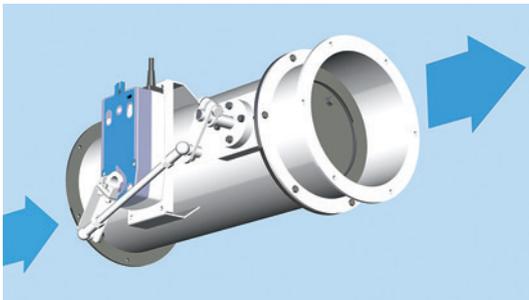


Technical Brochure

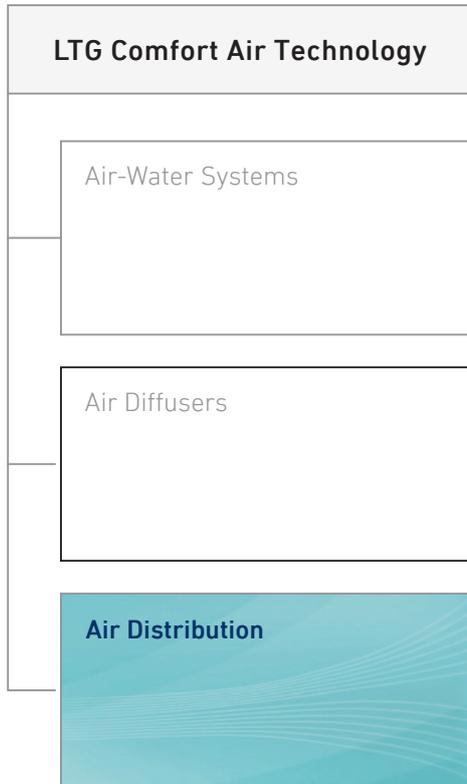
LTG Air Distribution

Shut-off damper KLB



Highly-tight

Technical brochure • Highly-tight shut-off damper KLB



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Notes

Dimensions stated in this brochure are in mm.

Dimensions stated in this brochure are subject to General Tolerances according to DIN ISO 2768-vL.

Possible additional details are stated in the drawings.

Straightness and twist tolerances according to DIN EN 12020-2.

The actual specifications are available as a word document at your local distributor or at www.LTG.net.



LTG planning tools – we support you!

Visit the download area on our website www.LTG.net with helpful tools, such as dimensioning programs, streaming videos and product information!

Also available: Our product overviews about air diffusers, air-water systems decentralized ventilation units and air distribution products.

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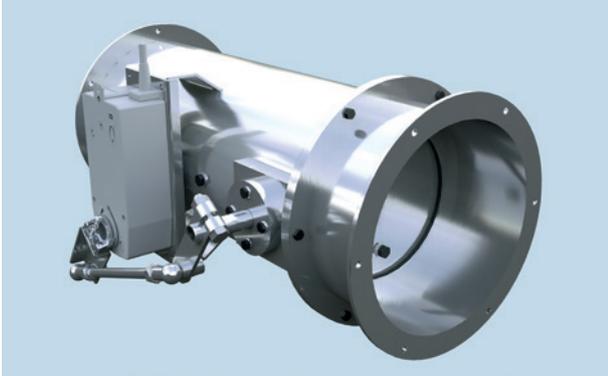
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View of unit



Application

Hermetic shut-off of air flows. Application e. g. in clean-rooms, hospitals, labs, ships.

Installation, placement

Installation in the air duct system with horizontal damper axis. Other types of installation are only possible after consultation with LTG Aktiengesellschaft.

Characteristics

- The leakage air rate is too low to be reported when tested. The requirements of DIN 1946 Sheet 4 for airtight dampers (leakage air rate via damper blade Class 4 acc. to DIN EN 1751) as well as the leakage air rate via casing Class C acc. to DIN EN 1751 are clearly met or surpassed.
- Highest sanitation requirements are met.
- Self-reinforcing sealing effect: With increasing pressure the damper seal becomes more effective.

Function

When closing, the damper blade is pressed against a closed sealing ring, with the axis of rotation lying outside the sealing plane. For this purpose a 4-joint link mechanism is used that, from the open position, first rotates the blade by 90°, then after a translation movement pushes it in a longitudinal direction onto the damper housing against a sealing ring.

Of the two axes required for this, the damper housing is only pierced at one point (position of the servomotor), which is reliably sealed by means of a radial shaft-sealing ring.

Range of products

- Round version, Ø 224...800 mm.
- Standard version made of galvanized steel.
- Special version made of stainless steel; especially for shut-off dampers, which are exposed to aggressive media (resistance test by customers required).
- With manual operator, pneumatic or electric actuator.
- If required, with limit switches to indicate the open or closed position.

Leak test procedure

Each damper is tested individually (100 %). On request, tests may be performed in compliance with relevant standards.

Permissible differential pressures when opening the damper with pneumatic actuator SMC

If the highly-tight shut-off damper KLB is to be re-opened after closing the differential pressure present at the closed damper may not exceed the maximum differential pressure [Pa] shown in table 1 to ensure that there is sufficient power to open the damper.

If the actual differential pressures are higher than the ones given in Table 1 a twin actuator may be used so that the maximum permissible differential pressures may be 1.8 times the values given in the chart.

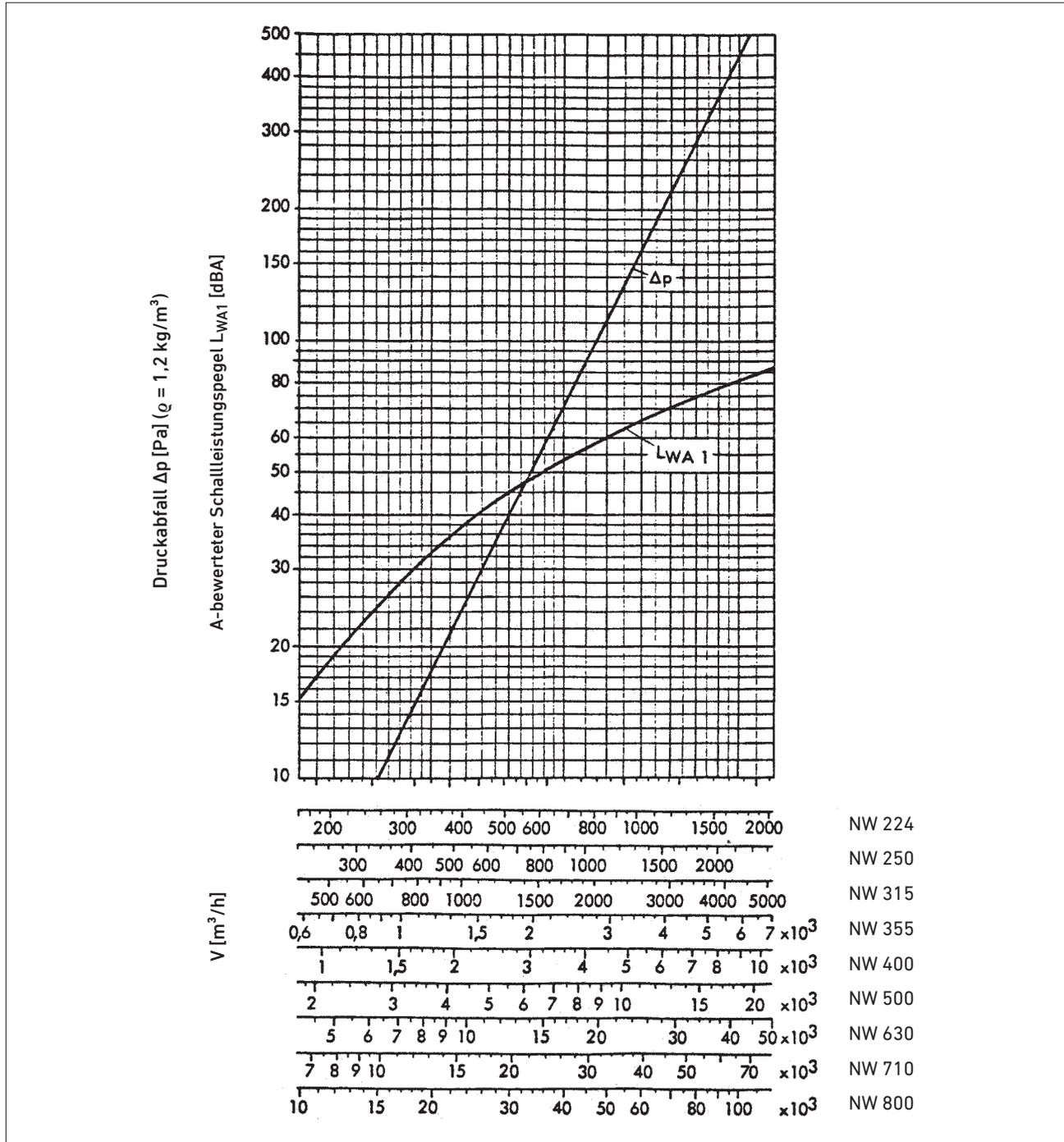
Allowed differential pressures for electric actuators on request.

Nominal size NW	Set pressure at function "pressureless closed"		
	1,2 bar or function "pressureless open"	1,5 bar	1,7 bar
224	14 000	17 000	19 000
250	11 000	13 700	14 900
315	6000	7500	8100
355	4400	5500	5900
400	3200	4000	4300
500	1300	1600	1700
630	1900	2300	2500
710	1300	1600	1700
800	1000	1200	1300

Table 1: Maximum permissible differential pressures [Pa] when opening the damper

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Pressure drop and sound power in the air duct produced by the damper with the blade in the open position



Determination of the A-weighted sound power level

for various nominal sizes of the highly-tight shut-off damper.

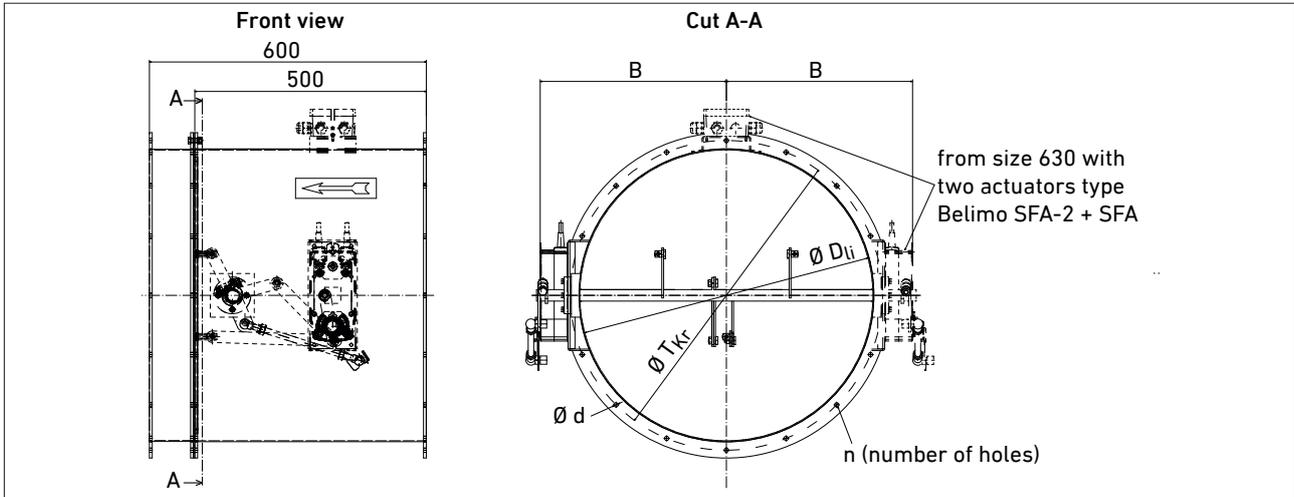
In the present data sheet L_{WA1} is the A-weighted sound power level for shut-off damper size 400.

For the other nominal sizes, the following corrections to the diagram values must be applied: $K = L_{WA} - L_{WA1}$

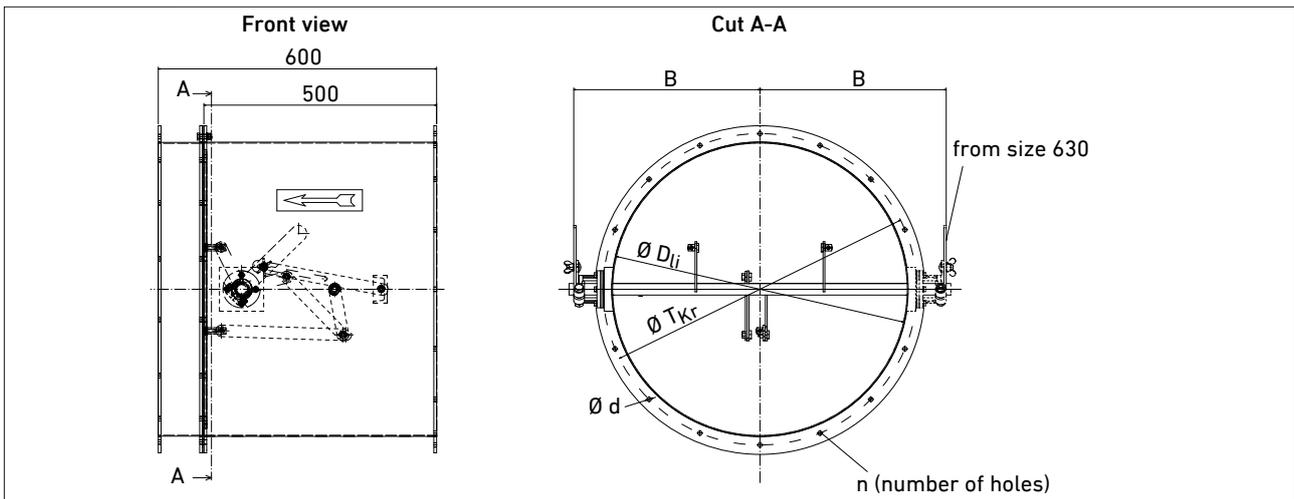
Nominal size NW	224	250	315	355	400	500	630	710	800
K [dB]	- 8	- 7	- 4,5	- 3	0	+ 8	+ 19	+ 24	+ 29

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Dimensions type .../SFA-S2



Dimensions type .../M



Material no. Type ...A/SFA-S2	Material no. Type ...Z/SFA-S2	Material no. Type .../M	Nominal size	Diameter $\varnothing D_{li}$	Reference circle $\varnothing T_{kr}$	Hole $\varnothing d$	Number of holes n	Overall width B		Weight Type .../SFA-S2	Weight Type .../M
								Type .../SFA-S2	Type .../M		
								[mm]		[kg]	
1051592	1051590	1054078	224	226	259	7	6	200	196	12.7	10.3
1051596	1051595	1054079	250	253	286	7	6	220	210	13.5	11.1
1051598	1051597	1054080	315	319	356	9,5	8	264	243	15.9	13.5
1051600	1051599	1054081	355	358	395	9,5	8	287	262	17.3	14.9
1051602	1051601	1054082	400	401	438	9,5	12	312	284	18.9	16.5
1051604	1051603	1054083	500	504	541	9,5	12	330	335	23.0	20.6
1051606	1051605	1054084	630	633	674	11,5	16	402	400	41.3	36.5
1051608	1051607	1054085	710	710	751	11,5	16	442	439	46.0	41.2
1051610	1051609	1054086	800	796	837	11,5	24	488	482	51.0	46.2

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Nomenclature, ordering code

KLB 224 / S / – / Z / SFA-S2

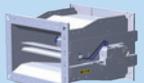
(1) (2) (3) (4) (5) (6)

(1) Series	KLB	= Highly-tight shut-off damper, round
(2) Nominal size or Ø	224	= 224
	250	= 250
	315	= 315
	355	= 355
	400	= 400
	600	= 500
	630	= 630
	710	= 710
(3) Version	S	= Steel, galvanized
	E2	= Stainless steel, V2A (1.4301)
	E4	= Stainless steel, V4A (1.4571)
(4) Insulation	–	= Without
	D	= With
(5) Power-off	Z	= Closed
	A	= Open (on request)
(6) Actuator	M	= Manual adjustment
	SFA-S2	= Belimo SFA-S2, with spring return and limit switch
	SMC1	= LTG pneumatic actuator SMC1

Alternatively, the shut-off damper can also be designed with actuating drives of different makes.

Product Overview • LTG Air Distribution

Flow rate controllers

		Circular		Square		
Variable		VREactive	LTG Map Control System <i>ActiveControl</i> . Highest precision, short installation length		VRFactive	LTG Map Control System <i>ActiveControl</i> . Highest precision, short installation length
		VRDactive			VRFvent	
		VRE	To combine with customized drives; VRE also available in PPs			
		VRD				
Constant		VRW	Without external power supply, pollution-insensitive		VRX	Without external power supply; pollution-insensitive
		VRZ				

All variable controllers are available with dynamic or static measuring principle.

Pressure controllers

Circular		Square			
	DRE DREactive	To balance extreme pressure level differences; with flow rate measurement (optional)		DRF DRFactive	To balance extreme pressure level differences; with flow rate measurement (optional)

Shut-off units

Circular		Square			
	KLB	Ultra-tight shut-off damper		ARF	Airtight shut-off damper
	ARE	Airtight shut-off damper			

Air-tight shut-off acc. to DIN EN 175: up to Class 4

Engineering Services



LTG Engineering Services Comfort Air Technology

Portfolio

For our complete portfolio of air distribution products with suitable accessories see <https://www.ltg.de/en/products-services/ltg-comfort-air-technology/air-distribution/>



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Air Distribution

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