

# PIPES

**ARMODURO®** offers an extensive range of seamless and welded pipes, which are ideal for petrochemical, chemical, industrial and water applications. Our stainless steel and carbon steel pipes undergo strict chemical compositions and heat treatment process resulting in its high strength and fatigue resistance character.

Process	: Seamless and Welded (EFW/ERW/SAW)
Manufacturing Standards	: ASTM, ASME/EN/DIN
Size Range	: 1/4" to 72"
Schedules	: Sch10 up to Sch160/XXS
Ends Finish	: Beveled/Plain/Grooved/Threaded
Lengths	: SRL 5-8m, DRL 9-13m & Cut Lengths

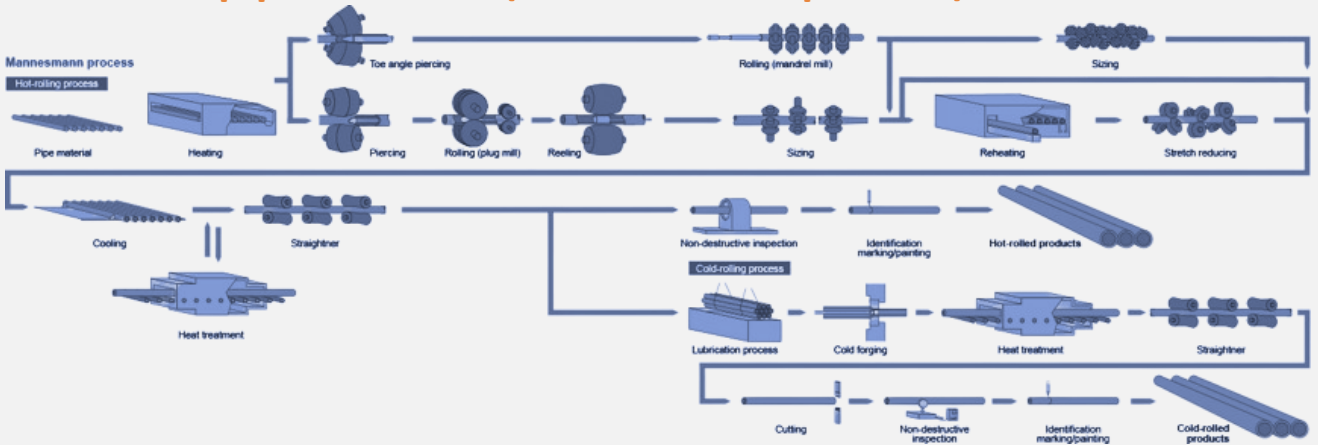


## GRADES:

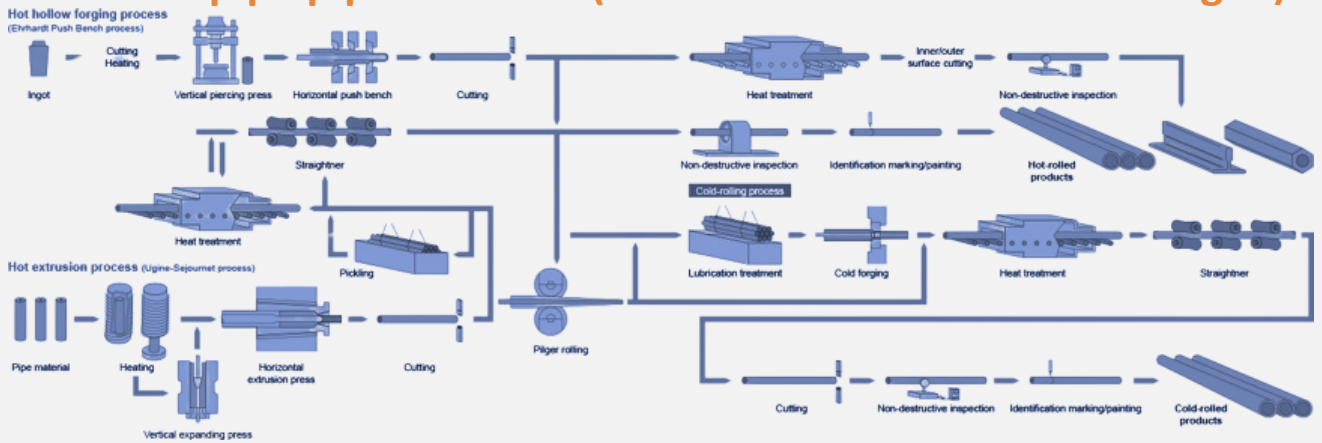
Stainless Steel	: A312, A358 - 304/L, 316/L, 321
Carbon Steel	: API5L, A53, A106, Gr B, Gr A, Gr X42, Gr X52, Gr X60, A333
Duplex & Super Duplex	: A790 - UNS S31803, UNS S32750, UNS S32760, F53, F55
Nickel & High Temperature	: 310, 904L, UNS N08825, UNS N06625, UNS N08020, Titanium Gr2

# PIPE MANUFACTURING PROCESSES

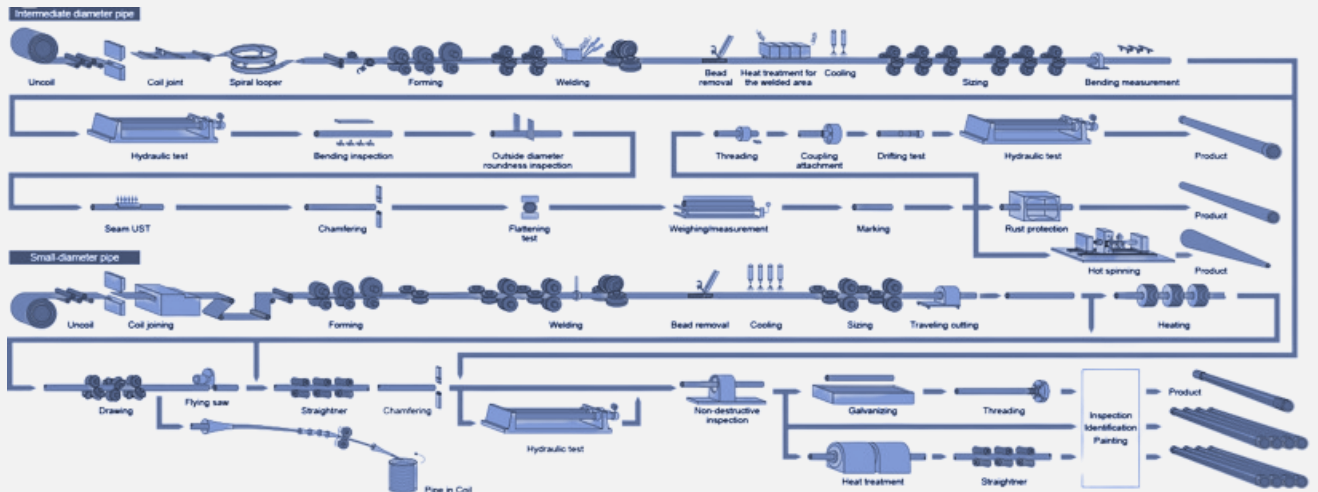
## Seamless pipes & tubes (Mannesmann process)



## Seamless pipe pipes & tubes (hot extrusion - hot hollow forged)

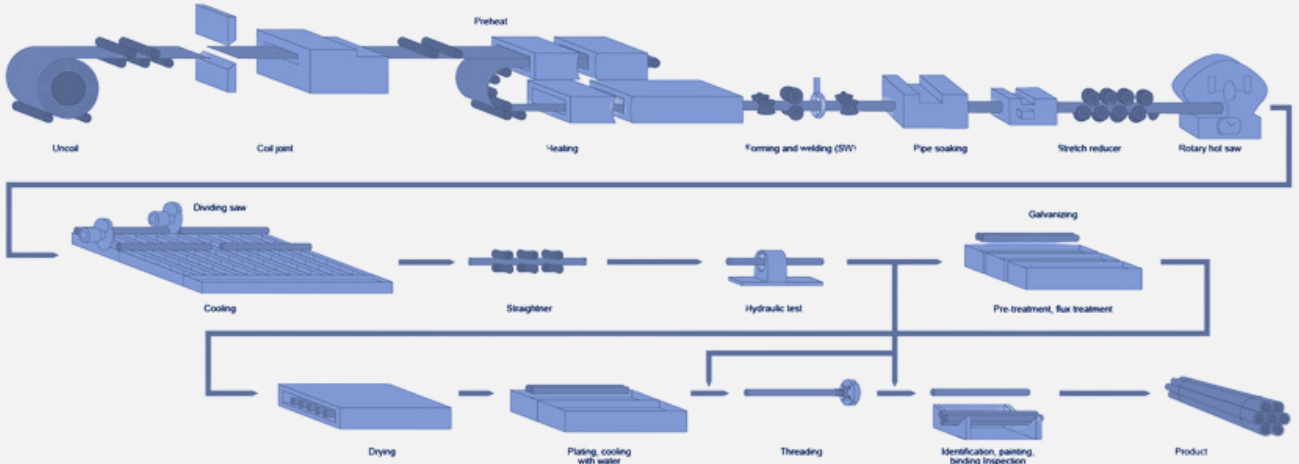


## Electric resistance-welded pipes & tubes



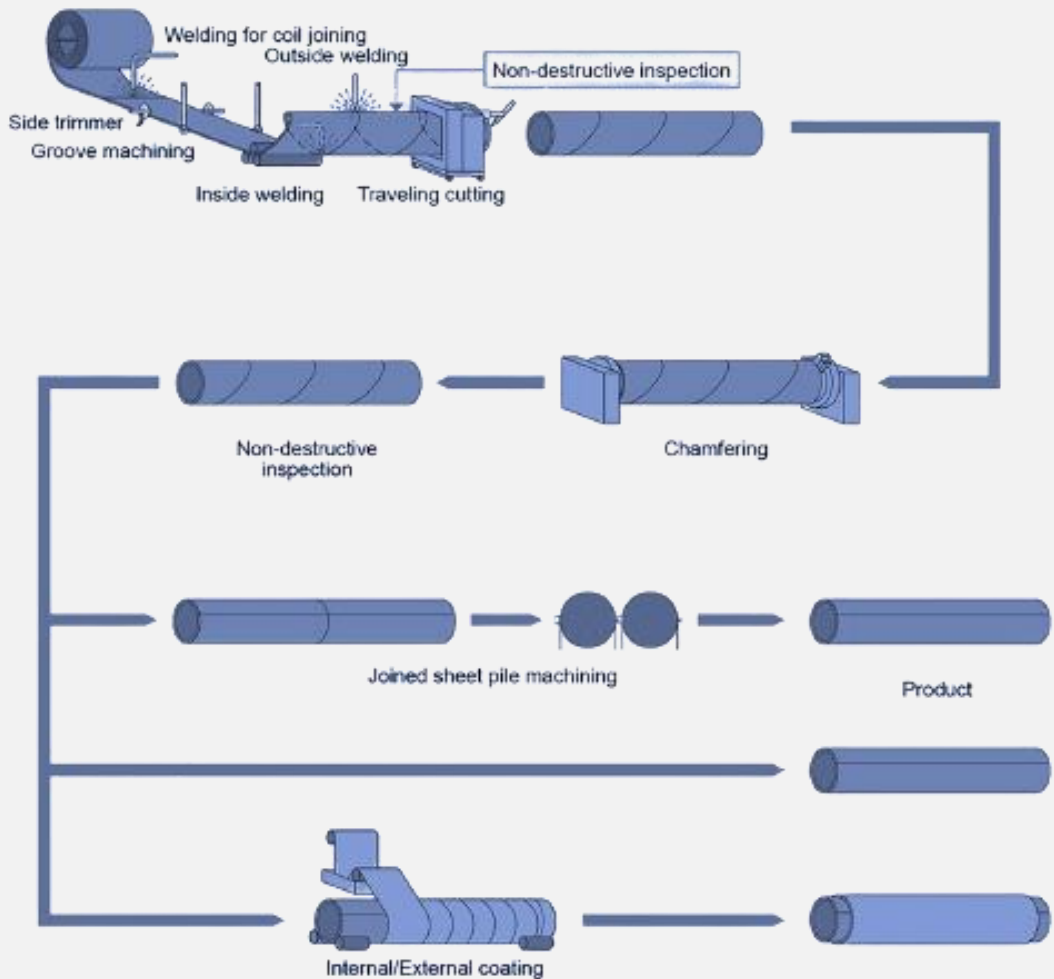
# PIPE MANUFACTURING PROCESSES

## Hot electric resistance-welded pipes & tubes



## Arc-welded pipes & tubes (SAWH pipe (by Spiral process))

### Spiral-welded pipes



# Dimensions of Welded and Seamless Steel Pipe

## ASME B 36.10 / B 36.19

Nominal Pipe Size (Inches)	OD (mm)	OD = mm			Wall Thickness = mm				Weight = Kg/Mtr						Stainless Steel				
		10	20	30	STD	40	60	XS	80	100	120	140	160	XXS	5S	10S	40S	80S	
1/8	10.30				1.73 0.37	1.73 0.37		2.41 0.47	2.41 0.47								1.24 0.28	1.73 0.36	2.41 0.48
1/4	13.70				2.24 0.63	2.24 0.63		3.02 0.80	3.02 0.80								1.65 0.51	2.24 0.64	3.02 0.82
3/8	17.10				2.31 0.84	2.31 0.84		3.20 1.10	3.20 1.10								1.65 0.64	2.31 0.86	3.20 1.12
1/2	21.30				2.77 1.27	2.77 1.27		3.73 1.62	3.73 1.62				4.78 1.95	7.47 2.55	1.65 0.82	2.11 1.01	2.77 1.30	3.73 1.65	
3/4	26.70				2.87 1.69	2.87 1.69		3.91 2.20	3.91 2.20				5.56 2.90	7.82 3.64	1.65 1.04	2.11 1.31	2.87 1.71	3.91 2.24	
1	33.40				3.38 2.50	3.38 2.50		4.55 3.24	4.55 3.24				6.35 4.24	5.45 9.09	1.65 1.33	2.77 2.13	3.38 2.55	4.55 3.29	
1 1/4	42.20				3.56 3.39	3.56 3.39		4.85 4.47	4.85 4.47				6.35 5.61	9.70 7.77	1.65 1.68	2.77 2.76	3.56 3.46	4.85 4.56	
1 1/2	48.30				3.68 4.05	3.68 4.05		5.08 5.41	5.08 5.41				7.14 7.25	10.15 9.56	1.65 1.95	2.77 3.17	3.68 4.13	5.08 5.51	
2	60.30				3.91 5.44	3.91 5.44		5.54 7.48	5.54 7.48				8.74 11.11	11.07 13.44	1.65 2.44	2.77 4.01	3.91 5.54	5.54 7.63	
2 1/2	73.00				5.16 8.63	5.16 8.63		7.01 11.41	7.01 11.41				9.53 14.92	14.02 20.39	2.11 3.77	3.05 5.36	5.16 8.81	7.01 11.64	
3	88.90				5.49 11.29	5.49 11.29		7.62 15.27	7.62 15.27				11.13 21.35	15.24 27.68	2.11 4.60	3.05 6.59	5.49 11.52	7.62 15.59	
3 1/2	101.60				5.74 13.57	5.74 13.57		8.08 18.63	8.08 18.63						2.11 5.29	3.05 7.55	5.74 13.84	8.08 19.01	
4	114.30				6.02 16.07	6.02 16.07		8.56 22.32	8.56 22.32		11.13 28.32		13.49 33.54	17.12 41.03	2.11 5.96	3.05 8.52	6.02 16.40	8.56 22.77	
5	141.30				6.55 21.77	6.55 21.77		9.53 30.97	9.53 30.97		12.70 40.28		15.88 49.11	19.05 57.43	2.77 9.67	3.04 11.82	6.55 22.20	9.53 31.59	
6	168.30				7.11 28.26	7.11 28.26		10.97 42.56	10.97 42.56		14.27 54.20		18.26 67.56	20.62 79.22	2.77 11.55	3.04 14.13	7.11 28.83	10.97 43.42	
8	219.10	6.35 33.31	7.04 36.81		8.18 42.55	8.18 42.55	10.31 53.08	12.70 64.64	12.70 64.64	15.09 75.92	18.26 90.44	20.62 100.92	23.01 111.27	22.23 107.92	2.77 15.09	3.76 20.37	8.18 43.39	12.70 65.95	
10	273.10	6.35 41.77	7.80 51.03	9.27 60.31	9.27 60.31	12.70 81.55	12.70 81.55	15.09 96.01	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	33.32 186.97	25.40 186.97	3.40 31.89	4.19 36.73	9.27 75.52	12.70 99.43	
12	323.90	6.35 49.73	8.38 65.20	9.53 73.88	9.53 73.88	10.31 79.73	14.27 108.96	17.48 127.70	21.44 132.08	25.40 159.91	28.58 186.97	33.32 208.14	39.6 238.76	25.40 186.97	3.96 31.89	4.57 36.73	9.53 75.52	12.70 99.43	
14	355.60	6.35 54.69	67.90 7.92	9.53 81.33	9.53 81.33	11.13 94.55	15.09 126.71	12.70 107.39	19.05 158.10	23.83 194.96	27.79 224.65	31.75 253.56	35.71 281.70	35.71 281.70	3.96 35.06	4.78 42.14			
16	406.40	6.35 62.64	7.92 77.83	9.53 93.27	9.53 93.27	12.70 123.30	16.66 160.12	12.70 123.30	21.44 203.53	26.19 245.56	30.96 286.64	36.53 333.19	40.49 365.35	40.49 365.35	4.19 42.41	4.78 48.26			
18	457.00	6.35 70.57	7.92 87.71	11.13 122.38	9.53 105.16	14.27 155.80	19.05 205.74	12.70 139.15	23.88 254.55	29.36 309.62	34.93 363.56	39.67 408.26	45.24 459.37	45.24 459.37	4.19 47.77	4.78 60.46			
20	508.00	6.35 78.55	9.53 117.15	12.70 155.12	9.53 117.15	15.09 183.42	20.62 247.83	12.70 155.12	26.19 311.17	32.54 381.53	38.10 441.49	44.45 508.11	50.01 564.81	50.01 564.81	4.78 60.46	5.54 70.00			
22	559.00	86.54 6.35	9.53 129.13	12.70 171.09	9.53 129.13		22.23 294.25	12.70 171.09	28.58 373.83	34.93 451.42	41.28 527.02	47.63 600.63	53.98 672.26	53.98 672.26	4.78 66.57	5.54 77.06			
24	610.00	6.35 94.53	9.53 141.12	14.27 209.64	9.53 141.12	17.48 255.41	24.61 355.26	12.70 187.06	30.96 442.08	38.89 547.71	46.02 640.03	52.37 720.15	59.54 808.22	59.54 808.22	5.54 84.16	6.35 96.37			
26	660.00	7.92 127.36	12.70 202.72		9.53 152.87			12.70 202.72											
28	711.00	7.92 137.32	12.70 218.69	15.88 271.21	9.53 164.85			12.70 218.69											
30	762.00	7.92 147.28	12.70 234.67	15.88 292.18	9.53 176.84			12.70 234.67							6.35 120.72	7.92 150.36			
32	813.00	7.92 157.24	12.70 250.64	15.88 312.15	9.53 188.82	17.48 342.91		12.70 250.64											
34	864.00	7.92 167.20	12.70 266.61	15.88 332.12	9.53 200.31	17.48 364.90		12.70 266.61											
36	914.00	7.92 176.96	12.70 282.27	15.88 351.70	9.53 212.56	19.05 420.42		12.70 282.27											
38	965.00				9.53 224.54			12.70 298.24											
40	1016.00				9.53 236.53			12.70 314.22											
42	1067.00				9.53 248.52			12.70 330.19											
44	1118.00				9.53 260.50			12.70 346.16											
46	1168.00				9.53 272.25			12.70 351.82											
48	1219.00				9.53 284.24			12.70 377.79											

Std. = Standard Wall, XS = Extra Strong, XXS = Double Extra Strong

# Theoretical Bursting Pressure for Stainless Steel Pipes

## STAINLESS STEEL PIPE THEORETICAL BURSTING PRESSURE

		Schedule 5s		Schedule 10s		Schedule 40s		Schedule 80s	
Nominal I.P.S. (in.)	OD (in.)	Wall (in.)	Pressure (p.s.i.)	Wall (in.)	Pressure (p.s.i.)	Wall (in.)	Pressure (p.s.i.)	Wall (in.)	Pressure (p.s.i.)
1/8	0.405			0.049	18150	0.068	25175	0.095	35175
1/4	0.54			0.065	18050	0.088	24450	0.119	33050
3/8	0.675			0.065	14450	0.091	20225	0.126	28000
1/2	0.84	0.065	11600	0.083	14825	0.109	19475	0.147	26250
3/4	1.05	0.065	9275	0.083	11850	0.113	16150	0.154	22000
1	1.315	0.065	7425	0.109	12450	0.133	15175	0.179	20425
1 1/4	1.66	0.065	5875	0.109	9850	0.14	12650	0.191	17250
1 1/2	1.9	0.065	5125	0.109	8600	0.145	11450	0.2	15800
2	2.375	0.065	4100	0.109	6875	0.154	9750	0.218	13775
2 1/2	2.875	0.83	4325	0.12	6250	0.203	10600	0.276	14400
3	3.5	0.83	3550	0.12	5150	0.216	9250		
3 1/2	4	0.83	3100	0.12	4500	0.226	8475		
4	4.5	0.83	2750	0.12	4000	0.237	7900		
5	5.563	0.109	2950	0.134	3625	0.258	6950		
6	6.625	0.109	2475	0.134	3050	0.28	6350		
8	8.625	0.109	1900	0.148	2575	0.322	5600		
10	10.75	0.134	1875	0.165	2300	0.365	5100		
12	12.75	0.156	1825	0.18	2125	0.375	4400		
14	14	0.156	1675	0.188	2025				
16	16	0.165	1550	0.188	1775				
18	18	0.165	1375	0.188	1575				
20	20	0.188	1400	0.218	1625				
24	24	0.218	1375	0.25	1550				
30	30	0.25	1250	0.312	1550				

All Pressure Ratings are approximate and for illustration purposes only. Values are not Guaranteed or Warranted.

Std. = Standard Wall, XS = Extra Strong, XXS = Double Extra Strong