

USEFUL INFORMATION

Surface Quality

SURFACE QUALITY					
Extracted from BS970 Part 3 1991					
12.3 Surface condition					
12.3.1.1 Surface defects shall not exceed the maximum values given in tables 7 – 10 in bars supplied in the cold drawn and cold drawn and ground condition.					
Table 7. Rounds, squares and hexagons in sizes from 10 mm up to and including 100 mm diameter or across flat: maximum permissible surface defects					
Steel Type	Maximum permissible defect depth as percentage of section				
	%				
Balanced free-cutting	2.00				
Killed free-cutting	1.25				
Killed carbon	1.00				
Killed coarse grain	2.00				
Hot or cold forging	0.75				
Low alloy and stainless	0.75				
12.3.1.2 The minimum rejectable defect depth for balanced free-cutting, killed free-cutting, killed carbon and killed coarse grain steels shall be 0.25mm irrespective of section.					
Table 8. Flats greater than 105 mm wide in free-cutting, semi free-cutting and carbon steels: maximum permissible surface defects.					
Thickness	Maximum permissible defect depth on wider or flat faces				
	Widths > 105 ≤ 160mm		Widths > 160mm		
mm	mm		mm		
> 3 ≤ 10	0.20		0.20		
> 10 ≤ 18	0.25		0.25		
> 18 ≤ 30	0.30		0.45		
> 30 ≤ 50	0.50		0.80		
> 50 ≤ 80	0.70		1.00		
> 80 ≤ 105	0.80		1.00		
> 105	1.00		1.00		
12.3.1.3 The maximum permissible defect depth on the surfaces of the narrower or edge faces of flats in qualities and sizes covered by table 8 shall be 1mm					
Table 10. Flats equal to or less than 105mm wide in free-cutting, semi free-cutting and carbon steels: maximum permissible defect depths					
Thickness	Maximum permissible defect depths				
	Wider of flat face	Narrower or edge face			
		Widths			
		≤ 30mm	≤ 30mm ≤ 50mm	≤ 50mm ≤ 80mm	≤ 80mm ≤ 105mm
mm	mm	mm	mm	mm	mm
> 3 ≤ 10	0.2	} 0.40	} 0.65	} 0.80	} 1.00
> 10 ≤ 18	0.3				
> 18 ≤ 30	0.4				
> 30 ≤ 50	0.6				
> 50 ≤ 80	0.7				
NOTE: The defect is to be measured perpendicular to the bar surface					