



# Hall Longmore

## Spiral Welded Pipe SAW

Hall Longmore uses the submerged arc-welding (SAW) process to manufacture spiral welded pipe. This entails helically forming a hot-rolled steel strip and welding it both internally and externally to create a weld seam stronger than the parent metal.

Immediately after welding, seams are ultrasonically inspected to ensure the quality of each weld. Thereafter pipes are cut to length, ends are bevelled and pipes are hydrostatically tested and inspected for final approval. A facility also exists for full length radiographic testing of pipes and ends.

From the mill and testing bays, pipes proceed to belling, lining and/or coating in accordance with specifier and customer requirements.

Spiral welded pipes are produced in outside diameters ranging from 660 mm - 2 540 mm, and in wall thickness as shown in Table 1.



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# Spiral manufacturing facilities

The D1900 Spiral mill features the latest welding and ultrasonic technology for the manufacture of spiral welded pipe. The mill conforms to the highest specifications required by leading water, oil and gas customers.

## Edge Milling and Helical Forming

Hot rolled strip in coil form is fed through an edge milling unit followed by edge defect ultrasonic testing. Strips are helically formed between 3 roller beds.

## Internal and External Welding

Spiral pipe is welded using the submerged arc welding process with 2 internal and 2 external welding heads in a tandem configuration.

## Seam Tracking and Weld Control

An automatic seam tracking system ensures real-time consistent weld bead positioning for both internal and outer welds.

The weld control system not only ensures automatic temperature control but has a data collection / memory system for setup optimisation.

## Flux Recycling

A flux feed/recycling unit controls flux temperature, humidity and flow rate. Equipment was designed and built by U&S Sweisstechnik of Germany.



**Edge milling**



**Helical forming**



**Internal & external welding**



**Seam tracking & welding**



**Flux recycling**

# Spiral Welded Pipe SAW

## Quality Inspection

After forming and welding, pipes are inspected in line for body lamination and weld defects using automatic ultrasonics.



Quality inspection

## Cut Off

Pipes are cut to length using an automatic plasma cut-off system.



Plasma cut-off system

## Finishing and Final Inspection

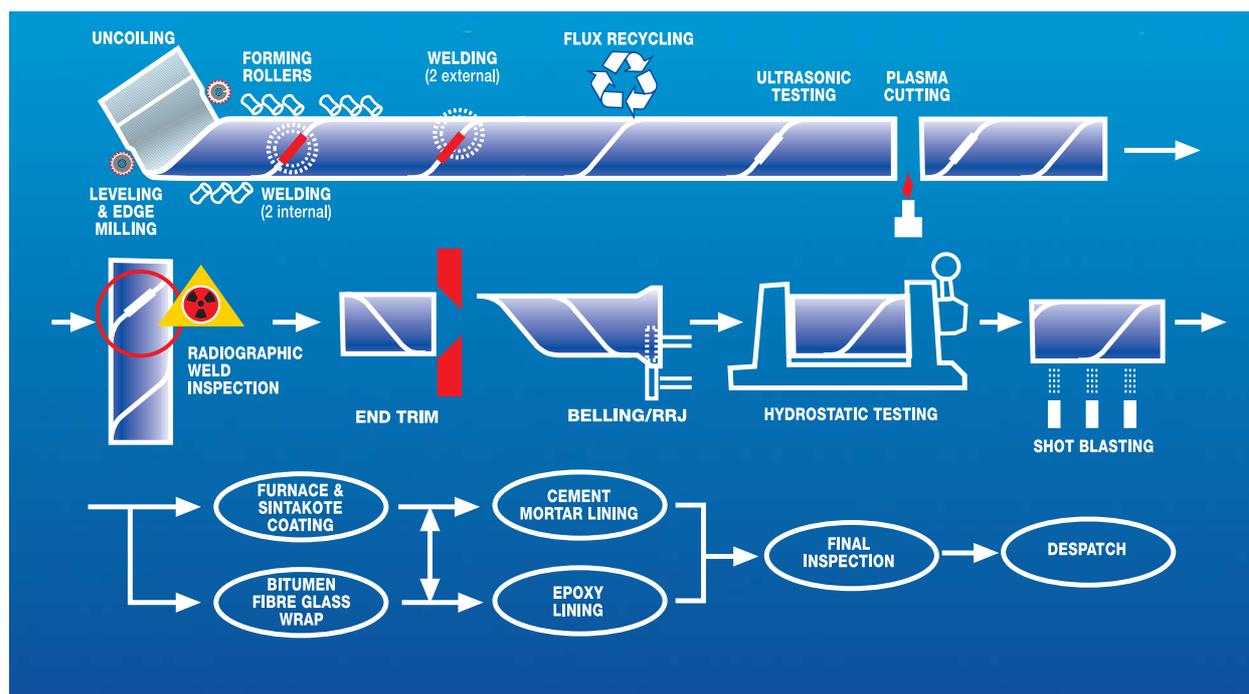
Pipes pass through auxiliary machines which bevel pipe ends and hydrostatically test. A facility exists for full length radiographic inspection inclusive of pipe ends.



Full length radiographic inspection

## In-house Testing Facilities

Facilities include: Hardness and tensile strength; Charpy V-notch testing; Spectrographic and Metallographic assessment and drop weight tear testing machine (DWTT).



The D1900 SAW manufacturing process

# SAW Range

Table 1.

**SPIRALLY WELDED (SAW) PRODUCTION RANGE**

**STEEL GRADE AVAILABILITY**  
 API 5L X42 to PSL 1 only  
 API 5L X52; X65; X70 to PSL 1 or 2  
 Other grades available on request

**DIAMETER RANGE**  
 From 660 mm to 2540 mm  
 Any other diameters / thicknesses available on request.

**LENGTHS**  
 9,144 metres (30 FEET)  
 12,192 metres (40 FEET)  
 18,288 metres (60 FEET)  
 Other lengths available on request

Outside Diameter	Ins																								
	26	28	30	32	34	36	38	40	42	44	46	48	52	56	60	64	68	72	76	80	84	90	92	96 1/2	100
Wall Thickness	mm																								
	660	711	762	813	864	914	965	1016	1067	1118	1168	1219	1321	1422	1524	1626	1727	1829	1930	2032	2134	2286	2337	2450	2540
Ins	mm																								
0,177	4,5																								
0,188	4,8																								
0,197	5,0	■	■																						
0,203	5,2	■	■	■																					
0,210	5,3	■	■	■																					
0,219	5,6	■	■	■	■																				
0,237	6,0	■	■	■	■	■																			
0,250	6,35	■	■	■	■	■	■																		
0,277	7,0	■	■	■	■	■	■	■																	
0,281	7,1	■	■	■	■	■	■	■	■																
0,307	7,8	■	■	■	■	■	■	■	■	■															
0,312	7,9	■	■	■	■	■	■	■	■	■	■														
0,315	8,0	■	■	■	■	■	■	■	■	■	■	■													
0,322	8,2	■	■	■	■	■	■	■	■	■	■	■	■												
0,330	8,4	■	■	■	■	■	■	■	■	■	■	■	■	■											
0,344	8,7	■	■	■	■	■	■	■	■	■	■	■	■	■	■										
0,365	9,3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									
0,375	9,5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
0,394	10,0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							
0,406	10,3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
0,438	11,1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
0,469	11,9	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
0,472	12,0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
0,500	12,7	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
0,551	14,0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,562	14,3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,591	15,0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,625	15,9	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,630	16,0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,688	17,5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,709	18,0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,719	18,3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,750	19,0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
0,787	20,0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

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