

# Hydrogen

[Science](#), [Chemistry](#)



Cleaned the weld chamfers free from rust preventive coating. Welded erection irons (20 Nos) on both sides of the joint & pulled the sections together by draw bolt. Adjusting irons are welded in between the erection irons where shell overlap was found. Checked the alignment of the shell with the Piano wire arrangement. A gap of 3mm maintained in between the shell joint. Strong backs will be welded on one shell after initial alignment. Took polar readings on either side of the joint & both ends of the Shells Plotted polar diagrams and checked the eccentricity. Tolerances: Eccentricity (radial runout ) must not exceed  $\pm 1.0$  mm of the inlet & outlet rings  $\pm 1.5$  mm of the erection welds.  $\pm$

1. 4mm of kiln section in the live ring. The axial untruth of live ring must not exceed  $\pm 1$  mm After completion of the alignment, weld the strong backs to the other side. Welding of Joint: Clean the joint surface. Preheat the joint area of the shell ( 1m lg ) to 150 deg Welding electrodes are to be preheated Complete the root run on the outer surface of the joint side with 2. 5mm electrode. Next with 4mm electrode & then 5mm & 6 mm electrodes. Gouge & remove the root run weld from the inner surface of the joint, check with Dye penetrant for any cracks and start the root run inside. Complete the inside welding. Check the joint by Ultrasonic testing. Importance of Pre-heating: Preheating slows the cooling rate in the weld area. This may be necessary to avoid cracking of the weld metal or heat affected zone.

Hydrogen contributes to delayed weld and /or heat affected zone cracking, hence it is important to keep the weld joint free of oil, rust, paint, and moisture as they are sources of hydrogen. Electrodes used ( 1-2 joint) : FLS 9721 : E 7018 (3. 15mm ) Bottom runs FLS 9721 : E 7018 (4. 00mm) FLS

9721 : E 7018 (5mm) FLS 9732 : E 6027 for Cover Run E 7018 E 6027  
Yieldstress: 410-480360-410 N/sq. mm Tensile strength : 510-590 440-490  
N/sq. mm Elongation : 28% 27 Impact (Charpy V) +20deg c – approx. 14090  
Electrodes used (other joints) : FLS 9727 : E 9018 (3. 15mm ) FLS 9727 : E  
9018 (4. 00mm) FLS 9727 : E 9018 (5mm)FLS 9727: E 9018 ( 6mm) E 9018:  
Yield stress : 490-590 N/sq. mm Tensile strength : 640-740 N/sq. mm  
Elongation : 25% Impact (Charpy V) +20deg c – approx. 180