

GTSPA013

GTS Quality Management Company Inspection

October 2011

Gemeinschaft Thermisches Spritzen e.V.
Association of Thermal Sprayers

**GTS QM Company Inspection
GTSPA013**

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1 Purpose of the inspection

The inspection furnishes proof that the job shop has at its disposal a suitable quality management system (QM system), suitable equipment and qualified personnel to produce spray coatings in a uniform quality. The inspection for the attainment of the GTS certificate comprises an evaluation of the QM system in accordance with the "GTS QM Evaluation Form", the respective process inspections for the processes to be certified, the personnel inspection for at least one "GTS Qualified Sprayer" and at least one "GTS Thermal Spray Specialist", as well as an optional product and/or coating inspection if necessary.

The GTS process inspection certificate is awarded for each individual process. The "GTS Qualified Sprayer" can be examined in several processes. After a successful inspection, all the spray processes examined are listed in the GTS certificate. The GTS certificate cannot be transferred to another manufacturing plant of an enterprise.

2 Inspection authorities

The inspection shall be carried out by a neutral and independent inspection authority approved by GTS (audits).

3 Prerequisites

The company/job shop to be certified must fulfil the evaluation criteria listed in the QM Guidelines of GTS e.V.

The process inspection shall be carried out by an independent inspection authority in accordance with the GTS Guidelines.

4 Extent of the inspection

4.1 Evaluation of QM system

The QM system of a GTS member-company shall be checked according to the GTS QM Evaluation Form. The QM elements in accordance with DIN EN ISO 9001:2000, described in GTSPA003 Punkt 5.3.3., shall undergo full inspection to verify conformity with the respective company procedures. For all other elements, a limited detailed inspection shall be conducted.

Die Beurteilung wird von der unabhängigen Prüfstelle in Anwesenheit der Spritzaufsicht (GTS-Aufsichtsperson – Thermisches Spritzen) und des betrieblichen QM-Beauftragten durchgeführt.

The evaluation is conducted by an accredited inspection authority in presence of the supervision for spraying (GTS thermal spray specialist) and the QM representative of the company.

4.2 Personnel inspection

In accordance with the GTS QM Guidelines, a personnel inspection for the "GTS Thermal Spray Specialist" and for the "GTS Qualified Sprayer" shall be carried out within the framework of the certification. This inspection includes a theoretical multiple choice examination in accordance with the GTS Questionnaire GTSPA014. For the "GTS Thermal Spray Specialist", the areas to be examined cover the entire thermal spray field, focusing on the processes to be certified. The examination for the "GTS Qualified Sprayer", on

the other hand, comprises a general section as well as a process-specific section for the coating process applied for. In addition, the “GTS Qualified Sprayer” must undergo a practical examination for each process for which he/she is to be certified, as described in points 4.3 and 4.4. The technical knowledge of the “Thermal Spray Specialist” is also examined informally in an additional interview.

4.3 Process inspection

A suitable work place with the necessary facilities must be available for each process which is to be certified. Here, the relevant regulations for industrial health and safety must be fulfilled. The thermal spray processes which can be certified are:

- Flame spraying
 - Powder flame spraying
 - Wire flame spraying
- High velocity oxy fuel spraying
- Detonation spraying
- Arc spraying
- Plasma spraying
 - Plasma spraying in air
 - Plasma spraying in chambers
- Laser spraying
- Cold spraying
- Plasma transferred arc surfacing (PTA)

4.4 Equipment engineering

For the coating process which is to be certified, equipment must be available with which a reproducible operating sequence is guaranteed. It must be possible to set and stabilize the coating parameters within a specified range.

Extent of inspection: Proof of reproducibility is furnished by coating a defined test specimen according to the specifications of the process inspection and comparing the results with a previously coated reference specimen.

The coating equipment and the additional facilities (Noise protection, exhaust and filter systems, grit-blasting equipment and, if necessary, manipulators for the spray gun and components) must meet the requirements and fulfil the prevailing statutory regulations. If required, suitable safety equipment must be used by the operating personnel.

4.5 Coating of test specimen

Within the context of the process inspection, proof must be furnished that a previously defined coating can be applied and reproduced with the spray equipment. A test specimen compliant with the drawings in GTSPA015 and respectively GTSPA016 shall be coated with a spray material specified by the job shop. The relevant work instructions shall be observed.

The coating results shall be compared with a reference specimen produced with the same spray equipment prior to the inspection. The assessment criteria include coating thickness, coating roughness, and uniformity.

ty of the coating.

The type of torch manipulation, which can be effected manually, mechanically or automatically, shall be documented in the certificate.

- Extent of inspection: While coating the test specimen, the following tasks must be successfully carried out by the “GTS Qualified Sprayer”:
- checking the accuracy to size of the workpiece prior to coating, plus documentation in the QM processing record
 - correct and appropriate cleaning, if necessary
 - masking of areas not to be coated
 - correct and appropriate grit-blasting of the surface to be coated in accordance with DIN/DVS if necessary (e.g. Sa 3 according to DIN 55 928 part 4).
 - correct and appropriate preparation of the spray materials
 - correct and appropriate preparation and adjustment of the coating equipment and additional components according to in-company or external guidelines /data sheets (e.g. procedure instructions).
 - correct and appropriate coating (the relevant standards, guidelines, explanatory notes and safety regulations shall be observed)

Within the context of the above requirements for coating a test specimen, the inspection authority shall ask the “GTS Qualified Sprayer” additional questions on work procedures.

4.6 Optional product inspection

In addition to the above inspections, a GTS member company can also undergo an optional product or coating inspection. The aim of this inspection is to furnish proof that the products or coatings to be certified meet customer requirements and that a reproducible quality is guaranteed.

Should a job shop choose to undergo a product or coating inspection, it may specify the extent of the inspection itself. The extent of the product or coating inspection shall be documented in addition to that of the process inspection as stated in 4.3. The correct and appropriate mechanical finishing and subsequent processing in accordance with customer specifications / requirements can be included in the extent of inspection. The product or coating inspection is treated confidentially. The inspection criteria and results of the inspection are not made available to GTS.

On approval from the GTS Quality Committee, the test specimen of the product or coating inspection can substitute for the test specimens according to the drawing GTS001 (GTSPA015) or GTS002 (GTSPA016).

5 GTS Certificate

A GTS certificate is awarded if the QM system is positively assessed in accordance with the GTS QM Evaluation Form and if the inspections of at least one “Thermal Spray Specialist” and one “Qualified Sprayer”, as well as at least one process inspection were successfully completed.

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Unterschleissheim, Germany, October 2011

Gemeinschaft Thermisches Spritzen
Quality Management for Thermal Spraying