

Call Us Today
508.832.3456 (East)
949.679.9191 (West)



LINEAR STAGES



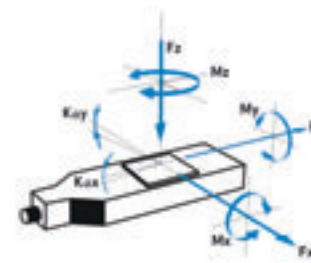
FACTS

Load characteristics	$F_x(N)$	$F_y(N)$	$F_z(N)$	$M_x(Nm)$	$M_y(Nm)$	$M_z(Nm)$	$k_{ax}(\mu rad/Nm)$	$k_{ay}(\mu rad/Nm)$
FV	10	3	10	0.4	0.6	0.4	80	30
HV	10	3	10	0.4	0.6	0.4	80	30
UHVG	10	3	10	0.4	0.6	0.4	80	30



KEY FEATURES

- Vacuum up to 10⁻⁹ hPa
- Travel range up to 52 mm (2")
- Uni-directional repeatability down to 0.1 μm
- Maximum speed 2.5 mm/sec
- Load capacity up to 1 kg
- Integrated limit switches
- Option: linear scale



used for the positioning of laser diodes and optical components. Driven by a 2-phase stepper vacuum motor using high resolution micro-stepping, the gearless stage utilizes re-circulating ball bearings and a ground re-circulating ball screw. As a result, a high stiffness, accuracy and smoothness of motion is achieved. The micro stage is equipped with two limit switches. For higher positioning accuracy and repeatability of 0.1 μm, the MTS-65 Vacuum micro stage is offered with a linear scale. Using a special mounting kit, the MTS-65 Vacuum stages can be assembled as XY or XYZ- modules.

The MTS-65 Vacuum micro stage was developed for industrial application with limited space conditions and is typically

TECHNICAL DATA

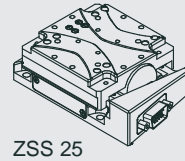
Travel range (mm)	13	26	52
Straightness / Flatness (μm)	± 1	± 2	± 3
Pitch (μrad)	± 40	± 60	± 80
Yaw (μrad)	± 40	± 40	± 40
Weight (kg)	0.4	0.6	0.8

Vacuum type	FV	HV	UHVG	UHV
Linear scale				UHV
Speed max. (mm/sec)	2.5	1	1	
Resolution calculated (μm)	5 (FS)	5 (FS)	5 (FS)	0.05
Resolution typical (μm)	0.1	0.1	0.1	0.05
Bi-directional Repeatability (μm)	± 5	± 5	± 5	± 0.2
Uni-directional Repeatability (μm)	0.2	0.2	0.2	0.1
Nominal Current (A)	1.2	1.2	1.2	

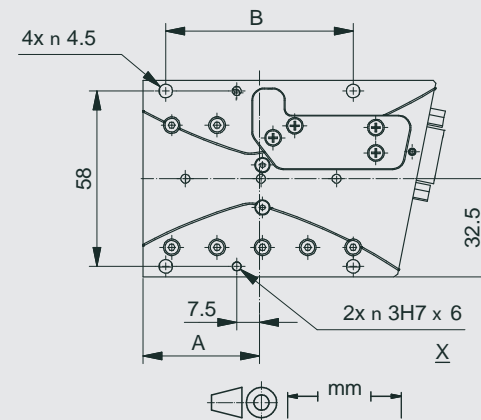
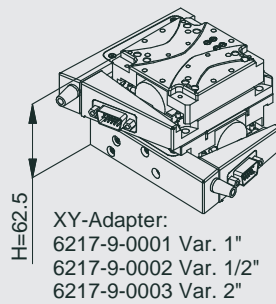
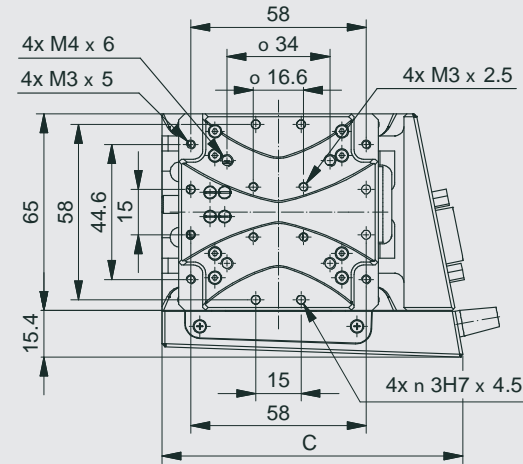
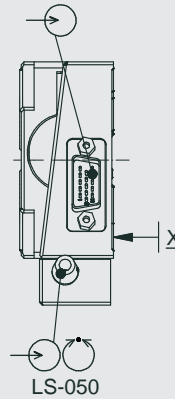
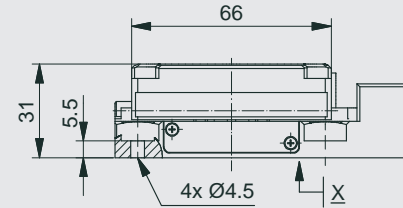
Accuracy	on request
Velocity range (mm/sec)	0.001 ... 3
Material	Aluminum or Stainless steel, suitable for vacuum

Vacuum Note: FS = full step, RE = rotary encoder
More info: Detailed information concerning motors and encoders, see appendix.

Travel (mm)	13	26	52
A	38,5	45	62
B	62	75	105
C	99,5	112,5	147,5



drawings for the corresponding vacuum class must be requested separately.
The installed motor types are:
ZSS 25.200.1.2-E for FV
VSS 25.200.1.2-E for HV & UHVG



Order No.	6217-V-			0	0
FV		1			
HV		2			
UHVG		3			
13 mm (1/2")		1			
26 mm (1")		2			
52 mm (2")		3			
open loop		0			
closed loop		1			

APPLICATIONS

CONTROLLERS

ROBOTICS

LINEAR STAGES

ROTATION STAGES

PIEZO STAGES

ACCESSORIES

APPENDIX

UPM-160

HPS-170

LS-270

LS-180

LS-120

LS-110

PLS-85

LS-65

MTS-65

MTS-70

VT-80

LS-40

MCS

NPE-200

UPL-120

ES-100

ES-82

MA-35

MP-20

MP-20 B

MP-15



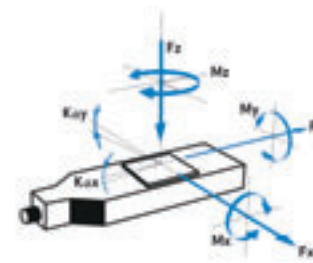
FACTS

Load characteristics	F _x (N)	F _y (N)	F _z (N)	M _x (Nm)	M _y (Nm)	M _z (Nm)	k _{ax} (μrad/Nm)	k _{ay} (μrad/Nm)
FV	50	25	60	7.5	7.5	7.5	140	80
10-6	50	25	60	7.5	7.5	7.5	140	80
HV	50	25	60	7.5	7.5	7.5	140	80
UHV	50	25	60	7.5	7.5	7.5	140	80



KEY FEATURES

- Vacuum up to 10⁻⁹ hPa
- Travel range up to 102 mm (4")
- Uni-directional repeatability down to 0.3 μm
- Maximum speed 4 mm/sec
- Load capacity up to 6 kg
- Integrated limit switches
- Optionally higher resolution / 0.4 mm pitch
- Optionally higher repeatability and speed with ballscrew



The LS-65 Vacuum linear stage features a compact, low profile construction for high strength in a lightweight package. Typical applications for this measuring stage are inspection stations and micro-manipulators for laser diodes and other highly sensitive components. A precision ground lead-screw with 1 mm pitch guarantees smooth and quiet motion. The LS-65 Vacuum linear stages are equipped with a re-circulating ball guiding system and are motorized with a special 2-phase vacuum stepper motor.

TECHNICAL DATA

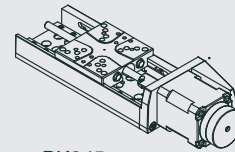
Travel range (mm)	26	52	77	102
Straightness / Flatness (μm)	± 2	± 4	± 6	± 8
Pitch (μrad)	± 70	± 90	± 110	± 130
Yaw (μrad)	± 70	± 80	± 90	± 100
Weight (kg)	0.6	0.7	0.8	0.9

Vacuum type	FV	10-6	HV	UHV	UHV
Linear scale					
Speed max. (mm/sec)	4	1.5	1.5	1.5	
Resolution calculated (μm)	5 (FS)	5 (FS)	5 (FS)	5 (FS)	0.05
Resolution typical (μm)	0.2	0.2	0.2	0.2	0.05
Bi-directional Repeatability (μm)	± 5	± 5	± 5	± 5	± 0.1
Uni-directional Repeatability (μm)	0.3	0.3	0.3	0.3	0.05
Nominal Current (A)	1.2	1.2	1.2	1.2	

Accuracy	on request
Velocity range (mm/sec)	0.001 ... 3
Material	Aluminum or Stainless steel, suitable for vacuum

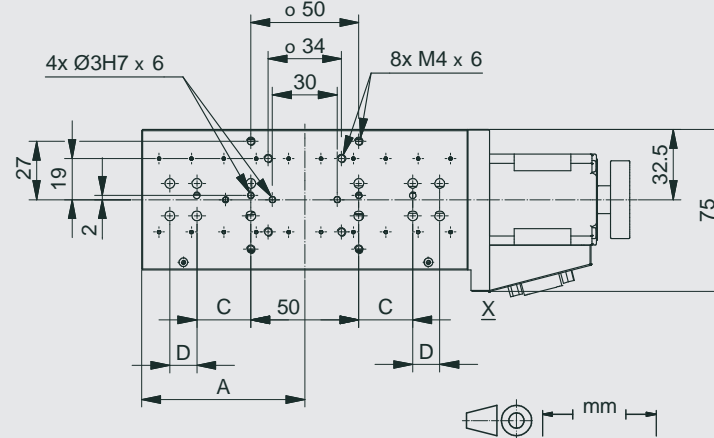
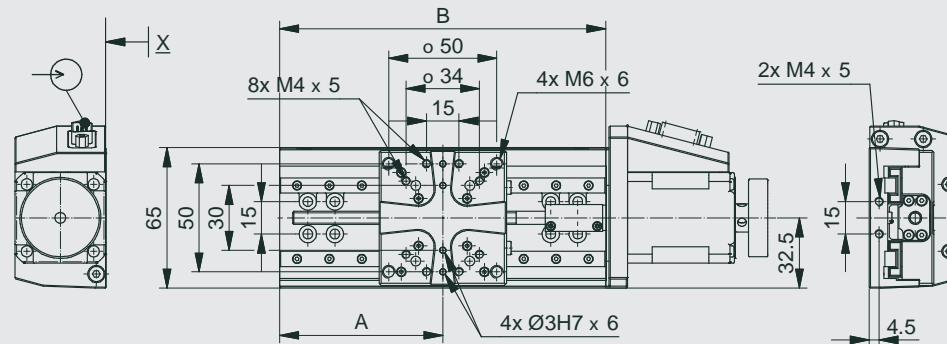
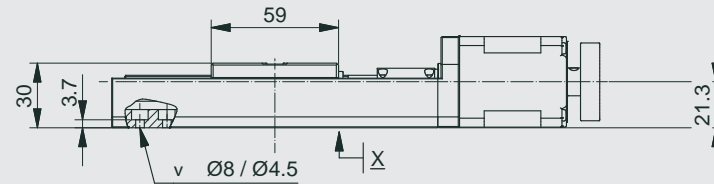
Vacuum Note: FS = full step, RE = rotary encoder
 More info: Detailed information concerning motors and encoders, see appendix.

Travel (mm)	26	52	77	102
A	46,5	60,5	75,5	85,5
B	93	121	151	171
C	9	25	25	37,5
D	-	-	12,5	12,5



PK245

drawings for the corresponding vacuum class must be requested separately.
The installed motor types are:
PK245 for FV
VSS 42.200.1.2-E for HV & UHVG



- APPLICATIONS
- CONTROLLERS
- ROBOTICS
- LINEAR STAGES**
- ROTATION STAGES
- PIEZO STAGES
- ACCESSORIES
- APPENDIX

- UPM-160
- HPS-170
- LS-270
- LS-180
- LS-120
- LS-110
- PLS-85
- LS-65**
- MT5-65
- MT5-70
- VT-80
- LS-40
- MCS
- NPE-200
- UPL-120
- ES-100
- ES-82
- MA-35
- MP-20
- MP-20 B
- MP-15

Order No.	6233-V-			0	0
FV		1			
HV		2			
UHVG		3			
10-6		6			
26 mm (1")		1			
52 mm (2")		2			
77 mm (3")		3			
102 mm (4")		4			
open loop		0			
closed loop		1			

4.100 Micro Stage MTS-70 Vacuum



FACTS

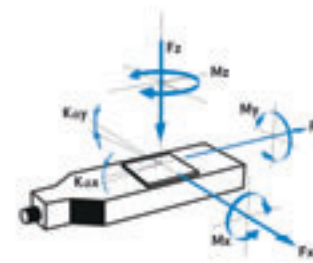
Load characteristics	$F_x(N)$	$F_y(N)$	$F_z(N)$	$M_x(Nm)$	$M_y(Nm)$	$M_z(Nm)$	$k_{ax}(\mu rad/Nm)$	$k_{ay}(\mu rad/Nm)$
FV	10	3	10	0.4	0.6	0.4	80	30
HV	10	3	10	0.4	0.6	0.4	80	30
UHV	10	3	10	0.4	0.6	0.4	80	30



xy axes (setup by PI miCos)

KEY FEATURES

- Vacuum up to 10⁻⁹ hPa
- Travel range 10 mm
- Uni-directional repeatability down to 0.1 μm
- Maximum speed 3 mm/sec
- Load capacity up to 1 kg
- Integrated limit switches
- Option: linear scale



developed for precision industrial applications with limited space conditions. The stage is driven by a 2-phase gearless vacuum stepper motor. The MTS-70 Vacuum micro stages series is provided with cross-roller bearings and a ground recirculating ball screw guaranteeing maximum stiffness, accuracy and smoothness of motion. The MTS-70 Vacuum stages are equipped with two limit switches. For high positioning accuracy and repeatability, the MTS-70 micro stages are offered with a linear scale. The stages are offered as a single axis or as an integrated XY system.

The MTS-70 Vacuum micro stage was

TECHNICAL DATA

Travel range (mm)	10
Straightness / Flatness (μm)	± 1
Pitch (μrad)	± 50
Yaw (μrad)	± 50
Weight (kg)	0.4

Vacuum type	FV	HV	UHV	FV	UHV
Linear scale					
Speed max. (mm/sec)	2.5	1	1		
Resolution calculated (μm)	5 (FS)	5 (FS)	5 (FS)	0.05	0.05
Resolution typical (μm)	0.1	0.1	0.1	0.05	0.05
Bi-directional Repeatability (μm)	± 5	± 5	± 5	± 0.2	± 0.2
Uni-directional Repeatability (μm)	0.2	0.2	0.2	0.1	0.1
Nominal Current (A)	1.2	1.2	1.2		

Accuracy	on request
Velocity range (mm/sec)	0.001 ... 3
Material	Aluminum or Stainless steel, suitable for vacuum

Vacuum Note: FS = full step, RE = rotary encoder
More info: Detailed information concerning motors and encoders, see appendix.

APPLICATIONS

CONTROLLERS

ROBOTICS

LINEAR STAGES

ROTATION STAGES

PIEZO STAGES

ACCESSORIES

APPENDIX

UPM-160

HPS-170

LS-270

LS-180

LS-120

LS-110

PLS-85

LS-65

MTS-65

MTS-70

VT-80

LS-40

MCS

NPE-200

UPL-120

ES-100

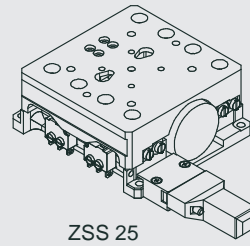
ES-82

MA-35

MP-20

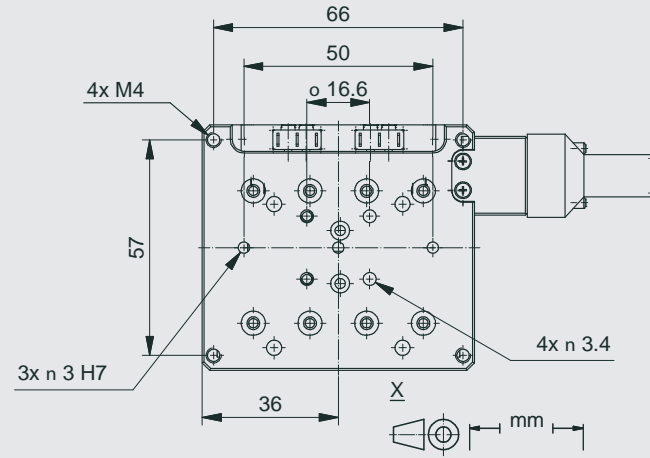
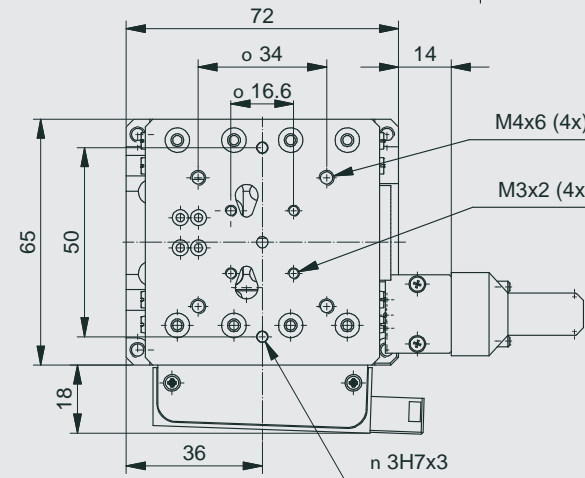
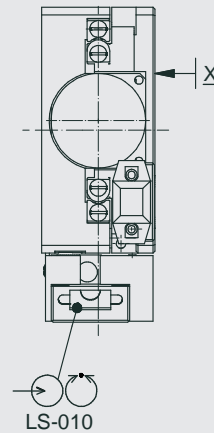
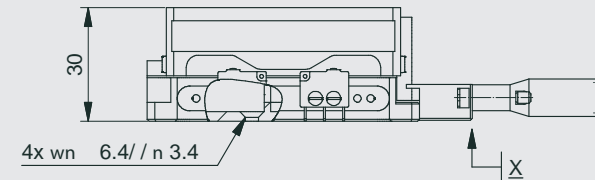
MP-20 B

MP-15



ZSS 25

drawings for the corresponding vacuum class must be requested separately.
The installed motor types are:
ZSS 25.200.1.2-E for FV
VSS 25.200.1.2-E for HV & UHVG



Order No. 6218-V- [] [] [] [] 0 0

FV	1
HV	2
UHVG	3
10 mm	0
open loop	0
closed loop	1

USA (East) & CANADA

PI (Physik Instrumente) L.P.
16 Albert St.
Auburn, MA 01501
Tel: +1 (508) 832 3456
Fax: +1 (508) 832 0506
Email: info@pi-usa.us
www.pi-usa.us

USA (West) & MEXICO

PI (Physik Instrumente) L.P.
5420 Trabuco Rd., Suite 100
Irvine, CA 92620
Tel: +1 (949) 679 9191
Fax: +1 (949) 679 9292
Email: info@pi-usa.us
www.pi-usa.us

GERMANY

Headquarters:
PI miCos GmbH
Freiburger Strasse 30
D-79427 Eschbach
GERMANY

Phone: +49 7634 50 57 0
Fax: +49 7634 50 57 393
e-mail: info@pimicos.com
home: www.pimicos.com

**Physik Instrumente (PI)
GmbH & Co. KG**
Auf der Römerstraße 1
76228 Karlsruhe/Palmbach
Tel: +49 (721) 4846-0
Fax: +49 (721) 4846-1019
Email: info@pi.ws
www.pi.ws

Call Us Today
508.832.3456 (East)
949.679.9191 (West)

