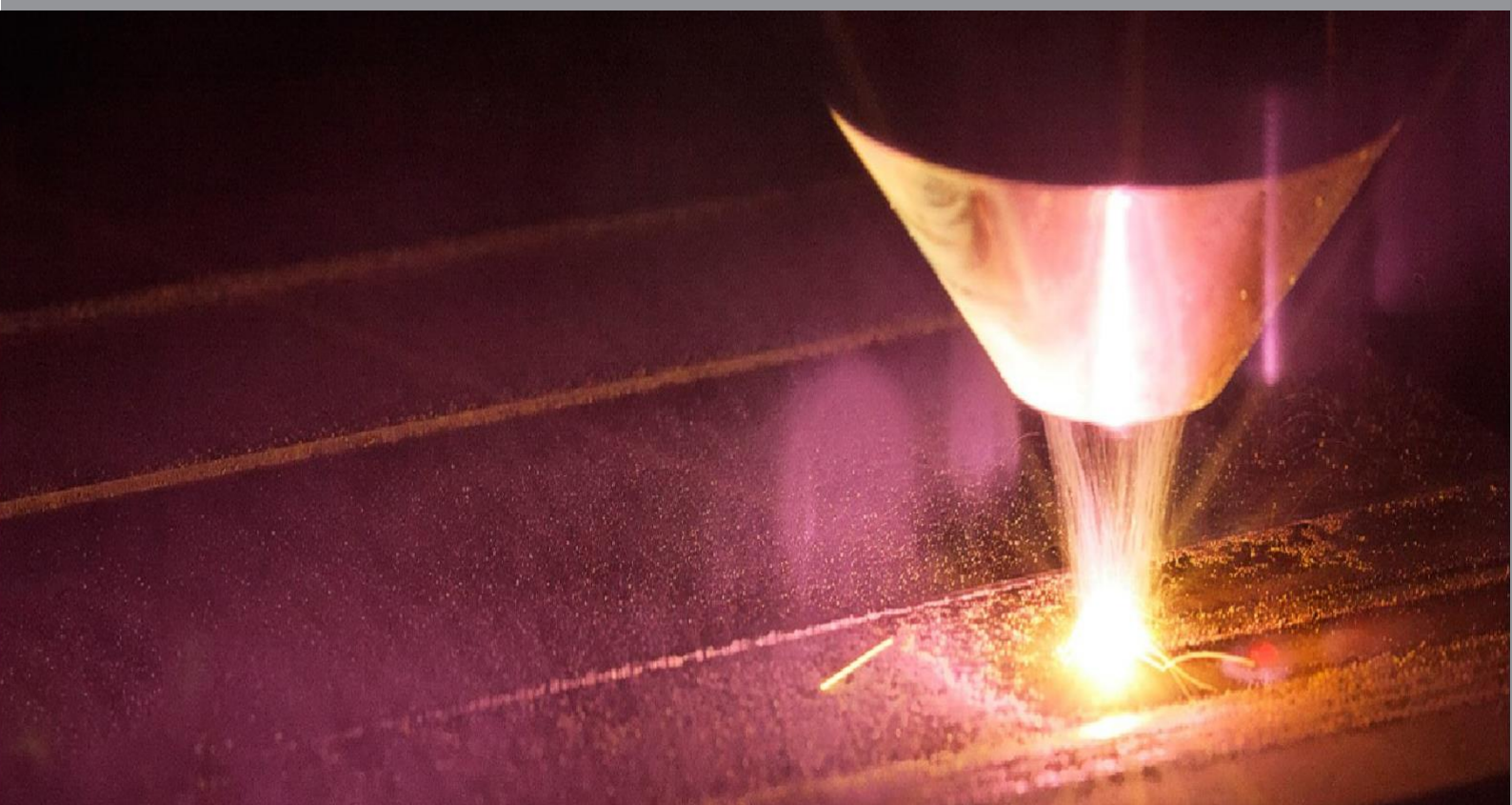


CLADDING AND HARDFACING POWDERS

GTV consumables for Laser Cladding



LASER CLADDING AND HARDFACING POWDERS

Ni: NICKEL BASED POWDERS

GTV No.	Description	Particle size	Hardness	C	Ni	Cr	B	Si	Fe	Mo	Others
31.25.10	Inconel 625	-160 +53 µm	200 HV	≤0.03	bal.	21.0	-	0.4	1.4	9.0	Nb=3.5
31.96.10	Hastelloy C276	-160 +53 µm	210 HV	≤0.02	bal.	15.2	-	0.1	3.0	15.5	W=3, Co=2
31.10.10	NiBSi 22 HRC	-160 +53 µm	22 HRC	-	bal.	-	1.3	2.3	1.0	-	-
10.11.6	NiCrBSi 30 HRC	-125 +45 µm	30 HRC	0.15	bal.	7.0	1.25	3.4	3.0	-	-
10.12.6	NiCrBSi 40 HRC	-125 +45 µm	40 HRC	0.25	bal.	7.5	1.7	3.5	2.5	-	-
31.14.10	NiCrBSi 50 HRC	-160 +53 µm	50 HRC	0.5	bal.	14.0	2.5	3.7	4.0	-	-
31.15.10	NiCrBSi 60 HRC	-160 +53 µm	60 HRC	0.75	bal.	14.0	3.3	4.5	4.5	-	-
10.16.6	NiCrBSi CuMo	-125 +45 µm	58 HRC	0.5	bal.	16.0	3.5	4.5	3.5	3.0	Cu=3

31.25.10

-160 +53 µm / gas atomised / 200 HV

NiCrMoNb based alloy similar to Inconel 625. Excellent corrosion resistance in wide range of environments, high temperature oxidation resistance, resistance to stress corrosion cracking, good wear resistance and high ductility.

Typically used for repair and surfacing of similar nickel based super alloys, non-alloyed, low alloyed and high alloyed steels.

Components exposed to corrosive environments, high temperatures and mechanical stress in chemical or petrochemical industry, power engineering, aerospace, etc.

31.96.10

-160 +53 µm / gas atomised / 210 HV

NiCrMoW based alloy similar to Hastelloy C276. Excellent corrosion resistance in hot contaminated mineral acids, chlorine and chloride contaminated media, resistance to strong oxidisers and wet chlorine gases, resistant to pitting, crevice corrosion and stress corrosion cracking.

Typically used in chemical and petrochemical processing applications as well as hot working tools such as hot forging dies, punches, press tools, etc.

31.10.10

-160 +53 µm / gas atomised / 22 HRC

NiBSi based alloy with good oxidation and wear resistance, good machinability, typically used for repair of cast iron and repair of machining errors.

10.11.6

-125 +45 µm / gas atomised / 30 HRC

NiCrBSi based alloy with good corrosion and wear resistance, used for applications, where good machinability is required and hardness of 30 HRC is sufficient.

Rebuilding and repairing of plungers in glass manufacturing industry, valves, pumps, rolls, etc.

10.12.6

-125 +45 µm / gas atomised / 40 HRC

NiCrBSi based alloy with good corrosion and wear resistance - higher than 10.11.6.

Rebuilding and repairing of plungers in glass manufacturing industry, bearings, valve gates, pump sleeves, etc.

31.14.10

-160 +53 µm / gas atomised / 50 HRC

NiCrBSi based alloy with excellent resistance to wear and corrosion in various process media, surfaces resistant to wear by abrasive grains, particle erosion and cavitation, further improvement of abrasion resistance can be achieved by mixing with tungsten carbides.

Bearings, diesel engine valves, valve seats, rocker arms, screw conveyors, pump sleeves, seal rings, piston rods, mixer blades, chip knives, etc.

31.15.10

-160 +53 µm / gas atomised / 60 HRC

NiCrBSi based alloy with excellent resistance to wear and corrosion in various process media, surfaces resistant to wear by abrasive grains, particle erosion and cavitation, further improvement of abrasion resistance can be achieved by mixing with tungsten carbides.

Bearings, diesel engine valves, valve seats, rocker arms, screw conveyors, pump sleeves, seal rings, piston rods, mixer blades, chip knives, etc.

10.16.6

-125 +45 µm / gas atomised / 58 HRC

NiCrBSi based alloy with addition of Cu and Mo, better corrosion resistance in acidic or alkaline media and better resistance to cracking compared to Cu and Mo free NiCrBSi alloys.

Applications requiring wear and corrosion resistance in chemical and petrochemical industry, etc.

LASER CLADDING AND HARDFACING POWDERS

Co: COBALT BASED POWDERS

GTV No.	Description	Particle size	Hardness	C	Ni	Cr	Co	Si	W	Fe	Mo
31.01.10	Stellite 1	-160 +53 µm	55 HRC	2.5	-	30.0	bal.	-	12.0	-	-
31.06.10	Stellite 6	-160 +53 µm	40 HRC	1.1	-	28.0	bal.	-	4.0	-	-
31.12.10	Stellite 12	-160 +53 µm	48 HRC	1.5	-	28.0	bal.	-	8.0	-	-
31.21.10	Stellite 21	-160 +53 µm	30 - 45* HRC	0.25	2.8	27.0	bal.	1.0	-	1.5	5.5
31.64.10	T-400	-160 +53 µm	53 HRC	0.01	0.5	9.0	bal.	2.7	-	0.5	29.5
31.68.10	T-800	-160 +53 µm	53 - 60 HRC	<0.08	<1.5	18.0	bal.	3.4	-	<1.5	28.0

*Stellite and Tribaloy are registered trademarks of Kennametal Stellite.
Index *: Hardness values after work hardening*

31.01.10

-160 +53 µm / gas atomised / 55 HRC

Cobalt based alloy with chemical composition similar to Stellite 1, hardest of the standard cobalt base alloys retaining its hardness at temperatures up to 730 °C, but more crack sensitive than other cobalt based alloys.

High content of carbides in a cobalt matrix, providing excellent resistance to abrasion and solid particle erosion and good general corrosion resistance.

Applications, where high wear resistance (especially abrasion resistance) is required, such as pump and bearing sleeves, rotary seal rings, etc.

31.06.10

-160 +53 µm / gas atomised / 40 HRC

Most widely used cobalt based alloy, providing excellent resistance to many forms of chemical and mechanical degradation over a wide temperature range, good resistance to impact and cavitation, better impact resistance than 31.01.10 retaining its hardness at temperatures up to 500 °C.

Due to its outstanding anti-galling properties and low friction coefficient in case of self-mated surfaces 31.06.10 is recommended for hardfacing on valve seats, steam valves, bearing areas, etc.

31.12.10

-160 +53 µm / gas atomised / 48 HRC

Cobalt based alloy with chemical composition similar to Stellite 12, better abrasion and erosion resistance than 31.06.10, better resistance to impact and thermal shocks than 31.01.10.

Typically used for cutting tools, cutting edges in plastic, paper and textile industry, saw blades and tips in wood industry, etc.

31.21.10

-160 +53 µm / gas atomised / 30 HRC, 45 HRC*

Cobalt based alloy with chemical composition similar to Stellite 21 alloy, excellent resistance to hot corrosion, thermal and mechanical shock and to oxidizing and reducing gaseous atmospheres up to 1100 °C. The weld metal is work hardening, has excellent metal-to-metal sliding wear resistance and is highly resistant to impact, not recommended for severe hard particle abrasion.

Typical applications: parts subject to corrosion, impact wear as well as high temperatures or thermal shocks such as engine valves, gas turbines components, hot working tools such as forging or stamping dies, etc.

31.64.10

-160 +53 µm / gas atomised / 53 HRC

CoMoCrSi based alloy with chemical composition similar to Tribaloy T-400, exhibits high corrosion resistance, high oxidation resistance at elevated temperatures, high resistance to wear and galling with good hot hardness, resists fretting wear in case of lack of lubrication.

Typical applications: pump components, valve seats, valve faces, ball and roller bearings, journal bearings, etc.

31.68.10

-160 +53 µm / gas atomised / 53 - 60 HRC

CoMoCrSi based alloy with chemical composition similar to Tribaloy T-800, exhibits high corrosion resistance, high oxidation resistance at elevated temperatures (higher than T-400), high resistance to wear and galling with good hot hardness.

Typical applications: pump components, valve seats, valve faces, ball and roller bearings, journal bearings, etc.

LASER CLADDING AND HARDFACING POWDERS

Fe: IRON BASED POWDERS

GTV No.	Description	Particle size	Hardness	C	Ni	Cr	Mn	Si	Fe	Mo	Others
31.46.10	316L	-160 +53 µm	160 HV	≤0.03	12.0	17.0	1.5	0.8	bal.	2.5	-
31.91.10	410L	-160 +53 µm	220 HV	≤0.03	-	12.5	0.1	0.5	bal.	-	-

31.46.10

-160 +53 µm / water atomised / 160 HV

Austenitic nickel - chromium stainless steel powder similar to AISI 316L grade, resistant to corrosion, pitting and intercrystalline corrosion up to temperatures of 400 °C, scale resistant up to 800 °C. Easy machining, mirror finishing possible.

Corrosion resistant surfaces for chemical industry, food processing industry as well as buffer layers for hardfacing.

31.91.10

-160 +53 µm / gas atomised / 220 HV

13% Cr steel powder for surfacing on similar Cr steels and cast steels.

Suitable for surfacing of sealing faces of water, gas and steam valves at service temperatures up to 450 °C.

LASER CLADDING AND HARDFACING POWDERS

CARBIDE REINFORCED POWDERS

GTV No.	Description	Particle size	Matrix hardness	Carbide type
31.37.10	NiCrBSi / FTC 50 / 50	-160 +53 µm	60 HRC	fused and crushed, blocky
31.34.10	NiBSi / WSC 50 / 50	-160 +53 µm	60 HRC	

31.37.10

-160 +53 µm

Mixed powder with nickel based alloy matrix for protection against extreme abrasive wear, e.g. for applications in mining, oil and gas exploration as well as for excavation tools.

31.34.10

-160 +53 µm

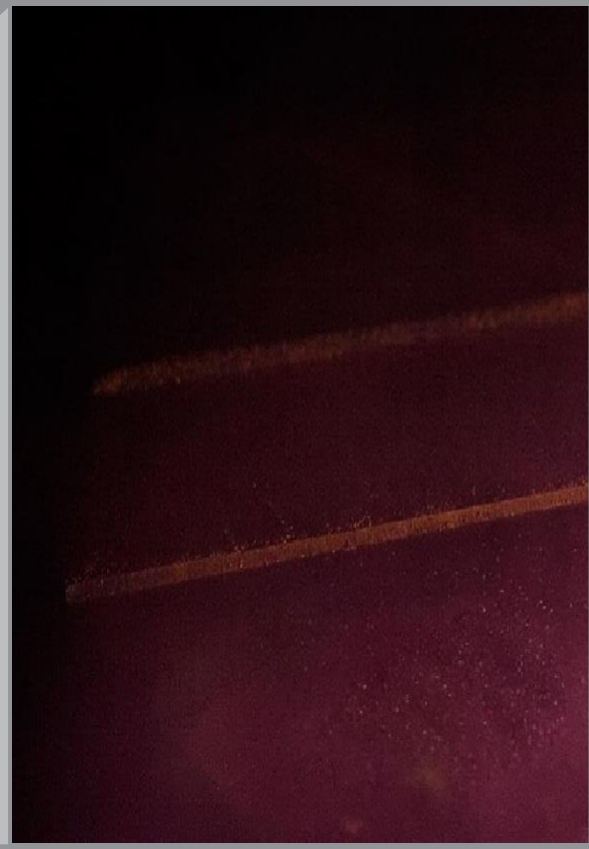
Beschreibung anpassen.

Various mixing ratios with different matrix hardness are possible.



Ever since the company was established in 1982, the name GTV has stood for top quality and a high level of delivery reliability for all types of thermal spray products.

GTV provides its customers with many years of experience in all aspects of the high-technology field of thermal spraying, enabling them to make use of the effective and efficient GTV system solutions in order to gain a substantial competitive advantage in the market.



GTV Verschleiss-Schutz GmbH
Gewerbegebiet „Vor der Neuwiese“, D-57629 Luckenbach, Germany
Phone: +49 (0)2662 95 76-0, Fax: +49 (0)2662 95 76-30
E-Mail: office@gtv-mbh.de, Internet: www.gtv-mbh.de