

Benz G4X p-GMA/HEMA (Hioxifilcon D)

Specifications

Water Content (%)	54
Dk (35°C, Fatt Units)	23*
Refractive Index Dry	1.510
Refractive Index Hydrated (35°C)	1.408
Linear Expansion (mm)	1.350
Radial Expansion (mm)	1.350
Hardness (Shore D)	89
% Transmission (@600 nm)	>95
Standard size	Diameter - 12.70 mm, Thickness - 5.0mm
Standard Colors	Clear, Low Blue
UV Blocker	Available upon request
Pre-cut	Depth - 1.5mm /2.0mm, Radius - 6.8mm

*ANSI Z802004 Polarographic method corrected for boundary-layer and edge effects.

Note: Optional sizing and colors may be available on request.

Manufacturing

Environment Control:

We recommend maintaining a maximum Relative Humidity of 45% at 21±2°C

Diamond Tooling:

Tooling	Radius (mm)
Rough	0.400
Fine	0.300

Machining Recommendations:

Base Curve	Speed (RPM)	Feed (mm/min)	Depth (mm)
Rough	10,000	90	0.30
Fine	9,500	15	0.095
Front Curve	Speed (RPM)	Feed (mm/min)	Depth (mm)
Rough	10,000	53	0.300
Fine	9,500	15	0.080

Benz R&D validates expansion values

Machining parameters and tool specifications are important for optimum surface finish and reaching precise target every time. Benz R&D validates the expansion values, target hitting ability and surface quality of every lot of Benz materials when machined strictly according to recommendations.

Hydration/Sterilization

Polishing

G4X lenses should need minimal polishing or no polishing because of the expansion of the materials upon hydration. If polishing is required, use XPAL, Alox 721 or comparable material. Polishing time should be a maximum of 20 seconds.

Hydration

Lens made with G-Materials will hydrate much faster than lenses made from other materials of comparable water content. Place lenses into the Borate Buffer pH 7.2 isotonic saline and allow the lens to sit in solution while stirring for a minimum of 4 hours. Hydrate for the minimum time specified at constant temperature (T = 20± 2°C). A minimum of 10 ml per lens should be used for hydration.

After hydration, lenses should be rinsed, autoclaved, and stored in the pH 7.2 buffered saline solution for packaging and sterilization.

Benz G4X p-GMA/HEMA (Hioxifilcon D)

Hydration/Sterilization (continued)

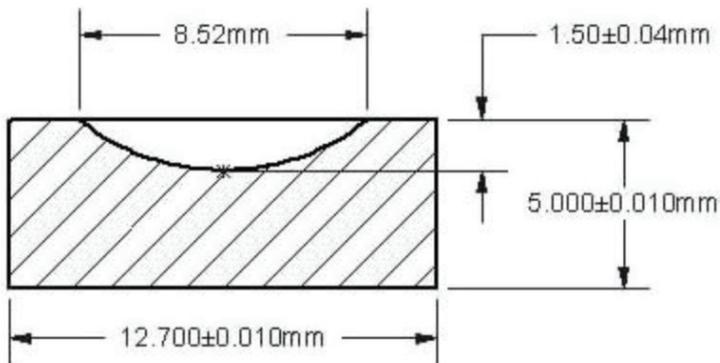
Isotonic Saline

Borate Buffer pH 7.2; 295 mOs

NaCl 8.01 grams • H₃BO₃ 2.47 grams • Na₂B₄O₇ · 10H₂O 0.14 grams

The weights for the buffered saline formulas are based on a 1 Liter Volume solution. The borate solution shows excellent performance through the sterilization process (autoclaving) and leaves the lenses free of residue.

Technical drawings



Isotropic & Precision Expansion

Benz R&D blanks have both isotropic and precision expansion characteristics. "Isotropic expansion" means equal expansion in all directions.

The diagram illustrates isotropic expansion. The top part shows a cylinder with a sphere inside, with arrows indicating expansion in all directions (isotropic). The bottom part shows a sphere with axes labeled A, B, and C, indicating expansion in all directions.