

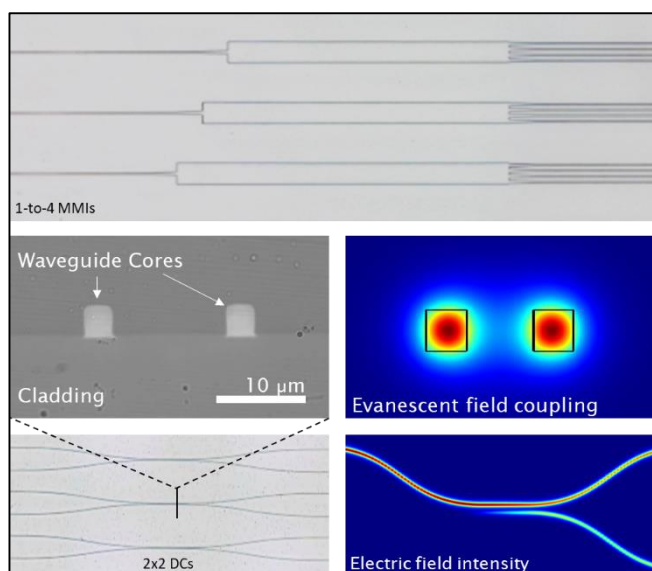
Splitters & Couplers – Singlemode Waveguides

One of the biggest advantages of using planar waveguides is the ability of in-plane light-guiding. Various efficient, small-footprint devices have been developed, which can be used to route, split and interfere light within optical circuits.

Based on its expertise in planar singlemode waveguide technology, **vario-optics** is capable of producing a broad range of compact passive device components, operating at various wavelengths. Our portfolio consists of simple y-splitters as well as of functional structures such as multimode-interference couplers and 2x2 directional couplers, which can also be combined to form more complex circuits (e.g. on-chip Mach-Zehnder Interferometers).

Passive devices based on planar waveguides:

- **Multimode-Interference Couplers (MMI)** allow to equally distribute the power from one input beam into several output arms
- **Directional Couplers (DC)** are used to split or combine (i.e. interfere) light from one or more input arms via evanescent coupling; can be used to build highly stable and sensitive on-chip interferometers
- **Y-Coupler** splitting of 1 input beam into 2 output beams using a Y-junction



vario-optics has designed, developed and characterized a variety of structures. Custom-made designs (wavelength, split-ratio, geometry, number of outputs etc.) are available upon request.

Specifications

Type	Wavelength	Description
<i>MMI</i> */**	1550 nm	1x2, 1x4 & 1x5; other ratio/wavelength on request
<i>DC 2x2</i> */**	850/1310/1550 nm	50:50; custom split ratio upon request
<i>DC 3x3</i> */**	1310/1550 nm	custom split ratio upon request
<i>Y-Couplers</i> */**	850/1310/1550 nm	1x2 splitter
<i>Bends & Curves</i>	850/1310/1550 nm	> 20mm Radius with no additional loss; smaller radius possible

*typical size: < 1mm; **insertion loss < 0.2 dB