

Spherical Lenses

Cylindrical Lenses

Lens Kits

Achromatic Doublets

Multi-Element

Micro Optics

Mirrors

Prisms

Substrates & Windows

Beamsplitters

Polarizers

Filter & Apertures

YAG Laser Focusing Lenses

- Air-spaced design
- Standard focal lengths from 20 to 150mm
- High damage, narrowband, high performance Anti-Reflection coatings
- Barrel mounted for ease of use
- Optional protective windows available
- Matched focal lengths for YAG and HeNe wavelengths



These YAG lenses range in focal length from 20 to 150mm. They consist of either two or three air-spaced glass elements mounted in a metal cell. The lenses all have a 30mm clear aperture but they are recommended for use with beams not exceeding one inch in diameter. Two different designs are used - the 20, 30, 40, and 50mm focal length lenses have three elements, but the 60, 80, 100, and 150mm lenses use simpler two element designs. These lenses are Anti-Reflection coated with a high damage Narrowband Multilayer Anti-Reflection coating optimized to give less than 0.5% reflectance per surface at 1064nm.

These lenses are chromatically corrected so that a HeNe guide beam or a visible range video monitor beam will be in focus at the same position as the YAG beam.

Spot size or beam waist is inversely proportional to the numerical aperture at the effective beam diameter. The spot size given in the table is for a full aperture beam. Let us know your imaging requirements and we will be pleased to advise you on the appropriate lens for your application.

Since these lenses are often used with high power lasers we offer optional protective windows which can be attached to the focusing side of the lens. In the event of inadvertent back reflection of high energy beams into the lens it is likely that the window will absorb the incident energy and shatter preventing further damage to the lens itself. Protective windows are offered uncoated in packages of ten pieces. For optimum performance we advise that the protective windows be Anti-Reflection coated with our A46 V Coat at 1064nm.

Specifications & Tolerances

Focal length: $\pm 2\%$ @ 1064nm

Coating: $\%R < 0.5$ at 1064nm

Laser damage threshold: Measured at $8\text{J}/\text{cm}^2$ 10ns pulse

Clear aperture: $> 90\%$

We use the term YAG laser loosely to include Nd:Glass, Nd:YAG, YLF and other types of laser operating in the wavelength region of 1.06 microns.

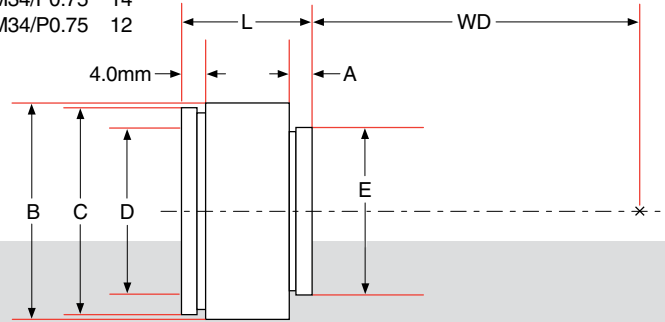
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 OptoSigma®

OPTICAL COMPONENTS

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| Part No. | Dimensions (mm) | | | | | |
|----------|-----------------|----|-----------|------|-----------|----|
| | A | B | C | D | E | L |
| 027-0210 | 6.0 | 32 | M29/P0.75 | 20.0 | M22/P0.75 | 22 |
| 027-0220 | 6.5 | 36 | M34/P0.75 | 27.0 | M28/P0.75 | 22 |
| 027-0230 | 4.0 | 36 | M34/P0.75 | 26.5 | M28/P0.75 | 19 |
| 027-0240 | 3.5 | 36 | M34/P0.75 | 27.0 | M28/P0.75 | 19 |
| 027-0250 | 4.0 | 36 | M34/P0.75 | 27.0 | M34/P0.75 | 17 |
| 027-0260 | 4.0 | 36 | M34/P0.75 | 27.0 | M34/P0.75 | 15 |
| 027-0270 | 4.0 | 36 | M34/P0.75 | 27.0 | M34/P0.75 | 14 |
| 027-0280 | 4.0 | 36 | M34/P0.75 | 27.0 | M34/P0.75 | 12 |



YAG LASER FOCUSING LENS

YAG Laser Focusing Lenses

| Focal Length (mm) | Working Distance, WD (mm) | N.A. | Spot Size (µm) | Cell Length, L (mm) | Protective Window Thread, T | Lens Composition | Price | PART NUMBER |
|-------------------|---------------------------|------|----------------|---------------------|-----------------------------|------------------|-------|-----------------|
| 20.0 | 9.0 | 0.48 | 1.15 | 22.0 | M22 x P0.75 | Triplet | | 027-0210 |
| 30.0 | 19.1 | 0.39 | 1.76 | 22.0 | M28 x P0.75 | Triplet | | 027-0220 |
| 40.0 | 30.9 | 0.30 | 2.27 | 19.0 | M28 x P0.75 | Triplet | | 027-0230 |
| 50.0 | 41.4 | 0.24 | 2.79 | 19.0 | M28 x P0.75 | Triplet | | 027-0240 |
| 59.9 | 41.1 | 0.20 | 3.32 | 17.0 | M34 x P0.75 | Doublet | | 027-0250 |
| 79.9 | 67.6 | 0.15 | 4.38 | 15.0 | M34 x P0.75 | Doublet | | 027-0260 |
| 100.1 | 88.4 | 0.12 | 5.46 | 14.0 | M34 x P0.75 | Doublet | | 027-0270 |
| 149.3 | 140.0 | 0.08 | 8.15 | 12.0 | M34 x P0.75 | Doublet | | 027-0280 |

YAG Lens

Protective Windows

| Protective Windows | | WINDOW | RETAINER | | |
|--------------------|--------------|------------------------|-----------------|-------|-----------------|
| Exit Window (mm) | For Use With | Price 10 Piece Package | PART NUMBER | Price | PART NUMBER |
| 21.0 | 027-0210 | | 027-0189 | | 027-0194 |
| 27.0 | 027-0220 | | 027-0191 | | 027-0195 |
| 27.0 | 027-0230 | | 027-0191 | | 027-0195 |
| 27.0 | 027-0240 | | 027-0191 | | 027-0195 |
| 33.0 | 027-0250 | | 027-0192 | | 027-0196 |
| 33.0 | 027-0260 | | 027-0192 | | 027-0196 |
| 33.0 | 027-0270 | | 027-0192 | | 027-0196 |
| 33.0 | 027-0280 | | 027-0192 | | 027-0196 |

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For optimum performance request your protective windows with our A46 Anti-Reflection V Coat at 1064nm.