

Swage-Locked Steel Grating Spec Sheet

Swage-locked grating mechanically locks cross bars into bearing bars by hydraulic deformation - no welding involved. Preferred family for aluminum (6061) and stainless (304 / 316) panels where heat-affected zones are unwanted.

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Stock spec	32x5 aluminum bearing bar at 30 / 100 mesh, mill finish.

1. Standard 11-parameter steel grating spec

Parameter	Range / standard value
Material	Q235B / S275JR carbon steel; SS304 / SS316 stainless; 6061 aluminum
Bearing bar	20x3 mm to 100x10 mm (common 25x3, 32x5, 40x5, 50x5)
Bearing bar pitch	12.5 / 22 / 25.4 / 30 / 34 / 40 / 41 / 60 mm
Cross bar	5 / 6 / 8 / 10 mm round or twisted square bar
Cross bar pitch	33 / 38 / 50 / 76 / 100 mm
Bearing bar type	Flat / I-bar / Serrated flat / Serrated I-bar
Surface treatment	Untreated / Hot-dip galvanized (75-120 um) / Painting / Stainless
Grating standard	ANSI/NAAMM MBG 531-09 / BS 4592:1987 / AS 1657-1985 / YB/T 4001.1-2007 / EN 1991-1-1
Galvanizing standard	ASTM A123 / A153 / ISO 1461 / GB/T 13912:2002
Package	Seaworthy package: pallet + steel strap + corner protector + bar code
MOQ	50 pieces standard, 1 m2 for custom (lower than peer 50-pc baseline)

2. HDG service life by ISO 9223 environment

The expected lifespan of the HDG coating follows ISO 9223 atmospheric corrosion class. Match the coating thickness (we ship 75 to 120 micron, ASTM A123) to your project lifespan target.

Class	Environment	Zinc loss um/yr	Life @ 85um	Life @ 120um
C1	Indoor dry (heated buildings, offices, museums)	<= 0.1	> 100 years	> 100 years
C2	Indoor damp / outdoor low pollution (rural, agriculture)	0.1 - 0.7	> 75 years	> 100 years
C3	Outdoor urban, low salinity coastal, indoor humid	0.7 - 2.1	40 - 75 years	55 - 100 years
C4	Industrial atmospheres, coastal moderate salinity	2.1 - 4.2	20 - 40 years	28 - 55 years
C5	Heavy industrial / marine / offshore	4.2 - 8.4	10 - 20 years	14 - 28 years

3. Swage Locked load behaviour and MBG 531 baseline

Swage-locked panels deflect about 10 to 15 percent more than press-welded at the same span. Reduce span 10 percent from the MBG 531 baseline when sizing aluminum panels.

Bar @ pitch	Span (mm)	Uniform (kN/m2)	Concentrated (kN/m)	Deflection (mm)
25x3 @ 30/100	600	12.5	5.6	3.2
25x3 @ 30/100	900	5.6	2.5	5.0
32x5 @ 30/100	600	22.0	9.8	2.5
32x5 @ 30/100	900	9.8	4.4	4.0
32x5 @ 30/100	1200	5.5	2.5	5.5
40x5 @ 30/100	900	13.0	5.8	3.5
40x5 @ 30/100	1200	7.3	3.3	5.0
50x5 @ 30/100	1200	11.4	5.1	4.0
50x5 @ 30/100	1500	7.3	3.3	5.5
60x5 @ 30/100	1500	10.5	4.7	4.5

4. Typical applications

- Aluminum walkways for offshore / marine applications.
- Stainless steel platforms in food, pharma, chemical plants.
- Architectural facade and balustrade grating panels.
- Lightweight access platforms where weld marks are rejected.

5. Export logistics summary

Item	Value
HS Code	7308.90.95 - Other structures and parts of structures, of iron or steel
Container 20'GP capacity	22 - 25 metric tons of HDG steel grating (about 850 - 1100 m2 in 32x5 specs)
Container 40'HQ capacity	50 - 55 metric tons of HDG steel grating (about 1900 - 2400 m2 in 32x5 specs)
Origin port	Tianjin Xingang (250 km from Anping factory)
Backup ports	Qingdao (650 km), Shanghai (1100 km)
Inland trucking lead time	8 - 12 hours Anping factory to Tianjin port
Sea freight lead time	Tianjin to US West Coast 18-22 days; to Hamburg 32-38 days; to Singapore 8-12 days
Documents on request	Commercial invoice, packing list, B/L, mill test certificate, certificate of origin (CCPIT / For
Packaging	Seaworthy: pallet + steel strap + corner protector + bar code; bundle weight balanced for

6. Incoterms 2020 supported

Code	Rule	Use for steel grating
EXW	Ex Works	Buyer collects from our factory in Anping. Buyer carries all risk and cost from factory gate.
FCA	Free Carrier	We deliver to a named carrier in China (e.g. Tianjin terminal). Risk transfers when carrier acc
FAS	Free Alongside Ship	We place goods alongside vessel at Tianjin Xingang. Suited for break-bulk steel grating cargo
FOB	Free On Board	Most common for our HDG steel grating. We load and clear customs at Tianjin Xingang. Risk

Code	Rule	Use for steel grating
CFR	Cost and Freight	We pay sea freight to destination port; risk still transfers at Tianjin port loading.
CIF	Cost, Insurance and Freight	CFR + cargo insurance (ICC(C) minimum, ICC(A) on request). Common for first-time buyers.
CPT	Carriage Paid To	For multi-modal (rail + sea + truck), we cover carriage to named destination.
CIP	Carriage and Insurance Paid To	CPT + insurance (ICC(A) default since Incoterms 2020).
DAP	Delivered at Place	We deliver to a named destination, buyer handles import customs and duties.
DPU	Delivered at Place Unloaded	DAP + we unload. New rule replacing DAT in Incoterms 2020.
DDP	Delivered Duty Paid	We handle everything including import customs, duties and VAT. Common for small project o

References: ANSI/NAAMM MBG 531-09 Metal Bar Grating Manual; BS 4592:1987; AS 1657-1985; ASTM A123 / A153; ISO 1461; ISO 9223:2012; HTSUS 7308.90; Incoterms 2020 (ICC).

No customer names, project names or shipment volumes are fabricated in this document.