

**NEW**

# Linear Actuators

200 N

Gearhead with integrated Lead Screw, high load

For combination with  
DC-Micromotors  
Brushless DC-Motors  
Stepper Motors

## Series 10L ... HL

Values at 22°C

	3	4	5
Number of gear stages	3	4	5
Reduction ratio (exact)	64:1	256:1	1 024:1
Continuous output speed, max. <sup>1)</sup>	1 mm/s	0,3 mm/s	0,07 mm/s
Peak output speed, max. <sup>1)</sup>	2,1 mm/s	0,5 mm/s	0,1 mm/s
Continuous input speed, max.	8 000 min <sup>-1</sup>	8 000 min <sup>-1</sup>	8 000 min <sup>-1</sup>
Peak input speed, max.	16 000 min <sup>-1</sup>	16 000 min <sup>-1</sup>	16 000 min <sup>-1</sup>
Continuous axial force, avg.	100 N	150 N	200 N
Peak axial force, dynamic, max.	150 N	200 N	250 N
Peak axial force, static, max.	350 N	350 N	350 N
Output power, max.	0,1 W	0,045 W	0,014 W
Efficiency of gearhead/coupler, max.	70 %	60 %	55 %
Efficiency of screw, max.	35 %	35 %	35 %
Mass inertia incl. screw, max. <sup>2)</sup>	0,13 gmm <sup>2</sup>	0,13 gmm <sup>2</sup>	0,13 gmm <sup>2</sup>
Accuracy, screw standard length, max.	100 µm	100 µm	100 µm
Radial load, max. (50 mm from flange)	5 N	5 N	5 N
Gearhead backlash, at no-load, typical	3 °	3 °	3 °
Radial play (screw, 3,5 mm from flange)	≤ 0,06 mm	≤ 0,06 mm	≤ 0,06 mm
Axial play:			
– screw	0 mm	0 mm	0 mm
– nut	80 µm	80 µm	80 µm
Screw length from flange:			
– standard	50 mm	50 mm	50 mm
– max.	100 mm	100 mm	100 mm
Length without motor L2	17,4 mm	20,5 mm	23,6 mm
Mass <sup>2)</sup>	10,1 g	11,2 g	13,3 g
Screw type <sup>3)</sup>	3x0,5 (mm) proprietary thread profile		
Screw material	stainless steel		
Nut material	cylindrical, plastic		
Housing material	stainless steel		
Geartrain material	steel		
Bearings on output shaft	ball bearings, preloaded		
Operating temperature range	-30 ... +80 °C		

<sup>1)</sup> According to selected reduction ratio, screw supported

<sup>2)</sup> Standard length and standard nut

<sup>3)</sup> Right handed, screw direction of rotation same as motor shaft.

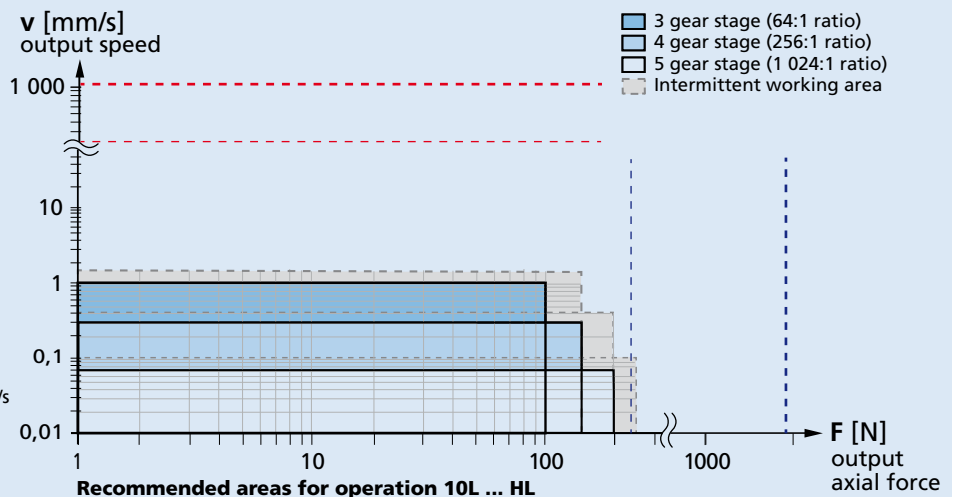
**Note:**

The display shows the range of possible operation points of the drives at a given ambient temperature of 22°C.

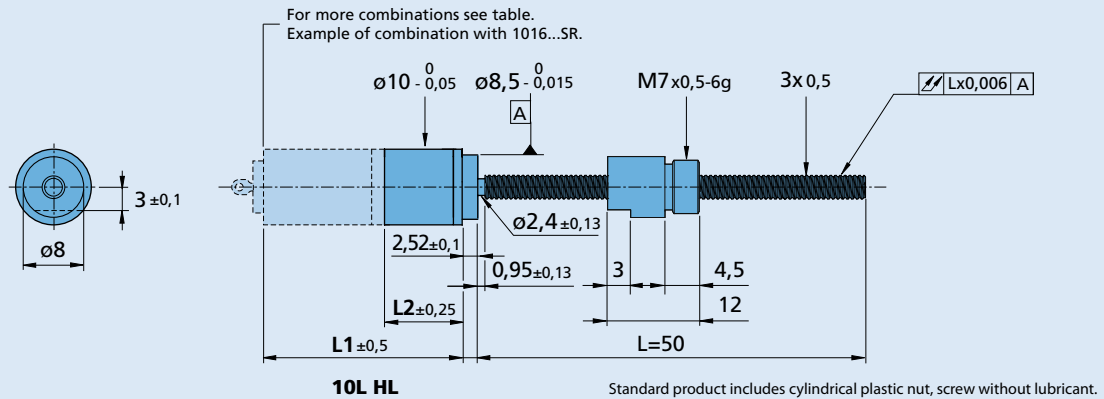
The diagram indicates the recommended output speed in relation to the available output axial force.

For the standard screw both supported and not, the diagram shows also the critical speeds and the buckling forces.

- - - Critical speed <sup>3)</sup> (fixed-free), 179 mm/s
- - - Critical speed <sup>3)</sup> (fixed-single), 950 mm/s
- - - Buckling force <sup>3)</sup> (fixed-free), 195 N
- - - Buckling force <sup>3)</sup> (fixed-single), 1563 N



### Dimensional drawing



### Options

Example product designation: **10L 4:1 KL1 HL 3x0.5 50 KWL1**

Option	Type	Description
KL1	Gearhead ambient conditions	Low temperature range of -55°C to +100°C
KL2	Gearhead ambient conditions	Vacuum down to 10 <sup>-5</sup> Pa @ 22°
KL3	Gearhead ambient conditions	Temperature range of -55°C to +150°C and vacuum down to 10 <sup>-3</sup> Pa @ 60°C
KF1	Gearhead front flange	Front flange with four threaded holes M1.2x0.25
KF2	Gearhead front flange	Front flange with thread M10x0.5
15	Screw	Standard length (lengths from 15 mm to 100 mm are available in 1mm increments)
25	Screw	Standard length (lengths from 15 mm to 100 mm are available in 1mm increments)
50	Screw	Standard length (lengths from 15 mm to 100 mm are available in 1mm increments)
KWS1	Screw	Bearing tip/journal (Ø 2mm, L=2.5mm)
KWL0	Screw ambient conditions	Not lubricated
KWL1	Screw ambient conditions	Low temperature range of -55°C to +100°C
KWL2	Screw ambient conditions	Vacuum down to 10 <sup>-5</sup> Pa @ 22°
KWL3	Screw ambient conditions	Temperature range of -55°C to +150°C and vacuum down to 10 <sup>-3</sup> Pa @ 60°C
KWN1	Nut	Cylindrical bronze nut
KWN3	Nut	Flanged bronze nut
KWN4	Nut	Flanged plastic nut, screw without lubricant
KWN9	Nut	No nut

Note: Specified values may differ from the standard values depending on the option. Please consult your sales representative for further information.

### Product combination

Number of gear stages	3	4	5
L2 [mm] = length without motor	17,4	20,5	23,6
L1 [mm] = length with motor	36,1	39,2	42,3
1219M...G	33,3	36,4	39,5
0816M...SR	33,3	36,4	39,5
1016M...SR	41,3	44,4	47,5
1024M...SR	41,6	44,7	47,8
0824M...B	41,5	44,6	47,7
1028M...B	45,5	48,6	51,7
1218M...B	35,4	38,5	41,6
1226M...B	43,4	46,5	49,6
AM0820...10	31,2	34,3	37,4
AM1020...08	33,3	36,4	39,5
DM1220...55	34,8	37,9	41,0