



Rototec® 29021

Durotec 2 step Cold Spray Powder

Description:

29021 is manufactured by a special process of atomisation which allows control of both granulometry and morphology, in relation to the specific system chosen (RotoTec 80 or CastoDyn DS 8000). A nickel-chromium based alloy, 29021 is designed for hard protective coatings resistant to metal-metal friction and various types of corrosion. Machinable with tungsten carbide tipped tools. For smooth surfaces grinding is recommended. For the protective coating of various alloys, steels and other industrial materials. No distortion of the work piece or alteration to its dimensions or structure.

Technical data:

	Minimum	Nominal
Hardness (HV ₁₀):	310	350
Specific gravity (g/cm ³):	-	8
Applications		

Main applications:

The dense, lamellar deposit structure and excellent mechanical properties of 29021 make this the ideal protective coating for:
Hydraulic jack pistons.
Machine tools spindles.
Bearing surfaces.

Other applications:

Cam shafts, pistons, stuffing boxes, impeller shafts.

Procedure for use:

The area to be coated should be readily accessible so that the optimum spraying angle (90°) is maintained. For example in blind holes and similar, the flame gases could be trapped causing turbulence in the spray particles. This could affect the protective coating.

Preparation of surfaces to be coated

Surface (cleaning):

The area to be coated must be clean and free of dirt and grease. The utmost cleanliness is essential to ensure perfect bonding between coating and the metal surface. Eliminate all traces of grease with industrial solvents.

Preparatory machining:

The worn area on which the coating will be deposited must be machined down until all the irregularities caused by wear have been eliminated. This machining can be carried out with a cutting tool of the right shape to produce 45° shoulders straight off.

If the base metal has been subjected to hardening or heat treatment, machining can be by ceramic disk, without lubrication. In this way a surface rough enough for coating is obtained

Surface activation:

Preparation should include a degree of preheating, to avoid water condensation when spraying begins, and to eliminate any trace of solvents. A slightly carburising flame should be used. During preheating the part temperature should not be allowed to exceed 100°C. The next step is to roughen the surface, while the part is still warm. This can be done either by grit-blasting, grinding or threading. A disk with a ceramic binder should be used for grinding.

Threading should be done with a cutting tool, the thread being half the value of pitch: e.g. pitch 0.7 mm, thread depth 0.35 mm. Areas not to be coated should be protected with R104 solution.

Throughout these proceedings care must be taken to keep the surface to be coated clean, to avoid having to start all over again.

Coating procedure:

Coating should commence immediately on completion of surface preparation, while the part is still warm. First a bonding layer approx. 0.10 to 0.20 mm thick of 29029 should be applied. This coat is an essential part of the RotoTec procedure. No more than two passes should be required for this thickness. The bonding layer ensures effective bonding with ferrous metals as well as with copper and aluminium alloys. The final step is application of the 29021 protective coating

Typical spray parameters for the CastoDyn DS® 8000

	Bond coat	Powder
Powder	29029 S	29021
Standard Spray Module	SSM 10	SSM 10
Setting of container mounting	3	4
Flame setting	Neutral	Neutral
Air without extension neck(bar)	0-1	0-1
Air with extension neck (bar)	1	1
Spraying distance (mm)	150	200
Rotation speed (m/min)	20	20
Advance (mm/rev)	3	3
Pressure: O _x = 4 bar; A _c = 0.7 bar; Air = 0-6 bar		
Start parameters adjustments may be needed due to application, piece, equipment, etc.		

RotoTec 80:

Valve "A"pos:.....N

Oxygen :(bar) 4 (58 lbf/in²)

Acetylene :(bar) 0.7 (10 lbf/in²)

Acetylene[U K](bar): 0.6 (8.7 lbf/in²)

Spraying distance :(mm) 200.

Machining:

Grinding:

With a grinding stone corresponding to 11C80F13VPmF
Use a coolant for cutting and grinding.

IMPORTANT: For additional information regarding machining parameters (turning, planing) or by grinding, consult the brochure "Guide to the machining of E+CTeroCote coatings"

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