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Product Division

**PH** Pumping heads

Product

PH-720-CW-KRP4-YAG5

Description

Pump laser diode head with laser crystal Nd:YAG of Ø5mm, pumped with 720W-CW, water cooling. More than 220W-CW @ 1064nm.

Main Features

This compact laser pump head consists of three water-cooled diode laser bars STACKS, arranged radially around a central cavity suitable for accommodating a crystal laser rod as Nd:YAG. It delivers excellent gain uniformity and lensing performance.

The rod pumped length of 46 mm is much shorter than other similar products existing in the market. This is advantageous for regenerative amplifiers, since higher energy is available before self-focusing appears.

The pumping laser diodes are mounted using our clamp-mounting technology. The main features of the solder-free concept of the **clamp-mounting** technology, exclusive from Monocrom, are:

- Long lifetime**, due to the absence of the mechanical stress caused by the soldering.
- Minimum "smile"**, less than 0.5 µm
- High reliability** in pulsed conditions, since the clamped bars do not suffer the same fatigue effect than the soldered ones due to the thermal cycles.
- Small thermal resistances**, owing to the reduction of the contact resistance between electrodes and laser bar.
- No micro channels** are needed to reach low thermal resistances.

Monocrom active mounting uses millimetre-water channels instead of micro-channels. INDUSTRIAL WATER CAN BE USED FOR COOLING, without any obstruction or channel degradation. A mixture of deionised water + 5% ethylenglycol is recommended.

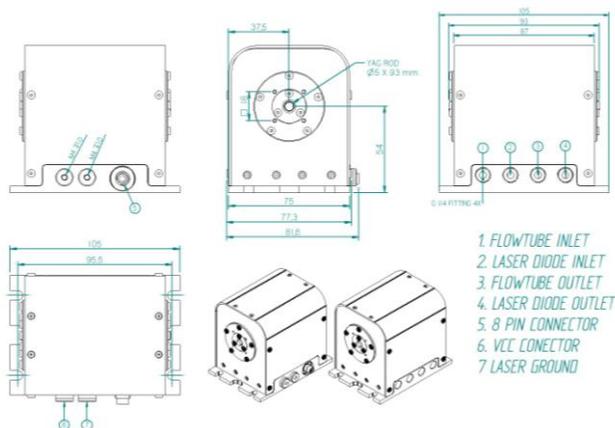
Applications

Oscillators  
 Regenerative amplifiers

Picture(s)



Outline



## PH-720-CW-KRP4-YAG5 | TECH SPECS

	Minimum	Operation	Maximum <sup>(1)</sup>	
PUMPING	Pumping wavelength (@ I <sub>op</sub> ) [nm]	804	806	808
	Pumping bandwidth [nm]		2	4
	Wavelength difference between bars [nm]			1,5
	Wavelength vs. temperature [nm/K]		0,27	0,28
	Pumping power [W]	700	720	740
	Threshold current [A]	7	10	12
	Operating current [A]		58	60
	Voltage before cables [V <sub>dc</sub> ]	19	22	24
ACTIVE MEDIUM	Nd:YAG doping <sup>(2)</sup>	0,4	0,6	1,1
	Emission wavelength [nm]		1064	
	Output power [W]	180	220	250
	Active medium rod size <sup>1</sup> (ØxL) [mm]	5 x 87		
	Beam diameter without aperture [mm]	5		
MECHANICS	Recommended coolant	Deionized water + 5% ethyleneglycol		
	Coolant flow rate [L/min]		3	
	Coolant input pressure [bar]		2	3
	Coolant temperature <sup>(3)</sup> [°C]	Non-condensing	25	30
	Water connections	Water flow outlet for Ø8mm tube		
	Electrical connections	Thread M6		
	Expected lifetime	10 <sup>4</sup> hours		
	Dimensions	105 x 91,7 x 92,7		
	Weight [g]	1200		
	Laser class product (EN-60825)	4		

Typical value in the beginning of life performance at 25°C

1. Not all maximum ratings are achievable at the same time
2. Other active media on request.
3. The optimum water temperature depends on the operation current and water flow. It is recommended to measure the wavelength of the diode by using a spectrometer, so that water temperature is changed to achieve 808nm for optimum pumping.