BLASTING TECHNICAL INFORMATION

Kresco

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BLAST FINISHING

Blasting is the process where small angular or spherical particles are propelled at a part by compressed air, or mechanical high speed rotating wheels or water pumps.

The blast media type, shape, size, density, and hardness, along with media acceleration and volume of media, combined with blasting distance from the workpiece, angle of impact and time cycles are important factors in the blast process capabilities.

The blasting equipment is produced to deliver, reclaim and contain the media, contain the part to be blasted and collect the dust from the blasting process. Parts can be processed individually as a batch process or can be automated thru the system.

SURFACE AFFECTS FROM THE BLASTING PROCESS ARE :

VISUAL	MECHANICAL
Bright Matte finish	Deburring
Dull Matte Finish	De-flashing
Satin finish	Paint and coating removal
Satin luster finish	Peening
Blending of tool marks	Pre paint and coating adhesion
Removal of weld discoloration	Heat treat, mill scale removal
Surface cleaning	Weld splatter removal
Glass frosting and etching	Thermal metal spray preparation
Pre plate and anodize finishes	Rust removal
	Mold cleaning

FACTORS THAT AFFECT BLAST FINISHING

MEDIA DELIVERY SYSTEMS

There are three media delivery systems that propel and deliver media for high speed impact to the part being processed :

- Air Blasting (Pneumatic)
- Mechanical Wheel (Airless blasting)
- Hydro blasting (Pumped water)

Air blasting

utilizes an air compressors energy to deliver air/media mix at speeds and volumes to impact the parts being processed.

The air speed or pressure of an air compressor is controlled by a pressure regulator. The regulator can increase or decrease the speed of the media delivery. Air pressure is measured by pounds per square inch (psi), industrial blasting is effectively done between 20 and 90 PSI. The higher the PSI the higher the air speed.

The volume delivered of the air/media mix is determined by the orifice or opening diameter of the nozzle with pressure blast systems or air jet diameter of the suction blast gun body. Air volumes are measured by surface cubic feet per minute (scfm). The larger the orifice ID opening the larger volume of air/media. Other factors that affect volume of air into the blast system is media and air hose diameter. Increased air pressure (PSI) also increases the SCFM with a given size orifice.

Industrial blasting gun bodies of suction cabinet blast systems range between 12 to 38 SCFM. The pressure blast cabinet systems range between 12 to 68 scfm and the pressure blast room systems use up to 254 scfm.

Industrial air compressors produce approximately 4.5 SCFM per horse power (hp). Blasting cabinets require 3 to15 hp compressors per nozzle and blast rooms can use up to 53 h.p. per man or nozzle.

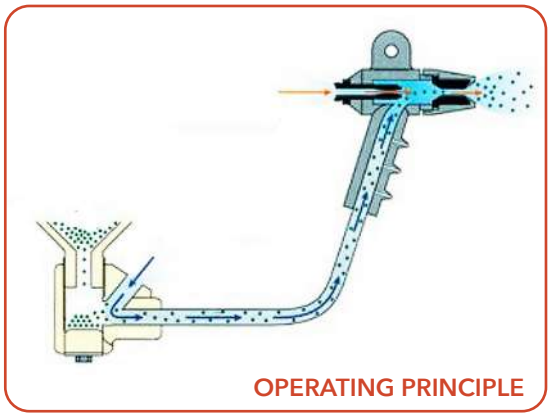
There are Two Types Of Air Blast Delivery Systems:

- SUCTION (used in blast cabinets)
- PRESSURE (used in blast cabinets, blast rooms, and outdoor blasting)

FACTORS THAT AFFECT BLAST FINISHING (CONT'D)

Suction

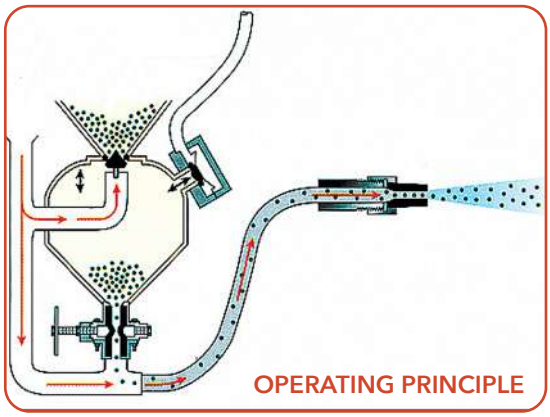
Blasting uses the venture principle sucking media from a hopper. The air jet is 1/2 the ID of the nozzle and as the air stream is passed through both, it creates a suction which sucks the media from the hopper into the air stream. The media acceleration distance is very short (from the nozzle to the workpiece (approximately 4 to 14"). The suction system works fine and can continuously blast as long as there is blasting media in the hopper.


OPERATING PRINCIPLE

Suction systems have limits on their suction capacity and on propelling heavier media. Very heavy blasting media (larger steel media) cannot be conveyed into the air stream with suction blasting. However, most industrial blast cabinets use suction systems due to their lower cost and because work well for most applications.

Pressure

The pressure pot contains the media, and as it is energized with compressed air, it pressurizes the pot. When the air/media mix is released from the pot, it accelerates from the pot through at least 5-10 feet of hose and then even faster as it travels through the Venturi of the nozzle. The acceleration rates of air/ media mix are much higher in pressure blasting than suction blasting.


OPERATING PRINCIPLE

When the pressure pot empties of the media, it has to be depressurized to refill the pot with media. The pressure blasting systems are much more productive than suction systems. Pressure systems can blast all medias regardless of their weight or size, but they require a minimum of 25 psi to operate.

FACTORS THAT AFFECT BLAST FINISHING (CONT'D)

AIR BLAST SYSTEMS - AIR CONSUMPTION RATES

Below are charts of air volume (SCFM) used in blasting with pressure and suction systems utilizing various pressures (PSI) and orifice sizes.

CABINET BLAST SYSTEMS - AIR REQUIREMENTS (scfm)

Suction Systems								
Pressure (psi)	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**
1/4" nozzle 3/32 jet	6	7	8	10	11	12	13	15
1/4" nozzle 1/8 jet	10	12	15	17	19	21	23	26
5/16" nozzle 5/32 jet	15	19	23	27	31	37	38	42
7/16" nozzle 7/32 jet	31	38	5	52	59	66	73	80

Pressure Systems								
Pressure (psi)	**20**	**30**	**40**	**50**	**60**	**80**	**100**	**120**
1/8" nozzle	6	8	10	13	14	17	20	25
3/16" nozzle	15	18	22	26	30	48	45	55
1/4" nozzle	27	32	41	49	55	68	81	97
5/16" nozzle	42	50	64	78	88	113	137	152
3/8" nozzle	55	73	91	109	126	161	196	220

FACTORS THAT AFFECT BLAST FINISHING (CONT'D)

BLAST ROOMS AND OUTDOOR SYSTEMS - AIR REQUIREMENTS

Air consumption and media delivery rates are much higher on blast rooms and outdoor blasting systems than in pressure blast cabinets. The air supply hose ID, the media blast hose ID, the nozzle ID, the pressure pot and pot piping are all much larger on the blast rooms than cabinet systems. The increase in production is also due to the further distance that the nozzle is from the work piece in blast rooms creating a larger blast pattern.

Pressure-Blast Requirements (Blast Rooms)

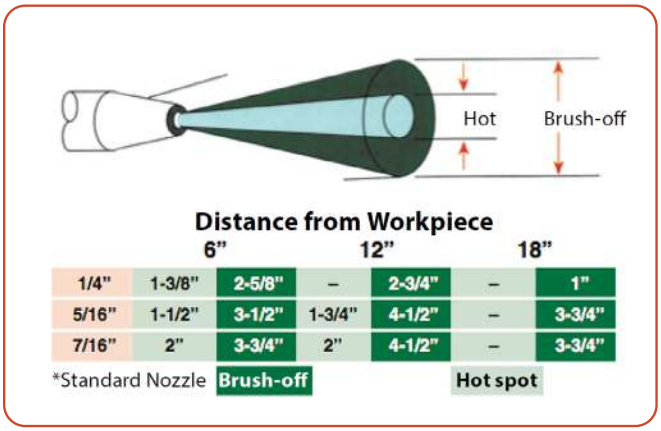
		Pressure					
Nozzle ID		**60**	**70**	**80**	**90**	**100**	**120**
3/16" #3	AIR (CFM)	30	33	38	41	45	-/-
	Air compressor hp	7	7.5	8	9.5	10	-/-
	Lbs Sand hour	171	196	216	238	264	-/-
1/4" #4	AIR (CFM)	54	61	68	74	81	97
	Air compressor hp	12	13.5	15	16.5	18	21.5
	Lbs Sand hour	312	354	406	448	494	582
5/16" #5	AIR (CFM)	89	101	113	126	137	152
	Air compressor hp	20.0	22.5	25.5	28.0	30.5	34.0
	Lbs Sand hour	534	604	672	740	812	912
3/8" #6	AIR (CFM)	126	143	161	173	196	220
	Air compressor hp	28	32	36	38.5	44	49
	Lbs Sand hour	754	864	960	1 052	1 152	1 320
7/16" #7	AIR (CFM)	170	194	217	240	254	300
	Air compressor hp	38	43.5	48.5	53.5	56.5	67
	Lbs Sand hour	1 023	1 176	1 312	1 448	1 584	1 800
1/2" #8	AIR (CFM)	224	252	280	390	338	392
	Air compressor hp	50	56	62.5	69	75	87.5
	Lbs Sand hour	1 336	1 512	1 680	1 856	2 024	2 352

FACTORS THAT AFFECT BLAST FINISHING (CONT'D)

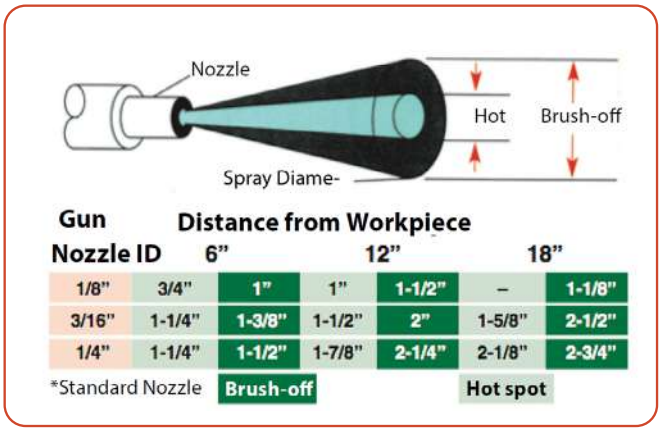
AIR BLAST PRODUCTION RATES

Blast nozzle spray patterns are affected by orifice size, air pressure, and distance from the workpiece.

The total diameter of the blast pattern increases as the distance from the workpiece is increased. The hot spot (where work speed is maximized) can be obtained at larger distances from the workpiece with pressure air blast systems.



CABINET SUCTION BLASTING



CABINET PRESSURE BLASTING

CABINET BLAST PRODUCTION RATES

Below is an estimate of abrasive delivery rates per hour and sq. ft. of blast area in sq. ft. per minute with various orifice I.D's and 80 psi.

ID	CFM	PSI	Blast Area (Sq. Ft/minute)	Abrasive Unit Hour
3/32"	7	80	1/2	80 lbs
1/8"	15	80	1 to 1-1/2	120 lbs
5/32"	25	80	1 to 2-1/2	160 lbs
3/16"	40	80	3 to 3-1/2	216 lbs
1/4"	80	80	4 to 4-1/2	400 lbs

FACTORS THAT AFFECT BLAST FINISHING (CONT'D)

Blast Room and Outdoor Blast Production Rates

BLAST SPECIFICATIONS (Approx. Sq. Ft. Cleaning Per Hour at 90 PSI)			ESTIMATED BLAST CLEANING RATES (#7 nozzle)	
No.1 WHITE METAL BLAST	**SSPC-SP5**		**#7 NOZZLE**	
	Loose Mill Scale	170 Sq. Ft	Tight Mill Scale	140 Sq. Ft
	Pitted Paint	85 Sq. Ft.	Layered Paint	70 Sq. Ft.
No.2 NEAR WHITE BLAST	**SSPC-SP10**		**#7 NOZZLE**	
	Loose Mill Scale	180 Sq. Ft	Tight Mill Scale	146 Sq. Ft
	Pitted Paint	90 Sq. Ft.	Layered Paint	72 Sq. Ft.
No.3 COMMERCIAL BLAST	**SSPC-SP6**		**#7 NOZZLE**	
	Loose Mill Scale	420 Sq. Ft	Tight Mill Scale	270 Sq. Ft
	Pitted Paint	200 Sq. Ft.	Layered Paint	140 Sq. Ft.
No.4 BRUSH - OFF	**SSPC-SP7**		**#7 NOZZLE**	
	Loose Mill Scale	420 Sq. Ft	Tight Mill Scale	835 Sq. Ft
	Pitted Paint	200 Sq. Ft.	Layered Paint	825 Sq. Ft.

For more information on blast specifications contact info@kresco.com

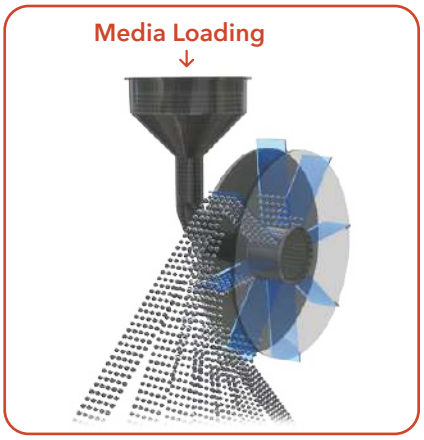
MECHANICAL WHEEL BLASTING

Wheel blast system utilizes a high speed rotation wheel using centrifugal force to propel the media.

The wheel size design and rotation speed affect the velocity and pattern of the media.

The abrasive is fed into the rotating wheel. The impact on the media by the hard rotating wheel usually restricts media selection to a very tough steel or stainless steel shot or grit.

Machines can be built with multiple wheels for automation. Automated systems include basket, table, spinner hangers and continuous conveyor processing.



Wheel blast systems are a less expensive way to blast (due to higher media recycleability and automation) than air blasting by a factor of 10. Their disadvantage are restrictions to very few media.

FACTORS THAT AFFECT BLAST FINISHING (END)

HYDRO BLASTING

This blasting system uses a pressurized water stream generated by pumps that are capable of pumping an abrasive charged water supply at high rates of speed.

The Hydro Systems are good for conveying very fine abrasives. They are also used in cleaning gunky,

greasy parts, and containing toxic materials.

The wet blast systems are very good at blasting surfaces without damage and blasting internal surfaces.

ALL INDUSTRIAL BLAST SYSTEMS HAVE THE FOLLOWING COMPONENTS:

- Delivery Systems (Air or Wheel Blasting)
- Containment Systems (Hand cabinets, Automated enclosures, and Blast rooms)
- Reclaim Systems
- Dust Collection

Containment Systems

Hand cabinets, automated enclosures and blast rooms are built to handle various size and shapes of parts. The containment systems are built to control and contain the blast media and parts within the enclosures. The enclosure systems use gravity for the blasted media to drop down to a collection area so the media can be conveyed to the reclaim system. Blast systems can have inexpensive or premium containment systems. Matching the right containment system to the application is very important.

Media Reclaim Systems

Recoverable medias used in industrial blast systems will run from 5 to 100 times through the blast system. These recoverable medias need to be cleaned, sized and returned to the blast system after being blasted. The media reclaim system accomplishes this. The reclaimer keeps finish and production rates consistent. Media reclaim systems can be Air Cyclones or Mechanical Systems.

Dust Collection

All Industrial blast systems utilize dust collectors to allow blast systems to be indoors. The dust collector removes the fine blasting dust keeping the media clean and operators safe through visibility and breathable air. Dust collectors remove 99% of 1 micron or larger material. Hepa filters can be added to remove dust particles down to 1/2 micron.Dust collectors are sized to the cabinet size, media type, and amount of blast nozzles or wheels being used.

BLAST MEDIAS

Recoverable blasting medias are used in industrial blasting. Indoor blasting systems require medias with extended life. Blast media, type, shape, size and hardness affect the process and materials they are capable of blasting.

Spherical medias are used for peening and produce smoother surface finishes.

Angular medias chip at a parts surface; removing paint, rust and scale quicker, with better results than round medias. Angular medias produce a rougher surface finish and produce superior anchor patterns for paint and coating adhesions.

Higher blast pressures increase production but reduce media life. Blasting harder workpieces also reduces media life.

Recoverable blasting medias have two basic shapes. Round (spherical) and angular.

The most common recoverable industrial blast medias are:

Spherical shaped media

Ceramic Beads

Glass Beads

Stainless Shot

Angular shaped media

Aluminum Oxide

Ceramic Grit

Crushed Glass

Silicon Carbide

Stainless Grit

Steel Grit

BLAST MEDIAS (CONT'D)

Aluminum Oxide (AL_2O_3) is a man made fused alumina that is very tough and angular blocky shaped, medium density, with a hardness of 9 on the Mohs scale. This abrasive is designed for high blasting pressures up to 90 PSI. Aluminum oxide is very good for light deburring and surface prep (bonding strength) prior to painting and coating. AO creates a dull matte finish.Aluminum oxide has media life of approximately10-12 times through the blast system.

Typical Aluminum Oxide Blasting Applications

- Cleaning of investment castings
- Scale removal
- Thermal spray coating preparation
- Rust removal
- Hard oxide removal
- Heat treat and mill scale removal
- Glass frosting and etching
- Monument lettering and carving
- Aircraft engine overhaul
- Matte finishing
- Surface preparation
- Durability up to 20 passes

Grit Size Conversion for AO and SIC

Grit Size	Inches (average)	Microns (average)	Grit Size	Inches (average)	Microns (average)
16	0.03	1092	70	0.008	203
20	0.03	942	80	0.0085	165
24	0.027	686	90	0.0057	145
30	0.022	559	100	0.0048	122
36	0.019	443	120	0.0048	102
46	0.014	356	150	0.0035	89
54	0.012	305	180	0.0030	76
60	0.010	256	220	0.0025	63

Silicon Carbide (SIC) is a man made abrasive that is very sharp and friable. SIC is very hard at 9.5 on the mohs scale. It is used to blast very hard materials such as tool steels, glass and ceramics. SIC creates a dull matte finish. The grit sizes available are the same sizes as aluminum oxide. SIC blasts at pressures up to 90 psi and has an approximate life of 9-12 times thru the blast system.

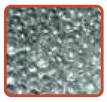
Typical Silicon Carbide Blasting Applications

- Blasting hard metals
- Glass etching
- Ceramic recast removal
- Very tough scale removal
- Heavy profile and metal preparation
- Before brazing and weld applications requiring no aluminum oxide contamination

Grit Size Conversion for AO and SIC

Sizing: Same as Aluminum Oxide

BLAST MEDIAS (CONT'D)

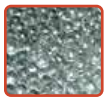



Glass Beads and **Glass Grit** are glass beads used in peening and surface finishing on tight tolerance machined surfaces. Glass Beads create a bright matte surface finish with no surface contamination or damage. As a round particle beads are very slow on removal of paint, rust, or scale. Glass grit is the angular counterpart of glass beads. Glass grit is very aggressive on a blasted surface. Glass beads are blasted at pressures between 40-80 psi. Glass bead media life cycles are 9 - 12 times thru the blast system.

Typical Glass Bead Blasting Applications

- Light deburring.
- Surface cleaning.
- Peening.
- Blending machine marks.
- Removal of welding discolor.
- Blasting tight tolerance parts.
- Produces a bright matte finish.
- Pre Anodize finishing.

Grit Size Conversion for glass beads							
Mil-G-9954A	Inches (average)	Microns (average)	US Screen Size (Mesh)	Mil-G-9954A	Inches (average)	Microns (average)	US Screen Size (Mesh)
# 3	.0282	725	20-30	# 9	.0060	153	80-120
# 4	.0187	512	30-40	# 10	.0047	120	100-170
# 5	.0139	363	40-50	# 11	.0039	100	120-200
# 6	.0105	256	50-70	# 12	.0033	85	140-230
# 7	.0084	215	60-80	# 13	.0026	68	170-325
# 8	.0071	181	70-100				

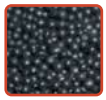



Ceramic Blast Media Ceramic Beads are spherical shaped media with high mechanical strength and high wear rates. Ceramic is impact resistance creating very little dust. The ceramic beads keeps its round consistency and is chemically inert. Ceramic blast processes produce a smooth bright satin finish. The ceramic beads density creates higher impact speed making it a good choice for deburring and peening. Blast pressure recommendations are between 40-65 psi with media cycle lives between 70-90 times thru the blast system. Ceramic blast media is very versatile and can be blasted with all delivery systems(air, wheel and water). **Ceramic beads** is a standard peening material for titanium parts. Ceramic grit is angular and is excellent for etching parts with extended media life.

Typical Ceramic Media Blasting Applications

- Peening Titanium
- Non contamination
- High impact for deburring
- Long media life applications
- Bright surface finish requirements
- Aircraft and medical parts

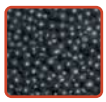
BLAST MEDIAS (CONT'D)




Stainless Steel Blast Media is available in both shot (cut wire conditioned and casted) and grit. Stainless media is available in 302-304 and 316 alloys. Stainless is a softer but heavier media that is a good choice for short blasting times, deburring, and rust free surfaces. It produces a brighter finish with reduced blast machine wear rates. **Stainless shot** obtains some the highest media recovery rates of up to 150-200 cycles through the blast system. Blasting pressure can be as high as 90 PSI.

Typical Stainless Steel Blasting Applications

- Blast cleaning, deburring, surface refinement, surface finishing
- All types of aluminum castings and forgings
- Zinc pressure die castings
- Non-ferrous metals and special alloys
- Stainless steel castings and forgings
- Stainless steel equipment fabrication
- Granite and stone industry




Steel Shot and **Grit Media** is produced in round/spherical shape (conditioned cut wire and cast shot) and angular steel grit. Steel abrasives are very durable making it the first choice in blast rooms and automated wheel applications. The hardness ranges between 40 to 65 Rockwell. Conditioned cut wire (rounded) is the primary choice for shot peening over cast shot that produces an unfavorable angular breakdown while blasting. Steel shot and grit is very often mixed to achieve both anchor patterns with good finishes. Steel shot can be blasted with very high pressures ofup to 110 PSI. Media cycle lives are between 80-100 times through the blast cycle.

Typical Stainless Steel Blasting Applications

- Blast Rooms for long media life
- Wheel blasting for long media life
- Paint preparation on steel parts
- Deburring
- Scale and rust removal
- Aluminum Casting and weldment blasting
- Pipe blasting (ID & OD)

BLAST MEDIAS (CONT'D)

Shot and Grit Sizing

STEEL SHOT		
S390	All Pass No. 12 Screen	.0661- 1.70
	5% Max on #14 Screen	.0555 - 1.40
	85% Min on #18 Screen	.0394 - 1.00
	96% Min on #20 Screen	.0331 - 0.850
S330	All Pass No. 12 Screen	.0555 - 1.40
	5% Max on #14 Screen	.0469 - 1.18
	85% Min on #18 Screen	.0331 - 0.85
	96% Min on #20 Screen	.0278 - 0.710
S280	All Pass No. 16 Screen	.0469- 1.18
	5% Max on #18 Screen	.0394 - 1.00
	85% Min on #25 Screen	.0278 - 0.710
	96% Min on #30 Screen	.0234 - 0.600
S230	All Pass No. 18 Screen	.0394 - 1.00
	10% Max on #20 Screen	.0331 - 0.850
	85% Min on #30 Screen	.0234 - 0.600
	97% Min on #35 Screen	.0197 - 0.500
S170	All Pass No. 20 Screen	.0331- 0.850
	10% Max on #25 Screen	.0278 - 0.710
	85% Min on #40 Screen	.0165 - 0.425
	97% Min on #45 Screen	.0139 - 0.355
S110	All Pass No. 30 Screen	.0234- 0.600
	10% Max on #35 Screen	.0197 - 0.500
	80% Min on #50 Screen	.0117 - 0.300
	90% Min on #80 Screen	.0070 - 0.180

STEEL GRIT		
G25	All Pass on #16 Screen	.0469- 1.18
	70% Max on #25 Screen	.0278 - 0.710
	80% Min on #40 Screen	.0165 - 0.425
G40	All Pass on #18 Screen	.0394 - 1.00
	70% Max on #25 Screen	.0165 - 0.425
	80% Min on #40 Screen	.0117 - 0.300
G50	All Pass on #25 Screen	.0278 - 0.710
	65% Max on #50 Screen	.0017 - 0.300
	70% Min on #80 Screen	.0070- 0.180
G80	All Pass on #50 Screen	.0165 - 0.0425
	60% Max on #80 Screen	.0070 - 0.180
	75% Min on #120 Screen	.0049 - 0.125
G120	All Pass on #50 Screen	.01117- 0.300
	60% Max on #120 Screen	.0049 - 0.125
	70% Min on #200 Screen	.0029 - 0.075

BLAST MEDIAS (CONT'D)

MEDIA OVERVIEW:

RECOVERABLE BLASTING MEDIAS

Spherical shaped media

Ceramic Beads 
Glass Beads 
Stainless Shot 
Steel Shot 

Angular shaped media

Aluminium Oxide 
Ceramic Grit 
Crushed Glass 
Garnet 
Plastic Media 
Silicon Carbide 
Stainless Grit 
Steel Grit 
Walnut Shells 

Media Guide

	Glass Beads	Ceramic Grit	Stainless Cut Wire	Steel Shot	Steel Grit	Alumi-nium Oxide	Silicon Carbide	Garnet	Crushed Glass	Plastic Media	Walnut Shells
Finishing	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
Cleaning/Removal	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Peening	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO
Surface Profiling (Etch)	NO	NO	YES	NO	YES	YES	YES	YES	YES	YES	YES
Working Speed	MED.	MED.	MED.	MED.	MED. HIGH	HIGH	VERY-HIGH	HIGH	HIGH	MED. HIGH	LOW-HIGH
Recyclability	HIGH-LOW	HIGH	HIGH	VERY-HIGH	VERY-HIGH	MED.-HIGH	MED.-LOW	MED.	MED.-LOW	MED.	LOW
Probability of MetalRemoval	VERY-LOW	VERY-LOW	VERY-LOW	VERY-LOW	MED.	MED.-HIGH	MED.-HIGH	MED.	LOW-MED.	VERY-LOW	VERY-LOW
Hardness, MOH Scale (Rockwell RC)	5.5	7 (57-63)	6-7.5 (35-55)	6-7.5 (35-55)	8-9 (40-66)	8-9	9	8	5.5	3-4	1-4.5
Bulk Density (lb/cu.ft.)	100	150	280	280	230	125	95	130	100	45-60	40-80
Mesh Size	30-440	8-46	20-62	8-200	10-325	12-325	36-220	16-325	30-400	12-80	MANY
Typical Blast Pressure	20-55	20-90	20-90	20-90	20-90	20-90	20-90	30-80	20-50	20-60	10-40
Shapes : ● or ▲	●	●	●	●	▲	▲	▲	▲	▲	● or ▲	▲

** Above information is intended as a general reference guide*

BLAST MEDIAS (CONT'D)

GENERAL MEDIA INFORMATION

- Spherical Medias are used for peening and produce smoother surface finishing.
- Angular medias chip at a part surface removing paint, rust, and scale quicker than round medias and produce a rougher surface finish and better anchor patterns for coating adhesions.
- Higher blast pressures reduce media life.
- Higher blast pressures increase production.
- Harder work pieces reduce media life.
- Dust collection keeps media clean.
- When calculating media – take in account.
- Media cost and life cycles.
- Disposal fees (if blasting heavy metals use a very rercyclable media)
- Production rate of media, labor and air compressor expense.

RECOVERABLE MEDIA CYCLES

Media Type	Media Life Cycles	% Breakdown
SILICA SAND	1	100 %
GARNET	3-5	25 %
PLASTIC MEDIA	7-9	13 %
GLASS BEAD	9-12	10 %
SILICON CARBIDE	9-10	11 %

Media Type	Media Life Cycles	% Breakdown
ALUMINUM OXIDE	10-12	9 %
CERAMIC MEDIA	70-90	1.2 %
STEEL SHOT, GRIT	80-100	1 %
STAINLESS SHOT, GRIT	150-225	0.5 %

RECOVERABLE MEDIA COSTING

Media Cost Per Hour	Media Cost to Blast a part
Hourly Delivery Rate x % Breakdown x Cost per lb	Hourly Delivery Rate x % Breakdown x Cost per lb x Part cycle time (% of hour)

Other factors in total blasting cost include: air compressors, labor, blast system costs and media disposal fee. If blasting heavy metals use a highly recyclable media.

BLAST MEDIAS (END)

OVERVIEW OF BLAST FINISHING EQUIPMENT AND ABRASIVE MEDIAS

EQUIPMENT	ABRASIVE MEDIAS	EQUIPMENT	ABRASIVE MEDIAS
Air blasting	Spherical	Wheel Blasters	Glass grit
Blast cabinets	Glass beads	Spinner hangers	Plastic stripping media
Automated cabinet	Ceramic beads	Table blasters	Steel grit
Blast rooms	Steel shot	Conveyor blasters	Stainless steel grit
Portable pressure pots	Stainless shot	Basket blasters	Silicon carbide
ID-OD pipe blasters	Angular	Wet Blasting cabinets	Media + Water
Basket blasters	Aluminum oxide	Soda blasting	Baking soda
In line conveyors	Ceramic grit	Dry ice blasters	Dry Ice

HOW TO MEASURE SURFACE PROFILE USING TESTEX TAPE

TEST PREPARATION

- Select a representative test site free of dust, dirt and pitting.
- Choose the appropriate grade of Testex tape – refer to Inspection Instruments for details of the various scale measurement ranges.
- Peel a test tape strip from the roll – a 'bull's-eye' marker dot will remain on the slip paper.
- Apply the tape to the test surface – rub over the tape with afinger to ensure it is firmly adhered.

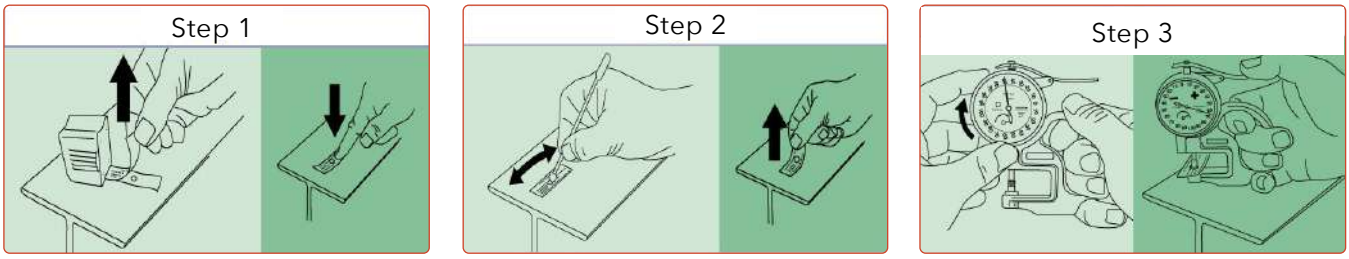
PERFORM THE TEST

- Using moderate to firm pressure, rub the test window with the round-tip burnishing tool
- Take care not to dislodge the test tape (caused by bumping the tool against the edge of the circular cutout window).
- Burnish the test window until it has uniformly darkened – the color indicates the profile has been impressed into the test tape.
- Peel the test tape strip from the surface.

MEASURING THE TEST RESULT

- Use a dial thickness gage with the correct specifications (i.e. accuracy, anvil spring pressure and anvil size) for replica tape – refer to Inspection Instruments
- Clean the anvils and check/adjust the zero point.
- After cleaning and checking the gage zero point, adjust the dial to minus 2 mils (50 microns) (this compensates for the thickness of the tape carrier film and allows the profile measurement to be read directly from the gage).
- Centre the test tape between the anvils, gently allow the anvils to close on the tape, and note the reading on the dial.
- Take several readings to establish accuracy. (Reposition the tape in the anvils between each reading).

HOW TO MEASURE SURFACE PROFILE USING TESTEX TAPE (CONT'D)



SOURCES OF ERROR

There are four major sources of error in determining the profile of a blast cleaned surface, which can be minimized with thefollowing suggestions.

- Inherent Profile Variation in the surface – perform at least 3 tests per 100 square feet (10 square metres) of area.
- Contaminant particles in the anvils or tape – select a clean surface; clean and check the anvils; examine the test tape; double check any questionable readings. To indicate the size significance of seemingly tiny contaminants, please note that human hair is approx. 2 mils (50 microns) thick.
- Improper Gage – a good gage has an accuracy of ±0.2 mils (±5 microns), closing force of 1.5N and at least one anvil 0.25" (6.3mm) diameter.
- Deficient Impressing Technique – use a profile training tool to verify the burnishing technique is correct.

About Kresco

Kresco designs, manufactures, and supports industrial equipment for the surface treatment industries. **Kresco** has standard equipment designed for most applications and can customize equipment to meet or exceed your production expectations.

Sandblasting

- Sandblast Booths
- Sandblast Cabinets
- Automated Sandblasting Systems
- Abrasive Reclaiming Systems
- Pressurized Sandblasters
- Dust Collectors

Shotblasting

- Roller Conveyor Blaster
- Rotary Table Blaster/Swing Table Blaster
- Spinner Hanger (Batch)
- Continuous Flow with Monorail
- Rubber and Steel Flight Tumbler Blasters
- Flow Thru Barrel Blasters
- Mesh Belt Continuous Blasters
- Monorail System Blasters
- Rim Blasters
- Preservation Line

Painting

- Paint Spray Booths
- Powder Coating Booths
- Drying Ovens
- Air Make-Up Units

Solvent Recovery

- Batch Solvent Distillers
- Continuous Flow Solvent Distillers
- Oil Cooling Systems

Parts & Consumables

- Blast Nozzles
- Blast Hoses
- Abrasive Media
- Air Valves
- Abrasive Metering Valves
- Cartridge Filters
- Sludge Bags
- Safety Equipment & PPE

Services

- Turnkey Project Design
- Custom Design
- Full Installation
- Start-up Supervision
- Training
- Maintenance
- Retrofit & Upgrade

All systems are designed to build and they are manufactured with the highest quality standards in our manufacturing shop in Quebec, Canada.

Kresco

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