

**photo sciences, inc.**  
**(Effective November 1st, 2020)**

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**PRICE LIST**

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**Mask:**

- 1X Chrome or Iron Oxide Master (4" to 7") ready to ship in the turn time listed below after the data is fracture-ready. **The delivery might be temporarily suspended when the capacity becomes full.** Customer will be notified at the time his or her order is placed. The cut-off time for sending in new orders, including data, is 3:00 PM PST. Orders received after 3:00 PM will count as being received the following business day.
- PSI will add a P.C.M. (Process Control Monitor) and measure it as C.D.
- If a customer requires that PSI measure specific C.D. (up to 5 locations), he or she must supply a plot of these C.D. locations and/or X,Y coordinate values.
- C.D. features should not be circles, curved or angular features, or larger than 20 microns; however, if a customer requires PSI to measure them, these measurements will be based on best effort only.

**Data:**

- Fast Track CAD engineer previews the data. If the data has no issues or errors, we will proceed with the order and our customer will receive order confirmation with the delivery information. If the data has issues or errors, our customer will be notified. Customer will then have the option of repairing the data himself/herself or have PSI repair the data at an hourly rate of \$125.00.
- CAD charges at an hourly rate of \$125.00 will apply for any data editing such as adding die serialization, biasing, scaling, and/or Boolean function. Quotation will be provided for any necessary CAD work.
- GDSII, DXF, or PG data are the only accepted data formats for Fast Track Products. Other data formats may require CAD charges for data preparation/setup.
- Data center (0,0) must match plate center.
- The area within 0.250" (6.35mm) from the edge of the plate is reserved for PSI's P.C.M. and Serialization; therefore, the mask's active data area (including text) should be contained within the remaining area.
- Maximum number of features in a data file is 25 Million.
- Maximum data file byte size is 150 MB.
- Filename (for all data formats) as well as Top Structure Name (only for GDSII) should not contain any space(s) between characters or invalid characters.
- PSI requires the fresh data for new or repeat orders.
- Customer must supply data and specifications necessary to build masks.

**Inspection:**

- Visual inspection and defect repair only for all Fast Track masks.
- Metrology tools are calibrated with relevant traceable standards.
- Iron Oxide features will be measured on tools calibrated with Chrome standard artifacts.

**Write Tool:**

Heidelberg DWL 200/400 (LPG: Laser Pattern Generator)

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CHROME			
<b>* Write Tool:</b>		<b>L10</b>	<b>L625</b>
<b>C.D. (P.C.M.):</b>		3.0	2.0
<b>C.D. Tolerance (±):</b>		0.5	0.25
<b>C.D. Uniformity (±):</b>		0.5	0.25
<b>Registration (±) (layer-to-layer):</b>	<b>SL</b>	0.5	0.5
	<b>QZ</b>	0.35	0.3
<b>Registration (±) (die-to-grid):</b>	<b>SL</b>	0.75	0.75
	<b>QZ</b>	0.6	0.5
<b>Defect:</b>		0>5.0	0>5.0

IRON OXIDE			
<b>* Write Tool:</b>		<b>L10</b>	<b>L625</b>
<b>C.D. (P.C.M.):</b>		4.0	3.0
<b>C.D. Tolerance (±):</b>	<b>4"-6"</b>	0.5	0.5
	<b>7"</b>	No Longer Available	No Longer Available
<b>C.D. Uniformity (±):</b>		0.5	0.5
<b>Registration (±) (layer-to-layer):</b>	<b>SL</b>	0.75	0.75
	<b>QZ</b>	0.5	0.5
<b>Registration (±) (die-to-grid):</b>	<b>SL</b>	0.75	0.75
	<b>QZ</b>	0.6	0.5
<b>Defect:</b>		0>10.0	0>10.0

**\* Write Tool:** Please note that the Write Tool, **L625**, is able to achieve a better Line Edge Acuity than L10 (Line Edge Acuity = the smoothness of the line edges). It is recommended that a **Product Code** designated for **L625** should be chosen for the data that contain circles, rings, arcs, angles, squares and/or stripes that are equal to or larger than the dimensions listed below. Please select an appropriate Product Code for your mask based on your specific mask requirements.

**Restrictions:**

The following Table shows the smallest dimension for **Circles, Rings, Squares, Angular Lines, Stripes** and/or **Tapered Lines** that can be resolved using a specific Write Tool (L10 or L625). Please select an appropriate Write Tool (L10 or L625) based on the Table below if your data contain any of these patterns mentioned. Additionally, our Fast Track Program does not guarantee to resolve **Waveguides** effectively.

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Write Tool	Circles (Diameter) or Rings (Width)	Squares	Angular Lines	Stripes or Tapered Lines	Waveguides
<b>L10</b>	≥ 5.0 μ	≥ 5.0 μ	≥ 5.0 μ	≥ 3.0 μ	Not Recommended
<b>L625</b>	≥ 3.0 μ	≥ 3.0 μ	≥ 3.0 μ	≥ 2.5 μ	Not Recommended

Please contact us at (310) 784-7460 or [sales@photo-sciences.com](mailto:sales@photo-sciences.com) if you have any questions regarding specification requirements and capabilities.

**Chrome Masks** - Product Codes, Prices, and Delivery -

**1) L10**

**C.D.: ≥ 3.0μ ±0.5μ (No circles, rings, squares smaller than 5.0μ)**

Size (inches)	Material/ Substrate	Product Code	Price	Ready to Ship in (Hours)
4x4x.060	Chrome/Soda Lime	<b>F10CS4060</b>	<b>\$387</b>	<b>48</b>
4x4x.090	Chrome/Soda Lime	<b>F10CS4090</b>	<b>\$387</b>	<b>48</b>
5x5x.090	Chrome/Soda Lime	<b>F10CS5090</b>	<b>\$414</b>	<b>48</b>
6x6x.090	Chrome/Soda Lime	<b>F10CS6090</b>	<b>\$545</b>	<b>48</b>
6x6x.120	Chrome/Soda Lime	<b>F10CS6120</b>	<b>\$572</b>	<b>48</b>
7x7x.090	Chrome/Soda Lime	<b>F10CS7090</b>	<b>\$763</b>	<b>72</b>
7x7x.120	Chrome/Soda Lime	<b>F10CS7120</b>	<b>\$763</b>	<b>72</b>
4x4x.060	Chrome/Quartz	<b>F10CQ4060</b>	<b>\$496</b>	<b>48</b>
4x4x.090	Chrome/Quartz	<b>F10CQ4090</b>	<b>\$496</b>	<b>48</b>
5x5x.090	Chrome/Quartz	<b>F10CQ5090</b>	<b>\$643</b>	<b>48</b>
6x6x.120	Chrome/Quartz	<b>F10CQ6120</b>	<b>\$916</b>	<b>48</b>
7x7x.150	Chrome/Quartz	<b>F10CQ7150</b>	<b>\$1799</b>	<b>72</b>

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**2) L625**

**C.D.:  $\geq 2.0\mu \pm 0.25\mu$  (No circles, rings, squares smaller than  $3.0\mu$ )**

Size (inches)	Material/ Substrate	Product Code	Price	Ready to Ship in (Hours)
4x4x.060	Chrome/Soda Lime	<b>F62CS4060</b>	<b>\$495</b>	<b>48</b>
4x4x.090	Chrome/Soda Lime	<b>F62CS4090</b>	<b>\$495</b>	<b>48</b>
5x5x.090	Chrome/Soda Lime	<b>F62CS5090</b>	<b>\$583</b>	<b>48</b>
6x6x.090	Chrome/Soda Lime	<b>F62CS6090</b>	<b>\$817.50</b>	<b>48</b>
6x6x.120	Chrome/Soda Lime	<b>F62CS6120</b>	<b>\$845</b>	<b>48</b>
7x7x.090	Chrome/Soda Lime	<b>F62CS7090</b>	<b>\$1145</b>	<b>72</b>
7x7x.120	Chrome/Soda Lime	<b>F62CS7120</b>	<b>\$1145</b>	<b>72</b>
4x4x.060	Chrome/Quartz	<b>F62CQ4060</b>	<b>\$572</b>	<b>48</b>
4x4x.090	Chrome/Quartz	<b>F62CQ4090</b>	<b>\$572</b>	<b>48</b>
5x5x.090	Chrome/Quartz	<b>F62CQ5090</b>	<b>\$747</b>	<b>48</b>
6x6x.120	Chrome/Quartz	<b>F62CQ6120</b>	<b>\$992</b>	<b>48</b>
7x7x.150	Chrome/Quartz	<b>F62CQ7150</b>	<b>\$2017</b>	<b>72</b>

Note:

- We no longer offer 6"X6"X.090" Chrome / Quartz Masks under our Photomask Program.

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- Product Codes, Prices, and Delivery -

**Iron Oxide Masks**

**1) L10**

**C.D.:  $\geq 4.0\mu \pm 0.5\mu$  (4"-6")  $\pm 0.75$  (7") (No circles, rings, squares smaller than  $5.0\mu$ )**

Size (inches)	Material/Substrate	Product Code	Price	Ready to Ship in (Hours)
4x4x.060	Iron Oxide/Soda Lime	F10IS4060	\$556	3-4 days
4x4x.090	Iron Oxide/Soda Lime	F10IS4090	\$556	3-4 days
5x5x.090	Iron Oxide/Soda Lime	F10IS5090	\$627	3-4 days
6x6x.090	Iron Oxide/Soda Lime	F10IS6090	\$807	TBD
4x4x.060	Iron Oxide/Quartz	F10IQ4060	\$698	3-4 days
4x4x.090	Iron Oxide/Quartz	F10IQ4090	\$698	3-4 days
5x5x.090	Iron Oxide/Quartz	F10IQ5090	\$883	3-4 days
6x6x.120	Iron Oxide/Quartz	F10IQ6120	\$1363	TBD

**2) L625**

**C.D.:  $\geq 3.0\mu \pm 0.5\mu$  (4"-7") (No circles, rings, squares smaller than  $3.0\mu$ )**

Size (inches)	Material/Substrate	Product Code	Price	Ready to Ship in (Hours)
4x4x.060	Iron Oxide/Soda Lime	F62IS4060	\$643	3-4 days
4x4x.090	Iron Oxide/Soda Lime	F62IS4090	\$643	3-4 days
5x5x.090	Iron Oxide/Soda Lime	F62IS5090	\$834	3-4 days
6x6x.090	Iron Oxide/Soda Lime	F62IS6090	\$1063	TBD
4x4x.060	Iron Oxide/Quartz	F62IQ4060	\$872	3-4 days
4x4x.090	Iron Oxide/Quartz	F62IQ4090	\$872	3-4 days
5x5x.090	Iron Oxide/Quartz	F62IQ5090	\$1025	3-4 days
6x6x.120	Iron Oxide/Quartz	F62IQ6120	\$1580	TBD

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Notes:

- 6"x6"x.090" Iron Oxide / Soda Lime and 6"x6"x.120" Iron Oxide / Quartz materials are subject to availability.
- We no longer offer 7"X7"X.090" Iron Oxide / Soda Lime Masks under our Photomask Program.

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**photo sciences, inc.**

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