

## 5.1 LONGITUDINALLY WELDED PIPES

### 1. Plate stocks



BUTTING stocks plates in an open-air warehouse as well as in a computer controlled high-rack warehouse

### 2. Goods inwards inspection



An inspection of the incoming raw material is carried out on the basis of standardised or individually agreed quality criteria

### 3. Cutting the plates



The plates are cut under water e.g. on a plasma cutting bed

### 4. and 5. Forming the plates into open seam pipes



The plates are either formed into open seam pipes by a three-roller bending machine or ...



into open seam pipes by a brake press

### 6. Welding process for longitudinal welds



Besides submerged arc welding (SAW) and metal-arc active gas welding (MAG), BUTTING is increasingly using the electron beam (EBW) process for thick-walled pipes

### 7. Heat treatment



Pipes annealed in the furnace are quenched with water

### 8. Calibration



Pipes extremely deformed after annealing (left: before calibration; right: after). BUTTING can calibrate from the inside using hydroforming or from the outside using rollers

### 9. Non-destructive testing of longitudinal welds (if necessary)



There are many options available for non-destructive testing, e.g. ultrasonic testing of the longitudinal weld on a testing facility

### 10. End preparation



Beveling thick-walled pipes made from plate – the bevel form can be selected according to all the usual standards and customer specifications

### 11. Circumferential welding (if necessary)



Circumferential welds can be applied as part of prefabrication, e.g. pipes with an external diameter of 1,200 mm can be circumferentially welded into lengths of up to 24 metres

### 12. Non-destructive testing of circumferential welds (if necessary)



The non-destructive testing methods available for circumferential welds are X-ray inspection or radioscopy

### 13. Surface treatment



To ensure cleanliness and the development of the corrosion-protective passive layer, BUTTING offers full-body pickling facilities for large diameter pipes made from plate

### 14. Quality control



BUTTING has a number of non-destructive and destructive testing facilities in its accredited laboratory which can be used as requested by the customer

### 15. Packaging



Packaging protects the stainless surface during transport