

# Lincore® 33

## Build-Up

### Key Features

- ▶ Delivers tough machinable deposits for build-up or final overlay intended for metal-to-metal wear
- ▶ Use for build-up of steel mill parts such as rougher couplings
- ▶ Build-up deposit on carbon steel and low alloy steel base metals
- ▶ It is ideal for rebuilding worn parts to near final dimensions before applying final hardfacing layers which are more wear resistant
- ▶ Unlimited layers

### Typical Applications

- ▶ Tractor rolls and idlers
- ▶ Mill and crusher hammers
- ▶ Shovel parts
- ▶ Dredge pumps
- ▶ Mine car wheels

### Welding Positions

Flat &amp; Horizontal

### DIAMETERS / PACKAGING

Diameter in (mm)	14 lb (6.4 kg) Coil 56 lb (25.4 kg) Master Carton	25 lb (11.3 kg) Steel Spool	50 lb (22.7 kg) Coil
0.045 (1.2)	ED011237	ED031116	ED011238 ED011240
1/16 (1.6)		ED031117	
5/64 (2.0)		ED031118	
7/64 (2.8)			

### MECHANICAL PROPERTIES<sup>(1)</sup>

No. of Layers	As-Welded	Rockwell Hardness (R <sub>c</sub> )	
		Work-Hardened	Flame-Hardened / Water Quenched
1	14-30	28-34	—
2	26-32	32-36	38-42
3	25-34	35-38	—

### DEPOSIT COMPOSITION<sup>(1)</sup>

	%C	%Mn	%Si	%Al	%Cr	%S	%P
3 Layers (0.045 in & 1/16 in)	0.11-0.18	1.8-2.1	0.50-0.75	1.6-1.9	1.2-1.4	0.002-0.005	0.004-0.012
3 Layers (5/64 in & 7/64 in)	0.13-0.15	2.1-2.3	0.45-0.60	1.45-1.70	1.1-1.4	0.002-0.005	0.004-0.008

### TYPICAL OPERATING PROCEDURES

Diameter, Polarity ESO - in (mm)	Wire Feed Speed m/min (in/min)	Voltage (Volts)	Approx. Current (Amps)	Deposition Rate kg/hr (lb/hr)
0.045 in (1.1 mm), DC+ 1-3/4 (45)	5.1 (200)	25	80	1.5 (3.3)
	8.9 (350)	28	130	2.7 (6.0)
	12.7 (500)	31	150	3.9 (8.7)
1/16 in (1.6 mm), DC+ 1-3/4 (45)	3.8 (150)	26	125	2.1 (4.6)
	6.4 (250)	29	180	3.5 (7.8)
	8.9 (350)	32	225	5.0 (11.1)
5/64 in (2.0 mm), DC+ 2 (50)	3.2 (125)	23	200	3.1 (6.9)
	5.1 (200)	27	290	4.9 (10.8)
	6.4 (250)	29	325	6.1 (21.1)
7/64 in (2.8 mm), DC+ 2-1/2 (64)	3.4 (135)	26	360	5.7 (12.6)
	4.4 (175)	28	420	7.3 (16.0)
	6.0 (235)	30	470	9.6 (21.1)

**IMPORTANT: SPECIAL VENTILATION AND/OR EXHAUST REQUIRED**

Fumes from the normal use of some welding products can contain significant quantities of components - such as chromium and manganese - which can lower the 5.0 mg/m<sup>3</sup> maximum exposure guideline for general welding fume. BEFORE USE, READ AND UNDERSTAND THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THIS PRODUCT AND SPECIFIC INFORMATION PRINTED ON THE PRODUCT CONTAINER.

<sup>(1)</sup> Composition and properties depend upon dilution. Single layer deposit properties depend upon base metal and/or build-up material.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at [www.lincolnelectric.com](http://www.lincolnelectric.com)

### 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.

### CUSTOMER ASSISTANCE POLICY

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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