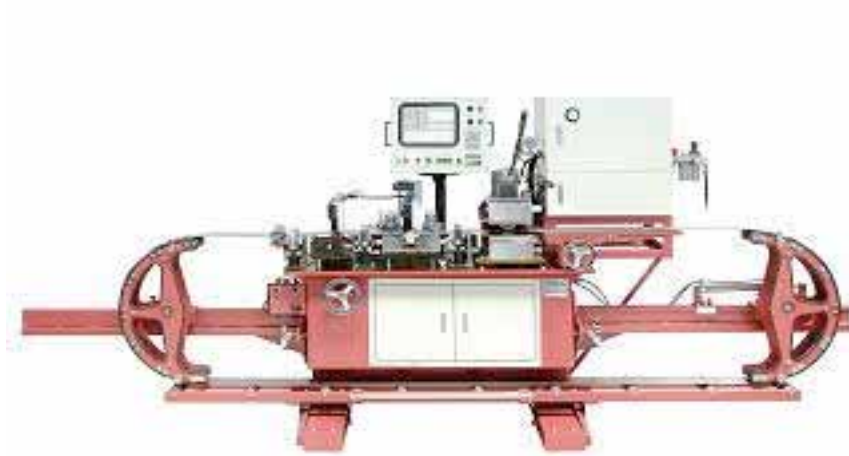


***COMPUTERIZED VISUAL AIDS STRETCHING  
MACHINE FOR BAND SAW Dr. Cue***



***ISHIDA TRADING CO., LTD.***

3-16-26 Ekimae, Fujieda-City,  
Shizuoka-Pref. 426-0034 Japan

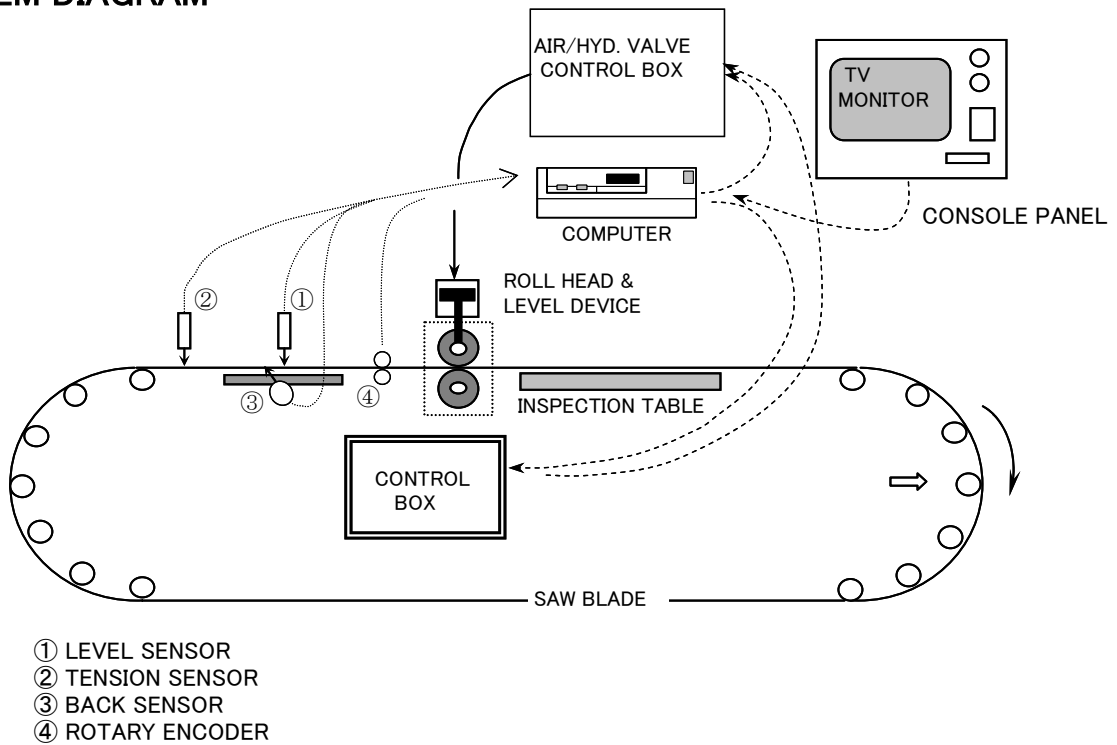
Tel: 81-54-641-6705

Fax: 81-54-641-6700

E-mail: [isd@uv.tnc.ne.jp](mailto:isd@uv.tnc.ne.jp)

# TECHNICAL SPECIFICATION

## 1. SYSTEM DIAGRAM



### SAWBLADE:

Sawblade is continuously traveling on machine center at a speed of 5 to 13m/min., and speed is infinitely adjustable by Inverter.

### 2. TV-MONITOR:

First of all, the sawblade on machine center should be checked through the T.V monitor, then Saw Doctor knows what job is required for his saw, *Leveling Job?*, *Straightening Job?*, *Tensioning Job?* or *other jobs?*

During operation, following windows are being shown real-time in one screen, and the picture is scrolled right to left synchronously with saw-travel to enable operator to visualize improvement of his saw round by round.

1. Leveling Window - - - - Showing actual shape line of saw surface and peak point of lump is marked in red.
2. Tensioning Window - - - Showing both curves, saw and tension-gauge curves in same window.
3. Back Window - - - - - Showing straight line, pre-set line and actual back-crown line of saw in same window.
4. Data Table Window - - - Indicating measuring result in digit.

### 3. MEASURING CENTER

Following measuring instruments are mounted on common cast iron base which is stress released and precisely ground. Also the base is supported by 5 leveling bolts to minimize influence of thermal distortion.

- \* Level Sensor           Shuttling and scanning saw surface at 5mm pitch crossly.
- \* Tension Sensor       Synchronously driven with Level-Sensor.
- \* Tension Gauge. Sensor   Mounted on same L.M guide rail of Tension Sensor.
- \* Back Sensor           Stationary floating and contacting at the back edge of the sawblade to measure the amount of back crown at 600mm span.

"Zero" re-setting is automatically done every stroke-end of measuring, thus it is not necessary to preset "Zero" or input any correction prior to start operation.

### 4. MEASURING SENSOR:

- \* Type:                    "OMRON" Non-contact eddy current sensor
- \* Detecting distance:    0.4 to 2.0mm
- \* Resolution:            0.05% of full scale (i.e. approx. 1/1000mm)
- \* Response freq.:        10 kHz

### 5. L.M. GUIDE RAIL FOR SENSOR TRAVELING

- \* Type:                    Custom made super precision rail guide, c/w 2 guide blocks & 350mm travel, Class-P
- \* Linear accuracy:        Within 0.01~0.02mm/300mmL
- \* Drive:                   "MITSUBISHI" 100W A.C. Servo motor & belt

### 6. TENSION GAUGE

To get desired and ideal tension amount, adjustable Tension-Gauge is equipped on console panel.

The tension gauge is adjustable during operation and the shape and amount is shown on T.V monitor.

### 7. ROTARY ENCODER:

Saw length and its lengthwise position are automatically measured by Rotary-Encoder and displayed on TV-monitor.

Thus, it is not required to in-put saw-length prior to operation.

## 8. ROLL HEAD

Open frame type Rigidly ribbed *Ductile Cast Iron* frame which is 2 times rugged than normal cast iron, and shifting is actuated by hyd. positioning cylinder.

## 9. STRETCHING ROLL ASS'Y:

Top & Bottom rolls are synchronously driven through drive gear and universal joint shaft. And top roll is connected with hyd. cylinder which mounted on roll head.

- \* Roll dia. & material: 100mm dia. Tungsten Carbide Roll
- \* Roll shaft: 35mm dia. hardened & ground
- \* Roll shaft bearing: #500 Oilless bearing w/thrust flange
- \* Drive: 0.75Kw TEFC G. motor & inverter
- \* Roll cylinder & pressure: 63mm dia. hyd. cylinder. Roll pressure is controlled under computer, and adjustable real-time according to the data from sensor for automatic-mode.

## 10. SAW TENSION ROLLERS

- \* Saw Tension Rollers are provided at both side of main frame and connected air-cylinder to give proper tension on sawblade for smooth traveling and better condition for measuring.
- \* The boom angle for take-up roller is adjustable by handle according to amount of back crown of saw for smooth traveling of saw.

## 11. SAW CLEANER

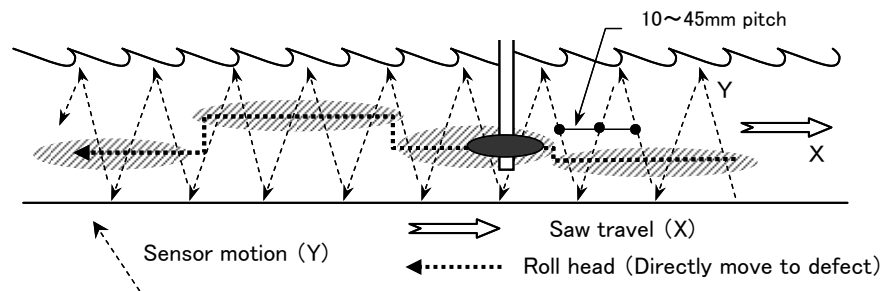
- \* Saw cleaner is provided infeed side to clean surface of saw, and also keeping proper infeed angle for measuring the tension amount.

## 12. INSPECTION TABLE

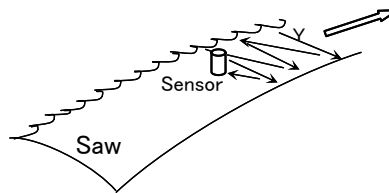
- \* Inspection table is provided after roll-head to support sawblade coming out. Also it enable saw doctor to inspect his saw by conventional his own method.
- \* The table can be folded at center for short saw.

### 13. OPERATION

- \* Leveling works      The sensor is quickly shuttling on precision L.M guide rail.
- \* Saw is fed at lower-pressure through operation time of leveling, and the leveling roll is keeping off from saw.
- \* If sensor found any defect or lamp, roll head directly move there and stroke up or down the defect parts.



- \* Leveling force is adjustable any time by just turning of the knob that located at side of roll head housing.
- \* Tensioning works      Sensor is provided for tensioning works.



- \* If saw has proper tension, saw is just fed at low-pressure.
- \* If sensor found any defect, roll head directly move to defective point and stretch there with corresponded pressure to amount of lack of tension.
- \* When joint point of saw approach to stretching roller, pressure and feed speed is automatically decreased to prevent from damage caused by over pressure.
- \* The portion of over tensioning is not treated to keep existing back crown.
- \* Straightening work (Back)      Back-gauge (600mm) is equipped in parallel with feed direction of saw and contacting to back edge.
- \* To keep the existing back amount, stretching is done from center to outside accordingly.

- \* Stretching Works      The job is executed by stretching patterns which  
    For New Saw                      is programmed by saw doctor beforehand.
- \* 5 different Stretching patterns are programmable and memorized in computer for each width of saw, and saw doctor can modify his own program for next step.
- \* Joint point (welded) of saw is processed by programmed lower pressure if required.
- \* Leveling function can be operated synchronously with stretching function.

## 14. MANUAL OPERATION

By just turning select switch on console, operator can switch his job. Automatic-mode to Manual-mode for leveling and stretching job.

Roll pressure is adjustable by pressure volume on console and operation can be simply done by two(2) mono-lever switches.

## 15. ESTIMATED OPERATION TIME

Followings are estimated required time of each job, for example 9mL-205W-1.45T saw.

1. Leveling	5 to 20min./nomal used saw	
2. Tensioning	5 to 15min.	
3. Straightening (Back)	5 to 10min.	
4. Stretching & Finishing	15 to 20min. for stretching	} Total 30 to 45min.
of New Sawblade	15 to 25min. for finishing	

## 16. OTHER SPECIFICATIONS

Working height:	1,240mm
Installation space:	5.7L x 1.4W x 2.0mH
Machine net weight:	1,800Kg
Total power consumption:	Approx. 1Kw (except air compressor)
Air consumption & req'd pressure:	Approx. 100-liters/min. at peak time and 7 to 10 Kg/cm <sup>2</sup> is required as working pressure.
* * Measurement and weight for export:	14-M3 (410Lx150Wx225H), wooden crate Gross weight    2,400Kg (Net: 1800Kg)