Data sheet
L-9517-9387-04-C

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RSLA30 absolute linear high-accuracy scale



RSLA30 absolute high-accuracy stainless steel scale is compatible with Renishaw's true-absolute optical encoder system, RESOLUTE™.

RSLA30 stainless steel scale is available in lengths up to 5 m, with 5 m lengths having an overall accuracy better than ±4 µm. Combined with readheads featuring low sub-divisional error (±40 nm), advanced optics, resolution to 1 nm and simple installation and setup, RSLA30 provides outstanding motion control performance.

RSLA30 offers the ease of use of a tape scale yet has the performance of a glass spar; the scale can be coiled for simple storage and handling yet behaves as a spar once uncoiled. The choice of mechanical or adhesive mounting makes RSLA30 perfect for long-travel applications where metrology cannot be compromised.

- **Single-track optical absolute scale**
- **Robust special composition stainless steel with defined coefficient of thermal expansion (10.1 ±0.2 µm/m/°C@20 °C)**
- **30 µm nominal scale pitch ensures exceptional motion**
- **Coilable for simple storage and handling**
- **Available in defined lengths up to 5 m**
- **Scale mounting options: self-adhesive or clips and clamps**
- **Compatible with RESOLUTE absolute readheads**

RSLA30 scale specifications

Description	Hardened martensitic stainless steel spar scale for use with RESOLUTE readheads
Pitch	30 µm
Form (height × width)	1.5 mm × 14.9 mm (excluding adhesive)
Accuracy (at 20 °C)	±1.5 µm for lengths up to 1 m. ±2.25 µm for lengths from 1 m to 2 m. ±3 µm for lengths from 2 m to 3 m. ±4 µm for lengths from 3 m to 5 m. (includes slope and linearity) Calibration traceable to International Standards
Coefficient of thermal expansion (at 20 °C)	10.1 ±0.2 µm/m/°C
Mass	172 g/m
Available lengths	20 mm to 5 m (available in increments of 10 mm)
Measuring length	See 'RSLA30 installation drawing (adhesive mount)' on page 4
Mounting	Epoxy datum point and adhesive tape or mechanical datum clamp and mounting clips.

For further information on installation and mounting options, refer to the *RESOLUTE RELA30/RSLA30 high-accuracy absolute linear encoder system* installation guide (Renishaw part no. M-9553-9128), which is available from the website at **www.renishaw.com/resolutedownloads**.

Maximum scale lengths

The maximum scale length depends upon the serial interface, readhead resolution and the number of position bits.

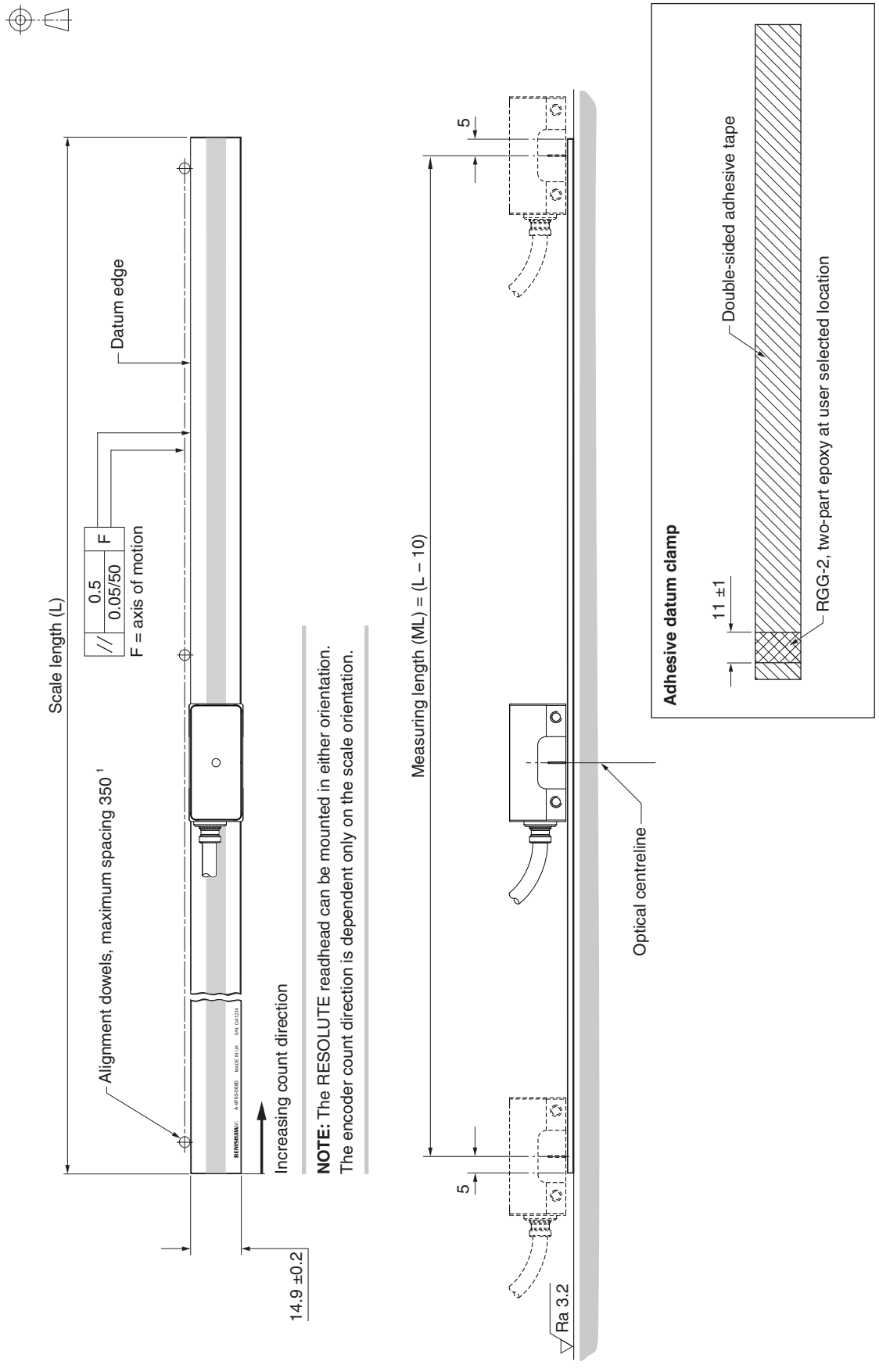
The table below shows the maximum scale length for each system:

		Resolution			
Serial interfaces	**Position bits**	**1 nm**	**5 nm**	**50 nm**	**100 nm**
BiSS C (uni-directional)	26 bit	67 mm	336 mm	3.355 m	-
	32 bit	4.295 m	5 m	5 m	-
	36 bit	5 m	5 m	5 m	-
FANUC	37 bit	5 m	-	5 m	-
Mitsubishi	40 bit	2.1 m	-	5 m	-
Panasonic	48 bit	5 m	-	5 m	5 m
Siemens DRIVE-CLiQ	28 bit	-	-	5 m	-
	34 bit	5 m	-	-	-
Yaskawa	36 bit	1.8 m	-	5 m	-

NOTE: RSLA30 scale is available in lengths up to 5 m. For longer linear scale lengths consider RTLA30 scale (lengths up to 21 m) or RKLA30-S scale (lengths up to 21 m). The data sheets for these alternative scales are available at **www.renishaw.com/resolutedownloads**.

RSLA30 installation drawing (adhesive mount)

Dimensions and tolerances in mm

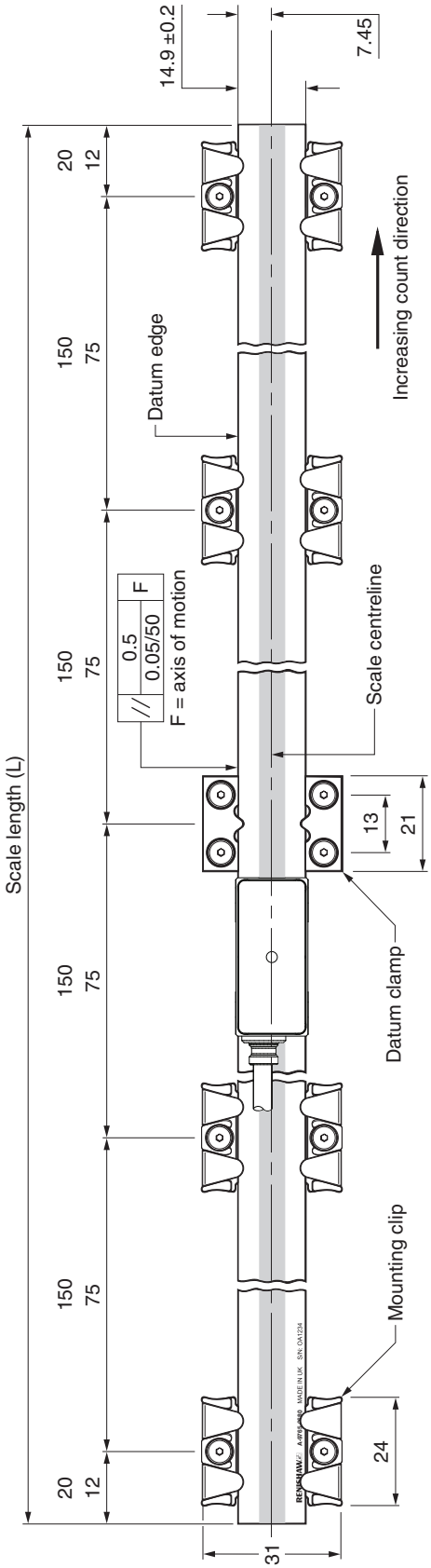


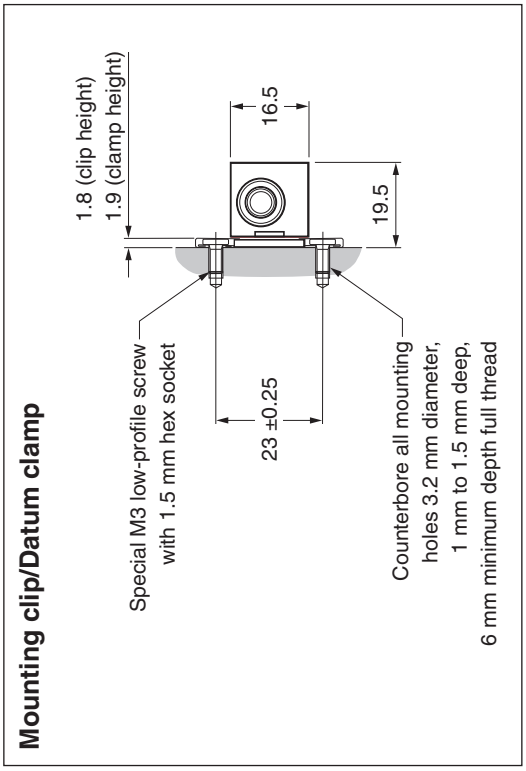
NOTE: Adhesive mounted scale should not be reused after installation.

1 When the RSLA30 scale is to be mounted vertically, position the dowels so that the datum edge is supported.

RSLA30 installation drawing (clip/clamp mounted)

Dimensions and tolerances in mm





NOTES:

- For lengths 80 ≤ L ≤ 190 ensure that the scale is clamped or clipped in the middle as well as at both ends.
- The installation should use the least number of clips as possible.
- For lengths not specified, contact your local Renishaw representative for further advice.
- Care should be taken to ensure sufficient clearance between the readhead/mounting bracket and clips/datum clamp.
- Only special low-profile screws should be used. Screws are provided with all clips/datum clamps and spares can be supplied if required.
- Measuring length (ML) = (L – 10).

Scale part numbers

Part number	Available lengths	Available in increments of	Ordering instructions
A-9765-xxxx	20 mm to 5000 mm	10 mm	xxxx is the length in mm. Ordering A-9765-0450 for example will result in a length of 450 mm.

Scale accessory part numbers

Self-adhesive mounting accessories

Part description	Part number	Product image
Adhesive backing tape (5 m) (nominal thickness 0.2 mm)	A-9584-2111	
Adhesive backing tape applicator Aids the application of the adhesive backing tape to the scale	A-9584-0601	
RGG-2 two part epoxy adhesive Used to create a datum point	A-9531-0342	

Clip/clamp mounting accessories

Part description	Part number	Product image
Mounting clips [1]	A-9584-2049	
Datum clamp kit [1]	A-9584-2050	
Replacement M3 screws A pack of 25	A-9584-2047	
Spare clip setting shim	M-9584-0928	

[1] Ultra-high vacuum (UHV) and extra wide clip and clamp accessories are available. Contact your local Renishaw representative for more information.

Compatible products

RSLA30



RESOLUTE standard readheads



RESOLUTE UHV
(Ultra-high vacuum) readheads



RESOLUTE FS
(Functional Safety) readheads [1]



[1] Only adhesive mounted RSLA30 scales are Functional Safety compatible. RSLA30 mounted with clips and clamps are not approved for Functional Safety systems.

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Part no.: L-9517-9387-04-C
Issued: 01.2025