

# VSRV-M - Regulator zmiennego przepływu (mufowy)



**VSRV-M** - Regulator zmiennego objętościowego przepływu powietrza

**Wykonanie:**

- wykonanie standardowe, wersja długa
- ze zwężką Veturiego wg DIN EN ISO 5167-1
- zakończenia mufowe (M)
- łączenie przez klejenie/spawanie/skręcanie

## Dane techniczne

### Temperatura stosowania:

Tr [°C] jak dla materiału

### Temperatura pracy:

Tmax. [°C] jak dla materiału

### Ciśnienie pracy:

Pmax. [Pa] jak dla materiału

### Kolor:

jak dla materiału

### Wymiarowanie:

Regulator zmiennego przepływu VRSV [m] - M - [d]

[m] - typ materiału

[d] - średnica kanału wentylacyjnego w mm

### Jednostki sterujące:

VSRSA - elektryczna, statyczne ciśnienie robocze 300Pa (max. 800Pa), Schneider VAV-A analogowy








VSRSL - elektryczna, statyczne ciśnienie robocze 300Pa (max. 800Pa), Schneider VAV-L Lon

VSRSS - elektryczna, statyczne ciśnienie robocze 300Pa (max.600Pa), BELIMO VRP/VFP/NM24

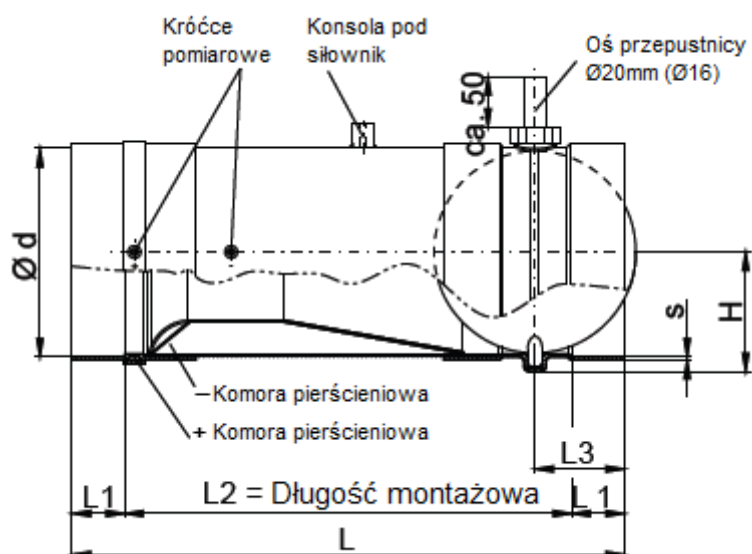
VSRD - elektryczna, dynamiczne ciśnienie robocze 300Pa, BELIMO NMV-D2-M

VSRP - pneumatyczna, statyczne ciśnienie robocze 160Pa, SAUTER RLP100/AK31P

### Oznaczenie:

| Typ             | VRSV1-M  | VRSV2-M  | VRSV3-M  | VRSV4-M  | VRSV5-M   | VRSV6-M   | VRSV9-M  |
|-----------------|--|--|--|--|---|---|--|
| <b>Materiał</b> | PVC-U  | PPs  | PP   | PE   | PPs-el  | PVDF  | PVC-UV   |
| <b>Kolor</b>    |  RAL 7011 |  RAL 7037 |  RAL 7032 |  RAL 9005 |  RAL 9005 |  NATURAL |  RAL 9016 |
| <b>Nazwa</b>    | polichlorek winylu   | polipropylen samogasnący   | polipropylen   | polietylen   | polipropylen samogasnący elektroprzewodzący   | polifluorek winylidenu  | polichlorek winylu   |

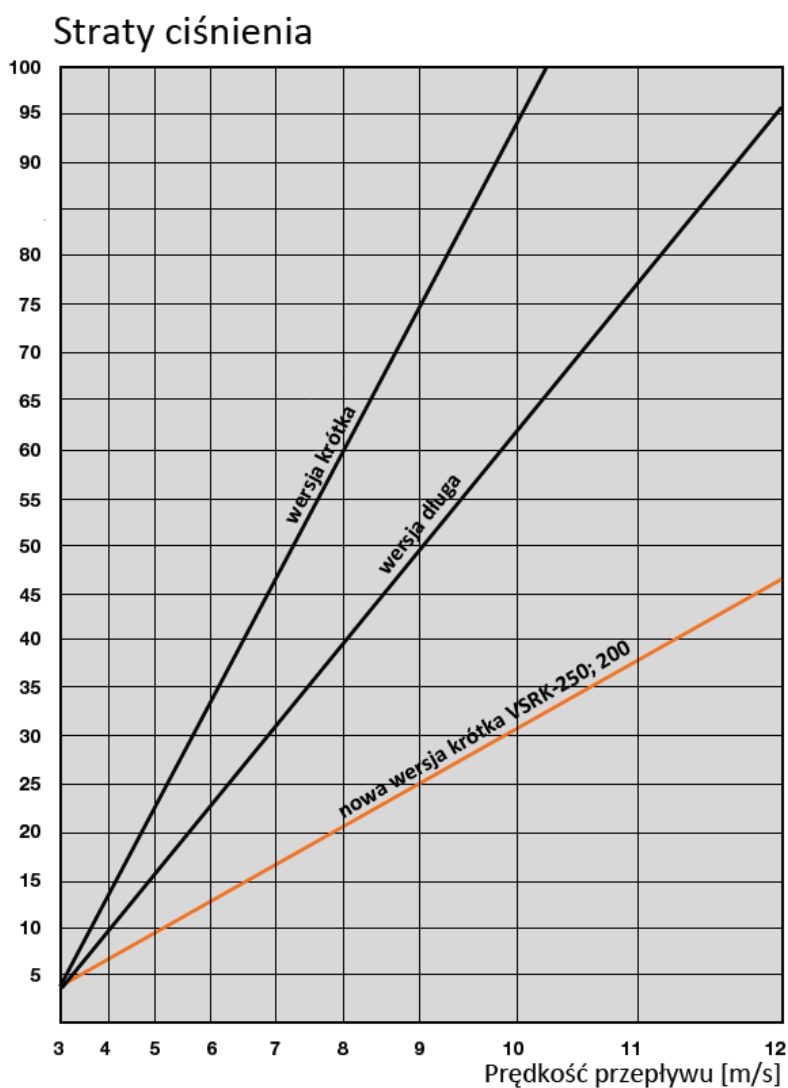
## Wymiary

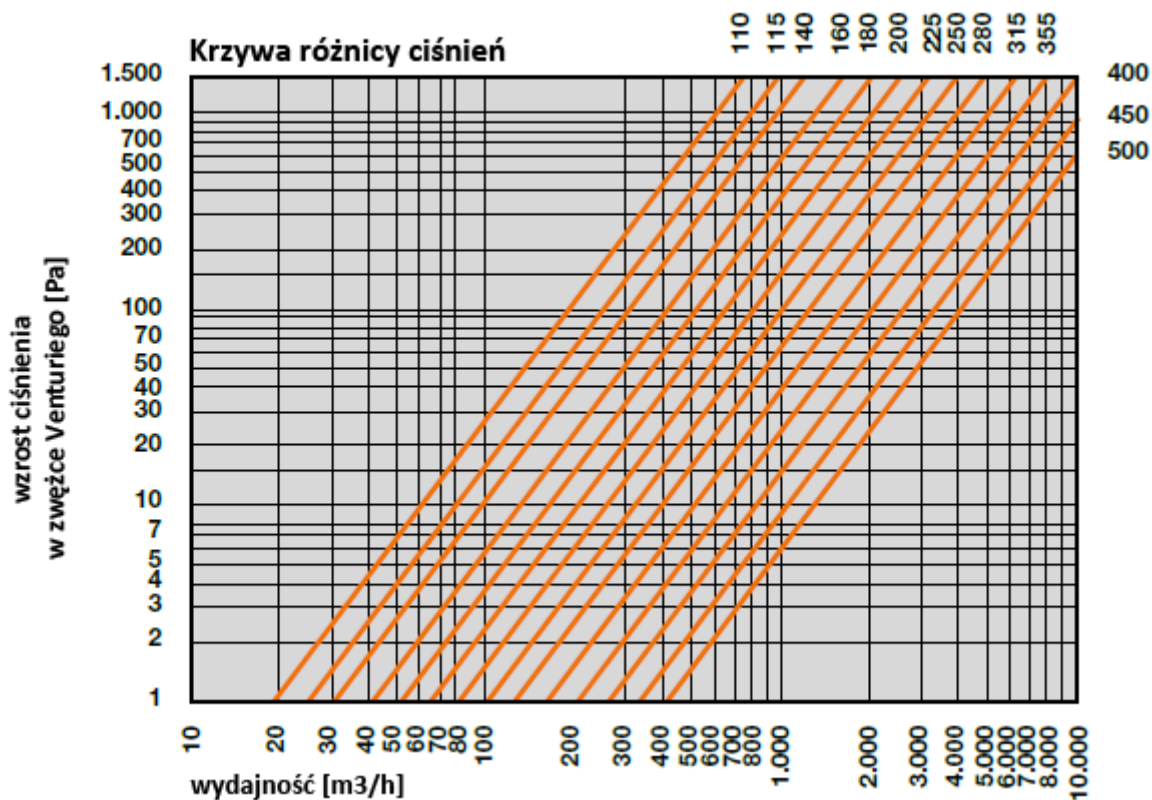


PVC / PVC-C / PPs / PP / PE / PVDF / PVC-UV

| d [mm]      | L [mm] | L1 [mm] | L2 [mm] | L3 [mm] | H [mm] | s PVC [mm] | s PP-Basis [mm] |
|-------------|--------|---------|---------|---------|--------|------------|-----------------|
| <b>0110</b> | 400    | 40      | 320     | 73      | 71     | 3,0        | 3,5             |
| <b>0125</b> | 400    | 40      | 320     | 73      | 79     | 3,0        | 3,5             |
| <b>0140</b> | 400    | 40      | 320     | 73      | 86     | 3,0        | 3,5             |
| <b>0160</b> | 530    | 40      | 450     | 73      | 96     | 4,0        | 3,5             |
| <b>0180</b> | 590    | 50      | 490     | 85      | 106    | 4,0        | 3,5             |
| <b>0200</b> | 610    | 50      | 510     | 85      | 116    | 4,0        | 3,5             |
| <b>0225</b> | 800    | 50      | 700     | 85      | 129    | 4,0        | 3,5             |
| <b>0250</b> | 800    | 50      | 700     | 85      | 141    | 4,0        | 3,5             |
| <b>0280</b> | 860    | 50      | 760     | 85      | 156    | 4,0        | 3,5             |
| <b>0315</b> | 860    | 50      | 760     | 85      | 174    | 4,0        | 3,5             |
| <b>0355</b> | 1150   | 50      | 1050    | 200     | 203    | 4,0        | 6,0             |
| <b>0400</b> | 1200   | 50      | 1100    | 200     | 225    | 4,0        | 6,0             |
| <b>0450</b> | 1390   | 70      | 1250    | 250     | 259    | 5,0        | 6,0             |
| <b>0500</b> | 1540   | 70      | 1400    | 280     | 284    | 5,0        | 6,0             |

## Straty ciśnienia





# Akustyka

## Hałas przepływu

| Wymiary | v<br>[m/s]  | V<br>[m3/h] | Δpg =100 Pa    |             |             |             |             |        |             |             |                       |             | Δpg =250 Pa    |             |             |             |        |             |             |                       |             |             | Δpg =500 Pa    |             |             |    |    |    |                       |  |  |  |
|---------|-------------|-------------|----------------|-------------|-------------|-------------|-------------|--------|-------------|-------------|-----------------------|-------------|----------------|-------------|-------------|-------------|--------|-------------|-------------|-----------------------|-------------|-------------|----------------|-------------|-------------|----|----|----|-----------------------|--|--|--|
|         |             |             | Lw w dB/Oktawe |             |             |             |             |        |             |             |                       |             | Lw w dB/Oktawe |             |             |             |        |             |             |                       |             |             | Lw w dB/Oktawe |             |             |    |    |    |                       |  |  |  |
|         |             |             | fm [Hz]        |             |             |             |             |        |             |             | LWA<br>w<br>dB<br>(A) | fm [Hz]     |                |             |             |             |        |             |             | LWA<br>w<br>dB<br>(A) | fm [Hz]     |             |                |             |             |    |    |    | LWA<br>w<br>dB<br>(A) |  |  |  |
| 6<br>3  | 1<br>2<br>3 | 2<br>5<br>0 | 5<br>0<br>0    | 1<br>0<br>0 | 2<br>0<br>0 | 4<br>0<br>0 | 8<br>0<br>0 | 6<br>3 | 1<br>2<br>5 | 2<br>5<br>0 |                       | 5<br>0<br>0 | 1<br>0<br>0    | 2<br>0<br>0 | 4<br>0<br>0 | 8<br>0<br>0 | 6<br>3 | 1<br>2<br>5 | 2<br>5<br>0 |                       | 5<br>0<br>0 | 1<br>0<br>0 | 2<br>0<br>0    | 4<br>0<br>0 | 8<br>0<br>0 |    |    |    |                       |  |  |  |
| Hz      | Hz          | Hz          | Hz             | Hz          | Hz          | Hz          | Hz          | Hz     | Hz          | Hz          | Hz                    | Hz          | Hz             | Hz          | Hz          | Hz          | Hz     | Hz          | Hz          | Hz                    | Hz          | Hz          | Hz             | Hz          | Hz          |    |    |    |                       |  |  |  |
| 160     | 2           | 145         | 39             | 39          | 41          | 44          | 37          | 28     | 22          | 26          | 43                    | 36          | 32             | 39          | 47          | 52          | 51     | 43          | 38          | 49                    | 41          | 37          | 44             | 52          | 57          | 56 | 48 | 43 | 56                    |  |  |  |
|         | 4           | 290         | 49             | 52          | 49          | 48          | 42          | 36     | 32          | 32          | 49                    | 47          | 48             | 53          | 54          | 55          | 49     | 44          | 43          | 57                    | 52          | 53          | 58             | 59          | 60          | 56 | 51 | 48 | 63                    |  |  |  |
|         | 6           | 434         | 53             | 56          | 54          | 52          | 46          | 41     | 38          | 36          | 53                    | 55          | 56             | 61          | 58          | 56          | 51     | 47          | 46          | 61                    | 60          | 61          | 66             | 64          | 61          | 56 | 52 | 51 | 66                    |  |  |  |
|         | 8           | 579         | 55             | 58          | 56          | 54          | 48          | 43     | 40          | 38          | 57                    | 57          | 58             | 63          | 60          | 58          | 53     | 49          | 48          | 65                    | 62          | 63          | 68             | 65          | 63          | 58 | 54 | 53 | 70                    |  |  |  |
|         | 10          | 724         | 60             | 59          | 61          | 62          | 58          | 52     | 50          | 47          | 59                    | 61          | 66             | 67          | 65          | 60          | 55     | 51          | 50          | 67                    | 66          | 71          | 72             | 70          | 65          | 60 | 56 | 55 | 72                    |  |  |  |
| 200     | 2           | 226         | 41             | 41          | 43          | 42          | 41          | 37     | 33          | 28          | 45                    | 45          | 48             | 48          | 51          | 48          | 48     | 48          | 51          | 56                    | 48          | 52          | 50             | 56          | 55          | 57 | 58 | 58 | 64                    |  |  |  |
|         | 4           | 452         | 50             | 47          | 49          | 46          | 47          | 46     | 37          | 31          | 51                    | 57          | 55             | 55          | 53          | 50          | 62     | 58          | 51          | 65                    | 58          | 61          | 58             | 61          | 57          | 56 | 56 | 60 | 65                    |  |  |  |
|         | 6           | 679         | 54             | 52          | 52          | 49          | 52          | 48     | 41          | 34          | 55                    | 61          | 60             | 59          | 56          | 55          | 59     | 53          | 48          | 63                    | 64          | 65          | 63             | 62          | 59          | 59 | 60 | 60 | 67                    |  |  |  |
|         | 8           | 905         | 59             | 55          | 55          | 52          | 55          | 50     | 44          | 37          | 58                    | 65          | 64             | 62          | 59          | 58          | 60     | 55          | 50          | 65                    | 69          | 71          | 68             | 65          | 62          | 64 | 64 | 59 | 71                    |  |  |  |
|         | 10          | 1131        | 60             | 57          | 57          | 54          | 59          | 54     | 47          | 42          | 61                    | 68          | 66             | 65          | 62          | 61          | 61     | 57          | 52          | 67                    | 71          | 73          | 71             | 67          | 65          | 66 | 64 | 60 | 72                    |  |  |  |
| 250     | 2           | 353         | 50             | 47          | 44          | 46          | 45          | 46     | 33          | 22          | 50                    | 53          | 54             | 53          | 53          | 51          | 50     | 56          | 42          | 60                    | 56          | 58          | 55             | 60          | 59          | 57 | 58 | 54 | 65                    |  |  |  |
|         | 4           | 707         | 55             | 51          | 48          | 51          | 47          | 42     | 35          | 27          | 52                    | 64          | 61             | 58          | 57          | 55          | 53     | 49          | 43          | 60                    | 67          | 67          | 64             | 63          | 60          | 58 | 60 | 58 | 67                    |  |  |  |
|         | 6           | 1060        | 62             | 58          | 53          | 56          | 50          | 46     | 41          | 35          | 56                    | 67          | 65             | 61          | 61          | 58          | 54     | 50          | 45          | 63                    | 72          | 72          | 69             | 67          | 63          | 60 | 59 | 57 | 69                    |  |  |  |
|         | 8           | 1414        | 62             | 60          | 57          | 59          | 55          | 51     | 49          | 45          | 61                    | 71          | 67             | 64          | 64          | 60          | 56     | 53          | 48          | 66                    | 75          | 73          | 71             | 69          | 65          | 62 | 59 | 56 | 71                    |  |  |  |
|         | 10          | 1767        | 67             | 66          | 62          | 58          | 59          | 55     | 54          | 51          | 64                    | 73          | 70             | 66          | 68          | 62          | 59     | 55          | 51          | 69                    | 76          | 76          | 72             | 72          | 67          | 64 | 61 | 58 | 73                    |  |  |  |
| 315     | 2           | 561         | 42             | 47          | 45          | 43          | 38          | 35     | 33          | 32          | 45                    | 47          | 47             | 49          | 51          | 54          | 52     | 50          | 50          | 57                    | 52          | 52          | 54             | 56          | 59          | 57 | 55 | 55 | 62                    |  |  |  |
|         | 4           | 1122        | 52             | 55          | 50          | 49          | 43          | 38     | 31          | 29          | 50                    | 60          | 61             | 57          | 55          | 55          | 51     | 47          | 48          | 59                    | 65          | 66          | 62             | 60          | 60          | 56 | 52 | 53 | 64                    |  |  |  |
|         | 6           | 1683        | 54             | 57          | 52          | 51          | 45          | 40     | 33          | 31          | 52                    | 62          | 63             | 59          | 57          | 57          | 53     | 49          | 50          | 61                    | 67          | 68          | 64             | 62          | 62          | 58 | 54 | 55 | 66                    |  |  |  |
|         | 8           | 2244        | 59             | 57          | 56          | 55          | 47          | 43     | 38          | 33          | 55                    | 67          | 68             | 64          | 61          | 58          | 55     | 51          | 50          | 64                    | 72          | 73          | 69             | 66          | 63          | 60 | 56 | 55 | 69                    |  |  |  |
|         | 10          | 2806        | 61             | 59          | 58          | 57          | 49          | 45     | 40          | 35          | 57                    | 69          | 70             | 66          | 63          | 60          | 57     | 53          | 52          | 66                    | 74          | 75          | 71             | 68          | 65          | 62 | 58 | 57 | 71                    |  |  |  |
| 400     | 2           | 905         | 41             | 48          | 47          | 44          | 38          | 36     | 34          | 32          | 46                    | 48          | 49             | 49          | 50          | 53          | 50     | 48          | 48          | 57                    | 53          | 54          | 54             | 55          | 58          | 55 | 53 | 53 | 62                    |  |  |  |
|         | 4           | 1810        | 53             | 54          | 53          | 52          | 46          | 40     | 34          | 30          | 52                    | 62          | 62             | 59          | 57          | 54          | 52     | 48          | 47          | 60                    | 67          | 67          | 64             | 62          | 59          | 57 | 53 | 52 | 65                    |  |  |  |
|         | 6           | 2714        | 55             | 56          | 55          | 54          | 48          | 42     | 36          | 32          | 54                    | 64          | 64             | 61          | 59          | 56          | 54     | 50          | 49          | 62                    | 69          | 69          | 66             | 64          | 61          | 59 | 55 | 54 | 67                    |  |  |  |
|         | 8           | 3619        | 60             | 58          | 61          | 62          | 53          | 46     | 42          | 35          | 61                    | 68          | 68             | 67          | 64          | 59          | 56     | 51          | 50          | 66                    | 73          | 73          | 72             | 69          | 64          | 61 | 56 | 55 | 71                    |  |  |  |
|         | 10          | 4524        | 62             | 60          | 63          | 64          | 55          | 48     | 44          | 37          | 63                    | 70          | 70             | 69          | 66          | 61          | 58     | 53          | 52          | 68                    | 75          | 75          | 74             | 71          | 66          | 63 | 58 | 57 | 73                    |  |  |  |

**fm [Hz]** - Średnia częstotliwość oktawa

**Lw [dB/oktawa]** - Poziomy mocy akustycznej określone w komorze pogłosowej

**Lwa [dB(A)]** - Całkowity poziom dźwięku

**Pg [Pa]** - Różnica ciśnień

**v [m/s]** - Prędkość przepływu

**V [m3/h]** - Przepływ objętościowy

### Poziom ciśnienia akustycznego

| Wymiary | v<br>[m/s] | V<br>[m3/h] | $\Delta p_g = 100 \text{ Pa}$ |    |    |    |    |    |     |    |    | $\Delta p_g = 250 \text{ Pa}$ |    |    |    |    |    |     |    |    | $\Delta p_g = 500 \text{ Pa}$ |    |    |    |    |    |     |    |    |
|---------|------------|-------------|-------------------------------|----|----|----|----|----|-----|----|----|-------------------------------|----|----|----|----|----|-----|----|----|-------------------------------|----|----|----|----|----|-----|----|----|
|         |            |             | Lw w dB/Oktawe                |    |    |    |    |    |     |    |    | Lw w dB/Oktawe                |    |    |    |    |    |     |    |    | Lw w dB/Oktawe                |    |    |    |    |    |     |    |    |
|         |            |             | fm [Hz]                       |    |    |    |    |    |     |    |    | fm [Hz]                       |    |    |    |    |    |     |    |    | fm [Hz]                       |    |    |    |    |    |     |    |    |
|         | 6          | 1           | 2                             | 5  | 1  | 2  | 4  | 8  | LWA | 6  | 1  | 2                             | 5  | 1  | 2  | 4  | 8  | LWA | 6  | 1  | 2                             | 5  | 1  | 2  | 4  | 8  | LWA |    |    |
|         | 3          | 2           | 5                             | 0  | 0  | 0  | 0  | 0  | w   | 3  | 2  | 5                             | 0  | 0  | 0  | 0  | 0  | w   | 3  | 2  | 5                             | 0  | 0  | 0  | 0  | 0  | w   |    |    |
|         | H          | H           | H                             | H  | H  | H  | H  | H  | dB  | H  | H  | H                             | H  | H  | H  | H  | H  | dB  | H  | H  | H                             | H  | H  | H  | H  | H  | dB  |    |    |
|         | z          | z           | z                             | z  | z  | z  | z  | z  | (A) | z  | z  | z                             | z  | z  | z  | z  | z  | (A) | z  | z  | z                             | z  | z  | z  | z  | z  | (A) |    |    |
| 160     | 2          | 145         | 29                            | 24 | 26 | 25 | 21 | 14 | 10  | 16 | 33 | 26                            | 17 | 24 | 23 | 36 | 37 | 31  | 28 | 41 | 31                            | 22 | 29 | 28 | 41 | 42 | 36  | 33 | 48 |
|         | 4          | 290         | 39                            | 37 | 34 | 33 | 26 | 22 | 20  | 22 | 36 | 37                            | 33 | 38 | 37 | 39 | 35 | 32  | 33 | 44 | 42                            | 38 | 43 | 42 | 44 | 42 | 39  | 38 | 51 |
|         | 6          | 434         | 43                            | 41 | 39 | 38 | 30 | 27 | 26  | 26 | 37 | 45                            | 41 | 46 | 45 | 40 | 37 | 35  | 36 | 45 | 50                            | 46 | 51 | 50 | 45 | 42 | 40  | 41 | 53 |
|         | 8          | 579         | 45                            | 43 | 41 | 40 | 32 | 29 | 28  | 28 | 38 | 47                            | 43 | 48 | 47 | 42 | 39 | 37  | 38 | 46 | 52                            | 48 | 53 | 52 | 47 | 44 | 42  | 43 | 54 |
|         | 10         | 724         | 50                            | 44 | 46 | 45 | 42 | 38 | 38  | 37 | 39 | 51                            | 51 | 52 | 51 | 44 | 41 | 39  | 40 | 47 | 56                            | 56 | 57 | 56 | 49 | 46 | 44  | 45 | 55 |
| 200     | 2          | 226         | 21                            | 25 | 21 | 22 | 28 | 29 | 16  | 7  | 32 | 27                            | 28 | 27 | 31 | 38 | 42 | 33  | 25 | 45 | 27                            | 28 | 27 | 31 | 38 | 42 | 33  | 25 | 52 |
|         | 4          | 452         | 37                            | 36 | 31 | 26 | 30 | 30 | 18  | 9  | 35 | 41                            | 40 | 35 | 33 | 38 | 43 | 33  | 28 | 45 | 41                            | 40 | 35 | 33 | 38 | 43 | 33  | 28 | 51 |
|         | 6          | 679         | 40                            | 40 | 35 | 26 | 32 | 31 | 20  | 12 | 36 | 46                            | 46 | 40 | 36 | 39 | 42 | 32  | 24 | 46 | 46                            | 46 | 40 | 36 | 39 | 42 | 32  | 24 | 51 |
|         | 8          | 905         | 44                            | 44 | 38 | 30 | 34 | 33 | 22  | 14 | 39 | 50                            | 51 | 45 | 36 | 39 | 42 | 33  | 25 | 46 | 50                            | 51 | 45 | 36 | 39 | 42 | 33  | 25 | 52 |
|         | 10         | 1131        | 45                            | 46 | 40 | 32 | 36 | 34 | 23  | 15 | 40 | 53                            | 54 | 48 | 39 | 42 | 44 | 34  | 27 | 48 | 53                            | 54 | 48 | 39 | 42 | 44 | 34  | 27 | 53 |
| 250     | 2          | 353         | 30                            | 28 | 21 | 20 | 26 | 28 | 15  | 9  | 31 | 33                            | 26 | 24 | 25 | 36 | 38 | 31  | 20 | 42 | 33                            | 25 | 26 | 31 | 42 | 47 | 41  | 33 | 50 |
|         | 4          | 707         | 38                            | 32 | 27 | 23 | 27 | 27 | 20  | 7  | 32 | 43                            | 36 | 32 | 29 | 36 | 38 | 30  | 22 | 41 | 42                            | 37 | 36 | 34 | 42 | 45 | 39  | 32 | 49 |
|         | 6          | 1060        | 41                            | 34 | 32 | 29 | 30 | 29 | 22  | 9  | 35 | 47                            | 41 | 38 | 33 | 37 | 38 | 33  | 23 | 43 | 48                            | 44 | 42 | 38 | 44 | 46 | 40  | 33 | 49 |
|         | 8          | 1414        | 46                            | 41 | 40 | 39 | 35 | 31 | 22  | 10 | 41 | 49                            | 43 | 42 | 38 | 40 | 40 | 35  | 26 | 45 | 54                            | 48 | 47 | 41 | 46 | 47 | 41  | 34 | 51 |
|         | 10         | 1767        | 51                            | 45 | 46 | 46 | 41 | 37 | 28  | 18 | 47 | 52                            | 46 | 45 | 42 | 43 | 42 | 36  | 26 | 48 | 54                            | 50 | 49 | 44 | 47 | 48 | 43  | 35 | 53 |
| 315     | 2          | 561         | 34                            | 34 | 31 | 29 | 25 | 24 | 24  | 24 | 33 | 39                            | 34 | 35 | 37 | 41 | 41 | 41  | 42 | 45 | 44                            | 39 | 40 | 42 | 46 | 46 | 46  | 47 | 50 |
|         | 4          | 1122        | 44                            | 42 | 36 | 35 | 30 | 27 | 22  | 21 | 38 | 52                            | 48 | 43 | 41 | 42 | 40 | 38  | 40 | 47 | 57                            | 53 | 48 | 46 | 47 | 45 | 43  | 45 | 52 |
|         | 6          | 1683        | 46                            | 44 | 38 | 37 | 32 | 29 | 24  | 23 | 40 | 54                            | 50 | 45 | 43 | 44 | 42 | 40  | 42 | 49 | 59                            | 55 | 50 | 48 | 49 | 47 | 45  | 47 | 54 |
|         | 8          | 2244        | 51                            | 44 | 42 | 41 | 34 | 32 | 29  | 25 | 43 | 59                            | 55 | 50 | 47 | 45 | 44 | 42  | 42 | 52 | 64                            | 60 | 55 | 52 | 50 | 49 | 47  | 47 | 57 |
|         | 10         | 2806        | 53                            | 46 | 44 | 43 | 36 | 34 | 31  | 27 | 45 | 61                            | 57 | 52 | 49 | 47 | 46 | 44  | 44 | 54 | 66                            | 62 | 57 | 54 | 52 | 51 | 49  | 49 | 59 |
| 400     | 2          | 905         | 33                            | 36 | 33 | 33 | 25 | 26 | 26  | 24 | 34 | 40                            | 37 | 35 | 35 | 40 | 40 | 40  | 40 | 45 | 45                            | 42 | 40 | 40 | 45 | 45 | 45  | 45 | 50 |
|         | 4          | 1810        | 45                            | 42 | 39 | 39 | 33 | 30 | 26  | 22 | 40 | 54                            | 50 | 45 | 45 | 41 | 42 | 40  | 39 | 48 | 59                            | 55 | 50 | 50 | 46 | 47 | 45  | 44 | 53 |
|         | 6          | 2714        | 47                            | 44 | 41 | 41 | 35 | 32 | 28  | 24 | 42 | 56                            | 52 | 47 | 47 | 43 | 44 | 42  | 41 | 50 | 61                            | 57 | 52 | 52 | 48 | 49 | 47  | 46 | 55 |
|         | 8          | 3619        | 52                            | 46 | 47 | 47 | 40 | 36 | 34  | 27 | 49 | 60                            | 56 | 53 | 53 | 46 | 46 | 43  | 42 | 54 | 65                            | 61 | 58 | 58 | 51 | 51 | 48  | 47 | 59 |
|         | 10         | 4524        | 54                            | 48 | 49 | 49 | 42 | 38 | 36  | 29 | 51 | 62                            | 58 | 55 | 55 | 48 | 48 | 45  | 44 | 56 | 67                            | 63 | 60 | 60 | 53 | 53 | 50  | 49 | 61 |

**fm [Hz]** - Średnia częstotliwość oktawa

**Lw [dB/oktawe]** - Poziomy mocy akustycznej określone w komorze pogłosowej

**Lwa [dB(A)]** - Całkowity poziom dźwięku

**Pg [Pa]** - Różnica ciśnień

**v [m/s]** - Prędkość przepływu

**V [m3/h]** - Przepływ objętościowy