

# Tolerances for Tapered Bores

## Tolerances for Tapered Bores

$d$  : Nominal bearing bore diameter

$d_1$  : Basic diameter at the theoretical large end of a tapered bore

in case of 1/12 taper  $d_1 = d + \frac{1}{12} B$

in case of 1/30 taper  $d_1 = d + \frac{1}{30} B$

$\Delta d_{mp}$  : Mean bore diameter deviation at theoretical small end of a tapered bore

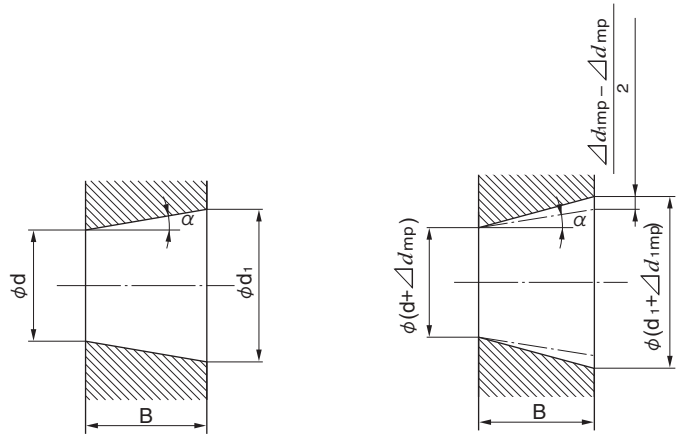
$\Delta d_{1mp}$  : Mean bore diameter deviation at theoretical large end of a tapered bore

$B$  : Nominal bearing inner ring width

$\alpha$  : Nominal taper angle (half of cone angle)

in case of 1/12 taper  $\alpha = 2^\circ 23' 9.4''$   
 $= 2.38594^\circ$   
 $= 0.041643 \text{ rad}$

in case of 1/30 taper  $\alpha = 0^\circ 57' 17.4''$   
 $= 0.95484^\circ$   
 $= 0.016665 \text{ rad}$



Theoretical tapered bore

Tapered bore with actual mean diameters at their deviations

### 1/12 Tapered Bore (Class 0)

Unit:  $\mu\text{m}$

Nominal bearing bore dimension $d$ (mm)		Mean bore diameter deviation at theoretical small end of a tapered bore		Bore diameter variation in a single radial plane (1)(2)		$V_{dp}$
Over	Incl.	$\Delta d_{mp}$	$\Delta d_{1mp} - \Delta d_{mp}$	High	Low	
10	10	+22	0	+15	0	9
18	18	+27	0	+18	0	11
30	30	+33	0	+21	0	13
50	50	+39	0	+25	0	16
80	80	+46	0	+30	0	19
120	120	+54	0	+35	0	22
180	180	+63	0	+40	0	40
250	250	+72	0	+46	0	46
315	315	+81	0	+52	0	52
400	400	+89	0	+57	0	57
500	500	+97	0	+63	0	63
630	630	+110	0	+70	0	70
800	800	+125	0	+80	0	—
1000	1000	+140	0	+90	0	—
1250	1250	+165	0	+105	0	—
1600	1600	+195	0	+125	0	—

Note: (1) Applicable to all radial planes of tapered bore.

(2) Not applicable to bearings of diameter series 7 and 8.

### 1/30 Tapered Bore (Class 0)

Unit:  $\mu\text{m}$

Nominal bearing bore dimension $d$ (mm)		Mean bore diameter deviation at theoretical small end of a tapered bore		Bore diameter variation in a single radial plane (1)(2)		$V_{dp}$
Over	Incl.	$\Delta d_{mp}$	$\Delta d_{1mp} - \Delta d_{mp}$	High	Low	
50	80	+15	0	+30	0	19
80	120	+20	0	+35	0	22
120	180	+25	0	+40	0	40
180	250	+30	0	+46	0	46
250	315	+35	0	+52	0	52
315	400	+40	0	+57	0	57
400	500	+45	0	+63	0	63
500	630	+50	0	+70	0	70

Note: (1) Applicable to all radial planes of tapered bore.

(2) Not applicable to bearings of diameter series 7 and 8.