

[High Precision] X-Axis, Linear Ball Slide

Micrometer Heads / Feed Screws / Digital Micrometer Heads / Coarse/Fine Micrometer Heads

Features: Highly accurate, rigid, and economical stages. When the feed scale reading is not necessary, further cost savings can be achieved by selecting the screw feed types. XSKG has a fine feed of 0.25 pitch.

X-Axis

XY-Axis: P1946
Z-Axis: P1966

Standard Datum Configuration

Base Horizontal Plane Parallelism: 0.02
Base Vertical Plane Orthogonality: 0.04
Moving Axis (Imaginary)
Base Line
Base Line (Groove)

MISUMI's Linear Ball Guide Stages have parallel and orthogonal datum in relation to the motion axis. The data are as illustrated.

Micrometer Heads

XSG
(25≤A≤100)
XSBG (LTBC Plating)
(A=25,40,60,80)

Clamp (M3x5)
(M2x3.5 for A=25)

4-d1 Through
d2 Counterbore, Depth l

Feed Screws

XSCG
(Lead 0.5)
(25≤A≤100)
XSBG (Lead 1.0)
(40≤A≤100)
XSCGB (LTBC Plating, Lead 0.5)
(A=25,40,60,80)

Clamp (M3x5)
(M2x3.5 for A=25)

4-d1 Through
d2 Counterbore, Depth l

*A=25 will be Ø7.

Digital Micrometer Heads

XSDG*
(40≤A≤100)

Clamp (M3x5)

4-d1 Through
d2 Counterbore, Depth l

*Ratchet function is not available.

Coarse/Fine Micrometer Heads

XSKG
(40≤A≤80)

Clamp (M3x5)

4-d1 Through
d2 Counterbore, Depth l

Shapes of Feed Brackets

A25, A80, A100

Mounting Hole Dimensions of the Top Table

*Tolerance for the centrally located bores for low temp. black chromed XSBG and XSCGB is H8. (A=25, 40, 60, 80)

| Type | Main Body | | Ball | | Spring | Micrometer Head Bracket | | Tip Holder | |
|-------|------------------|----------------------------|------------------|------------|------------|-------------------------|---------------------|------------------|---------------------|
| | M Material | S Surface Treatment | M Material | H Hardness | M Material | M Material | S Surface Treatment | M Material | S Surface Treatment |
| XSG | EN 1.4125 Equiv. | Electroless Nickel Plating | EN 1.4125 Equiv. | 58HRC~ | SUS304WPB | EN AW-5052 Equiv. | Clear Anodize | EN 1.4305 Equiv. | - |
| XSCG | | | | | | | | | |
| XSBG | | | | | | | | | |
| XSDG | | | | | | | | | |
| XSKG | | | | | | | | | |
| XSBG | LTBC Plating | | | | | | | | |
| XSCGB | | LTBC Plating | | | | | | | |

*For Micrometer Head and Feed Screw materials, see P2005 and P2006.

Micrometer Head (XSG, XSBG) / Feed Screw (XSCG, XSBG, XSCGB) Standard Stages Similar Products (available for limited sizes only): XLBS (P1920)

| Part Number | Type | Top View | | Front View | | | | | | | | Side View | | | | Accessory (4 pcs.) | | | | |
|----------------|------|----------|---------------------------|------------|----|------|------|------|-----|------|----|-----------|----|------|----|--------------------|-----|------|--------|--|
| | | A | (B) Micrometer Feed Screw | E | F | J | K | D | G | T | T1 | P | Q | X | d1 | d2 | ℓ | Type | M-L | |
| XSG | 25* | 25 | 11 | ±3.2 | 7 | 9 | 6.8 | 15 | 9.3 | 7 | 12 | 3.7 | 6 | 8.5 | 20 | 2.5 | 4.2 | 2.5 | SCB2-4 | |
| XSCG | 40* | 23.5 | 20 | ±6.5 | 12 | 18.5 | 11.3 | 26 | 13 | 8.9 | 16 | 4.5 | 10 | 10.5 | 32 | 3.5 | 6 | 3.5 | SCB3-6 | |
| XSBG | 50 | 18.5 | 15 | | 12 | 18.5 | 11.3 | 31 | 13 | 8.9 | 16 | 4.5 | 10 | 10.5 | 40 | 3.5 | 6 | 3.5 | SCB3-6 | |
| XSBG | 60* | 13.5 | 10 | | 12 | 18.5 | 11.3 | 36 | 13 | 8.9 | 16 | 5 | 10 | 10.5 | 50 | 4.5 | 8 | 4 | SCB4-6 | |
| XSBG (* only) | 70 | 14 | 10.5 | | 12 | 18.5 | 11.3 | 46.5 | 13 | 10 | 18 | 6 | 10 | 11.5 | 60 | 4.5 | 8 | 4.5 | SCB4-6 | |
| XSBG (* only) | 80* | 43.5 | 10 | | 17 | 22* | 11.3 | 55 | 18 | 10.8 | 20 | 6.5 | 10 | 14.5 | 70 | 4.5 | 8 | 5.3 | SCB4-6 | |
| XSCGB (* only) | 100 | 28.5 | -5** | ±12.5** | 17 | 22* | 11.3 | 67.5 | 18 | 10.8 | 20 | 6.5 | 10 | 14.5 | 90 | 4.5 | 8 | 5.3 | SCB4-6 | |

(*1) Stroke of XSG80/100, XSBG80/100, XSCGB80 is ±6.5mm. (*2) Ends of feed screw knob are at 5mm inside of the carriage edges for XSCG and XSBG. (*3) When dimension A of Feed Screw Type XSCG, XSBG, XSCGB is 80 or 100, F will be 20.

Performance

| Part Number | Type | Stage Surface | Load Capacity (N) | | Travel Accuracy | | | Moment Load Capacity (N·m) | | | Moment Rigidity (N/cm) | | | Parallelism | Weight (kg) | Unit Price | | | | | | | |
|----------------|------|---------------|-------------------|----------|-----------------|--------------------|----------|----------------------------|----------|--------|------------------------|----------|--------|-------------|-------------|------------|------------|------------|-----|------|------|------|---|
| | | | Horizontal | Vertical | Straightness | Motion Parallelism | Pitching | Yawing | Pitching | Yawing | Rolling | Pitching | Yawing | | | Rolling | Micrometer | Feed Screw | XSG | XSCG | XSBG | XSKG | |
| XSG | 25* | 25x25 | 39.2 | 9.8 | 3µm | 10µm | 30" | 25" | 2.0 | 2.0 | 3.5 | 1.9 | 1.1 | 1.1 | 30µm | 0.07 | 0.07 | - | - | - | - | | |
| XSCG | 40* | 40x40 | 98 | 9.8 | 1µm (*4) | 7µm | 25" | 15" | 5.0 | 5.0 | 5.0 | 0.42 | 0.35 | 0.21 | 15µm | 0.23 | 0.23 | - | - | - | - | | |
| XSBG | 50 | 50x50 | 147 | 49 | | | | | 6.8 | 6.8 | 6.0 | 0.15 | 0.14 | 0.09 | | 0.28 | 0.28 | - | - | - | - | - | - |
| XSBG (* only) | 60* | 60x60 | 196 | 196 | | | | | 10.0 | 10.0 | 9.0 | 0.08 | 0.08 | 0.05 | | 0.40 | 0.40 | - | - | - | - | - | - |
| XSBG (* only) | 70 | 70x70 | 225.4 | 225.4 | | | | | 13.8 | 13.8 | 12.9 | 0.06 | 0.05 | 0.03 | | 0.58 | 0.58 | - | - | - | - | - | - |
| XSBG (* only) | 80* | 80x80 | 264.6 | 264.6 | | | | | 18.2 | 18.2 | 17.7 | 0.04 | 0.04 | 0.02 | | 0.90 | 0.84 | - | - | - | - | - | - |
| XSCGB (* only) | 100 | 100x100 | 343 | 343 | 3µm | 8µm | - | - | 31.8 | 31.8 | 30.7 | 0.02 | 0.02 | 0.01 | 20µm | 1.33 | 1.27 | - | - | - | - | | |

XSG, XSBG Micrometer Head Resolution: 10µm/division (*4) Straightness of XSBG and XSCGB40/60 is 3µm.

Digital Micrometer Heads (XSDG) / Coarse/Fine Micrometer Head (XSKG)

| Part Number | Type | Top View | | Front View | | | | | | | | Side View | | | | Accessory (4 pcs.) | |
|-------------|------|----------|-------------------------------|------------|------|------|------|----|-----|------|----|-----------|----|-----|--------|--------------------|--|
| | | A | (B) XSDG Travel Distance (mm) | E | F | K | G | T | T1 | Q | X | d1 | d2 | ℓ | Type | M-L | |
| XSDG | 40 | 121.5 | 60 | 16 | 18.5 | 26 | 11.6 | 16 | 4.5 | 10.5 | 32 | 3.5 | 6 | 3.5 | SCB3-6 | | |
| XSDG | 50 | 116.5 | 55 | 16 | 18.5 | 31 | 11.6 | 16 | 4.5 | 10.5 | 40 | 3.5 | 6 | 3.5 | SCB3-6 | | |
| XSDG | 60 | 111.5 | 50 | 16 | 18.5 | 36 | 11.6 | 16 | 5 | 10.5 | 50 | 4.5 | 8 | 4 | SCB4-6 | | |
| XSKG | 70 | 112 | 50.5 | 16 | 18.5 | 46.5 | 12.5 | 18 | 6 | 11.5 | 60 | 4.5 | 8 | 4.5 | SCB4-6 | | |
| XSKG | 80 | 104 | 49.5 | 17 | 25 | 55 | 11 | 20 | 6.5 | 14.5 | 70 | 4.5 | 8 | 5.3 | SCB4-6 | | |
| XSKG | 100 | 89 | ±12.5 | - | - | 67.5 | - | 20 | 6.5 | 14.5 | 90 | 4.5 | 8 | 5.3 | SCB4-6 | | |

Performance

| Part Number | Type | Stage Surface | Load Capacity (N) | | Travel Accuracy | | | Moment Load Capacity (N·m) | | | Moment Rigidity (N/cm) | | | Parallelism | Weight (kg) | Unit Price | | | | | | |
|-------------|------|---------------|-------------------|----------|-----------------|--------------------|----------|----------------------------|----------|--------|------------------------|----------|--------|-------------|-------------|------------|------|------|------|------|---|---|
| | | | Horizontal | Vertical | Straightness | Motion Parallelism | Pitching | Yawing | Pitching | Yawing | Rolling | Pitching | Yawing | | | Rolling | XSDG | XSKG | XSBG | XSKG | | |
| XSDG | 40 | 40x40 | 98 | 98 | 1µm | 7µm | 25" | 15" | 5.0 | 5.0 | 5.0 | 0.42 | 0.35 | 0.21 | 15µm | 0.43 | 0.30 | - | - | - | | |
| XSDG | 50 | 50x50 | 147 | 147 | | | | | 6.8 | 6.8 | 6.0 | 0.15 | 0.14 | 0.09 | | 0.48 | 0.35 | - | - | - | - | - |
| XSKG | 60 | 60x60 | 196 | 196 | | | | | 10.0 | 10.0 | 9.0 | 0.08 | 0.08 | 0.05 | | 0.60 | 0.47 | - | - | - | - | - |
| XSKG | 70 | 70x70 | 225.4 | 225.4 | | | | | 13.8 | 13.8 | 12.9 | 0.06 | 0.05 | 0.03 | | 0.78 | 0.65 | - | - | - | - | - |
| XSKG | 80 | 80x80 | 264.6 | 264.6 | | | | | 18.2 | 18.2 | 17.7 | 0.04 | 0.04 | 0.02 | | 1.10 | 0.97 | - | - | - | - | - |
| XSKG | 100 | 100x100 | 343 | 343 | 3µm | 8µm | - | - | 31.8 | 31.8 | 30.7 | 0.02 | 0.02 | 0.01 | 20µm | 1.53 | - | - | - | | | |

XSKG: Coarse / Fine Micrometer Head Coarse Resolution 10µm, Fine Resolution 0.5µm XSDG: Digital Micrometer Head Resolution 1µm
 Knob Cover HDCVR13 (Sold Separately): Ø13 micrometer knob diameter can be increased by installing the cover. P2004
 Extension Cover HDEXT13 (Sold Separately): Feed knob of Ø13 micrometer head and feed screw can be extended. P2004

Ordering Example

XSG80

Alterations: Part Number - (CR, CZ, A... etc.)

XSG60 - MN
 XSG50 - CR-P
 XSCG40 - A

| Alterations | Position of Micrometer Head and Feed Screw | | | Reinforced Clamp | | No Micrometer Head |
|-------------|--|-------------------------------------|--------|------------------|---------------|--------------------|
| | Side Mount, Right/Left Reversed | Side Mount, Top/Bottom Reversed * 5 | Center | Disc Clamp | Opposed Clamp | |
| Spec. | | | | | | |
| Code | CR | CZ | A | H | P | MN |

*5 CZ: The micrometer head or the feed screw will be mounted on the top table (mounted on the bottom plate for Standard Type).
 For micrometer head or feed screw mounted in positions other than shown below, see "Specification Selectable Type" (P.1989).
 For 25 Square Opposed Clamp, the bracket material is EN 1.4305 Equiv.

Vertical Use of X-Axis Stages

When mounting a stage in vertical orientation, note the directions of the feed mechanisms and springs.

NG: Standard, CR, A STOP!!

OK: CZ, Standard, CR, A

A load exceeding the spring pull force will cause the carriage to drop.

CZ: The carriage does not drop since the micrometer head tip pushes the bracket on the bottom plate. Standard, CR, A: The stage does not move down when the micrometer head is mounted pointing up.

However, do not apply a load exceeding the specified vertical load capacity.

See the CAD data for details.