



Nutfield Technology

Photonics in Motion®



SilkScan-30™ For 15 - 30 mm Beam Apertures

- ◆ **Excellent For Raster Scanning, Imaging, Repetitive Small Angle Or Military Applications**
- ◆ **Flexures Eliminate Ball Bearings For Long Life & Smooth Scanning**
- ◆ **No Lubrication Means No Outgas Or Vapors**
- ◆ **High Signal / Noise Position Detection**

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SilkScan-30 **HarmonicScan-15** Cross Flexure Pivot Suspension Moving Magnet Galvanometers

Nutfield Technology's Flexure Galvanometers have lower cross axis wobble, higher signal-to-noise position detection and faster step response than other flexure scanners in the market. They operate just like a galvanometer with a constant spring force attached to the rotor.

NTI flexure galvanometers use cross flexure pivots instead of ball bearings. Flexures are superior in several ways including long service life. Our flexures are constructed from high quality stainless steel spring material with an endurance rating over 100 kPSI. Our scanners run at low stress levels, typically less than 10 kPSI. They operate in the "infinite life" portion of the stress curve. This means that these units can run continuously for many years.

Flexure pivots scan smoother because there is no rolling friction or surface finish issues between the balls and raceways. The most demanding raster imaging systems use flexures because of their excellent smoothness and repeatability.

Flexure galvanometers have no lubricants; so there is not an issue with out gassing, which is important in some vacuum applications.

Ball bearings are designed to rotate through large enough angles to sufficiently distribute lubrication



HarmonicScan-15™ For 7 - 15 mm Beam Apertures

within the bearing. Several problems can arise when a ball bearing is used in a galvanometer. Lubricant can be displaced from the contact area when the scan angle is small, causing the balls and raceways to wear.

Flexure based galvanometers are not appropriate for all applications. Call our experienced team for assistance in selecting the appropriate galvanometer for your application.

Suitable For Laser Based:

- ◆ **Small Angle Scanning**
- ◆ **Vacuum Environments**
- ◆ **Raster Imaging**



SilkScan-30 HarmonicScan-15

Flexure Galvanometer Specifications

SPECIFICATION	UNITS	HARMONICSCAN-15	SILKSCAN-30
Excursion	Degrees Optical	+/- 20*	+/- 20*
Rotor Inertia	Gram*Centimeters ²	0.34	8.25
Recommended Beam Apertures	Millimeters	7-15	15-50
Small Step Response (Matched Load)	Microseconds	300	750
Torque Constant	Dyne*cm/Amp	40*10 ³ / 62*10 ³	2.8*10 ⁵
Coil Inductance	Micro Henrys	85 / 255	(at 1000Hz) 450
Coil Resistance	Ohms	1.3 / 3.8	5.8
Angular Sensitivity	Micro Amps/Degree	100	100
Repeatability	Micro Radians	5	2
Linearity	Percent, Minimum	99.9	99.9
Zero Drift	μrad./degree C, Max	10	10
Gain Drift	ppm/degree C, Max	30	30

* Flexure Scanners are best used in raster or small angle vector applications. Applications where the command signal keeps the mirror positioned away from center by more than 7 degrees optical, for extended periods of time, could cause over heating due to the spring force of the flexures.

For Outline Drawings and Mounting Details Contact Nutfield Technology or Go On-Line.

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Specifications subject to change without notice. 12/01