SED

LOW TEMPERATURE EVAPORATION

upto 99% clean water recovery

www.sprayengineering.com

..Energy Efficient Engineering

About Us

Spray Engineering Devices Limited (SED) is "Innovative Technological Solutions" providing company for Sugar & Allied Industries for last nearly three decades, specialized in Vaporization, Condensation, Evaporation and Crystallization.

SED has revolutionized in the water sector by providing most efficient high quality clean water recovery and recycling solutions from any type of wastewater in single step through "Low Temperature Evaporation Technology based on Mechanical Vapour Compression/Recompression System" without use of heat generation & rejection units and chemical at lower cost and minimal footprint.

SED has also established Boiler Free Jaggery (Solid, Semi-Solid, powder, cake) Production Unit for 100% bagasse saving which is commercially available for a sustainable technological solution assuring profitable business proposition.

SED is an Engineering Company, focused on designing/redesigning and engineering of processes, equipment manufacturing along with complete automation ensuring highest energy efficiencies since 1992. The Company today has established its existence in more than 40 countries by providing energy efficient products and cost-effective solutions for sugar and allied industries.

SED has emerged as one of the fastest growing technology driven company, striving to provide world class integrated energy efficient equipment and innovative solutions across the globe.

Mission

Dedicated for Sustainable Environment Development to unlock perpetual food and energy resources.

Vission

To become a global integrated player in energy and engineering industries through innovative technologies and energy efficient solutions.

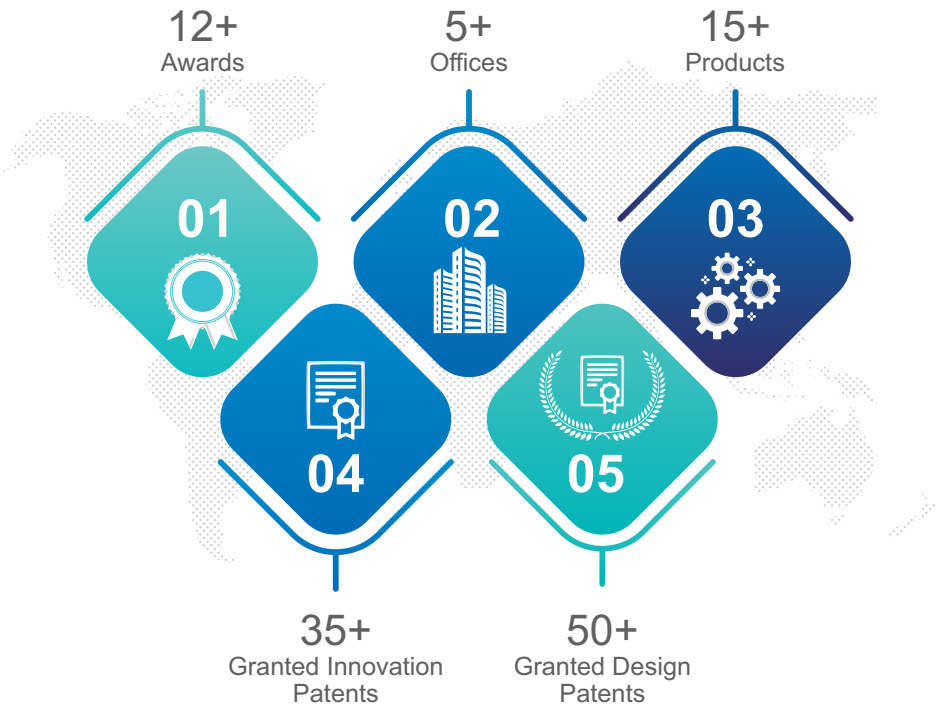
From MD's desk

The crucial interplay among water, food and energy is the most formidable challenges we face as the world's sustainable future. The alarming crisis and scarcity of clean water at this juncture needs a key attention for developing sustainable water recycling engineering solutions. Due to the ground water scarcity, the limited resource of freshwater has to be protected both in terms of quantity and quality. The discharge of wastewater from industries and domestic sector has done extensive damage to this precious resource. In this context, SED benchmarks for sustainable environment development on wastewater recycling by focusing on energy efficient scientific advancements.

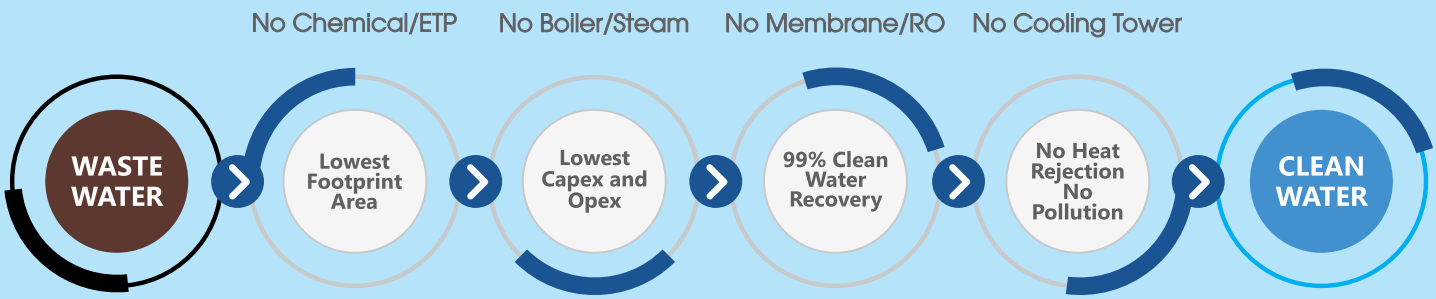
In light of all these factors, we have indigenously developed a Low Temperature Evaporation based on Mechanical Vapour Compression/ Recompression technology for recycling of wastewater operating under vacuum and with concentration on minimal electricity consumption eliminating the usage of external heating or cooling sources. We have developed this module for wide-scale applications in industrial and domestic sectors for 100% recycling of water back to the process which aims not only to accomplish Zero Liquid Discharge (ZLD) but also Zero Liquid Intake (ZLI). The footprint area required is around 10% of the conventional methodologies with reduced manpower, eliminating the use of chemicals.

Globally, we have pioneered in accomplishing energy efficient technologies for substantial reduction of energy consumption in process and allied industries for the past 25 years. We deliver customized project engineering products to our customers on stipulated time developed with our skilled team supported by strong in-house production facilities. Let us also pledge to reverse the alarming decline in water and sanitation where we should reaffirm our commitment to ending the plight of the need of the hour for the benefit of all mankind.

Vivek Verma | Managing Director



SUSTAINABILITY IS THE
NEXUS OF SOCIETY,
THE ENVIRONMENT AND
the economy



CHANGING SCENARIO OF WASTEWATER RECYCLING

Providing up to **99% clean water** recovery from wastewater **eliminating** any use of steam, chemicals, membranes, microbial treatment etc.

Spray Engineering Devices (SED) is capable of concentrating any type of effluents ranging from high TDS, COD and BOD water such as chemical industry effluents, **cooling tower blow downs/ RO rejects** to municipal wastes and delivering water of very high quality having **TDS less than 50 ppm with Zero Hardness**.

Our technology is to move any type of wastewater generating industries towards **eco-sustainability** by helping them **recycle and reuse** all the wastewater and help them achieve status of **Zero Liquid Discharge (ZLD)** thereby reducing water intake to a significant extent and reducing the burden on our natural ecosystem.

Our robust technology and low maintenance system provides a long life cycle with sustainable economic viability with electricity as the only required utility.

All units have PLC based automated operation thereby saving huge manpower costs.

Upto

99%

Water Recovery & Recycling

ADVANTAGES

- No heat generation and rejection units
- No chemical treatment in process
- No use of membrane, reverse osmosis
- No membrane disposal issue resulting elimination of the plastic by in large
- Complete process of evaporation is at "Low Temperature"
- Direct wastewater to clean water in single step
- Condensate is in purest form so no/less extraction of the ground water
- Continuous use of condensate in process ease the process parameters as well keep descale most of time the complete lines and plant & machinery
- Most effective water balance, water management solution
- High life cycle evaporator because of the stainless steel construction
- Compact and minimal footprint area
- Robust and fully automatic
- Lowest electricity demand

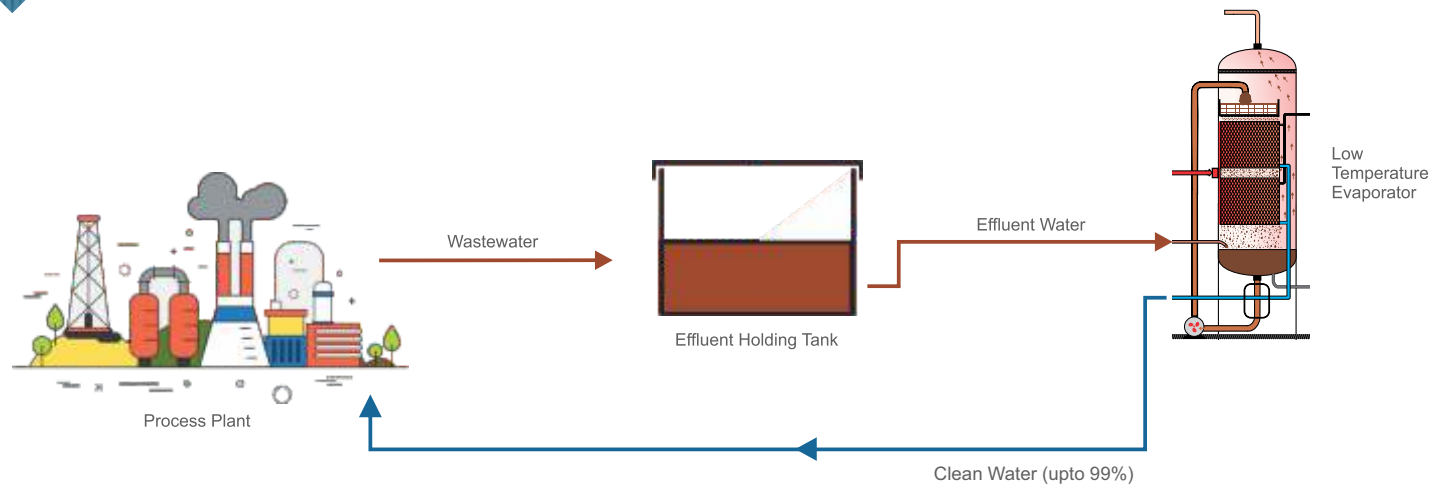
Low Temperature Evaporator Module (LTEM)®

Low Temperature Evaporator is an innovative system to recover clean water along with concentrated solution separately, by processing industrial and domestic wastewater of wide variety. It is used to concentrate various fluids by evaporating excess water upto 99% depending on Boiling Point Elevation (BPE) of fluid. All excess water is recovered as clean water or condensate separately along with concentrated fluid.

Low Temperature Evaporator is an integrated module comprising Plate Heat Exchanger, Vacuum and Mechanical Vapor Compression/Recompression.

- Mechanical Vapour Compression/ Recompression recycles steam required for evaporation eliminates continuous use of external heating source during operation.
- High pressure compressed vapors enter in the evaporator calandria, which evaporates excess water and generates low pressure vapors.
- Low pressure vapors are then compressed by Mechanical Vapour Compression/ Recompression and recycled in Low Temperature Evaporator resulting in a highly energy efficient process.

USAGE



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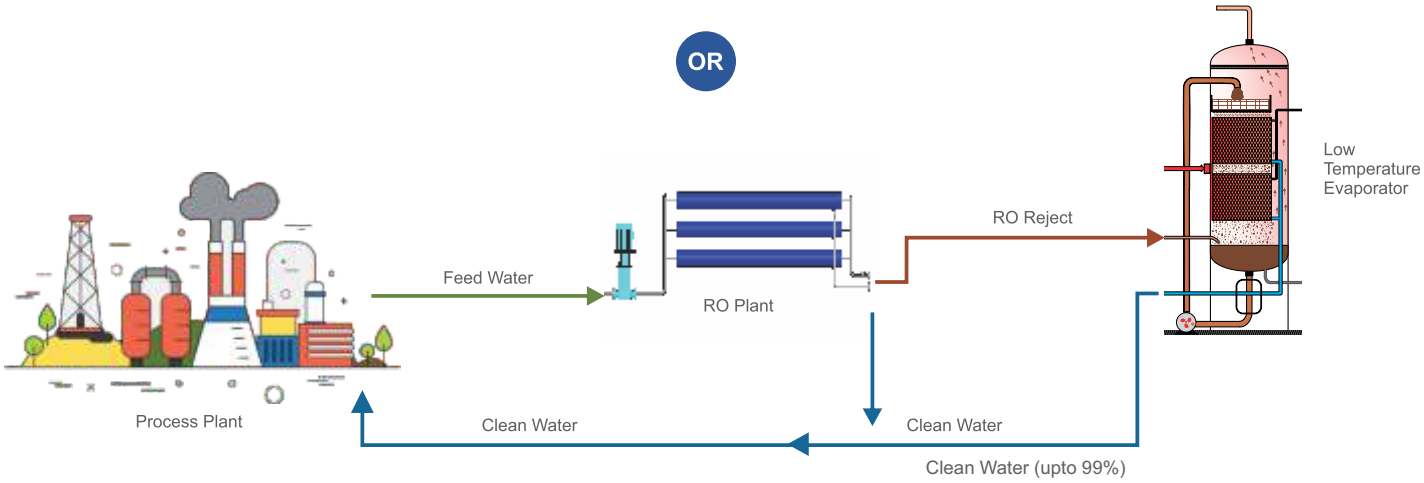

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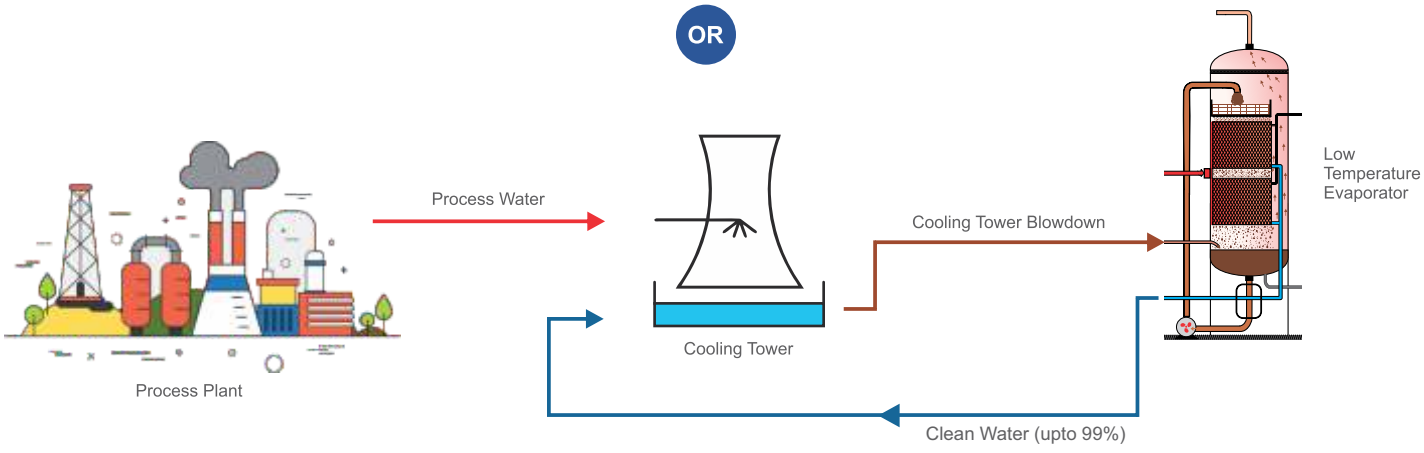
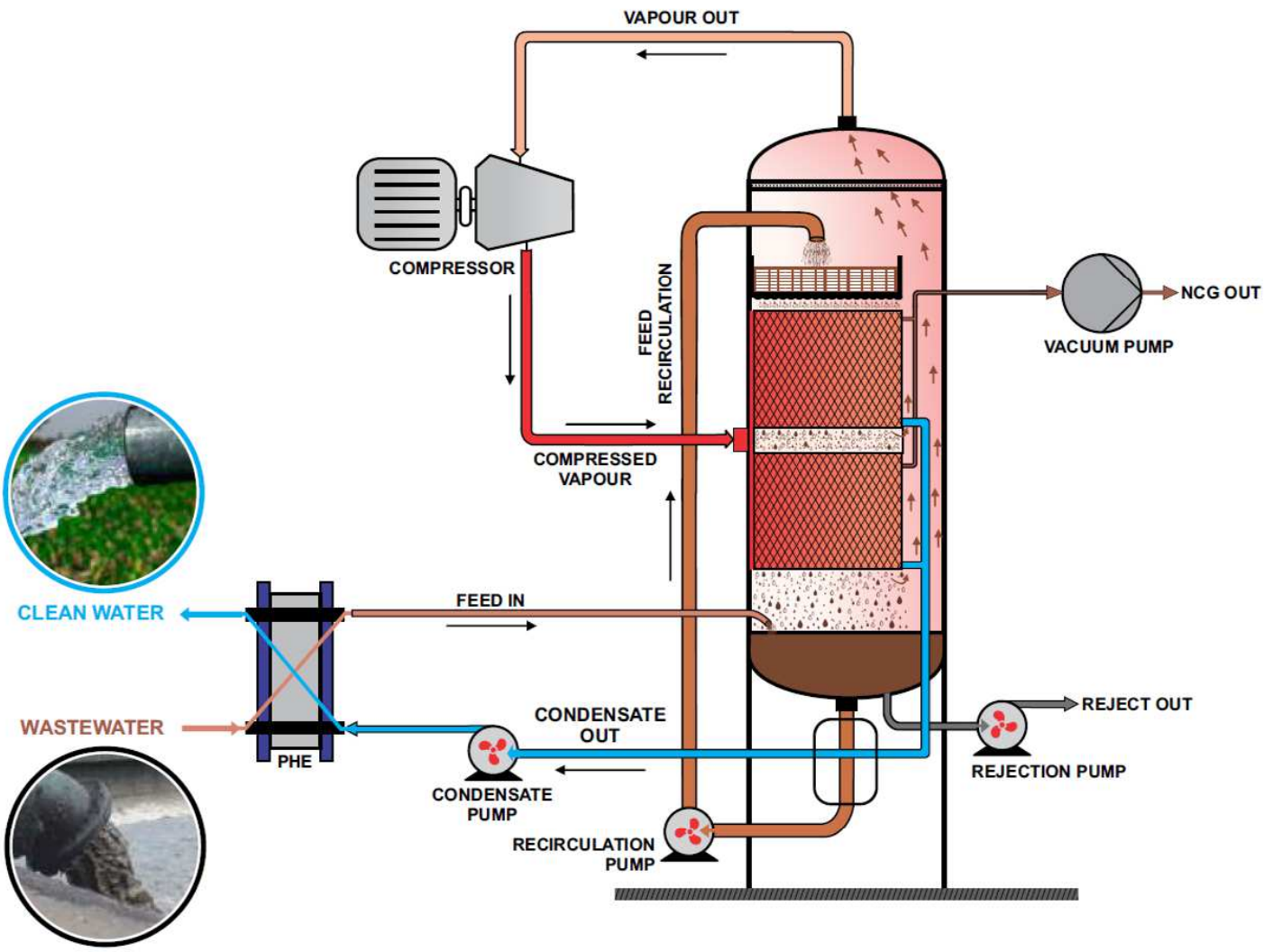
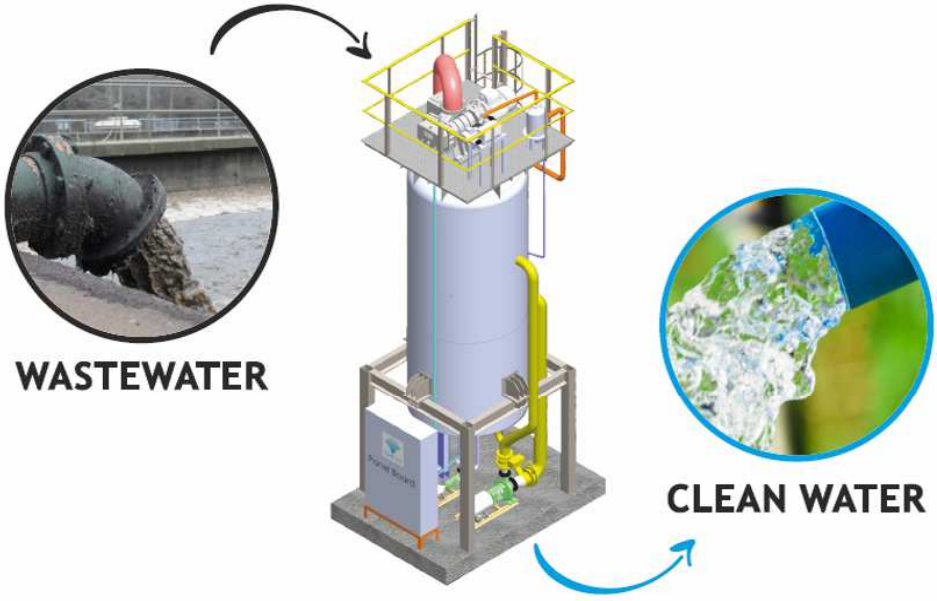


and many more applications...

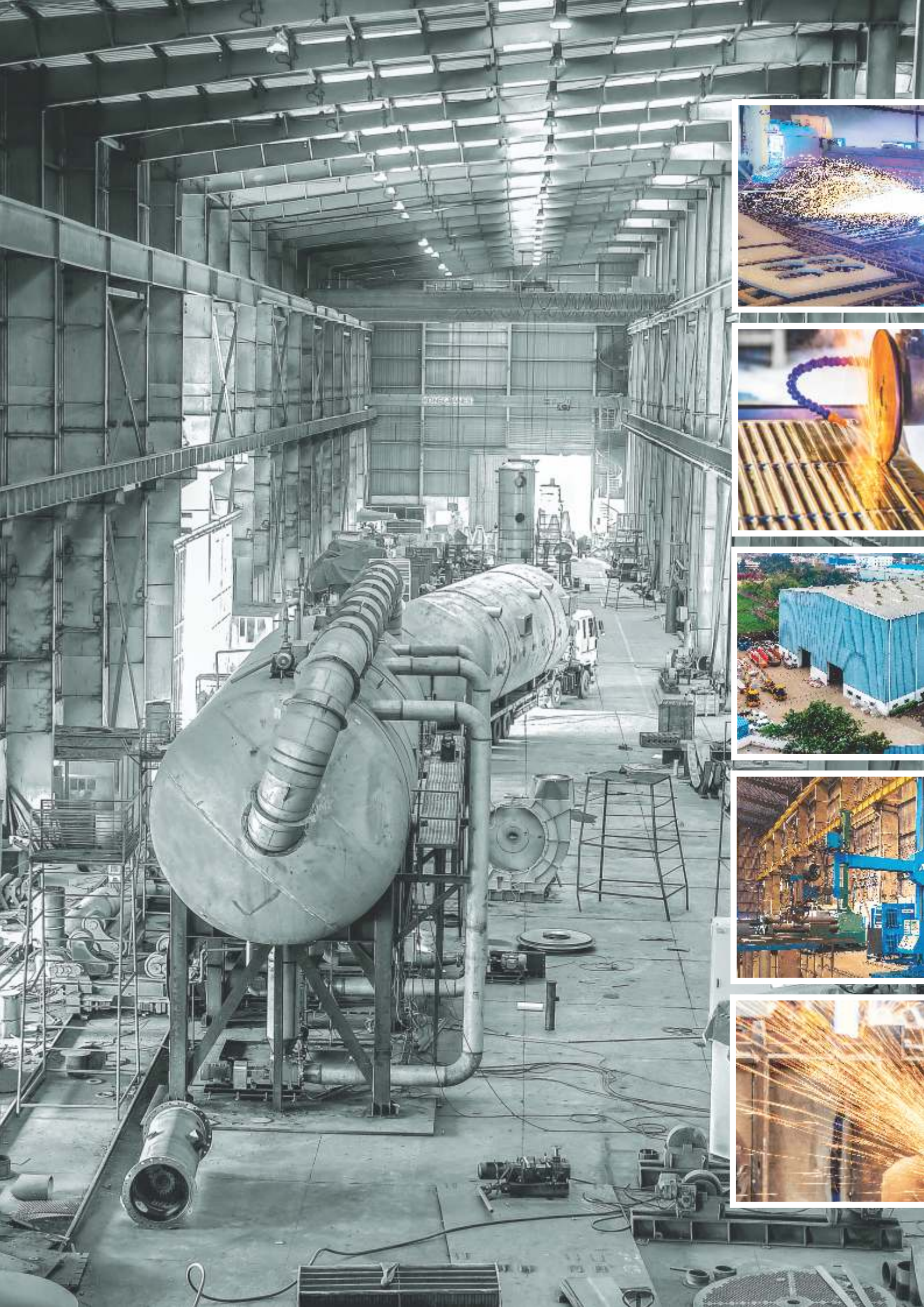
MODELS

SCHEMATIC DIAGRAM





SINGLE STEP SOLUTION



Infrastructure

Spray Engineering Devices Limited (SED) has 3 hi-tech industrial manufacturing units located at Baddi, Himachal Pradesh, India. The company boots its production, equipped with most sophisticated and modernized equipment fabricating CNC machines (CNC plasma cutting, bending, welding) and testing machines (Ultrasonic Testing Machine, Spectro Analyzer, Impact Testing Machine, Microscope with Image Analysis etc.) procured from world class manufacturers, facilitating the fabrication capability to the outmost accuracy and quality that allow SED to provide flexible and cost effective services to its customers.

SED production division is equipped with sophisticated & modernized equipment for sheet metal fabrication capacity and capability is utilized to manufacture equipment for water, jaggery, process industry (raw sugar plants, white sugar plants, sugar refineries, distilleries, food industry, energy and power, pharmaceuticals). More than 22,000 sq. yard area is reserved exclusively for production facility has proved to be the backbone of our world class infrastructure comprising:

- CNC Plasma Cutting Machines
- CNC Bending Machines
- CNC Plasma Welding
- Seamer
- Orbital TIG Welding
- Synergic MIG Welding
- MMA
- Stud

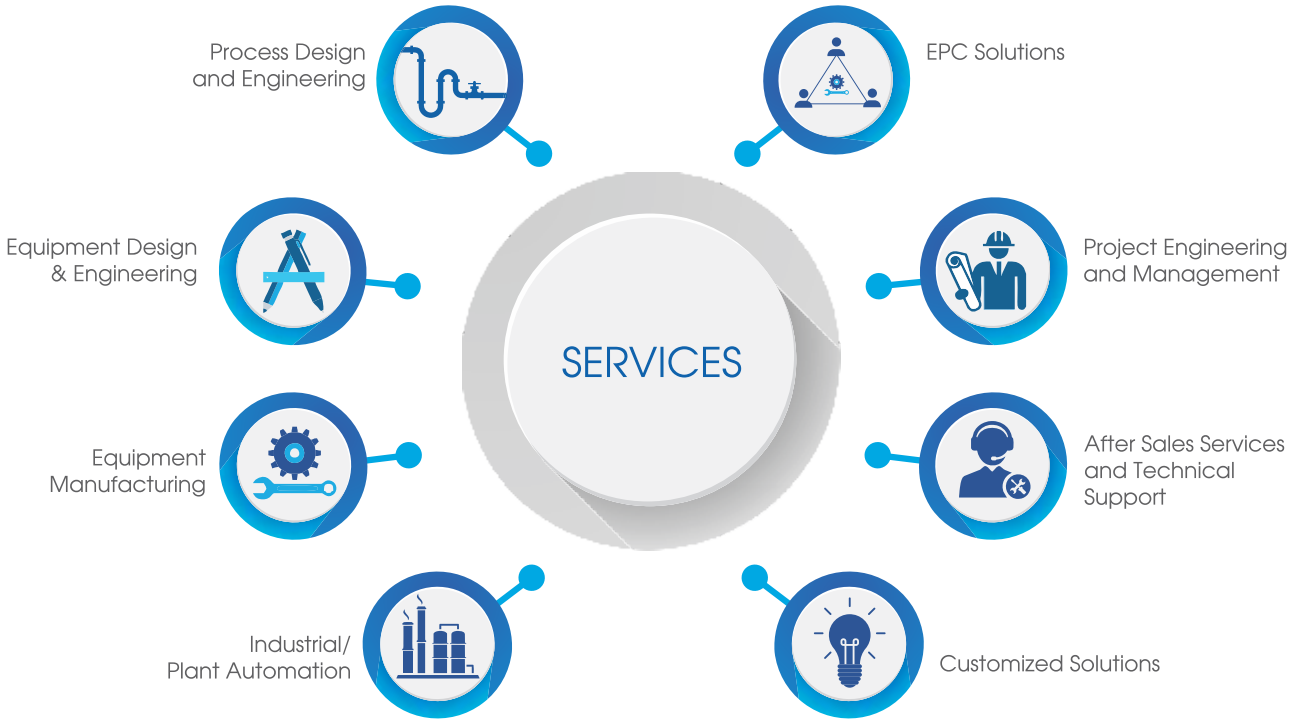
APPLICATIONS

- Textile and Dyeing Industry
- Paper and Pulp Industry
- Distilleries
- Leather/ Tannery Industry
- Food and Beverage Industry
- Cooling Tower Blow down/ RO Rejects
- Chemical/Pharma Industry
- Refineries and Power Plants
- Commercial/ Hotel & Restaurant
- Sewage

and many more...

SERVICES

SED offers high quality turnkey projects & services. We provide comprehensive solutions to our valued customers with Project Management Systems of international standards and know-how involving the plant data collection, monitoring & controlling of project using cutting edge Softwares, Project Management & Scheduling, Resource Planning, Erection & Commissioning, Preparation of Detailed Start-up and Validation Schedule, Development of Plant Automation and Controlling, Trouble Shooting, Post Analysis of the Project Parameters after Commissioning etc.



OTHER AREAS OF SPECIALIZATION

Solutions for Jaggery Industry

FEATURES OF MODERN JAGGERY UNIT

- Boiler free jaggery unit
- Zero emissions
- Zero intake water
- 100% bagasse saving
- Improved clarification technique
- Innovative evaporation by MVC technology
- High yield jaggery production
- Energy efficient modernized and cost effective
- Low capital expenditure
- Highly economical in recurring operational cost
- Compact, Portable and Robust
- Offers scope to multiply revenue centres

Solutions for Sugar Industry

MODERN SUGAR PLANT

Spray Engineering Devices Limited (SED) is pioneered in accomplishing energy efficient products and innovative technologies for substantial reduction in energy consumption in process and allied industries. SED is focused on (re)designing and engineering of processes, equipment design manufacturing along with their complete automation ensuring highest energy efficiencies and integrated cost-effective solutions. The steam consumption of sugar industry has been achieved up to 25-26% on cane using SED's innovative technologies, equipment and solutions. The power (40 kW/Ton) consumption has been reduced upto 22-24 kW/Ton of cane and factory has been managed to operate with Zero Fresh Water requirement.

Our expertise:

- Turkey plant installation for sugar & sugar refinery
- Boiling house equipment design, engineering, manufacturer and supplier
- Specialized in Evaporation, Crystallization, Sugar Refining, Cooling & Condensing System
- Modern process house layout design with 60-70% less civil work and 40% less footprint area
- Lowest steam consumption and higher power generation & export
- Highest bagasse saving and higher quality & high yield production
- Compete industrial and plant automation
- Project management consultancy services
- Detailed process design and engineering
- Feasibility Study/Detailed Project Report (DPR)
- Customized solution and technical support

INNOVATIVE TECHNOLOGIES FOCUSED ON SUSTAINABILITY

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