

BiAir®

Membrane air spring insulator

Low-frequency Bilz BiAir® membrane air spring with precisely adjustable damping for effective vibration insulation of sensitive measurement and testing equipment, precise finishing machines, laser equipment and optical and electronic instruments as well as vehicle, engine and gearbox test beds, etc.



BiAir® MEMBRANE AIR SPRING INSULATOR WITH ADJUSTABLE DAMPING

The BiAir® membrane air spring insulator is made of turned or cast aluminium. The air space is enclosed by a thin-walled flexible and pressure-resistant rolling membrane. A piston sits on top of the membrane and is pressed into the air space.

This design allows a highly-effective insulation against vibration. In order to simultaneously achieve a high degree of damping, the air space within the insulator is divided into two chambers connected with an air tube (load/damping volume). An adjustable throttle valve is used to set the flow cross section to the desired damping effect from the outside. The friction in the air flow generated by the throttle valve can create a damping effect of up to 15 %.

Damage to the rolling membrane due to overpressure is virtually excluded through the use of additional safety valves or a mechanical piston stroke limit.

- Highly effective vibration insulation of
 - sensitive measurement and testing equipment,
 - precise finishing machines,
 - laser equipment as well as optical and electronic instruments.
- Vibration insulated bearings for vehicle, engine and gearbox test beds
- Foundation insulation

Advantages compared to conventional steel springs

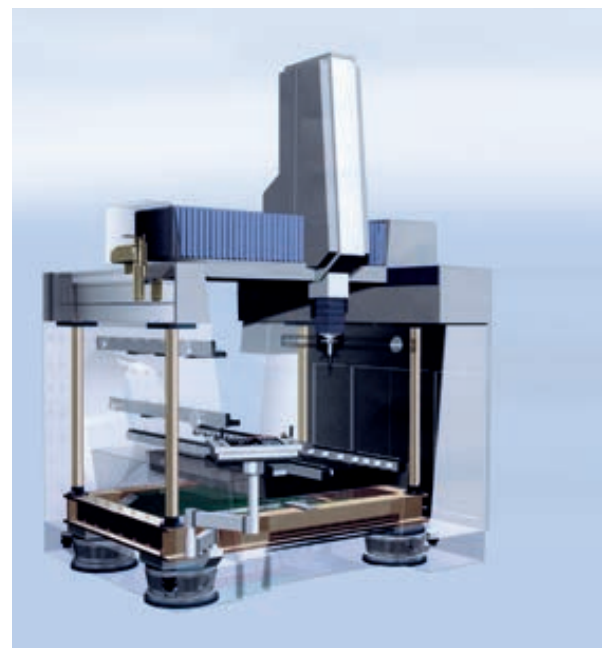
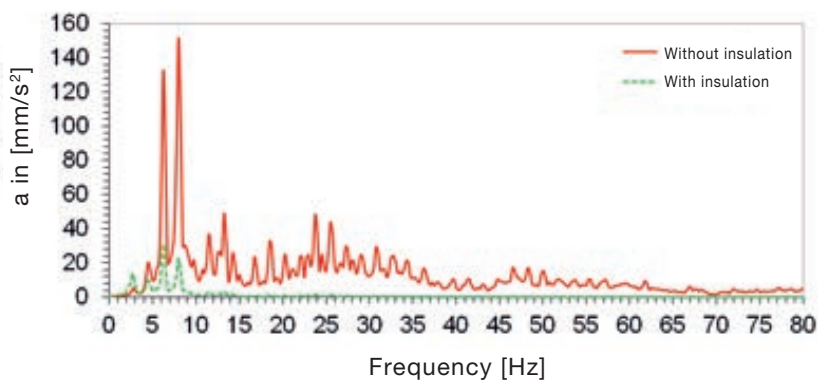
The use of Bilz BiAir® air spring insulators with active level control constantly maintains the correct level of machines or foundations. The level control and adjustment is completely automatic!

The pressure in the air springs is appropriately adjusted by in- or deflating in response to load changes. This keeps the insulating effect constant in every case.

Unlike steel springs air springs do not transmit structure-borne sound.

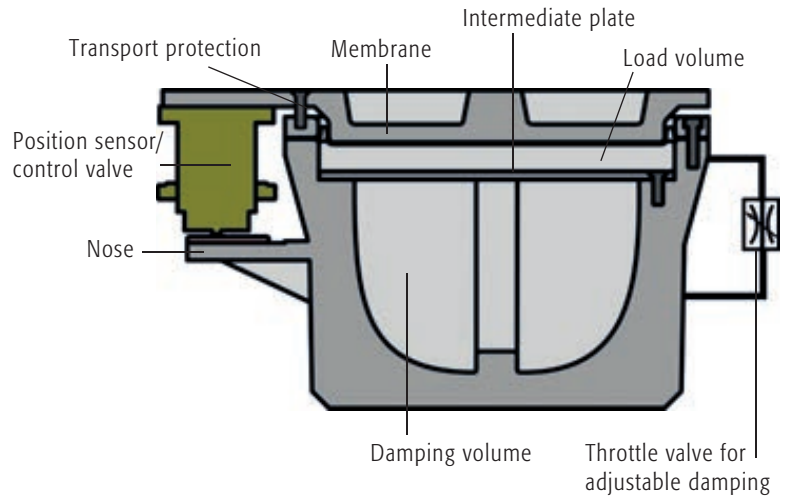


With/without insulation



Note:

- BiAir® membrane air springs are available in the following materials depending on size
 - BiAir®-ED: Cast aluminium, powder coated
RAL similar to 7037 dusty grey
 - BiAir®-ED-AL: Aluminium (naturally anodized)
- with a nose for mounting valves (MPN) or displacement sensors are available with the hose connection on the left (NL) or on the right (NR).

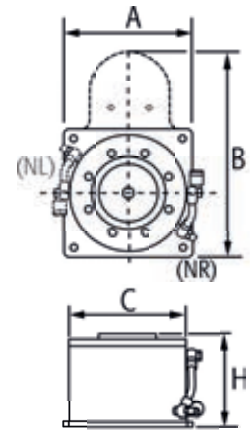


TYPE SERIES BiAir®-ED-AL IN ANODISED ALUMINIUM

Natural frequency vertical approximately 2.5 Hz, horizontal approximately 2.8 Hz.

Type	Aluminium BiAir®-ED-AL			A mm	B mm	ØC mm	Working height H mm	+/- travel	max. load N** at an air pressure of	
	without lug	NR	NL						4 bar	6 bar
0.125*	50-0002	-	-	75	-	74	77	+/-2.0	390	580
0.15*	50-0005	-	-	75	-	74	77	+/-2.0	670	1,000
0.25*	50-0129	50-0135	50-0136	120	182	110	87	+/-2.5	1,130	1,700
0.5	50-0130	50-0137	50-0138	130	198	129	100	+/-2.5	2,670	4,000
1	50-0131	50-0139	50-0140	200	275	200	100	+/-2.5	6,330	9,500
1.5	50-0146	50-0147	50-0148	230	305	230	100	+/-3.5	10,170	15,260
2	50-0133	50-0141	50-0144	260	350	260	100	+/-2.5	14,200	21,300
2.5	50-0134	50-0142	50-0143	300	390	300	100	+/-3.0	19,670	29,500

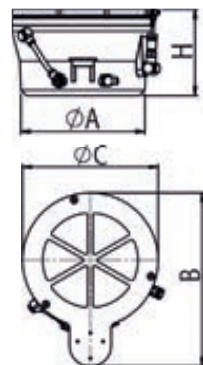
* Natural frequency vertical approximately 3.0 Hz, horizontal approximately 3.5 Hz
 ** When selecting the size of air spring please select an air pressure of 4 bar.



TYPE SERIES BiAir®-ED/-HE/-HE-MAX IN CAST ALUMINIUM

Natural frequencies vertical BiAir®-ED approx. 2.5 Hz
 BiAir®-ED-HE approx. 1.7 Hz
 BiAir®-ED-HE-MAX approx. 1.2 Hz
 Natural frequencies horizontal BiAir®-ED approx. 2.8 Hz
 BiAir®-ED-HE approx. 2.8 Hz
 BiAir®-ED-HE-MAX approx. 2.8 Hz

Type	Item no.			ØA mm	B mm	ØC mm	Working height H in mm			+/- travel	max. load N** at an air pressure of	
	BiAir®-ED	BiAir®-ED/HE	BiAir®-ED/HE-MAX				BiAir®-ED	ED/HE	ED/HE-MAX		4 bar	6 bar
0.5	50-0012	50-0145	-	120	216	129	157	307	-	+/- 2.5	2,670	4,000
1	50-0026	50-0027	50-0035	172*	288	200	157	307	509	+/- 2.5	6,330	9,500
1.5	50-0020	50-0021	50-0025	212*	305	230	157	307	509	+/- 3.5	10,170	15,260
2	50-0045	50-0046	50-0054	226*	335	260	157	307	509	+/- 2.5	14,200	21,300
2.5	50-0036	50-0037	50-0044	271*	378	300	157	307	509	+/- 3.0	19,670	29,500
3	50-0055	50-0056	50-0062	348*	467	382	157	307	509	+/- 2.5	34,130	51,200
4	50-0064	50-0065	50-0066	490	605	530	157	307	509	+/- 2.75	65,730	98,600
5	50-0072	-	-	747	875	798	157	-	-	+/- 3.5	155,730	233,600
5	-	-	50-0073	728	960	880	-	-	509	+/-3,5	155,730	233,600



* For the sizes 1 to 3 of series ED/HE-MAX the ØA is the same as ØC (piston diameter)
 ** When selecting the size of air spring please select an air pressure of 4 bar.

Note

- The maximum permissible movement amplitude in the horizontal plane is between approximately 1 to 2 mm depending on the size of the air spring.
- In addition to the standard solutions listed here we also offer numerous air springs with a larger stroke and lower natural frequency.
- Powder coated air springs are also available in other RAL colours on request.
- Permissible temperature range: -20 °C to +80 °C
- If you have any questions please contact us, we would be happy to advise you.

Right to make technical changes is reserved.