

HI56 HYDROPHOBIC

SEMI-FINISHED PRODUCT CUSTOMER SPECIFICATION

1 GENERAL

- 1.1 The HI56 hydrophobic is supplied in a semi-finished format with two finished optics and an unfinished haptic zone that gives an overall “flying saucer” shaped profile, often referred to as a Saturn disc. This semi-finished product simplifies the production process for the IOL manufacturer and avoids the current difficulties linked to cryogenic and cold temperature lathing.
- 1.2 The parts are cast in medical grade single use polypropylene moulds using a photo-polymerisation process. The monomers used are of ultra-high purity and exceptional conversions are obtained. The optics do not need any additional polishing, and with a good milling process, the haptics should also be polish free, saving considerable time and cost.
- 1.3 The HI56 hydrophobic material has been specifically formulated to fulfil the latest requirements and demands for hydrophobic intraocular lens production. The material has been developed to create a balance between high refractive index, compression and fast unfolding time.

2 OPTIC DESIGN

- 2.1 Negatively aspheric lens which corrects 0.25µm of spherical aberration (SA), designed to produce zero spherical aberration in an eye model representing an average normal population.
- 2.2 The anterior lens surface is aspheric (conic constant K= -1.000 and α2 constant according table). The posterior lens surface is a standard sphere (conic constant K=0).

Sphere Power (D)	α2 constant (mm⁻³)
10.0	-0.00040506
15.0	-0.00044659
20.0	-0.00048202
25.0	-0.00056325
30.0	-0.00062828

- 2.3 The power of the lens was optimized to be the nominal value at 3mm aperture.
- 2.4 Product is available from +10.0D to +30.0D in 0.5 dioptre steps.
- 2.5 Estimated A-Constant.

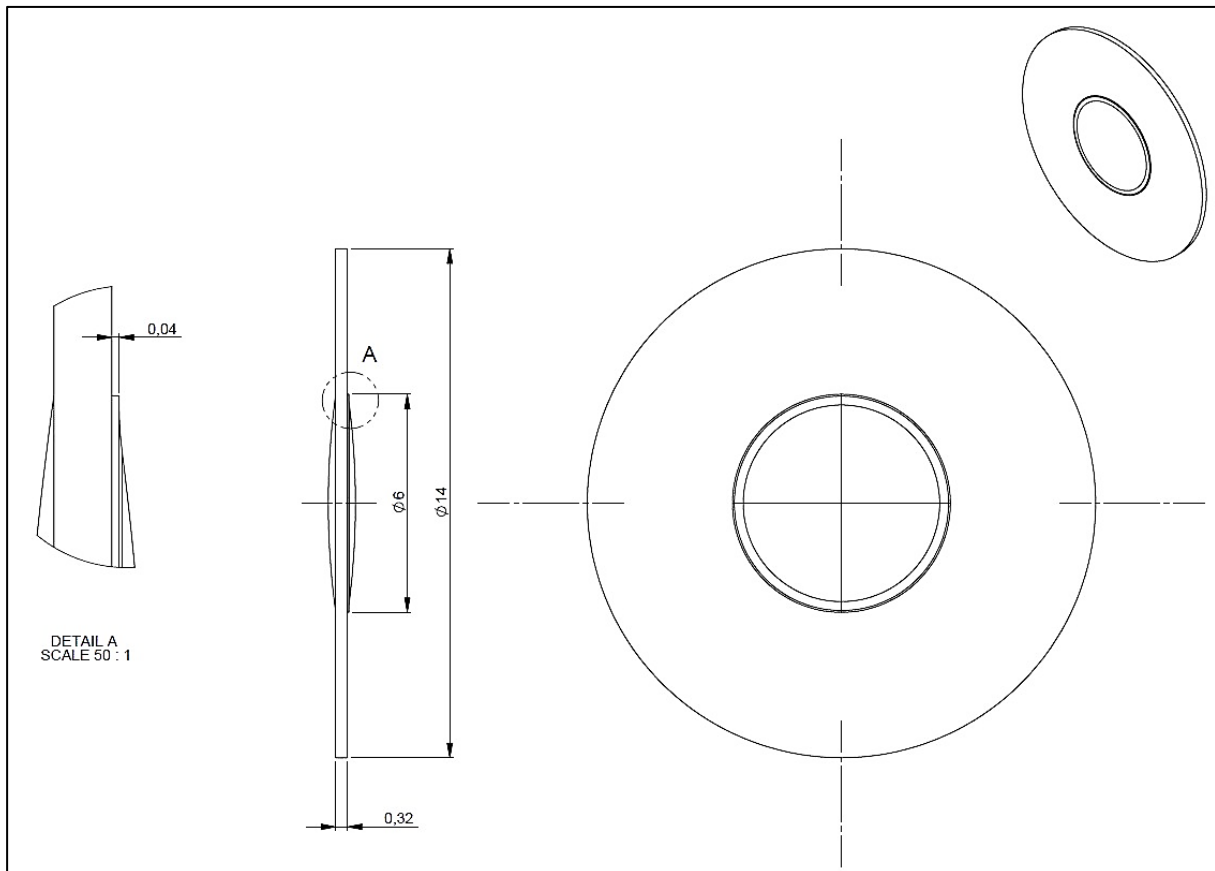
A-Constant	Ultrasound A-Scan	Optical Biometry
SRK/T Formula	117.8	118.8
SRK II Formula	118.1	119.1

3 DIMENSIONS

- 3.1 Overall flying saucer diameter: 14.00mm
- 3.2 Edge thickness (haptics): 0.32mm
- 3.3 Square edge height: 0.04mm
- 3.4 Optic body diameter: 6.00mm
- 3.5 Anterior aspheric optic zone diameter: 6.00mm
- 3.6 Posterior spherical optic zone diameter: 5.80mm

Sphere Power (D)	Anterior Radius (mm)	Posterior Radius (mm)	Optic Body ϕ (mm)	Optic Zone ϕ (mm)	Centre Thickness (mm)	Anterior Sag (mm)	Posterior Sag (mm)	Edge Thickness (mm)	Square Edge Height (mm)
10.0	43.300	- 39.780	6.00	5.80	0.537	0.071	0.106	0.320	0.040
15.0	29.739	- 26.830	6.00	5.80	0.632	0.115	0.157	0.320	0.040
20.0	21.756	- 20.700	6.00	5.80	0.732	0.168	0.204	0.320	0.040
25.0	18.000	-16.170	6.00	5.80	0.826	0.204	0.262	0.320	0.040
30.0	14.500	-14.015	6.00	5.80	0.922	0.259	0.303	0.320	0.040

Product Drawing



4 MATERIAL FORMULATION

- 4.1 The HI56 material is a copolymer of Phenylethyl acrylate (PEA) and Phenylethyl methacrylate (PEMA) which is cross-linked with Butanediol diacrylate (BDDA) and does include a benzotriazole UV absorber.

5 MATERIAL PROPERTIES

PROPERTIES	Value
Tg MIDPOINT DSC (°C)	11.5°C
UNFOLDING RATE (24°C)	25s
REFRACTIVE INDEX DRY (21°C)	1.560
REFRACTIVE INDEX HYDRATED (21°C)	1.560
REFRACTIVE INDEX HYDRATED (35°C)	1.555
ABBE NUMBER (35°C)	38.1
WATER CONTENT BY WEIGHT	<0.5%
MONOMER RESIDUALS	<0.6%
E-MODULUS	2.8MPa
TENSILE STRENGTH	3.8MPa
ELONGATION TO BREAK	176%
10% UV CUT-OFF WAVELENGTH	379nm
UV TRANSMISSION (300-380NM)	0.5%
VISIBLE TRANSMISSION (380-800NM)	>96%

