



**A Leading American Manufacturer of High Quality
Cast Acrylic Tubes and Rods for more than 50 years!**

US CAST Cast Acrylic Tubes and Rods

Poly-methyl methacrylate or PMMA, more commonly known as “acrylic” or by a variety of tradenames such as Lucite®, Plexiglas®, or Perspex®, can be formed into a wide variety of sizes and shapes by casting, molding, or extruding the polymer. US CAST specializes in making cast acrylic rods and tubes. While cast and extruded acrylic are the same material, PMMA, cast acrylic produces an anisotropic material (physical properties are the same in all directions) with superior physical properties: higher molecular weight; higher tensile strength; greater clarity; better heat resistance; and better machinability.

Cast acrylic material, while more expensive than extruded or molded acrylic, is superior for most applications. Cast acrylic is unaffected by sunlight or fluorescent light, resists aging, and maintains stability over a wide range of environmental and chemical conditions. Cast acrylic rods and tubes can be fabricated into a wide variety of end-uses, including protection for lighting displays (especially outdoors), sight tubes, display cases with extraordinary optical clarity, fiber optic illumination conduits, household items (e.g. towel holders, canisters, etc.,) and more.

US CAST manufactures cast acrylic tubes in five-foot lengths, that can be custom cut to any length. Tubes are manufactured in twenty-nine diameters, from 1.5” to 14” ID. Standard wall thickness are 1/8”, 3/16”, 1/4”, 3/8”, with 1/2” available on request.

Standard size tube length is 5’. Most tube sizes are in stock in 1’, 2’, 3’, and 4’ lengths. There is a 15% cutting fee for any custom length cuts of the standard tube size. Pricing is always to the nearest foot for each tube length ordered – e.g. a 20” tube length will be charged 2 feet., per the standard per foot cost + 15% cutting fee.

US CAST cast acrylic rods are manufactured in lengths from five feet to eight feet, depending on diameter and can be custom cut to any length. Rods are manufactured in thirty-two diameters, ranging from 1/4” to 6”.

Standard size rod length is:

- For diameters <1.5 “ ... 8’
- For diameters between 1.5” and 3” inclusive ... 6’
- For diameters >3” ... 5’

There is a 15% cutting fee for any custom length cuts of the standard rod size length. Most rod sizes are in stock in 1’, 2’, 3’, and 4’ lengths. Pricing is always to the nearest foot per rod length ordered – e.g. a 20” rod length will be charged 2 feet, per the standard per foot cost + 15% cutting fee.

US CAST’s cast acrylic rods and tubes conform to specifications of ASTM D5436; are certified by the FDA for food contact according to CFR 21 177.1010; UL approved for flame resistance according to UL 94HB.



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Cast Acrylic Rod and Tube Cosmetic Inspection Specifications

General – Cast Acrylic Rods and Tubes. Each rod or tube will be individually inspected at each stage of the manufacturing process, including polymerization, grinding, polishing, buffing, final inspection, and packaging. Rods and tubes shall be free from scratches, cracks, warping, blisters, voids, bumps, dirt, or other foreign matter that affect appearance or performance, except as noted below. A blemish within quality standards may include minor scratches from handling which can be easily removed by polishing. Since end-user appearance and performance criteria vary widely, United Resins will, at its sole discretion, replace any rod or tube which meets United Resin’s Inspection Criteria, but does not meet the needs of the customer.

Optical Clarity – Cast Acrylic Tubes. Polished cast acrylic tubes shall have optical clarity allowing print of approximately 0.125” high character type to be read under good lighting through both walls over the entire length of the tube.

Optical Clarity – Cast Acrylic Rods. Polished cast acrylic rods shall have optical clarity allowing clean print of seven lines per inch to be read under good lighting through the diameter of the rod over the entire length of the rod.

Blemish within quality standards – Bubbles – Cast Acrylic Tubes. Tubes shall not have any bubbles that protrude through any sidewall or are more than 50% of the wall thickness. No bubble shall exceed 0.125” in any dimension. There shall be no more than three bubbles in any 12-inch section of cut or full-length tubing.

Blemish within quality standards – Cracks – Cast Acrylic Tubes. Tubes shall be free of cracks which extend through the wall thickness of the tube. Some micro-cracks, visible only under special lighting conditions, may be present and will be acceptable unless they do not meet the special appearance or performance needs of the customer.

Blemish within quality standards – Scratches – Cast Acrylic Tubes. Tubes shall be free of easily detectable scratches except that minor scratches from handling which can be easily removed by polishing may exist.

Blemish within quality standards – Dents/Indentations – Cast Acrylic Tubes. Tubes shall be free of easily detectable dents or indentations, except that one indentation of 0.0156” or less shall be acceptable in any cut length.

Blemish within quality standards – Dirt – Cast Acrylic Tubes. Tubes shall be free of easily detectable dirt or foreign matter, except that three particles of 0.0156” or less shall be acceptable in any cut length; or one particle of 0.0625” in any length.

Blemish within quality standards – Warping – Cast Acrylic Tubes. Tubes shall be straight to sight.

Blemish within quality standards – Waviness – Cast Acrylic Tubes. Tubes shall be smooth. Waviness is acceptable as long as print-reading specifications are within tolerance.

Length – Cast Acrylic Rods and Tubes. Rods and tubes shall have a cut-length tolerance of +/- 0.125”. 5-foot long tubes generally measure ~60.8” and shall not be cut except at request of the customer. Full length rods (5-, 6-, or 8-foot long, depending on diameter) may be cut longer than nominal length to afford greater flexibility in customer use. Blemish within quality standards of any type in the excess length portion may be present.

Diameter and Wall Thickness – Cast Acrylic Rods and Tubes.

Nominal Outside Diameter (inch)	Outside Diameter Tolerance (inch)
1.5 - 3.0	+/- 0.020"
3.25 - 3.75	+/- 0.025"
4.0 - 6.5	+/- 0.030"
7.0 - 14.0	+/- 0.045"

Nominal Wall Thickness (inch)	Wall Thickness Tolerance (inch)
0.125	+/- 0.018"
0.1875	+/- 0.019"
0.25	+/- 0.025"
0.375	+/- 0.035"