

As you may know, in steel industry, there must be some dimension and sizes for one product or a project. And for each size of product, there will be some standard and tolerance requirements. Here in this post we share the **different round steel bar tolerance requirements between BS 970-3 and ISO 286-2 standard.**



### 1. Cold Drawn Round Steel Bar Tolerance & Steel Hexagon, Flat Tolerance (BS 970-3)

Tolerances for Cold Drawn Bar		
Section	Size, diameter or width across flats	Permitted variation
	mm	mm
Round	$\geq 6 \leq 18$	+ 0 to - 0.070
	$> 18 \leq 30$	+ 0 to - 0.085
	$> 30 \leq 50$	+ 0 to - 0.100
	$> 50 \leq 80$	+ 0 to - 0.120
	$> 80 \leq 100$	+ 0 to - 0.140
Square and hexagon	$\geq 6 \leq 18$	+ 0 to - 0.090
	$> 18 \leq 30$	+ 0 to - 0.110
	$> 30 \leq 50$	+ 0 to - 0.130
	$> 50 \leq 80$	+ 0 to - 0.160
	$> 80 \leq 105$	+ 0 to - 0.250
Flat (width)	< 18	+ 0 to - 0.110
	$> 18 \leq 30$	+ 0 to - 0.130

	$> 30 \cong 50$ $> 50 \cong 80$ $> 80 \cong 100$ $> 100 \cong 130$ $> 130 \cong 160$ $> 160 \cong 320$	$+ 0$ to $- 0.160$ $+ 0$ to $- 0.190$ $+ 0$ to $- 0.220$ $+ 0$ to $- 0.350$ $+ 0$ to $- 1.00$ $+ 1.00$ to $- 1.00$
Flat (thickness)	$< 18$ $> 18 \cong 30$ $> 30 \cong 50$ $> 50 \cong 80$	$+ 0$ to $- 0.110$ $+ 0$ to $- 0.130$ $+ 0$ to $- 0.250$ $+ 0$ to $- 0.350$

## 2. Turned Round Steel Bar Tolerances (BS 970-3)

Tolerances for Turned Bars	
Size, diameter	Permitted variation
mm	mm
$\cong 6 \cong 18$	$+ 0$ to $- 0.070$
$> 18 \cong 30$	$+ 0$ to $- 0.085$
$> 30 \cong 50$	$+ 0$ to $- 0.100$
$> 50 \cong 80$	$+ 0$ to $- 0.120$
$> 80 \cong 120$	$+ 0$ to $- 0.140$
$> 120 \cong 180$	$+ 0$ to $- 0.160$
$> 180 \cong 250$	$+ 0$ to $- 0.185$
$> 250 \cong 315$	$+ 0$ to $- 0.210$
$> 315 \cong 400$	$+ 0$ to $- 0.230$
$> 400$	$+ 0$ to $- 0.250$

## 3. Precision Round Steel Bar Tolerances (BS 970-3)

Tolerances for Precision Steel Bars				
Section	Size, diameter	Permitted overall variation		
		Class A	Class B	Class C
	mm	mm	mm	mm
Round	$\cong 6 < 75$	0.05	0.025	0.013

## 4. Bright Round Steel Bar Tolerance (BS EN ISO 286-2 )

Round Steel Bar Tolerance ISO "H" Series in MM								
NOMINAL SIZE	h5	h6	h7	h8	h9	h10	h11	h12
DIAMETE R mm								
~ to 3	+0.004/ 0	+0.006/ 0	+0.01/0	+0.014/ 0	+0.025/ 0	+0.04/0	+0.06/0	+0.1/0
over 3 to 6	+0.005/ 0	+0.008/ 0	+0.012/ 0	+0.018/ 0	+0.03/0	+0.048/ 0	+0.075/ 0	+0.12/ 0
over 6 to 10	+0.006/ 0	+0.009/ 0	+0.015/ 0	+0.022/ 0	+0.036/ 0	+0.058/ 0	+0.09/0	+0.15/ 0
over 10 to 18	+0.008/ 0	+0.011/ 0	+0.018/ 0	+0.027/ 0	+0.043/ 0	+0.07/0	+0.11/0	+0.18/ 0
over 18 to 30	+0.009/ 0	+0.013/ 0	+0.021/ 0	+0.033/ 0	+0.052/ 0	+0.084/ 0	+0.13/0	+0.21/ 0
over 30 to 50	+0.011/ 0	+0.016/ 0	+0.025/ 0	+0.039/ 0	+0.062/ 0	+0.1/0	+0.16/0	+0.25/ 0
over 50 to 80	+0.013/ 0	+0.019/ 0	+0.03/0	+0.046/ 0	+0.074/ 0	+0.12/0	+0.19/0	+0.3/0
over 80 to 120	+0.015/ 0	+0.022/ 0	+0.035/ 0	+0.054/ 0	+0.087/ 0	+0.14/0	+0.22/0	+0.35/ 0
over 120 to 180	+0.018/ 0	+0.025/ 0	+0.04/0	+0.063/ 0	+0.1/0	+0.16/0	+0.25/0	+0.4/0
over 180 to 250	+0.02/0	+0.029/ 0	+0.046/ 0	+0.072/ 0	+0.115/ 0	+0.185/ 0	+0.29/0	+0.46/ 0