

PLM

Air spring elements

PLM air spring elements offer low-frequency vibration and shock isolation for measuring stations, coordinate measuring machines, fans, air compressors, motor and generator units, high-speed presses and more.

The PLM air spring series comprises low-frequency vibration and shock isolators which reduce undesirable vibrations while simultaneously levelling the supported devices.

When used as a vibration damper, the internal air chamber already guarantees a significant isolating effect from 5 Hz upwards. In an optimally loaded condition, the natural frequency is 3.0 Hz. PLM air spring elements also isolate in a pressure-free state.

The vertical natural frequency of the elastomer body is approximately 10 Hz, meaning that disturbances above 14 Hz are isolated.

The ratio of vertical to horizontal natural frequency is roughly 1:1 with high horizontal stability.

For applications with shock or impact loads, the elastomer wall design of the PLM air springs offer high dynamic spring deflection. If one wishes simultaneously to retain the low natural frequency of 3 Hz, the use of external arrestors is recommended in order to prevent the air springs from breaking through.

The PLM design features a vulcanised thread insert, by means of which the air springs can be inflated either with a standard tyre valve or a pneumatic fitting. Special connections are not necessary.

The isolators are delivered with a valve. They are inflated and levelled manually with the aid of hand pumps or adaptors connected to an air supply. If a compressed air fitting is mounted on the air springs, they can be connected to the controlled air supply system. This facilitates the pressurisation and the level control. In the event that no level control valve is used, a control unit can be provided to regulate the pressure and the height of the air springs linked to each other.

In addition, the PLM air spring elements can be supplied with automatic level control valves for height regulation. Each master isolator has a built-in level control valve which functions as a load detector and position sensor.

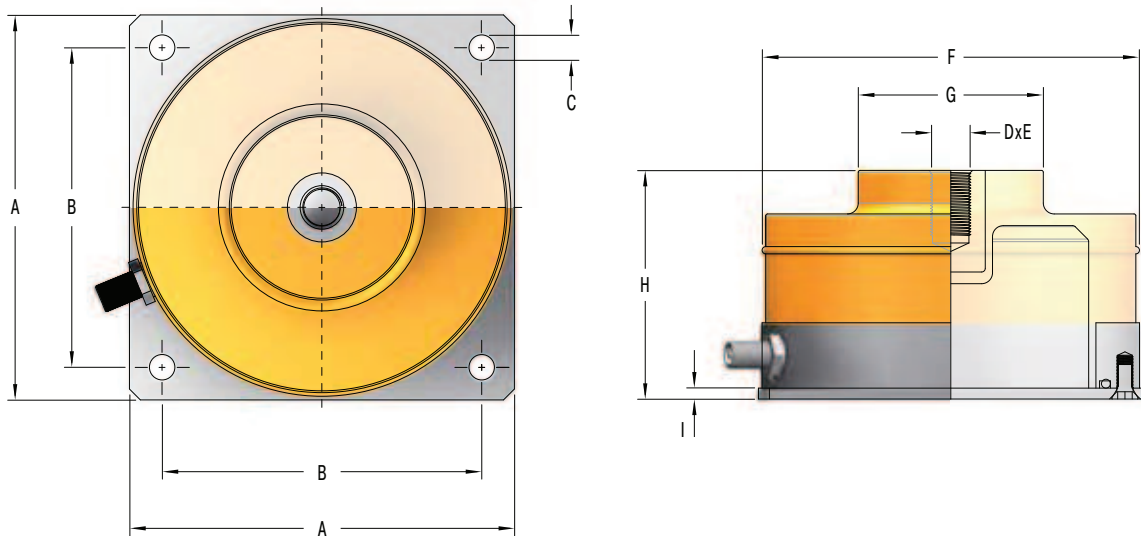
Properties

- Low natural frequency of 3 Hz
- Easy level control via integrated valve
- Height regulation control on request
- Ratio of horizontal to vertical natural frequency 1:1

Areas of application

- Measuring tables
- Test benches
- High-speed presses
- Production plants

PLM



| Type | A mm | B mm | C mm | Thread D | E mm | F mm | G mm | H mm | I mm | Max. bearing load kg |
|----------------|---------|---------|---------|-------------|---------|---------|---------|---------|---------|-------------------------|
| PLM 1 | 76 | 60.5 | 6.9 | M10 | 12.0 | 73 | 25 | 65 | 3.2 | 45 |
| PLM 3 | 106 | 89 | 6.9 | M12 | 13.5 | 105 | 56 | 65 | 3.2 | 135 |
| PLM 6 | 130 | 108 | 7.4 | M12 | 13.5 | 127 | 60 | 90 | 3.2 | 250 |
| PLM 12 | 175 | 152 | 7.4 | M12 | 13.5 | 171 | 100 | 90 | 3.2 | 550 |
| PLM 24 | 254 | 216 | 14.2 | M16 | 19.0 | 245 | 138 | 90 | 4.8 | 1100 |
| PLM 48 | 343 | 305 | 14.2 | M16 | 19.0 | 338 | 190 | 90 | 4.8 | 2200 |
| PLM 96 | 470 | 406 | 20.6 | M24 | 22.4 | 468 | 267 | 90 | 6.4 | 4400 |
| PLM 192 | 610 | 508 | 20.6 | M24 | 22.4 | 610 | 400 | 90 | 6.4 | 8800 |

Any number of parallel air springs can be added in order to increase the loading capacity of the overall system.

Our technicians are happy to assist you in the selection process and provide any support you require.

Selection and calculation

The best isolation values can be achieved for the use of PLM air springs when the maximum load of the individual air spring elements is utilised to the fullest extent possible.

In standard applications, it is sufficient to select PLM air spring elements on the basis of the weight of the machine or plant to be isolated. If the maximum isolation effect is to be realised, additional weights (steel or e.g. granite plates) may have to be added so as to achieve the maximum permitted load range and thus the ideal isolation effect.

Note

When commissioning, please ensure that pressure is first applied on the PLM air spring elements before they are filled to the desired operating pressure (max. 5 bar for sizes 1 and 3; max. 6 bar for the remaining sizes) using the valve.

A separate usable control unit can be used to check the operating condition and adjust to the desired amount.