

# Linear DC-Servomotors

with Analog Hall Sensors  
QUICKSHAFT® Technology

## 3,6 N

For combination with  
Drive Electronics:  
Motion Controller

### Series LM 1247 ... 11

	LM 1247-	020-11	040-11	060-11	080-11	100-11	120-11	
1 Continuous force <sup>1)</sup>	$F_e \text{ max.}$	3,6						N
2 Peak force <sup>1) 2)</sup>	$F_p \text{ max.}$	10,7						N
3 Continuous current <sup>1)</sup>	$I_e \text{ max.}$	0,55						A
4 Peak current <sup>1) 2)</sup>	$I_p \text{ max.}$	1,66						A
5 Back-EMF constant	$k_E$	5,25						V/m/s
6 Force constant <sup>3)</sup>	$k_F$	6,43						N/A
7 Terminal resistance, phase-phase	$R$	13,17						$\Omega$
8 Terminal inductance, phase-phase	$L$	820						$\mu\text{H}$
9 Stroke length	$s_{\text{max}}$	20	40	60	80	100	120	mm
10 Repeatability <sup>4)</sup>		40	40	40	40	40	40	$\mu\text{m}$
11 Precision <sup>4)</sup>		120	140	160	180	200	220	$\mu\text{m}$
12 Acceleration <sup>5)</sup>	$a_e \text{ max.}$	198,0	148,5	127,3	101,8	91,4	82,9	$\text{m/s}^2$
13 Speed <sup>5) 6)</sup>	$v_e \text{ max.}$	2,0	2,4	2,8	2,9	3,0	3,2	m/s
14 Thermal resistance	$R_{th1} / R_{th2}$	3,2 / 20,0						K/W
15 Thermal time constant	$\tau_{w1} / \tau_{w2}$	11 / 624						s
16 Operating temperature range		- 20 ... +125						$^{\circ}\text{C}$
17 Rod weight <sup>7)</sup>	$m_m$	18	24	28	35	39	43	g
18 Total weight <sup>7)</sup>	$m_t$	57	63	67	74	78	82	g
19 Magnetic pitch	$\tau_m$	18						mm
20 Rod bearings		polymer sleeves						
21 Housing material		metal, non-magnetic						
22 Direction of movement		electronically reversible						

<sup>1)</sup> thermal resistance  $R_{th2}$  by 55% reduced

<sup>2)</sup> for max. 1 second with a duty cycle of 10%

<sup>3)</sup> with sine wave commutation

<sup>4)</sup> typical values with integrated linear Hall sensors and Motion Controller.

The values depend on conditions of use

<sup>5)</sup> theoretical value, referring only to the motor

<sup>6)</sup> with a triangular speed profile and the max. stroke

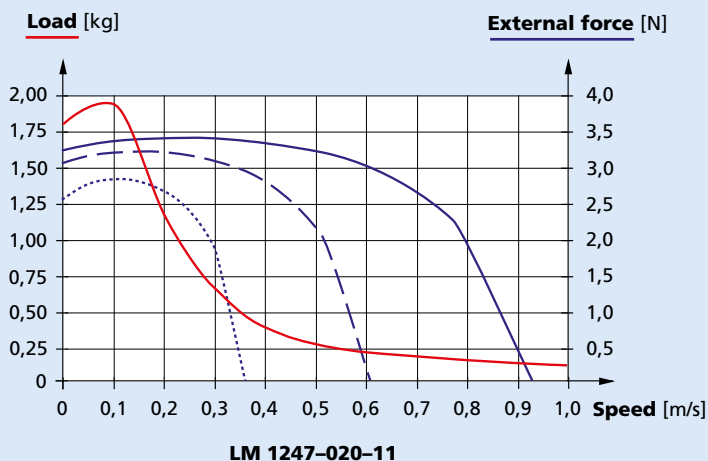
<sup>7)</sup> rounded value, for reference only

**Notes:** These motors are for operation with DC-voltage < 75 V DC.

The given values are for free standing motors.

The mounting with magnetic conductive metal can influence the characteristics of the motor.

**Caution:** Presence of strong magnetic fields. Static sensitive device.



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

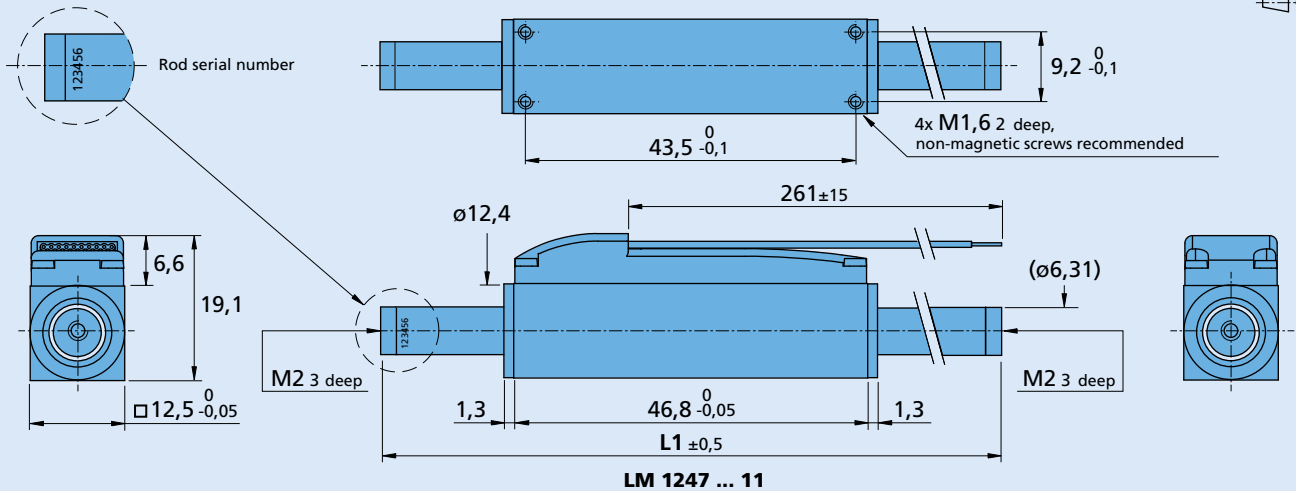
Displacement distance:	20 mm
Friction coefficient:	0,2
Slope angle:	$0^{\circ}$
Rest time:	0,1 s

**Load:** The max. permissible load 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 of:

- 0,1 Kg —————
- 0,2 Kg - - - - -
- 0,5 Kg ·········

**Linear DC-Servomotor LM 1247 ... 11 with axial connection**



**Ordering information**

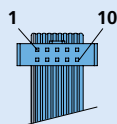
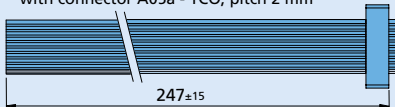
Linear DC-Servomotors Series	Stroke mm	Rod length L1 ± 0,5 mm
LM 1247-020-11	-10 ← 0 → +10	82
LM 1247-040-11	-20 ← 0 → +20	109
LM 1247-060-11	-30 ← 0 → +30	127
LM 1247-080-11	-40 ← 0 → +40	154
LM 1247-100-11	-50 ← 0 → +50	172
LM 1247-120-11	-60 ← 0 → +60	190

**Note:** Single rod available on request.

**Cable and connection information**

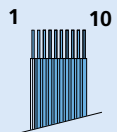
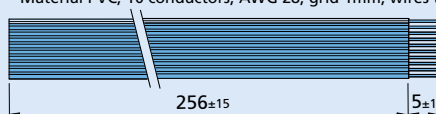
**Cable for LM 1247-...-11C**

Material PVC, 10 conductors, AWG 28 with connector A05a - TCO, pitch 2 mm



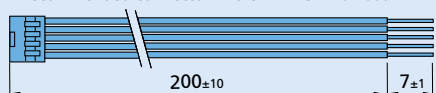
**Cable for LM 1247-...-11**

Material PVC, 10 conductors, AWG 28, grid 1mm, wires tinned



**Cable for LM 1247-...-01**

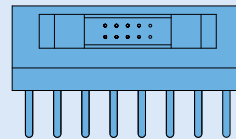
Single wires, material PVC, 10 conductors, AWG 28. Recommended connector: Molex - Nr. 51110-1060



\* The color reference refers only to the LM 1247-...-01 version.

**Adapter for LM 1247-...-11C**

for connection with Motion Controllers MCLM 3006 S RS/CF (part no. 6501.00182). MCLM 3002 S RS/CF (part no. 6501.00171).



**Connection LM 1247-...-01**

PIN	Function	Color*
1	Phase C	yellow
7	Phase B	orange
8	Phase A	brown
4	GND	black
3	+5V	red
6	Hall sensor C	grey
5	Hall sensor B	blue
2	Hall sensor A	green
9	N.C.	white
10	N.C.	purple

**LM 1247-...-11 / 11C**

PIN	Function
1	Phase C
2	Phase B
3	Phase A
4	GND
5	+5V
6	Hall sensor C
7	Hall sensor B
8	Hall sensor A
9	N.C.
10	N.C.