

# Linear DC-Servomotors

with Analog Hall Sensors  
QUICKSHAFT® Technology

## 3,6 N

For combination with  
Motion Controllers:  
MCLM 3003/06 S, MCLM 3003/06 C

### Series LM 1247 ... 01

	LM 1247-	020-01	040-01	060-01	080-01	100-01	120-01	
1 Continuous force <sup>1)</sup>	F <sub>e max.</sub>	3,6						N
2 Peak force <sup>1) 2)</sup>	F <sub>p max.</sub>	10,7						N
3 Continuous current <sup>1)</sup>	I <sub>e max.</sub>	0,55						A
4 Peak current <sup>1) 2)</sup>	I <sub>p max.</sub>	1,66						A
5 Back-EMF constant	k <sub>E</sub>	5,25						V/m/s
6 Force constant <sup>3)</sup>	k <sub>F</sub>	6,43						N/A
7 Terminal resistance, phase-phase	R	13,17						Ω
8 Terminal inductance, phase-phase	L	820						μH
9 Stroke length	s <sub>max.</sub>	20	40	60	80	100	120	mm
10 Repeatability <sup>4)</sup>		40	40	40	40	40	40	μm
11 Precision <sup>4)</sup>		120	140	160	180	200	220	μm
12 Acceleration <sup>5)</sup>	a <sub>e max.</sub>	198,0	148,5	127,3	101,8	91,4	82,9	m/s <sup>2</sup>
13 Speed <sup>5) 6)</sup>	v <sub>e max.</sub>	2,0	2,4	2,8	2,9	3,0	3,2	m/s
14 Thermal resistance	R <sub>th 1</sub> / R <sub>th 2</sub>	3,2 / 20,0						K/W
15 Thermal time constant	τ <sub>w1</sub> / τ <sub>w2</sub>	11 / 624						s
16 Operating temperature range		- 20 ... +125						°C
17 Rod weight <sup>7)</sup>	m <sub>m</sub>	18	24	28	35	39	43	g
18 Total weight <sup>7)</sup>	m <sub>t</sub>	57	63	67	74	78	82	g
19 Magnetic pitch	τ <sub>m</sub>	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<sub>th 2</sub> by 55% reduced

<sup>2)</sup> for max. 1 second with a duty cycle of 20%

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

<sup>4)</sup> typical values with integrated linear Hall sensors and Motion Controller MCLM 3003/06 S/C.

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

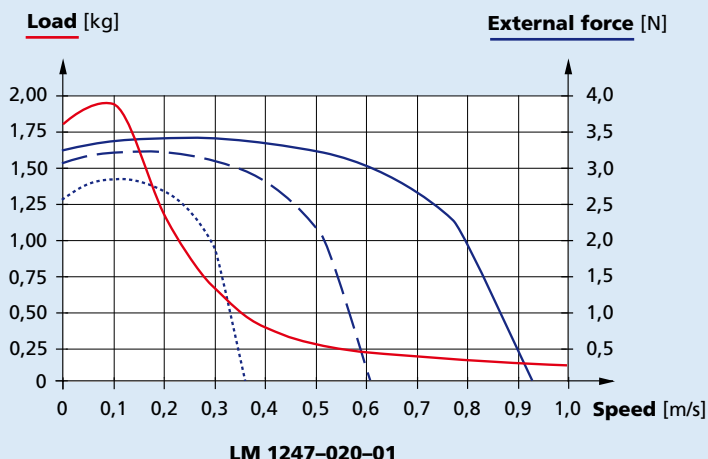
<sup>7)</sup> rounded value, for reference only

**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<sub>1</sub> = t<sub>2</sub> = t<sub>3</sub>)

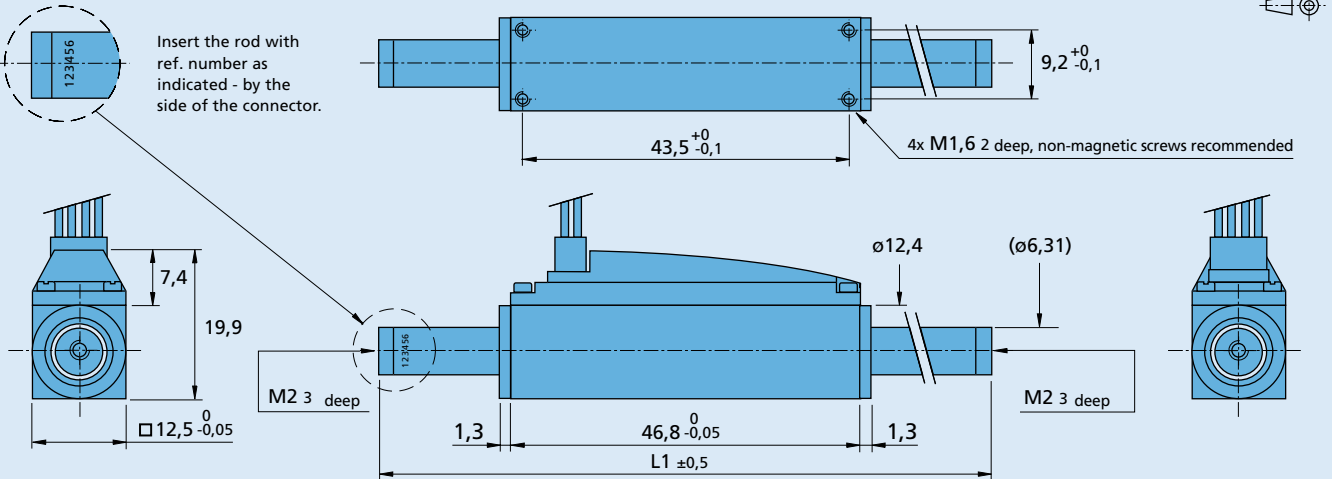
Displacement distance:	20 mm
Friction coefficient:	0,2
Slope angle:	0°
Rest time:	0,1 s

**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



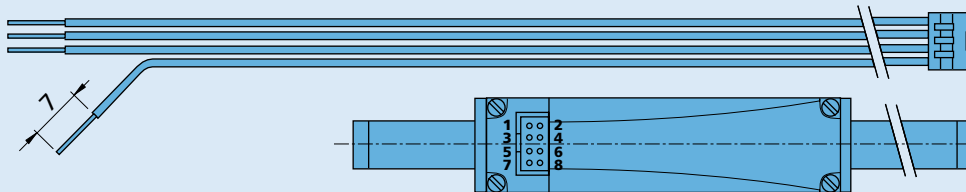
### Ordering information

#### Linear DC-Servomotors Series

Series	Stroke mm	Rod length L1 ±0,5 mm
LM 1247-020-01	-10 to +10	82
LM 1247-040-01	-20 to +20	109
LM 1247-060-01	-30 to +30	127
LM 1247-080-01	-40 to +40	154
LM 1247-100-01	-50 to +50	172
LM 1247-120-01	-60 to +60	190

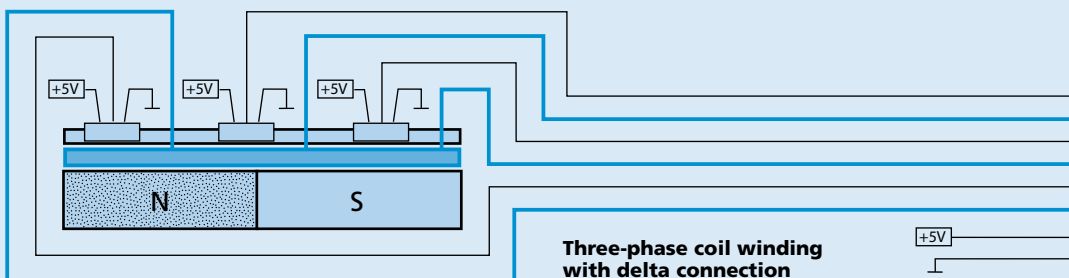
Note: Single rod available on request.

### Cable and connection information



**Cable**  
Single wires, material PVC  
Length 200 mm ± 10 mm  
8 conductors, AWG 28

**Recommended connector**  
Molex - Nr. 51110-0860



#### Connection

PIN	Function	Colour
6	Hall sensor C	grey
1	Phase C	yellow
5	Hall sensor B	blue
7	Phase B	orange
2	Hall sensor A	green
8	Phase A	brown
3	Logic supply +5V	red
4	Logic GND	black