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Tharsus Supplier Handbook

Supplier Handbook

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1 Introduction

Tharsus can trace its roots back to 1964 where it started life as a small metal fabrication business.

Now, nearly 60 years on it has transformed into one of the UK's leading experts in advanced manufacturers and electro-mechanical assembly taking complex tech products to successful scale manufacture. Game changing products produced by Tharsus for our customers are active all over the world, disrupting markets and delivering exponential commercial advantage back to them.

Tharsus is a values-led business, and our 300 people have a deep understanding of them. Our Values are: **Aim Higher**; **Think Wider** and **Work Together**. We always strive to **Do the Right Thing**. These values govern every aspect of the way we work with each other, our customers, our partners, and our suppliers.

A partner for pioneering times

We thrive on making the impossible possible, pushing the boundaries of technology innovation, inspiring big ideas and collaborating with customers at every step.

Creating competitive advantage

We create robotics and automated machines that solve complex challenges, helping our customers take giant leaps forward by creating strong competitive advantage.

End-to-end innovation

We are a team of problem solvers – designers, engineers, and makers all under one roof delivering excellence and innovation at every stage from concept to manufacture.

Commercially minded strategic transformation

We are driven by a resolutely tough commercial focus. Never innovation for its own sake, we always have our sights set on generating new revenue streams that take our customers' businesses to the next level.

Our purpose is to create 'tech that matters'.

We have a positive impact on our host communities and our stakeholders, and through Tech that Matters, the environment. We aim to be the best in our chosen markets.

2 Tharsus management system (TMS)

Our Tharsus Management System (TMS) is at the core of our DNA. The TMS is a consistent, integrated framework of policies, processes, and procedures that enable us to provide agile and robust systems to underpin and continuously improve the way we work.

The TMS includes quality, environmental, health & safety, information security and social responsibility systems. It is designed to deliver world class, market driven technology services and solutions, and supports us in solving customer problems.

2.1 Quality management

Quality management is at the nucleus of our commitment to do the right thing by delivering products and services to our customers with a consistent level of excellence in compliance with ISO 9001:2015. This is the mechanism by which we bring products to life through our Solve Scale Supply service offering.

2.2 Tharsus commitment to stakeholders

Tharsus makes the following commitments to its stakeholders. Our stakeholders include customer, suppliers, colleagues, our local community, and other interested parties. As suppliers are stakeholders in our business, they are also critical to supporting Tharsus in achieving its objectives and commitments.

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Our Commitment to Stakeholders

We will:

- ${\bf 1.} \quad {\bf Consistently \, meet \, and \, exceed \, customer \, expectations, the reby \, increasing \, customer \, satisfaction.}$
- Promote total quality management throughout the business, providing products and services with zero defects that are trusted by our customers.
- 3. Build strong and effective supply chain relationships founded on expertise, competitiveness and growth.
- $\textbf{4.} \quad \textbf{Provide highly motivated and competent colleagues with a safe, healthy working environment.} \\$
- 5. Protect the environment and our community by promoting sustainable solutions.
- Commit at all levels of the organisation to continuously "challenge and be challenged" to improve our TMS, therefore ensuring we operate a sustainable, profitable business, delivering competitive advantage and excellence.

The Tharsus Limited Board of Directors and Senior Leadership Group are entrusted to comply with the above commitments. This policy will be communicated to all colleagues and made available to stakeholders. Furthermore, it will be periodically reviewed to ensure its continued suitability.

Joni Rautavuori

3 Supply chain code of conduct

Tharsus recognises the important role our suppliers play in the value we offer to our customers. Our suppliers are an extension of our own operations, and we rely on them to provide goods and services which meet all the requirements of purchase orders, contracts, applicable specifications, and the quality management requirements outlined in this handbook.

Tharsus has an extensive supply chain, utilising a wide variety of technologies from innovative prototyping through to volume production. The expectations stated in this handbook may apply in different ways, depending on the goods or service provided.

Purpose

The purpose of this supplier handbook is to provide suppliers with a clear set of core expectations relating to the principles, commercial activities, quality management systems, design requirements, and end to end manufacturing process controls which must be adhered to for the purpose of supplying Tharsus with goods and services. This includes, without limitation, suppliers of raw materials, components, original equipment manufacturers (OEM), contract manufacturers of finished devices, software, distributors, assemblies, and service providers.

Scope

Tharsus requires all our directors, officers, and employees along with those working on our behalf to comply with all laws and to always act ethically and with integrity. Our intent is to work with companies who understand and share our commitment to the principles outlined in this handbook. We require our supply chain partners to adhere to these principles and requirements, and to reflect the same on their suppliers. The information provided in this handbook is intended and shall be considered as supporting material used in the management of Tharsus' supply chain without prejudice to any existing contracts, agreements, purchase orders, drawings, or specifications exchanged between Tharsus and its suppliers.

4 Health, safety, security, environment, and sustainability (HSSE&S)

Supply chain partners must:

- Comply with all applicable HSSE&S laws, regulations, and industry requirements.
- Manage their operations so any potential negative impact to the environment or community is prevented or minimised where unavoidable.
- Provide a safe and healthy work environment for their employees and must provide adequate training, work procedures, and appropriate personal protective equipment. Where transport is provided this must be both clean and safe.
- Provide a workplace that has suitable temperature, ventilation, lighting, and washing and sanitation areas appropriate for both genders. Consideration should be given to physical and mental health and well-being.
- Where accommodation / housing is provided they must be safe, sanitary, and meet the basic needs of the
 workers with regards to space, temperature, lighting, ventilation, food, water, privacy, affordability, and
 they must meet or exceed host country housing standards.
- Establish and maintain a management program that drives continual improvement in HSSE&S performance and transparent reporting regarding health and safety incidents.

4.1 Ethics and legal requirements

Supply chain partners must:

- Disclose in advance any relationship with any Tharsus Group director, officer or employee, or any other
 person or entity working within the Tharsus Group that represents or might appear to represent a conflict
 of interest.
- Conduct business honestly, fairly, and free from any bribery or corruption. Comply with all applicable antitrust, competition laws and the anti-corruption laws including the UK Bribery Act 2010, the Criminal Finances Act 2017, the US Foreign Corrupt Practices Act and any similar local laws. Supply chain partners must also have in place adequate policies and procedures designed to effectively prevent bribery, corruption, and facilitation of tax fraud. The highest standards of integrity are expected in all transactions.
- Keep complete, accurate, and reliable records of all matters related to their business with Tharsus Group and provide copies of relevant records on request.
- Protect Tharsus Group's confidential information and personal data and prevent its disclosure, theft, damage, or unauthorised use.
- Notify Tharsus Group without undue delay after becoming aware of a personal data breach under The Data
 Protection Act 2018 of the United Kingdom or other applicable local legislation.

- Only engage with employees, suppliers, commercial intermediaries, contractors and other business representatives and partners who act in a way consistent with our shared commitment to ethical business practices and compliance with laws.
- Only offer appropriate gifts or hospitality in an open and transparent way.
- Comply with all applicable sanctions, export and trade laws and regulations.
- Promote a "speak-up" culture that does not tolerate retaliation.
- Develop any relationship with a Tharsus Group director, officer, employee, or those working for Tharsus Group, whether financial or otherwise, which might conflict, or appear to conflict, with such person's obligation to act in the best interest of Tharsus Group.
- Encourage or allow others to engage in any form of bribery, including the small payments often known as facilitation payments intended to improperly influence someone.
- Engage in tax evasion or facilitate the evasion of tax by any other party.
- Offer any incentive to any Tharsus Group director, officer, employee, or such person's family or friends to obtain, retain, or influence Tharsus Group business.
- Offer gifts or hospitality which is lavish or inappropriate or which is meant to influence Tharsus Group, or which could be seen as intending to influence business decisions.
- Offer or supply a third party's confidential information to Tharsus Group unless authorised or entitled to do so.

4.2 Human rights and labour standards

Supply chain partners must:

- Comply with all applicable labour laws including the Modern Slavery Act 2015 of the United Kingdom.
- Set working hours, wages, and overtime pay in compliance with all applicable laws. Workers shall be paid
 at least the legal minimum wage or a wage that meets local industry standards, whichever is greater. All
 wages and benefits should be paid in a regular, timely manner in accordance with contractual agreements.
- Ensure all workers are provided with recruitment agreements and employment contracts in writing as required by applicable laws, in a language understood by them.
- Ensure the work relationship between their workers and their suppliers is freely chosen and free from threats and that all workers are free to have time off, or to leave their employment or work after giving reasonable notice in compliance with all applicable laws.
- Workers always have access to passports and personal documentation. Workers shall also have freedom of
 movement out of normal working hours unless there are legitimate security or health and safety reasons
 that threaten the safety or the wellbeing of the worker.
- Comply with all applicable laws regarding harassment and abuse of employees.
- Employ workers based on their ability to perform the job, not based on their personal characteristics or beliefs (including race, colour, gender, ethnicity, nationality, religion, sexual orientation, age, disability, maternity, or marital status).

 Respect freedom of association and the right to collective bargaining. Where the right to freedom of association and collective bargaining is restricted under law, the employer must not hinder the development of parallel means for independent and free association and bargaining.

- Have adequate policies and reliable systems in place to prevent the use of illegally or unethically sourced
 materials, in particular policies and systems to prevent improper procurement of conflict minerals also
 known as tantalum, tin, tungsten, and gold. Supply chain partners must make every reasonable effort to
 ensure that their sources are conflict free and be able to provide adequate verification if requested.
- Use recruiters that uphold and respect the standards contained in this supply chain code of conduct and reflect best practices for recruiting in respect of human rights and labour standards.

Supply chain partners must not:

- Use any force, bonded, involuntary prison, or child labour.
- Subject their employees to psychological, verbal, sexual or physical harassment or any other form of abuse.
- Use misleading or fraudulent practices during the recruitment of employees or offering of employment, such as failing to disclose or misrepresenting key terms and conditions of employment, including wages and benefits, the location of work, the living conditions, housing and associated costs, and any significant cost to be charged to the employee, and if applicable, the hazardous nature of the work.
- Use recruiters that do not comply with local labour laws.
- Charge employees for recruitment fees.
- Improperly retain workers' identification documentation.
- Use temporary labour arrangements solely for the purpose of avoiding obligations to the employee under labour or social security laws and regulations arising from the regular employment relationship.

4.3 Compliance

Tharsus Group reserves the right to assess and monitor suppliers' compliance with this supply chain code of conduct.

Supply chain partners must:

- Comply with the most demanding requirements, whether they are relevant applicable local and national laws and regulations, or the principles set out in this supply chain code of conduct, in the provision of materials, goods or services to Tharsus Group.
- Implement systems and controls to ensure compliance with applicable laws and regulations and the
 principles set out in this supply chain code of conduct, including policies, training, monitoring, and auditing
 mechanisms designed to provide ongoing improvement and assurance of its effectiveness.
- Communicate the principles set out in this supply chain code of conduct to their suppliers and business
 partners who may provide goods or services to Tharsus Group and mandate compliance as part of their
 ethical business practices.

 Notify Tharsus Group of any alleged potential, suspected or actual breach of the law or the supply chain code of conduct via our email: supply.chain@tharsus.co.uk

Provide a process for employees to report, without fear of retaliation, activity inconsistent with the content
of this supply chain code of conduct with reference to ethical business conduct, and human and labour
rights.

5 Quality and environmental management systems requirements

This section is applicable to direct (production related) and indirect (non-direct production related) suppliers of goods and services.

This part of the supplier handbook specifies the requirements which are necessary to ensure that the appropriate quality and environmental systems are established and that all relevant processes are clearly defined and followed.

Tharsus prefers that all suppliers are ISO9001 and ISO14001 certified. In the absence of third-party certification and depending on the product, its application, value, and criticality, Tharsus reserves the right to accept other forms of compliance, providing these can be clearly evidenced and validated by Tharsus. This validation may include second party (Tharsus) audit or first-party (self) assessment to the standard provided by Tharsus.

5.1 Quality requirement

Suppliers are required to maintain a quality management system (QMS) appropriate for the goods and services they provide to Tharsus. This should be certified by an accredited third-party certification body to the latest version of one or more of the following, as applicable:

- ISO 9001 Quality Management System
- AS/EN/JISQ9100 Quality Management System (Aerospace)
- IATF 16949 Quality System (Automotive, Truck & Heavy Equipment)
- ISO 13485 Quality Management System (Medical)

In the absence of those certifications listed above, the supplier must have a QMS policy which should cover at least, but not be limited to, the following elements:

- Management review in line with customer requirements and objectives.
- Documentation and records control.
- Product and process management.
- Internal audit.
- Management of the non-conforming product and process.
- Continuous improvements.
- Risk identification and management.

5.2 Environmental requirements

Suppliers have a responsibility to ensure that any adverse effects on the community, environment or natural resources are minimised while safeguarding the health and safety of employees and the public.

Suppliers must comply with all applicable requirements defined in local, national, and international laws and regulations.

Suppliers should have an environmental policy which outlines their commitment to environmental matters and the steps they intend to take to reduce the risk of a negative impact on the environment and local community. The following, although not exhaustive, outlines the tools and techniques that Tharsus believe to be the prerequisite to reaching the above-mentioned environmental targets:

Written guidelines regarding the environmental performance of the organisation's activities.

- Regular review of production, maintenance, supply and disposal processes, and specific products to determine their environmental impact.
- Emergency plan for tackling environmental threats.
- Definition of targets to improve environmental protection and documentation of the fulfilment of those targets.

This may include:

- Safeguarding of resources (e.g., raw materials, energy, water).
- Prevention and reduction of environmental pollution.
- Minimisation of waste and rejects.
- Reduction of expendable packaging.
- Compliance with regulations regarding materials and substances.
- Have a recycling concept/program.

6 Supplier approval process

All suppliers will be subject to approval prior to the issuance of a contract or purchase order, including customer nominated suppliers, unless parts have been free issued by Tharsus' customer.

6.1 Self-assessment

Direct (production) suppliers are required to complete a self-assessment as part of the onboarding process. The self-assessment will be reviewed by representatives of Tharsus' quality and strategic procurement teams. Further actions such as documented evidence or on-site audits may be required and will be confirmed with the Supplier as soon as reasonably practicable.

6.2 Second-party audits

Suppliers may be subject to an audit which will be carried out by an authorised representative of Tharsus. The need for an audit will be determined by Tharsus and will depend on the criticality of the goods and services or the requirement of the project, and the outcome of the first party (self) assessment, independently of the presence of a third-party audit certificate.

The audit could include:

- Quality management system (QMS) and if necessary, product or process capability assessments, to determine whether the Supplier's quality management system meets one or more of the applicable standards and is functioning effectively.
- Business and manufacturing operations to determine whether the Supplier has the production capacity
 and other business resources needed to fulfil Tharsus volume production needs and continuity of supply.
- Continuous improvement initiative to determine the Supplier's culture, methods, skills, and commitment to actively pursue continuous improvement.
- Manufacturing assessment to determine whether the Supplier has the required technical resources, including production and inspection equipment, facilities, training, and engineering resources.
- Sub-tier supplier control to evaluate the effectiveness of the Supplier's supply chain management processes and ensure that products or services procured and delivered to Tharsus conform to all applicable Tharsus requirements.

7 General requirements

The following requirements apply to all suppliers.

7.1 Compliance to contractual requirements

On acceptance of a contract, agreement or purchase order, the Supplier is responsible for complying with all requirements (e.g., commercial, engineering drawings, specifications, and delivery requirements). All documents, drawings, and specifications, regardless of origin, are applicable to the Supplier and should be used as necessary at all levels of the supply chain.

Neither audit, surveillance, inspection, or tests carried out by Tharsus, or its customer(s), at a Supplier's facilities, sub-tier supplier facilities, or upon receipt at Tharsus premises, relieves the Supplier of the responsibility to furnish acceptable products or services that conform to all the requirements; nor does it preclude subsequent rejection by Tharsus or its customers.

7.2 Designated sources

The Supplier may be required to purchase goods and services from a Tharsus approved vendor. Any such request will be specified in writing by Tharsus to the Supplier. The Supplier is responsible for ensuring the goods and services meet all applicable technical and quality requirements.

7.3 Control of sub-tier suppliers/list of approved sub-suppliers

The Supplier is responsible for ensuring that goods provided, and work performed by the Supplier's sub-tier suppliers (also known as sub-suppliers or subcontract suppliers) meet all applicable technical and quality requirements.

Suppliers should have in place a formal mechanism for ensuring the appropriate management of their supply chain. These controls are expected to include:

- Supplier risk assessment, classification, appraisal, selection and contracting.
- Supplier audits and certification.
- Component specification and qualification.
- Non-conformance, corrective, and preventive action.
- Performance monitoring and reporting.
- Change control.

Tharsus and its customers may request the opportunity to visit sub-tier supplier facilities to further validate the supply chain, manufacturing process or carry out part inspections, subject to proprietary considerations.

7.4 Risk management

The Supplier should have in place or be working towards establishing a risk management program in accordance with the quality requirements outlined in this handbook. The Supplier is responsible for effectively assessing those elements from all aspects of the business that could affect the quality of the goods and services provided to Tharsus.

7.5 Tooling

It is the Supplier's responsibility to inform Tharsus at the request for quotation (RFQ) stage if any tooling costs are required for the purpose of providing of the goods and services. Tooling costs may be classified in three categories: jigs and fixtures for manufacturing, assembly tools, and quality assurance equipment (for example gauges and calibration equipment).

Sample orders for parts may be required in some cases. When the design has reached the release stage, Tharsus will issue a sample order to notify the Supplier that a production part approval process (PPAP) is required. At this point, the design is considered firm enough that suppliers are authorised to place tooling orders and start the production process design and development. The due date on the sample order is the expected date for delivery of the PPAP documents to Tharsus.

The full approval of the PPAP triggers the release of the final funding for tooling.

Tharsus/customer owned tooling must be identified with the following information:

- Property of (Tharsus/customer)
- Tool number (asset Number) if applicable
- Part number
- Part name

8 Product qualification

This section defines the generic requirements for production part qualification and approval.

Different requirements will be specified depending on the commodity and the project stage. Suppliers should familiarise themselves with these as they are critical to quality control.

8.1 Quality planning and new product introduction

- The Supplier is responsible for organising and implementing the production process and necessary quality
 controls to ensure the goods and services meet all the technical and quality requirements requested by
 Tharsus. The Supplier is liable for all costs associated with ensuring that all technical and quality
 requirements are met.
- The pre-production phases and any resulting inspection activity must be adequately planned to allow on time delivery of the goods and services as specified in the contract, agreement, or purchase order. The Supplier must ensure that Tharsus is kept up to date with progress of any quality planning and new part introduction.
- The Supplier may be asked to provide Tharsus with appropriate evidence that the goods and services meet the requirements specified in the contract, agreement or purchase order, and supporting documents are received in a timely manner. The table below indicates the specific quality requirements per commodity and per project status:

8.2 Quality requirements table

Commodity	Pre-Production Pilot	Production	Design Change	Re-validation
Machined parts	PPAP L2	PPAP L4	PPAP L4	PPAP L4
Moulded parts	PPAP L2	PPAP L4	PPAP L4	PPAP L4
Fabricators	PPAP L2	PPAP L4	PPAP L4	PPAP L4
Castings/machined	PPAP L2	PPAP L4	PPAP L4	PPAP L4
Harness / cables	PPAP L2	PPAP L4	PPAP L4	PPAP L4
РСВА	PPAP L2	PPAP L4	PPAP L4	PPAP L4
Mechanical & electromechanical Components	PPAP L2	PPAP L4	PPAP L4	PPAP L4
Off the shelf modified	PPAP L2	PPAP L4	PPAP L4	PPAP L4
Adhesive vinyl	PPAP L2	PPAP L4	PPAP L4	PPAP L4
Fasteners	СоС	СоС	СоС	СоС
Off the shelf	СоС	СоС	СоС	СоС

8.3 Production part approval process (PPAP)

The PPAP with all requested documentation and samples must be submitted on the agreed date as stated in the Contract, agreement, or purchase order. The PPAP documentation provides the necessary evidence that all requirements specified in the Contract, agreement or purchase order and supporting documentation (i.e., drawings and specifications) are fulfilled. Any costs associated in providing the PPAP documents should be clearly stated in the suppliers RFQ response, additional costs not identified at this stage will not be payable later.

Tharsus at its sole discretion, may grant the Supplier interim approval of the part if the part or documentation cannot conform to all specified requirements. The Supplier must request interim approval in writing as soon as reasonably possible and before the agreed PPAP documentation submission date. The interim approval will specify which requirements the Supplier cannot fulfil and will include an action plan confirming how and when the part or documentation will be approved according to specification. An interim approval is always restricted to a limited number of parts or for a defined period.



8.4 Summary table

Requirement	Level 1	Level 2	Level 3	Level 4	Level 5
Design records of saleable product	R	S	S	S	R
-for proprietary components / details	R	R	R	*	R
-for all other components / details	R	S	S	S	R
Engineering change documents (if any)	R	S	S	*	R
3. Customer engineering approval (if required)	R	R	S	*	R
4. Design Failure Mode & Effects Analysis (FMEA)	R	R	S	*	R
5. Process flow diagrams	R	R	S	S	R
6. Process Failure Mode & Effects Analysis (FMEA)	R	R	S	*	R
7. Control plan	R	R	S	S	R
8. Measurement system analysis studies (if any gauge)	R	R	S	*	R
9. Dimensional results (Initial Sample Inspection Report (ISIR)	R	S	S	S	R
10. Material and performance test results	R	S	S	S	R
11. Initial process studies	R	R	S	*	R
12. Qualified laboratory documentation	R	S	S	*	R
13. Appearance Approval Report (AAR) (if applicable)	R	S	S	*	R
14. Sample product	R	S	S	S	R
15. Master sample	R	R	R	*	R
16. Checking aids	R	R	R	*	R
17. Records of compliance with customer - specific requirements	R	R	S	*	R
18. Part Submission Warrant (PSW)	S	S	S	S	R
Bulk material requirements checklist (for bulk material PPAP only)	S	S	S	S	R

S = The Supplier shall submit to the customer and retain a copy of records or documentation items at appropriate.

Tharsus reserves the right to inspect these samples for conformance and will return a signed warrant to the Supplier indicating whether it is approved to produce parts for serial production purposes. Shipping of serial production material is only allowed with an approved PSW issued by Tharsus.

8.5 Definitions and explanation

Part submission warrant (PSW)

The PSW document is part of the process of evidencing that the Supplier has the capability to satisfy Tharsus' customer requirements.

Where explicitly required by the summary table above, a PSW must be completed for each component. This must outline the contents of the submission, the version level of the product and should be signed off as

R = The Supplier shall retain at appropriate locations and make available to the customer upon request.

^{* =} The Supplier shall retain at appropriate locations and submit to the customer upon request.

guarantee of delivering the stated requirements. Suppliers may use their own form or request a template from Tharsus (QA-0044).

Design records of saleable product

Drawing (marked-up)

By submitting a copy of the drawing, marked-up, the customer will be able to confirm the link between the measurement in the report, the feature measured in the drawing, and that the correct drawing level has been used. The Supplier must include a copy of the drawing / specification that the component has been supplied to, including marked up dimensions to aid dimensional reporting.

Bill of materials (BOM)

If the components being sourced are built up of several parts (sub-assemblies), we require a BOM list of the sub-assembly which confirms what is in the assembly along with any associated child part suppliers, manufacturers' part number and supplier quantities, etc. Suppliers may use their own form or request a template from Tharsus (QA-0040).

- Initial sample inspection report (ISIR) - dimensional results

An ISIR is required to validate that the product meets the drawing or required specifications. Each dimension on the drawing should be measured on the final assembly to make sure that it falls within specification. The results must be recorded in a spreadsheet and included within the PPAP submission.

The Supplier must provide a full dimensional ISIR with the provision of sample parts. Where samples sizes are not defined, Tharsus expects five off samples per submission. This can be submitted on the suppliers own document or a Tharsus template which can be provided on request (QA-0022). The ISIR will be used for the test report and surface finish report.

The test report is a summary of every validation test performed on the part. It should list each test performed, a description of how the test was performed, and the results of each test. Where there is a specified requested test on the drawing (e.g. in-circuit test), the Supplier must provide a test report to demonstrate adherence to the said standard.

For surface finish reports such as plating / paint / conformal coating, etc., the report should include chemistry, thickness, etc. If a drawing has a surface finish requirement (e. g paint / anodising), Tharsus must receive a formal notification from the Supplier that confirms the parts are produced to the required specification.

Records of material / performance tests

This should contain a copy of the design verification plan and report (DVP&R). The DVP&R is a summary of every validation test performed on the part. It should list each test performed, a description of how the test was performed, and the results of each test.

This section may also include copies of all the certification documents for all materials (steel, plastics, etc.,) listed on the drawing. The material certification shall show compliance to the specific call on the drawing. For metallic parts a Mill test certificate (EN 10204 3.1) must be provided.

Process flow chart

The process flow chart outlines the entire process for assembling the component or final assembly in a graphical manner. The process flow chart includes incoming material, assembly, test, rework, and shipping. Suppliers may use their own form or request a template from Tharsus (QA-0041)

Control plan

The control plan is linked to the process flow chart. The control plan lists all product special characteristics and inspection methods required to deliver products that continuously meet the customer quality requirements. Suppliers may use their own form or request a template from Tharsus (QA-0042)

Product data sheet

If a supplier buys an 'off the shelf' product from a distributor, the Supplier must provide Tharsus with an electronic copy of the product data sheet before delivery. Where the Supplier is providing material(s) which may be classified as hazardous, material safety data sheets (MSDS) and technical data sheets (TDS) must be provided with the product data sheet.

Certificate of conformity

A certificate of conformity (CoC) is issued by an authorised party and states that the product meets the required standards or specification. CoC's are only applicable for products where no intellectual property is attributed to Tharsus or its customers. The CoC can be presented as one document per product or multiple products listed on the same document. As a minimum the CoC must include:

- · Details of the OEM.
- Statement of the certification of product conformance.
- Reference part number and description (both supplier and Tharsus part numbers where possible).
- Authorisation (name and signature) and date.

8.6 New product introduction (NPI)

For all deliveries of Tharsus define NPI, prototype, first off tool and pre series production, the Supplier must provide PPAP Level 2 with five parts per batch with full 100% control on all characteristics (which must be separately identified). The remaining parts must be inspected by the Supplier for all the critical to quality characteristics defined on the drawing.

8.7 Production part

The Supplier must provide PPAP L4, before the first delivery of the production parts. Those can be arranged as a pre-production validation or validation with the first production dependant on assessment and agreement with Tharsus' supplier quality engineers.

8.8 Production part approval process (PPAP) re-validation

All PPAP L4 parts will be subject to re-validation of PPAP documentation on an annual basis. Tharsus is responsible for issuing the Supplier with a notice of any PPAP revalidation requirements.

9 Process control

9.1 Critical to quality (CTQ)

The Supplier must demonstrate conformity to those CTQ features designated by Tharsus or its customers through means of documentation and appropriate control methods. In addition to any special characteristics identified by Tharsus, the Supplier must also review, identify, document, and control other product and process characteristics that are key to achieving quality.

9.2 Statistical process control (SPC)

Designated CTQ parts must be subject to SPC. Those characteristics may be identified as requiring ongoing continuous SPC control. Customers generally select special characteristics (e.g., dimensions, material, etc.,) impacted by safety standards and critical to fit or function.

After each successful PPAP submission, the Supplier may be asked to provide several sample parts (by part number) to support a capability study for up to 30 parts. This study will need to be completed successfully before the production order is placed. Costs for an additional 25-30 off parts (quantity will depend on whether the 5off PSW parts already supplied can be re-used for this study) should be clearly outlined on the RFQ as an additional cost (i.e. not included in the unit price) and must include all associated measurement paperwork, completed by the Supplier. If costs are not outlined separately in the initial RFQ response, Tharsus will assume that no additional costs are necessary and will not accept additional costs at a later date.

9.3 Electronics assemblies

For electronic assemblies such as printed circuit boards (PCB), cables, harnesses, etc., Tharsus standards require products to comply with IPC610 Class 2. All soldering must be to the IPC J-STD-001 standard.

Suppliers must adopt best practice principles regarding handling, including electrostatic discharge (ESD) and cleanliness. Suppliers must ensure those principles are reinforced throughout its manufacturing facilities and its associated supply chains. Tharsus' preferred method of control is the certification of a suppliers' premises to ANSI/ESD S20.20 standard. All ESD sensitive areas must be marked/identified appropriately within the facility.

9.4 Gauges and fixtures

Where a part is too complex to control the CTQ points within the process with handheld gauges and where the use of a measurement machine would cause constraints, Tharsus may review the requirements and facilitate a full form gauge or checking fixture for process control.

9.5 Error-proofing

The Supplier should use error-proofing devices and techniques as a form of process control, especially for repetitive functions, difficult tasks prone to mistakes, or where the cost of error is high.

9.6 Work instructions

The Supplier must prepare documented work instructions as necessary for all employees responsible for the operation of processes that impact product quality. These instructions must be maintained, should reflect current processes and be accessible for use at the workstation.

9.7 Calibration of measuring equipment

The Supplier must determine the monitoring and measurement to be undertaken, and the monitoring and measuring devices needed, to provide evidence of conformity of product to determined requirements. As a minimum, where necessary to ensure valid results, measuring equipment must be calibrated or verified at specified intervals or prior to use, against measurement standards traceable to international or national measurement standards. Where no such standards exist, the basis used for calibration or verification must be identified and recorded to enable the calibration status to be validated by Tharsus.

9.8 Preventive maintenance

The Supplier should identify key process equipment, provide resources for machine / equipment / tooling maintenance activities, and develop an effective, planned total preventive maintenance system.

9.9 Sampling inspection

The Supplier is responsible for verifying their product prior to delivery to Tharsus, with the aim of removing or mitigating any risk of delivering non-conforming products. Where possible the Supplier must follow the ISO-2859 or BS-6001 Level 2 for sample inspection of attributes and features CTQ, keep records, and provide evidence of those measurements upon request. Suggested sample size as follows:

Lot size	Sample Size	Lot Size	Sample Size
2 to 8	2	91 to 150	20
9 to 15	3	151 - 280	32
16 to 25	5	281 - 500	50
26 to 50	8	501 - 1200	80
51 to 90	13	1201 – 3000	125

9.10 Raw material lot control / traceability

The Supplier must ensure, as applicable to the product:

Adequate means for downward and upward traceability (e.g., batch, timeseries).

- Manufacturing operator / operation traceability.
- Operation / means traceability.
- Components and materials in relation to the delivered product (date code, batch number, serial number).
- Adequate methodology used to identify parts ensuring uniqueness of serial number or batch number when this is requested by Tharsus or its customers.
- The Supplier must ensure the traceability of any changes and non-quality events on the different elements of the product.

9.11 Training and skills matrix

The Supplier must have a skills matrix and training plan in place which is reviewed frequently to ensure multiple skilled personnel can manufacture the parts in line with the latest revisions and inspection control.

9.12 WEEE, RoHS and REACH

Tharsus supports the objectives of REACH and is committed to complying with its obligations under the EU REACH regulation (EC) No 1907/2006. Tharsus expects suppliers to comply with the provisions of the European Parliament and Council Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2011/65/EC) and 2015/863 and regulations promulgated thereunder, collectively, the "RoHS Regulations" for all products.

Where parts are subject to REACH and RoHS compliance, or at a customer request, the Supplier must supply a REACH and RoHS certificate of compliance.

9.13 Supply capacity

Suppliers are expected to manage deliveries according to the release / forecasts supplied by Tharsus. When those releases / forecasts exceed the Supplier's ability to deliver as expected, suppliers must notify Tharsus at the earliest possible opportunity. Notification of any such delays does not relieve the Supplier of its obligation to deliver products in accordance with applicable delivery schedules as specified in the Contract or purchase order.

Tharsus reserves the right to request a formalised production capacity study that verifies cycle times. This will be requested:

- If the Supplier has recurring issues with expected deliveries.
- During an assessment prior to awarding more business or new projects.
- Ahead of any significant volume increase.
- If a change is made by the Supplier that could impact the capacity.

10 Change control

10.1 Change control process

The Supplier must have a process to ensure that relevant versions of applicable documents provided by Tharsus and/ or the customer are available at points of use.

The Supplier is responsible for the timely review, distribution, and implementation of all Tharsus or customer engineering standards / specifications and changes in accordance with the schedule required by Tharsus or the customer.

10.2 Supplier change requests

Suppliers shall not make changes to their processes, location, facilities, equipment, material, product design (or any change which may affect product design or function) without written approval from the Tharsus for:

- Correction of a discrepancy on a previously submitted part.
- Product modified by an engineering change to design records, specifications, or materials.
- Any planned changes by the Supplier to the design, process, or manufacturing location, such as:
- Use of material that differs in any way to that which was used in a previously approved part or product, or per drawing requirement.
- Production from new, additional, replacement or modified tools, dies, moulds, patterns, etc.
- Production following upgrade or rearrangement of existing tooling or equipment.
- Production from tooling and equipment transferred to a different plant/ site or from an additional plant.
- Change of sub-tier supplier for parts, non-equivalent materials, or services, e.g., heat treating, plating, etc.
- Change to test / inspection method new technique (with no effect on acceptance criteria).
- For bulk materials, new source of raw material from new or existing supplier, or change in product appearance attributes, etc.

11 Control of non-conforming material

11.1 Concession and deviation requests

In the case of non-conforming products detected by the Supplier prior to delivery, the Supplier must send an application for concession to Tharsus for consideration.

Tharsus may request samples for testing prior to approving the concession.

Tharsus approval of a deviation is specific to the products for which it has been submitted and approved and shall not to be construed as a permanent engineering change.

The Supplier must provide corrective actions. In all cases, the Supplier must quarantine all product(s) suspected of being non-conforming. Any non-conforming part received prior to or after the concession will be treated as a non-conformance product.

Any parts shipped to Tharsus that have been approved for deviation must be clearly identified as such externally on the box, container, or other packaging and on shipping documentation.

11.2 Control of reworked/repaired product

Rework is defined as additional operations that are not part of the basic production process flow, which will bring a product into full compliance with applicable drawings and specifications. Instructions for rework, including re-inspection requirements, must be accessible and utilised by the Supplier's appropriate personnel. All reworks must be documented and accepted by the Supplier's quality control team prior to return to Tharsus.

Repair is defined as using alternative manufacturing techniques, methods, materials, or processes which may not bring product into full compliance with applicable drawings and specifications. Repairs are not allowed without written approval from Tharsus using a deviation or concession process.

11.3 Supplier containment

Any quality problems reported to the Supplier by Tharsus must be appropriately managed. Formal corrective action must take place and be approved. The Supplier must provide documented evidence with subsequent shipments of the product(s) that demonstrates the product(s) has been inspected for the identified nonconformances and meets all applicable requirements. Evidence must include cut-off delivery details (batch, date, serial number, etc.) and identification labelling.

11.4 Problem solving process and reporting

Where Tharsus identifies a major non-conformance either by way of a line disruption or customer rejection, the Supplier must use problem solving processes and report in 8D format or equivalent methodology. This will be validated by Tharsus' quality department who may use their discretion to accept or reject the report, or

request supporting evidence. Tharsus may decide to verify the corrective and preventive actions onsite at the supplier's premises.

When a formal reply is requested (whether by hard copy or electronic media), the Supplier should use 8D problem solving shown in the Forms and Exhibits section of this handbook, or other convenient media of equivalent content.

11.5 Corrective actions and preventive actions report (CAPA)

Where Tharsus identifies a non-conformance as being minor, Tharsus may issue a request for a corrective action preventive action (CAPA) report. When a formal reply is requested (whether by hard copy or electronic media), the Supplier should use the CAPA shown in the Forms and Exhibits section of this handbook, or other convenient media of equivalent content.

12 Supply chain controls

12.1 General terms and conditions

Parts must be supplied in accordance with Tharsus general terms and conditions of purchase unless otherwise agreed in writing in the form of a contract or agreement.

All Supplier requests to vary the Tharsus terms and conditions must be in writing and agreed by both parties prior to supply of goods and services.

12.2 Purchase order acknowledgements

All purchase orders must be acknowledged, and order confirmations emailed within 48hours of receipt.

- Order confirmations should include the following information:
- PO number and line-item details.
- Delivery date and location.
- Tharsus part number.
- Tharsus part description.
- Supplier part number (if applicable).
- Quantity ordered.
- Serial numbers (if applicable).
- Batch number.
- Any engineering change note (ECN), design change note (DCN), concession (CON) or deviation (DV) references.
- Country of origin for each item.
- Commodity code for each item which can be found at the below link: https://www.gov.uk/trade-tariff
- Suppliers must adhere to all delivery instructions provided in the Contract, agreement, or purchase order.
- Any adjustments, amendments or additional charges must be agreed in advance in writing.
- Please state Tharsus' Purchase Order number in all correspondence, failure to do so may result in late payment of invoices.

12.3 First-in, first-out process (FIFO)

To prevent deterioration, the condition of products in stock should be assessed at appropriate planned intervals. The Supplier should use an inventory management system to optimise inventory turns over time and should assure stock rotation, such as "first-in-first-out" (FIFO).

12.4 Packaging

The Supplier must ensure that the appropriate packaging is used to prevent product contamination, deterioration, or loss and to eliminate shipping damage. Suppliers should provide expendable packaging or returnable containers, where appropriate, that provide for sufficient density and protection from any likely damage that may occur. Suppliers should inform Tharsus of their intent to use returnable packaging and agree an appropriate return process and costs prior to the first delivery.

The net weight of the packing / container must not exceed 15kg. If the packaging weight is more than 15kg, it must be identified with a heavy weight sticker or label. Packages must not exceed 25kg gross weight. If the package exceeds 25kg gross weight, it must be delivered palletised, where possible into pallet standard (800x1200mm) and cannot exceed the gross weight of 500kg.

Tharsus may request the Supplier to improve or change the packaging to accommodate or ease the handling of the product. This might require special dedicated packaging, which may be expendable or returnable, and any cost associated with packaging must be agreed with Tharsus in advance of its use.

For any special dedicated packaging the Supplier must inform and agree in advance with Tharsus team the packaging to be used and how will be packed and returned. This must include but not limited to:

- Number of parts
- How these will be located (brief explanation and pictures)
- Size of the packaging (WxLxH)
- Type of packaging

The specific packaging must be trialled prior to use and agreed by Tharsus' Material Operations, Stores, Quality and Procurement teams.

12.5 Labelling

All packaging units must be labelled, and only contain one part number per box/ packaging unit. The label must include:

- Purchase order number
- Part number
- Part description
- Quantity
- Reference to relevant Engineering Change Notes / Deviations
- Any specific storage or handling instructions

12.6 Delivery

Suppliers must inform Tharsus at the earliest possible opportunity of any potential early / late deliveries and provide a new despatch date which should be agreed in advance. Failure to do so may impact the Supplier's performance rating. The Supplier is responsible for all additional transport costs due to delays.

Suppliers should endeavour to deliver the stated quantities on the Purchase Order, rather than under / over deliver. If deviations are expected due to exceptional circumstances, suppliers should notify Tharsus at the earliest possible opportunity to allow for adjustments to stock and planned production. Discrepancies on delivery quantities may result in delays in invoice payment.

12.7 Logistics service level

The logistics service level expectations are highlighted below:

- For suppliers within the UK the service level is Incoterms 2020 DAP (Delivered at Place) to the Tharsus site.
- For overseas suppliers (non-UK) the service level is Incoterms 2020 DDP (Delivered Duty Paid) to the Tharsus site.

Tharsus goods in is open during the following times:

- Mon Thurs 08:00 to 16:00
- Friday 08:00 to 12:00 noon
- Sat & Sun Closed
- Please ensure deliveries arrive at the correct location in adequate time to unload prior to closing time, otherwise deliveries may be turned away.
- The deliveries must be on vehicles that can be unloaded with a forklift truck or curtain sided trailers as no rear off load facility is available at site.
- Suppliers may be asked to make deliveries within an allocated timeslot (e.g., pre 10am, or AM). It is the Supplier's responsibility to ensure the delivery is available on time.
- Pre-booked timeslots are not currently in place; therefore, drivers may need to wait if there is a queue for offloading vehicles. Drivers should ensure they wait in a safe manner and observe all health and safety protocols while on site.
- Collection of goods which are being returned to the Supplier for any reason will be stored in the goods in area and should be collected in the same way.
- Drivers should not attempt entry to the site via the staff car park.

12.8 Records retention

The Supplier shall retain quality records for a period of fifteen years. Upon request, the Supplier must be capable of retrieving and delivering all required records to Tharsus.

It is the Supplier's responsibility to destroy confidential data relating to the provision of goods and services to Tharsus as soon as practicable after the retention period has ended. The Supplier may be asked to provide evidence of document destruction. Any requests will be made in writing.

12.9 Payment terms & invoicing process

Tharsus operate a 'No PO, No Pay' policy. This means that suppliers should not be asked to provide goods or services without provision of a Tharsus approve Purchase Order.

In order to facilitate the efficient processing of invoices, suppliers must quote the correct PO number on invoices, and ensure the price and quantity match the PO issued. Failure to provide this information will result in the invoice(s) being rejected and returned to the Supplier for correction, which may result in late payment of invoices.

All invoices should be sent to: accounts@tharsus.co.uk

Tharsus standard payment terms are 60 days end of month. Any deviation from these terms must be agreed in writing during the onboarding process by the Strategic Procurement Team.

13 Request for quote process (RFQ)

The Tharsus Group Sourcing and Procurement Policy (see forms & exhibits) outlines the expectations required of any individual who may be associated with or is directly responsible for sourcing and procurement activity on Tharsus' behalf.

Tharsus' RFQ process has been designed in a manner to ensure that suppliers are provided with the necessary information required to enable them to submit a quote for goods and services. In some cases, where the requirement is complex, time critical or high risk then an Invitation to Tender (ITT) may be carried out.

In all cases, suppliers must follow the instructions laid out in the RFQ or ITT document pack and provide the necessary information in the time specified to be considered for contract or purchase order award.

In all RFQ and ITT instances the following conditions will apply:

- Any response including clarification questions should be emailed to the relevant person highlighted in the RFQ or ITT documentation.
- Tharsus standard terms and conditions will apply to any purchase order placed. Any specific terms and conditions will be outlined in the RFQ or ITT and will be in addition to / supersede Tharsus standard terms and conditions.
- Suppliers are responsible for all costs and expenses incurred in relation to the preparation and submission of the quote.
- All pricing must be costed within the quote as carriage included (UK) or Incoterm DDP (outside of UK)
 unless otherwise stated on the RFQ or ITT.
- Tharsus standard payment terms are 60 days end of month. Any deviation to these terms must be requested in writing. Tharsus reserves the right to reject a quote based on non-acceptance of these terms.

The assessment criteria that will be used to determine a supplier's suitability to provide the goods and services will be provided in the RFQ or ITT. In most cases a PO or contract will be awarded to the Supplier who has provided the most economically advantageous tender. Tharsus reserves the right to award multiple contracts /PO on the basis of one RFQ.

It is the Supplier's responsibility to ensure that they have read and understood all the information provided in the RFQ or ITT and that the person submitting the quote has the full authority of the Supplier to do so. Completion and submission of a quote will be taken as acknowledgement by Tharsus that the Supplier has read and understood the following:

- RFQ Guidance document and tender instructions to Supplier.
- Tharsus standard terms and conditions.
- Specific terms and conditions where applicable.
- RFQ requirement quantity / quality / delivery / price break etc.

14 Continuous improvement

Tharsus considers supplier continuous improvement to be an integral part of the overall quality management system and continuous improvement process. As a minimum, suppliers are expected to develop and present plans that improve internal systems which address and support launching of new products/components/subsystems, value enhancements and cost competitiveness, and achievement of agreed upon quality targets, with a plan to achieve zero defects in support of on-going operational excellence.

15 Supplier performance

The Tharsus supplier evaluation system uses several quality and delivery factors to develop an overall supplier performance rating. This rating serves as an objective measure to determine whether Tharsus expectations are being met.

Tharsus may determine that a meeting with a suppliers management team is necessary to address the performance deficiencies, and in some cases may request that a documented corrective action and improvement plan is required.

15.1 Performance measurements

The Supplier will be measured monthly against set targets on quality and delivery.

This score will be an average from the previous two months (three months rolling) giving a final score and rank.

The ranks will be divided into three levels:

Score	Rank	Actions
100>95	L1	Supplier meets requirements set by Tharsus
95>75	L2	Satisfactory; no actions required
75>0	L3	Corrective actions may be required within the first and second months.

15.2 Supplier performance management

If the Supplier is ranked at L3 for three consecutive months, the Supplier will be subject to a formal supplier management process review. This will involve a meeting with the Supplier and appropriate representatives of Tharsus to develop a program to improve the operational aspects with the aim of improving the performance and the partnership with Tharsus.

Suppliers should note that an L3 ranking may exclude them from being invited to participate in further RFQ enquiries until such time that their performance improves, and they move back to L2 or above.

16 Forms and exhibits

The below list of documents is referenced in the handbook. It is the responsibility of the Supplier to ensure they have read, understood, and agree to comply with this handbook and all associated documentation as listed below. Downloadable.copies are available on request from tvqagroup@tharsus.co.uk

Document	Purpose	Dept Responsible
PSW (QA-0044)	Part submission warranty to be submitted as required to support parts validation when submitting the PPAP requirements	QA
ISIR (QA-0022)	Initial sample inspection report to be submitted as required to support parts validation when submitting the PPAP requirements	QA
Control Plan (CP) (QA-0042)	Control plan to be submitted as required to support parts validation when submitting the PPAP L4 requirements	QA
Process Flow (PF) (QA-041)	Process flow to be submitted as required to support parts validation when submitting the PPAP L4 requirements	QA
Capability study (QA0037)	Capability study to be submitted as required to support parts validation when submitting the PPAP L4 requirements	QA
BOM Chain Chart (QA-0040)	BOM chain chart to be submitted as required to support parts validation when submitting the PPAP requirements	QA
8D problem solving (QA-0035)	8D Problem solving to be submitted as required to support the major Non-conformance response report.	QA
CAPA Problem Solving (QA-0047)	CAPA report to be submitted as required to support the minor Non-Conformance response report.	QA
Capacity Plan (MP- 0010)	Capacity plan required to be submitted when delivery performance issue is highlighted by Tharsus or when new parts will be allocated.	QA/MOP
Sourcing and Procurement Policy (G-POL-0009)	To purchase goods and services in a manner that attains the best overall value to the company and our customers, considering quality, price, service, the environment, and corporate social responsibility in a manner which is simple, compliant, and flexible to support the company's growth strategy.	SP/CFO