Polymer microoptics
Welcome to CDA’s world

The fact that CDA is one of the leading optical storage media manufacturers in Europe is known to many, however, few are aware that we are also a global market leader in manufacturing polymer components for micro-optics and microfluidics. These components perform often critical tasks in systems such as Head-up-Displays, gesture control and diagnostics, so we need to make sure there are no compromises in quality. Our commitment to perfection and constant process development has gain the trust of our clients worldwide.

Our Markets

- Automotive
- Machine Vision
- Consumer Electronics
- Metrology
- Life Science
- Medicine and Biotechnology
We think in benefits and advantages. In particular yours.

Nowadays, glass, silicon, metals and other materials are substituted by high-performance plastics in many applications. This leads to a significant cost reduction for the individual components and makes it possible to manufacture products for mass markets. Depending on the application, polymers show a lot of other benefits.

Features of polymer

- robust
- easy to assemble
- cost-efficient
- light weighted

CDA’s standard materials and their properties

<table>
<thead>
<tr>
<th>Material</th>
<th>Properties</th>
<th>Benefits</th>
<th>Field of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polycarbonate</td>
<td>Temp. Range max 140 °C</td>
<td>+ Excellent replication behaviour</td>
<td>· Diffractive Optics Encoder</td>
</tr>
<tr>
<td></td>
<td>Transmittance ≥ 90 %</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Water Absorp. = 0,2 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COP (ZEONEX)</td>
<td>Temp. Range max 136 °C</td>
<td>+ Excellent optical homogenity</td>
<td>· Refractive Optics (lenses)</td>
</tr>
<tr>
<td></td>
<td>Transmittance ≥ 92 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water Absorp. = 0,01 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMMA</td>
<td>Temp. Range max 100 °C</td>
<td>+ Mechanical properties, scratch resistant</td>
<td>· Diffractive and refractive Optics</td>
</tr>
<tr>
<td></td>
<td>Transmittance ≥ 92 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water Absorp. = 0,6−1,7 %</td>
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Light is one-of-a-kind... So is CDA

Polymer diffractive and refractive microoptics for lasers, LEDs, and optical systems are one of CDA’s core competencies. Diffractive optics (DOEs) have surface structures nearly in the same size than the wave length of the through passing light which splits or reshapens the light into the desired light distribution. Feature sizes between 50 nm and 15 μm break, split up and shape the light in such a precise way that it acts like an optical processor. A huge advantage compared to conventional microoptics is the small size, the low weight and the mostly even shape. Refractive microoptics (ROEs), on the other hand, partially work with larger structures and are often used to homogenize or polarize the light. In that field, lens radii of up to 250 μm can be arranged at any spacing.

Product Portfolio

Diffractive Optics
DOE’s • Beam Splitters
Line Generators • Diffusers
optical Encoders • Fresnel Optics

Refractive Optics
Lense Arrays • Collimators • Fresnel
Lenses • Diffusers

High volume production tuned to your product

According to our mission, we only produce customized products. For this reason, we have the entire production chain inhouse and choose the appropriate methods for your product individually. The manufacturing process is based on wafers and reliably guarantees high-quality and cost-efficient output. All production steps are combined individually to meet the purpose of most effective production. From single optical components up to entire modules. Our unique production flexibility allows us to present solutions from minimum quantities to high-volume series of millions of units per month.

There are solutions only known to you and us

Thanks to our modifications of existing manufacturing processes, our vast engineering expertise and, our expertise in working with polymers since 1994, we are able to produce high-precision micro-optical components in large series. This includes all steps from project planning to design and rapid prototyping up to series manufacturing and pick & pack logistics. Of course with utmost confidentiality and protection of your intellectual property.
### What can we do for you?

**Light source:**
- **Type:** 
  - ○ cw laser
  - ○ pulsed laser
  - ○ LED
  - ○ others
- **Wavelength:** Center ________ and Bandwidth ________
- **Polarization:**
- **Power/Energy:** ○ Watt ○ etc
- **Beam profile:**
  - Diameter ________
  - Divergence ________
  - M2 ________
  - Quality ________

**Optical Function:**
- Desired light distribution ____________
- **Shape:** ________
- **Uniformity:** ________
- **Distance to the light source:**
  - Field of view ________
  - Diffraction angles ________
- **Target surface inclination:** ________ and/or shape ________

**Application:**
- **Eye Safety:** ________
- **Size and shape of the element:**
  - Size ________
  - Form ________
- **Material:** ________
- **Environmental conditions (humidity, temperature etc.):** ________
- **Component or module:** ________
- **Packaging:** ________

The target annual production and price target are required to choose the best solution.

Please don’t forget your contact details.

**Company:**

**Contact Person:**

**Phone:**

**Email:**