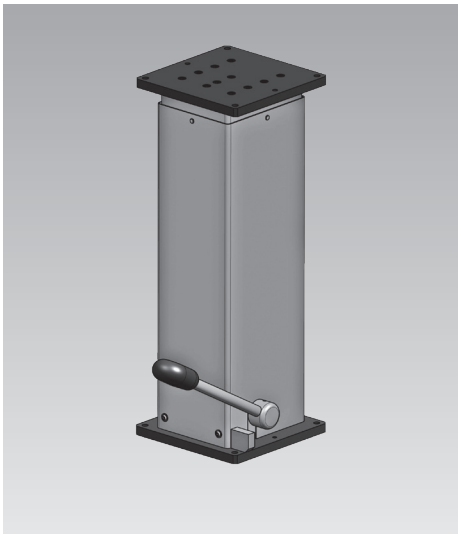
ROEMHELD

M 4.402

Lifting module Solid

Max. lifting force 4,000 N and 6,000 N, stroke from 200 to 400 mm, manual-hydraulic or electro-mechanical version



Advantages

- Lifting force up to 6,000 N
- Displacement with low friction also with high torque load
- High load by roller guiding element with high section modulus
- Sturdy and tough
- Compact design
- Safe and precise handling
- Better working with lower physical load
- Integrated stop for pedal

Application

Lifting modules for high demands on performance and service life in the industrial assembly.

Principal use

- Ergonomic design of working places
- Industrial production plants
- Automotive industry
- Assembly of car seats
- Assembly of drive components, axes and cardan shafts
- Repair and overhaul of parts for rail and air transportation
- Assembly of compressors, hydraulic components and pumps
- Assembly of turbines, motors and gear boxes
- Applications with frequent load changes

Fixing and installation

For fixing of *moduhub* modules or other components of the user at the top plate, the lifting module has an interface 140 × 140 and 200 × 200.
For fixing of *moduhub* modules at the bottom plate, the lifting module has an interface 200 × 200. This plate can also be used to fix the lifting module on a flat level floor. For fixing, 4 screws M10 of property class 10.9 as well as heavy-duty plugs are to be used.
For increased stability, a base plate, which can be mounted to the bottom plate, is available as accessory. Fixing on the floor is made by means of the base plate.

Description

The lifting module has an integrated roller guiding element. This allows a backlash-free guiding system with excellent ease of operation and the introduction of high torques into the lifting module.
The guiding system is permanently lubricated. To obtain high robustness, all components are made of high-quality materials. Characteristic are applications with indifferent, dynamically swelling rotating motions and shock motions.

Materials

Top and bottom plate	Steel black oxide
Outer and inner tube	Steel texture paint RAL 9006
Foot pedal	Steel galvanized
Stop for foot pedal	Steel black oxide
Cover for foot lever	Soft PVC black

Variants

In addition to the hydraulic version, an electro-mechanical 24 V DC variant is available. Limit switches, incremental stroke measurement, and synchronization control enable both stationary and mobile installation applications.

moduhub Lifting module

Part no. 89260XX0H
89270XX0X

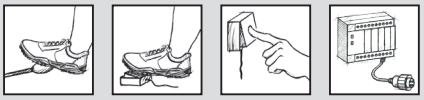


Technical characteristics

Max. lifting force:	4,000 N, 6,000 N
Max. bending moment:	2,000 Nm
Stroke:	200 to 600 mm

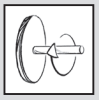
Operation modes

• Foot pedal • Foot switch • Hand panel • SPS



Can be combined with the modules

- Rotating modules – horizontal axis
  DMH 200
  as per data sheet M 1.101
  DMHe 200
  as per data sheet M 1.201



- Tilting modules
  KMB 100
  as per data sheet M 2.101
  KME 100
  as per data sheet M 2.201



- Rotating modules – vertical axis
  DMV 600
  as per data sheet M 1.301
  DMVe 600
  as per data sheet M 1.201



- Cart modules
  WMS
  as per data sheet M 5.101



- Floor modules
  as per data sheet M 6.101

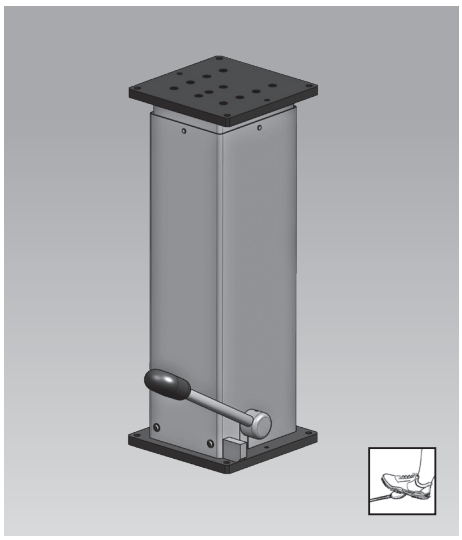


moduhub interfaces

- Top plate: 140 × 140 – M 10
  200 × 200 – Ø 10.5 mm
- Bottom plate: 200 × 200 – Ø 10.5 mm

Accessories

- Control modules as per data sheet M 8.200
- Battery and control modules as per data sheet M 8.201
- Operating elements and lines as per data sheet M 8.100 and M 8.110
- Plates as per data sheet M 8.100, M 8.110 and M 8.130



Description

A manual-hydraulic lifting drive with single-lever actuation triggers the stroke movement, with oil being pumped by means of a piston pump into a plunger cylinder.
During retraction, the oil returns due to the weight of the load from the cylinder back to the reservoir. This involves a defined speed control mechanism.
The manual-hydraulic version is particularly sturdy and durable. This variant meets high safety demands and withstands jerking and knocking loads when in operation.

Principal use

- Assembly with off-centre workpiece positioning
- High operational reliability even with frequently changing operators
- Applications without a power supply
- Inspection and heavy-duty assembly work

Operation

To lift the load, the foot pedal has to be depressed by approx. 40° several times. The pedal returns to its off-position by means of a return spring.
To lower the load, the foot pedal has to be moved upwards by approx. 10°.

Code for part numbers

Part no. 89260XX0H

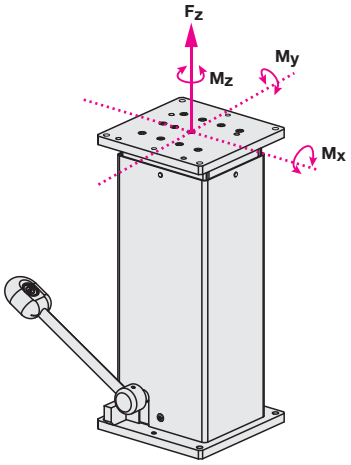
Maximum lifting force F_z

4 = 4,000 N
6 = 6,000 N

Stroke

2 = 200 mm
3 = 300 mm
4 = 400 mm
5 = 500 mm
6 = 600 mm

Maximum lifting force and maximum admissible torque load

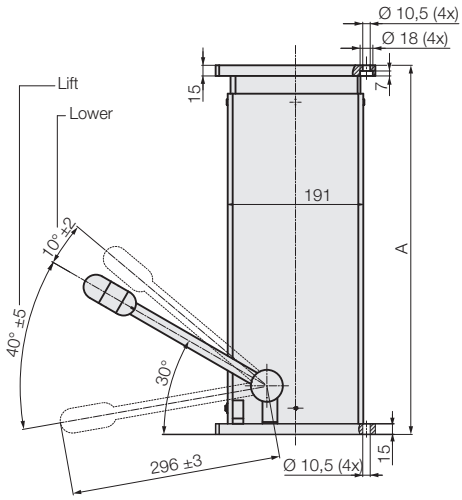


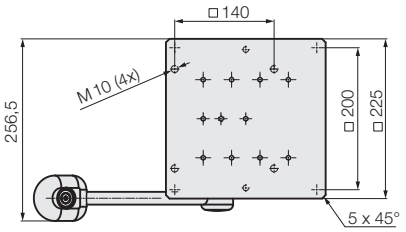
Maximum lifting force F_z:
Alternatively 4,000 N or 6,000 N

Maximum torque load:
M_x: 1,500 Nm
M_y: 2,000 Nm
M_z: 2,000 Nm

In the case of eccentric loads, it is recommended to compensate for these with counterweights. The forces and torques have to be taken into consideration by the operator.

Dimensions





Technical characteristics

Stroke	A	A + stroke	Weight
[mm]	[mm]	[mm]	[kg]
200	420	620	56
300	520	820	64
400	620	1,020	73

Lifting force	Pump strokes per 100 mm	Descent speed
[N]		[mm/s]
4,000	7	approx. 22
6,000	9	approx. 22

Important notes

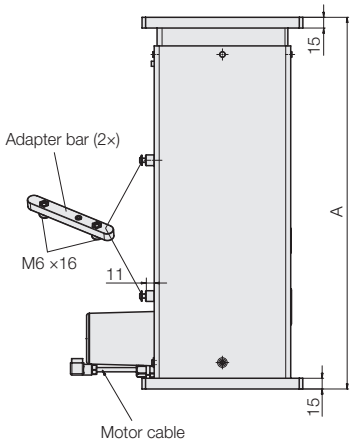
To lower the lifting module, a minimum load of approx. 200 N is required.
The lifting module must only be pressure loaded. The centre of gravity should be within the traverse of the fixing screws. If the centre of gravity is outside, the dowelled joint with the floor has to be dimensioned correspondingly. In such cases it is recommended to use a larger base plate.
The lifting module is designed for applications within closed rooms.
The hydro-manual lifting drive cannot be operated with synchronization control.

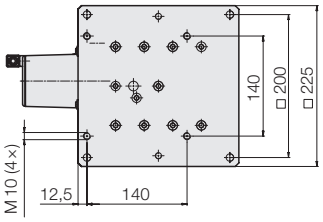
Accessories

Base plate for increased stability
as per data sheet M 8.100



Dimensions





Variant E, I and B

Lifting force	Lifting speed	Current consumption
[N]	(load dependent) [mm/s]	(load dependent) [mm/s]
4,000	10 … 8	6
6,000	7 to 5	7.5

Variant G

Lifting force	Lifting speed	Current consumption
[N]	(load dependent) [mm/s]	(load dependent) [mm/s]
4,000	8 to 6	4.5
5,000	6 to 4	5.5

Description

The lifting motion is generated by an electric motor with a self-locking spindle lifting gear. The electrically operated variant is particularly suitable for positioning and adjusting tasks of working tables as well as for material supply and transport.
It is known for operating smoothly.

Principal use

- Heavy-duty assembly work involving heavy workpieces
- Applications involving positioning tasks

Operation

Lifting and lowering with hand panels or foot switches as per data sheet M 8.203 is triggered by touch control. After release of the push-button, the motion stops immediately. The hand panel with memory function can store 5 positions, which can be approached via corresponding position push-buttons. (For a detailed description see data sheet M 8.203.)

Synchronization control

Up to 4 lifting modules can be operated with synchronization control by a corresponding control module. For example, complete lifting platforms can be designed.
Due to the control modules, variants with 4 or 6 kN lifting force are only suitable for synchronization with the code letter G.
Control units with synchronization control for 2, 3, or 4 lifting modules are available.

Please also pay attention to the instructions for the operation of lifting modules with synchronization control, see data sheet M 4.005.
Because the structure uses play-free guidance, the alignment and balancing elements must be carefully executed.

Technical characteristics

Electrical connection	Connector
Duty cycle	15 % ED
Code class	IP 54
Control voltage	24 V DC

Delivery

The lifting modules are delivered ready for connection. The connecting cable from the lifting module to the control module is included in the delivery. Operating elements as well as control modules and mains cables can be ordered separately as an accessory.

Electrical accessories required for a functional system:

- Push-buttons and mains cable as per data sheet M 8.203
- Control module as per data sheet M 8.200
  or
- Control module with battery holder as per data sheet M 8.201

Accessories

Base plate for increased stability
as per data sheet M 8.100

Code for part numbers

Part no. 8927 0 X X 0 X

Maximum lifting force F_z

4 = 4,000 N
6 = 6,000 N (5,000 N for variant G)

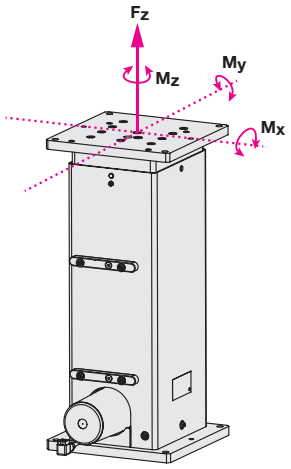
Stroke

2 = 200 mm
3 = 300 mm
4 = 400 mm
5 = 500 mm
6 = 600 mm

Electronics

E = integrated stroke end disconnection (not suitable for synchronization control) with coiled connecting cable, 2.5 m
G = with incremental stroke measuring system (suitable for synchronization control – reduced current consumption) with smooth connecting cable, 2.5 m
I = with incremental stroke measuring system (suitable for memory function) with smooth connecting cable, 2.5 m
B = with incremental stroke measuring system (suitable for memory function and battery mode) with smooth connecting cable, 1.0 m

Maximum lifting force and maximum admissible torque load



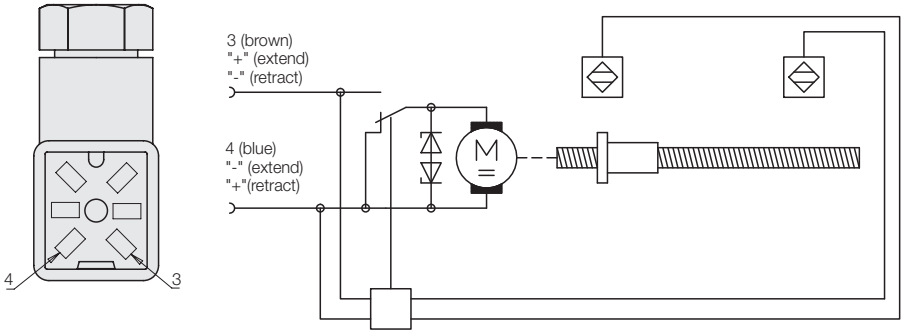
Maximum lifting force F_Z:
5,000 N for variant B

Maximum torque load:
M_X: 1,500 Nm
M_Y: 2,000 Nm
M_Z: 2,000 Nm

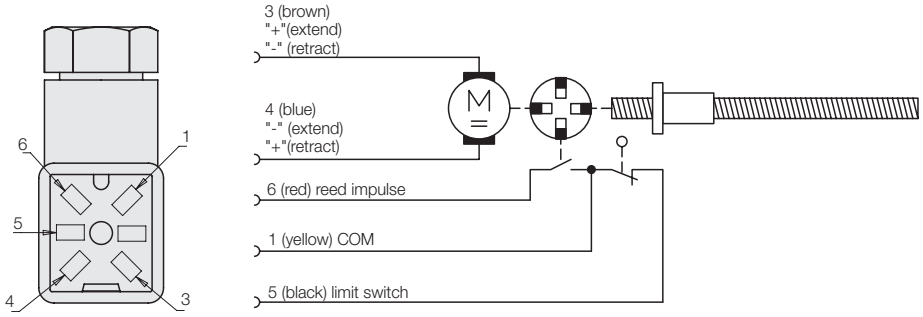
Important notes

The maximum pull force of the electro-mechanical version is 80 % of the push force!

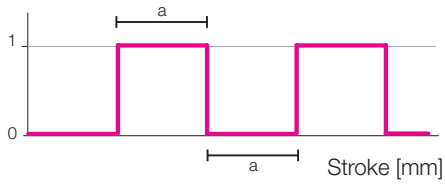
Circuit diagram and connection
plug-type connectors for lifting modules with stroke end disconnection (with code letter E)



Circuit diagram and connection
plug-type connectors for lifting modules with incremental stroke measuring system (with code letters I, B and G)

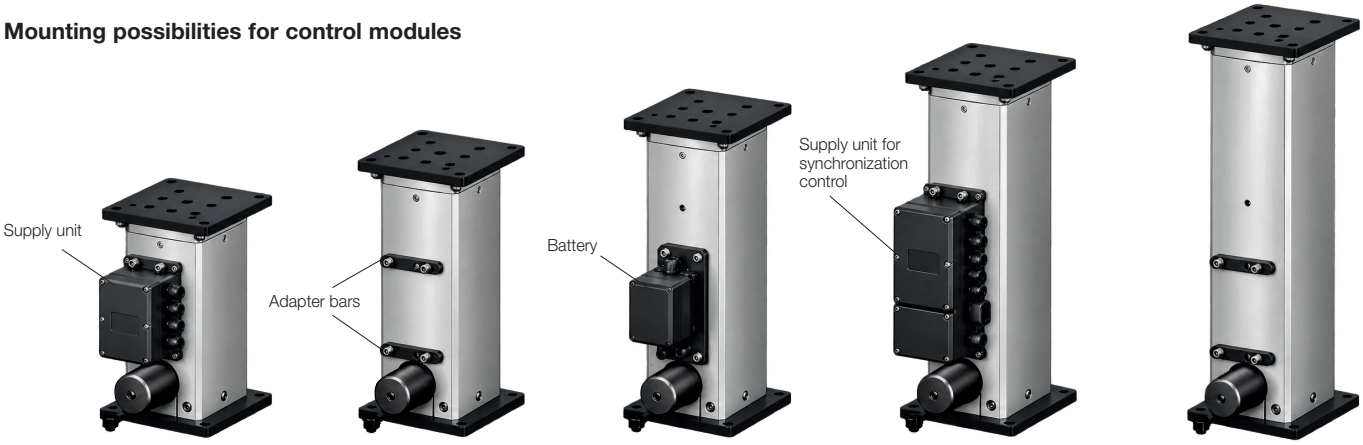


Resolution of the
incremental stroke measuring system



1 kN: a = 0.75 mm stroke
2 kN: a = 0.75 mm stroke
4 kN: a = 0.5 mm stroke
6 kN: a = 0.375 mm stroke

Mounting possibilities for control modules



Mains control
Control module as per data sheet M 8.200. Mounted via adapter bars. The operating elements are selected to suit the application. Control units with a memory function are structurally adapted to the stroke modules for strokes of 300 mm or more.

Mobile battery control
Battery holder as per data sheet M 8.201. Particularly suitable for flexible workstations without a fixed power supply.

Synchronization control
Variant G with incremental feedback and a control module suitable for synchronous operation of multiple lift modules. Control units for synchronizing 2 lift modules are structurally compatible with the lift modules for stroke lengths of 300 mm or more.
Control modules for synchronizing 3 or 4 lift modules consist of multiple parts and must be installed separately.