The BCC Tray Washer

Products & Solutions
for forest nurseries

The BCC Tray Washer consists of two parts i.e. a high-pressure unit for mechanical cleaning and a hot water washer section for thermal disinfection. This combination ensures effective removal of mineral particles, organic and inorganic components and biological contaminants from used trays.

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integrated stainless steel filter system.

transparent windows to monitor operation.

the high pressure unit and hot water unit provides for an effective and clean result

non-corrosive stainless steel construction.

TRAY WASHER

During the processes of containerised plant production and infield planting, trays are contaminated with old growing substrate and plant roots which harbour weed seeds, fungal pathogens, moss and algae. These contaminants have severe negative impacts on nursery production and general hygiene within the nursery environment. One of the defence mechanisms against introduction of diseases into a nursery is effective cleaning and sanitation of trays.

THE PROCESS

In feed:

Trays are pushed through the system with a pneumatic cylinder rather than a conventional chain conveyor system. This way of feeding reduces the risk of damaging trays.

The Tray Washer comprises both high pressure mechanical cleaning and hot water sanitation.
Residues are mechanically removed with high-pressure water nozzles. A high-pressure pump supplies water at 40Bar pressure to the nozzles. These nozzles are fitted on upper and lower rotating arms to ensure complete tray coverage. Additional side nozzles assist with initial pre-cleaning and final rinsing of the tray before hot water sanitation.

After mechanical cleaning, the trays are pushed into the hot water section. This section contains a bath (100 litre capacity) fitted with four heating elements (each generating 12kW) to increase and maintain water temperature up to approx 80°C. Temperature is controlled through a thermostat. Water is flushed over the tray through 30 low-pressure nozzles distributed over five spray bars. Trays are exposed to hot water over a distance of 1.5 m ensuring up to 30 seconds thermal treatment. Studies have indicated a minimum of 60°C and 30 seconds treatment for effective thermal sanitation. Water is filtered through a stainless steel screen which reduces water consumption and allows for easy cleaning. These screens can be cleaned during operation using a dry-wet vacuum cleaner. This allows for longer periods of washing without changing the water in the bath.

Out feed:

In a stand-alone Tray Washer, trays are fed out of the hot water section and stacked manually for later use. In an integrated line, trays are pushed are onto a conveyor belt which feeds the tray filler.

Note!

Trays that are filled with waste substrate due to poor germination or rooting success need to be manually pre-cleaned before washing.

30 low pressure nozzles on 5 spray bars ensure complete flushing of trays

OPERATIONAL BENEFITS & KEY FEATURES

- Pneumatic feeding of trays through the Tray Washer.
- Non-corrosive stainless steel construction.
- Integrated safety features.
- **High pressure section:**
  - Mechanical cleaning at 40Bar water pressure.
  - Upper and lower rotating nozzle design for complete tray coverage.
  - Side nozzles for final rinsing.
  - Low water consumption of 80 litres per minute.
- **Hot water section:**
  - Heating of water up to 80°C in combination with long exposure times for effective sanitation.
  - Arrangement of 30 low pressure nozzles on 5 spray bars to ensure complete flushing of trays.
  - No risk of deformed trays as a result of submersion.
  - Transparent windows to monitor operation.
  - Efficient disinfection without the need of chemicals.
  - Integrated stainless steel filter system for extended washing and easy cleaning during operation.

ACCESSORIES AND EXTRA FEATURES

- Connecting of the high-pressure section to a water treatment plant for minimized water consumption.
- If required, chemical additives can be mixed to the water in the hot water section. This is generally done where electricity supply is a limiting factor.
- The high pressure and hot water sections can function independently of each other. In such cases a feeding system and control unit will be required for each.

TECHNICAL DATA

In feed Pusher

Dimensions (L x W x H):	1300mm x 800mm x 1150mm
Weight:	60kg
Power supply:	Regulated from high pressure section
Compressed air consumption:	300 litres/minute at 600kPa (6Bar)

High Pressure Section

Dimensions (L x W x H):	1300mm x 1000mm x 1600mm
Power supply:	3 x 400V, 50Hz
Power requirement:	8 kW
Water consumption:	80 litres/minute at 500kPa (5Bar)
Maximum production capacity:	
HIKO (350mm x 216mm, fixed tray):	20 trays/minute
Plantek & SideSlit (385mm x 385mm, fixed tray):	13-18 trays/minute
96 Insert Frame (517mm x 350mm, single cell tray):	10 trays/minute

Hot Water Section

Dimensions (L x W x H):	2500mm x 1100mm x 1600mm
Weight:	490kg
Power Supply:	3 x 400V, 50Hz (supplied from high pressure section)
Power requirement:	51kW (12kW/heating element x 4 heating elements)
Water consumption:	20liters/minute at 200kPa (2Bar)
Maximum production capacity:	
HIKO (352mm x 216mm, fixed tray):	20 trays/minute
SideSlit (385mm x 385mm, fixed tray):	13-18 trays/minute
96 Insert Frame (517mm x 350mm, single cell tray):	10 trays/minute

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