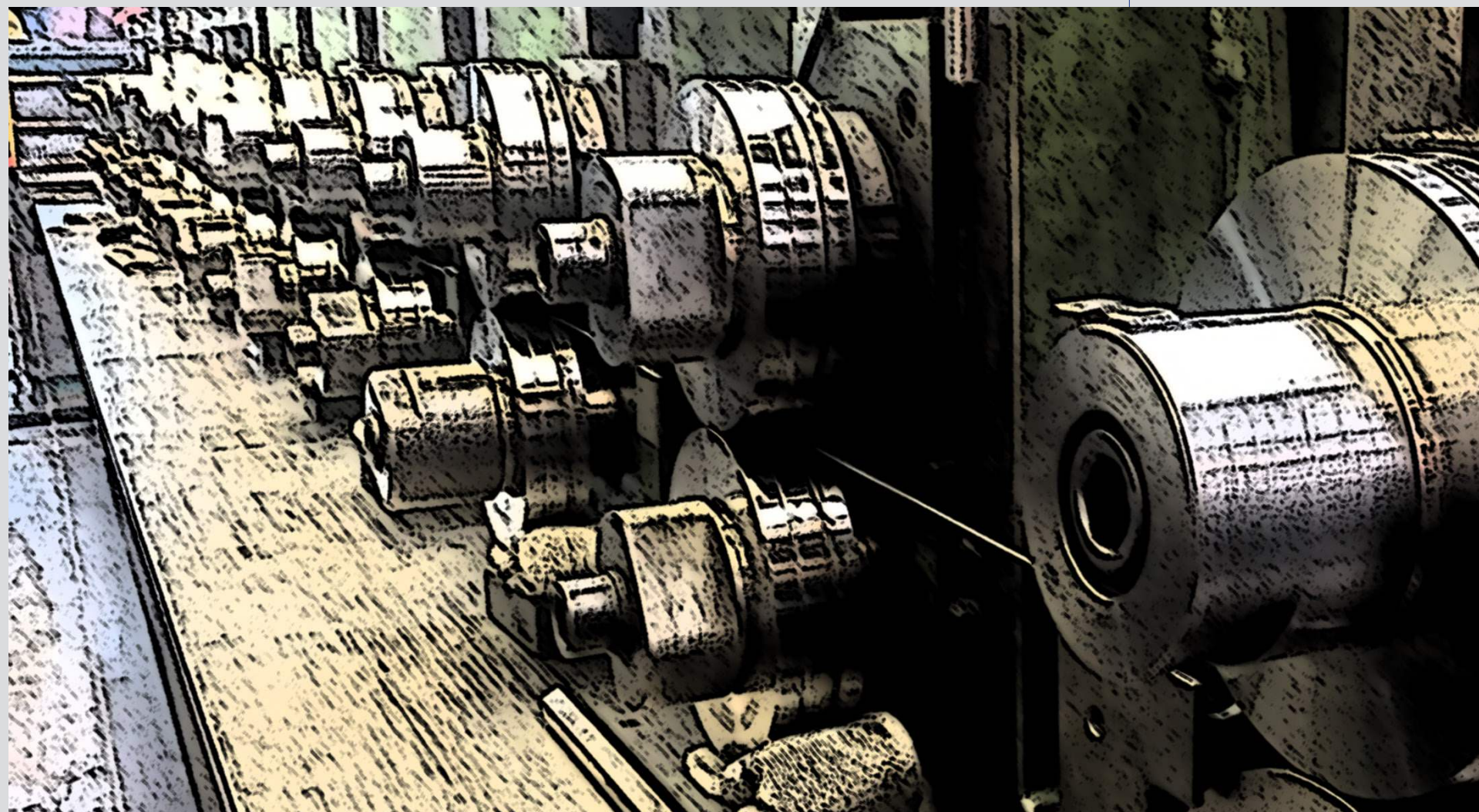


PRODUCTS FOR
THERMAL SPRAYING
AND PTA CLADDING



QUALITY • KNOWLEDGE • SUCCESS

The main focus of the company is the production of high-quality welding consumables for hardfacing and thermal spraying.

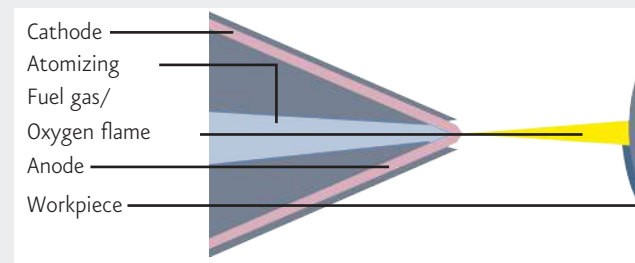
The product range includes flux-cored wires for OPEN ARC (FCAW), MIG (MGAW) and submerged arc (SAW) welding.

Corodur® supplies complementary a wide range of stick electrodes for wear protection and high-alloyed materials, up to tungsten carbide products for most extreme wear conditions. Our products are used very successfully worldwide.

Benefit from our many years of experience and our know-how! Customer-oriented support and just-in-time service are a part of our strengths.

**WE SOLVE
YOUR WEAR
PROBLEMS!**

A selection of our products and services, for thermal spraying and PTA cladding, can be found on the following pages.



FLUX-CORED WIRES for ARC SPRAYING

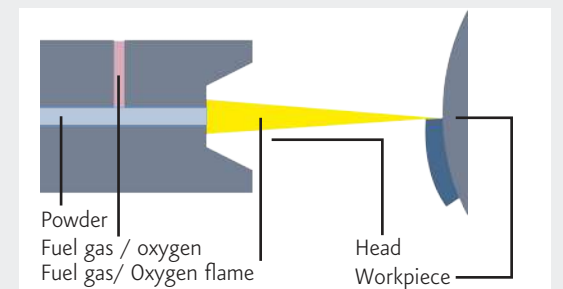
Arc spraying with flux-cored wires is a very powerful thermal spraying process. A DC arc melts two flux-cored wires, which are applied to the substrate in molten form by means of compressed air. The bond is non-metallurgical as the substrate surface remains un-molten in the process.

From Page 4

POWDERS for FLAME SPRAYING

Powder flame spraying is a commonly-used thermal coating process whereby a powdered additive material is fed into an oxy-fuel flame. This heat source creates a gas stream with a temperature in excess of 3,000°C and the thermal expansion of the combustion is then used to atomize and accelerate the additive particles onto the substrate. Like powder spraying, the substrate surface is generally un-molten during the process.

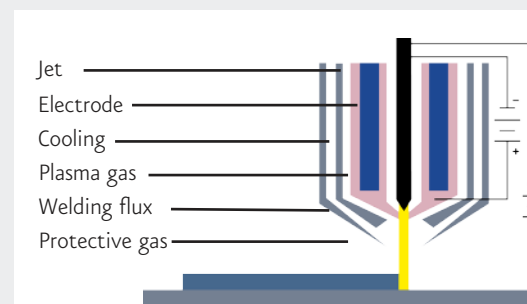
From Page 8



POWDERS for PLASMA TRANSFERRED ARC (PTA)

Plasma Transferred Arc (PTA) Welding is a thermal arc process for applying wear and corrosion resistant overlays on surfaces of metallic components. PTA uses using a constricted high-energy plasma arc to transfer the overlay to the base metal, thus forming a molten weld pool. Powder filler material is fed through the torch and introduced to the welding arc above the weld pool. The result is a strong, metallurgically bonded overlay that has better fusion and corrosion properties than a mechanically-bonded process.

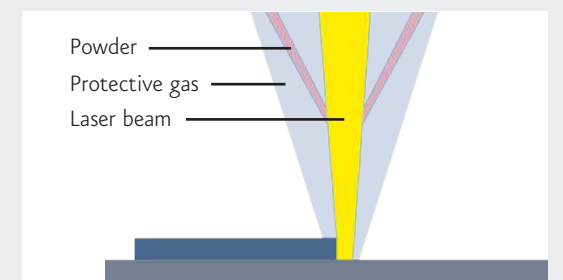
From Page 12



POWDERS for LASER CLADDING

Laser Cladding employs the high energy output of a laser to metallurgically bond a powder filler of wear or corrosion-resistant material to a wide variety of metallic substrates in a highly accurate pattern. This results in an overlay which is free of porosity and cracks. Penetration into the substrate is minimized and there is consequently a very low heat-affected zone. Resulting minimal dilution enhances single-layer properties of the cladding.

From Page 16



ARC-SPRAYING

Iron-base Flux-cored Wires



Product	Chemical composition											Hardness	General characteristics
	Cr %	Ni %	Si %	B %	Mo %	Nb %	Al %	W %	Mn %	C %	others		
Fe-Base													
SP 100	17									0,1		30-35 HRC	Repair of machine components
SP 101	27	0,5		4,5	4,0	3,5		6,5		1,2		68-70 HRC	Metal-metal friction, screws, mixers, hot sieves
SP 102	20		1,5	1,5					1,0	0,6	3,5 Ti	850 HVo, 3	Abrasion resistant and erosion resistant up to 650 ° C, high adhesion resistance
Sp 103	25	10	1,2	2	4				1,3	0,5	2 Cu	45 HRC	Polishable, good wear resistance at temperature up to 870 ° C, for repair layer
SP 104	21	8	1,1	2,3	3,2				1,2	0,2	2 Cu	53 HRC	Self-compacting up to 1000 HV, easy to grind, high elasticity, for intermediate and top layers
SP 105 HY	20		2,8						11	0,25	11 Co	350 HB	Cavitation resistant, erosion resistant, water turbine, hydraulics
SP 106	14	4,5	1,3	1,9				26 WC	0,6		6 TiC	66 HRC	Good abrasion resistance, anti-slip treads in industry and ship decks
SP 107	19	8,5	0,4						6	0,1		400 HB	Good corrosion resistance, cold hardening, good workability, for repair layers
SP 108	26	3	1,6		0,8				1,6	1,7		40-42 HRC	Resistant to abrasion, corrosion, easily machinable
SP 111	30		1,3	2,8					1,0			40-45 HRC	Low friction coefficient, chrome replacement layers, valve stem, plunger, bearing seat
SP 112	27,5		1,5	3,8					1,5	0,1		1000-1150 HVo,1	Boiler erosion protection, temperature up to 650 ° C
SP 113	18	12	0,8		2,7				1,7	0,20		200-240 HV	Comparable to 316L, good corrosion resistance
SP 115	28		1,2						1	5		50-55 HRC	High oxidation resistance and corrosion resistance, high strength, chrome substitute layer, high hardness
SP 118Y	22						5				1 Y	170-270 HVo,3	Good corrosion protection in gas atmosphere against sulfur and carbon, temperature-resistant up to 500 ° C, machinable, adhesion, boiler tubes
SP 120	14	0,4	0,5						0,8	0,35		30-45 HRC	Good corrosion and wear resistance, hard, repair and processing of machine parts, pump pistons, shaft surfaces, rollers, low shrinkage, relatively high layer thicknesses
SP 121							5,5		1	2		30-35 HRC	High carbon content, especially as a slip-resistant coating for the coating of walk paths in industry and on ships
SP 124		2	1	4,5					2	0,7		58-62 HRC	Can be used as a layer in cylinder liners
SP 126	14	5,5	1,3	4,5		7	2		1			64-67 HRC	Highly wear-resistant, very good corrosion resistance. Temperature up to approx. 1000 ° C
SP 129	38	35		2		1,5				0,1		1000-1150 HVo,1	Excellent erosion protection on boiler pipe walls and superheater pipes. Also suitable for press pistons, valve shafts, components from chemical plants, shaft protection sleeves, bearings for motors, plungers and components which have been chromed so far.
SP 132	15		0,7		3,2				0,4	0,1	14 Co	480-540 HVo,1	Tools for hot pressing of sheet metal parts, valve cones, seat rings in fittings
SP 155	29		1,2						0,6	4,8		55 - 59 HRC	Pumps, mixers, agitators, concrete pumps, transport augers, transport trolleys on coke ovens.

Fe-Base + FTC													
SP 402			4,5	2,5						0,4	62 FTC	hardness FTC: 2400 HV 0,1	COROCARB SP 402 is a flux-cored wire based on FeBSi with embedded highly wear-resistant carbides. In addition to excellent heat and corrosion resistance, the alloy also has excellent abrasion resistance. The deposit is only limited grindable.

ARC-SPRAYING

Nickel-base Flux-cored Wires



Product	Chemical composition									Hardness	General characteristics
	Cr %	Si%	B %	W %	Mo %	Nb %	C %	Al %	others		
Ni-Base											
SP 201	20	4,7	3,2				0,7			500-800 HV _{0,1}	Self-flowing alloy, subsequently fusible, chemical apparatus construction, food industry, plunger, piston
SP 206	20	4,5	1,6	2		0,35				500-800 HV _{0,1}	Self-flowing alloy, subsequently fusible, chemical apparatus construction, food industry, plunger, piston
SP 221	20	4,5	0,7		2		0,4			500-800 HV _{0,1}	Boiler biomass
Sp 222	20									90 HRB	Adhesive layer in aggressive environment
SP 223	50									250-280 HV _{0,1}	Good resistance to sulfur at temperatures up to 650 ° C, coal firing power plants, black liquor boilers
SP 224	45								1 Ti	32 HRC	Good resistance to sulfur, vanadium in boiler atmosphere at temperatures up to 650 ° C, coal firing power stations, pipes, boiler walls
SP 225	22				9	3,5	0,05			240-300 HV _{0,1}	Corrosion resistant to acids with chlorides, resistant to oxidation and hot gas corrosion, adhesive layer and repair, chemical industry
SP 226	16			5	17		0,1			200-240 HB	High acid resistance in chlorine, resistant to oxidation and hot gas corrosion, chemicals, petrochemical, offshore
SP 227	15			3,5	15		0,1			35 HRC	High acid resistance in chlorine, resistant to oxidation and hot gas corrosion, chemicals, petrochemical, offshore
SP 228	25	0,4	2				0,4		15 SC	700-100 HV _{0,1}	Adhesive layer
SP 229								20		55-80 HRB	Dense layers with better oxidation and HT corrosion resistance up to 650 ° C, self-adhesive adhesive layer
SP 230								5		65 HRB	Adhesive layer
SP 231					6			5		78 HRB	Exceptional adhesion as an adhesive layer for the repair of chipable C-steels and corrosion-resistant steels, Wear resistance by Mo, repairs, bearings, good resistance to particle erosion
SP 232	8				5			7	5 Fe	100-120 HRB	For repairs, good machinable, corrosion resistant
SP 233								10		65 HRB	Adhesive layer
SP 234	21							7		75-85 HB	Adhesive layer for the repair of machine components, resistant to oxidation and hot gas corrosion, easy machinable
SP 241	21	4	4		6			10	<2 Fe	500-800 HV _{0,1}	On evaporator walls and pipes in combustion plants.
SP 275	22				9			7		190 – 230 HV _{0,3}	Typical applications as adhesive layer and for repairs in the chemical industry, petrochemical industry and the offshore industry.
SP 277	22	0,4			13			10	<3 Fe, <2,5 Co, 3 W, <0,35 V, <0,35 Mn	240 – 300 HV _{0,1}	Typical applications as an adhesive layer and for repair in the chemical industry, petrochemical and offshore industry, but also as corrosion protection in boilers.
SP 278	27		1,5		17	2		7	<3 Fe, 1 W, 1 V	240 – 300 HV _{0,1}	Typical applications as an adhesive layer and for repair in the chemical industry, petrochemical and offshore industry, but also as corrosion protection in boilers.
Ni-Base + FTC											
SP 400		5	2				0,7		62 FTC	hardness FTC: 2400 HV 0,1 matrix hardness: 540 HV 0,1	COROCARB SP 400 is a flux-cored wire based on NiBSi with embedded highly wear resistant carbides. In addition to excellent heat and corrosion resistance, the alloy also has excellent abrasion resistance. The deposit is only limited grindable.

POWDERS FOR
FLAME SPRAYING

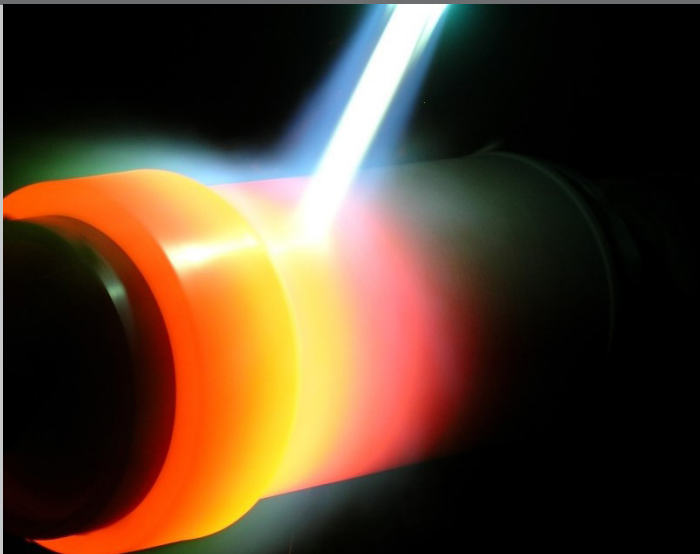


Product	Grain size	Chemical composition							Hardness	General characteristics
		Ni %	Cr %	B %	Si %	C %	Mo %	others		
Nickel base alloys, gas atomized										
COROLOY FS 40	-106+38µm	bal.	8	1,9	3,1	0,5	-	-	38 HRC	Rust and acid resistant, resistant to strong abrasion and heat. Application on small surfaces or matrices; Mold casting in the glass industry, fittings, pistons & guides.
COROLOY FS 60	-106+38µm	bal.	17	3,3	4,3	1	-	-	62 HRC	Rust and acid resistant, resistant to strong abrasion and heat. Application on small surfaces or matrices; Mold casting in the glass industry, fittings, pistons & guides.
COROLOY FS 286	-106+38µm	bal.	14	3	4	0,8	3	Cu=2,5	58 HRC	High corrosion resistance as well as good heat and abrasion resistance. Bearings of transport augers, etc.
COROLOY FS 288	-106+38µm	bal.	17	3	4	0,8	-	W=17	58 HRC	Moderate corrosion resistance but good erosion and abrasion resistance. Extrusion bins, hydropulipers, valves, mud pumps, etc.

Product	Grain size	Chemical composition		Hardness		General characteristics
		COROLOY FS 6o	FTC	Matrix	FTC	
NiBSi-matrix, blended with fused Tungsten Carbides						
CORCARB FS 3o	-1o6+38µm	7o %	3o %	62 HRC	2.3oo HV±2ooHV	Rust and acid resistant, resistant to strong abrasion and heat. Mechanical engineering, pump and mill construction, petrochemical, etc.
CORCARB FS 4o	-1o6+38µm	6o %	4o %	62 HRC	2.3oo HV±2ooHV	
CORCARB FS 5o	-1o6+38µm	5o %	5o %	62 HRC	2.3oo HV±2ooHV	
CORCARB FS 6o	-1o6+38µm	4o %	6o %	62 HRC	2.3oo HV±2ooHV	
CORCARB FS 7o	-1o6+38µm	3o %	7o %	62 HRC	2.3oo HV±2ooHV	
CORCARB FS 8o	-1o6+38µm	2o %	8o %	62 HRC	2.3oo HV±2ooHV	

POWDERS FOR

FLAME SPRAYING



Product	Grain size	Chemical composition		Hardness	General characteristics
		COROLOY FS 6o	WC Co	Matrix	
NiBSi-matrix, blended with WC Co-Pellets					
CORCARB FS 35 WC	-1o6+38µm	65 %	35 %	62 HRC	Rust and acid resistant, resistant to strong abrasion and heat. Mechanical engineering, pump and mill construction, petrochemical, etc.
CORCARB FS 4o WC	-1o6+38µm	6o %	4o %	62 HRC	
CORCARB FS 5o WC	-1o6+38µm	5o %	5o %	62 HRC	
CORCARB FS 8o WC	-1o6+38µm	2o %	8o %	62 HRC	

POWDERS FOR
PTA CLADDING



Product	Grain size	Chemical composition		Hardness		General characteristics
		COROLOY 6o PTA	FTC	Matrix	FTC	
NiBSi-matrix, gas-atomized, blended with FTC						
COROCARB 61o PTA	-18o+53µm	38-4o %	6o-62 %	53 HRC	2.3oo HV±2ooHV	Particularly high content of highly wear-resistant fused tungsten carbides (FTC). Tools for deep drilling and mining, excavator parts, scrap presses, extremely wear-resistant cutting edges in recycling technology, screw bars as well as components from agricultural engineering.
COROCARB 611 PTA	-18o+53µm	38-4o %	6o-62 %	4o HRC	2.3oo HV ± 2ooHV	Crack-resistant alloy with a high proportion of wear-resistant fused tungsten carbides (FTC). Tools for deep drilling and mining, excavator parts, scrap presses, extremely wear-resistant cutting edges in recycling technology, screw bars as well as components from agricultural engineering.
COROCARB 616 PTA	-18o+53µm	38-4o %	6o-62 %	53 HRC	2.3oo HV±2ooHV	The alloy has a high content of thermodynamically stabilized FTC, which is characterized by a very high hardness, with comparatively high toughness. Tools for deep drilling and petroleum industry.
COROCARB 62o PTA	-18o+53µm	38-4o %	6o-62 %	53 HRC	≥3.oo HV	The alloy has a particularly high content of spherical tungsten carbides (sFTC). Tools for deep drilling and mining, excavator parts, scrap presses, extremely wear-resistant cutting edges in recycling technology, screw flights and components from agricultural engineering as well as pumps and mills.

Product	Grain size	Chemical composition							Hardness	General characteristics
		Fe %	Cr %	C %	Si %	Mn %	V %	Ni %	Matrix	
Iron-base, gas-atomized, powders with Vanadium Carbides										
CORODUR 670 PTA	-180+38µm	bal.	6	3,5	1	1	12	-	58 HRC	The alloy has a particularly high content of highly wear-resistant vanadium carbides and can be cracked without cracking. Tools for mining, excavator parts, scrap presses, extremely wear-resistant cutting edges in recycling technology, cutting edges, etc.
Corodur 671 PTA (corrosion resistance)	-180+38µm	bal.	17,5	4,3	1	1	12	+	58 HRC	The alloy has a high proportion of wear-resistant vanadium carbides and can be crack-free processed. Technical knives, recycling industry, agricultural engineering.

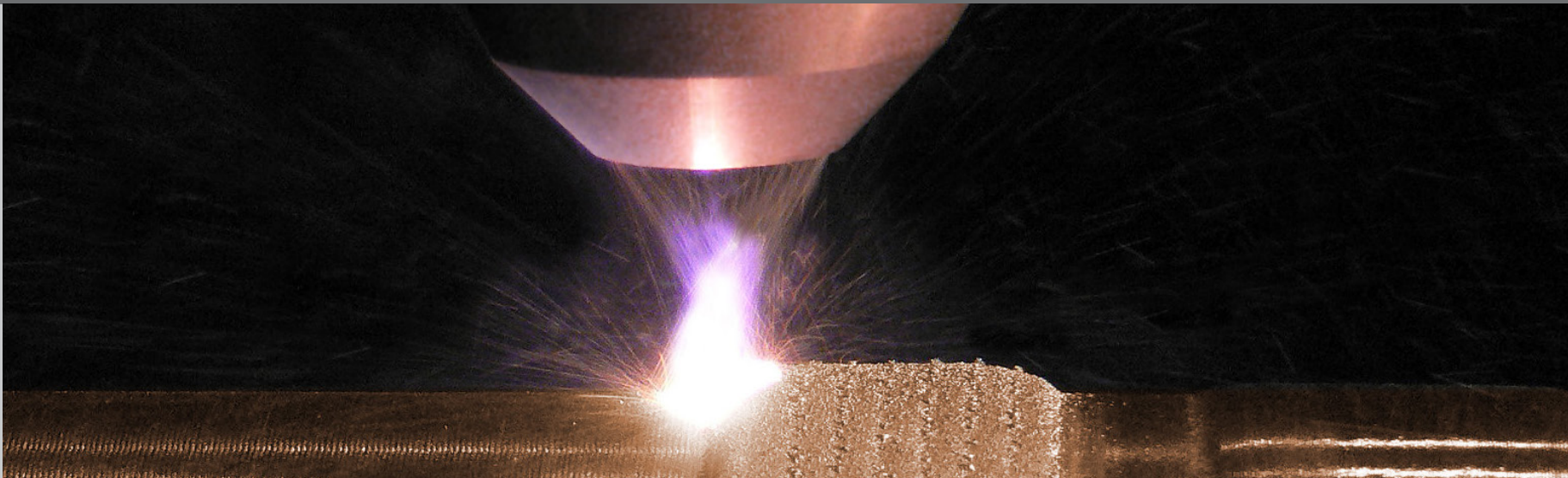
POWDERS FOR
PTA CLADDING



Product	Grain size	Chemical composition									Hardness	General characteristics
		Co %	Cr %	W %	Mo %	C %	Ni %	Si %	Mn %	Fe %		
Cobalt-base powders, gas-atomized												
COROLIT 1 PTA	-150+53µm	bal.	30	12,5	-	2,5	+	1,8	1	≤3,5	54 HRC	Abrasion, erosion, corrosion, cavitation at high temperatures. Valves, grinding and crumbs, wear rings, wear elements in the chemical industry, etc.
COROLIT 6 PTA	-150+53µm	bal.	30	4,5	-	1,2	+	1,2	0,5	≤3,5	42 HRC	Abrasion, erosion, corrosion, cavitation at high temperatures. Valves, grinding and crumbs, wear rings, wear elements in the chemical industry, etc.
COROLIT F PTA	-150+53µm	bal.	25	12,0	-	1,8	24	0,5	0,5	≤3,5	42 HRC	Cavitation, corrosion, erosion and abrasion. Marine diesel engines, engine technology, etc.
COROLIT 12 PTA	-150+53µm	bal.	29	8,0	-	1,5		1,7	0,5	≤3,5	50 HRC	Abrasion, erosion, corrosion, cavitation at high temperatures. Processing tools of the hardwood, paper and plastic industry, extruder screws as well as for valve spindles and earth drills, etc.
COROLIT 21 PTA	-150+53µm	bal.	27	-	5,5	0,3	2,5	0,5	0,5	≤3,5	300 HB	Corrosion, impact load at high temperatures or even extreme temperature changes (thermal shock resistance). Hot punching tools, exhaust valves, steam and acid fittings, seawater desalination plants, etc.

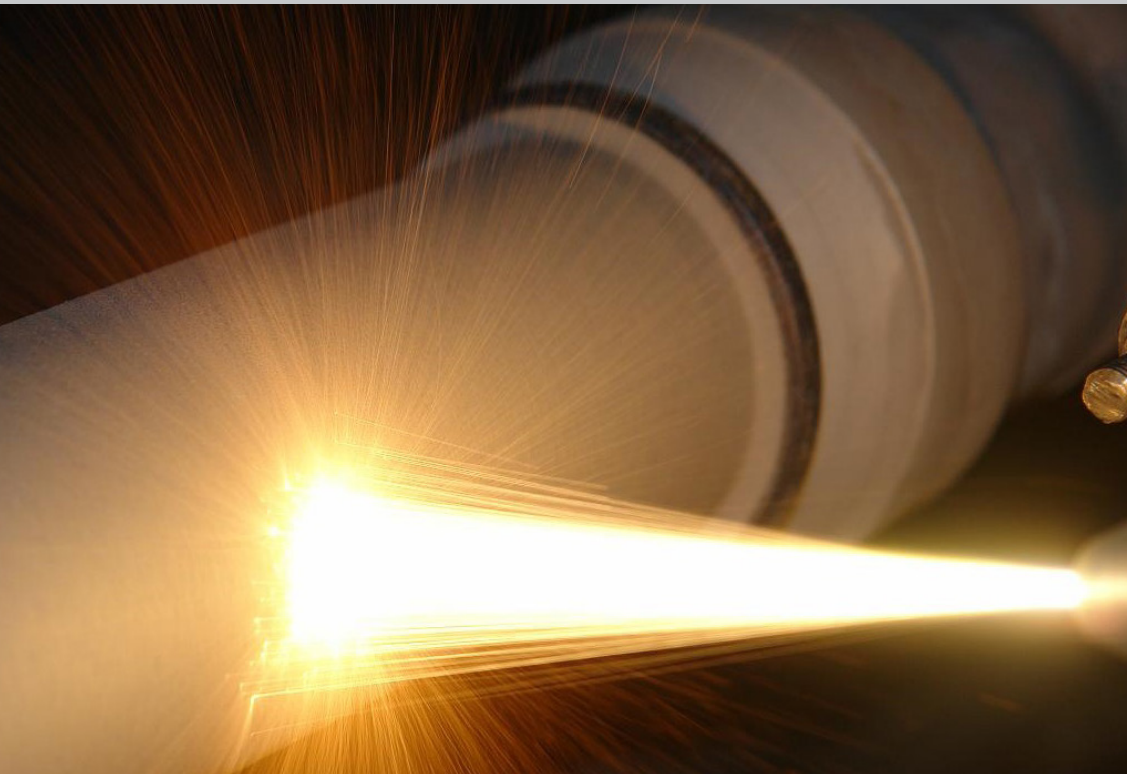
Product	Grain size	Chemical composition								Hardness	General characteristics
		Ni %	Cr %	B %	Si %	C %	Mo %	Nb %	others		
Nickel-base powders, gas-atomized											
COROLOY 201 PTA	-150+53µm	bal.	15	3	4,6	0,7	-	-	1	58 HRC	High hot hardness, corrosion resistance, thermal shock resistance and high wear resistance. Chemical apparatus manufacturing, food industry, nuclear technology, fittings, oil press, paper industry, press augers, etc.
COROLOY 255 PTA	-150+53µm	bal.	17	2	5	1	-	-	0,5	53 HRC	Abrasion and corrosion resistant. Plastic industry, extruder screws, etc.
COROLOY 256 PTA	-150+53µm	bal.	17	2	5	1	-	-	-	53 HRC	Abrasion and corrosion resistant. Plastic industry, extruder screws, etc.
COROLOY 260 PTA	-150+53µm	bal.	-	3	3	-	-	-	0,5	42 HRC	Self-flowing nickel alloy with high hardness.
COROLOY 625 PTA	-150+53µm	bal.	22	-	0,4	-	9,1	3,5	Fe<0,8	220 HB	High corrosion resistance to a variety of chemical substances, against intercrystalline corrosion and is sea water resistant. Chemical industry, waste incineration plants, flue gas desulphurization plants, seawater desalination plants, etc.

POWDERS FOR
LASER CLADDING

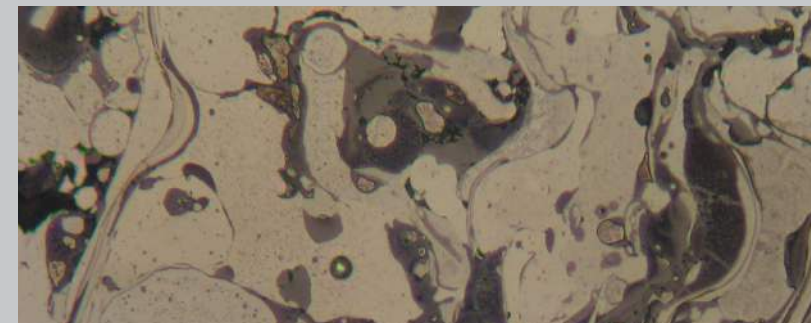
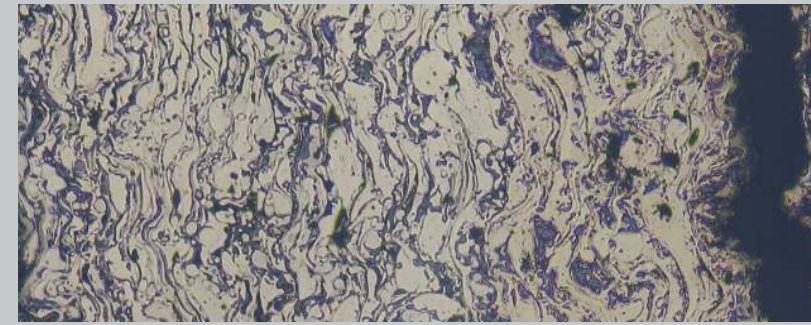


Product	Grain size	Chemical composition							Hardness	General characteristics
		Ni %	Cr %	B %	Si %	C %	Mo %	Nb %		
Nickel-base powders, gas-atomized										
COROLOY 260 LS	-90+45µm	bal.	-	3	3	-	-	-	53 HRC	Self-flowing nickel alloy with high hardness.

Product	Grain size	Chemical composition		Hardness		General characteristics
		COROLOY 6o PTA	FTC	Matrix	FTC	
NiBSi-matrix, blended with fused Tungsten Carbide						
COROCARB 61o LS	-9o+45µm	38-4o %	6o-62 %	53 HRC	2.3oo HV±2ooHV	Particularly high content of highly wear-resistant tungsten melt carbide (WSC). Tools for deep drilling and mining, excavator parts, scrap presses, extremely wear-resistant cutting edges in recycling technology, screw flights and components from agricultural engineering as well as pumps and mills.



MICROSCOPIC THIN-SECTION TAKEN FROM CLAD SURFACES



YOUR NEED IS OUR CHALLENGE



CORODUR® Wear Protection Solutions

No matter what your industry focus or wear challenge, CORODUR® is there to help you with off-the-shelf and tailor-made wear solutions you can trust. From the known to the unknown, CORODUR® maintains and shares a wealth of knowledge and data collected over almost 40 years from established process industries operating across all continents. Research and Development is central to our advanced production site in Willich, Germany and we also maintain links with centres of excellence around the world to provide the most rapid and flexible response to customer demand.

CORODUR's highly qualified and experienced sales team can be relied upon to provide accurate and timely advice regarding both the right product and the correct application method.

Our customer-centric ethos ensures delivery of only the highest-quality products, combined with state-of-the-art solutions.

FORMS OF PACKAGING

WIRE BASKET SPOOL

Net weight: 15 kg
External diameter: 300 mm
Diameter (inside): 51.5 mm
Width: 103 mm
EN 759/BS 300

Net weight: 25 kg
External diameter: 435 mm
Diameter (inside): 300 mm
Width: 105 mm
EN 759/BS 450

PLASTIC BOTTLE

Net weight: 5 kg

WIRE DRUM

Net weight: 100-150 kg
Diameter: 550 mm
Height: 400 mm

Net weight: 150/300 kg
Diameter: 550 mm
Height: 800 mm

PLASTIC SPOOL

Net weight: 25 kg
External diameter: 435 mm
Diameter (inside): 300 mm
Width: 90 mm
R 435

