

Manual

easymotion

General information

The linear hydraulic actuation system controls multiple adjustment cylinders synchronously. The easymotion system consists of a hydraulic pump, adjustment cylinders and the tubes for connecting each component. The system can be operated using an electric motor or manual crank.

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1. Components

1.1 Hydraulic pump

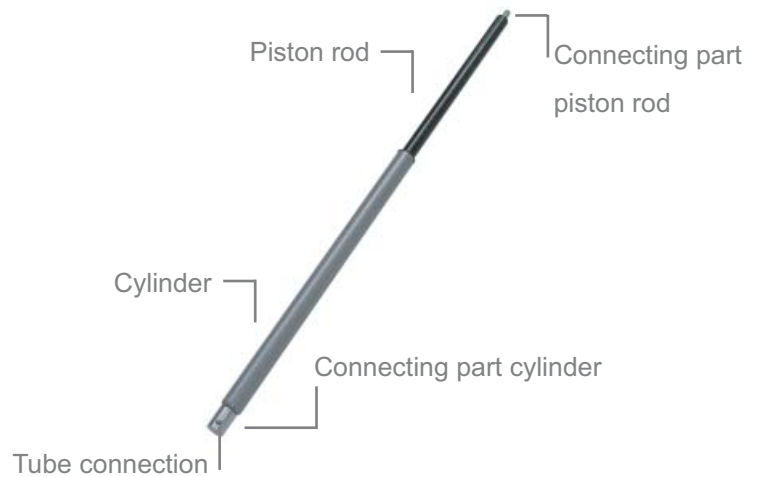


The pump must be fixed on the application using all 3 mounting holes. Mounting in any position is possible.

1.2 A-Cylinder (guided cylinder)

The A-Cylinder may be mounted directly on the application. (2 clamps per A-Cylinder recommended). Further guiding is not required. The mounting points must be aligned exactly with each other.

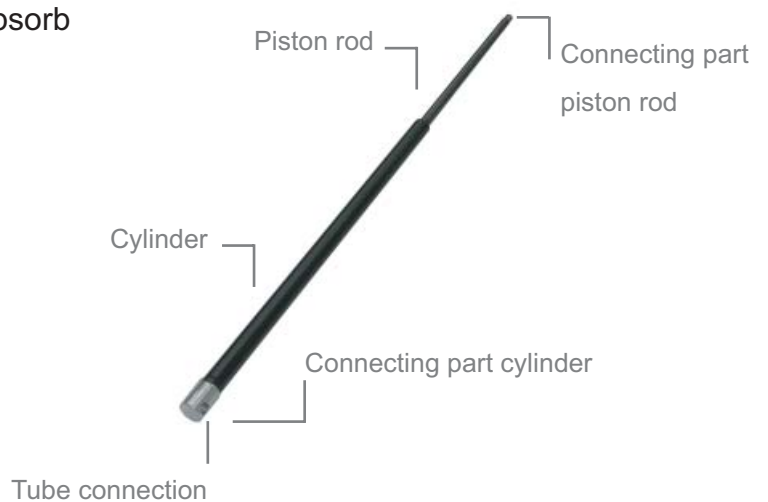
Maximum weight per cylinder: 150 kg



1.3 E-Cylinder (not guided)

The E-Cylinder alone is not designed to absorb side forces. The E-Cylinder requires an additional guide.

Maximum weight per cylinder: 150 kg

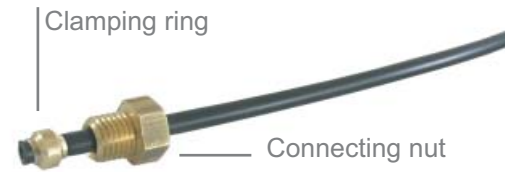


1.4 Hydraulic tube

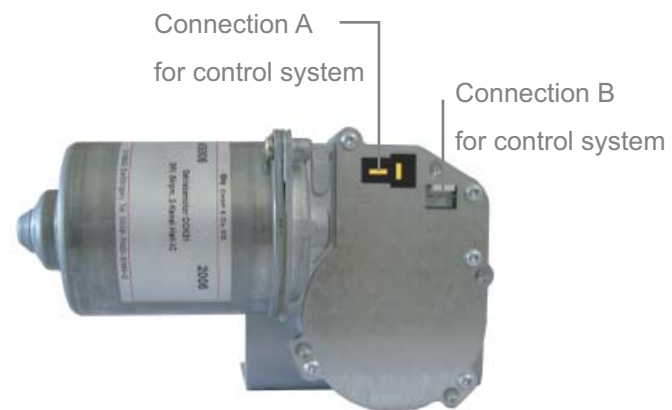
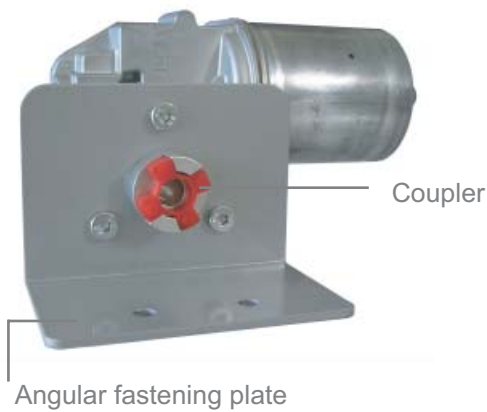
Minimum bending radius 50 mm.

Maximum length per cylinder 5 meters.

Ratio between the shortest and the longest tube is max 1:5.



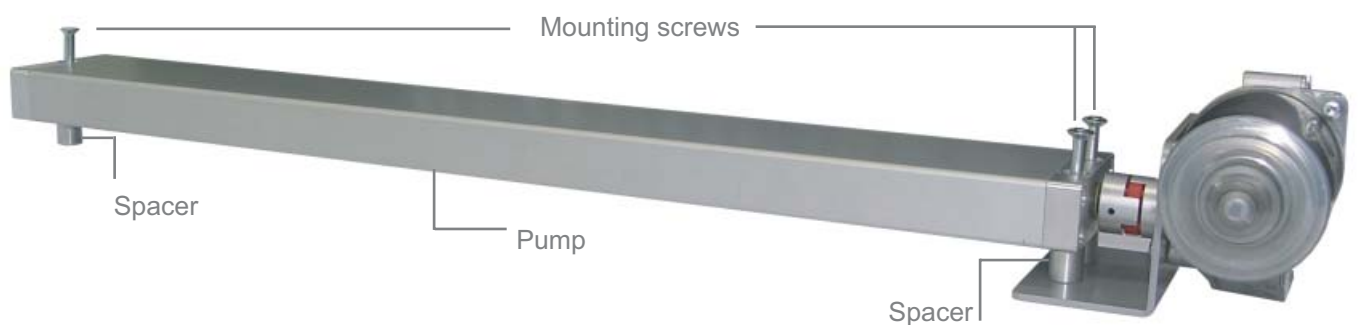
1.5 Motor



The electric motor is available in 3 versions:

version	voltage	RPM	max weight
M1	230V AC	65 1/min	600 kg
M2	12V DC	65 1/min	200 kg
M3	230V AC	160 1/min	300 kg

Delivery including mounted coupler and angular fastening plate. (Mounting screws not included)



1.5.1 Control system



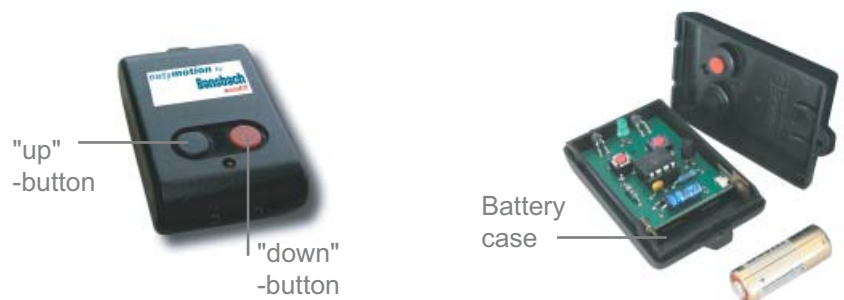
1.5.2 Power supply

- Required for 230 V motor
- Included with motor M1 and M3



1.5.3 Remote control

- 7 m reach
- w x h x d: 3,5 x 1,5 x 6 cm
- Battery V 23 GiA



1.6 Crank (foldable)

- hinged and removeable
- radius: 125 mm
- stroke per turn:
8mm (E-Cylinder), 5,3 mm (A-Cylinder)



1.6.5 Control system SET 2

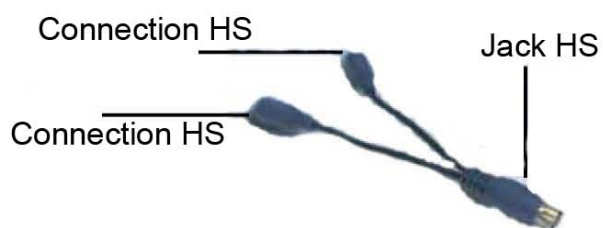


1.6.6 Remote control SET 2



1.6.7 splitting cable SET 2

- Connect 2 control systems to your system

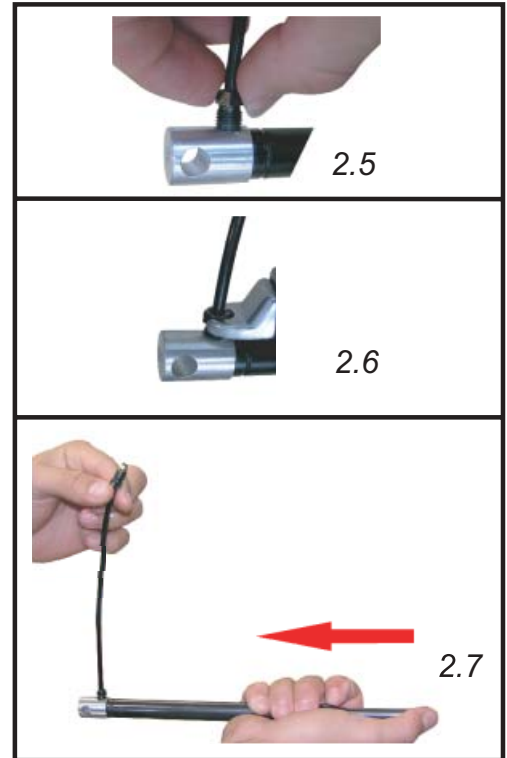


1.7 Crank (foldable)

- hinged and removeable
- radius:125mm
- stroke per turn:
8mm (E-Cylinder),6mm (A-Cylinder)

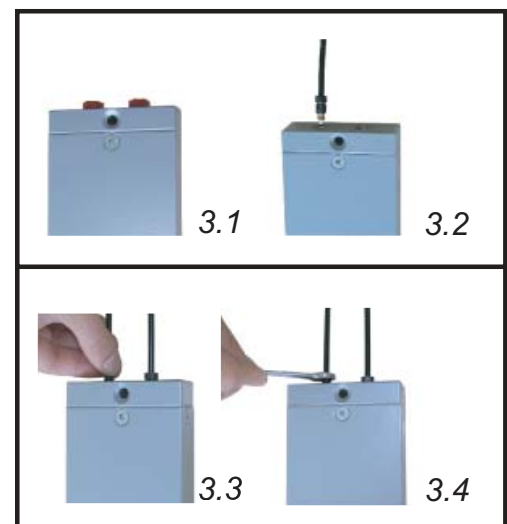


5. Screw in the connecting nut by hand as far as possible (2.5)
(Caution: Do not cant!)
Tighten the connecting nut with a 8mm cross-thread flat wrench (2.6)
(Fastening torque approx. 9-10 Nm)
6. Push the piston rod into the cylinder until the limit stop is reached. Oil will leak out of the tube; please collect it in an appropriate bin.
Please note: The tube end has to show upwards, so that all air can escape. (2.7)



2.3 Pump assembly

1. Arrange the pump with the red screw caps facing upwards and remove them. (3.1)
2. Put the connecting nut and the clamping ring on the open tube end. See "2.2 cylinder assembly"!
3. Insert the tube end into the pump until the limit stop is reached. (3.2) Then push the clamping ring in and tighten the connecting screw (A/F 8) (3.3, 3.4).
(Fastening torque approx. 9-10 Nm)
See "2.2 cylinder assembly"!



If your easymotion-system does not operate properly, please proceed the steps discribed on page 6 "Remove air".

2.4 Remove air

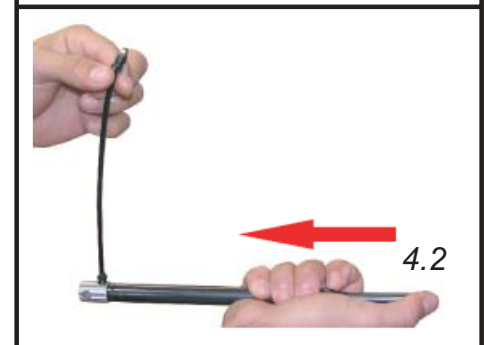
To be able to execute the following steps, a refill-kit is required which is also available from Bansbach. (Order number AC-KIT).

1. Drive the system to the totally retracted position. Be sure that all tubes are facing upwards. Now remove all the tubes from the pump. A little bit of oil may leak.

2. A small amount of oil is required inside the cylinder to remove air. Hold the tube end in a container with hydraulic oil (only use Bansbach-oil) and pull the piston rod slowly and smoothly approx. 100 mm out of the cylinder. Oil is consequently "drawn" into the cylinder. Then pull the tube out of the container and turn the tube end quickly showing upwards. (4.1)



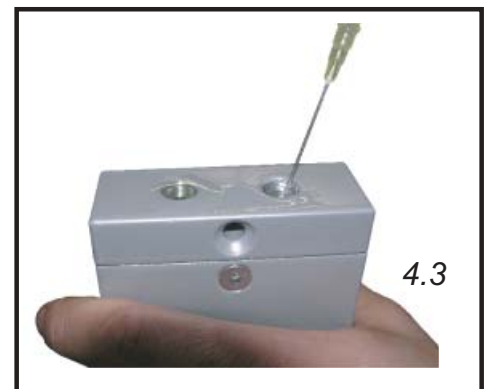
3. Compress the piston rod completely. Oil and maybe remaining air is pushed out of the tube. The air is exhausted through the cylinder. (4.2) See "2.2 cylinder assembly"



4. Arrange the completely retracted pump with the connection holes showing upwards.

5. Fill oil into the delivered syringe. Remove possible air inside the syringe. (The syringe must face upwards; press it as long as only oil will flow through the needle)

6. Fill the pump completely with oil. Avoid any bubbles. The connecting holes should be filled up completely with oil. This avoids any air from entering in the pump. (4.3)



7. Re-connect the tubes to the pump.

3. Connection and adjustment of the motor

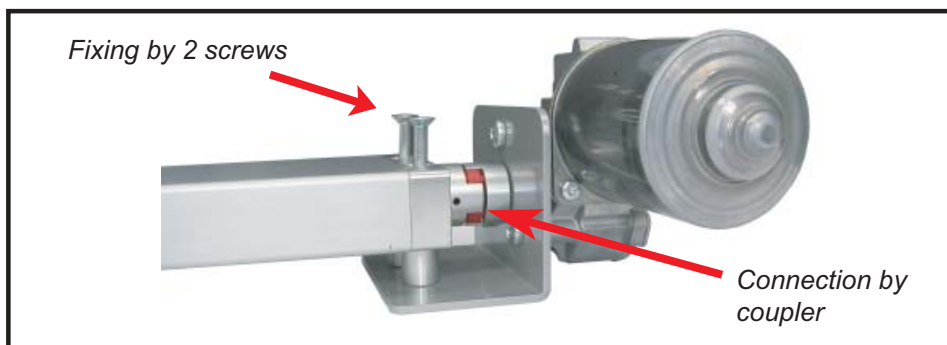
Not necessary for system operated by crank

3.1 Connection of motor and pump

- Pump and motor are connected by joining the pre-mounted couplers.
Mount the pump to the angular fastening plate with two screws.

3.2 Connection of the components

- Connect the control system with the electric motor (Exit "BDF", Connection A and B).
- Plug the power supply into the power source.
- while pressing the "down"-button on the control system, plug the jack into the power supply.
Not applicable for use with 12V motor. The control system has to be connected directly with the power source.
- The system is ready for operation, the display lights up (Ant).



3.3 Set up and reference run

3.3.1 Set up mode

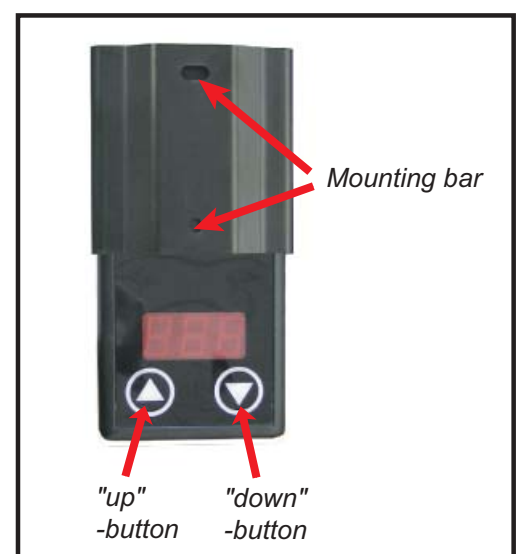
After connecting the components for the first time, the "set up mode" is automatically activated.
If you should require to go back into the set up mode on a later date, it can be accessed by unplugging the power supply and pressing the "down" button while connecting the power supply.
The set up mode is only required when the unit is operated for the first time. After it has been programmed, data remains saved even if the power supply is removed.

In the set up mode, the motor must be selected using the "up" and "down" buttons:

"Down" button: 961 -> M2, M3

"Up" button: 006 -> M1

Confirm the selected motor by pushing the "up" and "down" button simultaneously.
The display will blink "dn". Next, a reference run must be performed (3.3.2).



3.3.2 Reference run

Push the "down" button until the motor drives to the lower limit stop and the motor stops. Measure and note the height of the application (centimeters only). This is required to display the height of the application. Now at the lower limit stop "UP" will blink on the display. Push the "up" button until the upper limit stop is reached. The motor will turn off and the display will show "off".

3.3.3. Adjustment of the height display

Using the "up" and the "down" buttons, the height of the lower limit stop can be entered in centimeters. By pushing the "up" and "down" buttons simultaneously, the entered value is saved and "Hub" is displayed. Using the "up" and "down" buttons, the stroke (Hub) of the pump is entered. The stroke will be added to the height of the lower limit stop. The unit is now ready for operation.

3.3.4 Minimum and maximum height set up

This step is only required if the minimum or maximum height should not be the lower or higher than the limit stop!

Using the "up" and "down" buttons, drive the application to the lowest desired point. Unplug the power supply. Press the "down" button and connect the power supply simultaneously. Now we are back in the set up mode.

Select your motor using the "up" and "down" buttons.

"Down" button: 961 -> M2, M3

"Up" button: 006 -> M1

Confirm the selected motor by pushing the "up" and "down" button simultaneously. The display will show "dn". The current position is the lowest desired height and must be saved by pushing the "up" and "down" button simultaneously. The system will no longer travel below this position. Measure and note the height (this is required later for the adjustment of the height display). The display will blink "up". Using the "up" button drive the system to the highest desired position (max. upper limit stop) and push the "up" and "down" buttons simultaneously to save. The display shows "off".

Measure the height and note it as it is required to calculate the current stroke.

Highest desired position – Lowest desired position = stroke. See steps 3.3 using the new values.

3.4 easymotion operation

The easymotion is now fully operational. The "up" and "down" buttons will adjust the height of your application.

3.5 Preset positions

easymotion can be programmed with up to 8 preset positions. When the system is at the desired position, it can be saved by pushing the "up" and "down" buttons simultaneously. When easymotion is in use, it will automatically stop at the preset regardless of the direction. By pressing the "up" or "down" button again, easymotion will travel to the next preset or limit stop.

A preset can be deleted by pushing the "up" and "down" buttons simultaneously when the system stopped at the previously programmed preset.

3.6 Remote control

The control system is serially equipped with the signal-receiver module which allows the easymotion to be alternatively controlled using a remote control. It can be ordered separately on a later date upon request.

The remote control can control all the functions except the set up mode.



3.7 Advice:



- The motor is not designed for permanent operation and has a duty ratio of 15%. When operating a high load for 1,5 min, the motor has to cool down for 10 minutes.
- The motor M1 is designed for a maximum load of 600 kg. The motor M2 and M3 for 200 kg adv 300 kg. If overloaded, the system will stop automatically and the display will flash.
- If continuously operated under maximum load, the motor can overheat. An integrated overheating protection stops the motor and the display flashes "TP" preventing permanent damage and allowing the system to cool down.
- The control system has a unique "power-failure-monitoring". If the power supply is interrupted, all information is saved and a re-set up is not required.
- The motor control is short circuit resistant.
- After five minutes of inactivity the display changes automatically to standby. The system will be reactivated by pushing any button.