



STAV5 Series High-power Diode Lasers



- High brightness laser for pump applications
- Hermetically sealed laser head in potential-free housing
- SMA905 / LD80 Plug & Play connector for optical fibres
- Compact dimensions
- Dual temperature sensor (NTC/PT100)

Optical data ¹				
CW – nominal output power (W)	120(CMF)	100	120	180
Centre wavelength λ (nm)	9xx	790-795, 805-810, 880, 888, 915, 940, 975-981 ⁴		
Tolerance of λ (nm)	$\pm 3 (\pm 2)^5$			
Spectral width (FWHM) (nm)	< 5			
Temperature drift of λ^4 (nm/K)	~0.3, ~0.35, ~0.4			
Fibre data				
Fibre core diameter (μm)	200		400	
Numerical aperture	0.22			
Fibre-optic connector	SMA905		LD80	
Electrical data				
Typical operation current (start of lifetime) (A)	66	52	57	55
Max. Operation current (start of lifetime) (A)	69	55	60	58
Max. Operation current (end of lifetime) (A)	83	66	72	70
Typical threshold current (A)	5 - 10			
Typical efficiency (%)	34	36	39	36
Typical slope efficiency (W/A)	2 - 4			
Operation voltage (V)	< 6	< 6	< 6	< 10
Reverse voltage	0			
Thermal conditions				
Diode heat sink temperature ³ ($^{\circ}\text{C}$)	+15...30			
Storage temperature ($^{\circ}\text{C}$)	-20...+60			
Recommended cooling capacity (W)	> 330	> 260	> 270	> 450
Chiller flow capacity ⁵ (l/min)	5			
Water pressure ⁵ (bar)	4			
Water temperature ⁵ ($^{\circ}\text{C}$)	20			
Other specifications				
Expected lifetime ⁷ (hours)	20,000			
RoHS 2002/95/EC and CE compliant	YES			
Dimensions of laser head (mm)	245x130x70			
Weight laser head (kg)	< 4.5			
External radiation filter	Filter 1600.014, HR @ 1050-1130nm >99.0% (s+p pol.) or Filter 1600.036, HR @ 1025-1080nm >99.0% (s+p pol.) Other filters on request			
The 120W 200 μm module is a Cladding Mode Free fibre coupled diode laser (CMF); available for 915, 940, and 975-981nm. The CMF laser module is prepared to connect a water cooled fibre. >99% power out of the CMF-fibre core; the laser module has to be used in combination with a ST-CMF-fibre.				

¹Optical data @ 25 $^{\circ}\text{C}$ diode heat sink temperature ²Other wavelength on request, ³optional, ⁴Depending on wavelength, ⁵Measured by NTC/PT100 on LEMO connector, ⁶Water cooled module, ⁷According to ISO 17526:2003(E);

Optional

Pilot beam	
Pilot beam output power (mW)	> 1
Pilot beam wavelength (nm)	635 \pm 5
Pilot beam voltage (V)	3-5
Pilot beam current (mA)	< 120
Monitor diode	
Operation voltage (V_{DC})	5
Monitor diode signal (V)	0-2

Product name identification:

ST__F____-DL____-____ (pump)

Power	Fibre core diameter	Wavelength	Wavelength tolerance	Feature monitor diode	Feature pilot laser	Feature filter
100	200	790,791,792 793,794,795	T2±2nm	M0= no monitor diode	P0= no pilot laser	F0 = no filter
120	400	805,806,807 808,809,810	T3±3nm	M3= monitor diode	P2= pilot laser	F14 = filter 1600.014
120(CMF)		880, 888				F36 = filter 1600.036
180		915,940 975,976,977 978,979,980 981				

Example: ST120-F400-DL976-T0M3P2F36 (pump)

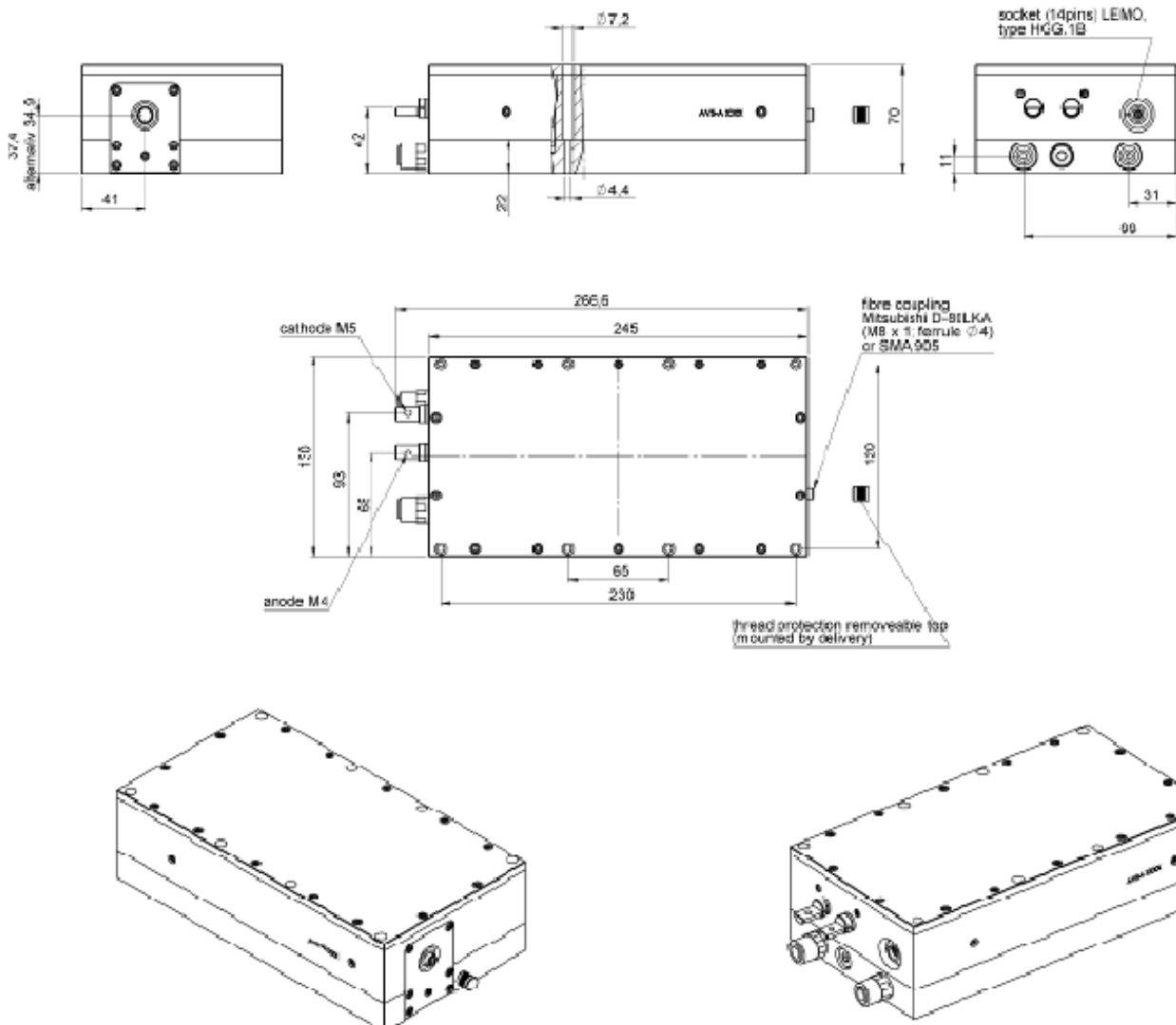
Example: STHLU30F200-980-T3M3P0

Accessories

- Fibre ST-SMA905- / ST-LD80-, 1.5m or 3m
- Laser Diode Driver and Water Cooler
- Integrated Volume Holographic Grating for wavelength stabilization
- Different beam shaping optics (focussing, collimating, fibre-fibre) available
- Installation service and personal introduction on request
- Turn-key systems available
- Customized laser modules and fibres on request

Accessories

- Fibre ST-SMA905-F, 1.5m or 3m
- Diode driver with TEC-cooler
- Integrated Volume Holographic Grating for wavelength stabilization
- Different beam shaping optics (focusing, collimating, fibre-fibre) available
- Installation service and personal introduction on request
- Turn-key systems available
- Customized laser modules and fibres on request



Considerations in Safety and Operation

This is a laser class IV product regarding CDRH regulations and a Laserklasse 4 product regarding DIN:EN60825-1. The laser light emitted from this laser diode is invisible and/or visible and may be harmful to the human eye. Avoid looking directly into the laser diode, into the collimated beam along its optical axis, or directly into the fibre when the device is in operation.

ESD PROTECTION – Electrostatic discharge is the primary cause of unexpected laser diode failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces and rigorous antistatic techniques when handling laser diodes.

Operating the laser diode outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the component must be employed such that the maximum peak optical power cannot be exceeded. Output powers in excess of specification will accelerate device aging. Operation at higher temperatures will accelerate device aging. Do not use thermal contact paste! We provide appropriate carbon foil.

All data provided are typically measured with a diode heat sink temperature of 25 °C. All measurements, except for CMF-laser, are made with a reference fibre 100/140, 200/280 µm or 400/480 µm, length 1.5 m, and non AR coated. Subject to change without notice.