BENDING DATA - SHEET & PLATE

Recommended Minimum Inside Bending Radii for 90 Degree Cold Forming of Sheet and Plate[1][2][3] (bending transverse to rolling direction)									
ALLOY	TEMPER	RADII FOR VARIOUS THICKNESSES EXPRESSED IN TERMS OF THICKNESS t							
		t=0.4mm	t=0.8mm	t=1.6mm	t=3.0mm	t=4.0mm	t=6.0mm	t=10	t=12
1080A 1050 1350 1150	- O - H12 - H14 - H16 - H18	0.0 t 0.0 t 0.0 t 0.0 t 0.5 t	0.0 t 0.0 t 0.0 t 0.0 t 1.0 t	0.0 t 0.0 t 0.0 t 0.5 t 1.5 t	0.0 t 0.0 t 0.5 t 1.0 t 2.0 t	0.0 t 0.0 t 0.5 t	0.5 t 0.5 t 1.0 t	0.5 t 1.0 t 1.5 t	1.0 t 1.5 t 2.0 t
1100 1200	- O - H12 - H14 - H16 - H18	0.0 t 0.0 t 0.0 t 0.0 t 1.0 t	0.0 t 0.0 t 0.0 t 0.5 t 1.5 t	0.0 t 0.0 t 0.0 t 1.0 t 2.0 t	0.0 t 0.5 t 1.0 t 1.5 t 3.0 t	0.0 t 1.0 t 1.0 t	0.5 t 1.0 t 1.5 t	1.0 t 1.5 t 2.0 t	1.5 t 2.0 t 2.5 t
2024[2]	- O - T42	0.0 t 2.5 t	1.0 t 3.0 t	1.0 t 4.0 t	1.0 t 5.0 t	1.0 t 5.0 t	1.0 t 6.0 t	2.5 t 7.0 t	4.0 t 8.0 t
3003 3203 3005 5005	- O - H12/H32 - H14/H34 - H16/H36 - H18/H38	0.0 t 0.0 t 0.0 t 0.5 t 1.0 t	0.0 t 0.0 t 0.0 t 1.0 t 1.5 t	0.0 t 0.0 t 0.0 t 1.0 t 2.0 t	0.0 t 0.5 t 1.0 t 1.5 t 3.0 t	0.5 t 1.0 t 1.0 t	1.0 t 1.0 t 1.5 t	1.0 t 1.5 t 2.0 t	1.5 t 2.0 t 2.5 t
3004	- O - H32 - H34 - H36 - H38	0.0 t 0.0 t 0.0 t 1.0 t 1.0 t	0.0 t 0.0 t 1.0 t 1.0 t 1.5 t	0.0 t 0.5 t 1.0 t 1.5 t 2.5 t	0.5 t 1.0 t 1.5 t 2.5 t 3.0 t	1.0 t 1.0 t 1.5 t	1.0 t 1.5 t 2.5 t		
5050A	- O - H32 - H34 - H36 - H38	0.0 t 0.0 t 0.0 t 1.0 t 1.0 t	0.0 t 0.0 t 0.0 t 1.0 t 1.5 t	0.0 t 0.0 t 1.0 t 1.5 t 2.5 t	0.5 t 1.0 t 1.5 t 2.0 t 3.0 t	1.0 t 1.0 t 1.5 t	1.0 t 1.5 t 2.0 t		
5052 5251	- O - H32 - H34 - H36 - H38	0.0 t 0.0 t 0.0 t 1.0 t 1.0 t	0.0 t 0.0 t 1.0 t 1.0 t 1.5 t	0.0 t 1.0 t 1.5 t 1.5 t 2.5 t	0.5 t 1.5 t 2.0 t 2.5 t 3.0 t	1.0 t 1.5 t 2.0 t	1.0 t 1.5 t 2.5 t	1.5 t 1.5 t 2.5 t	1.5 t 2.0 t 3.0 t
5154A 5454	- O - H32 - H34 - H112	0.0 t 0.0 t 0.5 t	0.0 t 0.5 t 1.0 t	0.5 t 1.0 t 1.5 t	1.0 t 1.5 t 2.0 t	1.0 t 1.5 t 2.5 t	1.0 t 2.0 t 3.0 t 2.0 t	1.5 t 2.5 t 3.5 t 2.5 t	1.5 t 3.5 t 4.0 t 3.0 t
5083	- O - H321 - H116	0.5 t	1.0 t 2.0 t 2.0 t	1.0 t 2.0 t 2.0 t	1.5 t 2.5 t 2.5 t	1.5 t 2.5 t 2.5 t	2.0 t 4.0 t 4.0 t	2.5 t 4.0 t 4.0 t	2.5 t 4.0 t 4.0 t
5086	- O - H32 - H34 - H36 - H112	0.0 t 0.0 t 0.5 t	0.0 t 1.5 t 1.0 t	0.5 t 1.5 t 1.5 t	1.0 t 2.0 t 2.0 t 3.0 t	1.0 t 2.0 t 2.5 t 3.5 t 1.5 t	1.0 t 2.0 t 3.0 t 2.0 t	1.5 t 2.5 t 3.5 t 2.0 t	1.5 t 3.0 t 4.0 t 2.5 t
6061[2]	- O - T4 & T42 - T6 & T62	0.0 t 0.0 t 1.0 t	0.0 t 0.5 t 1.0 t	0.0 t 1.0 t 1.5 t	1.0 t 1.5 t 2.5t	1.0 t 2.5 t 3.0 t	1.0 t 3.0 t 4.0 t	1.5 t 3.5 t 4.5 t	2.0 t 4.0 t 5.0 t

[1] The radii listed are the minimum recommended for bending sheets and plates without fracturing in a standard press brake with air bend dies. Other types of bending operations may require larger radii or permit smaller radii. The minimum permissible radii will also vary with the design and condition of tooling.

[2] Heat-treatable alloys can be formed over appreciably smaller radii immediately after solution heat treatment.

[3] The H112 temper (applicable to non-heat-treatable alloys) is supplied in the as-fabricated condition without special property control, but usually can be formed over radii applicable to the H14 (or H34) temper or smaller.