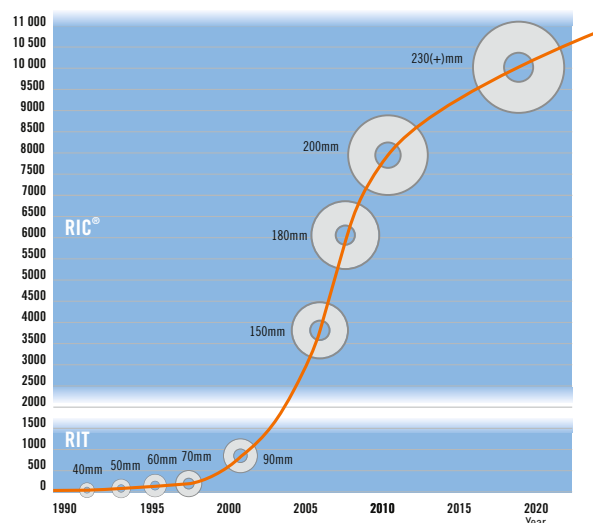




RIC[®] – The Advanced Preform Technology

Since the beginning of optical fiber production, there has been a steady growth in the size of preforms being manufactured by Heraeus' customers. As single mode preform sizes have increased, so has the amount of fiber being drawn from these preforms. With the Rod-in-Tube (RIT) technology, our largest overclad tubes facilitated preform sizes up to 900 km. In keeping with our commitment to "The Evolution of Size," our Rod-in-Cylinder (RIC[®]) technology can result in preforms equivalent to fiber lengths of 10,000 km. These large preforms can increase our customers' profitability and significantly improve their manufacturing costs and efficiencies without compromising product quality.

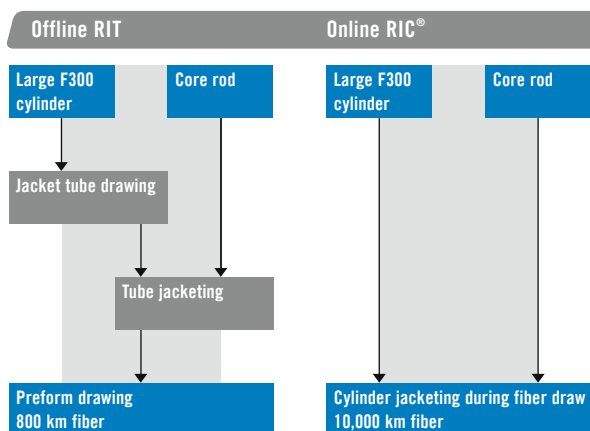
Fiber per preform [km]



Financial and operational benefits

The Online RIC[®] technology for production of single mode fibers helps our customers to become significantly more cost competitive. The cost benefits compared to Offline RIT are substantial:

- Economy of scale
- No offline jacketing process necessary
- Reduction of b/a ratio, and therefore improved efficiency of our customers' core rod deposition equipment
- Improved utilization of fiber draw equipment.



Technical benefits

Using Heraeus' high purity F300 jacketing material ensures the production of world class optical fiber. Since the F300 cladding material is essentially free of OH, low and zero water peak fibers can be readily made using the RIC[®] process. In production, benchmark break rate levels are achieved thanks to the purity of our material, leading to superior product performance.

RIC[®] cylinders are fabricated using CNC-controlled lathes resulting in outstanding geometrical performance. The ground outer surface of the cylinders is suitable for direct fiber draw and results in superior fiber geometries.

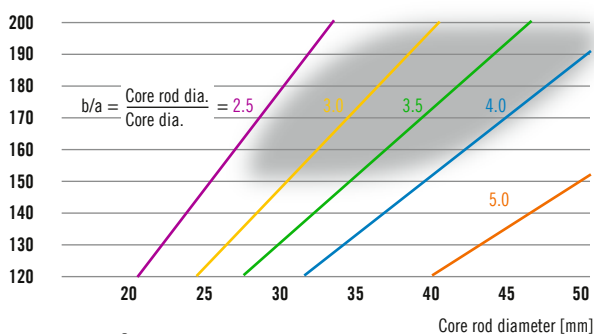
Typical Cylinder Dimensions

OD	150 ... 230 mm
OD max – OD min	≅ 0.6 mm
ID tol	+/- 0.5 mm
Length	3,100 mm
Ovality	≅ 0.1 mm
Siding	≅ 1 mm
Bow	≅ 0.5 mm/m



Core Rod Design and Cylinder Dimensions

Cylinder outer diameter [mm]



■ Typical RIC[®] working range

How to get started

Heraeus possesses extensive RIC[®] process experience. Therefore, we can support fiber manufacturers in the implementation of the RIC[®] technology and can tailor it to your company's fiber manufacturing processes. As a preliminary step, the feasibility of the RIC[®] technology can be demonstrated by overcladding your core rods at our Offline RIC[®] facility. These RIC[®] preforms can then be drawn into fiber and qualified at your facility.

About us

Heraeus is the key global supplier of high purity synthetic fused silica products for optical fiber manufacturing. We have been a reliable partner in the world telecommunications industry since 1976.

We are certified for ISO 9001:2015 in USA and Germany. In addition our manufacturing site in Germany is certified for ISO 50001:2018. Our manufacturing site in USA is certified for ISO 14001:2015.

Germany
Heraeus Quarzglas GmbH & Co.KG
Heraeus Comvance
 Quarzstraße 8
 63450 Hanau
 Phone +49 (0) 6181.35-6324
 comvance.eu@heraeus.com

USA
Heraeus Quartz North America LLC
Heraeus Comvance
 100 Heraeus Blvd.
 Buford, GA 30518
 Phone +1 678.804-1021
 comvance.us@heraeus.com