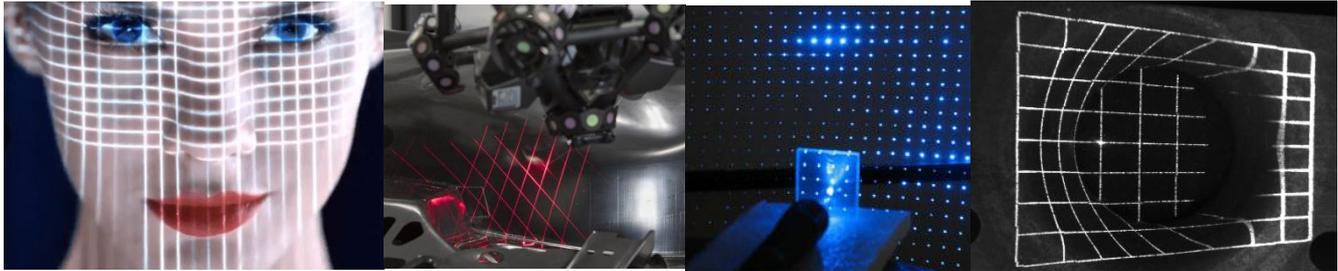
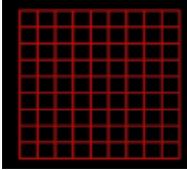
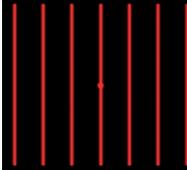
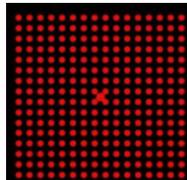


## DOE Laser Module

A Diffractive Optical Element (DOE) utilizes a surface with a complex microstructure for various optical patterns. DESHENG offers laser modules with such patterns, the beams' shape can be controlled and changed flexibly according to customers' requirement. This series of lasers are widely used for machine vision and photoelectric detection, such as bar code scanners, 3D sensors and viewfinders, and well suited to serve many other applications.



### ◆ Diffraction Pattern Options

Pattern		Description	Wavelength Range
Grid		Available for 10×10 lines/51×51 lines	530-680nm
Multi-line		Available for 3-81 lines	480-700nm
Multi-rings		Available for 5 rings/10rings	488-700nm
Cross-hair		Available for Cross-hair lines	420-700nm
Dot Lines		Available for Dot lines	450-980nm
Dot Matrix		Available for Dot Matrix	500-730nm



## ◆ Diffraction Patterns Laser Modules

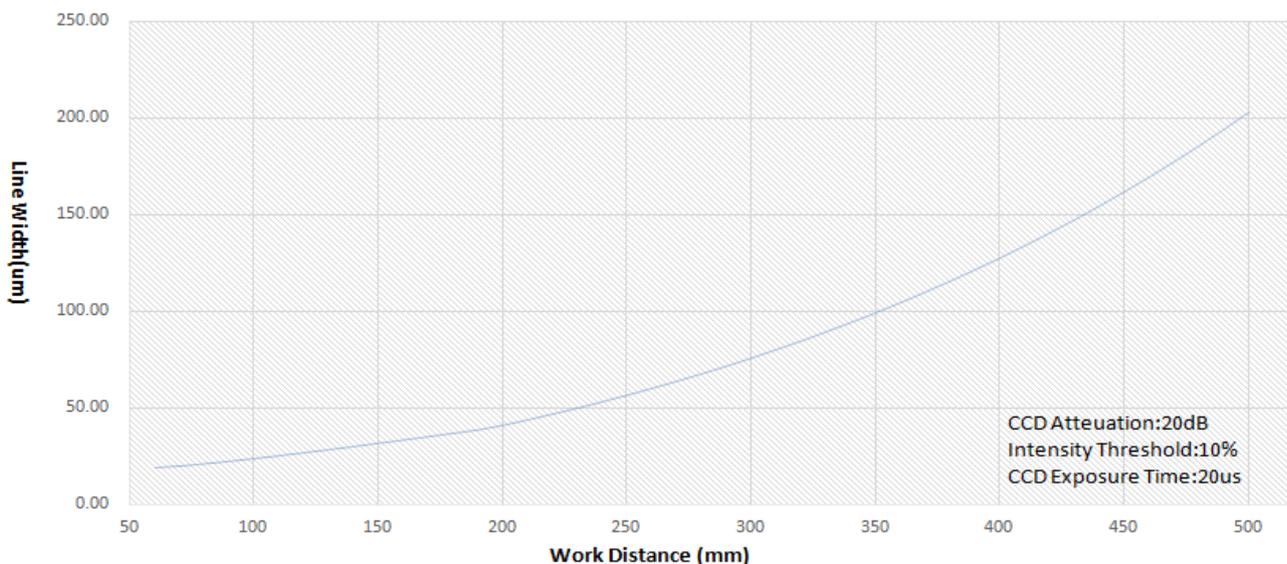
◆ Technical Parameters		405-450nm	515-520nm	635-650nm	780-980nm
Optics	Wavelength $\lambda$ (nm)	$\pm 10\text{nm}$	$\pm 5\text{nm}$	$\pm 5\text{nm}$	$\pm 10\text{nm}$
	Power (mW)	0.1-200mW	0.1-80mW	0.1-180mW	0.1-500mW
	Light Type	DOE			
	Fan Angle	$10^\circ / 15^\circ / 30^\circ / 45^\circ / 50^\circ / 60^\circ / 75^\circ / 90^\circ / 110^\circ$			
	Straightness	$\leq 0.3\%$			
	Line Width (1/e2)	$< 20\mu\text{m}$	$< 30\mu\text{m}$	$< 40\mu\text{m}$	$< 60\mu\text{m}$
	Work Distance	$< 200\text{mm}$ for normal module (Conventional) provide laser modules with customized working distance			
	Focus	Manual Focus			
	Luminance Uniformity	$> 70\%$			
	Electrical	Laser Driven mode	CW/TTL		
TTL Modulation (kHz)		15			
Rise/Fall ( $\mu\text{sec}$ )		$< 15$			
Work Voltage (V)		3-5V/12-24V	3-5V/12-24V	3-5V/12-24V	3-5V/12-24V
Work Current (mA)		$< 100\text{mA}$	$< 200\text{mA}$	$< 250\text{mA}$	$< 700\text{mA}$
Power Stability		$< 10\%$ , $-10^\circ$ to $50^\circ$ (48hours)			
Electrical Connection		DC/XS12/M12/JST/MOLEX/Other			
ESD Protection		Level 4			
Mechanical	Dimension (mm)	$\Phi 22 \times 100 \text{ mm}$			
	Material	Black Aviation Aluminum			
Others	Working Temperature	$-20$ to $55^\circ \text{C}$ (Conventional)			
	Storage Temperature	$-40$ to $70^\circ \text{C}$ (Conventional)			
	Working Life	$\geq 10000\text{Hours}$			



◆Performance test

Focusing and Depth-of-Field Performance

Line Width With Different Working Distance (450nm\_20mW)



Power stability test

Power Stability With Different Testing Time

