

HIGH PRESSURE CLEANING REPORT

710/3210 UHDE CTFE PROJECT

Originator	Reviewer	Date	Revision	Remark

HIGH PRESSURE CLEANING OF AIR COOLED HEAT EXCHANGER FINS

Agenda point 2.15 of the air cooler bid clarification (15/05/2012 at 12:30, UHDE Sunninghill) requires AFC to demonstrate that tube fins are strong enough to withstand any deformation or damage resulting from high pressure water cleaning, regardless of the fin pitch proposed. The tube samples that were tested are listed below in Table 1.

Table 1: Tube sample specifications

VARIABLE	ITEM A	ITEM B
Tube outer diameter	38.1 mm	25.4 mm
Tube wall thickness	3.4 mm	2.77 mm
Finning outer diameter	63.5 mm	57 mm
Fin pitch (FPI)	9	11

Testing procedure and results

The test was performed on Monday, 18/06/2012, at 13:00. Figure 1 shows the rig used for the high pressure cleaning test. Water was sprayed through the nozzles onto the tube samples at an average normal cleaning pressure of 70 bar and average water flow rate of 200 l/min by moving it across the length of the tubes.

Selected fins were clearly marked before the test and the over fin diameter was measured. This was then re-measured after the test and no change was inspected, which translates to no fin damage or deflection. A visual inspection also showed no damage to the fins.

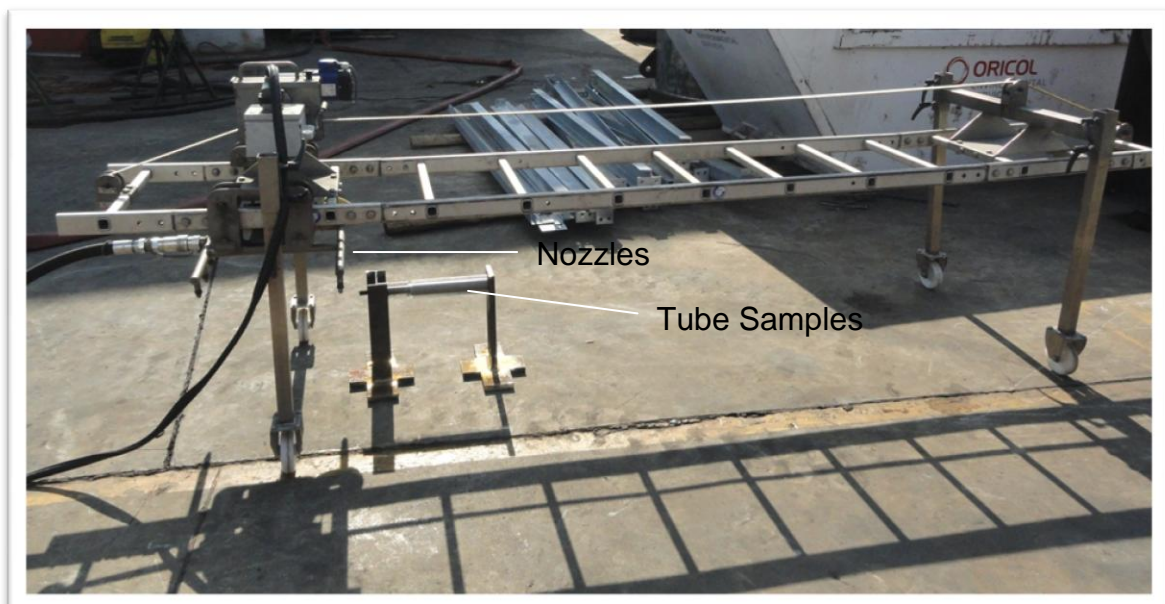


Figure 1: Test Rig