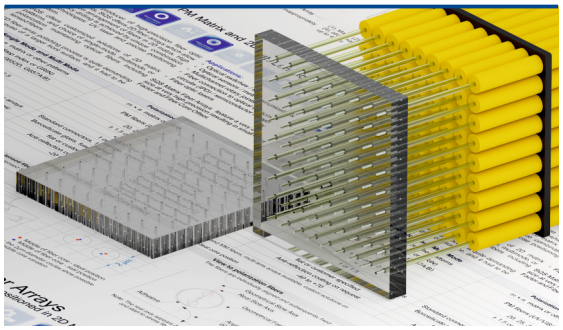
2D Fiber Arrays

Optical Fibers Positioned in 2D Matrix, 2D Matrix with PM and Lensed Fibers



Known as producer of high-precision fiber optic components, SQS offers 2D fiber arrays which allow submicron precision arrangement of fibers in 2D matrix. High accuracy drilling is achieved by unique combination of technologies: UV laser and precise positioning system.

SQS offers customized solutions of 2D matrix patterns, and choice of single-mode, multimode, or polarization maintaining optical fibers including lensed fibers.

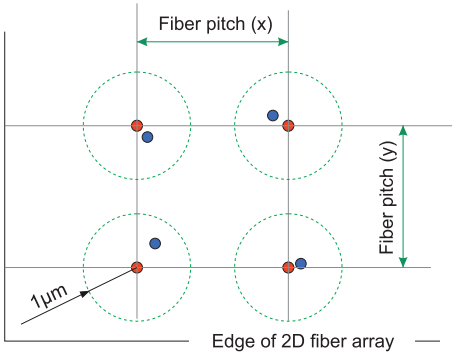
2D fiber array assembly may be accommodated to customer requests. Fiber Array may be positioned in a metal flange for easier handling. Optical fibers may be protected by tubing, and terminated by any type of optical connector (single fiber or multifiber).

Applications:
Optical switches / telecommunications, optical sensors / metrology, multichannel rotary joints / medicine, fiber connection to optical integrated circuits (IPD) / semiconductor industry, fiber optic lasers

	Single Mode and Multi-Mode Version	Polarization Maintaining Version
Fiber layout	m × n, hexagonal pattern or others	m × n, hexagonal pattern or others
Fiber type	MM (step index or graded index)	PM fibers (UV/VIS/NIR)
	SM (ITU-T G.652d, G.657a, b)	
Fiber core offset [µm]*	Typ. < 1	Typ. < 1
Fiber pitch [µm]	x:250, y:500 for fiber 125/250 µm ** x:350, y:350 for fiber 125/250 µm **	x:500, y:500 for fiber 125/250 µm **
Angle misalignment [°]	-	± 1.5 or ± 2.5
Pointingh accuracy [mrad]	< 5	< 5
Extinction ratio [dB]	-	20, 25, 30
Matrix thickness [mm]	2, 2.5, 3,0	2, 2.5, 3,0
Matrix material	fused silica	fused silica
End face finishing	flat (0°) or angled	flat (0°) or angled
Anti-reflection coating on end face	available on request	available on request
Output	optical connectors, 1D, 2D or 3D fiber arrays	optical connectors, 1D, 2D or 3D fiber arrays
Operating temperature [°C]	-40 to +85	-20 to +70

* Precise spacing in two dimensions, distance between center of fiber core and ideal position. Parameter includes error driling, core/clad concentricity and clad non-circuality.
** Minimum spacing, other on request

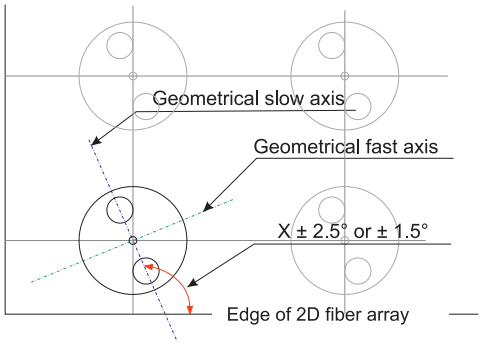
Fiber Core Offset



● Center of fiber core - ideal position
● Center of fiber core - real position

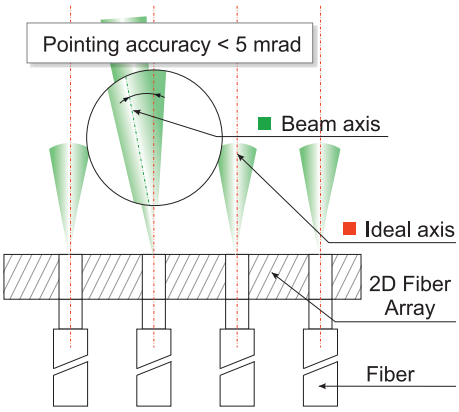
Note: the 2µm-diameter circles show possible middle core variation

Angle Misalignment (PM Version)

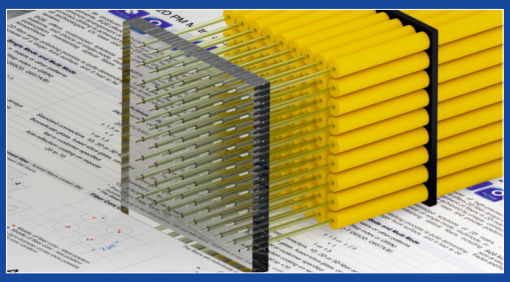


Note: 0°, 90°or tailored angle of rotation for each channel

Pointing accuracy



2D Fiber Arrays with 81 SM Fibers, (Tailored Solution)



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