1 INTRODUCTION

Corporate Overview

Branson Ultrasonics Corporation, a division of Emerson, is the world's leading manufacturer of plastic welding equipment and systems that provides engineered solutions for diverse markets that include, automotive, industrial, food, medical device, electronics, and a wide variety of commercial products.

Quality Policy

It is the policy of Branson Ultrasonics Corporation to achieve the highest standards of quality, reliability, and customer service. In order to achieve this end, a quality system with all the required programmatic controls has been established. The quality system shall serve to communicate expectations, establish controls, and foster a culture committed to excellence in everything we do.

Corporate Mission

The management of Branson Ultrasonics Corporation is firmly committed to a quality process that serves our customers and helps us maintain a global leadership position in our industry. Through teamwork and the participation of all employees, we will provide superior products and services which consistently meet our customers' expectations.

Branson Suppliers

Branson Ultrasonics Corporation recognizes the important role our Suppliers have in the value we offer our customers and our subsequent success. As an extension of our operations we rely on our Suppliers to provide material, products, tooling, and services which meet Branson contracts, specifications, and quality management requirements as set forth in this document.

2 PURPOSE

The purpose of this manual is to inform Branson Suppliers of our expectations regarding the Suppliers' quality management systems, design requirements, and manufacturing process controls required for the purpose of doing business with Branson Ultrasonics Corporation. This manual is an outline to help ensure Suppliers meet these expectations.

Scope

The requirements outlined in this manual applies to all direct Branson suppliers that provide materials, products, tooling and outside processing services, as well as any sub-tier suppliers.

Requirements

In this manual the terms "shall" and "must" mean that the described action is mandatory; "should" means the described action is necessary and expected with flexibility for discretion in the method of compliance; and "may" means that any action is discretionary or permissible.

3 CODE OF CONDUCT

Branson formalizes the key principles under which suppliers to Branson and Branson itself are required to operate. This formalization falls under the Emerson Ethics Policy. In selecting suppliers, Branson works hard to ensure that it chooses reputable business partners who are committed to the same ethical standards and business practices with those of Branson and Emerson.

This “Code” applies to all facilities involved in the production of good s and services to Branson worldwide.

Branson strongly encourages suppliers to exceed the requirements of this “Code” and promote best practices and continuous improvement throughout their operations. All Branson suppliers must operate in full compliance with applicable laws and regulations of the countries in which they operate and in full compliance with this “Code”.

4 GENERAL REQUIREMENTS

Branson has an expectation of **ZERO DEFECTS** on all products and services received from its Suppliers.

Based on the **ZERO DEFECT** expectation, the Supplier shall comply with Branson specifications and requirements and must:

1) Demonstrate compliance with:
    a. Design, performance, reliability, and applicable legal requirements.
    b. Process controls and capability requirements.
    c. All up to date Branson provided specifications.
2) Review and understand all Branson requirements provided to the Supplier related to the product or service to be provided. The Supplier shall conduct an APQP review that ensures such understanding and that appropriate resources are available to deliver the related product or service.
3) Establish a change control system that reacts to Branson product changes in a timely and accurate fashion. Change control system must also include the proper removal and discarding of obsolete documentation.
4) Have a documented quality management system in place that is either ISO 9000 certified or compliant that also includes continuous improvement in process and product quality.
5) Measurement of KPI’s as provided by Branson.
6) Maintain process, product, and service capabilities to fulfill Branson requirements.

7) Deploy Branson requirements, expectations, and controls throughout the Supplier's supply chain (sub-tier) and be responsible for its supply chain performance related to Branson product. *(In the case of Branson selected sub-tier suppliers, it is the responsibility of Branson to communicate the requirements, expectations, and controls and perform initial qualification protocols – once qualified to Branson requirements, performance responsibility lies with Branson's direct Supplier.)*

8) Posses the appropriate expertise to conduct root cause analysis and corrective/preventative actions.

9) Notify Branson of any potential or actual non-conformance in product supplied that may adversely affect its form, fit, function, quality, safety, reliability, or compliance to regulatory requirement.

10) Be responsible and accountable for the poor Supplier quality to Branson and its customers (see Section 9).

11) Comply with but not be limited to the following:
    a. Emerson Ethics Policy.
    b. Documented Quality Management System.
    c. Non-disclosure obligations.
    d. Branson specific requirements.
    e. Warranties.

Any exception or deviation to the requirements, terms, or conditions of this Supplier Quality Manual requires Branson's written approval.

5 SUPPLIER APPROVAL PROCESS

Branson requires all Suppliers be approved prior to the issuance of contracts or discreet purchase orders. All Suppliers must be approved by Branson, regardless of approvals by customers or other entities. The Supplier Approval Process ensures that the Supplier has documented and effective systems in place to provide products and services that fulfill Branson's specifications and requirements, and be capable of containing or reducing costs over time.

5.1 SUPPLIER ASSESSMENT

The level of scrutiny applied to the Supplier Approval Process will be based on complexity of the product or service to be purchased from the specific Supplier, commercial availability of the product to be purchased, or the level of critical importance of product in relation to the final Branson product. The assessment activity shall therefore include one or more of the following:

A) Supplier Initial Assessment

Branson may request the Supplier to provide a copy of its quality management system, a QMS certificate, and/or complete a self assessment of its business, quality management system, and outline of its capabilities.

B) Documentation Audit

In those situations where a Supplier does not have an accredited QMS from a qualified 3rd party, Branson may request a copy of the Supplier's Quality Manual, supporting procedure, internal audits, and other supporting documentation to determine the Supplier's ability to meet Branson requirements.

C) On Site Assessment

Branson may conduct a site assessment due to product or process complexity/criticality or the absence of sufficient evidence of capability as noted in items a) or b) noted above.

D) ESAC (Emerson Supplier Audit Checklist)

The ESAC is a comprehensive audit platform intended to conduct a comprehensive business review of an existing supplier or potentially new supplier. Its comprehension encompasses all elements outlined above in items a) through c). Its use is at the discretion of the individual site and relates to the preamble of the Supplier Assessment statement at the head of paragraph 5.1.

E) Technology & Process Assessment

This is an onsite audit conducted to ensure a proprietary or critical technology required by Branson can be met at the specified site being audited.

5.2 SUPPLIER APPROVAL

Upon successful completion of one or more of the above audit events, an approved Supplier will receive written notification from Branson. The Supplier is then allowed to participate in open bidding for business in their area of competency or if the business engagement was established on a specific RFQ activity may proceed up to the award of the new business.

Supplier approval is a contingent action; new or existing business is won and retained based on a number of factors that include considerations of cost, quality, lead time, and any other relevant business factors pursuant to Branson's business interests.

Quality requirements will be presented in subsequent sections of this manual that address Qualification in Section 6.2, Process Control in Section 7, and Dock to Stock in Section 10.

6 PRODUCT REALIZATION & QUALIFICATION

This section defines the generic requirements for production part qualification and approval. The purpose is to determine if all Branson design and specification requirements are properly understood by the Supplier and that the Suppliers' manufacturing processes have the capability and consistency to meet these requirements.

In the instances of a new product launch by Branson or in the cases of high value add engineering products such as tooling made for Branson, it is strongly recommended and encouraged that both Branson and the supplier collaborate early in the development & design process as possible. Early Supplier Involvement (ESI) activity in conjunction with Advanced Product Quality Planning (APQP) is indispensible in determining not just customer and product requirements, but also to identify manufacturability and potential failure modes through formal FMEA and DFM/DFA analysis.

6.1 REALIZATION: ADVANCED PRODUCT QUALITY PLANNING (APQP)

APQP is a structured method of defining and establishing the steps necessary to assure that a product satisfies the customer. The goal of product quality planning is to facilitate communication with everyone to assure that all required steps in the process are robust enough to address all known requirements and completed on time.

APQP is a team based initiative, with cross functionalization being an imperative to ensure success. Representation should include as required members from engineering, manufacturing, materials, purchasing, quality, sales, field service, suppliers, and customers as required.

APQP is a five part process as outlined here, with main activities and deliverables listed below:

1) **Plan and Define the Product**
    a. Design goals.
    b. Reliability & quality goals.
    c. Preliminary BOM.
    d. Preliminary process flow map.
    e. Preliminary listing of Critical To Function (CTF) or Critical To Process (CTP) features.
2) **Product Design and Development**
    a. Design Failure Mode & Effects Analysis (DFMEA).
    b. Design For Manufacturability and Assembly (DFM/DFA).
    c. Design reviews.
    d. Prototype builds.

e. Material specifications.
f. Tooling requirements.
g. Gage identification and testing equipment requirements.

3) Process Design and Development

a. Process Failure Mode & Effects Analysis
b. Process flow mapping.
c. Plant layout if required.
d. Work instructions.
e. Measurement systems analysis.
f. Packaging specifications
g. Preliminary quality system review and process capability study, if required.
h. Pre-launch control and/or inspection plans.

4) Product and Process Validation

a. Production trial run.
b. Measurement system evaluation.
c. Preliminary inspection and process capability study.
d. Product and/or design adjustments.
e. Final product and production validation testing.
f. Packaging evaluation.
g. Production control plan.
h. Quality sign off.

5) Feedback, Assessment and Corrective Action

a. Reduced variation.
b. Customer satisfaction.
c. Delivery and service.

The aforementioned schedule is iterative – meaning that each section can only commence or be completed provided the prior section is completed.

The aforementioned schedule is intended to be a guide, with the level of practice to be determined by all involved parties. Good practice for any APQP initiative, once level of detail is selected, that a checklist for each element be included as part of the overall project management to ensure adequate resources are assigned to each task with the appropriate sign off.

A complete outline and description of the APQP process, including sample forms are available through the Automotive Industry Action Group (AIAG).

6.2 QUALIFICATION

6.2.1 A minimum output from the APQP process for qualification of a component, sub-system, complete product, software, or a service is a First Article Inspection (FAI) to qualify the item being supplied to Branson.

The FAI requires that all features and characteristics on the design specification, control & inspection plan be verified and approved prior to production. Actual measured values shall be recorded by the supplier and the FAI documentation provided along with the item during the FAI submission. **Simple callouts such as "Pass" or "Fail" on any FAI document will not be accepted.**

In addition to an FAI, Suppliers shall at a minimum develop either a Control Plan or Inspection Plan identifying CTF and CTP characteristics that are key to achieving quality. **C=0** is the requirement to pass a Branson FAI.

Quantity of parts submitted for FAI activity will be determined by Branson and be established using the following formula:

$N=[(\Phi \times \sigma)/E]^2$

N = Sample size number.
E = Maximum error in units.
Φ = Confidence level (95% with a constant of 1.96 or 99% with a constant of 2.58).
σ = Actual or estimated standard deviation of the process to be evaluated.

The required quantity of samples will be included in the body of the purchase order for either the item being contracted or as a separate submission.

Once the FAI process is completed, Branson will accept product through its internal cross functional sign off process PCSA (Purchased Component Supplier Acceptance).

6.2.2 When required by Branson, the Supplier shall submit to Branson a more comprehensive qualification package designated as the Production Part Approval Process (PPAP). The PPAP shall consist of the following items unless exempted by Branson:

A) Design Records, Change Documents, Other Branson Approvals

The Supplier shall have the latest engineering & specification documentation detailing the item(s) to be furnished to Branson. These include drawings, Engineering Change Orders, specification sheets, or other documentation signed and dated by appropriate Branson personnel.

B) Process Flow Diagram

The Supplier shall have a visual diagram of the proposed or current process, which shall clearly describe the production processes and sequences to meet Branson requirements.

C) FMEA

An FMEA is an analytical technique utilized to assure as extent as possible, that potential failure modes and their associated causes and mechanisms have been considered and addressed as early as possible in either the design phase of the product or as the project cascades into manufacturing. End items along with every sub-system, sub-assembly, or pertinent component should be evaluated.

Suppliers with product design responsibility shall develop a Design FMEA in accordance with Branson requirements. A single DFMEA may be applied to a family of similar parts, items, or other materials. A Process FMEA is required for any goods producing Supplier in accordance with Branson requirements. A single PFMEA may be applied to a family of parts, items, or other materials.

D) Measurement System Analysis

Suppliers must develop or obtain pertinent gaging to control their processes and to determine product conformance. Variable gages and measurements are required unless otherwise specified by Branson. Depending on the feature to be measured, alternate methods or gaging may be allowed, however in such instances correlation studies will be required to compare such methods to Branson gages and methods. Measurement System Analysis (MSA) studies may include Gage R&R, Bias, Linearity, or Stability depending on the application or item to be measured. Any features designated as CTF or CTP will require gaging to be subject to a formal Gage R&R study with acceptance criteria as follows:

GR&R <= 10%	The measurement system is approved.
GR&R < 30%	The measurement system may be approved, subject to Branson process review.
GR&R > 30%	The measurement system cannot be approved.

E) Control Plan

The Supplier shall have a Control Plan that takes the output from the DFMEA and/or PFMEA and defines all methods used for process monitoring and control of specified features and CTF and CTP characteristics. The Control Plan is a "living document" and shall be revised as changes are made to the product, process, and when quality issues are found.

F) Process Capability Study

An acceptable level of process capability is required for all CTF and CTP characteristics and is to be determined prior to production and approved by Branson. Based on capability study analysis the default minimum accepted values for process capability criteria are as follows:

Short term (Cp and Cpk): => 1.67
Long term (Pp and Ppk): => 1.33

In the case where acceptance criteria are not met prior to the first production, a corrective action plan is to be submitted to Branson by the Supplier, for Branson approval. In conjunction with the corrective action plan, it is expected that the supplier will effect necessary corrective actions to meet the acceptance criteria.

Non-conformance to process capability requirements may require 100% inspection until compliance is attained.

In the case of statistical control, but lack of capability (Cp/Pp =>1.33 and Cpk/Ppk <=1.0) Branson will review the characteristic for proper dimensioning and tolerance. The Supplier must provide data of the statistical analysis for this review. Based on Branson's evaluation of the data, the Supplier process, and the criticality of the characteristic, it will be the purview of Branson to accept, reject, modify the specification, and/or "retarget" the value of the characteristic.

G) Certifications and Test Reports

As required the Supplier shall provide evidence that all testing has been conducted, verified, and is in compliance with the specified requirements. Recordkeeping requirements as they relate to each qualification event will specified by Branson at the time, along with the type of qualification method chosen.

For the PPAP process, there are five levels of Approval Documents that are outlined in the Part Approval Documentation matrix noted below:

Part Approval Documentation	Level 1	Level 2	Level 3	Level 4	Level 5
Design Record	R	S	S	*	R
Engineering Change Documents	R	S	S	*	R
Engineering Approvals	R	R	S	*	R
Design & Process FMEA	R	R	S	*	R
Process Flow Diagrams	R	R	S	*	R
Control Plans	R	R	S	*	R
Measurement System Analysis	R	R	S	*	R
Dimensional Analysis	R	S	S	*	R
Material, Performance, Reliability Tests	R	S	S	*	R
Process Capability Studies	R	R	S	*	R
Laboratory Documentation	R	S	S	*	R
Part Appearance Approval Forms/Report	S	S	S	*	R
Sample Parts	R	S	S	*	R
Master Sample Parts	R	R	R	*	R
Checking and/or Visual Aids	R	R	R	*	R

S = Shall be submitted to Branson and the Supplier will retain a copy of the records on site.
R = Shall be retained by the Supplier on site, but be made available to Branson on request.
* = Shall be retained by the Supplier on site, but submitted to Branson on request.

7 PROCESS CONTROL

This section defines basic necessities for Suppliers to control their manufacturing processes. These are intended to be guidelines only – Branson does not mandate to Suppliers how to manage their operation, but does require their output meet Branson requirements for **ZERO DEFECTS** measured as **C=0.**

For those items not governed by Statistical Process Control and subject to a sampling control method, the following **C=0** matrix shall be used:

Lot Size	AQL									C = 0 Matrix
	0.25	0.40	0.65	1.00	1.50	2.50	4.00	6.50	10.00	
2 - 8	*	*	*	*	*	5	3	2	2	SAMPLE SIZE
9 - 15	*	*	*	13	8	5	3	2	2	
16 - 25	*	*	20	13	8	5	3	3	2	
26 - 50	*	32	20	13	8	5	5	5	3	
51 - 90	50	32	20	13	8	7	6	5	4	
91 - 150	50	32	20	13	12	11	7	6	5	
151 - 280	50	32	20	20	19	13	10	7	6	
281 - 500	50	48	47	29	21	16	11	9	7	
501 - 1200	75	73	47	34	27	19	15	11	8	
1201 - 3200	116	73	53	42	35	23	18	13	9	
3201 - 10,000	116	86	68	50	38	29	22	15	9	
10,001 - 35,000	135	108	77	60	46	35	29	15	9	
35,001 - 150,000	170	123	96	74	56	40	29	15	9	
150,001 - 500,000	200	156	119	90	64	40	29	15	9	
500,001 and over	244	189	143	102	64	40	29	15	9	

(*) indicates the entire quantity must be inspected.

The above numbers are the sample quantities for each corresponding production batch. In all cases **C=0**.

As outlined in Section 6.2 Qualification, there are two means for attaining authorization for production, successful completion of either a FAI or PPAP. At a minimum the Supplier shall institute an inspection plan that details the characteristics to be measured on an ongoing basis. These characteristics will be quantitative and be recorded on the inspection plan. Any identified CTF or CTP characteristics will be recorded into the inspection plan. Any items subject to a PPAP will require both a control plan and inspection plan.

To ensure traceability, the Supplier will employ a Work Order or other Manufacturing Order system with this nomenclature documented on the inspection plan. Other information to be included on the inspection plan will be the lot of raw material employed – preferable the material c of C will also be recorded into the inspection plan thereby rendering the document as a "Part Master Record" for that specific batch of material.

Guidelines for both control plans and inspection plans are available for reference on the AIAG website. Templates are also available for download and are customizable in either Excel or Word formats.

Additional elements for suppliers to consider in their approach to effecting process control are:

A) **Error Proofing:** Branson strongly recommends that all suppliers incorporate some manner of **Lean** and specifically **poke yoke** into their manufacturing process to yield high quality as well as provide for a less complex process on their operators. Poke Yoke has also proven an effective means of invoking cost containment through complexity reduction.

B) **Work Instructions:** Branson strongly recommend the employment of work instructions that document the individual process steps for operators that are responsible for providing product quality. These instructions should be kept current and easily accessible to employees, but controlled.

C) **Control of Measuring Devices:** The Supplier shall maintain a control system for measuring devices with regard to storage, maintenance, and calibration. Objective evidence of conformity is to be provided on request to Branson for those devices employed in the manufacture of its product. At a minimum the measuring devices must be calibrated at specified intervals prior to use against measurement standards traceable to international or national standards.

D) **Statistical Process Control:** As derived from the PPAP and required in the Control Plan, the Supplier is required to apply effective statistical process controls that are documented and lot specific. See Section 6.2.2 paragraph F for acceptance criteria on SPC. Reference AIAG SPC manual for detail on conducting SPC.

E) **Preventative Maintenance:** Branson recommends that the Supplier have a formal PM schedule for key processing equipment and work towards a total preventative maintenance system.

F) **Shelf Life Control:** Suppliers shall practice FIFO for all perishable materials consumed in the manufacture of Branson products. As required, the Supplier shall furnish on request data that shows: a) the cure or manufacture date, b) expiration date of shelf life, c) lot or batch number. For Shelf Life limited materials, the remaining for open containers shall be a minimum of 75% of the total shelf life of the material.

G) **Operator Self Verification:** Branson recommends quality at the source, meaning that operators should be responsible for the quality of their own work. In this regard, it is strongly encouraged that operators at Supplier site be familiar with all pertinent Branson documentation, the use of appropriate measuring tools & devices, product indicator status, and that they have objective evidence that shows such proficiency in the form of training records.

H) **Raw Material Lot Control:** The Supplier shall maintain traceability of raw materials to the processing batch. Branson requests at a minimum of Certificate of Conformance (C of C) with each receipt of product received that ties back to the raw material processing batch. The raw material processing batch number will be recorded on each Supplier work order to ensure traceability as outlined earlier in this section. Traceability shall be provided by identification of the raw material heat, lot, batch, or melt number from the C of C or on any other commodity used in the manufacture of Branson product.

8 CHANGE CONTROL

The Supplier is responsible for controlling changes initiated by Branson and cascading them throughout their internal production processes. The Supplier shall have a process to ensure that relevant versions or revision levels are available at points of use in the production process.

In the cases of changes initiated by Branson, the Supplier is responsible for timely review of change, determine feasibility, and provide feedback to Branson as to the timing of the implementation or exception to the initiated change. Timely review should be as soon as possible and shall not exceed (2) weeks from receipt of any drawings, specifications, or other written documentation as provided by Branson. The Supplier shall maintain a record of date as to which each change is implemented in their process.

In the cases of changes initiated by the Supplier, no changes shall be implemented that affect processes, location, facilities, equipment, material, product design, or any other change that may affect form, fit, function, or quality levels without written approval from Branson. In the case of such changes, a qualification process shall be conducted to verify form, fit, function, and part quality to previous levels or measures (ie: Cpk/Ppk). Any and all changes referenced above will also require updates to FMEA's, Control Plan's, Inspection Plan's, and other relevant documentation.

In the case where an approved supplier has been acquired by another firm necessitating a name change a requalification is not necessary provided that no manufacturing process changes to Branson products have been enacted.

9 NON-CONFORMING MATERIAL

The following sections provide the outline and requirements applicable in the case of Non-Conforming product.

9.1 FEES

For non-conforming products administered by Branson, either those that reach Branson customer site or those managed internally within Branson, the Supplier shall cover all costs to correct and related to the non-conformance.

9.2 NON-CONFORMANCES IDENTIFIED PRIOR TO SHIPMENT

For non-conforming products identified by the Supplier prior to shipment to Branson, product is not to be shipped without written authorization from Branson in the form of a Branson Deviation. Until such a deviation is authorized by Branson and received by the Supplier, the Supplier is to withhold shipment, product is to be segregated in the Supplier facility, quarantined, and marked appropriately as "HOLD".

As part of the deviation process, Branson will require pertinent data from the Supplier corresponding to form, fit, function, and any quality measures deemed CTF or CTP. All deviation requests shall specify work order or batch information for traceability, date & time, and quantity affected.

Deviations shall not be construed by the Supplier as a permanent deviation or Engineering change.

9.3 NON-CONFORMANCES IDENTIFIED AFTER SHIPMENT

For non-conforming products identified by the Supplier or Branson after shipment to Branson, one of the following immediate containment actions shall be initiated based on mutual agreement between Branson and the Supplier, and subject to Branson's sole and final discretion:

1) The Supplier shall inspect and sort suspect product at any defined location (Branson, 3rd party supplier, customer, or other). All costs incurred will be at the Supplier's expense.
2) The suspect batch of parts will be retained and be subject to:
    a. Supplier's immediate replacement of product.
    b. Return of product to the Supplier with the condition of complete replacement, sorting, or rework. **Rework** is defined as additional operations that are not part of the basic production process flow, and is required to bring product in full compliance of specification.
    c. As required, 3rd party sorting at any site specified by Branson.
    d. Supplier sorting at Branson's facilities.
    e. Scrap depending on the nature of the non-conformance.

9.4 CORRECTIVE AND PREVENTATIVE ACTIONS

Branson may request a Supplier Corrective Action Report (SCAR) from the Supplier when non-conforming material, components, assemblies, or other items are found. When requested, the accepted Branson format is a Corrective Action Report form that uses the 8D protocol.

Branson strongly recommends detailed understandings on Root Cause, as the elimination of such conditions will result in the elimination or reduction of the problem. Underlying issues in investing Root Cause are as follows:

1) Why the specific non-conforming condition occurred.
2) Why was it not detected by the Supplier's quality controls.
3) Why did the related production process allow the non-conformance to occur – is the process capable?

SCAR Timeline is defined as follows:

1)	Acknowledgement on receipts of complaint from Branson.	24 Hours
2)	Supplier containment plan and report to Branson.	72 Hours
3)	Supplier completed SCAR report submitted to Branson.	20 Days

Statements from the Supplier indicating the corrective action is to "alert" or "retrain" operators, and/or increase inspection are NOT acceptable corrective actions and will be rejected. The purpose of SCAR issuance and adhering to the 8D protocol is to address the underlying issues of non-conformance and variability that were not detected by the Supplier quality system, and to remove or eliminate these causal factors.

10 DOCK TO STOCK PROGRAM

Branson expects to receive product from Suppliers with **ZERO DEFECTS** allowing product to move directly from dock to stock or point of use thereby eliminating the additional costs and time associated with receiving inspection. Where allowed, Branson's individual plants will administer Dock to Stock programs on the basis of individual part numbers, product families or overall Supplier performance.

Where implemented Dock to Stock applies to materiel, components, assemblies, and other items released for production that ship to a particular Branson location. Branson reserves the right to inspect any product upon receipt at any time and may cancel the program at any time up to its discretion.

Dock to Stock does not typically apply to pre-released parts, samples, prototypes, pilot run items, 1st articles from new tooling, tooling, and any other "one off" processes.

10.1 DOCK TO STOCK REQUIREMENTS

To be considered for Dock to Stock, the product must meet the following requirements:

- Must be from an approved Supplier.
- The Supplier must deliver (8) consecutive lots of acceptable product of the same part number to the same Branson location.
- The Supplier must not be rated as having unacceptable product quality performance.
- The Supplier shall not have any open or delinquent corrective action requests.

10.2 DOCK TO STOCK SUSPENSION

Dock to Stock status may be suspended when any of the following conditions occur:

- A part number is detected or found to be non-conforming.
- When a Supplier violates protocol for any Branson established Control or Inspection plans.
- Failure of the Supplier to close any open or delinquent corrective action requests.

In the event of suspension of Dock to Stock, Branson will notify the Supplier. Branson will also request a Corrective Action from the Supplier and notification that privileges for Dock to Stock will not be forthcoming until such a time that the Corrective Action has been approved by Branson and that the Supplier has provided the requirements noted in Section 10.1.

In the event of repeated suspensions to the Dock to Stock program, at its discretion Branson will place the Supplier on probation of any new business awards and/or divert business away from the Supplier.

11 SUPPLIER PERFORMANCE

Branson's evaluation system uses a number of factors to develop an Overall Supplier performance rating. Scoring factors are based on, but not limited to:

- Quality performance, (Parts Per Million - PPM).
- Delivery performance,(On Time Delivery - OTD).
- Service performance, (8D, PPAP, FAI, response time, etc.).
- Claims performance, (Number of new complaints and those remaining open.).
- Annual spend, (Monetary).
- Cost savings, (Monetary).

While all metrics are pertinent, from an operations perspective preferred weighting is applied to PPM, OTD, and Claims performance. These are measures tracked monthly with visibility to Executive Management.

In the case of non-compliance to goals, unsatisfactory performance will require corrective action. Supplier performance management is closely tied to promoting and demoting Supplier status within Branson's supply chain system. A Supplier's failure to fulfill Branson's requirements can result in, but not be limited to new business hold and/or phase out.

Supplier's identified for corrective action to performance is based on measures from the previous (6) months. Those Supplier's with the lowest performance scores will be evaluated against other firms of the same commodity. Meetings between Branson and the selected "worst" suppliers with participation from their senior management will be scheduled to address remediation or potential separation. In case of the latter, focus of discussions will be on a workout plan to exit the Supplier from Branson's portfolio.

11.1 PERFORMANCE MEASURES

QUALITY

This metric defines the defects in Parts Per Million using the formula noted below:

$$\text{PPM} = \frac{\text{Number of Parts Rejected}}{\text{Number of Parts Received}} \times 1{,}000{,}000$$

Acceptable: less than or equal to 2,700.
Marginal: greater than 2,700, but less than 6,200.
Unacceptable: greater than 6,200.

DELIVERY

This metric defines the delivery rating using the formula noted below:

$$\text{OTD} = \frac{\text{Number of Lines Received – Late Line Receipts}}{\text{Number of Lines Received}} \times 100$$

Acceptable: greater than or equal to 95%.
Marginal: greater than 80% but less than 95%.
Unacceptable: less than 80%.

CLAIMS PERFORMANCE

This metric is a summation of the total number of complaints outstanding grouped into new incidents plus those remaining open for a given period (one month).

Acceptable:	less than or equal to 2.
Marginal:	greater than 2, but less than 6.
Unacceptable:	greater than 6.

12 TRACEABILITY & RECORDKEEPING

Items requiring traceability shall be identified during the APQP process of a project and cascaded to the Supplier. Specific requirements for traceability will be communicated to the Supplier via individual specifications, drawings, or other written correspondence.

Where traceability is required, certifications, process, test, or inspection data shall be available to Branson for period of not less than (10) years or as specified by Branson.

13 DEFINITIONS

8D

A structured problem solving process that includes eight elements or disciplines associated with identifying the specific problem issue, root cause of the problem, development of alternate solutions, selection of the appropriate solution, and then effecting corrective action to the specific problem while invoking preventative actions to avoid reoccurrence.

Capability

The maximum amount of variation inherent in a manufacturing process. Improving process capability involves the implementation of control measures to limit the amount of variation to within acceptable limits bring the process under control.

Capability Index

The comparison of available tolerance to the portion of tolerance consumed by a process in statistical control.

Cp

The short term capability index for a stable process defined by the equation: (USL – LSL)/6σ_c.

CPk
The short term capability index for a stable process defined by the minimum of CPU or CPL or the equation: Zmin/3. CPk relates the scaled distance between the process mean and the closest specification limit to half the process spread.

Control Plan
Control document that contains an outline of all manufacturing operations throughout the value stream with associated mechanisms that ensure outputs remain in a state of control.

FMEA
A preventative analytical technique to methodically study the cause and effect of potential failures in a product or the product's process.

Gage Repeatability & Reproducibility (Gage R&R)
The evaluation of gauging and instrument's accuracy by determining whether the measurement taken with such equipment is repeatable and reproducible.

PCSA

Purchased Component Supplier Approval: Branson internal cross functional sign off and approval document that releases a new supplier to provide a specified component, sub-system, complete system, service, or any other outsourced item in Branson's value stream.

Pp
The long term capability index for a stable process defined by the equation: (USL – LSL)/6sp.

PPk
The long term capability index for a stable process defined by the minimum of CPU or CPL or the equation: Zmin/3. PPk relates the scaled distance between the process mean and the closest specification limit to half the process spread.

Process Capability
The range over which the natural variation of a process occurs as determined by the system of common causes.

Critical to Function / Critical to Process Characteristics
Product characteristics and process parameters that have a significant influence on product performance and/or safe and proper use of Branson product.

Revision Level	Revision Date	Revised By	Approval	Section Revised
0	5/5/2014	M.Santos	M.Santos	Initial Release
1	5/20/2014	M.Santos	J.Dillon, J.Piasecki, S.Latona	Initial Staff Revew and Approval
2	7/16/2014	M.Santos	M.Santos	Section 4.0. Added Revision Log.
3	9/3/2014	M.Santos	M.Santos	Section 11.1. Corrected OTD calculation to "Lines" versus parts.
4	10/12/2015	M.Santos	M.Santos	Sec. 6.2.1 Sample size and PCSA.
5	10/12/2015	M.Santos	M.Santos	Sec. 8.0 Supplier Acquisition Rule
6	10/12/2015	M.Santos	M.Santos	Sec. 13.0 Added PCSA definition.
7	10/12/2015	M.Santos	M.Santos	Header: Changed release date to 10/12/15 and Revision.