SPECIFICATIONS
SECTIONAL WARPING MACHINE – SERVOMECH-100

1.0 TECHNICAL SPECIFICATIONS:

- **WORKING WIDTH**: 2200mm to 3600 mm
- **DRUM TYPE**: Metallic Drum, Dynamically Balanced
- **DRUM CONE HEIGHT**: Fixed - 11^0 or 9^0 or 7^0
- **DRUM CIRCUMFERENCE**: 2.5 Mtrs. or 3.0 Mtrs.
- **WARPING SPEED**: 0 – 600 Mtrs. / Min.
- **BEAMING SPEED**: 0 – 100 Mtrs. / Min.
- **WARP TABLE**: With feeler roller and traverse By Servo Motor
- **SECTION WIDTH - STD**: 250 mm (Std.)
- **- WIDER**: Incase of coarse & Higher ends
- **BEAM FLANGE DIA**: 800 mm – 1000 mm
- **BEAMING SECTION**: Attach beaming section
- **MAIN POWER SUPPLY**: 440 V ± 5%, 50 Hz, 3 phase
- **DRUM DRIVE**: AC variable speed, frequency invertor controlled.
- **ELECTRIC MOTORS**: One for warping, One for Beaming
- **PLC CONTROLS**: Various controls (Para No.3)
- **SERVO CONTROLS**: One Servo Systems
- **GRAPHIC DISPLAY**: 7.5” TFT Touch Screen (Para No.3.1)
- **BEAM DRIVE**: AC variable speed, Frequency Controlled
- **BEAMING TENSION**: hydraulic belt brake

1.1 OPTIONAL ATTACHMENT*

- Liquid Waxing Device
- Electronic Static Eliminator
- Oiling Device

* Optional attachment not included in above mentioned specification

1.2 SALIENT FEATURES OF MODEL – SERVOMECH – 100

- Constant Linear Warping and beaming speed
- Compact beam at low winding tension
- Attached heavy duty beaming section
- Accurate length of warp
- Advanced computerized applications
- Wide range of yarn counts possible
- Automatic machine stoppage in case of power failure.
- Waxing roll and beaming motor working inter-connected

One servo motor system
PLC controls with modem
Yarn break memory
Minimum manual errors
2.0 BASIC MACHINE CONSTRUCTION – WARping & BEAMING

Basic construction of the machine is sturdy, compact, modular, ergonomically designed and comfortable to operators, electricians and mechanics. Overall height of machine structure is one meter and cone drum height is 1.52 meters. The highest point is light signal pole at 1.6 meter height. All the four sides are within the range of eye sight and supervision of operator. The main frames and side walls are connected with sturdy cross members of M.S frames and smoothly moving with M.S wheels fitted with bearings. Main frame is with warping and beaming section designed and constructed for heavy loads and vibration free operations. The Beaming section in SERVOMECH 100” model is offered Attached heavy duty beaming section built in with machine.

3.0 PROGRAMMABLE LOGIC CONTROLLER (PLC) AS PER ATTACHED FUNCTION LIST

The operations controlled by PLC are
- Accurate length of warps
- Auto home position and repositioning of warp table
- Constant linear speed in warping and beaming
- Auto stopping of lost warp end at beaming stage
- Yarn break memory and data stored
- Stopping the drum at exact position at end of section.

3.1 TOUCH PANEL GRAPHIC DISPLAY
7.5” TFT Colour LCD compact touch panel.
- Input Data:
  - Total Length, Section Width, No. of Sections, Warping Speed, Beaming Speed, yarn count/denier, total no. of ends of beam, total warp width in the beam.
- Display:
  - Status of Section Operations, Status of running and set warp length, No. of breaks of warp, Locking of data input by password, display shows current time and date.

3.2 MODEM CONNECTIVITY – Machine can be linked by modem & telephone line with suppliers for instant diagnostic solutions.

4.0 WARping DRUM – METALLIC, FIXED CONE HEIGHT, DYNAMically BALANCED.
Warping drum has been designed after many trials and working experience with various yarn materials. The drum is complete in M.S of 8 mm thick steel plate, machined over whole length of drum with fixed cone height (either 11° or 9° or 7°) dynamically balanced to avoid vibrations during high speed operations. The cone and cylindrical drum is strongly supported with 6 to 7 M.S rings on a sturdy main shaft of drum to withstand very high crushing force. Main shaft is fitted with heavy duty wide bearings on main side walls of the machine. The working width may be from 2200 mm to 3600 mm and drum circumference may be either 2.5 mtrs. or 3.0 mtrs.
5.0 DRUM DRIVE – VARIABLE SPEED
Warping drum is driven by AC electric motor having frequency controlled A.C INVERTOR Drive at any desired speed suitable as per yarn quality and material. Warping speed can be varied from 0-600 mtr’s / min either manually by speed pot at warping table.

Warping drum can be run in reverse or forward direction by a foot pedal running through out the length of the machine or the push buttons on the side of the machine.

Crawl speed (inchng motion) can also be varied from 0-50 mtr’s / min manually by push button supplied on warping table.

6.0 BRAKE SYSTEM – HYDRAULIC BELT BRAKE
The brake system is developed at our factory after many trials which is successful due to minimum maintenance and efficient working. Model SERVOMECH-100 is provided two powerful BELT BRAKE on drum which operates by HYDRAULIC SYSTEM. Braking action takes place on various instances such as :

(1) At the time of yarn break
(2) At the finish of section length
(3) In case of power failure the brakes are applied automatically specially built-in.
(4) At the time of beaming for warp tension
(5) At any emergency time
All the stoppages are indicated by bright signal lamp pole mounted on machine body at corner of machine and easily seen from a distance.

7.0 WARPING TABLE – THREE ROLLER SYSTEM AND SERVO MOTOR DRIVE.
This is very precisely built mechanism for accurate and smooth working of warping table to get perfect and parallel warp sheet laying over the drum. Warping table consists of three roller system, flat reed, foot pedal for stopping and starting machine, pneumatic pressure gauge and knob, operating desk, Servo motor and mechanism, clutch for warping table displacement etc.

- Servo motor and mechanism is built-in to maintain precise traverse of warping table.
- Three roller system which facilitates the exact width of section from lease reed to the drum and yarn is uniformly distributed across the width of section.
- Section Width can be set precisely and with uniform warp distribution in flat reed with fine angular and lateral adjustments provided on warp table.
- Constant distance between drum and warp table is maintained by clutch control by PLC.
• **Operating desk** is provided on the warp table with push buttons for: traverse of drum forward and reverse motion, stop and start, speed regulator, emergency stop, pneumatic pressure knob, feeler roller displacement and static eliminator settings etc. All controlling operations of warper at one place and conveniently accessible.

### 8.1 CENTRAL POSITION OF THE MACHINE
The machine is mounted on the rails and an electrical drive system maintains the lateral angle between creel and warping table automatically while working all sections of warping.

### 9.0 LEASING DEVICE - MOTORISED
The leasing device is operated by electric motor to raise up & down the leasing reed. Leasing stand is fabricated with wider & firm base fitted with polished chrome plated rods.

### 10.0 BEAMING SECTION – ATTACHED
Very sturdy, compact and operator’s friendly beaming section is Attached heavy duty beaming section with warping machine. Beaming section is equipped with liquid waxing device, beam doffing and donning, two beam carriages, safety device and operating panels for start and stop operations, waxing operation etc. Beaming can be supplied suitable for beam flange diameter of minimum 800 mm to 1000 mm and beam width ranging from 2200 mm to 3600 mm.

- Two heavy duty adjustable carriages are operated **manually** for adjustments of beam width.
- Both side **adopters** are provided which hold the beam barrel and beam very firmly till the finish of beaming.

### 10.3 BEAMING DRIVE – Separate heavy duty electric motor drives to the beam through triple sprockets and chains. **AC variable speed** drive, frequency control system is provided from the operating panel in the speed range of 0-100 mtrs. /min.

### 10.6 BEAMING TENSION is applied by Disc brakes and **pneumatic pressure** as per requirement depending upon yarn counts, no. of ends and desired beam hardness by adjustments in the pneumatic pressure. Operator easily operates by **knob** supplied on pneumatic unit on left hand side of machine. Beaming tension vary as per beaming speed.

### 10.7 BEAM DOFFING & DONNING - HYDRAULIC
Two heavy duty support levers are fulcrumed on the shaft across the beaming section which load the empty beam and unload the beam after beaming operation by hydraulic hand operated pump.
[4.1] SAFETY DEVICE – SAFETY BAR
Safety bar is fulcrumed on main framing of warping machine at beaming side. The machine can be started only when safety bar is in lower position. Additionally electrical switch is provided in front of beaming section for instant stopping to avoid any accident. The safety bar is fitted with switches for -
(i) **To stop and start** the machine
(ii) **To vary the speed** of waxing and beaming.
(iii) **To stop** the machine instantly **in emergency**.

[5.1] MAIN PANEL & POWER PROTECTION
The main panel is equipped with **protection device** to protect electric motors, PLC Controls, hardware and software for excess or lower voltage than specified. The main panel is manufactured by standard quality specification and rules and regulation led by engineering authorized agency is totally enclosed and sheet metal fabricated panel and conveniently located in the machine framing for trouble free operations.