HISTORY of DiYPRO CO., LTD.
FresnelFactory by DiYPRO CO., LTD.

2014
09. Developed Quad element motion-detector module
07. Mass-produced motion detector for Moving walk
03. Design and manufactured 150W Spot type LED broad casting lighting
01. Awarded R&D research achievement from Gyeonggi governor

2013
12. Approved manufacture of Suwon-si
09. Accredited Corporate R&D center from KINFA
06. Accredited Venture Certification from KINFA
02. Registered the establishment of incorporation of DiYPRO Co., Ltd.
02. Participated National R&D of Glass-free 3D integral photography

2012
09. Participated National R&D of improvement on Concentrate Photovoltaic
06. Developed lens cab for security sensor
02. Developed Glass-free 3D Fresnel lens for LG Display

2011
06. Opened English website: www.FresnelFactory.com
05. Participated National R&D: Development of Fresnel lens for high power LED
02. Donated more than USD 12,000 for education of low-income children
01. Supplied Front surface mirror for the World first 4th generation Media Façade

2010
08. Introduced KBS(Korean Broadcasting System) News program
01. Moved manufacturing facility to aboard

2008
08. Introduced Do It Yourself projector “Viewcell” from GreenOpt
06. Opened English website: www.FresnelFactory.com
05. Participated National R&D: Development of Fresnel lens for high power LED
02. Donated more than USD 12,000 for education of low-income children
01. Supplied Front surface mirror for the World first 4th generation Media Façade

2007
08. Introduced KBS(Korean Broadcasting System) News program
06. Opened English website: www.FresnelFactory.com
05. Participated National R&D: Development of Fresnel lens for high power LED
02. Donated more than USD 12,000 for education of low-income children
01. Supplied Front surface mirror for the World first 4th generation Media Façade

2006
10. Participated development of projector “Amazing” from GreenOpt
07. Introduced CEO KIM MyungJoong at Arirang TV
06. Introduced Korean magazine DVD 2.0 and PCBee
04. Participated development of projector “Amazing” from GreenOpt
03. Developed and patented Wall-mounted projector

2005
06. Developed Japanese magazine DVD 2.0 and PCBee
04. Participated development of projector “Amazing” from GreenOpt
03. Developed and patented Wall-mounted projector
02. Imported Front Surface Mirror from OCLI Inc.
01. Developed Do It Yourself motion-detecting module

2004
10. Recruited over 4million members of diypro.net
09. Developed Sayview, the first D.I.Y. concept projector and introduced Naeil newspaper
07. Introduced CEO KIM MyungJoong at Arirang TV
06. Introduced various media as new concept and the first D.I.Y. projector
03. Patented new type projector lamp using Metal-Halide lamp
02. Developed Do It Yourself motion-detecting module
**Company Profile**

DiYPRO Co., Ltd. is the only company that has Fresnel technology and exclusive right of Front surface mirror in Korea.

We started as the world first and biggest Do It Yourself projector community [www.diypro.net](http://www.diypro.net) at 2002. With more than 6 million members from worldwide, we developed 4 different beam projector. These accomplishments were introduced several articles and even book from Samsung Economic Research Institute.

At 2013, we set up the regal body and transferred our business model to optic company specialized Fresnel lens and First surface mirror, which came from inside of beam projector.

Now our business model is not only supply optical components, but also optical design and mold design for different aspect of companies in global. Our achievements is extending from motion detector to optics for broadcasting light and so on.

In near future, we are going to develop glass-free 3D display and high-quality broadcasting light with our accumulated experience. We hope to co-work with other companies that needs on optics and display industry.

Thank you.

**CEO**

Kim Myung Joong

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**DiYPRO Co., Ltd. provides One-Stop Service for your needs for optics. If you concern about time and budget, we can provide you Fast-track to find out best solution from our existing products.**

**Process of One-Stop Service**

Fast track will take couple of weeks to end and provide a final report and sample product

**Step of One-Stop Service**

1. Planning – To find out needs of customer and set-up constrains
2. Design – Optical design and simulation based on details and constrains
3. Test – To check the assumption from design stage and find out best solution from existing products
4. Mold design – Hot press or injection mold
5. Production
6. Quality inspection
7. Delivery

**Parts supply**

We also supply various lenses from our shelf. Please Email to mjkim@diypro.co.kr with specific information, such as focal length, size, usage and etc.

Products on the shelf:
- Motion detector lens cab, condenser lens for solar
- Front surface mirror and rear-projection system
- LED light lens
- Other optical glass lenses

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**Diagram:**

- **01** PLANING
- **02** DESIGN
- **03** TEST WITH EXISTING PRODUCT
- **04** MOLD DESIGN AND TOOLING
- **05** PRODUCTION
- **06** QUALITY INSPECTION
- **07** DELIVERY
Normal type Fresnel lens such as magnifiers, lighting equipment, 3D display is being used in a variety of areas. We can design and manufacture according to your needs.

**FACILITY**

**OUR DESIGN AND PRODUCTION CAPACITY**

<table>
<thead>
<tr>
<th>Tolerance of mold</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Precision</td>
<td>0.0005mm</td>
</tr>
<tr>
<td>Top radius</td>
<td>&lt;0.01mm</td>
</tr>
<tr>
<td>Harshness</td>
<td>&lt;0.0002mm</td>
</tr>
<tr>
<td>Max. lens size</td>
<td>2000 x 1400 mm</td>
</tr>
<tr>
<td>Max. mold size</td>
<td>2200 mm</td>
</tr>
<tr>
<td>Focal length</td>
<td>2mm &lt; x &lt; 10m</td>
</tr>
</tbody>
</table>

**Production Capacity**

Total production capacity is 200 million (150 million PIR lens cab from above)

**Main Equipments**

- Plastic injection molding machine
- Injection molding machine Form-Tec
- Diamond turning machine
- The large diamond lathe
- High speed CNC machine
- High precision optical disc lathe
- Reflective coating

**Optic simulation examples**

**Mold design examples**

**Product**

- FL100-200 Fresnel lens
- MAGNIFIER
- ART WORK
- MACHINE VISION
1. With large reflection angle of the LED point lamp-house, the emanative ray spreads the heat and compares severity, making use of the Fresnel lens to gather the light function. The rays will be gathered by using valid scope therefore increase light effect and maximize brightness result.

2. The Fresnel lens is differentiated from traditional LED lamp, in terms of the design of focal length and distance, which establishes the effective emergent light angle.

3. Compared to traditional products, the super thin structure of Fresnel lens enables improved light transmissibility. In addition, it could be applied for various purposes with its small and condensed product design. We can design and manufacture according to your needs.

The Principles of LED lampshade are as follows:

- The Infra red fresnel lens, be extensively apply in the switch, Annunciator, IR thermo scope, IR formation of a imagine and so on, can provide different induce angle, distance, size of the fresnel lens for customer. Nicera and Perkin-elder sensors can supply

**PD12-12010 Technical information**

<table>
<thead>
<tr>
<th></th>
<th>PD12-12010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall size</td>
<td>24x24mm</td>
</tr>
<tr>
<td>Focal length</td>
<td>7.5mm</td>
</tr>
<tr>
<td>Detectable distance</td>
<td>5m</td>
</tr>
<tr>
<td>Viewing angle</td>
<td>120°</td>
</tr>
</tbody>
</table>

**Injection mold and products**

**Sensors and developed motion detectors**

**LED Products**

- LS35-05
- LM324-026
- LM35-05
- LM20-01B
Solar arrays use Fresnel condenser lenses with following benefits:
- High precision optical components
- High precision thin thread forming process
- High refractive index
- Minimum optical losses
- High-intensity
- High transmission and anti-aging
- Anti-ultraviolet radiation

Ultimately, the cost of solar cell is several times lower than normal capacity, which provides maximum benefits to the user. The cutting edge design of Fresnel lens and Solar panels generate superior amount of electricity, with customized lens size and incidence angle.

Geometry spotlighting rate: For the effective optical lens aperture area. Divided by active area of cell, for example, the effective area of the lens: 120x120mm=14400mm², the area of the cell: 5x5mm=25mm². The geometry spotlighting rate 14400/25=576, this is the manufacturer usually multiplying power.

Photovoltaic: Glass-silicon on Fresnel condenser lens (SOG) and solar panels generally use the box design approach that we can achieve the best results. Solar arrays using Fresnel condenser lenses can achieve long term exposure by high precision optical components, suitable for outdoor air in the work environment. With silicone gel mold attached onto the ultra-white toughened glass surface of Fresnel lens, users will achieve high precision thin thread forming process, resulting following benefits.
- Ensured high refractive index
- Minimize optical losses
- High-intensity/transmittance and
- Ant-aging/anti-ultraviolet radiation

Comparably, SOG (Silicon on Glass) has several times better climate resistance characteristics than PMMA (Optical Acrylic), as it can take greater heat temperature (180 vs 70℃) without deformation of lens pattern. Based on customer’s requirement on solar panel, Fresnel Factory (Diypro) provides various customizations, such as modification on size of lens, incidence angle, distance between lens and solar panels, etc.

### CG256-1010 Technical information

<table>
<thead>
<tr>
<th></th>
<th>CG256-1010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focal Length</td>
<td>256mm</td>
</tr>
<tr>
<td>Size</td>
<td>1010x1010mm (per 240x240mm)</td>
</tr>
<tr>
<td>Array</td>
<td>4x4</td>
</tr>
<tr>
<td>Groove Pitch</td>
<td>1mm</td>
</tr>
<tr>
<td>Thickness</td>
<td>5mm</td>
</tr>
<tr>
<td>Material</td>
<td>Glass-silicon</td>
</tr>
<tr>
<td>Type</td>
<td>Concentrate Photovoltaic</td>
</tr>
</tbody>
</table>

### Installation examples

- Solar System
- Solar Cooking Heater
- Solar Water Boiler
- Solar Tube Diffuser
- Urban Plant Factory
- CPV System
Reflective Fresnel wide-angle mirror can serve the following purposes:

- Banks ATM, bank window for security and other fields. It is designed with light weight, compact size, broad visualization in scope, and high durability to cope with external impacts.

**Features:**

1. Clear reflection image and less deformation.
2. Wide viewing angle: visualization angle of 100 degrees, upper and lower viewing angle of 50 degrees.
3. Strengthened surface coating process, increased hardness, anti-weathered, anti-UV, anti-aging, scratch-resistant: Superior performance with protective aluminum surface spray paint, waterproof, moisture-proof, apply to various environmental conditions.
4. Wide-angle mirrors with the back of double-sided adhesive, easy to use, using the adhesive stickers on backside.

We are a professional manufacturer of optics for stage lighting, overhead projectors, and disco lighting—wherever quality and cost are important. We manufacture lenses in diameters from 10mm to 300mm including fixed triplet lenses, Var-Focus lenses (zoom lenses), Spherical lenses, Aspherical lenses, and reflectors. We can coat lenses with single or multi-layer coatings and can manufacture lenses from drawings or samples.

We make it Visible - DIYPRO Co., Ltd.
GigaDpt (made by JDSU-OCLI), high quality front surface mirrors, eliminate ghost images inherent in second surface mirrors and provide brighter images and lower system light losses. GigaDpt high reflector mirrors are manufactured using critically selected flat glass with excellent surface quality for the enhanced performance requirements of these products. These mirrors offer the durability and economy of aluminum-based thin film coatings and are available in two families of reflectivity: 94% or 97% (in this page, you can order 94%, BV2).

**Applications**

- Extending throwing distance of Beam Projector
- Rear projection system
- D.I.Y. projector
- Photo mirror
- Digital copiers
- Scanners
- Automotive digital dashes

**Environmental Specifications**

- **Humidity Resistance**: The mirror coating shall show no deterioration after exposure to 24-hour humidity test of 49% and 95% relative humidity.
- **Abrasion resistance**: The Mirror coating shall show no damage after a 200-rub test with a cheesecloth pad approximately 9.5mm(0.38 inch) diameter by 12.7mm(0.50 inch) thick. The bearing force shall be one pound ±1/4 pound(454g ±114g).
- **Coating Adhesion**: The mirror coating shall show no damage after 3M Scotch Brand No.610 adhesive tape (or equivalent) is placed firmly against the coated surface and removed quickly.
- **Corrosion Resistance**: The mirror coating shall show no deterioration after 24 hours of exposure to a salt fog test (5% NaCl by weight in water) at 35

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**94% R High Reflector Family**

- 400 nm: >92%
- 500 nm: >94%
- 600 nm: >91%
- 700 nm: >86%

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**Installation examples**

- Rear Projection
- Photo Mirror