

Precision rotary scales track complement optical reflective read head encoder modules. Fine feature [nanometer] mask photolithography used creates accurate and repeatable patterns.

A majority of rotary scale applications work well with soda-lime glass with reflective chrome metal pattern on clear glass. Anti-reflective coatings reduce unwanted reflections. Common pitches range from 80µm to 20µm or as required for specific industry encoders. Process capable of 1µm track pattern (2µm period)

Production scales match encoder, physical, environmental, and performance requirements. We'll process coatings for specific wavelengths matched to requirements. For applications requiring best accuracies over long lengths or over temperature range, glass compositions with very low CTE are used.

Process options

Code	Precision Rotary	Mounting adhesives
CG	Reflective chrome on clear glass	Epoxy, UV
AR	Reflective Chrome topside with Anti-reflective layer bottom side	Epoxy
AC	Reflective Chrome and Anti-reflective layer top side (track area) and clear center zone	Epoxy, UV

Glass scale dimensions and tolerances

Symbol	Material	Specification	Tolerance	Units
OD Max	Soda-Lime Glass	Up to 700	±0.1	mm
OD		Outside Diameter	±0.1	mm
ID		Inside Diameter	±0.1	mm
T		Thickness	±0.05	mm
TTV		Total Thickness Variation	10	µm
LTV		Local Thickness variation	5	µm
CTE		Coefficient of temperature expansion	8.5	10 ⁻⁶ mm/mm °C

Glass Scale OD and ID edges: straight cut as standard/ Beveled flat or round chamfer optional.

Chrome pattern specifications

Parameter	Reference	Minimum	Typical	Maximum	Unit
Pitch/ Period Accuracy	Local			±1	µm
	Total			±2	µm
Metal pattern alignment to Axis				±20	µm
Chrome reflective layer	Standard	50	54	60	%
	Augmented	60	65	70	%
	Enhanced (620-650 nm)	88	93	98	%
Chrome anti-reflective layer @ 620-650nm	AR		<2	5	%