IPG YLS-3000-5000-U-SM-AMB Specification

1 Optical characteristics

IPG | YLS-3000-5000-U-SM-AMB | G62-1524103 | 14.06.2024 | Ring Diameter 100 μ option							
No	**Characteristics**	**Test conditions**	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
1	Operation Mode				CW / Modulated		
2	Polarization				Random		
3	Nominal Output Power*	Central + ring beams power	Pnom	8000*			W
4	Central Beam Power*	Independent power control	Pcentr	3000*			W
5	Ring Beam Power*	Independent power control	Pring	5000*			W
6	Output Power Tuning Range, lower limit**	Relative to Pnom			5		%
7	Output Power Tuning Range, upper limit	Relative to Pnom		100		105	%
8	Emission Wavelength		λ	1068		1080	nm
9	Emission Linewidth		Δλ		5	8	nm
10	Switching ON/OFF Time	Output power: 8000 W			30	50	μs
11	Output Power Modulation Rate					10	kHz
12	Output Power Instability	Output power: 8000 W; 1 hour; T=Constant			±1	±2	%
13	Red Guide Laser Power				0.4	0.5	mW
	* Measurement accuracy by means of Primes Power Monitor ± 5 %						
	** Adjustable on request						

2 Optical output

IPG | YLS-3000-5000-U-SM-AMB | G62-1524103 | 14.06.2024 | Ring Diameter 100 µ option							
No	**Characteristics**	**Test conditions**	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
1	Delivery Fiber Connector				Standard: HLC-8; Option: LCA		
2	Beam Quality*, (86 %)	Central beam	M²*		1.3	1.6	
3	Beam Divergence*, (86 %, half-angle)	Central beam	θcenter*		60	75	mrad
4	Beam Parameter Product* (86 %), Ring Beam	Delivery fiber ring diameter 100µ	BPP*		4	4.5	mm*mrad
5	Beam Divergence*, (86 %, half-angle), Ring Beam	Delivery fiber ring diameter 100µ	θring*		80	90	mrad
6	Delivery Fiber Length Option 1		L		10		m
6	Delivery Fiber Length Option 2		L		15		m
7	Process Fiber Bending Radius - unstressed		R	100			mm
7	Process Fiber Bending Radius - stressed		R	200			mm
	* Measurement accuracy by means of Primes Focus Monitor ± 10 %						

3 Electrical characteristics

IPG | YLS-3000-5000-U-SM-AMB | G62-1524103 | 14.06.2024 | Ring Diameter 100 µ option					
No	**Characteristics**	**Min.**	**Typ.**	**Max.**	**Unit**
1	Operating Voltage, 3 phases		400-480 V/3P + PE @ 50-60 Hz		
2	Laser Power Consumption at 8000 W power		20	23	kW
3	Laser Operation Current at 8000 W power and 400 VAC			35.5	A
4	Input fuses, 400 VAC			40	A

4 Cooling

IPG | YLS-3000-5000-U-SM-AMB | G62-1524103 | 14.06.2024 | Ring Diameter 100 µ option						
No	**Characteristics**	**Test conditions**	**Min.**	**Typ.**	**Max.**	**Unit**
1	Cooling Method			Tap and slightly DI water		
2	Water Temperature for Laser		20	21	25	°C
3	Water Temperature for Optics		27	30	33	°C
4	Water Conductivity for Optics		30	40	50	µS/cm
5	Water Pressure		2.5		3.5	bar
6	Water Flow Rate for Laser Cooling		56	72		l/min
7	Water Flow Rate for Fiber Connector Cooling	Output power: 8000 W	1.2	1.5	2.5	l/min
8	Chiller cooling capacity		15			kW

5 General characteristics

IPG | YLS-3000-5000-U-SM-AMB | G62-1524103 | 14.06.2024 | Ring Diameter 100 µ option					
No	**Characteristics**	**Min.**	**Typ.**	**Max.**	**Unit**
1	Operating Ambient Temperature Range	5		45	°C
2	Humidity	10		95	%
3	Storage Temperature without water	-10		60	°C
4	Dimensions (w/o interface plugs, w/o castors), W x D x H		430 x 808 x 900		mm
5	Weight		250		kg
6	Cabinet Protection Rating, Laser Safety Class		IP54, Class 1 according to EN 60825-1:2014		

6 Fast power supply option

IPG | YLS-3000-5000-U-SM-AMB | G62-1524103 | 14.06.2024 | Ring Diameter 100 µ option			
No	**Description**		
6.1	Switching OFF of laser main power supplies during 130 ms		
6.2	Maximal quantity of main power supplies switching ON/OFF cycles per minute is 20 times; minimal time between power supplies switching OFF is 3 s		

7. External layout (original drawing is preserved in the source PDF)

