UltraCore® STAINLESS FLUX-CORED WIRES

Downhand and All Position Stainless Flux-Cored Wires



PERFORMANCE PERFECTED™

UltraCore® stainless steel flux-cored, gas-shielded wires are preferred by welders for the polished appearance of the weld deposits, ease of welding out-of-position and smooth wire feeding.

IMPROVED WELDABILITY

- Polished weld bead appearance
- Easy out-of-position welding
- Smooth arc with minimal spatter
- Wide operating range

UPGRADED PACKAGING

- Precision layer wound
  - Steady spool payoff
  - Consistent wire feeding
- Vacuum-sealed foil bag
  - Moisture-resistant package
- Package size increased from 25 lb spool to 33 lb spool
  - Less changover
  - More arc time

Processes
FCAW-G

Positions
All

Shielding Gas
100% CO_2
75% Ar / 25% CO_2

AWS Classifications
Dependent on Electrode

Product Names
UltraCore 308L
UltraCore 309L
UltraCore 316L
UltraCore 308L P
UltraCore 309L P
UltraCore 316L P

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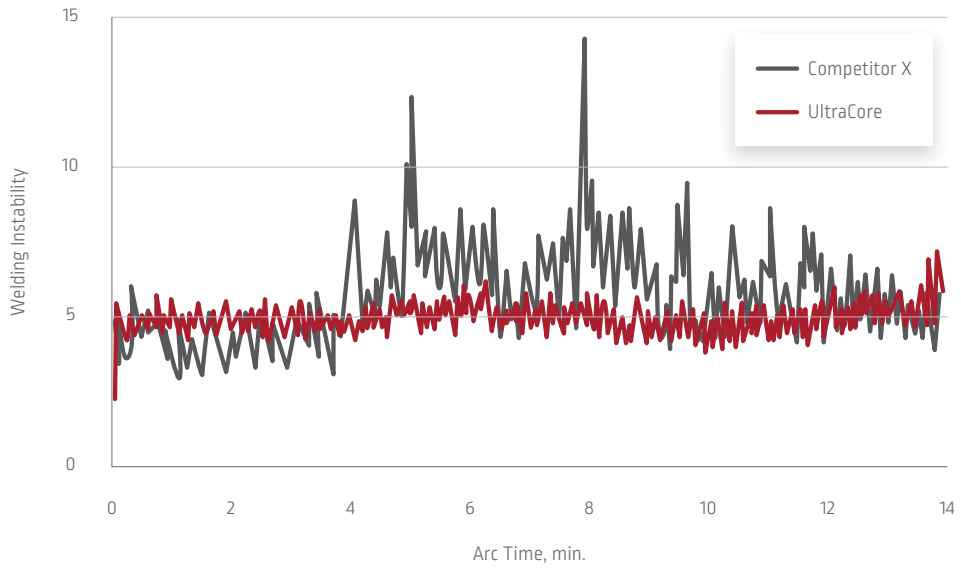
ULTRACORE STABILITY THROUGHOUT THE WELD CYCLE

UltraCore wires exhibit significantly greater arc stability over the length of the weld.



MINIMAL DISCOLORATION

- Welds below are in the 3F (Vertical Up) position, with no post weld cleaning (as welded)
- UltraCore weld beads have minimal discoloration compared to the competition



UltraCore 309L P



Competitor X

DIAMETERS / PACKAGING

Product Name	Diameter in (mm)	Package 33 lb (14.9 kg) Plastic Spool (Vacuum Sealed Foil Bag)
ULTRACORE 308L	0.045 (1.1)	ED037118
	1/16 (1.6)	ED037119
ULTRACORE 308L P	0.045 (1.1)	ED037125
	1/16 (1.6)	ED037126
ULTRACORE 309L	0.045 (1.1)	ED037120
	1/16 (1.6)	ED037121
ULTRACORE 309L P	0.045 (1.1)	ED037127
	1/16 (1.6)	ED037128
ULTRACORE 316L	0.045 (1.1)	ED037122
	1/16 (1.6)	ED037123
ULTRACORE 316L P	0.045 (1.1)	ED037129
	1/16 (1.6)	ED037130

MECHANICAL PROPERTIES[1] *–As Required per AWS A5.22/A5.22M: 2012*

Product Name	Requirements / Typical Results	Yield Strength[2] MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Ferrite Number
ULTRACORE 308L	**Requirements** - AWS E308LT0-1, E308LT0-4 AWS E308T0-1, E308T0-4	Not Specified Not Specified	520 (75) min 550 (80) min	35 min	Not Specified Not Specified
	Typical Results[3] - As-Welded with 100% CO_2 As-Welded with 75% Ar/25% CO_2	386 (56) 393 (57)	566 (82) 572 (83)	40 39	7-11 8-12
ULTRACORE 308L P	**Requirements** - AWS E308LT1-1, E308LT1-4 AWS E308T1-1, E308T1-4	Not Specified Not Specified	520 (75) min 550 (80) min	35 min	Not Specified Not Specified
	Typical Results[3] - As-Welded with 100% CO_2 As-Welded with 75% Ar/25% CO_2	386 (56) 393 (57)	566 (82) 572 (83)	40 39	7-11 8-12
ULTRACORE 309L	**Requirements** - AWS E309LT0-1, E309LT0-4 AWS E309T0-1, E309T0-4	Not Specified Not Specified	520 (75) min 550 (80) min	30 min	Not Specified Not Specified
	Typical Results[3] - As-Welded with 100% CO_2 As-Welded with 75% Ar/25% CO_2	434 (63) 450 (65)	565 (82) 593 (86)	33 33	* *
ULTRACORE 309L P	**Requirements** - AWS E309LT1-1, E309LT1-4 AWS E309T1-1, E309T1-4	Not Specified Not Specified	520 (75) min 550 (80) min	30 min	Not Specified Not Specified
	Typical Results[3] - As-Welded with 100% CO_2 As-Welded with 75% Ar/25% CO_2	434 (63) 450 (65)	565 (82) 593 (86)	33 33	* *
ULTRACORE 316L	**Requirements** - AWS E316LT0-1, E316LT0-4 AWS E316T0-1, E316T0-4	Not Specified Not Specified	520 (75) min 550 (80) min	30 min	Not Specified Not Specified
	Typical Results[3] - As-Welded with 100% CO_2 As-Welded with 75% Ar/25% CO_2	414 (60) 421 (65)	552 (80) 565 (82)	34 34	6-8 8-11
ULTRACORE 316L P	**Requirements** - AWS E316LT1-1, E316LT1-4 AWS E316T1-1, E316T1-4	Not Specified Not Specified	520 (75) min 550 (80) min	30 min	Not Specified Not Specified
	Typical Results[3] - As-Welded with 100% CO_2 As-Welded with 75% Ar/25% CO_2	414 (60) 421 (65)	552 (80) 565 (82)	34 34	6-8 8-11

[1] Typical all weld metal, DC+.

[2] Measured with 0.2% offset.

[3] See test results disclaimer

DEPOSIT COMPOSITION[1] — *As Required per AWS A5.22/A5.22M:2012*

Product Name	Requirements / Typical Results	%C[4]	%Mn	%Si	%S	%P
ULTRACORE 308L	**Requirements** - AWS E308LT0-1 & E308LT0-4	0.04 max	0.5-2.5	1.0 max	0.03 max	0.04 max
	Typical Results[3] - As-Welded with 100% CO_2	≤ 0.03	1.2-1.3	0.6-0.7	≤ 0.01	≤ 0.02
	As-Welded with 75% Ar/25% CO_2	≤ 0.03	1.4-1.5	0.7-0.8	≤ 0.01	≤ 0.02
		%Ni	**%Cr**	**%Mo**	**%Cu**	**%Bi**
	Requirements - AWS E308LT0-1 & E308LT0-4	9.0-11.0	18.0-21.0	0.75 max	0.75 max	-
	Typical Results[3] -As-Welded with 100% CO_2	9.5-9.9	18.0-18.6	≤ 0.20	≤ 0.25	0.01-0.02
	As-Welded with 75% Ar/25% CO_2	9.7-9.9	18.5-19.0	≤ 0.20	≤ 0.25	0.01-0.02
ULTRACORE 308L P		**%C[4]**	**%Mn**	**%Si**	**%S**	**%P**
	Requirements - AWS E308LT1-1 & E308LT1-4	0.04 max	0.5-2.5	1.0 max	0.03 max	0.04 max
	Typical Results[3] - As-Welded with 100% CO_2	≤ 0.03	1.2-1.3	0.6-0.7	≤ 0.01	≤ 0.02
	As-Welded with 75% Ar/25% CO_2	≤ 0.03	1.4-1.5	0.7-0.8	≤ 0.01	≤ 0.02
		%Ni	**%Cr**	**%Mo**	**%Cu**	**%Bi**
	Requirements - AWS E308LT1-1 & E308LT1-4	9.0-11.0	18.0-21.0	0.75 max	0.75 max	-
	Typical Results[3] -As-Welded with 100% CO_2	9.5-9.9	18.0-18.6	≤ 0.20	≤ 0.25	0.01-0.02
	As-Welded with 75% Ar/25% CO_2	9.7-9.9	18.5-19.0	≤ 0.20	≤ 0.25	0.01-0.02
ULTRACORE 309L		**%C[4]**	**%Mn**	**%Si**	**%S**	**%P**
	Requirements - AWS E309LT0-1 & E309LT0-4	0.04 max	0.5-2.5	1.0 max	0.03 max	0.04 max
	Typical Results[3] - As-Welded with 100% CO_2	≤0.03	1.0	0.8	≤ 0.01	≤ 0.02
	As-Welded with 75% Ar/25% CO_2	≤0.03	1.0	0.9	≤ 0.01	≤ 0.02
		%Ni	**%Cr**	**%Mo**	**%Cu**	**%Bi**
	Requirements - AWS E309LT0-1 & E309LT0-4	12.0-14.0	22.0-25.0	0.75 max	0.75 max	-
	Typical Results[3] -As-Welded with 100% CO_2	12.8-13.2	23.6-23.9	≤ 0.20	≤ 0.25	0.01-0.02
	As-Welded with 75% Ar/25% CO_2	12.9-13.3	23.9-24.1	≤ 0.20	≤ 0.25	0.01-0.02
ULTRACORE 309L P		**%C[4]**	**%Mn**	**%Si**	**%S**	**%P**
	Requirements - AWS E309LT1-1 & E309LT1-4	0.04 max	0.5-2.5	1.0 max	0.03 max	0.04 max
	Typical Results[3] - As-Welded with 100% CO_2	≤0.03	1.0	0.8	≤ 0.01	≤ 0.02
	As-Welded with 75% Ar/25% CO_2	≤0.03	1.0	0.9	≤ 0.01	≤ 0.02
		%Ni	**%Cr**	**%Mo**	**%Cu**	**%Bi**
	Requirements - AWS E309LT1-1 & E309LT1-4	12.0-14.0	22.0-25.0	0.75 max	0.75 max	-
	Typical Results[3] -As-Welded with 100% CO_2	12.8-13.2	23.6-23.9	≤ 0.20	≤ 0.25	0.01-0.02
	As-Welded with 75% Ar/25% CO_2	12.9-13.3	23.9-24.1	≤ 0.20	≤ 0.25	0.01-0.02
ULTRACORE 316L		**%C[4]**	**%Mn**	**%Si**	**%S**	**%P**
	Requirements - AWS E316LT0-1 & E316LT0-4	0.04 max	0.5-2.5	1.0 max	0.03 max	0.04 max
	Typical Results[3] - As-Welded with 100% CO_2	≤ 0.03	1.0	0.6	≤ 0.01	≤ 0.02
	As-Welded with 75% Ar/25% CO_2	≤ 0.03	1.1	0.7	≤ 0.01	≤ 0.02
		%Ni	**%Cr**	**%Mo**	**%Cu**	**%Bi**
	Requirements - AWS E316LT0-1 & E316LT0-4	11.0-14.0	17.0-20.0	2.0-3.0	0.75 max	-
	Typical Results[3] -As-Welded with 100% CO_2	12.3-12.5	18.0-18.5	2.5-2.8	≤ 0.25	0.02-0.03
	As-Welded with 75% Ar/25% CO_2	12.3-12.5	18.5-19.0	2.5-2.8	≤ 0.25	0.02-0.03
ULTRACORE 316L P		**%C[4]**	**%Mn**	**%Si**	**%S**	**%P**
	Requirements - AWS E316LT1-1 & E316LT1-4	0.04 max	0.5-2.5	1.0 max	0.03 max	0.04 max
	Typical Results[3] - As-Welded with 100% CO_2	≤ 0.03	1.0	0.6	≤ 0.01	≤ 0.02
	As-Welded with 75% Ar/25% CO_2	≤ 0.03	1.1	0.7	≤ 0.01	≤ 0.02
		%Ni	**%Cr**	**%Mo**	**%Cu**	**%Bi**
	Requirements - AWS E316LT1-1 & E316LT1-4	11.0-14.0	17.0-20.0	2.0-3.0	0.75 max	-
	Typical Results[3] -As-Welded with 100% CO_2	12.3-12.5	18.0-18.5	2.5-2.8	≤ 0.25	0.02-0.03
	As-Welded with 75% Ar/25% CO_2	12.3-12.5	18.5-19.0	2.5-2.8	≤ 0.25	0.02-0.03

[1] Typical all weld metal, DC+.

[3] See test results disclaimer

[4] Requirement for E316T1-1 and E316T1-4 is 0.08% max. carbon.

TYPICAL OPERATING PROCEDURES

Product Name	Diameter, Polarity Shielding Gas	CTWD[5] mm (in)	Wire Feed Speed Voltage m/min (in/min)	Approx. Current (Amps)	Melt-Off Rate Deposition Rate Efficiency m/ (%)	Melt-Off Rate kg/hr (lb/hr)	Deposition Rate kg/hr (lb/hr)	Efficiency (%)
ULTRACORE 308L	0.045 in (1.1 mm), DC+ 75% Ar/25% CO_2	19 (3/4)	5.3 (210)	22-24	140	2.1 (4.6)	1.8 (4.0)	86
		19 (3/4)	8.9 (350)	24-26	185	3.6 (8.0)	3.1 (6.9)	86
		19 (3/4)	11.4 (450)	26-28	225	4.7 (10.4)	4.0 (8.8)	84
	1/16 in (1.6 mm), DC+ 75% Ar/25% CO_2	25 (1)	3.6 (140)	25-29	155	2.8 (6.2)	2.6 (5.2)	89.6
		25 (1)	6.4 (250)	27-31	250	5.0 (11.0)	4.2 (9.2)	89.3
		25 (1)	8.1 (320)	28-32	285	6.0 (13.2)	5.3 (11.7)	88.6
ULTRACORE 308L P	0.045 in (1.1 mm), DC+ 75% Ar/25% CO_2	19 (3/4)	5.1 (200)	22-24	130	2.0 (4.3)	1.5 (3.3)	76.7
		19 (3/4)	8.4 (330)	24-26	180	3.3 (7.2)	2.6 (5.7)	79.1
		19 (3/4)	11.2 (440)	26-28	220	4.3 (9.5)	3.5 (7.8)	82.1
	1/16 in (1.6 mm), DC+ 75% Ar/25% CO_2	25 (1)	3.6 (140)	24-26	160	2.5 (5.6)	2.2 (4.8)	85.7
		25 (1)	5.0 (195)	24-26	200	3.5 (7.8)	3.0 (6.7)	85.8
		25 (1)	6.4 (250)	25-27	220	4.6 (10.1)	3.9 (8.6)	85.6
ULTRACORE 309L	0.045 in (1.1 mm), DC+ 75% Ar/25% CO_2	19 (3/4)	5.3 (210)	22-24	140	2.1 (4.6)	1.9 (4.2)	91.3
		19 (3/4)	8.9 (350)	24-26	185	3.9 (8.7)	3.4 (7.5)	86.2
		19 (3/4)	11.4 (450)	26-28	225	4.7 (10.3)	4.4 (9.6)	93.2
	1/16 in (1.6 mm), DC+ 75% Ar/25% CO_2	25 (1)	3.6 (140)	24-25	165	2.7 (5.9)	2.3 (5.0)	84.7
		25 (1)	6.4 (250)	25-27	235	4.8 (10.6)	4.2 (9.3)	87.7
		25 (1)	8.1 (320)	26-28	290	6.1 (13.5)	5.4 (12)	88.8
ULTRACORE 309L P	0.045 in (1.1 mm), DC+ 75% Ar/25% CO_2	19 (3/4)	5.1 (200)	22-24	130	2.1 (4.6)	1.7 (3.8)	82.6
		19 (3/4)	8.4 (330)	24-26	180	3.4 (7.4)	2.8 (6.1)	82.4
		19 (3/4)	11.2 (440)	26-28	220	4.5 (10)	3.7 (8.1)	81
	1/16 in (1.6 mm), DC+ 75% Ar/25% CO_2	25 (1)	3.6 (140)	22-24	150	2.5 (5.6)	2.2 (4.8)	85.7
		25 (1)	5.0 (195)	24-26	190	3.6 (7.9)	3.0 (6.7)	84.8
		25 (1)	7.1 (280)	25-27	220	5.2 (11.4)	4.4 (9.6)	84.2
ULTRACORE 316L	0.045 in (1.1 mm), DC+ 75% Ar/25% CO_2	19 (3/4)	5.3 (210)	22-24	130	2.2 (4.8)	1.9 (4.1)	85.4
		19 (3/4)	8.9 (350)	24-26	175	3.7 (8.2)	3.2 (7)	85.3
		19 (3/4)	11.4 (450)	26-28	210	4.6 (10.1)	4.1 (9)	89.1
	1/16 in (1.6 mm), DC+ 75% Ar/25% CO_2	25 (1)	3.6 (140)	23-25	155	2.7 (5.9)	2.3 (5.0)	84.7
		25 (1)	6.4 (250)	25-27	230	4.8 (10.6)	4.3 (9.4)	88.6
		25 (1)	8.1 (320)	26-28	280	6.2 (13.6)	5.5 (12.1)	88.9
ULTRACORE 316L P	0.045 in (1.1 mm), DC+ 75% Ar/25% CO_2	19 (3/4)	5.1 (200)	22-24	130	2.0 (4.5)	1.5 (3.3)	73.3
		19 (3/4)	8.4 (330)	24-26	180	3.3 (7.3)	2.6 (5.8)	79.4
		19 (3/4)	11.2 (440)	26-28	220	4.4 (9.7)	3.6 (7.9)	81.4
	1/16 in (1.6 mm), DC+ 75% Ar/25% CO_2	25 (1)	3.6 (140)	24-26	170	2.6 (5.7)	2.2 (4.8)	84.2
		25 (1)	5.0 (195)	24-26	200	3.6 (7.9)	3.0 (6.7)	84.8
		25 (1)	7.1 (280)	25-27	220	5.2 (11.4)	4.4 (9.7)	85

[5] To estimate ESO, subtract 1/4 in (6.0 mm) from CTWD.

NOTE: Increase Voltage by 2V when using 100% CO_2

FUMES AND GASES CAN BE HAZARDOUS TO YOUR HEALTH

· Fumes from the normal use of this product contain significant quantities of potentially hazardous compounds. See consumable product label/insert.

· Keep your head out of the fumes.

· Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area.

· An approved respirator should be used unless exposure assessments are below applicable exposure limits.

TEST RESULTS

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.

For best welding results with Lincoln Electric® equipment, always use Lincoln Electric consumables. Visit www.lincolnelectric.com for more details.

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company® is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

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