STICK WELDING AMPERAGE CHART

Amps for ten common stick rods at every size from 1/16 to 5/16 in, with the rod size for your plate and how to hook up the leads.

Rod	1/16 in 1.6 mm	5/64 in 2.0 mm	3/32 in 2.4 mm	1/8 in 3.2 mm	5/32 in 4.0 mm	3/16 in 4.8 mm	7/32 in 5.6 mm	1/4 in 6.4 mm	5/16 in 7.9 mm
E6010 / E6011	-	-	40-80	75-125	110-170	140-215	170-250	210-320	275-425
E6012	20-40	25-60	35-85	80-140	110-190	140-240	200-320	250-400	300-500
E6013	20-40	25-60	45-90	80-130	105-180	150-230	210-300	250-350	320-430
E6020	-	-	-	100-150	130-190	175-250	225-310	275-375	340-450
E6027	-	-	-	125-185	160-240	210-300	250-350	300-420	375-475
E7014	-	-	80-125	110-160	150-210	200-275	260-340	330-415	390-500
E7015 / E7016	-	-	65-110	100-150	140-200	180-255	240-320	300-390	375-475
E7018 ESAB data sheet	-	-	70-110	90-160	130-220	200-300	250-350	300-400	-
E7018 shop chart	-	-	70-100	115-165	150-220	200-275	260-340	315-400	375-475
E7024 / E7028	-	-	100-145	140-190	180-250	230-305	275-365	335-430	400-525

Amps by rod diameter. Red columns are the three most common sizes. A dash means no value is listed for that size. AWS classifies rods but sets no amperage, so brands differ a little: the box for your rods has the final word.

WHERE IN THE RANGE?

Start in the middle
Then adjust by the sound and the bead.

Lower end
Vertical, overhead or thin plate. E6013 suits the lower half.

Upper end
Flat welds on thick plate.

ROD SIZE FOR YOUR PLATE

1/8–3/16 in plate (3–6 mm)	**3/32 in rod**
1/4–3/8 in plate (6–12 mm)	**1/8 in rod**
1/2–1 in plate (12–25 mm)	**5/32 in rod**

Thinner sheet: ESAB doesn't recommend stick; TIG suits it better.

HOOK UP THE LEADS

DCEP (reverse)
Electrode holder on +, ground clamp on −.

DCEN (straight)
Electrode holder on −, ground clamp on +.

AC
Either lead on either terminal.

Sources: amps from the shop chart in Randy Williams's guide to welding rod sticking on weldingtribe.com, checked cell by cell; the E7018 ESAB row from ESAB's Atom Arc 7018 data sheet. Rod size by plate thickness from ESAB, "Polarity in Stick Welding". Compiled by Welding Tribe, November 2026. Free to print for your shop or class.