

M-Shape intensity distribution spot for scanning applications

HOLO/OR's M-Shaper, is a diffractive optical elements (DOE) used to create a unique 2D M-shaped intensity profile, with sharp edges in a specific work plane.

The M-Shaper optical function is not possible by conventional reflective or refractive optical elements.

The typical application is to create a uniform exposure over scanned lines. That is, when scanning a line with a regular

Gaussian or even Top-Hat spot the center gets over exposed (influencing the heat distribution during laser material processing).

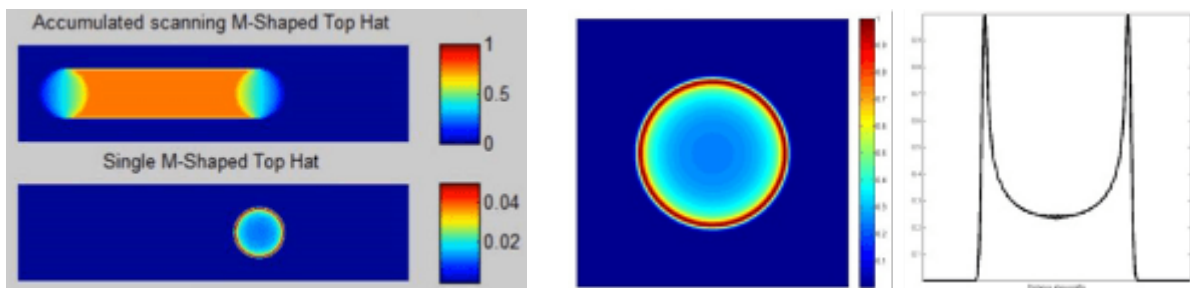
The M-Shape is the mathematical shape that gives a uniform exposure over the line when scanned. This provides higher quality of the process & enables more flexibility in the system configuration.

For example, it allows optimization of the intensity profile, and image size, without changing the laser, fiber cable and/or scanning optical head.

The benefits of our optimized M-shaped intensity profile include:

- Uniform exposure over the scanned line
- “Cleaner” results with scanned lines in almost any process
- Enables very strong weld seams

The most M-Shape DOE's listed below require a Single Mode (TEM00) input beam. However, some M-Shape DOE's had been designed for Multimode lasers (with MM in remarks column). Please feel free to contact us on this or any other custom request you may have.



PN	λ [nm]	Beam Dia [mm]	θ_f [mRad]	Image size [μ m] for EFL=100mm	Element Size [mm]	Image Shape	Remarks
RD-254-I-Y-A	1064	>4	17.45	1745	20	Round	MM
RD-247-I-Y-A	1064	>6	8.73	873	25.4	Round	MM
RD-232-I-Y-A	1064	>1.5	34.9	3490.4	11	Round	MM
MR-016-I-Y-A	1064	7	3.32	332	25.4	Round	
MR-015-I-Y-A	1064	4.2	6.06	606	11	Round	
MR-014-I-Y-A	1064	4.2	10.13	1013	11	Round	
MR-013-I-Y-A	1064	4.2	13.32	1332	11	Round	
MR-012-I-Y-A	1064	8.4	1.03	103	25.4	Round	
MR-011-I-Y-A	1064	3.4	0.69	69	11	Round	
MR-010-I-Y-A	1064	2.3	1.02	102	11	Round	



MR-009-I-Y-A	1064	11.3	0.21	21	25.4	Round	
MR-008-I-Y-A	1064	9	0.26	26	25.4	Round	
MR-007-I-Y-A	1064	6.8	0.34	34	25.4	Round	
MR-006-I-Y-A	1064	10.2	0.23	23	25.4	Round	
MR-005-I-Y-A	1064	7.9	0.29	29	20	Round	
MR-004-I-Y-A	1064	5.7	0.4	40	25.4	Round	
MR-003-I-Y-A	1064	5.3	0.43	43	25.4	Round	
MR-002-I-Y-A	1064	4.5	0.52	52	11	Round	
MR-001-I-Y-A	1064	8.5	4.26	426	25.4	Round	