

g2T[®] Gaussian-to-Top Hat Laser Direct-Write Scan Beam Line @ 532 nm

Product number: PEX000243



General Description:

| Advanced Optical Solutions |

This illumination beam line is engineered to generate a homogeneous light field for scanning applications at the target.

Working plane specifications

	Unit	Value	Tolerance
Top hat full width at 90% intensity at center of working plane	µm	75x75	± 10%
Working plane size	mm	160x160	
Transmission	%	(>80) tbd.	
FW80% x at coordinates (0,0) (40,40) (80,80)	µm	85 ; 80 ; 80	± 10%
FW80% y at coordinates (0,0) (40,40) (80,80)	µm	85 ; 75 ; 65	± 10%
FWHM x at coordinates (0,0) (40,40) (80,80)	µm	100 ; 100 ; 100	± 10%
FWHM y at coordinates (0,0) (40,40) (80,80)	µm	100 ; 100 ; 100	±10%
Max. non-uniformity ¹ (Imax-Imin)/(Imax+Imin) 1D integrated x	%	10 ; 10 ; 10	
Max. non-uniformity ¹ (Imax-Imin)/(Imax+Imin) 1D integrated y	%	10 ; 15 ; 20	
Max. non-uniformity ¹ (Imax-Imin)/(Imax+Imin) 2D (ROI is 75x75µm ²)	%	15 ; 35 ; 35	
Scan speed along one axis over full field	m/s	>20	
Position accuracy	µm	<1	
Optical damage threshold	J/cm ²	>10 @ 532 nm for 10 ns pulses, 1 Hz	

¹ at coordinates (0,0) (40,40) (80,80)

Optical input requirements

	Unit	Value
Application wavelength	nm	532
Input beam divergence (FW1/e ²)	mrad	≤ 1
Input beam quality		M ² < 1.4
Beam diameter (FW1/e ²)	mm	0.5..4
Beam ellipticity	%	< 4
Beam profile of laser source ²	%	> 95
Beam pointing (max. beam offset from optical axis at entrance window)	mm	< ± 0.07

² Energy with Gaussian distribution

Consumables requirements

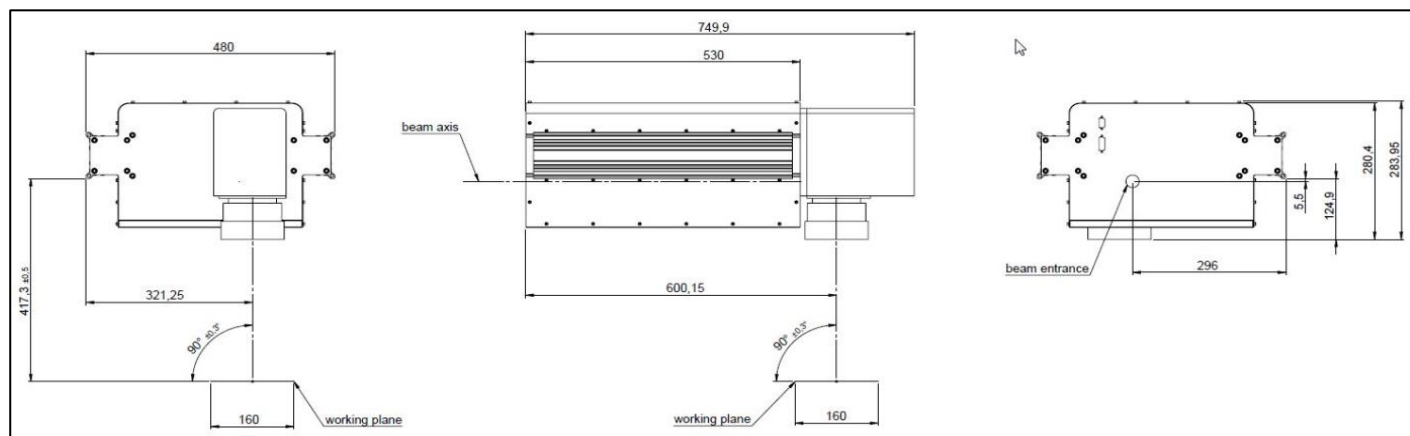
	Unit	Value
Electricity	V	100-230
	Hz	50-60
	W	<2000, typ. 250

Scan head water cooling unit (supplied by control rack through closed circuit, mandatory):

Temperature (below ambient, max. 30°C, non condensing)	K	0..5
Flow rate	l/min	5
Pressure	bar	< 4

Clean air cooling unit (according ISO 8573.1:2001 class 1.6.1, not included):

Temperature		ambient, non condensing
Flow rate	l/min	typically 20
Pressure	bar	< 2



Mechanical interface

	Unit	Value
Maximum tilt angle	°	0,3
Maximum working distance variation	mm	±0,5

Process control interface

	Unit	Value
RTC5 Laser trigger	Voltage level	TTL (rising/falling edge)
RTC5 External connector		
Laserdesk Remote Control software interface		

Scope of delivery

- Compact module incl.
- Beam expander to match the laser beam diameter required by the g2T®-module
 - g2T®-module
 - Galvo scan system (incl. power supply)
 - F-Theta lens (non-telecentric design)

Optional Accessory:

- PC with RTC5 card
 - Laserdesk Software
 - Scan head water cooling unit
- The laser source is not included.