SAW/Spiral Line Pipe to IS 3589 / API 5L GR B

SPECIFICATIONS - APPLICATIONS

Specifications	Applications
IS 3589	Steel pipes for water, gas and sewage.
API 5L/IS 1978	Line pipes for conveying gas, water & oil in oil & natural gas industry.
ASTM A671	Pipes suitable for high pressure at low temperatures.
ASTM A672	Pipes suitable for high pressure at moderate temperatures.
ASTM A691	Carbon and Alloy steel pipes for high pressure at high temperatures.

NON-DESTRUCTIVE & DESTRUCTIVE TESTS

	NDT			Mechanical & Chemical Requirements		HydroTest
Spec.	Mandatory		Supplementary	Mandatory	Supplementary	
IS 3589	Nil		Nil	Guided Bend, Parent Tensile, Parent Chemical	Nil	Yes
IS 1978	Pipe Ends — Radiography Balance Length — Ultrasonic Test		Nil	Parent Chemical, Parent Tensile, Weld Tensile, Guided Bend Tests	Fracture Toughness, Drop Weight, Tear Test	Yes
API 5L	Pipe Ends — Radiography Balance Length — Ultrasonic Test		Nil	Parent Tensile, Weld Tensile, Guided Bend, Parent Chemical	Fracture Toughness, Drop Weight, Tear Test	Yes
	Class	Heat Treatment	Radiography, Full Weld length			
ASTM A671 & ASTM A672 & ASTM A691	10	N.A.	N.A.	Nil	Parent Chemical, Weld Chemical, Weld Tensile, Transverse, Guided Weld Bend	Tension & Bend Test, Charpy 'V' Test, Hardness Test, MPI for Base Metal	Yes
	11	N.A.	Yes				
	12	N.A.	Yes				
	13	N.A.	N.A.				
	20	Stress Relieving	N.A.				
	21	"	Yes				
	22	"	Yes				
	23	"	N.A.				
	30	Normalising	N.A.				
	31	"	Yes				
	32	"	Yes				
	33	"	N.A.				
	40	Normalising & Tempering	N.A.				
	41	"	Yes				
	42	"	Yes				
	43	"	N.A.				
	50	Quenched & Tempered	N.A.				
	51	"	Yes				
	52	"	Yes				
	53	"	N.A.				

Test Pressure in Kg/cm^2

Outside Diameter size mm	inches	Weight Kg/m	Wall Thickness mm	inches	API-5L Grade x70	Grade x65	Grade x60	Grade x56	Grade x52	Grade x46	Grade x42	Grade A	Grade B	IS-3589 Grade 330	Grade 410	ASTM, A-671 & A-672 Grade B-60 C-60	Grade B-70 C-70
406.4	16	55.35	5.6	0.219	115	106	98	91	85	75	69	34	40	37	46	37	44
		63.13	6.4	0.250	131	122	112	105	97	86	79	39	46	42	52	42	50
		69.91	7.1	0.281	147	136	126	117	109	96	88	44	52	47	52	47	56
		77.63	7.9	0.312	163	151	140	131	121	107	98	49	58	52	52	52	62
		85.32	8.7	0.344	180	167	154	144	134	118	108	54	63	52	52	58	68
		92.98	9.5	0.375	196	182	168	157	146	129	117	59	69	52	52	63	74
		100.61	10.3	0.406	207	196	182	170	157	139	126	59	69	52	52	68	81
		108.20	11.1	0.438	211	211	196	184	170	150	137	69	81	52	52	76	87
		123.30	12.7	0.500	211	211	211	209	194	171	157	79	92	52	52	84	99
453.0	18	62.34	5.6	0.219	102	94	87	82	76	67	61	31	36	33	41	33	39
		71.72	6.4	0.250	116	108	100	93	86	77	70	35	41	38	47	38	45
		78.77	7.1	0.281	131	122	112	105	97	86	78	39	46	42	51	42	49
		87.49	7.9	0.312	145	135	124	116	108	96	87	44	51	47	51	47	55
		96.48	8.7	0.344	160	148	137	128	119	105	96	49	56	51	51	51	61
		104.84	9.5	0.375	174	162	149	139	129	115	105	53	62	51	51	56	66
		113.46	10.3	0.406	189	174	161	151	139	123	113	-	-	51	51	61	72
		122.05	11.1	0.438	204	189	174	163	151	134	122	62	71	51	51	65	77
		139.15	12.7	0.500	211	199	186	172	153	139	140	70	83	51	51	75	88
508.0	20	69.38	5.6	0.219	97	90	83	77	72	64	58	27	32	30	37	30	35
		79.16	6.4	0.250	111	103	95	87	82	73	66	32	37	34	42	34	40
		87.70	7.1	0.281	124	115	107	100	93	82	75	36	41	38	47	38	44
		97.43	7.9	0.312	138	129	118	110	103	91	83	39	46	42	51	42	49
		107.12	8.7	0.344	153	141	131	122	113	100	91	44	51	46	51	46	55
		116.78	9.5	0.375	166	154	142	133	124	109	100	48	56	50	51	50	60
		126.41	10.3	0.406	179	166	154	144	135	118	108	-	-	51	51	55	65
		136.01	11.1	0.438	194	180	166	155	144	128	116	55	64	51	51	59	70
		155.12	12.7	0.500	211	206	190	177	164	146	133	63	73	51	51	67	80
559.0	22	76.42	5.6	0.219	88	82	76	70	65	58	53	25	30	27	34	27	32
		87.21	6.4	0.250	101	93	86	81	75	66	60	29	34	31	38	31	36
		96.63	7.1	0.281	113	105	97	91	84	75	68	32	38	34	42	34	40
		107.36	7.9	0.312	126	117	108	101	93	82	75	36	42	38	47	38	45
		118.06	8.7	0.344	138	129	119	111	103	91	83	39	46	42	51	42	49
		128.73	9.5	0.375	151	140	129	121	112	99	91	43	51	46	51	46	54
		139.37	10.3	0.406	163	151	140	130	121	107	98	-	-	50	51	50	59
		149.97	11.1	0.438	176	163	151	141	131	115	106	51	59	51	51	53	63
		171.09	12.7	0.500	201	187	172	161	150	133	120	57	66	51	51	61	72
610.0	24	95.26	6.4	0.250	92	86	79	74	69	60	56	27	31	28	35	28	33
		105.56	7.1	0.281	104	96	89	83	77	68	63	30	34	31	39	31	37
		117.30	7.9	0.312	115	107	98	92	86	76	69	33	39	35	43	35	41
		129.00	8.7	0.344	127	118	109	101	94	84	76	37	42	38	48	38	45
		140.68	9.5	0.375	138	129	119	111	103	91	83	39	46	42	52	42	50
		152.32	10.3	0.406	150	139	129	119	111	98	90	-	-	45	56	45	54
		163.93	11.1	0.438	161	150	138	129	119	106	97	46	54	49	61	49	58
		187.06	12.7	0.500	185	171	158	148	137	121	111	53	62	51	70	56	66
660.0	26	103.15	6.4	0.250	85	79	73	68	63	56	51	25	28	26	32	26	31
		114.31	7.1	0.281	96	89	82	77	71	63	58	27	32	29	36	29	34
		127.04	7.9	0.312	106	98	91	85	79	70	64	30	35	32	40	32	38
		139.73	8.7	0.344	117	109	101	93	87	77	70	34	39	35	44	35	42
		152.39	9.5	0.375	128	119	110	102	95	84	77	37	43	39	48	39	46
		165.02	10.3	0.406	139	128	118	110	103	91	83	-	-	42	51	42	50
		177.62	11.1	0.438	149	139	128	119	111	98	90	43	50	45	51	45	54
		202.72	12.7	0.500	170	158	146	137	126	112	102	49	57	51	51	52	61

Test Pressure in Kg/cm^2

Outside Diameter size mm	inches	Weight Kg/m	Wall Thickness mm	inches	API-5L Grade x70	Grade x65	Grade x60	Grade x56	Grade x52	Grade x46	Grade x42	Grade A	Grade B	IS-3589 Grade 330	Grade 410	ASTM, A-671 & A-672 Grade B-60 C-60	Grade B-70 C-70
711.0	28	111.20	6.4	0.250	79	73	67	63	59	52	48	22	26	24	30	24	29
		123.24	7.1	0.281	89	82	76	71	66	58	53	25	30	27	33	27	32
		136.97	7.9	0.312	98	91	84	79	73	65	59	28	33	30	37	30	35
		150.67	8.7	0.344	109	101	93	87	81	72	65	-	-	33	41	33	39
		164.34	9.5	0.375	119	110	102	95	88	78	71	34	39	36	45	36	43
		177.98	10.3	0.406	128	119	110	103	96	85	78	-	-	39	48	39	46
		191.58	11.1	0.438	139	129	118	111	103	92	83	40	46	42	51	42	50
		218.69	12.7	0.500	158	147	136	126	117	104	95	45	53	48	51	48	57
762.0	30	119.25	6.4	0.250	74	69	63	50	55	49	44	21	25	23	28	23	27
		132.17	7.1	0.281	83	77	71	66	62	55	50	24	27	25	31	25	30
		146.91	7.9	0.312	92	86	79	70	68	60	56	26	31	28	35	28	33
		161.61	8.7	0.344	101	94	87	82	75	67	61	-	-	31	38	31	36
		176.29	9.5	0.375	111	103	95	89	83	73	66	32	37	34	42	34	40
		190.93	10.3	0.406	120	111	103	96	90	79	72	-	-	36	45	36	43
		205.54	11.1	0.438	130	120	111	103	96	85	78	38	43	39	49	39	46
		234.67	12.7	0.500	148	137	126	118	109	97	89	42	49	45	51	45	53
813.0	32	127.30	6.4	0.250	69	64	59	56	51	46	41	20	23	21	26	21	25
		141.10	7.1	0.281	78	72	67	63	58	51	46	22	26	24	29	24	28
		156.84	7.9	0.312	86	80	74	69	64	57	52	25	29	26	33	26	31
		172.56	8.7	0.344	95	89	82	76	71	63	57	-	-	29	36	29	34
		188.24	9.5	0.375	104	96	89	83	77	68	63	30	34	31	39	31	37
		203.88	10.3	0.406	112	104	96	90	84	73	67	-	-	34	42	34	40
		219.50	11.1	0.438	121	112	104	97	90	80	72	35	40	37	46	37	43
		250.64	12.7	0.500	139	129	118	111	103	91	83	40	46	42	51	42	50
864.0	34	135.35	6.4	0.250	65	60	56	52	49	43	39	18	22	20	25	20	24
		150.03	7.1	0.281	73	68	63	58	54	48	44	21	25	22	27	22	27
		166.78	7.9	0.312	82	75	70	65	60	53	49	23	27	25	31	25	29
		183.50	8.7	0.344	89	83	77	72	67	59	53	-	-	27	34	27	32
		200.18	9.5	0.375	98	91	84	78	72	64	58	28	32	30	37	30	35
		216.84	10.3	0.406	105	98	91	84	78	69	63	-	-	32	40	32	38
		233.46	11.1	0.438	114	106	98	92	85	75	68	33	38	35	43	35	41
		266.61	12.7	0.500	130	121	112	104	97	86	78	38	44	40	49	40	47
914.0	36	143.24	6.4	0.250	62	57	53	49	46	41	37	18	20	19	23	19	22
		158.79	7.1	0.281	69	64	59	56	51	46	41	20	23	21	26	21	25
		176.52	7.9	0.312	77	71	66	61	57	51	46	22	25	23	29	23	28
		194.22	8.7	0.344	84	79	72	67	63	56	51	-	-	26	32	26	30
		211.90	9.5	0.375	92	86	79	74	69	60	56	27	31	28	35	28	33
		229.54	10.3	0.406	100	93	86	81	74	65	60	-	-	30	38	30	36
		247.15	11.1	0.438	107	100	92	87	81	71	64	31	36	33	41	33	39
		282.27	12.7	0.500	123	114	105	98	92	81	73	35	41	37	46	37	44
965.0	38	186.46	7.9	0.312	72	67	63	58	54	48	44	21	24	22	27	22	26
		205.17	8.7	0.344	80	75	69	64	60	53	48	23	27	24	30	24	29
		223.84	9.5	0.375	87	81	75	70	65	58	53	25	29	27	33	27	31
		242.49	10.3	0.406	95	88	81	75	70	62	57	27	32	29	36	29	34
		261.11	11.1	0.438	102	95	87	82	71	66	61	29	34	31	38	31	37
		298.24	12.7	0.500	116	108	100	94	87	77	69	33	39	35	44	35	42
1016.0	40	196.39	7.9	0.312	69	64	59	56	51	46	41	20	23	21	26	21	25
		216.11	8.7	0.344	76	71	65	61	56	50	46	22	25	23	29	23	27
		235.79	9.5	0.375	83	77	71	66	62	55	50	24	27	25	31	25	30
		255.45	10.3	0.406	90	83	77	71	66	60	54	26	31	27	34	27	32
		275.07	11.1	0.438	97	90	83	78	71	64	58	28	33	29	36	29	35
		314.22	12.7	0.500	111	103	95	89	83	73	66	32	37	34	42	34	40
1067.0	42	227.05	8.7	0.344	72	67	62	58	54	48	44	20	24	22	27	22	26
		247.74	9.5	0.375	79	73	67	63	59	52	48	22	27	24	30	24	28
		268.40	10.3	0.406	86	79	73	68	63	57	51	25	29	26	32	26	31
		289.03	11.1	0.438	92	86	79	73	69	60	55	27	31	28	35	28	33
		330.19	12.7	0.500	105	98	91	85	78	69	63	31	35	32	40	32	38
1118.0	44	237.99	8.7	0.344	70	64	59	56	51	46	41	20	23	21	26	21	25
		259.69	9.5	0.375	75	70	65	60	56	50	45	22	25	23	28	23	27
		281.35	10.3	0.406	81	75	70	65	60	54	50	24	28	25	31	25	29
		302.99	11.1	0.438	88	82	75	70	65	57	53	26	30	27	33	27	32
		346.16	12.7	0.500	101	94	87	81	74	66	60	29	34	31	38	31	36
1168.0	46	248.72	8.7	0.344	66	61	57	53	49	44	40	19	22	20	25	20	24
		271.40	9.5	0.375	72	67	62	58	53	48	44	20	24	22	27	22	26
		294.05	10.3	0.406	77	72	66	62	58	52	47	23	26	24	30	24	28
		316.67	11.1	0.438	85	78	72	67	62	55	51	24	29	26	32	26	30
		361.82	12.7	0.500	96	90	83	78	71	63	57	28	33	29	36	29	35
1219.0	48	259.66	8.7	0.344	63	59	54	51	47	41	38	18	21	19	24	19	23
		283.35	9.5	0.375	69	64	59	56	51	46	41	20	23	21	26	21	25
		307.01	10.3	0.406	75	69	64	60	55	50	45	22	26	23	28	23	27
		330.63	11.1	0.438	81	75	69	64	60	53	49	24	27	25	30	25	29
		377.79	12.7	0.500	92	86	79	73	69	60	55	27	31	28	35	28	33
1321.0	52	307.25	9.5	0.375	64	59	55	51	48	42	39	18	21	19	24	19	23
		332.92	10.3	0.406	69	64	59	55	51	46	42	20	24	21	26	21	25
		358.55	11.1	0.438	74	69	64	60	55	49	45	21	25	23	28	23	27
		409.74	12.7	0.500	85	80	73	68	63	56	51	24	29	26	32	26	31
1422.0	56	330.91	9.5	0.375	59	55	51	47	44	39	36	17	20	18	22	18	21
		358.57	10.3	0.406	64	60	55	51	48	42	39	19	22	20	24	20	23
		386.20	11.1	0.438	69	64	59	55	51	46	42	20	23	21	26	21	25
		441.37	12.7	0.500	80	73	67	63	59	52	48	23	27	24	30	24	28
1524.0	60	355.69	9.5	0.375	56	51	48	44	41	37	33	16	18	17	21	17	20
		384.89	10.3	0.406	60	55	51	48	44	40	36	18	20	18	23	18	22
		414.12	11.1	0.438	64	60	55	52	48	42	39	19	21	20	24	20	23
		473.31	12.7	0.500	73	69	63	59	55	49	44	21	24	22	28	22	27
1626.0	64	378.70	9.5	0.375	52	49	44	41	39	34	31	15	18	16	20	16	19
		410.38	10.3	0.406	56	52	49	45	42	38	34	17	20	17	21	17	20
		441.82	11.1	0.438	60	56	52	49	45	40	37	17	20	18	23	18	22
		505.26	12.7	0.500	69	64	59	55	51	46	42	19	23	21	26	21	25
1727.0	68	503.30	11.9	0.469	57	52	49	46	40	37	26	17	20	18	23	18	22
		536.89	12.7	0.500	60	55	52	49	43	40	28	18	21	20	25	20	24
1829.0	72	568.83	12.7	0.500	62	57	53	49	46	40	38	17	20	19	23	19	22
		639.93	14.3	0.562	69	64	59	55	51	46	42	19	23	21	26	21	25
1930.0	76	600.46	12.7	0.500	58	54	50	46	44	38	35	17	19	18	22	18	21
		675.55	14.3	0.562	65	61	56	53	49	43	40	19	21	20	25	20	24
2032.0	80	711.52	14.3	0.562	62	57	53	50	46	41	38	17	21	19	24	19	23
		790.50	15.9	0.625	69	64	59	55	51	46	42	19	23	21	26	21	25