

BAKUL CASTING PVT. LTD.

CONDITIONED

STAINLESS STEEL
CUT WIRE SHOT

Shape • Performance • Surface Preparation

CORPORATE TECHNICAL PRESENTATION

A focused review of conditioned cut-wire geometry, performance benefits and application fit.

ISO 9001 : 2015 Certified Company

Dewas, Madhya Pradesh | www.bakulcasting.com

The case for conditioned stainless cut wire shot

Designed around controlled shape, fast coverage and a useful surface profile.

01

CONTROLLED SHAPE

Conditioning breaks and rounds sharp cut ends, moving particles from cylindrical/as-cut geometry toward semi-round to round.

02

HIGH-THROUGHPUT

Greater particle mass and momentum can deliver higher energy per impact, supporting faster coverage.

03

SURFACE-PREP VALUE

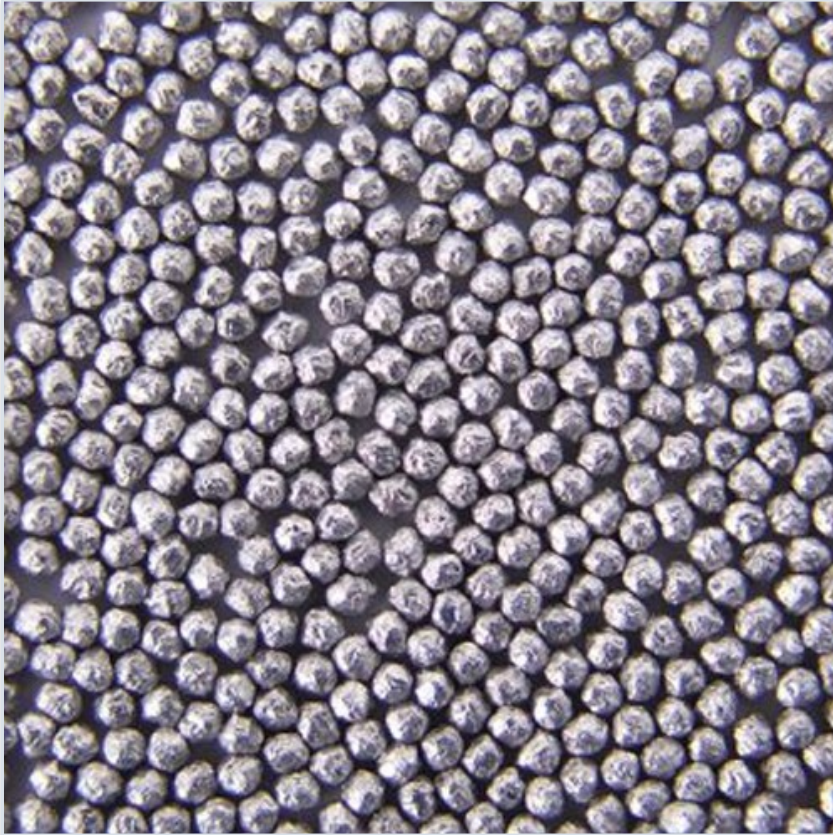
Residual angularity creates a micro-rough anchor profile that supports mechanical keying of coatings.

CORE TAKEAWAY

For surface preparation before coating or painting, the semi-round profile is positioned as a practical balance of cleaning speed, anchor profile and media life.

From drawn wire to conditioned shot

Conditioning is the controlled processing step that changes the cut-end geometry.



01

DRAWN STAINLESS WIRE

Starting material is drawn stainless wire.

02

CUT

Wire is chopped into short cylindrical segments; target length is approximately the wire diameter.

03

CONDITION

Controlled processing breaks/rounds sharp cut ends.

04

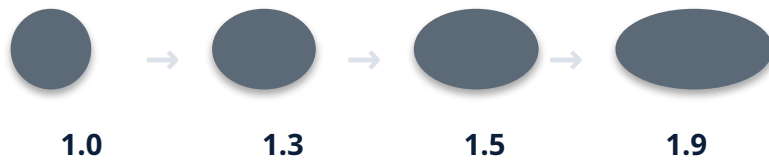
RESULT

Particles become semi-round to round, with burr/feathering and L/D characteristics controlled.

Shape control: the L/D ratio is the primary gate

Conditioning targets a ratio band rather than a single geometric roundness number.

ILLUSTRATIVE L/D RANGE



Higher-grade conditioning

≈ 1.0–1.5

More relaxed conditioning can widen toward ≈ 1.9.

WHAT IS CHECKED

- L/D ratio** Sampled particles are measured optically and counted into ratio bins.
- Corner condition** Cut-end corners are broken/rounded rather than left sharp.
- Burr / feathering** Cut faces are controlled for raised burrs and feathering.
- Performance** Where applicable, acceptance also considers outcome such as Almen consistency.

Why particle shape matters

Trade-offs become clear when comparing spherical shot with semi-round conditioned cut wire.

ASPECT	ROUND / SPHERICAL	SEMI-ROUND CONDITIONED CUT WIRE
Surface quality	Smoother, uniform dimples	Slightly rougher, higher coverage profile
Speed / throughput	Lower energy transfer per hit	Higher energy per particle due to mass & momentum
Adhesion / keying	Lower keying	Better mechanical interlock for subsequent coatings / paints
Residual stress	Uniform compressive layer	Good, slightly less uniform

Best fit for surface preparation Controlled roughness + fast coverage + mechanical keying

Four operational advantages

Positioned as a high-throughput workhorse for cleaning and surface preparation.

FASTER COVERAGE

More kinetic energy per impact can reduce the number of passes needed to reach the required surface condition.

BETTER ADHESION

Residual angularity creates a micro-rough anchor pattern, supporting stronger mechanical keying of coatings.

LOWER MEDIA BREAKDOWN

Stainless cut wire resists fracture better than cast steel or glass, supporting lower dust and consumption.

NO FERROUS CONTAMINATION

Stainless media helps avoid ferrous residue on stainless and corrosion-sensitive substrates.

VALUE LOGIC

Productivity → surface profile → coating performance → lower media consumption

Keep the specification territories distinct

Shape requirements depend on whether the job is peening, cleaning/deburring or coating preparation.

AMS 2431/4C

CONDITIONED PEENING SHOT

- Drives particles toward roundness through conditioning.
- Peening duty emphasizes uniform residual compressive stress.
- Acceptance is not geometry alone; performance and roundness class matter.

SAE J441

GENERAL CUT WIRE SHOT

- Geometry-focused control for cleaning, descaling and surface preparation.
- L/D ratio, cut-end condition, hardness and cleanliness are key.
- Majority conventionally cited at $L/D \leq 1.5$, with limited longer particles.

SURFACE PREPARATION

COATING / PAINT

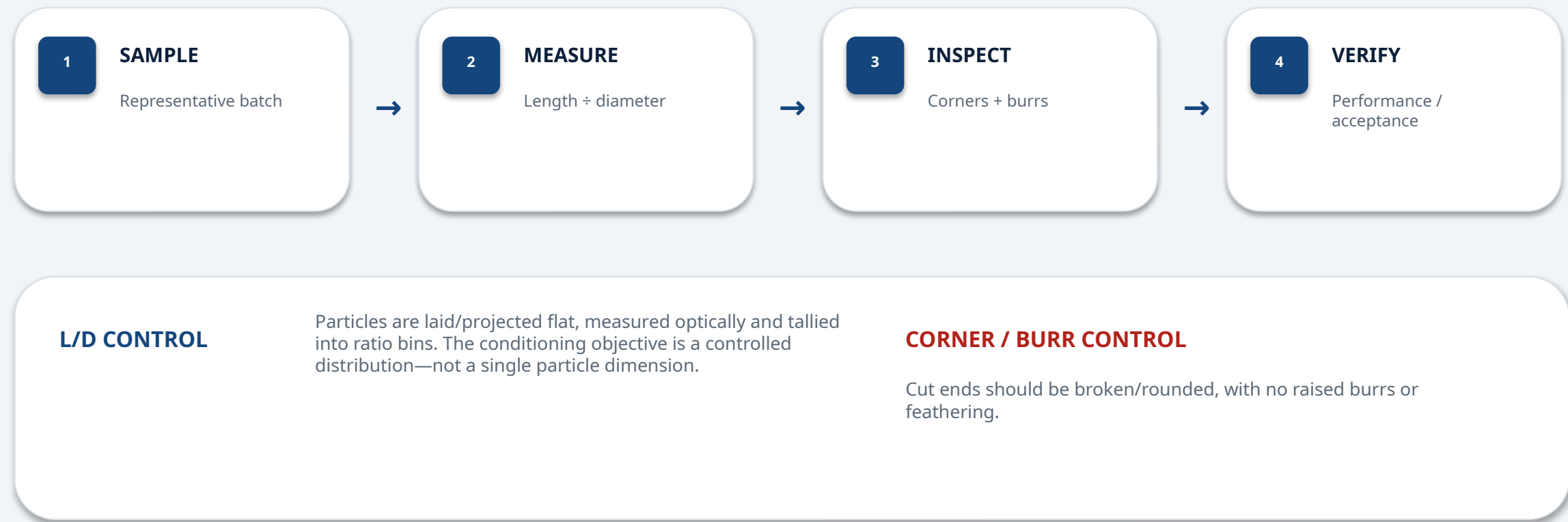
- Controlled roughness is desirable for mechanical keying.
- Semi-round conditioned cut wire can create a useful anchor profile.
- Primary objective is clean surface + appropriate roughness, not mirror smoothness.

Decision rule

Do not select media by shape alone—select against the required process outcome and governing specification.

Inspection framework

Shape consistency is established through sampling, dimensional checks and process-performance controls.



CONTROL PRINCIPLE

Control the particle population and the resulting process behavior—not just nominal size.

Where it wins—and where caution is required

✓ STRONG FIT

- Pre-coating / pre-paint surface preparation
- Cleaning, descaling and deburring at high throughput
- Applications where ferrous contamination must be avoided
- Operations where media life and low breakdown matter

! USE CAUTION

- Fatigue-life shot peening requiring tightly controlled compressive stress
- Applications explicitly calling for AMS 2431/4C roundness-conditioning class
- Smooth or cosmetic finish where surface roughness is undesirable

RECOMMENDATION

Conditioned Stainless Steel Cut Wire Shot

A strong choice for surface preparation where controlled anchor profile, throughput, stainless cleanliness and media life are key priorities.

ANCHOR PROFILE

Controlled roughness

THROUGHPUT

Fast coverage

CLEANLINESS

No ferrous media

MEDIA LIFE

Low breakdown

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