



surface
technologies



Eindhoven
working standard

introduction

Aalberts Surface Technologies Eindhoven is a high-tech heat and surface treatment provider for different market segments and distinguishes itself in the industry by: its clean rooms, wide diversity in equipment as well as processing materials, specific processes required by client and optimum care for the product.

Aalberts Surface Technologies Eindhoven is one of the most modern heat treatment companies in Europe, is located in The Netherlands in the city of Eindhoven and operates in high demanding markets. Aalberts Surface Technologies Eindhoven is part of Aalberts NV, a dutch stock listed company and market leader in various market segments.

Most important values of Aalberts Surface Technologies Eindhoven are quality, technical solutions and customer care. No matter how large, complex, unique and innovative it may be the customers demands are, Aalberts Surface Technologies Eindhoven's co engineers are capable to deal and perform with any requests.

Aalberts Surface Technologies Eindhoven has three main activities:

- Heat Treatment
- Surface Treatment (CVD and PVD coatings)
- Vacuum Brazing

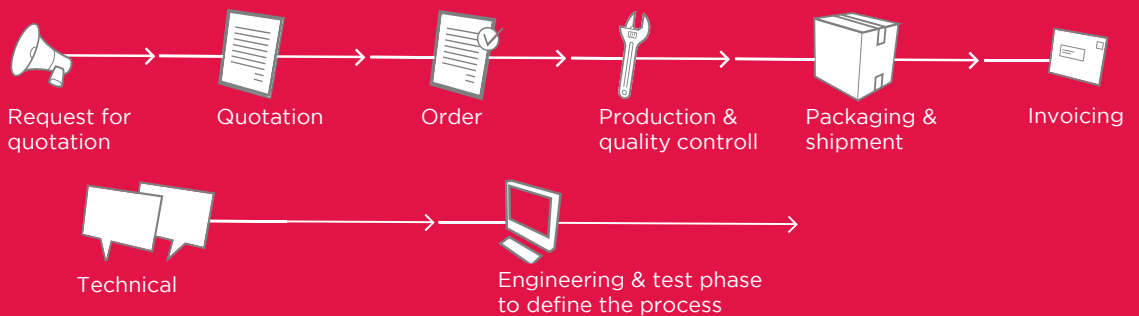
Heat treatment is Aalberts Surface Technologies Eindhoven's core business and in this area Aalberts Surface Technologies Eindhoven is specialized in vacuum heat treatments and the special diffusion process Stainihard® (to harden the surface of stainless steel). Next to standard processes Aalberts Surface Technologies Eindhoven also provides very specialized treatments, geared to material, application, geometry and use.

Present quality systems are:

- NADCAP
- ISO9001
- ISO14001
- AS9100

Aalberts Surface Technologies Eindhoven's goal is to meet or even outperform customer's expectations. Therefore, this document is presented to all our customers to inform them in detail about the working standard of Aalberts Surface Technologies Eindhoven and to explain how Aalberts Surface Technologies Eindhoven operates and about the results our customers can expect. Aalberts Surface Technologies Eindhoven is open for discussion when certain demands, requests deviate from the terms mentioned in this document. Without mutual agreements Aalberts Surface Technologies Eindhoven will operate according to the working standard as described in this manual.

working standard



working standard

request for information phase

The customer sends a Request for Quotation (RFQ) to Aalberts Surface Technologies Eindhoven. This request should at least include:

- customer and contact details
- description of the requested process/treatment
- requested quality classification (QC) of Aalberts Surface Technologies Eindhoven (explained in detail in chapter 3)
- technical product documentation (TPD) which includes:
 - description of the part
 - drawings of the part (assembly drawings should include single part drawings)
 - material(s) the part(s) is(are) made of (DIN or ASTM number)
 - specifications or other quality demands which have to be applied
 - critical areas of the part (if applicable)
- end customer (OEM)
- (preferred) order quantity
- annual quantity
- description of treatment(s) the part(s) receive(s) before delivery to Aalberts Surface Technologies Eindhoven
- description of treatment(s) or finishing the part(s) will receive after the Aalberts Surface Technologies Eindhoven Treatment

A confidentiality agreement (NDA, Non Disclosure Agreement) between customer and Aalberts Surface Technologies Eindhoven can be signed before a RFQ is sent or before a quotation is submitted.

technical discussion/intake

In case not enough information is provided in the RFQ phase or the customer parts are subject to Aalberts Surface Technologies Eindhoven quality classification 1 (QC1) or quality classification 2 (QC2) in general a technical discussion is mandatory before parts can be quoted or processed. This is necessary because Aalberts Surface Technologies Eindhoven has no knowledge of the production process of the parts and because the production process of the customer has great influence on the Aalberts Surface Technologies Eindhoven process and final result. Aalberts Surface Technologies Eindhoven and the customer need to have mutual agreement in the way Aalberts Surface Technologies Eindhoven processes the parts and the related quality expectations.

quotation

Aalberts Surface Technologies Eindhoven will quote in accordance with the requests for quotation requirements and technical product documentation (TPD). TPD sheets are leading but additional the customer or end customer requirements and international standards (i.e. DIN) also need to be followed. These requirements should be provided to Aalberts Surface Technologies Eindhoven. Any required deviation must be specified explicitly.

In making a quote, the customer is leading and should specify the Aalberts Surface Technologies Eindhoven quality class (QC) to be used on his part(s) and should state the additional requirements (e.g. FAI, PPAP etc.).

ordering

All customers purchase orders are subject to sales and delivery conditions of Aalberts Surface Technologies Eindhoven. All products delivered to Aalberts Surface Technologies Eindhoven should be accompanied with a purchase order which explains in clear writing the operation Aalberts Surface Technologies Eindhoven has to perform and includes all technical data which is necessary for processing the part according to the quality requirements. The customer purchase order should at least include:

- customer and contact details
- description of the requested process/treatment
- description of the part
- drawing number of the part
- material(s) the part(s) is(are) made of (DIN or ASTM number)
- quantity of delivered parts
- specifications or other quality demands which have to be applied
- critical areas of the part (if applicable)
- end customer (OEM)
- delivery conditions (and delivery address if applicable)
- post treatment (if this interacts with the Aalberts Surface Technologies Eindhoven process)
- quotation reference of Aalberts Surface Technologies Eindhoven

After our work preparation is done you will receive an automatic order conformation related to the purchase order.

Depending on the business volume and order frequency Aalberts Surface Technologies Eindhoven will require a (non-binding) forecast. This (nonbinding) forecast exceeds the horizon of the requested delivery time for the placed purchase orders. The purpose of the (non-binding) forecast is to give Aalberts Surface Technologies Eindhoven more insight in future purchasing volume. The (non-binding) forecast should be sent regularly as a rolling forecast.

engineering phase

In general Aalberts Surface Technologies Eindhoven provides treatments for high tech customer parts. Expectations and quality standards are normally very high. Because Aalberts Surface Technologies Eindhoven has no knowledge of the production process of the parts and because the production process of the customer has great influence on the Aalberts Surface Technologies Eindhoven process and final result in general an engineering phase is necessary for parts subject to Aalberts Surface Technologies Eindhoven quality classification 1 (QC1) or quality classification 2 (QC2). In this engineering phase both parties, the customer and Aalberts Surface Technologies Eindhoven, together have to define the production process. Customers production process should not be altered by the customer without informing Aalberts Surface Technologies Eindhoven because it has potential impact on the Aalberts Surface Technologies Eindhoven process.

In the engineering phase a test traject can be necessary to define the final production process. A separate order is necessary to perform orders subject to a test traject and before serial production can be started. Depending on results an adapted quotation can be necessary.

production & quality control

Aalberts Surface Technologies Eindhoven will process the parts according to the requested purchase order and in case the parts are subject to QC1 or in QC2 according to the agreed process.

Aalberts Surface Technologies Eindhoven will perform an effective in-process/out-going quality control. Outgoing process control is done according to Aalberts Surface Technologies Eindhoven general standards and/or specification of the customer. Deviation from the Aalberts Surface Technologies Eindhoven standard should be mutual agreed on between customer and Aalberts Surface Technologies Eindhoven. On request it is possible to present necessary documentation (Certificate of Conformity, First Article Inspection, Certificates, Declarations etc.) and records to prove full conformity of the part and process. Original process documentation will never be sent to the customer, but will be archived at Aalberts Surface Technologies Eindhoven according to Aalberts Surface Technologies Eindhoven archiving standards. Only copies can be provided. For processes developed by Aalberts Surface Technologies Eindhoven no process data will be provided.

Aalberts Surface Technologies Eindhoven is supplier to a wide diversity of customers. To protect our customers and also Aalberts Surface Technologies Eindhoven intellectual property only Aalberts Surface Technologies Eindhoven employees will have access to the Aalberts Surface Technologies Eindhoven workflow. It is not possible for customers to have access to Aalberts Surface Technologies Eindhoven workflow.

packaging & shipment

packaging

Aalberts Surface Technologies Eindhoven will always quote and package parts in packaging provided by the customer. In general Aalberts Surface Technologies Eindhoven will use the packaging in which the product is delivered to Aalberts Surface Technologies Eindhoven. It is possible to agree on other terms regarding packaging. A separate mutual agreement should be made before Aalberts Surface Technologies Eindhoven is able to implement this.

shipping

Aalberts Surface Technologies Eindhoven will always quote and deliver parts EX Works according to Incoterms 2020. This means the customer needs to arrange pick-up and transport at Aalberts Surface Technologies Eindhoven. If parts need to be sent to an address specified by the customer, the costs for this transport will be charged as additional transport costs to the customer.

It is possible to receive an automated message which is directly sent when parts are ready at Aalberts Surface Technologies Eindhoven. All Aalberts Surface Technologies Eindhoven deliveries will be accompanied by a packing slip (delivery note).

invoicing

sending an invoice

Directly after processing the order Aalberts Surface Technologies Eindhoven will send the invoice to the customer.

payment terms

Unless otherwise agreed in writing, the term of payment is 30 days after invoice date. Payment shall be effected in line with the invoice within the agreed term of payment.

standard lead times

For the provided treatments Aalberts Surface Technologies Eindhoven applies the following general standard lead times:

- heat treatments: 7 working days
- CVD Surface Treatments: 10 working days
- PVD Surface Treatments: 10 working days
- vacuum brazing: 10 working days
- Stainihard®: 10 working days

Depending on the treatment details, work load and urgency other lead times might be considered and have to be confirmed and agreed on by Aalberts Surface Technologies Eindhoven.

changes to TPD

Aalberts Surface Technologies Eindhoven always needs to be informed by the customer when changes to the TPD are made. A description of the modification should be sent to Aalberts Surface Technologies Eindhoven, along with the modified TPD (technical product documentation).

If modifications are subject to a purchase order which is in process at Aalberts Surface Technologies Eindhoven, a change order should be provided to Aalberts Surface Technologies Eindhoven. This modification can have consequences to the purchase order which is in process at Aalberts Surface Technologies Eindhoven (delivery date, price, etc.).

end of life/phase out

In case a customer intends to phase out a product then Aalberts Surface Technologies Eindhoven should be informed directly, and at least 3 months before the last order provided to Aalberts Surface Technologies Eindhoven. If this notification is received on a shorter term and if Aalberts Surface Technologies Eindhoven has production supplies/materials in its stock which are dedicated to the customer part, the cost for this supplies/materials will be charged to the customer.

explanation of Aalberts Surface Technologies Eindhoven Quality Classifications (QC)

To be able to provide parts according to or even outperforming customer expectations Aalberts Surface Technologies Eindhoven has developed a quality classification system which is used on parts to be processed by Aalberts Surface Technologies Eindhoven. The customer is leading in selecting the right quality classification for its parts. This to define the operations Aalberts Surface Technologies Eindhoven should perform to secure the final quality of the part.

The quality classification distinguishes between three quality classes:

- Quality Classification 1 (QC1)
- Quality Classification 2 (QC2)
- Quality Classification 3 (QC3)

Quality Classification 3 (QC3)

Quality Classification 3 (QC3) is the lowest classification used to identify the quality standard applied on customer parts.

This quality standard is used for standard Aalberts Surface Technologies Eindhoven treatments. This classification includes:

- A standard shop traveler for processing the part is used
- The part can and may be processed in all available and suited Aalberts Surface Technologies Eindhoven equipment
- Aalberts Surface Technologies Eindhoven process operators will define the process to fulfill the requirements

Quality Classification 2 (QC2)

Quality Classification 2 (QC2) is a middle range quality classification applied on customer parts. This quality standard includes:

- A dedicated part related shop traveler for processing the part is used
- The part can and may be processed in all available and suited Aalberts Surface Technologies Eindhoven equipment
- The process is defined, released and secured by Aalberts Surface Technologies Eindhoven Engineers
- If appropriate or on request a dedicated part or process related Aalberts Surface Technologies Eindhoven specification/ instruction will be used

Quality Classification 1 (QC1)

Quality Classification 1 (QC1) is the highest quality classification applied on customer parts. This standard is used as a standard on parts which have to be processed under NADCAP (Aerospace) conditions. Of course all customers of Aalberts Surface Technologies Eindhoven can request to apply this classification on its parts. This quality standard includes:

- CTQ's (Critical To Quality) are defined in cooperation with the customer on request
 - Customer specifications that are critical for the function of the product
 - Internal product specifications that are critical for a next production step
 - Process specifications that are critical to assure stability of the make process and/ or to assure customer CTQ's
- Product FMEA is defined by Aalberts Surface Technologies Eindhoven in cooperation with the customer on request
- Control plan is defined by Aalberts Surface Technologies Eindhoven on request
- FAI is performed by Aalberts Surface Technologies Eindhoven and the process will be frozen after release
 - If customer changes the processing of the part Aalberts Surface Technologies Eindhoven has to be informed because the Aalberts Surface Technologies Eindhoven process can be affected.
 - The part only will be processed in the by FAI released Aalberts Surface Technologies Eindhoven equipment
- A dedicated part related shop traveler for processing the part is used
- The process is defined, released and secured by Aalberts Surface Technologies Eindhoven Engineers
- A dedicated part or process related Aalberts Surface Technologies Eindhoven specification/instruction will be used



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