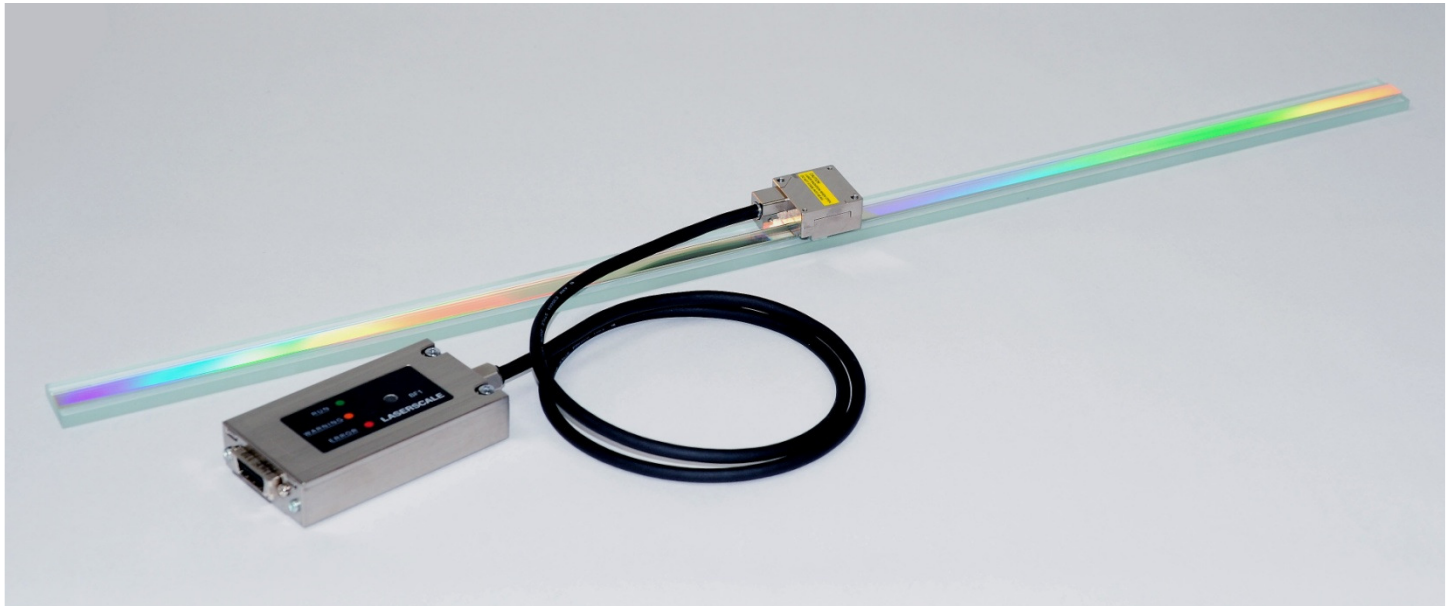


Reflection type Laserscale® BF Series



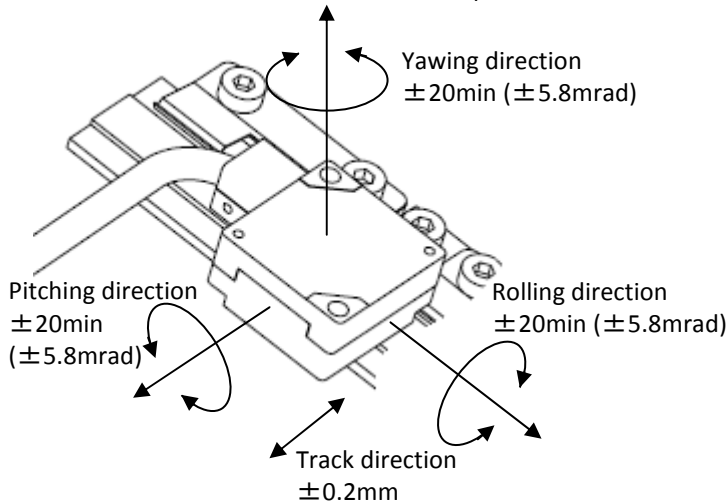
High-resolution, reflective Laserscale with signal wavelength of $0.25 \mu\text{m}$ (250nm)
Support a wide range of applications and offers the highest performance in its class
Easy installation and maintenance for the next generation precision stages



Easy installation & Easy maintenance

Increased mounting tolerances enable easy installation

Clearance direction
 $1.8 \pm 0.5\text{mm}$ (with reference point: $\pm 0.2\text{mm}$)



Electric adjustment not required after installation.

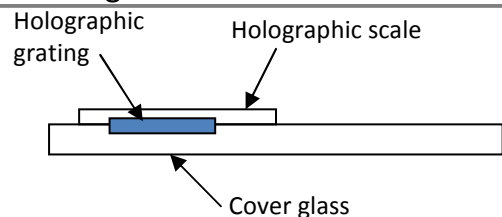
Easy to check signal with LED

<Interface box>



Signal indication

Protected holographic grating offers increased protection against contamination



Product Lineup

Measurement length

Linear: 30mm to 1400mm

* Less than 30mm length is available.

2D: 100x100mm, 300x300mm, 500x500mm

Output

Analog: 1Vp-p

A/B quadrature

Serial: YASKAWA, Panasonic, Mitsubishi, Magnescale
(to be certified by each controller provider)

Head Lineup

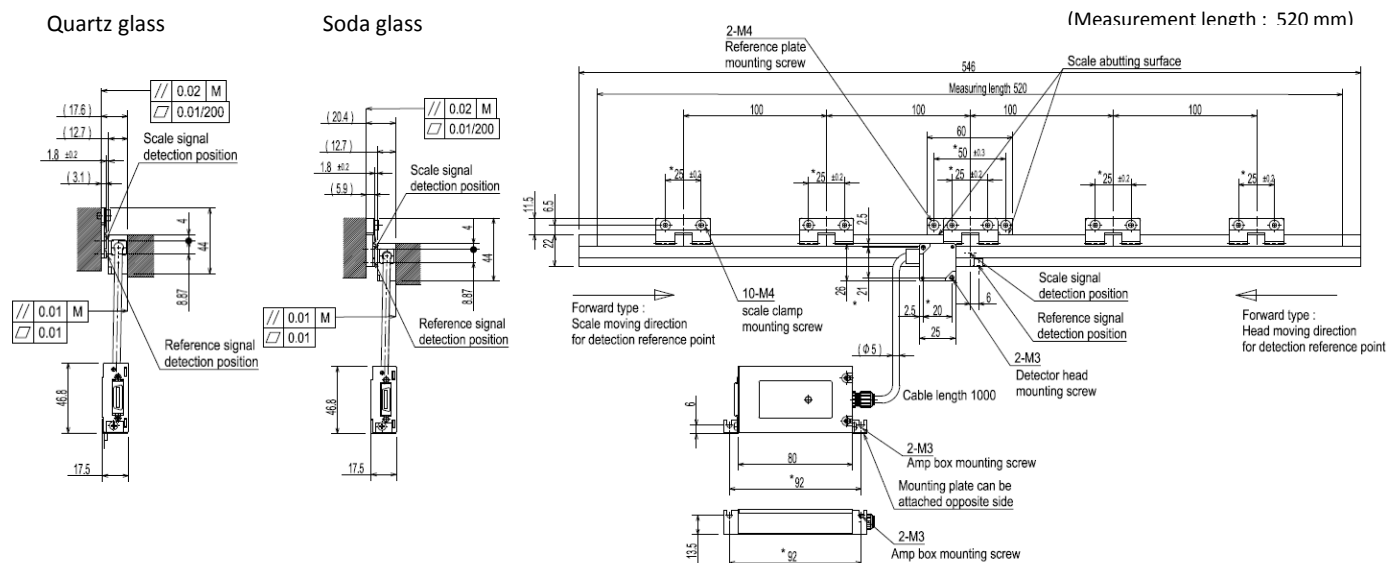
Standard model (BF1)

Vacuum & non-magnetic model (BF2)

Reflection type Laserscale® BF Series



Dimensions



Note: Adhesive or double sided tape mounting version available by request.
Width of scale decreases to 14.5mm for non-clamp version.

Specifications

Item	Function / Specifications
Measurement length (mm)	30/70/120/170/220/270/320/370/420/470/520/570/670/770/870/970/1070/1170/1270/1400
Overall scale length	Measurement length + 26 mm
Maximum travel length	Measurement length + 10 mm
Grating pitch	1.0 μ m
Signal pitch	0.25 μ m
Maximum resolution	0.00005 μ m (50 pm) : with serial output at 5,000 division 0.000625 μ m (625 pm) : with A/B quadrature at 400 division
Accuracy (at 20°C)	$\pm 0.5 \mu$ m (~ 170 mm) / $\pm 1 \mu$ m (~ 420 mm) / $\pm 3 \mu$ m (~ 520 mm) / $\pm 10 \mu$ m (570 mm \sim)
Linearity (at 20°C)	$\pm 3 \mu$ m
Reference point	1 point within measuring length, Accuracy $\pm 0.25 \mu$ m
Maximum speed	1,800mm/s (Analog and Serial), Please contact MGS for details of A/B quadrature case.
Expansion coefficient	$8 \times 10^{-6} / ^\circ\text{C}$ (Soda glass), $0.5 \times 10^{-6} / ^\circ\text{C}$ (Quartz glass)
Output signal	Analog, A/B quadrature, Serial (YASKAWA, Panasonic, Mitsubishi, Magnescale)
Light source	Semiconductor laser, Wave length 655nm
Radiation power	JIS class 2 or equivalent, DHHS class 2 or equivalent, EN60825 class 2 or equivalent
Operating temperature range	+10 \sim +40 $^\circ\text{C}$ (No condensation)
Storage temperature range	-10 \sim +50 $^\circ\text{C}$ (Humidity less than 60%)