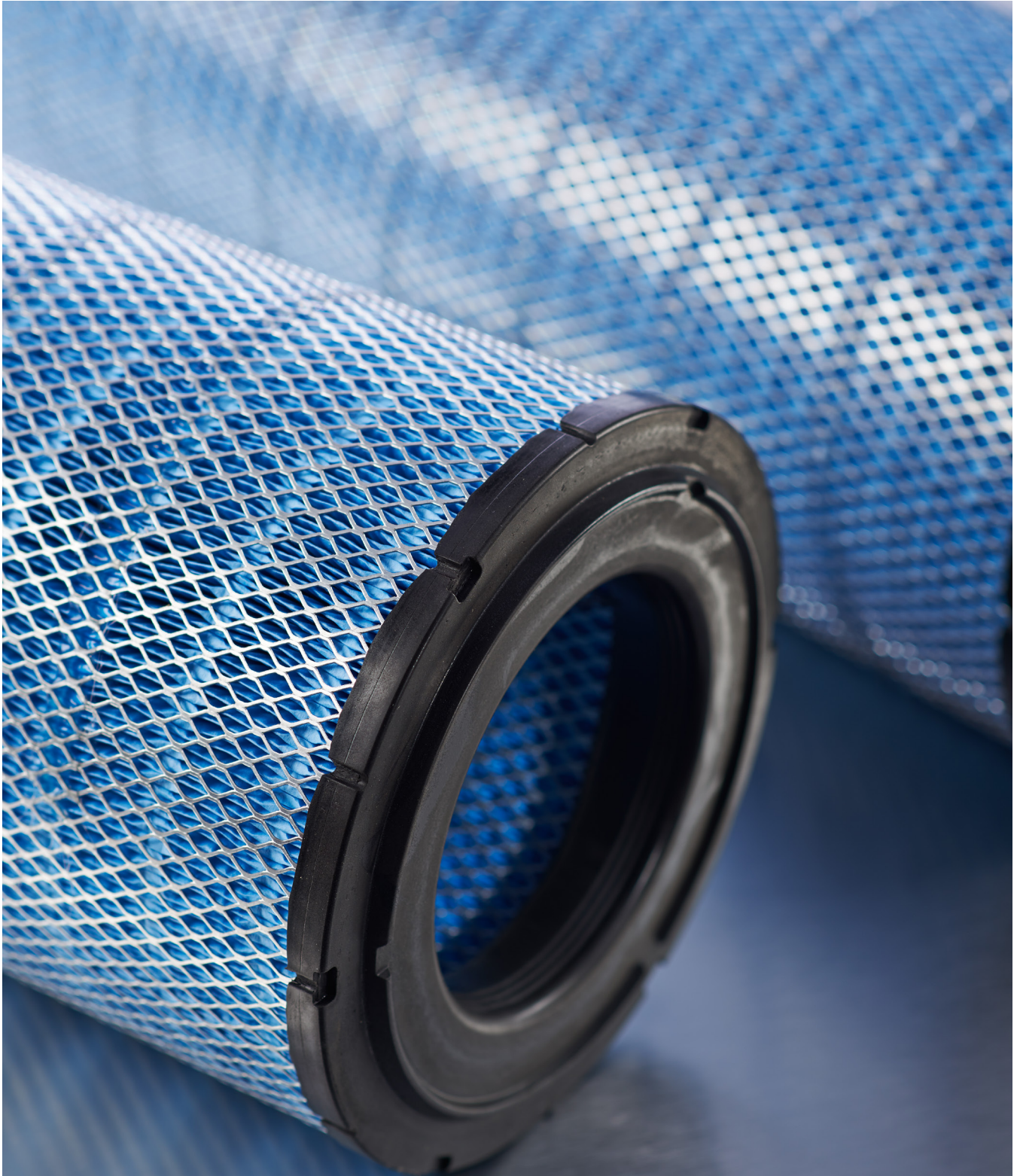




Donaldson Company, Inc.

# Supplier Quality Manual (DSQM)



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### Acronyms

DCI – Donaldson Company Inc.
DBV – Donaldson Buys Value Program
CSR – Corporate Social Responsibility
DSQM – Donaldson Supplier Quality Manual
DPPM – Defective Parts Per Million
ISO 9001 – International Organization for Standardization
IATF 16949 - International Automotive Task Force Quality Management System Standard
AS9100 – Aerospace & Defense Quality Management System Standard
NADCAP - National Aerospace and Defense Contractors Accreditation Program
ISO 13485 - Quality Management and Systems Standard for Medical Devices and Related Services
RFQ – Request for Quote
PO – Purchase order
SPPAP – Supplier Production Part Approval Process
PSW – Part Submission Warrant
8D – 8 Step Problem Solving Approach
AIAG – Automotive Industry Action Group
APQP – Advanced Product Quality Planning and Control Plan
CPK – Continuous Process Capability
PPK – Process Potential Capability

## 1.0 Introduction

Donaldson Company Inc. (Donaldson) is a global manufacturer and distributor of filtration equipment into a diverse range of industries and applications. Founded in 1915 by Frank Donaldson, the company initially provided air filtration equipment to the agricultural market, and over the next 100 years, the company has expanded and diversified their product portfolio and geographic locations. Today, Donaldson's global operations are based on discrete business units and have manufacturing facilities around the world that ensure meeting of statutory and regulatory requirements globally and locally.

### Our Principles:

- **ACT WITH INTEGRITY:** We deliver on our commitments and are accountable for our actions – we do what we say we will do.
- **ENGAGE AND EMPOWER OUR PEOPLE:** We have a richly diverse and inclusive culture, and provide opportunities for our people to grow, build successful careers and make meaningful contributions.
- **DELIVER FOR CUSTOMERS:** We understand, anticipate and prioritize customers' needs, delivering differentiated products and solutions that enable their success.
- **CULTIVATE INNOVATION:** We pursue innovation in everything we do, from continuous improvement in our processes to breakthrough solutions that create value and competitive advantage.
- **OPERATE SAFELY AND SUSTAINABLY:** We are committed to safety in the workplace, being good stewards of natural resources and reducing our environmental impact.
- **ENRICH OUR COMMUNITIES:** We share our time, resources and talent to make a positive impact in the world.

## 1.1 Donaldson Overview

Donaldson serves a diverse range of customers across multiple industries, providing tailored Products and Solutions to meet unique needs. These industries include **Aerospace & Defense, Agriculture, Automotive, Biotechnology, Construction, Disk Drive, Electronics, Energy, Food & Beverage, Forestry, Imaging, Industrial Process, Manufacturing, Marine, Material Handling, Medical, Mining, Oil & Gas, Packaging, Pharmaceuticals, Powertrain, Power Generation, Railroad, and Transportation.**

For a comprehensive and up-to-date list of Donaldson's products, please visit:

Web Site: <https://www.donaldson.com/en-us/products/>

Donaldson complies with all customer-specific and industry-specific contractual quality system requirements. This includes adherence to the most current revisions of ISO 9001, IATF 16949, and AS/EN9100, which form the foundation of the Donaldson Buys Value (DBV) Program and the Donaldson Supplier Quality Manual (DSQM). These standards ensure that Donaldson maintains the highest quality practices to meet customer expectations.

## 1.2 Quality Commitment



## 1.3 Environmental Health & Safety Commitment & Corporate Social Responsibility

Donaldson is dedicated to maintaining consistently high standards of ethics and conduct in all business operations worldwide. Environmental, Health, and Safety (EHS) excellence is a core value at Donaldson. The company is committed to minimizing its environmental impact, conserving resources, and ensuring workplaces that are safe, compliant, and healthy for employees, visitors, and surrounding communities.

Donaldson similarly expects its Suppliers to direct efforts in the following areas:

- **Collaborate with Donaldson** to promote the safe, sustainable, and compliant use of products and services.
- **Establish robust EHS systems** to meet or exceed applicable laws and regulations in the countries where they operate.
- **Set measurable EHS goals and report progress** in protecting employees and reducing environmental impacts through initiatives such as pollution prevention, energy efficiency, and waste minimization.
- **Reduce exposure to hazards** that could harm individuals or the environment, striving for continuous improvement in health, safety, and environmental performance.
- **Pursue certifications** for the latest versions of **ISO 14001** (Environmental Management), **ISO 45001** (Occupational Health and Safety), and **ISO 50001** (Energy Management).

Corporate Social Responsibility (CSR) and Sustainability are integral to Donaldson's strategy. These efforts ensure that social, governance, environmental, and supply chain sustainability practices are embedded into both daily operations and long-term corporate objectives.

## 1.4 Purpose

**The Donaldson Supplier Quality Manual (DSQM)** is designed to clearly communicate Donaldson's quality requirements to its suppliers. It ensures that customer expectations and requirements are effectively flowed down to the supply base, a critical step in maintaining Donaldson's commitment to quality and exceeding customer expectations.

This manual defines key quality-related interactions between Donaldson and its suppliers, providing guidance on tasks, documentation, responsibilities, and performance metrics. It also serves as a resource for accessing additional information needed to support a strong, collaborative partnership focused on quality excellence.

## 1.5 Scope

This manual applies to all suppliers providing parts, materials, tooling, and services to Donaldson locations worldwide. Together with the Donaldson Buys Value (DBV) Program, it outlines the primary quality and service requirements essential for successful collaboration.

## 1.6 Quality Requirements and Expectations

### Suppliers Doing Business with Donaldson

Suppliers working with Donaldson shall prioritize long-term relationships, aligning with both Donaldson's and Donaldson's Customers' expectations. Our goal is to provide the best "value" for purchased products, which we define as a combination of Safety, Quality, Service, Cost, Innovation, and Corporate Social Responsibility (CSR).

### Donaldson Customer Requirements

Donaldson customers demand high-value products and services with consistent performance and reliability.

These expectations include:

1. **Safety:** Full conformance with industry and regulatory safety standards.
2. **Quality:** Zero defects with no more than 50 DPPM unless otherwise specified.
3. **Delivery:** 100% on-time delivery (OTD) of all products and services.
4. **Cost Competitiveness:** Maintaining market-aligned pricing while ensuring superior quality and service.
5. **Innovation:** Proactively delivering solutions to enhance functionality and efficiency.
6. **Corporate Social Responsibility (CSR):** Responsible sourcing, environmental sustainability, and adherence to ethical labor practices.

New Suppliers will be required to review, submit, and approve supplier onboarding documentation, which highlights Donaldson's requirements, along with, Donaldson's Customer requirements. To ensure that Donaldson and Donaldson Customer-specific

requirements are clearly communicated, Purchase Orders (POs) will serve as the primary vehicle for the flow down of these expectations to suppliers, as an approve supplier. Suppliers are required to review each PO and comply with all relevant customer requirements, regulatory standards, and specific conditions outlined by Donaldson. These may include, but are not limited to, safety, quality, delivery, cost, innovation, and CSR requirements.

**Donaldson Buys Value (DBV) Program**

The Donaldson Buys Value (DBV) Program serves as the comprehensive framework guiding the relationship between Donaldson and its suppliers. This program defines the expectations and standards that suppliers must meet to ensure a consistent level of quality, timeliness, and cost-effectiveness in all products and services provided to Donaldson. A copy of the DBV manual, outlining detailed guidelines and requirements, can be found on the Donaldson Supplier website at:

<https://www.Donaldson.com/en/supplier/dbv/index.html>

Donaldson expects suppliers to deliver materials, parts, assemblies, tools, and services that meet our precise engineering specifications, with minimal variation. In addition, suppliers must adhere to our on-time delivery requirements, ensuring all products are delivered as agreed, and they must maintain cost competitiveness without compromising quality.

For further information on shipping requirements, please refer to the Donaldson Supplier Shipping Guidelines available at:

<https://www.Donaldson.com/en/supplier/shipping/index.html>

By adhering to the DBV Program and following these traceability and shipping protocols, suppliers contribute to the efficient and effective flow of goods, ensuring that Donaldson’s high standards of safety, quality, and customer satisfaction are consistently met.

**1.7 Supplier Code of Conduct & Sustainability Policy**

Donaldson and its global affiliates are united by a shared commitment to our **Core Values of Integrity, Respect, Innovation, and Commitment**. In alignment with these values, we are dedicated to upholding the highest standards of ethics and business conduct in every market and in all our business relationships worldwide, including those with our suppliers.

Just as we hold our employees to the highest ethical standards, we expect our suppliers to conduct all business activities in accordance with **Donaldson’s Supplier Code of Conduct & Sustainability Policy** at all times. This policy, along with the specific obligations outlined in purchase orders and agreements with Donaldson, reflects the minimum standards we expect from our suppliers in the areas of ethical behavior, conformance, and sustainability.

It is important to note that the **Supplier Code of Conduct & Sustainability Policy** is intended to complement, not override, any existing contractual terms. In the event of a conflict, suppliers are expected to prioritize conformity with applicable laws and regulations, followed by the contract terms, and finally, the Supplier Code of Conduct.

The most current version of the Supplier Code of Conduct & Sustainability Policy is available for review on our supplier website: <https://www.Donaldson.com/en/supplier/index.html>

By adhering to this policy, suppliers help maintain the high ethical standards and **sustainability goals** that are central to Donaldson’s long-term success and reputation.

**2.0 Quality Management Requirements**

All suppliers to Donaldson must maintain an effective Quality Management System (QMS) to consistently meet Donaldson requirements. Adherence to recognized industry standards is crucial for ensuring high quality. Supplier performance directly impacts the quality and reliability of Donaldson’s products and services, making a robust QMS essential for all partners. Suppliers must document processes to ensure:

1. Conformance to Donaldson specifications and engineering standards
2. Continuous improvement in quality, delivery, and cost
3. Identification, analysis, and mitigation of risks in production and supply

**Flow-Down of Donaldson Customer Requirements**

To ensure that Donaldson’s and Donaldson customers’ expectations are consistently met, Tier 1 suppliers are required to adhere to, as well as cascade all relevant Donaldson requirements down to their supply base, including subcontractors and sub-tier suppliers. This includes, but is not limited to:

1. Engineering specifications

2. Material and process requirements
3. Quality system requirements, including specific customer-driven mandates
4. Delivery expectations and performance metrics

The Tier 1 supplier must ensure they and their supply base can meet these requirements and demonstrate effective communication and implementation within their supply chain.

**Evidence of Flow-Down Requirements**

Tier 1 suppliers may be required to provide evidence of the following:

1. **Documented Communication:** Copies of purchase orders, contracts, or agreements showing that Donaldson requirements have been flowed down to sub-tier suppliers.
2. **Supplier Acknowledgment:** Proof that sub-tier suppliers have reviewed and acknowledged receipt of the relevant Donaldson requirements.
3. **Sub-Tier Audits and Monitoring:** Records of audits, inspections, or assessments conducted to verify conformance with Donaldson requirements within the supply base.
4. **Training Records:** Documentation that sub-tier suppliers have been trained on Donaldson-specific requirements when applicable.
5. **Corrective Actions:** Evidence of resolution for any issues related to non-conformances with Donaldson requirements within the supply base.

**Supplier Accountability**

Tier 1 suppliers are fully accountable for the quality and conformance of all products and services provided to Donaldson, regardless of whether the work is performed internally or outsourced to sub-tier suppliers. Donaldson reserves the right to verify conformance at any level of the supply chain, including sub-tier suppliers.

Suppliers are encouraged to maintain an open line of communication with Donaldson regarding any challenges in meeting customer requirements, including flow-down to the supply base. Proactive engagement with Donaldson to address such issues is critical to maintaining a successful partnership.

**2.1 Certification**

**Supplier Certification and Quality Standards**

All suppliers delivering products and services to Donaldson are required to be ISO 9001 certified as a minimum. Suppliers who are not currently certified to ISO 9001 must submit a detailed action plan and timeline for achieving certification within the first three months following the business award.

Depending on the Donaldson business unit and/or customer-specific requirements, additional certifications may be required for the supplier, such as:

Donaldson also encourages suppliers to obtain the latest versions of **ISO 45001** (Occupational Health & Safety), **ISO 14001** (Environmental Management), and **ISO 50001** (Energy Management) certificates to enhance their quality and sustainability practices.

**Certification Management**

Evidence of a fully functioning Quality Management System (QMS) is provided by a third-party registrar. It is the supplier’s responsibility to

Business Unit	Standard(s)	Key Requirements
All Donaldson Business Units	ISO 9001:2015	Quality Management System Customer Focus Leadership
<b>Mobile Solutions / Aftermarket:</b> Engine On-Road <b>Life Sciences:</b> Vehicle Electrification	IATF 16949:2016	Automotive Quality Management Risk Management
<b>Industrial Solutions:</b> Aerospace & Defense	AS9100 / NADCAP	Aerospace Quality Management Product Safety Special Processes
<b>Life Sciences:</b> Medical Devices	ISO13485:2016	Medical Device Management

provide Donaldson with an up-to-date copy of their applicable certificates. If the re-issuance of a certificate is delayed, the supplier must notify **Donaldson Supplier Quality and Procurement** before the current certificate expires and provide a timeline for recertification. Upon successful recertification, the supplier must submit the updated certificate to Donaldson.

Certification status is a critical factor in doing business with Donaldson. Failure to obtain or maintain the required certifications can negatively impact the supplier's standing and relationship with Donaldson.

#### **Exemption from Certification**

Certain suppliers may be exempt from certification requirements, depending on the nature of the materials, parts, services, or business units they serve. This exemption is determined by **Donaldson Global Supplier Quality and Procurement**, based on a risk evaluation. Examples of suppliers who may be exempt from certification requirements include:

- **Fast prototyping suppliers**
- **Suppliers of non-production related materials or services**
- **Suppliers delivering catalog items**

A Supplier Change Request (SCR) form is provided by Donaldson and required to be approved by Donaldson for waiving ISO 9001 certification for non-exempt suppliers. If requested by Donaldson, suppliers must include specified **certificates of analysis, test reports,** and/or **inspection certificates** with each shipment. The cost of obtaining and shipping these certificates will be borne by the supplier, particularly in cases of **non-conformity** or deliveries with inconsistent quality.

By maintaining certifications and quality standards, suppliers contribute to the overall success and reliability of Donaldson's products and services.

## **2.2 Non-Conforming Products, Materials and Services**

### **Nonconformance Management**

When a non-conformance is identified, Donaldson will issue a Non-Conformance Report (NCR), accompanied by a request for corrective action. eNCR reports will be issued by Donaldson Plant or Distribution Center Quality Teams and sent to the supplier via email for processing and completion.

The corrective action request will specify one of two response formats:

- **Simple 8D**
- **Full 8D**

**Simple 8D:** This option is used in situations, where the use of a 5-why, Fishbone Diagram or other "quality" tool is not necessary for the supplier to use to determine the root cause.

**Full 8D:** This option is used when structured problem solving is required to determine root cause. A Donaldson 8D form will be sent along with the NCR to the supplier. These requests require proof of the use of either a 5why or fishbone diagram (included on standard form) to help determine and document the root cause.

The 8D process consists of the following eight steps:

1. **Establish the Team** - Assign a team to address the issue
2. **Describe the Problem** - Clearly define the issue
3. **Develop Interim Containment Actions** - Implement short-term actions to contain the issue
4. **Define and Verify Root Cause** - Identify and verify the cause of the problem
5. **Choose and Verify Permanent Corrective Action** - Determine and verify the solution
6. **Implement and Validate Permanent Corrective Action** - Apply the solution and confirm its effectiveness
7. **Choose Actions to Prevent Recurrence** - Develop measures to prevent future occurrences
8. **Approval and Closure** - Finalize corrective action, ensuring the team is recognized

Timing Requirements for 8D Corrective Action:

- **Containment Actions** (Steps 1–3) must be implemented within 24 hours of the NCR being issued
- **Root Cause and Corrective Actions** (Steps 4–5) must be completed within 15 calendar day

- **Permanent Corrective Actions** (Steps 6–8) must be fully implemented and validated within 60 calendar days and should include verification of the solution

It is at the discretion of the NCR initiator to grant extensions or adjust these timelines based on the specific circumstances of the issue.

#### **Costs Associated with Non-Conformance**

Suppliers will be responsible for all costs associated with defective or non-conforming products, including:

- **Disposition costs** (e.g., rework, sorting, scrap, or inspection at Donaldson / Donaldson's Customer sites)

In the event, a Donaldson production line is disrupted due to defective or non-conforming products or late deliveries from the supplier, Donaldson reserves the right to charge the supplier for the associated costs. These charges may include but are not limited to:

- Machine or line setup costs
- Material inspection and sorting costs
- Material handling and product expediting costs
- Downtime incurred by Donaldson production and their customers

The amount charged will vary based on factors such as the type of operation, production line, and the number of people involved in resolving the issue.

#### **Inspection and Audits of Manufacturing Facilities**

The supplier agrees to grant Donaldson access to its production facilities for inspection at any time. This may include audits of the systems and processes used to manufacture and inspect the products and services supplied. Donaldson will typically provide at least two (2) business days' notice prior to conducting such inspections.

#### **Inspection of Products**

Donaldson reserves the right to inspect products and services at any point in the process, including upon delivery or during the production of Donaldson's finished products. If defects or non-conformances are found, the supplier will be required to replace the affected products and services to meet Donaldson's drawings and specifications.

Should Donaldson choose to sort or rework defective products after notifying the supplier, the supplier will be responsible for reimbursing Donaldson for all associated costs. This includes any costs for material sorting, rework, or inspection activities necessary to provide an acceptable product for Donaldson's use.

By ensuring the timely resolution of non-conformances and adhering to Donaldson's corrective action process, suppliers help maintain the quality and reliability that are central to Donaldson's operations and customer satisfaction.

## **2.3 Sub-tier Supplier Requirements**

Donaldson encourages all suppliers to establish sub-supplier relationships that maintain a management system aligned with the current revision of ISO 9001 at a minimum. Donaldson reserves the right to directly assess any Tier 2 supplier whose products or services have a significant impact on Donaldson's final quality.

#### **Expectations for Sub-tier Suppliers**

Our suppliers must ensure their sub-tier suppliers:

#### **Adopt a Quality-Focused Approach**

- Implement measures to minimize the occurrence of defective products

#### **Identify and Quarantine Defects Early**

- Maintain processes to detect non-conformances at the earliest stages of production

#### **Maintain Data and Documentation**

- Keep records that demonstrate conformance to all relevant laws, safety standards, and Production Part Approval Process (PPAP) requirements, when applicable

#### **Communicate Changes Prior to Implementation**

- Establish clear processes to notify Donaldson and Tier 1 suppliers of any product, process, or supply chain changes before they take effect

### Incorporate Risk-Based Thinking

- Integrate risk assessment and mitigation strategies within their quality management systems

### Pursue Appropriate Certifications

- Obtain or work towards ISO 9001, IATF 16949, or AS9100 certifications as relevant to their industry or application

### 2.4 CQI Special Process Requirements

The goal of AIAG CQI requirements establish industry best practices and standards for specific manufacturing processes within the automotive industry, aiming to improve product quality, reduce variation and waste, prevent defects, and ultimately increase customer satisfaction by ensuring consistent quality across the supply chain through comprehensive process controls and continuous improvement initiatives. Donaldson expects suppliers, supporting IATF Engine On-Road Business Programs, to employ and have annual assessments on file, including sub-tier suppliers.

The applicable CQI's are:

- **Heat Treating Processes:** CQI-9 Heat Treat System Assessment
- **Plating Processes:** CQI-11 Plating System Assessment
- **Coating Processes:** CQI-12 Coating System Assessment
- **Welding Processes:** CQI-15 Weld System Assessment
- **Solder Processes:** CQI-17 Soldering System Assessment
- **Plastics Molding Processes:** CQI-23 Molding System Assessment
- **Casting Processes:** CQI-27 Casting System Assessment
- **Brazing Processes:** CQI-29 Brazing System Assessment

Details on Special Process Assessments can be found on the AIAG website:

<https://www.aiag.org/quality/special-process-assessments>

### 3.0 Suppliers

#### Assessments

Global Supplier Quality and Procurement use a variety of assessment tools - such as questionnaires, surveys, on-site visits, and audits - to evaluate the status of a supplier's quality management system. These assessments gauge the supplier's ability to support Donaldson's needs by maintaining documented and effective systems that meet or exceed our quality requirements.

#### Assessment Methods

- **Self-Completed Risk Assessment:** Suppliers may be asked to complete a standardized risk assessment form
- **On-Site Quality System Assessment:** Donaldson Global Supplier Quality may conduct an on-site evaluation to verify and validate the supplier's quality practices

#### Strategic and Approved Supply Base

- **Strategic Supplier:** Suppliers providing proprietary products, services, or technology that offer a competitive advantage for Donaldson
- **Approved Supplier:** Suppliers successfully completing the onboarding and assessment process

Donaldson expects all suppliers to maintain exemplary quality, delivery, and service levels. In return, Donaldson aims to allocate a larger share of business to those suppliers who meet our Strategic Supplier criteria.

#### Contact Information

Suppliers are responsible for providing Donaldson with up-to-date contact information for all key departments involved in supplying products and services. This contact information will be used for communicating Supplier Quality Manual (SQM) updates, customer-specific requirements, non-conformances, and for coordinating instructions, as well as facilitating access to our SPPAP Management System.

These designated quality contacts should be active participants in the Donaldson Buys Value (DBV) program and play a key role in ensuring effective communication and conformance throughout the supply chain.

### 4.0 Supplier Development

#### Donaldson Supply Base

Donaldson develops its supply base in alignment with the current revisions of ISO 9001, AS9100, IATF 16949, and/or ISO 13485 serving as the fundamental quality system requirements for suppliers.

#### Donaldson Buys Value (DBV) Program

The DBV framework offers clear metrics and a structured approach to enhance supplier quality, service performance, and sustainability. To facilitate continuous improvement, Donaldson may convene regular meetings with Strategic Suppliers to review performance and explore any improvement opportunities. Donaldson also evaluates its total supply base, based on risk, to identify suppliers that are / have impacted performance to our Donaldson Plants and identifies suppliers for Supplier Development opportunities. For more information on DBV Program, please refer

<https://www.Donaldson.com/en/supplier/dbv/index.html>

Each supplier is expected to have a management system in place that addresses the following elements of their business.

The following elements below may be reviewed and considered when identifying improvement opportunities.

1. Statutory & Regulatory requirements
2. Quality Management System
3. Performance Metrics
4. Management Responsibility
5. Resource Management
6. Product Realization
7. Measurement, Analysis, and Improvement
8. Environmental Management
9. Code of Conduct

#### 5.0 Risk Management and Contingency Planning

Suppliers are responsible for proactively identifying and minimizing all potential risks as early as possible. This entails implementing preventative quality planning methods during both product and process development, which should include at least feasibility analysis, reliability studies, capability studies, and risk analysis.

This risk-based thinking should likewise be applied to existing product and process design, as well as improvement initiatives. Furthermore, suppliers are encouraged to ensure sub-suppliers adopt similar risk management processes within their own systems.

In addition, suppliers must submit a Contingency Plan to Donaldson, detailing how they will prevent supply chain interruptions resulting from natural disasters, fires, or infrastructure/asset-related disruptions. The initial Contingency Plan must be provided no later than the start of regular deliveries. Suppliers may be required to review and resubmit this plan on an annual basis for both existing and new Donaldson parts.

#### 6.0 Advanced Product Quality Planning

##### Advanced Product Quality Planning (APQP)

APQP is a phased, cross-functional process that may include supplier representatives when appropriate. At each phase, specific deliverables are required and must be verified and approved by management before progressing to the next phase. When requested by Global Procurement, suppliers may be notified of their participation in Donaldson's APQP process via a formal Request for Quote (RFQ), Purchase Order (PO), or other written methods (e.g., email).

For more complex projects, suppliers may be required to utilize CAE/CAD systems and provide preliminary drawings, supporting documentation, and prototypes.

##### Engineering Drawings and RFQ Submissions

- **Engineering Drawings:** Suppliers will receive engineering drawings from the assigned Global Category Manager with each RFQ

- Revision-Specific: Each RFQ submission is tied to a specific revision level, indicating the supplier’s acknowledgment and understanding of the drawing requirements
- Clarification: Suppliers are responsible for fully understanding all drawing and specification requirements. Any need for clarification must be resolved in writing before tooling is finalized or production begins.

Table1 below illustrates the possible output (deliverables) which may result for a given project.

Planning	Product Design & Development	Process Design & Development	Product Process & Validation	Feedback, Assessment & Corr. Action
Design Goals	DFMEA	Packaging Standards	Production Trial Run	Reduced Variation
Reliability & Quality Goals	Design for Manufacturability & Assembly	Product/Process Quality System Review	Measurement Systems Evaluation	Improved Customer Satisfaction
Prelim BOM	Design Verification	Process Flow Chart	Prelim Process Capability Study	Improved Delivery & Service
Prelim Process Flow Chart	Design Reviews	Floor Plan Layout	Production Part Approval PPVP	Effective use of Lessons Learned & Best Practices
Prelim Special Product & Process Characteristics	Prototype Control Plan	Characteristics Matrix	Production Validation Testing	
Product Assurance Plan	Engineering Drawings	PFMEA	Packaging Evaluation	
Management Support	Engineering Specifications	Pre-Launch Control Plan	Production Control Plan	
Program Timing	Material Specifications	Process Instructions	Quality Planning Signoff & Management Support	
Resource Plan	Drawing & Specification Changes	New Equipment, Tooling, & Facilities Requirements	Prelim Process Capability Study Plan	

## 7.0 Supplier Production Part Approval Process (SPPAP)

The Supplier Production Part Approval Process (SPPAP) is a critical component of Donaldson’s quality management system. It ensures that purchased materials, parts, and assemblies from our supply base meet all specified requirements. The SPPAP process confirms the following:

- **Understanding of Requirements:** The supplier demonstrates a complete understanding of all Donaldson engineering drawings and specification requirements.
- **Manufacturing Capability:** The supplier proves that their manufacturing process can consistently produce products that meet Donaldson requirements. This validation is performed during an actual production run using production tooling, gauging, processes, materials, operators, environmental conditions, and process settings. Parts used for validation must come from a significant production run, which is defined as:
  - **Significant Production Run:** A minimum of 30 samples taken from the validated/qualified process and production run rate, ensuring:
    - **Per Cavity:** Parts are sampled from each cavity within a tool or die.

### Applicability

The SPPAP is specific to a part number and its associated revision level. It is modeled after the Automotive Industry Action Group (AIAG) Production Part Approval Process (PPAP). Further details on PPAP can be found at [www.aiag.org](http://www.aiag.org). All direct materials, inventory-purchased products, and purchased finished goods require an approved SPPAP.

Suppliers are required to follow the regional procedures of Donaldson Procurement and Quality teams when submitting SPPAP documentation.

### When Is an SPPAP Required?

Suppliers are required to complete an SPPAP in the following cases:

- Introduction of a new or revised part

- Parts manufactured using new or revised tools
- Parts manufactured with changes to the supplier’s process or materials
- Parts manufactured using tools or equipment relocated to a new location
- As specified by Donaldson, such as re-releasing an inactive part, resolving a discrepancy, etc.

### Supplier Documentation Requirements

The default submission level for SPPAP is Level 3 (SPPAP Submission Level Guidelines - Table 2), unless otherwise specified. Suppliers must maintain and provide sufficient technical documentation for all products and services under their control. This documentation enables Donaldson to verify the integrity of the supplied product.

### Exceptions

SPPAP documentation may not be required for the following items:

- Bulk materials, such as chemicals (e.g., urethane) or steel (e.g., rolls, sheets, or structural steel).
- Standard catalog items or materials compliant with international standards (e.g., SAE, DIN, AFNOR, BIS, EN, ISO).
- Packing materials
- Electronic components, such as fans, motors, control panels, and circuit boards.

These exceptions do not eliminate the supplier’s responsibility to ensure conformance with Donaldson specifications. Evidence of conformity may be requested or retained by the supplier.

### Non-Approved Parts Notification

If parts are shipped to a Donaldson location before SPPAP approval, suppliers must include a Non-Approved Parts Notification with the shipment. This notification must contain the following information:

- Shipment Date
- Donaldson Purchase Order (P.O.) Number
- Part Number
- Revision Level

The notification must be attached to the shipment documentation. Failure to comply with these requirements may result in rejection of the shipment or additional corrective actions.

### 7.1 Submission Requirements

The inclusion of specific deliverables in the Supplier Production Part Approval Process (SPPAP) is determined by Donaldson Quality in collaboration with cross-functional teams, as appropriate. These requirements may be communicated to the supplier through Request for Quotation (RFQ), Purchase Order (PO), Email, Meetings, Supplier portal, etc. The final submission schedule for SPPAP approval will be outlined in the Supplier Master Agreement / Purchase Order (PO) and communicated through Donaldson’s SPPAP Portal once the relevant engineering drawings are finalized, made available, and released. Suppliers are expected to adhere to these requirements and timelines in the SPPAP Portal to ensure conformance with Donaldson’s quality standards.

The appropriate SPPAP submission level is determined by Donaldson using AIAG Guidelines.

Some factors involved in the level are:

- Part Criticality: The risk of the part to the overall product functionality and performance
- Supplier Expertise: The supplier’s experience with the specific parts/products being provided
- Prior Submission History: The supplier’s track record with previous part submissions

### Process Capability Requirements

Suppliers must demonstrate process capability for all significant or critical characteristics identified by Donaldson, which are marked with a black diamond on the engineering drawing.

- Preliminary Process Capability Studies  
On a production run producing at least 125 units with a minimum sample size of 25 subgroups, with each subgroup containing 5 samples. This results in a total of 125 data points for analysis.
  - **Both CPK and PPK** values must minimally meet requirements below and be reported for all significant/critical characteristics:
    - **CPK ≥ 1.33**
    - **PPK ≥ 1.67**

**Subcontractor Processes**

- These requirements also apply to any processes performed by subcontract suppliers. Suppliers are responsible for ensuring that subcontracted processes meet Donaldson’s capability expectations

**Corrective Action for Low CPK Processes**

- If a process exhibits a CPK below the required threshold, the supplier must submit a corrective action plan outlining the steps to improve process capability

**Conformance with Specific Requirements**

- Any additional Donaldson-specific requirements must be met as outlined in the RFQ or PO

**Notes**

- Suppliers are expected to maintain complete and accurate documentation for all SPPAP submissions
- Any deviations from Donaldson’s requirements must be formally approved in advance by Donaldson Quality

Refer to the SPPAP Submission Level Guidelines (Table 2) on the next page for detailed information and **7.2 Retention/Submission Requirements Table**.

**SPPAP Submission Level Guidelines**

Table 2

SPPAP Level	Submittals	Initiating Event (Examples)
Level 3 (Default)	Submit all items as indicated in the Retention/ Submission Requirements Table (Table 3)	<p><b>New Product or Supplier:</b> Introduction of a new product or engagement with a new supplier.</p> <p><b>Plant of Manufacturing (POM) Change:</b> Any relocation, modification, or transfer posing a higher risk to product quality or process stability.</p> <ul style="list-style-type: none"> <li>• The tooling/equipment is being transferred to a new facility with different manufacturing conditions or capabilities</li> <li>• Significant or Critical Characteristics are present</li> <li>• The transfer introduces new risks, such as changes to production rates, operators, or environment</li> <li>• There is a history of quality issues or instability with the tooling/equipment</li> </ul> <p><b>Revised Product:</b> Changes to an existing product that affect its form, fit, function, reliability, or performance.</p>
Level 1	Submit Part Submission Warrant (PSW) and Appearance Approval Report, if required  All other documents are <b>updated</b> and retained by the Supplier	<p><b>Non-Product-Impacting Revisions:</b> Changes to processes or specifications that do not affect the product’s material, performance, or part-print agreement.</p> <p><b>Directed-Buy Parts:</b> Components or materials specified and purchased, as directed by Donaldson.</p>

SPPAP Level	Submittals	Initiating Event (Examples)
Level 2	<p>Submit PSW and all items as indicated in the Retention/Submission Requirements Table</p> <p>All other documents are <b>updated</b> and retained by the Supplier</p> <p>Note: * Control Plan, Dimensional Report, Capability Study and GR&amp;R report, if revised characteristic is a Significant Characteristic</p>	<p><b>Revised Product or Tooling:</b> Changes to the product or tooling that impact production or quality, ensuring conformance to revised specifications.</p> <p><b>Movement / Transfer of tooling or equipment:</b> Any relocation, modification, or transfer considered low to moderate risk, and the impact on product quality or production is minimal.</p> <ul style="list-style-type: none"> <li>• The tooling/equipment has been previously validated and is being moved within the same facility</li> <li>• There is no change to the manufacturing process, environment, or key personnel managing the production</li> <li>• * Significant or Critical Characteristics are present, but overall risk is deemed low</li> <li>• The tooling has a history of stable performance, with no previous issues related to quality or capability</li> </ul> <p><b>Qualification of additional tooling or equipment:</b> Already been validated and is still capable of producing parts in conformance with specified requirements.</p> <p><b>Production Following Tooling Inactivity:</b> Product produced after tooling has been inactive for 12 months or more.</p> <p><b>Use of new construction or materials:</b> New materials or construction methods that differ from the previously approved part.</p>
Level 4	<p>Submit PSW and all other required documents as defined by Donaldson</p> <p>All other documents <b>updated</b> and retained by Supplier</p>	<p>Customizable</p> <p><b>Catalog items/Commercial off-the-shelf (COTS):</b> Submit a signed warrant, material cert (if applicable) and copy of catalog specifications.</p>
Level 5	<p>Submit Part Submission Warrant and product samples</p> <p>All required documents <b>updated</b> and retained by Supplier</p>	<p>Applicable for suppliers with proprietary processes and documents (e.g. PFMEA, Control Plan, etc.).</p>



## 7.2 Retention/Submission Requirements Table

Table 3

Retention/Submission Requirements Table						
Requirement		Submission Level				
		Level 1	Level 2	Level 3 (Default)	Level 4	Level 5
1	Design Record (2D Drawing)	R	S	S	*	R
2	Engineering Change Documents (if any) such as CQP/ECO/ECP	R	S	S	*	R
3	Donaldson Engineering Approval if required.	R	R	S	*	R
4	DFMEA	N/A	N/A	N/A	N/A	R
5	Process Flow Diagram	R	R	S	*	R
6	PFMEA	R	R	S	*	R
7	Control Plan	R	R	S	*	R
8	Measurement Systems Analysis (GR&R)	R	R	S	*	R
9	Dimensional Report	R	S	S	*	R
10	Material/Performance/Functional Test Results and Catalog/Spec Sheet detail.	R	S	S	S	R
11	Initial Process Studies (Short-term Capability Study)	R	R (unless revision is to Significant Characteristics)	S	*	R
12	Qualified Laboratory Documents (from outside facility the supplier may use).	R	R	S	*	R
13	Appearance Approval Report (rare)	S	S	S	*	R
14	Sample product (1 piece from each cavity).	R	S	S	*	R
15	Master Sample	R	R	R	*	R
16	Checking Aids	R	R	R	*	R
17	Records of compliance with Donaldson-specific Requirements (not defined on drawing or EN).	R	S	S	S	S
18	Parts Submission Warrant (PSW)	S	S	S	S	S
19	Global Material Compliance Standard Declaration Request Form – 428.005.001 or Supplier's own form containing the same information	R	R	R	R	R

**S** = The supplier shall submit to Donaldson and retain copy of records or documentation items at appropriate locations

**R** = The supplier shall retain at appropriate locations and make available to Donaldson upon request

**\*** = The supplier shall retain at appropriate location and submit to Donaldson upon request

## 7.3 Notification of Changes

### Product / Process Changes

Suppliers are required to request Donaldson approval on intended product and process changes, temporary or permanent, including those at sub-tier suppliers. A product / process change is defined as any alteration that impacts the appearance, dimensions, or reliability/performance characteristics of a product.

Suppliers are required to notify Donaldson Global Supplier Quality and Global Procurement for pre-production changes, as well as Plant Quality and Plant Purchasing for production changes. Notification must occur prior to implementing the change to allow for a determination of acceptance or further required actions. Changes implemented without prior notification and approval may result in non-acceptance of parts or materials and potential disruptions in the supplier relationship.

Suppliers must adhere to the following requirements for notifying and implementing changes that directly or indirectly affect goods or services supplied to Donaldson:

#### Notification and Communication:

- All proposed changes must be formally communicated to Donaldson at least 12 weeks prior to the effective date of the change or an agreed-upon timeframe.
- Notification must be completed using the Donaldson Supplier Change/Deviation Request Notification (SCR) Form (406.205.000-008), as outlined in the Supplier Change/Deviation Request Notification (SCR) Supplier Agreement (406.205.000-007)

#### Agreement Before Implementation:

- No actions related to the proposed change may be taken until formal notification has been provided, and an agreement is reached with Donaldson regarding the required steps, including any potential price impacts. Suppliers must obtain Donaldson's formal approval for changes to qualified processes affecting Donaldson parts before implementation.

#### Re-Validation and Additional Requirements:

- A SPPAP submission will be required unless otherwise determined by Donaldson. The supplier will be notified of the SPPAP submission requirements via email and SPPAP Portal notification. The supplier must not ship product prior to SPPAP approval.

#### Typical changes include, but not limited to:

- Material or material source
- Plant of Manufacture (POM)
- Sub-tier suppliers
- Manufacturing process(es)
- Product design(s)
- Test methods or testing processes
- Transfer of tooling or equipment
- Tooling modifications
- Product appearance
- Planning parameters
- Certification status

Contact Donaldson Supplier or Plant Quality for clarification of notification requirements.

#### Consequences of Unauthorized Changes:

- Failure to comply with this requirement may result in revocation of the existing product SPPAP, and/or New Business Hold / Delay, and reimbursement to Donaldson for any potential losses caused by unauthorized changes

### Supplier Risk Management and Compliance

Suppliers are required to notify Donaldson of any cyberattacks or ransomware incidents that may affect the integrity and security of goods or services supplied to Donaldson. This notification is critical for maintaining transparency, safeguarding product integrity, and ensuring alignment between Donaldson and its supply chain.

#### Notification and Communication:

- All cyberattacks or ransomware incidents must be formally communicated to Donaldson immediately upon discovery
- Notification should include a detailed description of the incident, including the nature and scope of the attack, the affected systems, and any potential impact on the supply chain
- Suppliers must use the designated communication channels provided by Donaldson for reporting cybersecurity incidents

### 8.0 Regulatory Compliance Requirements

Donaldson expects its suppliers to comply with all legislated requirements applicable to their country of operation, the products and services they supply, and the processes they use in manufacturing. Suppliers are also expected to proactively address and respond to regulatory obligations, including participation in periodic questionnaires regarding the use of restricted substances. These responses must be provided promptly, free of charge, and in collaboration with the designated Procurement contact if questions or concerns arise.

The key areas of regulatory compliance include, but are not limited to:

#### 8.1 Restriction of Hazardous Substances (RoHS)

Goods supplied to Donaldson must comply with the Restriction of Hazardous Substances Directive (RoHS 2, Directive 2011/65/EU), which restricts the use of certain hazardous substances in electrical and electronic equipment. The ten restricted substances currently include:

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr6+)
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ethers (PBDE)
- Bis(2-ethylhexyl) phthalate (DEHP)
- Butyl benzyl phthalate (BBP)
- Dibutyl phthalate (DBP)
- Di-isobutyl phthalate (DIBP)

Suppliers must ensure compliance with these restrictions, noting that the list may be updated based on legislative changes.

#### 8.2 Declarable Substances

Products and parts supplied to Donaldson must comply with the Global Automotive Declarable Substances List (GADSL). Prohibited substances must not be present, and declarable substances exceeding threshold limits defined by GADSL must be reported. For more information, refer to [GADSL](#).

#### 8.3 Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH)

Suppliers are required to comply with REACH regulations (Registration, Evaluation, Authorization, and Restriction of Chemicals) and ensure communication of relevant chemical information throughout the supply chain. Suppliers must monitor announcements and updates to the list of harmful substances, which are continuously updated. Guidance can be accessed on the European Chemicals Agency (ECHA) website.

#### 8.4 Conflict Minerals

Suppliers must comply with all present and future legislation regarding the use of Conflict Minerals. In accordance with the 2010 Dodd–Frank Wall Street Reform and Consumer Protection Act, Donaldson audits its supply chains and requires reporting on the use of conflict minerals, including:

### 3T's & Gold

- Cassiterite (for tin)
- Wolframite (for tungsten)
- Coltan (for tantalum)
- Gold

Additional minerals may be added to this list in the future. Suppliers are responsible for ensuring transparency and conformance throughout their supply chain.

### 8.5 Proposition 65 Compliance

Suppliers must comply with Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986. This legislation requires businesses to provide warnings to Californians about significant exposures to chemicals that may cause cancer, birth defects, or other reproductive harm. Suppliers must ensure full compliance with current and future Proposition 65 requirements and provide necessary documentation upon request.

By adhering to these regulatory requirements, suppliers help maintain compliance and ensure the quality and safety of Donaldson's products and services. Non-compliance may result in supplier reviews, audits, or additional actions as determined by Donaldson.

### 9.0 Supplier Held Assets

Suppliers are expected to recommend and/or select manufacturing processes and assets that ensure production parts meet all specified requirements.

Assets may include, but are not limited to:

- Tools
- Jigs
- Testing Equipment
- Machinery

Supplier asset recommendations are solicited through the Request for Quotation (RFQ) process by the assigned Global Procurement Manager or Plant Procurement. These recommendations are evaluated based on the best overall total part cost, considering:

- Estimated part volume
- Asset cost
- Expected asset lifespan

Authorization for supplier-held assets is granted only through a formal purchase order issued by the assigned Procurement personnel. Suppliers must ensure that all recommended and utilized assets align with Donaldson's quality and cost expectations.

### 10.0 Asset Ownership

Suppliers are expected to recommend and/or select manufacturing processes and assets that ensure production parts meet all specified requirements.

Assets may include, but are not limited to:

- Tools
- Jigs
- Testing Equipment
- Machinery

Supplier asset recommendations are solicited through the Request for Quotation (RFQ) process by the assigned Global Procurement Manager or Plant Procurement. These recommendations are evaluated based on the best overall total part cost, considering:

- Estimated part volume

- Asset cost
- Expected asset lifespan

Authorization for supplier-held assets is granted only through a formal purchase order issued by the assigned Procurement personnel. Suppliers must ensure that all recommended and utilized assets align with Donaldson's quality and cost expectations.

### 10.1 Asset Management Requirements

Donaldson's standard practice is to purchase and retain ownership of the assets used to produce proprietary Donaldson parts. Suppliers must not sell parts produced using Donaldson-owned assets to other parties or use the assets for any other purposes without written approval from Donaldson.

For assets owned by Donaldson's customers and managed by Donaldson, the terms and conditions will be outlined in the purchase order (PO) authorizing the asset's build or purchase.

#### Asset Identification

Donaldson will assign a unique asset number for each owned asset. This asset number must be:

- Permanently and legibly marked on the asset
- Conform with any additional identification requirements specified in the authorizing purchase order

#### SPPAP Requirement

Completion of the asset purchase order is contingent upon the successful approval of the Supplier Production Part Approval Process (SPPAP), as required. Suppliers are responsible for ensuring all requirements are met to facilitate asset identification, ownership conformance, and SPPAP approval.

### 11.0 Pricing Policy

Donaldson encourages suppliers to actively pursue cost-saving opportunities and welcomes suggestions for reducing costs. Suppliers are expected to achieve a minimum annualized cost savings equivalent to 2% of the total value of Products and Services sold to Donaldson.

If a price review becomes necessary, suppliers must meet the following minimum requirements for consideration:

- **Notification:** Provide a written notification of the proposed price increase at least 90 days in advance.
- **Justification:** Submit supporting documentation that includes a detailed breakdown of labor, material, and overhead costs to justify the price increase.
- **Parts List:** Provide a complete list of all affected parts, including the current price and the proposed new price.
- **Cost Reduction Proposals:** Include offsetting cost reduction proposals to mitigate the impact of the proposed price increase.

### 12.0 Quoting Process

#### Expectations

The quoting process plays a critical role in reducing Donaldson's time to market, which is an increasingly important factor in today's fast-paced business environment. To support this goal, Donaldson seeks to collaborate with suppliers who can provide their best quote within a 24 to 48-hour time frame, where applicable.

Suppliers are expected to prioritize efficiency and responsiveness during the quoting process to help Donaldson maintain a competitive edge and meet customer expectations.

### 13.0 Sustainability

#### Alignment with Donaldson's Sustainability Initiatives

At Donaldson, we are dedicated to promoting sustainable business practices that align with our company-wide sustainability initiatives. We recognize that our supply base plays a critical role in achieving our sustainability goals, and we expect our suppliers to adopt and implement practices that support environmental, social, and economic sustainability.

- Suppliers are encouraged to align their sustainability efforts with Donaldson's company-wide sustainability initiatives, which include our 2030 Sustainability Goals and Ambitions. This includes supporting our goals for reducing greenhouse gas emissions, conserving natural resources, and promoting social responsibility.
- Reporting on sustainability performance is suggested by providing transparent and accurate data on their environmental,

social, and economic sustainability efforts.

- Suppliers are encouraged to collaborate with Donaldson on sustainability projects and initiatives. By working together, we can achieve greater positive impacts and drive continuous improvement in sustainability.

#### Continuous Improvement

- Donaldson is committed to supporting our suppliers in their sustainability journey. We will provide guidance, resources, and training to help suppliers enhance their sustainability performance.
- Suppliers are expected to engage in continuous improvement activities and set measurable sustainability goals.

### 14.0 Forms and Instructions

The following forms are considered generic and are available from various sources, including the Automotive Industry Action Group (AIAG) at [www.aiag.org](http://www.aiag.org). Printed or electronic versions may also be obtained by contacting Global Supplier Quality, Global Procurement, Plant Quality, or Plant Purchasing:

- Process Flow Diagram
- Process Failure Mode and Effects Analysis (PFMEA)
- Quality/Process Control Plan
- Potential Process Capability
- Dimensional Report
- Measurement Systems Analysis Manual (MSA)
- Material Certification
- Packaging Requirements
- Handling and Storage Requirements
- Production Part Approval Process (PPAP)
- Advanced Product Quality Planning (APQP)
- Quality System Requirements (IATF 16949)

Our supplier site at Donaldson.com contains information and additional resources including Aerospace and Defense requirements, our standard terms and conditions and our Supplier Code of Conduct & Sustainability Policy.

The site can be found at: <https://www.Donaldson.com/en/supplier/index.html>

## 15.0 Glossary

**APPROVED** means that the parts and/or related documentation submitted to or reviewed by Donaldson meet all Donaldson requirements. After production validation the supplier is authorized to ship product as directed by the plant/customer.

**CAD/CAE MATH DATA** is a form of design record by which all dimensional information necessary to define a product is conveyed electronically. When this design record is used, the supplier is responsible for obtaining a drawing to convey results of dimensional inspection.

**CHECKED PRINT** is a production released engineering drawing with **actual measurement results** recorded by the supplier adjacent to each drawing dimension and other requirements.

**CONFORMANCE** means that the material meets Donaldson specifications and requirements.

**CONTROL PLANS** are written descriptions of the system for controlling production parts and processes. They are written by suppliers to address the important characteristics and engineering requirements of the product. Each part must have a Control Plan, but in many cases, "family" Control Plans can apply to a number of parts produced using a common process.

**DESIGN RECORD** is the part drawings, specifications, and/or electronic (CAD) data used to convey information necessary to produce a product.

**FAILURE MODE AND EFFECTS ANALYSIS (FMEA)** is a systematized technique which identifies and ranks the potential failure modes of a design or manufacturing process in order to prioritize improvement actions.

**GAGE R&R** refer to the AIAG Measurement System Analysis reference manual.

**INTERIM APPROVAL** permits shipment of products for a specified time period or quantity.

**MARKED PRINT** is an engineering drawing modified, signed and dated by the Donaldson engineer (the engineering change number must be included).

**MEASUREMENT SYSTEM VARIATION STUDIES** refer to the AIAG Measurement System Analysis reference manual.

**PROCESS** is a combination of people, equipment, methods, materials, and environment that produces output - a given product or service. A process can involve any aspect of a business.

**PROCESS FLOW DIAGRAM** depicts the flow of materials through the process, including any rework or repair operations.

**PRODUCTS and SERVICES** include all output categories (hardware, services, software and processed materials).

**PRODUCTION RELEASE DRAWING** is an engineering drawing signed by the engineer and released through the Donaldson system. The drawing is forwarded to the supplier via Donaldson Corporate Procurement.

**PRODUCTION PART VALIDATION SUBMISSIONS** are based on small quantities of parts taken from a significant production run made with production tooling, processes, and cycle times. The supplier checks parts for production part validation to all engineering requirements.

**PRELIMINARY PROCESS CAPABILITY** Studies are short-term studies conducted to obtain early information on the performance of new or revised processes relative to internal or customer requirements. In many cases, preliminary studies should be conducted at several points in the evolution of new processes (e.g. at the equipment or tooling subcontractor's plant, after installation at the supplier's plant). These studies should be based on as many measurements as possible. When X-Bar and R charts, at least twenty subgroups (typically three to five pieces) are required to obtain sufficient data for decision-making. When this amount of data is not available, control charts should be started with whatever data is available. (Refer to AIAG's Fundamental Statistical Process Control reference manual.)

**QUALITY PLANNING** is a structured process for defining the methods (i.e. measurements, tests) that will be used in the production of a specific product or family of products (i.e. parts, materials). Quality planning embodies the concepts of defect prevention and continuous improvement as contrasted with defect detection (see AIAG's Advanced Product Quality Planning and Control Plan reference manual).

**REJECTED** means that the production part submission and/or documents did not meet the customer's requirements. The supplier must correct the production process and make a new submission. (Advise Donaldson Corporate Procurement of the date when

corrected parts will be available.) Do not ship production parts until the DCI approves the corrected parts. DCI may withhold tooling payments until part approval is obtained.

**REPEATABILITY AND REPRODUCIBILITY, GAGE (GAGE R&R)** Refer to AIAG's Measurement System Analysis reference manual.

**SIGNIFICANT CHARACTERISTICS** are those product features that affect subsequent operations, product function, or customer satisfaction. Significant characteristics are established by the Donaldson engineer, quality representative, and supplier personnel from a review of the Design and Process FMEAs and must be included by the supplier in the Control Plan. Any significant characteristics included in engineering requirements are provided as a starting point and do not affect the supplier's responsibility to review all aspects of the design, manufacturing process, and customer application and to determine additional process parameters.

**SPECIFICATIONS** are engineering requirements for judging the acceptability of a part characteristic. For the production part validation process, every feature of the product as identified by engineering specifications must be measured. Actual measurement and test results are required. Specifications should not be confused with control limits that represent "the voice of the process".

**SUPPLIERS** are defined as providers of production materials, or production or service parts, directly to DCI. Also included are providers of heat-treating, painting, plating or other finishing services.

**STATISTICAL CONTROL** is the condition of a process from which all special causes of variation have been eliminated and only common causes remain. Statistical control is evidenced on a control chart by the absence of points beyond the control limits and by the absence of any non-random patterns or trends. (**STATISTICAL CONTROL** is a descriptive term for a **STABLE PROCESS**.)

**SUBMISSION LEVEL** refers to the level of evidence required for production part submission.

**TOOLING MAINTENANCE** is the periodic sharpening, polishing, or other servicing of a tool. This maintenance will not significantly affect the dimensions or other characteristics of the product produced by the tool (contrast with **TOOLING REFURBISHMENT**).

**TOOLING REFURBISHMENT** is the major overhaul of a tool. Refurbishment can affect dimensions or other characteristics of the product produced by the tool. Production part approval submission of product made with refurbished tools is required before such product may be shipped to the customer.

**WARRANT** is an industry-standard document required for all newly-tooled or revised products in which the supplier confirms that inspections and tests on production parts show conformance to customer requirements.

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