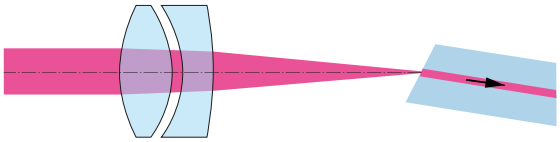
SELECTION OF COUPLING FOCAL LENGTH FOR AN ELLIPTICAL BEAM

DETERMINATION OF THE EFFECTIVE COUPLING DIAMETER

In order to find the best coupling focal length in case of an elliptical beam use the effective beam diameter $Ø_{eff}$ which is calculated from the small and the large diameters $Ø_{||}$ and $Ø_{\perp}$ of the collimated elliptical laser beam:

$$Ø_{eff} = \sqrt{Ø_{||} \cdot Ø_{\perp}}$$

Definition of the effective beam diameter $Ø_{eff}$.



SELECTION OF FOCAL LENGTH

After determining the effective beam diameter $Ø_{eff.}$ The best focal length can be determined. This is done by replacing the diameter $Ø_{beam}$ with Øeff in the corresponding formula.

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MEASURES TO INCREASE THE COUPLING EFFICIENCY FOR ELLIPTICAL BEAMS

Coupling efficiency can be increased by converting the elliptical laser beam to a circular beam using anamorphic beam-shaping optics.

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