ULTRAMET 316LCF

MMA (SMAW)

RUTILE MMA ELECTRODE FOR CRYOGENIC 316L APPLICATIONS

PRODUCT DESCRIPTION

MMA electrode – special rutile flux coated 316L electrode on high purity 304L core wire. Versatile downhand and positional capability, **Ultramet 316LCF** has a controlled composition and ferrite content designed for cryogenic service requiring >0.38mm lateral expansion at minus 130-196°C. Also suitable for unusual occasions when 316L is specified for service up to 550°C and corrosion conditions preclude the use of 316H.

Recovery is about 110% with respect to core wire, 65% with respect to the whole electrode.

CLASSIFICATIONS

AWS A5.4M	E316L-16
ISO 3581	(E 19 12 3 L R 3 2)

ASME IX QUALIFICATION

QW432	F-No 5
QW442	A-No 8

WELDING POSITIONS (ISO/ASME)



CHEMICAL COMPOSITION (WELD METAL WT %)

	C	Mn	Si	S	P	Cr	Ni	Mo*	Cu	FN
Min.	--	0.5	--	--	--	17.0	11.0	2.0	--	2
Max.	0.04	2.0	0.90	0.025	0.030	20.0	13.0	3.0	0.5	5
Typical	<0.03	1	0.6	0.01	0.02	18	12	2.2	<0.1	3

* Does not conform to DIN & which requires Mo 2.5 – 3.0%.

ALL-WELD MECHANICAL PROPERTIES

As welded		**Min.**	**Typical**
Tensile strength (MPa)		520	595
0.2% proof strength (MPa)		320	440
Elongation (%)	**4d**	30	43
	5d	25	39
Reduction of area %		--	48
Impact ISO*-V(J)	**+20°C**	--	70
	-100°C	--	50
	-196°C	--	30
Lateral expansion * (mm)	**-196°C**	0.38	0.40
Hardness	**HV**	--	230

* Batch tested for Charpy lateral expansion >0.38mm at –196°C

TYPICAL OPERATING PARAMETERS, DC +VE ONLY

Diameter (mm)	**2.5**	**3.2**	**4.0**	**5.0**
min. A	60	75	100	130
max. A	90	120	155	210

PACKAGING DATA

	Diameter (mm)	Length (mm)	Item number	No of pieces		Weight (kg)	
				can	box	can	box
METAL CAN	2.5	300	UM316LCF-25	CONSULT US			
	3.2	350	UM316LCF-32	123	369	4.5	13.5
	4.0	350	UM316LCF-40	CONSULT US			
	5.0	450	UM316LCF-50				

Redrying : 200 – 300°C/1-2h to restore to as-packed condition. Maximum 400° C, 3 cycles, 10h total.

FUME DATA (WT % TYPICAL)

Fe	Mn	Cr	Ni	Mo	Cu	F *	OES (mg/m³)
8	7	5	1	0.5	< 0.2	16	1

* F=28% for basic coated Ultramet B308LCF but this does not affect the OES

All information in this data sheet is accurate to the best of our knowledge at the time of printing. Please refer to www.specialalloys.eu for any udpated information.