Specifications

Model name	SQ47	SQ57
Effective length	90 to 3,740mm(*1)	70 to 3,770mm(*2)
Accuracy	±(1.5+1.5L/1000)μm	
Resolution	Selectable from 0.005/0.01/0.05/0.1/0.5/1μm	
Maximum response speed	200m/min	
Vibration resistance	250m/s²(50 to 2,000Hz)	
Impact resistance	980m/s²(11ms)	
Protective design grade	IP67	
Consumption current	1.35W typ (FANUC/Mitsubishi Electric/Yaskawa Electric) 2.1W typ (SIEMENS)	
Power supply voltage	DC5V (FANUC/Mitsubishi Electric/Yaskawa Electric) DC24V (SIEMENS)	
Operating temperature	0 to 50°C	
Output signal	Compatible with each serial interface	
Option	Connection cable	CH23 Series (Mitsubishi Electric / Yaskawa Electric) CH23A Series (FANUC) CH22 Series (SIEMENS)

(*1) For effective length exceeding 3,740 mm, please contact our sales department.
(*2) For effective length exceeding 3,770 mm, please contact our sales department.

Model name : SQ◆◆-×××★S△▼□□□

[□]Reference point position (*)
Distance from left end of effective length

[▼]Communication protocol
A:FANUC α/αi interface
B:Mitsubishi Electric Half duplex
D:Mitsubishi Electric Full duplex
F:Yaskawa Electric
Z:SIEMENS DRIVE-CLiQ
(functional safety model)

[△]Resolution and polarity(See Table 1)

[S]Accuracy
±(1.5+1.5L/1000)μm

Effective length (L:mm)

[★]Cable lead-out direction
(SQ47 only)
R:Right L:Left

[×]Effective length

[◆]Type

(*) Mitsubishi Electric : fix (center of effective length)
SIEMENS : fix

Table1
<FANUC/Mitsubishi Electric>
(Mitsubishi Electric : Polarity + only)

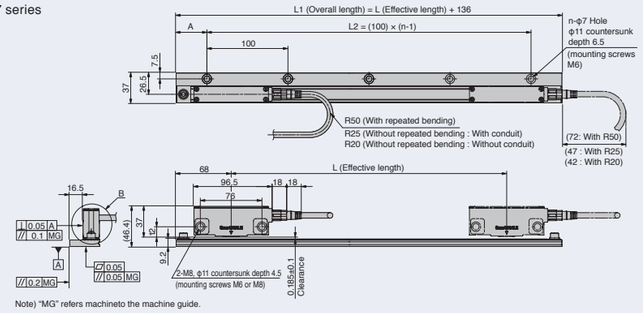
Model name	Polarity	Resolution	Model name	Polarity	Resolution
S	+	0.005μm	T	−	0.005μm
A		0.01μm	F		0.01μm
B		0.05μm	G		0.05μm
C		0.1μm	H		0.1μm
D		0.5μm	J		0.5μm
E		1μm	K		1μm

<Yaskawa Electric/SIEMENS>

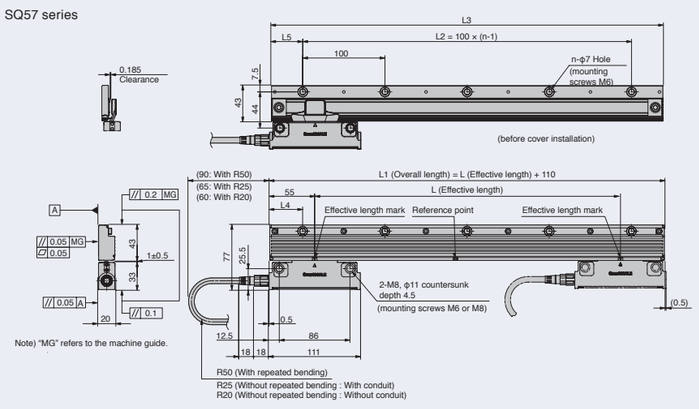
Model name	Polarity	Resolution
S	+	0.005μm
A		0.01μm

Dimensions

SQ47 series

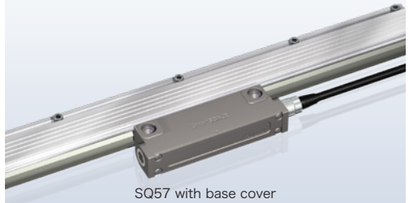


SQ57 series



Lineup


SQ47 with base


SQ57 with base cover

Please contact us for more details.

Absolute type

SmartSCALE

Stronger resistance to harsh environments

⚠ To use this product safely, please read the instruction manual carefully and thoroughly prior to usage. •Magnescale reserves the right to change products and specifications without prior notice.

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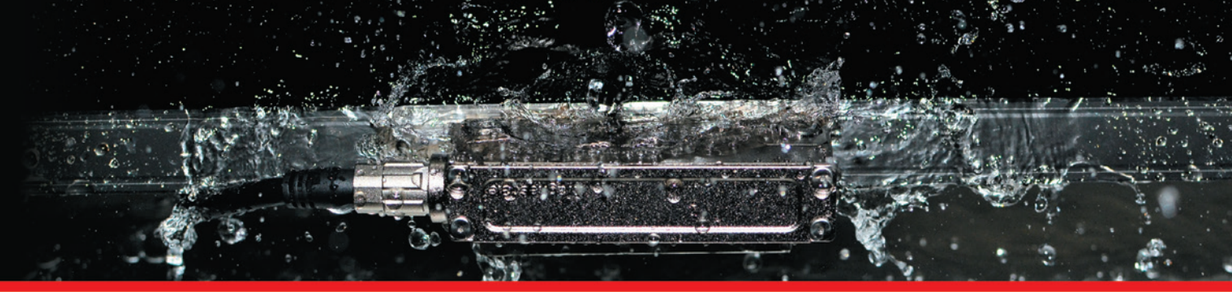
SmartABS-EA02(01)C
C.2408.CB

Magnescale Co., Ltd.

Stronger resistance to harsh environments

Air purging not necessary

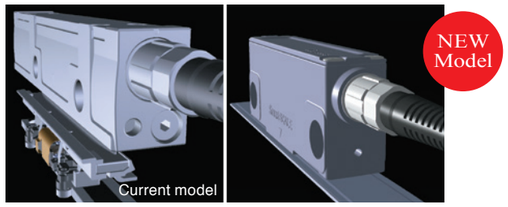


Wide gap and clearance tolerance

Gap between scale and head : 2 times greater than current model.
Clearance tolerance between scale and head : 5 times greater than current model.

Separate type simple architecture

Space saving design by bearingless and miniaturization enables encoders to install near works and multiple encoders in one axis.

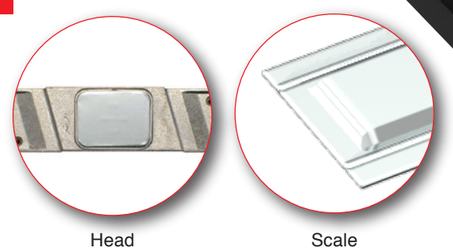


5nm high-resolution

Achieves best in class 5nm resolution by utilizing the latest interpolation technology with a newly developed algorithm.

Sealed structure with IP67 grade

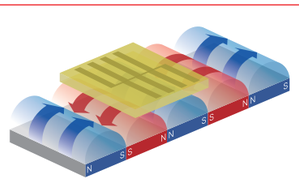
The magnetic encoder and detection device are fully protected by a 50μm thin metal cover.
High resistance to coolant/water splashing and to sludge/metal chips provides stable operation under harsh environments.

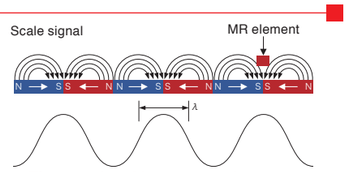


Principle

Detection Principle

A thin-film MR element with a high-precision, low-distortion pattern arrangement is used as the detecting element. The resistance value of the MR element changes when the magnetic field acting on the element changes due to an alteration in the relative position between the element and the magnetic media. This change in resistance value is read electronically to detect the amount of positional change.



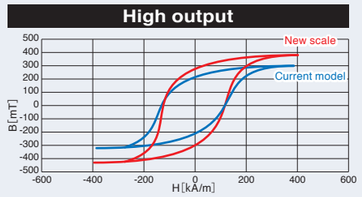


New technology

Development of a new magnetic medium

The output detection signal has improved 30% by changing the composition and consistency of the magnetic medium of the scale, and by improving the production method.

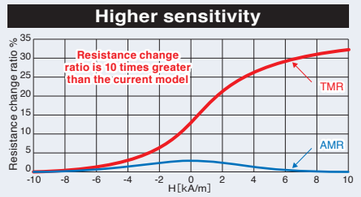
High output



The development of a high sensitivity sensor using a new TMR device

Utilizes a low strain sensor enabling 10 times higher sensitivity compared to the current model by the development of a TMR element based on the Spin-Valve method.

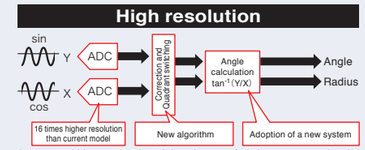
Higher sensitivity



New interpolation calculation method

Achieves 5nm resolution and improves interpolation accuracy by utilizing a new interpolation calculation method.

High resolution



Accuracy within one wavelength has improved 10 times compared to the curent model by adopting a new algorithm with calculation processing.

1/1200 ➡ 1/12800