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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 19823-2020

Replacing GB/T 19823-2005

**Thermal spraying--Procedures for the application of thermally
sprayed coatings for engineering components**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 19823-2005 "Application Procedures for Thermal Spray Coating of Thermal Spray Engineering Parts". This standard and

Compared with GB/T 19823-2005, the main technical changes are as follows.

- Modified the "normative references" (see Chapter 2, Chapter 2 of the.2005 edition);
- Added "Terms and Definitions" (see Chapter 3);
- Added "Preparation Document" (see Chapter 13).

This standard uses the redrafting method to modify and adopt ISO 14921.2010 "Application Procedures for Thermal Spray Coating of Thermal Spray Engineering Parts".

The technical differences between this standard and ISO 14921.2010 and the reasons are as follows.

---Regarding normative reference documents, this standard has made adjustments with technical differences to adapt to my country's technical conditions and adjustments.

The situation is collectively reflected in Chapter 2 "Normative Reference Documents", and the specific adjustments are as follows.

* Replace ISO 2063 with GB/T 9793 equivalent to the international standard (see Chapter 1), and GB/T 9793 is listed as a reference

literature;

* Use GB/T 11373 instead of EN13507 (see Chapter 7);

* Replace ISO 14920 (see Chapter 1) with GB/T 16744 modified to adopt international standards, and GB/T 16744 is listed as a reference

literature;

* Replace ISO 14917 with GB/T 18719 modified to adopt international standards (see Chapter 3);

* Replace ISO 14918 with GB/T 19824 which is modified to adopt international standards (see Chapter 8);

* Replace ISO 14923 (see Chapter 9) with GB/T 37421 modified to adopt international standards.

This standard has made the following editorial changes.

---The content of Chapter 1 "Scope" has been reorganized according to GB/T 1.1-2009.

This standard was proposed by China Machinery Industry Federation.

This standard is under the jurisdiction of the National Standardization Technical Committee for Metal and Non-metal Coatings (SAC/TC57).

Drafting organizations of this standard. Foshan Advanced Surface Technology Co., Ltd., Spree Technology Co., Ltd., Beijing Mining and Metallurgical Technology Group Co., Ltd., Wuhan Materials Protection Research Institute Co., Ltd., Ruili Group Ruian Auto Parts Co., Ltd.

1 Scope

This standard specifies the general process for thermal spray coating to improve the surface performance of parts or the repair and remanufacturing of waste parts.

Procedures. Due to the diversity of the thermal spraying process, the shape of the sprayed

parts, and the physicochemical properties of the coating, this standard does not provide for the coating of specific parts.

Provide a decisive solution.

This standard applies to the general situation of selecting thermal spraying process regulations and coating materials. This standard does not apply to steel structure resistant to atmospheric environment

Corrosion thermal spraying zinc, aluminum and its alloy coating, the applicable standard for thermal spraying zinc, aluminum and its alloy coating is GB/T 9793. This standard also does not

It is suitable for self-fluxing alloy remelting coating. The applicable standard of self-fluxing alloy remelting coating is GB/T 16744.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 11373 Surface pretreatment of thermal sprayed metal parts

GB/T 18719 Terminology and classification of thermal spraying (GB/T 18719-2002, ISO 14917.1999, MOD)

GB/T 19824 Thermal spray thermal spray operator assessment requirements (GB/T 19824-2005, ISO 14918.1998, MOD)

GB/T 37421 Characterization and testing of thermal spray coatings (GB/T 37421-2019, ISO 14923.2003, MOD)

3 Terms and definitions

The terms and definitions defined in GB/T 18719 apply to this document.

4.1 General principles

The factors that should be considered in the implementation principles of parts and coatings are described in the process shown in Appendix A. If any of the clauses in 4.2~4.4 are not satisfied

If sufficient, thermal spraying technology is not recommended.

Judge whether the new part can be sprayed by evaluating the sprayed parts and sprayed

area.

If the coating material is determined by the coating specification, the influencing factors considered will be reduced.

4.2 Pre-check before repairing parts

The parts must be inspected before the thermal spraying process to determine whether it is suitable for spraying. It should be noted.

---When the workpiece is a rotating part, the concentricity and flatness of the part should be checked. When the workpiece is a reciprocating sliding part, the part should be checked.

Geometric shape, if necessary, the geometric shape error of the part should be corrected;

---Check whether there are cracks or other damages on the surface of the workpiece to be sprayed that affect the performance of the coating. If there are defects that cannot be eliminated, do not

Can carry out spraying construction;

---Determine the spraying area and scope of the parts;

---Check and remove any remaining coating on the surface of the workpiece;

---Check and determine the surface hardness of the workpiece.

4.3 Part base

Whether the thermal spray coating can meet the expected goals, the following factors should be considered.

---Whether the matrix material is not suitable for thermal spraying process or the factors that need special consideration during spraying process.

---Under normal circumstances, the thermal spray coating will not increase the strength of the part, so any reduction in the size of the original part should be considered for the strength influences.

---Surface treatment methods, spraying materials, and spraying process may affect the fatigue strength of parts.

---Special surface hardening treatment process such as nitriding treatment residual gas may affect the surface pretreatment, coating bonding strength and coating holes

The gap rate has an adverse effect.

---When the hardened layer hinders the normal surface treatment, it must fully consider its