









Dampers & Measure units



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| | | | To regulate | To shut-off | |
|--|-----------------|---|---|--|---|
| Standard dampers | manual |  | DRU 243 | DSU 259 | |
| | | | DIRU 251 | DTU 267 DTMU/DTWU 275 | |
| | for motor | electric or pneumatic |  | | DTHU 280 DTH1U 282 DTH2U 283 |
| | | | | with motor | electric |
| | DIRBU 284 | DTBU 290 | | | |
| | | | DIRVU 286 | DTBCU 294 DTFU 299 DTBLU 301 | |
| | pneumatic |  | | DTPU 303 | |
| Cleaning dampers | manual |  | PSDRU 306 | TDSU 308 | |
| | | | TDRU 307 | | |
| Alternating dampers | manual |  | | TASU 309 TATU 310 | |
| | | | with motor | electric |  |
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| | | | with motor | electric |  |
| | | DAVU 322 | | | |

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Extension spindles



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Content – Dampers

Tightness and pressure classes

| | | Tightness class | | | | |
|----------------|----------|---|--|--------------------------------|---------------|---|
| | | 0 | 1 | 2 | 3 | 4 |
| | | To regulate | | To shut-off | | |
| Pressure class | A | DRU DIRU DIRBU DIRVU DSU Ø63-315 | DSU Ø355-1000 DSVUSN TDSU | DSUSN TATU TATBU | | DTU Ø710-1000 DTHU Ø710-1000 DTBU Ø710-1000 |
| | B | | | | DTPU Ø355-630 | DTU Ø355-630 DTMU Ø355-630 DTWU Ø355-630 DTHU Ø355-630 DTH1U Ø355-630 DTBU Ø355-630 DTBCU Ø355-630 |
| | C | | | | DTPU Ø80-315 | DTU Ø80-315 DTMU Ø80-315 DTWU Ø80-315 DTHU Ø80-315 DTH1U Ø80-315 DTH2U Ø80-315 DTBU Ø80-315 DTBCU Ø80-315 DTFU Ø80-250 DTBLU Ø80-315 |

Dampers

Summary, motorized dampers

This is the standard range. Other combinations of dampers and motors can be ordered.







| Original damper | | Motorized damper | | | | | |
|-----------------|--------------------|----------------------------|-------------------------|---------------------|---------------------|---------------------|-------------------------|
| DTU | | DTBU | | | DTBLU (low built) | | |
| | | Ø 80-315 | Ø 400-500 | Ø 630 | Ø 710-1000 | Ø 80-160 | Ø 80-315 |
| TATU | | TATBU Ø 100-400 | | | | | |
| DAU | DA2EU Ø 80-315 | | | | | | |
| DIRU | DIRBU Ø 100-315 | | | | | | |
| Motor | Regulating | 2 set-points | | | | | |
| | Forward Return | electricity electricity | | | | | |
| | Denomination | LM 24 A-F LM 230 A-F | NM 24 A-F NM 230 A-F | SM 24 A SM 230 A | GM 24 A GM 230 A | CM 24 F CM 230 F | LM 24 A-F LM 230 A-F |

| Original damper | | Motorized damper | | | | | | |
|-----------------|----------------|-----------------------|-----------------|---------------------|----------------------------|------------------|--------------------|------------|
| DTU | | DTBCU | | | DTFU (fast motor) | | | |
| | | Ø 80-315 | Ø 250-315 | Ø 400-630 | Ø 80-250 | Ø 80-250 | | |
| TATU | | | | | | | | |
| DAU | | | | | | DAVU Ø 80-315 | | |
| DIRU | | | | | | | DIRVU Ø 100-315 | |
| Motor | Regulating | 2 set-points | | | | continuous | | |
| | Forward Return | electricity spring | | | electricity electricity | | | |
| | Denomination | TF 24 TF 230 | LF 24 LF 230 | SF 24 A SF 230 A | LMQ 24 A | LMQ 24 A-SR | LM 24 A-SX | LM 24 A-SR |










| Original damper | | Motorized damper | | |
|-----------------|----------------|----------------------------|-----------|-----------|
| DTU | | DTPU (very fast actuator) | | |
| | | Ø 80-200 | Ø 250-315 | Ø 400-630 |
| TATU | | | | |
| DAU | | | | |
| DIRU | | | | |
| Motor | Regulating | 2 set-points | | |
| | Forward Return | pressureized air spring | | |
| | Denomination | AK 31 P | AK 41 P | AK 42 P |

Dampers












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| Preference | First choice | 2nd choice | 3rd choice | Last choice |
|--------------------------|--|---|--|-------------|
| Final Damper | DTBU | | | |
| Motor | LM | | | |
| Dimension | 80-315 | | | |
| Extension spindle | | | VREDF 15 60  | |
| Motor Shelf | | | LÖMOK KOMHY LONG   | |
| Starting damper | DTH1U  | DTHU  | DTU  | |

Which parts to use
when building motorized dampers at building site starting from; manual dampers or dampers prepared for motorizing. Lindab recommends to follow the preference rating, if possible.

| Preference | First choice | 2nd choice | | 3rd choice | 4th choice | Last choice |
|--------------------------|--|---|-----|---|--|--|
| Final Damper | DTBU | | | | | |
| Motor | NM | | | | | |
| Dimension | 80-500 | 80-450 | 500 | 80-400 | | 500 |
| Extension spindle | | | | VREDF 15 100  | VREDF 15 60  | |
| Motor Shelf | | | | LÖMOK  | KOMHY LONG  | KOMHY  |
| Starting damper | DTH1U  | DTHU   | | DTU  | | |

Dampers







| Preference | First choice | 2nd choice | | 3rd choice | Last choice | First choice | |
|--------------------------|---|---|---------|--|---|---|----------|
| Final Damper | DTBU | | | | | | |
| Motor | SM | | | | | GM | |
| Dimension | 80–500 | 80–450 | 500–630 | 80–630 | | 710–800 | 900–1000 |
| Extension spindle | AXFL  | | | VREDF 15 60  | | | |
| Motor Shelf | KOMHY LONG  | | | KOMHY LONG  | KOMHY  | | |
| Starting damper | DTH1U  | DTHU   | | DTU  | | DTHU   | |







| Preference | First choice | | 2nd choice | First choice | | 2nd choice | Last choice |
|--------------------------|---|---|---|--|-----------|--|--|
| Final Damper | DTBCU | | | | | | |
| Motor | TF | | LF | | SF | | |
| Dimension | 80–200 | | 250–315 | | 400 | 500–630 | 400–630 |
| Extension spindle | | | VREDF 15 100  | | | | VREDF 15 100  |
| Motor Shelf | | | KOMHY LONG  | | | | KOMHY LONG  KOMHY  |
| Starting damper | DTHU  | DTHU  | DTU  | DTHU   | | DTU  | |

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Dampers



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| Preference | First choice | 2nd choice | 3rd choice | Last choice |
|--------------------------|--|---|--|---|
| Final Damper | DTFU | | | |
| Motor | LMQ | | | |
| Dimension | 80–250 | | | |
| Extension spindle | | | VREDF 15 60  | |
| Motor Shelf | | | LÖMOK  | KOMHY LONG  |
| Starting damper | DTH1U  | DTHU  | DTU  | |

| Preference | First choice | 2nd choice | 3rd choice | Last choice |
|--------------------------|--|---|--|---|
| Final Damper | DTFU | | | |
| Motor | LMQ-SR | | | |
| Dimension | 80–250 | | | |
| Extension spindle | | | VREDF 15 60  | |
| Motor Shelf | | | LÖMOK  | KOMHY LONG  |
| Starting damper | DTH1U  | DTHU  | DTU  | |

Dampers

| | | |
|-------------------|--------------|-------------|
| Preference | First choice | Last choice |
|-------------------|--------------|-------------|

| | | |
|------------------------|---|---|
| Final Damper | DTBLU | |
| Motor | CM | LM |
| Dimension | 80-160 | 80-315 |
| | DTH2U | DTH2U |
| Starting damper |  |  |

| | | | | |
|--------------------------|--|--|--|--|
| Preference | First choice | Last choice | First choice | Last choice |
| Final Damper | DTPU | | | |
| Motor | AK 31 P | | AK 41 P | |
| Dimension | 80-200 | | 250-315 | |
| | MSATS AK 31 | | MSATS AK 41 | |
| Extension spindle |  | |  | |
| Motor Shelf | | KOMHY LONG  | | KOMHY LONG  |
| Starting damper | DTHU  | DTH1U  | DTHU  | DTH1U  |

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General

Dampers for different purposes are used in a ventilation system

Regulating dampers are used to balance the plant so that the wanted air flow is achieved.

The damper blade is normally designed so that a certain flow of air can always leak through, even if the damper is closed. This makes the sensitivity to angle changes less than for a shut-off damper.

Dampers are available in both manual and automatic versions. The manual dampers are adjusted when the installation is commissioned, and are cheaper than the automatic ones. On the other hand, manual dampers need many more hours of adjustment, and means of flow measurement. For this reason, some dampers have measuring nozzles. In large systems, or where pressure variations occur, it is better to use automatic dampers. These are also referred to as constant flow dampers.

Shut-off dampers are used to save energy, to prevent the spread of poisonous gas etc. These dampers often have rubber seals on the damper blade. The damper can either be designed as a straight piece of ducting, or as a T-piece to switch the air flow from one duct to another. The blade is normally either fully open or fully closed.

Tightness

Two types of tightness are applicable to dampers:

1. Tightness to the environment

This specifies the magnitude of the air leakage through joints and leaks in the duct sides in relation to the duct surface. This leakage is classified into tightness classes A, B, C and D. Most dampers can be used in installations/systems which require them to maintain tightness class D. Please refer to the Safe section.

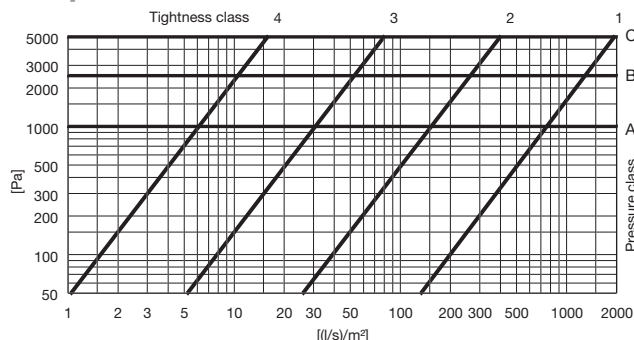
Fulfills the demands of the standard EN 1751.

2. Tightness past a closed damper shutter

This refers to the amount of air leaking past the closed blade, in relation to shutter area. This relationship is classified into five sealing classes 0–4. There is no tightness requirement for class 0. The classes 0 and 1 are regulating dampers. The highest class, tightness class 4, refers to very tight shut-off dampers.

Fulfills the demands of the standard EN 1751.

Tightness past the closed damper blade and pressure classes



Motorized dampers

Dampers can be supplied ex works with actuators installed. Various types of actuators are available, both electric and pneumatic.

Material

Standard

Bushings are made from polyamide. The bushings can withstand constant temperatures of up to 150 °C.

Special

If a higher corrosivity class is required, the dampers can be supplied with a polyester coating, or made from aluminium or stainless steel. The blades can be provided with silicone rubber seals for higher temperature operation. The dampers can then withstand constant temperatures of 150 °C and 200 °C intermittent. In these cases, please contact Lindab.

CE-labeling

Our dampers with electrical shifting motor are regarded as components of the duct system and need not to be separately CE-labeled. Their electrical shifting motor on the contrary is a part of the electrical system and is CE-labeled. Assurance of conformity can be found at www.belimo.com.

Blade setting

DRU and DSU dampers of dimensions Ø63–160 are supplied with their blades completely open, to facilitate adjustment preparations. Dampers of other dimensions are supplied with closed blades to prevent transport damage.

Cleaning of duct system

Most dampers have components which obstruct the duct system to a greater or lesser extent, and thus obstruct or prevent cleaning.

Please refer to page 647.

Regulating damper

DRU



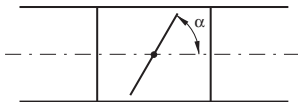
Description

Has a turning, cut-off blade. The blade is stepless adjustable 0–90°. The damper admits an insulation thickness of approx. 50 mm.

The blade is designed to generate a minimum of noise. The noise is approx. the same as for a perforated blade. But the blade is less sensitive to clogging since it lacks perforations.

Setting angle α

$\alpha = 0^\circ =$ open blade, $\alpha = 90^\circ =$ closed blade



There is a separate assembly, measuring, balancing and maintenance instruction for this product.

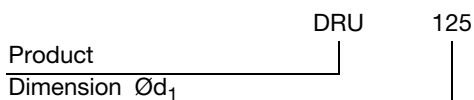
Ø 80–1000 fullfills pressure class A in closed position.

The cup at Ø 80–630 can be complemented with the special insulation cup IK at insulation thicker than 50 mm.

Reinforced blade

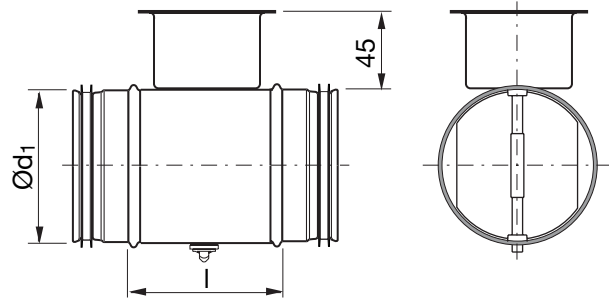


Ordering example

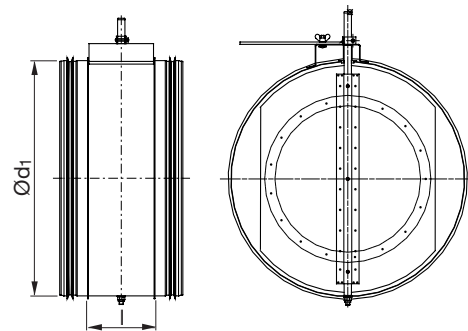


Dimensions

Ø 80–630



Ø 800–1000



| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|------------------------------------|
| 80 | 100 | 0,34 | 0 |
| 100 | 100 | 0,40 | 0 |
| 112 | 100 | 0,43 | 0 |
| 125 | 100 | 0,46 | 0 |
| 140 | 100 | 0,54 | 0 |
| 150 | 100 | 0,60 | 0 |
| 160 | 100 | 0,65 | 0 |
| 180 | 100 | 0,69 | 0 |
| 200 | 100 | 0,80 | 0 |
| 224 | 100 | 0,90 | 0 |
| 250 | 100 | 1,28 | 0 |
| 280 | 100 | 1,40 | 0 |
| 300 | 100 | 1,62 | 0 |
| 315 | 100 | 1,70 | 0 |
| 355 | 100 | 2,01 | 0 |
| 400 | 100 | 2,82 | 0 |
| 450 | 100 | 3,70 | 0 |
| 500 | 115 | 4,70 | 0 |
| 560 | 115 | 5,51 | 0 |
| 600 | 115 | 5,90 | 0 |
| 630 | 115 | 6,21 | 0 |
| 800 | 230 | 18,2 | 0 |
| 1000 | 230 | 24,4 | 0 |

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Regulating damper

DRU

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| Property | Ø 80-315 | Ø 400 | Ø 500 | Ø 630 | Ø 800x1000 |
|---|----------|-------|-------|-------|------------|
| The blade is set via a knob in a protective cup. | x | x | x | x | |
| The setting of the blade is read against an embossed scale at the rim of the cup. | x | x | x | x | |
| The blade is locked with two screws, type Pozidriv (PZD2). | x | x | x | x | |
| The blade has reinforced locking with a sturdy wing nut. | | | | | x |
| The blade is reinforced. | | | x | x | |
| The blade is additionally reinforced. | | | | | x |
| With sturdy handle. | | x | x | x | |
| With additionally reinforced handle. | | | | | x |
| With reinforced stop beads. | | | x | x | |
| The axle is reinforced. | | | | | x |
| The damper can be delivered prepared for motor. | x | x | x | x | |
| The damper can be delivered with motor. | x | x | x | x | x |

Technical data

Pressure drop graphs with noise data for dimensioning

The solid curves show the pressure drop, Δp_t , over the damper as a function of flow q , and setting angle α . The dashed curves give the A-weighted sound power data, L_{WA} , in dB to the duct.

Example

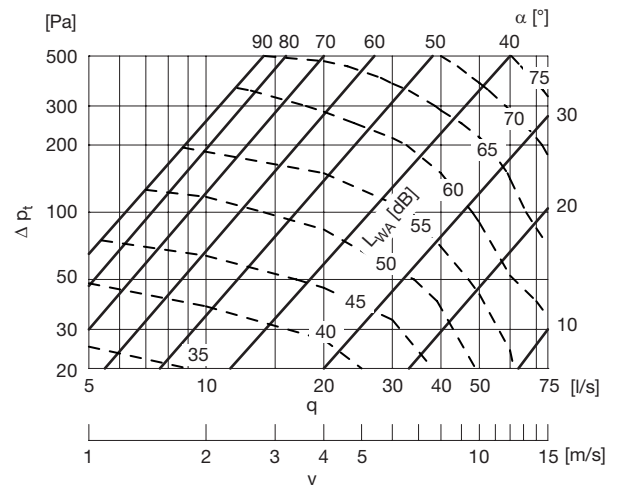
Given

- Dimension Ø100
- Flow 60 l/s
- Pressure drop 200 Pa

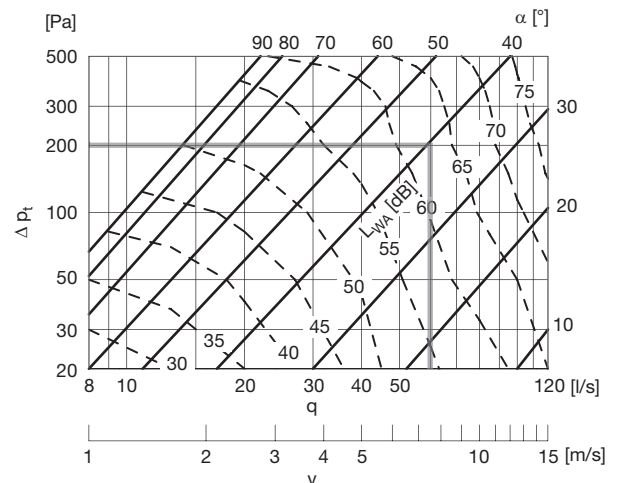
Obtained from graph

- Setting angle 40°
- Sound power level 63 dB (A)

Ø80



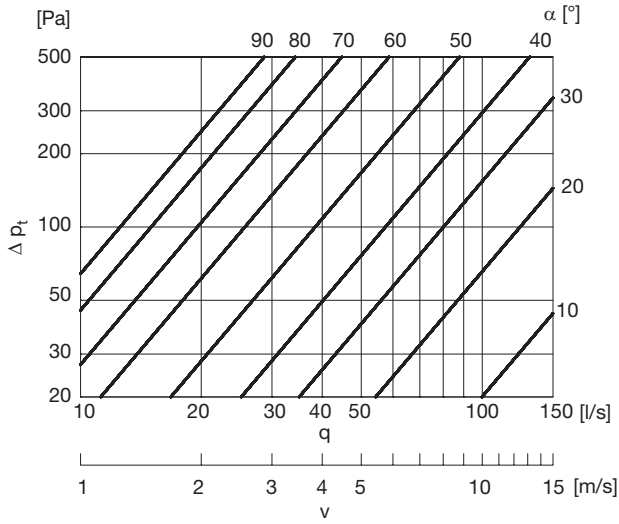
Ø100



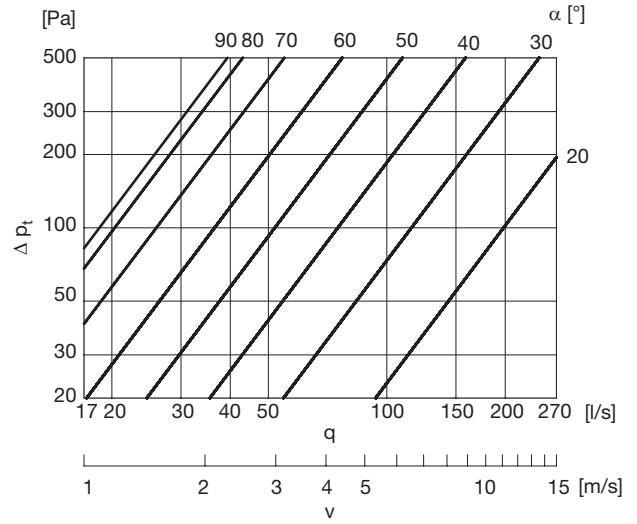
Regulating damper

DRU

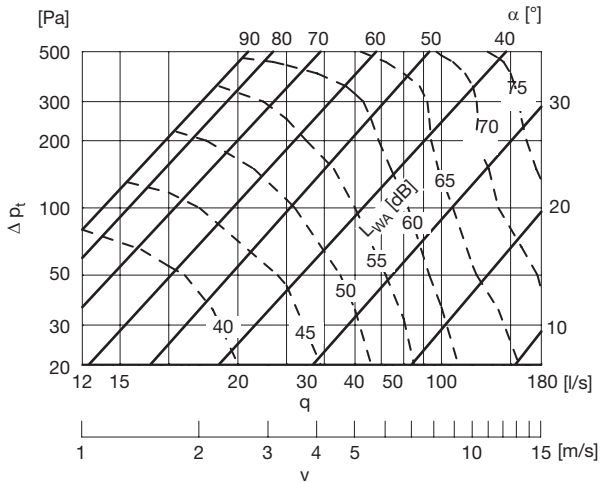
Ø112



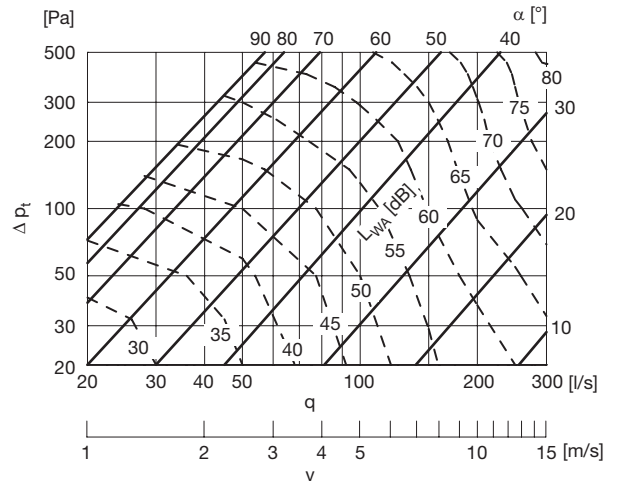
Ø150



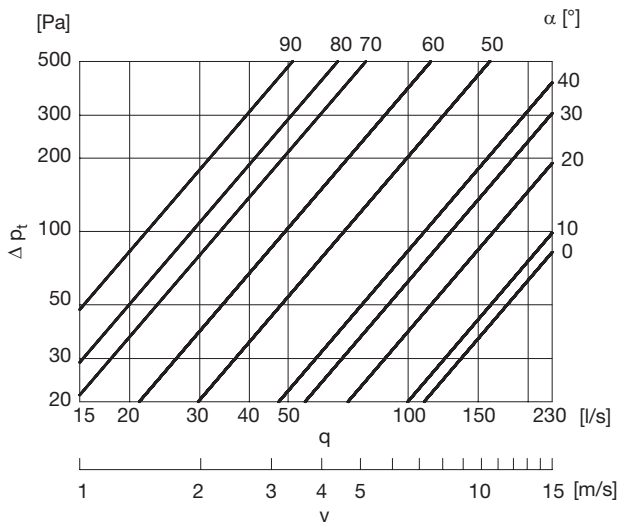
Ø125



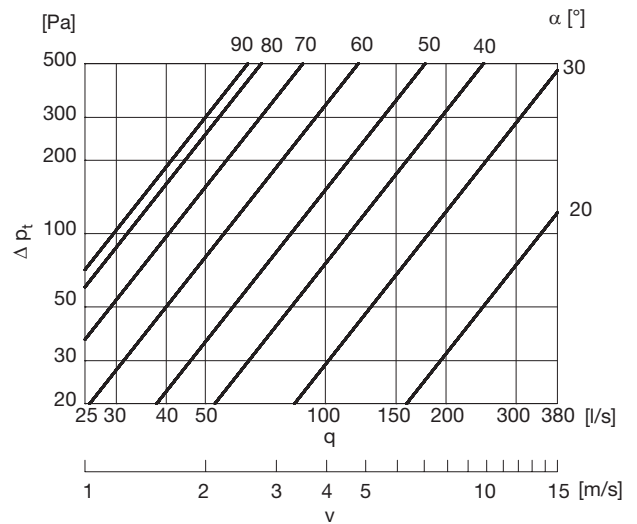
Ø160



Ø140



Ø180



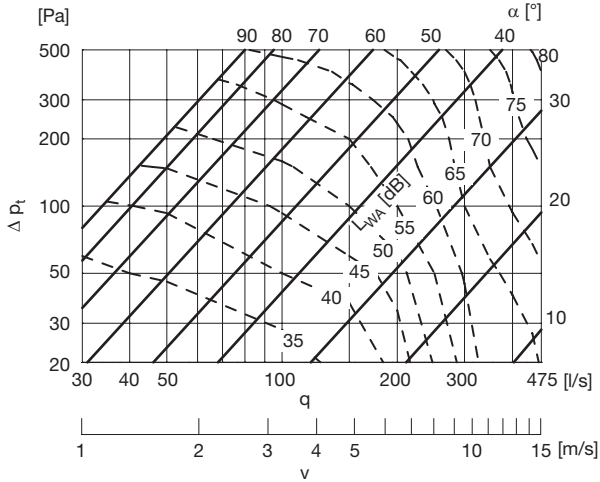
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Regulating damper

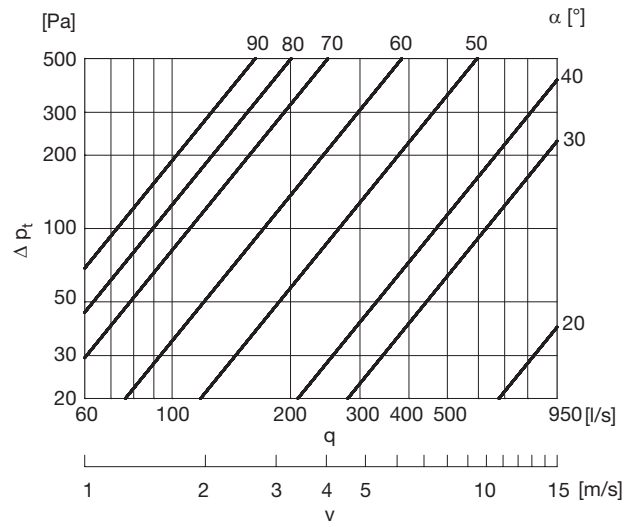
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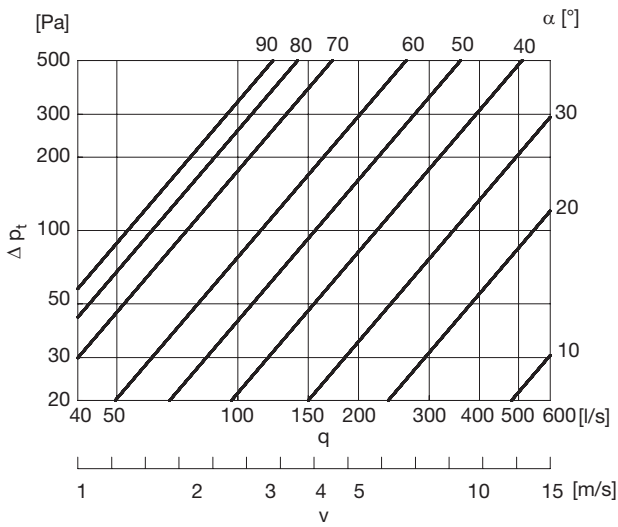
Ø200



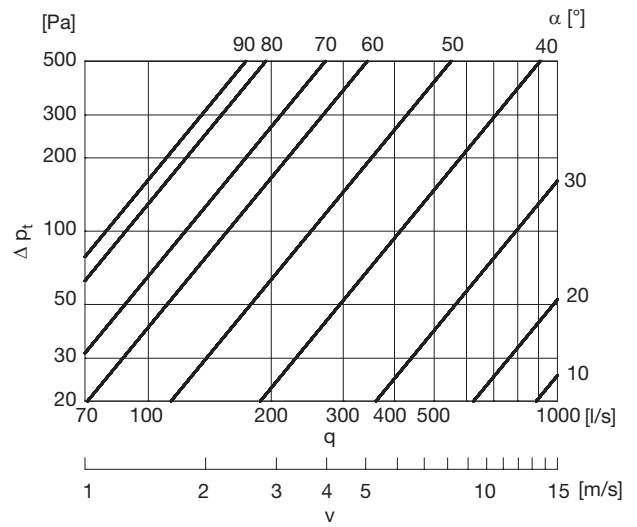
Ø280



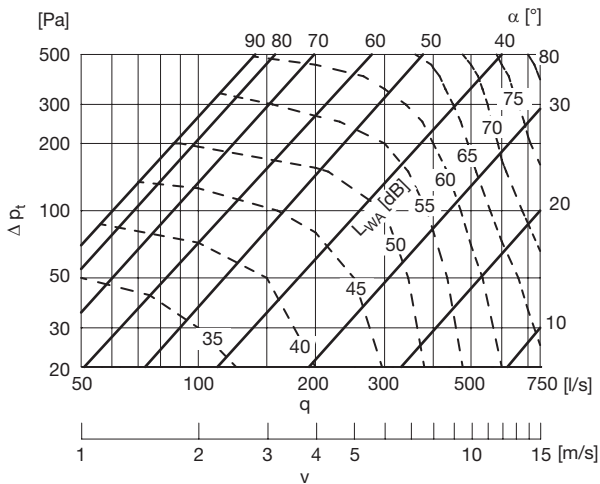
Ø224



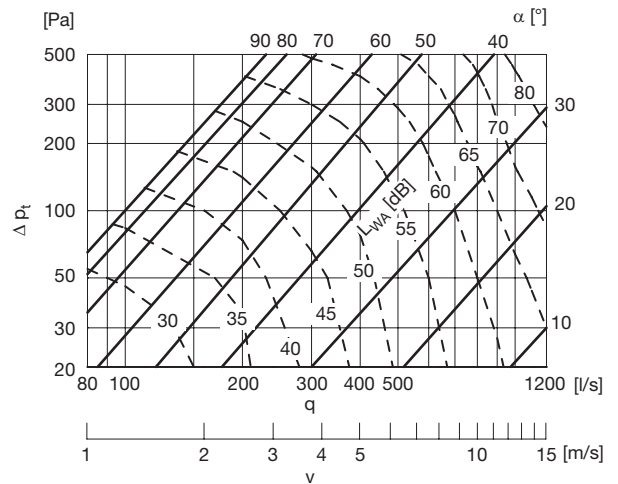
Ø300



Ø250



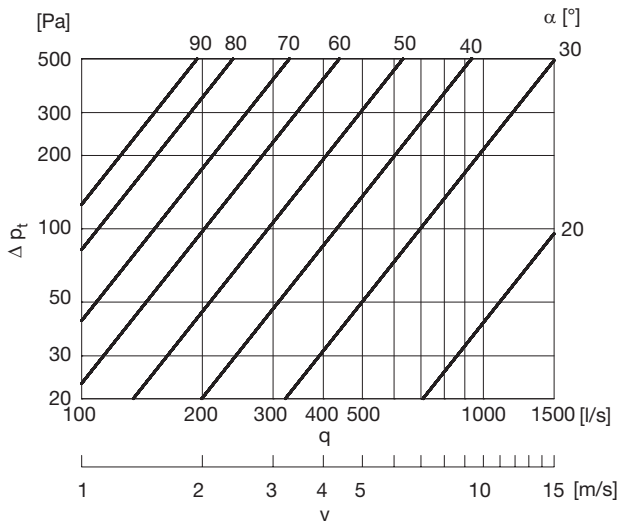
Ø315



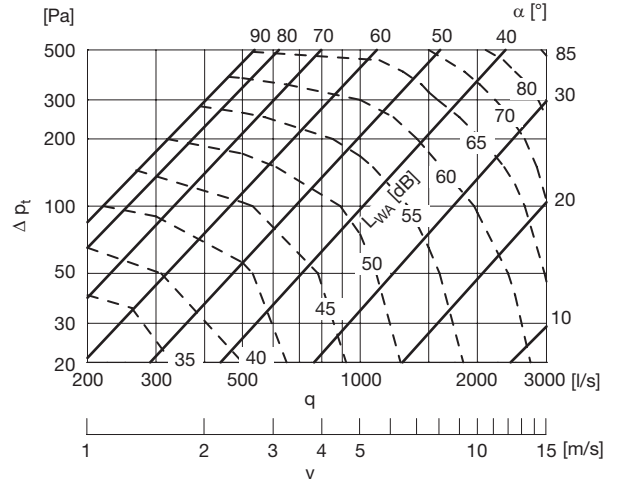
Regulating damper

DRU

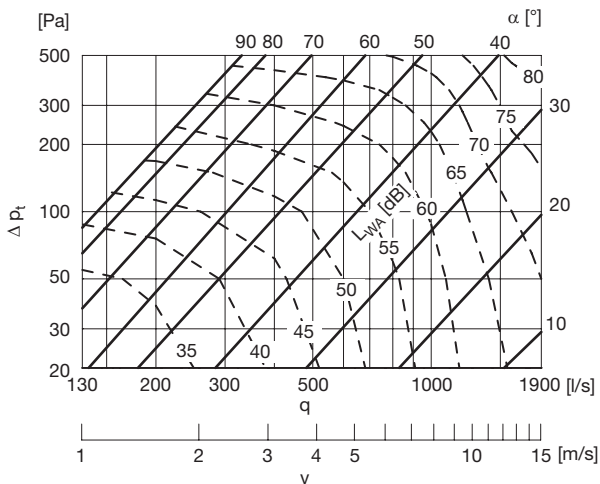
Ø355



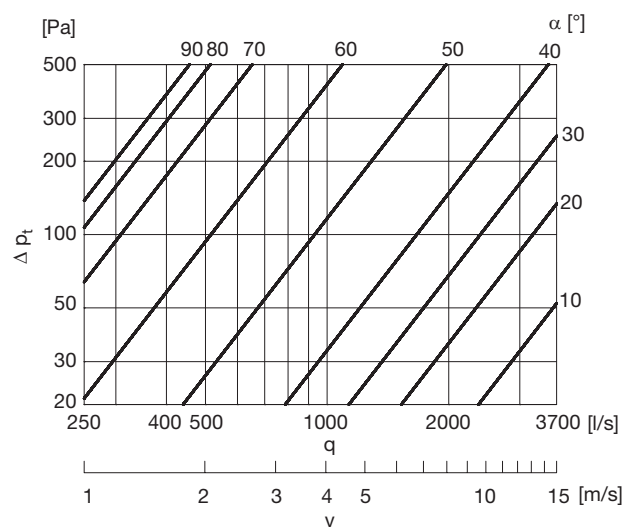
Ø500



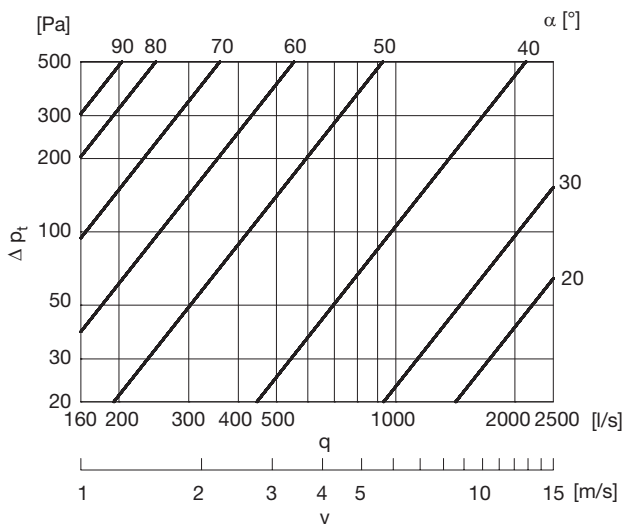
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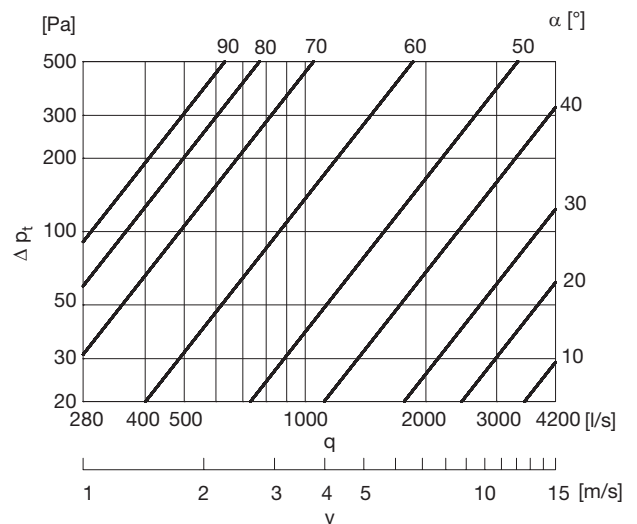
Ø560



Ø450



Ø600



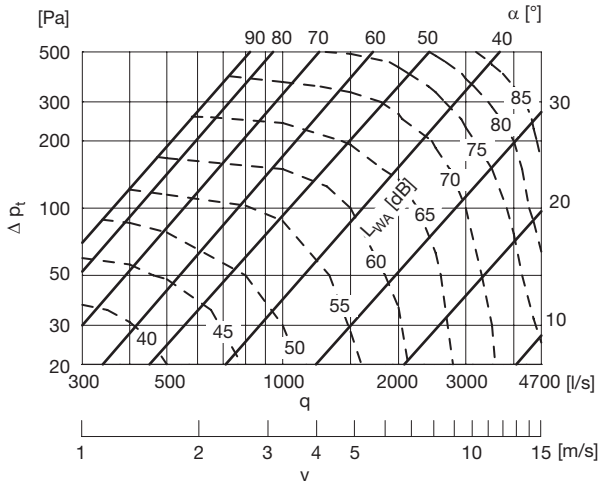
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Regulating damper

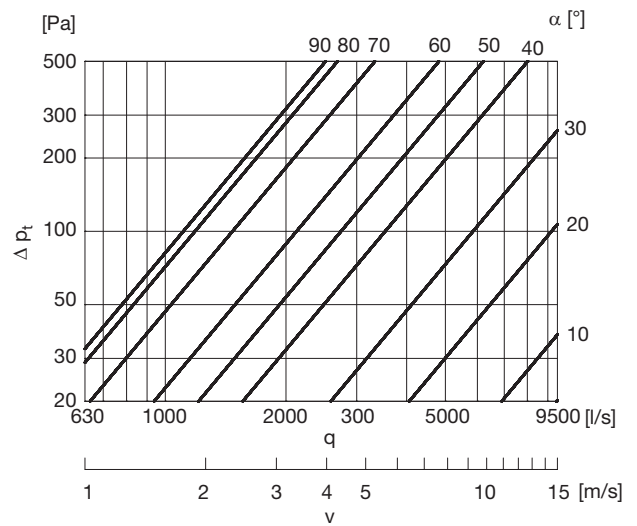
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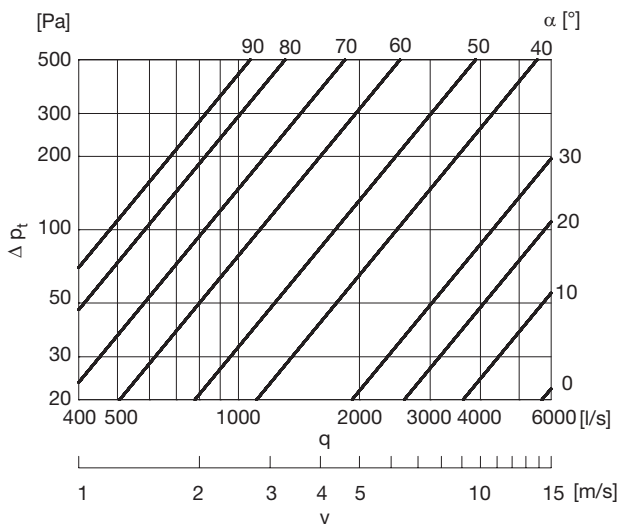
Ø630



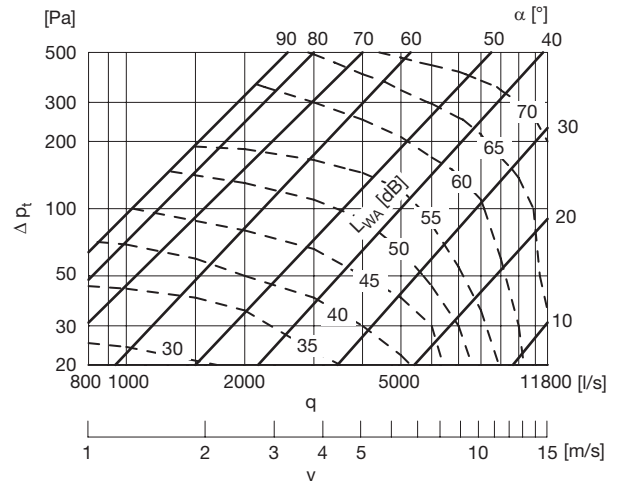
Ø900



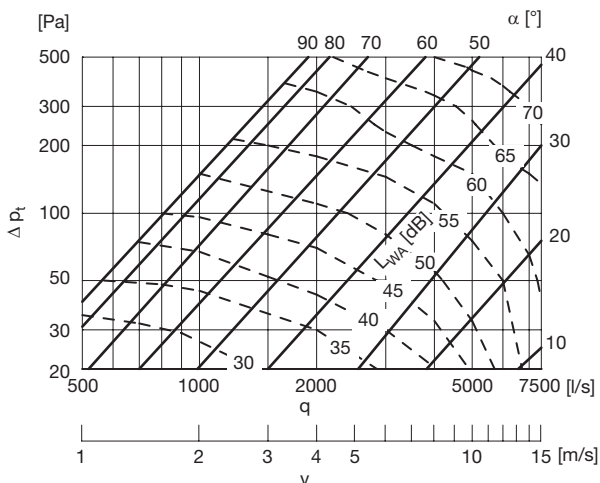
Ø710



Ø1000



Ø800



Regulating damper

DRU

Sound data

Sound power level L_{W} , [dB] to duct in the octave bands 1–8, 63–8000 Hz, as a function of dimension, flow and pressure drop.

| dim $\varnothing d_1$ | Pressure drop [Pa] | Velocity app. 1 [m/s] | | | | | | Velocity app. 3 [m/s] | | | | | | Velocity app. 6 [m/s] | | | | | | | | | | |
|--------------------------|-----------------------|-----------------------|-----|-----|-----|----|----|-----------------------|----|----|-----|-----|-----|-----------------------|----|----|----|----|-----|-----|-----|----|----|----|
| | | Centre frequency [Hz] | | | | | | Centre frequency [Hz] | | | | | | Centre frequency [Hz] | | | | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k |
| 80 | | Flow 5 [l/s] | | | | | | Flow 15 [l/s] | | | | | | Flow 30 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 65 | 65 | 65 | 65 | 59 | 55 | 49 | 46 | 67 | 67 | 67 | 67 | 60 | 57 | 50 | 47 | |
| | 200 | - | - | - | - | - | - | 63 | 63 | 60 | 54 | 51 | 43 | 34 | 29 | 65 | 65 | 62 | 56 | 53 | 44 | 35 | 30 | |
| | 100 | - | - | - | - | - | - | 60 | 60 | 53 | 48 | 43 | 30 | 23 | 15 | 61 | 64 | 57 | 51 | 46 | 32 | 24 | 16 | |
| | 50 | 53 | 49 | 43 | 40 | 33 | 23 | 15 | 56 | 54 | 47 | 43 | 36 | 25 | 16 | 9 | 59 | 59 | 52 | 47 | 40 | 27 | 17 | 10 |
| | 20 | 47 | 42 | 36 | 32 | 25 | 16 | 7 | 51 | 47 | 39 | 35 | 28 | 18 | 8 | 2 | 54 | 52 | 44 | 39 | 32 | 20 | 9 | 4 |
| 100 | | Flow 8 [l/s] | | | | | | Flow 25 [l/s] | | | | | | Flow 50 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 67 | 64 | 64 | 57 | 54 | 48 | 48 | 48 | 72 | 69 | 69 | 62 | 59 | 52 | 52 | 52 | |
| | 200 | - | - | - | - | - | - | 59 | 58 | 58 | 50 | 48 | 40 | 37 | 37 | 66 | 65 | 64 | 57 | 54 | 45 | 42 | 42 | |
| | 100 | - | - | - | - | - | - | 58 | 55 | 53 | 46 | 41 | 34 | 26 | 24 | 65 | 64 | 62 | 54 | 48 | 40 | 31 | 29 | |
| | 50 | 48 | 42 | 38 | 33 | 26 | 19 | 16 | 55 | 53 | 48 | 42 | 35 | 26 | 18 | 64 | 63 | 60 | 53 | 44 | 33 | 28 | 22 | |
| | 20 | 43 | 35 | 30 | 23 | 17 | 9 | 7 | 50 | 49 | 42 | 37 | 28 | 17 | 14 | 62 | 61 | 57 | 51 | 41 | 27 | 25 | 15 | |
| 125 | | Flow 12 [l/s] | | | | | | Flow 40 [l/s] | | | | | | Flow 75 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 71 | 68 | 65 | 59 | 56 | 50 | 50 | 47 | 76 | 73 | 70 | 63 | 60 | 53 | 53 | 50 | |
| | 200 | - | - | - | - | - | - | 65 | 62 | 57 | 51 | 46 | 41 | 38 | 38 | 72 | 71 | 65 | 59 | 53 | 47 | 43 | 43 | |
| | 100 | - | - | - | - | - | - | 64 | 59 | 53 | 47 | 39 | 34 | 29 | 27 | 71 | 70 | 63 | 55 | 47 | 40 | 35 | 32 | |
| | 50 | 57 | 42 | 41 | 31 | 29 | 20 | 17 | 63 | 54 | 50 | 41 | 36 | 27 | 25 | 20 | 70 | 68 | 60 | 51 | 43 | 34 | 32 | 24 |
| | 20 | 56 | 32 | 39 | 29 | 27 | 11 | 15 | 62 | 48 | 48 | 34 | 34 | 20 | 22 | 15 | 68 | 65 | 56 | 47 | 39 | 29 | 28 | 17 |
| 160 | | Flow 20 [l/s] | | | | | | Flow 60 [l/s] | | | | | | Flow 120 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 68 | 67 | 64 | 59 | 55 | 53 | 52 | 51 | 73 | 71 | 68 | 62 | 59 | 55 | 54 | 53 | |
| | 200 | - | - | - | - | - | - | 61 | 58 | 56 | 50 | 48 | 42 | 40 | 40 | 71 | 65 | 62 | 56 | 53 | 47 | 44 | 44 | |
| | 100 | - | - | - | - | - | - | 59 | 54 | 50 | 45 | 40 | 35 | 33 | 31 | 70 | 64 | 60 | 53 | 48 | 42 | 39 | 38 | |
| | 50 | 42 | 36 | 33 | 28 | 25 | 20 | 17 | 54 | 50 | 46 | 37 | 33 | 29 | 25 | 25 | 69 | 63 | 58 | 48 | 42 | 37 | 32 | 32 |
| | 20 | 37 | 30 | 30 | 26 | 19 | 16 | 11 | 49 | 46 | 43 | 35 | 27 | 24 | 19 | 18 | 68 | 61 | 55 | 44 | 36 | 32 | 27 | 23 |
| 200 | | Flow 30 [l/s] | | | | | | Flow 100 [l/s] | | | | | | Flow 200 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 70 | 64 | 61 | 55 | 52 | 52 | 55 | 55 | 75 | 69 | 65 | 59 | 55 | 55 | 59 | 59 | |
| | 200 | - | - | - | - | - | - | 62 | 57 | 55 | 47 | 44 | 42 | 42 | 42 | 71 | 65 | 61 | 53 | 50 | 48 | 47 | 47 | |
| | 100 | - | - | - | - | - | - | 57 | 52 | 48 | 41 | 39 | 36 | 34 | 34 | 69 | 64 | 58 | 50 | 47 | 44 | 42 | 42 | |
| | 50 | 40 | 38 | 33 | 30 | 28 | 27 | 23 | 51 | 45 | 41 | 36 | 32 | 32 | 28 | 28 | 63 | 56 | 51 | 44 | 39 | 39 | 34 | 34 |
| | 20 | 34 | 31 | 26 | 25 | 25 | 23 | 18 | 44 | 37 | 33 | 29 | 27 | 25 | 21 | 19 | 56 | 47 | 43 | 36 | 29 | 27 | 24 | 22 |
| 250 | | Flow 50 [l/s] | | | | | | Flow 150 [l/s] | | | | | | Flow 300 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 69 | 66 | 59 | 53 | 50 | 54 | 53 | 52 | 71 | 67 | 61 | 56 | 53 | 56 | 55 | 54 | |
| | 200 | - | - | - | - | - | - | 59 | 57 | 52 | 46 | 44 | 41 | 44 | 44 | 63 | 60 | 55 | 49 | 46 | 44 | 46 | 46 | |
| | 100 | - | - | - | - | - | - | 56 | 52 | 45 | 41 | 38 | 36 | 34 | 31 | 62 | 57 | 51 | 46 | 43 | 40 | 38 | 35 | |
| | 50 | 44 | 41 | 35 | 32 | 29 | 24 | 22 | 52 | 48 | 40 | 38 | 34 | 30 | 28 | 24 | 61 | 56 | 47 | 45 | 40 | 38 | 33 | 28 |
| | 20 | 33 | 35 | 29 | 29 | 25 | 15 | 12 | 47 | 44 | 37 | 35 | 31 | 25 | 22 | 17 | 59 | 54 | 46 | 42 | 38 | 36 | 30 | 24 |
| 315 | | Flow 80 [l/s] | | | | | | Flow 250 [l/s] | | | | | | Flow 500 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 68 | 65 | 59 | 53 | 50 | 50 | 53 | 50 | 74 | 71 | 65 | 58 | 55 | 55 | 58 | 55 | |
| | 200 | - | - | - | - | - | - | 60 | 55 | 50 | 45 | 43 | 40 | 43 | 40 | 70 | 65 | 58 | 52 | 49 | 48 | 49 | 46 | |
| | 100 | - | - | - | - | - | - | 54 | 52 | 45 | 41 | 38 | 36 | 36 | 31 | 66 | 64 | 56 | 50 | 47 | 46 | 44 | 39 | |
| | 50 | 34 | 34 | 30 | 26 | 22 | 21 | 19 | 49 | 49 | 43 | 38 | 34 | 32 | 30 | 24 | 64 | 63 | 55 | 49 | 45 | 42 | 40 | 32 |
| | 20 | 26 | 30 | 27 | 21 | 16 | 15 | 13 | 44 | 46 | 41 | 35 | 30 | 27 | 25 | 18 | 62 | 61 | 54 | 48 | 43 | 37 | 34 | 24 |
| 400 | | Flow 130 [l/s] | | | | | | Flow 400 [l/s] | | | | | | Flow 800 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 79 | 73 | 67 | 62 | 57 | 60 | 59 | 58 | 82 | 75 | 68 | 65 | 59 | 62 | 61 | 60 | |
| | 200 | - | - | - | - | - | - | 67 | 62 | 56 | 50 | 48 | 48 | 48 | 45 | 74 | 68 | 62 | 56 | 53 | 52 | 52 | 49 | |
| | 100 | - | - | - | - | - | - | 61 | 56 | 49 | 44 | 42 | 39 | 39 | 34 | 72 | 67 | 58 | 53 | 49 | 47 | 46 | 40 | |
| | 50 | 42 | 37 | 31 | 29 | 28 | 27 | 25 | 57 | 52 | 44 | 39 | 37 | 34 | 26 | 71 | 66 | 56 | 50 | 47 | 44 | 44 | 33 | |
| | 20 | 40 | 34 | 27 | 25 | 24 | 23 | 21 | 55 | 50 | 40 | 35 | 34 | 32 | 30 | 20 | 70 | 65 | 54 | 47 | 44 | 40 | 38 | 28 |
| 500 | | Flow 200 [l/s] | | | | | | Flow 600 [l/s] | | | | | | Flow 1200 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 84 | 77 | 70 | 64 | 63 | 62 | 61 | 60 | 85 | 78 | 71 | 65 | 64 | 63 | 62 | 61 | |
| | 200 | - | - | - | - | - | - | 71 | 65 | 59 | 53 | 50 | 50 | 50 | 47 | 77 | 70 | 64 | 58 | 56 | 55 | 54 | 51 | |
| | 100 | - | - | - | - | - | - | 63 | 58 | 53 | 47 | 46 | 44 | 42 | 37 | 72 | 66 | 60 | 55 | 53 | 51 | 49 | 43 | |
| | 50 | 46 | 40 | 36 | 33 | 32 | 29 | 29 | 59 | 52 | 47 | 44 | 42 | 38 | 38 | 31 | 71 | 63 | 57 | 54 | 51 | 46 | 46 | 37 |
| | 20 | 41 | 33 | 29 | 27 | 26 | 19 | 18 | 56 | 47 | 42 | 40 | 38 | 32 | 30 | 26 | 70 | 60 | 54 | 52 | 49 | 44 | 40 | 32 |
| 630 | | Flow 300 [l/s] | | | | | | Flow 900 [l/s] | | | | | | Flow 1800 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 88 | 80 | 73 | 69 | 66 | 64 | 63 | 62 | 90 | 83 | 75 | 71 | 68 | 67 | 65 | 64 | |
| | 200 | - | - | - | - | - | - | 78 | 72 | 65 | 62 | 59 | 55 | 55 | 49 | 80 | 74 | 67 | 64 | 60 | 57 | 57 | 50 | |
| | 100 | - | - | - | - | - | - | 71 | 66 | 59 | 54 | 50 | 46 | 45 | 40 | 78 | 71 | 66 | 59 | 56 | 49 | 48 | 44 | |
| | 50 | 54 | 49 | 45 | 39 | 34 | 36 | 30 | 66 | 58 | 53 | 48 | 43 | 40 | 39 | 30 | 77 | 68 | 62 | 57 | 51 | 45 | 47 | 36 |
| | 20 | 45 | 35 | 38 | 30 | 29 | 29 | 26 | 61 | 50 | 47 | 43 | 38 | 36 | 33 | 25 | 76 | 65 | 57 | 55 | 46 | 42 | 39 | 30 |
| 800 | | Flow 500 [l/s] | | | | | | Flow 1500 [l/s] | | | | | | Flow 3000 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 72 | 65 | 62 | 63 | 62 | 62 | 61 | 56 | |
| | 200 | - | - | - | - | - | - | 58 | 52 | 49 | 49 | 50 | 49 | 45 | 37 | 67 | 60 | 56 | 55 | 53 | 52 | 49 | 43 | |
| | 100 | - | - | - | - | - | - | 55 | 48 | 45 | 44 | 44 | 40 | 35 | 29 | 63 | 55 | 51 | 49 | 47 | 44 | 40 | 34 | |
| | 50 | - | - | - | - | - | - | 52 | 44 | 40 | 38 | 35 | 31 | 26 | 20 | 60 | 50 | 46 | 44 | 41 | 37 | 33 | 25 | |
| | 20 | 31 | 33 | 27 | 22 | 21 | 11 | 12 | 44 | 36 | 32 | 28 | 25 | 17 | 13 | 2 | 56 | 40 | 37 | 34 | 29 | 23 | 14 | 9 |
| 1000 | | Flow 800 [l/s] | | | | | | Flow 2400 [l/s] | | | | | | Flow 4750 [l/s] | | | | | | | | | | |
| | 500 | - | - | - | - | - | - | 68 | 62 | 58 | 58 | 57 | 57 | 56 | 53 | 77 | 70 | 66 | 67 | 64 | 64 | 63 | 57 | |
| | 200 | - | - | - | - | - | - | 64 | 56 | 53 | 52 | 52 | 51 | 48 | 38 | 72 | 64 | 58 | 56 | 54 | 52 | 50 | 42 | |
| | 100 | - | - | - | - | - | - | 60 | 52 | 46 | 45 | 44 | 41 | 37 | 28 | 67 | 58 | 53 | 49 | 47 | 44 | 40 | 32 | |
| | 50 | 50 | 40 | 32 | 34 | 31 | 26 | 21 | 56 | 47 | 40 | 39 | 36 | 31 | 27 | 15 | 62 | 54 | 48 | 44 | 41 | 37 | 33 | 25 |
| | 20 | 47 | 22 | 27 | 29 | 19 | 6 | 2 | 50 | 34 | 33 | 32 | 25 | 17 | 7 | 2 | 53 | 45 | 39 | 35 | 32 | 28 | 22 | 14 |

Regulating damper

DRU

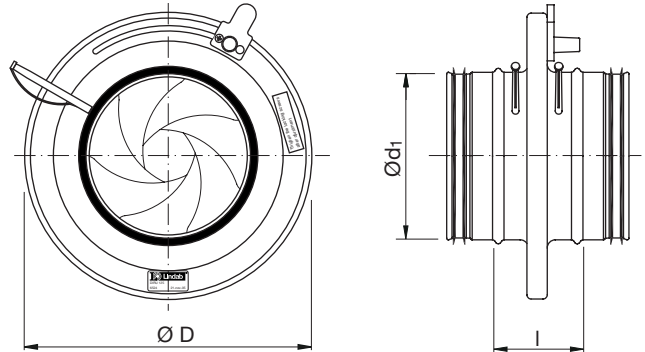
| dim Ød ₁ | Pressure drop [Pa] | Velocity app. 9 [m/s] | | | | | | | | Velocity app. 12 [m/s] | | | | | | | | Velocity app. 15 [m/s] | | | | | | | |
|------------------------|-----------------------|-----------------------|-----|-----|-----|------|----|----|----|------------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 45 [l/s] | | | | | | | | Flow 60 [l/s] | | | | | | | | Flow 75 [l/s] | | | | | | | |
| | 500 | 72 | 70 | 70 | 70 | 63 | 60 | 53 | 49 | 77 | 76 | 75 | 75 | 68 | 64 | 56 | 53 | 80 | 80 | 80 | 80 | 72 | 68 | 60 | 56 |
| | 200 | 70 | 68 | 67 | 60 | 57 | 48 | 38 | 32 | 75 | 74 | 71 | 65 | 61 | 51 | 41 | 34 | 78 | 77 | 72 | 70 | 64 | 53 | 42 | 35 |
| | 100 | 66 | 65 | 63 | 57 | 51 | 36 | 27 | 18 | 74 | 73 | 70 | 60 | 57 | 45 | 32 | 25 | 77 | 75 | 71 | 65 | 58 | 46 | 33 | 26 |
| | 50 | 63 | 62 | 58 | 52 | 45 | 28 | 18 | 11 | 73 | 71 | 66 | 55 | 52 | 40 | 25 | 19 | 75 | 72 | 67 | 58 | 53 | 41 | 26 | 20 |
| | 20 | 59 | 58 | 51 | 46 | 38 | 21 | 10 | 5 | 70 | 67 | 60 | 47 | 44 | 32 | 17 | 13 | 72 | 68 | 62 | 50 | 47 | 36 | 20 | 15 |
| 100 | | Flow 75 [l/s] | | | | | | | | Flow 100 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | |
| | 500 | 78 | 75 | 75 | 67 | 64 | 57 | 57 | 57 | 84 | 81 | 80 | 72 | 68 | 62 | 61 | 61 | 88 | 86 | 85 | 76 | 72 | 65 | 64 | 64 |
| | 200 | 74 | 73 | 72 | 64 | 59 | 50 | 47 | 46 | 80 | 79 | 78 | 69 | 66 | 55 | 51 | 51 | 84 | 83 | 81 | 72 | 68 | 59 | 55 | 54 |
| | 100 | 73 | 72 | 71 | 62 | 56 | 46 | 36 | 33 | 79 | 78 | 75 | 65 | 60 | 49 | 44 | 42 | 82 | 81 | 78 | 69 | 63 | 54 | 48 | 45 |
| | 50 | 72 | 70 | 68 | 58 | 51 | 40 | 29 | 23 | 77 | 76 | 70 | 60 | 53 | 43 | 36 | 31 | 80 | 79 | 74 | 65 | 57 | 48 | 40 | 35 |
| | 20 | 70 | 67 | 63 | 53 | 44 | 33 | 26 | 17 | 74 | 73 | 65 | 54 | 46 | 37 | 27 | 20 | 78 | 77 | 69 | 60 | 50 | 41 | 31 | 24 |
| 125 | | Flow 110 [l/s] | | | | | | | | Flow 145 [l/s] | | | | | | | | Flow 180 [l/s] | | | | | | | |
| | 500 | 83 | 80 | 76 | 68 | 65 | 58 | 58 | 54 | 89 | 87 | 81 | 73 | 69 | 62 | 62 | 58 | 91 | 88 | 83 | 75 | 71 | 63 | 63 | 59 |
| | 200 | 79 | 78 | 71 | 65 | 58 | 51 | 48 | 47 | 87 | 85 | 78 | 70 | 63 | 56 | 52 | 48 | 88 | 86 | 80 | 71 | 66 | 59 | 54 | 49 |
| | 100 | 78 | 77 | 70 | 61 | 51 | 45 | 39 | 35 | 86 | 83 | 75 | 66 | 58 | 50 | 44 | 39 | 87 | 84 | 78 | 69 | 61 | 53 | 47 | 42 |
| | 50 | 77 | 76 | 68 | 57 | 45 | 39 | 33 | 25 | 84 | 80 | 71 | 61 | 52 | 44 | 36 | 28 | 86 | 82 | 75 | 65 | 55 | 47 | 39 | 33 |
| | 20 | 76 | 75 | 64 | 53 | 40 | 33 | 30 | 18 | 81 | 76 | 66 | 55 | 45 | 38 | 32 | 19 | 85 | 81 | 71 | 60 | 48 | 41 | 34 | 22 |
| 160 | | Flow 180 [l/s] | | | | | | | | Flow 240 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | |
| | 500 | 78 | 77 | 74 | 67 | 63 | 60 | 59 | 58 | 84 | 84 | 80 | 72 | 68 | 65 | 65 | 65 | 89 | 89 | 85 | 77 | 73 | 69 | 69 | 69 |
| | 200 | 76 | 73 | 70 | 63 | 59 | 53 | 50 | 50 | 80 | 80 | 77 | 69 | 66 | 58 | 55 | 55 | 85 | 84 | 80 | 73 | 70 | 64 | 59 | 58 |
| | 100 | 75 | 72 | 69 | 61 | 54 | 48 | 45 | 44 | 78 | 76 | 73 | 66 | 61 | 53 | 50 | 48 | 83 | 80 | 77 | 70 | 65 | 58 | 54 | 52 |
| | 50 | 74 | 71 | 66 | 58 | 49 | 40 | 38 | 33 | 76 | 72 | 68 | 62 | 55 | 47 | 43 | 38 | 80 | 76 | 72 | 66 | 59 | 51 | 47 | 42 |
| | 20 | 73 | 66 | 61 | 54 | 43 | 35 | 30 | 25 | 74 | 68 | 63 | 57 | 48 | 40 | 35 | 27 | 76 | 71 | 65 | 61 | 52 | 43 | 39 | 30 |
| 200 | | Flow 300 [l/s] | | | | | | | | Flow 400 [l/s] | | | | | | | | Flow 475 [l/s] | | | | | | | |
| | 500 | 85 | 79 | 72 | 65 | 62 | 61 | 65 | 65 | 92 | 85 | 79 | 72 | 68 | 66 | 71 | 70 | 95 | 89 | 82 | 73 | 71 | 70 | 74 | 73 |
| | 200 | 83 | 77 | 70 | 62 | 58 | 55 | 54 | 54 | 90 | 83 | 77 | 69 | 65 | 62 | 61 | 60 | 92 | 85 | 79 | 71 | 66 | 64 | 64 | 63 |
| | 100 | 82 | 76 | 69 | 59 | 56 | 53 | 50 | 50 | 88 | 80 | 73 | 65 | 61 | 58 | 55 | 53 | 90 | 83 | 76 | 68 | 63 | 61 | 58 | 56 |
| | 50 | 81 | 74 | 65 | 56 | 52 | 49 | 45 | 42 | 85 | 76 | 68 | 60 | 56 | 52 | 48 | 45 | 88 | 80 | 72 | 64 | 59 | 56 | 52 | 48 |
| | 20 | 80 | 70 | 60 | 52 | 46 | 43 | 38 | 32 | 81 | 72 | 62 | 54 | 50 | 45 | 40 | 36 | 86 | 76 | 67 | 59 | 54 | 50 | 47 | 39 |
| 250 | | Flow 450 [l/s] | | | | | | | | Flow 600 [l/s] | | | | | | | | Flow 750 [l/s] | | | | | | | |
| | 500 | 78 | 75 | 68 | 61 | 58 | 61 | 60 | 59 | 87 | 83 | 76 | 68 | 68 | 68 | 68 | 68 | 94 | 90 | 82 | 74 | 71 | 74 | 74 | 74 |
| | 200 | 74 | 69 | 63 | 57 | 55 | 54 | 54 | 53 | 82 | 79 | 72 | 64 | 63 | 63 | 62 | 61 | 88 | 84 | 77 | 69 | 68 | 67 | 68 | 65 |
| | 100 | 72 | 68 | 60 | 56 | 52 | 49 | 45 | 42 | 79 | 76 | 69 | 62 | 60 | 60 | 58 | 57 | 85 | 81 | 74 | 67 | 65 | 63 | 62 | 59 |
| | 50 | 69 | 67 | 58 | 54 | 48 | 44 | 37 | 32 | 76 | 72 | 65 | 59 | 56 | 54 | 51 | 48 | 82 | 78 | 70 | 64 | 61 | 58 | 55 | 52 |
| | 20 | 66 | 65 | 56 | 52 | 44 | 39 | 32 | 27 | 73 | 68 | 61 | 56 | 51 | 46 | 42 | 38 | 79 | 75 | 65 | 60 | 56 | 53 | 47 | 46 |
| 315 | | Flow 750 [l/s] | | | | | | | | Flow 1000 [l/s] | | | | | | | | Flow 1200 [l/s] | | | | | | | |
| | 500 | 82 | 78 | 71 | 64 | 60 | 60 | 60 | 60 | 89 | 85 | 77 | 69 | 68 | 67 | 69 | 65 | 92 | 88 | 80 | 72 | 71 | 70 | 72 | 68 |
| | 200 | 77 | 72 | 66 | 59 | 58 | 57 | 56 | 52 | 86 | 79 | 72 | 65 | 63 | 62 | 63 | 58 | 88 | 83 | 75 | 68 | 66 | 65 | 64 | 59 |
| | 100 | 76 | 71 | 64 | 57 | 54 | 52 | 50 | 44 | 84 | 77 | 69 | 62 | 60 | 58 | 57 | 53 | 87 | 80 | 72 | 65 | 63 | 61 | 59 | 55 |
| | 50 | 75 | 70 | 61 | 54 | 50 | 46 | 43 | 35 | 82 | 74 | 66 | 59 | 55 | 52 | 49 | 46 | 85 | 77 | 69 | 62 | 59 | 55 | 52 | 48 |
| | 20 | 74 | 68 | 58 | 51 | 46 | 39 | 36 | 26 | 80 | 71 | 63 | 56 | 48 | 44 | 39 | 38 | 82 | 74 | 66 | 60 | 54 | 47 | 46 | 40 |
| 400 | | Flow 1200 [l/s] | | | | | | | | Flow 1500 [l/s] | | | | | | | | Flow 1900 [l/s] | | | | | | | |
| | 500 | 88 | 81 | 74 | 70 | 63 | 66 | 65 | 64 | 95 | 87 | 79 | 75 | 69 | 71 | 70 | 69 | 98 | 90 | 82 | 78 | 73 | 74 | 73 | 72 |
| | 200 | 83 | 76 | 68 | 61 | 60 | 59 | 58 | 54 | 89 | 82 | 75 | 69 | 67 | 64 | 63 | 60 | 92 | 84 | 77 | 70 | 69 | 67 | 65 | 63 |
| | 100 | 82 | 75 | 67 | 60 | 58 | 55 | 53 | 47 | 86 | 80 | 72 | 66 | 63 | 61 | 58 | 55 | 89 | 82 | 74 | 68 | 66 | 64 | 61 | 58 |
| | 50 | 80 | 73 | 65 | 58 | 56 | 51 | 47 | 39 | 83 | 77 | 68 | 63 | 58 | 56 | 52 | 48 | 86 | 80 | 71 | 66 | 62 | 59 | 55 | 51 |
| | 20 | 77 | 70 | 63 | 55 | 53 | 47 | 42 | 30 | 80 | 74 | 64 | 60 | 54 | 50 | 45 | 40 | 83 | 78 | 68 | 64 | 58 | 51 | 47 | 42 |
| 500 | | Flow 1800 [l/s] | | | | | | | | Flow 2400 [l/s] | | | | | | | | Flow 3000 [l/s] | | | | | | | |
| | 500 | 91 | 84 | 76 | 68 | 67 | 68 | 68 | 67 | 96 | 88 | 80 | 72 | 70 | 73 | 72 | 71 | 102 | 94 | 85 | 78 | 75 | 77 | 77 | 76 |
| | 200 | 85 | 78 | 72 | 65 | 63 | 61 | 60 | 57 | 91 | 84 | 76 | 70 | 66 | 66 | 65 | 61 | 96 | 89 | 80 | 72 | 68 | 68 | 68 | 67 |
| | 100 | 82 | 74 | 69 | 62 | 59 | 57 | 55 | 50 | 88 | 75 | 70 | 63 | 60 | 58 | 56 | 52 | 93 | 85 | 76 | 69 | 65 | 63 | 61 | 58 |
| | 50 | 79 | 71 | 66 | 59 | 55 | 52 | 48 | 43 | 85 | 72 | 67 | 60 | 56 | 53 | 49 | 44 | 90 | 80 | 72 | 65 | 62 | 57 | 53 | 49 |
| | 20 | 76 | 67 | 63 | 56 | 50 | 47 | 41 | 36 | 82 | 69 | 64 | 57 | 52 | 48 | 43 | 37 | 87 | 75 | 67 | 61 | 58 | 54 | 46 | 40 |
| 630 | | Flow 2800 [l/s] | | | | | | | | Flow 3700 [l/s] | | | | | | | | Flow 4900 [l/s] | | | | | | | |
| | 500 | 96 | 88 | 80 | 76 | 72 | 72 | 70 | 68 | 103 | 95 | 86 | 82 | 77 | 77 | 76 | 73 | 107 | 98 | 90 | 85 | 81 | 81 | 80 | 76 |
| | 200 | 90 | 83 | 76 | 71 | 67 | 63 | 63 | 56 | 98 | 90 | 82 | 78 | 74 | 70 | 70 | 62 | 103 | 95 | 87 | 82 | 78 | 76 | 73 | 66 |
| | 100 | 89 | 82 | 75 | 68 | 63 | 58 | 55 | 50 | 95 | 88 | 79 | 74 | 70 | 65 | 63 | 57 | 100 | 92 | 84 | 79 | 75 | 71 | 67 | 62 |
| | 50 | 87 | 80 | 72 | 65 | 58 | 52 | 48 | 42 | 92 | 84 | 75 | 69 | 65 | 60 | 56 | 51 | 97 | 89 | 80 | 74 | 70 | 65 | 60 | 56 |
| | 20 | 84 | 77 | 68 | 61 | 52 | 45 | 42 | 33 | 89 | 82 | 70 | 63 | 59 | 55 | 49 | 43 | 94 | 86 | 75 | 68 | 64 | 58 | 52 | 48 |
| 800 | | Flow 4500 [l/s] | | | | | | | | Flow 6000 [l/s] | | | | | | | | Flow 7500 [l/s] | | | | | | | |
| | 500 | 78 | 70 | 66 | 66 | 65 | 64 | 63 | 58 | 83 | 73 | 69 | 69 | 68 | 66 | 65 | 60 | 84 | 75 | 71 | 70 | 69 | 67 | 66 | 61 |
| | 200 | 72 | 64 | 60 | 59 | 57 | 55 | 52 | 46 | 77 | 67 | 63 | 62 | 60 | 58 | 55 | 49 | 80 | 70 | 66 | 65 | 63 | 61 | 58 | 52 |
| | 100 | 68 | 59 | 55 | 53 | 51 | 48 | 44 | 37 | 73 | 63 | 59 | 57 | 55 | 52 | 48 | 42 | 77 | 67 | 62 | 60 | 57 | 55 | 51 | 45 |
| | 50 | 66 | 55 | 51 | 48 | 45 | 42 | 37 | 30 | 71 | 60 | 55 | 52 | 49 | 47 | 41 | 35 | 76 | 65 | 61 | 58 | 54 | 52 | 47 | 40 |
| | 20 | 61 | 46 | 43 | 39 | 35 | 32 | 25 | 18 | 69 | 58 | 53 | 50 | 47 | 41 | 37 | 29 | 74 | 63 | 59 | 56 | 52 | 48 | 43 | 36 |
| 1000 | | Flow 7100 [l/s] | | | | | | | | Flow 9450 [l/s] | | | | | | | | Flow 11800 [l/s] | | | | | | | |
| | 500 | 81 | 74 | 69 | 69 | 67 | 65 | 64 | 58 | 85 | 77 | 71 | 70 | 68 | 67 | 65 | 60 | 86 | 79 | 72 | 71 | 69 | 68 | 66 | 61 |
| | 200 | 76 | 69 | 63 | 60 | 57 | 55 | 53 | 45 | 80 | 71 | 65 | 64 | 61 | 58 | 57 | 50 | 83 | 74 | 68 | 67 | 64 | 61 | 60 | 55 |
| | 100 | 72 | 64 | 58 | 55 | 52 | 49 | 47 | 39 | 76 | 67 | 61 | 59 | 56 | 54 | 52 | 46 | 80 | 72 | 65 | 63 | 60 | 59 | 57 | 53 |
| | 50 | 68 | 60 | 54 | 52 | 48</ | | | | | | | | | | | | | | | | | | | |

Damper with flow meter

DIRU



Dimensions



Description

The damper DIRU with flow meter offers measurement of the air flow. DIRU has following characteristics: low noise level, centric flow, fixed measurement nozzles for accurate flow measurement and is equipped with regulating facilities which can be fully opened, which means that you do not need cleaning covers. It fulfils tightness class C.

The dimensioning graph are to be used to determine the pressure drop over the damper with flow meter and to give information regarding the sound effect level at different settings. When balancing the system the balancing graphs should be used.

There is a separate assembly, measuring, balancing and maintenance instruction for dampers with flow meter.

The damper blades forms a measuring flange which allows flow measuring. By measuring the pressure difference between the measure nozzles, you can through the equation on the damper derive the flow q [l/s]. The setting value of the damper and the correction factor (k-factor) is the same number which means that you do not have to read a graphs in order to get the k-factor from a setting value.

The air flow is regulated with a handle.

Ø 80–630 fullfills pressure class A in closed position.

Material

The damper is made of hot-dip galvanized sheet steel.

Installation

Consider required straight distance after or before disturbance, as mentioned on the card attached to the measurement nozzles, to obtain accurate flow measurement.

Cleaning

By fully open the damper, one get access to the duct. Do not forget to readjust the damper after cleaning.

| Ød ₁ nom | ØD mm | l mm | m kg |
|------------------------|----------|---------|---------|
| 80 | 135 | 52 | 0,60 |
| 100 | 163 | 54 | 0,80 |
| 125 | 210 | 63 | 1,20 |
| 150 | 230 | 53 | 1,40 |
| 160 | 230 | 60 | 1,40 |
| 200 | 285 | 62 | 2,00 |
| 250 | 333 | 62 | 2,60 |
| 300 | 406 | 65 | 3,00 |
| 315 | 406 | 63 | 3,40 |
| 400 | 560 | 70 | 6,90 |
| 500 | 644 | 60 | 7,90 |
| 630 | 811 | 60 | 11,9 |

Ordering example

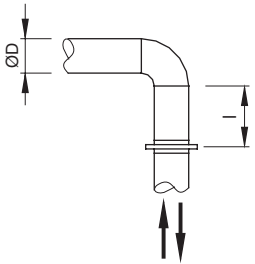
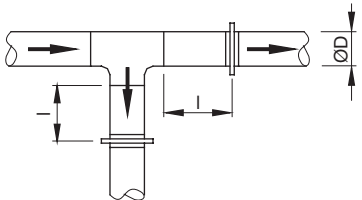
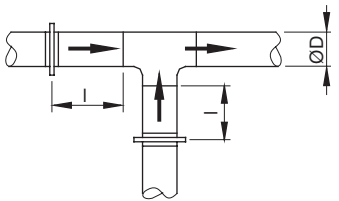
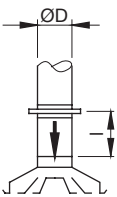
| | | |
|---------------------------|------|-----|
| Product | DIRU | 160 |
| Dimension Ød ₁ | | |

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Damper with flow meter

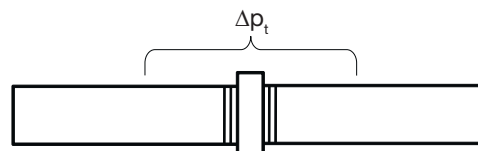
DIRU

Technical data for DIRU, DIRBU and DIRVU

| l = straight distance before and after disturbances | Method error ± 7% |
|---|-------------------|
|  | $l \geq 1 D$ |
|  | $l \geq 1 D$ |
|  | $l \geq 3 D$ |
|  | $l \geq 3 D$ |

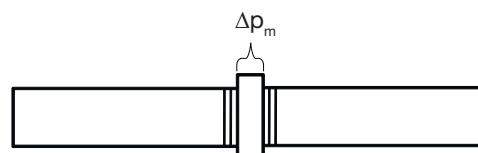
Dimensioning

The dimensioning graphs show the pressure drop over the damper with flow meter, Δp_t . They should be used to determine the pressure drop and to provide information about sound effect levels at different settings.



Balancing

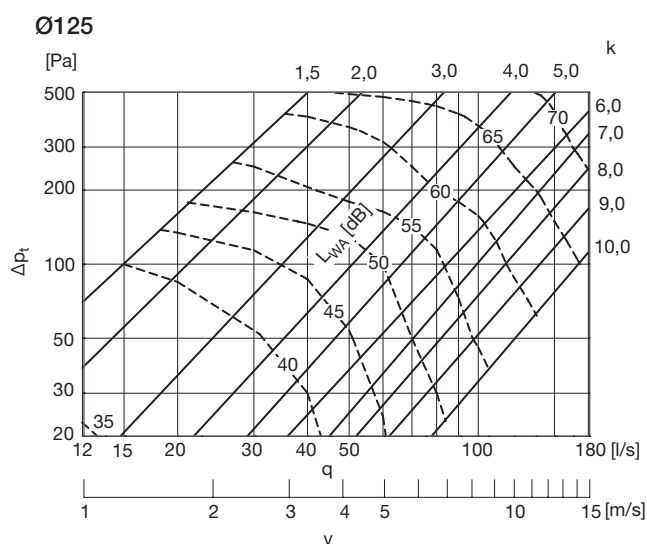
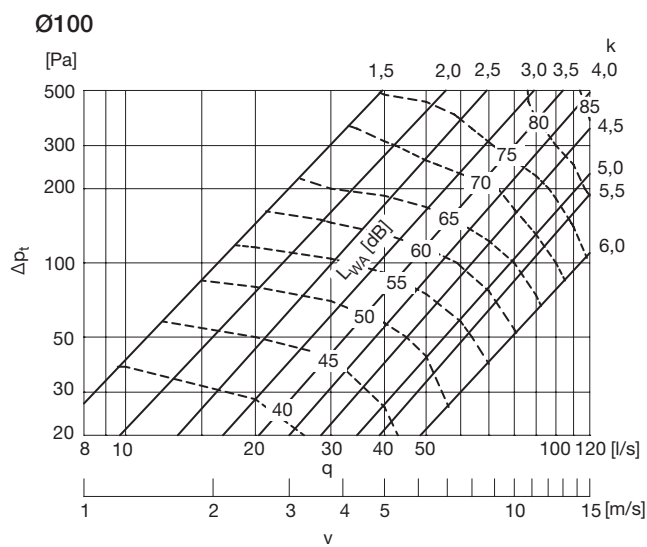
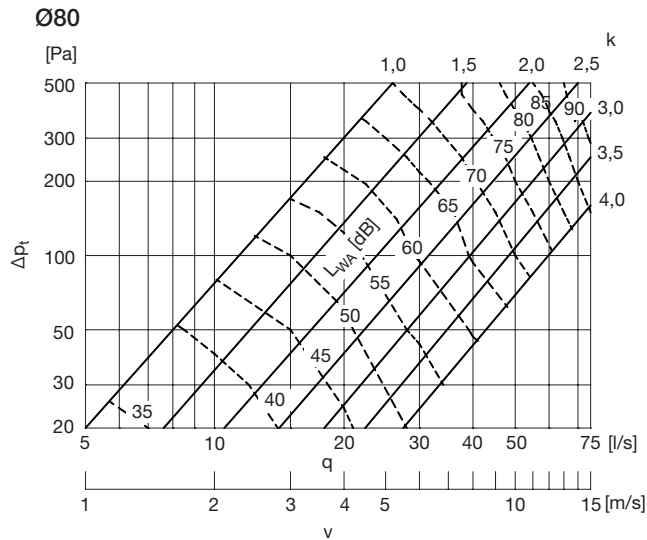
The balancing graphs show the flow as a function of the measured pressure, Δp_m . These graphs should be used to balance the system.



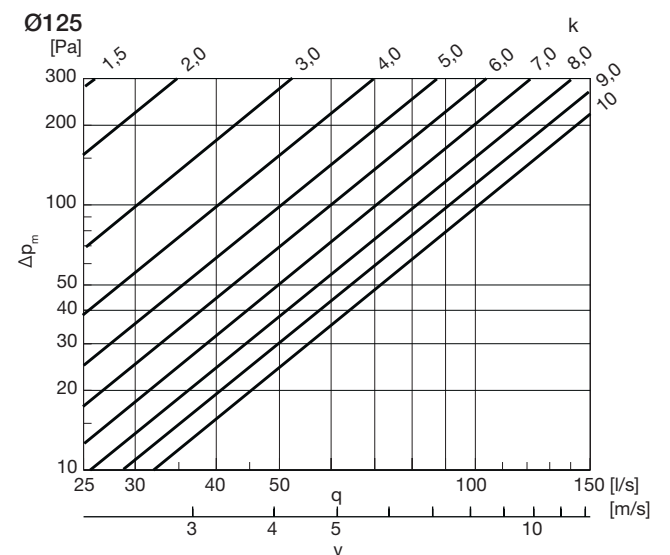
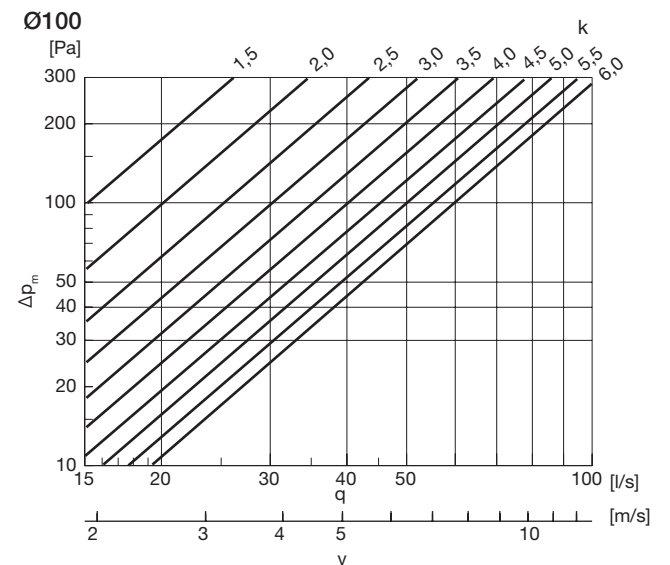
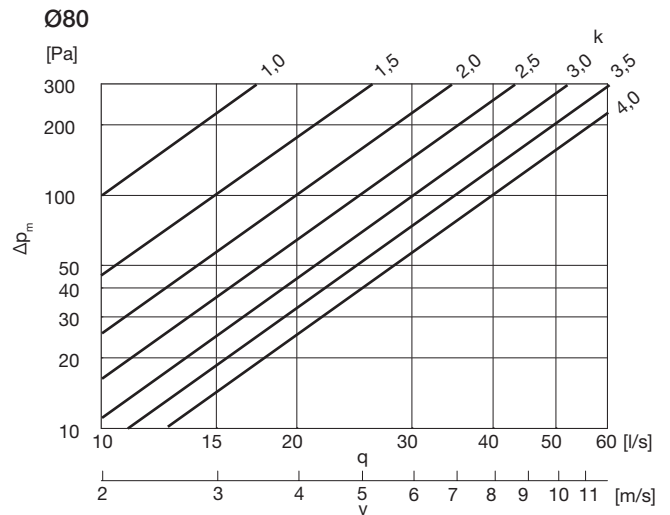
Damper with flow meter

DIRU, DIRBU, DIRVU

Pressure drop graphs with noise data for dimensioning



Flow graphs for balancing

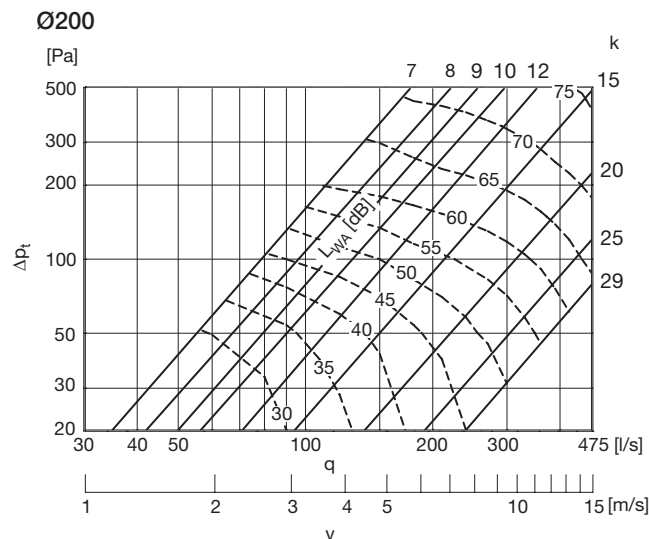
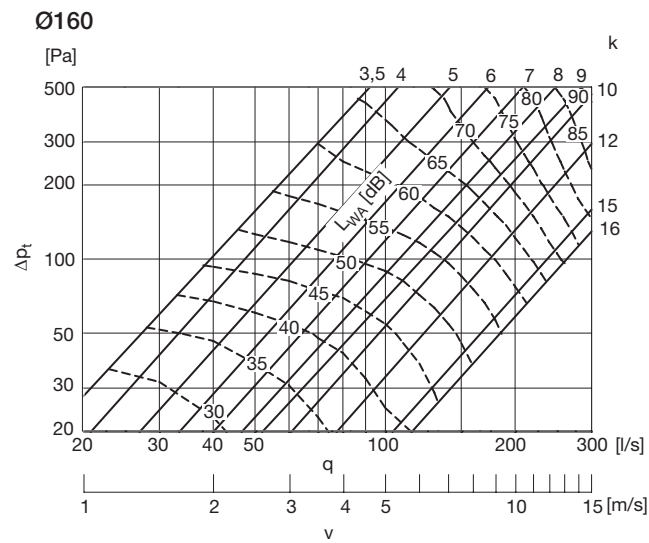
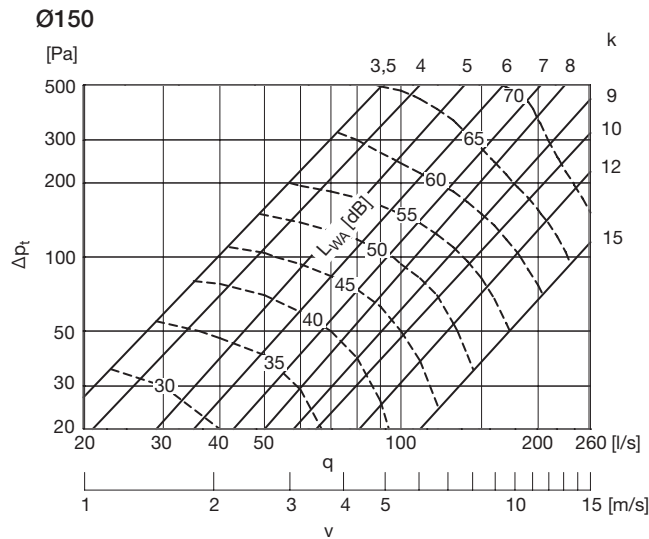


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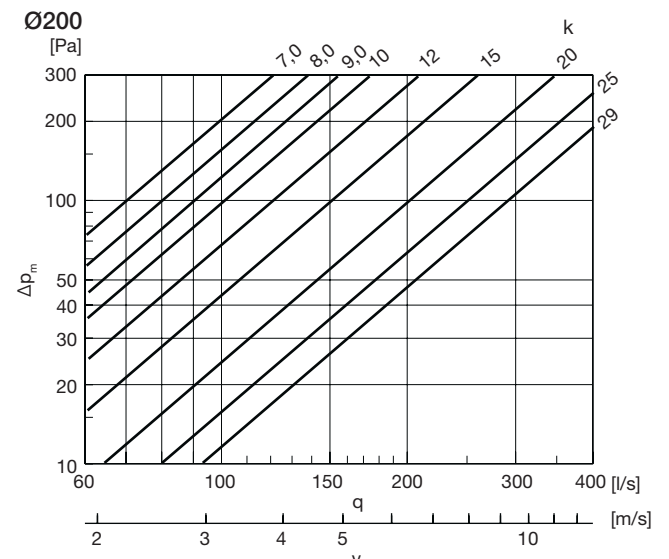
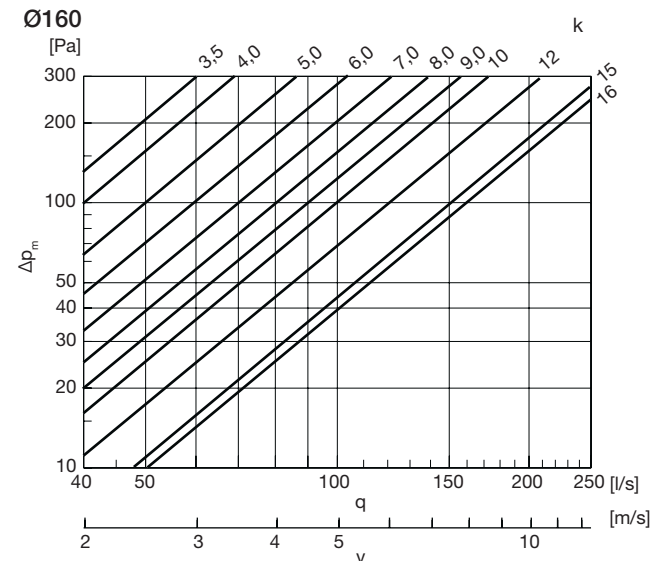
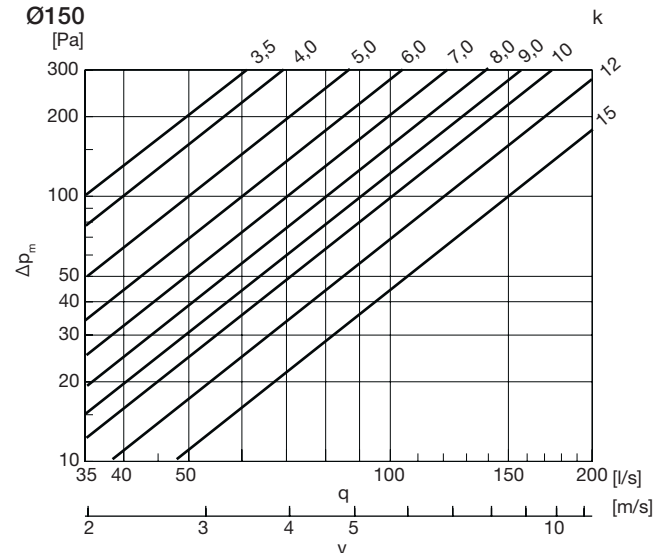
Damper with flow meter

DIRU, DIRBU, DIRVU

Pressure drop graphs with noise data for dimensioning



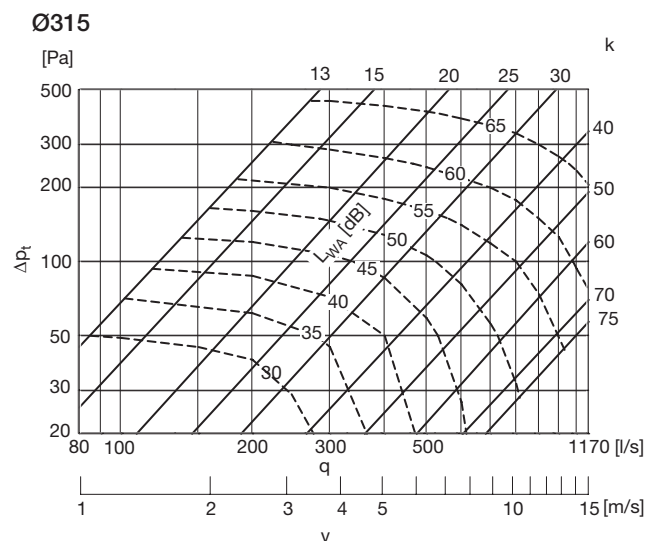
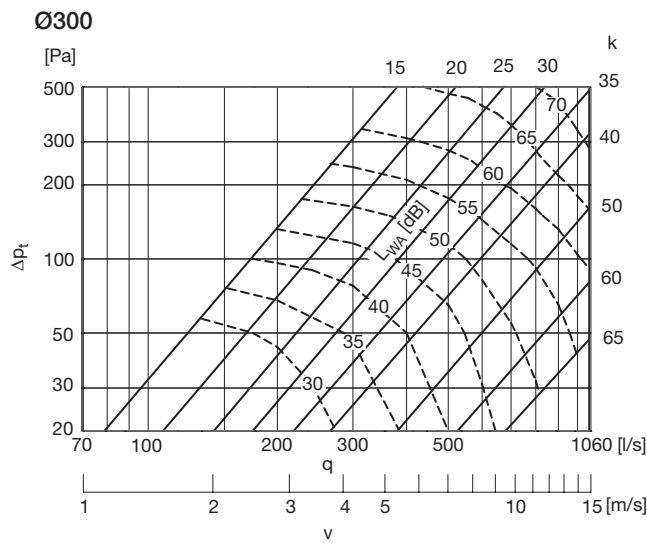
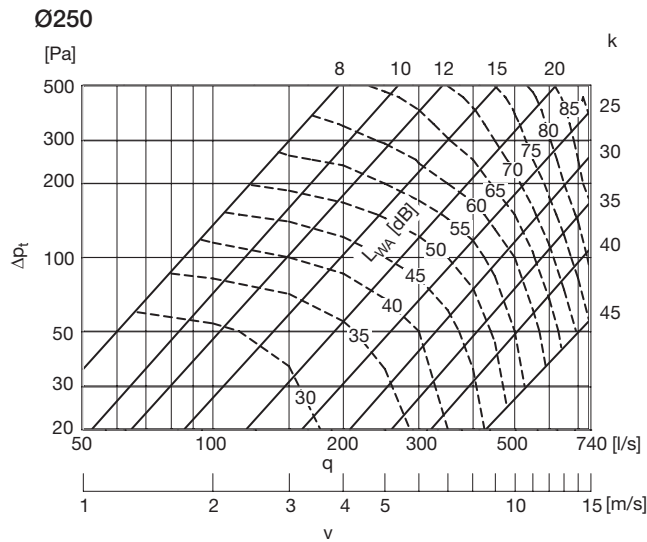
Flow graphs for balancing



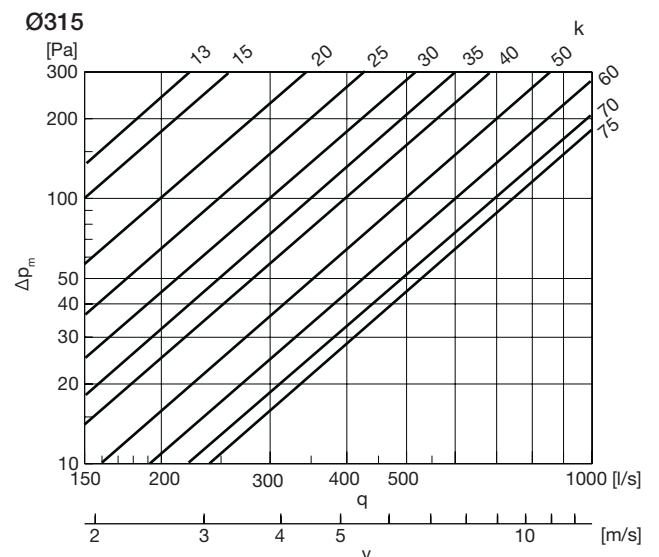
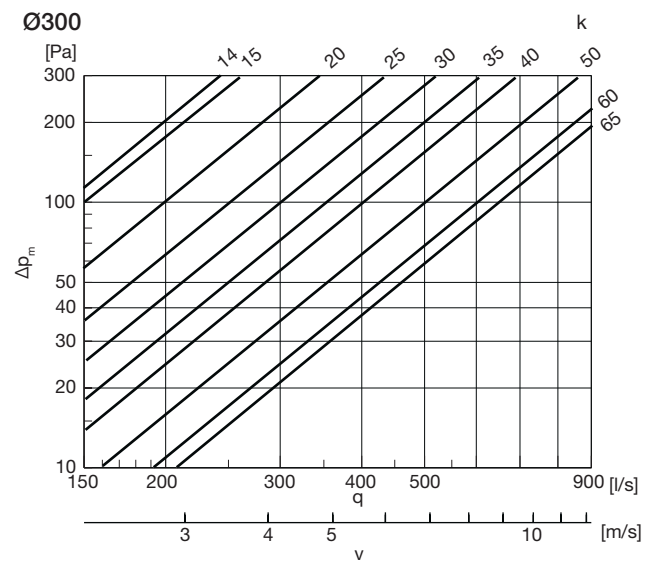
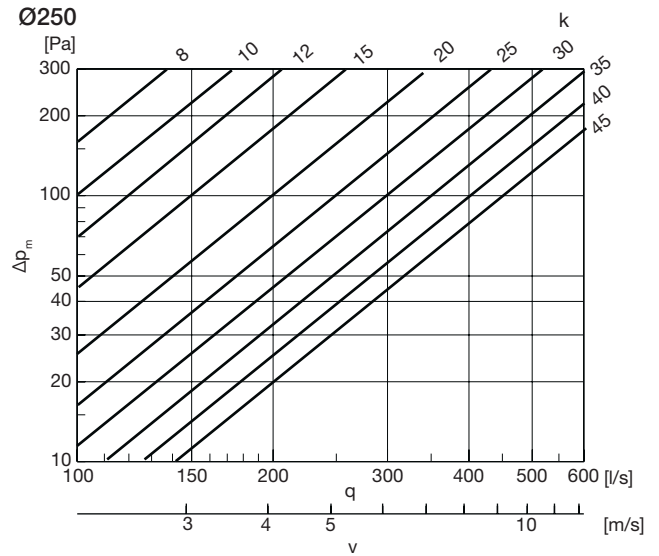
Damper with flow meter

DIRU, DIRBU, DIRVU

Pressure drop graphs with noise data for dimensioning



Flow graphs for balancing

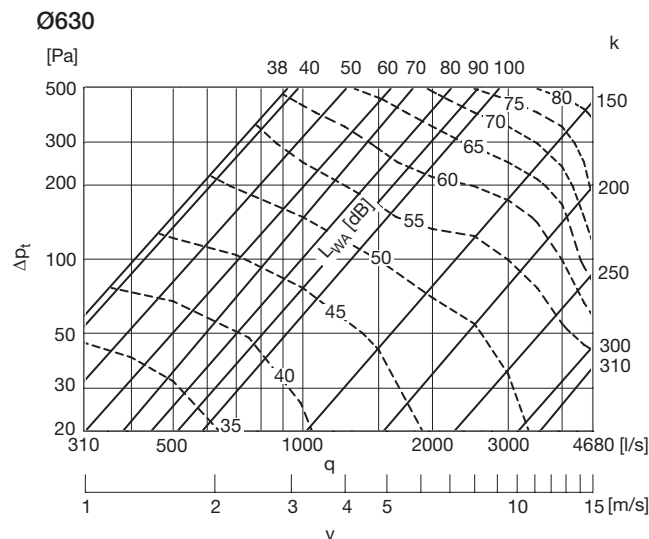
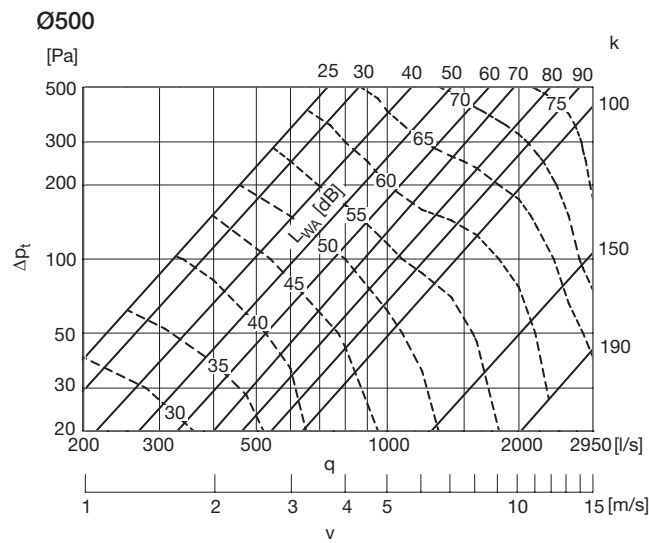
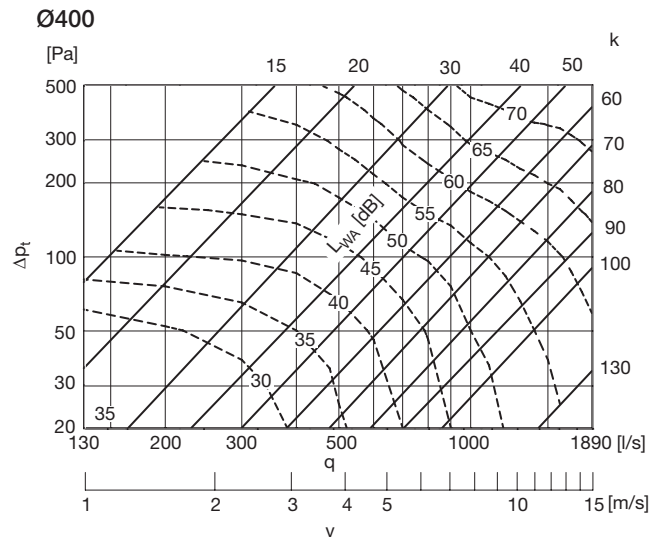


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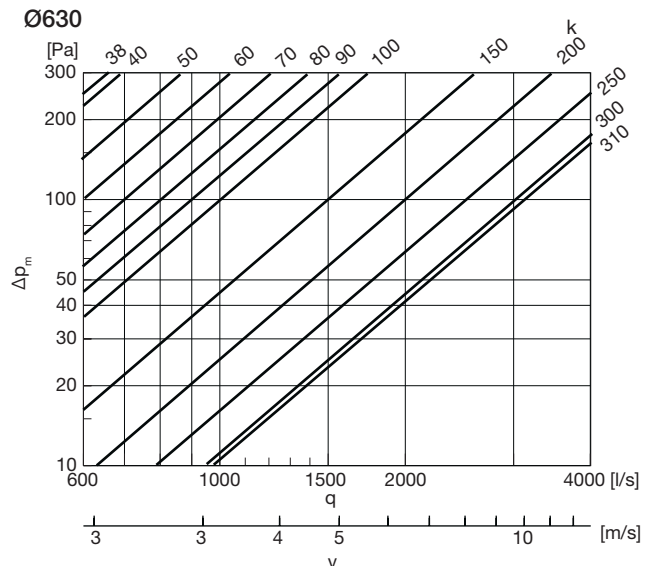
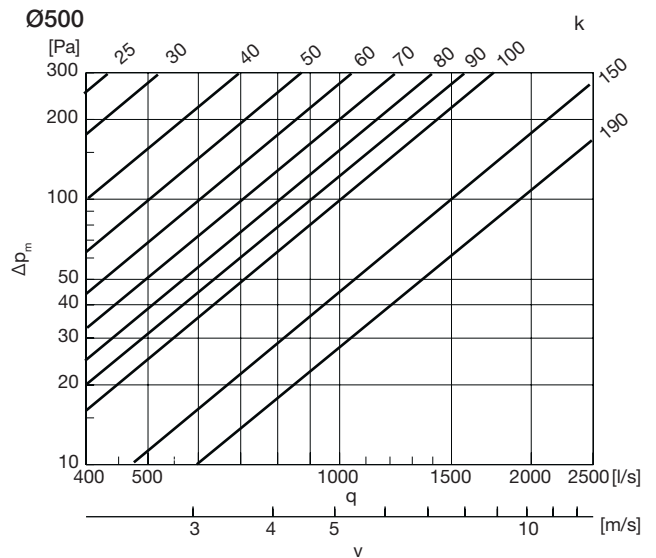
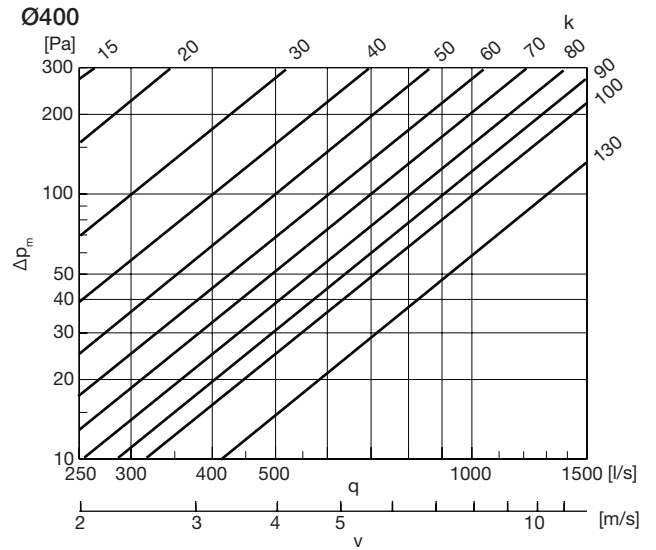
Damper with flow meter

DIRU, DIRBU, DIRVU

Pressure drop graphs with noise data for dimensioning



Flow graphs for balancing



Damper with flow meter DIRU, DIRBU, DIRVU

Sound data

Sound power level L_{W} , [dB] to duct in the octave bands 1–8, 63–8000 Hz, as a function of dimension, flow and pressure drop.

| dim $\varnothing d_1$ | Pressure drop [Pa] | Velocity app. 1 [m/s] | | | | | | | Velocity app. 3 [m/s] | | | | | | | Velocity app. 6 [m/s] | | | | | | | | |
|--------------------------|-------------------------------|-----------------------|-----|-----|-----|----|----|----|-----------------------|----|-----|-----|-----|----|----|-----------------------|----|----|-----|-----|-----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | Centre frequency [Hz] | | | | | | | Centre frequency [Hz] | | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k |
| 80 | 300 200 100 50 20 | Flow 5 [l/s] | | | | | | | Flow 15 [l/s] | | | | | | | Flow 30 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 74 | 73 | 70 | 68 | 61 | 61 | 61 | 49 |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 71 | 70 | 68 | 63 | 54 | 50 | 49 | 37 |
| | | - | - | - | - | - | - | - | 65 | 58 | 52 | 45 | 42 | 40 | 37 | 23 | 68 | 67 | 66 | 58 | 52 | 47 | 43 | 31 |
| | | - | - | - | - | - | - | - | 62 | 55 | 50 | 39 | 35 | 32 | 23 | 17 | 65 | 64 | 62 | 53 | 48 | 42 | 35 | 24 |
| | | 56 | 45 | 31 | 24 | 18 | 13 | 3 | 9 | 60 | 53 | 43 | 34 | 28 | 21 | 11 | 15 | 62 | 61 | 56 | 48 | 42 | 34 | 23 |
| 100 | 300 200 100 50 20 | Flow 8 [l/s] | | | | | | | Flow 25 [l/s] | | | | | | | Flow 45 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 95 | 90 | 76 | 67 | 58 | 49 | 40 | 36 |
| | | - | - | - | - | - | - | - | 85 | 78 | 65 | 55 | 46 | 37 | 28 | 24 | 86 | 79 | 68 | 56 | 47 | 38 | 29 | 25 |
| | | - | - | - | - | - | - | - | 74 | 67 | 54 | 44 | 35 | 26 | 17 | 13 | 77 | 70 | 57 | 47 | 38 | 29 | 20 | 16 |
| | | - | - | - | - | - | - | - | 66 | 59 | 46 | 36 | 27 | 18 | 9 | 7 | 70 | 63 | 50 | 40 | 31 | 22 | 13 | 11 |
| | | 53 | 48 | 35 | 25 | 17 | 9 | 2 | 1 | 60 | 53 | 40 | 30 | 22 | 14 | 5 | 4 | 66 | 59 | 46 | 36 | 27 | 18 | 9 |
| 125 | 300 200 100 50 20 | Flow 10 [l/s] | | | | | | | Flow 45 [l/s] | | | | | | | Flow 75 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | 83 | 78 | 67 | 56 | 46 | 37 | 29 | 26 | 85 | 80 | 69 | 58 | 48 | 39 | 31 | 28 |
| | | - | - | - | - | - | - | - | 74 | 69 | 58 | 47 | 37 | 28 | 20 | 17 | 78 | 73 | 62 | 51 | 41 | 32 | 24 | 21 |
| | | - | - | - | - | - | - | - | 63 | 58 | 47 | 36 | 26 | 17 | 9 | 6 | 72 | 67 | 56 | 45 | 35 | 26 | 18 | 15 |
| | | - | - | - | - | - | - | - | 60 | 55 | 44 | 33 | 23 | 14 | 6 | 5 | 70 | 65 | 54 | 43 | 33 | 24 | 16 | 13 |
| | | 52 | 48 | 37 | 26 | 16 | 7 | 1 | 1 | 58 | 52 | 41 | 30 | 20 | 11 | 3 | 4 | 67 | 62 | 51 | 40 | 30 | 21 | 13 |
| 150 | 300 200 100 50 20 | Flow 20 [l/s] | | | | | | | Flow 50 [l/s] | | | | | | | Flow 110 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 85 | 79 | 67 | 57 | 49 | 41 | 32 | 29 |
| | | - | - | - | - | - | - | - | 64 | 58 | 46 | 36 | 28 | 20 | 12 | 9 | 78 | 72 | 60 | 50 | 42 | 34 | 25 | 22 |
| | | - | - | - | - | - | - | - | 56 | 50 | 38 | 28 | 20 | 12 | 5 | 4 | 71 | 65 | 53 | 43 | 35 | 27 | 18 | 15 |
| | | - | - | - | - | - | - | - | 51 | 45 | 33 | 23 | 15 | 7 | 3 | 3 | 66 | 60 | 48 | 38 | 30 | 22 | 13 | 10 |
| | | 45 | 39 | 27 | 17 | 9 | 1 | 1 | 1 | 51 | 45 | 33 | 23 | 15 | 7 | 3 | 3 | 62 | 56 | 44 | 34 | 26 | 18 | 9 |
| 160 | 300 200 100 50 20 | Flow 20 [l/s] | | | | | | | Flow 60 [l/s] | | | | | | | Flow 120 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 90 | 81 | 71 | 61 | 53 | 45 | 36 | 33 |
| | | - | - | - | - | - | - | - | 77 | 68 | 58 | 48 | 40 | 32 | 23 | 20 | 82 | 73 | 63 | 53 | 45 | 37 | 28 | 25 |
| | | - | - | - | - | - | - | - | 69 | 60 | 50 | 40 | 32 | 24 | 15 | 12 | 74 | 65 | 55 | 45 | 37 | 29 | 20 | 17 |
| | | - | - | - | - | - | - | - | 60 | 51 | 41 | 31 | 23 | 15 | 7 | 6 | 68 | 59 | 49 | 39 | 31 | 23 | 14 | 11 |
| | | 47 | 37 | 28 | 18 | 10 | 1 | 2 | 1 | 53 | 45 | 34 | 24 | 16 | 9 | 4 | 3 | 63 | 54 | 44 | 34 | 26 | 18 | 9 |
| 200 | 300 200 100 50 20 | Flow 30 [l/s] | | | | | | | Flow 95 [l/s] | | | | | | | Flow 190 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 93 | 83 | 74 | 65 | 57 | 51 | 44 | 40 |
| | | - | - | - | - | - | - | - | 67 | 57 | 48 | 39 | 31 | 25 | 18 | 14 | 84 | 74 | 65 | 56 | 48 | 42 | 35 | 31 |
| | | - | - | - | - | - | - | - | 56 | 46 | 37 | 28 | 20 | 14 | 9 | 6 | 75 | 65 | 56 | 47 | 39 | 33 | 26 | 22 |
| | | - | - | - | - | - | - | - | 52 | 42 | 33 | 24 | 16 | 10 | 5 | 4 | 66 | 56 | 47 | 38 | 30 | 24 | 17 | 13 |
| | | 44 | 34 | 24 | 14 | 7 | 2 | 1 | 1 | 48 | 38 | 28 | 24 | 16 | 11 | 4 | 3 | 63 | 53 | 44 | 35 | 27 | 21 | 14 |
| 250 | 300 200 100 50 20 | Flow 50 [l/s] | | | | | | | Flow 150 [l/s] | | | | | | | Flow 290 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 87 | 77 | 67 | 55 | 55 | 50 | 43 | 40 |
| | | - | - | - | - | - | - | - | 71 | 61 | 51 | 49 | 39 | 34 | 27 | 24 | 77 | 67 | 57 | 55 | 45 | 40 | 33 | 30 |
| | | - | - | - | - | - | - | - | 60 | 50 | 40 | 38 | 28 | 23 | 16 | 13 | 67 | 57 | 47 | 45 | 35 | 30 | 23 | 20 |
| | | - | - | - | - | - | - | - | 51 | 41 | 31 | 29 | 19 | 14 | 7 | 4 | 59 | 49 | 39 | 37 | 27 | 22 | 15 | 12 |
| | | 44 | 34 | 24 | 22 | 12 | 7 | 2 | 1 | 48 | 38 | 28 | 26 | 16 | 11 | 4 | 3 | 55 | 45 | 35 | 33 | 23 | 18 | 11 |
| 300 | 300 200 100 50 20 | Flow 70 [l/s] | | | | | | | Flow 210 [l/s] | | | | | | | Flow 420 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 82 | 74 | 65 | 63 | 56 | 51 | 42 | 41 |
| | | - | - | - | - | - | - | - | 70 | 62 | 53 | 51 | 44 | 39 | 30 | 29 | 73 | 65 | 56 | 54 | 47 | 42 | 33 | 32 |
| | | - | - | - | - | - | - | - | 59 | 51 | 42 | 40 | 33 | 28 | 19 | 18 | 64 | 56 | 47 | 45 | 38 | 33 | 24 | 23 |
| | | - | - | - | - | - | - | - | 49 | 41 | 32 | 30 | 23 | 18 | 9 | 8 | 58 | 50 | 41 | 39 | 32 | 27 | 18 | 17 |
| | | 33 | 25 | 16 | 14 | 7 | 4 | 2 | 1 | 42 | 34 | 25 | 23 | 16 | 11 | 3 | 2 | 53 | 45 | 36 | 34 | 27 | 22 | 13 |
| 315 | 300 200 100 50 20 | Flow 80 [l/s] | | | | | | | Flow 230 [l/s] | | | | | | | Flow 465 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 83 | 76 | 67 | 65 | 59 | 54 | 45 | 45 |
| | | - | - | - | - | - | - | - | 71 | 64 | 55 | 53 | 47 | 42 | 33 | 33 | 74 | 67 | 58 | 56 | 50 | 45 | 36 | 36 |
| | | - | - | - | - | - | - | - | 59 | 52 | 43 | 41 | 35 | 30 | 21 | 21 | 65 | 58 | 49 | 47 | 41 | 36 | 27 | 27 |
| | | - | - | - | - | - | - | - | 48 | 41 | 32 | 30 | 24 | 19 | 10 | 10 | 59 | 52 | 43 | 41 | 35 | 30 | 21 | 21 |
| | | 34 | 27 | 18 | 16 | 10 | 5 | 2 | 1 | 43 | 36 | 27 | 25 | 19 | 14 | 6 | 7 | 56 | 49 | 40 | 38 | 32 | 27 | 18 |
| 400 | 300 200 100 50 20 | Flow 130 [l/s] | | | | | | | Flow 370 [l/s] | | | | | | | Flow 750 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 81 | 74 | 66 | 65 | 59 | 55 | 49 | 47 |
| | | - | - | - | - | - | - | - | 72 | 65 | 57 | 56 | 50 | 46 | 40 | 38 | 73 | 66 | 58 | 57 | 51 | 47 | 41 | 39 |
| | | - | - | - | - | - | - | - | 64 | 57 | 49 | 48 | 42 | 38 | 32 | 30 | 65 | 58 | 50 | 49 | 43 | 39 | 33 | 31 |
| | | - | - | - | - | - | - | - | 56 | 49 | 41 | 40 | 34 | 30 | 24 | 22 | 59 | 52 | 44 | 43 | 37 | 33 | 27 | 25 |
| | | 42 | 35 | 27 | 26 | 20 | 16 | 10 | 8 | 50 | 43 | 35 | 34 | 28 | 24 | 18 | 16 | 55 | 48 | 40 | 39 | 33 | 29 | 23 |
| 500 | 300 200 100 50 20 | Flow 200 [l/s] | | | | | | | Flow 590 [l/s] | | | | | | | Flow 1180 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 89 | 79 | 70 | 64 | 56 | 50 | 41 | 36 |
| | | - | - | - | - | - | - | - | 75 | 65 | 56 | 50 | 42 | 36 | 27 | 22 | 84 | 74 | 65 | 59 | 51 | 45 | 36 | 31 |
| | | - | - | - | - | - | - | - | 69 | 59 | 50 | 44 | 36 | 30 | 21 | 16 | 79 | 69 | 60 | 54 | 46 | 40 | 31 | 26 |
| | | - | - | - | - | - | - | - | 63 | 53 | 44 | 38 | 30 | 24 | 15 | 10 | 72 | 62 | 53 | 47 | 39 | 33 | 24 | 19 |
| | | 45 | 35 | 26 | 20 | 12 | 6 | 2 | 1 | 57 | 47 | 38 | 32 | 24 | 18 | 9 | 4 | 67 | 57 | 48 | 42 | 34 | 28 | 19 |
| 630 | 300 200 100 50 20 | Flow 310 [l/s] | | | | | | | Flow 940 [l/s] | | | | | | | Flow 1870 [l/s] | | | | | | | | |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 86 | 76 | 69 | 64 | 59 | 56 | 53 | 46 |
| | | - | - | - | - | - | - | - | 79 | 69 | 62 | 57 | 52 | 49 | 46 | 40 | 80 | 70 | 63 | 58 | 53 | 50 | 47 | 41 |
| | | - | - | - | - | - | - | - | 73 | 63 | 56 | 51 | 46 | 43 | 40 | 34 | 74 | 64 | 57 | 52 | 47 | 44 | 41 | 36 |
| | | - | - | - | - | - | - | - | 67 | 57 | 50 | 45 | 40 | 37 | 34 | 28 | 69 | 59 | 52 | 47 | 42 | 39 | 36 | 30 |
| | | 54 | 44 | 37 | 32 | 27 | 24 | 21 | 15 | 62 | 52 | 45 | 40 | 35 | 32 | 29 | 23 | 60 | 50 | 43 | 38 | 33 | 30 | 27 |

Damper with flow meter DIRU, DIRBU, DIRVU

| dim Ød ₁ | Pressure drop [Pa] | Velocity app. 9 [m/s] | | | | | | | | Velocity app. 12 [m/s] | | | | | | | | Velocity app. 15 [m/s] | | | | | | | |
|------------------------|-----------------------|-----------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 45 [l/s] | | | | | | | | Flow 60 [l/s] | | | | | | | | Flow 75 [l/s] | | | | | | | |
| | 300 | 79 | 76 | 74 | 73 | 72 | 73 | 75 | 60 | 84 | 80 | 78 | 79 | 80 | 79 | 83 | 76 | 89 | 84 | 82 | 85 | 88 | 85 | 91 | 92 |
| | 200 | 75 | 74 | 73 | 69 | 66 | 65 | 64 | 50 | 79 | 78 | 77 | 75 | 74 | 73 | 72 | 62 | 83 | 82 | 81 | 81 | 82 | 81 | 80 | 74 |
| | 100 | 71 | 72 | 72 | 65 | 60 | 57 | 53 | 40 | 74 | 76 | 76 | 71 | 68 | 67 | 61 | 48 | - | - | - | - | - | - | - | - |
| | 50 | 66 | 68 | 67 | 60 | 54 | 48 | 41 | 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 100 | | Flow 70 [l/s] | | | | | | | | Flow 95 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | |
| | 300 | 97 | 91 | 77 | 68 | 59 | 50 | 41 | 38 | 101 | 95 | 82 | 73 | 64 | 55 | 47 | 43 | 106 | 98 | 90 | 76 | 68 | 59 | 53 | 45 |
| | 200 | 89 | 82 | 69 | 59 | 50 | 41 | 32 | 30 | 95 | 87 | 77 | 65 | 56 | 47 | 39 | 35 | 101 | 92 | 85 | 71 | 62 | 53 | 46 | 40 |
| | 100 | 83 | 76 | 63 | 53 | 44 | 35 | 26 | 23 | 89 | 82 | 70 | 59 | 50 | 41 | 32 | 29 | 95 | 88 | 77 | 65 | 56 | 47 | 38 | 35 |
| | 50 | 77 | 70 | 57 | 47 | 38 | 29 | 20 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 125 | | Flow 110 [l/s] | | | | | | | | Flow 145 [l/s] | | | | | | | | Flow 180 [l/s] | | | | | | | |
| | 300 | 86 | 82 | 71 | 60 | 50 | 41 | 33 | 30 | 88 | 84 | 73 | 62 | 52 | 43 | 35 | 32 | 90 | 86 | 75 | 64 | 54 | 45 | 37 | 34 |
| | 200 | 81 | 76 | 65 | 54 | 44 | 35 | 27 | 24 | 84 | 79 | 68 | 57 | 47 | 38 | 30 | 27 | 87 | 82 | 71 | 60 | 50 | 41 | 33 | 30 |
| | 100 | 78 | 73 | 62 | 51 | 41 | 32 | 24 | 21 | 81 | 76 | 65 | 54 | 44 | 35 | 27 | 24 | 84 | 79 | 68 | 57 | 47 | 38 | 30 | 27 |
| | 50 | 75 | 70 | 59 | 48 | 38 | 29 | 21 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 150 | | Flow 160 [l/s] | | | | | | | | Flow 210 [l/s] | | | | | | | | Flow 260 [l/s] | | | | | | | |
| | 300 | 89 | 83 | 71 | 61 | 53 | 45 | 36 | 33 | 92 | 86 | 74 | 64 | 56 | 48 | 39 | 36 | 94 | 88 | 76 | 66 | 58 | 50 | 41 | 38 |
| | 200 | 83 | 77 | 65 | 55 | 47 | 39 | 30 | 27 | 87 | 81 | 69 | 59 | 51 | 43 | 34 | 31 | 91 | 85 | 73 | 63 | 55 | 47 | 38 | 35 |
| | 100 | 77 | 71 | 59 | 49 | 41 | 33 | 24 | 21 | 82 | 76 | 64 | 54 | 46 | 38 | 29 | 26 | 87 | 81 | 69 | 59 | 51 | 43 | 34 | 31 |
| | 50 | 73 | 67 | 55 | 45 | 37 | 29 | 20 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 160 | | Flow 180 [l/s] | | | | | | | | Flow 240 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | |
| | 300 | 97 | 88 | 78 | 68 | 60 | 52 | 43 | 40 | 105 | 96 | 86 | 76 | 68 | 60 | 51 | 48 | 113 | 104 | 94 | 84 | 76 | 68 | 59 | 56 |
| | 200 | 89 | 80 | 70 | 60 | 52 | 44 | 35 | 32 | 97 | 88 | 78 | 68 | 60 | 52 | 43 | 40 | 105 | 96 | 86 | 76 | 68 | 60 | 51 | 48 |
| | 100 | 81 | 72 | 62 | 52 | 44 | 36 | 27 | 24 | 89 | 80 | 70 | 60 | 52 | 44 | 35 | 32 | 97 | 88 | 78 | 68 | 60 | 52 | 43 | 40 |
| | 50 | 75 | 66 | 56 | 46 | 38 | 30 | 21 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 200 | | Flow 285 [l/s] | | | | | | | | Flow 380 [l/s] | | | | | | | | Flow 475 [l/s] | | | | | | | |
| | 300 | 94 | 84 | 75 | 66 | 58 | 52 | 45 | 41 | 95 | 85 | 76 | 67 | 59 | 53 | 46 | 42 | 97 | 87 | 78 | 69 | 61 | 55 | 48 | 44 |
| | 200 | 86 | 76 | 67 | 58 | 50 | 44 | 37 | 33 | 89 | 79 | 70 | 61 | 53 | 47 | 40 | 36 | 92 | 82 | 73 | 64 | 56 | 50 | 43 | 39 |
| | 100 | 79 | 69 | 60 | 51 | 43 | 37 | 30 | 26 | 83 | 73 | 64 | 55 | 47 | 41 | 34 | 30 | 87 | 77 | 68 | 59 | 51 | 45 | 38 | 34 |
| | 50 | 73 | 63 | 54 | 45 | 37 | 31 | 24 | 20 | 78 | 68 | 59 | 50 | 42 | 36 | 29 | 25 | - | - | - | - | - | - | - | - |
| 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 250 | | Flow 440 [l/s] | | | | | | | | Flow 590 [l/s] | | | | | | | | Flow 740 [l/s] | | | | | | | |
| | 300 | 94 | 84 | 74 | 72 | 62 | 57 | 50 | 47 | 102 | 95 | 82 | 80 | 70 | 65 | 58 | 55 | 110 | 106 | 90 | 88 | 78 | 73 | 66 | 63 |
| | 200 | 85 | 75 | 65 | 63 | 53 | 48 | 41 | 38 | 95 | 87 | 75 | 73 | 63 | 58 | 51 | 48 | 105 | 99 | 85 | 83 | 73 | 68 | 61 | 58 |
| | 100 | 76 | 66 | 56 | 54 | 44 | 39 | 32 | 29 | 88 | 79 | 68 | 66 | 56 | 51 | 44 | 41 | 100 | 92 | 80 | 78 | 68 | 63 | 56 | 53 |
| | 50 | 70 | 60 | 50 | 48 | 38 | 33 | 26 | 23 | 82 | 72 | 62 | 60 | 50 | 45 | 38 | 35 | 94 | 84 | 74 | 72 | 62 | 57 | 50 | 47 |
| 20 | 65 | 55 | 45 | 43 | 33 | 28 | 21 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 300 | | Flow 640 [l/s] | | | | | | | | Flow 850 [l/s] | | | | | | | | Flow 1060 [l/s] | | | | | | | |
| | 300 | 84 | 76 | 67 | 65 | 58 | 53 | 44 | 43 | 88 | 80 | 71 | 69 | 62 | 57 | 48 | 47 | 92 | 84 | 75 | 73 | 66 | 61 | 52 | 51 |
| | 200 | 77 | 69 | 60 | 58 | 51 | 46 | 37 | 36 | 81 | 73 | 64 | 62 | 55 | 50 | 41 | 40 | 85 | 77 | 68 | 66 | 59 | 54 | 45 | 44 |
| | 100 | 70 | 62 | 53 | 51 | 44 | 39 | 30 | 29 | 74 | 66 | 57 | 55 | 48 | 43 | 34 | 33 | 78 | 70 | 61 | 59 | 52 | 47 | 38 | 37 |
| | 50 | 66 | 58 | 49 | 47 | 40 | 35 | 26 | 25 | 70 | 62 | 53 | 51 | 44 | 39 | 30 | 29 | 74 | 66 | 57 | 55 | 48 | 43 | 34 | 33 |
| 20 | 62 | 54 | 45 | 43 | 36 | 31 | 22 | 21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 315 | | Flow 700 [l/s] | | | | | | | | Flow 935 [l/s] | | | | | | | | Flow 1170 [l/s] | | | | | | | |
| | 300 | 84 | 77 | 68 | 66 | 60 | 55 | 46 | 46 | 85 | 78 | 69 | 67 | 61 | 56 | 47 | 47 | 86 | 79 | 70 | 68 | 62 | 57 | 48 | 48 |
| | 200 | 77 | 70 | 61 | 59 | 53 | 48 | 39 | 39 | 79 | 72 | 63 | 61 | 55 | 50 | 41 | 41 | 81 | 74 | 65 | 63 | 57 | 52 | 43 | 43 |
| | 100 | 70 | 63 | 54 | 52 | 46 | 41 | 32 | 32 | 74 | 67 | 58 | 56 | 50 | 45 | 36 | 36 | 78 | 71 | 62 | 60 | 54 | 49 | 40 | 40 |
| | 50 | 66 | 59 | 50 | 48 | 42 | 37 | 28 | 28 | 70 | 63 | 54 | 52 | 46 | 41 | 32 | 32 | 74 | 67 | 58 | 56 | 50 | 45 | 36 | 36 |
| 20 | 63 | 56 | 47 | 45 | 39 | 34 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 400 | | Flow 1130 [l/s] | | | | | | | | Flow 1510 [l/s] | | | | | | | | Flow 1890 [l/s] | | | | | | | |
| | 300 | 87 | 80 | 72 | 71 | 65 | 61 | 55 | 53 | 88 | 81 | 73 | 72 | 66 | 62 | 56 | 54 | 89 | 82 | 74 | 73 | 67 | 63 | 57 | 55 |
| | 200 | 79 | 72 | 64 | 63 | 57 | 53 | 47 | 45 | 81 | 74 | 66 | 65 | 59 | 55 | 49 | 47 | 83 | 76 | 68 | 67 | 61 | 57 | 51 | 49 |
| | 100 | 71 | 64 | 56 | 55 | 49 | 45 | 39 | 37 | 74 | 67 | 59 | 56 | 52 | 48 | 42 | 40 | 77 | 70 | 62 | 61 | 55 | 54 | 45 | 43 |
| | 50 | 66 | 59 | 51 | 50 | 44 | 40 | 34 | 32 | 70 | 63 | 55 | 54 | 48 | 44 | 38 | 36 | 74 | 67 | 59 | 58 | 52 | 48 | 42 | 40 |
| 20 | 63 | 56 | 48 | 47 | 41 | 37 | 31 | 29 | 68 | 61 | 53 | 52 | 46 | 42 | 36 | 34 | - | - | - | - | - | - | - | - | |
| 500 | | Flow 1770 [l/s] | | | | | | | | Flow 2360 [l/s] | | | | | | | | Flow 2950 [l/s] | | | | | | | |
| | 300 | 92 | 82 | 73 | 67 | 59 | 53 | 44 | 39 | 95 | 85 | 76 | 70 | 62 | 56 | 47 | 42 | 98 | 88 | 79 | 73 | 65 | 59 | 50 | 45 |
| | 200 | 88 | 78 | 69 | 63 | 55 | 49 | 40 | 35 | 92 | 82 | 73 | 67 | 59 | 53 | 44 | 39 | 96 | 86 | 77 | 71 | 63 | 57 | 48 | 43 |
| | 100 | 84 | 74 | 65 | 59 | 51 | 45 | 36 | 31 | 89 | 79 | 70 | 64 | 56 | 50 | 41 | 36 | 94 | 84 | 75 | 69 | 61 | 55 | 46 | 41 |
| | 50 | 77 | 67 | 58 | 52 | 44 | 38 | 29 | 24 | 82 | 72 | 63 | 57 | 49 | 43 | 34 | 29 | 87 | 77 | 68 | 62 | 54 | 48 | 39 | 34 |
| 20 | 73 | 63 | 54 | 48 | 40 | 34 | 25 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 630 | | Flow 2810 [l/s] | | | | | | | | Flow 3740 [l/s] | | | | | | | | Flow 4680 [l/s] | | | | | | | |
| | 300 | 93 | 83 | 76 | 71 | 66 | 63 | 60 | 53 | 97 | 87 | 80 | 75 | 70 | 67 | 64 | 58 | 101 | 91 | 84 | 79 | 74 | 71 | 68 | 63 |
| | 200 | 86 | 76 | 69 | 64 | 59 | 56 | 53 | 47 | 90 | 80 | 73 | 68 | 63 | 60 | 57 | 51 | 94 | 84 | 77 | 72 | 67 | 64 | 61 | 55 |
| | 100 | 79 | 69 | 62 | 57 | 52 | 49 | 46 | 41 | 83 | 73 | 66 | 61 | 56 | 53 | 50 | 44 | 87 | 77 | 70 | 65 | 60 | 57 | 54 | 47 |
| | 50 | 72 | 62 | 55 | 50 | 45 | 42 | 39 | 33 | 74 | 64 | 57 | 52 | 47 | 44 | 41 | 35 | 76 | 66 | 59 | 54 | 49 | 46 | 43 | 37 |
| 20 | 63 | 53 | 46 | 41 | 36 | 33 | 30 | 24 | 64 | 54 | 47 | 42 | 37 | 34 | 31 | 25 | - | - | - | - | - | - | - | - | |

Shut-off damper

DSU



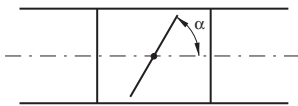
Description

Has a turning, circular blade. The blade is stepless adjustable 0–90°. The damper is used when you have lower demands for shut-off capacity. The damper admits an insulation thickness of approx. 50 mm.

The damper can on occasions be used for regulation.

Setting angle α

$\alpha = 0^\circ =$ open blade, $\alpha = 90^\circ =$ closed blade



There is a separate assembly, measuring, balancing and maintenance instruction for this product.

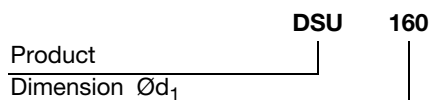
Ø 63–1000 fullfills pressure class A in closed position.

The cup at Ø 80–630 can be complemented with the special insulation cup IK at insulation thicker than 50 mm.

Reinforced blade

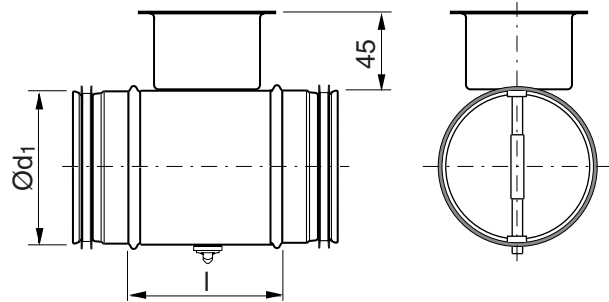


Ordering example

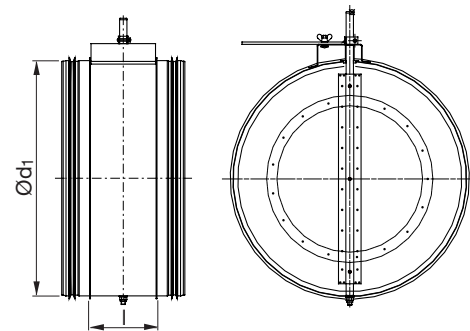


Dimensions

Ø 80–630



Ø 800–1000



| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|------------------------------------|
| 63 | 100 | 0,30 | 0 |
| 80 | 100 | 0,35 | 0 |
| 100 | 100 | 0,40 | 0 |
| 112 | 100 | 0,44 | 0 |
| 125 | 100 | 0,49 | 0 |
| 140 | 100 | 0,54 | 0 |
| 150 | 100 | 0,57 | 0 |
| 160 | 100 | 0,67 | 0 |
| 180 | 100 | 0,73 | 0 |
| 200 | 100 | 0,86 | 0 |
| 224 | 100 | 1,10 | 0 |
| 250 | 100 | 1,31 | 0 |
| 280 | 100 | 1,51 | 0 |
| 300 | 100 | 1,65 | 0 |
| 315 | 100 | 1,81 | 0 |
| 355 | 100 | 2,00 | 0 |
| 400 | 100 | 2,91 | 1 |
| 450 | 100 | 3,90 | 1 |
| 500 | 115 | 4,92 | 1 |
| 560 | 115 | 6,01 | 1 |
| 600 | 115 | 6,40 | 1 |
| 630 | 115 | 6,92 | 1 |
| 800 | 230 | 19,0 | 1 |
| 1000 | 230 | 30,0 | 1 |

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Shut-off damper

DSU

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| Property | Ø 80-315 | Ø 400 | Ø 500 | Ø 630 | Ø 800-1000 |
|---|----------|-------|-------|-------|------------|
| The blade is set via a knob in a protective cup. | x | x | x | x | |
| The setting of the blade is read against an embossed scale at the rim of the cup. | x | x | x | x | |
| The blade is locked with two screws, type Pozidriv (PZD2). | x | x | x | x | |
| The blade has reinforced locking with a sturdy wing nut. | | | | | x |
| The blade is reinforced. | | x | x | x | |
| The blade is additionally reinforced. | | | | | x |
| With sturdy handle. | | x | x | x | |
| With additionally reinforced handle. | | | | | x |
| With reinforced stop beads. | | | x | x | |
| The axle is reinforced. | | | | | x |
| The damper can be delivered prepared for motor. | x | x | x | x | |
| The damper can be delivered with motor. | x | x | x | x | x |

Technical data

Pressure drop graphs with noise data for dimensioning

The solid curves show the pressure drop, Δp_t , over the damper as a function of flow q , and setting angle α .

The dashed curves give the A-weighted sound power data, L_{WA} , in dB to the duct.

Example

Given Dimension Ø100

Flow 60 l/s

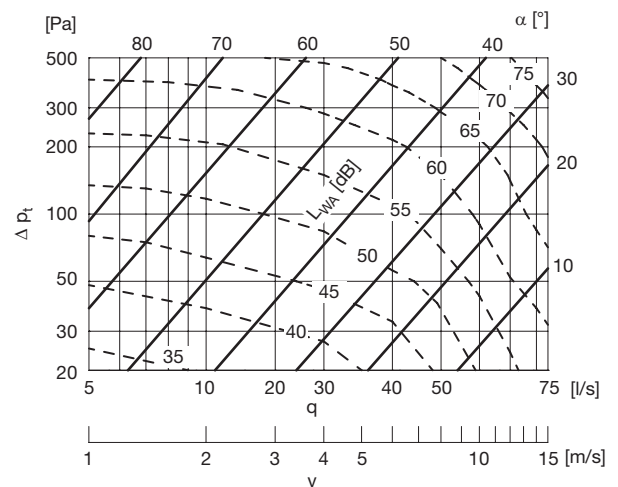
Pressure drop 200 Pa

Obtained from graph

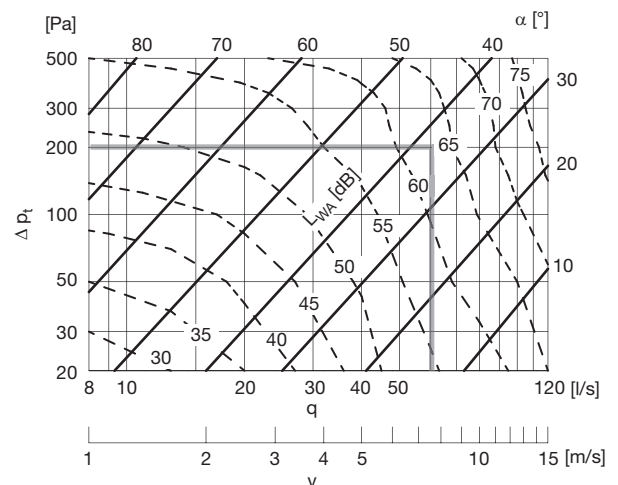
Setting angle 38°

Sound power level 63 dB (A)

Ø80



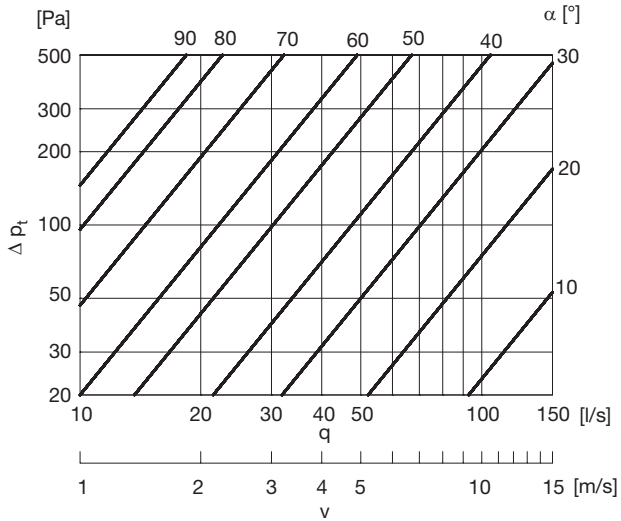
Ø100



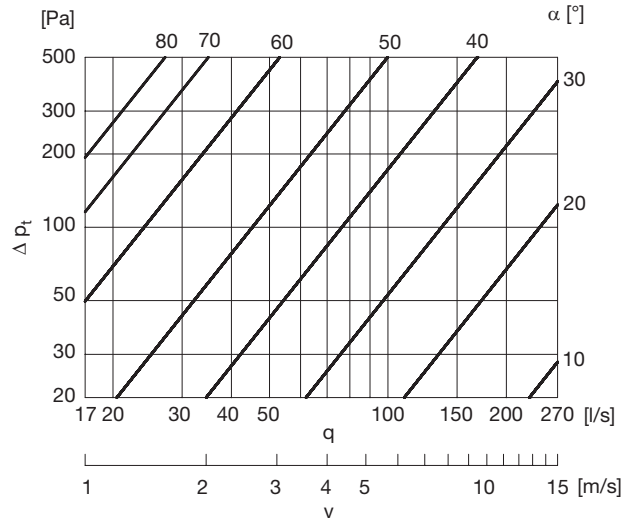
Shut-off damper

DSU

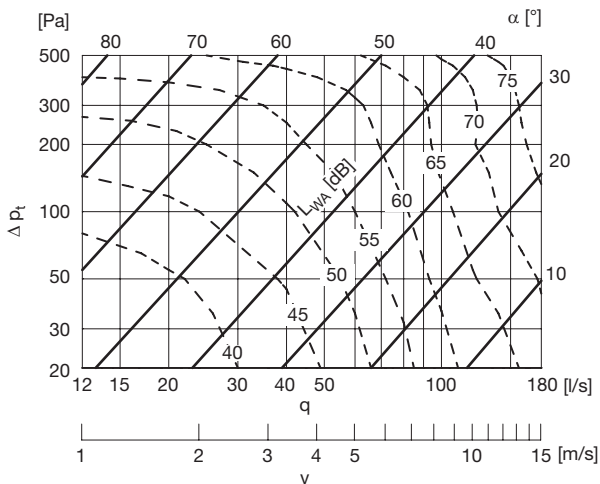
Ø112



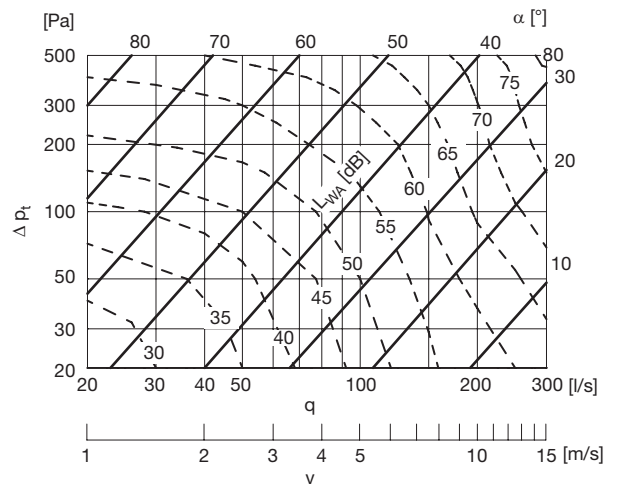
Ø150



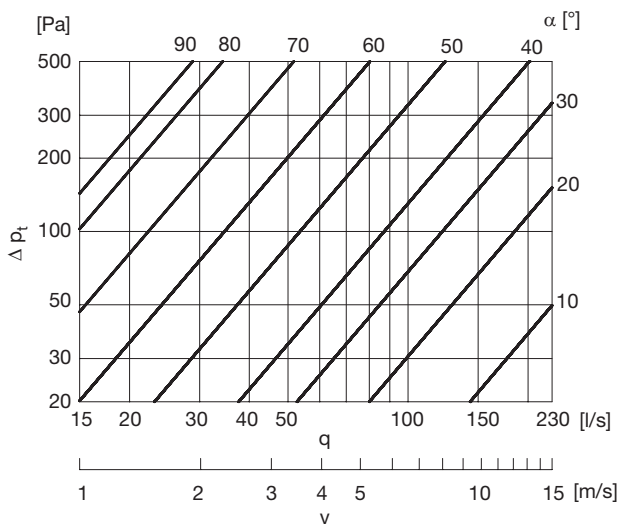
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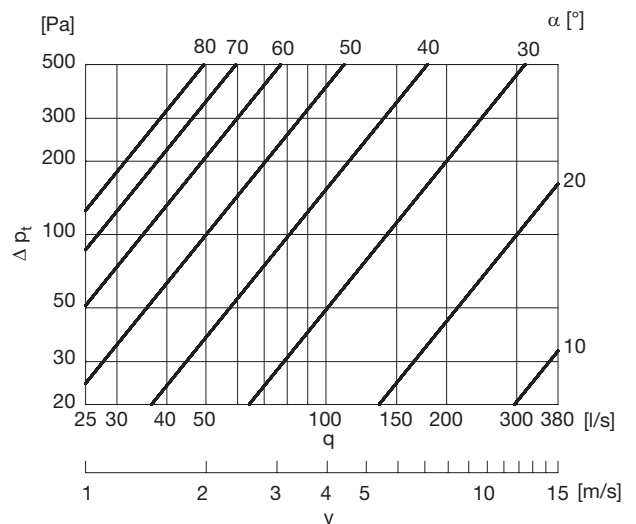
Ø160



Ø140



Ø180



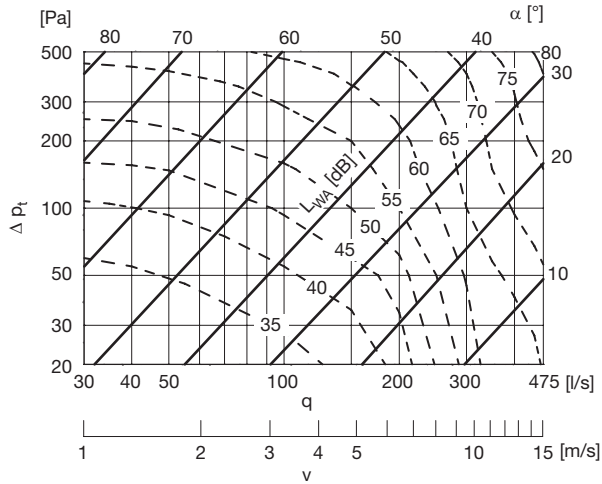
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Shut-off damper

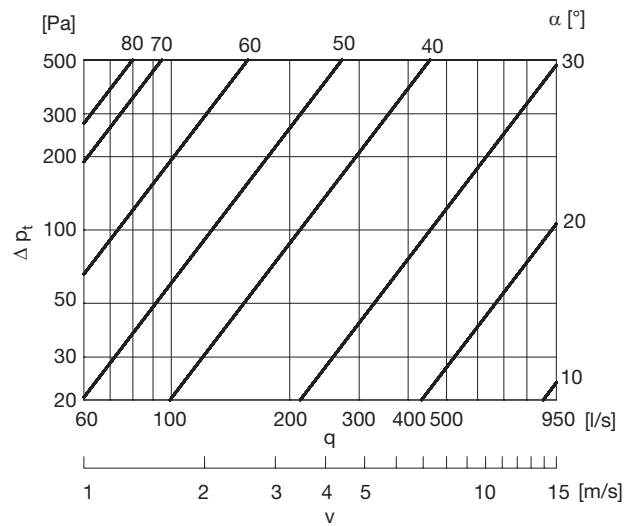
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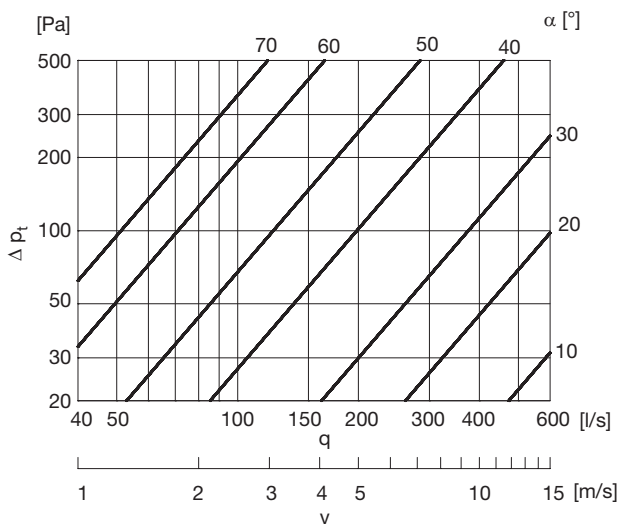
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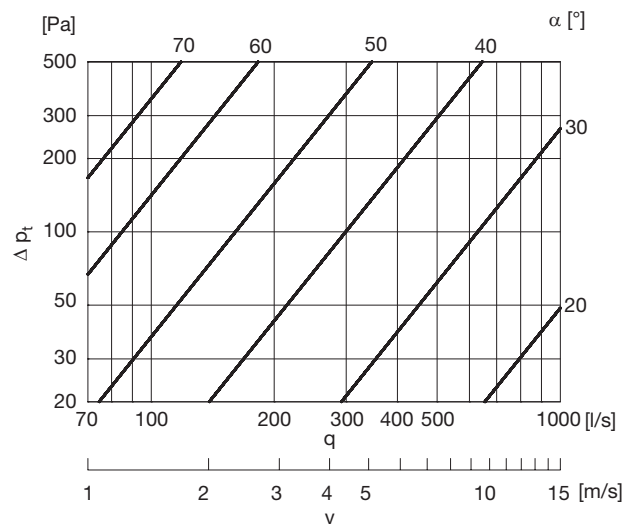
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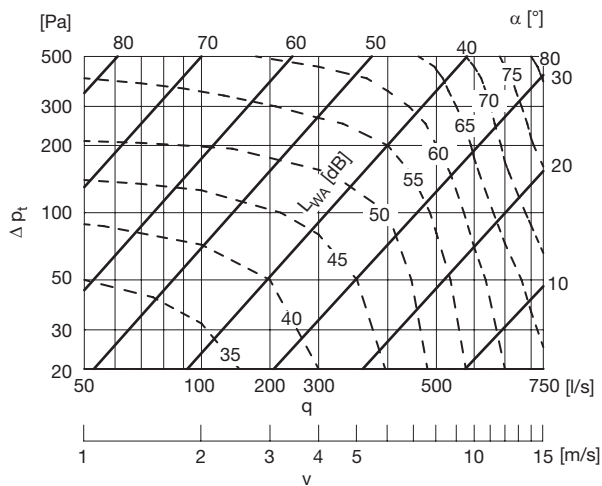
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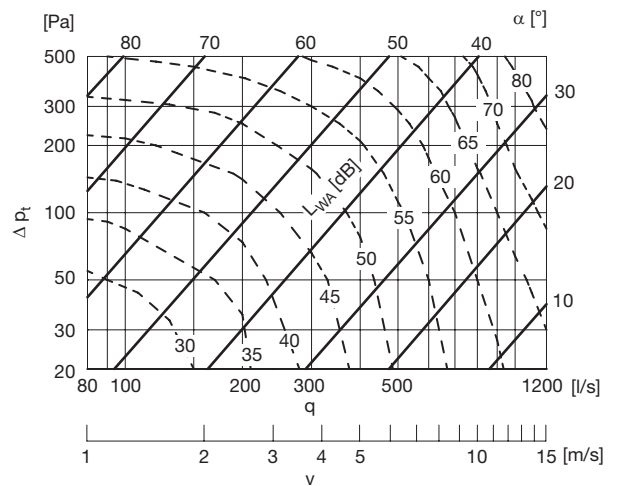
Ø300



Ø250



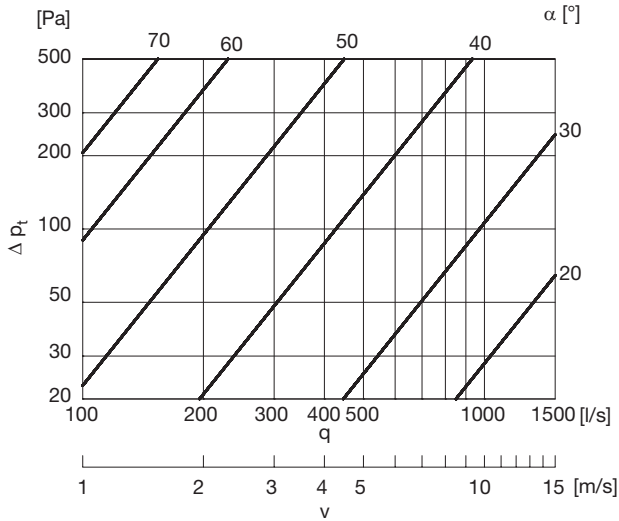
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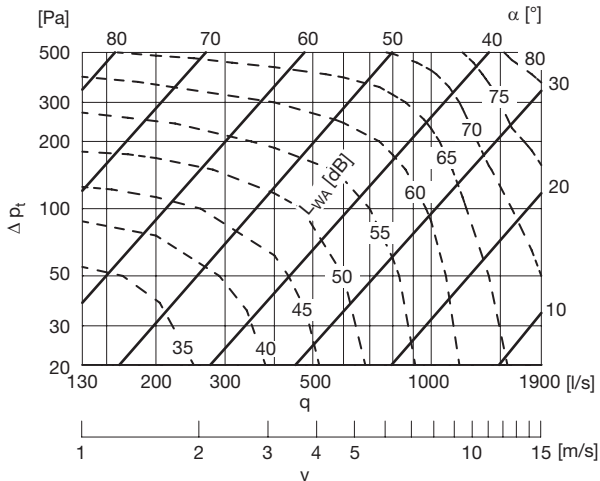
Shut-off damper

DSU

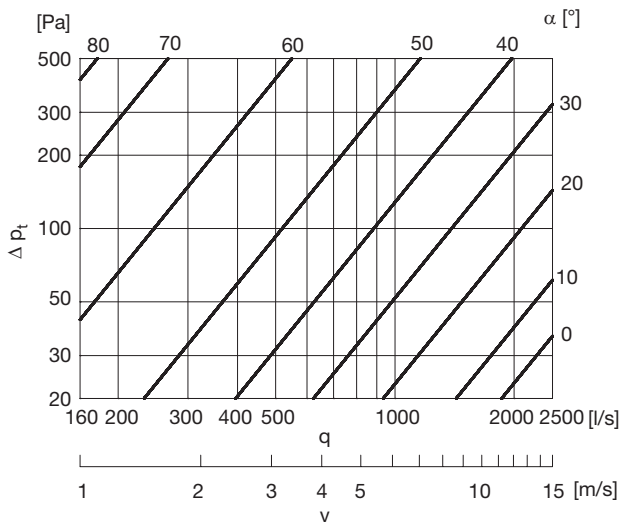
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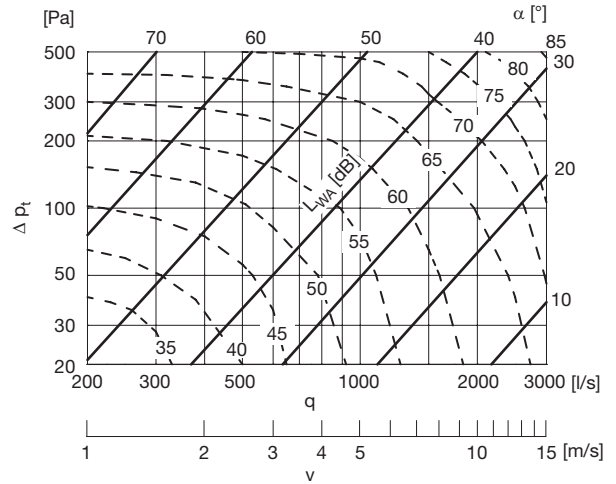
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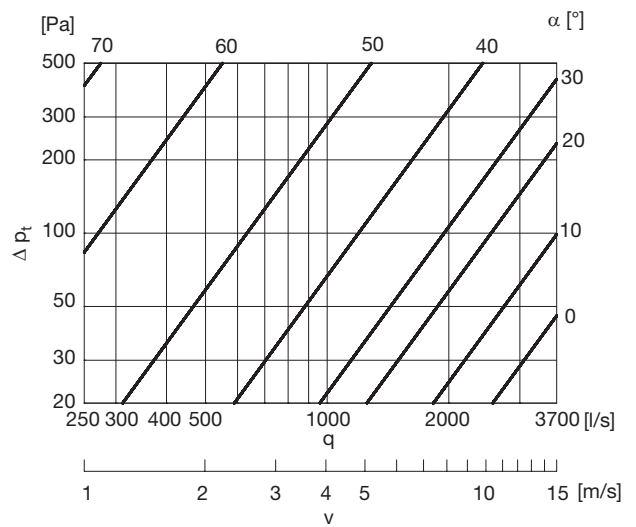
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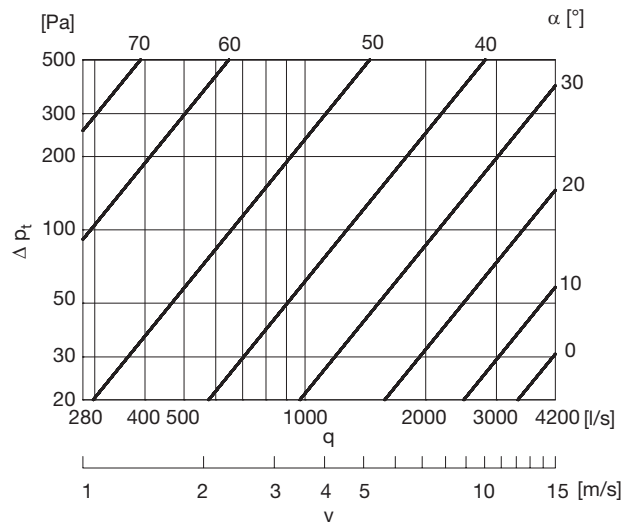
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Ø560



Ø600



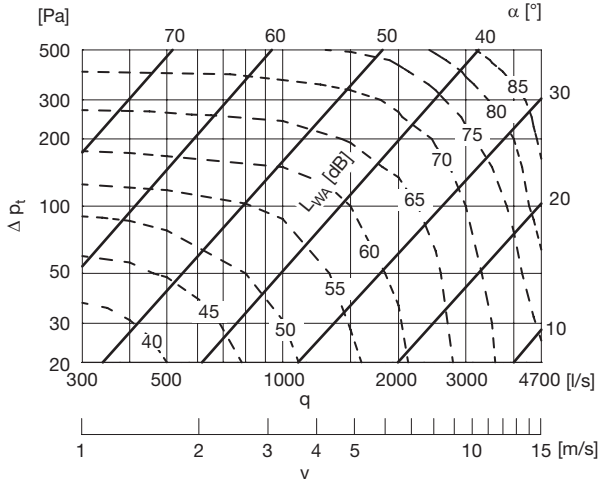
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Shut-off damper

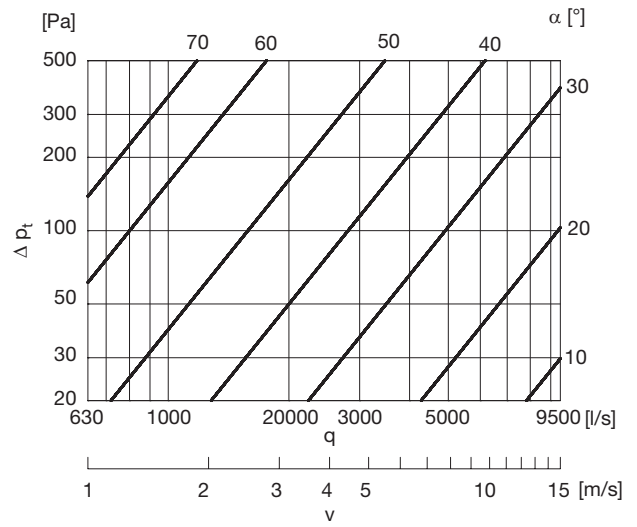
DSU

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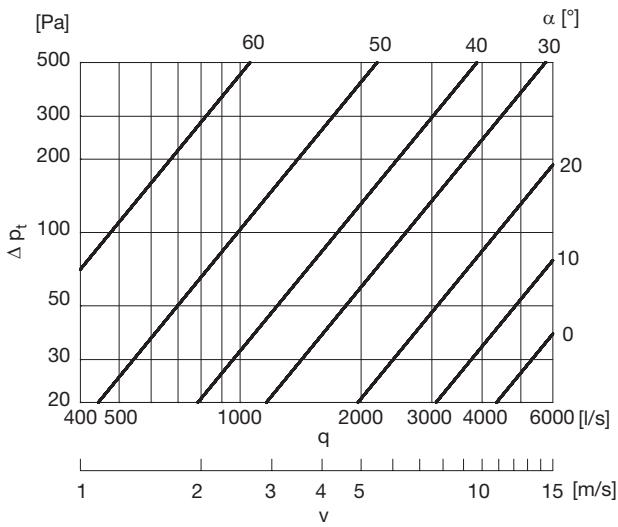
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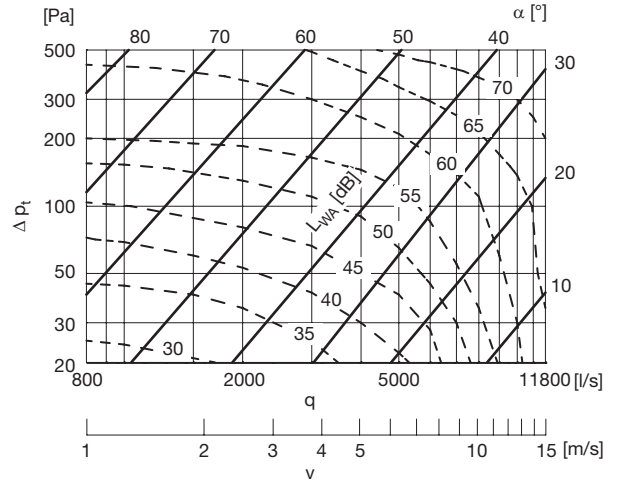
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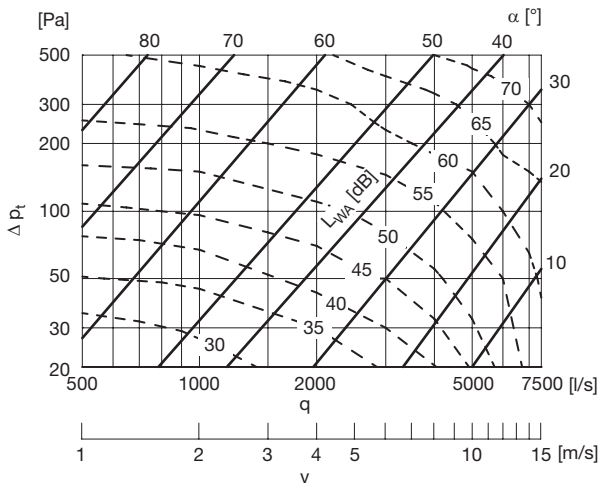
Ø710



Ø1000



Ø800



Shut-off damper

DSU

Sound data

Sound power level L_{W} , [dB] to duct in the octave bands 1–8, 63–8000 Hz, as a function of dimension, flow and pressure drop.

| dim $\varnothing d_1$ | Pressure drop [Pa] | Velocity app. 1 [m/s] | | | | | | | Velocity app. 3 [m/s] | | | | | | | Velocity app. 6 [m/s] | | | | | | | | | |
|--------------------------|-----------------------|-----------------------|-----|-----|-----|----|----|----|-----------------------|----|-----|-----|-----|----|----|-----------------------|----|----|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | Centre frequency [Hz] | | | | | | | Centre frequency [Hz] | | | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 5 [l/s] | | | | | | | Flow 15 [l/s] | | | | | | | Flow 30 [l/s] | | | | | | | | | |
| | 500 | 63 | 63 | 64 | 63 | 58 | 53 | 48 | 45 | 65 | 65 | 65 | 65 | 59 | 55 | 49 | 46 | 67 | 67 | 67 | 67 | 60 | 57 | 50 | 47 |
| | 200 | 61 | 61 | 58 | 52 | 49 | 42 | 33 | 28 | 63 | 63 | 60 | 54 | 51 | 43 | 34 | 29 | 65 | 65 | 62 | 56 | 53 | 44 | 35 | 30 |
| | 100 | 59 | 56 | 50 | 45 | 41 | 28 | 22 | 14 | 60 | 60 | 53 | 48 | 43 | 30 | 23 | 15 | 61 | 64 | 57 | 51 | 46 | 32 | 24 | 16 |
| | 50 | 53 | 49 | 43 | 40 | 33 | 23 | 15 | 8 | 56 | 54 | 47 | 43 | 36 | 25 | 16 | 9 | 59 | 59 | 52 | 47 | 40 | 27 | 17 | 10 |
| 20 | 47 | 42 | 36 | 32 | 25 | 16 | 7 | 1 | 51 | 47 | 39 | 35 | 28 | 18 | 8 | 2 | 54 | 52 | 44 | 39 | 32 | 20 | 9 | 4 | |
| 100 | | Flow 8 [l/s] | | | | | | | Flow 25 [l/s] | | | | | | | Flow 50 [l/s] | | | | | | | | | |
| | 500 | 60 | 60 | 59 | 52 | 50 | 44 | 44 | 44 | 67 | 64 | 64 | 57 | 54 | 48 | 48 | 48 | 72 | 69 | 69 | 62 | 59 | 52 | 52 | 52 |
| | 200 | 53 | 51 | 53 | 43 | 42 | 35 | 32 | 32 | 59 | 58 | 58 | 50 | 48 | 40 | 37 | 37 | 66 | 65 | 64 | 57 | 54 | 45 | 42 | 42 |
| | 100 | 51 | 46 | 44 | 38 | 35 | 28 | 21 | 20 | 58 | 55 | 53 | 46 | 41 | 34 | 26 | 24 | 65 | 64 | 62 | 54 | 48 | 40 | 31 | 29 |
| | 50 | 48 | 42 | 38 | 33 | 26 | 19 | 16 | 14 | 55 | 53 | 48 | 42 | 35 | 26 | 22 | 18 | 64 | 63 | 60 | 53 | 44 | 33 | 28 | 22 |
| 20 | 43 | 35 | 30 | 23 | 17 | 9 | 7 | 6 | 50 | 49 | 42 | 37 | 28 | 17 | 15 | 14 | 62 | 61 | 57 | 51 | 41 | 27 | 25 | 15 | |
| 125 | | Flow 12 [l/s] | | | | | | | Flow 40 [l/s] | | | | | | | Flow 75 [l/s] | | | | | | | | | |
| | 500 | 66 | 63 | 61 | 55 | 52 | 46 | 47 | 44 | 71 | 68 | 65 | 59 | 56 | 50 | 50 | 47 | 76 | 73 | 70 | 63 | 60 | 53 | 53 | 50 |
| | 200 | 59 | 53 | 49 | 44 | 38 | 34 | 33 | 32 | 65 | 62 | 57 | 51 | 46 | 41 | 38 | 38 | 72 | 71 | 65 | 59 | 53 | 47 | 43 | 43 |
| | 100 | 58 | 49 | 43 | 40 | 31 | 28 | 22 | 22 | 64 | 59 | 53 | 47 | 39 | 34 | 29 | 27 | 71 | 70 | 63 | 55 | 47 | 40 | 35 | 32 |
| | 50 | 57 | 42 | 41 | 31 | 29 | 20 | 17 | 15 | 63 | 54 | 50 | 41 | 36 | 27 | 25 | 20 | 70 | 68 | 60 | 51 | 43 | 34 | 32 | 24 |
| 20 | 56 | 32 | 39 | 29 | 27 | 11 | 15 | 11 | 62 | 48 | 48 | 34 | 34 | 20 | 22 | 15 | 68 | 65 | 56 | 47 | 39 | 29 | 28 | 17 | |
| 160 | | Flow 20 [l/s] | | | | | | | Flow 60 [l/s] | | | | | | | Flow 120 [l/s] | | | | | | | | | |
| | 500 | 62 | 63 | 61 | 56 | 52 | 51 | 50 | 49 | 68 | 67 | 64 | 59 | 55 | 53 | 52 | 51 | 73 | 71 | 68 | 62 | 59 | 55 | 54 | 53 |
| | 200 | 52 | 52 | 51 | 44 | 43 | 38 | 37 | 36 | 61 | 58 | 56 | 50 | 48 | 42 | 40 | 40 | 71 | 65 | 62 | 56 | 53 | 47 | 44 | 44 |
| | 100 | 47 | 43 | 39 | 37 | 32 | 27 | 27 | 25 | 59 | 54 | 50 | 45 | 40 | 35 | 33 | 31 | 70 | 64 | 60 | 53 | 48 | 42 | 39 | 38 |
| | 50 | 42 | 36 | 33 | 28 | 25 | 20 | 17 | 16 | 54 | 50 | 46 | 37 | 33 | 29 | 25 | 25 | 69 | 63 | 58 | 48 | 42 | 37 | 32 | 32 |
| 20 | 37 | 30 | 30 | 26 | 19 | 16 | 11 | 10 | 49 | 46 | 43 | 35 | 27 | 24 | 19 | 18 | 68 | 61 | 55 | 44 | 36 | 32 | 27 | 23 | |
| 200 | | Flow 30 [l/s] | | | | | | | Flow 100 [l/s] | | | | | | | Flow 200 [l/s] | | | | | | | | | |
| | 500 | 65 | 60 | 56 | 52 | 49 | 47 | 44 | 42 | 70 | 64 | 61 | 55 | 52 | 52 | 55 | 55 | 75 | 69 | 65 | 59 | 55 | 55 | 59 | 59 |
| | 200 | 55 | 52 | 51 | 43 | 40 | 37 | 38 | 38 | 62 | 57 | 55 | 47 | 44 | 42 | 42 | 42 | 71 | 65 | 61 | 53 | 50 | 48 | 47 | 47 |
| | 100 | 46 | 43 | 41 | 34 | 32 | 29 | 29 | 29 | 57 | 52 | 48 | 41 | 39 | 36 | 34 | 34 | 69 | 64 | 58 | 50 | 47 | 44 | 42 | 42 |
| | 50 | 40 | 38 | 33 | 30 | 28 | 27 | 23 | 22 | 51 | 45 | 41 | 36 | 32 | 28 | 28 | 63 | 56 | 51 | 44 | 39 | 39 | 34 | 34 | |
| 20 | 34 | 31 | 26 | 25 | 23 | 18 | 16 | 16 | 44 | 37 | 33 | 29 | 27 | 25 | 21 | 19 | 56 | 47 | 43 | 36 | 29 | 27 | 24 | 22 | |
| 250 | | Flow 50 [l/s] | | | | | | | Flow 150 [l/s] | | | | | | | Flow 300 [l/s] | | | | | | | | | |
| | 500 | 67 | 65 | 57 | 50 | 47 | 52 | 51 | 50 | 69 | 66 | 59 | 53 | 50 | 54 | 53 | 52 | 71 | 67 | 61 | 56 | 53 | 56 | 55 | 54 |
| | 200 | 55 | 54 | 49 | 43 | 42 | 38 | 42 | 42 | 59 | 57 | 52 | 46 | 44 | 41 | 44 | 44 | 63 | 60 | 55 | 49 | 46 | 44 | 46 | 46 |
| | 100 | 52 | 48 | 40 | 37 | 34 | 33 | 31 | 28 | 56 | 52 | 45 | 41 | 38 | 36 | 34 | 31 | 62 | 57 | 51 | 46 | 43 | 40 | 38 | 35 |
| | 50 | 44 | 41 | 35 | 32 | 29 | 24 | 22 | 20 | 52 | 48 | 40 | 38 | 34 | 30 | 28 | 24 | 61 | 56 | 47 | 45 | 40 | 38 | 33 | 28 |
| 20 | 33 | 35 | 29 | 29 | 25 | 15 | 12 | 10 | 47 | 44 | 37 | 35 | 31 | 25 | 22 | 17 | 59 | 54 | 46 | 42 | 38 | 36 | 30 | 24 | |
| 315 | | Flow 80 [l/s] | | | | | | | Flow 250 [l/s] | | | | | | | Flow 500 [l/s] | | | | | | | | | |
| | 500 | 63 | 60 | 53 | 49 | 47 | 46 | 45 | 44 | 68 | 65 | 59 | 53 | 50 | 50 | 53 | 50 | 74 | 71 | 65 | 58 | 55 | 55 | 58 | 55 |
| | 200 | 50 | 44 | 42 | 38 | 38 | 33 | 37 | 34 | 60 | 55 | 50 | 45 | 43 | 40 | 43 | 40 | 70 | 65 | 58 | 52 | 49 | 48 | 49 | 46 |
| | 100 | 42 | 39 | 33 | 31 | 30 | 25 | 30 | 23 | 54 | 52 | 45 | 41 | 38 | 36 | 36 | 31 | 66 | 64 | 56 | 50 | 47 | 46 | 44 | 39 |
| | 50 | 34 | 34 | 30 | 26 | 22 | 21 | 19 | 15 | 49 | 49 | 43 | 38 | 34 | 32 | 30 | 24 | 64 | 63 | 55 | 49 | 45 | 42 | 40 | 32 |
| 20 | 26 | 30 | 27 | 21 | 16 | 15 | 13 | 11 | 44 | 46 | 41 | 35 | 30 | 27 | 25 | 18 | 62 | 61 | 54 | 48 | 43 | 37 | 34 | 24 | |
| 400 | | Flow 130 [l/s] | | | | | | | Flow 400 [l/s] | | | | | | | Flow 800 [l/s] | | | | | | | | | |
| | 500 | 76 | 71 | 66 | 59 | 55 | 58 | 57 | 56 | 79 | 73 | 67 | 62 | 57 | 60 | 59 | 58 | 82 | 75 | 68 | 65 | 59 | 62 | 61 | 60 |
| | 200 | 61 | 58 | 50 | 44 | 43 | 44 | 45 | 41 | 67 | 62 | 56 | 50 | 48 | 48 | 48 | 45 | 74 | 68 | 62 | 56 | 53 | 52 | 52 | 49 |
| | 100 | 50 | 45 | 40 | 34 | 36 | 35 | 35 | 29 | 61 | 56 | 49 | 44 | 42 | 39 | 39 | 34 | 72 | 67 | 58 | 53 | 49 | 47 | 46 | 40 |
| | 50 | 42 | 37 | 31 | 29 | 28 | 27 | 25 | 20 | 57 | 52 | 44 | 39 | 37 | 35 | 34 | 26 | 71 | 66 | 56 | 50 | 47 | 44 | 44 | 33 |
| 20 | 40 | 34 | 27 | 25 | 24 | 23 | 21 | 11 | 55 | 50 | 40 | 35 | 34 | 32 | 30 | 20 | 70 | 65 | 54 | 47 | 44 | 40 | 38 | 28 | |
| 500 | | Flow 200 [l/s] | | | | | | | Flow 600 [l/s] | | | | | | | Flow 1200 [l/s] | | | | | | | | | |
| | 500 | 82 | 76 | 69 | 63 | 62 | 61 | 60 | 59 | 84 | 77 | 70 | 64 | 63 | 62 | 61 | 60 | 85 | 78 | 71 | 65 | 64 | 63 | 62 | 61 |
| | 200 | 66 | 60 | 55 | 48 | 45 | 44 | 46 | 43 | 71 | 65 | 59 | 53 | 50 | 50 | 47 | 77 | 70 | 64 | 58 | 56 | 55 | 54 | 51 | |
| | 100 | 55 | 50 | 47 | 38 | 38 | 36 | 34 | 31 | 63 | 58 | 53 | 47 | 46 | 44 | 42 | 37 | 72 | 66 | 60 | 55 | 53 | 51 | 49 | 43 |
| | 50 | 46 | 40 | 36 | 33 | 32 | 29 | 29 | 25 | 59 | 52 | 47 | 44 | 42 | 38 | 38 | 31 | 71 | 63 | 57 | 54 | 51 | 46 | 46 | 37 |
| 20 | 41 | 33 | 29 | 27 | 26 | 19 | 18 | 20 | 56 | 47 | 42 | 40 | 38 | 32 | 30 | 26 | 70 | 60 | 54 | 52 | 49 | 44 | 40 | 32 | |
| 630 | | Flow 300 [l/s] | | | | | | | Flow 900 [l/s] | | | | | | | Flow 1800 [l/s] | | | | | | | | | |
| | 500 | 86 | 77 | 71 | 67 | 64 | 61 | 61 | 60 | 88 | 80 | 73 | 69 | 66 | 64 | 63 | 62 | 90 | 83 | 75 | 71 | 68 | 67 | 65 | 64 |
| | 200 | 76 | 70 | 63 | 60 | 56 | 53 | 52 | 48 | 78 | 72 | 65 | 62 | 59 | 55 | 55 | 49 | 80 | 74 | 67 | 64 | 60 | 57 | 57 | 50 |
| | 100 | 65 | 61 | 52 | 49 | 45 | 43 | 41 | 37 | 71 | 66 | 59 | 54 | 50 | 46 | 45 | 40 | 78 | 71 | 66 | 59 | 56 | 49 | 48 | 44 |
| | 50 | 54 | 49 | 45 | 39 | 34 | 36 | 30 | 26 | 66 | 58 | 53 | 48 | 43 | 40 | 39 | 30 | 77 | 68 | 62 | 57 | 51 | 45 | 47 | 36 |
| 20 | 45 | 35 | 38 | 30 | 29 | 29 | 26 | 20 | 61 | 50 | 47 | 43 | 38 | 36 | 33 | 25 | 76 | 65 | 57 | 55 | 46 | 42 | 39 | 30 | |
| 800 | | Flow 500 [l/s] | | | | | | | Flow 1500 [l/s] | | | | | | | Flow 3000 [l/s] | | | | | | | | | |
| | 500 | 56 | 53 | 54 | 51 | 52 | 52 | 47 | 44 | 64 | 59 | 58 | 57 | 57 | 56 | 54 | 50 | 72 | 65 | 62 | 63 | 62 | 62 | 61 | 56 |
| | 200 | 49 | 43 | 41 | 43 | 47 | 46 | 41 | 31 | 58 | 52 | 49 | 49 | 50 | 49 | 45 | 37 | 67 | 60 | 56 | 55 | 53 | 52 | 49 | 43 |
| | 100 | 46 | 40 | 39 | 39 | 41 | 36 | 30 | 23 | 55 | 48 | 45 | 44 | 44 | 40 | 35 | 29 | 63 | 55 | 51 | 49 | 47 | 44 | 40 | 34 |
| | 50 | 44 | 37 | 34 | 32 | 29 | 25 | 19 | 15 | 52 | 44 | 40 | 38 | 35 | 31 | 26 | 20 | 60 | 50 | 46 | 44 | 41 | 37 | 33 | 25 |
| 20 | 31 | 33 | 27 | 22 | 21 | 11 | 12 | 1 | 44 | 36 | 32 | 28 | 25 | 17 | 13 | 2 | 56 | 40 | 37 | 34 | 29 | 23 | 14 | 9 | |
| 1000 | | Flow 800 [l/s] | | | | | | | Flow 2400 [l/s] | | | | | | | Flow 4750 [l/s] | | | | | | | | | |
| | 500 | 59 | 53 | 50 | 50 | 50 | 53 | 50 | 49 | 68 | 62 | 58 | 58 | 57 | 57 | 56 | 53 | 77 | 70 | 66 | 67 | 64 | 64 | 63 | 57 |
| | 200 | 55 | 47 | 48 | 47 | 47 | 50 | 46 | 34 | 64 | 56 | 53 | 52 | 52 | 51 | 48 | 38 | 72 | 64 | 58 | 56 | 54 | 52 | 50 | 42 |
| | 100 | 52 | 46 | 39 | 42 | 41 | 38 | 34 | 24 | 60 | 52 | 46 | 45 | 44 | 41 | 37 | 28 | 67 | 58 | 53 | 49 | 47 | 44 | 40 | 32 |
| | 50 | 50 | 40 | 32 | 34 | 31 | 26 | 21 | 10 | 56 | | | | | | | | | | | | | | | |

Shut-off damper

DSU

| dim Ød ₁ | Pressure drop [Pa] | Velocity app. 9 [m/s] | | | | | | | | Velocity app. 12 [m/s] | | | | | | | | Velocity app. 15 [m/s] | | | | | | | |
|------------------------|-----------------------|-----------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 45 [l/s] | | | | | | | | Flow 60 [l/s] | | | | | | | | Flow 75 [l/s] | | | | | | | |
| | 500 | 72 | 70 | 70 | 70 | 63 | 60 | 53 | 49 | 77 | 76 | 75 | 75 | 68 | 64 | 56 | 53 | 80 | 80 | 80 | 80 | 72 | 68 | 60 | 56 |
| | 200 | 70 | 68 | 67 | 60 | 57 | 48 | 38 | 32 | 75 | 74 | 71 | 65 | 61 | 51 | 41 | 34 | 78 | 77 | 72 | 70 | 64 | 53 | 42 | 35 |
| | 100 | 66 | 65 | 63 | 57 | 51 | 36 | 27 | 18 | 74 | 73 | 70 | 60 | 57 | 45 | 32 | 25 | 77 | 75 | 71 | 65 | 58 | 46 | 33 | 26 |
| | 50 | 63 | 62 | 58 | 52 | 45 | 28 | 18 | 11 | 73 | 71 | 66 | 55 | 52 | 40 | 25 | 19 | 75 | 72 | 67 | 58 | 53 | 41 | 26 | 20 |
| | 20 | 59 | 58 | 51 | 46 | 38 | 21 | 10 | 5 | 70 | 67 | 60 | 47 | 44 | 32 | 17 | 13 | 72 | 68 | 62 | 50 | 47 | 36 | 20 | 15 |
| 100 | | Flow 75 [l/s] | | | | | | | | Flow 100 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | |
| | 500 | 78 | 75 | 75 | 67 | 64 | 57 | 57 | 57 | 84 | 81 | 80 | 72 | 68 | 62 | 61 | 61 | 88 | 86 | 85 | 76 | 72 | 65 | 64 | 64 |
| | 200 | 74 | 73 | 72 | 64 | 59 | 50 | 47 | 46 | 80 | 79 | 78 | 69 | 66 | 55 | 51 | 51 | 84 | 83 | 81 | 72 | 68 | 59 | 55 | 54 |
| | 100 | 73 | 72 | 71 | 62 | 56 | 46 | 36 | 33 | 79 | 78 | 75 | 65 | 60 | 49 | 44 | 42 | 82 | 81 | 78 | 69 | 63 | 54 | 48 | 45 |
| | 50 | 72 | 70 | 68 | 58 | 51 | 40 | 29 | 23 | 77 | 76 | 70 | 60 | 53 | 43 | 36 | 31 | 80 | 79 | 74 | 65 | 57 | 48 | 40 | 35 |
| | 20 | 70 | 67 | 63 | 53 | 44 | 33 | 26 | 17 | 74 | 73 | 65 | 54 | 46 | 37 | 27 | 20 | 78 | 77 | 69 | 60 | 50 | 41 | 31 | 24 |
| 125 | | Flow 110 [l/s] | | | | | | | | Flow 145 [l/s] | | | | | | | | Flow 180 [l/s] | | | | | | | |
| | 500 | 83 | 80 | 76 | 68 | 65 | 58 | 58 | 54 | 89 | 87 | 81 | 73 | 69 | 62 | 62 | 58 | 91 | 88 | 83 | 75 | 71 | 63 | 63 | 59 |
| | 200 | 79 | 78 | 71 | 65 | 58 | 51 | 48 | 47 | 87 | 85 | 78 | 70 | 63 | 56 | 52 | 48 | 88 | 86 | 80 | 71 | 66 | 59 | 54 | 49 |
| | 100 | 78 | 77 | 70 | 61 | 51 | 45 | 39 | 35 | 86 | 83 | 75 | 66 | 58 | 50 | 44 | 39 | 87 | 84 | 78 | 69 | 61 | 53 | 47 | 42 |
| | 50 | 77 | 76 | 68 | 57 | 45 | 39 | 33 | 25 | 84 | 80 | 71 | 61 | 52 | 44 | 36 | 28 | 86 | 82 | 75 | 65 | 55 | 47 | 39 | 33 |
| | 20 | 76 | 75 | 64 | 53 | 40 | 33 | 30 | 18 | 81 | 76 | 66 | 55 | 45 | 38 | 32 | 19 | 85 | 81 | 71 | 60 | 48 | 41 | 34 | 22 |
| 160 | | Flow 180 [l/s] | | | | | | | | Flow 240 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | |
| | 500 | 78 | 77 | 74 | 67 | 63 | 60 | 59 | 58 | 84 | 84 | 80 | 72 | 68 | 65 | 65 | 65 | 89 | 89 | 85 | 77 | 73 | 69 | 69 | 69 |
| | 200 | 76 | 73 | 70 | 63 | 59 | 53 | 50 | 50 | 80 | 80 | 77 | 69 | 66 | 58 | 55 | 55 | 85 | 84 | 80 | 73 | 70 | 64 | 59 | 58 |
| | 100 | 75 | 72 | 69 | 61 | 54 | 48 | 45 | 44 | 78 | 76 | 73 | 66 | 61 | 53 | 50 | 48 | 83 | 80 | 77 | 70 | 65 | 58 | 54 | 52 |
| | 50 | 74 | 71 | 66 | 58 | 49 | 40 | 38 | 33 | 76 | 72 | 68 | 62 | 55 | 47 | 43 | 38 | 80 | 76 | 72 | 66 | 59 | 51 | 47 | 42 |
| | 20 | 73 | 66 | 61 | 54 | 43 | 35 | 30 | 25 | 74 | 68 | 63 | 57 | 48 | 40 | 35 | 27 | 76 | 71 | 65 | 61 | 52 | 43 | 39 | 30 |
| 200 | | Flow 300 [l/s] | | | | | | | | Flow 400 [l/s] | | | | | | | | Flow 475 [l/s] | | | | | | | |
| | 500 | 85 | 79 | 72 | 65 | 62 | 61 | 65 | 65 | 92 | 85 | 79 | 72 | 68 | 66 | 71 | 70 | 95 | 89 | 82 | 73 | 71 | 70 | 74 | 73 |
| | 200 | 83 | 77 | 70 | 62 | 58 | 55 | 54 | 54 | 90 | 83 | 77 | 69 | 65 | 62 | 61 | 60 | 92 | 85 | 79 | 71 | 66 | 64 | 64 | 63 |
| | 100 | 82 | 76 | 69 | 59 | 56 | 53 | 50 | 50 | 88 | 80 | 73 | 65 | 61 | 58 | 55 | 53 | 90 | 83 | 76 | 68 | 63 | 61 | 58 | 56 |
| | 50 | 81 | 74 | 65 | 56 | 52 | 49 | 45 | 42 | 85 | 76 | 68 | 60 | 56 | 52 | 48 | 45 | 88 | 80 | 72 | 64 | 59 | 56 | 52 | 48 |
| | 20 | 80 | 70 | 60 | 52 | 46 | 43 | 38 | 32 | 81 | 72 | 62 | 54 | 50 | 45 | 40 | 36 | 86 | 76 | 67 | 59 | 54 | 50 | 47 | 39 |
| 250 | | Flow 450 [l/s] | | | | | | | | Flow 600 [l/s] | | | | | | | | Flow 750 [l/s] | | | | | | | |
| | 500 | 78 | 75 | 68 | 61 | 58 | 61 | 60 | 59 | 87 | 83 | 76 | 68 | 68 | 68 | 68 | 68 | 94 | 90 | 82 | 74 | 71 | 74 | 74 | 74 |
| | 200 | 74 | 69 | 63 | 57 | 55 | 54 | 54 | 53 | 82 | 79 | 72 | 64 | 63 | 63 | 62 | 61 | 88 | 84 | 77 | 69 | 68 | 67 | 68 | 65 |
| | 100 | 72 | 68 | 60 | 56 | 52 | 49 | 45 | 42 | 79 | 76 | 69 | 62 | 60 | 60 | 58 | 57 | 85 | 81 | 74 | 67 | 65 | 63 | 62 | 59 |
| | 50 | 69 | 67 | 58 | 54 | 48 | 44 | 37 | 32 | 76 | 72 | 65 | 59 | 56 | 54 | 51 | 48 | 82 | 78 | 70 | 64 | 61 | 58 | 55 | 52 |
| | 20 | 66 | 65 | 56 | 52 | 44 | 39 | 32 | 27 | 73 | 68 | 61 | 56 | 51 | 46 | 42 | 38 | 79 | 75 | 65 | 60 | 56 | 53 | 47 | 46 |
| 315 | | Flow 750 [l/s] | | | | | | | | Flow 1000 [l/s] | | | | | | | | Flow 1200 [l/s] | | | | | | | |
| | 500 | 82 | 78 | 71 | 64 | 60 | 60 | 60 | 60 | 89 | 85 | 77 | 69 | 68 | 67 | 69 | 65 | 92 | 88 | 80 | 72 | 71 | 70 | 72 | 68 |
| | 200 | 77 | 72 | 66 | 59 | 58 | 57 | 56 | 52 | 86 | 79 | 72 | 65 | 63 | 62 | 63 | 58 | 88 | 83 | 75 | 68 | 66 | 65 | 64 | 59 |
| | 100 | 76 | 71 | 64 | 57 | 54 | 52 | 50 | 44 | 84 | 77 | 69 | 62 | 60 | 58 | 57 | 53 | 87 | 80 | 72 | 65 | 63 | 61 | 59 | 55 |
| | 50 | 75 | 70 | 61 | 54 | 50 | 46 | 43 | 35 | 82 | 74 | 66 | 59 | 55 | 52 | 49 | 46 | 85 | 77 | 69 | 62 | 59 | 55 | 52 | 48 |
| | 20 | 74 | 68 | 58 | 51 | 46 | 39 | 36 | 26 | 80 | 71 | 63 | 56 | 48 | 44 | 39 | 38 | 82 | 74 | 66 | 60 | 54 | 47 | 46 | 40 |
| 400 | | Flow 1200 [l/s] | | | | | | | | Flow 1500 [l/s] | | | | | | | | Flow 1900 [l/s] | | | | | | | |
| | 500 | 88 | 81 | 74 | 70 | 63 | 66 | 65 | 64 | 95 | 87 | 79 | 75 | 69 | 71 | 70 | 69 | 98 | 90 | 82 | 78 | 73 | 74 | 73 | 72 |
| | 200 | 83 | 76 | 68 | 61 | 60 | 59 | 58 | 54 | 89 | 82 | 75 | 69 | 67 | 64 | 63 | 60 | 92 | 84 | 77 | 70 | 69 | 67 | 65 | 63 |
| | 100 | 82 | 75 | 67 | 60 | 58 | 55 | 53 | 47 | 86 | 80 | 72 | 66 | 63 | 61 | 58 | 55 | 89 | 82 | 74 | 68 | 66 | 64 | 61 | 58 |
| | 50 | 80 | 73 | 65 | 58 | 56 | 51 | 47 | 39 | 83 | 77 | 68 | 63 | 58 | 56 | 52 | 48 | 86 | 80 | 71 | 66 | 62 | 59 | 55 | 51 |
| | 20 | 77 | 70 | 63 | 55 | 53 | 47 | 42 | 30 | 80 | 74 | 64 | 60 | 54 | 50 | 45 | 40 | 83 | 78 | 68 | 64 | 58 | 51 | 47 | 42 |
| 500 | | Flow 1800 [l/s] | | | | | | | | Flow 2400 [l/s] | | | | | | | | Flow 3000 [l/s] | | | | | | | |
| | 500 | 91 | 84 | 76 | 68 | 67 | 68 | 68 | 67 | 96 | 88 | 80 | 72 | 70 | 73 | 72 | 71 | 102 | 94 | 85 | 78 | 75 | 77 | 77 | 76 |
| | 200 | 85 | 78 | 72 | 65 | 63 | 61 | 60 | 57 | 91 | 84 | 76 | 70 | 66 | 66 | 65 | 61 | 96 | 89 | 80 | 72 | 68 | 68 | 68 | 67 |
| | 100 | 82 | 74 | 69 | 62 | 59 | 57 | 55 | 50 | 88 | 75 | 70 | 63 | 60 | 58 | 56 | 52 | 93 | 85 | 76 | 69 | 65 | 63 | 61 | 58 |
| | 50 | 79 | 71 | 66 | 59 | 55 | 52 | 48 | 43 | 85 | 72 | 67 | 60 | 56 | 53 | 49 | 44 | 90 | 80 | 72 | 65 | 62 | 57 | 53 | 49 |
| | 20 | 76 | 67 | 63 | 56 | 50 | 47 | 41 | 36 | 82 | 69 | 64 | 57 | 52 | 48 | 43 | 37 | 87 | 75 | 67 | 61 | 58 | 54 | 46 | 40 |
| 630 | | Flow 2800 [l/s] | | | | | | | | Flow 3700 [l/s] | | | | | | | | Flow 4700 [l/s] | | | | | | | |
| | 500 | 96 | 88 | 80 | 76 | 72 | 72 | 70 | 68 | 103 | 95 | 86 | 82 | 77 | 77 | 76 | 73 | 107 | 98 | 90 | 85 | 81 | 81 | 80 | 76 |
| | 200 | 90 | 83 | 76 | 71 | 67 | 63 | 63 | 56 | 98 | 90 | 82 | 78 | 74 | 70 | 70 | 62 | 103 | 95 | 87 | 82 | 78 | 76 | 73 | 66 |
| | 100 | 89 | 82 | 75 | 68 | 63 | 58 | 55 | 50 | 95 | 88 | 79 | 74 | 70 | 65 | 63 | 57 | 100 | 92 | 84 | 79 | 75 | 71 | 67 | 62 |
| | 50 | 87 | 80 | 72 | 65 | 58 | 52 | 48 | 42 | 92 | 84 | 75 | 69 | 65 | 60 | 56 | 51 | 97 | 89 | 80 | 74 | 70 | 65 | 60 | 56 |
| | 20 | 84 | 77 | 68 | 61 | 52 | 45 | 42 | 33 | 89 | 82 | 70 | 63 | 59 | 55 | 49 | 43 | 94 | 86 | 75 | 68 | 64 | 58 | 52 | 48 |
| 800 | | Flow 4500 [l/s] | | | | | | | | Flow 6000 [l/s] | | | | | | | | Flow 7500 [l/s] | | | | | | | |
| | 500 | 78 | 70 | 66 | 66 | 65 | 64 | 63 | 58 | 83 | 73 | 69 | 69 | 68 | 66 | 65 | 60 | 84 | 75 | 71 | 70 | 69 | 67 | 66 | 61 |
| | 200 | 72 | 64 | 60 | 59 | 57 | 55 | 52 | 46 | 77 | 67 | 63 | 62 | 60 | 58 | 55 | 49 | 80 | 70 | 66 | 65 | 63 | 61 | 58 | 52 |
| | 100 | 68 | 59 | 55 | 53 | 51 | 48 | 44 | 37 | 73 | 63 | 59 | 57 | 55 | 52 | 48 | 42 | 77 | 67 | 62 | 60 | 57 | 55 | 51 | 45 |
| | 50 | 66 | 55 | 51 | 48 | 45 | 42 | 37 | 30 | 71 | 60 | 55 | 52 | 49 | 47 | 41 | 35 | 76 | 65 | 61 | 58 | 54 | 52 | 47 | 40 |
| | 20 | 61 | 46 | 43 | 39 | 35 | 32 | 25 | 18 | 69 | 58 | 53 | 50 | 47 | 41 | 37 | 29 | 74 | 63 | 59 | 56 | 52 | 48 | 43 | 36 |
| 1000 | | Flow 7100 [l/s] | | | | | | | | Flow 9450 [l/s] | | | | | | | | Flow 11800 [l/s] | | | | | | | |
| | 500 | 81 | 74 | 69 | 69 | 67 | 65 | 64 | 58 | 85 | 77 | 71 | 70 | 68 | 67 | 65 | 60 | 86 | 79 | 72 | 71 | 69 | 68 | 66 | 61 |
| | 200 | 76 | 69 | 63 | 60 | 57 | 55 | 53 | 45 | 80 | 71 | 65 | 64 | 61 | 58 | 57 | 50 | 83 | 74 | 68 | 67 | 64 | 61 | 60 | 55 |
| | 100 | 72 | 64 | 58 | 55 | 52 | 49 | 47 | 39 | 76 | 67 | 61 | 59 | 56 | 54 | 52 | 46 | 80 | 72 | 65 | 63 | 60 | 59 | 57 | 53 |
| | 50 | 68 | 60 | 54 | 52 | 48 | | | | | | | | | | | | | | | | | | | |

Shut-off damper

DTU



Description

Has a turning circular blade with an EPDM-rubber seal which tightens against the inside of the damper when closed. The blade can be adjusted in a 0–90° angle.

The cup at Ø 80–630 can be complemented with the special insulation cup IK at insulation thicker than 50 mm.

The damper can be used for regulating at rare occasions.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–315 fullfills pressure class C in closed position.
 Ø 355–630 fullfills pressure class B in closed position.
 Ø 710–1000 fullfills pressure class A in closed position.

Motorizing

The torque needed for the motorizing is given in the adjacent table.

Ø710–1000 is not possible to motorize on site.

Reinforced blade

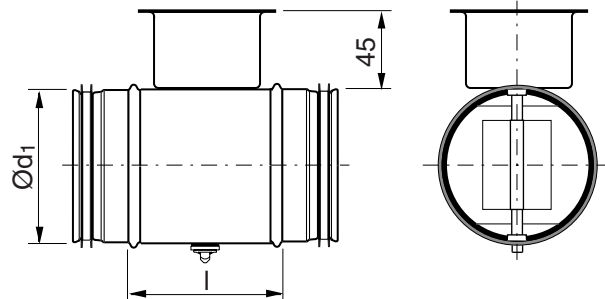


Ordering example

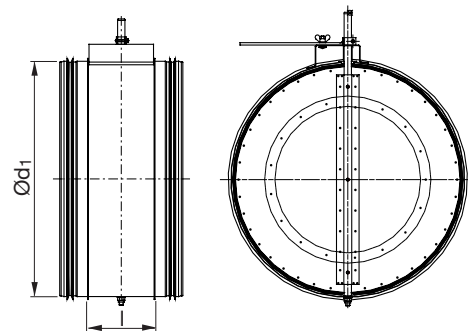
| | | |
|---------------------------|-----|-----|
| Product | DTU | 200 |
| Dimension Ød ₁ | | |

Dimensions

Ø 80–630



Ø 800–1000



| Ød ₁ nom | l mm | M Nm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------|---------------------------------------|
| 80 | 100 | 2,0 | 0,30 | 4 |
| 100 | 100 | 2,0 | 0,38 | 4 |
| 112 | 100 | 2,0 | 0,48 | 4 |
| 125 | 100 | 2,0 | 0,53 | 4 |
| 140 | 100 | 2,0 | 0,60 | 4 |
| 150 | 100 | 2,0 | 0,63 | 4 |
| 160 | 100 | 2,0 | 0,74 | 4 |
| 180 | 100 | 2,0 | 0,82 | 4 |
| 200 | 100 | 2,0 | 1,04 | 4 |
| 224 | 100 | 3,0 | 1,27 | 4 |
| 250 | 100 | 3,0 | 1,52 | 4 |
| 280 | 100 | 4,0 | 1,77 | 4 |
| 300 | 100 | 4,0 | 1,98 | 4 |
| 315 | 100 | 4,0 | 2,14 | 4 |
| 355 | 100 | 8,0 | 2,44 | 4 |
| 400 | 100 | 8,0 | 3,65 | 4 |
| 450 | 100 | 10 | 4,84 | 4 |
| 500 | 115 | 10 | 6,07 | 4 |
| 560 | 115 | 15 | 7,47 | 4 |
| 600 | 115 | 15 | 8,11 | 4 |
| 630 | 115 | 15 | 8,80 | 4 |
| 710 | 230 | 40 | 17,0 | 4 |
| 800 | 230 | 40 | 19,5 | 4 |
| 900 | 230 | 60 | 26,0 | 4 |
| 1000 | 230 | 60 | 31,0 | 4 |

Shut-off damper

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| Property | Ø 80-315 | Ø 400 | Ø 500 | Ø 630 | Ø 710-1000 |
|---|----------|-------|-------|-------|------------|
| The blade is set via a knob in a protective cup. | x | x | x | x | |
| The setting of the blade is read against an embossed scale at the rim of the cup. | x | x | x | x | |
| The blade is locked with two screws, type Pozidriv (PZD2). | x | x | x | x | |
| The blade has reinforced locking with a sturdy wing nut. | | | | | x |
| The blade is reinforced. | | x | x | x | |
| The blade is additionally reinforced. | | | | | x |
| With sturdy handle. | | x | x | x | |
| With additionally reinforced handle. | | | | | x |
| With reinforced stop beads. | | | x | x | x |
| The axle is reinforced. | | | | | x |
| The damper can be delivered prepared for motor. Is then called DTHU. | x | x | x | x | x |
| The damper can be delivered with electric motor of On/Off-type without spring return. Is then called DTBU. | x | x | x | x | x |
| The damper can be delivered with electric motor of On/Off-type with spring return. Is then called DTBCU. | x | x | x | x | |
| The damper can be delivered with pneumatic actuator of On/Off-type with spring return. Is then called DTPU. | x | x | x | x | |

Technical data

Pressure drop graphs with noise data for dimensioning

The solid curves show the pressure drop, Δp_t , over the damper as a function of flow q , and setting angle α .

The dashed curves give the A-weighted sound power data, L_{WA} , in dB to the duct.

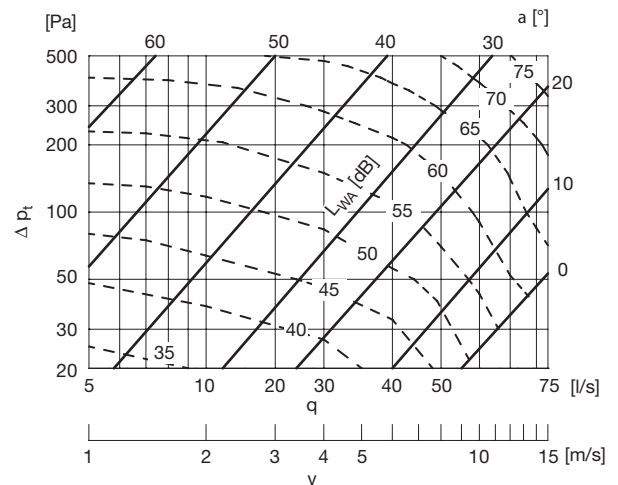
Example

Given Dimension Ø100
 Flow 60 l/s
 Pressure drop 200 Pa

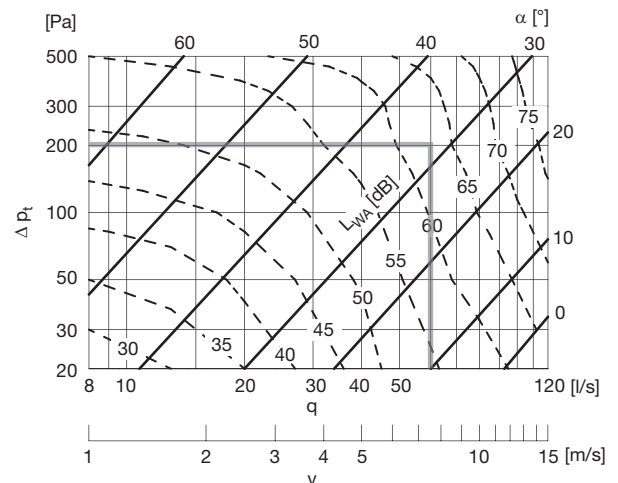
Obtained from graph

Setting angle 32°
 Sound power level 63 dB (A)

Ø80



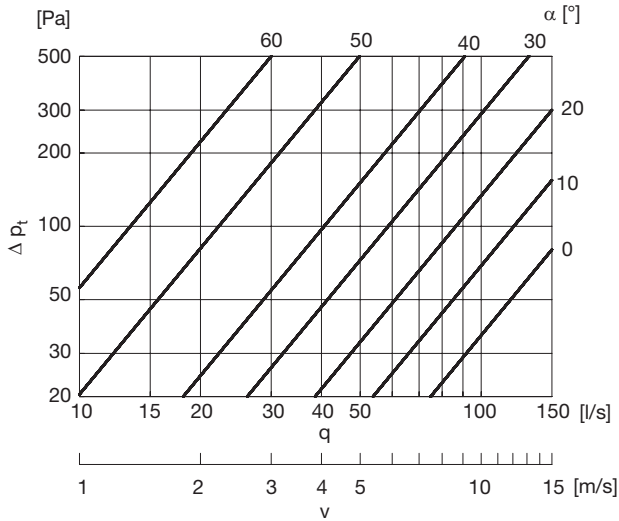
Ø100



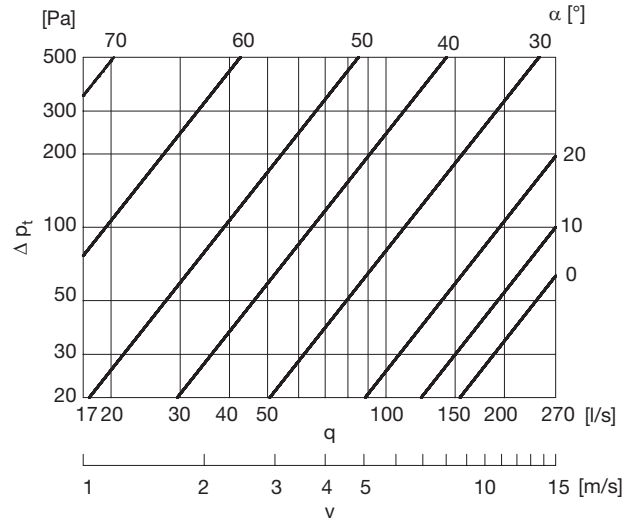
Shut-off damper

DTU

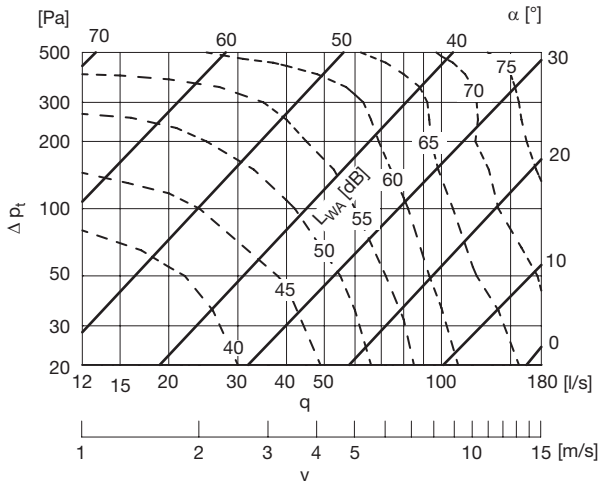
Ø112



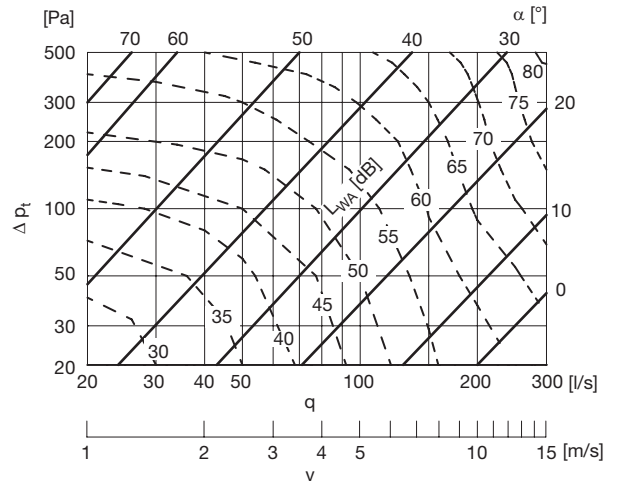
Ø150



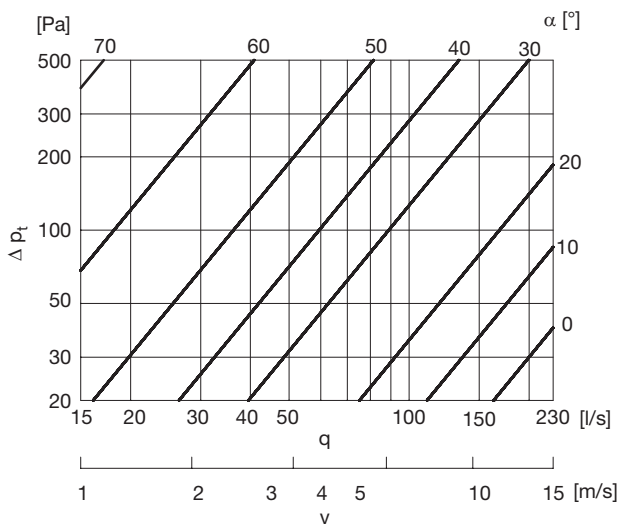
Ø125



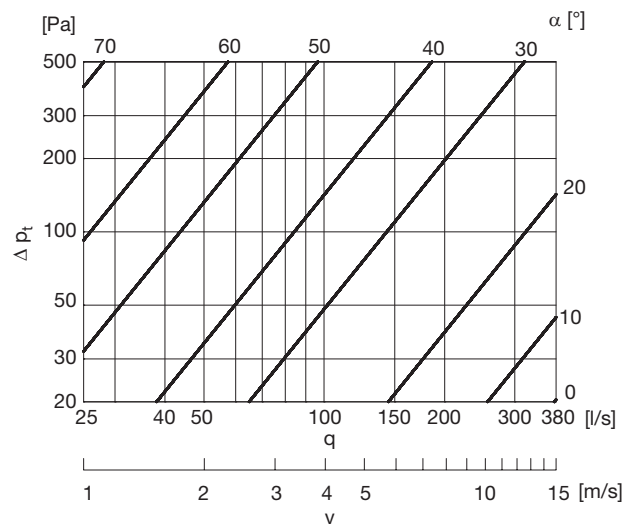
Ø160



Ø140



Ø180



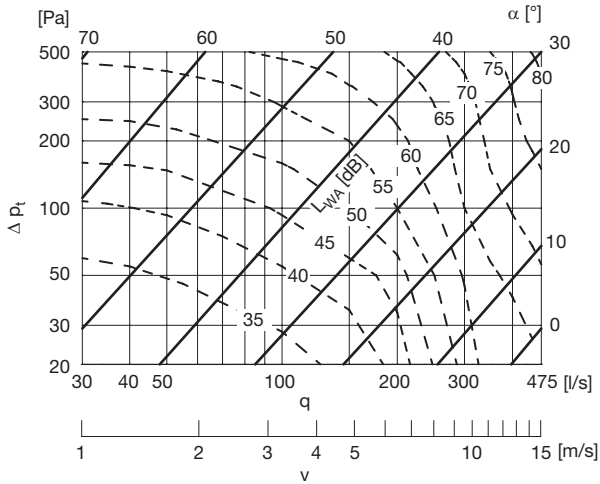
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Shut-off damper

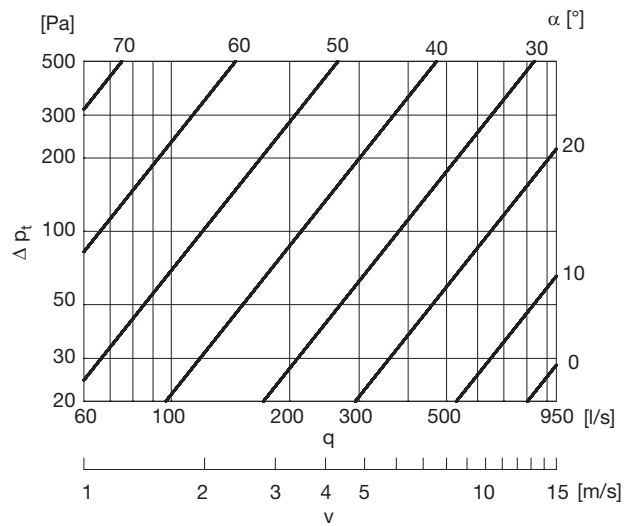
DTU

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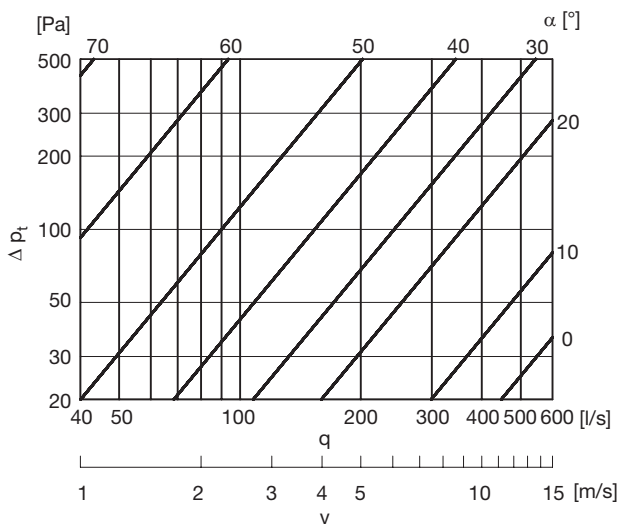
Ø200



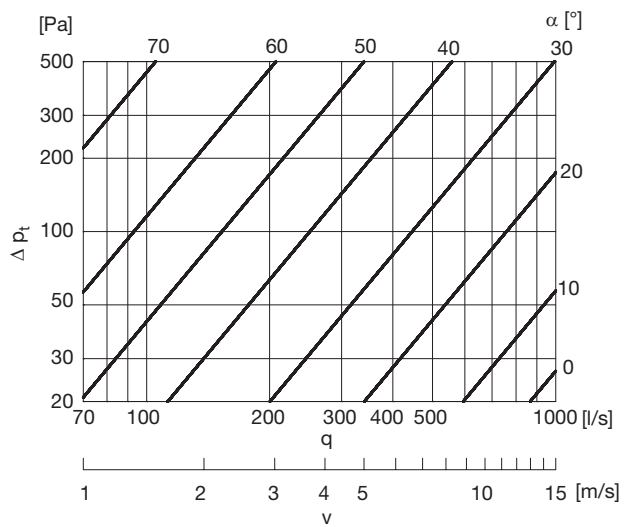
Ø280



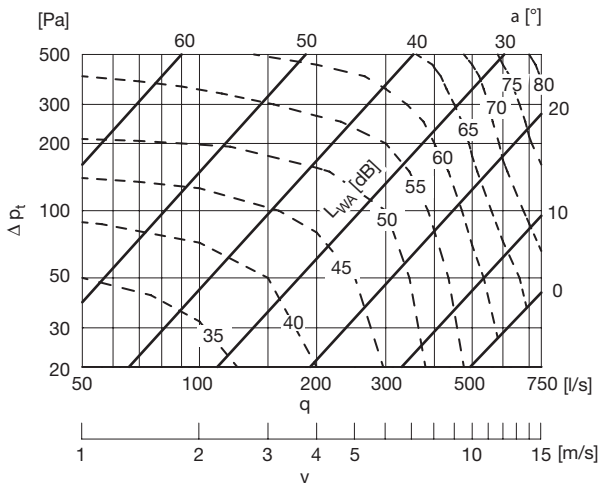
Ø224



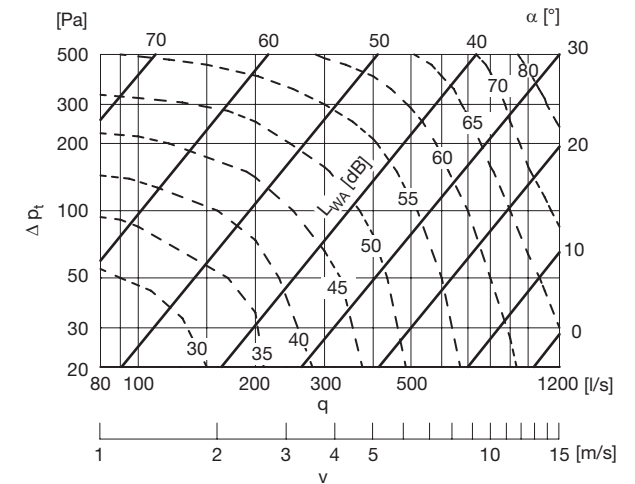
Ø300



Ø250



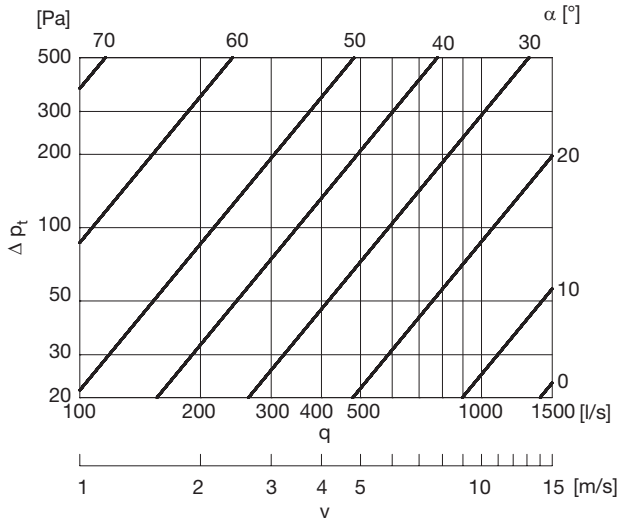
Ø315



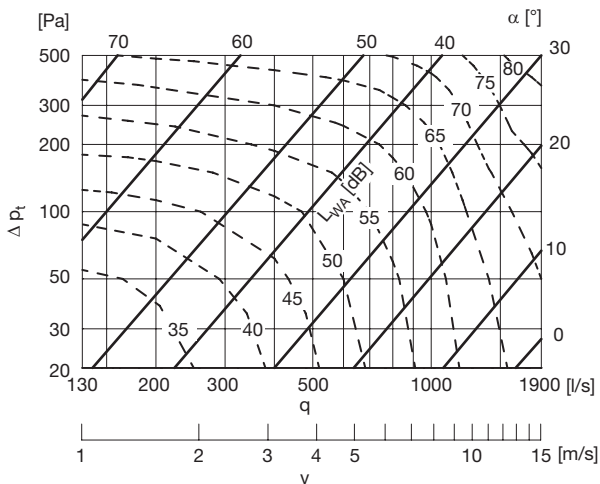
Shut-off damper

DTU

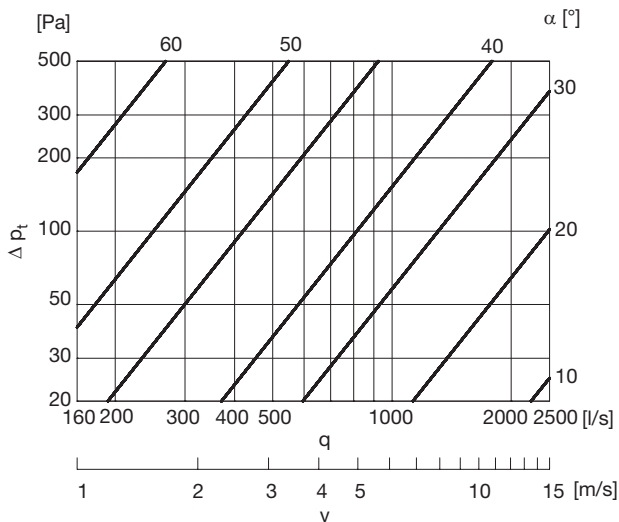
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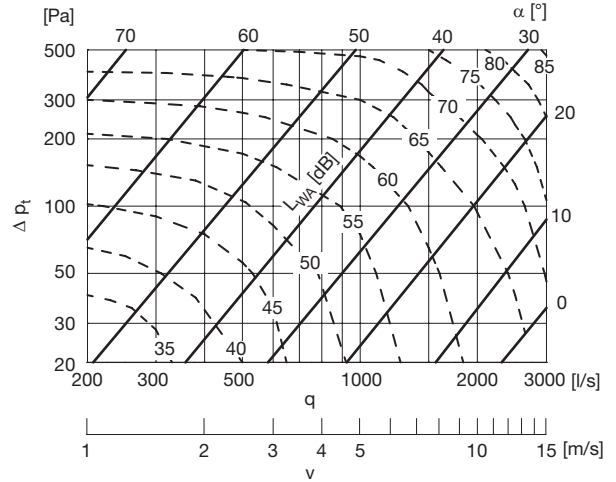
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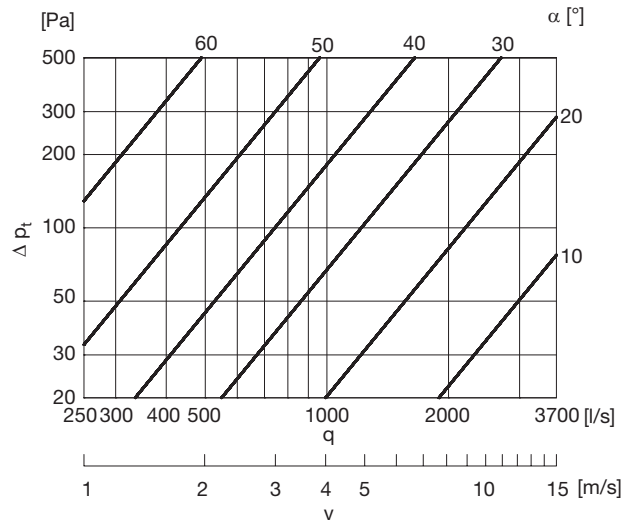
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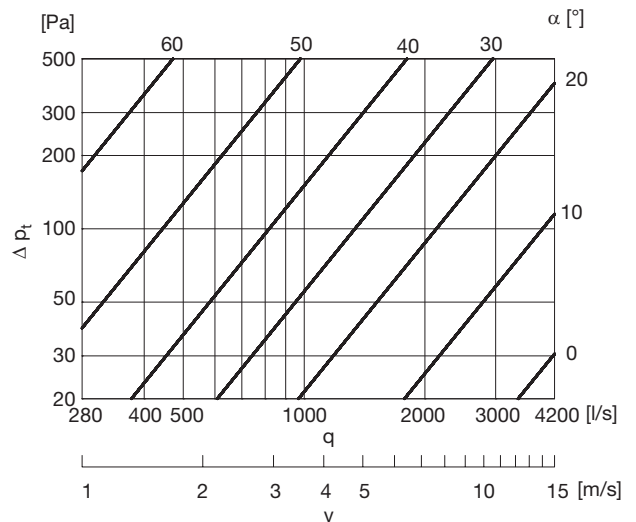
Ø500



Ø560



Ø600



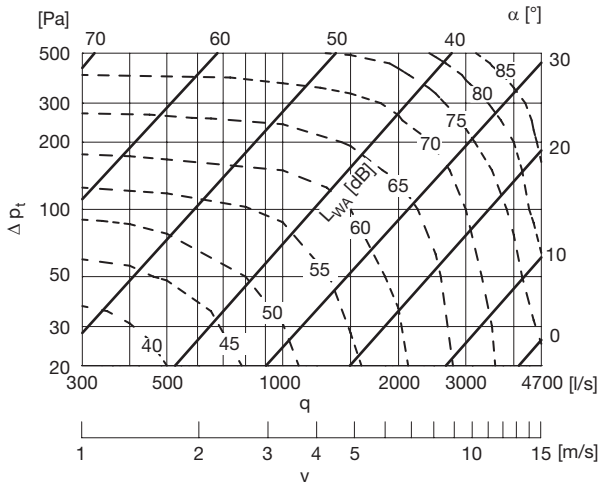
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Shut-off damper

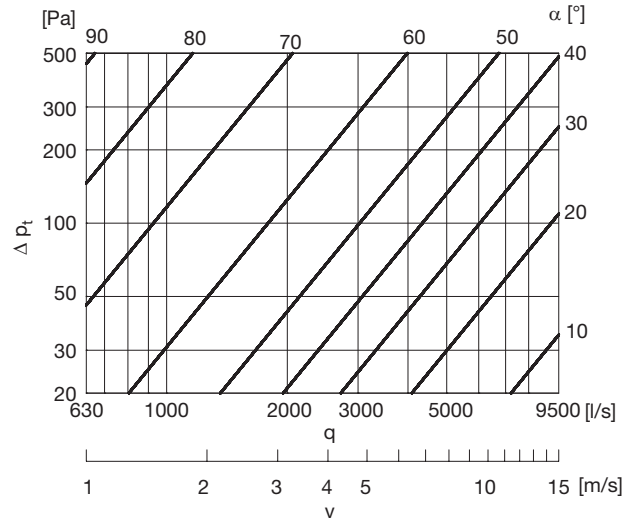
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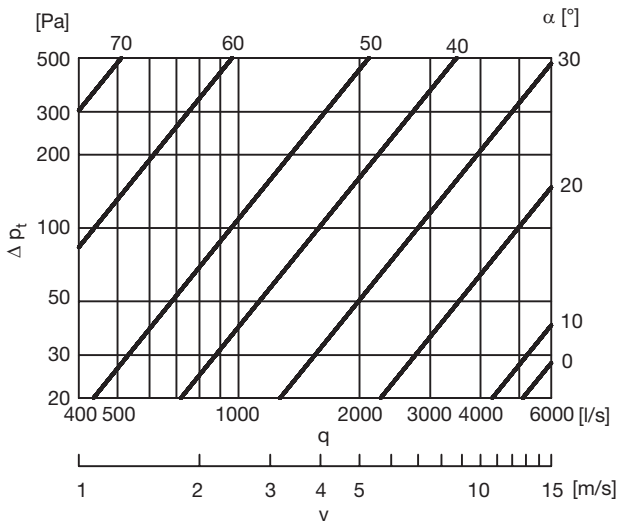
Ø630



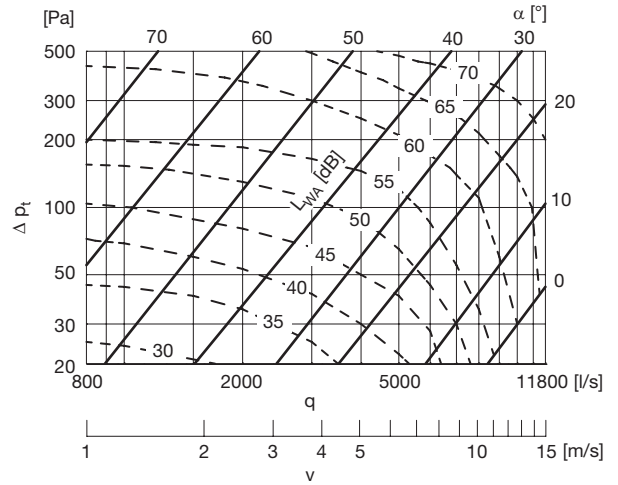
Ø900



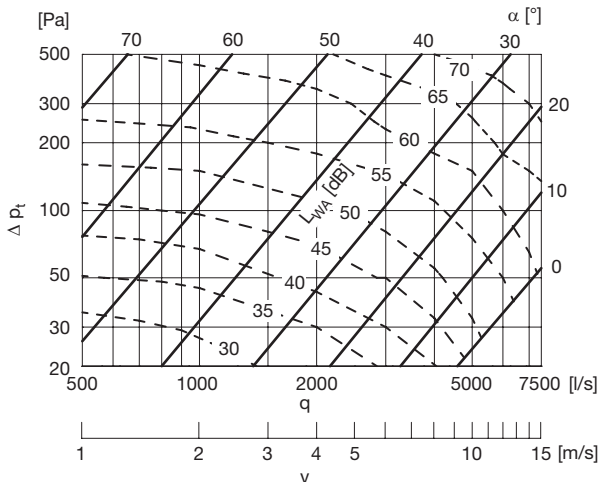
Ø710



Ø1000



Ø800



Shut-off damper

DTU

Sound data

Sound power level L_{w} , [dB] to duct in the octave bands 1–8, 63–8000 Hz, as a function of dimension, flow and pressure drop.

| dim $\varnothing d_1$ | Pressure drop [Pa] | Velocity app. 1 [m/s] | | | | | | Velocity app. 3 [m/s] | | | | | | Velocity app. 6 [m/s] | | | | | | | | | | | |
|--------------------------|-----------------------|-----------------------|-----|-----|-----|----|----|-----------------------|----|----|-----|-----|-----|-----------------------|----|----|----|----|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | Centre frequency [Hz] | | | | | | Centre frequency [Hz] | | | | | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 5 [l/s] | | | | | | Flow 15 [l/s] | | | | | | Flow 30 [l/s] | | | | | | | | | | | |
| | 500 | 63 | 63 | 64 | 63 | 58 | 53 | 48 | 45 | 65 | 65 | 65 | 65 | 59 | 55 | 49 | 46 | 67 | 67 | 67 | 67 | 60 | 57 | 50 | 47 |
| | 200 | 61 | 61 | 58 | 52 | 49 | 42 | 33 | 28 | 63 | 63 | 60 | 54 | 51 | 43 | 34 | 29 | 65 | 65 | 62 | 56 | 53 | 44 | 35 | 30 |
| | 100 | 59 | 56 | 50 | 45 | 41 | 28 | 22 | 14 | 60 | 60 | 53 | 48 | 43 | 30 | 23 | 15 | 61 | 64 | 57 | 51 | 46 | 32 | 24 | 16 |
| | 50 | 53 | 49 | 43 | 40 | 33 | 23 | 15 | 8 | 56 | 54 | 47 | 43 | 36 | 25 | 16 | 9 | 59 | 59 | 52 | 47 | 40 | 27 | 17 | 10 |
| | 20 | 47 | 42 | 36 | 32 | 25 | 16 | 7 | 1 | 51 | 47 | 39 | 35 | 28 | 18 | 8 | 2 | 54 | 52 | 44 | 39 | 32 | 20 | 9 | 4 |
| 100 | | Flow 8 [l/s] | | | | | | Flow 25 [l/s] | | | | | | Flow 50 [l/s] | | | | | | | | | | | |
| | 500 | 60 | 60 | 59 | 52 | 50 | 44 | 44 | 44 | 67 | 64 | 64 | 57 | 54 | 48 | 48 | 48 | 72 | 69 | 69 | 62 | 59 | 52 | 52 | 52 |
| | 200 | 53 | 51 | 53 | 43 | 42 | 35 | 32 | 32 | 59 | 58 | 58 | 50 | 48 | 40 | 37 | 37 | 66 | 65 | 64 | 57 | 54 | 45 | 42 | 42 |
| | 100 | 51 | 46 | 44 | 38 | 35 | 28 | 21 | 20 | 58 | 55 | 53 | 46 | 41 | 34 | 26 | 24 | 65 | 64 | 62 | 54 | 48 | 40 | 31 | 29 |
| | 50 | 48 | 42 | 38 | 33 | 26 | 19 | 16 | 14 | 55 | 53 | 48 | 42 | 35 | 26 | 22 | 18 | 64 | 63 | 60 | 53 | 44 | 33 | 28 | 22 |
| | 20 | 43 | 35 | 30 | 23 | 17 | 9 | 7 | 6 | 50 | 49 | 42 | 37 | 28 | 17 | 15 | 14 | 62 | 61 | 57 | 51 | 41 | 27 | 25 | 15 |
| 125 | | Flow 12 [l/s] | | | | | | Flow 40 [l/s] | | | | | | Flow 75 [l/s] | | | | | | | | | | | |
| | 500 | 66 | 63 | 61 | 55 | 52 | 46 | 47 | 44 | 71 | 68 | 65 | 59 | 56 | 50 | 50 | 47 | 76 | 73 | 70 | 63 | 60 | 53 | 53 | 50 |
| | 200 | 59 | 53 | 49 | 44 | 38 | 34 | 33 | 32 | 65 | 62 | 57 | 51 | 46 | 41 | 38 | 38 | 72 | 71 | 65 | 59 | 53 | 47 | 43 | 43 |
| | 100 | 58 | 49 | 43 | 40 | 31 | 28 | 22 | 22 | 64 | 59 | 53 | 47 | 39 | 34 | 29 | 27 | 71 | 70 | 63 | 55 | 47 | 40 | 35 | 32 |
| | 50 | 57 | 42 | 41 | 31 | 29 | 20 | 17 | 15 | 63 | 54 | 50 | 41 | 36 | 27 | 25 | 20 | 70 | 68 | 60 | 51 | 43 | 34 | 32 | 24 |
| | 20 | 56 | 32 | 39 | 29 | 27 | 11 | 15 | 11 | 62 | 48 | 48 | 34 | 34 | 20 | 22 | 15 | 68 | 65 | 56 | 47 | 39 | 29 | 28 | 17 |
| 160 | | Flow 20 [l/s] | | | | | | Flow 60 [l/s] | | | | | | Flow 120 [l/s] | | | | | | | | | | | |
| | 500 | 62 | 63 | 61 | 56 | 52 | 51 | 50 | 49 | 68 | 67 | 64 | 59 | 55 | 53 | 52 | 51 | 73 | 71 | 68 | 62 | 59 | 55 | 54 | 53 |
| | 200 | 52 | 52 | 51 | 44 | 43 | 38 | 37 | 36 | 61 | 58 | 56 | 50 | 48 | 42 | 40 | 40 | 71 | 65 | 62 | 56 | 53 | 47 | 44 | 44 |
| | 100 | 47 | 43 | 39 | 37 | 32 | 27 | 27 | 25 | 59 | 54 | 50 | 45 | 40 | 35 | 33 | 31 | 70 | 64 | 60 | 53 | 48 | 42 | 39 | 38 |
| | 50 | 42 | 36 | 33 | 28 | 25 | 20 | 17 | 16 | 54 | 50 | 46 | 37 | 33 | 29 | 25 | 25 | 69 | 63 | 58 | 48 | 42 | 37 | 32 | 32 |
| | 20 | 37 | 30 | 30 | 26 | 19 | 16 | 11 | 10 | 49 | 46 | 43 | 35 | 27 | 24 | 19 | 18 | 68 | 61 | 55 | 44 | 36 | 32 | 27 | 23 |
| 200 | | Flow 30 [l/s] | | | | | | Flow 100 [l/s] | | | | | | Flow 200 [l/s] | | | | | | | | | | | |
| | 500 | 65 | 60 | 56 | 52 | 49 | 47 | 44 | 42 | 70 | 64 | 61 | 55 | 52 | 52 | 55 | 55 | 75 | 69 | 65 | 59 | 55 | 55 | 59 | 59 |
| | 200 | 55 | 52 | 51 | 43 | 40 | 37 | 38 | 38 | 62 | 57 | 55 | 47 | 44 | 42 | 42 | 42 | 71 | 65 | 61 | 53 | 50 | 48 | 47 | 47 |
| | 100 | 46 | 43 | 41 | 34 | 32 | 29 | 29 | 29 | 57 | 52 | 48 | 41 | 39 | 36 | 34 | 34 | 69 | 64 | 58 | 50 | 47 | 44 | 42 | 42 |
| | 50 | 40 | 38 | 33 | 30 | 28 | 27 | 23 | 22 | 51 | 45 | 41 | 36 | 32 | 32 | 28 | 28 | 63 | 56 | 51 | 44 | 39 | 39 | 34 | 34 |
| | 20 | 34 | 31 | 26 | 25 | 23 | 18 | 16 | 44 | 37 | 33 | 29 | 27 | 25 | 21 | 19 | 56 | 47 | 43 | 36 | 29 | 27 | 24 | 22 | |
| 250 | | Flow 50 [l/s] | | | | | | Flow 150 [l/s] | | | | | | Flow 300 [l/s] | | | | | | | | | | | |
| | 500 | 67 | 65 | 57 | 50 | 47 | 52 | 51 | 50 | 69 | 66 | 59 | 53 | 50 | 54 | 53 | 52 | 71 | 67 | 61 | 56 | 53 | 56 | 55 | 54 |
| | 200 | 55 | 54 | 49 | 43 | 42 | 38 | 42 | 42 | 59 | 57 | 52 | 46 | 44 | 41 | 44 | 44 | 63 | 60 | 55 | 49 | 46 | 44 | 46 | 46 |
| | 100 | 52 | 48 | 40 | 37 | 34 | 33 | 31 | 28 | 56 | 52 | 45 | 41 | 38 | 36 | 34 | 31 | 62 | 57 | 51 | 46 | 43 | 40 | 38 | 35 |
| | 50 | 44 | 41 | 35 | 32 | 29 | 24 | 22 | 20 | 52 | 48 | 40 | 38 | 34 | 30 | 28 | 24 | 61 | 56 | 47 | 45 | 40 | 38 | 33 | 28 |
| | 20 | 33 | 35 | 29 | 29 | 25 | 15 | 12 | 10 | 47 | 44 | 37 | 35 | 31 | 25 | 22 | 17 | 59 | 54 | 46 | 42 | 38 | 36 | 30 | 24 |
| 315 | | Flow 80 [l/s] | | | | | | Flow 250 [l/s] | | | | | | Flow 500 [l/s] | | | | | | | | | | | |
| | 500 | 63 | 60 | 53 | 49 | 47 | 46 | 45 | 44 | 68 | 65 | 59 | 53 | 50 | 50 | 53 | 50 | 74 | 71 | 65 | 58 | 55 | 55 | 58 | 55 |
| | 200 | 50 | 44 | 42 | 38 | 38 | 33 | 37 | 34 | 60 | 55 | 50 | 45 | 43 | 40 | 43 | 40 | 70 | 65 | 58 | 52 | 49 | 48 | 49 | 46 |
| | 100 | 42 | 39 | 33 | 31 | 30 | 25 | 30 | 23 | 54 | 52 | 45 | 41 | 38 | 36 | 36 | 31 | 66 | 64 | 56 | 50 | 47 | 46 | 44 | 39 |
| | 50 | 34 | 34 | 30 | 26 | 22 | 21 | 19 | 15 | 49 | 49 | 43 | 38 | 34 | 32 | 30 | 24 | 64 | 63 | 55 | 49 | 45 | 42 | 40 | 32 |
| | 20 | 26 | 30 | 27 | 21 | 16 | 15 | 13 | 11 | 44 | 46 | 41 | 35 | 30 | 27 | 25 | 18 | 62 | 61 | 54 | 48 | 43 | 37 | 34 | 24 |
| 400 | | Flow 130 [l/s] | | | | | | Flow 400 [l/s] | | | | | | Flow 800 [l/s] | | | | | | | | | | | |
| | 500 | 76 | 71 | 66 | 59 | 55 | 58 | 57 | 56 | 79 | 73 | 67 | 62 | 57 | 60 | 59 | 58 | 82 | 75 | 68 | 65 | 59 | 62 | 61 | 60 |
| | 200 | 61 | 58 | 50 | 44 | 43 | 44 | 45 | 41 | 67 | 62 | 56 | 50 | 48 | 48 | 48 | 45 | 74 | 68 | 62 | 56 | 53 | 52 | 52 | 49 |
| | 100 | 50 | 45 | 40 | 34 | 36 | 35 | 35 | 29 | 61 | 56 | 49 | 44 | 42 | 39 | 39 | 34 | 72 | 67 | 58 | 53 | 49 | 47 | 46 | 40 |
| | 50 | 42 | 37 | 31 | 29 | 28 | 27 | 25 | 20 | 57 | 52 | 44 | 39 | 37 | 35 | 34 | 26 | 71 | 66 | 56 | 50 | 47 | 44 | 44 | 33 |
| | 20 | 40 | 34 | 27 | 25 | 24 | 23 | 21 | 11 | 55 | 50 | 40 | 35 | 34 | 32 | 30 | 20 | 70 | 65 | 54 | 47 | 44 | 40 | 38 | 28 |
| 500 | | Flow 200 [l/s] | | | | | | Flow 600 [l/s] | | | | | | Flow 1200 [l/s] | | | | | | | | | | | |
| | 500 | 82 | 76 | 69 | 63 | 62 | 61 | 60 | 59 | 84 | 77 | 70 | 64 | 63 | 62 | 61 | 60 | 85 | 78 | 71 | 65 | 64 | 63 | 62 | 61 |
| | 200 | 66 | 60 | 55 | 48 | 45 | 44 | 46 | 43 | 71 | 65 | 59 | 53 | 50 | 50 | 50 | 47 | 77 | 70 | 64 | 58 | 56 | 55 | 54 | 51 |
| | 100 | 55 | 50 | 47 | 38 | 38 | 36 | 34 | 31 | 63 | 58 | 53 | 47 | 46 | 44 | 42 | 37 | 72 | 66 | 60 | 55 | 53 | 51 | 49 | 43 |
| | 50 | 46 | 40 | 36 | 33 | 32 | 29 | 29 | 25 | 59 | 52 | 47 | 44 | 42 | 38 | 38 | 31 | 71 | 63 | 57 | 54 | 51 | 46 | 46 | 37 |
| | 20 | 41 | 33 | 29 | 27 | 26 | 19 | 18 | 20 | 56 | 47 | 42 | 40 | 38 | 32 | 30 | 26 | 70 | 60 | 54 | 52 | 49 | 44 | 40 | 32 |
| 630 | | Flow 300 [l/s] | | | | | | Flow 900 [l/s] | | | | | | Flow 1800 [l/s] | | | | | | | | | | | |
| | 500 | 86 | 77 | 71 | 67 | 64 | 61 | 61 | 60 | 88 | 80 | 73 | 69 | 66 | 64 | 63 | 62 | 90 | 83 | 75 | 71 | 68 | 67 | 65 | 64 |
| | 200 | 76 | 70 | 63 | 60 | 56 | 53 | 52 | 48 | 78 | 72 | 65 | 62 | 59 | 55 | 55 | 49 | 80 | 74 | 67 | 64 | 60 | 57 | 57 | 50 |
| | 100 | 65 | 61 | 52 | 49 | 45 | 43 | 41 | 37 | 71 | 66 | 59 | 54 | 50 | 46 | 45 | 40 | 78 | 71 | 66 | 59 | 56 | 49 | 48 | 44 |
| | 50 | 54 | 49 | 45 | 39 | 34 | 36 | 30 | 26 | 66 | 58 | 53 | 48 | 43 | 40 | 39 | 30 | 77 | 68 | 62 | 57 | 51 | 45 | 47 | 36 |
| | 20 | 45 | 35 | 38 | 30 | 29 | 29 | 26 | 20 | 61 | 50 | 47 | 43 | 38 | 36 | 33 | 25 | 76 | 65 | 57 | 55 | 46 | 42 | 39 | 30 |
| 800 | | Flow 500 [l/s] | | | | | | Flow 1500 [l/s] | | | | | | Flow 3000 [l/s] | | | | | | | | | | | |
| | 500 | 56 | 53 | 54 | 51 | 52 | 52 | 47 | 44 | 64 | 59 | 58 | 57 | 57 | 56 | 54 | 50 | 72 | 65 | 62 | 63 | 62 | 62 | 61 | 56 |
| | 200 | 49 | 43 | 41 | 43 | 47 | 46 | 41 | 31 | 58 | 52 | 49 | 49 | 50 | 49 | 45 | 37 | 67 | 60 | 56 | 55 | 53 | 52 | 49 | 43 |
| | 100 | 46 | 40 | 39 | 39 | 41 | 36 | 30 | 23 | 55 | 48 | 45 | 44 | 44 | 40 | 35 | 29 | 63 | 55 | 51 | 49 | 47 | 44 | 40 | 34 |
| | 50 | 44 | 37 | 34 | 32 | 29 | 25 | 19 | 15 | 52 | 44 | 40 | 38 | 35 | 31 | 26 | 20 | 60 | 50 | 46 | 44 | 41 | 37 | 33 | 25 |
| | 20 | 31 | 33 | 27 | 22 | 21 | 11 | 12 | 1 | 44 | 36 | 32 | 28 | 25 | 17 | 13 | 2 | 56 | 40 | 37 | 34 | 29 | 23 | 14 | 9 |
| 1000 | | Flow 800 [l/s] | | | | | | Flow 2400 [l/s] | | | | | | Flow 4750 [l/s] | | | | | | | | | | | |
| | 500 | 59 | 53 | 50 | 50 | 50 | 53 | 50 | 49 | 68 | 62 | 58 | 58 | 57 | 57 | 56 | 53 | 77 | 70 | 66 | 67 | 64 | 64 | 63 | 57 |
| | 200 | 55 | 47 | 48 | 47 | 47 | 50 | 46 | 34 | 64 | 56 | 53 | 52 | 52 | 51 | 48 | 38 | 72 | 64 | 58 | 56 | 54 | 52 | 50 | 42 |
| | 100 | 52 | 46 | 39 | 42 | 41 | 38 | 34 | 24 | 60 | 52 | 46 | 45 | 44 | 41 | 37 | 28 | 67 | 58 | 53 | 49 | 47 | | | |

Shut-off damper

DTMU/DTWU



Description

DTMU/DTWU are tight-closing shut-off dampers. The dampers can be used to completely shut off the air flow.

The blade consists of double sheet metal with a intermediate sealing of EPDM-rubber, which is in contact with the inside of the damper housing when in the closed position.

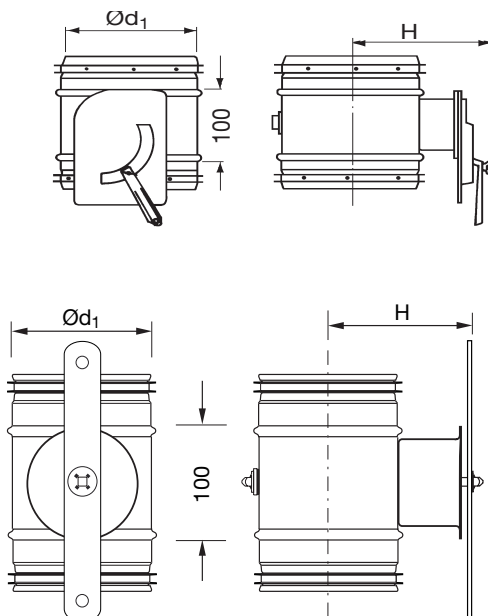
DTMU is equipped with a handle and a locking mechanism for stepless adjustment of 0–90°.

DTWU is equipped with a transverse lever, on which pulling ropes can be mounted for manual remote control.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–315 fullfills pressure class C in closed position.

Ø 355–630 fullfills pressure class B in closed position.



Dimensions

| Ød ₁ nom | H mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------------------------------------|
| 80 | 95 | 0,80 | 4 |
| 100 | 105 | 0,90 | 4 |
| 112 | 110 | 0,90 | 4 |
| 125 | 118 | 1,00 | 4 |
| 140 | 125 | 1,00 | 4 |
| 150 | 130 | 1,10 | 4 |
| 160 | 135 | 1,10 | 4 |
| 180 | 145 | 1,30 | 4 |
| 200 | 155 | 1,40 | 4 |
| 224 | 165 | 1,60 | 4 |
| 250 | 180 | 1,90 | 4 |
| 280 | 195 | 2,20 | 4 |
| 300 | 205 | 2,40 | 4 |
| 315 | 215 | 2,60 | 4 |
| 355 | 240 | 3,10 | 4 |
| 400 | 260 | 3,90 | 4 |
| 450 | 285 | 4,50 | 4 |
| 500 | 310 | 5,20 | 4 |
| 560 | 340 | 6,20 | 4 |
| 600 | 360 | 7,20 | 4 |
| 630 | 375 | 8,10 | 4 |

Ordering example

Product **DTMU** **250**
 Dimension Ød₁



Shut-off damper

DTMU/DTWU

Technical data

Pressure drop graphs with noise data for dimensioning

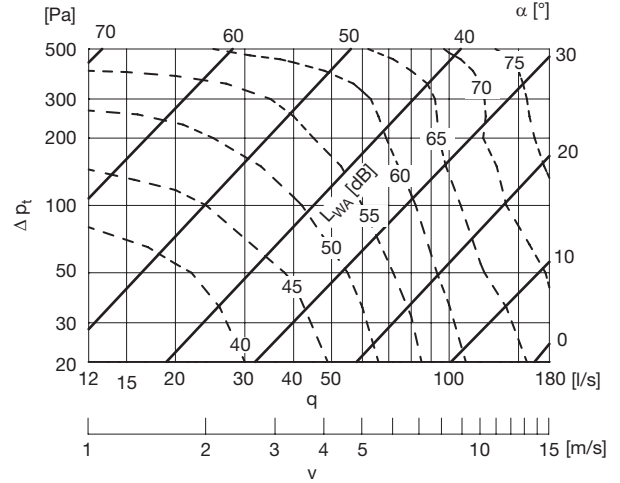
The solid curves show the pressure drop, Δp_t , over the damper as a function of the flow q , and setting angle α . The dashed curves give the A-weighted sound power data, L_{WA} , in dB to the duct.

Example

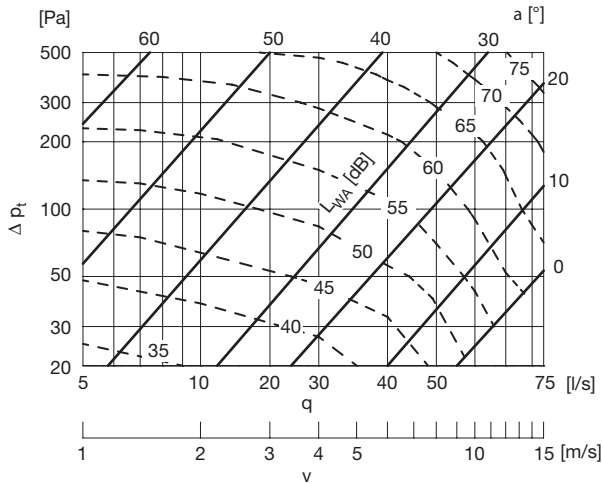
Given

- Dimension Ø100
- Flow 60 l/s
- Pressure drop 200 Pa
- Obtained from the graph
- Setting angle 32°
- Sound power level 63 dB (A)

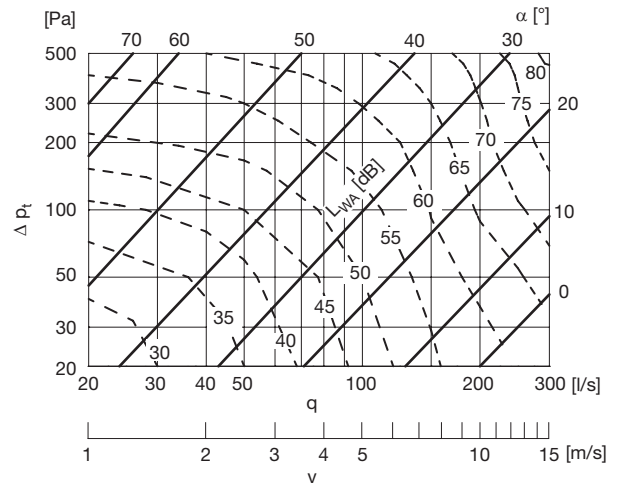
Ø125



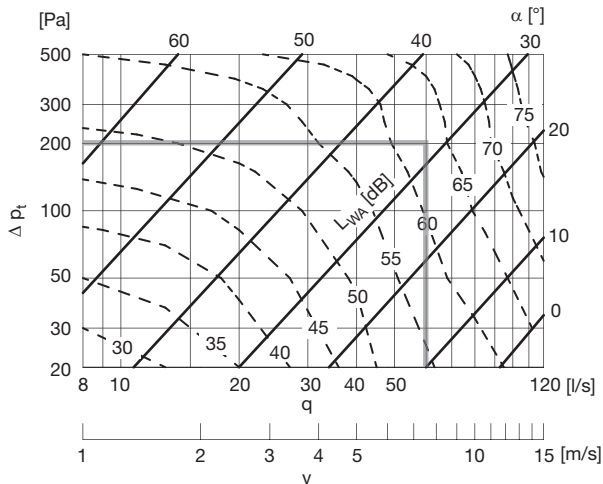
Ø80



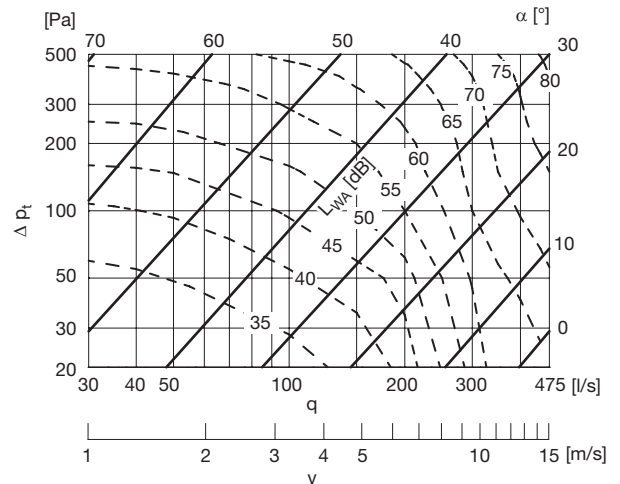
Ø160



Ø100



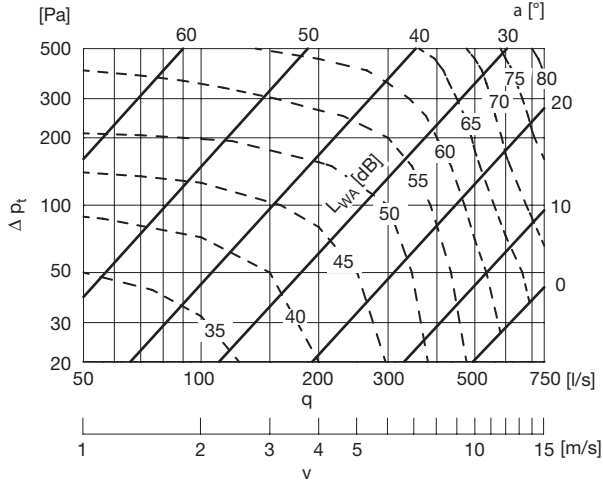
Ø200



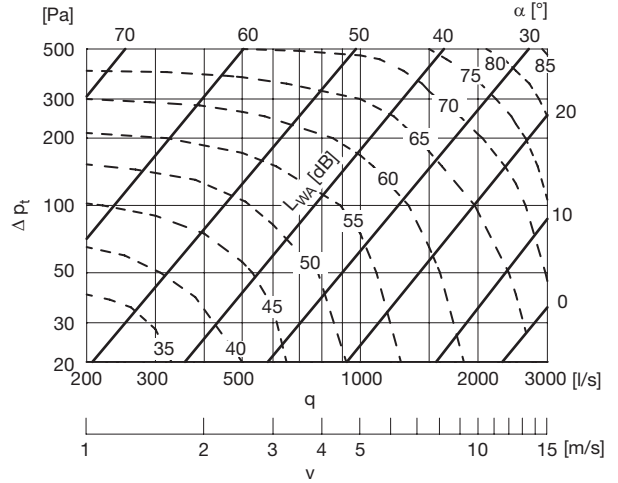
Shut-off damper

DTMU/DTWU

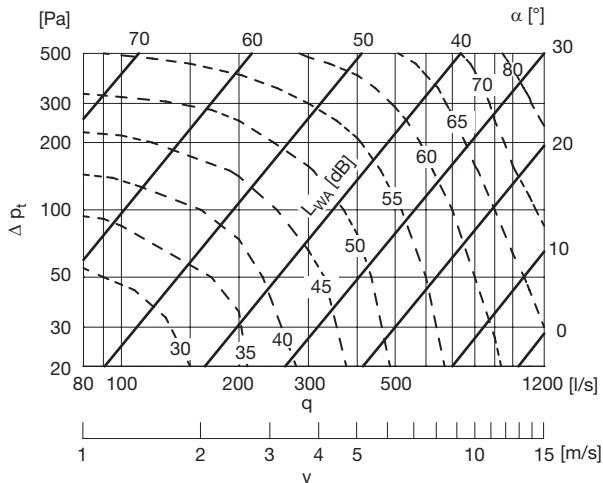
Ø250



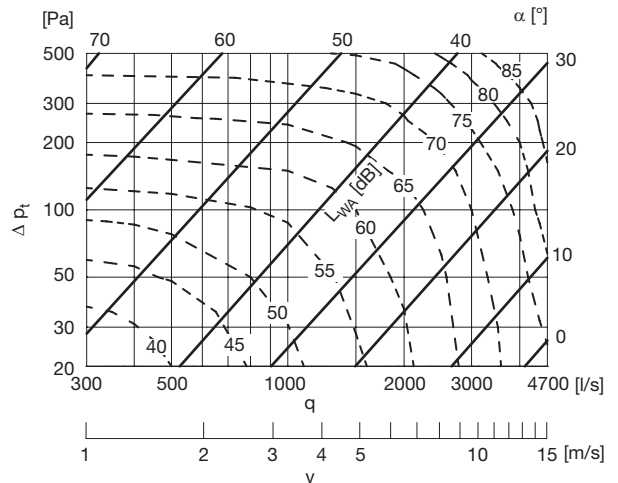
Ø500



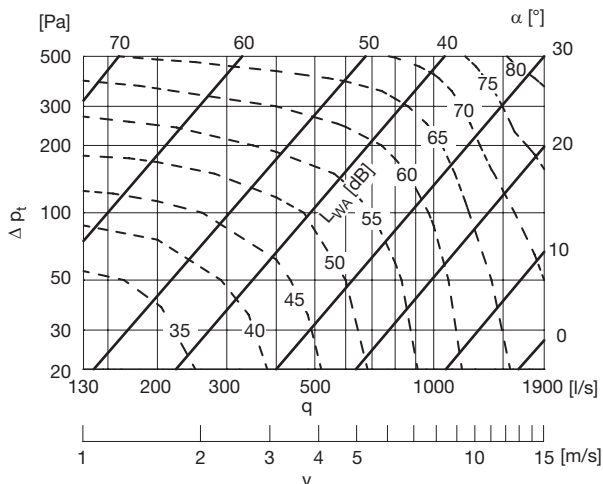
Ø315



Ø630



Ø400



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Shut-off damper

DTMU/DTWU

Sound data for DTMU/DTWU

Sound power level, L_{W} , [dB] in duct in the octave bands 1–8, 63–8000 Hz, as a function of dimension, flow and pressure drop. The methods ISO 5135 and ISO 3741 have been used to measure these sound values.

| dim Ød ₁ | Pressure drop [Pa] | Velocity app. 3 [m/s] | | | | | | Velocity app. 6 [m/s] | | | | | | Velocity app. 9 [m/s] | | | | | | | | | | | |
|------------------------|-----------------------|-----------------------|-----|-----|-----|----|----|-----------------------|----|----|-----|-----|-----|-----------------------|----|----|----|----|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | Centre frequency [Hz] | | | | | | Centre frequency [Hz] | | | | | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 15 [l/s] | | | | | | Flow 30 [l/s] | | | | | | Flow 45 [l/s] | | | | | | | | | | | |
| | 500 | 65 | 65 | 65 | 65 | 59 | 55 | 49 | 46 | 67 | 67 | 67 | 67 | 60 | 57 | 50 | 47 | 70 | 70 | 70 | 70 | 63 | 60 | 53 | 49 |
| | 300 | 63 | 63 | 60 | 60 | 54 | 48 | 42 | 36 | 66 | 66 | 63 | 63 | 56 | 50 | 44 | 38 | 70 | 70 | 67 | 67 | 60 | 54 | 47 | 40 |
| | 200 | 63 | 63 | 60 | 54 | 51 | 43 | 34 | 29 | 65 | 65 | 62 | 56 | 53 | 44 | 35 | 30 | 70 | 70 | 67 | 60 | 57 | 48 | 38 | 32 |
| | 100 | 55 | 60 | 53 | 48 | 43 | 30 | 23 | 15 | 59 | 65 | 57 | 51 | 46 | 32 | 24 | 16 | 66 | 72 | 63 | 57 | 51 | 36 | 27 | 18 |
| | 50 | 56 | 54 | 47 | 43 | 36 | 25 | 16 | 9 | 59 | 59 | 52 | 47 | 40 | 27 | 17 | 10 | - | - | - | - | - | - | - | - |
| 100 | | Flow 25 [l/s] | | | | | | Flow 50 [l/s] | | | | | | Flow 75 [l/s] | | | | | | | | | | | |
| | 500 | 67 | 64 | 64 | 57 | 54 | 48 | 48 | 48 | 72 | 68 | 68 | 62 | 59 | 52 | 52 | 52 | 78 | 75 | 75 | 67 | 64 | 57 | 57 | 57 |
| | 300 | 62 | 61 | 60 | 54 | 51 | 45 | 42 | 42 | 68 | 68 | 68 | 59 | 56 | 50 | 47 | 47 | 75 | 74 | 73 | 65 | 61 | 54 | 51 | 51 |
| | 200 | 58 | 58 | 58 | 50 | 48 | 40 | 37 | 37 | 65 | 65 | 64 | 57 | 54 | 45 | 42 | 42 | 74 | 73 | 73 | 64 | 59 | 50 | 47 | 46 |
| | 100 | 58 | 55 | 53 | 46 | 41 | 34 | 26 | 24 | 68 | 66 | 62 | 54 | 48 | 40 | 31 | 29 | 79 | 75 | 71 | 62 | 56 | 46 | 36 | 33 |
| | 50 | 55 | 53 | 48 | 42 | 35 | 26 | 22 | 18 | 69 | 67 | 60 | 53 | 44 | 33 | 28 | 22 | - | - | - | - | - | - | - | - |
| 125 | | Flow 40 [l/s] | | | | | | Flow 80 [l/s] | | | | | | Flow 120 [l/s] | | | | | | | | | | | |
| | 500 | 71 | 68 | 65 | 59 | 56 | 50 | 47 | 76 | 73 | 70 | 63 | 60 | 53 | 53 | 50 | 83 | 79 | 76 | 68 | 65 | 58 | 58 | 54 | |
| | 300 | 66 | 66 | 60 | 55 | 52 | 46 | 43 | 40 | 73 | 73 | 67 | 60 | 57 | 51 | 48 | 44 | 79 | 79 | 72 | 66 | 62 | 55 | 52 | 48 |
| | 200 | 65 | 62 | 57 | 51 | 46 | 41 | 38 | 38 | 74 | 71 | 65 | 59 | 53 | 47 | 43 | 43 | 82 | 78 | 71 | 65 | 58 | 51 | 48 | 48 |
| | 100 | 64 | 59 | 53 | 47 | 39 | 34 | 29 | 27 | 77 | 70 | 63 | 55 | 47 | 40 | 35 | 32 | 84 | 78 | 70 | 61 | 51 | 45 | 39 | 35 |
| | 50 | 63 | 54 | 50 | 41 | 36 | 27 | 25 | 20 | 80 | 68 | 60 | 51 | 43 | 34 | 32 | 26 | - | - | - | - | - | - | - | - |
| 160 | | Flow 60 [l/s] | | | | | | Flow 120 [l/s] | | | | | | Flow 180 [l/s] | | | | | | | | | | | |
| | 500 | 68 | 67 | 64 | 59 | 55 | 53 | 52 | 51 | 72 | 71 | 68 | 62 | 59 | 55 | 54 | 53 | 78 | 77 | 74 | 67 | 63 | 60 | 59 | 58 |
| | 300 | 63 | 62 | 59 | 55 | 52 | 49 | 46 | 45 | 67 | 66 | 64 | 58 | 55 | 52 | 49 | 48 | 75 | 75 | 71 | 65 | 61 | 58 | 54 | 54 |
| | 200 | 61 | 58 | 56 | 50 | 48 | 42 | 40 | 40 | 68 | 65 | 62 | 56 | 53 | 47 | 44 | 44 | 76 | 73 | 69 | 63 | 59 | 53 | 50 | 50 |
| | 100 | 59 | 54 | 50 | 45 | 40 | 35 | 33 | 31 | 70 | 64 | 60 | 53 | 48 | 42 | 39 | 38 | 77 | 73 | 69 | 61 | 54 | 48 | 45 | 44 |
| | 50 | 54 | 50 | 46 | 37 | 33 | 29 | 25 | 25 | 69 | 64 | 58 | 48 | 42 | 37 | 32 | 32 | - | - | - | - | - | - | - | - |
| 200 | | Flow 100 [l/s] | | | | | | Flow 200 [l/s] | | | | | | Flow 300 [l/s] | | | | | | | | | | | |
| | 500 | 70 | 64 | 61 | 55 | 52 | 55 | 55 | 75 | 68 | 65 | 59 | 55 | 55 | 59 | 59 | 83 | 76 | 72 | 65 | 61 | 61 | 65 | 65 | |
| | 300 | 67 | 62 | 56 | 50 | 48 | 45 | 48 | 48 | 74 | 68 | 62 | 55 | 52 | 51 | 53 | 52 | 84 | 78 | 71 | 64 | 61 | 57 | 60 | 60 |
| | 200 | 62 | 57 | 55 | 47 | 44 | 42 | 42 | 42 | 71 | 65 | 62 | 53 | 50 | 48 | 47 | 47 | 83 | 76 | 71 | 62 | 58 | 55 | 54 | 54 |
| | 100 | 57 | 52 | 48 | 41 | 39 | 36 | 34 | 34 | 69 | 64 | 58 | 50 | 47 | 44 | 42 | 42 | 83 | 76 | 69 | 59 | 56 | 53 | 50 | 50 |
| | 50 | 51 | 45 | 41 | 36 | 32 | 28 | 28 | 63 | 56 | 51 | 44 | 39 | 34 | 34 | - | - | - | - | - | - | - | - | | |
| 250 | | Flow 150 [l/s] | | | | | | Flow 300 [l/s] | | | | | | Flow 450 [l/s] | | | | | | | | | | | |
| | 500 | 69 | 66 | 59 | 53 | 50 | 54 | 53 | 52 | 71 | 67 | 61 | 56 | 53 | 56 | 55 | 54 | 78 | 75 | 68 | 61 | 58 | 61 | 60 | 59 |
| | 300 | 63 | 61 | 55 | 50 | 47 | 46 | 48 | 47 | 66 | 63 | 57 | 51 | 48 | 47 | 51 | 48 | 75 | 72 | 65 | 59 | 55 | 55 | 59 | 55 |
| | 200 | 59 | 57 | 52 | 46 | 44 | 41 | 44 | 44 | 63 | 60 | 55 | 49 | 46 | 44 | 46 | 46 | 72 | 69 | 63 | 57 | 55 | 54 | 54 | 53 |
| | 100 | 56 | 52 | 45 | 41 | 38 | 36 | 34 | 31 | 63 | 57 | 51 | 45 | 43 | 40 | 38 | 35 | 75 | 69 | 60 | 56 | 52 | 49 | 45 | 42 |
| | 50 | 52 | 48 | 40 | 38 | 34 | 30 | 28 | 24 | 61 | 56 | 47 | 45 | 40 | 38 | 33 | 28 | - | - | - | - | - | - | - | - |
| 315 | | Flow 250 [l/s] | | | | | | Flow 500 [l/s] | | | | | | Flow 750 [l/s] | | | | | | | | | | | |
| | 500 | 68 | 65 | 59 | 53 | 50 | 50 | 53 | 50 | 74 | 71 | 65 | 58 | 55 | 55 | 58 | 55 | 82 | 78 | 71 | 64 | 60 | 60 | 54 | 60 |
| | 300 | 62 | 59 | 54 | 49 | 46 | 45 | 49 | 43 | 69 | 66 | 60 | 54 | 51 | 51 | 54 | 48 | 78 | 74 | 68 | 61 | 57 | 57 | 61 | 54 |
| | 200 | 60 | 55 | 50 | 45 | 43 | 40 | 43 | 40 | 70 | 64 | 58 | 52 | 49 | 48 | 49 | 46 | 79 | 72 | 66 | 59 | 58 | 57 | 56 | 52 |
| | 100 | 54 | 52 | 45 | 41 | 38 | 36 | 36 | 31 | 66 | 63 | 55 | 50 | 47 | 46 | 44 | 39 | 76 | 72 | 64 | 57 | 54 | 52 | 50 | 44 |
| | 50 | 49 | 49 | 43 | 38 | 34 | 32 | 30 | 24 | 64 | 64 | 56 | 49 | 45 | 42 | 40 | 32 | - | - | - | - | - | - | - | - |
| 400 | | Flow 400 [l/s] | | | | | | Flow 800 [l/s] | | | | | | Flow 1200 [l/s] | | | | | | | | | | | |
| | 500 | 79 | 73 | 67 | 62 | 57 | 60 | 59 | 58 | 82 | 75 | 68 | 65 | 59 | 62 | 61 | 60 | 88 | 81 | 74 | 70 | 62 | 66 | 65 | 64 |
| | 300 | 72 | 66 | 60 | 54 | 51 | 51 | 51 | 51 | 77 | 70 | 64 | 58 | 56 | 55 | 54 | 54 | 84 | 77 | 70 | 63 | 62 | 61 | 60 | 60 |
| | 200 | 67 | 62 | 56 | 50 | 48 | 48 | 48 | 45 | 74 | 68 | 62 | 56 | 53 | 52 | 52 | 49 | 82 | 75 | 68 | 61 | 60 | 59 | 58 | 54 |
| | 100 | 61 | 56 | 49 | 44 | 42 | 39 | 39 | 34 | 72 | 66 | 58 | 53 | 49 | 47 | 46 | 40 | 83 | 76 | 67 | 60 | 58 | 55 | 53 | 47 |
| | 50 | 57 | 52 | 44 | 39 | 37 | 35 | 34 | 26 | 72 | 67 | 56 | 50 | 47 | 44 | 44 | 33 | - | - | - | - | - | - | - | - |
| 500 | | Flow 600 [l/s] | | | | | | Flow 1200 [l/s] | | | | | | Flow 1800 [l/s] | | | | | | | | | | | |
| | 500 | 84 | 77 | 70 | 64 | 63 | 62 | 61 | 60 | 85 | 78 | 71 | 65 | 64 | 63 | 62 | 61 | 91 | 84 | 76 | 68 | 67 | 68 | 68 | 67 |
| | 300 | 77 | 70 | 64 | 58 | 54 | 54 | 58 | 58 | 80 | 74 | 67 | 60 | 57 | 57 | 60 | 60 | 88 | 80 | 73 | 66 | 62 | 62 | 66 | 66 |
| | 200 | 71 | 65 | 59 | 53 | 50 | 50 | 50 | 47 | 77 | 70 | 64 | 58 | 56 | 55 | 54 | 51 | 85 | 78 | 72 | 65 | 63 | 61 | 60 | 57 |
| | 100 | 63 | 58 | 53 | 47 | 46 | 44 | 42 | 37 | 72 | 66 | 60 | 55 | 53 | 51 | 49 | 43 | 82 | 75 | 70 | 63 | 60 | 57 | 55 | 50 |
| | 50 | 59 | 52 | 47 | 44 | 42 | 38 | 38 | 31 | 71 | 63 | 57 | 54 | 51 | 46 | 46 | 37 | - | - | - | - | - | - | - | - |
| 630 | | Flow 1000 [l/s] | | | | | | Flow 2000 [l/s] | | | | | | Flow 3000 [l/s] | | | | | | | | | | | |
| | 500 | 88 | 80 | 73 | 69 | 66 | 64 | 63 | 62 | 90 | 83 | 75 | 71 | 68 | 67 | 65 | 64 | 96 | 88 | 80 | 76 | 72 | 72 | 70 | 68 |
| | 300 | 82 | 75 | 69 | 65 | 62 | 61 | 58 | 55 | 84 | 77 | 70 | 67 | 63 | 62 | 61 | 56 | 92 | 84 | 77 | 73 | 69 | 68 | 68 | 61 |
| | 200 | 78 | 72 | 65 | 62 | 59 | 55 | 55 | 49 | 80 | 74 | 67 | 64 | 60 | 57 | 57 | 50 | 89 | 82 | 75 | 71 | 67 | 63 | 63 | 56 |
| | 100 | 71 | 66 | 59 | 54 | 50 | 46 | 45 | 40 | 78 | 71 | 66 | 59 | 56 | 49 | 47 | 44 | 90 | 82 | 76 | 68 | 63 | 58 | 55 | 50 |
| | 50 | 66 | 58 | 53 | 48 | 43 | 40 | 39 | 30 | 77 | 68 | 62 | 57 | 51 | 45 | 48 | 36 | - | - | - | - | - | - | - | - |

Shut-off damper

DTMU/DTWU

| dim Ød ₁ | Pressure drop [Pa] | Velocity app. 12 [m/s] | | | | | | | | Velocity app. 15 [m/s] | | | | | | | |
|------------------------|--------------------------|------------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 60 [l/s] | | | | | | | | Flow 75 [l/s] | | | | | | | |
| | 500 | 75 | 75 | 75 | 75 | 68 | 64 | 56 | 53 | 80 | 80 | 80 | 80 | 72 | 68 | 60 | 56 |
| | 300 | 75 | 75 | 71 | 71 | 64 | 57 | 50 | 43 | 79 | 79 | 75 | 75 | 68 | 60 | 53 | 45 |
| | 200 | 75 | 75 | 71 | 65 | 61 | 51 | 41 | 34 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 100 | | Flow 100 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | |
| | 500 | 84 | 81 | 80 | 72 | 68 | 62 | 61 | 61 | 88 | 85 | 84 | 76 | 72 | 65 | 64 | 64 |
| | 300 | 81 | 80 | 79 | 70 | 67 | 59 | 56 | 55 | 86 | 85 | 84 | 74 | 70 | 62 | 59 | 58 |
| | 200 | 80 | 80 | 79 | 69 | 66 | 55 | 51 | 51 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 125 | | Flow 160 [l/s] | | | | | | | | Flow 180 [l/s] | | | | | | | |
| | 500 | 89 | 85 | 81 | 73 | 69 | 62 | 62 | 58 | 91 | 87 | 83 | 75 | 71 | 63 | 63 | 59 |
| | 300 | 86 | 86 | 79 | 71 | 68 | 60 | 56 | 53 | 89 | 88 | 81 | 73 | 69 | 62 | 58 | 54 |
| | 200 | 89 | 85 | 78 | 70 | 63 | 56 | 52 | 52 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 160 | | Flow 240 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | |
| | 500 | 84 | 84 | 80 | 72 | 68 | 65 | 65 | 65 | 89 | 89 | 85 | 77 | 73 | 69 | 69 | 69 |
| | 300 | 81 | 81 | 78 | 70 | 67 | 63 | 59 | 59 | 87 | 87 | 83 | 76 | 72 | 68 | 64 | 64 |
| | 200 | 84 | 80 | 77 | 69 | 66 | 58 | 55 | 55 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 200 | | Flow 400 [l/s] | | | | | | | | Flow 450 [l/s] | | | | | | | |
| | 500 | 90 | 82 | 78 | 72 | 67 | 66 | 71 | 70 | 93 | 85 | 81 | 73 | 71 | 70 | 74 | 73 |
| | 300 | 92 | 84 | 78 | 71 | 67 | 63 | 67 | 66 | 95 | 87 | 81 | 72 | 68 | 66 | 69 | 68 |
| | 200 | 90 | 83 | 79 | 69 | 65 | 62 | 61 | 60 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 250 | | Flow 600 [l/s] | | | | | | | | Flow 750 [l/s] | | | | | | | |
| | 500 | 87 | 83 | 76 | 68 | 64 | 68 | 68 | 68 | 94 | 90 | 82 | 74 | 70 | 74 | 74 | 74 |
| | 300 | 84 | 80 | 73 | 67 | 65 | 64 | 62 | 61 | 91 | 87 | 80 | 72 | 70 | 69 | 72 | 68 |
| | 200 | 82 | 79 | 72 | 64 | 63 | 63 | 62 | 61 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 315 | | Flow 1000 [l/s] | | | | | | | | Flow 1200 [l/s] | | | | | | | |
| | 500 | 89 | 85 | 77 | 69 | 68 | 67 | 69 | 65 | 92 | 88 | 80 | 72 | 71 | 70 | 72 | 68 |
| | 300 | 85 | 81 | 74 | 66 | 64 | 64 | 66 | 59 | 89 | 85 | 78 | 70 | 68 | 68 | 70 | 62 |
| | 200 | 86 | 79 | 72 | 65 | 63 | 62 | 64 | 58 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 400 | | Flow 1600 [l/s] | | | | | | | | Flow 1800 [l/s] | | | | | | | |
| | 500 | 95 | 87 | 79 | 75 | 67 | 71 | 70 | 69 | 98 | 90 | 82 | 78 | 70 | 74 | 73 | 72 |
| | 300 | 91 | 83 | 76 | 69 | 67 | 66 | 65 | 64 | 94 | 86 | 79 | 71 | 70 | 69 | 68 | 67 |
| | 200 | 89 | 82 | 75 | 69 | 67 | 64 | 63 | 60 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 500 | | Flow 2400 [l/s] | | | | | | | | Flow 3000 [l/s] | | | | | | | |
| | 500 | 96 | 88 | 80 | 72 | 70 | 73 | 72 | 71 | 102 | 94 | 85 | 78 | 75 | 77 | 77 | 76 |
| | 300 | 93 | 85 | 78 | 70 | 66 | 66 | 70 | 70 | 99 | 91 | 83 | 74 | 70 | 70 | 74 | 74 |
| | 200 | 91 | 84 | 76 | 70 | 68 | 66 | 65 | 61 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 630 | | Flow 4000 [l/s] | | | | | | | | Flow 4500 [l/s] | | | | | | | |
| | 500 | 103 | 95 | 86 | 82 | 77 | 77 | 76 | 73 | 107 | 98 | 90 | 85 | 81 | 81 | 80 | 76 |
| | 300 | 100 | 91 | 83 | 79 | 75 | 75 | 74 | 66 | 105 | 96 | 88 | 83 | 79 | 79 | 79 | 70 |
| | 200 | 98 | 90 | 82 | 78 | 74 | 70 | 70 | 62 | - | - | - | - | - | - | - | - |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

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Shut-off damper with motor shelf

DTHU



Description

Shut-off damper with motor shelf KOMHY

Ø 80–630 consists of a DTU damper with a KOMHY combined motor shelf added. The damper has no knob, and has a longer spindle to avoid the need for extension spindle VREDF. The damper is designed to have a motor added on site.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–315 fullfills pressure class C in closed position.
 Ø 355–630 fullfills pressure class B in closed position.
 Ø 710–1000 fullfills pressure class A in closed position.

Motorizing

The motor shelf KOMHY is provided with suitable fixing holes for Belimo's LM, NM SM and AF motors, and for Sauter's pneumatic actuators AK 31 P and AK 41 P.

Ø 900 and 1000 has two motor shelves.

NOTE! AK 42 P does not fit this damper. The torque needed for motorizing is given in the adjacent table.

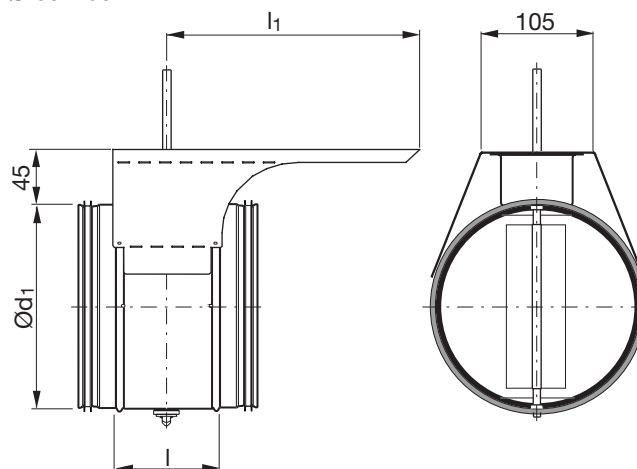
Also the dampers DRU and DSU can be ordered in this version.

Ordering example

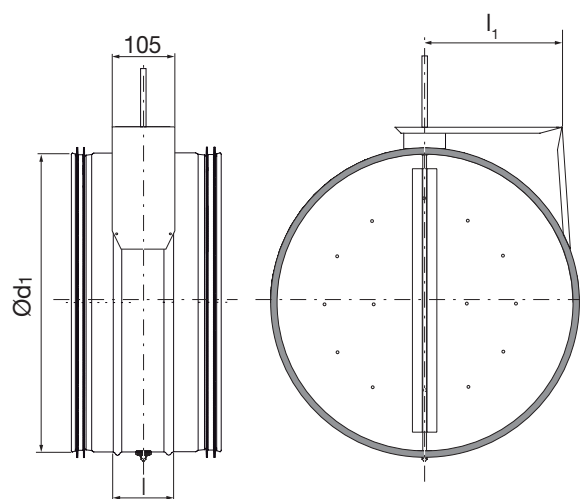
| | | |
|-----------------------------|------|-----|
| Product | DTHU | 200 |
| Dimension $\varnothing d_1$ | | |

Dimensions

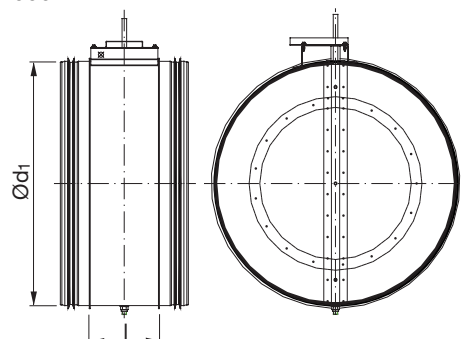
Ø 80–450



Ø 500–630



Ø 710–1000



Shut-off damper with motor shelf

DTHU

Dimensions

| Ød ₁ nom | l mm | l ₁ mm | M Nm | m kg | Sealing class past closed blade |
|------------------------|---------|----------------------|---------|---------|---------------------------------------|
| 80 | 100 | 230 | 2,0 | 0,67 | 4 |
| 100 | 100 | 230 | 2,0 | 0,75 | 4 |
| 112 | 100 | 230 | 2,0 | 0,85 | 4 |
| 125 | 100 | 230 | 2,0 | 0,90 | 4 |
| 140 | 100 | 230 | 2,0 | 0,97 | 4 |
| 150 | 100 | 230 | 2,0 | 1,00 | 4 |
| 160 | 100 | 230 | 2,0 | 1,11 | 4 |
| 180 | 100 | 230 | 2,0 | 1,19 | 4 |
| 200 | 100 | 230 | 2,0 | 1,41 | 4 |
| 224 | 100 | 230 | 3,0 | 1,64 | 4 |
| 250 | 100 | 230 | 3,0 | 1,89 | 4 |
| 280 | 100 | 230 | 4,0 | 2,14 | 4 |
| 300 | 100 | 230 | 4,0 | 2,33 | 4 |
| 315 | 100 | 230 | 4,0 | 2,51 | 4 |
| 355 | 100 | 230 | 8,0 | 2,81 | 4 |
| 400 | 100 | 230 | 8,0 | 4,02 | 4 |
| 450 | 100 | 230 | 10 | 5,21 | 4 |
| 500 | 115 | 230 | 10 | 6,44 | 4 |
| 560 | 115 | 230 | 15 | 7,84 | 4 |
| 600 | 115 | 230 | 15 | 8,48 | 4 |
| 630 | 115 | 315 | 15 | 9,17 | 4 |
| 710 | 230 | 355 | 40 | 18,2 | 4 |
| 800 | 230 | 400 | 40 | 20,7 | 4 |
| 900 | 230 | 450 | 60 | 27,6 | 4 |
| 1000 | 230 | 500 | 60 | 32,6 | 4 |

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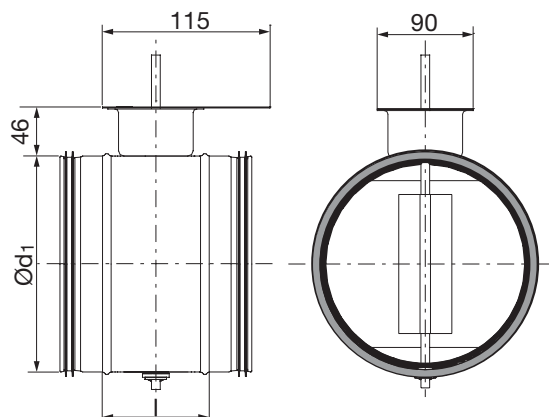
18

Shut-off damper with motor shelf

DTH1U



Dimensions



Description

Shut-off damper with motor shelf HYLLA LMNM. Consists of a DTU damper with motor shelf HYLLA LMNM added.

The damper is designed to have a motor added on site.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–315 fullfills pressure class C in closed position.

Ø 400–500 fullfills pressure class B in closed position.

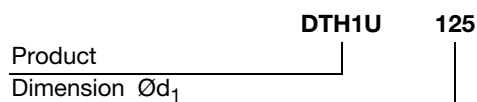
Motorizing

See separate motorizing table.

The torque needed for motorizing is given in the adjacent table.

| Ød ₁ nom | l mm | M Nm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------|---------------------------------------|
| 80 | 100 | 2,0 | 0,70 | 4 |
| 100 | 100 | 2,0 | 0,75 | 4 |
| 125 | 100 | 2,0 | 0,90 | 4 |
| 160 | 100 | 2,0 | 1,10 | 4 |
| 180 | 100 | 2,0 | 1,20 | 4 |
| 200 | 100 | 2,0 | 1,40 | 4 |
| 250 | 100 | 3,0 | 1,90 | 4 |
| 315 | 100 | 4,0 | 2,50 | 4 |
| 400 | 100 | 8,0 | 4,00 | 4 |
| 500 | 100 | 10 | 6,50 | 4 |

Ordering example

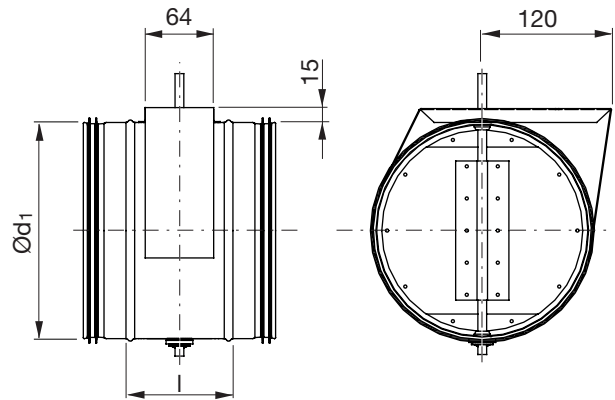


Shut-off damper with motor shelf

DTH2U



Dimensions



Description

Shut-off damper with motor shelf HYLLA DTH2U. Consists of a DTU damper with motor shelf HYLLA DTHU2U added.

The damper has neither any cup nor any knob, and has a longer spindle to avoid the need for extension spindle VREDF. The damper is designed to have a motor added on site.

Has a low height to fit at narrow spaces.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Fulfills pressure class C in closed position.

Motorizing

The motor shelf is suitable for Belimo's CM...F and LM...F motors.

The torque needed for motorizing is given in the adjacent table.

| Ød ₁ nom | l mm | M Nm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------|---------------------------------------|
| 80 | 100 | 2,0 | 0,31 | 4 |
| 100 | 100 | 2,0 | 0,39 | 4 |
| 125 | 100 | 2,0 | 0,54 | 4 |
| 150 | 100 | 2,0 | 0,64 | 4 |
| 160 | 100 | 2,0 | 0,75 | 4 |
| 200 | 100 | 2,0 | 1,05 | 4 |
| 250 | 100 | 3,0 | 1,53 | 4 |
| 315 | 100 | 4,0 | 2,15 | 4 |

Ordering example

| | | |
|---------------------------|-------|-----|
| Product | DTH2U | 125 |
| Dimension Ød ₁ | | |

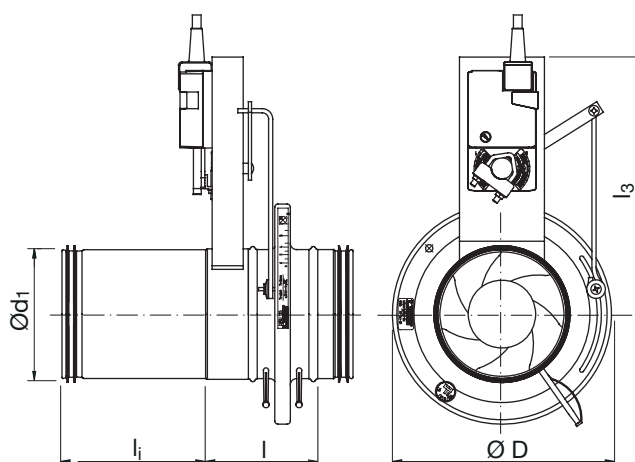
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Damper with flow meter

DIRBU



Dimensions



| Ød ₁ nom | ØD nom | l mm | l _i mm | l ₃ mm | m kg |
|------------------------|-----------|---------|----------------------|----------------------|---------|
| 100 | 163 | 94 | 130 | 235 | 1,65 |
| 125 | 210 | 103 | 130 | 249 | 2,05 |
| 150 | 230 | 100 | 130 | 262 | 2,25 |
| 160 | 230 | 100 | 130 | 268 | 2,25 |
| 200 | 285 | 102 | 130 | 289 | 3,15 |
| 250 | 333 | 123 | 185 | 315 | 4,05 |
| 300 | 406 | 123 | 185 | 341 | 4,65 |
| 315 | 406 | 123 | 185 | 350 | 5,05 |

Description

The motor-driven damper DIRBU with flow meter is suitable for systems where it should be possible to increase the air flow or lower it to the basic level. Examples of such systems are conference rooms and public areas.

It fulfills tightness class C. DIRBU is intended for use where you want to be able to set two air flows.

Maximum and minimum flow is set with the measurement nozzles and are fixed with the two end stop screws on the motor.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 100–315 fulfills pressure class A in closed position.

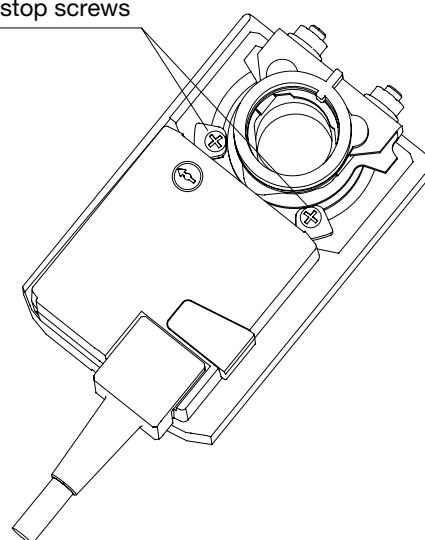
Cleaning

By fully open the damper, one get access to the duct. Do not forget to readjust the damper after cleaning.

Installation

Consider required straight distance after or before disturbance, as mentioned on page 252 and on the card attached to the measurement nozzles, to obtain accurate flow measurement.

End stop screws



Ordering example

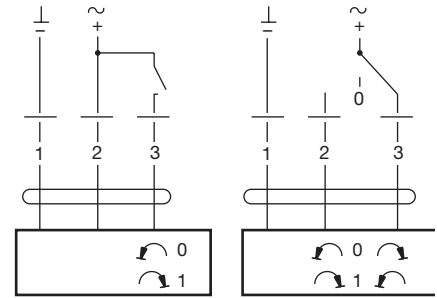
| | | | | |
|---------------------------|-------|-----|----|----|
| Product | DIRBU | 160 | 24 | LM |
| Dimension Ød ₁ | | | | |
| Voltage | | | | |
| Motor type | | | | |

Damper with flow meter

DIRBU

Technical data for the motors

| | LM 24 A | LM 230 A |
|---------------------------------|--|-----------------------------------|
| Power supply..... | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V | AC 85–265 V, 50/60 Hz |
| Power consumption | 1 W | 1,5 W |
| For wire sizing | 2 VA | 4 VA |
| Connection | Cable 1 m, 3×0,75 mm ² | Cable 1 m, 3×0,75 mm ² |
| Operating angle..... | Max. 95°, adjustable 0–100% | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 5 Nm | Min. 5 Nm |
| Direction of rotation..... | Switch selectable 0 ↺ or 1 ↻ | Switch selectable 0 ↺ or 1 ↻ |
| Position indication | Mechanical | Mechanical |
| Running time for 95° | 150 s | 150 s |
| Sound power level..... | Max. 35 dB (A) | Max. 35 dB (A) |
| Protection class..... | III Safety extra-low voltage | II Safety insulated |
| Protection type..... | IP 54 | IP 54 |
| Ambient temperature range | -30 to +50°C | -30 to +50°C |
| Ambient moisture | 95 % RF | 95 % RF |



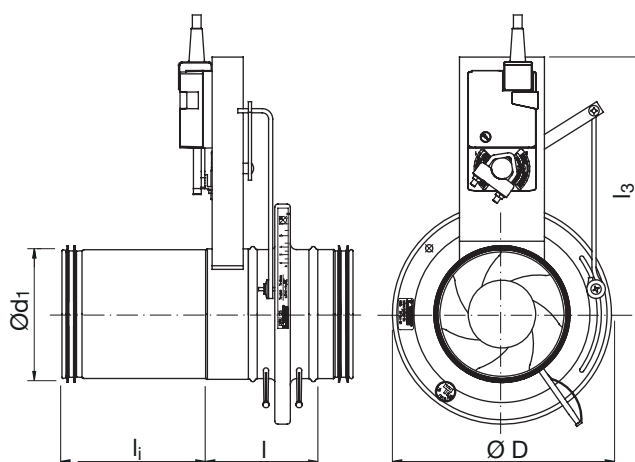
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Damper with flow meter

DIRVU



Dimensions



| Ød ₁ nom | ØD nom | l mm | l _i mm | l ₃ mm | m kg |
|------------------------|-----------|---------|----------------------|----------------------|---------|
| 100 | 163 | 94 | 130 | 235 | 1,60 |
| 125 | 210 | 103 | 130 | 249 | 2,00 |
| 150 | 230 | 100 | 130 | 262 | 2,20 |
| 160 | 230 | 100 | 130 | 268 | 2,20 |
| 200 | 285 | 102 | 130 | 289 | 3,10 |
| 250 | 333 | 123 | 185 | 315 | 3,95 |
| 300 | 406 | 123 | 185 | 341 | 4,55 |
| 315 | 406 | 123 | 185 | 350 | 4,95 |

Description

The motor-driven damper DIRVU with flow meter is suitable for systems where it should be possible to vary the air flow. Examples of such systems are conference rooms and public areas. It fulfills tightness class C.

Maximum and minimum flow is set with the measurement nozzles and are fixed with the two end stop screws on the motor. A special mounting, measuring, balancing and maintenance instruction exists for this product.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 100–315 fulfills pressure class A in closed position.

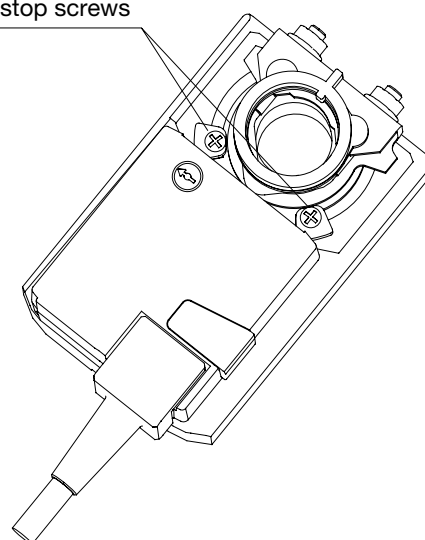
Cleaning

By fully open the damper, one get access to the duct. Do not forget to readjust the damper after cleaning.

Installation

Consider required straight distance after or before disturbance, as mentioned on page 252 and on the card attached to the measurement nozzles, to obtain accurate flow measurement.

End stop screws



Ordering example

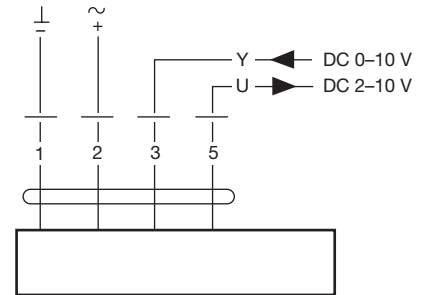
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|---------------------------|-------|-----|----|----|
| Product | DIRVU | 160 | 24 | LM |
| Dimension Ød ₁ | | | | |
| Voltage | | | | |
| Motor type | | | | |

Damper with flow meter

DIRVU

Technical data for the motor

| | |
|---------------------------------|-----------------------------------|
| | LM 24 A-SR |
| Power supply..... | AC 24 V, 50/60 Hz DC 24 V |
| Power consumption | 1 W |
| For wire sizing | 2 VA |
| Connection | Cable 1 m, 4x0,75 mm ² |
| Operating angle..... | Max. 95°, adjustable 0–100% |
| Torque at rated voltage..... | Min. 5 Nm |
| Direction of rotation..... | Switch selectable 0 ↺ or 1 ↻ |
| Position indication | Mechanical |
| Running time for 95° | 150 s |
| Sound power level..... | Max. 35 dB (A) |
| Protection class..... | III Safety extra-low voltage |
| Protection type..... | IP 54 |
| Ambient temperature range | -30 to +50°C |
| Ambient moisture | 95 % RF |



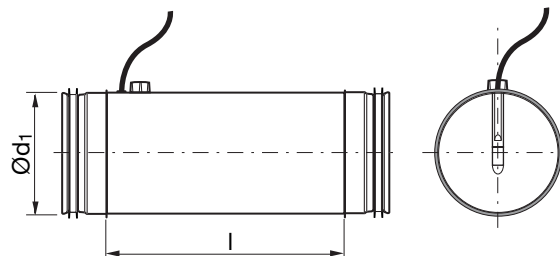
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Shut-off damper with motor

DSUSN



Dimensions



Description

Shut-off or regulating damper. With internal Belimo-motor and blade combination type CM ... D, with plastic blade, specially suitable where space is limited.

The housing fulfills tightness class D.

For systems with low requirements at shut-off capacity.

With telescopic function, hence also suitable for simple additional retrofitting.

Available with motors for 24 V DC and AC or 230 V AC (CM .. -L-...D).

On-/Off- or 3-point regulation.

Please look at www.belimo.com for motor data.

Advantages

- easy to complement
- possible to install in the smallest spaces without the need of extra space
- ensured installation quality and hence tightness through lip seals
- in approx. 50 % of damper positions quieter than other damper constructions
- silent change of setting
- possible to demount (telescopic function)
- can also replace an inspection hatch

Ordering example

| | | |
|---------------------------|-------|-----|
| Product | DSUSN | 100 |
| Dimension Ød ₁ | | |

| Ød ₁ nom | l mm | l ₁ mm | l ₂ mm | m kg | Sealing class past closed blade |
|---------------------|------|-------------------|-------------------|------|---------------------------------|
| 100 | 250 | 40 | 90 | 0,75 | 2 |
| 125 | 250 | 40 | 90 | 0,94 | 2 |
| 150 | 250 | 40 | 90 | 1,12 | 2 |
| 160 | 250 | 40 | 90 | 1,20 | 2 |

Advantages

- galvanized body, tightness class D
- body also available in stainless steel
- working temperature range -30 to +50 °C
- max. humidity 95 %, not condensating
- for use in systems of max. 1000 Pa
- the air direction must be considered
- maintenance free

Instructions for retrofitting

- Duct cutting length 260 mm.
- Must be able to slide 1 Ø lengthwise.
- To allow later disassembly the duct must not be provided with Click.

Regulating damper with motor

DSVUSN



Description

Shut-off or regulating damper. With internal Belimo-motor and blade combination type CM ... D, with plastic blade, specially suitable where space is limited.

The housing fulfills tightness class D.

For systems with low requirements at shut-off capacity.

With telescopic function, hence also suitable for simple additional retrofitting.

For 24 V available with stepless regulation motor (CM 24 – SR-L...D).

Please look at www.belimo.com for motor data.

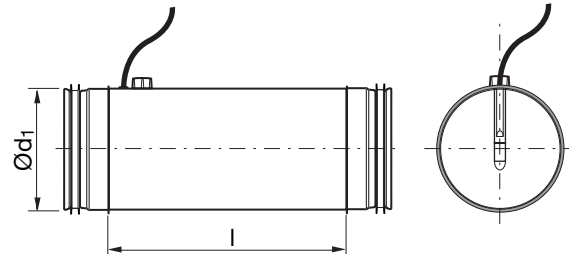
Advantages

- easy to complement
- possible to install in the smallest spaces without the need of extra space
- ensured installation quality and hence tightness through lip seals
- in approx. 50 % of damper positions quieter than other damper constructions
- silent change of setting
- possible to demount (telescopic function)
- can also replace an inspection hatch

Ordering example

| | | |
|-----------------------------|--------|-----|
| Product | DSVUSN | 100 |
| Dimension $\varnothing d_1$ | | |

Dimensions



| $\varnothing d_1$ nom | l mm | l ₁ mm | l ₂ mm | m kg |
|--------------------------|---------|----------------------|----------------------|---------|
| 100 | 250 | 40 | 90 | 0,75 |
| 125 | 250 | 40 | 90 | 0,94 |
| 150 | 250 | 40 | 90 | 1,12 |
| 160 | 250 | 40 | 90 | 1,20 |

Advantages

- galvanized body, tightness class D
- body also available in stainless steel
- working temperature range -30 to +50 °C
- max. humidity 95 %, not condensating
- for use in systems of max. 1000 Pa
- the air direction must be considered
- maintenance free

Instructions for retrofitting

- Duct cutting length 260 mm.
- Must be able to slide 1 \varnothing lengthwise.
- To allow later disassembly the duct must not be provided with Click.

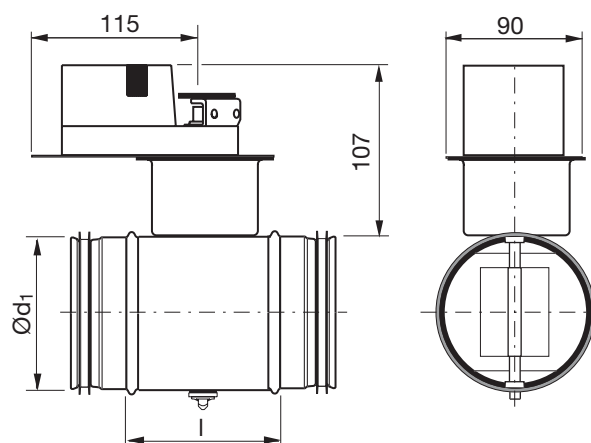


Motorized shut-off damper

DTBU



Dimensions



Description

Shut-off damper with electric motor – LM 24 A-F or LM 230 A-F

Consists of a DTU damper with a 24 or 230 V electric motor added.

The motor is controlled by a single-pole breaking contact. The motor has overload protection and stops automatically when the blade has reached its end stop. The stops can be continually adjusted. Although the current is connected, the motor is not damaged if blocked.

The spindle and motor can be disconnected from each other via a release button on the motor housing.

In outdoor installation, the motor should be protected from direct UV radiation.

The motor is installed at a distance from the damper, which makes it easy to insulate the ventilation duct.

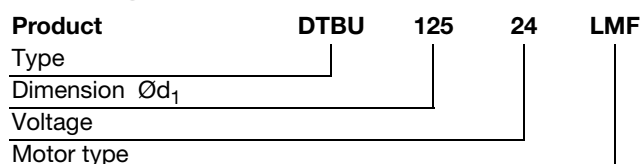
Also the dampers DRU and DSU can be ordered with motor.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–315 fullfills pressure class C in closed position.

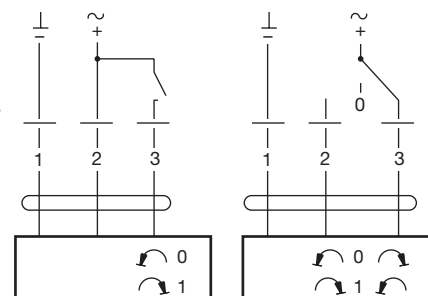
| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|---------------------|------|------|---------------------------------|
| 80 | 100 | 1,00 | 4 |
| 100 | 100 | 1,08 | 4 |
| 125 | 100 | 1,23 | 4 |
| 160 | 100 | 1,44 | 4 |
| 200 | 100 | 1,74 | 4 |
| 250 | 100 | 2,22 | 4 |
| 315 | 100 | 2,84 | 4 |

Ordering example



Technical data for the motors

| | LM 24 A-F | LM 230 A-F |
|---------------------------------|--|-----------------------------------|
| Power supply | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V | AC 65–265 V, 50/60 Hz |
| Power consumption | 1 W | 1,5 W |
| For wire sizing | 2 VA | 4 VA |
| Connection | Cable 1 m, 3x0,75 mm ² | Cable 1 m, 3x0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0–100% | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 5 Nm | Min. 5 Nm |
| Direction of rotation | Switch selectable 0 ↻ or 1 ↻ | Switch selectable 0 ↻ or 1 ↻ |
| Position indication | Mechanical | Mechanical |
| Running time for 95° | 150 s | 150 s |
| Sound power level | Max. 35 dB (A) | Max. 35 dB (A) |
| Protection class | III Safety extra-low voltage | II Safety insulated |
| Protection type | IP 54 | IP 54 |
| Ambient temperature range | -30 to +50°C | -30 to +50°C |
| Ambient moisture | 95 % RH | 95 % RH |

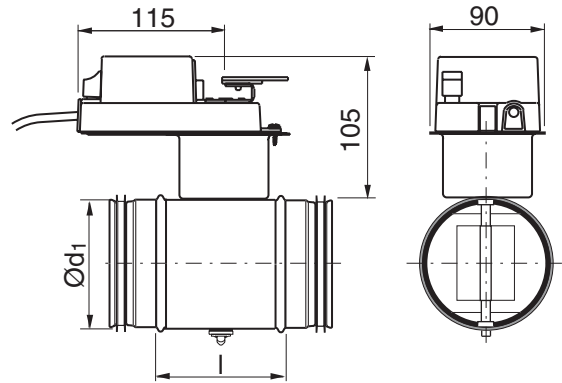


Motorized shut-off damper

DTBU



Dimensions



| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|------------------------------------|
| 400 | 100 | 4,59 | 4 |
| 500 | 115 | 7,29 | 4 |

Description

Shut-off damper with electric motor – NM 24 A-F or NM 230 A-F

Consists of a DTU damper with a 24 or 230 V electric motor added.

The motor is controlled by a single-pole breaking contact. The motor has overload protection and stops automatically when the blade has reached its end stop. The stop can be continually adjusted. Although the current is connected, the motor is not damaged if blocked.

The spindle and motor can be disconnected from each other via a release button on the motor housing.

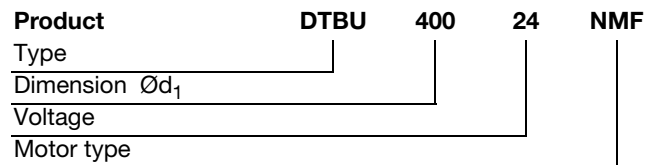
In outdoor installation, the motor should be protected from direct UV radiation.

The motor is installed at a distance from the damper, which makes it easy to insulate the ventilation duct.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

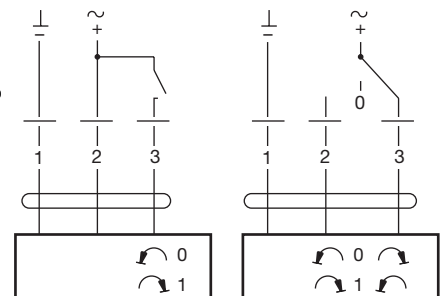
Ø 400–500 fullfills pressure class B in closed position.

Ordering example



Technical data for the motors

| | NM 24 A-F | NM 230 A-F |
|---------------------------------|--|-----------------------------------|
| Power supply | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V | AC 85–265 V, 50/60 Hz |
| Power consumption | 1,5 W | 2,5 W |
| For wire sizing | 3,5 VA | 6 VA |
| Connection | Cable 1 m, 3×0,75 mm ² | Cable 1 m, 3×0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0–100% | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 10 Nm | Min. 10 Nm |
| Direction of rotation | Switch selectable 0 ↻ or 1 ↻ | Switch selectable 0 ↻ or 1 ↻ |
| Position indication | Mechanical | Mechanical |
| Running time for 95° | 150 s | 150 s |
| Sound power level..... | Max. 35 dB (A) | Max. 35 dB (A) |
| Protection class..... | III Safety extra-low voltage | II Safety insulated |
| Protection type | IP 54 | IP 54 |
| Ambient temperature range | -30 to +50°C | -30 to +50°C |
| Ambient moisture | 95 % RH | 95 % RH |

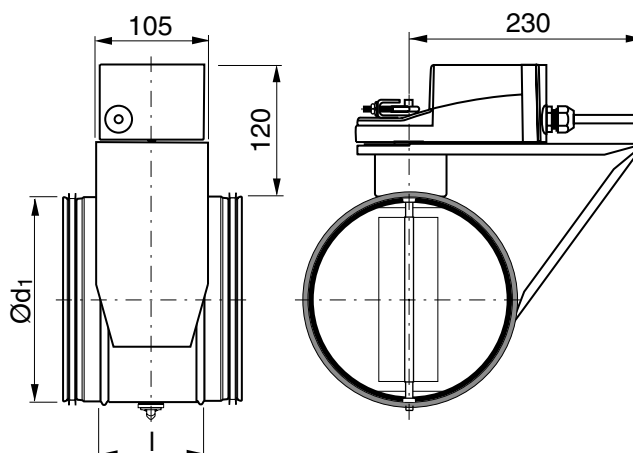


Motorized shut-off damper

DTBU



Dimensions



| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|------------------------------------|
| 630 | 115 | 10,5 | 4 |

Description

Shut-off damper with electric motor – SM 24 A or SM 230 A

Consists of a DTU damper with a 24 or 230 V electric motor added.

The motor is controlled by a single-pole breaking contact. The motor has overload protection and stops automatically when the blade has reached its end stop. The stop can be continually adjusted. Although the current is connected, the motor is not damaged if blocked.

The spindle and motor can be disconnected from each other via a release button on the motor housing.

In outdoor installation, the motor should be protected from direct UV radiation.

The motor is installed at a distance from the damper, which makes it easy to insulate the ventilation duct.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

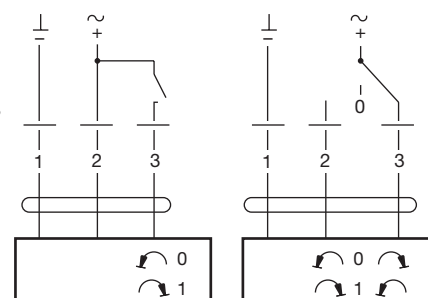
Ø 630 fullfills pressure class B in closed position.

Ordering example

| | | | | |
|---------------------------|-------------|------------|-----------|-----------|
| Product | DTBU | 630 | 24 | SM |
| Type | | | | |
| Dimension Ød ₁ | | | | |
| Voltage | | | | |
| Motor type | | | | |

Technical data for the motors

| | SM 24 A | SM 230 A |
|---------------------------------|--|-----------------------------------|
| Power supply | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V | AC 85–265 V, 50/60 Hz |
| Power consumption | 2 W | 2,5 W |
| For wire sizing | 4 VA | 6 VA |
| Connection | Cable 1 m, 3x0,75 mm ² | Cable 1 m, 3x0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0–100% | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 20 Nm | Min. 20 Nm |
| Direction of rotation | Switch selectable 0 ↻ or 1 ↻ | Switch selectable 0 ↻ or 1 ↻ |
| Position indication | Mechanical | Mechanical |
| Running time for 95° | 150 s | 150 s |
| Sound power level | Max. 35 dB (A) | Max. 35 dB (A) |
| Protection class | III Safety extra-low voltage | II Safety insulated |
| Protection type | IP 54 | IP 54 |
| Ambient temperature range | -30 to +50°C | -30 to +50°C |
| Ambient moisture | 95 % RH | 95 % RH |

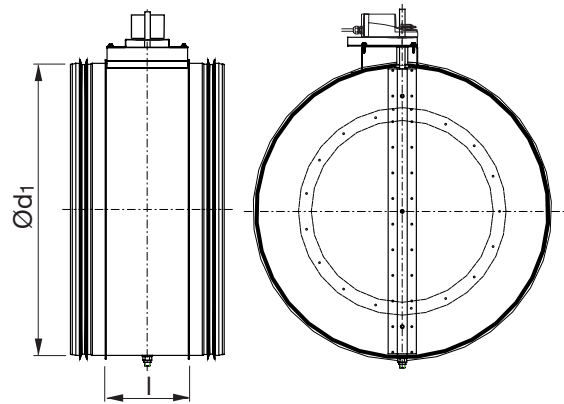


Motorized shut-off damper

DTBU



Dimensions



Description

Shut-off damper with electric motor – GM 24 A or GM 230 A

Consists of a DTU damper with a 24 or 230 V electric motor added. Ø900 and 1000 has two motors.

The motor is controlled by a single-pole breaking contact. The motor has overload protection and stops automatically when the blade has reached its end stop. The stop can be continually adjusted. Although the current is connected, the motor is not damaged if blocked.

The spindle and motor can be disconnected from each other via a release button on the motor housing.

In outdoor installation, the motor should be protected from direct UV radiation.

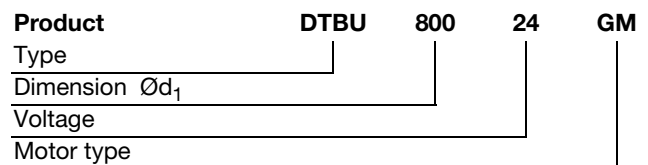
The motor is installed at a distance from the damper, which makes it easy to insulate the ventilation duct.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 710–1000 fullfills pressure class A in closed position.

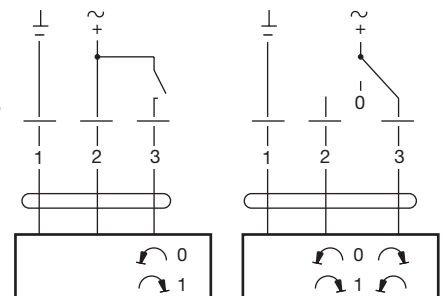
| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|---------------------|------|------|---------------------------------|
| 710 | 230 | 19,9 | 4 |
| 800 | 230 | 22,4 | 4 |
| 900 | 230 | 31,0 | 4 |
| 1000 | 230 | 36,0 | 4 |

Ordering example



Technical data for the motors

| | GM 24 A | GM 230 A |
|---------------------------------|--|-----------------------------------|
| Power supply | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V | AC 85–265 V, 50/60 Hz |
| Power consumption | 4,5 W | 4,5 W |
| For wire sizing | 7 VA | 7 VA |
| Connection | Cable 1 m, 3x0,75 mm ² | Cable 1 m, 3x0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0–100% | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 40 Nm | Min. 40 Nm |
| Direction of rotation | Switch selectable 0 ↻ or 1 ↻ | Switch selectable 0 ↻ or 1 ↻ |
| Position indication | Mechanical | Mechanical |
| Running time for 95° | 150 s | 150 s |
| Sound power level | Max. 45 dB (A) | Max. 45 dB (A) |
| Protection class | III Safety extra-low voltage | II Safety insulated |
| Protection type | IP 54 | IP 54 |
| Ambient temperature range | -30 to +50 °C | -30 to +50 °C |
| Ambient moisture | 95 % RH | 95 % RH |

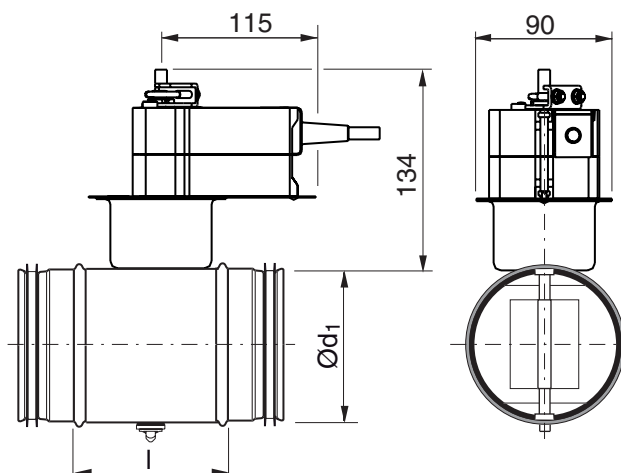


Motorized shut-off damper

DTBCU



Dimensions



Description

Shut-off damper with spring return motor – TF 24 or TF 230

Consists of a DTU damper with a 24 or 230 V electric motor added.

The motor is controlled by a single-pole breaking contact. The motor has overload protection and stops automatically when the blade has reached its end stop. Although the current is connected, the motor is not damaged if blocked.

When system voltage is connected, the motor starts and tensions the return spring at the same time. The motor stops at its end position and is not damaged by blockage, although system voltage remains.

When the power is cut, the damper closes when the drive motor freewheels and the return spring pulls the blade back to its original position.

If you want the damper to open instead of close, you can undo the two nuts on the spindle clamp, turn the spindle 90° and tighten the nuts again.

In outdoor installation, the motor should be protected from direct UV radiation.

The motor is installed at a distance from the damper, which makes it easy to insulate the ventilation duct.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–200 fullfills pressure class C in closed position.

| Ød ₁ nom | l mm | 24 V m kg | 230 V m kg | Sealing class past closed blade |
|---------------------|------|-----------|------------|---------------------------------|
| 80 | 100 | 1,06 | 1,06 | 4 |
| 100 | 100 | 1,14 | 1,14 | 4 |
| 125 | 100 | 1,29 | 1,29 | 4 |
| 160 | 100 | 1,50 | 1,50 | 4 |
| 200 | 100 | 1,90 | 1,90 | 4 |

Ordering example

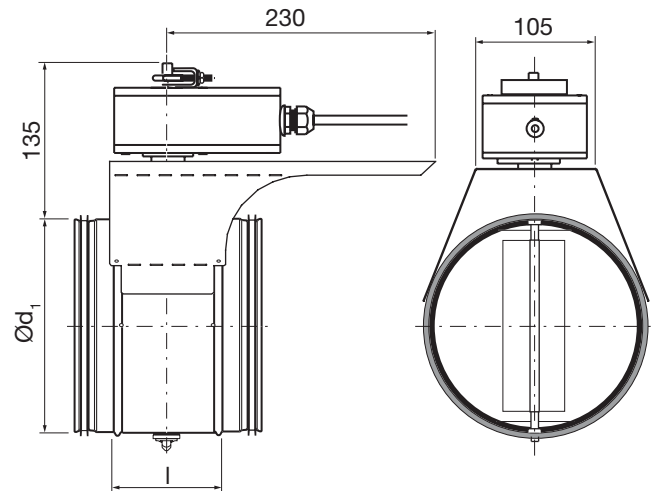
| | | | | |
|---------------------------|--------------|------------|-----------|-----------|
| | DTBCU | 200 | 24 | TF |
| Product | | | | |
| Dimension Ød ₁ | | | | |
| Voltage | | | | |
| Motor type | | | | |

Motorized shut-off damper

DTBCU



Dimensions



| Ød ₁ nom | l mm | 24 V m kg | 230 V m kg | Sealing class past closed blade |
|------------------------|---------|-----------------|------------------|---------------------------------------|
| 250 | 100 | 3,29 | 3,44 | 4 |
| 315 | 100 | 3,91 | 4,06 | 4 |

Description

Shut-off damper with spring return motor – LF 24 or LF 230

Consists of a DTU damper with a 24 or 230 V electric motor added.

The motor is controlled by a single-pole breaking contact. The motor has overload protection and stops automatically when the blade has reached its end stop. Although the current is connected, the motor is not damaged if blocked.

When system voltage is connected, the motor starts and tensions the return spring at the same time. The motor stops at its end position and is not damaged by blockage, although system voltage remains.

When the power is cut, the damper closes when the drive motor freewheels and the return spring pulls the blade back to its original position.

If you want the damper to open instead of close, you can undo the two nuts on the spindle clamp, turn the spindle 90° and tighten the nuts again.

In outdoor installation, the motor should be protected from direct UV radiation.

The motor is installed at a distance from the damper, which makes it easy to insulate the ventilation duct.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 250–315 fullfills pressure class C in closed position.

Ordering example

| | | | | |
|---------------------------|--------------|------------|-----------|-----------|
| | DTBCU | 250 | 24 | LF |
| Product | | | | |
| Dimension Ød ₁ | | | | |
| Voltage | | | | |
| Motor type | | | | |

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Motorized shut-off damper

DTBCU



Description

Shut-off damper with spring return motor – SF 24A or SF 230A

Consists of a DTU damper with a 24 or 230 V electric motor added.

The motor is controlled by a single-pole breaking contact. The motor has overload protection and stops automatically when the blade has reached its end stop. Although the current is connected, the motor is not damaged if blocked.

When system voltage is connected, the motor starts and tensions the return spring at the same time. The motor stops at its end position and is not damaged by blockage, although system voltage remains.

When the power is cut, the damper closes when the drive motor freewheels and the return spring pulls the blade back to its original position.

If you want the damper to open instead of close, you can undo the two nuts on the spindle clamp, turn the spindle 90° and tighten the nuts again.

In outdoor installation, the motor should be protected from direct UV radiation.

The motor is installed at a distance from the damper, which makes it easy to insulate the ventilation duct.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

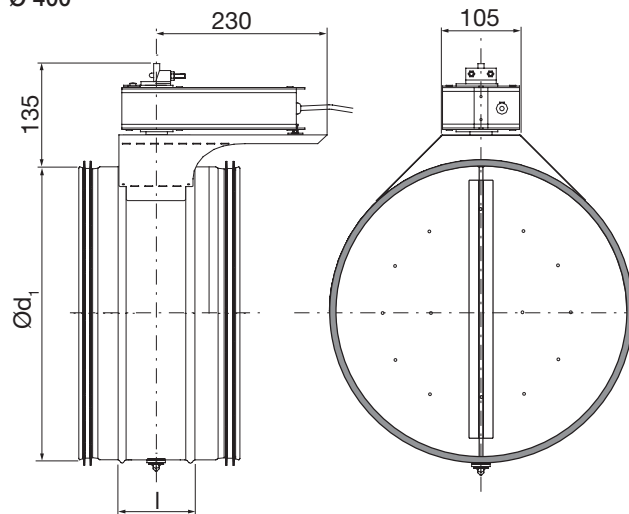
Ø 400–630 fullfills pressure class B in closed position.

Ordering example

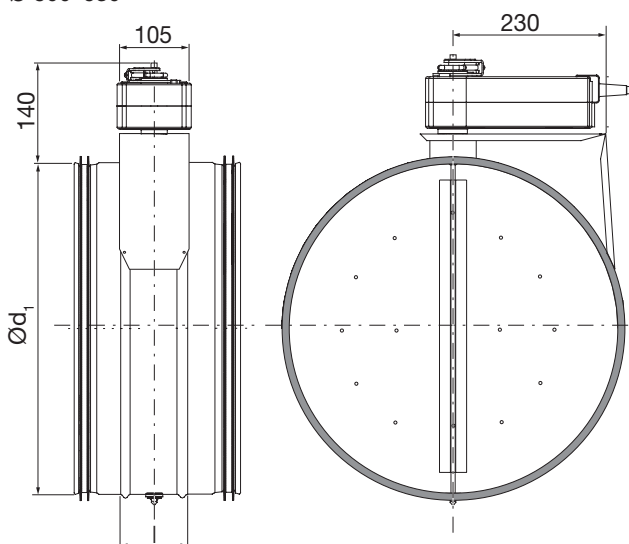
| | | | | |
|---------------------------|--------------|------------|-----------|-----------|
| | DTBCU | 400 | 24 | SF |
| Product | | | | |
| Dimension Ød ₁ | | | | |
| Voltage | | | | |
| Motor type | | | | |

Dimensions

Ø 400



Ø 500–630



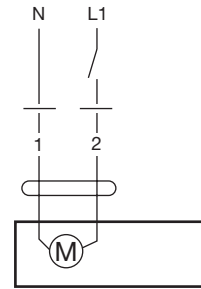
| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|------------------------------------|
| 400 | 100 | 6,32 | 4 |
| 500 | 115 | 8,74 | 4 |
| 630 | 115 | 10,5 | 4 |

Motorized shut-off damper

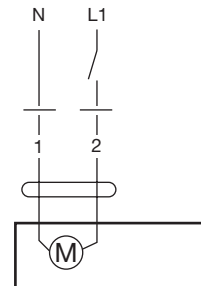
DTBCU

Technical data for the motors

| | TF 24 | TF 230 |
|----------------------------------|--|--|
| Voltage range..... | 2AC 19,2–28,8 V, 50/60 Hz DC 21,6–28,8 V | AC 85–265 V, 50/60 Hz |
| Power consumption | | |
| – during opening..... | 2,5 W | 2,5 W |
| – stand-by..... | 1,5 W | 1,5 W |
| For wire sizing..... | 5 VA | 5 VA |
| Connection | Cable 1 m, 2×0,75 mm ² | Cable 1 m, 2×0,75 mm ² |
| Operating angle, adjustable..... | Mech. limited to 95° | Mech. limited to 95° |
| Torque at rated voltage | | |
| – motor | Min. 2 Nm | Min. 2 Nm |
| – return spring..... | Min. 2 Nm | Min. 2 Nm |
| Direction of rotation | Optional through right or left-hand installation L/R | Optional through right or left-hand installation L/R |
| Position indication | Mechanical | Mechanical |
| Running time | | |
| – motor | < 75 s (0–2 Nm) | < 75 s (0–2 Nm) |
| – return spring..... | < 25 s | < 25 s |
| Degree of protection..... | IP 42 | IP 42 |
| Ambient temperature range..... | -30 to +50°C | -30 to +50°C |



| | LF 24 | LF 230 |
|----------------------------------|--|--|
| Voltage range..... | 2AC 19,2–28,8 V, 50/60 Hz DC 21,6–28,8 V | AC 198–264 V, 50/60 Hz |
| Power consumption | | |
| – during opening..... | 5 W | 5 W |
| – stand-by..... | 2,5 W | 3 W |
| For wire sizing..... | 7 VA | 7 VA |
| Connection | Cable 1 m, 2×0,75 mm ² | Cable 1 m, 2×0,75 mm ² |
| Operating angle, adjustable..... | Mech. limited to 95° | Mech. limited to 95° |
| Torque at rated voltage | | |
| – motor | Min. 4 Nm | Min. 4 Nm |
| – return spring..... | Min. 4 Nm | Min. 4 Nm |
| Direction of rotation | Optional through right or left-hand installation L/R | Optional through right or left-hand installation L/R |
| Position indication | Mechanical | Mechanical |
| Running time | | |
| – motor | 40–75 s (0–4 Nm) | 40–75 s (0–4 Nm) |
| – return spring..... | app. 20 s | app. 20 s |
| Sound power level | | |
| – motor | max 50 dB (A) | max 50 dB (A) |
| – return spring..... | app. 62 dB (A) | app. 62 dB (A) |
| Degree of protection..... | IP 54 | IP 54 |
| Ambient temperature range..... | -30 to +50°C | -30 to +50°C |



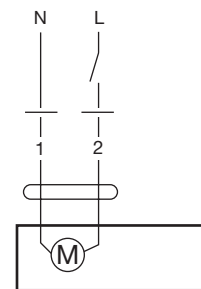
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Motorized shut-off damper

DTBCU

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| | SF 24A | SF 230A |
|----------------------------------|---|---|
| Voltage range..... | AC 19,2–28,8 V, 50/60 Hz DC 21,6–28,8 V | AC 195–264 V, 50/60 Hz |
| Power consumption | | |
| – during operation..... | 5 W | 6,5 W |
| – stand-by..... | 2,5 W | 3,5 W |
| For wire sizing..... | 7,5 VA | 18 VA |
| Connection | Cable 1 m, 2×0,75 mm ² | Cable 1 m, 2×0,75 mm ² |
| Operating angle, adjustable..... | Mech. limited to 95° | Mech. limited to 95° |
| Torque at rated voltage | | |
| – motor | Min. 20 Nm | Min. 20 Nm |
| – spring bias | Min. 20 Nm | Min. 20 Nm |
| Direction of rotation | Optional through right or left-hand installation L/R | Optional through right or left-hand installation L/R |
| Position indication | Mechanical | Mechanical |
| Running time | | |
| – motor | ≤ 75 s | ≤ 75 s |
| – return spring..... | ≤ 20 s | ≤ 20 s |
| Sound power level | | |
| – motor | ≤ 45 dB (A) | ≤ 45 dB (A) |
| – return spring..... | ≤ 62 dB (A) | ≤ 62 dB (A) |
| Degree of protection..... | IP 54 | IP 54 |
| Ambient temperature range..... | -30 to +50 °C | -30 to +50 °C |

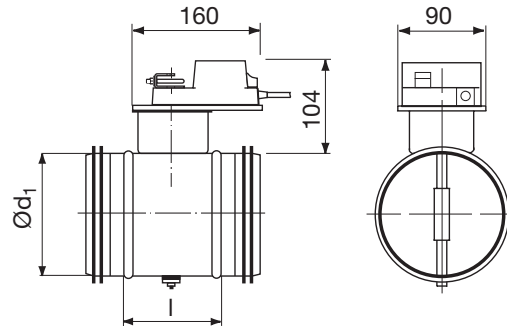


Shut-off damper, fastrunning motor

DTFU



Dimensions



Description

Shut-off damper with electric motor LMQ 24A or LMQ 24A-SR.

Consists of a DTU damper with a 24 V electric motor added.

- 1) Motor LMQ 24A is a fast-running reversing on/off-motor, suitable for extraction at working places where a fast operation is wanted.
- 2) Motor LMQ 24A-SR is a fast-running modulating motor, suitable for laboratory extraction where a fast change of the air flow is wanted.

The motors stops at its end position and is not damaged by blockage, although system voltage remains.

In outdoor installations, the motor must be protected from rain and direct UV radiation.

The motor is installed at a distance from the damper, which makes it easy to insulate the ventilation duct.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–250 fullfills pressure class C in closed position.

The torque needed for motorizing is given in the adjacent table.

| Ød ₁ nom | l mm | M Nm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------|---------------------------------------|
| 80 | 100 | 2,0 | 1,30 | 4 |
| 100 | 100 | 2,0 | 1,40 | 4 |
| 125 | 100 | 2,0 | 1,50 | 4 |
| 160 | 100 | 2,0 | 1,80 | 4 |
| 200 | 100 | 2,0 | 2,10 | 4 |
| 250 | 100 | 3,0 | 2,50 | 4 |

Ordering example

| | | | | |
|---------------------------|-------------|------------|-----------|----------------|
| | DTFU | 125 | 24 | LMQ 24A |
| Product | | | | |
| Dimension Ød ₁ | | | | |
| Voltage | | | | |
| Motor type | | | | |

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Shut-off damper, fastrunning motor

DTFU

Technical data for the motor

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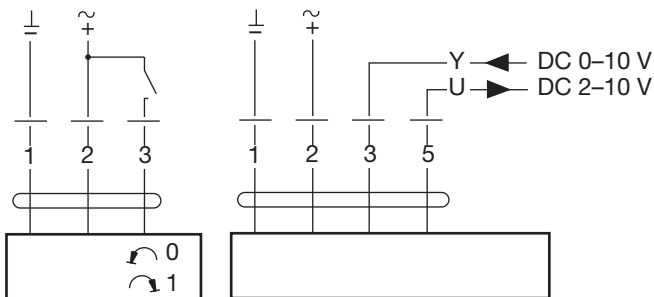
15

16

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| | LMQ 24A | LMQ-SR 24A |
|---------------------------|--|--|
| Power supply | AC 19,2-28,8 V, 50/60 Hz DC 21,6-28,8 V | AC 19,2-28,8 V, 50/60 Hz DC 21,6-28,8 V |
| Power consumption | 13 W | 12 W |
| For wire sizing | 23 VA | 23 VA |
| Connection | Cable 1 m, 3x0,75 mm ² | Cable 1 m, 4x0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0-100 % | Max. 95°, adjustable 0-100 % |
| Torque at rated voltage | Min. 4 Nm | Min. 4 Nm |
| Direction of rotation | Switch selectable 0 ↺ or 1 ↻ | Switch selectable 0 ↺ or 1 ↻ |
| Position indication | Mechanical | Mechanical |
| Running time for 90° | 2,5 s | 2,5 s |
| Sound power level | 52 dB (A) | 52 dB (A) |
| Protection class | III Safety extra-low voltage | II Safety insulated |
| Protection type | IP 54 | IP 54 |
| Ambient temperature range | -30 to +40°C | -30 to +40°C |
| Ambient moisture | 95 % RH | 95 % RH |



Shut-off damper with motor

DTBLU



Description

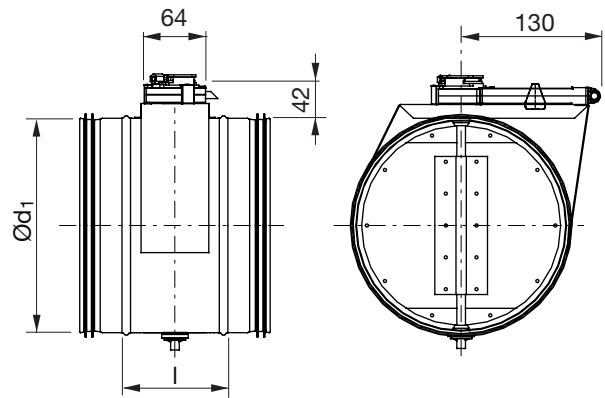
Shut-off damper with electric motor CM 24 F or CM 230 F. Consists of a DTU damper with a 24 or 230 V motor added. Has a low height to fit at narrow spaces.

In outdoor installation, the motor should be protected from direct UV radiation.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

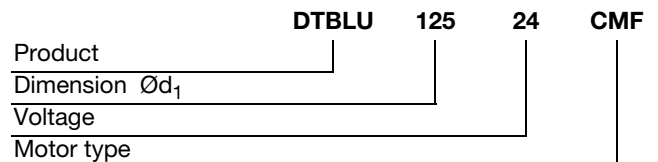
Fulfills pressure class C in closed position.

Dimensions



| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|------------------------------------|
| 80 | 100 | 0,50 | 4 |
| 100 | 100 | 0,58 | 4 |
| 125 | 100 | 0,73 | 4 |
| 150 | 100 | 0,83 | 4 |
| 160 | 100 | 0,94 | 4 |

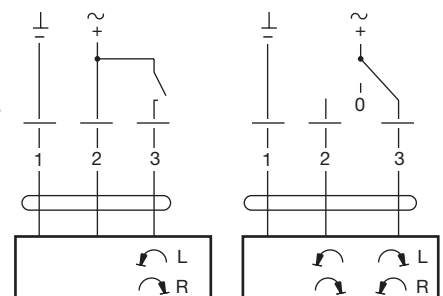
Ordering example



Technical data for the motors

| | CM 24 F |
|---------------------------------|--|
| Power supply | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V |
| Power consumption | 0,5 W |
| For wire sizing | 1 VA |
| Connection | Cable 1 m, 3x0,75 mm ² |
| Operating angle | Continuously rotating |
| Torque at rated voltage | Min. 2 Nm |
| Direction of rotation | -L or -R |
| Position indication | Mechanical, removable |
| Running time for 90° | 75 s |
| Sound power level | Max. 35 dB (A) |
| Protection class | III Safety extra-low voltage |
| Protection type | IP 54 |
| Ambient temperature range | -30 to +50°C |
| Ambient moisture | 95 % RF |

| | CM 230 F |
|---------------------------------|-----------------------------------|
| Power supply | AC 65–265 V, 50/60 Hz |
| Power consumption | 1,5 W |
| For wire sizing | 3 VA |
| Connection | Cable 1 m, 3x0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 2 Nm |
| Direction of rotation | -L or -R |
| Position indication | Mechanical, removable |
| Running time for 90° | 75 s |
| Sound power level | Max. 35 dB (A) |
| Protection class | II Safety insulated |
| Protection type | IP 54 |
| Ambient temperature range | -30 to +50°C |
| Ambient moisture | 95 % RF |

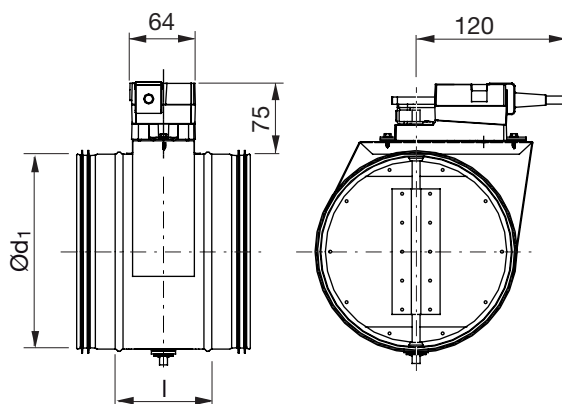


Shut-off damper with motor

DTBLU



Dimensions



Description

Shut-off damper with electric motor LM 24 A-F or LM 230 A-F.

Consists of a DTU damper with a 24 or 230 V motor added. Has a low height to fit at narrow spaces.

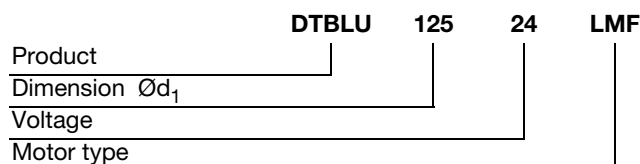
In outdoor installation, the motor should be protected from direct UV radiation.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Fulfills pressure class C in closed position.

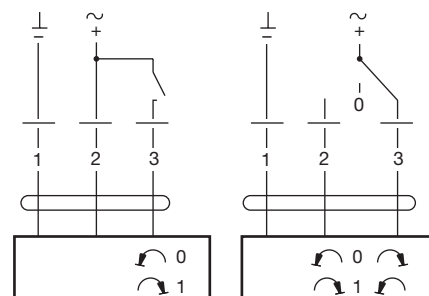
| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|---------------------|------|------|---------------------------------|
| 80 | 100 | 0,79 | 4 |
| 100 | 100 | 0,87 | 4 |
| 125 | 100 | 1,02 | 4 |
| 150 | 100 | 1,12 | 4 |
| 160 | 100 | 1,23 | 4 |
| 200 | 100 | 1,53 | 4 |
| 250 | 100 | 2,01 | 4 |
| 315 | 100 | 2,63 | 4 |

Ordering example



Technical data for the motors

| | LM 24 A-F | LM 230 A-F |
|---------------------------------|--|-----------------------------------|
| Power supply | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V | AC 65–265 V, 50/60 Hz |
| Power consumption | 1 W | 1,5 W |
| For wire sizing | 2 VA | 4 VA |
| Connection | Cable 1 m, 3x0,75 mm ² | Cable 1 m, 3x0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0–100% | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 5 Nm | Min. 5 Nm |
| Direction of rotation | Switch selectable 0 ↺ or 1 ↻ | Switch selectable 0 ↺ or 1 ↻ |
| Position indication | Mechanical | Mechanical |
| Running time for 95° | 150 s | 150 s |
| Sound power level | Max. 35 dB (A) | Max. 35 dB (A) |
| Protection class | III Safety extra-low voltage | II Safety insulated |
| Protection type | IP 54 | IP 54 |
| Ambient temperature range | -30 to +50°C | -30 to +50°C |
| Ambient moisture | 95 % RF | 95 % RF |



Motorized shut-off damper

DTPU



Description

Shut-off damper with pneumatic actuator

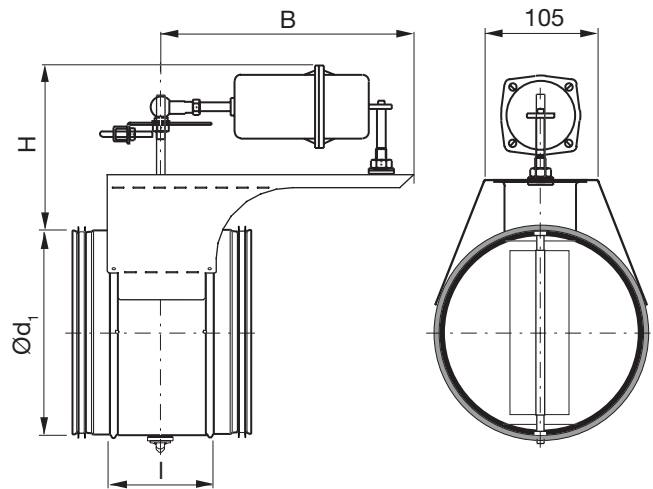
Consists of a DTU damper with a pneumatic actuator installed. The actuator consists of a glass-reinforced polyamide housing with an internal rolling diaphragm to which the spindle is fixed.

When air pressure rises, the actuator spindle is forced out and operates the blade via a lever. When air pressure falls, the actuator spindle retracts under the tension of the return spring. The damper blade is closed when delivered, and the actuator fully retracted.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–200 fullfills pressure class C in closed position.

Dimensions



| Ød ₁ nom | l mm | H mm | B mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------|---------|---------------------------------------|
| 80 | 100 | 144 | 230 | 1,07 | 3 |
| 100 | 100 | 144 | 230 | 1,15 | 3 |
| 125 | 100 | 144 | 230 | 1,30 | 3 |
| 160 | 100 | 144 | 230 | 1,51 | 3 |
| 200 | 100 | 144 | 230 | 1,81 | 3 |

Technical data for the motors

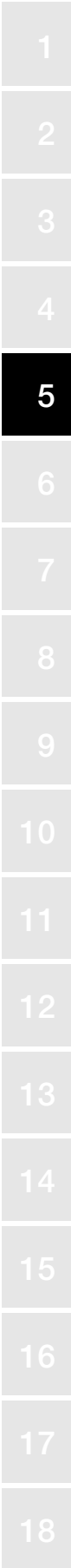
| | AK 31 P |
|--|--------------------|
| Air connection | Nozzle Ø 4 mm |
| Volume of free air required for full stroke..... | 0,3 l _n |
| Power pressure max | 150 kPa (1,5 bar) |
| Ambient temperature range | -5 to +60°C |
| Weight | 0,3 kg |

Running time 0 – 90 °

| | |
|--------------------------------|------|
| At power pressure 90 kPa..... | 10 s |
| At power pressure 150 kPa..... | 1 s |
| At spring return | 2 s |

Ordering example

| | | | |
|---------------------------|------|-----|------|
| Product | DTPU | 200 | AK31 |
| Dimension Ød ₁ | | | |
| Motor type | | | |

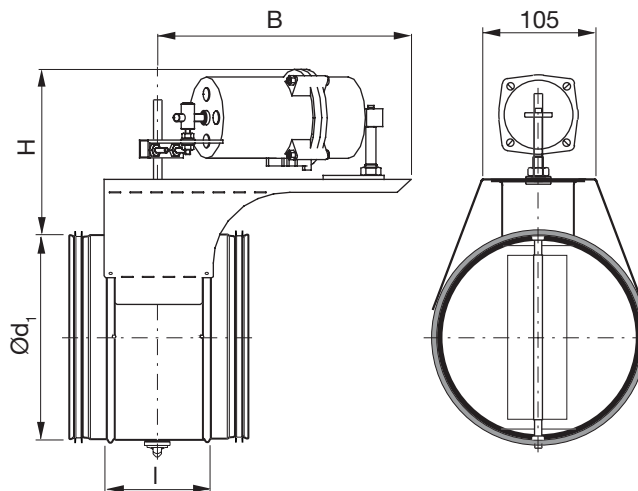


Motorized shut-off damper

DTPU



Dimensions



| Ød ₁ nom | l mm | H mm | B mm | m kg | Sealing class past closed blade |
|---------------------|------|------|------|------|---------------------------------|
| 250 | 100 | 160 | 230 | 2,39 | 3 |
| 315 | 100 | 160 | 230 | 3,01 | 3 |

Description

Shut-off damper with pneumatic actuator

Consists of a DTU damper with a pneumatic actuator installed. The actuator consists of a glass-reinforced polyamide housing with an internal rolling diaphragm to which the spindle is fixed.

When air pressure rises, the actuator spindle is forced out and operates the blade via a lever. When air pressure falls, the actuator spindle retracts under the tension of the return spring. The damper blade is closed when delivered, and the actuator fully retracted.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 250–315 fullfills pressure class C in closed position.

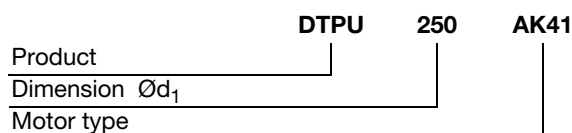
Technical data for the motors

| | AK 41 P |
|--|--------------------|
| Air connection | 1/8" |
| Volume of free air required for full stroke..... | 0,5 l _n |
| Power pressure max | 150 kPa (1,5 bar) |
| Ambient temperature range | -10 to +70°C |
| Weight | 0,5 kg |

Running time 0 – 90 °

| | |
|--------------------------------|------|
| At power pressure 90 kPa | 10 s |
| At power pressure 150 kPa..... | 1 s |
| At spring return | 2 s |

Ordering example



Motorized shut-off damper

DTPU



Description

Shut-off damper with pneumatic actuator

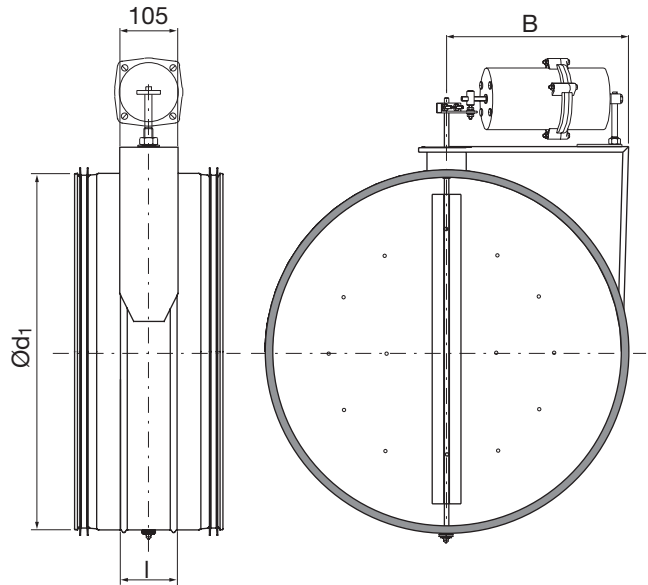
Consists of a DTU damper with a pneumatic actuator installed. The actuator consists of a glass-reinforced polyamide housing with an internal rolling diaphragm to which the spindle is fixed.

When air pressure rises, the actuator spindle is forced out and operates the blade via a lever. When air pressure falls, the actuator spindle retracts under the tension of the return spring. The damper blade is closed when delivered, and the actuator fully retracted.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 400–630 fullfills pressure class B in closed position.

Dimensions



| Ød ₁ nom | l mm | H mm | B mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------|---------|---------------------------------------|
| 400 | 100 | 195 | 325 | 5,42 | 3 |
| 500 | 115 | 195 | 325 | 7,84 | 3 |
| 630 | 115 | 195 | 325 | 10,6 | 3 |

Technical data for the motors

| AK 42 P | |
|--|--------------------|
| Air connection | 1/8" |
| Volume of free air required for full stroke..... | 1,7 l _n |
| Power pressure max | 150 kPa (1,5 bar) |
| Ambient temperature range | -10 to +70°C |
| Weight | 1,4 kg |

Running time 0 – 90 °

| | |
|--------------------------------|------|
| At power pressure 90 kPa..... | 10 s |
| At power pressure 150 kPa..... | 1 s |
| At spring return | 2 s |

Ordering example

| | | | |
|---------------------------|------|-----|------|
| Product | DTPU | 400 | AK42 |
| Dimension Ød ₁ | | | |
| Motor type | | | |

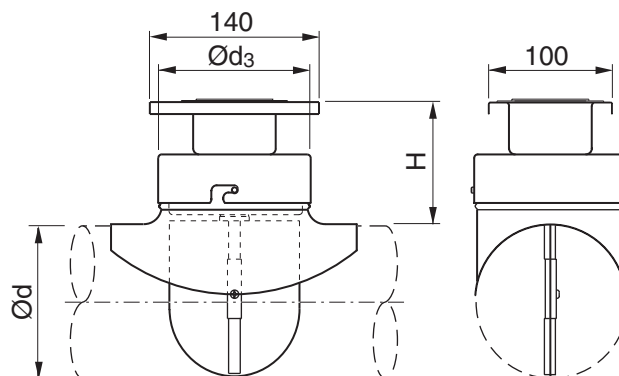
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Cleaning regulating damper

PSDRU



Dimensions



Description

Cleaning regulating damper

Consists of a KCU cleaning cover with a blade without rubber gasket similar to the DRU and a PSU collar saddle in whose branch the cleaning cover is fixed.

The branch is provided with a Safe seal.

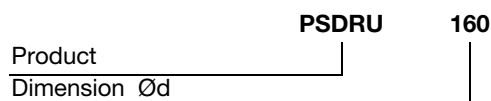
Since it is easy to remove the cleaning cover together with the blade, it is easy to inspect and clean the ventilation system. The original pressure balance in the system is not affected since the blade and cleaning cover retain their mutual positions which they were given during balancing. The damper can be used to advantage, to complete an existing ventilation system.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 100–400 fullfills pressure class A in closed position.

| Ød nom | Ød ₃ nom | H mm | m kg | Sealing class past closed blade |
|--------|---------------------|------|------|---------------------------------|
| 100 | 100 | 100 | 0,70 | 0 |
| 125 | 125 | 105 | 0,95 | 0 |
| 160 | 160 | 110 | 1,30 | 0 |
| 200 | 200 | 110 | 1,75 | 0 |
| 250 | 250 | 120 | 2,60 | 0 |
| 315 | 315 | 120 | 3,80 | 0 |
| 400 | 400 | 175 | 5,70 | 0 |

Ordering example

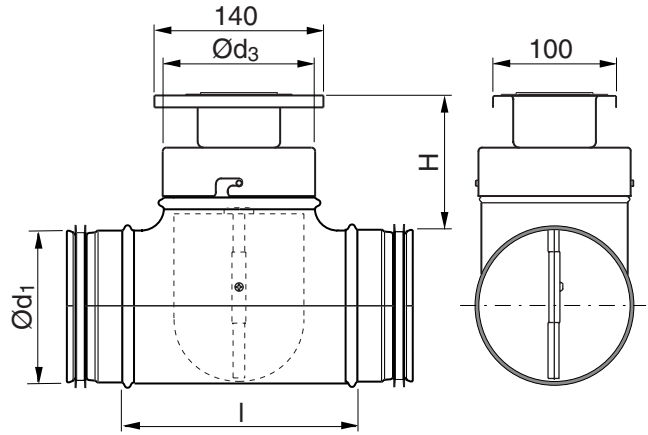


Cleaning regulating damper

TDRU



Dimensions



| Ød ₁ nom | Ød ₃ nom | l mm | H mm | m kg | Sealing class past closed blade |
|------------------------|------------------------|---------|---------|---------|---------------------------------------|
| 100 | 100 | 130 | 100 | 0,71 | 0 |
| 125 | 125 | 165 | 105 | 1,28 | 0 |
| 160 | 160 | 209 | 110 | 1,80 | 0 |
| 200 | 200 | 249 | 110 | 2,80 | 0 |
| 250 | 250 | 296 | 120 | 3,51 | 0 |
| 315 | 315 | 363 | 120 | 4,03 | 0 |
| 400 | 400 | 510 | 175 | 9,30 | 0 |

Description

Cleaning regulating damper

Consists of a KCU cleaning cover with a blade without rubber gasket similar to the DRU and a TCPU T-piece in whose branch the cleaning cover is fixed.

The branch is provided with a Safe seal.

Since it is easy to remove the cleaning cover together with the blade, it is easy to inspect and clean the ventilation system. The original pressure balance in the system is not affected since the blade and cleaning cover retain their mutual positions which they were given during balancing.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 100–400 fullfills pressure class A in closed position.

Ordering example

| | | |
|---------------------------|------|-----|
| Product | TDRU | 160 |
| Dimension Ød ₁ | | |

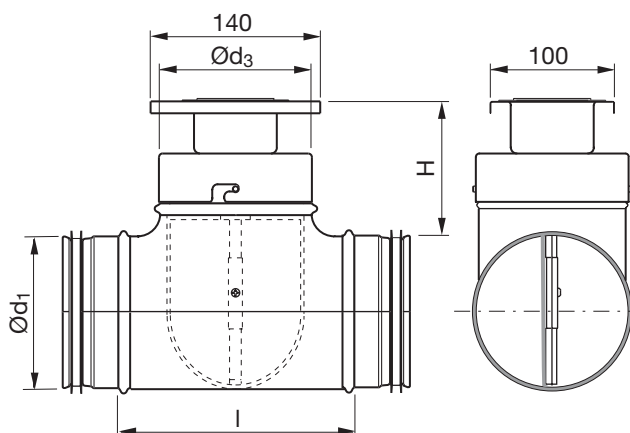
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Cleaning shut-off damper

TDSU



Dimensions



Description

Cleaning shut-off damper

Consists of a KCU cleaning cover with a blade with rubber gasket and a TCPU T-piece in whose branch the cleaning cover is fixed.

The branch is provided with a Safe seal.

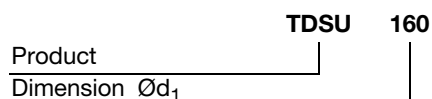
Since it is easy to remove the cleaning cover together with the blade, it is easy to inspect and clean the ventilation system. The original pressure balance in the system is not affected since the blade and cleaning cover retain their mutual positions which they were given during balancing.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 100–400 fullfills pressure class A in closed position.

| Ød ₁ nom | Ød ₃ nom | l mm | H mm | m kg | Sealing class past closed blade |
|------------------------|------------------------|---------|---------|---------|---------------------------------------|
| 100 | 100 | 130 | 100 | 0,75 | 1 |
| 125 | 125 | 165 | 105 | 1,33 | 1 |
| 160 | 160 | 209 | 110 | 2,00 | 1 |
| 200 | 200 | 249 | 110 | 2,80 | 1 |
| 250 | 250 | 296 | 120 | 3,71 | 1 |
| 315 | 315 | 363 | 120 | 4,33 | 1 |
| 400 | 400 | 510 | 175 | 9,90 | 1 |

Ordering example



Alternating shut-off damper

TASU

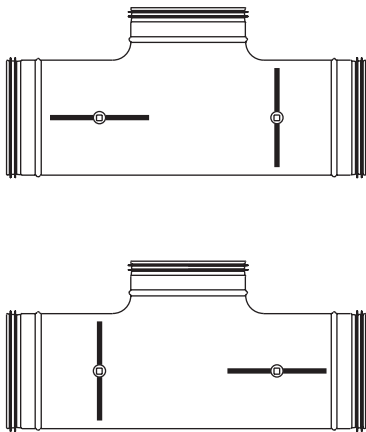


Description

Alternating shut-off damper

Consists of an extended T-piece and two linked DSU dampers.

Can be used for "by pass" ducts. It thereby replaces two conventional dampers + two couplings + one T-piece and is 20–30% shorter.



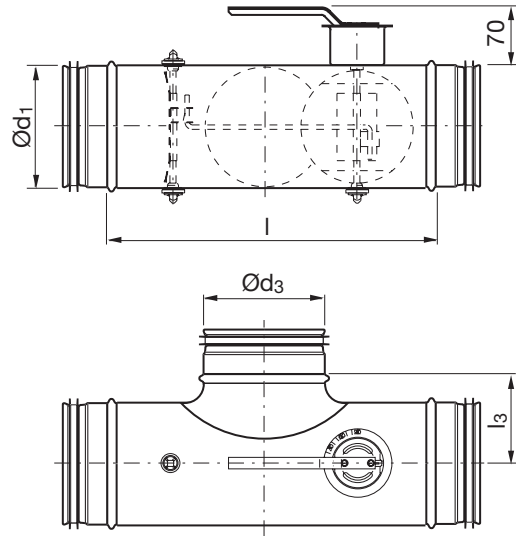
There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 100–400 fullfills pressure class A in closed position.

Ordering example

| | | | |
|---------------------------|------|-----|-----|
| Product | TASU | 160 | 160 |
| Dimension Ød ₁ | | | |
| Dimension Ød ₃ | | | |

Dimensions



| Ød ₁ nom | Ød ₃ nom | l mm | l ₃ mm | m kg | Sealing class past closed blade |
|------------------------|------------------------|---------|----------------------|---------|---------------------------------------|
| 100 | 100 | 280 | 65 | 1,10 | 0 |
| 125 | 125 | 345 | 83 | 1,50 | 0 |
| 160 | 160 | 385 | 105 | 2,00 | 0 |
| 200 | 200 | 425 | 125 | 2,80 | 0 |
| 250 | 250 | 520 | 150 | 4,10 | 0 |
| 315 | 315 | 585 | 182 | 5,90 | 0 |
| 400 | 400 | 645 | 225 | 8,30 | 0 |

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Alternating shut-off damper

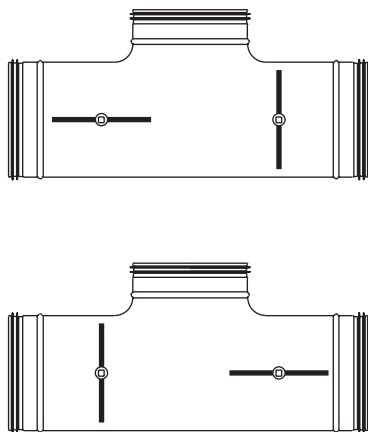


Description

Alternating shut-off damper

Consists of an extended T-piece and two linked DTU dampers.

Can be used for "by pass" ducts. It thereby replaces two conventional dampers + two couplings + one T-piece and is 20–30% shorter.



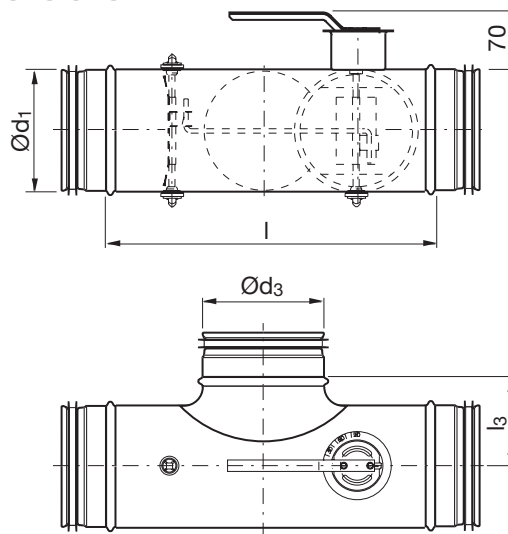
There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 100–400 fullfills pressure class A in closed position.

Ordering example

| | | | |
|---------------------------|------|-----|-----|
| Product | TATU | 160 | 160 |
| Dimension Ød ₁ | | | |
| Dimension Ød ₃ | | | |

Dimensions



| Ød ₁ nom | Ød ₃ nom | l mm | l ₃ mm | m kg | Sealing class past closed blade |
|------------------------|------------------------|---------|----------------------|---------|---------------------------------------|
| 100 | 100 | 280 | 65 | 1,20 | 2 |
| 125 | 125 | 345 | 83 | 1,60 | 2 |
| 160 | 160 | 385 | 105 | 2,20 | 2 |
| 200 | 200 | 425 | 125 | 3,15 | 2 |
| 250 | 250 | 520 | 150 | 4,50 | 2 |
| 315 | 315 | 585 | 182 | 6,60 | 2 |
| 400 | 400 | 645 | 225 | 9,80 | 2 |

Motorized alternating shut-off damper TATBU



Description

Alternating shut-off damper with electric motor – NM 24 A-F or NM 230 A-F

Consists of an extended T-piece with two linked DTU dampers and a 24 or 230 V electric motor installed.

Can be used for "by pass" ducts. This means that it replaces two conventional dampers + two couplings + one T-piece and is 20–30% shorter.

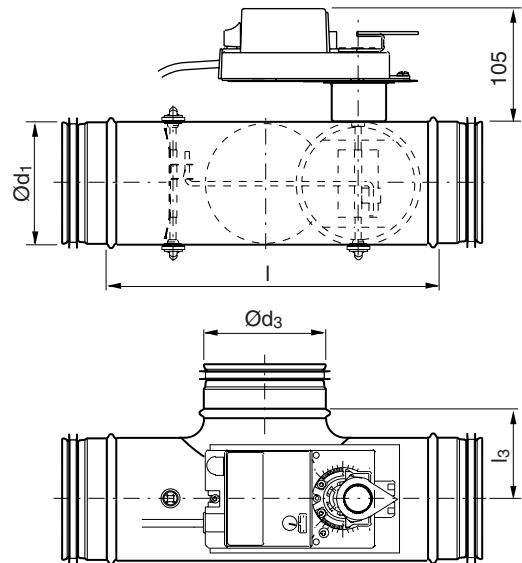
There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 100–400 fullfills pressure class A in closed position.

Ordering example

| | | | | |
|---------------------------|--------------|------------|-----------|------------|
| Product | TATBU | 400 | 24 | NMF |
| Type | | | | |
| Dimension Ød ₁ | | | | |
| Voltage | | | | |
| Motor type | | | | |

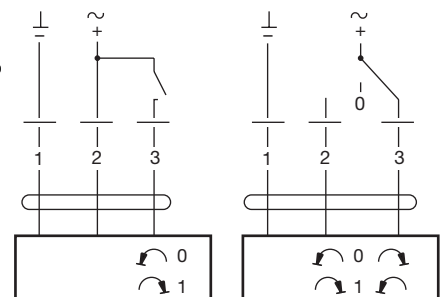
Dimensions



| Ød ₁ nom | Ød ₃ nom | l mm | l ₃ mm | m kg | Sealing class past closed blade |
|---------------------|---------------------|------|-------------------|------|---------------------------------|
| 100 | 100 | 280 | 65 | 2,00 | 2 |
| 125 | 125 | 345 | 83 | 2,40 | 2 |
| 160 | 160 | 385 | 105 | 3,00 | 2 |
| 200 | 200 | 425 | 125 | 3,90 | 2 |
| 250 | 250 | 520 | 150 | 5,20 | 2 |
| 315 | 315 | 585 | 182 | 7,40 | 2 |
| 400 | 400 | 645 | 225 | 10,6 | 2 |

Technical data for the motors

| | NM 24 A-F | NM 230 A-F |
|---------------------------------|--|-----------------------------------|
| Power supply | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V | AC 85–265 V, 50/60 Hz |
| Power consumption | 1,5 W | 2,5 W |
| For wire sizing | 3,5 VA | 6 VA |
| Connection | Cable 1 m, 3×0,75 mm ² | Cable 1 m, 3×0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0–100% | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 10 Nm | Min. 10 Nm |
| Direction of rotation | Switch selectable 0 ↻ or 1 ↻ | Switch selectable 0 ↻ or 1 ↻ |
| Position indication | Mechanical | Mechanical |
| Running time for 95° | 150 s | 150 s |
| Sound power level..... | Max. 35 dB (A) | Max. 35 dB (A) |
| Protection class..... | III Safety extra-low voltage | II Safety insulated |
| Protection type..... | IP 54 | IP 54 |
| Ambient temperature range | -30 to +50°C | -30 to +50°C |
| Ambient moisture | 95 % RH | 95 % RH |

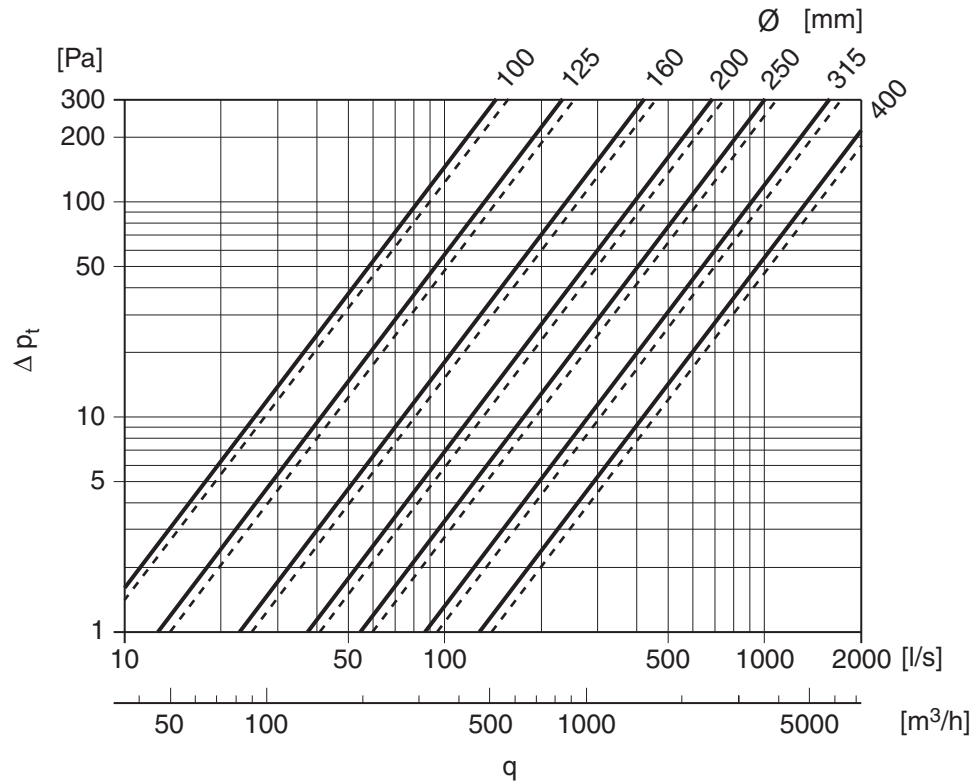
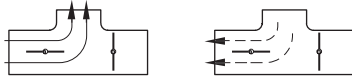


Motorized alternating shut-off dampers

TASU, TATU,
TATBU

Technical data

The dashed pressure drop curves refer to the flow direction in the right picture.



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Constant-/ variable flow damper

Summary

- DAU - manual single flow unit
- DA2EU - motorized twin flow unit
- DAVU - motorized variable flow unit
- Diameters Ø 80–315
- Flow range 15–830 l/s (54–2988 m³/h)
- Pressure range 50–1000 Pa (over the unit)
- Independent of mounting direction
- Handles 50 mm duct insulation

Function

The constant flow damper is an automatic damper, which at varying pressures wholly mechanical and independent of external energy sources maintains a set flow constant. The force, needed for regulation, is taken from the passing air stream. The air stream across the blade attempts to close it and generates a closing torque. This is balanced by an opposed opening force from a spring. The greater the pressure across the blade the more it closes. A bellow eliminates oscillations, which could occur at unfavourable conditions of operation.

Types

The following types exists:

- DAU – one flow unit – with knob and arrow for manual setting of one flow.
- DA2EU – two flows unit – with electric motor for switching between two flows.
- DAVU – variable flow unit – with electric motor for continuous setting of one flow.

Material

Housing and damper blade are of galvanized sheet metal and shaft is of stainless steel.

Temperature

Working range: +5 to +70 °C.

Insulation

The units can handle 50 mm duct insulation without the scale or the motor being hidden. DAU is available with an 45 mm external insulation and an outer sheet metal shell for lower sound radiation to the surroundings. Is then called DALU.

Regulating accuracy

The units are calibrated from factory within their whole working range. In this the units keep the flow constant within approximately ±5 to ±10% of the set flow. Greater deviations occur at the lower flows, especially for small sizes.

Flow setting

The units can not be delivered from factory with a preset flow. You can set the flow yourself very easy following to the instruction for each product.

DAU, DA2EU, DAVU

Disturbance tolerance

In order to achieve the stated accuracy for the pre-set flow a straight distance of at least 3×d before and at least 1,5×d after the units are required. A mounting close to a source of disturbance (bend, saddle etc.) decreases the regulation accuracy and the flow may deverge from the set value.

Change of direction

The units are independent of their mounting direction and one may deviate from the specified direction and mount them in any direction without affecting the accuracy.

Combinations

The units can be mounted together with e.g. a motorized shut off damper DTBU, see page side 290. Constant flow damper combined with shut off damper can with advantage be used in groups at installations where you want:

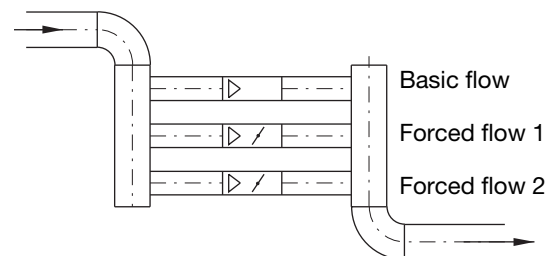
- two flows, that lies too far away from each other for a two flow unit to handle

or

- more than two flows

| | |
|---------------------|-----------|
| Presume: Basic flow | = 80 l/s |
| Forced flow 1 | = 100 l/s |
| Forced flow 2 | = 150 l/s |

Four flows will then be possible: 80, 180, 230 and 330 l/s.

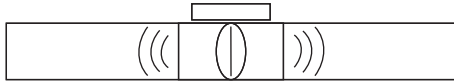


Constant-/variable flow damper

DAU, DA2EU, DAVU

Technical data

Pressure and flow ranges and sound to duct



The graphs show A-weighted sound **power** level, L_{WA} [dB], to duct. These curves are intended for brief comparison. For more accurate calculation, please use the tables.

Example

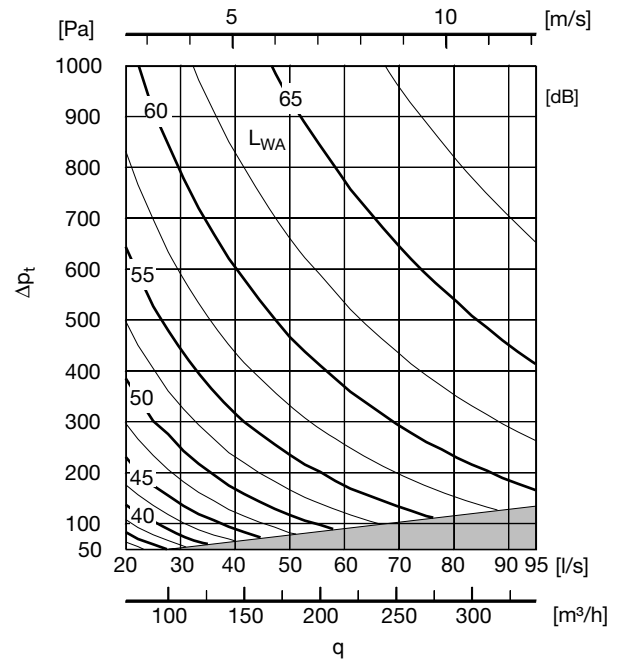
Given: Diameter 125 mm
 Flow 70 l/s
 Pressure drop 200 Pa

The graph gives:
 A-weighted sound power level approx. 57 dB

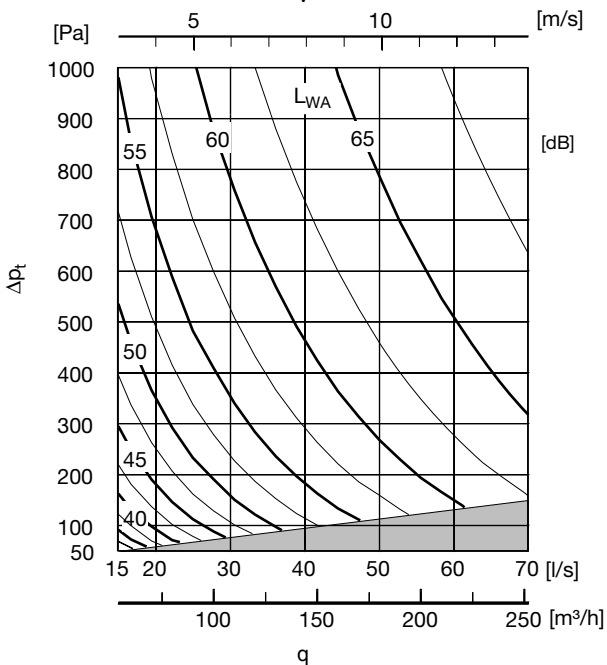
The table gives:
 Sound power level as below

| Centre frequency [Hz] | 63 | 125 | 250 | 500 | 1 k | 2 k | 4 k | 8 k |
|------------------------|----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level [dB] | 52 | 52 | 49 | 49 | 49 | 51 | 51 | 46 |

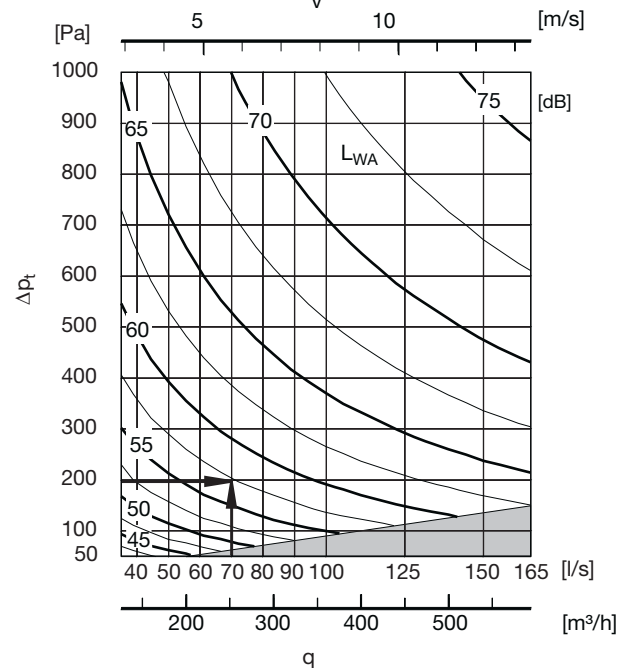
Ø 100



Ø 80



Ø 125



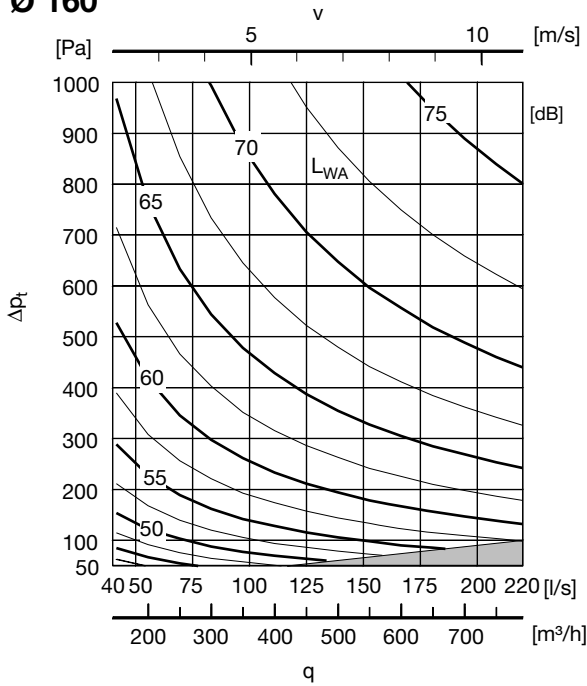
Constant-/ variable flow damper

DAU, DA2EU, DAVU

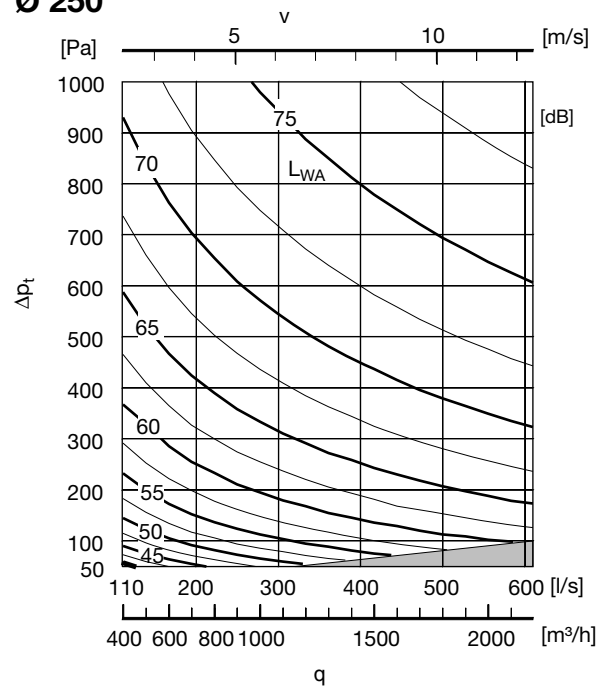
Technical data

Pressure and flow ranges and sound to duct

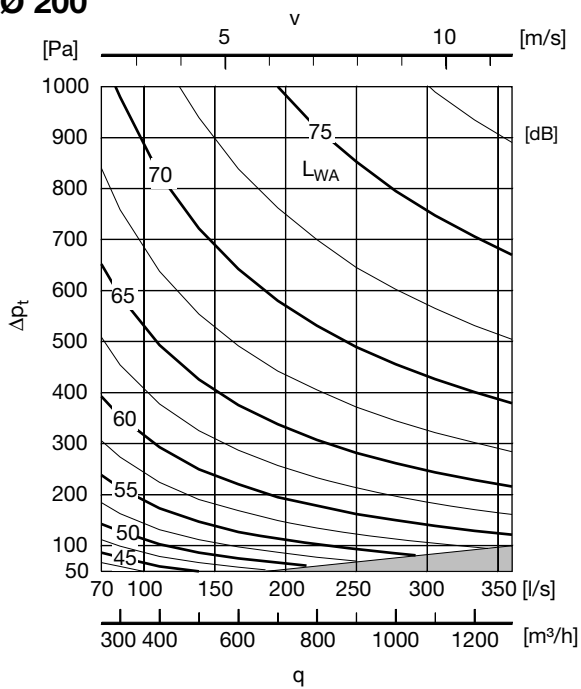
Ø 160



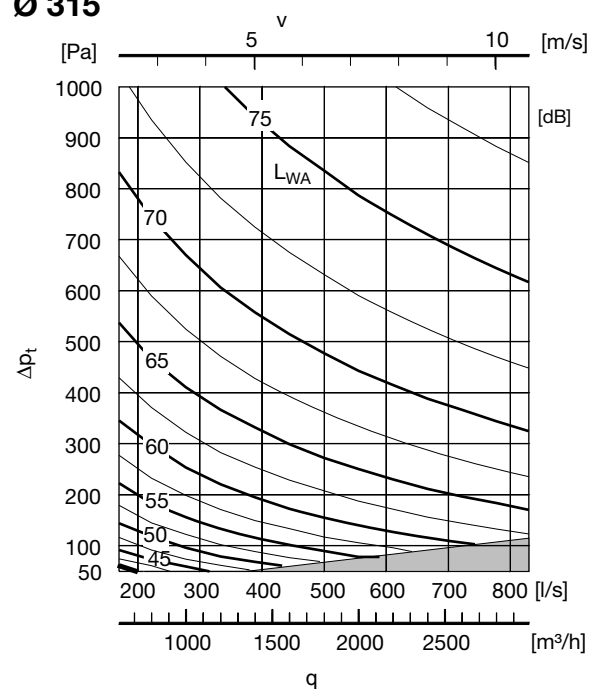
Ø 250



Ø 200



Ø 315



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Constant-/ variable flow damper

DAU, DA2EU, DAVU

Technical data

Sound to duct

Sound power level, L_W [dB], to duct in octave bands 1–8, 63–8000 Hz, as function of diameter, pressure drop and flow.

| Ød ₁ | Pressure drop [Pa] | Velocity app. 2,5 [m/s] | | | | | | | | Velocity app. 6 [m/s] | | | | | | | |
|-----------------|--------------------|-------------------------|-----|-----|-----|----|----|----|----|-----------------------|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| | | Flow 15 [l/s] | | | | | | | | Flow 30 [l/s] | | | | | | | |
| 80 | 1000 | 51 | 49 | 44 | 44 | 46 | 49 | 49 | 44 | 56 | 56 | 53 | 53 | 53 | 55 | 55 | 50 |
| | 500 | 45 | 43 | 38 | 38 | 40 | 43 | 43 | 38 | 51 | 51 | 49 | 49 | 49 | 51 | 50 | 46 |
| | 200 | 37 | 35 | 30 | 30 | 32 | 35 | 35 | 30 | 45 | 45 | 43 | 43 | 43 | 45 | 44 | 40 |
| | 100 | 32 | 30 | 25 | 25 | 27 | 30 | 30 | 25 | 41 | 41 | 39 | 39 | 39 | 41 | 40 | 35 |
| | 50 | 26 | 24 | 19 | 19 | 21 | 24 | 24 | 19 | – | – | – | – | – | – | – | – |
| | | Flow 20 [l/s] | | | | | | | | Flow 45 [l/s] | | | | | | | |
| 100 | 1000 | 56 | 53 | 48 | 48 | 50 | 53 | 54 | 48 | 59 | 59 | 57 | 57 | 57 | 59 | 58 | 53 |
| | 500 | 49 | 46 | 41 | 41 | 43 | 47 | 47 | 42 | 54 | 54 | 51 | 51 | 51 | 53 | 53 | 48 |
| | 200 | 39 | 37 | 31 | 31 | 33 | 37 | 37 | 32 | 47 | 47 | 44 | 44 | 45 | 47 | 46 | 41 |
| | 100 | 34 | 31 | 26 | 26 | 28 | 32 | 32 | 27 | 42 | 42 | 39 | 39 | 40 | 42 | 41 | 36 |
| | 50 | 26 | 24 | 18 | 18 | 20 | 24 | 24 | 19 | – | – | – | – | – | – | – | – |
| | | Flow 30 [l/s] | | | | | | | | Flow 70 [l/s] | | | | | | | |
| 125 | 1000 | 60 | 58 | 52 | 52 | 54 | 58 | 58 | 53 | 64 | 64 | 62 | 62 | 62 | 64 | 63 | 59 |
| | 500 | 54 | 52 | 46 | 46 | 48 | 52 | 52 | 47 | 59 | 59 | 56 | 57 | 57 | 59 | 58 | 53 |
| | 200 | 46 | 44 | 38 | 38 | 40 | 44 | 44 | 39 | 52 | 52 | 49 | 49 | 49 | 51 | 51 | 46 |
| | 100 | 40 | 38 | 32 | 32 | 34 | 38 | 38 | 33 | 46 | 46 | 44 | 44 | 44 | 46 | 45 | 40 |
| | 50 | 34 | 32 | 26 | 26 | 28 | 32 | 32 | 27 | – | – | – | – | – | – | – | – |
| | | Flow 40 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | |
| 160 | 1000 | 62 | 59 | 52 | 52 | 55 | 59 | 60 | 54 | 67 | 67 | 65 | 65 | 65 | 67 | 66 | 61 |
| | 500 | 56 | 53 | 47 | 47 | 49 | 53 | 54 | 48 | 61 | 61 | 59 | 59 | 59 | 61 | 60 | 55 |
| | 200 | 49 | 46 | 39 | 39 | 42 | 46 | 47 | 41 | 53 | 53 | 51 | 51 | 51 | 53 | 52 | 47 |
| | 100 | 43 | 40 | 33 | 33 | 36 | 40 | 41 | 35 | 48 | 48 | 46 | 46 | 46 | 48 | 47 | 42 |
| | 50 | 37 | 34 | 27 | 27 | 30 | 34 | 35 | 29 | – | – | – | – | – | – | – | – |
| | | Flow 70 [l/s] | | | | | | | | Flow 180 [l/s] | | | | | | | |
| 200 | 1000 | 66 | 63 | 57 | 57 | 59 | 63 | 63 | 58 | 69 | 69 | 66 | 66 | 66 | 68 | 68 | 63 |
| | 500 | 59 | 56 | 50 | 50 | 53 | 57 | 57 | 52 | 62 | 62 | 60 | 60 | 60 | 62 | 61 | 57 |
| | 200 | 50 | 47 | 41 | 41 | 43 | 47 | 47 | 42 | 54 | 54 | 51 | 51 | 52 | 54 | 53 | 48 |
| | 100 | 43 | 40 | 34 | 34 | 36 | 40 | 40 | 35 | 47 | 47 | 45 | 45 | 45 | 47 | 46 | 42 |
| | 50 | 37 | 34 | 28 | 28 | 30 | 34 | 34 | 29 | – | – | – | – | – | – | – | – |
| | | Flow 110 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | |
| 250 | 1000 | 67 | 64 | 59 | 59 | 61 | 65 | 65 | 60 | 70 | 70 | 67 | 68 | 67 | 69 | 69 | 64 |
| | 500 | 60 | 57 | 51 | 51 | 53 | 57 | 57 | 52 | 63 | 63 | 61 | 61 | 61 | 63 | 62 | 57 |
| | 200 | 50 | 47 | 41 | 41 | 43 | 47 | 47 | 42 | 55 | 55 | 53 | 53 | 53 | 54 | 54 | 49 |
| | 100 | 43 | 40 | 34 | 34 | 36 | 40 | 40 | 35 | 49 | 49 | 47 | 47 | 47 | 48 | 48 | 43 |
| | 50 | 35 | 32 | 26 | 26 | 28 | 32 | 33 | 27 | 43 | 43 | 40 | 41 | 40 | 42 | 42 | 37 |
| | | Flow 170 [l/s] | | | | | | | | Flow 470 [l/s] | | | | | | | |
| 315 | 1000 | 69 | 66 | 60 | 60 | 62 | 66 | 67 | 61 | 70 | 70 | 68 | 68 | 68 | 70 | 69 | 65 |
| | 500 | 61 | 58 | 52 | 52 | 54 | 58 | 59 | 53 | 64 | 64 | 62 | 62 | 62 | 64 | 63 | 59 |
| | 200 | 50 | 47 | 41 | 41 | 44 | 48 | 48 | 43 | 56 | 56 | 54 | 54 | 54 | 56 | 55 | 50 |
| | 100 | 42 | 40 | 34 | 34 | 36 | 40 | 40 | 35 | 50 | 50 | 47 | 47 | 47 | 49 | 49 | 44 |
| | 50 | 35 | 32 | 26 | 26 | 29 | 33 | 33 | 28 | – | – | – | – | – | – | – | – |

Constant-/ variable flow damper

DAU, DA2EU, DAVU

Technical data

Sound to duct

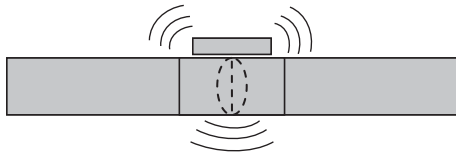
Sound power level, L_W [dB], to duct in octave bands 1–8, 63–8000 Hz, as function of diameter, pressure drop and flow.

| Ød ₁ | Pressure drop [Pa] | Velocity app. 9 [m/s] | | | | | | | | Velocity app. 12 [m/s] | | | | | | | |
|-----------------|--------------------|-----------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| | | Flow 45 [l/s] | | | | | | | | Flow 70 [l/s] | | | | | | | |
| 80 | 1000 | 58 | 59 | 59 | 59 | 58 | 59 | 58 | 53 | 61 | 64 | 65 | 65 | 63 | 63 | 61 | 57 |
| | 500 | 55 | 56 | 55 | 55 | 54 | 55 | 54 | 50 | 59 | 61 | 62 | 62 | 60 | 60 | 59 | 55 |
| | 200 | 50 | 51 | 51 | 51 | 50 | 51 | 50 | 45 | 55 | 58 | 59 | 59 | 57 | 57 | 55 | 51 |
| | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Flow 70 [l/s] | | | | | | | | Flow 95 [l/s] | | | | | | | |
| 100 | 1000 | 61 | 62 | 61 | 62 | 61 | 62 | 61 | 56 | 62 | 64 | 65 | 65 | 63 | 63 | 62 | 58 |
| | 500 | 56 | 58 | 57 | 57 | 56 | 57 | 56 | 51 | 59 | 60 | 61 | 61 | 59 | 60 | 58 | 54 |
| | 200 | 51 | 52 | 51 | 51 | 50 | 51 | 50 | 46 | 53 | 55 | 56 | 56 | 54 | 54 | 53 | 49 |
| | 100 | 47 | 48 | 47 | 47 | 46 | 47 | 46 | 42 | - | - | - | - | - | - | - | - |
| | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Flow 110 [l/s] | | | | | | | | Flow 165 [l/s] | | | | | | | |
| 125 | 1000 | 66 | 67 | 67 | 67 | 66 | 67 | 66 | 61 | 68 | 71 | 71 | 72 | 70 | 70 | 68 | 64 |
| | 500 | 61 | 62 | 62 | 62 | 61 | 62 | 61 | 56 | 63 | 66 | 66 | 67 | 65 | 65 | 63 | 59 |
| | 200 | 54 | 55 | 55 | 55 | 54 | 55 | 54 | 49 | 57 | 59 | 60 | 60 | 58 | 58 | 57 | 52 |
| | 100 | 50 | 51 | 50 | 50 | 49 | 50 | 49 | 45 | - | - | - | - | - | - | - | - |
| | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Flow 180 [l/s] | | | | | | | | Flow 220 [l/s] | | | | | | | |
| 160 | 1000 | 69 | 70 | 69 | 69 | 68 | 69 | 68 | 64 | 70 | 71 | 71 | 71 | 70 | 71 | 69 | 65 |
| | 500 | 63 | 64 | 63 | 63 | 62 | 63 | 62 | 58 | 64 | 66 | 66 | 66 | 64 | 65 | 64 | 59 |
| | 200 | 55 | 56 | 56 | 56 | 55 | 56 | 55 | 50 | 56 | 58 | 58 | 58 | 57 | 57 | 56 | 52 |
| | 100 | 50 | 51 | 50 | 50 | 49 | 50 | 49 | 45 | 51 | 52 | 52 | 52 | 51 | 52 | 50 | 46 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Flow 280 [l/s] | | | | | | | | Flow 360 [l/s] | | | | | | | |
| 200 | 1000 | 70 | 71 | 71 | 71 | 70 | 71 | 70 | 65 | 71 | 73 | 73 | 73 | 72 | 72 | 71 | 67 |
| | 500 | 64 | 65 | 64 | 64 | 63 | 64 | 63 | 59 | 65 | 67 | 67 | 67 | 65 | 66 | 65 | 60 |
| | 200 | 56 | 57 | 56 | 56 | 55 | 56 | 55 | 51 | 57 | 58 | 59 | 59 | 57 | 58 | 56 | 52 |
| | 100 | 50 | 51 | 50 | 50 | 49 | 50 | 49 | 45 | 51 | 53 | 53 | 53 | 52 | 52 | 51 | 47 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Flow 450 [l/s] | | | | | | | | Flow 600 [l/s] | | | | | | | |
| 250 | 1000 | 71 | 72 | 71 | 71 | 70 | 71 | 70 | 66 | 72 | 73 | 74 | 74 | 72 | 73 | 71 | 67 |
| | 500 | 65 | 66 | 65 | 65 | 64 | 65 | 64 | 60 | 66 | 68 | 69 | 69 | 67 | 67 | 66 | 62 |
| | 200 | 57 | 58 | 57 | 57 | 56 | 57 | 56 | 52 | 58 | 60 | 61 | 61 | 59 | 59 | 58 | 54 |
| | 100 | 51 | 52 | 52 | 52 | 51 | 52 | 51 | 46 | 54 | 55 | 56 | 56 | 54 | 55 | 53 | 49 |
| | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Flow 700 [l/s] | | | | | | | | Flow 830 [l/s] | | | | | | | |
| 315 | 1000 | 71 | 72 | 72 | 72 | 71 | 72 | 71 | 66 | 72 | 73 | 73 | 73 | 72 | 73 | 71 | 67 |
| | 500 | 66 | 67 | 66 | 66 | 65 | 66 | 65 | 61 | 66 | 67 | 67 | 68 | 66 | 67 | 66 | 61 |
| | 200 | 58 | 59 | 59 | 59 | 58 | 59 | 58 | 53 | 59 | 60 | 60 | 60 | 59 | 60 | 58 | 54 |
| | 100 | 52 | 53 | 53 | 53 | 52 | 53 | 52 | 47 | - | - | - | - | - | - | - | - |
| | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Constant-/variable flow damper

Technical data

Pressure and flow ranges and sound to the surroundings



The graphs show A-weighted sound **power** level, L_{WA} [dB], to the surroundings.

Example:

Given: Diameter 125 mm
Flow 70 l/s
Pressure drop 200 Pa

The graph gives:

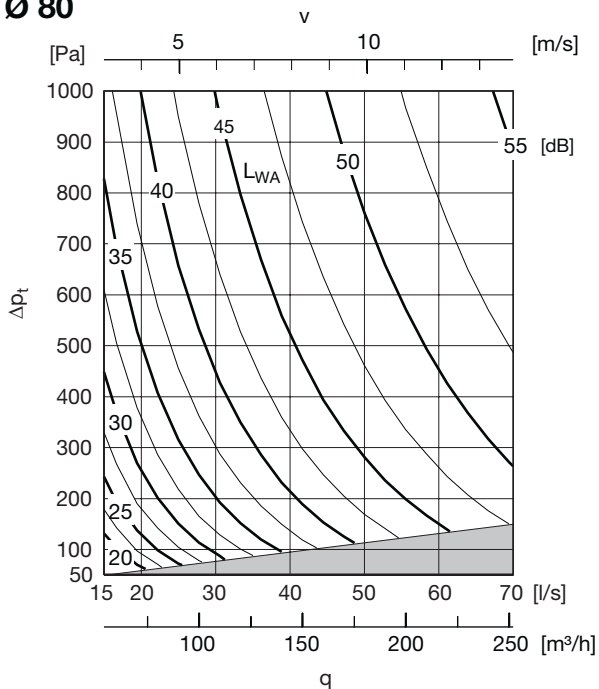
A-weighted sound power level approx. 40 dB

The A-weighted sound **pressure** level in the middle of the room becomes approx. 8 dB lower than these graph values.

With insulation shell around the unit (the DALU unit) the A-weighted sound **pressure** level in the middle of the room becomes approx. 26 dB lower than the graph values on condition that also the connected ducts are attenuated (insulated) to the same extent.

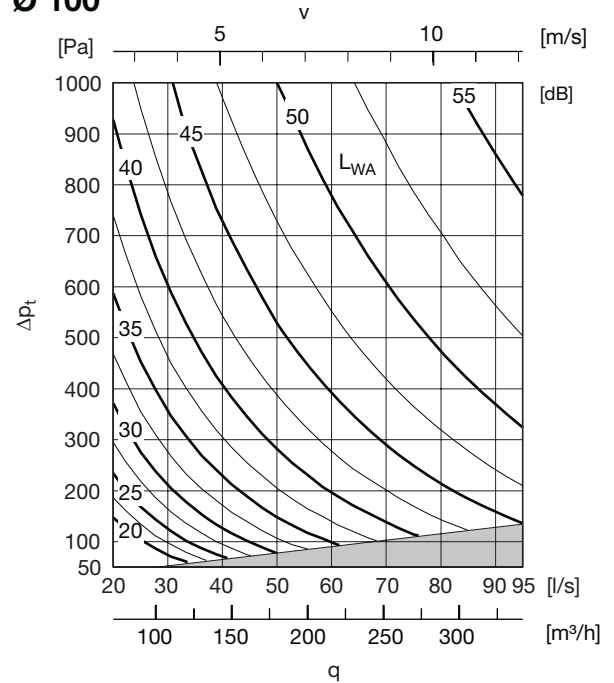
Still lower sound **pressure** level can be achieved with additional constructional sound attenuation measures (false ceiling, high room attenuation).

Ø 80

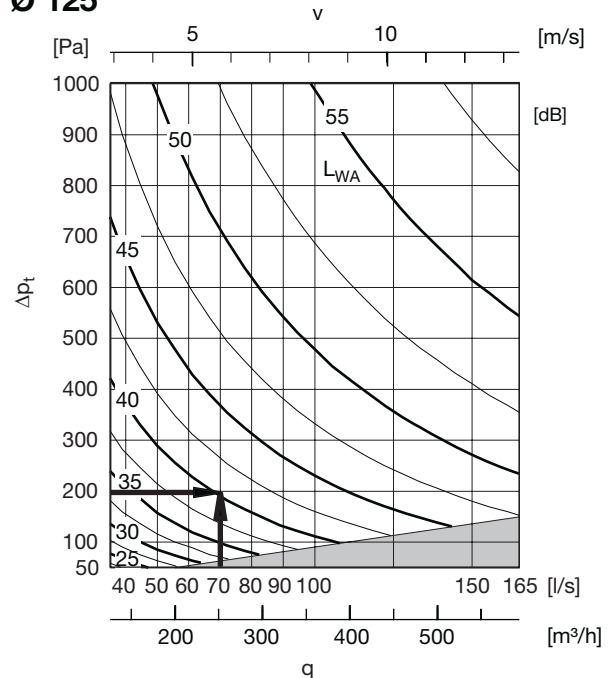


DAU, DA2EU, DAVU

Ø 100



Ø 125



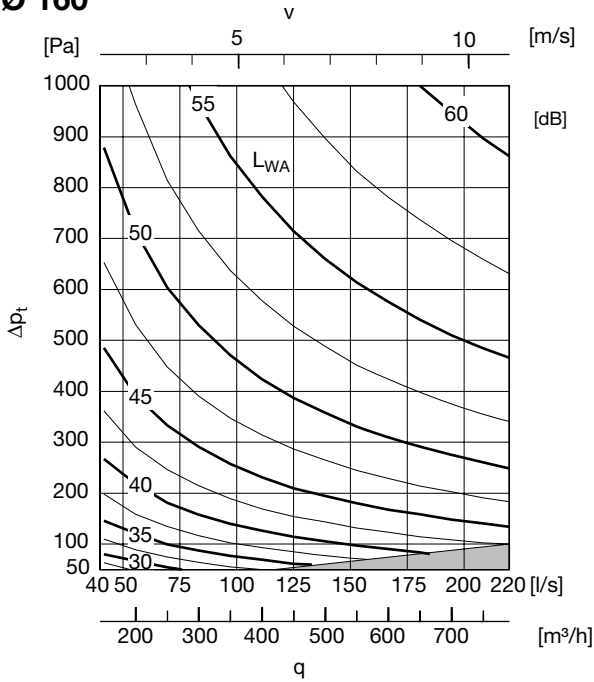
Constant-/ variable flow damper

DAU, DA2EU, DAVU

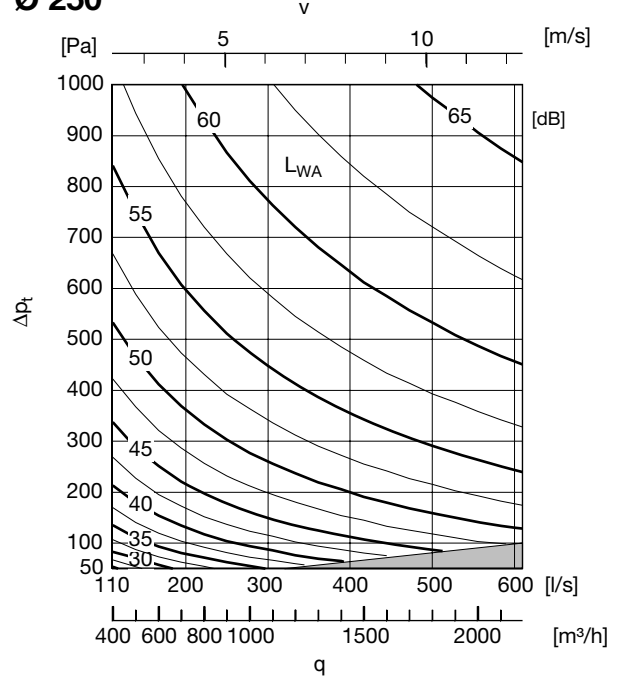
Technical data

Pressure and flow ranges and sound to the surroundings

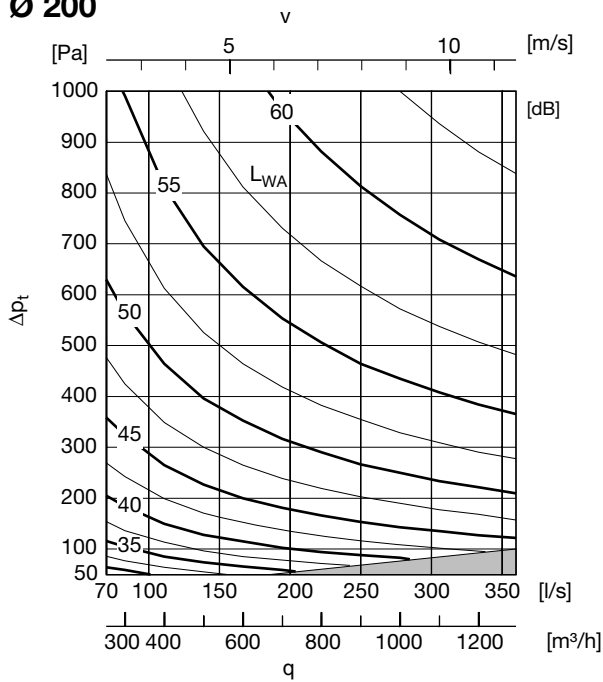
Ø 160



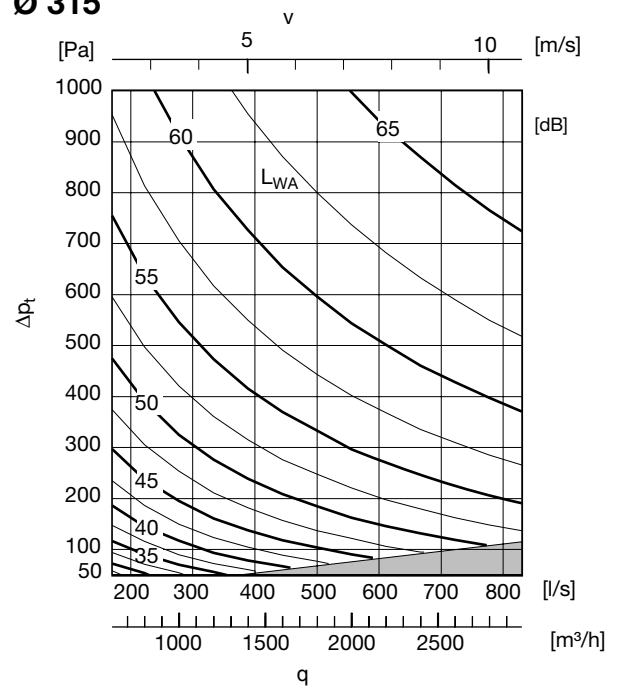
Ø 250



Ø 200



Ø 315



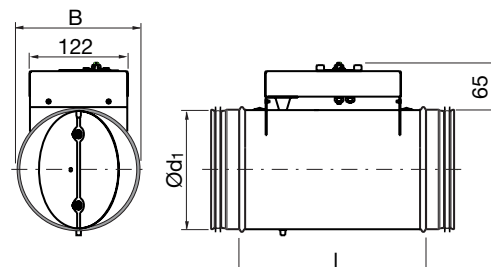
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Constant-/variable flow damper

DAU



Dimensions



Description

Constant flow damper with manual setting of one flow

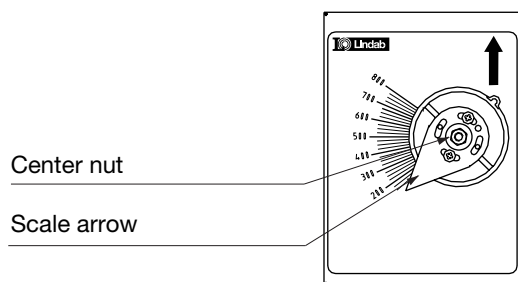
DAU is a constant flow damper, which facilitates balancing of ventilation systems and gives correct flow from the start. The unit compensates for e.g. connection and disconnection of system parts, clogging of filters and ducts, thermal lift forces, wind effects, window opening etc. Ø 80–315 fullfills pressure class A in closed position. Fulfils tightness class C.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Technical data

Flow setting

The flow is set by loosening the center nut and via the knob turning the scale arrow so it points at the wanted flow on the scale. Then the center nut is tightened.

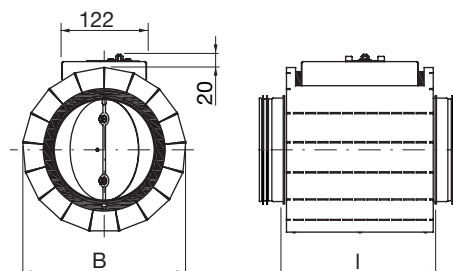


Ordering example

Product **DAU** **125**
 Dimension Ød₁

| Ød ₁ nom | l mm | B mm | m kg | Tightness class across closed blade |
|---------------------|------|------|------|-------------------------------------|
| 80 | 246 | 122 | 1,35 | 0 |
| 100 | 246 | 122 | 1,40 | 0 |
| 125 | 246 | 135 | 1,65 | 0 |
| 160 | 246 | 170 | 1,85 | 0 |
| 200 | 246 | 210 | 2,26 | 0 |
| 250 | 284 | 260 | 3,35 | 0 |
| 315 | 334 | 325 | 4,75 | 0 |

DAU is available with an 45 mm external insulation and an outer sheet metal shell for lower sound radiation to the surroundings. Is then called DALU.

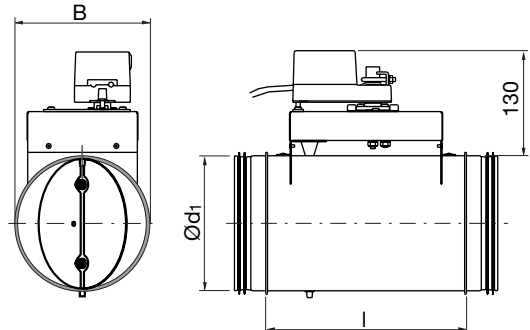


| Ød ₁ nom | l mm | B mm | m kg | Tightness class across closed blade |
|---------------------|------|------|------|-------------------------------------|
| 80 | 246 | 170 | 2,35 | 0 |
| 100 | 246 | 190 | 2,50 | 0 |
| 125 | 246 | 215 | 2,90 | 0 |
| 160 | 246 | 250 | 3,45 | 0 |
| 200 | 246 | 290 | 4,06 | 0 |
| 250 | 284 | 340 | 6,05 | 0 |
| 315 | 334 | 405 | 8,60 | 0 |

Constant-/variable flow damper DA2EU



Dimensions



Description

Constant flow damper with electric motor for switching between two flows

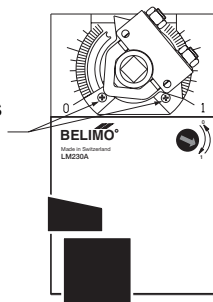
DA2EU is a constant flow damper, which facilitates balancing of ventilation systems and gives correct flow from the start. The unit compensates for e.g. connection and disconnection of system parts, clogging of filters and ducts, thermal lift forces, wind effects, window opening etc. The motors shall be completed with a switch. The switch can in turn be controlled either manually with timer, with on/off-thermostat, with attendance transmitter or similar. Ø 80–315 fullfills pressure class A in closed position. Fulfills tightness class C. There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Flow setting

The two flows are set by moving the end stoppers screws.

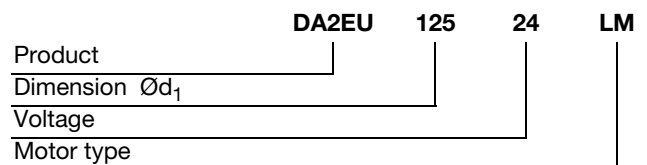
At delivery the screws are set at largest possible distance.

End stop screws



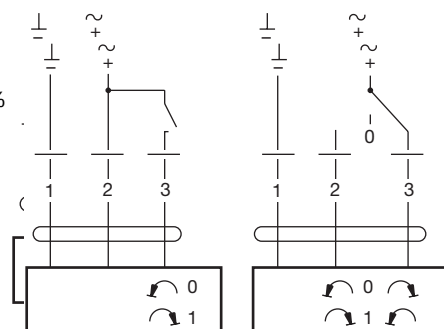
| Ød ₁ nom | l mm | B mm | m kg | Tightness class across closed blade |
|---------------------|------|------|------|-------------------------------------|
| 80 | 246 | 122 | 1,95 | 0 |
| 100 | 246 | 122 | 2,00 | 0 |
| 125 | 246 | 135 | 2,25 | 0 |
| 160 | 246 | 170 | 2,45 | 0 |
| 200 | 246 | 210 | 2,86 | 0 |
| 250 | 284 | 260 | 3,95 | 0 |
| 315 | 334 | 325 | 5,35 | 0 |

Ordering example



Technical data for the motors

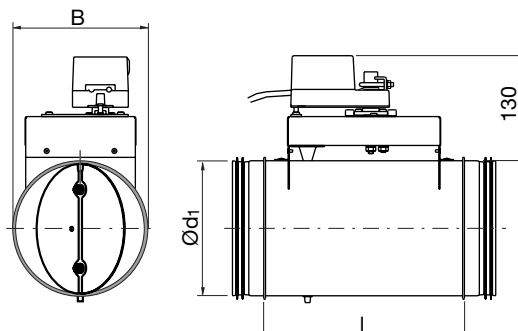
| | LM 24 A | LM 230 A |
|---------------------------------|--|-----------------------------------|
| Power supply..... | AC 19,2–28,8 V, 50/60 Hz DC 19,2–28,8 V | AC 85–265 V, 50/60 Hz |
| Power consumption | 1 W | 1,5 W |
| For wire sizing | 2 VA | 4 VA |
| Connection..... | Cable 1 m, 3×0,75 mm ² | Cable 1 m, 3×0,75 mm ² |
| Operating angle..... | Max. 95°, adjustable 0–100% | Max. 95°, adjustable 0–100% |
| Torque at rated voltage | Min. 5 Nm | Min. 5 Nm |
| Direction of rotation..... | Switch selectable 0 or 1 | Switch selectable 0 or 1 |
| Position indication | Mechanical | Mechanical |
| Running time for 95° | 150 s | 150 s |
| Sound power level..... | Max. 35 dB (A) | Max. 35 dB (A) |
| Protection class..... | III Safety extra-low voltage | II Safety insulated |
| Protection type..... | IP 54 | IP 54 |
| Ambient temperature range | -30 to +50°C | -30 to +50°C |
| Ambient moisture | 95 % RH | 95 % RH |



Constant-/variable flow damper DAVU



Dimensions



Description

Constant flow damper with electric motor for continuous setting of one flow

DAVU is a constant flow damper, which facilitates balancing of ventilation systems and gives correct flow from the start. The unit compensates for e.g. connection and disconnection of system parts, clogging of filters and ducts, thermal lift forces, wind effects, window opening etc. The motor shall be completed with control signal transmitter e.g. an external potentiometer or a proportionally regulating thermostat. A special mounting, measuring, balancing and maintenance instruction exists for this product.

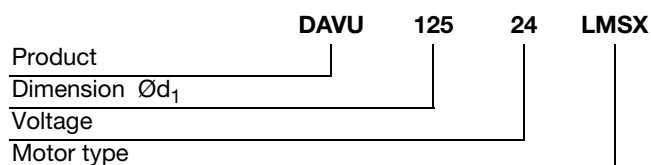
Ø 80–315 fullfills pressure class A in closed position.

Fulfills tightness class C.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

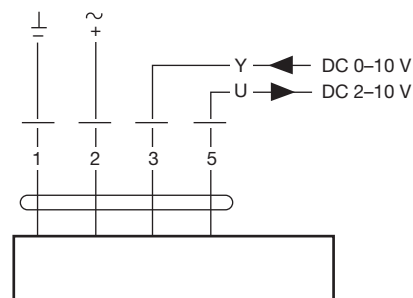
| Ød ₁ nom | l mm | B mm | m kg | Tightness class across closed blade |
|---------------------|------|------|------|-------------------------------------|
| 80 | 246 | 122 | 1,95 | 0 |
| 100 | 246 | 122 | 2,00 | 0 |
| 125 | 246 | 135 | 2,25 | 0 |
| 160 | 246 | 170 | 2,45 | 0 |
| 200 | 246 | 210 | 2,86 | 0 |
| 250 | 284 | 260 | 3,95 | 0 |
| 315 | 334 | 325 | 5,35 | 0 |

Ordering example



Technical data for the motors

| | |
|---------------------------------|---|
| Power supply | LM 24 A-SX AC 19,2–28,8 V, 50/60 Hz DC 21,6–28,8 V |
| Power consumption | 2 W |
| For wire sizing | 4 VA |
| Connection | Cable 1 m, 4x0,75 mm ² |
| Operating angle | Max. 95°, adjustable 0–100 % |
| Torque at nominal voltage | Min. 5 Nm |
| Direction of rotation | Switch selectable 0/1 |
| Position at Y=0 V | Switch selectable 0 or 1 |
| Position indication | Mechanical |
| Running time for 90° | 150 s |
| Sound power level | 35 dB (A) |
| Protection class | III Safety extra-low voltage |
| Protection type | IP 54 |
| Ambient temperature range | -30 to +50 °C |
| Ambient humidity | 95 % RH |

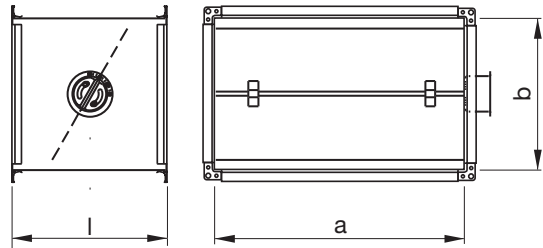


Regulating damper

LKSR



Dimensions



Description

Rectangular regulating damper

Consists of a duct with trapezoid corrugations and a turning blade. Blade angle can be adjusted 0–90° using the knob in the cup, and blade angle is read from an embossed scale on the edge of the cup. Locking is done by two Pozidriv screws (PZD2).

The damper is provided with a joining profile at each end. The length is normally $b + 10$, but the damper can also be ordered in special lengths.

The cup allows an insulation thickness of 50 mm. If thicker insulation is needed, add the special insulation cup IK to the damper.

Maximum size for the damper is 600 × 600 mm. LKSR is equipped with joining profile type RJFP.

Ordering example

| | LKSR | 500 | 300 | 310 |
|---------------------|------|-----|-----|-----|
| Product | | | | |
| Side in mm | | a | | |
| Knob side in mm | | b | | |
| Normal length in mm | | | | |
| $l = b + 10$ | | | | |

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Damper

DRUI

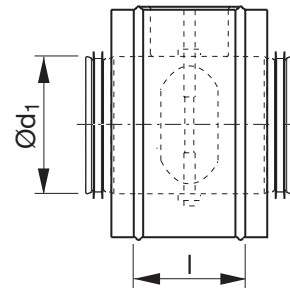


Description

Regulating damper, insulated.

Technical data according to DRU.

Dimensions



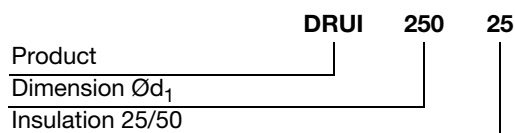
25 mm insulation.

| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------------------------------------|
| 100 | 100 | 1,00 | 0 |
| 125 | 100 | 1,10 | 0 |
| 150 | 100 | 1,30 | 0 |
| 160 | 100 | 1,40 | 0 |
| 200 | 100 | 1,80 | 0 |
| 250 | 100 | 2,50 | 0 |
| 300 | 100 | 2,90 | 0 |
| 315 | 100 | 3,10 | 0 |
| 355 | 100 | 3,60 | 0 |
| 400 | 100 | 4,30 | 0 |
| 450 | 115 | 5,30 | 0 |
| 500 | 115 | 6,20 | 0 |

50 mm insulation.

| Ød ₁ nom | l mm | m kg | Sealing class past closed blade |
|------------------------|---------|---------|---------------------------------------|
| 100 | 100 | 1,10 | 0 |
| 125 | 100 | 1,30 | 0 |
| 150 | 100 | 1,60 | 0 |
| 160 | 100 | 1,70 | 0 |
| 200 | 100 | 2,20 | 0 |
| 250 | 100 | 2,80 | 0 |
| 300 | 100 | 3,20 | 0 |
| 315 | 100 | 3,40 | 0 |
| 355 | 100 | 4,00 | 0 |
| 400 | 100 | 4,70 | 0 |
| 450 | 115 | 5,80 | 0 |
| 500 | 115 | 6,50 | 0 |

Ordering example



Sliding damper – manual

SKMTR



Description

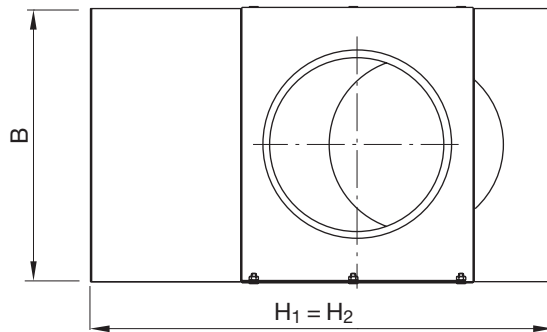
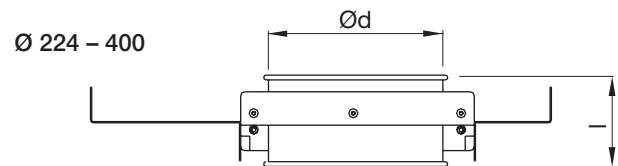
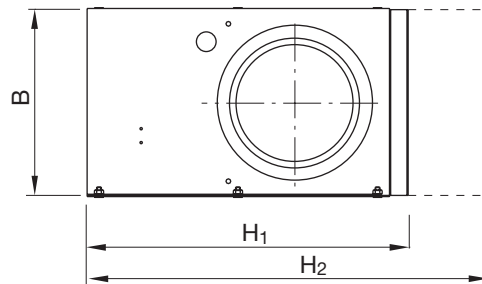
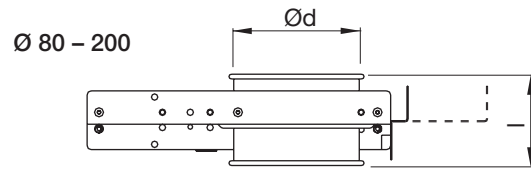
Manual shut-off sliding damper with transfer joint

The damper meets the requirements for tightness class 4 at pressure class C.

The damper meets the requirements for tightness class C only in fully closed or fully opened position.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

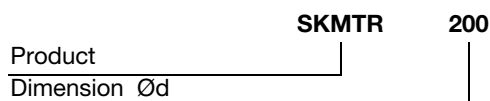
Dimensions



| Ød nom | H ₁ mm | H ₂ mm | B mm | l mm | m kg |
|-----------|----------------------|----------------------|---------|---------|---------|
| 80 | 250 | 330 | 160 | 125 | 2,70 |
| 100 | 290 | 390 | 180 | 125 | 3,00 |
| 125 | 340 | 465 | 205 | 125 | 3,60 |
| 140 | 390 | 530 | 230 | 125 | 4,50 |
| 150 | 390 | 540 | 230 | 125 | 4,50 |
| 160 | 410 | 570 | 240 | 125 | 4,70 |
| 180 | 490 | 670 | 280 | 125 | 5,60 |
| 200 | 490 | 690 | 280 | 125 | 5,60 |
| 224 * | 585 | 809 | 345 | 165 | 10,2 |
| 250 * | 585 | 835 | 370 | 165 | 12,2 |
| 300 * | 730 | 1030 | 420 | 165 | 18,1 |
| 315 * | 730 | 1045 | 435 | 165 | 19,0 |
| 350 * | 800 | 1150 | 470 | 165 | 22,5 |
| 400 * | 905 | 1305 | 520 | 165 | 26,1 |

* Has through blade

Ordering example

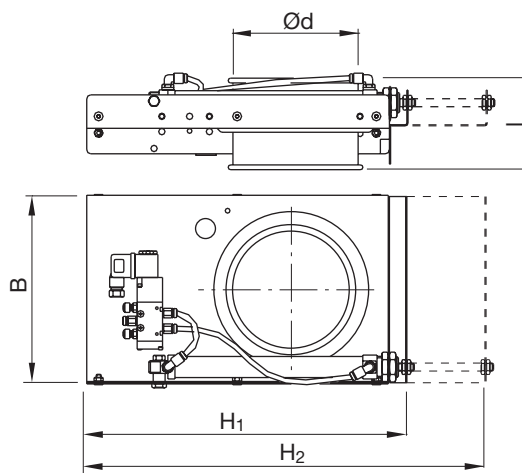


Sliding damper – pneumatic

SKPTR



Dimensions



Description

Pneumatic shut-off sliding damper with transfer joint

The damper meets the requirements for tightness class 4 at pressure class C.

The damper meets the requirements for tightness class C only in fully closed or fully opened position.

Pressurized air cylinder with mounted regulation valve is included.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

SPZZ pinch protection available as accessories.

Technical data

Cylinder

Power pressure, normal 0,6 MPa (6 bar)
 , max 1,0 MPa (10 bar)
 Ambient temperature range -20 °C (dry air) to +80 °C
 Working fluid Air, clean and dry

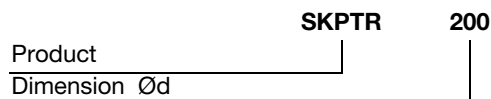
Solenoid valve

Power pressure max 7 bar
 Ambient temperature max +50 °C
 Power supply, standard 220 V~
 , special 24 V~ or 24 V-
 Power tolerance ±10 %
 Power requirements appr. 5 W
 Protection class IP 65
 Insulation class B
 Air connection Quick release for Ø 6 mm hose

| Ød nom | H ₁ mm | H ₂ mm | B mm | l mm | m kg |
|--------|-------------------|-------------------|------|------|------|
| 80 | 250 | 330 | 160 | 125 | 3,00 |
| 100 | 290 | 390 | 180 | 125 | 3,30 |
| 125 | 340 | 465 | 205 | 125 | 4,00 |
| 140 | 390 | 530 | 230 | 125 | 5,00 |
| 150 | 390 | 540 | 230 | 125 | 5,00 |
| 160 | 410 | 570 | 240 | 125 | 5,20 |
| 180 * | 490 | 670 | 280 | 125 | 6,20 |
| 200 * | 490 | 690 | 280 | 125 | 6,20 |
| 224 * | 585 | 809 | 345 | 165 | 11,3 |
| 250 * | 585 | 835 | 370 | 165 | 13,5 |
| 300 * | 730 | 1030 | 420 | 165 | 20,1 |
| 315 * | 730 | 1045 | 435 | 165 | 21,1 |
| 350 * | 800 | 1150 | 470 | 165 | 25,0 |
| 400 * | 905 | 1305 | 520 | 165 | 29,0 |

* Provided with 2 compressed air cylinders

Ordering example

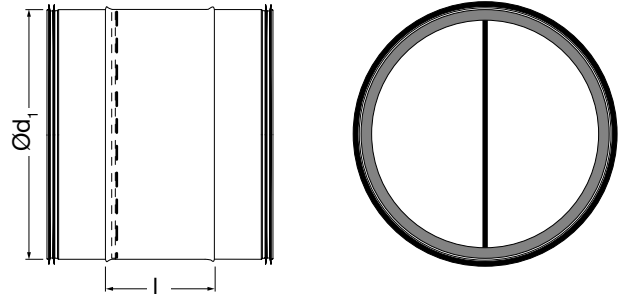


Air stream operated damper

CARU



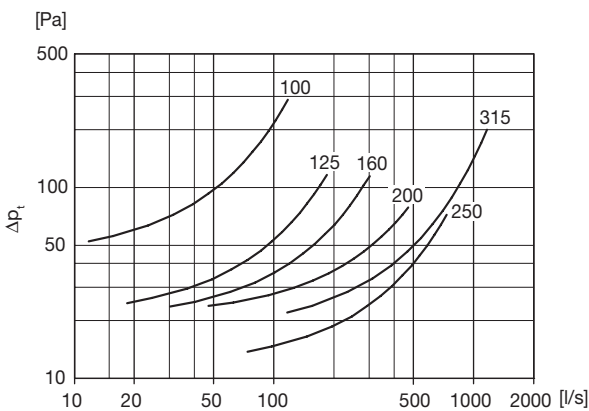
Dimensions



Description

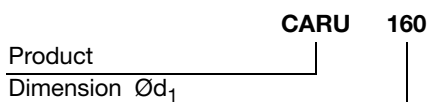
The damper is used where you want an efficient closing at a standstill fan. The air stream operated damper is equipped with springs, which automatically close the damper when the fan stops.

The housing is manufactured of galvanized sheet metal. The butterfly blade is manufactured of aluminium.



| $\varnothing d_1$ nom | l mm | m kg |
|--------------------------|---------|---------|
| 100 | 60 | 0,35 |
| 125 | 60 | 0,40 |
| 160 | 60 | 0,60 |
| 200 | 60 | 0,90 |
| 250 | 120 | 1,45 |
| 315 | 120 | 1,82 |

Ordering example



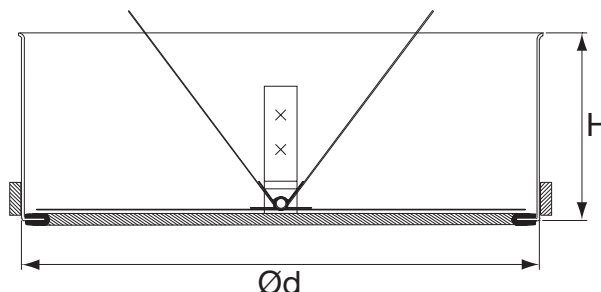
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Air stream operated damper

CAR



Dimensions



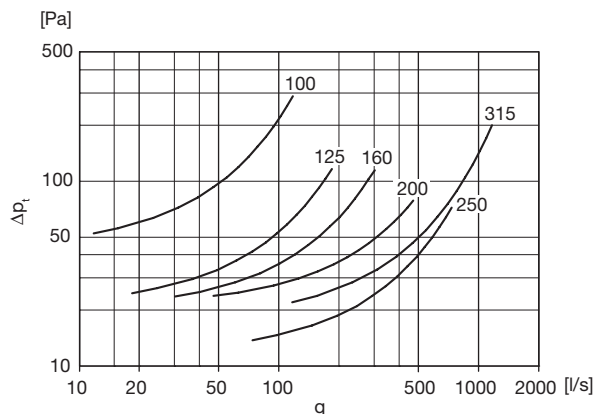
| Ød ₁ nom | ØD nom | H mm | m kg |
|------------------------|-----------|---------|---------|
| 100 | 96 | 43 | 0,10 |
| 125 | 121 | 49 | 0,10 |
| 160 | 155 | 66 | 0,20 |
| 200 | 195 | 72 | 0,30 |
| 250 | 247 | 120 | 0,40 |
| 315 | 312 | 160 | 0,50 |

Description

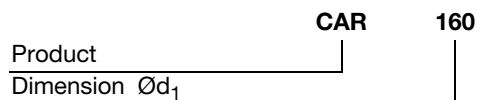
The damper is used where you want an efficient closing at a standstill fan. The air stream operated damper is equipped with springs, which automatically close the damper when the fan stops.

The damper is easy to mount since it is only "pushed" into the duct.

The housing is manufactured of galvanized sheet metal. The butterfly blade is manufactured of aluminium.



Ordering example

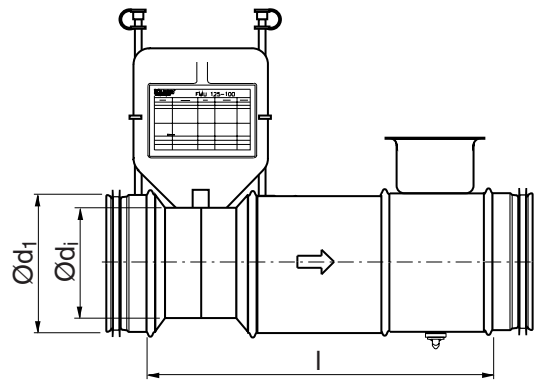


Damper with flow meter

FMDRU



Dimensions



Description

Applications

The flow meter is suitable both for setting up and for continuous flow measurement. It is intended for permanent installation and must therefore be specified at the design stage.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–630 fullfills tightness class 0 and pressure class A .

Design

The flow meter consists of two reducers joined together, with measurement nozzles. Each nozzle has a removable plastic plug which prevents dirt from entering. It also eliminates air leakage when measurement is not done.

The unit permits insulation of up to 100 mm thickness to be installed without concealing the measurement nozzles or the label plate. The plate can be rotated for best legibility, irrespective of the way the unit is installed and can easily be removed, to be located away from the unit.

The unit also contains a regulating damper DRU to allow balancing. The cup around the damper knob allows insulation up to 50 mm thick to be used. If thicker insulation is needed, add the special insulation cup IK.

The unit has components which partly block the duct system. You can use one of the tips on page 647 to facilitate cleaning.

| Ød ₁ nom | Ød _i nom | l mm | m kg |
|------------------------|------------------------|---------|---------|
| 80 | 63 | 300 | 0,78 |
| 100 | 80 | 300 | 0,94 |
| 125 | 100 | 310 | 1,21 |
| 160 | 125 | 315 | 1,52 |
| 200 | 160 | 380 | 2,20 |
| 250 | 200 | 440 | 3,31 |
| 315 | 250 | 570 | 4,92 |
| 400 | 315 | 660 | 7,81 |
| 500 | 400 | 845 | 12,0 |
| 630 | 500 | 1030 | 18,2 |

Flow meters with reductions of two dimension steps can be obtained, to give higher reading pressure in the measurement nozzles. This entails higher pressure drop and noise generation, however.

Advantages

- Has low pressure drop due to good aerodynamic design.
- Has low noise generation due to good aerodynamic design.
- Suitable for use with insulation.

Ordering example

| | | | |
|---------------------------|-------|-----|-----|
| Product | FMDRU | 160 | 125 |
| Dimension Ød ₁ | | | |
| Dimension Ød _i | | | |



Damper with flow meter

FMDRU

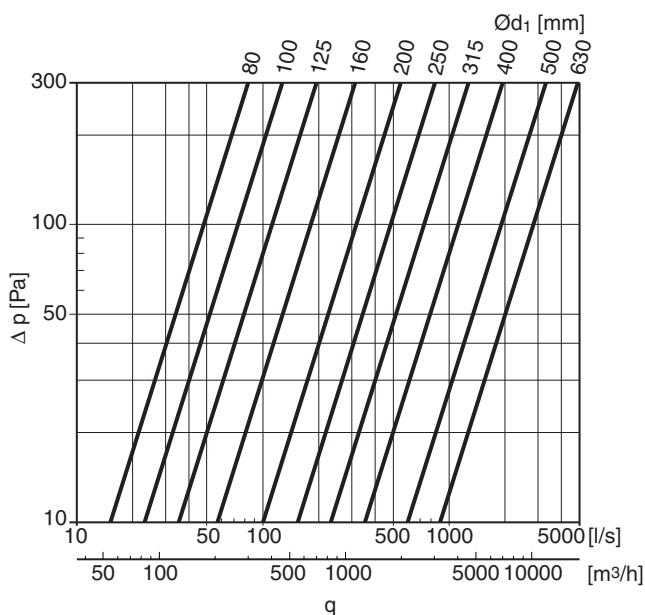
Technical data

Sound

Sound generation has been measured at the Swedish National Testing and Research Institute in an reverberation room, in accordance with ISO 5135 and ISO 3741.

Flow graph for balancing

The graph show the flow, q , as a function of the pressure difference in the measurement nozzles. Flow data for dimensioning differs from this graph.



Measurement function

Measure pressure difference, D_p , between the measurement nozzles, and use the equation on the units plate to derive the duct flow.

Measurement accuracy

If the velocity profile is asymmetric, the measurement values can differ from the ideal values. For this reason, the flow meter should never be located right up to any flow disturbance. The method error in the table below will differ, depending on the distance to the flow disturbance.

| l_1 =straight distance before meter | Method error m_2 | |
|---------------------------------------|--------------------|----------|
| Type of disturbance | 5% | 10% |
| A 90° bend | | |
| | 2· d_1 | 1· d_1 |
| l_2 = straight distance after meter | 1· d_1 | 1· d_1 |

Damper with flow meter

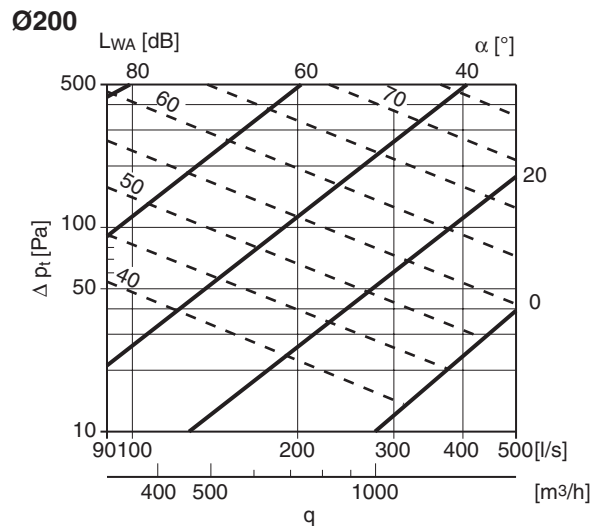
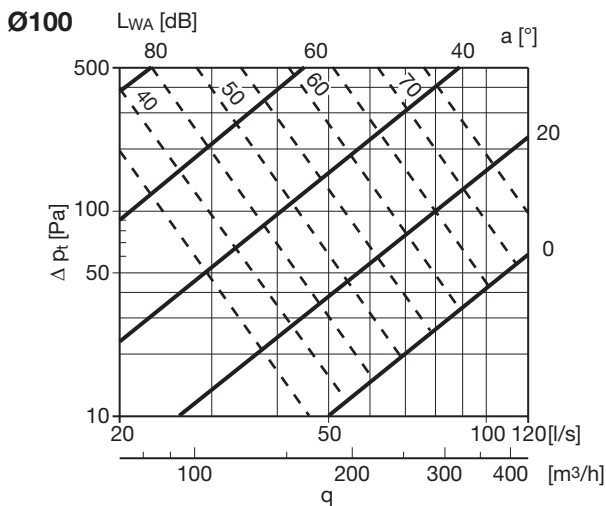
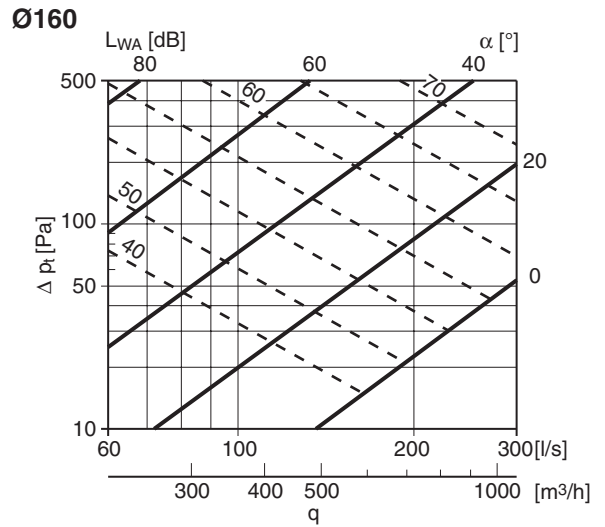
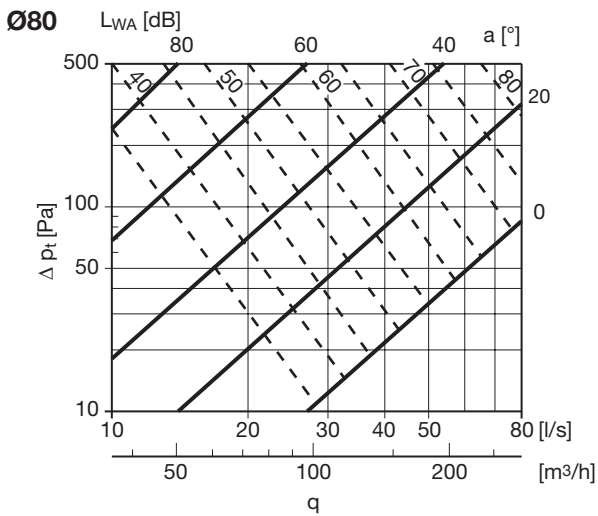
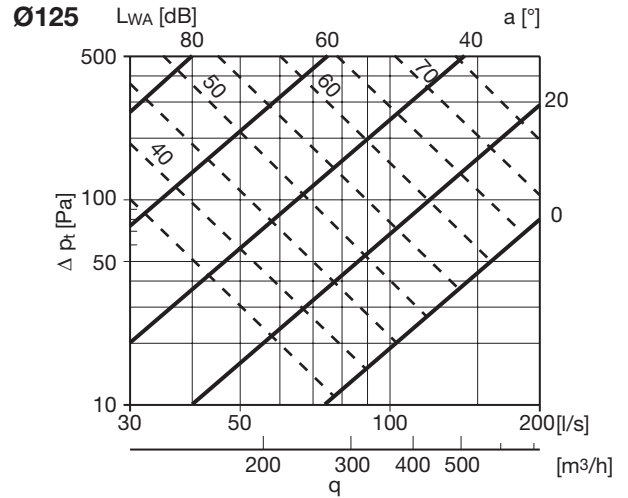
FMDRU

Pressure drop graphs with sound data for dimensioning

The solid lines show the pressure drop, Δp_t , across the unit as a function of flow, q .

The dashed lines give the A-weighted sound power data, L_{WA} , in dB to the duct.

Flow data for balancing differs from these graphs.

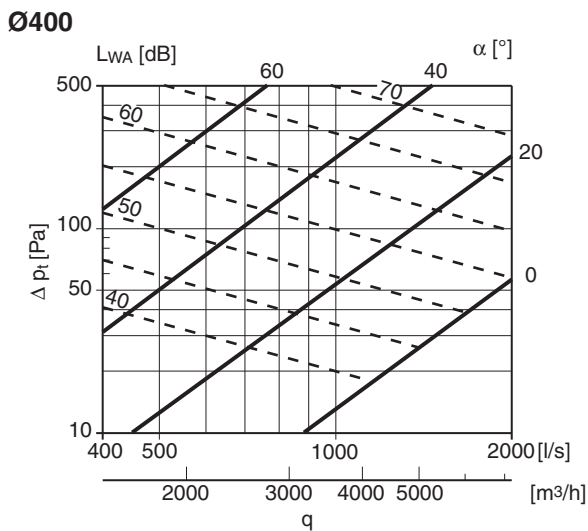
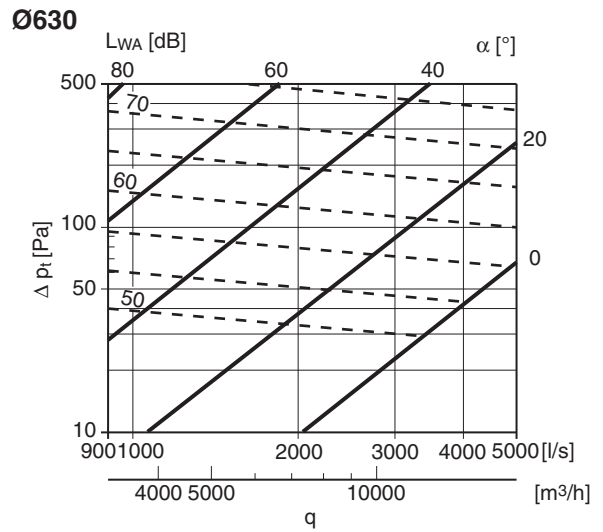
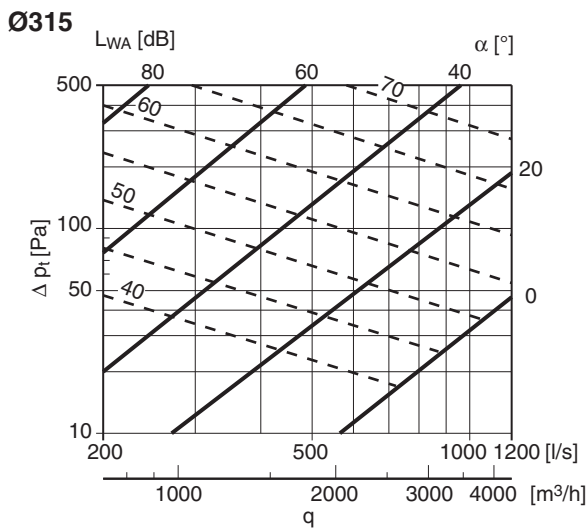
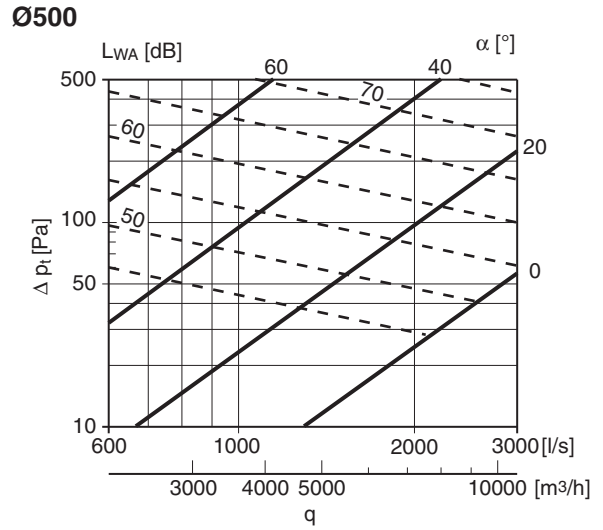
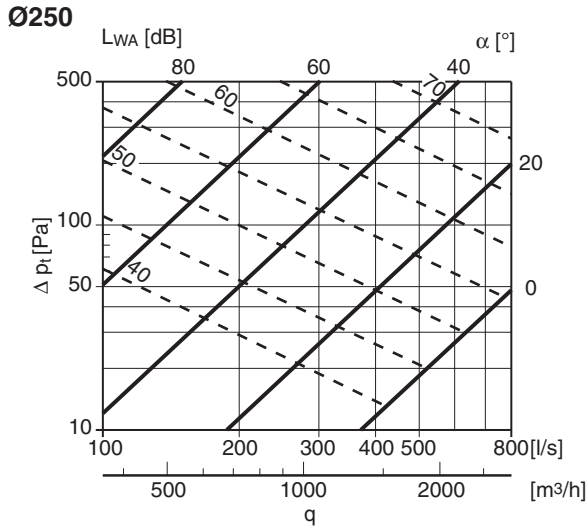


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Damper with flow meter

FMDRU

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Damper with flow meter

FMDRU

Sound generation

| dim Ød ₁ | Pressure drop [Pa] | Velocity app. 5 [m/s] | | | | | | | | Velocity app. 10 [m/s] | | | | | | | | Velocity app. 15 [m/s] | | | | | | | |
|------------------------|-----------------------|-----------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|-------------------------------|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 25 [l/s] | | | | | | | | Flow 50 [l/s] | | | | | | | | Flow 75 [l/s] | | | | | | | |
| | 500 | 64 | 65 | 62 | 59 | 57 | 56 | 52 | 51 | 68 | 76 | 76 | 70 | 64 | 61 | 59 | 56 | 71 | 80 | 80 | 73 | 67 | 63 | 61 | 58 |
| | 300 | 61 | 62 | 58 | 55 | 52 | 50 | 45 | 43 | 65 | 75 | 75 | 67 | 61 | 57 | 53 | 49 | 68 | 79 | 77 | 68 | 63 | 58 | 55 | 52 |
| | 200 | 59 | 60 | 56 | 51 | 47 | 46 | 40 | 38 | 63 | 75 | 74 | 64 | 58 | 53 | 48 | 44 | 67 | 78 | 75 | 64 | 59 | 54 | 51 | 47 |
| | 100 | 56 | 56 | 51 | 45 | 40 | 38 | 30 | 28 | 59 | 74 | 72 | 59 | 52 | 47 | 40 | 35 | 63 | 76 | 71 | 58 | 53 | 48 | 42 | 38 |
| | 50 | 52 | 52 | 47 | 40 | 33 | 30 | 21 | 18 | 56 | 73 | 71 | 54 | 47 | 41 | 32 | 26 | Pressure drop exceeds 50 [Pa] | | | | | | | |
| 100 | | Flow 40 [l/s] | | | | | | | | Flow 80 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | |
| | 500 | 64 | 63 | 62 | 58 | 56 | 55 | 53 | 54 | 67 | 76 | 76 | 69 | 63 | 60 | 61 | 61 | 70 | 81 | 82 | 70 | 66 | 64 | 64 | 64 |
| | 300 | 61 | 60 | 58 | 54 | 51 | 50 | 46 | 46 | 65 | 76 | 76 | 65 | 59 | 55 | 56 | 56 | 68 | 81 | 80 | 65 | 62 | 60 | 60 | 59 |
| | 200 | 59 | 58 | 55 | 51 | 47 | 46 | 40 | 40 | 62 | 75 | 75 | 62 | 55 | 51 | 52 | 53 | 65 | 81 | 79 | 61 | 58 | 57 | 56 | 55 |
| | 100 | 56 | 54 | 51 | 45 | 40 | 40 | 31 | 30 | 59 | 75 | 75 | 57 | 49 | 44 | 46 | 46 | 62 | 81 | 78 | 54 | 52 | 51 | 50 | 49 |
| | 50 | 52 | 50 | 46 | 39 | 34 | 33 | 22 | 20 | 55 | 75 | 74 | 52 | 43 | 37 | 39 | 40 | Pressure drop exceeds 50 [Pa] | | | | | | | |
| 125 | | Flow 60 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | | Flow 180 [l/s] | | | | | | | |
| | 500 | 66 | 64 | 62 | 59 | 56 | 56 | 54 | 53 | 72 | 76 | 75 | 68 | 63 | 60 | 61 | 59 | 75 | 81 | 79 | 71 | 66 | 63 | 63 | 61 |
| | 300 | 63 | 61 | 58 | 55 | 51 | 51 | 47 | 45 | 69 | 75 | 73 | 65 | 59 | 56 | 55 | 53 | 73 | 79 | 76 | 67 | 62 | 59 | 58 | 56 |
| | 200 | 61 | 59 | 56 | 51 | 47 | 47 | 42 | 40 | 67 | 74 | 71 | 62 | 56 | 52 | 50 | 49 | 71 | 78 | 74 | 63 | 58 | 55 | 53 | 51 |
| | 100 | 57 | 55 | 51 | 46 | 41 | 40 | 33 | 30 | 64 | 72 | 69 | 57 | 50 | 45 | 43 | 41 | 67 | 76 | 70 | 57 | 52 | 49 | 46 | 43 |
| | 50 | 53 | 51 | 46 | 40 | 35 | 32 | 25 | 21 | 60 | 71 | 66 | 51 | 44 | 38 | 36 | 34 | Pressure drop exceeds 50 [Pa] | | | | | | | |
| 160 | | Flow 100 [l/s] | | | | | | | | Flow 200 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | |
| | 500 | 66 | 63 | 61 | 57 | 54 | 54 | 53 | 52 | 77 | 78 | 73 | 67 | 63 | 59 | 59 | 58 | 80 | 81 | 76 | 71 | 66 | 62 | 61 | 59 |
| | 300 | 63 | 60 | 57 | 53 | 50 | 49 | 47 | 45 | 75 | 77 | 70 | 63 | 59 | 54 | 54 | 53 | 78 | 79 | 72 | 67 | 62 | 57 | 55 | 53 |
| | 200 | 61 | 58 | 55 | 50 | 47 | 45 | 42 | 40 | 74 | 75 | 68 | 60 | 56 | 50 | 49 | 48 | 76 | 77 | 69 | 64 | 58 | 53 | 50 | 48 |
| | 100 | 58 | 54 | 50 | 45 | 41 | 38 | 34 | 31 | 71 | 73 | 64 | 55 | 51 | 43 | 42 | 41 | 74 | 74 | 63 | 59 | 53 | 46 | 42 | 39 |
| | 50 | 55 | 51 | 45 | 39 | 36 | 31 | 26 | 23 | 69 | 71 | 60 | 50 | 46 | 36 | 34 | 33 | 71 | 71 | 58 | 54 | 47 | 39 | 34 | 31 |
| 200 | | Flow 150 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | | Flow 450 [l/s] | | | | | | | |
| | 500 | 71 | 68 | 65 | 61 | 58 | 58 | 57 | 55 | 75 | 77 | 70 | 63 | 60 | 54 | 54 | 53 | 80 | 82 | 78 | 71 | 67 | 65 | 66 | 63 |
| | 300 | 67 | 64 | 60 | 57 | 53 | 53 | 50 | 47 | 74 | 75 | 68 | 60 | 56 | 50 | 49 | 48 | 77 | 79 | 74 | 67 | 63 | 60 | 60 | 57 |
| | 200 | 65 | 61 | 57 | 53 | 49 | 49 | 45 | 42 | 71 | 73 | 68 | 61 | 56 | 53 | 52 | 50 | 74 | 77 | 71 | 63 | 58 | 56 | 55 | 52 |
| | 100 | 60 | 56 | 52 | 48 | 43 | 41 | 36 | 32 | 66 | 69 | 64 | 55 | 50 | 46 | 45 | 42 | 70 | 71 | 66 | 57 | 52 | 50 | 48 | 44 |
| | 50 | 55 | 52 | 46 | 42 | 37 | 34 | 28 | 23 | 62 | 66 | 60 | 50 | 44 | 38 | 37 | 34 | 65 | 69 | 61 | 50 | 46 | 41 | 40 | 35 |
| 250 | | Flow 250 [l/s] | | | | | | | | Flow 500 [l/s] | | | | | | | | Flow 750 [l/s] | | | | | | | |
| | 500 | 69 | 66 | 64 | 61 | 57 | 59 | 58 | 56 | 79 | 76 | 72 | 67 | 62 | 61 | 64 | 63 | 83 | 81 | 76 | 72 | 65 | 64 | 67 | 66 |
| | 300 | 66 | 63 | 60 | 58 | 53 | 54 | 53 | 49 | 77 | 73 | 68 | 63 | 57 | 56 | 59 | 58 | 81 | 77 | 72 | 68 | 60 | 59 | 61 | 60 |
| | 200 | 64 | 60 | 57 | 55 | 49 | 50 | 49 | 44 | 75 | 70 | 65 | 60 | 53 | 52 | 54 | 53 | 78 | 74 | 69 | 65 | 56 | 55 | 57 | 55 |
| | 100 | 60 | 56 | 52 | 50 | 43 | 44 | 41 | 34 | 72 | 65 | 59 | 54 | 47 | 45 | 47 | 46 | 75 | 69 | 63 | 60 | 50 | 48 | 50 | 47 |
| | 50 | 56 | 51 | 47 | 45 | 37 | 37 | 34 | 25 | 69 | 61 | 54 | 49 | 40 | 38 | 39 | 38 | 71 | 64 | 58 | 55 | 43 | 41 | 42 | 39 |
| 315 | | Flow 400 [l/s] | | | | | | | | Flow 800 [l/s] | | | | | | | | Flow 1200 [l/s] | | | | | | | |
| | 500 | 76 | 71 | 67 | 62 | 60 | 60 | 60 | 57 | 82 | 79 | 74 | 68 | 66 | 64 | 65 | 63 | 86 | 83 | 77 | 71 | 68 | 66 | 69 | 64 |
| | 300 | 72 | 67 | 62 | 58 | 55 | 55 | 54 | 49 | 78 | 75 | 69 | 64 | 61 | 58 | 49 | 57 | 82 | 79 | 72 | 66 | 63 | 61 | 62 | 58 |
| | 200 | 69 | 64 | 59 | 55 | 51 | 50 | 48 | 44 | 74 | 72 | 66 | 60 | 57 | 54 | 54 | 51 | 78 | 75 | 69 | 62 | 59 | 56 | 57 | 53 |
| | 100 | 63 | 58 | 53 | 49 | 45 | 43 | 39 | 34 | 69 | 66 | 60 | 54 | 51 | 46 | 46 | 43 | 73 | 67 | 62 | 56 | 52 | 51 | 49 | 44 |
| | 50 | 58 | 52 | 47 | 43 | 39 | 36 | 30 | 24 | 63 | 61 | 54 | 48 | 44 | 38 | 38 | 34 | 67 | 64 | 56 | 49 | 45 | 41 | 41 | 36 |
| 400 | | Flow 600 [l/s] | | | | | | | | Flow 1200 [l/s] | | | | | | | | Flow 1800 [l/s] | | | | | | | |
| | 500 | 78 | 71 | 66 | 61 | 58 | 59 | 59 | 55 | 83 | 78 | 72 | 67 | 65 | 64 | 65 | 62 | 88 | 82 | 76 | 71 | 68 | 67 | 68 | 64 |
| | 300 | 73 | 67 | 61 | 57 | 54 | 54 | 53 | 48 | 77 | 73 | 67 | 62 | 60 | 59 | 59 | 56 | 84 | 78 | 71 | 66 | 64 | 62 | 63 | 58 |
| | 200 | 69 | 63 | 58 | 54 | 51 | 50 | 48 | 43 | 73 | 69 | 63 | 58 | 56 | 54 | 54 | 51 | 80 | 74 | 67 | 63 | 60 | 58 | 59 | 53 |
| | 100 | 63 | 56 | 51 | 48 | 45 | 43 | 39 | 34 | 65 | 62 | 56 | 52 | 50 | 47 | 46 | 42 | 74 | 68 | 60 | 56 | 54 | 50 | 52 | 45 |
| | 50 | 56 | 50 | 45 | 43 | 40 | 36 | 31 | 25 | 58 | 55 | 49 | 45 | 43 | 39 | 38 | 34 | 68 | 62 | 54 | 50 | 48 | 43 | 45 | 37 |
| 500 | | Flow 1000 [l/s] | | | | | | | | Flow 2000 [l/s] | | | | | | | | Flow 3000 [l/s] | | | | | | | |
| | 500 | 81 | 75 | 69 | 64 | 61 | 63 | 63 | 59 | 87 | 81 | 73 | 68 | 67 | 66 | 67 | 64 | 91 | 84 | 76 | 71 | 69 | 68 | 72 | 66 |
| | 300 | 76 | 70 | 64 | 60 | 57 | 57 | 57 | 51 | 82 | 75 | 67 | 63 | 62 | 60 | 61 | 58 | 86 | 79 | 70 | 66 | 64 | 62 | 64 | 59 |
| | 200 | 73 | 66 | 61 | 57 | 54 | 52 | 51 | 45 | 78 | 71 | 63 | 59 | 57 | 55 | 56 | 53 | 82 | 74 | 66 | 62 | 59 | 57 | 59 | 54 |
| | 100 | 66 | 59 | 53 | 51 | 48 | 45 | 42 | 35 | 71 | 64 | 55 | 53 | 51 | 47 | 47 | 44 | 75 | 62 | 58 | 55 | 52 | 52 | 51 | 45 |
| | 50 | 60 | 53 | 47 | 45 | 42 | 37 | 33 | 26 | 65 | 56 | 48 | 46 | 44 | 38 | 39 | 35 | 69 | 60 | 51 | 49 | 45 | 40 | 43 | 36 |
| 630 | | Flow 1500 [l/s] | | | | | | | | Flow 3000 [l/s] | | | | | | | | Flow 4500 [l/s] | | | | | | | |
| | 500 | 88 | 81 | 74 | 68 | 66 | 67 | 67 | 62 | 91 | 84 | 75 | 70 | 70 | 69 | 70 | 66 | 93 | 86 | 77 | 71 | 71 | 70 | 76 | 67 |
| | 300 | 82 | 75 | 68 | 63 | 61 | 60 | 60 | 54 | 85 | 78 | 69 | 65 | 65 | 62 | 63 | 59 | 87 | 80 | 71 | 65 | 65 | 63 | 66 | 60 |
| | 200 | 78 | 71 | 64 | 59 | 57 | 55 | 54 | 47 | 80 | 73 | 64 | 61 | 60 | 57 | 58 | 53 | 82 | 75 | 66 | 60 | 60 | 57 | 60 | 54 |
| | 100 | 70 | 63 | 56 | 53 | 51 | 46 | 43 | 36 | 72 | 65 | 56 | 54 | 53 | 48 | 48 | 43 | 73 | 67 | 58 | 52 | 51 | 48 | 51 | 44 |
| | 50 | 63 | 56 | 49 | 46 | 44 | 38 | 33 | 25 | 64 | 57 | 48 | 47 | 46 | 39 | 39 | 33 | 65 | 59 | 50 | 44 | 43 | 38 | 42 | 34 |

Damper with flow meter

FMDU



Description

Applications

The meter is suitable both for setting up and for continuous flow measurement. It is intended for permanent installation and must therefore be specified at the design stage.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Ø 80–630 fulfills tightness class 0 and pressure class A .

Design

The meter consists of a regulating shutter and a centrally located measurement plate. Each measurement nozzle has a removable plastic plug which prevents dirt from entering. It also eliminates air leakage when measurement is not done.

The unit permits insulation of up to 50 mm thickness to be installed without concealing the measurement nipples or the label plate.

The plate can be rotated for best legibility, irrespective of the way the unit is installed and can easily be removed, to be located away from the unit. The cup around the damper knob allows insulation up to 50 mm thick to be used. If thicker insulation is needed, add the special insulation cup IK.

Advantages

- Short installation length.
- Suitable for use with insulation.

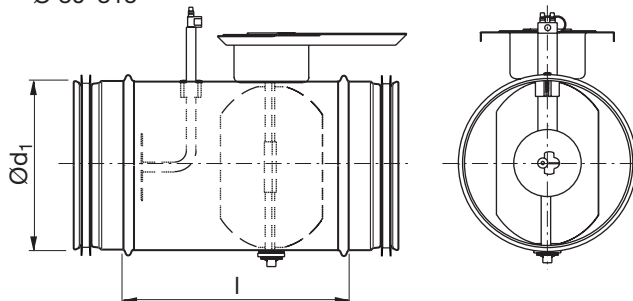
The unit has components which partly block the duct system. You can use one of the tips on page 647 to facilitate cleaning.

Ordering example

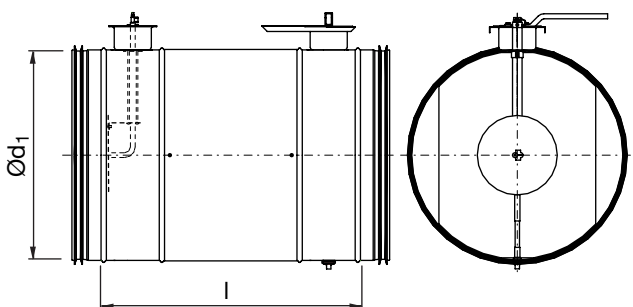
| | | |
|---------------------------|------|-----|
| Product | FMDU | 200 |
| Dimension Ød ₁ | | |

Dimensions

Ø 80–315



Ø 400–630



| Ød ₁ nom | l mm | m kg |
|------------------------|---------|---------|
| 80 | 165 | 0,66 |
| 100 | 165 | 0,76 |
| 125 | 165 | 0,88 |
| 160 | 165 | 1,08 |
| 200 | 230 | 1,44 |
| 250 | 275 | 2,10 |
| 315 | 275 | 2,65 |
| 400 | 450 | 6,10 |
| 500 | 520 | 11,4 |
| 630 | 570 | 16,0 |

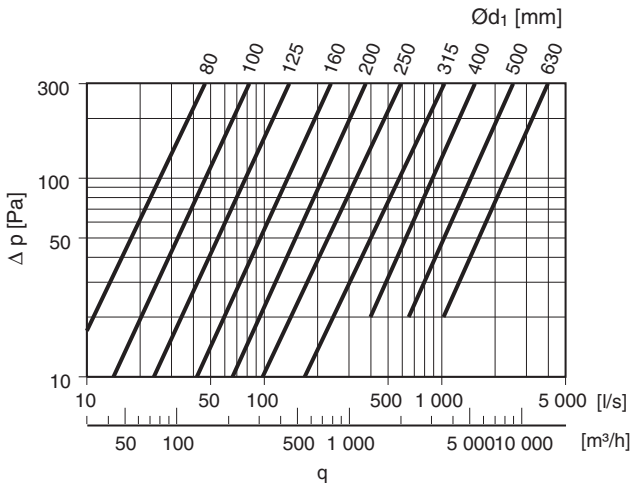
Damper with flow meter

FMDU

Technical data

Flow graph for balancing

The curves show the flow, q , as a function of the pressure difference in the measurement nozzles. Flow data for dimensioning differs from this graph.

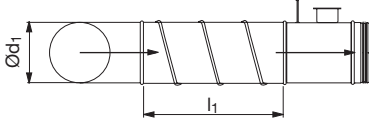
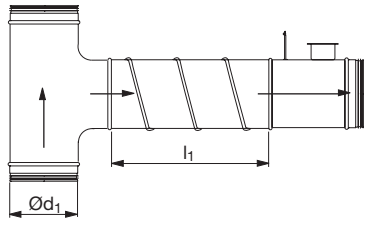


Measurement function

By measuring the pressure difference, Dp , between the measurement nozzles, you can derive the flow in the duct by means of the equation on the units plate.

Measurement accuracy

If the velocity profile is asymmetric, the measurement values can differ from the ideal values. For this reason, the flow meter should never be located right up to any flow disturbance. The method error in the table below will differ, depending on the distance to the flow disturbance.

| l_1 = straight distance before meter | Method error m_2 | |
|--|--------------------|----------|
| Type of disturbance | 5% | 10% |
| A 90° bend | | |
|  | 6· d_1 | 0· d_1 |
| A branch | | |
|  | 6· d_1 | 4· d_1 |
| l_2 = straight distance after meter | 1· d_1 | 1· d_1 |



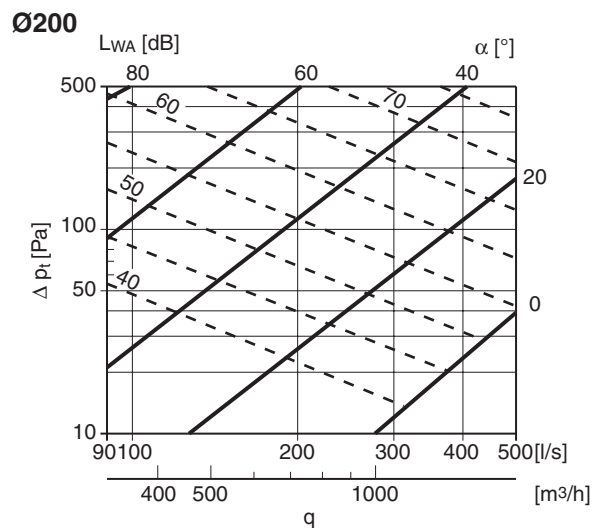
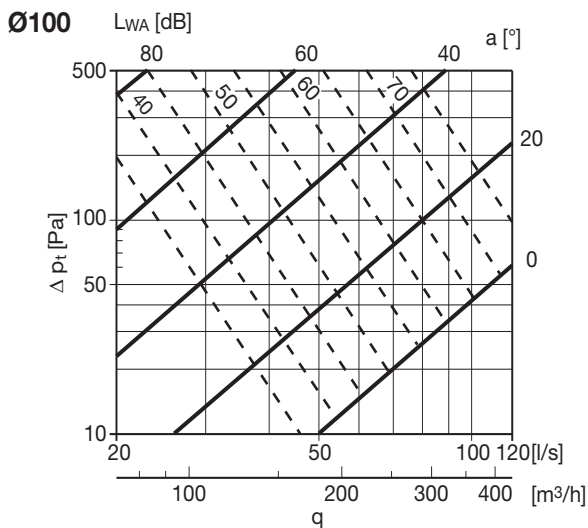
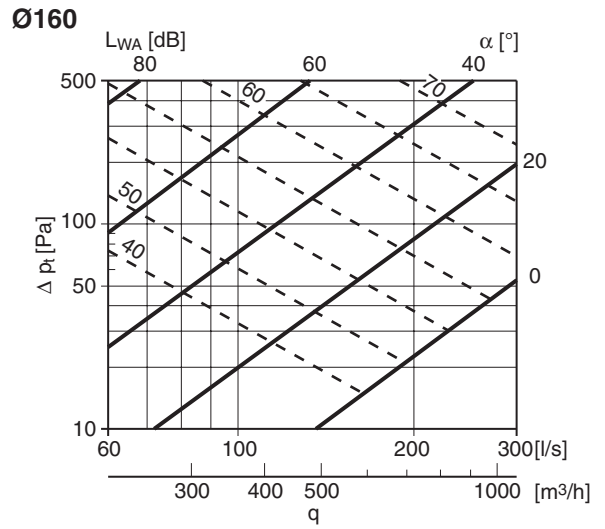
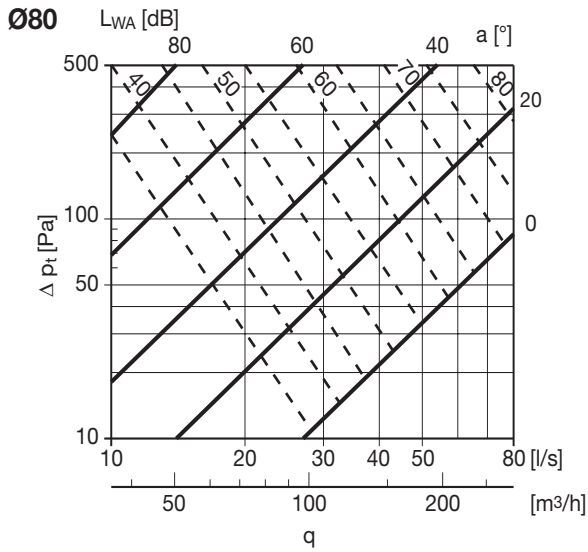
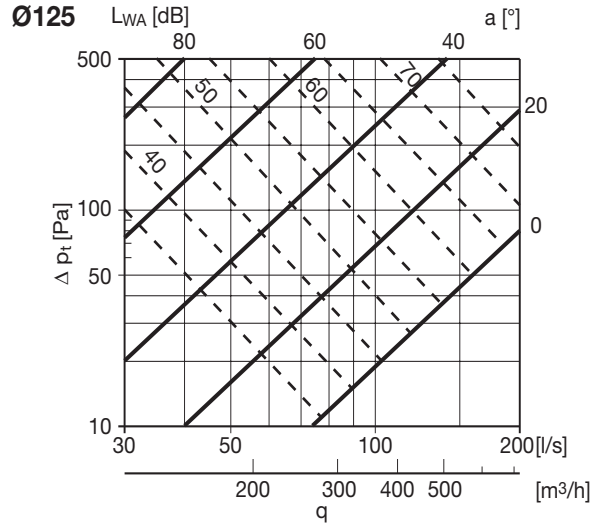
Damper with flow meter

FMDU

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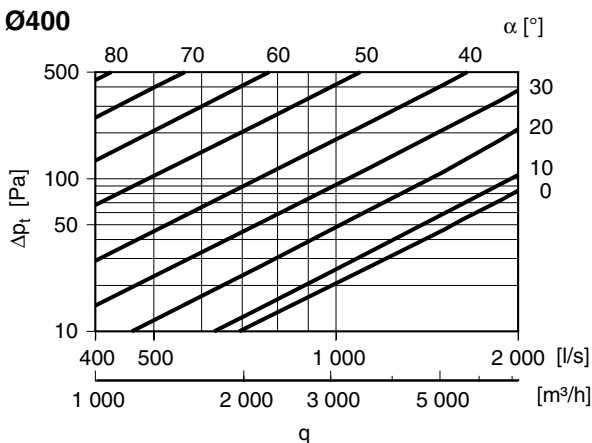
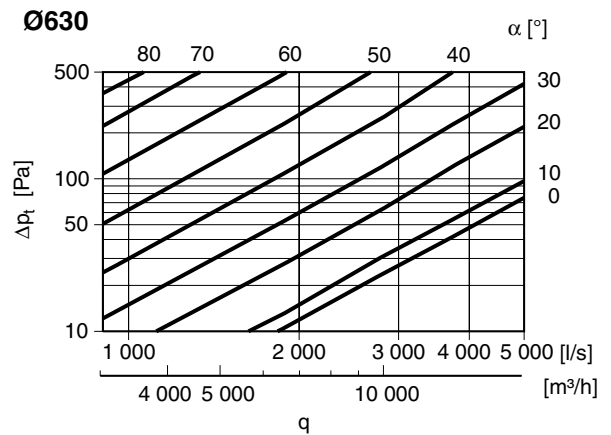
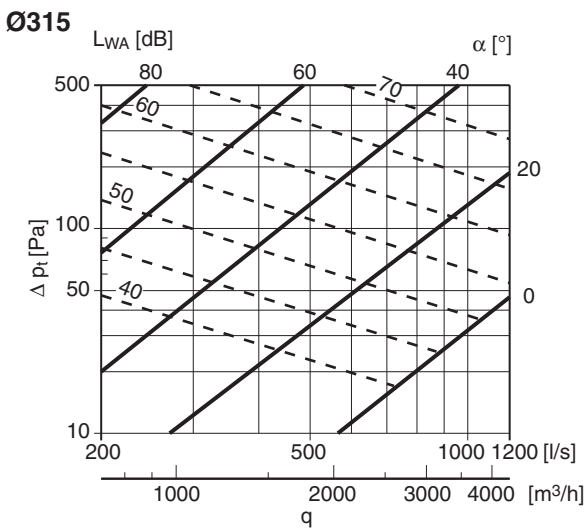
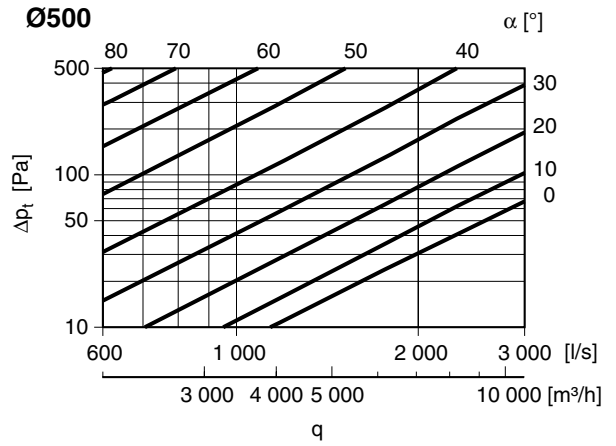
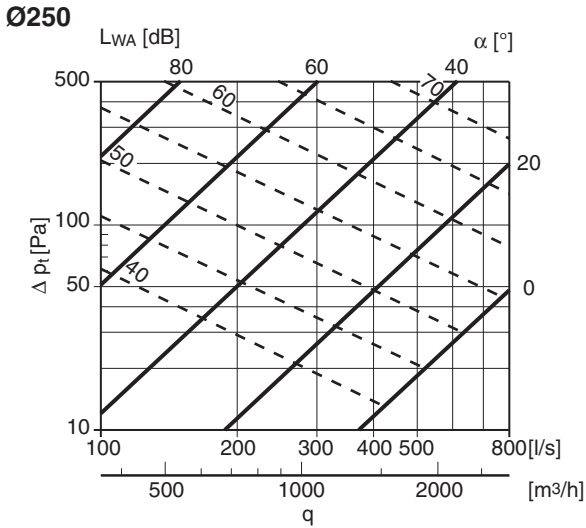
Pressure drop graphs with sound data for dimensioning

The solid lines show the pressure drop, Δp_t , across the unit as a function of flow, q . The dashed lines give the A-weighted sound power data, L_{WA} , in dB to the duct. Flow data for balancing differ from these graphs.



Damper with flow meter

FMDU



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Damper with flow meter

FMDU

Sound generation

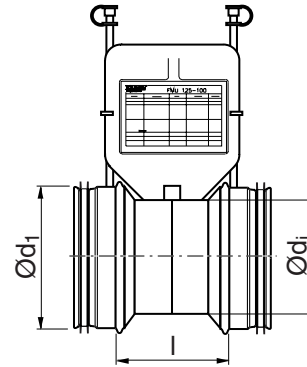
| dim Ød ₁ | Pressure drop [Pa] | Velocity app. 5 [m/s] | | | | | | | | Velocity app. 10 [m/s] | | | | | | | | Velocity app. 15 [m/s] | | | | | | | |
|------------------------|--------------------|-----------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|-------------------------------|------------------------|-----|-----|-----|----|----|----|----|
| | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | | Flow 25 [l/s] | | | | | | | | Flow 50 [l/s] | | | | | | | | Flow 75 [l/s] | | | | | | | |
| | 500 | 64 | 65 | 62 | 59 | 57 | 56 | 52 | 51 | 68 | 76 | 76 | 70 | 64 | 61 | 59 | 56 | 71 | 80 | 80 | 73 | 67 | 63 | 61 | 58 |
| | 300 | 61 | 62 | 58 | 55 | 52 | 50 | 45 | 43 | 65 | 75 | 75 | 67 | 61 | 57 | 53 | 49 | 68 | 79 | 77 | 68 | 63 | 58 | 55 | 52 |
| | 200 | 59 | 60 | 56 | 51 | 47 | 46 | 40 | 38 | 63 | 75 | 74 | 64 | 58 | 53 | 48 | 44 | 67 | 78 | 75 | 64 | 59 | 54 | 51 | 47 |
| | 100 | 56 | 56 | 51 | 45 | 40 | 38 | 30 | 28 | 59 | 74 | 72 | 59 | 52 | 47 | 40 | 35 | 63 | 76 | 71 | 58 | 53 | 48 | 42 | 38 |
| 50 | 52 | 52 | 47 | 40 | 33 | 30 | 21 | 18 | 56 | 73 | 71 | 54 | 47 | 41 | 32 | 26 | Pressure drop exceeds 50 [Pa] | | | | | | | | |
| 100 | | Flow 40 [l/s] | | | | | | | | Flow 80 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | |
| | 500 | 64 | 63 | 62 | 58 | 56 | 55 | 53 | 54 | 67 | 76 | 76 | 69 | 63 | 60 | 61 | 61 | 70 | 81 | 82 | 70 | 66 | 64 | 64 | 64 |
| | 300 | 61 | 60 | 58 | 54 | 51 | 50 | 46 | 46 | 65 | 76 | 76 | 65 | 59 | 55 | 56 | 56 | 68 | 81 | 80 | 65 | 62 | 60 | 60 | 59 |
| | 200 | 59 | 58 | 55 | 51 | 47 | 46 | 40 | 40 | 62 | 75 | 75 | 62 | 55 | 51 | 52 | 53 | 65 | 81 | 79 | 61 | 58 | 57 | 56 | 55 |
| | 100 | 56 | 54 | 51 | 45 | 40 | 40 | 31 | 30 | 59 | 75 | 75 | 57 | 49 | 44 | 46 | 46 | 62 | 81 | 78 | 54 | 52 | 51 | 50 | 49 |
| 50 | 52 | 50 | 46 | 39 | 34 | 33 | 22 | 20 | 55 | 75 | 74 | 52 | 43 | 37 | 39 | 40 | Pressure drop exceeds 50 [Pa] | | | | | | | | |
| 125 | | Flow 60 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | | Flow 180 [l/s] | | | | | | | |
| | 500 | 66 | 64 | 62 | 59 | 56 | 56 | 54 | 53 | 72 | 76 | 75 | 68 | 63 | 60 | 61 | 59 | 75 | 81 | 79 | 71 | 66 | 63 | 63 | 61 |
| | 300 | 63 | 61 | 58 | 55 | 51 | 51 | 47 | 45 | 69 | 75 | 73 | 65 | 59 | 56 | 55 | 53 | 73 | 79 | 76 | 67 | 62 | 59 | 58 | 56 |
| | 200 | 61 | 59 | 56 | 51 | 47 | 47 | 42 | 40 | 67 | 74 | 71 | 62 | 56 | 52 | 50 | 49 | 71 | 78 | 74 | 63 | 58 | 55 | 53 | 51 |
| | 100 | 57 | 55 | 51 | 46 | 41 | 40 | 33 | 30 | 64 | 72 | 69 | 57 | 50 | 45 | 43 | 41 | 67 | 76 | 70 | 57 | 52 | 49 | 46 | 43 |
| 50 | 53 | 51 | 46 | 40 | 35 | 32 | 25 | 21 | 60 | 71 | 66 | 51 | 44 | 38 | 36 | 34 | Pressure drop exceeds 50 [Pa] | | | | | | | | |
| 160 | | Flow 100 [l/s] | | | | | | | | Flow 200 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | |
| | 500 | 66 | 63 | 61 | 57 | 54 | 54 | 53 | 52 | 77 | 78 | 73 | 67 | 63 | 59 | 59 | 58 | 80 | 81 | 76 | 71 | 66 | 62 | 61 | 59 |
| | 300 | 63 | 60 | 57 | 53 | 50 | 49 | 47 | 45 | 75 | 77 | 70 | 63 | 59 | 54 | 54 | 53 | 78 | 79 | 72 | 67 | 62 | 57 | 55 | 53 |
| | 200 | 61 | 58 | 55 | 50 | 47 | 45 | 42 | 40 | 74 | 75 | 68 | 60 | 56 | 50 | 49 | 48 | 76 | 77 | 69 | 64 | 58 | 53 | 50 | 48 |
| | 100 | 58 | 54 | 50 | 45 | 41 | 38 | 34 | 31 | 71 | 73 | 64 | 55 | 51 | 43 | 42 | 41 | 74 | 74 | 63 | 59 | 53 | 46 | 42 | 39 |
| 50 | 55 | 51 | 45 | 39 | 36 | 31 | 26 | 23 | 69 | 71 | 60 | 50 | 46 | 36 | 34 | 33 | 71 | 71 | 58 | 54 | 47 | 39 | 34 | 31 | |
| 200 | | Flow 150 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | | Flow 450 [l/s] | | | | | | | |
| | 500 | 71 | 68 | 65 | 61 | 58 | 58 | 57 | 55 | 75 | 77 | 70 | 63 | 60 | 54 | 54 | 53 | 80 | 82 | 78 | 71 | 67 | 65 | 66 | 63 |
| | 300 | 67 | 64 | 60 | 57 | 53 | 53 | 50 | 47 | 74 | 75 | 68 | 60 | 56 | 50 | 49 | 48 | 77 | 79 | 74 | 67 | 63 | 60 | 60 | 57 |
| | 200 | 65 | 61 | 57 | 53 | 49 | 49 | 45 | 42 | 71 | 73 | 68 | 61 | 56 | 53 | 52 | 50 | 74 | 77 | 71 | 63 | 58 | 56 | 55 | 52 |
| | 100 | 60 | 56 | 52 | 48 | 43 | 41 | 36 | 32 | 66 | 69 | 64 | 55 | 50 | 46 | 45 | 42 | 70 | 71 | 66 | 57 | 52 | 50 | 48 | 44 |
| 50 | 55 | 52 | 46 | 42 | 37 | 34 | 28 | 23 | 62 | 66 | 60 | 50 | 44 | 38 | 37 | 34 | 65 | 69 | 51 | 50 | 46 | 41 | 40 | 35 | |
| 250 | | Flow 250 [l/s] | | | | | | | | Flow 500 [l/s] | | | | | | | | Flow 750 [l/s] | | | | | | | |
| | 500 | 69 | 66 | 64 | 61 | 57 | 59 | 58 | 56 | 79 | 76 | 72 | 67 | 62 | 61 | 64 | 63 | 83 | 81 | 76 | 72 | 65 | 64 | 67 | 66 |
| | 300 | 66 | 63 | 60 | 58 | 53 | 54 | 53 | 49 | 77 | 73 | 68 | 63 | 57 | 56 | 59 | 58 | 81 | 77 | 72 | 68 | 60 | 59 | 61 | 60 |
| | 200 | 64 | 60 | 57 | 55 | 49 | 50 | 49 | 44 | 75 | 70 | 65 | 60 | 53 | 52 | 54 | 53 | 78 | 74 | 69 | 65 | 56 | 55 | 57 | 55 |
| | 100 | 60 | 56 | 52 | 50 | 43 | 44 | 41 | 34 | 72 | 65 | 59 | 54 | 47 | 45 | 47 | 46 | 75 | 69 | 63 | 60 | 50 | 48 | 50 | 47 |
| 50 | 56 | 51 | 47 | 45 | 37 | 37 | 34 | 25 | 69 | 61 | 54 | 49 | 40 | 38 | 39 | 38 | 71 | 64 | 58 | 55 | 43 | 41 | 42 | 39 | |
| 315 | | Flow 400 [l/s] | | | | | | | | Flow 800 [l/s] | | | | | | | | Flow 1200 [l/s] | | | | | | | |
| | 500 | 76 | 71 | 67 | 62 | 60 | 60 | 60 | 57 | 82 | 79 | 74 | 68 | 66 | 64 | 65 | 63 | 86 | 83 | 77 | 71 | 68 | 66 | 69 | 64 |
| | 300 | 72 | 67 | 62 | 58 | 55 | 55 | 54 | 49 | 78 | 75 | 69 | 64 | 61 | 58 | 49 | 57 | 82 | 79 | 72 | 66 | 63 | 61 | 62 | 58 |
| | 200 | 69 | 64 | 59 | 55 | 51 | 50 | 48 | 44 | 74 | 72 | 66 | 60 | 57 | 54 | 54 | 51 | 78 | 75 | 69 | 62 | 59 | 56 | 57 | 53 |
| | 100 | 63 | 58 | 53 | 49 | 45 | 43 | 39 | 34 | 69 | 66 | 60 | 54 | 51 | 46 | 46 | 43 | 73 | 67 | 62 | 56 | 52 | 51 | 49 | 44 |
| 50 | 58 | 52 | 47 | 43 | 39 | 36 | 30 | 24 | 63 | 61 | 54 | 48 | 44 | 38 | 38 | 34 | 67 | 64 | 56 | 49 | 45 | 41 | 41 | 36 | |

Flow meter

FMU



Dimensions



Description

Applications

The meter is suitable both for setting up and for continuous flow measurement. It is intended for permanent installation and must therefore be specified at the design stage.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Design

The meter consists of two reductions joined together, with measurement nozzles. Each nozzle has a removable plastic plug which prevents dirt from entering. It also eliminates air leakage when measurement is not done.

The unit permits insulation of up to 100 mm thickness to be installed without concealing the measurement nozzles or label plate. The plate can be rotated for best legibility, irrespective of the way the fitting is installed and can easily be removed, to be located away from the unit.

Flow meters with reductions of two dimension steps can be obtained, to give higher reading pressure in the measurement nozzles. This entails higher pressure drop and noise generation, however.

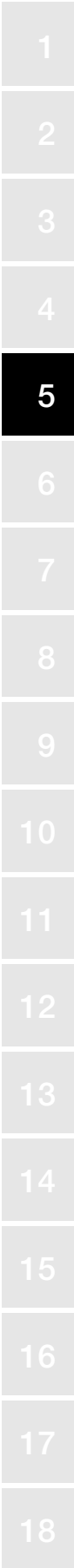
| Ød ₁ nom | Ød _i nom | l mm | m kg |
|------------------------|------------------------|---------|---------|
| 80 | 63 | 110 | 0,33 |
| 100 | 80 | 120 | 0,42 |
| 125 | 100 | 111 | 0,48 |
| 160 | 125 | 123 | 0,62 |
| 200 | 160 | 129 | 0,83 |
| 250 | 200 | 131 | 1,15 |
| 315 | 250 | 195 | 1,81 |
| 400 | 315 | 206 | 2,60 |
| 500 | 400 | 275 | 3,92 |
| 630 | 500 | 355 | 6,38 |

Advantages

- Has low pressure drop due to good aerodynamic design.
- Has low noise generation due to good aerodynamic design.
- Does not obstruct duct cleaning.
- Suitable for use with insulation.

Ordering example

| | | | |
|---------------------------|-----|-----|-----|
| Product | FMU | 160 | 125 |
| Dimension Ød ₁ | | | |
| Dimension Ød _i | | | |



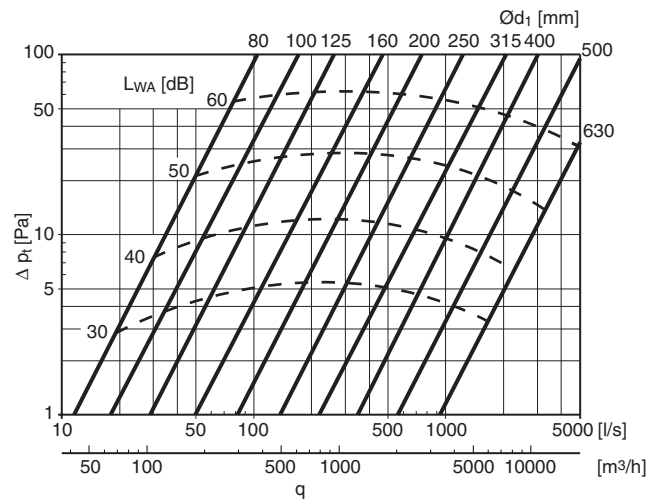
Flow meter

FMU

Technical data

Pressure drop graph with sound data for dimensioning

The solid lines give the pressure drop, Δp , as a function of flow, q . The dashed lines give the A-weighted sound power data, L_{WA} , in dB to the duct. Flow data for balancing differ from this graph.

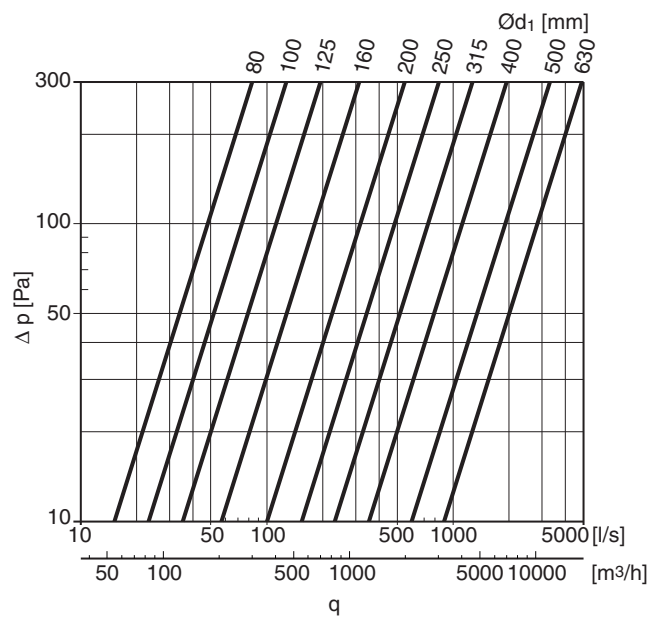


Sound

Sound generation has been measured at the Swedish National Testing and Research Institute in reverberation room, in accordance with ISO 5135 and ISO 3741.

Flow graph for balancing

The curves show the flow, q , as a function of the pressure difference in the measurement nozzles. Flow data for dimensioning differ from this graph.

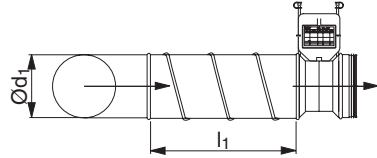
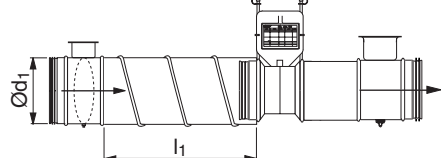


Measurement function

By measuring the pressure difference, Δp , between the measurement nozzles, you can derive the flow in the duct by means of the equation on the units plate.

Measurement accuracy

If the velocity profile is asymmetric, the measurement values can differ from the ideal values. For this reason, the flow meter should never be located right up to any flow disturbance. The method error in the table below will differ, depending on the distance to the flow disturbance.

| l_1 = straight distance before meter | Method error m_2 | |
|--|--------------------|------------------|
| Type of disturbance | 5% | 10% |
| A 90° bend | | |
|  | 2·d ₁ | 1·d ₁ |
| A rotary damper (45°). Shaft in line with measurement nozzles | | |
|  | 4·d ₁ | 3·d ₁ |
| l_2 = straight distance after meter | 1·d ₁ | 1·d ₁ |

Flow meter

FMU

Sound generation

| dim Ød ₁ | Velocity app. 5 [m/s] | | | | | | | | Velocity app. 10 [m/s] | | | | | | | | Velocity app. 15 [m/s] | | | | | | | |
|------------------------|-----------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|------------------------|-----|-----|-----|----|----|----|----|
| | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | | Centre frequency [Hz] | | | | | | | |
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 80 | Flow 25 [l/s] | | | | | | | | Flow 50 [l/s] | | | | | | | | Flow 75 [l/s] | | | | | | | |
| | 49 | 45 | 42 | 33 | 22 | 14 | 11 | 11 | 54 | 56 | 56 | 51 | 42 | 34 | 29 | 21 | 68 | 62 | 61 | 59 | 54 | 44 | 41 | 34 |
| 100 | Flow 40 [l/s] | | | | | | | | Flow 80 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | |
| | 50 | 45 | 39 | 30 | 18 | 6 | 2 | 7 | 51 | 59 | 54 | 48 | 38 | 30 | 22 | 16 | 60 | 64 | 62 | 59 | 50 | 43 | 38 | 34 |
| 125 | Flow 60 [l/s] | | | | | | | | Flow 120 [l/s] | | | | | | | | Flow 180 [l/s] | | | | | | | |
| | 45 | 40 | 33 | 24 | 11 | 1 | 1 | 8 | 53 | 55 | 50 | 42 | 34 | 26 | 21 | 16 | 61 | 62 | 61 | 53 | 45 | 38 | 35 | 33 |
| 160 | Flow 100 [l/s] | | | | | | | | Flow 200 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | |
| | 41 | 39 | 31 | 24 | 13 | 0 | 0 | 3 | 58 | 54 | 50 | 42 | 34 | 27 | 19 | 15 | 66 | 64 | 61 | 52 | 46 | 41 | 35 | 31 |
| 200 | Flow 150 [l/s] | | | | | | | | Flow 300 [l/s] | | | | | | | | Flow 450 [l/s] | | | | | | | |
| | 41 | 36 | 32 | 23 | 7 | 0 | 0 | 4 | 55 | 52 | 47 | 39 | 30 | 27 | 20 | 17 | 64 | 62 | 58 | 48 | 42 | 38 | 34 | 31 |
| 250 | Flow 250 [l/s] | | | | | | | | Flow 500 [l/s] | | | | | | | | Flow 750 [l/s] | | | | | | | |
| | 44 | 37 | 31 | 22 | 17 | 15 | 17 | 17 | 64 | 53 | 48 | 39 | 28 | 27 | 26 | 22 | 72 | 64 | 58 | 49 | 44 | 40 | 39 | 29 |
| 315 | Flow 400 [l/s] | | | | | | | | Flow 800 [l/s] | | | | | | | | Flow 1200 [l/s] | | | | | | | |
| | 51 | 35 | 29 | 19 | 14 | 10 | 5 | 6 | 64 | 55 | 46 | 38 | 34 | 31 | 32 | 28 | 72 | 65 | 57 | 48 | 45 | 42 | 42 | 41 |
| 400 | Flow 600 [l/s] | | | | | | | | Flow 1200 [l/s] | | | | | | | | Flow 1800 [l/s] | | | | | | | |
| | 46 | 37 | 30 | 22 | 19 | 14 | 9 | 7 | 64 | 58 | 47 | 41 | 40 | 40 | 37 | 30 | 75 | 69 | 59 | 53 | 51 | 52 | 51 | 46 |
| 500 | Flow 1000 [l/s] | | | | | | | | Flow 2000 [l/s] | | | | | | | | Flow 3000 [l/s] | | | | | | | |
| | 54 | 40 | 29 | 24 | 22 | 15 | 8 | 5 | 64 | 58 | 47 | 41 | 40 | 40 | 37 | 30 | 75 | 69 | 59 | 53 | 51 | 52 | 51 | 46 |
| 630 | Flow 1500 [l/s] | | | | | | | | Flow 3000 [l/s] | | | | | | | | Flow 4500 [l/s] | | | | | | | |
| | 53 | 43 | 32 | 28 | 25 | 19 | 14 | 10 | 68 | 61 | 50 | 44 | 43 | 45 | 42 | 35 | 78 | 73 | 62 | 56 | 54 | 58 | 57 | 48 |

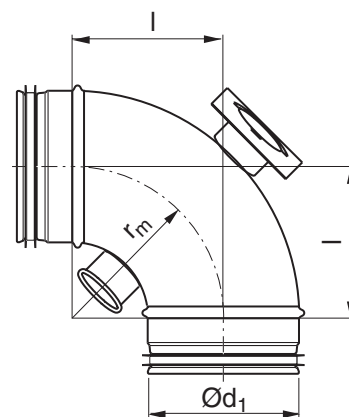
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Measuring bend

MBU



Dimensions



$$r_m \approx 1 \cdot d_1$$

| Ød ₁ nom | l mm | m kg |
|------------------------|---------|---------|
| 100 | 100 | 0,40 |
| 125 | 125 | 0,60 |
| 160 | 160 | 1,02 |
| 200 | 200 | 1,23 |
| 250 | 250 | 1,74 |

Description

Applications

The measuring bend is suitable both for balancing and for continuous flow measurement. It is intended for permanent installation and must therefore be specified at the design stage. The measuring bend is a good choice, since bends are normally used in all installations.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Design

The measuring bend consists of a pressed and seam welded 90° Safe bend with measurement nozzles on the inner and outer radii. The nozzles are asymmetrically located on the centreline, for manufacturing reasons. Each nozzle has a removable plastic plug which prevents dirt from entering. It also eliminates air leakage when measurement is not done.

The unit allows insulation of up to 50 mm thickness to be installed without concealing the measurement nozzle or the label plate. The plate can be rotated for best legibility, irrespective of the way the unit is installed and can easily be removed, to be located away from the unit. If thicker insulation is needed, add the insulation cup IK to the standard cup.

Thanks to the robust design of the standard cup, the measurement nozzles are securely protected both before and after installation.

Advantages

- Has a double function – both as bend and as flow meter.
- Does not increase pressure drop, compared with a standard Safe bend.
- Does not cause any noise, due to projecting components in the duct.
- Does not obstruct duct cleaning.

Ordering example

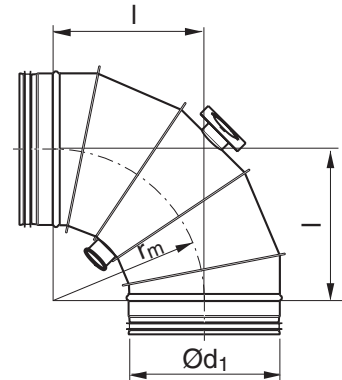
| | | | |
|---------------------------|------------|------------|-----------|
| | MBU | 250 | 90 |
| Product | | | |
| Dimension Ød ₁ | | | |
| Angle α | | | |

Measuring bend

MBFU



Dimensions



$$r_m \approx 0,9 \cdot d_1$$

| Ød ₁ nom | l mm | m kg |
|------------------------|---------|---------|
| 315 | 300 | 3,18 |
| 400 | 360 | 5,82 |
| 500 | 454 | 8,38 |
| 630 | 566 | 13,1 |

Description

Applications

The measuring bend is suitable both for balancing and for continuous flow measurement. It is intended for permanent installation and must therefore be specified at the design stage. The measuring bend is a good choice, since bends are normally used in all installations.

There is a separate assembly, measuring, balancing and maintenance instruction for this product.

Design

The measuring bend consists of a segmented and lock-seamed 90° Safe bend with measuring nozzles on the inner and outer radii. The nozzles are asymmetrically located on the centreline, for manufacturing reasons. Each nozzle has a removable plastic plug which prevents dirt from entering. It also eliminates air leakage when measurement is not done.

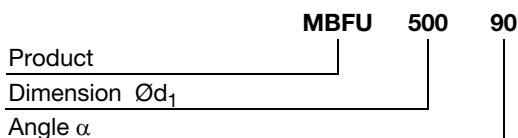
The unit allows insulation of up to 50 mm thickness to be installed without concealing the measurement nozzle or the label plate. The plate can be rotated for best legibility, irrespective of the way the unit is installed and can easily be removed, to be located away from the unit. If thicker insulation is needed, add the insulation cup IK to the standard cup.

Thanks to the robust design of the standard cup, the measurement nozzles are securely protected both before and after installation.

Advantages

- Has a double function – both as a bend and as a meter.
- Does not increase pressure drop, compared with a standard Safe bend.
- Does not cause any noise, due to projecting components in the duct.
- Does not obstruct duct cleaning.

Ordering example



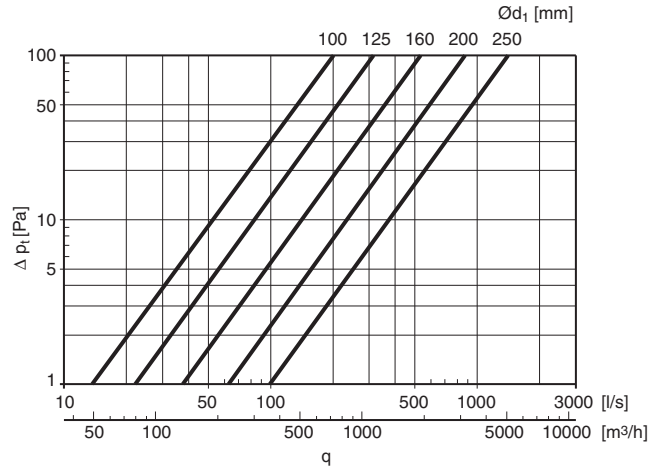
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Measuring bends

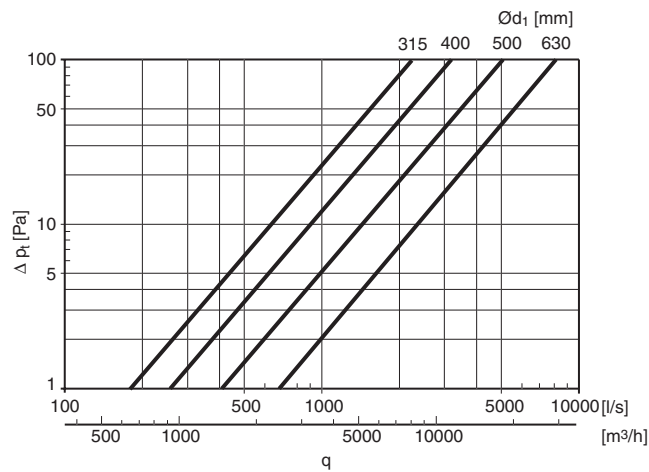
MBU, MBFU

Technical data

Pressure drop graph for dimensioning of MBU

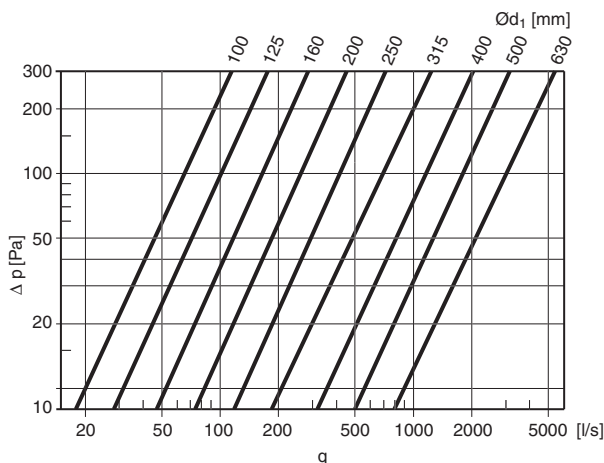


Pressure drop graph for dimensioning of MBFU



Flow graph for balancing

The curves show the flow, q , as a function of the pressure difference in the measurement nipples. Flow data for dimensioning differ from this graph



Measurement function

By measuring the pressure difference, Δp , between the inner and outer bend radii, you can derive the flow in the duct by means of the equation on the units plate.

Measurement accuracy

If the velocity profile is asymmetric, the measurement values can differ from the ideal values. For this reason, the measuring bend should never be located right up to any flow disturbance. The method error, as shown in the table below will differ, depending on the distance to the flow disturbance.

| l_1 = straight distance before measuring bends. Type of disturbance | Method error m_2 | |
|--|--------------------|------------|
| | 5% | 10% |
| <p>A 90° bend</p> | 8,5· d_1 | 4,5· d_1 |
| <p>A rotary damper (45°). Shaft in line with the measurement nozzles</p> | 9,0· d_1 | 6,0· d_1 |
| l_2 = straight distance after measuring bend | 2· d_1 | 2· d_1 |

Accessories

IK



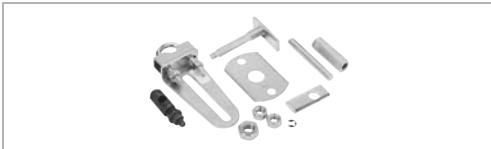
DRHTG



HANDLE



MSATS 31, MSATS 41



VREDF 15 60, VREDF 15 100



AXFL



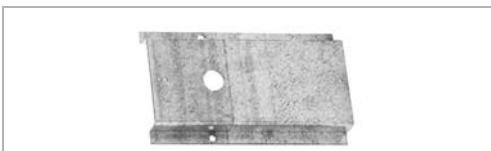
KOMHY



KOMHY LONG

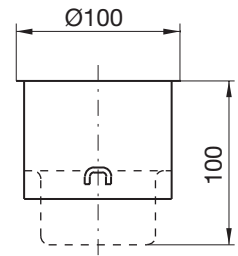


LÖMOK



Insulation cup IK

If the insulation is thicker than 50 mm, there is a risk that the insulation will cover the knob cup and make it difficult to find or use. The insulation cup allows about 100 mm of insulation to be used at the same time as it gives good access to the damper knob. It is quick and easy to fit - just snap it over the edge of the cup. It fits all Lindab dampers with cup, both circular and rectangular.



Handle DRHTG

Strong handle to facilitate setting. Suits all manual dampers.

Handle HANDLE

Handle suitable for damper with motor shelves DTHU, DTH1U and DTH2U – without motor. Can be used for temporary setting/locking of the damper blade before the motor is mounted or as a permanent alternative to the motor.

Can be set stepless 0–90°. Fits axle 8×8 mm.

Is advisably fixed with one or two sheet metal screws/rivets.

Assembly kit MSATS AK 31

Kit for installing a Sauter AK 31 P pneumatic actuator. The kit contains all components needed.

Assembly kit MSATS AK 41

Kit for installing a Sauter AK 41 P pneumatic actuator. The kit contains all components needed.

Extension spindle VREDF 15 60

With a 60 mm long Ø 15 mm spindle. Used for motorizing standard dampers. Fixes to the knob with 2 self-tapping screws.

Extension spindle VREDF 15 100

With a 100 mm long Ø 15 mm spindle. Used for motorizing standard dampers. Fixes to the knob with 2 self-tapping screws.

Extension spindle AXFL

A 55 mm long Ø 15 mm spindle. Used for motorizing standard dampers. Fixes to the spindle with a locking screw.

Installation shelf KOMHY

Hooks to the edge of the cup and blind rivets to the damper body.

Installation shelf KOMHY LONG

Hooks to the edge of the cup and blind rivets to the damper body.

Installation shelf LÖMOK

Fixes to the edge of the cup with sheet metal screws.