

ASTM A53 TYPE E GRADE A and B PIPE



SCOPE

Covers black and hot-dipped galvanized electric resistance welded, Grade A and B. Pipe is intended for mechanical and pressure applications and is acceptable for ordinary uses in steam, water, gas and air lines. SAHATHAI ASTM A53 is UL Listed, sizes 1/2" through 8" nominal. Pipe is suitable for welding, threading, grooving and bending. Pipe is furnished either non-expanded or cold expanded at the option of the manufacturer. Produced to ASTM A53/A53M latest revision.

MANUFACTURE

The weld seam of electric resistance welded pipe in Grade B sizes 4" through 8" nominal, shall be heat treated after welding to a min 1000 °F so that no untempered martensite remains.

HOT-DIP GALVANIZED

The average weight of zinc coating shall be not less than 1.8 oz. per sq. ft. of surface (inside and outside). When galvanized pipe is bent or otherwise fabricated to a degree which causes zinc coating to stretch or compress beyond the limit

CHEMICAL REQUIREMENTS

Composition, max. %

	C	Mn	P	S	Co ^A	Ni ^A	Cr ^A	Mo ^A	V ^A
Grade A	0.25 ^a	0.95	0.05	0.045	0.40	0.40	0.40	0.15	0.08
Grade B	0.30 ^c	1.20	0.05	0.045	0.40	0.40	0.40	0.15	0.08

A The combination of these five elements shall not exceed 1.00%.

B For each reduction of 0.01 % below the specified carbon maximum, an increase of 0.06 % manganese above the specified maximum will be permitted up to a maximum of 1.35 %.

C For each reduction of 0.01 % below the specified carbon maximum, an increase of 0.06 % manganese above the specified maximum will be permitted up to a maximum of 1.65 %.

TENSILE REQUIREMENTS

	Grade A	Grade B
Tensile Strength, min, Psi	48 000	60 000
Yield Strength, min, Psi	30 000	35 000
Elongation in 2"	Refer to A53 Table x 4.1, latest	

BENDING TEST (COLD) FOR NPS 2 and UNDER:

	Degree of Bend	Diameter of Mandrel
Standard	90°	12 x outside pipe diameter
Close Coiling	180°	8 x outside pipe diameter

FLATTENING TEST - NPS 2-1/2 and Greater

Weld located 0/90 degree from line of direction of force.

Stage-1 : For weld ductility unit 2/3 of outside dia of specimen pipe.

Stage-2 : For ductility of steel unit 1/3 of outside dia of specimen pipe.

Stage-3 : Full flattening for testing of laminated and unsou

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HYDROSTATIC TESTING

Hydrostatic test pressures for plain-end pipe are indicated below

NPS	0.188 in.		SCH 40		SCH 80	
	GR.A	GR.B	GR.A	GR.B	GR.A	GR.B
1/2" through 1	-	-	700	-	850	-
1-1/4"	-	-	1200	-	1800	-
1-1/2"	-	-	1200	-	1800	-
2"	-	-	2300	-	2500	-
2-1/2"	-	-	2500	-	2500	-
3	-	-	2220	-	2500	-
3-1/2"	-	-	2030	-	2800	-
4"	1500	1750	1900	2210	2700	2800
5"	1220	1420	1670	1950	2430	2800
6"	1020	1190	1520	1780	2350	2740
8"	780	920	1340	1570	-	-

DIMENSIONS and WEIGHTS

BLACK PLAIN END						
Nominal Size	OD Inches	Wall 0.188 in.	SCH 40		SCH 80	
		Weight Lb./Ft.	Wall Inches	Weight Lb./Ft.	Wall Inches	Weight Lb./Ft.
1/2"	.840	-	.109	.85	.147	1.09
3/4"	1.050	-	.113	1.13	.154	1.48
1"	1.315	-	.133	1.68	.179	2.17
1-1/4"	1.660	-	.140	2.27	.191	3.00
1-1/2"	1.900	-	.145	2.72	.200	3.63
2"	2.375	-	.154	3.66	.218	5.03
2-1/2"	2.875	-	.203	5.80	.276	7.67
3"	3.500	-	.216	7.58	.300	10.26
3-1/2"	4.000	-	.226	9.12	.318	12.52
4"	4.500	8.67	.237	10.79	.337	14.98
5"	5.563	10.80	.237	14.62	.375	20.78
6"	6.625	12.94	.28	18.97	.432	28.57
8"	8.625	16.96	.322	28.58	-	-

PERMISSIBLE VARIATIONS IN WALL THICKNESS

Minimum wall thickness at any point shall not be more than 12.5% under nominal wall thickness specified.

PERMISSIBLE VARIATIONS IN OUTSIDE DIAMETER

NPS 1-1/2 and under $\pm .016$ "

NPS 2 and over $\pm 1\%$

PERMISSIBLE VARIATIONS IN WEIGHT PER FOOT

Pipe shall not vary more than $\pm 10\%$ from the standard specified.

END FINISH

Plain End:

NPS 1-1/2 and smaller, unless otherwise specified on order, end finish shall be at the option of the manufacturer.

NPS 2 and larger: Sch 40 and Sch 80 weights: ends beveled to angle of 30°, $+5^\circ$, -0° with a root face of $1/16" \pm 1/32"$.

Threaded: To ANSI Standard B 1.20.1

Couplings: To ASTM Standard A865.

PRODUCT MARKING

Each length of pipe 1/2 NPS and larger is continuously stenciled to show the manufacturer, the grade of pipe (ASTM A53), the kind of pipe (E for electric resistance welded, A, B for Grade A, B) the size, and length. Stencil markings indicate UL Listing Approval for sizes 1/2" through 8" nominal, Bar Coding is acceptable as a supplementary identification method.

All information contained herein is accurate as known at the time of publication.

STS reserves the right to change product specifications without notice and without incurring obligations.

SAHATHAI STEEL PIPE CO., LTD - 78 MOO 3 POOCHAO ROAD, BANGYAPRAEK, PHRAPRADAENG, SAMUTHPRAKARN 10130 THAILAND

Phone: (662)3859023 ▶ Fax: (662)3859288 ▶ EMAIL: export@sahathai.com