

SeAH Steel

STEEL PIPES & TUBES To

British Standard
BS EN 10255
BS EN 10217





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Brief History

Established in 1960, SeAH Steel was the first in the steel pipe industry to lead exports to the US market in 1967. SeAH Steel carried out its IPO in 1969 at a time when companies were reluctant to go public. Consistently developing new products and pushing into new markets, SeAH Steel has become the steel pipe leader in Korea.

Starting from API steel pipes, the first welded pipes produced in Korea, SeAH Steel continued to secure its global reputation for leading technology and superb quality. The company's Pohang Plant is one of the largest steel plants in the world with an annual capacity of 1.2 million tons. Together with production bases in Gunsan, Suncheon, and Changwon, SeAH Steel produces over 2.2 million tons of various steel pipes and plates each year. Through its overseas production and distribution overseas, including the newly acquired Italian steel pipe producer Inox Tech, SeAH Steel continues to expand its international presence.



- Oct. 1960** Pusan Steel Pipe Corporation established in Pusan, Korea
- Mar. 1965** Obtained "KS" monogram
- Aug. 1967** Steel pipes exported to the United States for the first time in Korea
- May. 1969** Company shares listed on the Korea Stock Exchange
- Aug. 1970** Seoul plant went into operation
- Oct. 1973** Spiral welded pipe mill started operation covering 457.2~2,413.0mm
- Fed. 1975** Company name changed to Pusan Steel pipe
- Oct. 1978** The first Pohang plant went into operation
- Mar. 1979** Authorized to use "API" monogram on casing & tubing, on high tensile line pipe and on line pipe
- Aug. 1980** The second Pohang plant went into operation
- Apr. 1981** Obtained "LR"(Lloyd's Register Shipping Monogram) and "DNV"(Det Norske Veritas) for welded steel pipe
- Dec. 1981** Awarded one hundred million U.S. dollar export tower
- Jun. 1982** Pohang plant has been authorized as the "A" grade factory under the quality control program
- Oct. 1982** Obtained "UL" label for rigid steel conduit approved by Underwriters Laboratories
- Jan. 1983** The Third Pohang plant went into operation covering up to 20 inch high grade line pipe and OCTG.
- Jun. 1983** Obtained "JIS" monogram (No.8311,8312)
- Jan. 1985** Production of pre-insulated pipe initiated under the technical tie-up with Ecopipe AB, Sweden
- Mar. 1990** Stainless Steel Pipe mill went into operation in Seoul plant
- Jun. 1991** Large diameter manufacturing mill (OD.22"~82") went into operation

- Jan. 1993** Obtained ISO 9001 Certification for quality system
- Jun. 1993** Titanium Pipe plant went into operation
- Jan. 1996** Company name changed to SeAH Steel Corporation
- Aug. 1997** Obtained ISO 14001 Certification for Environmental System
- Aug. 1998** Pre Coated Metal Plant established in Gunsan
- Aug. 1999** Became the first Korean company to develop Duplex stainless pipe.
- Oct. 2000** Moved head-office to Jung-gu Bongnae-Dong
- Jan. 2001** The Ansan plant went into operation
- July. 2001** Split-off (SeAH Steel Corporation, SeAH Holdings Corporation)
- Sep. 2005** Established Galvanized Steel Sheets Plant in Gunsan
- Nov. 2005** Awarded two hundred million U.S. dollar Export Tower
- Feb. 2007** SeAH-POSCO announced a strategic alliance by swapping equities each other
- Mar. 2009** Established United Spiral Pipe, LLC in USA (Joint Venture)
- Feb. 2010** Established SeAH Steel U.A.E. in Ras Al Khaimah, U.A.E.
- Mar. 2012** Acquired SPP Steel pipe (change of company name to SeAH Steel Pipe)
- Sep. 2012** Acquired Dongkuk R&S Pohang factory (SeAH Steel Mundeok Plant)
- Jan. 2013** Merger with SeAH Steel Pipe (SeAH Steel Suncheon Plant)
- Apr. 2014** Acquired Inox Tech S.p.A
- Dec. 2016** Acquired Laguna Tubular Products Corporation Houston factory

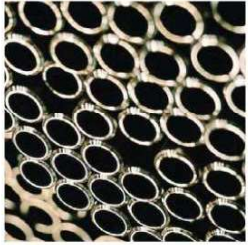



Steel Pipe Product Range and Capacity

Division		Range	Lines	Production Capacity (MT)	
Pohang	ERW	1/2" ~ 24"	6	940,000	
	SAWL	Spiral	20" ~ 56"	1	60,000
		Longitudinal	18" ~ 64"	2	200,000
	Subtotal		9	1,200,000	
	SRM	1/2" ~ 4"	1	75,000	
	Q.T.	4 1/2" ~ 9 5/8"	1	60,000	
	OCTG Threading	4 1/2"~20"	3	80,000	
Suncheon	SAWH – Spiral	20" ~ 160"	2	120,000	
	SAWL – JCO	16" ~ 60"	1	90,000	
	SAWL – 3Roll Bender	40" ~ 200"	1	30,000	
	Subtotal		4	240,000	
Gunsan	ERW	1/2" ~ 8"	4	250,000	
	Zinc Galvanising	1/8" ~ 24"	2	150,000	









Carbon Steel Pipe

Application (Usage)

	<p>Ordinary Piping</p> <ul style="list-style-type: none"> • Black and galvanized steel pipes • Heat Ventilation and Air Conditioning Systems (HVAC) <ul style="list-style-type: none"> - Chilled water pipe systems - Condenser water pipe systems - Condensate drain pipes • Fire Services <ul style="list-style-type: none"> - Riser, down feed for fire hydrant and sprinkler systems • Cable ducting
	<p>Petroleum Industry</p> <ul style="list-style-type: none"> • Line pipe • Casing and Tubing • Offshore Platform
	<p>Heat Transfer</p> <ul style="list-style-type: none"> • Boiler tube, heat exchange and tube
	<p>Structural Pipes</p> <ul style="list-style-type: none"> • General structural pipes • Machine structural tubes • Off-shore structural pipes • Square pipes, steel pipe piles

Approved Certifications

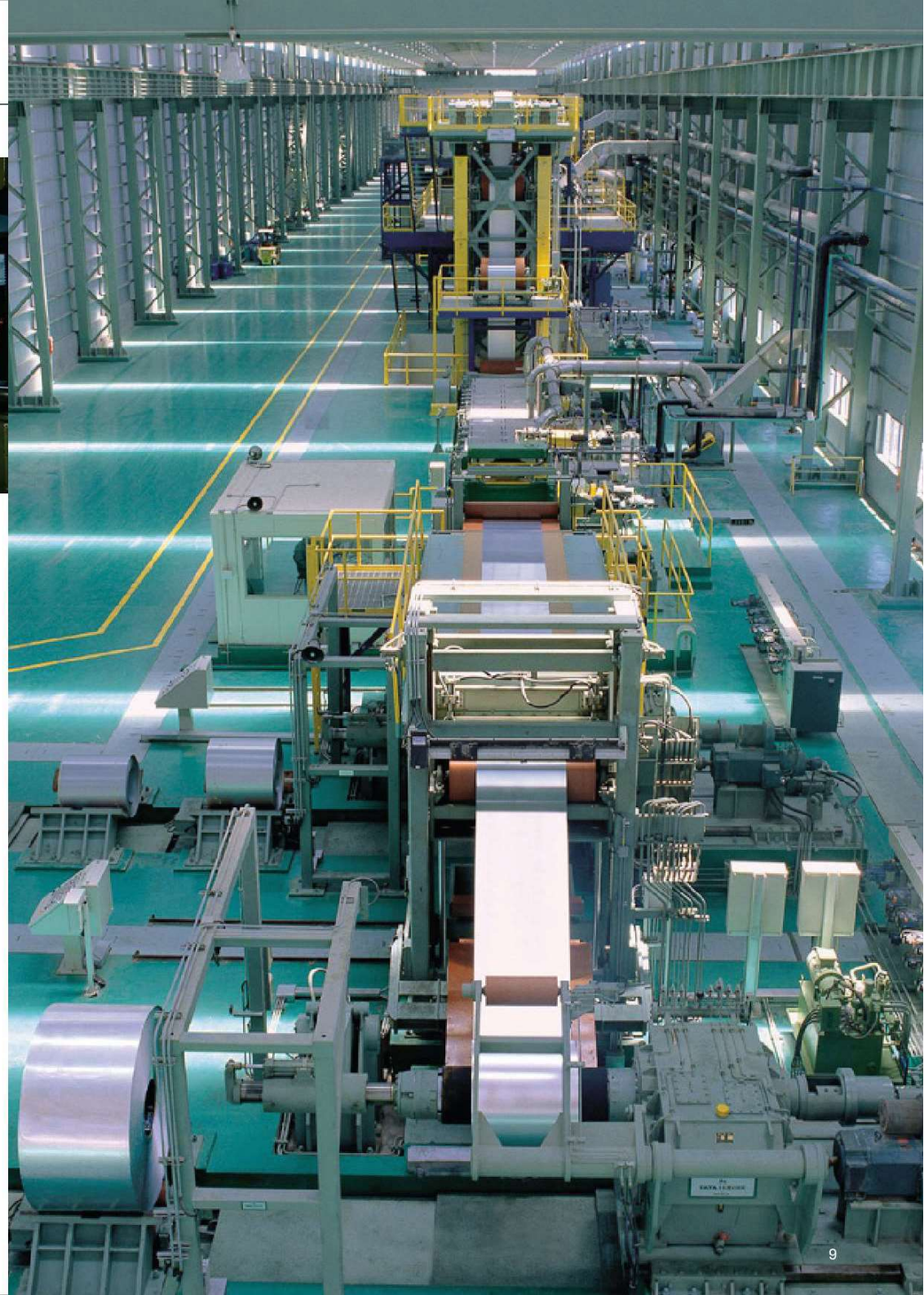
<p>API</p>  <ul style="list-style-type: none"> - API. Line Pipe (API 5L) Casing & Tubing - Structural pipe (API 2B) 	<p>UL</p>  <ul style="list-style-type: none"> - UL-6 Rigid Metal Conduit
<p>CSA</p>  <ul style="list-style-type: none"> - Rigid Steel Conduit and Coupling 	<p>ISO</p>  <ul style="list-style-type: none"> - ISO 9001 (Carbon Steel Pipe) - ISO 14001 (Carbon Steel Pipe)
<p>DNV</p>  <ul style="list-style-type: none"> - Steel Tubes and Pipes for Ordinary Pressure Systems - Steel Tubes and Pipes (ERW & SAW) - Coated Steel Coil and Sheet - Stainless Steel Pipes Tubes & Titanium 	<p>NSF (USA)</p>  <ul style="list-style-type: none"> - ANSI/NSF Standard 61; Drinking Water System Components Health Effects (ASTM A53 Gr. A, B)

Technical Research Institute

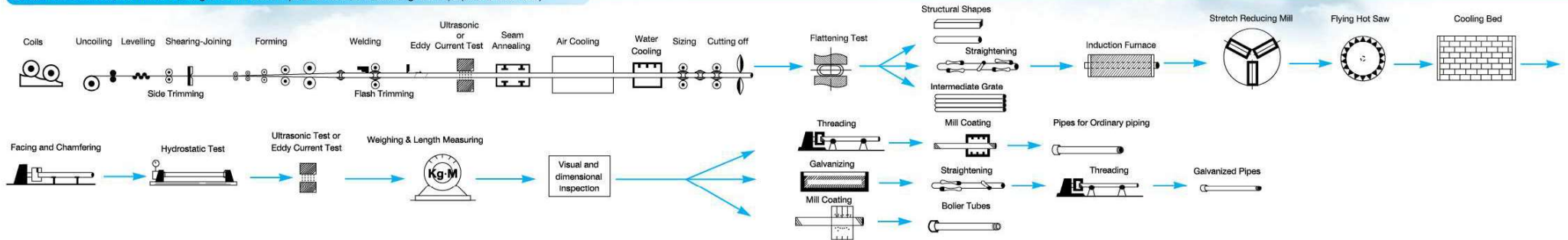
By studying the new steel technologies, new products, research on the automation, design, and facility, SeAH Steel's Technological Research Institute is trying to enhance the value-added products for customers and elevate automation rate of each process for better productivity.

With its accumulated R&D accomplishments and brisk cooperation with other organizations, it has positioned itself as the Think-Tank of SeAH while endeavoring to become a leading research institute in mechanical, electronics, and electrical engineering, as well as metal-making and welding.

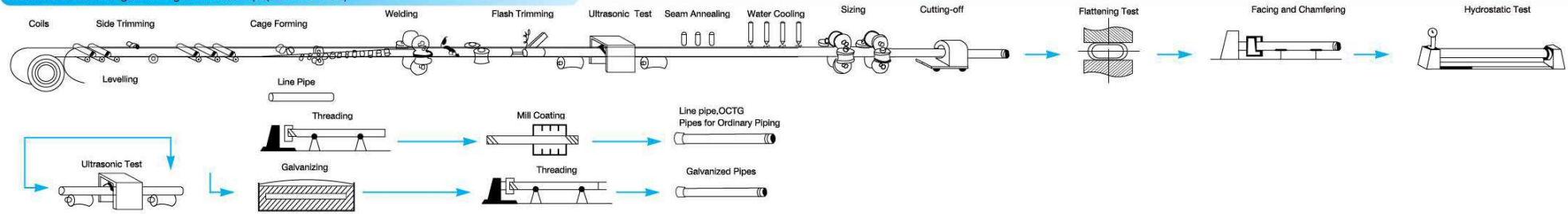
Together with customers, for a better future, to become a world-class enterprise, to prove the global acknowledgement on its quality and technological strength, SeAH promises to maintain the devotion with all its energy and efforts.



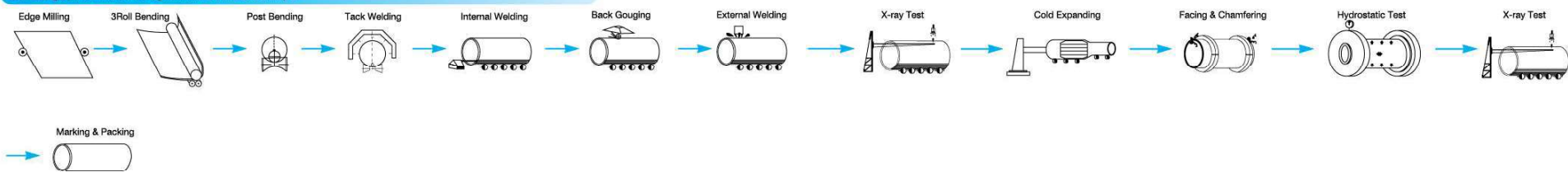
Small Diameter Electric Welded Straight-seam Steel Pipe and Stretch Reducing Mill Pipe(3/8-8 inch O.D)



Medium Diameter Cage Forming ERW Steel Pipe(8-24 inch O.D)



Submerged Arc Welded Logitudinal-Seam Steel Pipe



Submerged Arc Welded Spiral-seam Steel Pipe(400A-2600A)

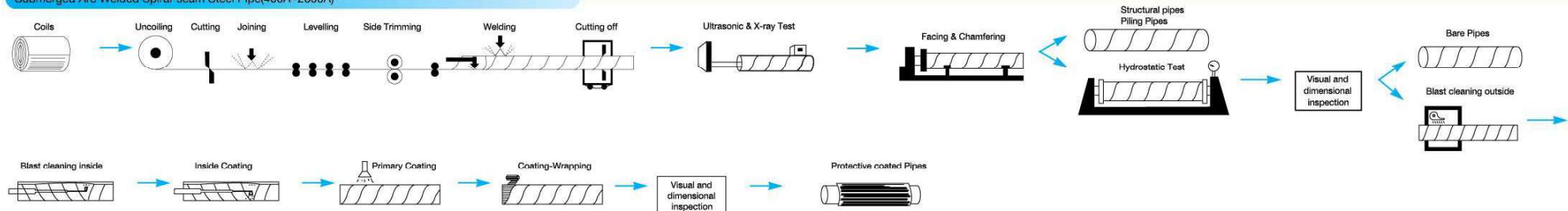


Table 2 - Dimensions, diameter tolerance and mass per unit length

Nominal Size		Specified outside diameter	Outside diameter		H			M		
					Heavy series			Medium series		
					Wall thickness	Mass per unit length of bare tube		Wall thickness	Mass per unit length of bare tube	
						D	max.		min.	T
(mm)	(in.)	(mm)	(mm)	(mm)	(mm)	(kg/m)	(kg/m)	(mm)	(kg/m)	(kg/m)
6	1/8	10.2	10.6	9.8	2.6	0.487	0.490	2.0	0.404	0.407
8	1/4	13.5	14.0	13.2	2.9	0.765	0.769	2.3	0.641	0.645
10	3/8	17.2	17.5	16.7	2.9	1.02	1.03	2.3	0.839	0.845
15	1/2	21.3	21.8	21.0	3.2	1.44	1.45	2.6	1.21	1.22
20	3/4	26.9	27.3	26.5	3.2	1.87	1.88	2.6	1.56	1.57
25	1	33.7	34.2	33.3	4.0	2.93	2.95	3.2	2.41	2.43
32	1 1/4	42.4	42.9	42.0	4.0	3.79	3.82	3.2	3.10	3.13
40	1 1/2	48.3	48.8	47.9	4.0	4.37	4.41	3.2	3.56	3.60
50	2	60.3	60.8	59.7	4.5	6.19	6.26	3.6	5.03	5.10
65	2 1/2	76.1	76.6	75.3	4.5	7.93	8.05	3.6	6.42	6.45
80	3	88.9	89.5	88.0	5.0	10.3	10.5	4.0	8.36	8.53
100	4	114.3	115.0	113.1	5.4	14.5	14.8	4.5	12.2	12.5
125	5	139.7	140.8	138.5	5.4	17.9	18.4	5.0	16.6	17.1
150	6	165.1	166.5	163.9	5.4	21.3	21.9	5.0	19.8	20.4



Nominal Size		Specified outside diameter	Outside diameter		L			Outside diameter		L1			Outside diameter		L2		
					Light series					Light series (L1)					Light series (L2)		
					Wall thickness	Mass per unit length of bare tube				Wall thickness	Mass per unit length of bare tube				Wall thickness	Mass per unit length of bare tube	
						D	max.				min.	T				Plain end	Socketed
(mm)	(in.)	(mm)	(mm)	(mm)	(mm)	(kg/m)	(kg/m)	(mm)	(mm)	(mm)	(kg/m)	(kg/m)	(mm)	(mm)	(mm)	(kg/m)	(kg/m)
6	1/4	13.5	13.9	13.2	2.0	0.567	0.571	13.9	13.2	2.0	0.570	0.574	13.6	13.2	1.8	0.515	0.519
8	3/8	17.2	17.4	16.7	2.0	0.750	0.756	17.4	16.7	2.0	0.742	0.748	17.1	16.7	1.8	0.670	0.676
10	1/2	21.3	21.7	21.0	2.3	1.08	1.09	21.7	21.0	2.3	1.08	1.09	21.4	21.0	2.0	0.947	0.956
15	3/4	26.9	27.1	26.4	2.3	1.40	1.41	27.1	26.4	2.3	1.39	1.40	26.9	26.4	2.3	1.38	1.39
20	1	33.7	34.0	33.2	2.9	2.20	2.22	34.0	33.2	2.9	2.20	2.22	33.8	33.2	2.6	1.98	2.00
25	1 1/4	42.4	42.7	41.9	2.9	2.82	2.85	42.7	41.9	2.9	2.82	2.85	42.5	41.9	2.6	2.54	2.57
32	1 1/2	48.3	48.6	47.8	2.9	3.25	3.29	48.6	47.8	2.9	3.24	3.28	48.4	47.8	2.9	3.23	3.27
40	2	60.3	60.7	59.6	3.2	4.51	4.58	60.7	59.6	3.2	4.49	4.56	60.2	59.6	2.9	4.08	4.15
50	2 1/2	76.1	76.0	75.2	3.2	5.75	5.87	76.3	75.2	3.2	5.73	5.85	76.0	75.2	3.2	5.71	5.83
65	3	88.9	88.7	87.9	3.2	6.76	6.93	89.4	87.9	3.6	7.55	7.72	88.7	87.9	3.2	6.72	6.89
80	3 1/2	101.6	101.2	100.3	3.6	8.70	8.88	114.9	113.0	4.0	10.8	11.1	113.9	113.0	3.6	9.75	10.0
100	4	114.3	113.9	113.0	3.6	9.83	10.10										
125	5	139.7	140.8	138.5	4.5	15.0	15.5										
150	6	165.1	166.5	163.9	4.5	17.8	18.4										

BS EN 10217-1 Welded steel tubes for pressure purposes Part1: Non-alloy steel tubes with specified room temperature properties
 BS EN 10217-2 Welded steel tubes for pressure purposes Part2: Electric welded non-alloy and alloy steel tubes with specified elevated temperature properties
 BS EN 10217-3 Welded steel tubes for pressure purposes Part3: Alloy fine grain steel tubes
 BS EN 10217-4 Welded steel tubes for pressure purposes Part4: Electric welded non-alloy steel tubes with specified low temperature properties
 BS EN 10217-5 Welded steel tubes for pressure purposes Part5: Submerged arc welded non-alloy and alloy steel tubes with specified elevated temperature properties
 BS EN 10217-6 Welded steel tubes for pressure purposes Part6: Submerged arc welded non-alloy and alloy steel tubes with specified low temperature properties
 BS EN 10217-7 Welded steel tubes for pressure purposes Part7: Stainless steel tubes

(1) Available Size (Dimension and Weights)

Nominal Size mm	Outside Diameter mm	Thickness (mm)													Thickness (mm)													Outside Diameter mm	Nominal Size mm	
		1.6	1.8	2.0	2.3	2.6	2.9	3.2	3.6	4.0	4.5	5.0	5.4	5.6	6.3	7.1	8.0	8.8	9.5	10.0	11.0	12.5	14.2	16.0	17.5	20.0	22.2			25.0
		Mass Per Unit Length (kg/m)													Mass Per Unit Length (kg/m)															
20	26.9				1.23	1.40	1.56	1.72	1.87	2.07	2.26	2.49																26.9	20	
25	33.7				1.56	1.78	1.99	2.20	2.41	2.67	2.93	3.24	3.54	3.77														33.7	25	
32	42.4					1.80	1.99	2.27	2.55	2.82	3.09	3.44	3.79	4.21	4.61	4.93												42.4	32	
40	48.3					1.84	2.06	2.28	2.61	2.93	3.25	3.56	3.97	4.37	4.86	5.34	5.71											48.3	40	
50	60.3						2.88	3.29	3.70	4.11	4.51	5.03	5.55	6.19	6.82	7.31												60.3	50	
65	76.1						3.65	4.19	4.71	5.24	5.75	6.44	7.11	7.95	8.77	9.42												76.1	65	
80	88.9							4.91	5.53	6.15	6.76	7.57	8.38	9.37	10.3	11.1												88.9	80	
100	114.3							6.35	7.16	7.97	8.77	9.83	10.9	12.2	13.5	14.5												114.3	100	
125	139.7									10.8	12.1	13.4	15.0	16.6	17.9													139.7	125	
150	168.3									13.0	14.6	16.2	18.2	20.1	21.7													168.3	150	
200	219.1										21.2	23.8	26.4	28.5														219.1	200	
250	273.0											29.8	33.0	35.6														273.0	250	
300	323.9												35.4	39.3	42.4													323.9	300	
350	355.6													39.0	43.2	46.6												355.6	350	
400	406.4														44.6	49.5	53.4											406.4	400	
450	457.0														50.2	55.7	60.1											457.0	450	
500	508.0																											508.0	500	
550	559.0																											559.0	550	
600	610.0																											610.0	600	
650	660.0																											660.0	650	
700	711.0																											711.0	700	
750	762.0																											762.0	750	
800	813.0																											813.0	800	
850	864.0																											864.0	850	
900	914.0																											914.0	900	
1000	1016.0																											1016.0	1000	
1200	1219.0																											1219.0	1200	
1400	1422.0																											1422.0	1400	
1600	1626.0																											1626.0	1600	
1800	1829.0																											1829.0	1800	
2000	2032.0																											2032.0	2000	
2200	2235.0																											2235.0	2200	

Note: Sizes not indicated are on inquiry basis.

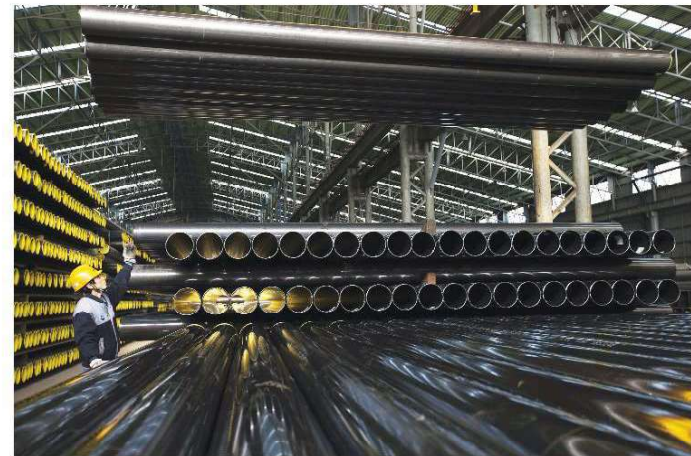
List of Specification of ERW Tubes and Pipes

Standard Specification	Application	Chemical Requirement (%)					Physical Requirement				
		C Max	Mn Max	P Max	S Max	Others	Tensile Strength Rm (Mpa)	Yield Strength ReH Min. (Mpa)	Elongation (Min %)	Gauge Length (in)	
EN10255	L	Steel Pipe for Ordinary Uses (For Screwing)	0.20	1.40	0.035	0.030	-	320-520	195	20	5.65 √A
	M		0.20	1.40	0.035	0.030	-	320-520	195	20	
	H		0.20	1.40	0.035	0.030	-	320-520	195	20	
EN10217-1	P195TR1	Steel Pipe for Pressure Purposes Ordinary Duties	0.13	0.70	0.025	0.020	Si Max 0.35	320-440	T _s 16mm: 195 16mm<T _s 40mm: 185	L-direction : 27 T-direction : 25	5.65 √A
	P195TR2		0.13	0.70	0.025	0.020	Si Max 0.35	320-440	T _s 16mm: 195 16mm<T _s 40mm: 185	L-direction : 27 T-direction : 25	
	P235TR1		0.16	1.20	0.025	0.020	Si Max 0.35	360-500	T _s 16mm: 235 16mm<T _s 40mm: 225	L-direction : 25 T-direction : 23	
	P235TR2		0.16	1.20	0.025	0.020	Si Min 0.35	360-500	T _s 16mm: 235 16mm<T _s 40mm: 225	L-direction : 25 T-direction : 23	
	P265TR1		0.20	1.40	0.025	0.020	Si Min 0.40	410-570	T _s 16mm: 265 16mm<T _s 40mm: 255	L-direction : 21 T-direction : 19	
	P265TR2		0.20	1.40	0.025	0.020	Si Max 0.40	410-570	T _s 16mm: 265 16mm<T _s 40mm: 255	L-direction : 21 T-direction : 19	
ASTM A53	A	Steel Pipe for General Purposes	0.25	0.95	0.050	0.060	-	Min 48,000 psi (33.8kg/mm ²)	Min 30,000 psi (21.1kg/mm ²)	e=625000 x $\frac{A_{92}}{U_{98}}$	2
	B		0.30	1.20	0.050	0.060	-	Min 60,000 psi (42.2kg/mm ²)	Min 35,000 psi (24.6kg/mm ²)	e=625000 x $\frac{A_{92}}{U_{98}}$	2

Standard Specification	Flattening Test		Bend Test	Hydrostatic Test	Non-Destructive Test and Other Inspections
	H = Distance between Exterior Surfaces H' = Distance between Interior Surfaces D = Outside Diameter ID = Inside Diameter		Angle x Inner Radius	P = Test Pressure (psi) S = Allowable Fiber Stress (psi)	
EN10255	Applicable to O.D. > 60.3mm Welded Part : 0.75 x O.D. Body Part : 0.6 x O.D.		Tested only for O.D. ≤ 60.3mm	Min. 50 bar for at least 5s or NDT or an electro-magnetic test	
EN10217-1	→ O.D. < 600mm, t/D ≤ 0.15 : at 0 or 90 deg. $H = \frac{(1 + C)}{C + (T/D)} \times T$ where, H=height, D=O.D., T=W.T. C= 0.09 for P195&P235, 0.07 for P265 → Either flattening or flaring test can be done for O.D. ≤ 150mm & t ≤ 10mm products.		-	Hydrostatic test or NDT Hydrostatic test shall be carried out Min. 70 bar or following equation P, whichever is lower $P = \frac{20 \text{ st}}{D} \text{ (bar)}$ S = 0.70 x Yield Strength	ERW : ET OR UT SAW : UT OR RT
ASTM A53	Apply for standard weight and extra strong pipe of NB > 2 in.		Apply for NB ≤ 2 in. Ungaivanized Tubes At cold 90°x 6D When ordered for close coiling 180°x 4D	Hydrostatic test shall be carried out following equation P $P = \frac{20 \text{ st}}{D} \text{ (bar)}$ S = 0.60 x Yield Strength But, Maximum pressure is: NB ≤ 2 in. P= 2,500 psi NB > 3 in. P= 2,800 psi	Each pipe shall be inspected by ultrasonic or electromagnetic methods * 6
	Weld Portion	H = 7/8D			
	The other side of Weld Portion	H = 1/8D			
	The test shall be made alternately with the weld portion at 0 deg. and at 90 deg.				

Continued

Standard Specification	Permissible Variations in Dimensions			Permissible Variations in Weight	
	Outside Diameter	Wall Thickness	Length	Height of Inside Bead	Single Lengths Standard, Regular, Extra-Strong Double Extra-Strong +10%, -3.5% Special Plain End +10%, -5% Carload Lots -1.75%
EN10255	Specified respectively in Size	±10%	Standard length Welded + 150 / -50, SMLS +/- 500 Random length: 10% can be below range, but none of these to be less than 3m long (0.75 x 4m minimum) Exact length: L ≤ 6m + 10 - 0 6 ≤ L ≤ 12m + 15 - 0 L > 12m + by agreement - 0	±50% of wall thickness. For tubes to be galvanized, it should be no higher than 0.3mm + (0.05 x wall thickness)	
EN10217-1	D ≤ 219.1mm, ±1% or ±0.5mm, which ever is larger D > 219.1mm, ±0.75% or ±6mm, which ever is smaller	t ≤ 5mm, ±10% (Min ±0.3) 5mm < t ≤ 40mm, ±8% (Max ±2)	D ≤ 406.4mm → L ≤ 6M, -0/ +10mm → 6M < L ≤ 12M, -0/ +15mm → 12M < L, to be discussed with the customer D ≤ 406.4mm → L ≤ 6M, -0/ +25mm → 6M < L ≤ 12M, -0/ +50mm → 12M < L, to be discussed with the customer	ERW TR1: Max. 1.5mm TR2: 0.5mm + 0.05t SAW → Inside Bead W.T. ≤ 12.5mm, Max 3.5mm → Outside Bead W.T. ≤ 12.5mm, Max 3.5mm → Outside Bead W.T. ≤ 12.5mm, Max 4.8mm	Standard ; Random length
ASTM A53	NB ≤ 1 1/2 in + 1/64 in. , - 1/32 in. NB ≥ 2 in. ±1%	+Not specified -12.5%	-	-	±10% D ≤ 4 in. may be weighted in convenient lots. D ≤ 4 in. shall be weighted separately



Marking

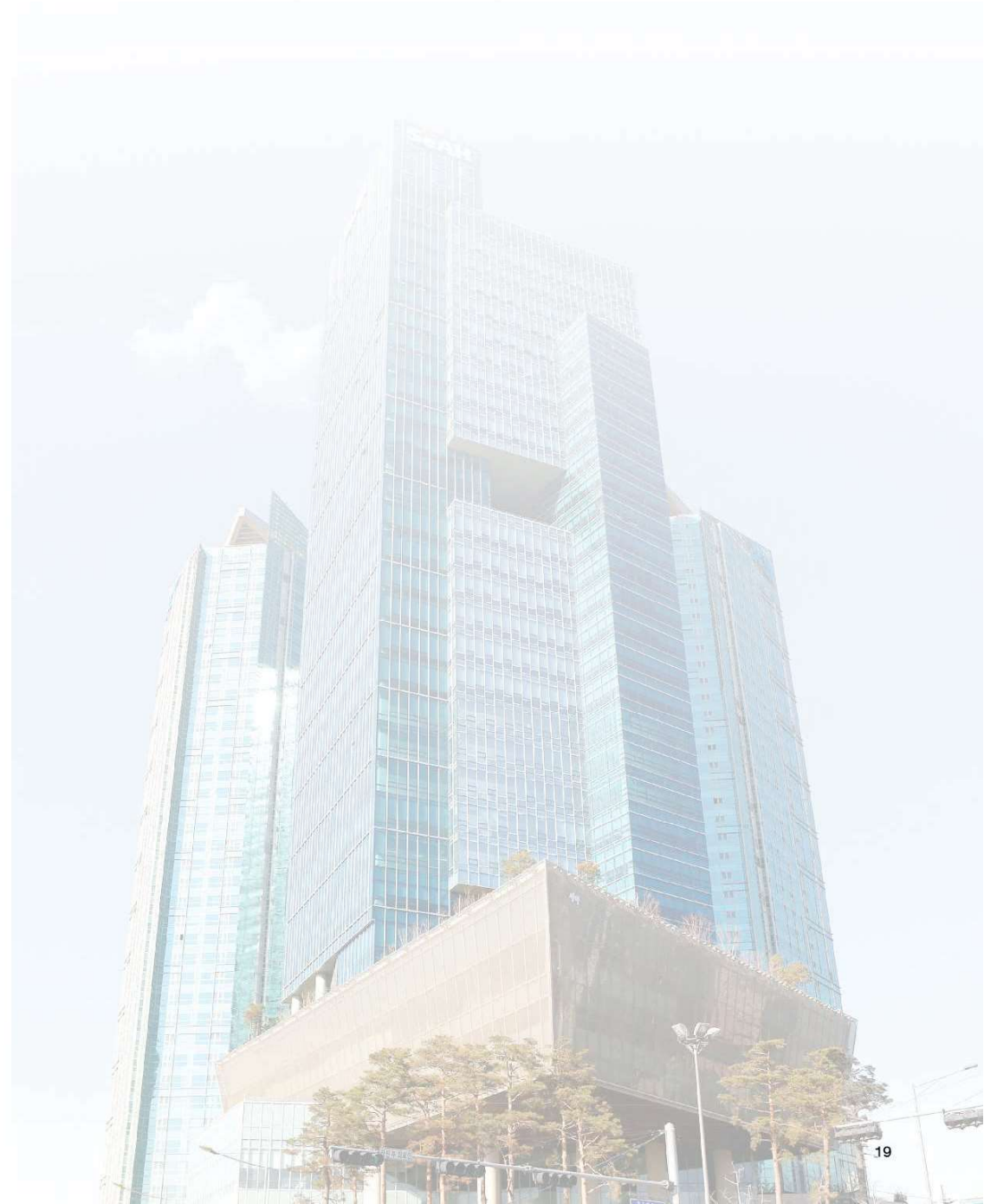
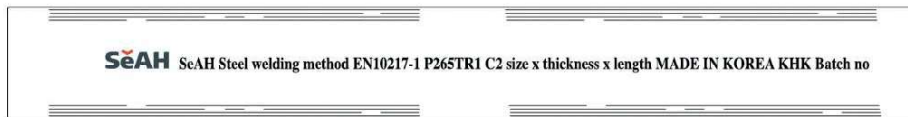
BS EN 10255



Color band

Grade	Color
L	Green
L1	White
L2	Brown
Medium	Blue
Heavy	Red

BS EN 10217



SeAH Steel

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