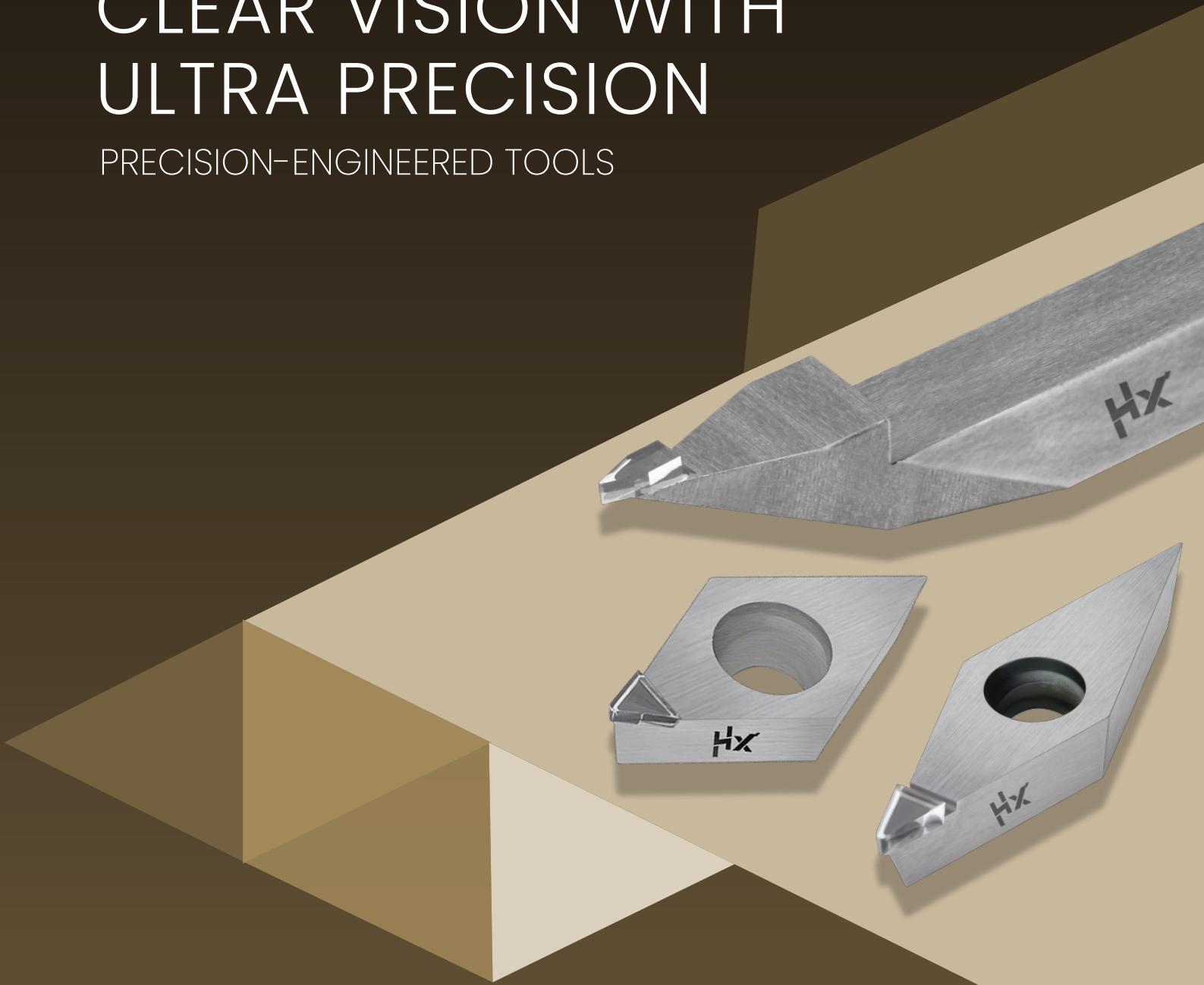


CLEAR VISION WITH ULTRA PRECISION

PRECISION-ENGINEERED TOOLS



WE SPECIALIZE IN TOOLS CRAFTED FROM
SINGLE-CRYSTAL DIAMONDS.

CHOOSE YOUR EDGE WITH HARDTEN

At **Hardten Precision**, we offer a range of precision-engineered tools crafted from single-crystal diamonds, designed to meet the stringent demands of the intraocular lens (IOL) manufacturing industry.

Our Tools:

Radius Variety: Tailored tools with various radius sizes to meet unique needs.

Solid Shank or Insert Type: Versatile options to suit different applications.

Controlled and Non-Controlled Waviness Tools

- **Non-Controlled Waviness:** Ideal for bulk material removal and two-axis applications.
- Crafted with precision and featuring cylindrical and conical clearance, they maintain the same high-quality standards as all our tools. Plus, they can also be effectively used for
- single-axis finishing tasks.

- **Controlled Waviness:** Perfect for ultra-precision lathing and finishing of contact lenses and IOLs.
- These tools often feature a conical and a cylindrical clearance and are available with CVD single-crystal diamonds. You can choose between traditional solid shank tools or the efficient insert type.



Why Hardten Tools?

- **Precision:** Achieve exceptional accuracy and quality in your production
- **Versatility:** Suitable for various materials and applications
- **Reliability:** Consistent performance that enhances productivity

Insert Tools:

Hardten has perfected the creation of insert tools, which are widely adopted by contact lens and IOL manufacturers worldwide. These inserts can be seamlessly integrated into both standard and customized design tool holders, tailored specifically to meet your unique application needs. With our focus on precision and adaptability, Hardten's insert tools ensure optimal performance and superior results in your manufacturing processes.



THESE OPTICAL ELEMENTS ARE COMPRISED OF THE FOLLOWING MATERIALS

Direct Lathe Lens

Materials:

1. RGP
2. Hydrophobic
3. Hydrophilic

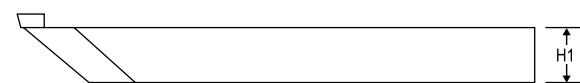
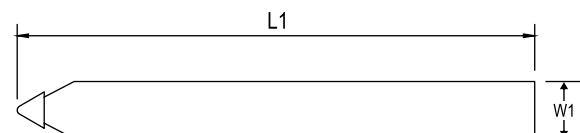
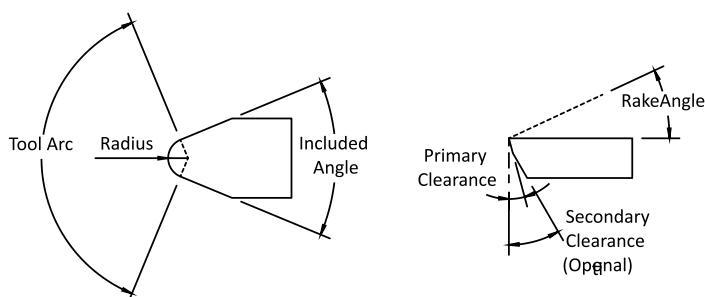
Mold Materials:

1. NiP (>10% P)
2. CuNi
3. Al
4. CuZn

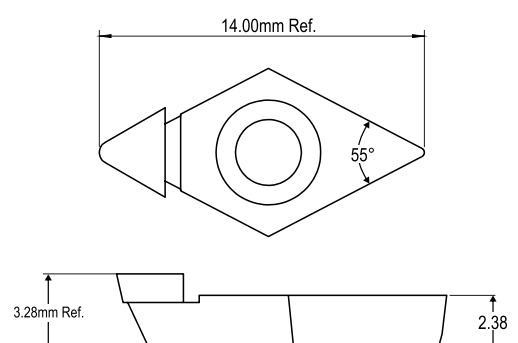
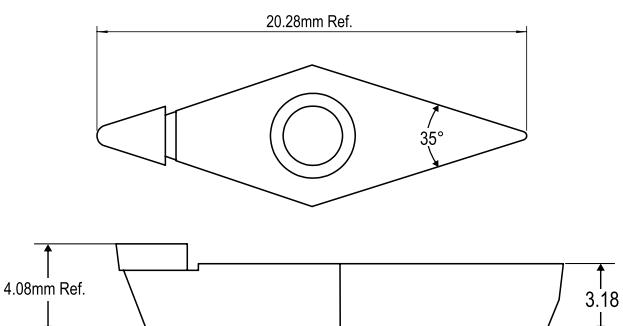


CR0.50m60LQCO120-C4 40i

DIAMOND SAMPLE DRAWING



INSERT TYPE



RAKE ANGLE

K = +2.5°
L = 0°
M = -2.5°
N = -5°
R = -10°
T = -15°
V = -20°
W = -25°
C = -30°
X = -35°

PRIMARY CLEARANCE

D = 20°
E = 15°
F = 12.5°
G = 10°
H = 7.5°
J = 5°

DIAMOND TYPE
C = CVD N = Natural

RADIUS
R - Full Radius S - Sharp Point F - Facet Point H - Half Radius

INCLUDED ANGLE
30° - 179°

L

SHANK TYPES
i = Insert S - Solid Shank

C

R0.50m

60

L

Q

REFERENCE DIAMOND TOOL CODE

Co
TYPES OF CLEARANCE
Co = Conical Cy = Cylindrical

120
TOOL ARC
1° - 120°

N
WAVINESS
S < 2.00 µm C1 ≤ 1.00 µm C2 ≤ 0.75 µm C3 ≤ 0.50 µm C4 ≤ 0.25 µm C5 ≤ 0.20 µm C6 ≤ 0.15 µm C7 ≤ 0.10 µm C8 ≤ 0.05 µm C9 ≤ 0.03 µm

40
SECONDARY CLEARANCE
6° - 70°

i
SHANK TYPES

RESHARPENING SERVICES & TECHNICAL SUPPORT

Fixing Your Diamond Tools Made Easy with Hardten!

When your diamond tools require resharpening, trust Hardten for professional and efficient repairs. Our skilled technicians specialize in restoring the performance of your tools promptly and affordably. Hardten focuses on providing tool Relap/Reharp services for cutting tools of various makes.

We value our loyal customers and prioritize their needs with quick service. Rest assured, your tools will be expertly restored to their optimal condition, ensuring peak performance and longevity.

Choose Hardten for faster delivery, cost-effective, and high-quality resharpening services. Your tools deserve the best performance, and we deliver service excellence every time.



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