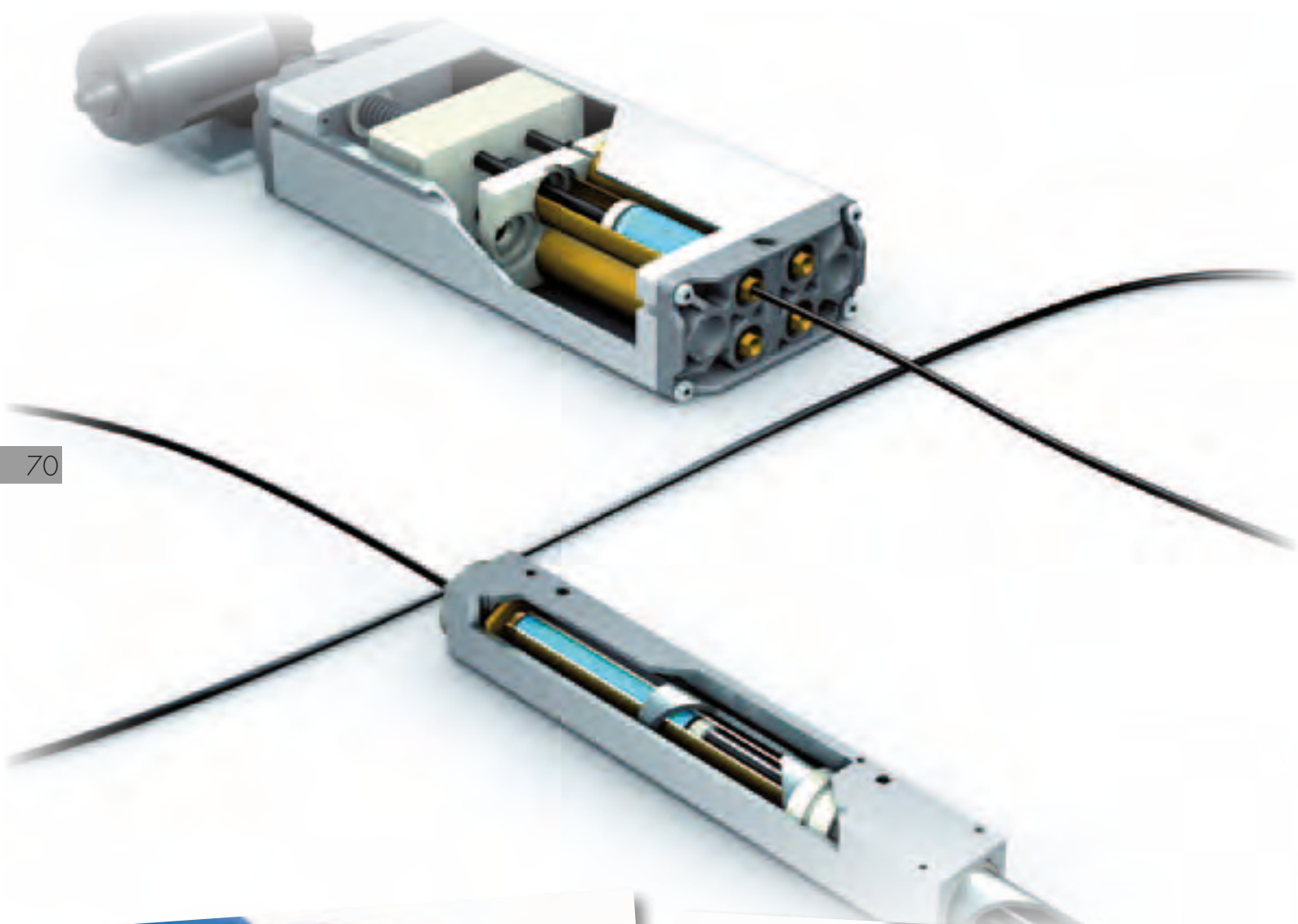


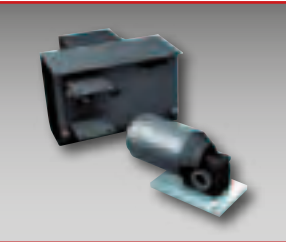
# HYDRAULIC SYSTEM

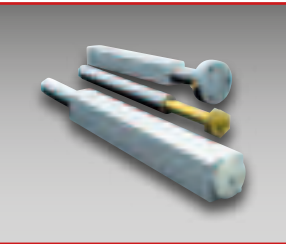


70




<b>System Design</b>	
72	

<b>Electric Drive</b>	
74	

<b>Linear Units</b>	
76	

<b>Hydraulic Pumps</b>	
73	

<b>Cylinders</b>	
75	

System Selection Tables

120 Kg	Cylinder type <sup>1</sup>	Pump for 1 cy
Lift 150 mm	1415	UA 1
Lift 200 mm	1420	UA 1
Lift 300 mm	1430	UA 1
Lift 400 mm	1440	UA 1
Lift 500 mm	1450	UA 1
Lift 600 mm	1460	UA 1
Lift per rotation	/	5 mm
Electric drive type <sup>2</sup> , Speed	/	UAA, 10 UAC, 10

77

## System Design



The fluid is pressed from the pump by the drive into up to 10 cylinders, which extend. The simple hydraulic principle requires a reset force of at least 50N (5kg) to press the fluid back into the pump.

The system is installed functional, load-independent and fully synchronized through flexible connector hoses.

Our system has a decisive advantage over conventional systems due to its small size, high load capacity and quiet drive.

72

## Details



### Pump UB

The piston rods are pushed from the pusher block into the pressure elements through the movement of the drive.

This presses the fluid out of the pressure elements into the connected cylinder.

Each connected cylinder has its own pressure element in the pump.

### Linear Unit UA

The fluid located in the pressure element of the pump, flows into the cylinder and presses against the piston rod.

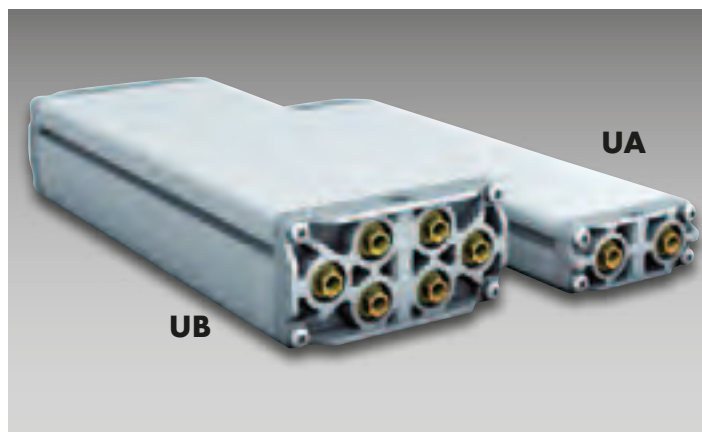
The cylinders extend simultaneously through the displacement of the fluid in all the pressure elements of the pump.

The standpipe, which is screwed to the piston rod, is pressed out of the housing.

When the cylinder extends, it glides into the plastic bearings of the aluminium profile.

The whole construction is fixed in the housing and thus assures stability.

## Pumps



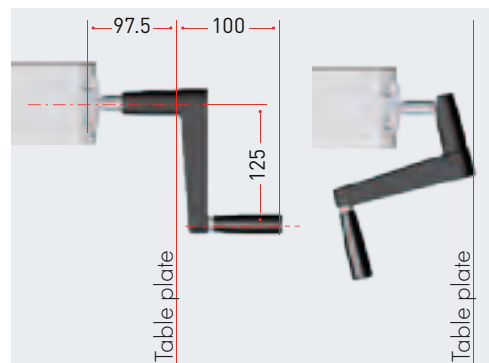
The core parts of our adjustable systems are the pumps **UA** and **UB**. The flexible connections, which need only minimal space, as well as the possibility of attaching the pumps in any position even outside a system, gives the designer the possibility of installing the system in very thin or complex objects.

Our pumps lift weights up to 1000kg quietly, and are step less and completely synchronous - even with an asymmetrical load. They are powered by an electric drive or a hand crank.

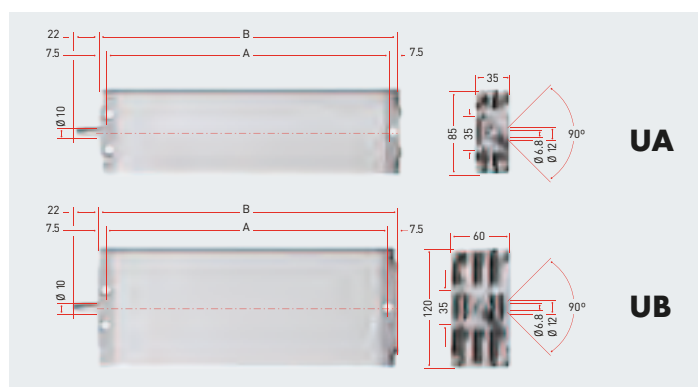
You have the choice of two pump types:

- Pump **UA** to control one or two cylinders with a max. load of 300kg.
- Pump **UB** to control three to ten cylinders with a max. load of 1000kg.

A reset force of at least 50N (5kg) per cylinder should be available to push the oil back into the pump during retraction. The pumps and cylinders are connected by a hydraulic hose ( $\varnothing$  4mm). The max. hose length is 8m. The minimal bending radius is 25mm. Three attachment holes are provided for the installation of the pumps. The pump housing is made of an extruded aluminium sheath and is colourless anodized. The hand crank completely disappears under the table if it is folded together. The dowel pin that attaches the crank to the pump protects the pump from overloading. Crank radius 125 mm. A detachable crank is also available.



## Type UA / UB



### Technical Data

- Pump UA to control 1 or 2 cylinders
- Pump UB to control 3 to 10 cylinders
- Pump UA max. load 300 kg
- Pump UB max. load 1000 kg
- Maximum lift speed 10 mm per crank turn, with electric motor max. 30 mm/s
- There is also the possibility to use food-friendly fluids
- Other models on request

150kg Pump type	<b>UX n615</b>	<b>UX n620</b>	<b>UX n630</b>	<b>UX n640</b>	<b>UX n650</b>	<b>UX n660</b>
Size A (mm)	283.5	283.5	283.5	465.5	465.5	465.5
Size B (mm)	298.5	298.5	298.5	480.5	480.5	480.5

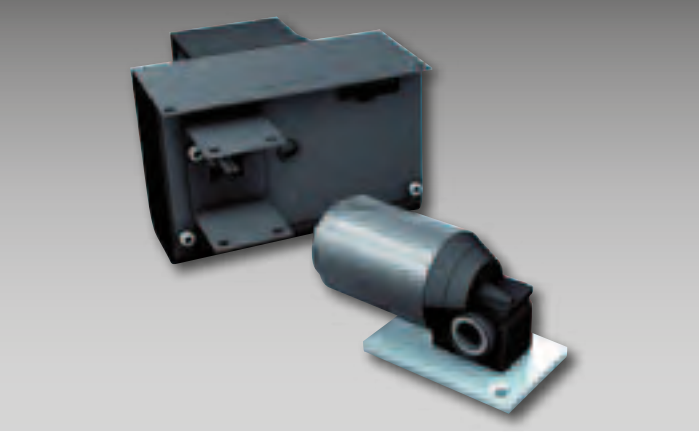
350 Kg Pump type	<b>UX n815</b>	<b>UX n820</b>	<b>UX n830</b>	<b>UX n840</b>	<b>UX n850</b>	<b>UX n860</b>
Size A (mm)	283.5	343.5	465.5	585.5	707.5	827.5
Size B (mm)	298.5	358.5	480.5	600.5	722.5	842.5

600 Kg Pump type	<b>UB n415/18</b>	<b>UB n420</b>	<b>UB n430</b>	<b>UB n440</b>
Size A (mm)	465.5	585.5	707.5	908.5
Size B (mm)	480.5	600.5	722.5	923.5

X = Pump type **A** or **B**

n = Number of controllable cylinders (1 - 10 cylinders)

## Electric Drive



The pumps are operated with a hand crank or with an electric drive. The drives are compatible with all hydraulic pumps. Select the suitable drive according to load or lift speed.

### Type A and B

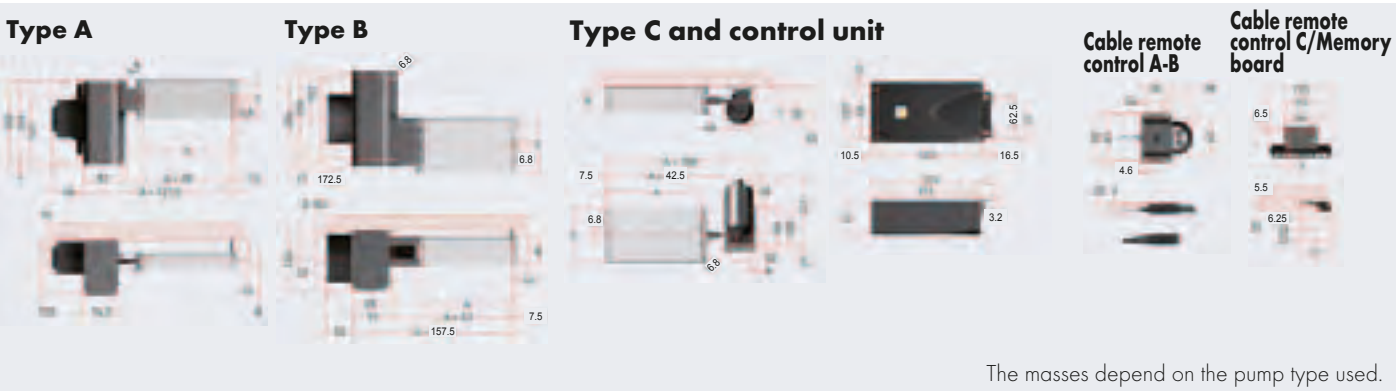
These drive types are controlled by a simple cable remote control with up/down keys. We recommend **Type B** for high loads. The engine and the control are built into the housing. The transformer (230VAC, optionally 110VAC) is attached on the outside of the housing. The cable remote control (2m cable length) is installed below the table edge at the desired location, and can be pushed under the table top.

### Type C

On drive **Type C** different heights can be memorized and automatically selected. The memory board also has a digital height indicator. The infrared remote control is available as an alternative to the memory board. The power supply (230VAC, optionally 110VAC) is integrated into the control unit. The memory board (2.5m cable length) is installed below the table edge at the desired location, and can be pushed under the table top.

A power and thermal control protects the drive and the entire system against overload. The system comprises all parts as well as installation of the drive to the pump. The drive is installed on the holes provided. The drives are not suitable for continuous operation. After a run-time of one minute the drive needs a rest of approx. 20 minutes (OT 5%). The motor drive lessens the nominal lift by approx. 15mm.

## Tipo A/B/C



Type	A	B	C
Tested/certified	CE/SEV-tested	CE-tested	CE/TÜV/UL-certified
Dimensions (mm)	180x120x127.5	206x130x127.5	/
System voltage	230/110 VCA	230/110 VCA	230/110 VCA
Engine voltage	29 VCC	38 VCC	29 VCC
Nominal rating approx.	160 VA	240 VA	140 VA
Nominal speed	140 min <sup>-1</sup>	210 min <sup>-1</sup>	120 min <sup>-1</sup>
Nominal torque	1.7 Nm	1.7 Nm	/
Fastening torque	17 Nm	55 Nm	/
Thermal protection	Yes	Yes	/
4 memory positions	/	/	Yes
Digital display of height	/	/	Yes
Protection type	/	/	IP30
Overload protection	/	/	Yes
ISP Function	/	/	Yes

## Cylinders



Our cylinders are very suitable to adjust structures as quietly, quickly and precisely as possible. Due to the simultaneous control of up to 10 cylinders even highly complex structures are feasible.

The cylinder is constructed for installation in existing guides and should only be exposed to small side loads. It is used for height and tilt adjustments.

The cylinder consists of brass parts and a piston rod made of stainless steel.

The clamping ring and screws are there only to connect the hose to the pump and the cylinder (clamp ring screwing). The amount needed for assembly is included with the system.

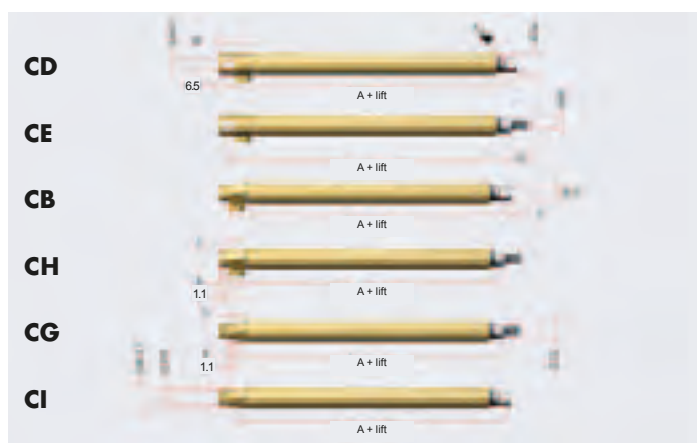
- Attachment screw thread M8 x 1

The flexible pressure hose has the following properties:

- Exterior diameter 4mm
- Minimum bending radius 25mm
- Max. operating pressure 100bar

Brackets D6 and D8 are accessories for cylinders with side drilled hole in the piston rod or connecting head.

## Type CB/CD/CE/CG/CH/CI



### Technical data

- Please adhere to the max. load of the complete system given in the selection table
- Load max. 1500N per cylinder
- Cylinders up to 2500N load on request
- Lift length up to 600mm; greater length on request
- Double telescopic cylinder on request
- The cylinders should not be exposed to traction
- The cylinders are made for the installation into existing guides
- There is also the possibility to use food-friendly fluids
- Other models (e.g. special piston rod length) upon request

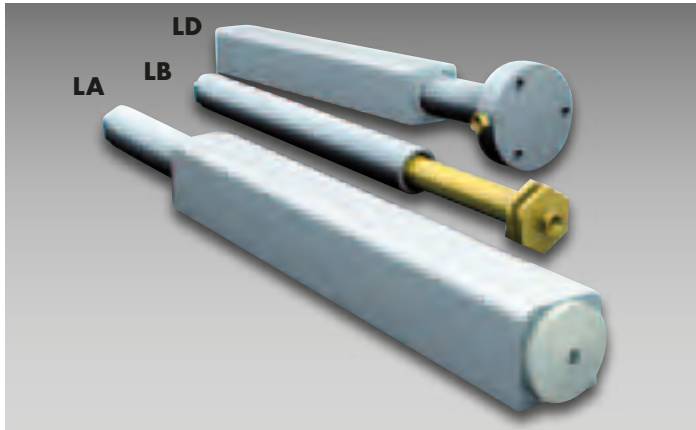
Cylinder dimensions (A) in mm

Lift (mm)	CB	CD	CE	CG	CH	CI
150	205	211.5	206.5	194	200	199
200	255	261.5	256.5	244	250	249
300	355	361.5	356.5	344	350	350
349	455	461.5	456.5	444	450	449
500	555	561.5	556.5	544	550	549
600	655	661.5	656.5	644	650	649

Brief description: Explanation using CE 1440 as an example

CE = Cylinder type E, 14 = Piston diameter 14mm, 40 = Cylinder lift 40cm

## Linear Units



The rubber foot made of stainless steel is screwed into the linear unit. It serves to fine-tune/adjust floor unevenness. The linear unit, consisting of a cylinder and a linear guide, is a compact, stable lift element. It can be directly installed onto or into existing objects. A multitude of tables or other components can be retrofitted with a lift system without problems.

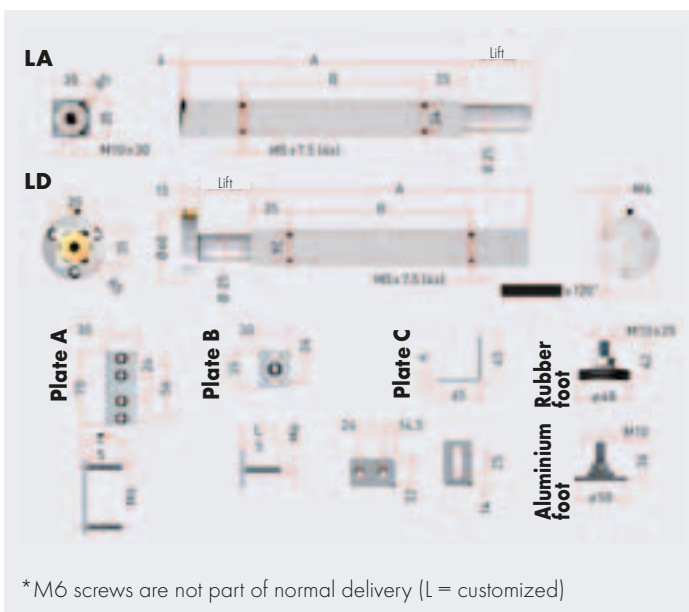
Four M5 threads are provided to install the linear units **UA** and **UD**. As a built-in solution we offer the type **UB**, which can be directly installed into an existing profile.

The linear unit housing consists of a colourless anodized aluminium profile. The standpipe made of stainless steel is positioned in plastic bushings. The aluminium foot can be

bolt down directly at the floor.

The attachment plates permit linear units to be installed if they cannot be directly attached to the M5 holes.

## Type UA/UB/UD



### Technical data

- Please observe the max. load of the complete system given in selection table
- Load max. 1500N per cylinder
- Lift length up to 600mm; greater length on request
- Stainless steel designs are also available for use in food areas
- There is also the possibility to use food-friendly fluids
- Linear units LA with a radial tubing connection are available in stock
- Linear units LA with an integrated restoring spring on request
- Castors for the LA Units on request
- No additional guide is necessary
- The linear units should not be exposed to traction
- Other models on request

Dimensions						
Type	UA/UD 1415	UA/UD 1420	UA/UD 1430	UA/UD 1440	UA/UD 1450	UA/UD 1460
Lift (mm)	150	200	300	400	500	600
Dimension A (mm)	252	317	442	542	667	767
Dimension B (mm)	165	240	340	340	450	145/450

Brief description: Explanation using LA 1430 as an example

LA = Linear unit type A, 14 = Piston diameter 14mm, 30 = Cylinder lift 30cm

## System Selection Tables

Using the necessary lift force, the number of drive cylinders and the necessary lift height, you can assemble the right system for you with the help of the tables below.

The tables show a selection of possible combinations. We will gladly advise you on further possible combinations. For pumps with 7, 9 or 10 connections the tables are valid analogously to the selection table for 8 cylinders.

120 Kg	Cylinder type <sup>1</sup>	Pump type for 1 cylinder <sup>2</sup>	Pump type for 2 Cylinders	Pump type for 3 Cylinders	Pump type for 4 Cylinders	Pump type for 5 Cylinders	Pump type for 6 Cylinders	Pump type for 8 Cylinders
Lift 150 mm	1415	UA 1815	UA 2615	UB 3615	UB 4615	UB 5615	UB 6615	...
Lift 200 mm	1420	UA 1820	UA 2620	UB 3620	UB 4620	UB 5620	UB 6620	...
Lift 300 mm	1430	UA 1830	UA 2630	UB 3630	UB 4630	UB 5630	UB 6630	...
Lift 400 mm	1440	UA 1840	UA 2640	UB 3640	UB 4640	UB 5640	UB 6640	...
Lift 500 mm	1450	UA 1850	UA 2650	UB 3650	UB 4650	UB 5650	UB 6650	...
Lift 600 mm	1460	UA 1860	UA 2660	UB 3660	UB 4660	UB 5660	UB 6660	...
Lift per rotation	/	5 mm/U	10 mm/U	10 mm/U	10 mm/U	10 mm/U	10 mm/U	...
Electric drive type <sup>3</sup> , Speed	/	UAA, 10 mm/s UAC, 10 mm/s	UAA, 20 mm/s UAB, 30 mm/s UAC, 20 mm/s	UBA, 20 mm/s UBB, 30 mm/s UBC, 20 mm/s	UBA, 20 mm/s UBB, 30 mm/s UBC, 20 mm/s	UBA, 20 mm/s UBB, 30 mm/s UBC, 20 mm/s	UBA, 20 mm/s UBB, 30 mm/s UBC, 20 mm/s	...

350 Kg	Cylinder type <sup>1</sup>	Pump type for 1 cylinder <sup>2</sup>	Pump type for 2 Cylinders	Pump type for 3 Cylinders	Pump type for 4 Cylinders	Pump type for 5 Cylinders	Pump type for 6 Cylinders	Pump type for 7 Cylinders
Lift 150 mm	1415	UA 1815	UA 2815	UB 3815	UB 4815	UB 5815	UB 6815	...
Lift 200 mm	1420	UA 1820	UA 2820	UB 3820	UB 4820	UB 5820	UB 6820	...
Lift 300 mm	1430	UA 1830	UA 2830	UB 3830	UB 4830	UB 5830	UB 6830	...
Lift 400 mm	1440	UA 1840	UA 2840	UB 3840	UB 4840	UB 5840	UB 6840	...
Lift 500 mm	1450	UA 1850	UA 2850	UB 3850	UB 4850	UB 5850	UB 6850	...
Lift 600 mm	1460	UA 1860	UA 2860	UB 3860	UB 4860	UB 5860	UB 6860	...
Lift per rotation	/	5 mm/U	5 mm/U	5 mm/U	5 mm/U	5 mm/U	5 mm/U	...
Electric drive type <sup>3</sup> , Speed	/	UAA, 10 mm/s UAB, 15 mm/s UAC, 10 mm/s	UBA, 10 mm/s UBB, 15 mm/s UBC, 10 mm/s	UBA, 10 mm/s UBB, 15 mm/s UBC, 10 mm/s	UBA, 10 mm/s UBB, 15 mm/s UBC, 10 mm/s	UBA, 10 mm/s UBB, 15 mm/s UBC, 10 mm/s	UBA, 10 mm/s UBB, 15 mm/s UBC, 10 mm/s	UBB, 15 mm/s

600 Kg	Cylinder type <sup>1</sup>	Pump type for 1 cylinder <sup>2</sup>	Pump type for 2 Cylinders	Pump type for 3 Cylinders	Pump type for 4 Cylinders	Pump type for 5 Cylinders	Pump type for 6 Cylinders	Pump type for 7 Cylinders
Lift 180 mm	1420	...	...	...	UB 4418	UB 5418	UB 6418	UB 8418
Lift 300 mm	1430	...	...	...	UB 4430	UB 5430	UB 6430	UB 8430
Lift 400 mm	1440	...	...	...	UB 4440	UB 5440	UB 6440	UB 8440
Lift per rotation	/	...	...	...	3 mm/U	3 mm/U	3 mm/U	3 mm/U
Electric drive type <sup>3</sup> , Speed	/	...	...	...	UBB, 9 mm/s	UBB, 9 mm/s	UBB, 9 mm/s	UBB, 9 mm/s

1 - Cylinder CB, CD, CE, CG, CH, CI, linear unit LA, LB, LD or table leg TA.

2 - During the use of just one cylinder the max. load is 100 kg.

3 - With the electric drive A/C the max. lifting power is 80% of the nominal load.