

BAKUL CASTING PVT. LTD.

Carbon Steel Cut Wire Shots

Industrial Specification & Technical Performance Report

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Executive Summary: Carbon steel cut wire shots manufactured by Bakul Casting Pvt. Ltd. represent a premium-tier industrial abrasive engineered for severe impact and precision shot peening. Derived from cold-drawn, high-carbon steel wire, these media offer superior durability, zero internal porosity, and exceptional resistance to fracture compared to traditional cast steel abrasive media.

1. TECHNICAL SPECIFICATIONS

Parameter	Specification Baseline	Industrial Compliance Notes
Material Grade	High Carbon Steel Wire (AISI 1070+)	Uniform chemistries ensuring tensile reliability
Hardness Range	45–60 HRC (Standard / High)	Regular: 45–50 HRC High Hardness: 55–60 HRC
Size Range	0.30 mm to 3.20 mm	Precision cut length-to-diameter ratio (1:1)
Available Conditioning	As-Cut, G1, G2, G3 Grades	Fully conditioned rounded shapes for stress peening
Density & Structure	~7.8 g/cm ³ (Solid Wrought)	100% solid micro-structure, zero gas voids
Microstructure	Tempered Martensite / Fine Pearlite	Homogeneous distribution prevents structural fatigue

2. KEY PERFORMANCE INDICATORS

7.8 g/cm³

SOLID DENSITY

3x–5x

LIFE SPAN VS CAST SHOT

0% Voids

WROUGHT INTEGRITY

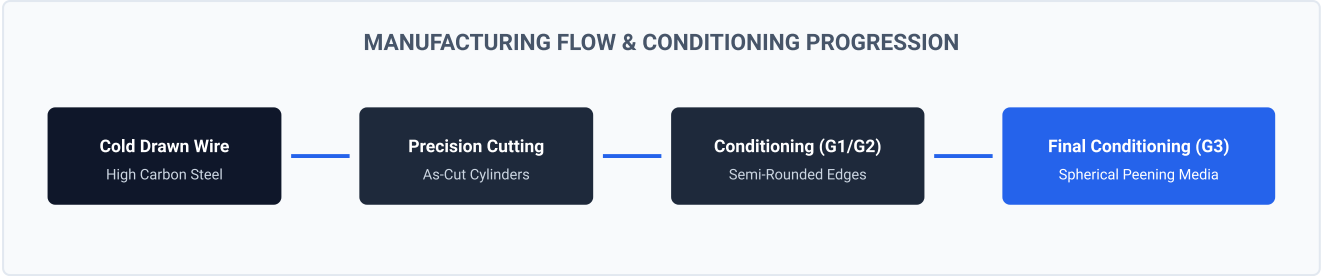
45–60 HRC

TAILORED HARDNESS

3. PRIMARY INDUSTRIAL ADVANTAGES

- Exceptional Structural Durability:** Unlike cast steel shot, which inherently contains shrinkage voids, porosity, and micro-cracks, Bakul's cut wire shot is processed from high-quality cold-drawn wire. This structural density prevents premature breakdown under high velocity.
- Controlled Shot Peening Precision:** Each particle delivers consistent mass and velocity. This ensures exact, repeatable compressive residual stress profile generation on heavy-duty components such as gears, coil springs, and turbine blades.
- Dramatically Lower Total Operational Cost:** Due to an extremely low fracture rate, the working mix maintains its operational size significantly longer in closed-loop systems, reducing overall media consumption and equipment wear.
- Reduced Dust & Environmental Cleanliness:** High impact resilience minimizes dust creation during operation, improving filter baghouse lifespan and maintaining visibility inside blasting enclosures.

4. PRODUCTION & CONDITIONING STAGES



5. CORE INDUSTRIAL APPLICATIONS

Precision Shot Peening Imparts high-magnitude compressive residual stresses on critical automotive and aerospace components (e.g., crankshafts, leaf springs, transmission gears) to extend fatigue life.	Heavy Descaling & Cleaning Efficiently removes heavy forge scale, heat-treat oxidation, and sand inclusions from heavy steel castings, forgings, and structural fabrications.
Surface Preparation Creates uniform anchor profiles (roughness pattern) prior to rubber lining, galvanizing, thermal spraying, or high-performance protective coating applications.	Deburring & Deflashing Safely removes flash and burrs from machined components without causing unwanted dimensional erosion or altering tight geometric tolerances.

6. DURABILITY COMPARATIVE ANALYSIS

Media Property	Bakul Cut Wire Shot	Standard Cast Steel Shot
Internal Structure	Solid, wrought wire core (100% dense)	Cast structure, prone to micro-voids & shrinkage
Fracture Resistance	Extremely high; wears down gradually	Moderate to low; shatters along fault lines
Dust Generation	Minimal operational dust	Higher dust output due to fragmentation
Consumption Rate	1x Baseline Consumption	3x to 5x higher consumption rate
Surface Consistency	Constant particle size distribution	Fluctuating working mix due to breakdown

7. QUALITY ASSURANCE & COMPLIANCE

Every batch of carbon steel cut wire shot produced by **Bakul Casting Pvt. Ltd.** undergoes strict laboratory verification to ensure conformity with international industrial standards (including SAE J441, AMS 2431, and ISO 11124-5). Testing protocols cover hardness testing, size consistency analysis, microscopic integrity checks, and durability verification in closed-loop test machines.

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