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FASM Suppliers Quality Manual

	Name	**Position**	**Date**	**Signature**
Issued:	J. Ponce B. Arellano L. Magdaleno	SQE SQE Procurement Leader		
Checked:	J. Venta J. Cruz	Quality Manager		
Approval:	Y.Kitagawa	President		

Position	**Name**	**Signature**	**Date**
VICEPRESIDENT			
PLANT MANAGER			
ENGINEERING MANAGER			
ENGINEERING MANAGER			
PRODUCTION MANAGER			
PRODUCTION MANAGER			
SALES MANAGER			
PROCUREMENT MANAGER			
PRODUCTION CONTROL MANAGER			
PRODUCTION CONTROL MANAGER			

FINANCE MANAGER			
LEGAL AFFAIRS REPRESENTATIVE			

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Introduction

Purpose

This manual has been established to let suppliers for FURUKAWA AUTOMOTIVE SYSTEMS MEXICO S.A. DE C.V. (from now on, indicated as FASM) to recognize our theory for quality assurance in order to let them supply conformity products (including service) for our quality requirements.

Scope

This manual applies for all suppliers of parts and/or materials which are used for products delivered to FASM.

Compliance for regulations and coexistence

FASM aims long term stable coexistence with suppliers based on open business system and fair trade under complying domestic/foreign regulations.

Confidentiality

FASM shall keep confidentiality about information for its suppliers. All supplier must treat all the information obtained from daily trade as confidential. Suppliers will be responsible to control this manual, drawings, data, specifications and/or customer information received from FASM. If any confidential information leaked to any outer body, supplier must communicate to FASM immediately. Supplier must accomplish with legal requirements applicable.

FASM requires all its suppliers to sign a “Non-Disclosure Agreement” (F08-CD-P001-AC Non-Disclosure Agreement) to ensure the confidentiality is kept between both parts.

If there would be any restriction in regards with FASM format for the NDA, the supplier can suggest to use its own format.

Treatment of this manual

Quality responsibility of suppliers shall control this manual distributed by FASM as the latest version in electronics file, let internal members recognize its contents and educate them to conduct each items properly. If necessary this manual shall be distributed to suppliers in tier 2 and more with setting their quality responsibilities, keeping confidentiality and controlling system of this manual. In case of any question for this manual or necessity of exemption for requirements in this manual, it shall be informed immediately to FASM.

Table 1 - Terms and Definitions

Terms	**Definition**
Customer	Car makers (OEM) which are customers of FASM.
Suppliers	Car parts manufacturers which deliver products directly to FASM.
Sub-Suppliers	Manufacturers which deliver products to “suppliers” as part of supply chain. These suppliers in tier 2 and more shall also be responsible to be covered with this manual. And “suppliers” shall be responsible to let suppliers in tier 2 and more to follow this manual.
Parts	Products which shall be delivered to FASM from “suppliers” (Wire Harness Components)
Customer Specific Requirements	Requirement items about quality management system, which are requested to FASM from its customers. They are expressed as an acronym of CSR. Quality management system means the management system to instruct and control an organization for quality (to define policy and target, and to achieve them).
IATF 16949	Quality Management System Standard for automobile industry established by IATF (International Automotive Task Force) and ISO (International Organization for Standardization). IATF has been organized with 9 car manufacturers and 5 bodies of automobile industry in Europe and America.
Reject	Definition of product out of specs of inspection criteria / job procedure, or product made with equipment / processed out of range of control limits.
Abnormality	− Situation having whole new reject. − Re-occur of similar reject though corrective action has been taken. − Plural similar rejects in short period (period/quantity is designated by each person in charge for product) ・Difficult situation to judge good or reject. − Facilities/tools with situation which is not usual. − Situation with flowing out reject or possibly reject to following process.

Core tools	5 main techniques (APQP, FMEA, PPAP, MSA, SPC), which are set as important ones by IATF 16949 last version register system. For these techniques, AIAG (Automotive Industry Action Group) has issued reference manuals. **APQP Edition "Advanced Product Quality Planning" in last edition.** Wide project activity for product through concept, process design, feasibility verification, customer approval and mass production. **FMEA "Failure Mode and Effect Analysis" in last edition.** Systematic activity to evaluate failure mode of product and process and its effect, clarify procedure to reduce or remove these possibility and make documents of whole processes. **PPAP "Production Parts Approval Process" in last edition.** Necessary process for suppliers to make their products approved by customers. **MSA "Measurement System Analysis" in last edition.** Technique said as necessary one for evaluating process capability/feature, setting criteria of GO/NG judgment and/or verifying tolerance of each measured data. **SPC "Statistical Process Control" in last edition.** Technique said as necessary one for controlling production process, evaluating process capability/feature, criteria of GO/NG judgment and/or verifying tolerance of each measured data.

Chapter 1 Basic theory for quality assurance

Our company would like to be socially admitted for our value to exist and achieve to be an ideal company with cooperation of suppliers not only for economy situation but environmental/social contributive situation under high policy and theory. What is basic for quality assurance is to guarantee the quality for each product to be delivered to customers. This manual have been established to make our requirements clear for products quality assurance between suppliers and FASM. Make this manual reference for supplying complied products with our requirements and helping establishment of quality management system at suppliers with recognizing purpose of this manual.

Chapter 2 Supplier development phases

2.1 Certifying suppliers (selecting suppliers) and certifying products.

FASM has a documented process used to verify the supplier's capability to meet the FASM requirements before start to trade information with them (Item 3.2) necessary for conducting the verification, FASM could ask the suppliers to submit information about material/product quality specification and quality management system and if it´s necessary FASM could audit suppliers.
When suppliers have inappropriate cases such as severe problems of quality situation and/or quality management system, serious claim by disobeying this manual or worse quality performance, it could affect the business relationship with FASM.

2.2 Certifying products

FASM has a system of certifying products for contracted ones to verify whether they accomplish for all quality requirements prior to delivery of mass production products. Issuing "Parts submission warrant (PSW)" shall be notification of products certificate.
Also as necessary process audit at suppliers shall be conducted for confirm situation. Please set up time for certifying products considering with FASM person in charge in order to avoid delay of evaluation/mass production schedule.
Certified products can be shipped as mass production products once having quality complied with specifications.
Products judged as suspended or uncertified shall be verified again being discussed about corrective actions and due date with FASM Quality division (FASM SQE). In this case due date for mass production product delivery shall be considered in order to avoid delay. Basically verification of certifying products shall be conducted before mass production and/or design/process change, however please be noticed that the verification could be regularly conducted due to result of our consideration about actual quality situation or products importance at each supplier.
In case that FASM needs supplier ship mass production products without any PSW (Part Submission Warrant), Suppliers can ask for a letter of Non-PSW Parts which must be reviewed and approved by FASM Quality Division (FASM SQE). This Non-PSW Parts will be valid within the next 90 natural days after its issuance.
In case one or more items of the PPAP process have not been approved by FASM Quality Division (FASM SQE). And for need of mass production FASM Quality Division (FASM SQE) can issue an interim PSW and the supplier must provide a commitment date to send the evidence for the open items.

2.3 Incoming inspection and procedure to treat rejected products

The supplier must establish and maintain documented procedures for the incoming inspection process in order to evaluate the quality performance of their sub suppliers. The procedure must include the sampling of the material to be inspected and the increasing of the sampling frequency considering past rejects. In case of a severe reject and/or quality situation the incoming inspection method must be reviewed as well.

When the supplier founds any reject at the incoming inspection, the whole lot of the rejected material shall be returned or sorted. The supplier of the rejected shall identify covered range of lots, treat them appropriately, and take action to investigate real cause and to prevent re-occur of the reject and make sure of effectiveness of the actions.

Also in case of finding NG material at FASM production lines or out of them (customer, market), the cause of the reject shall be identified (whether it depends on FASM or supplier). If the supplier had responsibility of it, the same procedure as above shall be taken.

When FASM finds any reject at the incoming inspection, FASM Quality Division (FASM SQE) or FASM procurement division shall issue a "Quality Notification (QN)" with the reject information and the supplier shall forward an 8D report filled up until the 3D within 24 hours after the QN was issued and completely 8D report within the next 10 working days after QN was issued.

After FASM Quality Division (FASM SQE) has validated the 8D report, 8D report shall be signed by FASM Quality Division (FASM SQE) and Quality and Engineering General Manager, after that FASM quality Division (FASM SQE) shall forward the 8D signed cover to the supplier as evidence of its closing

2.4 Costs caused by rejects

FASM will issue charge cost regarding to:

- QN Issuance –> 50 USD by event (Annex 1)
- Sorting cost as follows:
- 5 USD/Hr. by direct manpower by operator.
- 12 USD/Hr. by administrative labors.
- Scrap cost → Total value of defective material

2.4.1 Monitoring supplied products.

FASM observes process capabilities and trends by statistic graphs of suppliers' products as necessary besides incoming inspection. If FASM judges a product as a potential problem (abnormal situation and/or worse trend by lot observation) could request for an investigation so please cooperate with our requests.

2.5 Supplier Score Card

Improving supplied products quality and notifying quality performance.

FASM Procurement Division shall issue every month the "Supplier performance results" to its suppliers each month.

FASM uses the below criteria to evaluate the performance of all its suppliers to ensure the conformity of the processes products and services supplied externally with the internal and external requirements of the client.

- **a)** Performance of the delivery schedule (Number of P/O s delivered late). Value 25%
- **b)** Service (Time of response, Support with the special requests, etc.). Value 20%
- **c)** Customer impact (Interruptions to the customer lines, product returns, Number of incidents of supplements for extraordinary freights). Value 30%.
- **d)** Quality (Number of complaints (QN) issued in the month). Value 25%.

Based in the score gotten from the above criteria, the supplier scorecard will show a rank.

- **a)** 100% - 92 % - Rank A
- **b)** 91 % - 81 % - Rank B
- **c)** Less than 80% - Rank C

Suppliers designated as rank “B” or “C” during 3 months in a row shall be requested to submit “Annual Quality Improvement Plan”.

2.6 Audit for suppliers.

To reduce the risk of our supply chain and encouraging the continuous improvement of our supplier FASM shall audit supplier’s tier 2 and more.

FASM shall inform the supplier an audit to its facilities is planned trough F03-AI-P005-AC prior to be conducted.

After the audit, FASM Quality Division (FASM SQE) will generate an audit report which will include the Non-Conformities and improvement opportunities found in the supplier quality system.

The audit report will send it to supplier as audit results, supplier shall sign the report and send it back to FASM Quality Division (FASM SQE) within 3 working days after the audit report was sent to the supplier.

Supplier shall prepare an action plan in PDCA format (FASM form) F02-MC-P001-AC to follow up all the Non-Conformities and improvement opportunities found in its process and send it to the FASM Quality Division (FASM SQE) within 5 working days after the audit report was sent to the supplier.

For major NCs, supplier has 60 working days to send the evidence of all the actions to the FASM Quality Division (FASM SQE).

For minor NCs, supplier has 30 working days to send the evidence of all the actions to the FASM Quality Division (FASM SQE).

Any evidence shall be validated by FASM Quality Division (FASM SQE) before to consider any NC as closed.

Supplier audits could be conducted according to FASM audit schedule, please be noticed when the audit is requested by customer, having important specification and having special control items, regular audit (i.e. once per year) or special audit shall be required.

・As new product is established

・When designated as higher controlled supplier

・As having important specification（designated by customer or FASM）.

・As following and checking continuous action for quality assurance situation

・ As process change

・As occurring reject or checking corrective action of it.

・As necessary of process change with registration of products.

・When FASM recognizes necessity.

・As registration or re-evaluation of supplier

・As other opportunity when customer recognizes necessity.

・If supplier get 2 months in a row with quality or delivery issues.

As necessary, FASM requests self-audit by suppliers. In this case, conduct it using F08-AI-P001-AC (FASM Form). After the audit, supplier shall submit the audit result report and action plan to follow up all the Non-Conformities and improvement opportunities found in its process and send it to the FASM Quality Division (FASM SQE).

Chapter 3. Requirements for suppliers.

3.1 Certificate for ISO 9001 & IATF 16949 last version.

Suppliers shall have as a minimum the third part registration of ISO 9001 in order to attempt the third part registration in IATF16949 (if apply).

Suppliers shall submit copies of their certificates. For tier 2 suppliers and more, contents of certificate of ISO 9001 shall be confirmed.

In case supplier does not meet as minimum third part registration of ISO 9001, Supplier shall submit its “certification plan” in order supplier get certificate of ISO 9001.

3.2 Advanced Product Quality Planning (APQP)

Supplier shall submit AQPQ including all the requirements established in the most recent version of the APQP manual published by AIAG when necessary:

- New Product Introduction (NPI) Support:

APQP supplements product development processes by adding a focus on risk as a substitute for failure. This allows the team to take action on the risk instead of having to wait for failure to occur in testing or worse, in the hands of the customer. APQP utilizes risk based tools that focus on all aspects of product and process design, service, process quality control, packaging and continuous improvement. Each application of APQP may be unique to a previous application because of the percentage of new content, changes to current off-the-shelf technology or past failure history.

- Product or Process Change (Post Release):

APQP follows a product or process change outside of Product Development and assures the risk of change is managed successfully by preventing problems created by the change.

3.3 Process FMEA

All predicted failure modes shall be picked up. Their effects/severity to covered components/automobiles shall be analyzed. Necessity of design review or evaluation/control items shall be made clear. Then the failure modes shall be prevented in advance.

Supplier could use its own format. Supplier shall for each ranking of “S: severity”, “O: occurrence” and “D: detection”, please refer “ranking criteria” table indicated on designated format of FMEA.

Please refer below as criteria to prioritize items for improvement in order to reduce risk after establishing the process FMEA.

- First of all, failure modes with 9 or 10 severity.
- For failure modes with 8 or less severity prioritize for RPN major or equal than 130.

Supplier shall include all the failure modes identified in the process FMEA in control plan and establish the proper controls to detect them. Then they shall be prevented for occurrence and flowed out by appropriate control.

3.4 Measurement system analysis

Measuring equipment for mass production such as test machine, test tool and/or gauge (totally described as measuring equipment) shall be evaluated for their validity.

Conduct in processes as follows.

① Check situation of measuring equipment for their specifications.

② Take relation with measuring equipment which had been used at a development step, evaluates several samples broadly picked from not only ones in specifications. When a correlation coefficient is larger than 0.9, they shall be judged as having correlation. When it is less than 0.9, different data shall be verified until it will be judged as the same level.

③ Gage R&R: Plural inspector (2 or 3 persons) and several samples (about 10 pcs) shall be measured twice or three times. Then validity of measuring equipment shall be evaluated. Use format of MSA and Evaluation result of Go/NG gauge, (FASM’s form), or equivalent ones.

Criteria for judgment is as follows.

% GRR ＜ 10 % also 5 ≦ ndc（round off under a decimal point）… Good

10 % ≦ % GRR ＜ 30 % … under discussion and take action (countermeasure at EV, AV, PV)

30 % ≦ % GRR … No Good

④ In case of NG for any measuring equipment, please take corrective action with improvement plan.

3.5 Statistical Process Control (SPC)

The supplier should evaluate the manufacturing process to determine the main areas of waste. Some examples of manufacturing process waste are rework, scrap and excessive inspection time and apply the SPC in accordance with the SPC manual published by AIAG.

3.6 PPAP (Product Part Approval Process) Requirements

FASM determines if a supplier adequately understands all the requirements described in the drawings and specifications, as well as whether the supplier possesses the consistent manufacturing capacity of the products, which satisfy these requirements in the mass production process, in the PPAP (Process of Approval of Parts for Production).

Supplier shall meet all the requirements established in the most recent version of the PPAP manual published by AIAG.

The PPAP applies to new and existing products, and aims to ensure that new and existing products and processes are ready for production. The PPAP may be the end result of the APQP or a separate process for managing lower costs.

Supplier shall submit level 3 PPAP for any component, supplier shall make sure the PPAP include all the requirements established in the most recent version of the PPAP manual published by AIAG.

PPAP will be validated by FASM Quality division (FASM SQE).

3.7 Procedure for new suppliers (certifying suppliers）

FASM shall evaluate the prospective suppliers before they are approved and registered as suppliers.

Prospective suppliers are evaluated with the format F03-CD-P001-AC by FASM Quality division (SQE) & FASM Procurement Division.

The assessment is in regards with the Quality Management System, Control Process, Production Capacity, Financial Stability and other processes of the prospective supplier such as: Storage, Purchasing, Customer Service & Manpower training.

In order to approve the evaluation, the prospective supplier should got at least 81% of the evaluation criteria to be considered as Conditioned Supplier.

After the assessment, FASM Procurement Division will request samples pieces to the prospective supplier providing due date and shipping instructions.

Once the samples are received by FASM, FASM Quality Division and FASM Procurement Division will evaluate the prospective supplier by using the format F01-CD-P002-AC, the samples shipment will be considered as reference for this second assessment.

Prospective supplier should got at least 81% of the evaluation criteria to be considered as Conditioned Supplier.

Those prospective suppliers whom have reached the score mentioned above for both evaluations will be proposed as good candidate to FASM top management for its approval.

Once FASM has approved the qualified supplier, FASM Procurement division inform the supplier by document and qualified supplier is registered as FASM's supplier.

3.8 Control of suppliers in tier 2 and more.

For suppliers Tier 2 and more they must line up to Nissan requirements (Annex 2) in addition to ours as well as use methodology 4M for change management based on "4M Change Management guide book Annex 3"

If FASM requires, suppliers shall inform detailed feature of materials/parts/products supplied from tier 2 or more suppliers to FASM and get approval from it. Also make sure of quality assurance of all purchased products with appropriate control. For suppliers of tier 2 and more, please recognize situation (covered range, limit date, etc.) of ISO 9001 or IATF 16949 certificate.

Please submit this to FASM Quality division (FASM SQE). In case of any change at suppliers of tier 2 or more, Please submit process change application. FASM form F02-CO-P002-AC in advance according to the timing periods specified in the chart 1 if nothing else is specified timing period will be 3 months.

Once the FASM Quality division (FASM SQE) receive the form F02-CO-P002-AC, he will sign it, and will send it back as approval.

3.9 Process flow（Process Flow Diagram）

This shall be established to make policy for process design clear and to give the base of it. Please establish this as process design. The terms described in process flow such as "process name", "process number" shall be correspondent with ones in "process FMEA", "Control Plan" which shall be considered and established later.

Supplier could use its own format. Please fill up all processes from receiving materials to shipping including one of suppliers of tier 2 or more. Delivery and storage processes shall be also filled up as important items for quality assurance. Similar process can be represented by one process flow as far as having all descriptions of difference.

3.10 Control Plan

This document shall be established for clarifying criteria to assure the product quality and verifying sufficient QA system. Control plan shall have each step version from preparing production to mass production for indicating detailed QA plan. There shall be 3 steps as follow.

① Prototype control plan (after test design before making test sample): Used for process control of test sample, such as production specification, process control condition, taking correlative data and verification.

② Pre-launch control plan (right after mass production design before mass production test): Used for process control considering mass production, such as taking data of initial production, special control items to prevent rejects with higher control level (i.e. more sampling number, etc.). After finishing initial control, the step goes to production control plan with confirming achievement of each initial target.

③ Production control plan (right after mass production test): Established for controlling mass production based on result of pre-launch control plan. At this step, each initial target shall be achieved and improvement shall be continued.

Supplier could use its own Control Plan format. Supplier shall fill up all processes in order from receiving materials to shipping following “process number” and “process name” in process flow. Similar process can be represented by one control plan as far as having all descriptions of difference.

Necessary items to be filled up as establishing control plans:

- Describe process flow (e.g. input material, handling, processing, inspection, storage, etc.)
- Describe control items and criteria related with cause and result (including inspection items) at each process.
- Describe criteria and procedure used at each process.
- Make distinction for repair, rework and/or dispose clear as having rejects.
- Describe control method for special process with its mention (clarified worker, statistical control, etc.)

3.11 Documentation system

Documented procedures include work instruction, operation points and/or condition sheet. They shall also have quality points for operation, quality check items for workers in clear description.

Make other necessary sheets and/or formats clear for ones such as equipment setting table, quality record, important control points, starting inspection, equipment regular check in order to have operator appropriate works. Education for quality assurance based on these documents shall be conducted.

3.12 Mass production tact try / Full tact try

Having mass production try with actual condition (molds, equipment, tools, tact, procedures, personnel, continuous production), predicted problems of mass production shall be taken care for starting production on plan. Please be noticed that samples made by this try shall be also used FASM’s mass production tact try.

Mass production tact try：Collecting data as MP try with 70-120% of planned tact. Processes can be divided to several parts when worker is not enough.

Mass production full tact try (Run@Rate)：MP try with 100-120% of planned tact. This try shall be a condition to finish initial quality control.

Please check items as follows before conducting these tries.

Equipment, molds, tools, test tools for MP shall be established and each feature have been verified.

Control plan, standards and formats/record shall be established.

Personnel plan and training have been finished.

All parts shall be final designed (including materials).

Packing specification and pallet for delivery shall be final designed.

Maximum production quantity shall be clear.

3.13 Initial product inspection

Please refer as initial products the following items

- New product (MP trial , the resulting products)
- Re-produced product after stopping MP for more than 1 year.
- Product with design change.
- Product with new/changed component parts.
- Product with process change.
- Additional/changed equipment.
- Product or initial product with customer concession or deviation permit.
- Initial product for new vehicle or vehicle number

Supplier shall conduct sampling inspection from the first lot. All described inspection items on drawings and specification sheet shall be inspected. However for design/process changed products, only affected portion of the change for quality shall be inspected. When there is designated order for initial inspection by FASM's procurement department specification or Quality division (FASM SQE), supplier shall follow the order.

Supplier shall submit measurement results and initial inspection results report with initial sample to FASM quality division (FASM SQE) (supplier can use its own format). The initial sample shall be identified from the other mass production lot to be segregated.

After FASM quality division (FASM SQE) confirmation about products conformity. Mass production initial lot can be delivered. The initial lot shall be identified as "Mass production initial lot") on packing box. In case of plural lots of delivery on a day, the indication control shall be put on every delivery box.

3.14 Durability evaluation test

When apply, In order to evaluate products made at MP process and to prevent market compliant, durability evaluation test shall be conducted and the result shall be reported to FASM quality division (FASM SQE).

Supplier shall conduct durability test based on purchasing specification and/or specification drawings, samples for the test must be taken from mass production products.

Supplier shall submit test results to FASM quality division (FASM SQE).

In case of NG products, supplier shall investigate the root cause, take preventive and corrective actions, confirm if those actions are effective or not, and conduct test again.

3.15 Process capability investigation

Supplier shall conduct process capability investigation as indicator to figure out whether the products can be continuously supplied complying with purchasing specification and/or specification drawings.

Supplier shall conduct process capability test for initial sample of new product (or for process changed one with specification effect).

Supplier shall take samples from MP Lot and conduct process capability test for each item on drawings. Sampling number shall be at least 30 parts.

In case PP value do not meet (both sides spec; PP<1.67 or one side spec; PPK<1.67), please inform immediately to FASM Quality division (FASM SQE) and get instructions from it.

Supplier shall investigate the root cause, eliminate it and get improvement process trough corrective actions.

3.16 Environmental restricted substances.

Supplier shall guarantee that environmental toxic substances comply with legal regulations and avoid to use them for products and processes. FASM "Green procurement guideline（FHE04S001）" shall be complied for treatment of substances with environmental impact in the products.

For the toxic substances, not only Japanese regulation but also European and American ones shall be complied with special care.

Guide line is listed below.

3.16.1 Special controlled substance of FASM

Lists the special management substance of FASM in Table 2 - Special controlled substances of FASM.

As a general rule it shall not contain more than the threshold of these substances.

- For the substances under restriction by EU ELV directive (Hereinafter referred to the 4 SOCs), prohibit the delivery of including purchasing product, except for the applications that are excluded in exemption list of the latest EU ELV Directive.
- For the threshold of chemicals which have plural, the strictest one shall be applied for it.

Table 2 - Special controlled substances of FASM.

	Substance	Threshold	notes
The 4 SOCs (the substances under restriction by EU ELV directive)	(1) Cadmium（Cd） and its	0.01	except for the applications that are excluded in exemption list of the latest EU ELV Directive
	(2) Lead（Pb）and its compounds	0.1	
	(3) Mercury(Hg) and its compounds	0.1	
	(4) Chromium(VI)（Cr6＋）and its compounds	0.1	
Bromine flame retardant, etc.	(5) Polybrominated biphenyls (PBB)	0.1	
	(6) Polybrominated diphenyl ethers	0.1	
	(7) Decabromodiphenyl ether	0.1	
	(8) Hexabromo-cyclododecane（HBCD）	0.1	
PFOS	(9)Perfluorooctane sulfonates	0.1	
Asbestos	(10) Asbestos	0.1	
Phthalate plasticizers	(11) Di 2-ethylhexyl phthalate	0.1	
	(12) Benzyl butyl phthalate (BBP)	0.1	
	(13) Di-n-butyl phthalate (DBP)	0.1	
	(14) Di isobutyl phthalate (DIBP)	0.1	

3.16.2 Requirements to suppliers

1） Compliance for all legislations and reducing / managing substances with environmental impact shall be achieved.

2) For establishing management system for no substances with environmental impact, please comply with this guideline and submit documents as follows.

- Confirmation of Green Procurement Guidelines
- As our request, please report advance of establishment of environment management system. In this case please submit "Management System Check Sheet for Substances

with environmental impact", which would be given to you after filling it with self-audit result.

3) Submitting information of materials and substances with environmental impact

- Basically please submit content-investigation sheet in format of JAMA sheet. In case of report with IMDS system, please let us know about it for separate discussion about how to manage it.
- Please disclose all chemicals contained in materials/parts for final products. It shall be in ways of actual declaration or with Joker/Wild cards.
- As revision of GADSL, it shall be confirmed if any chemicals handled with joker/wild card or no-disclosed ones would be changed to ones for application or restriction. When it happens, please inform about it to our company ASAP at least within 2 months from the GADSL revision date. Also please submit revised IMDS or JAMA sheet within 6 months from the GADSL revision date.
- In case of having restricted substance exceeding its threshold or under restricted condition, please inform us about it and take corrective action immediately.
- About items (1) to (6) for table 2- FASM special controlled substances, evidences (i.e. content analysis result, non-content certificate, etc.) shall be preserved and submitted as our request.
- About item (10) for table 2- FASM special controlled substances, all products which could contain it shall be controlled as specially controlled parts and informed to us about it. Also your suppliers shall be surely controlled for it as supply-chain.
- In case of having change or revise about submitted information, please inform it to requester immediately
- Additionally please let us ask you to give us your information about revised legislation or customer specified requirement as necessary.

Table - 3 List of documents to be submitted based on green procurement guideline.

	Initial trade plan ～start it	As 1st product delivery	As each change	As GADSL revise	As Green procurement guideline revise	As our request
Confirmation of green purchasing guideline	yes	no	（As head/PIC change)	no	yes	yes
No substance w/environmental impact management system check sheet	no	no	no	no	no	yes
Content investigation sheet JAMA/IMDS	no	yes	yes	Re-submit as having change, after check	Re-submit as having change, after check	yes
Evidences ,e.g. analysis result for items (1) to (6) of Special controlled substances	Preserve and submit as our request.					
Other, documer	Information could be required as legislation/customer specified requirement change.					

As regulated above in Table 3 - List of documents to be submitted based on green procurement guideline, please submit each item even though no request.

3.17 Lot control and traceability

Supplier shall guarantee to control production lot number, quality history and “first in first out”.
Lot control makes investigation for reject products faster and suspicious range becomes easy to identify. Control method of lot number shall be instructed by purchasing specification issued by FASM when it designates (In case FASM does not designated control method, supplier can use its own control method).

- Supplier shall put any indication of lot identification on each product. This lot control shall be conducted in order to make effect range of internal, external or customer rejects clear to minimize the damage.
- Supplier shall define identification to show their products are good ones on them. How to indicate is as follows.
- Details of it such as method and items shall be described in control plan.
- Harness parts：please submit Product tag・Packing Indication spec.

- Electrical devices： please follow ways defined in purchasing specification or result of discussion.
- Make sure of “first in first out” for materials, product and maintenance part for equipment.
- Take visible identification control of products before inspection, after inspection, good products and NG products at receiving inspection, in-process inspection and final inspection. The control shall be recognized by outer personnel, too.
- Inspection results shall be recorded and shall be disclosed as FASM’s request. When required in purchasing specification, inspection records shall be submitted with products.

3.18 Storage of parts/products

Supplier shall store materials and/or products with appropriately treatment to avoid damage of their quality, supplier shall consider items as follows.

- Criteria for each material/product (considering temperature, humidity, dust, sun light, vibration, impact, rain, wind, etc.).
- Maximum stack level considering material / product weight, safety and quality.
- Handling ways of crane, forklift, etc. (avoiding damage of products quality with appropriate facility / operation).
- Storage period.
- System of first in first out.
- Identified Indication of “nonconformity product” or “good product” at storage area.
- Evaluate storage materials / products situation periodically. Also make cycle of storage better with system of first in first out.

3.19 Specification for shipping inspection

Supplier shall standardize shipping specification and follow it. Shipping specification is document with items of final inspection, criteria, methods, etc. Supplier shall make ways clear about inspection items, judgment values, measuring equipment, sampling number and notices for inspection. These items make less missing inspection and wrong inspection due to change of inspectors.

Inspectors shall be educated for judgment criteria to avoid deviation to the product. When re-occur of receiving inspection reject or serious quality situation of supplier, FASM could request revise of shipping specification.

Harness parts ： Supplier shipping specification shall comply with all requirements in contracted drawings at least. Supplier shall keep inspection result record.

Electrical devices： No special “shipping specification” because of designation in purchasing specification.

3.20 Regular inspection

After starting mass production, supplier shall inspect the products according to the established frequency (inspection frequency could change if quality or delivery issue occurs, depend on FASM direction). This is observation tests to verify whether shipped products are sufficiently complied with items described in drawings and purchasing specifications besides shipping specification to assure shipped products quality.

Supplier shall designate inspection frequency and conduct it. All items on drawings and purchasing specification shall be inspected (Inspection frequency could change if quality or delivery issue occurs, depend on FASM direction)

Supplier shall document frequency and inspection method in its control plan in its own format.

3.21 Process change application

Supplier shall to follow application method and procedure of process change to prevent any trouble caused by any process change.

Supplier shall notify to FASM quality division (FASM SQE) if process change need to be implemented through the format “Process change request format F02-CO-P002-AC” (FASM’s form). And get FASM quality division (FASM SQE) approval before any change.

Additional information could be requested to the supplier, such as training records, inspection records, capacity studios, control plan, PFMEA or any other requirement according to the PPAP manual in its most recent version published by AIAG to confirm the change has been implemented successfully.

Supplier shall notify to FASM any process change with a period of precedence according to the table 4:

Table 4: Change point control matrix

Change Point Control Matrix		
Change	**Explanation / Examples**	**Notification Time Prior Change**
Design Changes	The drawing of the part changes, altering the physical structure of the part. A design change is ready when a new part drawing have been issued. • New part design • Design change that affects the part • Change of design that does not affect the physical structure of the part, such as a change in part name or part number.	**90 Days**
New Suppliers	A supplier or sub-supplier, who has never produced the part or component, begins to produce the part for Furukawa. • Addition of a new supplier or sub-supplier • Change the supplier or sub-supplier • New delivery location • Change from internal production to external supplier (or vice versa) • Change of location of the factory	**90 Days**
Change of Material	The material used to manufacture the part is changed • Change of material supplier • Change of supplier of external material to self-supplied (or vice versa) • Change in material composition (including anti-corrosion oil or lubricating oil)	**90 Days**
Change of Manufacturing Method	A method of process, adjustment or condition in the manufacture of the piece is changed or modified. This includes any change that affects the way the parties occur as reflected in the Control Plan. This applies when the normal control range changes, not for routine adjustments. • Change of casting or forging method • Change of sintering condition • Change of heat treatment condition • Change of molding condition of rubber or plastic • Change of molding condition • Change of coating condition • Machining or cutting condition change • Process rules to change the configuration method	**20 Days**
Change of Machinery	When the machine initially used to produce the parts during the approval process has been changed or replaced by another machine. (Examples of machinery: stamping press, assembly line, injection or blowing, forging, press, etc. • Initial use of a new machine • Major modification or repair of a machine • Minor modification or repair of a machine • Re location of equipment within the same plant • Re location of equipment outside the plant • Changes in the control logic of the machine (Example: Update or replacement of the software) that affects the function of the machine	**90 Days**
Change of Tooling / JIG	Primary or secondary tooling or JIGS are changed, potentially affecting the quality, function, appearance, reliability of the part. (Examples of JIG and tooling: Assembly or welding fixtures used in the manufacturing process, Refrigeration fixtures, sonic or thermal welding, etc. • Change in the master of machinery for camshafts or pistons • Change in the machinery master for other parts • New or modified tooling and JIGS	**20 Days**
Change of mold / Die	A mold or die that is used in the manufacturing process is changed or is new • New or renewed die or mold • Revision or repair of die or mold	**90 Days**
Change of inspection method	The inspection methods of the part are modified, which may result in an improvement or changes in the performance of the quality of the part. This may require a revision of the Control Plan • New or modified inspection team • Measuring method or type measuring instrument changes	**20 Days**
Change of packaging / transportation	The method of transportation of the part to Furukawa, or the packing of the part deviates from the initially approved method. The change could negatively affect the quality of the part. • Change in the method of delivery, packaging of materials or containers.	**20 Days**

3.22 Initial quality control

Supplier shall conduct self-intentional initial quality control when it has production of new product, design / process of changed products, following items records shall be kept.

- Criteria for each material/product (considering temperature, humidity, dust, sun light, vibration, impact, rain, wind, etc.).
- Records of competences of each associate who is involved in the product manufacturing process
- Verification of stability and control method of the quality
- Verification of stability and control method of the process
- Products flow and material handling method.
- Replacement frequency of tools for equipment and preventive maintenance frequency.

3.22.1 Clarification of implementation criteria for initial quality control

FASM determined implementation criteria for initial quality control by supplier as below;
Important parts which was started up newly (parts FASM APQP team specified important) FASM could ask suppliers to implement it based on initial quality control plan and apply for cancellation of initial quality control when control items are achieved to the condition of cancellation.

3.23 Application of deviation

Supplier can request deviation authorization to FASM if there are products out of spec which that could be considered to be repaired with some rework action.
Supplier can use its own format for request a deviation.
Deviation shall be applied only if no other way can be considered (interrupt the delivery process to FASM, huge financial loss).
Supplier shall guarantee the quality assurance of the parts / production control systems avoiding any application of deviation.

3.24 Specific requirement for deviated parts:

- Supplier shall identify the deviated parts from the other part in order to avoid mix
- The deviated parts shall be identified by putting a mark on the deviated parts according to agreement with FASM.
- Delivery boxes or containers with the deviated parts shall be identified by attaching the label for "Approved Parts for Deviation."
- The deviated parts shall be delivered on the date specified in the Request for Deviation

Authorization of deviation shall be judged by FASM and supplier will be informed of the results as soon as FASM take the final decision.
Supplier shall implement corrective actions and inform them to FASM immediately.

3.25 Information as shipment of nonconforming product to our company

If supplier detects non-conforming product has been shipped to FASM, Supplier shall inform immediately to FASM in order to identify the non-conforming parts and segregate them in order to avoid any issue in FASM production lines.

3.26 Procedure for quality problems.

Suppliers shall refer this and establish their own corrective action procedure. When it is difficult to judge good or NG product, please immediately inform about it to FASM Quality division (FASM SQE).

3.27 Reporting abnormal situation and taking action

Supplier will be informed about any non-conforming product found at FASM by issuing “Quality Notification” QN format (FASM format).

Supplier shall establish containment actions immediately after receiving the notification such as sorting at FASM parts warehouse, replacement, reworking to prevent any part shortages and line stoppage at FASM.

Supplier can ask to FASM to sort FASM warehouse by its own quality personnel, sorting fee will be charged to the supplier according to costs listed below:

- 5 USD/Hr. by direct manpower by operator
- 12 USD/Hr. by administrative labors by

Supplier shall submit to FASM Quality division (FASM SQE) within the next 24 hours after receiving the notification 8Ds F01-CA-I137-AC report at D3 level.

Supplier shall conduct the proper investigation to find out the root cause(s) which allow to the defect to be produced and reach to FASM.

Supplier shall establish preventive and corrective actions in terms of escape and occurrence in order to prevent the issue could occur again and also prevent issue reach FASM again. Supplier shall identify if the actions could be applied to other similar processes and implement to avoid occurrence in other products or processes. If supplier need additional information to perform the investigation it’s free to ask to FASM for it. Any quality notification shall be validated and close in 10 working days.

3.28 Limit samples

When apply, limit samples for judgment criteria shall be issued and acknowledged between suppliers and FASM where it is difficult to designate the criteria by purchasing specification/drawings.

For the limit sample, actual product shall be used with clear items/criteria by supplemental document. Pictures can be used instead of the actual samples if possible. Quality division and engineering dept. of FASM shall confirms the parts quality and approval. Supplier should keep them for one year after it expires but for stable one, it expands up to 5 years.

3.29 Control of quality record

Suppliers shall retain the quality records according to the retention period specified in the Table 5 Supplier record retention requirements

Table 5 – Supplier record retention requirements

Supplier Record Retention Requirement Matrix	
Document Type	**Requirement**
Change point control -Records of change points	20 Years
Drawing and spec sheets -Obsolete and date of changes -Review and implementation of engineering changes	20 Years
Internal Audits -All types and all records	20 Years
Lot Control Traceability -Abnormal situation/repair logs -Change point details -Components (lot with data) -Manufacturing history (ex. process conditions, methods, dies, machines and equipment in each step of the process including inspection) -Inspection results - receiving, in process and final by lot -Materials (lot with data) -Mixed lot parts -Production date/shift/associates Repair/reworked parts -Shipping records	20 Years
Maintenance Records (manufacturing equipment and tooling) -Preventive maintenance -Unplanned maintenance -Manufacturing equipment check sheets	20 Years
Measuring devices (active and scrapped) -Calibration records -Repair records -Device maintenance records	20 Years
Operation Standards -Work instructions -Quality Alerts issued -Pokayoke fixture check sheets -Red rabbit part check sheets	20 Years
Parts Inspection Standards -Receiving inspection records -In Process inspection records (including first piece confirmation) -Final inspection records	20 Years
Quality Control Documents -PFMEA -DFMEA (If apply) -Control Plan	20 Years
Sub Supplier Audit record of sub-suppliers (Tier 2 or lower suppliers) -Change point history -Product lot control -Quality problem history with corrective and preventive actions -Tier 1 suppliers are responsible for all sub-supplier lot control/traceability retention	20 Years
Training and Quality Education -Training records -Associates' knowledge and skills competency assessments	20 Years
Trouble CM (internal and external) - Non-conforming parts history with root cause analysis, corrective and preventive actions taken	20 Years

-The retention period starts from the date when the quality records are created or received.
-The quality records related to product liability cases or recalls shall be retained until the concerns are closed even after the retention period has expired.

3.30 Observation of production processes

Please periodically observe supplier's performance at production processes. Performance indicator shall be in-process reject rate and/or on-time rate for delivery, etc.

3.31 Registration of quality management responsibility

Supplier shall designate representative persons for the next items:
- Quality Management Representative (Who has the total responsibility of Quality Assurance System)
- Customer Service Representative
- Sales Representative
- Shipping Representative
-Accounting Representative

Supplier shall fill up F01-CA-M020-AC (FASM form) and submit it to FASM Quality division (FASM SQE) and procurement division (FASM Buyer). When quality management responsibility and/or contact person change to other ones, please submit it to FASM Quality division (FASM SQE) and procurement division (FASM Buyer) the revised F01-CA-M020-AC (FASM form) again within 1 month after the change.

3.32 Procedure for delayed shipment.

When delayed delivery happens, FASM procurement division shall issue a format F05-CD-P002-AC "Delivery Delay Notice" to its supplier for the P/O delayed and will request the supplier to investigate cause and take corrective action.
The supplier shall forward an 8D report filled up until the 3D within 24 hours after the DDN was issued and completely 8D report within the next 10 working days after DDN was issued.
As for the corrective actions needed, Supplier shall include the premium freight for shipping the delayed order to the place requested for FASM Procurement Division and shall provide its recovery plan.
All DDN submitted will affect the criteria "Delivery Performance" in the supplier's monthly scorecard.