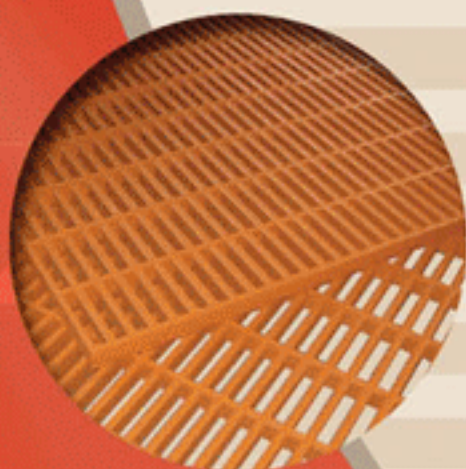




**CHINAGRATE**



**REGULAR  
STRENGTH (RS)  
PHENOLIC GRATINGS**





# CHINAGRATE

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## ■ CHINAGRATE Phenolic Resins

Phenolic resin is classified as a condensation reaction polymer. In this type of reaction, the polymer grows by combining two large molecules and releasing a third small molecule, usually water. Depending on the product formulation, either a novolac or a resole resin is produced. Novolacs are designed to incorporate a curing agent, such as hexamethylenetetramine, and are referred to as two-stage, which employs an acid catalyst. Resoles require no curing agent and because of the one component characteristic of this resin are therefore referred to as single-stage, which employs an alkaline catalyst.

A wide range of characteristics can be designed into a phenolic resin. Reactivity, moisture content, molecular weight, pH, monomer level, viscosity, flow, lubricity, and particle size all may determine the suitability of a resin for a particular application. Through the controlled selection of formulation options, manufacturing parameters, cure promoters, lubricants and other additives, our phenolic gratings are optimized to meet the needs of our customers.

Chinagrate uses novolac resins in our phenolic molded gratings, and resole resins in our phenolic pultruded gratings.

## ■ CHINAGRATE Phenolic Grating

Where fire, smoke and toxic fume are critical parameters, phenolic grating is the material of choice.

CHINAGRATE now offers two complete systems of Phenolic Gratings:

- Regular Strength (RS) Phenolic Molded and Pultruded Grating System
- Fire Strength (FS) Phenolic Molded and Pultruded Grating System  
(US Coast Guard Approved Level 2 and Level 3 - see separate catalog).

## ■ High Fire and Temperature Performance

A key characteristic of phenolic resin is the ability to withstand high temperature, along with mechanical load with minimal deformation or creep. In other words, cured phenolic resin provides the product rigidity necessary to maintain structural integrity and dimensional stability even under severe conditions. For this reason, phenolic gratings are specified for demanding applications such as public safety areas to allow more time to escape in a fire.

## ■ Low Smoke and Toxic Fume Emissions

If there is a fire, phenolic resin typically generates hydrogen, hydrocarbons, water vapor, and carbon dioxide when exposed to temperatures above its decomposition. In a fire situation, phenolic resin produces a relatively low amount of smoke at a relatively low level of toxicity.

## ■ Other Features

- Excellent Strength-to-weight Ratio
- Corrosion and Chemical Resistance
- Low Thermal Conductivity
- Easy Fabrication and Installation
- Outstanding Durability
- Cost Effective
- Impact Resistance
- Anti-slip

***Solution to Fire, Smoke, Toxic Applications***

■ **TYPICAL APPLICATIONS**

- Platforms
- Walkways
- Decking
- Flooring
- Stairs
- Bridges
- Ramps
- Channels

■ **INDUSTRIAL FIELDS**

- Offshore
- Mass Transit Tunnels
- Shipdecks
- Mines
- Refineries
- Chemical Processing Plants
- Public Structures
- Marine Vessels and shipyards

■ **ASTM E 84-04 --- Flame Spread and Smoke Density Test**

TEST RESULTS		MPH100	MPH150	MPH200	MPH150C	PPH60150
FLAMESPREAD INDEX		5	0	0	5	10
SMOKEDEVELOPED INDEX		15	0	0	10	85
<b>SPECIMEN DATA</b>						
Time to Ignition	(sec.)	215	0	353	332	84
Time to Max FS	(sec.)	599	2	501	594	165
Maximum FS	(feet)	4.5	0.0	1.1	2.3	2.1
Time to 980° F	(sec.)	Never	Never	Never	Never	Never
		Reached	Reached	Reached	Reached	Reached
Max Temperature	(° F)	543	441	486	499	418
Time to Max Temperature	(sec.)	583	599	592	600	599
Total Fuel Burned	(cubic feet)	51.5	51.55	51.56	51.52	51.55
FS*Time Area	(ft*min)	13.1	0.1	3.1	8.2	17.2
Smoke Area	(%A*min)	15.7	0.2	2.1	9.6	83.3
Fuel Area	(F*min)	4448.9	3529.9	3988.5	3954.2	3222.6
Fuel Contributed Value		0	0	0	0	0
Unrounded FSI		6.7	0	1.6	4.2	8.9
<b>CALIBRATION DATA</b>						
Time to Ignition of Last Red Oak	(sec.)	38	38	38	38	38
Red Oak Smoke Area	(%A*min)	96.00	96.00	96.00	96.00	96.00
Red Oak Fuel Area	(F*min)	8587	8587	8587	8587	8587
Class Fiber Board Fuel Area	(F*min)	5396	5396	5396	5396	5396

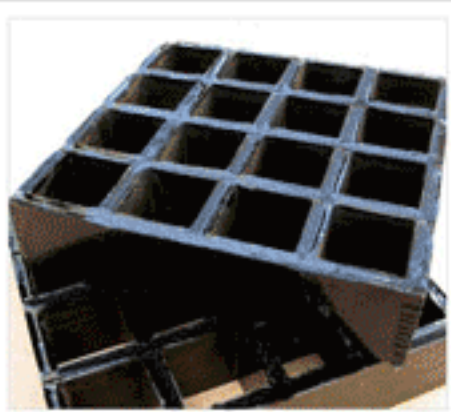


# CHINAGRATE

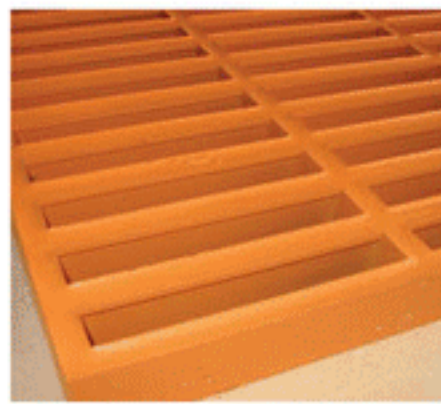
## CHINAGRATE RS PHENOLIC GRATINGS – MOLDED

### ■ COLOR SELECTION

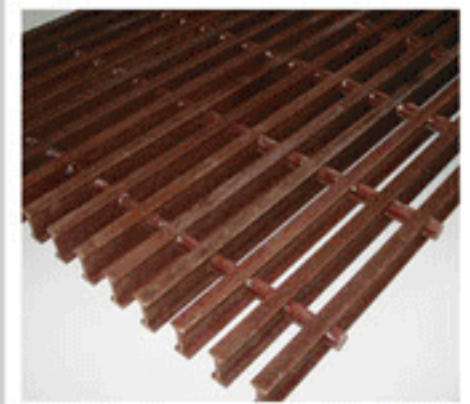
Standard Color:  
**Carbon Black**



Optional Colors:  
**Antique Yellow**

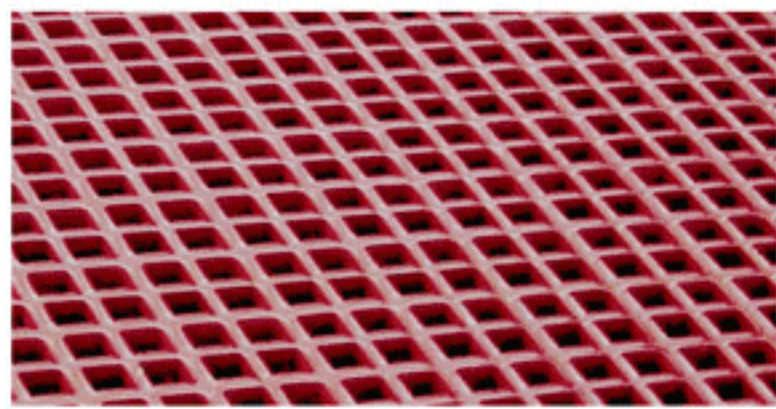


Optional Colors:  
**Antique Brown**

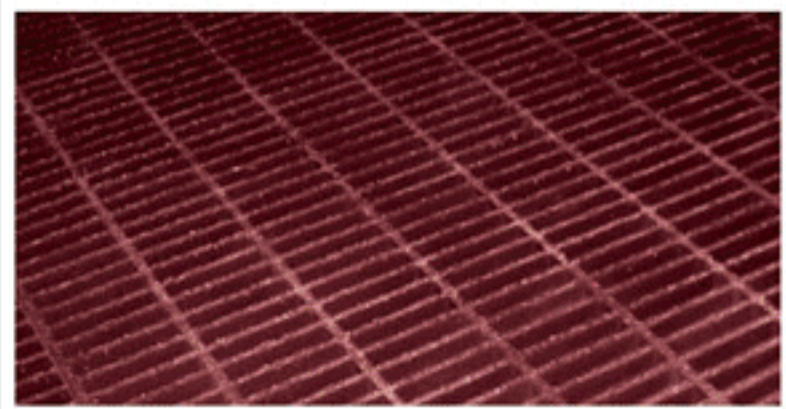


### ■ SURFACE SELECTION

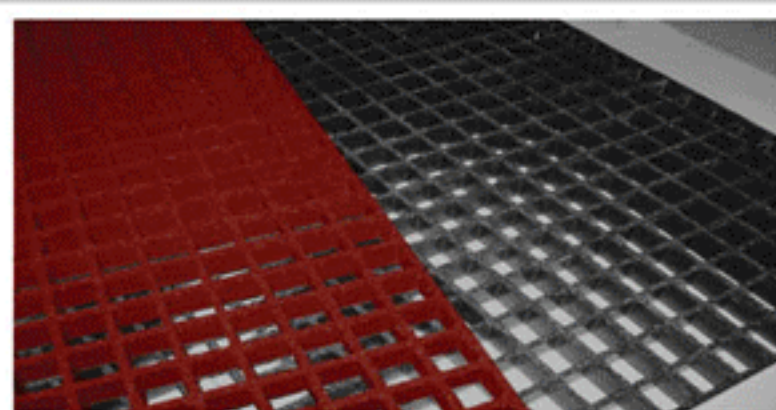
W – Regular Meniscus  
(concave)



Y – Embedded Grit  
(Integral grit)



Y – Regular Grit  
(silicon carbide)



Z – Flush  
(smooth)



# Pandagrate® Phenolic Molded Grating

Type MPH100 系列  
1" Thick 1.5" x 1.5" Square Mesh  
25mm 厚 38 x 38mm 正方格

Technical Data (技术数据)	
# of Bars Per Ft of Width 每英尺宽度格径数	
8	27
Load Bar Thickness - Top / bottom 承压格径厚度-上边/下边 in / mm	
0.26 x 0.2	6.5 x 5
Load Bar Center-to-Center 承压格径中心距 in / mm	
1.5"	38
Cross Bar Thickness Top/Bottom 交叉格径厚度-上边/下边 in / mm	
0.26 x 0.2	6.5 x 5
Cross Bar Center-to-Center 交叉格径中心距 in / mm	
1.5"	38
Open Area 空间率 %	
68%	68%
Approx. Weight 单位重量 LB/SQ FT KG/SQ MTR	
2.5	12.2

Type MPH120 系列  
1.20" Thick 1.5" x 1.5" Square Mesh  
30mm 厚 38 x 38mm 正方格

Technical Data (技术数据)	
# of Bars Per Ft of Width 每英尺宽度格径数	
8	27
Load Bar Thickness - Top / bottom 承压格径厚度-上边/下边 in / mm	
0.26 x 0.2	6.5 x 5
Load Bar Center-to-Center 承压格径中心距 in / mm	
1.5"	38
Cross Bar Thickness Top/Bottom 交叉格径厚度-上边/下边 in / mm	
0.26 x 0.2	6.5 x 5
Cross Bar Center-to-Center 交叉格径中心距 in / mm	
1.5"	38
Open Area 空间率 %	
68%	68%
Approx. Weight 单位重量 LB/SQ FT KG/SQ MTR	
2.9	13.7

Type MPH125 系列  
1.25" Thick 1.5" x 1.5" Square Mesh  
32mm 厚 38 x 38mm 正方格

Technical Data (技术数据)	
# of Bars Per Ft of Width 每英尺宽度格径数	
8	27
Load Bar Thickness - Top / bottom 承压格径厚度-上边/下边 in / mm	
0.28 x 0.2	7 x 5
Load Bar Center-to-Center 承压格径中心距 in / mm	
1.5"	38
Cross Bar Thickness Top/Bottom 交叉格径厚度-上边/下边 in / mm	
0.28 x 0.2	7 x 5
Cross Bar Center-to-Center 交叉格径中心距 in / mm	
1.5"	38
Open Area 空间率 %	
67%	67%
Approx. Weight 单位重量 LB/SQ FT KG/SQ MTR	
3.0	14.6

Type MPH150 系列  
1.5" Thick 1.5" x 1.5" Square Mesh  
38mm 厚 38 x 38mm 正方格

Technical Data (技术数据)	
# of Bars Per Ft of Width 每英尺宽度格径数	
8	27
Load Bar Thickness - Top / bottom 承压格径厚度-上边/下边 in / mm	
0.28 x 0.2	7 x 5
Load Bar Center-to-Center 承压格径中心距 in / mm	
1.5"	38
Cross Bar Thickness Top/Bottom 交叉格径厚度-上边/下边 in / mm	
0.28 x 0.2	7 x 5
Cross Bar Center-to-Center 交叉格径中心距 in / mm	
1.5"	38
Open Area 空间率 %	
67%	67%
Approx. Weight 单位重量 LB/SQ FT KG/SQ MTR	
3.8	18.6

## Pandagrate® Phenolic Molded Grating

Type MPH150C 系列  
1.5" Thick 1.5" x 6" Rectangular Mesh  
38mm 厚 38 x 152mm 正方形

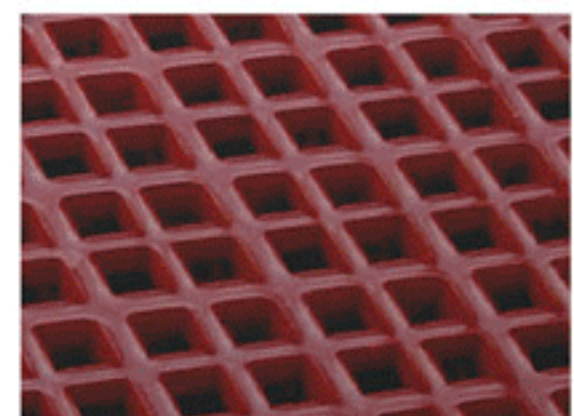
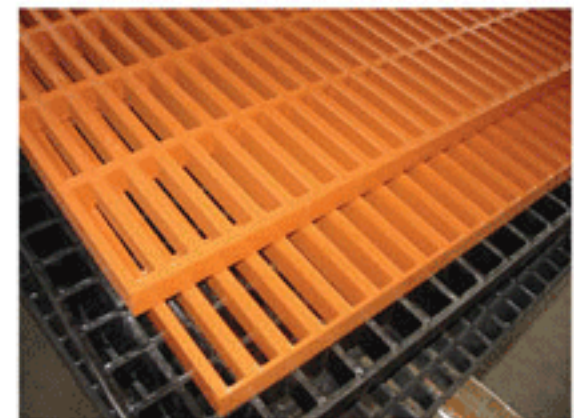
Technical Data (技术数据)	
# of Bars Per Ft of Width 每英尺宽度格径数	
8	27(长边) 6(短边)
Load Bar Thickness - Top / bottom 承压格径厚度-上边/下边 in / mm	
0.59 x 0.32	15 x 8
Load Bar Center-to-Center 承压格径中心距 in / mm	
1.5"	38
Cross Bar Thickness Top/Bottom 交叉格径厚度-上边/下边 in / mm	
0.51 x 0.39	13 x 10
Cross Bar Center-to-Center 交叉格径中心距 in / mm	
6"	152
Open Area 空间率 %	
58%	58%
Approx. Weight 单位重量 LB/SQ FT KG/SQ MTR	
3.8	18.5

Type MPH200D 系列  
2" Thick 2" x 2" Square Mesh  
50mm 厚 50 x 50mm 正方形

Technical Data (技术数据)	
# of Bars Per Ft of Width 每英尺宽度格径数	
6	20
Load Bar Thickness - Top / bottom 承压格径厚度-上边/下边 in / mm	
0.33 x 0.23	8.5 x 6
Load Bar Center-to-Center 承压格径中心距 in / mm	
2"	50
Cross Bar Thickness Top/Bottom 交叉格径厚度-上边/下边 in / mm	
0.33 x 0.23	8.5 x 6
Cross Bar Center-to-Center 交叉格径中心距 in / mm	
2"	50
Open Area 空间率 %	
69%	69%
Approx. Weight 单位重量 LB/SQ FT KG/SQ MTR	
4.8	23.4

Type MPH200MA 系列  
2" Thick 1" x 1" Mini Mesh  
50mm 厚 25 x 25mm 正方形

Technical Data (技术数据)	
# of Bars Per Ft of Width 每英尺宽度格径数	
12	40
Load Bar Thickness - Top / bottom 承压格径厚度-上边/下边 in / mm	
0.35 x 0.23	9 x 6
Load Bar Center-to-Center 承压格径中心距 in / mm	
2"	50
Cross Bar Thickness Top/Bottom 交叉格径厚度-上边/下边 in / mm	
0.35 x 0.23	9 x 6
Cross Bar Center-to-Center 交叉格径中心距 in / mm	
2"	50
Open Area 空间率 %	
48%	48%
Approx. Weight 单位重量 LB/SQ FT KG/SQ MTR	
5.4	26.4



## ■ Load and Deflection Table ( in inches) – Uniform and Concentrated Line Load

SPAN (in)			Load = Lbs/Ft <sup>2</sup>										Maximum RECOMMEND ED	Ultimate Capacity		
			50	100	150	200	300	400	600	800	1000	1200			LBS	LBS
12	MPH100	ΔU	0.004	0.010	0.014	0.020	0.028	0.040	0.055	0.079	0.109	0.150	0.179	1242	6210	
		ΔC	0.009	0.016	0.023	0.028	0.046	0.059	0.090	0.115	0.150	0.179	0.179	616	3082	
	MPH120	ΔU	0.003	0.008	0.011	0.015	0.022	0.030	0.041	0.060	0.073	0.082	0.082	1527	7637	
		ΔC	0.007	0.012	0.016	0.022	0.034	0.043	0.065	0.085	0.109	0.127	0.127	992	4957	
	MPH125	ΔU	0.003	0.008	0.010	0.015	0.021	0.029	0.040	0.058	0.071	0.079	0.079	1573	7866	
		ΔC	0.006	0.012	0.016	0.021	0.032	0.042	0.063	0.082	0.105	0.123	0.123	1021	5106	
	MPH150	ΔU	0.002	0.005	0.007	0.010	0.013	0.018	0.025	0.036	0.045	0.049	0.049	1904	9522	
		ΔC	0.003	0.008	0.010	0.013	0.018	0.025	0.035	0.049	0.060	0.067	0.067	1426	7130	
	MPH150C	ΔU	0.004	0.007	0.010	0.014	0.018	0.022	0.028	0.031	0.033	0.036	0.036	2588	12938	
		ΔC	0.006	0.010	0.014	0.018	0.026	0.031	0.039	0.041	0.044	0.050	0.050	1938	9688	
	MPH200D	ΔU	0.001	0.002	0.003	0.004	0.007	0.009	0.012	0.016	0.022	0.025	0.025	1826	9131	
		ΔC	0.002	0.004	0.007	0.010	0.012	0.018	0.025	0.035	0.042	0.047	0.047	1826	9131	
MPH200MA	ΔU	0.001	0.002	0.003	0.003	0.005	0.007	0.010	0.013	0.017	0.020	0.020	1461	7305		
	ΔC	0.002	0.003	0.005	0.008	0.010	0.015	0.020	0.028	0.034	0.037	0.037	1461	7305		
18	MPH100	ΔU	0.024	0.046	0.068	0.090	0.135	0.179	0.264	0.353	0.441	0.527	0.527	598	2990	
		ΔC	0.025	0.049	0.073	0.097	0.143	0.193	0.283	0.386	0.475	0.563	0.563	458	2291	
	MPH120	ΔU	0.016	0.033	0.048	0.063	0.095	0.124	0.184	0.245	0.307	0.365	0.365	903	4511	
		ΔC	0.017	0.035	0.051	0.068	0.101	0.135	0.196	0.265	0.328	0.389	0.389	683	3412	
	MPH125	ΔU	0.016	0.031	0.046	0.061	0.091	0.121	0.178	0.237	0.298	0.354	0.354	929	4646	
		ΔC	0.017	0.034	0.050	0.066	0.098	0.130	0.190	0.258	0.318	0.378	0.378	703	3514	
	MPH150	ΔU	0.009	0.016	0.024	0.032	0.048	0.062	0.092	0.121	0.154	0.180	0.180	1260	6302	
		ΔC	0.010	0.018	0.027	0.035	0.052	0.067	0.098	0.129	0.162	0.193	0.193	948	4738	
	MPH150C	ΔU	0.012	0.023	0.035	0.046	0.068	0.077	0.093	0.100	0.114	0.133	0.133	1713	8563	
		ΔC	0.014	0.026	0.038	0.050	0.072	0.081	0.099	0.111	0.119	0.142	0.142	1288	6438	
	MPH200D	ΔU	0.004	0.010	0.014	0.018	0.027	0.035	0.053	0.068	0.090	0.103	0.103	1461	7305	
		ΔC	0.004	0.011	0.015	0.021	0.029	0.040	0.058	0.077	0.099	0.114	0.114	1248	6238	
MPH200MA	ΔU	0.003	0.008	0.011	0.015	0.022	0.028	0.043	0.055	0.072	0.083	0.083	1169	5844		
	ΔC	0.003	0.009	0.012	0.017	0.023	0.032	0.046	0.062	0.079	0.091	0.091	998	4990		
24	MPH100	ΔU	0.068	0.138	0.210	0.278	0.420	0.555	0.837					347	1734	
		ΔC	0.055	0.110	0.166	0.221	0.334	0.447	0.665					347	1734	
	MPH120	ΔU	0.048	0.096	0.145	0.191	0.287	0.378	0.570					514	2572	
		ΔC	0.038	0.075	0.113	0.149	0.225	0.300	0.448					514	2572	
	MPH125	ΔU	0.046	0.092	0.140	0.186	0.278	0.367	0.553	0.360	0.451	0.537	0.537	530	2650	
		ΔC	0.036	0.072	0.109	0.145	0.218	0.291	0.435	0.274	0.360	0.451	0.451	530	2650	
	MPH150	ΔU	0.024	0.046	0.070	0.093	0.137	0.179	0.270	0.360	0.451	0.537	0.537	713	3565	
		ΔC	0.017	0.035	0.052	0.068	0.103	0.136	0.204	0.274	0.360	0.451	0.451	713	3565	
	MPH150C	ΔU	0.034	0.069	0.101	0.132	0.198	0.232	0.279	0.304	0.332	0.395	0.395	969	4844	
		ΔC	0.026	0.050	0.076	0.100	0.150	0.178	0.279	0.304	0.332	0.395	0.395	969	4844	
	MPH200D	ΔU	0.012	0.024	0.036	0.047	0.071	0.090	0.136	0.177	0.229	0.266	0.266	880	4398	
		ΔC	0.009	0.017	0.025	0.034	0.051	0.067	0.103	0.142	0.172	0.205	0.205	880	4398	
MPH200MA	ΔU	0.010	0.019	0.029	0.037	0.057	0.072	0.109	0.142	0.183	0.213	0.213	704	3518		
	ΔC	0.007	0.014	0.020	0.027	0.041	0.054	0.083	0.114	0.137	0.164	0.164	704	3518		
30	MPH100	ΔU	0.167	0.335	0.503	0.672								216	1081	
		ΔC	0.107	0.213	0.322	0.428	0.647							273	1366	
	MPH120	ΔU	0.112	0.225	0.338	0.451								324	1621	
		ΔC	0.072	0.143	0.216	0.288	0.435							408	2037	
	MPH125	ΔU	0.109	0.218	0.328	0.438	0.308							334	1670	
		ΔC	0.069	0.139	0.210	0.279	0.421	0.260	0.390	0.521	0.639	0.780	0.780	420	2098	
	MPH150	ΔU	0.050	0.101	0.152	0.204	0.308							452	2259	
		ΔC	0.032	0.065	0.098	0.130	0.196	0.260	0.390	0.521	0.639	0.780	0.780	566	2829	
	MPH150C	ΔU	0.074	0.150	0.226									614	3069	
		ΔC	0.048	0.096	0.144	0.191	0.287	0.335	0.413	0.431	0.470	0.574	0.574	769	3844	
	MPH200D	ΔU	0.024	0.048	0.071	0.097	0.139	0.199	0.285	0.395	0.477	0.567	0.567	586	2930	
		ΔC	0.015	0.029	0.046	0.063	0.093	0.127	0.189	0.251	0.316	0.376	0.376	729	3643	
MPH200MA	ΔU	0.019	0.038	0.057	0.077	0.111	0.159	0.228	0.316	0.382	0.454	0.454	469	2344		
	ΔC	0.012	0.023	0.037	0.050	0.075	0.102	0.151	0.201	0.253	0.301	0.301	583	2915		
36	MPH100	ΔU	0.339	0.684										145	727	
		ΔC	0.182	0.366	0.545	0.726								218	1090	
	MPH120	ΔU	0.227	0.458										222	1108	
		ΔC	0.121	0.245	0.364	0.486								337	1682	
	MPH125	ΔU	0.221	0.445	0.307	0.415	0.621	0.825						228	1141	
		ΔC	0.117	0.237	0.353	0.471	0.325							346	1732	
	MPH150	ΔU	0.102	0.205	0.307	0.415	0.621	0.825						311	1555	
		ΔC	0.053	0.108	0.162	0.216	0.325							475	2374	
	MPH150C	ΔU	0.151	0.306	0.457	0.607								423	2113	
		ΔC	0.079	0.159	0.239									645	3225	
	MPH200D	ΔU	0.047	0.090	0.145	0.192	0.289	0.385	0.576	0.768				421	2107	
		ΔC	0.027	0.053	0.077	0.103	0.153	0.205	0.307	0.408	0.512	0.611	0.611	623	3114	
MPH200MA	ΔU	0.037	0.072	0.116	0.154	0.231	0.308	0.461	0.615				337	1685		
	ΔC	0.022	0.043	0.062	0.083	0.123	0.164	0.245	0.326	0.410	0.489	0.489	498	2491		
42	MPH150	ΔU	0.188	0.377	0.564									228	1141	
		ΔC	0.085	0.168	0.260	0.339								403	2015	
	MPH150C	ΔU	0.278											310	1550	
		ΔC	0.124	0.250										548	2738	
	MPH200D	ΔU	0.087	0.177	0.266	0.357	0.532	0.710						311	1555	
		ΔC	0.038	0.078	0.118	0.161	0.242	0.314	0.484	0.647				531	2654	
	MPH200MA	ΔU	0.070	0.142	0.213	0.285	0.425	0.568						249	1244	
		ΔC	0.030	0.063	0.095	0.129	0.194	0.251	0.387	0.517				425	2123	
	48	MPH150	ΔU	0.302	0.618										155	773
			ΔC	0.122	0.245	0.362	0.488	0.730							311	1555
		MPH150C	ΔU	0.455											210	1050
			ΔC	0.180	0.35											

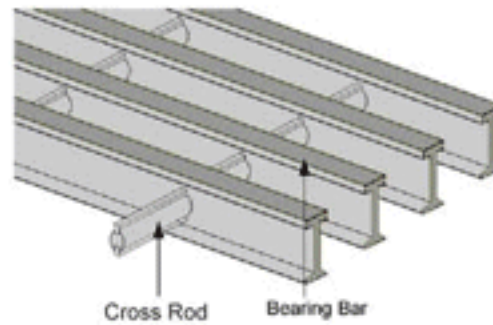
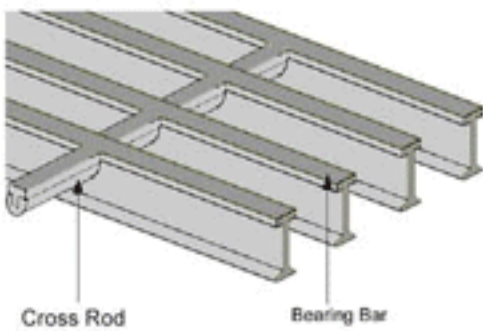




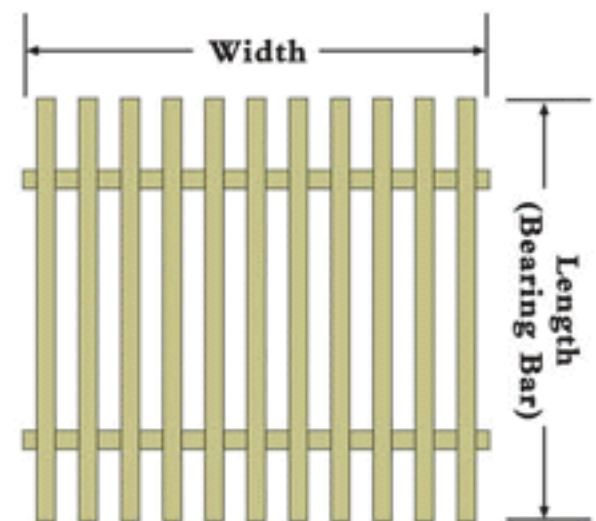
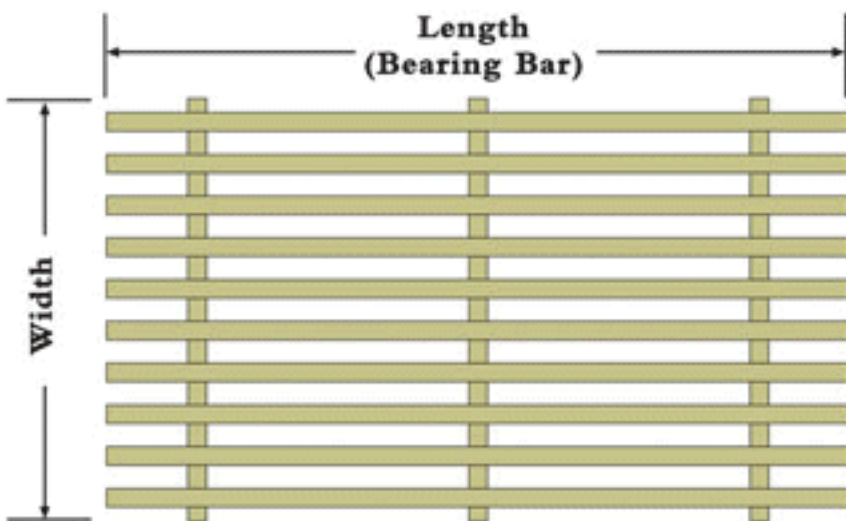
# CHINAGRATE RS PHENOLIC GRATINGS – PULTRUDED

## ■ Two Cross Rod Systems

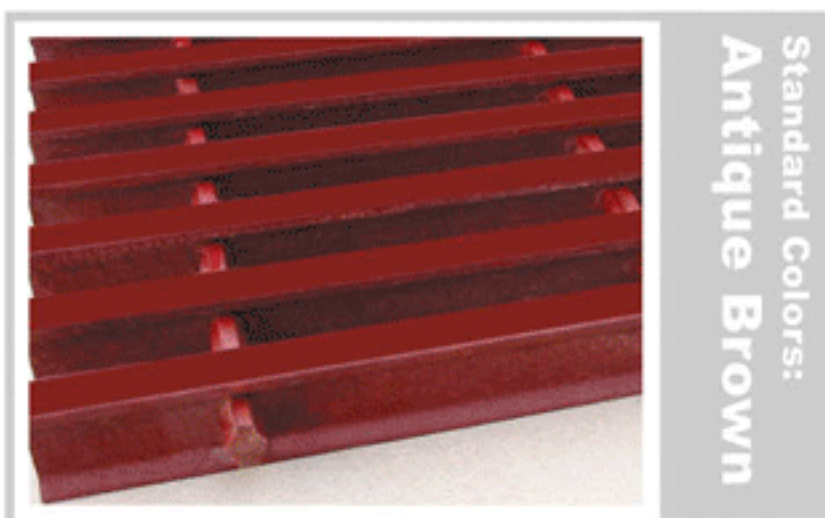
We are the only company in the industry to offer two cross rod systems.



## Panel Sizes: Width x Length

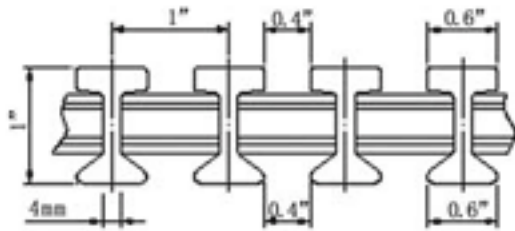


## ■ COLOR SELECTION



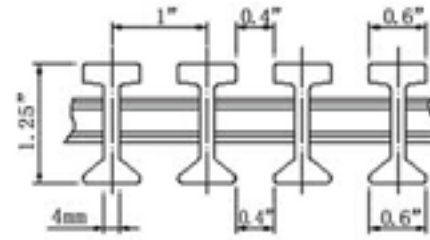
## Pandadeck® Phenolic Pultruded Grating

Type PPH40100 系列  
1" Thick 40% Open  
25mm 厚 25mm 径距



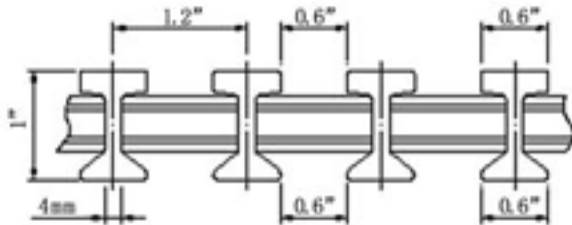
BAR TYPE	OPEN AREA%	THICKNESS in / mm	BAR PER Mtr/Ft	WET LB/FT <sup>2</sup> KG/M <sup>2</sup>
I	40	1" / 25mm	39/12	3.40 16.58

Type PPH40125 系列  
1.25" Thick 40% Open  
32mm 厚 25 mm 径距



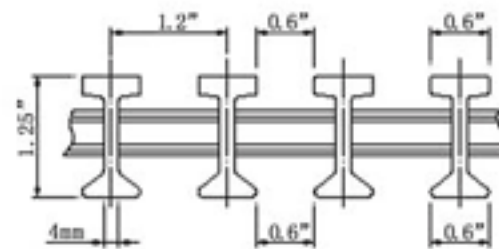
BAR TYPE	OPEN AREA%	THICKNESS in / mm	BAR PER Mtr/Ft	WET LB/FT <sup>2</sup> KG/M <sup>2</sup>
I	40	1.25" / 32mm	39/12	3.70 18.05

Type PPH50100 系列  
1" Thick 50% Open  
25mm 厚 30 mm 径距



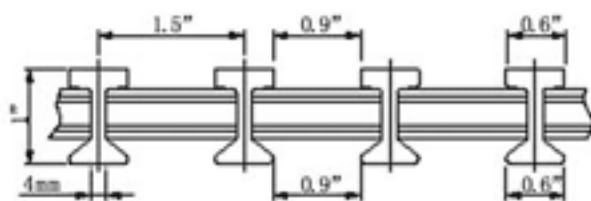
BAR TYPE	OPEN AREA%	THICKNESS in / mm	BAR PER Mtr/Ft	WET LB/FT <sup>2</sup> KG/M <sup>2</sup>
I	50	1" / 25mm	32/10	2.89 14.13

Type PPH50125 系列  
1.25" Thick 50% Open  
32mm 厚 30 mm 径距



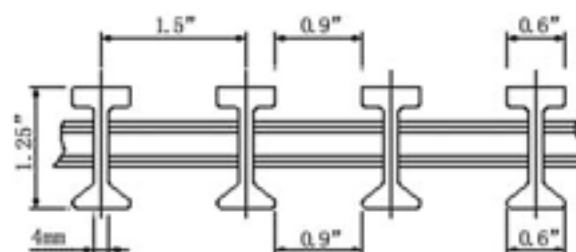
BAR TYPE	OPEN AREA%	THICKNESS in / mm	BAR PER Mtr/Ft	WET LB/FT <sup>2</sup> KG/M <sup>2</sup>
I	50	1.25" / 32mm	32/10	3.15 15.35

Type PPH60100 系列  
1" Thick 60% Open  
25mm 厚 38 mm 径距



BAR TYPE	OPEN AREA%	THICKNESS in / mm	BAR PER Mtr/Ft	WET LB/FT <sup>2</sup> KG/M <sup>2</sup>
I	60	1" / 25mm	26/8	2.39 11.68

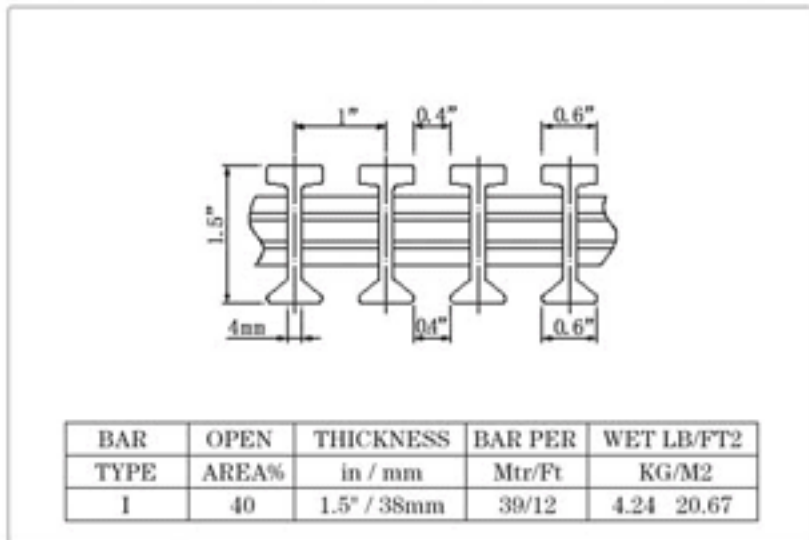
Type PPH60125 系列  
1.25" Thick 60% Open  
32mm 厚 38 mm 径距



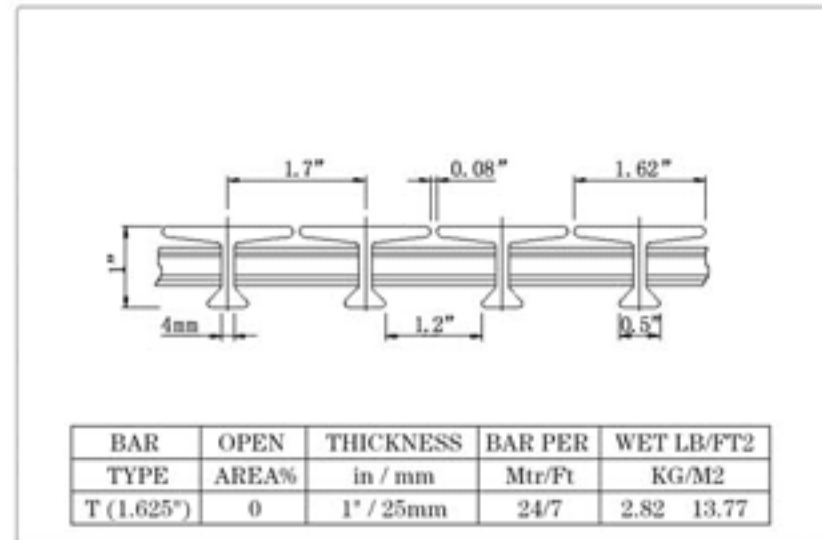
BAR TYPE	OPEN AREA%	THICKNESS in / mm	BAR PER Mtr/Ft	WET LB/FT <sup>2</sup> KG/M <sup>2</sup>
I	60	1.25" / 32mm	26/8	2.59 12.66

# Pandadeck® Phenolic Pultruded Grating

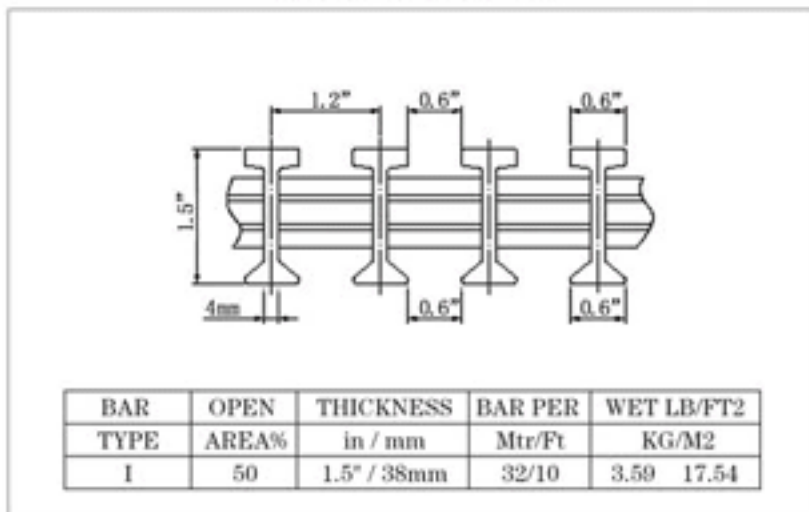
Type PPH40150 系列 1.5" Thick 40% Open  
38mm 厚 25 mm 径距



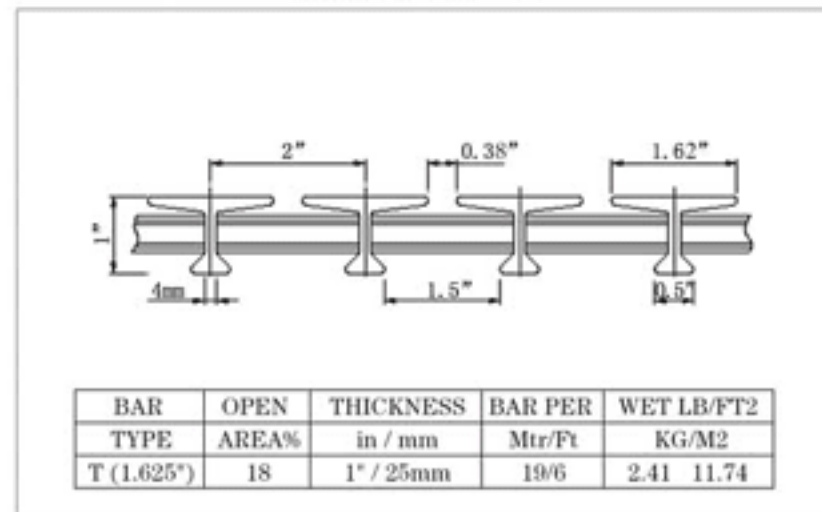
Type PPH00100 系列 1" Thick 0% Open  
25mm 厚 43mm 径距



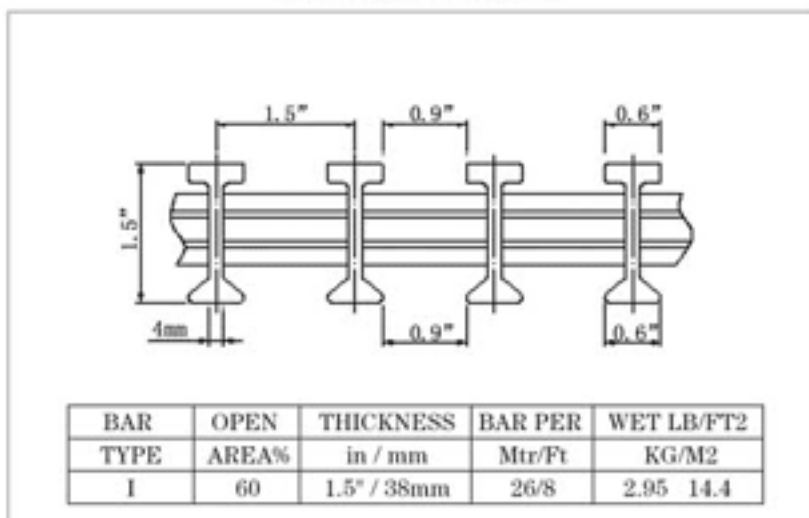
Type PPH50150 系列 1.5" Thick 50% Open  
38mm 厚 30 mm 径距



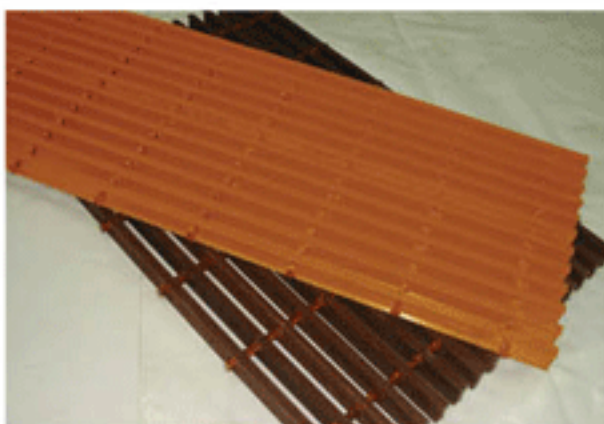
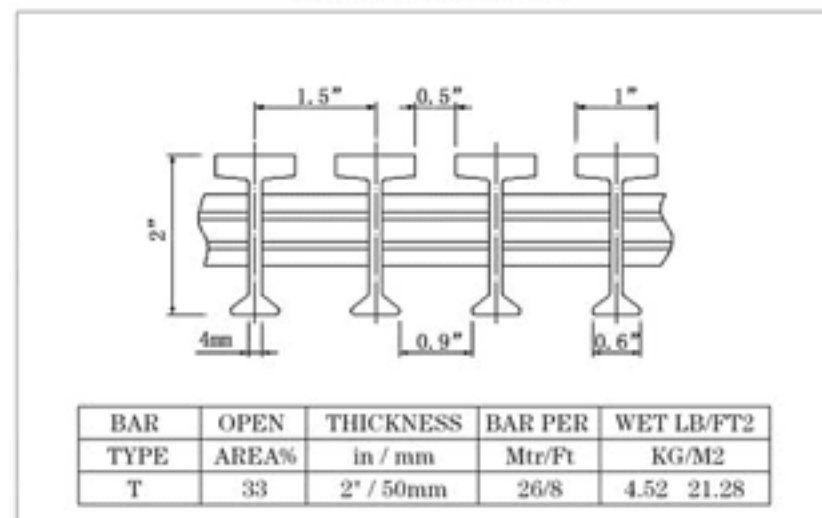
Type PPH18100 系列 1" Thick 18% Open  
25mm 厚 50mm 径距



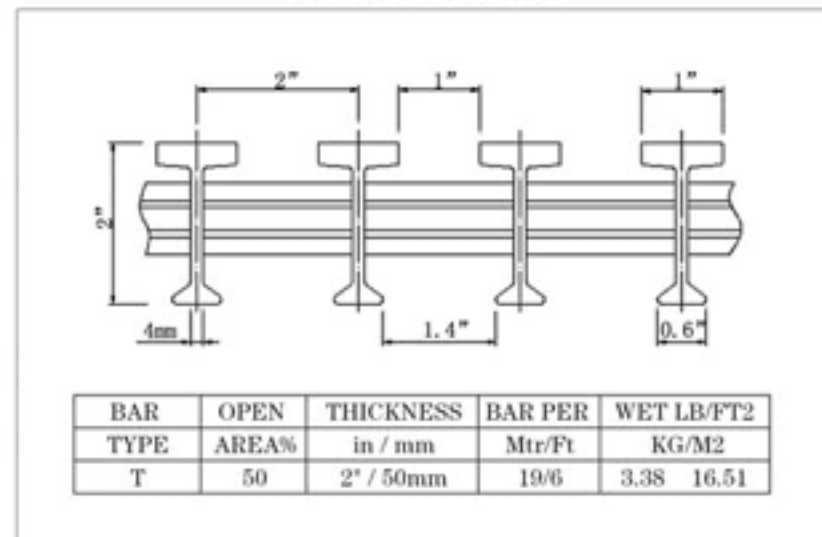
Type PPH60150 系列 1.5" Thick 60% Open  
38mm 厚 38 mm 径距



Type PPH33200 系列 2" Thick 33% Open  
50mm 厚 38mm 径距



Type PPH50200 系列 2" Thick 50% Open  
50mm 厚 50mm 径距









# CHINAGRATE

## ■ Load and Deflection Table ( in millimeters) – Uniform and Concentrated Line Load

SPAN IN MM			Load = kN/m <sup>2</sup>													
			3	5	8	10	13	15	20	25	39	50	100	150	200	250
400	PHP40100	ΔU	0.109	0.109	0.217	0.217	0.326	0.326	0.435	0.543	0.870	1.196	2.283	3.478	4.674	5.761
		ΔC	0.326	0.435	0.761	0.978	1.196	1.413	1.848	2.283	3.587	4.674	9.239	13.913	-	-
	PHP40150	ΔU	0.000	0.000	0.109	0.109	0.109	0.217	0.217	0.217	0.435	0.544	0.978	1.522	2.065	2.500
		ΔC	0.109	0.217	0.326	0.435	0.544	0.652	0.870	0.978	1.630	2.065	4.130	6.087	8.152	10.217
	PHP60100	ΔU	0.109	0.217	0.326	0.326	0.435	0.543	0.652	0.870	1.304	1.739	3.478	5.217	6.957	8.696
		ΔC	0.435	0.652	1.087	1.413	1.848	2.065	2.826	3.478	5.435	6.957	13.913	-	-	-
	PHP60150	ΔU	0.000	0.109	0.109	0.109	0.217	0.217	0.326	0.435	0.544	0.761	1.522	2.283	3.044	3.804
		ΔC	0.217	0.326	0.544	0.652	0.761	0.870	1.196	1.522	2.391	3.044	6.087	9.130	12.283	15.326
	PHP00100	ΔU	0.088	0.176	0.263	0.263	0.351	0.439	0.527	0.702	1.054	1.405	2.810	4.215	5.620	7.024
		ΔC	0.351	0.527	0.878	1.141	1.493	1.668	2.283	2.810	4.390	5.620	11.239	-	-	-
	PHP18100	ΔU	0.108	0.216	0.324	0.324	0.432	0.540	0.648	0.864	1.296	1.728	3.456	5.184	6.912	8.640
		ΔC	0.432	0.648	1.080	1.404	1.836	2.052	2.808	3.456	5.400	6.912	13.824	-	-	-
	PHP33200	ΔU	0.000	0.000	0.109	0.109	0.109	0.109	0.217	0.217	0.326	0.435	0.870	1.304	1.739	2.065
		ΔC	0.109	0.217	0.217	0.326	0.435	0.543	0.652	0.870	1.304	1.739	3.370	5.109	6.739	8.478
	PHP55200	ΔU	0.000	0.109	0.109	0.109	0.109	0.217	0.217	0.326	0.435	0.543	1.087	1.739	2.283	2.826
		ΔC	0.109	0.217	0.326	0.435	0.543	0.652	0.870	1.087	1.739	2.283	4.457	6.739	9.022	11.196
600	PHP40100	ΔU	0.326	0.435	0.761	0.978	1.196	1.413	1.957	2.391	3.696	4.783	9.565	14.239	-	-
		ΔC	0.761	1.304	2.065	2.500	3.261	3.804	5.109	6.304	9.891	12.717	-	-	-	-
	PHP40150	ΔU	0.109	0.217	0.326	0.326	0.544	0.761	0.761	0.978	1.522	1.848	3.804	5.652	7.609	9.457
		ΔC	0.326	0.544	0.761	0.978	1.304	1.522	2.065	2.500	3.913	5.000	10.109	15.109	-	-
	PHP60100	ΔU	0.435	0.761	1.087	1.413	1.848	2.174	2.826	3.587	5.543	7.174	14.239	-	-	-
		ΔC	1.087	1.848	3.043	3.804	4.891	5.652	7.609	9.457	14.783	-	-	-	-	-
	PHP60150	ΔU	0.217	0.326	0.435	0.544	0.761	0.870	1.087	1.413	2.174	2.826	5.652	8.478	11.304	14.130
		ΔC	0.435	0.761	1.196	1.522	1.957	2.283	3.044	3.804	5.870	7.609	15.109	-	-	-
	PHP00100	ΔU	0.351	0.615	0.878	1.141	1.493	1.756	2.283	2.898	4.478	5.795	11.502	-	-	-
		ΔC	0.878	1.493	2.459	3.073	3.951	4.566	6.146	7.639	11.941	-	-	-	-	-
	PHP18100	ΔU	0.432	0.756	1.080	1.404	1.836	2.160	2.808	3.564	5.508	7.128	14.148	-	-	-
		ΔC	1.080	1.836	3.024	3.780	4.860	5.616	7.560	9.396	14.688	-	-	-	-	-
	PHP33200	ΔU	0.109	0.109	0.217	0.326	0.326	0.435	0.543	0.652	1.087	1.413	2.826	4.239	5.652	6.957
		ΔC	0.217	0.326	0.652	0.761	0.978	1.087	1.522	1.848	2.935	3.696	7.500	11.196	15.000	-
	PHP55200	ΔU	0.109	0.217	0.326	0.326	0.435	0.543	0.761	0.978	1.413	1.848	3.696	5.652	7.500	9.348
		ΔC	0.326	0.543	0.761	0.978	1.304	1.522	1.957	2.500	3.913	5.000	10.000	15.000	-	-
800	PHP40100	ΔU	0.870	1.413	2.283	2.826	3.696	4.239	5.652	6.957	10.978	14.022	-	-	-	-
		ΔC	1.630	2.826	4.457	5.652	7.283	8.370	11.196	14.022	-	-	-	-	-	-
	PHP40150	ΔU	0.326	0.544	0.870	1.087	1.413	2.174	2.174	2.717	4.130	5.326	10.652	15.978	-	-
		ΔC	0.652	1.087	1.739	2.174	2.826	3.152	4.239	5.326	8.370	10.652	-	-	-	-
	PHP60100	ΔU	1.522	2.065	3.370	4.239	5.435	6.304	8.370	10.435	16.413	-	-	-	-	-
		ΔC	2.500	4.239	6.739	8.370	10.870	12.609	16.739	-	-	-	-	-	-	-
	PHP60150	ΔU	0.435	0.761	1.304	1.630	2.065	2.391	3.152	4.022	6.196	8.044	15.978	-	-	-
		ΔC	0.978	1.630	2.609	3.152	4.130	4.783	6.413	8.044	12.500	15.978	-	-	-	-
	PHP00100	ΔU	1.229	1.668	2.722	3.424	4.390	5.093	6.761	8.429	13.259	-	-	-	-	-
		ΔC	2.020	3.424	5.444	6.761	8.780	10.185	13.522	-	-	-	-	-	-	-
	PHP18100	ΔU	1.512	2.052	3.348	4.212	5.400	6.264	8.316	10.368	16.308	-	-	-	-	-
		ΔC	2.484	4.212	6.696	8.316	10.800	12.528	16.632	-	-	-	-	-	-	-
	PHP33200	ΔU	-	0.326	0.543	0.761	0.978	1.087	1.522	1.848	2.935	3.696	7.391	11.087	14.783	-
		ΔC	0.435	0.761	1.196	1.522	1.957	2.174	2.935	3.696	5.761	7.391	14.783	-	-	-
	PHP55200	ΔU	0.326	0.543	0.761	0.978	1.304	1.522	1.957	2.500	3.804	4.891	9.783	14.783	-	-
		ΔC	0.543	0.978	1.522	1.957	2.609	2.935	3.913	4.891	7.717	9.783	-	-	-	-



### **How to specify Chinagrate Phenolic Molded Gratings**

Phenolic molded grating shall be Pandagrate series \_\_\_\_\_ as manufactured by Chinagrate, Nantong, China. Resin shall be novolac phenolic, Class 1 rating of 5 or less per ASTM E-84 and meets the self extinguishing requirements of ASTM D-635. All panels shall be tested by Concentrated Line Load before shipping. Grating shall have a thickness of (1", 1.25", 1.5" or 2"), with grid pattern of (1.5"x1.5", 1.5"x6", 2"x2" or 1"x1" mini-mesh). Color shall be \_\_\_\_\_ (black, antique yellow, antique brown).

The surface of the panels shall be \_\_\_\_\_ (concave, secondary grit or embedded grit).

### **How to specify Chinagrate Phenolic Pultruded Gratings**

Phenolic pultruded grating shall be Pandadeck as manufactured by Chinagrate, Nantong, China. Grating panels shall be made of (1", 1.5", or 2") deep pultruded I bar or T bar. The bearing bars shall be spaced at \_\_\_\_\_ on center. The bearing bars shall be manufactured by the pultrusion process using resole phenolic resin, and continuous fiberglass roving and continuous strand mat. Color shall be antique brown. Panels shall be assembled by using (2-part or 3-part) cross-rod system. The cross-rods shall be spaced at (6" or 12") on center. The surface of the Pandadeck phenolic gratings shall be covered with an anti-slip grit surface. If US Coast Guard approval is required, specify 1.5" thick bars spaced at 1.5" or closer on a maximum clear span of 42", and with fire-resistant glass roving and coating.

### **Chinagrate Composite Structures (Nantong) Co. Limited**

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