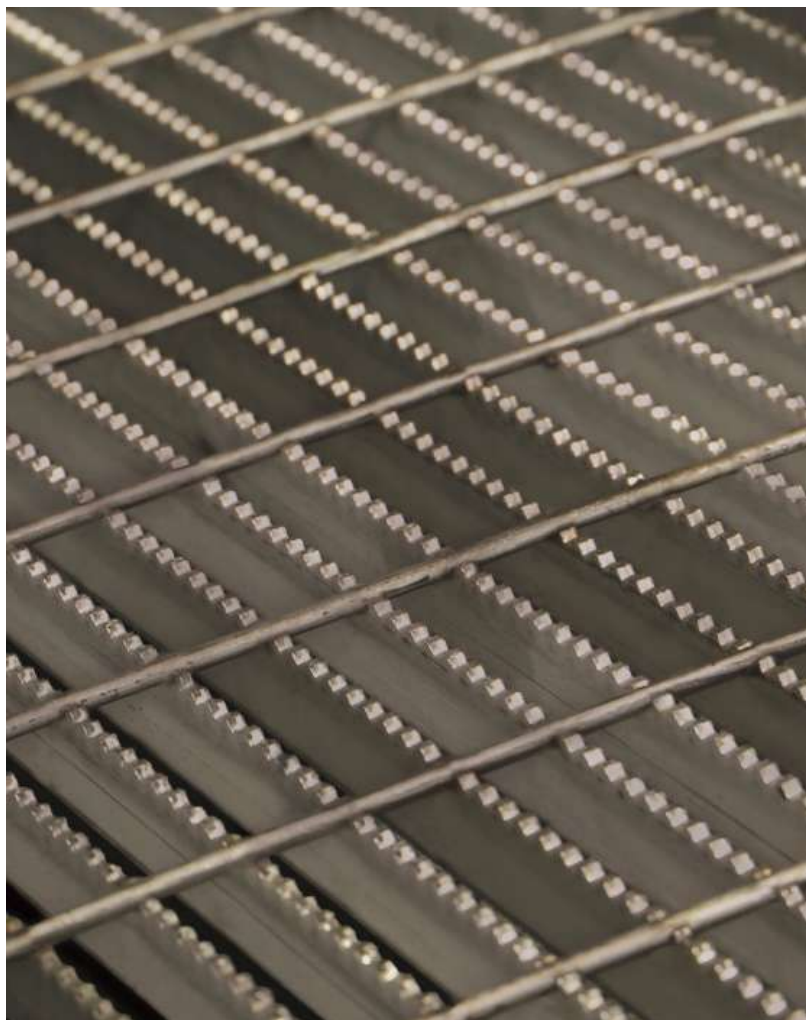




鋼 | 格 | 板 目 錄

Steel Bar Grating Catalog



 香港煌商佑鋼鐵實業有限公司
HK HuangShangYou Steel Industrial Limited



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HK HuangShangYou Steel Industrial Limited
香港煌商佑鋼鐵實業有限公司

TEL: +852-28366968

PHONE: +852-92991977 +852-92992995

OFFICE ADD: G/F, 69C, Bedford Road, Tai Kok Tsui, Kowloon, Hong Kong

EMAIL: king@ulsteel.com

WEB: www.ulsteel.com.hk

鋼格板簡介 INTRODUCTION OF STEEL BAR GRATING

煌商佑鋼格板是用扁鋼按照一定的間距和橫杆進行交叉排列，通過壓焊或壓鎖將其製成中間帶有方形格子的一種鋼鐵製品。鋼格板主要用來做水溝蓋板，鋼結構平臺板，鋼梯的踏步板等。壓焊的橫杆一般採用經過扭絞的方鋼。

鋼格板一般採用碳鋼製作，外表熱鍍鋅，可以起到防止氧化的作用。也可以採用不銹鋼、I型的扁鋼製作。

鋼格板具有通風，採光，散熱，防滑，防爆等性能，表面可沖齒以增加防滑性能。

The steel grating of HuangShangYou is a kind of iron and steel product with square grid in the middle, which is made of flat steel according to a certain distance and cross bar, and made by pressure welding or locking. Steel grating is mainly used to make ditch cover plate, steel structure platform plate, steel ladder step plate, etc. The welded cross bar is generally made of twisted square steel.

Steel grating is generally made of carbon steel, and its surface is hot-dip galvanized to prevent oxidation. It can also be made of stainless steel and I-type flat steel.

Steel grating has ventilation, lighting, heat dissipation, anti-skid, explosion-proof and other performance. The surface can be punched teeth to increase the anti-skid performance.

• 材質：鋼材、不銹鋼、鋁 Material: steel, stainless steel, aluminum

• 符合標準 Conform to the Standards:

鋼格板標準 STEEL GRATING STANDARDS	鋼材標準 STEEL STANDARDS	熱浸鋅標準 HOT-DIP GALVANIZED STANDARDS
中國 Chinese: YB/T4001-1998 GB5025-2020	中國 Chinese: GB700-88	中國 Chinese: GB/T13912-92
美國 American: ANSI/NAAMM(MBG531-93) ASTM A871/A871M-20	美國 American: ASTM(A36)	美國 American: ASTM(A123)
英國 British: BS4592-1:1995	英國 British: BS360(43A)	英國 British: BS729 BS EN ISO 1461-2009
澳大利亞 Australian: AS/NZS 3679.1:2016 AS1657-1992	澳大利亞 Australian: AS3679	澳大利亞 Australian: AS.NZS 4680-2006

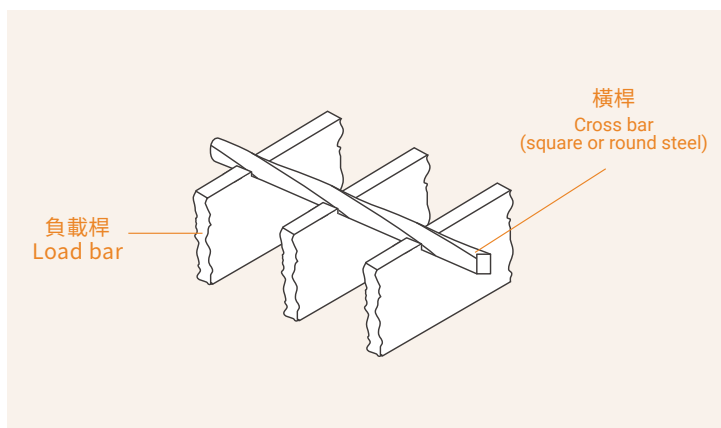
壓焊格柵 PRESS-WELDED BAR GRATING

壓焊格柵也稱為金屬開放格柵。負載桿和橫桿在高熱與壓力下焊接，形成永久性連接。鋼格板有兩種類型：平滑面格柵和鋸齒面格柵。平滑面格柵也成為平面格柵，比鋸齒面格柵更普遍。但鋸齒面格柵比平滑面格柵具有更好的防滑性能。

Press-welded bar grating is also called metal open bar grating. The bearing bars and cross bars are welded under high heat and pressure to form a permanent joint. There are two types of the steel bar grating: smooth and serrated steel bar gratings. Smooth surface steel bar grating, also called plain steel bar grating, is more popular than the serrated surface steel bar grating. But the serrated steel grating have better skid resistant property than the smooth surface steel bar grating.

它具有防滑表面、耐腐蝕性、良好的排水功能、高強度和荷載能力。因此，它被廣泛應用於人行道、安全護欄、排水蓋、平台、通風格柵和樓梯踏板等場景。

It has anti-slip surface, corrosion resistance, good drainage function, high strength and load capacity. Therefore, it is widely used in the form of walkways, safety barriers, drainage covers, platforms, ventilation grates and stair treads.



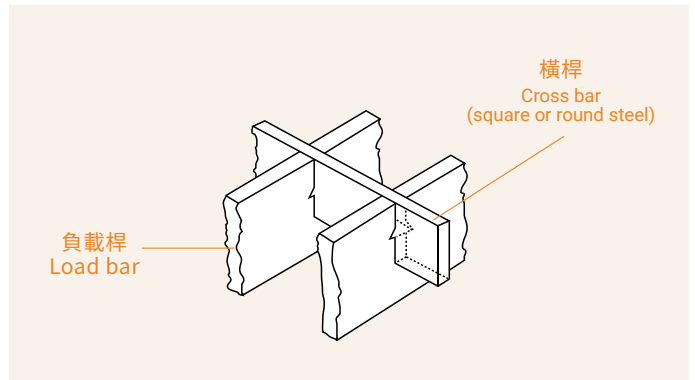
壓鎖格柵 PRESS-LOCKED GRATING

壓鎖格柵也稱為壓制格柵或壓力鎖格柵。壓鎖格柵由兩根公差很小的開槽的桿在巨大的液壓壓力下結合而成。通過將深橫桿壓入帶凹槽的負載桿實現永久鎖定。

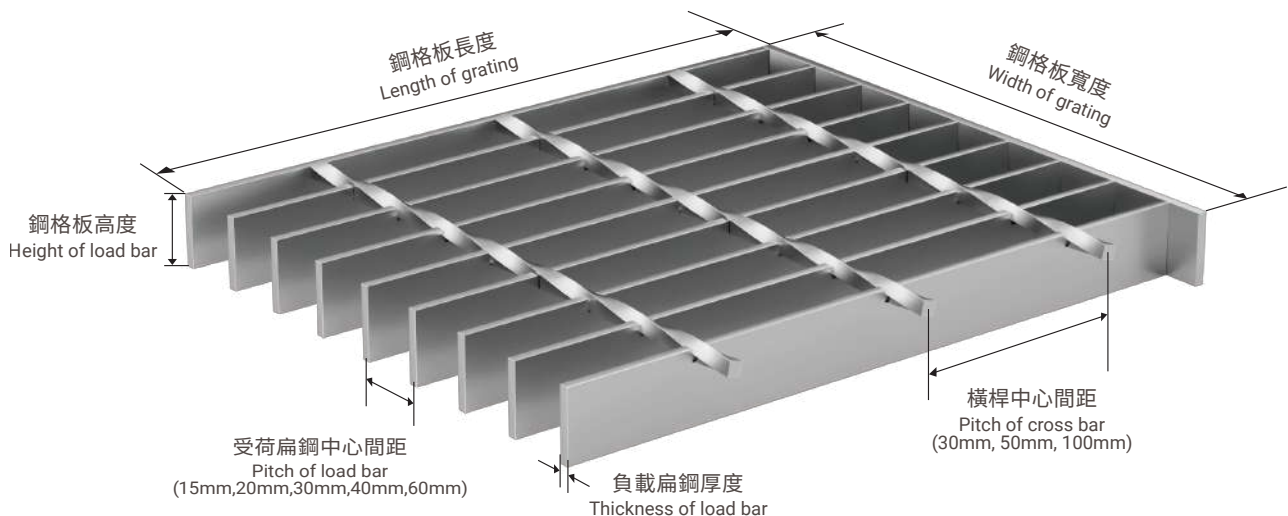
Press-locked grating is also called pressed grating or pressure lock grating. It is constructed with two close-tolerance slotted bars bonded together by tremendous hydraulic pressure. Permanent locking is achieved by forcing the deep cross bar into the notched bearing bar.

具有高強度和堅固結構，它被廣泛應用於工業廠房、公園、商業大廈、市政工程中，作為樓梯踏板、平台、人行道、安全屏障、樹蓋、溝蓋、排水蓋等。也可提供鋸齒表面增強防滑效果。

With high strength and firm structure, it's widely used in industrial factories or parks, commercial buildings, municipal engineering as stair treads, platforms, walkways, security screens, tree covers, trench covers, drainage covers and so on. Serrated surface is also available for anti-slide effect.



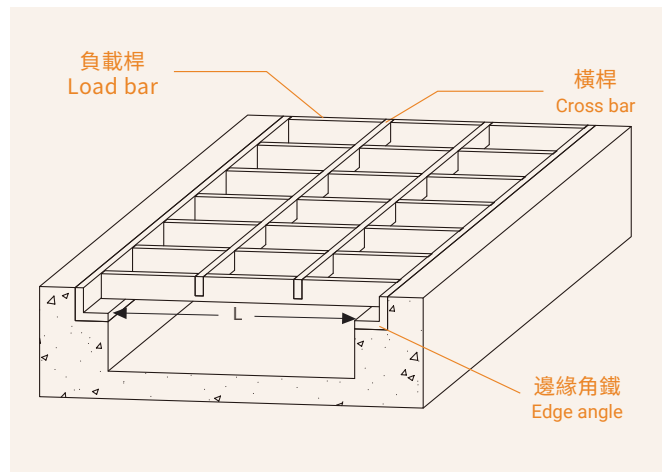
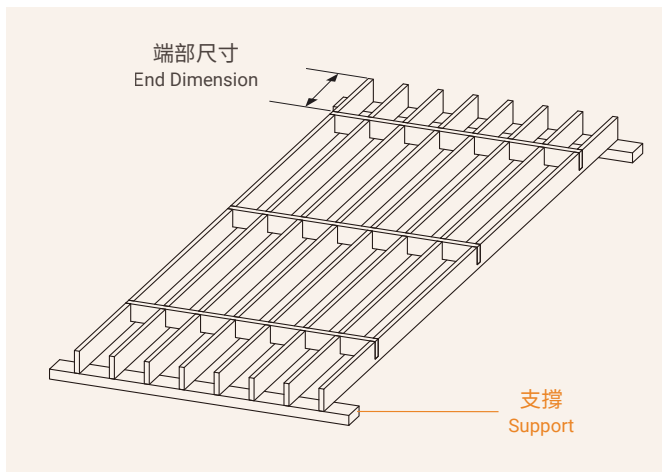
鋼格板結構 CONSTRUCTION



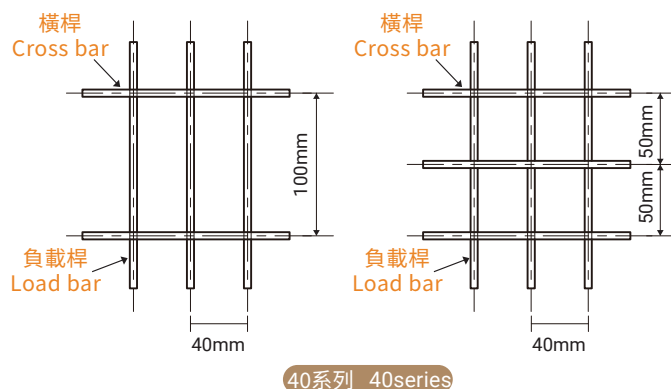
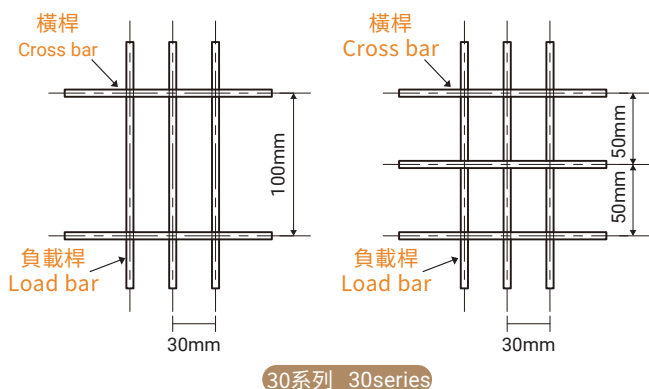
承載跨度 LOAD-CARRYING CAPABILITY SPAN

本結構單元設置承重構件以傳遞作用荷載，相鄰支撐點中心距定義為結構跨度，主承重縱梁沿跨度軸線方向佈設。依據工程規範要求，最大允許撓度控制在 $L/240$ （上限6毫米）範圍內，旨在最大限度抑制通行面晃動所產生的不適感。

This structural bay incorporates load-bearing members to transfer applied loads. The center-to-center distance between adjacent supports defines the structural span, with primary load-bearing girders oriented longitudinally along the span axis. Per engineering specifications, maximum allowable deflection is constrained to $L/240$ (6mm maximum) to limit an uncomfortable movement of the traffic surface.

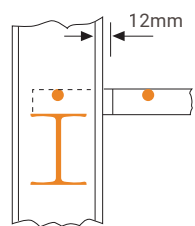


一般常用的鋼格板為30系列、40系列。Steel grating commonly used is 30 series and 40 series.

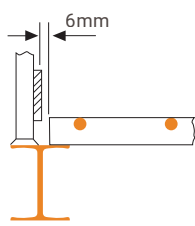


標準安裝間隙

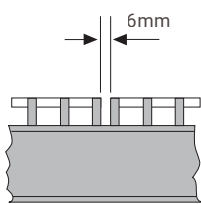
STANDARD INSTALLATION CLEARANCE



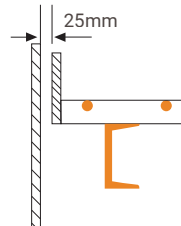
柱形切口間隙
Clearance for column cutout



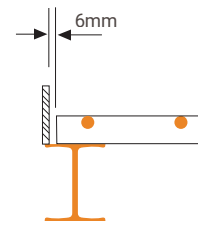
欄杆與格柵間隙
Clearance between handrail and grating



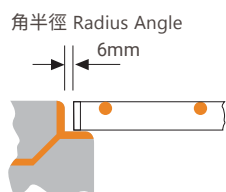
相鄰格柵間隙
Clearance between adjacent grating



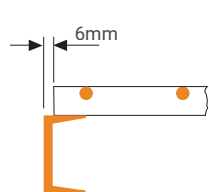
圓形切口間的間隙
Clearances between circular cutouts



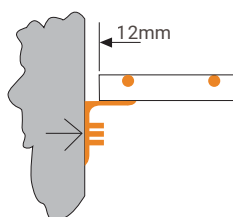
踢板間隙
Clearance at kick plate



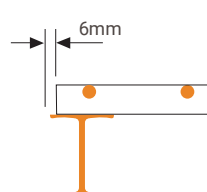
溝槽間隙
Clearance at trenches



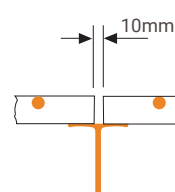
槽端共用格柵間隙
Common grating clearance at end of channel



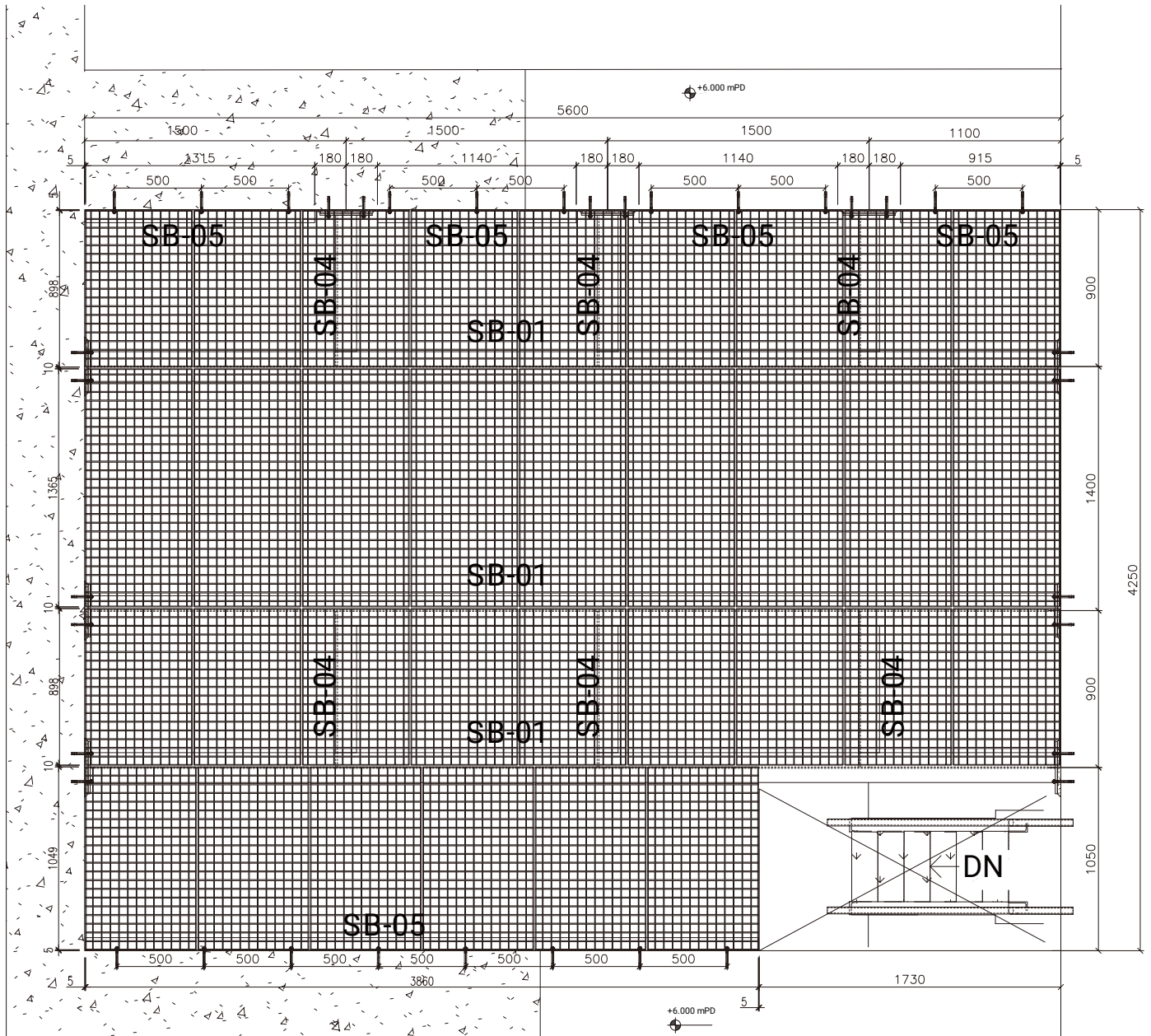
混凝土牆格柵間隙
Clearance between concrete wall and grating



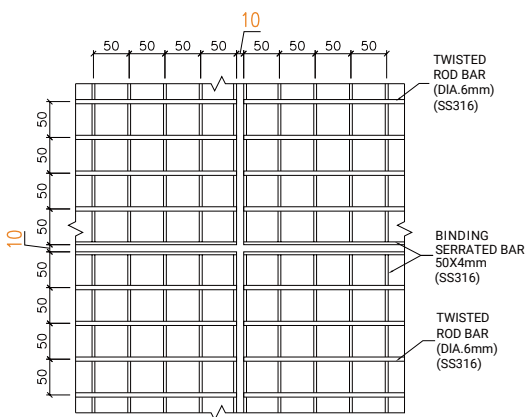
梁頂: 格柵與梁邊緣間的跨度
On top of beams: span between grating and edge of beam



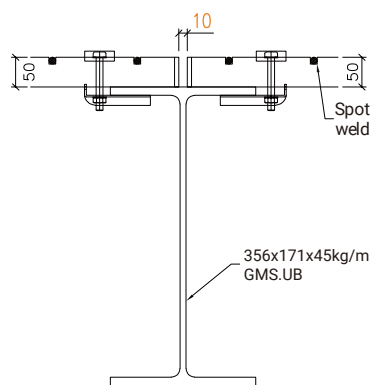
兩個格柵的間隙
Clearance between two gratings



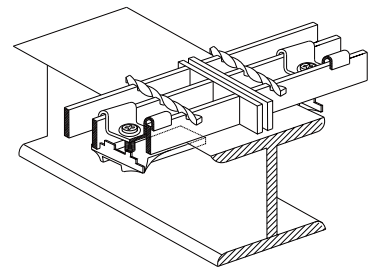
PLAN VIEW



GRATING DIAGRAMMATIC SKETCH



TYPICAL FIXING DETAIL OF 50mmH GRATING



CONNECTION DIAGRAMMATIC SKETCH

■ 尺寸公差 DIMENSIONAL TOLERANCES

長度允許偏差: $^{+0}_{-5}$ mm

Length tolerance: $^{+0}_{-5}$ mm

寬度允許偏差: ± 5 mm

Width tolerance: ± 5 mm

■ 尺寸限制 SIZE LIMITATIONS

- 任何一塊鋼格板的尺寸均受鋪吊和搬運過程中的受力限制
- 可拆卸鋪板的尺寸還需考慮到使用人工搬運時的重量限制
- All grating dimensions shall be restricted by handling and hoisting constraints.
- Demountable panels must additionally comply with manual handling weight limits.

■ 承重扁鋼對齊 LOAD-BEARING FLAT STEEL ALIGNMENT

不垂直度: $\leq$ 扁鋼寬度的10% (如圖4所示)

Non-perpendicularity: $\leq$ 10% of flat steel width

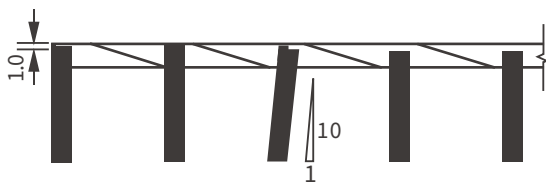
(As illustrated in Figure 4)

■ 橫杆位置偏差 CROSSBAR POSITION DEVIATION

- 橫杆表面應不超出承載扁鋼表面1mm; 橫杆兩端通常應不超過鋼格板兩側端面2mm
- The crossbar surface should not exceed the load-bearing flat steel surface by 1mm; the ends of the crossbar should usually not exceed the end surfaces of the steel grating by 2mm.

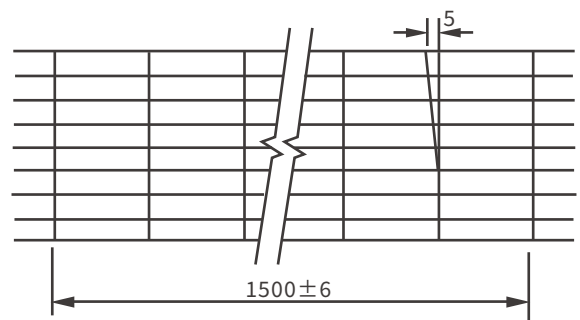
■ 橫桿偏斜及間距偏差 CROSSBAR DEFLECTION AND SPACING DEVIATION

- 橫杆邊緣對鋼格板中心的偏斜應不大於5mm (如圖5所示)
- 在任意1500mm長度內, 兩端橫杆間距的允許偏差為 ± 6 mm (如圖5所示)
- The deviation of the edge of the cross bar from the center of the steel grating should not exceed 5mm (as shown in Figure 5)
- Within any length of 1500mm, the allowable deviation of the distance between the two end cross bars is ± 6 mm (as shown in Figure 5)



(圖4) 承載扁鋼、橫桿的偏差

(FIGURE 4) DEVIATION OF LOAD-BEARING FLAT STEEL AND CROSSBAR



(圖5) 橫桿間距和垂直偏差率

(FIGURE 5) CROSSBAR SPACING AND VERTICAL DEVIATION RATE

■ 縱向彎曲 LONGITUDINAL BENDING

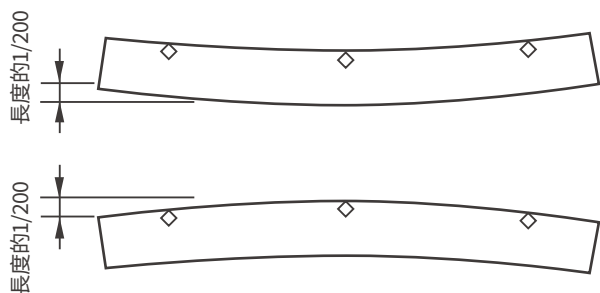
縱向彎曲撓度:<長度的 1/200 (如圖6所示)

Longitudinal bending deflection: <1/200 of length
(As illustrated in Figure 6)

■ 橫向彎曲 LOAD-BEARING FLAT STEEL ALIGNMENT

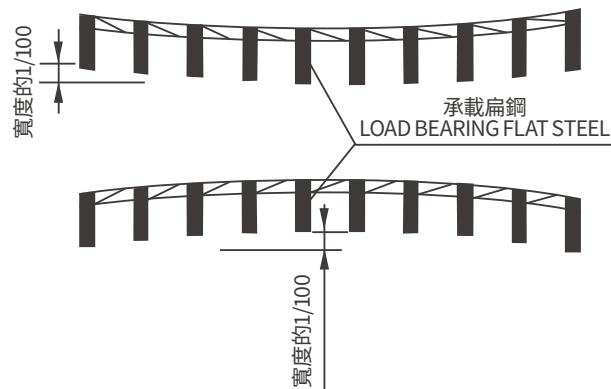
橫向彎曲撓度(在包邊前):<寬度的1/100 (如圖7所示)

Transverse bending deflection (before hemming): <1/100 of width
(As illustrated in Figure 7)



(圖6) 縱向彎曲

(FIGURE 6) LONGITUDINAL BENDING



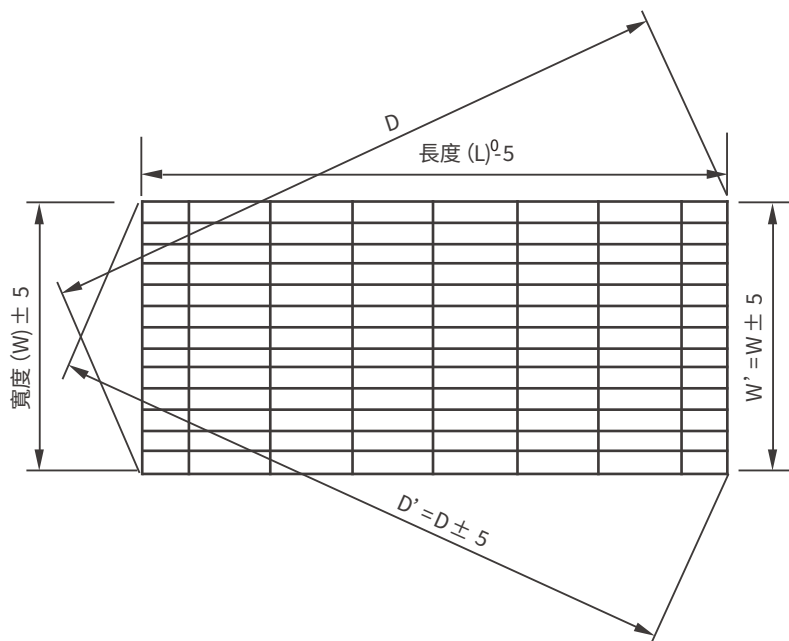
(圖7) 橫向彎曲

(FIGURE 7) LATERAL BENDING

■ 對角線偏差 DIAGONAL DEVIATION

• 對角線偏差:鋼格板因尺寸公差而引起對角線的相對偏差,不應大於±5mm (如圖8所示)

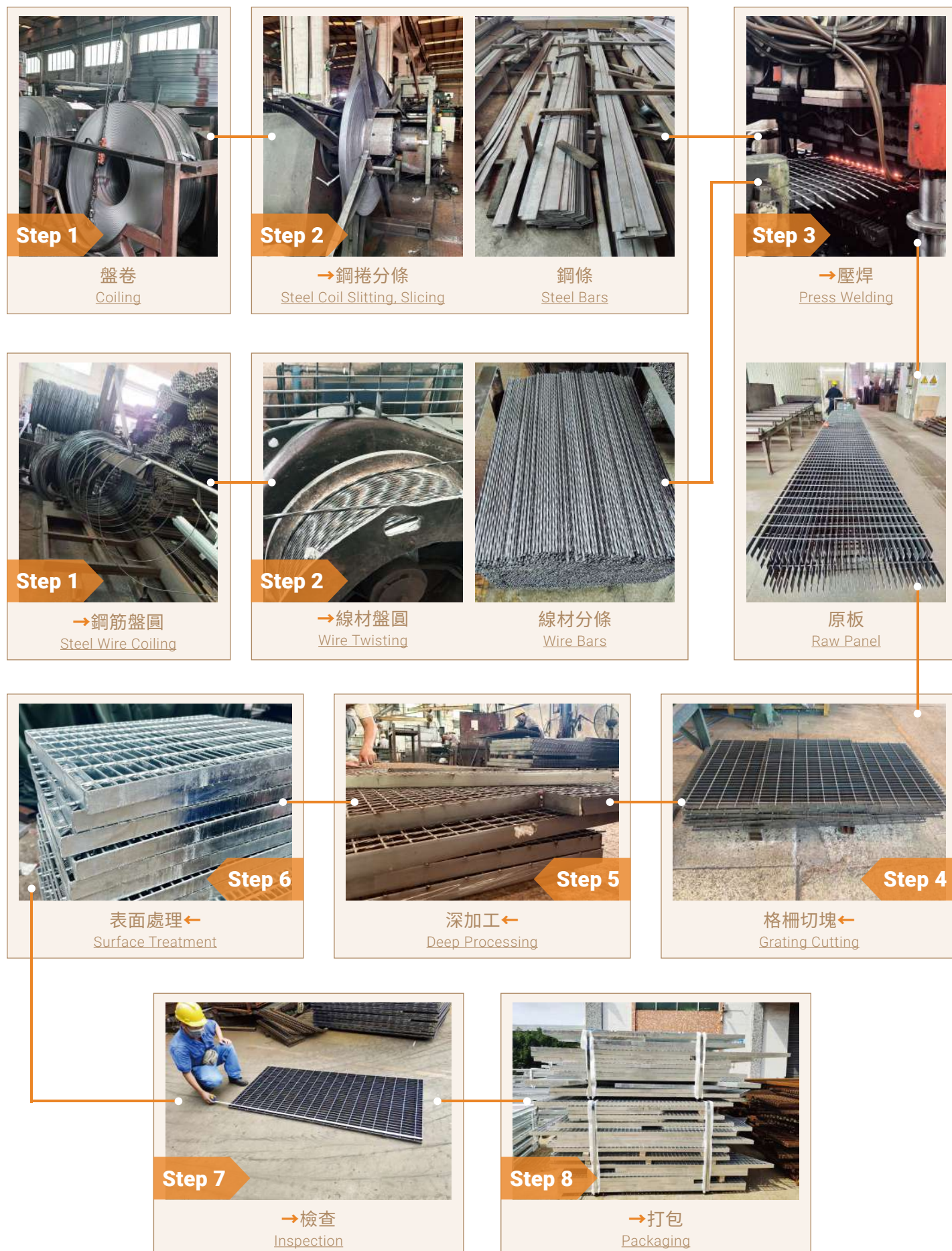
• Diagonal deviation: The relative deviation of the diagonal caused by the dimensional tolerance of the steel grating should not be greater than ±5 mm (as shown in Figure 8)



(圖8) 鋼格板對角線偏差

(FIGURE 8) DIAGONAL DEVIATION OF STEEL GRATING

↓ 壓焊格柵 PRESS-WELDED BAR GRATING



↓ 壓鎖格柵 PRESS-LOCKED GRATING



Step 1

鋼捲分條後
Steel Coil Slitting

鋼條
Steel Bars



Step 2

人工排列整齊後, 通過油壓機壓實
Manual Arrangement & Hydraulic Press Compaction



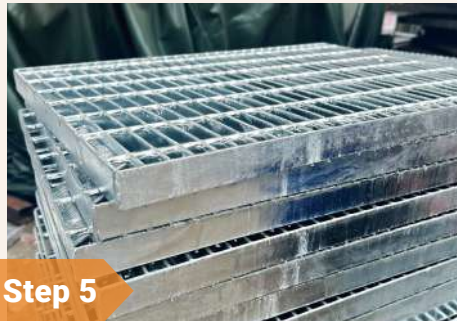
Step 3

壓鎖
Press Locking



Step 4

深加工
Deep Processing



Step 5

表面處理
Surface Treatment



Step 6

檢查
Inspection



Step 7

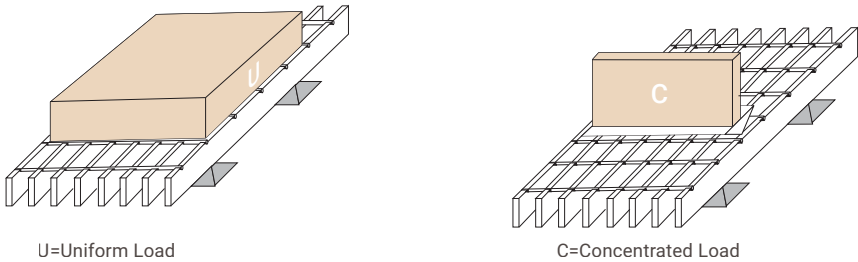
打包
Packaging

鋼格板計算方式

CALCULATION METHOD FOR STEEL BAR GRATING

均佈荷載 Uniform Load

集中荷載 Concentrated Load



等級 GRADE	模量 MODULUG (Mpa)	跨距 SPAN (mm)	d (mm)	Ix (cm4)	tw (mm)	Zx (mm3)	B (mm)
S275	Es=205000	L=3000	65	11.44	5	3.52	30

$$u = \frac{8 \times Py \times Zx}{1.6 \times B \times L \times L} \div 1000 = 17.93 \text{ KN/m}^2$$

$$Du = \frac{5 \times U \times B \times L \times L \times L \times L \times 1E+08}{384 \times Es \times Ix} = 24.19 \text{ mm}$$

$$c = \frac{4 \times Py \times Zx}{1.6 \times B \times L \times L} \div 1000 = 26.90 \text{ KN/m}$$

$$Dc = \frac{8 \times U \times B \times L \times L \times L \times L \times 1E+08}{384 \times Es \times Ix} = 19.35 \text{ mm}$$

說明 Instruction:

- 1、U表示鋼格板安全外加均布荷載,KN/m²;

2、Du表示鋼格板在所列安全外加均布荷載作用下的最大撓度, mm;

3、C表示鋼格板跨度中心線上垂直於承載扁鋼方向的安全外加線荷載, KN/m;

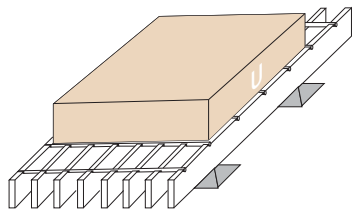
4、Dc表示鋼格板在所列安全外加線荷載作用下的最大撓度, mm;
1. U is the safety additional uniform load of steel grating, KN/m².

2. Du is the maximum deflection of the steel grating under the listed safe additional uniformly distributed load

3. C is the safety additional line load perpendicular to the direction of bearing flat steel on the center line of steel grating span, KN/m.

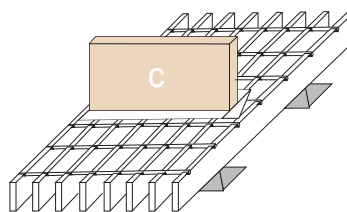
4. Dc is the maximum deflection of the steel grating under the listed safety additional line load, mm.

均佈荷載 Uniform Load



U=Uniform Load

集中荷載 Concentrated Load



C=Concentrated Load

30系列荷載自重表 LOAD TABLE FOR STEEL GRATING-30SERIES

型號 SIZE	理論重量 WEIGH(kg)	負載桿 LOAD BAR		跨距 SPAN (mm)														
				200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
G655/30/50	103.4	65 x 5	U	3990	997	443	249	159	110	81	62	49	39	32	27	23	20	17
			Du	0.11	0.42	0.95	1.7	2.66	3.81	5.22	6.84	8.7	10.61	12.82	15.4	18.18	21.4	24.18
G655/30/100	100.4		C	399	199	133	99	79	66	57	49	44	39	36	33	30	28	26
			Dc	0.08	0.34	0.76	1.35	2.11	3.06	4.21	5.43	6.98	8.54	10.56	12.65	14.75	17.33	19.97
G605/30/50	95.9	60 x 5	U	3400	850	377	212	136	94	69	53	41	34	28	23	20	17	
G605/30/100	92.9		Du	0.11	0.46	1.03	1.84	2.89	4.15	5.66	7.45	9.28	11.78	14.28	16.73	20.16	23.23	
			C	340	170	113	85	68	56	48	42	37	34	30	28	26	24	
			Dc	0.09	0.37	0.83	1.48	2.31	3.3	4.52	5.93	7.48	9.49	11.23	13.71	16.31	18.98	
G555/30/50	88.4	55 x 5	U	2856	714	317	178	114	79	58	44	35	28	23	19	16		
G555/30/100	85.4		Du	0.13	0.5	1.13	2	3.14	4.53	6.19	8.04	10.3	12.63	15.29	18.03	21.08		
			C	285	142	95	71	57	47	40	35	31	28	25	23	21		
			Dc	0.1	0.4	0.9	1.6	2.52	3.6	4.89	6.43	8.16	10.18	12.21	14.7	17.24		
G505/30/50	80.9	50 x 5	U	2361	590	262	147	94	65	48	36	29	23	19	16			
G505/30/100	77.9		Du	0.14	0.55	1.24	2.2	3.45	4.97	6.82	8.78	11.39	13.86	16.88	20.28			
			C	236	118	78	59	47	39	33	29	26	23	21	19			
			Dc	0.11	0.44	0.99	1.77	2.77	3.99	5.39	7.11	9.14	11.18	13.7	16.26			
G503/30/50	52.6	50 x 3	U	1416	354	157	88	56	39	28	22	17	14	11				
G503/30/100	49.6		Du	0.14	0.55	1.24	2.2	3.43	4.97	6.65	8.95	11.16	14.09	16.37				
			C	141	70	47	35	28	23	20	17	15	14	12				
			Dc	0.11	0.44	0.99	1.75	2.75	3.92	5.45	6.97	8.82	11.37	13.14				
G455/30/50	73.4	45 x 5	U	1912	478	212	119	76	53	39	29	23	19	15				
G455/30/100	70.4		Du	0.15	0.61	1.38	2.45	3.83	5.56	7.62	9.73	12.44	15.76	18.39				
			C	191	95	63	47	38	31	27	23	21	19	17				
			Dc	0.12	0.49	1.09	1.94	3.07	4.35	6.06	7.76	10.16	12.72	15.31				
G405/30/50	65.9	40 x 5	U	1511	377	167	94	60	41	30	23	18	15					
G405/30/100	62.9		Du	0.17	0.69	1.54	2376	4.31	6.14	8.37	11.02	13.92	17.8					
			C	151	75	60	37	30	25	21	18	16	15					
			Dc	0.14	0.55	1.23	2.17	3.46	5.01	6.73	8.69	11.1	14.39					
G403/30/50	43.3	40 x 3	U	906	226	100	56	36	25	18	14	11						
G403/30/100	40.3		Du	0.17	0.69	1.54	2.74	4.32	6.25	8.39	11.2	14.21						
			C	90	45	30	22	18	15	12	11	10						
			Dc	0.14	0.55	1.24	2.16	3.46	5.02	6.44	8.87	11.59						
G355/30/50	58.4	35 x 5	U	1156	289	128	72	46	32	23	18	14						
G355/30/100	55.4		Du	0.2	0.79	1.77	3.16	4.94	7.17	9.61	12.92	16.24						
			C	115	57	38	28	23	19	16	14	12						
			Dc	0.16	0.62	1.4	2.46	3.97	5.7	7.69	10.14	12.52						
G353/30/50	38.6	35 x 3	U	694	173	77	43	27	19	14	10							
G353/30/100	35.6		Du	0.2	0.79	1.77	3.14	4.84	7.11	9.77	12.03							
			C	69	34	23	17	13	11	9	8							
			Dc	0.16	0.62	1.41	2.49	3.75	5.52	7.25	9.71							
G325/30/50	53.9	32 x 5	U	967	241	107	60	38	26	19	15	11						
G325/30/100	50.9		Du	0.22	0.86	1.94	3.44	5.35	7.64	10.42	14.13	16.81						
			C	96	48	32	24	19	16	13	12	10						
			Dc	0.17	0.68	1.55	2.76	4.3	6.3	8.21	11.4	13.73						
G323/30/50	35.8	32 x 3	U	580	145	64	36	23	16	11	9							
			Du	0.21	0.86	1.93	3.45	5.41	7.85	10.09	14.19							

30系列荷載自重表(續) LOAD TABLE FOR STEEL GRATING-30SERIES(CONTINUED)

型號 SIZE	理論重量 WEIGH(kg)	負載桿 LOAD BAR		跨距 SPAN (mm)														
				200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
G323/30/100	32.8	32 x 3	C	58	29	19	14	11	9	8	7							
			Dc	0.17	0.69	1.53	2.69	4.16	5.93	8.44	11.15							
G255/30/50	43.4	25 x 5	U	590	147	65	36	23	16	12								
			Du	0.28	1.1	2.47	4.35	6.82	9.92	13.9								
G255/30/100	40.4		C	59	29	19	14	11	9	8								
			Dc	0.22	0.87	1.93	3.39	5.25	7.5	10.71								
G253/30/50	29.3	25 x 3	U	354	88	39	22	14	9									
			Du	0.28	1.1	2.47	4.43	6.94	9.35									
G253/30/100	26.3		C	35	17	11	8	7	5									
			Dc	0.22	0.85	1.86	3.24	5.58	7									
G205/30/50	36	20 x 5	U	377	94	41	23	15	10									
			Du	0.34	1.37	3.05	5.44	8.73	12.21									
G205/30/100	33		C	37	18	12	9	7	6									
			Dc	0.27	1.05	2.39	4.28	6.57	9.85									
G203/30/50	24.6	20 x 3	U	226	56	25	14	9										
			Du	0.34	1.37	3.1	5.53	8.76										
G203/30/100	21.6		C	22	11	7	5	4										
			Dc	0.27	1.07	2.32	3.98	6.3										

說明 Instruction:

1. U表示鋼格板安全外加均布荷載,KN/m²;
2. C表示鋼格板跨度中心線上垂直於承載扁鋼方向的安全外加線荷載,KN/m;
3. D表示鋼格板在所列安全外加荷載作用下的最大撓度,mm;
4. 列出數據表示鋼格在2KN/m²的均布荷載作用下,最大撓度小於4mm;
5. 理論重量表示熱鍍鋅鋼格板長度1m時的重量。

1. U is the safety additional uniform load of steel grating, KN/m².
2. C is the safety additional line load perpendicular to the direction of bearing flat steel on the center line of steel grating span, KN/m.
3. D is the maximum deflection of the steel grating under the listed safe applied load, mm.
4. The listed data show that the maximum deflection of the steel grid is less than 4mm under the uniform load of 2KN/m².
5. The theoretical weight represents the weight of the hot-dip galvanized steel grating whose length is 1m.

40系列荷載自重表 LOAD TABLE FOR STEEL GRATING-40SERIES

型號 SIZE	理論重量 WEIGH(kg)	負載桿 LOAD BAR		跨距 SPAN (mm)														
				200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
G655/40/50	81.7	65 x 5	U	2992	748	332	187	119	83	61	46	36	29	24	20	17	15	
			D _u	0.11	0.42	0.95	1.7	2.65	3.84	3.93	6.78	8.54	10.54	12.84	15.25	17.97	21.46	
G655/40/100	78.7		C	299	149	99	74	59	49	42	37	33	29	27	24	23	21	
			D _c	0.08	0.34	0.76	1.35	2.1	3.03	4.14	5.47	6.99	8.49	10.58	12.32	15.1	17.39	
G605/40/50	75.9	60 x 5	U	2550	637	283	159	102	70	52	39	31	25	21	17	15		
			D _u	0.11	0.46	1.03	1.84	2.89	4.12	4.27	7.32	9.36	11.57	14.31	16.54	20.21		
G605/40/100	72.9		C	255	127	85	63	51	42	36	31	28	25	23	21	19		
			D _c	0.09	0.37	0.83	1.46	2.31	3.31	4.52	5.84	7.56	9.32	11.5	13.74	15.97		
G555/40/50	70.1	55 x 5	U	2142	535	238	133	85	59	43	33	26	21	17	14			
			D _u	0.13	0.5	1.13	2	3.13	4.51	4.59	8.05	10.22	12.66	15.11	17.77			
G555/40/100	67.1		C	214	107	71	53	42	35	30	26	23	21	19	17			
			D _c	0.1	0.4	0.9	1.59	2.48	3.58	4.9	6.38	8.09	10.2	12.39	14.54			
G505/40/50	64.2	50 x 5	U	1770	442	196	110	70	49	36	27	21	17	14				
			D _u	0.14	0.55	1.24	2.2	3.43	5	5.12	8.79	11.02	13.69	16.64				
G505/40/100	61.2		C	177	88	59	44	35	29	25	22	19	17	16				
			D _c	0.11	0.44	0.99	1.76	2.76	3.96	5.45	7.2	8.93	11.05	13.95				
G503/40/50	42.6	50 x 3	U	1062	265	118	66	42	29	21	16	13	10					
			D _u	0.14	0.55	1.24	2.2	3.43	4.94	4.99	8.71	11.4	13.49					
G503/40/100	39.6		C	106	53	35	26	21	17	15	13	11	10					
			D _c	0.11	0.44	0.98	1.74	2.75	3.87	5.46	7.11	8.66	10.9					

40系列荷載自重表(續) LOAD TABLE FOR STEEL GRATING-40SERIES(CONTINUED)

型號 SIZE	理論重量 WEIGH(kg)	負載桿 LOAD BAR		跨距 SPAN (mm)															
				200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	
G455/40/50	58.4	45 x 5	U	1434	358	159	89	57	39	29	22	17	14	11					
			Du	0.15	0.61	1.38	2.44	3.83	5.46	5.67	9.85	12.28	15.53	18.05					
G455/40/100	55.4		C	143	71	47	35	28	23	20	17	15	14	13					
			Dc	0.12	0.49	1.09	1.92	3.02	4.31	5.99	7.67	9.72	12.54	15.64					
G405/40/50	52.6	40 x 5	U	1133	283	125	70	45	31	23	17	13	11						
G405/40/100	49.6		Du	0.17	0.69	1.54	2.74	4.32	6.2	6.42	10.88	13.45	17.47						
			C	113	56	37	28	22	18	16	14	12	11						
			Dc	0.14	0.54	1.22	2.19	3.39	4.82	6.85	9.02	11.13	14.13						
G403/40/50	35.3	40 x 3	U	680	170	75	42	27	18	13	10	8							
G403/40/100	32.3		Du	0.2	0.78	1.77	3.16	4.88	7.18	7.12	12.48	16.34							
			C	68	34	22	17	13	11	9	8	7							
			Du	0.14	0.55	1.21	2.22	3.34	4.92	6.45	8.64	10.9							
G355/40/50	46.8	35 x 5	U	867	216	96	54	34	24	17	13	10							
G355/40/100	43.8		Du	0.2	0.78	1.77	3.16	4.88	7.18	7.12	12.48	15.54							
			C	86	43	28	21	17	14	12	10	9							
			Dc	0.16	0.62	1.38	2.46	3.91	5.61	7.71	9.7	12.57							
G353/40/50	31.6	35 x 3	U	520	130	57	32	20	14	10	8								
G353/40/100	28.6		Du	0.2	0.79	1.75	3.12	4.79	7	7.01	12.85								
			C	52	26	17	13	10	8	7	6								
			Dc	0.16	0.63	1.4	2.54	3.85	5.37	7.53	9.75								
G325/40/50	43.3	32 x 5	U	725	181	80	45	29	20	14	11								
G325/40/100	40.3		Du	0.21	0.86	1.93	3.45	5.45	7.84	7.7	13.86								
			C	72	36	24	18	14	12	10	9								
			Dc	0.17	0.68	1.55	2.76	4.23	6.31	8.43	11.44								
G323/40/50	29.4	32 x 3	U	435	108	48	27	17	12	8									
G323/40/100	26.4		Du	0.21	0.86	1.93	3.45	5.34	7.86	7.37									
			C	43	21	14	10	8	7	6									
			Dc	0.17	0.67	1.5	2.56	4.04	6.16	8.47									
G255/40/50	35.1	25 x 5	U	442	110	49	27	17	12	9									
G255/40/100	32.1		Du	0.27	1.1	2.48	4.35	6.74	9.94	10.46									
			C	44	22	14	11	8	7	6									
			Dc	0.22	0.88	1.9	3.55	5.1	7.79	10.74									
G253/40/50	24.3	25 x 3	U	265	66	29	16	10	7										
G253/40/100	21.3		Du	0.27	1.1	2.45	4.3	6.63	9.71										
			C	26	13	8	6	5	4										
			Dc	0.22	0.87	1.81	3.24	5.33	7.48										
G205/40/50	29.3	20 x 5	U	283	70	31	17	11	7										
G205/40/100	26.3		Du	0.34	1.36	3.08	5.37	8.56	11.46										
			C	28	14	9	7	5	4										
			Dc	0.27	1.09	2.39	4.44	6.29	8.84										
G203/40/50	20.6	20 x 3	U	170	42	18	10	6											
G203/40/100	17.6		Du	0.34	1.37	2.98	5.28	7.84											
			C	17	8	5	4	3											
			Dc	0.28	1.04	2.22	4.25	6.32											

說明 Instruction:

- 1、U表示鋼格板安全外加均布荷載,KN/m²;
- 2、C表示鋼格板跨度中心線上垂直於承載扁鋼方向的安全外加線荷載,KN/m;
- 3、D表示鋼格板在所列安全外加荷載作用下的最大撓度,mm;
- 4、列出數據表示鋼格在2KN/m²的均布荷載作用下,最大撓度小於4mm;
- 5、理論重量表示熱鍍鋅鋼格板長度1m時的重量。

1. U is the safety additional uniform load of steel grating, KN/m².
2. C is the safety additional line load perpendicular to the direction of bearing flat steel on the center line of steel grating span, KN/m.
3. D is the maximum deflection of the steel grating under the listed safe applied load, mm.
4. The listed data show that the maximum deflection of the steel grid is less than 4mm under the uniform load of 2KN/m².
5. The theoretical weight represents the weight of the hot-dip galvanized steel grating whose length is 1m.

平滑表面 Plain Surface

平面狀——我們的標準格柵由普通方形邊緣的平面負載桿組成，帶有6mm方形扭曲杆焊接在負載桿的頂部。在鋼格板中，有100mm十字桿中心的樣式具有更好的防滑性能。

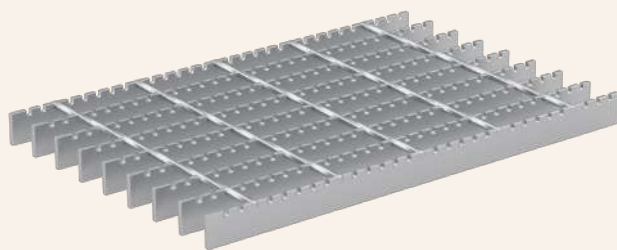
Plain: Our standard grating comprises plain square edge flat load bars, with a 6mm square twisted bar, forge welded on top of load bars. In steel grating there is a better slip resistance in patterns with 100mm cross rod centres.



鋸齒表面 Serrated Surface

鋸齒狀——另一種提高防滑性能的方法是使用鋸齒形格柵。鋸齒是由在材料的分切過程中切進負載桿的小切口組成，為提高防滑性能提供了低成本的解決方案。

Serrated: Another method for improving slip resistance is the use of serrated grating. The serrations are made up of small notches cut into the load bar during the slitting of the material as one process, providing a low cost solution for improving slip resistance.



齒形鋼格板換算係數表 CONVERSION COEFFICIENT TABLE OF SERRATED STEEL GRATING

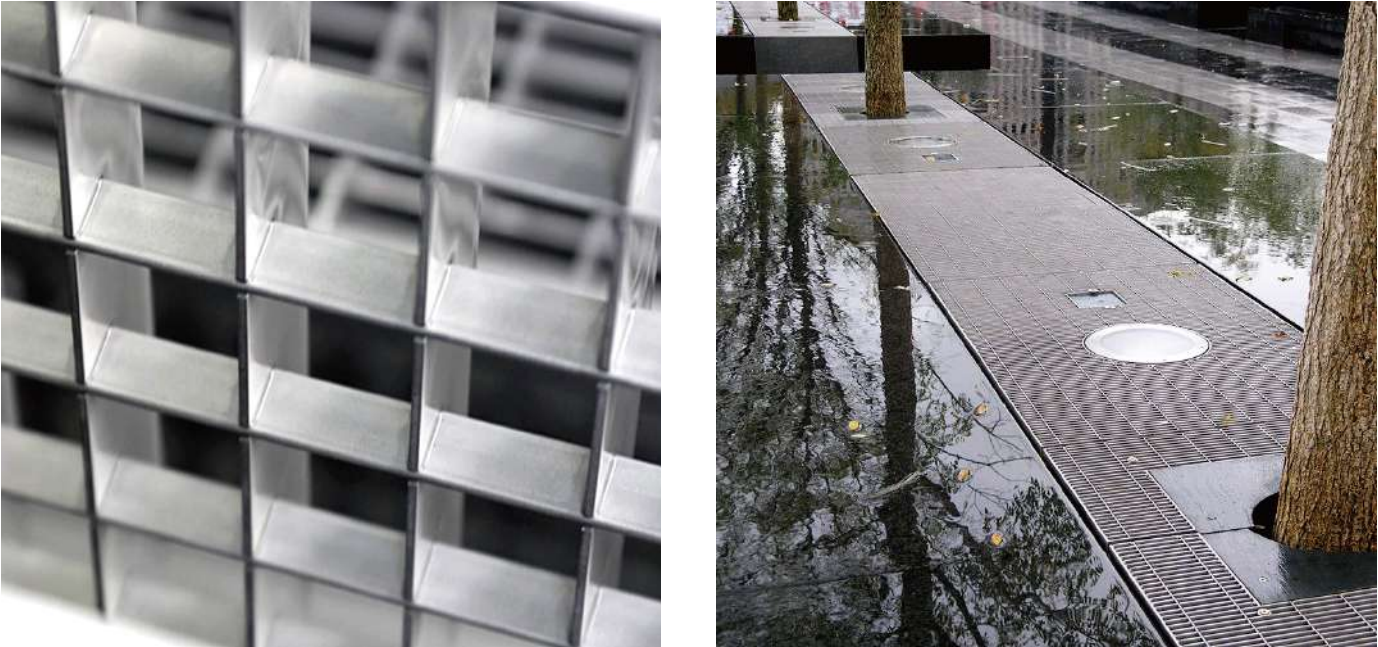
承重扁鋼尺寸 SIZE OF BEARING FLAT STEEL (mm)	荷載 LOAD (KN/m ²)	撓度 DEFLECTION (mm)
20 x 3	不推薦 Not recommended	
20 x 5	不推薦 Not recommended	
25 x 3	0.79	1.12
25 x 4.5	0.79	1.12
25 x 5	0.79	1.12
32 x 3	0.83	1.09
32 x 4.5	0.83	1.09
32 x 5	0.83	1.09
35 x 4.5	0.85	1.08
35 x 5	0.85	1.08
38 x 5	0.86	1.07
40 x 3	0.87	1.07
40 x 5	0.87	1.07
45 x 5	0.88	1.07
50 x 5	0.89	1.06
65 x 5	0.92	1.04

不銹鋼格柵

STAINLESS STEEL BAR GRATING

在腐蝕性環境中，耐腐蝕和最小碳化物沉澱最重要的考慮因素，不銹鋼格柵提供了長期耐用的格柵解決方案。典型應用包括化工生產和存儲、生產加工、水和廢水處理設施中的樓梯和平台。您可以選擇304、304L、316或316L的不銹鋼等級。

Stainless Steel Bar Grating provides a long-term durable grating solution for caustic atmospheres where corrosion resistance and minimum carbide precipitation are important considerations. Typical applications include stairs and platforms within chemical production and storage, food processing plants, and water and wastewater treatment facilities. It is also used in many other commercial and architectural applications. Your choice of 304, 304L, 316, or 316L Stainless Steel grades are available.



不銹鋼換算係數 STAINLESS STEEL CONVERSION FACTORS

當考慮不銹鋼格柵的荷載條件時，請將下表中的計算應用於碳鋼荷載表中所示的數值。
When considering load conditions for stainless steel bar grating, please apply the calculations in the table below to the values shown in the carbon steel load tables.

不銹鋼鋼格板換算係數表 CONVERSION COEFFICIENT TABLE OF STAINLESS STEEL GRATING

不銹鋼等級 STAINLESS STEEL GRADE	負載/撓度 LOAD/DEFLECTION	碳鋼荷載表乘以： MULTIPLY CARBON STEEL LOAD TABLES BY:	基於最大允許纖維應力 BASED ON MAXIMUM ALLOWABLE FIBRE STRESS
304/1.4301	U	1.111	20,000 P.S.I. (137.9 MPa)
	C	1.111	
	D	1.151	
304L/1.4307	U	0.917	16,500 P.S.I. (113.8 Mpa)
	C	0.917	
	D	0.949	
316/1.4401	U	1.111	20,000 P.S.I. (137.9 MPa)
	C	1.111	
	D	1.151	
316L/1.4404	U	0.917	16,500 P.S.I. (113.8 Mpa)
	C	0.917	
	D	0.949	



鍛焊格柵是通過在負載桿和橫桿的金屬交點施加熱量實現完全電阻焊接的。這一全自動化過程在所有交點提供均勻的焊接，從而產生具有最佳負載分佈和高靜態能力的鋼格板。成品格柵根據EN ISO 1461進行熱浸鍍鋅處理。

Forge-welded gratings are fully resistance welded as a result of heat application at the metal intersection points of the bearing bars and the cross bars. This fully automated process provides homogeneous welding at all intersection points generating gratings of optimum load distribution and high static ability. The finished gratings are galvanized according to EN ISO 1461.

類型選擇快速查找表 TYPE SELECTION QUICK LOOKUP TABLE

負載桿尺寸 Load Bar Size (mm)	無公共用途維修平台 Maintenance Platform No Public Use		行人交通、公共住宅 和輕型用途 Pedestrian Traffic Public Residential and Light Use		行人交通、公共商業 和擁擠用途 Pedestrian Traffic, Public Commercial and Crowded Use		一般工廠、車間、汽車房 和輪手推車 General Factories Workshops, Motor Rooms Wheel Trolleys		一般重載區、鍋爐設備 和重型設備區 General Heavy Loading Area, Boiler Equipment and Heavy Equipment Areas	
	UDL=2.5KPa		UDL=3KPa		UDL=4KPa		UDL=5KPa		UDL=7.5KPa	
	偏轉 Deflection=4mm									
	最大推薦跨度 Maximum Recommended span (mm)									
	30 series	40 series	30 series	40 series	30 series	40 series	30 series	40 series	30 series	40 series
20 x 3	1110	1130	1060	990	990	930	940	880	850	800
25 x 3	1310	1210	1250	1170	1170	1090	1110	1030	1010	940
32 x 3	1560	1470	1500	1410	1410	1320	1330	1250	1210	1130
40 x 3	1840	1720	1770	1650	1660	1550	1570	1470	1430	1330
20 x 5	1250	1170	1200	1120	1120	1050	1070	990	970	900
25 x 5	1470	1360	1410	1310	1320	1230	1260	1170	1140	1060
32 x 5	1750	1650	1680	1590	1580	1490	1500	1410	1370	1280
40 x 5	2050	1930	1970	1850	1860	1740	1770	1660	1610	1510
45 x 5	2220	2100	2150	2020	2020	1900	1930	1810	1760	1650
50 x 5	2390	2260	2310	2180	2180	2050	2080	1950	1900	1780
55 x 5	2560	2410	2470	2330	2340	2190	2230	2090	2040	1910
65 x 5	2870	2710	2770	2620	2620	2470	2510	2360	2300	2150
75 x 5	3170	2990	3070	2890	2910	2730	2780	2610	2550	2390
75 x 6	3270	3090	3170	3000	3010	2840	2880	2710	2660	2490

壓鎖格柵

PRESS-LOCK GRATING



這種類型的格柵是使用CNC沖孔機和大功率液壓機製造的，將橫桿壓入已開槽的負載桿中以形成格柵結構。與焊接格柵相比，壓縮格柵表面更光滑，更美觀。

This type of grating is made using CNC punching machine and large power hydraulic machine to press the cross bar into the grooved load bar to form the grating structure. Comparing to Welding Grating, the surface of Press-Locked Grating is more clean and smooth, and provide aesthetic look.

壓鎖格柵類型選擇表 TYPE SELECTION TABLE FOR PRESS-LOCK GRATINGS

負載桿 Load Bar (mm)	橫桿 Cross Bar (mm)	無公共用途維修平台 Maintenance Platform No Public Use					行人交通、公共住宅 和輕型用途 Pedestrian Traffic Public Residential and Light Use					行人交通、公共商業 和擁擠用途 Pedestrian Traffic Public Commercial and Crowded Use					一般工廠、車間、汽車房 和輪手推車 General Factories Workshops, Motor Rooms Wheel Trolleys					一般重載區、鍋爐設備 和重型設備區 General Heavy Loading Area, Boiler Equipment and Heavy Equipment Areas				
		UDL=2.5KPa Deflection=5mm					UDL=3KPa Deflection=5mm					UDL=4KPa Deflection=5mm					UDL=5KPa Deflection=5mm					UDL=7.5KPa Deflection=5mm				
		Loading Bar Pitch Center to Center (mm)					Loading Bar Pitch Center to Center (mm)					Loading Bar Pitch Center to Center (mm)					Loading Bar Pitch Center to Center (mm)					Loading Bar Pitch Center to Center (mm)				
		22.2	33.3	44.4	20.0	25.0	22.2	33.3	44.4	20.0	25.0	22.2	33.3	44.4	20.0	25.0	22.2	33.3	44.4	20.0	25.0	22.2	33.3	44.4	20.0	25.0
20 x 2	10 x 2	1270	1150	1080	1290	1230	1210	1110	1030	1240	1180	1140	1030	960	1160	1100	1080	980	910	1100	1000	980	890	830	1000	950
20 x 5	10 x 3	1410	1290	1210	1440	1380	1360	1240	1160	1390	1320	1280	1160	1090	1300	1240	1220	1110	1030	1240	1180	1110	1000	940	1130	1000
25 x 3	10 x 2	1490	1360	1270	1520	1450	1430	1300	1220	1460	1390	1340	1220	1140	1370	1300	1270	1160	1080	1300	1230	1160	1050	980	1180	1120
25 x 5	12 x 3	1660	1520	1430	1690	1610	1600	1460	1370	1630	1550	1500	1370	1280	1530	1460	1430	1300	1220	1460	1390	1300	1180	1110	1330	1260
30 x 3	10 x 2	1610	1470	1370	1730	1650	1540	1410	1310	1670	1590	1450	1320	1230	1560	1490	1380	1250	1160	1490	1410	1250	1130	1060	1350	1280
30 x 5	10 x 3	1790	1640	1540	1920	1840	1720	1580	1480	1850	1770	1620	1480	1390	1750	1670	1540	1410	1320	1670	1590	1410	1280	1200	1520	1450
32 x 3	10 x 2	1670	1550	1450	1810	1730	1620	1490	1390	1750	1660	1530	1390	1300	1640	1560	1460	1320	1230	1560	1480	1320	1200	1120	1420	1350
32 x 5	12 x 3	1890	1730	1630	2010	1920	1820	1670	1570	1940	1850	1710	1570	1470	1830	1740	1630	1490	1390	1750	1660	1490	1360	1270	1600	1520
35 x 3	10 x 2	1900	1740	1630	1930	1850	1830	1670	1560	1860	1770	1710	1560	1460	1750	1660	1630	1480	1390	1670	1580	1480	1350	1260	1520	1440
35 x 5	12 x 3	2100	1940	1820	2140	2050	2030	1860	1750	2060	1970	1910	1750	1640	1950	1860	1830	1670	1560	1860	1770	1670	1520	1420	1700	1620
40 x 3	10 x 2	2040	1910	1790	2130	2030	2010	1840	1720	2050	1950	1890	1720	1610	1930	1840	1800	1640	1530	1840	1750	1640	1490	1390	1670	1590
40 x 5	12 x 3	2300	2130	2000	2340	2250	2230	2050	1930	2270	2170	2110	1930	1810	2140	2050	2010	1840	1720	2050	1950	1840	1680	1570	1800	1790
45 x 3	10 x 2	2220	2080	1950	2310	2210	2190	2000	1880	2230	2130	2060	1880	1760	2100	2000	1960	1780	1670	2000	1900	1790	1620	1510	1830	1730
45 x 5	12 x 3	2500	2310	2180	2540	2440	2410	2230	2100	2460	2360	2280	2100	1970	2330	2230	2180	2000	1880	2230	2130	2000	1830	1710	2050	1950
50 x 3	10 x 2	2450	2240	2110	2490	2380	2360	2150	2030	2400	2290	2220	2020	1900	2260	2160	2210	1920	1800	2160	2050	1930	1750	1640	1970	1870
50 x 5	12 x 3	2690	2480	2350	2730	2620	2600	2390	2260	2640	2540	2460	2260	2130	2510	2400	2360	2150	2030	2400	2290	2160	1970	1850	2210	2100
60 x 5	12 x 3	2880	2670	2520	3080	2970	2790	2580	2430	2990	2880	2650	2440	2290	2850	2730	2540	2230	2180	2730	2610	2330	2130	1990	2520	1400
65 x 5	12 x 3	3040	2830	2680	3250	3130	2950	2740	2580	3160	3040	2800	2580	2430	3010	2880	2680	2470	2320	2890	2760	2470	2260	2120	2660	2540

• 壓鎖格柵 Press-locked bar grating:

僅負載樑有槽口，橫樑為普通扁鋼，且高度不同。

Only the bearing bars are notched, the cross bars are common plain steel. And they have different height.

• 全壓鎖格柵 Full-locked steel bar grating:

負載樑和橫樑均有槽口且樑的高度相同。

The bearing bars and cross bars are notched and have the same height.

• 重型壓鎖格柵 Heavy-duty pressed bar grating:

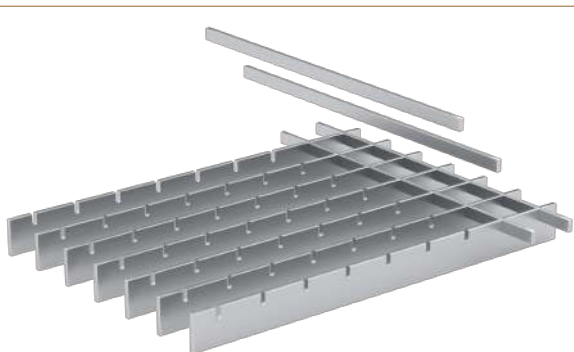
負載樑和橫樑均有槽口且樑的高度相同。

The bearing bars are higher than the cross bars and they are all notched.

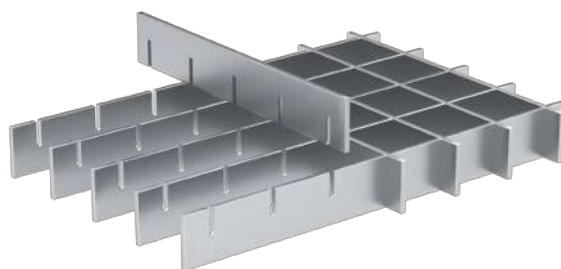
• 百葉格柵 Louver bar grating:

負載樑的開槽角度為30°或45°，橫樑在壓縮前插入負載樑中。

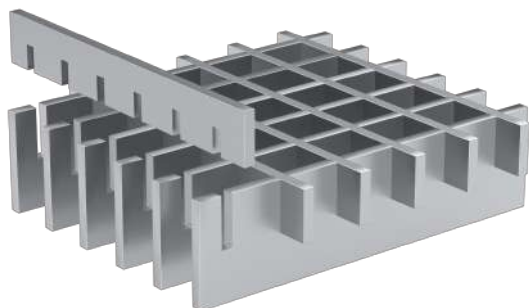
The notches of bearing bars are at a angle of 30° or 45°. The cross bars insert into the bearing bars before being pressed.



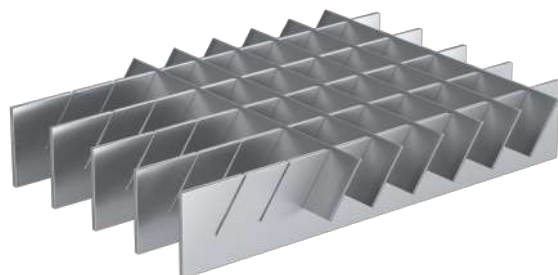
Press-Locked Bar Grating



Full-Locked Steel Bar Grating



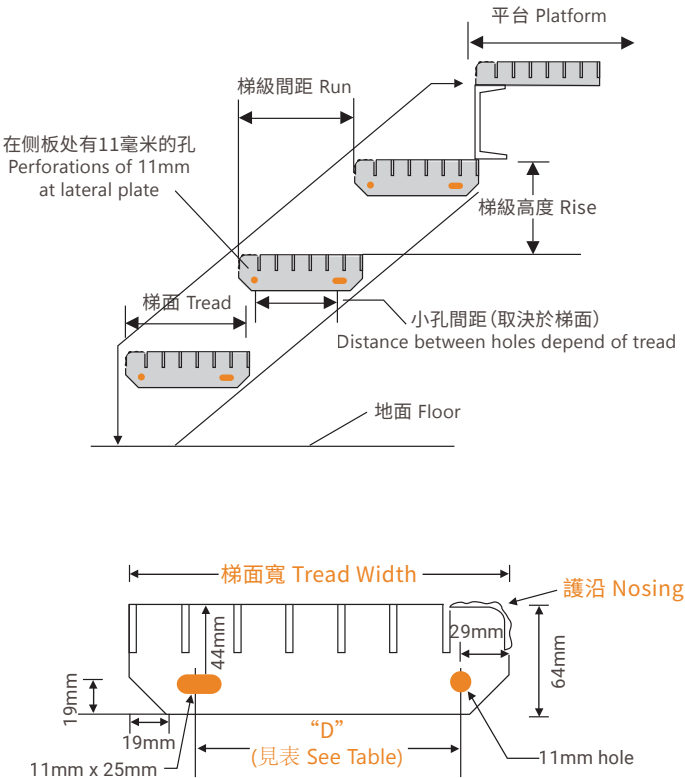
Heavy-Duty Pressed Bar Grating



Louver Bar Grating

樓梯踏板 STAIR TREADS

樓梯踏板典型細節 STAIR TREADS TYPICAL DETAIL



梯面寬度表 TABLE OF STAIR TREAD WIDTHS

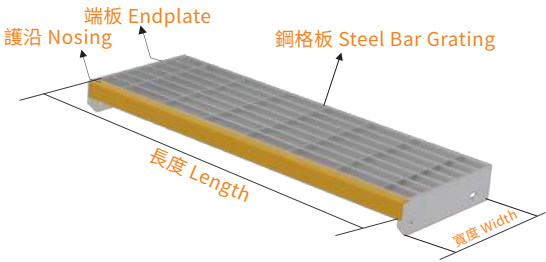
梯面寬度 TREAD WIDTH(mm)	D的標準尺寸 STANDARD "D" DIMENSION (mm)	承重桿數量 NUMBER OF BEARING BARS
159	64	5
187	114	6
216	114	7
248	178	8
279	178	9
308	178	10



格柵樣式最大跨距建議

RECOMMENDED MAX. SPANS FOR GRATING PATTERNS

承載桿尺寸 LOAD BAR SIZE	SERIES I 30mm	SERIES II 40mm
25 x 3	550	450
25 x 5	900	750
32 x 5	1300	1200
40 x 5	1600	1500



鋸齒狀或光滑負載杆的鋼樓梯踏板包括兩個側托板和一個前護沿，易于安裝在樓梯縱梁上。
Steel stair treads with serrated or smooth bearing bar include two side carrier plates and front nosing to be installed easily on stair.



焊接固定
封邊
無護沿

Welded fixing,
banded ends
without nosing.



螺絲固定
帶孔端板
無護沿

Bolted fixing,
holed end plates
without nosing.



焊接固定
封邊
花紋鋼板護沿

Welded fixing,
banded ends
with checker plate
nosing.



螺絲固定，
帶孔端板，
有護沿。

Bolted fixing,
holed end plates
with nosing.

樓梯踏板與梯梁的連接 Connection of stair treads and ladder beam:

螺栓連接: 採用加厚端板進行焊接，端板上預先打孔，並用螺栓和螺母固定。這種連接可回收用於其他應用或地方。

焊接連接: 雖然難以拆卸，但比螺栓連接更經濟且更牢固。

Bolt connection: it adopts thickening end plate for welding and pre-holed on the end plate and fixed by bolts and nuts. It is recycled for other applications or places.

Welded connection: it is difficult to uninstall but more economical and firmer than bolted connection.



排水格柵

DRAINAGE GRATES

與傳統鑄鐵格柵相比，排水格柵提供了優越的水力流量。它適用於人行道、自行車道等交通場景。

Comparing to traditional cast iron grate, Drainage Grates provide superior hydraulic flow. It suitable for both pedestrian and bicycle traffic condition.



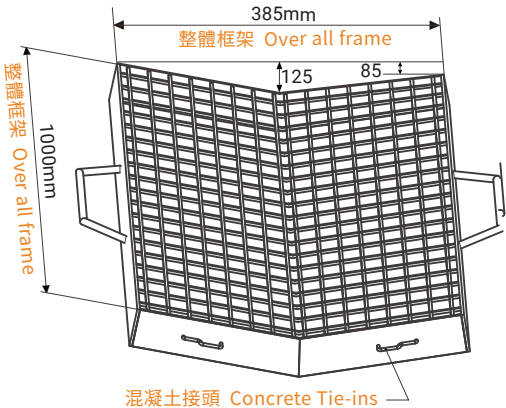
交通條件 TRAFFIC CONDITIONS	正常車輪負載 NORMAL WHEEL LOADING (Kg)	適用設計荷載 SERVICEABILITY DESIGN LOAD (KN)	極限設計荷載 ULTIMATE LIMIT DESIGN LOAD (KN)
A類-超輕型 CLASS A – Extra Light Duty: 行人可通行的區域。不適合車輛。 Areas accessible strictly by pedestrians. Not suited to vehicles.	330	6.7	10
B類-輕型 CLASS B – Light Duty: 私人和共享的住宅物業。適用於進出車道和人行道的車輛。僅限低速。 Private and shared residential property. Suitable for vehicles accessing driveways and footways. Low speed only.	2670	53	80
C類-中型 CLASS C – Medium Duty: 可供車輛通行的住宅道路和停車場。 Residential roads and car parks trafficable to vehicles.	5000	100	150
D類-重型 CLASS D – Heavy Duty: 主要道路，包括高速公路、高速公路路肩，倉庫和裝卸碼頭。 Warehouses and loading docks.	8000	160	240

HSRFK排水格柵

HSRFK TYPE DRAINAGE GRATING

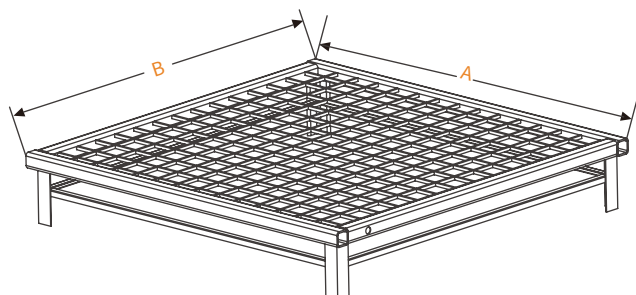
- ✓ 負載等級D Load Class D
- ✓ 螺栓固定安全裝置 Bolt-down security
- ✓ 適用於軋壓成型的路緣石台 Hinged grate and frame

產品編號 PRODUCT CODE	坑淨寬 PIT CLEAR OPENING (mm)	整體框架 OVERALL FRAME (mm)	類型 TYPE
HSRFK93SMD	900 x 380	1000 x 385	提升式 LIFT-OUT
HSRFK94WCD	900 x 400	980 x 422	提升式 LIFT-OUT
HSRFK95SYD	935 x 500	1035 x 608	鉸鏈式 HINGED



HSSPG排水格柵 HSSPG TYPE DRAINAGE GRATING

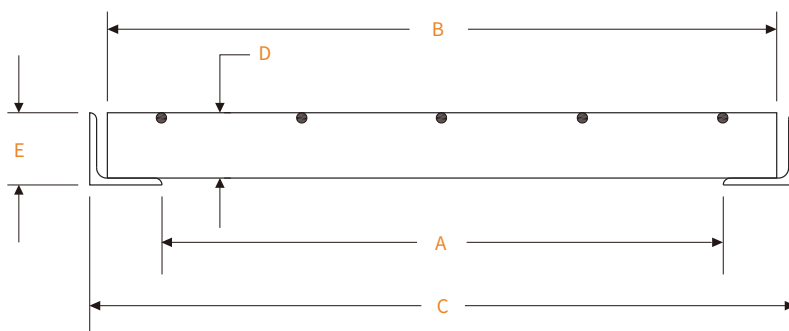
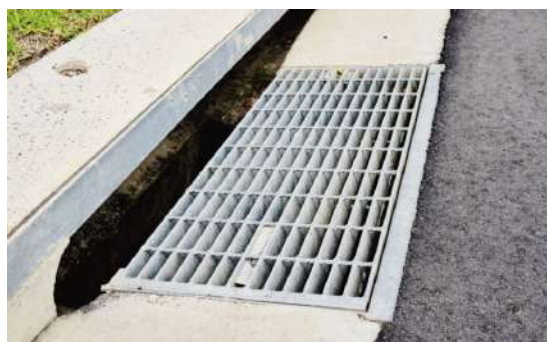
- ✓ 負載等級A Load Class A
- ✓ 鑄入式或螺栓式 Legs cast-in or bolt-down
- ✓ 鉸鏈式格柵和框架 Hinged grate and frame



產品編號 PRODUCT CODE	坑淨寬 PIT CLEAR OPENING (mm)	尺寸 DIMENSION	
		A	B
HSSPG66BL	600 x 600	800	750
HSSPG69BL	600 x 900	1070	800
HSSPG99BL	900 x 900	1100	1050
HSSPG912BL	900 x 1200	1350	1100
HSSPG1212BL	1200 x 1200	1400	1350
HSSPG66CL	600 x 600	800	750
HSSPG69CL	600 x 900	1070	800
HSSPG99CL	900 x 900	1100	1050
HSSPG912CL	900 x 1200	1350	1100
HSSPG1212CL	1200 x 1200	1400	1350

HSHPG排水格柵 HSHPG TYPE DRAINAGE GRATING

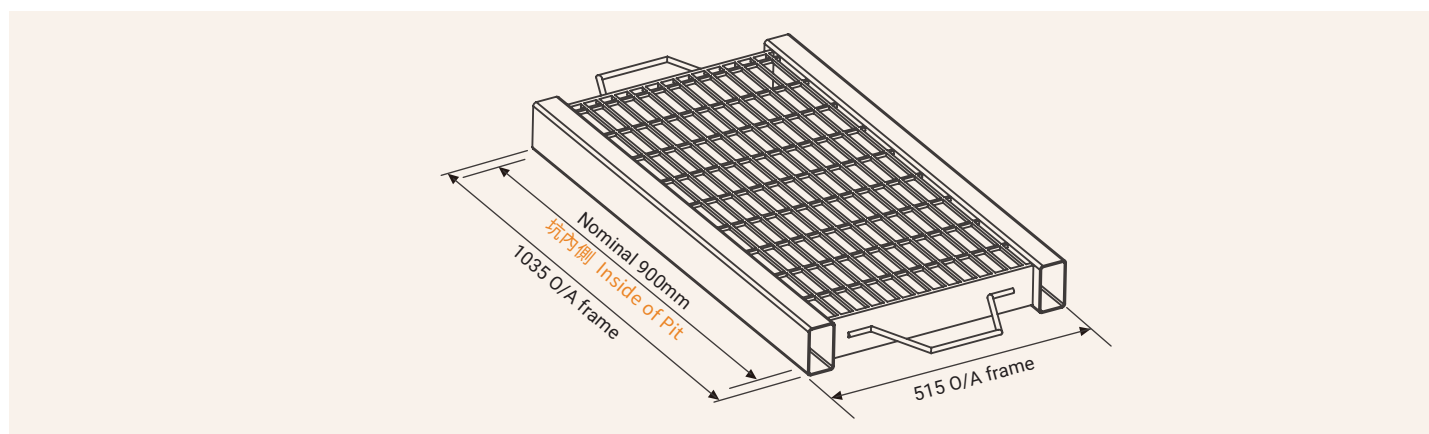
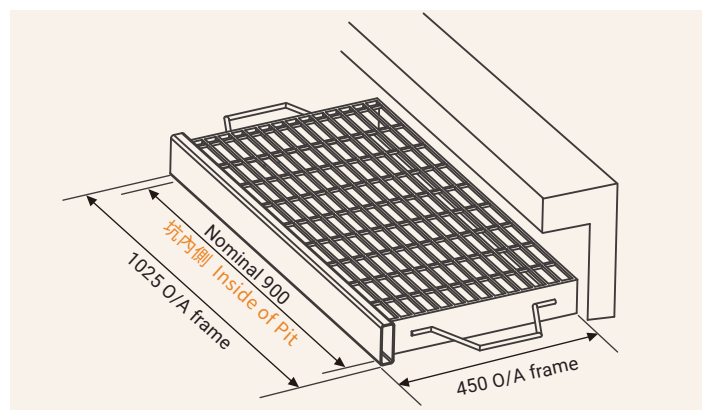
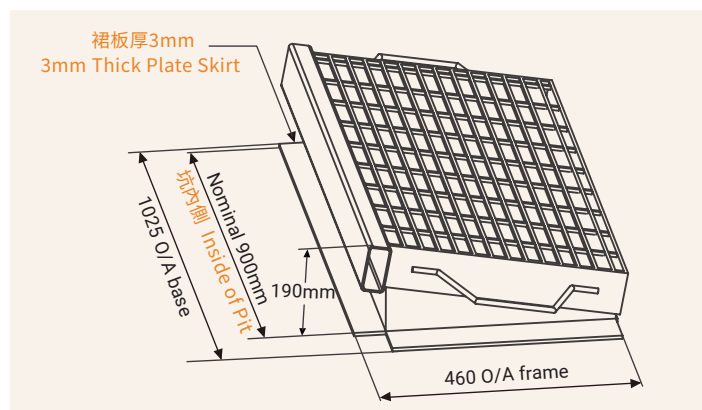
產品編號 PRODUCT CODE	等級評定 CLASS RATING	坑淨寬 PIT CLEAR OPENING	格柵尺寸 GRATE SIZE	整體框架 OVERALL FRAME	格柵深度 GRATE DEPTH	框架深度 FRAME DEPTH
		A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
HSHPG3030A	A	300 x 300	340 x 320	355 x 370	25	30
HSHPG4545A	A	450 x 450	500 x 455	515 x 520	25	30
HSHPG4560A	A	450 x 600	500 x 605	515 x 670	25	30
HSHPG6060A	A	600 x 600	650 x 605	665 x 670	25	30
HSHPG6090A	A	600 x 900	650 x 905	665 x 970	25	30
HSHPG9090A	A	900 x 900	950 x 905	665 x 970	25	30
HSHPG3030B	B	300 x 300	350 x 305	365 x 370	25	30
HSHPG4545B	B	450 x 450	530 x 455	545 x 550	40	45
HSHPG4560B	B	450 x 600	530 x 605	545 x 700	40	45
HSHPG6060B	B	600 x 600	700 x 605	715 x 720	50	55
HSHPG6090B	B	600 x 900	700 x 905	715 x 1020	50	55
HSHPG9090B	B	600 x 900	988 x 905	1005 x 1010	57	65
HSHPG4545D	D	450 x 450	538 x 455	555 x 560	57	65
HSHPG4560D	D	450 x 600	538 x 605	538 x 605	57	65
HSHPG6060D	D	600 x 600	688 x 606	705 x 712	57	65
HSHPG6090D	D	600 x 900	688 x 906	705 x 1012	57	65
HSHPG9090D	D	900 x 900	988 x 906	1005 x 1012	57	65



HSGG排水格柵 HSGG TYPE DRAINAGE GRATING

- ✓ 負載等級D Load Class D
- ✓ 螺栓固定安全裝置 Bolt-down security
- ✓ 鉸鏈如圖所示 Hinged as noted
- ✓ 自行車使用安全 Bicycle safe
- ✓ 适用于车辆流量较大的主要道路和小区 Suitable for main roads and subdivisions where heavy vehicle traffic

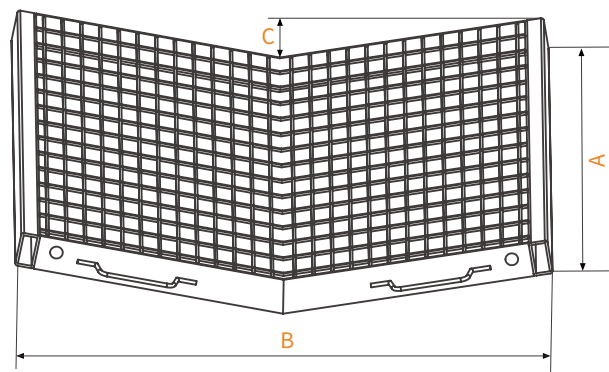
產品編號 PRODUCT CODE	等級評定 CLASS RATING	坑淨寬 PIT CLEAR OPENING	整體框架 OVERALL FRAME	框架深度 FRAME DEPTH	鉸鏈 HINGED
		(mm)	(mm)	(mm)	
HSGG64C	C	900 x 460	1105 x 635	Skirt	Yes
HSGG42D	D	900 x 430	1035 x 500	65	Yes
HSGG50D	D	900 x 400	1035 x 445	65	Yes
HSGG94SD	D	900 x 400	1035 x 445	65	Yes
HSGG52D	D	900 x 400	1035 x 445	Skirt	Yes
HSGG65CD	C&D	1118 x 1008	1400 x 1120	Skirt	Yes
HSGG93D	D	900 x 400	1035 x 470	65	Yes
HSGG97DARD	D	900 x 520	1035 x 590	65	Yes
HSGG125HUMD	D	900 x 365	1002 x 365	65	No
HSGG125HUMDIAD	D	900 x 338	1000 x 348	65	No
HSGG084SD1431D	D	1000 x 760	1135 x 830	65	Yes
HSGG0831322D	D	1000 x 520	1135 x 590	65	Yes
HSGG400DD	D	900 x 395	1000 x 467	65	No
HSGG450DD	D	900 x 460	1035 x 530	65	Yes
HSGG6090DD	D	900 x 620	1020 x 690	65	No
HSGG1322DIAD	D	1000 x 525	1020 x 595	65	No
HSBCCG9090DD	D	900 x 980	1000 x 1080	65	No
HSRCCG9090DD	D	900 x 980	1000 x 1080	65	No
HSBCCGG	D	900 x 600	1122 x 676	90	Yes



HSDGC排水格柵 HSDGC TYPE DRAINAGE GRATING

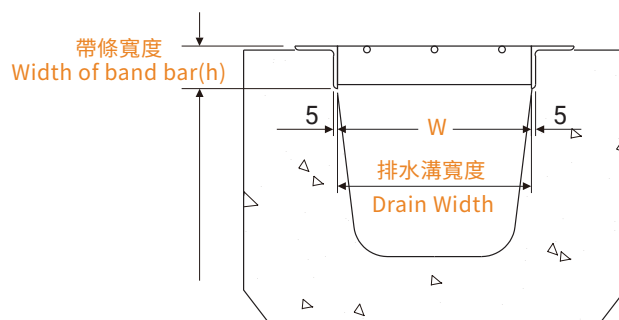
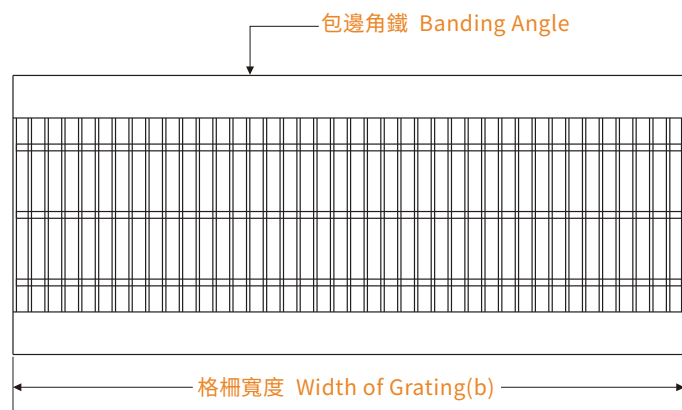
- ✓ 負載等級D Load Class D
- ✓ 螺栓固定安全裝置 Bolt-down security
- ✓ 鉸鏈式格柵 Hinged grate
- ✓ 適用於碟形交叉口 Suitable for dished crossings

產品編號 PRODUCT CODE	坑淨寬 PIT CLEAR OPENING	尺寸 DIMENSION		
	(mm)	A	B	C
HSDCG66D	600 x 600	700	705	50
HSDCG77D	750 x 750	850	820	50
HSDCG96D	900 x 600	1000	705	50
HSDCG98D	900 x 800	1035	885	65



GU排水格柵 GU TYPE DRAINAGE GRATING

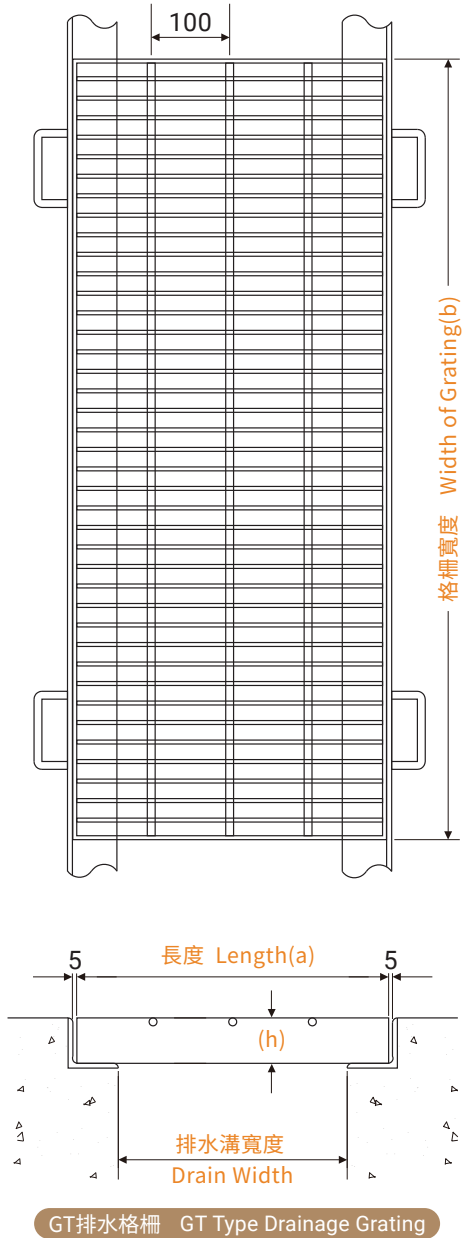
排水溝寬度 DRAIN WIDTH (mm)	產品編號 PRODUCT CODE	格柵尺寸 GRATING SIZE b x W x h(mm)	包邊角鐵 BANDING ANGLE	重量(千克/件) WEIGHT (Kg/Piece)
T-2				
200	GU200-25	995 x 190 x 25	L40 x 5	12.2
300	GU300-25	995 x 290 x 25	L40 x 5	16
400	GU400-32	995 x 390 x 32	L40 x 5	23.7
450	GU450-32	995 x 443 x 32	L40 x 5	26.3
500	GU500-45	995 x 488 x 45	L50 x 6	41.7
600	GU600-50	995 x 588 x 50	L56 x 6	53.8
T-6				
200	GU200-25	995 x 190 x 25	L40 x 5	12.2
300	GU300-38	995 x 290 x 38	L40 x 5	21.3
400	GU400-45	995 x 390 x 45	L50 x 6	35.1
450	GU450-50	995 x 440 x 50	L50 x 6	41.6
500	GU500-50	995 x 490 x 50	L50 x 6	45.2
600	GU600-55	995 x 590 x 55	L63 x 6	59.4
T-14				
200	GU200-32	995 x 190 x 32	L40 x 5	14.0
300	GU300-45	995 x 290 x 45	L50 x 6	28.4
400	GU400-50	995 x 390 x 50	L50 x 6	37.8
450	GU450-55	995 x 440 x 55	L63 x 6	47.4



GU排水格柵 GU Type Drainage Grating

GT排水格柵 GT TYPE DRAINAGE GRATING

排水溝寬度 DRAIN WIDTH (mm)	產品編號 PRODUCT CODE	格柵尺寸 GRATING SIZE b x a x h(mm)	包邊角鐵 BANDING ANGLE	重量 (千克/件) WEIGHT (Kg/Piece)
T-2和行人荷載		T-2 AND PEDESTRIAN LOADING		
200	GT200-20	995 x 260 x 20	L40 x 25 x 5	6.0
300	GT300-25	995 x 364 x 25	L40 x 28 x 3	15.9
400	GT400-25	995 x 464 x 25	L40 x 28 x 3	19.7
450	GT450-32	995 x 544 x 32	L56 x 36 x 4	28.8
500	GT500-45	995 x 580 x 45	L50 x 50 x 5	42.2
600	GT600-50	995 x 690 x 50	L56 x 56 x 6	54.8
T-6				
200	GT200-32	995 x 294 x 32	L56 x 36 x 4	16.6
300	GT300-38	995 x 416 x 38	L70 x 45 x 7	26.7
400	GT400-50	995 x 490 x 50	L56 x 56 x 6	39.3
450	GT450-50	995 x 540 x 50	L56 x 56 x 6	40.0
500	GT500-50	995 x 590 x 50	L56 x 56 x 6	47.4
600	GT600-50	995 x 700 x 55	L60 x 60 x 5	60.8
T-14				
200	GT200-32	995 x 294 x 32	L56 x 36 x 4	16.6
300	GT300-45	995 x 380 x 45	L50 x 50 x 5	28.8
400	GT400-50	995 x 480 x 50	L56 x 56 x 6	39.3
450	GT450-55	995 x 550 x 55	L60 x 60 x 5	48.9
500	GT500-60	995 x 610 x 60	L65 x 65 x 5	58.6
600	GT600-75	995 x 750 x 75	L80 x 80 x 5	87.9
T-20				
200	GT200-28	995 x 316 x 38	L70 x 45 x 7	21.1
300	GT300-50	995 x 390 x 50	L56 x 56 x 6	32.6
400	GT400-55	995 x 500 x 55	L60 x 60 x 5	44.7
450	GT450-65	995 x 590 x 65	L70 x 70 x 5	59.3
500	GT500-75	995 x 640 x 75	L80 x 80 x 5	75.9
T-25				
200	GT200-45	995 x 280 x 45	L50 x 50 x 5	22.2
300	GT300-50	995 x 390 x 50	L56 x 56 x 6	32.6
400	GT400-65	995 x 520 x 65	L70 x 70 x 5	54.7
450	GT450-75	995 x 590 x 75	L80 x 80 x 5	70.3



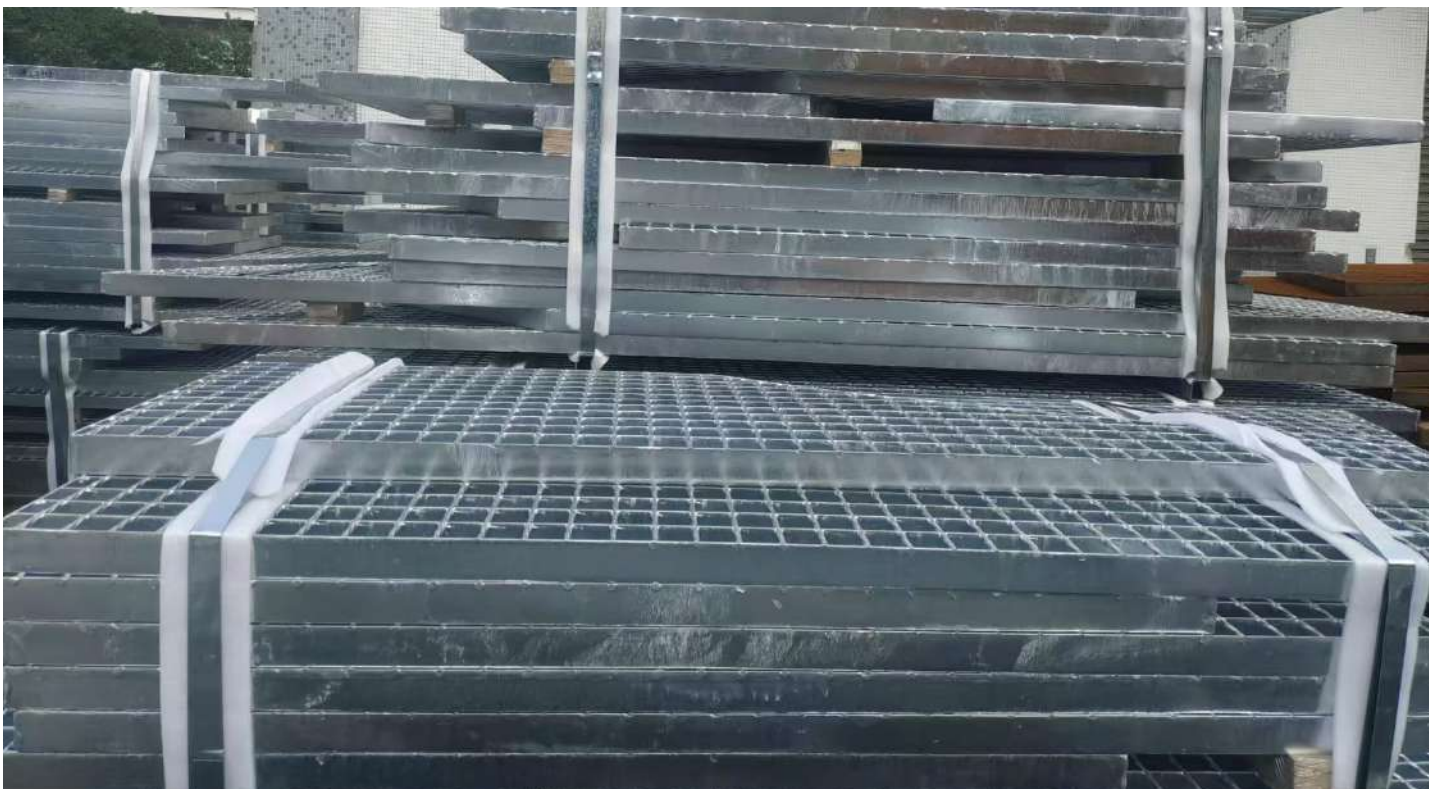
GU、GT負載等級表
TABLE OF GU AND GT’S LOADING CLASS

		負載等級 LOADING CLASS	正常車輪負載 NORMAL WHEEL LOADING (kg)	後輪負載 REAR WHEEL LOADING (kN)	輪壓區域 WHEEL- PRESSURE AREA a x b (mm²)
		T-2	2000	8	200x160
		T-6	6000	24	200x240
		T-14	14000	56	200x500
		T-20	20000	80	200x500
		T-25	25000	100	200x500



焊接重型產品的設計可滿足承受重載和靜載的格柵的需要，如高速公路、工廠地板、裝貨碼頭、入口蓋和機場。由於應用場景可以從輕型叉車到承載最大允許公路荷載的半卡車和拖車，重型格柵的製造尺寸和間距多種多樣。

Welded Heavy Duty products are designed to meet the need for gratings subject to heavy rolling and static loads such as highways, plant floors, loading docks, inlet covers and airports. Since these conditions can range from light-duty forklifts to semi-trucks and trailers carrying maximum allowable highway loads, heavy duty gratings are manufactured in a wide variety of bar sizes and spacings.

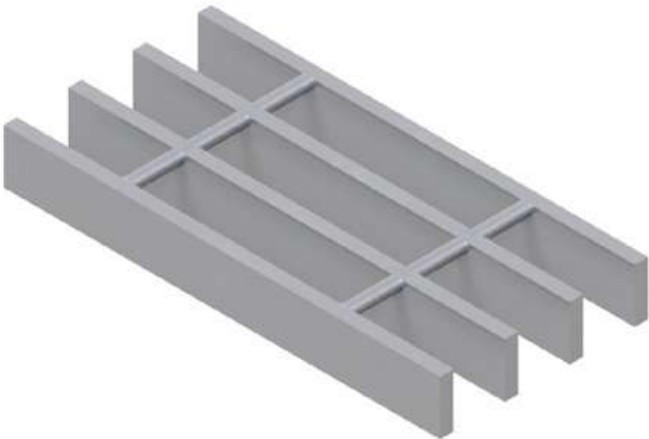


重型公制荷載表

LOAD TABLE HEAVY DUTY, METRIC

GRATING TYPE: 30HSY102
 DESIGN CODE: HSY669-11
 MATERIAL: ASTM A1011CS GRADE 250
 SURFACE: SMOOTH

格柵類型: 30HSY102
 設計規範: HSY669-11
 材料:ASTM A1011CS 250 級
 表面:光滑



U = Safe Uniform Load (kPa)
 Du= Deflection Due to Safe Uniform Load (mm)
 C = Safe Concentrated Load (kN/meter of grating width)
 Dc= Deflection Due to Safe Concentrated Load (mm)
 Allowable Extreme Fiber Stress = 137.9 MPa

承載筋直徑 BG BR SZ (MM)	理論重量 APPX. WGT (KG/M²)	支座間距 PD. SPN (MM)	跨距 SPAN (mm)															截面特性 SECTION PROPERTIES S _x (mm³/m) S _x (立方毫米/米)
			305	457	610	762	915	1067	1219	1372	1524	1677	1829	1981	2134	2286	2438	
25 x 6	47.9	1,560.00	U	272.0	121.0	68.1	43.6	30.3	22.2	17.0	13.4	10.9	9.0					22,940
			D _u	0.5	1.2	2.1	3.3	4.7	6.4	8.4	10.2	13.1	15.9					
			C	41.5	27.7	20.7	16.6	13.8	11.9	10.4	9.6	8.3	7.5					291.33E+3
			D _c	0.4	0.9	1.7	2.6	3.8	5.2	6.7	8.5	10.5	12.7					
32 x 6	58.6	1,846.00	U	42.64	189.6	106.7	68.3	47.4	34.8	26.7	21.1	17.1	14.1	11.9	10.1			35,960
			D _u	0.4	0.9	1.7	2.6	3.8	5.1	6.7	8.5	10.5	12.7	15.1	17.7			
			C	65.0	43.4	32.5	26.0	21.7	18.6	16.3	14.5	13.0	11.8	10.8	10.0			571.69E+3
			D _c	0.3	0.8	1.3	2.1	3.0	4.1	5.4	6.8	8.4	10.2	12.1	14.2			
38 x 6	69.1	2,114.00	U	612.1	272.2	153.1	98.0	68.1	50.0	38.3	30.3	24.5	20.3	17.0	14.5	12.5		51,610
			D _u	0.4	0.8	1.4	2.2	3.2	4.3	5.6	7.1	8.8	10.6	12.6	14.8	17.2		
			C	93.3	62.2	46.7	37.4	31.1	26.7	23.3	20.8	18.7	17.0	15.6	14.4	13.3		983.22E+3
			D _c	0.3	0.6	1.1	1.8	2.5	3.4	4.5	5.7	7.0	8.5	10.1	11.8	13.7		
38 x 10	100.8	2,334.00	U	908.6	404.0	272.2	145.5	101.0	74.2	56.8	44.9	36.4	30.1	25.3	21.5	18.6	16.2	14.2
			D _u	0.4	0.8	1.4	2.2	3.2	4.3	5.6	7.1	8.8	10.6	12.6	14.8	17.2	19.7	22.4
			C	138.6	92.4	69.3	55.4	46.2	39.6	34.7	30.8	27.7	25.2	23.1	21.3	19.8	18.5	17.3
			D _c	0.3	0.6	1.1	1.8	2.5	3.4	4.5	5.7	7.0	8.5	10.1	11.8	13.7	15.8	17.9
51 x 6	90.4	2,623.00	U	1,088.2	483.8	272.2	174.2	121.0	88.9	68.1	53.8	43.6	36.0	30.3	25.8	22.2	19.4	17.0
			D _u	0.3	0.6	1.1	1.6	2.4	3.2	4.2	5.3	6.6	7.9	9.5	11.1	12.9	14.8	16.8
			C	165.9	110.7	83.0	66.4	55.3	47.4	41.5	36.9	33.2	30.2	27.7	25.5	23.7	22.1	20.8
			D _c	0.2	0.2	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3	11.8	13.4
64 x 6	111.7	3,101.00	U	1,700.2	756.0	425.3	272.3	189.1	138.9	106.4	84.0	68.1	56.3	47.3	40.3	34.7	30.3	26.6
			D _u	0.2	0.5	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3	11.8	13.4
			C	259.3	172.9	129.7	103.8	86.5	74.1	64.9	57.6	51.9	47.2	43.2	39.9	37.1	34.6	32.4
			D _c	0.2	0.4	0.7	1.1	1.5	2.1	2.7	3.4	4.2	5.1	6.1	7.1	8.2	9.5	10.8
76 x 6	132.9	3,556.00	U	2,448.3	1,088.6	612.5	392.0	272.3	200.1	153.2	121	98.0	81.0	68.1	58.0	50.0	43.6	38.3
			D _u	0.2	0.4	0.7	1.1	1.6	2.1	2.8	3.5	4.4	5.3	6.3	7.4	8.6	9.9	11.2
			C	373.4	249	186.7	149.4	124.5	106.7	93.4	83	74.7	67.9	62.3	57.5	53.4	49.8	46.7
			D _c	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.5	4.2	5.0	5.9	6.9	7.9	9.0
76 x 10	197.7	3,925.00	U	3,634.3	1,615.9	909.2	581.9	404.2	297	227.4	179.7	145.5	120.3	101.1	86.1	74.3	64.7	56.9
			D _u	0.2	0.4	0.7	1.1	1.6	2.1	2.8	3.5	4.4	5.3	6.3	7.4	8.6	9.9	11.2
			C	554.2	369.6	277.2	221.8	184.8	158.4	138.6	123.2	110.9	100.8	92.4	85.3	79.2	73.9	69.3
			D _c	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.5	4.2	5.0	5.9	6.9	7.9	9.0

Spans and loads in red exceed a deflection of 6mm for uniform loads of 5kPa. Experience has shown that 6mm deflection is the maximum deflection to give pedestrian comfort, but can be exceeded for other types of loads at the discretion of the specifying professional.

30HSY102 (mm)

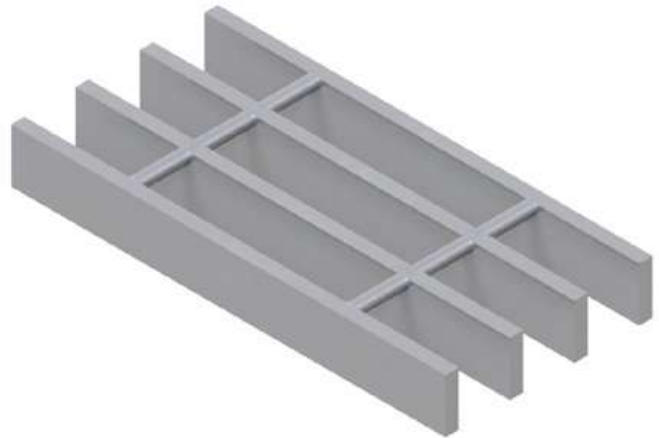
# of Bars	2	3	4	5	6	7	8	9	10	11
6mm Bars	36	66	96	126	156	186	216	246	276	306
10mm Bars	40	70	100	130	160	190	220	250	280	310
# of Bars	12	13	14	15	16	17	18	19	20	21
6mm Bars	336	366	396	426	456	486	516	546	576	606
10mm Bars	340	370	400	430	460	490	520	550	580	610
# of Bars	22	23	24	25	26	27	28	29	30	31
6mm Bars	636	666	696	726	756	786	816	846	876	906
10mm Bars	640	670	700	730	760	790	820	850	880	910

重型公制荷載表

LOAD TABLE HEAVY DUTY, METRIC

GRATING TYPE: 30HSY102
 DESIGN CODE: HSY669-11
 MATERIAL: ASTM A1011CS GRADE 250
 SURFACE: SMOOTH

格柵類型: 30HSY102
 設計規範: HSY669-11
 材料: ASTM A1011CS 250 級
 表面: 光滑



U = Safe Uniform Load (kPa)
 Du= Deflection Due to Safe Uniform Load (mm)
 C = Safe Concentrated Load (kN/meter of grating width)
 Dc= Deflection Due to Safe Concentrated Load (mm)
 Allowable Extreme Fiber Stress = 137.9 MPa

承載筋直徑 BG BR SZ (MM)	理論重量 APPX. WGT (KG/M ²)	支座間距 PD. SPN (MM)		跨距 SPAN (mm)															截面特性 SECTION PROPERTIES S _x (mm ² /m) S _x (立方毫米 / 米)	
				305	457	610	762	915	1067	1219	1372	1524	1677	1829	1981	2134	2286	2438		
89 x 6	154.2	3,991.00	U	3,332.5	1,481.7	833.7	533.6	370.6	272.3	208.5	164.7	133.4	110.3	92.7	79.0	68.1	59.3	52.2	281,000	
			D _u	0.2	0.3	0.6	0.9	1.4	1.8	2.4	3.0	3.8	4.5	5.4	6.3	7.4	8.4	9.6		
			C	508.2	338.9	254.2	203.4	169.5	145.3	127.1	113.0	101.7	92.4	84.7	78.2	72.6	67.8	63.6	12.49E+6	
			D _c	0.1	0.3	0.5	0.8	1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.1	5.9	6.8	7.7		
89 x 10	229.2	4,406.00	U	4,946.6	2,199.5	1,237.5	792.1	550.1	404.2	309.5	244.5	198.1	163.7	137.6	117.2	101.1	88.0	77.4	417110	
			D _u	0.2	0.3	0.6	0.9	1.4	1.8	2.4	3.0	3.8	4.5	5.4	6.3	7.4	8.4	9.6		
			C	754.1	503.0	377.3	301.9	251.6	215.6	188.7	167.7	151.0	137.2	125.8	116.1	107.8	100.6	94.4	18.54E+6	
			D _c	0.1	0.3	0.5	0.8	1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.1	5.9	6.8	7.7		
102 x 6	175.5	4,412.00	U	4,352.6	1,935.3	1,088.9	697.0	484.0	355.6	272.3	215.2	174.3	144.0	121.0	103.1	88.9	77.5	68.1	367,020	
			D _u	0.1	0.3	0.5	0.8	1.2	1.6	2.1	2.7	3.3	4.0	4.7	5.5	6.4	7.4	8.4		
			C	663.8	442.6	332.0	265.6	221.4	189.7	166.0	147.6	132.8	120.8	110.7	102.2	94.9	88.6	83.0	18.64E+6	
			D _c	0.1	0.2	0.4	0.7	0.9	1.3	1.7	2.1	2.6	3.2	3.8	4.4	5.1	5.9	6.7		
102 x 10	260.8	4,870.00	U	6,460.9	2,872.8	1,616.3	1,034.6	718.5	527.9	404.2	319.4	258.7	213.8	179.7	153.1	132.0	115.0	101.1	544,800	
			D _u	0.1	0.3	0.5	0.8	1.2	1.6	2.1	2.7	3.3	4.0	4.7	5.6	6.4	7.4	8.4		
			C	985.3	657.0	492.8	394.3	328.6	281.6	246.4	219.1	197.2	179.2	164.3	151.7	140.8	131.4	123.3	27.68E+6	
			D _c	0.1	0.2	0.4	0.7	0.9	1.3	1.7	2.1	2.6	3.2	3.8	4.4	5.1	5.9	6.7		
127x 10	323.9	5,757.00	U	10,095.2	4,488.7	2,525.4	1,616.5	1,122.7	824.9	631.6	499.0	404.2	334.1	280.7	239.2	206.3	179.7	158.0	851,250	
			D _u	0.1	0.2	0.4	0.7	0.9	1.3	1.7	2.1	2.6	3.2	3.8	4.4	5.1	5.9	6.7		
			C	1,539.5	1,026.6	770.0	616.0	513.4	440.1	385.1	342.3	308.1	280.1	256.7	237.0	220.1	205.4	192.6	54.05E+6	
			D _c	0.1	0.2	0.3	0.5	0.8	1.0	1.3	1.7	2.1	2.6	3.0	3.6	4.1	4.7	5.4		
152 x 10	387.1	6,600.00	U	14,537.0	6,463.7	3,636.6	2,327.8	1,616.6	1,187.8	909.5	718.6	582.1	481.1	404.2	344.5	297.0	258.7	227.5	1,225,800	
			D _u	0.1	0.2	0.4	0.5	0.8	1.1	1.4	1.8	2.2	2.6	3.2	3.7	4.3	4.9	5.6		
			C	2,216.9	1,478.3	1,108.8	887.1	739.3	633.7	554.5	492.9	443.6	403.3	369.7	341.3	316.9	295.8	277.3	93.41E+6	
			D _c	0.1	0.2	0.3	0.4	0.6	0.9	1.1	1.4	1.8	2.1	2.5	3.0	3.4	3.9	4.5		

Spans and loads in red exceed a deflection of 6mm for uniform loads of 5kPa. Experience has shown that 6mm deflection is the maximum deflection to give pedestrian comfort, but can be exceeded for other types of loads at the discretion of the specifying professional.

30HSY102 (mm)

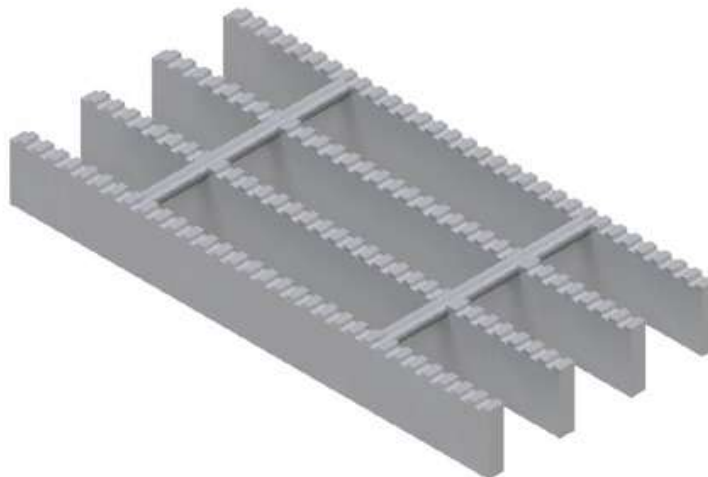
# of Bars	2	3	4	5	6	7	8	9	10	11
6mm Bars	36	66	96	126	156	186	216	246	276	306
10mm Bars	40	70	100	130	160	190	220	250	280	310
# of Bars	12	13	14	15	16	17	18	19	20	21
6mm Bars	336	366	396	426	456	486	516	546	576	606
10mm Bars	340	370	400	430	460	490	520	550	580	610
# of Bars	22	23	24	25	26	27	28	29	30	31
6mm Bars	636	666	696	726	756	786	816	846	876	906
10mm Bars	640	670	700	730	760	790	820	850	880	910

重型公制荷載表

LOAD TABLE HEAVY DUTY, METRIC

GRATING TYPE: 30HSY102
 DESIGN CODE: HSY669-11
 MATERIAL: ASTM A1011CS GRADE 250
 SURFACE: SMOOTH

格柵類型: 30HSY102
 設計規範e: HSY669-11
 材料:ASTM A1011CS 250 級
 表面:光滑



U = Safe Uniform Load (kPa)
 Du= Deflection Due to Safe Uniform Load (mm)
 C = Safe Concentrated Load (kN/meter of grating width)
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 Allowable Extreme Fiber Stress = 137.9 MPa

承載筋直徑 BG BR SZ (MM)	理論重量 APPX. WGT (KG/M²)	支座間距 PD. SPN (MM)	跨距 SPAN (mm)															截面特性 SECTION PROPERTIES S _x (mm³/m) S _y (立方毫米 / 米)
			305	457	610	762	915	1067	1219	1372	1524	1677	1829	1981	2134	2286	2438	
25 x 6	47.9	1,274.00	U 158.7	70.6	39.7	25.4	17.6	13.0	9.9	7.8								13,380
			Du 0.7	1.5	2.8	4.3	6.2	8.4	11.0	13.9								
			C 24.2	16.1	12.1	9.7	8.1	6.9	6.1	5.4								129.80E+3
			Dc 0.6	1.2	2.2	3.4	5.0	6.7	8.8	11.1								
32 x 6	58.6	1,578.00	U 280.7	124.8	70.2	44.9	31.2	22.9	17.6	13.9	11.2	9.3						23,670
			Du 0.5	1.2	2.1	3.2	4.7	6.3	8.3	10.5	12.9	15.7						
			C 42.8	28.5	21.4	17.1	14.3	12.2	10.7	9.5	8.6	7.8						305.31E+3
			Dc 0.4	0.9	1.7	2.6	3.7	5.1	6.6	8.4	10.3	12.5						
38 x 6	69.1	1,859.00	U 434.5	193.2	108.7	69.6	48.3	35.5	27.2	21.5	17.4	14.4	12.1	10.3				36,640
			Du 0.4	0.9	1.7	2.6	3.7	5.1	6.7	8.4	10.4	12.6	15.0	17.6				
			C 66.3	44.2	33.1	26.5	22.1	18.9	16.6	14.7	13.3	12.1	11.0	10.2				588.02E+3
			Dc 0.3	0.7	1.3	2.1	3.0	4.1	5.3	6.7	8.3	10.1	12.0	14.1	16.3			
38 x 10	100.8	2,052.00	U 644.9	286.8	161.3	103.3	71.7	52.7	40.3	31.9	25.8	21.3	17.9	15.3	13.2			54,380
			Du 0.4	0.9	1.7	2.6	3.7	5.1	6.7	8.4	10.4	12.6	15.0	17.6	20.4			
			C 98.4	65.6	49.2	39.4	32.8	28.1	24.6	21.9	19.7	17.9	16.4	15.1	14.1			872.84E+3
			Dc 0.3	0.7	1.3	2.1	3.0	4.1	5.3	6.7	8.3	10.1	12.0	14.1	16.3			
51x 6	90.4	2,387.00	U 846.3	376.3	211.7	135.5	94.1	69.1	52.9	41.8	33.9	28.0	23.5	20.1	17.3	15.1	13.2	71,360
			Du 0.4	0.7	1.2	1.9	2.7	3.7	4.8	6.0	7.4	9.0	10.7	12.6	14.6	16.8	19.1	
			C 129.1	86.1	64.6	51.6	43.0	36.9	32.3	28.7	25.8	23.5	21.5	19.9	18.4	17.2	16.1	1.60E+6
			Dc 0.2	0.5	1.0	1.5	2.1	2.9	3.8	4.8	6.0	7.2	8.6	10.1	11.7	13.4	15.2	
64 x 6	111.7	2,879.00	U 1,394.1	619.9	348.8	223.2	155.0	113.9	87.2	68.9	55.8	46.1	38.8	33.0	28.5	24.8	21.8	117,560
			Du 0.2	0.5	0.9	1.5	2.1	2.8	3.7	4.7	5.8	7.0	8.4	9.8	11.4	13.1	14.8	
			C 212.6	141.8	106.3	85.1	70.9	60.8	53.2	47.3	42.5	38.7	35.5	32.7	30.4	28.4	26.6	3.38E+6
			Dc 0.2	0.4	0.7	1.2	1.7	2.3	3.0	3.8	4.6	5.6	6.7	7.8	9.1	10.4	11.9	
76 x 6	132.9	3,344.00	U 2,078.0	923.9	519.8	332.7	231.1	169.8	130.0	102.7	83.2	68.8	57.8	49.2	42.5	37.0	32.5	175,220
			Du 0.2	0.5	0.9	1.5	2.1	2.8	3.7	4.7	5.8	7.0	8.4	9.8	11.4	13.1	14.8	
			C 316.9	211.3	158.5	126.8	105.7	90.6	79.3	70.5	63.4	57.6	52.8	48.8	45.3	42.3	39.6	6.15E+6
			Dc 0.2	0.3	0.6	1.0	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.4	7.5	8.6	9.7	
76x 10	197.5	3,691.00	U 3,084.5	1,371.5	771.6	493.9	343.0	252.0	193.0	152.5	123.5	102.1	85.8	73.1	63.0	54.9	48.3	260,090
			Du 0.2	0.4	0.8	1.2	1.7	2.3	3.0	3.9	4.8	5.8	6.8	8.0	9.3	10.7	12.2	
			C 470.4	313.7	235.3	188.2	156.9	134.5	117.7	104.6	94.1	85.6	78.4	72.4	67.2	62.8	58.8	9.13E+6
			Dc 0.2	0.3	0.6	1.0	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.4	7.5	8.6	9.7	

Spans and loads in red exceed a deflection of 6mm for uniform loads of 5kPa. Experience has shown that 6mm deflection is the maximum deflection to give pedestrian comfort, but can be exceeded for other types of loads at the discretion of the specifying professional.

30HSY102 (mm)

# of Bars	2	3	4	5	6	7	8	9	10	11
6mm Bars	36	66	96	126	156	186	216	246	276	306
10mm Bars	40	70	100	130	160	190	220	250	280	310
# of Bars	12	13	14	15	16	17	18	19	20	21
6mm Bars	336	366	396	426	456	486	516	546	576	606
10mm Bars	340	370	400	430	460	490	520	550	580	610
# of Bars	22	23	24	25	26	27	28	29	30	31
6mm Bars	636	666	696	726	756	786	816	846	876	906
10mm Bars	640	670	700	730	760	790	820	850	880	910

重型公制荷載表

LOAD TABLE HEAVY DUTY, METRIC

GRATING TYPE: 30HSY102
DESIGN CODE: HSY669-11
MATERIAL: ASTM A1011CS GRADE 250
SURFACE: SMOOTH

格柵類型: 30HSY102

設計規範: HSY669-11

材料:ASTM A1011CS 250 級

表面：光滑

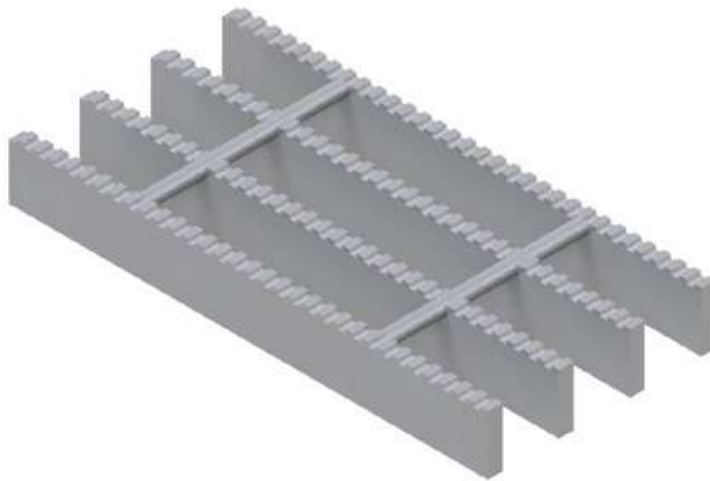
U = Safe Uniform Load (kPa)

Du= Deflection Due to Safe Uniform Load (mm)

C = Safe Concentrated Load (kN/meter of grating width)

Dc= Deflection Due to Safe Concentrated Load (mm)

Allowable Extreme Fiber Stress = 137.9 MPa



承載筋直徑 BG BR SZ (MM)	理論重量 APPX. WGT (KG/M ²)	支座間距 PD. SPN (MM)		跨距 SPAN (mm)															截面特性 SECTION PROPERTIES S _x (mm ² /m) S _x (立方毫米 / 米)	
				305	457	610	762	915	1067	1219	1372	1524	1677	1829	1981	2134	2286	2438		
89 x 6	154.2	3,788.00	U	2,897.8	1,288.5	724.9	464.0	322.3	236.8	181.3	143.2	116.0	95.9	80.6	68.7	59.2	51.6	45.4	244,350	
			D _u	0.2	0.4	0.6	1.0	1.4	2.0	2.6	3.3	4.0	4.9	5.8	6.8	7.9	9.1	10.3		
			C	441.9	294.7	221.0	176.8	147.4	126.3	110.5	98.3	88.4	80.4	73.7	68.0	63.2	59.0	55.3	10.13E+6	
			D _c	0.1	0.3	0.5	0.8	1.2	1.6	2.6	2.6	3.2	3.9	4.6	5.4	6.3	7.2	8.2		
89 x 10	229.2	4,181.00	U	4,301.5	1,912.6	1,076.1	688.8	478.4	351.5	269.1	212.6	172.2	142.3	119.6	101.9	87.9	76.6	67.3	362710	
			D _u	0.2	0.4	0.6	1.0	1.4	2.0	2.6	3.3	4.0	4.9	5.8	6.8	7.9	9.1	10.3		
			C	656.0	437.4	328.1	262.5	218.8	187.5	164.1	145.8	131.3	119.3	109.4	101.0	93.8	87.5	82.1	15.03E+6	
			D _c	0.1	0.3	0.5	0.8	1.2	1.6	2.1	2.6	3.2	3.9	4.6	5.4	6.3	7.2	8.2		
102 x 6	175.5	4,215.00	U	3,853.7	1,713.5	964.1	617.1	428.6	314.9	241.1	190.5	154.3	127.5	107.2	91.3	78.7	68.6	60.3	324,960	
			D _u	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.5	4.2	5.0	5.9	6.8	7.9	8.9		
			C	587.7	391.9	293.9	235.2	196.0	168.0	147.0	130.7	117.6	106.9	98.0	90.5	84.0	78.4	73.5	15.53E+6	
			D _c	0.1	0.3	0.4	0.7	1.0	1.4	1.8	2.3	2.8	3.4	4.0	4.7	5.5	6.3	7.1		
102 x 10	260.8	4,652.00	U	5,720.3	2,543.5	1,431.0	916.0	636.1	467.4	357.9	282.8	229.1	189.3	159.1	135.5	116.9	101.8	89.5	482,360	
			D _u	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.5	4.2	5.0	5.9	6.8	7.9	8.9		
			C	872.4	581.7	436.3	349.1	290.9	249.4	218.2	194.0	174.6	158.7	145.5	134.3	124.7	116.4	109.1	23.06E+6	
			D _c	0.1	0.3	0.4	0.7	1.0	1.4	1.8	2.3	2.8	3.4	4.0	4.7	5.5	6.3	7.1		
127x 10	323.9	5,552.00	U	9,164.8	4,074.6	2,292.5	1,467.4	1,019.1	748.8	573.3	453.0	366.9	303.3	254.8	217.1	187.2	163.1	143.4	772,720	
			D _u	0.1	0.2	0.4	0.7	1.0	1.4	1.8	2.2	2.8	3.3	4.0	4.7	5.4	6.2	7.1		
			C	1,397.5	931.9	699.0	599.2	466.0	399.5	349.5	310.7	279.6	254.2	233.0	215.1	199.8	186.4	174.8	46.75E+6	
			D _c	0.1	0.2	0.4	0.6	0.8	1.1	1.4	1.8	2.2	2.7	3.2	3.7	4.3	5.0	5.6		
152 x 10	387.1	6,405.00	U	13,414.9	5,964.8	3,355.9	2,148.1	1,491.8	1,096.1	839.3	663.1	537.2	443.9	373.0	317.9	274.1	238.8	210.0	1,131,180	
			D _u	0.1	0.2	0.4	0.6	0.8	1.1	1.5	1.8	2.3	2.8	3.3	3.9	4.5	5.1	5.8		
			C	2,045.8	1,364.1	1,023.2	818.6	682.2	584.8	511.7	454.8	409.4	372.2	341.1	314.9	292.4	272.9	255.9	82.80E+6	
			D _c	0.1	0.2	0.3	0.5	0.7	0.9	1.2	1.5	1.8	2.2	2.6	3.1	3.6	4.1	4.7		

Spans and loads in red exceed a deflection of 6mm for uniform loads of 5kPa. Experience has shown that 6mm deflection is the maximum deflection to give pedestrian comfort, but can be exceeded for other types of loads at the discretion of the specifying professional.

30HSY102 (mm)

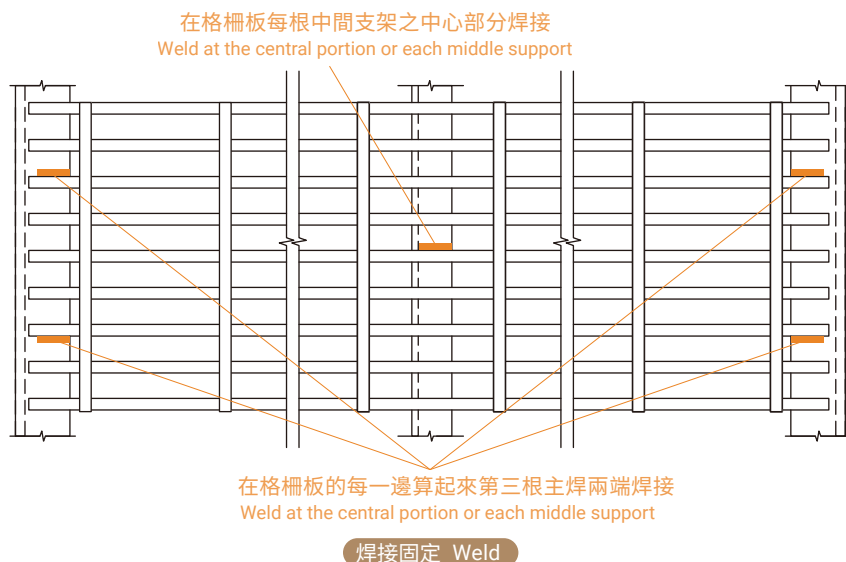
# of Bars	2	3	4	5	6	7	8	9	10	11
6mm Bars	36	66	96	126	156	186	216	246	276	306
10mm Bars	40	70	100	130	160	190	220	250	280	310
# of Bars	12	13	14	15	16	17	18	19	20	21
6mm Bars	336	366	396	426	456	486	516	546	576	606
10mm Bars	340	370	400	430	460	490	520	550	580	610
# of Bars	22	23	24	25	26	27	28	29	30	31
6mm Bars	636	666	696	726	756	786	816	846	876	906
10mm Bars	640	670	700	730	760	790	820	850	880	910

安裝夾及固定方法 FIXING CLIPS AND FIXING METHOD

鋼格板固定方法 FIXING METHOD OF STEEL GRATING

可選用焊接和安裝夾緊固兩種方式。焊接的優點是永久固定，不會鬆脫；安裝夾的優點是不破壞熱浸鋅層及拆卸方便。最安全的方法是不用下夾，直接將螺釘頭焊在梁上，保證鋼格板不會因安裝夾鬆脫而從梁上滑落。

Welding and installing fixing clips can be selected. The advantages of welding are permanent fixation and no looseness; the advantages of fixing clip are no damage to hot-dip galvanized layer and convenient disassembly. The safest way is to directly weld the screw head on the beam without the underclamp, so as to ensure that the steel grating will not slide from the beam due to the looseness of the clips.

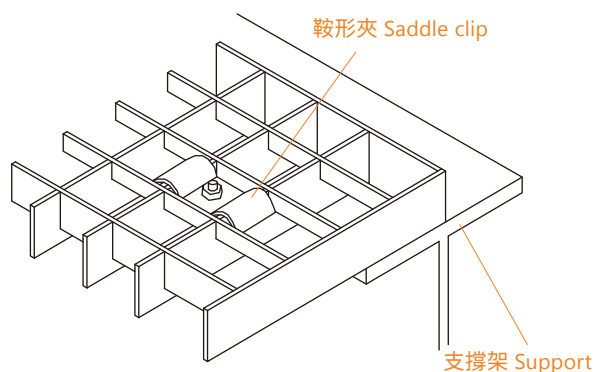


安裝夾固定 Installing fixing clips

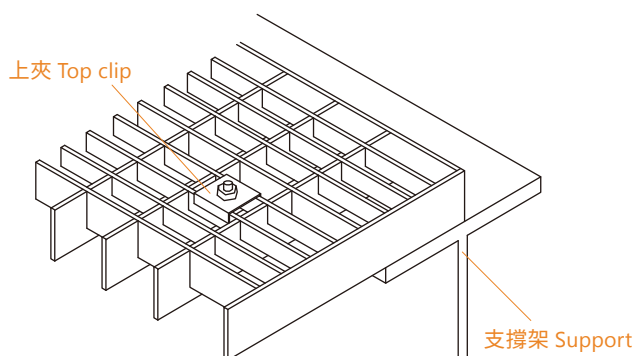
安裝夾 FIXING CLIPS

- 安裝夾組成：安裝夾由上夾、下夾及M8圓頭螺栓組成。
- 材質：碳鋼熱鍍鋅或不銹鋼 (304/316L)，也可定制其它形式安裝夾。
- 安裝夾使用方法：
安裝夾裝在鋼格板的四個角上，必須最大限度地緊固以避免鬆脫。每件板至少需要4套安裝夾，安裝夾使用數量隨著板長度的增加而增加。

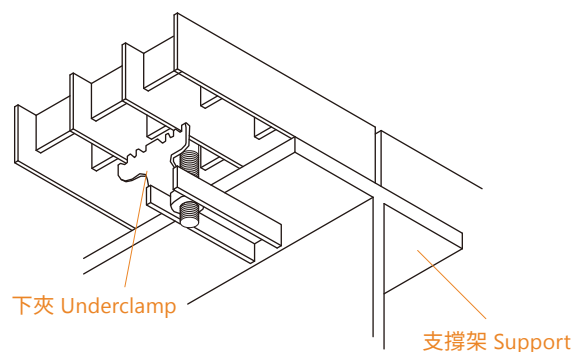
- The composition of fixing clip:
top clip, underclamp and M8 round head bolt
- Material:
hot-dip galvanized carbon steel or stainless steel (304 / 316L)
Other types of mounting clip can also be customized.
- How to use:
The fixing clip is installed on the four corners of the steel grating, which must be tightened as far as possible to avoid loosening. Each plate needs at least 4 sets of mounting clips, and the number of mounting clips increases with the increase of plate length.



鞍形夾—頂部組件 Saddle clip - top part of assembly

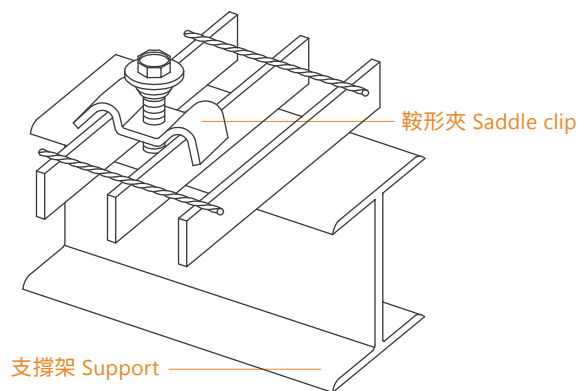


上夾—9x30的頂部裝配 Top clip - assume for 9x30 top part

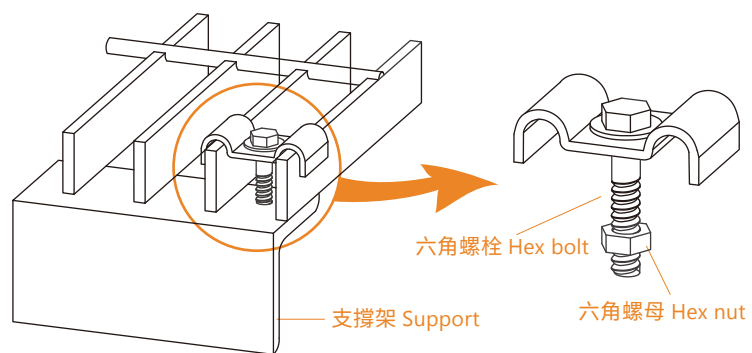


安裝組件—下夾 Underclamp of clip assembly

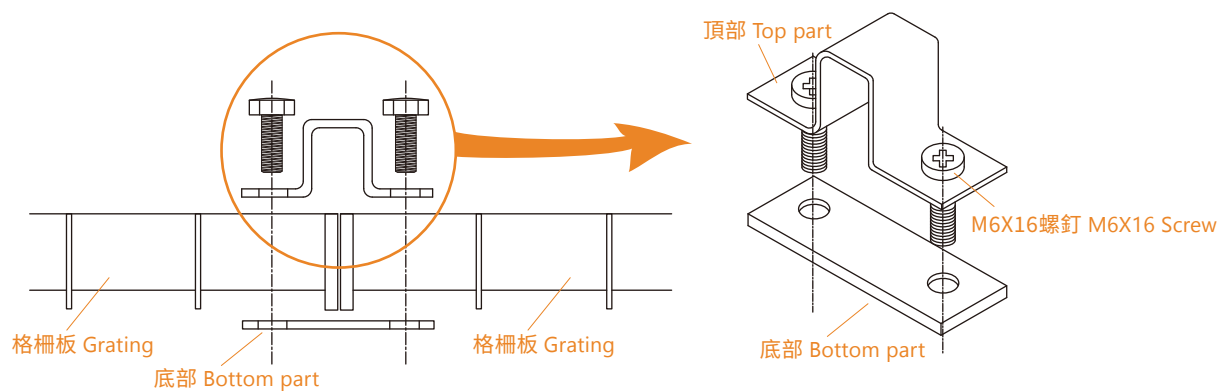
■ 安裝扣 FIXING BUCKLE



夾緊裝置 Clamp Fitting



夾緊裝置 Clamp Fitting



夾緊裝置 Clamp Fitting



格栅板测试报告 GRATING PANEL TEST REPORT

CASTCO 佳力高試驗中心有限公司
CASTCO TESTING CENTRE LTD.

Custom Testing Centre Ltd.
29A, On Chun Street, On Lok Tseuen,
Fanning, N.T.

Attn: Mr. K.N. Si (Tel No: 2597 8188) (E-mail: DR@castco.com.hk) (Fax No: 2597 8199)
Mr. E.Y. Leung (Tel No: 2597 8187)

自送

Customer's Ref: Drainage Pipe Lab. Ref. No. 64321

Customer: HK Hangsheng Steel Industrial Limited
Address: G/F, 69C Bedford Road Tai Kok Tsui Kowloon Hong Kong
Project: Tested by ourselves, no project name required
Testing of: Gully grating

Please carry out testing in accordance with BS EN 124 (Clause 8.3.2) for the following specimens taken from captioned project

Sample Description / Sample No.	No. of Specimens	Type of testing
J149-A01 (M18 steel gully grating) (600x504) Serial refer to sample description (2 pcs)	2	Dimension Sample no.: J149-A01 Method: ✓
J149-A02 (M18 steel gully grating) (600x504) Serial refer to sample description (2 pcs)	2	Hydrostatic test Sample no.: J149-A02 Capability: ✓
Refer to Crushing strength design strength in S270/275. Please start test with the minimum design value. If the test passes, increase the value and repeat it until it fails.	4 pcs	Crushing strength Sample no.: J149-A03 Resistance: ✓
Water Absorption	4 pcs	Completion Date: 2/1/2024 Subcontracting: N/A
Mechanical	4 pcs	Coefficient of friction: X / N
Other	4 pcs	Accepted by: [Signature] Date: 01/01/2024

Remarks:
If you require a statement of conformity to a specification or standard for the test report, Castco's decision rule will be applied.
Detail please refer to the "Castco Decision Rules for statements of conformity on test reports" section of the quotation.
☐ 1. Statement of conformity requested (Decision rules selected in quotation)
☐ 2. Statement of conformity requested (Decision rules selected in laboratory)
☐ 3. Statement of conformity not required
Note: If no selection of above, laboratory will apply rule no.2 or 3.

Contact person: Barry (Tel. no. 2597 8199) Fax no.: N/A
E-mail: barry@castco.com.hk (Software report please send to this email)

For further information on the above, and for the test results to: N/A

Please send the test report to (address): G/F, 69C Bedford Road Tai Kok Tsui Kowloon Hong Kong
And tell the testing firm to (address): G/F, 69C Bedford Road Tai Kok Tsui Kowloon Hong Kong

Name: Barry
Company: Castco

Form No.: LPT TEST REPORT 02/01/2022

佳力高試驗中心有限公司
CASTCO TESTING CENTRE LIMITED
9 DEC 2024
RECEIVED

CASTCO 佳力高試驗中心有限公司
CASTCO TESTING CENTRE LIMITED

Summary for Test Results

Customer: HK Hangsheng Steel Industrial Limited
Address: G/F, 69C Bedford Road, Tai Kok Tsui, Kowloon
Job title: ---
Contract no.: ---
Serial no.: ---
Customer's ref. no.: ---
Sample description: Gully Grating
Material name: ---
Manufacture: ---
Test standard: BS EN 124:1994
Date of sample received: 09 December 2024

Reference no.: DR-SUB04047-2024-045

Type	Size (mm)	Specimen no. / Class LRN
M18 Steel Gully Grating	600 x 504 x 30	149-A01
	600 x 504 x 30	149-A02

Type	Size (mm)	Test results	Class LRN
M18 Steel Gully Grating	600 x 504 x 30	Passed	149-109-24-1-001 MISCET
	600 x 504 x 30	Passed	149-109-24-1-002 MISCET

Prepared by: YUEN CHI KIT
Date: 05 January 2025

Reviewed by: LEUNG HONG YU
Date: 05 January 2025

Page 1 of 1

香港新嘉坡安海街33號新嘉坡中心6樓 - 6/F, Techno Centre, 33, On Kai Street, Fanning, Hong Kong.
香港新嘉坡安海街33號新嘉坡中心1樓 - 1/F, Sun Ling Plaza, 30, On Kai Street, Fanning, Hong Kong.
香港新嘉坡安海街33號新嘉坡中心2樓 - 2/F, On Kai Street, Fanning, Hong Kong.
Tel: 2597 8333 Fax: 2597 8399 E-mail: info@castco.com.hk Website: www.castco.com.hk

CASTCO 佳力高試驗中心有限公司
CASTCO TESTING CENTRE LIMITED

Test Report
Manhole Covers - Leading Test of Manhole Covers and Gully Gratings
(BS EN 124:1994 + Amd. 8587 Clause 8)

Customer: HK Hangsheng Steel Industrial Limited
Address: G/F, 69C Bedford Road, Tai Kok Tsui, Kowloon
Job title: ---
Sample description: M18 Steel Gully Grating
Material name: ---
Manufacture: ---

Customer's ref. no.: ---
Contract no.: ---
Class: A15

Date of sample received: 09 December 2024 Date of test: 02 January 2025

Specimen no.	J149-A01
Size (mm)	600 x 504 x 30
Clear opening (mm)	402
Size of test block	Ø 250
Measurements of Permanent Set	
2/3 of the test load applied (kN)	---
Permanent set of cover (mm)	---
Reinforcement (mm)	---
Application of the test load	
Load applied (kN)	15
Test load remains (s)	30
Observation	NOV
Withstood the load	Yes
Reinforcement	Manhole covers and gully gratings shall withstand the test load without fracturing or cracking.

Legend:
FC - Fracture at cover
FF - Fracture at frame
NOV - No visible fracture

Remarks:
1. Permissible permanent set as given in BS EN 124:1994 + Amd. 8587 Table 8.
a) For Class A15 and B125, CO/100, or C/300 when CO < 450mm.
b) For Class C250 up to 1900, CO/100, or less max. when CO < 300mm. (when assessed according to 7.8a or 7.8c)
c) For Class C250 up to 1900, CO/100, or less max. when CO < 300mm. (when assessed according to 7.8b)
2. Test results relate only to the specimen tested.
3. Customer instructed to waive the permanent set testing.
4. As customer's request the specimen was loaded to failure, the specimen failed at 48.0 kN.

Checked by: [Signature]
Approved by: [Signature]
Date of issue: 05/01/2025

CASTCO 佳力高試驗中心有限公司
CASTCO TESTING CENTRE LIMITED

Test Report
Manhole Covers - Leading Test of Manhole Covers and Gully Gratings
(BS EN 124:1994 + Amd. 8587 Clause 8)

Customer: HK Hangsheng Steel Industrial Limited
Address: G/F, 69C Bedford Road, Tai Kok Tsui, Kowloon
Job title: ---
Sample description: M18 Steel Gully Grating
Material name: ---
Manufacture: ---

Customer's ref. no.: ---
Contract no.: ---
Class: A15

Date of sample received: 09 December 2024 Date of test: 02 January 2025

Specimen no.	J149-A02
Size (mm)	600 x 504 x 30
Clear opening (mm)	402
Size of test block	Ø 250
Measurements of Permanent Set	
2/3 of the test load applied (kN)	---
Permanent set of cover (mm)	---
Reinforcement (mm)	---
Application of the test load	
Load applied (kN)	15
Test load remains (s)	30
Observation	NOV
Withstood the load	Yes
Reinforcement	Manhole covers and gully gratings shall withstand the test load without fracturing or cracking.

Legend:
FC - Fracture at cover
FF - Fracture at frame
NOV - No visible fracture

Remarks:
1. Permissible permanent set as given in BS EN 124:1994 + Amd. 8587 Table 8.
a) For Class A15 and B125, CO/100, or C/300 when CO < 450mm.
b) For Class C250 up to 1900, CO/100, or less max. when CO < 300mm. (when assessed according to 7.8a or 7.8c)
c) For Class C250 up to 1900, CO/100, or less max. when CO < 300mm. (when assessed according to 7.8b)
2. Test results relate only to the specimen tested.
3. Customer instructed to waive the permanent set testing.
4. As customer's request the specimen was loaded to failure, the specimen failed at 55.8 kN.

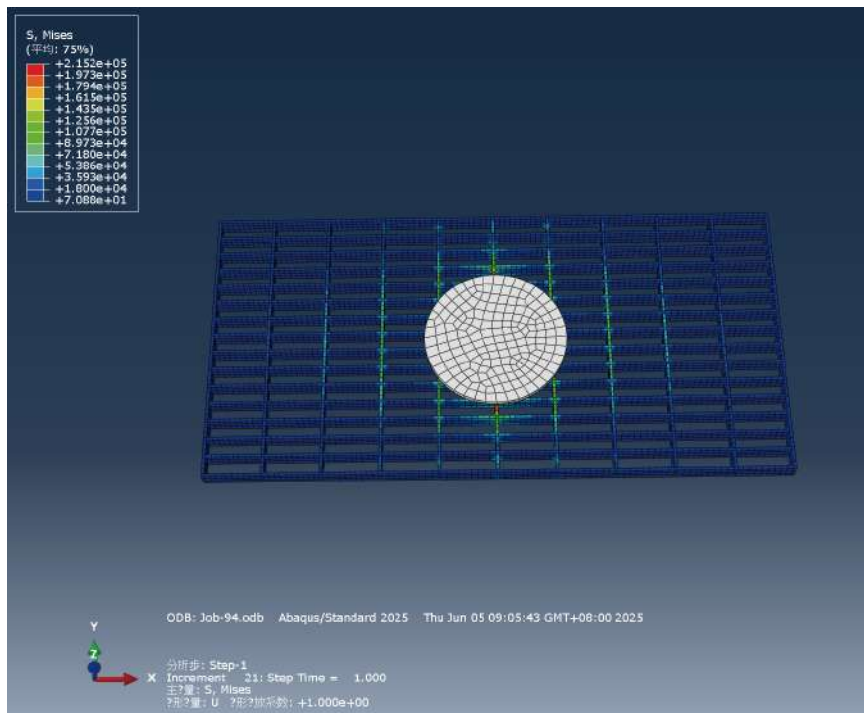
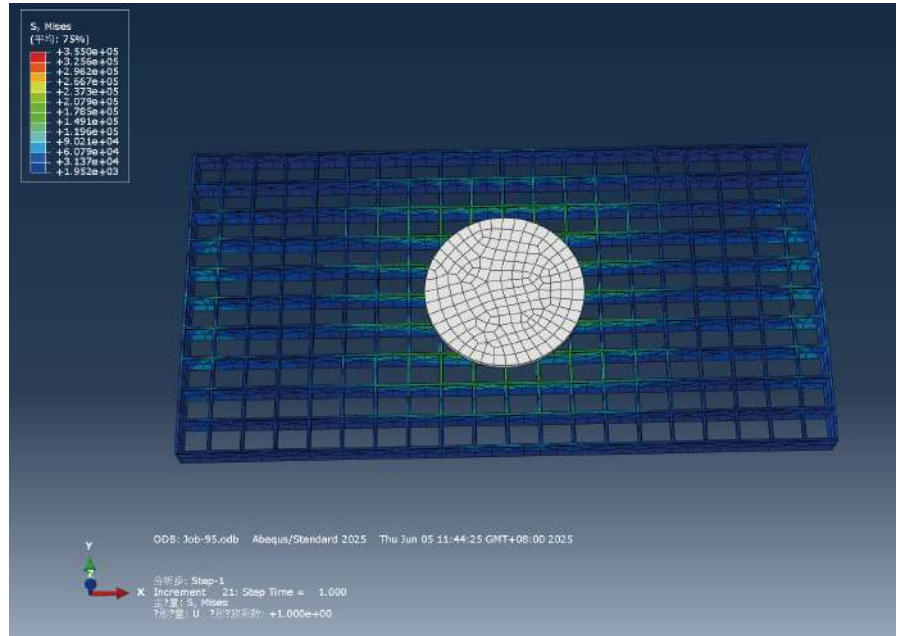
End of Report

Checked by: [Signature]
Approved by: [Signature]
Date of issue: 05/01/2025

有限元分析結果 FINITE ELEMENT ANALYSIS RESULTS

這是 Abaqus 有限元分析結果可視化圖，呈現格柵板結構受力雲圖，基於 Step - 1 分析步，顯示 Mises 應力分佈(範圍 + 1.952e+03 至 + 3.550e+05)，由 2025 版 Abaqus/Standard 計算生成，可輔助評估結構力學性能。

This is a visualization of Abaqus finite element analysis results, presenting the stress contour of a grating panel structure. Based on Analysis Step - 1, it shows the Mises stress distribution (ranging from + 1.952e+03 to + 3.550e+05). Generated by Abaqus/-Standard 2025, it can assist in evaluating the structural mechanical performance.



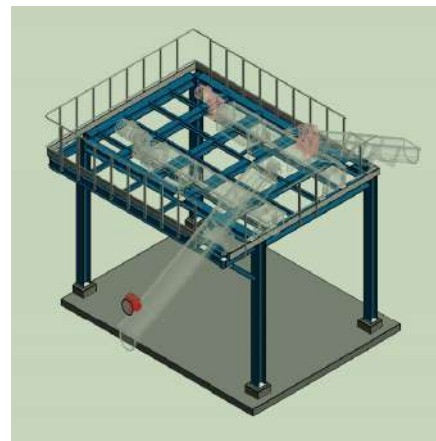
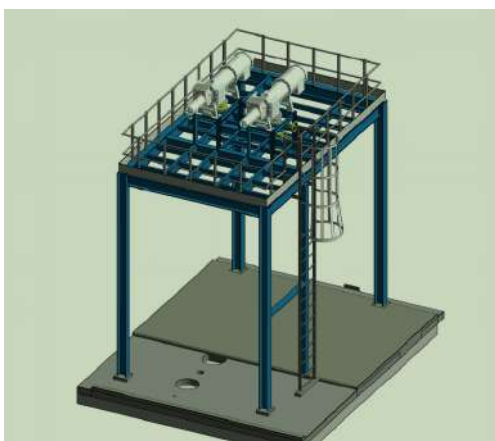
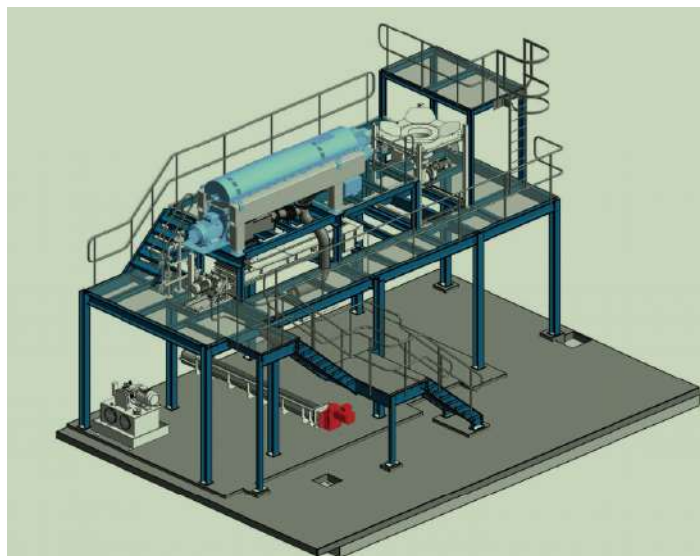
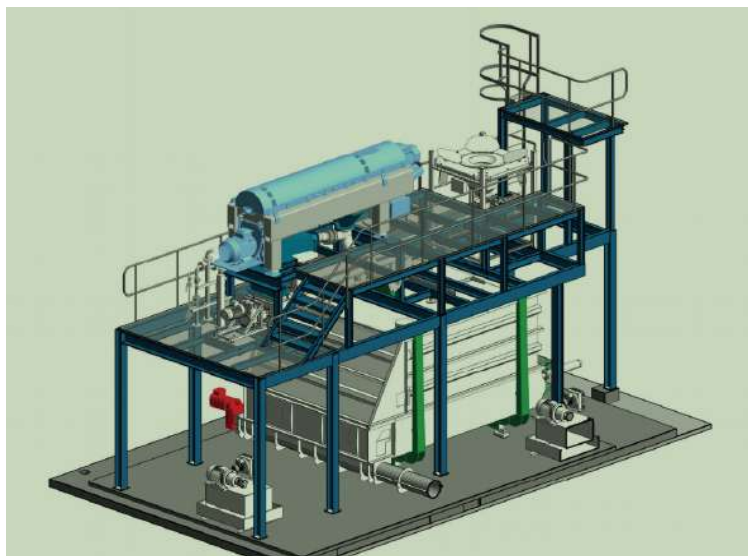
這是 Abaqus 有限元素分析結果可視化圖，呈現格柵板結構受力雲圖，基於 Step - 1 分析步，顯示 Mises 應力分佈(範圍 + 7.088e+01 至 + 2.152e+05)，由 2025 版 Abaqus/Standard 計算生成，協助評估結構力學性能。

This is a visualization of Abaqus finite element analysis results, presenting the stress contour of a grating panel structure. Based on Analysis Step - 1, it shows the Mises stress distribution (ranging from +7.088e+01 to +2.152e+05). Generated by Abaqus/-Standard 2025, it helps evaluate the structural mechanical performance.

The grating plate is made of high-strength metal materials through precise pressure welding processes. With its unique grid structure and excellent load-bearing performance, it has become an "all-rounder" in the field of engineering construction. Its anti-slip, corrosion-resistant, ventilation, and light-transmitting properties enable it to play a crucial role in various scenarios such as industrial platforms, municipal facilities, transportation engineering, and architectural decoration.

格柵板，以高強度金屬材質經精密壓焊工藝製成，憑藉獨特的網格結構與卓越的承載性能，成為工程建設領域的「全能型選手」。其防滑、耐腐蝕、通風透光等特性，使其在工業平台、市政設施、交通工程、建築裝飾等場景中發揮關鍵作用。







工程合約名稱 CONTRACT NAME	工程量 WORK AMOUNT	工程種類 WORK TYPE	開工 START	完工 COMPLETE	業主 CLIENT
澳門垃圾焚化中心 Macau Waste Incineration Center	熱浸鋅格柵板400m ² Hot dip galvanized Grating 400m ²	製造 Fabrication	2018	完成 Completed	景銘建築工程有限公司 JCOMPANHIA DE CONSTRUCAO EOBRAS KEN MENG LIMITADA
港鐵工程-地鐵地下井道維護平台 Purchase Order No.: 1127622 C2524-18 Replacement of Line Sump Platform in ISL	熱浸鋅格柵板270m ² Hot dip galvanized Grating 270m ²	製造 Fabrication	2018	完成 Completed	港鐵-Mass Transit Railway, MTR Co-MAKE(HONG KONG) LIMITED
龍鼓灘電站聯合循環燃氣輪機項目 Black Point Power Station Combined Cycle Gas Turbine (CCGT) Project	熱浸鋅格柵板320m ² Hot dip galvanized Grating 320m ²	製造 Fabrication	2019	完成 Completed	CLP-中華電力 KONWO MODULAR HOUSE LIMITED
海濱道公園及其鄰近範圍改善工程 3466RO - Improvement of Hoi Bun Road Park and Adjacent Area	熱浸鋅格柵板78m ² Hot dip galvanized Grating 78m ²	製造 Fabrication	2020	完成 Completed	柏德建築工程有限公司 ARCHITECTURAL SERVICES DEPARTMENT
KL2014/01-啟德發展計劃一 前跑道南面發展項目的基礎設施工程 KL2014/01-Kai Tak development – infrastructure works for developments at the southern part of the former runway	不銹鋼格柵板100m ² Stainless steel Grating 100m ²	製造 Fabrication	2020	完成 Completed	大陸工程-捷章建築聯營 土木工程擴展署-九龍拓展處
香港赫蘭道 4 号 A&A works at 4 headland road project	不銹鋼格柵板20m ² Stainless steel Grating 20m ²	製造 Fabrication	2021	完成 Completed	哲其建設有限公司 Jetline Construction Company Limited
中電電纜和通信臨時鋼甲板相關工程 Temporary Steel Deck for CLP Cable and Comm. Duct HKIA 3303 - Third Runway and Associated Works	熱浸鋅格柵板1650m ² Hot dip galvanized Grating 1650m ²	製造 Fabrication	2022	完成 Completed	香港機場管理局 Airport Authority
綜合廢棄物管理設施一期 EP/SP/66/12, Prequalified, Integrated Waste Management Facilities Phase 1	熱浸鋅格柵板 2400m ² Hot dip galvanized Grating 2400m ²	製造 Fabrication	2024	完成 Completed	環境保護署 Environment Protection Department AJA Joint Venture



AECOM

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27 FEB 2025

BY: 032564

AECOM
Resident Engineer's Office
780 Cheung Tung Road
Lantau Island
www.aecom.com

+852 2192 0500 tel
+852 2677 2135 fax

Your Ref : KSZHJV/OUT/2025/02/01.11/031227
Our Ref : IWMF/(EP/SP/66/12)/R20/731/B18323

25 February 2025

Keppel Seghers-Zhen Hua Joint Venture
19/F, China Harbour Building
370-374, King's Road
North Point
Hong Kong

Attn: Mr. Chung Tai Tung, Peter

Dear Sir,

Contract No. EP/SP/66/12
Integrated Waste Management Facilities Phase 1

Material Submission – Proposed HK HuangShangYou Industrial Ltd. to Supply the Steel Grating and Stair Treads for Chimney (CMS No. 001528/D)

We refer to your Contractor's Material Submission ref. KSZHJV/OUT/2025/02/01.11/031227 dated 14 February 2025 and have no objection to your proposal of using the size "G504/50/50G" Steel Grating and size "271mmx150mm(D)" stair treads supplied by HK HuangShangYou Industrial Ltd. for Chimney construction.

Please be reminded that, pursuant to Clause 3.3 of the Conditions of Contract, our no objection or comment concerning your submission, or non-provision of our comments on any areas of the subject of your submission, shall not in any way operate to relieve any of your duties, responsibilities, obligations or liabilities under the Contract.

Yours faithfully,
For and on behalf of
AECOM Asia Co. Ltd.



Henry Chan
Chief Resident Engineer

c.c. PEPO(IDG), EPD - Attn: Mr. Ray Lee
AACL - Attn: Mr. Desmond Ng

By Fax (3529 2991) only

HC/CWY/KMC/KT/cyc



煌商佑鋼鐵

HK HuangShangYou Steel Industrial Limited

G/F, 69C
Bedford Road
Tai Kok Tsui
Kowloon
Hong Kong
香港九龍大角咀必發道69C地下

Building 1, No.6
Jinhai 1st Road
Xiegang Town
Dongguan City
Guangdong Province
P.R. China
中國廣東省東莞市謝崗鎮金海一路6號1棟

Tel: +852-28366968
Phone: +852-92991977 +852-92992995
E-mail: king@ulsteel.com
Web: www.ulsteel.com.hk