

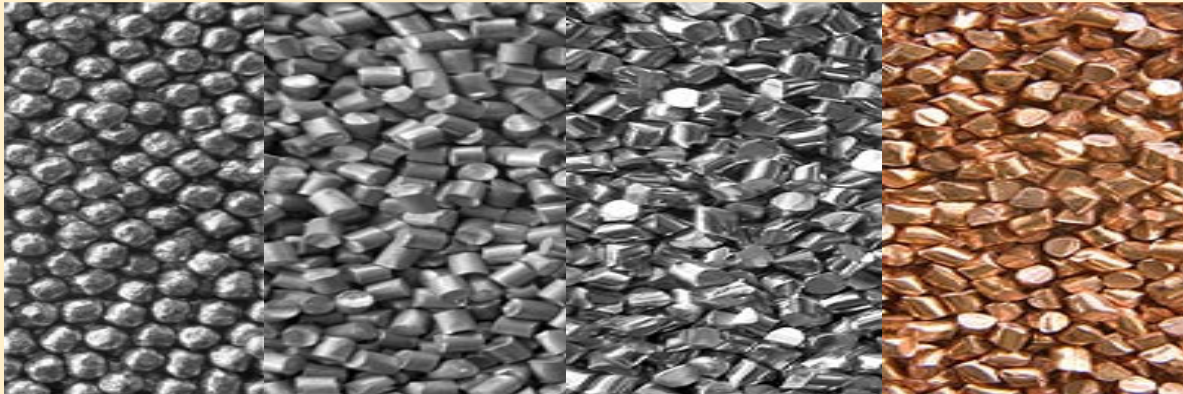
SIGMA INDUSTRIES

Manufactures of Cut Wire Shot

Deals in Carbon Steel, Stainless Steel, Aluminum, Zinc and Copper Shots



DESCRIPTION OF CUT WIRE SHOT?



Stainless Steel Carbon Steel Aluminum Copper



Zinc

Mild Steel

Brass

Cut Wire Shot is the media of choice for penning, cleaning, tumbling, and vibratory finishing. It is widely used in wheel blast equipment. Available in the alloys shown above (and in others - note that if a metal can be drawn into wire, Pellets can cut it into shot or pins), our product can be purchased as-cut (cylindrical with sharp edges) or conditioned (rounded to a sphere).

APPLICATIONS OF CUT WIRE SHOTS:-

1. It is used in Blast Cleaning of die casting, foundry pieces, forging, H type steel structure.
2. Shot Blasting of Steel Board, Steel Material, Ship Board and Profile Steel
3. It is used in process like Shot penning of Heat Treatment Pieces, Gear etc.
4. Pre-Treatment of surface, Steel Structure, before painting is also done by using CUT WIRE SHOTS in it.
5. It is majorly used in Automobile Industries in making parts of its vehicles
6. Shot polishing of Steel Board, Steel Material and Profile Steel
7. It is used in rust removal of foundry pieces, descaling of forging, steel board, grit removal.



PRODUCT RANGE:-

1. **Zinc Cut Wire Shots:** - We offer a qualitative range of Zinc Cut Wire Shots. Available at competent rates, our products reduce wear and tear on blast equipment.



These Zinc cut wire shots are softer than stainless steel cut wire or cast products. Zinc cut wire shot is available in different sizes.

Zinc Cut Wire Shot is produced by cutting zinc wire into pellets, the length equal to the diameter of the wire.

Zinc Cut Wire is also available in a conditioned form which is used as a longer lasting alternative to cast zinc shot.

Zinc Cut Wire is used mainly for sand removal, deburring and deflashing of non ferrous components.

Deburring and deflashing of aluminum and zinc castings and diecastings. Removal of sand from sandcastings.

It provides temporary corrosion protection to ferrous parts blasted with it. A very thin layer, up to 1.3µm thick is deposited onto the surface of the part.

Removal of parting lines and stains from nonferrous castings. Removal of water wrinkle from aluminum die castings and providing a luster satin type finish.

2. **High Carbon Cut Wire Shots:** -High Carbon Cut Wire Shots are produced by cutting wire into lengths equal to the wire diameter.



Quality of shots is assured by controlling chemical and physical properties inherent in the wire and accurate cutting to lengths. Every shot is 100% solid.

Cut wire is available in "ascut"

(Cylindrical) form as well as in a conditioned (spherical) shape in a number of sizes from 0.30 mm to 3.17 mm.

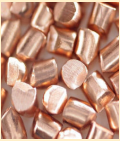
High Carbon Cut Wire Shot applications include: Shot penning, blast cleaning, tumbling and vibratory finishing.

3. **Aluminum Cut Wire Shots:** -Aluminum Cut wire shots are produced by cutting Aluminum wire into lengths equal to the wire diameter. Aluminum being a nonferrous metal is also widely used on Stainless Steel Components. Aluminum being a soft metal is ideal for blast cleaning and shot penning on Aluminum Castings, Aluminum components.



Aluminum Cut wire is available as "as cut (cylindrical) form as well as in a conditioned (Spherical) shape in a number of sizes from 0.60 mm to 3.17 mm.

4. **Copper Cut Wire Shots:** -Our Company holds expertise in offering a remarkable array of Copper Cut Wire Shots, which is in tandem with globally laid quality standards. To ensure the same, We make use of premium quality copper, procured from the most reputed vendors of the industry in the manufacturing process of these copper wire shots. Further, we shape these copper wire shots by the aid of modern machinery under the watch of experienced professionals to ensure their smooth finishing.



5. **Brass Cut Wire Shots:** -Brass cut wire shot is produced by cutting wire into lengths equal to the wire diameter. Quality of shots is assured by controlling chemical and physical properties inherent in the wire and accurate cutting to lengths. Every shot is 100% solid. They are available in an "as cut" (Cylindrical) form as well as in a conditioned (spherical) shape in number of sizes from 0.60 mm to 3.17 mm. Cut wire shot applications include: Shot penning, blast cleaning, tumbling and vibratory finishing.

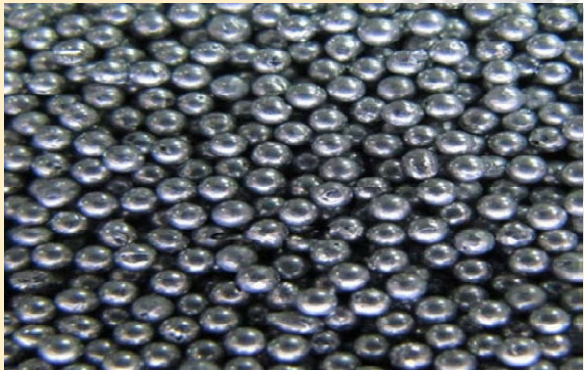



6. **SS Cut Wire Shots:** - SS cut wire shot is used in a various number of important applications where nonferrous components like stainless steel, titanium, aluminum, are to be blasted and ferrous contamination is harmful to the component. Our Steel Cut Wire Shots are of best quality and highly demanded in market.



7. **MS Cut Wire Shots:** -Steel cut wire shot is used in various number of important applications where nonferrous components like stainless steel, titanium, aluminum, are to be blasted and ferrous contamination is harmful to the component. Our Steel Cut Wire Shots are of best quality and highly demanded in market.

DIFFERENCE BETWEEN CASTED STEEL SHOTS AND CUT WIRE SHOTS

Difference Between	
Cast Steel Shots	Cut Wire Steel Shots
Basic raw material is far lower in physical properties & composition. This causes BLOW HOLES, POROSITY & SHRINKAGE, which makes the shot fracture into small particles.	Raw material is of EXACT composition without any material defect or HOLES & POROSITY
Grain size of cast shot is Unstabilized	Due to its drawing process, the grain size is Stabilized
Shots being produced are of mixed size, hence product is a mix of various spherical sizes.	All cut wire shots being of same wire, hence are Identical
Hardness Variation is large	Uniform hardness
In Micro-structure carbide always there	Micro-Structure is only Tempered Martensite
Steel shots break into dust	Cut wire shots only wear down
Higher consumption requires high inventory, more money & space as well	Lower inventory requires, for the same job
Shots consumption is higher	Less consumption than cast shots
Increases working cycle time, due to higher consumption in shot blasting/penning	Reduce time for shot blasting/penning
No consistency in performance, due to fast deterioration in size	Consistent performance
Less usage life	Usage life 2-3 times more
Lower purchase price	Higher purchase price
	

The Advantages of Cut Wire Shot

Highest Durability

Due to its wrought internal structure with virtually no internal defects (cracks, porosity and shrinkage), the durability of Premier Cut Wire Shot is significantly greater than other commonly used metallic media.

Highest Consistency

Cut Wire Shot media has the highest consistency from particle to particle in size, shape, hardness and density.

Highest Resistance to Fracture

33Cut Wire Shot media tends to wear down and become smaller in size rather than fracturing into sharp-edged broken particles, which may cause surface damage to the part.

Lower Dust Generation

Cut Wire Shot is more durable and resistant to fracture, resulting in a lower dust generation rate.

Lower Surface Contamination

Cut Wire Shot does not have an Iron Oxide coating or leave Iron Oxide residue – parts are cleaner and brighter.

Improved Part Life

Parts exhibit higher and more consistent life than those peened with equivalent size and hardness cast steel shot.

Substantial Cost Savings

The longer useful life of Premier Cut Wire Shot results in savings of media consumption, dust removal and equipment maintenance. Rounded edges cause less damage to all impacted areas of the blast machine

Reduce shots consumption⁹

Due to greater hardness than shots its life is longer compare to casted steel shots

Running Cost Comparison

Due primarily to its superior Durability and Resistance to Fracture as well as the absence of Iron Oxide coating, Cut Wire Shot provides cost savings associated in Media Consumption, Dust Generated and removal of Surface Contamination.



Photo CCW35 - 1000 cycles

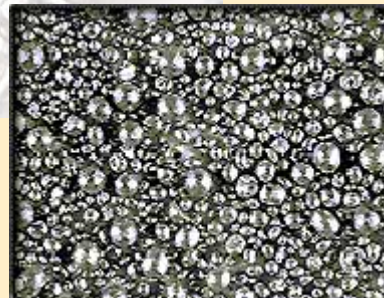


Photo CS330 - 1000 cycles

Media Consumption - Durability testing can be done to measure representative media life (in cycles) or breakdown rate (in grams per cycle). By multiplying the breakdown rate (grams/cycle) by the cost of the media (\$/gram), one can determine a relative cost per cycle (\$/cycle)

e.g.: CWS .90 - Breakdown Rate measured as 0.038 g/c, and
Cost = \$0.00227/g.
Cost per cycle = 0.038 g/c x \$0.00227/g=\$0.000086/cycle.

CIS S330 - Breakdown Rate measured as 0.158 g/c, and
Cost = \$0.000937/g
Cost per cycle = 0.158 g/c x \$0.000937/g=\$0.000148/cycle.

The media consumption cost of CWS .9 is 58% that of the S-330 shot.

Dust Generation

During Durability testing, and also during use, the Dust Generation Rate (DGR) of a particular media can be determined. If 100 grams of media is tested in a life Tester, a small amount of the sample will exit the test machine as dust. The amount of dust lost divided by the Number of cycles tested gives the DGR in grams per cycle (g/c). Cut Wire Shot generates much less dust than other media, and therefore cost of dust disposal can be reduced.

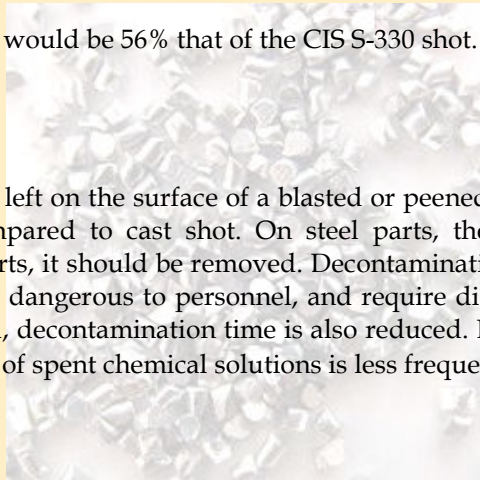
e.g.: The cost in Cleveland, Ohio to dispose of one 55 gallon drum (containing 800 pounds of non-hazardous metal dust) is about \$55.00 or \$0.000152/gram.

DGR of CWS .90 = 0.0147 g/cycle
 Cost of Dust Removal = 0.0147 g/c x \$0.000152/g = \$0.000022/cycle

DGR of CIS S330 = 0.0254 g/cycle
 Cost of Dust Removal = 0.0254 g/c x \$0.000152/g = \$0.000039/cycle

The cost of dust removal of CWS .90 would be 56% that of the CIS S-330 shot.

Surface Contamination



Studies have shown that the residue left on the surface of a blasted or peened part are much less (as much as 10 to 15 times less) with cut wire shot compared to cast shot. On steel parts, the residue (Iron Oxide) is not normally objectionable. But on non-ferrous parts, it should be removed. Decontamination processes (chemical decontamination is normally preferred) can be costly, dangerous to personnel, and require disposal of spent chemical solutions. With surface residue significantly reduced, decontamination time is also reduced. Exposure of personnel to potential safety hazards is lessened and replacement of spent chemical solutions is less frequent.

Size Difference between CI Shots, Grit and Cut Wire Shots

Cast Steel Shot	GRIT Size	Cut Wire Shot (in inch)	Equivalent Cut Wire Shot
S70	G-50	0.011	0.30
S110	G-40	0.015	0.40
S170	G-40	0.019	0.50
S230	G-30	0.023	0.60
S280	G-25	0.027	0.70
S330	G-20	0.031	0.80
S360	G-18	0.035	0.90
S390	G-18	0.039	1.00
S460	G-16	0.047	1.20
S550	G-14	0.055	1.40
S660	G-12	0.062	1.60
S780	G-10	0.078	2.00
S930	G-8	0.098	2.50
S1110	G-7	0.118	3.00
S1320	G-6	0.137	3.50

Material

MS or Low Carbon	Type 30-32 HRC Type 30-40 HRC
HighCarbon	Type 40-45 HRC Type 55-60 HRC
Stainless Steel	Grade 304 , Grade 430, Grade 202
Copper	99%
Zinc	99%
Aluminum	99%
Hardness Range	
MILD STEEL	30-35 HRC
CARBON STEEL	40-46, 48-53, 50-55, 55-60
STAINLESS STEEL (202, 304, 430)	32 HRC Min

SHAPE	DESCRIPTION	SPECIFICATION
AS CUT	CYLINDRICAL WITH SHARP EDGE	
NORAMAL G-1	CORNER PRE ROUND	SAE - J441
CONDITIONED G - 2	MEDIAM CONDITIONED	VDF 8001
CONDITIONED G - 3	SPECIAL CONDITIONED	



SIGMA INDUSTRIES

(Deals in: Cut Wire Shots, HT & LT Switchgear, Transformers, CSS, HT & LT Cables, Lighting Products, Street Light Pole, Cable Tray ETC.)

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