



FILLET AND FULL PENETRATION WELD STRENGTHS TO BS449 **(THE ALLOWABLE STRESS METHOD ie. UNFACTORED APPLIED LOADS)**

STRENGTH OF FILLET WELDS **ALLOWABLE LOADS WITH ELECTRODES TO BS639**

Leg Length	Throat Thickness	GRADE 43 STEEL	GRADE 50 STEEL
		Load at 115 N/mm ²	Load at 160 N/mm ²
mm	mm	kN/mm	kN/mm
3	2.1	0.24	0.34
4	2.8	0.32	0.45
5	3.5	0.40	0.56
6	4.2	0.48	0.67
8	5.6	0.64	0.90
10	7.0	0.80	1.12
12	8.4	0.97	1.34
15	10.5	1.21	1.68
18	12.6	1.45	2.02
20	14.0	1.61	2.24
22	15.4	1.77	2.46
25	17.5	2.01	2.80

STRENGTH OF FULL PENETRATION BUTT WELDS **ALLOWABLE LOADS WITH ELECTRODES TO BS639**

Thickness	GRADE 43 STEEL		GRADE 50 STEEL	
	Shear at 100 N/mm ²	Tension or Compression at 155 N/mm ²	Shear at 140 N/mm ²	Tension or Compression at 215 N/mm ²
mm	kN/mm	kN/mm	kN/mm	kN/mm
6	0.60	0.93	0.84	1.29
8	0.80	1.24	1.12	1.72
10	1.00	1.55	1.40	2.15
12	1.20	1.86	1.68	2.58
15	1.50	2.33	2.10	3.23
18	1.80	2.79	2.52	3.87
20	2.00	3.10	2.80	4.30
22	2.20	3.41	3.08	4.73
25	2.50	3.88	3.50	5.38
28	2.80	4.34	3.92	6.02
30	3.00	4.65	4.20	6.45
35	3.50	5.43	4.90	7.53
40	4.00	6.20	5.60	8.60