



Integrated Solution for Controlled Environment Horticulture



Jain Irrigation Systems Ltd.

Small Ideas. Big Revolutions.®

Controlled Environment Horticulture:

A Paradigm Shift

Cultivation of vegetables, flowers, medicinal plants and nurseries under controlled environment conditions has emerged as a major alternative for Indian growers in recent years.

Controlled environment horticulture method ensures a constant, year-round supply of high quality produce for the modern farmer, whilst overcoming many of the obstacles imposed by adverse climatic conditions, water and land shortage.

Controlled environment horticulture allows farmers to control most of the production parameters, optimizing land use and yield distribution during the growing season. Controlled Climate, Irrigation and fertigation are the most important production factors in modern greenhouses, where production is based on soilless medium, as well as in soil.

Growing on soil less culture (substrates) provides the advantage of sanitation and the ability to flush growing media within the water cycle.

Jain Irrigation possess decades of experience in the development and manufacturing of a wide range of Green/ Poly Houses suitable for different climates, crops and as per the need of growers. The accelerated development in greenhouse technologies has led the company to develop a special product line for greenhouse irrigation, fertigation, climate-control (including humidity and temperature regulation), & for the application of chemicals by spraying.

Integrated System Approach

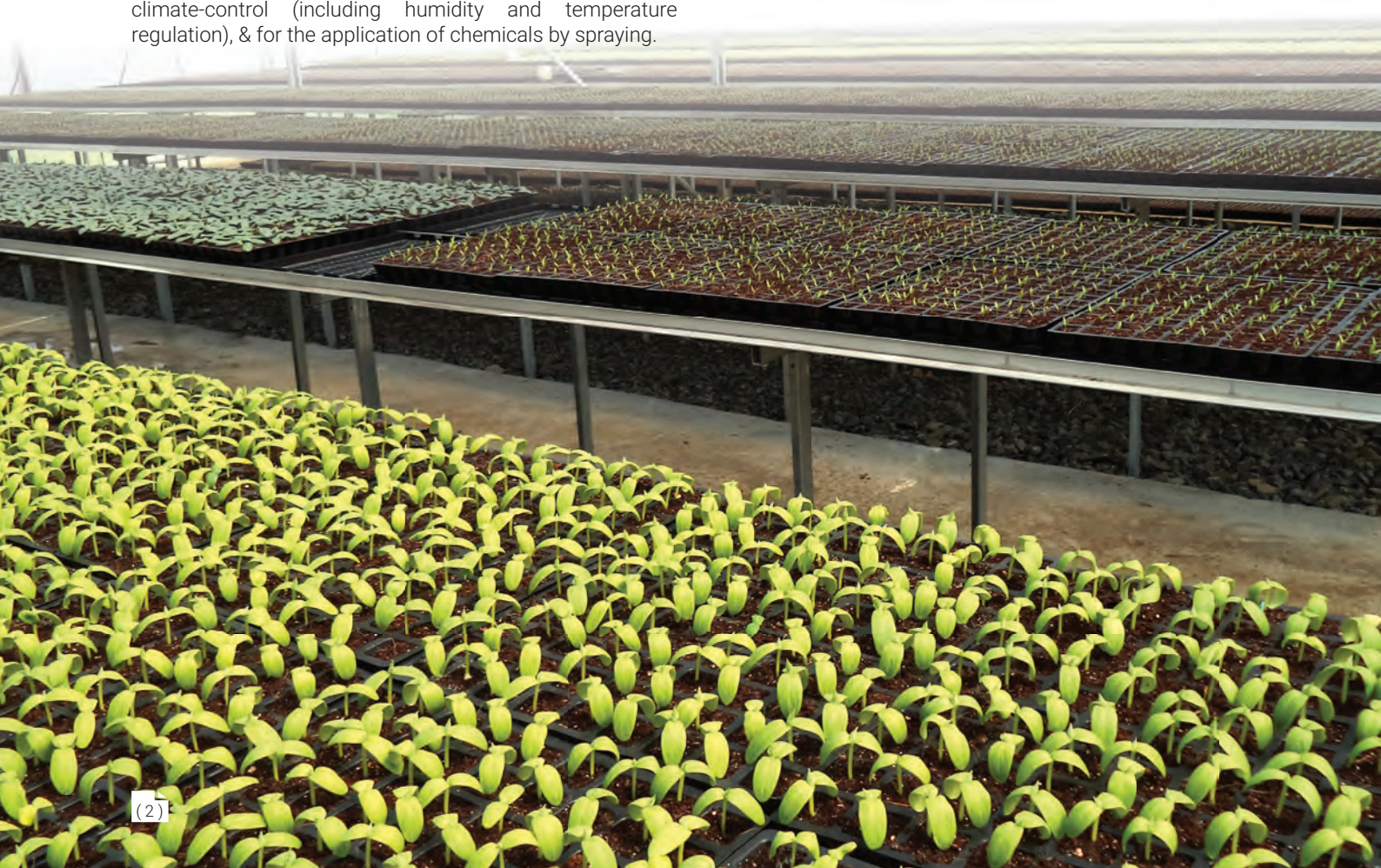
In an intensely specialised world which is highly focused, propagating and practicing an Integrated System Approach for greenhouses in general, makes a world of difference!

We manufacture and supply every essential component, which are cost effective yet very efficient. We undertake turnkey jobs including survey, sampling, system planning, design, installation, as well as after-sales, agronomical and technical support even for small growers.

Each system is a tailor-made package, based on the soil type and topography, crop, water and climatological parameters and other existing resources constraints. We have pioneered and perfected this holistic approach in India and offer the same around the world. We undertake the tasks from Concept to Commissioning and can go even further, to operate and manage such projects. We offer cost-effective and down-to-earth solutions for complex challenges in the field of agriculture, floriculture & horticulture.

However, today we not only manufacture and market the agricultural inputs, but also buy-back the output and process the same in our world-class food-processing facility. The agricultural value chain is thus completed.

In short, we have full-fledged solutions to support the precision & Hi-tech farming methods, one of them is the greenhouse.



Models of Controlled Environment Horticulture



J - Walk-in Tunnels

- Span - 8 m and 9 m.
- Centre height - 3 m to 4 m.
- Structure - Available in GI tubular structure. Two sides Roll Up Curtains.
- Covering - UV stabilized, IR, anti fog, anti dust, diffused or clear, anti sulphur Polyethylene film, 200 micron thick.
- Insect net - 40/50 mesh below curtain.
- Shade net / Thermal net 50 % or 60% or 70% can be provided as per requirement.
- Cooling System (optional) - Exhaust fan, cooling pad.
- Humidity control - Fogging system.



J-Natural Ventilation

- Span - 8m, 9.6m (multi span) and 10.5m (single span).
- Gutter height - 3.5 m, 4m, 4.5m.
- Structure - Available in hot dipped Galvanized channel structure or GI tubular structure or closed rectangular structure, side ventilation with roll up curtains, ridge ventilation with manual operation.
- Covering - UV stabilized, IR, anti fog, anti dust, diffused or clear, anti sulphur Polyethylene film, 200 micron thick.
- Insect net 40/50 mesh below curtain.
- Shade net/ Thermal net 50 % or 60% or 70% can be provided as per requirement.
- Climate/ Humidity control - Fogging system.



J - Greenhouses (Gothic Roof) Forced Ventilated

- Span - 6 m, 7.5 m, 8 m.
- Gutter height - 3.5 m, 4 m.
- Structure - Available in hot dipped Galvanized channel structure or GI tubular structure or closed rectangular structure, side ventilation, roll up curtains, ridge ventilation or gutter ventilation with motorized or manual operation.
- Covering - UV stabilized, IR, anti fog, anti dust, diffused or clear, anti sulphur Polyethylene film, 200 micron thick.
- Insect net 40/50 mesh below curtain.
- Shade net / thermal net 50 % or 60% or 70% can be provided as per requirement, motorised or manual options are available.
- Cooling System - Exhaust fan, cooling pad.
- Heating System - Electrically operated air heating system.
- Humidity control - Fogging system



J - Greenhouses (Slant Roof) Forced Ventilated

- Span - 7.5m, 8m.
- Gutter height - 3.5 m, 3.75m, 4m.
- Structure - Available in hot dipped Galvanized channel structure, side ventilation with roll up curtains, ridge ventilation with motorized or manual operation.
- Covering - UV stabilized, multi wall, clear poly carbonate sheet 4mm or 6mm or 8mm or 10mm thick.
- Shade net / thermal net 50 % or 60% or 70% can be provided as per requirement, motorized or manual options are available.
- Cooling System - Exhaust fan, cooling pad.
- Heating System - Electrically operated air heating system.
- Humidity control - Fogging system

Salient Features



Covering

Polyethylene film

- Imported or Indian can be provided as per requirement of client.
- Thickness -200 micron.
- UV Stabilized.
- Infra Red (IR) blocking
- Anti fog/ Anti drip
- Anti Sulphur (for Roses)
- Anti dust
- Life- up to 3 years

Insect Net

- Insect net (40/50) at side and roof ventilation to avoid the entry of insects.
- UV Stabilized
- Life upto 3 years
- 100 to 110 GSM

Structures

- Pre galvanized lipped channel structure.
- Pre galvanized lipped channel cum tubular structure.
- Pre galvanized tubular structure
- Designed for 120 / 140 km / hr
- Prefabricated structure easy to Install
- Minimum maintenance
- Longer Life

Corrugated / Multi wall Polycarbonate Sheet

- Available in single wall (Sinus/wave) and multi wall (double wall).
- Thickness -single wall-1mm or 1.2mm, double wall-4mm, 6mm, 8mm and 10mm.
- UV Stabilized.
- Clear or colour.
- Life-10 years and above.
- Greater impact strength.
- Durable and easy to install.
- Standard size:

Corrugated	width 1250 mm x length 11800 mm
Multiwall	width 1250 mm x length 11800 mm
	width 2100 mm x length 11800 mm



Salient Features



Thermal and Shading net

Different percentage of shading screen will save energy proportionately

- Shading – 10% to 100%
- Saves energy – 15% to 90%
- Manually/ Motorized - closing/ opening.
- Shade nets - Black, White, Green, Red, Blue.
- Useful to reduce temperature during summer.



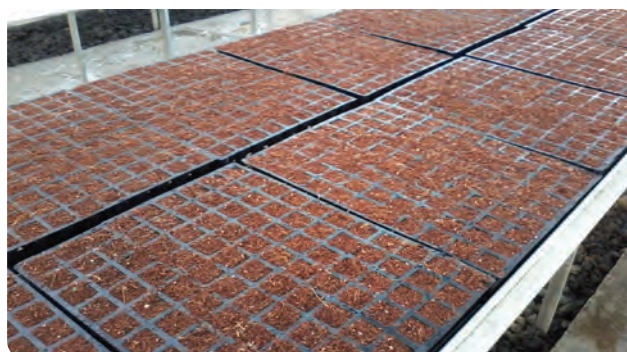
Crop Protection System

- Usefull for crop protection chemical spray
- Operates at high pressure
- Made of PE Pipes
- More durable and suitable for different chemicals
- Saves plants from disease attack and enhances the crop production
- Easy to install and maintain



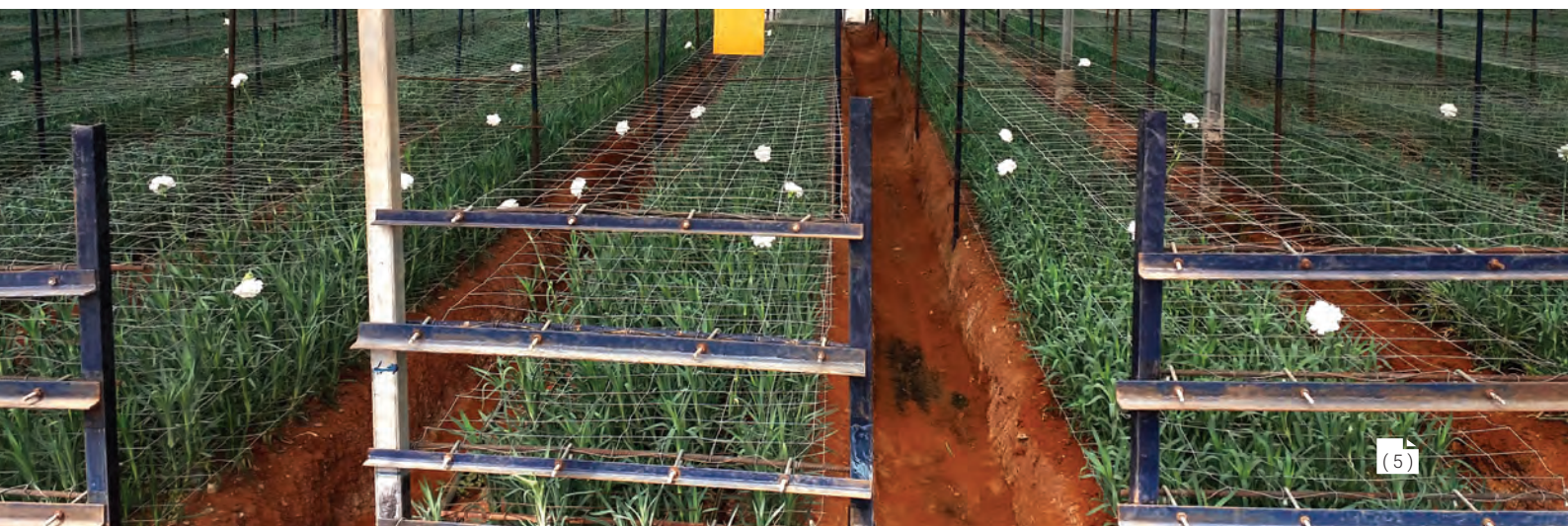
Movable and Fix Benches for Nurseries

- Galvanized frame.
- Galvanized / Aluminium criss cross mesh/ Tee for support of Tray.
- Rollers/ Ball bearing (for movable only).
- Lock for over turning in case of movable benches only.
- Can be designed as per crop load conditions
- Standard size : Width : 1 m and 1.2 m.
Length : As per requirement



Seedling Tray

- Made of high quality plastic
- Capacity: 99 Cavity, 96 Cavity, 40 Cavity and 24 Cavity
- Uses i) Vegetable & Fruit Seedling
ii) Tissue Culture and Clonal Plantlets
- Sizes: 37.5 x 45 cm and 30 x 45 cm
- Light weight, easy to handle, better transplantation



Climate Control



Exhaust Fan

- Galvanized frame and body with safety net.
- Automated louvers
- Belt drive and electrical motor single/ three phase.
- 6 no. of wide dynamically balanced blades.
- Available size : 36" & 50".
- Air flow rate– 36" 20750m³/hr at static pressure 20 Pa
- 50" : 38048 m³/hr at static pressure 25 Pa
- Motors - 1 Hp for 36" & 1.5 Hp for 50" (single/ three phase)



Evaporative Cooling System

- Cross fluted corrugated Cellulose pad with different flute angle (45 x 45 or 45 x 30 deg).
- Water is circulated through a net work of PVC water distribution system.
- G.I. Frame and gutter.
- Standard size : Height 100, 150, 200 cm
Width 60 cm (Standard)
Thickness 10, 15 cm



Ventilation

- Manual roll up curtain at sides and top ventilation.
- Motorized ventilation- (rack and pinion) at sides, ridge vents, gutter vents.



Fogging System

- Over head and ground Foggers are available as per the requirement.
- Single way, Two way & Four way foggers are available.
- Discharges - 7, 14, 28 lph.
- Anti leak facility available as per the requirement.
- Used to control Humidity inside green house.
- Uniform distribution in green house.



Climate Control



Air Circulation Fan

- Metal body construction.
- Aluminum / Steel / Plastic blades.
- Single/Three phase high speed and volume fans.
- Available in size; 12", 18" and 24".
- Use for Internal Air Circulation and to Maintain the Uniform Temperature in Greenhouse.



Air Heating

- It consists of MS body duly powder coated, electrical heater and exhaust fan.
- Polyethylene/ PVC/ G.I./ HDPE Duct can also be provided as per heater capacity or blower requirement.
- Electrical blower size 12", 18" with three phase motor.
- Provision of temperature sensor and controller (Option).
- Most effective and highly efficient.



PAR Lights

- PAR - Photosynthetically Active Radiation
- These lights are used to provide supplementary PAR light for crop growth during cloudy days in rainy season and fog conditions during winter.
- Steel or Aluminum reflector for uniform distribution of light & spectrum.
- Electrical Ballast and Clamps for fixing.
- Sodium lamps, 220 / 230 Volt. 50 Hz.
- Available in 400 W & 600 W.



Boom Irrigation System (Mechanized)

- Galvanized rail and steel wheel.
- Plastic Hose Pipe supported with Rollers to move along with boom.
- Guide Pulley and Steel Wire Rope.
- Gear Box + Motor + Limit Switch.
- Ceramic & Irrigation Nozzles can be attached as per requirement.



Models of Jain Shade / Net house for Nurseries



J-Shade House

- Span - 3m , 4m.
- Height - 2.5 m to 4 m.
- Structure - Available in GI tubular structure.
- Covering - UV stabilized, shade net / insect net 40/50 mesh
- Percent of shading available 30-100%
- Humidity control - Fogging system



J-Insect Net House

- Span - 8m, 9.6m.
- Gutter height - 3m, 3.5 m, 4 m.
- Structure - Available in GI tubular structure, side ventilation- roll up curtains (optional).
- Covering - UV stabilized, white insect net 40/50 mesh.
- Shade net / thermal net 50 % or 60% or 70% can be provided as per requirement.
- Humidity control - Fogging system

J-Poly cum Shade House

- Span - 8m
- Gutter height - 2.5 m to 4 m.
- Structure - Available in GI tubular structure. Two sides Roll Up Curtains.
- Covering - UV stabilized, IR, anti fog, anti dust, diffused or clear, anti sulphur Polyethylene film, 200 micron thick at roof.
- Insect net 40/50 mesh / shade net 50% at sides.
- Shade net / Thermal net 50 % or 60% or 70% can be provided as per requirement.
- Humidity control - Fogging system



Precision Irrigation Solutions



Climate and Irrigation Control System (CICS)

- Temperature sensors - cooling & heating system.
- Humidity sensors - fogging pumps, valves, filters etc.
- Light - Operation of Shading / Aluminum Thermal Net.
- Ventilation - Ridge and Side vent motors etc.
- Irrigation control - through pumps, filters, main & submain valves, water meters etc.
- Facilitate with Online measurement of Ec and pH
- Screen operation (motors)
- Operation of PAR light.

Parts & Accessories



NUTRICARE™
Better Yields - Greater Profits

NUTRICARE™ PreciMix
Better Yields - Greater Profits

Fertigation System

NutriCare™ is extremely reliable, accurate and automated fertigation equipment for precision agriculture.

NutriCare™ regulates EC, pH and delivers nutrients into mainline through specially designed venturi pumps.

NutriCare™ is recommended for optimal utilization of resources, for increase in yield and more profit.

Available in three models according to injection rate

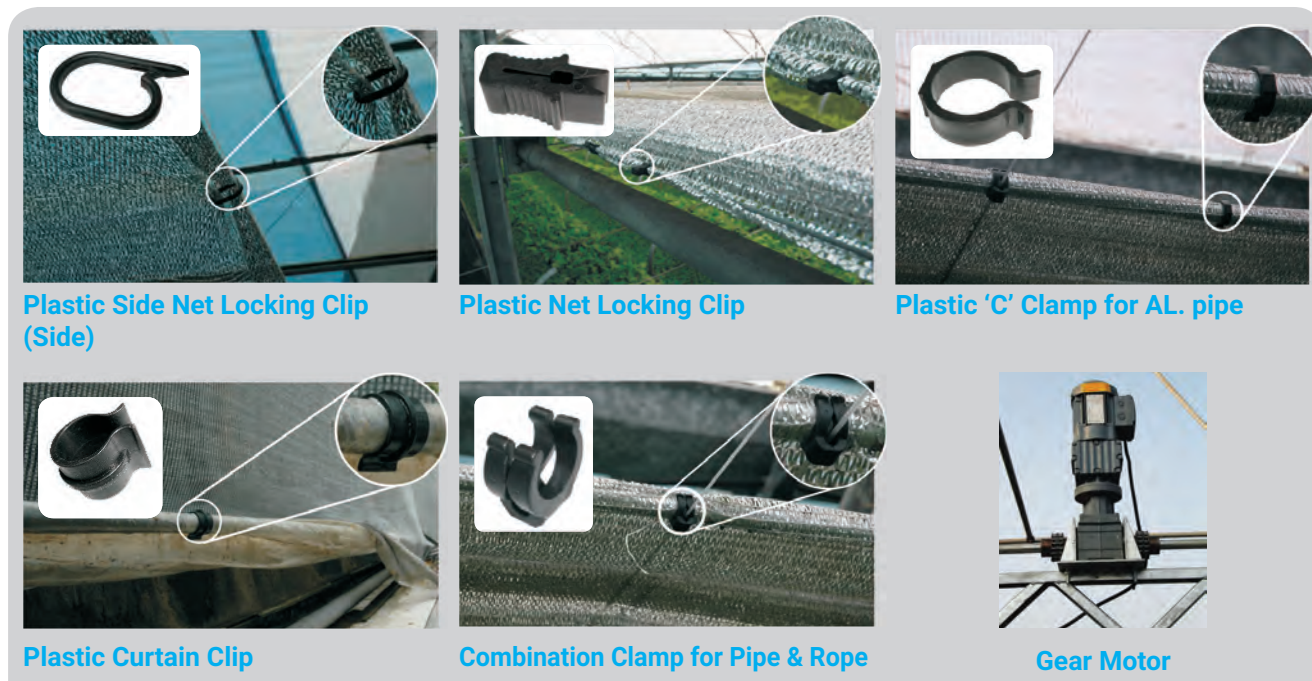
- Low flow (up to 160 lph)
- Medium flow (upto 400 lph)
- High flow (up to 1200 lph)

NutriCare™ PreciMix is used where high level of precision fertigation is desirable. It prepares a pre-mix fertilizer & nutrient solution for given EC/pH levels and then supplied to the system. Recommended for highly drained soil, soilless media, delicate crops requiring high precise level of fertilizers Available in;

- 20 m³/hr with max 5 Fertigation Injector + 1 Acid Injector
- 40 m³/hr with max 5 Fertigation Injector + 1 Acid Injector
- 60 m³/hr with max 5 Fertigation Injector + 1 Acid Injector



Accessories



Plastic Clip / Clamp & Gear Motor:

Plastic Clips/ Clamps are used for Manual/ Motorized collapsible arrangement for Shade Net/ Thermal Net.



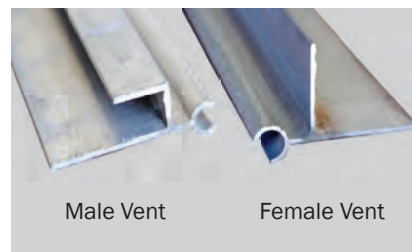
Aluminium Locking Profile

- Smooth fixing of Polyfilm/ Shade Net/ Insect Net



Zig zag spring

- High Carbon Steel Zig zag Spring



Aluminium Profile vent Male & Female

- Used for Ventilation (with rack and pinion arrangement)



Nylon cable

- Support to underneath Shade Net or Thermal Net
- Thickness: 3 mm



Wire Rope

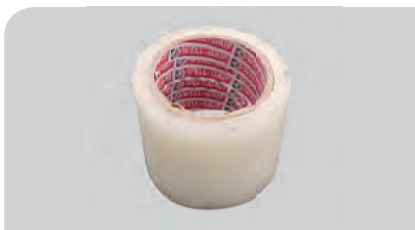
- Used for Trellis System/ Crop Support System
- Used in Boom Irrigation System
- Used to support laterals of Fogging System



Turn Buckle

- The perfect solution for any anchoring need
- Tighten the Cables/ Gear Wire

Accessories



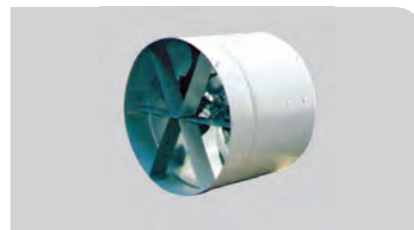
Poly Tape

Poly Patching Tape is a single coated, U.V. stabilized, Clear, Polyethylene film with a high tack acrylic adhesive.



Plastic Tray Support

Base for Plastic Tray



Air Circulation Fan

Size: 4 to 20 inch
Horizontal Air movement/ Flow



Plastic Crate

- Roborast design
- Longer life
- Easy to handle
- Can be use for vegetables, flower & fruits



Double Cluster Support J-Hook

- A Supporting hook that prevents damage to the cluster stem
- Strong twine grip
- Smooth surface prevents plant injury
- Easy installation



Tomato Clip

- Clip for connecting the plant to the twine (23 mm)
- Aired clip to prevent Botrytis
- Quick and easy opening
- Does not slip



Roller Hook & White Twin

- Assures full control of lowering length
- Saves time
- Simple to operate spool device with 25 to 36 meter twine
- Suitable for wire diameters of 2.5 - 4 mm
- Hook - Multi-seasonal, Spool-Up to 3 years
- Also available with biodegradable twine



Mini Hook

- Interplanting & short season trellising hook
- Used at the final stage of growing while releasing the main hooks for a new growing season, and in short seasons
- Multi-seasonal



Roller Plast

- Assures full control of lowering length
- Simple to operate spool device with up to 16 meter twine
- Suitable for wire diameters of 2.5 - 4 mm
- Multi-seasonal, Spool - Up to 2 years
- Quick release of the first few meters of twine



Metal Hook

- Easy to use including quick release rubber type free fall
- Available also with biodegradable twine.



Radial Hook

Prevents plant breakage

- Simple use and quick assembly
- Multi-season



Flexible Arch

Supporting arch for the cluster stem

- Excellent stem grip
- Unique structure enables quick and easy installation
- Seasonal and Ventilated
- Width: 6 mm

Controlled Environment Horticulture More than just a greenhouse!

Planning - Planning and Design of different systems - structures, Micro Irrigation, Fertigation, Climate Control, Automation and Crop Support as per requirements.

Structures - Greenhouses/ Poly houses/ Tunnels/ Shade houses/ Net houses.

Frame-works - Hot dipped Galvanized Lipped Channel Structure/ Lipped Channel cum Tubular/ Tubular Structure.

Coverings - Polyethylene/ Polycarbonate Sheet (Multi wall/ Single wall)/ Shading -Thermal Shade Net.

Environment Controls - Cooling System/ Heating System/ Humidification/ PAR Lighting.

Crops & Plants - Floriculture/ Vegetables/ Herbal - Medicinal/ Aromatic/ Exotic/ Seedling Nurseries.

Growing Mediums - Soil/ Soilless Substrate/ Hydroponics/ Aeroponics/ Vertical Farming.

Types of Irrigation - Drip Irrigation for Soil Less Substrate/ Soil Media – Micro Sprinkler – Overhead/ Inverted Sprinklers – Climate Control System – Mistlers/ Foggers/ Boom Irrigation.

Automation Controls - Automatic Controlling of Irrigation/ Temperature/ Humidity/ Ventilation/ CO₂ Monitoring/ Weather station/ Fertilizer & Nutrition Management etc.

Accessories - Filtration & Fertigation Equipment/ Pipes & Fittings/ Modular Benches/ Trellis/ Soil Sterilizer/ Drainage System etc.

Applications - Horticulture/ Seedlings/ R&D/ Nurseries/ Plant Hardening/ Ripening Chambers/ Pack House.

IN FACT FOR SUCCESSFUL CONTROLLED ENVIRONMENT HORTICULTURE, SOLUTIONS FROM BEGINNING TO COMMISSIONING

More than anyone can offer, anywhere in the world!

Supported by expert customer advice and after sales service from the world's pioneer in Micro Irrigation



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Mobile App



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