



NTHARCH
TECH COMPANY

ENGINEERING & TECHNOLOGIES (IR 4.0) FOR MODERN INDUSTRIES

Corporate Brochure

Plant Engineering · Process Automation · Applied AI

We architect industrial process plants and the digital systems that run them — designed, built, automated and supported by one accountable engineering team.

Turnkey Process Plants, Project Engineering

Automation & Industry 4.0

Plant Engineering as a Service

Engineering of the physical and the digital world.

NTHARCH designs, builds and automates process plants — and connects them to the data platforms that increasingly run them. One team carries a project across its whole arc: process concept, detailed engineering, equipment manufacture, control systems, installation, commissioning and lifecycle support.

Fewer moving parts, less energy per unit of output, hygienic & safety-first design that survives a real cleaning cycle, and control logic an operator can read without a manual. Every line we build is automation-ready by default, because retrofitting intelligence later always costs more than designing for it.

06

Practice areas under one roof

20+

Process industries served

24/7

Monitoring and support

01

Accountable delivery partner

WHAT THAT MEANS IN PRACTICE



Single-point delivery

Process, utilities, fabrication, electrical and automation are scoped, engineered and guaranteed together — not stitched across four vendors.



Performance in writing

Throughput, thermal duty, yield and CIP recovery are committed as numbers in the contract and proven at site acceptance.



Data-ready from day one

Instrumentation, tag naming and network design assume the plant will be measured, modelled and eventually optimised by software.



Wherever a liquid, a powder or a paste has to be processed.

One set of physics governs every product in the pipe. Our team takes care of everything.

FOOD, DAIRY AND CONSUMER

 Dairy & Nutrition Liquid milk, fermented, cheese, aseptic, fat products	 Food & Beverage RTE, sauces, syrup rooms, CSD, juices, plant protein	 Fruits & Vegetables Purée, IQF, fresh-cut, concentrate	 Feed Processing Cattle, poultry and aqua feed lines	 Home & Personal Care Shampoo, lotions, liquid soap, colour
				

ENERGY, COOLING AND UTILITIES

 Refrigeration & Cold Chain Cold stores, HVAC, process cooling	 Renewable Energy Solar thermal, biogas and bio-CNG	 Power Balance of plant, water and cooling	 Oil & Gas Process skids, piping and packages	 Water & Environment Process water, reuse, effluent at source
				

ALLIED AND HEAVY PROCESS INDUSTRIES

 Pharma, Biotech, Life Sciences Nutraceuticals, oral liquids, GMP utilities	 Chemicals Reactors, blending and transfer systems	 Metals Utilities, cooling and plant automation	 Cement & Minerals Process automation and utility design	 Heavy Industries EPC, project engineering and construction
				

Buy the outcome, not just the equipment.

PEaaS is how we package plant engineering so that you carry less risk and less overhead. You define the product, the capacity and the quality target — we take responsibility for everything between the intake valve and the packed pallet.



Turnkey delivery

A single contract from concept to performance guarantee. We engineer the process, manufacture and buy out the equipment, run the electrical and automation scope, install, commission and hand over a qualified line.

BEST FOR GREENFIELD PLANTS AND NEW PRODUCT LINES



Modernisation & retrofit

Existing plant, more output. We audit what you run today, isolate the true bottleneck and upgrade in planned windows — new skids, added automation levels, or migration from manual to recipe-driven operation.

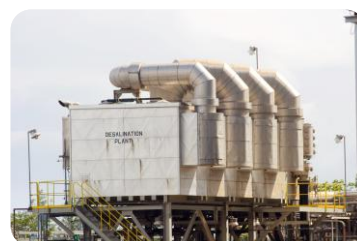
BEST FOR BROWNFIELD CAPACITY AND QUALITY GAINS



Embedded engineering

A named NTHARCH team retained alongside yours for process, utility and automation work — drawings, sizing, vendor review, commissioning support — without you carrying the headcount.

BEST FOR CONTINUOUS CAPEX AND IMPROVEMENT PROGRAMMES



Four engineering layers, engineered together.

A process line only performs as well as its weakest layer. We scope all four in the same model, so the pump curve, the steam header and the control loop are designed against each other rather than in sequence.

01

Design & Process engineering

- Product and process definition
- Mass and energy balance
- Thermal and hydraulic sizing
- Hygienic and CIP-able design
- Line simulation and debottlenecking

02

Equipment & fabrication

- Skid-mounted process modules
- Tanks, vessels and heat transfer
- Stainless piping and valve matrices
- Material traceability and finishes
- Pre-tested assemblies from our works

03

Utilities & balance of plant

- Steam, condensate and hot water
- Chilled water, glycol and refrigeration
- Compressed air and vacuum
- CIP distribution and recovery
- Electrical distribution and MCC

04

Automation & digital

- PLC, HMI and SCADA development
- ISA-88 recipe and batch control
- MES, historian and OEE integration
- Cloud pipelines and dashboards
- Predictive and AI-assisted operations

Included in every engagement

Process design & mass balance

P&ID, GA and layout drawings

Functional design specification

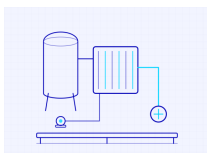
Factory acceptance testing

Site installation supervision

Commissioning & operator training

As-built documentation set

Performance verification



Dairy processing, end to end. Every product a dairy makes.

Complete lines for treating raw milk and for processing, filling and packing the full range of products made from it — designed to hold nutritional quality while meeting the strictest safety requirement on the site.

Liquid milk processing

Reception and chilling, clarification, standardisation to fat and SNF targets, homogenisation, pasteurisation, storage and pouch or bottle filling.

UHT & aseptic

Continuous sterilisation, aseptic buffer storage and aseptic filling for white milk, flavoured milk, drinking yoghurt and cream.

Fermented products

Curd and dahi, lassi and buttermilk, set and stirred yoghurt, Greek yoghurt — batch or continuous, sized to your capacity and local taste norms.

Cream, butter & ghee

Cream separation and processing, white butter making with investment-friendly options, and ghee lines built for high yield and low loss.

Cheese & paneer

Vats, presses, moulding and brining in hygienic-grade stainless with cleanable design and tight temperature control through the make.

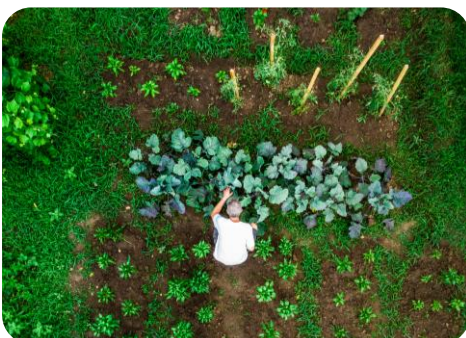
Ice cream & frozen desserts

Mix processing for ice cream, frozen dessert, kulfi, water ice and natural ice cream — automation level balanced against the capex you want to carry.



Fruits, vegetables and beverages.

Complete lines from the wash deck to the aseptic filler — engineered to keep colour, flavour and nutritional value intact while cutting the water and energy the traditional process wastes.



01 Fruit purée

Cold extraction lines that protect fresh aroma through to concentrate

02 Juices, clear & cloudy

Mango, orange, apple, guava, cherry, pomegranate and citrus, gently treated and temperature controlled

03 Jams & marmalades

Kettle to filler, clear or chunky, from fresh fruit or from concentrate

04 Beverage lines

CSD and still drinks, sugar syrup rooms, blending, pectin and ingredient dosing

05 Evaporation

Falling and rising film, forced circulation, single and multi-effect, with TVR or MVR

06 Aseptic processing

Sterilisation and aseptic filling, including mono and mobile-head fillers

07 Tomato processing

Paste, sauce, juice, peeled and diced — hot and cold break extraction

08 Ketchup, sauces & pastes

Tomato, chillies, ginger, garlic, onion - Vacuum process vessels, high shear mixing, degassing and hot filling

09 Freezing & IQF

Spiral freezers and hardening tunnels, custom built to product and floor space

10 Fresh-cut & leafy

Cleaning, cutting, portioning and packing with low-stress, low-heat handling

11 Candying plants

Traditional and vacuum candying with syrup preparation, filtration and dosing

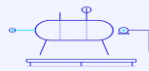
12 Baby food

Homogenising and pasteurising lines that hold nutritional value and colour



Process equipment, modules, pre-tested and skid-mounted.

We build in modules because a skid that is assembled, wired and water-tested in our works arrives at site as a known quantity. Less site work, shorter shutdowns, fewer surprises.



Reception module

De-aeration and complete tanker emptying with accurate metering, so what you are billed for is what actually entered the silo.

MILK RECEPTION · BULK LIQUID INTAKE



Pasteuriser

Plate or tubular units with balance tank, hot water set, holding coil and automatic flow diversion — regeneration typically above 90%.

MILK · CURD · ICE CREAM MIX · CREAM · JUICES



Separator skids

Modular units assembled and tested in our works, configured for clarification, cream separation, bactofugation or whey recovery duty.

CLARIFICATION · STANDARDISATION · BACTOFUGATION



Homogeniser

Two-stage compression that drives fat globules down to a size which resists creaming for the full declared shelf life.

MILK · CREAM · ICE CREAM MIX · PLANT-BASED DRINKS · DRESSINGS

Process equipment, modules, pre-tested and skid-mounted.

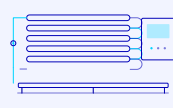
The unglamorous middle of a process line is where yield is quietly won or lost. These are the modules we build most often, and the ones we keep refining.



Evaporators

Falling and rising film, forced circulation, single to five-effect, with thermal or mechanical vapour recompression where the energy case supports it.

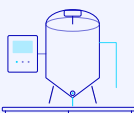
MILK & WHEY • JUICE CONCENTRATE • SENSITIVE LIQUIDS



UHT steriliser/Aseptic systems

Tubular and plate configurations with holding tube design matched to the product, high thermal regeneration and aseptic downstream connection.

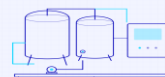
WHITE & FLAVOURED MILK • JUICES • CREAM • LASSI • SHAKES • SOYA



Aseptic storage tank

Sterile-air-guarded buffer storage that decouples the steriliser from the filler, so a packaging stoppage does not cost you a full batch.

UHT MILK • CREAM • FLAVOURED MILK • BUTTERMILK • JUICES



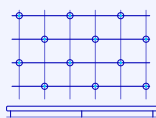
Clean-in-place unit

Single, two or three-tank CIP with heat recovery, conductivity-driven recovery of final rinse, and programmes written per circuit rather than per plant.

DAIRY • BEVERAGE • FOOD • PERSONAL CARE • LIFE SCIENCES

Process equipment, modules, pre-tested and skid-mounted.

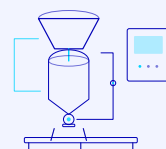
From the tanker bay to the packed case, each module is designed to be cleaned in place, instrumented for data, and serviced without dismantling half the line.



Valve clusters & matrices

Mix-proof and butterfly valve matrices that route product without cross-contamination and let one CIP set serve several circuits.

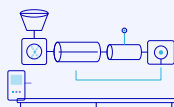
PRODUCT ROUTING · CIP DISTRIBUTION · TANK FARMS



Powder mixing systems

High-shear induction and dissolving for powders that fight back, with vacuum or venturi feed and full recirculation control.

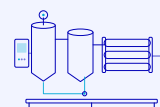
ICE CREAM MIX · SUGAR · SMP · COCOA · PECTIN · XANTHAN · STARCH



Feed process systems

Batching, grinding, mixing and steam conditioning through to pelleting and cooling, with one control system across the whole mill.

CATTLE FEED · POULTRY FEED · AQUA FEED · PET FOOD · MINERAL MIXTURES



Critical process systems

Critical Fluid Extraction, Freeze Drying and Lyophilization, Solvent Extraction, High Pressure Processing, Cold Pasteurization, Membrane Filtration etc.

BOTANICAL EXTRACTS · NUTRACEUTICALS · INSTANT COFFEE · AROMA RECOVERY · COLD-PRESSED JUICE

The function description is the plant.

Long before a line is wired, its behaviour has to be written down: every state, interlock, phase and alarm, in language that a process engineer and a programmer both accept. That document is the hardest part of automation and the part we refuse to outsource.



Platforms

Rockwell, Siemens and Schneider — we develop on whatever standard your maintenance team already supports.

Standards

ISA-88 batch and recipe structure, ISA-95 alignment for MES and ERP integration, and consistent tag naming across the site.

Scope

Control philosophy, functional design specification, PLC and HMI code, SCADA screens, panel design, loop checks and software FAT.

What good automation gives you



Repeatable batches

Recipe-driven operation removes the variance between your best operator and your newest one.



Shorter changeovers

Sequenced CIP and route changes cut the dead time between products, which is usually the cheapest capacity you will ever buy.



Traceability

Every batch, temperature hold and diversion logged and retrievable — for your auditor and for your own root-cause work.



Remote access

Secure remote diagnostics let our engineers see the fault before anyone is dispatched, which cuts breakdown time sharply.



Data foundations

Historian and cloud pipelines set up during commissioning, so analytics later needs no re-instrumentation.

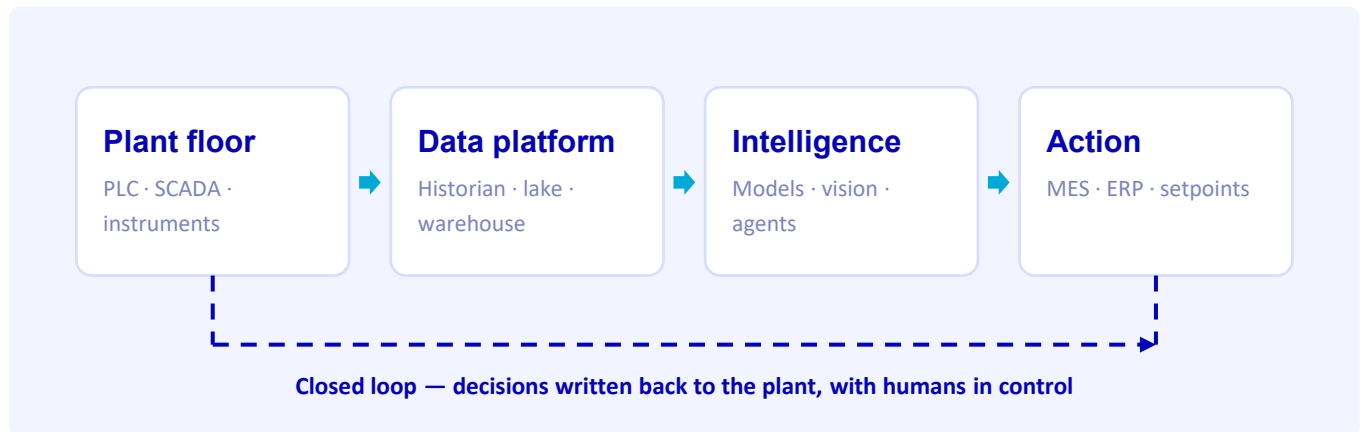


OEE that is believed

Downtime reasons captured at source rather than reconstructed from memory at the end of a shift.

AI is where digital meets the plant floor.

Most engineering firms stop at the control panel, and most technology firms never get past the office network. We work at the junction — where the data a line already produces is turned into decisions that go back to the plant.



Predictive maintenance

Vibration, current draw, valve stroke counts and CIP conductivity trends flag the pump that will fail next month — not the one that failed last night.



Yield & energy models

Where the standardisation giveaway, the thermal loss and the rework actually sit, quantified per shift and per SKU instead of per quarter.



Vision-based quality

Fill level, seal integrity, label placement and foreign body checks running at line speed, with the reject reason logged automatically.



Operational agents

Shift reports, deviation summaries and maintenance work orders drafted from plant data, ready for a human to approve rather than to write.

Humans stay in the loop

Autonomy is earned in stages. Models advise before they act, actions stay bounded by the interlocks that protect the plant today, and every automated decision is logged, explainable and reversible by the person on shift.

Sustainability - Less energy, less water, lower cost.

Sustainability in process engineering is not a slogan on the last page of a brochure — it is regeneration percentage, recovered condensate, reused final rinse and correctly sized motors. Every one of those is also a line on your operating cost.



Recover

High thermal regeneration on pasteurisers and sterilisers, condensate return, flash steam recovery, and TVR or MVR on evaporation duty where the payback stands up.



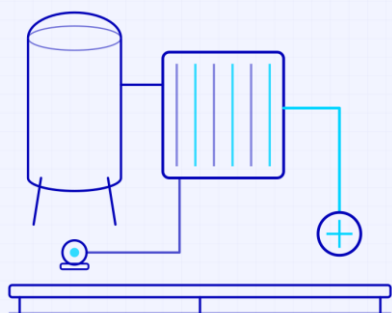
Reuse

Final rinse recovered as the next pre-rinse, counter-current washing on fresh produce lines, and CIP programmes tuned per circuit instead of one worst-case recipe for the whole plant.



Reduce

Variable speed drives on the loads that vary, right-sized pumps rather than throttled ones, insulation specified properly, and cooling demand cut at source before more chiller is bought.



Designed for the meter, not the brochure

We size utilities against the real load profile of your line — including the start-up peak, the CIP window and the idle hours that quietly consume a third of a plant's annual energy bill. Where a client wants it, we instrument the utility side as carefully as the process side, so savings can be proven rather than claimed.

Thermal regeneration

Specified and verified at SAT

Water per litre of product

Measured, targeted, reported

Energy per unit output

Trended from commissioning day

Built to be inspected.

Hygienic design decisions are invisible when they are right and catastrophic when they are wrong. We design to recognised practice, buy materials with paperwork behind them, and hand over a documentation set that survives an audit without archaeology.



Design & hygiene practice

- EHEDG-aligned hygienic design
- 3-A sanitary principles for dairy contact
- FSSAI requirements for food contact
- GMP and GAMP 5 expectations for life sciences
- Drainability, dead-leg and surface finish rules applied at drawing stage



Materials & traceability

- SS 316L product contact, 304 framework
- Mill certificates to EN 10204 3.1
- Documented weld procedures and welder qualification
- Orbital welding with logged parameters
- Surface finish and passivation records



Testing & qualification

- Factory acceptance test to an agreed protocol
- Site acceptance and loop checks
- Water trials before product trials
- IQ, OQ and PQ support where the sector requires it
- Performance verification against contracted parameters



Documentation handed over

- PFD, P&ID and general arrangement drawings
- Functional design specification and control philosophy
- Electrical schematics and panel drawings
- Operation, cleaning and maintenance manuals
- As-built drawing set and spares list

One test we care about most

Can your maintenance engineer open the line, clean it, close it and prove it was cleaned — on a wet Tuesday night, without calling us? If the answer is no, the design is not finished, whatever the certificate says.

Complete lifecycle support.

A process line earns its return over fifteen years, not over the twelve weeks it took to build. Our service model is built around uptime, response time and the parts you will actually need at 2 a.m.



Project planning & management

Feasibility studies, capacity modelling and a detailed project report your board or bank can act on — scope, capex, utility loads, layout, phasing and payback. We then run the project against that plan.



Capital, finance & subsidy support

Capex and opex build-ups, revenue models and payback analysis in the format lenders expect. We write the technical sections funding applications turn on and stay available through appraisal.



Product development & optimisation

Trials on your line or ours take a product from bench recipe to repeatable batch. On running lines, we measure where the losses sit and tune them out: regeneration, CIP time, changeover, giveaway.



Service desk, 360 days

Raise a call from the mobile app; it generates a tagged job, assigns an engineer and confirms by message. Attendance is committed within a defined window.



Annual maintenance contracts

Scheduled maintenance for valves, pumps, seals and instruments, performance checks against the original acceptance figures, and spares recommended ahead of the season.



Remote diagnostics

A secure remote route into the automation lets our engineers inspect logic, trends and alarms immediately. Most faults are identified before anyone leaves for site.



Connected maintenance

Where equipment is connected, running hours and duty cycles are logged continuously and the maintenance schedule is built from actual use, not a generic calendar.



Training programmes

Operator and maintenance training on your own line, repeated after the first production season when the questions are sharper and the crew has changed.



Spares availability

Fast-moving spares for pumps, valves, instruments and automation held in our warehouse, with a recommended holding list issued at handover.

Plan → fund → develop → build → commission → operate → improve

Let us look at your line.

Whether it is a greenfield plant, a bottleneck you have lived with for two years, or a data pipeline that never got built — start with a conversation with our engineering team, not with a sales deck.



Scan to start a conversation

91 - 95455 12428



Engineering & Technologies (IR 4.0) for the industries of tomorrow

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ENGINEERING

Plant Engineering & Automation
Process & Utility Design
Modernisation & Retrofit
Lifecycle Services

TECHNOLOGIES – IR 4.0

Digital Transformation
Applied AI & Autonomous Ops

SECTORS

Dairy · Food · Beverage
Fruits & Vegetables
Life Sciences
Allied Process Industries

Architects of digital systems and industrial process plants — engineered end to end.