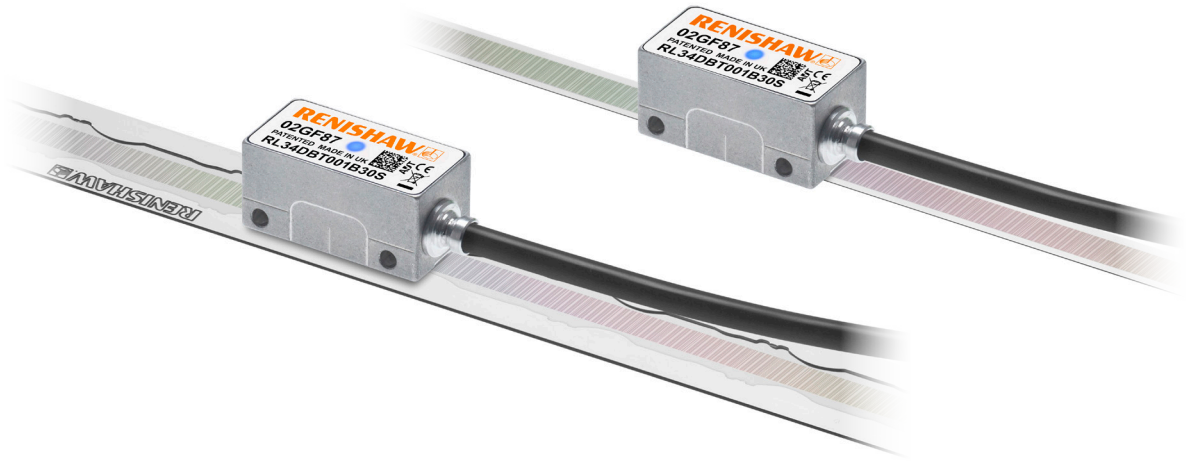
Data sheet
L-9517-9418-08-A

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RTLA30 absolute linear scale



RTLA30 absolute linear encoder tape scale from Renishaw combines ±5 µm/m accuracy with the ruggedness of stainless steel. Two versions are available: self-adhesive RTLA30-S and RTLA30 for use with the *FASTRACK*™ carrier system.

Designed for applications that demand high-accuracy and an independent expansion coefficient with tape scale convenience, RTLA30-S and RTLA30 are read by Renishaw's RESOLUTE™ absolute readhead.

RTLA30-S is laid onto the substrate using its self-adhesive backing tape. A patented application tool makes this a quick, simple and inexpensive process. A clamp is fitted at a single point to lock the scale to the substrate.

RTLA30 (without self-adhesive) is used with *FASTRACK*. In this case, the scale is held securely in place by two miniature, yet rugged, guide rails. Again, the scale is clamped in a single point to allow independent expansion with extremely low hysteresis, even over wide temperature ranges. If damaged, the scale can be pulled out of the guide rails and quickly replaced, even where access is limited, thus reducing machine downtime. This feature also makes the new linear encoder system ideal for large machines that need to be sectioned for transportation.

RTLA30-S and RTLA30 with *FASTRACK* are suitable for many applications, including FPD manufacturing and inspection machines, PV manufacturing, linear motors with aluminium substrates, axes that are exposed to potential damage, large CMMs and other machines that require the scale to be installed/removed for transit, or simply for any application where thermal expansion of the scale must be independent of the machine structure.

- **High accuracy (±5 µm/m) absolute scale. Further improvement possible with error correction.**
- **RTLA30 scale expands at its own low thermal coefficient (10.1 ±0.2 µm/m/°C @ 20 °C)**
- **Use with the *FASTRACK* carrier for very low hysteresis**
- ***FASTRACK* guide rails are pre-aligned in reels for cut-to-suit flexibility**
- **Quick installation. *FASTRACK* adds fast scale replacement capability**
- **Scale can be locked to the substrate at a single datum point anywhere along the axis**
- **Lengths up to 21 m**
- **High solvent immunity**
- **Compatible with RESOLUTE absolute readheads**

RTLA30-S, RTLA30 and *FASTRACK* specifications

Description	RTLA30-S	Hardened and tempered martensitic stainless steel tape scale with self-adhesive backing tape for use with RESOLUTE readheads
	RTLA30	Hardened and tempered martensitic stainless steel tape scale for use with the *FASTRACK* carrier and RESOLUTE readheads.
	FASTRACK	Hardened stainless steel guide rails with integral sacrificial spacers, with self-adhesive backing tape for easy installation.
Pitch	RTLA30-S/RTLA30	30 µm
Form (height × width)	RTLA30-S	0.4 mm × 8 mm (including adhesive)
	FASTRACK	0.4 mm x 18 mm (including adhesive)
Accuracy (at 20 °C)	RTLA30-S/RTLA30	±5 µm/m
Coefficient of thermal expansion (at 20 °C)	RTLA30-S/RTLA30/ *FASTRACK*	10.1 ± 0.2 µm/m/°C
Temperature (system)	Storage	–20 °C to +80 °C
	Operating	0 °C to +80 °C
Humidity (system)		95% relative humidity (non-condensing) to IEC 60068-2-78
Shock (system)	Non-operating	1000 m/s^2, 6 ms, ½ sine, 3 axes
Vibration (system)	Operating	100 m/s^2 maximum @ 55 to 2000 Hz, 3 axes
Mass	RTLA30-S	12.9 g/m
	RTLA30	12.2 g/m
	FASTRACK	24 g/m
Available lengths	RTLA30-S/RTLA30	20 mm to 21 m (available in increments of 10 mm)
	FASTRACK	100 mm to 25 m (available in increments of 25 mm)
Measuring length	RTLA30-S	See 'RTLA30-S installation drawing' on page 4
	RTLA30/*FASTRACK*	See 'RTLA30/FASTRACK installation drawing' on page 5

For further information on installation and mounting, refer to the *RESOLUTE RTLA30-S absolute linear encoder system* installation guide (Renishaw part no. M-9553-9433) or *RESOLUTE RTLA30 and FASTRACK absolute linear encoder system* installation guide (Renishaw part no. M-9553-9134), which are available from the website at **www.renishaw.com/resolutedownloads**.

Maximum scale lengths

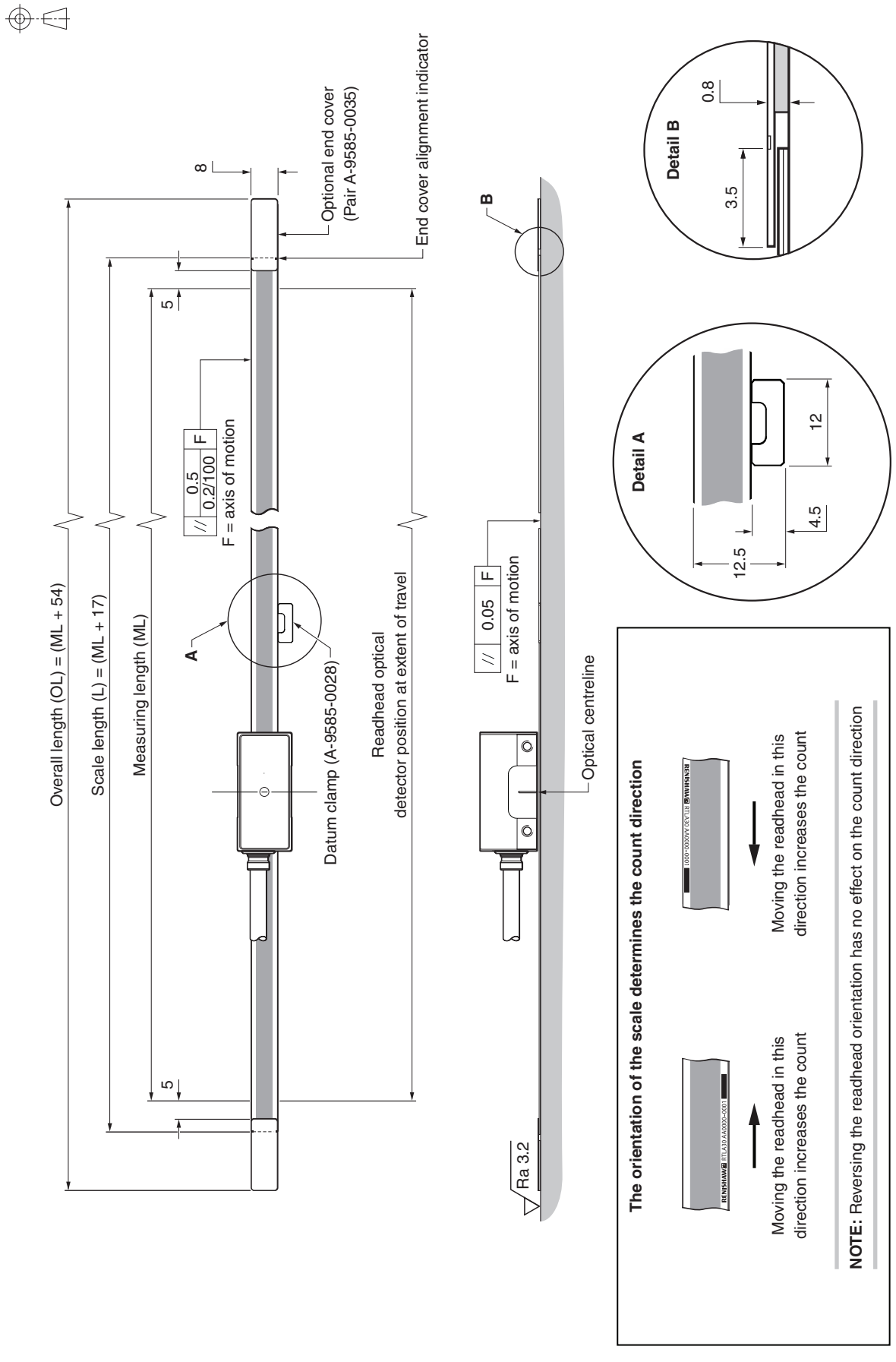
The maximum scale length depends upon the serial interface, readhead resolution and the number of position bits.

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	21 m	21 m	-
	36 bit	21 m	21 m	21 m	-
FANUC	37 bit	21 m	-	21 m	-
Mitsubishi	40 bit	2.1 m	-	21 m	-
Panasonic	48 bit	21 m	-	21 m	21 m
Siemens DRIVE-CLiQ	28 bit	-	-	13.42 m	-
	34 bit	17.18 m	-	-	-
Yaskawa	36 bit	1.8 m	-	21 m	-

RTLA30-S installation drawing

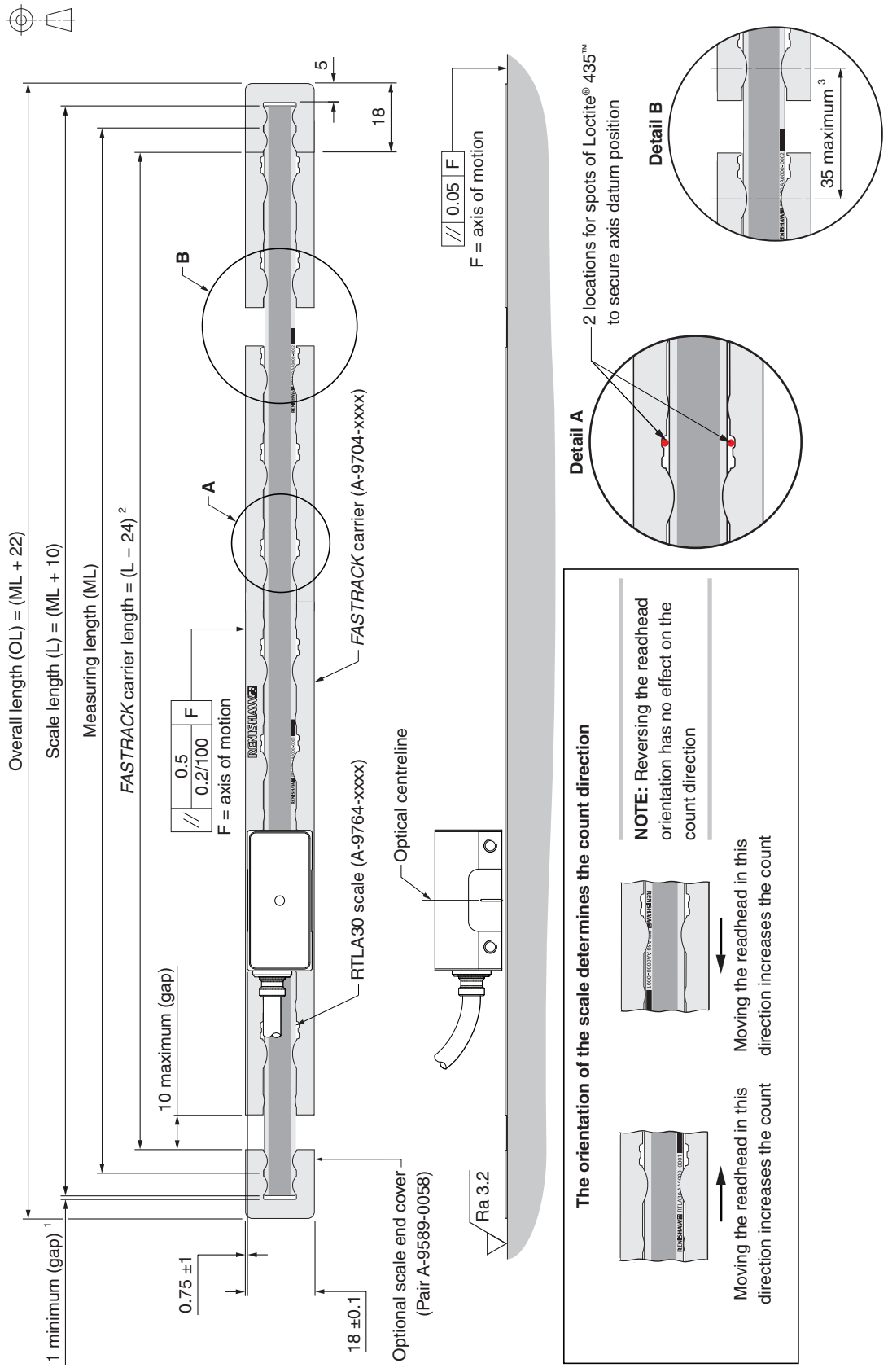
Dimensions and tolerances in mm



For further information on installation, refer to the *RESOLUTE RTLA30-S absolute linear encoder system* installation guide (Renishaw part no. M-9553-9433), which is available from the website at **www.renishaw.com/resolutedownloads**.

RTLA30/*FASTRACK* installation drawing

Dimensions and tolerances in mm



1 The gap allows for thermal expansion.

2 Assumes a 1 mm gap between the scale and the end covers and a zero gap between the *FASTRACK* carrier and the end covers. The minimum recommended *FASTRACK* carrier length = 100 mm.

3 Only required for sectional installations.

For further information on installation, refer to the *RESOLUTE RTLA30 and FASTRACK absolute linear encoder system* installation guide (Renishaw part no. M-9553-9134), which is available from the website at www.renishaw.com/resolutedownloads.

Scale and *FASTRACK* carrier part numbers

RTLA30-S

Stainless steel tape scale with self-adhesive backing tape.

Part number	Available lengths	Available in increments of	Ordering instructions
A-9763-xxxx	20 mm to 21 m	10 mm	xxxx is the length in cm. Ordering A-9763-0450 for example will result in a length of 4500 mm.

RTLA30

Stainless steel tape scale for use with the *FASTRACK* carrier.

Part number	Available lengths	Available in increments of	Ordering instructions
A-9764-xxxx	20 mm to 21 m	10 mm	xxxx is the length in cm. Ordering A-9764-0450 for example will result in a length of 4500 mm.

FASTRACK carrier

Stainless steel carrier for use with the RTLA30 tape scale.

Part number	Available lengths	Available in increments of	Ordering instructions
A-9704-xxxx	100 mm to 25 m	25 mm [1]	xxxx is the length in cm. Ordering A-9704-0450 for example will result in a length of 4500 mm.

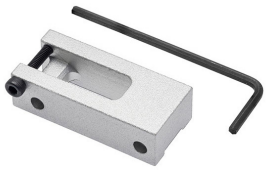
[1] Part numbers for *FASTRACK* carrier lengths ending in 25 mm are: A-9704-xxx3
Part numbers for *FASTRACK* carrier lengths ending in 75 mm are: A-9704-xxx8

Scale accessory part numbers

General accesories

Part description	Part numbers	Product image
Loctite® 435™ adhesive - 20 g bottle For securing the axis datum position	P-AD03-0012	
Dispensing tip for Loctite® 435™ adhesive	P-TL50-0209	
Guillotine For cutting RTLA30-S scale, RTLA30 scale, and *FASTRACK* carrier	A-9589-0071	
Shears For cutting RTLA30-S scale, RTLA30 scale, and *FASTRACK* carrier	A-9589-0133	

RTLA30-S accesories

Part description	Part numbers	Product image
Self-adhesive datum clamp	A-9585-0028	
0.8 mm blue setting shim [1] Used for setting the correct distance (rideheight) between the readhead and the RTLA30-S scale.	M-9517-0122	
RTLA30-S scale applicator For easy installation of the RTLA30-S scale	A-9589-0095	
End cover kit	A-9585-0035	

[1] The shim is supplied with the readhead.

RTLA30 and *FASTRACK* accesories

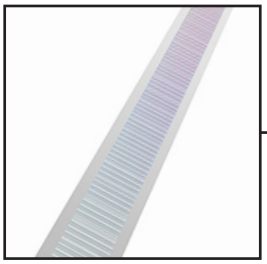
Part description	Part numbers	Product image
0.6 mm red setting shim [1] Used for setting the correct distance (rideheight) between the readhead and the *FASTRACK* carrier.	M-9517-0124	
***FASTRACK* centre section removal tool** Removes centre section of *FASTRACK* when carrier has been mounted	A-9589-0066	
***FASTRACK* separator assembly** Removes centre section of *FASTRACK* when carrier has been mounted – includes removable side panels for use when *FASTRACK* is mounted against a ledge or dowels	A-9589-0122	
RTLA30 scale pulling tool Aids installation of RTLA30 scale through the *FASTRACK* carrier	A-9589-0420	
***FASTRACK* end cover kit**	A-9589-0058	

[1] The shim is supplied with the readhead.

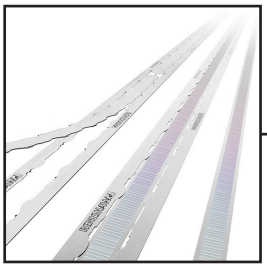
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Compatible products

RTLA30-S



RTLA30/*FASTRACK*





RESOLUTE standard readheads



RESOLUTE UHV
(Ultra-high vacuum) readheads



RESOLUTE FS
(Functional Safety) readheads

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Part no.: L-9517-9418-08-A
Issued: 02.2024