

komfovent



VARIABLE AIR VOLUME DAMPERS



Precise air
volume control by
demand

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Description

VARIABLE AIR VOLUME DAMPER

- Suitable for the control of air volume flow rate, room pressure, or duct pressure.
- Dynamic or Static differential pressure measurement principle available.
- Effective flow measurement design to ensure the highest precision of readings.
- Available circular dimensions: Ø100-630 mm.
- Available rectangular dimensions: 200×100 to 1000×1000 mm, step 100 mm.
- Airflow speed measurement from 0.3 m/sec.
- Closed blade air leakage class up to 3 (on request class 4) according to EN 1751.
- Casing air leakage class up to C according to EN 1751.
- Controller preset in-factory.
- Belimo or Siemens actuators available.
- Analog, MP-bus, Modbus, BACnet, and KNX communication protocols.
- Simple adjustment of settings with ZTH or PC tool for Belimo, AST20, ACS931/ACS941 for Siemens actuators.
- An insulated model is available for sound attenuation through the case.
- Different duct & room sensors and controllers are available as accessories: CO₂, T, RH, VOC, etc.
- Various scenarios for different VAV dampers' application are available.



Circular air volume regulation damper KOS-C



Rectangular air volume regulation damper KOS-R

KOS-C and KOS-R is an air flow regulator for variable air volume (VAV) regulation in duct systems. Damper consists of blade, measuring unit and controller. Damper is fitted with a differential pressure sensors for measuring the volume flow rate. The flow regulation can be controlled from room controller or BMS system.

The VAV damper from KOMFOVENT has a unique solution. The measuring pressure tubes inside of the damper are of a unique shape that provides the best results and accurate flow measurement also on lower airflow speeds according to the study and research made. For circular VAV damper, KOS-C, recommended minimal airflow is 0.7 m/s with laboratory tested deviation up to 9 %, however for air velocities from 1 m/s to 10 m/s guaranteed deviation doesn't exceed 5 %. It's one of the best air velocity measurement precessions in HVAC industry.

Rectangular VAV dampers KOS-R air velocity range starts from 0.8 m/s with a maximal deviation of 10 %.

The damper controller can provide the variable air flow mode where the air flow is regulated in between the values V_{min} and V_{max} . Also the damper controller can provide mode where air flow is kept constant using parameters V_{min} , V_{max} , Open or Closed. The damper can work as a room or duct pressure regulator where volumetric flows are regulated in a range between V_{min} and V_{max} depending on the function of supply air which can be controlled with room or other controller.

The setpoints for V_{min} and V_{max} are preset in factory but can also be readjusted afterwards. Easy adjustments of VAV damper operating values can be made with ZTH service tool and adjustment tool app.

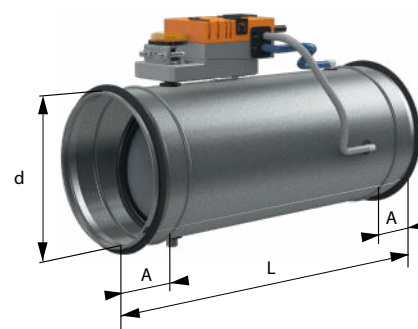
Appropriate air filters must be installed where high air dust pollution is possible as the contamination can negatively impact measurement accuracy.

Size and dimensions

KOS-C damper is available in 12 different sizes.

KOS-C DAMPER

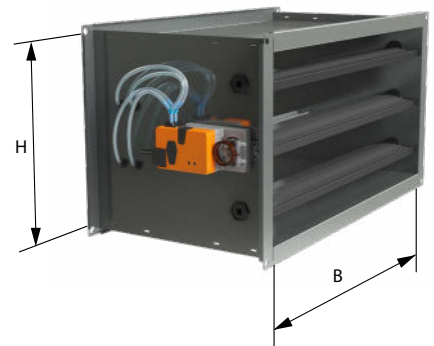
Circular dampers KOS-C available in 12 dimensions: Ø 100-630 mm.



| d, mm | M, kg | L, mm | A, mm | V _{min} | | | | | | V _{max} range | | | | | |
|----------|----------|----------|----------|------------------------------------|-----------|-----------|--------------------------------|-----------|-----------|---|-----------|-----------|---|-----------|-----------|
| | | | | Belimo BMF..., BMP..., BMD..., BKX | | | Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | |
| | | | | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s |
| 100 | 1,3 | 390 | 40 | 20 | 5 | 0,7 | 8 | 2 | 0,3 | 34 | 9 | 1,2 | 367 | 102 | 13 |
| 125 | 1,5 | 390 | 40 | 31 | 9 | 0,7 | 13 | 4 | 0,3 | 53 | 15 | 1,2 | 574 | 159 | 13 |
| 160 | 1,8 | 390 | 40 | 51 | 14 | 0,7 | 22 | 6 | 0,3 | 87 | 24 | 1,2 | 940 | 261 | 13 |
| 200 | 2,2 | 390 | 40 | 79 | 22 | 0,7 | 34 | 9 | 0,3 | 136 | 38 | 1,2 | 1470 | 408 | 13 |
| 250 | 3,5 | 592 | 40 | 124 | 34 | 0,7 | 53 | 15 | 0,3 | 212 | 59 | 1,2 | 2296 | 638 | 13 |
| 315 | 4,5 | 592 | 40 | 196 | 55 | 0,7 | 84 | 23 | 0,3 | 336 | 93 | 1,2 | 3645 | 1013 | 13 |
| 355 | 8,8 | 600 | 65 | 249 | 69 | 0,7 | 107 | 30 | 0,3 | 427 | 119 | 1,2 | 4630 | 1286 | 13 |
| 400 | 10 | 600 | 65 | 317 | 88 | 0,7 | 136 | 38 | 0,3 | 543 | 151 | 1,2 | 5878 | 1633 | 13 |
| 450 | 12,3 | 675 | 65 | 401 | 111 | 0,7 | 172 | 48 | 0,3 | 687 | 191 | 1,2 | 7439 | 2067 | 13 |
| 500 | 15 | 750 | 65 | 495 | 137 | 0,7 | 212 | 59 | 0,3 | 848 | 236 | 1,2 | 9185 | 2551 | 13 |
| 560 | 20,8 | 791 | 65 | 620 | 172 | 0,7 | 266 | 74 | 0,3 | 1063 | 295 | 1,2 | 11521 | 3200 | 13 |
| 630 | 27,5 | 791 | 65 | 785 | 218 | 0,7 | 336 | 93 | 0,3 | 1346 | 374 | 1,2 | 14581 | 4050 | 13 |

KOS-R DAMPER

Available dimensions of rectangular dampers KOS-R: from 200×100 to 1000×1000 mm, when the size of the “step” is 100 mm.



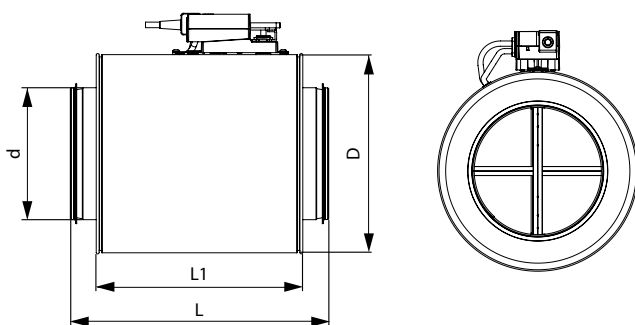
| B, mm | H, mm | M, kg | V_{min} | | | | | | V_{max} range | | | | | |
|----------|----------|----------|---------------------------------------|--------------|------------|-----------------------------------|--------------|------------|---|--------------|------------|---|--------------|------------|
| | | | Belimo BMF..., BMP..., BMD..., BKX | | | Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | |
| | | | Q_v m ³ /h | Q_v l/s | v m/s | Q_v m ³ /h | Q_v l/s | v m/s | Q_v m ³ /h | Q_v l/s | v m/s | Q_v m ³ /h | Q_v l/s | v m/s |
| 200 | 100 | 3,3 | 58 | 16 | 0,8 | 58 | 16 | 0,8 | 86 | 24 | 1,2 | 936 | 260 | 13 |
| 300 | 100 | 4,5 | 86 | 24 | 0,8 | 86 | 24 | 0,8 | 130 | 36 | 1,2 | 1404 | 390 | 13 |
| 400 | 100 | 5,3 | 115 | 32 | 0,8 | 115 | 32 | 0,8 | 173 | 48 | 1,2 | 1872 | 520 | 13 |
| 200 | 200 | 4,1 | 115 | 32 | 0,8 | 115 | 32 | 0,8 | 173 | 48 | 1,2 | 1872 | 520 | 13 |
| 300 | 200 | 5,1 | 173 | 48 | 0,8 | 173 | 48 | 0,8 | 259 | 72 | 1,2 | 2808 | 780 | 13 |
| 400 | 200 | 6 | 230 | 64 | 0,8 | 230 | 64 | 0,8 | 346 | 96 | 1,2 | 3744 | 1040 | 13 |
| 500 | 200 | 7,3 | 288 | 80 | 0,8 | 288 | 80 | 0,8 | 432 | 120 | 1,2 | 4680 | 1300 | 13 |
| 600 | 200 | 8,1 | 346 | 96 | 0,8 | 346 | 96 | 0,8 | 518 | 144 | 1,2 | 5616 | 1560 | 13 |
| 300 | 300 | 6,5 | 259 | 72 | 0,8 | 259 | 72 | 0,8 | 389 | 108 | 1,2 | 4212 | 1170 | 13 |
| 400 | 300 | 7,4 | 346 | 96 | 0,8 | 346 | 96 | 0,8 | 518 | 144 | 1,2 | 5616 | 1560 | 13 |
| 500 | 300 | 8,4 | 432 | 120 | 0,8 | 432 | 120 | 0,8 | 648 | 180 | 1,2 | 7020 | 1950 | 13 |
| 600 | 300 | 9,4 | 518 | 144 | 0,8 | 518 | 144 | 0,8 | 778 | 216 | 1,2 | 8424 | 2340 | 13 |
| 700 | 300 | 10 | 605 | 168 | 0,8 | 605 | 168 | 0,8 | 907 | 252 | 1,2 | 9828 | 2730 | 13 |
| 800 | 300 | 11 | 691 | 192 | 0,8 | 691 | 192 | 0,8 | 1037 | 288 | 1,2 | 11232 | 3120 | 13 |
| 900 | 300 | 12 | 778 | 216 | 0,8 | 778 | 216 | 0,8 | 1166 | 324 | 1,2 | 12636 | 3510 | 13 |
| 1000 | 300 | 13,3 | 864 | 240 | 0,8 | 864 | 240 | 0,8 | 1296 | 360 | 1,2 | 14040 | 3900 | 13 |
| 400 | 400 | 8,5 | 461 | 128 | 0,8 | 461 | 128 | 0,8 | 691 | 192 | 1,2 | 7488 | 2080 | 13 |
| 500 | 400 | 9,5 | 576 | 160 | 0,8 | 576 | 160 | 0,8 | 864 | 240 | 1,2 | 9360 | 2600 | 13 |
| 600 | 400 | 11 | 691 | 192 | 0,8 | 691 | 192 | 0,8 | 1037 | 288 | 1,2 | 11232 | 3120 | 13 |
| 700 | 400 | 12 | 806 | 224 | 0,8 | 806 | 224 | 0,8 | 1210 | 336 | 1,2 | 13104 | 3640 | 13 |
| 800 | 400 | 13 | 922 | 256 | 0,8 | 922 | 256 | 0,8 | 1382 | 384 | 1,2 | 14976 | 4160 | 13 |
| 900 | 400 | 14 | 1037 | 288 | 0,8 | 1037 | 288 | 0,8 | 1555 | 432 | 1,2 | 16848 | 4680 | 13 |
| 1000 | 400 | 14,8 | 1152 | 320 | 0,8 | 1152 | 320 | 0,8 | 1728 | 480 | 1,2 | 18720 | 5200 | 13 |

| B, mm | H, mm | M, kg | V _{min} | | | | | | V _{max} range | | | | | |
|----------|----------|----------|---------------------------------------|-----------|-----------|-----------------------------------|-----------|-----------|---|-----------|-----------|---|-----------|-----------|
| | | | Belimo BMF..., BMP..., BMD..., BKX | | | Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | |
| | | | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s |
| 500 | 500 | 11 | 720 | 200 | 0,8 | 720 | 200 | 0,8 | 1080 | 300 | 1,2 | 11700 | 3250 | 13 |
| 600 | 500 | 12 | 864 | 240 | 0,8 | 864 | 240 | 0,8 | 1296 | 360 | 1,2 | 14040 | 3900 | 13 |
| 700 | 500 | 13 | 1008 | 280 | 0,8 | 1008 | 280 | 0,8 | 1512 | 420 | 1,2 | 16380 | 4550 | 13 |
| 800 | 500 | 14 | 1152 | 320 | 0,8 | 1152 | 320 | 0,8 | 1728 | 480 | 1,2 | 18720 | 5200 | 13 |
| 900 | 500 | 15 | 1296 | 360 | 0,8 | 1296 | 360 | 0,8 | 1944 | 540 | 1,2 | 21060 | 5850 | 13 |
| 1000 | 500 | 16,4 | 1440 | 400 | 0,8 | 1440 | 400 | 0,8 | 2160 | 600 | 1,2 | 23400 | 6500 | 13 |
| 600 | 600 | 13 | 1037 | 288 | 0,8 | 1037 | 288 | 0,8 | 1555 | 432 | 1,2 | 16848 | 4680 | 13 |
| 700 | 600 | 14 | 1210 | 336 | 0,8 | 1210 | 336 | 0,8 | 1814 | 504 | 1,2 | 19656 | 5460 | 13 |
| 800 | 600 | 16 | 1382 | 384 | 0,8 | 1382 | 384 | 0,8 | 2074 | 576 | 1,2 | 22464 | 6240 | 13 |
| 900 | 600 | 17 | 1555 | 432 | 0,8 | 1555 | 432 | 0,8 | 2333 | 648 | 1,2 | 25272 | 7020 | 13 |
| 1000 | 600 | 17,9 | 1728 | 480 | 0,8 | 1728 | 480 | 0,8 | 2592 | 720 | 1,2 | 28080 | 7800 | 13 |
| 700 | 700 | 14 | 1411 | 392 | 0,8 | 1411 | 392 | 0,8 | 2117 | 588 | 1,2 | 22932 | 6370 | 13 |
| 800 | 700 | 17 | 1613 | 448 | 0,8 | 1613 | 448 | 0,8 | 2419 | 672 | 1,2 | 26208 | 7280 | 13 |
| 900 | 700 | 18 | 1814 | 504 | 0,8 | 1814 | 504 | 0,8 | 2722 | 756 | 1,2 | 29484 | 8190 | 13 |
| 1000 | 700 | 19,5 | 2016 | 560 | 0,8 | 2016 | 560 | 0,8 | 3024 | 840 | 1,2 | 32760 | 9100 | 13 |
| 800 | 800 | 18 | 1843 | 512 | 0,8 | 1843 | 512 | 0,8 | 2765 | 768 | 1,2 | 29952 | 8320 | 13 |
| 900 | 800 | 20 | 2074 | 576 | 0,8 | 2074 | 576 | 0,8 | 3110 | 864 | 1,2 | 33696 | 9360 | 13 |
| 1000 | 800 | 21,1 | 2304 | 640 | 0,8 | 2304 | 640 | 0,8 | 3456 | 960 | 1,2 | 37440 | 10400 | 13 |
| 900 | 900 | 21 | 2333 | 648 | 0,8 | 2333 | 648 | 0,8 | 3499 | 972 | 1,2 | 37908 | 10530 | 13 |
| 1000 | 900 | 22,6 | 2592 | 720 | 0,8 | 2592 | 720 | 0,8 | 3888 | 1080 | 1,2 | 42120 | 11700 | 13 |
| 1000 | 1000 | 24,2 | 2880 | 800 | 0,8 | 2880 | 800 | 0,8 | 4320 | 1200 | 1,2 | 46800 | 13000 | 13 |

KOS-C-I DAMPER

An insulated damper version KOS-C-I is available to reduce the possible radiated noise through the case.

The insulation is made from 50 mm thick mineral wool ISOVER KT-40 that is covered with a metal sheet made from zinc coated galvanized steel. ISOVER KT-40 fire resistance is classified as A1 in accordance with EN 13501.

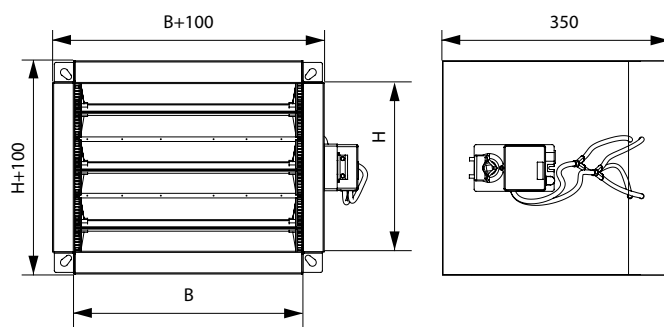


| d, mm | D, mm | M, kg | L, mm | L1, mm | V_{min} | | | | | | V_{max} range | | | | | |
|----------|----------|----------|----------|-----------|---------------------------------------|-----------|-----------|-----------------------------------|-----------|-----------|---|-----------|-----------|---|-----------|-----------|
| | | | | | Belimo BMF..., BMP..., BMD..., BKX | | | Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | |
| | | | | | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s |
| 100 | 199 | 1,3 | 390 | 312 | 20 | 5 | 0,7 | 8 | 2 | 0,3 | 34 | 9 | 1,2 | 367 | 102 | 13 |
| 125 | 224 | 1,5 | 390 | 312 | 31 | 9 | 0,7 | 13 | 4 | 0,3 | 53 | 15 | 1,2 | 574 | 159 | 13 |
| 160 | 259 | 1,8 | 390 | 312 | 51 | 14 | 0,7 | 22 | 6 | 0,3 | 87 | 24 | 1,2 | 940 | 261 | 13 |
| 200 | 299 | 2,2 | 390 | 312 | 79 | 22 | 0,7 | 34 | 9 | 0,3 | 136 | 38 | 1,2 | 1470 | 408 | 13 |
| 250 | 349 | 3,5 | 592 | 514 | 124 | 34 | 0,7 | 53 | 15 | 0,3 | 212 | 59 | 1,2 | 2296 | 638 | 13 |
| 315 | 414 | 4,5 | 592 | 514 | 196 | 55 | 0,7 | 84 | 23 | 0,3 | 336 | 93 | 1,2 | 3645 | 1013 | 13 |
| 355 | 453 | 8,8 | 600 | 480 | 249 | 69 | 0,7 | 107 | 30 | 0,3 | 427 | 119 | 1,2 | 4630 | 1286 | 13 |
| 400 | 498 | 10 | 600 | 480 | 317 | 88 | 0,7 | 136 | 38 | 0,3 | 543 | 151 | 1,2 | 5878 | 1633 | 13 |
| 450 | 548 | 12,3 | 675 | 555 | 401 | 111 | 0,7 | 172 | 48 | 0,3 | 687 | 191 | 1,2 | 7439 | 2067 | 13 |
| 500 | 598 | 15 | 750 | 630 | 495 | 137 | 0,7 | 212 | 59 | 0,3 | 848 | 236 | 1,2 | 9185 | 2551 | 13 |
| 560 | 658 | 20,8 | 791 | 671 | 620 | 172 | 0,7 | 266 | 74 | 0,3 | 1063 | 295 | 1,2 | 11521 | 3200 | 13 |
| 630 | 729 | 27,5 | 791 | 671 | 785 | 218 | 0,7 | 336 | 93 | 0,3 | 1346 | 374 | 1,2 | 14581 | 4050 | 13 |

There is an option to order the insulated version with outer casing made from stainless steel. KOS-C-I has the following sound insulating capacity R, dBA for required frequency:

| Frequency, Hz | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---------------|----|-----|-----|-----|------|------|------|------|
| dB(A) | 7 | 7 | 14 | 21 | 25 | 28 | 28 | 25 |

KOS-R-I DAMPER



| B, mm | H, mm | M, kg | V_{min} | | | | | | V_{max} range | | | | | |
|----------|----------|----------|---------------------------------------|--------------|--------------|-----------------------------------|--------------|--------------|---|--------------|--------------|---|--------------|--------------|
| | | | Belimo BMF..., BMP..., BMD..., BKX | | | Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | |
| | | | Q , m ³ /h | Q , l/s | v , m/s | Q , m ³ /h | Q , l/s | v , m/s | Q , m ³ /h | Q , l/s | v , m/s | Q , m ³ /h | Q , l/s | v , m/s |
| 200 | 100 | 6,5 | 58 | 16 | 0,8 | 58 | 16 | 0,8 | 86 | 24 | 1,2 | 936 | 260 | 13 |
| 300 | 100 | 7,9 | 86 | 24 | 0,8 | 86 | 24 | 0,8 | 130 | 36 | 1,2 | 1404 | 390 | 13 |
| 400 | 100 | 9,3 | 115 | 32 | 0,8 | 115 | 32 | 0,8 | 173 | 48 | 1,2 | 1872 | 520 | 13 |
| 200 | 200 | 8,0 | 115 | 32 | 0,8 | 115 | 32 | 0,8 | 173 | 48 | 1,2 | 1872 | 520 | 13 |
| 300 | 200 | 9,5 | 173 | 48 | 0,8 | 173 | 48 | 0,8 | 259 | 72 | 1,2 | 2808 | 780 | 13 |
| 400 | 200 | 11,0 | 230 | 64 | 0,8 | 230 | 64 | 0,8 | 346 | 96 | 1,2 | 3744 | 1040 | 13 |
| 500 | 200 | 13,0 | 288 | 80 | 0,8 | 288 | 80 | 0,8 | 432 | 120 | 1,2 | 4680 | 1300 | 13 |
| 600 | 200 | 14,0 | 346 | 96 | 0,8 | 346 | 96 | 0,8 | 518 | 144 | 1,2 | 5616 | 1560 | 13 |
| 300 | 300 | 11,0 | 259 | 72 | 0,8 | 259 | 72 | 0,8 | 389 | 108 | 1,2 | 4212 | 1170 | 13 |
| 400 | 300 | 13,0 | 346 | 96 | 0,8 | 346 | 96 | 0,8 | 518 | 144 | 1,2 | 5616 | 1560 | 13 |
| 500 | 300 | 14,0 | 432 | 120 | 0,8 | 432 | 120 | 0,8 | 648 | 180 | 1,2 | 7020 | 1950 | 13 |
| 600 | 300 | 16,0 | 518 | 144 | 0,8 | 518 | 144 | 0,8 | 778 | 216 | 1,2 | 8424 | 2340 | 13 |
| 700 | 300 | 17,0 | 605 | 168 | 0,8 | 605 | 168 | 0,8 | 907 | 252 | 1,2 | 9828 | 2730 | 13 |
| 800 | 300 | 19,0 | 691 | 192 | 0,8 | 691 | 192 | 0,8 | 1037 | 288 | 1,2 | 11232 | 3120 | 13 |
| 900 | 300 | 21,0 | 778 | 216 | 0,8 | 778 | 216 | 0,8 | 1166 | 324 | 1,2 | 12636 | 3510 | 13 |
| 1000 | 300 | 22,2 | 864 | 240 | 0,8 | 864 | 240 | 0,8 | 1296 | 360 | 1,2 | 14040 | 3900 | 13 |
| 400 | 400 | 14,0 | 461 | 128 | 0,8 | 461 | 128 | 0,8 | 691 | 192 | 1,2 | 7488 | 2080 | 13 |
| 500 | 400 | 16,0 | 576 | 160 | 0,8 | 576 | 160 | 0,8 | 864 | 240 | 1,2 | 9360 | 2600 | 13 |
| 600 | 400 | 18,0 | 691 | 192 | 0,8 | 691 | 192 | 0,8 | 1037 | 288 | 1,2 | 11232 | 3120 | 13 |
| 700 | 400 | 19,0 | 806 | 224 | 0,8 | 806 | 224 | 0,8 | 1210 | 336 | 1,2 | 13104 | 3640 | 13 |
| 800 | 400 | 21,0 | 922 | 256 | 0,8 | 922 | 256 | 0,8 | 1382 | 384 | 1,2 | 14976 | 4160 | 13 |
| 900 | 400 | 23,0 | 1037 | 288 | 0,8 | 1037 | 288 | 0,8 | 1555 | 432 | 1,2 | 16848 | 4680 | 13 |
| 1000 | 400 | 24,3 | 1152 | 320 | 0,8 | 1152 | 320 | 0,8 | 1728 | 480 | 1,2 | 18720 | 5200 | 13 |

| B, mm | H, mm | M, kg | V _{min} | | | | | | V _{max} range | | | | | |
|----------|----------|----------|---------------------------------------|-----------|-----------|-----------------------------------|-----------|-----------|---|-----------|-----------|---|-----------|-----------|
| | | | Belimo BMF..., BMP..., BMD..., BKX | | | Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | | Belimo BMF..., BMP..., BMD..., BKX / Siemens SMF..., SMD..., SKX... | | |
| | | | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s | Q, m ³ /h | Q, l/s | v, m/s |
| 500 | 500 | 18,0 | 720 | 200 | 0,8 | 720 | 200 | 0,8 | 1080 | 300 | 1,2 | 11700 | 3250 | 13 |
| 600 | 500 | 19,0 | 864 | 240 | 0,8 | 864 | 240 | 0,8 | 1296 | 360 | 1,2 | 14040 | 3900 | 13 |
| 700 | 500 | 21,0 | 1008 | 280 | 0,8 | 1008 | 280 | 0,8 | 1512 | 420 | 1,2 | 16380 | 4550 | 13 |
| 800 | 500 | 23,0 | 1152 | 320 | 0,8 | 1152 | 320 | 0,8 | 1728 | 480 | 1,2 | 18720 | 5200 | 13 |
| 900 | 500 | 25,0 | 1296 | 360 | 0,8 | 1296 | 360 | 0,8 | 1944 | 540 | 1,2 | 21060 | 5850 | 13 |
| 1000 | 500 | 26,5 | 1440 | 400 | 0,8 | 1440 | 400 | 0,8 | 2160 | 600 | 1,2 | 23400 | 6500 | 13 |
| 600 | 600 | 21,0 | 1037 | 288 | 0,8 | 1037 | 288 | 0,8 | 1555 | 4326 | 1,2 | 16848 | 4680 | 13 |
| 700 | 600 | 23,0 | 1210 | 336 | 0,8 | 1210 | 336 | 0,8 | 1814 | 504 | 1,2 | 19656 | 5460 | 13 |
| 800 | 600 | 25,0 | 1382 | 384 | 0,8 | 1382 | 384 | 0,8 | 2074 | 576 | 1,2 | 22464 | 6240 | 13 |
| 900 | 600 | 27,0 | 1555 | 432 | 0,8 | 1555 | 432 | 0,8 | 2333 | 648 | 1,2 | 25272 | 7020 | 13 |
| 1000 | 600 | 28,6 | 1728 | 480 | 0,8 | 1728 | 480 | 0,8 | 2592 | 720 | 1,2 | 28080 | 7800 | 13 |
| 700 | 700 | 25,0 | 1411 | 392 | 0,8 | 1411 | 392 | 0,8 | 2117 | 588 | 1,2 | 22932 | 6370 | 13 |
| 800 | 700 | 27,0 | 1613 | 448 | 0,8 | 1613 | 448 | 0,8 | 2419 | 672 | 1,2 | 26208 | 7280 | 13 |
| 900 | 700 | 29,0 | 1814 | 504 | 0,8 | 1814 | 504 | 0,8 | 2722 | 756 | 1,2 | 29484 | 8190 | 13 |
| 1000 | 700 | 30,8 | 2016 | 560 | 0,8 | 2016 | 560 | 0,8 | 3024 | 840 | 1,2 | 32760 | 9100 | 13 |
| 800 | 800 | 29,0 | 1843 | 512 | 0,8 | 1843 | 512 | 0,8 | 2765 | 768 | 1,2 | 29952 | 8320 | 13 |
| 900 | 800 | 31,0 | 2074 | 576 | 0,8 | 2074 | 576 | 0,8 | 3110 | 864 | 1,2 | 33696 | 9360 | 13 |
| 1000 | 800 | 33,0 | 2304 | 640 | 0,8 | 2304 | 640 | 0,8 | 3456 | 960 | 1,2 | 37440 | 10400 | 13 |
| 900 | 900 | 33,0 | 2333 | 648 | 0,8 | 2333 | 648 | 0,8 | 3499 | 972 | 1,2 | 37908 | 10530 | 13 |
| 1000 | 900 | 35,1 | 2592 | 720 | 0,8 | 2592 | 720 | 0,8 | 3888 | 1080 | 1,2 | 42120 | 11700 | 13 |
| 1000 | 1000 | 37,3 | 2880 | 800 | 0,8 | 2880 | 800 | 0,8 | 4320 | 1200 | 1,2 | 46800 | 13000 | 13 |

KOS-R-I has the following sound insulating capacity R, dBA for required frequency:

| Frequency, Hz | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---------------|----|-----|-----|-----|------|------|------|------|
| dB(A) | 7 | 7 | 14 | 21 | 25 | 28 | 28 | 25 |

Installation

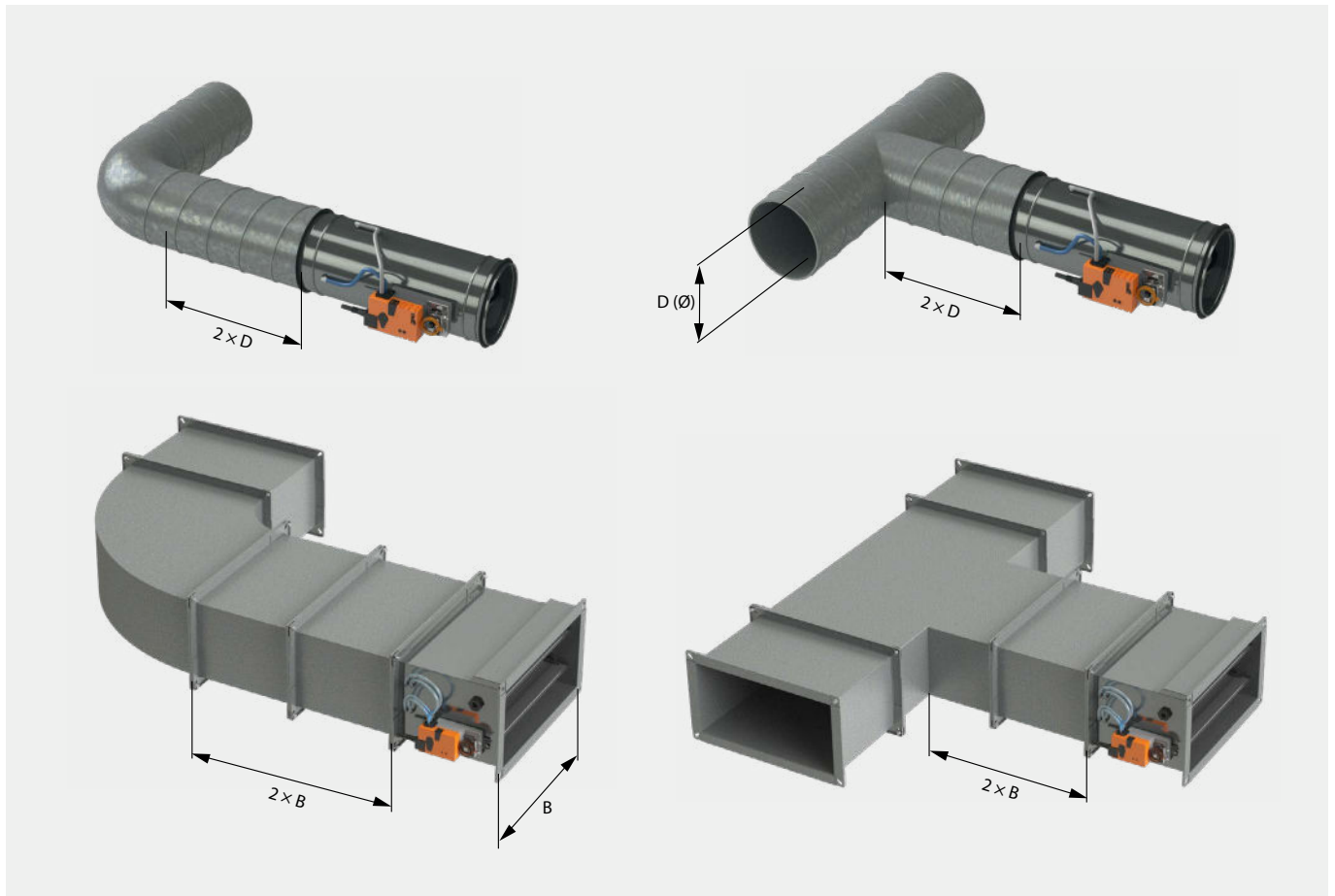
INSTALLATION INFORMATION AND PRECAUTIONS

Precautions must be taken into consideration where dampers are installed in places where extreme temperature conditions can be met and condensation can build up inside the duct and thus inside of damper. The condensation and also the large temperature difference between inside and outside air can affect measurement results in a negative way. To avoid flow measurement deviation and unnecessary errors, the minimum distance before the VAV damper must be observed (see drawings below).

Straight section of duct equal to $2xD$ (for circular ducts) or $2xB$ (for rectangular ducts) from 90° bend or T-piece is the minimum requirement when installing dampers.

Using smaller straight section will lead to a bigger flow measurement error. A bigger straight distance is recommended after silencers, fire dampers and other ventilation duct system components.

To achieve the best sound power level, dampers should be connected to the duct with rivets and not the screws. This recommendation also refers to the entire duct system.



Controller connections

Controller connections options

4 controller options are available for KOS damper:

- analogue connection
- MP-bus communication
- Modbus or BACnet communication
- KNX communication

Analogue connection

With analogue connection it is possible to connect controller 0...10 V or 2...10 V to the VAV damper and control the air volume, depending on the given signal and set up.

MP-Bus connection

The MP-Bus is master/slave bus technology where defined number of slaves can be connected to a MP-Master unit. Below is a connection scheme for MP-bus type actuators.

| Type | Torque | Power consumption | Rating | Weight |
|-------------|--------|-------------------|--------------------------|---------------|
| LMV-D3-MF-F | 5 Nm | 2 W | 3.5 VA (max. 8 A @ 5 ms) | Approx. 500 g |

VAV – variable operation $V_{min} \dots V_{max}$

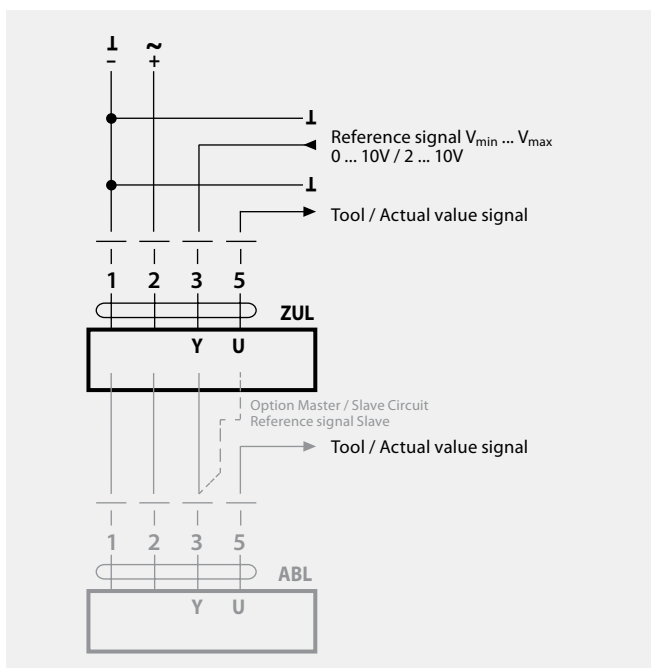
Damper is CLOSED via 0 ... 10 V reference signal (Mode 2 ... 10 V).

Setting parameters: Mode 2 ... 10 V, Shut off level 0.1 V or 0.5 V.

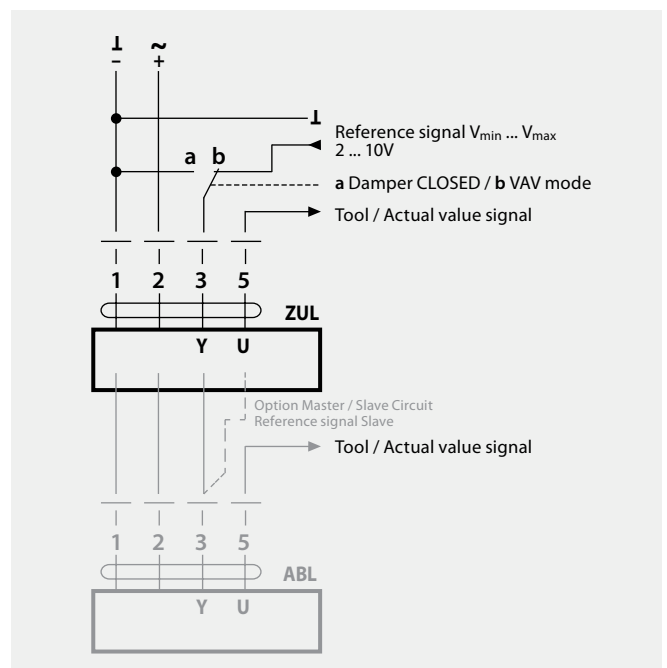
If the required switching threshold of 0.1 V cannot be attained, the value can be switched to 0.5 V with PCTool.

| Function | Standard 0.1 V | Shut-off level 0.5 V |
|-------------------------|----------------|----------------------|
| Damper CLOSED | <0.1 V | <0.5 V |
| V_{min} | >0.1 ... 2 V | >0.5 V ... 2 V |
| $V_{min} \dots V_{max}$ | 2 ... 10 V | 2 ... 10 V |

In CAV applications shut-off level must not be set to 0.5 V, otherwise the open connection 3 is interpreted as damper CLOSED.



Wiring diagram 1: VAV, analogue reference signal



Wiring diagram 2: VAV with shut-off (CLOSED), 2 ... 10 V mode

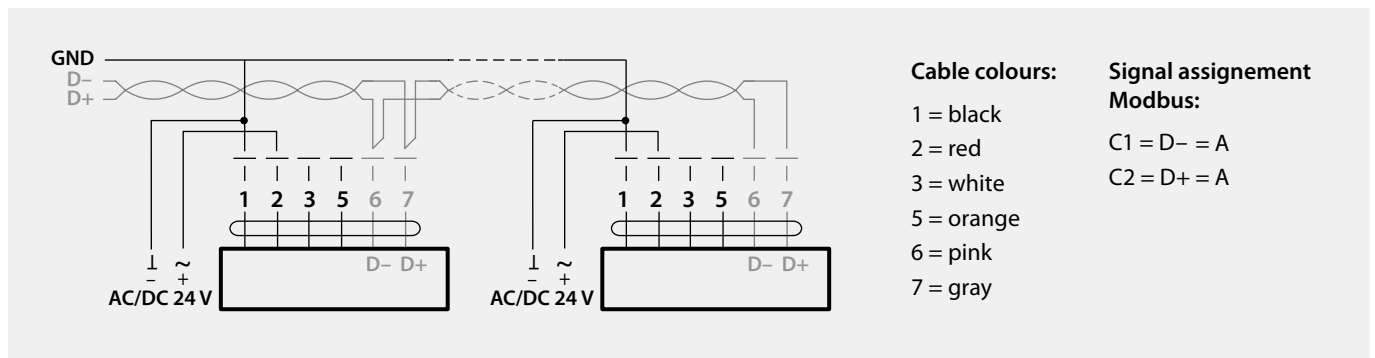
Modbus or BACnet connection

The Modbus protocol is used to establish master-slave / client-server communication between intelligent devices.

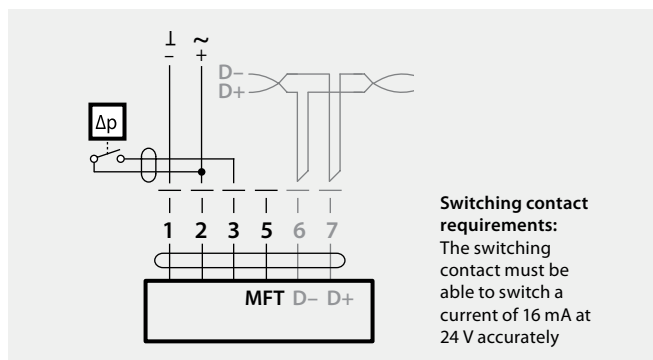
Using Modbus, a master (e.g. automation station) and several slaves can be interconnected. Below is a connection scheme for Modbus type actuators.

| Type | Torque | Power consumption | Rating | Weight |
|------------|--------|-------------------|--------------------------|---------------|
| LMV-D3-MOD | 5 Nm | 2 W | 3.5 VA (max. 8 A @ 5 ms) | Approx. 500 g |

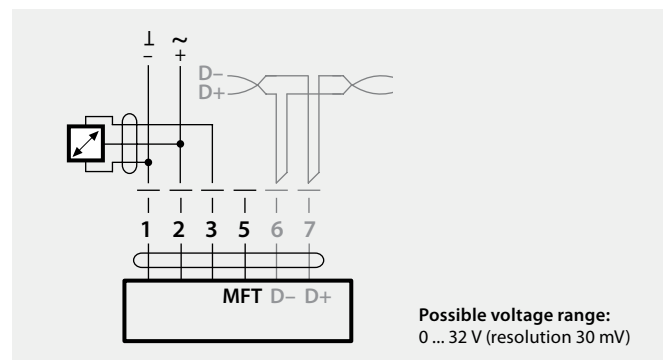
Electrical installation



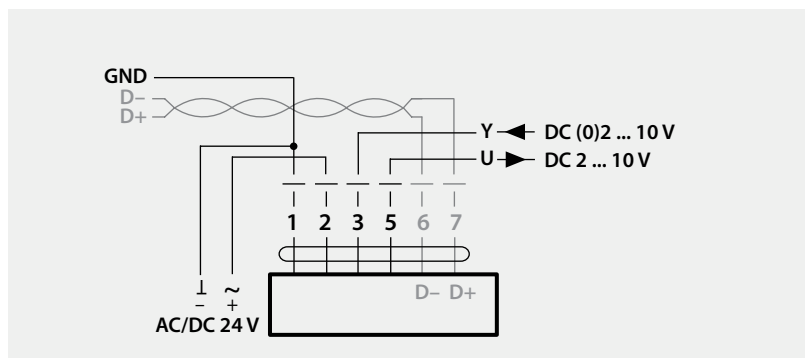
BACnet MS/TP / Modbus RTU



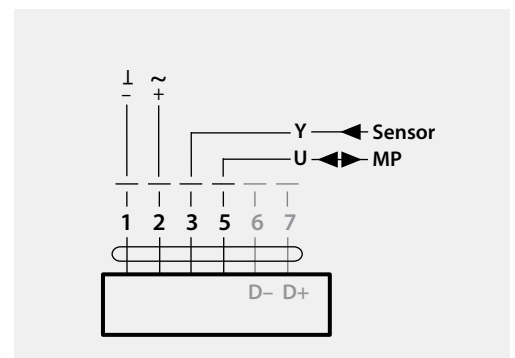
Connection with switching contact, e.g. Δp -monitor



Connection of active sensors, e.g. 0...10 V @ 0...50 °C



BACnet MS/TP / Modbus RTU with analog setpoint (hybrid mode)



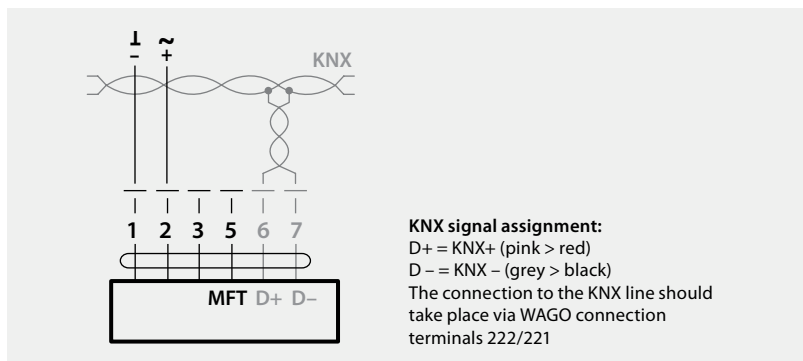
Operating on the MP-Bus

KNX connection

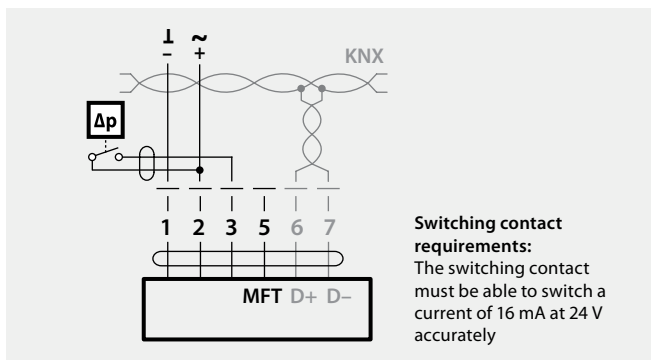
KNX devices are generally connected by a twisted pair bus and can be modified from a controller. Below is a connection scheme for KNX type actuators.

| Type | Torque | Power consumption | Rating | Weight |
|------------|--------|-------------------|------------------------|---------------|
| LMV-D3-KNX | 5 Nm | 2 W | 4 VA (max. 8 A @ 5 ms) | Approx. 500 g |

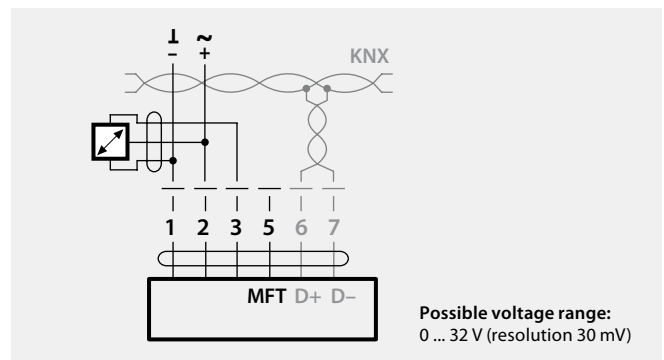
Electrical installation



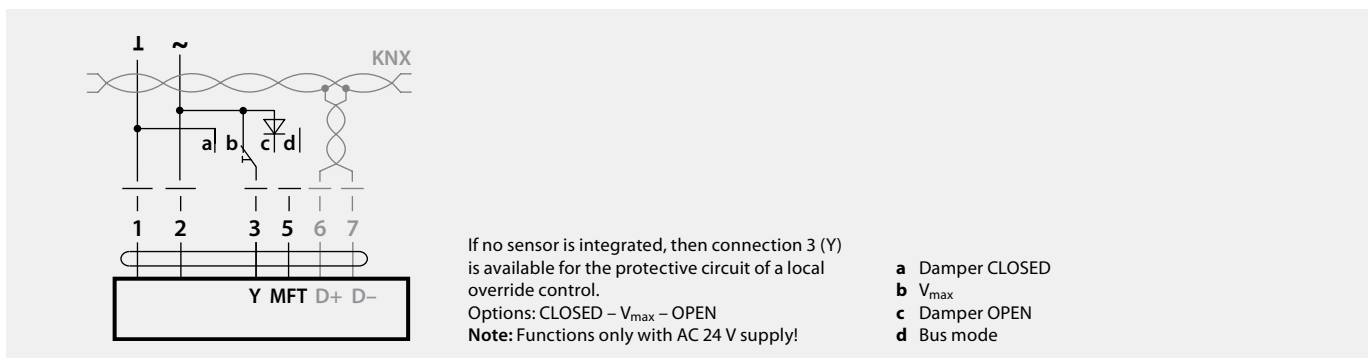
Connection without sensor



Connection with switching contact, e.g. Δp-monitor



Connection of active sensors, e.g. 0...10 V @ 0...50 °C



Local override control

Pressure drop and sound power level

KOS-C PRESSURE DROP AND SOUND POWER LEVEL DIAGRAMS

The diagrams provide an A-weighted sound power levels that KOS-C damper emits in duct, L_{wa} . Correction factors K are provided to find emitted sound power level at the conformable frequency. Emitted sound L_w should be calculated as: $L_w = L_{wa} + K$.

Example: for KOS-C-125 damper with airflow $Q = 90 \text{ m}^3/\text{h}$ and project pressure drop $\Delta P = 60 \text{ Pa}$, A-weighted sound power level is calculated as 42 dB(A).

To find emitted sound power level at 250 Hz, correction factor given in Table 1 should be used for $\varnothing 125$, so $L_w = 42 + 3 = 45 \text{ dB(A)}$.

Diagram 1: $\varnothing 100 \text{ A}$ – weighted sound power level L_{wa} , dB

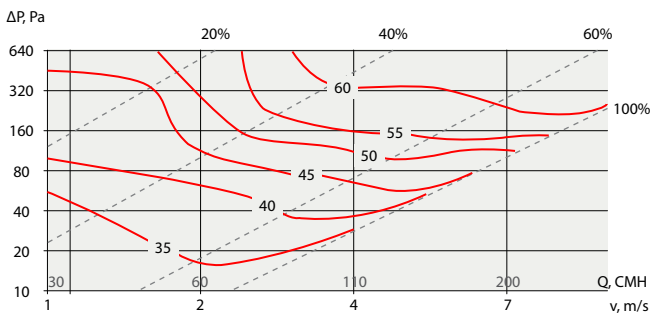


Diagram 2: $\varnothing 125 \text{ A}$ – weighted sound power level L_{wa} , dB

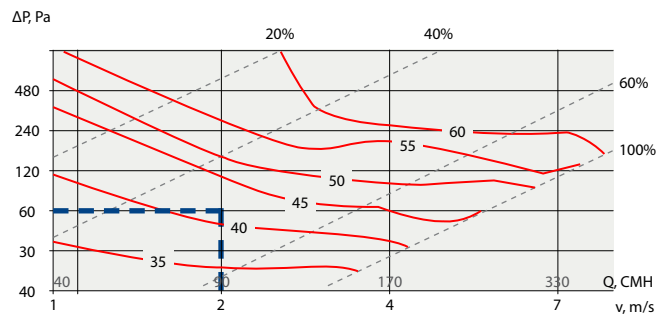


Diagram 3: $\varnothing 160 \text{ A}$ – weighted sound power level L_{wa} , dB

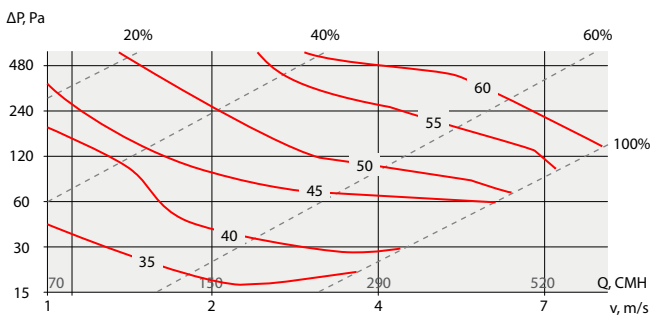


Diagram 4: $\varnothing 200 \text{ A}$ – weighted sound power level L_{wa} , dB

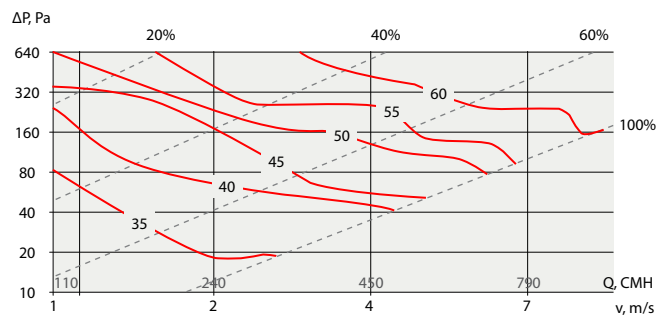


Diagram 5: $\varnothing 250 \text{ A}$ – weighted sound power level L_{wa} , dB

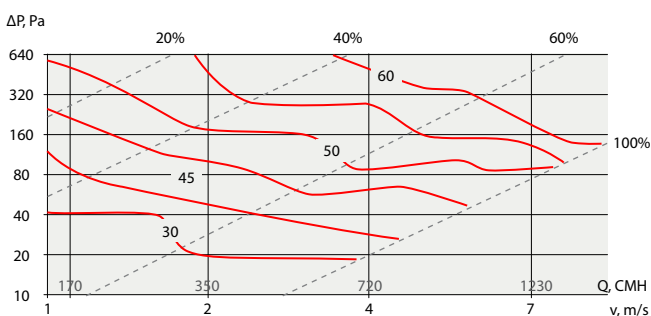


Diagram 6: $\varnothing 315 \text{ A}$ – weighted sound power level L_{wa} , dB

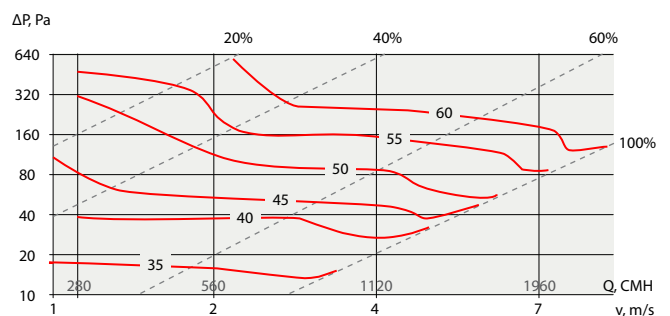


Diagram 7: Ø 355 A – weighted sound power level L_{wa} , dB

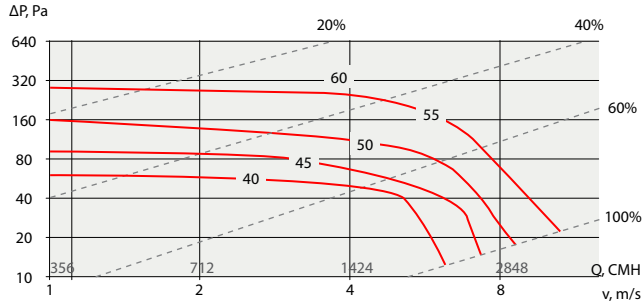


Diagram 8: Ø 400 A – weighted sound power level L_{wa} , dB

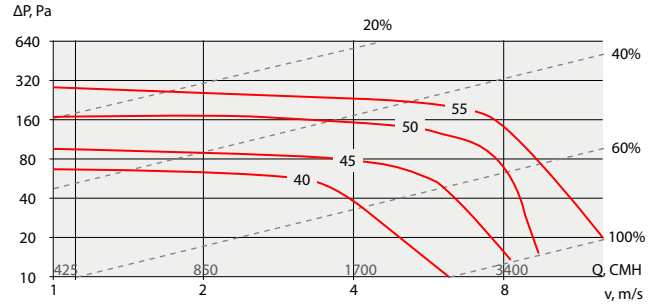


Diagram 9: Ø 500 A – weighted sound power level L_{wa} , dB

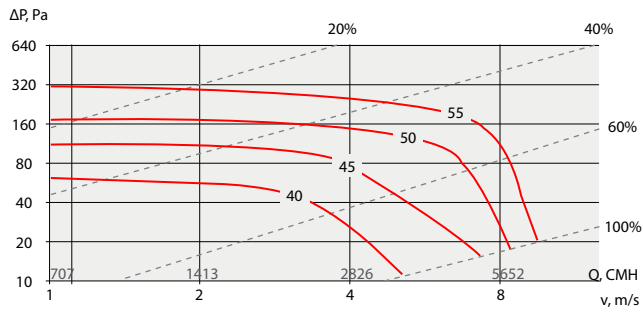
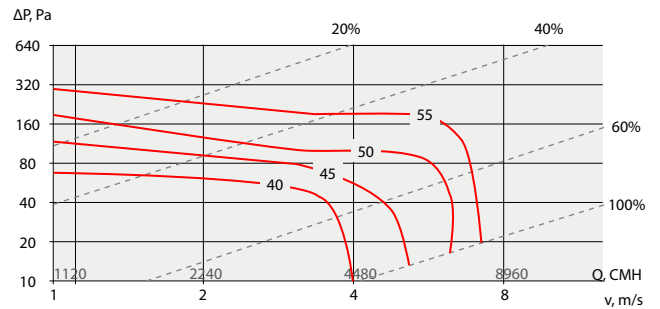


Diagram 10: Ø 560 A – weighted sound power level L_{wa} , dB



KOS-R-I has the following sound insulating capacity R, dBA for required frequency:

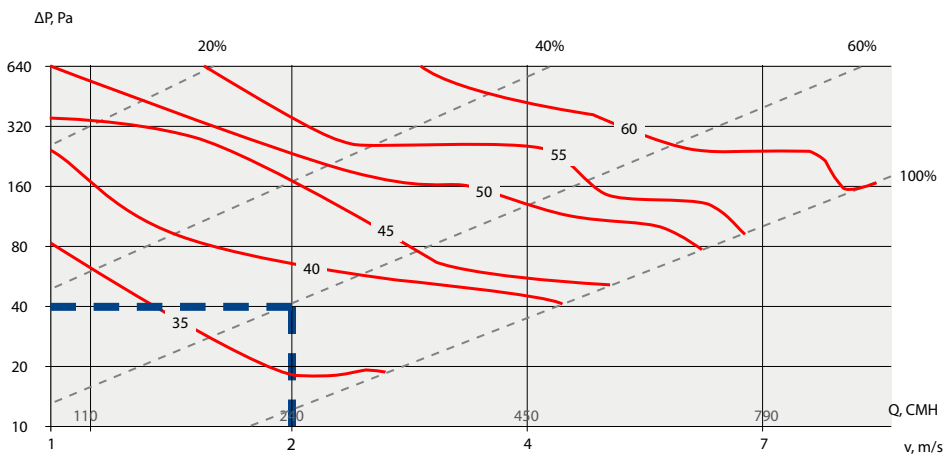
| Ø | K, dB | | | | | | |
|-----|-------|-----|-----|-----|------|------|------|
| | 63 | 125 | 250 | 500 | 1000 | 4000 | 8000 |
| 100 | 9 | 13 | 5 | 0 | -3 | -6 | -7 |
| 125 | 13 | 5 | 3 | -3 | -7 | -15 | -20 |
| 160 | 10 | 6 | 0 | -5 | -9 | -17 | -22 |
| 200 | 9 | 5 | -1 | -6 | -10 | -19 | -24 |
| 250 | 8 | 3 | -3 | -7 | -10 | -20 | -26 |
| 315 | 6 | 1 | -4 | -8 | -12 | -22 | -28 |
| 355 | 8 | 2 | -2 | -4 | -9 | -17 | -18 |
| 400 | 11 | 6 | 1 | -2 | -7 | -19 | -20 |
| 500 | 10 | 5 | -1 | -2 | -6 | -18 | -17 |
| 560 | 10 | 3 | 1 | -3 | -6 | -13 | -14 |

PRESSURE DROP DIAGRAM EXAMPLE

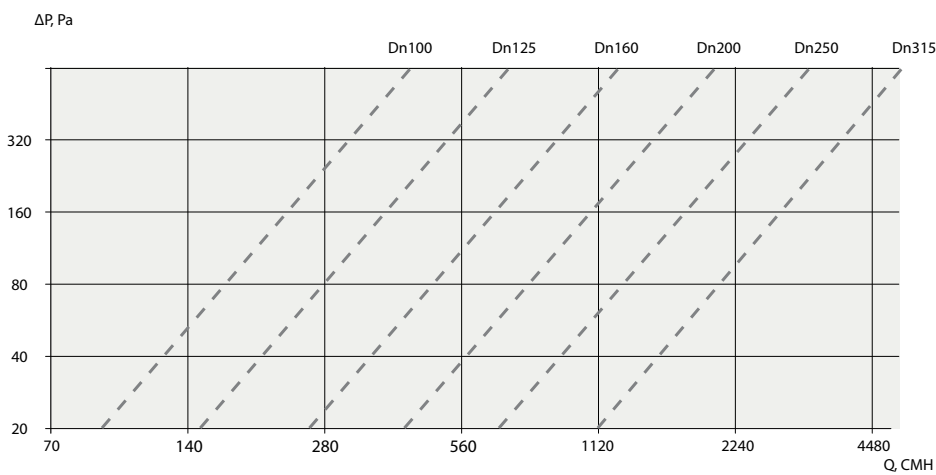
Pressure drop diagram indicates total pressure drop over the KOS-C damper as a function of air flow Q and the blade angle (100 % as totally open blade).

Example: for KOS-C 200 damper with airflow $Q = 240 \text{ m}^3/\text{h}$ and blade position 60%, total pressure drop $\Delta P = 40 \text{ Pa}$ (see picture below).

Diagram 4: Ø 200 A – weighted sound power level L_{wa} , dB



Pressure drop on open VAV damper



KOS-R PRESSURE DROP AND SOUND POWER LEVEL

| P _r [Pa] | f _r [Hz] | Size B × H [mm] | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|-----------------|----|----|----|-----|----|----|----|-----|----|----|----|-----|----|----|----|-----|----|----|----|
| | | 600 | | | | | | | | | | | | | | | | | | | |
| | | 100 | | | | 200 | | | | 300 | | | | 400 | | | | 500 | | | |
| | | v [m/s] | | | | | | | | | | | | | | | | | | | |
| | | 3 | 6 | 9 | 12 | 3 | 6 | 9 | 12 | 3 | 6 | 9 | 12 | 3 | 6 | 9 | 12 | 3 | 6 | 9 | 12 |
| 125 | 63 | 45 | 55 | 63 | 68 | 51 | 60 | 68 | 73 | 53 | 63 | 71 | 76 | 56 | 65 | 73 | 78 | 59 | 68 | 76 | 81 |
| | 125 | 46 | 56 | 63 | 68 | 49 | 58 | 66 | 71 | 51 | 60 | 68 | 73 | 52 | 61 | 69 | 74 | 53 | 63 | 71 | 75 |
| | 250 | 42 | 49 | 54 | 57 | 46 | 53 | 58 | 61 | 48 | 55 | 60 | 63 | 50 | 56 | 62 | 64 | 52 | 59 | 64 | 67 |
| | 500 | 44 | 47 | 50 | 52 | 45 | 48 | 51 | 53 | 45 | 49 | 51 | 53 | 46 | 49 | 52 | 53 | 46 | 50 | 52 | 54 |
| | 1000 | 46 | 49 | 51 | 53 | 48 | 50 | 53 | 54 | 48 | 51 | 53 | 55 | 49 | 52 | 54 | 55 | 50 | 52 | 55 | 56 |
| | 2000 | 46 | 49 | 51 | 53 | 49 | 52 | 54 | 56 | 51 | 54 | 56 | 58 | 52 | 55 | 57 | 59 | 54 | 57 | 59 | 60 |
| | 4000 | 39 | 43 | 47 | 49 | 41 | 46 | 50 | 52 | 43 | 47 | 51 | 53 | 44 | 49 | 52 | 55 | 45 | 50 | 54 | 56 |
| 8000 | 32 | 37 | 41 | 43 | 36 | 41 | 45 | 47 | 38 | 43 | 47 | 50 | 40 | 45 | 49 | 51 | 42 | 47 | 51 | 54 | |
| 250 | 63 | 52 | 61 | 68 | 72 | 56 | 64 | 71 | 75 | 58 | 66 | 73 | 77 | 59 | 68 | 75 | 79 | 61 | 70 | 77 | 81 |
| | 125 | 49 | 58 | 65 | 70 | 53 | 61 | 69 | 73 | 55 | 64 | 71 | 75 | 56 | 65 | 72 | 77 | 58 | 67 | 74 | 79 |
| | 250 | 46 | 53 | 58 | 62 | 49 | 56 | 62 | 66 | 51 | 58 | 64 | 68 | 53 | 60 | 66 | 69 | 55 | 62 | 68 | 72 |
| | 500 | 48 | 52 | 56 | 58 | 50 | 54 | 58 | 60 | 51 | 55 | 59 | 61 | 51 | 56 | 59 | 62 | 52 | 57 | 61 | 63 |
| | 1000 | 51 | 54 | 57 | 59 | 52 | 56 | 59 | 61 | 53 | 57 | 60 | 61 | 54 | 57 | 60 | 62 | 55 | 58 | 61 | 63 |
| | 2000 | 53 | 56 | 58 | 59 | 56 | 58 | 61 | 62 | 57 | 60 | 62 | 64 | 58 | 61 | 63 | 65 | 60 | 63 | 65 | 66 |
| | 4000 | 49 | 52 | 55 | 57 | 51 | 54 | 57 | 59 | 52 | 56 | 59 | 60 | 53 | 56 | 59 | 61 | 54 | 58 | 61 | 63 |
| 8000 | 45 | 49 | 52 | 54 | 47 | 51 | 54 | 56 | 49 | 53 | 56 | 58 | 50 | 64 | 57 | 59 | 51 | 55 | 58 | 60 | |
| 500 | 63 | 57 | 65 | 72 | 76 | 60 | 69 | 76 | 80 | 63 | 71 | 78 | 82 | 64 | 73 | 80 | 84 | 67 | 75 | 82 | 86 |
| | 125 | 53 | 63 | 71 | 77 | 56 | 66 | 74 | 80 | 58 | 68 | 76 | 81 | 59 | 69 | 77 | 83 | 61 | 71 | 79 | 84 |
| | 250 | 49 | 58 | 66 | 70 | 55 | 64 | 72 | 76 | 59 | 68 | 75 | 80 | 61 | 70 | 78 | 82 | 54 | 74 | 81 | 86 |
| | 500 | 53 | 59 | 63 | 66 | 56 | 62 | 66 | 69 | 58 | 63 | 68 | 71 | 59 | 65 | 69 | 72 | 61 | 66 | 71 | 73 |
| | 1000 | 59 | 62 | 64 | 66 | 61 | 64 | 66 | 67 | 62 | 64 | 67 | 68 | 62 | 65 | 68 | 69 | 63 | 66 | 69 | 70 |
| | 2000 | 64 | 65 | 66 | 66 | 66 | 67 | 68 | 69 | 68 | 69 | 70 | 70 | 69 | 70 | 71 | 71 | 70 | 71 | 72 | 73 |
| | 4000 | 63 | 64 | 65 | 66 | 65 | 66 | 67 | 68 | 66 | 67 | 68 | 69 | 67 | 68 | 69 | 69 | 68 | 69 | 70 | 70 |
| 8000 | 59 | 61 | 63 | 64 | 61 | 63 | 65 | 66 | 62 | 65 | 66 | 68 | 63 | 65 | 67 | 69 | 64 | 67 | 69 | 70 | |

| P _r [Pa] | f _r [Hz] | Size B × H [mm] | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|-----------------|----|----|----|------|----|----|----|-----|----|----|----|-----|----|----|----|------|----|----|----|
| | | 600 | | | | 1000 | | | | | | | | | | | | | | | |
| | | 600 | | | | 700 | | | | 800 | | | | 900 | | | | 1000 | | | |
| | | v [m/s] | | | | | | | | | | | | | | | | | | | |
| | | 3 | 6 | 9 | 12 | 3 | 6 | 9 | 12 | 3 | 6 | 9 | 12 | 3 | 6 | 9 | 12 | 3 | 6 | 9 | 12 |
| 125 | 63 | 59 | 68 | 76 | 81 | 62 | 71 | 79 | 84 | 64 | 74 | 82 | 87 | 65 | 75 | 83 | 88 | 66 | 76 | 83 | 88 |
| | 125 | 53 | 63 | 71 | 75 | 55 | 65 | 73 | 77 | 57 | 66 | 74 | 79 | 57 | 67 | 75 | 80 | 57 | 67 | 75 | 80 |
| | 250 | 52 | 59 | 64 | 67 | 54 | 61 | 66 | 69 | 56 | 63 | 68 | 71 | 57 | 64 | 69 | 72 | 58 | 64 | 69 | 73 |
| | 500 | 46 | 50 | 52 | 54 | 47 | 51 | 53 | 55 | 47 | 51 | 53 | 55 | 48 | 51 | 54 | 55 | 48 | 51 | 54 | 55 |
| | 1000 | 50 | 52 | 55 | 56 | 51 | 53 | 56 | 57 | 51 | 54 | 56 | 57 | 51 | 54 | 56 | 58 | 51 | 54 | 56 | 58 |
| | 2000 | 54 | 57 | 59 | 60 | 56 | 59 | 61 | 62 | 57 | 60 | 62 | 64 | 58 | 61 | 63 | 65 | 58 | 61 | 63 | 65 |
| | 4000 | 45 | 50 | 54 | 56 | 47 | 52 | 56 | 58 | 49 | 53 | 57 | 59 | 49 | 54 | 58 | 60 | 49 | 54 | 58 | 60 |
| 8000 | 42 | 47 | 51 | 54 | 45 | 50 | 54 | 56 | 47 | 52 | 56 | 58 | 48 | 53 | 57 | 59 | 48 | 53 | 57 | 59 | |
| 250 | 63 | 61 | 70 | 77 | 81 | 63 | 72 | 79 | 83 | 65 | 74 | 80 | 85 | 66 | 75 | 81 | 86 | 66 | 75 | 82 | 86 |
| | 125 | 58 | 67 | 74 | 79 | 60 | 69 | 77 | 81 | 62 | 71 | 79 | 83 | 63 | 72 | 80 | 84 | 64 | 72 | 80 | 84 |
| | 250 | 55 | 62 | 68 | 72 | 57 | 65 | 70 | 74 | 59 | 67 | 72 | 76 | 60 | 68 | 73 | 77 | 61 | 68 | 73 | 77 |
| | 500 | 52 | 57 | 61 | 63 | 54 | 58 | 62 | 64 | 55 | 59 | 63 | 65 | 55 | 60 | 63 | 66 | 55 | 60 | 63 | 66 |
| | 1000 | 55 | 58 | 61 | 63 | 56 | 59 | 62 | 64 | 57 | 60 | 63 | 65 | 57 | 61 | 64 | 65 | 57 | 61 | 64 | 65 |
| | 2000 | 60 | 63 | 65 | 66 | 62 | 65 | 67 | 68 | 63 | 66 | 68 | 69 | 64 | 67 | 69 | 70 | 64 | 67 | 69 | 70 |
| | 4000 | 54 | 58 | 61 | 63 | 56 | 59 | 62 | 64 | 57 | 60 | 63 | 65 | 57 | 61 | 64 | 66 | 57 | 61 | 64 | 66 |
| 8000 | 51 | 55 | 58 | 60 | 53 | 57 | 60 | 62 | 54 | 58 | 61 | 63 | 55 | 59 | 62 | 64 | 55 | 59 | 62 | 64 | |
| 500 | 63 | 67 | 75 | 82 | 86 | 69 | 78 | 85 | 89 | 71 | 80 | 87 | 91 | 72 | 81 | 88 | 92 | 72 | 81 | 88 | 92 |
| | 125 | 61 | 71 | 79 | 84 | 63 | 73 | 81 | 86 | 64 | 74 | 83 | 88 | 65 | 75 | 84 | 89 | 65 | 75 | 84 | 89 |
| | 250 | 65 | 74 | 81 | 86 | 69 | 78 | 85 | 90 | 72 | 81 | 88 | 93 | 73 | 82 | 89 | 94 | 74 | 83 | 90 | 95 |
| | 500 | 61 | 66 | 71 | 73 | 63 | 68 | 73 | 75 | 64 | 70 | 74 | 77 | 65 | 71 | 75 | 78 | 65 | 71 | 75 | 78 |
| | 1000 | 63 | 66 | 69 | 70 | 64 | 67 | 70 | 71 | 65 | 68 | 70 | 72 | 66 | 69 | 71 | 72 | 66 | 69 | 71 | 72 |
| | 2000 | 70 | 71 | 72 | 73 | 72 | 73 | 74 | 75 | 73 | 75 | 75 | 76 | 74 | 75 | 76 | 77 | 74 | 75 | 76 | 77 |
| | 4000 | 68 | 69 | 70 | 70 | 69 | 70 | 71 | 72 | 70 | 71 | 72 | 73 | 70 | 72 | 73 | 73 | 70 | 72 | 73 | 73 |
| 8000 | 64 | 67 | 69 | 70 | 66 | 68 | 70 | 71 | 67 | 69 | 71 | 72 | 68 | 70 | 72 | 73 | 68 | 70 | 72 | 73 | |

Correction values

CORRECTION VALUES FOR OTHER CASE WIDTHS

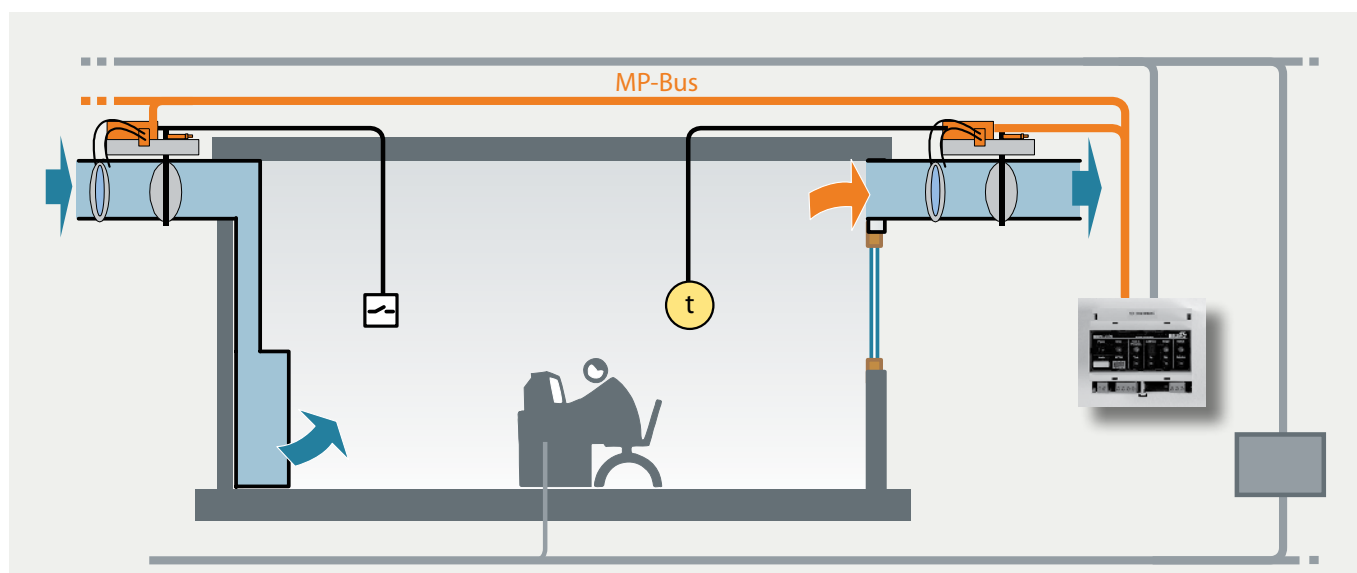
| Δp_s [Pa _s] | f [Hz] | In relation to B [mm] | | | | | | | | | | | |
|------------------------------------|-----------|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|------|
| | | 600 | | | | | | | | | 1000 | | |
| | | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 800 | 900 | 1000 |
| 125 | 63 | -8 | -5 | -3 | -1 | 0 | 1 | 2 | 3 | 4 | -2 | -1 | 0 |
| | 125 | -4 | -3 | -2 | -1 | 0 | 1 | 1 | 2 | 2 | -1 | -1 | 0 |
| | 250 | -6 | -4 | -2 | -1 | 0 | 1 | 2 | 2 | 3 | 0 | 0 | 0 |
| | 500 | -2 | -1 | -1 | 0 | 0 | 0 | 0 | 1 | 1 | -1 | -1 | 0 |
| | 1000 | -2 | -1 | -1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 0 |
| | 2000 | -5 | -3 | -2 | -1 | 0 | 1 | 1 | 2 | 2 | -1 | 0 | 0 |
| | 4000 | -4 | -3 | -2 | -1 | 0 | 1 | 1 | 2 | 2 | -1 | -1 | 0 |
| | 8000 | -6 | -4 | -2 | -1 | 0 | 1 | 2 | 2 | 3 | 0 | -1 | 0 |
| 250 | 63 | -5 | -3 | -2 | -1 | 0 | 1 | 1 | 2 | 3 | -1 | -1 | 0 |
| | 125 | -6 | -4 | -2 | -1 | 0 | 1 | 1 | 2 | 3 | -1 | -1 | 0 |
| | 250 | -6 | -4 | -2 | -1 | 0 | 1 | 2 | 2 | 1 | -1 | -1 | 0 |
| | 500 | -3 | -2 | -1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 0 |
| | 1000 | -3 | -2 | -1 | 0 | 0 | 0 | 1 | 1 | 2 | -1 | 0 | 0 |
| | 2000 | -4 | -3 | -2 | -1 | 0 | 1 | 1 | 2 | 2 | -1 | 0 | 0 |
| | 4000 | -3 | -2 | -1 | -1 | 0 | 0 | 1 | 1 | 2 | -1 | 0 | 0 |
| | 8000 | -4 | -3 | -1 | -1 | 0 | 1 | 1 | 1 | 3 | -1 | 0 | 0 |
| 500 | 63 | -6 | -4 | -2 | -1 | 0 | 1 | 2 | 2 | 2 | -1 | -1 | 0 |
| | 125 | -5 | -3 | -2 | -1 | 0 | 1 | 1 | 2 | 4 | -1 | -1 | 0 |
| | 250 | -10 | -6 | -4 | -2 | 0 | 1 | 3 | 4 | 2 | -1 | 0 | 0 |
| | 500 | -5 | -3 | -2 | -1 | 0 | 1 | 1 | 2 | 1 | -2 | -1 | 0 |
| | 1000 | -3 | -2 | -1 | 0 | 0 | 1 | 1 | 1 | 2 | -1 | 0 | 0 |
| | 2000 | -4 | -3 | -2 | -1 | 0 | 1 | 1 | 2 | 1 | -1 | 0 | 0 |
| | 4000 | -3 | -2 | -1 | 0 | 0 | 0 | 1 | 1 | 2 | -1 | 0 | 0 |
| | 8000 | -3 | -2 | -1 | -1 | 0 | 0 | 1 | 1 | 2 | -1 | 0 | 0 |

Control systems

VAV DAMPERS WITH BUS CONNECTION

INTELLIGENT SIMPLICITY

- System connection to DDC controller with MP interface via MP-Bus®
- Integration in higher-level systems such as LONWORKS®, Konnex, Ethernet TCP/IP, Profibus DP, Modbus RTU etc. via MP gateway
- Convenient, cost-efficient wiring
- Maximum flexibility in new, retrofitted, converted or renovated buildings



MP-BUS®



KNX®

PROFIBUS

Modbus-RTU

ASHRAE BACnet®

© BELIMO Automation AG

ACTUATOR ADJUSTMENT TOOLS

ZTH SERVICE TOOL

The ZTH directly connects to the Belimo Multi-Function Technology (MFT) series actuator offering the ability to quickly change the parameters of the actuator, such as control input, control feedback, runtime, and minimum and maximum values.



BELIMO ASSISTANT APP

Belimo Assistant app allows you to check and control your actuator using your smartphone. No ZTH tool needed! Simple, wireless connection via integrated NFC interface. App displays device-specific identification data: device type, position, designation, serial number, MP address. Even when actuator is deenergized data can be read and written.

It is also possible to store operating/setting data on the smartphone or send data directly from system via e-mail, WhatsApp or SMS.

For using hold smartphone close to Belimo actuator. The NFC- antenna of the phone, respectively the converter's eye must be placed right over the actuator's NFC-logo. After connection is succeed application will display settings automatically.

Additional information can be obtained from www.belimo.com.



Order information

CIRCULAR VAV AIR DAMPER ORDER SAMPLE

KOS - C - I - N - 160 - BMF - 0 - 100-300

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① **Damper type:** KOS

- ② **C** – circular
R – rectangular

- ③ **I** – with insulation 50 mm
No entry – without insulation

- ④ **N** – stainless steel casing
No entry – zinc coated casing

- ⑤ **Diameter:** 100/125/160/200/250/315/355/400/450/500/560

- ⑥ **Actuator type:** **BMF** – analogue connection
BMP – MP-bus connection
BMD – Modbus communication
BMDbn – BACnet communication
BKX – KNX communication

- ⑦ **Control signal:** **0** – 0..10 V
2 – 2..10 V

- ⑧ **V_{min}-V_{max}** – defined air flow, m³/h

RECTANGULAR VAV AIR DAMPER ORDER SAMPLE

KOS - R - I - N - 400x300 - BMF - 0 - 755-2592

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① **Damper type:** KOS

- ② **C** – circular
R – rectangular

- ③ **I** – with insulation 50 mm
No entry – without insulation

- ④ **N** – stainless steel casing
No entry – zinc coated casing

- ⑤ **Size:** 200x100 ... 1000x1000 mm

- ⑥ **Actuator type:** **BMF** – analogue connection
BMP – MP-bus connection
BMD – Modbus communication
BMDbn – BACnet communication
BKX – KNX communication

- ⑦ **Control signal:** **0** – 0..10 V
2 – 2..10 V

- ⑧ **V_{min}-V_{max}** – defined air flow, m³/h

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