

ELECTRO-MECH SERVICES

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Pages 1 - 14

M/S Forace Industries Pvt. Ltd.,

Plot No. 40, Sector-11, Sidcul,
Haridwar-249401 (U.K) India
(Uttarakhand)
M/S Forace Industries Pvt. Ltd.,

Kind Attn. Kanu Madam

Dear Sir,

As per our discussion at your works on 1.09,2021, we give below our revised quotation for sleeve machinery required by you for your new plant at Haridwar:

1) AUTOMATIC SLEEVE MACHINE (A.S.M.)

To manufacture sleeves from 1.5 to 6 inches dia. & height 8 inches

Machine type-

- a) **Arrangement to produce PARALLEL (EVEN THICKNESS)**
- b) **ANTI-PARALLEL sleeves (uneven thickness) can also be produced.**
- c) **All major operations by Hydraulic circuit.**
- d) **Polishing of sleeves auto / manual.**

- Overall size of the machine 3m x 3m x5m height.
- Area required 4m x 4m.
- Total electrical load 12 HP max.
- Operator required one – technically sound.
- Slurry, vacuum, water, electrical as per details in our quotation.

Details of the machine parts:

- **Frame:** It is fabricated in M. S. for mounting of the slurry tank, stirrers, vacuum box, up-down mechanism, in-out mechanism, roller, etc.
- **Slurry tank:** Fabricated in M.S. having capacity of 1500 kg. It is designed in special shape to fit in minimum space and also to keep the slurry well mixed.

Contd. on page-2

- **Stirrers:** Specially designed to mix the slurry all over the tank evenly. They are interlocked with the dip operation. They are two in number and are operated by electric geared motors, pulleys and belts.
- **Vacuum box:** This is designed to fit the pattern of 500 x 500 mm size. (Working area of 450 x 450 mm). The vacuum box can be tilted by a tilting arrangement as and when required. Hydraulic actuator operates this mechanism. This is fully water tight, so no slurry can enter in.
- **Pattern:** Size 500 x 500 mm square with SS perforated sheet inner and outer in nylon.
- **Mechanism – up-down:** This is required to lower and raise the pattern along with the vacuum box at the time of pattern dipping in the slurry and while extracting the sleeve on the tray after finishing. The operation is carried out by hydraulic cylinders.
- **Mechanism – in / out for tray:** This is provided for the in and out movement of the Tray. This works on pneumatics with electronic sensors.
- **Roller:** Mechanized by hydraulic mechanism. This is used for polishing the sleeves after filling operation. In this, electronic circuit is provided for the adjustment of number of rolling action required.
- *Polishing can be done manually for better finish if required.*
- **Hammers:** Mechanical hammers are provided for tapping the pattern for extraction of sleeves. This is operated by pneumatic circuit for easy extraction of sleeves.
- **Hydraulic circuit:** A hydraulic power pack is used for all the hydraulic operations. Other main hydraulic parts are: actuator, cylinders, solenoids and other safety valves and fittings.
- **Pneumatic circuit:** This is used for various operations of the locks, hammers, tray, etc.
- **Finishing and painting:** The entire machine is made sturdy by using extra supports, and heavy steel structures. Extra care is taken in finishing of the machine for better looks, life and operation. A proper painting operation is carried out after the primer coats are applied. Necessary trials without raw material will be taken at our factory and then disassembled for dispatch.
- **Erection and commissioning:** After dispatch the machine parts will be assembled at your factory. Necessary trials will be taken and final finishing will be carried out.
- **Training:** Necessary training will be given to your operators and technical staff for the operation and maintenance of the Automatic Sleeve Machine. All the required electrical, hydraulic and pneumatic drawings required for operation and maintenance will be explained in details and handed over to you.
- Cycle time 1.5 to 2 minutes.
- Number of sleeves per cycle as per size of the sleeves
- Sleeves can be manufactured 38 to 150 mm dia. & 75 to 200 mm height
- **Electrical circuit:** This is used for power and control circuit of the entire machine.
- **Programmable Logic Controller** operates the main electrical control. Manufacturing process cycle can be changed as and when required by PLC.

Please note:

Important parts dipping in the slurry are manufactured in SS 304.

- **Life of these parts will be longer.**
- **Easy for maintenance.**

a) COSTING:

The total cost of the Automatic Sleeve Machine .. Rs. 36,85,000
(Complete with hydraulics & electrical panels & fittings)

(Rupees thirty six lakh eighty five thousand only)

2) Multi-Pattern Sleeve Machine – II (M.P.S.M.-II) – with pattern lifting devices.

Unit description:

The entire machine is fabricated in M.S. **The critical parts are manufactured in SS.**

This machine is suitable for manufacturing Cylindrical Sleeves; Open and Blind, from 1” to 6” in size. The operation is manual and automatic electro-pneumatic controls. Total electrical load is 5 Hp. Operators required to run this machine are two.

Further details:

- The frame is in 100 x 6 mm MS channel on which all the components are fitted.
- A slurry tank in 6 mm sheet, which fits below the frame and is fitted 50% below ground level, having slurry working capacity of 1500 kg.
- A stirrer is fitted in the tank mounted on bearings and driven by electric motor along with a gearbox and belts and pulleys. The belts are under proper guard. This keeps the slurry well mixed, ready for use.
- A vacuum receiver cum water- separator is provided with electro pneumatic controls for vacuum On & Off operation.
- **Two nos. vacuum cone (SS) with pattern locks (SS) are fitted on a vacuum pipe (SS).** The dip and up operation of the patterns fitted on above cones is done by electro – pneumatic controls. Both the patterns dip simultaneously.
- The multi-cavity patterns are fitted as per required size on the above cones for manufacturing sleeves.
- Two pattern lifting devices are provided for lifting of the pattern.
- * An electrical control panel fitted on the frame controls all the electrical controls.
- A pneumatic control panel fitted on the frame controls all the pneumatic controls.
- An air pressure–regulator–filter is provided to supply dry air to pneumatic controls.

Contd. on page-4

- All the bought out items such as motor, gear box, electrical and pneumatic items, etc. are of standard make only (i.e. Crompton, Havels, L/T, Schrader, etc.)
- The overall size of the machine is 3 x 3 x 3m height.
- Cycle time is 2 to 3 minutes as per the size of the sleeves, slurry quality, vacuum condition and the quality of the pattern.

Costing

Total cost of M.P.S.M.-II sleeve machine with two patterns. ... Rs. 14,80,000
Including electrical & pneumatic control panel
(Rupees fourteen lakh eighty thousand only)

Electric supply, compressed air & vacuum supply up to machine in your scope.

Note:

- The cycle time is considered average period of 3 minutes.
- Good quality slurry, vacuum and patterns are required for the above production.
- Experience and practice will improve the productivity.

Requirement from your side:

- Electrical supply up to the machine with 3 phase, 32 A, 440 volts, neutral and good earth.
- **Vacuum of 600 to 650 mm of Hg, 2” connection for better performance on the machine with water line.**
- Compressed air connection of ½ inch with 100 PSI pressure.
- Slurry of good quality.

3) Rotary sleeve Machine (VFU):

Unit description:

- The entire unit is fabricated in M.S. The critical parts are manufactured in S.S. The operation of the machine is manual and semi-auto by electro-pneumatic controls.
- This machine is specially designed for two pattern attachment.
- A slurry tank having capacity of 1500 Kg for double pattern system is provided with a stirrer driven by electric motor along with gear box and belts.

- A vacuum cone is provided to fit pattern, which is rotated by an electric motor with a gear box and belt.
- The tool dip is done pneumatically and vacuum On/Off operation is done by electro-pneumatic controls.
- A separate vacuum receiver cum water separator is supplied along with the machine.
- A electrical control panel and pneumatic control panel is provided to control all the electrical and pneumatic controls.
- Finishing is done manually.
- Total electrical load for double pattern system is 7 HP.

Further details:

- * This machine can produce cylindrical sleeves from 6" to 18" dia.
- * Cycle time is 2 to 5 minutes as per the size of the sleeve, slurry and vacuum Condition.
- * The cycle time will reduce as the operator gets used with the machine operation.

Costing:

a) **The cost of the machine with double pattern attachment**
Including Electrical & pneumatic panels is Rs. 13, 85,000

(Rupees thirteen lakh eighty five thousand only)

Electric supply, compressed air & vacuum supply up to machine in your scope.

4) Fully auto sleeve machine Pattern in SS + Brass + Nylon:

The cost of 500 x 500 mm multi-cavity pattern is .. Rs. 2, 30,000 each
Outer body in nylon
Filter in brass casting with SS mesh on top

(Rupees two lakh thirty five thousand each)

5) M.P.S.M. Machine patterns (Multi-cavity):

- Pattern size 380 mm dia max.
- Complete in SS
- Dimensions as per your requirement

Costing:

The cost of above pattern in SS is..... Rs. 87,100 each
Rupees eighty seven thousand one hundred each

6) V.F.U. Machine patterns (single cavity):

The cost of single pattern in SS filter & body with base plate is Rs. 26,000 each
Rupees twenty six thousand each

7) Sleeve baking oven:

Description of the Oven:

This Oven is specially designed considering the baking process of sleeves, to get the required properties after baking, in specified period, and minimum fuel and power consumption. Total capacity of seven trolleys.

Further details:

- Oven main structure and tunnel is fabricated in M.S. with glass / rock wool for insulation.
- Trolley size approximately 1200 x 1200 x 1500 mm height.
- Two doors are also insulated. They are in two parts operate manually hinged type.
- Winch is provided at the entrance of the tunnel for pushing the loaded trolleys in. It consists of electric motor, gear box and locking arrangement to hold the trolley. The winch is designed to take added load of the trolleys and sleeves.
- The firing chamber is in M.S. with SS lining from inside where ever required and glass / mineral wool insulation from outside.
- All the hot air carrying ducting is in M.S. and insulated.
- The burner is Natural Gas fired. It is fully automatic, smokeless, on / off type, with built in fuel pump & blower. It also consists flame control valve, auto ignition and flame failure device. The consumption of fuel (Natural Gas) is 19 to 25 Kg/hour as per our setting at the time of baking.
- Hot air circulating blower is driven by electric motor and belts.

Contd. on page-7

- Two cross – trolleys and extra rails (about 45 ft) are provided for easy transportation of the trolleys outside. These rails will safe guard the trolley wheels from getting damaged. Also shop floor will also not require any maintenance.
- One digital temperature controller controls the temperature.
- Safety devices: a) Extra digital temperature controller.
b) No flame sensor.
c) Hooter to indicate over temperature.
d) Hooter to indicate no-flame.
e) Set Temperature indication.
f) Indicator lamps of clear vision from distance.
- Working temperature 160 to 200 degree C.
- Total electrical load 24 HP
- Painting in high temperature aluminum paint.
- **Electric control panel for all the operations with complete cabling and wiring.**

Costing:

- a) The total cost of the oven of six trolley capacity is **Rs. 28,65,000**
Including electric panel & wiring
Total cost Rupees twenty eight thousand sixty five thousand each

8) Cross trolley two nos & external rails:

To fit on the above oven for movement & transfer of trolleys.

The total cost of extra rails and two cross trolleys is Rs. 2,85,000 each

Total cost Rupees two lakh eighty five thousand each

Requirement from your side :

- Electric supply 3 ph, 415 V, 100 Amp capacities.
- Civil work at the time of erection.
- Unloading of furnace parts on site.
- Fuel storage and supply pipeline, fittings with on line fuel filter near the burner.
- Insulation of ducting in mineral wool blankets, covered with aluminum cladding. Mineral wool blankets will be provided by us.

Performance guarantee:

- Initial heating time 30 min
- One trolley will come out duly baked maximum after every 40 minutes.
- Fuel consumption – Natural Gas will be 19 to 25 Kg per hour
- **All the sleeves will be equally baked giving good strength, color and other Properties.**

9) Trolleys for oven:

- Fabricated in MS
- Size 1200 x 1200 x 1500 mm height
- To fit 12 trays
- With double bearing wheels

Costing:

Cost of above trolley in MS Rs. 57,200
each Rupees fifty seven thousand two hundred each.

10) Trays for oven:

- Fabricated in MS
- Size 600 x 1200 mm
- With mesh on top
- To fit on above trolley

Costing:

The cost of above tray in MS is..... Rs. 5,850 each
Rupees five thousand eight hundred fifty each

11) SLURRY PUMP:

- This pump is specially design to transfer slurry
- Capacity is 50 Kg per min.
- Frame is fabricated in MS
- Casing and impeller is in SS
- Driven by 3 Hp electric motor

Costing:

The cost of this slurry pump with motor is Rs. 65,000 each
Rupees sixty five thousand each

12) Utility items:

- Water tank in PVC, 2000 lit, with discharge valves
- Cooling tower, 400 lit, with 3 hp fan & pvc filling
- Water pump, 3 Hp 40 LPM, 3 ph
- All standard make

Coating:

The cost of above items is
Rupees one lakh ninety five thousand – one set

13) Vacuum pump:

- Complete set
- Water ring type
- Electric motor 20 Hp
- Vacuum 610 mm of Hg

Cost of above vacuum pump set is
Rupees two lakh ninety two thousand five hundred each set

14) Air compressor:

- Kirloskar make
- With air receiver
- 10 Hp electric motor
- Two stage

Cost of above air compressor is
Rupees four lakh fifty five thousand set

15) Pipe lines:

- For vacuum, compressed air, fuel, fresh water and used water
- As per required for each plant machinery
- With safety equipment.

Cost of above pipe lines as per your requirement is
Rupees three lakh twenty five thousand set

16) Fuel storage:

- As per our design
- With filter, regulators, flow control valves
- Gauges with ball valves
- Complete leak proof

Cost of above fuel storage is Rs. 3,25,000 set
Rupees three lakh twenty five thousand set

17) Electrical supply distribution:

- As per required for our plant machinery
- Panel boxes with powder coating
- Fittings make – Simens / L/T & Tecknic
- With auto Power Factor corrector panel
- With testing
- Including illumination
- Complete cabling

Cost of above electrical distribution items is **Rs. 6,50,000 job**
Rupees six lakh fifty thousand job

18) Civil work:

- For fresh water tanks
- For waste water tanks
- Machinery foundation

Cost of civil work with material is **Rs. 4,55,000 job**
Rupees four lakh fifty five thousand JOB

19) Oven Insulation:

- Insulation in mineral wool blankets
- Blankets 50 mm thick & 50 density
- Complete insulation for ducting
- With aluminum cladding

Cost of insulation job is Rs. 1,30,000 each set
Rupees one lakh thirty thousand each set

20) Vacuum receiver / water separator:

- Fabricated in MS
- Capacity 2000 cfm
- With discharge valve
- Inlet 6 inches – one no.
- Outlet 2 inches – 4 nos
- With pressure gauge
- For Vacuum storage & distribution

Cost of vacuum receiver / water separator	Rs. 2,53,500 each
Rupees two lakh fifty three thousand five hundred each		

21) Hydropulper:

Description of Hydropulper:

The entire unit is fabricated in M.S. The design is done for 300 Kg (500 Kg including water) capacity. It consists of M.S. shell in 6 mm with extra reinforcement at the bottom. A stirrer mounted on bearings is driven with an electric motor, pulleys and belts at a required speed. The impeller in M.S. is fitted at the bottom. The discharge valve is fitted at the bottom or on the side of the shell. The entire unit is fitted on your mezzanine on three stools fitted to the shell.

The total capacity fabricated is 750 Kg having an electric motor of 15 HP for driving the shaft of the stirrer. Batch time for the hydropulper is 30 minutes.

Costing

Total cost of 300 kg Hydropulper is	Rs. 2,60,000 each
Rupees two lakh sixty thousand each			

- Electric supply with switch fuse, starter and cabling in your scope.

22) Holding tank:

- Fabricated in MS
- Capacity 1200 Kg
- Stirrer fitted on bearings
- Electric motor 5 Hp with gear box
- RPM 40
- With discharge valve

Cost of holding tank with motor **Rs. 3,44,500 each**
Rupees three lakh forty four thousand five hundred each

23) SLURRY PUMP:

- This pump is specially design to recirculation of drained water
- Capacity is 50 Kg per min.
- Frame is fabricated in MS
- Casing and impeller is in SS
- Driven by 3 Hp electric motor

Costing:

The cost of this slurry pump with motor is **Rs. 84,500 each**
Rupees eight thousand four hundred each

24) Erection & commissioning:

Erection charges for erection & commissioning of above machinery **Rs. 8, 45,000**
Rupees Eight lakhs forty five thousand only

Erection Job on site:

1. Our team will visit the site for erection after all the material reaches your site.
2. Erection of the above plant on site will require about 60 days
3. You are required to procure following items for erection job:
Electric welding machines- 2 nos
Gas cutter with gas cylinders as required
Electric steel cutting machine
General purpose tools
4. Please keep your factory shed and other utilities like water, electric power, and raw Material ready before our erection starts.
5. Also, keep ready all the machinery and other items in your scope at the time of our Erection work

SUMMERY OF MACHINERY

Sr. NO.	Description	Quantity	Total cost
1	Fully auto sleeve machine for 1.5 to 6 inches size sleeves	1 no	3685000
2	Multi Pattern Sleeve Machine sleeve machine with two patterns to manufacture sleeves sizes 1" to 6", with pattern lifting device	2 nos	2960000
3	Rotary sleeve machine (VFU) for 6 to 18 inches sleeves	1 no	1385000
4	Fully auto sleeve machine patterns in SS + Brass + Nylon	5 nos	1150000
5	M.P.S.M. sleeve machine pattern - in stainless steel	80 nos	69680000
6	Rotary sleeve machine patterns in SS	20 nos	520000
7	Tunnel oven, continuous operation, six trolley capacity	2 nos	7449000
8	Cross trolleys and external rails for easy transportation of loaded and empty trolleys around the shop floor and oven	2 sets	741000
9	Trolleys for loading trays with sleeves for baking purpose in oven	40 nos	2288000
10	Trays on trolleys to load sleeves for baking	350 nos	2047500
11	Slurry pump for recirculation of slurry	2 nos	130000
12	Fresh water tank, cooling tower, water pump - required for vacuum pump and production.	1 set	195000
13	Vacuum pump complete set - required for sleeve manu. Process on machine.	2 nos	585000
14	Air compressor with receiver	1 no.	455000
15	Pipe lines with safety equipment for distribution of vacuum, compressed air, fuel, water - fresh and used	1 set.	32500
16	Fuel storage	1 set	325000
17	Electrical supply distribution and illumination	JOB	650000
18	Civil work - for fresh water tank, waste water tank, machine foundation	JOB	455000
19	Oven insulation of ducting	2 sets	260000
20	Vacuum Receiver cum Water seperator - for distribution and storage of vacuum and to separate suction water from the m/cs.	2 nos	507000
21	Hydropulper 300 kg capacity - to produce slurry for machinery	2 nos	520000
22	Holding tank, 1200 Kg capacity	2 nos	689000
23	Slurry pump for recirculation of drained water	2 nos	169000
24	Erection & commissioning in about 60 days		845000
	TOTAL		96125500

Note:

- Applicable taxes extra -18% G.S.T.
- Packing, transport & insurance extra on actual.
- Payment of 40% along with the confirmed order.
 - 20% within two months
 - 25% plus G.S.T. before dispatch (against Proforma invoice) .
 - 15% plus erection charges after commissioning.
- Delivery: Within four months after receiving Order & advance amount.
 - Delivery will be honored sincerely subject to payment received as decided.
 - Part shipment will be commencing within 2 months. You will unload the items on site & store in safe place.
- Force Majeure: The delivery committed here-in is in good faith and will be honored sincerely subject to Force Majeure situation. Force Majeure such as Acts of God, Corona lockdown, Flood, earth quakes, war, strikes etc.
- You will hand over the site in three months to us to plan & start erection job.
- One year guarantee for all the parts manufactured by us.
- Validity one month from the date of offer.
- Jurisdiction: Subject to Pune Jurisdiction only.

We hope you will find our quotation reasonable and await your valuable reply.
Thanking You.

Yours truly,
For Electro-Mech Services

Girish Kale