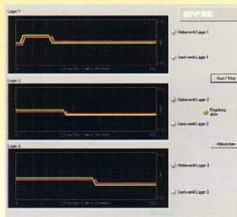


EFFBE - LEVEL MOUNT®
Air springs

System ISR

**Integrated Sensors
and Regulating Valves**

LEVEL MOUNT



EFFBE

EFFBE - LEVEL MOUNT®
Air springs

System ISR
The Design

EFFBE air springs were previously equipped with optional regulating valves arranged externally for the purpose of ensuring that a defined position would continue to be maintained in the presence of altered static loads.

The new EFFBE Air Spring System ISR combines the proven air springs with a new contact less electro-pneumatic control system (patent pending), whereby sensors and control valves have been combined to form a compact module and integrated into the air springs.

A control device with either manual operation or connection to a PC port makes it possible to select the following settings:

*Levelling of the system
(horizontal installation)*

*Tracking of the position of each mount
(operating height)*

*Selection of height tolerance and restoring
procession*

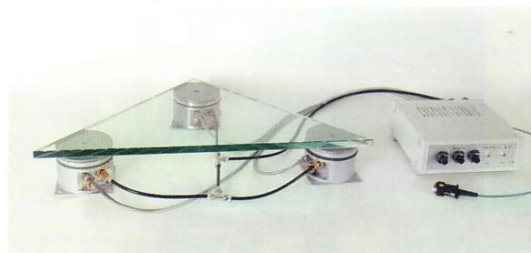
*Time-delayed or suppressed response
whenthere is dynamic impact*

Monitoring and documentation

The concept represents the implementation of a compact construction design with inexpensive modules.

A sensor for contact less level scanning is integrated into the air spring element, avoiding separate scanning of the machine level unnecessary. Valves for filling and emptying the cavity are arranged as well within the air spring as so-called lift- and sink-valves. One can freely choose between simply releasing the exhaust air or channelling it away, e.g. to meet clean room requirements.

A system consists of three regulated air mounts (masters), and additional air mounts without separate control (slaves) which are connected for the purpose of load sharing. One part of the system is made up of a control device which receives data from the sensors concerning the operating height/level of each individual mount and compares this information with the adjustable required values. A user-specific tolerance can be established as a default setting in order to avoid overreactions. The respective zero positions of the three regulated mounts are adjusted with a potentiometer, at which time the levelling of the system also takes place. A menu-driven software makes it possible to select restoring procession, height tolerance, switching and response times as well as performing monitoring functions.



EFFBE - LEVEL MOUNT®
Air springs

System ISR
 The System

The basic version of the EFFBE Air Spring System ISR is programmed at the factory. The following parameters can however in principle be varied through software applications:

- Restoring procession
- Permissible deviation
- Response time
- Median level

These parameters can also be just as easily inspected, freely selected within wide limits and permanently saved in the control unit. They remain in effect even after power failures.

A Data Sheet is available with the factory-installed default values.

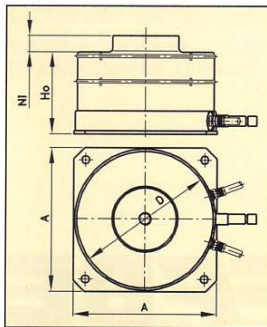
Overview of the programmable parameters

Restoring procession	coarse	± 0.5 mm
	fine	± 0.1 mm
	user-defined	± 0.01 mm ... 1 mm
Permissible deviation	broad	± 1.0 mm
	narrow	± 0.5 mm
	user-defined	± 0.01 mm ... 1,5 mm
Response time	slow	125 ms
	fast	10 ms
	user-defined	5 ms ... 125 ms
Level	mean position	± 5 mm
	fine adjustment is done using potentiometers and/or software	

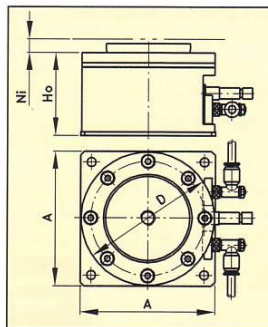
Dimensions Table – Overview
System -Elements Type SLM/ADS

The main dimensions, permissible loads and natural frequencies of the air springs can be found in the EFFBE LevelMount catalogue.

Typ SLM



Typ ADS



Dimensions in mm	D	Ho	Ni	A	Load (max.) kN
SLM /ADS 3	105	65	± 5	106	1,8
6	127	90	± 6	130	2,8
12	172	90	± 6	175	6
24	245	90	± 6	255	13
48	338	90	± 6	343	26
96	468	90	± 6	470	55
192	610	90	± 6	610	100

EFFBE - LEVEL MOUNT® Air springs

System ISR The System – Elements



Type SLM

Construction

Air mount element as elastomer-metal-compound
Air cavity made of elastomer
Support and base plates made of metal

Natural frequencies

3 Hz - 5 Hz

Scope of delivery

Air spring system ISR
Standard type 4 mounts
3 Air springs SLM/ADS Type Master with sensor system and control valves
1 Air spring SLM/ADS Type Slave without sensor system and valves
1 Control unit as 3-channel board with PC interface RS-232
Control cable for Master elements
Tube NW 4 and fittings

Options

Control unit
Control board in plastic case;
Plug connections for control cable
Power supply and PC interface RS-232;
Power supply unit for external power supply

Filter regulator
Filter regulator consisting of pressure reducer, pressure gauge, filter, water separator

Control cable
Length of the 3 control cables in accordance with customer specifications

'Air Level Control' software
Software for PC (Windows)
Serial power cable RS-232

Hardware connections

Compressed air
Operating pressure 1 to 6 bar
dry, free of dust and oil
Alternative: filter regulator (FRK)

Control unit
Board approximately 160 x 100 x 15 mm
Alternative: board in plastic case approximately 225 x 200 x 85 mm

Power supply
24 V - 1A
Alternative: power supply unit
primary 230 V, 50 Hz, 130 Watt,
secondary 24 V, 1 A, DC

Type ADS

Construction

Air mount element with EFFBE diaphragm
Case, piston and base made of metal

Natural frequencies

1,5 Hz - 3 Hz

Tube

Additional tube and connection pieces in accordance with the number of air springs

Viscose shock absorption
The air springs in the Type SLM can have integrated viscose damping as optional equipment

PC Interface

RS-232 serial port is supplied
The EFFBE 'Air Level Control' software is required for programming.

Start-up

Responsibility for start-up and adjustment of the air spring system, as well as for the training of operating personnel, can be assumed by EFFBE employees upon request..

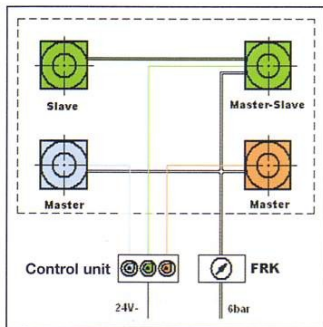
EFFBE - LEVEL MOUNT®
Air springs
System ISR

Mode of operation

Function check of the valves by means of LED display

by means of 'Air Level Control' software:
 Display and documentation of **REQUIRED** and **ACTUAL** values

Adjustment of the programmable parameters



Circuit diagram
 4 (alternative: 6) mounts

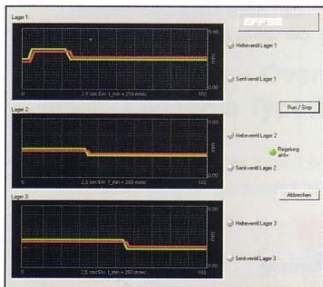
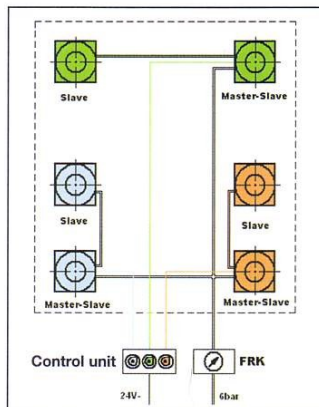
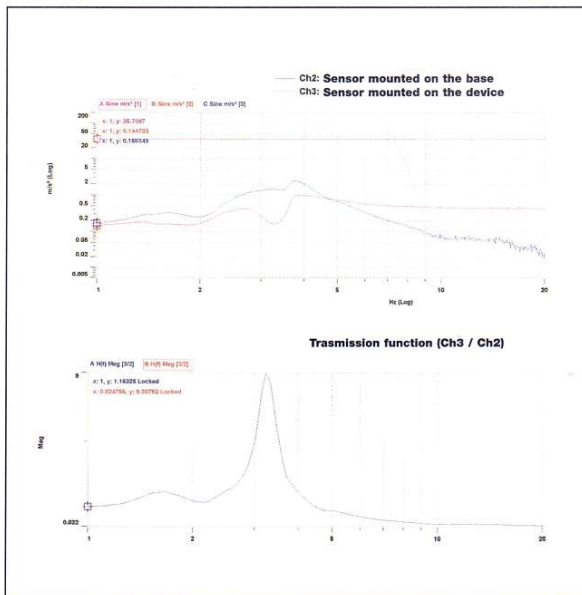


Illustration: Monitoring using
 'Air Level Control' software



Transmission function ADS 3

The specifications in this brochure are the result of extensive product and application experience. They should not however in their capacity as descriptions and identifications be regarded as guaranteed characteristics. The manufacturer reserves the right to implement technical modifications without notice within the framework of product development.

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