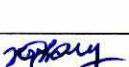
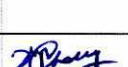
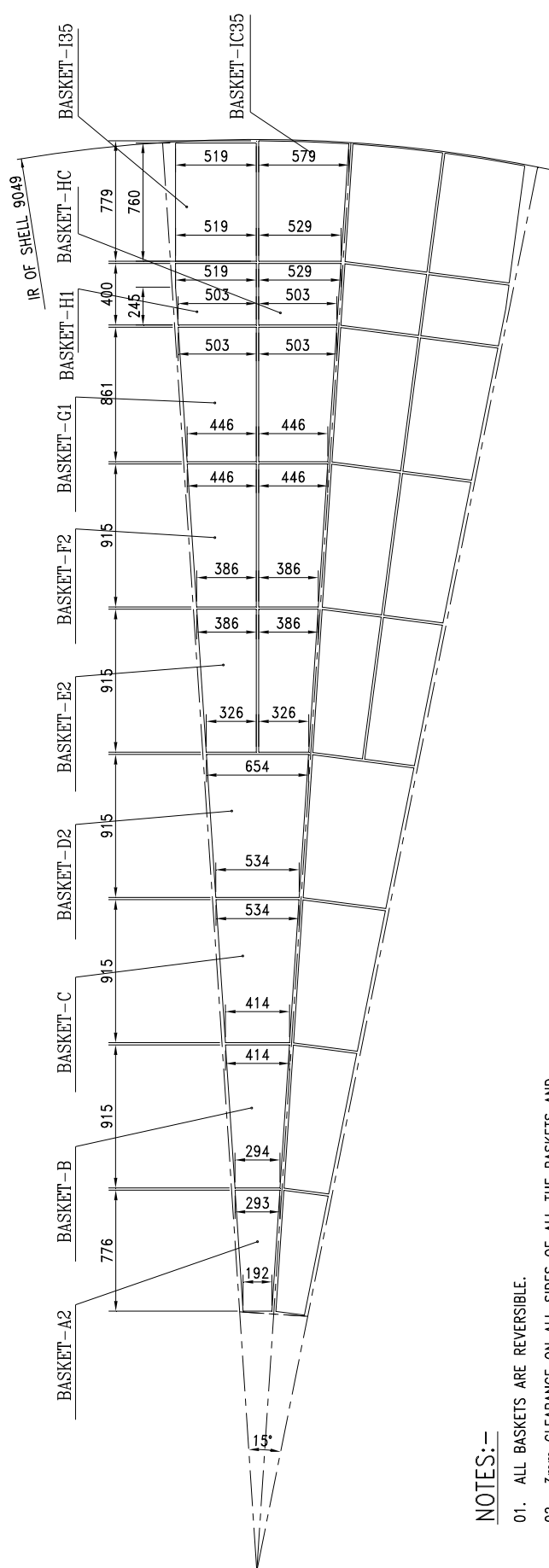




Specification No : RAH – 563		Rev. No : 00	Page No : 01 of 04		
01.	Item	Set of Cold end Basketed Heating Elements for 35 Size APH - Non-Enamelled.			
02.	Application : Heating element Baskets are the heat transfer surfaces in Rotary Regenerative Air Preheater used in coal fired Boiler. Air Preheater is located after DeNox SCR system in the Boiler.				
03.	Basket Arrangement, Dimensions & Set detail	Page 04 of 04 shall be referred for basket arrangement and dimensions. Number of baskets per module is indicated in the sketch. 24 Modules are required for one Air Preheater and it is equal to one set.			
04.	Element depth	1000 mm. Tolerance : +0.0, -1.5			
05.	Basket height	Element Depth + 80 mm. Tolerance: +0.0, -2.0			
06.	Element configuration	High efficient closed channel cold end profile like DNF/HC or equivalent suitable for APH located after DeNox SCR system. NF and DU profiles are not acceptable.			
07.	Element thickness	1.2 mm. Tolerance: +0.07, -0.0			
08.	Element material	Low alloy corrosion resistance steel as per ASTM A242 or Equivalent.			
09.	Basket material & type	Low alloy corrosion resistance steel as per ASTM A 588 Gr A or Equivalent. Basket design shall be suitable for side removal by pulling.			
10.	General : a) The Vendor shall provide data sheet with element profile name, element thickness, material standard with grade, drawing with dimensions including basket details, weight of each type of baskets, total weight and other pertinent information along with offer. b) Baskets are for 35 size BHEL APH with inner and outer radius of element space as 1625mm & 9049mm respectively. RPM of rotor is 1. Ammonia slip is 2 ppm. SO ₃ conversion at SCR may be taken as 1.5%. Vendor to indicate the minimum metal temperature at the top of Cold End layer for all the load conditions given in Page No 2. c) Vendor to provide the APH performance for all the conditions furnished in Page No 2. d) Vendor shall submit the quality plan along with offer. e) Polythene sheet (thickness more than 20 microns) shall be wrapped over the baskets and shipped in wooden crates/steel box. Baskets name shall be indicated in the baskets and boxes by paintings/tags. f) Seaworthy packing shall be considered in case of supply from overseas. g) Material as per Chinese standard is not acceptable.				
11.	Inspection	a) By BHEL inspector at vendor's works. b) Necessary test & guarantee certificate shall be submitted.			
00	03.08.19				Fresh issue.
Rev.No	Date	Prepared	Checked	Approved	Record of Revisions.

COAL CHARACTERISTICS

Description (Source / Type)	Range of 95% coal supplies			Range of 5% coal supplies	
	Design	Worst	Best	Worst	Best
Proximate Analysis					
Fixed carbon %	27	22	31	19	32
Volatile matter %	23	19	24	19	28
Moisture %	14	17	11	18	10
Ash %	36	42	34	44	30
Total %	100	100	100	100	100
Ultimate Analysis					
Carbon %	33.31	27.23	39.07	25.72	44.43
Hydrogen %	3.49	3.05	3.53	2.93	3.72
Sulphur %	0.6	0.9	0.5	0.95	0.35
Nitrogen %	0.9	1.3	0.8	1.4	0.6
Oxygen % (by difference)	11.7	8.52	11.1	7	10.9
Total Moisture %	14	17	11	18	10
Ash %	36	42	34	44	30
Carbonates	0.3	0.38	0.27	0.2	0.43
Phosphorous	0.05	0.04	0.06	0.03	0.07
Chloride	0.08	0.15	0.05	0.18	0.04
Trace Elements (PPM)					
Arsenic	1	1.5	0.5	2.5	0.4
Lead	35	75	25	150	10
Mercury	0.1	0.5	0.08	0.6	0.06
Selenium	0.8	1	0.6	1.5	0.5
Hard Grove Index	55	50	60	45	65
YGP Index (mg/kg)	75	80	70	85	65
GCV Kcal/Kg	3400	2900	3900	2800	4400
Ash Characteristics (Under reduced atmosphere)					
IT - Initial deformation temp. °C	1100	1100	1100	1100	1100
ST - Softening temp. H = W °C	-	-	-	-	-
HT - Hemispherical temp. H = W/2 °C	1300	1250	1350	1250	1350
FT - Fusion temp. °C	1400	1400	1400	1400	1400
Ash Constituents					
A - S ₂ O ₂ %	59.25	63.4	56.92	63.56	54.2
A - Al ₂ O ₃ %	27.62	27.29	28.47	27.2	29.89
B - Fe ₂ O ₃ %	6.75	5.48	7	5.46	7.5
B - MgO %	0.2	0.3	0.15	0.35	0.1
B - CaO %	0.9	0.7	1.5	0.6	1.6
B - Na ₂ O %	0.17	0.25	0.15	0.3	0.15
B - K ₂ O %	----	----	----	----	----
A - TiO ₂ %	1.95	0.88	2.5	0.98	2.82
P ₂ O ₅ %	0.24	0.3	0.11	0.35	0.1
Sulphuric Anhydride%	1.2	0.5	1.4	0.4	1.7
Alkalies (by difference)	1.72	0.9	1.8	0.8	1.94
Total	100	100	100	100	100



NOTES:-

01. ALL BASKETS ARE REVERSIBLE.
02. 3mm CLEARANCE ON ALL SIDES OF ALL THE BASKETS AND ADJACENT TO SHELL PLATE.