# Nanex™ multiSert+™

## PERFORM MICRO INCISION CATARACT SURGERY WITHOUT COMPROMISES

The world's smallest nozzle size for an open-loop preloaded hydrophobic IOL system, designed for cataract surgery as low as 1.8 mm

The preloaded Nanex™ multiSert+™ system eliminates the compromises traditionally associated with sub-2.2 mm cataract surgery

HOYA
SURGICAL OPTICS

# The innovative design of Nanex™ multiSert+™ allows for sub-2.2 mm incision cataract surgery without compromises

Lens material

Nanex™



**Proven hydrophobic acrylic lens material:**
over 10 million units implanted worldwide, over 20 years[1]

**Significant PCO reduction:** achieved through HOYA's proprietary active oxygen processing treatment to the posterior surface of the Nanex™ IOL[2]

Injection system

multiSert+™

**Wound protection:** minimizes wound stretch and allows for minimally invasive surgery through the smallest nozzle size available for an open-loop preloaded hydrophobic IOL system (outer diameter: 1.62 mm)[3]

**Outstanding delivery consistency and smoothness:** predictable lens release afforded by HOYA's unique patented preloaded IOL delivery mechanism[4]

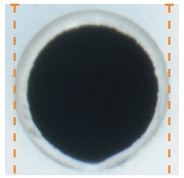
**4-in-1 preloaded IOL system providing choice:**
push or screw injection, and *insert shield* in advanced or default position according to the surgeon's preference and individual case presented

**1.** Data on file, HOYA Medical Singapore Pte. Ltd, 2018. **2.** Matsushima H, et al. Active oxygen processing for acrylic intraocular lenses to prevent posterior capsule opacification. *J Cataract Refract Surg.* 2006; 32:1035-1040. **3.** Comparative porcine eye study: study result. David J Apple International Laboratory for Ocular Pathology, University Hospital Heidelberg. Report on file **4.** Data on file, HOYA Medical Singapore Pte. Ltd, 2019.

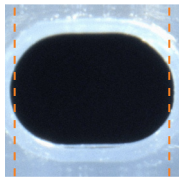
# Protecting sub-2.2 mm incision quality through the world's smallest nozzle tip for an open-loop preloaded hydrophobic IOL design

## Nozzle size comparison

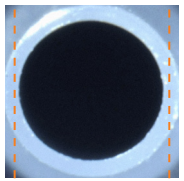
Hydrophobic IOL



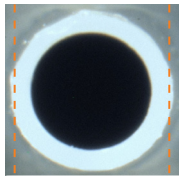
Nanex™ multiSert+™ NC1-SP



UltraSert AU00T0

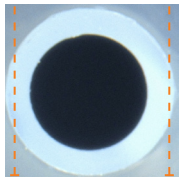


TECNIS iTec PCB00



RayOne Hydrophobic RA0800C

Hydrophilic IOL



CT ASPHINA 509MP + BLUEMIXS 180

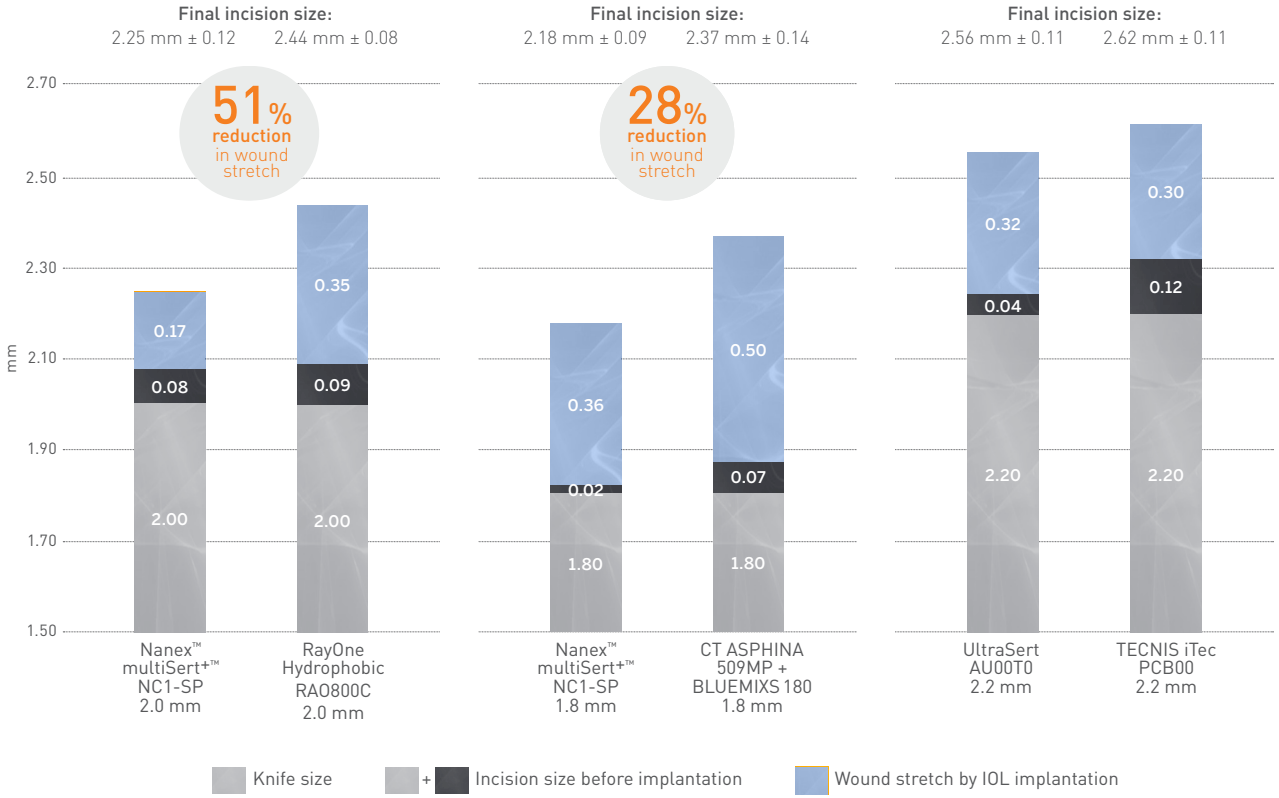
### The smallest nozzle available for an open-loop preloaded hydrophobic IOL system[1]

In a comparative observation, the 1.62 mm outer diameter injector tip of Nanex™ multiSert+™ was reported to be the smallest nozzle size among all tested devices, allowing for implantation through incisions as small as 1.8 mm

Images are not actual size but comparisons are presented within scale

## Nanex™ multiSert+™ provides the smallest final incision size and least amount of wound stretch when performing cataract surgery through a 1.8 mm or 2.0 mm incision[2]

The following data is from a study comparing incision sizes in porcine eyes (n = 10, +20.0 D)

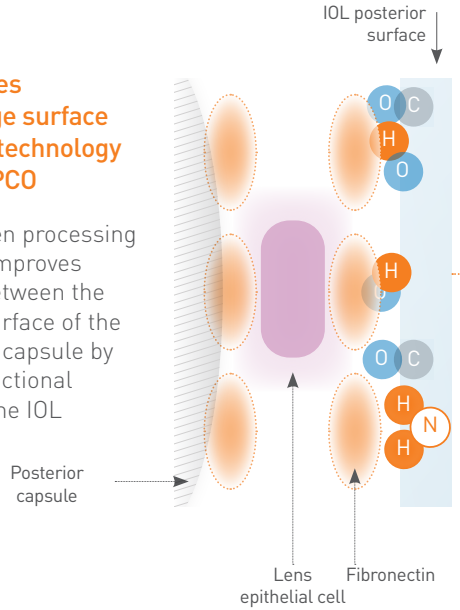



1. Data on file, HOYA Medical Singapore Pte. Ltd, 2019. 2. Comparative porcine eye study: study result. David J Apple International Laboratory for Ocular Pathology, University Hospital Heidelberg. Report on file.

# Designed to minimize posterior capsule opacification (PCO)

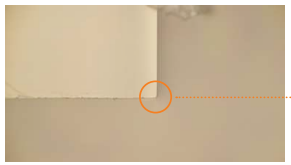
## Nanex™ uses cutting edge surface treatment technology to reduce PCO

Active oxygen processing treatment improves adhesion between the posterior surface of the IOL and the capsule by creating functional groups on the IOL surface[1]




## Sharp optic edge[2]

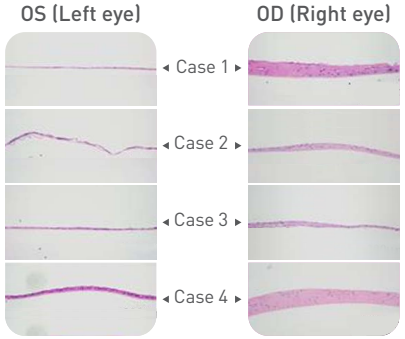
Designed to minimize PCO



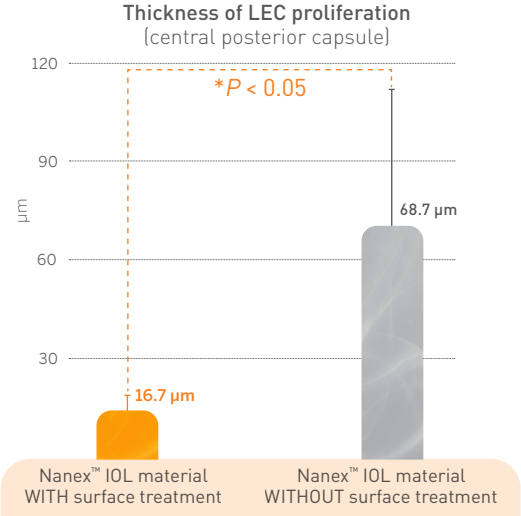
## Significant PCO reduction demonstrated in an *in vivo* rabbit study[1]

Nanex™ IOL material, with its active oxygen processing treated IOL surface, showed strong capsular adhesion and significantly reduced PCO compared with untreated IOL surfaces

(a) Rabbits receiving lenses with active oxygen processing treatment showed reduced PCO in comparison with those without




(b) Active oxygen processing treatment significantly inhibits PCO formation on the IOL material in comparison with untreated IOL surfaces. Statistical significance at $*P < 0.05$



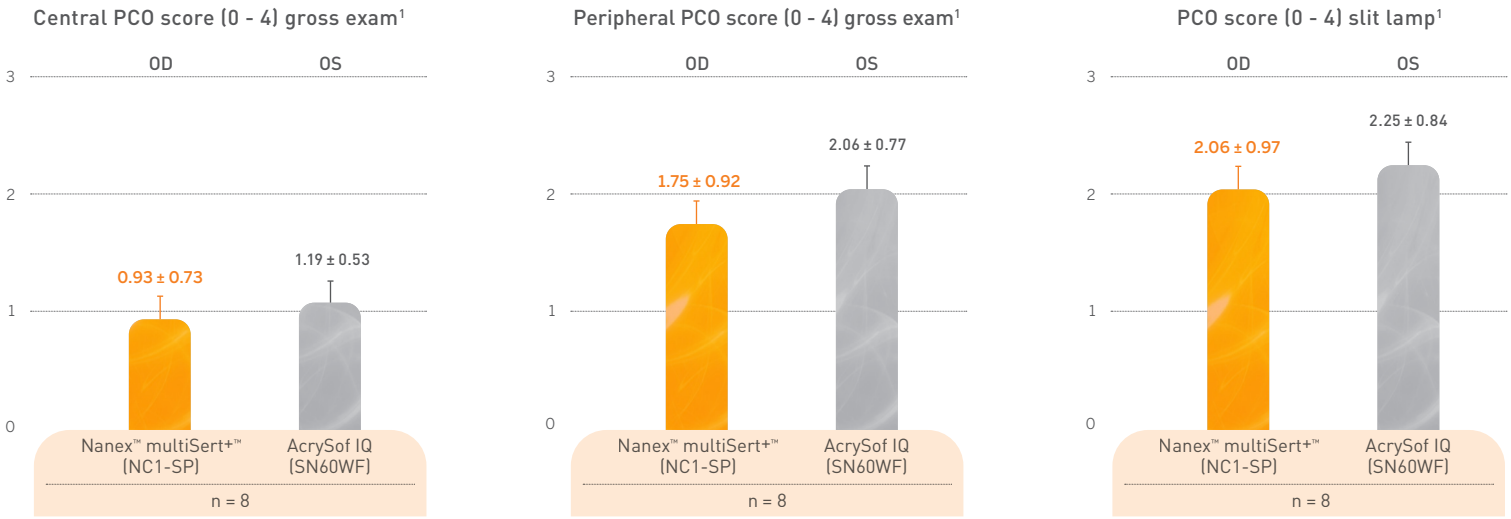

**1.** Matsushima H, et al. Active oxygen processing for acrylic intraocular lenses to prevent posterior capsule opacification. *J Cataract Refract Surg.* 2006; 32:1035-1040. **2.** Data on file, HOYA Medical Singapore Pte. Ltd, 2019.

# Demonstrated PCO reduction with Nanex™ multiSert+™

## Nanex™ multiSert+™ showed a consistent trend towards stronger PCO inhibition vs AcrySof IQ across all three scores[1,2]

In a GLP-study evaluating the PCO of Nanex™ multiSert+™ (NC1-SP) and AcrySof IQ (SN60WF) in rabbits, while not statistically significant, Nanex™ multiSert+™ showed a trend towards less PCO in comparison with AcrySof IQ, in the 4-week postoperative study

## PCO scoring in a paired rabbit study

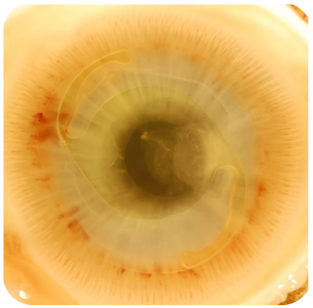



## Representative paired images in rabbits[1,2]

Gross examination (Miyake-Apple view)

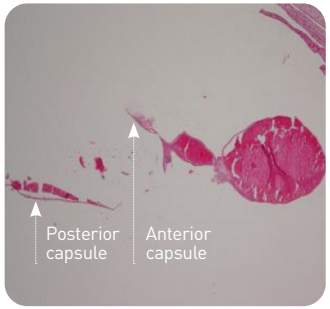
OD (Nanex™ multiSert+™)

OS (AcrySof IQ)

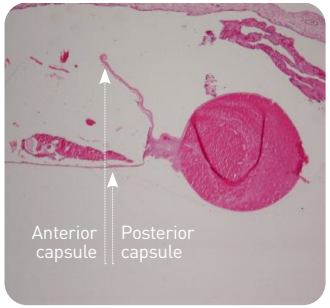


Histopathology

OD (Nanex™ multiSert+™)




OS (AcrySof IQ)




GLP; Good laboratory practice.

**1.** Balendiran V, et al. Uveal and capsular biocompatibility of a new hydrophobic acrylic microincision intraocular lens. *J Cataract Refract Surg.* 2020; 46:459-464. **2.** Data on file, HOYA Medical Singapore Pte. Ltd, 2019.

# Nanex™ multiSert+™ provides peace of mind with a highly consistent, predictable and smooth IOL delivery

Nanex™ multiSert+™ achieved outstanding delivery consistency in a test series of 630 lens deliveries[1]

100% success

**No leading or trailing haptic tucking failure** reported in 630 attempts

+

**No broken injector tips after IOL release** reported in 630 attempts

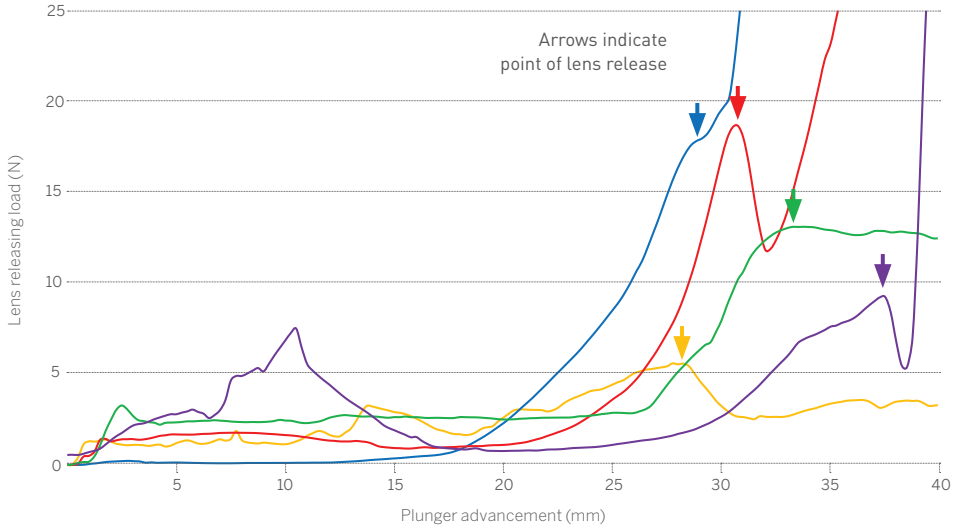
100% success

## Nanex™ multiSert+™ is designed to provide a smooth lens delivery in comparison with other IOL delivery systems to mitigate risk of abrupt release[2]

- Nanex™ multiSert+™ NC1-SP (+20D, n = 10)
- CT Asphina 509MP + BLUEMIXS 180 (+20D, n = 5)
- Cristalens ARTIS PL E (+20D, n = 5)*
- RayOne Hydrophobic RAO800C (+20D, n = 5)
- UltraSert AU00T0 (+20D, n = 5)

* The tests began with the condition that the plunger was pushed forward by 5 mm

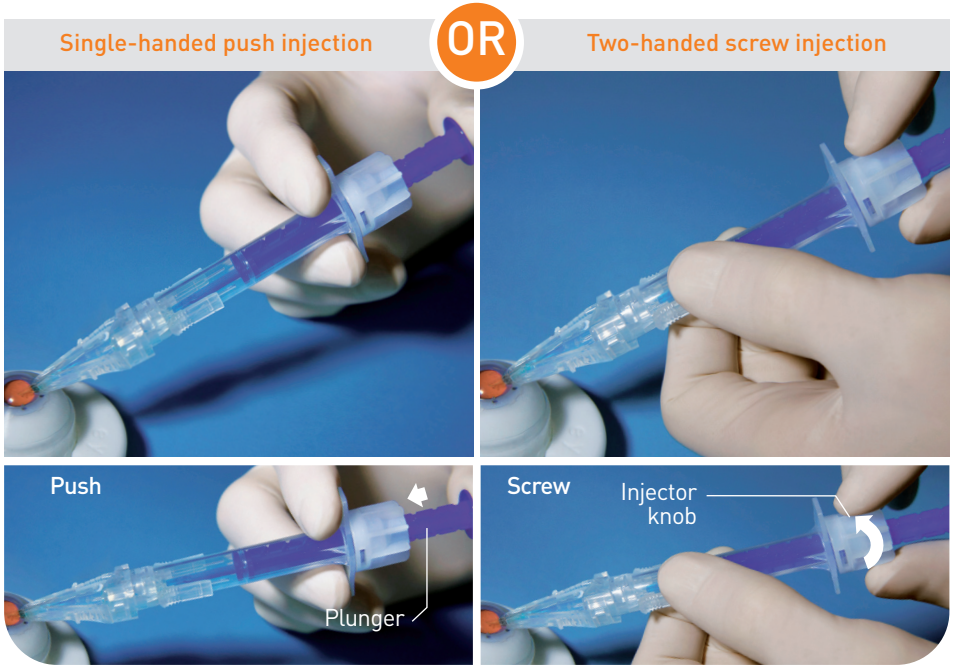
Comparison of forces required to deliver the IOL




**1.** Data on file, HOYA Medical Singapore Pte. Ltd, 2019. **2.** Data on file, HOYA Medical Singapore Pte. Ltd, 2019.

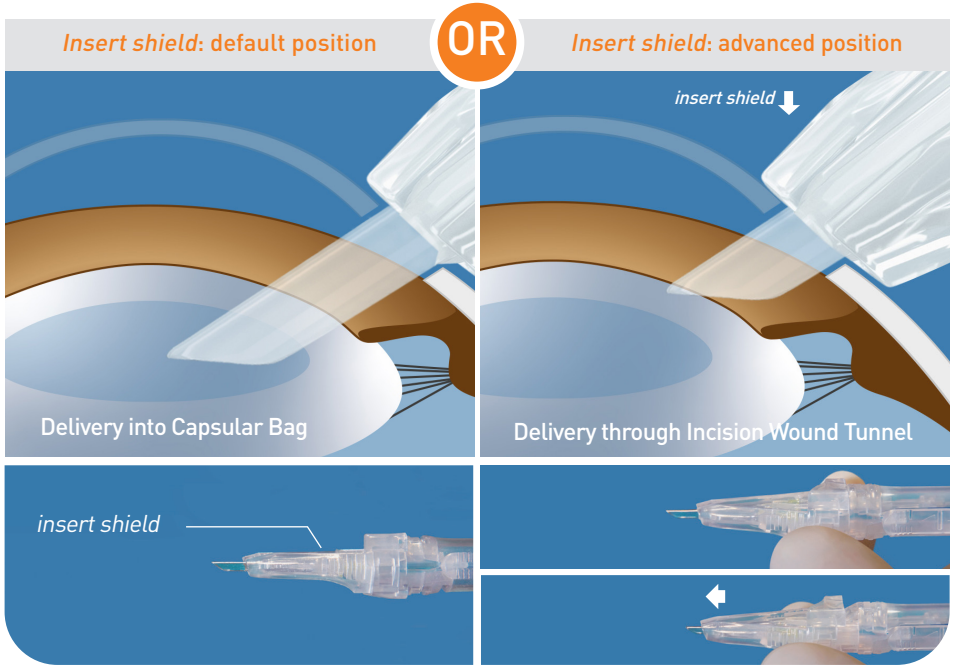
# Nanex™ multiSert+™ is a 4-in-1 preloaded IOL system providing multiple choices at your fingertips

## A single-handed push and two-handed screw injection within one device




## Uniquely designed *insert shield* for precise depth management of injector tip insertion

Allows the surgeon to decide whether to position the injector tip directly into the capsular bag or through the incision wound tunnel: no other IOL delivery system offers this feature

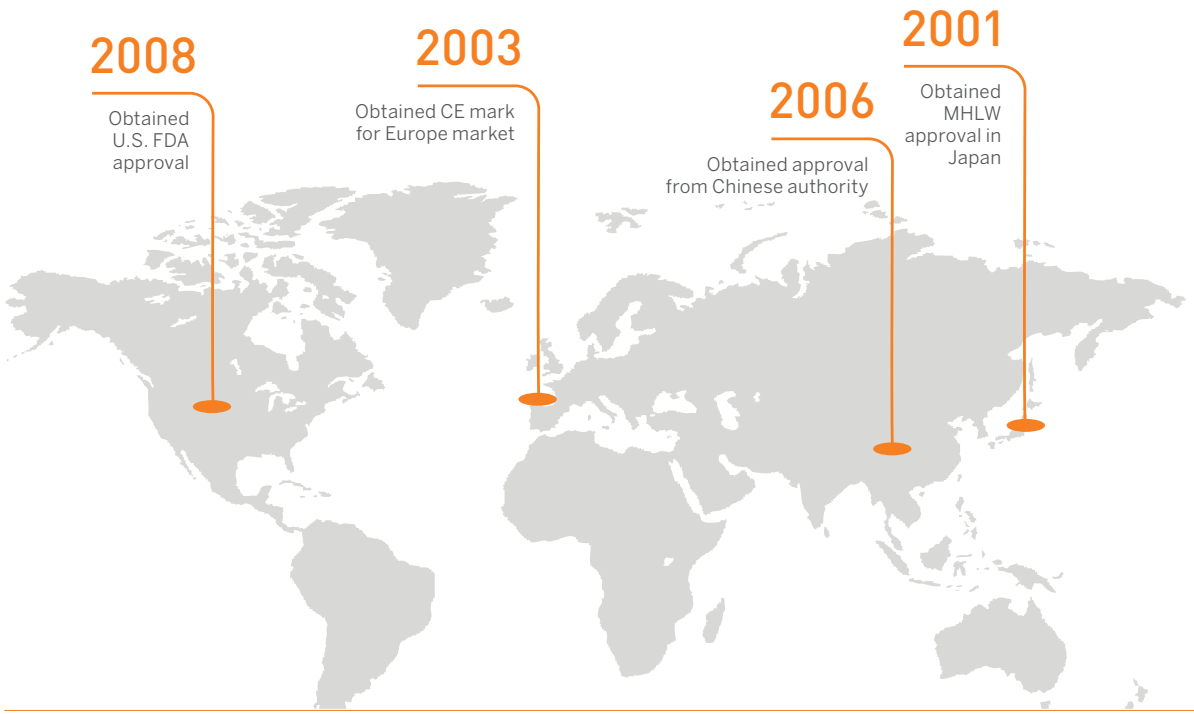


# Trust in HOYA

## A pioneer in fully preloaded IOL delivery systems, with a proven hydrophobic IOL material

Proven hydrophobic lens material with over 10 million IOLs implanted worldwide over 20 years[1]

### History of Nanex™ IOL material




| Nanex™ multiSert+™ | | |
|---|---|---|
| **Model name** | **NY1-SP** | **NC1-SP** |
| Optic design | Aspheric design with sharp optic edge | |
| Optic & haptic material | Hydrophobic acrylic with UV and blue light filter | Hydrophobic acrylic with UV-Filter |
| Haptic design | Modified C-loop, 5° angulation | |
| Diameter (optic/OAL) | 6.0 mm/ 13.0 mm | |
| Power | 6.00 to +30.00 D (in 0.50 D increments) | |
| Nominal A-constant* | 119.2 | |
| Injector | multiSert+™ preloaded | |
| Front injector tip outer diameter | 1.62 mm | |
| Incision size | As low as 1.8 mm | |
| Optimized constants† | Haigis a0 = -0.2676<br>a1 = 0.2382 a2 = 0.1993<br>Hoffer Q pACD = 5.715<br>Holladay 1 SF = 1.904<br>SRK/T A = 119.112 | |

1. Data on file, HOYA Medical Singapore Pte. Ltd, 2018.

* The A-Constant is presented as a starting point for the lens power calculation. When calculating the exact lens power, it is recommended that calculations be performed individually, based on the equipment used and operating surgeon's own experience.

† These optimized constants for the calculation of intraocular lens power published by IOLCon on their website: https://iolcon.org are calculated from 211 clinical results for Nanex™ multiSert+™ model NY1-SP/NC1-SP as of September 9, 2021. These constants are based on actual surgical data and are provided by IOLCon as a starting point for individual constant optimizations. The information available on the website is based on data originating from other users and not by HOYA Surgical Optics ("HSO"). HSO therefore does not warrant the correctness, completeness and currentness of the contents on the said website.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