

# Regular Machining Dimension Tolerance

## 1. Regular Cut Dimension Tolerance B 0405 (1991)

Tolerances in Respect of Length Excluding Chamfered Portion Unit : mm

Tolerance Class		Standard Dimension							
Symbol	Description	0.5 <sup>(1)</sup> to 3 or Less	Over 3 to 6 or Less	Over 6 to 30 or Less	Over 30 to 120 or Less	Over 120 to 400 or Less	Over 400 to 1000 or Less	Over 1000 to 2000 or Less	Over 2000 to 4000 or Less
		Tolerance							
f	Fine	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	—
m	Medium	±0.1	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2
c	Coarse	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	±4
v	Extremely Coarse	—	±0.5	±1	±1.5	±2.5	±4	±6	±8

Note (1) : A reference dimension less than 0.5 mm is followed by a tolerance.

## 2. Tolerances in Respect of the Length of the Chamfered Portion (Radius of Rounding for Edges and Edge Chamfering Dimension)

Unit : mm

Tolerance Class		Standard Dimension		
Symbol	Description	0.5 <sup>(2)</sup> to 3 or Less	Over 3 to 6 or Less	Over 6
		Tolerance		
f	Fine	±0.2	±0.5	±1
m	Medium	±0.2	±0.5	±1
c	Coarse	±0.4	±1	±2
v	Extremely Coarse	±0.4	±1	±2

Note (2) : A reference dimension less than 0.5 mm is followed by a tolerance.

## 4. Regular Perpendicularity Tolerance

Unit : mm

Tolerance Class	Nominal Length of Shorter Side			
	100 or Less	Over 100 to 300 or Less	Over 300 to 1000 or Less	Over 1000 to 3000 or Less
Perpendicularity Tolerance				
H	0.2	0.3	0.4	0.5
K	0.4	0.6	0.8	1
L	0.6	1	1.5	2

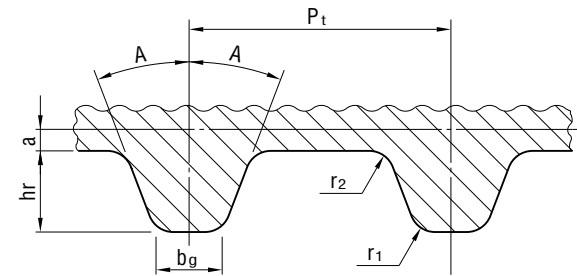
## 5. Regular Straightness and Flatness Tolerance

Unit : mm

Tolerance Class	Nominal Length					
	10 or Less	Over 10 to 30 or Less	Over 30 to 100 or Less	Over 100 to 300 or Less	Over 300 to 1000 or Less	Over 1000 to 3000 or Less
Straightness Tolerance and Flatness Tolerance						
H	0.02	0.05	0.1	0.2	0.3	0.4
K	0.05	0.1	0.2	0.4	0.6	0.8
L	0.1	0.2	0.4	0.8	1.2	1.6

# Toothed Pulleys

## 1. Dimensions of the Rack for the Cutter and the Tolerances



The pulley should have involute teeth, which are created and shaped by the cutter. The dimensions of the rack for the cutter and the tolerances as determined by analyzing the shape of the rack with a projector, shape measuring instrument or the like, should agree with the relevant figures in the table below.

Unit : mm

Type	Number of Teeth of the Pulley Z	Pt	A ±0.12	hr +0.05 0	bg +0.05 0	r1 ±0.03	r2 ±0.03	2a <sup>(1)</sup> (Reference)
MXL	10 ≤ Z ≤ 23	2.032 ± 0.008	28°	0.64	0.61	0.30	0.23	0.508
	24 ≤ Z		20°		0.67			
XL	10 ≤ Z	5.080 ± 0.010	25°	1.40	1.27	0.61	0.61	0.508
	10 ≤ Z		20°		3.10			
H	14 ≤ Z ≤ 19	12.700 ± 0.016	20°	2.59	4.24	1.47	1.04	1.372
	20 ≤ Z						1.42	

Note (1) : "a" is a measurement indicating the position corresponding to the pitch line (center line of the core line of the belt) of the belt corresponding to the shape of the rack for the cutter.

## 2. Tolerance of Adjacent Pitch Error and Cumulative Pitch Error Unit : mm

Addendum Circle Diameter of Pulley d <sub>a</sub>	Tolerance	
	Adjacent Pitch Error	Accumulated Pitch Error
5.96 ≤ d <sub>a</sub> ≤ 25.40	0.03	0.05
25.40 < d <sub>a</sub> ≤ 50.80	0.03	0.08
50.80 < d <sub>a</sub> ≤ 101.60	0.03	0.10
101.60 < d <sub>a</sub> ≤ 177.80	0.05	0.13
177.80 < d <sub>a</sub> ≤ 304.80	0.05	0.15
304.80 < d <sub>a</sub> ≤ 508.00	0.08	0.18
508.00 < d <sub>a</sub> ≤ 762.00	0.08	0.20
762.00 < d <sub>a</sub> ≤ 967.16	0.08	0.23

## 3. Tolerance of Side Deflection Unit : mm

Addendum Circle Diameter of Pulley d <sub>a</sub>	Tolerance of Deflection (TIR) <sup>(2)</sup>
5.96 ≤ d <sub>a</sub> ≤ 101.60	0.10
101.60 < d <sub>a</sub> ≤ 254.00	Addendum Circle Diameter d <sub>a</sub> × 0.001
254.00 < d <sub>a</sub> ≤ 967.16	0.25 + [(Addendum Circle Dia. d <sub>a</sub> - 254.00) × 0.0005]

Note (2) : TIR is an abbreviation for "Total Indicator Reading" and refers to the difference between the max. deflection reading and the min. deflection reading.

## 4. Tolerances on Addendum Circle Diameter Unit : mm

Addendum Circle Diameter of Pulley d <sub>a</sub>	Tolerance
5.96 ≤ d <sub>a</sub> ≤ 25.40	+0.05 0
25.40 < d <sub>a</sub> ≤ 50.80	+0.08 0
50.80 < d <sub>a</sub> ≤ 101.60	+0.10 0
101.60 < d <sub>a</sub> ≤ 177.80	+0.13 0
177.80 < d <sub>a</sub> ≤ 304.80	+0.15 0
304.80 < d <sub>a</sub> ≤ 508.00	+0.18 0
508.00 < d <sub>a</sub> ≤ 762.00	+0.20 0
762.00 < d <sub>a</sub> ≤ 967.16	+0.23 0

## 5. Tolerance of Circumferential Deflection of Addendum Circle Unit : mm

Addendum Circle Diameter of Pulley d <sub>a</sub>	Tolerance of Circumferential Deflection
5.96 ≤ d <sub>a</sub> ≤ 203.20	0.13
203.20 < d <sub>a</sub> ≤ 967.16	0.13 + [(Addendum Circle Dia. d <sub>a</sub> - 203.20) × 0.005]

## 6. Tolerance of Cylindricity and Parallelism Unit : mm

Nominal Widths of Pulley	Cylindricity Tolerance	Parallelism Tolerance
025~050	0.01	0.03
075~150	0.02	
200 · 300	0.04	0.04
400 · 500	0.06	0.05