

# LASER CLADDING

## LASER CLADDING WITH STELLITE™ ALLOYS

TECHNICAL DATA

### METALLURGICAL BONDING WITH MINIMAL DILUTION

With over 100 years of providing solutions to wear and corrosion problems, Kennametal Stellite™ has progressed from originally manufacturing high-quality Stellite™ hardfacing powders, rods, and wires to providing powders for your laser cladding needs.

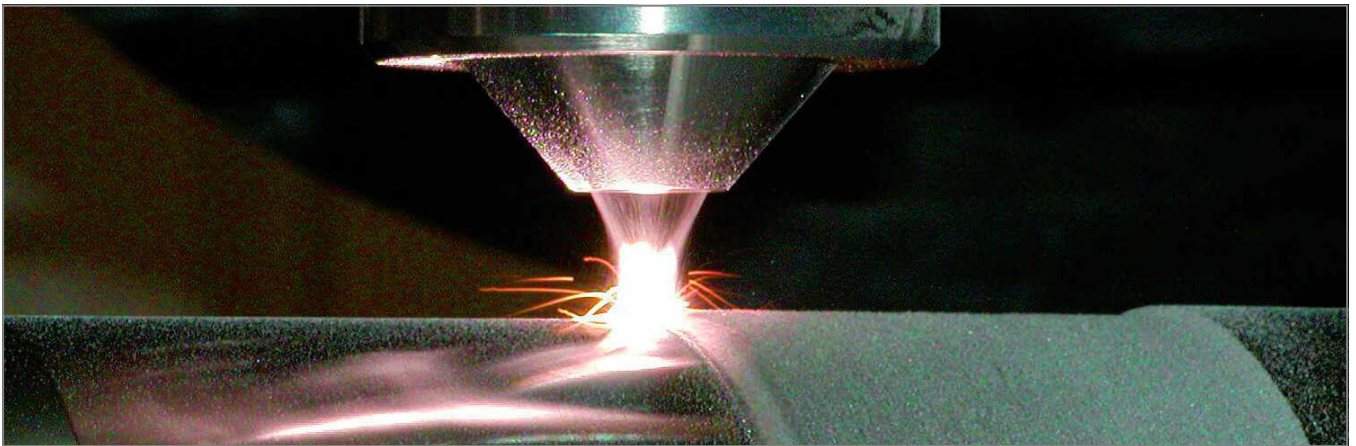
#### LASER CLADDING — PRECISION HARDFACING SOLUTIONS.

- Minimal dilution due to low heat output
- Controlled energy supply possible
- High heating and cooling rates for better microstructure
- No tool wear
- Compact technology
- Providing superior results of hardness, homogeneity, purity, and microstructure

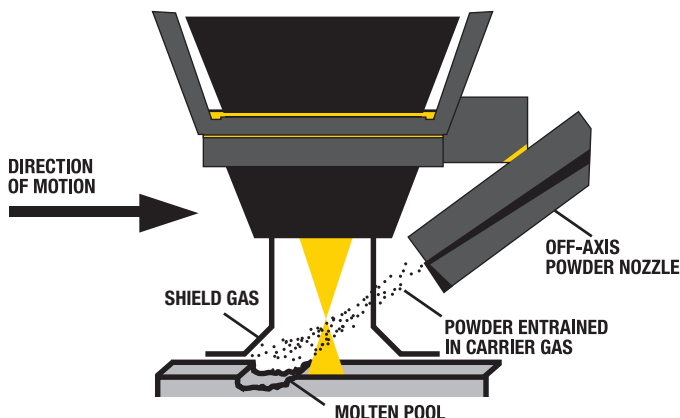
#### KENNAMETAL STELLITE™ — THE RIGHT CHOICE.

- Solution providers rather than just manufacturers
- Proven technology and quality for over a century
- Technical experts for support
- Wide range of alloys
- Customized alloys for your applications\*

**LASER CLADDING WITH STELLITE™ ALLOYS** have found a wide range of applications across industries. Some of the key applications / industries where we have had success are high pressure gas turbines, diesel engine valves, drainage plough blade, aerospace, deep drawing tool, mining support braces, hydraulic cylinder hardfacing, and stainless steel runners.



### PROCESS SCHEMATIC



**IF YOU HAVE AN APPLICATION PROBLEM TO SHARE WITH US, OUR EXPERTS WILL BE EAGER TO RESOLVE IT.**

\* Note: Customized alloys are based on discussions with company's representatives.

Kennametal Stellite™ is a global provider of solutions to wear, heat, and corrosion problems and is a world-class manufacturer of alloy-based materials and components.

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[www.kennametal.com/stellite](http://www.kennametal.com/stellite)

KENNAMETAL STELLITE™ HAS A FULL RANGE OF LASER CLADDING TO MEET THE INDUSTRIES' GROWING NEEDS. TYPICAL LASER POWDERS COME IN THE FOLLOWING MESH SIZES:

PROCESS	GRADE	NOMINAL PARTICLE RANGE
PTA and Laser Deposition	W	150 / 45 µm
	WM	180 / 53 µm
	HD	250 / 45 µm
	G	125 / 45 µm
Powder Welding	K	75 / 20 µm
	KS	63 / 20 µm
	KX	106 / 20 µm
	KG	45 / 20 µm

NOMINAL COMPOSITIONS OF OUR STANDARD ALLOYS ARE LISTED BELOW. THESE PRODUCTS REPRESENT A SMALL PORTION OF OUR ALLOY REPERTOIRE. IF YOU DON'T SEE IT LISTED, PLEASE ASK.

ALLOY	NOMINAL ANALYSIS OF POWDER								OTHERS	UNS	HARDNESS (HRC)
	Co	Cr	W	C	Ni	Mo	Fe	Si			
<b>COBALT-BASED ALLOYS (GAS ATOMIZED POWDERS)</b>											
Stellite™ 1	Bal.	30	13	2.5	<2.0	<1.0	<2.0	<2.0	<1.0	R30001	51-60
Stellite™ 6	Bal.	28.5	4.6	1.2	<2.0	<1.0	<2.0	<2.0	<1.0	R30106	40-46
Stellite™ 12	Bal.	30	8.5	1.45	<2.0	<1.0	<2.0	<2.0	<1.0	R30012	43-53
Stellite™ 21	Bal.	27.5	-	0.25	2.6	5.4	<2.0	<2.0	<1.0	R30021	27-40
<b>COBALT-BASED TRIDALLOY ALLOYS (GAS ATOMIZED POWDERS)</b>											
Tribaloy™ T-800	Bal.	8.5	-	<0.08	<1.5	29	<1.5	2.6	<1.0	-	49-55
<b>NICKEL-BASED SUPERALLOYS (GAS ATOMIZED POWDERS)</b>											
Nistelle™ C22	<2.0	21.5	3	-	Bal.	13.5	4	-	0.15% V	-	-
Nistelle™ 625	-	21.5	-	<1.0	Bal.	9	<1.0	<0.5	3.5% Nb	N06625	-
<b>NICKEL-BASED HARDFACING ALLOYS (GAS ATOMIZED POWDERS)</b>											
Deloro™ 40	-	7.5	-	<0.3	Bal.	-	2.5	3.5	1.7% B	N99644	38-42
Deloro™ 50	-	11	-	0.45	Bal.	-	3.3	3.9	2.3% B	N99645	48-52
Deloro™ 55	-	12	-	0.6	Bal.	-	4.0	4.0	2.7% B	-	52-57
Deloro™ 60	-	15	-	0.7	Bal.	-	4.0	4.4	3.1% B	N99646	57-62
<b>IRON-BASED HARDFACING ALLOYS (GAS ATOMIZED POWDERS)</b>											
Delchrome™ 316LC	-	17	-	<0.03	12	2.5	Bal.	1.0	-	S31603	-
Delchrome™ 410	-	13	-	0.10	-	-	Bal.	-	-	S41000	-
Delchrome™ 90	-	27	-	2.75	-	-	Bal.	0.5	0.5	-	-
Delchrome™ 92	-	-	-	3.8	0.8	9.8	Bal.	0.5	0.5	-	-

PRODUCTS ARE TYPICALLY PACKAGED IN SEALED 10 LBS BOTTLES. LARGE BULK PACKAGING IS AVAILABLE.

Kennametal Stellite™ manufactures sophisticated alloys in the form of castings, powders, coatings, consumables, and machined parts that resist wear, corrosion, and abrasion. Information provided in this document is intended only for general guidance about Kennametal Stellite™ products and is the best information in our possession at the time. Product users may request information about their individual use of our products, but Kennametal Stellite™ does not warrant or guarantee this information in any way. Selection and purchase of Kennametal Stellite™ products is the sole responsibility of the product user based on the suitability of each use. Individual applications must be fully evaluated by the user, including compliance with applicable laws, regulations, and non-infringement. Kennametal Stellite™ cannot know or anticipate the many variables that affect individual product use and individual performance results may vary. For these reasons, Kennametal Stellite™ does not warrant or guarantee advice or information in this document, assumes no liability regarding the same, and expressly disclaims any warranty of any kind, including any warranty of fitness for a particular purpose, regarding the same.

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