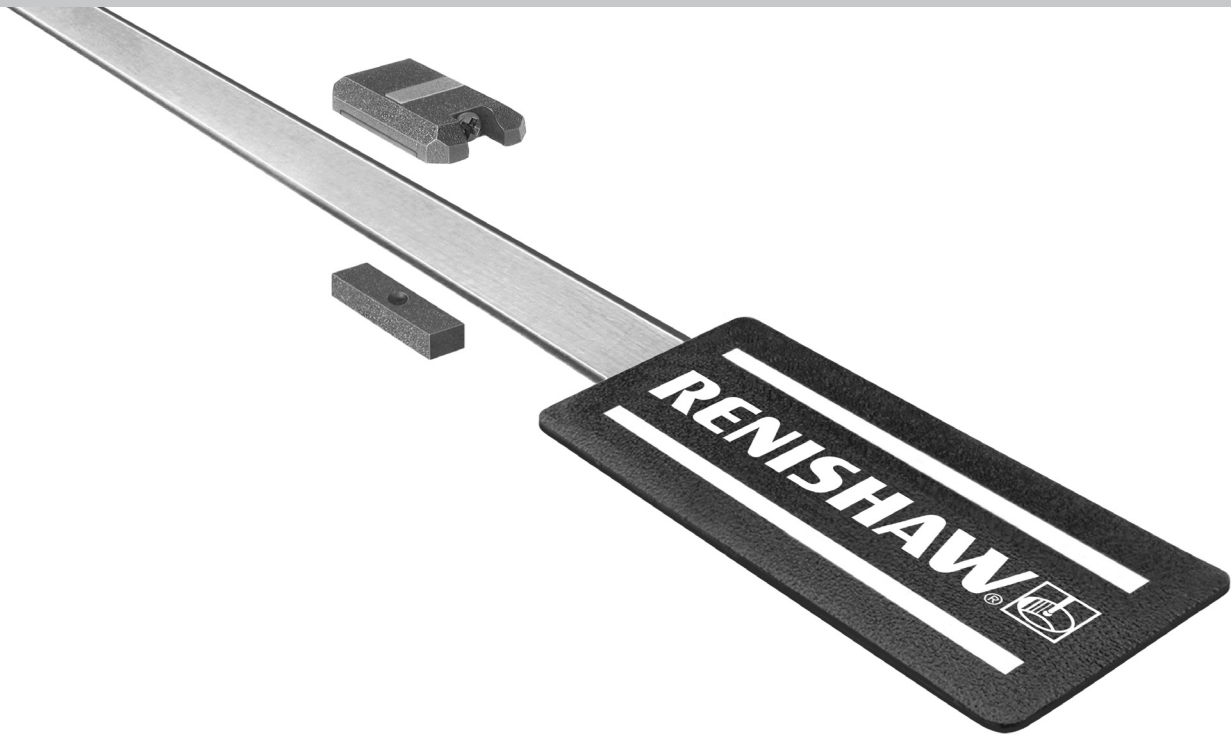


RGS20-S, RGS20-PC, RGS40-S, RGS40-PC scale



Renishaw's patented RGS20-S scale comprises 20 μm graduations on a steel strip 6 mm wide and 0.2 mm thick and features a thin gold surface layer to enhance reflectivity.

A lacquer coating provides protection against handling and contamination.

The 20 μm pitch scale is suitable for use with all Renishaw RG2 series readheads: RGH22, RGH24, RGH25 and RGH26.

Whilst the 40 μm RGS40-S is suitable for use with the RGH34 and RGH41 readheads.

The scale is supplied with a specially formulated adhesive backing tape. Installation is quick, easy and suits both high volume production and one-off field service installations.

To simplify customer inventory and maximise production flexibility, the scale can be supplied on a reel for 'cut-to-suit' convenience at the point of installation.

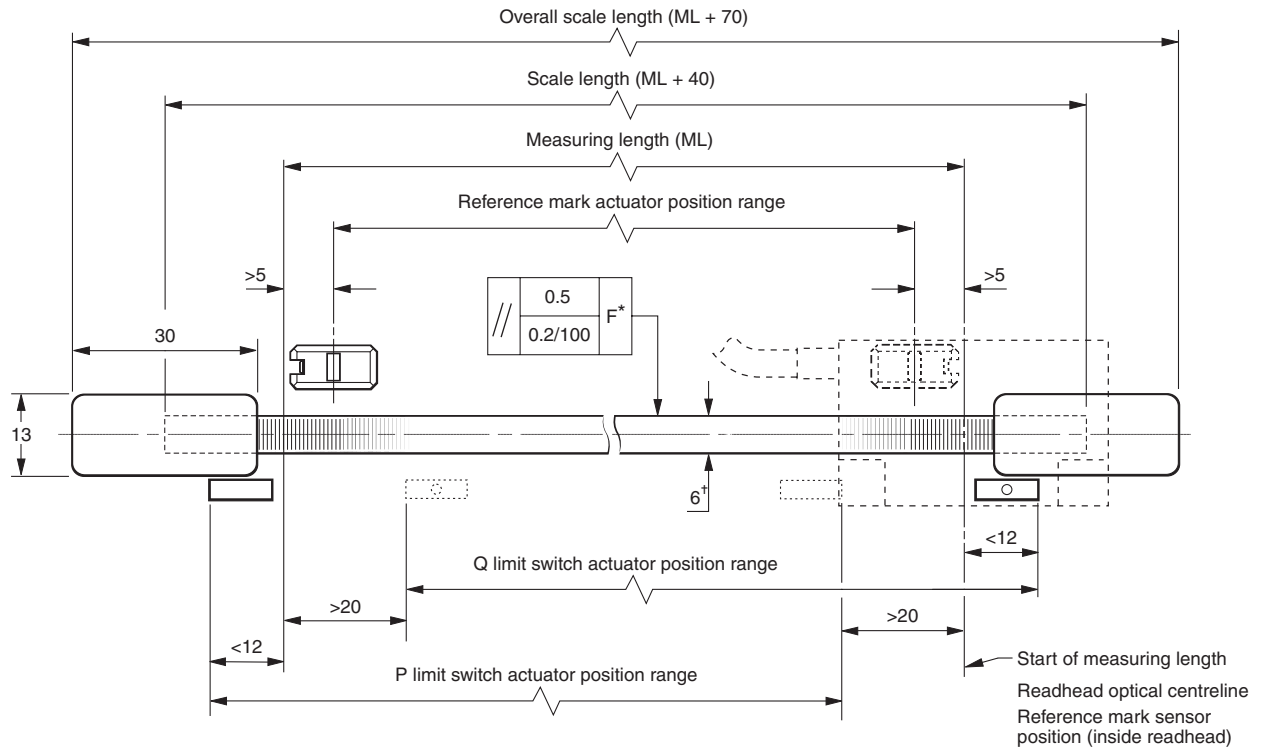
RGS20-S and RGS40-S are suitable for mounting to most common engineering materials including metals, granites, ceramics and composites, whilst RGS20-PC and RGS40-PC polyester coated versions have an increased resilience to solvent and lubricant attack.

The scale ends are rigidly fixed to the axis substrate by means of epoxy fastened end clamps, eliminating the need to drill holes. Because the scale has a very small cross section, it is 'mastered' to the substrate and matches its thermal expansion. Differential movement between the scale and the substrate is close to zero, even throughout significant temperature swings.

- **RGS20 20 μm tape scales for RGH22, RGH24, RGH25 and RGH26 readheads**
- **RGS40 40 μm tape scales for readheads RGH34 and RGH41**
- **'Cut-to-length' flexibility**
- **Lengths from 100 mm to over 50 m**
- **Protective lacquer or tough polyester coating option for applications using harsh solvents**
- **Efficient, accurate installation**
- **Affixes to most common engineering materials**
- **Self-adhesive**
- **Automated application**

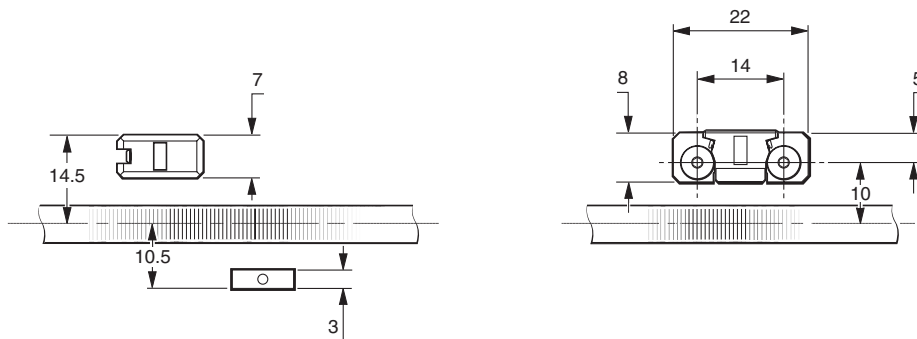
General outline and dimensions

Dimensions in mm



*F = axis guideway

†For RGS20-PC and RGS40-PC scale width = 6.3



NOTE 1: RGH22 dual limit switch installation shown – for RGH24, RGH25, RGH26, RGH34 and RGH41 installations refer to specific data sheets or readhead installation guide.

NOTE 2: The surface roughness of the axis guideway must be $\leq 3.2 \mu\text{m}$. The parallelism of the scale surface to the axis guideway (readhead ride height variation) must be within 0.05 mm.

Technical specifications

Scale

Type	Reflective gold plated steel tape with protective lacquer coating or tough polyester coating option for applications using harsh solvents and self-adhesive backing	
Scale pitch	RGS20-S, RGS20-PC = 20 μm	RGS40-S, RGS40-PC = 40 μm
Linearity	RGS20-S = $\pm 3 \mu\text{m/m}$, $\pm 0.75 \mu\text{m}/60 \text{ mm}$ RGS20-PC = $\pm 5 \mu\text{m/m}$, $\pm 1.5 \mu\text{m}/60 \text{ mm}$	RGS40-S = $\pm 3 \mu\text{m/m}$, $\pm 1 \mu\text{m}/60 \text{ mm}$ RGS40-PC = $\pm 5 \mu\text{m/m}$, $\pm 1.5 \mu\text{m}/60 \text{ mm}$
Scale length	100 mm - 50 m (>50 m by special order)	
Substrate materials	Metals, ceramics and composites with expansion coefficients between 0 and 22 $\mu\text{m/m}^\circ\text{C}$ (steel, aluminium, invar, granite, ceramic etc.)	
Expansion coefficient	Matches that of substrate material with scale ends fixed by epoxy mounted end clamps	
End fixing	Epoxy mounted end clamps (A-9523-4015) using 2 part epoxy adhesive (A-9531-0342) Scale end movement <1 μm over temperature range -20 to 50 $^\circ\text{C}$	
Operating specification	Temperature: -10 to 120 $^\circ\text{C}$ (Scale only, also refer to readhead Data sheet) Minimum installation temperature 10 $^\circ\text{C}$ Humidity: 80% maximum RH (non-condensing)	

Reference mark

Type	Magnetic actuator	
Mounting options	Adhesive mounted Screw mounted Adhesive or screw mounted 90° actuator for use with RGH24, RGH25 or RGH34	A-9531-0250 A-9531-0287 A-9541-0037
Position	One or more at user selected locations	
Repeatability	Output synchronised with incremental channels Repeatability of position (uni-directional) maintained within these conditions: Temperature range: RGS20-S, RGS20-PC - $\pm 10 \text{ }^\circ\text{C}$ from installation temperature RGS40-S, RGS40-PC - $\pm 20 \text{ }^\circ\text{C}$ from installation temperature Speed: Refer to individual readhead specifications Magnetic field: steady $\pm 0.02 \text{ T}$ or changing $\pm 7.5 \text{ T/s}$	

Limit switch

Type	Magnetic actuator	
Mounting options	Adhesive mounted 10 mm actuator Adhesive mounted 24.35 mm actuator Adhesive mounted 50 mm actuator Flush mounted actuator Adhesive or screw mounted 90° actuator for use with RGH24, RGH25 and RGH34	A-9531-0251 A-9531-2052 A-9531-2054 A-9531-0285 A-9541-0040
Position	One or more at user selected locations	
Repeatability	0.1 mm	

RGA applicators

RGA applicators are mounted in place of the readhead and use the motion of the axis to apply the scale parallel to the guideway - a one-hit, one-man operation.

RGA22

The RGA22 is available in kit form complete with adaptors and tools to enable efficient and accurate scale application with RGH22, RGH26 and RGH41 installations. It is particularly suited to long axes or limited access installations as the backing paper is automatically removed during scale application requiring minimal manual intervention.



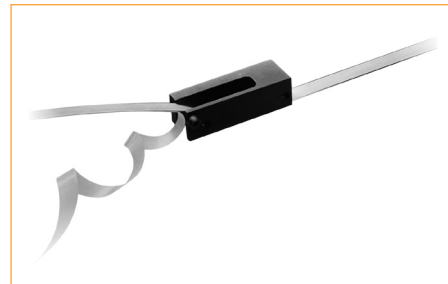
RGA22G scale applicator

The RGA22G is also for use with RGH22, RGH26 and RGH41 installations. It offers the benefits as the RGA22 in a simplified form, and is ideally suited to shorter axes.



RGA245 scale applicator

The RGA245 is for use with RGH24 and RGH25 installations. It offers the benefits as the RGA22 in a simplified form and is ideally suited to shorter axes.



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