

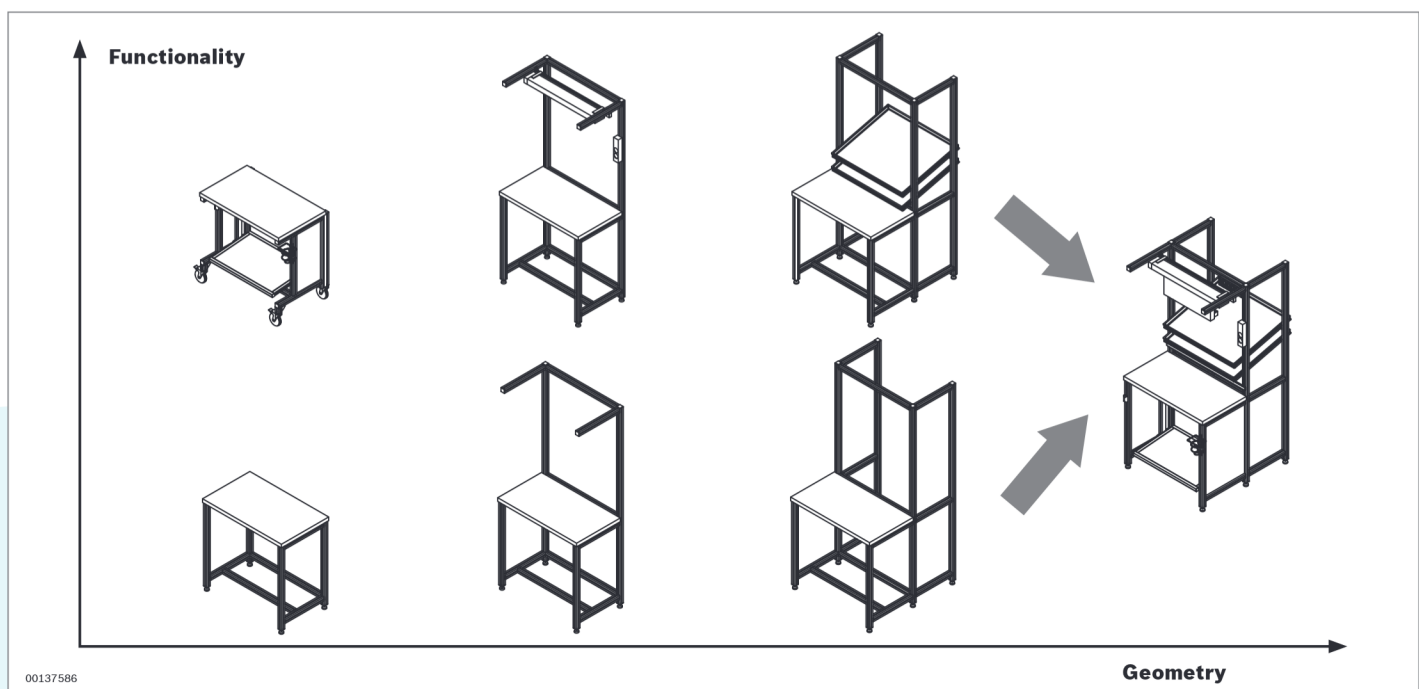
Workstations

Workstation design must take account of the product itself, the process required for that product, and the actual human being doing the work. The design must give equal priority to the minimization of process waste and to providing employees with an ergonomic work environment.

This is why geometry and functionality are important in the layout of the workstation. The product being fabricated and the person doing the work are the benchmarks in defining the workstation height, width and depth as well as for positioning lighting and material supply equipment. Support accessories such as information boards are then added to ensure that the right information is available at the right place.

Ergonomics

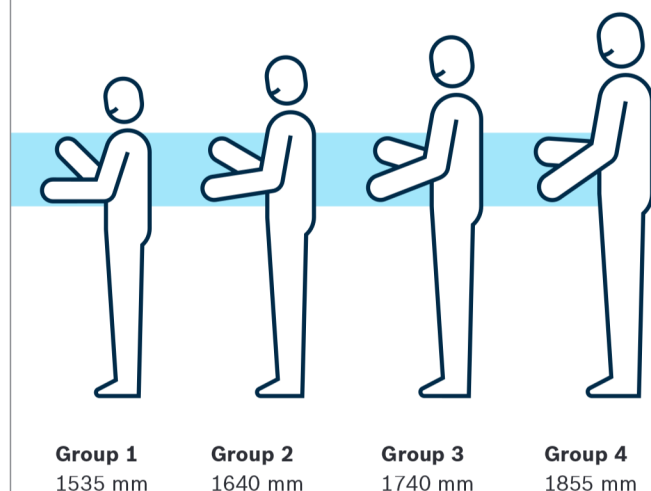
A basic facet of workstation design involves the encouragement of alternating, dynamic activity. Static activity inhibits blood circulation and oxygen supply to the muscles. Alternating physical exertion reduces stress on the employee and increases performance. Alternating exertion is seen, for example, where combined stand-up/moving or sit-down/stand-up workstations are integrated into the workflow.



Many workstations are used for multiple shifts. This means that these workstations need to be designed for employees of different height. The optimum working height is based on the body height range and the type of activity to be performed. If you take all body heights into consideration, the average optimum working height for average requirements is 1125 mm for sit-down/stand-up workstations. The ability to separately adjust the material feed height and the working height means that these height-adjustable workstations can be adapted to both different products and different workers. This is the key to creating an ergonomically optimized workplace.

Information on further aspects of ergonomic workstation design, such as the optimal grab area or recommended working heights, is available in our Ergonomics brochure (3 842 523 943).

**Average optimal working height
for all four population groups: 1125 mm ± 100 mm**



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Requirements	Working heights (mm)			
	1	2	3	4
High requirements				
Visual inspection	1100	1200	1250	1350
Fine motor skills				
Medium requirements				
Visual inspection	1000	1100	1150	1250
Fine motor skills				
Low requirements				
Visual inspection	900	1000	1050	1150
High requirements				
Freedom of arm movement				
Optimal working height	Ø = 1125			

MTpro

Software for designing and planning workstations. For detailed information, see pages 1-9/10 or www.boschrexroth.com



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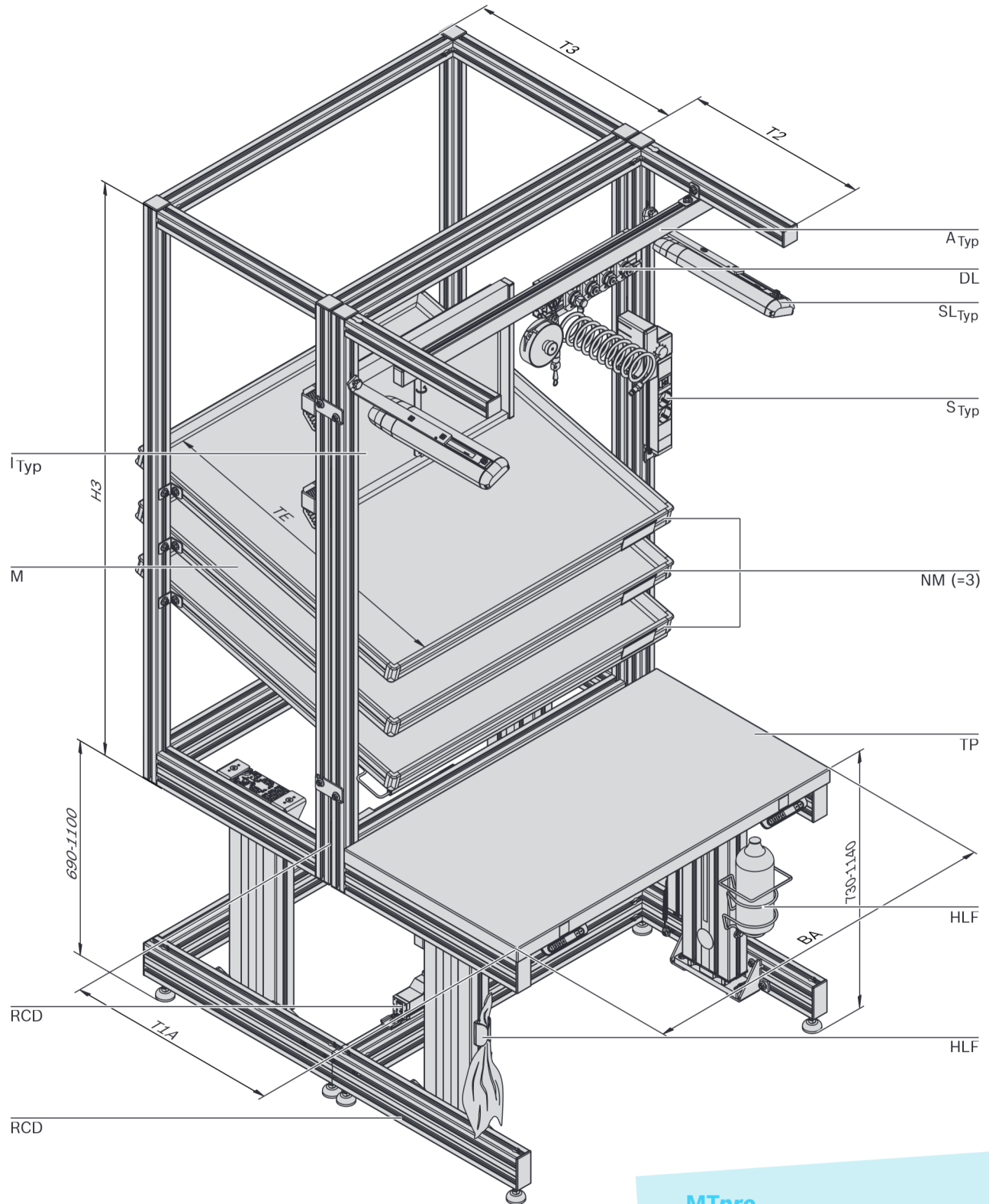
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Height-adjustable workstation

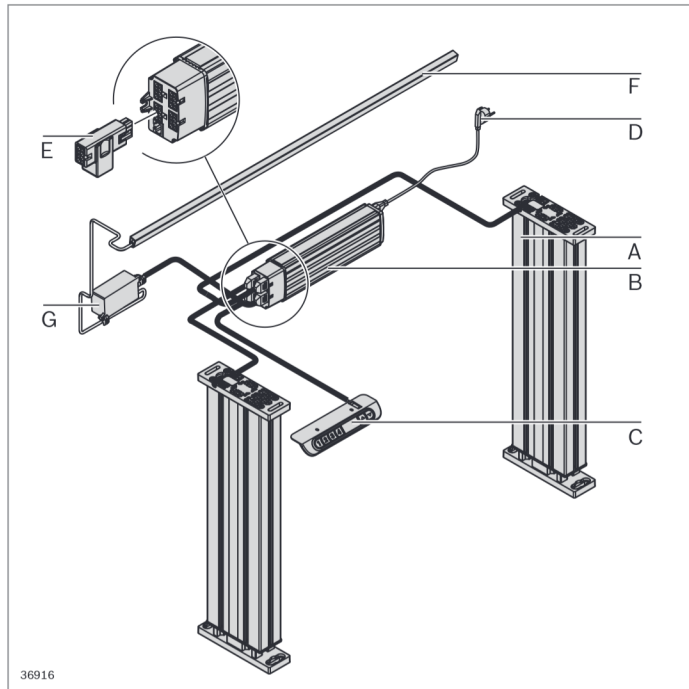


- ▶ Large number of adjustment options for high versatility
- ▶ Freely selectable geometry and functionality
- ▶ Height of material feeds and table tops can be adjusted independently of each other
- ▶ Available as ESD-conductive version
- ▶ Fully assembled or as a kit for self-assembly
- ▶ Allows for the addition of any desired modules, including cross ties and conveyor tracks as well as individual components

Height-adjustable workstation		3 842 998 350
A	Version	Disassembled, assembled
ESD	Conductivity	Yes, no
LV	Load version	No. of lifting modules
BA	Workstation width	640 ... 2000 mm
H3	Strut extension height	Up to 1500 mm
T1A	Workstation depth	Up to 1000 mm
T2	Bracket depth	Up to 800 mm
TP	Table top type	4 different table tops
T3	Accessory upright depth	Up to 800 mm
NM	No. material shelves	0 ... 4
M	Material shelf material	3 different material shelves
TE	Material shelf depth	520 ... 1100 mm
E	Suspension profile	With, without
A_{typ}	Type of hanger	With, without hanger Selectable spring pulls
L	Country version	D, F, GB, CH, CZ, USA/CAN
RCD	Residual-current device	Yes, no
SL_{typ}	Type of lamp	4 different lamps
S_{typ}	Type of socket	4 different sockets
DL	Compressed air strip	With, without
I_{typ}	Type of information board	7 different information boards
HLF	Cloth and bottle holder	With, without

**MTpro**

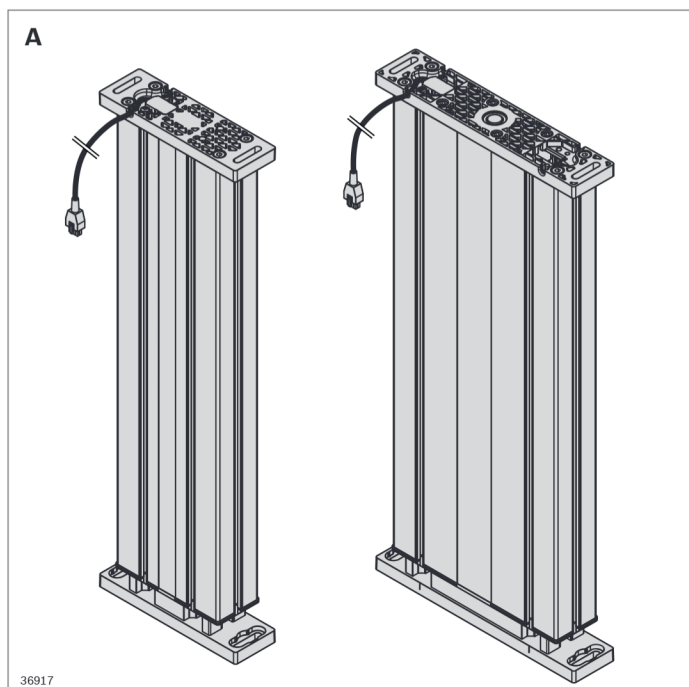
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Height-adjustable workstation: Components

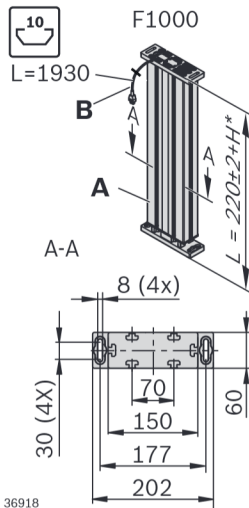
- A Lifting module
- B Control unit
- C Hand switch
- D Mains cable
- E Connection adapter (for DWS)
- F Pressure wave control strip
- G Pressure wave sensor (DWS)

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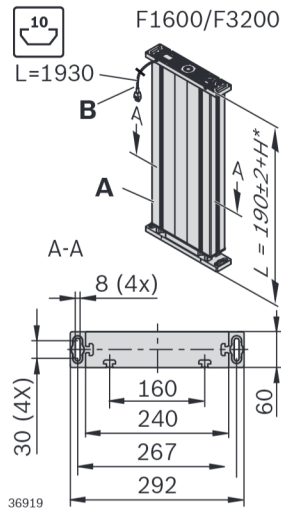


Lifting module (A)

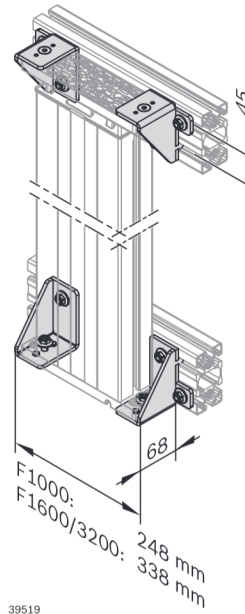
- ▶ Three lifting lengths per variant
- ▶ Attachment by means of mounting plates at the face sides or using the integrated 10 mm slot
- ▶ Incl. connection cable; cable length: ~2 m
- ▶ Cable possible on the left or right side
- ▶ Diagonal cover cap prevents crushing risk
- ▶ All lifting modules are electrostatic discharge-enabled
- ▶ Mounting plates are connected in a conductive manner
- ▶ Attachment bracket set suitable for F1000, F1600 or F3200 lifting modules for lateral profile attachment (grid dimension 45 mm)

A1

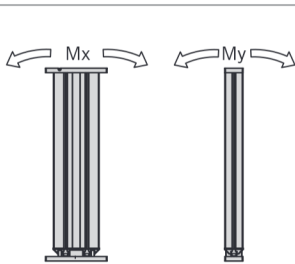
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A3

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* In case of set-up without tilting torques; otherwise, the admissible load will be reduced

** 2 control units synchronized via distributions

* 2 x 2: 4 x including fastening material for 1 lifting module; weight: 1.8 kg; material: Steel, galvanized

** 2 x 20: 40 x for 10 lifting modules without fastening material

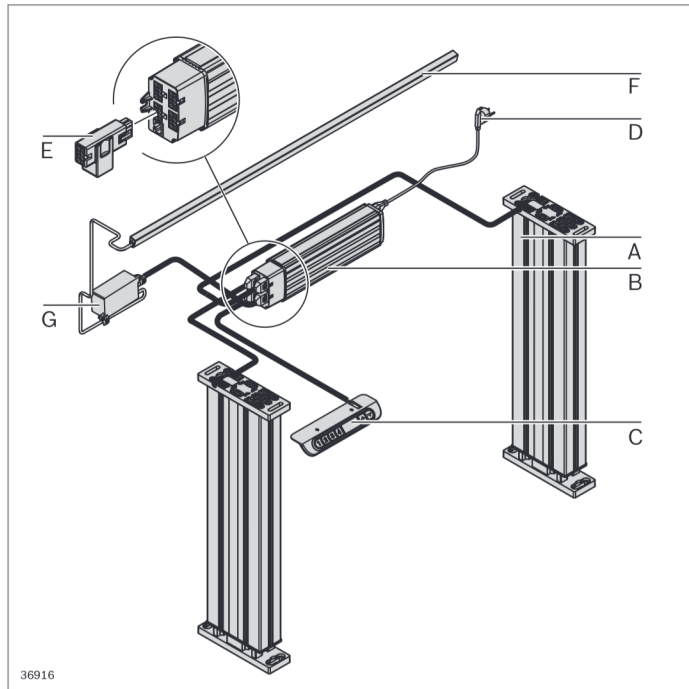
Technical data

Load version	N	1000	1600	3200
Lifting length	mm	350 410 500	350 440 500	350 440 500
Lifting velocity	mm/s	25	18	9
Max. load, pressure	N	1000	1600	3200
Max. load, pulling	N	500	1200	1600
Perm. tilting torque Mx	Nm	300	500	500
Perm. tilting torque My	Nm	125	250	250

Load values, lifting systems

No. of lifting modules		F1000	F1600	F3200
1	N	1000	1600	3200
2	N	2000	2600	5200
3*	N	3000	3600	7200
4**	N	4000	5200	10400

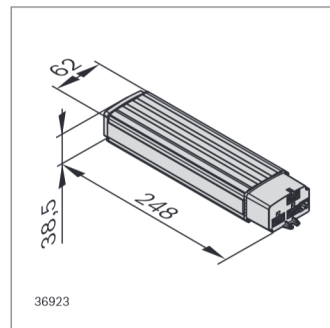
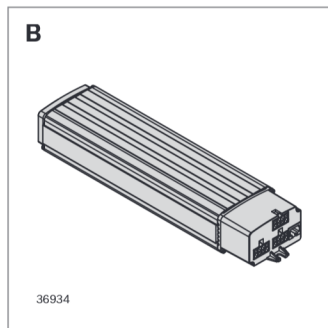
	Load version (N)	Lifting length (mm)	No.
A1 Lifting module F1000 LIFT350MM	1000	350	3 842 559 967
Lifting module F1000 LIFT410MM	1000	410	3 842 558 629
Lifting module F1000 LIFT500MM	1000	500	3 842 559 965
A2 Lifting module F1600 LIFT350MM	1600	350	3 842 559 963
Lifting module F1600 LIFT440MM	1600	440	3 842 558 627
Lifting module F1600 LIFT500MM	1600	500	3 842 559 961
Lifting module F3200 LIFT350MM	3200	350	3 842 559 959
Lifting module F3200 LIFT440MM	3200	440	3 842 558 625
Lifting module F3200 LIFT500MM	3200	500	3 842 559 957
A3 Holding bracket lift modules*	1000 ... 3200		3 842 564 145
Holding bracket lift module set**	1000 ... 3200		3 842 564 155



Height-adjustable workstation: Components

- A Lifting module
- B Control unit
- C Hand switch
- D Mains cable
- E Connection adapter (for DWS)
- F Pressure wave control strip
- G Pressure wave sensor (DWS)

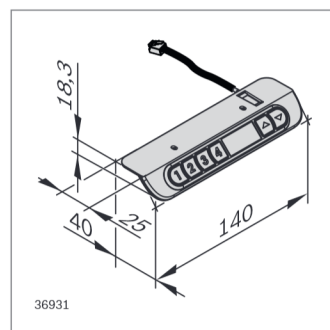
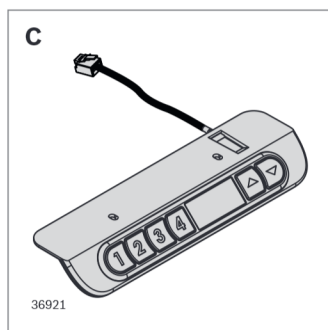
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Control unit (B)

- Control for synchronization of 1, 2, or 3 lifting modules in parallel operation
- Duty cycle: 10% (= 2 min ON, 18 min OFF, with max. load. With partial load correspondingly longer.)

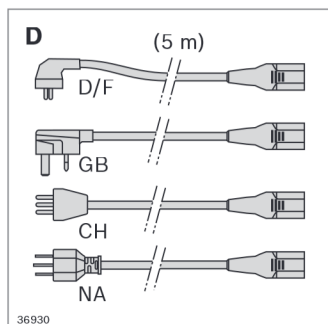
Scope of delivery incl. fastening material



Hand switch (C)

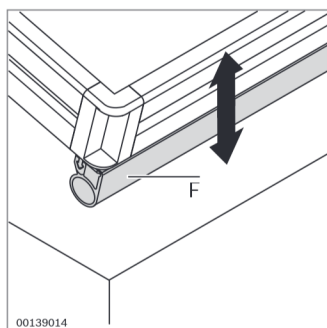
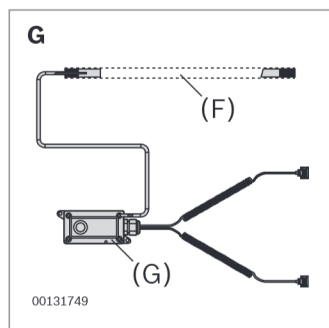
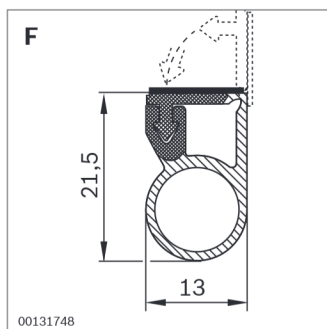
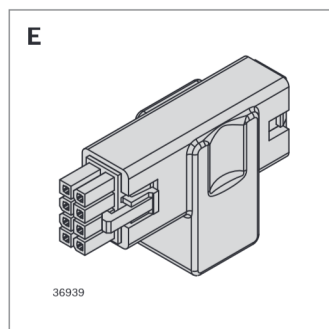
- For operating the controller, with push button for height adjustment and 4 memory buttons to store the different positions, with display
- Cable length: ~ 1.8 m

Scope of delivery incl. fastening material



Mains cable (D)

- For connection to power mains



Connection adapter (E)

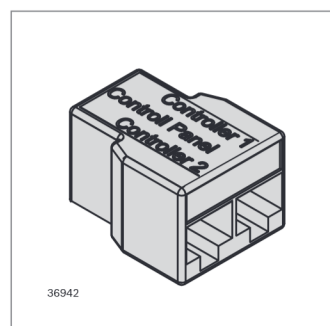
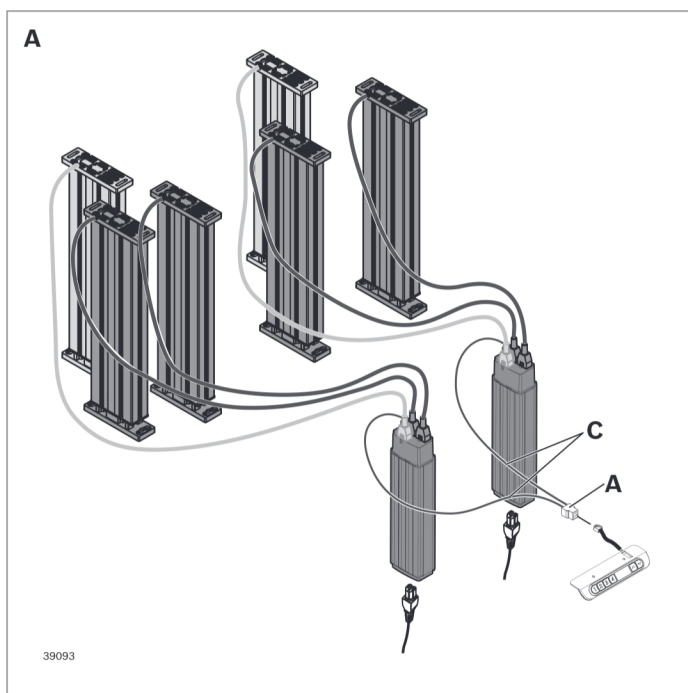
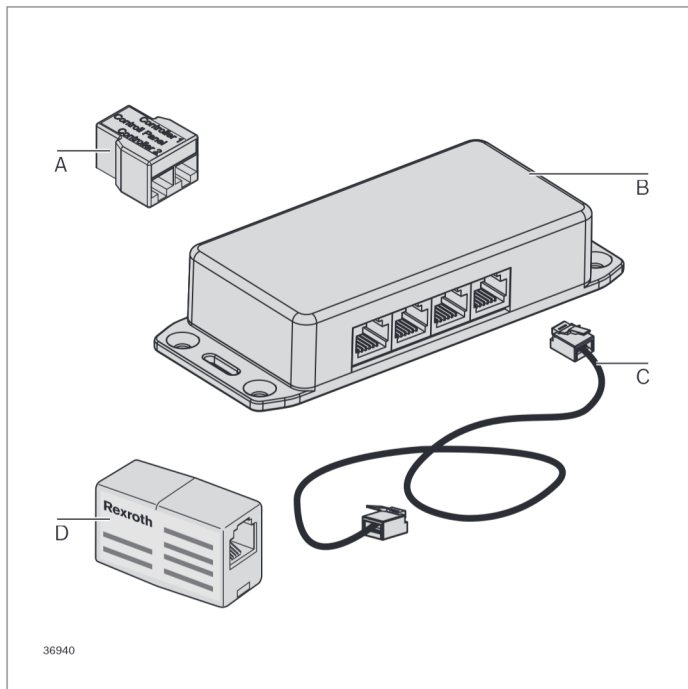
- Between lifting module and control for the connection of a pressure wave control strip (F) (only required once, also for systems with distributors)

Pressure wave control strip (F), pressure wave sensor (G)

- A pressure wave control strip (F) can be connected to the control unit (B) to protect against mechanical collisions. Even if only slight pressure is applied to the pressure wave control strip, the pressure wave sensor (G) sends a signal to the control unit and the lifting modules move 25 millimeters in the opposite direction. The pressure wave control strip has a self-adhesive rear side and can be individually shortened.
- The pressure wave sensor (G) can be connected to up to 2 control units.

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		Load version (N)	Voltage (V)	Length (m)	No.
B	Control unit F1000	EU	1000	230	3 842 559 921
		NA	1000	120	3 842 558 931
	Control unit F1600	EU	1600	230	3 842 559 922
		NA	1600	120	3 842 559 932
	Control unit F3200	EU	3200	230	3 842 559 923
		NA	3200	120	3 842 559 933
C	Hand switch				3 842 559 940
D	Mains cable	D/F		5	3 842 559 950
		GB		5	3 842 540 952
		CH		5	3 842 540 197
		NA		5	3 842 559 954
E	Connection adapter				3 842 559 948
F	Pressure wave control strip			2	3 842 540 129
G	Pressure wave sensor				3 842 540 130



Optional accessories

- A Distributor, economic
- B Distribution, basic
- C Connection cable
- D Plug connector

Distributor, economic (A)

- Adapter for the synchronization of 2 control units
- Synchronization of a maximum of 6 lifting modules