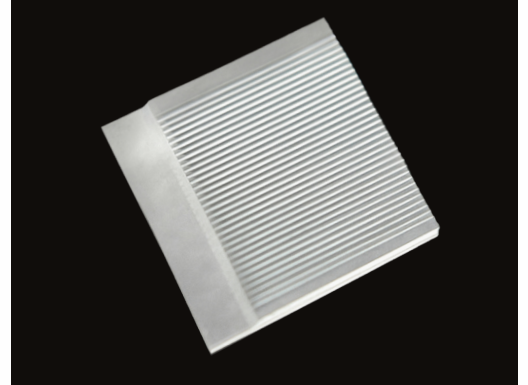


Engineered V-Groove Arrays

Features

- **Excellent positioning performance:** Accumulative (first-to-last) fiber spacing error can be < 500 nm for 48CH, 96CH or higher, enabled by processing all V-Grooves over the whole width of wafers at the same time.
- **New flexibility level:** Advanced V-Groove structuring supports simultaneous manufacturing of different pitches and groove shapes (V, U, convex, concave, freeform) within the same array.
- **Integrated mechanical positioning features available:** Enables passive alignment and precise assembly.
- **Wafer-level testing and qualification:** 100% of critical parameters are verified through tactile geometry and contact position measurements, with analysis of mid-points of all inlayed fibers.
- **Multiple performance levels:** Standard and high-accuracy versions available per customer requirements.
- **Proven high-volume platform:** Robust and highly scalable production platforms with more than 20 years of mass production.



Application Scenarios

Optical modules, fiber connectors, low loss PIC connectors and further multi-channel scenarios



[Learn More](#)

Product Outline

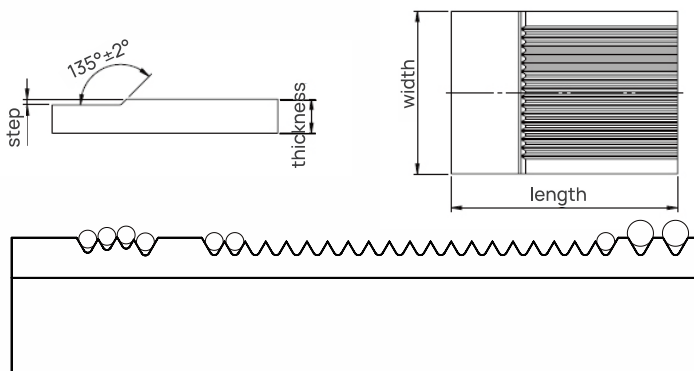
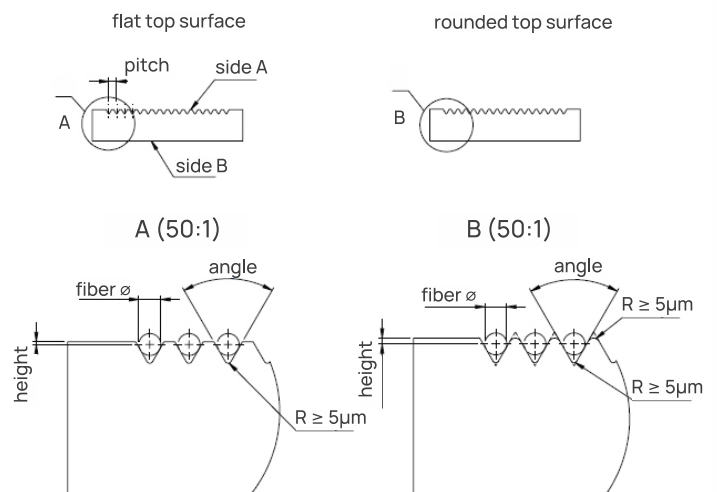


Illustration of complex design examples only.
Please contact us for technical support on your configuration.



Engineered V-Groove Arrays

Key Specifications

Fiber Positioning and Performance Relevant Parameters *		Standard Accuracy Level	High Accuracy Level
[1]	V-Groove Ideal Positioning Accuracy in X Direction (By means of inlayed fiber core mid-point, i.e. maximum allowable deviation from nominal position.)	< 500 nm	< 250 nm
[2]	V-Groove Ideal Positioning Accuracy in Y Direction (By means of inlayed fiber core mid-point, i.e. maximum allowable deviation from nominal position.)	< 750 nm	< 350 nm
[3]	V-Groove Line Positioning Accuracy (By means of inlayed fiber core mid-point.)	± 0.010 mm	
[4]	V-Groove Pitch (Spacing) Accuracy in X Direction (By means of inlayed fiber core mid-point, i.e. maximum allowable deviation from nominal spacing.)	< 500 nm	< 200 nm
[5]	V-Groove Line Straightness (By means of inlayed fiber core mid-point.)	< 1500 nm (In accordance with [2] above)	< 700 nm (In accordance with [2] above)
[6]	Sidewall Verticality (V-Groove Pitch Axis Perpendicularity to Front Surface)	$90 \pm 0.3^\circ$	
[7]	V-Groove Surface Roughness (Ra)	< 0.2 μ m	< 0.02 μ m
[8]	V-Groove Depth (SAG)	Customized without limitations	
[9]	V-Groove Angle Size	From 60°, 90° or customized	
[10]	V-Groove Accuracy	< $\pm 2^\circ$	< $\pm 1^\circ$
[11]	V-Groove Pitch (Spacing) Fiber to Fiber in X Direction	0.127 mm, 0.250 mm or customized and various on the same product realizable	
[12]	V-Groove Pitch (Spacing) Accuracy – Single (Fiber to fiber or between two neighboring fiber channels)	< 500 nm (In accordance with [4] above)	< 200 nm (In accordance with [4] above)
[13]	V-Groove Pitch (Spacing) Accuracy – Accumulative (First to last fiber core mid-point)	< 1000 nm (In accordance with [1] above)	< 500 nm (In accordance with [1] above)

Product Dimensions and Materials		
[14]	Length / Width Sizes – Round or Square	up to 300 mm
[15]	Length / Width Tolerances	± 0.025 mm
[16]	Thickness Tolerance	± 0.050 mm
[17]	Step Height (Plateau)	≥ 0.100 mm
[18]	Step Height (Plateau) Tolerance	± 0.020 mm
[19]	Number of Channels	From 8, 16, 32, 48, 96, 128 or customized
[20]	Surface Quality – V-Grooves Area	5/ E0.1, chipping can be minimized if needed
[21]	Surface Quality – Outer Edges	5/ E0.1, chipping can be minimized if needed
[22]	Material	Borofloat 33, Fused Silica, S-TIH53, S-BSL7 (and equivalent such as N-BK7), Silicon and other non-toxic optical glasses on request

* Several parameters are influencing each other and do not require all to be evaluated or reported or taken as acceptance criteria – please contact us for further information or exceeding specifications.