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Ventilation dampers

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Ventilation dampers

TECHNICAL INFORMATION

System description

Together with matching fittings and ducts, ventilation dampers offer a complete system for building ventilation ductwork. The wide range of types and versions allows adapting the damper solution to virtually all design requirements.

Dimensions

All diameter sizes of round dampers match the SPIRAL®system round fittings. Rectangular damper sizes need to be adjusted to the dimensions of the ductwork and fittings installed. All other sizes are shown in the tables and specifications in the individual Product Data Sheets.

Installation instructions

Round dampers are fastened with self-drilling screws or blind rivets, either of which are driven through the ductwork length overlapping the connection flange inside. Rectangular dampers are fastened with screws at the steel corner straps and with the KLQ G-clamp which couples two flange frames. Both round and rectangular dampers can be provided with actuators for operation of the closure.

Marking

ALNOR products carry the Polish conformity mark B for construction products and product codes as shown in the technical specifications listed in this catalogue.
The SPIRAL®system round dampers made from galvanized steel sheet are provided with the PZH-NIH Hygiene Certificate No. HK/B/0867/01/2009. Rectangular dampers are provided with the PZH-NIH Hygiene Certificate No.:
HK/B/0100/02/2009 (version in galvanized steel sheet);
HK/B/0101/01/2009 (version in stainless steel sheet).

Materials

The dampers are made from galvanized steel sheet.
Other materials are available on request (see the details below for specific damper types):
1.4301/304 stainless steel sheet
1.4404/316L stainless steel sheet, molybdenum enriched

Always indicate the material code in your purchase order. If no material code is specified in the order, the default material will be used, i.e. galvanized steel sheet.

Examples of material codes:
DARH-K-… — 1.4301 / 304
DARH-K-…..-…..-316L — 1.4404 / 316L

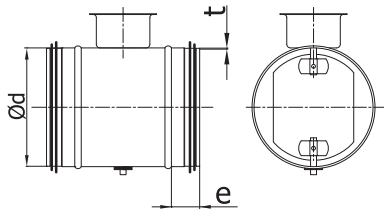
Components made from stainless steel have to be inspected at least every 6 months.

Damper sizing

The **SPIRAL®system** meets the tolerance limits given in the table below to provide the required sealing performance.

$Ød_{nom}$ (mm)	e (mm)	tolerance (mm)	
80-315	36	+0	-6
355-400	55	+0	-6
450-630	75	+0	-10

Damper tolerance limits



Diameter $Ød_{nom}$ (mm)	min. - max. diameter $Ød_{min}$ - $Ød_{max}$ (mm)	*Sheet thickness* t_{nom} *(mm)*
80	78.8 - 79.3	0.5
100	98.8 - 99.3	0.5
125	123.8 - 124.3	0.5
140	138.7 - 139.3	0.5
150	148.7 - 149.3	0.5
160	158.7 - 159.3	0.5
180	178.6 - 179.3	0.5
200	198.6 - 199.3	0.5
224	222.5 - 223.3	0.5
250	248.5 - 249.3	0.5
280	278.4 - 279.3	0.5
300	298.4 - 299.3	0.5
315	313.4 - 314.3	0.5
355	353.3 - 354.3	0.5
400	398.3 - 399.3	0.5
450	448.2 - 449.3	0.5
500	498.2 - 499.3	0.5
560	558.1 - 559.3	0.6
600	598.2 - 599.3	0.6
630	628.1 - 629.3	0.6

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A leak-proof damper system

The DATL damper system was laboratory-tested. The tests included measurements of the air leak through a closed damper installed in a ductwork, with the test air flow matching the correct air flow direction designed for the damper. All dampers have the correct air flow direction marked on the housing.
The purpose of the laboratory tests was to determine the air tightness class of the dampers.
The measurement method followed the EN 1751 standard test method for DATL-315 dampers.

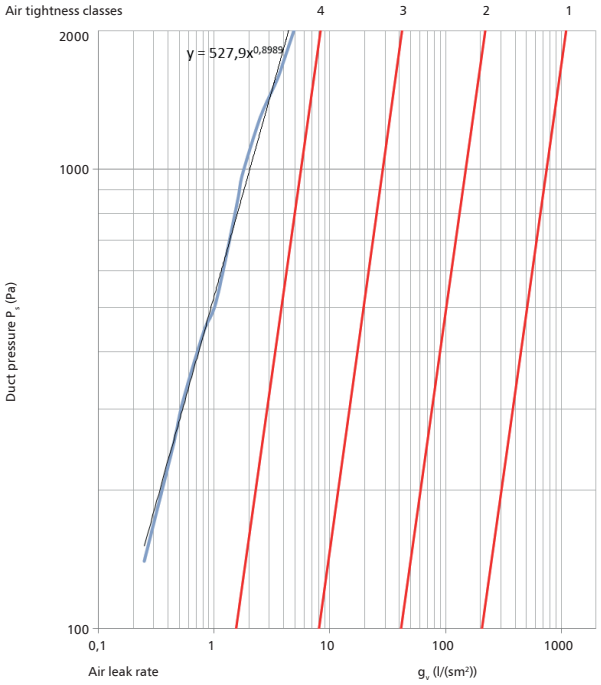
Air leak test results for the DATL-315 damper:

The table below shows the air leak rates through a closed DATL-315 damper at t_{ot} = 26.1˚C and P_{at} = 1010.6 hPa.

Item No.	P_{duct} *(Pa)*	q_{VLBA} *(l/sm²)*	*Trend line*
1	140	0.25	
2	249	0.44	
3	311	0.53	
4	443	0.81	
5	514	1.04	
6	853	1.59	$P_{duct} = 527.9\ (q_{VLBA})^{0.8989}$
7	960	1.73	
8	1220	2.30	
9	1364	2.72	
10	1570	3.51	
11	1744	4.06	
12	2085	5.15	

P_{duct} — air pressure in the duct
q_{VLBA} — air flow rate

Air tightness chart



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Damper tolerance limits for versions in stainless steel, copper sheet and aluminium sheet

1.4301/304 components made from sheet metal		1.4404/316L components made from sheet metal	
Diameter $Ød_{nom}$ (mm)	*Sheet thickness* t_{nom} (mm)	Diameter $Ød_{nom}$ (mm)	*Sheet thickness* t_{nom} (mm)
80	0.5	80	0.6
100	0.5	100	0.6
112	0.5	112	0.6
125	0.5	125	0.6
140	0.5	140	0.6
150	0.5	150	0.6
160	0.5	160	0.6
180	0.5	180	0.6
200	0.5	200	0.6
224	0.5	224	0.6
250	0.5	250	0.6
280	0.5	280	0.6
300	0.5	300	0.6
315	0.5	315	0.6
355	0.5	355	0.6
400	0.5	400	0.6
450	0.5	450	0.6
500	0.5	500	0.6
560	0.5	560	0.6
600	0.5	600	0.6
630	0.5	630	0.6

Dampers made from 304 or 316L stainless steel are designed for ventilation systems operated in environments involving harsh temperature, humidity or air contaminants inside or outside the ductwork. The compatible damper mechanisms include CV or PVC with the pivot rods made from plastic. The dampers can be manufactured with any of the available damper mechanisms; however, only the housing and the damper closure (without the pivot rods) are manufactured from the specified type of material. All non-return dampers are supplied with the pivot rod(s) made from stainless steel, irrespective of the material code specified. Large dampers, i.e. of diameter 315 mm or greater, can be made with the KKS-KWS damper mechanism if the material ordered is 1.4301 stainless steel sheet.

AW-1050A H24 components made from sheet metal		M1-E components made from sheet metal	
Diameter $Ød_{nom}$ (mm)	*Sheet thickness* t_{nom} (mm)	Diameter $Ød_{nom}$ (mm)	*Sheet thickness* t_{nom} (mm)
80	0.8		
100	0.8		
112	0.8		
125	0.8		
140	0.8		
150	0.8		
160	0.8		
180	0.8		
200	0.8		
224	0.8		
250	0.8		
280	0.8		
300	0.8		
315	0.8		
355	0.8		
400	0.8		
450	0.8		
500	0.8		
560	0.8		
600	0.8		
630	0.8		

Dampers made from copper sheet and aluminium sheet are designed for use as shutoff or regulating dampers in ventilation systems. It is best to order and operate the dampers with a PVC or CV damper mechanism and plastic parts only (without any parts made from galvanized steel). Given the specifics of the damper mechanisms, it is recommended that dampers should have diameters up to 315 mm. If the damper diameter is to be greater than 355 mm, order the DSQW-A aluminium-sheet damper with adapters for connecting with round ducts.

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