

8. 形狀及尺寸公差 Tolerance

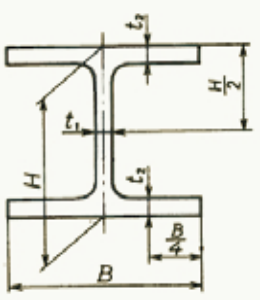
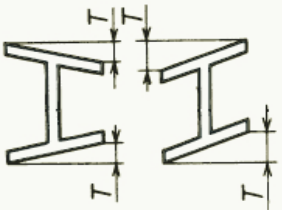
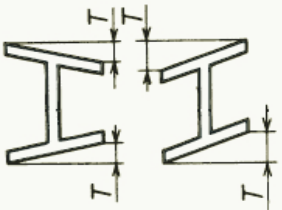
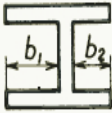
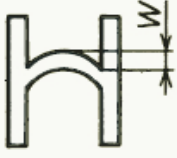
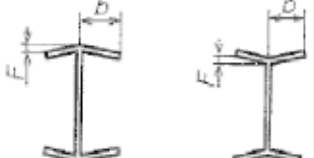
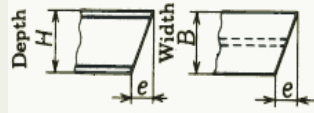
8.1 JIS G3192 H型鋼 H Sections

單位Unit : (mm)

尺寸 (Dimension)		公差 (Tolerance)	形狀 (Remarks)
寬 (Width)	$B \leq 400$	± 2.0	
	$B > 400$	± 3.0	
高 (Depth)	$H < 800$	$B \leq 400$	
		$B > 400$	
	$H \geq 800$	± 3.0	
厚度 (Thickness)	Flange t_2	$t_2 < 16$	
		$16 \leq t_2 < 25$	
		$25 \leq t_2 < 40$	
		$t_2 \geq 40$	
	Web t_1	$t_1 < 16$	
		$16 \leq t_1 < 25$	
		$25 \leq t_1 < 40$	
		$t_1 \geq 40$	
長度 (Length)	7m以下 7m or under	+40 0	
	超過7m Over 7m	長度每增加1m或其餘數，上列正公差增加5mm。負公差為0mm。 Add 5 mm to the plus side tolerance given in the above column for every 1m increase in length or its fraction. The minus side tolerance shall be 0 mm.	
直角度 T (Out- of- square)	公稱高度 Nominal depth $H \leq 300$	$\leq B \times 1.0\%$ ，或1.5mm取其大者。 1.0% or under of width B, provided that 1.5 mm is the minimum.	
	公稱高度 Nominal depth $H > 300$	$\leq B \times 1.2\%$ ，或1.5mm取其大者。 1.2% or under of width B, provided that 1.5 mm is the minimum.	
翹曲 (Bend)	公稱高度 Nominal depth $H \leq 300$	長度 $\times 0.15\%$ 以下 0.15% or under of length	適用於上、下、左、右的翹曲。 To be applied to bend such as sweep and camber.
	公稱高度 Nominal depth $H > 300$	長度 $\times 0.10\%$ 以下 0.10% or under of length	
偏心率S (Eccentricity)	$B \leq 400$	± 2.0	$S = \frac{b_1 - b_2}{2}$
	$B > 400$	± 3.5	
腹板彎曲度 $W^{(1)}$ (Concavity of web)	$H \leq 350$	2.0mm以下	
	$350 < H < 550$	2.5mm以下	
	$H \geq 550$	3.0mm以下	
翼板彎曲度F (Flange fold)	$B \leq 400$	$\leq b \times 1.5\%$ ，或1.5mm取其小者。 1.5% or under of b, provided that 1.5 mm is the maximum.	
剖面直角度 Ends- out- of- square		$\leq (B \text{ 或 } H) \times 1.6\%$ ，或3.0mm取其大者。 1.6% or under of width B or of depth H, provided that 3.0 mm is the minimum.	

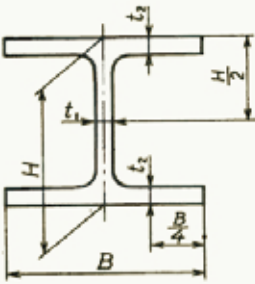
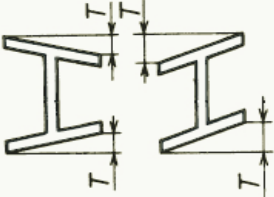
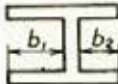
* 註1. 腹板凹度適用於不含R角的部分。

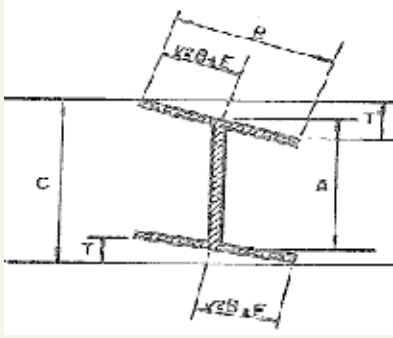
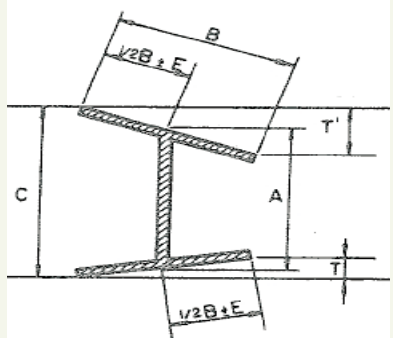
* Remarks: 1. Concavity of web shall be applied to the portion of web excluding corner R.

尺寸 (Dimension)		公差 (Tolerance)	形狀 (Remarks)
寬 (Width)	$B \leq 400$	± 2.0	
	$B > 400$	± 3.0	
高 (Depth)	$H < 800$	$B \leq 400$	
		$B > 400$	
	$H \geq 800$	± 3.0	
厚度 (Thickness)	Flange t_2	$t_2 < 16$	
		$16 \leq t_2 < 25$	
		$25 \leq t_2 < 40$	
		$t_2 \geq 40$	
	Web t_1	$t_1 < 16$	
		$16 \leq t_1 < 25$	
		$25 \leq t_1 < 40$	
		$t_1 \geq 40$	
長度 (Length)	7m以下 7m or under	$+40$ 0	
	超過7m Over 7m	長度每增加1m或其餘數，上列正公差增加5mm。負公差為0mm。 Add 5 mm to the plus side tolerance given in the above column for every 1m increase in length or its fraction. The minus side tolerance shall be 0 mm.	
直角度 T (Out- of- square)	公稱高度 Nominal depth $H \leq 300$	$\leq B \times 1.0\%$ ，或1.5mm取其大者。 1.0% or under of width B, provided that 1.5 mm is the minimum.	
	公稱高度 Nominal depth $H > 300$	$\leq B \times 1.2\%$ ，或1.5mm取其大者。 1.2% or under of width B, provided that 1.5mm is the minimum.	
彎曲度 (Bend)	公稱高度 Nominal depth $H \leq 300$	長度 $\times 0.15\%$ 以下 0.15% or under of length	適用於上、下、左、右之大彎曲 To be applied to bend such as sweep and camber.
	公稱高度 Nominal depth $H > 300$	長度 $\times 0.10\%$ 以下 0.10% or under of length	
偏心率S (Eccentricity)	$B \leq 400$	± 2.0	$S = \frac{b_1 - b_2}{2}$ 
	$B > 400$	± 3.5	
腹板凹度 ⁽¹⁾ (Concavity of web)	$H \leq 350$	2.0mm以下	
	$350 < H < 550$	2.5mm以下	
	$H \geq 550$	3.0mm以下	
翼板彎折變形F (Flange fold)	$B \leq 400$	$\leq b \times 1.5\%$ ，或1.5mm取其小者。 1.5% or under of b, provided that 1.5 mm is the maximum.	
剖面直角度 Ends- out- of- square		$\leq (B \text{ 或 } H) \times 1.6\%$ ，或3.0mm取其大者。 1.6% or under of width B or of depth H, provided that 3.0 mm is the minimum.	

* 註1. 腹板凹度適用於不含R角的部分。

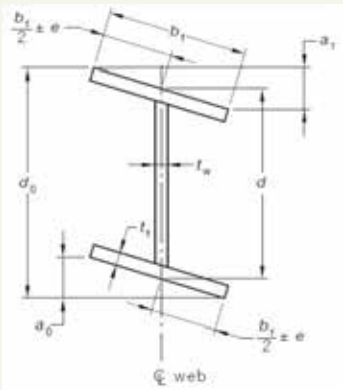
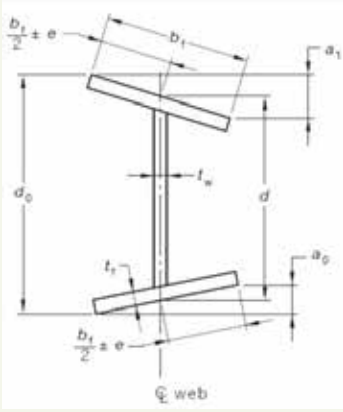
* Remarks: 1. Concavity of web shall be applied to the portion of web excluding corner R.

尺寸 (Dimension)		公差 (Tolerance)		形狀 (Remarks)
寬 Flange Width		$B \leq 110$	- 1.0~+4.0	
		$110 < B \leq 210$	- 2.0~+4.0	
		$210 < B \leq 325$	± 4.0	
		$325 < B$	- 5.0~+6.0	
高 Height		$H \leq 180$	- 2.0~+3.0	
		$180 < H \leq 400$	- 2.0~+4.0	
		$400 < H \leq 700$	- 3.0~+5.0	
		$700 < H$	± 5.0	
厚度 Thickness	Flange t_2	$t_2 < 6.5$	- 0.5~+1.5	
		$6.5 \leq t_2 < 10$	- 1.0~+2.0	
		$10 \leq t_2 < 20$	- 1.5~+2.5	
		$20 \leq t_2 < 30$	- 2.0~+2.5	
		$30 \leq t_2 < 40$	± 2.5	
		$40 \leq t_2 < 60$	± 3.0	
		$60 \leq t_2$	± 4.0	
	Web t_1	$t_1 < 7.0$	± 0.7	
		$7.0 \leq t_1 < 10$	± 1.0	
		$10 \leq t_1 < 20$	± 1.5	
		$20 \leq t_1 < 40$	± 2.0	
		$40 \leq t_1 < 60$	± 2.5	
		$60 \leq t_1$	± 3.0	
直角度 T Out- of- square (T+ T)	$B \leq 110$	$\leq 1.5\text{mm}$		
	$B > 110$	$\leq B \times 2.0\%$, Maximum 6.5mm 最大不得超過6.5mm		
直度 Straightness	$80 < H \leq 180$	0.30%L	適用於上、下、左、右 的翹曲。 For sweep and camber.	
	$180 < H \leq 360$	0.15%L		
	$H > 360$	0.10%L		
偏心度 Web- off-center $(b_1-b_2)/2$	$t_2 < 40$	$B \leq 110$	± 2.5	$S = \frac{b_1 - b_2}{2}$ 
		$110 < B \leq 325$	± 3.5	
		$B > 325$	± 5.0	
	$t_2 \geq 40$	$110 < B \leq 325$	± 5.0	
		$B > 325$	± 8.0	
長度 Length	全部 All	$\pm 50\text{mm}$ or $+100\text{mm}$ where the minimum length are requested		
質量 Mass	全部 All	$\pm 4.0\%$		

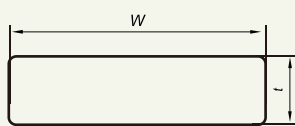
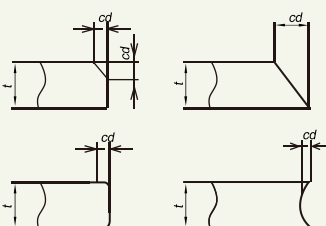
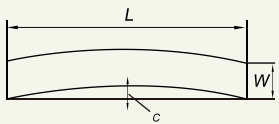
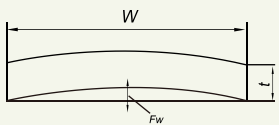
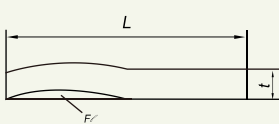
尺寸項目 Item		公差 (inch) Tolerance	備註 Note
高 (H) Height	所有尺寸 All	$-1/8 \sim +1/8$	
最大邊高度 (C) Maximum Depth	所有尺寸 All	$+1/4$	
寬度 (B) Width	所有尺寸 All	$-3/16 \sim +1/4$	
偏心度 (E) Web off centre	所有尺寸 All	$3/16$	
直角度 (T+T') Out of square	$H \leq 12$ inch	$1/4$	
	$H > 12$ inch	$5/16$	
剖面直角度 End out of square	所有尺寸 All	$1/64$ in./in of height or width (according to one of the largest).	
翹曲 (sweep)	$B < 6$ inch	$1/8$ per 5 ft	
	$B \geq 6$ inch	$1/8$ per 10 ft	
彎曲 (camber)	$B < 6$ inch	$1/8$ per 10 ft	
	$B \geq 6$ inch	$1/8$ per 10 ft	
長度 (Length)	所有尺寸 All	+100mm where the minimum length are requested	
質量 (W) Mass	所有尺寸 All	$\pm 2.5\%$	

8.5 中龍花紋H型鋼尺寸公差 DSC Thickness & Tolerance for Checkered H-Sections 單位Unit : (mm)

尺寸 (Dimension)		公差 (Tolerance)	形狀 (Remarks)
寬度 (Width)		± 2.0	
高度 (Depth)		± 2.0	
厚度 (Thickness)	t_2	± 1.0	
	t_1	± 0.7	
長度 (Length)	$\leq 7m$	$0 \sim +40$	
	$> 7m$	長度每增加1m或其餘數，上列正公差增加5mm。負公差為0mm。 Add 5 mm to the plus side tolerance given in the above column for every 1m increase in length or its fraction. The minus side tolerance shall be 0mm .	
直角度 (Out-of-square)		≤ 2.0	
翹曲 (Bend)		$\leq \text{長度} \times 0.15\%$	適用於上、下、左、右的翹曲。 To be applied to bend such as sweep and camber.
偏心率 (Eccentricity)		± 3.5	$S = \frac{b_1 - b_2}{2}$
腹板彎曲度 (Concavity of web)		≤ 2.0	
翼板彎曲度 (Flange fold)		≤ 1.5	
剖面直角度 (Ends-out-of-square)		≤ 3.2	
質量 (Mass)		$\geq 96\%$	

尺寸項目 Item			公差 Tolerance	備註 Note
高 (d) Height	所有尺寸 All		± 3.0	 
寬度 (bf) Width	所有尺寸 All		-5.0~+6.0	
厚度 Thickness	Flange tf	tf ≥ 15	± 1.5	
		tf < 15	± 1.0	
	Web tw	tw ≥ 15	± 1.0	
		tw < 15	± 0.7	
Maximum difference of flange over four flanges	tf ≥ 15		1.5	
	tf < 15		1.0	
直角度 Out of square	a1 or a0	d ≥ 298	5.0	
		d < 298	4.0	
	a1 + a0	d ≥ 298	8.0	
		d < 298	6.0	
偏心率 (E) Web off centre	所有尺寸 All		5.0	
Permissible overall depth over specified depth (d0 - d)	所有尺寸 All		6.0	
彎曲 (camber)	所有尺寸 All		0.20%L	
直度 Straightness	bf < 150	Sweep	0.20%L	
		Camber	0.10%L	
	bf = d	L ≤ 14m	0.10%L, not more than 10mm 不可超過10mm	
		L > 14m	10mm+[(Length-14000)/1000]	
	All other sections		0.10%L	
長度 (Length)	L ≤ 7m		+50 ~ -0	
	7 < L ≤ 12m		+75 ~ -0	
	L > 12m		+100 ~ -0	
質量 (W) Mass	所有尺寸 All		$\pm 2.5\%$	

尺寸 (Dimension)		公差 (Tolerance)	形狀 (Remarks)
寬 (Width)	$B < 100$	± 2.0	
	$100 \leq B < 200$	± 2.5	
	$B \geq 200$	± 3.0	
高 (Depth)	$H < 200$	± 2.0	
	$200 \leq H < 400$	± 2.5	
	$400 \leq H < 600$	± 3.0	
	$H \geq 600$	± 4.0	
厚度 (Thickness)	Flange t_2	$t_2 < 16$	± 1.0
		$16 \leq t_2 < 25$	± 1.5
		$25 \leq t_2 < 40$	± 1.7
		$t_2 \geq 40$	± 2.0
	Web t_1	$t_1 < 16$	± 0.7
		$16 \leq t_1 < 25$	± 1.0
		$25 \leq t_1 < 40$	± 1.5
		$t_1 \geq 40$	± 2.0
長度 (Length)	7m以下 7m or under	+40 0	
	超過7m Over 7m	長度每增加1m或其餘數，上列正公差增加5mm。負公差為0mm。 Add 5 mm to the plus side tolerance given in the above column for every 1m increase in length or its fraction. The minus side tolerance shall be 0 mm.	
R角 (r) (Radius of curvature)	$r \leq 10$	± 1.0	
	$10 < r \leq 20$	± 2.0	
	$r > 20$	± 3.0	
直角度T (Out-of-square)	公稱高度 Nominal depth $H \leq 300$	$\leq B \times 1.0\%$ ，或1.5mm取其大者。 1.0% or under of width B, but the minimum value of tolerance is 1.5 mm.	
	公稱高度 Nominal depth $H > 300$	$\leq B \times 1.2\%$ ，或1.5mm取其大者。 1.2% or under of width B, but the minimum value of tolerance is 1.5 mm.	
翹曲 (Bend)	公稱高度 Nominal depth $H \leq 300$	長度 $\times 0.20\%$ 以下 0.20% or under of length	適用於上、下、左、右的翹曲。 To be applied to bend such as sweep and camber.
	公稱高度 Nominal depth $H > 300$	長度 $\times 0.10\%$ 以下 0.10% or under of length	
偏心率S (Eccentricity)	$B \leq 200$	± 2.5	$S = \frac{b_1 - b_2}{2}$
	$B > 200$	± 3.5	
腹板彎曲度W (Concavity of web)	$H < 350$	2.0mm以下	
	$350 \leq H < 550$	2.5mm以下	
	$H \geq 550$	3.0mm以下	
翼板彎曲度F (Flange fold)	$B < 300$	$\leq b \times 1.5\%$ ，或1.5mm取其大者。 1.5% or under of one side(b), but the minimum value of tolerance is 1.5 mm.	
	$B \geq 300$	$\leq b \times 1.5\%$ ，或3.0mm取其大者。 1.5% or under of one side(b), but the minimum value of tolerance is 3.0 mm.	
質量(W) Mass	$t_2 < 10$	$\pm 5.0\%$	
	$t_2 \geq 10$	$\pm 4.0\%$	
剖面直角度 Ends-out-of-square		$\leq (B \text{ 或 } H) \times 1.6\%$ ，或3.0mm取其大者。 1.6% or under of width B or of depth H, but the minimum value of tolerance is 3.0 mm.	

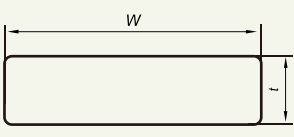
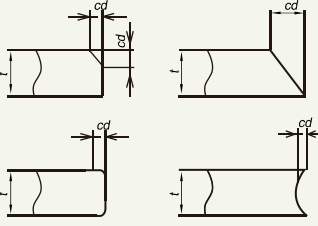
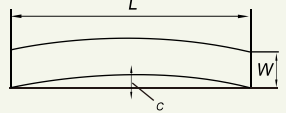
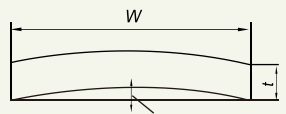
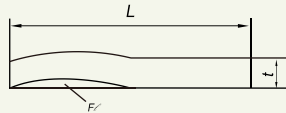
尺寸 (Dimension)		公差 (Tolerance)	形狀 (Remarks)
寬度 ⁽¹⁾ (Width)	$W < 50$	± 0.8	    
	$W \geq 50$	$\pm 1.6\%, \text{max. } \pm 3.5$	
厚度 (Thickness)	$15 \leq t < 20$	± 0.6	
	$20 \leq t < 25$	± 0.8	
	$25 \leq t < 40$	± 1.0	
	$40 \leq t \leq 100$	± 1.2	
長度 (Length)	—	$+100/0$	
切角 Corner drop	$t \geq 9$	$\leq t \times 15\%$, max. 4.0	
橫曲 Camber (C)	—	$\leq L \times 0.3\%$ (and camber of any one meter length must be ≤ 4.0)	
寬度方向 平坦度 Flatness on width (Fw)	—	$\leq W \times 0.3\%$	
長度方向 平坦度 Flatness on length (Fl)	—	$\leq L \times 0.3\%$, max. 10.0 (and flatness of any one meter length must be ≤ 3.0)	

* 註:

1. 考量客戶加工用料需求，除BH腹板外，其餘寬度公差皆以板面寬管制，如有其他需求，請事先提出。

* Remarks:

1. Considering customer processing needs, the width measurement and tolerances shall be based on plate top surface, except for the application of BH web. If you have other requirements, please advise us in advance.

尺寸 (Dimension)		公差等級 (Tolerance Class)			形狀 (Remarks)
		Class A	Class B	Class C	
寬度 ⁽²⁾ (Width)	$W < 50$	± 0.8	± 0.8	-	
	$W \geq 50$	$\pm 2.0\%, \text{max. } \pm 10.0$	$\pm 1.6\%, \text{max. } \pm 3.5$	-	
厚度 (Thickness)	$15 \leq t < 20$	± 0.6	± 0.6	$+1.1/ - 0.3$	
	$20 \leq t < 25$	± 1.0	± 0.8	$+1.1/ - 0.3$	
	$25 \leq t < 40$	± 1.0	± 1.0	$+1.4/ - 0.3$	
	$40 \leq t \leq 100$	± 1.5	± 1.2	$+2.1/ - 0.3$	
長度 (Length)	-	$+200/0$	$+100/0$	$+50/0$	
切角 Corner drop	$t \geq 9$	-	$\leq t \times 15\%$, max. 4.0	-	
橫曲 Camber (C)	-	$\leq L \times 0.4\%$ (and camber of any one meter length must be ≤ 4.0)	$\leq L \times 0.3\%$ (and camber of any one meter length must be ≤ 4.0)	$\leq L \times 0.25\%$ (and camber of any one meter length must be ≤ 2.5)	
寬度方向 平坦度 Flatness on width (Fw)	-	-	$\leq W \times 0.3\%$	-	
長度方向 平坦度 Flatness on length (Fl)	-	$\leq L \times 0.7\%$, max. 20.0 (and flatness of any one meter length must be ≤ 7.0)	$\leq L \times 0.3\%$, max. 10.0 (and flatness of any one meter length must be ≤ 3.0)	-	

* 註:

- 1.若無特別指定時，則適用上表之B級。
- 2.考量客戶加工用料需求，除BH腹板外，其餘寬度公差皆以板面寬管制，如有其他需求，請事先提出。

* Remarks:

- 1.Unless otherwise specified, class B in Table shall be applied.
- 2.Considering customer processing needs, the width measurement and tolerances shall be based on plate top surface, except for the application of BH web. If you have other requirements, please advise us in advance.

8.10 JIS G3136 型鋼厚度公差 Thickness & Tolerance for H-sections Product 單位Unit : (mm)

尺寸 Dimension	公差 Tolerance
翼板厚度 Flange thickness (t_2)	$6 \leq t_2 < 16$
	$16 \leq t_2 < 40$
	$40 \leq t_2 < 100$

* 註：

1. SN材產品之翼板厚度公差須符合 JIS G3136之Table14，其餘須依G3192尺寸公差規定。

* Remarks:

1.The thickness tolerance of flange is in accordance with JIS G3136 Table14 for Grade SN, others are in accordance with JIS G3192.

8.11 CNS 13812 型鋼厚度公差 Thickness & Tolerance for H-sections Product 單位Unit : (mm)

尺寸 Dimension	公差 Tolerance
翼板厚度 Flange thickness (t_2)	$6 \leq t_2 < 16$
	$16 \leq t_2 < 40$
	$40 \leq t_2 < 100$

* 註：

1. SN材產品之翼板厚度公差須符合 CNS 13812之Table14，其餘須依CNS 1490尺寸公差規定。

* Remarks:

1.The thickness tolerance of flange is in accordance with CNS 13812 Table14 for Grade SN, others are in accordance with CNS 1490.

8.12 JIS G3136 窄幅鋼板厚度公差 Thickness & Tolerance for Flat steel 單位Unit : (mm)

尺寸 Dimension	公差 Tolerance
厚度 Thickness	$6 \leq t < 12$
	$12 \leq t < 25$
	$25 \leq t < 40$
	$40 \leq t < 100$

* 註：

1. SN材產品之窄板厚度公差須符合 JIS G3136之Table 12，其餘須依G3194尺寸公差規定。

* Remarks:

1.The thickness tolerance of flat steel is in accordance with JIS G3136 Table 12 for Grade SN, others are in accordance with JIS G3194.

8.13 CNS 13812 窄幅鋼板厚度公差 Thickness & Tolerance for Flat steel 單位Unit : (mm)

尺寸 Dimension	公差 Tolerance
厚度 Thickness	$6 \leq t < 12$
	$12 \leq t < 25$
	$25 \leq t < 40$
	$40 \leq t < 100$

* 註：

1. SN材產品之窄板厚度公差須符合CNS 13812之Table 12，其餘須依CNS 8278尺寸公差規定。

* Remarks:

1.The thickness tolerance of flat steel is in accordance with CNS 13812 Table 12 for Grade SN, others are in accordance with CNS 8278.