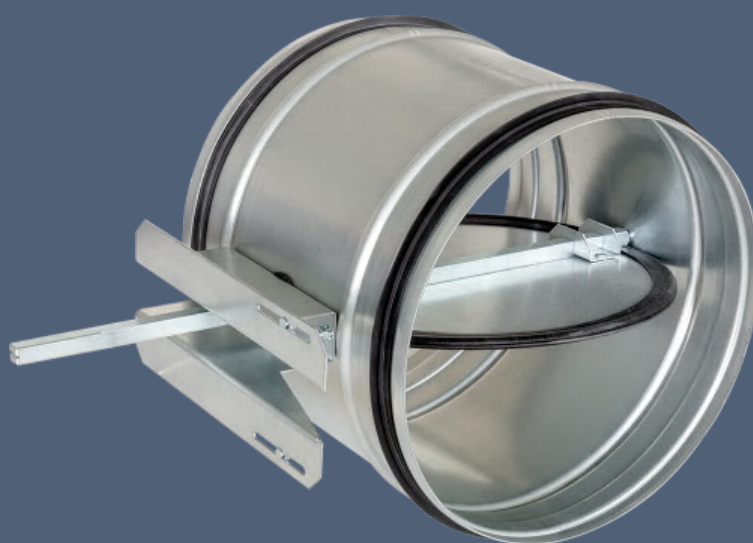


MANDÍK[®]

ROUND TIGHT REGULATION
ADJUSTMENT DAMPER

RKKTM-DK



These technical conditions define the range of produced dimensions and versions of "ROUND TIGHT REGULATION ADJUSTMENT DAMPERS RKKTM-DK"("further only dampers"). These technical conditions apply to the manufacture, design, ordering, assembly, operation and maintenance.

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II. GENERAL

Fig. 1 Damper RKKTM-DK for SPIRO pipeline with preparation for servo actuator montage



1. Description

- 1.1.** The dampers consist of the body, the leaf fitted according to the sealing circumference and the control mechanism.

They serve the tight sealing of air piping or the regulation of the air flow in the piping by constricting the cross section.

External Casing leakage class C.

Tightness through the damper blade: class 4

- 1.2.** The dampers are destined for maximal velocity of air flow 12 m/s.

- 1.3.** The dampers are intended for environment protected against weather impacts with the classification of climatic conditions class 3K5, without condensation, frost, ice formation, and without water even from other sources than rain according to EN 60 72133, change A2.

The air flowing through the dampers must not contain solid, fibrous, adhesive or aggressive particles, and its temperature must lie in the range of -20°C to +80°C.

- 1.4.** If is not noticed other way, all dimensions and weight are in millimeters and kilograms.

2. Design

- 2.1.** Version of damper is for SPIRO pipeline with preparation for servo actuator montage. The version is designated by two digits following the TP mark.

- 2.2.** According to manner of attachment:

- on spiro piping with edge sealing

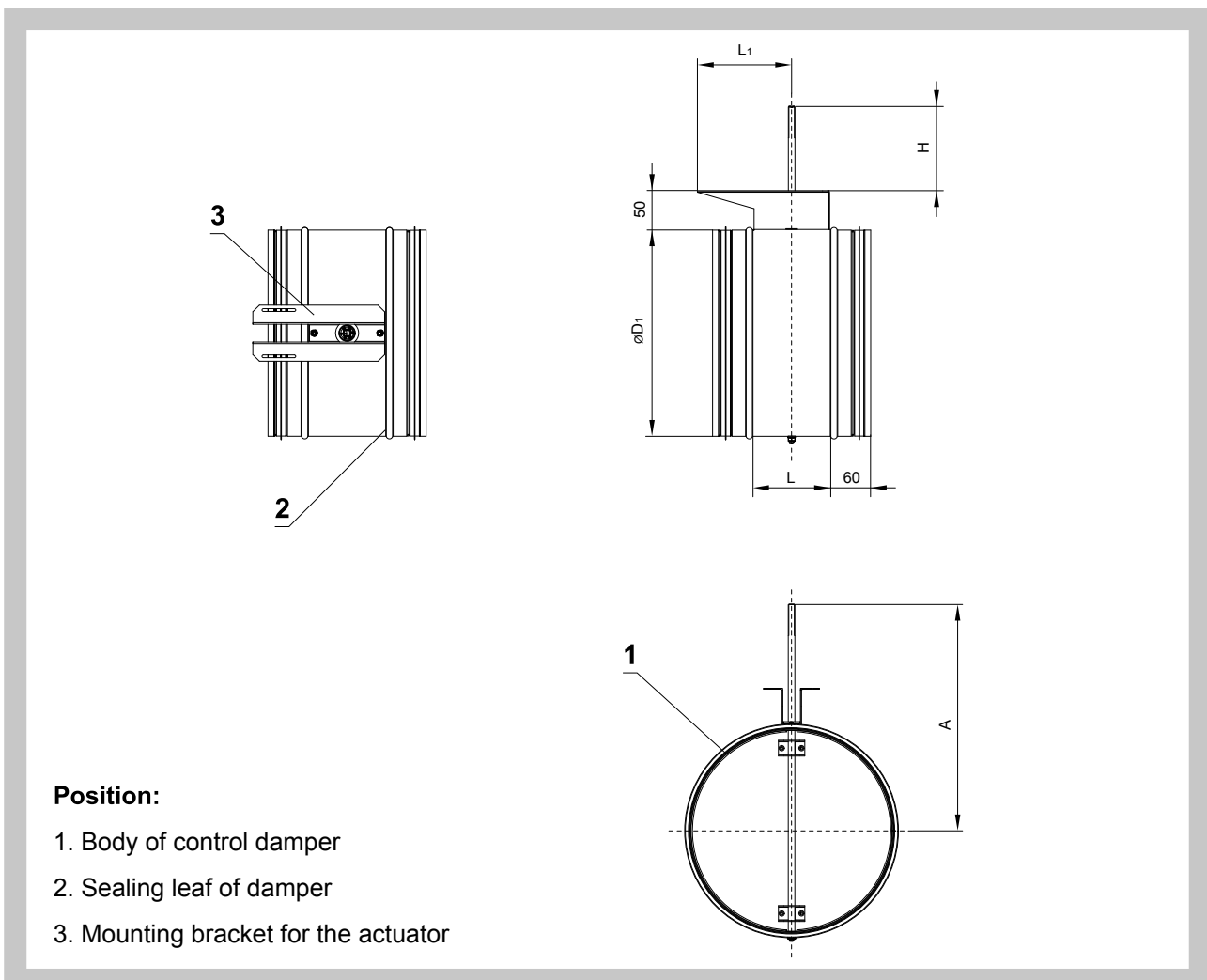
3. Dimensions and weights

3.1. Damper for connecting to spiro

Tab. 3.1.1. Dimensions, weights and effective area

Size ø D	Dimensions					Effective area S _{ef} [m ²]	Weights [kg]
	ø D ₁	L ₁	L	A	H		
80	79	143	117	136	47,8	0,0047	0,95
100	99	143	117	151	52,8	0,0074	1,10
125	124	143	117	169	57,8	0,0117	1,35
160	159	143	117	195	67,8	0,0194	1,70
200	199	143	117	200	52,8	0,0305	2,10
250	249	143	117	226	52,8	0,0479	2,90
315	314	198	117	300	87,8	0,0765	3,85
400	399	198	178	300	67,8	0,1238	9,05
500	499	198	178	360	77,8	0,1940	11,95
630	629	198	178	415	67,8	0,3088	15,70

Fig. 2 Damper with manual control mechanism



Dampers with actuator are set up by rectangular pin 10 mm.

- 3.2.** Effective area in Tab. 3.1.1. valid for fully opened damper Sef [m²].
The weights listed in the table are valid for the basic version (without actuator). The weight of the servo actuator must be added to all other versions. Atypical dimensions the circular regulation dampers are not manufactured.

4. Placement and installation

- 4.1.** The dampers are meant for installation in air piping. The operating position is whatever you like.
- 4.2.** The minimum space for the control mechanism is 250 mm.
- 4.3.** When positioning the dampers in piping, it is necessary to respect the overlap of open leaf.

III. TECHNICAL DATA

5. Basic parameter

- 5.1.** The maximum pressure difference and the speed of the air flow

Tab. 5.1.1 The maximum pressure difference and the speed of the air flow

Size	Max. Pressure difference Δp [Pa]	Maximum speed of air flow w_{max} [m.s ⁻¹]	Size	Max. Pressure difference Δp [Pa]	Maximum speed of air flow w_{max} [m.s ⁻¹]
80	1500	15	250	1500	12
100	1500	15	315	1500	12
125	1500	15	400	1200	10
160	1500	15	500	1200	10
200	1500	15	630	1000	10

- 5.2.** Types and weights of the actuators for regulation dampers

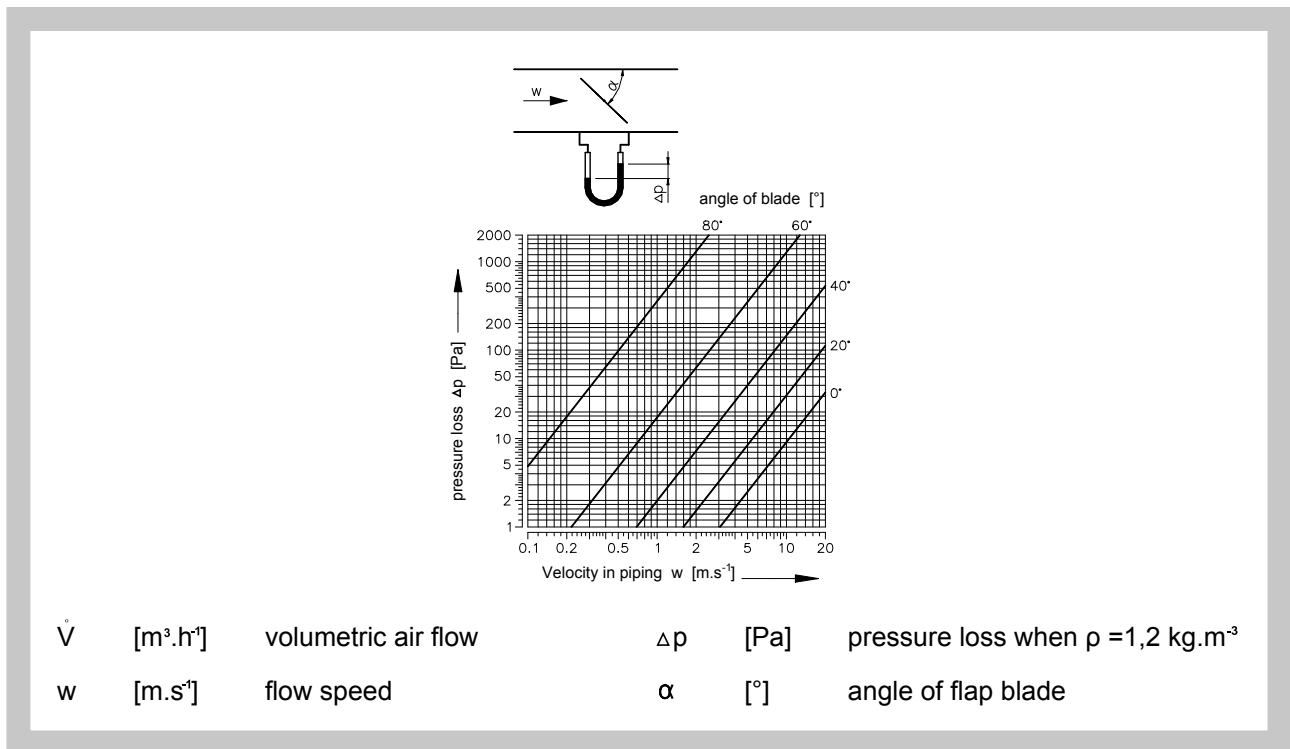
Tab. 5.2.1. Types and weights of the actuators

Dampers	Type of actuator	Signalling of position	Torque	Weights of actuator [kg]	Dimensions M x H x W
Size from 80 to 315	Belimo LM230A-S	YES	5 Nm	0,59	116 x 61 x 66
	Belimo LM230A	NO		0,50	
	Belimo LM24A-S	YES		0,58	
	Belimo LM24A	NO		0,49	
	Belimo LM24A-SR	YES		0,51	
Size from 355 to 500	Belimo NM 230A-S (.46)	YES	10 Nm	0,85	124 x 62 x 80
	Belimo NM 230A (.45)	NO		0,80	
	Belimo NM 24A-S (.56)	YES		0,85	
	Belimo NM 24A (.55)	NO		0,75	
	Belimo NM 24A-SR (.57)	YES		0,80	
Size from 560 to 630	Belimo SM 230A-S (.46)	YES	20 Nm	1,10	139 x 64 x 88
	Belimo SM 230A (.45)	NO		1,05	
	Belimo SM 24A-S (.56)	YES		1,05	
	Belimo SM 24A (.55)	NO		1,00	
	Belimo SM 24A-SR (.57)	YES		1,05	

6. Pressure losses

6.1. Pressure losses

Fig. 3 Pressure losses dependent on the turning of the damper's leaf



IV. MATERIAL, FINISHING

7. Material

7.1. The body of the damper and the leaf are made of galvanized sheet; the leaf's journals are of steel. Along its circumference, the leaf is fitted with a silicon seal. The version on spiro piping can come with or without a rubber edge seal.

8. Surface treatment

8.1. The damper is delivered without further surface treatment.

V. CHECKING, TESTING

9. Checking

9.1. The dimensions are checked by means of the usual measuring instruments according to the norm for non-tolerable dimensions used in air technology.

9.2. Intermediate operation checks of the parts and main dimensions are carried out according to the drawing documents.

10. Testing

10.1. After the plant assembly, a check of the functioning of the closing mechanism and the electrical components is carried out.

VI. PACKING, TRANSPORT, STORAGE

11. Logistical data

- 11.1. The damper are transported as bulk cargo, using suitable covered means of transport. When agreed upon with the manufacturer, the dampers can be loaded onto pallets. Dampers must be protected from mechanical damage during transport and storage. If packing is used, it is non-returnable and its price is not included in the price of the damper.
- 11.2. If not otherwise agreed, the handover is considered when the goods is forwarded to the carrier.
- 11.3. The dampers must be stored in the indoor environment without any aggressive vapours, gases or dust. Indoor temperature must be in the range from -5°C to +40°C and maximum relative humidity 80%. Dampers must be protected against mechanic damages when transported and manipulated.
- 11.4. The delivery includes a complete damper including the control mechanism.

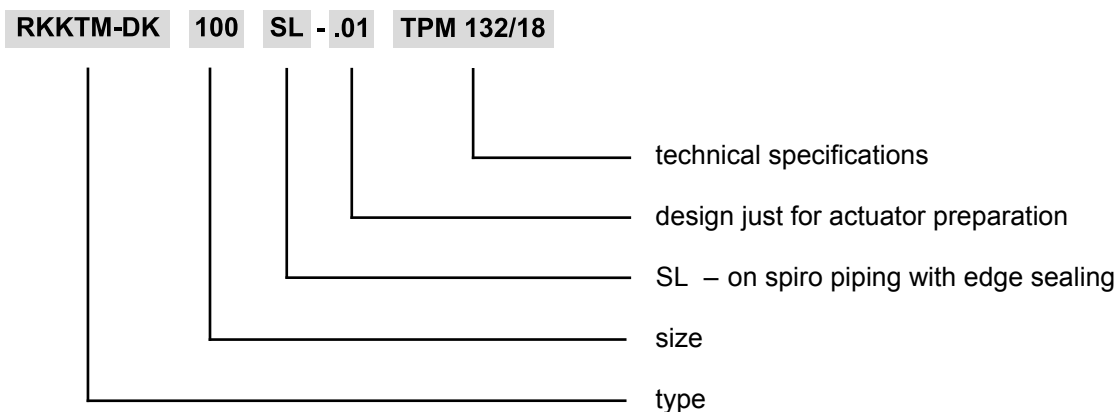
VII. ASSEMBLY

12. Assembly

- 12.1. The assembly consists of installing the damper in the air distribution system and if required, connecting the actuating mechanism to the electric net. Connection of the actuating mechanism to the electric net can be done only by trained person.

VIII. ORDERING INFORMATION

13. Ordering key



It is necessary to talk with the manufacturer regarding orders for versions with a different type of actuating mechanism.

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