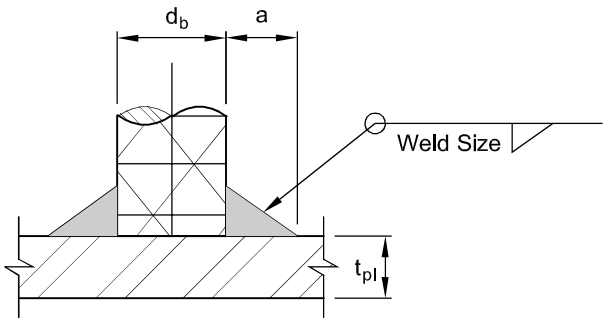
BAR PERPENDICULAR TO PLATE, WELDED ONE SIDE

$$\ell_w = \pi\left(d_b + \frac{a}{2}\right)$$

Plate $F_y = 36$ ksi

Plate area $= \pi(d_b + 2a)t_{pl}$



Bar Size	E70 Electrode		E80 Electrode[c]		E90 Electrode[c]	
	Weld size[a] (in.)	Min. plate thickness[b] (in.)	Weld size[a] (in.)	Min. plate thickness[b] (in.)	Weld size[a] (in.)	Min. plate thickness[b] $t_{p\ell}$ (in.)
Grade 40 Bar						
3	3/16	1/4	3/16	1/4	3/16	1/4
4	1/4	1/4	3/16	1/4	3/16	1/4
5	1/4	1/4	1/4	1/4	1/4	1/4
6	5/16	1/4	1/4	1/4	1/4	1/4
7	3/8	5/16	5/16	5/16	5/16	5/16
8	7/16	5/16	3/8	5/16	5/16	3/8
9	7/16	3/8	7/16	3/8	3/8	3/8
10	1/2	3/8	7/16	7/16	7/16	7/16
11	9/16	7/16	1/2	7/16	7/16	1/2
Grade 60 Bar						
3	1/4	1/4	3/16	1/4	3/16	1/4
4	5/16	1/4	1/4	1/4	1/4	1/4
5	3/8	1/4	5/16	1/4	5/16	5/16
6	7/16	5/16	3/8	5/16	3/8	5/16
7	1/2	3/8	7/16	3/8	3/8	3/8
8	9/16	3/8	1/2	7/16	7/16	7/16
9	5/8	7/16	9/16	1/2	1/2	1/2
10	11/16	1/2	5/8	1/2	9/16	9/16
11	3/4	9/16	11/16	9/16	5/8	5/8

a. A minimum of 3/16 in. weld size is suggested.
b. Theoretical thickness for shear stress on base metal = 0.9(0.6)(36) ksi. A more practical thickness might be taken as $\frac{1}{2}d_b$ as used with headed studs. A minimum of 1/4 in. plate thickness is suggested.
c. Check yield strength of base metal for compatibility with selected electrode.