PREQUALIFICATION STATEMENTS

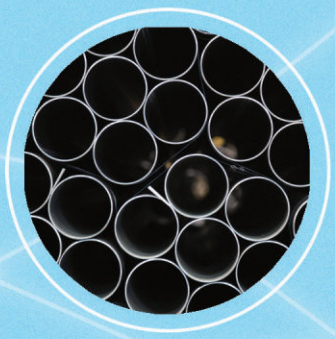
HUSTEEL

:: Rev. No - 4

:: Rev. Date - June. 30. 2018

PREQUALIFICATION STATEMENTS

HUSTEEL Co., Ltd.



A Company that creates a happy and comfortable future “HUSTEEL”

We will be the company that grows with customers by providing better quality products and more services.

With the spirit of Quality and Customer satisfaction, Husteel has grown with pride as a company specialized in manufacturing steel pipes

In order to meet various needs of our customers, we produced our products with the best technology and the latest facilities to satisfy our customers.

In April 1995, we introduced the 24″ ERW Mill in Daebul plant to produce large-diameter steel pipes. In February 2005, we introduced the FFX-mill, which is the most advanced steel making facility in Korea, to Dangjin plant.

In December 2012, we introduced high-strength-heavy-wall facility which can produce 18mm wall at 8″ ERW mill with excellent weldability and appearance to replace the seamless pipe.

Based on these latest production facilities and the highest level of technical expertise, we have grown into a world-class steel pipe maker with solid financial structure and annual production capacity of 1 million tons of ERW pipes. In March 2015, We acquired Daegu plant, which is equipped with STS manufacturing facilities, and expanded our business area to STS steel pipes, thus making a second leap towards higher ideals.

Husteel, who grew up with the affection of customers, will become the world's leading company through the vision of “Global Pipe Leader with U”. We look forward to your continued encouragement and support to our new step forward.

Hoon Park, CEO of HUSTEEL Co., Ltd.

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Air view

Dangjin Plant

Daebul Plant

Daegu Plant

Address

Head Office

Address
Shinan B/D 14/15F, Daechi-Dong, 512, Teheran-Ro, Kangnam-Gu, Seoul, Korea
Tel 82-2-828-9000 Fax 82-2-828-9100

Dangjin Plant

Address
131, Bugokgongdan-Ro, Songak-Eup, Dangjin-Si, Chungcheongnam-Do, Korea
Tel 82-41-350-8060 Fax 82-41-357-4625

Daebul Plant

Address
150, Daebulsandan 3-Ro, Samho-Eup, Yeongam-Gun. Jeollanam-Do, Korea
Tel 82-61-4601-150 Fax 82-61-4601-119

Daegu Plant

Address
38, Dalseong 2Cha 2-Ro, Guji-Myeon, Dalseong-Gun, Daegu, Korea
Tel 82-70-4351-7089 Fax 82-70-4032-2322

Company Website

http://www.husteel.com

Contact Preson

Head Office : richard@husteel.com
Dangjin Plant : bigstar@husteel.com
Daebul Plant : lsg486@husteel.com
Daegu Plant : dhkang@husteel.com

Brief History

Apr. 1967	Established Korea Steel Pipe Co., Ltd.
Jul. 1967	Approved to use Korean Industrial Std. Mark (KS)
Oct. 1974	Commenced Operation of Inchon Factory
Dec. 1977	Approved to use Korean Register of shipping Monogram (KR)
Mar. 1978	Approved to use offcial Monogram of American Petroleum Institute (API)
Jun. 1980	Established a Joint-Venture Company in Saudi Arabia.
Dec. 1982	Approved to use of Underwriters Laboratories (UL) Label
Jan. 1986	Approved to use Japanese Industrial Std. Mark (JIS)
Mar. 1995	Commenced Operation of Daebul Plant in Mokpo
Jul. 1995	Acquirement of ISO 9001, Quality Assurance System
Dec. 1995	The name of Company changed from Korea Steel Pipe Co,. Ltd. to SHINHO STEEL CO., LTD.
Nov. 1996	Approved as ARAMCO VENDOR
Jan. 1998	Approved to use Det Norske of Shipping Monogram(DNV)
	Approved to use Lloyd's Register of Shipping Monogram(LR)
May. 1999	Approved to use Germanischer Lloyd of Shipping Monogram(GL)
Jun. 1999	Acquirement of ISO 14001 Environmental Management System
Mar. 2002	The name of Company changed from SHINHO STEEL CO., LTD to HUSTEEL CO,. LTD.
Dec. 2004	Selected as the most quality of 2004 KPQI in Steel Pipe Product Category by KMA.
Mar. 2005	Approved to use Bureau Veritas of Shipping Monogram(BV)
Aug. 2005	Approved to use Nippon Kaiji Kyokai of Shipping Monogram(NK)
Oct. 2005	Acquirement of Certification of Approval ISO 9001, Quality Management System include Annex I paragraph 4.3 of the P.E.D
May. 2007	Approved to use Silvia Aimondo of shipping Monogram(RINA)
Aug. 2007	Approved as SHELL VENDOR
Nov. 2007	Won one hundred million U.S. dollar Award
May. 2008	QT Equipment installation
Nov. 2009	Acquirement of ISO/TS 16949 Quality Management System
Dec. 2012	Won two hundred million U.S. dollar Award
Dec. 2012	Introduced High strength steel tube manufacturing facilities
Jan. 2013	Completion of No.6 tube Mill in Dangjin
Apr. 2014	Founded affiliated R&D Center
Mar. 2015	Acquired the Stainless steel pipe Plant in Daegu and begun its operation
Nov. 2015	Completion of No.7 tube Mill in Dangjin (OCTG Tubing exclusive Line)
Apr. 2017	The 50th Anniversary of foundation
Jan. 2018	Approved to use China Classification Society of Shipping Monogram (CCS)
Feb. 2018	Established HUSTEEL CANADA CO. LTD.

Board of Directors

Representative Director

Hoon Park

Vice President

Director

General Management	Distribution and Sales	Direct Sales	Overseas Sales	Plant Manager

Capital (As of May 2018)

Authorized Capital	KRW 80,000 Million (USD 74 Million)
Paid up Capital	KRW 35,500 Million (USD 33 Million)

Plant Sites

	Dangjin Plant	Daebul Plant	Daegu Plant
Total site	167,535m^2	168,573m^2	13,078m^2
Building area	105,740m^2	37,209m^2	9,485m^2

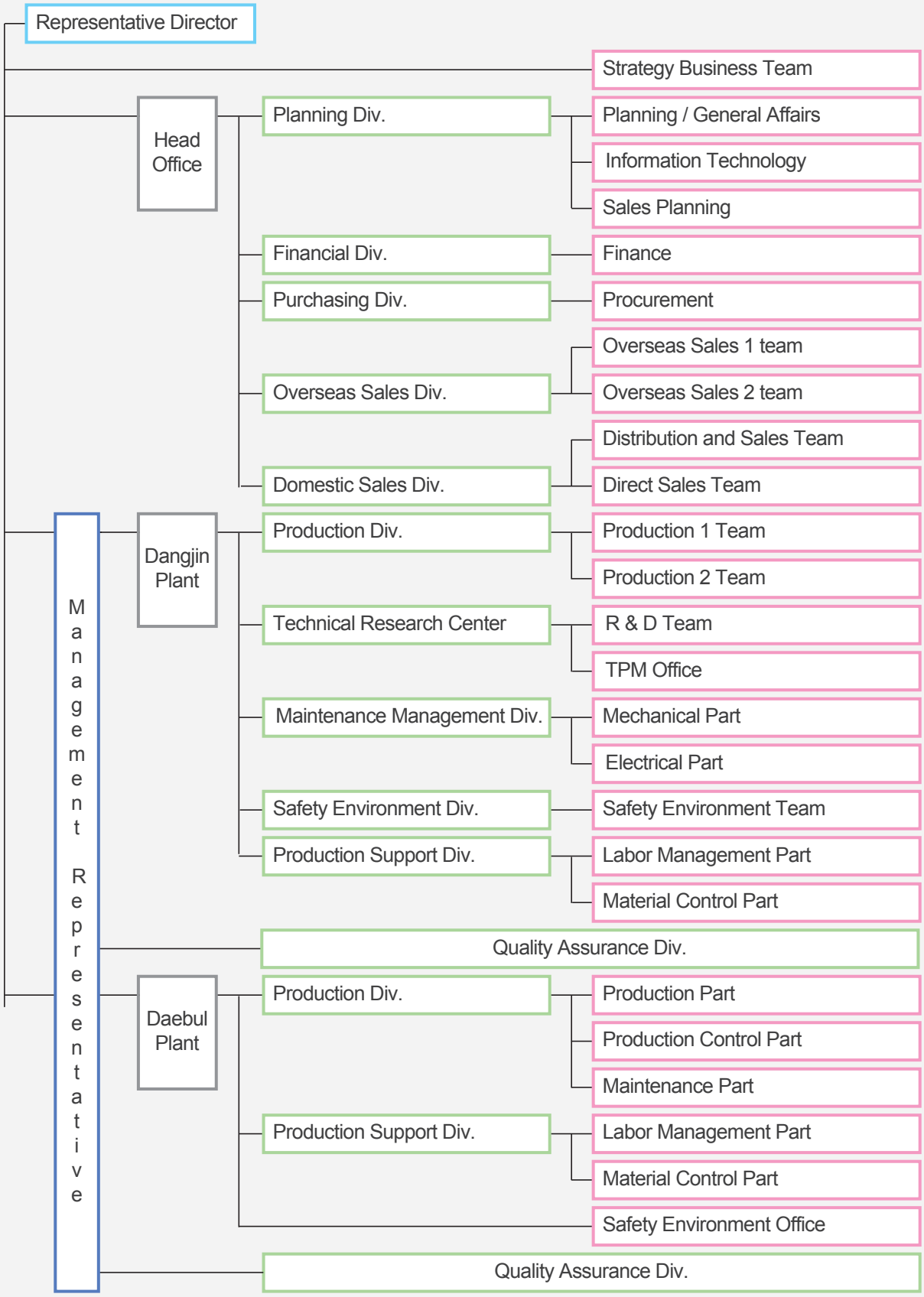
Personnel Status (As of May 2018)

	Head quarter	Dangjin-Plant	Daebul-Plant	Daegu-Plant	Total
Administrators & Engineers	95	56	20	8	179
Technicians	-	303	58	-	361
Others	13	68	1	-	82
Total	108	427	79	8	622

Bank References

Bank	Address	Website
KEB Hana Bank	22, Jong-ro, Jongno-gu, Seoul, Korea	https://www.kebhana.com
KB Kookmin Bank	181, Bangbae-ro, Seocho-gu, Seoul, Korea	https://www.kbstar.com
KDB Bank	97, Uisadang-daero, Youngdeungpo-gu, Seoul, Korea	https://www.kdb.co.kr

Organization



Overseas Customers

COUNTRY	CLIENT	SPECIFICATION
MALAYSIA	DIALOG	API 5L Gr B
VIETNAM	VIETSOVPETRO	API 5L Gr B & X52 PSL2
INDIA	BECHTEL	API 5L Gr B
CHINA	CNOOC	API 5L X52, X56, X60, X65
INDIA	GAIL	API 5L X60
BANGLADESH	GTCL	API 5L X60 PSL1 & 2
MYANMAR	MOGE	API 5L X42 PSL2
INDONESIA	PGN	API 5L Gr B
THAILAND	PTT NGD	API 5L Gr B
INDONESIA	PERTAMINA	API 5L X46
VIETNAM	PC VIETNAM	API 5L X65 PSL2
INDIA	RELIANCE	API 5L Gr B
SINGAPORE	SHINRYO	API 5L Gr B
BANGLADESH	TITAS	API 5L Gr B
SOUDI ARABIA	ARAMCO	APL 5L Gr B
AUSTRALIA	BECHTEL	AS/NZS 1163
AUSTRALIA	APA	APL 5L X52 L2
U.A.E	BECHTEL	API 5L Gr B
U.A.E	ENOC	APL 5L Gr B L2 & X52 L2
U.A.E	GASCO	API 5L X60 L2
EGYPT	NATGAS	APL 5L Gr B
EGYPT	SUCO	API 5L X65 PSL2
IRAN	NIGC	API 5L X60 L2
OMAN	OCCIDENTAL	API 5L Gr B & X65 L2
OMAN	PDO	API 5L X42 ~ X65 L2
IRAQ	SRC	API 5L Gr B
NEW ZEALAND	TODD ENERGY	API 5L X46 L2
KUWAIT	KOC	APL 5L X52 L2
CHILE	BECHTEL	API 5L Gr B
MEXICO	PLESA	ASTM A500 Gr B
PERU	BECHTEL	API 5L Gr B
JAPAN	HITACHI	JIS G 3454 STPG-370
JAPAN	MITSUBISHI	JIS C 8305
CANADA	Husky Energy	API 5L X60 L2
CANADA	Shell Canada	API 5L X52 L2
CANADA	Sask Energy	API 5L X60 L2
CANADA	Keyera	API 5L X52 L2
CANADA	Tidewater	API 5L X70 L2
USA	Fairway Energy	API 5L X70 L2
USA	WILLIAMS	API 5L X65 L2
USA	Noble Energy	API 5L X52 L2
USA	ConocoPhillps	API 5L X52 L2

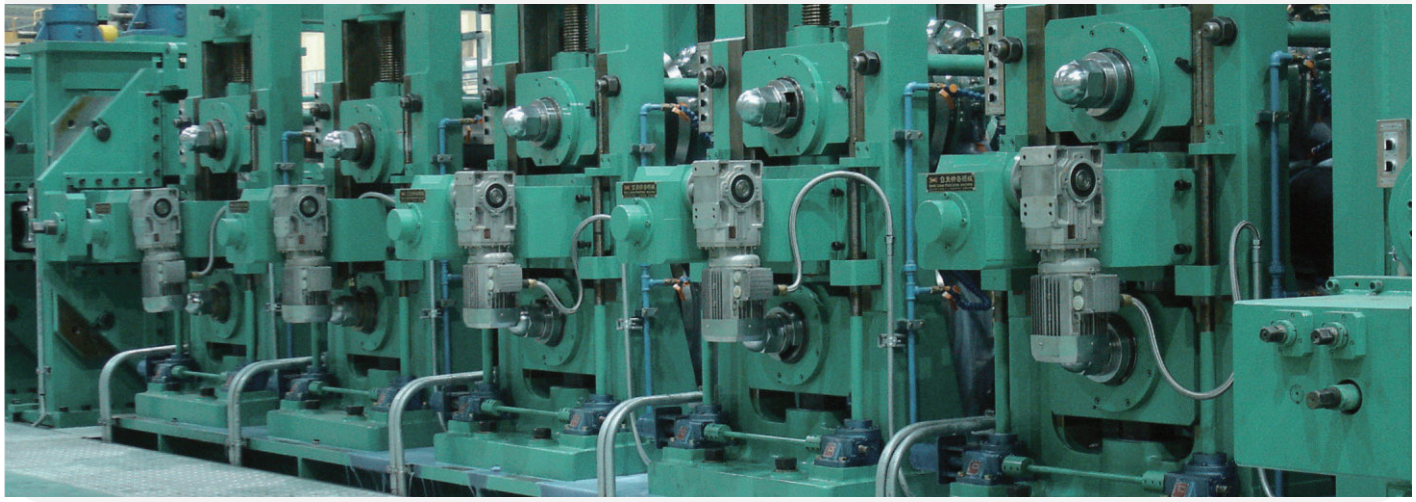
Domestic Customers

- City Construction Co., Ltd.
- Daebo E&C Co., Ltd.
- Daehan Oil Pipeline Corp.
- Daelim Industrial Co., Ltd.
- Daewoo E&C Co., Ltd.
- Dongah Construction Industries Co., Ltd.
- Dongyang E&C Co., Ltd.
- Doosan E&C Co., Ltd.
- Doosan Heavy Industries & Construction Co., Ltd.
- DSEC Co., Ltd.
- ETEC E&C Ltd.
- GS Caltex Corp.
- GS E&C Corp.
- GS Neotek Co., Ltd.
- Halla Corp.
- Halla Energy & Environment Co., Ltd.
- Hanjin Heavy Industries & Construction Co., Ltd.
- Hansol EME Co., Ltd.
- Hanwha E&C Corp.
- Hyundai Asan Co., Ltd.
- Hyundai E&C Co., Ltd.
- Hyundai Engineering Co., Ltd.
- Hyundai Heavy Industries Co., Ltd.
- Hyundai Oilbank Co., Ltd.
- Hyundai Samho Heavy Industries Co., Ltd.
- Ilsung Construction Co., Ltd.
- KCC E&C Co., Ltd.
- Kolonglobal Corp.
- Korea District Heating Corp.
- Korea Gas Corp.
- KR Corporation Co., Ltd.
- Kukdong E&C Co., Ltd.
- LG CHEM Ltd.
- Lotte E&C Co., Ltd.
- Lotte Fine Chemical Corp.
- OCI Company Ltd.
- Posco Daewoo Corp.
- Posco E&C Co., Ltd.
- Samsung C&T Co., Ltd.
- Samsung Engineering Co., Ltd.
- Samsung Heavy Industries Co., Ltd.
- Seohee Construction Co., Ltd.
- SERVEONE Co., Ltd.
- Shindongah Construction Co., Ltd.
- SK E&C Co., Ltd.
- SK E&S Co., Ltd.
- SK Energy Co., Ltd.
- S-OIL Corp.
- Ssangyong E&C Co., Ltd.
- STX Corp.
- STX Heavy Industries Co., Ltd.
- Taeyoung E&C Co., Ltd.

Sales Record

UNIT Quantity : M/T, Amount : USD one thousand

Year	Export		Domestic		Total Quantity
	Quantity	Amount	Quantity	Amount	
2003	115,114	50,256	279,172	140,177	394,286
2004	112,553	74,173	282,834	197,548	395,387
2005	112,182	95,893	259,497	218,715	371,679
2006	139,527	113,893	287,739	240,618	427,266
2007	149,440	138,216	297,348	267,505	446,788
2008	185,568	237,116	295,750	304,003	481,318
2009	73,213	65,351	243,521	206,200	316,734
2010	145,284	134,196	280,385	295,271	425,669
2011	173,938	169,120	266,615	294,064	440,553
2012	254,507	275,307	255,985	263,115	510,492
2013	321,545	292,344	204,733	192,165	526,278
2014	377,044	329,737	210,565	189,253	587,609
2015	190,138	144,592	215,274	181,021	405,412
2016	238,877	150,806	243,650	202,425	482,527
2017	422,848	344,128	255,839	251,908	678,687



Statement of Supply Experience on Tender Base

No.	Client	Spec.	Size	Q'ty(M/T)	Country	Year	Remark
1	PGN	X-46	16″	8,000	INDONESIA	1995	
2	SSGC	X-42	16″	2,800	PAKISTAN	1995	
3	R & R	X-70	24″	2,200	CANADA	1996	
4	PTT NGD	GR.B	16″	1,100	THAILAND	1997	
5	CNOOC	X-52	14″	18,000	CHINA	1997	OFFSHORE
6	SSGC	X-42	18″	4,200	PAKISTAN	1997	
7	CNOOC	X-52	24″	10,000	CHINA	1997	OFFSHORE
8	BECHTEL	GR.B	16″	3,000	INDIA	1998	
9	PERTAMINA	X-46	16″	8,000	INDONESIA	1998	
10	GUJARAT	X-60	18″	9,800	INDIA	1998	
11	GTCL	X-60	24″	7,300	BANGLADESH	1998	
12	CADERAYTA	X-60	24″	18,000	MEXICO	1998	NACE MR0175
13	RELIANCE	GR.B	24″	3,000	INDIA	1998	
14	SONACOL	X-56	16″	6,700	CHILE	1998	FBE COATED
15	TITAS	GR.B	16″	1,400	BANGLADESH	1998	
16	DOPCO	X-65	20″	4,800	KOREA	1998	OFFSHORE
17	GAIL	X-60	12″	17,000	INDIA	1999	
18	CADERAYTA	X-60	24″	10,000	MEXICO	1999	NACE MR0175
19	WAHA	X-52	24″	18,000	LIBYA	1999	PE COATED
20	MOGE	X-42	14″	11,000	MYANMAR	1999	
21	NATGAS	GR.B	24″	1,000	EGYPT	1999	
22	RECOPE	X-52	12″	1,600	COSTA RICA	2001	
23	GAIL	X-60	10″	10,000	INDIA	2002	
			12″	18,000			
24	KNOC	X65	14″	1,000	KOREA	2002	OFFSHORE
25	PDO	X-60	12″	1,000	OMAN	2002	
26	PDO	X-42	8″	640	OMAN	2002	
			12″	1,500			
27	WILLIAMS	X-65	20″	9,800	USA	2002	OFFSHORE
28	KNOC	X65	14″	1,000	KOREA	2003	OFFSHORE
29	ECOGAS	X-65	20″	2,800	COLOMBIA	2003	
30	CNOOC	X-60	14″	9,800	CHINA	2003	OFFSHORE
31	OCCIDENTAL	X-65	16″	8,000	OMAN	2003	3-Layer
		X-60	12″	3,000			Coating
32	ARAMCO	5L-B	24″	1,000	Saudi Arabia	2003	
33	CNOOC	X-65	14″	4,200	CHINA	2003	OFFSHORE
							15.9MM
34	CNOOC	X-56	12″	3,100	CHINA	2004	OFFSHORE
		X-65	12″	500			
		X-52	18″	4,000			
		X-60	10″	1,000			
35	SHINRYO.	5L-B	2″~ 20″	4,200	SINGAPORE	2004	Changi Airport
36	NIGC	X-60	24″	13,300	IRAN	2004	

No.	Client	Spec.	Size	Q'ty(M/T)	Country	Year	Remark
37	OCCIDENTAL	5L-B	16″	1,800	OMAN	2005	3-Layer Coating
38	OCCIDENTAL	X-65	18″	2,600	OMAN	2006	Sour Service
39	GASCO / BECHTEL	X-52	16″	5,200	U.A.E(Abu Dhabi)	2006	
40	OCCIDENTAL	API X-65 L2	16″	3,525	OMAN	2006	NACEMR-0175
41	PDO	API X-42 L2	12″	1,070	OMAN	2006	
42	OCCIDENTAL	X-65 L2	14″	2,200	OMAN	2007	SOURSERVICE
43	NEXUS	X-65	12″	1,353	AUSTRALIA	2007	SourOff-shore
44	GTCL	X-60 L2	12″	3,300	BANGLADESH	2008	
45	PDO	X-65 L2	12″	2,200	OMAN	2008	SOUR SERVICE
46	SUCO	X-65 L2	16″	5,000	EGYPT	2008	OFF-Shore
47	SYNCRUDE	X-70 L2	24″	1,252	CANADA	2008	Oil Sand
48	SRC	5L Gr.B	24″	2,500	IRAQ	2009	W/3LPE
49	PC Vietnam	X-65 L2	6″, 10″	1,700	Vietnam	2009	Off-shore
50	KNPC	5L-B L2	6″~ 20″	550	Kuwait	2009	
51	PDO	L415(X60)	10″	1,000	Oman	2010	Sour service
52	KOGAS	X-65	20″	30,000	Korea	2010	
53	VOPAK	5L-B L2	2″~ 24″	2,900	Netherlands	2010	
54	RECOPE	X-42 L1	6″~ 20″	600	Costa Rica	2010	
55	SYNCRUDE	5L-B L1	24″	1,500	Canada	2010	Oil Sand
56	GASCO	X-60 L2	4″	450	U.A.E	2011	Sour service
57	Pertamina	X-52 L2	6″~ 10″	1,132	Indonesia	2011	
58	RWE	X-65 L2	6″~ 8″	4,126	Egypt	2012	
59	ENOC	X-52 L2	16″~ 24″	4,650	UAE	2012	
		5L-B L2	4″~ 24″	575			
60	Todd Energy	X-42 & 46 L2	6″~ 12″	1,544	New Zealand	2012	W/ 3LPE
61	Sadara	5L-B/53-B	1″~ 24″	10,320	KSA	2012~2013	
	Bechtel	AS1163 C350	14″~ 24″	51,000	Australia	2012~2013	
62	Bechtel	5L-B/53-B	3″~ 20″	640	CHILE	2013	
63	Bechtel	5L-B/53-B	18″~ 24″	310	PERU	2013	
	S&BI	5L-X52 L2	14″	1,455	USA	2013	
64	Dialog	5L Gr.B L2	8″~ 24″	2,655	Malaysia	2013	
65	Saudi Binladin	A500-B	300mm~400mm	5,800	KSA	2013	
		A53-B	4″~ 10″				
66	Bechtel	SA 214	1″~ 1.5″	2,200	Australia	2013	
67	SCOP	5L-B L2	6″~ 12″	2,200	Iraq	2014	
68	Gas Sayago	X-65 L2	20″	2,000	Uruguay	2014	
69	PGN	X46 PSL2	16″	1,043	Indonesia	2014	W/ 3LPE
70	Roy hills	5L-B PSL1	18″	1,350	Australia	2014	
71	PULAU SERAYA	5L-B L1	12″~ 24″	1,343	Singapore	2014	
72	OPC	X-42,52,60	8″~ 14″	1,900	IRAQ	2014	
73	ORIGIN ENERGY	X-52, 65	2″, 8″	2,300	AUSTRALIA	2015	SOUR(SSCC)
74	PDO	X-52MS L2	6″	3,900	OMAN	2015	SOUR(HIC)
75	ATCO Gas	Gr.359 CatIISS M5C	20″	515	Canada	2015	
76	ATCO Gas	Gr.359 CatIISS M5C	16″~ 24″	2,450	Canada	2016	

No.	Client	Spec.	Size	Q'ty(M/T)	Country	Year	Remark
77	SemCAMS	Gr.359 CatIISS M18C	10″	560	Canada	2016	HIC & SSC
78	Fairway Partners	X70M PSL2	24″	12,547	USA	2016	
79	Sask Energy	Gr.359 CatIISS M18C	16″	660	Canada	2016	
80	ConocoPhillips	X-52/60M L2	12″/16″	1,960	USA	2016	
81	PDO	X-60MS L2	6″	800	OMAN	2016	SOUR(HIC)
82	Ministry of Culture	STK 500	8″~ 24″	900	Taiwan	2016	
83	Gaz Metro	Gr.359 CatIISS M18C	8″	1,250	Canada	2016	
84	Sask Energy	Gr.359 CatIISS M18C	16″	1,500	Canada	2016	
85	Dialog	5L Gr.B L1	8″~ 24″	1,536	Malaysia	2016	
86	CB & I	SA214	1″~ 2″	1,537	UAE	2016	
87	Dialog	5L Gr.B L1	8″~ 24″	1,402	Malaysia	2016	
88	PTT	X42 PSL1	12″	399	Thailand	2016	W/ 3LPE
89	Vietsovpetro	5LB/X52 L2	1-1/4″~ 14″	582	Vietnam	2016	
90	Jupiter Resources	Gr.359 CatIISS M45C	4″ ~ 16″	2,135	Canada	2016	
91	XTO Energy	Gr.359 CatII SS M18C	6″	250	Canada	2016	Subsidiary of Exxon Mobil
92	PDO	X60M PSL2	6″	850	OMAN	2016	SOUR(HIC)
93	Portland International Airport	A252 Gr.3	12″	1,315	Canada	2016	
94	Texas Pipe	X-52 PSL2	12″	2000	USA	2017	
95	APA	X-52 PSL2	6″	4,859	Australia	2017	W/ 3LPE
96	Todd Energy	X-52 PSL2	6″~ 10″	433	Australia	2017	
97	ENPPI	5LB/53B	2″~ 14″	275	Egypt	2017	
98	KNPC	A53B	8″~14″	828	Kuwait	2017	
99	PTT	5LB/X42 L1	12″	378	Thailand	2017	W/ 3LPE
100	CNRL	X52 M29C	16"	1,000	Canada	2017	
101	Nova Chemical	X52 M30C	12″	320	Canada	2017	
102	Sask Energy	X52 M18C	12″	1,473	Canada	2017	
103	Shell Canada	X52 M5C	6″	150	Canada	2017	
104	Husky Energy	X60 M18C, M45C	12″	1,633	Canada	2018	28,422M

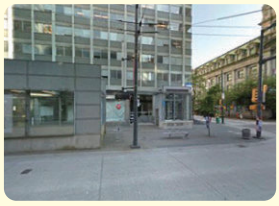
Affiliated Company

HUSTEEL USA, INC.

Address
2222 Green House Rd Suite 500 Houston, TX, 77084
Tel 1-281-497-6783 Fax 1-281-497-6781
E-mail: Arnold@husteelusa.com

HUSTEEL CANADA CO. LTD.

Address
Suite 657-409 Granville Street, Vancouver, BC, Canada.
Tel 1-778-737-6833 Fax 1-778-737-6834
E-mail: kobe@husteelcanada.com



Overseas Joint - Venture Company

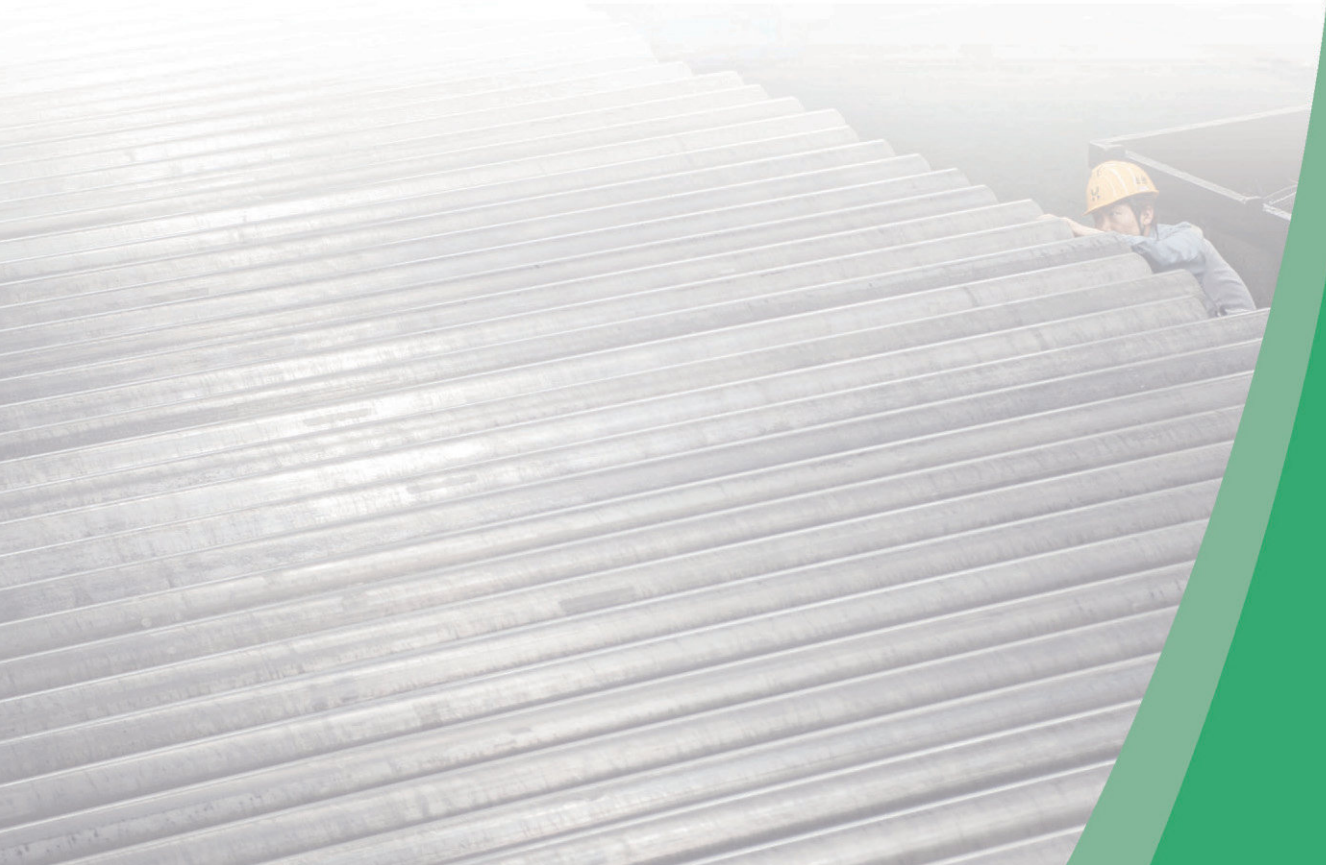
SAUDI STEEL PIPE COMPANY

SAUDI STEEL PIPE COMPANY, was established in June 1980 Dammam, Saudi Arabia, as the first Joint Venture Company between Korea and Saudi Arabia, producing E.R.W Steel pipe which is operated under assistance of management of HUSTEEL CO., Ltd.
The Company´s annual production capacity now reaches to 340,000 M/T

ADDRESS: P. O. Box 11680 Dammam 31463 Kingdom of Saudi Arabia
TEL: 001-966-3-812-2222

Products

- Descriptions
- Main Products & Available Specification
- List of Specification
- Product List
- Size Availablilty



Descriptions

Ordinary Uses

- Black & Galvanized Pipes
- Threaded & Coupled Pipes

Special Purpose

- Line Pipe
- Casing & Tubing
- Gas Pipe
- Pressure Service
- Boiler & Heat Exchanger Tubes
- Water-Well Casing

Structural Purpose

- General & Mechanical Structure
- Round, Square & Rectangulars
- Fence Tube
- High tensile strength steel tubes

Rigid Steel Conduits

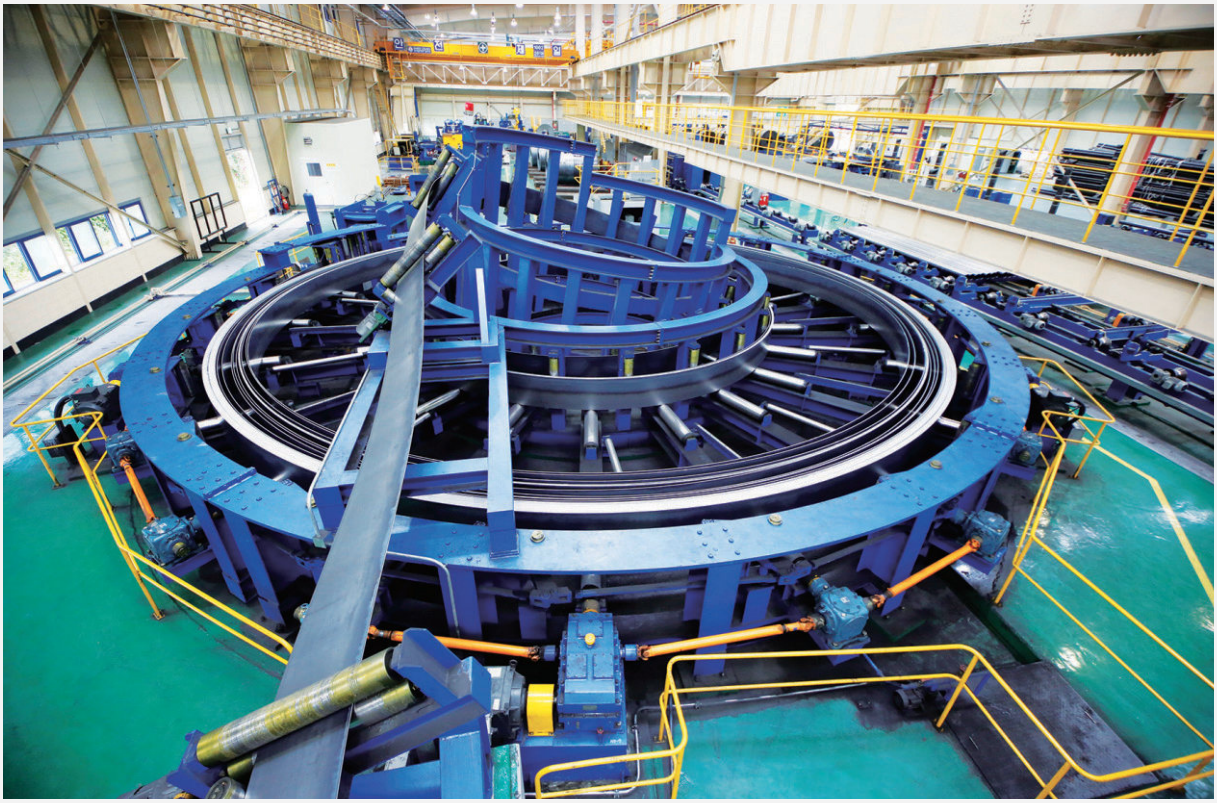
- Exterior and interior coating of zinc galvanized

Steel Pipe Piles

- For foundation of construction

Main Products & Available Specification

Spec.	No.	Symbol & Grade	Designation
JIS(KS)	G 3452 (D 3507)	SGP (SPP)	Carbon Steel Pipes for Ordinary Piping
	G 3454 (D 3562)	STPG (SPPS)	Carbon Steel Pipes for Pressure Service
	G 3461 (D 3563)	STB (STBH)	Carbon Steel Tubes for Boiler & Heat Exchanger
	G 3444 (D 3566)	STK (SGT)	Carbon Steel Tubes for General Structural Purpose
	G 3445 (D 3517)	STKM (STKM)	Carbon Steel Tubes for Machines Structural Purpose
	G 3466 (D 3568)	STKR (SRT)	Carbon Steel Square Pipes for General Structural Purpose
	C 8305 (C 8401)	-	Rigid Steel Conduits
	(D 3631)	(SPPG)	Carbon Steel Pipes for Fuel Gas Piping
	A 5525 (F 4602)	(STP)	Steel Pipe Piles



Standard Specification		Grade	Designations
ASTM	A53	A, B	Pipe for General Purposes
	A135	A, B	Pipe for Conveying Liquid, Gas or Vapor
	A178	A, C, D	Pipe for Boiler and Superheater
	A214	-	Pipe for Heat-exchanger
	A252	1, 2, 3	Steel Pipe Piles
	A500	A, B, C, D	Steel Tubes for Structural Purposes
	A513	MT1010-MTX1020	Steel Tubes for Mechanical Tubing
	A589	Type Ⅰ, Ⅱ, Ⅲ, Ⅳ	Steel Water-Well Pipe
	A795	A, B	Steel Pipe for Fire Protection Use
API	5L (PSL 1, PSL 2)	L 175 (A25)	Line Pipe
		L 210 (A)	
		A 245 (B)	
		L 290 (X42)	
		L 320 (X46)	
		L 360 (X52)	
		L 390 (X56)	
		L 415 (X60)	
		L 450 (X65)	
		L 485 (X70)	
		L 555 (X80)	
	5CT	H-40, J-55, K-55, N-80(1, Q), R95, L-80(1), P-110	Casing and Tubing
BS	1139	-	Metal Scaffolding
	1387	CLASS-A1	Steel Tubes Suitable for Pipe Thread(BS21)
	10255	M, H, L, L1, L2	Steel Tubes Suitable for Pipe Thread(EN 10226-1)
	3059	320	Steel Tubes for use in boiler and superheaters
	3601	ERW 320, 360, 430	Steel Pipes for Pressure Purpose
	3606	Gr, 320, 440	Steel Tubes for Heat Exchangers
	4360	43(C,D,EE), 50(C,D,EE), 55(C,EE,F)	Weldable Structural Steel Hollow Sections
	6323	ERW 1, 2, 3, 4, 5	Steel Tubes for Mechanical, Structural and General Engineering Purpose
	6363	34/26, 43/36, 50/45	Welded cold formed Structural Steel Hollow Sections
ANSI	C80.1	-	Rigid Steel Conduit
UL	6	-	Rigid Metal Conduit
CSA	Z 245.1	241	Steel pipe
		290	
		359	
		386	
		414	
		448	
		483	
		550	
		620	
		692	
		825	

List of Specification

Standard Specification		Application	Chemical Composition Requirements(%, Max)					Mechanical Properties(Min)			Remarks
			C	Si	Mn	P	S	T.S (MPa)	Y.S (MPa)	E(%)	
JIS G 3452 (D3507)	SGP (SPP)	Carbon Steel Pipes for Ordinary Piping	- (0.28)	- (0.35)	- (0.80)	0.040	0.040	290 (340)	-	30	• Flattening Test • Bending Test • Hydrostatic Test or N. D. T • Uniformity Test
JIS G 3454 (D3562)	STPG370	Carbon Steel Pipes for Pressure Service	0.25	0.35	0.30~ 0.90	0.040	0.040	370	215	30	• Flattening Test • Bending Test • Hydrostatic Test or N. D. T
	STPG410 (SPPS250)		0.30	0.35	0.30~ 1.00	0.040	0.040	410	245 (250)	25	
JIS G 3461 (D3563)	STB340 (STBH235)	Carbon Steel Tubes for Boiler and Heat Exchanger	0.18	0.35	0.30~ 0.60	0.035	0.035	340	175 (235)	35	• Flattening Test • Reverse Flattening Test • Flaring Test • Hydrostatic Test or N. D. T
	STB410 (STBH275)		0.32	0.35	0.30~ 0.80	0.035	0.035	410	255 (275)	25	
	STB510 (STBH355)		0.25	0.35	1.00~ 1.50	0.035	0.035	510	295 (355)	25	
JIS G 3444 (D3566)	STK290 (-)	Carbon Steel Tubes for General Structural Purposes	-	-	-	0.050	0.050	290	-	30	• Flattening Test • Bending Test
	STK400 (SGT275)		0.25	-	-	0.040	0.040	400 (410)	235 (275)	23	
	STK490 (SGT355)		0.18 (0.24)	0.55 (0.40)	1.65 (1.50)	0.035 (0.040)	0.035 (0.040)	490 (500)	315 (355)	23 (20)	
	STK500 (SGT355)		0.24	0.35 (0.40)	0.30~1.30 (1.50)	0.040	0.040	500	355	15 (20)	
	STK540 (SGT410)		0.23 (0.28)	0.55 (0.40)	1.50 (1.60)	0.040	0.040	540	390 (410)	20	
	SGT450		0.30	0.40	2.00	0.040	0.040	590	440 (450)	20	
	SGT550		0.30	0.40	2.00	0.040	0.040	690	540 (550)	20	
JIS G 3445 (D3517)	STKM11A	Carbon Steel Tubes for Machine Structural Purposes	0.12	0.35	0.60	0.040	0.040	290	-	35	• Flattening Test • Bending Test
	STKM12A		0.20	0.35	0.60	0.040	0.040	340	175	35	
	STKM12B							390	275	25	
	STKM12C							470	355	20	
	STKM13A		0.25	0.35	0.30~ 0.90	0.040	0.040	370	215	30	
	STKM13B							440	305	20	

Standard Specification		Application	Chemical Composition Requirements (%, Max)					Mechanical Properties (Min)			Remarks
			C	Si	Mn	P	S	T.S (MPa)	Y.S (MPa)	E (%)	
JIS G3445 (D3517)	STKM13C	Carbon Steel Tubes for Machine Structural Purposes	0.25	0.35	0.30~0.90	0.040	0.040	510	380	15	• Flattening Test • Bending Test
	STKM14A		0.30	0.35	0.30~1.00	0.040	0.040	410	245	25	
	STKM14B							500	355	15	
	STKM14C							550	410	15	
	STKM15A		0.25~0.35	0.35	0.30~1.00	0.040	0.040	470	275	22	
	STKM15C							580	430	12	
	STKM16A		0.35~0.45	0.40	0.40~1.00	0.040	0.040	510	325	20	
	STKM16C							620	460	12	
	STKM17A		0.45~0.55	0.40	0.40~1.00	0.040	0.040	550	325	20	
	STKM17C							650	480	10	
	STKM18A		0.18	0.55	1.50	0.040	0.040	440	275	25	
	STKM18B							490	315	23	
	STKM18C							510	380	15	
	STKM19A		0.25	0.55	1.50	0.040	0.040	490	315	23	
	STKM19C							550	410	15	
	STKM20A		0.25	0.55 Nb+V:0.15	1.60	0.040	0.040	540	390	23	
JIS G3466 (D3568)	STKR400 (SRT275)	Carbon Steel Square Pipes for General Structural Purposes	0.25	-	-	0.040	0.040	400 (410)	245 (275)	23	
	STKR490 (SRT355)		0.18	0.55	1.50	0.040	0.040	490 (500)	325 (355)	23	
JIS C8305 (C8401)	-	Rigid Steel Conduit	Same as JIS G 3132(KS D 3555) or JIS G 3141(KS D 3512)								• Flattening Test • Uniformity Test
(D3631)	SPPG 210	Carbon Steel Pipes for fuel Gas Piping	0.30	0.35	0.95	0.040	0.035	340	210	30	• Flattening Test • Bending Test • Hydrostatic Test • N.D.T
JIS A 5525 (F4602)	SKK400 (STP275)	Steel Pipe Piles	0.25	-	-	0.040	0.040	400 (410)	235 (275)	18	• Flattening Test • Charpy Test (STP 380 ↑)
	SKK490 (STP355)		0.18	0.55	1.65(1.50)	0.035 (0.040)	0.035 (0.040)	490	315 (355)	18	
	(STP380)		0.10	0.50	1.00	0.030	0.015	500	380	16	

Standard Specification		Application	Chemical Composition Requirements (%, Max)						Thickness (mm)	Mechanical Properties (Min)			Remarks
			C	Si	Mn	P	S	N		T.S (Mpa)	Y.S (Mpa)	E(%)	
JIS G 3475 (D3632)	STKN400W	Carbon Steel Tubes for Building Structure	0.25	-	-	0.030	0.030	0.006	100	400~540	235	23	
	STKN400B (SNT275E)		0.25	0.35	1.40	0.030	0.015	0.006	12<	400~540	235	23	
									12~40		235~385		
									<40~100		215~365		
	STKN490B (SNT355E)		0.22	0.55	1.60	0.030	0.015	0.006	12<	490~640	325	23	
									12~40		325~475		
									<40~100		295~445		
	(SNT460E)		0.18	0.55	1.60	0.030	0.015	0.006	12<	570~740	460	20	
									12~40		460~630		
									<40~100		440~610		
CSA Z245.1	241	Steel Pipe	0.26	0.50	2.00	0.030	0.035	-	-	414~760	241~495	e=19 40 x $A^{0.2}$ / $U^{0.9}$	Carbon equivalent Flattening Test Charpy Impact Test Metallographic Examination Hydrostatic Test N.D.T
	290									414~760	290~495		
	359									455~760	359~530		
	386									490~760	386~540		
	414									517~760	414~565		
	448									531~760	448~600		
	483									565~760	483~620		
	550									620~830	550~690		

Standard Specification		Application	Chemical Composition Requirements (%, Max)				Mechanical Properties (Min)			Remarks
			C	Mn	P	S	T.S MPa(Ksi)	Y.S MPa(Ksi)	E(%)	
ASTM A 53	A	Ordinary uses in steam, water, gas air lines, mechanical and pressure application	0.25	0.95	0.05	0.045	330(48)	205(30)	e=625,000 x $A^{0.2}$ / $U^{0.9}$	• Flattening Test • BendingTest • Hydrostatic Test • N.D.T. • Weight of Zinc Coating
	B		0.30	1.20	0.05	0.045	415(60)	240(35)		
ASTM A 135	A	Conveying Liquid, Gas, or Vapor	0.25	0.95	0.035	0.035	330(48)	205(30)	35(56t+16.50)	• Flattening Test • Htdrostatic Test or N.D.T
	B		0.30	1.20	0.035	0.035	415(60)	240(35)	30(48t+14.00)	
ASTM A 178	A	Intended for use as boiler tubes, boiler flues, superheater flues, and safe ends	0.06~0.18	0.27~0.63	0.035	0.035	325(47)	180(26)	35	• Flattening Test • Flange Test • Crush Test • Reverse Flattening Test • Hydrostatic Test or N.D.T
	C		0.35	0.80	0.035	0.035	415(60)	255(37)	30	
	D		0.27	1.00~1.50	0.030	0.015	485(70)	275(40)	30	
ASTM A 214	-	Tubes for heat exchanger, condensers, and similar heat transfer apparatus	0.18	0.27~0.63	0.035	0.035	-	-	-	• Hardness Test • Flattening Test • Flange Test • Reverse Flattening Test • Hydrostatic Test of N.D.T
ASTM A 252	1	Steel Pipe Piles	-	-	0.050	-	345(50)	205(30)	30(48t+15.00)	
	2		-	-	0.050	-	415(60)	240(35)	25(40t+12.50)	
	3		-	-	0.050	-	455(66)	310(45)	20(32t+10.00)	
ASTM A 500	A	General Structural Purposes	0.30	1.40	0.045	0.045	310(45)	230(33)	25(56t+17.50)	• Flattening Test
	B		0.30	1.40	0.045	0.045	400(58)	290(42)	23(61t+12.00)	
	C		0.27	1.40	0.045	0.045	425(62)	315(46)	21	
	D		0.30	1.40	0.045	0.045	400(58)	250(36)	23	
ASTM A 513	MT1010	Tubing for use as mechanical tubing	0.02~0.15	0.30~.060	0.035	0.035	-	-	-	※Supplementary Requirements • Hardness Test • Tensile Test • Flattening Test • Flaring Test • Hydrostatic Test • N.D.T
	MT1015		0.10~0.20	0.30~0.60	0.035	0.035	-	-	-	
	MT1015		0.10~0.20	0.60~0.90	0.035	0.035	-	-	-	
	MT1020		0.15~0.25	0.30~0.60	0.035	0.035	-	-	-	
	MT1020		0.15~0.25	0.70~1.00	0.035	0.035	-	-	-	
ASTM A 589	A	Water Wells	-	-	0.050	0.060	330(48)	205(30)	e=625,000 x $A^{0.2}$ / $U^{0.9}$	• Hydrostatic Test • Weight of Zinc Coating
	B						415(60)	240(35)		
ASTM A 795	A	Black and Zinc Coated Steel Pipe for Fire Protection Use	0.25	0.95	0.035	0.035	-	-	-	• Flattening Test • Hydrostatic Test or N.D.T • Weight of Zine Coating
	B		0.30	1.20	0.035	0.035	-	-	-	

Standard Specification		Application	Chemical Composition Requirements (%, Max)					Mechanical Properties (Min)			Remarks
			C	Mn	P	S	Ti	T.S MPa(Ksi)	Y.S MPa(Ksi)	E(%)	
API (PSL1)	L175(A25)	Line Pipe	0.21	0.60	0.030	0.030	-	310(45)	175(25)	e=625,000 x $A^{0.2}$ / $U^{0.9}$	• Flattening Test • Bending Test (Grade A25 Pipe of size 2-3/8 and small) • Metallographic Examination • Hydrostatic Test • N.D.T
	L175P(A25P)		0.21	0.60	0.045~0.080	0.030	-				
	L210(A)		0.22	0.90	0.030	0.030	-	335(49)	210(31)		
	L245(B)		0.26	1.20	0.030	0.030	-	415(60)	245(36)		
	L290(X42)		0.26	1.30	0.030	0.030	-	415(60)	290(42)		
	L320(X46)		0.26	1.40	0.030	0.030	-	435(63)	320(46)		
	L360(X52)		0.26	1.40	0.030	0.030	-	460(67)	360(52)		
	L390(X56)		0.26	1.40	0.030	0.030	-	490(71)	390(57)		
	L415(X60)		0.26	1.40	0.030	0.030	-	520(75)	415(60)		
	L450(X65)		0.26	1.45	0.030	0.030	-	535(78)	450(65)		
	L485(X70)		0.26	1.65	0.030	0.030	-	570(83)	485(70)		
API 5L (PSL2)	L245N(BN)		0.24	1.20	0.025	0.015	0.04	415(60)~655(95)	245(36)~450(65)	e=625,000 x $A^{0.2}$ / $U^{0.9}$	• Carbon Equivalent • Flattening Test • Charpy Impact Test • Metallographic Examination • Hydrostatic Test • N.D.T
	L290N(X42N)		0.24	1.20	0.025	0.015	0.04	415(60)~655(95)	290(42)~495(72)		
	L320N(X46N)		0.24	1.40	0.025	0.015	0.04	435(63)~655(95)	320(46)~525(76)		
	L360N(X52N)		0.24	1.40	0.025	0.015	0.04	460(67)~760(110)	360(52)~530(77)		
	L390N(X56N)		0.24	1.40	0.025	0.015	0.04	490(71)~760(110)	390(57)~545(79)		
	L415N(X60N)		0.24	1.40	0.025	0.015	0.04	520(75)~760(110)	415(60)~565(82)		
	L245M(BM)		0.22	1.20	0.025	0.015	0.04	415(60)~655(95)	245(36)~450(65)		
	L290M(X42M)		0.22	1.30	0.025	0.015	0.04	415(60)~655(95)	290(42)~495(72)		
	L320M(X46M)		0.22	1.30	0.025	0.015	0.04	435(63)~655(95)	320(46)~525(76)		
	L360M(X52M)		0.22	1.40	0.025	0.015	-	460(67)~760(110)	360(52)~530(77)		
	L390M(X56M)		0.22	1.40	0.025	0.015	-	490(71)~760(110)	390(57)~545(79)		
	L415M(X60M)		0.12	1.60	0.025	0.015	-	520(75)~760(110)	415(60)~565(82)		
	L450M(X65M)		0.12	1.60	0.025	0.015	-	535(78)~760(110)	450(65)~600(87)		
	L485M(X70M)		0.12	1.70	0.025	0.015	-	570(83)~760(110)	485(70)~635(92)		
	L555M(X80M)		0.12	1.85	0.025	0.015	-	625(91)~825(120)	555(81)~705(102)		

Standard Specification		Application	Chemical Composition Requirements (%, Max)					Mechanical Properties (Min)			Remarks
			C	Si	Mn	P	S	T.S MPa(Ksi)	Y.S MPa(Ksi)	E (%)	
API 5CT	H40	Casing & Tubing	-	-	-	-	0.030	414(60)	276(40)~552(80)	e=625,000 x $A^{0.2}/U^{0.9}$	· Flattening Test · Charpy Impact Test · Hydrostatic Test · N.D.T · Drift Test
	J55		-	-	-	-	0.030	517(75)	379(55)~552(80)		
	K55		-	-	-	-	0.030	655(95)	379(55)~552(80)		
	N80(1,Q)		-	-	-	0.030	0.030	689(100)	552(80)~758(110)		
	R95		0.45	0.45	1.90	0.030	0.030	724(105)	655(95)~758(110)		
	L80(1)		0.43	0.45	1.90	0.030	0.030	655(95)	552(80)~655(95)		
	P110		-	-	-	0.030	0.030	862(125)	758(110)~965(140)		
BS 1139	Part1	Metal Scaffolding	0.20	0.30	-	0.060	0.060	340~460	210	22	· Uniformity test · Bending Test
BS 1387	CLASS-1	General Purposes (BS21)	0.20	-	1.20	0.045	0.045	320~460	195	20	· Flattening Test · Bending Test
BS 10255	M	General Purposes (EN10266-1)	0.20	-	1.40	0.035	0.03	320~520	195	20	· Flattening Test · Hydrostatic Test or N.D.T · Bending Test · Uniformity Test
	H										
	L										
	L1										
	L2										
BS 3059 Part1	320	Tudes for use in boiler and superheaters	0.16	0.35	0.30~0.70	0.040	0.040	320~480	195	25	· Flattening Test · Drift Expansion Test · Hydrostatic Test or N.D.T
BS3601	ERW320	General Pressure Purposes	0.16	-	0.30~0.70	0.040	0.040	320~460	195	25	· Flattening Test · Hydrostatic Test or N.D.T
	ERW360		0.17	0.35	0.40~0.80	0.040	0.040	360~500	235	25	
	ERW430		0.21	0.35	0.40~1.20	0.040	0.040	430~570	275	22	
BS 3606	Gr. 320	Tubes for Heat Exchangers	0.16	-	0.30~0.70	0.050	0.050	-	195	-	· Flattening Test · Drift Expansion Test · Reverse Flattening Test · Hardness Test · Hydrostatic Test or N.D.T
	Gr. 440		0.12~0.18	0.10~0.35	0.90~1.20	0.040	0.035	440	265	21	
BS 4360	43C	Welded cold formed Structural Steel Hollow Sections	0.21	0.50	1.30	0.050	0.050	430~580	275	22	· Flattening Test
	43D		0.20	0.50	1.30	0.040	0.045	430~580	275	22	
	43EE		0.18	0.50	1.30	0.040	0.045	430~580	275	22	
	50C		0.20	0.50	1.50	0.045	0.045	490~640	355	21	
	50D		0.20	0.50	1.50	0.040	0.040	490~640	355	21	
	50EE		0.20	0.50	1.50	0.040	0.040	490~640	355	21	
	55C		0.25	0.50	1.60	0.040	0.040	550~700	450	19	
	55EE		0.25	0.50	1.60	0.040	0.040	550~700	450	19	
	55FF		0.16	0.50	1.60	0.025	0.025	550~700	450	19	
BS 6323 Part5 Type KM	ERW1	Steel Tubes for Mechanical, Structural and General Engineering Purposes	0.13	-	0.60	0.050	0.050	300	200	-	· Flattening Test · Hydrostatic Test or N.D.T · Minimum Expansion for Drift Expanding Test
	ERW2		0.16	-	0.70	0.050	0.050	340	250	-	
	ERW3		0.20	0.35	0.90	0.050	0.050	400	300	-	
	ERW4		0.25	0.35	1.20	0.050	0.050	450	350	-	
	ERW5		0.23	0.50	1.50	0.050	0.050	500	420	-	
BS6363	34/26	Welded cold formed Structural Steel Hollow Sections	0.16	-	1.20	0.050	0.050	340	260	15	· Flattening Test
	43/36		0.20	0.40	1.20	0.050	0.050	429	360	12	
	50/45		0.23	0.40	1.50	0.050	0.050	500	450	10	
ANSI		Rigid Steel Conduit	Same as JIS G 3132(KS D 3555) or JIS G 3141(KS D 3512)								· Bending Test · Uniformity Test
UL-6		Rigid Metal Conduit	Same as JIS G 3132(KS D 3555) or JIS G 3141(KS D 3512)								· Bending Test · Uniformity Test

Product List

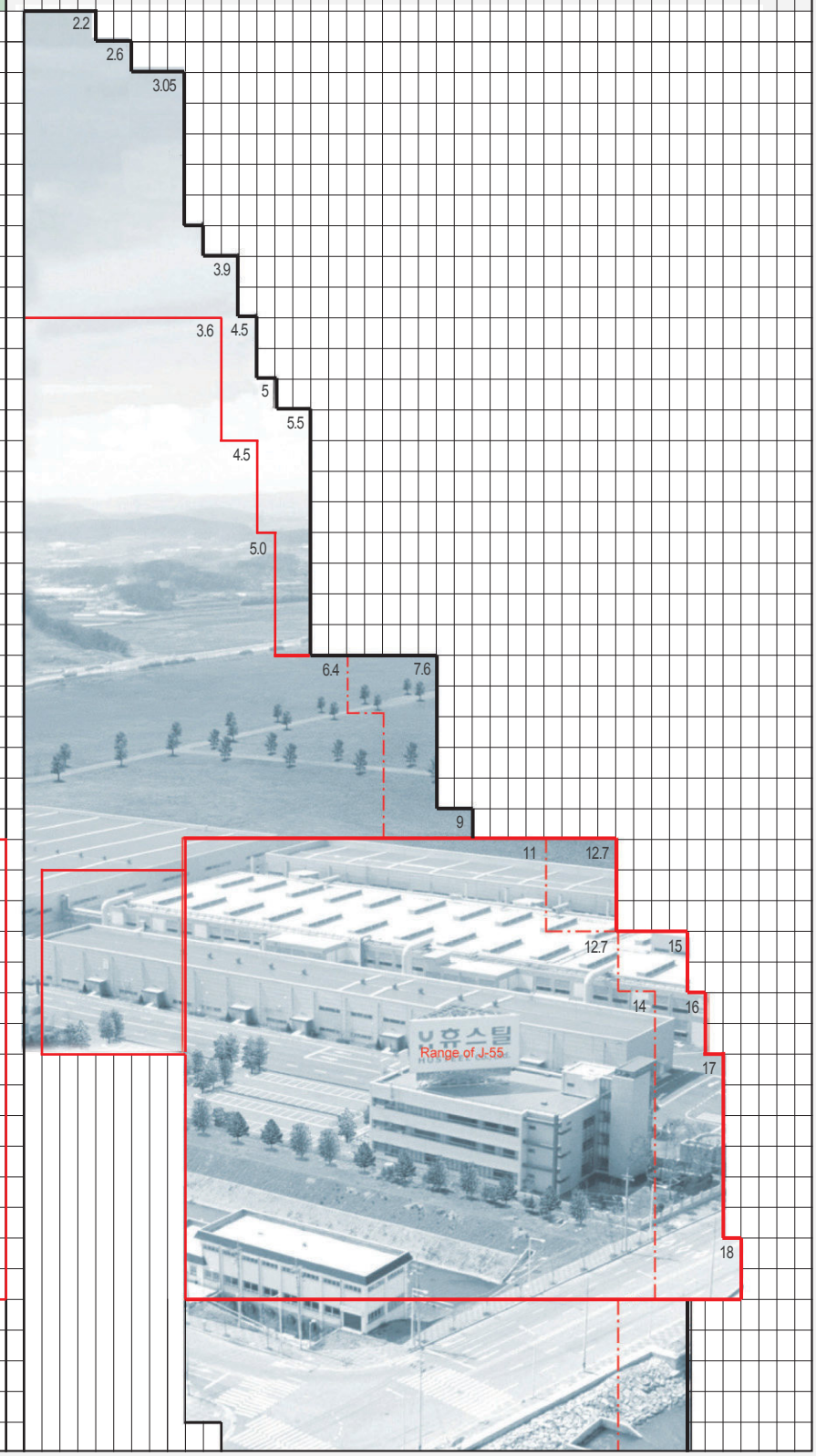
- Korean Industrial Standards(KS)
- Japanese Industrial Standards(JIS)
- British Standards(BS)
- Canadian Standards Association(CSA)
- American Society for Testing & Material Standards(ASTM)
- American National Standards Institute Standards(ANSI)
- Underwriters Laboratories Inc.(UL)
- American Petroleum Institute Standards(API)

Carbon Steel Pipes for Ordinary Piping	
· Pipes for General Ordinary Piping	KS JIS BS ASTM
Oil Country Tubular Goods	
· Casing & Tubing	API 5CT
Line Pipe	
· Line Pipe	API 5L CSA
Conduit Tubes	
· Rigid Metallic Tubing	KS JIS UL6 ANSI
Carbon Steel Pipes for Pressure Service	
· Pipes for pressure Service	KS JIS
Carbon Steel Tubes for Structural Purpose	
· Tubes for General Structural Purpose · Fence Tubes · Pipe Scaffoldings · Posts for Green House	KS ASTM JIS
Steel Pipe Pile	
· Steel Pipe Pile	KS JIS ASTM BS
Carbon Steel Tubes for Heat Exchanger	
· Boiler Tubes · Heat Exchanger Tubes	KS JIS ASTM
Square & Rectangular Tubes	
· Carbon Steel Tube for Building Structure	KS JIS ASTM

Size Availability

:: Dangjin Plant

Out Diameter						Wall Thickness
ASTM	API	BS	JIS	KS	mm	
NPS	Specified O.D	O.D	A	B		
					21	
1/2	0.840	0.827-0.843			21.3	
			15	1/2	21.7	
					25.4	
3/4					26.5	
	1.050	1.035-1.059			26.7	
			20	3/4	27.2	
					33.3	
1					31.8	
	1.315	1.295-1.331			33.4	
			25	1	34	
					41.9	
1 1/4					38.1 / 44.5	
	1.660	1.638-1.673			42.2	
			32	1 1/4	42.7	
					47.8	
1 1/2	1.900	1.870-1.906			48.3	
			40	1 1/2	48.6	
					50.0 / 50.8 / 55	
					59.6	
2					63.5	
	2.375	2.350-2.374			60.3	
			50	2	60.5	
	2.875	2.945-2.992			73	
2 1/2					75.2	
			65	2 1/2	76.3	
					87.9	
3	3.500	3.453-3.496			88.9	
			80	3	89.1	
3 1/2					90.0 / 108.0	
	4.000		90	3 1/2	101.6	
4					113.4	
	4.500	4.445-4.492	100	4	114.3	
					133	
5			125	5	139.8	
	5.563	5.500			141.3	
6			150	6	165.2	
	6.625	6.500-6.524			168.3	
7	7.000				177.8	
			175	7	190.7	
8			200	8	216.3	
	8.625	8.626			219.1	
9	9.625				244.5	
10			250	10	267.4	
	10.75				273.1	
12			300	12	318.5	
	12.750				323.9	



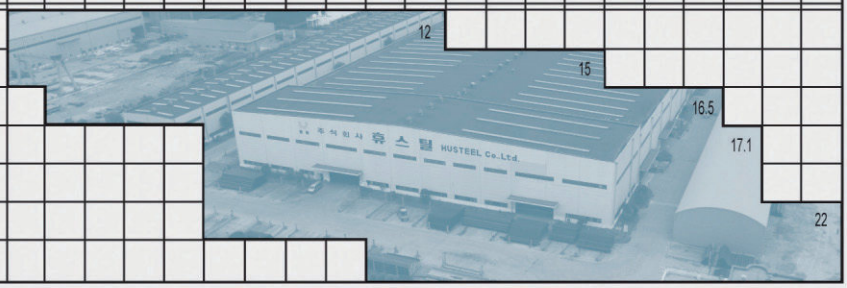
Daebul Plant

ROUND PIPE

Out Diameter					Wall Thickness																								
ASTM	API	JIS	KS	OD	mm	4.5	4.8	5.4	5.6	6	6.4	7.1	7.9	8	9	9.5	10.3	11.1	12	12.7	13.5	14.3	15.1	15.9	16	16.1	19	21	22
NPS	Specified O.D	A	B	mm	inch	0.18	0.19	0.21	0.22	0.24	0.25	0.28	0.31	0.32	0.35	0.38	0.41	0.44	0.47	0.50	0.53	0.56	0.59	0.63	0.63	0.64	0.75	0.81	0.87
8	8.625	200	8	219.1																									
10	10.75	250	10	273.1																									
		300	12	318.5																									
12	12.75			323.9																									
14	14	350	14	355.6																									
16	16	400	16	406.4																									
18	18	450	18	457																									
20	20	500	20	508																									
22	22	550	22	559																									
24	24	600	24	610																									

SQUARE PIPE

Out Diameter	Wall Thickness																					
Specified O.D	mm	5.6	6	6.4	7.1	7.9	8	9	9.5	10.3	11.1	12	12.7	13.5	14.3	15	15.9	16	16.5	17.1	19	22
mm	inch	0.22	0.24	0.25	0.28	0.31	0.31	0.35	0.37	0.41	0.44	0.47	0.50	0.53	0.56	0.59	0.63	0.63	0.65	0.67	0.75	0.87
200X200																						
250X250																						
300X300																						
350X350																						
400X400																						
450X450																						
500X500																						



· Other sizes shall be discussed with the company

Quality Assurance System

- Quality Assurance System
- Certification Achievements

Quality Assurance System

In order to ensure that product conforms to specified requirements, the following quality assurance activities based on ISO 9001 and API Spec. Q1 shall be carried out.

:: LIST OF QUALITY ASSURANCE ACTIVITIES

STEP		Assurance Item	Detail of Quality Activities
Contact review	Review the tender, Contract or order.	• Before order, all requirements shall be reviewed and coordinated.	• The requirements are adequately defined and documented. • Any differences between the contract requirements and those in the tender are resolved. • The capability to meet contract or order requirement is reviewed.
Design control	Control and verify the design of the product	• Design and development planning	• Design and development plans shall be prepared for each design and development activity.
		• Design input	• Design input requirements shall be identified, documented and their selection reviewed for adequacy. • Design input shall take into consideration the results of any contract review activities.
		• Design Output	• Meet the design input requirements • Contain or make reference to acceptance criteria. • Identify those characteristics of the design that are crucial to the safe and proper functioning of the product.
		• Design review	• Design reviews shall be conducted and documented by individuals other than the person who developed the original design.
		• Design verification	• Design verification shall be performed to ensure that the design stage output meets the design stage input requirements. (performing alternative calculations, comparing the new design with a similar proven design, etc.)
		• Design validation	• Design validation shall be performed to ensure that product conforms to defined user needs and/or requirements.

STEP		Assurance Item	Detail of Quality Activities
Product planning	Propose & product planning & order schedule	• Adequacy of proposition	• Examine the trend of market and estimate the demand of product. • Review long-term order schedule.
	Review product planning & order schedule	• Adequacy of order schedule	• Review compatibility compared to other company's product. • Review capability to produce the product.
Product design	Decide product planning & order schedule	• Adequacy of decision of product planning	• Decide product price. • Decide objective cost. • Conform production facility investment. • Place quality objectives. • Plan long-term production schedule.
	Pilot production design	• Adequacy of development instruction to order specification	• Review development instruction based on design control regulation. • Review productivity of product. • Plan design schedule. • Specify quality characteristics.
	Quality assurance plan	• Adequacy of production step	• Establish quality assurance plan such as I.T.P/M.P.S
	Pilot production	• Adequacy of pilot production to set-up production schedule • Conformance to drawings • Conformance to design quality • Adequacy to objective cost	• Establish and adjust pilot production schedule. • Evaluate(examine, measure, test and inspect) pilot product. • Review pilot production process. • Review raw material, parts and man-hour.
	Experiment	• Conformance to development in-struction & Order specification	• Experiment and evaluate performance and function of the pilot product.
	Decide whether to mass produce	• Conformity of pilot product to design quality	• Check the achievement of quality objectives. • Check the productivity. • Check the achievement of objective cost.
	Mass-production design	• Conformance to acceptance criteria • Adequacy to mass-production	• Trouble-shooting in quality and productivity during the pilot production. • Specify quality characteristics. • Review and draw quality characteristics and problem.

STEP		Assurance Item	Detail of Quality Activities
Preparation for production	Plan and install production equipment	• Conformance to acceptance criteria during each process step.	• Review, procure and install new production equipment, or revamp the set-up equipment. • Design special jig, fixtures and tools.
	Process plan	• Process planning	• Establish adequate process, jig, fixtures and tools to meet design quality. • Specify quality level at each process step. • Prepare Q.C process chart, working standard.
	Inspection and test plan	• Adequacy of inspection and test method • Carry out the initial control	• Establish adequate inspection method and type. • Assign the initial control item.
Purchasing	Select subcontractor	• The ability to meet subcontract requirements • Adequacy of purchasing specification	• Examine, evaluate and select subcontractors. • Select and lead new adequate subcontractors. • Issue purchasing specification of which contains purchasing data such as type, class, grade. • Verification of purchased product by means of quality audit and receiving inspection.
Production	Process control	• Production processes are carried out under controlled conditions	• Documented procedures such as working standard defining the manner of production. • Use of suitable production equipment and a suitable working environment. • Compliance with reference standards / codes, quality plan • Monitoring and control of suitable process parameter and product characteristics. • The approval of processes and equipment. • Criteria for workmanship. • Suitable maintenance of equipment to ensure continuing process capability. • Control of special processes.

STEP		Assurance Item	Detail of Quality Activities
Inspection	Inspection and testing	• It is verified that the specified requirements are met.	• Review, inspection and testing. • In-process inspection and testing. • Final inspection and testing. • All specified inspection and tests shall be carried out and the results meet specified requirements. • No product shall be dispatched until all the activities specified in quality plan have been satisfactorily completed & the associated data and documentation are available and authorized.
		• Control or inspection, measuring, and test equipment	• The measurement uncertainty shall be known and be consistent with the required measurement capability.
		• Control of nonconforming product	• Product that does not conform to specified requirements shall be prevented from unintended use.
Corrective and preventive action	Corrective or preventive action shall be taken	• Corrective action • Preventive action	• Corrective or preventive action shall be taken to eliminate the causes of actual or potential nonconformities. • The effective handling of customer complaints and reports of product nonconformities. etc. • The use of appropriate sources of information such as processes and work operations, etc.
Handling, storage, and packing	After production damage or deterioration of product shall be avoided	• Handling and storage • Packing	• Handling and storage method that prevent damage or deterioration shall be used. • Packing, Packaging and marking processes shall be controlled to ensure conformance to specified requirements.
Serving	The effective handling of customer complaints and claims	• Reporting • Analyzing • Corrective and preventive action	• Incidents of field nonconformance shall be identified, documented and reported. • Nonconforming products shall be analyzed, provided the product or documented evidence supporting the nonconformance is available to facilitate determination of the cause. • Corrective or preventive action shall be taken to eliminate the causes of actual or potential nonconformities.
Improving quality	Improvement & level up of quality	• Overall evaluation of quality and clarification of important quality problem	• Collect and analyze information about quality such as processes and operation which affect product quality. • Solve important quality problems and prevent its recurrence.

Certification Achievements

Dangjin Plant	Daebul Plant
ISO 9001	
	ISO 14001
PED 2014/68/EU Annex I - 4.3	
API 5L	
API 5CT	
BV(Bureau Veritas)	
DNV · GL(Det Norske Veritas,Germanischer Lloyd)	
LR(Lloyd's Register)	
NK(Nippon Kaiji Kyokai)	
KR(Korean Resister)	
UL-6-CUL(Underwriters Laboratories Inc)	RINA(Registro Italiano Navale)
NSF/ANSI 372	CCS(China Classification Society)
JIS G 3444	
JIS G 3452	
JIS G 3454	
JIS G 3445	JIS A 5525
JIS G 3461	JIS G 3466
JIS C 8305	
KS D 3507	
KS D 3562	
KS D 3566	
KS D 3631	
KS D 3517	KS D 3568
KS D 3563	KS F 4602
KS C 8401	

- Original copy will be supplied when needed
- You can download the certificate from our website at http://www.husteel.com/eng/product/certificates.html

Quality Certificate

Lloyd's Register

Certificate of Approval

This is to certify that the Management System of:

Husteel Co., Ltd.

131, Bugokgongdan-ro, Songak-eup, Dangjin-si, Chungnam 31721, Republic of Korea

has been approved by LRQA to the following standards:

ISO 9001:2015

Sang-Keun Yoo - Korea Operation Manager and NA Area Sales Manager

Issued by: Lloyd's Register Quality Assurance (Korea) Ltd.

for and on behalf of: Lloyd's Register Quality Assurance Limited

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

Current issue date: 23 July 2018
Expiry date: 14 July 2019
Certificate identity number: 10108704

Original approval(s):
ISO 9001 – 18 October 2005

Approval number(s): ISO 9001 – 0068313

The scope of this approval is applicable to:
Design and manufacture of electric resistance welded (ERW) steel pipes and hot dip galvanized steel pipes.

IAF UKAS MANAGEMENT SYSTEM 001

ISO 9001

CERTIFICATE

ENVIRONMENTAL MANAGEMENT SYSTEM

kfq Korean Foundation for Quality

HUSTEEL Co., Ltd.

150, Daebulsandan 3-ro, Samho-eup, Yeongam-gun, Jeollanam-do, Korea (Zip code : 58452)

Registration Date	2018-05-14
Expiration Date	2020-06-15
Initial Registration Date	1996-06-16
Revision Date	2018-05-14
Certificate Number	EAC - 01695

Korean Foundation for Quality certifies that The Environmental Management System of the above organization has been audited and has complied with the requirements of the following standard

Standard

ISO 14001:2015/KS I ISO 14001:2015

Scope of certification

PRODUCTION OF E.R.W STEEL PIPE

IQNet

KAB IAF

[KAB-EC-01]

KFQ has been accredited in respect of ISO 14001 covered by the KAB Accreditation Certificate Number KAB-EC-01

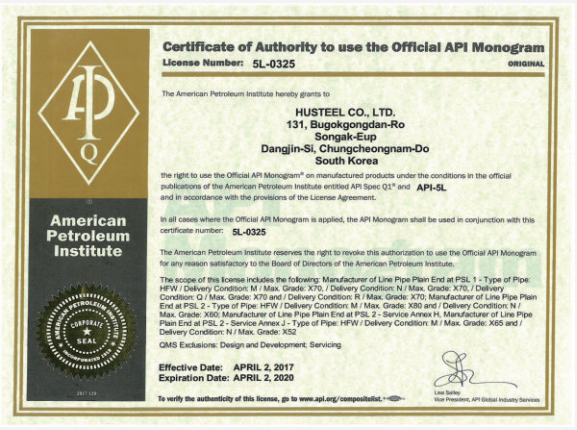
Jae Hwan Nam
President & CEO of KFQ

www.kfq.or.kr

13F, Woolim Lion's Valley Bldg.B, 168, Gasan digital 1-ro, Geumcheon-gu, Seoul, 08591, Korea

ISO 14001

API Standard



Certificate of Authority to use the Official API Monogram

License Number: 5L-0325 ORIGINAL

The American Petroleum Institute hereby grants to

HUSTEEL CO., LTD.
131, Bugokgongdan-Ro
Songak-Eup
Dangjin-Si, Chungcheongnam-Do
South Korea

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and API-5L and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: 5L-0325

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Manufacturer of Line Pipe Plain End at PSL 1 - Type of Pipe: HFW / Delivery Condition: M / Max. Grade: X70, / Delivery Condition: N / Max. Grade: X70, / Delivery Condition: Q / Max. Grade: X70 and / Delivery Condition: R / Max. Grade: X70; Manufacturer of Line Pipe Plain End at PSL 2 - Type of Pipe: HFW / Delivery Condition: M / Max. Grade: X80 and / Delivery Condition: N / Max. Grade: X80; Manufacturer of Line Pipe Plain End at PSL 2 - Service Annex H, Manufacturer of Line Pipe Plain End at PSL 2 - Service Annex J - Type of Pipe: HFW / Delivery Condition: M / Max. Grade: X65 and / Delivery Condition: N / Max. Grade: X52

QMS Exclusions: Design and Development; Servicing

Effective Date: APRIL 2, 2017
Expiration Date: APRIL 2, 2020

To verify the authenticity of this license, go to www.api.org/compositelist.

American Petroleum Institute

Lisa Salley
Vice President, API Global Industry Services

API 5L

Certificate of Authority to use the Official API Monogram

License Number: 5CT-0421 ORIGINAL

The American Petroleum Institute hereby grants to

HUSTEEL CO., LTD.
131, Bugokgongdan-Ro
Songak-Eup
Dangjin-Si, Chungcheongnam-Do
South Korea

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and API-5CT and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: 5CT-0421

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Processor of Casing or Tubing Plain End - Group 1, J55/PSL 3, K55/PSL 3, N80(1)/PSL 2, N80(Q)/PSL 3 and R95/PSL 3, - Group 2, L80(1)/PSL 3 and M65/PSL 3, - Group 3, P110/PSL 3; Manufacturer of Electric-Welded Casing or Tubing Plain End - Group 1, H40/PSL 1, J55/PSL 3, K55/PSL 3, N80(1)/PSL 2, N80(Q)/PSL 3 and R95/PSL 3, - Group 2, L80(1)/PSL 3 and M65/PSL 3, - Group 3, P110/PSL 3

QMS Exclusions: Design and Development; Servicing

Effective Date: APRIL 2, 2017
Expiration Date: APRIL 2, 2020

To verify the authenticity of this license, go to www.api.org/compositelist.

American Petroleum Institute

Lisa Salley
Vice President, API Global Industry Services

API 5CT

- You can download the certificate from our website at http://www.husteel.com/eng/product/certificates.html

JIS Standard


日本工業規格表示認証書

株式会社 ヒュスチール 殿

工業標準化法第23条第1項の規定により日本工業規格の表示について下記のように認証する。

韓国化学融合試験研究院 院長 卞 鍾 立

記

JIS G 3444

JIS G 3445


日本工業規格表示認証書

株式会社 ヒュスチール 殿

工業標準化法第23条第1項の規定により日本工業規格の表示について下記のように認証する。

韓国化学融合試験研究院 院長 卞 鍾 立

記

JIS G 3445


日本工業規格表示認証書

株式会社 ヒュスチール 殿

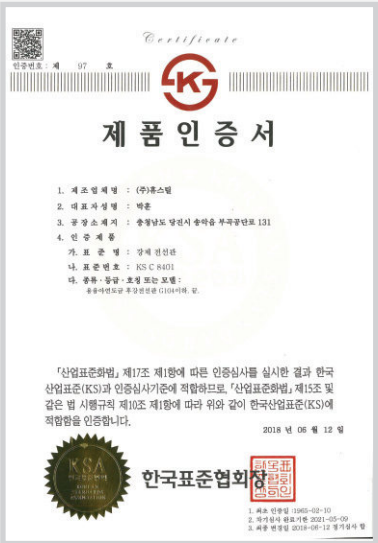
工業標準化法第23条第1項の規定により日本工業規格の表示について下記のように認証する。

韓国化学融合試験研究院 院長 卞 鍾 立

記

JIS G 3452

KS Standard


Certificate

제 품 인 증 서

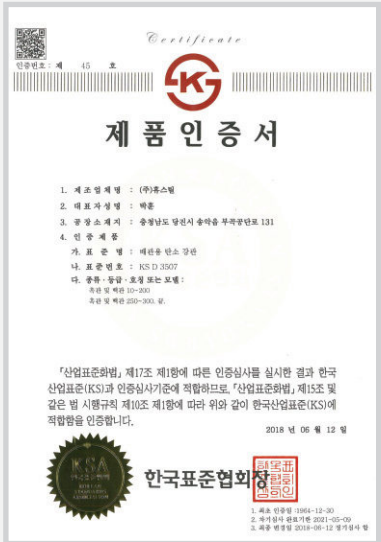
1. 제조업체명 : (주)휴스틸
2. 대표자성명 : 박훈
3. 공장소재지 : 충청남도 당진시 송악읍 부곡공단로 131
4. 인 증 제 품
   가. 표 준 명 : 강제 전선관
   나. 표준번호 : KS C 8401
   다. 종류·등급·호칭 또는 모델 :

「산업표준화법」 제17조 제1항에 따른 인증심사를 실시한 결과 한국산업표준(KS)과 인증심사기준에 적합하므로, 「산업표준화법」 제15조 및 같은 법 시행규칙 제10조 제1항에 따라 위와 같이 한국산업표준(KS)에 적합함을 인증합니다.

2018 년 06 월 12 일

한국표준협회장

KS C 8401


Certificate

제 품 인 증 서

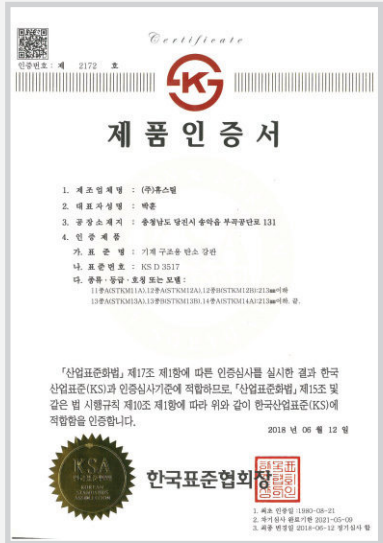
1. 제조업체명 : (주)휴스틸
2. 대표자성명 : 박훈
3. 공장소재지 : 충청남도 당진시 송악읍 부곡공단로 131
4. 인 증 제 품
   가. 표 준 명 : 배관용 탄소 강관
   나. 표준번호 : KS D 3507
   다. 종류·등급·호칭 또는 모델 :

「산업표준화법」 제17조 제1항에 따른 인증심사를 실시한 결과 한국산업표준(KS)과 인증심사기준에 적합하므로, 「산업표준화법」 제15조 및 같은 법 시행규칙 제10조 제1항에 따라 위와 같이 한국산업표준(KS)에 적합함을 인증합니다.

2018 년 06 월 12 일

한국표준협회장

KS D 3507


Certificate

제 품 인 증 서

1. 제조업체명 : (주)휴스틸
2. 대표자성명 : 박훈
3. 공장소재지 : 충청남도 당진시 송악읍 부곡공단로 131
4. 인 증 제 품
   가. 표 준 명 : 기계 구조용 탄소 강관
   나. 표준번호 : KS D 3517
   다. 종류·등급·호칭 또는 모델 :

「산업표준화법」 제17조 제1항에 따른 인증심사를 실시한 결과 한국산업표준(KS)과 인증심사기준에 적합하므로, 「산업표준화법」 제15조 및 같은 법 시행규칙 제10조 제1항에 따라 위와 같이 한국산업표준(KS)에 적합함을 인증합니다.

2018 년 06 월 12 일

한국표준협회장

KS D 3517

• You can download the certificate from our website at http://www.husteel.com/eng/product/certificates.html

Ship Classification

RECOGNITION FOR
BV MODE II SCHEME

HUSTEEL CO., LTD. (DANGJIN PLANT)
Chungcheongnam-do - KOREA (REPUBLIC OF)

This certificate will expire on: 30 Nov 2019

BV(Bureau Veritas)

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:
That
Husteel Co., Ltd.
131 Bugokgongdan Street, Songak-eup, Dangjin-si, Korea

is an approved manufacturer of
Steel Pipes and Fittings

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

Application area	Pipes for pressure systems, Boiler and superheater tubes
Steel type(s)	Carbon and carbon-manganese
Manufacturing method	Welded
Max. outer diameter	323.9 mm
Max. wall thickness	15 mm

Issued at Hamburg on 2017-11-27

This Certificate is valid until 2020-12-31.
DNV GL local station: Seoul

Approval Engineer: Gabi Dau

for DNV GL
Thorsten Lohmann
Head of Section

DNVGL(Det Norske Veritas,Germanischer Lloyd)

CERTIFICATE OF APPROVAL OF MANUFACTURERS OF MATERIALS
No. FAB027117PU

This is to certify that the manufacture of the product identified below is in compliance with the applicable requirements of the RINA Rules for the Approval of Manufacturers of Materials.

Description	Welded steel pipes
Type	Carbon and carbon manganese steel pipes for pressure systems
Manufacturer	HUSTEEL CO., LTD.
Place of manufacture	150, Daebulsandan 3-ro, Samho-eup, 58452 Yeongam-Gun (Jeollanam-do) REPUBLIC OF KOREA
Reference standards	RINA Rules for the approval of manufacturers of materials

Issued in PUSAN on April 10, 2017. This Certificate is valid until April 5, 2022

RINA Services S.p.A.
Dong-Hun Lee

This certificate consists of this page and 1 enclosure

RINA(Registro Italiano Navale)

Certificate No : MD00/3175/0005/4

HUSTEEL CO., LTD.
Dangjin Plant
131, Bugokgongdan-ro, Songak-eup,
Dangjin-si,
Chungcheongnam-Do, 31721
Korea

has been approved as a manufacturer in accordance with the requirements of Lloyd's Register for :-

Welded pipes and tubes in carbon and carbon-manganese steel
(maximum 323 mm diameter, 32 mm wall thickness)

This approval is subject to compliance with the Rules for the Manufacture, Testing and Certification of Materials.

Lloyd's Register is to be notified of any change that may affect the validity of this Certificate.

This Certificate is issued to the above manufacturer and is valid until the date given below.

Valid Until : 02 July 2020
Date of Issue : 25 July 2017

Colin Waylen
Principal Specialist to Lloyd's Register EMEA
A member of the Lloyd's Register group.

LR(Lloyd's Register)

NIPPON KAIJI KYOKAI

Approval No. ST63FI
Certificate No. TA17275E

APPROVAL OF MANUFACTURING PROCESS

This is to certify that

HUSTEEL Co., Ltd., Dangjin Plant
Dangjin-Si, Chungcheongnam-Do
Korea

has been approved for the manufacturing process of undermentioned materials by the NIPPON KAIJI KYOKAI in accordance with the requirements of I.2. Part K of the Society's "Rules for the Survey and Construction of Steel Ships" and Chapter 2, Part 1 of the Society's "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use".

MATERIALS : Steel Tubes for Boilers and Heat Exchangers
Steel Pipes for Pressure Piping

The details of the relevant approval conditions are given in the PARTICULARS OF APPROVAL listed in the reverse of this certificate.

The products for the ships classed with the Society are to be manufactured, tested and inspected in compliance with the Rules.

This certificate is valid form 29 December 2016 until 28 December 2021.
Issued at Tokyo on 8 March 2017.

Renewal Date : 29 December 2016

T. Imamura
General Manager
Material and Equipment Department

ClassNK

NK(Nippon Kaiji Kyokai)

APPROVAL CERTIFICATE FOR MANUFACTURING PROCESS

Certificate No. : TIN00422-ST001 Initial Approval : 30th December, 1977.
Product : Steel Tubes and Pipes
Manufacturer : Husteel Co., Ltd.
131, Bugokgongdan-Ro, Dangjin-Si, Chungcheongnam-Do, Korea

Product Description : Electric-resistance welded steel tubes and pipes
- Grade: KSTB25-E-G, KSTP25-E-G for Steel Tubes for Boiler & Heat Exchanger, KSTS38-E-G, KSTS42-E-G for Steel Pipes for Pressure Piping
- Out diameter : 21.0 ~ 323.9 mm
- Wall thickness : max. 15mm

Approval Condition : Individual Product Certification is required.

THIS IS TO CERTIFY that the manufacturing process for the above mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturer and Type Approved Equipment".
Pt. 2, Ch. 1, Sec. 4, Art. 401 & 402 of the rules for Classification, Steel Ships.

This Certificate is valid until 29th December, 2018.
Issued at Daejeon, Korea on 20th January, 2014.

KOREAN REGISTER OF SHIPPING

General Manager of
Daejeon Branch Office

KR(Korean Resister)

- You can download the certificate from our website at http://www.husteel.com/eng/product/certificates.html

Manufacturing Process

- Manufacturing Process
- Ordinary Pipes & Tubes
- API 5L, 5CT Pipes(Line Pipe / Casing & Tubing)
- API 5CT Pipe(Quenching & Tempering)

Manufacturing Process

:: Dangjin Plant

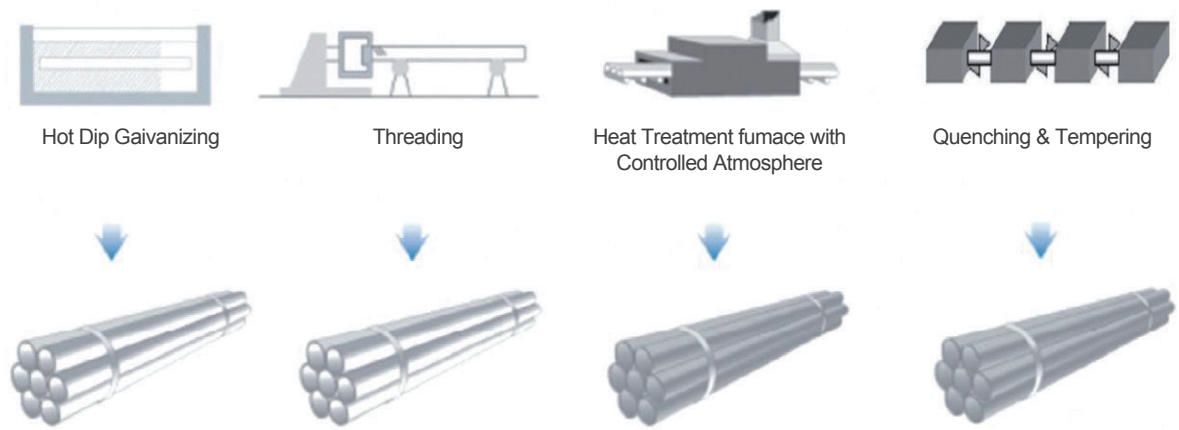
Manufacturing Process (12″ Tube Mill)

Uncoiling Leveling Coil Joining | Strip Accumulator | Edge Milling | FF-X Forming | H.F.Electric Resistance / Induction Weldang | Non-Destructive Testing(On-Line U.T) | Seam Annealing | Cooling | Sizing | Milling Cutter

End facing | Hydrostatic testing | Non-Destructive Full Body Testing & Off-Line Seam U.T | Weighing and Measuring | Marking

Visual and Dimensional Check | Coating | Bundling | shipping

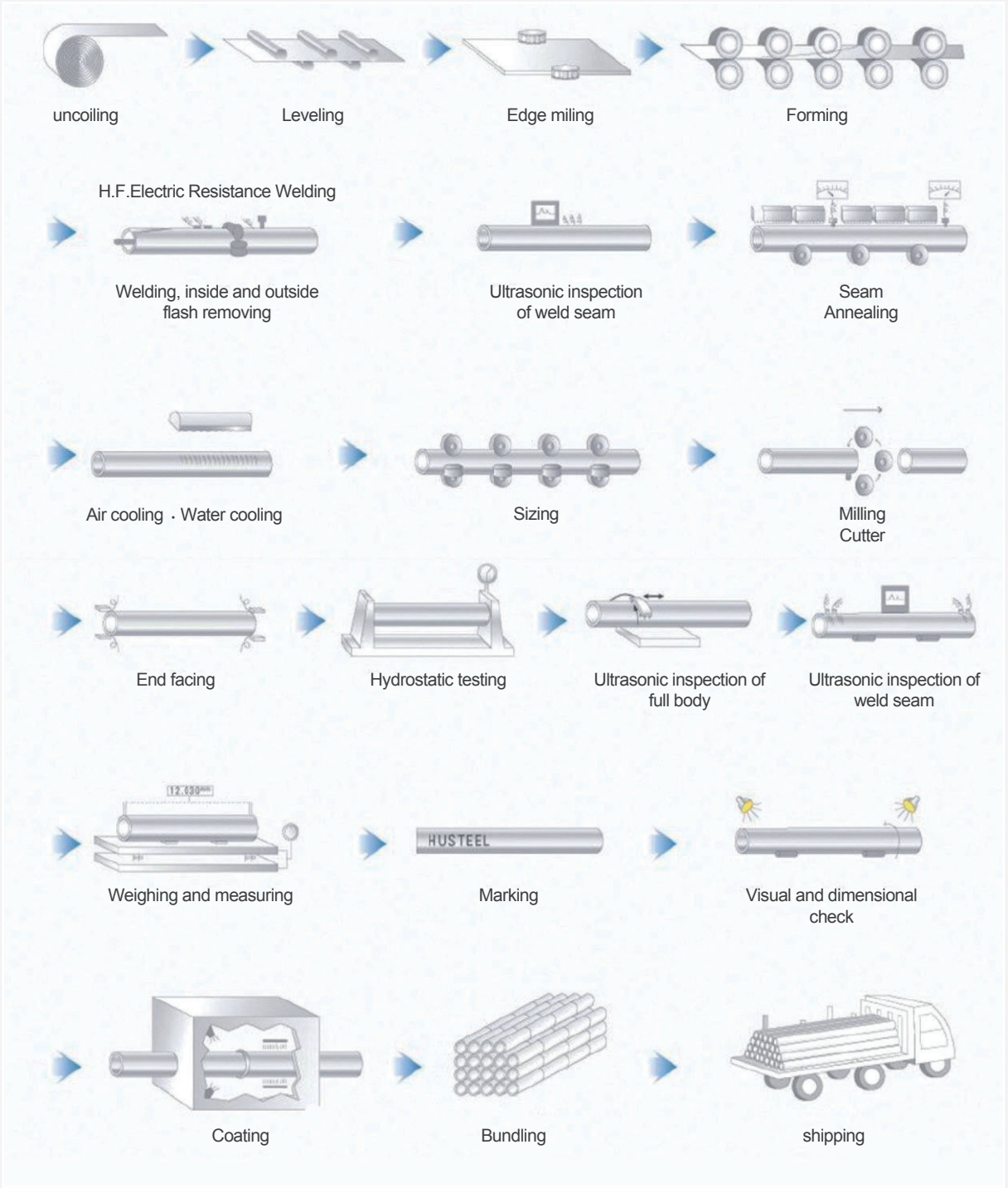
Manufacturing Process (Galvanizing, Threading, Heat Treatment, Q & T)



Hot Dip Gaivanizing | Threading | Heat Treatment fumace with Controlled Atmosphere | Quenching & Tempering

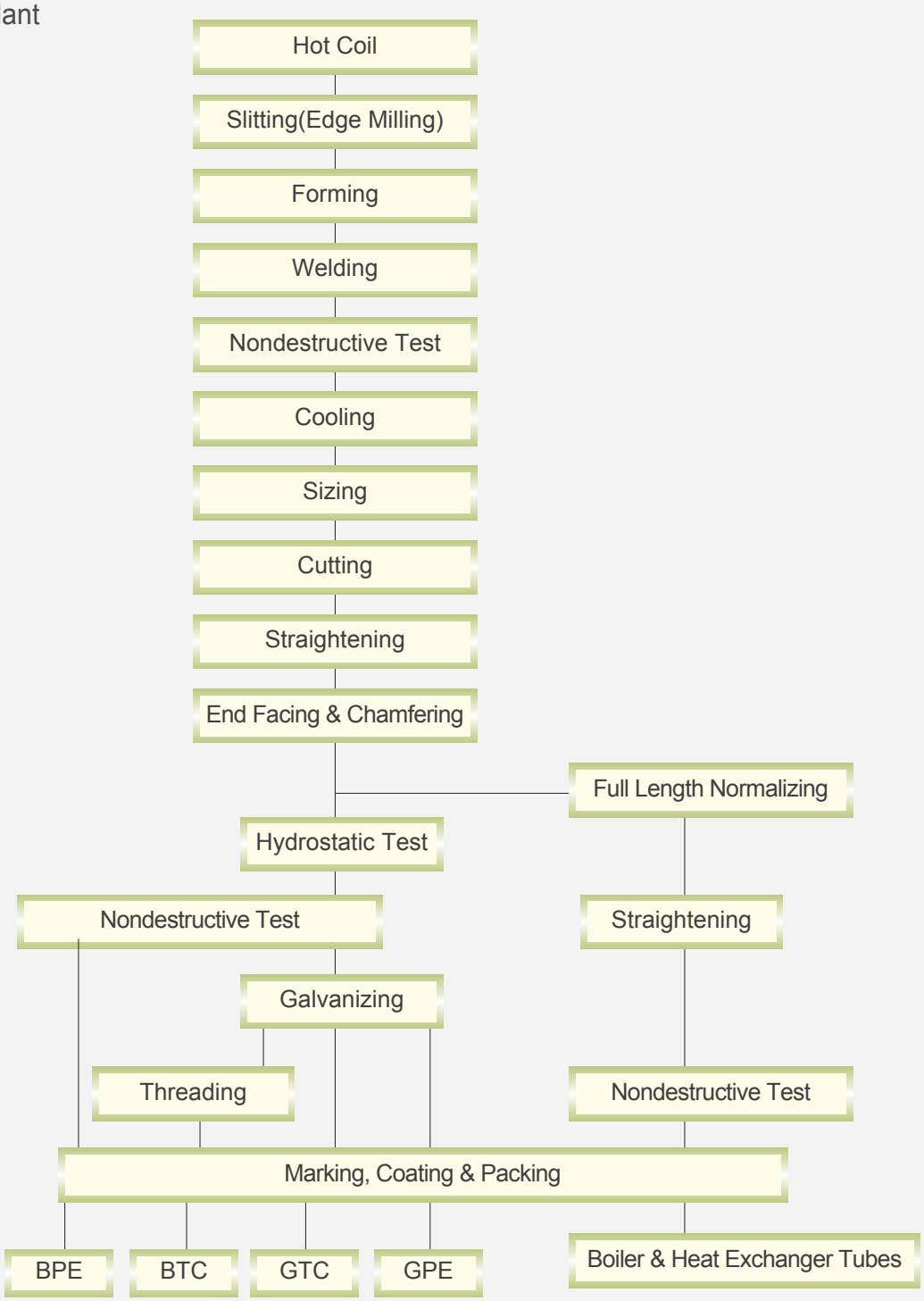
:: Daebul Plant

Manufacturing Process (24″ Tube Mill)



Ordinary Pipes & Tubes / Boiler & Heat Exchanger Tubes

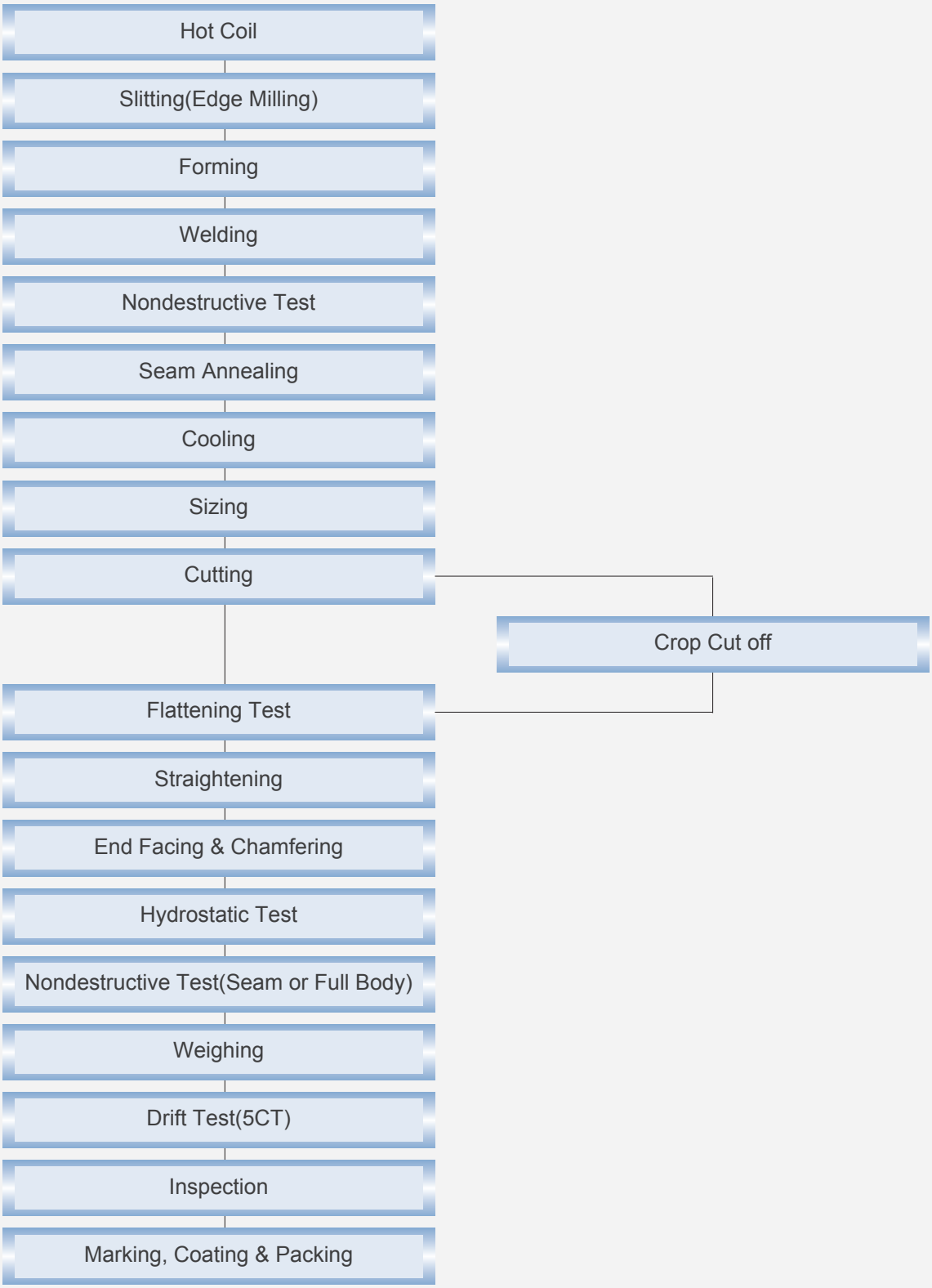
:: Dangjin Plant



BPE : Black Plain End.
BTC : Black Threaded & Coupled
GPE : Galvanized Plain End
GTC : Galvanized Threaded & Coupled

API 5L, 5CT Pipes (Line Pipe / Casing & Tubing)

:: Dangjin & Daebul Plant



API 5CT Pipe (Quenching & Tempering)

:: Dangjin Plant

Facilities

- Manufacturing Facilities & Capacity
- Testing & Inspection Equipments

Manufacturing Facilities & Capacity

:: Dangjin Plant

Designation	Availability	Annually Capacity
No.1 Slitter No.2 Slitter	1.4~15.0t, Max 1,650 mm 3.2~18.0t, Max 1,650 mm	300,000M/T 300,000M/T
No.1 Tube Mill No.2 Tube Mill No.3 Tube Mill No.4 Tube Mill No.5 Tube Mill No.6 Tube Mill No.7 Tube Mill	1/2″ ~ 1″(1.5~3.2t) 1″ ~ 1-1/2″(1.6~3.4t) Ø25.4 ~ 2-1/2″(1.4 ~ 5.5t) 2″ ~ 6″(1.4 ~ 9.0t) 4″~ 12″(3.4 ~ 14.3t) 3″ ~ 8″(3.2~18.0t) 1″ ~ 3″(1.6~12.0t)	40,000M/T 60,000M/T 90,000M/T 110,000M/T 200,000M/T 120,000M/T 70,000M/T
No.3 Tube Mill Seam Annealer No.4 Tube Mill Seam Annealer No.5 Tube Mill Seam Annealer No.6 Tube Mill Seam Annealer No.7 Tube Mill Seam Annealer	1,000KW 1,200KW 1,600KW 2,600KW 1,500KW	- - - - -
Quenching & Tempering Line	4-1/2″ ~ 9-5/8″	100,000M/T
No.1 Galvanizing Mill No.2 Galvanizing Mill	1/2″ ~ 4″ 1/2″ ~ 6″	60,000M/T 60,000M/T
No.1 Threading Machine No.2 Threading Machine No.3 Threading Machine No.4 Threading Machine	1/2″ ~ 4″ 1/2″ ~ 4″ 1/2″ ~ 4″ 2-1/2″ ~ 8″	65,000M/T 65,000M/T 65,000M/T 65,000M/T
Roller Hearth Type Furnace (deoxidize atmosphere)	1/2″ ~ 5″ / Max25m(Length)	25,000M/T
Mechanical tubes for automobile	Ø90, Ø108	500,000EA

Testing & Inspeciton Equipments

Designation	Type or Capacity	Quantity	Manufacturer
Hydrostatic Tester	• Max 25Mpa(3,556psi) • Max 49Mpa(7,111psi) • Max 69Mpa(10,000psi)	1 Line 1 Line 2 Line	Korea Japan Korea
Pressure Gauge	• Max 25Mpa(3,556psi) • Max 69Mpa(10,000psi) • Max 100Mpa(14,503psi)	2 Ea 8 Ea 2 Ea	Korea Korea Europe
Dead Weight Tester	• Max 69Mpa(10,000psi)	1 Set	Germany
Ultrasonic Detection Tester	• In Line(2″~ 12″) • Off Line(4″ ~ 12″) • Full Body(4″~ 12″) • Rotary Full Body(1/2″ ~ 3″) • Portable(1″~ 24″) • In Line (3″ ~ 8″) • Off Line(3″ ~ 8 ″) • In Line (1″ ~ 3″)	2 Line 1 Line 1 Line 1 Line 3 Set 1 Line 1 Line 1 Line	Germany Germany Germany Germany Japan / Germany Germany Germany Germany
Eddy Current Detection Tester	• In Line(1/2″~ 4″) • Off Line(1/2″ ~ 4″) • Off Line(2″ ~ 6″) • ET(2″ ~ 8″) • Off Line(1″ ~ 3″)	3 Line 2 Line 1 Line 1 Line 1 Line	Germany Germany Germany Germany Germany
Flux Leakage Tester (Electro Magnetic Inspection)	• 4-1/2″~9-5/8″	1 Line	U.S.A
Universal Testing Machine	• 60Ton / 100Ton	2 Set	Germany / Korea
Emission Spectrometer	• 41Elements	1 System	Germany
Metallographic Microscope	• 25X ~ 400X • 25X ~1,000X	1 Set 1 Set	Japan Japan
Hardness Tester	• Rockwell A,B,C,D Scale • Vickers X10. X20, 0.3 ~ 30kgf	1 Set 1 Set	Japan Japan
Charpy Impact Tester	• 542 J	1 Set	U.S.A
Weighing machine	• Max 5 Ton	8 Set	Korea
Drift Tester	• 2″~ 12″	2 Set	Korea
Coating Thickness Meter	• 0~15mm	6 Set	Japan
Thread Gauge	• ASTM, BS, JIS(KS) (Plug & RING - 1/2″ ~12″)	5 Series	Japan / U.S.A
Profile Projector	• X10 ~ X20	1 Set	Japan
Bending Tester	• -	1 Set	Korea

Designation	Type or Capacity	Quantity	Manufacturer
Constant Temp & Humidity Test Chamber	1.Intermittet : -50℃~ 120℃ / Max 2. Humidity :25% ~ 95%	1 Set	Korea
Salt Spray Tester	50℃, 2.4kg/㎠	1 Set	Korea
External Diameter Measurement Equipment	50~ 300mm(2~12inch)	1 Set	Germany
Collapse Tester	Max. 23,000psi(15,856bar)	1 Set	Korea
Scanning Acoustic Microscope	C,B,D,G,X,P,T,Z Scan Mode Probe 15, 25, 125MHz : 12㎛ detection	1 Set	Germany

Daebul Plant

Manufacturing Facilities & Capacity

Designation	Availability	Annually Capacity
No.1 Tube Mill	• Round : 8″~24″ • Square : 200 ×200mm ~ 500 ×500mm • Thickness : 3.2 ~ 22 mm • Length : 5 ~ 21m	300,000M/T

Testing & Inspection Equipments

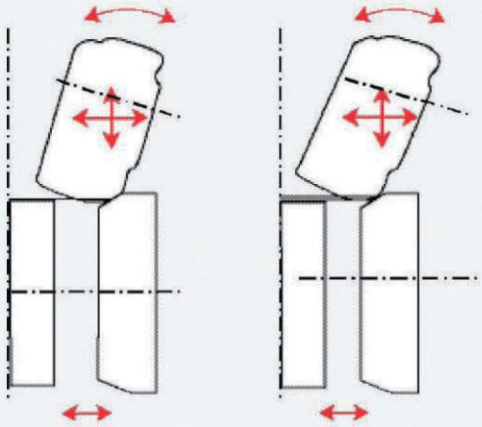
Designation	Type or Capacity	Quantity	Manufacturer
Hydrostatic Tester	Max. 50MPa(7250psi)	1 Line	Korea
Ultrasonic Detection Tester	In Line(8″~ 24″) Off Line(8″~24″) Full Body(8″~24″) Portable	1 Line 1 Line 1 Line 3 Set	Germany Germany Germany Germany
Universal Testing Machine	Max 100ton	2 Set	Korea / Japan
Emission Spectrometer	30Elements	1System	Germany
Charpy Impact Tester	406.7J	1 Set	U.S.A
Metallographic Microscope	25~500X	1 Set	Japan
Hardness Tester	Vickers X2.5, X5, X10, 1~50kgf	1 Set	Japan
Micro Hardness Tester	Vickers X5, X10, X20,X50 0.005~2kgf	1 Set	Japan
Drop Weight Tear Tester	V-Notch Type 3,000J	1 Set	Korea
Weighing Machine	Max 5 Ton	1 Set	Korea
Drift Tester	8″~22″	1 Set	Korea
HIC Test Equipment	H2S & N2 Gas,Other Sol	1 Set	Korea
SSCC Test Equipment	CLT(Constant Load Tester)	1 Set	Korea
	FPBT(Four point Bend Test)	1 Set	Korea

Superiority of Our Company Facility

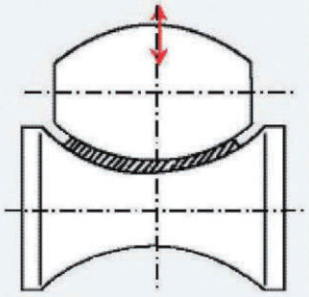
- FFX-MiII
- Quenching & Tempering Line
- Carbon Steel Boiler and Heat Exchanger Tubes

FFX-Mill

Multiple use of Forming Roll & Stabilized Forming



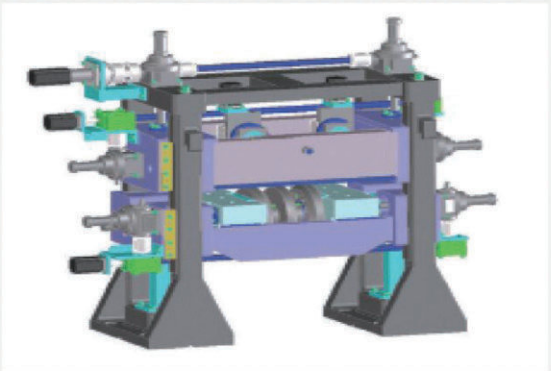
FFX-Mill



Conventional Type

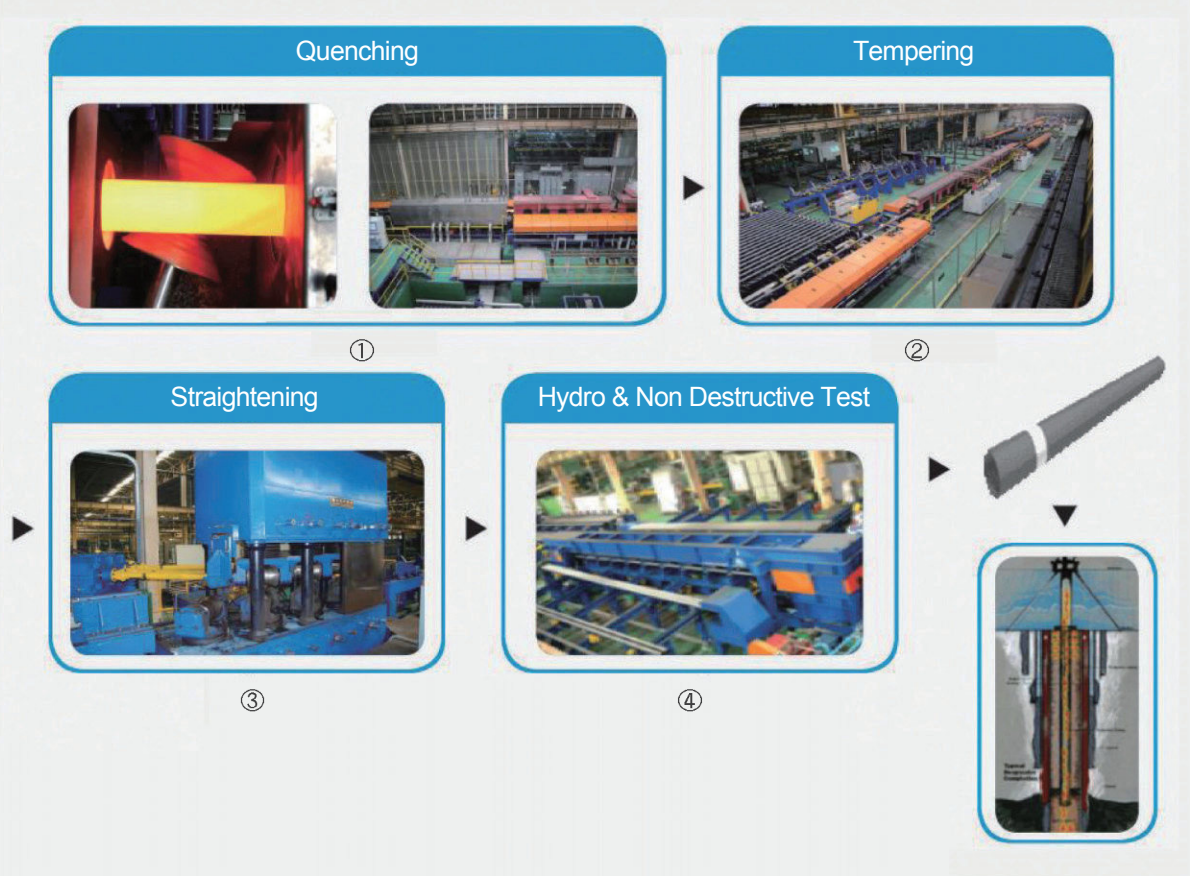
- Multiple Use of Forming Roll (suitable for various category-small quantity production
- Stabilized Forming (low work hardening, Suitable for Hydro Forming)

Roll Change Time Shortened

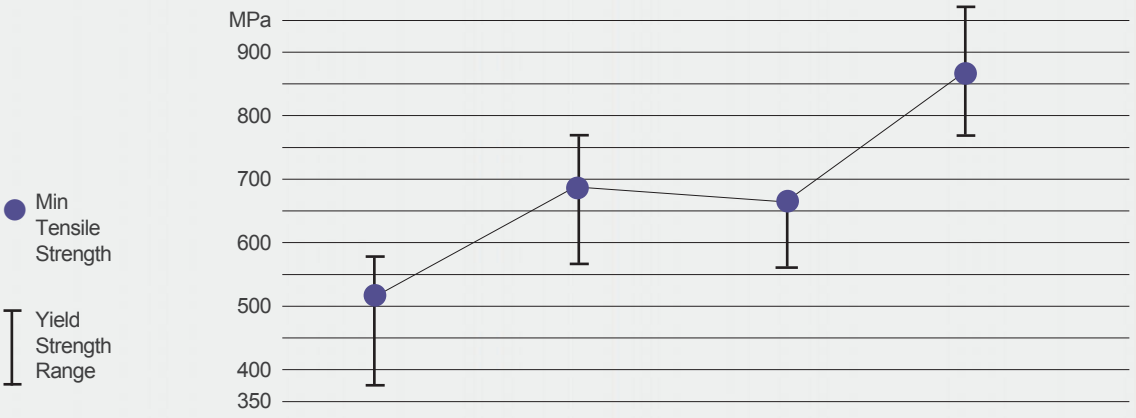


- Roll Position Data Control by Computer
- 100% Automation by All-Axis Servo-Control
- Accurate Reproducibility of Roll Position
- Reduced to Roll change time : 7hr → 2hr (6″ Mill)

Quenching & Tempering Line



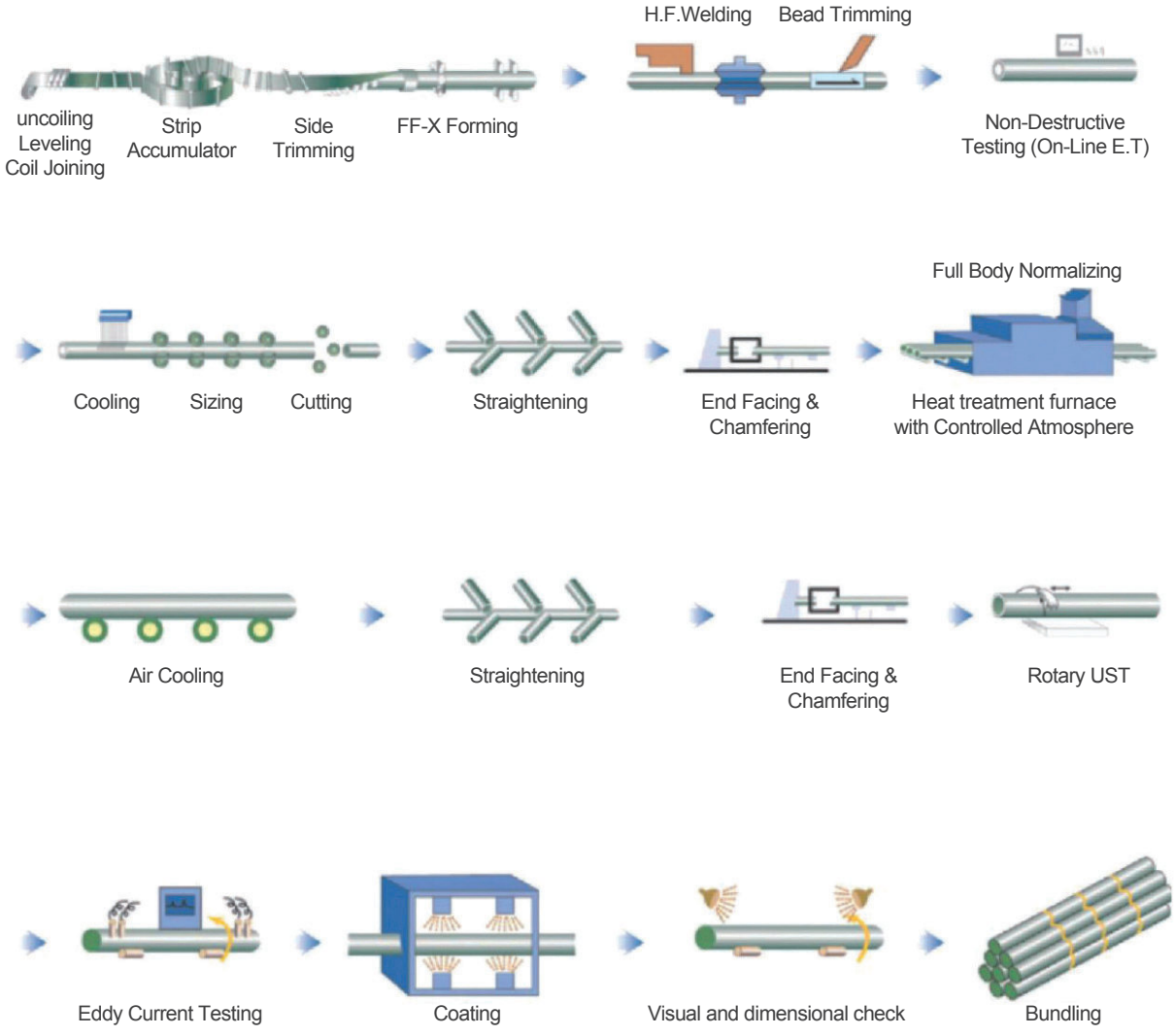
	J55	N80	L80	P110
TS (MPa / Ksi)	Min 517 / 75	Min 689 / 100	Min 655 / 95	Min 862 / 125
YS (MPa / Ksi)	379-552 / 55-80	552-758 / 80-110	552-655 / 80-95	758-965 / 110-140



• Not listed TS/YS are subject to discussion

Carbon Steel Boiler and Heat Exchanger Tubes

Manufacturing Process



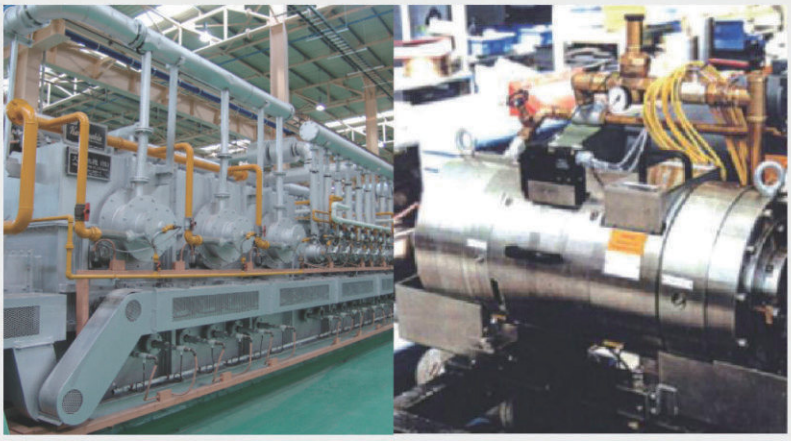
Usage

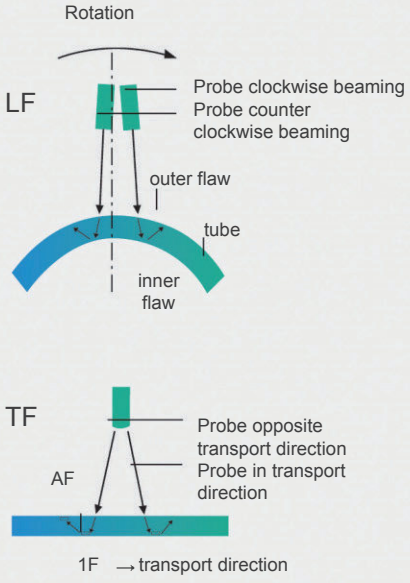
1. Husteel manufactures Carbon Steel Boiler and Exchanger Tubes, which are used for exchanging heat on the inside and outside of the tube, such as water tubes, smoke tubes, superheater tubes, air preheater tubes, ect. of boilers, and heat exchanger industries. However, it is not applicable to the steel tubes for heating furnace and those for heat exchangers for low temperature service

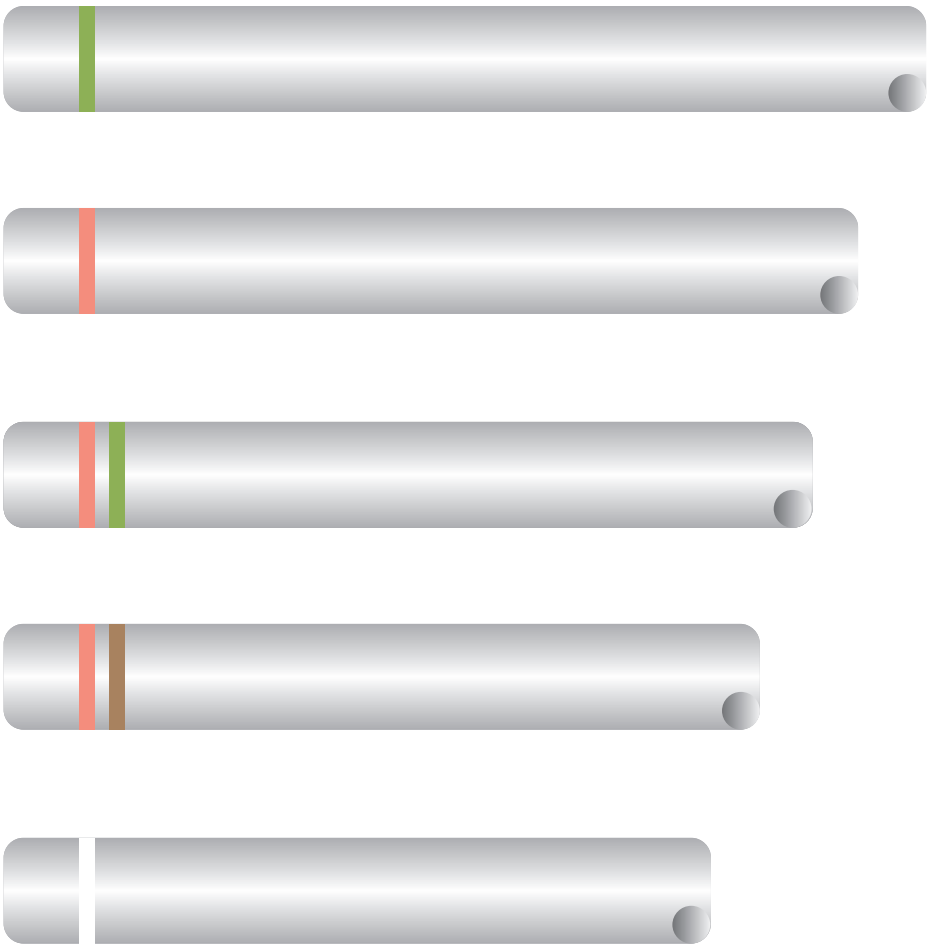
2. The Carbon Steel Boiler and Heat Exchanger Tubes are also used in longer pipes for HRSG(Heat Recovery Steam Generator), which is produced form non-oxidized heat treatment furnace.

Product Features

1. Identical microstructure over HAZ and Base metal from the state of the non-oxdized Heat treatment Furnace.
2. Easy to make expanded or U-bend shape
3. Complete non-destructive test offered, including ultrasonic, eddy current to ensure quality standsrds are met for all worldwide industry and customer specifications.
4. Maximum Leg Length up to 25 Meter






J55
N80[1]
N80[Q]
L80[1]
P110