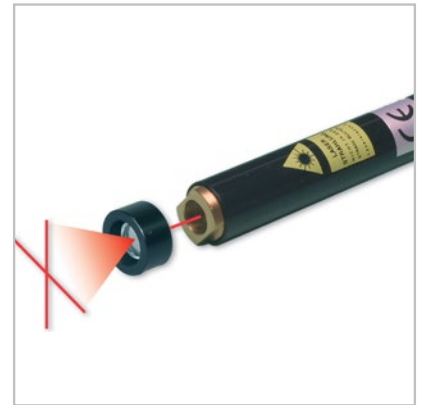


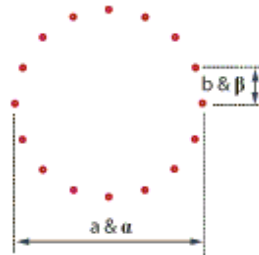
Diffractive Optical Elements (DOE) for FLEXPOINT® Laser Modules





With the help of DOEs it is possible to turn a simple laser dot into a variety of different beam patterns.

All DOE's can be used with FLEXPOINT® laser modules, either fixed to the module or removable in a black plastic cap for multi-use with different laser modules.






Circles & Dot Lasers

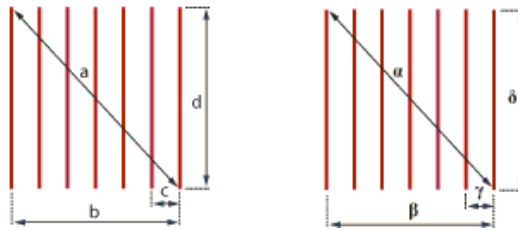







DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance		Pattern Angles (@ 635 nm)		Image
			a	b	α	β	
DOE-219	Solid Line Circle	480 - 600 nm	60 mm	-	34°	-	
DOE-220	1:16 Dot Circle	480 - 532 nm	106 mm	20.8 mm	56°	11.9°	
DOE-221	1:72 Dot Circle	400 - 570 nm	44 mm	1.94 mm	25°	1.11°	
DOE-229 NEW	1:36 Dot Circle	530 nm	7.2 mm	0.6 mm	4.1°	0.36°	

Circles & Dot Lasers





DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance		Pattern Angles (@ 635 nm)		Image
			a	b	α	β	
DOE-238 NEW	Solid Line Circle	530 nm	7.3 mm	-	4.2°	-	
DOE-240	1:16 Dot Circle	530 - 700 nm	18.9 mm	3.7 mm	10.8°	2.1°	
DOE-268	Solid Line Circle	488 - 532 nm	106 mm	-	56°	-	

Multi Lines

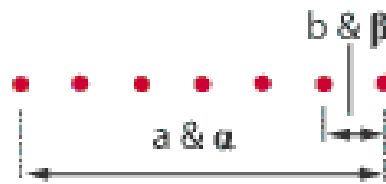






DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance				Pattern Angles (@ 635 nm)				Image
			a	b	c	d	α	β	γ	δ	
DOE-213	11 Lines (Square)	530 - 670 nm	76.3 mm	54.1 mm	5.4 mm	54.1 mm	41.8°	30.3°	3°	30.3°	
DOE-233	7 Lines (Square)	530 - 670 nm	54 mm	38.2 mm	6.4 mm	38 mm	30°	22°	3.6°	22°	
DOE-250	5 Lines (Rectangular)	590 - 670 nm	53 mm	10.5 mm	2.6 mm	52 mm	30°	6°	1.5°	29°	
DOE-251	7 Lines (Rectangular)	590 - 730 nm	15.2 mm	8.8 mm	1.47 mm	12.3 mm	8.7°	5.1°	0.84°	7°	
DOE-252	5 Lines (Square)	530 - 670 nm	43 mm	30 mm	7.5 mm	30 mm	24°	17.2°	4.3°	17.2°	

Multi Lines







DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance				Pattern Angles (@ 635 nm)				Image
			a	b	c	d	α	β	γ	δ	
DOE-253	11 Lines (Square, Thin Lines)	530 - 670 nm	76 mm	54 mm	5.4 mm	54 mm	42°	30°	3°	30°	
DOE-254	25 Lines (Square)	530 - 670 nm	66 mm	46 mm	1.93 mm	46 mm	36°	26°	1.09°	26°	
DOE-255	65 Lines (Square, Central Line Thicker)	530 - 670 nm	44 mm	31 mm	0.48 mm	31 mm	25°	17.6°	0.27°	17.6°	
DOE-284	41 Lines (Rectangular)	600 - 700 nm	123 mm	99 mm	2.5 mm	75 mm	63°	53°	1.3°	41°	

Lines & Dot Lines




DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance		Pattern Angles (@ 635 nm)		Image
			a	b	α	β	
DOE-263	1:5 Dot Line	450 - 700 nm	10.5 mm	2.6 mm	6°	1.54°	
DOE-264	1:9 Dot Line	630 - 780 nm	1.49 mm	0.19 mm	0.85°	0.11°	
DOE-265	1:19 Dot Line	500 - 540 nm, 630 - 690 nm	24 mm	1.31 mm	13.4°	0.75°	
DOE-266	QC-Line - 5@633	630 - 690 nm	8.7 mm	-	5°	-	

Lines & Dot Lines



DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance		Pattern Angles (@ 635 nm)		Image
			a	b	α	β	
DOE-267	QC-Line - 30@532	470 - 560 nm	32.5 mm	-	36°	-	
DOE-281	1:11 Dot Line	600 - 730 nm	28 mm	2.8 mm	16°	1.6°	
DOE-282	1:99 Dot Line	600 - 700 nm	32 mm	0.33 mm	18.4°	0.19°	
DOE-283	QC-Line - 20@633	630 - 670 nm	35 mm	-	20°	-	
DOE-286	QC-Line - 30@660	600 - 700 nm	52 mm	-	29°	-	
DOE-287	QC-Line - 45@660	600 - 700 nm	80 mm	-	44°	-	

Crosshair

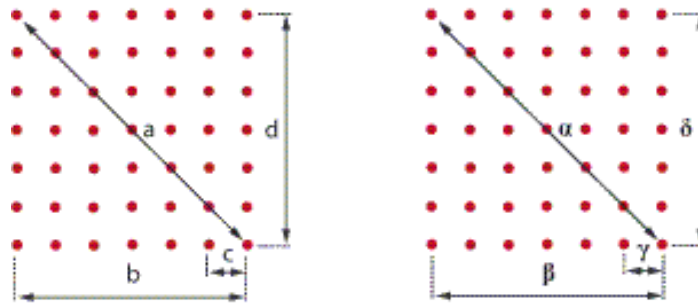











DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance		Pattern Angles (@ 635 nm)		Image
			a		α		
DOE-205	Cross - 5	650 nm	9 mm		5°		

Crosshair



DOE Item #	Description	Optimum Wavelength Range	Pattern Size	Pattern Angles	Image
			@ 100 mm Distance	(@ 635 nm)	
			a	α	
DOE-212	Cross - 25@532	500 - 640 nm	54 mm	30°	
DOE-214 NEW	Cross - 2@645	600 - 645 nm	3.4 mm	1.9°	
DOE-218	Cross - 15	500 - 640 nm	26 mm	15°	
DOE-239 NEW	Cross - 5@520	488 - 600 nm	10.5 mm	6°	
DOE-245	Cross - 10	570 - 690 nm	17.6 mm	10°	
DOE-246	Cross with surrounding high contrast area	530 - 670 nm	17.6 mm	10°	
DOE-247	Cross - 25	600 - 800 nm	44 mm	25°	
DOE-248	Cross - 36	530 - 550 nm	66 mm	36°	
DOE-249	Cross - 45	500 - 640 nm	83 mm	45°	
DOE-270 NEW	Cross - 30@640	580 - 650 nm	53 mm	30°	
DOE-280	Cross - 60	580 - 690 nm	116 mm	60°	
DOE-289 NEW	Cross - 15@520	520 - 535 nm	32 mm	18°	

Dot Matrix






DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance				Pattern Angles (@ 635 nm)				Image
			a	b	c	d	α	β	γ	δ	
DOE-206	17 x 17 Dots	590 - 730 nm	37 mm	26 mm	1.6 mm	26 mm	21°	14.6°	0.9°	14.6°	
DOE-223	2 x 2 + 1 Dots	635 + 405 nm	28 mm	19.9 mm	19.9 mm	19.9 mm	16.1°	11.4°	11.4°	11.4°	
DOE-231 NEW	101 x 101 Dots	635 - 680 nm	12.4 mm	8.7 mm	0.09 mm	8.7 mm	7°	5°	0.05°	5°	
DOE-241	21 x 21 Dots	560 - 730 nm	11.9 mm	8.4 mm	0.42 mm	8.4 mm	6.8°	4.8°	0.24°	4.8°	
DOE-242	16 x 16 Dots	530 - 730 nm	12.4 mm	8.8 mm	0.59 mm	8.8 mm	7.1°	5°	0.34°	5°	
DOE-243	17 x 17 Dots	550 - 720 nm	12.4 mm	8.8 mm	0.55 mm	8.8 mm	7.1°	5°	0.31°	5°	
DOE-244	13 x 13 Dots	570 - 730 nm	9.3 mm	6.6 mm	0.55 mm	6.6 mm	5.3°	3.8°	0.31°	3.8°	
DOE-257	51 x 51 Dots	560 - 720 nm	55 mm	39 mm	0.77 mm	39 mm	31°	22°	0.44°	22°	
DOE-258	11 x 11 Dots	590 - 690 nm	71 mm	50 mm	5 mm	50 mm	39°	28°	2.8°	28°	

Special Patterns

DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance	Pattern Angles @ 635 nm	Image
DOE-215	Viewfinder	570 - 750 nm	Width: 27 mm Height: 17.7 mm Diagonal: 32 mm	Width: 15.5° Height: 10.1° Diagonal: 18.2°	
DOE-216	Viewfinder (Dot Square)	405 - 488 nm	Width: 12.5 mm Height: 12.5 mm Diagonal: 17.7 mm	Width: 7.1° Height: 7.1° Diagonal: 10.1°	
DOE-234	Viewfinder (Lines Square)	590 - 730 nm	Width: 61 mm Height: 61 mm Diagonal: 86 mm	Width: 34° Height: 34° Diagonal: 47°	
DOE-236 NEW	Solid Line Square	530 - 650 nm	Width: 60.2 mm Height: 60.2 mm Diagonal: 85 mm	Width: 33.5° Height: 33.5° Diagonal: 46°	
DOE-256	Square Grid 51 x 51 Lines	530 - 660 nm	Width: 39 mm Height: 39 mm Diagonal: 55 mm Line Spacing: 0.77 mm	Width: 22° Height: 22° Diagonal: 31° Angle betw. Lines: 0.44°	
DOE-259	5 Rings	530 - 700 nm	Width: 51 mm Line Spacing: 5.1 mm	Width: 29° Line Spacing: 2.8°	
DOE-260	Viewfinder (Circle + Cross)	570 - 750 nm	Width Cross: 37 mm Circle Ø: 18.3 mm	Width Cross: 21° Circle Ø: 10.5°	
DOE-261	Viewfinder (Dot Circle + Cross)	570 - 750 nm	Width Cross: 11 mm Circle Ø: 8.8 mm Dot Spacing: 1.1 mm	Width Cross: 6.3° Circle Ø: 5° Angle betw. Dots: 0.63°	
DOE-262	Viewfinder (Dot Square)	480 - 670 nm	Width: 14.7 mm Height: 14.7 mm Diagonal: 21 mm Dot Spacing: 0.63 mm	Width: 8.4° Height: 8.4° Diagonal: 11.9° Angle betw. Dots: 0.36°	
DOE-269	10 Rings	488 - 532 nm	Width: 126 mm Line Spacing: 6.3 mm	Width: 65° Line Spacing: 3.2°	

Special Patterns

DOE Item #	Description	Optimum Wavelength Range	Pattern Size @ 100 mm Distance	Pattern Angles @ 635 nm	Image
DOE-285	Hexagon	600 - 700 nm	Width: 10.7 mm	Width: 6.1°	
DOE-288	Viewfinder	590 - 730 nm	Width: 80.4 mm Height: 52.0 mm Diagonal: 95.6 mm	Width: 43.8° Height: 29.1° Diagonal: 51.1°	
DOE-332 NEW	33000-Dot Pseudo-Random Pattern (60°x42°@830nm)	830 nm	Width: 82.0 mm Height: 56.4 mm Diagonal: 95.4 mm	Width: 44.6° Height: 31.5° Diagonal: 51.0°	
DOE-335 NEW	33000-Dot Pseudo-Random Pattern (46°x32°@650nm)	650 nm	Width: 83.0 mm Height: 55.2 mm Diagonal: 98.8 mm	Width: 45.0° Height: 30.9° Diagonal: 52.6°	