



Walson Woodburn™

Precision at Speed. Perfection at Scale.

Diamond-Coated Die

An Indo-American Joint Venture.



*Commit to excellence.
Build reliability.*

About Walson Woodburn Die

CRAFTING PRECISION, BUILDING TRUST

Located in the Diamond capital of the world, Walson Woodburn is an Indo–American joint venture between Walson (India) and Woodburn (USA) - a partnership built on over sixty years of combined expertise in precision engineering.

Since 1970, we've shaped a reputation for uncompromising quality, consistency, and performance - making us a trusted name among leading wire and cable manufacturers worldwide.

Every die we craft begins with a deep understanding of our customer's process and ends with flawless performance - delivering results you can measure, and reliability you can feel.

Diamond-Coated Die

PRECISION. DURABILITY. PERFORMANCE.

Founded in 1997, *Walson Woodburn Wire Die Pvt Ltd* brings decades of combined Indo-American expertise, delivering dies that set the benchmark for precision, performance, and longevity in wire drawing.

Among our premium offerings are Diamond-Coated Dies (also called diamond-coated drawing dies, nano diamond coated dies, or DLC/diamond film dies) engineered to deliver superior performance in demanding wire drawing and cable manufacturing environments.

Our diamond-coated dies are available in two principal application categories: (1) Diamond Coated Drawing Dies (for wire drawing / reduction) and (2) Diamond Coated Bunching / Compacting / Stranding Dies (for wire bunching, compaction, cable stranding).



WALSON

8.900

WALSON

9.500

Diamond-Coated Dies & Their Construction

A thin layer (~30 μm) of nanocrystalline diamond is coated on a polished carbide substrate, covering even entry regions. The diamond film offers extreme hardness, low friction, good thermal conductivity, and chemical stability, while the underlying substrate provides toughness and support.

Compared to solid PCD (polycrystalline diamond) or monocrystalline diamond dies, diamond-coated dies can combine the benefits of large geometric flexibility (size, shape) of carbide dies with the superior surface properties of diamond.

These dies are used for reducing wire cross sections in successive passes.

Application materials: carbon steel, alloy steel, copper, aluminum, stainless, welding wire, special alloys.

Because drawing involves sliding contact and high compressive stresses, the diamond coating helps resist abrasive and adhesive wear, and stabilize performance over long use.

Diamond-coated drawing dies are particularly beneficial for medium to large diameters where PCD or monocrystalline diamond dies would be economically challenging.

Typical hole (wire) size ranges for nano diamond coated drawing dies go from as low as 0.80 mm up to about 50 mm.

Diamond Coated Bunching / Compacting / Stranding Dies

These dies are used in the cable industry to assemble or compress multiple fine wires into a compact cross-section, often as part of the stranding, bunching, or compacting stages of cable manufacture.

In cable manufacturing, controlling friction, surface quality, micro-wear, and fines is crucial because stray particles, dust, or surface roughness adversely affect insulation, dielectric properties, or surface defects.

Diamond-coated dies in compaction / bunching roles reduce friction, minimize fines, and maintain die geometry under repeated compaction stress.

Because compaction is intimately linked with strand geometry, any degradation in die surface or shape directly affects compactness, concentricity, strand quality, and uniform cross-section. Diamond-coated dies help preserve those requirements over long runs.

In many implementations, the diamond coating covers even the entry region to ensure smooth entry of strands, which is critical to stable compaction.

The diameter range for diamond-coated bunching/compacting / stranding dies is upto 50mm.

Size Ranges, Reductions & Tolerances

PARAMETER

SPECIFICATION



Hole Size

Diamond Coated Drawing Dies

from ~0.80 mm up to 50 mm

Diamond Coated Bunching / Compacting / Stranding Dies

from ~0.80 mm to 50 mm or higher



Custom Sizes

Exact reduction schedule tailored to application

Advantages / Key Benefits

Substantially Extended Lifespan & Lower Tooling Cost

Diamond is extremely wear-resistant, delivering 10× or more die life compared to tungsten carbide dies. Frequent die changes and regrinding are minimized resulting in reduced cost of owning a die.

Lower Friction, Reduced Drawing Force & Energy Savings

The ultra-smooth diamond film creates very low friction, reducing die pull and power consumption thereby minimizing fines, dust, and micro-wear debris.

Superior Wire / Cable Surface Finish & Dimensional Accuracy

Polished diamond interior yields extremely smooth surfaces on drawn wires, reducing defects, consistent diameter control and enabling tighter tolerances. Also, Material loss is minimised.

Process Reliability, Fewer Breakages & Longer Runs

Reduced die wear and stable geometry result in fewer wire breaks and minimized downtime.

Flexibility in Size & Geometry

Diamond-coated dies can be made in a wide size span, bridging conventional carbide and PCD/diamond capabilities, with custom profiling.

Performance / Metrics / Success Scenarios

Extended tool life: 10× or more die life compared to tungsten carbide dies

Reduced die pull and energy consumption

Lower micro-wear, fines, and surface defects

Stable dimensional accuracy over long wire lengths

Fewer changeovers, less downtime, and better tool inventory control

Broad size & geometry support

WHY CHOOSE WALSON WOODBURN?

Decades of Expertise

Deep experience in wire drawing die manufacturing.

Precision Engineering

Dies with high durability and dimensional accuracy.

Ethical & Sustainable

Diamonds sourced responsibly in line with international standards.

Trusted Worldwide

Reliably serving wire manufacturers across the globe.

Customer-Focused

Solutions tailored to production requirements for maximum efficiency.

SURAT ADVANTAGE

Global Diamond Hub

Surat produces and trades the majority of the world's polished diamonds, giving us direct access to top-grade natural diamonds.

Proximity to Raw Materials

Being at the source allows us to carefully select the highest-quality diamonds for our dies.

Faster Innovation & Supply

Local access enables rapid prototyping, customization, and high-volume production while maintaining consistent quality.

Strategic Advantage

Our location ensures unmatched control over sourcing, selection, and processing, producing dies with superior hardness and long life.

Quality Control

Every die is inspected for coating uniformity, adhesion, internal geometry, concentricity, and surface finish. Test runs and validation under customer operating conditions.

Industry Impact

Diamond-coated dies enable significant cost savings through extended life, reduced energy consumption, and improved product quality across diverse industries

Application

Steel wire drawing (ferrous wires)

Copper, aluminum, and special alloys

Welding wire production

Cable bunching, compaction, and stranding operations

Fine-wire to large cable applications

Services Offered

Care for WDD

Stereo Zoom Die inspection

Ultrasonic Die Cleaning



Walson Woodburn™

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