

# Linear Modules with Intermediate Positions

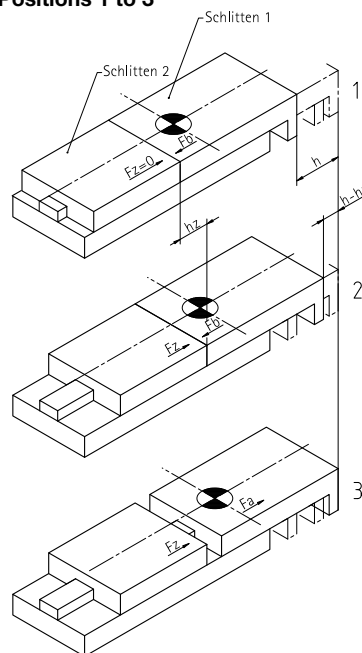
## Technical Data – Summary FZ and F-ZA Series

		LM with Intermediate Position								
		LM 4		LM 5		LM 6		LM 8		
		FZ-30	FZ-60	FZ-60	FZ-90	FZ-60	FZ-120	F-120ZA	F-240ZA	F-360ZA
Stroke lengths [mm] h:	0-30	●								
	0-60		●	●		●				
	0-90				●					
	0-120						●	●		
	0-180									
	0-240								●	
	0-360									●
Max. permissible mass [kg]:	0,8	●	●							
	2,5			●	●					
	5					●	●			
	8							●	●	●
Slide 1 Theor. force (bei 5bar) [N]: Fa/Fb	50/38	●	●							
	113/85			●	●					
	201/173					●	●			
	394/346							●	●	●
Cylinder diameter [mm]:	2xØ8	●	●							
	2xØ12			●	●					
	2xØ16					●	●			
	1xØ32							●	●	●
Slide 2 Theor. force (bei 5bar) [N]: Fz	66	●	●							
	173			●	●					
	364					●	●			
Cylinder diameter [mm]:	2xØ10	●	●							
	2xØ16			●	●					
	2xØ20					●	●			
Air consumption per cycle at 5 bar and nominal stroke [Nl]:		0,09	0,11	0,42	0,63	0,68	1,36	0,58	1,13	1,68
Weight [kg]:		0,51	0,83	1,50	2,00	2,40	3,40	5,90	7,90	10,10
Point of application of force for all torques [mm]:	M	71,0	101,0	102,0	143,6	119,0	190,0	138,0	138,0	138,0
Maximale statische Torques [Nm]:	Ma	13,6	13,6	19,2	64,0	40,0	96,0	386,4	386,4	386,4
	Mb	13,6	13,6	20,8	64,0	32,0	88,0	783,8	783,8	783,8
	Mc	13,6	13,6	21,6	23,2	56,0	64,0	336,0	336,0	336,0

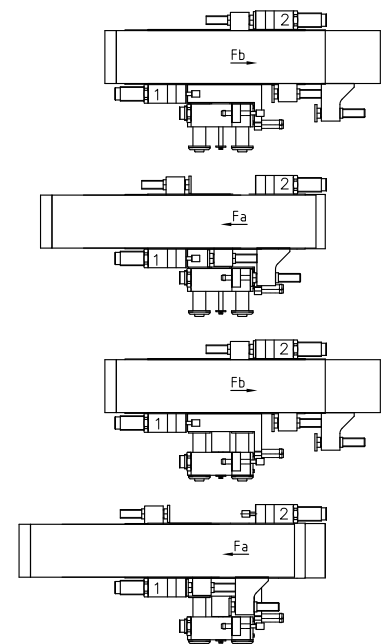
### For all modules

Operating pressure [bar]:	3-7
Temperature range [°C]:	0-60
Repeat accuracy [mm]:	+/-0,01

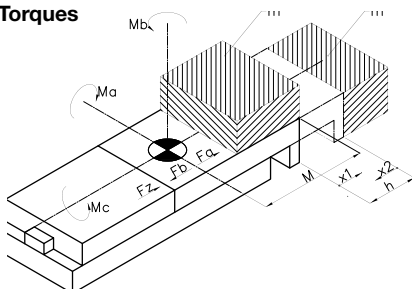
### Travel diagram LM FZ: Positions 1 to 3



### Travel diagram LM F-ZA



### Torques



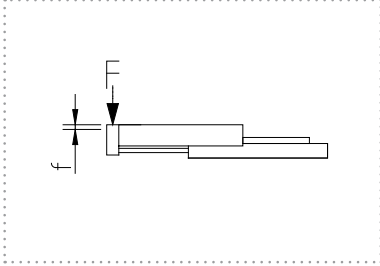
Load Diagrams LM8 F-ZA see page 45

# Linear Modules with Intermediate Positions

## Load Diagrams

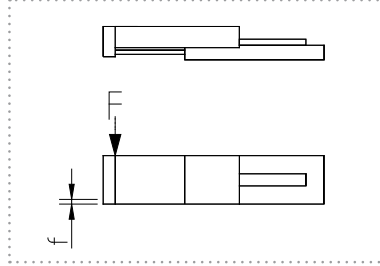
### Axial Load

The graph shows the deflection  $f$  of the slide under the effect of the force  $F$ . The deflection is independent of the stroke.



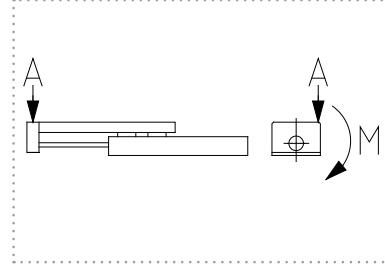
### Transverse Load

The graph shows the deflection  $f$  of the slide under the effect of the force  $F$ . The deflection is independent of the stroke.

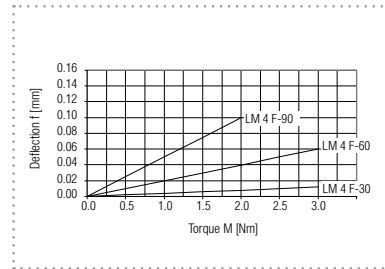
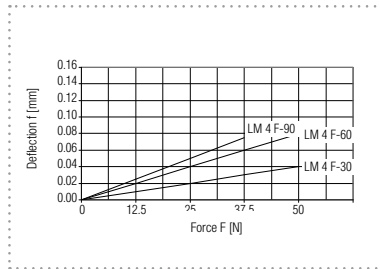
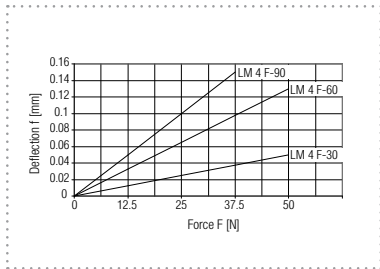


### Lateral Load

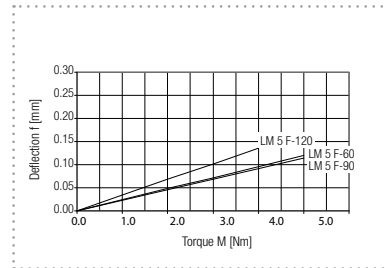
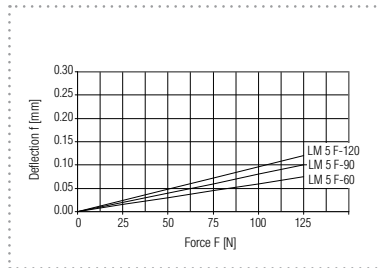
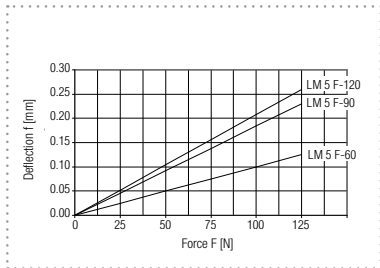
The graph shows the deflection  $f$  of the slide at point A under the effect of the torque. The deflection is independent of the stroke.



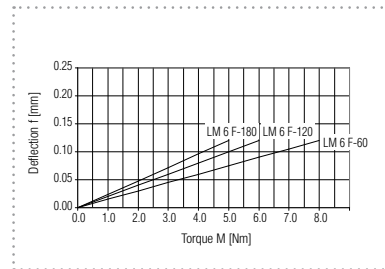
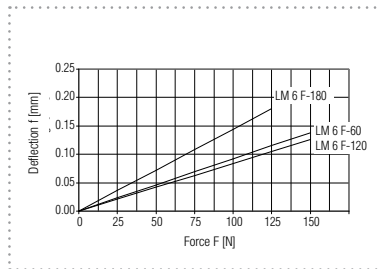
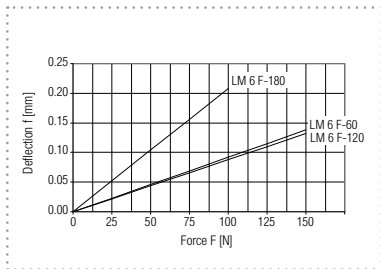
### LM 4 FZ



### LM 5 FZ



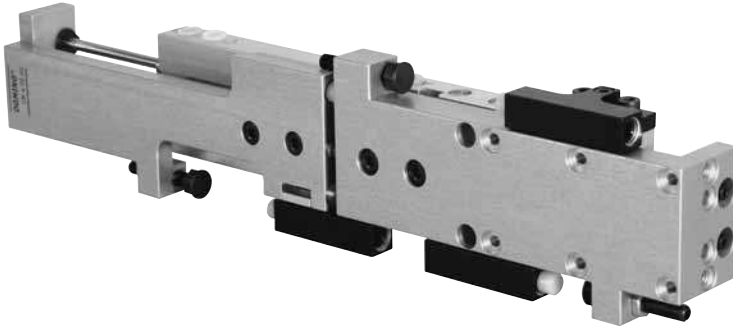
### LM 6 FZ



# Linear Modules with Intermediate Positions

## LM 4 FZ – Pneumatic Linear Module with Intermediate Position

### LM 4 FZ



#### Technical data, stroke-independent

Cylinder diameter	2x8 und 2x10 mm	
Theor. force (at 5 bar)	Fa, Fz	50 N Slide 1, 66 N Slide 2
	Fb, Fz	38 N Slide 1, 66 N Slide 2
Max. speed	0,5 m/s	
Pneumatic connections	M5	
Medium	Compressed-air filtered, oiled or non-oiled	
Operating pressure range	3 to 7 bar	
Temperature range	0 – 60° C	
Repeat accuracy	+/-0.01 mm	
Max. permissible mass	0,8kg	
Max. static torques	Ma	13,6 Nm
	Mb	13,6 Nm
	Mc	13,6 Nm

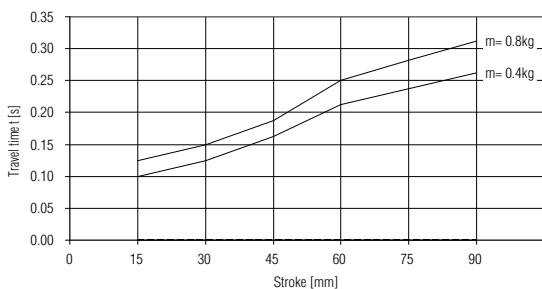
#### Technical data, stroke-dependent

See page 76

#### Permissible travel time $t$ relative to the stroke length and the additional mass $m$

The travel time  $t$  determined from the diagram may not be undershot.

Recommendation: When selecting the module, the travel time  $t$  should be assumed as being 20% more.

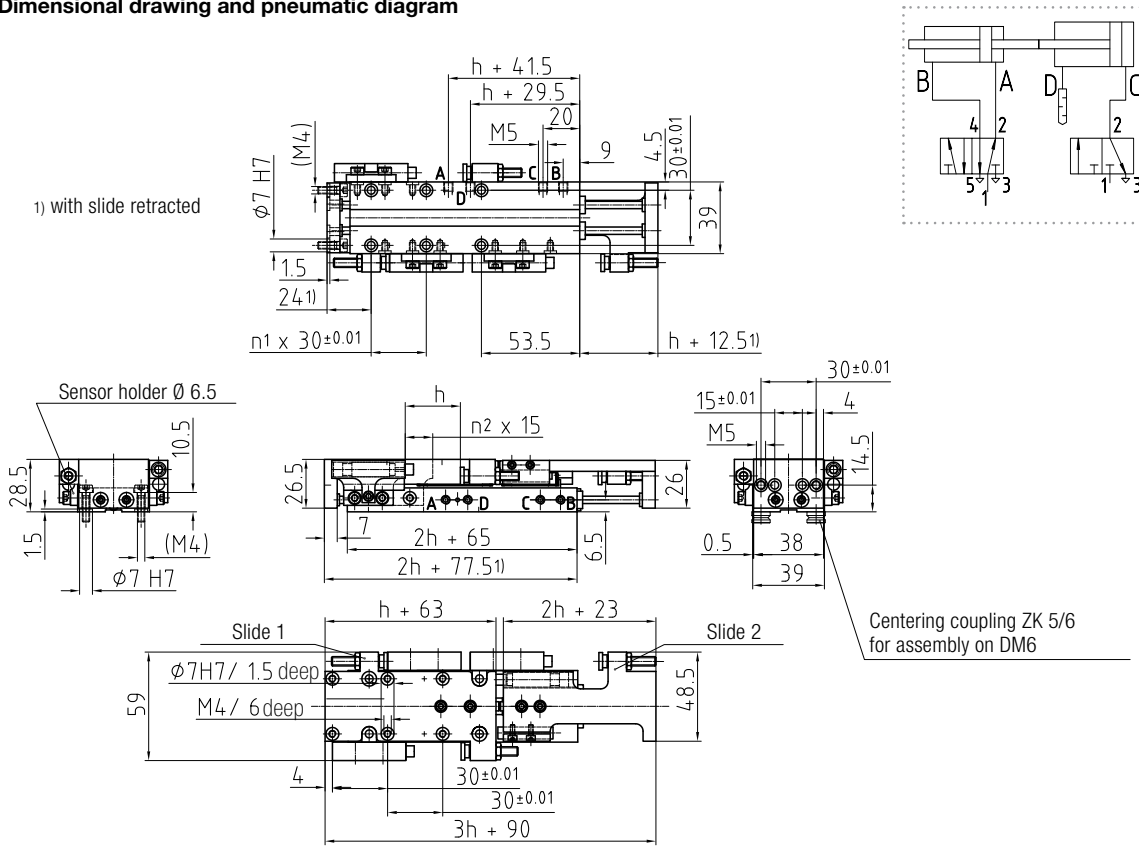


Permissible travel time  $t$  = travel time without valve switching time, at nominal pressure 6 bar.

# Linear Modules with Intermediate Positions

## LM 4 FZ – Pneumatic Linear Module with Intermediate Position

Dimensional drawing and pneumatic diagram



Designation	h	n <sub>1</sub>	n <sub>2</sub>
LM 4 FZ-30	30	2	1
LM 4 FZ-60	60	3	3

Designation	Order number	Designation	Order number
LM 4 FZ-30	300 5165	LM 4 FZ-30 ED	300 0102
LM 4 FZ-60	300 5167	LM 4 FZ-60 ED	300 0103

incl. hydraulic shock absorber and 4 centering rings Ø7

incl. elastomer damper and 4 centering rings Ø7

Options	Order number
Centering ring Ø 7	300 1521
Centering coupling ZK 5/6	300 2478
Limit switch Ø 6,5	300 1845
Shock absorber	300 1386

See chapter Accessories

Overview

Linear Axes  
pneum. / electr.

Linear Modules  
pneum. / electr.

Linear Modules  
with Intermediate  
Positions

Rotary Modules

Grippers

Basic Elements

Accessories