ISO 14917:2017-03 (E)

Thermal spraying - Terminology, classification

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normativereferences 1

3 Termsanddefinitions 1

4 Processvariations 1
4.1 Classification according to the type of spray material 1
4.2 Classification according to the operation 2
4.2.1 Manual spraying 2
4.2.2 Mechanized spraying 2
4.2.3 Automatic spraying 2
4.3 Classification and abbreviations for thermal spraying, coatings and their technological properties, post-treatments 2
4.3.1 Thermal spraying, coatings and properties 2
4.3.2 Condition of spray coatings and post-treatments 2
4.3.3 Classification according to the energy carrier and/or to the type of spray material -- Abbreviations for spray processes and special surfacing processes by welding 2

5 Processdescriptions 3
5.1 Flame spraying 3
5.1.1 General 3
5.1.2 Wire flame spraying (Combustion wire spray) 4
5.1.3 Powder flame spraying 4
5.2 High velocity flame spraying 5
5.2.1 High velocity flame spraying with gaseous fuel 5
5.2.2 High velocity flame spraying with liquid fuel 6
5.2.3 High velocity flame suspension spraying 6
5.2.4 Detonation spraying 7
5.3 Cold spraying (Cold gas spraying) 8
5.4 Arc spraying processes -- Arc spraying 9
5.5 Plasma spraying processes 9
5.5.1 Atmospheric plasma spraying 9
5.5.2 Plasma suspension spraying 10
5.5.3 Plasma spraying in chambers 10
5.6 Other plasma spraying processes 11
5.6.1 Water-stabilized plasma spraying 11
5.6.2 Induction plasma spraying -- Inductively coupled plasma spraying 12
5.6.3 Plasma transferred wire arc spraying 13
5.7 Laser cladding 14
5.8 Plasma transferred arc surfacing (PTA) 15

6 Thermal spraying -- Terms 16
6.1 General terms 16
6.1.1 Coatability 16
6.1.2 Coating suitability 16
6.1.3 Spray suitability -- Sprayability 17
6.1.4 Coating functionality 17

6.1.5 Coating feasibility 17
6.1.6 Accompanying specimens 17
6.2 Thermal spraying equipment, terms 17
6.2.1 Spray gun, torch 17
6.2.2 Spray nozzle 17
6.2.3 Supplementary nozzle 17
6.2.4 Contact tube 17
6.2.5 Wire feed mechanism 18
6.2.6 Powder feeder 18
6.2.7 Powder injector 18
6.3 Process specific terms of thermal spraying, terms 18
6.3.1 Spray material 18
6.3.2 Carrier gas 18
6.3.3 Atomizing gas 18
6.3.4 Propellant gas 18
6.3.5 Spray jet 18
6.3.6 Spray particles 18
6.3.7 Splat 18
6.3.8 Spray deposit 18
6.3.9 Spray distance 18
6.3.10 Spray angle 18
6.3.11 Spray velocity 19
6.3.12 Spray trace overlapping 19
6.3.13 Spray spot 19
6.3.14 Deposition rate 19
6.3.15 Spray losses 19
6.3.16 Deposition efficiency 19
6.3.17 Masking 19
6.3.18 Sealing 19
6.3.19 Thermal treatment 19
6.3.20 Fusing of sprayed deposits 19
6.4 Coating specific terms 19
6.4.1 Sprayed coating 19
6.4.2 Substrate 20
6.4.3 Bond coat 20
6.4.4 Top coat 20
6.4.5 Interface 20
6.4.6 Non-melted particles 20
6.4.7 Re-solidified particles 20
6.5 Properties of thermally sprayed deposits, terms 20
6.5.1 Tensile adhesive strength, RH 20
6.5.2 Cohesive strength 20
6.5.3 Hardness 20
6.5.4 Shear load resistance 21
6.5.5 Other properties 21

Annex A (informative)Masterchartofthermalsprayingprocesses--Classification accordingtotheenergycarriersusedforspraying 22

Annex B (informative) Keyword index 23

Bibliography 25