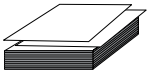
PARAGON STEEL

Carbon Resource Guide

SHEET PRODUCTS

WEIGHTS & TYPES

Sheet Products



Hot Rolled ASTM-A1011

A low carbon, open-hearth steel generally produces from capped, rimmed or semi-killed steel. Our sheets are prime Commercial Quality.

Commercial Quality is suitable for all ordinary purposes where the presence of oxide on the surface is not objectionable. Sheets of this quality may be suitable for bending and moderate forming; however, they are not guaranteed against breakage except that caused by piped steel (material with tubular voids). Commercial Quality sheets should be capable of withstanding standard test bends, i.e., being bent flat on itself in any direction at room temperature.

Analysis

Carbon	Manganese	Phosphorus	Sulphur
.15 Max.	.30 - .60	.04 Max.	.05 Max.

Weldability

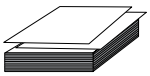
This quality of sheet presents no welding problems, when using all welding processes. Welding quality is generally extremely high for welds and joints. Welding rod specifications are dependent on welding conditions such as thickness of section, service requirements and design to names a few of the probable welding conditions.

Applications

Commercial Quality sheets have food ductility. They are easy to fabricate and are used for a wide variety of purposes, such as barrels and drums, lockers, cabinets, doors, blower and ventilating systems, bins, partitions, chutes, steel jackets and agricultural equipment.

Typical Mechanical Properties

Tensile Strength (P.S.I.)	Yeild Point (P.S.I.)	Elongation In 8”	Reduction Of Area
55,000	30,000	30%	55%



High Tensile Sheet ASTM A607 GRADE 50

High Strength/Low Alloy sheets (sometimes referred to as High Tensile sheets) are rolled by various steel mills and are generally stocked in Grade 50.

Analysis

Carbon	Manganese	Phosphorus	Sulphur	Columbium	Vanadium
.23 Max.	1.35 Max	.04 Max	.05 Max	.01 Min.	.01 Min.

Applications

This material is extensively used in industrial and domestic air conditioning equipment, farm buildings, farm elevators, farm wagons, fertilizer wagons, hay balers, potato planter hoppers, tractors, bins, blowers, booms, bridge parts, bulldozers, concrete forms, conveyors, earth-moving equipment, filing cabinet parts, floor plates, door frames, furnace parts, barges, boats, dredges, material handling equipment, pole line hardware, lamp and sign posts, pump parts, road machinery, scraper parts, tanks, trailers, transformer shells, truck, wheelbarrows and worms.

Mechanical Properties

	Tensile Strength (P.S.I.)	Yeild Point (P.S.I.)	Elongation In 2”
All Guages - Gr 50	65,000 Min.	50,000 Min.	22% Min.

Forming

High Tensile Sheet may be hot or cold formed. To ensure proper safety and the structural integrity of the finished product, we will assist you with heat number and source-mill information so that you can obtain accurate information from the producing mill prior to any attempt to form this material.

For cold forming, a greater force is required to produce a permanent set because of the higher yield point than carbon steel. It is suggested for cold forming that the inside radius of the bend should be at least equal to the thickness of the material for sheet and strip up to 1/16" inclusive; at least twice the thickness of the material over 1/16" to 1/14" inclusive; and three times the thickness for material over 1/4" to 1/2" inclusive.

Punching & Shearing

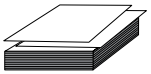
Shearing may require tighter and more secure clamping if a clamp hold down is used because the metal tends to pull more than structural carbon steel. Punching requires up to 20% greater force than for equal thicknesses of ASTM-A569 material.

Gas Cutting

No special precautions need be taken beyond those required for structural steels, and the heat effects and cutting speeds are similar for both grades. This material can be plasma-cut with minimal warpage.

Weldability

High Tensile is readily welded by all the usual methods, i.e., shielded metal arc, submerged arc and electrical resistance, including spot welding. An important advantage in welded structures is the fact that this material experiences an increase in the yield and tensile strength with practically no decrease in elongation when stress-relieved.



Cold Rolled Sheet ASTM A1008

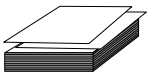
Specification: Commercial Quality

Sheets of this quality should be suitable for bending and moderate forming; however, they are not guaranteed against breakage except that caused by piped steel (material with tubular voids). Sheets of Commercial Quality should be capable of withstanding a standard bend test, i.e., being bent flat on itself in any direction at room temperature.

Cold Rolled Sheets are from continuous mill production from low-carbon open-hearth timed, texture or capped steel with a carbon maximum of 0.15.

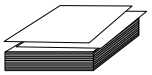
Applications

The dull surface texture is suitable for paints, lacquers and enamels. Cabinets, appliances, auto body parts, furniture, file cases and desks, partitions and doors are some applications for Cold Rolled Sheets.



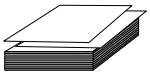
Weights For H.R. & C.R. Sheets

			Weight Per Plate				Weight Per Plate				Weight Per Plate
26 Ga. (.0179)				**22 Ga. (.0299)**				**18 Ga. (.0478)**			
36	x	96	18.02	36	x	96	30.02	36	x	96	48.29
		120	22.53			120	37.53			120	60.36
48	x	96	24.03	48	x	96	40.03	48	x	96	64.38
		120	30.04			120	50.04			120	80.48
24 Ga. (.0239)				**20 Ga. (.0359)**				**16 Ga. (.0598)**			
36	x	96	24.02	36	x	96	36.02	36	x	96	60.00
		120	30.03			120	45.03			120	75.00
48	x	96	32.03	48	x	96	48.03	48	x	96	80.06
		120	40.04			120	60.04			120	100.00



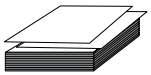
Weights For H.R. & C.R. Sheets (Continued)

			Weight Per Plate					Weight Per Plate					Weight Per Plate
16 Ga. (.0598)						240	350.32			144	270.24
48	x	144	120.01	60	x	96	175.16			240	450.40
		240	200.02			120	218.95	60	x	96	225.20
60	x	96	100.00			144	262.74			120	281.50
		120	125.01	72	x	120	262.74			144	337.80
		144	150.01			144	315.29			192	450.40
				11 Ga. (.1196)							
14 Ga. (.0747)				36	x	96	120.12			240	563.00
36	x	96	75.07			120	150.15	72	x	96	270.24
		120	93.84	48	x	96	160.16			120	337.80
48	x	96	100.10			120	200.20			144	405.36
		120	125.12			144	240.24			192	540.48
		144	150.14			240	400.40			240	675.60
		240	250.24	60	x	96	200.20	**7 Ga. (.1793)**			
60	x	96	125.12			120	250.25	36	x	96	180.17
		120	156.40			144	300.30			120	225.21
		240	312.80			240	500.50	48	x	96	240.22
72	x	120	187.68	72	x	96	240.24			120	300.28
		144	225.22			120	300.30			144	360.34
		240	375.36			144	360.36			240	600.56
12 G. (.1046)						240	600.60	60	x	96	300.28
36	x	96	105.10	**10 Ga. (.1345)**						120	375.35
		120	131.37	36	x	96	135.12			144	450.42
48	x	96	140.13			120	168.90			240	750.70
		120	175.16	48	x	96	180.16	72	x	120	450.42
		144	210.19			120	225.20			144	540.50



AISI Thickness Tolerance H.R. & C.R. Sheet

Thickness In Inches				
Gage Number	**Decimal Equivalent**	**Tol. Range H.R. & P.O.**	**Tol. Range C.R. Sheet**	**Pounds Per Sq. Foot**
7	.1793	.1873 .1713	.0883 .1703	7.507
10	.1345	.1425 .1265	.1405 .1285	5.630
11	.1196	.1276 .1116	.1256 .1136	5.005
12	.1046	.1126 .0966	.1106 .0986	4.379
13	.0897	.0967 .0827	.0947 .0847	3.75
14	.0747	.0814 .0677	.0797 .0697	3.128
16	.0598	.0658 .0538	.0648 .0548	2.502
18	.0478	.0528 .0428	.0518 .0438	2.102
20	.0359	----	.0389 .0329	1.501
22	.0299	----	.0329 .0269	1.261
24	.0239	----	.0269 .0209	1.001
26	.0179	----	.0199 .0159	.751



Flat Galvanized Sheet ASTM-A653, G90

Specifications

Flat Galvanized Sheets .071 (14 gauge) and lighter are ASTM A653, Lock Forming Quality (LFQ). Sheets heavier than .071 to .124 (11 gauge) are A653 Commercial Quality. Sheets heavier than .124 to .130 (10 gauge) are Commercial Quality.

Commercial Quality

Flat Galvanized Sheets are from low-carbon open-hearth steel. They are flat, have closely guarded shearing tolerances, and are ductile and soft.

These sheets are produced by passing the base sheets through a bath of molten zinc, which, after controlled cooling, gives a clean, bright, uniform spangle.

Stamping, cold drawing, double seaming and brake or toll forming will not impair the protective quality of these sheets.

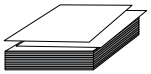
Analysis

Carbon	Manganese	Phosphorus	Sulphur
.15 Max.	.30 - .60	.04 Max.	.05 Max.

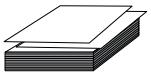
Applications

Flat Galvanized Sheets are used as the prime general sheet metal for hearing, cooling, joist hangers and sign work if the sheets are primed before painting.

AISI Thickness Tolerance For Galv. Sheet



Ga.	Dec. Equiv.	Tolerance Range			Ga.	Dec. Equiv.	Tolerance Range		
10	.1382	.1472	To	.1292	20	.0396	.0436	To	.0356
11	.1233	.1323	To	.1143	22	.0336	.0376	To	.0296
12	.1084	.1174	To	.0994	24	.0276	.0316	To	.0236
14	.0785	.0865	To	.0705	26	.0217	.0247	To	.0187
16	.0635	.0695	To	.0575	28	.0187	.0217	To	.0157
18	.0516	.0566	To	.1466	30	.0157	.0187	To	.0127



Paintable Galvanized Sheet ASTM-A653, G40

A516 Grade 70

Printable Galvanized Sheet, sometimes called Paint Bond or Wiped Galvanized, has a surface coating that makes priming unnecessary.

Specifications

Printable Galvanized Sheets .071 (14 ga.) and lighter are ASTM A653 lock forming quality (LFQ).

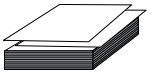
Applications

Paintable Galvanized Sheets are used in applications where paint, enamels and lacquers will be used or where float stretcher-leveled sheets are needed. These sheets can be drawn, stamped, formed and sheared without cracking, peeling or flaking.

Office furniture, cabinets of all types, appliances sheets, truck and trailer bodies, lighting fixtures, signs, air conditioning and refrigeration equipment are some applications for Paintable Galvanized Sheet.

Chemical Composition (Typical)

Carbon	Manganese	Phosphorus	Sulphur
.15 Max.	.30 - .60	.05 Max.	.05 Max.



Weights For Galvanized Sheets

Size In Inches			Weight per Sheet	Size In Inches			Weight per Sheet	Size In Inches			Weight per Sheet
10 Ga. (.138)				**18 Ga. (.052)**				**26 Ga. (.022)**			
Wt./ Sq. Ft.			**5.786**	**Wt./ Sq. Ft.**			**2.158**	**Wt./ Sq. Ft.**			**.907**
48	x	96	185.15	48	x	96	69.06	48	x	96	29.02
		120	231.44			120	86.32			120	36.28
12 Ga. (.109)				**20 Ga. (.040)**				**28 Ga. (.019)**			
Wt. / Sq. Ft.			**4.535**	**Wt./ Sq. Ft.**			**1.658**	**Wt./ Sq. Ft.**			**.782**
48	x	96	145.12	48	x	96	53.06	36	x	96	18.77
		120	181.40			120	66.32			120	23.46
14 Ga. (.079)				**22 Ga. (.034)**				**30 Ga. (.016)**			
Wt./ Sq. Ft.			**3.284**	**Wt./ Sq. Ft.**			**1.407**	**Wt./ Sq. Ft.**			**.657**
48	x	96	105.09	48	x	96	45.02	36	x	96	15.77
		120	131.36			120	56.28				
16 Ga. (.064)				**24 Ga. (.028)**							
Wt. / Sq. Ft.			**2.658**	**Wt./ Sq. Ft.**			**1.157**				
48	x	96	85.06	48	x	96	37.02				
		120	106.32			120	46.28				

PARAGON
STEEL

7405 E Slauson Ave, Commerce, CA 90040
(562) 216-4000
Toll Free: 800-388-8998
www.paragonsteel.com