

KuLi - electrical short stroke actuator



Description

Compact and fast electrically operated linear drive. The drive is particularly suitable for use in automation and conveying technology. The parameterization takes place via a connect box (sold separately). The control electronics are integrated.

Special features

- **Compact design:**  
We achieve a stroke of 40 mm with a housing length of just 67 mm
- **Powerful and dynamic:**  
Thrust/tensile forces up to 300 N, speed up to 445 mm/s
- **Easy parameterization:**  
User friendly software and connect-box
- **Integrated control:**  
Configuration and teach-in of the system without expert knowledge
- **Maintenance-free**

Variant key

The Kuli short-stroke linear drive is available in different variants. The variants are composed in accordance with the ordering code below. Please note: many combinations of features are possible.

KuLi-	Variant	Drive
3215.00		Max. stroke – Spindle pitch
	B1	40 mm – 1 mm <i>(only with software variant EX)</i>
	B6	40 mm – 6 mm (max. 300 N and 114 mm/s or 445 mm/s and load-free)
		<b>Assembly</b>
	VS	Anti-rotation device
		<b>Plug alignment</b>
	R	right
	L	left
	H	back
	U	below
		<b>Software</b>
	DM	Dynamic Mode: fast and low load <i>(only for B6 variant)</i>
	SM	Standard Mode: medium speed and medium load <i>(only for B6 variant)</i>
	PM	Power Mode: slow and large load <i>(only for B6 variant)</i>
	EX	Expert Mode
		<b>Interface</b>
	S	Standard: analog A5 I/O 5 pol. plug
		<b>Zulassungen</b>
	S	Standard CE
KuLi -	B6 -	VS -
	R -	SM -
	S -	S

Model	KuLi
Stroke length / Max. travel path	40 mm
Spindle pitch	6 mm (Standard) or 1 mm
Max. thrust-/tensile forces	300 N
Max. speed load-free	445 mm/s
Max. holding force (static)	500 N
Supply voltage	24 V DC + 10 % / -25 %
Max. current consumption (Peak)	up to 10 A
Power consumption	240 W
Resolution of the encoder system	+/- 0.15 mm
Repeatability <sup>1)</sup>	+/- 0.2 mm
IP protection class	4 (with anti-twist device)
Ambient temperature	+5 to +42° C
Life time (10 N load) <sup>2)</sup>	20 Mio. Cycles <sup>3)</sup>

1) With increasing load and number of cycles the repeat accuracy changes due to wear and tear  
2) The service life can vary depending on operating and installation conditions and load-dependent (see chart)  
3) One cycle = extend-pause-retract-pause

- Shock resistance with static rate according to IEC EN 60068-2-27: 50 g 11 ms
- Vibration resistance in the static state according to IEC EN 60068-2-6: 10 - 2000 Hz 5g 10 frequency cycles
- Weight: 0.6 kg (variant with anti-twist device)
- Material: Aluminium & Zinc die-casting

Technical notes with standard-software variants DM/SM/PM

	Dynamic Mode	Standard Mode	Power Mode
Max. thrust/tensile forces	100 N	200 N	300 N
Mean speed at 40 mm	267 mm/s	160 mm/s	114 mm/s
Max. travel time for 40 mm	150 ms	250 ms	350 ms
Max. perm. cycle rate (Cycle/Min.) <sup>1)</sup>	46	29	12
Duty cycle Moving time per cycle* Holding time per cycle*	23 % 0.3 s 1 s	24 % 0.5 s 1.6 s	13 % 0.7 s 4.5 s

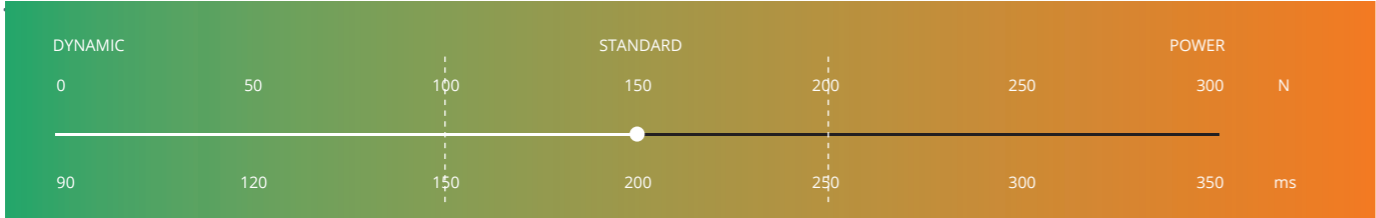
1) One cycle= extend-pause-retract-pause

Attention!

- ▶ This technical data only applies for KuLi with 6 mm spindle pitch (KuLi-B6-XX-X-EX-X-X)
- ▶ For the technical specifications for KuLi with 1 mm pitch (KuLi-B1-XX-X-EX-X-X), please consult the manufacturer
- ▶ Data determined at room temperature
- ▶ Exposure to radial forces is not allowed

Parameterization with standard-software variants

Finer force-travel time adjustments are possible with software variants KuLi-XX-X-DM/SM/PM in 50 N-increments with the help of the parameterization software by computer (if necessary).  
The software can be downloaded from [www.ketterer-drives.com](http://www.ketterer-drives.com) on the product page.  
Transmission of the parameterization via the connect box



Parameterization with software mode Expert (Ex)

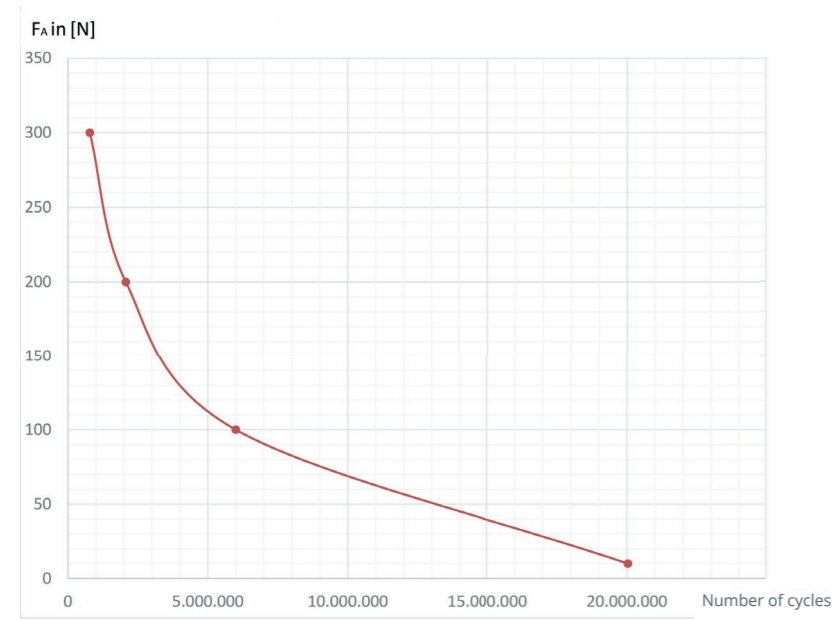
Expert Mode (KuLi-XX-XX-X-EX-X-X) offers a maximum of adjustment options to your application.  
Settings possible in the following areas.

	Expert Mode (6 mm)	Expert Mode (1 mm)
Thrust/tensile force	0 - 300 N	0 - 500 N
Ø Speed at 40 mm (mm/s)	445 - 114 mm/s	75 - 15 mm/s
Travel time for 40 mm (s)	0.09 - 0.35 s	0.54 - 2.67 s
Perm. number of cycles (Cycles/Min.)*	103 - 12	40 - 6

\* One cycle= extend-pause-retract-pause

Chart: Dependency of service life on axial load

The service life can vary depending on operation and installation conditions and is load-dependent.

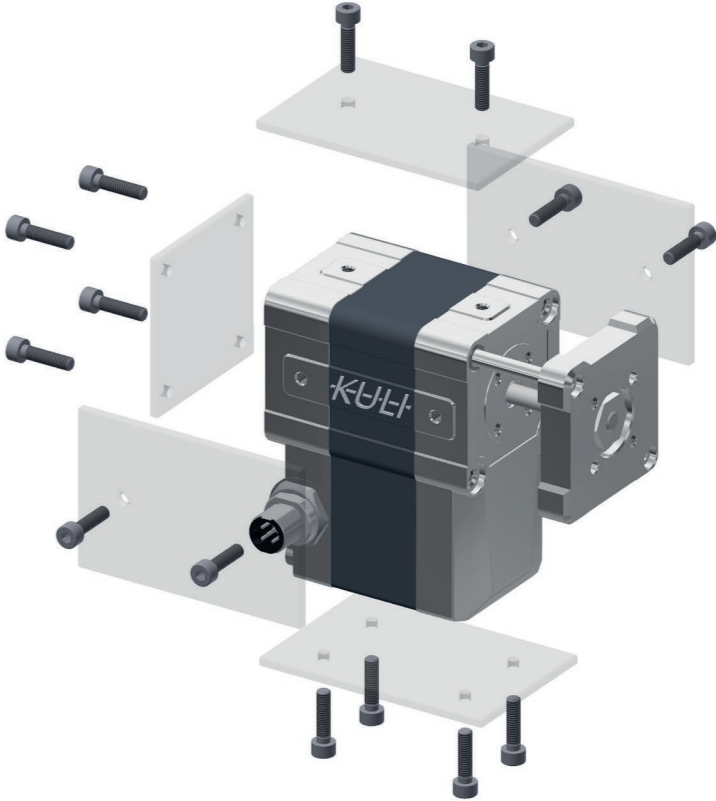


Pin Placement



The pin position can be selected flexibly to suit the application

Mounting for accessories

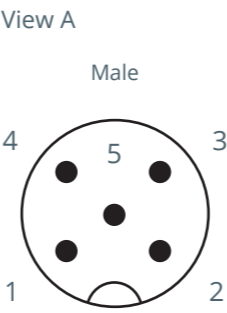


5-pin M12 connector

- M12-plug with a digital input for the command signal and with two digital output for feedback signals and position status
- According to the connector current carrying capacity definition, permanent operation of KuLi is not a permanent load for the power supply connector
- The required short-term current consumption of 10 A for KuLi is permissible for the connector operation

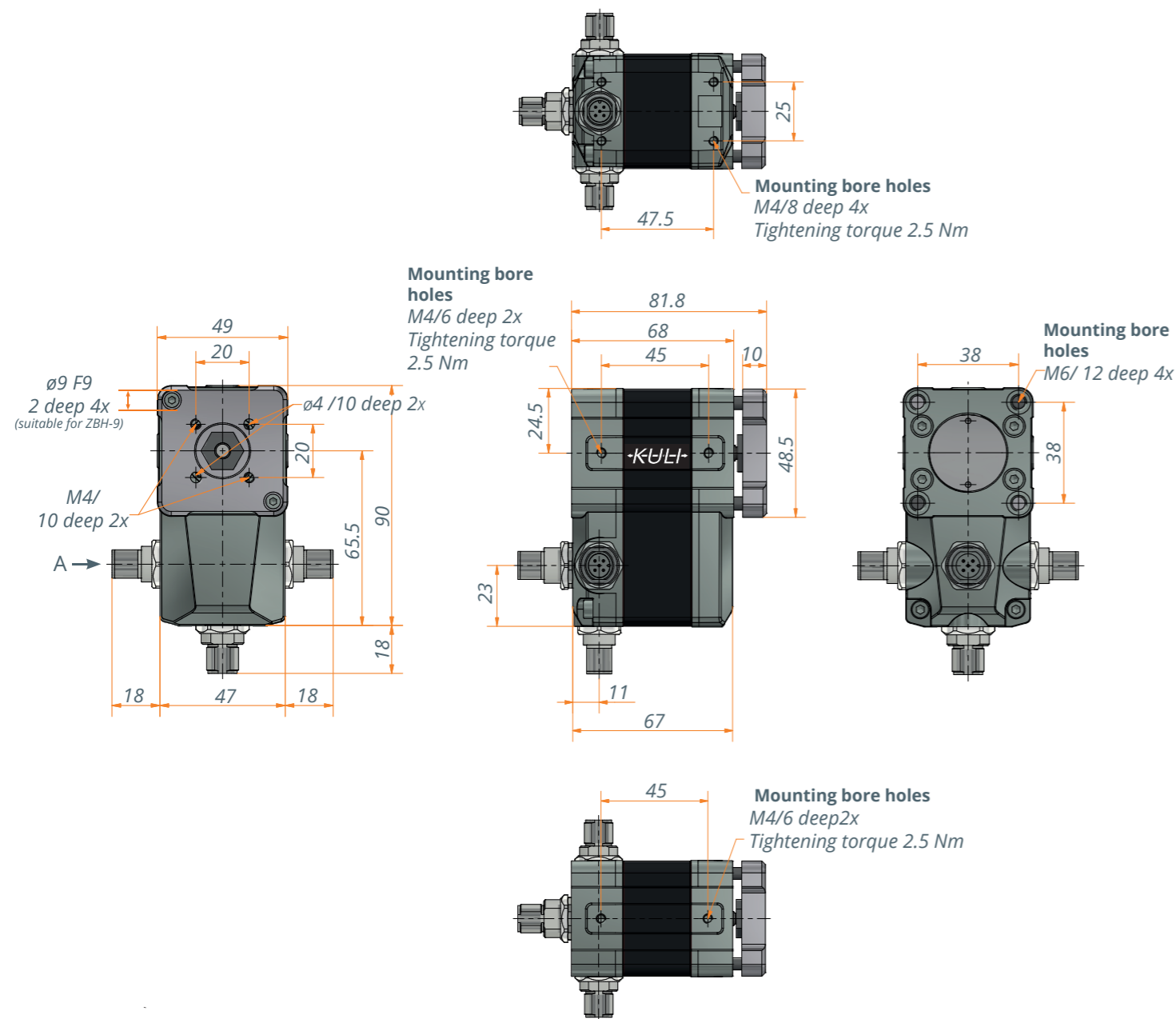
Plug size	M12
Number of contacts	5
Plug/ socket	Plug
Contact Gender	Male
Nominal current (current carrying capacity)*	4 A , 60 V
Coding	A
Housing alignment	Straight

\* **Current carrying capacity** determines which current can flow permanently and simultaneously via all contacts. If not all contacts are simultaneously using the maximum permissible current, a higher current can flow via individual contacts



Pin-configuration KuLi	
PIN 1:	24 VDC
PIN 2:	S1 (RS232-TXD)
PIN 3:	GND
PIN 4:	Control input (RS 232-RXD)
PIN 5:	S2

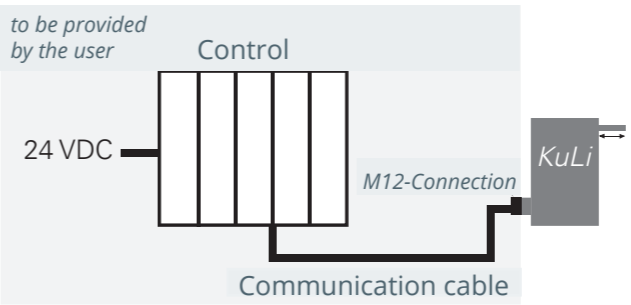
KuLi with anti-twist-device



KuLi – child’s play to operate

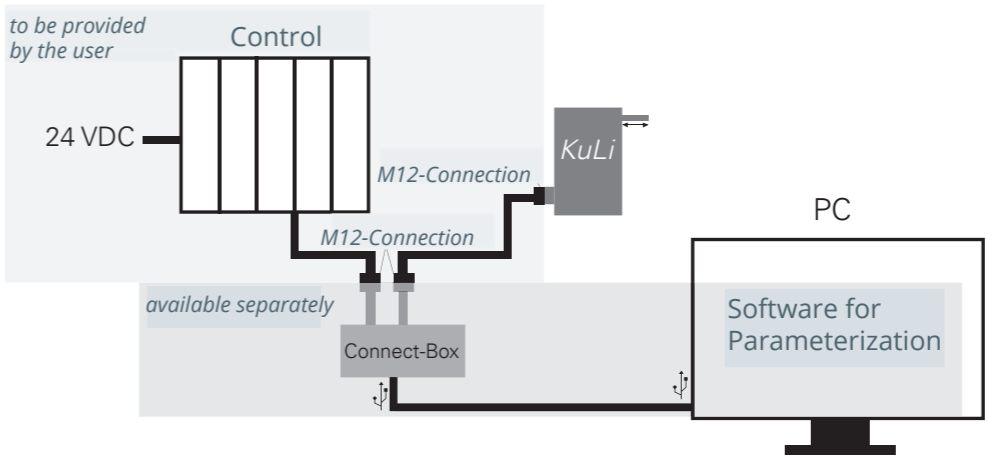
Simple I/O control:  
The KuLi short-stroke linear drive can be connected to the controller with a simple M12 cable.  
In I/O mode the drive is controlled via the digital input (control input).

Drive commands:  
0V on the control input -> thrust rod retracts  
24V on the control input -> thrust rod extends



Parameterization via the Connect Box

Simple configurations are possible by computer with the help of the Connect Box. To do this, the Connect Box is connected between the controller and the KuLi and connected by a USB cable to a computer. The software is available for download at [www.ketterer-drives.com](http://www.ketterer-drives.com) on the product page



Accessories	Order number
Connect-Box	3215.49-01

Requirements for the power supply unit

The power supply must be able to withstand the regenerative voltage up to 35 VDC.