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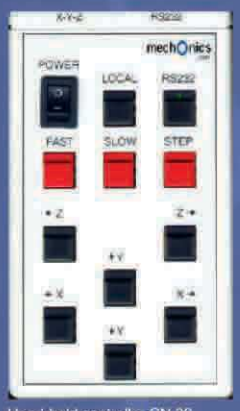
Micro Positioning Systems with Piezo Inertial Drives

- Piezo inertial drive with lowest hysteresis
- Reached position will be held without current
- Long lifetime
- Variable step width
  -open loop about 200 nm
  -closed loop about 50 nm
- High pushing or blocking force
- No limit switches necessary
- Ultra compact dimensions possible
- Customized solutions as
  -ultra high vacuum uses
  -ultra low temperature uses
  -ultracompact drives
- Compact hand-held controller with
  -battery- or power supply operation
  -RS 232 Interface
- Compact USB controller with
  -USB voltage operation
  -USB - Interface



Hand-held controller CN 30


Miniature translation stage MS 30


Miniature translation stage MS 30; preparation for vacuum with linear measuring system


Customized development (positioning of an aperture in vacuum)


Monomode Coupler MK 25


Compact XYZ-positioner MX 25

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Table of contents of the delivery program

MK 25 Miniature Monomode Coupler MK 25 with piezo electric inertial motor

Technical Data

Travel:	2 mm in xyz
Max. speed:	1.2 mm/s (depends on controller)
Optical height:	20 mm
Mass:	58 g

Resolution (calculated)

Single step	~ 450 nm
1/16-step (with controller CU 30)	~ 30 nm
Half step	~ 250 nm
Double step (with controller CN 30)	~ 900 nm

Lens type

Type A:	
Numerical aperture	0.40
Clear aperture	3.7 mm
Focal length	4.60 (670 nm) 4.64 (785 nm)
Type B:	
Numerical aperture	0.38
Clear aperture	2.5 mm

Specifications

- Piezo driven step motor with low hysteresis
- holds reached position without current
- aspherical lenses with different NA
- optical height 20 mm
- 2 mm travel in xyz
- different fibre couplers
- step width about 200 nm
- positioning accuracy better than 100 nm with CU 30
- velocity up to 1.2 mm/s
- CNC-machined aluminium body
- no limit switches necessary
- vacuum preparation optionally
- customized designs possible
- driven by hand-held (CN.030.0001) or USB controller (CU.030.xx0x)

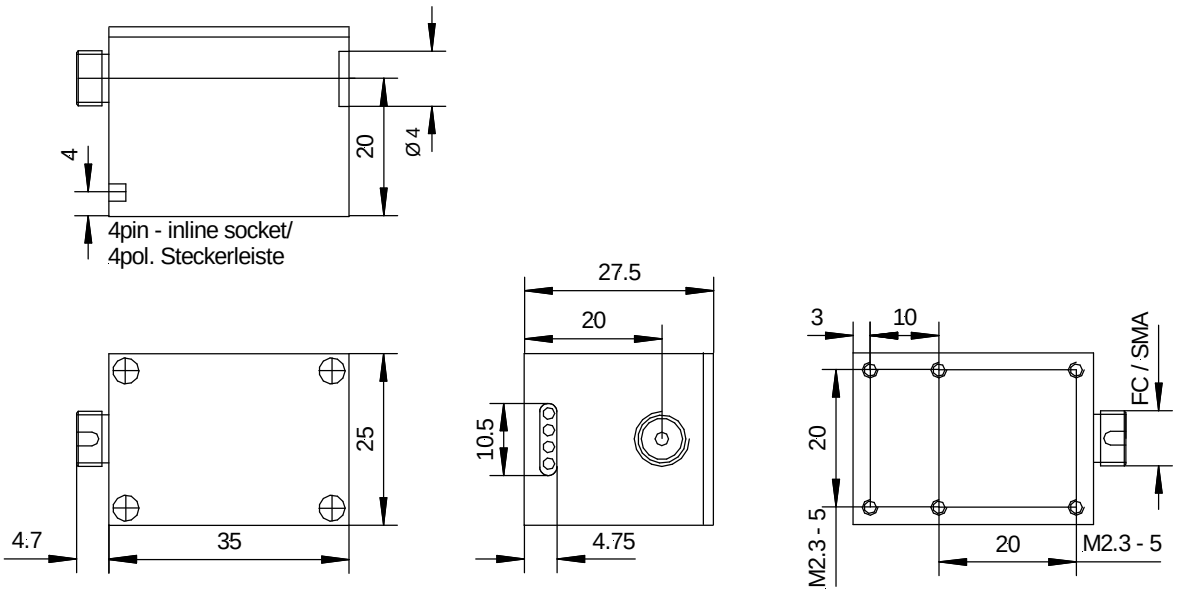
Application Examples

- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Telecommunication
- Metrology
- R & D

Miniature Monomode-Coupler MK 25 — **Part no.** **MK.025.1**

Coupler type	0 FC	1 SMA	
Vacuum	0 no	6 10^{-6}	x customized
Numerical aperture	A 0.40	B 0.38	x customized

Dimensions of the Monomode Coupler MK 25



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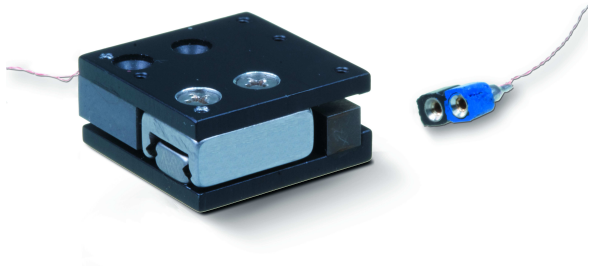
MS 15 Ultra small Miniature Translation Stages with piezo electric inertial drive



Specifications

- Piezo driven step motor with low hysteresis
- holds reached position without current
- step width about 15 nm (depends on controller)
- positioning accuracy better than 50 nm
- velocity up to 1.5 mm/s (depends on controller)
- travel 3.5 mm
- xy or xyz combinations
- CNC-machined aluminium body
- precision ball bearing guides
- no limit switches necessary
- vacuum preparation optionally
- customized designs possible
- driven by hand-held (CN.030.0001)
  or USB controller (CU.030.xx0x)
  or USB controller (CF.030.xx0x)
- connection cable CK.030.1003 recommended

Technical Data

Travel:	3.5 mm
Max. speed:	1.5 mm/s (depends on controller)
Mass:	6 g

Load characteristics

Max. load	
M_x, M_y, M_z	0.4 Nm
F_x (blocking force)	3 (4) N
F_y, F_z	20 N

Resolution (calculated)

Single step	~ 450 nm
1/16-step (with controller CU 30)	~ 30 nm
1/64-step (with controller CF 30)	~ 10 nm
Half step	~ 250 nm
Double step (with controller CN 30)	~ 900 nm

Guidance accuracy (without load)

Yaw angle	< 20 arc sec
Pitch angle	< 60 arc sec
Vertical deviation	< 1 µm
Lateral deviation	< 2 µm

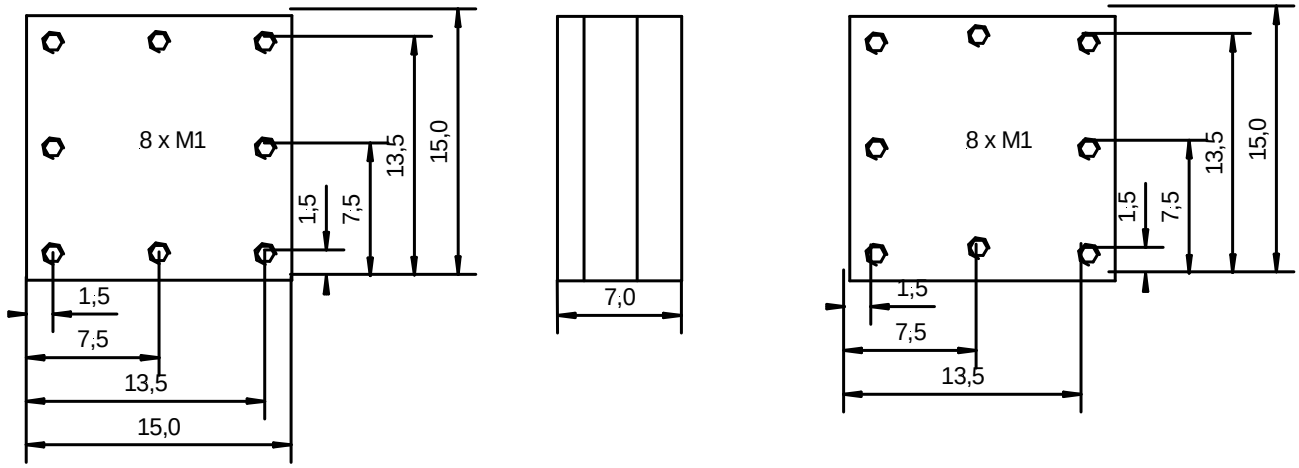
Application Examples

- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

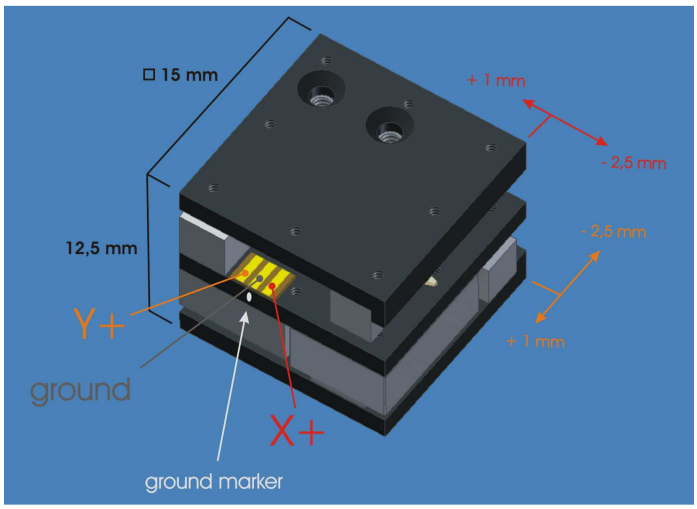
Miniature Translation Stage MS 15 — **Part no.** **MS.015.04**

	0	6	9
Vacuum	no	10^{-6}	10^{-9}
	0	2	3
Mounting	x	xy (not removable)	xyz

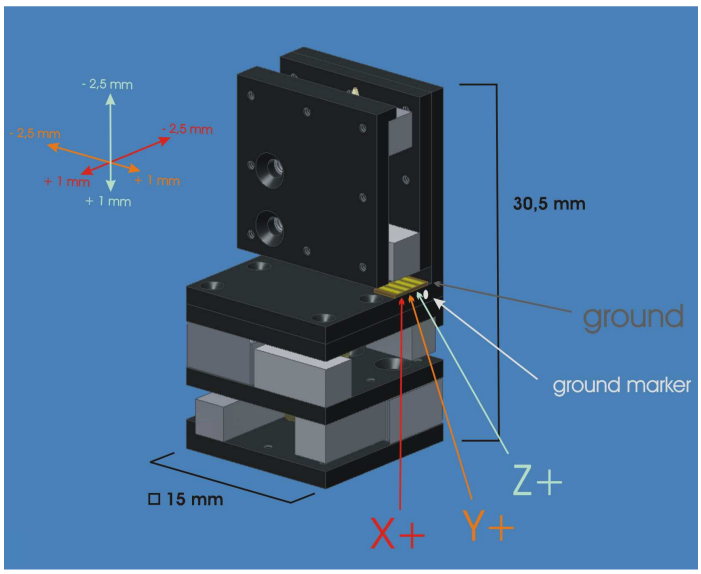
MS 15, 3.5 mm travel



Dimensions for xy – combination (not removable)



Dimensions for xyz – combination (xy – combination not removable)



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MS 30 Miniature Translation Stages with piezo electric inertial drive

Specifications

- Piezo driven step motor with low hysteresis
- holds reached position without current
- step width about 10 nm (depends on controller)
- positioning accuracy better than 50 nm
- velocity up to 1.2 mm/s (depends on controller)
- travels up to 60 mm possible
- open- or closed loop-application
- xy or xyz combinations
- CNC-machined aluminium body
- precision ball bearing guides
- no limit switches necessary
- vacuum preparation optionally
- customized designs possible
- driven by hand-held (CN.030.0001)
  or USB controller (CU.030.xx0x)
  or USB controller (CF.030.xx0x)

Technical Data

Travel:	8, 18 or 30 mm
Max. speed:	1.2 mm/s (depends on controller)
Mass:	32, 38 or 54 g

Load characteristics

Max. load	
M_x, M_y, M_z	0.5 Nm
F_x (blocking force)	4.5 (5) N
F_y, F_z	30 N

Resolution (calculated)

Single step	~ 450 nm
1/16-step (with controller CU 30)	~ 30 nm
1/64-step (with controller CF 30)	~ 10 nm
Half step	~ 250 nm
Double step (with controller CN 30)	~ 900 nm

Guidance accuracy (without load)

For 8 mm travel:	
Yaw angle	< 20 arc sec
Pitch angle	< 60 arc sec
Vertical deviation	< 1 µm
Lateral deviation	< 2 µm

Application Examples

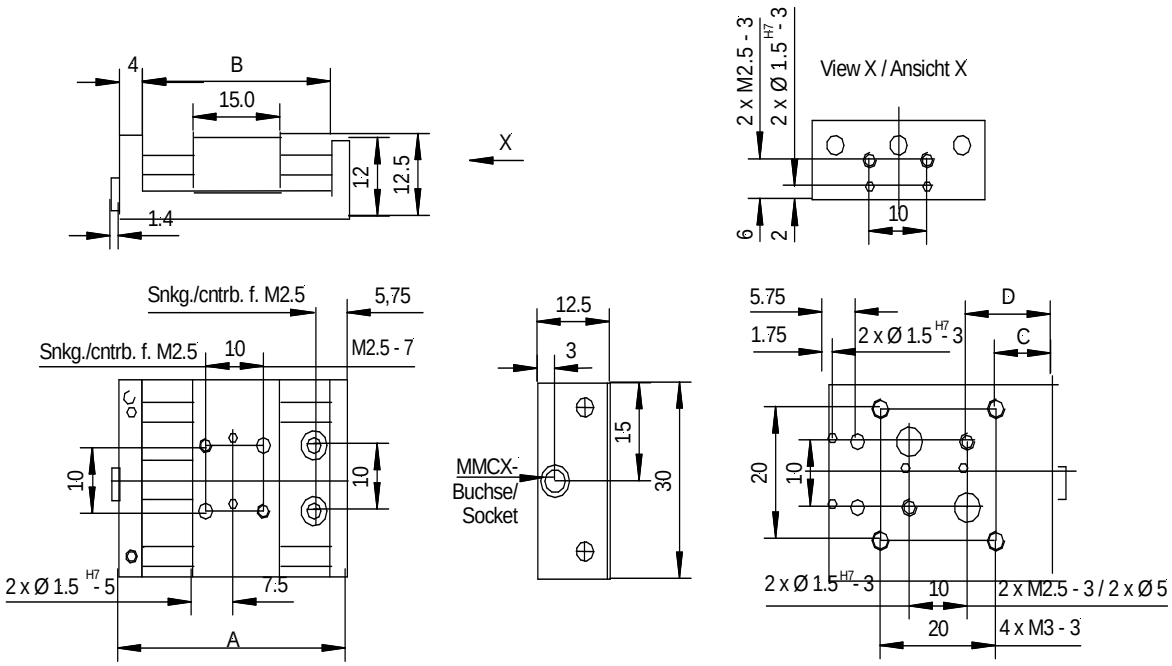
- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

Miniature Translation Stage MS 30 — **Part no.**

MS.030.

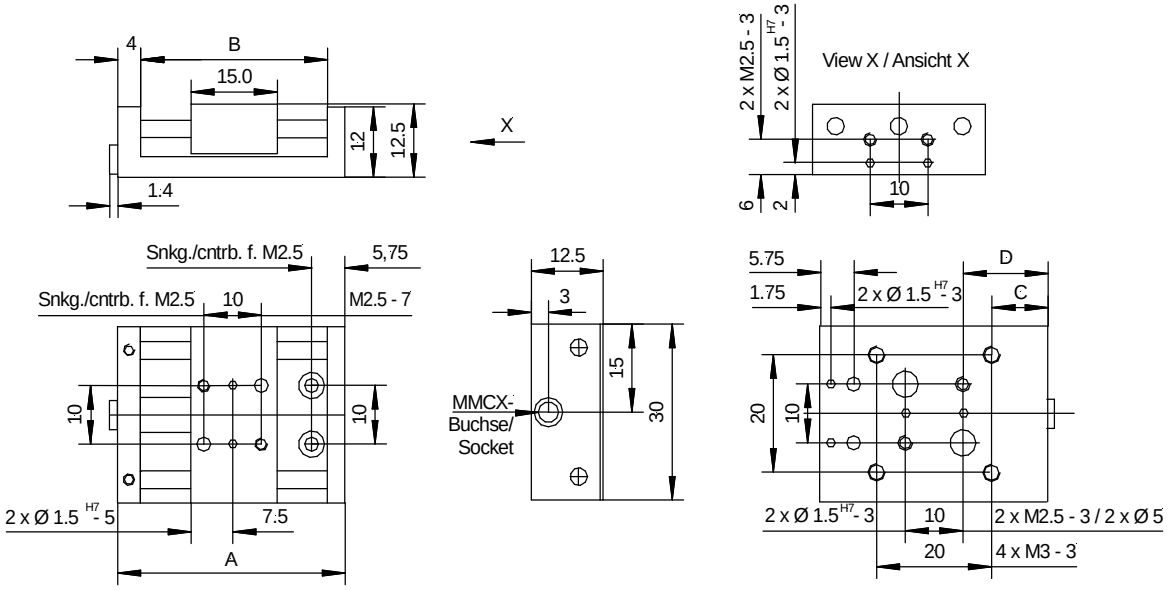
	08	18	30
Travel	8 mm	18 mm	30 mm
	0	6	9
Vacuum	no	10^{-6}	10^{-9}
	0	1	
Measuring-system	without	with (please specify with sensor)	

MS 30, 8 mm travel



MS 30, 18 and 30 mm travel

Travel	A	B	C	D
18	40	33	10	15
30	52	45	16	21



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MS 38 Miniature Translation Stages with free opening dia 10 mm and piezo electric inertial drive

Specifications

- Piezo driven step motor with low hysteresis
- holds reached position without current
- step width about 15 nm (depends on controller)
- positioning accuracy better than 50 nm
- velocity up to 1.5 mm/s (depends on controller)
- travel up to 8 mm
- free opening of 10 mm (on whole travel)
- fits to optical bench systems (LINOS, OWIS aso.)
- xy or xyz combinations
- CNC-machined aluminium body
- precision ball bearing guides
- no limit switches necessary
- vacuum preparation optionally
- customized designs possible
- driven by hand-held (CN.030.0001) or USB controller (CU.030.xx0x)

Technical Data

Travel:	8 mm
Free opening	10 mm
Max. speed:	1.5 mm/s (depends on controller)
Mass:	32 g

Load characteristics

Max. load	
M_x, M_y, M_z	0.4 Nm
F_x (blocking force)	4.5 (5) N
F_y, F_z	20 N

Resolution (calculated)

Single step	~ 200 nm
1/16-step (with controller CU 30)	~ 15 nm
Half step	~ 100 nm
Double step (with controller CN 30)	~ 400 nm

Guidance accuracy (without load)

Yaw angle	< 20 arc sec
Pitch angle	< 60 arc sec
Vertical deviation	< 1 µm
Lateral deviation	< 2 µm

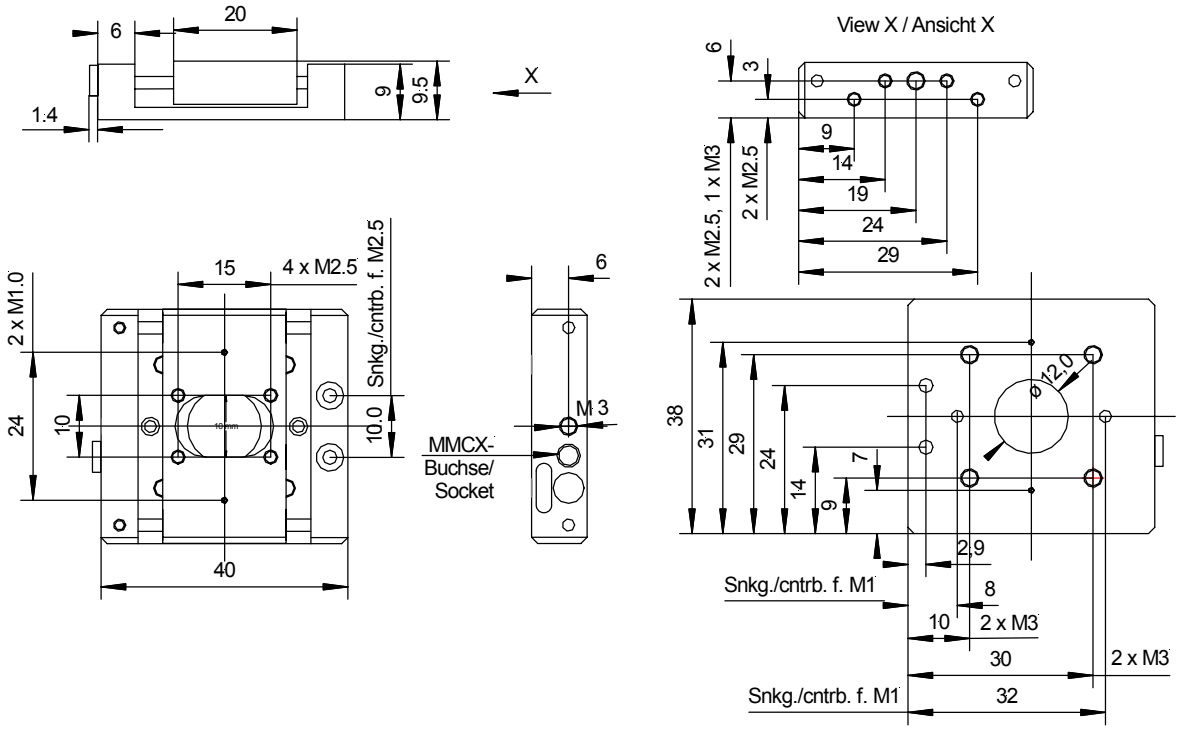
Miniature Translation Stage MS 38	Part no.
	MS.038.08□0

0	6	9
Vacuum	no	10^{-6}	10^{-9}

Application Examples

- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

MS 38, 8 mm travel



xy and xyz combinations

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ML 17 Miniature Translation Stages for Ultra Low Temperatures with piezo electric inertial drive

Specifications

- Piezo driven step motor with low hysteresis
- holds reached position without current
- for use at ultra low temperatures up to 4 K
- step width about 200 nm
- positioning accuracy better than 1 µm
- velocity up to 1.0 mm/s
- travels up to 5 mm
- xy or xyz combinations possible (L-bracket ML.017.9001 for xyz needed)
- CNC-machined steel body
- precision linear bearings
- no limit switches necessary
- vacuum preparation optionally
- customized designs possible
- driven by USB controller (CU.017.0003)

Technical Data

Travel:	5 mm
Max. speed:	1.0 mm/s (with controller CU 17 LT)
Electrical connection:	2 solder points
Mass:	25 g

Load characteristics

Max. load	
M_x	3.0 Ncm
M_y, M_z	1.5 Ncm
F_x (blocking force)	1.0 (1.5) N
F_y, F_z	1.0 N

Resolution (calculated)

Single step	
with 22 V (at 4.2 K)	~ 200 nm
with 42 V (at 4.2 K)	~ 500 nm
with 82 V (at 4.2 K)	~ 1 µm

(with controller CU 17 LT)

Guidance accuracy (without load)

For 5 mm travel:	
Vertical deviation	< 2 µm
Lateral deviation	< 2 µm

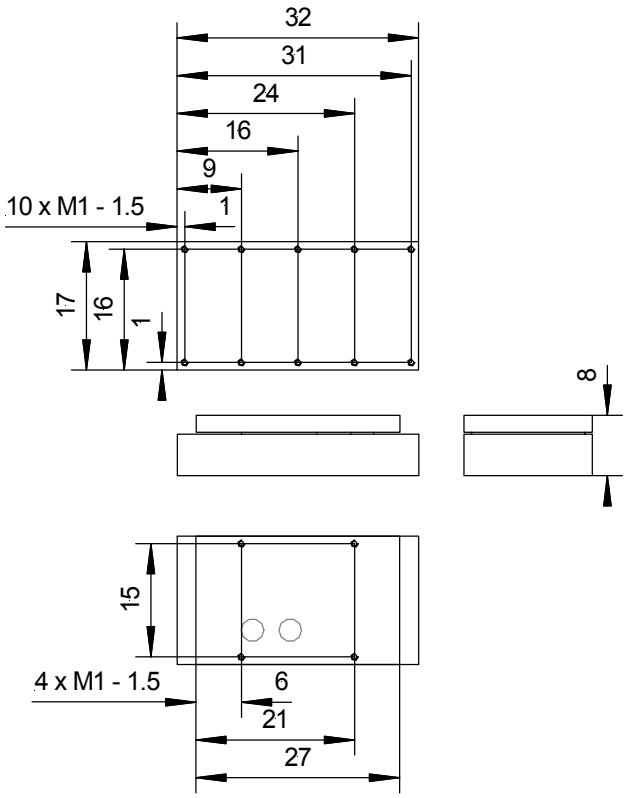
Application Examples

- Cryo - applications
- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

Low Temperature Stage ML 17 — **Part no.** **ML.017.□□□0**

Travel	05	5 mm
	xx	customized
Vacuum	6	10^{-6}
	9	10^{-9}

Dimensions of the ML 17



xyz – combination of ML 17

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MX 25/35 Miniature XYZ Positioners with piezo electric inertial drive

MX 25 with 2 mm travel in xyz-direction

Specifications

- Piezo driven step motor with low hysteresis
- holds position without power
- up to 10 mm travel in xyz
- step width about 10 nm (depends on controller)
- positioning accuracy better than 50 nm
- velocity up to 1.2 mm/s (depends on controller)
- CNC-machined aluminium body
- no limit switches necessary
- vacuum preparation optionally
- customized designs possible
- driven by hand-held (CN.030.0001)
  or USB controller (CU.030.0003)
  or USB controller (CF.030.xx0x)

Technical Data

Travel:	
MX 25	2 mm in xyz
MX 35	10 mm in xyz
Max. speed:	1.2 mm/s (depends on the controller)
Mass:	
MX 25	46 g
MX 35	76 g

Load characteristics

Type of load	
M_x, M_y, M_z	0.15 Nm
F_x, F_y (jamming force)	< 2 N
F_z (jamming force)	< 2 N

Resolution (calculated)

Single step	~ 450 nm
1/16-step (with controller CU 30)	~ 30 nm
1/64-step (with controller CF 30)	~ 10 nm
Half step	~ 250 nm
Double step (with controller CN 30)	~ 900 nm

Guidance accuracy (without load)

Vertical deviation	< 2 µm
Lateral deviation	< 2 µm

Application Examples

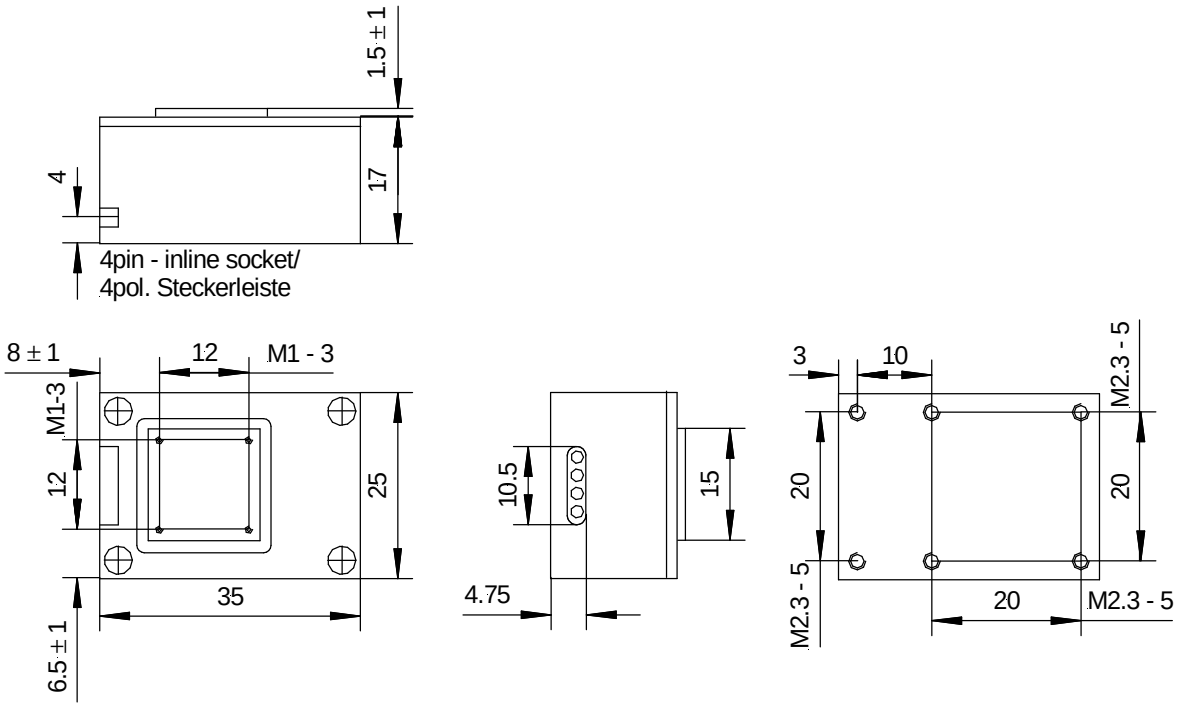
- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

Miniature XYZ Positioner **Part no.**

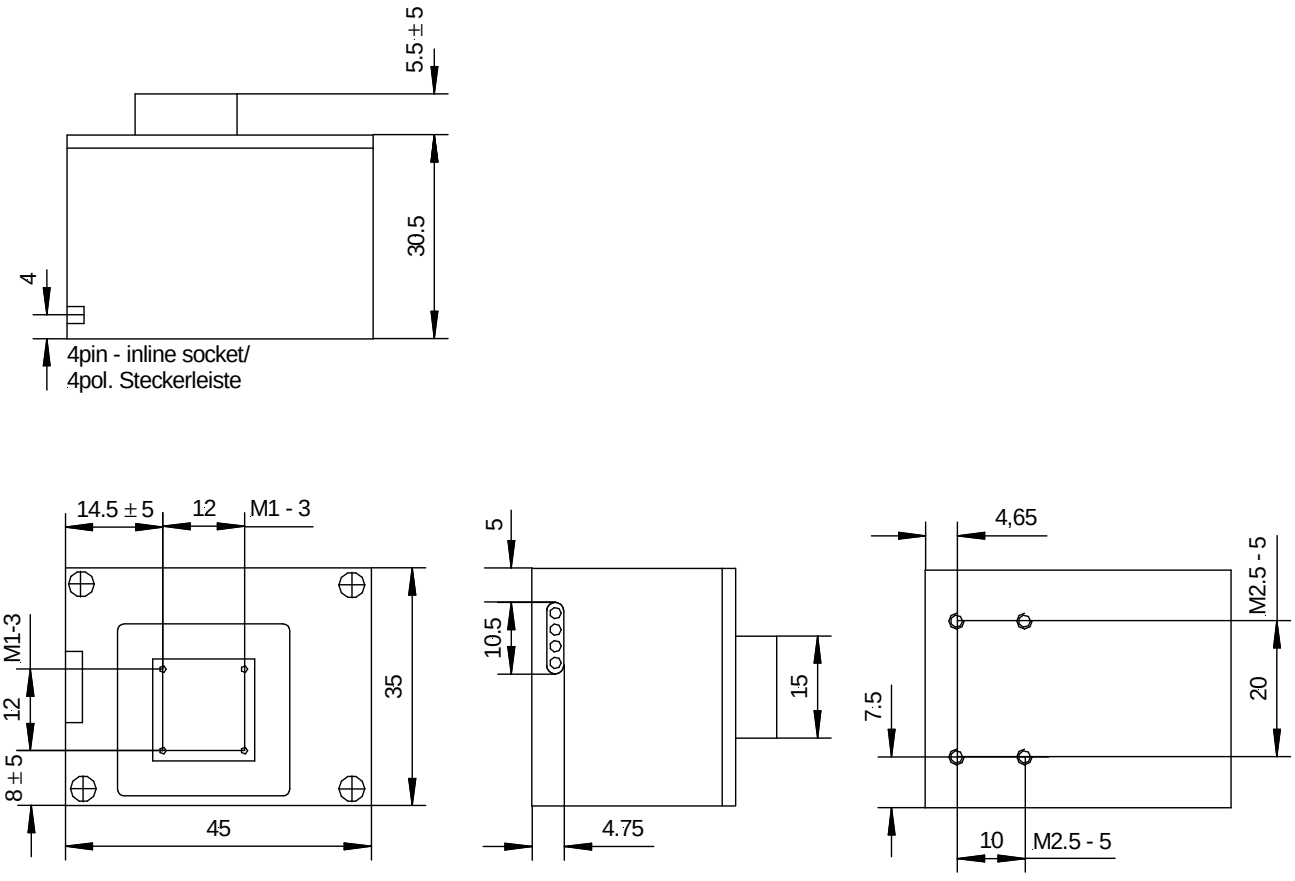
MX.0 5.1 0

Type	2	MX 25	
	3	MX 35	
Top plate design	0	Standard	
	x	custom design	
Vacuum	0	no	
	6	10^{-6}	
	9	10^{-9}	

Drawings of the MX 25:



Drawings of the MX 35:



MT 25 Kinematical Mirror Tilting Stage with piezo electric inertial drive

Technical Data

Angular adjustment:	6 deg (± 3 deg) in two orthogonal axes
Max. speed:	25 mrad/s (depends on controller)
Optical height:	11.5 mm (on rod) 12.5 mm (in plate)
Mirror mount:	dia. 12.7 mm (1/2 inch)
Free opening:	dia. 9 mm
Mass:	46 g
Max mass of mirror:	100 g

Resolution (calculated)	
Single step	~ 14 µrad
1/16 step (with controller CU 30)	~ 1 µrad
1/64-step (with controller CF 30)	~ 0.3 µrad
Half step	~ 7 µrad
Double step (with controller CN 30)	~ 28 µrad

Specifications

- Piezo driven step motor with low hysteresis
- holds reached position without current
- optical height 11.5 mm (on rod)
- angular adjustment 6 deg (± 3 deg) in two axes
- for mirror with dia. 12.7 mm
  (with mirror adapter also for larger mirrors)
- free opening of 9 mm
- solid state hinges
- step width about 0.3 µrad with CF 30
- velocity up to 25 mrad/s (> 1 deg/s)
- also usable as prism stage
- no limit switches necessary
- vacuum preparation optionally
- customized designs possible
- driven by hand-held (CN.030.0001)
  or USB controller (CU.030.xx0x)
  or USB controller (CF.030.xx0x)

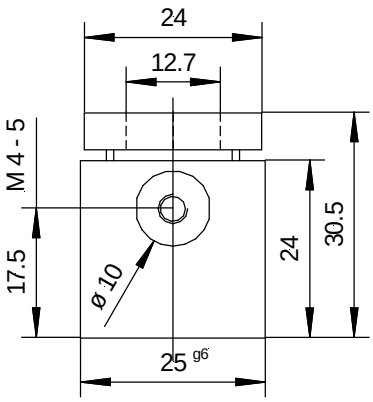
Application Examples

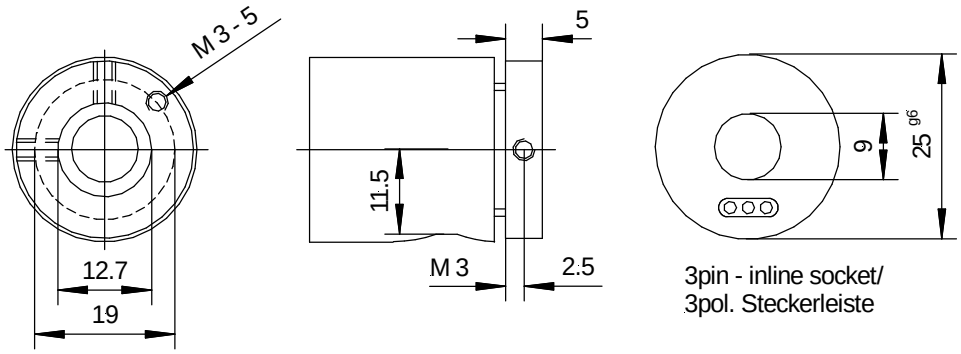
- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Telecommunication
- Metrology
- R & D

Mirror Tilting Stage MT 25 **Part no.** **MT.025.0 0**

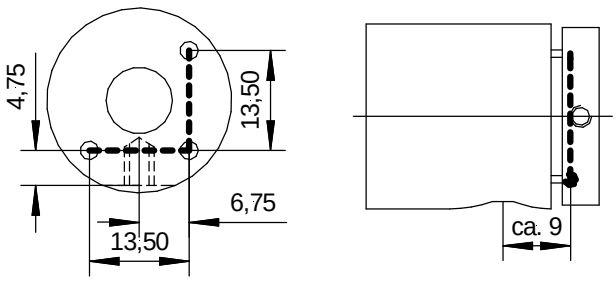
Mirror adapter	0	without	
	1	glas substrate	
Vacuum	0	no	
	6	10^{-6}	
	x	customized	

Dimensions of the Mirror Tilting Stage MT 25

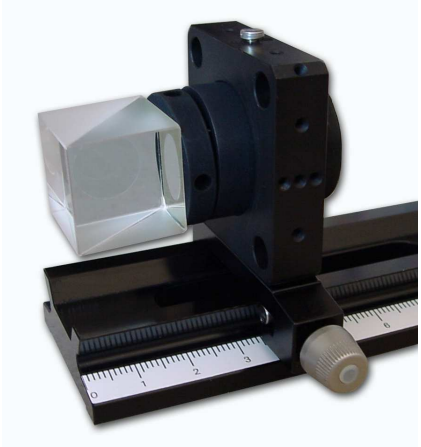




Coordinates of the two tilting axes



MT 25 with beamsplitter cube on optical rail



PS 30 Linear Measuring System for Miniature Translation Stage MS 30

Miniature Translation Stage MS 30, 8 mm travel with PS 30

Spezifications

- measuring lengths up to 30 mm
- resolution better than 50 nm
- open- or closed loop-application
- xy combinations
- ultra high vacuum preparation optionally
- customized designs possible
- driven by USB-Controller CU 30 (CU.030.xx0x)

Technical Data

Measuring length	8, 18 or 30 mm
Mass	about 20 g

Resolution

Standard	1 µm
Premium	0.5 µm
High End	0.1 µm
Excellence	0.05 µm
(other resolutions on request)	

Scale tape

Material	Steel
Grating period	20 µm
Length of scale	measuring length + 22 mm
Reference mark	at the center of the scale
Linear expansion coefficient	23.8 x 10^{-6} grd^{-1}
Accuracy class	± 1 µm/m

Electrical Data

Scanning frequency	max. 400 kHz
Output signal	RS 422 with interpolation
Supply voltage	5 V DC +/- 10%
Power consumption	150 mA
Cable length	1.5 m
Operating temperature	0° – 55° C
Vibration (50 – 2,000 Hz)	< 200 ms^{-2}
Shock (11 ms)	< 400 ms^{-2}

Application Examples

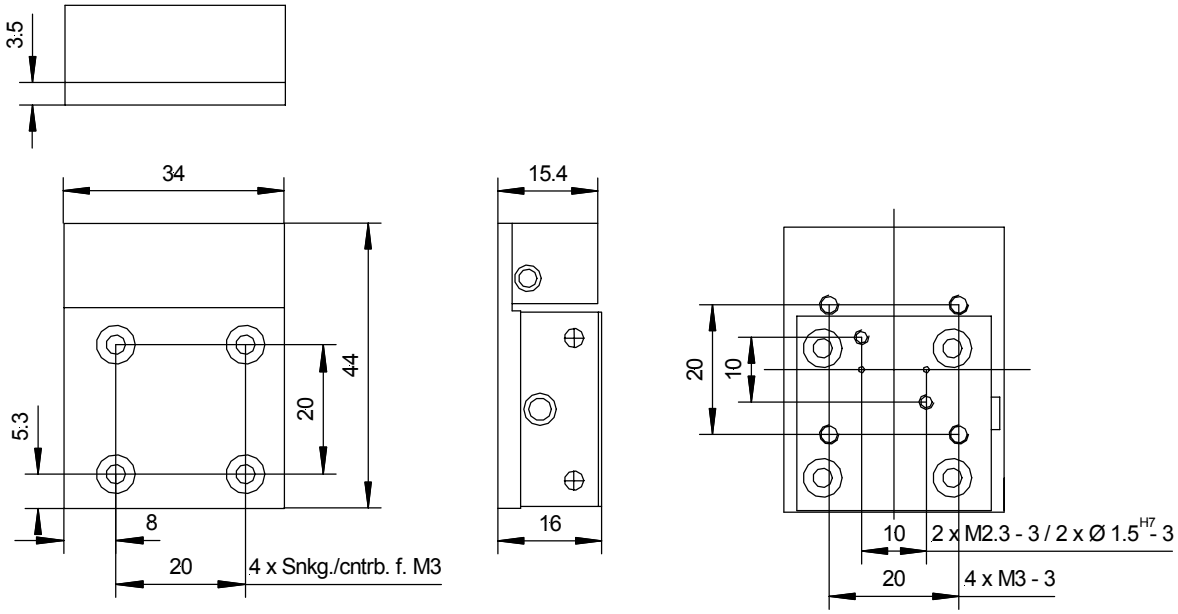
- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

Linear Measuring System PS30 for Miniature Stage MS 30 **Part no.**

PS.030.□□□□

	08	18	30	
Travel	8 mm	18 mm	30 mm	
	0	3	6	9
Vacuum	no	10^{-3}	10^{-6}	10^{-9}
	2	3	5	6
Resolution	1 µm	0.5 µm	0.1 µm	0.05 µm

Linear Measuring System PS 30 with adapter plate for MS 30



XYZ-arrangement with MS 30 (8 mm travel) and PS 30 (8 mm travel and 50 nm resolution)

CN 30 Controller for Piezo Electric Inertial Motors

Specifications

- Special design for piezo driven step motor
- works with batteries or external power supply
- operates up to 3 axes
- customized designs possible
- USB-interface optionally

Technical Data

Power supply:	4 x round cell LR6 (Alkaline ~ 2000 mAh) and portable power supply in: 100 – 240 V out: 6 VDC with user-plug Ø 5.5/2.1 mm
Operation modes:	“Local” with keyboard (current consumption ~ 20 µA) “Remote” with RS 232-Interface (current consumption ~6 mA incl. LED) change switch for both modes on keyboard
Connections:	9pin Sub D-connector (male) 9pin Sub D-connector (female) 2pin Socket (female)
Speed modes:	“Fast” (ca. 0.7 mm/s) “Slow” (“Fast”/2) “Single step”
Step modes:	“Full step” “Half step” (“full step”/2) “Double step” (“full step” x 2)

RS 232-interface to the internal controller

Connection:	9pin Sub D-connector (male)
Data rate:	19200 Baud

Software for PC
- for DOS, Win 95, Win 2000, Win XP and Win NT:
executable software with action buttons (similar to the stand-alone keyboard)
- for use with own programs:
Borland Pascal Unit (DOS)
DLL for Windows

Mass:	370 g incl. batteries
Dimensions:	158 x 96 x 52 mm
Delivery includes:	- miniature power supply - 4 x round cell LR6 - RS 232 connecting cable

CN 30 Controller	Part no.
	CN.030.0001

Application Examples

- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

CU 30 USB-Controller for Piezo Electric Inertial Drives

CU 30 without sensor (for three axes)

Specifications

- Special design for piezo driven inertial motors
- works with USB-voltage (without sensor)
  or an additional power supply (closed loop controller)
- applications without position sensor or closed loop
- operates up to 3 axes
- customized designs possible
  (interfaces or number of axes)

CU 30 closed loop (for three axes)

Technical Data

Power supply:	USB-interface (without sensor) or portable power supply (for CU 30CL) in: 100 – 240 V out: 6 VDC with user-plug
Operation:	via USB-Interface 1.1 (without sensor) via USB-Interface 2.0 (closed loop)
Connections:	
without sensor	1 x 9pin Sub D-connector (female) 1 x USB Type B socket (USB 1.1)
closed loop	3 x 2pin MMCX sockets (female) 3 x 9pin Sub D-connectors (female) 1 x USB Type B socket (USB 2.0)
Speed modes:	0 to 1000 (0 to ca. 1.2 mm/s) for CU 30 0 to 255 (0 to ca. 1.2 mm/s) for CU 30CL
Software for PC	
- for DOS, Win 95, Win 2000, Win XP and Win NT:	executable software with action buttons
- for use with own programs:	Borland Delphi 7.0 Unit DLL for Windows Wrapper-DLL for LabView etc.
Mass:	about 150 g (without sensor) (also closed loop for 1 axis) about 470 g (closed loop for 3 axes)
Dimensions:	
without sensor	118 x 86 x 26 mm (L x W x H)
closed loop	124 x 170 x 55 mm (L x W x H)
Delivery includes:	USB connecting cable (CK.030.USB0) power supply (for 3 axes closed loop)

Application Examples

- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

USB-Controller CU 30 **Part no.** **CU.030. 0**

Operation	0	without sensor	
	1	closed loop (CL)	(with position sensor)
Interface	0	USB	
	X	customized	
No. of axes	3	3	
	X	customized	

CF 30 USB-Controller for Piezo Electric Inertial Drives

CF 30 (for three axes)

Specifications

- Special design for piezo driven inertial motors
- Works with USB-voltage only (one axis move at the same time
- Works with an additional power supply (simultaneous move off three axes possible)
- Auto detection of the power supply
- Operates up to 3 axes
- Plain text ASCII commands for easy integration in your own environment
- Drivers for many operating systems
- Every full step has 64 micro steps
- Special wave forms for smooth movement
- customized designs possible (interfaces or number of axes)

Technical Data

Power supply:	USB-interface (one axis) or portable power supply in: 100 – 240 V out: 6 VDC with user-plug
Interface (host):	Via USB 1.1 Via USB 2.0 (Full speed)
Interface (client):	USB to serial converter FT232R from FTDI (www.ftdichip.com)
Connections:	Stage: 9pin Sub D-connector (female) PC: USB Type B socket (USB 1.1)
Speed modes:	-32767 to 32767 (0 to about 1.5 mm/s) Sawtooth voltage (0 to 3.1 KHz) Up to 800 commands/s
Software for PC - for	Win XP and Vista (32 bit): Executable software with GUI
- for use with own programs:	Drivers from FTDI: Future Technology Devices International Ltd. Plain text ASCII commands FTDI Drivers for Windows, Linux, Mac OS X, ….
Mass:	about 195 g
Dimensions:	118 x 86 x 26 mm (L x W x H)
Delivery includes:	USB connecting cable (CK.030.USB0) Power supply (for 3 axes)

Application Examples

- Micro-/Nano Technology
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

USB-Controller CF 30 **Part no.** **CF.030. 0**

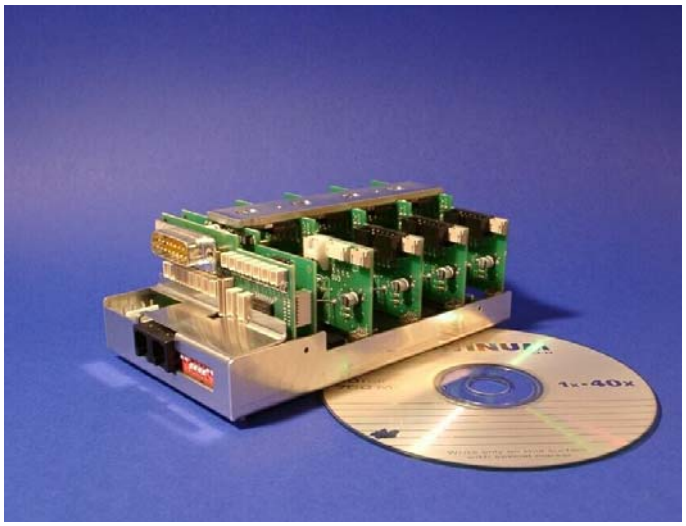
Operation	0	without sensor	X customized
Interface	0	USB	X customized
No. of axes	3	3	X customized

CK 25/30 Connecting Cables for Piezo Electric Inertial Drives

Part-no.	Description	Connections	Length
CK.025.0002	connecting cable for 1 x MT 25 (standard)	9pin Sub D-connector (male) to 3pin inline plug	1 m
CK.025.0003	connecting cable for 1 x MK 25 or 1 x MX 25/35 (standard)	9pin Sub D-connector (male) to 4pin inline plug	1 m
CK.025.1002	connecting cable for 1 x MT 25 (open wires)	9pin Sub D-connector (male) to 3 open wires	1 m
CK.025.1003	connecting cable for 1 x MK 25 or 1 x MX 25/35 (open wires)	9pin Sub D-connector (male) to 4 open wires	1 m
CK.025.1062	vacuum connecting cable (up to10^{-6} mbar) for 1 x MT 25 (open wires)	3pin inline plug to to 3pin inline plug	1 m
CK.025.1063	vacuum connecting cable (up to10^{-6} mbar) for1 x MK 25 or 1 x MX 25/35 (open wires)	4pin inline plug to 4pin inline plug	1 m
CK.025.1092	vacuum connecting cable (up to10^{-9} mbar) for 1 x MT 25 (open wires)	3pin inline plug to directly mounting to MT 25	1 m
CK.025.1093	vacuum connecting cable (up to10^{-9} mbar) for 1 x MK 25 or 1 x MX 25/35 (open wires)	4pin inline plug to directly mounting to MX 25/35	1 m
CK.030.0001	connecting cable for 1 x MS 30 (for closed loop controller CU 30 CL)	1 MMCX-plug (angled) to 1 MMCX-plug (angled)	1 m
CK.030.0001.3m	connecting cable for 1 x MS 30 (for closed loop controller CU 30 CL)	1 MMCX-plug (angled) to 1 MMCX-plug (angled)	3 m
CK.030.0003	connecting cable for up to 3 x MS 30 (standard)	9pin Sub D-connector (male) to 3 MMCX-plugs (angled)	1 m
CK.030.0003.2m	connecting cable for up to 3 x MS 30 (standard)	9pin Sub D-connector (male) to 3 MMCX-plugs (angled)	2 m
CK.030.0003.3m	connecting cable for up to 3 x MS 30 (standard)	9pin Sub D-connector (male) to 3 MMCX-plugs (angled)	3 m
CK.030.1061	vacuum connecting cable (up to10^{-6} mbar) for 1 x MS 30 (open wires)	2pin inline plug to to 1 MMCX-plug	1 m
CK.030.1091	vacuum connecting cable (up to10^{-9} mbar) for 1 x MS 30 (open wires)	2pin inline plug to directly mounting to MS 30	1 m
CK.030.USBU	RS 232 – USB Transformer (only applicable with CN 30)	9pin Sub D-connector (male) to USB A – plug	1 m
CK.030.USB0	USB connecting cable	USB A – to USB B connectors	1.8 m

For vacuum connections please ask with detailed technical specifications.

CD 85 Controller for Servo Motors



Technical Data

No. of motors:	1 to 4 motors
Types of motors:	brushed or brushless servo
Encoder:	incremental
Types of profiles:	trapezoidal, s-curve, velocity profile, electronical gear, closed curves
Contr. commands:	user friendly and self-instructional commands and parameters
Electronical gear:	master encoder selectable, slave-axis selectable, factor “in motion” alterable
Outline buffer:	any outline with up to 65,000 points programmable
Control parameter:	PID-portion, acceleration/velocity parameter changeable during motion
Monitoring functions:	error limit and position error window selectable, comparator function, simultaneous tracing of different parameters during motion
Inputs per axis:	Encoder signals A, B, Index, Home, End+, End-
Free inputs:	16 inputs, protected against misconnection, short-circuit proof
Free outputs:	16 outputs
Status/Errordisplay:	6 LED
Interfaces:	RS 232, CAN-Bus (standard CAN 2.0B)
Supply voltage:	24 V

Specifications

- compact design, only 146 x 85 x 55 mm
- for up to 4 motors with 100 Watts
- power supply 24 Volts
- I/O card with 16 cannels optionally

Application Examples

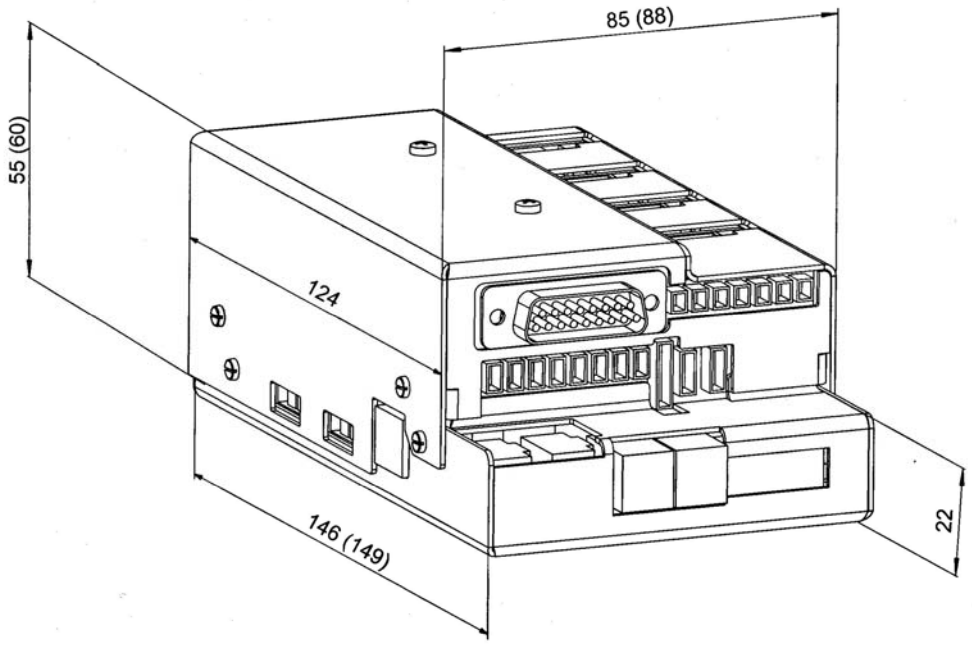
Motion control in
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

Controller for Servo Motors Part no.

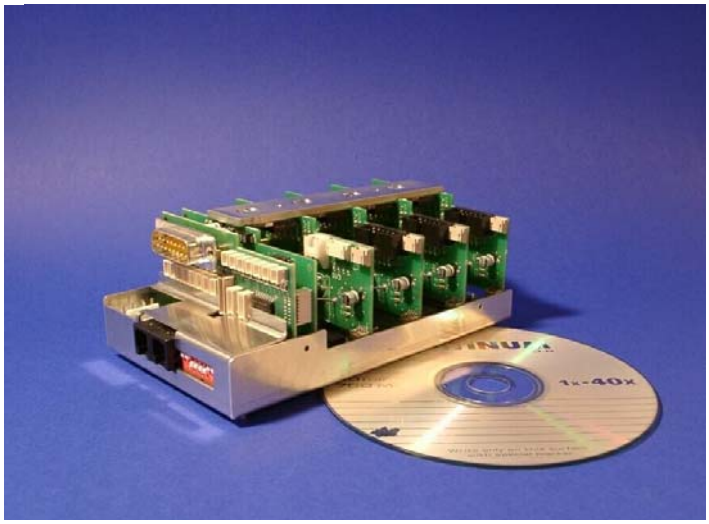
CD.085.□00□

Servo-type	1 Brushed servo	2 Brushless servo		
No. of axes	1	2	3	4

Dimensions:



CS 85 Controller for Stepper Motors



Technical Data

No. of motors:	1 to 4 motors
Types of motors:	stepper or micro stepper motors
Encoder:	incremental
Types of profiles:	trapezoidal, s-curve, velocity profile, electronical gear, closed curves
Contr. commands:	user friendly and self-instructional commands and parameters
Electronical gear:	master encoder selectable, slave-axis selectable, factor “in motion” alterable
Outline buffer:	any outline with up to 65,000 points programmable
Control parameter:	PID-portion, acceleration/velocity parameter changeable during motion
Monitoring functions:	error limit and position error window selectable, comparator function, simultaneous tracing of different parameters during motion
Inputs per axis:	Encoder signals A, B, Index, Home, End+, End-
Free inputs:	16 inputs, protected against misconnection, short-circuit proof
Free outputs:	16 outputs
Status/Errordisplay:	6 LED
Interfaces:	RS 232, CAN-Bus (standard CAN 2.0B)
Supply voltage:	24 V

Specifications

- compact design, only 146 x 85 x 55 mm
- for up to 4 motors with 100 Watts
- power supply 24 Volts
- I/O card with 16 cannels optionally

Application Examples

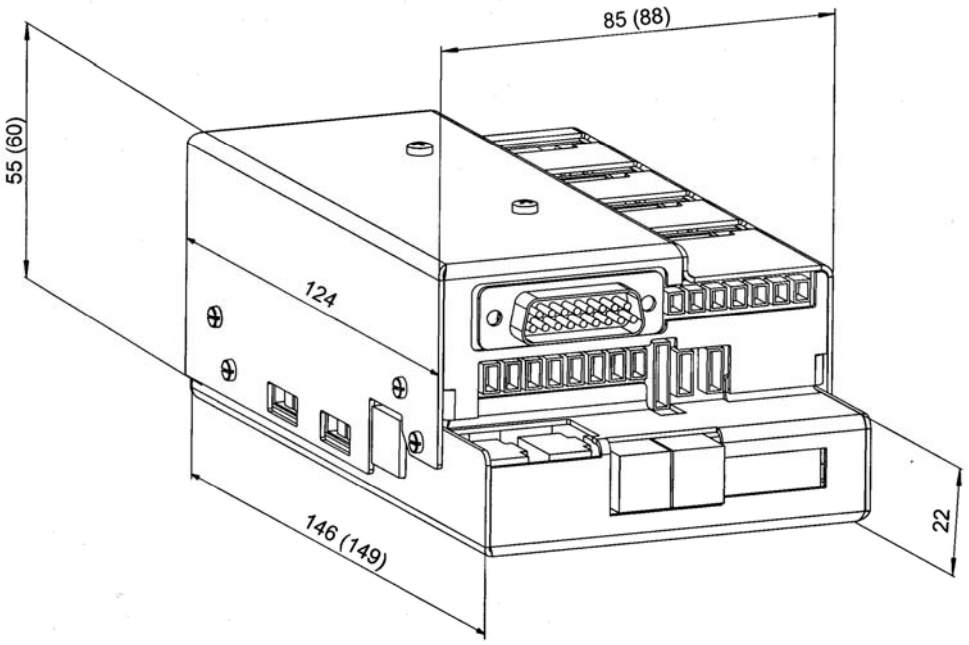
Motion control in
- Bio Technology
- Microscopy
- Quality Control
- Metrology
- R & D

Controller for Stepper Motors Part no.

CS.085.□00□

Type	1 Stepper	2 Micro stepper		
No. of axes	1	2	3	4

Dimensions:



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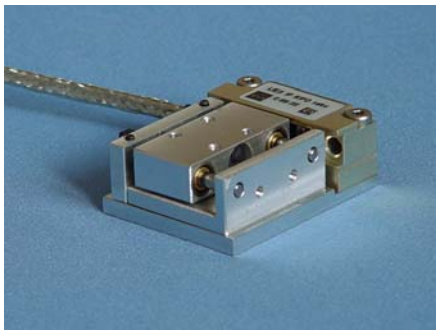
Customized items of the mechOnics ag

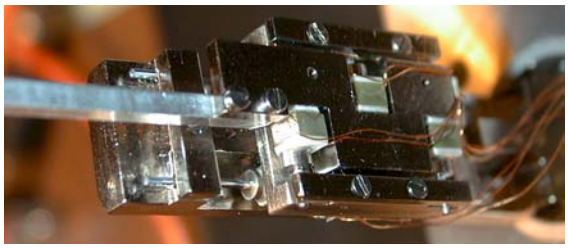
Linear measuring stage MS 30 with linear measuring system and vacuum preparation



MS 30 with
- 8 mm travel
- vacuum preparation for 10^{-6} mbar

Linear measuring system PS 30 with
- grating period 20 µm
- measuring increments 0.1 µm
- vacuum preparation for 10^{-6} mbar

Motorized aperture for REM

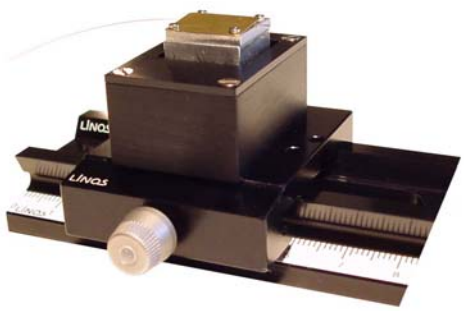


Linear positioner for an aperture with
- 7 mm travel in x – direction
- 1 mm travel in y – direction
- positioning accuracy better 1 µm
- vacuum preparation for 10^{-6} mbar
- nonmagnetic materials

XYZ – Positioner for ultra low temperature microscope

- 3 mm travel in xyz
- About 250 nm step width
- Working temperature 4.2K
- vacuum preparation for 10^{-6} mbar
- Compact design

XYZ – Positioner MX 25 as Fiberpositioner



XYZ – Positioner MX 25 with
- 2 mm travel
- About 200 nm step width
- Velocity about 0.5 mm
- On profile rail with optical height 40 mm