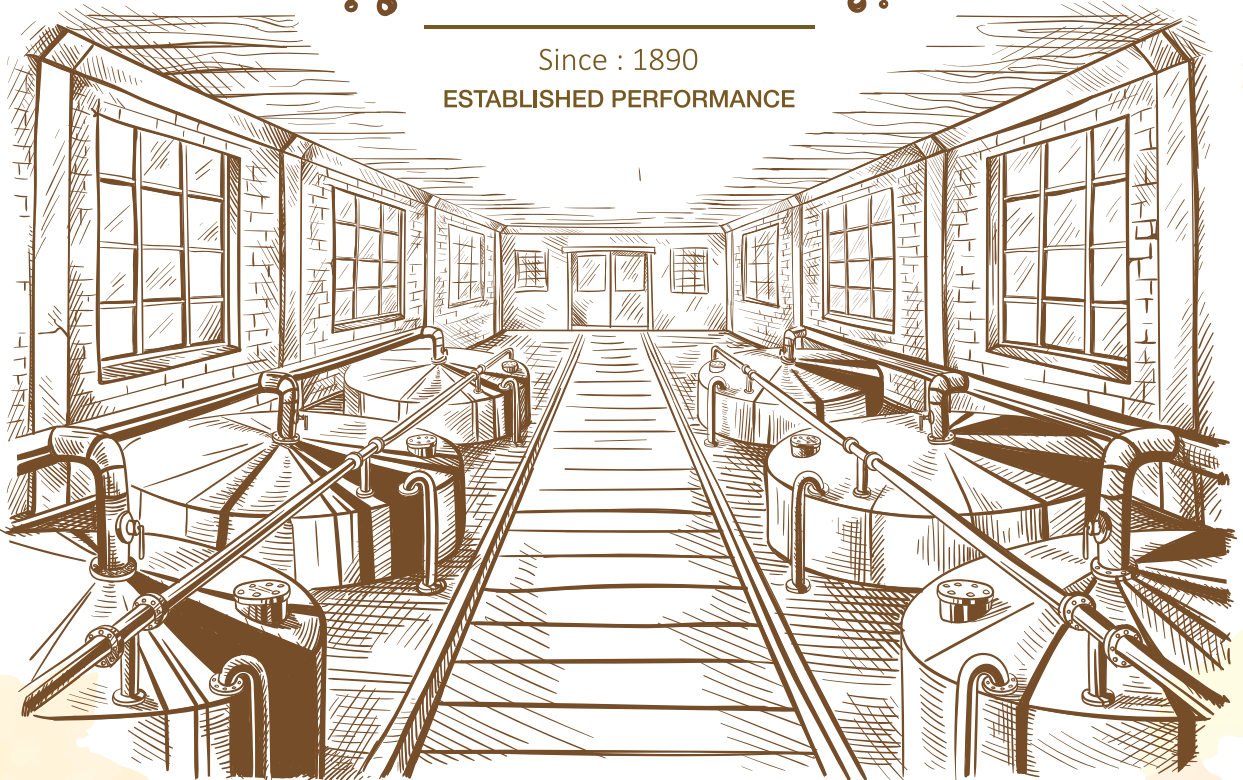




Naran Lala

Since : 1890

ESTABLISHED PERFORMANCE



A Legacy of Trust

TURNKEY
supplier of
DISTILLERY and
ALCOHOL BASED
CHEMICAL PLANTS.

Naran Lala is the turnkey supplier of Distillery and Alcohol-based Chemical Plants.

Heading fast to create a name in the world markets, the company was pioneered by Shri Naranbhai Lalabhai Kansara. With a rich experience that has accumulated since the 1890s, the company has already supplied over 300 plants to leading names in the field of engineering and chemicals.

Naran Lala has created a niche for itself in the realm of Distillery and Chemical Plants. It has consistently set new trends in this business giving a new meaning to the term 'customer satisfaction' through the development of better-quality products each time.

Naran Lala offers services in conceptualizing, designing, manufacturing and commissioning of distillery projects. So far, it has executed more than 300 distilleries with this number fast-growing to hit the 400-500 bracket. When you talk about quality, performance, and efficiency, Naran Lala heads the list of enterprises across India and is considered top-notch across the globe.

Vision

The vision insight into our mission is to be:

A world-class brand and the premier provider of value-added distillery projects and alcohol-based chemical plants in India

The most preferred Global Partner in Process Consultancy, Engineering, Procurement and Construction for complete Distillery and Chemical sector

At the forefront of Distillery and Chemical sector operations with diligent support from our experienced and competent workforce

Experienced Team for years

Nara Lala's continued success over the years has been in large part due to a dedicated team of engineers, technicians, and designers – highly experienced and knowledgeable aspects of construction and design of distillery plants and alcohol-based chemical plants.

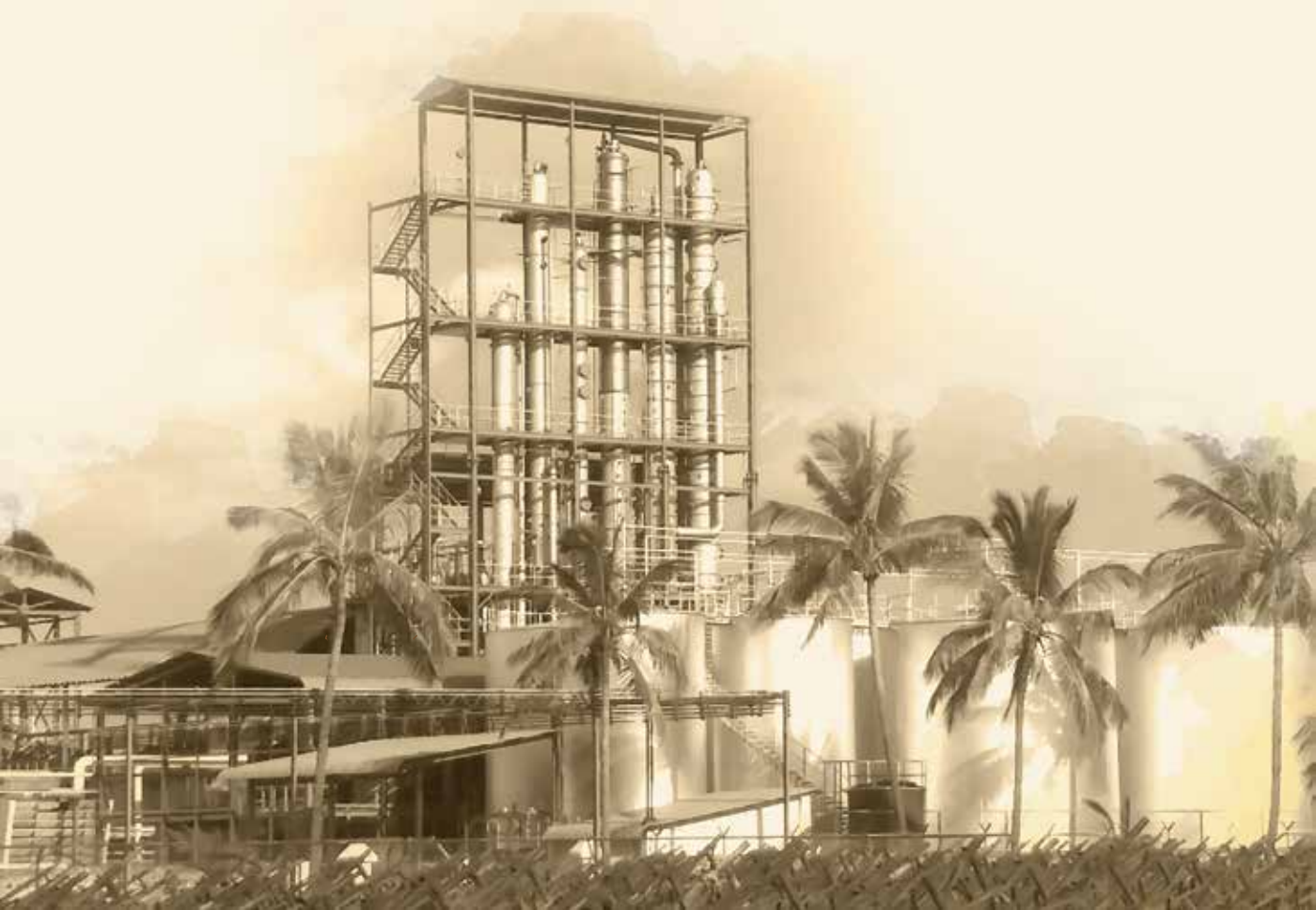
Moreover, having successfully supplied over 300 plants in India, the team has a specialized understanding of the unique challenges posed by construction within the country. In addition to this Naran Lala has a professional, reliable and highly trained construction workforce.



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Our Trusted Product Range

Molasses Distillery	Grain Distillery	Malt Distillery	Chemical Plants	Engineering & Fabrication
Fermentation	Grain Storage Silo	Malt Storage Silo	Acetaldehyde	Fractionation Column
Distillation (RS/ENA)	Hammer Mills	Roller Mill	Acetic Acid	Shell & tube heat exchanger
Fuel Ethanol	Liquefaction	Lauter Tun	Ketene Generation	Reactor
Biogas Plant	Simultaneous Saccharification & Fermentation	Fermentation	Acetic Anhydride	Process Tank
Spent Wash Evaporation	Distillation (RS/ENA)	Distillation (Copper Pot Still / Coffey Still)	Acetic Acid Recovery	Bulk Storage Tank
Condensate Polishing Unit	Fuel Ethanol	Biogas Plant	Ethyl Acetate	Cryogenic Equipment
Zero Liquid Discharge System	Decantation	Maturation House	Butyl Acetate	Autoclave
Molasses & Alcohol Storage	Spent Wash Evaporation		Isopropyl Alcohol Recovery	
Power Plant	DDGS Dryer			
	Condensate Polishing Unit & Zero Liquid Discharge			



Turnkey Distillery Plant

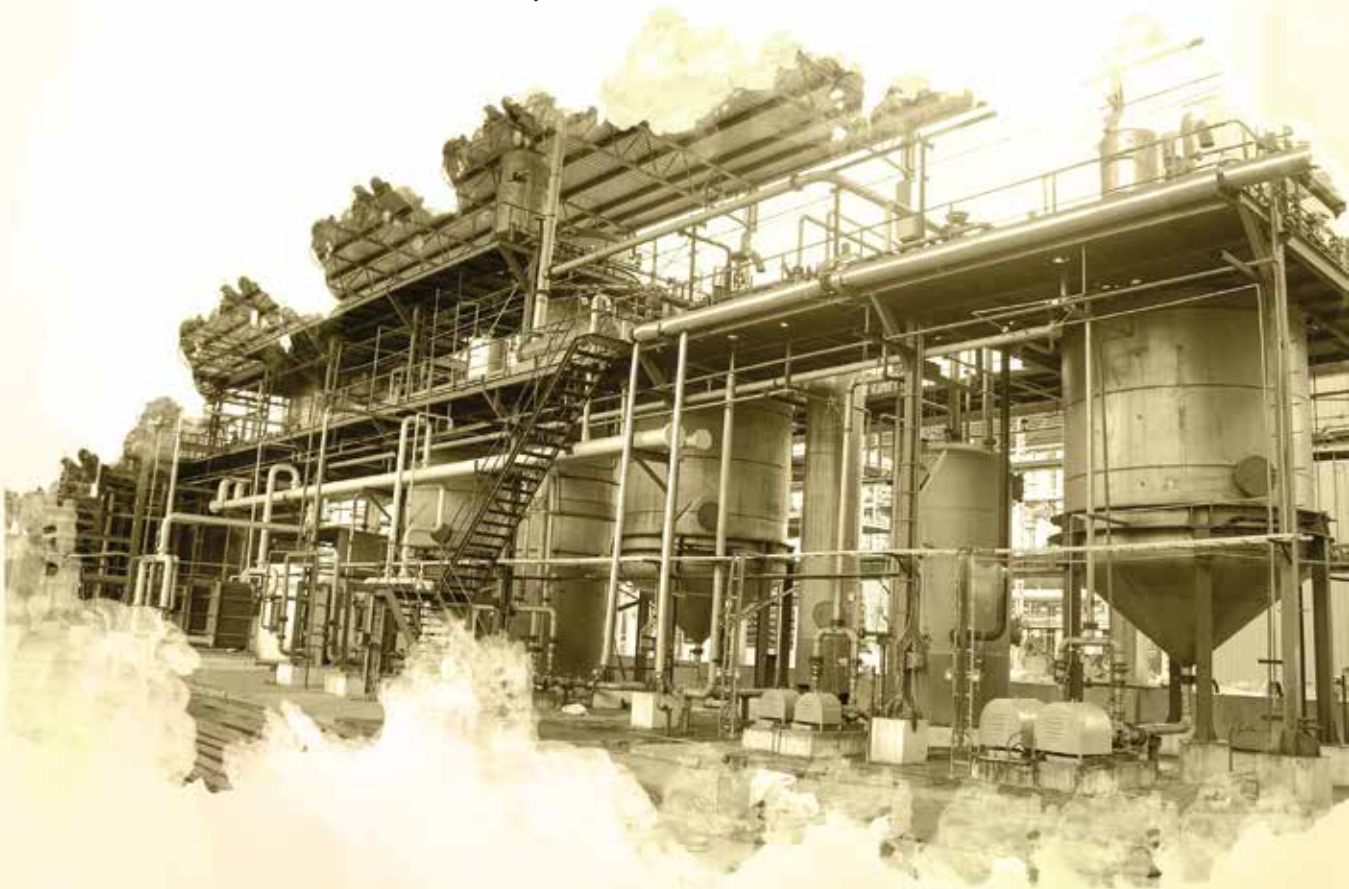
Grain Based (Broken Rice, Maize, Millet, Sweet Sorghum)
Sugarcane & Molasses Based

- ▶ We provide solutions for Turnkey Distillery to produce Extra Neutral Alcohol and Rectified Spirit from Grain or Molasses based raw material for the manufacture of Indian Made Foreign Liquor. ENA from our supplied plants is used by all major bottlers – Pernod Ricard, Unit Spirits (Diageo), ABD, etc.
- ▶ We Engineer, Procure and Construct Turnkey Distillery to create the best synergy of our technologies.
- ▶ The Plant delivers on all counts of cost-effectiveness and maximum efficiency.
- ▶ Best and efficient energy consumption & resource utilization – Steam, water, power, etc.
- ▶ Treatment of wastewater helps to achieve Zero Liquid Discharge solution to take utmost care for the environment. Treated water is reutilized into the process or utility needs.
- ▶ Complete DCS based plant operation.
- ▶ We design and supply turnkey distillery to provide the best alcohol quality which is renowned all over India.
- ▶ More than 300 Plants supplied by us since our inception



Liquefaction Plant

- ▶ Near to theoretical recovery
- ▶ Provision to bypass Jet Cooker
- ▶ Back set can be used as Dilution Water to lower down total freshwater requirement.
- ▶ Enzymatic Hydrolysis pre and post Cooking.
- ▶ Retention Column instead of conventional coil system.



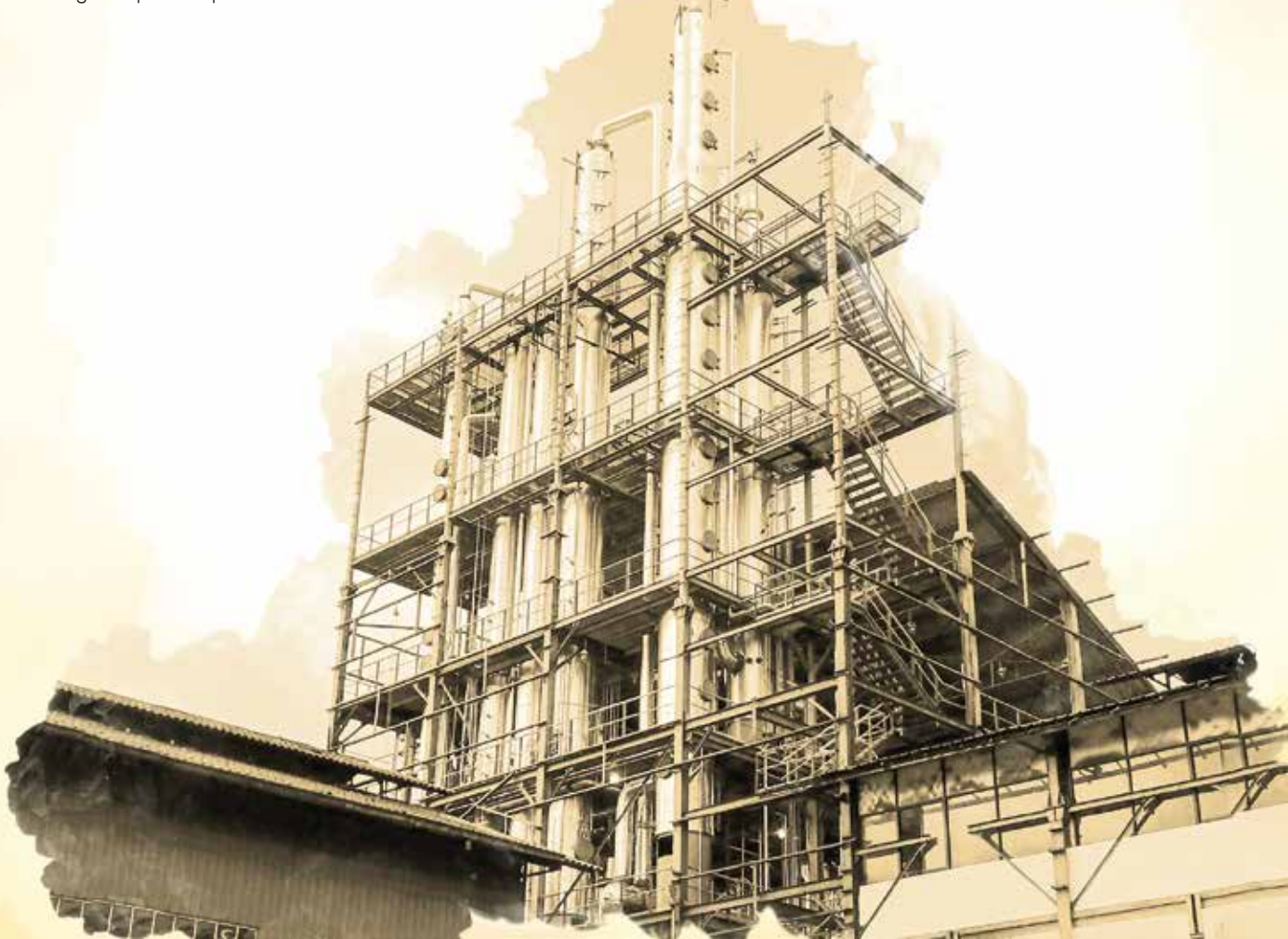
Fermentation Plant

- ▶ Continuous Fermentation
- ▶ Batch Fermentation
- ▶ Grain Liquefaction and Fermentation
- ▶ Fed-Batch / Fed-Batch / Continuous and Batch Fermentation depending on the conditions.
- ▶ Superior Sludge Dewatering and High Alcohol Recovery by use of Sludge Separation and Decantation System.
- ▶ Yeast Propagation Plant designed for growing faster yeast cells as well as safeguards for bacterial growth/contamination.
- ▶ Optional: Yeast Cell Recycle System.
- ▶ Flexibility to use different types of wort – like sugarcane juice, molasses or grain syrup in the same plant with negligible modifications.
- ▶ Achieved efficiencies of 91% in Molasses and 93% in Grain as feedstock.
- ▶ Low fermentation time – 27 hours Molasses & 60 hours Grain.
- ▶ Alcohol generation in fermented wash – 8 to 11% in Molasses and 12 to 15% in Grain



Multi-Pressure Distillation Plant

- ▶ 10 Fractionating Columns for producing the Finest Neutral Spirit (used for Vodka) or to produce the best Rum Grade Spirit.
- ▶ Dual Extraction System with Zero Additional Steam.
- ▶ Intalox Packed Vacuum Methanol / Simmering Column to get the best Organoleptic of Spirit.
- ▶ Operate Plant continuously for 5 months with the advanced Extremely High Forced Circulation System in Analyser Reboiler.
- ▶ Newest Column Internals – Sieve Trays, Structured Packing along with Random & Intalox
- ▶ Spirit produced is based on Double Extraction, Double Rectification and Refined under Vacuum condition with
- ▶ State-of-the-Art Heat Recovery System.
- ▶ Quality of Spirit acceptable to premium bottlers – Pernod Ricard, Diageo, etc.
- ▶ With more than 23 Control Loops it is the Most Advanced automation system for the Distillation Plant.



Ethanol Plant

Absolute Alcohol Plant

- ▶ Molecular Sieve based Ethanol Dehydration system.
Process is simple and no chemicals used.
- ▶ High Quality Desiccant used for Ethanol Drying.
- ▶ Stable operation and near theoretical recovery.
- ▶ Steam consumption minimized by multi-stage pre-heating to permit substantial heat recovery and reuse.
- ▶ An advanced control system developed through years of experience, to provide sustained, stable and automatic operation.
- ▶ Can be installed as Standalone or Integrated with Distillation Plant
- ▶ Consistent & excellent product quality maintained.
- ▶ We also provide technology for Azeotropic Distillation Plant. This is used mainly for pharma and perfumery grade alcohol.



Evaporation Plant

- ▶ Standalone
- ▶ Integrated Evaporation
- ▶ Bio - Methanated Spent wash

▶ Successfully Commissioned for applications like – Bio-Methanated Spent Wash, Raw Spent Wash, Grain Spent Wash.

▶ Supplied Integrated as well as Standalone Evaporation Plants. Cleaning frequency achieved once in 1 month for all forms of Evaporation Plants in a

distillery be it BMSW, RSW (Molasses) and Grain SW Evaporation Plant without any standby calandria.

▶ Designed, Supplied & Commissioned Evaporation Plant to have the flexibility of dual operation in the same plant i.e. it can achieve 30% concentration from SW post-Bio-Methanation or 60% concentration from RSW. No need for a separate plant to handle different applications.

▶ Successfully Commissioned – Evaporation Plant to run on vapors from Distillation & DDGS Dryer of Grain Distillery to achieve the desired concentration of thick syrup.

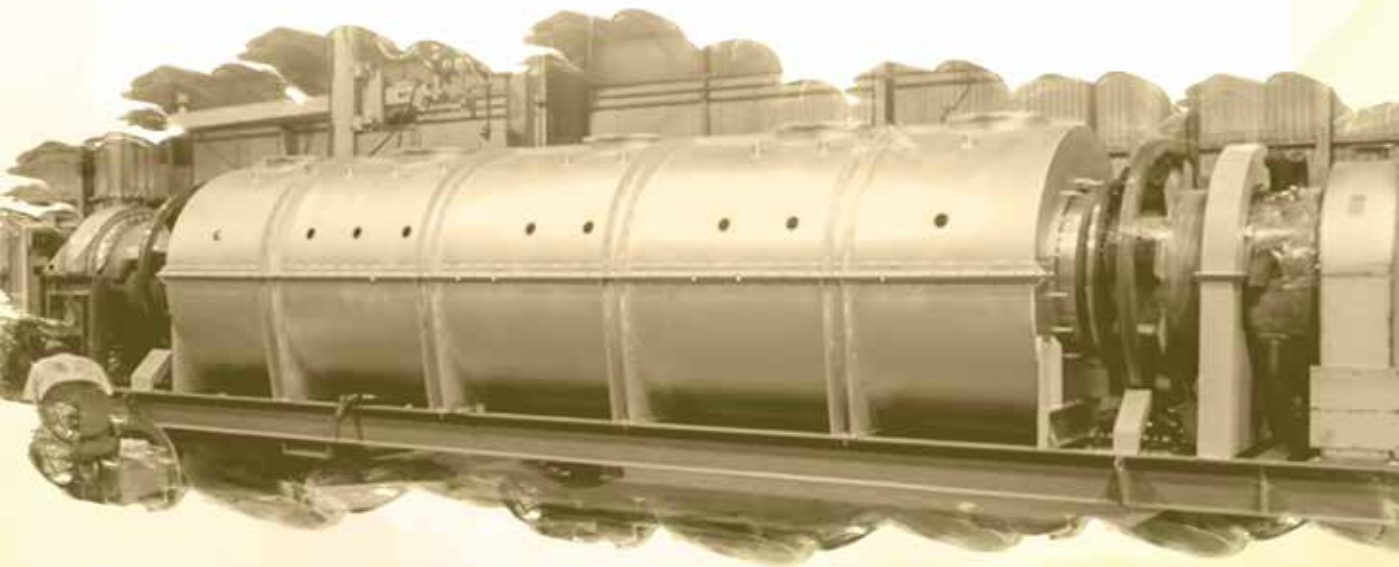
Legend:

- ▶ SW – Spent Wash
- ▶ RSW – Raw Spent Wash from Molasses or Grain Distillery
- ▶ BMSW – Bio-Methanated Spent Wash of Molasses Distillery



Drying Plant

- ▶ Drying plant in grain-based distillery plant is used to convert wet cake from a decanter and concentrated syrup from evaporators to dry and make DDGS, which is used as cattle feed. This dryer makes the grain-based distillery plant as complete zero effluent discharge plant at the same time it give the additional revenue by selling DDGS
- ▶ Rotating shell with variable speed control ensures very less steam consumption as compared to the air dryer, flash dryer or spray dryer. The moisture content in the final product can also be easily controlled by recycling the product
- ▶ The dryer vapor can also be utilized in the evaporation plant to reduce overall steam consumption of distillery



Bio - Gas Plant

- ▶ Distillery effluent, which is commonly termed, as raw spent wash is one of the most Polluting effluent with very high values of BOD, COD, suspended solids & dissolved solids. This dark brown effluent has great potential for biogas generation, which can be used as Fuel and burnt directly in a boiler or can be used to generate electricity by burning the same in biogas engines.
- ▶ Sugar mills need to consume large

amounts of electricity. They often possess their own boiler houses and electricity-generating plants. With biogas plant, we can prepare biogas that can be used for the production of electricity through this boiler.

- ▶ Biogas refined with the special equipment is an analog of natural gas, which can also be used for the technological needs of the sugar mill.

- ▶ This total package of Bio-gas plant helps sugar mills to attain all environmental norms and generate electricity which in turn helps to reduce the cost of production



Condensate Polishing Unit / ETP

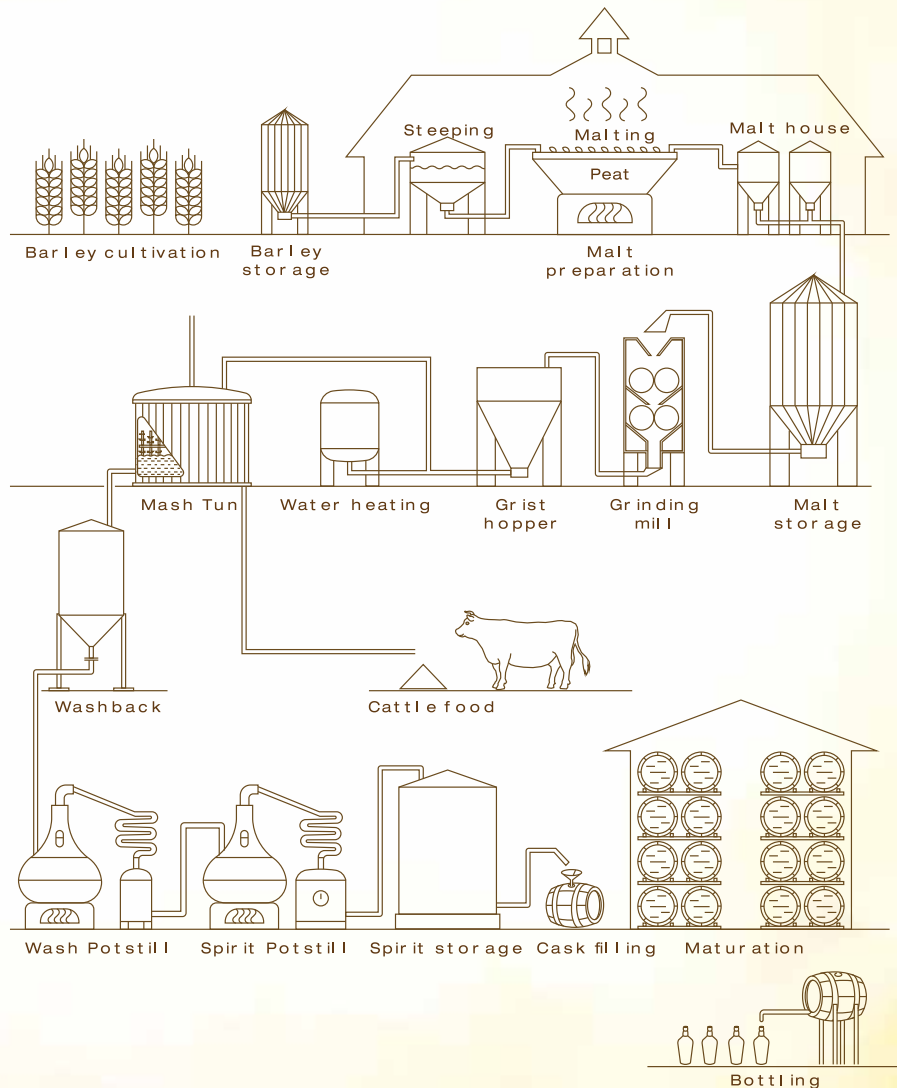
- ▶ Successfully commissioned Water is reused as Cooling Tower makeup.
- ▶ Condensates from Evaporation Plant and Spent Lees can be treated to be able to reuse as Process Water or as Cooling Tower Makeup
- ▶ Treatment Scheme is Anaerobic Digestion with Aeration followed by Clarification and Sludge Drying. The Supernatant Liquid is then filtered through Chlorine Contact Chamber, Pressure Sand Filter, and Activated Carbon Filter.
- ▶ Softener can be added to the above if Water is to be used as Cooling Tower Makeup.
- ▶ Ultra-Filtration and Reverse Osmosis need to be installed if treated water is to be reused in the process.
- ▶ Achievable treated water can have COD < 250 ppm post ACF and COD almost Nil post-RO.



The Making of Single Malt Whisky

We offer malt Distillery for producing Whisky the traditional Scottish way.

- ▶ Malted Barley Storage & Handling
- ▶ Roller Mills complete with malt cleaning and conveying systems
- ▶ Mash cum Lauter tun for producing Wort
- ▶ Fermentation to produce Beer
- ▶ Distillation Plant consisting of Pot Stills with desired shape and Gooseneck with Lyne Arm. All PLC controlled.
- ▶ Condensers, Coolers and Pre-heating Systems
- ▶ Maturation House
- ▶ Spent Grain Removal System
- ▶ Spent Grain Drying System
- ▶ Wastewater treatment consisting of Biogas and R.O.
- ▶ Utility Systems like Boiler, Chilling & Cooling Tower.





Single Malt Whisky



Chemical Plants We Design & Supply

In the Era of 1960, the demand for organic chemicals felt in India due to growing demand in textile and pharmaceutical industries. In 1962, indigenously developed process design and engineering for different alcohol based chemical plants and Naran Lala

started supplying plant first to M/S. Somaia Group, who are pioneer in alcohol based chemical industries. Many of the achievements were made such as:

► First indigenously designed and constructed Aldehyde Reactor

► Successful implementation of vacuum distillation system in the year 1990 for increasing purity of product. From concept to commissioning, Naran Lala is the only supplier in India offering different Alcohol based chemical plants on Turnkey Basis.

Acetic Anhydride

Acid Recovery

Ketene Generation

Ketene Generation

Acetic Anhydride

Acid Recovery

Ethyl Acetate / Butyl Acetate

Isopropyl Alcohol Recovery



Design & Fabrication of Process Equipment

- ▶ Naran Lala rich in experience of design and construction of project /process equipment is having a very well-versed design and CAD drawing office backed by knowledgeable and experienced design and project engineers.
- ▶ The fabrication shop is full-fledged to meet the best workmanship in different metals especially no match to the fabrication of copper equipment.
- ▶ Total 30,000 Sq. Ft. Crane is and about 80,000 Sq. Ft of open space with maximum crane capacity of 40 tons is sufficient enough to cater to any challenging jobs.
- ▶ State of the art TIG welding machines and CNC drilling machines to meet any quality standard.
- ▶ Stringent quality check and QA plan to ensure the quality which is the hallmark of every Naran Lala product
- ▶ Workshop is approved by and thereby making it one of the most prominent workshops in Delhi - Mumbai Industrial Corridor
- ▶ Major third-party inspection agencies.
- ▶ ASME Sec. VIII and TEMA standard are followed
- ▶ Distillation Tower having a diameter of 3800 mm and a heat exchanger of 785 m² handled by Naran Lala.
- ▶ Cryogenic copper condenser working at -185°C for oxygen plant is manufactured by Naran Lala.

Pressure Vessels

Evaporators

Distillation Towers

Heat Exchanger

Condenser

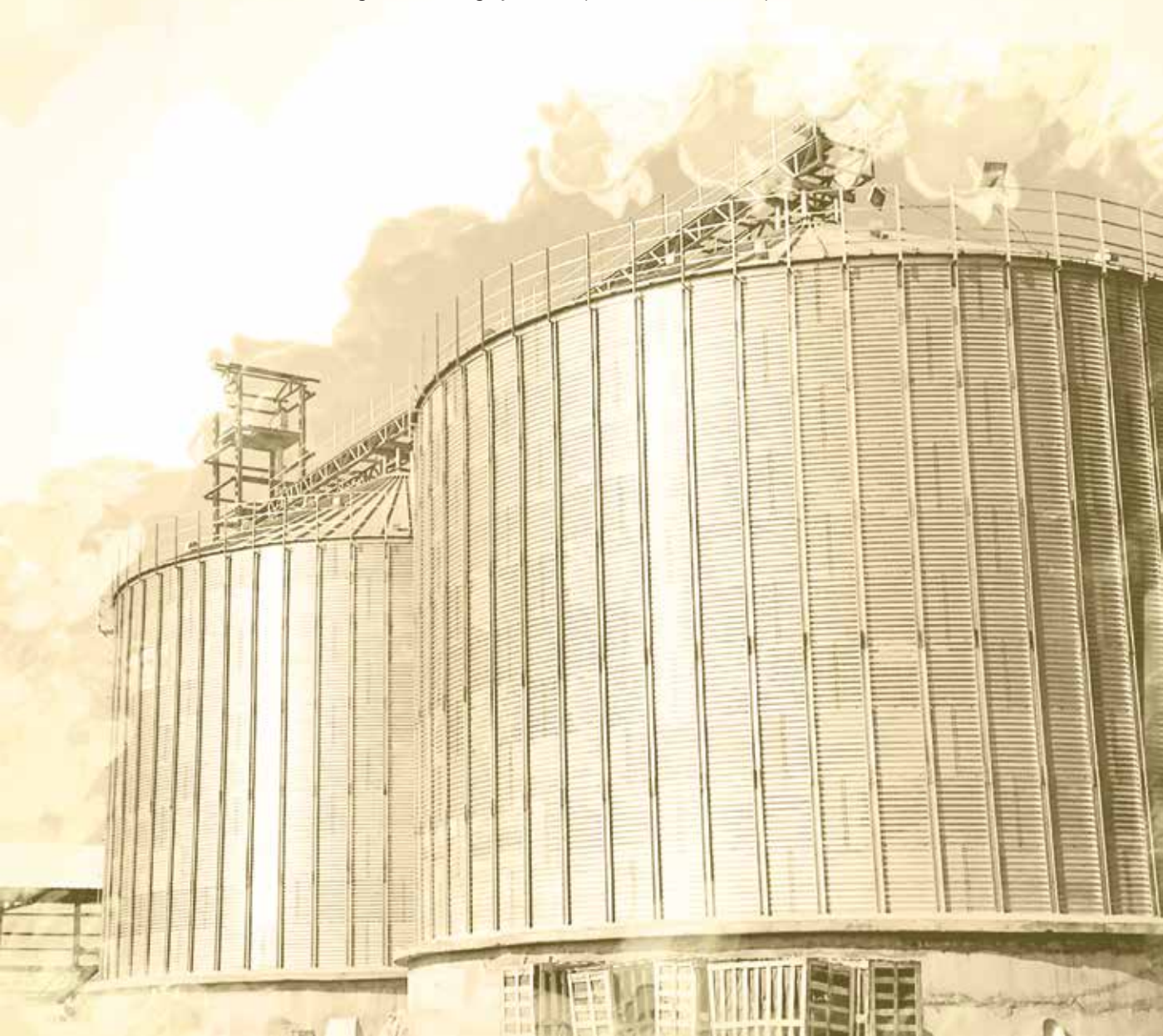
Reaction Vessels

Copper Pat Still



Raw Material Storage, Milling & Handling Syste

We provide complete raw material storage,
Milling and handling system as per our customer requirement.



Modernization and Expansion of Existing Plants and Equipments

► Since 1962, we are catering to the distillery and chemical industry. With such Decades of experience in this field, we have modernized and expanded

numerous existing plants and Equipment as per our valued customer requirement.

through our rich Know-how creates additional value for our customers.

► Capacity up-gradation and increase in efficiency of the Plant or Equipment

Clients Since 1962

The company has come a long way since those early days when in 1942, a complete distillation plant was supplied to Kolhapur Sugar Mills Limited. Today, the company has an excellent track record in providing over 300 Plants to leading business names in the country.

This is furthermore reflected in the number of repeat orders the company has bagged from clientele who have been assured of absolute satisfaction in Quality, Cost and Time-Bound Schedules. Naran Lala has always fulfilled the client's expectation on all these counts.

What sets the Company apart, is its

continued commitment to quality - A Hallmark of every Naran Lala Plant & Product. And this commitment continues to be our Guiding Philosophy



CELEBRATING 130 YEARS

Trustworthy
Since 1890



Naran Lala

Naran Lala Pvt Ltd.

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