

ER630 (17-4PH)

Stainless Steel

SPECIFICATION/CLASSIFICATION: AWS A5.9 & ASME SFA-5.9 / ER630, AMS 5825

Description/Application:

Weldcote Metals 17/4 PH (630) is a precipitation hardening martensitic stainless steel with Cu and Nb/Cb additions. It is designed to weld ASTM A564 Type 630 (17/4) and other similar PH stainless steels. This grade provides high strength, hardness and corrosion resistance. Weldcote 630 is commonly used in the food industry, pulp and paper industry, as well as aerospace and offshore platforms, etc. STAINLESS STEEL PASSIVATION TO RESTORE CORROSION RESISTANCE MAY ALSO BE HELPFUL

Typical Filler Wire/Rod Chemistry in weight percent:

	C	Mn	Si	P	S	Cu	Ni	Cr	Mo	Nb/Cb
AWS ¹	0.05	0.25-0.75	0.75	0.03	0.03	3.25-4.00	4.50-5.00	16.00-16.75	0.75	0.15-0.30
Result	0.03	0.53	0.44	<0.01	<0.01	3.58	4.82	16.50	0.21	0.23

AWS¹ Chemical Composition Requirements Range with single value are maximum.

Typical Mechanical Properties of Weld Metal: non -AWS Requirements

Tensile Strength (psi) 135-150,000 Yield Strength (psi) 105-135,000
Elongation % in 2" 10%
Post weld heat treated and hardened

RECOMMENDED WELDING PARAMETERS: ER630

GMAW (MIG) Parameters (DC Reverse Polarity) Electrode Positive Short Circuit Transfer

Wire Diameter	Amps	Volts	30%He+7.5%Argon+ 2.5% CO ₂	Wire Feed (ipm)
.023	30-80	14-18	25	160-385
.030	55-125	17-22	25	145-365
.035	70-160	18-23	25-30	165-320
.045	100-210	18-23	25-30	105-260
.035	180-275	25-30	(Spray) 25-30 (98%Ar/2%O ₂)	385-475
.045	200-365	26-31	↓ 30-35 ↓	200-345
1/16"	220-345	26-33	30-40	115-195

GTAW (TIG) Parameters (DCSP) 2% Thoriated Tungsten Electrode negative⁽³⁾

Filler Wire Size	Amps	Volts	Gas Cup	Argon (cfh)
.045"	60-80	9-11	3/8	20
1/16"	95-150	10-13	3/8	20
3/32"	150-250	15-18	7/16	25
1/8"	185-350	17-20	1/2	25

842 Oak Grove Rd.
Kings Mountain, NC
28086
704-739-4115
Fax 704-739-6116

5994 Griggs Rd.
Houston, TX
77023

40 Messina Dr.
Braintree, MA
02184
781-849-1200
Fax 781-849-1270

258 S. Kitley Ave.
Indianapolis, IN
46219

1930 Carlos Ave.
Ontario, CA
91761
909-923-2167
Fax 909-923-7016

www.weldcotemetals.com

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Weldcote Metals believes this data to be accurate and to reflect qualified opinion regarding research.

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All parameters are suggested as basic guidelines and will vary depending on joint design, number of passes, and other factors.