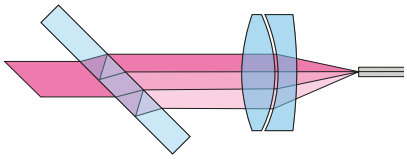
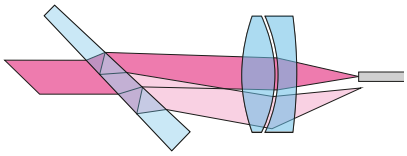
BEAM SPLITTER AND BEAM COMBINER WITH WEDGE-SHAPED SUBSTRATE



SUBSTRATE WITHOUT WEDGE: POSSIBLE INTENSITY INSTABILITIES

Beams are reflected twice at the media/air interfaces. The reflected beam is finally parallel with the unreflected beam. Both beams interfere, which causes intensity instabilites (Etalon effect). If they are coupled into a fiber, they are both focused onto the same spot and are both coupled.The intensity is not stable due to the interference of the beams.



BENEFITS OF SUBSTRATE WITH WEDGE: NO INTERFERENCE OF THE BEAMS COUPLED INTO THE FIBER

The original beam and the twice reflected beam are not parallel but inclined after passing the substrate with wedge. After focusing that results in two distinct laser spots.
Only the unreflected beam overlaps with the mode field of the fiber and the reflected radiation is lost. The removal of interference prevents intensity instabilities.

CONTACT

For more information please contact:
Schäfter + Kirchhoff GmbH
Kieler Str. 212
22525 Hamburg
Germany
Tel: +49 40 85 39 97-0
Fax: +49 40 85 39 97-79

info@sukhamburg.com
www.sukhamburg.com

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