METRODE PRODUCTS LTD
HANWORTH LANE, CHERTSEY
SURREY, KT16 9LL, UK
Tel: +44(0)1932 566721 / Fax: +44(0)1932 565168
Email: info@metrode.com
Website: www.metrode.com

COBSTEL 6 (ECoCr-A)

PRODUCT DESCRIPTION

MMA electrode with rutile type flux made on special cobalt alloy core wire. Electrode coating is designed to give sound porosity-free deposits coupled with smooth operation and low dilution. Recovery is about 110% with respect to core wire, 65% with respect to whole electrode.

SPECIFICATIONS

AWS A5.13	ECoCr-A
BS EN 14700	E Co2 (Nearest classification)

ASME IX QUALIFICATION

QW432 F-No 71

MATERIALS TO BE WELDED

Used for surfacing mild, low alloy and stainless steels; and also for nickel base alloys.
Can also be used for the repair of UNS R30006, Stellite 6 (Deloro Stellite).

APPLICATIONS

This is the most widely used cobalt base type and combines good abrasion resistance with resistance to corrosion, erosion and thermal shock. It also has excellent resistance to galling, sliding friction and compression at all temperatures.
It is used to surface **valves and valve seats, hot shear blades, punches and dies, ingot tong ends and equipment for handling hot steel**. Used for cat cracker **slide valves in petrochemical industry**. Also finds applications in a very wide range of industries including **steel, cement, marine and power generation.**

MICROSTRUCTURE

In the as-welded condition the microstructure consists of a cobalt based austenite with a number of carbides and other complex phases.

WELDING GUIDELINES

For smoothest operation DC+ve or AC should be used, but for minimum dilution DC-ve is preferable.
Preheat in the range 100-300°C or higher with slow cooling may be required to avoid the risk of cracking in multi-run deposits and/or highly restrained conditions.
Deposits are machinable with carbide tools and may be finished by grinding where necessary.

CHEMICAL COMPOSITION (WELD METAL WT %)

	C	Mn	Si	Cr	Ni	Mo	W	Fe	Co
min	0.7	--	--	25.0	--	--	3.0	--	bal
max	1.4	2.0	2.0	32.0	3.0	1.0	6.0	5.0	bal
typ	1.2	0.2	0.8	28	2	<0.5	4.5	3	60

ALL-WELD MECHANICAL PROPERTIES

Typical as-welded hardness :	Temperature, °C				
	+20	+400	+600	+800	+900
Vickers (HV)	350-440	320	280	230	200
Rockwell	35-45	32	28	22	-

Although the hardness reduces steadily with temperature oxidation resistance is good to in excess of 1000°C.

WELDING POSITIONS (ISO/ASME)

PA/1G PB/2F

OPERATING PARAMETERS, DC+/- VE OR AC (OCV: 50V MIN)

Diameter (mm)	2.5	3.2
min. A	70	90
max. A	115	155

PACKAGING DATA

Diameter (mm)	2.5	3.2
Length (mm)	300	350
kg/carton	13.5	13.8
Pieces/carton	594	333

STORAGE

3 hermetically sealed ring-pull metal tins per carton, with unlimited shelf life. Direct use from tin is satisfactory.
For electrodes that have been exposed:
Redry 150 – 250°C/1-2h to restore to as-packed condition. Maximum 350° C, 3 cycles, 10h total.
Storage: Recommended ambient storage conditions for opened tins (using plastic lid): < 60% RH, > 18°C.

FUME DATA

Fume composition, wt % typical:

Fe	Mn	Ni	Cr	Co	W	F	OES (mg/m³)
1	3	<1	11	18.5	1	9	0.5