



anokap 

SURFACE FINISHING TECHNOLOGY

anokap 

Suppliers of:-

PROCESS SYSTEMS

PLANT & EQUIPMENT

FIXTURES / JIGS

ANCILLARY DEVICES

CONTROL PANELS

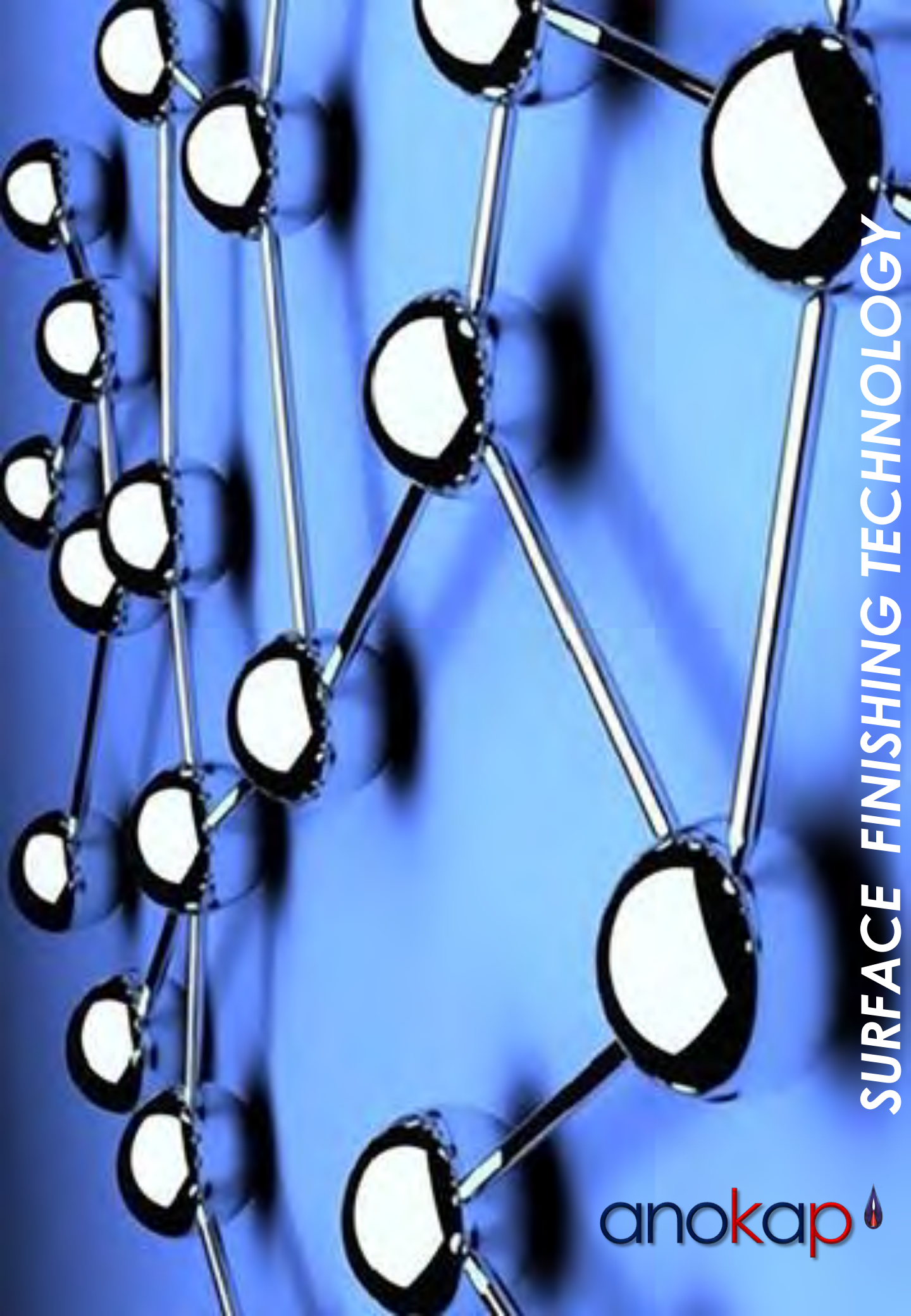
POWER SUPPLIES

CHEMICAL PRODUCTS

WELD CLEAN MACHINES

PORTABLE TEST EQUIPMENT

CONSULTANCY TRAINING & ADVICE



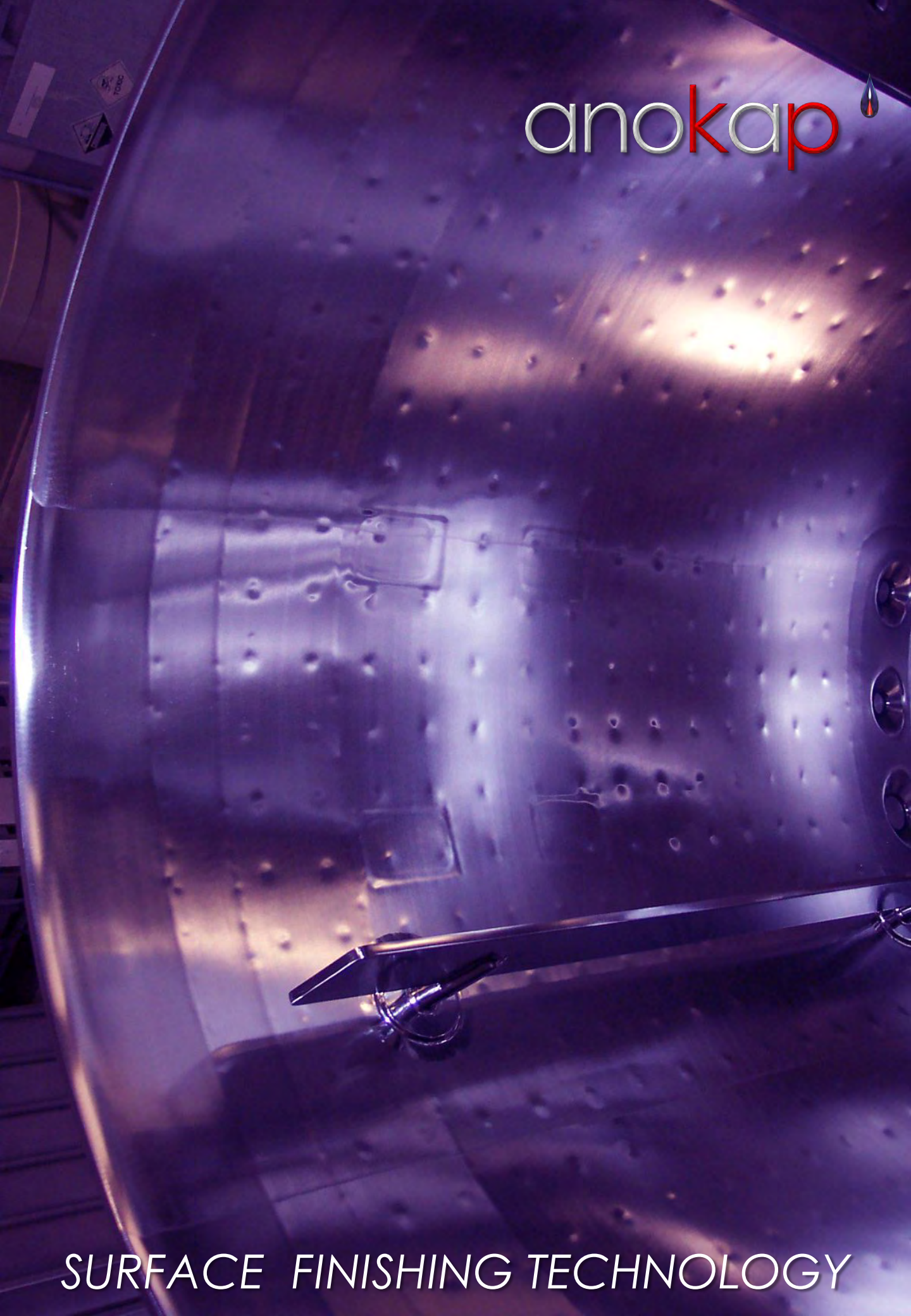
SURFACE FINISHING TECHNOLOGY

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SURFACE FINISHING TECHNOLOGY

Anokap Solutions Co. Limited

Advanced Finishing Technologies Specialising in the Surface Treatment of Stainless Steel Electropolishing, Pickling, Degreasing & Passivation, also including Anodising, Electroplating & Special Coatings our services include the supply of **Plant, Equipment, Consumables, Onsite Processing, Consultation, Training & Advice** are the basis of the key specialist services that are offered by Anokap Solutions Co. Limited since 2006 when the business was formed in Thailand. Initially operating from a small remote site in Sa Kaeo, the business moved to larger premises in Bang Saray, Sattahip in late 2011 and since strive from strength to strength.

Flexibility & Diversity

Through our partners and associates, we have been able to adapt and diversify our scope of supply to meet the requires and demands of both local industrial sectors as well and throughout Asia, Europe and even the US where we maintain our links with all. An added feature of our original site still available enables us to reroute operations in busy times, thus enabling us to still meet deliveries on time.

original site remains available for

Investment & Expansion

Recent investments, expansions and diversifications have included a new equipment and skills to undertake almost all operations within one facility.

Maintaining Standards

Anokap has never lost touch with its specialist services and the associated international standards, always maintained a highly trained local staff. Working through challenging times, the company has maintained a policy of reinvesting in both staff training staff and capital equipment, which contributes to our highly successful ongoing improvement programme.

Quality, Procedures & Documentation

Our quality procedures & documentation have always been of the highest priority at Anokap Solutions. Operating systems inline & similar to that of ISO 9001:, we have always been successful in maintaining the high standards demanded for these quality systems to operate successfully.



Table Photo boroscope microscope etc.

SCOPE OF SUPPLY & APPLICATION

PROCESS TECHNOLOGIES

- **Cleaning & Degreasing**
- **Pickling & Descaling**
- **Electropolishing**
- **Passivating & Desmuting**
- **Sanitising & Disinfecting**

INDUSTRIAL SECTORS

- **Medical**
- **Surgical**
- **Biochemical**
- **Pharmaceutical**
- **Semiconductor**
- **High Vacuum**
- **Food & Beverage**
- **Architectural**
- **Marine**



SCOPE OF SUPPLY

- **CONSULTANCY**
- **TRAINING & ADVICE**
- **PLANT & EQUIPMENT**
- **PROCESS SYSTEMS**
- **FIXTURES / JIGS**
- **ANCILLARY DEVICES**
- **CONTROL PANELS**
- **POWER SUPPLIES**
- **WELD CLEAN MACHINES**
- **PORTABLE TEST EQUIPMENT**



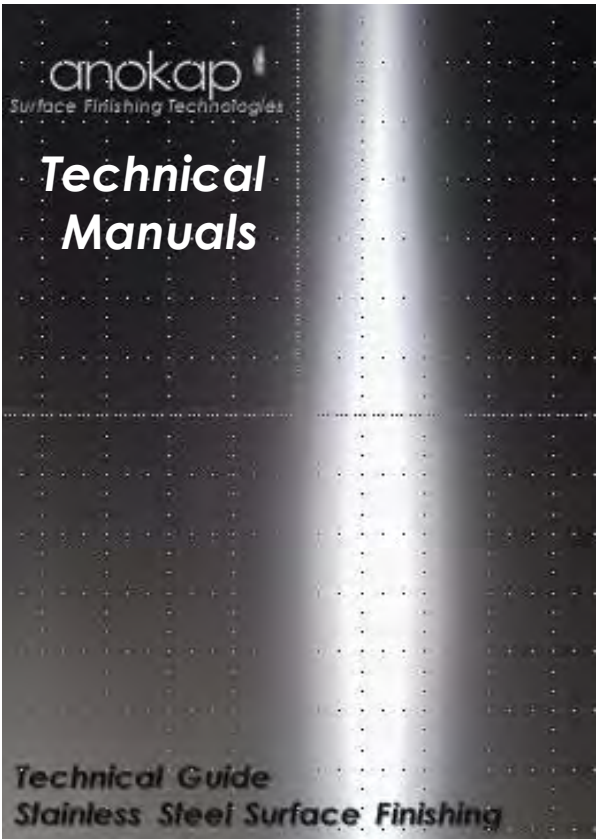
CONSULTATION, TRAINING & ADVICE



Drafting Technical Procedures



One to One or Class Room Presentations



FULL THEORETICAL & PRACTICAL SITE TRAINING & INSTRUCTION

SUPPLY CONCEPT BY UNDERSTANDING THE APPLICATION

Our philosophy is wherever possible to understand as much about the application as possible & realising the full potential of optimising processes by maximising output productivity & yield whilst minimising emissions, waste & cost,

SAMPLE TREATMENT & EVALUATION

In order to gain an appreciation of the applications requirement & specification we offer sample treatment carried out in our demo facility where by processing small samples, data can be obtained in establishing the parameter sets, methods and techniques in which ultimately the items would be processed.

Photo – Demo

Photo – Digital Images – Tubes etc.

STOCK & STANDARD SYSTEMS

We have a variety of individual tanks in stock & able to supply standard system available on short lead times. So either from an original set of sample treatment trials or just of your specification, we can have you up and running in no time at all!

BUILD QUALITY

Our methods & techniques of build derived from European standards & normal working practices that our workforce are trained to deliver.

Photo – Digital Images – T & G Grooved Tank Welding

Photo – Digital Images – Quality Material Stocks etc.

THE COMPETITIVE EDGE

We have a strong competitive edge but incorporating the use of very high quality materials with low labour & overhead costs an associated benefit of operating in Asia.

PROCESS TANK SYSTEMS

From a small single tank to a full turn key system with Full integrated automation to suit the actual requirement.



2000 LITRE
PROCESS TANK



95 LITRE
anokap[®]
PROCESS TANK



12 LITRE
PROCESS TANK
anokap[®]



50 LITRE
anokap[®]
PROCESS TANK



Fully Integrated Compact Console System

Insert Barrel Image Here



BESPOKE DESIGNED, BUILT & INSTALLED SYSTEMS



350 LITRE
PROCESS TANK
(FULLY EQUIPPED)



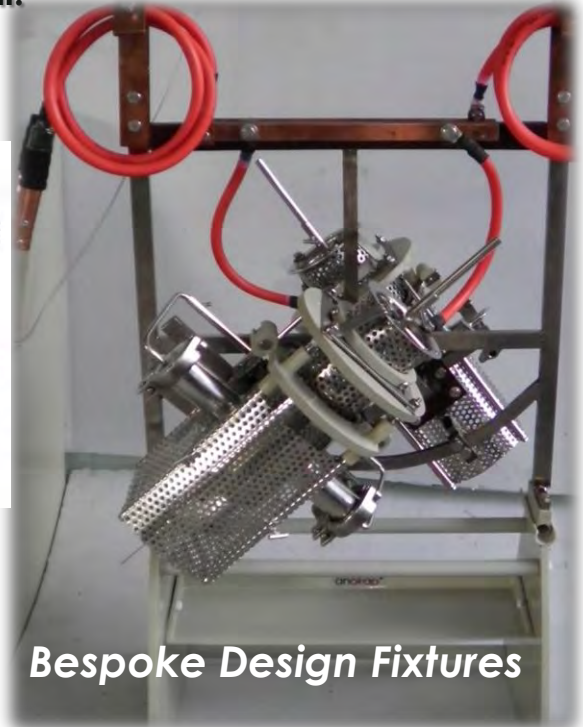
275 LITRE
PROCESS TANK
(FULLY EQUIPPED)

SYSTEM ANCILLARY DEVICES , ASSEMBLIES & SPARES

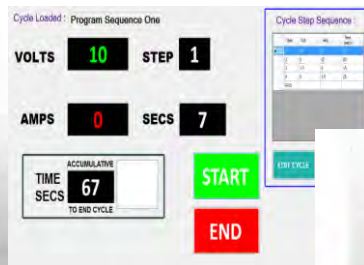
From tailored made specialist fixtures or process automation software to standard rectifiers, power supplies & ancillary device, we can compliment any system either in part or full.



Standard & Off the Shelf Fixtures



Bespoke Design Fixtures



Automation & Software Control



**TRANSFORMER RECTIFIERS
Industrial Programmable**



SINGLE PHASE POWER SUPPLIES



CONTROL PANELS



Heaters, Temp Controllers, Timers, Levels, Sensors, Pumps



WELDCLEAN & TEST EQUIPMENT



As the main agents for Nitty Gritty srl in Asia, Anokap offer their full range of:- Portable Weld Clean, Electropolish, Marking, Low Hazard Pickling & Test Equipment for Stainless Steel Surface Technology.

PORTABLE WELD CLEANING , ELECTROPOLISHING & MARKING



CLINOX pro



CLINOX eco



easy spot



easy mark

LOW HAZARD PICKLING



Wear protective antiacid gloves.



Apply PICK wipe on the weld to pick.

Wait for 15 minutes.
Remove the wipe.



Apply CLEAN WIPE to neutralize the weld.



No rising (Water saving).
No pollutant residues.
Minimum quantity of solid waste.
Environmental protection.

PASSIVATION TESTING



Passit test +



Passit test

MATERIAL TESTING



easy test

CHEMICAL PRODUCTS & CONSUMABLES

CLEANER & DEGREASERS

LOW HAZARDOUS PICKLING PRODUCTS

ELECTROPOLISHING ELECTROLYTES

DESMUTS & PASSIVATES

SANITISERS & PROTECTIVE NANO COATINGS



**Full Range of Consumables for Clinox Weld Clean, Portable
Electropolishing & Marking Machines**

Stainless Steel

Cleaning Degreasing, Pickling & Electropolishing, Passivating and Sanitising Stainless Steel form the core operations of MPE Limited. We develop, manufacture and implement process technologies to remove contamination and damage produced in fabrication and machining operations as well as enhancing and optimising surface properties. Our personnel are surrounded by a wealth of expertise and knowledge gained over many years within the industry. This includes partners and associates that strengthen our ability to supply high quality, up to date chemical & electrochemical technology.

Why Treat Stainless Steel?

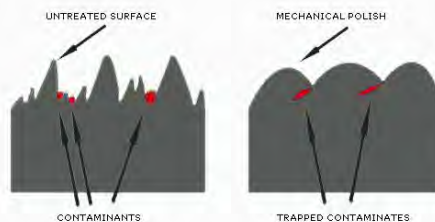
It is well known that Stainless Steel gains its major surface corrosion properties from the presence of Chromium within its formulation which reacts with oxygen in the atmosphere to produce an inert surface layer. This layer protects the material from attack and if damaged will automatically repair itself by reoxidising. This is true if the surface is not masked by residues, contaminated and the material is undamaged. Typical manipulation techniques employed in the manufacturing processes can easily create contamination, damage and changes to the surface structure. This can result to substandard characteristics which do not meet the criteria and performance for which the material was specified.

Effects of Manufacturing Sheering & Cutting

When cutting and sheering material burrs are produced, which can both be a hazard and has the potential to contaminate product media and damage other parts in an assembly.

Grinding & Polishing

The heat created in these operations can change the surface structure and also smear the surface dragging in undesirable contaminants.



Bending & Manipulation

Most machine shop tools used in this process are carbon steel and create huge surface pressures that can embed contaminant particles from its own base material and atmospheric dust, coolants and general workshop consumables including grease and oils.

Turning & Milling

Both these operations use coolants which may contaminate the surface. Fast machining speeds can smear surface layers, especially when using blunt tools. Localised overheating can also change the material structure.



Welding & Heat Treatment

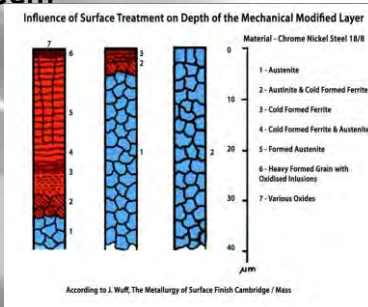
Both these processes produce surface oxides which are firmly bonded as part of the surface layer and do not display the same characteristics as the base material. The oxides are hard deposits which are difficult to remove and can easily corrode in the atmosphere.



Areas of Concern

Surface Contamination

Shop floors in most factories have a variety of consumable products to aid their manufacturing processes including grease and oils for lubrication. Airborne dust particles can easily settle on both the fabrication and manipulation tools and devices used in manufacture.



Changes to the Material Structure

Each material is produced under controlled temperature conditions and methods to enable a particular structure to form. Inducing heat by in the material by thermal treatment, fast machining, grinding and polishing techniques can enter the critical temperature zone which the material is formed. If unable to control these conditions, changes in the structure can easily occur as shown above.

Surface Finishing

The methods and techniques used in the process of stainless steel surface finishing are a technology in their own right and should be fully understood in application and reasons behind the requirement of each process. These processes are categorised as follows:

- Cleaning & Degreasing
- Pickling & Descaling
 - Electropolishing
 - Passivating
 - Sanitising

Cleaning & Degreasing

Whether destined for another surface finishing process or going for despatch, all fabrications and components should be thoroughly cleaned after manufacture. Sometimes it is necessary to clean assemblies in between manufacturing steps to ensure contamination is not an issue. This can often be a problem when leading onto heat treatment or welding operations, as surface contaminants are easily absorbed into the upper surface layers and extremely difficult to remove. The subsequent masking effect which can occur and insufficient cleaning can both impair the overall appearance as well as reducing its performance.

Pickling & Descaling

The thermal oxides from any heat treatment process and welding mainly iron oxides of various states. They will readily corrode and in almost every application, will contaminate product media in which they are in contact with. The removal of these oxides is paramount in order to maintain the surface properties of stainless steel.

Mechanical treatments can remove the bulk of these oxides, although these methods can smear the surface entrapping contaminants which may later release, causing failure to the function of the product. For example, if an abrasive wheel employed to remove the oxides, it can have the dual action of decontaminating and recontaminating the surface.

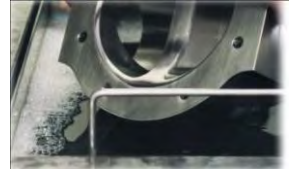
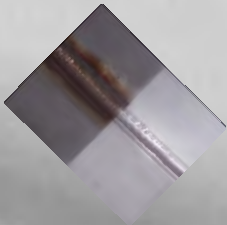
Pickling Methods

There are several methods and techniques in which pickling and descaling is carried out which include:-

Localised Pickling – With Paste & Gel, applied by brush or spray

Immersion Pickling – Where the whole or part of the item is immersed into a tank

Anodic Pickle – An electrolytic method, employing non toxic solutions in a tank with a rectifier



Ultimate Surface Finishing

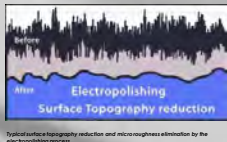
Electropolishing

Electropolishing is the ultimate process in the surface finishing of stainless steel and produces a superior finish with unique properties. The process is carried out by immersion in a tank with an electrolyte and a rectifier. Having the opposite effect of electroplating the process removes a layer of material between 5 to 40 um (microns). As the process has no impact to the surface the process solution

temperature is far below and the critical structure formation zone. This renders the surface pure, chemically clean and thus, undisturbed crystalline structures are exposed. These surfaces have several features and characteristics unmatched by any other finishing process.

Increased Corrosion Resistance

Selective removal of iron, enriches the surface with Chromium and Nickel. Oxygen is liberated at the anode (positive) side of the electrolytic process and these gases flow upwards reacting and oxidising recently exposed layers thus further improving the corrosion resistance.



Ultra Clean

By removing the damaged and contaminated surface layers the process exposes pure crystalline, ultra clean base material. This restores the original properties of the material and makes the surface suitable for ultra-clean applications. Further more, external surface stresses in the upper layers are relieved. Component sizing may also be undertaken by employing tightly controlled parameters.

Micro Finishing

The flow of the current and the natural action is to remove the peaks at a faster rate than in the troughs on the surface topography, leading to the elimination of micro roughness and has a further feature of deburring. Additionally, the surface is super smooth, making it hard for deposits and residues to attach themselves, which makes the surface exceptionally easy to clean.

Passivation

To ensure a fabrication or components corrosion resistance is optimised prior to delivery it should undergo a passivation stage. Employing high oxidising agents all surfaces are either sprayed or immersed in a solution which readily oxidises the Chromium. This rapidly forms the inert layer on the material and creates the critical surface property relied upon in service. Several methods of passivation are employed depending on the alloy, pre-treatment and type of application. Both ISO 15730 and ASTM A967 Stainless Steel Passivation specification details each process in depth.

Sanitation & Disinfecting

We are under constant attack from bugs causing diseases to young and old. Hospitals and public areas are well known to be ideal sites for these pyrogens to grow and fester, causing no end of problems. Some bacteria known to be resistant to common antibiotics makes this task of containing epidemics even more harder to control. Ongoing cleaning programmes must be stringently employed everywhere to keep the spread of disease to a minimum. Both people and existing equipment should be disinfected as well as new and refurbished equipment should also undergo sanitation prior to delivery, reducing the threat even further.





ANOKAP SOLUTIONS CO. LIMITED

**210/ 21 M.10 Gradekaeo, Heuwlaek,
T. Bangsalay A. Sattahip,
Chonburi 20250 THAILAND**

Tel : + 66 (0) 38 435907

Mob:- +66 (0) 817 817794

Web: www.anokap.com

Email: sales@anokap.com

