

The letters 'CSR' are rendered in a large, bold, blue, sans-serif font. The 'C' and 'S' are positioned on a dark grey rectangular background, while the 'R' is on a light grey rectangular background.

Customer Specific Requirements

Transfer the customer specific requirements to suppliers – AIAG,
Ford Motor Company

CSR Rev. 001

AGENDA:

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1. Scope

This Customer Specific Requirements Document (CSR) is an integral part of Corporate Supplier Manual (CSM) and aims - defines to transfer the specific and special requirements of the final customer (OEM) and Huf.

This document contains the most restrictive requirements that have to be fulfilled by the Huf suppliers and does not replace any of the OEM's requirements. The latest and most valid versions of CSR's are available on IATF website and/or on the OEM's website:

<https://www.iatfglobaloversight.org/oem-requirements/customer-specific-requirements/>

The supplier is obliged to sign this document.

2. Targets

Targets for suppliers (PPM, Logistic Performance, 8D evaluation) are set for all components (material groups) in the Huf Supplier Portal, available on www.huf-group.com website and update annually.

3. Phased PPAP

PPAP according to the latest revision of AIAG Production Part Approval Process manual.

- Phase 0: 'Run-at-Rate'
 - To confirm that all production input requirements are available and understood, and can support a limited production run. To provide an early indicator that the design of the process/tool/facility has the potential to produce at rate the required number of acceptable parts as determined by the pre-launch control plan.
- Phase 1: 'Quality Verification'
 - Utilizes parts produced during Phase 0.
 - To confirm all customer design record and specification requirements are properly understood by the supplier. To provide an early indicator that the design of the process/tool/facility has the potential to produce product consistently meeting these requirements during an actual production run at the quoted production rate by operating a minimum of one selected production stream.
- Phase 2: 'Production Verification'
 - To confirm all customer engineering design record and specification requirements are properly understood by the supplier, and that ALL production streams have the potential to produce product consistently meeting these requirements during an actual production run at the quoted production rate
- Phase 3: 'Capacity Verification'
 - Verify the supplier's production system can support customer declared DPV (Daily Planning Volume) while meeting Phase 2 requirements.

PHASED PPAP	REQUIRED DOCUMENTATION			
	PHASE 0	PHASE 1	PHASE 2	PHASE 3
	Run-at-Rate CAR - Capacity Analysis Report 1 - Design Records 2 - Engineering Change 3 - Customer Engineering Approval 4 - Design FMEA 5 - Process Flow Diagrams 6 - Process FMEA 7 - Control Plans 8 - MSA Studies 16 - Checking Aids 17 - Customer Specific Requirements	Quality Verification 9 - Dimensional measurements 10 - Records of Material / Performance Tests 11 - Initial Process Studies 12 - Quality Laboratory Documentation 13 - Appearance Approval Report 14 - Sample Production Parts 15 - Master Samples 18 - PSW (Phase 1)	Production Verification Run-at-Rate for all production streams (element 1-8, 16, 17) Quality Verification for all production streams (element 9 - 15) 18 - PSW (Phase 2)	Capacity Verification CAR - Capacity Analysis Report 18 - PSW(Phase 3)

4. Requalification / Resampling (Small PPAP)

Requalification of materials, components must be performed once per 12 months. Small PPAP acc. to Ford Motor Company requirement - shall include a PSW and valid material certification report(s) not older than 12 months, a full dimensional report (full layout inspection and functional testing acc. to the drawing) on at least 5 parts.

Where tooling has multiple cavities, tools or centers, the organization conducts the annual layout on at least one part from each cavity, tool or center, with a minimum overall sample of 5 parts. Note: 5 parts are not required from each cavity; tool or center, only a minimum of 1 part is required from each cavity, tool or center. and a capability study for all print designated special characteristics.

5. Certificates of conformity

Supplier shall send the CoC (also named as CQC, CoA) for materials, components as a part of the PPAP submission and each time on demand of the Huf company.

6. Knowledge of basic AIAG manuals and CQI's

The supplier confirms that he is familiar with the requirements of the following AIAG documents and meets these requirements.

- Advanced Product Quality Planning and Control Plan
- Measurement Systems Analysis
- Potential Failure Mode & Effects Analysis / AIAG & VDA FMEA Handbook
- Production Part Approval Process

- Statistical Process Control *
- CQI-09 - Heat Treat System Assessment *
- CQI-11 - Special Process: Plating System Assessment *
- CQI-12 - Coating System Assessment *
- CQI-15 - Welding System Assessment *
- CQI-17 - Special Process: Soldering System Assessment *
- CQI-23 - Molding System Assessment *

* if applicable for supplied parts

7. Documentation and archiving

All Quality Records related to Product Safety and Functional shall be retained by the supplier over the life of the product (including spare parts) + 15 years so that they are readily available at Huf request.

8. Self assessment

Supplier must perform a self-audit (process and product) and send the result to Huf at least once every 12 months in the form of a complete audit report.
In case of special processes supplier shall carry out a self audit according to relevant CQI.

9. MSA

The preferred method for calculating Gauge R&R is using the Analysis of Variance (ANOVA). Variable gauge studies should utilize, at a minimum 10 parts, 3 operators and 3 trials. Attribute gauge studies should utilize, at a minimum, 50 parts, 3 operators, 3 trials. For critical characteristics 6pack MSA is required.

Parts for Attribute Gauge R&R Study

- 25% of the parts should be near the lower specification limit (on both sides of the specification).
- 25% of the parts should be near the upper specification limit (on both sides of the specification).
- 30% of the parts should represent the expected process variation.
- 10% of the parts should be outside the upper gauge specification limit and beyond the 25% of the parts near the specification as described above.
- 10% of the parts should be outside the lower gauge specification limit and beyond the 25% of the parts near the specification as described above.

The modified control method shall include techniques to incorporate mistake proofing methods or 100% product inspection integrated into the manufacturing process to prevent the shipment of non-compliant product to Huf facilities. Visual or statistical control methods are not permitted in this situation.

Any Note: examples of mistake proofing methods include the modification of manufacturing processes to detect and prevent the errors which lead to non-conforming product (e.g., poka-yoke), or a gauge to ensure product compliance to specification where the process does not meet the capability requirements. This is not the addition of a temporary manual inspection process at the end of the line.

Supplier shall continue to determine sources of variation, improve the process with permanent corrective actions, and improve the process to meet the capability requirements.

100% Inspection required / selected

Wherever a 100% inspection is used, the organization shall use the gauge error (independent of whether the Gauge R&R met the acceptance criteria) to identify modified product acceptance criteria (typically tighter tolerances and often referred to as “guard banding”) to prevent the shipment of non-conforming product to Huf Company.

For Variable Gauges

Two sided tolerances:

Tolerances used for 100% inspection gauges can be reduced by the extent of the gauge R&R as a percent of tolerance of the gauge(s) being used in the 100% inspection methodology. The typical practice is to remove half the gauge R&R as a percent of tolerance from the upper specification limit and the other half from the lower specification limit.

Example: A variable gauge is used to check a product characteristic of 600 microns +/- 40 microns (this equates to 80 microns specification tolerance spread). Additionally, this variable gauge has a gauge R&R as a percentage of tolerance of 20%. The upper limit compensated for gauge capability would be 632 microns ($600+40- 80 \times 0.2/2$) (Upper Specification – (Specification tolerance spread x (% tolerance Gauge R&R)/2)) and the lower limit compensated for gauge capability would be 568 microns ($600-40 + 80 \times 0.2/2$) (Lower Specification + (Specification tolerance spread x (% tolerance Gauge R&R)/2)).

This example assumes the gauge error is equally distributed.

Continue process variation reduction efforts until a Ppk greater than 1.67 is achieved.

One-sided tolerances:

For a "less than" tolerance specification (e.g. length less than 20 mm) subtract three gauge R&R standard deviations from the tolerance specification. For a greater than tolerance specification (e.g. plating thickness greater than 10 microns) add three gauge R&R standard deviations to the tolerance specification.

"Greater than" example: A variable gauge is used to check the length of a product characteristic. The product specification is greater than 150 microns. The gauge R&R standard deviation is 2 microns. The specification compensated for gauge error would be greater than 156 microns ($150 + 3 \times 2$) (Specification + 3 x gauge R&R standard deviation).

"Less than" example: A variable gauge is used to check the length of product characteristic. The product specification is less than 150 microns. The gauge R&R standard deviation is 2 microns. The specification compensated for gauge error would be less than 144 microns ($150 - 3 \times 2$). If business reasons exist to deviate from the recommendations listed above, contact SQE to obtain concurrence. Continue process variation reduction efforts until an acceptable process capability is achieved.

10. SPC

The Ppk index of the initial process study must be calculated using a data set that is statistically stable, in control and normally distributed or of the expected distribution. Stability, control and normality are determined using a data set of at least 25 subgroups and a subgroup size of at least 5 for a minimum of 125 measurements using rational sampling methods (see the AIAG SPC manual). Subgroups are to contain measurements from consecutive parts evenly spaced throughout the population being evaluated (minimum 300 parts).

Acceptable levels: Ppk > 1.67

11. Part history

The supplier is obliged to inform Huf about any changes in the process chain (place of production, product change, process change or supplier change) using „Part History” form.

12. CAR – Capability Analysis Report (OEE)

Supplier have to demonstrate the production capability by sending the latest version of fulfilled CAR document to Huf for verification.

13. Warranty Parts Review, Containments and Problem Solving

Upon receipt of a warranty claim, Suppliers shall respond within the specified limits, utilizing only the array of available responses as set forth below:

- Category 1: Responsibility of Supplier (Sample provided by Huf Supplier)
- Category 2: Trouble Not Found NTF (Sample provided by Huf Supplier)
- Category 3: Responsibility of Dealer and/or Customer

Reporting Tool – 8D and Required Response Time Frame

- Supplier will undertake to receive and respond to an 8-D Problem Action report which is the official communication tool for reporting and resolving problems.
- The required Response time frame is as follows:
 - an initial response to a critical problem (essentially the containment action/8D report: Steps 1 to 3 – 3D) is required within 48 hours of receipt from Huf
 - a 5-Why analysis for ascertaining root causes and verification is required to be completed as part of the 8D process
 - 8D final response is required within 10 working days of receipt from Huf

- If Suppliers fails to respond within Huf required time frame (48 hours for critical issues for section 1 of the 8D report and/or 10 working days for full root cause and final corrective action for section 2 and 3 of the 8D), Supplier will be deemed to have accepted the warranty claim and all warranty costs received from OEM and all other costs and expenses of Huf will be the sole responsibility of the Supplier. In case when more time will be needed to determine the cause of the problem, the supplier may ask for a deviation and we will individually set the time needed to close the complaint.

Category 1: Responsibility of Supplier

Warranty part analysis results and actions shall be documented using the 8-D format. This format is also utilized to monitor the effectiveness of corrective actions over time by each component. Implementation of a testing process to verify actual root cause and determine corrective action for dealer claims is required of Huf by our OEM customers and must therefore be pass-thru to our Suppliers as well.

The Supplier shall keep all provided parts received as warranty for a period of 6 weeks from issue notification date.

Category 2: NTF - No Trouble Found

If NTF status is declared in the 8-D process, Suppliers must clearly describe and document with data, how they arrived at this conclusion. In other words, NTF status in the warranty analysis process must follow systematic elimination of potential root cause factors. NTF typically describes a scenario whereby testing indicates the returned part meets Huf and/or our customer part and performance requirements as defined in purchase orders, PPAP and warranty terms and agreements.

Examples include: additional levels of testing, development of new test procedures, simulation of customer usage, verification to all applicable specifications, etc. In some cases when the defect is proven at the customer, a compromise may have to be reached between Supplier, Huf, and Customer (shared % responsibility).

Category 3: Responsibility of Dealer and/or Customer




N/A

14. Others

If Huf request the supplier to use certain advanced quality planning instruments (e.g., forms, programs or systems) / advanced standards not mentioned in this document, the supplier has to use them if requested to do so by Huf.

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Supplier Quality Development

Supplier signature and date
Quality Manager

CREATED	CHECKED	APPROVED
Dariusz Kowalski (PS-SD)	Grzegorz Piotrowski (PS-PP)	Michael Krumsdorf (PS-SD)
		
Signature	Signature	Signature

HISTORY			
REVISION	REASON	BY	DATE
001	Released	Dariusz Kowalski	16.02.2021

Document review once per 12 months or in case of any changes/updates in Customer Specific Requirements