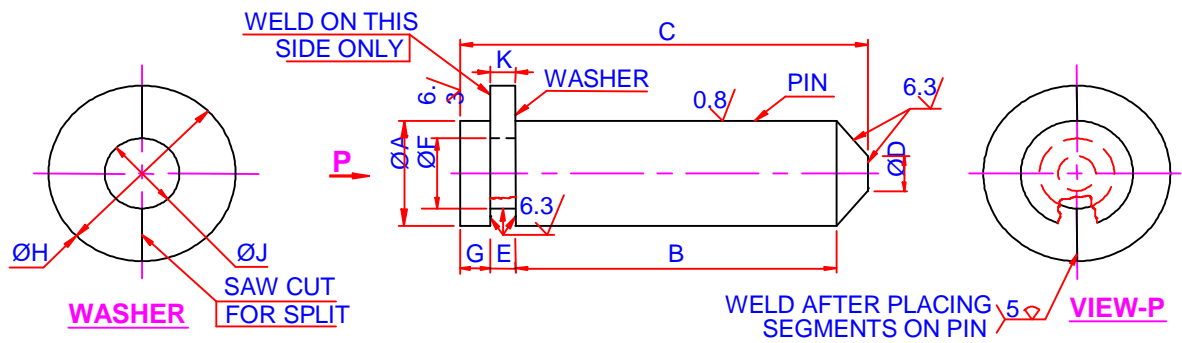
		Bharat Heavy Electricals Ltd Boiler Auxiliaries Plant Ranipet - 632 406			EDC / AIR PREHEATERS TECHNICAL SPECIFICATION Effective Date: 16.12.2010	
Specification No : APSQ – 063			Rev. No : 05		Page No : 01 of 02	
01.	Item	UPPER ROTOR POST PIN with WASHER				
02.	Material code(s)	96 162 050 0000 96 162 051 0000 96 162 051 0001				
03.	Application	Used to hold Module Assembly with the Rotor post of Regenerative Air Preheaters.				
04.	Material	a) Pin	AISI 4140 / 4150			
		b) Washer	Carbon steel as per IS 2062 Gr A			
05.	Manufacture	a) Pins shall be forged and rough forging shall be as close to the final Size & Shape as possible. b) All forging shall be sufficiently hot worked; Suggested minimum forging reduction from starting piece to the finished forging is 4:1 with favourable grain flow. c) The forging shall be sound & free from defects such as Segregation, Cracks, Flaws etc. d) Welding repairs are strictly prohibited.				
06.	Non Destructive Testing	The Raw Material for the Pins shall be 100% UT tested as per ASTM A 388 and shall be defect free.				
07.	Acceptance Criteria	a) Straight Beam method. b) No areas showing a Loss of 95% or more of the reference back reflection are acceptable. c) No indications with Amplitudes greater than 50% of the reference back reflection are acceptable. d) All indications shall be explained considering the effect of test distance on the test result. Final determination of the acceptance or rejection of an indication shall be based on the test result, after back reflection calibration at the distance of the location of the indication. e) The forging shall be visually inspected for surface defects and wherever doubt arises, shall be inspected by Magnetic Particle method and shall be free from cracks. f) Vendor shall follow the Quality plan RQP No: 0000-999-QVM-P-216 along with above stated points.				
05	16.12.10	(Sd)SCH	(Sd) KP	(Sd) PPS	Clause 07(f) added.	
04	03.03.09	(Sd)SCH	(Sd) PPS	(Sd) GRV	Pin diameter corrected.	
03	05.07.08	(Sd) RR	(Sd) PPS	(Sd) GRV	New MC added.	
02	20.04.02	(Sd) RR	(Sd) PPS	(Sd) GRV	TDC RTA 414 requirements included; page modified.	
01	19.07.96	(Sd) JN	(Sd) PPS	(Sd) GRV	TRA : 414 was RTA : 014	
00	22.11.93	(Sd) VAS	(Sd) PPS	(Sd) GRV	FRESH ISSUE	
Rev.No	Date	Prepared	Checked	Approved	Record of Revisions.	

08. Dimensions



Material Code	ØA	B	C	ØD	E	ØF	G	ØH	ØJ	K
96 162 051 0001	76.500 76.350	264	340	35	8	65.0	13	127	66.5	6
96 162 051 0000	53.975 53.825	162	230	20	6	40.5	13	90	41.0	5
96 162 050 0000	49.400 49.250	162	230	20	6	34.5	14	90	35.0	5

Tolerance for all Dimensions is ± 0.25 mm, except for Pin dia 'A'.

All Dimensions are in mm

09. Heat Treatment

The pins shall be Quenched and tempered to achieve the Mechanical properties as given in clause 10c.

10. Mechanical Testing

- a) Testing for mechanical properties shall be done for each Heat Treated batch as per **ASTM A 370**.
- b) Three Test Specimens shall be Heat Treated along with the batch. If one Test Specimen passes, the lot shall be accepted. If not, both the balance Test Specimens have to pass for accepting the lot.
- c) **The minimum Yield Strength shall be 77.3 kg / mm²**

11. GENERAL

- a) Only latest revision shall be referred for all the Standards specified.
- b) In case of first order on a vendor, the vendor shall furnish the Rough Forging drawing indicating the Flow Lines along with the offer for our approval.
- c) **Pin & Washer to be manufactured separately and to be welded as per drawing.**
- d) The supplier shall give a coating of standard Rust Preventive oil for the Pins.
- e) Each Pin shall be put in a Polythene cover before packing them in wooden cases.

12. INSPECTION

- a) Inspection by BHEL.
- b) Necessary Dimensional Report, Material compliance, & Test Certificates containing PO number & date, mechanical properties - meltwise / heat treatment batchwise, heat treatment condition & particulars - soaking temp - soaking time - cooling media, ultrasonic testing - std of testing - test frequency - acceptance criteria - type of probe etc shall be submitted.