

NEPTUNE

NEPTUNE REFRIGERATION CO P LTD

AN ISO: 9001:2015 CERTIFIED COMPANY



THE COMPLETE SOLUTION

OUR MISSION

- To develop and deliver high quality industrial refrigeration and air-conditioning equipment on time and at the optimal price
- To fulfill and exceed our customers' expectations
- To promote our employees' competence and job satisfaction
- To continually improve on the above



Certificate of Approval

NEPTUNE REFRIGERATION COMPANY P. LTD.

No.153, Mount Road, Chennai - 600002.India.

Has implemented a Management System complying
with the requirements of

ISO 9001:2015

**For the design, development, installation, commissioning and servicing of
industrial refrigeration and air conditioning systems.**

Certificate No.: 3017aH
Certified since: 12 October 2011
Issue Date: 11 November 2017
Expiry Date: 12 October 2020

A handwritten signature in black ink that reads "Allan Marshall".

Technical Director - Allan Marshall

JAS-ANZ

The use of the Accreditation Mark indicates
accreditation by the Joint Accreditation System of
Australia and New Zealand in respect to those
activities covered by the accreditation Certificate
number S1351093AS.



Certification remains valid provided that the above
Company complies with the terms and conditions of
the agreement with Benchmark Certification Pty Ltd
(ABN 49 059 126 751), 607 Milsons Landing, 6a Glen
Street, Milsons Point, NSW 2061, Australia.

www.jas-anz.com.au/register

This Certificate of Approval remains the property of Benchmark Certification Pty Ltd.

DISCOVER NEPTUNE

NEPTUNE - a name synonymous with industrial Refrigeration & Air-Conditioning for the past of 40 years in India. The company has to its credit many pioneering technology break throughs, introduced in this country. An internationally acknowledged supplier of industrial refrigeration equipment's with its head office in Chennai and a branch office in Mumbai.

NEPTUNE - has done many prestigious projects for the Government and the private sector. We have been exporting our products to countries like Sri Lanka, Myanmar, Bangladesh, Pakistan, Sudan, Kenya, Tanzania, Uganda, Nigeria, U.A.E., Oman, Qatar, Kyrgyzstan, Congo and Saudi Arabia where our equipment have given excellent performance under the most hostile ambient conditions

NEPTUNE's array of products are designed and manufactured to satisfy the highest quality standards. The company upgrades and innovates on an ongoing basis. This ensures that NEPTUNE's clientele are always assured of leading edge technology that money can buy.

We have flexibility and responsiveness of a small company with the professionalism and technological support of a large company. Due to this we are able to supply our clients with the best quality equipment at the optimal price.

NEPTUNE has also constantly encouraged eco-friendly refrigerants such as ammonia.

NEPTUNE's product offering is backed up by an experienced service network. Teams trained to reduce critical down time and ensure optimum return on investment.



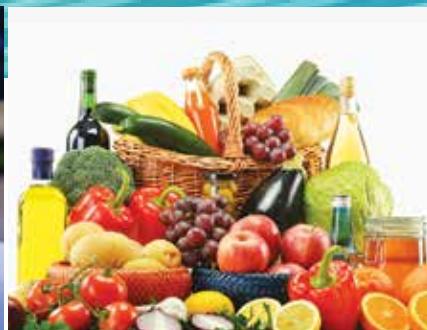
NEPTUNE - THE TURNKEY SOLUTION PROVIDER

Neptune's customers have recognized the advantages of choosing a single point supplier. A supplier who can offer responsive engineering solution from the conceptual stage to solving process challengers; to ensure efficiency at each stage of process.

Neptune can co-ordinate all activities right from the blue print to commissioning. The Neptune team will ensure that the gestation period is shortened and pay-back commences early.

Backed by our vast experience, our technical and service engineers are able to offer unmatched service. Due to our optimal design, the plants runs at higher efficiencies resulting in cost savings

Our prices are highly competitive and our products of excellent quality. Our quick response time ensures that your order is processed and your equipment shipped to you within the shortest possible time.



INDUSTRIAL APPLICATIONS

We specialize in low temperature applications ranging from - 40 deg C to + 15 deg C.

Seafood and Meat : Over 1000 plate freezers are turning out large quantity of frozen products for almost all the leading processors, not only in India but all over the world. Numerous Blast freezer, Frozen stores, Chill rooms, and Ice plants are used to provide top quality refrigeration for the industry.

Brewery, Beverage and Dairy: Neptune has successfully executed numerous projects for Government like NDDB (National Dairy Development Board), KMF (Karnataka Milk Federation) etc., as well as for numerous private dairy and ice cream plants. All the equipments are precisely designed to perform at optimum efficiency, ensuring longer storage life.

Fruit and Vegetables: Neptune has been instrumental in installing several cold storages of capacity around 4000 to 6000 tons for fruits and vegetables along with processing plant for frozen fruits and vegetables.

Chemical, Pharmaceuticals, Industrial refrigeration: Neptune has provided refrigeration for chilled water, glycol, chlorine and CO₂ liquefaction plants, primarily for the dissipation of heat due to exothermic reaction.

SYSTEMS

These are designed based on the application, location and nature of operation. Neptune selects the best the world has to offer from compressors, panels, cooling towers, racking systems, reach trucks, docking systems etc

TIME LINE

1980	Neptune Introduces India's first Plate freezer Neptune uses the first Indian 2 stage compressor from Kirloskar Neptune Gas and Liquid Cooler for 2 stage
1985	Neptune Introduces in India FRP moulded cold storage doors
1987	Neptune Introduces India's first Plate finned ceiling suspended ammonia air cooling unit
1992	Neptune Introduces in India first spiral IQF
1993	Neptune manufactures India's first Tray Defroster
1994	Neptune Introduces in India first SS ice crusher
1995	Neptune introduces in India SS hoses for plate freezer
1996	Neptune manufacturers India's first glaze hardener Neptune introduces in India first panel type plate freezer
2000	Neptune introduces in India first air cooling unit with SS pipes and Al fins
2001	Neptune introduces in India first liquid pump system in the food industry
2005	Neptune manufacturers India's first Frigo type blast freezer
2011	Neptune introduces packaged systems Neptune manufacturers India's first fully stainless steel Evaporative condenser, SS pipe, SS frame, SS cladding
2012	Neptune introduces in India first mobile racking system for -22 deg C frozen storage Neptune introduces in India first plate freezer suitable for hot gas defrosting
2014	Neptune manufacturers Ammonia Anhydrator Neptune introduces Plant audits in India
2015	Neptune introduces in India first 2 stage screw compressor with VFD from KOBELCO
2016	Neptune design and installs India's first conveyor Curd blast tunnel
2018	New remodelled plate freezer for optimal operational efficiency

DOUBLE CONTACT PLATE FREEZING

Neptune makes a freezer which will save you money and the same time, increase your efficiency and product quality. Neptune offers a complete range of freezers from 7 to 15 stations with special aluminium extruded freezing plates. The standard size being 10 stations and 15 stations. Freezer can be tailor made to hold 300kgs per batch.

The product is loaded into the station in cartons or trays, the freezing plates then closed hydraulically, thus ensuring double contact, both on the top and bottom of the product. A rapid, efficient and even freeze is thus achieved, resulting in low freezing costs per kilogram of product weight. Throughout the freeze, contact between the plates and product is maintained by Pre-set hydraulic Pressure. Plates of any size to suit specific requirements can be fabricated.

The versatility of the Neptune Plate Freezer can be seen throughout the food industry. Where countless food products for example-Meat, Fish (either filets or whole), Shrimp, Poultry, Fruits and vegetables are frozen using these freezers.

CONSTRUCTION

Neptune Plate Freezers are of robust construction. Specially designed aluminum extruded freezing plates are fitted and all surfaces in contact with products are manufactured with aluminium alloy. The freezer cabinet is insulated and the external and internal surfaces can be cladded with of stainless steel, aluminium or Pre coated GI sheet as per customers need. The doors are fitted with stainless steel hinges and locks and can be single or double folding. Cabinet can also be constructed from panels which can be assembled inside the processing hall.



FREEZING PLATE

Neptune freezing plates are manufactured with patented aluminum alloy with passages for refrigerant circulation. The plate operate with ammonia, R-22 and other refrigerants and have undergone rigorous pressure tests to ensure maximum strength and prevent leakages.

Plates can be made suitable for gravity system, pump re-circulation system and expansion system.

The excellent circulation system combined with the favourable thermal conductivity of aluminum provides highly efficient freezer plates with quick heat transfer, hence fast freezing with maximum economy. Standard plate have clear freezing area of 1830 x 850 mm. Plates of any size to suit specific requirements can be fabricated.



FREEZING TIMING

The freezing time depends upon the type of product and operating conditions of the refrigeration plant and the packaging used for the product. Neptune Plate Freezer calculations assume that the product enters at +10 Deg C and leaves at -20 Deg C in the core. Evaporation temperature within the plate being - 40 Deg C. For example, 45mm thick 2 kg shrimp cartons are hard frozen within 90 minutes using gravity system. With liquid ammonia pump re- circulation system the time can be reduced to 45 minutes.

NEPTUNE's services are backed by a highly experienced team of engineers and servicemen. There is always a reliable after sales service, should it be required, thus ensuring the highest performance of our equipment.



HYDRAULIC POWER PACK

The hydraulic power pack which is complete with pumps, motor, valves, oil reservoir, contractor and extended control lever is operated to open the freezing plates for loading products.

HOSES

The freezing plates are connected to suction and liquid headers by stainless steel armoured flexible hoses which operates down to -50 Deg C or even lower.

OUTSTANDING FEATURES

Product Quality :

The rapid low temperature freezing maintains the natural quality with an improved product appearance.

High Freezing Efficiency :

The freezers operate at low temperatures even down to -40 Deg C. The horizontal plate close on to the packages or trays ensuring a complete top and bottom contact resulting in low freezing time.

Package Uniformity :

Double contact plate freezing results in a flat uniform which is easy for over wrapping thus assuring excellent product appearance.

Weight Loss Reduction :

Because the product is sealed between the freezing plates, weight loss is not a problem which is associated with air blast freezing.

Large freezing capacity in a small floor space:

The Neptune Plate Freezer is manufactured as a compact unit and can ideally be located within the processing area.

EVAPORATIVE CONDENSER

NEPTUNE is dedicated to providing the finest industrial and commercial evaporative cooling equipment. Each unit represents the company's commitment to excellence in engineering and manufacturing. NEPTUNE's emphasis on research in many condenser innovations which have resulted in many major advancements in heat transfer efficiency. The EC line of evaporative condensers represents another example of NEPTUNE's commitment to product development. The line comprises of 12 models ranging in size from 55KW to 550KW. Other sizes can be customized to client's requirement.

First Cost

The installed cost of a properly designed evaporative condenser is less than other methods of condensing, such as air cooled or combination cooling tower with separate shell and tube condenser. In addition, their compact design requires less operating space and less supporting steel. Condensers from NEPTUNE utilize



a modular design with factory assembled construction to ensure lower field installation costs.

PRINCIPLE OF OPERATION

The refrigerant vapour to be condensed is circulated through a condensing coil which is continually wetted on the outside by a recirculating water system. Air is simultaneously sucked upward over the coil, causing a small portion of the recirculated water to evaporate. This evaporation removes heat from the coil, cooling and condensing the vapour in the coil.

Running Costs

Evaporative condensers reject heat directly to the ambient air in one heat transfer step. The inherent efficiency of evaporative cooling provides lower condensing temperature and compressor power savings of up to 15%. In addition, maintenance costs are minimized through the latest technological advancements in evaporative cooled equipment. These includes a simplified water distribution system, PVC drift eliminators, and many other equipment features pioneered by NEPTUNE.





QUALITY CONSTRUCTION COIL SECTION

NEPTUNE coils feature a design which assures maximum condensing capacity. The airflow through the coil is counterflow to the refrigerant flow providing the most efficient heat transfer process. A special coil design reduces the air pressure drop through the unit, maximizes coil surface area, increases heat transfer capabilities and provides a high film coefficient. The coils are manufactured from high quality steel tubing following the most stringent quality control procedures and then tested at 500 psi air pressure under water to make sure it is leak free. To protect the coil against corrosion, each circuit is sand blasted spray galvanized. The circuits are then assembled into a coil, which is again pressure tested. Coils in SS are also available.

WATER DISTRIBUTION SECTION

The coil must be thoroughly and completely drenched with water at all times, to give the maximum heat transfer and to minimize scaling. The NEPTUNE system does this with specially designed water spray nozzles. The non-corrodable PVC eliminators minimize maintenance and extend the life of the evaporative condenser. A sturdy basin is provided to collect the water before re-circulating it with the help of an pump.

BLOWER SECTION

The blower section consists of fans which are constructed from a corrosion free aluminium alloy material for reliable operation and low maintenance. The fan is enclosed in a close fitting, venturi shaped cowl for efficient operation. A special stainless steel screen is mounted over the fan discharge for safety purposes.



OPTIONAL

MODEL	CAPACITY KW
EC1	82
EC2	115
EC3	146
EC4	175
EC5	203
EC6	235
EC7	267
EC8	292
EC9	325
EC10	452
EC11	507
EC12	635

The standard casing provided is fabricated from GI sheet. However, our option is stainless steel or pre-coated GI sheet can be used.

Capacities in KW calculated at

1. Wet bulb temperature 29 deg
2. Condensing temperature 38 deg
3. Condensing pressure 200psig.

Specifications are subject to change without prior notice due to constant upgradation of our products.

PRESSURE VESSELS

Neptune manufactures pressure vessels such as Oil separators, Receiver, Accumulators, Low pressure receivers, gas and liquid coolers, Chillers (Bare pipe, Finned pipe, Shell and tube, Direct expansion, Flooded) and Condensers (Shell and tube, Evaporative and Atmospheric).

These equipment are manufactured to ASTM Code and can be supplied even with radiography complaint welding



AIR COOLING UNITS

NEPTUNE AIR COOLING UNITS are highly efficient compact units that give you years of trouble free running. They are rugged and completely protected against corrosion since the entire unit is galvanized. Option is available with coil made of stainless steel pipes. These units are used in a wide range of applications such as blast freezers, cold storages, chill rooms and for air-conditioning. These units can be supplied as floor mounted, ceiling suspended and wall mounted depending upon the customers requirements. They come in different capacities and are used in numerous applications where temperatures range from - 40 deg C to +2 deg C and above.

REFRIGERANT

The units are suitable for Ammonia & HF refrigerants. Chilled water and glycol are also used as secondary refrigerants. The units can be made for direct expansion, pump or gravity circulation.

COOLING COIL TUBE MATERIAL

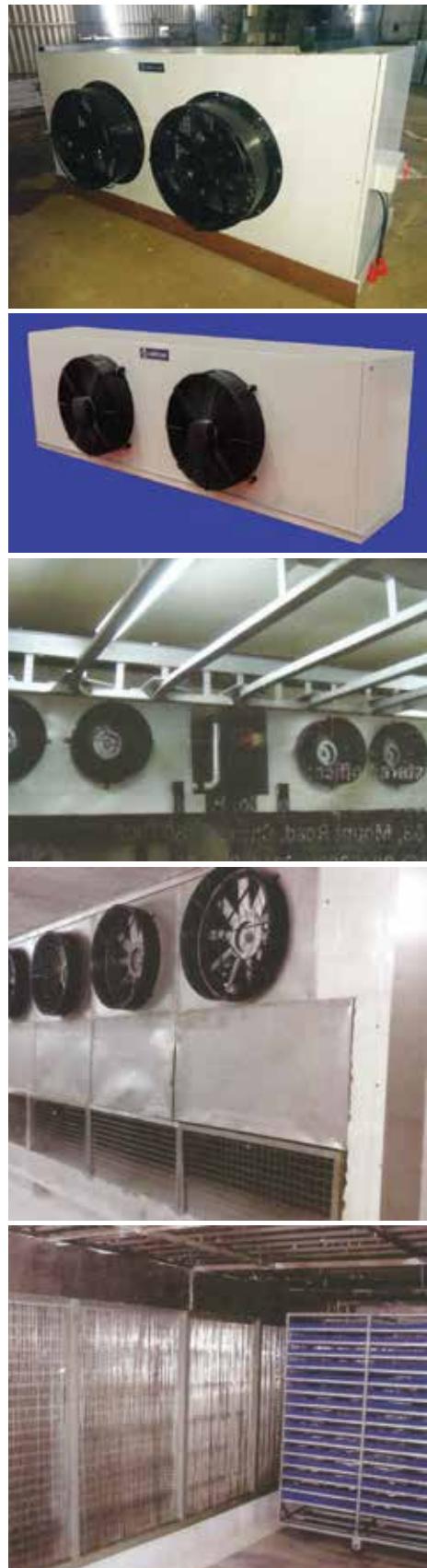
Tubes for coil are made from electro galvanized steel or stainless steel. The fins can be of GI, stainless steel or aluminum. Fin spacing can be 4 mm, 7 mm, 10 mm and 12 mm.

AIR FLOW

Cast Aluminum axial fans or Centrifugal fans that are statically/dynamically balanced are used to blow air through the evaporator. Arrangement of fans are either for forced draft or for induced draft circulation. These fans are driven by squirrel cage TEFC motors with IP-55 protection. Casing are of PCGI or SS sheets. Suitable drain pan with properly designed slopes are provided to easy draingage.

DEFROSTING

Units are provided with water defrost system as standard. Option of hot gas defrosting and electrical defrosting are available.



ICE PLANTS

Neptune is able to offer you block ice plant from capacity 5 to 50 TPD and multiples of this capacities using vast range of compressors. Some of the salient features are given below:

COMPRESSOR - Compressors, motors, starters, pumps of reputed make are provided to suit site conditions.

CONDENSER - Atmospheric, Shell and tube and Evaporative condensers can be provided to suit site conditions.

COIL - Well designed and correctly sized Trunk type coil fabricated from Ms Class C TATA seamless pipes is provided for standard and non-standard ice plants. Suitably sized liquid separator prevents any liquid rushing back to the compressor. The coil is given anti-corrosive paint before leaving the works.

ICE TANK - Neptune ice tanks are made of heavy gauge MS plate normally supplied in knock down condition for welding at site. Suitable angle iron stiffeners are provided for extra strength; and insulated with 115 mm thick expanded polystyrene or equivalent.

AGITATOR - Belt driven or direct driven. Suitable agitators are provided for proper agitation of brine in the tank. The system is provided with a motor and suitable bearings for easy operation.



ICE CAN - Welded Ice cans of 16 G are provided with the ice plant. Cans are supplied to suit individual requirements in the capacity of 15/kgs, 45/kgs, 135/kgs and 181/kgs.. Ice cans can be fabricated from galvanized iron sheet or from HR Sheet hot dip galvanized after fabrication.

HOISTING EQUIPMENT -Manual or EOT crane is provided for lifting the ice cans from tank. Suitably designed can dog allows lifting of one or two cans at a time. For large installation, electric hoist is used to lift entire row or rows of cans at a time.

CAN DUMP - To remove the frozen ice from the can, a can dump made from heavy gauge MS Sheet is provided with easy tilting arrangement. Can dump is made for one can or for entire row of cans when using the electric hoist. Can filler arrangement is also provided for one can or for entire row of cans to save time in filling up.



CANS	300 LBS			
CAN SIZE	11"x22"x48"			
CAN ARRANGEMENT L x W	16x10	20x12	20x16	24x20
CAPACITY (IN TONNES)	10	15	20	30
ELECTRIC HP	50	75	110	145
A	33'-8"	41'-10"	41'-10"	50'-0"
B	14'-6"	17'-4"	22'-0"	26'-8"
C	7'-6"	10'-6"	13'-6"	16'-6"
AA	73'-2"	81'-4"	81'-4"	89'-6"
BB	18'-3"	21'-1"	25'-9"	40'-5"
D	4'-0"	4'-0"	4'-0"	4'-0"
E	5'-10"	5'-10"	5'-10"	5'-10"
HH	13'-10"	13'-10"	13'-10"	13'-10"

Specifications are subject to change without prior notice
due to constant upgradation of our products



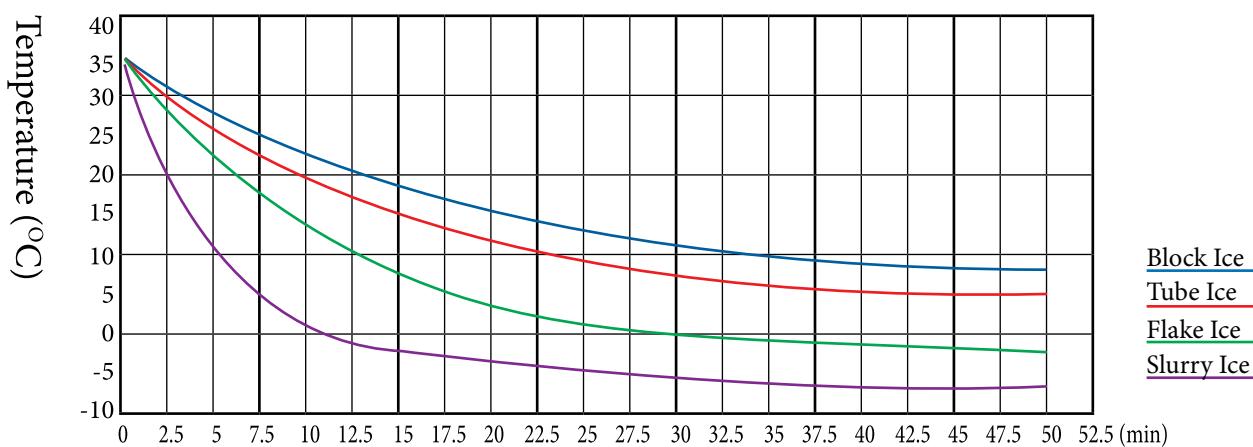
PLATE ICE MACHINE



Flake ice maker

Plate ice is a type of irregular sheet ice with about 40*40mm 10mm - 15mm in thickness. The thickness can be adjusted according to the ice making time. The maximum thickness is 30mm. It is a kind of ice which has good air permeability and long shelf life.

- Variable ice thickness
- Complete SS 304 construction including body, tank, pipes & fittings.
- Easy to install, factory tested packages.
- Fully automatic control panel Low cost of ownership-Since we don't need an expensive Liquid



SLURRY ICE MACHINE



CHARACTERISTICS:-

High Efficient cooling: Slurry ice provides the largest contact area with products and ensures rapid and even heat transfer which brings a good cooling efficiency.

Better product protection: The softness and shape of slurry ice ensures no damages to the products.

Labor and time saving: It can be easily pumped anywhere by using a common pipe saving labor costs and time.

Lower energy costs: It offers better energy efficiency with lower refrigerant and energy consumption.

ADVANTAGES:-

Hygiene: Use stainless steel 316 in all contact areas which meets all food processing standards.

Multi-Functional : Can be designed for both shipboard and land based applications.

Minimum salinity: Operated with salinity of 2.5-3%. Slurry ice density is from 20% to 60%.

High Refrigeration Efficiency: Products are completely covered thereby ensuring a rapid and efficient cooling performance with low power input.

Different Refrigerants: Suitable for all types of current refrigerants.

AWARDS



Star Performer – Medium Enterprises
Presented by
Engineering Export Promotion Council.

MINISTRY OF COMMERCE & INDUSTRY,
Government of India for the following year.

Star Performer – Medium Enterprises - 2005 - 06

Star Performer – Medium Enterprises - 2006 - 07

Star Performer – Medium Enterprises - 2008 - 09

Star Performer – Medium Enterprises - 2011 - 12

Star Performer – Medium Enterprises - 2012 - 13

Star Performer – Medium Enterprises - 2013 - 14

Star Performer – Medium Enterprises - 2016 - 17

Star Performer – Medium Enterprises - 2017 - 18

A few of our prestigious clients

DOMESTIC

AI Kabeer Export
 AI Naved Agro Foods Industry P
 AI Sameer Exports Pvt. Ltd.,
 AI Sami Agro Products Pvt. Ltd.,
 Amar Sagar Sea Food P. Ltd.,
 Amulya Sea Foods
 Ananda Foods
 Bismillah Frozen Foods Exports,
 Dev Bhoomi Frozen Food Prds
 Ekta Agro Foods
 Federal Agro Industries Ltd
 Frigerio Conserva Allana
 Green House Agro Products
 Hatsun Agro Product
 Harbour Engineering Dept,
 H.N. Indigos Pvt. Ltd.,
 Indo tech Ice & Cold Storage
 International Agro Foods
 Kader Investment Trading Co.
 Kalyan Aqua Marine Exports
 Lito Marine Export P Ltd
 Mam Agro Foods
 Megaa Moda Pvt. Ltd.,
 Nila Sea Foods Exports
 Nila Sea Foods Pvt. Ltd.,
 Nishigandha Industries P Ltd,
 Omar International
 Pinto Cold Storage
 Pennar Aqua Exports
 Rainbow Agro Foods Ltd.,
 Royale Marine Impex P Ltd.
 Shree Matha Marine
 Star Agro Marine Exports Pvt. Ltd.,
 Suguna Foods Pvt. Ltd.,
 Suryamitra Exim Pvt.Ltd.
 Tirumala Milk Product
 The Waterbase Ltd
 Tropical Refrigeration
 Tumkur Co-op Milk Producers
 United Farm Products
 Vedantram Krishna Enterprises
 Vizag Foods Pvt. Ltd.,
 VR Food Enterprises LLB
 Zakariya Agro Pvt. Ltd.,



EXPORTS

Patancheruvu	Bangladesh
Mewat	Sri Lanka
Forbesganj	Saudi Arabia
Dowalisawaram	Sudan
Porbandar	Qatar
Tuticorin, TN	Tanzania
Bhimavaram, AP	Sri Lanka
Taloja	Ethiopia
Uttarkhand	Nigeria
Malegaon	Dubai
Derabassi	Bangladesh
Zahirabad	Sri Lanka
Nellore	Sri Lanka
Chennai	Uganda
Kayankulam	Sri Lanka
Navsari	Myanmar
Goa	Kenya
Ghaziabad	Abu Dhabi
Tuticorin	Myanmar
Ongole	Oman
Visakhapatnam	Tanzania
Gulbarga	Nepal
Kolkata	Oman
Pattukottai	Kenya
Tuticorin	Seychelles
Turbhe	Dubai, UAE
Bijnor	Sri Lanka
Nellore	People Republic of Congo
Siliguri	Uganda
Chirala	Tanzania
Gangolli	
Nellore	
Belgaum	
Bhimavaram	
Gudur	
Nellore	
Port Blair	
Tumkur	
Mewat	
Jaunpur	
Visakahapatnam	
Chennai	
Forbesganj	

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