

Product Information



Your Partner for
Future-oriented Solutions in Welding Technology



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LITTY GmbH
Specialist for Tungsten Electrodes

Tungsten Electrodes - Designation

Tungsten as the ideal electrode material for
WIG and plasma-welding

Electron emission facilitating additives for:

- Increasing operating life
- Improving arc ignition
- Stabilizing



Classification of tungsten electrodes - compositions

Short code	Oxide additive in %	Type	Identifying color
W	-	-	green
Lymox	1.80 – 2.20	Mixed oxide	pink
WC 20	1.80 – 2.20	CeO ₂	gray
WL 10	0.90 – 1.20	La ₂ O ₃	black
WL 15	1.40 – 1.60	La ₂ O ₃	gold
WL 20	1.90 – 2.10	La ₂ O ₃	blue
WZ 8	0.70 – 0.90	ZrO ₂	white
WT 10*	0.80 – 1.20	ThO ₂	yellow
WT 20*	1.70 – 2.20	ThO ₂	red
WT 30*	2.80 – 3.20	ThO ₂	violet
WT 40*	3.80 – 4.20	ThO ₂	orange

*Thorium oxide (ThO₂) is a radioactive element.

The basis for the composition is either EN 26 848, ISO 6848 or ANSI / AWS A5.12 / A5.12M-98.



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Tungsten Electrodes - Characteristics

Application of the different compositions

What composition, diameter, and welding voltage to choose from is dependent on the type and size of the base material being cut or welded each.



Ignitability, operating life, electrical capacity, and environmental compatibility

Electrode type	Ignitability	Operating life	electrical capacity	Environmental compatibility
W - green	F	E	E	A
Lymox [®] - pink	A	A	A	A
WC 20 - gray	B	B	B	A
WL 10 - black	D	B	C	A
WL 15 - gold	A	B	A	A
WL 20 - blue	A	A	B	A
WZ 8 - white	D	C	C	A
WT 10 - yellow*	D	D	D	C
WT 20 - red*	B	C	B	D
WT 40 - orange*	A	B	A	F

Annotation: A = very good/high
F = bad/low



Tungsten Electrodes - electrical capacity and Polarity

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Electrical capacity range depending on electrode diameter for direct and alternating current

If the amperage is too low the electrode will be underloaded, the arc moves around and is unstable, tungsten particles are ejected.

An overloaded electrode will melt and drops of Tungsten will fall into the welding seam.



electrical capacity range depending on electrode diameter for direct and alternating current

Electrode diameter	DC (A)				AC (A)			
	Electrode negative		Electrode positive		HF „unbalanced“		HF „balanced“	
	W pure	W+ oxide	W pure	W+ oxide	W pure	W+ oxide	W pure	W+ oxide
1,0	10-70	20-80	-	-	Up to 15	Up to 15	Up to 15	Up to 15
1,6	40-130	60-160	10-18	10-18	30-90	50-120	20-70	40-100
2,0	70-180	100-220	12-20	12-20	50-130	70-160	35-90	60-130
2,4	120-240	170-270	15-25	15-25	70-150	80-200	50-120	80-150
3,2	150-300	220-350	20-35	20-35	120-200	150-270	100-160	120-200
4,0	250-460	350-500	35-50	35-50	180-275	220-350	140-240	170-260
4,8	380-550	420-650	45-65	45-65	230-350	240-420	190-300	220-340
6,4	500-850	600-900	65-100	65-100	310-450	360-560	250-400	250-450



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Tungsten Electrodes - Operating Guidelines

Electrode type and polarity depending on
the welded material

- 1 = electric current type for best results
- 2 = electric current type for good results
- = not recommended or impossible



Electrode type and polarity depending on the welded material

Material	Electrode type	DC		AC
		Electrode neg.	Electrode pos.	
Aluminum (width<2.5mm)	WL15, W, WZ8, Lymox®	2	2	1
Aluminum (width>2.5mm)	WL15, W, WZ8, Lymox®	2	--	1
Aluminum alloys	WL15, W, WZ8, Lymox®	2	--	1
Magnesium	W, Lymox®	--	2	1
Magnesium alloys	W, Lymox®	--	2	1
Carbon steel	WL15,WC20, WT20, Lymox®	1	--	--
Stainless steels	WL15,WC20, WT20, Lymox®	1	--	--
Aluminum bronze	W, Lymox®	1	--	--
Silicon bronze	WL15,WC20, WT20, Lymox®	1	--	2
Nickel and alloys	W, Lymox®	2	--	1
Copper	WL15,WC20, WT20, Lymox®	1	--	--
Bronze	WL15,WC20, WT20, Lymox®	1	--	2
Titanium	WL15,WC20, WT20, Lymox®	1	--	2



Pink Lymox® Tungsten Electrode

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The radiation-free,
readily sharpened electrode
for instant use



The Tungsten Electrode of Superlatives

- Radiation-free through the combination of several rare earths (oxides), no disposal problems, no health hazard.
- Significantly noticeable increase of operating life and ignitability.
- 100% reproducible welding results through our highly qualified lengthwise centric beveling of 28°.
- Applicable for all WIG and plasma welding techniques, ideal for automated operation, universally applicable, even for aluminum.