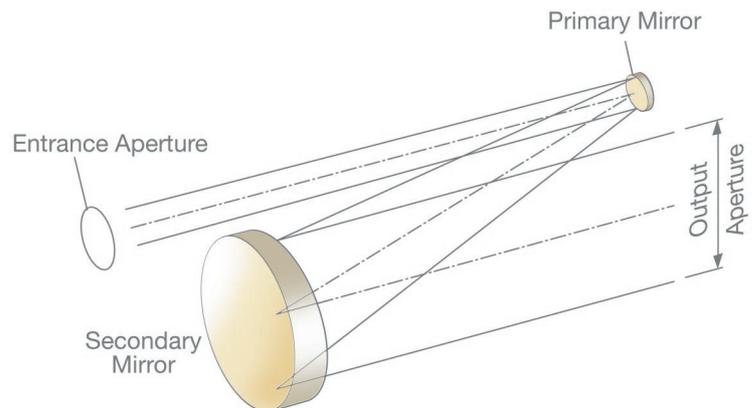


The off-axis Beam Expander with three tremendous advantages...

- Off-axis design produces no central obscuration and efficient transmission is obtained, unspilt by spider diffraction patterns. Alignment aids are provided to ensure correct beam pointing.
- The all-reflecting design is achromatic and with aluminium coatings can operate from UV to far IR without adjustment. The wavelength of operation is unaffected by the mirror substrate materials. Mirrors are Optisurf precision quality with $\lambda/10$ surface accuracy.
- The mirrors are housed in a convenient box assembly with provision for fixing to an optical table. The unit is transportable to different sites without the need for internal realignment. An interferogram and OPD map is supplied with every expander manufactured.



Standard version: convex/concave mirrors

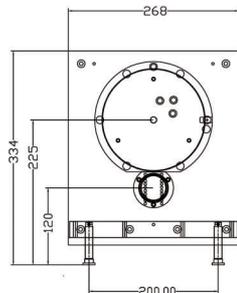


Options available:

- Coatings:
Ultra-hard laser dielectric.
Protected silver and gold.
Single stack, femtosecond laser.
- Concave/concave design with off-axis parabolas and internal focus.
- Larger apertures built to order.
- Expansion up to x 100 if required.
- Interchangeable expansion units can be supplied.
- Focusing capability for finite far field.
- Temperature compensation using Invar.
- Vertical or Horizontal beam separation.
- Vacuum compatibility.

Common focus option:

An alternative for the beam expander design is to use two off-axis parabolooids with a common focus. This design has a slightly longer footprint and should not be used in high power laser applications unless in a vacuum, however, it is the preferred design for Fizeau applications.

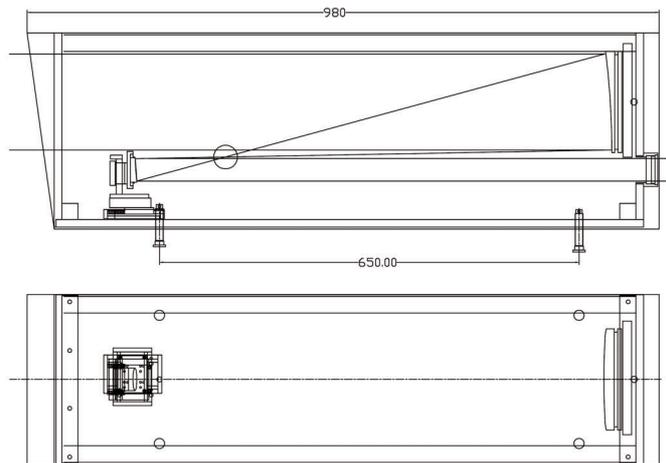


Magnification can be varied by providing a range of primary mirrors. Please discuss this at the sales stage as retrofitting may not be possible.

Application Notes:

If a high power laser beam is launched, an expander is used to bring the beam within health and safety requirements. For Doppler shift LIDAR, expansion is also needed to define a cross sectional slice of the field being observed. In some LIDAR applications customers may wish to have a focusing system. We can supply these to focus at a given far field plane or as a variable focus device. The mirrors are still conic sections but are specially optimised for a set focusing distance by using a different “k” value.

High power laser laboratories will welcome our Beam Expanders to the heart of their system. To this end we supply specialized hard dielectric coatings and coatings suitable for femtosecond pulse lasers at 800nm. A single stack coating ensures minimum Group Velocity Dispersion.



Bex/30/150/CV approx dimensions

Ordering information and product codes:					
Output aperture:	60mm	100mm	120mm	150mm	200mm
Magnification					
5	Bex/12/60	Bex/20/100	Bex/24/120	Bex/30/150	Bex/40/200
10	Bex/6/60	Bex/10/100	Bex/12/120	Bex/15/150	Bex/20/200
15	Bex/4/60	Bex/7/100	Bex/8/120	Bex/10/150	Bex/14/200
20	Bex/3/60	Bex/5/100	Bex/6/120	Bex/8/150	Bex/10/200
Product code:	to the above add C for common focus and/or V for vertical configuration e.g. Bex/20/100/CV				
Approximate footprint*	400x150mm	700x200mm	750x200mm	850x300mm	1550x350mm
Standard coating:	protected aluminium, Al+MgF12				
Transmitted wavefront:	lambda/4 p-v at 633nm				
Mirrors:	convex spherical primary, off-axis aspheric secondary. Material zerodur Lambda/10 p-v surfaces, matched together as a pair				
*dependant on magnification chosen and subject to optics available					