

# Tubular Wires

Use the tables below to estimate the quantity of filler metal required for horizontal fillet welds, and square groove and V-groove butt joints. In cases where joint information differs from the tables, simply substitute your numbers in the following formula:

$$W = D(1-L)$$

Where:

**W** is the weight of the wire consumed

**D** is the weight of the steel deposited\*

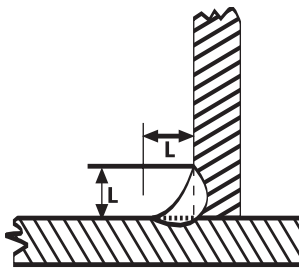
**L** is the total amount of wire losses

To determine D, calculate the area of the groove multiplied by the length; then multiply the result by 0.283, the volume-to-weight conversion factor for steel. If weld reinforcement is involved, be sure to add this amount into your calculation,

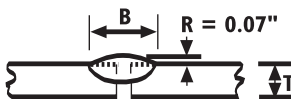
e.g.,  $D = [(Area\ of\ groove \times Length\ of\ groove \times 0.283) + Reinforcement\ (if\ applicable)]$

**Table data for square and V-groove joints are based on the efficiency of stick electrodes. To calculate for flux-cored wires, divide D by .80; for solid wire, divide D by .90.**

## HORIZONTAL FILLET WELD

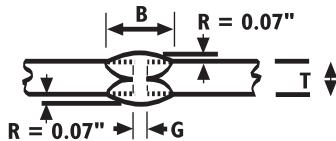


## SQUARE GROOVE BUTT JOINT ...welded one side

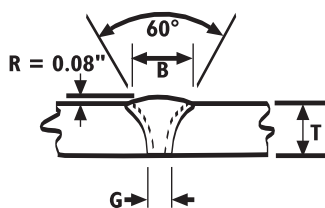


### ...welded two sides

If root of top weld is chipped or flame gouged and welded, add 0.07 lb. of steel deposited (equivalent to approx. 0.13 lb. of wires).



## "V" GROOVE BUTT JOINT



Size of fillet L (in inches)	Steel deposited per linear foot of weld (lbs.)		Pounds of wires required per linear foot of weld (approx.)	
	Stick* (SMAW)	Flux-Cored (FCAW)	Solid (GMAW)	
1/8	0.027	.049	.034	.03
3/16	0.063	.114	.079	.07
1/4	0.106	.193	.133	.118
5/16	0.166	.302	.208	.184
3/8	0.239	.434	.298	.265
1/2	0.425	.773	.531	.472
5/8	0.663	1.205	.829	.737
3/4	0.955	1.736	1.194	1.061
1	1.698	3.087	2.123	1.890

Joint Dimensions (in inches)			Steel deposited per linear foot of weld (lbs.)		Pounds of wires required per linear foot of weld (approx.)	
Metal Thick T	Bead Width B	Root Open G	Without reinforcement	With reinforcement (R**=0.08")	Without reinforcement	With reinforcement (R**=0.08")
3/16	3/8	0	—	0.088	—	0.16
		1/16	0.020	0.109	0.04	0.20
1/4	7/16	1/16	0.027	0.129	0.05	0.23
		3/32	0.039	0.143	0.07	0.26
5/16	1/2	1/16	0.033	0.153	0.06	0.27
		3/32	0.050	0.170	0.09	0.30
1/8	1/4	0	—	0.119	—	0.21
		1/32	0.013	0.132	0.03	0.24
3/16	3/8	1/32	0.020	0.199	0.04	0.36
		1/16	0.040	0.218	0.07	0.39
1/4	7/16	1/16	0.053	0.261	0.10	0.47
		3/32	0.080	0.288	0.14	0.53

Joint Dimensions (in inches)			Steel deposited per linear foot of weld (lbs.)		Pounds of wires required per linear foot of weld (approx.)	
Metal Thick T	Bead Width B	Root Open G	Without reinforcement	With reinforcement (R**=0.08")	Without reinforcement	With reinforcement (R**=0.08")
1/4	0.207	1/16	0.085	0.143	0.15	0.25
5/16	0.311	3/32	0.173	0.258	0.31	0.46
3/8	0.414	1/8	0.282	.0394	0.50	0.70
1/2	0.558	1/8	0.489	0.641	0.87	1.15
5/8	0.702	1/8	0.753	0.942	1.35	1.68
3/4	0.847	1/8	1.088	1.320	1.94	2.35
1	1.138	1/8	1.930	2.240	3.45	4.00

\*Includes scrap end and spatter loss. \*\*R=Height of reinforcement.