

# Linear DC-Servomotors

3,6 N

for sin/cos control

## LM 1247 ... 12

Values at 22°C	LM 1247 ... 12		
Continuous force	$F_{e \max.}$	3,6	N
Peak force	$F_{p \max.}$	10,5	N
Continuous current	$I_{e \max.}$	0,55	A
Peak current	$I_{p \max.}$	1,64	A
Back-EMF constant	$k_E$	5,25	V/m/s
Force constant	$k_F$	6,43	N/A
Terminal resistance, phase-phase	$R$	13,17	$\Omega$
Terminal inductance, phase-phase	$L$	820	$\mu\text{H}$
Thermal resistance	$R_{th1} / R_{th2}$	3,2 / 20	K/W
Thermal time constant	$\tau_{w1} / \tau_{w2}$	11 / 624	s
Operating temperature range		-20 ... +125	°C
Magnetic pitch	$\tau_m$	18	mm
Rod bearings		polymer sleeves	
Housing material		metal, non-magnetic	
Direction of movement		electronically reversible	

	LM 1247-	020-12	040-12	060-12	080-12	100-12	120-12	
Stroke length	$S_{\max.}$	20	40	60	80	100	120	mm
Repeatability	$\sigma_r$	80	80	80	80	80	80	$\mu\text{m}$
Accuracy	$\sigma_a$	200	220	240	260	280	300	$\mu\text{m}$
Acceleration	$a_{e \max.}$	187,6	142,5	122,9	101,8	91,4	81	$\text{m/s}^2$
Speed	$v_{e \max.}$	1,9	2,4	2,7	2,9	3	3,1	m/s
Rod length	$L1$	82	109	127	154	172	190	mm
Rod mass	$m_m$	19	25	29	35	39	44	g
Total mass	$m_t$	58	64	68	74	78	83	g

**Note:** These motors are for operation with DC-voltage < 75 V DC. The given values are for free standing motors.  
Other rod lengths available on request.

### Motor characteristic curves

#### Trapezoidal motion profile ( $t_1 = t_2 = t_3$ )

Displacement distance: 20 mm  
Friction coefficient: 0,2  
Slope angle: 0°  
Rest time: 0,1 s

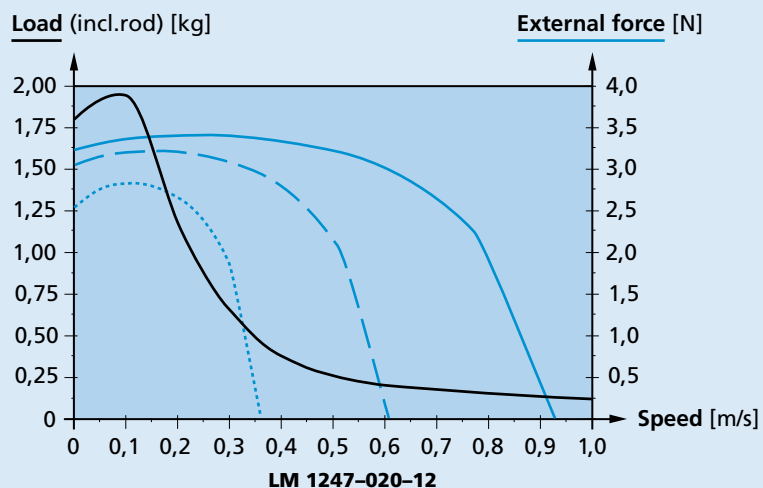
#### Load:

The max. applicable load (incl. rod) at a given speed with an external force of 0 N

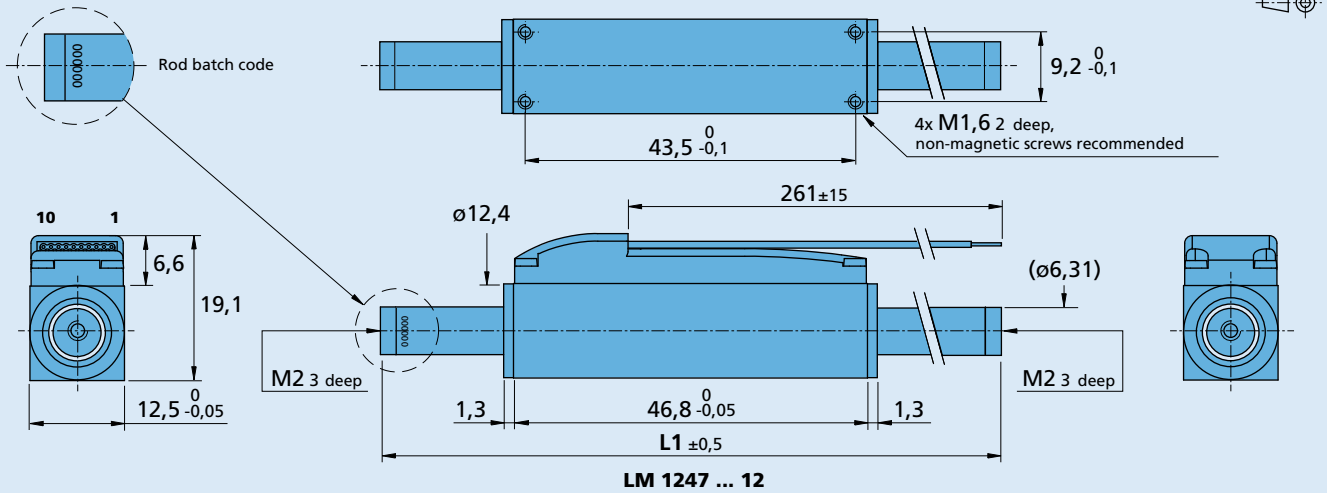
#### External force:

The max. permissible external force at a given speed with a load (incl. rod) of:

- 0,1 kg ———
- 0,2 kg - - - - -
- 0,5 kg ⋯⋯⋯

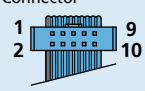


### Dimensional drawing



### Option, cable and connection information

Example product designation: **LM1247-020-12**

Option	Type	Description	Connection				
			-12/-12C		-02		
No.	Function	No.	Function	Color			
-12C	Connector 	Material PVC, 10 conductors, AWG 28 with connector A05a - TCO, pitch 2 mm	1	Phase C	1	Phase C	yellow
			2	Phase B	2	Sin +	green
			3	Phase A	3	U <sub>DD</sub> (+5V)	red
			4	GND	4	GND	black
			5	U <sub>DD</sub> (+5V)	5	Sin -	blue
			6	Sin +	6	Cos +	grey
			7	Sin -	7	Phase B	orange
			8	Cos +	8	Phase A	brown
			9	Cos -	9	Cos -	white
			10	N.C.	10	N.C.	purple
-02	Single wires	Material PVC, 10 conductors, AWG 28. Recommended connector: Molex - Nr. 51110-1060	<b>Standard cable</b> Material PVC, 10 conductors, AWG 28, grid 1mm, wires tinned.				

### Product combination

Drive Electronics	Cables / Accessories
	To view our large range of accessory parts, please refer to the "Accessories" chapter.