



Large Beam Fiber Optic Collimators

Description

Fiber optic collimators come in all sizes commercially. Most of them are based on the successful GRIN lenses, which find their way into many passive and active components. However, GRIN lenses are not very suitable for visible wavelengths or large beam. Our high performance collimators employ high quality aspheric lenses and achromatic doublets to achieve low wave-front distortion, low divergence, and diffraction limited beam quality.

Large-beam collimators are not only ideal for long-range target shooting but also good for pair coupling at long working distances. Some of our very large-beam (>14 mm) collimators have been used in free-space optics communications. Use these collimators with our standard laser-diode light source, pigtailed diode lasers, or receptacle laser diode modules. Princeton also produces custom retro-reflectors to pair with our collimators.

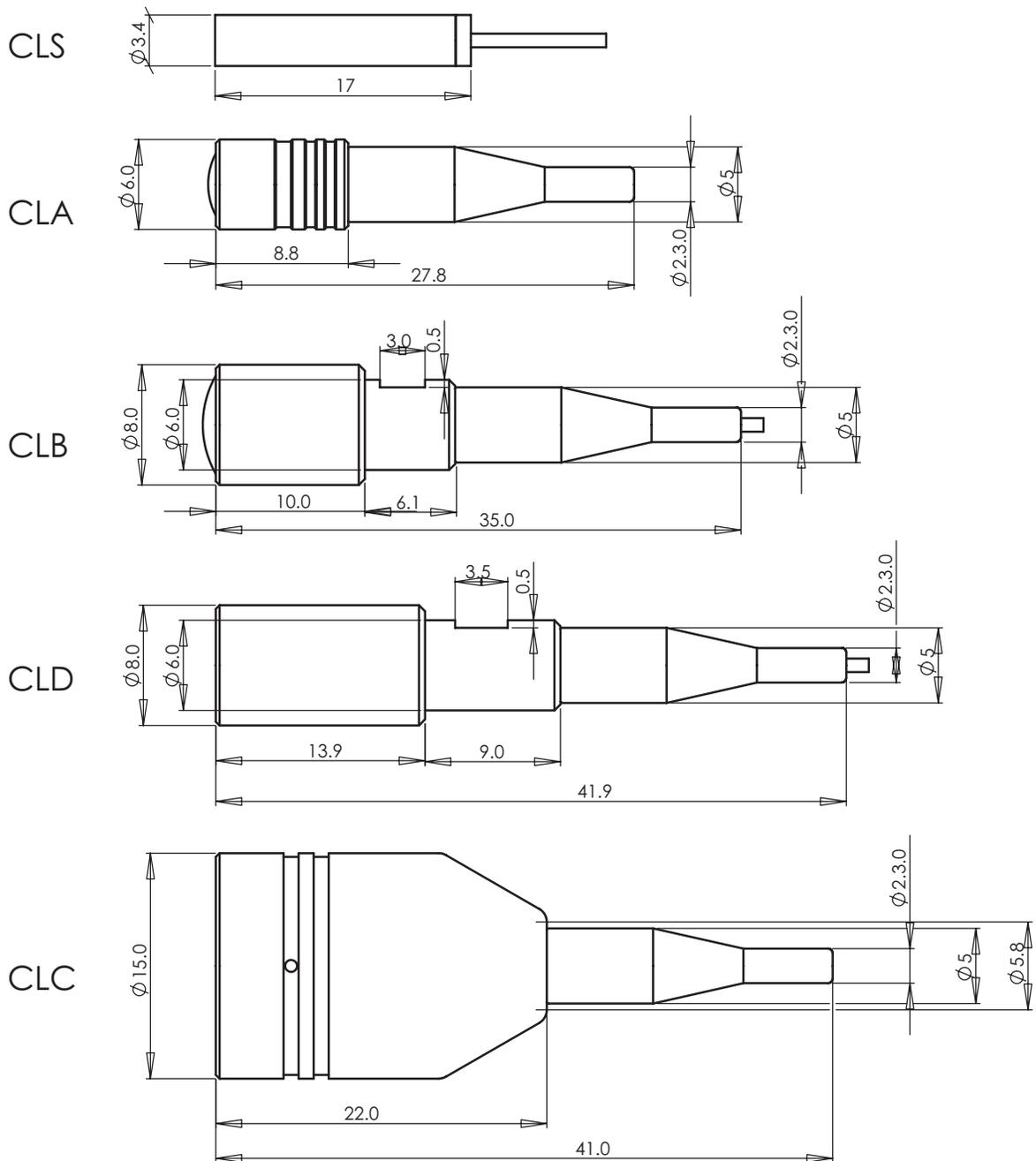
Specifications

| Characteristics | Model CLA | Model CLB | Model CLD | Model CLC |
|--|--------------------------------------|--------------|--------------|---------------|
| Wavelength | 532-1650 nm | | | |
| Beam size (1/e ² with SM fiber) | 0.82 mm | 2.0 mm | 3.5 mm | 4-10* mm |
| Far field divergence (1310 nm) | 1 mrad | 0.5 mrad | 0.3 mrad | - |
| Focal length (mm) | 4.5 (NA=0.42) | 11 (NA=0.25) | 19 (NA=0.15) | 17 (NA=0.3) |
| Lens type | Asphere (AR) | | | PC (AR) |
| Insertion loss (SM pairing) | <0.5 dB (for 1310 and 1550 nm only) | | | - |
| Max pairing distance | 0.25 m | 1 m | 4 m | - |
| Return loss (SM fiber) | >55 dB | | | |
| Operating temperature | -20 to 65 C | | | |
| Storage temperature | -40 to 85 C | | | |
| Package materials | Stainless steel | | | Anodized AL |
| Fiber choices | Singlemode or PM | | | Multimode |
| Fiber jackets | 900 um tight buffer or loose tubing | | | |
| Connector types | FC/PC, SC/PC, ST, LC, FC/APC, SC/APC | | | |
| Characteristics | Model CLE | Model CLF | Model CLS | |
| Wavelength | 532-1650 nm | | | |
| Beam size (1/e ² with SM fiber) | 6 mm | 14 mm | | 450 um |
| Far field divergence (1310 nm) | - | - | | 2.5 mrad |
| Focal length (mm) | 35 (NA=0.38) | 75 (NA=0.32) | | 1.9 (NA=0.46) |
| Lens type | Achromatic doublet (AR coated) | | | GRIN (AR) |
| Insertion loss (SM pairing) | <1 dB (for 1310 and 1550 nm only) | | | - |
| Max pairing distance | 5 m | 8 m | | - |
| Return loss (SM fiber) | >55 dB | | | |
| Operating temperature | -20 to 65 C | | | |
| Storage temperature | -40 to 85 C | | | |
| Package materials | Anodized AL | | | Stainless |
| Fiber choices | Singlemode, multimode, or PM | | | |
| Fiber jackets | 900 um tight buffer w/3 mm jacket | | | 900 um |
| Connector types | FC/PC, SC/PC, ST, LC, FC/APC, SC/APC | | | |
| Fiber focal distance tuning range | +/- 1 mm | +/- 0.5 mm | | |



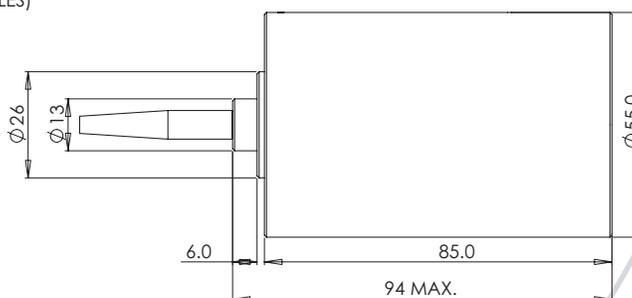
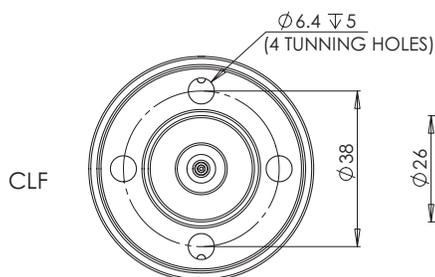
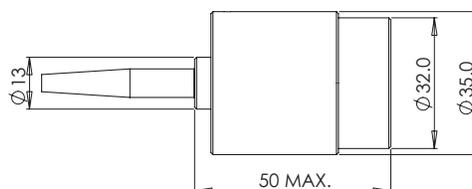
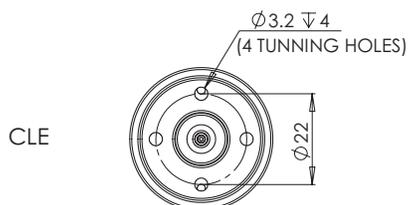
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Mechanical





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Part Number



- A=1 mm beam*
- B=2 mm beam*
- D=3.5 mm beam*
- C=4-13 mm beam**
- E=6 mm beam*
- F=14 mm beam

Wavelength
155=1550 nm

Fiber
28=SMF28

FC=FC
FA=FCAPC

* Beam size based on SM fiber ** NA related

Wavelength and Fiber Code

| Wavelength | Fiber |
|-------------|---------------------------------|
| 165=1625 nm | 28=Corning SMF28 (1290=1650 nm) |
| 162=1625 nm | nm) |
| 159=1590 nm | 13=Fujikura SM13 PANDA fiber |
| 155=1550 nm | 15=Fujikura SM15 PANDA fiber |
| 153=1530 nm | 56=3M FS-SN5624 (980 nm) |
| 148=1480 nm | 42=3M FS-SN4224 (850 nm) |
| 131=1310 nm | 32=3M FS-SN3224 (635 nm) |
| 980=980 nm | 46=Nufern 460HP |
| 850=850 nm | 50=50/125 multimode |
| 780=780 nm | 62=62.5/125 multimode |
| 670=670 nm | 10=100/140 multimode |
| 650=650 nm | 20=200/240 multimode |
| 635=635 nm | 40=400/425 multimode |
| 532=532 nm | 60=600/630 multimode |