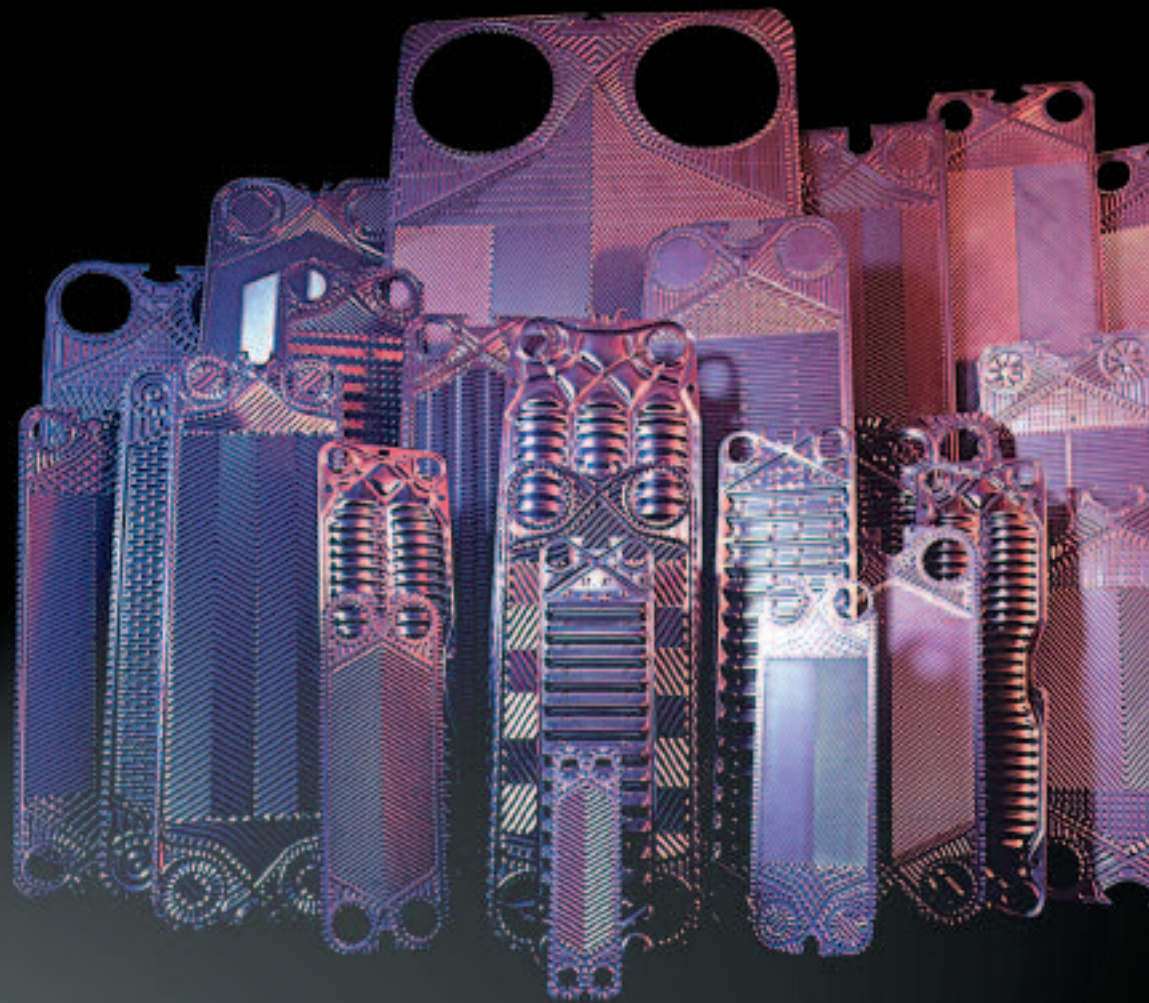


THORNHILL



the **Leading** *light in*
Plate Heat Exchanger *Services*

THORNHILL

The Company...

Thornhill Gasket Company was established in the UK in 1988 and in Australia in 1992. Since then, Thornhill has become one of the largest manufacturers of Plate Heat Exchanger Gaskets in the world with offices in over 9 countries worldwide.

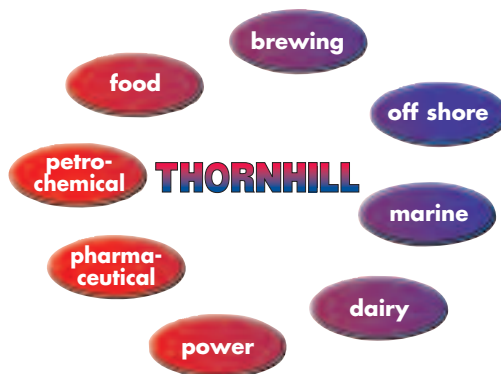
Thornhill manufactures over 300 different models including gaskets to suit most models for APV, Alfa Laval, GEA, Sondex, Fischer, Schmidt, Vicarb, Trantor and all other major Plate Heat Exchanger types.



The Range...

Thornhill's expertise is wide ranging and encompasses all industries that utilise PHE's in their unique production cycles.

This includes brewing conglomerates, food processing multi-nationals, off-shore and shipping magnates as well as process and chemical engineering companies.



The Quality...

No matter what the industry, one thing is constant

*Un-rivalled
quality is assured.*



Gaskets...

The Gaskets...

The correct choice of gasket characteristics is crucial to the effective operation of the P.H.E. Since the majority of P.H.E. gaskets are manufactured from perishable rubber polymers, they require replacing as the gasket loses the ability to seal through hardening and deterioration.

Thornhill, through a combination of experience and independent research has established the six critical factors that help determine the correct compound for each application. These 'magic properties' are:

- **Incompressibility** - The rubber compound behaves as if it were a liquid that can change shape but cannot flow, so that after being squeezed it will return to its original vulcanised shape.
- **Strength** - It is strong enough to withstand the forces normally incurred by squeezing into position and being acted upon by pressurised liquid.
- **Softness** - This is adjusted by compounding so that the rubber is strong enough for the application but still soft enough to conform closely to the metal surfaces and provides a seal without undue stresses being applied.
- **Resistance to Fluid** - The high molecular weight, cross linked polymer matrix is resistant to penetration by any fluid of a dissimilar chemical nature to itself.
- **Resistance to Temperature** - One disadvantage of the desired 'rubberiness' of the polymer material is the fact that all polymers will only behave as a rubber over a relatively short range of temperature. Thus careful selection of the compound according to the required temperature range is necessary.
- **Longevity** - Many modern synthetic polymers have a built in superiority in terms of useful lifetime over older materials, and modern additives can further enhance this property. It is in this area that the correct compound selection is of vital importance: all rubber based compounds suffer from stress relaxation, i.e. the initial sealing force slowly declines during use due to changes in the internal chemistry of the compound, and when the sealing force declines below a value depending on the application, leaks will ensue.

The Polymers...

Thornhill's high quality modern compounds provide excellent all round serviceability which meet or exceed the performance specifications demanded by the industries we serve. With our 10 different types of polymer available as standard, including NBR, EPDM, Viton, RCB and Neoprene, we can offer process solutions for any duty, for any model of Plate Heat Exchanger.



THORNHILL

You come to us...

Every Thornhill re-gasketing facility has been specifically designed to meet the exacting requirements of our clients. With the capacity to process in excess of 50,000 plates annually, there is no job too big or small and we guarantee to complete all work swiftly and to exceptional standards.

Our wide experience enables us to service any Plate Heat Exchanger and be able to guarantee all our work.



The New Design Thornhill Hydraulic Tightening Machine

Or we will come to you...



Our highly experienced and fully equipped service department is rapidly gaining the reputation of being the #1 on site service provider for the repair and maintenance of Plate Heat Exchangers industry wide.

Whether you require a gasket changeover, a visual inspection or a complete overhaul, our service department can tailor the works to suit your production schedules, therefore minimising your downtime.

Our 24/7 approach to our business gives you peace of mind that we are only ever a phone call away.

Services...

STAGE 1 **GOODS RECEIVED**

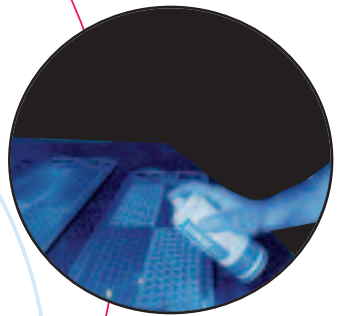
As plate packs are received they undergo a stringent checking procedure ensuring each pack is complete and cross relates to the customer specifications. They are then marked with a unique number to ensure full traceability.

STAGE 2 **PLATE CLEANING**

The old gaskets are carefully removed and are then subjected to a thorough high pressure washing and chemical cleaning programme to remove all traces of gasket and process contaminants.

STAGE 3 **INSPECTION**

Prior to re-gasketing each plate must pass a three stage inspection process encompassing visual corrosion, channel deformation and also a dye penetrant check to highlight the minute pinholes or cracks that can result from excessively corrosive applications.



extensive
capabilities
to handle all plate sizes

STAGE 4 **GASKETING**

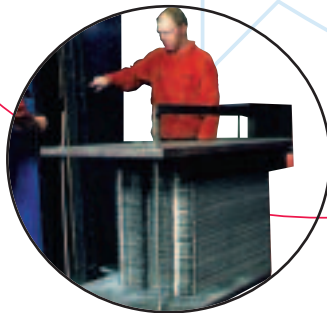
Date stamped gaskets are selected from our extensive stock and bonded to the plates. Our experienced team use strong adhesives including heat cured two-part epoxy resin cement, designed specifically for strength. A combination of quality in both team and material selection ensures superior gasket retention.

STAGE 5 **OVEN CURING**

On completion of re-gasketing, the plates are jig clamped to ensure correct alignment. The plates are then placed in the oven at the appropriate temperature to ensure maximum adhesion.

STAGE 6 **COMMISSIONING**

After final inspection, the reconditioned plates are ready to be promptly despatched to the customer, where we can provide installation and commissioning if required.



THORNHILL

Helium Plate Integrity Testing...

Thornhill carries out fault testing of heat exchangers and has brought the new generation testing method, Helium Detection System (HDS) into Australia. The Helium Detection System is an in situ test method that allows for the heat exchanger, plate or tube, to be tested while still in one piece on your factory floor. This system avoids some of the inherent problems associated with previous test methods.

One side of the heat exchanger pack is pressurized using circulating helium gas and the other side has air circulating through it, which is sampled by a special sensor for any increase in helium concentration. An increase of course indicates a passage of gas through a fault in the plates.

Advantages...

The Helium test has the following advantages: As the test uses the inert gas of helium it is non-invasive having no effect on gaskets etc. It is totally safe from a food safety aspect leaving no residue. Its accuracy is the best of all the testing methods, as being an inert gas test it doesn't have the disadvantage of charged ions, which can have difficulty passing through small holes. As the test is carried out in a dynamic way with the gas flowing between the plates, residue liquid is not an issue.

Summary...



Helium pressure testing is the fastest growing test method in Europe, Australia and the USA and can be used in all industry sectors, from food to chemical because of its inherent accuracy and safety. It is:

- Non destructive. As helium is an inert gas it has no effect on the heat exchangers or the gaskets.
- Safe in operation. Inert gases are just that, inert and safe.
- Leaves no residue contamination. Helium is safely dispersed into the atmosphere and leaves no residues.
- Capable of pinhole detection. This proven method uses helium gas, which is one of the smallest atoms and is also easily detected.
- Cost effective. The test is very competitively priced compared with other methods.

Testing...

Holding Tube Testing...

Thornhill technicians are also fully trained to perform a simple and efficient method of measuring short time pasteurization holding period, in accordance with Australian Standard 3993.1-1992; Equipment for the pasteurization of milk and other liquid dairy products.



Hydrostatic Testing...

Whether it be your Plate Heat Exchanger or your water jacket tanks, Thornhill can perform a hydrostatic test up to and in excess of 30 bar.

Calibration & Certification...

At Thornhill, we understand the requirements and the importance of accountable testing procedures. Every test performed by Thornhill is carefully monitored with the results packaged to suit your auditing requirements.

All Thornhill instrumentation and equipment is calibrated in accordance with the relevant Australian Standards.

Come and talk to us

This publication is intended to offer a broad view of the scope and level of services that Thornhill provide.

In our partnership approach to customers, we invest in technology, people and innovation, with an emphasis on achieving quality in all that we do.

The business is focussed on progressively improving products and developing new services that will help our customers' businesses run more effectively with reduced costs.

If you would like more information on how Thornhill can make your working day easier, come and talk to us.

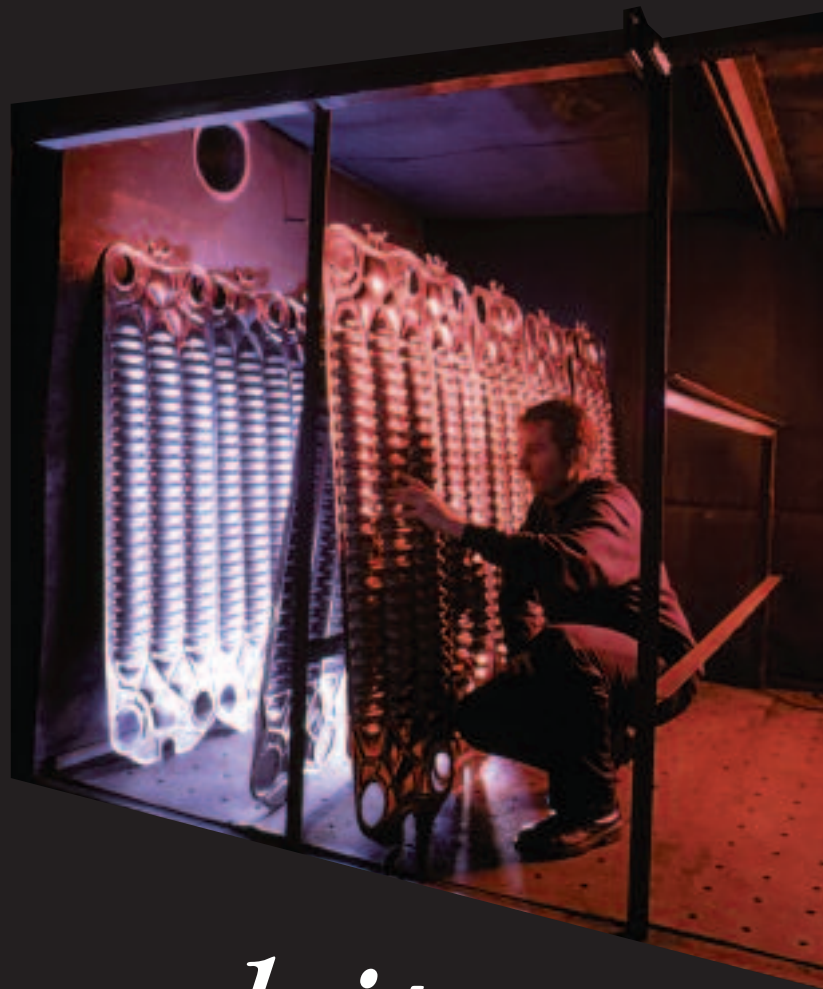
Thornhill Gasket Australasia Pty. Ltd.

40 McIntosh Street,
Airport West, VIC 3042
Ph: (+61 3) 9310 4800
Fax: (+61 3) 9310 4600
Email: thornhill@thornhillgasket.com.au

Thornhill Service W.A.

181A Welshpool Road,
Welshpool, WA 6106
Ph: (+61 8) 9451 8303
Fax: (+61 8) 9451 7311
Email: tswa@thornhillgasket.com.au

FREECALL 1800 33 13 13



We invest in our
partnership
approach to customers