

# Linear DC-Servomotors

with Analog Hall Sensors  
QUICKSHAFT® Technology

## 9,2 N

For combination with  
Motion Controllers:  
MCLM 3003 S/C, MCLM 3006 S/C

### Series LM 2070 ... 01

	LM 2070-	040-01	080-01	120-01	160-01	220-01	
1 Continuous force <sup>1)</sup>	F <sub>e max.</sub>	9,2					N
2 Peak force <sup>1) 2)</sup>	F <sub>p max.</sub>	27,6					N
3 Continuous current <sup>1)</sup>	I <sub>e max.</sub>	0,79					A
4 Peak current <sup>1) 2)</sup>	I <sub>p max.</sub>	2,37					A
5 Back-EMF constant	k <sub>E</sub>	9,5					V/m/s
6 Force constant <sup>3)</sup>	k <sub>F</sub>	11,64					N/A
7 Terminal resistance, phase-phase	R	10,83					Ω
8 Terminal inductance, phase-phase	L	1 125					μH
9 Stroke length	s <sub>max.</sub>	40	80	120	160	220	mm
10 Repeatability <sup>4)</sup>		60	60	60	60	80	μm
11 Precision <sup>4)</sup>		200	300	400	500	600	μm
12 Acceleration <sup>5)</sup>	a <sub>e max.</sub>	93,9	65,7	54,8	46,0	36,8	m/s <sup>2</sup>
13 Speed <sup>5) 6)</sup>	v <sub>e max.</sub>	1,9	2,3	2,6	2,7	2,8	m/s
14 Thermal resistance	R <sub>th 1</sub> / R <sub>th 2</sub>	3,1 / 9,3					K/W
15 Thermal time constant	τ <sub>w1</sub> / τ <sub>w2</sub>	30 / 1 200					s
16 Operating temperature range		- 20 ... +125					°C
17 Rod weight <sup>7)</sup>	m <sub>m</sub>	98	140	168	200	250	g
18 Total weight <sup>7)</sup>	m <sub>t</sub>	236	278	306	338	388	g
19 Magnetic pitch	τ <sub>m</sub>	24					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 10%

<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

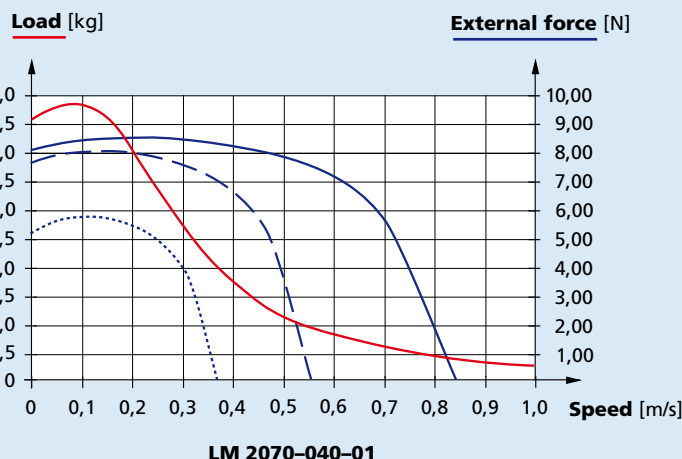
<sup>7)</sup> rounded value, for reference only

**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:	40 mm
Friction coefficient:	0,2
Slope angle:	0°
Rest time:	0,1 s

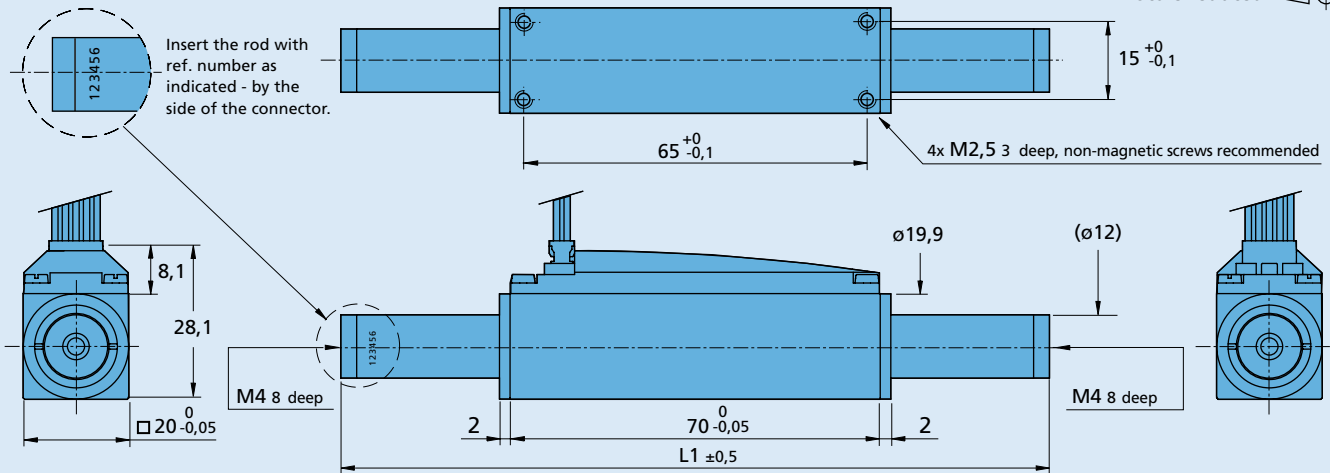
**Load:** The max. permissible load at a given speed with an external force of 0 N

**External force:** The max. permissible external force at a given speed with a load of:

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

### Linear DC-Servomotor LM 2070

Scale reduced



### Ordering information

#### Linear DC-Servomotors Series

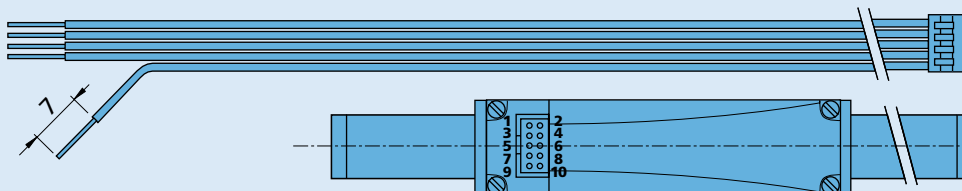
Stroke  
mm  
0

Rod length  
L1 ±0,5 mm

Series	Stroke (mm)	Rod length (mm)
LM 2070-040-01	- 20   0   + 20	134
LM 2070-080-01	- 40   0   + 40	182
LM 2070-120-01	- 60   0   + 60	218
LM 2070-160-01	- 80   0   + 80	254
LM 2070-220-01	- 110   0   + 110	314

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

### Cable and connection information



#### Cable

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

#### Recommended connector

Molex - Nr. 51110-1060

#### Connection

PIN	Function	Colour
10	N.C.	purple
9	N.C.	white
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

