

## Socket Weld Fitting Product Weight/Volume Chart

### Instructions for Use

1. The weights listed in this table are calculated based on the outer diameter and wall thickness specified in relevant standards such as ASME B16.11. The calculations appropriately account for the impact of material selection and manufacturing conditions on product weight (e.g., thickness compensation). Therefore, the weights provided represent approximate net weights per piece and are for reference only.

Pipe schedule numbers marked with "S" in the table indicate stainless steel pipe fitting weights; others represent carbon steel weights. When consulting stainless steel weights, note that wall thickness values for the same pipe schedule number may differ between carbon steel and stainless steel.

2. Weight calculation formula for 90° elbows:  $W = 9.685 \times 10^{-6}R(D^2 - d^2)$

Where: W - Weight of 90° elbow, kg;

R - Curvature radius of the elbow (structural dimension), mm;

D - Elbow outer diameter, mm;

d - Inner diameter of the elbow, mm.

The formula uses the density of carbon steel, 7.85 kg/dm<sup>3</sup>.

The weights of 45° and 180° elbows are calculated as half and twice the weight of a 90° elbow, respectively.

3. Steel pipe weight calculation formula:  $W = 0.02466T(D - T)$

Where: W - Weight per meter of steel pipe, kg/m;

T - Steel pipe wall thickness, mm;

D - Outer diameter of the steel pipe, mm.

The steel pipe weight formula uses the density of carbon steel, i.e., 7.85 kg/dm<sup>3</sup>. The weight of austenitic stainless steel pipes is 1.015 times the weight calculated by the above formula.

4. The volumes listed in this table represent the external contour volume of a single product and account for space occupied during packaging. The approximate volumes shown are indicative of the packaging space required per unit for reference purposes. When using these values, consider factors such as volume calculations for nested packaging and whether small product volumes need to be factored in.

## SW 90° ELBOW

Nominal Size		Approximate weight kg			Approximate volume m <sup>3</sup>		
DN	NPS	SCH80/3000	SCH160/6000	XXS/9000	SCH80/3000	SCH160/6000	XXS/9000
6	1/8	0.09	0.15	-	0.018*10 <sup>-3</sup>	0.027*10 <sup>-3</sup>	-
8	1/4	0.09	0.15	-	0.027*10 <sup>-3</sup>	0.042*10 <sup>-3</sup>	-
10	3/8	0.12	0.32	-	0.042*10 <sup>-3</sup>	0.068*10 <sup>-3</sup>	-
15	1/2	0.26	0.40	0.85	0.068*10 <sup>-3</sup>	0.120*10 <sup>-3</sup>	0.180*10 <sup>-3</sup>
20	3/4	0.35	0.65	1.48	0.120*10 <sup>-3</sup>	0.180*10 <sup>-3</sup>	0.310*10 <sup>-3</sup>
25	1	0.49	1.25	2.20	0.180*10 <sup>-3</sup>	0.310*10 <sup>-3</sup>	0.397*10 <sup>-3</sup>
32	1-1/4	0.85	1.40	2.90	0.310*10 <sup>-3</sup>	0.397*10 <sup>-3</sup>	0.745*10 <sup>-3</sup>
40	1-1/2	1.05	2.45	3.80	0.397*10 <sup>-3</sup>	0.745*10 <sup>-3</sup>	1.126*10 <sup>-3</sup>
50	2	1.75	2.76	6.35	0.745*10 <sup>-3</sup>	1.126*10 <sup>-3</sup>	1.724*10 <sup>-3</sup>
65	2-1/2	3.80	4.80	-	1.126*10 <sup>-3</sup>	1.724*10 <sup>-3</sup>	-
80	3	5.20	8.85	-	2.172*10 <sup>-3</sup>	2.523*10 <sup>-3</sup>	-
100	4	11	-	-	3.756*10 <sup>-3</sup>	-	-

## SW 45° ELBOW

Nominal Size		Approximate weight kg			Approximate volume m <sup>3</sup>		
DN	NPS	SCH80/3000	SCH160/6000	XXS/9000	SCH80/3000	SCH160/6000	XXS/9000
6	1/8	0.08	0.16	-	0.020*10 <sup>-3</sup>	0.033*10 <sup>-3</sup>	-
8	1/4	0.08	0.16	-	0.033*10 <sup>-3</sup>	0.049*10 <sup>-3</sup>	-
10	3/8	0.12	0.28	-	0.049*10 <sup>-3</sup>	0.075*10 <sup>-3</sup>	-
15	1/2	0.22	0.30	0.78	0.075*10 <sup>-3</sup>	0.150*10 <sup>-3</sup>	0.200*10 <sup>-3</sup>
20	3/4	0.28	0.59	1.25	0.150*10 <sup>-3</sup>	0.200*10 <sup>-3</sup>	0.385*10 <sup>-3</sup>
25	1	0.43	0.90	1.85	0.200*10 <sup>-3</sup>	0.385*10 <sup>-3</sup>	0.450*10 <sup>-3</sup>
32	1-1/4	0.65	1.15	2.62	0.385*10 <sup>-3</sup>	0.450*10 <sup>-3</sup>	0.830*10 <sup>-3</sup>
40	1-1/2	0.79	2.02	3.45	0.450*10 <sup>-3</sup>	0.830*10 <sup>-3</sup>	1.450*10 <sup>-3</sup>
50	2	1.25	2.30	5.80	0.830*10 <sup>-3</sup>	1.450*10 <sup>-3</sup>	2.550*10 <sup>-3</sup>
65	2-1/2	3.60	4.20	-	1.450*10 <sup>-3</sup>	2.450*10 <sup>-3</sup>	-
80	3	5.10	6.10	-	2.550*10 <sup>-3</sup>	4.150*10 <sup>-3</sup>	-
100	4	9.50	-	-	4.350*10 <sup>-3</sup>	-	-

## SW TEE

Nominal Size		Approximate weight kg			Approximate volume m <sup>3</sup>		
DN	NPS	SCH80/3000	SCH160/6000	XXS/9000	SCH80/3000	SCH160/6000	XXS/9000
6	1/8	0.13	0.22	-	0.032*10 <sup>-3</sup>	0.039*10 <sup>-3</sup>	-
8	1/4	0.13	0.22	-	0.039*10 <sup>-3</sup>	0.040*10 <sup>-3</sup>	-
10	3/8	0.16	0.45	-	0.040*10 <sup>-3</sup>	0.006*10 <sup>-3</sup>	-
15	1/2	0.35	0.55	1.15	0.060*10 <sup>-3</sup>	0.202*10 <sup>-3</sup>	0.301*10 <sup>-3</sup>
20	3/4	0.40	0.90	1.80	0.202*10 <sup>-3</sup>	0.301*10 <sup>-3</sup>	0.465*10 <sup>-3</sup>
25	1	0.66	1.46	2.25	0.301*10 <sup>-3</sup>	0.465*10 <sup>-3</sup>	0.659*10 <sup>-3</sup>
32	1-1/4	1.00	1.90	3.95	0.465*10 <sup>-3</sup>	0.659*10 <sup>-3</sup>	1.092*10 <sup>-3</sup>
40	1-1/2	1.40	3.40	4.87	0.659*10 <sup>-3</sup>	1.092*10 <sup>-3</sup>	1.523*10 <sup>-3</sup>
50	2	2.20	3.70	8.89	1.092*10 <sup>-3</sup>	1.523*10 <sup>-3</sup>	2.520*10 <sup>-3</sup>
65	2-1/2	4.00	7.20	-	1.523*10 <sup>-3</sup>	2.350*10 <sup>-3</sup>	-
80	3	6.15	10.7	-	2.480*10 <sup>-3</sup>	3.620*10 <sup>-3</sup>	-
100	4	14.3	-	-	3.980*10 <sup>-3</sup>	-	-

**Note:** The table lists approximate weights for equal tees. If reducer tees are forged using the same die as equal tees, their weight will be greater than that of equal tees.

## SW CROSS

Nominal Size		Approximate weight kg			Approximate volume m <sup>3</sup>		
DN	NPS	SCH80/3000	SCH160/6000	XXS/9000	SCH80/3000	SCH160/6000	XXS/9000
6	1/8	0.15	0.21	-	0.038*10 <sup>-3</sup>	0.047*10 <sup>-3</sup>	-
8	1/4	0.15	0.25	-	0.047*10 <sup>-3</sup>	0.049*10 <sup>-3</sup>	-
10	3/8	0.19	0.54	-	0.049*10 <sup>-3</sup>	0.140*10 <sup>-3</sup>	-
15	1/2	0.39	0.64	1.32	0.140*10 <sup>-3</sup>	0.252*10 <sup>-3</sup>	0.375*10 <sup>-3</sup>
20	3/4	0.47	1.09	2.25	0.252*10 <sup>-3</sup>	0.375*10 <sup>-3</sup>	0.565*10 <sup>-3</sup>
25	1	0.76	1.97	2.69	0.375*10 <sup>-3</sup>	0.565*10 <sup>-3</sup>	0.730*10 <sup>-3</sup>
32	1-1/4	1.19	2.34	4.38	0.565*10 <sup>-3</sup>	0.730*10 <sup>-3</sup>	1.295*10 <sup>-3</sup>
40	1-1/2	1.64	3.90	4.84	0.730*10 <sup>-3</sup>	1.295*10 <sup>-3</sup>	1.852*10 <sup>-3</sup>
50	2	2.59	4.25	10.5	1.295*10 <sup>-3</sup>	1.852*10 <sup>-3</sup>	2.750*10 <sup>-3</sup>
65	2-1/2	4.75	8.58	-	1.852*10 <sup>-3</sup>	2.750*10 <sup>-3</sup>	-
80	3	7.25	12.6	-	2.985*10 <sup>-3</sup>	4.560*10 <sup>-3</sup>	-
100	4	16.5	-	-	4.785*10 <sup>-3</sup>	-	-

**Note:** The table lists the approximate weight of equal crosses. If a reducer cross is forged using the equal cross die, its weight will be greater than that of the equal cross.

## SW COUPLING

Nominal Size		Approximate weight kg			Approximate volume m <sup>3</sup>		
DN	NPS	SCH80/3000	SCH160/6000	XXS/9000	SCH80/3000	SCH160/6000	XXS/9000
6	1/8	0.05	0.06	-	0.122*10 <sup>-3</sup>	0.129*10 <sup>-3</sup>	-
8	1/4	0.06	0.07	-	0.147*10 <sup>-3</sup>	0.162*10 <sup>-3</sup>	-
10	3/8	0.08	0.10	-	0.177*10 <sup>-3</sup>	0.187*10 <sup>-3</sup>	-
15	1/2	0.13	0.16	0.29	0.238*10 <sup>-3</sup>	0.269*10 <sup>-3</sup>	0.320*10 <sup>-3</sup>
20	3/4	0.20	0.28	0.47	0.316*10 <sup>-3</sup>	0.365*10 <sup>-3</sup>	0.425*10 <sup>-3</sup>
25	1	0.28	0.48	0.68	0.408*10 <sup>-3</sup>	0.468*10 <sup>-3</sup>	0.560*10 <sup>-3</sup>
32	1-1/4	0.48	0.65	1.08	0.497*10 <sup>-3</sup>	0.545*10 <sup>-3</sup>	0.652*10 <sup>-3</sup>
40	1-1/2	0.52	0.84	1.12	0.552*10 <sup>-3</sup>	0.661*10 <sup>-3</sup>	0.720*10 <sup>-3</sup>
50	2	0.95	1.65	1.95	0.904*10 <sup>-3</sup>	1.063*10 <sup>-3</sup>	1.210*10 <sup>-3</sup>
65	2-1/2	1.52	2.15	-	1.092*10 <sup>-3</sup>	1.255*10 <sup>-3</sup>	-
80	3	1.75	2.40	-	1.355*10 <sup>-3</sup>	1.470*10 <sup>-3</sup>	-
100	4	2.80	-	-	1.826*10 <sup>-3</sup>	-	-

**Note:** 1) The table lists approximate weights for coupling of the same diameter. Couplings of different diameters are generally slightly heavier than those of the same diameter.

2) Half couplings (including boss) are generally slightly heavier or comparable in weight to couplings of the same diameter. Refer to the above table for usage.

## SW CAP

Nominal Size		Approximate weight kg			Approximate volume m <sup>3</sup>		
DN	NPS	SCH80/3000	SCH160/6000	XXS/9000	SCH80/3000	SCH160/6000	XXS/9000
6	1/8	0.03	0.04	-	0.048*10 <sup>-3</sup>	0.046*10 <sup>-3</sup>	-
8	1/4	0.04	0.05	-	0.055*10 <sup>-3</sup>	0.058*10 <sup>-3</sup>	-
10	3/8	0.05	0.07	-	0.068*10 <sup>-3</sup>	0.069*10 <sup>-3</sup>	-
15	1/2	0.08	0.13	0.23	0.078*10 <sup>-3</sup>	0.087*10 <sup>-3</sup>	0.105*10 <sup>-3</sup>
20	3/4	0.15	0.22	0.35	0.119*10 <sup>-3</sup>	0.126*10 <sup>-3</sup>	0.155*10 <sup>-3</sup>
25	1	0.22	0.34	0.52	0.140*10 <sup>-3</sup>	0.160*10 <sup>-3</sup>	0.180*10 <sup>-3</sup>
32	1-1/4	0.35	0.47	0.71	0.172*10 <sup>-3</sup>	0.185*10 <sup>-3</sup>	0.214*10 <sup>-3</sup>
40	1-1/2	0.42	0.63	0.95	0.195*10 <sup>-3</sup>	0.210*10 <sup>-3</sup>	0.240*10 <sup>-3</sup>
50	2	0.72	1.14	1.55	0.290*10 <sup>-3</sup>	0.310*10 <sup>-3</sup>	0.335*10 <sup>-3</sup>
65	2-1/2	1.25	1.72	-	0.350*10 <sup>-3</sup>	0.370*10 <sup>-3</sup>	-
80	3	2.05	2.68	-	0.405*10 <sup>-3</sup>	0.430*10 <sup>-3</sup>	-
100	4	3.28	-	-	0.585*10 <sup>-3</sup>	-	-