

IDEAL Sheet Metal Fabrication Tolerance Guide

GradeA		Laser Cutting Tolerance (mm)					
Workpiece Thickness		Basic Dimension					
		>0<3	≥3<10	≥10<35	≥35<125	≥2125<315	≥315<1000
over	up to	Tolerance (mm)					
/	1	0.04	0.1	0.1	0.2	0.2	0.3
1	3.15	0.1	0.2	0.2	0.3	0.3	0.4
3.15	6.3	0.3	0.3	0.4	0.4	0.5	0.5
6.3	10	/	0.5	0.6	0.6	0.7	0.7
GradeB		Laser Cutting Tolerance (mm)					
Workpiece Thickness		Basic Dimension					
		>0<3	23<10	≥10<35	≥35<125	≥125<315	≥315<1000
over	up to	Tolerance (mm)					
/	1	0.1	0.3	0.4	0.5	0.7	0.8
1	3.15	0.2	0.4	0.5	0.7	0.8	0.9
3.15	6.3	0.5	0.7	0.8	0.9	1.1	1.2
6.3	10	/	1	1.1	1.3	1.4	1.5

- Grade A - Tightest tolerances:**
- Higher scrap rate allowance
 - Greater and more frequent QC inspections
 - Better tooling and jigs
 - More specialized QC equipment
- Grade B - Standard tolerances:**
- Standard scrap rate
 - Standard QA inspections
 - Standard tooling
 - Standard QC equipment
- Grade C - Broader tolerances:**
- Low scrap rate allowances
 - Random sample QC inspections
 - Possible low cost tooling
 - Limited QC equipment required

Punching Tolerance (mm)				
Basic Dimension	Work Piece Thickness	Grade A	Grade B	Grade C
>0.5~3	1	0.05	0.1	0.15
	>1~3	0.15	0.2	0.3
>3~6	1	0.1	15	0.2
	>1~4	0.2	0.3	0.4
	>4	0.3	0.4	0.6
	1	0.15	0.2	0.3
>6~30	>1~4	0.3	0.4	0.55
	4	0.45	0.6	0.8
>30~120	1	0.2	0.3	0.4
	>1~4	0.4	0.55	0.7
	>4	0.6	0.8	1.1
	1	0.25	0.35	0.5
>120~400	>1~4	0.5	0.7	1
	>4	0.75	1.05	1.45
>400~1000	1	0.35	0.5	0.7
	>1~4	0.7	1	1.4
	>4	1.05	1.45	2.1

Stamping Tolerance (mm)				
Basie Dimension	Workpiece Thickness	Grade A	Grade B	Grade C
>0.5~3	1	0.15	0.2	0.35
	>1~3	0.3	0.45	0.6
>3~6	1	0.2	0.3	0.5
	>14	0.4	0.6	1
	>4	0.55	0.9	1.4
	1	0.25	0.4	0.6
>5~30	>1~4	0.5	0.8	1.3
	4	0.8	1.3	2
>30~120	1	0.3	0.5	0.8
	>1~4	0.6	1	1.6
	>4	1	1.6	2.5
	1	0.45	0.7	1.1
>120~400	>1~4	0.9	1.4	2.2
	>4	1.3	2	3.3
>400~1000	1	0.55	0.9	1.4
	>1~4	1.1	1.7	2.8
	>4	1.7	2.8	4.5

Bending Tolerance (mm)				
Basic Dimension	Workpiece Thickness	Grade A	Grade B	Grade C
>0.5~3	1	0.2	0.35	0.5
	>1~3	0.45	0.6	1
>3~6	1	0.3	0.5	0.7
	>1~4	0.6	1	1.6
	>4	0.9	1.4	2.2
	1	0.4	0.6	1
>6~30	>1~4	0.8	1.3	2
	4	1.3	2	3.2
>30~120	1	0.5	0.8	1.3
	>1~4	1	1.6	2.5
	>4	1.6	2.5	4
	1	0.7	1.1	1.8
>120~400	>1~4	1.4	2.2	3.5
	>4	2	3.3	5
>400~1000	1	0.9	1.4	2.2
	>1~4	1.7	2.8	4.5
	>4	2.8	4.5	7

Bending Tolerance (mm)			
Length from short edge	Grade A	Grade B	GradeC
	Angle Tolerance		
≤ 10	1'15	2'00	3'00
>10~25	1'00	1'30	2'00
>25~63	0'45	1'0'0	1'30
>63~160	0'30	0'45	1'15
>160	0'15	0'30	1'00

Welding Tolerance (mm)						
Basic Dimension	Grade A	Grade B	Grade C	Grade A	Grade B	GradeC
	Linear dimension tolerance			Straightnes Flatnes Tolerance		
2~30	1	1	1	/	/	/
>30~120	1	2	3	0.5	1	1.5
>120~400	1	2	4	1	15	3
>400~1000	2	3	6	1.5	3	5.5
>400~1000	3	4	8	2	45	9