GB0818
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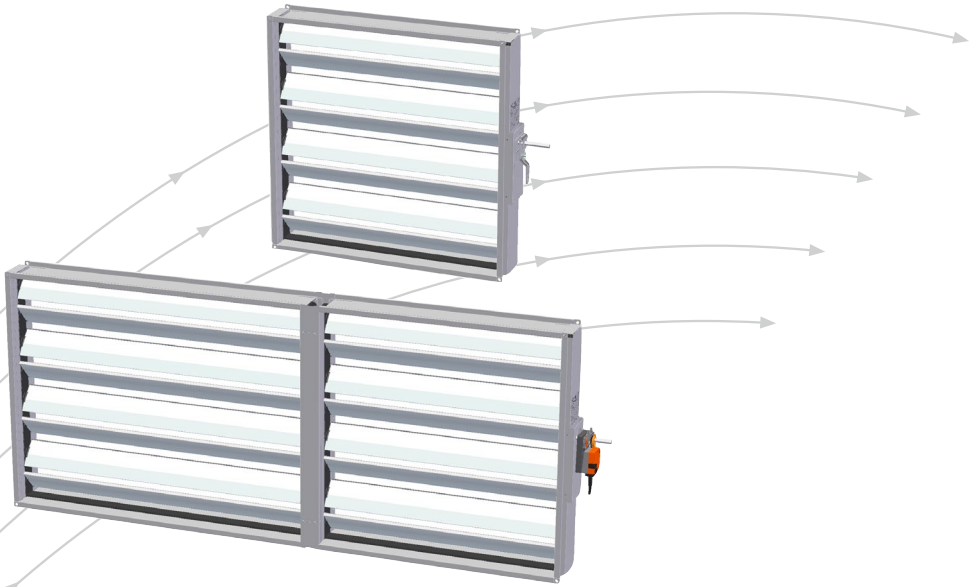
TSK-4

Multileaf damper leakage class 4 for rectangular ducts.



- Robust construction
- Leakage class 4 - EN 1751
- Pressure class <= 1000 Pa
- Guide spigot

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TSK-4

APPLICATION

TSK-4 is mainly used in rectangular ventilation ducts for shut-off, volum flow control and pressure control. The damper meats the requirements for leakage class 4 - EN 1751.

FUNCTION

TSK-4 can be delivered as 50 mm width and height moudule as standard, and is equipped with guide spigot. Actuator is available as accessory. The damper can also be delivered with circular duct connection. Maximum size for one damper is B = 1500 mm x H = 2000 mm. If width over 1500 mm a extension part is used for a total width up to 2600 mm.

For damper with height 1400 mm up to 2000 mm, two actuator must be used. When the height exceeds 1200 mm a link suspension is used for better stability. The damper opens by rotating the axel counter clockwise (CCW). The sprockets are protected by a cover, and are placed outside of the airstream.

TSK-4 has air leakage class 4 for damper in closed position, casing leakage class B, and complies with pressure class <= 1000 Pa.

Operating temperature -20 - 80 °C

MATERIALS AND SURFACE COATING

Frame profiles are made in galvanised steel. The damper blades are in aluminium and fitted with TPE gasket for tightness. The axel is made of 10x10 square steel, and the sprockets and liner are made of special plastic. The cover plate for the sprockets are made in galvanized steel. TSK-4 damper with circular connection has EPDM rubber gasket.

ORDER CODE, TSK

TSK-4 – 1000 – 1000 – 1 – 0

Product

B = Width (max 2600mm)

H = Height (max 2000mm)

S = Circular connection (Ø800, Ø1000, Ø1250)

0 = Manual lever
1 = NM24A
2 = NM230A
3 = NM24A-SR
4 = NM230A-SR
5 = SM24A
6 = SM230A
7 = SM24A-SR
8 = SM230A-SR
9 = SFA.1 TR 24 V
10 = SFA.1 TR 230 V
11 = SP24A-SR
12 = NM24A-MOD
13 = SM24A-MOD

Example:
TSK-4-1000-1000-1-0
Explanation:
TSK-4, width 1000 mm, hight 1000 mm,
Actuator NM24A, without circular connection

Info:

- Damper with width more than 1500 mm, and up to 2600 mm, contains of two dampers put together.
- Damper over 1400 in height must be equipped with two actuators

DIMENSIONS AND WEIGHT, TSK

Weight ca. 25 kg/m²

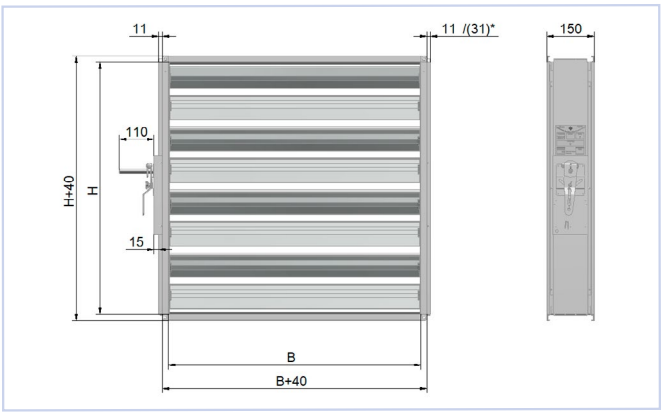

*Fig.1, Dimensions TSK-4 with guide spigot (*height >= 1200 mm)*

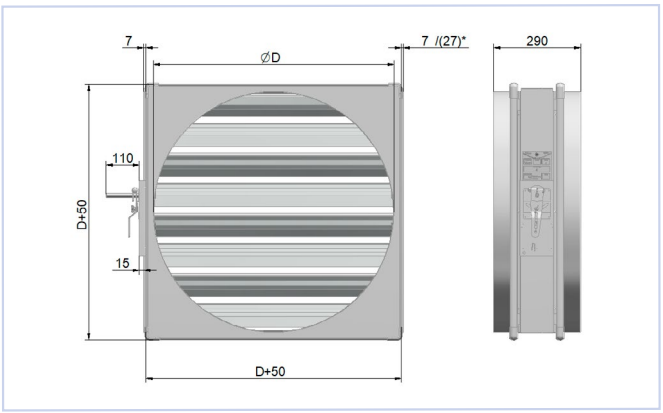

*Fig. 2. Dimensions TSK-4 with circular connection (*height >= 1200 mm)*

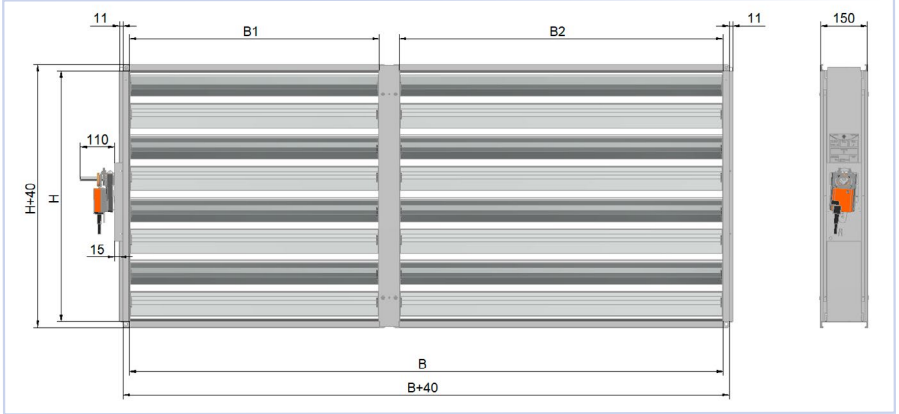

Fig. 3. Dimensions TSK-4 and widht 1550 mm - 2600 mm

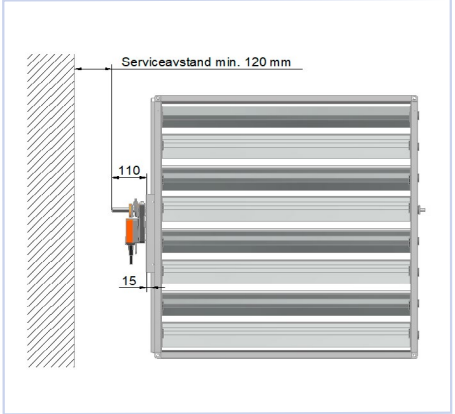

Fig. 4. Servicedistance

Actuator	Function	Torque [Nm]	Max area TSK-4 [m^2]
SFA 1TR 24V / 230V	On/Off spring return	20	2,6
SF24-SR	Modulating spring return	20	2,6
NM24A / NM230A	On/Off	10	2,0
NM24A-SR / NM230A-SR / NM24A-MOD	Modulating	10	2,0
SM24A / SM230A	On/Off	20	2,6
SM24A-SR / SM230A-SR / SM24A-MOD	Modulating	20	2,6

Table 1. (For height 1400 - 2000 mm, two actuators must be used)

H \ B	200	400	600	800	1000	1200	1400	1500	500 x 1036 1600	700 x 1036 1800	900 x 1036 2000	1100 x 1036 2200	1300 x 1036 2400	1500 x 1036 2600
200	10	10	10	10	10	10	10	10	20	20	20	20	20	20
400	10	10	10	10	10	10	10	10	20	20	20	20	20	20
600	10	10	10	10	10	10	10	20	20	20	20	20	20	20
800	10	10	10	10	10	10	20	20	20	20	20	20	20	20
1000	10	10	10	10	10	10	20	20	20	20	20	20	20	20
1200	10	10	10	10	10	20	20	20	20	20	20	20	20	20
1400	2x10	2x10	2x10	2x10	2x10	2x10	2x10	2x20	2x20	2x20	2x20	2x20	2x20	2x20
1600	2x10	2x10	2x10	2x10	2x10	2x10	2x10	2x20	2x20	2x20	2x20	2x20	2x20	2x20
1800	2x10	2x10	2x10	2x10	2x10	2x10	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
2000	2x10	2x10	2x10	2x10	2x10	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20

Table 2. The table shows a selection of recommended Belimo actuators, given in Nm. See table 1 for actuators.

ACOUSTIC DATA

The diagram gives a summerized A-weighted sound power level (L_{wA}) from damper to duct, as a function of air velocity in duct area. To find the sound level for a certain duct size, a correction factor for area (table 4) is used. Formula: L_{wA}–corrected = L_{wA} + K-area. Further the correction factor KO can be used to find the sound level in each frequency. Formula: L_w =L_{wA}–corrected + KO.

Example: TSK-4 shall be used for a duct velocity of 5 m/s for a duct 1000x1000 mm. In diagram 1 we find a sound power level of 52 dB(A) in open position, and the pressure loss is ca. 9 Pa. In table 4 we find that damper area 1 m^2 gives 2 dB correction of noise level, 52 + 2 = 54 dB(A). The KO-factors in table 3 can then be used to find the noise level in each frequency (dB).

KO-factor (dB)							
Octave band 1/1-octave (Hz)							
63	125	250	500	1K	2K	4K	8K
8	6	2	2	-2	-4	-8	-10

Table 3, KO-factor TSK-4

Korreksjon K-area (dB)									
TSK-4 area of damper (m^2)									
0,04	0,25	0,49	0,64	1	1,44	2,25	3,24	4	5,2
-8	-6	-4	0	2	4	6	7	9	10

Table 4, Correction factor TSK-4 for damper area

CALCULATION DIAGRAM

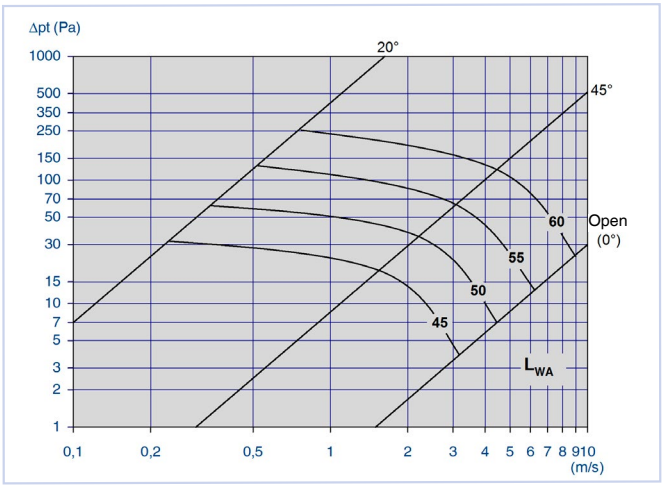

Diagram 1, Noise level TSK-4

INSTALLATION

TSK-4 are delivered with guide connetion as standard, and can be easily mounted to ducts by using a track connection system such as KSA, which fit the most common guide types in the market.

Always check the damper before the installation, and control the open/ close function after installation.

The damper must always be mounted with the damper blades horisontally.

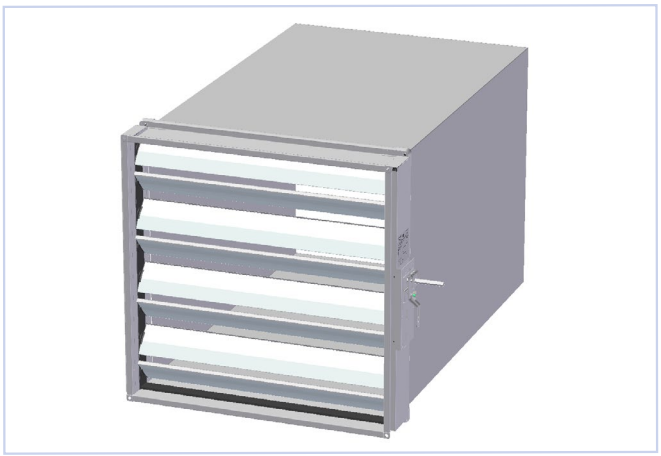

Fig. 5. Mounting for damper in rectancular duct.

Dampers with widht more than 1500 mm are delivered in two sections. These must be put together at the building site.

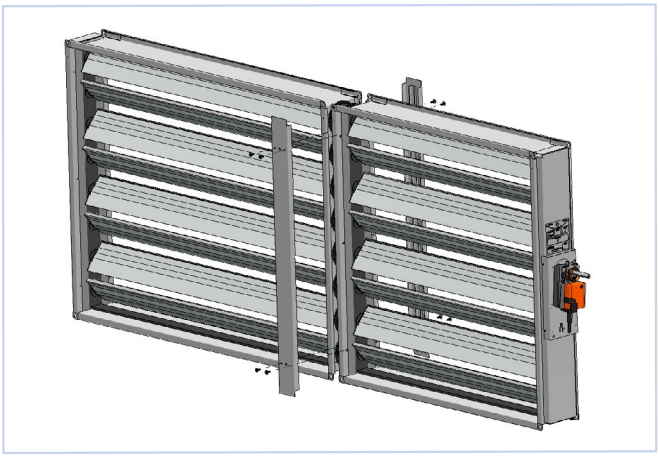

Fig. 6. Mounting for split damper with widht > 1500 mm.

COMMISSIONING

During commissioning the damper blades are rotated by using the external lever. The lever is then locket in position by a thumbscrew.

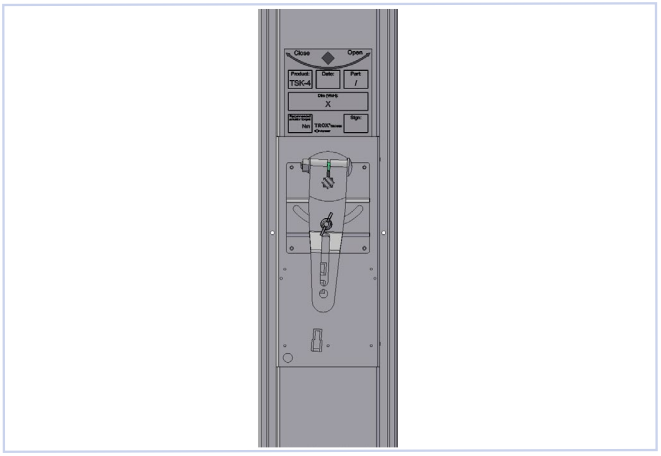

Fig. 7. Manual control

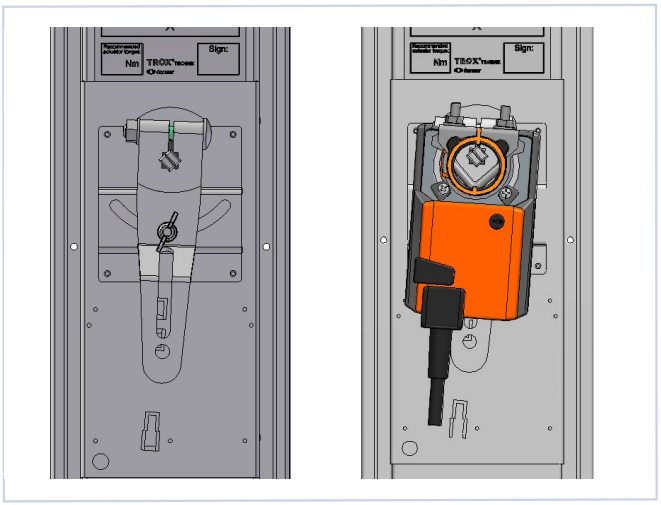

Fig. 8. If the damper is ordered with manual lever, and an actuator shall be fitted afterwards, the level and bracket must be removed, and the actuator are fastened to the actuator bracket.

MAINTENANCE

TSK-4 demands no specific maintenance at normal conditions.

ENVIRONMENT

Enquiries regarding product declaration can be directed to our sales team, or information can be found at www.trox.no/en

We reserve the right to make changes.