# INTERNATIONAL SUPPLIES s.r.l

Type (REVISIONE) SCRUBBEX 2B

SERIAL NUMBER 8423209

Supply 380V 50Hz

Total power 18Kw 43A

Schema elettrico
Electrical schematics
Schaltplan
Schema electrique 611.86/1A

Date 04/99

## 1.2 - Specifications

- Conveyor width: 610 mm (24")
- Length of input conveyor: 610 mm (24")
- Conveyor speed: stepless adjustment from 0,6 to 2,5 m/min.
- Smallest sheet length: 170 mm
- Minimum thickness of processed sheet: 0.2 mm

NOTE: this is an indication only, as this data depends on the nature of the material and hence can be determined only with practical tests.

- Maximum thickness of processed sheet: 3.2 mm
- Work space and overall dimensions: see drawing 00206
- Net weight: 800 kg
- Power supply: KW 12
- Water consumption: 3500 l/h

## 2 - DESCRIPTION

The SCRUBBEX is a solid and compact unit which can be employed for any surface treatment involving the use of abrasive brushes such as scrubbing, deoxidizing, deburring, preparation of solder to fusing, hot air levelling and solder mask application.

Precise adjustment, fast replacement and oscillation of the brushes allow to use any type of abrasive wheel (compact or abrasive - impregnated bristles) thus ensuring the highest versatility.

## 2.1 - General information

This unit features the well known advantages of our scrubbers such as: highest efficiency and cleaning action, ease of maintenance and quick replacement of brushes.
Main material used in construction is stainless steel; shafts, rollers, etc. are of stainless steel. The basic frame is of a self supporting design and consists of a 3 mm thick stainless steel sheet, bent and welded to final shape to give the highest chemical and mechanical resistance.
The SCRUBBEX is delivered ready to operate and needs only very simple connections to power, water supply and drain.

## 2.2 - Description of stations

### 2.2.1 - Input conveyor

7 stainless steel rods with rubber wheels.

Length: 610 mm (24")

### 2.2.2 - Scrubbing section

The boards are firmly transported by pairs of rollers consisting of a one-piece stainless steel shaft, covered with rubber. Lower rollers as well as back-up roller are mounted at a fixed level to give a firm support to the boards.

Upper rollers are spring-loaded while second back-up roller is easily and finely adjustable in height by means of a built-in caliper for compensating different board-thicknesses. A board is used as a gauge, so that its thickness is mechanically transmitted to the back-up roller and no further adjustment or control is necessary.

Each brush always works parallel to the workpiece while digital gauges as well as watt-meters provide for easy adjustment and control of brush height and pressure.

Constant surface speed of brushes of about 13 m/sec (42 feet/sec) is ensured by individual motors and automatic compensation during brush wear. Both brushes are oscillating at about 280 strokes/min. Stroke width: 6 mm

Oscillation of upper and lower brush is not synchronous but 180° out of phase in order to avoid undue stress on machine structure.

The unique, oversized, solid and steady brush support assembly combined with a special interlock system between rotation and oscillation movements, avoid any damage to the strong roller bearings and special bushings ensuring their longest life.

Brush shafts are 50 mm (2") in diameter so that all brushes with core 50 mm up and overall diameter up to 125 mm (5") can be mounted.

The well-known three-piece shaft with inner fastening rod makes brush replacement a question of minutes.

Back-up rollers are replaced in the same simple way.

Each brush is sprayed with fan-shaped jets on a bar which can be easily removed for maintenance and mounted on either side of the brush so as to allow its rotation in either direction.

2.2.3 - Rinse section

The transport system in this section consists of heavy stainless steel rollers covered with cotton sheathings. The rollers can be easily lifted out of the machine and the sheathings replaced, thus ensuring periodical thorough cleaning and reducing the problem of transfer and impregnation of abrasive, copper and rubber particles on to the boards.

This section is divided in three chambers with two spray bars each, and fan-shaped nozzles. The boards are squeezed between one chamber and the next while the inclination of the jets on the boards surface creates a lateral water flow thus channelling and removing dirt and foreign particles efficiently in each chamber. This ensures an increasing degree of cleanliness from one chamber to the next.

2.2.4 - The transport rollers are similar to those of rinse section and cleanliness of this section is ensured in the same way. The special absorbing material on the rollers squeezes the boards and pumps the water residues away from the surface and out of the holes.

The first pair of rollers is permanently soaked in water so that the absorbing material is evenly wet irrespective of type and/or number of boards being processed.

This ensures constant and even removal of water puddles from the surface of boards and maximum "pumping" action of water from the holes.

Final drying is achieved by the remaining rollers which are kept warm and dry by a strong flow of warm air. A built-in blower with heaters provides the necessary air and keeps this section constantly dry. The air temperature is controlled by thermostats so that no oxidation of the boards can occur.

## 3 - INSTALLATION

### 3.1 - Uncrating

Be sure to uncrate the SCRUBBEX carefully and to inspect it immediately for shipping damage. Report any damage to the local I.S. Representative

and notify the responsible carrier by writing as soon as possible.
The machine is fixed to the pallet by means of threaded bars which replace feet 00507/14. These pass through the pallet itself and are fixed on it, unscrew the nuts from underneath and then lift the machine off the pallet. Then replace the threaded bars with the regular feet provided.

## 3.2 - Positioning

The SCRUBBEX is delivered complete and only a few connections are necessary. Machine should be installed on a level floor of sufficient strength for supporting the total weight of the machine. Level the machine, if necessary, by means of adjustable feet 00507/14.

3.2.1 - Allow aisle space of one meter opposite brush drive side of machine for brush change.

## 3.3 - Connections

Connect electrical power supply to mains inlet, inside electrical control panel.

Turn on " mains " switch and start the conveyor. Check its sense of rotation: exchange two wires at mains if necessary.

Connect water supply to A dwg. 00206 and water outlets B,C and D to drain.

Please make sure that all new water supply lines feeding the SCRUBBEX have been flushed out beforehand of soldering flux, rust and foreign particles.

## 4 - OPERATION

### 4.1 - Start up

A. Start conveyor. Solenoid valve 00206/A will automatically open. Check that water comes in the machine.

B. Start top and bottom brushes.

C. Start oscillation motor.

D. Start blower. Wait a few minutes in order to heat the drying section.

All boards must be staggered across the full width of the conveyor so as to have even wear of the brush. Please keep a reasonable minimum distance between the boards when loading.

### 4.2 - Adjustment of brush height and pressure

A. Lift upper brush so that its distance from the relative counter-pressure roller is higher than the thickness of the boards to be processed.

B. Start conveyor and load a test board into the machine. Using handwheel 00546/1 slowly lower top brush until contact with test board turns brush. Repeat procedure for lower brush.

C. Start conveyor only, run test board under first brush. When test board is under brush, stop conveyor, start brush, and stop after a few seconds.

Start conveyor only and measure the stripe left by the brush. This band should be roughly 3 - 5 mm wide. Follow start up procedures as under 4.1. If the result is satisfactory then make a note of the wattmeter 00102/2 reading and adjust pressure accordingly as brush wears. The wattmeters 00102/2 are a guide to assist the operator in maintaining a consistent value during operation so check brush pressure from time to time as explained above and do the stripe test for thin materials.

NOTE: Wattmeters readings vary depending on board width.

If board width varies a new value on the wattmeters must be determined.

D. Repeat the above operation for the lower brush.

E. Adjustment of upper back-up roller is done through caliper 00556/7 and handwheel 00556/3 . Open caliper 00556/7 by turning handwheel 00556/3 , and insert board in caliper jaws and close till the board fits " tight ". The back-up roller is then in the correct position for that particular thickness and no further adjustment is necessary. Repeat this operation when board thickness changes.

IMPORTANT: Each time the machine is switched off, the brushes (in the case of compact brushes) must run without water for a couple of minutes to allow for the water to "spin off" therefore avoiding unequal weight distribution in the brushes and subsequent vibrations.

## 5 - MAINTENANCE

### 5.1 - Periodical controls

5.1.1 - Check that the rubber rollers 00514/2/9 are clean.

Wash the rollers with a mild detergent if necessary.

NOTE: These rollers are made of neoprene therefore strong solvents must not be used.

5.1.2 - Check cotton sheathings 00514/5 and replace when dirty or damaged.

5.1.3. - Check that nozzles 00570/21/23 are not clogged.

5.1.4 - Follow lubrication instructions 00572 and 00574.

5.1.5 - Brush replacement

Upper brush.

A) Block pulley wheel 01537/29 or its pulley belt.

B) Unscrew rod 01543/1 and pull it out of the machine.

C) Move half-shaft 01543/10 sideways to release brush shaft 01543/16.

Lower brush.

Remove billy roller 01545/15 and then proceed as above.

TROUBLESHOOTING GUIDE

Problem: surface cleaning not satisfactory:

- increase brush pressure
- check that brush drive belt is not slipping due to too much pressure
- check that nozzles on brush spray pipe are clean
- check that water from brush spray pipe is sprayng tangent to the brush but also onto the board
- check that brush wear is even,dress if necessary
- clean rubber rollers if necessary
- change cotton sheathings on stainless steel conveyor rollers

| DWG. 00206 | WORK SPACE AND CONNECTIONS | SCRUBBEX-2B | |
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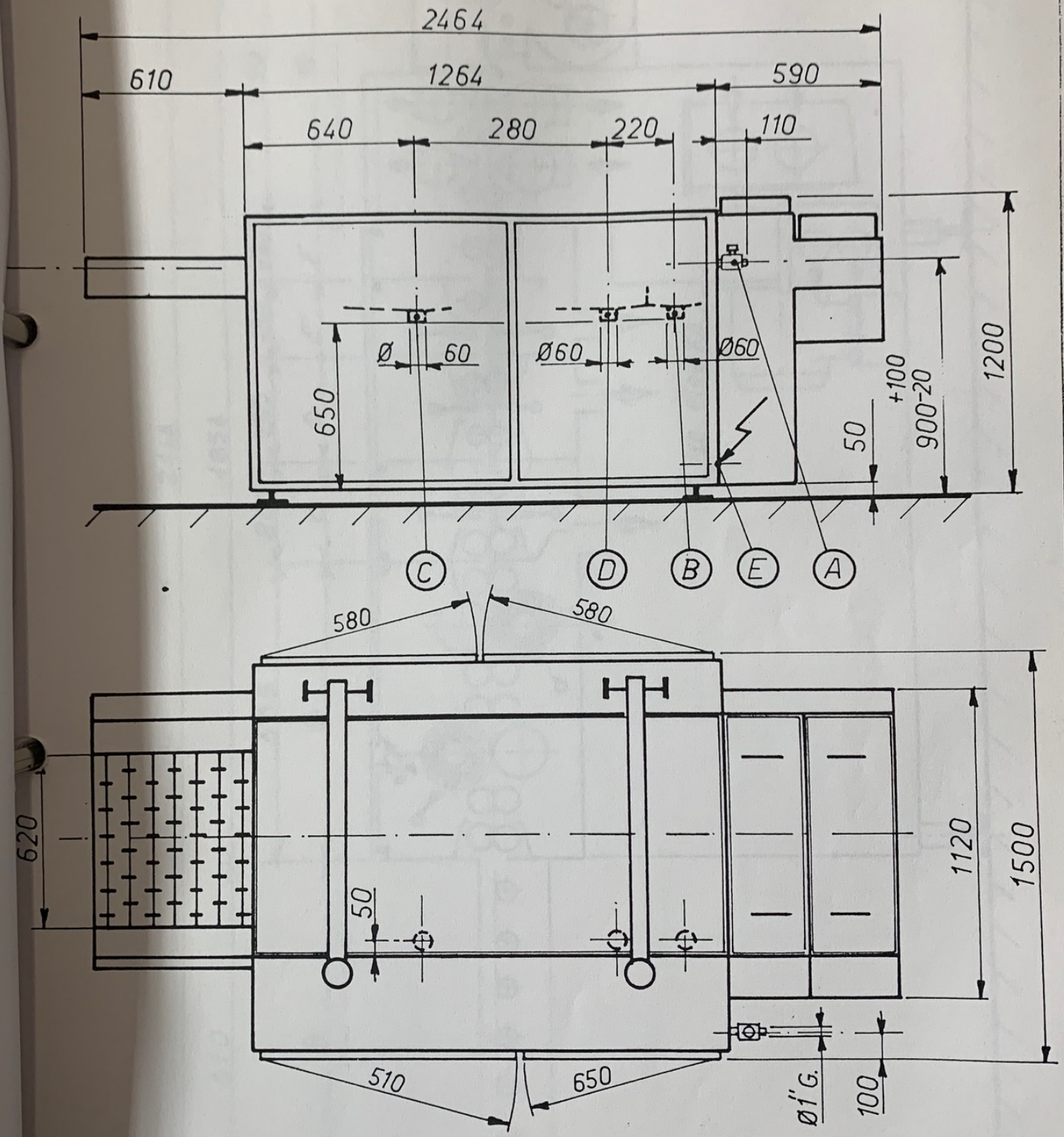


= Water inlet
= Water outlet
= Water outlet
= Water outlet
= Power supply 22 Kw 3 phase

| DWG. 00205 | SCHEMATIC CROSS SECTION | SCRUBBEX-2B | |
|---|---|---|---|

| DWG. 00507 | MACHINE BODY | SCRUBBEX 2B | |
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