IDAM
INA Drives & Mechatronics

- **LDDS**

  Linear Direct Drive System

- **LRAM-M-1.00-50/33/89-MR-K**

SCHAEFFLER
LuK INA FAG

LRAM-M-1.00-50/33/89-MR-K

Features, benefits, applications

Features

- Short stroke linear axis with air bearing in compact design
- 2-phase hybrid stepper motor with moving, air bearing ceramic plate
- Magneto-resistive measuring system
- No cooling required

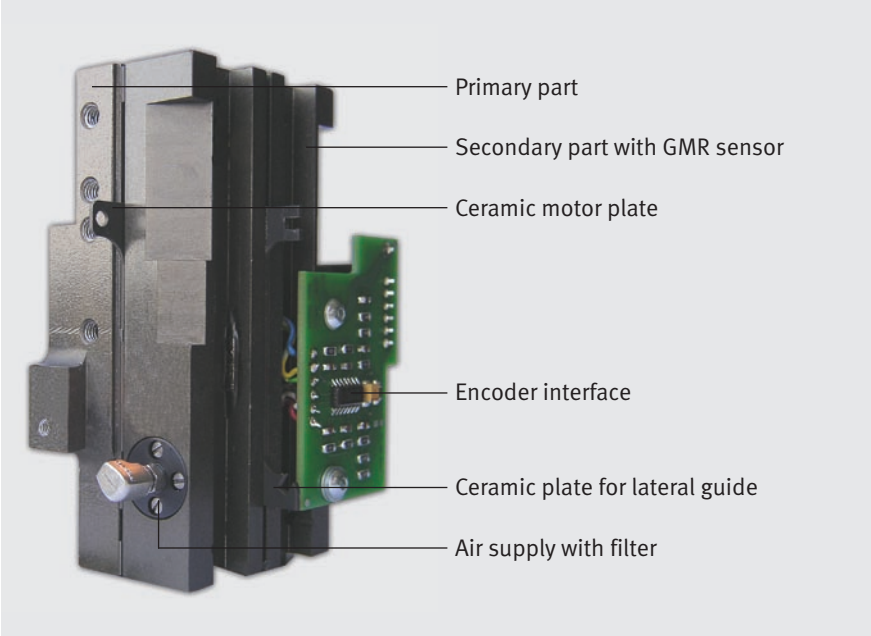
Benefits

- High acceleration up to 1000 m/s^2
- Wear-free, precise air bearing
- Low moving mass (10 g)
- Low impulse input into the base system
- High nominal force
- Dimensions and forces can be customized to special applications.

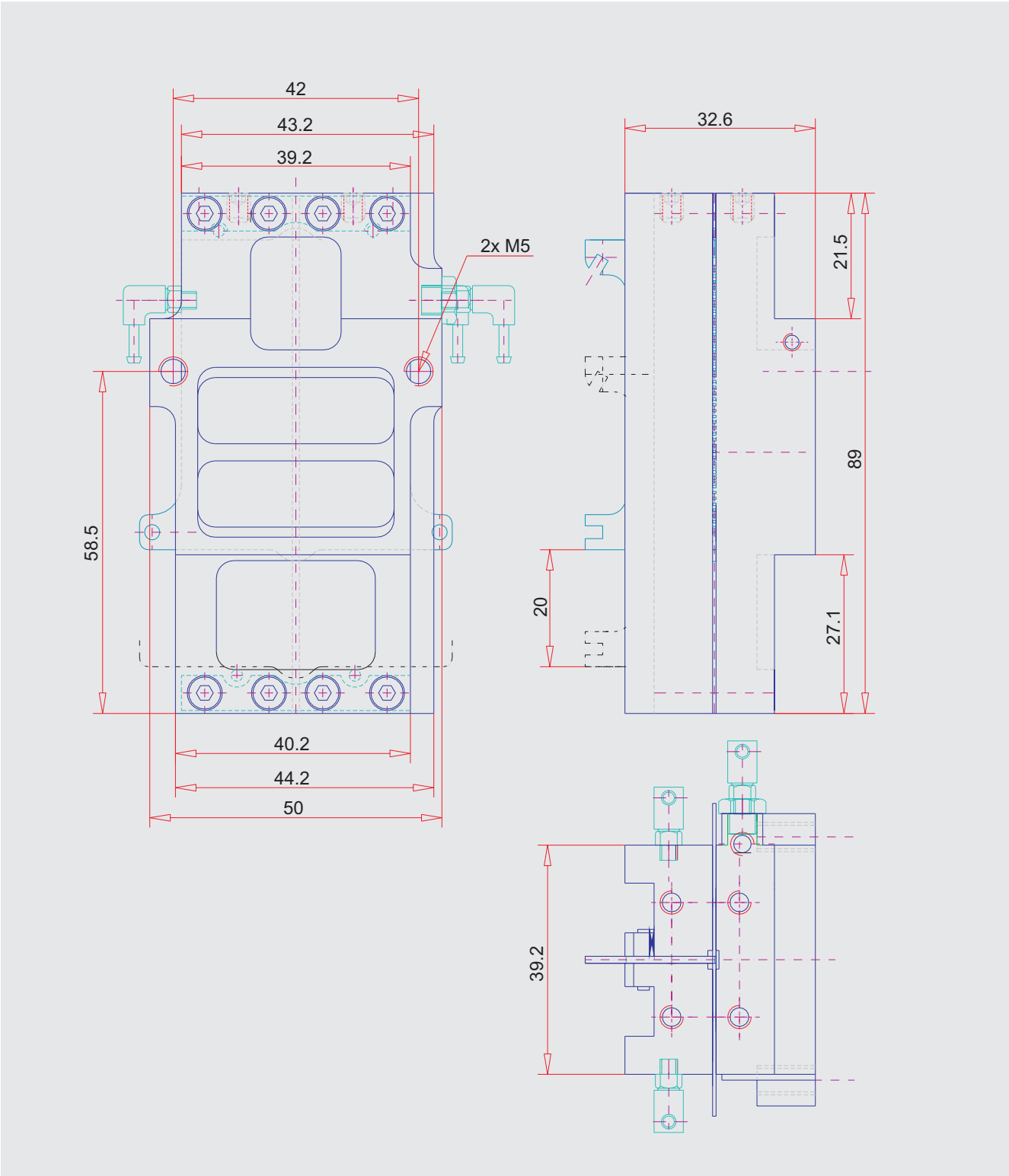
Applications

- Applications with highly dynamic requirements
- Precise positioning of parts with low mass
- Applications with high positioning cycles
- Handling and test systems
- Pick and place
- Turn lift unit in combination with a micromotor

Mechanical Design



Drawing



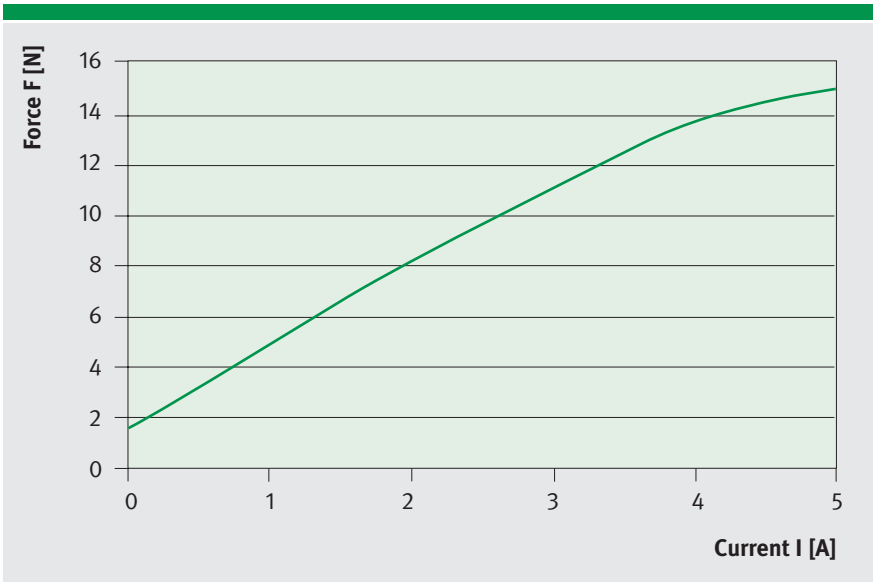
Technical Data

Dimensions, masses, performance data, air bearing, measuring system

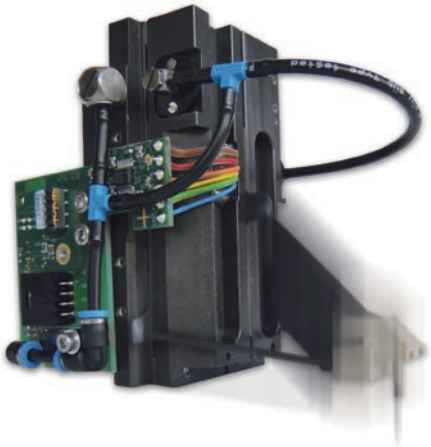
Dimensions/masses	Symbol	Unit	LRAM-M-1.00-50/33/89-MR-K
Dimensions	L x B x H	mm	33 x 50 x 89
Mass	m	g	280
Moving mass	m_{mov}	g	10
Stroke	s	mm	20
Graduation period	T_Z	mm	1
Performance data	**Symbol**	**Unit**	**LRAM-M-1.00-50/33/89-MR-K**
2-phase hybrid stepper motor			
Holding force at 3 A	F_H	N	11
Self-holding force	F_S	N	1.5
Repeat accuracy		µm	‹ 2
Resistance/phase	R_{25}	Ω	0.25
Inductance/phase	L	mH	0.3
Peak current	I_p	A_{rms}	5
Rated current	I_c	A_{rms}	3
DC link voltage	U_{DCL}	V	50
Maximum acceleration	a	m/s^2	1000
Air bearing	**Symbol**	**Unit**	**LRAM-M-1.00-50/33/89-MR-K**
Air gap		µm	10
Air pressure	p	bar	3 – 4
Air consumption at 3 bar (25 °C)		Nl/min	9
Measuring system	**Symbol**	**Unit**	**LRAM-M-1.00-50/33/89-MR-K**
Magneto-resistive measuring system			
Analog signals sin/cos		V_{pp}	1
Signal period		mm	1

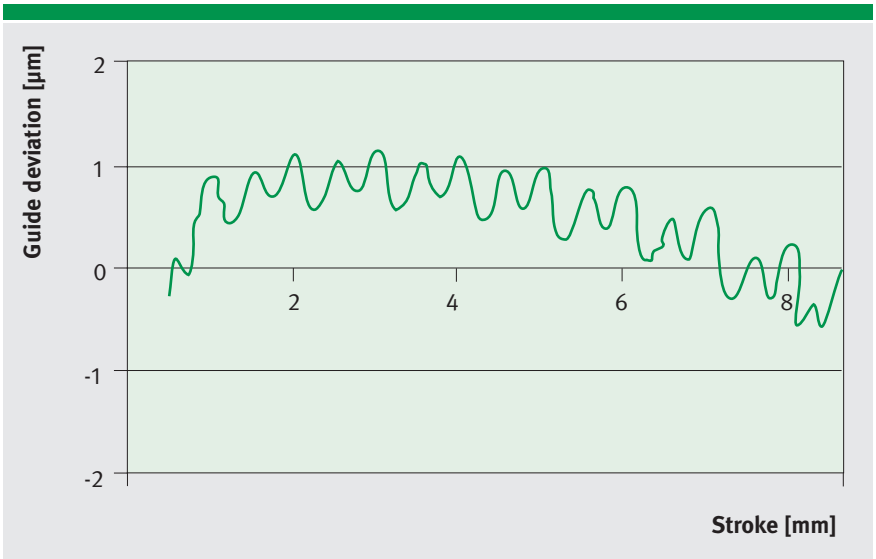
Characteristics

Force-current characteristic, guide deviation-stroke characteristic



Holding force





Example of guide deviation

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