	<b>SPECIFICATION</b> <b>YTTERBIUM LASER SYSTEM</b> <b>Model YLS-15000</b>	Spec: Revision: Issue date: Page:	G22-152530914 -- 23.11.2021 1 of 3
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## 1. Optical characteristics

N	Characteristics	Test conditions	Symbol	Min.	Typ.	Max.	Unit
1	Operation Mode			CW / Modulated			
2	Polarization			Random			
3	Nominal Output Power*		P <sub>nom</sub>	15000*			W
4	Output Power Tuning Range			10		105	%
5	Emission Wavelength	Output power: 15000 W	$\lambda$	1068		1080	nm
6	Emission Linewidth	Output power: 15000 W	$\Delta\lambda$		5	8	nm
7	Switching ON/OFF Time	Output power: 15000 W			50	100	$\mu$ s
8	Output Power Modulation Rate	Output power: 15000 W				5	kHz
9	Output Power Instability	Output power: 15000 W Time interval: 1 hour (T=Constant)			$\pm 1$	$\pm 2$	%
10	Red Guide Laser Power				0.4	0.5	mW


\* Measurement accuracy by means of Primes Power Monitor  $\pm 5\%$

## 2. Optical output

N	Characteristics	Test conditions	Symbol	Min.	Typ.	Max.	Unit
1	Delivery Fiber Connector			HLC-16			
2	Beam Parameter Product* (86 %)	Delivery fiber core diameter 100 $\mu$	BPP		3.5	4.2	mm*mrad
3	Beam Parameter Product* (86 %)	Delivery fiber core diameter 150 $\mu$	BPP		5.5	6.5	mm*mrad
4	Beam Parameter Product* (86 %)	Delivery fiber core diameter 200 $\mu$	BPP		6.5	8.5	mm*mrad
5	Delivery Fiber Length		L	10	20	30	m
6	Delivery Fiber Bending Radius - unstressed - stressed		R	100 200			mm

\* Measurement accuracy by means of Primes Focus Monitor  $\pm 10\%$

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### 3. General characteristics

N	Characteristics	Min.	Typ.	Max.	Unit
1	Operating Ambient Temperature Range	5		45	°C
2	Humidity, Ambient Temperature Range $\leq 40^{\circ}\text{C}$	10		95	%
3	Storage Temperature without water	- 10		+ 60	°C
4	Dimensions* (w/o interface plugs, legs and castors), WxDxH	1007x806x805			mm
5	Weight		450		kg

### 4. Cooling

N	Characteristics	Test conditions	Min.	Typ.	Max.	Unit
1	Cooling Method		Tap and slightly DI water			
2	Water Temperature for Laser		20	21	22	°C
3	Water Temperature for Optics		27	30	33	°C
4	Laser “Cold Start” Temperature		20			°C
5	Water Conductivity for Optics		30	40	50	$\mu\text{S}/\text{cm}$
6	Water Pressure		3.0		4.5	bar
7	Water Flow Rate for Laser Cooling		105	135		l/min
8	Water Flow Rate for Fiber Connector Cooling		1.7	2.5	3.5	l/min
9	Chiller cooling capacity		28			kW


### 5. Electrical characteristics

N	Characteristics	Min.	Typ.	Max.	Unit
1	Operating Voltage, 3 phases	400-480 V/3P + PE @ 50-60 Hz			
2	Laser Power Consumption at 15000 W power		38	43	kW
3	Laser Operation Current at 15000 W power and 400 VAC			66	A
4	Input fuses, 400 VAC			80	A

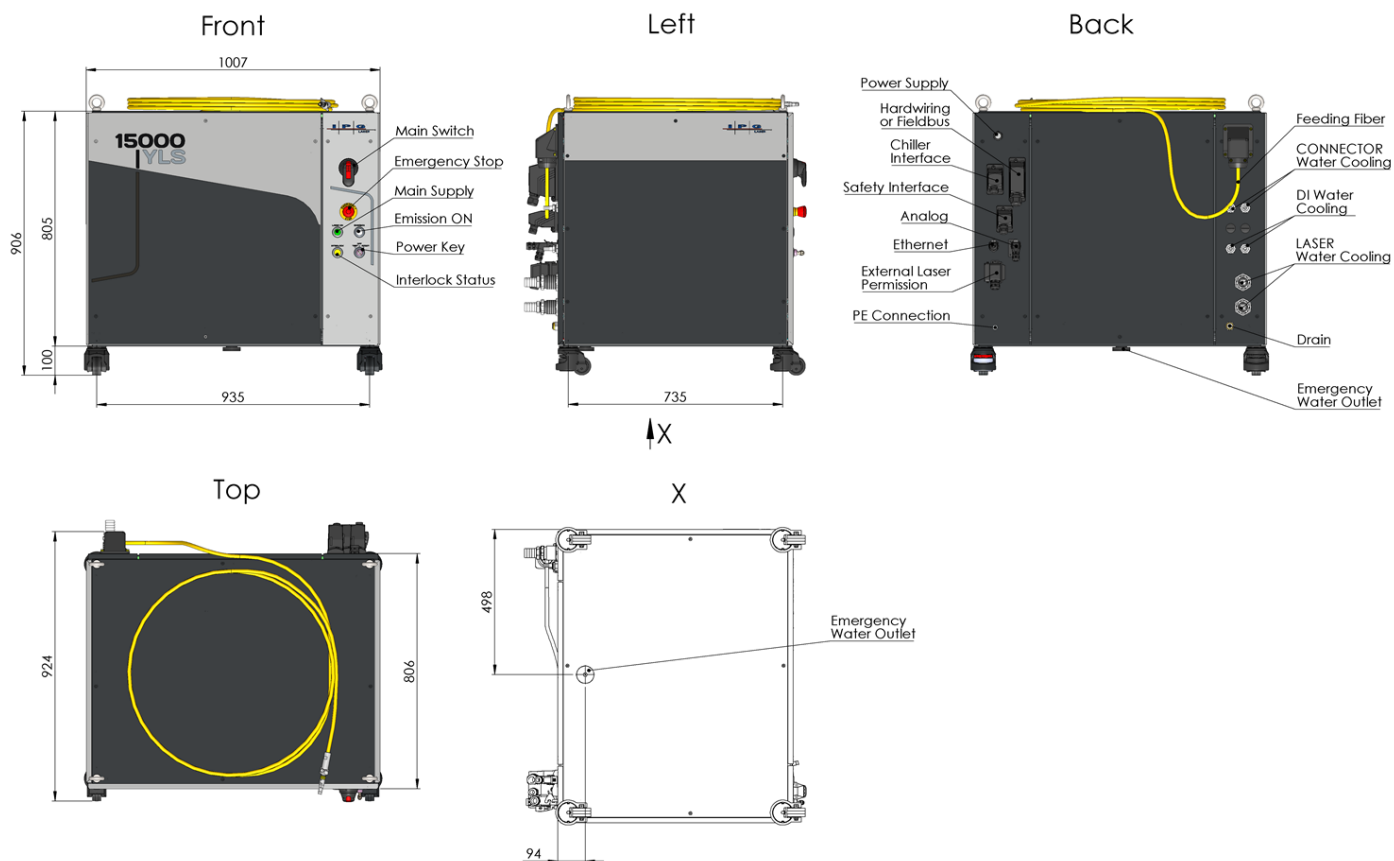
### 6. Fast power supply option

- 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

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## 7. External layout



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