ENESKArapidcoat
ENESKArecoat 85

Highly effective tungsten carbide coating

www.joke-technology.com

Hard metal coating with ENESKArapidcoat and ENESKArecoat

Metal surfaces wear out over time. The greater the stress, the higher and faster the wear. But also:

- The harder the surface, the longer the material will last. And this is particularly important when the metal parts are tools, moulds or mechanical components. After all, replacing worn tools regularly costs money and time, e.g. for replacement or due to production downtime.
- Carbide finishing of stressed metal surfaces and edges reduces wear. Surface hardnesses of up to 82 HR 30 N are achieved by hard metal coating with tungsten carbide electrodes at 2,800 °C.

Tungsten carbide coating devices from joke are used to coat particularly stressed surfaces **quickly and easily by applying a hard metal layer**. The process is particularly suitable for tools, moulds or general surfaces that need to be especially **tough, hard and wear-resistant**, e.g. punching or bending tools.

In addition to these classic applications, the process is also suitable for producing a wear-resistant, rough surface. This can be used to improve the adhesive and holding properties, e.g. for grippers, gripper and clamping jaws etc. or for sliding surfaces, e.g. to improve the adhesion of an oil film. Parts of the friction surfaces of a mechanical guide can also be coated in order to compensate for dimensional deviations caused by abrasion. It can also be used to create a heat-resistant protective layer, e.g. to protect moulds in die casting.

Coating process

... economical and highly efficient with joke Coatings

Nowadays, very high demands are made on the toughness, hardness and surface wear resistance of tools, equipment and machines.
The following options came to light in seeking a tough material with a more wear-resistant coating:
1. Galvanic coating with hard layers,
2. Plasma gun spraying method,
3. Electroerosive tungsten carbide coating.

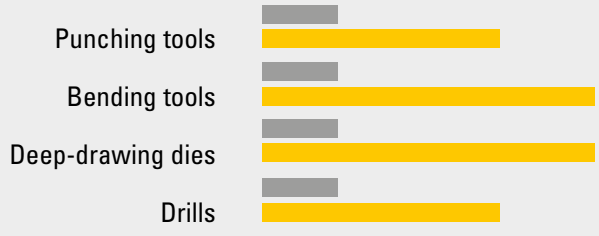
The adhesive strength of the coatings in methods 1 and 2 is unsatisfactory in the case of heavy stresses since the coatings are likely to scale off. With the third method, however, it is possible to apply tungsten carbide in a very wear-resistant surface on the heavily stressed points of a workpiece.

Properties of the tungsten carbide coat
The layer applied combines joins perfectly with the steel and adheres in such a way that it withstands almost any mechanical stress. Blows, bending, stretching or compressive strains are incapable of detaching the coating. This can only be done by grinding or special sand blasting; it can, however, be relapped with diamond or silicon carbide. The steel beneath is not softened by the coating but increases in hardness in the upper zone. In the case of certain steel alloys the tungsten carbide layer even penetrates into the base material. The coating produces a hardness of up to 82 HR 30N, without the workpiece undergoing any change or distortion since the depositing process is practically cold. The coating possesses a high degree of heat resistance. The surface is uniform and shows no directional texture. With good saturation, it achieves a mean roughness of 2-9 µm.

Examples of applications
Hardness coating of tools or wear parts to extend service life.
Post hardening of additively manufactured parts
Coating of smooth surfaces in order to achieve greater adhesion through the structure of the layer
Coating of sliding surfaces in order to avoid cold weldings as a result of the structure of the layer

Materials and their pretreatment
Any soft, heat-treated and hardened unalloyed or alloyed steel is suitable as material for coating with tungsten carbide. The surface must be clean and metallically pure.

Service lives for untreated vs. coated



Tool life uncoated
Tool life with ENESKArecoat / rapidcoat coating

NEW! Tungsten carbide coating unit ENESKArapidcoat

The latest development from joke. ENESKArapidcoat - **for fast and effective coating of large surfaces**. By melting a rotating hard metal electrode made of tungsten carbide at 2,800 °C, a hard metal layer is applied and a maximum surface hardness of 82 HR 30 N is achieved. Compared to conventional devices, the ENESKArapidcoat achieves an extremely clean and homogeneous coating in just one operation. The very simple operation is unique.

Thanks to the ENESKArapidcoat's **rotation technology**, users can very quickly achieve uniform coatings, even on large surfaces, in just one operation. The very simple operation is unique. The 3 working parameters speed, frequency and rpm can be called up quickly and adjusted conveniently and quickly using the central rotary knob.

In addition to the **handpiece with rotating electrode** ROT 135, the ENESKArapidcoat can also be operated with the **vibrating handpiece** VIB 85 of the ENESKArecoat system. This handpiece basically achieves the same surface results as the handpiece with rotating electrode, but is particularly suitable for fine, filigree work and partial surfaces. **This unique combination of both processes and systems makes the ENESKArapidcoat a universally applicable coating device - regardless of the shape and size of the surfaces to be treated.**

Highlights:
- Fast coating of larger surfaces and tool sections
- Air-cooled, non-slip applicator handpiece for easy application
- Proven ENESKA operating design
- Favourite settings can be saved
- High-quality interchangeable collets with high concentricity accuracy
- System is compatible with foot switch on request
- Parameter settings can be adjusted during the coating process
- High melting power of max. 54 V
- Adjustable ignition frequency
- Connection of the vibrating handpiece VIB 85

		Order No.	Price from 1 piece
ENESKArapidcoat control unit			
	Technical data:	**0 700 401**	
	Max. achievable coating hardness: 82 HR 30N		
	Pressure air: 3 - 6 bar		
	Supply voltage: 110/230 DCV, 50/60 Hz		
	Dimensions (W x D x H): 135 x 476 x 321mm		
	Weight: approx. 11 kg		

Video Tungsten carbide coating
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Modern operating panel
ENESKArapidcoat

Display:
Information, e.g. about the set parameters as well as coating quality, vibration intensity, charge storage, handpiece, interval coating, etc...

Auto Tune | Compressed air status

Foot pedal control

Recalling or saving a favourite setting

ON / OFF

Handpiece connection ROT 135 or VIB 85

Home button

Parameters Quick access Voltage and energy

Rotary/push dial for navigation and setting the parameters

ESCAPE

Connection Handpiece control

Service USB

Compressed air connection

Tungsten carbide coating unit
ENESKArapidcoat - set

	Order No.	Price from 1 set
ENESKArapidcoat hard metal coating unit, set		

Technical data:

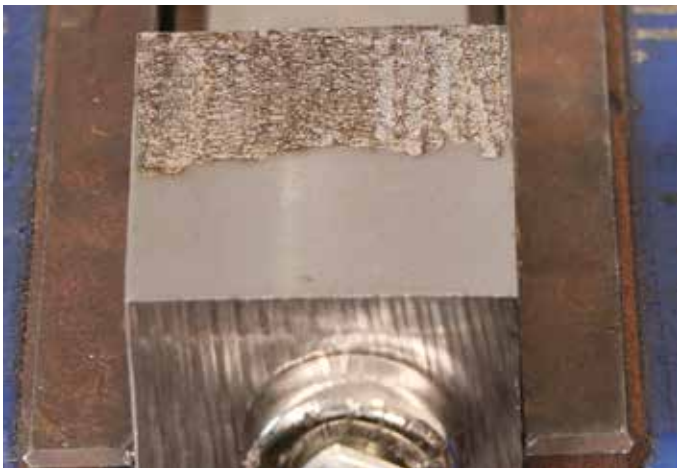
Max. achievable coating hardness:	82 HR 30N
Pressure air:	3 - 6 bar
Supply voltage:	110/230 DCV, 50/60 Hz
Dimensions (W x D x H):	135 x 476 x 321mm
Weight:	approx. 11 kg

0 700 400

Scope of delivery:
- ENESKArapidcoat control unit
- Handpiece ROT 135 complete with cable package
- Earth cable 2 m with contact magnet
- Set of clamping elements with electrodes
- Safety glasses
- Maintenance unit joke dryjet
- Handpiece holder

Optional: workplace light

Application: Coating of an end face



above: Application of a protective layer on a vulnerable surface
below: Creating a gripping surface for better force transmission

Tungsten carbide coating unit
ENESKArecoat 85

	Order No.	Price from 1 set	1 piece

ENESKArapidcoat coating handpiece ROT135

The application handpiece has a button to start the work process. Thanks to its ergonomic shape, the coating process can also be carried out effortlessly over a longer period of time.
Electrode diameters from 1.1 to 6.0 mm can be clamped

0 700 402

Technical data:

Coating power:	up to 140 W
Coating energy:	110 mJ at 42V up to 700 mJ at 54V (1mJ = 1Ws)
Pulse frequency:	100, 200 Hz in steps up to 600 Hz depending on the number of loading banks.
Speed / target speed:	approx. 225 to 725 rpm
Sound pressure level:	< 85 dB (A) The sound pressure can be amplified due to the working environment, e.g. when working inside accessible metal structures etc., and may be higher.
Weight:	approx. 850 g incl. cable package
Cooling:	Compressed air cooled

ENESKArecoat application gun VIB85

The application gun has a button to start the working process.
In addition, there is a status LED on the application handpiece, which indicates the optimum distance to the workpiece, This helps the user to optimise the coating process.

0 700 302

Vibration frequency:	variable up to 120 Hz
Working field lamp with	4 LEDs, 5000K
Push button switch:	On / Off
Status LED for contact monitoring	
Dimensions (W x D x H):	160 x 40 x 190 mm
Weight:	0.84 kg including cable package
Cable length:	1.8 m

ENESKArecoat 85 foot switch

Foot control / foot switch for on/off function of the coating process.
Optionally connectable to the ENESKArecoat 85 control unit
(Alternative to control via application gun).

0 700 360

Clamping elemnts for carbide electrodes, set

0 700 070

Set of tungsten carbide electrodes, content 15 pieces

0 700 035

Tungsten carbide coating unit
ENESKArecoat 85

The 'smaller brother' of the ENESKA coating equipment. The ENESKArecoat 85 works with a high operating voltage of 36-54 V to achieve maximum coating thicknesses. As with the ENESKArapidcoat, a tungsten carbide electrode is melted at 2,800 °C and a surface hardness of up to 82 HR 30 N is generated.

The ENESKArecoat works with a **handy application gun** that **generates a linear vibrating movement**. The vibration frequency - as well as all other parameters - is set using the central rotary pressure knob on the control unit.

All settings can be conveniently called up from the stored values using the assistance function. Numerous parameters are already stored in advance in an extensive database, and of course individual values can also be easily saved. **The logical step-by-step operation enables even less experienced users to achieve excellent and reproducible coating results time and time again.**

Highlights:
- High working voltage for maximum achievable layer thickness
- Application with a vibration frequency of now 120 Hertz
- Maximum achievable layer hardness of 82 HR 30 N
- Ergonomic, easy-to-operate handpiece with integrated operating button and LED work light
- Function control with animated LEDs on the control unit and handpiece
- Software: recall of pre-set parameters (presets) storage of individual parameters, intuitive operation with 3-parameter logic
- ENESKA operating design

	Order No.	Price from 1 set
ENESKArecoat 85 hard metal coating unit, set		

Control unit: **0 700 300**

Max. achievable coating hardness:	82 HR 30N
Working voltage:	36-54 V
Vibration frequency:	variable up to 100 Hz
Supply voltage:	110/230 V AC, 50/60 Hz
Dimensions (W x D x H):	135 x 476 x 321 mm
Weight:	11.5 kg

Application gun:

Vibration frequency:	variabel bis 100 Hz
Working lamp:	4 LEDs, 5000 K
Weight, incl. cable:	0.84 kg
Cable length:	1.80 m

Scope of delivery:
- Carbide coating unit, control unit (Order No. 0 700 301)
- Application handpiece, complete with cable package (Order No. 0 700 302)
- Earth cable 10mm², 2.0 m, plus magnetic pole clamp (Order No. 0 700 351)
- Set of clamping elements for carbide electrodes, incl. spare screws and screwdriver, 12 pieces (Order No. 0 700 060)
- Set of carbide electrodes, 24 pieces (Order No. 0 700 034))

Tungsten carbide coating unit
ENESKArecoat 85

		Order No.	Price from 1 set
ENESKArecoat 85 hard metal coating unit			
	Max. achievable coating hardness: 82 HR 30N Working voltage: 36-54 V Vibration frequency: variable up to 100 Hz Supply voltage: 110/230 V AC, 50/60 Hz Dimensions (W x D x H: 135 x 476 x 321 mm Weight: 11.5 kg	**0 700 301**	

		Order No.	Price from 1 piece
ENESKArecoat 85 foot switch			
	Foot control / foot switch for on/off function of the coating process. Optionally connectable to the ENESKArecoat 85 control unit (Alternative to control via application gun).	**0 700 360**	
ENESKArecoat Auftragspistole VIB85			
	The application gun has a button to start the working process. In addition, there is a status LED on the application handpiece, which indicates the optimum distance to the workpiece. This helps the user to optimise the coating process. Vibration frequency: variable up to 120 Hz Working field lamp with 4 LEDs, 5000K Push button switch: On / Off Status LED for contact monitoring Dimensions (W x D x H): 160 x 40 x 190 mm Weight: 0.84 kg including cable package Cable length: 1.8 m	**0 700 302**	
ENESKArecoat 85 Clamping element for carbide electrodes			
	for round carbide electrodes up to max. Ø 1.4 mm	**0 700 061**	
	for round carbide electrodes up to max. Ø 2.3 mm	**0 700 062**	
	for triangular carbide electrodes up to max. 2 mm	**0 700 063**	
	for square carbide electrodes up to max. 2.2 mm	**0 700 064**	

Hard metal coating unit
ENESKArecoat 85

	Shape	Dimensions	Order No.	Price from 1 piece	Price from 10 pieces
Tungsten carbide electrodes for joke tungsten carbide coating units and tucadur					
	round	Ø 1.0 x 50 mm	**0 700 036**		
	round	Ø 1.3 x 50 mm	**0 700 046**		
	round	Ø 1.8 x 50 mm	**0 700 047**		
	round	Ø 2.3 x 50 mm	**0 700 048**		
	round	Ø 3.0 x 50 mm	**0 700 048-1**		
	round	Ø 3.2 x 50 mm	**0 700 051**		
	round	Ø 4.0 x 50 mm	**0 700 048-2**		
	round	Ø 5.0 x 50 mm	**0 700 048-3**		
	square	1.1 x 50 mm	**0 700 039**		
	square	1.6 x 50 mm	**0 700 040**		
	square	2.1 x 50 mm	**0 700 041**		
	triangular	1.95 x 50 mm	**0 700 042-0**		

	Order No.	Price from 1 set	Price from 10 sets
Set of tungsten carbide electrodes for ENESKA and tucadur (24 pieces)			
consisting of: • 3 pieces each 1.0 mm round (Order No. 0 700 036) • 3 pieces each 1.3 mm round (Order No. 0 700 046) • 3 pieces each 1.8 mm round (Order No. 0 700 047) • 3 pieces each 2.3 mm round (Order No. 0 700 048) • 3 pieces each 1.1 mm square (Order No. 0 700 039) • 3 pieces each 1.6 mm square (Order No. 0 700 040) • 3 pieces each 2.1 mm square (Order No. 0 700 041) • 3 pieces each 1.95 mm triangular (Order No. 0 700 042-0)	**0 700 034**		

Professional welding courses
Repair welding

Good reasons in favour of training

Repair and modification welding in the tool and mould building are increasingly gaining importance. Owing to increasing demands in terms of quality of the weldings, conventional welding techniques are pushed to the limit. The result is usually additional recourse to laser welding. This is time consuming and costly.

An own laser unit is usually out of the question from the cost/benefit point of view. The only logical and economical way is an own welding unit within the company that achieves the high level of quality of laser welding. We at joke don`t offer only the adequate solution for most applications with our welding systems, we also teach you in our welding course the coressponding „know how".

Besides you learn the fundamentals of special welding methods with our systems, by practising.

If you have any questions, feel free to contact our export team for further information.

For any kind of support or demonstration please contact us.
We will be pleased to help you!

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Video Tungsten carbide coating

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