

Radiation Machine description: (System 01)**1. Main Unit**

- a. Machine should be marked as "Radiation Machine" with no other markings or logo.
- b. Dimensions should be about 4000 mm in length, approximately 1300 mm and 2500 mm in width and height respectively.
- c. Two-Part Teflon Conveyor Belt 1100 mm wide with conveyor speed adjustable from 0-15 meters/minute with readout showing conveyor belt speed. Grain dropping/turning to next conveyor mechanism at center of belt length. Teflon curtain at in/out points at 25 mm from conveyor. Conveyor belt should be approx. 850 mm high from ground level.
- d. Height of UV lamps with Reflectors Assembly adjustable by manual or hand method from 50 to 250 mm.
- e. All required PLC/LCD/Motors etc.
- f. Hour Meter that shows usage of each lamp in hours on main panel.
- g. IR (Infrared) Temperature Probes focused on Conveyor level under each lamp to provide temperature readout on main panel and alarm should sound if the temperature fluctuates from the optimum temperature i.e., (60 degree Celsius).
- h. Main panel with operating control switches and readouts, Hour Meter readout in hours (non-resettable), IR Temperature Readout, Digital Power Supply switches and readouts, Blower switch and readout, Conveyor speed switch and readout. All electrical control method should be through button operation.
- i. Able to contain 6 UV lamps with parabolic reflectors with Lamp Layout over the Conveyor as follows:

About 4000 mm Length								
Width 1300mm	Variable Speed Conveyor	UV lamp 1	UV Lamp 2	UV Lamp 3	UV Lamp 4	UV Lamp 5	UV Lamp 6	Variable Speed Conveyor

- j. Able to contain matching digital power supply for all 6 lamps.
- k. Able to contain air blower (with variable speed) with cooling attachment through Parabolic Reflector Assembly for all 6 reflectors for heat reduction.

## 2. Medium Pressure Arc Discharge UV Lamps (Mercury)

- a. Electrical Power 20KW at 100% power and adjustable down to 4KW at 20% power through digital power supply.
- b. Intensity of the Lamp should be at least 120 Watts/cm<sup>2</sup> at 50 mm distance from the lamp.
- c. Main wavelength of UV should be 365 nm.
- d. Quartz Glass tube length 1200 mm.
- e. Quartz Glass tube diameter 25 mm.
- f. Arc length 1000 mm.
- g. Voltage and Operating Amperage to match for best lamp life and digital power supply.
- h. Assured lamp life cycle 1000 hours.

## 3. Digital Power Supply

Matching digital power supply 380V 3-phase four-line 50Hz for 20KW (100%) adjustable down in segments up to 4KW (20%) for each lamp with suitable digital readouts on main panel to show the power being used.

## 4. Parabolic Reflectors Assembly

- a. Good quality parabolic reflectors that direct the radiations directly below in straight line.
- b. Must have full Quartz Glass Shield below the lamps.
- c. Each reflector radiation outlet at bottom should be about 1300 mm width-wise X 300 to 350 mm length-wise over the conveyor belt.
- d. Must have built in forced air-cooling attachment possibility.
- e. Entire reflector must be removable along with lamp with handles attached for ease of maintenance and lamp change.

## 5. Air Blowers with attachments

Each Air blower must be matched with the parabolic reflector with suitable piping system and the motors with variable speed to increase or decrease the airflow as desired individually with Fan/air outlet diameter of 120 mm.

## 6. Miscellaneous

- a. UV Protection Goggles for Operators.

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- b. UV Protection Gloves for Operators.
- c. Trouble shooting manuals with electrical diagrams in English.

Please offer the following quantities of above described equipment:

**Main Order**

S. No	Description	Quantity required
A	Main Unit	1 No.
B.	Medium Pressure Arc Discharge UV Lamps (Mercury)	24 No.
C.	Digital Power Supply	6 No.
D.	Parabolic Reflectors Assembly	6 No.
E.	Air Blowers with attachments	6 No.
F.	Miscellaneous (UV Protection Clothes with Arm Sleeves, Gloves and Googles for operators)	5 sets

**Extra Spare Parts**

G.	Teflon belt complete sets	1 No.
H.	Teflon curtains sets for in/out points on belt	1 No.
I.	Ceramic Holder sets for lamps	12 No.
J.	Sets of all fuses for all equipment	2 No.