



Precision Bore Tubing Meets Your Size, Shape, and Tolerance Requirements

Andrews produces, designs, and shrinks Precision Bore Tubing in capillary, round, square, rectangular, hexagonal, fluted and tapered shapes. Complex configurations, including internal threads, end bells and other changes in bore size, are produced to exacting specifications. Working in borosilicate, fused quartz and other types of glass, we maintain tolerances to ± 0.0001 ". We can produce sizes ranging from .003" to 6.00" ID and lengths up to 50".

Precise Tolerances*

- Inside Diametersas low as ± 0.0001 "
- Outside Diameters ± 0.0002 "
- ConcentricityWithin 0.0005"
- ThicknessWithin ± 0.002 "
- TapersFrom 0.0004 inch/inch
- Lengthto ± 0.002 "

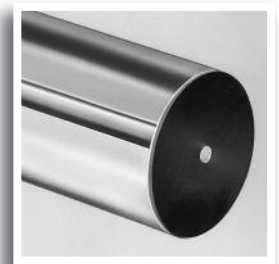
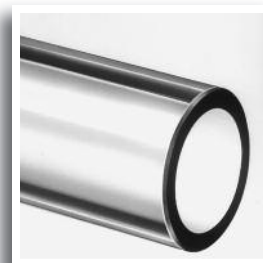
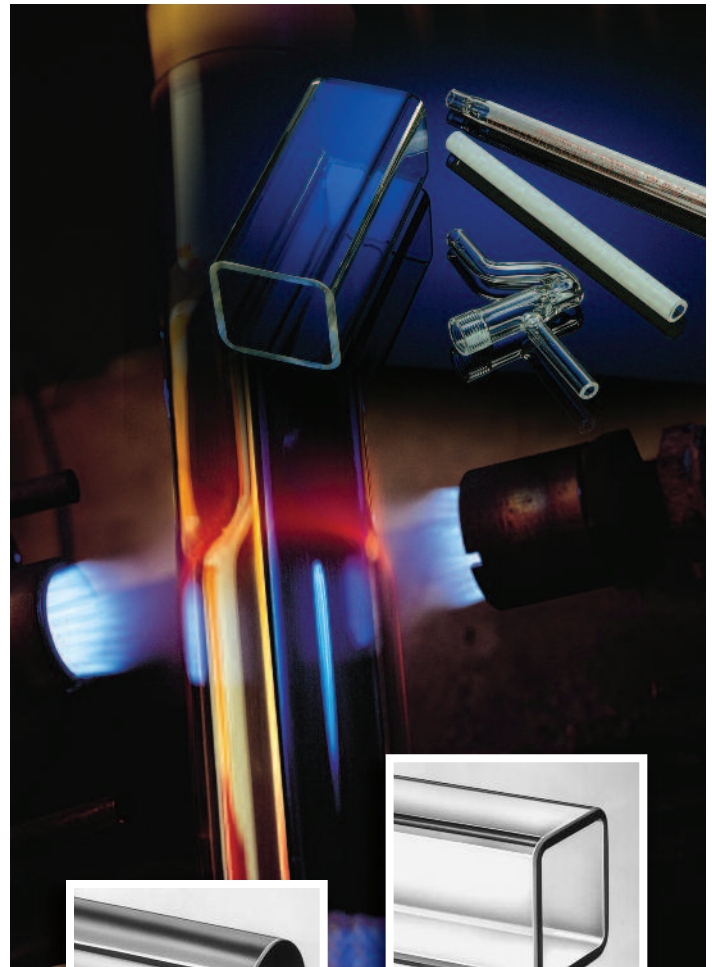
Glass is the Ideal Material to Meet Stringent Engineering Requirements

Andrews' proprietary shrinking technology allows you to take full advantage of the unique chemical and mechanical characteristics of glass—especially low expansion borosilicate glass and fused quartz.

Characteristics like transparency, optical stability, chemical inertness, impermeability, nonporosity, light transmission, low thermal conductivity, dielectric properties, and a compressive strength greater than steel make glass the ideal material for use in solving a variety of engineering problems.

Andrews' Precision Bore Tubing is being effectively used in a wide range of applications including:

- Laser Bores
- Photomultiplier and Vidicon Tubes
- Flow Meter Tubes
- Spectroscopy Cells
- Syringe Barrels and Plungers
- Specialty Glass Components and more...



*Minimum tolerances vary with the combination of dimensions. Call to discuss your requirements.

Andrews' Premium Quality, Round Capillary Tubing is Ideal for Scientific and Industrial Use

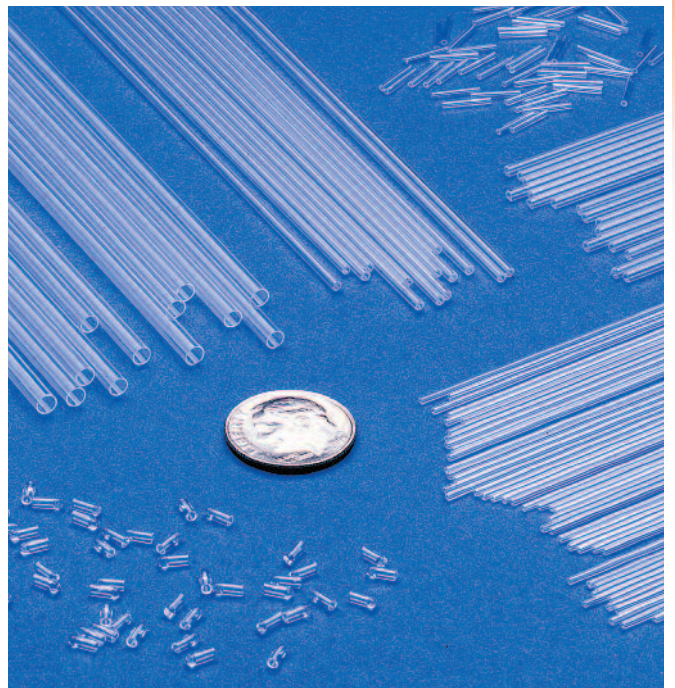
Andrews Glass Company's expanded precision bore glass capabilities include premium quality, round capillary tubing for special applications. Custom sizes, as well as noncircular bores, can be produced to precise specifications. Capillaries are made to order and carefully packaged for safe handling, shipping, and use.

Common Uses include:

- Intra/extra cellular biology
- Separation sciences
- Hematology sampling and study
- Critical volume studies

Produced to Exacting Specifications

- Varying lengths, with or without microfilament
- Sizes ranging from 0.30 mm to 3.00 mm OD in thin, standard or heavy wall
- Standard tolerances of $\pm 10\%$ of inner diameter
- Tighter tolerances, custom sizes, multi-bore, and noncircular bores available



Andrews Combines a Tradition of Glass Shrinking Technology with an Extensive Mandrel Inventory to Meet Today's Requirements for Precise Shapes and Tight Tolerances

With over a half century of experience Andrews has taken its proprietary shrinking technology to higher levels of reliability and tighter tolerances. Today, Andrews continues to lead in all aspects of specialty, precision glass and quartz fabrication—from prototype to production. Andrews' engineers and master artisans can assist you in design and fabrication of custom made components and products, even those projects with specifications requiring "greater than raw material" tolerances. Precise outside diameters are met through tightly controlled grinding and polishing processes, as well as through laminations to increase wall thickness.

At Andrews, a key to providing Precision Bore Tubing that will assure the success of your product is the "mandrel", a steel rod fabricated to produce the precise dimensions and shape required. Andrews has the most extensive inventory of mandrels in the industry. Prototypes and production quantities can be developed quickly—and you save the time and expense of new mandrels.

With Andrews, you can rely on our glass fabrication expertise and be confident in the knowledge that you are 100% protected by our exclusive Nondisclosure Policy.



For application assistance or other information call 1-800-845-0026, visit andrews-glass.com or laserglasscomponents.com

ISO 9001:2008 Certified