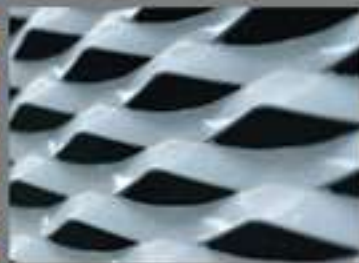
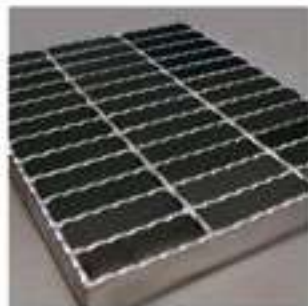
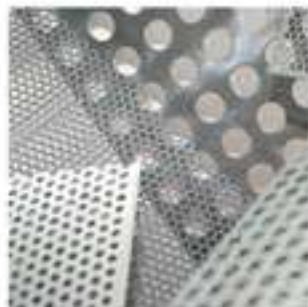




FORTE

Industrial And Construction Materials







Industrial And Construction Materials

Perforated Metal | Razor Wire | Expanded Metal | Grating Steel
Checker Plate | Stainless Steel Coil | Stainless Steel Pipe
Welded Wiremesh | Stainless Steel Mesh | Wire Rope | Wires | Roofing Insulation

Success of Company
is a combination of
cooperation between
the leaders,
staff and customers



I N T R O D U C T I O N

For more than half century, C V Sumber Makmur has been committed to the marketing of metals, which include mild steel, stainless steel, aluminum, galvanize and tin for industrial and construction materials. The headquarters office is located in the heart of Jakarta, the capital of Indonesia, where it is very convenient for all customers travelling from different areas of the region. All of our branch outlets and agents are also strategically located in order to be closer to our valuable customers in most industrial and residential areas.

High quality and competitive pricing are two major priorities of our business, along with continuous innovations, in order to provide a one-stop shopping experience for every customer. Friendly and knowledgeable sales associates are also available in every outlet to assist and help our valuable customers to find the most appropriate products for efficiency and effectiveness.

Sumber Makmur has built an excellent network and relationship with many suppliers nationwide and worldwide. We also have been chosen to be the local agent for some well-known factories. Experience, networking and a great reputation have lead us to be the leader in the market.

High commitment to our staff and customers has helped us to achieve the leadership in the market, as well as the most complete metal store. We always strive to give the best service that will satisfy our customers with one-stop shopping and the most favorable service experience with us.





**PERFORATED
METAL | 07**



**EXPANDED
METAL | 11**



**WELDED
WIRE MESH | 15**



**GRATING
STEEL | 19**



**STAINLESS STEEL
MESH | 23**



**RAZOR
WIRE | 27**



**WIRE ROPE AND
RIGGING | 31**



**ROOFING
INSULATION | 37**



WIRES | 41



**CHECKER
PLATE** | 45



**STAINLESS STEEL
COIL/PLATE** | 49



**STAINLESS STEEL
LONG PRODUCTS** | 53



LEAD | 57



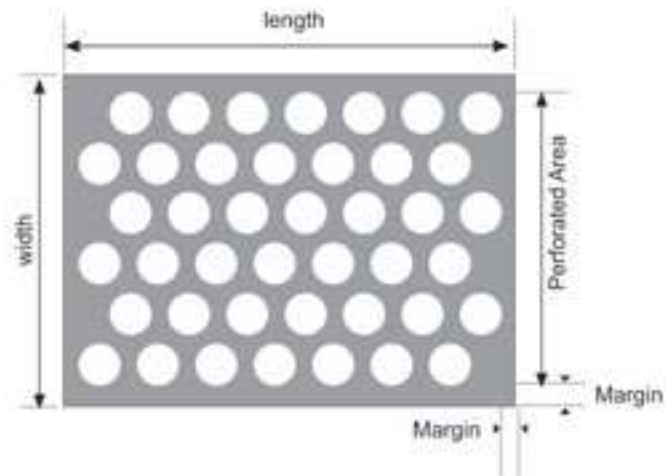
PERFORATED METAL

Perforated metal is a metal stamping process to any metal materials that may include steel, stainless steel, aluminum, galvanized, bronze, etc. Perforated metal is effectively used in many industries and applications such as industrial processing and machinery, food processing, building & constructions, agriculture, communication industries, automotive industries, hardwares & household industries.

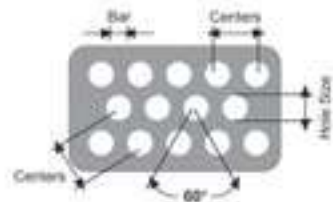


MATERIAL

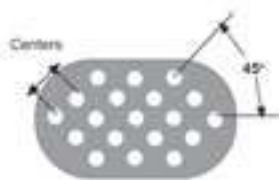
Material : Mild Steel, Stainless Steel, Aluminum



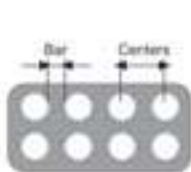
(Standard Pattern)
Round Perforations
Staggered



(Optional Pattern)
Round Perforations
45° Pattern



(Optional Pattern)
Round Perforations
Straight Line Pattern

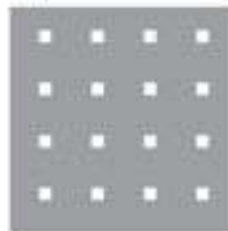


TYPE OF PERFORATED MESH

Square Perforated



Square Perforated



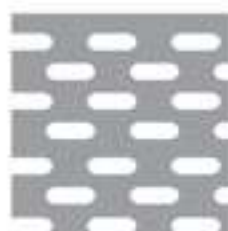
Round Perforated



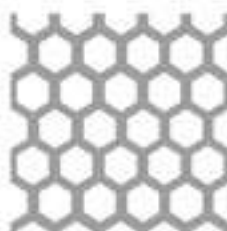
Rectangle Perforated



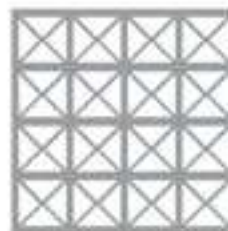
Capsule Perforated



Hexagonal Perforated



Art & Deco Perforated



APPLICATION PRODUCT

> Food Processing

sugar screen, grain drying,
cleaning/rinsing screens,
goods/grains grading &
separation, hammer mill screens

> Industry

oil mining & petrochemical
industry, water waste,
health care (medicine industry)

> Automotive

ventilation grills, filter components,
muller, etc

> Building exterior & interior

facades, sun screen, acoustic, etc

> Multimedia & Communication

speakers, accustics

> Households & Kitchenware

* Table only show command spesification,
other spesification can be special ordered

Open Area	14.50%	18.90%	22.60%	22.60%	22.60%	27.90%	32.60%
Pitch (center-center) mm	1.25	1.75	2	3	4	4.5	5
Diameter Lobang mm	0.5	0.8	1	1.5	2	2.5	3

Thick mm	Actual	Plat Size (mm)		Before Perforated (kg)	After Perforated (kg)								
		Length	Width										
0.5	0.4	1000	2000	6.24	5.34								
0.8	0.7	1000	2000	10.92		8.86	8.45	8.45	8.45	7.87	7.36		
0.8	0.7	1200	2400	16.1				12.46	12.46	11.61	10.85		
1	0.9	1200	2400	20.7				16.02	16.02	14.92	13.95		
1.2	1.1	1200	2400	25.3					19.58	18.24	17.05		
1.5	1.4	1200	2400	32.2						23.22	21.70		
2	1.8	1200	2400	41.4							27.90		
3	2.7	1200	2400	62.1								41.86	

Open Area	32.60%	29.60%	35.40%	40.20%	40.20%	46.20%	40.20%
Pitch (center-center) mm	5	7	8	9	12	14	18
Diameter Lobang mm	3	4	5	6	8	10	12

Thick	Actual	Plat Size (mm)		Before Perforated (kg)	After Perforated (kg)								
		Length	Width										
0.5	0.4	1000	2000	6.24									
0.8	0.7	1000	2000	10.92	7.36	7.69	7.06	6.53	6.53	5.87	6.53		
0.8	0.7	1200	2400	16.1	10.85	11.33	10.40	9.63	9.63	8.66	9.63		
1	0.9	1200	2400	20.7	13.95	14.57	13.37	12.38	12.38	11.14	12.38		
1.2	1.1	1200	2400	25.3	17.05	17.81	16.34	15.13	15.13	13.61	15.13		
1.5	1.4	1200	2400	32.2	21.70	22.67	20.80	19.26	19.26	17.32	19.26		
2	1.8	1200	2400	41.4	27.90	29.15	26.74	24.76	24.76	22.28	24.76		
3	2.7	1200	2400	62.1	41.86	43.72	40.12	37.14	37.14	33.41	37.14		

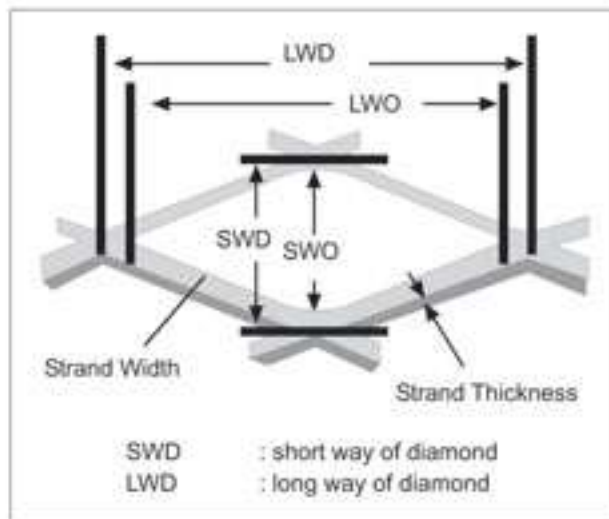
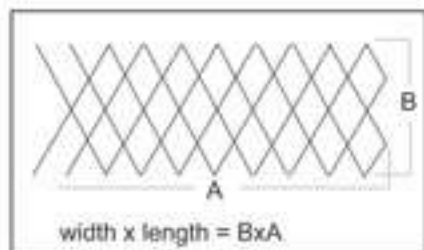
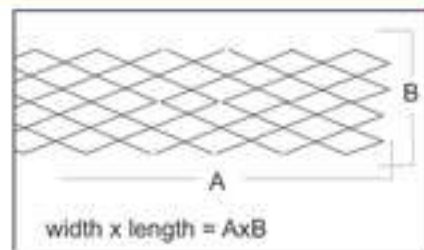


EXPANDED METAL

Expanded metal is a form of metal stock made by shearing a metal plate in a press, so that the metal stretches, leaving diamond-shaped voids surrounded by interlinked bars of metals. It is manufactured by simultaneously slitting and stretching the materials with one motion. The common material used is mild steel but can be special ordered with aluminum or stainless steel or galvanized steel.



PRODUCT SPECIFICATION



FORTE ORNAMEESH is a kind of expanded metal mesh with diamond shapes and relatively thinner and light weight. This mesh are commonly used for decoration in interior and exterior buildings and also use for protection mesh for fence, window, and machinery.

FORTE GRIDMESH is developed with thicker material for strength. The shape and patterns are designed to make a material its stronger than a normal flat metal sheet with the same thickness.

PRODUCT APPLICATION

- Filtration
- Engineering
- Marine
- Architectural
- Acoustics
- Security
- Building and Constuction
- Manufactured Components
- Leisure Industry
- Offshore
- Catering
- Reinforcement



STAINLESS STEEL EXPANDED METAL MESH

Type	SWD	LWD	Strand		Approx. Weight	Size A x B
			Thickness	Width		
Ornamesh						
715	11	22	0.7 mm	1.5 mm	3,5	1.2 x 2.4
1015	11	22	1 mm	1.5 mm	6	1.2 x 2.4
1020	17	38	1 mm	2 mm	4	1.2 x 2.4
1620	17,5	38	1.6 mm	2 mm	6	1.2 x 2.4
1628	25	58	1.6 mm	2.8 mm	8	1.2 x 2.4
2028	25	56	2 mm	2.8 mm	9	1.2 x 2.4
3035	25	56	3 mm	3.5 mm	17	1.2 x 2.4
3045	35	76	3 mm	4.5 mm	15	1.2 x 2.4
3032	25	36	3 mm	3.2 mm	12	1.2 x 2.4
Gridmesh						
30080	30	75	3 mm	8 mm	28	1.2 x 2.4
50075	33	75	5 mm	7.5 mm	50	1.2 x 2.4
50105	33	75	5 mm	10.5 mm	65	1.2 x 2.4
50080	44	135	5 mm	8 mm	36	1.2 x 2.4
50110	46	135	5 mm	11 mm	48	1.2 x 2.4

ALUMINUM EXPANDED METAL MESH

Material Thickness (mm)	Cutting Thickness (mm)	Whole (SWxLW)	Width	Length	Weight	Type
0.9	1.5	10x20 mm	1 m	30 m	19,5 kg	U 1015
0.9	2.18	18x39 mm	1 m	30 m	16,5 kg	DD 1025
0.3	0.55	2.5x5 mm	1 m	30 m	10,5 kg	E0505
0.6	0.75	3x6 mm	1 m	30 m	24,5 kg	F0810
0.6	0.8	6x10 mm	1 m	30 m	14,5 kg	J 0810
0.8	0.7	6x10 mm	1 m	30 m	17 kg	J 1010



WELDED WIREMESH

Welded wire mesh has been used in many application and industries. One of the most common is used for partition, engine coverage, windows, ventilation rooms, racking shelves for warehouse and supermarket, cable tray, storage container, and fences. This wire mesh is produced form a high quality steel wire material that is welded strongly. This special welding makes the mesh very strong even though being cut in the middle of the wire. The galvanizing and pvc coating also makes this wire mesh corrosion and rust resistant. For great shiny look also available in stainless steel.



GALVANIZED WELDED WIREMESH (HEAVY)

Heavy Welded Mesh				Rol		
Pitch	Wire Ø	Type	Finish	Width	Length	Weight
100 x 100mm	4 mm	448	Galvanized	1.8 m	30 m	114 kg
100 x 100mm	3.25 mm	4410	Galvanized	1.8 m	30 m	72 kg
100 x 50mm	3.15 mm	4210	Galvanized	1.8 m	30 m	102 kg
50 x 50mm	4 mm	228	Galvanized	1.8 m	30 m	200 kg
50 x 50mm	4 mm	45k	Galvanized	0.9 m	30 m	105 kg
50 x 50mm	3 mm	2210	Galvanized	1.8 m	30 m	112 kg
50 x 50mm	3 mm	35k	Galvanized	0.9 m	30 m	58 kg
50 x 50mm	2.6 mm	2212	Galvanized	1.8 m	30 m	100 kg
50 x 50mm	2 mm	2214	Galvanized	1.8 m	30 m	53 kg
50 x 25mm	1.95 mm	2114	Galvanized	1.8 m	30 m	79 kg
25 x 25mm	2 mm	1114	Galvanized	1.2 m	30 m	70 kg
25 x 25mm	2 mm	225k	Galvanized	0.9 m	30 m	48 kg
75 x 75mm	1.2 mm	Roofmesh	Galvanized	1.8 m	30 m	13.5 kg



STAINLESS WELDED WIREMESH



Pitch (mm)	Wire (mm)	Width (mm)	Length (mtr)	Weight (kg)
6 x 6	0.7	1000	30	28
10 x 10	1	1000	30	39.5
12 x 12	1	1000	30	29
15 x 15	1.2	1000	30	30
20 x 20	1	1000	30	20
25 x 25	2	1000	30	60
25 x 25	2	1200	30	73

GALVANIZED WELDED WIREMESH (LIGHT)

Light Welded Mesh			Rol		
Pitch	Wire ϕ	Finish	Width	Length	Weight
25 x 25 mm	1mm	Galvanized	1 m	28 m	13 kg
1" X 1"	0.95mm	EG/R	0.9 m	10 m	4 kg
3/4" x 3/4"	0.6mm	Galvanized	0.9 m	15 m	3.5 kg
3/4" x 3/4"	0.8mm	EG/R	0.9 m	10 m	4 kg
1/2" x 1/2"	1mm	PVC	0.9 m	15 m	8 kg
1/2" x 1/2"	0.9mm	Galvanized	1.2 m	25 m	23 kg
1/2" x 1/2"	0.7mm	Galvanized	0.9 m	25 m	10kg
1/2" x 1/2"	0.6mm	Galvanized	0.9 m	10 m	2.5 kg
1/2" x 1/2"	0.65mm	EG/R	0.9 m	10 m	4 kg
1/2" x 1/2"	0.6mm	EG/R	0.9 m	15 m	4.5 kg
12 x 12mm	1mm	Galvanized	1 m	30 m	25 kg
12 x 12mm	1.2mm	Galvanized	0.9 m	30 m	33 kg
1/4" x 1/4"	0.7mm	PVC	0.9 m	15 m	5 kg
1/4" x 1/4"	0.5mm	Galvanized	0.9 m	12 m	5 kg
1/4" x 1/4"	0.46mm	EG/R	0.9 m	10 m	4 kg

APPLICATION

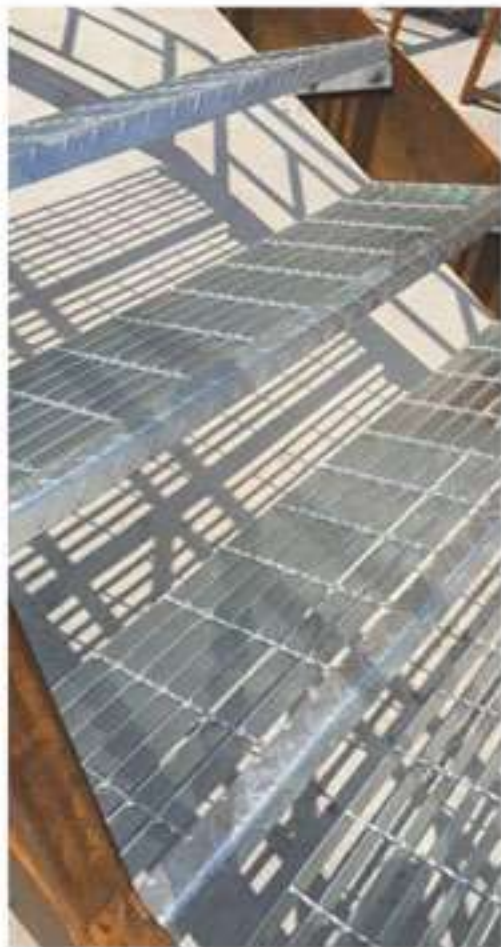
- › Security
- › Safety
- › Building & Construction
- › Storage
- › Agriculture





GRATING STEEL

Steel Grating is a kind of open steel member with its bearing bars and cross bars jointing at their intersections either by welding or by locking. Steel Grating is widely used in Power Station, Chemical Industry, Oil & Gas Industry, Boiler plant mining and refinery, etc.



GRATING STEEL

	Steel Grating Standard	Steel Standard	Galvanizing Standard
China Standard	YB/T 4001.1-2007	GB700-88	GB/T13912-2002
USA Standard	ANSI/NAAMM (MBG531)	ASTM (A36)	ASTM (A123)
U. K. Standard	BS4592	BS4360 (43A)	BS729
Australia Standard	AS1657	AS3679	AS1650



Type	Strip Bar								
	Width	Length	Rod Diameter	Thickness	Width	Load Bar	Cross Rod	Mass	Save Load
	(mm)	(mm)	(mm)	(inch)	(inch)	(pitch)	(pitch)		(kg/m ²)
JG254.5 SERRATED GALV.	900	6000	6	3/16"	1"	30	100	180	2124
JG254,5 UNGALV.	900	6000	6	3/16"	1"	30	100	180	2124
JG254,5 PLAIN GALV.	900	6000	6	3/16"	1"	30	100	180	2124
JG304.5 SERRATED GALV.	900	6000	6	3/16"	1 1/4"	30	100	212	3059

* Other size & specification can be special ordered. Please contact our sales assistance

PRODUCT APPLICATION

- › Flooring
- › Catwalk
- › Decking
- › Ramp
- › Stair Treads
- › Public Utilities
- › Airport Project
- › Power Plant
- › Port Engineering
- › Dock
- › Drainage Cover
- › Fencing
- › Machinery Safe Guard
- › Storage Rack
- › Mining and Refinery
- › Marine Engineering
- › Petro - Chemistry
- › Oil And Grease Chemistry

GRATING TYPE



SADLE TYPE





STAINLESS STEEL MESH

FORTE mesh is one of the leading brands in Indonesia. We manufacture, distribute and fabricate wire mesh, hardware cloth, screen mesh, insect screen, and filter screens. We have a wide selection of woven wire screen products with various size, openings, thickness and materials. Stainless steel wire mesh or known as wire cloth, is very versatile and used in so many applications. There are several types of wire mesh includes plain weave mesh, twill weave mesh, plain dutch, and twill dutch but plain weave is the most common types of mesh used in the market.



PRODUCT INFORMATION

Stainless Steel is selected for their wear resisting, heat resisting, acid resisting, and corrosion resisting characteristics.

Many different grades are used for best solution to your needs. SUS 304 is the most common to be used in specific application to take advantage of each grade's unique properties.



Mesh	Wire mm	Hole mm	Width mtr	Weight kg/m ²	Weight Rol	Type SUS
2	1.1	11.60	1	1.18	35.50	201
3	0.98	7.49	1	1.42	42.50	201
4	0.7	5.65	1	0.97	29.00	201
5	0.5	4.58	1	0.62	18.50	201
5	0.75	4.33	1	1.37	41.00	201/304
6	0.5	3.73	1	0.73	22.00	201
6	0.6	3.63	1	1.07	32.00	201/304
8	0.43	2.75	1	0.73	22.00	201
8	0.54	2.64	1	1.15	34.50	201/304
10	0.38	2.16	1	0.72	21.50	201
10	0.43	2.11	1	0.92	27.50	201/304
12	0.36	1.76	1	0.77	23.00	201
12	0.41	1.71	1	1.00	30.00	201/304
14	0.32	1.49	1	0.70	21.00	201
16	0.28	1.31	1	0.67	18.50	201/304
16	0.28	1.31	1.2	0.73	22.00	201
16	0.35	1.24	1	0.97	29.00	201
18	0.26	1.15	1	0.57	17.00	201/304
18	0.27	1.14	1.2	0.78	23.50	201
18	0.34	1.07	1	1.02	30.50	201
20	0.26	1.01	1	0.67	20.00	201
20	0.34	0.93	1	1.13	34.00	201/304
20	0.4	0.87	1.6	2.50	75.00	304

Material : Stainless steel SUS 201 & SUS 304, SUS 316

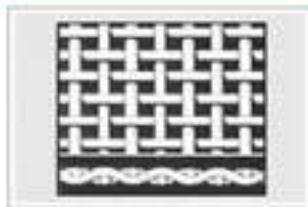
Mesh	mm	mm	Width mtr	Weight kg/m ²	Weight Rol	Type SUS
20	0.45	0.82	1	1.98	59.50	201
24	0.21	0.85	1	0.53	15.00	201
30	0.18	0.67	1	0.48	14.50	201/304
30	0.25	0.60	1	0.93	28.00	201/304
30	0.3	0.55	1.6	2.12	63.50	304
34	0.21	0.54	1	0.73	22.00	201/304
40	0.16	0.48	1	0.50	15.00	201/304
40	0.23	0.41	1	1.05	31.50	201/304
40	0.27	0.37	1	1.33	40.00	201
40	0.25	0.39	1.6	1.96	58.80	304
40	0.27	0.37	1.6	1.43	68.50	304
50	0.14	0.37	1	0.48	14.50	201/304
60	0.14	0.28	1	0.58	17.50	201/304
60	0.18	0.24	1	0.97	29.00	201/304
80	0.12	0.20	1	0.57	17.20	201/304
80	0.15	0.17	1	0.88	26.50	201/304
100	0.1	0.15	1	0.47	14.00	201/304
120	0.075	0.14	1	0.33	10.00	201
150	0.065	0.10	1	0.31	9.20	201
180	0.05	0.09	1	0.22	6.60	302
200	0.05	0.08	1	0.23	7.00	302
250	0.05	0.05	1	0.23	7.00	302
300	0.05	0.03	1	0.23	7.00	304
325	0.04	0.04	1	0.20	6.00	304

* can also be produced and special order with other materials such as steel, galvanized steel & brass

PRODUCT APPLICATION

- › Construction Building
- › Offices
- › Factories
- › Railroad
- › Safety
- › Food And Beverages
- › Acoustic
- › Highway
- › Security
- › Storage
- › Agriculture
- › Chemical
- › Automotive
- › Mining

WEAVING TYPES



Plain Weave



Dutch Plain Weave



Twilled Weave



Dutch Twilled Weave



A close-up photograph of razor wire, showing several strands of twisted metal with sharp, pointed edges. The wire is coiled into a series of overlapping loops. In the foreground, a portion of a chain-link fence is visible, its diamond-shaped mesh partially obscuring the razor wire. The background is a blurred, warm-toned surface, possibly a wall or ground, in shades of orange and brown.

RAZOR WIRE

Razor Wire is one of the most effective and efficient materials that helps to protect your properties. It is made of high quality galvanized steel plate formed with high technology machine and creates great razor blade shape that sharp and strong.



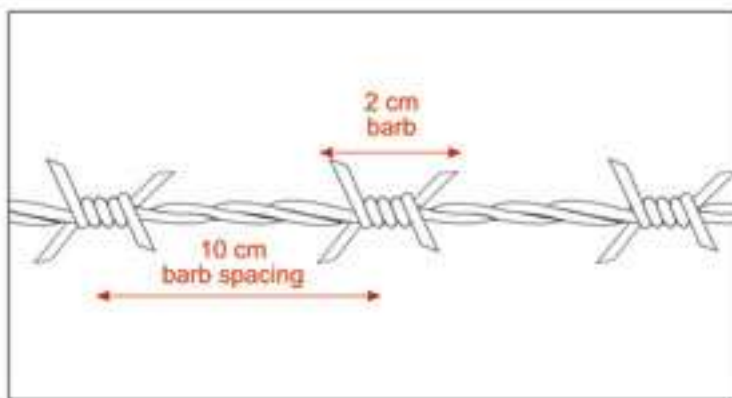
RAZOR WIRE

Type	Blade Style	Thickness	Wire Diameter	Barb Length	Barb Width	Barb Spacing	Out Diameter	#Loops	Length	Cross Type
BTO 22		0.5 ± 0.05	2.5 ± 0.1	22 ± 1	15 ± 1	34 ± 1	450	56	8-10 m	Double
BTO 30		0.5 ± 0.05	2.5	30	15	45 ± 1	450	56	8-10 m	Double
CBT 60		0.6 ± 0.05	2.5 ± 0.1	60 ± 2	32 ± 1	100 ± 2	450	56	13-15m	Single
							450	56	8-10m	Double
CBT 65		0.6 ± 0.05	2.5 ± 0.1	65 ± 2	21 ± 1	100 ± 2	450	56	13-15m	Single
							450	56	8-10m	Double



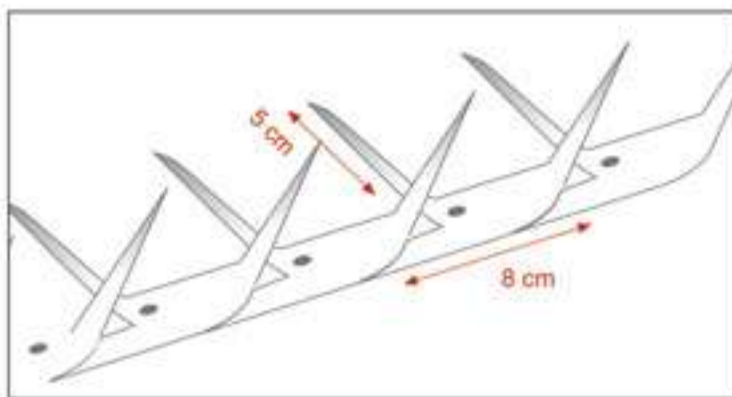
BARBED WIRE

Wire Diameter	: BWG 12 & BWG 14
Length	: 60 meter / Roll
Finishing	: galvanized
Weight	: 10 kg

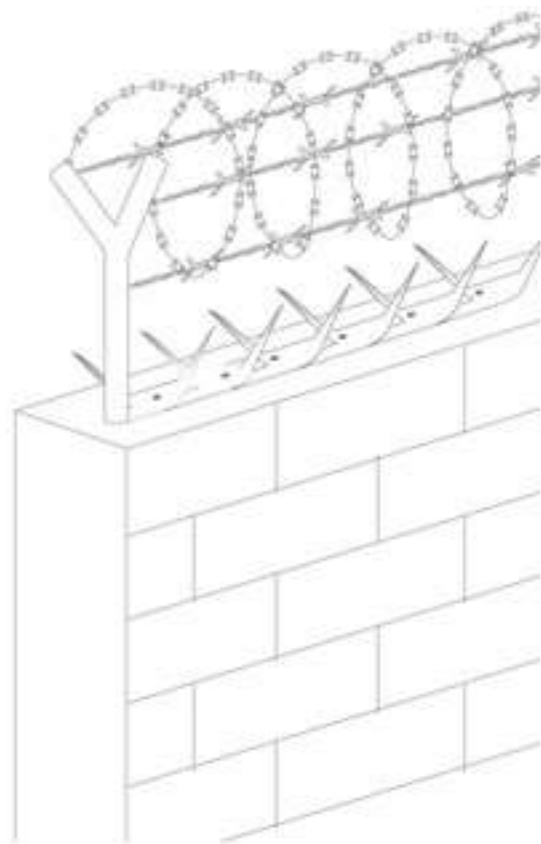


WALL SPIKE

Thickness	: 0,6 mm
Length	: 50 cm / pcs
Finishing	: galvanized



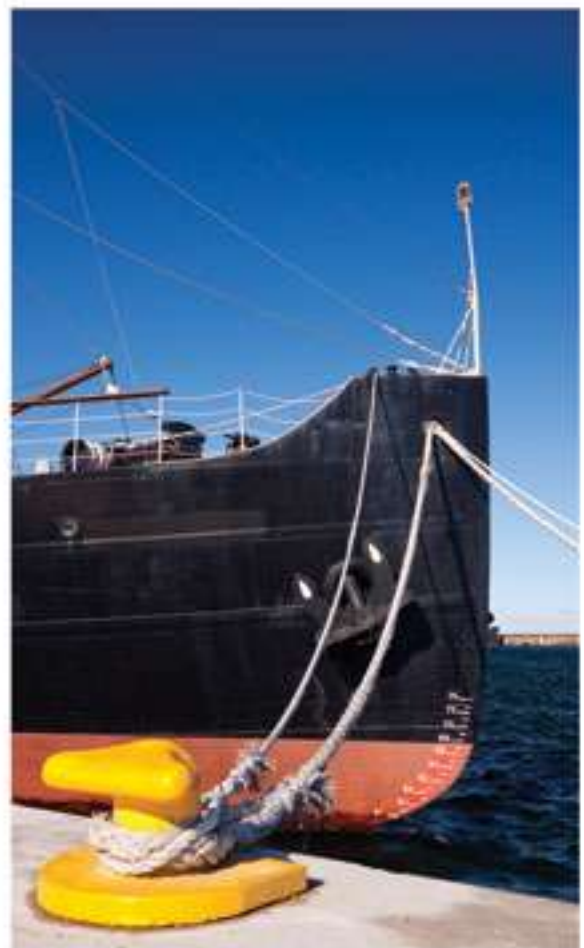
INSTALATION SAMPLE



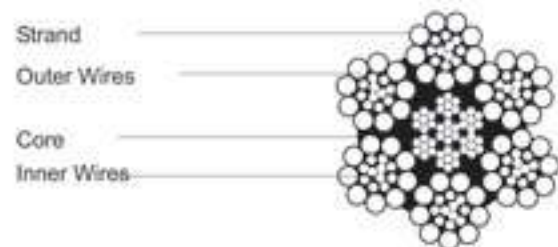
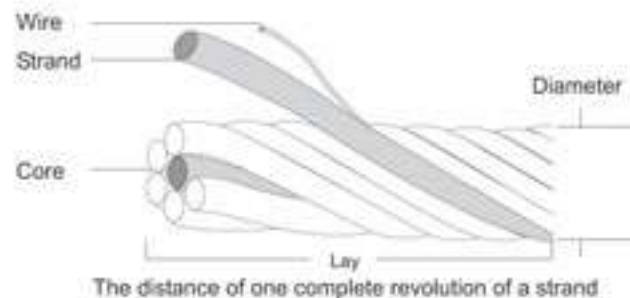
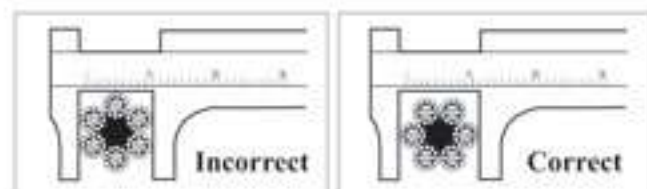


WIRE ROPE & RIGGING

Wire rope is a type of rope that consist of several strands of metal wire lain or twisted. Initially wrought iron wire were used, but today also available in stainless steel, galvanized, and pvc coated.



CONSTRUCTION OF WIREROPE

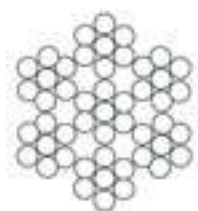


CORE TYPE



FC Fibre Core

Polypropylene or natural fibres are used as the core.
Excellent flexibility and lubricant retention.



WSC Wire Strand Core

A single strand is used as the core.
Simple and cost effective - suitable for small diameter rope.



IWRC Independent Wire Rope Core

A small wire rope is used as the core.
Excellent crush and distortion resistance with longer fatigue life, and high breaking strength.

GALVANISED WIRE ROPE



1 x 19

Construction 1 x 19 STANDARD : DIN 3053

Diameter 1.2mm, 1.5mm, 2mm

Application : Standing riggings on boat,
Bracing, automotive



6 x 7 + FC

Construction 6 x 7 + 1FC GB/T20118-2006

Diameter 1.5mm, 2 mm, 3mm

Application : Machinery, Equipments,
Winch, Conveyer



6 x 12 + 7FC

Construction 6 x 12 + 7FC GB/T20118-2006

Diameter 4mm, 5 mm, 6mm, 8mm, 9mm, 12mm

Application : Marine, Engineering,
Cargo Lashing, Towing



7 x 19 IWRC

Construction 6 x 12 + 7FC GB/T20118-2006

Diameter 3mm, 4mm, 5mm

Application : Marine, Engineering,
Cargo Lashing, Towing



8 x 19S + FC

Construction 8 x 19S + FC GB/T20118-2006

Diameter 8mm, 10 mm, 12mm

Application : Elevator



19 x 7

Construction 19 x 7 non rotating DIN 3069

Diameter 9mm, 10 mm, 13mm

UNGALVANISHED WIRE ROPE



6 x 37 IWRC

Construction 6 x 37 IWRC GB/T20118-2006

Diameter 6mm, 8mm, 9mm, 10mm, 12mm

Application : Hoisting, Cranes, Machinery,
Towing, Rigging, Lifting

PVC Galvanized Wire Rope



6 x 7 + FC
6 x 12 + FC

Construction 6 x 7 + FC & 6 x 12 + 7 FC

Diameter 2mm, 3mm, 4mm, 5mm, 6mm, 8mm, 12mm

Application : Lashing, Towing, Household,
Gym Machines Textile GB/T20018-2006

Stainless steel Sus 304 Wire Rope



7 x 7 SUS 304

Construction 7 x 7 & 7 x 19 DIN3060

Diameter 1mm, 1.5mm, 2mm, 3mm, 4mm, 5mm,
6mm, 8mm, 9mm, 10mm

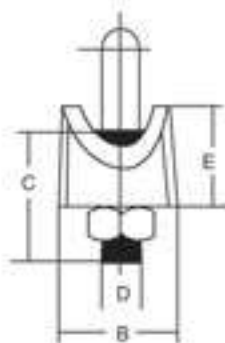
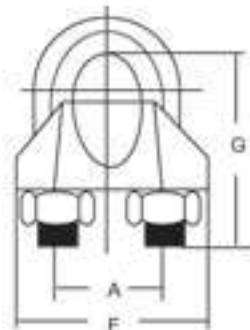
Application : Marines, Security cables, Landscape,
Architecture, Lashing



7 x 19 SUS 304

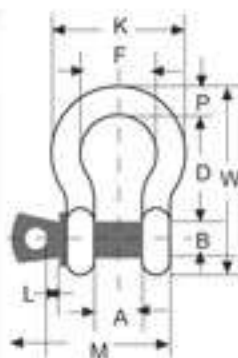
DIN 741 GALV MALLEABLE WIRE ROPE CLIP

DIN 741									
SIZE		A	B	C	D	E	F	G	100/WT (kg)
mm	in								
3	1/8	9	10	12	4	10	21	16	1.4
5	3/16	11	11	13	5	10	23	19	1.5
6.5	1/4	13	12	15	5	11	26	23	2.1
8	5/16	16	14	19	6	15	30	28	4.1
10	3/8	19	18	22	8	17	34	34	6.8
11	7/16	20	19	22	8	18	36	36	7.2
13	1/2	24	23	30	10	21	42	45	13
14	9/16	25	23	30	10	22	44	47	13.5
16	5/8	29	26	33	12	26	50	51	21
19	3/4	32	29	38	12	30	54	63	28
22	7/8	37	33	44	14	34	61	71	40
26	1	41	35	45	14	37	65	81	44
30	1 1/8	48	37	50	16	43	74	94	66
34	1 1/4	52	42	55	16	50	80	104	85
40	1 1/2	58	45	60	16	55	88	124	104

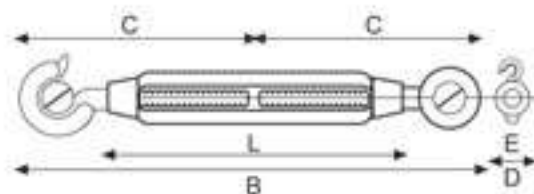


SACKLE OMEGA

Size (in)	W.L.L. (t)	Weight (lbs.)	Dimension (in)											Tolerance (+/-)	
			A	B	D	E	F	G	K	W	L	M	P	D	A
3/16	1/3	.06	.38	.25	.88	.19	.60	.56	.98	1.47	.16	1.14	.19	.06	.06
1/4	1/2	.10	.47	.31	1.13	.25	.78	.61	1.278	1.84	.19	1.43	.25	.06	.06
5/16	3/4	.19	.53	.38	1.22	.31	.84	.75	1.47	2.09	.22	1.71	.31	.06	.06
3/8	1	.31	.66	.44	1.44	.38	1.03	.91	1.78	2.49	.25	2.02	.38	.13	.06
7/16	1 - 1/2	.38	.75	.50	1.69	.44	1.16	1.06	2.03	2.91	.31	2.37	.44	.13	.06
1/2	2	.72	.81	.63	1.88	.50	1.31	1.19	2.31	3.28	.38	2.69	.50	.13	.06
5/8	3 - 1/4	1.37	1.06	.75	2.38	.63	1.69	1.50	2.94	4.19	.44	3.34	.69	.13	.06
3/4	4 - 3/4	2.35	1.25	.88	2.81	.75	2.00	1.81	3.50	4.97	.50	3.97	.81	.13	.06
7/8	6 - 1/2	3.62	1.44	1.00	3.31	.88	2.28	2.09	4.03	5.83	.50	4.50	.97	.25	.06
1	8 - 1/2	5.03	1.69	1.13	3.75	1.00	2.69	2.38	4.69	6.56	.56	5.13	1.06	.25	.06
1 - 1/8	9 - 1/2	7.41	1.81	1.25	4.25	1.16	2.91	2.69	5.16	7.47	.63	5.71	1.25	.25	.06
1 - 1/4	12	9.50	2.03	1.38	4.69	1.29	3.25	3.00	5.75	8.25	.69	6.25	1.38	.25	.06
1 - 3/8	13 - 1/2	13.53	2.25	1.50	5.25	1.42	3.63	3.31	6.37	9.16	.75	6.83	1.50	.25	.13
1 1/2	17	17.20	2.38	1.63	5.75	1.54	3.88	3.63	6.88	10.00	.81	7.33	1.62	.25	.13
1 - 3/4	25	27.78	2.88	2.00	7.00	1.84	5.00	4.19	8.86	12.34	1.00	9.06	2.25	.25	.13
2	35	45.00	3.25	2.25	7.75	2.08	5.75	4.81	9.97	13.68	1.22	10.35	2.40	.25	.13
2 - 1/2	55	85.75	4.13	2.75	10.50	2.71	7.25	5.69	12.87	17.84	1.38	13.00	3.13	.25	.25

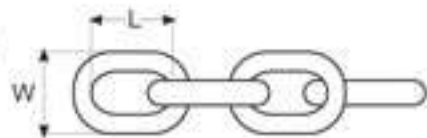


TURNBUCKLES COMMERCIAL TYPE (MALEABLE IRON)



SWL KG	SPECIFICATION	B	C	D	E	L
100	6*100mm	145	215	12	10	100
200	8*125mm	185	280	14	12	125
300	10*150mm	210	325	16	14	150
500	12*200mm	275	430	19	18	200
1000	16*250mm	345	540	23	24	250
1500	20*300mm	435	670	28	28	300
2200	22*320mm	480	740	34	32	325
3000	24*350mm	555	830	36	36	350
3500	28*360mm	530	790	68	30	350
3800	30*385mm	570	865	70	33	385
3800	32*385mm	570	860	70	33	385
5350	38*490mm	740	1125	90	50	490
5350	40*490mm	740	1125	90	50	490

MEDIUM LINK CHAIN



LINK SPECIFICATION				TEST LOAD	BREAKING LOAD	NET WT PER 200FT (KG)	
D		L	W				
IN	MM	MM	MM	KG	KG	B.F.	H.D.G.
1/8	3.20	20	12	200	400	10.80	11.00
5/32	4.00	23	15	300	600	17.40	18.00
3/16	4.70	25	18	400	800	24.40	25.00
7/32	5.50	26	19	550	1100	34.00	35.00
1/4	6.35	26	23	750	1500	48.00	50.00
5/16	7.94	32	29	1200	2400	76.00	78.00
3/8	9.50	25	35	1700	3400	111.00	114.00
7/16	11.11	28	38	2300	4600	154.00	158.00
1/2	12.70	50	45.5	3000	6000	194.00	200.00
5/8	15.88	60	56.7	4700	9400	303.00	312.00
3/4	19.00	76	69	6800	13600	432.00	445.00
7/8	22.20	90	80	9250	18500	586.00	603.00
1	25.40	105	95	12150	24300	770.00	792.00

EYE HOOK WITH LATCH

320 C		320 A		WEIGHT (kg)
WLL/T	B.L/T	WLL/T	B.L/T	
1/2	2	3/4	3	0.18
3/4	3	1	4	0.27
1	4	1 1/2	6	0.36
1 1/2	6	2	8	0.6
2	8	3	12	1
3	12	4 1/2	18	1.7
5	20	7	28	3.9
7 1/2	30	11	44	6
10	40	15	60	10.2

PRODUCT APPLICATION

- > Oil and Gas
- > Mining Supplies
- > Automotive
- > Commercial Fishing
- > Construction & Civil Works
- > Logging



Sackle Omega



Wire Rope Clip



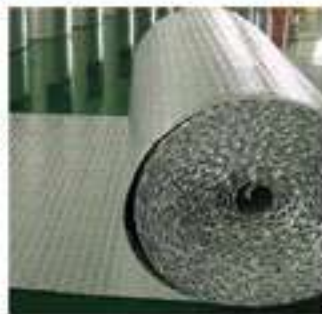
Turnbuckles



ROOFING INSULATION

FORTE Roof Insulation includes glasswool, aluminum foil and roofmesh. Available in many different types to match your need and budget. Roof Insulation in tropical country plays important role in reducing the amount of energy you consume for cooling, and reduce energy bills.

Beside helps to reduce heat, this roof insulation also good to help reduce noise from out site and inside out.



GLASSWOOL

Forte Glass wool is a kind of glass fiber and a kind of artificial inorganic wool. Therefore, the glass wool can be taken on as porous material with excellent thermal insulation and sound absorption performance. The materials can be cut at random according to the construction requirement. It is mainly used on the following aspects: rooms of buildings, sound reduction system, mean of communication, refrigeration equipments, damping, and sound absorption and noise reduction of domestic electric appliance, which has a satisfactory effect.

Type	Thickness (inch)	Density kg/m ³	Standard (m)		Weight kg/m ²	Weight Rol
			Width	Length		
1625	1	16	1,2	30	0,4	14,4
1625 Foil	1	16	1,2	30	0,4	15,5
1650	2	16	1,2	15	0,8	14,4
1650 Foil	2	16	1,2	15	0,8	15,5
2425	1	24	1,2	30	0,6	21,6
2450	2	24	1,2	15	1,2	21,6
3225	1	32	1,2	30	0,8	28,8
3250	2	32	1,2	15	1,6	28,8

BENEFITS

- Sound proof and reduce noise
- Not easy to burn
- Elastic and easy to shape and cut
- Last long of usage
- Maintain room temperature and coolness

Item	Unit	Index	The measured figure	Remarks
Volume Weight	Kg/m ³	10-96	10-96	GB/T13350-2000
Average fiber diameter	mm	<8.0	4.0-6.0	GB/T 13350-2000
Hydrophobic	%	>98	>98.5	JISA9512-2000
Heat Conduct Coefficient	W/m-K	0.049-0.042	0.045-0.032	GB/T13350-2000
Incombustibility		Incombustible	Qualified (Grade A)	GB/T13350-2000
Heat Absorption Coefficient			1.03 product reverberation method	GB/J47-83
			24kg/m ³ 2000Hz	
Highest Usage Temperature	°C	400	410	GB/T13350-2000

ALUMINUM FOIL

Aluminum foil has multi layer material such as aluminium sheet on both side reinforce with polyester yarn or fibreglass scrim, make it tensile stronger and more durable. Added high quality kraft paper for it mechanical strength. All the layer is formed and laminated with fire retardant adhesive (specially for PF 831). Using excellence technology to produce high quality aluminium foil insulation. Aluminum foil is designed and extensively used to reflect 95% of radiation heat, effectively cools of the air in the rooms underneath, also suitable as vapour barrier, avoid roofs leakage. Can be used for roof, wall and building insulation, especially in tropical condition.

Type	Wire Ø	Type	Finish	Width	Length	Weight
75 x 75 mm	1.2mm	3318	Galvanized	1.8 m	30 m	13.5 kg
50 x 50 mm	2mm	2214	Galvanized	1.8 m	30 m	53 kg
25 x 25mm	2mm	1114	Galvanized	1.2 m	30 m	70 kg
25 x 25mm	2mm	225k	Galvanized	0.9 m	30 m	48 kg
25 x 25mm	1mm	1120	Galvanized	1 m	28 m	13 kg

Type	Foil	Type	Yarn/Type	Width	Length	Area	Thickness	Weight
520	Double	Bubble	-	1.25 m	30 m	37.5 m ²	4 mm	10 kg
550	Single	Metalizing	Straight	1.25 m	60 m	75 m ²	0.25 mm	11.9 kg
560	Double	Metalizing	Straight	1.25 m	60 m	75 m ²	0.28 mm	13.4 kg
580	Single	Woven	-	1.25 m	50 m	60 m ²	0.15 mm	6.5 kg
590	Double	Woven	-	1.25 m	50 m	60 m ²	0.18 mm	7 kg
810	Single	Foil	Straight	1.25 m	60 m	75 m ²	0.25 mm	13 kg
811	Single	Foil	Cross	1.25 m	60 m	75 m ²	0.25 mm	13 kg
820	Double	Foil	Straight	1.25 m	60 m	75 m ²	0.28 mm	15 kg
821	Double	Foil	Cross	1.25 m	60 m	75 m ²	0.28 mm	15 kg
831	Double	Fire Retardant		1.25 m	60 m	75 m ²	0.3 mm	17.5 kg

ROOF MESH

To support glass wool and aluminum foil hung on the roof, we also have several type of welded mesh that is also known as roof mesh. Roof mesh is made from high quality wire and not easy to rust and last long. Its strongly welded in the production and coated with high quality galvanize to extend the lifetime and strength.



WIRES

FORTE Wires available in different materials includes stainless steel, galvanized and high carbon steel wires.

Stainless steel wires seems to be the most expensive materials for wires but it has the best rust resistance and best of durability.

Galvanized wire is made from a low carbon with drawing process, acid washing, rust removing, annealing and cooling for excellent flexibility and softness and finalized with galvanized process.

The benefit of using this galvanized stainless wire is rust and corrosion resistant and also less expensive than stainless steel.

High Carbon Steel wires are most common for all kind of springs usage



STAINLESS STEEL WIRE

Our stainless steel wires available in different tension strength for its hardness and also available in different grades includes SUS201, SUS304, and SUS316

GRADES : SUS 316, SUS 304, & SUS 201

FINISH : Bright Polished

STANDARD : JIS G 4314, ASTM A 313,
DIN 17224, & EN 10270 - 3

PRODUCT APPLICATION

- Wiremesh Production
- Springs (Automotive, Hardware, Office Equipment)
- Welding Wire
- Tie/Lashing Wire
- Pet Cages
- Grill Racks
- Shelves

φ (mm)	Surface	Wieve / Soft	Spring / Hard	Packing	Type SUS
		(N/mm2)	(N/mm2)	Weight /roll	
0,3	Bright	650 - 800	2150 - 2400	10 - 15kg / spool	201 - 304
0,4	Bright	650 - 800	2050 - 2300	10 - 15kg / spool	201 - 304
0,5	Bright	650 - 800	1950 - 2200	10 - 15kg / spool	201 - 304
0,6	Bright	650 - 800	1950 - 2200	10 - 15kg / spool	201 - 304
0,7	Bright	650 - 800	1950 - 2200	40 - 50kg/coil	201 - 304
0,8	Bright	650 - 800	1850 - 2100	40 - 50kg/coil	201 - 304
0,8	Bright	650 - 800	1850 - 2100	40 - 50kg/coil	201 - 304 - 316
0,9	Bright	650 - 800	1850 - 2100	40 - 50kg/coil	201 - 304 - 316
1	Bright	650 - 800	1530 - 1780	40 - 50kg/coil	201 - 304 - 316
1,2	Bright	650 - 800	1450 - 1700	40 - 50kg/coil	201 - 304 - 316
1,5	Bright	650 - 800	1450 - 1700	40 - 50kg/coil	201 - 304 - 316
2	Bright	650 - 800	1400 - 1650	100kg/coil	201 - 304 - 316
2,5	Bright	650 - 800	1320 - 1570	100kg/coil	201 - 304 - 316
3	Bright	650 - 800	1320 - 1480	100kg/coil	201 - 304 - 316
4	Bright	650 - 800	1230 - 1480	100kg/coil	201 - 304
4	Bright	650 - 800	1230 - 1480	100kg/coil	201 - 304
5	Bright	650 - 800	1100 - 1350	100kg/coil	201 - 304

Different grades will help customer to find the most efficient and effective products according to their needs.

GALVANIZED WIRE

Φ (mm)	T/S (kg/mm ²)	T/S (Mpa)	Elongation (%)	Packaging (kg)	Chemical Composition (%)				
					C	Si	Mn	P	S
0,3	270 - 280	2650 - 2750	2.8 - 3.2	22.60	0.82	0.19	0.83	0.014	0.013
0,4	265 - 275	2600 - 2700	2.9 - 3.2	25.80	0.82	0.19	0.83	0.014	0.013
0,5	265 - 275	2600 - 2700	3.0 - 3.3	29.50	0.80	0.24	0.74	0.012	0.011
0,6	250 - 260	2450 - 2550	3.1 - 3.4	25.40	0.82	0.19	0.83	0.014	0.013
0,8	245 - 255	2400 - 2500	3.1 - 3.4	54.80	0.82	0.19	0.83	0.014	0.013
1,0	235 - 245	2300 - 2400	3.2 - 3.4	48.80	0.82	0.19	0.83	0.014	0.013
1,2	215 - 221	2107 - 2165	3.4 - 3.6	70.00	0.71	0.21	0.71	0.02	0.014
1,5	181 - 187	1774 - 1832	4.1 - 4.5	70.00	0.70	0.21	0.71	0.03	0.014
2,0	175 - 181	1715 - 1774	3.7 - 3.9	100.00	0.68	0.20	0.70	0.02	0.009
2,5	165 - 167	1617 - 1636	4.3 - 4.5	100.00	0.72	0.20	0.70	0.008	0.020
3,0	149 - 153	1460 - 1500	4.5 - 4.7	100.00	0.71	0.20	0.69	0.009	0.012
4,0	135 - 139	1323 - 1362	4.3 - 4.7	100.00	0.74	0.19	0.71	0.011	0.014

Different grades will help customer to find the most efficient and effective products according to their needs.





CHECKER PLATE

Checker plate also called trade plate is a plate with a regular pattern of projections on one side, showing diamond or other shapes. It can be in the form of tear drop checker plates, diamond shape checker plates, and embossed plates. This kind plate frequently is made of steel, stainless steel or aluminum plate materials. Checker plate is skid-proof because of the projections. Steel checker plate enjoys a good wear ability, slip resistance as well as self-draining surface.



ALUMINUM

As non-ferrous material widely known for lightweight, non magnetic and resistance to corrosion, Aluminum checker plate is a high performance and versatile material for many applications.

Our available aluminum checker plate are with 2 bars pattern and 5 bars pattern.

SPECIFICATION & DIMENSION	PATTERN	
	2 BAR	5 BAR
Alloy	A 3105	A 1100
Hardness	H18	H14
Thickness	1-4 mm	1-4 mm
Width	max 1200	max 1200
Length	max 6000	max 6000
Common Size	1000 x 2000	1000 x 2000
Standard	1200 x 2400	1200 x 2400



MILD STEEL (DIAMOND METAL STAIRS)

Mild steel (Type SS400, JIS G3101) checker plate also known as Durbar or Floor plate. Hot-rolled structural steel floor plate that has an evenly distributed, raised pattern which is intergral to the product. Made out of mild steel with spesification as below. Our available mild steel checker plate is with single line pattern.

Thickness : 2.3 mm, 3 mm, 4.5mm, 6mm

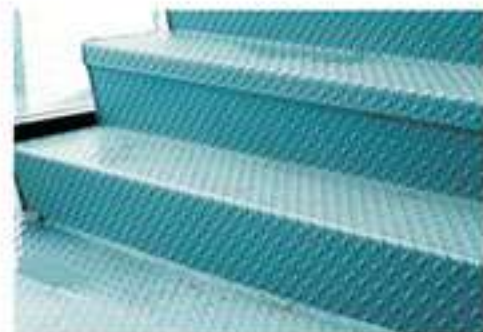
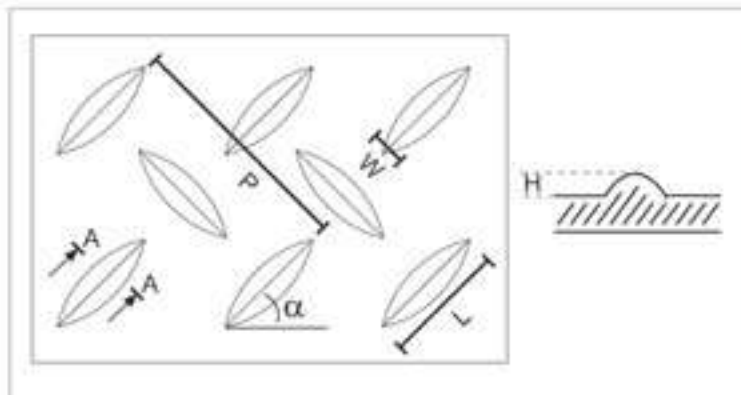
STAINLESS STEEL

Stainless steel integrate a combination mechanical properties with excellent corrosion resistance, heat resistance. Beautiful appearance of stainless steel and silver-white with a large slip effect, available in a variety of applications due to its characteristics.

Our stainless steel trade plate is made by pressing the stainless metal material to form the pattern therefore the bottom side from a drop according to the pattern as shown in the picture.

PRODUCT DIMENSION

DIMENSION	Strip Thickness
	1-4 mm
Length (L)	26.5 mm
Width (W)	7.7 mm
Height (H)	1-1.5 mm
Pitch Size (P)	55 mm
Angle of Profile to Rolling Direction	45



Standard ASTM A240 and A370

* Other size & specification can be special ordered. Please contact our sale assistance

A large roll of stainless steel coil is being processed in a factory. The coil is mounted on a large metal roller and is being fed into a machine. The background shows industrial equipment and a yellow safety fence.

STAINLESS STEEL COIL / PLATE

Stainless steel has unique character that wear resistant, heat resistant, rust resistant, acid and chemical resistant. With that benefits, stainless steel is extensively used for mining, chemical industry, food industry, automotive industry, households, agriculture, etc.

Grades : SUS 201, SUS 304, SUS 310, SUS316, SUS 430

Finisher : No 1, 2B, BA, MIRROR, No. 4, HL



STAINLESS STEEL COIL / PLATE

FINISH	DESCRIPTION	APPLICATION
No. 1	Hot rolled annealed, shot blasted and pickled	Pipe, tubing, chemical tank, general fabrication
No. 2B	Cold rolled annealed and pickled and skin passed; given on appropriate luster by again cold rolling	Food Industry, kitchen utensils, medical equipment, construction material
BA	Bright annealed finish; processed with bright heat treatment after cold rolling	Decorative usage, kitchen utensils, electric equipment, building construction
No. 8 Mirror	Cold rolled annealed and pickled and polished with 150 to 180 grit	Kitchen utensil, building construction, medical equipment
HL	Cold rolled annealed and pickled and polished with 80-140 grit. Provide a long grain finish hairline look	Kitchen utensil, building construction, medical equipment

STAINLESS STEEL CHEQUER PLATE SUS 304

Thickness	Width	Length	Type
1.5mm	1220	2440	SUS 201/304
2mm	1220	2440	SUS 201/304
3mm	1220	2440	SUS 201/304

PRODUCT APPLICATION

- › Kitchenware
- › Automotive industry
- › Houseware
- › Building and Construction
- › Machinery
- › Electronics

PRODUCT DIMENSION

PRODUCT	DIMENSION	THICKNESS (mm)	
		Min	Max
Hot Rolled Coil	≤ 1280 mm	2.5	12
Cold Rolled Coil	≤ 1250 mm	0.5	3.15
Hot Rolled Plates	4' x 8'	4	20
Colled Rolled Plates	1000 x 2000	0.4	3
Colled Rolled Plates	4' x 8'	0.4	3

* Other size & specification can be special ordered. Please contact our sale assistance

MECHANICAL PROPERTIES

GRADES	Tensile Strength Mpa (min)	Yield Strength Mpa (min)	Elongation %min	Hardness Rockwell B (max)
J4	650	325	40	100
SUS 304	515	205	40	92
SUS 310	515	205	40	95
SUS 316	515	205	40	95
SUS 316L	485	170	40	95
SUS 430	415	205	22	89

CHEMICAL COMPOSITION

GRADES	Type	C	Mn	P	S	Si	Cr	Ni	Mo	N PPM	Other
J4	Austenitic Cr-Mn	0.1	8.5 - 10.0	0.08	0.01	0.75	15.00-16.00	1.00-2.00		2000	Cu=1.5-2.0
SUS 304	Austenitic Cr-Ni	0.07	2	0.045	0.03	0.75	18.00-19.50	8.00-10.50		1000	
SUS 310	Austenitic Cr-Ni	0.25	2	0.045	0.03	1.5	24.00-26.00	19.00-22.00			
SUS 316	Austenitic Cr-Ni	0.08	2	0.045	0.03	0.75	16.00-18.00	10.00-14.00	2.00-3.00	1000	
SUS 316L	Austenitic Cr-Ni	0.03	2	0.045	0.03	0.75	16.00-18.00	10.00-14.00	2.00-3.00	1000	
SUS 430	Ferritic	0.12	1	0.04	0.03	1	16.00-18.00	0.75			

Standard ASTM A240 and A370



STAINLESS STEEL PIPE

Stainless steel tube is widely used for construction decoration, mechanical structure, industrial application, automotive industry, food industry, etc. It is produced with high quality of stainless steel materials, slitted, welded and polished or brushed to get excellent final touch to the finishing.



MEASURING TECHNIQUES

GRADES : SUS 304 & SUS 201

Finishing : BA polish or HL

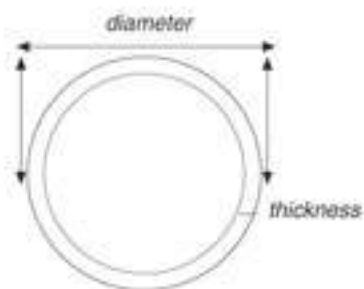
Standard : ASTM A554

Application : Construction ornament, mechanical structure, furniture making, etc

Product Process : Cold rolling - Slitting - Tubing producing - Polishing - Packing



ROUND PIPE

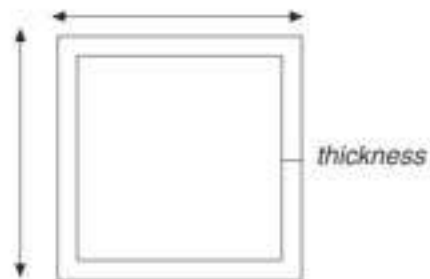


ROUND PIPE					
SIZE	WEIGHT (kg)				Grade
	0.8mm	1mm	1.2mm	1.5mm	
3/8"	1.05				201/304
1/2"	1.15	1.75			201/304
5/8"	1.85	2.25	2.65		201/304
3/4"	2.20	2.70	3.20	5.36	201/304
1"		3.65	4.35	6	201/304
1 1/4"	3.75	4.60	5.50	8	201/304
1 1/2"		5.55	6.60	8.25	201/304
2		7.50	8.90	11.00	201/304
2 1/2			11.20	13.90	201/304
3			13.55	16.70	201/304
4				22.44	201/304

SQUARE PIPE

SQUARE PIPE / HOLLOW					
SIZE	WEIGHT (kg)				Grade
	0.8mm	1mm	1.2mm	1.5mm	
15 x 30		4.13			201/304
20 x 20		3.65	4.34		201/304
20 x 40			6.60		201/304
25 x 25		4.60	5.49		201/304
25 x 50			8.35		201/304
30 x 30		5.54	6.60	8.22	201/304
40 x 40			8.88	11.00	201/304
50 x 50			11.16	13.90	201/304

* other size and specification can be special ordered





LEAD

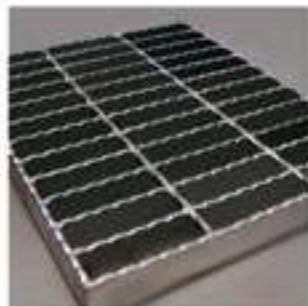
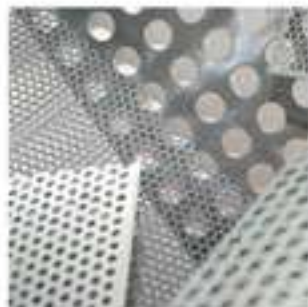
Lead shielding refers to the use of lead as a form of radiation protection to shield people or objects from radiation so as to reduce the effective dose. Lead can effectively attenuate certain kinds of radiation because of its high density and high atomic number; principally, it is effective at stopping gamma rays and x-rays.



Lead is used for shielding in x-ray machines, nuclear power plants, labs, military equipment, and other places where radiation may be encountered. There is great variety in the types of shielding available both to protect people and to shield equipment and experiments. Personal shielding includes lead aprons (such as the familiar garment used during dental x-rays), thyroid shields, and lead gloves. There are also a variety of shielding devices available for laboratory equipment, including lead castles, structures composed of lead bricks, and lead pigs, thick containers for storing and transporting radioactive samples.



TEST PARAMETERS	UNIT	RESULT	METHOD
Lead	%	99.48	Gravimetry
Iron	%	0.05	Colometry
Tin	%	0.09	Titrimetry
Zinc	%	0.34	Gravimetry
Manganese	%	0	Colometry





Industrial And Construction Materials

Perforated Metal | Razor Wire | Expanded Metal | Grating Steel
Checker Plate | Stainless Steel Coil | Stainless Steel Pipe
Welded Wiremesh | Stainless Steel Mesh | Wire Rope | Wires | Roofing Insulation

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