

URANIUM CORPORATION OF INDIA LIMITED
JADUGUDA MINES

Annexure-1
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Public Tender No.: PUR / 2 / 25 / 8718 / 577

Item : Rotary Vacuum Drum Filter & its accessories

SCOPE OF SUPPLY FOR IGC ROTARY VACUUM DRUM FILTER:

The rotary drum filter size 3 ft. dia. x 4 ft. long face is required for the filtration of acidic IGC slurry (pH 2.55 to 4.0) containing 10-15 % solids to produce a clarified pregnant liquor having 50 to 60 ppm of slimes under an operating vacuum of 400 – 500 mm of Hg.

PARTY MUST ARRANGE FOR SUPERVISION AT THE TIME OF INSTALLATION FOR 1 DAY AT FREE OF COST.

1. MAIN UNIT:

<u>Description</u>	<u>Qty.</u>
Drum in MSRL complete with divisional and end strips (12 sectors on drum) with two openings in each sector on either side & diagonally opposite for filtrate withdrawal, polypropylene grids, (snap-in-type), tie rods, and drum piping. Drawings of grid & internal drum piping to be submitted along with offer.	One
Filter cloths (01 for operation & 03 for spare)	Four
Drum head and fly rims	One
Double solution valve construction complete with vacuum hose connection. UHMWPE wear plate, bridge plate and vacuum gauge.	One
Double solution valve construction complete with vacuum hose connection. UHMWPE wear plate, bridge plate and vacuum gauge.	One
Scraper Discharge with 4 ft. long scrapper in UHMWPE & Damping strip in SS316L.	One
Main Drive-worm and worm wheel type with motor, starter and VFD. Power transmission from motor to gear box shall be through <u>V-belt</u> only. Flange mounted motor is not acceptable	One
Main Drive Bearing Support.	One
Vat in MSRL construction complete with 2" flange connection for feed, 3" over flow and 3" drain pipelines.	One
Gun Metal Liners at D.E. and N.D.E.	One
Agitator is MSRL construction (wetted Parts only), with drive gear box, motor etc. Power transmission from motor to gear box shall be through <u>V-belt</u> only. Flange mounted motor is not acceptable.	One
Operation & maintenance manual with detail drawings of the equipment etc.	Three

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2. FILTRATE RECEIVER SYSTEM:

Filtrate Receiver with connection for inlet and outlet nozzles. - One

Detail Drawing is required.

3. MOISTURE TRAP SYSTEM:

Moisture Trap complete with connection for inlet and outlet nozzles. - One

Detail drawing is required

4. VACUUM SYSTEM:

Water ring vacuum pump in C.I. construction, silencer, base plate, foundation bolts, V-belts etc. along with motor and starter.

Set of vacuum piping from vacuum pump to drum filter.

Head valve with pressure gauge.

Manual type Flap/Butterfly valve for vacuum (SS-316L)

Detail drawing is required

5. FILTRATE PUMP SYSTEM:

(01 for operation & 01 for standby) Filtrate Pump has mechanical seal complete with motor.

NOTE:

PAINTING:-

The entire internal and external M.S. fabricated structural portion shall be painted with at least one coat of primer and two coat of corrosion resistant paint.

PACKING:-

Drum, grid, vat, snap wires etc. shall be supplied in separate packaging.

GRID: Two sets of polypropylene grids (one for fitting & one stand by) shall be supplied in good condition wrapped in black polythene only.

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Technical Specification

Sl.No.	Part	Details
1	Rotary Vacuum Drum	Size: 3ft dia. x 4 ft. long face, having nominal filtration area of around 37.68 ft ² in MSRL construction.
		Drum speed varies through VFD, <i>Rating of VFD should higher than (1.5 times) motor rating.</i>
		Flange Thickness as per ANSI 16.5 B, class 150
		Rubber lining thickness: 6mm = 3mm x 2 layers
2	End Strips	MOC – Haste alloy C grade 5
3	Filter cloth type	pp mono filament – double layer weaved
4	Drum head and fly rims	MOC - MS Epoxy
5	Double solution valve	MOC – SS 316L
6	Scraper Discharge	Size: 4ft. long scrapper in UHMWPE
7	Scraper damping strip	MOC – SS – 316L
8	Main Drive gear box	Make: Premier
		Gear Ratio: To be given by party
		Centre Distance: To be given by party
		Make: Premier only
9	Main drive motor & VFD	VFD Make: Siemens/Kirloskar/Danfoss/ABB only
		KW (hp) : To be given by party, Flange mounted motor is not accepted
		rpm: To be given by party, Make of motor: Bharat Bijlee/ Siemens/Kirloskar/ABB
10	Swing Type Agitator	With MSRL construction
11	Agitator gear box	Make: Premier
		Gear Ratio: To be given by party
		Centre Distance: To be given by party
12	Agitator motor for gear box	Make: Bharat Bijlee/ Siemens/Kirloskar/ABB
		KW (hp) : To be given by party
		rpm: To be given by party
13	Vat	With MSRL construction, complete with overhead feed with pipeline size of 3" over flow and 3" drain.
14	Main Drive Bearing Support	MOC – MS Epoxy-painted
15	Filtrate Receiver	Size: 15" diameter X 60" long
		MOC – SS 316 L. Inlet & outlet nozzles shall not be less than 3"
		Plate Thickness : 6mm
16	Moisture Trap	Size: 15" diameter X 48" long
		MOC – SS 316 L. Inlet & outlet nozzles shall not be less than 3"
		Plate Thickness : 6mm

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17	Vacuum Pump	Capacity: As per bidder (to be mentioned in the offer)
		Make: M/s. Kakati only
		MOC: Cast Iron
		Operation vacuum of 600 mm of Hg
		Cooling water ring & flow with silencer
18	Vacuum Pump motor	Make: Bharat Bijlee/ Siemens/Kirloskar /ABB
		KW (hp) : To be give by party
		rpm: To be give by party
19	Filtrate Pump	Make Investa/Microfinish/Akay only
		MOC: Haste alloy 'C' grade-5
		Capacity: 2 m ³ /hr.
20	Polypropylene Grid	To be packed separately in wooden box & wrapped in black polythene to take care of the heat effect during transit. <u>Two sets</u> of grids are to be supplied – One set for fitting & other set for stand by.
21	Internal tubing	See Additional information

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Additional Information

1. Feed Slurry flow rate: 2m³/hr
2. Dry solid Sp. Gr.: 4.0
3. Feed solids dry TPH: 2.5 MT/hr (@25%w/w)
4. Particle size distribution: 100% passing through - 325# (as the slurry is a process precipitate)
5. a) There is no filter existing today in UCIL
b) There is no test data as equipment sizing has been done based on our experience. However if you require to test something, you can do it in UCIL, Turamdih with your test kit etc.
c) The capacity of filtrate pump & feed data are already given & hence sizing of vacuum pump is under your scope.
d) There is no building drawing or plot plan. You may come to site to see the location. However, filter will be installed at 10 meter height from the floor level.
6. Manual type flap/ butterfly valve is required in the vacuum line.
7. Internal drum rubber lining is not required. However the internal tubes shall be made of hard PVC pipes with bends & threaded fittings up to head valve for the ease of replacement. Only the leading pipe (MOC-Haste alloy C gr – 5) shall be welded to the drum surface & it must be a threaded type at one end to fix the PVC pipes with it. There shall be manholes at both the end shell of the drum at 180 degree apart whose studs for fixing the MSRL cover shall be of Haste alloy C-gr. – 5.
8. The bridge plate shall be so designed that there must be a dead zone at the discharge point of the cake for the ease of cake discharge. This zone shall persist up to the point where the drum touches the slurry in the vat so that any vacuum loss there by shall be avoided. The submerged part of the drum must get maximum vacuum, rest of the part must be under mild vacuum so that the cake is lifted with the drum before it comes to the dead zone for discharge. A drawing of the bridge plate shall be submitted with the offer.

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Offer must contain the following for its evaluation:

1. Price bifurcation of supply of main equipment, drive motor, gearboxes, and any associated charges shall also be given.
2. Party will also furnish details of quality assurance plan to be followed at different stages for the supply of proper material and equipment.
3. Location of feed inlet, over flow, discharge hopper, head valve, drive Arrangement, hand of filter will be decided after the award of order.
4. The above mentioned filters must have a drum submergence of approx. 35%.

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PARTY MUST SUBMIT THEIR OFFER IN THE FOLLOWING FORMAT:

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4	Drum head and fly rims	MOC - MS Epoxy	
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6	Scraper Discharge	Size: 4ft. long scrapper in UHMWPE	
7	Scraper damping strip	MOC – SS – 316L	
8	Main Drive gear box	Make: Premier	
		Gear Ratio: To be given by party	
		Centre Distance: To be given by party	
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9	Main drive motor & VFD	VFD Make: Siemens/Kirloskar/Danfoss/ABB only	
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		Plate Thickness : 6mm	
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		MOC – SS 316 L. Inlet & outlet nozzles shall not be less than 3"	
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		Make: M/s. Kakati only	
		MOC: Cast Iron	
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		MOC: Haste alloy 'C' grade-5	
		Capacity: 2 m ³ /hr.	
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