About us

Neptune systems promoted by young dynamic, qualified technocrats having vast experience in design development & manufacturing. We at Neptune strongly believe in creating synergy specially for providing the customer end requirement. Neptune systems range of products/services operate at critical areas to our valued customers. We there fore cherish and go all out to achieve flawless integration of systems, products/services.

Mission

Our mission is to manufacture, supply the machines and system as per customers requirement on continuous basis.

About Promoters

M M Gokule
DME, AMIE(Mech), BE(IE), MDAA, DBM, MMS, ADCSSAA, MCA, PGDAPR, Siebel CRM, (PGOR), (ICWAI)

20 Years of design development, 5 years of SPM's maintenance & Fabrication experience, started company during 2007, developed first time in India unique online online / off line Automatic Cutting & Deburring machines, Automatic CNC drilling machine Auto Loaders, Pick & Place low cost Robotic Arms & Leakage Testing machines.

Reena Biradar, DERE,BE(Electronics),ME(VLSI & Embedded)

2 Years PLC & HMI Programming, developed controllers based on embedded system, presently working on Incident detection system using Image processing.

Company Products / Services

Products

- On line Cutting Machine
- Automatic Cutting & Deburring Machine
- 5 Axis HMC
- CNC Turning
- Stand alone Automatic Cutting Machine
- SPMS
- Robots
- PC Base CNC /NC Machines
- Conveyor Systems
- Auto Loaders / Un loaders
- Bearing Line Automation
- Plant Automation
- Turnkey Projects
- Consultancy Services

Services

Software development: Since its inception Neptune Systems started its software training & development, it has developed its own products like SMS, B2B /B2C , E-accounting, EPF/GPF products and customized solutions.

CAD/CAM/CAE: As a part of its expansion program we have started CAD/CAM/CAE, automation & robotics. System integration and turnkey solution, we accepted challenges cherish to achieve without
compromising quality and productivity of our valued customers. We provide turnkey solutions on Automation, robots, machines and equipments.

**TUBE MILL**

The ERW pipe mill is a series of machines that builds longitudinal weld seam pipe with steel strips of certain width. It starts by uncoil and flatten the slitted steel coils into steel strips. The flattened steel strips will then be inserted into the forming machine and the rollers in the machine will bend the strip to a round pipe shape. The round pipe will then be sent into the weld box where the tube is welded by a high frequency or solid state welder. The welded pipe will be formed to expected shape or size in a sizing machine. Finally the pipe will be cut to length and bundled. Neptune Systems offers wide range of tube mills along with existing mills modernization right from change in latest mill drive system along with latest features like quick change mechanisms, fast roller changing with no spindle removal, load of the machine is low, which may not only decrease the roller cost but also save the time and improved productivity.

**PILGAR MILL AUTOMATION**

Optimizing the process is a matter of matching the feed increment \( n \) and the rotation angle \( a \) in the two dead-center positions with the tube material and quality requirements. In some cases, the process can achieve variations smaller than 0.5 microinch for medium ODs and wall thicknesses. The roughness value of the finished tube usually is less than that of a drawn tube. With stainless steel tubes, for example, cold pilgering can achieve Ra values smaller than 0.02 microinch.

The feed increment on the input side is an indication of the overall efficiency of the cold pilger mill operation. The length of finished tube per stroke of the mill saddle is calculated as the product of the feed increment on the input side and the amount of elongation (the finished length minus the original length). The annual output can be estimated as the product of finished tube per stroke and the number of strokes per year, whereby the output depends on the tube material, the required dimensional tolerances, the tool design, tooling quality, and lubricant.

Neptune Systems optimizes the process by synchronized servo controlled feed \( n \) and rotation angle by AC Servo control for max annual output, for existing systems it will be a major limitation because of mechanical / hydraulic system limitation

System will be complete PLC base having complete automatic right from loading of input material till finished output.

Optimizing the process is a matter of matching the feed increment \( n \) and the rotation angle \( a \) in the two dead-center positions with the tube material and quality requirements. In some cases, the process can achieve variations smaller than 0.5 microinch for medium ODs and wall thicknesses. The roughness value of the finished tube usually is less than that of a drawn tube. With stainless steel tubes, for example, cold pilgering can achieve Ra values smaller than 0.02 microinch.

The feed increment on the input side is an indication of the overall efficiency of the cold pilger mill operation. The length of finished tube per stroke of the mill saddle is calculated as the product of the feed increment on the input side and the amount of elongation (the finished length minus the original length). The annual output can be estimated as the product of finished tube per stroke and the number of strokes per year, whereby the output depends on the tube material, the required dimensional tolerances, the tool design, tooling quality, and lubricant.
ONLINE FLYING COLD /FRICTION CUTTING

Cold cutting is an essential part of the tube mill, which enable cutting of the tube to the preset length by a cut off machine. Designed for overall productivity & consistent product output. This system handles all types of products – circular, square & rectangular sections, cutting synchronization with use of AC Servo motor having inbuilt resolver for main drive faster response and better accuracy at higher speeds, feed AC Servo motor for cutting, this enables faster cutting and improved blade life. This system have provisions for HSS / Friction cutting / TCT blades as per requirement, this is unique feature of our system operator have provisions for type of blade selection rest of cutting parameters will be taken default, controlled cold / TCT cutting results in clean cutting of the end without need for any end facing, system contains most modern technology & totally user friendly.

Manufactured for Innovative Industries Ltd Pune

Product Characteristics :

- Rigid fabrication structure fitted with solid machined alloy steel rail for smooth vibration free running of trolley.
- Cutting arm and clamping assemblies are hydraulically operated. vibration free rigid design.
- The trolley Drive is through steel reinforced timing belt driven through AC Servo inbuilt resolver with in built zero back lash planetary gear Box.
- Blade driven through high torque AC Motor through a Zero back lash helical reduction Gear Box, specially designed in compact form for Cold Sawing application.
- Saw Blade is made of coated HSS material with special tooth profile for cold sawing application.
- Complete system designed to suit your existing mill.
- Full-automatic control
- Liquid crystal display, human-computer interface
- Used for round, square & rectangular sections
- Dual Options available as per requirement

Main Performance and Technical Data

<table>
<thead>
<tr>
<th>Model</th>
<th>Product Dia(mm)</th>
<th>Wall thickness (mm)</th>
<th>Specified length (m)</th>
<th>Cutting precision (mm)</th>
<th>Tracking speed (m/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTC32</td>
<td>φ12-φ38</td>
<td>0.6-2.5</td>
<td>4-16</td>
<td>≤±1.5</td>
<td>Max.90</td>
</tr>
<tr>
<td>CTC50</td>
<td>φ19-φ63</td>
<td>0.8-3.0</td>
<td>4-16</td>
<td>≤±1.5</td>
<td>Max.90</td>
</tr>
<tr>
<td>CTC76</td>
<td>φ21-φ80</td>
<td>0.8-3.5</td>
<td>4-16</td>
<td>≤±1.5</td>
<td>Max.80</td>
</tr>
<tr>
<td>CTC114</td>
<td>φ60-φ114</td>
<td>0.8-4.0</td>
<td>4-16</td>
<td>≤±1.5</td>
<td>Max.60</td>
</tr>
</tbody>
</table>

FULLY AUTOMATIC CUTTING AND DE BURRING MACHINE

1) **By Tool** : For inline tube end de burring by means of ID /OD tools making the automatic inside & outside removal of bur, This machine is used for 16 mm to 52 mm OD higher size is also possible, it can be directly mounted on the unloading table of the mill and the tube movements will be fully automatic

2) **By Brush** : For finishing tube end by using Imported SS brush, brush position will be vertical and horizontally adjustable, with their speed will be controlled by inverter tube movement on roller conveyors and working speed are automatically controlled through PLC

Pipes of assorted length in the form of bundle will be loaded and get singled one by one automatically, singled pipe will be passed through Servo controlled length measuring system, depending on set length through operator panel initially it will cut first 10 mm followed by set length, if pipe to be cut less then set length pipe will be collected in rejection bin. For balancing cutting time & de burring time buffer is created.
between cutting & De burring operations, after De burring on one end pipe will be taken on other end for second side, after completion it will be collected on O/p stretchable belt collector

Manufactured for Ratnamani Metal & Tubes Gujrat

Main Performance and Technical Data

<table>
<thead>
<tr>
<th>Model</th>
<th>Product Dia(mm)</th>
<th>Wall thickness (mm)</th>
<th>Specified length (m)</th>
<th>Cutting precision ±(mm)</th>
<th>Output/Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTC32</td>
<td>ф12-ф38</td>
<td>0.6-2.5</td>
<td>2-16</td>
<td>±1.0 /0</td>
<td>Max.120</td>
</tr>
<tr>
<td>CTC50</td>
<td>ф19-ф63</td>
<td>0.8-3.0</td>
<td>2-16</td>
<td>±1.0 /0</td>
<td>---</td>
</tr>
<tr>
<td>CTC76</td>
<td>ф21-ф80</td>
<td>0.8-3.5</td>
<td>2-16</td>
<td>±1.0 /0</td>
<td>---</td>
</tr>
<tr>
<td>CTC114</td>
<td>ф60-ф114</td>
<td>0.8-4.0</td>
<td>2-16</td>
<td>±1.0 /0</td>
<td>---</td>
</tr>
</tbody>
</table>

END FACING AND BEVELING MACHINE

Introduction of the beveling and facing machine
The beveling machine is one of the important equipment for the high frequency tube welding production line which is used for milling and chamfering. The whole process is circulatory and automatically continuous. The machine has the advantages of reasonable design, compact structure, steady operation, reliable working, simple manipulation, convenient maintenance and so on.

End Facing and Beveling Machines are suitable for pipe applications to meet any internationally known standards, including those of API and AWWA. End Facing and Beveling Machines can be used with pipes produced by the electric resistance welding (ERW) process as well as pipes produced by the submerged arc welding (SAW) process.

The range covered with PRD EFBM s are:
Pipe Diameter 20 (508 mm) to 120" (3048 mm)
Pipe Length 4 meter to 20 meter
Material Thickness 5 mm to 25 mm
Material Grade Up to X 80
Cutting Angle 30 degrees with +5, -0 tolerances

Main EFBM components are:

"Pipe Clamps
"Spindle and Cutting Head Assembly
"Positioning System
"Pipe Rotating Unit
"Drive and Hydraulic System
"Controls and Tooling
**PIPE CLAMPS**

Two pipe clamps, top and bottom, are made of machined steel in sections. The top clamp is fixed while the bottom clamp can be vertically adjusted by means of hydraulically driven cylinders to fix the pipe in position. Bolt-on Inserts are fixed onto the clamps. Different bolt-on inserts are needed for each diameter of pipe.

**SPINDLE AND CUTTING ASSEMBLY**

The spindle is made of forged steel. A faceplate holding the cutter assembly with cutter heads is mounted onto the spindle by a flanged connection. The cutter assembly is mounted on the faceplate in such a way that any positioning of the cutter heads along the faceplate axis is possible. Cutter heads are complete with insert-type cutting tool holders. The complete assembly is mounted on a large anti-friction tapered-roll bearing, which is sealed and lubricated by a gear pump.

**POSITIONING SYSTEM**

Positioning of the faceplate and cutter heads feed is accomplished by means of servomotors and gear reducers. All high-speed in and out movements of the faceplate and fine and course feed of the cutter heads are controlled through the operator panel provided by the beveling head which allows continuous inspection by the operator during beveling.

**DRIVE and HYDRAULIC SYSTEM**

The faceplate and cutter head assembly is furnished with a variable speed, high torque, DC drive. Each beveling head has an independent drive and hydraulic system complete with hydraulic pumps, motors, reservoir, filters, valves and controls.

**CONTROLS and TOOLING**

All beveling head and pipe positioning controls are provided through an individual operator control panel located by the beveling head itself. The PLC system allows automatic operation for pipes having same characteristics.

Cutter head assemblies are designed and positioned on the face plate to bevel the pipe ends and to machine a flat surface perpendicular to the horizontal axis of the pipe. This is accomplished by one facing tool (fixture) which is stationary and one bevel tool (fixture) which is floating with respect to the cam follower provided.

**AUTOMATIC OFF LINE CUTTING & DEBARRING MACHINE**

- Automatic Cutting
- Automatic De-burring
- Automatic Bundling & Singling

Manufactured for Ratnamani Matels & Tubes Ltd Gujrat
Salient Features of Automatic Cutting & De-Burring Machine

- Input Pipe is in the form of Bundle of Varying Lengths, Bundle Size of 150 Nos. and weight maximum of 5 tons.
- Cut Length Accuracy can be achieved ±1 mm for the length of 16 meters.
- Pipe OD – 16 mm TO 100 mm.
- Wall Thickness – 1 mm TO 3.5 mm (For Pipe Wall Thickness less than 1 mm, client has to specify).
- Ovality – Maximum 50 Microns.
- HMI (Human Machine Interface) will be have following settable parameters – a) Cut Length b) Pipe Diameter c) Wall Thickness d) Fast Forward & Cutting Advancement e) Servo Speed for Pipe Advancement / Cutting Position.
- Cut Length can be varied depend on requirement between 2 meters to 16 meters through HMI and pipes will be cut on set lengths. In the event of cut length is less than 1 mm as per set parameters, pipe will get rejected and thrown in the Rejection Bin.
- After the end of cut for current pipe, the end piece will get pushed by new pipe which will be loaded from Singling Conveyor, in the event of cut length is within set parameters it will be cut and pushed to accepting buffer else if it is less than set length, will be rejected.
- For De Burring, Pipe Dia. Varies from 16 mm TO 100 mm.
- De Burring will be done for OD, ID & Facia together with the help of Plunge Tooling.
- Cutting & De burring operations are Simultaneous.
- Flexible Tooling – Same tooling can be used for various diameters without changing frequently.
- Repeatability of 0.1 mm can be achieved without affecting Cut Length.
- Ovality of 50 microns is achievable.
- Online De Burring can be augmented with existing Friction/Cold Cutting.
- Rate of de burring speed will be at par with the Tube Mill Speed.
- Length Variation – 4 meters TO 22 meters Material – Carbon Steel / Stainless Steel Tooling – Plunged (TCT Tool) for ID/OD/Facia OR Wire Brush as per client’s requirement Tooling Advancement/Feeding – Servo OR Pneumatic as per client’s requirement.

HORIZONTAL MACHINING CENTRE

Designed & Manufactured for Rieter India Pune

Main Performance and Technical Data

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Table size(mm)</td>
<td>500x450</td>
</tr>
<tr>
<td>X/Y/Z travel(mm)</td>
<td>900x450x500</td>
</tr>
<tr>
<td>Distance from spindle nose to table surface(mm)</td>
<td>140 approx.</td>
</tr>
<tr>
<td>Spindle type</td>
<td>BT40</td>
</tr>
<tr>
<td>Spindle diameter</td>
<td>100</td>
</tr>
<tr>
<td>Spindle speed(r/min)</td>
<td>6000 RPM</td>
</tr>
<tr>
<td>Spindle braking time</td>
<td>≤45</td>
</tr>
<tr>
<td>Spindle</td>
<td>HAAS Equivalent</td>
</tr>
<tr>
<td>Spindle power(HP)</td>
<td>7.5</td>
</tr>
</tbody>
</table>
NEPTUNE SYSTEMS

Ball screw
Ball screw support bearing
Positioning accuracy(mm) | HIWIN
                          | NSK/SKF
                          | 0.01
Repeatability(mm)       | 0.06
Parallelism between X axis and B axis (swivel to any angle) | ≤0.02
Rapid Traverse speed(mm/min) | ≥15000mm/min
Cutting feed rate        | 8000mm/min

**Standard Accessories**

- Spindle speed:3000r/min
- BT40 tool shank
- Spindle motor with VFD (Rieter scope)
- 4 Axis CNC controller (Rieter scope)
- Spindle and servo over loading protection
- Full closed cover
- Lighting equipment
- Auto lubrication system
- Electric box constant temperature devices
- Spindle tool coolant system
- CNC rotary working table
- RS232 interface
- Manual air gun
- Tool box

**Optional Equipments:**

- BT50 tool shank
- Work piece measurement system
- Cutter measurement system
- Spindle internal cooling
- Chaining chip cleaner
- Oil and water splitter filter
- Spindle water-coolant equipment
- Network function
- Accessories & Clamping

**ECONOMIC SERIES- CNC MACHINE**

![CNC Machine Image]

Designed & Manufactured for Varad Engrs Pune

**Main Performance and Technical Data**

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Height (mm)</td>
<td>180</td>
</tr>
<tr>
<td>Centre distance (mm)</td>
<td>750/1000</td>
</tr>
<tr>
<td>Swing over bed (mm)</td>
<td>300</td>
</tr>
<tr>
<td>Swing over carriage (mm)</td>
<td>250</td>
</tr>
<tr>
<td>Swing over cross slide (mm)</td>
<td>150</td>
</tr>
</tbody>
</table>
### Bed width (mm)
- 200

### Main spindle bore (mm)
- 42

### Tail stock barrel diameter (mm)
- 50

### Tail stock barrel travel (mm)
- 300

### Tail stock Morse taper
- MT 3

### Main spindle nose (mm)
- A2-5

### Spindle diameter
- 100

### Spindle speed (r/min)
- 6000 RPM

### Spindle braking time
- ≤4S

### Spindle power (HP)
- HAAS Equivalent 7.5

### Ball screw support bearing
- NSK/SKF

### Positioning accuracy (mm)
- 0.01

### Repeatability (mm)
- 0.06

### Parallelism between axis
- ≤0.02

### Rapid Traverse speed (mm/min)
- ≥15000mm/min

### Cutting feed rate
- 8000mm/min

---

### ECONOMIC SERIES- CNC MACHINE

**Designed & Manufactured for Harsh Industries Nagpur**

**Main Performance and Technical Data**

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Height (mm)</td>
<td>100</td>
</tr>
<tr>
<td>Centre distance (mm)</td>
<td>750</td>
</tr>
<tr>
<td>Swing over bed (mm)</td>
<td>250</td>
</tr>
<tr>
<td>Swing over carriage (mm)</td>
<td>200</td>
</tr>
<tr>
<td>Swing over cross slide (mm)</td>
<td>100</td>
</tr>
<tr>
<td>Bed width (mm)</td>
<td>200</td>
</tr>
<tr>
<td>Main spindle bore (mm)</td>
<td>42</td>
</tr>
<tr>
<td>Tail stock barrel diameter (mm)</td>
<td>40</td>
</tr>
</tbody>
</table>

---

**Head Office:**
J J Complex, Flat No. 207, Vishrantwadi Pune - 411015
Website: [www.neptunesystems.co.in](http://www.neptunesystems.co.in)

**Works:**
Sy No. 54/1, Wadmukh wadi, Alandi Road Near Sai Baba Mandir, Pune 411027
Website: [www.neptunesystems.co.in](http://www.neptunesystems.co.in)

E-mail: meetgokule@rediffmail.com or meetgokule@gmail.com
Cell: 09175457466, 08887965922
<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tail stock barrel travel (mm)</td>
<td>300</td>
</tr>
<tr>
<td>Tail stock Morse taper</td>
<td>MT 3</td>
</tr>
<tr>
<td>Main spindle nose (mm)</td>
<td>A2-5</td>
</tr>
<tr>
<td>Spindle diameter</td>
<td>75</td>
</tr>
<tr>
<td>Spindle speed (r/min)</td>
<td>3000 RPM</td>
</tr>
<tr>
<td>Spindle braking time</td>
<td>≤4S</td>
</tr>
<tr>
<td>Spindle power (HP)</td>
<td>HAAS Equivalent</td>
</tr>
<tr>
<td>Ball screw support bearing</td>
<td>HIWIN</td>
</tr>
<tr>
<td>Positioning accuracy (mm)</td>
<td>0.01</td>
</tr>
<tr>
<td>Rapid Traverse speed (mm/min)</td>
<td>≥15000 mm/min</td>
</tr>
<tr>
<td>Cutting feed rate (mm/min)</td>
<td>8000 mm/min</td>
</tr>
</tbody>
</table>

**CNC RETRO FITTING**

- You can make your ordinary lathe (Old/New) into highly accurate CNC lathe at unbelievable price. Use old lathe head stock, tail stock, and chuck. Fit it with our slide (Pre-fitted with turret, ball screw, x & z axis motor) and you have a highly accurate CNC lathe at fraction of the cost of regular CNC lathes.
- All the advantages of a CNC lathe combined with the flexible and ease of a conventional lathe.
- Components of complicated geometries can be turned without using taper turning / hydro copying attachments.
- A very large range of threads can be produced without setting up gear trains.
- Greatly reduced set up time means increased productivity.
- Ideal for small batch production of CNC quality / accuracy turned components.

**LOW COST PC BASE CNC / NC**

Neptune Systems developed standard LOW COST PC base Automatic / Semi Automatic CNC/NC machines for the following operations:

- Milling Machines
- Lathe
- Plasma Cutters
- Electric Discharge Machining (EDM)
- Wire EDM
- Water Jet Cutters
- Wood Routers
- Sheet Metal Works (Turret Punch)
- Wire Bending Machines
- Laser Cutting
- Surface Grinders
- Cylindrical Grinders
- Induction Hardening Machines
- Glass Cutting machines
Neptune Systems

- Shearing / Cold cutting Machines
- Low Cost Cutting NC Machines for Fabrication Industry

**AUTOMATIC CNC DRILLING MACHINE**

- High rigid & long stroke (upto 300 mm) drill units with compact size, variety of models available for wide range of machining requirements
- High quality servo motor for feed & precise ball screw designed eliminate feed rate fluctuation of feed speed by drilling forces; less burr generation for through hole drilling and longer tool life. High precision, high efficiency, less space and cost reduction that are Critical for the machining operation can be gained

**CNC Drilling Designed & Manufactured for Sandvik Asia Pune**

**High quality Drilling**
The fluctuation of feed speed is eliminated by the precision angular bearing supporting spindle and the high quality ball screw. As the result the generation of burr is reduced and the tool life is reduced

**High rigid precision Structure**
Rigid structure the spindle ball screw and linear guide making the drill unit body rigid and strong enough to step and spot facing and burnishing drill

**High efficient deep hole drilling**
Coolant centre through is available for Mechatric series for efficient deep hole drilling by oil hole drill tool

**High flexibility**
Spindle rotation is varied by attached inverter. Optimize speeds to adapt to different cutting requirements

**Adjustable Spindle Nose (Optional)**
Please specify the adjustable spindle nose Neptune Systems supply as per requirement

**Multi job Loading Option/Multi axis operation**
More then one job can be loaded for alternate operation /available as per requirement

**Easy Operation**
5.7” touch panel type color display makes it easy to make CNC programming and operate even for a beginner operator

**Data Input System/Other Attachments**
Programming consol, Touch panel, computer monitoring software

**Main Performance and Technical Data**

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle accuracy</td>
<td>5 Micron</td>
</tr>
<tr>
<td>Drill Dia</td>
<td>0.5 mm to 26mm</td>
</tr>
<tr>
<td>Spindle motor</td>
<td>.700 Kw to 3.7 Kw Brushless DC</td>
</tr>
<tr>
<td>Drill speed (Max)</td>
<td>6000</td>
</tr>
<tr>
<td>Stroke</td>
<td>300</td>
</tr>
<tr>
<td>Feed motor</td>
<td>400 Kw to 2.7 Kw AC Servo</td>
</tr>
<tr>
<td>Linear Operation (Optional)</td>
<td>Available as per requirement</td>
</tr>
<tr>
<td>Rapid Approach</td>
<td>300mm/sec Max</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>16.7 mm/sec</td>
</tr>
<tr>
<td>X, Y, Z</td>
<td>Available as per requirement</td>
</tr>
<tr>
<td>Job clamping/Holding</td>
<td>Hydraulic / Pneumatic</td>
</tr>
<tr>
<td>Job Loading/Unloading</td>
<td>Manual / Auto</td>
</tr>
</tbody>
</table>
CNC GUN DRILLING

Suitable for drilling extremely deep holes & small dia. A versatile machines to compliment job shops / dedicated machines for high volume production drill sizes ranging from 1.5 mm to 25 mm

FEATURES
Modular Design
Allows high level flexible for accommodating range of standard components

CNC Gun Drilling Retrofitted for Tamboli Engrs, Pune

Coverage
Varied Industries like Defence, Pharma, Automotive, oil & Gas, General Engineering Etc

Automatic / Semi Automatic
Depending of requirement machine can be designed for mode of loading & unloading of jobs

Main Performance and Technical Data

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill Dia Range</td>
<td>5 to 25 mm</td>
</tr>
<tr>
<td>Spindles</td>
<td>1-2-4</td>
</tr>
<tr>
<td>Spindle motor / Spindle( HP)</td>
<td>5 to 10</td>
</tr>
<tr>
<td>Drill Depth (mm)</td>
<td>400/600/1000</td>
</tr>
<tr>
<td>Drill Feed Range mm/min</td>
<td>0-1000</td>
</tr>
<tr>
<td>Spindle Speed Range (RPM)</td>
<td>500 to 6500</td>
</tr>
<tr>
<td>Components OD</td>
<td>800 mm</td>
</tr>
<tr>
<td>Rapid Approach</td>
<td>300mm/sec Max</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>16.7 mm/sec</td>
</tr>
<tr>
<td>X, Y, Z</td>
<td>Available as per requirement</td>
</tr>
<tr>
<td>Job clamping/Holding</td>
<td>Hydraulic / Pneumatic</td>
</tr>
<tr>
<td>Job Loading/Unloading</td>
<td>Manual / Auto</td>
</tr>
</tbody>
</table>

SPM’S

SPM’s our main business we produce state-of- the – art ultra precision special purpose machines to meet your manufacturing challenges

We take your specification requirements from initial design study & concept through full scale special purpose machine designed and builds. We do this by employing a no. of advance design technologies such as FEA, design study, Risk Analysis & CAD Etc

Below are list of machines tat has been designed & manufacture

- 5 Axis Fully Automatic CNC Cutting & De burring machine
- 3 Axis Online Flying Cold cutting machine
- 5 Axis HMC
- 3 Axis CNC Turning
- 3 Axis CNC Drilling
- 2 Axis CNC Gun Drilling
- Automatic Vacuum Pads Machines
- Low Cost PC base CNC /NC Machines
NEPTUNE SYSTEMS

BEARING AUTOMATION

Neptune Systems designed & developed Custom type Bearing Automation for Rieter India, Machine need to assemble following:

1) Inner Bearing
2) Outer Plastic Ring
3) Main casting Body

Sequence of Operations : Pick Inner Bearing Assly with Outer Assly with main Assly

After loading Inner bearings on Gravity Chute, Plastic Rings on Stacker & Outer body on Indexing mechanism, operator simply press cycle start button Inner bearing gripper arm picks inner bearing, simultaneously second arm picks outer plastic from stacker places it on assly area, during placing inner bearing by first picking arm it checks whether plastic outer is placed on assly area or not, after detecting plastic ring first picking arm advance for inner bearing insertion, after insertion first pick arm takes home position, Assembled sub assly picked by picking cum main assly arm and place & press it on outer casting body

CONVEYOR SYSTEM

Manufactured For TATA Automation Ltd Pune  Manufactured for Transfix India Pune

AUTO LOADER (PICK & PLACE ROBOT)

Designed & Manufactured for Innovative Industries Ltd. Pune
AUTO LOADER

- Manual Intervention is limited up to binding of bundled pipes only.
- Matches with the Tube Mill Speed i.e synchronized with Tube Mill
- Customized Design
- Can be customized along with cutting, De-Burring & Chamfering Equipment

Designed & Manufactured for Sandvik Asia Pune

VISION SYSTEMS

Vision Inspection Systems uses camera to grab image of the component to be tested, once image is taken Image Processing Algorithms are used to detect any visual flaws in component. Vision Inspection systems can be used for faster and accurate automated visual inspection

The typical examples of vision inspection systems include automated sorting systems, Automated Optical Inspection (AOI), Automated Optical Measurements (AOM), Pattern Matching, Optical Character Recognition (OCR), Color Inspection or color matching, Go - No Go inspection systems etc.

We provide vision inspection systems using National Instruments Vision Development Module and we work with various cameras like NI smart camera, fire wire cameras, GigE Cameras, USB cameras

We listen to your requirements and develop a customized solution which provides you with optimal cost quality and performance

Automated Test Equipments

Automated test equipment help you deliver products with consistent quality and at the same time they reduce your testing costs by reducing labour requirements. The test data is stored in searchable format to track the tests in future. This means you reduce your overall costs and yet deliver superior product to your customer. Better product quality leads to more demand for your product at premium pricing.

Vision based Sorting system/Conveyor

Principle

In Vision based Sorting systems PC program is interfaced with the Camera and Conveyor systems. Camera takes image of every part on conveyor arriving at test station and sends it to PC. PC analyzes the image to measure various parameters like Outer Dia, Inner Dia, length, distance, presence / absence of proper component etc. and based on the result it decides "in which bin the part should be dropped" the result is then given to conveyor system to put the part in appropriate bin.
Advantages

- Free from manual errors
- 100% testing as every component is tested
- High speed testing
- Images can be stored for future reference.
- Data can be logged to database and can be used for SPC

Solutions

Vision based sorting can be used in many industries some examples are

- **Auto components:** discs, circlips assemblies etc.
- **Book Publishing:** sorting based on barcode
- **pharma:** blister inspection, capsule inspection etc.
- **Small Arm Ammunition:** For manufacturing defects / Inspection
- **Textile**

INDUSTRIAL AUTOMATION

Our automation engineering consultants can help you upgrade or use your existing systems and infrastructure to enhance your plant-centric processes and operations for stronger business performance. Specific industrial automation service areas include

- Assembly and Handling Systems, Linear Positioning Systems
- Robotics
- Industrial Image Processing Systems
- Control Systems, PLC, SCADA
- Sensors and Actuators
- Industrial PCs
- Embedded Systems
- Measuring and Test Systems
- Industrial Automatic Data Capturing and Identification Systems
- Automation Services
- Industrial Automatic Data Capturing and Identification Systems

CONSULTANCY SERVICES

1) **New Product Development Solutions**

- **Product Design:** Conceptualization, Product ideation, converting marketing requirements into product concepts, product styling or applying packaging criteria
- **Preliminary Design:** Feasibility studies, use of DFM, DFA and DFMEA techniques to optimize and validate designs, value engineering and virtual simulation
- **Detailed Design:** Expertise across mechanical, electrical and electronic domains is leveraged upon for modeling, simulation and actual implementation for the components, subsystems or complete products

2) **Product Engineering:** Neptune Systems Product Engineering solutions help customers assess and improve product performance, using advanced mathematical modeling and simulation tools. This is done at different levels of fidelity, from physics-based models at component level to more abstract
models at system level. These solutions help customers move from physical to virtual prototyping. We can also formulate, analyze and interpret the outcome of the simulation tests.

3) **Product Manufacturing:** Neptune Systems Product Manufacturing solutions help customers in ensuring the manufacture of components and prototypes according to the required specifications using SLA, FDM and SLS techniques.

Neptune Systems span the following areas:

- **Mechanical and Electro-mechanical Design**
- **Embedded Systems**
- **Engineering Simulation**
- **Engineering Automation**

**Mechanical and Electro-mechanical Design:** In the increasingly competitive scenario, engineering companies are challenged to bring reliable, feature-rich products at competitive prices and with the least development lead time. To address these issues and enable customers to realize their goals, we offer NPD Mechanical/Electro-Mechanical (NPD-M/EM) solutions across all industry verticals. These solutions span the complete product lifecycle, from ideation through design to prototyping, manufacturing support, sustaining beyond production and end-of-life services.

**What Neptune Systems:** **Systems Engineering**

- It includes electromechanical, mechatronics, precision, portable electronic devices, hydraulics and pneumatic. A robust industry standard process with defined milestones and stage gate reviews
- Requirement engineering and specification generation
- Product ideation, industrial design and concepts generation
- Systems engineering and soft validation (3D CAD models, simulations and analysis)
- Detailed engineering: manufacturing document release
- Physical validation and certification for functionalities, reliability and longevity
- Production support: tools, fixtures, equipment, automation and simulations

**Component Engineering**

- Plastic Product Engineering: Aesthetics and ergonomics, metal to plastic, costing, material selection, snap fit validation, mold flow analysis, rapid prototyping (FDM, SLA, SLS, tooling) and injection molding process optimization
- Metal Component Engineering: Castings, forgings, sheet metal, precision machined and metal injection molded parts, material selection, forming analysis, spring back analysis, tooling development, process planning, tool life optimization, tonnage optimization and CNC punch press programming

**Value Driven Engineering**

- Value Engineering
- Reliability Engineering: DFMEA, FMECA, fault tree analysis (FTA), MTBX, modeling and analysis, validation through accelerated tests
- Reverse engineering
- CAD Services: migration, parts library and consultancy

**Yield Management**

- Dimension management: GD&T and tolerance analysis
- Design for X (DFM, DFA, DFS)
- Optimizing for process & products
- Design standardization: assets as spin off, design tools for reduced time
- Design automation

**Optimized Total Cost of Design Ownership**

- Multiple concepts to prototypes
• R&D support for technology development
• Customer support: 24x7 support, PD to commissioning, process management

Business Value

• Reduced design and development costs
• Shorter time-to-market
• Access to niche skills, competencies, knowledge and experience
• Lower investment on resources
• Improved innovation and best practices through cross-pollination across different domains
• Reduced pressure on resources allowing you focus on your core activities
• Accelerated value addition through process rigor and robustness in captive centers

Engineering Automation: Product Development (PD) organizations across the world face challenges in improving time-to-market, lowering new product development costs, enhancing product functionality and quality, and mitigating knowledge attrition. Neptune Systems Engineering Automation group offers services in the areas of Application Development and Sustenance to overcome the above challenges.

Client Challenges

• Constant need for reduced product development time and product development IT costs
• Maintaining process integration across PD functions
• Increasing need for CAD and CAE collaboration
• Compliance to regulations and standards
• Knowledge retention and reuse
• Realization of optimized product performance

What Neptune Systems Provides

Engineering Automation solutions can help you in the following stages of PD:

PD IT Consulting:

• Reviewing PD processes: sales/bid engineering, design, analysis and manufacturing
• Defining role and scope of engineering IT applications
• Assessing technical feasibility and developing business cases

PD IT Development (Engineering IT/Automation Applications Development):

• Knowledge Based Engineering (KBE):
  o Knowledge captured and structured from across the phases of product lifecycle
  o Intelligent solutions that reuse product and design process knowledge to design, configure and engineer the product

• Process Automation:
  o Customization of COTS products using their APIs
  o Development of standalone products/tools for engineering applications such as translators and process aids
  o CAE process integration
  o Integration of design phases (concepts, preliminary and detailed)

• Product Validation: Tools to automate the assessment for compliance to regulatory requirements and institutionalize standards and best practices

• Product Optimization: Enhance product performance using the formal Design of Experiments (DOE) and optimization techniques for design space exploration

PD IT Sustenance:

• Application portfolio analysis and transitioning
• Migration of custom developed applications and data across platforms
Business Value

- Higher operational efficiency with reduction in product development cost
- Significant reduction in cycle time, between 60 and 95%
- Reduced rework cycles by more than 50% with dynamic design validation
- Improved product performance by more than 25%
- Standardization of design processes and product configurations
- Advantage of a “knowledge handbook” that captures knowledge in a structured format for effective reuse

Embedded Systems

Product companies are expected to deliver more business value to their end customers in the dynamic business scenarios and meet the short-term and long-term objectives of their organizations. TCS, with its define, design, develop and validate (DDD&V) capabilities, backed by industry-focused R&D, simulation / prototyping facilities, domain expertise, reusable assets, solution accelerators and industry alliances, helps companies achieve their product development and sustenance initiatives.

client challenges

- Better and smaller designs with new features, technologies and improved usability
- Faster go-to-market
- Reduced costs
- Development of eco-friendly products that adhere to stringent compliance standards
- Availability of modular and reusable components for easy scalability, enhancements and localization

What Neptune Systems provides

We have capabilities across the product technology stack of digital, analog, mixed-signal and RF products. Our NPD services encompass the entire product lifecycle, from ideation and requirements formalization to design and prototyping and then sustenance engineering. Our services include the following:

- Formal and verifiable requirements capturing, coupled with modeling and simulation to ensure that the marketing requirements are stated unambiguously
- Architectural definition including hardware / software system partitioning
- VLSI design and verification
- Micro processor and DSP-based designs
- Circuit design and PCB development and bring up complex boards up to 22 layers and over 3,000 components
- Firmware that includes boot loaders, drivers and protocol stacks
- Middleware components
- Software applications and utilities for device management, configuration, monitoring and diagnostics
- GUI and HMI design
- Device and platform connectivity solutions including communication protocols, security and data transfer components

We take complete ownership of your design besides providing contract manufacturing and spares management services. We offer Product Sustenance services that include the following:

- Value engineering to optimize product BoM and / or design from a cost perspective
- Obsolescence management to replace obsolescent or non-available parts of a product BoM
- RoHS compliance to replace non-compliant parts in a product BoM
- Reverse and re-engineering to facilitate compliance, product documentation and upgrades /
  enhancements

Engineering Simulation
With increased maturity in predicting physics, simulation is now widely accepted as a way of testing the product before a physical prototype is made. The availability of a wide spectrum of simulation application software has accelerated virtual testing, thereby increasing the reliability of the products in a cost-effective manner. We have successfully used simulation methodologies to improve the performance of new as well as existing products.

**Client Challenges**

- Reduction of product development cost and time without compromising on performance
- Lack of interoperability among the large number of available software
- Presence of a large data size and multiple simulations for multiple physics

**what Neptune Systems Provides**

We provide a full range of simulations for the complete validation of design and product performance. These include the following:

- Computational Structural Mechanics (CSM): Static analysis, Dynamic analysis, Thermal analysis, Fatigue and Fracture, and Multi-Body Dynamics (MBD)
- Computational Fluid Dynamics (CFD)
- Computational Electro-Magnetics (CEM)
- Acoustics
- System modeling
- Design verification by classical methods
- Simulation process automation

**Business Value**

- Reduced product development time and cost
- Increased product performance reliability
- Better optimization of the product

**TURNKEY PROJECTS**

**Food Industry**

We, food processing consultants offer technical layout plan for food processing. The services of experienced engineers, project managers and food consultants allow us to successfully deliver complete technical layout plans as per the specific production demands of the end product being manufactured at client’s end. The sourcing and implementation of advanced technology based process equipment further ensure that the technical solutions delivered by us are foolproof and as per the specific industry requirements. Some of key projects executed are

- Food Preservation
- De Hydration
• Sauces, Ketchup & Pulp
• Spices & Pickles

We also hold expertise in extraction and distillation process, which is an important method for obtaining natural flavor

• Ayurvedic Extraction & Aromatics
• Essential Oils

Products prepared by us are marketed primarily to manufacturers of:

• Prepared foods
• Beverages
• Confectionery
• Dairy foods
• Ayurvedic Preparations

Industrial Automation

Neptune Systems offer turnkey Solutions in the Following areas

- Assembly and Handling Systems, Linear Positioning Systems
- Robotics
- Industrial Image Processing Systems
- Control Systems, PLC, SCADA
- Sensors and Actuators
- Industrial PCs
- Embedded Systems
- Measuring and Test Systems
- Industrial Automatic Data Capturing and Identification Systems
- Automation Services
- Industrial Automatic Data Capturing and Identification Systems
- SPM's

TRANSFORMING IDEAS INTO REALITY

- With a vision of catering THE need of engineering industries for precision automatic high productive machines in cost effective manner to make the Indian engineering industry globally competitive.
- Neptune Systems made a rapid growth towards the perfection by development of various unique innovative products with motto of “Transforming ideas into reality”.
- Neptune Systems fully equipped with design, manufacturing, installation and providing turnkey solutions for precision and quality equipment with latest automation techniques.
- “Change” as a continuous process has been adopted by our development team to provide the value for money to our esteemed customers.
- The core strength of our group is business ethics, commitment and technical competency- the most ideal combination to rely upon