

**NEW**

# Linear Actuators

## 425 N

Gearhead with integrated Lead Screw, metric thread

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

### Series 22L ... ML

Values at 22°C

		1	1	2	2	3	4
Number of gear stages		1	1	2	2	3	4
Reduction ratio <sup>1)</sup> (rounded)		1:1	3:1 3,6:1 4,5:1 6,6:1	9:1	11:1 14:1 16:1 20:1 24:1 30:1 44:1	41:1 49:1 59:1 72:1 89:1 108:1 131:1 158:1 196:1	178:1 215:1 267:1 323:1 401:1 474:1 588:1 711:1 862:1 1 042:1 1 294:1
Continuous output speed, max. <sup>2)</sup>	mm/s	40	36,7...22,7	18,5	18,2...4,55	6,1...1,28	1,4...0,19
Peak output speed, max. <sup>2)</sup>	mm/s	83	61,1...27,8	22,2	22,7...5,68	8,13...1,7	1,87...0,26
Continuous input speed, max.	min <sup>-1</sup>	2 400	6 600	10 000	12 000	15 000	15 000
Peak input speed, max.	min <sup>-1</sup>	5 000	11 000	12 000	15 000	20 000	20 000
Continuous axial force, avg.	N	34	37...58	73	75...298	220...425	425
Peak axial force, dynamic, max.	N	425	425	425	425	425	425
Peak axial force, static, max.	N	850	850	850	850	850	850
Output power, max.	W	7	7	4	4	3	1
Efficiency of gearhead/coupler, max.	%	95	92	82	82	78	65
Efficiency of screw, max.	%	24	24	24	24	24	24
Mass inertia incl. screw, max. <sup>3)</sup>	gmm <sup>2</sup>	648	106	81	81	33	14
Accuracy, screw standard length, max.	µm	171	172	172	172	172	172
Radial load, max. (15 mm from flange)	N	90	105	135	135	180	205
Gearhead backlash, at no-load, typical	°	0,33	0,8	0,8	0,8	0,8	0,8
Radial play (screw, 10 mm from flange)	mm	≤ 0,05	≤ 0,05	≤ 0,05	≤ 0,05	≤ 0,05	≤ 0,05
Axial play:							
– screw	µm	= 0	= 0	= 0	= 0	= 0	= 0
– nut	µm	144	144	144	144	144	144
Screw length from flange:							
– standard	mm	150	150	150	150	150	150
– max.	mm	200	200	200	200	200	200
Length without motor L2	mm	30,9	30,9	37,2	37,2	43,5	49,9
Mass <sup>3)</sup>	g	107	111	126	126	142	157
Screw type	M6x1 right handed, screw direction of rotation same as motor shaft.						
Screw material	stainless steel						
Nut material	cylindric, lead-free brass						
Housing material	stainless steel						
Geartrain material	stainless steel						
Bearings on output shaft	ball bearings, preloaded						
Operating temperature range	°C	-30 ... +120					

<sup>1)</sup> The reduction ratios are rounded, the exact values are available on request or at [www.faulhaber.com](http://www.faulhaber.com).

<sup>2)</sup> According to selected reduction ratio, screw supported

<sup>3)</sup> Standard length and standard nut

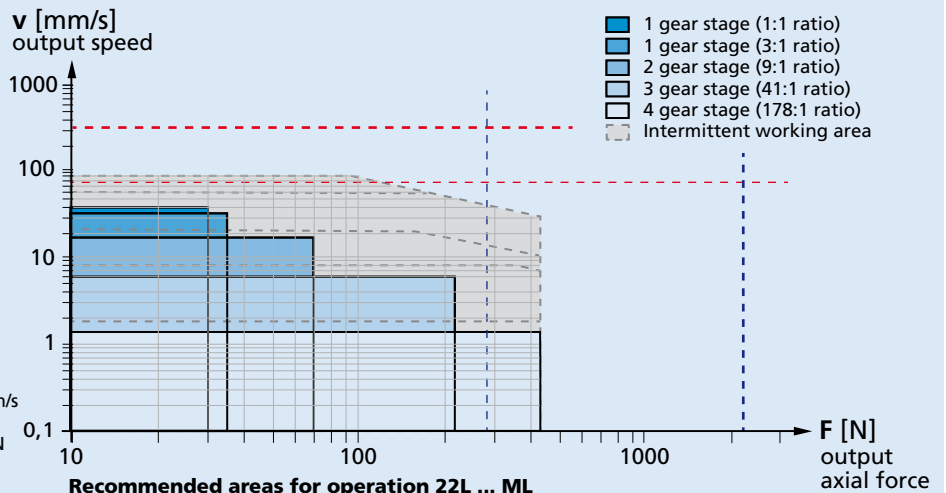
**Note:**

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

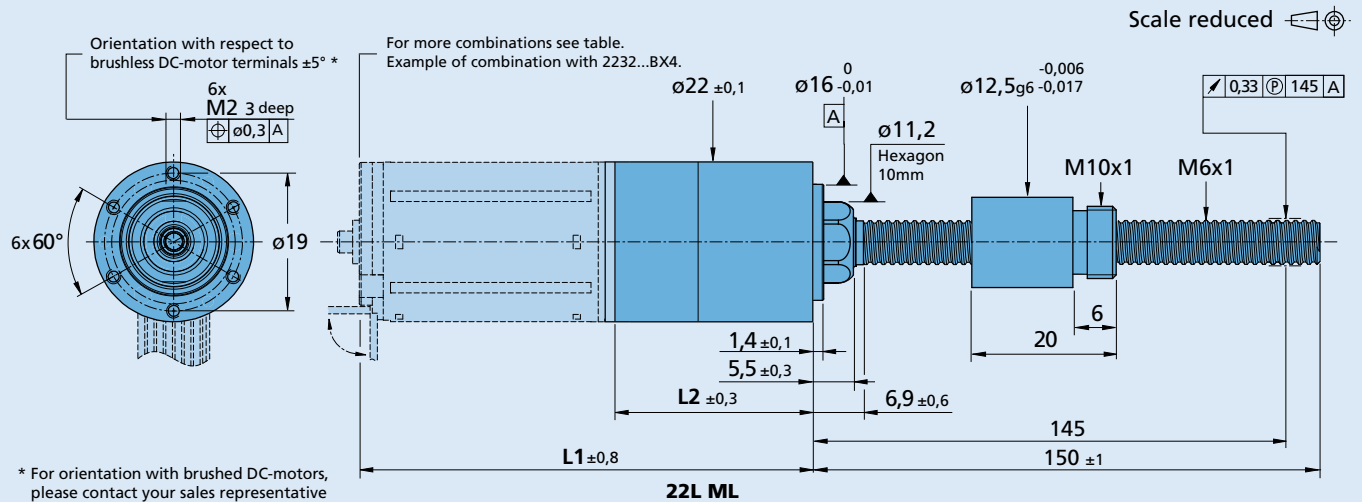
The diagram indicates the recommended output speed in relation to the available output axial force.

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), 75 mm/s
- - - Critical speed <sup>3)</sup> (fixed-single), 331 mm/s
- - - Buckling force <sup>3)</sup> (fixed-free), 271 N
- - - Buckling force <sup>3)</sup> (fixed-single), 2170 N



### Dimensional drawing



### Options

Example product designation: **22L 30:1 KP1 ML 6x1 150 KWS1**

Option	Type	Description
KL1	Gearhead ambient conditions	Low temperature range of $-55^\circ\text{C} + 100^\circ\text{C}$
KL2	Gearhead ambient conditions	Vacuum down to $10^{-5}$ Pa @22°C
KL3	Gearhead ambient conditions	Temperature range of $-55^\circ\text{C} + 150^\circ\text{C}$ and vacuum down to $10^{-9}$ Pa @60°C
KP1	Gearhead protection	IP54
KC1	Cable orientation	Motor cable/wires or terminals oriented at $15^\circ$ CCW vs gearhead front threads
KC2	Cable orientation	Motor cable/wires or terminals oriented at $30^\circ$ CCW vs gearhead front threads
KC3	Cable orientation	Motor cable/wires or terminals oriented at $45^\circ$ CCW vs gearhead front threads
150	Screw	Standard length (150 mm), length from 45 mm up to 200 mm are available with 5 mm steps
KWS1	Screw	Bearing tip/journal ( $\varnothing$ 4mm, L=5mm)
KWL0	Screw ambient conditions	Not lubricated
KWL2	Screw ambient conditions	Vacuum down to $10^{-5}$ Pa @22°C
KWL3	Screw ambient conditions	Temperature range of $-55^\circ\text{C} + 150^\circ\text{C}$ and vacuum down to $10^{-9}$ Pa @60°C
KWN2	Nut	Cylindrical plastic nut with double 5 mm flats
KWN3	Nut	Flanged lead-free brass nut
KWN4	Nut	Flanged plastic nut
KWN5	Nut	No backlash lead-free brass nut
KWN8	Nut	Cylindrical lead-free brass nut with double 5 mm flats
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	1	2	3	4
L2 [mm] = length without motor	30,9	37,2	43,5	49,9
L1 [mm] = length with motor	70,7	77,0	83,3	89,7
2237U...CXR	74,6	80,9	87,2	93,6
2342X...CR	78,0	84,3	90,6	97,0
2642X...CR/CXR	93,0	99,3	105,6	112,0
2657X...CR/CXR	104,0	110,3	116,6	123,0
2668X...CR	66,4	72,7	79,0	85,4
2232X...BX4	84,4	90,7	97,0	103,4
2250X...BX4	100,0	106,3	112,6	119,0
2264X...BP4	47,4	53,7	60,0	66,4
2214X...BXTH	46,6	52,9	59,2	65,6
2214X...BXTR	52,8	59,1	65,4	71,8
3216X...BXTH	52,0	58,3	64,6	71,0
3216X...BXTR	69,6	75,9	82,2	88,6
2036U...B	89,6	95,9	102,2	108,6
2057X...B	76,6	82,9	89,2	95,6
2444X...B	61,4	67,7	74,0	80,4
AM2224...10				