

# STEEL SHOT

## 1. GRAIN SIZE

### S-1-1 Adhesive Strength of Scale and Molding Sand

Steel Shot, in spherical shape, is to be employed to blast descaling on the metal surface by heat-treatment, or foundry's desanding after casting. The finer the size of Steel Shot is, the smaller the impact load provided; and the coarser in size, the larger in impact load, resulting in prolonged blasting time, because of a less number of steel grains per weight, on top of the coarse formation. The first tip of advice in selecting Steel Shot, therefore, is to decide the proper size and hardness, in consideration of such adhesive strength of scale or molding sand.

### S-1-2 Expected Surface Roughness

While fine Steel Shot provides a small impact load, coarse one with a large impact load generates rough surface and may end up with distortion or, at worse, bent of the work. Such roughness is determined by the size of Steel Shot and a hardness difference between Steel Shot and the work to be blasted. Therefore, by a combination of the expected surface roughness and the hardness of the work, recommended size of Steel Shot is to be determined.

### S-1-3 Other Factors

Other than the two decisive factors described above, consideration should also be given to the size, material, and shape of the work to be blasted, and the operating conditions of the shotblast machines. For your best application, your work may be tested in your conditions at our Laboratory and the optimum size of Steel Shot will be advised.

IKK Screening Specification for IKK Steel Shot (weight %)

Shot Number Corresponds to		Seive ( μm. )																		
JIS	SAE	3360	2800	2360	2000	1700	1400	1180	1000	860	710	600	500	425	355	300	250	212	180	125
S-5290	S-9930	0	-	>90	>97															
S-5240	S-8780		0	-	>85	>97														
S-5200	S-9660			0	-	>85	>97													
S-5170	S-9560				0	-	>85	>97												
S-5140	S-9460				0	<5	-	>85	>96											
S-5120	S-9390					0	<5	-	>85	>96										
S-5100	S-9330						0	<5	-	>85	>96									
S-5280	S-9280							0	<5	-	>85	>96								
S-575	-							0	<5	-	-	>85	>97							
S-570	S230								0	<10	-	>85	>97							
S-980	S170									0	<10	-	-	>85	97					
S-940	S110											0	<10	-	-	>80	-	-	>90	
S-535	-												1	<10	-	-	>85	-	-	>95
S-530	S70													0	<10	-	-	-	>80	>90
ASTM No		6	7	8	10	12	14	16	18	20	25	30	35	40	45	50	60	70	80	120
(inch)		0.132	0.111	0.0937	0.787	0.0661	0.0655	0.0469	0.0394	0.0331	0.0278	0.0234	0.0190	0.0166	0.0136	0.0117	0.0098	0.0093	0.0070	0.0049

## Nom.Dim

2.4  
S780

2.0  
S660

1.7  
S550

1.4  
S460

1.2  
S390

1.0  
S330

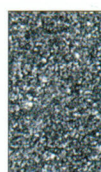
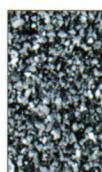
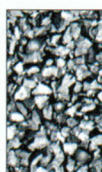
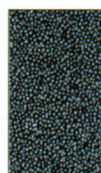
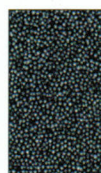
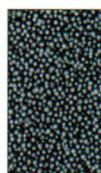
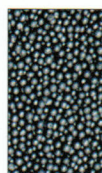
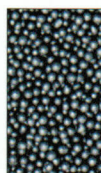
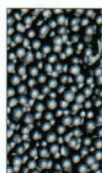
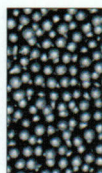
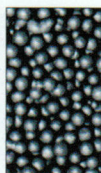
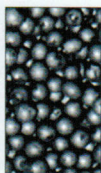
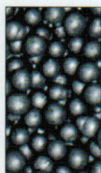
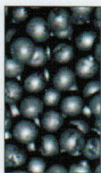
0.8  
S280

0.7  
S230

0.6  
S170

0.4  
S110

0.3  
S70



G10  
2.4

G12  
2.0

G14  
1.7

G16  
1.4

G18  
1.2

G25  
1.0

G40  
0.7

G50  
0.5

G80  
0.3

G120  
0.2

## Nom.Dim

IKK Screening Specification for IKK Steel Grit (weight %)

Grit Number Corresponds to		Sieve ( μm. )																					
JIS	SAE	2800	2360	2000	1700	1400	1180	1000	850	710	600	500	425	355	300	255	212	180	150	125	75	45	
S-G240	G10	0	-	>90	>90																		
S-G200	G12		0	-	>80	>90																	
S-G170	G14			0	-	>80	>90																
S-G140	G16				0	-	>75	>85															
S-G120	G18					0	-	>75	-	>85													
S-G100	G25						0	-	-	>70	-	-	>80										
S-G70	G40							0	-	-	-	-	>70	-	>80								
S-G50	G50								0	-	-	-	-	>65	-	-	>75						
S-G30	G80												0	-	-	-	>65	-	>75				
S-G20	G120														0	-	-	-	-	>65	>65		
-	G200																	0	-	-	>65	>65	
-	G325																			0	-	>20	
ASTM No		7	8	10	12	14	16	18	20	25	30	35	40	45	50	60	70	80	100	120	200	325	
(inch)		0.111	0.094	0.0787	0.066	0.0565	0.0469	0.0394	0.0331	0.0278	0.0234	0.0197	0.0165	0.0139	0.0117	0.0098	0.0083	0.0070	0.0059	0.0048	0.0039	0.0025	

# STEEL GRIT

## 1. GRAIN SIZE

### G-1-1 Adhesive Strength of Scale, Rust and Molding Sand

While spherical Steel Shot features "hammering effect" sharp-edged Steel Grit, in angular shape, features "Chiseling effect". The size selection, just as that of Steel Shot, should be made by observing the adhesive strength of scale generated by heat - treatment or rust on the metal surface, or molding sand on the coatings. In general, coarse Steel Grit should be applied to high- adhesive or thick scale, rust, or molding sand, and fine one to low-adhesive or thin coatings.

When Steel Grit replaces Steel Shot, smaller Steel Grit by one size will be more appropriated for the aiming surface finishing. While Steel Grit is superior in abrasive effectiveness the consumption of the spare parts in the shotblast is larger, and the finishing surface turns to be rough than those machined by Steel Shot.

### G-1-2 Expected Surface Roughness

The surface roughness blast - treated, same as that of Steel, is determined by the size of Steel Grit and a hardness difference between Steel Grit and the work to be blasted. Therefore, by a combination of the expected surface roughness and the hardness of the work, the recommended size of Steel Grit is to be determined. As for etching for millrolls, the size selection is crucial in view of the great importance of the surface roughness.

### G-1-3 Other Factor

Other than the two decisive factors described above, considerations should also be given to the size, material, and shape of the work to be blasted, and the operating conditions of the wheelblast or airblast machine. To attain the thorough roughness, an attention should be paid to the uniformity of the Steel Grit grain size.