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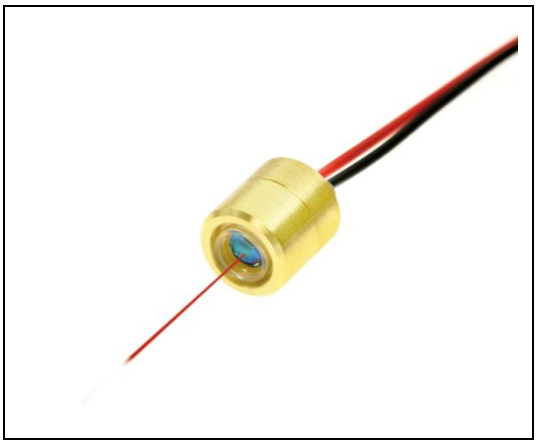
Mini Dot Size Red Laser Module

VLM-635-63 Series



FEATURES:

- μ Dot Size Laser Module.
- Small-Spot Laser module for use with high-precision devices.
- This module has integrated optic, laser diode, and APC driver circuit.
- APC Driver Circuit enables the Laser output power safe and constant.
- Dimensions : Ø10.6 x 12.2 mm (Ø0.417" x 0.48")
- Wavelength : 630~645 nm
- Laser power output : LPT - Class II - less than 1mW.
  LPO - Class I - less than 0.39mW.
- 3~6 VDC operation.
- Connection type : Lead wire

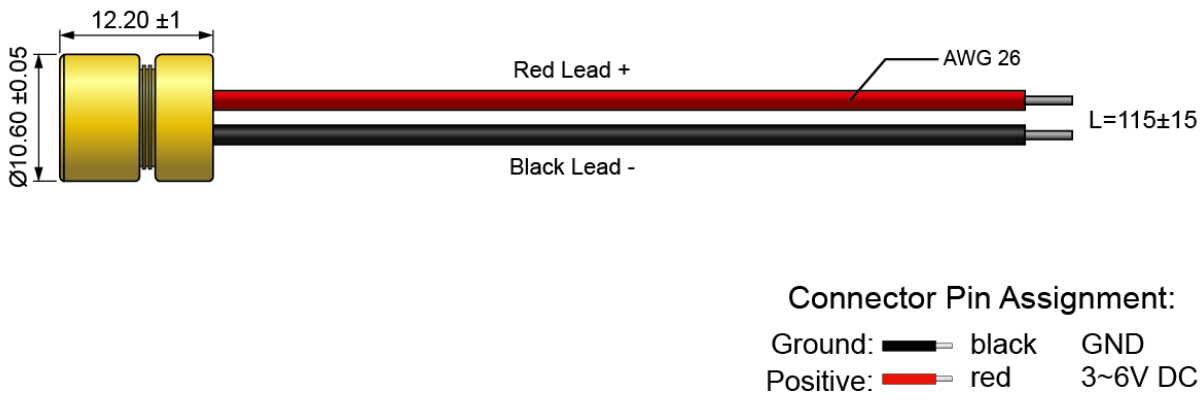
APPLICATIONS:

- Mini Dot Size Red Laser Module.
- Medical science application.
- Bio-tech.
- Precision measurement.

VLM-635-63 Series

OUTLINE DIMENSIONS (UNITS: mm)

Outline (Lead Wire type)



SPECIFICATIONS

SPECIFICATIONS		VLM-635-63		
		LPO-		**LPT-**
		50	**100**	**200**
1	Dimensions	Ø10.6 x 12.2 mm (Ø0.417" x 0.48")		
2	Weight	5.2g±0.5g (0.18±0.017 oz)		
3	Operating voltage (Vop)	3~6 VDC		
4	Operating current (Iop)	Less than 40mA		
5	Continuous wave output power (Po)	Less than 0.39mW		Less than 1mW
6	Wavelength at peak emission (λp)	630~645 nm		
7	Collimating lens	Aspherical plastic lens		
8	Output aperture	5mm		
9	Beam shape	Circular		
10	Beam alignment	Less than 3°		
11	Beam Size (FWHM) at 25°C	As the below TABLE A		
12	Beam Size ($1/e^2$) at 25°C	As the below TABLE A		
13	Depth of field	As the below TABLE B		
14	Operating temp. range*	-10°C ~+50°C		
15	Storage temp. range	-20°C ~+65°C		

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16	Housing material	Bronze
17	Potential of housing**	VDD(+)
18	Electrostatic discharge (ESD)	30KV
19	Moisture sensitivity level (MSL)	Level 1 - acc to JEDEC J-STD-020E.
20	Wire type	1007-26AWG
21	Cable length	115±15mm
22	Mean time to failure (MTTF) 25°C	10000hrs
23	Application	Micro dot size
24	Suggestion work distance	1~25 cm / 1/2"~10"

* Operation temperature: it means within this temperature range, the laser spot/line will not be affected to change the spot size/line width. It can still work over this range, but the laser spot size or laser line width will be larger.

** Laser module housing is an electrical positive surface, it is imperative that contact between the laser module and the machine be avoided. This is to prevent damage from the machine electrical leakage. Surge protected power supply to the laser module is strongly recommended.

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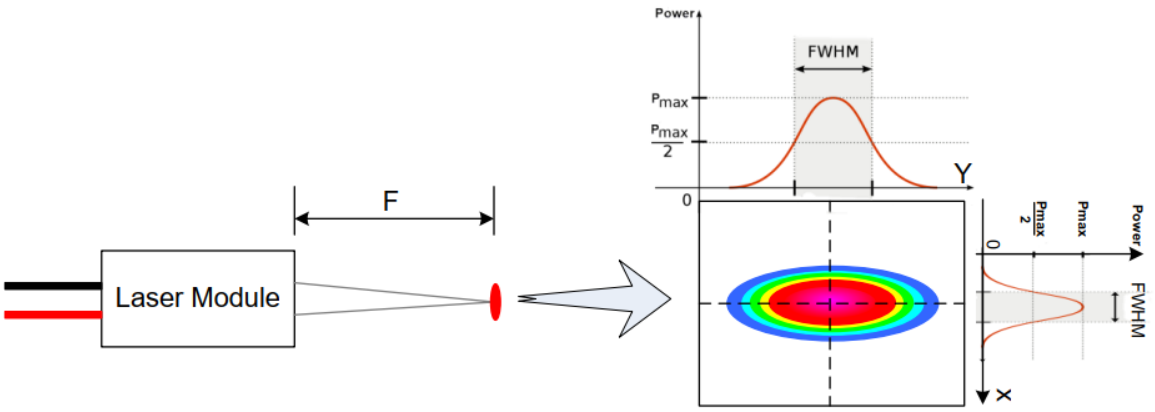
TO DEFINED BEAM SIZE

FWHM: Full Width at Half Maximum the diameter obtained is the full width of the beam at half its maximum intensity (FWHM).



1/e² Width the diameter obtained is where the intensity falls to $1/e^2 = 0.135$ times the maximum value.

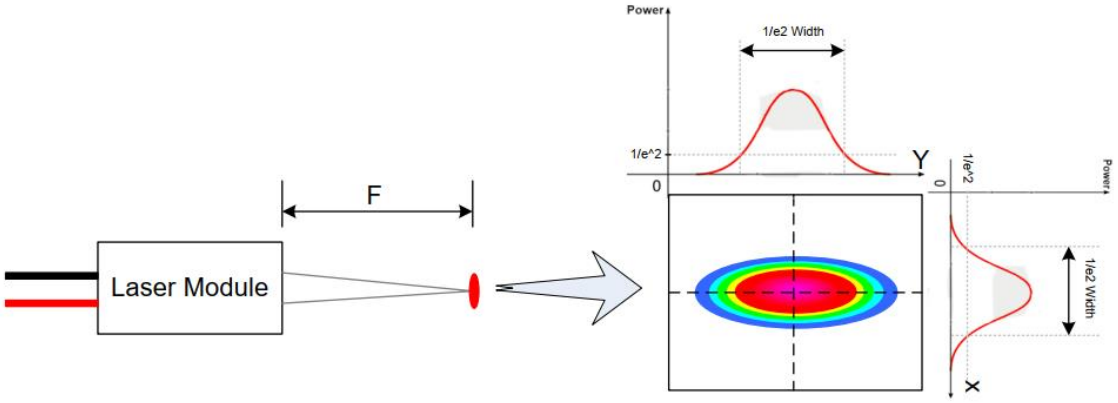


TABLE A

SPOT SIZE / F(Distance (mm))	FWHM (at 25°C)		$1/e^2$ Width (at 25°C)	
	X	Y	X	Y
50 mm	<0.04mm	<0.02mm	<0.05mm	<0.04mm
100 mm	<0.03mm	<0.03mm	<0.09mm	<0.09mm
200 mm	<0.13mm	<0.05mm	<0.2mm	<0.09mm

TO DEFINED DEPTH OF FIELD

Depth of Field (DOF) what is the length of the beam in the area where the beam is less than 140% of the spot size. We listed the depth of field for both FWHM and $1/e^2$.

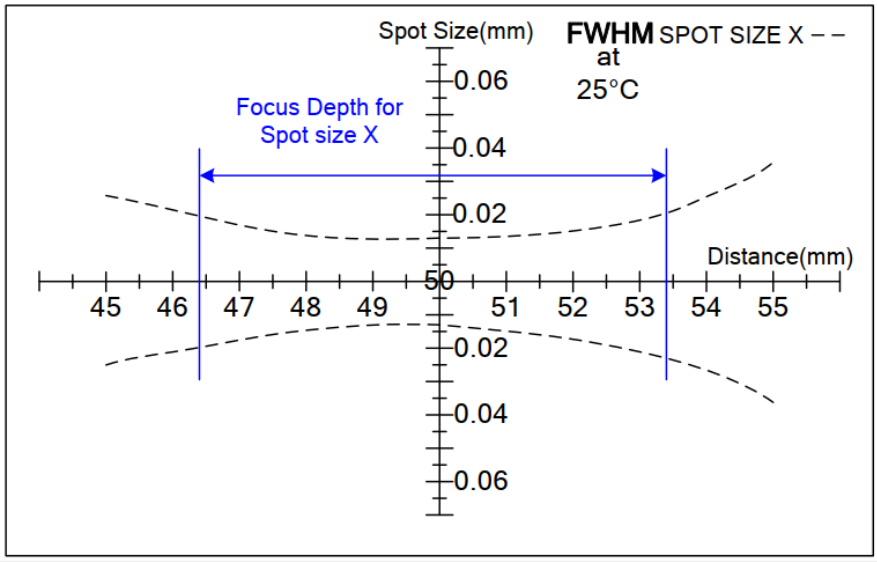


Figure A DOF for **FWHM** SPOT SIZE X (Focus at 50mm)

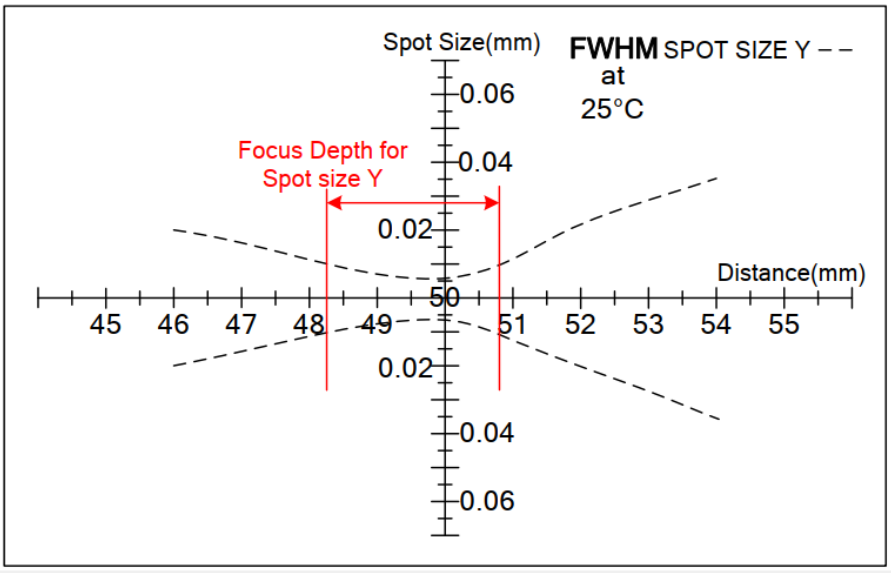


Figure B DOF for **FWHM** SPOT SIZE Y (Focus at 50mm)

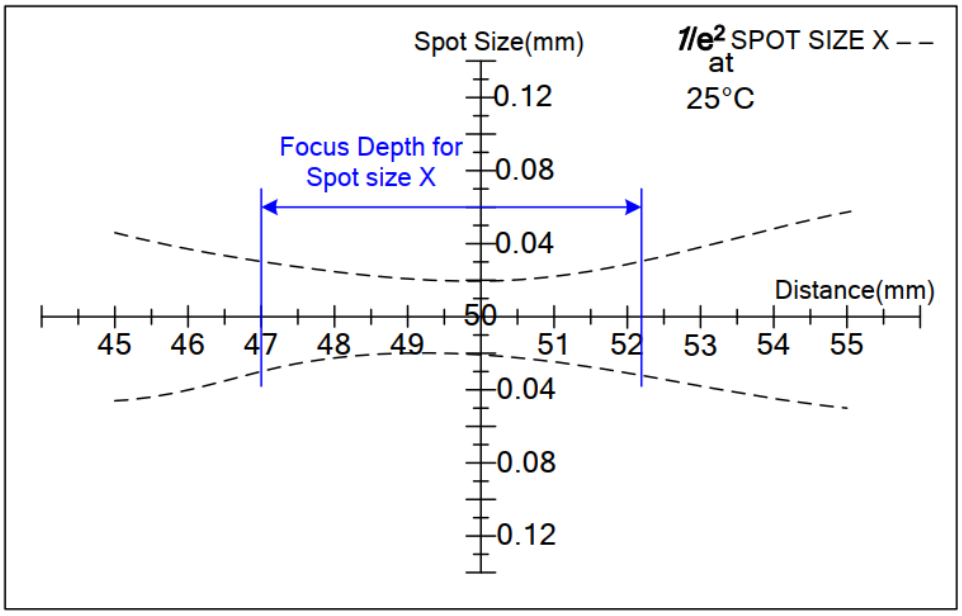


Figure C DOF for **1/e²** SPOT SIZE X (Focus at 50mm)

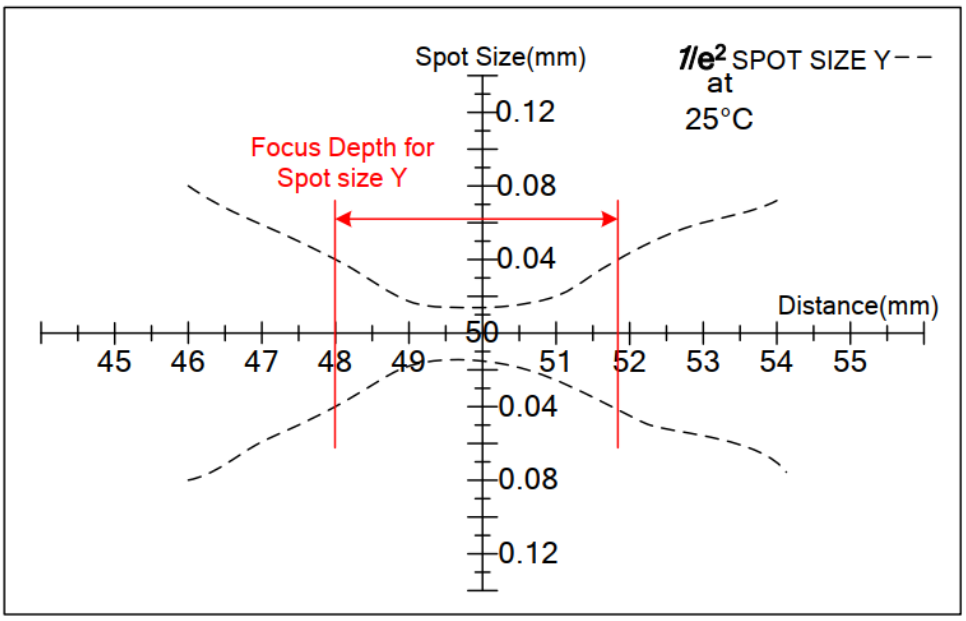


Figure D DOF for **1/e²** SPOT SIZE Y (Focus at 50mm)

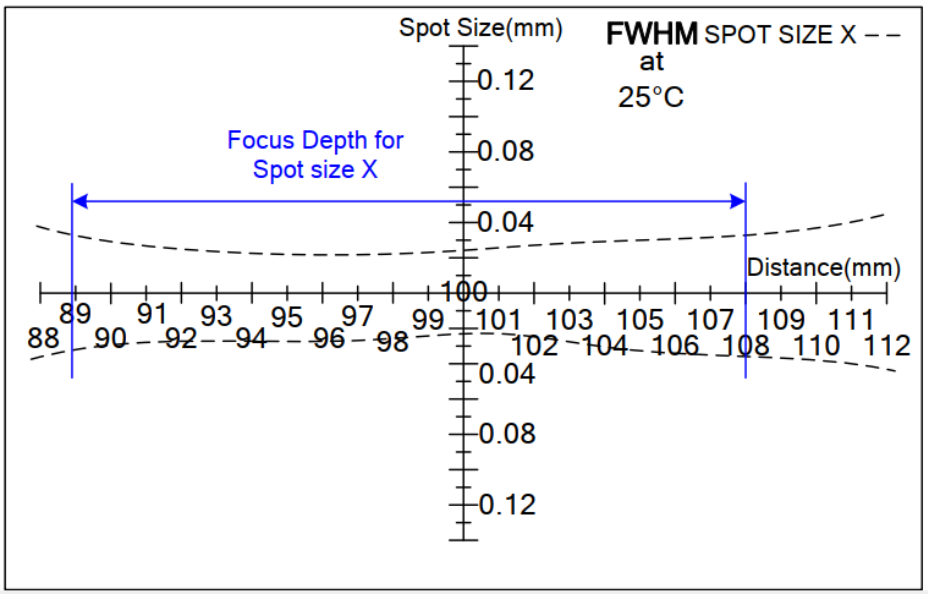


Figure E DOF for **FWHM** SPOT SIZE X (Focus at 100mm)

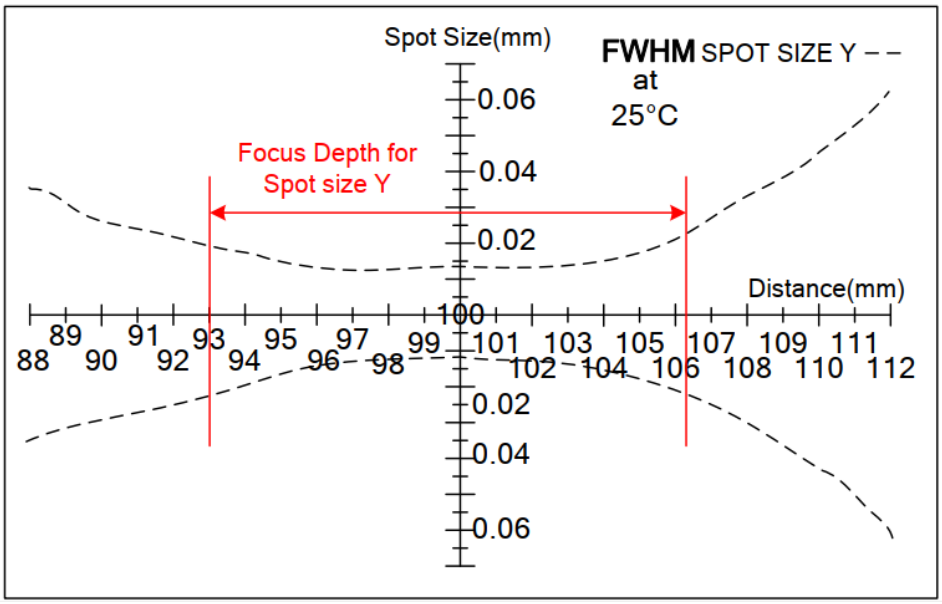


Figure F DOF for **FWHM** SPOT SIZE Y (Focus at 100mm)

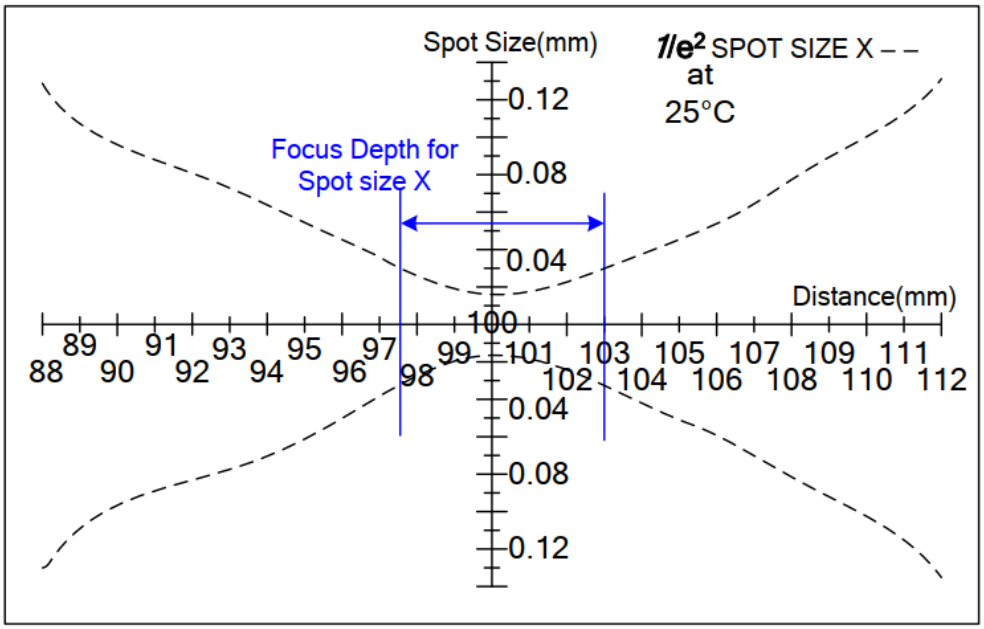


Figure G DOF for **1/e²** SPOT SIZE X (Focus at 100mm)

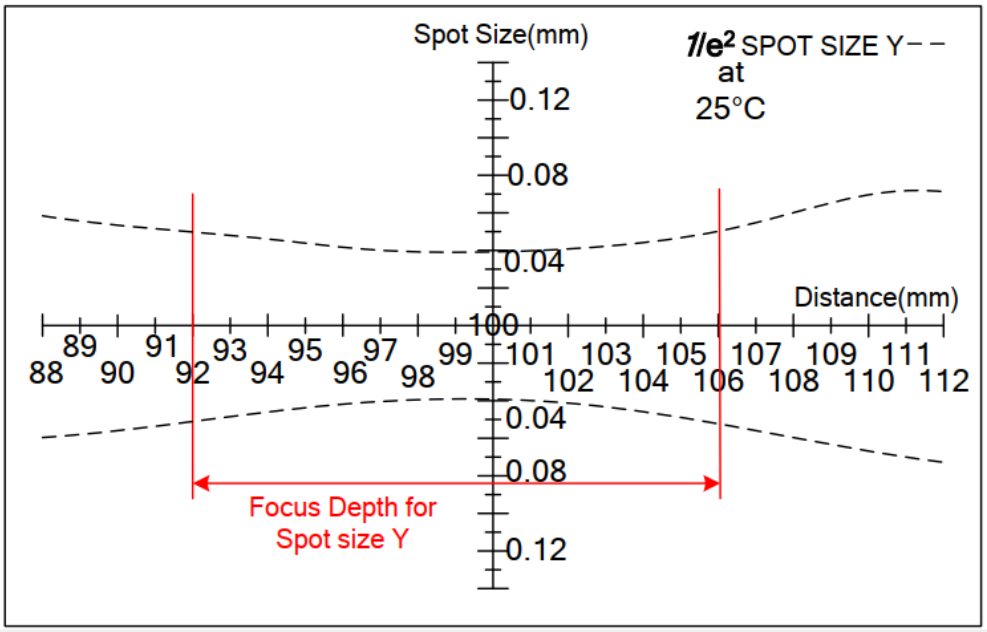


Figure H DOF for **1/e²** SPOT SIZE Y (Focus at 100mm)

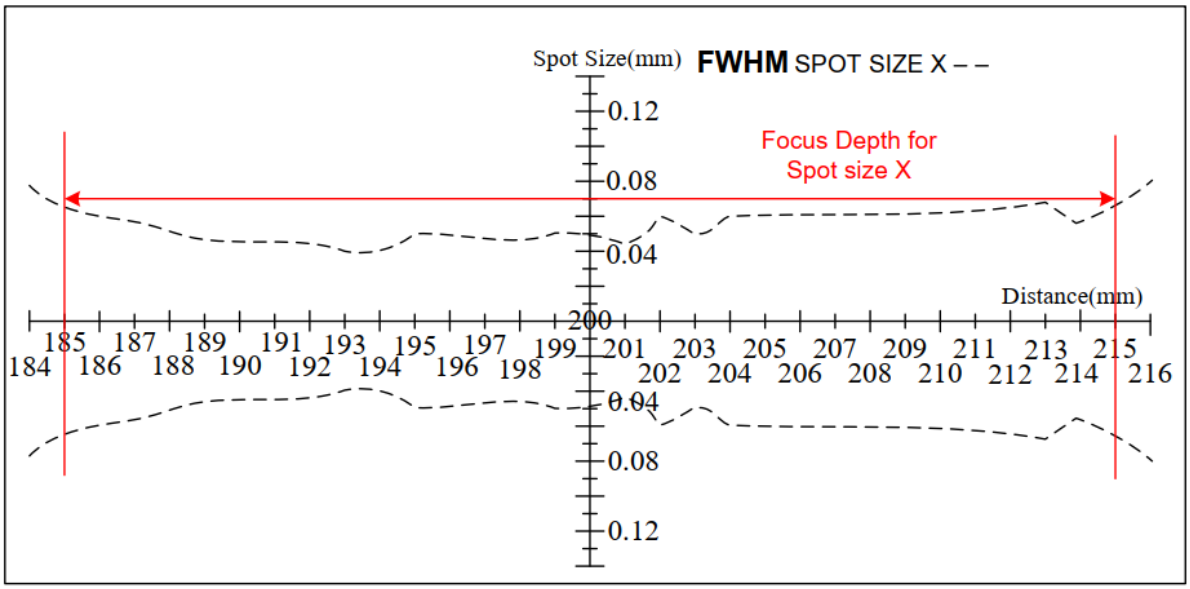


Figure I DOF for **FWHM** SPOT SIZE X (Focus at 200mm)

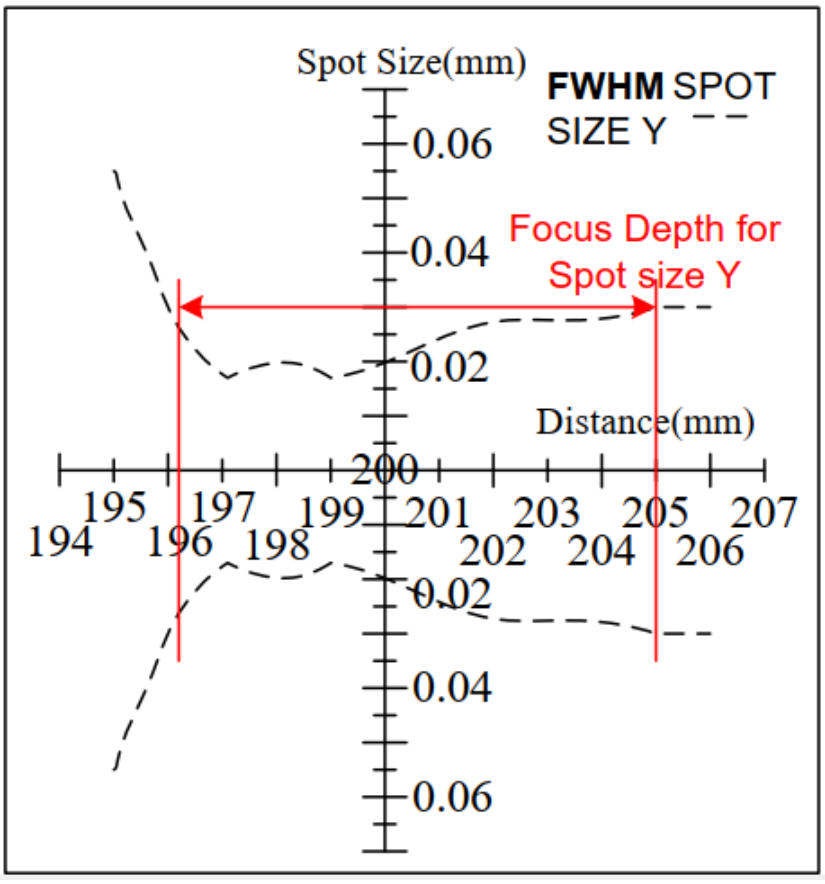


Figure J DOF for **FWHM** SPOT SIZE Y (Focus at 200mm)

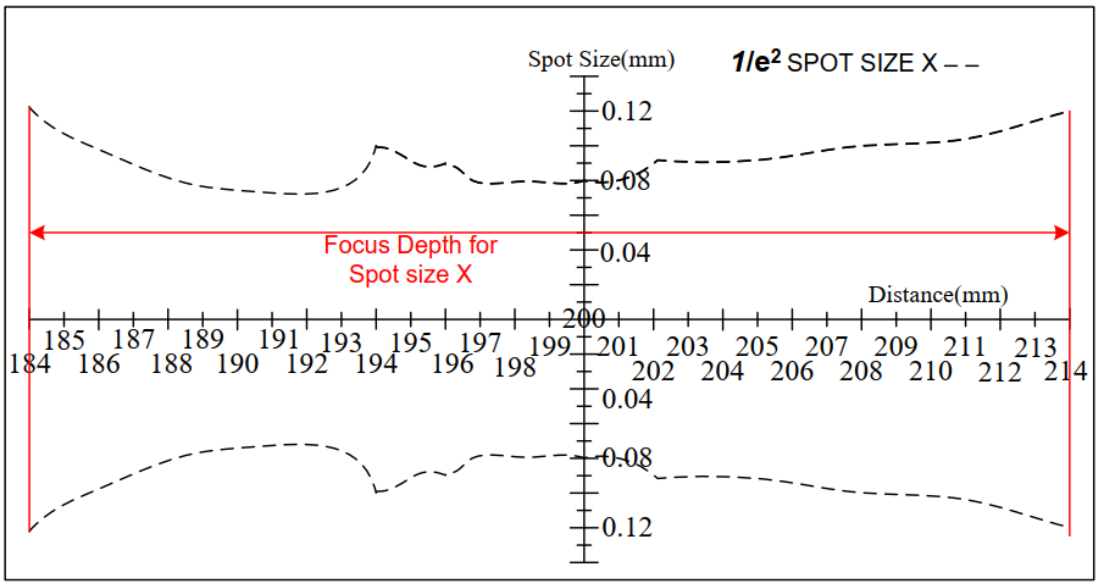


Figure K DOF for **1/e²** SPOT SIZE X (Focus at 200mm)

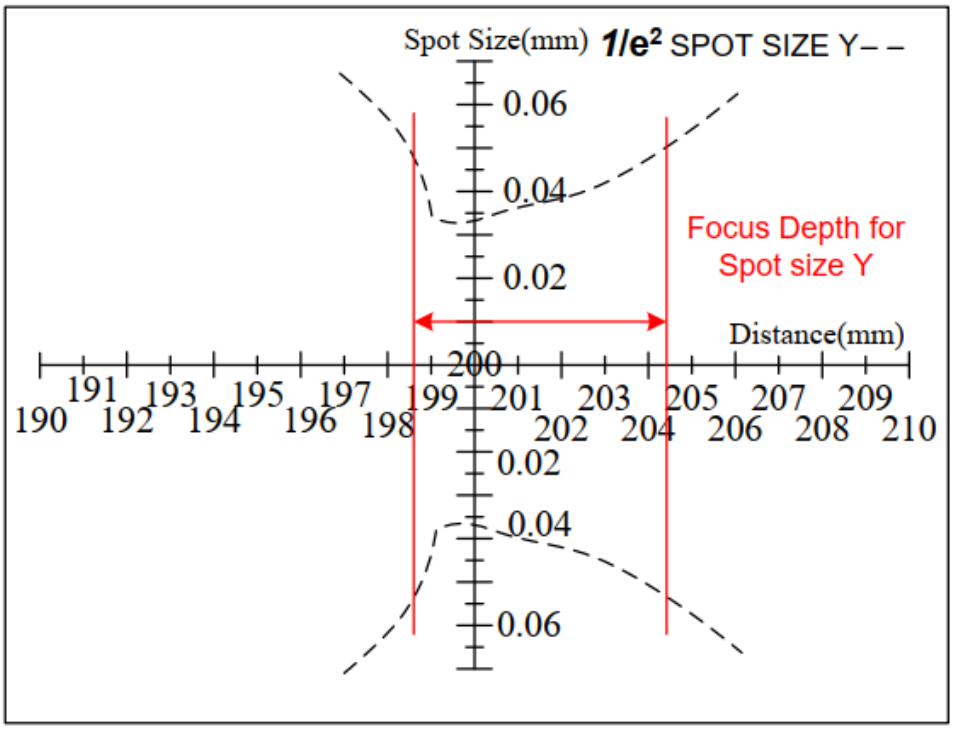


Figure L DOF for **1/e²** SPOT SIZE Y (Focus at 200mm)

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Table B

DOF / F(Distance (mm))	FWHM (at 25°C)		$1/e^2$ (at 25°C)	
	X	Y	X	Y
50 mm	47 to 53 mm	49 to 50 mm	47 to 52mm	48 to 51mm
100 mm	89 to 108 mm	93 to 106 mm	98 to 103mm	92 to 106mm
200 mm	185 to 215 mm	196 to 205 mm	184 to 214mm	199 to 204mm

ORDER CODE

Order Code	Wavelength	Laser Power Output	Laser Class	Connection Type
VLM-635-63 LPT-50	635 nm	Less than 1mW	Class II	Lead Wire
VLM-635-63 LPT-100	635 nm	Less than 1mW	Class II	Lead Wire
VLM-635-63 LPT-200	635 nm	Less than 1mW	Class II	Lead Wire
VLM-635-63 LPO-50	635 nm	Less than 0.39mW	Class I	Lead Wire
VLM-635-63 LPO-100	635 nm	Less than 0.39mW	Class I	Lead Wire
VLM-635-63 LPO-200	635 nm	Less than 0.39mW	Class I	Lead Wire

SAFETY LABEL

LPT:

LPO: