



Heartful International



Heart Grating

Our grating is high quality, low price and manufactured by state-of-the-art welding machine at Vietnam factory with JIS (Japan Industrial Standard) qualified raw material and under strict quality control. Grating can be manufactured in accordance with specific needs of customer for use in your home country, overseas and local use.

Grating is used for oil rig, housing, factory, road, industrial flooring applications and stairs. Our grating receives high reputation from customer in the United States of America and is exported from our Vietnam factory to overseas.

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■ Company Information

Company Name : Heartful International Co., Ltd.
Address : Kotobuki Dogenzaka Bldg.2F,1-19-11 Dogenzaka,Shibuya-ku, Tokyo 150-0043, Japan
Business description : Steel grating production,galvanization,export and import business
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Company URL : <http://hf-in.com/eng.html>
Sales URL : <http://www.heart-grating.com>

■Factory Information

【Vietnam】	
Company Name	: M&H Industry Vietnam Co.,Ltd.
Address	: No.18,Dien Nam-Dien Ngoc Industrial Zone, Dien Nam Bac Ward, Dien Ban Village Quang Nam Province, Vietnam
Site area	: 30,975 square meter
Building area	: 12,000 square meter(Our use:6,000 square meter)
Facilities	: 2 lines of steel grating production facilities (1500 tons monthly production capacity) 1 line of galvanizing facilities for steel grating and steel products (2,500 tons monthly production capacity) Size of galvanizing tub: 8.0m(L) x 1.8m(W) x 2.5m(D)



■ Characteristics of Gratings

Safe • Reliable

Securing strength by Japan design,
JIS(Japan Industrial Standard)
qualified raw materials.

Assured quality

High quality control based
on Japan standard



Low cost

Production
by state-of-the-art
welding machine

■ Production facilities of Gratings

- Steel grating welding machines



- Steel grating cutting machines



- Powder coated line



- Hot dip galvanizing line

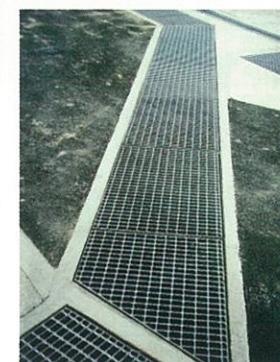
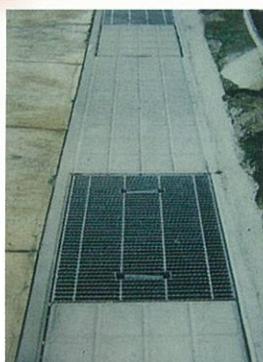


■ Advantage and use of steel gratings

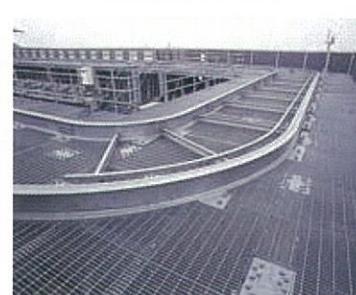
Drainage

Drain water smoothly
due to vast opening space

- Groove lid used for side ditch of road



- Flooring and stair step of factory, power plant and ship



- Balcony and stair step



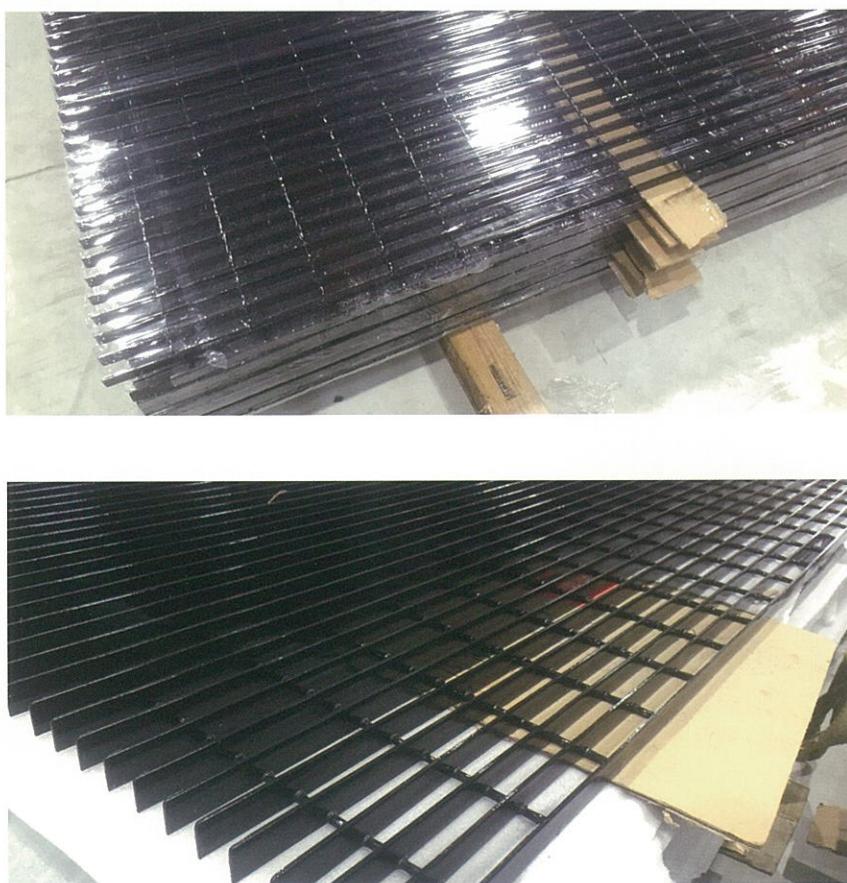
Lightweight

Lightweight and easy to install
due to grid shape

■ Sample of grating sheet (Bare steel sheet and Galvanized sheet)



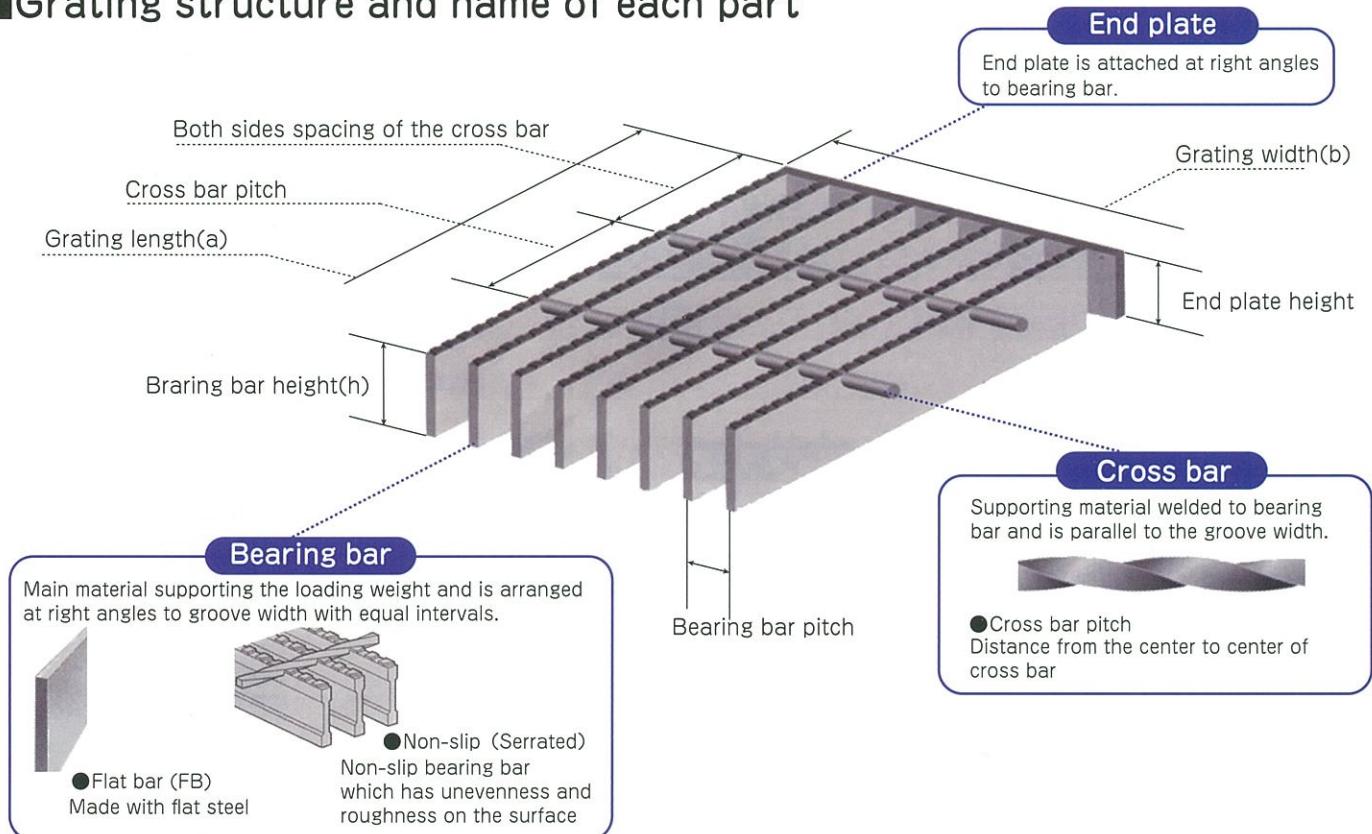
■ Sample of grating sheet (Powder coated sheet)



Grating consists of 3 parts;
①Bearing bar ②Cross bar ③End plate

**Gratings
Structure**

■ Grating structure and name of each part



■ Surface treatment



•Galvanized grating
(Higher than HDZ 45 · JIS)



•Powder coated grating



•Red rust resisted grating



•No treatment

■ Size of Steel Bar Grating (Standard Type)

Type	Bearing Bar Size		Bearing Bar Pitch	Cross Bar Pitch
	Height x Thickness(inch)	Height x Thickness(mm)		
19-W-4	3/4 x 1/8	19 x 3	1-3/16"	4"
	1 x 1/8	25 x 3	1-3/16"	4"
	1-1/4 x 1/8	32 x 3	1-3/16"	4"
	1-1/2 x 1/8	38 x 3	1-3/16"	4"
	3/4 x 3/16	19 x 4.5	1-3/16"	4"
	1 x 3/16	25 x 4.5	1-3/16"	4"
	1-1/4 x 3/16	32 x 4.5	1-3/16"	4"
	1-1/2 x 3/16	38 x 4.5	1-3/16"	4"
	1-3/4 x 3/16	44 x 4.5	1-3/16"	4"
	2 x 3/16	50 x 4.5	1-3/16"	4"
	2-1/4 x 3/16	57 x 4.5	1-3/16"	4"
	2-1/2 x 3/16	64 x 4.5	1-3/16"	4"

Type	Bearing Bar Size		Bearing Bar Pitch	Cross Bar Pitch
	Height x Thickness(inch)	Height x Thickness(mm)		
19-W-2	3/4 x 3/16	19 x 4.5	1-3/16"	2"
	1 x 3/16	25 x 4.5	1-3/16"	2"
	1-1/4 x 3/16	32 x 4.5	1-3/16"	2"
	1-1/2 x 3/16	38 x 4.5	1-3/16"	2"
	1-3/4 x 3/16	44 x 4.5	1-3/16"	2"
	2 x 3/16	50 x 4.5	1-3/16"	2"
	2-1/4 x 3/16	57 x 4.5	1-3/16"	2"
	2-1/2 x 3/16	64 x 4.5	1-3/16"	2"

Panel: ① Non Serrated Panel
② Serrated Panel

Finish: (i) Bare Steel
(ii) Painted Red
(iii) Coated Black
(iv) Hot Dip Galvanized

Steel Bar Grating is extremely strong and durable for all load bearing applications and is primarily used for pedestrian and light vehicle traffic. Steel bar grating is available in a variety of bearing bar spacing and thickness depending on applications and load requirements. Available in either ① non-serrated surface or ② serrated for slip resistance. Finish options include (i) bare steel, (ii) painted red, (iii) coated black, or (iv) hot dip galvanized.

Type 19-W-4 and 19-W-2 steel grating is our most popular products and is recommended for nearly all industrial flooring applications. Type 19-W-4 is good for industrial flooring, platforms, catwalks, mezzanines and stairways. Type 19-W-2 is excellent for short spans and applications where small wheeled carts continuously cross the grating surface.

Steel grating is available with bearing bar pitch of 1-3/16" on center and cross bar pitch at either 4" or 2" on center.

We can produce steel grating in accordance with specific needs of customer with a panel size of up to 3'11" (1,200mm) width x 24' (7,315mm) length.

Load & Deflection Table

General: Loads and deflections are theoretical and based on static loading.

19-W-4, 19-W-2

SPAN (Direction of Bearing Bar)

Bearing Bar Size	Type	Approx. Weight psf.	Section properties per foot of Width		24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"	
3/4" x 1/8"	19-W-4	3.9	0.118	U	355	227	158	116	89	70								
				D	0.099	0.155	0.223	0.304	0.397	0.503								
				C	355	284	237	203	178	158								
				D	0.079	0.124	0.179	0.243	0.318	0.402								
3/4" x 3/16"	19-W-4	5.6	0.178	U	533	341	237	174	133	105								
				D	0.099	0.155	0.223	0.304	0.397	0.503								
				C	533	426	355	305	266	237								
				D	0.079	0.124	0.179	0.243	0.318	0.402								
1" x 1/8"	19-W-4	5	0.211	U	632	404	281	206	158	125	101	84						
	19-W-2	5.5		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563						
				C	632	505	421	361	316	281	253	230						
1" x 3/16"	19-W-4	7.2	0.316	U	947	606	421	309	237	187	152	125						
	19-W-2	7.8		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563						
				C	947	758	632	541	474	421	379	344						
1-1/4" x 1/8"	19-W-4	6.1	0.329	U	987	632	439	322	247	195	158	130	110	93	81			
	19-W-2	6.6		D	0.06	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.73			
				C	987	789	658	564	493	439	395	359	329	304	282			
1-1/4" x 3/16"	19-W-4	8.9	0.493	U	1480	947	658	483	370	292	237	196	164	140	121			
	19-W-2	9.5		D	0.06	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.73			
				C	1480	1184	987	846	740	658	592	538	493	455	423			
1-1/2" x 1/8"	19-W-4	7.2	0.474	U	1421	909	632	464	355	281	227	188	158	135	116	89	70	
	19-W-2	7.7		D	0.05	0.078	0.112	0.152	0.199	0.251	0.31	0.376	0.447	0.524	0.608	0.794	1.006	
				C	1421	1137	947	812	711	632	568	517	474	437	406	355	316	
1-1/2" x 3/16"	19-W-4	10.5	0.711	U	2132	1364	947	696	533	421	341	282	237	202	174	133	105	
	19-W-2	11.2		D	0.05	0.078	0.112	0.152	0.199	0.251	0.31	0.375	0.447	0.524	0.608	0.794	1.006	
				C	2132	1705	1421	1218	1066	947	853	775	711	656	609	533	474	
1-3/4" x 3/16"	19-W-4	12.2	0.967	U	2901	1857	1289	947	725	573	464	384	322	275	237	181	143	
	19-W-2	12.8		D	0.043	0.067	0.096	0.13	0.17	0.215	0.266	0.322	0.383	0.45	0.521	0.681	0.862	
				C	2901	2321	1934	1658	1451	1289	1161	1055	967	893	829	725	645	
2" x 3/16"	19-W-4	13.9	1.263	U	3789	2425	1684	1237	947	749	606	501	421	359	309	237	187	
	19-W-2	14.5		D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335	0.393	0.456	0.596	0.754	
				C	3789	3032	2526	2165	1895	1684	1516	1378	1263	1166	1083	947	842	
2-1/4" x 3/16"	19-W-4	15.5	1.599	U	4796	3069	2132	1566	1199	947	767	634	533	454	392	300	237	
	19-W-2	16.1		D	0.033	0.052	0.074	0.101	0.132	0.168	0.207	0.25	0.298	0.35	0.406	0.53	0.67	
				C	4796	3837	3197	2741	2398	2132	1918	1744	1599	1476	1370	1199	1066	
2-1/2" x 3/16"	19-W-4	17.2	1.974	U	5921	3789	2632	1933	1480	1170	947	783	658	561	483	370	292	
	19-W-2	17.8		D	0.03	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.477	0.603	
				C	5921	4737	3947	3383	2961	2632	2368	2153	1974	1822	1692	1480	1316	
				D	0.024	0.037	0.054	0.073	0.095	0.121	0.149	0.18	0.215	0.252	0.292	0.381	0.483	

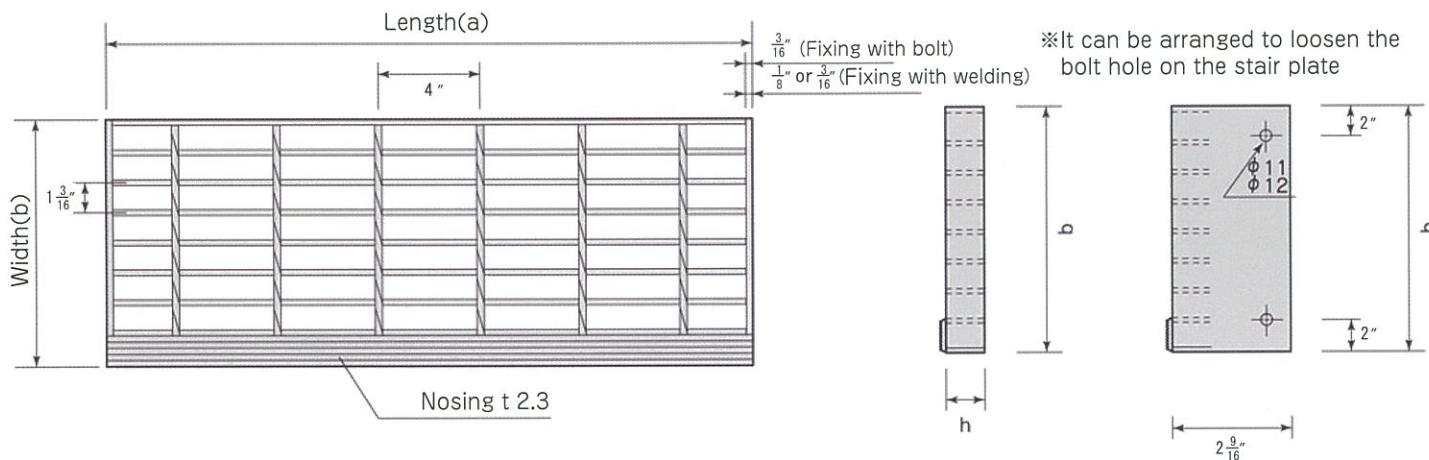
Panel Width (inches) for grating with 3/16" thick bearing bars

Number of Bearing Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Panel Width	1-3/8	2-9/16	3-3/4	4-15/16	6-1/8	7-5/16	8-1/2	9-11/16	10-7/8	12-1/16	13-1/4	14-7/16	15-5/8	16-13/16	18	19-3/16
Number of Bearing Bars	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Panel Width	20-3/8	21-9/16	22-3/4	23-15/16	25-1/8	26-5/16	27-1/2	28-1/16	29-7/8	31-1/16	32-1/4	33-7/16	34-5/8	35-13/16	37	38-3/16
Number of Bearing Bars	34	35	36	37	38	39	40	41								
Panel Width	39-3/8	40-9/16	41-3/4	42-15/16	44-1/8	45-5/16	46-1/2	47-11/16								

Note: Panel width for grating with 1/8" thick bearing bars deduct 1/16" from the stated value above.

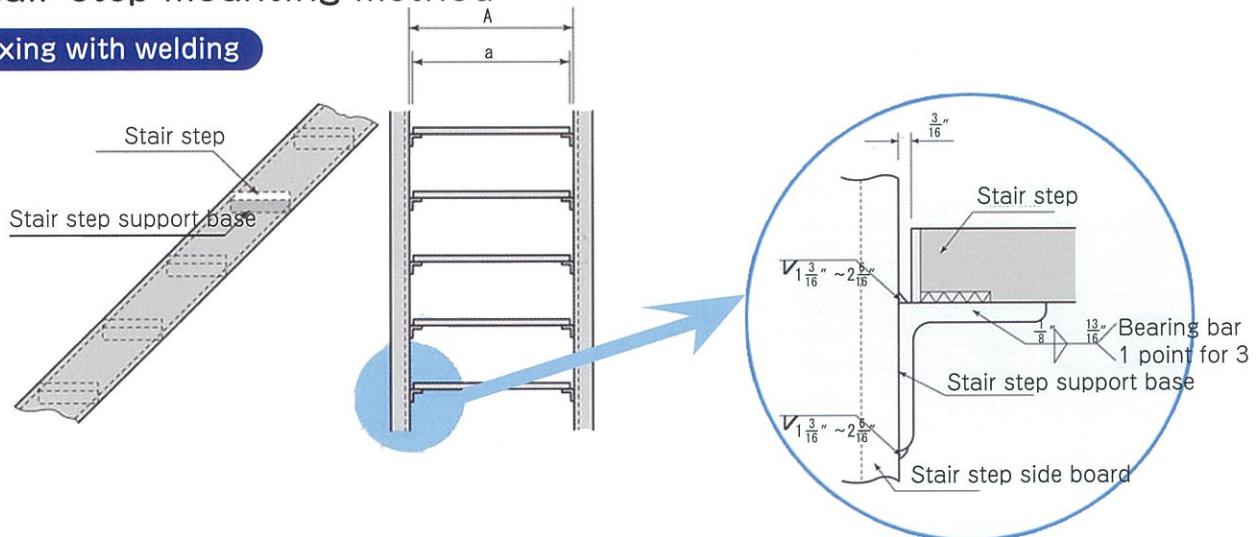
IMPORTANT NOTE: Information provided herein is for information purpose only and not intended for final design.
Professional engineering services should be obtained.

■ Stair Treads

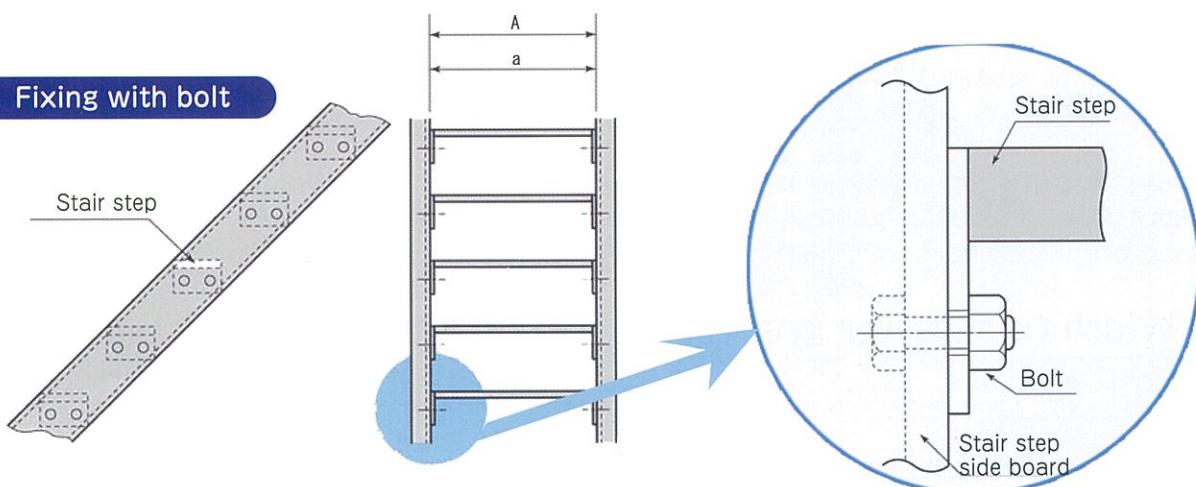


■ Stair step mounting method

Fixing with welding



Fixing with bolt



■ Galvanization standard

Test method	Classification symbol	No. of copper sulfate test	coating weight g/m ²	Average coating thickness μm	Example of application materials
Uniformity test	HDZ A	4 times	-	28 ~ 42	Less than 5mm thick of Steel materials, steel parts, steel pipes, More than 12mm diameter of bolts and nuts, In excess of 2.3mm thick of metal washers.
	HDZ B	5 times	-	35 ~ 49	In excess of 5mm thick of steel materials, steel parts, steel pipes, casted and forged parts.
Coating thickness test	HDZ 35	-	Above 350	Above 49	More than 1mm thick and less than 2mm thick of steel materials, steel parts, More than 12mm diameter of bolts and nuts, In excess of 2.3mm thick of metal washers.
	HDZ 40	-	Above 400	Above 56	In excess of 2mm thick and less than 3mm thick of steel materials, steel parts, casted and forged parts.
	HDZ 45	-	Above 450	Above 63	In excess of 3mm thick and less than 5mm thick of steel materials, steel parts, casted and forged parts.
	HDZ 50	-	Above 500	Above 69	In excess of 5mm thick of steel materials, steel parts, casted and forged parts.
	HDZ 55	-	Above 550	Above 76	Steel materials, steel parts, casted and forged parts used under the sever corrosion environment.

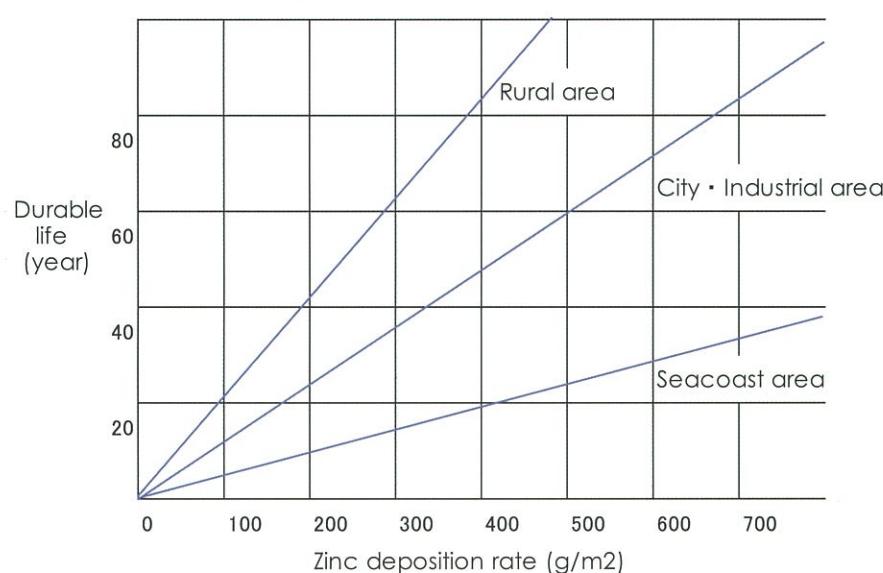
■ Durable life of hot dip galvanization

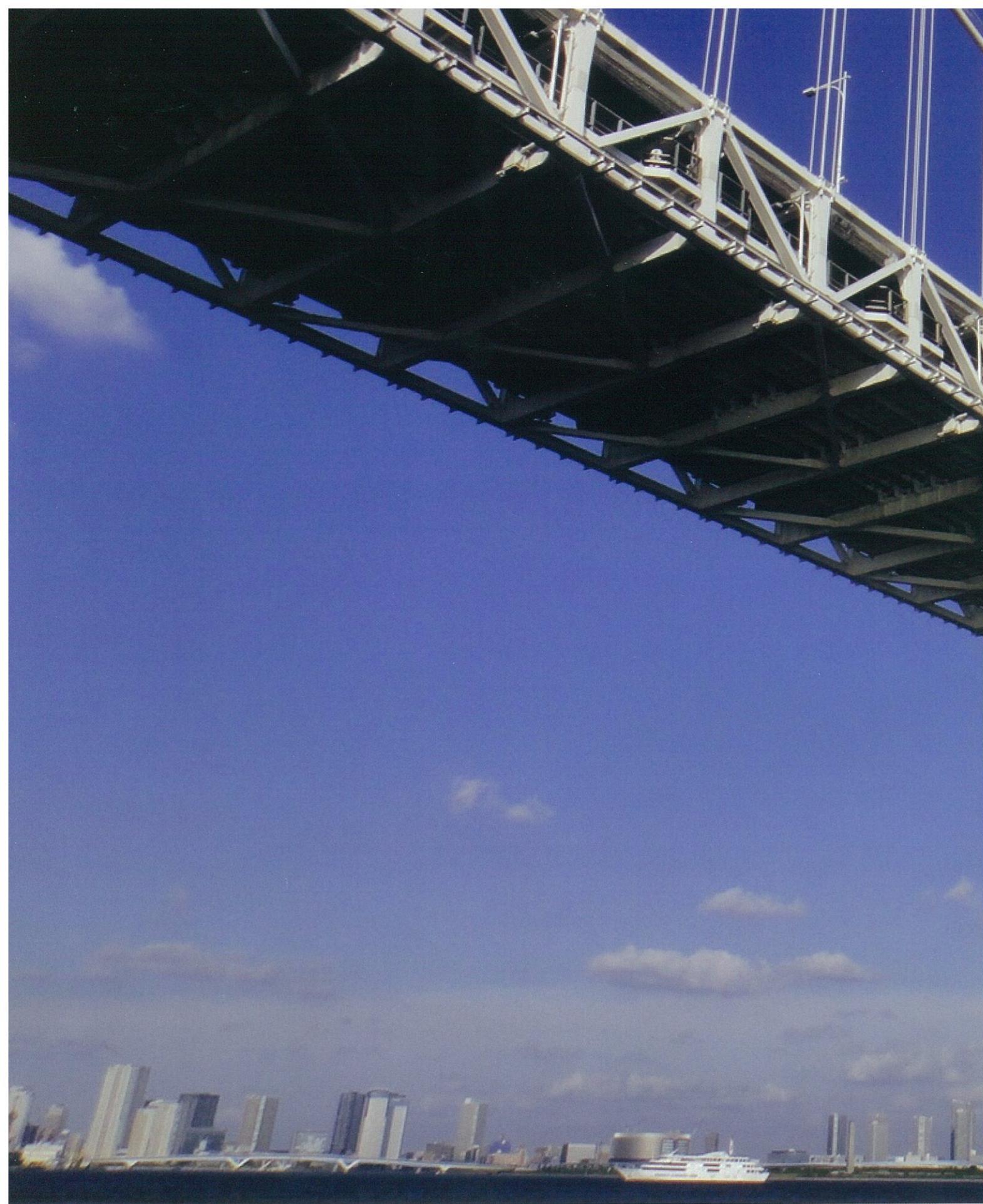
Atmospheric durable life of zinc is calculated with the following formula.

$$\text{Durable life} = \text{Zinc deposition rate(g/m}^2\text{)} / \text{Corrosion speed (g/m}^2\text{/year)} \times 0.9$$

Area	Corrosion Speed (g/m ² /year)	Durable life (year)
City and Industrial Area	8	62
Rural Area	4.4	113
Seacoast Area	19.6	25

Durable life of galvanization by area





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