

# Metal Pipe Making Plants



Allbest Creative Development Ltd. (ALLBEST)

# Technology Portfolio

- Seamless steel pipe rolling mills
- Hi-Frequency Welded Pipe Mill Line (Round, Sections, Stainless/ERW)
- Longitudinal submerged arc welding pipe line (LSAW/LERW)
- Pipe galvanizing line
- Spiral submerged arc welding pipe plant (SSAW)
- Aux. Equipment and Line for Pipe Making
- Ductile cast iron pipe production line

# Seamless Pipe Rolling Mills, Tianjin Pipe Co.

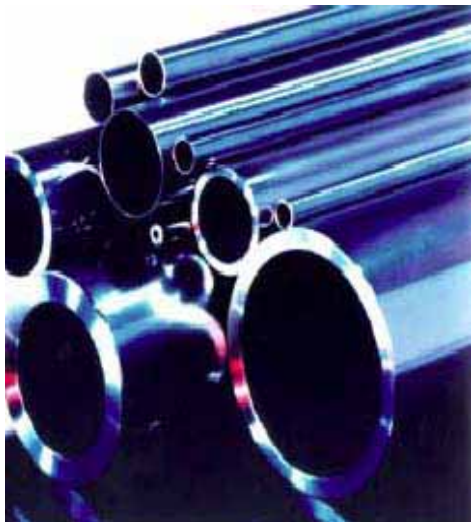


Pipe Processing



Plant Area

# Ø168 PQF Continuous Pipe Rolling Mills (Phase II), Tianjin Pipe Co.



## Ø 250mm Pipe rolling mills, Tianjin Steel Co.



Co-design & manufactured with Demag

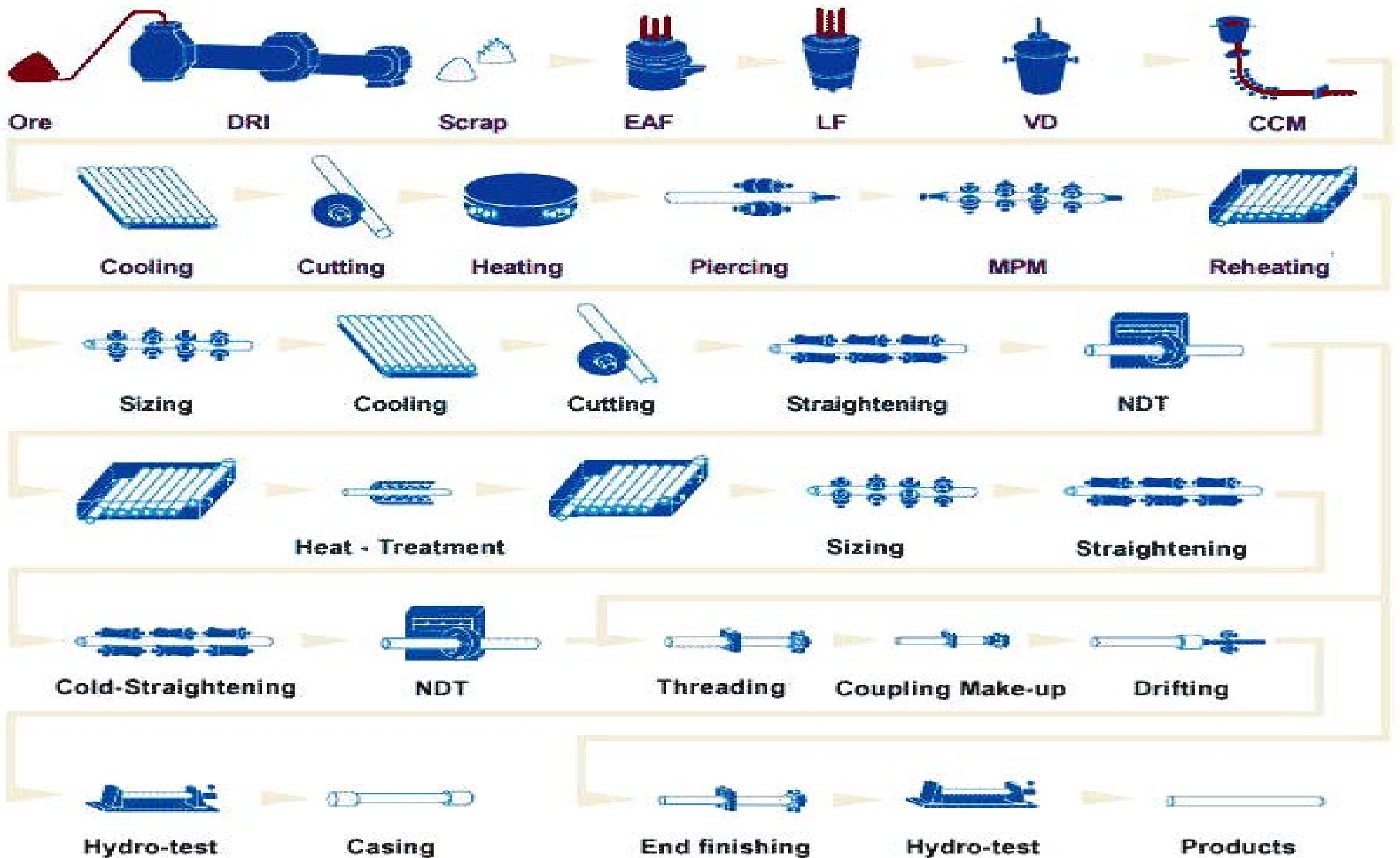


Hi boiler tube mill, Hengyang Steel

# Seamless Tube Rolling, Piercing/Elongator Mill



# Typical Pipe Rolling Process





Since a type of 76 seamless tube rolling mill trial-produced in the fifties, series seamless tube producing equipment, equipment have been provided for various tube making work across the country and exported to Viet-Nam and so on. These mills have won good reputation.

Items	Unit	Seamless tube hot rolling mill size		
		10-60	76	100
Material		Stainless steel carbon steel	Stainless steel carbon steel	Stainless steel carbon steel
Diameter	mm	50-75	60-90	70-110
Length	mm	600-1400	800-1200	800-2000
Diameter	mm	10-60	30-76	50-114
Thickness	mm	1-5	2.5-4	3.5-15
Length	m	4-9	4-8	4-8.5
Output	t/year	10000-15000	10000-25000	50000

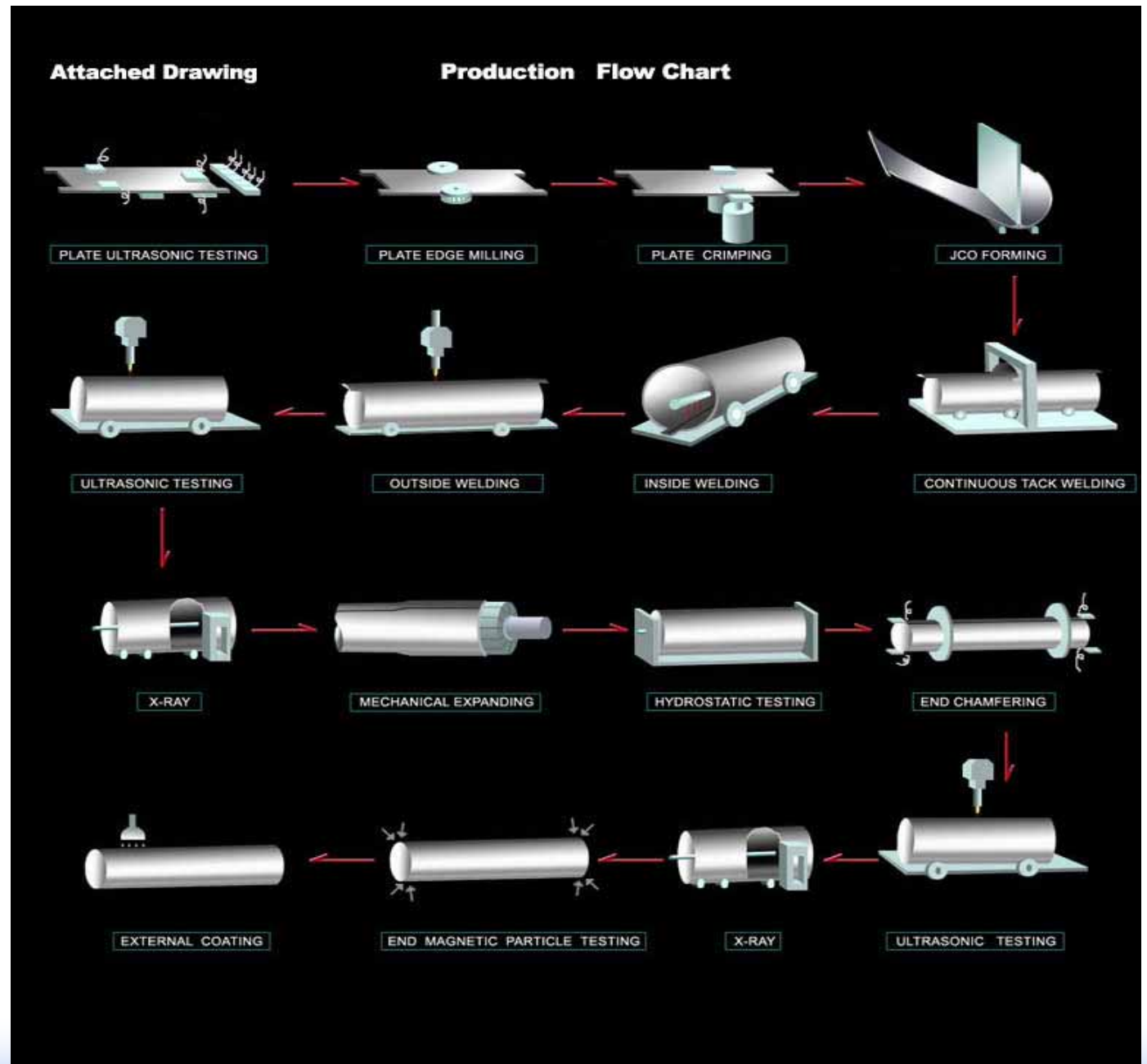
Items	Unit	Piercing Mill Sizes						
		50	76	90	100	120	133	
Billet diameter	mm	50-60	60-75	75-100	70-110	80-120	100-130	
Billet length	mm	600-1000	600-1400	700-2600	800-2000	900-1800	900-1500	
Shell diameter	mm	50-60	60-75	75-105	75-115	80-125	100-133	
Shell length	mm	1500-3000	1500-4500	<6000	<5000	<5000	<5000	
Roller diameter	mm	340/300	500/450	600/530	550/500	600/550	650/550	
Roller speed	r/m	120	107	121	135	84	79	
Stoke of pusher	mm	600	1300	2100	2100	2100	1700	
Push-up rod trolley stroke	mm	4000	6300	7600	5900	6400	6200	
Push-up rod trolley speed	m/s	1.6	2.2	2.6	2.6	2.2	1.061	
Main motor	type		JR137-6	JRQ-Q1410-6	JR800-20/1730	JR215/39-20	YR1600-16/2150	YR2000-12/1730
	Power	kw	280	520	800	1000	1600	2000
	Speed	r/min	980	985	293	296	369	495
Overall dimensions		m	16×3.33×2	23.4×4.4×2.16	30×3.35×2.85	26×4.4×3.5	30×3.35×2.85	25.82×4.56×3.147
Weight		t	22.2	34	65	91.3	116.7	138.465

Items		Unit	Elongator Mill size		
			50	76	120
Before Elongating	Diameter	mm	50-60	60-76	80-130
	Length	mm	1500-3000	1500-4500	3000-4200
After Elongating	Diameter	mm	50-60	60-76	80-140
	Length	mm	2000-4500	2500-7000	<7700
Roller Diameter		mm	390/360	540/480	510/460
Roller Speed		r/min	155	154	108
Push up Rod Trolley Speed		m/s	2.2	2.96	
Main Motor	Type		JR137-6	JRQ-1410-6	JR158-6
	Power	KW	280	520	550
	Speed	r/min	980	985	980
Overall Dimensions		m	22×3.1×2	31.5×4.4×2.16	
Weight		t	24.12	39.6	60

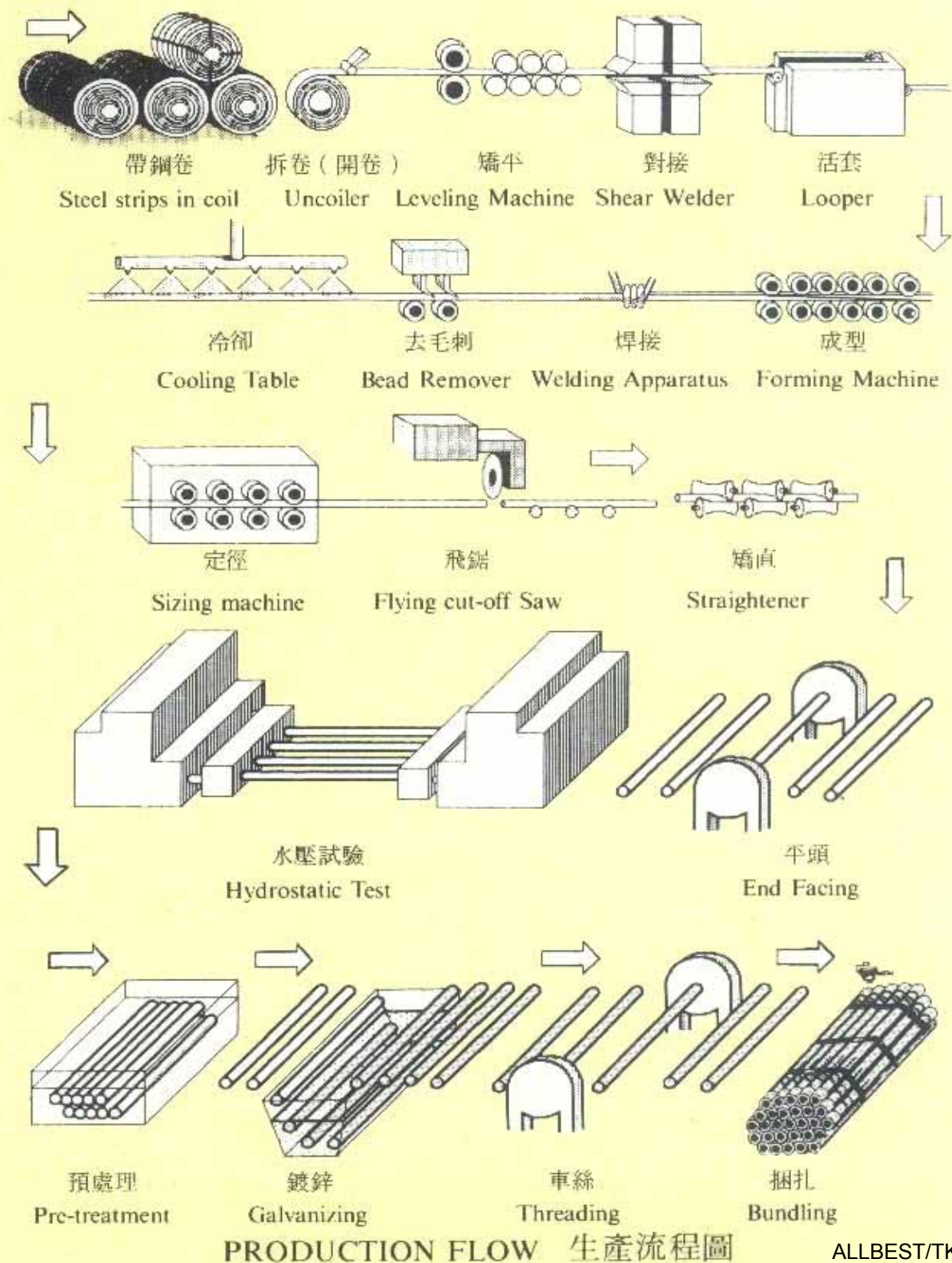
# Hi-Frequency Welded Pipe Mill Line (Ø6-529mm, Sections, Stainless)



# Longitudinal submerged arc welding pipe line



The mill consists of main machine and the pipe guiding and run out conveyor. The equipments on line of the main machine: feeding, decoiling, and leveling, shearing and welding, looping, forming, welding burr removing, cooling, detecting, sizing, sawing and hydraulic pump system and electrical control equipment. The pipe guiding and run out conveyor and subsidiaries: straightening, end facing, hydrostatic testing bailing, weighing and various attached tables.



Items	Unit	Mill size						
		0.375"-1.5"	0.5"-2.5"	1.5"-4"	2.5"-6"	4"-8"	5"-10"	8"-20"
Outside dia	mm	800-1600	900-1800	900-1800	1200-1800	1500-2000	1200-1800	1800
Inside dia	mm	650	650	650	650 762	610 762	610 762	610 762
Width	mm	50-160	60-250	100-360	250-530	230-695	400-900	600-1700
Thickness	mm	1.8-4	1-5	2.9-5.4	3-5.4	2.1-9.5	3.6-10	3.6-12.7
Coil weight max	t	2	2	5	6	12	15	20
Outside dia	mm	17-48	21-76	48-114	76-165	114-219	140-273	219-508
Thickness	mm	1.8-4	1-5	2.5-5.4	3-5.4	2.1-9.5	3.6-10	3.6-12.7
Length	m	5-7	5-7	5-7	5-7	6-12	6-12	12.5
Welding speed	m/min	30-80	30-60	30-60	20-60	15-60	10-35	8-30
Type of loop		cage style 、 helix	cage style 、 helix	cage style 、 helix	cage style 、 helix	cage style 、 helix	cage style 、 helix	cage style 、 helix
Flying cutting control		numerical control、 Pneumatic	numerical control、 Pneumatic	numerical control、 Pneumatic	numerical control、 Pneumatic	numerical control、 Pneumatic	numerical control、 Pneumatic	numerical control、 Pneumatic
High-frequency output power	kw	200	300	400	800	450	800	600
Power of forming machine	kw	55	55	90	110	242	242	60×5
Power of Sizing machine	kw	55	55	90	110	200	200	148×3
Output	t/year	10000-15000	20000-25000	25000-30000	30000-50000	50000-80000	50000-100000	200000

## Spiral submerged arc welded pipe plant ( Ø219-3500 mm)



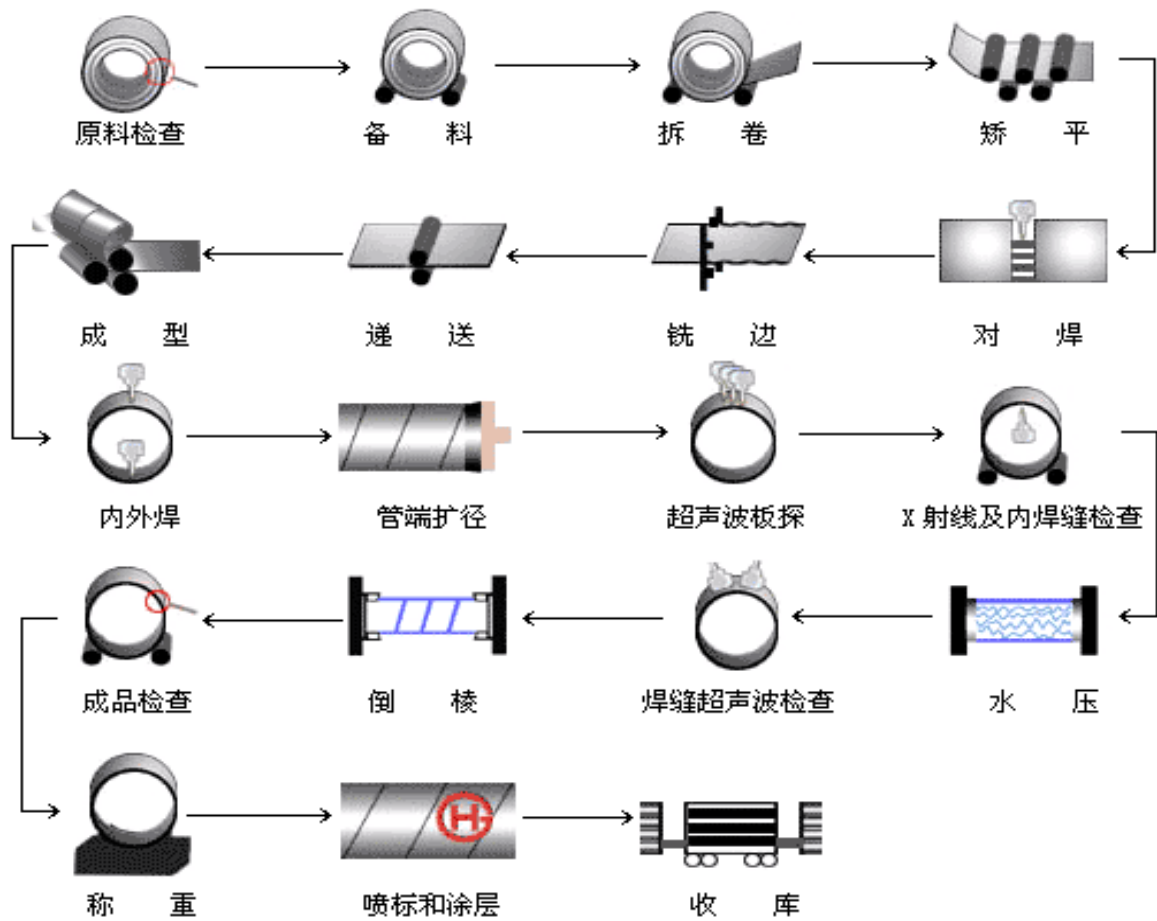


# Spiral submerged arc welded pipe plant( Ø219-3500 mm)



# Process for making spiral welded pipe

## 工艺流程图



φ 245- φ 1020 Spirally Welded Pipe Mill. The production line is flow process from start to finish. The ultrasonic flaw detection, X Ray inspection and hydraulic test can all be carried out continuously. It can be used to produce the spirally welded pipes with its quality in conformity with API standard.

Technological Process: coil turn-over—coil carriage—decoiler—rough leveler—the cutting of the front and rear ends of the strip—butt welding—precision leveler—disk shear and edge prebending—strip guide—forming—inner welding—outer welding—continuous ultra—sonic test for butt welding—pipe cutting off and beveling—pipe run out—cleaning of the welding flux with in the pipes—visual inspection—manual ultrasonic test and its repairing—pipe ends repairing (X—ray screen inspection—repairing)—hydraulic test—oil coating—drying process—the finished products inspection—gathering and storing.



Items		Sizes		Items		Sizes	
Product pipe size	outer diameter(mm)	219-820	426-1420	The quality of material		API-5LS X60-X65	
	Wall thickness(mm)	5-12.7	6-16	yielding limit(N/mm <sup>2</sup> )		457	457
	Length(mm)	8-12.5	8-12.5	strength limit(N/mm <sup>2</sup> )		562	562
Raw Material hot rolled coils	inner diameter(mm)	508-760	508-760	Welding methods	butt welding	single wire submerged-arc welding	
	outer diameter(mm)	1200-2000	1200-2000		inner welding	single wire submerged-arc welding	
width (before shearing)(mm)		550-1550	600-1550		outer welding	single or double wire submerged-welding	
				line speed(m/min)		0.6-3.6	
thickness(mm)		5-16	6-16	Feeding and drawing force(t)		60	120
coil weight(max)(t)		25	30	pressure of hydraulic press(Mpa)		7.5-21	

# Pipeline of Spiral Welded Pipe



## Pipe galvanizing line

The aggregate is composed of plating preparation devices, online equipment and subsidiaries.

The plating preparation devices: defatting, cleaning, acid-washing, storing, and various troughs.

The online equipment: feeding and tidying, zinc-plating machine, zinc pot, magnetic roller table, external blowing internal blowing, air cooling, water cooling, inspection and drying furnace, zinc-plating furnace etc. These equipment form a continuous production line from feeding to inspection.

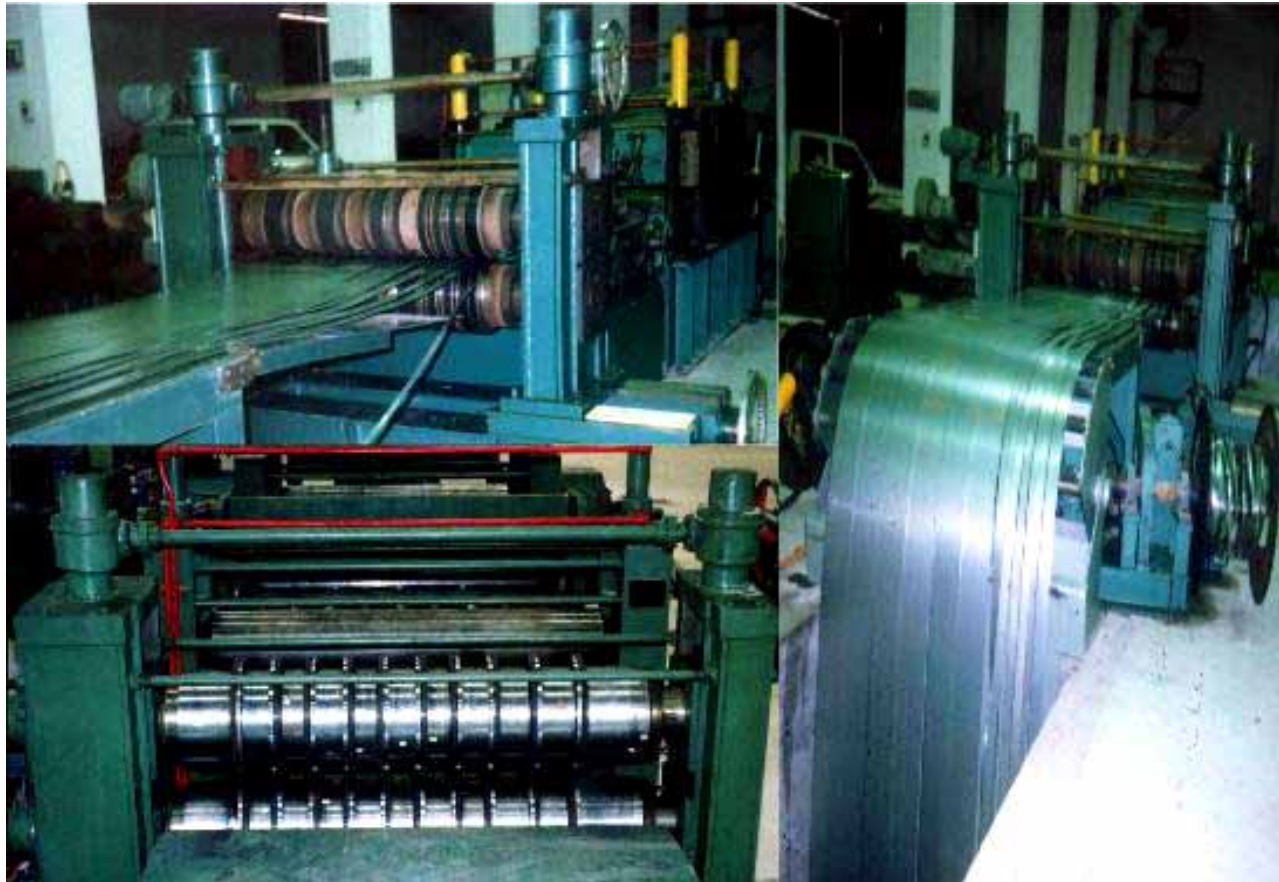
Subsidiaries: printing and marking, thread cutting, bailing and attached tables, which are arranged separately.



Items	Unit	Mill size		
		0.5"~2.5"	0.5"~4"	
Billet				
Black welding steel pipe	Outside dia.	inch	0.5"~2.5"	0.5"~4"
	Thickness	mm	2~4.5	2~4.5
	Length	m	5~7	5~7
Zinc-plating type		Full immersing、Dry hot plating		
Zinc-plating capacity		radix/hour	300~600	180~900
Annual Output		t	10000~15000	30000~35000

## Slitting and Shear Line

The slitting line is used to slit hot/cold rolled steel coil longitudinally into a number of strips, which will serve as blanks for further processing into welding steel pipe, cold rolled forming steel, cold rolled sheet etc.  
Process flow: feeding--Decoiling--Straight end leveling--strip cropping--leading and slitting--Tensile coiling--Bending--Product kicking off.



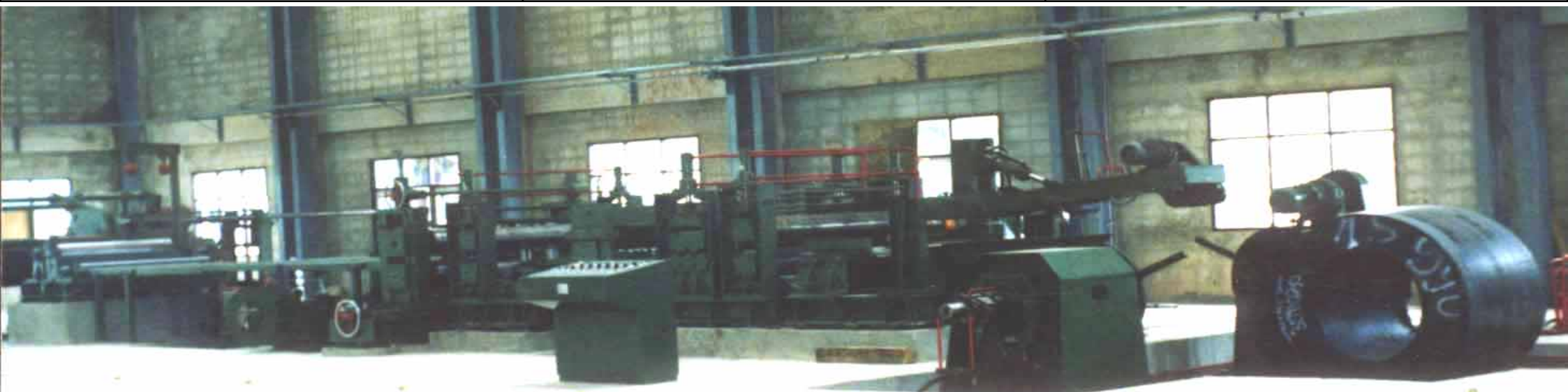


## Slitting Line

Items		1300×5	1550×6	1800×10	Items		1300×5	1550×6	1800×10
Billet(Hot/cold rolling steel coil)	Outside diameter(m m)	900-1600	900-1600	1300-1800	Material	6b≤Tenside strength(N/mm <sup>2</sup> )	≤562	≤562	≤562
	Inside diameter(m m)	508-762	610-800	610-760		6s≤Yield point 6s(N/mm <sup>2</sup> )	≤457	≤457	≤457
	Width(mm)	600-1300	750-1500	900-1800	Product size	Coil diameter(mm)	610	610	760
	Thickness(m m)	1-5	1-6	3-10		Max slitting strips(piece)	24	25	20
	Max coil weight(t)	15	15	20		Min slitting width(mm)	50	60	80
Slitting method(m/min)		40-80	30-60	30-60	Cooling motor	Type	Z4	Z4	Z4
Slitting method		Pull slitting	Pull slitting	Pull slitting		Power(Kw)	75	90	250
Feeding speed(m/min)		20	18	15		Revolution(r/min)	400/1200	500/1500	500/1500
Control system		DC/AC/hydraulic/pneumatic							

## Shearing Line

Billet	Outside Dia(mm)	1400-2000
	Inside Dia(mm)	610-760
	Thickness(mm)	2-8
Shearing Length	Max(mm)	4000
Machine and Equipment	Uncoiler Mechanical and Hydraulically type	
	Pinch Leveling machine (7 pinch rolls,9leveling rolls with Backing rolls)	
	Shearing machine Mechanical type	
	Collecting Device Including roller table, cut to size, and collecting rack, excluding Bender	
	Guide vertical roller, idlers in front of shear are included in the equipment	
	AC electrical and control equipment	
Capacity	In Normal condition, it can shear 2 plates with size of 4 meter/per minute	
Occupied area of the machinery equipment of the production Line (m)	Length20	Width6.5



# Pipe hydrotester & end facing machine

Pipe Hydrotester



Hydrostatic Tester is used for testing the strength requirement and quality of the straight seam welded pipe, Spiral welded pipe and seamless tube. It is essential equipment to produce various qualified steel pipe.

Diameter(mm)	Wall thickness(mm)	Length(m)	Pressure(Mpa)	Seal Type
8-30	1-5	1-8	2-10	Longitudinal
16-80	1-5	5-18	2-10	Longitudinal
20-100	1-5	1-6	2-30	Longitudinal
20-114	1-5	4-12	2-10	Longitudinal
219-426	5-12	8-12	4-25	Longitudinal
245-820	5-12.7	8-12	8-21	End Longitudinal
325-1420	6-16	8-12	8-21	End Longitudinal
1200-3500	14-22	9-12	6-25	End Longitudinal

### Pipe end facing & beveling machine

Using the double position process, two ends of pipe could be end faced & beveled at the same time.

Pipe Dia.: 1/2"-80"(15mm-2032mm)

Pipe Length:5-12m

## Cold Drawing Machine

Cold drawing Machine is used to draw ferrous and nonferrous metal bars at normal temperature and to reprocess hot rolled and squeezed shells. The process is a main method of producing high tensile, precise thin-wall tubes of light caliber.

Our plant can design and manufacture various cold-drawing machines according to different customer's requirements. The accessories such as rolling tip, feeding device, piercing mander and kicking-off device can also be provided.



Nominal drawing force (KN)	Drawing mode	Nominal drawing speed (m/min)	Max. length after drawing (m)	Trolley reverse speed (m/min)	Main Motor			Outline dimensions (m)	Weight (Kg)
					type	Power (Kw)	Speed (r/min)		
50	Single chain One Line	10	9	60	Y160L-6	11	970	14.7×1×1.7	6540
80	Single chain One Line	12-30	12	84	Z2-102	55	750	18.7×4.5×1.2	15644
80	Single chain One Line	10	9	60	Y200L1-6	18.5	970	14.9×1×1.9	7120
200	Single chain One Line	14	9	65	JS115-8	60	730	25.5×3.9×1.5	23184
200	Single chain Two machine body	13	9	84.7	JS126-8	110	730	17.2×4.2×1.7	35883
250	Single chain One Line	11	9	63	JS115-8	60	730	17.2×2.2×1.5	19700
300	Double chain Three Line	15-40	50	60	CZ123-8	125	500/1500	Total Length 58.6	80900

400	Single chain One Line	13	9	80	JS-125-8	95	730	17.3×4.1×1.7	30257
400	Single chain One Line two motors	12.6/6. 2	12	60. 2	JS-125-6 JS-125- 12	130 60	980 485	21.3×4.3×2.1	39400
500	Single chain One Line	25	10. 5	80	Z4-315- 12	280	100 0	18.2×3.8×2.5	55900
750	Single -chain One -Line Charging Mechanically	4-16	14	62. 7	Z4-280- 31	132× 2	600	37.3×6.6×2.7	73690
1200	Single chain One Line	3	10	20	YZR280 S	55×2	100 0	38.3×6.74×2. 03	12000 0

# Tube Vertical/horizontal Straightener





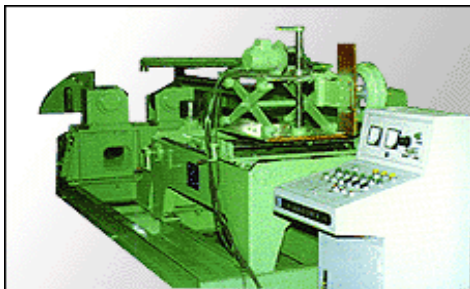
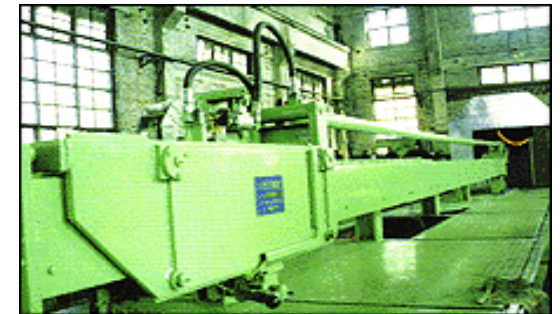
# Ductile cast iron pipe production line (DN 80—2600 mm)

Process: **Water cold metal mold centrifugal casting**

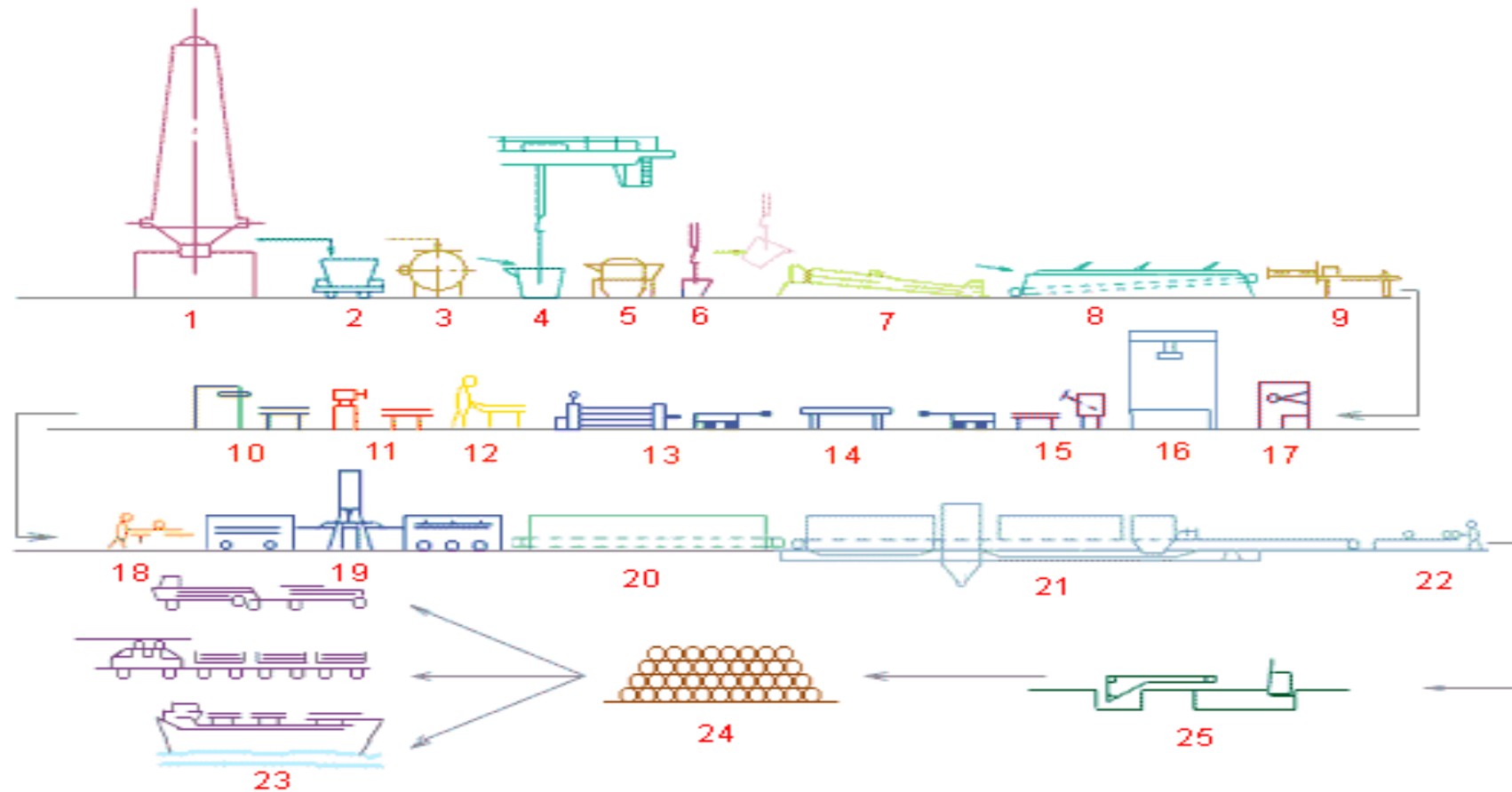
**& Hot resin sand (coating) metal mold centrifugal casting**



# Main equipment for ductile cast iron pipe production line



# Typical process flowchart of ductile cast iron pipe production line



1,Blast furnace 2,Carriage for molten iron tank 3,Mixer 4,Molten iron ladle 5,Industrial frequency furnace 6,Spheroidization 7,Centrifugal casting machine 8,Annealing furnace 9,Impression test 10,Zinc spraying 11,Circularizing 12,Socket grinding 13,Internal wall cleaning 14,Hydraulic pressure test 15,Inspection 16,Pipe cutting 17,Edge chamfered 18,Laboratory 19,Cement lining 20,Cement cultivation 21,Bitumen coating 22,Label,Final inspection 23,Package 24,Storage 25,Delivery

# Environment

An aerial photograph of a large, turquoise-colored reservoir nestled between lush green mountains. The water is calm and reflects the surrounding landscape. In the distance, a small town or village is visible on a hillside under a clear blue sky. The overall scene is serene and natural.

**Integrated solutions for sustainable development**

# Environmental Technology



Clean water recycling system



Pure water treatment system



EP



Bag filter



Used water recycling and treatment facilities

# Service

- **Advanced and reliable technology & engineering**
- **Procurement, manufacture, and delivery of the goods**
- **Project management**
- **Construction, installation, and commissioning**
- **Technical service**
- **Training program**
- **Service after completion of the project**
- **Financing assistance and export credit**
- **Other services and functions upon request**

***CREATE THE FUTURE***



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