

EWELLIX

MAKERS IN MOTION

Linear axes for collaborative robots



Heritage of innovation for technology leadership

Ewellix is a global innovator and manufacturer of linear motion and actuation solutions. Today, our state-of-the-art linear solutions are designed to increase machine performance, maximise uptime, reduce maintenance, improve safety and save energy.

Technology leadership

Our journey began **over 50 years** ago as part of the SKF Group, and our history with SKF provided us with the **expertise to continuously develop new technologies** and use them to create cutting edge products that offer our customers a competitive advantage.

In 2019, we became independent from SKF and changed our name to Ewellix. **We are proud of our heritage.** This gives us a unique foundation on which to build an agile business with engineering excellence and innovation as our core strengths.

Global presence and local support

With our **global presence**, we are uniquely positioned to deliver **standard components and custom-engineered solutions**, with full technical and applications support around the world. Long standing relationships with our distributor partners allow us to support customers in a variety of different industries. At Ewellix, we don't just provide products; **we engineer integrated solutions** that help customers realise their ambitions.



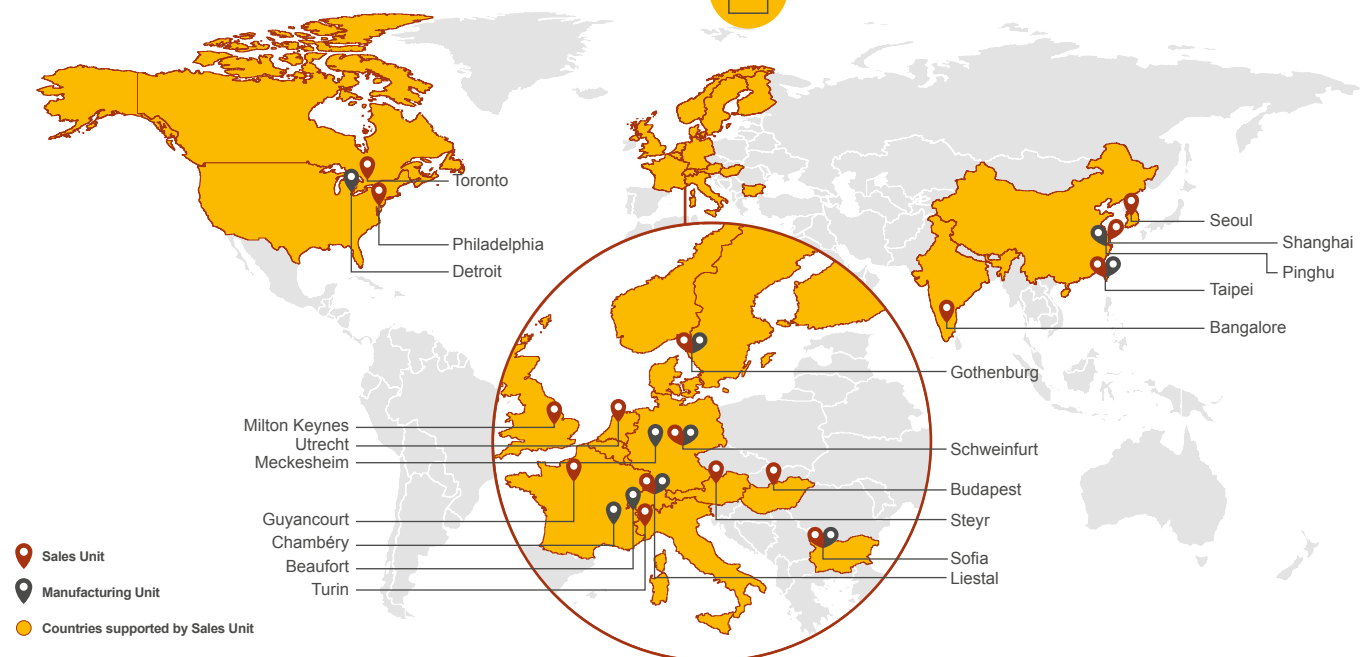
1 200 employees



16 sales units



10 factories

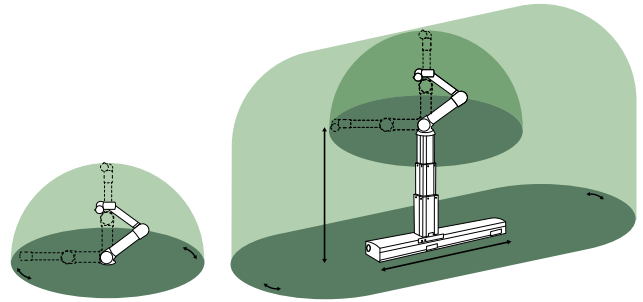


Applications

Industry 4.0 has driven a modernization of operations across different industries. Process automation is a key enabler to reach operational excellence with interconnected machineries.

Collaborative robots (cobots) can greatly improve productivity in industrial environments with repetitive tasks. The radius of action is usually limited by their reach. Additional linear axes can significantly enhance the radius of action up to 5 times, by re-positioning the base of the robot during its working cycle.

Ewellix offers a range of linear motion axes - vertical and horizontal - to easily expand the capabilities of a cobot.



Benefits for palletizing

Fully automated pick and place solutions are becoming a new standard with packaging stations. The main challenge for packaging system manufacturers is to design multi-axis systems in a simple and cost effective way. A typical application that benefits from an added linear axis is palletizing of boxes. Stacking on pallets can start at floor level, but the stack can be up to 2 m high. A standard collaborative robot does not have such a large vertical working range.

Ewellix provides effective solutions to complete vertical adjustment in a smart way, providing a ready to mount additional linear axis to the robot. While stacking a pallet, the base of the robot can be lifted or lowered to work at a more optimal position.

Benefits for handling

Concerning handling applications, it's often required to cover long distances between machines, like machined parts loading and unloading on CNC centers.

This repetitive operation, usually done manually, is time consuming and with low added value for the operators.

By using a cobot on the Ewellix linear module, it is possible to easily automate this handling process, increasing its productivity and reliability.

Linear modules from Ewellix provide fast and precise movements to effectively position the robot along a horizontal axis.

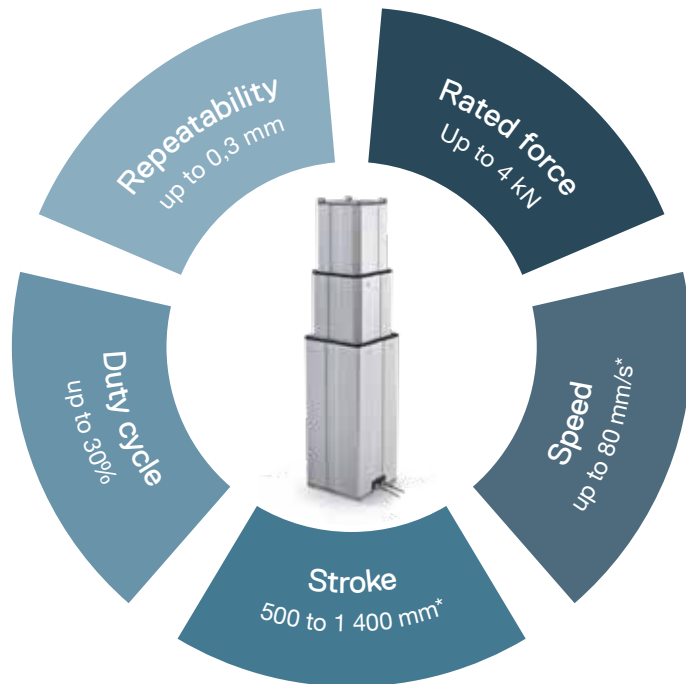


Solutions for vertical axes

Ewellix offers different telescopic pillar configurations to meet the demands of a range of robot applications. These telescopic pillars are very robust and stable, with built in drive system for easy integration.

TLT

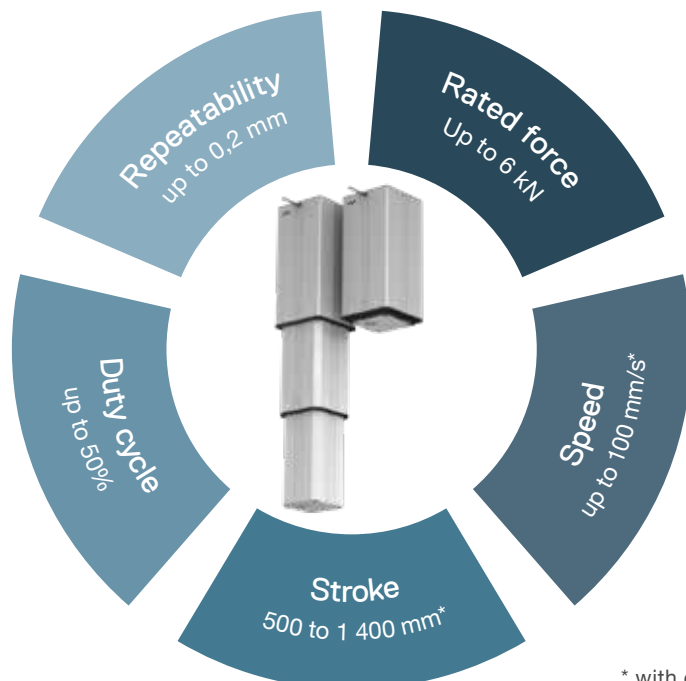
- Telescopic design using two motors to achieve a high stroke with low retracted height
- Fast speed up to 80 mm/s at 1 500 N push load
- Very quiet operation
- Mechanical brake included
- Different screw and motor options



CPMT

Available on request

- Telescopic design using a double screw drive train to achieve a high stroke with low retracted height
- Higher duty cycle and lifetime compared to TLT
- Single motor design
- Push and pull load

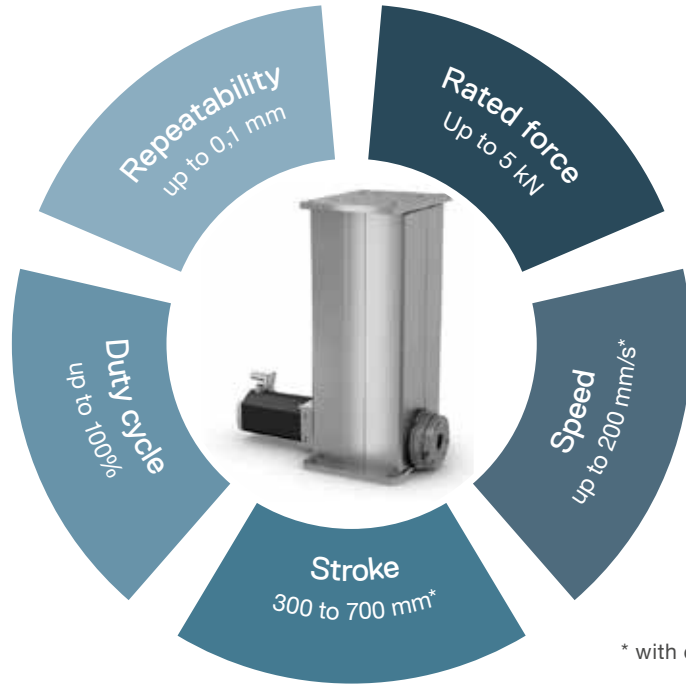


* with customization

CPSM

Available on request

- Servo pillar with full motor flexibility
- Can be provided with external brushless DC or servo motor, or interface for any third party motor
- Very high speeds over 200 mm/s
- Highest duty cycle and lifetime
- Push and pull load



* with customization

Key benefits for collaborative robots

TLT		Main application Palletizing	Push/pull force Push		
		Stroke/Speed High stroke		Positioning precision 0,3 mm	
		Duty cycle Low		Brake Internal	
CPMT		Main application Ceiling mounting and palletizing	Push/pull force Push and pull		
		Stroke/Speed High stroke		Positioning precision 0,2 mm	
		Duty cycle Medium		Brake Internal	
CPSM		Main application Pick and place	Push/pull force Push and pull		
		Stroke/Speed High speed		Positioning precision 0,1 mm	
		Duty cycle High		Brake External	

Solutions for horizontal axes

Ewellix offers different linear module configurations to meet the demands of a range of horizontal cobot positioning applications.

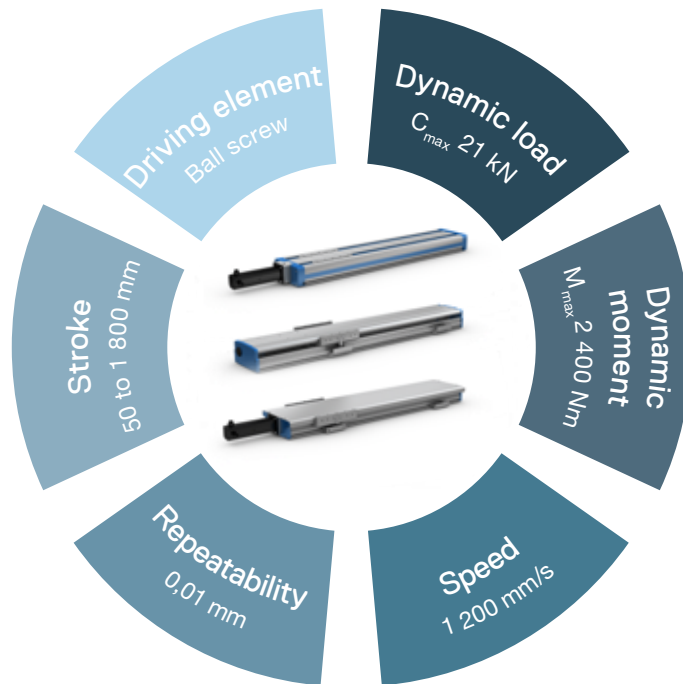
CLSM-150-B

Features

- Ball screw drive train (belt drive train on request)
- Four cover option for different protection levels
- High level of positioning precision and repeatability
- Inline and parallel gear boxes
- Customized motor adapter plate to fit any motor
- Stroke up to 1,8 m (longer strokes available on request)
- Speed up to 1,2 m/s (higher speed on request)

Benefits

- High movable loads in operation
- Long life in operation
- Easy maintenance by one-point lubrication option from both carriage sides
- Precise alignment and secure fastening of the attachments



Customized solutions

Ewellix offers a wide range of possible customizations to satisfy different application needs.

From basic modifications like custom attachments or painting to complete customized solution, Ewellix can offer tailor made systems to empower cobots users in getting most benefits for their applications.

In this customization example, we have realized a multi-axes system to move independently 2 robots on both horizontal and vertical axes, dramatically enlarging the operating range while keeping a very compact footprint.

Features

- Rack and pinion drivetrain
- Independent movement
- Stroke up to 6m
- Multiple carriages
- Custom robot mounting plates



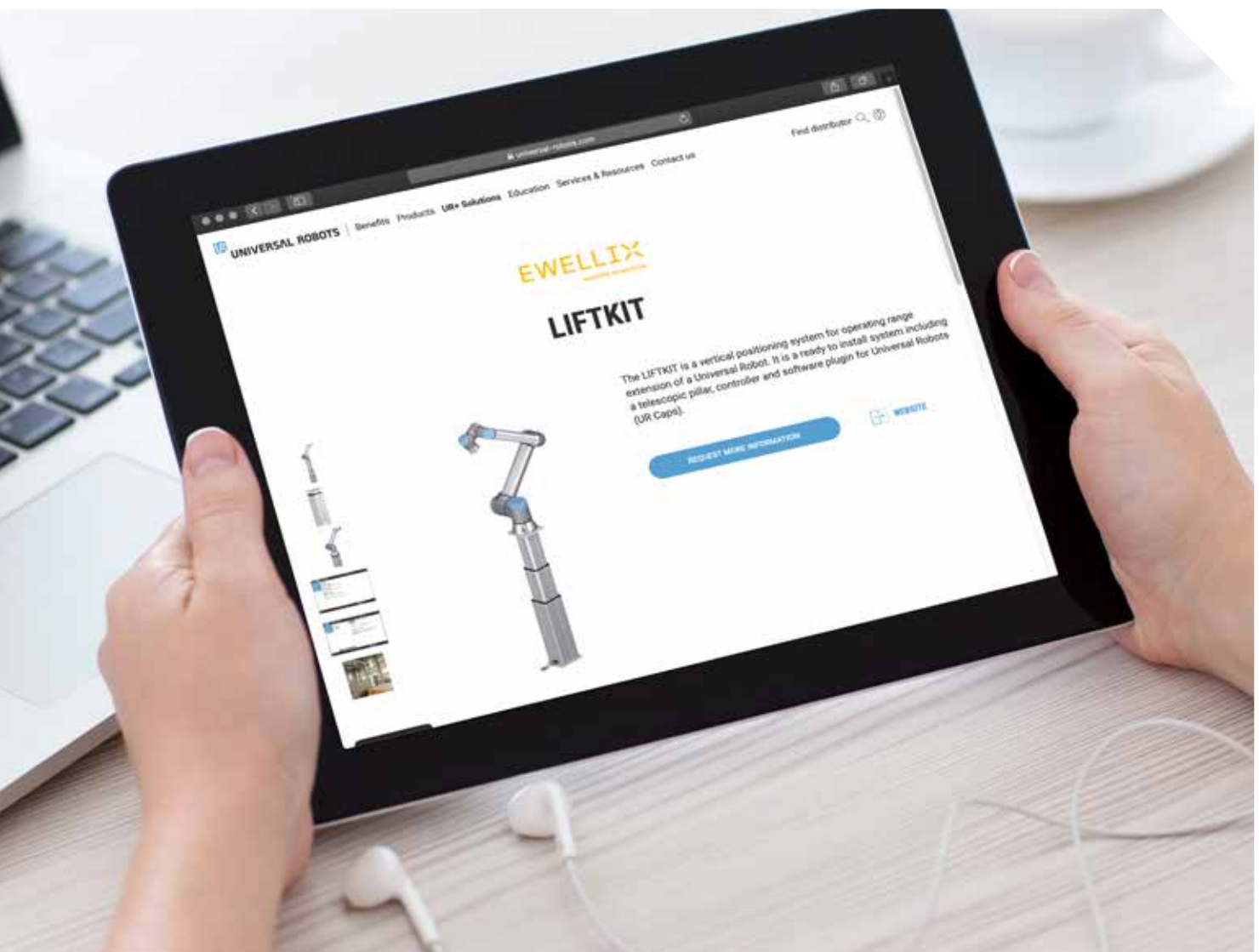
Integrated solutions for Universal Robots

Complete plug & play solutions, UR+ certified, are available for cobots from Universal Robots. The LIFTKIT and SLIDEKIT provide a ready to install solution to easily add a vertical or horizontal axis to Universal Robots.

The kits include all required hardware, controllers and interfaces to the Universal Robots system. Also included is a URCaps software to directly control the additional axis from within the UR programming environment. No engineering resources needed! Ready to run in 30 minutes.



www.universal-robots.com/plus/accessories/liftkit/





Linear axis for collaborative robots LIFTKIT

Operating range extension

- Vertical lifting of the cobot by up to 900 mm (1.400 mm on request) with compact retracted height
- Robust pillar design for industrial use, vibration free motion and virtually maintenance free

Plug-and-play solution

- Hardware interface compatible with UR3, UR5, UR10 and UR16 robots
- Universal Robots+ certified product
- Software control integrated with UR controller (URCaps) for easy motion programming
- Basic control option with digital I/O for all cobot manufacturers

Cost savings and higher productivity

Cobots combined with Ewellix LIFTKIT provide a cost-effective solution to upgrade an existing assembly shop, moving from a manual handled to a fully automatized line.



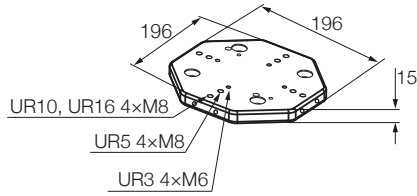
Technical data

	Unit	LIFTKIT-UR-601	LIFTKIT-00-601
Pillar type	-	TLT	TLT
Performance Data			
Max. Push load	N	1 500	1 500
Max. Pull load	N	0	0
Max. dynamic moments	Nm	210	210
Max. linear speed	mm/s	80	80
Duty cycle	%	10% (20% at 500N)	10% (20% at 500N)
Mechanical Data			
Screw type	-	Acme screw	Acme screw
Stroke range	mm	500 - 900	500 - 900
Retracted length (software controlled)	mm	Stroke/2 + 275	Stroke/2 + 275
Repeatability(same direction and load)	mm	± 0.5	± 0.5
Weight @ 0 mm stroke	Kg	21	21
Δ weight per 100mm stroke	Kg	1,7	1,7
Robots compatibility	-	UR3, UR5, UR10, UR16, e-Series	Any robot
Cable management	-	Threads on pillar and interface plate to attach cable management	Threads on pillar and interface plate to attach cable management
Electrical			
Voltage/Current	V/A	120 AC / 6.5 A 230 AC / 3,3 A 24 DC / 10 A	120 AC / 6.5 A 230 AC / 3,3 A 24 DC / 10 A
Emergency stop	-	Connection to UR safety I/O	Connection to robot safety I/O
Communication			
Control interface	-	URCaps plugin compatible with CB3.1 / Polyscope 3.6 or higher	Digital I/O control, RS232 interface for external software control (no software provided)
Positioning, repeatability	mm	± 1	± 1
Accessible positions	-	any	2 memory positions programmable
Feedback	-	Position feedback via URCaps	Position feedback for memory positions via output signal
Soft start and stop	-	Implemented for smooth operation	Implemented for smooth operation
Software control	-	URcap	RS232 interface for external software control (no control software provided)
Environment			
Type of protection	IP	40	40
Ambient temperature	°C	+10 to +40	+10 to +40
Max. humidity	%	85	85

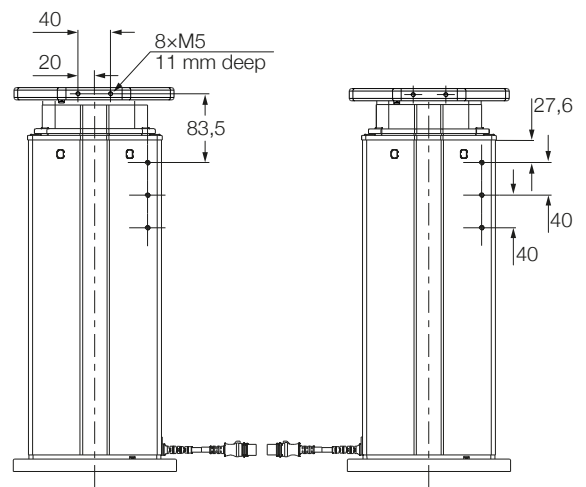
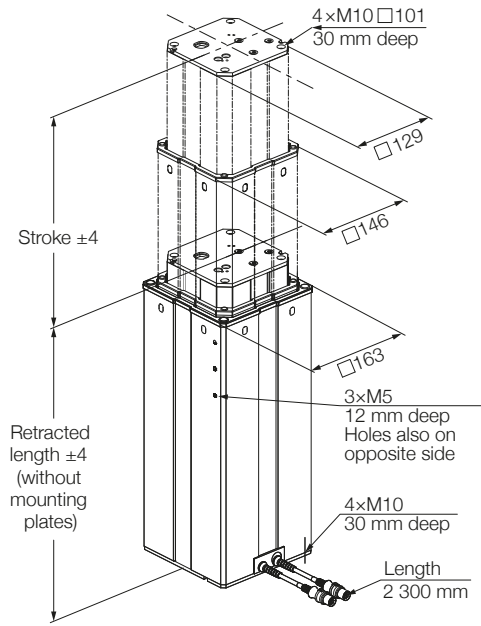
Dimensional drawing

TLT telescopic pillar

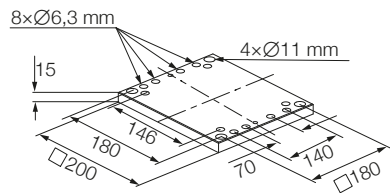
Robot attachment plate



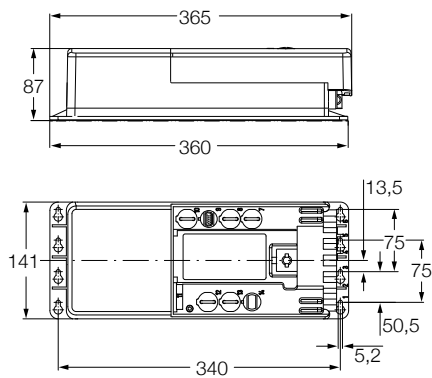
TLT Pillar



Bottom fixation plate

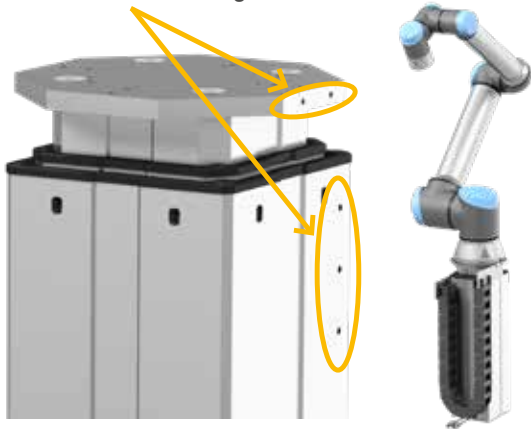


Control unit

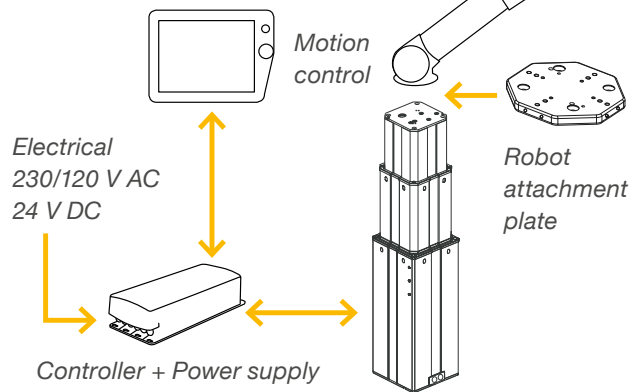


Cable management

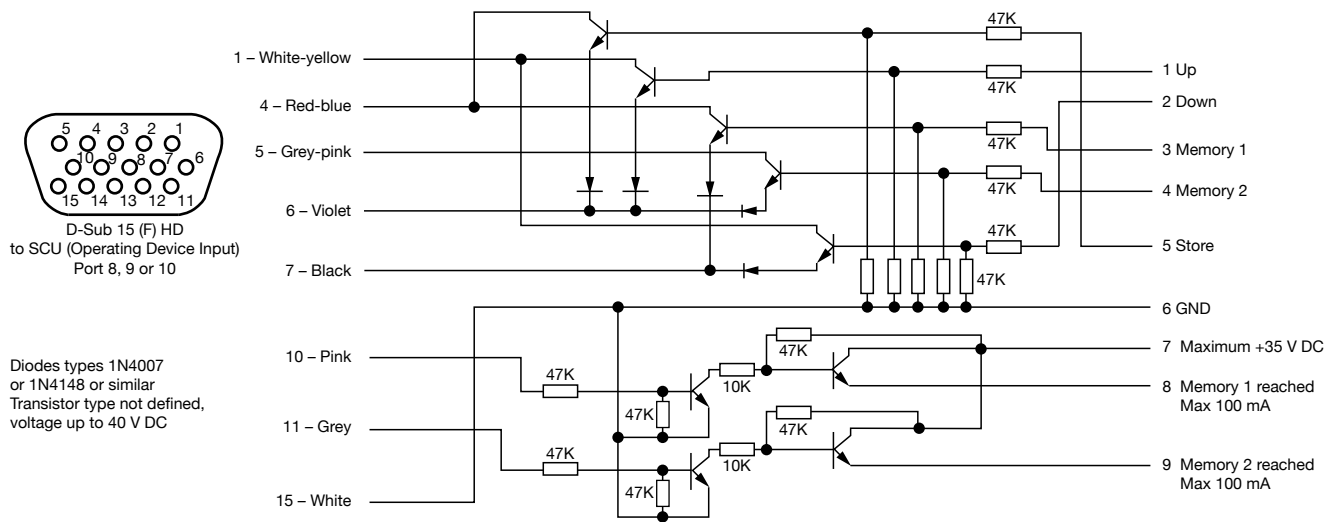
Threads for cable management attachments



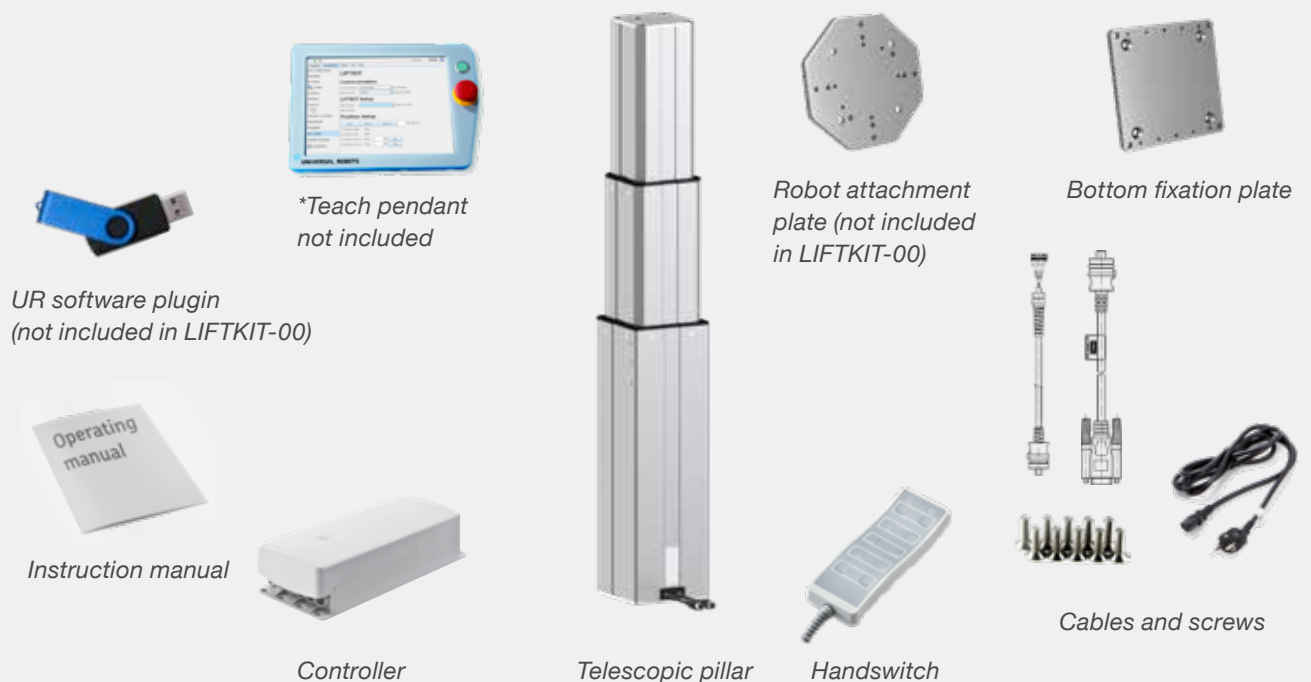
Connection diagram



Example of LIFTKIT-00 interface board to robot PLC (not included)



LIFTKIT contains



Software functionality

The URCaps software for the LIFTKIT allows easy positioning access directly within the UR Polyscope environment.

Setup

In the installation tab, the user can manually move the linear axis in both directions and define multiple user specific positions, that are accessible in programming mode.

Motion programming

Within the UR motion program, the LIFTKIT axis is easily integrated through a URCaps command module. Simply insert this element from the structure tab at the desired position of the program. Additionally, reading and setting positions is possible through a script function.

Safety elements

The LIFTKIT has a range of safety elements built in to allow its integration into a robot application.

Software updates

To download the latest software update please check on ewellix.com/support/library/software updates.

NOTE: The LIFTKIT is not a functional safety system compliant with EN ISO 13489-1 or IEC 62061. To integrate the LIFTKIT into a functional safety chain, external safety devices have to be integrated into the overall system.



LIFTKIT software functionality

Ordering key



Robot	_____
00	Any robot (no software, no robot interface plate)
UR	Universal Robots
Stroke*	_____
500	mm
600	mm
700	mm
800	mm
900	mm
Electrical options	_____
00	24 V DC
11	120 V AC / US cable
22	230 V AC / EU cable
23	230 V AC / CN cable
24	230 V AC / UK cable
25	230 V AC / CH cable
Pillar type	_____
601	TLT

* longer stroke up to 1 400 mm available on request

Linear axis for collaborative robots SLIDEKIT 2.0

Operating range extension

By adding a linear module as a dynamic base for the robot, it is possible to extend the handling operating area of the robot, increasing the productivity of a series of machines working in the same production flow.

Plug-and-play solution

The SLIDEKIT 2.0 provides quick and fast installation, by having a standardized mechanical, electrical and software interface with Universal Robots.

In few steps, the system is ready to be used and simply programmed in operation.

Cost savings and higher productivity

UR cobots combined with the SLIDEKIT 2.0 linear module provide a cost-effective solution to upgrade an existing assembly shop, moving from a manual handled to a fully automatized line.

Improved performances

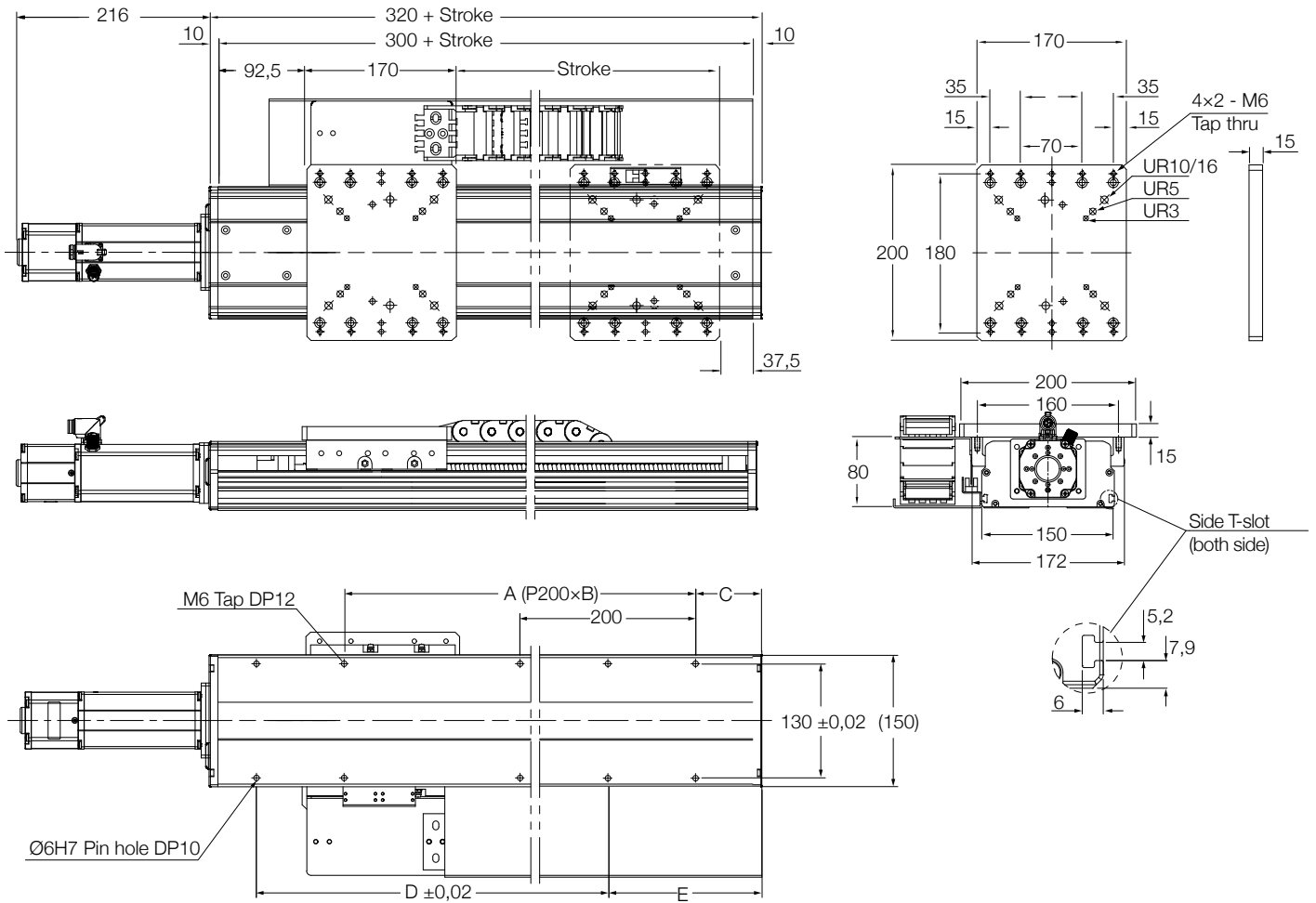
The 2.0 release of the SLIDEKIT delivers several improvements compared to the former version, like higher system reactivity and stability, lower noise in operation and optimized design for limit switches and relubrication points



Technical data

Designation	Unit	SLIDEKIT-UR	SLIDEKIT-00
Linear module type	-	CLSM-150	CLSM-150
Performance Data			
Max. dynamic payload	N	10 900	10 900
Max. static load capacity	N	12 100	12 100
Max. dynamic moments Mx	Nm	2 400	2 400
Max. dynamic moments Mz	Nm	1 800	1 800
Max. linear speed	mm/s	See graph page 6	See graph page 6
Duty cycle	%	100	100
Mechanical Data			
Screw type	-	Ball screw	Ball screw
Stroke range	mm	100 - 1 800	100 - 1 800
Repeatability (same direction and load)	mm	± 0.01	± 0.01
Weight @ 0 mm stroke	Kg	10	10
Δ weight per 100mm stroke	Kg	1,4	1,4
Robots compatibility	-	UR3, UR5, UR10, UR16, e-Series	Any robot
Cable management	-	Cableveyor	Cableveyor
Electrical			
Voltage/Current	V/A	115 VAC / 4.8 A 230 VAC / 2.4 A 24 DC / 20A	115 VAC / 4.8 A 230 VAC / 2.4 A 24 DC / 20A
Emergency stop	-	Connection to UR safety I/O	Connection to Robot safety I/O
Communication			
Control interface	-	URCaps plugin compatible with CB3.1 / Polyscope 3.6 or higher	Digital I/O control, CAN interface for external software control (no software provided)
Positioning, repeatability	mm	± 0.1	± 0.1
Accessible positions	-	any	14 memory positions programmable
Feedback	-	Position feedback via URCaps	Position feedback via output signal
Soft start and stop	-	Implemented for smooth operation	Implemented for smooth operation
Software control	-	URcap	CAN interface for external software control (no software provided / The software can be downloaded from the Dunker motor website)
Environment			
Type of protection	IP	Controll box = IP64 SlideKit =N/A	Controll box = IP64 SlideKit =N/A
Ambient temperature	°C	0 to +50	0 to +50
Max. humidity	%	95	95

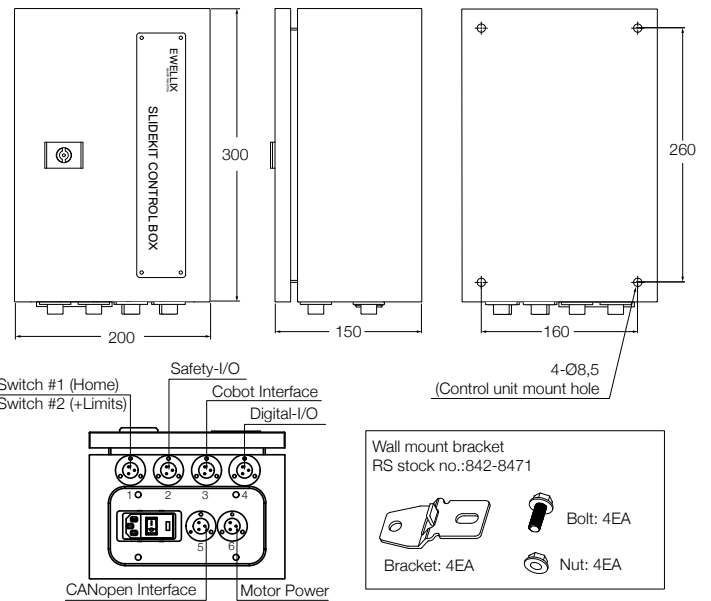
Dimensional drawing



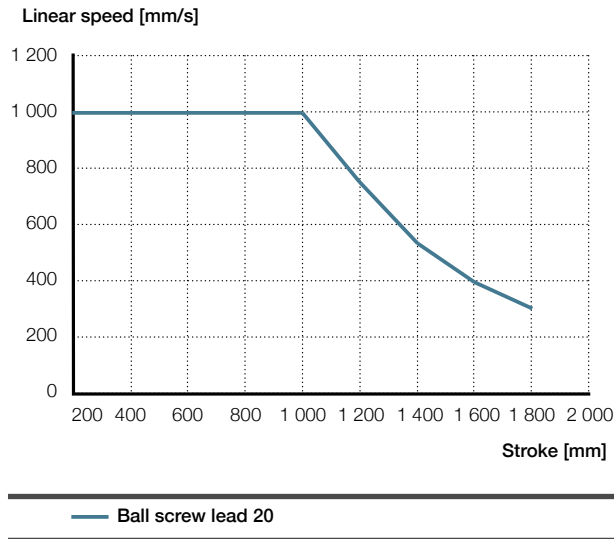
	Stroke	A	B	C	D	E
	mm					
1	100	200	1	75	200	175
2	200	400	2	25		125
3	300	400	2	75	400	175
4	400	600	3	25		125
5	500	600	3	75	600	175
6	600	800	4	25		125
7	700	800	4	75	800	175
8	800	1 000	5	25		125
9	900	1 000	5	75	1 000	175
10	1 000	1 200	6	25		125
11	1 100	1 200	6	75	1 200	175
12	1 200	1 400	7	25		125
13	1 300	1 400	7	75	1 400	175
14	1 400	1 600	8	25		125
15	1 500	1 600	8	75	1 600	175
16	1 600	1 800	9	25		125
17	1 700	1 800	9	75	1 800	175
18	1 800	2 000	10	25		125

Standard stroke

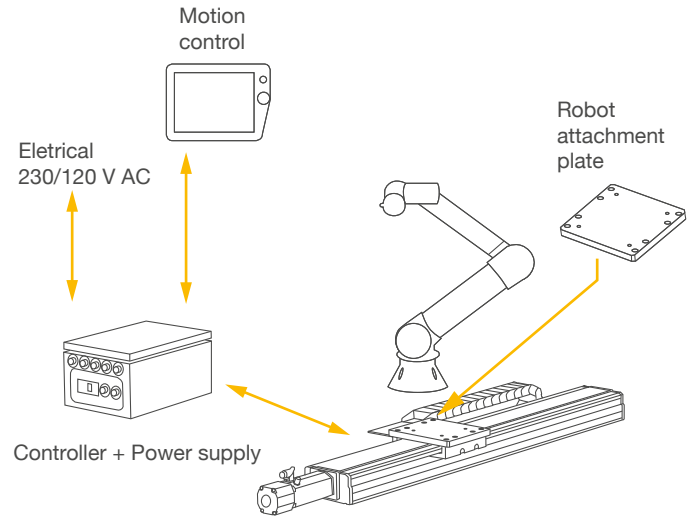
Control unit



Performance diagram



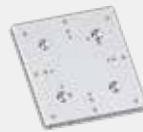
Connection diagram



SLIDEKIT 2.0 contains



*Teach pendant not included



Robot attachment plate
(not included in SLIDEKIT-00)



Cableveyor



UR software plugin
(not included in SLIDEKIT-00)



CLSM Linear module



Control unit



CAN



D-SUB 9Pin



Digital IO



Motor Power



Proximity Switch

Software functionality

The URcaps software for the SLIDEKIT 2.0 allows easy positioning access directly within the UR Polyscope environment.

Setup

In the installation tab, the user can manually move the linear axis in both directions and define multiple user specific positions, that are accessible in programming mode.

Motion programming

Within the UR motion program, the SLIDEKIT 2.0 axis is easily integrated through a URcaps command module. Simply insert this element from the structure tab at the desired position of the program. Additionally, reading and setting positions is possible through a script function.

Safety elements

The SLIDEKIT 2.0 has a range of safety elements built in to allow its integration into a robot application.

Software updates

To download the latest software update please check on ewellix.com/support/library/software updates.



SLIDEKIT 2.0 software functionality

NOTE:

The SLIDEKIT 2.0 is not a functional safety system compliant with EN ISO 13489-1 or IEC 62061. To integrate the SLIDEKIT 2.0 into a functional safety chain, external safety devices have to be integrated into the overall system.

Ordering key

SLIDEKIT - [] - B20E - [] - [] - SCM - 000

- Robot**
- 00 Any robot (no software, no robot interface plate)
 - UR Universal Robot

Module options

- B Ball screw
- 20 Lead
- E Cover Alumium and External motor attachment

Stroke

- 100 ... 1 800 mm
- 1 000 Preferred range
- 1 800 Preferred range

Electrical options

- 11 120 VAC / US cable
- 22 230 VAC / EU cable
- 23 230 VAC / CN cable
- 24 230 VAC / UK cable
- 25 230 VAC / CH cable

Accessories options

- S Sensor
- C Cableveyor
- M Standard hole patten

Customized options

- Option 1
- Option 2
- Option 3



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PUB EL-02002/3-EN-May 2020

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