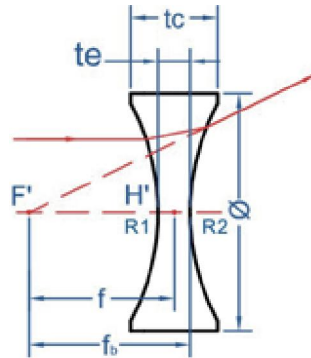


Double-concave lenses

Double concave lenses are used in beam expansion, image reduction, or light projection applications. These lenses are also ideal for expanding the focal length of an optical system. Double concave lenses, which have two concave surfaces, are optical lenses with negative focal lengths.

The double concave lenses are used in optical systems in combination with other lenses. The lenses also work as beam expanders, optical character readers, viewers and projection systems. Under customer request anti-reflection or other types of coatings can be applied.



Specifications:

Material: BK7, Optical Glass, Fused Silica
Germanium, Silica, ZnSe and CaF₂.
Focal Length Tolerance : $\pm 1\%$
Diameter Tolerance : $+0.0/-0.1$ mm
Thickness Tolerance : ± 0.1 mm
Surface Figure: Power(N) < 3
Irregularity(N) : < 0.5
Surface Quality : 40-20
Centration : $< 3'$
Clear Aperture : $> 90\%$
Coating : MgF₂, VAR, WAR

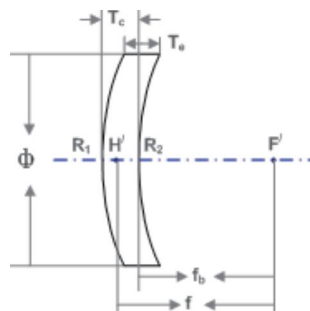
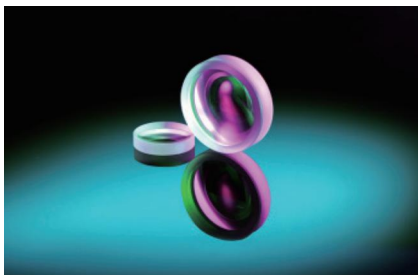
Standard BK7 Double Concave Lenses

| Part No. | Φ (mm) | f (mm) | R1=R2 (mm) | t c (mm) | t e (mm) | f b (mm) |
|--------------|-------------|--------|------------|----------|----------|----------|
| DICV-127-25 | 12.7 | -25 | 26.25 | 2 | 3.6 | -25.7 |
| DICV-127-30 | 12.7 | -30 | 31.44 | 2 | 3.3 | -30.7 |
| DICV-127-27 | 12.7 | -40 | 41.8 | 2 | 3 | -40.7 |
| DICV-254-50 | 25.4 | -50 | 52.17 | 2 | 5.1 | -50.7 |
| DICV-254-75 | 25.4 | -75 | 78.09 | 2 | 4.1 | -75.7 |
| DICV-254-100 | 25.4 | -100 | 104 | 2 | 3.6 | -100.7 |

Meniscus Lenses

Meniscus lenses have two curved surfaces one of which is protrusive while other is intrusive, also these lenses are referred to as convex-concave lenses. Radii of curvature of both surface can be chosen independently from each other. Meniscus lenses find application in optical systems, where aberrations need to be minimized, for instance in multi lens focusing objective, where it helps to minimize focal spot of the beam. The same benefit is applied in collimators. Another advantage is that meniscus design allows to make longer focal length lenses than the ones available in Plano-convex design. Lenses with equal radii of curvature on opposite sides serve well as substrates for resonator mirrors.

1. The positive meniscus lens can increase the NA of the system while only adding slightly to the total spherical aberrations.
2. The negative meniscus lens is used to increase the focal length of another lens while maintaining the angular resolution of the optical assembly.



Specifications:

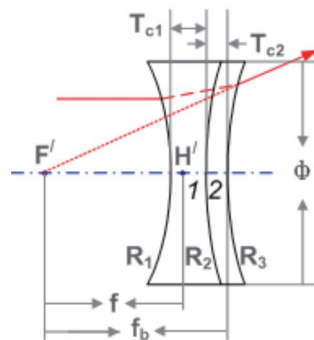
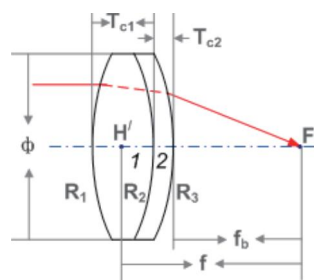
Material: BK7, Optical Glass, Fused Silica
Germanium, Silica, ZnSe and CaF₂.
Focal Length Tolerance : $\pm 1\%$
Diameter Tolerance : $+0.0/-0.1$ mm
Thickness Tolerance : ± 0.1 mm
Surface Figure: Power(N) < 3
Irregularity(N) : < 0.5
Surface Quality : 40-20
Centration : $< 3'$
Clear Aperture : $> 90\%$
Coating : MgF₂, VAR, WAR

Standard BK7 Meniscus Lenses

| Part No. | Φ (mm) | f (mm) | R1 | R2 | t c (mm) | t e (mm) | f b (mm) |
|---------------|-------------|--------|--------|---------|----------|----------|----------|
| POML-254-100 | 25.4 | 100 | 32.14 | 82.2 | 3.6 | 2 | 96.19 |
| POML-254-125 | 25.4 | 125 | 40.6 | 106.86 | 3.3 | 2 | 121.55 |
| POML-254-150 | 25.4 | 150 | 49.1 | 131.81 | 3.1 | 2 | 146.78 |
| POML-254-200 | 25.4 | 200 | 66.2 | 182.57 | 2.8 | 2 | 197.12 |
| POML-254-250 | 25.4 | 250 | 83.4 | 234.19 | 2.6 | 2 | 247.35 |
| POML-254-300 | 25.4 | 300 | 100.9 | 288.3 | 2.5 | 2 | 297.47 |
| POML-254-400 | 25.4 | 400 | 136.5 | 402.03 | 2.4 | 2 | 397.61 |
| POML-254-500 | 25.4 | 500 | 172.9 | 523.7 | 2.3 | 2 | 497.74 |
| POML-254-1000 | 25.4 | 1000 | 371.6 | 1331.26 | 2.2 | 2 | 997.99 |
| DEML-254-100 | 25.4 | -100 | 33.65 | 100 | 3 | 4.7 | -103.03 |
| DEML-254-125 | 25.4 | -125 | 38.77 | 100 | 3 | 4.3 | -128.29 |
| DEML-254-150 | 25.4 | -150 | 43.14 | 100 | 3 | 4.1 | -153.55 |
| DEML-254-200 | 25.4 | -200 | 50.23 | 100 | 3 | 3.8 | -204.06 |
| DEML-254-250 | 25.4 | -250 | 55.71 | 100 | 3 | 3.7 | -254.58 |
| DEML-254-300 | 25.4 | -300 | 95.11 | 250 | 3 | 3.5 | -303.22 |
| DEML-254-400 | 25.4 | -400 | 112.49 | 250 | 3 | 3.4 | -403.63 |
| DEML-254-500 | 25.4 | -500 | 126.34 | 250 | 3 | 3.3 | -504.04 |
| DEML-254-1000 | 25.4 | -1000 | 253.2 | 500 | 3 | 3.2 | -1004.03 |

► Achromatic Lenses

Achromatic duplet lenses are optimized to provide excellent chromatic and spherical aberrations free performance. Optimized composition of two lenses, where one is made of dense flint and second of crown glass, assures much tighter focus than singlet spherical lenses due to minimized longitudinal and transverse spherical aberrations. They also feature nearly constant focal length across wide range of wavelengths. Standard achromatic duplet lenses cover two ranges – visible (400 nm – 700 nm) and near infrared (700 nm – 1050 nm). Single line, dual line and different than standard broadband configurations are also available. Achromatic Lenses are ideal for a range of applications, including fluorescence microscopy, image relay, inspection, or spectroscopy. If you do not have design or drawing of required achromatic lens, hontec engineers will help you to make one.



Specifications:

- Material: Optical Glass
- Focal Length Tolerance : $\pm 1\%$
- Diameter Tolerance : $+0.0/-0.1$ mm
- Thickness Tolerance : ± 0.1 mm
- Surface Figure: Power(N) <3
Irregularity(N) :<0.5
- Surface Quality :40-20
- Centration :<3'
- Clear Aperture :>90%
- Bevel:<0.2 \times 45 $^\circ$
- Coating: MgF2,VAR,WAR