

ANNEXTURE-A**(To be filled, signed & stamped and submitted along with quotation-Mandatory)**

BHARAT HEAVY ELECTRICALS LIMITED RAMACHANDRAPURAM: HYDERABAD-32 M&S (Gas Services / Boiler House)
Ref.No: HY/M&S/GS/BH/2022/RESINS
Name of the work: Supply of Resins for the Existing DM Plant to get the required Output DM water with given Bore water.

Water parameters


S.No	Parameters	Unit	Bore water (to be used as input)	Required DM water parameters(output)
1	Suspended solids	PPM	<1	
2	Ph		7.05	6.7-7.5
3	Conductivity	U/sm2	1102	0.5-1.5 micro seimens/cm
4	Total Hardness	As PPM caco3	503	NIL
5	Ca hardness	As ppm Caco3	317	
6	Mg hardness	As PPM caco3	186	
7	M Alkalinity	As ppm Caco3	365	
8	Chlorides	As PPM caco3	121	<4 ppm
9	Sulphates	As ppm Caco3	109	
10	Sodium	As ppm Caca3	141.3	
11	Potassium	As ppm Caca3	2.43	
12	Silica	As ppm Caca3	41.5	<0.02ppm
13	TDS	PPM	656	<0.2ppm

Vessels Dimensions

SAC	1400 mm dia, HOS 2400mm
DG	900 mm dia X 3000 mm height
SBA	800 mm dia X 1500mm HOS
MB	800 mm dia X 2200 mm HOS
AMT	800 mm dia X 1000 mm height
CDT	600 mm dia X 1000 mm height

REQUIRED QUANTITY OF RESINS

Strong acid cation resins for SAC vessel	5400 Litres
Strong Base Anion resins for SBA vessel	1675 Litres
Strong acid cation resins for MB vessel	687 Litres
Strong Base Anion resins for MB vessel	687 Litres



Strong acid cation resins for SAC & MB vessels

Properties		Vendors Acceptance YES/NO
Type	Polystyrene Gel	
Colour	Dark Yellow	
Functional Group	SO ₃ (Sulphonic)	
Ionic form	H	
Physical form	Beads	
Particle Size(mm)	0.30 to 0.50-10% max 0.50 to 1.20 -90% min	
Moisture content %	45-50 by wt (Na+ form)	
Total Exchange Capacity(meq/ml)(min)	1.9	
Shipping Weight(gm/Ltr)	750 - 800	
Operating PH range	1 to 14	
Density	1.2 to 1.3	
Storability Temperature DegC	20 to 100	
Shelf Life	5 Years (min)	

Strong Base Anion resins for SBA vessel

Properties		Vendors Acceptance YES/NO
Matrix Polysterene Gel	Cross Linked	
Colour	White	
Functional Group	Polystyrene quaternary Alkyl amine - Type II	
Ionic form	Cl -Chloride as Shipped	
Physical form	Beads	
Particle Size(mm)	0.40 to 0.50-5% max 0.50 to 1.20 -95% min	
Moisture content %	46 to 56% by wt	
Total Exchange Capacity(meq/ml)(min)	1.3	
Shipping Weight(gm/Ltr)	650-750	
Operating PH range	1 to 14	
Density	1.07 to 1.12	
Storability Temperature Deg C	20 to 100	
Shelf Life	5 Years (min)	

Handwritten signature

Strong Base Anion resins for MB vessel

Properties		Vendors Acceptance YES/NO
Matrix Polysterene Gel	Cross Linked	
Colour	White	
Functional Group	Polystyrene quaternary Alkyl amine - Type I	
Ionic form	Cl - Chloride as Shipped	
Physical form	Beads	
Particle Size(mm)	0.40 to 0.50-5% max 0.50 to 1.20 -95% min	
Moisture content %	46 to 56% by wt	
Total Exchange Capacity(meq/ml)(min)	1.4	
Shipping Weight(gm/Ltr)	650-750	
Operating PH range	1 to 14	
Density	1.07 to 1.12	
Storability Temperature Deg C	20 to 100	
Shelf Life	5 Years (min)	

Vendors Acceptance required for the following

S.No	Description	Vendors Acceptance YES/NO
1	Acceptance for Guaranteed Output DM water quality as given in the above table.	
2	Suitable Resins are to be supplied to get above output DM water parameters with a minimum OBR of 10 hours for SAC & MB and 4 hours for SBA in each stream.(two stream total)	
3	Resins should not get damaged, should not become powder, should allow water to pass through resin and give Guaranteed above parameters. Vendor has to give guarantee of One year for the above output parameters after filling these resins in our Existing DM Plant vessels. Parameters will be checked in the presence of vendors representative at our works.	
4	Vendor may visit BHEL/RC Puram, Hyderabad site for inspection before quoting.	
5	Vendor has to quote Lump sum price including transportation charges to BHEL/Hyderabad, visiting charges of vendors representative for showing guaranteed DM water parameters.	
6	Vendors with Deviation in given Resin Properties will be technically disqualified	

Caran Deem

Signature of the vendor
Stamp of the vendor

