

# PREQUALIFICATION STATEMENTS



## FOREWORD

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SeAH Steel Corp. established the local manufacturer at Ras Al Khaimah, UAE and commenced 1st production from March, 2011. It names SeAH Steel UAE LLC.

We, SeAH Steel UAE LLC, have faithfully carried out the projects improving our quality and internal management so far, as one of the member of energy developer.

Above all, we have identified the fundamental characteristics of steel product through the regular technical interchange with the raw material suppliers.

Moreover, we are accelerating the technical development to meet the customer's demands which require high corrosion resisted product with high intense quality, especially in this region.

Of course, we try to do our best to manufacture the best products with perfect quality, having all NDT testers & inspection equipments that specially required in Sour Serviced or heat treated pipes.

On the basis of accumulated technology and know-how of SeAH Steel Corps (Est. 1960), SeAH Steel UAE has been performing the number of projects through the cooperation with all global companies in Middle East & Africa area.

We promise to approach the customers with more qualified and well managed system, and will be the honest company respecting your voice forever.

**Managing Director & C.E.O**

SeAH Steel UAE, LLC

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## COMPANY PROFILE



- Brief History
- Address
- Organization Chart
- Personnel Status
- Capital
- Plant Sites
- Bank Reference
- Parent Company
- Global Office & Plant



## BRIEF HISTORY

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Year	Month	Contents
1960	10	SeAH Steel Corp. Foundation
2010	4	SeAH Steel UAE LLC Construction
2011	2	SeAH Steel UAE LLC Completion
2011	5	API 5L Monogram / ISO9001 Quality Assurance System Certificate acquirement
2012	5	API 2B Monogram
2013	5	API 5L Monogram J / H
2014	11	OHSAS 18001 / ISO14001
2015	6	C.E Marking Certification

## ADDRESS

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### OFFICE & PLANT

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**Address** Al Ghail Industrial Park,  
Ras Al Khaimah, UAE

**PO Box** 14576

**Telephone** +971-7-258-9440~2

**FAX** +971-7-258-9446

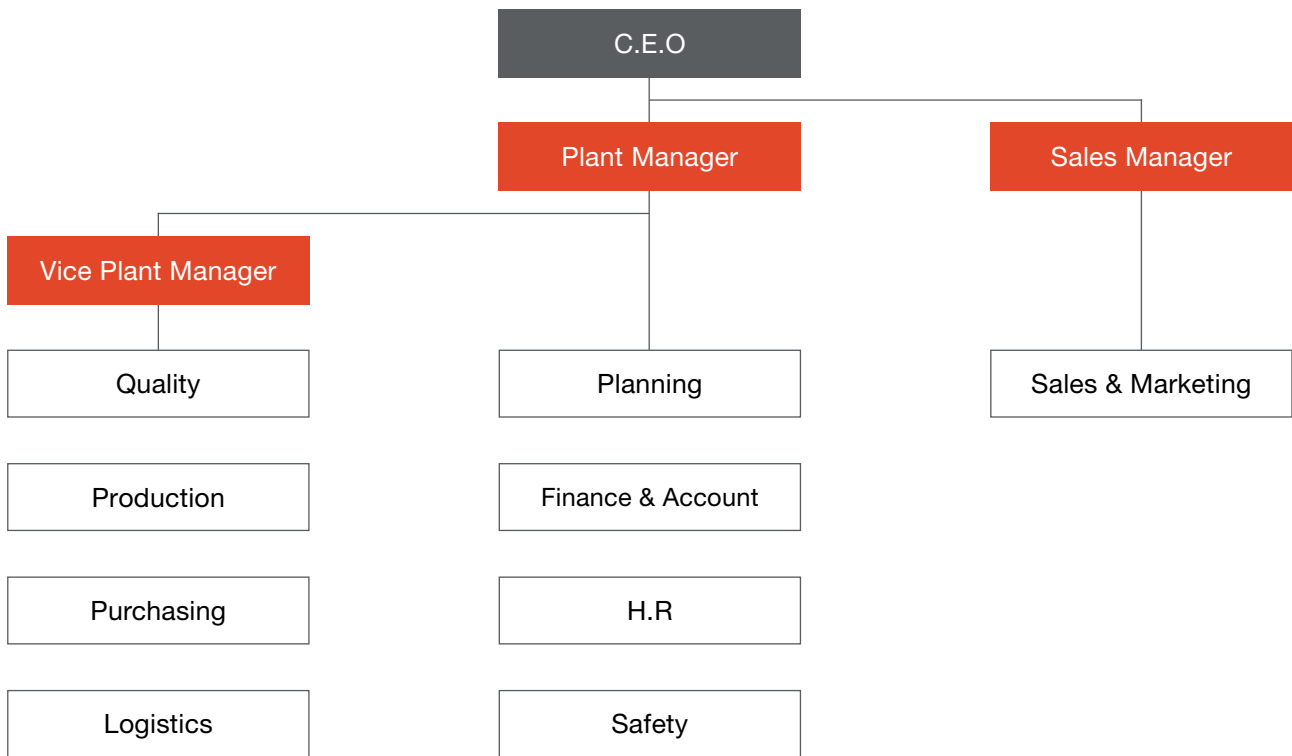
### SeAH Steel UAE, LLC

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**Homepage Address** [www.seahsteel.co.kr](http://www.seahsteel.co.kr)

**E-Mail Address** [ssuae@seah.co.kr](mailto:ssuae@seah.co.kr)

## ORGANIZATION CHART



## PERSONNEL STATUS

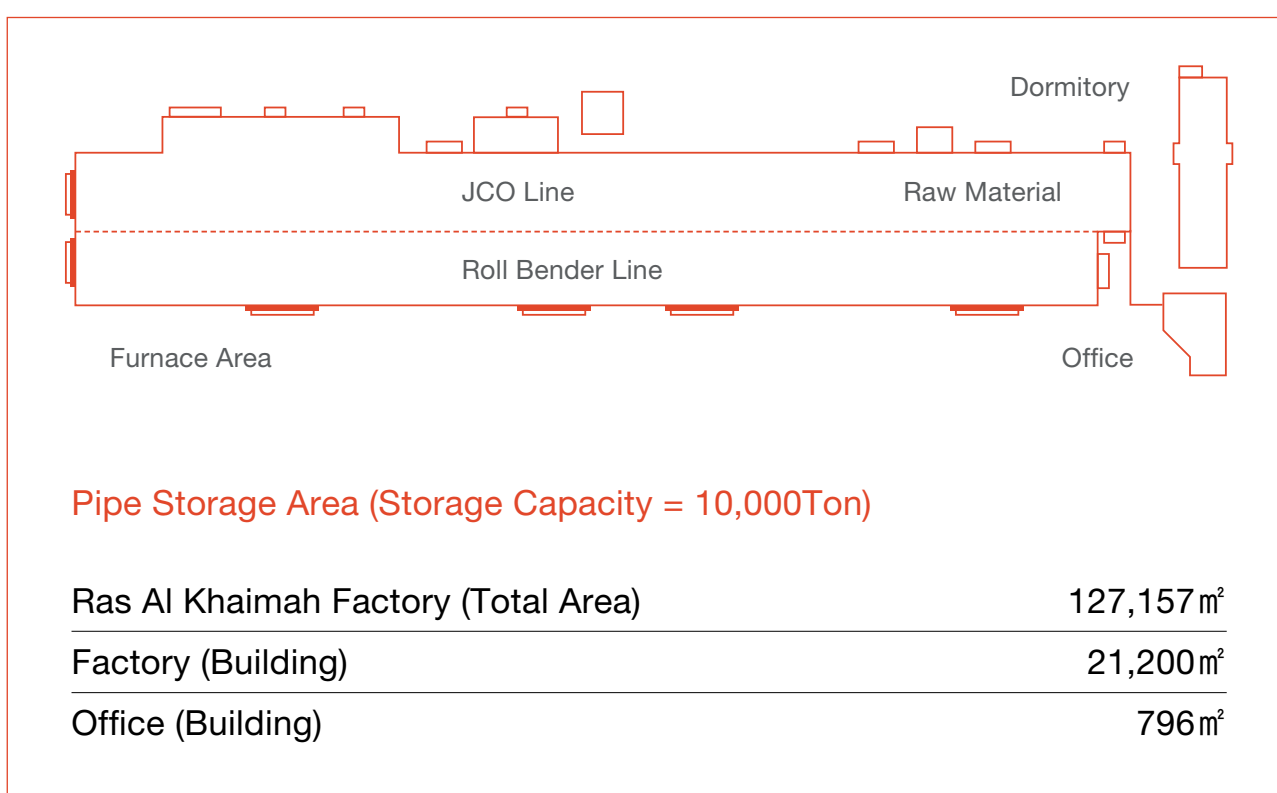
C.E.O	1
ADMINISTRATORS & ENGINEERS	6
- Quality Engineer (Welding & Quality System Control)	1
- Mechanical Engineer (Machine Design and Maintenance)	1
- Electric and Automation Engineer	1
- Welding Engineer	1
- Finance Investment Counselor	1
STAFF	7
SALES	2
TECHNICIAN (Welder / NDT Inspector / Machine Operator)	80
OTHERS	4
<b>TOTAL</b>	<b>105</b>

## CAPITAL



AUTHORIZED CAPITAL	AED 1,000,000
PAID IN CAPITAL	USD 66.0 Million
TOTAL ASSET	USD 66.3 Million

## PLANT SITES



## BANK REFERENCE

### NBAD Bank(Dubai)

AED Account

Address PO Box 4436, Emaar Square,  
Bldg.2, 5th floor, Dubai, U.A.E

Telephone 600-566223(UAE No.)

### KOREA EXCHANGE Bank(ABU DHABI) USD Account

Address PO BOX 45636,  
ETIHAD TOWER NO.3, 8F,  
AL RAS AL AKHDAR ST.,  
ABU DHABI, U.A.E

Telephone +971-2-681-7188

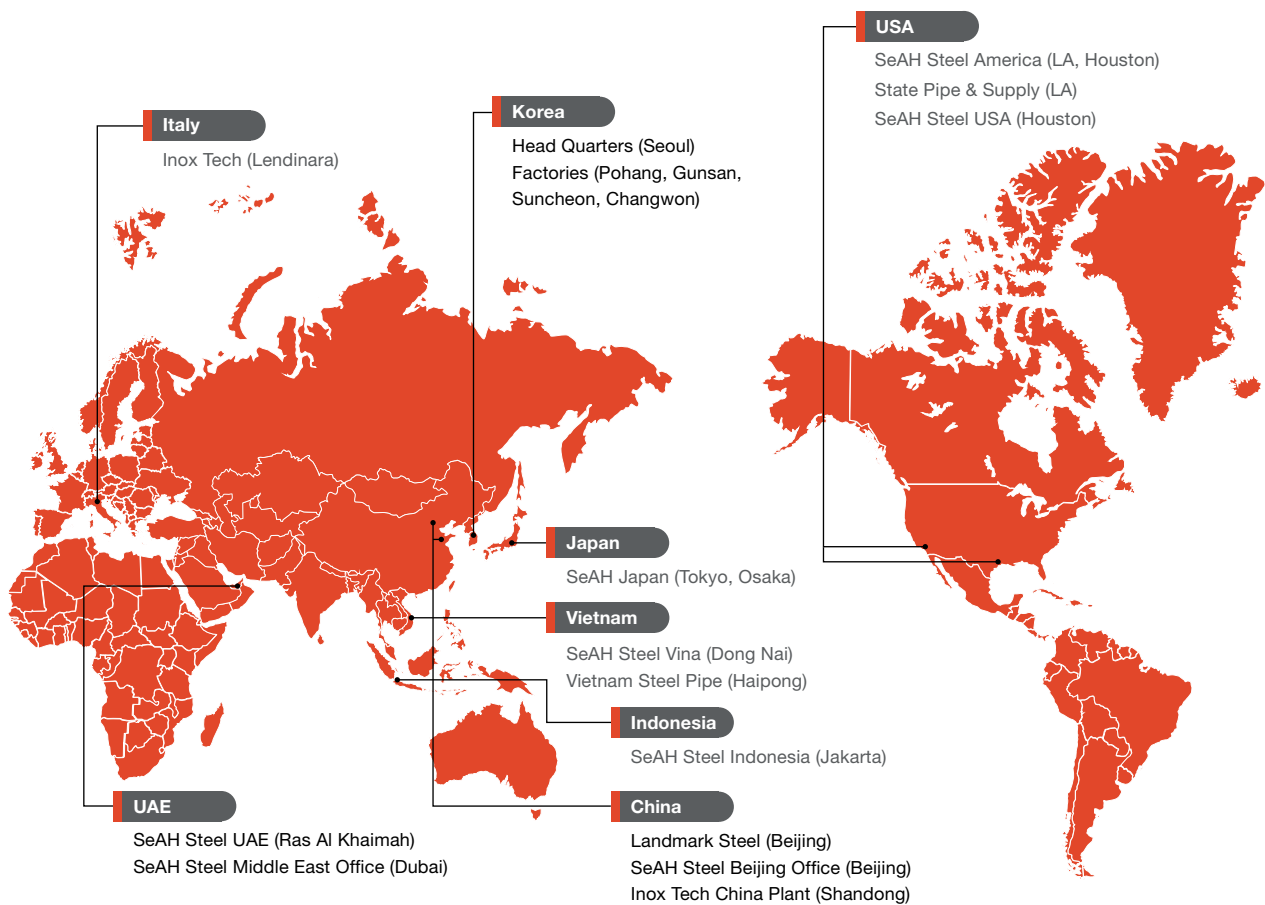
## PARENT COMPANY



### SeAH Steel Corp.

Product	Carbon Steel Pipe
Head office	SeAH Tower, 45, Yanghwa-ro, Mapo-gu, Seoul, Korea
Telephone	+82-2-6970-1000
Facsimile	+82-2-6970-1199
PLANT	Pohang Plant (Carbon Steel Pipe) Gunsan No.2 Plant (Carbon Steel Pipe) Gunsan Plant (Galvanized Steel Sheets / Pre Coated Metal) Changwon Plant (Stainless Steel Pipe)
Office	Pusan, Gwangju, Daegu

## GLOBAL OFFICE & PLANT



### **SeAH Steel America, Inc. (SSA)**

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Business Import, Distribute and Wholesale of Pipe and Tube  
(USD 300 Million) / Year  
Address 2100 Main St. Suite 100, Irvine, USA  
Telephone +1-949-655-8000  
Facsimile +1-949-655-8030  
Office Houston Branch

### **State Pipe & Supply Corp.**

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Product Carbon Steel Pipe and Coating Facility  
Address 9615 S. Norwalk Blvd, Suite B, Santa Fe Springs, CA 90670, USA  
Telephone +1-562-695-5555  
Facsimile +1-562-692-1054

### **SeAH Steel USA (SS USA)**

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Product OCTG Manufacturing & Processing  
Address 16952 Leonard Road, Houston, Texas 77049  
Telephone +1-832-734-0080  
Facsimile +1-832-734-0081

### **SeAH JAPAN CO, Ltd.**

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Business Import, Distribute and Wholesale of Pipe and Tube  
Address Bonhori Man Bldg 7F, 4-8, 3-Chome, Shimbashi, Minato Ku Tokyo 105, Japan  
Telephone +81-3-3501-1347  
Facsimile +81-3-3501-1387

### **VIETNAM PIPE CORP.**

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Product Carbon Steel Pipe  
Address Km 9, Vat Cash, Hong Bang District1, Haiphong City, Vietnam  
Telephone +84-318-50116  
Facsimile +84-318-50144



### SeAH Steel VINA CORP.

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Product Carbon Steel Pipe  
Address No. 7 Street 3A, Bien Hoa Industrial zone, Dong Nai Vietnam  
Telephone +84-61-833733  
Facsimile +84-61-833734

### SeAH Steel Beijing Office

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Product Import, Distribute and Wholesale of Pipe and Tube  
Address Room02A, 12B Layer, Beijing Boya International Center No.1,  
Lizezhongyi Road, Wangjing Chaoyang District, Beijing, China. 100102  
Telephone +86-10-6474-1881  
Fax +86-10-6474-5882

### SeAH Steel Middle East Office

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Product Import, Distribute and Wholesale of Pipe and Tube  
Address P.O BOX 263476, 180703, JAFZA VIEW 18&19,  
Jebel Ali Freezone, Dubai, UAE  
Telephone +971-4-884-1624  
Fax +971-4-884-1625

### INOX TECH

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Product Stainless Steel Pipe, Duplex and Clad  
Address Via Aldo Moro 10/c, 45026, Lendinara, Italy  
Telephone +39-425-605-400  
Fax +39-425-605-499

### SeAH Steel Indonesia

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Product Import, Distribute and Wholesale of Pipe and Tube  
Address K-Link Tower 18th Fl. Zone B,, JL.Jend Gatot Subroto  
No.59 A- Jakarta Selatan 12950, Indonesia  
Telephone +62-21-2902-6942  
Fax +62-21-2902-6944

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**STATEMENT OF  
SUPPLY EXPERIENCE**



## STATEMENT OF SUPPLY EXPERIENCE



COUNTRY	CLIENT	PROJECT	SPEC/SIZE	DELIVERY
UAE	TAKREER	Ruwais Refinery Expansion PKG #3	A671 Gr.CC65 (CL22/32) 20" ~ 56" A671 Gr.CC65 (CL22/32) 58" ~ 120"	May 2011~ Mar 2012
UAE	ADGAS	IGD DAS ISLAND	EN 10225 S355 (G3~G8+N/M) 20" ~ 30"	May~Jun 2012
UAE	ENOC	Falcon for Bulk Terminal Jet Fuel Pipeline	API 5L Gr.B (PSL2) 24" ~ 36"	May 2012
OMAN	OXY	Mukhaizana PKG #2	API 5L Gr.B (PSL1) 24"~ 34"	Jun~Dec. 2012
KSA	SEC	Qurayyah Combined Cycle Gas-fired IPP	API 2B ASTM A672 CC70 30", 40"	Aug 2012
IRAQ	SOC	Water Treatment	API 5L Gr.B (PSL1) 18" ~ 40"	Oct 2012
KSA	Royal Commission	Expansion of Fuel & Feedstock Pipeline	API 5L Gr.X60 (PSL2) 24"	Jan 2013
KSA	ARAMCO (McDermott)	Offshore Safaniya Oil Field Phase II	API 2B (2H 50) 24"	Apr 2013
IRAQ	BP	Rumaila Oil Field Expansion	API 5L Gr.B (PSL2) 36"	May 2013
KUWAIT	KOC	Wara Pressure Maintenance	API 5L Gr.B (PSL1) 22" ~ 42"	Jun 2013
UAE	TAKREER	Carbon Black & Delayed Coker	A671 Gr.CC65 (CL22/32) 20" ~ 120" (Inc. Sour 21MT)	May 2013~
IRAQ	SOC /PETRONAS	Garraf Oil Field Final Development	A671 Gr.CC65 CL22 API 5L Gr.B (PSL1) 18" ~ 40"	Jul 2013
KSA	SEC	Qurayyah Combined Cycle Gas-fired IPP	ASTM A134 78", 108"	Jul 2013
NIGERIA	TOTAL	OML 58 Gas Pipeline	A671 Gr.CC65 CL22 30", 48"	Oct 2013
IRAQ	SOC	Zubair Oil Field	A671 Gr.CC65 CL22 (SOUR Service) 32"	Oct 2013
QATAR	QEWG	Ras Abu Fontas Desalination plant	API 5L Gr.B (PSL1) 22", 32"	Oct 2013

COUNTRY	CLIENT	PROJECT	SPEC/SIZE	DELIVERY
UAE	Dubai Municipal	Business Bay#1 & #2 District Cooling Plants	API 5L Gr.B (PSL1) 28" ~ 64"	Nov 2013~ Jan 2014
INDIA	ONGC	C-Series Offshore	API 2B (2H 50Z, DH36) 20" ~ 66"	Dec 2013
UAE	Dubai Petroleum	Jalilah B Offshore Field Development	API 2B (2H Gr.50) 20" ~ 46"	Apr 2014
UAE	ADWEA/ AADC	Construction of New Bulk Connection	API 5L Gr.B (PSL2) 24", 32"	Jun 2014
IRAQ	Oil Pipeline Company	Tank Farm	API 5L Gr.X60/B (PSL2) (SOUR Service) 28" ~ 36"	June~July 2014
QATAR	Qatar Government	Khalifa Stadium Expansion	EN 10219-1 18" ~ 44"	Jan 2015
UAE	RTA	Nas Arena Stadium	EN 10210 20" ~ 32"	Feb 2015
UAE	Dubai Petroleum	Rashid C Offshore Platform	API 2B (2H-50) 36"	Feb 2015
Trukmenistan	Government	Gas Pipeline	API 5L Gr.B (PSL2) 30"	Mar 2015
KSA	KSA CHEVRON	WAFRA	API 5L Gr.B (PSL1) 26"	Apr 2015
UAE	Port of Fujairah	VTTI Terminal	API 5L Gr.B (PSL1) 20" ~ 38"	May 2015
UAE	Port of Fujairah	VLCC Jetty	API 5L Gr.B (PSL2) 24" ~ 40"	May 2015
IRAQ	SOC	Rehabilitation Of Iraq South Gas	API 5L Gr.B (PSL1) 30" ~ 36"	Jun 2015
QATAR	ISF	Development of ISF Camp	API 5L Gr.B (PSL1) 20" ~ 36"	Jul 2015
KSA	AIR PRODUCT	JAZAN IGCC PJT	API 5L GR.B (PSL1) A671 GR.CC60 CL22 18" ~ 120"	Dec 2016
U.K.	SCOTTISH POWER	EAST ANGLIA ONE (OFFSHORE WIND FARM)	BS EN 10225/10025 32" ~ 64"	May ~ 2017
UAE	INVESTMENT CORP. OF DUBAI (ICD)	ICD TOWER PJT	BS EN 10210-1 S355J2H 20" ~ 46"	Jun 2017

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## PLANT DESCRIPTIONS



- Pipe Manufacturing Equipment
- Product List
- Size Availability

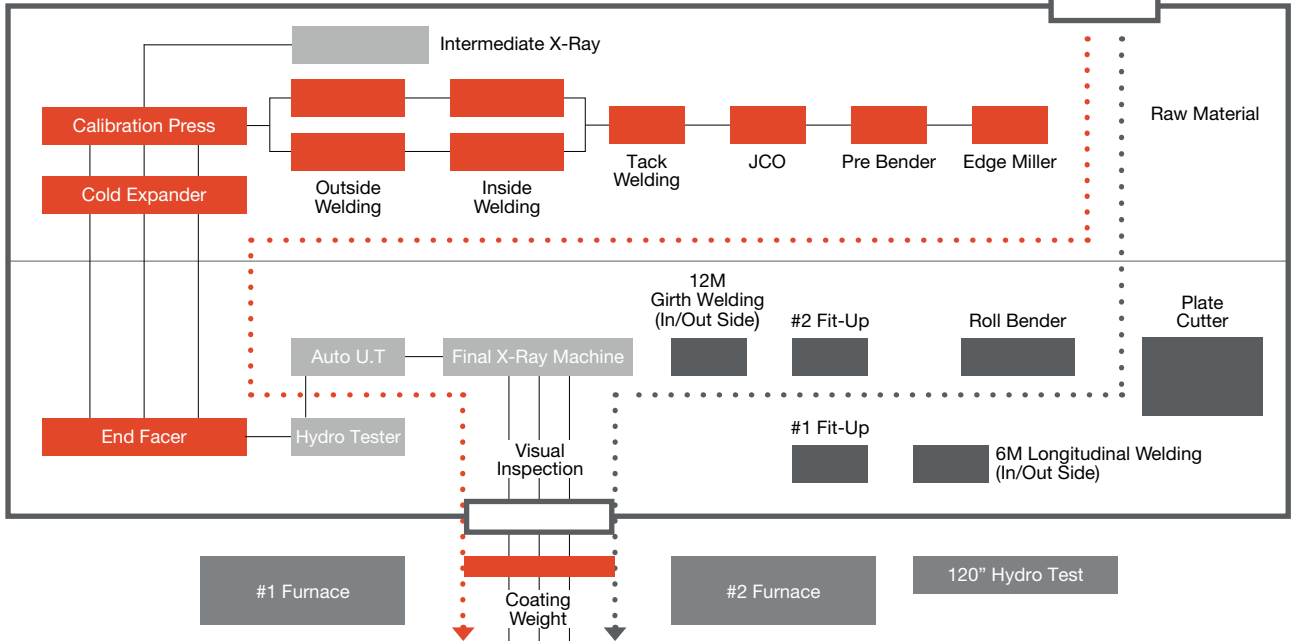


# PIPE MANUFACTURING EQUIPMENT








## ● Illustration Manufacturing Facility Layout

..... JCO Production Process      ..... RIB Production Process



## ● JCOE Line Process






Process Step	Process Detail	Key Equipment
EDGE MILLER	<ul style="list-style-type: none"> <li>- Prepare edge for the welding process with two rotate head</li> <li>- Root face = 3mm ~ 5mm</li> <li>- Outside angle = 27°</li> <li>- Inside angle = 32°</li> </ul>	<ul style="list-style-type: none"> <li>- Double head type</li> <li>- Edge shape : X.Y</li> <li>- Length : 6.0 ~ 12.8 m</li> <li>- Thickness : Max. 60mm</li> <li>- Width : 1,200 ~ 5,300mm</li> <li>- Weight : 26 Ton</li> <li>- Maker : SEOKWANG (KOREA)</li> </ul>
PRE BENDER	<ul style="list-style-type: none"> <li>- Put into the place between top tool and bottom tool will bend the plate under designed diameter</li> <li>- All of process is controlled by CNC with electro- Hydraulic servo bending system</li> </ul>	<ul style="list-style-type: none"> <li>- Forming Type : Edge bending (both side)</li> <li>- Capacity : 12,500KN</li> <li>- Length : 6.0 ~ 12.8 m</li> <li>- Width : 1,566 ~ 4,264mm</li> <li>- Thickness : Max. 60mm</li> <li>- Maker : YSD (CHINA)</li> </ul>
PRESS BENDER	<ul style="list-style-type: none"> <li>- The die width and tool (Upper) press length is resultant of the diameter and coil strength</li> <li>- All of process is controlled by CNC with electro- Hydraulic servo bending system</li> </ul>	<ul style="list-style-type: none"> <li>- Forming Type : JCO air bent pressing type</li> <li>- Capacity : 65,000 KN</li> <li>- Length : 6.0 ~ 12.8m</li> <li>- Thickness : Max. 60mm</li> <li>- Out diameter : 18" ~ 64"</li> <li>- Maker : YSD (CHINA)</li> </ul>


	Process Step	Process Detail	Key Equipment
TACK WELDING		<ul style="list-style-type: none"> <li>- Guide Roller in tack welding machine make attached meeting point for welding with set the position and feed pipe continuously</li> <li>- GMAW Welding with CO2 or Argon gas to shield the welding area</li> </ul>	<ul style="list-style-type: none"> <li>- Type : 5 Rolls Guide Type</li> <li>- Capacity : DC Max. 45V , AC Max. 500A</li> <li>- Capacity : 25 Ton</li> <li>- O.D : 18" ~ 64"</li> <li>- Length : 6.0m ~ 12.8m</li> <li>- Thickness : Max. 60mm</li> <li>- Maker : SEOKWANG (KOREA)</li> </ul>
INSIDE WELDING		<ul style="list-style-type: none"> <li>- The pipe is carried on movable Carts per two line and advance along entire length of boom</li> <li>- Two wires (D.C and A.C) and utilizes laser for seam tracking</li> <li>- All of welding consumable control according to specification or customer request</li> </ul>	<ul style="list-style-type: none"> <li>- Capacity : DC Max. 1650A (2 Set)</li> <li>- AC Max. 1250 (2 Set)</li> <li>- O.D : 18" ~ 64"</li> <li>- Length : 6.0m ~ 12.8m</li> <li>- Weight : 30 ton</li> <li>- Thickness : Max. 60mm</li> <li>- Maker : ESAB (KOREA)</li> </ul>
OUTSIDE WELDING		<ul style="list-style-type: none"> <li>- The pipe is carried on movable carts per two line and weld the seam at set welding station</li> <li>- Two wires (D.C and A.C) and utilizes laser for seam tracking</li> <li>- All of welding consumable control according to specification or customer request</li> </ul>	<ul style="list-style-type: none"> <li>- Capacity : DC Max -1650A (2 set)</li> <li>- AC Max-1250A (2 set)</li> <li>- O.D : 18" ~ 64"</li> <li>- Length : 6.0 ~ 12.8m</li> <li>- Weight : 30 ton</li> <li>- Thickness : Max. 60mm</li> <li>- Maker : ESAB (KOREA)</li> </ul>
INTERMEDIATE X-RAY		<ul style="list-style-type: none"> <li>- X-Ray test machine tests the pipe welding seam with x-ray source</li> <li>- Sensitivity is achieved using the ASTM wire "A" or "B" wire type image quality indicator</li> <li>- All of acceptance image are saved digitally into a hard disk</li> </ul>	<ul style="list-style-type: none"> <li>- Type : Real time image (Digital X-RAY System)</li> <li>- Capacity : 325Kvp, 45 A</li> <li>- Thickness : Max 50mm</li> <li>- O.D : 18" ~ 64"</li> <li>- Length : 6.0~12.8m</li> <li>- Weight : 30 Ton</li> <li>- Welding seam Test : Long Seam</li> </ul>
CALIBRATION PRESS		<ul style="list-style-type: none"> <li>- All of pipes are calibrated with O type press tool for exactly diameter.</li> <li>- The calibration press is used to expert pressure to long pipe to rectify.</li> <li>- Also can be used to rectify the straightness of the pipes</li> </ul>	<ul style="list-style-type: none"> <li>- Forming Type : Mold shape type</li> <li>- Capacity : Max. 12500KN</li> <li>- O.D : 18" ~ 64"</li> <li>- Length : 6.0 ~ 12.8m</li> <li>- Weight : 21 ton</li> <li>- Thickness : 8 ~ 60mm</li> <li>- Maker : TSD (CHINA)</li> </ul>

	Process Step	Process Detail	Key Equipment
COLD EXPANDER		<ul style="list-style-type: none"> <li>- Longitudinal boom with hydraulic expand tool with pipe move on the conveyer to adjust diameter and straightness</li> <li>- Pipe expander process makes the welding of the pipe line of filed, even cut the pipe section much easier</li> </ul>	<ul style="list-style-type: none"> <li>- O.D : 18" ~ 56"</li> <li>- Length : 6.0m ~ 12.0m</li> <li>- Weight : 24MT/PC</li> <li>- Thickness : Max. 60mm</li> <li>- Maker : Fontijine Grotness</li> </ul>
END FASER		<ul style="list-style-type: none"> <li>- Pipe ends will be plain end Bevels or special customer requirements with rotate cutting wheel</li> </ul>	<ul style="list-style-type: none"> <li>- Type :Spindle rotary type (2 head)</li> <li>- Capacity : 20 Ton</li> <li>- O.D : 18" ~ 56"</li> <li>- Length : 6.0 ~ 12.8 m</li> <li>- Thickness : Max. 60mm</li> <li>- Cutting speed : Max. 10mm/Sec.</li> <li>- Maker : TSD (CHINA)</li> </ul>
HYDRO TESTER		<ul style="list-style-type: none"> <li>- To test integrity of parents metal and weld seam, Hydrostatics test is performed</li> <li>- The pipe ends are sealed by rubber sealing plate each of pipe end</li> <li>- High pressure water is applied and as internal water pressure achieves required pressure, pressure held 10 sec. or more</li> </ul>	<ul style="list-style-type: none"> <li>- Type : Sealing plate type</li> <li>- Capacity : 21 ton</li> <li>- Size : Max 64"</li> <li>- Length : 6.0 ~ 12.8 m</li> <li>- Thickness : Max. 60mm</li> <li>- Pressure : Max 60Mpa</li> <li>- Maker : TSD (CHINA)</li> </ul>
AUTO U.T.		<ul style="list-style-type: none"> <li>- Auto U.T test machine tests the Welding bead and HAZ with designed probe.</li> <li>- Inspection can be performed according to API, Shell and other customer requirements</li> </ul>	<ul style="list-style-type: none"> <li>- Size : 18" ~ 56"</li> <li>- Length : 5m ~ 12.8m</li> <li>- Thickness : 8 ~ 60mm</li> <li>- Weld seam width : 20 ~ 50mm</li> <li>- Inspection velocity : 50 ~ 60m/min</li> <li>- Inspection method : Pulse – echo method</li> <li>- Maker : GEIT</li> </ul>
X-RAY		<ul style="list-style-type: none"> <li>- X-Ray test machine tests the pipe welding seam with x-ray source</li> <li>- Sensitivity is achieved by the ASTM wire "A", "B" or "C" wire type image quality indicator</li> <li>- All of acceptance image are saved digitally into a hard disk</li> </ul>	<ul style="list-style-type: none"> <li>- Type : TV screen (real time image )</li> <li>- Capacity : 325Kvp, 45 A</li> <li>- Thickness : Max. 50mm</li> <li>- O.D : 18" ~ 120"</li> <li>- Length : 6.0 ~ 12.8m</li> <li>- Weight : 30 Ton</li> <li>- Welding seam Test : Long Seam &amp; Girth Seam</li> </ul>



## ● Roll Bender Line Process

	Process Step	Process Detail	Key Equipment
PLATE GAS CUTTER		<ul style="list-style-type: none"> <li>- Cut the plate according to request with gas cutter</li> <li>- Make the bevel to weld the longitudinal welding seam (X-Groove)</li> </ul>	<ul style="list-style-type: none"> <li>- Cutting method : Gas cutting type O2+ LPG</li> <li>- Capacity : 15 Ton</li> <li>- O.D : 18" ~ 120"</li> <li>- Length : 3m ~ 6m</li> <li>- Thickness : Max. 50mm</li> <li>- Maker : SeShine (KOREA)</li> </ul>
ROLL BENDER		<ul style="list-style-type: none"> <li>- Form the pipe with rolling the plate</li> <li>- Upper Roll press the plate when rolling pipe to make designed diameter</li> <li>- Re rolling to calibrate the diameter after finished welding</li> </ul>	<ul style="list-style-type: none"> <li>- Type : 3 Roll bending</li> <li>- O.D : 40" ~ 120"</li> <li>- Length : 3.0m ~ 6.0m</li> <li>- Thickness : Max. 50mm</li> <li>- Weight : 23 Ton</li> <li>- Maker : SEOKWANG (KOREA)</li> </ul>
6M WELDER (IN/OUT-6M LSEAM)		<ul style="list-style-type: none"> <li>- The pipe is carried on movable carts and advance along entire length of boom and outside welding station</li> <li>- Two wires (D.C and A.C) and utilizes laser for seam tracking advance control system to monitor arc characteristics</li> <li>- All of welding consumable control according to specification or customer request</li> </ul>	<ul style="list-style-type: none"> <li>- Welding method type : Submerged arc welding</li> <li>- Capacity : DC Max. 1600A (2 Set) : AC Max. 1500A (2 Set)</li> <li>- O.D : 40" ~ 120"</li> <li>- Length : Max 6.0m</li> <li>- Weight : 22.5 ton</li> <li>- Thickness : Max. 50mm</li> <li>- Moving type : wagon type</li> <li>- Maker : ESAB (KOREA)</li> </ul>
FIT UP		<ul style="list-style-type: none"> <li>- Join the each pipe with bottom tuning roller</li> <li>- Adjust the each pipe height with roller width setting</li> <li>- After adjusting, tack welding on the girth seam before SAW welding</li> </ul>	<ul style="list-style-type: none"> <li>- Type : Turning roll type</li> <li>- Capacity : 30 Ton</li> <li>- O.D : 40" ~ 120"</li> <li>- Length : 6.0 ~ 12.8m</li> <li>- Thickness : Max. 50mm</li> <li>- Loading Capa : Max 22.5 ton</li> </ul>
GIRTH WELDER (INSIDE)		<ul style="list-style-type: none"> <li>- The pipe is carried on movable carts and advance along entire length of boom to welding girth</li> <li>- Two wires (D.C and A.C) and utilizes laser for seam tracking advance control system to monitor arc characteristics</li> <li>- All of welding consumable control according to specification or customer request</li> </ul>	<ul style="list-style-type: none"> <li>- Capacity : DC Max -1650A (2 set) : AC- Max-1250A (2 set)</li> <li>- O.D : 18" ~ 56"</li> <li>- Length : 6.0 ~ 12.8m</li> <li>- Weight : 30 ton</li> <li>- Thickness : Max. 50mm</li> <li>- Maker : ESAB (KOREA)</li> </ul>

	Process Step	Process Detail	Key Equipment
OUTSIDE WELDER		<ul style="list-style-type: none"> <li>- The pipe is carried on movable carts and weld the girth seam set welding station</li> <li>- Two wires (D.C and A.C) and utilizes laser for seam tracking advance control system to monitor arc characteristics</li> <li>- All of welding consumable control according to specification or customer request</li> </ul>	<ul style="list-style-type: none"> <li>- Capacity : DC Max. 1650A (2 Set) : AC Max. 1250A (2 Set)</li> <li>- O.D : 18" ~ 56"</li> <li>- Length : 6.0 ~ 12.8m</li> <li>- Weight : 30 ton</li> <li>- Thickness : Max. 50mm</li> <li>- Maker : ESAB (KOREA)</li> </ul>
HEAT FURNANCER		<ul style="list-style-type: none"> <li>- To release the stress, heat up the pipe until designed temperature and raise rate.</li> <li>- After finished the heat treatment cooling down in room temperature</li> <li>- Two carriage move the pipe Inside furnace</li> </ul>	<ul style="list-style-type: none"> <li>- Type : Gas furnace (2 furnace)</li> <li>- Capacity : Max 150 Ton (1 charge)</li> <li>- O.D : 18" ~ 120"</li> <li>- Length : Max 12.8 m</li> <li>- Temperature : Max. 970°C</li> <li>- Moving type : Wagon car</li> <li>- Maker : DONGSUNG (KOREA)</li> </ul>
HYDRO TESTER		<ul style="list-style-type: none"> <li>- To test integrity of parents Metal and weld seam, Hydrostatics test is performed</li> <li>- The pipe ends are sealed by rubber sealing plate each of pipe end</li> <li>- High pressure water is applied and as internal water pressure achieves required pressure, pressure held 10 sec. or more</li> </ul>	<ul style="list-style-type: none"> <li>- Type : Sealing plate type</li> <li>- Capacity : 30T</li> <li>- Size : Max 120"</li> <li>- Length : 6.0 ~ 12.8 m</li> <li>- Thickness : Max. 50mm</li> <li>- Pressure : Max. 250bar</li> <li>- Maker : SEOKWANG (KOREA)</li> </ul>

## PRODUCT LIST

<ul style="list-style-type: none"> <li>- British Standards</li> <li>- Deutsche Industrie Normen</li> <li>- American Petroleum Institute Standards</li> </ul>	<ul style="list-style-type: none"> <li>- American Society for Testing &amp; Material Standards</li> </ul>
Carbon Steel Pipes For Ordinary Piping	<ul style="list-style-type: none"> <li>- Pipes For Water Piping</li> <li>- Pipes for General Ordinary Piping</li> </ul>
Line Pipe	<ul style="list-style-type: none"> <li>- BS</li> <li>- ASTM</li> <li>- ISO</li> <li>- DIN</li> </ul>
Carbon Steel Pipes for Pressure Service	<ul style="list-style-type: none"> <li>- Pipes for Pressure Service</li> </ul>
Carbon Steel Pipes for Structural Purpose	<ul style="list-style-type: none"> <li>- Offshore Structural Tubular</li> <li>- Steel Pipe Pile</li> </ul>



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## MANUFACTURING & INSPECTION PROCESS



- Manufacturing and Inspection Process
- Manufacturing Process Chart (JCOE Line)
- Manufacturing Process Chart (Roll Bender Line)

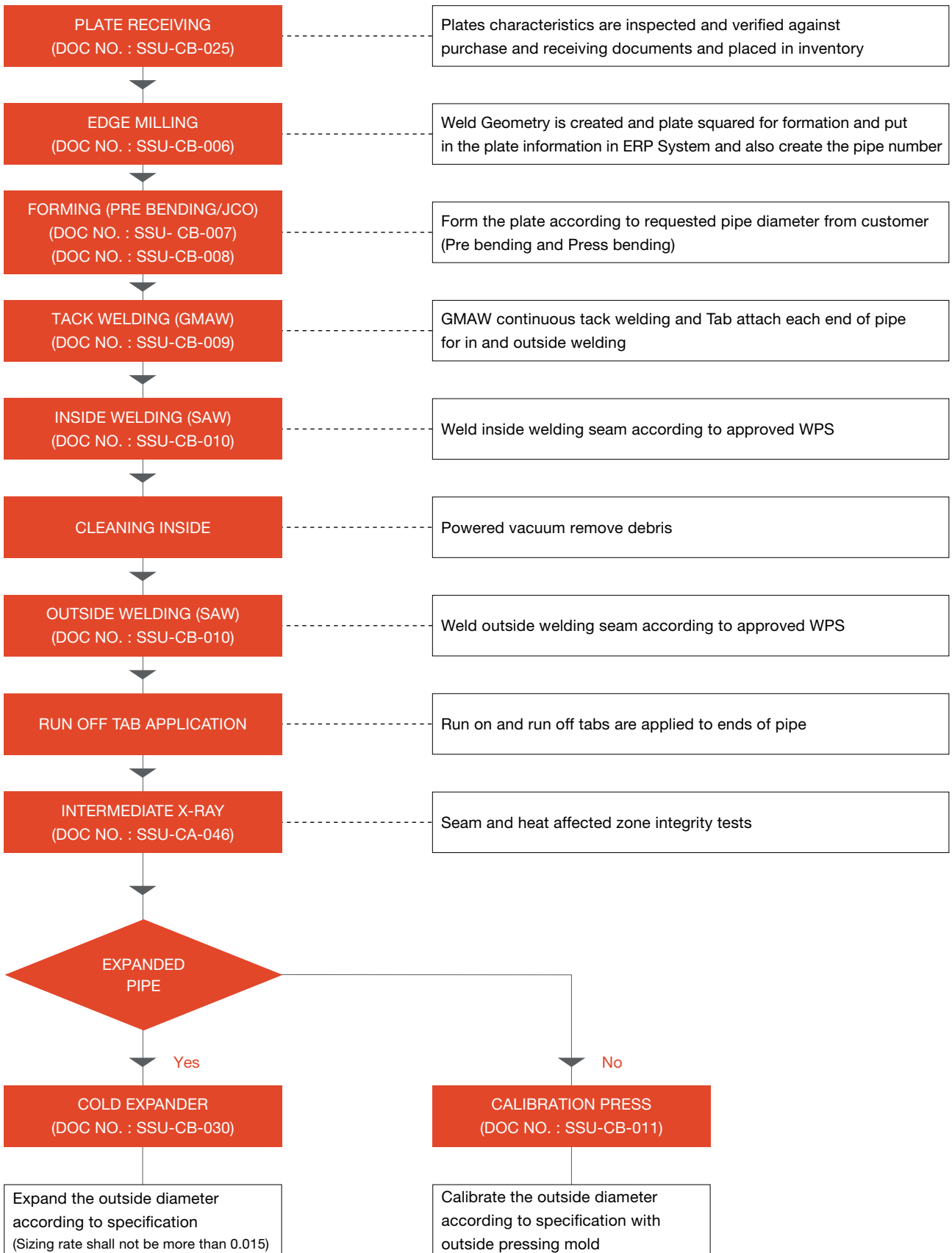


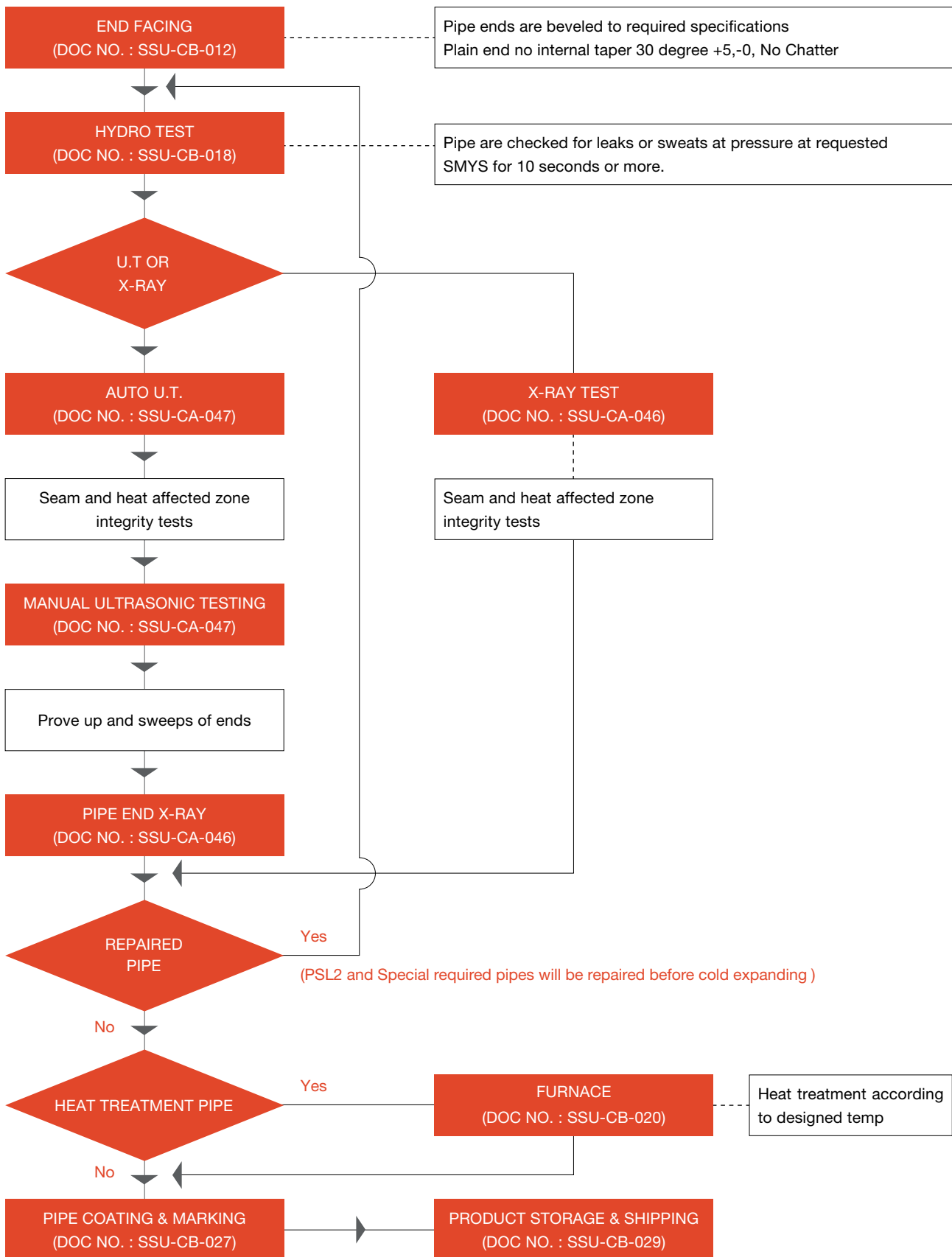
# MANUFACTURING AND INSPECTION PROCESS



MANUFACTURING PROCESS		QUALITY RELATED ACTIVITY				FREQUENCY
NO	PROCESS	JCOE	R/B	ACTIVITY	CHARACTERISTICS	
1	RAW MATERIAL ORDERING	●	●	- SS UAE PO	- SS UAE PO	EACH ORDER
2	INCOMING INSPECTION	●	●	PLATE AND WELD METAL - DIMENSION - CHEMICAL PROPERTY - MECAHNICAL PROPERTIES	- WIDTH, THICKNESS LENGTH - TENSILE, IMPACT - CHEMICAL COMPOSITION	EACH HEAT & PLATE
3	EDGE MILLING	●	—	- DIMENSION	- BEVEL ANGLE	EACH PLATE
	GAS CUTTING	—	●	- CHECK FOR TRACEABILITY	- HEAT NO, PLATE NO	
4	PRE BENDING	●	—	- EDGE ROUNDNESS	- ROUNDNESS	EACH PIPE
5	PRESS BENDING	●	—	- DIMENSION	- ROUNDNESS	EACH PIPE
	ROLL BENDING	—	●		- OPEN GAB - OVALITY	
6	TACK WELDING	●	●	- WELDING CONDITION - DIMENSION	- WELDING PARAMETER - OFF SET	EACH PIPE
7	SAW WELDING (LONGITUDINAL)	●	●	- WELDING CONDITION - DIMENSION	- WELDING PARAMETER - REINFORCEMENT	EACH PIPE
8	FIT UP	—	●	- DIMENSION	- ROUNDNESS - STRAIGHTNESS	EACH PIPE
9	SAW WELDING (GIRTH)	—	●	- DIMENSION	- WELDING PARAMETER - REINFORCEMENT	EACH PIPE
10	INTERMEDIATE X-RAY TEST	●	—	- WELD SEAM	- ACC TO SPEC	EACH PIPE
11	CALIBRATION / COLD EXPANDING	●	—	- CHECK FOR LEAKAGE	- STRAIGHTNESS - OVALITY	EACH PIPE
12	END FACING	●	●	- DIMENSION	- BEVEL ANGLE - ROOT FACE	EACH PIPE
13	HEAT TREATMENT (IF REQUIRED)	●	●	- HEAT TREATMENT CONDITION	- TEMP - HOLDING TIME	EACH LOT
14	HYDRO TEST	●	●	- CHECK FOR LEAKAGE	- PRESSURE - HOLDING TIME	EACH PIPE
15	NDT (RT/UT/MT)	●	●	- WELD SEAM - RESIDUAL MAGNETISM	- ACC TO SPEC	EACH PIPE
16	LAB TEST	●	●	- CHEMICAL - MECHANICAL	- CHEMICAL PROPERTY - TENSILE, GUIDED BEND - IMPACT, HARDNESS - MACRO - SSCC & HIC - DWTT	EACH HEAT & LOT
17	FINAL INSPECTION (VI/DI)	●	●	- DIMENSION	- LENGTH, THICKNESS - ROUNDNESS - STRAIGHTNESS - SURFACE CHECK	EACH PIPE
18	PACKING	●	●	- PACKING CONDITION	- PROTECTION OF PIPE	EACH PIPE
19	SHIPPING	●	●	- LOADING CONDITION	- NO DAMAGE - HANDLING	EACH PIPE

# MANUFACTURING PROCESS CHART (JCOE LINE)

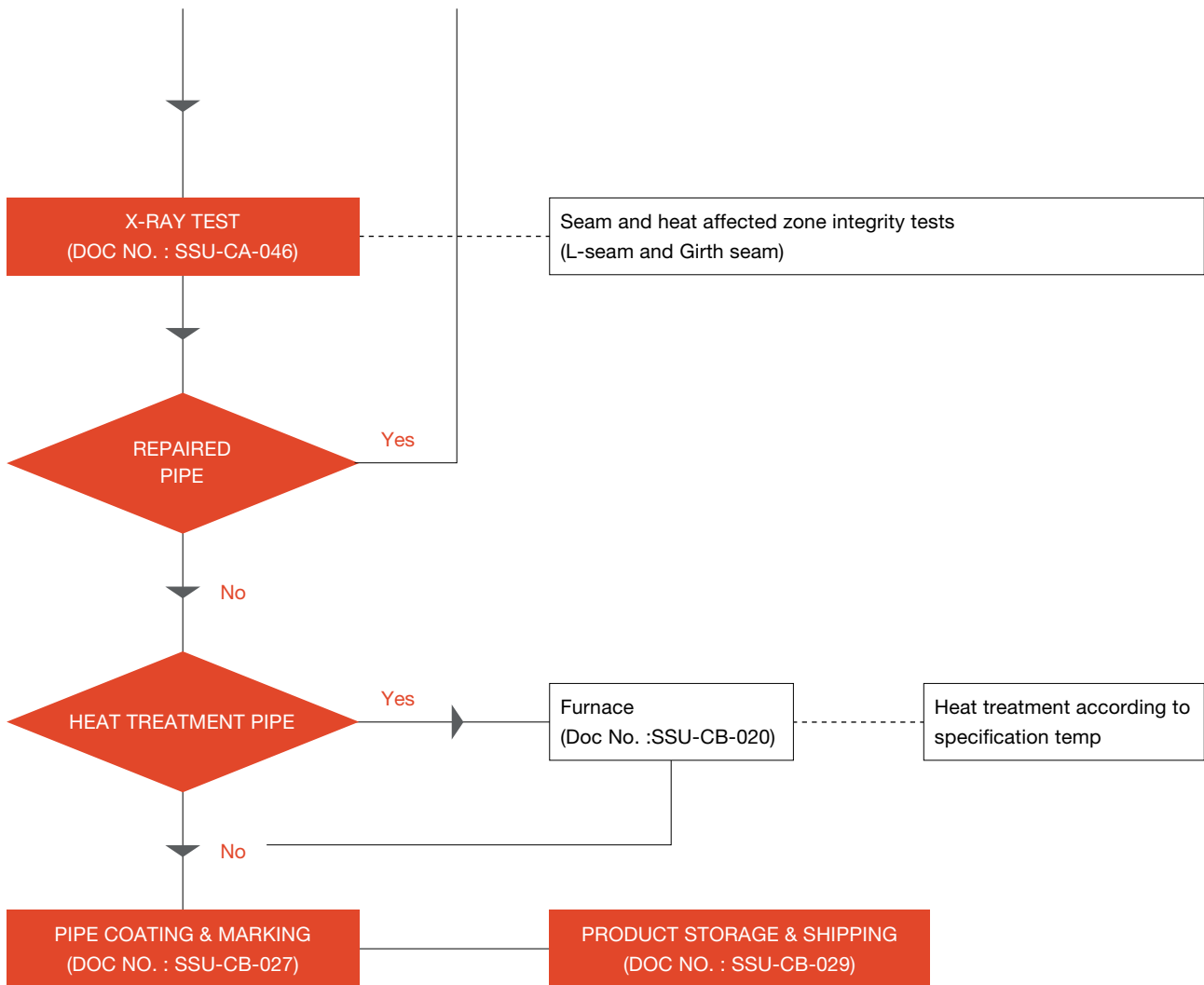




# MANUFACTURING PROCESS CHART (ROLL BENDER LINE)







# 5

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## Quality Management



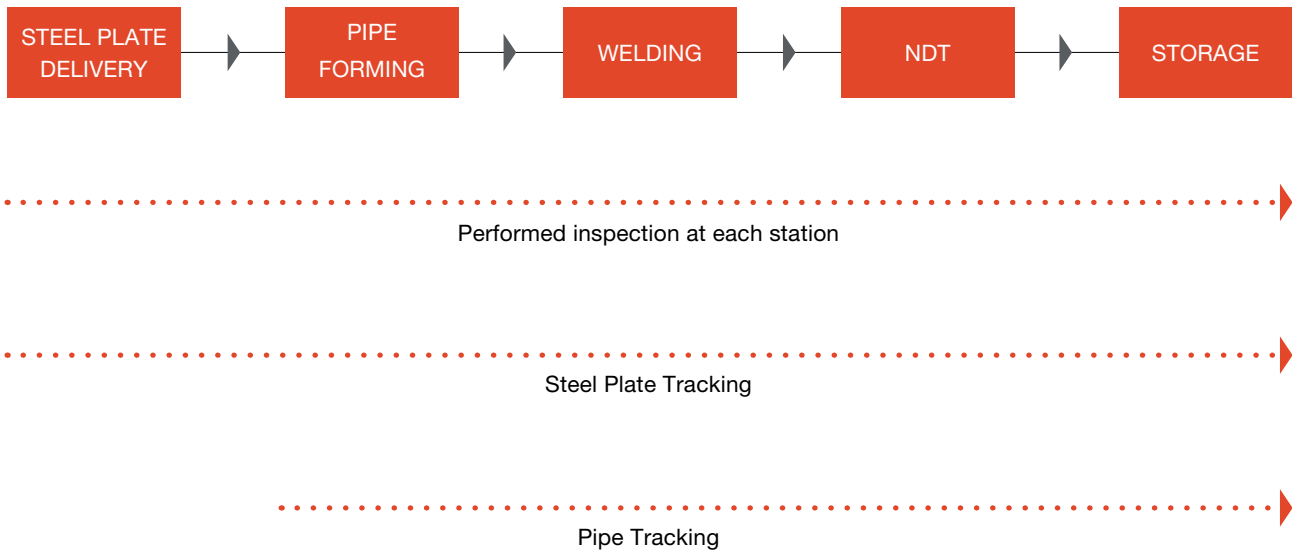
- High Quality Production Process
- Product Quality Management
- PQR and WPS Process
- Statistical Process Control



# HIGH QUALITY PRODUCTION PROCESS



## Integrated Quality Control and Tracking system



SeAH Steel UAE's commitment to quality commences with its raw material sourcing strategy. The Company's key manufacturing input is steel plate, which is reliably sourced under an existing supply agreement. Other input materials, such as welding consumable (Wire and Flux) and other related pipes are all sourced from industry - leading company

Steel plate and all other procured input materials are inspected upon delivery before being processed. The benefit of such quality control process is reflected in the average API and non-API production yields experienced by SeAH Steel UAE, which have approached world class levels since commencement of operation. Production yield is an important determinant in maintaining a cost competitive operating base and make SeAH Steel UAE rigorously grow market share in longitudinal welded pipe segment.

Similarly, quality is a critical competitive advantage given the importance of defect-free pipes in the oil and gas transmission or related market. From 2010, SeAH Steel UAE has had minimal customer claims against its products on the basis of quality or defects, which further establishes the Company as a high quality supplier of choice within the SAWL pipe segment.

The company employs industry-leading quality control technique in manufacturing and work directly with its customer to develop a manufacturing procedure specification and quality assurance plan before production commences on any of its orders. Depending on customer specifications, first day production trials are carried

out on the initial production batch to help ensure that the customer's specifications are met. In addition to SeAH Steel UAE's ordinary, process-integrated inspections post-forming and welding as well as non-destructive testing (hydrostatic, ultrasonic and x-ray, the Company can perform destructive testing). This testing is also an integrated procedure for the ongoing operations, for which SeAH Steel UAE has a full range of laboratory testing equipment (include HIC, SSCC Lab) to assess the chemical and various mechanical properties of the pipe.

## **PRODUCT QUALITY MANAGEMENT**

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Given the customers' strict order specifications and quality expectations, SeAH Steel UAE, LLC is strongly focused on quality control and undergoes a rigorous quality assurance and control program that is API, C.E and other certification. Furthermore, the Company integrates the customer directly into this process. Once a request for quote is received from a customer, SeAH Steel UAE reviews the specification to determine the project viability. If an internal review indicates that SeAH Steel UAE can take the order on, the Company will negotiate the technical details with the customer that will ultimately be reflected in the final order award. Part of the negotiation will be the Manufacturing Procedure Specification ("MPS") and the Inspection and Test Plan ("ITP"), along with other pertinent quality and operations documents. The final step in the order award process is a pre-production meeting between the customer and SeAH Steel UAE to come to a technical agreement. Before commencing full scale production of the order, a trial production run is conducted to set the mill process parameters. The trial production includes testing per customer specifications to verify the production process parameters.

## SAMPLE QUALITY MANAGEMENT DOCUMENTS

Manufacturing Procedure Specification

Inspection Test Plan

Inspection Reports

MTC

A key factor of the product quality management is the traceability of pipe and its inputs, from the reception of plate to final inspection and yard storage. Unique and based on proprietary software, SeAH Steel UAE's pipe tracking system is real time and able to trace each step in the manufacturing process. SeAH Steel UAE receives plate that already is coded with heat number, grade, net weight and size in ERP System. Once the plate is inspected and released for production. Plates that do not conform to SeAH Steel UAE's strict quality standard are taken out of the production process. As the Plate is formed into a pipe, a unique pipe number is generated from ERP system and applied to each pipe. Finally, the stenciling produces a stencil with pipe information

## SEAH STEEL UAE PIPE TRACKING SYSTEM

Quality Control Specification			
Item No.	10000000000000000000	Spec No.	10000000000000000000
Item Name	PIPE	Spec Name	PIPE
Item Code	10000000000000000000	Spec Code	10000000000000000000
Item Description	PIPE	Spec Description	PIPE
Item Unit	MT	Spec Unit	MT
Item Weight	12.0000	Spec Weight	12.0000
Item Length	12.0000	Spec Length	12.0000
Item Thickness	25.0000	Spec Thickness	25.0000
Item Diameter	1219.0000	Spec Diameter	1219.0000
Item Material	ABS EHS8-TM	Spec Material	ABS EHS8-TM
Item Standard	29 3050 12	Spec Standard	29 3050 12
Item Heat No.	08190	Spec Heat No.	08190

SJ1570001 : API 2B Pipe 914.00 X 25.00t X 12.000M BEE

Save and close    Cancel

End working

Category	Standard value (min/max)	Actual value
Cutting angle of Edge	32	32
Width	Before processin	2818
	After processing	2788
Thick	23.5 / 26.5	25
Length	12 / 12.05	12
Apperance	State	Good

SJ1570004 : API 5L X 91.4 X 12.190 X 12.000M BEE

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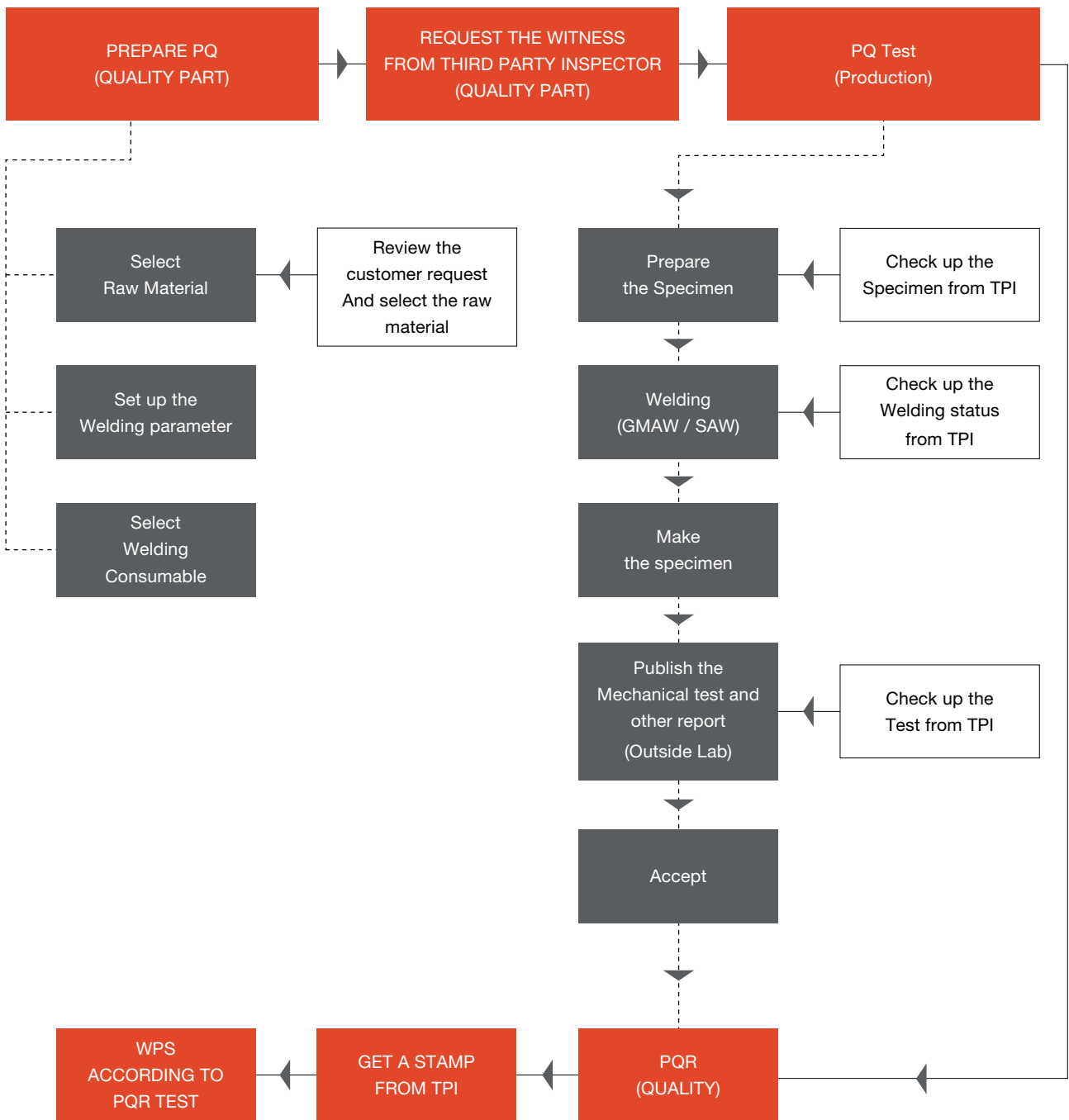
End working

Category	Standard value (min/max)	Actual value
Cutting angle of Edge	32	32
Width	Before processin	2818
	After processing	2788
Thick	23.5 / 26.5	25
Length	12 / 12.05	12
Apperance	State	Good

Direction No.	Order No.	Project	Deadline	Customer	Start	Direction Qty/Wgt	Report qty/Remaining	Special specification	Plate No.	Quality	Standard	HEAT NO
A20150704001	1	FMB - QATAR PETROLEUM PROJECT	2015-07-04 00:00:00	SEUNG HYUN CHO		2 / 13,154	2 / 0		KAB3402	ABS EHS8-TM	29 3050 12	08190

After pipe forming, all following work stations enter the pipe number in the ERP system. All station-related parameters, such as the date, shift of performance and operator name are recorded in the system. The status of operation is recorded as accepted or non-conforming when the work-in-progress pipe moves to the next manufacturing process or station. In case of non-conformance, pipe is routed to rework stations. After rework is completed, pipe is re-routed through the inspection stations and re-inserted into the workflow. At final pipe inspection, an updated with the pipe's final length is placed at four locations on the pipe, one at each end (inside and outside). The Inside Diameter ("I.D.") and / or Outside Diameter ("O. D") are stenciled with complete product information per customer specifications.

# PQR AND WPS PROCESS



# STATISTICAL PROCESS CONTROL



SeAH Steel UAE's statistical process control (SPC) is carried out on monthly or order basis for following parameter measured production.

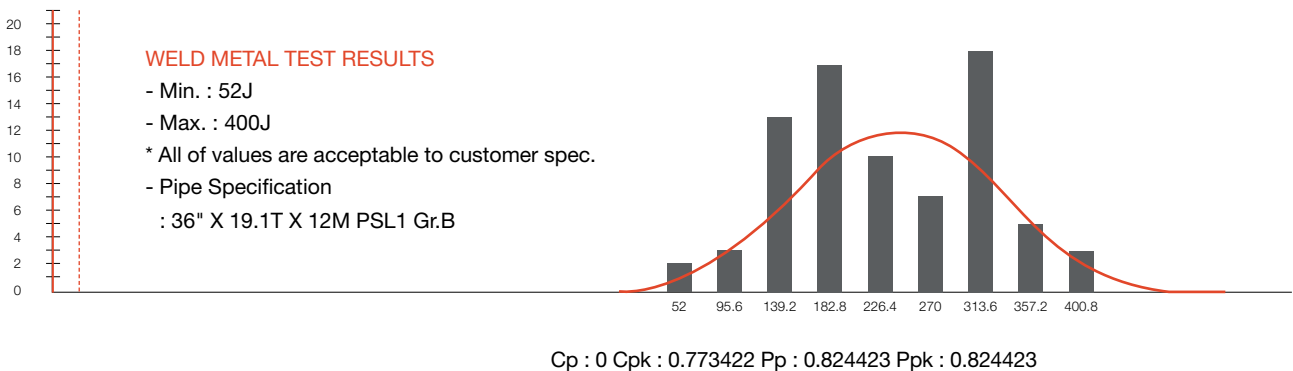
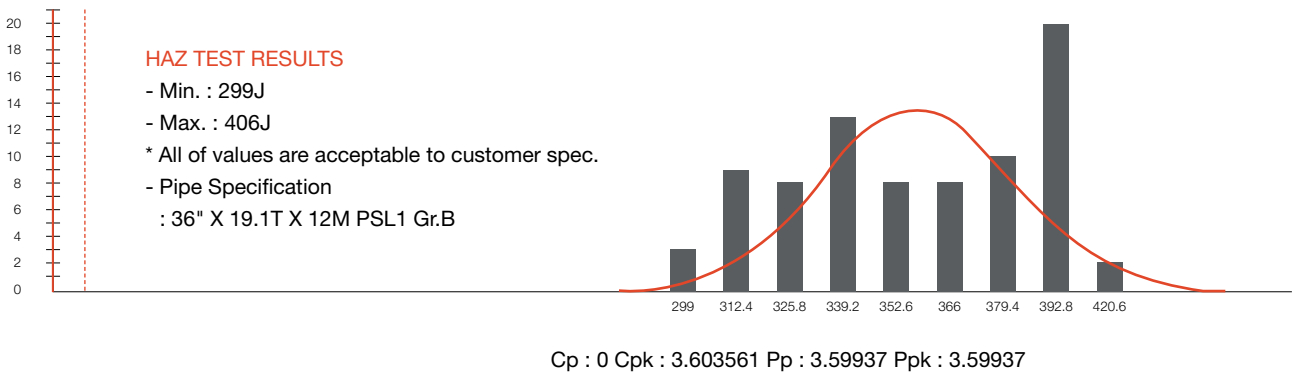
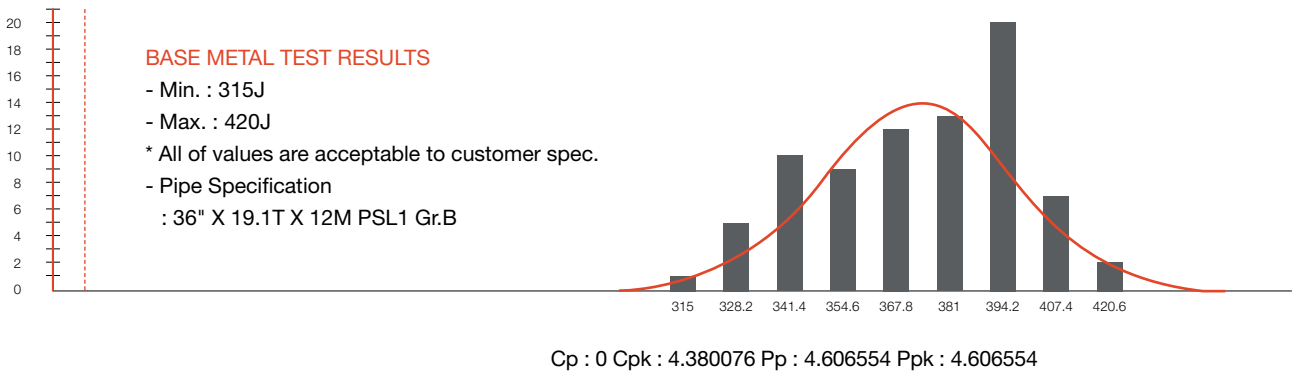
## VISUAL INSPECTION

- 1) Pipe end diameter
- 2) Wall thickness
- 3) Straightness
- 4) Squareness
- 5) Bead height (Inside and outside)

## LAB TEST

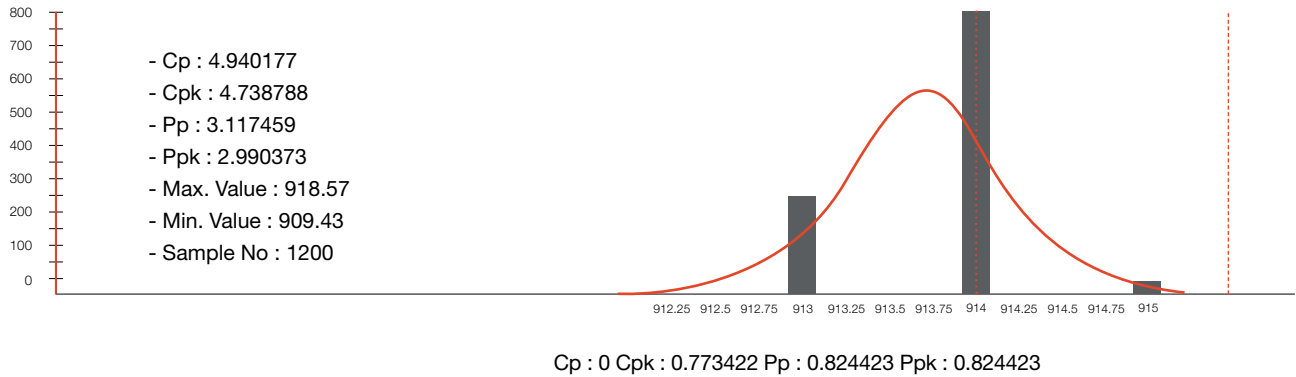
- 1) Charpy impact test
- 2) Tensile test
- 3) Customer Request

## ● CHARPY IMPACT TEST

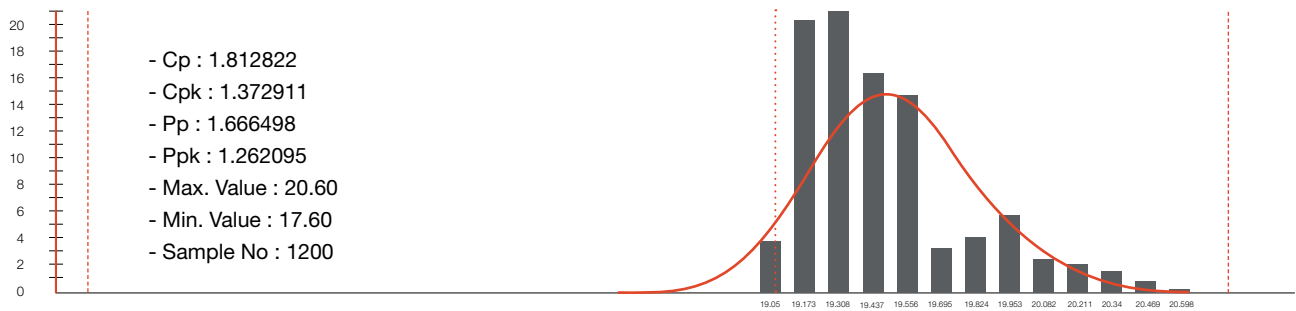




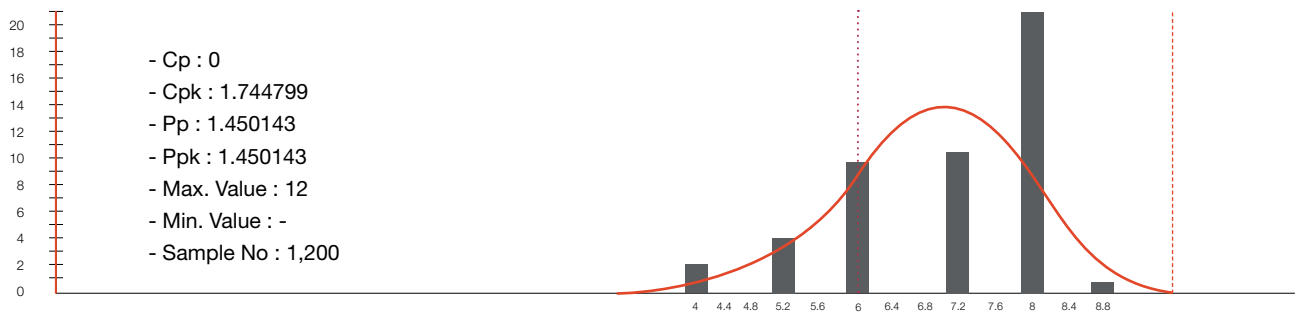
● **OUTSIDE DIAMETER**



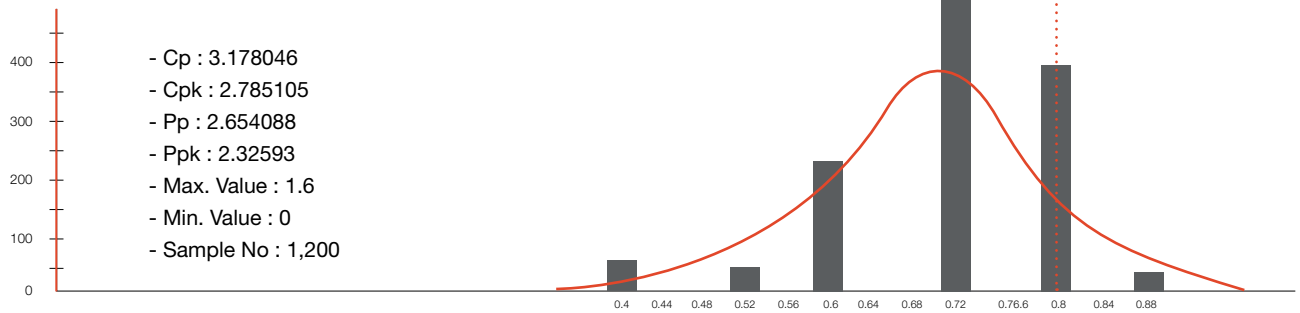
● **WALL THICKNESS**



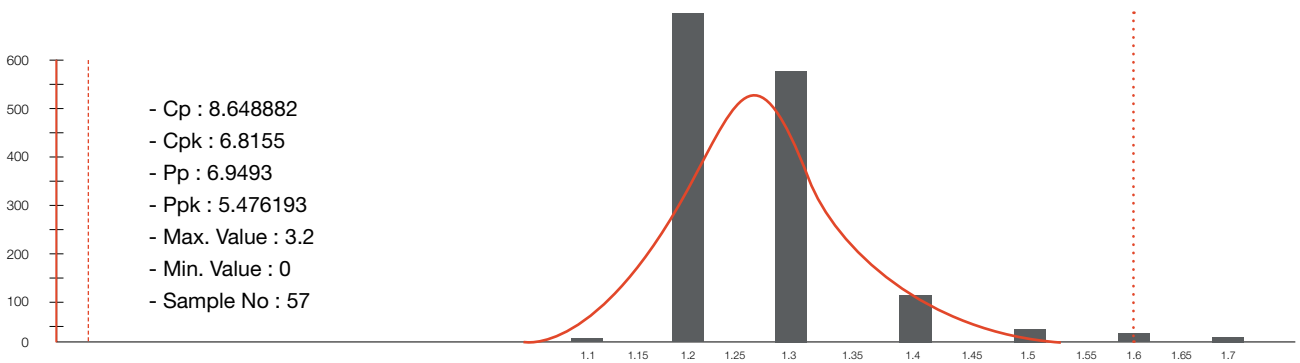
● **STRAIGHTNESS**



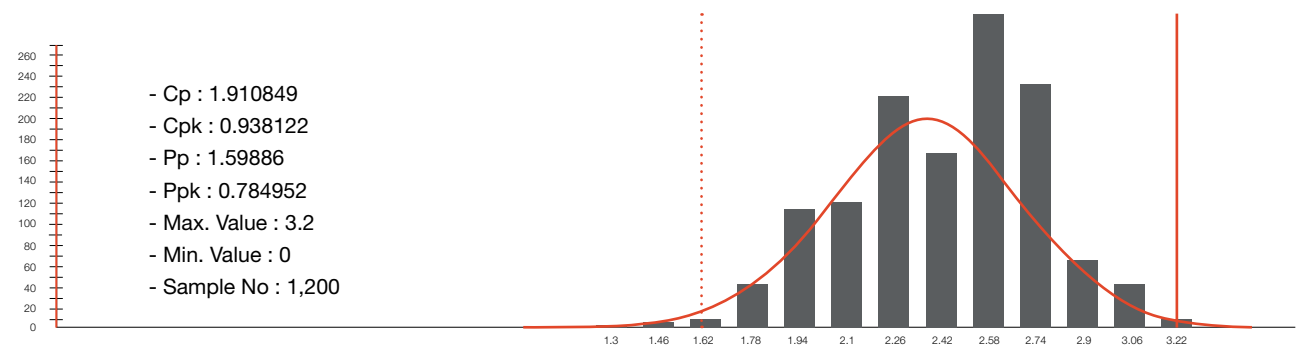
● **SQUARENESS**



● **BEAD HEIGHT- INSIDE**



● **BEAD HEIGHT- OUTSIDE**



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## TESTING & INSPECTING APPARATUS



NO.	DESCRIPTIONS	RANGE	MAKER	COUNT	ORIGIN
1	Universal Testing Machine	1000kN (100tf)	Shimadzu	1	JAPAN
2	Optical Emission Spectrometer	22 CH	Thermo Electron	1	SWISS
3	Automatic Charpy Impact Tester	542J	Tinius Olsen	1	USA
4	Vickers Hardness Tester	HV0.3 to HV30	Wilson-Wolpert	1	USA
5	Inverted Microscope	50x, 10x, 20x, 50x, 1000x	Leica	1	GERMANY
6	Stereo Zoom Microscope	0.67x to 4.5x	Olympus	1	JAPAN
7	Charpy Notch	10mm (0.394") Broaching Machine	Blacks	1	UNITED KINGDOM
8	Ultrasonic Flaw Detector	14m @ 5900 m/s	Krautkramer	1	GERMANY
9	Ultrasonic Flaw Detector (Phased Array Type)	1.8m @ 5900 m/s	GEIT	2	USA
10	Auto Ultrasonic Tester	18" ~ 56" NDT	Eng.	1	KOREA
11	X-Ray Inspect	320KV 22.5mA	XYLON	1	GERMANY
12	Intermediate X-Ray	350 KV 22.5mA	GEIT	1	GERMANY
13	Polishing Machine	8" (203mm) dia. twin wheel	Allied High Tech	1	USA
14	Mounting Press Machine	Mold assembly 2"	Buehler	1	USA
15	Abrasive Cutter	Cut-off Wheel 10"	Buehler	1	USA
16	Dead Weight Tester	Pressure 0.5~50MPa	Nagano	1	JAPAN
17	Hydrostatic Tester	18" ~ 56"	TSD	1	CHINA
18	Hydrostatic Tester	58" ~ 120"	Seo Kwang	1	KOREA
19	Hydrogen Induced Cracking Tester (HIC)	18" ~ 120"	Top Tech	1	KOREA
20	Sulfide Stress Corrosion Cracking Tester (SSCC)	18" ~ 120"	Top Tech	1	KOREA
21	Drop Weight Tear Tester (DWTT)	100,000J	Dain Systec	1	KOREA

● LAB TEST EQUIPMENTS



Universal Testing Machine



Optical Emission Spectrometer



Charpy Impact Tester



Vickers Hardness Tester



Inverted Microscope



Stereo Zoom Microscope



Charpy Notch Broaching Machine



Abrasive Cutting Machine



Mounting Press Machine



Polishing Machine



Drop Weight Tear Tester (DWTT)



Sulfide Stress Corrosion Cracking Tester (SSCC)



Hydrogen Induced Cracking Tester (HIC)

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**APPROVED CERTIFICATES**



## ● Certificates

Cert. Description	Production	Monogram
International Standardization Organization	- ISO 9001 Quality System (Manufacturing of Longitudinally steel pipe) - ISO 14001 Environment management system - OHSAS 18001 Health & Safety management System	ISO
American Petroleum Institute	- API Q1 (Manufacturing of Longitudinally steel pipe) - API 5L Line Pipe - API 2B Structural Pipe	API
EN Standard	- CE Marking (requalification 305/2011/EU) (Carbon Steel Pipe)	CE

## ● Approved Vendor List

No	Company	Reg. No	PG Description	Date
1	ADMA-OPCO	13911	PIPES-CS-API 5L-LSAW <160508> STRUCTURAL TUBULAR WELDED <148580>	21-APR-2014
2	ADCO	10756	PIPES-CS-API 5L-LSAW <160508> PIPES-CS-API 5L-LSAW-SOUR (LINE PIPE) <160526>	24-DEC-2013 08-JUNE-2014
3	TAKREER	909356	PIPES : CS/AS - LONGITUDINAL WELDED (LINE PIPE)	01-JULY-2012
4	ADWEA	001465	PIPES-CARBON STEEL <0107030>	12-JULY-2014
5	ADGAS	105183	PIPES : CS/CA - LONGITUDINAL WELDED (LINE PIPE) <180515> PIPES : CS/AS - LONGITUDINAL WELDED (LINE PIPE) FOR SOUR SERVICE <180517>	27-JAN-2014 27-JAN-2014
6	FERTIL	36692	PIPES : CS/CA - LONGITUDINAL WELDED (LINE PIPE)	03-MAR-2013
7	NIGC	60.112.67631	LSAW UP TO 48"	04-AUG-2015
8	KALA NAFT	985751	PIPES-CS-LONGITUDINAL WELDED PIPES-CS-API 5L-LSAW <160508>	04-AUG-2015
9	GASCO	912902	PIPES-CS-API 5L-LSAW, NON-SOUR (LINE PIPES) <160529> PIPES-CS-API 5L-LSAW, SOUR (LINE PIPES) <160526>	08-JUN-2016
10	ZADCO	27141	PIPES-CS-API 5L-SAW <160508>	28-JUN-2016



ISO 9001



API Q1



CE



ISO 14001



API 5L



ISO 18001



API 2B







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