



MIRROR SPECIFIER'S GUIDE



SPECIFIER'S GUIDE TO REPLEX MIRROR

By combining the best process technology with state of the art materials, Replex is able to offer you wide variety of mirror products, each uniquely well suited to the application. The best product for each application is the one that achieves the designer's objectives at the lowest total cost. The variables available to accomplish this include:

Polymer Type
Thickness and Cost
Cutting Method
Maskings

Laminates
Adhesives
Paint Type and Color

Mirror Color
Metal Type
Shape

Generally there are relationships between higher levels of performance and higher cost. In many cases, however, we have tried and true ways to accomplish your objective at least cost. This guide will give you the basic information you need to achieve your product design objectives. The experts at REPLEX are always eager to assist you along the way. Call customer service at (800) 886-8847.

POLYMER TYPE

While it is possible to metalize nearly any solid, there are three polymer types widely used for mirror. In practice, one of these will accommodate nearly any design objective:

1) Acrylic

1) *Acrylic* is the most widely used polymer for plastic mirror. As such, acrylic mirror, is available in stock in the widest range of thickness, .060-.236", (1.5-6mm), sizes and colors. It is the least costly of the three per pound, yet has the best optical quality and scratch resistance of the three. It is 14 times more impact resistant than glass, and is the same polymer used in most storm window safety glazing. Acrylic mirror may be saw cut, router cut or laser cut. It cannot be die cut due to fracture.

2) PETG

2) *PETG* is 8 times more impact resistant than acrylic, and has typical elongation-to-break of 125%. This toughness makes it extremely break resistant. The cost per pound is comparable to acrylic but it is readily available in gauges as thin as .020 inch (0.5mm). If rigidity is not a concern, this can reduce PETG mirror to the lowest cost per unit of area (\$/sq. ft.) of the three polymer types. PETG's toughness allows for shear cutting and die cutting, two processes suitable for high volume, low unit cost production. The toughness benefit comes at the cost of reduced optical quality due to distortion and surface blemishes.

3) Polycarbonate

3) *Polycarbonate* is the toughest and most expensive of the three polymer types. The optics rival acrylic, but toughness is 30 times acrylic. It may be die cut in thin gauges, but it is only available from .060 inch (1.5mm) and thicker up to .236 (6mm). Polycarbonate has the added value of being fire resistant.

THICKNESS & COST

There is a direct relationship between thickness and cost. There is also a direct relationship between thickness and flatness (distortion), impact strength and flammability.

Thicker sheets have the following characteristics:

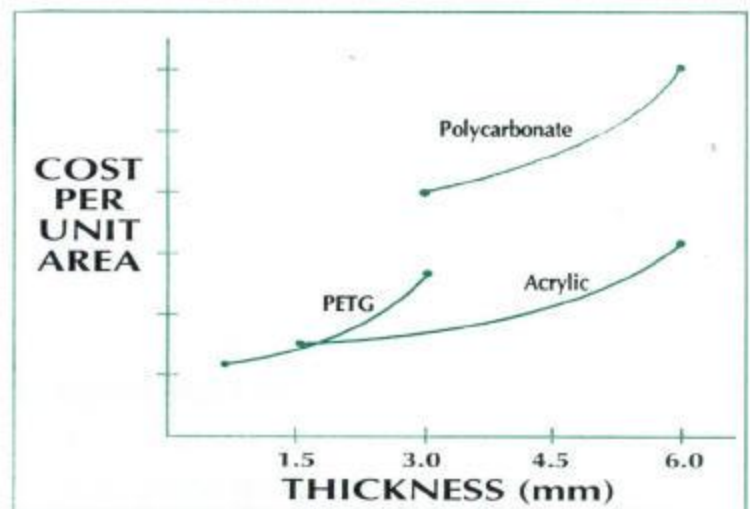
1. Higher cost per unit area
2. Flatter and stiffer, more important the larger the finished part size.
3. Stronger, break resistant
4. Less flammable

Replex can assist you with the design tradeoffs for a given application.

CUTTING METHOD

The decision on cutting method depends on the following variables: polymer type, size, dimensional tolerance, shape, cost criteria, and edge finish. The following methods are widely used and will meet most needs economically; saw, router, die cut and shear.

Consult with us on your specific needs. We will guide you to a product design specifically for your requirements. Utilizing our years of experience with design ideas, we will help you hold down total product cost, yet maintain or improve the quality of your project.



MASKINGS

Replex supplies film maskings on the front side to protect the mirror during processing, handling and shipping. Various specialty films or papermask products are readily available on request.

Cling film is the standard masking. Low, medium, and high tack are also available with or without printing. White and brown paper with low, medium and high tack are also available.

LAMINATES

Replex mirror can also be laminated to a wide range of materials. Replex can apply pressure sensitive adhesive backing to simplify installation after cutting. A release paper covers the adhesive during cutting, handling and storage. Just peel and stick the finished part.

Various temporary and/or permanent films, papers and sheets have been applied in our factory on customer request. White vinyl or clear teflon are two examples. Consult Replex's customer service personnel at **1-800-886-8847** for help with your needs.

ADHESIVES

Fabrication and finishing of mirror brings challenges to the installer in the application of adhesives. Replex's many years of research and development in providing the finest mirror substrates for a variety of mirror applications affords absolute confidence when used with the correct adhesives and sealants.

The sealants and adhesives must be compatible with each other, and with the mirror as well as the safety film on the mirror. Installers are cautioned to read the instructions on the adhesives first, and if there are questions, to call the manufacturers.

There are many products that will hold the mirror in place, but two recommended are: JAMES B. FULLER white glue for indoor use and SIKAFLEX for marine applications. Before using, however, a determination must be made on the suitability of the product for the intended use, and user assumes all risk and liability in connection with the use.

PAINT TYPE AND COLOR

Replex uses a water reducible baked-on enamel as its standard back coating. This paint protects the metal from abrasion during mirror processing and use. The paint is compatible with many standard adhesives and thus affords a wide range of uses. This paint will pass up to a 200 hour salt/fog test with no visible corrosion of the aluminum. This paint is easy on the environment and is readily available in any color with a modest surcharge.

For applications demanding severe abrasion resistance, or up to 300 hour salt/fog resistance. Replex also uses a solvent based paint with improved physical properties. This is available only in the "industrial gray" color and is not suitable for PETG mirror.

MIRROR COLOR AVAILABILITY

COLOR	NUMBER	ACRYLIC	PETG	POLYCARBONATE
Bronze	#2404	✓	Call	Call
Black/Bronze	#2064	✓	Call	Call
Black/Bronze	#2074	✓	Call	Call
Black/Bronze	#2370	✓	Call	Call
Blue	#2050	Call	X	X
Blue	#2114	Call	X	X
Clear	#	✓	✓	✓
Gold	#	✓	Call	Call
Gray	#3001	✓	X	X
Pink	#	Call	X	X

✓ = Readily Available
X = Not Readily Available

Please note that the colors are most widely available in .118 inch (3mm) thickness. Always confirm availability of the combination of thicknesses and color needed for your application.

METAL TYPE

By far aluminum is the most widely used metal for Replex mirror. Aluminum is inexpensive, non-toxic, durable and very bright. Other metals such as chromium, nickel and various alloys may be used in specialty applications to change the reflective characteristics of the mirror.

In all cases the metal is deposited in vapor form under high vacuum. This is done under high vacuum so that the reflective surface produced is exceptionally uniform and it conforms to the substrate.

SHAPE

Replex thermoforms mirror into various shapes and sizes ranging from a few inches to four feet long/wide with depths up to 18 inches. We have over 40 existing tools suitable for forming mirror parts. Custom tooling can be built quickly and economically if needed for custom applications.

For more information, please call 1-800-886-8847 or FAX your sketches to us at (614) 397-5548.



PLASTICS

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