

BL

BL57-RE / BL57-NE
(with origin) / (without origin)

上海迈徕

Support a wide range of applications and offers the highest performance in its class. Ideal for precision stages, semiconductor inspection systems, precision processing machines, and liquid crystal manufacturing equipment.

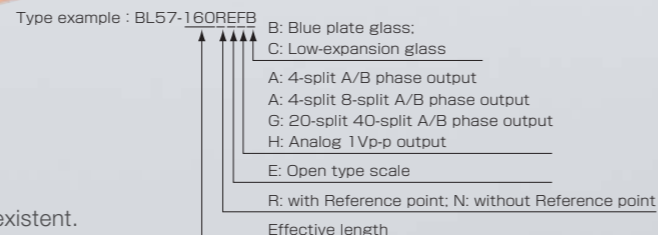


BL57-RE

- Achieves a measuring length of up to 1,360mm and offers the highest-level response speed and accuracy in its class.
 - With a head signal pitch of 400nm, interpolation error is virtually non-existent.
 - Built-in Reference point.
- Applications: Precision measuring equipment, precision stages.

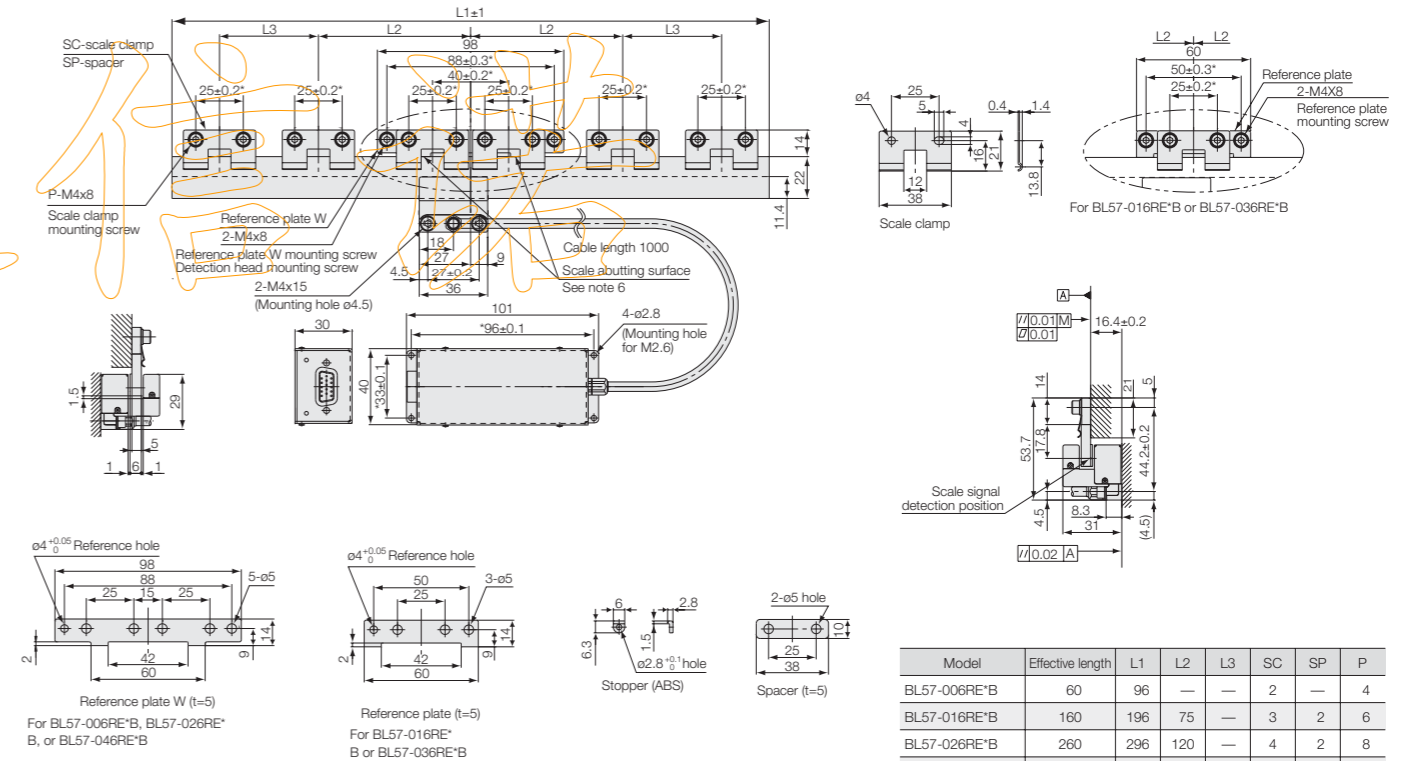
BL57-NE

- Compact size makes machine integration much easier
 - Theoretically unaffected by changes in temperature, humidity, air pressure and air movement. Unparalleled measuring stability achieved by use of low expansion glass
 - With a head signal pitch of 400nm, interpolation error is virtually non-existent.
- Applications: High-accuracy microscopes, stages, measurement equipment.

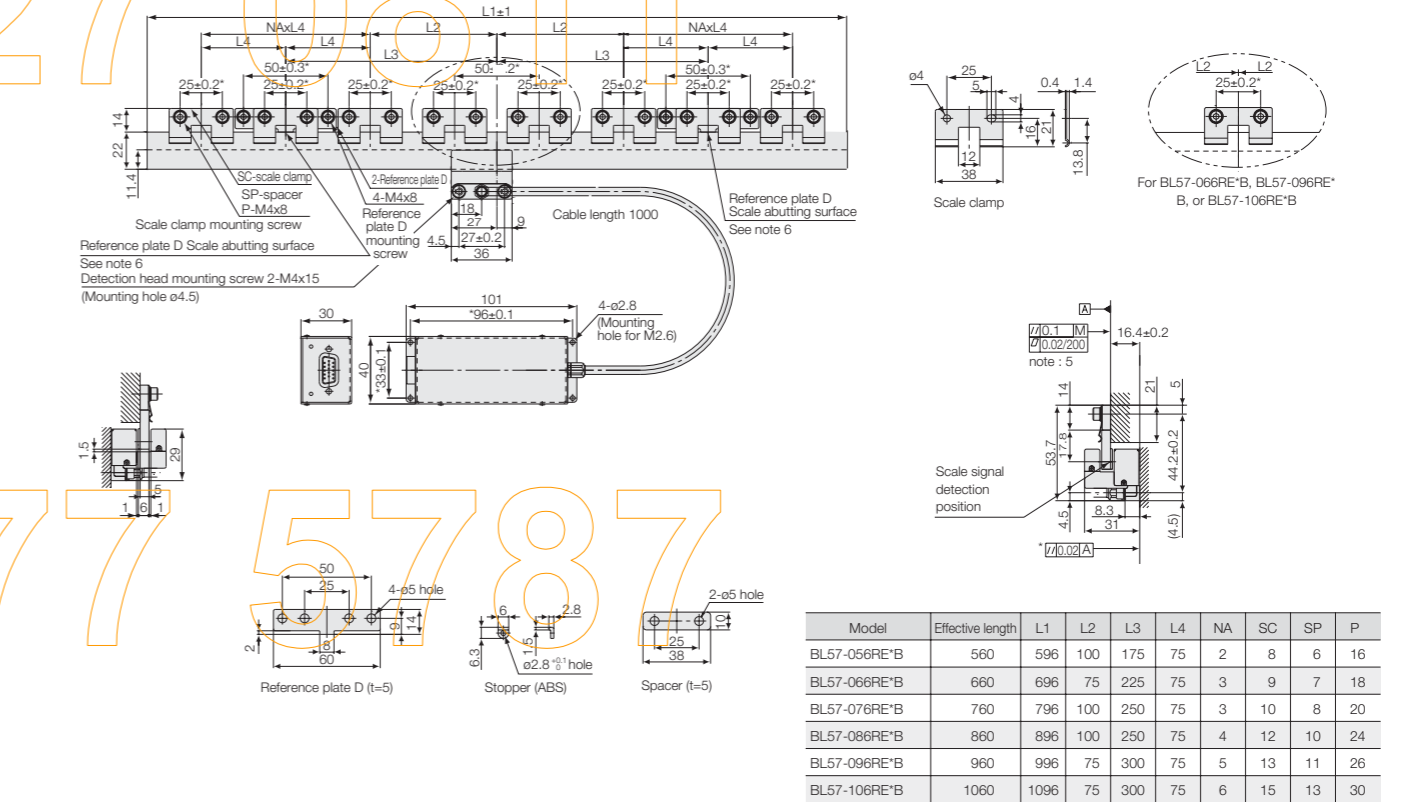


External Dimensions

●BL57-xxxRE*B (Effective length: 006 / 016 / 026 / 036 / 046)



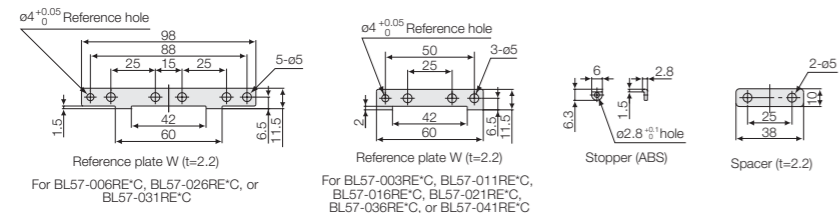
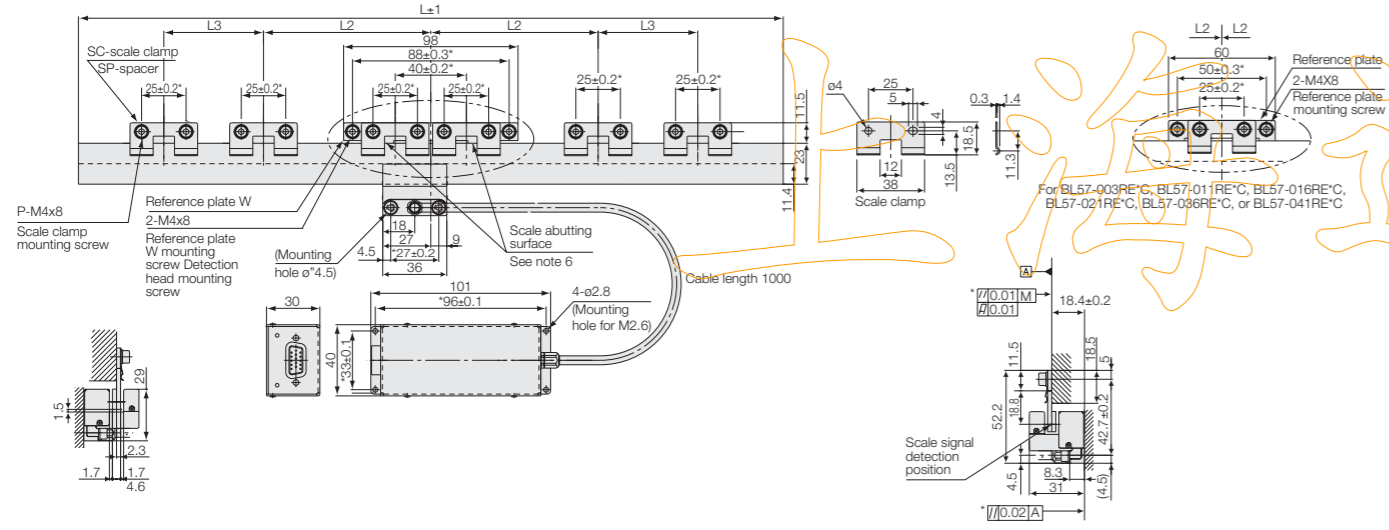
●BL57-xxxRE*B (Effective length: 056 / 066 / 076 / 086 / 096 / 106)



Note 1: The items marked by an asterisk indicate the machining dimensions on the mounting surface. Note 2: The surface roughness of the scale mounting surface is Rmax = 6.3 S (250μin). Note 3: The surface roughness of the detector head mounting surface is Rmax = 12.5 S (500μin). Note 4: "M" refers to the machine guide. Note 5: When mounting the reference plate (reference plate W), adjust the plate so that the parallelism between the corresponding scale abutting surface and the machine guide is 0.01mm or less.

External Dimensions

●BL57-xxxRE*C (Effective length: 003/006/011/016/021/026/031/036/041)

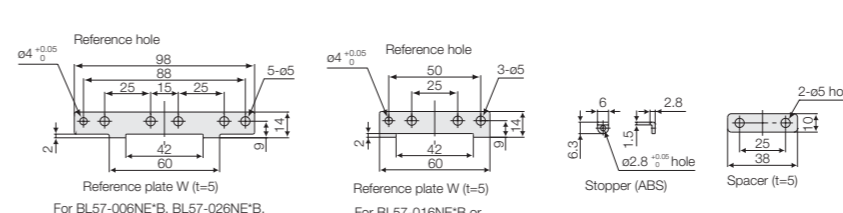
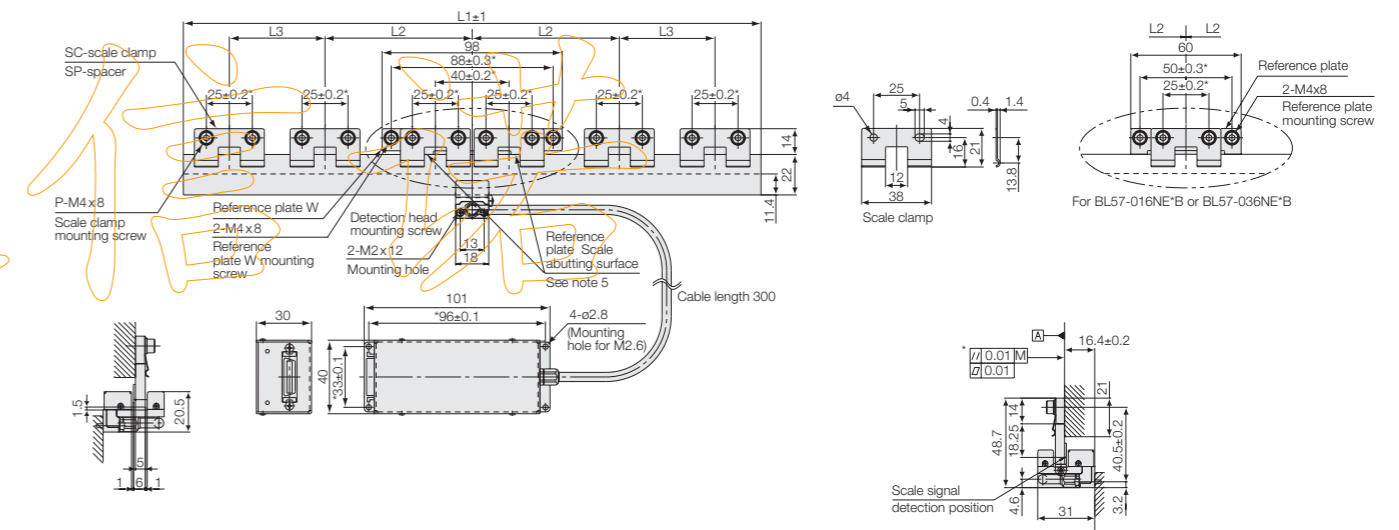


| Model | Effective length | L1 | L2 | L3 | SC | SP | P |
|--------------|------------------|-----|-----|-----|----|----|----|
| BL57-003RE*C | 30 | 66 | — | — | 1 | — | 2 |
| BL57-006RE*C | 60 | 96 | — | — | 2 | — | 4 |
| BL57-011RE*C | 110 | 146 | 50 | — | 3 | 2 | 6 |
| BL57-016RE*C | 160 | 196 | 75 | — | 3 | 2 | 6 |
| BL57-021RE*C | 210 | 246 | 100 | — | 3 | 2 | 6 |
| BL57-026RE*C | 260 | 296 | 120 | — | 4 | 2 | 8 |
| BL57-031RE*C | 310 | 346 | 120 | — | 4 | 2 | 8 |
| BL57-036RE*C | 360 | 396 | 75 | 75 | 5 | 4 | 10 |
| BL57-041RE*C | 410 | 446 | 100 | 100 | 5 | 4 | 10 |

Note 1: The items marked by an asterisk indicate the machining dimensions on the mounting surface. Note 2: The surface roughness of the scale mounting surface is Rmax = 6.3 S (250μinch). Note 3: The surface roughness of the detector head mounting surface is Rmax = 12.5 S (500μinch). Note 4: "M" refers to the machine guide. Note 5: When mounting the reference plate (reference plate W), adjust the plate so that the parallelism between the corresponding scale abutting surface and the machine guide is 0.01mm or less.

External Dimensions

●BL57-xxxNE*B (Effective length: 006/016/026/036/046)



| Model | Effective length | L1 | L2 | L3 | SC | SP | P |
|--------------|------------------|-----|-----|----|----|----|----|
| BL57-006NE*B | 60 | 96 | — | — | 2 | — | 4 |
| BL57-016NE*B | 160 | 196 | 75 | — | 3 | 2 | 6 |
| BL57-026NE*B | 260 | 296 | 120 | — | 4 | 2 | 8 |
| BL57-036NE*B | 360 | 396 | 75 | 75 | 5 | 4 | 10 |
| BL57-046NE*B | 460 | 496 | 120 | 75 | 6 | 4 | 12 |

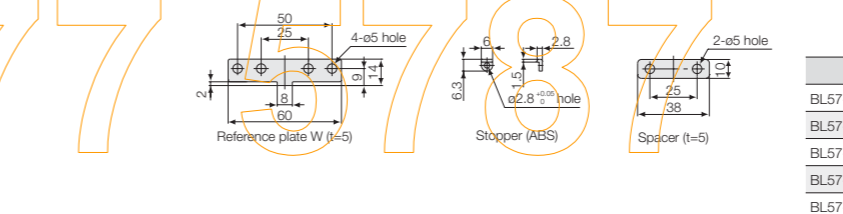
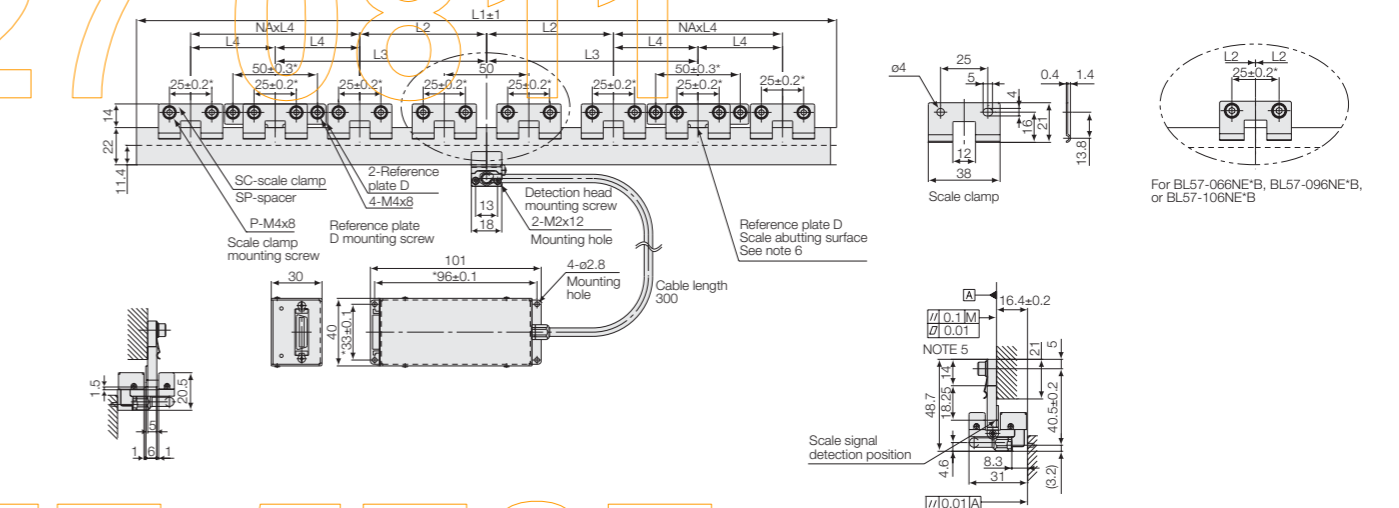
Note 1: The items marked by an asterisk indicate the machining dimensions on the mounting surface. Note 2: The surface roughness of the scale mounting surface is Rmax = 6.3 S (250μinch). Note 3: The surface roughness of the detector head mounting surface is Rmax = 12.5 S (500μinch). Note 4: "M" refers to the machine guide. Note 5: When mounting the reference plate (reference plate W), adjust the plate so that the parallelism between the corresponding scale abutting surface and the machine guide is 0.01mm or less.

| Main specifications [BL57-RE] | | | |
|------------------------------------|--|---|---|
| Model | F | G | H |
| Output signal form | A/B quadrature output | | Analogue output |
| Detection system | Diffraction grating scanning system | | |
| Scale length (Low expansion glass) | Measuring length(mm) | 30, 60, 110, 160, 210, 260, 310, 360, 410 | |
| | Maximum movable length | Measuring length + 10mm (5mm on each side) | |
| | Entire scale length | Measuring length + 36mm | |
| Scale length (Blue plate glass) | Measuring length(mm) | 60, 160, 260, 360, 460, 560, 660, 760, 860, 960, 1060 | |
| | Maximum movable length | Measuring length + 10mm (5mm on each side) | |
| | Entire scale length | Measuring length + 36mm | |
| Grating pitch | 1.6μm | | |
| Signal pitch | 0.4μm | | |
| Output signal | Differential (compliant with EIA-422) | | Differential (only zero point output models are compliant with EIA-422) |
| | Resolution | 0.1/0.05μm (switchable) | 0.02/0.01μm (switchable) |
| Accuracy (at 20°C) | ±0.5μm(30 to 170mm) / ±1.0μm(220 to 370mm) / ±1.5μm(420mm or more) | | |
| Thermal expansion coefficient | Low expansion glass: 0.7x10 ⁻⁶ /°C • Blue plate glass: 8x10 ⁻⁶ /°C | | |
| Maximum response speed | 1,500mm/s(0.1μm) | 300mm/s(0.02μm) | 3000mm/s |
| | 650mm/s(0.05μm) | 120mm/s(0.01μm) | Max 7.5MHz |

| Model | F | G | H |
|------------------------------------|---|------------------------|-------------------------|
| Alarm | High impedance, alarm by output signal when maximum response speed is exceeded or signal level error detected | | None |
| Reference point position | User definable (within the range of effective length) | | |
| Reference point accuracy (at 20°C) | ±0.4μm (depending on machine movement accuracy) | | |
| Reference point output signal | Unidirectional synchronous reference point (specify the position and detection direction) | | |
| Head cable | Cable length | 1m (Note 4) | |
| | Bending radius | When stationary : 10mm | |
| Output cable length | 15m Max (Note 2)(to the electronic control section) | | 15m Max(Note1) (Note 2) |
| Power supply (Note 3) | +5V (±5%) | | |
| Power consumption | 450mA (no load) 600mA (with 120 ohm termination) | | |
| Vibration resistance | 100m/s ² (50 to 2000Hz) | | |
| Impact resistance | 200m/s ² | | |
| Operating temperature range | 0 to +40°C (No condensation) | | |
| Storage temperature range | -10 to +50°C | | |
| Light source | Semiconductor laser with power of 4mW and wavelength of 790nm | | |
| Radiation power | JIS Class 1 equivalent, DHHS Class 1 equivalent | | |
| Cable length (m) | Maximum response speed (mm/s) | | |
| 3 | 3000 | | |
| 9 | 2330 | | |
| 15 | 1660 | | |

Note 1: There is a correlation between the maximum response speed and output cable length (the part beyond the interface box). Note 2: A power supply line longer than 10m is incompatible with EN61000-6-2. Take surge protection measures upon use. Note 3: Satisfy the required specifications at the connector input section. Note 4: Special models can support up to 3m. However, the maximum response speed is limited depending on the cable length. (In a 3m cable, the maximum response speed is two-thirds that of a 1m cable.) Note 5: Special models can support a measuring length of 1,070mm to 1,360mm.

●BL57-xxxNE*B (Effective length: 056/066/076/086/096/106)

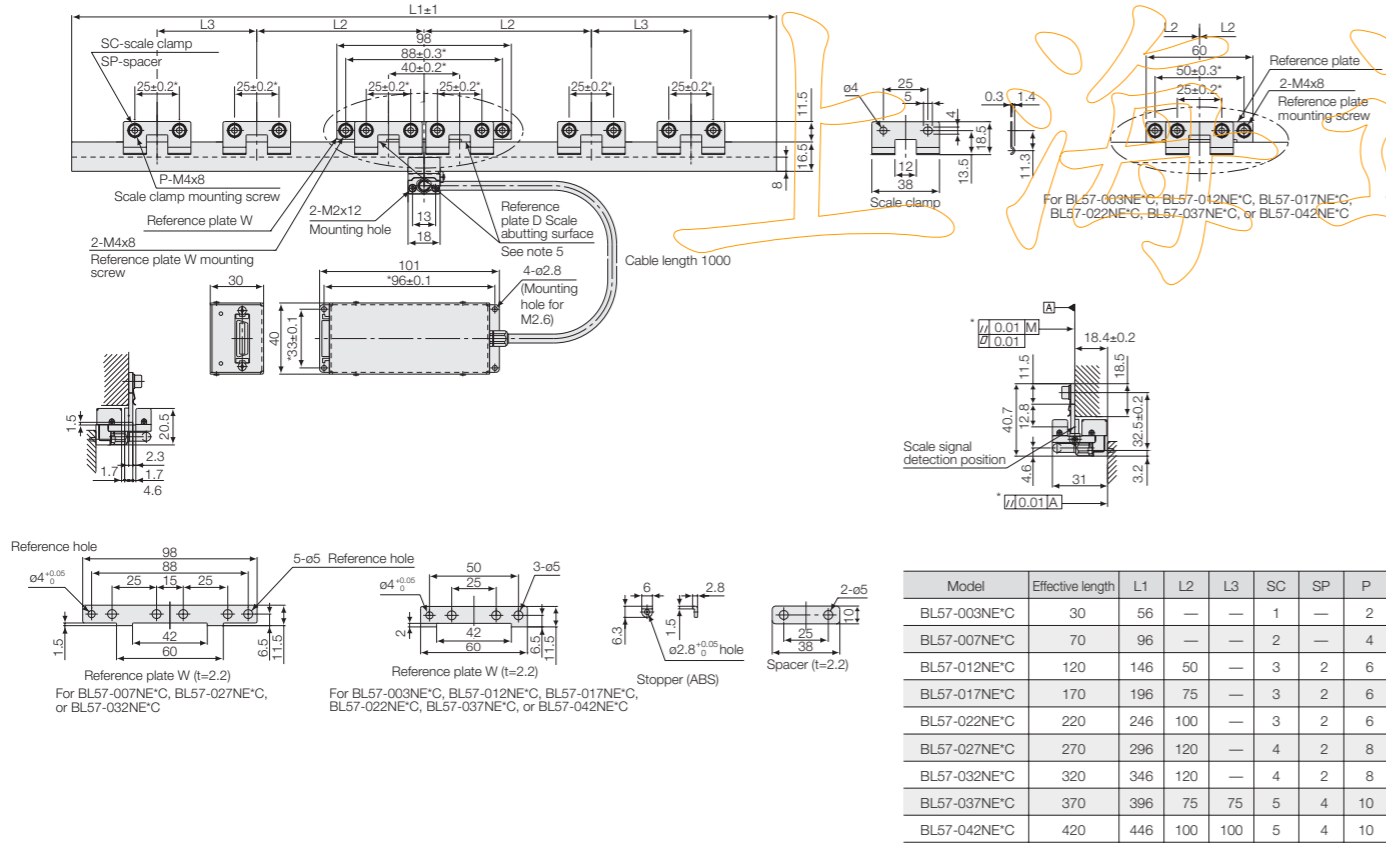


| Model | Effective length | L1 | L2 | L3 | L4 | NA | SC | SP | P |
|--------------|------------------|------|-----|-----|----|----|----|----|----|
| BL57-056NE*B | 560 | 596 | 100 | 175 | 75 | 2 | 8 | 6 | 16 |
| BL57-066NE*B | 660 | 696 | 75 | 225 | 75 | 3 | 9 | 7 | 18 |
| BL57-076NE*B | 760 | 796 | 100 | 250 | 75 | 3 | 10 | 8 | 20 |
| BL57-086NE*B | 860 | 896 | 100 | 250 | 75 | 4 | 12 | 10 | 24 |
| BL57-096NE*B | 960 | 996 | 75 | 300 | 75 | 5 | 13 | 11 | 26 |
| BL57-106NE*B | 1060 | 1096 | 75 | 300 | 75 | 6 | 15 | 13 | 30 |

Note 1: The items marked by an asterisk indicate the machining dimensions on the mounting surface. Note 2: The surface roughness of the scale mounting surface is Rmax = 6.3 S (250μinch). Note 3: The surface roughness of the detector head mounting surface is Rmax = 12.5 S (500μinch). Note 4: "M" refers to the machine guide. Note 5: When mounting the reference plate (reference plate W), adjust the plate so that the parallelism between the corresponding scale abutting surface and the machine guide is 0.01mm or less.

External Dimensions

● BL57-xxxNE*C (Effective length: 003/007/012/017/022/027/032/037/042)

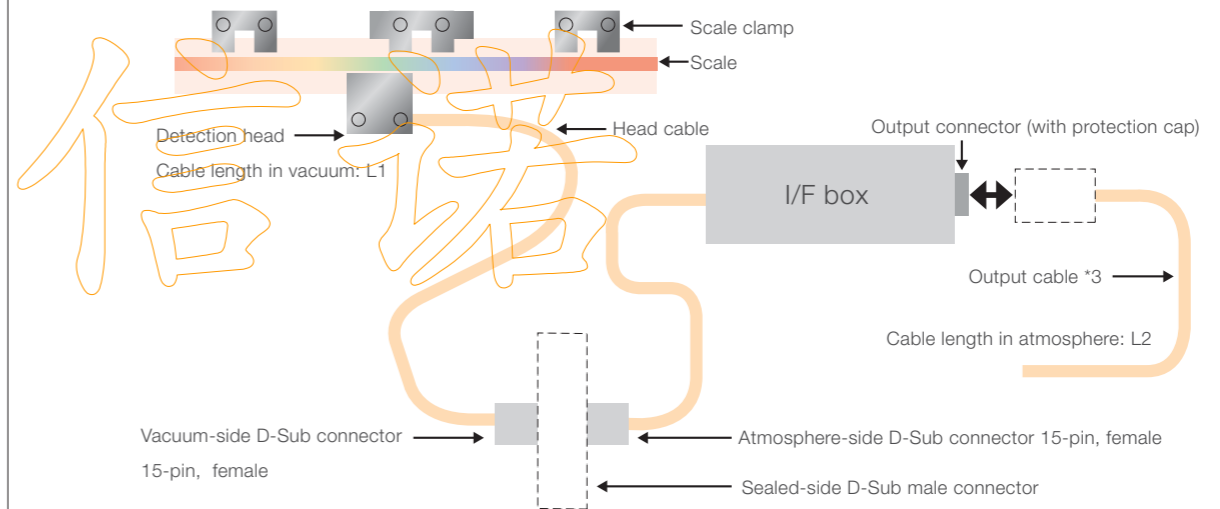


Note 1: The items marked by an asterisk indicate the machining dimensions on the mounting surface. Note 2: The surface roughness of the scale mounting surface is Rmax = 6.3 S (250μ inch). Note 3: The surface roughness of the detector head mounting surface is Rmax = 12.5 S (500μ inch). Note 4: "M" refers to the machine guide. Note 5: When mounting the reference plate (reference plate W), adjust the plate so that the parallelism between the corresponding scale abutting surface and the machine guide is 0.01mm or less.

| Main specifications[BL57-NE] | | | | |
|------------------------------------|---|---|-------------------------------------|-------------------|
| Model | A | F | G | H |
| Output signal form | A/B quadrature output | | | Analogue output |
| Detection system | Diffraction grating scanning system | | | |
| Scale length (Low expansion glass) | Measuring length(mm) | 30, 70, 120, 170, 220, 270, 320, 370, 420 | | |
| | Maximum movable length | Measuring length + 10mm (5mm on each side) | | |
| | Entire scale length | Measuring length + 26mm | | |
| Scale length (Blue plate glass) | Measuring length(mm) | 60, 160, 260, 360, 460, 560, 660, 760, 860, 960, 1060 | | |
| | Maximum movable length | Measuring length + 10mm (5mm on each side) | | |
| | Entire scale length | Measuring length + 36mm | | |
| Grating pitch | 1.6μm | | | |
| Signal pitch | 0.4μm | | | |
| Output signal | Differential (compliant with EIA-422) | | | Differential |
| Resolution | 0.1μm | 0.1/0.05μm (can be changed) | 0.02/0.01μm (can be changed) | 0.4μm (1Vp-p) |
| | Accuracy (at 20°C) | ±0.5μm (30 to 170mm) / ±1.0μm (220 to 370mm) / ±1.5μm (420mm or more) | | |
| Temperature expansion coefficient | Low expansion glass: -0.7 x 10 ⁻⁶ /°C • Blue plate glass: 8 x 10 ⁻⁶ /°C | | | |
| Maximum response speed | 1000mm/s | 1,500mm/s (0.1μm) / 650mm/s (0.05μm) | 300mm/s (0.02μm) / 120mm/s (0.01μm) | 3000mm/s (Note 1) |
| | Minimum phase difference: 80ns | Minimum phase difference: 38ns | Minimum phase difference: 38ns | Max 7.5MHz |

Note 1: There is a correlation between the maximum response speed and output cable length (the part beyond the interface box). Note 2: A power supply line longer than 10m is incompatible with EN61000-6-2. Take surge protection measures upon use. Note 3: Satisfy the required specifications at the connector input section.

BL57-RE supporting vacuum environment (Special models)

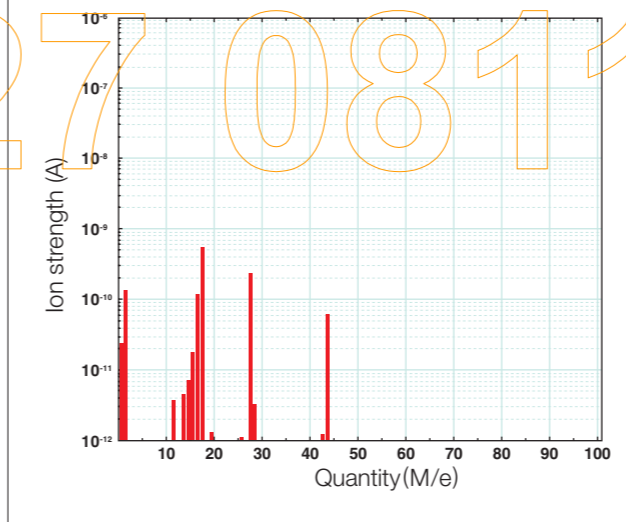


Vacuum-compatible, open type with reference point. Allowing ultra-precise positioning in a vacuum environment.

- Ultimate vacuum of 10⁻⁵ Pa class.
- Emitted gas flow rate of 10⁻⁶ Pa • m³ class.
- Signal pitch 0.4μm
- Built-in reference point.

Applications: Semiconductor inspection systems, length measuring SEM.

*1: For dimensions of head, scale, and I/F box, see the page on BL57-RE. *2: Cable length in vacuum and in atmosphere (L1 + L2) is up to 3m. *3: These components are not included in the product.



T: 021 3227 0811

F: 021 6277 5787