

TECHNOFORCE™ 

Comprehensive process intensification solutions for the chemical industry

Evaporation | Short Path Distillation | Drying | Extraction
Crystallization | Zero Liquid Discharge Systems



About Technoforce

Technoforce was started in 1990 to manufacture distillation and drying equipment based on Thin Film Technology. Other technologies like Extraction, Crystallization and Zero Liquid Discharge plants for industrial wastewater were added in later years.

27
Years of
Experience

06
Technology
Areas

12
Products

1000 +
Successful
Projects



About 140 people are working in India and Europe in R&D, pilot plant testing, design and manufacturing.

Through in-house investments and cooperation with universities, Technoforce has developed synergistically relevant technologies. Thus, the customers can avail several process steps from a single source.

Having modern manufacturing facilities with robots and CNC machines in India and pilot plant facilities in India and the Netherlands, Technoforce has uniquely positioned itself to provide competitive solutions. We work very closely with the customers to assist in feasibility studies and tests in the pilot plants for process optimization.

With an experience of more than 1000 installations and 3000 pilot plant tests, Technoforce has a proven capability to supply plants with attractive payback periods.



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Technoforce gives excellent value added services by way of process optimization through pilot plant trials.

Mr. Prasad, Vice Chairman & CEO,
Dr. Reddy's Laboratories, India

Pilot Plant Setups

The following setups are available for trials in the test centres



Evaporation

- Agitated Thin Film Evaporator (ATFE)
- Falling Film Evaporator (FFE)
- Rising Film Evaporator (RFE)
- Suppressed Boiling Evaporator (SBE)



Short Path Distillation

- Short Path Distillation Unit (SPDU)



Drying

- Agitated Thin Film Dryer (ATFD)



Extraction

- Asymmetric Rotating Disc Column Extractor (ARDC)
- Centrifugal Extractor (CE)
- Sieve Tray Column Extractor (STC)



Crystallization

- Technoforce Plug Flow Crystallizer (TPFC)



Zero Liquid Discharge Systems

- Multiple Effect Evaporator (MEE)
- Sludge Dryer (SD)

Performance guarantees of commercial scale plants are backed by trials taken in the Pilot Plants in Nashik, India or in Geleen, The Netherlands.

Utilities

- Thermic Fluid heating up to 300°C
- Steam up to 10 bar pressure
- Hot water
- Cooling water
- Chilled water
- Brine, -20°C
- Vacuum down to 0.001 mbar

Analytical Laboratory

Apart from wet chemistry and gravimetric methods, GC and HPLC are available to test the samples during the trials for their fine tuning.

Design and Manufacturing

Technoforce has a 15000 sq.m of integrated manufacturing facility in Nashik, India.

The rotary equipment like Thin Film Evaporators, Thin Film Dryers or Short Path Distillation Units can be made up to 50 sq.m in size.

The materials of construction can be Stainless Steel, Duplex Steel, Alloy 20, Hastelloys and Titanium. The shops use industrial robots and CNC machines.

The supply can be in the form of modular skid mounted plants, dressed up with piping, pumps and instrumentation. The skid is subjected to Factory Acceptance Tests (FAT) in the presence of the customer. Since the modules arrive at the customer's site fully assembled and tested, months are saved from the project schedules.

The equipment and skid shops deliver plants under certifications of ASME U- Stamp, European PED and EN 1090-2 (CE Mark). Our plants and components fulfill also the requirements of the European Guidelines like Machinery Directive, ATEX etc.

We use Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) software for simulations.

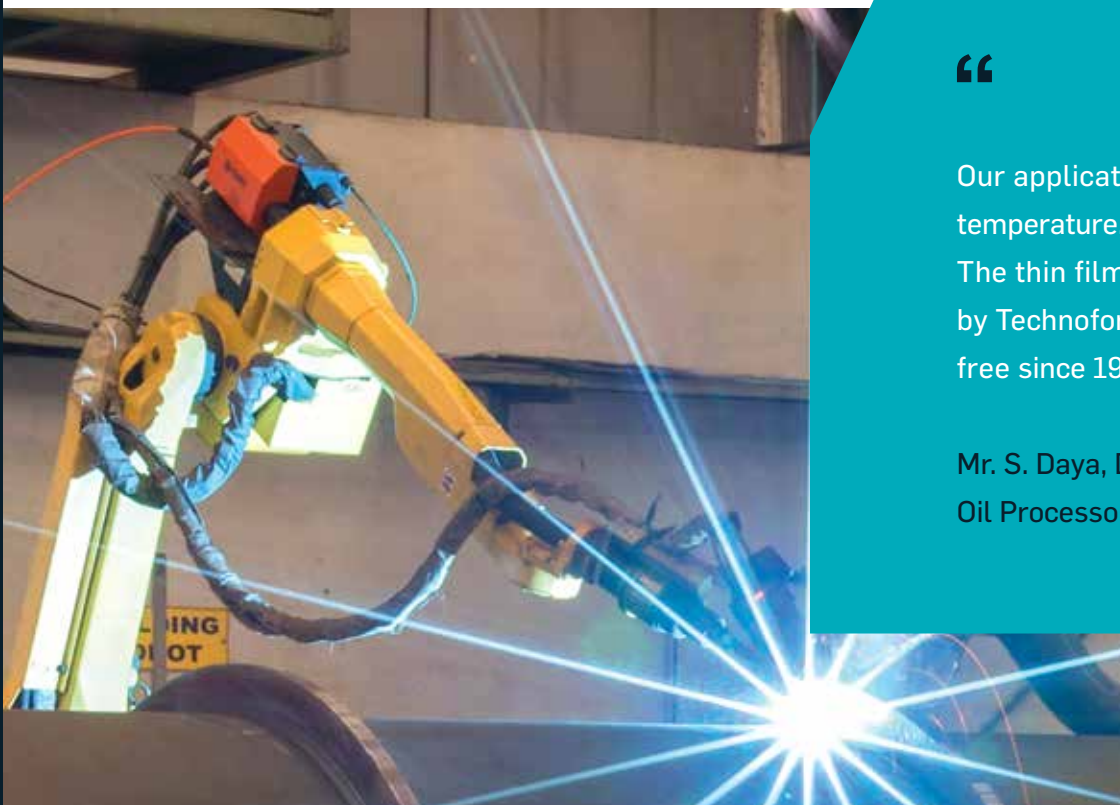
The softwares help in simulating complex design situations and analyzing problems that involve stresses due to loads and temperatures, fluid flow with heat and mass transfer.

3D modelling of skids enables the customers to visualize the installation before the construction has started. Pipe stress analysis ensures robust piping design.

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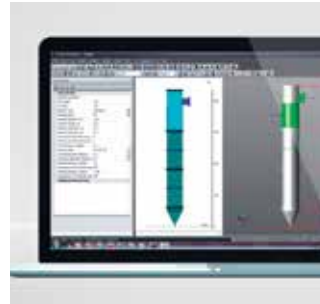
Our application involves extreme temperature, vacuum and viscosity. The thin film evaporator supplied by Technoforce has worked trouble free since 1987.

Mr. S. Daya, Director,
Oil Processors Pvt. Ltd., India



Project Management

We work closely with customers at every stage. Project management tool ProjectTrackTFS simplifies communications during project execution.



Lab Study

Pilot Plant Trials

Process and
Mechanical Design

Project Execution

Turnkey solutions from a single source simplify project management for the customer. The results are tight control on costs and delivery times.



Equipment
Manufacturing

Skid Mounted Systems

Erection and
Commissioning

After Sales Service

Applications

Pharmaceuticals, Food, Spice Extracts, Vitamins, Paints, Dyes, Pigments, Agrochemicals, Petroleum, Resins, Polymers, Fine Chemicals, General Chemicals



Evaporation & High Vacuum distillation

- Concentration & stripping of enzymes, plant extracts, silicone oils, pesticides, polymer melts
- Distillation of bulk drugs, natural or synthetic vitamins, esters, fish oil, omega-3 fatty acids, tocopherol, tocotrienols, waxes, spent lube oil

Drying

- Pharmaceuticals, bulk drugs, intermediates, food products
- Recovery of solvents, DMSO from salts, Glycerin from salts

Extraction

- Extraction of APIs, fermentation streams, general chemicals
- Reactive extraction

Crystallization

- APIs and intermediates with close CSD
- Fine chemicals
- Inorganic & organic compounds

Zero Liquid Discharge Systems

- Concentration of effluent water having high TDS
- Drying of sludge for obtaining easy to dispose off solids
- Treatment of large quantity of waste water with steam economy

www.technoforce.net

Works & Pilot Plant, India

Technoforce Solutions (I) Pvt. Ltd.
D-33-35, MIDC Area Ambad,
Nashik 422 010, Maharashtra, India
+91 (0)253 238 3668
sales@technoforce.net

Pilot Plant, Europe

Technoforce Solutions BV
Brightlands Chemelot Campus (Gate 2)
Urmonderbaan 22, 6167 RD, Geleen,
The Netherlands
+31 (0)467 02 2810
ppeu@technoforce.net

Sales Office, India

Technoforce Solutions (I) Pvt. Ltd.
1107, Universal Majestic, P. L. Lokhande Marg
Ghatkopar Mankhurd Link Road, Govandi (West)
Mumbai 400 043, Maharashtra, India
+91 (0)22 2555 0116 / 0117
sales@technoforce.net

Technical Sales Office, Germany

Technoforce Solutions GmbH
Frohsinnstrasse 6, 63739 Aschaffenburg, Germany
T +49 (0)172 8794402
techsales.de@technoforce.net

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