

## SPECIFICATION FOR STANDARD SIZES FROM ASTM A53 GR-A

### SCHEDULE-40 FOR BLACK AND GALVANIZED PIPES

Size		OD min		OD max		WALL THICKNESS		WEIGHT OF TUBE ( Plain end )		PRESSURE GR-A	PIECES PER BUNDLE
NPS	DN	INCH	MM	INCH	MM	INCH	MM	lb/Ft.	kg/M	PSI	
1/2	15	0,822	20,9	0,854	21,7	0,109	2,77	0,85	1,27	700	120
3/4	20	1,035	26,3	1,070	27,2	0,113	2,87	1,13	1,69	700	84
1	25	1,300	33,0	1,330	33,8	0,133	3,38	1,68	2,50	700	60
1 1/4	32	1,645	41,8	1,680	42,7	0,140	3,56	2,27	3,39	1200	42
1 1/2	40	1,885	47,9	1,920	48,8	0,145	3,68	2,72	4,05	1200	36
2	50	2,350	59,7	2,400	61,0	0,154	3,91	3,66	5,44	2300	26
2 1/2	65	2,850	72,4	2,900	73,7	0,203	5,16	5,80	8,63	2500	18
3	80	3,460	87,9	3,530	89,7	0,216	5,49	7,58	11,29	2200	18
3 1/2	90	3,960	100,6	4,040	102,6	0,226	5,74	9,12	13,57	2030	14
4	100	4,450	113,0	4,540	115,3	0,237	6,02	10,80	16,07	1900	12
5	125	5,507	139,9	5,620	142,7	0,258	6,55	14,63	21,77	1670	10
6	150	6,560	166,6	6,690	169,9	0,280	7,11	18,99	28,26	1520	5 or 7
8	200	8,562	217,5	8,700	221,0	0,322	8,18	28,58	42,55	1340	5 or 7
10	250	10,669	271,0	10,826	275,0	0,365	9,27	40,52	60,29	1220	5
12	300	12,637	321,0	12,854	326,5	0,406	10,31	53,57	79,70	1150	3

Table 1- Size, weight, pressure and bundle types of ASTM A53 pipes.

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### 1- Chemical Composition

	ASTM A53 GrB	ASTM A53 Gr A
<u>Element</u>	% max	% max
C	0,300	0,250
Mn	1,200	0,950
P	0,050	0,050
S	0,045	0,045
V	0,080	0,080
Cu	0,400	0,400
Ni	0,400	0,400
Cr	0,400	0,400
Mo	0,150	0,150

### 2- Mechanical Properties

<b>Tensile Tests:</b>		
	ASTM A53 GrB	ASTM A53 GrA
Yield Strenght (Rt <sub>0.5</sub> ):	Min. 240 N/mm <sup>2</sup>	Min. 205 N/mm <sup>2</sup>
Tensile Strenght:	Min. 415 N/mm <sup>2</sup>	Min 330 N/mm <sup>2</sup>
Elongation:	As per ASTM A53	

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### 3- Flattening Test

First, pipes are flattened to 2/3 of the original OD. No cracks or breaks on the weld seam shall be present. After, pipes are flattened to 1/3 of the OD. No cracks or breaks on inside, outside or end surfaces shall be present.

### 4- Bend Test

For pipe NPS 2 [DN 50] or smaller, a sufficient length of pipe shall be capable of being bent cold through 90° around a cylindrical mandrel, the diameter of which is twelve times the specified outside diameter of the pipe, without developing cracks at any portion and without opening the weld

### 5- Dimensional Controls

Wall Thickness	±%12,5 X WT
Outside Diameter	For D ≤ 40 mm OD shall not vary more than 0,4 mm.  For D ≥ 50, mm OD shall not vary more than ±%1 from the specified outside diameter.
Pipe Length	Length tolerances is -0 mm +50 mm
Pipe Straightness	Maximum 0,0015 x Pipe Length mm for 4" - 12" Maximum 0,0020 x Pipe Length mm for 1/2" to 3.5"
Pipe Ends	30° +5°, -0°, measured from a line drawn perpendicular to the axis of the pipe, and with a root face of 1/16 in. 6 1/32 in. [1.6 mm ± 0.8 mm] or square cut.

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### 6- NDT Tests

Hydrostatic Test	Test pressure acc. To A53 Clause 8 table X2.2 (min 5 seconds)
E/C or UT	Acc. To A53 Clause 9.

### 7- Galvanization

Pipes are demanded as galvanized, the process shall be applied acc. to A53 Clause 17.

Weight (Mass) per Unit Area of Coating—The weight (mass) per unit area of zinc coating shall be not less than 1.8 oz/ft<sup>2</sup> [0.55 kg/m<sup>2</sup>] as determined from the average results of the two specimens and not less than 1.6 oz/ft<sup>2</sup> [0.49 kg/m<sup>2</sup>] for each of these specimens. Each specimen shall have not less than 1.3 oz/ft<sup>2</sup> [0.40 kg/m<sup>2</sup>] of zinc coating on each surface, calculated by dividing the total weight (mass) of zinc on the given surface (outside or inside) by the area of the surface coated (outside or inside).

### 8- Varnishing

Pipes are temporary varnished externally over the full length.

### 9- Threading

If ordered with threaded ends, the pipe ends shall be provided with a thread in accordance with the gaging practice and tolerances of ANSI B1.20.1. up to 6" (DN150).

### 10- Packaging & Marking

Packaging & marking shall be applied acc. to A53 and customer request.

Marking shall be applied by continuous stenciling.

Packing shall be applied according to table 1 of this statement.

### 11- MTC (Mill Test Certificate)

Pipes are supplied comply with a MTC according to ASTM A53.