# Quality and Environment Specifications for Brembo Supplies

**(August 2014 edition)**

# REVISIONS

| Rev. | Date | Description of the amendments | Modified Pages |
|---|---|---|---|
| 0 | 01.09.01 | New Edition | |
| 1 | 07.10.12 | Integral Revision | |
| 2 | 08.05.13 | Integral Revision | |
| 3 | 05.08.14 | Updated PPAP paragraph, Specifications adjusted to the definition of “Good (s)” | 4,5,6,7,8,9,10,11,12,13,14,15,16,18 |

| Prepared | Approved |
|---|---|
| Suppliers Quality Assurance | Quality and Environment Department |

# INDEX

# INTRODUCTION

The market in which Brembo operates is increasingly demanding and requires all companies to adopt policies to increase their competitiveness. In this context, those companies will be the winners that with strength and determination will pursue the path of excellence, continuous improvement of products, processes and overall performance.

Brembo will continue to face this challenge together with its suppliers, in the certainty that thanks to the joint efforts we will reach our goals with satisfaction.

The Management System of Brembo Supplies, described in this paper, aims to select, develop and manage Suppliers able to maintain their supplies at the highest level of quality, actively contributing to the commitment of Brembo towards the excellence of its products, the focus on the customer and the continuous improvement.

Brembo requires Suppliers to adopt the same principles and to commit to a "ZERO DEFECTS approach", demonstrating that commitment through:

- the robust development of product and production process
- strict compliance of production processes approved by Brembo
- the extension of what provided in this Specification to its sub-contractors to ensure quality throughout the supply chain
- the delivery of material conforming to the technical specifications (drawings, specifications, standards, etc. ..) and on due time
- The proactive risk management (production, environmental and safety)

The "Quality and Environment Specifications for Brembo Supplies" defines the rules and modalities of interaction between Brembo and its suppliers with the aim of ensuring adequate levels of quality and reliability of the purchase components, ensuring a proper management of the issues of occupational and environmental safety standards in which Suppliers are involved.

This document supplements the " Brembo General Terms and Conditions of Purchase Direct Material and Services" to which the order relates and will apply from the stage of approval of the Supplier to the development of a new product and for the duration of the series production.

The "Quality and Environment Specifications for Brembo Supplies" applies to all supply relationships between Brembo and its Suppliers of direct materials and related services (materials, transformation processes and controls related to Brembo product).

# SUPPLY MANAGEMENT SYSTEM

Brembo Supply Management System is divided into different phases


## GENERAL REQUIREMENTS

Being Brembo Supplier means providing components for safety products in the automotive field, hereinafter “Good(s)” according to the definition set forth in article 2.1. of the General Terms and Conditions of Purchase Direct Materials and Services or “product(s)”. This requires to Suppliers the ability to develop and produce components of varying complexity, using appropriate technologies and processes, and ensure the level of quality required.

For this purpose Suppliers must adopt the Management Systems for Quality, Safety and the Environment in conjunction with the Product and Process Development Systems, which help to define robust processes which are able to ensure over time the quality and reliability of the supplied components.

## QUALITY MANAGEMENT SYSTEM

All Brembo Suppliers must have a certified Quality Management System.

The objective of Brembo is that all suppliers of direct materials and related services are certified according to Automotive ISO / TS 16949, obtained by accredited certification bodies.

At the beginning of the supply relationship Brembo accepts Suppliers certified according to the ISO 9001 standard only if there is a development plan to achieve ISO / TS 16949 upon the expiry of the existing certificate.

Brembo accepts suppliers without certification ISO TS 16949, ISO 9001 or equivalent for particular types of supplies (white cast iron, scraps, deburring tools, components / special machining). In response to specific situations, such as suppliers of raw materials and traders, only ISO 9001 certification is accepted.

Brembo requires its suppliers to use theyself certified Suppliers (subcontractors) and anyway verify that they operate according to the quality rules in force in the automotive sector.

## SAFETY AND ENVIRONMENT MANAGEMENT SYSTEM

Suppliers must ensure proper management of issues related to health, safety and the environment in which they are involved and respect in their own locations related standards where applicable. They must also comply with current legislation and practices defined by Brembo in case they visit Brembo sites.

It's finally required that the Suppliers take ownership of and comply with the provisions of Brembo concerning the use of hazardous substances and a list of substances whose use is prohibited in products supplied to Brembo.

All Brembo Suppliers must apply within their own sites an environmental management system according to the rules defined by the ISO 14000 series or equivalent, obtaining the third-party certification; they must also apply an effective system of safety management according to the rules defined by the series OHSAS 18000 or equivalent, preferably obtaining the third-party certification.

To ensure compliance with laws that require it, Brembo asks its Suppliers to enter information about the materials provided, and their components, in the International Material Data System (IMDS).

In particular, it is understood that the Suppliers are obliged to comply with all applicable national and international regulations governing the supply and use of substances and to observe any legal restrictions, such as those defined in the REACH Regulation (EC) No. 1907/2006 and its amendments and additions.

If it is considered necessary as part of a virtuous cycle of continuous improvement and sustainability of its "supply chain", Brembo reserves the right to carry out audits in the field of safety and environment at its Suppliers' sites; Brembo guarantees the absolute confidentiality of all information which it may become aware of.

## SPECIFIC CUSTOMER'S REQUIREMENTS

The Supplier must know and apply requirements additional to ISO TS 16949, requested by Brembo customers. Brembo must notify the Supplier and the end customers to whom the supply is intended.

## SUPPLIER APPROVAL

The new potential suppliers are invited to respond to the "Pre-evaluation Questionnaire" providing the required information about the company and the products / services provided.

Brembo will subsequently carry out an Approval Audit to evaluate the real potential of the Supplier based on the following criteria

- **General information**

(Company Organization, Quality, Safety and Environment Certifications, Compliance with regulations in force, Ethical Principles..)

- **Technical and technological competences**
- **Product and process development System**
- **Quality Management**
- **Production and Logistics Management**
- **Sub-suppliers Management**

The result of the audit leads to express 3 possible judgments, based on what assessed by Brembo

- **Approved Supplier**
- **Conditionally approved Supplier**
- **Non-approved Supplier**

The Supplier must be approved in order to enter in the panel of Brembo suppliers to which assigning new business.

The state of conditionally non-approved Supplier necessitates the definition and implementation of an improvement plan agreed with Brembo, and a subsequent re-evaluation.

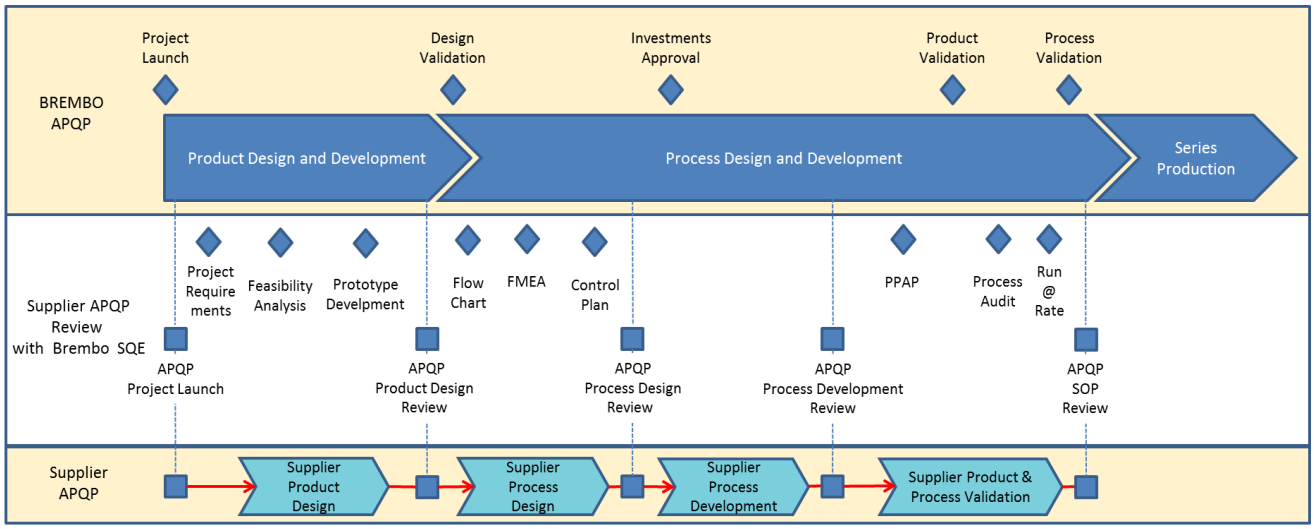
# APQP–PRODUCT AND PROCESS DEVELOPMENT

The APQP (Advanced Product Quality Planning) is a structured process for managing the development of new products that defines the steps you need to follow to ensure that a product under development meets the objectives of the project and meets the specifications of the customer, in terms of quality, performance, capacity, time and costs.

Brembo organizes and manages as specific projects all new products applying the APQP methodology and requires that the Supplier uses this methodology to ensure effective development of its product and manufacturing process (including sub-contractors), thus ensuring a correct entry into production of the purchase components.

The Supplier shall define and manage own APQP plan in accordance with Brembo APQP plan.

Brembo SQE (Supplier Quality Engineer) of reference will follow with the Supplier the definition phase of the APQP and will monitor the progress of the plan, based on formal moments of sharing, as defined by the schema.




# APQP – PRODUCT DESIGN

## PROJECT REQUIREMENTS

Brembo shares with the Supplier the project specifications that relate to the component supply:

- **Volumes and Production Capacity**
- **Technical Requirements (drawings, test specifications, reference standards, rules for installing / using the component)**
- **Quality Requirements**
- **Environmental and Law Requirements**
- **Logistics Requirements (packaging, trasports)**

In particular, the analysis of Technical Requirements is essential in order to minimize the need for changes to the product in the advanced stages of project development.

The result of the analysis of Project Requirements is indicated in a document shared with Brembo as the basis for subsequent development activities.

### FEASIBILITY ANALYSIS

The Supplier is required to perform a feasibility analysis of all relevant aspects in the management of the development process of the component, considering the following aspects:

- **Technical and technological know how**
- **Experience with similar products**
- **Training of personnel**
- **Investment in plant and equipment for manufacturing and control**
- **Available production capacity and consistency with customer requirements**

The results from the Feasibility Analysis is reported in a document shared with Brembo as the basis for subsequent development activities.

### PROTOTYPE DEVELOPMENT

The Supplier is responsible for

- realize the FMEA (failure Mode Effect Analysis) of project, highlighting all the potential criticalities of the product, in case it is also responsible for the design of the component
- develop a Validation Plan of the prototypes (DVP - Design Validation Plan), defining with Brembo the tests to be performed on the purchase component
- develop a Control Plan of the prototypes manufacture for dimensional, material and functional characteristics.

## APQP – PROCESS DESIGN

### FLOW CHART

The Supplier shall specify all the stages required for the manufacture and control of the product, from receipt of raw materials to the shipment, clearly identifying any purchased components from sub-suppliers and process steps in outsourcing.

### PROCESS FMEA

The Supplier has the responsibility to proactively analyze all stages of the manufacturing process and highlight any weaknesses, against which it must implement action plans consistent and targeted to the reduction/elimination of criticality.

### CONTROL PLAN

The Supplier shall develop, on the basis of Flow-Chart and FMEA Analysis the document that identifies the controls to be carried out on the product and on the process in all its phases. For each stage of the process there should be indicated the characteristics of the product and the process to be monitored, the monitoring frequency and the manner in which the test is run.

# APQP – PROCESS DEVELOPMENT

The Supplier has the responsibility to develop the manufacturing process according to the findings in the earlier stages of product design and process. In particular, it should ensure:

- **Compliance with the requirements of the project**
- **Process capacity appropriate to the critical features of the product**
- **Productive capacity appropriate to the volume of the project**
- **Measuring systems and adequate control**
- **Attention to working conditions (environment, safety, ethics, order and cleanliness)**
- **Staff training and adequate process documentation**

# APQP – PRODUCT/PROCESS VALIDATION

## PPAP – PRODUCTION PARTS APPROVAL PROCESS

After the industrialization phase of the Supplier's responsibility, Brembo intends to verify that the manufacturing process has been developed by the Supplier in order to ensure the series production of series of components complying with the requirements of the project.

The PPAP approach used by Brembo provides different levels of application, each of which requires compliance with certain requirements and submission of specific documentation accompanying the First Sampling for the approval of series production.

These levels are ranked in ascending order of complexity from level 1 to level 4, and an indication of the level of PPAP required is explained in the Purchase Order of the First Sampling that the Supplier receives from Brembo.

| | **Requirements** | **Level 1** | **Level 2** | **Level 3** | **Level 4** |
|---|---|---|---|---|---|
| 1 | Reference project documentation (ex: drawings, specifications, conditions etc.) | T | P | P | * |
| 2 | Authorized project changes, not yet recorded in the design documentation but already incorporated in the product | T | P | P | * |
| 3 | Component approval requests (“First sample report” RPC form – M.W-96, sheet 1) | P | P | P | P |
| 4 | Design FMEA (only for Suppliers who are project - responsible) | T | T | P | * |
| 5 | Production process flow chart | T | T | P | * |
| 6 | Process FMEA | T | T | P | * |
| 7 | Control plan | T | T | P | * |
| 8 | Documentation related to the verification of the measurement system and control means capability | T | T | P | * |

| | Requirements | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|
| 9 | Dimensional results report ("First sample report" form - RPC – M.W-96, sheet 2) | T | P | P | * |
| 10 | Material, performance and durability test | T | P | P | * |
| 11 | Documentation related to the verification of process capability | T | P | P | * |
| 12 | "Appearance approval report – M.W-180", if specifically requested | T | T | T | * |
| 13 | First samples parts | T | P | P | * |
| 14 | Reference master sample ("countersamples") | * | * | * | * |

**Key :**
P = to be formalised and sent to Brembo
T = to be formalised and sent to Brembo only upon request
* = to be formalised and made available at the Supplier's site, following specific request by Brembo
Level 4 refers to the first samples verified by Brembo at the Supplier's site.

In any case, the First Sampling must be accompanied by a report which certifies the conformity of the samples with the technical requirements of the project with regard to:

- **Dimensional measures**
- **Material tests**
- **Functional tests and aesthetic approval (if required)**

The First Sampling must be properly identified, supplied in the amount and date foreseen in the Purchase Order, and accompanied by the required documentation.

The First Sampling must also be representative of the series production, i.e. made with final processes and equipment and taken from a significantly batch of production.

Brembo, having examined the completeness of the documentation produced and having performed the tests on the samples received, assigns a status to PPAP

- **Approved**
- **Conditionally approved**
- **Non approved**

The PPAP must be approved before the start of series production.

A conditionally approved PPAP requires from the Supplier the resolution of the detected non-conformities and the re-presentation of a new First Sampling.

## PROCESS AUDIT

Following the approval of the First Sampling, Brembo tests the ability of the manufacturing process, defined and implemented by the Supplier to meet the requirements of the project. The main aspects evaluated are as follows:

- **Management of sub-suppliers**
- **Control of supplies**
- **Management of customer's technical documentation**
- **Control of product and process**
- **Management of performance indicators**
- **Product identification, traceability and FIFO**

- **FMEA and control plans**
- **Process documentation**
- **Training and qualification of personnel**
- **Working conditions**
- **Maintenance management**
- **Management of non-conformities**
- **Management of measuring instruments**
- **Qualification of internal processes**

The result of the audit leads to express 3 different judgments, based on the score detected:

- **Approved process**
- **Conditionally approved process**
- **Non-approved process**

The process of the supplier must be approved before the series supply.

A conditionally approved process necessitates the definition and implementation of an improvement plan, agreed with Brembo, which addresses the detected non-conformities and a subsequent re-evaluation.

## RUN@RATE

Brembo requires the Supplier to produce an adequate amount to ensure that the production process is able to guarantee the production capacity required to the project, at the level of quality expected.

The quantity to be produced must be defined in order to verify:

- **presence of any "bottlenecks" between the different stages of the process**
- **cycle times defined at the design stage of the production process**
- **efficiency and effectiveness of the process (efficiency systems, programmed stops, scraps, rework, preventive maintenance, set-up times)**
- **criticalities not highlighted by the previous verification activities**
- **actual installed capacity**

Brembo participates in the implementation of the Run @ Rate at the supplier's plant and requires the formalization of a corrective action plan in case you highlight critical situations.

# REQUIREMENTS OF SERIES PRODUCTION

Upon receipt of the approval for the series production, the Supplier must ensure stability and compliance of its supplies.

In this regard it is essential that the Supplier will ensure over time the proper management of the aspects described in this section.

## MANAGEMENT OF PROCESS CHANGES

The Supplier must comply with the process conditions by which the parts object of the PPAP and approved by Brembo were produced.

In case the Supplier has the need to make changes to the production process, must submit a written request to Brembo and obtain approval prior to implementing the change.

The Supplier agrees to:

- give prior notice to Brembo of every change introduced in the production process (place of production, materials, production cycles, equipment, subcontractors, etc..)
- develop the introduction plan of the change with PPAP methodology, according to Brembo request
- provide a new First Sampling and wait for its approval prior to implementing the change on the series production.
- The Supplier cannot implement any changes to product and / or process without the approval from Brembo.

  In case this is done without Brembo approval, the supplier assumes the responsibility to:
- bear all costs induced
- receive a written notice from the Certification Body of Third Part of the non-compliance of its Quality System and Customer Requirements
- receive from Brembo the state of New Business on Hold.

## IDENTIFICATION AND TRACEABILITY

The Supplier must define the size and the characteristics of its production batch and have an identification system that allows:

- the identification of raw materials and semi-finished products in stock in its stores and throughout the manufacturing process
- the identification of the product status during the entire production cycle in relation to tests and inspections, the distinction between "conforming" product and "non-conforming" product, the identification of the products with safety and / or regulation, the identification of the finished and deliberated product possibly with markings on the product itself.
- the proper management of the FIFO (First In First Out).

The Supplier must ensure an adequate traceability of the products supplied, or be able, through the identification of the products and the various recordings that bind properly the different stages of the production process, to trace back all the information needed to identify any defective batch, know the methods of production and control, the results of the checks on the products and the destination of all the details involved.

This traceability condition is an essential requisite in case you need to recall from the market any defective parts.

## MANAGEMENT OF THE SIGNIFICANT CHARACTERISTICS

For significant characteristics we mean those characteristics to which Brembo, by virtue of its expertise and experience in design and the FMEA analysis conducted, attributes particular importance and criticality.

The Supplier is required to know the meaning of the symbolism that Brembo assigns to the characteristics described in its technical documents and the importance degree of the characteristics of its supply components.

The compliance of these characteristics and the strict control of the production process are imperative requirements.

| Characteristic | Symbol | Definition | Obligations for the Supplier |
|---|---|---|---|
| Safety |   | basic characteristics for the final product to the purposes of safety and security of the user or third parties. | • Maintain a defect level equal to zero<br>• Record the results of the tests and checks carried out to ensure compliance with the requirements<br>• Identify and highlight the characteristics of safety and regulation on the registration documents by affixing visibly the special symbol (inverted delta inscribed in a circle)<br>• Store in a suitable place and suitable support for at least 15 years from the date of product delivery, all recordings made.<br>• • Ensure production processes with Cp / Cpk ≥ 1.67 or 100% inspection |
| Regulation |   | binding characteristics for the approval of the vehicle in States where the products are marketed and, more generally, for compliance with national and international regulations. | |
| Functionality/ assemblability |   | characteristics whose non-compliance can seriously affect the functionality of the product in operation and / or assembly on the vehicle. | • Maintain a defect level equal to zero<br>• Record the results of the tests and checks carried out to ensure compliance with the requirements<br>• Store in a suitable place and on a suitable support for at least 5 years after delivery of the Particular, all recordings.<br>• Unless otherwise specifically requested by Brembo, the production processes that have an impact on the assembly characteristics and / or important characteristics must meet a condition of Cp/Cpk≥ 1,33 |
| Important |   | characteristics whose non-compliance may undermine the proper functioning of the product in operation and / or the correct assembly in Brembo. | |

In case the Supplier uses its own coding of the significant characteristics, must define a clear correlation with the symbols used by Brembo.

## CERTIFICATIONS AND QUALITY RECORDS

When required, the Supplier shall attach to each delivered product / supply batch a Quality and Compliance Certificate (CQC) certifying that the product complies with the specifications and that the inspections and tests specified in the control plan have been properly performed successfully.

In any case, the supplier is required to keep for each production batch the records of the controls provided by the control plan and to make them readily available to Brembo upon specific request.

## PROCESS CAPACITY

The manufacturing processes of the Supplier must ensure minimal variability, and therefore the maximum repeatability, of the characteristics of the product with regard to the defined specifications.

In particular, as regards the production processes which have an impact on the characteristics of safety, regulation, assemblability and important characteristics (expressed in technical documentation) the requested conditions of Cp / Cpk must be guaranteed.

In the event that the level of required process capacity fails for any reason, it is the responsibility of the Supplier to apply an adequate alternative control system (100% verifications, poka yoke, etc ...) to ensure conformity of the details until the restoration of the required conditions of process capability.

## MANAGEMENT OF SUB-SUPPLIERS

The Supplier shall be responsible for the suitability of the sub-contractors used, which must have and maintain for the duration of the supply a Quality System certified according to ISO TS 16949 and / or ISO 9001 and an Environmental Management System effectively implemented.

The Supplier shall ensure the implementation of timely corrective actions against the sub-contractor, in case non-conformities are detected.

In the course of supply any replacement of sub-suppliers must be submitted and approved in advance by Brembo, as well as any change in the process of sub-supplier.

In relation to the importance of the manufacturing process, Brembo reserves the right to approve the sub-supplier and audit its manufacturing process.

## NON CONFORMITIES MANAGEMENT

It is both Brembo's and the Supplier's interest to be able to identify as quickly as possible any non-conforming products.

Brembo can intercept non-conforming supply products during the different phases of its process and also during the use of the final product by Customers.

In the event of non-conformity, Brembo send to the Supplier a " Non-Conformity Notice" against which the Supplier must enable an effective process of "problem solving", which includes the following activities:

- Evaluation of involved products: evaluation of the impact of the non-conformity;

- Containment actions to be taken to eliminate the risk of further transmission to Brembo of non-conforming products (eg selections, additional controls, etc.);
- In-depth analysis and systematic search for the primary cause of non-conformity;
- Corrective and preventive actions to be taken to eliminate the causes of nonconformities in order to prevent its recurrence.

Information relating to the management of non-conformity by the Supplier must be sent to Brembo through specific "8D" reports. In particular, the Supplier must send:

- within 24 hours the information associated with the selection at Brembo and at the supplier's plant, and the containment actions plan
- within 10 working days the plan complete with the root cause analysis and the defined corrective / preventive actions.

The Supplier shall promptly inform Brembo in case becomes aware that has sent non-conforming or suspicious material.

The Supplier is responsible for the damage caused to Brembo and / or its customers due to non-conformity on the supply product. Brembo will charge to the Supplier all costs caused by the non-conformity management.

In case of warranty costs to be incurred for defects found by Brembo customer's network, the reversal of costs on the Supplier follows the same criteria with which they are charged to BREMBO. In most cases the flow of allocation of responsibilities foresees that:

- the charge is defined on the basis of the parts replaced within the warranty period and confirmed defective due to the Supplier’s responsibility
- a sample of the parts replaced in the field arrives at BREMBO and then at the Supplier to perform all the necessary analysis of the defect.
- on the basis of analyzes carried out on the partes received, therefore on a statistical basis, the share of responsibility is defined.

In particular cases it may happen that Brembo customers require additional or different procedure than those set forth in the present Annex and/or in the Supplier procedure. In such cases, Brembo shall informe the Supplier about the customers requirements, and the Supplier undertakes to comply with such requests.

In case of serious and / or repetitive non-conformities, Brembo may require to the Supplier the application of particular processes of containment referred to as CSL (Controlled Shipping Levels), divided into three different levels depending on the severity and recurrence of non-conformities detected in the supplies:

- **CSL1**
- **CSL2**
- **Enhanced CSL2 (or CSL3)**

The special states of supply are communicated to the Supplier in a formal way and for the CSL2 and CSL3 the Supplier must assure its commitment in writing.

The CSL status awarded to the supplier obliges the latter to make deliveries accompanied by the Quality and Conformity Certificate of the product with regard to the characteristics which are subject of the non-conformity.

During the period of application of CSL, the Supplier must realize, limited to the characteristics of the part subject of the measure, an additional 100% control, carried out in additional and dedicated workstations, with appropriately qualified personnel and under conditions agreed with Brembo. In the event that it is impossible to carry out 100% controls (eg. destructive tests), a reinforced frequency of checks should be agreed with Brembo.

## CONTROLLED SHIPPING LEVEL I (CSL1)

It is a condition of supply that foresees for the supplier to introduce additional 100% controls or at reinforced frequency on all deliveries subject of the detected problem according to a Control Plan agreed with Brembo until revocation of CSL1 status.

These checks are performed by the Supplier at its plant. The results of all checks shall be sent to Brembo and the relevant products must be identified and certified before sending them to Brembo plants.

## CONTROLLED SHIPPING LEVEL 2 (CSL 2)

Supply status which requires the supplier to introduce additional 100% controls or a reinforced frequency of controls on all the supplies covered by the problem, carried out by an independent third party which represents the interests of Brembo, according to a Control Plan agreed with the same Brembo until revocation of CSL2 status.

The independent third party can be selected from the supplier, but must be approved by Brembo. If deemed necessary, Brembo may require the third party to perform the inspection at sites different from those of the Supplier.

Depending on the severity of the detected non-conformity, Brembo may decide to apply directly the CSL2 at its plants. In any case, the costs are born by the Supplier.

The results of all checks shall be sent to Brembo and the relative products must be identified and certified before sending them to Brembo plants.

## ENHANCED CONTROLLED SHIPPING LEVEL 2 (O CSL 3)

This status of supply applies in the case where it is obvious that the Supplier has a systematic lack in the production process and / or control and inability to resolve the root causes of non-conformities.

The Supplier shall at its own expenses, therefore, use a third-party company that, in addition to all the activities required for the CSL2, will provide support for a guided growth of the process and of the control plan of the Supplier, and then will assist the Supplier in the elimination of the root causes.

## CLOSING OF CSL STATUS

Brembo, after verifying the effectiveness of the corrective actions implemented and the positive results of the checks carried out under the CSL, to be kept for a suitable period of time and / or number of produced batches, may decide whether to remove or renew the CSL status.

## NEW BUSINESS ON HOLD (NBH)

In the most severe cases linked to the quality of the supplies, Brembo may decide to put the Supplier in the state of New Business on Hold (NBH). This condition leads to the failure to allocate business to the Supplier for the whole duration of this measure and is notified by Brembo Purchasing Department in a formal way.

The Quality conditions for which Brembo can assign to a Supplier the NBH status can be tentatively and not exhaustively, the following:

- Escalation from CSL;
- Change of manufacturing site of the Supplier or Sub Supplier, modifications to the process or product without Brembo approval;
- Quality problems in the field such as to justify a recall campaign for restoration (especially important for problems involving the safety of passengers) or km0;
- For product under development: Action Plans are not met by the Supplier, both in terms of actions and in terms of timing;
- Extensive Quality Problems, measured by the indicators trend.

NBH status can be revoked if the Supplier demonstrates to fulfill the established exit criteria, and if before the end of the NBH period an audit to the production process carried out by Brembo has given positive results, certifying the occurred improvement.

## CONTROL EQUIPMENT OF BREMBO PROPERTY

All control equipment belonging to Brembo or to Brembo customers, in use at the premises of the Supplier, shall be clearly and unambiguously identificated and can only be used for the control of Brembo products, unless otherwise agreed in writing with the same Brembo.

The supplier shall provide at its own expenses to the regular calibration and maintenance of equipment owned by Brembo and to periodically check their suitability.

In case extraordinary maintenance interventions are required, they should be required formally to Brembo, which will authorize them in writing.

# MONITORING OF THE PERFORMANCES

The monitoring system of the suppliers performance is carried out in 3 steps:

- Definition of annual targets
- Quarterly Performance Monitoring
- Definition of improvement plans

## PERFORMANCE INDICATORS

The main indicators are defined as:

- **Quality Index (IQ**), which measures the level of disturbance caused by the Suppliers to Brembo plants (according to following table)

**IQ = Σ (Demeriti)**

| *Demeriti* | *Tipo di disturbo di qualità* |
|---|---|
| 0 | Lotto accettato a seguito di richiesta di deroga del fornitore |
| | Reso dal fornitore come scarto di lavorazione |
| 2 | Scarto di un singolo pezzo ( in produzione / montaggio) |
| 5 | Mancata/ incompleta risposta ad A.N.C. nei tempi richiesti |
| | Lotto accettato in deroga (fase di accettazione) |
| 10 | Prima campionatura non fornita/ in ritardo |
| | Prima campionatura accettata in deroga |
| | Prima campionatura rifiutata |
| | Consegna materiale prima di invio prima campionatura |

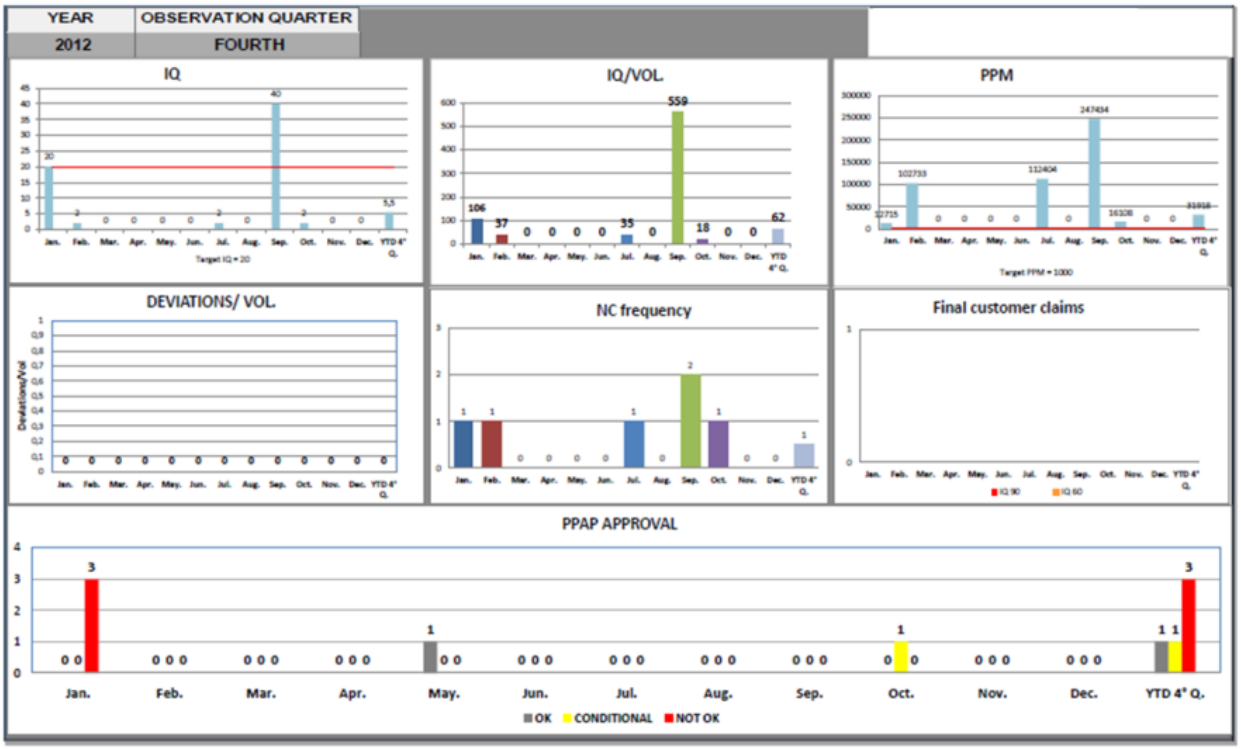
| *Demeriti* | *Tipo di disturbo di qualità* |
|---|---|
| 20 | Lotto respinto/ selezionato ( in accettazione) |
| | Pezzi non conformi rilevati in produzione che provocano modifiche dei parametri di processo |
| | Lotto respinto / selezionato (in produzione / montaggio) |
| 30 | Pezzi non conformi rilevati in produzione che provocano fermo linea |
| 60 | Segnalazione/Reso a km 0 dal cliente e/o dalla rete |
| 90 | Intervento presso cliente |
| | Utilizzazione forzata presso cliente |
| | Reso/sostituzione intero lotto dal cliente |
| | Fermo cliente |

- **PPM** (parts per million of non-conforming pieces detected in Brembo and its customers process)
- **Sampling Index (PPAP),** which measures as percentage the performance during PPAP, weighing appropriately the results

Targets for the PPM and IQ indicators are yearly defined and communicated to each individual Supplier. As for the PPAP it is established that the First Sampling must be approved on the first submission. The targets set do not represent the Level of Accepted Quality, but rather the push for continuous improvement of the performances.

Quarterly Brembo processes and communicates to the Supplier the dashboard that summarizes the final results of the performance indicators

- **Quality Index (IQ)**
- **Quality Index/Supplied volume**
- **PPM**
- **N° of pieces conditionally accepted/ supplied volume**
- **N°s of non-conformity notices (ANC)**
- **N° notices of non-conformity with impact on Brembo customer**
- **PPAP oucome**




The Supplier is required to systematically develop Quality Improvement Plans, to guarantee more robust business processes in order to prevent any kind of defects.

The Supplier is required to use the Quality Methods for analyzing non-conformities, in order to eliminate the root causes and expand the improvement actions, where applicable, to similar products and processes to definitively exclude cases of repetition of the defect.

The improvement actions should not be limited to the product and the production process but should be extended, if necessary, to the Quality System and the company's core processes.

In the spirit of continuous improvement, the Supplier is required to demonstrate a positive trend in the reduction of non-conformities during the time and to use the product audits and internal process audits as a guide tools for improvement.

Even Brembo will perform process audits to the Supplier during the series production, in order to verify the robustness of the production process during the time and the consistency of the improvement actions in case of punctual, repetitive non-conformities and performances not in line with expectations.

# NOT APPROPRIATE PERFORMANCES

Failure to comply with the quality targets is managed through an escalation process.

Upon exceeding the targets set or in the case of a progressive deterioration of performance, Brembo inserts the Supplier in the "Suppliers with inadequate performance" programm.

The first step of the program is to send a warning letter to the Supplier with a request for an Improvement Plan.

If the Plan is not effective or is not fulfilled on schedule, the reaction in escalation generates a level of growing attention on the supplier, up to the convocation of the Top Management of the Supplier, which can lead to the declaration of a state of New Business on Hold (NBH).

On the contrary, if the recovery Plan is evaluated effective by Brembo, the Supplier returns to the normal monitoring state.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