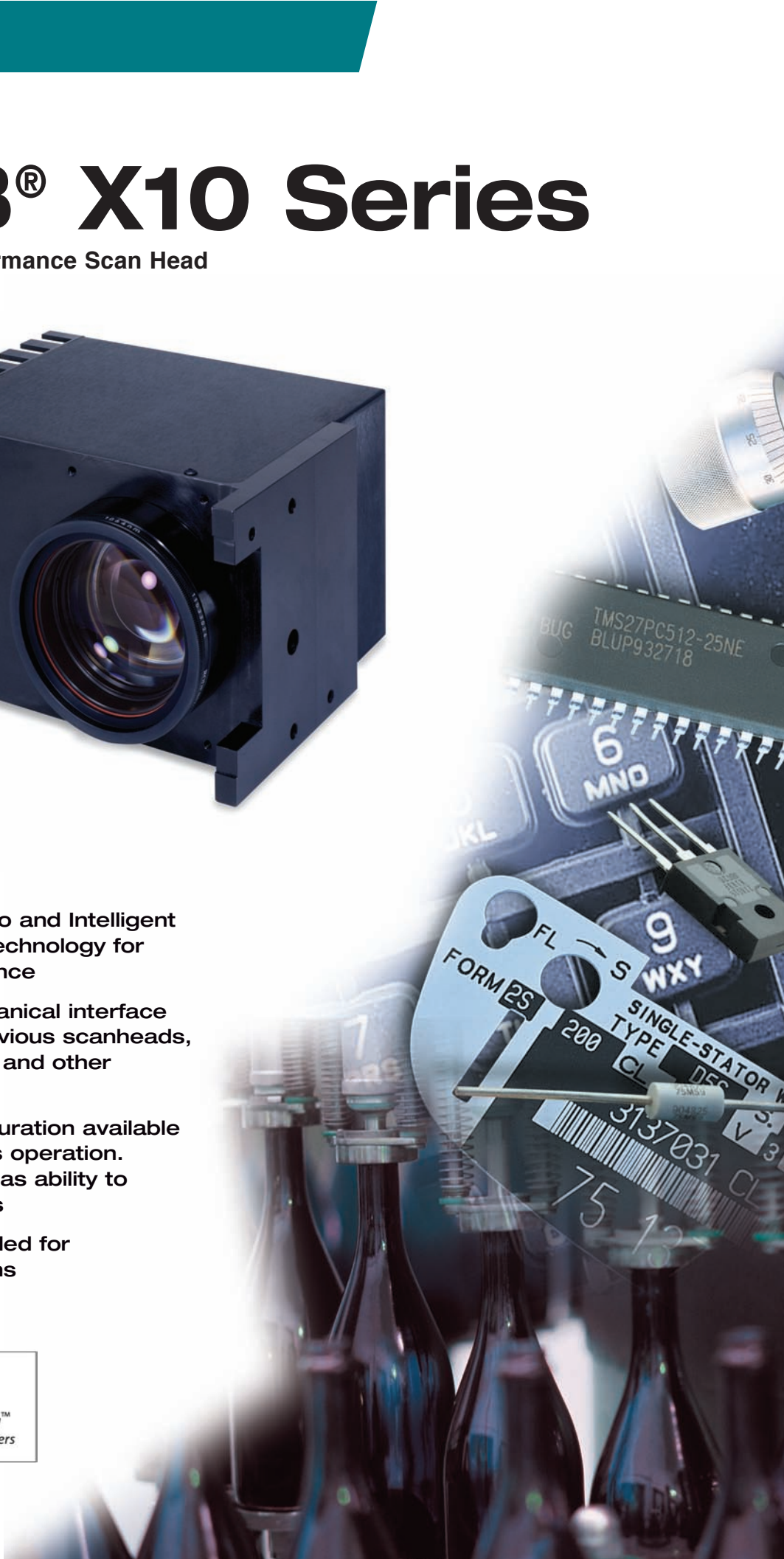


HB[®] X10 Series

High Performance Scan Head



- Uses latest VM galvo and Intelligent Servo Driver (ISD) technology for maximum performance
- Electrical and mechanical interface compatible with previous scanheads, including GSI Group and other suppliers
- ScribeSmart™ configuration available for fully autonomous operation. On board memory has ability to store up to 254 jobs
- Environmentally sealed for industrial applications

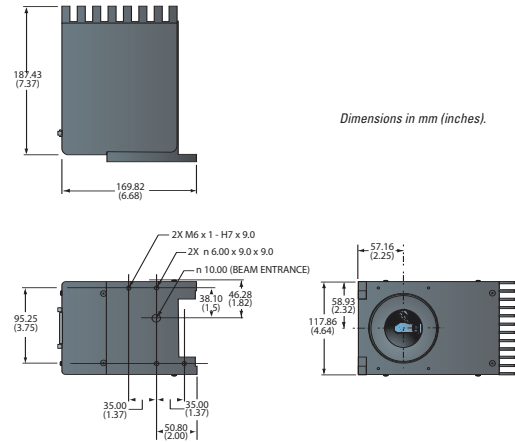


The HB® X10 Series... The Fast and Intelligent Option.

Designed to meet the need for faster and lower cost beam-positioning subsystems, the *HB X10 Series* modules combine state-of-the-art optical scanning and DSP servo technologies to provide one of the fastest heads available. The *HB X10 Series* uses our newest optical scanners, the *VM Series*, which integrate our low-inertia, capacitive position detector for maximum speed while maintaining high position accuracy. Our Intelligent Servo Driver (ISD), with its DSP technology, provides speed and control intelligence in a very small footprint, unmatched by analog servos. Our laser grade mirrors, available in a variety of high reflectivity

coatings, are optimized for speed and will maintain their flatness to one-quarter wave.

The HB X10 Series Scan Modules have three input control configurations: HC/3 PC interface, ScribeSmart control or standard analog input. The HC3 interface provides a high-speed datalink between our *WinMCL Plus* software and the digital receiver card internal to the module. The *ScribeSmart* control is a dual-axis scan controller with an on-board DSP for beam positioning and laser control that can function independently from the PC.



HB X10 Specifications

Laser Type	YAG	YAG	CO2	CO2	CO2
Wavelength λ (nm)	1064	1064	10600	10600	10600
Objective (f in mm)	160	254	100	200	300
Input Aperture (mm)	10	10	10	10	10
Spot Size TEM ₀₀ (μ m)	15	41	230	380	570
Scan Angle	$\pm 20^\circ$	$\pm 20^\circ$	$\pm 20^\circ$	$\pm 20^\circ$	$\pm 20^\circ$
Standard Field Size (mm) ¹	99 x 99	157 x 157	70 x 70	140 x 140	210 x 210
Working Distance (mm) ²	210	355	94	196	294
Relative Positional Repeatability ³ (μ m)	16	25	10	20	30
Dither (μ m)	8	13	5	10	15
Writing Speed (m/s)	4.5	7.1	3.2	6.4	9.5
Idle Stability ³ (μ m)	70	110	44	87	131
Active Stability ⁴ (μ m)	128	203	80	160	240
Long Term Stability (μ m in 8 hours)	68	108	43	85	128
Linearity ⁵	0.3%	0.3%	0.3%	0.3%	0.3%
Geometric Distortion ⁵	0.4%	0.4%	0.4%	0.4%	0.4%
Laser Power Capability, cw (W/cm ²)	500	500	500	500	500
Laser Power Capability, 100 ns pulsed (MW/cm ²)	100	100	400	400	400
Laser Power Loss, Including Lens	<11%	<11%	<3%	<3%	<3%
Operating Temperature (°C)	25 +/- 10				
Weight (Kg, without objective lens)	2.87				

1. Grid Corrected Field Size; note: the fields can be increased to 120 mm x 120 mm and 180 mm x 180 mm for the f160 and f254 YAG lenses, respectively, but with a falloff of spot size and field flatness
2. From the lens mounting surface to the target plane
3. Thermal drift due to idling
4. Thermal drift due to most aggressive operation in worst environment
5. Grid corrected, Geometric Distortion includes lens distortion, while linearity does not

Specifications are subject to change. Consult GSI Group for details

www.gsig.com/scanners



Americas
 39 Manning Road
 Billerica, MA 01821
 U.S.A.
 TEL: +1 (978) 439-5511
 Toll Free: +1 (800) 342-3757
 FAX: +1 (978) 663-0131
 E-mail: ScannerSales-Americas@gsig.com

Europe
 Einsteinstrasse 2
 D-85716 Unterschleissheim
 Germany
 TEL: +49 (89) 31707-0
 FAX: +49 (89) 31707-250
 E-mail: sales.components@gsig.com

Asia
 Technoport Kamata, 16-1
 Minami-Kamata 2-Chome,
 Ohta-Ku Tokyo 144-0035, Japan
 TEL: +81 (3) 5714-0380
 FAX: +81 (3) 5714-0335
 E-mail: gsi_scanners@gsig.com