

# Stellite™ Cored Wire



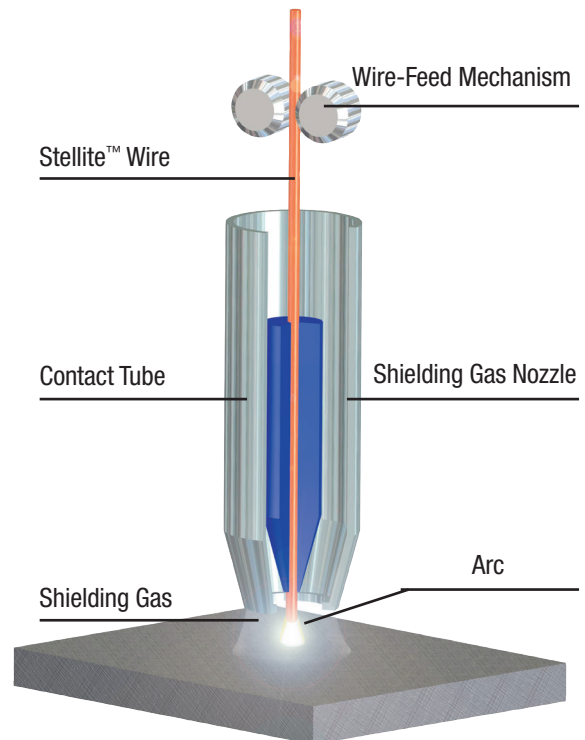
Kennametal cobalt-based Stellite™ alloys are among the most well-known and successful hardfacing alloys in the world. They combine excellent mechanical wear resistance, especially at high temperatures, with very good corrosion resistance.

Stellite alloys are available in a variety of options as metal cored tubular wire for MIG, MAG, GMAW, and SAW hardfacing processes.

## MIG Weld Deposition, Submerged Arc Welding

In these Arc welding processes, consumable hardfacing wire is fed continuously from a spool through the welding torch into the Arc, where it is melted and transferred to the workpiece. In the case of MIG welding, also known as Gas Metal Arc Welding (GMAW), the weld pool is protected from the atmosphere by a stream of shielding gas. The MIG process is very flexible — it can be partially or fully mechanized and is suitable for a wide range of applications.

Wire is also used as the hardfacing consumable in the Submerged Arc Welding (SAW) process. In this process, a mineral-based fluxing powder flows around the consumable wire and is melted by the Arc. It forms a gaseous shield around the Arc and also forms a slag on top of the weld pool, shielding the cooling weld pool from the atmosphere.



## Applications

Stellite™ hardfacing alloys offer resistance to corrosion, galling, erosion and wear while retaining a high degree of hardness at elevated temperatures of up to 950°C [1742°F]. Applications include sealing faces on fluid control valves, mixer rotors used in the rubber industry, plastic and food extrusion screws, hot work tools, and closed dies. Kennametal Stellite™ materials and manufacturing experts are always available to consult on material applications and solutions.

## Applications

Metal cored wire is available in both spools and small coils at a variety of diameters and weight. Refer to the chart on the right for details.

STANDARD SIZES & PACKAGING		
Wire Diameter	Spool 15kg (33lbs)	Small Coil 25kg (55lbs)
1.2mm (.045")	x	
1.6mm (.062")	x	
2.4mm (.093")	x	x
3.2mm (.125")	x	

UNDILUTED WELD METAL COMPOSITION												
ALLOY	Co	Cr	W	C	Ni	Mo	Fe	Si	Other	UNS	AWS	HRC <sup>1</sup>
Stellite™ 1	Bal.	28	11.5	2.45	<3.0	<1.0	3.5	<2.0	<1.0	W73031	ERCCoCr-C	50-55
Stellite™ 6	Bal.	28	1.5	1.2	<3.0	<1.0	3.5	<2.0	<1.0	W73036	ERCCoCr-A	38-44
Stellite™ 12	Bal.	29	8	1.55	<3.0	<1.0	3.5	<2.0	<1.0	W73042	ERCCoCr-B	45-50
Stellite™ 21	Bal.	28	-	0.25	3	5.2	3.5	<1.0	<1.0	W73041	ERCCoCr-E	22-40 <sup>2</sup>
Stellite™ 21LC	Bal.	26	-	.1	4	6		<1.5	<1.5	-	-	25-40 <sup>2</sup>
Stellite™ 25	Bal.	20	14	.1	10	<1.0	3.5	<1.0	<1.0	-	-	20-45 <sup>2</sup>
Stellite™ 250	Bal.	28	-	.1	-	-	21	<1.0	<1.0	-	-	20-28
Stellite™ 706	Bal.	31	-	1.2	<3.0	4	<3.0	<1.0	<1.0	-	-	39-44
Stellite™ 712	Bal.	31	-	1.55	<3.0	8	<3.0	<2.0	<1.0	-	-	46-51
Ultimet™	Bal.	26	2	.06	9	5	3	-	<1.0	-	-	28-45

<sup>1</sup> Undiluted Weld metal

<sup>2</sup> Depends on degree of cold working

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## Method of Application

Ensure area is well ventilated to comply with local health and safety requirements. Torch should be held 90° to the workpiece with the shortest possible Arc and argon gas shield .

RECOMMENDED WELD PARAMETERS			
Diameter (mm)	Welding Current (Amps)	Voltage	Stick Out (mm)
Dip			
1.2	90 / 150	18 / 21	15
1.6	110 / 180	18 / 21	15
Pulse			
1.2	80 / 200	18 / 27	15 - 19.8
1.6	100 / 280	19 / 27	15 - 19.8
Spray			
1.2	180 / 250	26 / 30	19.8
1.6	240 / 330	27 / 30	19.8

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