

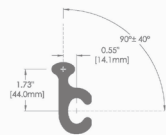
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-Pile

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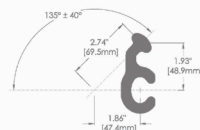
PilePro® Sheet Pile Connectors



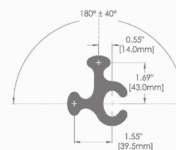
PZ 90



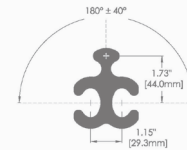
Colt



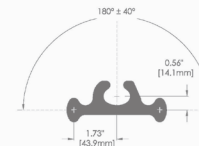
Cobra



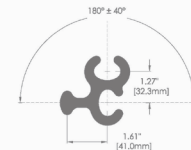
PZ Tee



Joker



Bullhead



PZT-S

Sheet Pile LLC is the owner and assignee of US 7,390,145, related to these connectors.



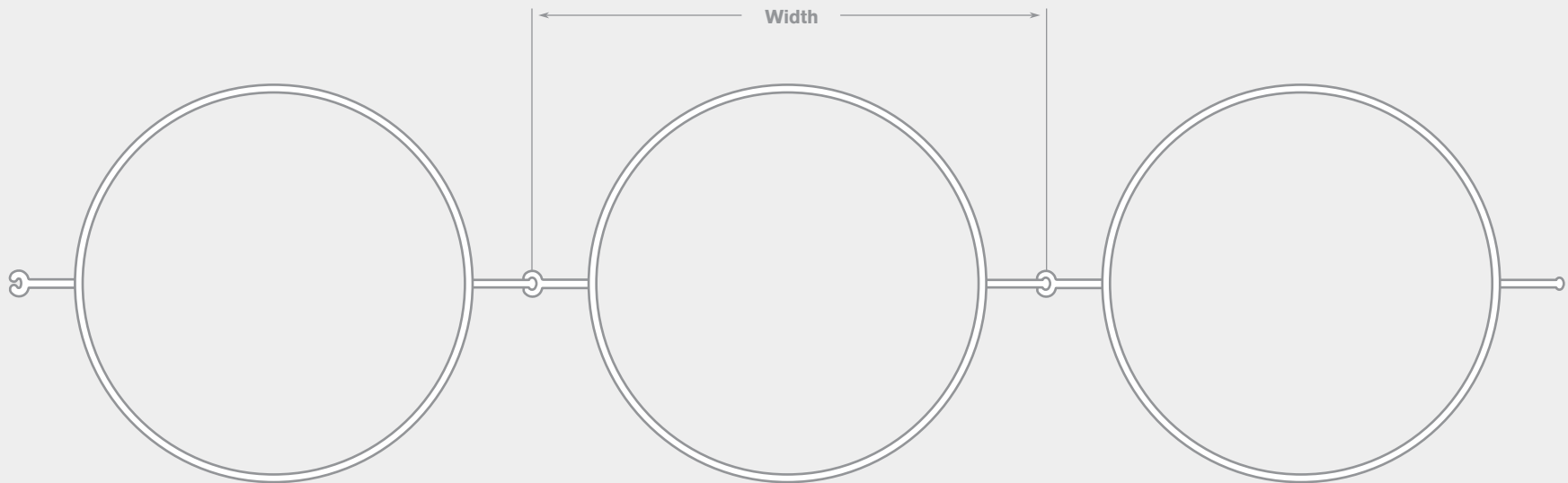
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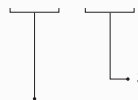


W: 254.5mm (10in)



SECTION NAME:

101 - 978



Section width in mm

Section modulus (elastic) in $\text{cm}^3/\text{m} \div 100$

These are examples from a large variety of possible O-Pile® solutions.

Please configure your own system on sheet-pile.com/opile

WOF® and WOM® are available in a wide range of sizes — 100% melted and manufactured in the USA and BABA 2021 compliant. Sheet Pile LLC is the owner and assignee of numerous patents and trademarks related to the O-Pile® system, including, but not limited to, United States Patent Nos. 8,088,469, 8,323,765, and 7,935,406.



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)		lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)				k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
24-763	O	20	0.375	44.5	30.45	35.35	40.26	0.472	10	445.1	185.5	222.5	241.1	191	231.3	258.2	408.9
		508	9.525	2393	148.65	172.6	196.56	12	254.5	60781.8	825	989.9	1072.4	849.5	1029	1148.6	1818.7
25-763	O	20	0.394	46.6	31.67	36.73	41.79	0.472	10	466	194.2	233	252.4	199.9	242.2	270.3	428
		508	10	2505.2	154.65	179.35	204.06	12	254.5	63633.1	863.7	1036.4	1122.7	889.4	1077.3	1202.5	1904
27-813	O	22	0.375	50.6	30.95	35.85	40.75	0.472	10	556.9	210.9	253.1	274.2	217.2	263.1	293.7	465
		558.8	9.525	2721.9	151.1	175.03	198.95	12	254.5	76048.6	938.3	1126	1219.8	966.3	1170.4	1306.5	2068.6
28-763	O	20	0.438	51.4	34.55	39.96	45.38	0.472	10	514.4	214.3	257.2	278.6	220.7	267.3	298.4	472.5
		508	11.112	2765.6	168.66	195.12	221.58	12	254.5	70246.3	953.4	1144.1	1239.4	981.8	1189.2	1327.5	2101.9
29-813	O	22	0.394	53.1	32.22	37.28	42.34	0.472	10	584.6	221.4	265.7	287.9	228	276.2	308.3	488.2
		558.8	10	2857.4	157.31	182.02	206.72	12	254.5	79835.4	985.1	1182.1	1280.6	1014.4	1228.7	1371.5	2171.6
30-763	O	20	0.472	55.3	36.83	42.53	48.23	0.472	10	552.6	230.2	276.3	299.3	237.1	287.2	320.6	507.6
		508	12	2970.8	179.8	207.65	235.5	12	254.5	75457.2	1024.1	1229	1331.4	1054.6	1277.4	1426	2257.8
31-864	O	24	0.375	57.1	31.39	36.29	41.18	0.472	10	685.1	237.9	285.5	309.3	245	296.7	331.2	524.4
		609.6	9.525	3069.5	153.26	177.16	201.06	12	254.5	93559.3	1058.2	1269.8	1375.6	1089.7	1319.9	1473.4	2332.8
31-763	O	20	0.5	58.2	38.62	44.55	50.47	0.472	10	582.4	242.7	291.2	315.4	249.9	302.7	337.9	534.9
		508	12.7	3131	188.55	217.5	246.44	12	254.5	79526.9	1079.4	1295.2	1403.2	1111.5	1346.3	1502.9	2379.5
32-864	O	24	0.394	59.8	32.7	37.76	42.82	0.472	10	717.6	249.2	299	323.9	256.6	310.8	346.9	549.3
		609.6	10	3215	159.66	184.36	209.06	12	254.5	97994.4	1108.3	1330	1440.8	1141.3	1382.5	1543.2	2443.4
34-813	O	22	0.472	63.1	37.55	43.28	49.01	0.472	10	694	262.9	315.5	341.7	270.7	327.9	366	579.5
		558.8	12	3392	183.36	211.31	239.27	12	254.5	94773.1	1169.4	1403.2	1520.2	1204.2	1458.6	1628.2	2577.9
35-763	O	20	0.562	64.9	42.67	49.1	55.53	0.472	10	649	270.4	324.5	351.5	278.5	337.3	376.5	596.2
		508	14.288	3489.2	208.31	239.72	271.14	12	254.5	88626.2	1202.9	1443.4	1563.7	1238.7	1500.4	1674.8	2651.8
36-864	O	24	0.438	66.1	35.76	41.2	46.65	0.472	10	793.1	275.4	330.4	358	283.6	343.5	383.4	607.1
		609.6	11.112	3553.1	174.61	201.18	227.75	12	254.5	108298.6	1224.9	1469.9	1592.4	1261.4	1527.8	1705.5	2700.4
36-813	O	22	0.5	66.5	39.41	45.37	51.33	0.472	10	731.7	277.2	332.6	360.3	285.4	345.7	385.9	611
		558.8	12.7	3576.3	192.43	221.52	250.61	12	254.5	99922.7	1232.9	1479.5	1602.8	1269.6	1537.8	1716.6	2718
38-966	O	28	0.375	70	32.14	37.02	41.91	0.472	10	980.1	291.7	350	379.2	300.4	363.8	406.1	643
		711.2	9.525	3763.7	156.91	180.77	204.62	12	254.5	133835.6	1297.5	1557	1686.7	1336.1	1618.4	1806.6	2860.4



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)		lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)				k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
38-864	O	24	0.472	71.1	38.2	43.94	49.69	0.472	10	852.6	296.1	355.3	384.9	304.9	369.3	412.2	652.7
		609.6	12	3820.1	186.5	214.55	242.6	12	254.5	116435.6	1316.9	1580.3	1712	1356.1	1642.6	1833.6	2903.2
38-763	O	20	0.625	71.4	46.69	53.62	60.56	0.472	10	714.3	297.6	357.2	386.9	306.5	371.2	414.4	656.2
		508	15.875	3840.4	227.94	261.8	295.67	12	254.5	97546.5	1323.9	1588.7	1721.1	1363.3	1651.4	1843.4	2918.7
39-966	O	28	0.394	73.3	33.51	38.57	43.63	0.472	10	1026.9	305.6	366.7	397.3	314.7	381.2	425.5	673.7
		711.2	10	3943.4	163.62	188.32	213.01	12	254.5	140226.8	1359.4	1631.3	1767.3	1399.9	1695.7	1892.8	2997
40-864	O	24	0.5	74.9	40.11	46.1	52.08	0.472	10	899.3	312.2	374.7	405.9	321.5	389.5	434.8	688.4
		609.6	12.7	4028.9	195.84	225.07	254.29	12	254.5	122800.6	1388.9	1666.7	1805.6	1430.3	1732.4	1933.9	3062
41-1017	O	30	0.375	76.6	32.46	37.34	42.22	0.472	10	1148.3	319	382.8	414.7	328.5	397.9	444.1	703.2
		762	9.525	4115.7	158.46	182.3	206.14	12	254.5	156806.7	1418.8	1702.6	1844.5	1461.1	1769.7	1975.5	3127.9
43-1017	O	30	0.394	80.2	33.86	38.91	43.97	0.472	10	1203.3	334.2	401.1	434.5	344.2	416.9	465.4	736.9
		762	10	4312.8	165.31	190	214.69	12	254.5	164316.8	1486.8	1784.1	1932.8	1531	1854.5	2070.1	3277.7
44-966	O	28	0.438	81.1	36.72	42.18	47.64	0.472	10	1135.7	338	405.6	439.4	348.1	421.6	470.6	745.2
		711.2	11.112	4361.5	179.31	205.96	232.62	12	254.5	155094.7	1503.6	1804.3	1954.6	1548.3	1875.4	2093.5	3314.7
44-813	O	22	0.625	81.9	47.78	54.78	61.78	0.472	10	900.4	341	409.3	443.4	351.2	425.4	474.9	751.9
		558.8	15.875	4400.6	233.26	267.46	301.66	12	254.5	122952.7	1517.1	1820.5	1972.2	1562.2	1892.3	2112.3	3344.5
45-1067	O	32	0.375	83.1	32.74	37.62	42.5	0.472	10	1330.4	346.4	415.7	450.4	356.8	432.1	482.4	763.8
		812.8	9.525	4470.3	159.86	183.68	207.51	12	254.5	181673.4	1541.1	1849.3	2003.4	1587	1922.2	2145.7	3397.4
45-864	O	24	0.562	83.6	44.44	50.96	57.49	0.472	10	1003.7	348.5	418.2	453.1	358.9	434.7	485.3	768.3
		609.6	14.288	4497	216.96	248.82	280.69	12	254.5	137068.6	1550.3	1860.3	2015.4	1596.4	1933.7	2158.6	3417.7
45-763	O	20	0.75	84.1	54.65	62.58	70.51	0.472	10	841.1	350.5	420.5	455.6	360.9	437.1	488	772.6
		508	19.05	4522	266.8	305.53	344.25	12	254.5	114859.6	1558.9	1870.7	2026.6	1605.3	1944.5	2170.6	3436.7
47-1067	O	32	0.394	87.1	34.17	39.23	44.28	0.472	10	1394.3	363.1	435.7	472	373.9	452.9	505.5	800.5
		812.8	10	4685	166.83	191.52	216.21	12	254.5	190398.2	1615.1	1938.1	2099.6	1663.2	2014.5	2248.8	3560.6
47-966	O	28	0.472	87.3	39.28	45.06	50.84	0.472	10	1221.8	363.6	436.4	472.7	374.5	453.6	506.3	801.7
		711.2	12	4692.1	191.78	220	248.22	12	254.5	166852	1617.6	1941.1	2102.8	1665.7	2017.6	2252.2	3566
48-1017	O	30	0.438	88.8	37.13	42.6	48.07	0.472	10	1331.3	369.8	443.8	480.7	380.8	461.3	514.9	815.2
		762	11.112	4771.6	181.3	208	234.69	12	254.5	181796.4	1644.9	1973.9	2138.4	1693.9	2051.8	2290.3	3626.4



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in³/ft (cm³/m)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	in (mm)	in (mm)	in⁴/ft (cm⁴/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
48-1118	O	34	0.375	89.8	33	37.88	42.76	0.472	10	1526.4	374.1	448.9	486.4	385.3	466.6	520.9	824.8
		863.6	9.525	4827.3	161.14	184.94	208.75	12	254.5	208442.9	1664.2	1997	2163.4	1713.7	2075.7	2317.1	3668.7
50-966	O	28	0.5	92.1	41.29	47.32	53.35	0.472	10	1289.3	383.7	460.5	498.8	395.1	478.6	534.3	845.9
		711.2	12.7	4951.1	201.6	231.04	260.49	12	254.5	176060.9	1706.8	2048.2	2218.9	1757.6	2129	2376.5	3762.8
50-864	O	24	0.625	92.2	48.74	55.8	62.87	0.472	10	1106.5	384.2	461	499.5	395.6	479.2	535	847
		609.6	15.875	4957.5	237.96	272.45	306.94	12	254.5	151104	1709	2050.8	2221.7	1759.9	2131.7	2379.6	3767.7
51-1118	O	34	0.394	94.1	34.45	39.51	44.57	0.472	10	1599.9	392.1	470.5	509.8	403.8	489.1	546	864.5
		863.6	10	5059.6	168.21	192.9	217.59	12	254.5	218475.1	1744.2	2093.1	2267.5	1796.2	2175.6	2428.6	3845.3
51-1017	O	30	0.472	95.5	39.74	45.53	51.33	0.472	10	1432.5	397.9	477.5	517.3	409.8	496.3	554.1	877.3
		762	12	5134.6	194.03	222.32	250.6	12	254.5	195627.2	1770.1	2124.1	2301.1	1822.8	2207.9	2464.6	3902.3
52-813	O	22	0.75	96.4	56.04	64.08	72.11	0.472	10	1060.5	401.7	482	522.2	413.7	501	559.3	885.6
		558.8	19.05	5183.2	273.61	312.85	352.09	12	254.5	144818.1	1786.8	2144.2	2322.9	1840	2228.8	2487.9	3939.2
52-1067	O	32	0.438	96.4	37.5	42.98	48.45	0.472	10	1543	401.8	482.2	522.4	413.8	501.2	559.5	885.8
		812.8	11.112	5184.8	183.11	209.84	236.56	12	254.5	210709.3	1787.4	2144.9	2323.6	1840.6	2229.5	2488.7	3940.4
52-1169	O	36	0.375	96.5	33.24	38.12	42.99	0.472	10	1736.4	401.9	482.3	522.5	413.9	501.3	559.6	886.1
		914.4	9.525	5186.3	162.3	186.09	209.89	12	254.5	237116.1	1787.9	2145.5	2324.3	1841.1	2230.1	2489.4	3941.6
54-864	O	24	0.688	100.6	53.02	60.62	68.21	0.472	10	1207.6	419.3	503.2	545.1	431.8	523	583.8	924.4
		609.6	17.462	5410.4	258.85	295.95	333.05	12	254.5	164910.3	1865.2	2238.2	2424.7	1920.7	2326.5	2597	4111.9
54-1017	O	30	0.5	100.8	41.79	47.84	53.89	0.472	10	1511.9	420	504	546	432.5	523.8	584.8	925.9
		762	12.7	5419	204.05	233.58	263.12	12	254.5	206465.3	1868.1	2241.8	2428.6	1923.8	2330.2	2601.1	4118.5
54-1169	O	36	0.394	101.1	34.71	39.77	44.83	0.472	10	1820.1	421.3	505.6	547.7	433.9	525.5	586.6	928.8
		914.4	10	5436.4	169.48	194.17	218.86	12	254.5	248551.6	1874.1	2249	2436.4	1929.9	2337.6	2609.5	4131.7
55-966	O	28	0.562	102.9	45.84	52.43	59.03	0.472	10	1440.7	428.8	514.5	557.4	441.5	534.8	597	945.3
		711.2	14.288	5532.6	223.79	256.01	288.23	12	254.5	196739.2	1907.3	2288.8	2479.5	1964.1	2379	2655.6	4204.8
56-1220	O	38	0.375	103.2	33.46	38.33	43.2	0.472	10	1960.3	429.9	515.9	558.9	442.7	536.2	598.6	947.7
		965.2	9.525	5547	163.37	187.15	210.93	12	254.5	267698.6	1912.3	2294.7	2485.9	1969.2	2385.2	2662.6	4215.7
56-1067	O	32	0.472	103.8	40.16	45.96	51.77	0.472	10	1660.7	432.5	519	562.2	445.4	539.5	602.2	953.4
		812.8	12	5580.5	196.06	224.41	252.76	12	254.5	226790	1923.8	2308.6	2500.9	1981.1	2399.6	2678.6	4241.2



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in ³ /ft (cm ³ /m)	lb/ft ² (kg/m ²)	lb/ft ² (kg/m ²)	lb/ft ² (kg/m ²)	in (mm)	in (mm)	in ⁴ /ft (cm ⁴ /m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
56-1118	O	34	0.438	104.2	37.84	43.32	48.8	0.472	10	1771	434.1	520.9	564.3	447	541.4	604.4	956.9
		863.6	11.112	5600.8	184.75	211.51	238.27	12	254.5	241840.6	1930.8	2316.9	2510	1988.3	2408.3	2688.4	4256.6
58-1220	O	38	0.394	108.2	34.95	40.01	45.06	0.472	10	2055	450.7	540.8	585.9	464.1	562.1	627.5	993.5
		965.2	10	5815	170.63	195.32	220.01	12	254.5	280632.1	2004.7	2405.6	2606	2064.3	2500.5	2791.2	4419.4
59-864	O	24	0.75	108.9	57.27	65.4	73.53	0.472	10	1307.1	453.8	544.6	590	467.3	566.1	631.9	1000.5
		609.6	19.05	5856	279.62	319.32	359.01	12	254.5	178489.8	2018.8	2422.5	2624.4	2078.9	2518.1	2810.9	4450.5
59-1067	O	32	0.5	109.6	42.25	48.31	54.38	0.472	10	1753.1	456.5	547.8	593.5	470.1	569.4	635.7	1006.5
		812.8	12.7	5890.7	206.26	235.88	265.51	12	254.5	239397.5	2030.7	2436.9	2640	2091.2	2533	2827.5	4476.9
59-1271	O	40	0.375	109.9	33.66	38.53	43.4	0.472	10	2198.3	458	549.6	595.4	471.6	571.2	637.7	1009.6
		1016	9.525	5909.3	164.35	188.12	211.89	12	254.5	300191.3	2037.2	2444.6	2648.3	2097.8	2541	2836.5	4491.1
60-1169	O	36	0.438	112	38.15	43.63	49.12	0.472	10	2015.2	466.5	559.8	606.4	480.4	581.9	649.5	1028.4
		914.4	11.112	6019.1	186.25	213.04	239.82	12	254.5	275193.8	2075	2490	2697.5	2136.8	2588.2	2889.2	4574.5
60-1118	O	34	0.472	112.1	40.54	46.35	52.17	0.472	10	1906.5	467.3	560.7	607.5	481.2	582.8	650.6	1030.1
		863.6	12	6029.4	197.91	226.32	254.72	12	254.5	260347.9	2078.6	2494.3	2702.1	2140.4	2592.6	2894.1	4582.3
61-1017	O	30	0.562	112.7	46.43	53.06	59.69	0.472	10	1690.2	469.5	563.4	610.4	483.5	585.6	653.7	1035.1
		762	14.288	6058.2	226.69	259.06	291.43	12	254.5	230818.5	2088.5	2506.2	2715	2150.7	2605	2907.9	4604.3
61-966	O	28	0.625	113.6	50.36	57.52	64.69	0.472	10	1590	473.2	567.9	615.2	487.3	590.3	658.9	1043.2
		711.2	15.875	6106	245.88	280.86	315.84	12	254.5	217130.6	2105	2526	2736.5	2167.6	2625.6	2930.9	4640.6
62-1271	O	40	0.394	115.2	35.17	40.22	45.28	0.472	10	2304.6	480.1	576.2	624.2	494.4	598.9	668.5	1058.5
		1016	10	6195.2	171.7	196.39	221.08	12	254.5	314718.6	2135.7	2562.9	2776.5	2199.3	2664	2973.7	4708.4
63-1321	O	42	0.375	116.7	33.85	38.71	43.58	0.472	10	2450.2	486.2	583.4	632	500.6	606.4	676.9	1071.8
		1066.8	9.525	6272.9	165.26	189.01	212.77	12	254.5	334597.7	2162.5	2595	2811.3	2226.9	2697.4	3011	4767.4
63-864	O	24	0.812	117.1	61.5	70.16	78.82	0.472	10	1404.8	487.8	585.4	634.1	502.3	608.4	679.2	1075.4
		609.6	20.638	6294.1	300.28	342.56	384.83	12	254.5	191844.7	2169.8	2603.8	2820.8	2234.4	2706.5	3021.2	4783.5
64-1118	O	34	0.5	118.4	42.66	48.74	54.82	0.472	10	2012.8	493.3	592	641.3	508	615.3	686.9	1087.6
		863.6	12.7	6365.5	208.27	237.97	267.67	12	254.5	274862.7	2194.4	2633.3	2852.8	2259.8	2737.2	3055.4	4837.8
64-1220	O	38	0.438	119.8	38.43	43.92	49.41	0.472	10	2275.7	499.1	598.9	648.8	513.9	622.5	694.9	1100.2
		965.2	11.112	6439.5	187.62	214.44	241.25	12	254.5	310772.3	2220	2663.9	2885.9	2286	2769	3091	4894.1



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)		lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)				k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
65-1169	O	36	0.472	120.5	40.88	46.71	52.54	0.472	10	2169.8	502.3	602.7	652.9	517.2	626.5	699.3	1107.3
		914.4	12	6480.8	199.6	228.06	256.51	12	254.5	296304.2	2234.2	2681	2904.4	2300.7	2786.8	3110.8	4925.4
65-915	O	26	0.75	121.3	58.37	66.58	74.79	0.472	10	1577.2	505.5	606.6	657.2	520.6	630.5	703.9	1114.4
		660.4	19.05	6522.7	284.97	325.06	365.16	12	254.5	215381.1	2248.6	2698.4	2923.2	2315.6	2804.8	3130.9	4957.3
66-1321	O	42	0.394	122.3	35.37	40.42	45.48	0.472	10	2568.9	509.7	611.7	662.6	524.9	635.8	709.7	1123.7
		1066.8	10	6576.9	172.68	197.37	222.06	12	254.5	350812.8	2267.3	2720.8	2947.5	2334.8	2828.1	3156.9	4998.5
66-1067	O	32	0.562	122.5	46.97	53.63	60.28	0.472	10	1960.6	510.6	612.7	663.8	525.8	636.9	710.9	1125.6
		812.8	14.288	6588.1	229.32	261.83	294.33	12	254.5	267740.1	2271.2	2725.4	2952.5	2338.8	2832.9	3162.3	5007
66-1372	O	44	0.375	123.5	34.02	38.88	43.75	0.472	10	2716.2	514.4	617.3	668.8	529.7	641.7	716.3	1134.1
		1117.6	9.525	6637.8	166.1	189.84	213.59	12	254.5	370918.3	2288.3	2745.9	2974.8	2356.4	2854.2	3186.1	5044.7
67-966	O	28	0.688	124.1	54.86	62.59	70.32	0.472	10	1737.3	517	620.4	672.2	532.4	644.9	719.9	1139.9
		711.2	17.462	6671.5	267.86	305.59	343.32	12	254.5	237238.3	2299.9	2759.9	2989.9	2368.4	2868.7	3202.3	5070.3
67-1017	O	30	0.625	124.4	51.05	58.26	65.46	0.472	10	1866.3	518.4	622.1	673.9	533.8	646.6	721.8	1142.9
		762	15.875	6689.2	249.24	284.43	319.62	12	254.5	254857.8	2306	2767.2	2997.8	2374.7	2876.3	3210.8	5083.8
67-864	O	24	0.875	125.1	65.71	74.89	84.08	0.472	10	1501	521.2	625.4	677.5	536.7	650.1	725.7	1149
		609.6	22.225	6725	320.82	365.67	410.51	12	254.5	204977.4	2318.4	2782	3013.9	2387.4	2891.7	3228	5111
68-1169	O	36	0.5	127.3	43.03	49.13	55.23	0.472	10	2291.1	530.3	636.4	689.4	546.1	661.5	738.4	1169.2
		914.4	12.7	6843.1	210.11	239.88	269.65	12	254.5	312865.9	2359.1	2830.9	3066.8	2429.3	2942.5	3284.7	5200.7
69-1271	O	40	0.438	127.6	38.69	44.18	49.68	0.472	10	2552.6	531.8	638.1	691.3	547.6	663.3	740.4	1172.4
		1016	11.112	6861.8	188.89	215.72	242.56	12	254.5	348580.1	2365.5	2838.6	3075.2	2435.9	2950.6	3293.7	5215
69-877	O	24.5	0.875	128.8	66.06	75.27	84.49	0.472	10	1577.2	536.5	643.8	697.4	552.4	669.2	747	1182.7
		622.3	22.225	6922.2	322.53	367.52	412.5	12	254.5	215383.8	2386.3	2863.6	3102.2	2457.4	2976.5	3322.6	5260.9
69-1220	O	38	0.472	129	41.2	47.04	52.87	0.472	10	2450.7	537.4	644.9	698.7	553.4	670.4	748.3	1184.8
		965.2	12	6934.6	201.15	229.65	258.15	12	254.5	334664.3	2390.6	2868.7	3107.8	2461.8	2981.9	3328.6	5270.3
70-1372	O	44	0.394	129.5	35.56	40.61	45.67	0.472	10	2848	539.4	647.3	701.2	555.4	672.8	751	1189.1
		1117.6	10	6959.9	173.59	198.28	222.97	12	254.5	388918.4	2399.3	2879.2	3119.1	2470.8	2992.8	3340.7	5289.5
71-1118	O	34	0.562	132.5	47.46	54.14	60.82	0.472	10	2251.9	551.9	662.3	717.5	568.4	688.4	768.5	1216.8
		863.6	14.288	7121.6	231.71	264.34	296.97	12	254.5	307511	2455.1	2946.1	3191.6	2528.2	3062.3	3418.4	5412.4



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in³/ft (cm³/m)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	in (mm)	in (mm)	in⁴/ft (cm⁴/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
72-864	O	24	0.938	133	69.89	79.6	89.31	0.472	10	1595.6	554	664.8	720.2	570.5	691	771.4	1221.4
		609.6	23.812	7148.6	341.25	388.65	436.05	12	254.5	217890.3	2464.4	2957.3	3203.7	2537.8	3073.9	3431.3	5433
72-966	O	28	0.75	134.5	59.34	67.63	75.92	0.472	10	1882.4	560.3	672.3	728.3	576.9	698.8	780.1	1235.1
		711.2	19.05	7229	289.75	330.21	370.67	12	254.5	257064.3	2492.1	2990.5	3239.8	2566.3	3108.5	3469.9	5494.1
73-1067	O	32	0.625	135.4	51.67	58.92	66.16	0.472	10	2165.7	564	676.8	733.2	580.8	703.5	785.3	1243.3
		812.8	15.875	7277.1	252.29	287.66	323.04	12	254.5	295741.6	2508.7	3010.4	3261.3	2583.4	3129.2	3493	5530.6
73-1321	O	42	0.438	135.5	38.93	44.43	49.93	0.472	10	2845.8	564.6	677.6	734	581.5	704.3	786.2	1244.8
		1066.8	11.112	7285.7	190.05	216.91	243.77	12	254.5	388619.5	2511.7	3014	3265.2	2586.4	3132.9	3497.1	5537.1
73-1017	O	30	0.688	136	55.65	63.43	71.21	0.472	10	2040	566.7	680	736.7	583.5	706.8	789	1249.3
		762	17.462	7312	271.69	309.69	347.68	12	254.5	278585.3	2520.7	3024.8	3276.9	2595.7	3144.1	3509.7	5557.1
73-1220	O	38	0.5	136.2	43.38	49.49	55.6	0.472	10	2588	567.5	681	737.8	584.4	707.9	790.2	1251.2
		965.2	12.7	7323.1	211.8	241.63	271.46	12	254.5	353413.1	2524.6	3029.5	3281.9	2599.7	3148.9	3515.1	5565.6
74-1474	O	48	0.375	137.1	34.33	39.19	44.05	0.472	10	3290.2	571.2	685.5	742.6	588.2	712.5	795.4	1259.3
		1219.2	9.525	7370.6	167.6	191.33	215.06	12	254.5	449312.6	2540.9	3049.1	3303.2	2616.6	3169.4	3537.9	5601.7
74-1271	O	40	0.472	137.5	41.49	47.34	53.18	0.472	10	2749.2	572.8	687.3	744.6	589.8	714.4	797.5	1262.7
		1016	12	7390.4	202.57	231.12	259.66	12	254.5	375430.9	2547.7	3057.3	3312.1	2623.6	3177.9	3547.4	5616.7
76-864	O	24	1	140.7	74.05	84.28	94.51	0.472	10	1688.6	586.3	703.6	762.2	603.8	731.3	816.3	1292.5
		609.6	25.4	7565.2	361.56	411.5	461.43	12	254.5	230586.7	2608	3129.6	3390.4	2685.6	3253	3631.3	5749.5
77-1169	O	36	0.562	142.4	47.9	54.61	61.32	0.472	10	2564	593.5	712.2	771.6	611.2	740.3	826.4	1308.5
		914.4	14.288	7658.3	233.89	266.63	299.37	12	254.5	350137.7	2640.1	3168.1	3432.1	2718.7	3293.1	3676	5820.3
77-1372	O	44	0.438	143.4	39.15	44.65	50.16	0.472	10	3155.4	597.6	717.1	776.9	615.4	745.4	832.1	1317.5
		1117.6	11.112	7711	191.13	218.01	244.89	12	254.5	430892.8	2658.3	3189.9	3455.8	2737.4	3315.7	3701.3	5860.4
77-1474	O	48	0.394	143.8	35.89	40.95	46	0.472	10	3450.3	599	718.8	778.7	616.8	747.2	834	1320.6
		1219.2	10	7729.1	175.23	199.91	224.6	12	254.5	471167.1	2664.5	3197.4	3463.9	2743.8	3323.5	3710	5874.1
77-1525	O	50	0.375	143.9	34.47	39.32	44.18	0.472	10	3598.4	599.7	719.7	779.6	617.6	748.1	835	1322.1
		1270	9.525	7738.4	168.28	192	215.72	12	254.5	491388.7	2667.7	3201.3	3468	2747.1	3327.5	3714.4	5881.2
78-966	O	28	0.812	144.7	63.81	72.65	81.49	0.472	10	2025.6	602.9	723.4	783.7	620.8	752	839.4	1329
		711.2	20.638	7778.7	311.52	354.71	397.89	12	254.5	276611.8	2681.6	3217.9	3486.1	2761.5	3344.9	3733.8	5911.8



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)		lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)				k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
78-1271	O	40	0.5	145.2	43.7	49.82	55.94	0.472	10	2903.6	604.9	725.9	786.4	622.9	754.5	842.3	1333.6
		1016	12.7	7805.3	213.35	243.24	273.13	12	254.5	396506.9	2690.8	3228.9	3498	2770.9	3356.3	3746.5	5932
79-1321	O	42	0.472	146	41.76	47.61	53.47	0.472	10	3065.4	608.2	729.9	790.7	626.3	758.6	846.9	1340.9
		1066.8	12	7847.9	203.89	232.47	261.06	12	254.5	418606.7	2705.5	3246.6	3517.1	2786	3374.6	3767	5964.4
79-1118	O	34	0.625	146.4	52.24	59.52	66.8	0.472	10	2488.2	609.9	731.8	792.8	628	760.7	849.1	1344.5
		863.6	15.875	7869.1	255.06	290.6	326.15	12	254.5	339789.8	2712.8	3255.3	3526.6	2793.5	3383.7	3777.2	5980.6
79-1017	O	30	0.75	147.4	60.23	68.58	76.93	0.472	10	2211.5	614.3	737.2	798.6	632.6	766.2	855.3	1354.3
		762	19.05	7926.6	294.05	334.84	375.62	12	254.5	302003	2732.6	3279.1	3552.4	2813.9	3408.4	3804.8	6024.2
80-1067	O	32	0.688	148	56.36	64.19	72.02	0.472	10	2368.2	616.7	740.1	801.7	635.1	769.3	858.7	1359.6
		812.8	17.462	7957.8	275.16	313.4	351.63	12	254.5	323403	2743.3	3292	3566.3	2825	3421.8	3819.7	6047.9
81-1575	O	52	0.375	150.8	34.6	39.45	44.31	0.472	10	3920.5	628.3	753.9	816.8	647	783.7	874.8	1385.1
		1320.8	9.525	8107	168.91	192.63	216.34	12	254.5	535384.4	2794.8	3353.7	3633.2	2878	3486	3891.3	6161.3
81-1525	O	50	0.394	150.9	36.04	41.1	46.15	0.472	10	3773.6	628.9	754.7	817.6	647.6	784.5	875.7	1386.5
		1270	10	8115.2	175.96	200.65	225.33	12	254.5	515313.2	2797.6	3357.1	3636.9	2880.9	3489.5	3895.3	6167.5
82-1220	O	38	0.562	152.5	48.31	55.04	61.77	0.472	10	2897.1	635.3	762.4	825.9	654.2	792.5	884.6	1400.6
		965.2	14.288	8197.8	235.89	268.73	301.58	12	254.5	395624.3	2826.1	3391.3	3673.9	2910.2	3525	3934.9	6230.3
83-1321	O	42	0.5	154.2	43.99	50.12	56.26	0.472	10	3237.8	642.4	770.9	835.1	661.5	801.3	894.5	1416.3
		1066.8	12.7	8289.3	214.78	244.73	274.67	12	254.5	442150.9	2857.6	3429.2	3714.9	2942.7	3564.4	3978.9	6299.9
83-1372	O	44	0.472	154.5	42.01	47.87	53.73	0.472	10	3399.2	643.8	772.6	836.9	663	803	896.4	1419.3
		1117.6	12	8307	205.1	233.73	262.35	12	254.5	464195	2863.7	3436.5	3722.9	2949	3572	3987.4	6313.3
83-966	O	28	0.875	154.8	68.24	77.64	87.04	0.472	10	2166.7	644.9	773.8	838.3	664.1	804.3	897.9	1421.6
		711.2	22.225	8320.7	333.2	379.09	424.99	12	254.5	295883.8	2868.5	3442.1	3729	2953.8	3577.9	3993.9	6323.7
85-1169	O	36	0.625	157.4	52.76	60.07	67.38	0.472	10	2834	656	787.2	852.8	675.6	818.3	913.4	1446.2
		914.4	15.875	8464.8	257.58	293.29	328.99	12	254.5	387010	2918.1	3501.8	3793.6	3005	3639.9	4063.1	6433.2
85-1626	O	54	0.375	157.7	34.72	39.57	44.43	0.472	10	4256.8	656.9	788.3	854	676.5	819.4	914.7	1448.2
		1371.6	9.525	8476.3	169.5	193.21	216.92	12	254.5	581301.9	2922.1	3506.5	3798.7	3009.1	3644.8	4068.6	6442
85-1575	O	52	0.394	158.1	36.18	41.24	46.29	0.472	10	4111.6	658.9	790.7	856.6	678.5	821.9	917.4	1452.6
		1320.8	10	8502.1	176.65	201.33	226.02	12	254.5	561475.9	2931	3517.2	3810.3	3018.2	3655.9	4081	6461.6



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in ³ /ft (cm ³ /m)	lb/ft ² (kg/m ²)	lb/ft ² (kg/m ²)	lb/ft ² (kg/m ²)	in (mm)	in (mm)	in ⁴ /ft (cm ⁴ /m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
85-1017	O	30	0.812	158.7	64.78	73.71	82.63	0.472	10	2380.8	661.3	793.6	859.7	681	824.9	920.8	1457.9
		762	20.638	8533.2	316.3	359.87	403.44	12	254.5	325115.6	2941.7	3530.1	3824.2	3029.3	3669.3	4095.9	6485.2
86-1474	O	48	0.438	159.3	39.54	45.06	50.57	0.472	10	3823.6	663.8	796.6	863	683.6	828	924.3	1463.4
		1219.2	11.112	8565.4	193.07	219.99	246.9	12	254.5	522149	2952.8	3543.4	3838.7	3040.7	3683.1	4111.4	6509.7
86-1118	O	34	0.688	160.1	57	64.88	72.75	0.472	10	2721.9	667.1	800.6	867.3	687	832.1	928.9	1470.7
		863.6	17.462	8608.2	278.31	316.77	355.22	12	254.5	371701.1	2967.6	3561.1	3857.8	3055.9	3701.5	4131.9	6542.2
86-1067	O	32	0.75	160.5	61.02	69.44	77.85	0.472	10	2568.3	668.8	802.6	869.5	688.7	834.3	931.3	1474.5
		812.8	19.05	8630.1	297.94	339.02	380.11	12	254.5	350727.1	2975.1	3570.1	3867.7	3063.7	3710.9	4142.4	6558.9
87-1271	O	40	0.562	162.6	48.69	55.44	62.18	0.472	10	3251.2	677.3	812.8	880.5	697.5	844.8	943.1	1493.2
		1016	14.288	8739.7	237.73	270.67	303.61	12	254.5	443975.6	3012.9	3615.5	3916.8	3102.6	3758.1	4195	6642.2
88-1372	O	44	0.5	163.2	44.26	50.41	56.55	0.472	10	3590.7	680.1	816.1	884.1	700.3	848.3	946.9	1499.3
		1117.6	12.7	8775	216.1	246.1	276.1	12	254.5	490347.6	3025.1	3630.1	3932.6	3115.1	3773.3	4212	6669
89-1677	O	56	0.375	164.5	34.83	39.69	44.54	0.472	10	4607.1	685.6	822.7	891.3	706	855.1	954.6	1511.4
		1422.4	9.525	8846.2	170.06	193.76	217.47	12	254.5	629143.1	3049.6	3659.5	3964.5	3140.4	3803.9	4246.2	6723.1
89-966	O	28	0.938	164.7	72.66	82.62	92.57	0.472	10	2305.8	686.3	823.5	892.1	706.7	856	955.5	1512.9
		711.2	23.812	8855	354.77	403.36	451.95	12	254.5	314882.5	3052.6	3663.2	3968.4	3143.5	3807.6	4250.4	6729.8
89-1626	O	54	0.394	165.3	36.31	41.37	46.42	0.472	10	4464.4	689	826.7	895.6	709.5	859.3	959.3	1518.8
		1371.6	10	8889.7	177.3	201.98	226.66	12	254.5	609655.6	3064.6	3677.5	3984	3155.8	3822.6	4267.1	6756.2
90-1525	O	50	0.438	167.3	39.72	45.24	50.75	0.472	10	4182.3	697.1	836.5	906.2	717.8	869.5	970.6	1536.7
		1270	11.112	8994.2	193.94	220.88	247.81	12	254.5	571134.8	3100.7	3720.8	4030.9	3193	3867.5	4317.2	6835.6
91-1220	O	38	0.625	168.6	53.23	60.57	67.92	0.472	10	3203.1	702.4	842.9	913.2	723.3	876.2	978	1548.6
		965.2	15.875	9063.6	259.9	295.75	331.59	12	254.5	437408.4	3124.6	3749.5	4061.9	3217.6	3897.3	4350.5	6888.3
91-1017	O	30	0.875	169.9	69.32	78.81	88.3	0.472	10	2547.8	707.7	849.3	920	728.8	882.8	985.4	1560.2
		762	22.225	9131.9	338.46	384.8	431.14	12	254.5	347924.2	3148.1	3777.7	4092.5	3241.8	3926.7	4383.3	6940.2
92-1474	O	48	0.472	171.7	42.46	48.33	54.21	0.472	10	4120	715.3	858.3	929.9	736.6	892.2	995.9	1576.9
		1219.2	12	9229.3	207.28	235.97	264.67	12	254.5	562616.5	3181.7	3818	4136.2	3276.4	3968.6	4430.1	7014.2
93-1169	O	36	0.688	172.3	57.59	65.51	73.43	0.472	10	3101.1	717.9	861.4	933.2	739.2	895.4	999.5	1582.6
		914.4	17.462	9262.6	281.19	319.84	358.5	12	254.5	423487	3193.2	3831.8	4151.1	3288.2	3982.9	4446.1	7039.6



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)		lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)				k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
93-1677	O	56	0.394	172.6	36.44	41.49	46.55	0.472	10	4832	719.1	862.9	934.8	740.5	896.9	1001.2	1585.2
		1422.4	10	9278	177.9	202.58	227.26	12	254.5	659854.5	3198.5	3838.2	4158	3293.7	3989.6	4453.5	7051.3
93-1321	O	42	0.562	172.7	49.04	55.8	62.57	0.472	10	3626.2	719.5	863.4	935.3	740.9	897.4	1001.8	1586.2
		1066.8	14.288	9283.8	239.42	272.45	305.48	12	254.5	495195.6	3200.5	3840.6	4160.6	3295.7	3992	4456.2	7055.7
93-1067	O	32	0.812	172.9	65.67	74.67	83.66	0.472	10	2766	720.3	864.4	936.4	741.7	898.5	1002.9	1588
		812.8	20.638	9294.3	320.63	364.55	408.46	12	254.5	377718.5	3204.1	3844.9	4165.3	3299.5	3996.5	4461.2	7063.6
93-1118	O	34	0.75	173.7	61.75	70.22	78.69	0.472	10	2952.9	723.8	868.5	940.9	745.3	902.8	1007.7	1595.6
		863.6	19.05	9338.8	301.48	342.83	384.18	12	254.5	403247.5	3219.4	3863.3	4185.2	3315.3	4015.7	4482.6	7097.5
94-966	O	28	1	174.5	77.06	87.56	98.06	0.472	10	2443	727.1	872.5	945.2	748.7	906.9	1012.4	1602.9
		711.2	25.4	9381.6	376.24	427.52	478.79	12	254.5	333609.8	3234.2	3881	4204.4	3330.5	4034.1	4503.2	7130
94-1575	O	52	0.438	175.3	39.89	45.41	50.93	0.472	10	4557.5	730.4	876.4	949.5	752.1	911	1016.9	1610.1
		1320.8	11.112	9424	194.76	221.71	248.65	12	254.5	622361.5	3248.8	3898.6	4223.5	3345.5	4052.3	4523.5	7162.2
97-1271	O	40	0.625	179.8	53.67	61.04	68.41	0.472	10	3595.4	749	898.9	973.8	771.3	934.3	1042.9	1651.3
		1016	15.875	9665.1	262.03	298.01	333.99	12	254.5	490988.6	3331.9	3998.3	4331.5	3431.1	4156	4639.3	7345.5
97-1525	O	50	0.472	180.3	42.66	48.54	54.42	0.472	10	4506.9	751.1	901.4	976.5	773.5	936.9	1045.9	1656
		1270	12	9692.2	208.27	236.99	265.71	12	254.5	615453.6	3341.3	4009.5	4343.6	3440.7	4167.6	4652.2	7366.1
97-1017	O	30	0.938	180.8	73.84	83.9	93.95	0.472	10	2712.6	753.5	904.2	979.6	775.9	939.9	1049.2	1661.2
		762	23.812	9722.6	360.52	409.62	458.71	12	254.5	370432.9	3351.8	4022.1	4357.3	3451.5	4180.7	4666.9	7389.2
98-1474	O	48	0.5	181.4	44.75	50.91	57.07	0.472	10	4352.8	755.7	906.8	982.4	778.2	942.6	1052.2	1666
		1219.2	12.7	9750.8	218.48	248.57	278.66	12	254.5	594408	3361.5	4033.8	4369.9	3461.5	4192.8	4680.4	7410.6
98-1372	O	44	0.562	182.8	49.36	56.14	62.92	0.472	10	4022.3	761.8	914.2	990.3	784.5	950.2	1060.7	1679.5
		1117.6	14.288	9829.8	241	274.11	307.22	12	254.5	549286.5	3388.7	4066.4	4405.3	3489.6	4226.8	4718.3	7470.6
99-1626	O	54	0.438	183.3	40.05	45.57	51.09	0.472	10	4949	763.7	916.5	992.9	786.5	952.6	1063.4	1683.7
		1371.6	11.112	9854.6	195.53	222.49	249.45	12	254.5	675831.7	3397.3	4076.7	4416.4	3498.4	4237.5	4730.2	7489.5
99-1220	O	38	0.688	184.5	58.13	66.09	74.04	0.472	10	3505.9	768.8	922.6	999.5	791.7	959	1070.5	1695
		965.2	17.462	9920.6	283.83	322.67	361.5	12	254.5	478767.7	3420	4104	4446	3521.8	4265.9	4761.9	7539.6
100-1067	O	32	0.875	185.1	70.3	79.87	89.44	0.472	10	2961.2	771.1	925.4	1002.5	794.1	961.9	1073.7	1700
		812.8	22.225	9950.3	343.22	389.96	436.71	12	254.5	404378.3	3430.2	4116.3	4459.3	3532.3	4278.6	4776.1	7562.2



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in ³ /ft (cm ³ /m)	lb/ft ² (kg/m ²)	lb/ft ² (kg/m ²)	lb/ft ² (kg/m ²)	in (mm)	in (mm)	in ⁴ /ft (cm ⁴ /m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
101-1169	O	36	0.75	187	62.41	70.93	79.45	0.472	10	3365.4	779	934.8	1012.7	802.2	971.7	1084.7	1717.4
		914.4	19.05	10051.8	304.71	346.31	387.9	12	254.5	459570.5	3465.3	4158.3	4504.8	3568.4	4322.3	4824.9	7639.4
101-1118	O	34	0.812	187.1	66.48	75.54	84.6	0.472	10	3181.3	779.7	935.7	1013.6	802.9	972.6	1085.7	1719
		863.6	20.638	10060.9	324.56	368.8	413.03	12	254.5	434431.6	3468.4	4162.1	4508.9	3571.6	4326.2	4829.3	7646.3
102-1575	O	52	0.472	188.9	42.84	48.73	54.62	0.472	10	4911.5	787.1	944.5	1023.2	810.5	981.8	1095.9	1735.2
		1320.8	12	10156.1	209.18	237.93	266.68	12	254.5	670710.3	3501.2	4201.4	4551.6	3605.4	4367.1	4874.9	7718.7
102-1525	O	50	0.5	190.5	44.97	51.14	57.31	0.472	10	4761.9	793.6	952.4	1031.7	817.3	989.9	1105	1749.6
		1270	12.7	10240.6	219.55	249.68	279.81	12	254.5	650275.5	3530.3	4236.4	4589.4	3635.4	4403.4	4915.5	7782.8
103-1321	O	42	0.625	191	54.07	61.46	68.86	0.472	10	4011.1	795.9	955	1034.6	819.6	992.7	1108.1	1754.5
		1066.8	15.875	10269.1	264	300.1	336.2	12	254.5	547755.2	3540.2	4248.2	4602.2	3645.5	4415.7	4929.2	7804.5
103-1677	O	56	0.438	191.3	40.19	45.72	51.24	0.472	10	5357	797.2	956.6	1036.3	820.9	994.3	1109.9	1757.4
		1422.4	11.112	10286	196.24	223.22	250.19	12	254.5	731540.3	3546	4255.2	4609.8	3651.5	4423	4937.3	7817.4
103-1017	O	30	1	191.7	78.34	88.96	99.57	0.472	10	2875.3	798.7	958.4	1038.3	822.5	996.2	1112.1	1760.8
		762	25.4	10305.6	382.48	434.33	486.17	12	254.5	392642.4	3552.7	4263.3	4618.5	3658.5	4431.4	4946.7	7832.2
106-1271	O	40	0.688	196.8	58.63	66.62	74.61	0.472	10	3936.4	820.1	984.1	1066.1	844.5	1022.9	1141.8	1807.9
		1016	17.462	10581.7	286.25	325.26	364.27	12	254.5	537548.2	3647.9	4377.5	4742.3	3756.5	4550.1	5079.2	8042.1
106-1067	O	32	0.938	197.1	74.91	85.06	95.21	0.472	10	3154	821.4	985.6	1067.8	845.8	1024.5	1143.6	1810.7
		812.8	23.812	10598.2	365.72	415.28	464.83	12	254.5	430709.3	3653.6	4384.3	4749.7	3762.3	4557.2	5087.1	8054.6
106-1626	O	54	0.472	197.6	43.02	48.91	54.81	0.472	10	5333.9	823.1	987.8	1070.1	847.6	1026.7	1146.1	1814.6
		1371.6	12	10621	210.05	238.82	267.6	12	254.5	728386.9	3661.5	4393.7	4759.9	3770.4	4567	5098.1	8071.9
107-1575	O	52	0.5	199.6	45.17	51.35	57.53	0.472	10	5189.7	831.7	998	1081.2	856.4	1037.4	1158	1833.5
		1320.8	12.7	10731.4	220.55	250.72	280.89	12	254.5	708703.1	3699.5	4439.4	4809.4	3809.7	4614.5	5151.1	8155.9
108-1220	O	38	0.75	200.3	63.02	71.58	80.15	0.472	10	3805.7	834.6	1001.5	1085	859.4	1041	1162.1	1839.9
		965.2	19.05	10768.9	307.68	349.49	391.31	12	254.5	519706.5	3712.4	4454.9	4826.2	3823	4630.6	5169.1	8184.4
108-1118	O	34	0.875	200.4	71.18	80.83	90.48	0.472	10	3407	835.1	1002.1	1085.6	859.9	1041.6	1162.7	1840.9
		863.6	22.225	10774.8	347.55	394.66	441.77	12	254.5	465257.1	3714.5	4457.4	4828.8	3825.1	4633.2	5171.9	8188.9
108-1169	O	36	0.812	201.5	67.21	76.33	85.45	0.472	10	3626.7	839.5	1007.4	1091.4	864.5	1047.2	1168.9	1850.8
		914.4	20.638	10832.6	328.15	372.67	417.2	12	254.5	495264.8	3734.4	4481.3	4854.7	3845.6	4658	5199.6	8232.7



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		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)		lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)				k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	109-1372 0	44 1117.6	0.625 15.875	202.3 10875.3	54.44 265.82	61.86 302.03	69.28 338.25	0.472 12	10 254.5	4450.2 607711.5	842.8 3749.1	1011.4 4498.9	1095.7 4873.9	867.9 3860.7	1051.3 4676.4	1173.5 5220.1	1858.1 8265.2
	109-1474 0	48 1219.2	0.562 14.288	203.2 10926.7	49.94 243.82	56.75 277.07	63.56 310.33	0.472 12	10 254.5	4877.7 666092.8	846.8 3766.9	1016.2 4520.2	1100.9 4896.9	872 3879	1056.3 4698.5	1179.1 5244.8	1866.9 8304.3
	110-1131 0	34.5 876.3	0.875 22.225	204.3 10981.8	71.39 348.57	81.06 395.77	90.73 442.96	0.472 12	10 254.5	3523.5 481169.3	851.1 3785.9	1021.3 4543	1106.4 4921.6	876.4 3898.6	1061.6 4722.2	1185 5271.3	1876.3 8346.2
	111-1677 0	56 1422.4	0.472 12	206.2 11086.7	43.19 210.85	49.09 239.65	54.98 268.46	0.472 12	10 254.5	5774 788484.7	859.2 3822	1031.1 4586.4	1117 4968.6	884.8 3935.8	1071.7 4767.3	1196.3 5321.6	1894.2 8425.9
	112-1626 0	54 1371.6	0.5 12.7	208.8 11223.3	45.36 221.48	51.55 251.69	57.74 281.9	0.472 12	10 254.5	5636.4 769694.4	869.8 3869.1	1043.8 4642.9	1130.7 5029.8	895.7 3984.3	1084.9 4826	1211.1 5387.2	1917.6 8529.7
	112-1067 0	32 812.8	1 25.4	209 11238.1	79.5 388.13	90.22 440.49	100.94 492.84	0.472 12	10 254.5	3344.5 456715.1	871 3874.2	1045.1 4649	1132.2 5036.4	896.9 3989.5	1086.4 4832.4	1212.7 5394.3	1920.1 8540.9
	113-1321 0	42 1066.8	0.688 17.462	209.2 11245.5	59.09 288.49	67.11 327.66	75.13 366.82	0.472 12	10 254.5	4392.5 599833.5	871.5 3876.7	1045.8 4652.1	1133 5039.8	897.5 3992.1	1087.1 4835.6	1213.5 5397.8	1921.3 8546.6
	115-1525 0	50 1270	0.562 14.288	213.5 11477.3	50.2 245.08	57.02 278.41	63.85 311.73	0.472 12	10 254.5	5337 728809.4	889.5 3956.7	1067.4 4748	1156.3 5143.7	916 4074.4	1109.5 4935.2	1238.5 5509.1	1961 8722.8
	115-1118 0	34 863.6	0.938 23.812	213.5 11480.4	75.87 370.45	86.11 420.42	96.34 470.39	0.472 12	10 254.5	3630.1 495725.8	889.7 3957.7	1067.7 4749.3	1156.7 5145.1	916.2 4075.6	1109.8 4936.6	1238.8 5510.6	1961.5 8725.1
	115-1271 0	40 1016	0.75 19.05	213.7 11489.3	63.58 310.4	72.18 352.43	80.79 394.45	0.472 12	10 254.5	4274 583658.4	890.4 3960.8	1068.5 4753	1157.6 5149.1	916.9 4078.7	1110.6 4940.4	1239.8 5514.9	1963 8731.9
	116-1169 0	36 914.4	0.875 22.225	215.8 11604.8	71.99 351.5	81.71 398.95	91.43 446.39	0.472 12	10 254.5	3885.3 530571.5	899.4 4000.6	1079.2 4800.7	1169.2 5200.8	926.1 4119.7	1121.8 4990.1	1252.3 5570.3	1982.7 8819.6
	116-1220 0	38 965.2	0.812 20.638	215.9 11608.5	67.88 331.44	77.06 376.23	86.23 421.02	0.472 12	10 254.5	4102.5 560226.3	899.7 4001.9	1079.6 4802.3	1169.6 5202.5	926.4 4121	1122.2 4991.7	1252.7 5572.1	1983.4 8822.5
	117-1677 0	56 1422.4	0.5 12.7	217.9 11716.1	45.54 222.37	51.74 252.6	57.93 282.84	0.472 12	10 254.5	6101.7 833245.9	908 4039	1089.6 4846.8	1180.4 5250.7	935 4159.2	1132.6 5037.9	1264.3 5623.7	2001.7 8904.2
	119-1372 0	44 1117.6	0.688 17.462	221.6 11911.7	59.51 290.57	67.56 329.88	75.61 369.18	0.472 12	10 254.5	4874.3 665627.1	923.2 4106.4	1107.8 4927.7	1200.1 5338.3	950.6 4228.7	1151.5 5122	1285.4 5717.6	2035.2 9052.9



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in ³ /ft (cm ³ /m)	lb/ft ² (kg/m ²)	lb/ft ² (kg/m ²)	lb/ft ² (kg/m ²)	in (mm)	in (mm)	in ⁴ /ft (cm ⁴ /m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
120-1575	O	52	0.562	223.7	50.44	57.28	64.12	0.472	10	5817.4	932.3	1118.7	1212	960	1162.8	1298.1	2055.3
		1320.8	14.288	12029.3	246.27	279.66	313.04	12	254.5	794413.8	4147	4976.3	5391	4270.4	5172.6	5774.1	9142.3
121-1474	O	48	0.625	224.9	55.11	62.57	70.03	0.472	10	5398.4	937.2	1124.7	1218.4	965.1	1169	1305	2066.2
		1219.2	15.875	12093.3	269.09	305.5	341.92	12	254.5	737205.7	4169	5002.8	5419.7	4293.1	5200.1	5804.8	9190.9
122-1118	O	34	1	226.5	80.55	91.37	102.18	0.472	10	3850.7	943.8	1132.5	1226.9	971.9	1177.2	1314.1	2080.7
		863.6	25.4	12177.9	393.26	446.09	498.91	12	254.5	525841.2	4198.2	5037.8	5457.6	4323.1	5236.5	5845.4	9255.2
122-1321	O	42	0.75	227.2	64.09	72.74	81.38	0.472	10	4770.3	946.5	1135.8	1230.4	974.7	1180.6	1317.9	2086.6
		1066.8	19.05	12212.9	312.92	355.13	397.35	12	254.5	651433.4	4210.2	5052.3	5473.3	4335.6	5251.5	5862.2	9281.8
124-1169	O	36	0.938	230.1	76.76	87.07	97.38	0.472	10	4141	958.6	1150.3	1246.1	987.1	1195.6	1334.7	2113.2
		914.4	23.812	12368.6	374.77	425.12	475.47	12	254.5	565493.2	4263.9	5116.7	5543.1	4390.9	5318.5	5936.9	9400.1
124-1271	O	40	0.812	230.4	68.5	77.73	86.95	0.472	10	4608.4	960.1	1152.1	1248.1	988.7	1197.5	1336.8	2116.6
		1016	20.638	12388.2	334.47	379.5	424.54	12	254.5	629321.5	4270.7	5124.8	5551.9	4397.8	5326.9	5946.3	9415
124-1220	O	38	0.875	231.4	72.74	82.52	92.3	0.472	10	4396.1	964.1	1156.9	1253.3	992.8	1202.5	1342.3	2125.3
		965.2	22.225	12439.5	355.13	402.88	450.63	12	254.5	600330.4	4288.4	5146	5574.9	4416	5349	5971	9454
126-1626	O	54	0.562	234	50.67	57.52	64.37	0.472	10	6318.8	975.1	1170.2	1267.7	1004.2	1216.3	1357.7	2149.7
		1371.6	14.288	12582.3	247.38	280.83	314.27	12	254.5	862892.8	4337.6	5205.1	5638.9	4466.7	5410.4	6039.5	9562.5
127-1779	O	60	0.5	236.3	45.87	52.08	58.29	0.472	10	7088.8	984.6	1181.5	1279.9	1013.9	1228.1	1370.9	2170.5
		1524	12.7	12703.9	223.98	254.28	284.58	12	254.5	968040.5	4379.5	5255.4	5693.4	4509.9	5462.7	6097.9	9655
127-1525	O	50	0.625	236.3	55.41	62.89	70.37	0.472	10	5907.7	984.6	1181.5	1280	1013.9	1228.1	1370.9	2170.7
		1270	15.875	12704.7	270.56	307.06	343.57	12	254.5	806749.8	4379.8	5255.8	5693.7	4510.2	5463	6098.3	9655.6
129-1372	O	44	0.75	240.7	64.57	73.25	81.93	0.472	10	5294.7	1002.8	1203.3	1303.6	1032.6	1250.8	1396.2	2210.7
		1117.6	19.05	12939.1	315.25	357.64	400.03	12	254.5	723034.8	4460.6	5352.7	5798.8	4593.4	5563.8	6210.7	9833.7
131-1169	O	36	1	244.1	81.51	92.41	103.32	0.472	10	4394	1017.1	1220.5	1322.3	1047.4	1268.7	1416.2	2242.3
		914.4	25.4	13124.1	397.95	451.2	504.45	12	254.5	600034.1	4524.4	5429.2	5881.7	4659.1	5643.4	6299.6	9974.3
131-1677	O	56	0.562	244.3	50.88	57.74	64.6	0.472	10	6841.4	1018.1	1221.7	1323.5	1048.4	1269.9	1417.5	2244.4
		1422.4	14.288	13136.3	248.43	281.93	315.42	12	254.5	934253.7	4528.6	5434.3	5887.2	4663.4	5648.6	6305.4	9983.6
132-1321	O	42	0.812	245	69.08	78.35	87.62	0.472	10	5144.7	1020.8	1224.9	1327	1051.2	1273.2	1421.3	2250.4
		1066.8	20.638	13171.3	337.26	382.52	427.78	12	254.5	702557.3	4540.6	5448.8	5902.8	4675.8	5663.7	6322.2	10010.2



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in³/ft (cm³/m)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	in (mm)	in (mm)	in⁴/ft (cm⁴/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
133-1474	O	48	0.688	246.5	60.28	68.38	76.48	0.472	10	5915	1026.9	1232.3	1335	1057.5	1280.9	1429.8	2263.9
		1219.2	17.462	13250.5	294.29	333.86	373.42	12	254.5	807749.2	4567.9	5481.5	5938.3	4703.9	5697.7	6360.2	10070.4
133-1220	O	38	0.938	246.7	77.57	87.95	98.34	0.472	10	4686.8	1027.8	1233.4	1336.1	1058.4	1282	1431.1	2265.9
		965.2	23.812	13262	378.73	429.43	480.13	12	254.5	640022.1	4571.9	5486.3	5943.5	4708	5702.6	6365.7	10079.1
133-1271	O	40	0.875	247	73.42	83.26	93.09	0.472	10	4939.6	1029.1	1234.9	1337.8	1059.7	1283.6	1432.8	2268.7
		1016	22.225	13278.4	358.46	406.49	454.52	12	254.5	674540.7	4577.6	5493.1	5950.8	4713.8	5709.7	6373.6	10091.6
133-1575	O	52	0.625	247.7	55.7	63.19	70.69	0.472	10	6440.4	1032.1	1238.5	1341.7	1062.8	1287.4	1437.1	2275.4
		1320.8	15.875	13317.5	271.93	308.52	345.12	12	254.5	879489.6	4591.1	5509.3	5968.4	4727.7	5726.5	6392.4	10121.3
139-1525	O	50	0.688	259	60.62	68.75	76.87	0.472	10	6474	1079	1294.8	1402.7	1111.1	1345.9	1502.4	2378.7
		1270	17.462	13922.6	295.96	335.65	375.33	12	254.5	884086.6	4799.7	5759.6	6239.5	4942.5	5986.7	6682.9	10581.2
139-1626	O	54	0.625	259.1	55.96	63.47	70.98	0.472	10	6996.5	1079.7	1295.6	1403.6	1111.8	1346.7	1503.3	2380.3
		1371.6	15.875	13931.7	273.22	309.89	346.57	12	254.5	955433.2	4802.8	5763.3	6243.6	4945.7	5990.6	6687.2	10588.1
140-1372	O	44	0.812	259.6	69.61	78.92	88.23	0.472	10	5711.4	1081.7	1298	1406.2	1113.9	1349.2	1506.1	2384.7
		1117.6	20.638	13957.3	339.85	385.32	430.79	12	254.5	779935.9	4811.6	5773.9	6255.1	4954.9	6001.7	6699.5	10607.6
141-1220	O	38	1	261.8	82.39	93.37	104.36	0.472	10	4974.4	1090.9	1309.1	1418.2	1123.4	1360.7	1518.9	2404.9
		965.2	25.4	14075.9	402.25	455.89	509.53	12	254.5	679303.9	4852.5	5823	6308.3	4997	6052.6	6756.4	10697.7
141-1321	O	42	0.875	262.6	74.05	83.94	93.83	0.472	10	5515.6	1094.4	1313.2	1422.7	1126.9	1365	1523.8	2412.6
		1066.8	22.225	14120.9	361.53	409.83	458.12	12	254.5	753209	4868	5841.6	6328.4	5012.9	6072	6778	10731.9
142-1271	O	40	0.938	263.4	78.32	88.77	99.22	0.472	10	5267.5	1097.4	1316.9	1426.6	1130.1	1368.8	1528	2419.3
		1016	23.812	14159.8	382.37	433.39	484.41	12	254.5	719319.2	4881.4	5857.7	6345.9	5026.7	6088.7	6796.7	10761.5
143-1779	O	60	0.562	265	51.27	58.15	65.04	0.472	10	7949.9	1104.2	1325	1435.4	1137	1377.2	1537.4	2434.2
		1524	14.288	14247.2	250.34	283.94	317.53	12	254.5	1085634	4911.5	5893.8	6385	5057.7	6126.3	6838.6	10827.8
144-1474	O	48	0.75	267.8	65.42	74.17	82.92	0.472	10	6427.5	1115.9	1339.1	1450.6	1149.1	1391.9	1553.7	2460
		1219.2	19.05	14398.5	319.42	362.13	404.84	12	254.5	877729.5	4963.7	5956.4	6452.8	5111.4	6191.3	6911.3	10942.8
146-1677	O	56	0.625	270.6	56.21	63.73	71.26	0.472	10	7576.1	1127.4	1352.9	1465.6	1161	1406.2	1569.7	2485.4
		1422.4	15.875	14547	274.43	311.18	347.93	12	254.5	1034581.7	5014.9	6017.9	6519.4	5164.2	6255.2	6982.6	11055.7
146-1575	O	52	0.688	271.5	60.94	69.09	77.24	0.472	10	7058.8	1131.2	1357.5	1470.6	1164.9	1411	1575.1	2493.9
		1320.8	17.462	14596.4	297.53	337.32	377.11	12	254.5	963943.4	5031.9	6038.3	6541.5	5181.7	6276.4	7006.3	11093.2



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)		lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)				k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
150-1372	O	44	0.875	278.4	74.63	84.57	94.51	0.472	10	6124.4	1159.9	1391.9	1507.9	1194.4	1446.8	1615	2557.1
		1117.6	22.225	14966.7	364.38	412.92	461.45	12	254.5	836338.5	5159.6	6191.5	6707.5	5313.2	6435.7	7184	11374.7
150-1271	O	40	1	279.6	83.2	94.26	105.32	0.472	10	5592.2	1165	1398	1514.5	1199.7	1453.2	1622.1	2568.4
		1016	25.4	15032.7	406.2	460.2	514.2	12	254.5	763658.8	5182.3	6218.8	6737	5336.6	6464	7215.7	11424.8
151-1321	O	42	0.938	280.1	79	89.51	100.03	0.472	10	5883.1	1167.3	1400.7	1517.5	1202	1456	1625.3	2573.4
		1066.8	23.812	15061.7	385.73	437.05	488.37	12	254.5	803390.6	5192.3	6230.8	6750	5346.9	6476.5	7229.6	11446.9
151-1525	O	50	0.75	281.4	65.81	74.58	83.36	0.472	10	7036	1172.7	1407.2	1524.5	1207.6	1462.7	1632.8	2585.2
		1270	19.05	15131.2	321.3	364.15	407.01	12	254.5	960833.1	5216.3	6259.6	6781.2	5371.6	6506.4	7263	11499.7
153-1626	O	54	0.688	284.1	61.24	69.41	77.58	0.472	10	7669.4	1183.5	1420.3	1538.6	1218.8	1476.3	1647.9	2609.2
		1371.6	17.462	15271.5	299	338.89	378.79	12	254.5	1047321.8	5264.7	6317.6	6844.1	5421.4	6566.8	7330.3	11606.4
155-1474	O	48	0.812	289	70.56	79.95	89.34	0.472	10	6935.8	1204.1	1445	1565.4	1240	1501.9	1676.6	2654.6
		1219.2	20.638	15537.2	344.49	390.33	436.18	12	254.5	947146.6	5356.3	6427.5	6963.1	5515.7	6681	7457.8	11808.3
158-1779	O	60	0.625	293.5	56.66	64.22	71.77	0.472	10	8805.6	1223	1467.6	1589.9	1259.4	1525.5	1702.9	2696.2
		1524	15.875	15780.6	276.65	313.53	350.42	12	254.5	1202485.2	5440.2	6528.2	7072.2	5602.1	6785.7	7574.7	11993.3
159-1575	O	52	0.75	295.1	66.17	74.97	83.78	0.472	10	7672.7	1229.6	1475.5	1598.5	1266.2	1533.7	1712	2710.7
		1320.8	19.05	15865.8	323.06	366.05	409.03	12	254.5	1047775	5469.5	6563.4	7110.4	5632.3	6822.3	7615.6	12058
160-1677	O	56	0.688	296.6	61.52	69.71	77.9	0.472	10	8305.7	1236	1483.2	1606.8	1272.8	1541.7	1720.9	2724.8
		1422.4	17.462	15947.9	300.38	340.37	380.36	12	254.5	1134217.9	5497.9	6597.4	7147.2	5661.5	6857.6	7655	12120.4
160-1372	O	44	0.938	297	79.64	90.21	100.78	0.472	10	6533.8	1237.5	1484.9	1608.7	1274.3	1543.5	1723	2728.1
		1117.6	23.812	15967.2	388.84	440.44	492.03	12	254.5	892245.5	5504.5	6605.4	7155.8	5668.3	6865.9	7664.2	12135
160-1321	O	42	1	297.5	83.94	95.07	106.2	0.472	10	6247.2	1239.5	1487.4	1611.4	1276.4	1546.1	1725.9	2732.6
		1066.8	25.4	15993.7	409.85	464.18	518.52	12	254.5	853106.3	5513.7	6616.4	7167.7	5677.8	6877.3	7677	12155.2
162-1334	O	42.5	1	302	84.12	95.27	106.41	0.472	10	6416.8	1258.2	1509.8	1635.6	1295.6	1569.4	1751.9	2773.8
		1079.5	25.4	16234.6	410.72	465.13	519.54	12	254.5	876264.7	5596.7	6716	7275.7	5763.3	6980.9	7792.6	12338.3
163-1525	O	50	0.812	303.7	70.99	80.41	89.83	0.472	10	7593.7	1265.6	1518.7	1645.3	1303.3	1578.6	1762.2	2790.2
		1270	20.638	16330.5	346.58	392.59	438.6	12	254.5	1036989.2	5629.8	6755.7	7318.7	5797.3	7022.1	7838.7	12411.2
166-1626	O	54	0.75	308.8	66.51	75.34	84.16	0.472	10	8337.4	1286.6	1544	1672.6	1324.9	1604.9	1791.5	2836.5
		1371.6	19.05	16601.8	324.71	367.82	410.93	12	254.5	1138552.4	5723.3	6867.9	7440.3	5893.6	7138.8	7968.9	12617.4

* Length of the intermediate section as percent of the outer section length(s), intermediate sheet pile length is typically 60% to 80% of the length of the outer sections or OZ®.



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)		lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)				k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
167-1474	O	48	0.875	310	75.68	85.71	95.74	0.472	10	7440.1	1291.7	1550	1679.2	1330.1	1611.1	1798.5	2847.6
		1219.2	22.225	16666.8	369.49	418.46	467.43	12	254.5	1016007.3	5745.7	6894.8	7469.4	5916.7	7166.7	8000.1	12666.8
170-1372	O	44	1	315.4	84.64	95.83	107.02	0.472	10	6939.5	1314.3	1577.2	1708.6	1353.4	1639.4	1830	2897.5
		1117.6	25.4	16958.7	413.23	467.87	522.51	12	254.5	947649.6	5846.3	7015.5	7600.2	6020.3	7292.2	8140.2	12888.6
171-1499	O	49	0.875	317.6	75.92	85.97	96.02	0.472	10	7781.2	1323.3	1588	1720.3	1362.7	1650.6	1842.6	2917.4
		1244.6	22.225	17075.2	370.66	419.73	468.79	12	254.5	1062589.4	5886.5	7063.8	7652.4	6061.7	7342.3	8196.1	12977.1
171-1575	O	52	0.812	318.5	71.39	80.84	90.3	0.472	10	8282	1327.2	1592.7	1725.4	1366.8	1655.5	1848	2926
		1320.8	20.638	17125.8	348.53	394.7	440.87	12	254.5	1130984.6	5903.9	7084.7	7675.1	6079.6	7364.1	8220.4	13015.6
173-1779	O	60	0.688	321.9	62.04	70.26	78.49	0.472	10	9655.9	1341.1	1609.3	1743.4	1381	1672.8	1867.3	2956.5
		1524	17.462	17304.4	302.9	343.06	383.23	12	254.5	1318594.3	5965.5	7158.6	7755.1	6143.1	7440.9	8306.1	13151.3
173-1677	O	56	0.75	322.5	66.82	75.68	84.53	0.472	10	9030.4	1343.8	1612.6	1747	1383.8	1676.2	1871.1	2962.5
		1422.4	19.05	17339.4	326.26	369.49	412.71	12	254.5	1233180.3	5977.6	7173.1	7770.8	6155.5	7456	8322.9	13178
175-1525	O	50	0.875	325.9	76.15	86.22	96.29	0.472	10	8147.1	1357.8	1629.4	1765.2	1398.3	1693.7	1890.6	2993.5
		1270	22.225	17520.6	371.79	420.95	470.11	12	254.5	1112554.9	6040	7248	7852	6219.8	7533.8	8409.9	13315.6
178-1474	O	48	0.938	330.8	80.78	91.45	102.12	0.472	10	7940.3	1378.5	1654.2	1792.1	1419.6	1719.5	1919.4	3039
		1219.2	23.812	17787.3	394.42	446.51	498.59	12	254.5	1084311.6	6131.9	7358.3	7971.5	6314.5	7648.5	8537.9	13518.3
179-1626	O	54	0.812	333.4	71.76	81.25	90.73	0.472	10	9000.8	1389	1666.8	1805.7	1430.4	1732.5	1934	3062.2
		1371.6	20.638	17922.7	350.37	396.68	443	12	254.5	1229137.2	6178.6	7414.3	8032.2	6362.6	7706.8	8602.9	13621.2
179-1550	O	51	0.875	333.5	76.37	86.46	96.55	0.472	10	8503.8	1389.5	1667.4	1806.4	1430.9	1733.2	1934.7	3063.3
		1295.4	22.225	17929	372.88	422.14	471.39	12	254.5	1161264.3	6180.8	7417	8035.1	6364.8	7709.5	8605.9	13626.1
184-1575	O	52	0.875	341.8	76.59	86.7	96.8	0.472	10	8886.8	1424.2	1709	1851.4	1466.6	1776.4	1983	3139.7
		1320.8	22.225	18376.3	373.94	423.29	472.63	12	254.5	1213572	6335	7602	8235.5	6523.6	7901.8	8820.6	13966
187-1525	O	50	0.938	347.8	81.3	92.01	102.72	0.472	10	8696.2	1449.4	1739.2	1884.2	1492.5	1807.8	2018	3195.2
		1270	23.812	18701.4	396.94	449.24	501.55	12	254.5	1187536.9	6447.1	7736.5	8381.2	6639	8041.6	8976.7	14213
187-1677	O	56	0.812	348.2	72.11	81.63	91.14	0.472	10	9750.1	1450.9	1741.1	1886.2	1494.1	1809.7	2020.2	3198.6
		1422.4	20.638	18721.3	352.09	398.54	444.99	12	254.5	1331456.9	6453.9	7744.7	8390.1	6646.1	8050.1	8986.2	14228.2
188-1601	O	53	0.875	349.4	76.8	86.92	97.05	0.472	10	9259.1	1455.8	1747	1892.6	1499.2	1815.9	2027	3209.5
		1346.2	22.225	18784.9	374.97	424.4	473.83	12	254.5	1264413	6475.9	7771	8418.6	6668.6	8077.5	9016.8	14276.5



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in³/ft (cm³/m)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	in (mm)	in (mm)	in⁴/ft (cm⁴/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
188-1779	O	60	0.75	350	67.4	76.3	85.2	0.472	10	10500.7	1458.4	1750.1	1896	1501.8	1819.1	2030.7	3215.2
		1524	19.05	18818.4	329.09	372.53	415.97	12	254.5	1433961.2	6487.4	7784.9	8433.6	6680.5	8091.9	9032.8	14302
189-1474	O	48	1	351.5	85.88	97.18	108.49	0.472	10	8436.4	1464.6	1757.6	1904	1508.2	1826.9	2039.3	3228.9
		1219.2	25.4	18898.7	419.29	474.48	529.67	12	254.5	1152061.9	6515.1	7818.1	8469.6	6709	8126.4	9071.4	14363
192-1626	O	54	0.875	357.8	77	87.14	97.29	0.472	10	9659.4	1490.6	1788.8	1937.8	1535	1859.3	2075.5	3286.2
		1371.6	22.225	19234.1	375.96	425.47	474.99	12	254.5	1319076.3	6630.7	7956.9	8619.9	6828.1	8270.7	9232.4	14617.9
194-1499	O	49	1	360.6	86.16	97.49	108.82	0.472	10	8834	1502.4	1802.9	1953.1	1547.1	1874	2091.9	3312.1
		1244.6	25.4	19385.5	420.68	475.99	531.31	12	254.5	1206358.3	6682.9	8019.5	8687.8	6881.8	8335.8	9305	14733
196-1575	O	52	0.938	364.9	81.78	92.54	103.29	0.472	10	9487.2	1520.4	1824.5	1976.5	1565.6	1896.4	2116.9	3351.8
		1320.8	23.812	19617.8	399.29	451.8	504.31	12	254.5	1295556.4	6763	8115.6	8791.9	6964.3	8435.6	9416.5	14909.5
196-1652	O	55	0.875	365.4	77.2	87.36	97.52	0.472	10	10047.2	1522.3	1826.8	1979	1567.6	1898.8	2119.6	3356
		1397	22.225	19642.6	376.92	426.52	476.11	12	254.5	1372037.8	6771.6	8125.9	8803	6973.1	8446.3	9428.5	14928.4
199-1525	O	50	1	369.6	86.44	97.79	109.15	0.472	10	9240.9	1540.2	1848.2	2002.2	1586	1921.1	2144.5	3395.4
		1270	25.4	19873	422.02	477.46	532.9	12	254.5	1261933.3	6851	8221.1	8906.2	7054.9	8545.4	9539	15103.5
201-1677	O	56	0.875	373.7	77.39	87.56	97.74	0.472	10	10464.8	1557.3	1868.7	2024.4	1603.6	1942.4	2168.3	3433.1
		1422.4	22.225	20093.6	377.85	427.53	477.2	12	254.5	1429059.6	6927	8312.4	9005.1	7133.2	8640.3	9644.9	15271.2
203-1779	O	60	0.812	378	72.76	82.32	91.89	0.472	10	11340.1	1575	1890	2047.5	1621.9	1964.5	2193	3472.2
		1524	20.638	20322.6	355.23	401.94	448.65	12	254.5	1548585.9	7006	8407.2	9107.8	7214.5	8738.7	9754.9	15445.2
204-1550	O	51	1	378.7	86.7	98.08	109.46	0.472	10	9657.3	1578	1893.6	2051.4	1625	1968.3	2197.1	3478.8
		1295.4	25.4	20361.1	423.31	478.87	534.43	12	254.5	1318787.3	7019.2	8423.1	9125	7228.2	8755.3	9773.3	15474.4
205-1626	O	54	0.938	382	82.23	93.03	103.82	0.472	10	10313.3	1591.6	1909.9	2069	1638.9	1985.2	2216	3508.7
		1371.6	23.812	20536.2	401.49	454.2	506.9	12	254.5	1408369.7	7079.6	8495.5	9203.5	7290.3	8830.5	9857.4	15607.5
209-1575	O	52	1	387.8	86.96	98.36	109.76	0.472	10	10083	1615.9	1939	2100.6	1664	2015.5	2249.9	3562.3
		1320.8	25.4	20849.8	424.57	480.24	535.91	12	254.5	1376920.8	7187.7	8625.2	9344	7401.7	8965.4	10007.9	15845.8
213-1601	O	53	1	396.9	87.21	98.63	110.06	0.472	10	10518.1	1653.8	1984.5	2149.9	1703	2062.8	2302.7	3645.9
		1346.2	25.4	21339.1	425.78	481.57	537.35	12	254.5	1436333.9	7356.4	8827.7	9563.3	7575.4	9175.8	10242.8	16217.7
215-1677	O	56	0.938	399.1	82.66	93.49	104.32	0.472	10	11174.6	1662.9	1995.5	2161.8	1712.4	2074.2	2315.3	3666
		1422.4	23.812	21456.6	403.56	456.45	509.34	12	254.5	1525994.4	7396.9	8876.3	9616	7617.1	9226.3	10299.2	16307



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Section	Solution Type	Pipe		Section Modulus	Panel Weight by Ratio			Minimum Thickness	Connector Width	Moment of Inertia	Bending Moment by Grade						
		Diameter	Thickness		60%	80%	100%				G50	G60	G65	S 355 GP	S 430 GP	x70	x110
		in (mm)	in (mm)	in³/ft (cm³/m)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	lb/ft² (kg/m²)	in (mm)	in (mm)	in⁴/ft (cm⁴/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)	k-ft/ft (kN·m/m)
218-1779	O	60	0.875	405.8	78.1	88.33	98.57	0.472	10	12174.1	1690.9	2029	2198.1	1741.2	2109	2354.3	3727.6
		1524	22.225	21817.4	381.32	431.28	481.25	12	254.5	1662485.2	7521.3	9025.5	9777.7	7745.2	9381.5	10472.3	16581.2
218-1626	O	54	1	406	87.45	98.9	110.34	0.472	10	10962.5	1691.7	2030.1	2199.3	1742.1	2110.2	2355.5	3729.6
		1371.6	25.4	21828.9	426.96	482.85	538.74	12	254.5	1497027.2	7525.3	9030.3	9782.8	7749.3	9386.4	10477.9	16590
223-1652	O	55	1	415.1	87.68	99.15	110.62	0.472	10	11416.3	1729.7	2075.7	2248.7	1781.2	2157.6	2408.4	3813.4
		1397	25.4	22319.3	428.1	484.09	540.09	12	254.5	1559000.9	7694.3	9233.1	10002.6	7923.3	9597.3	10713.2	16962.6
228-1677	O	56	1	424.3	87.91	99.4	110.89	0.472	10	11879.5	1767.8	2121.3	2298.1	1820.4	2205	2461.4	3897.2
		1422.4	25.4	22810.1	429.21	485.3	541.4	12	254.5	1622255.4	7863.5	9436.2	10222.6	8097.6	9808.3	10948.9	17335.7
233-1779	O	60	0.938	433.4	83.43	94.33	105.23	0.472	10	13002.8	1805.9	2167.1	2347.7	1859.7	2252.6	2514.5	3981.3
		1524	23.812	23302.5	407.34	460.56	513.79	12	254.5	1775648	8033.2	9639.9	10443.2	8272.4	10020.1	11185.2	17709.9
248-1779	O	60	1	460.9	88.75	100.32	111.88	0.472	10	13826.2	1920.3	2304.4	2496.4	1977.5	2395.2	2673.8	4233.4
		1524	25.4	24778	433.31	489.78	546.25	12	254.5	1888085.5	8541.9	10250.3	11104.5	8796.2	10654.6	11893.5	18831.3

Specifications

When using steel sheet pile, it is necessary to make allowances for deviations from theoretical exactness. The degree of precision obtainable in the production of sheet pile is limited by the basic character of the rolling processes and normal limitations of mill equipment. Care must be taken during installation to assure that each element is being set at the desired driving dimension.

- Dimensions typically shown are nominal.
- Actual thicknesses vary due to mill rolling practices; however, permitted variations for such dimensions are not addressed.
- Interlocks should be reasonably free-sliding when threaded.
- Terms, tolerance, dimensions, and delivery conditions are in accordance with EN 10248 and/or ASTM A6.
- Welding is in accordance with AWS D1.1.

	AMERICAN ASTM A 6		EUROPEAN EN 10248
Mass	5%	-2.5%	± 5%
Length	+ 5in.	-0 in.	± 200mm
Height			± 7mm
Thickness			± 0.5mm for ≤ 8.5mm ± 6% for > 8.5mm
Width Interlocked			± 3%
Straightness			0.2% of the length
Ends ou of Square			2% of the width

Available Steel Grades

AMERICAN			CANADIAN			EUROPEAN		
ASTM	YIELD STRENGTH		CSA G40.21	YIELD STRENGTH		EN 10248	YIELD STRENGTH	
	(ksi)	(MPa)		(ksi)	(MPa)		(ksi)	(MPa)
A 328	39	270	Grade 260 W	38	260	S 240 GP	35	240
A 572 Grade 42	42	290	Grade 300 W	44	300	S 270 GP	39	270
A 572 Grade 50	50	345	Grade 355 W	50	350	S 320 GP	46	320
A 572 Grade 55	55	380	Grade 400 W	58	400	S 355 GP	51	355
A 572 Grade 60	60	415				S 390 GP	57	390
A 572 Grade 65*	65	450				S 430 GP	62	430
A 588 Grade 50	50	345				S 450 GP*	65	450
API 5L x70	70	485						
ASTM A 690 MARINER®	50	345						

ENGINEERING DISCLAIMER

This publication contains information on the properties of hot-rolled sheet pile based on accepted engineering practices related to sheet pile products and projects. The use of the data contained herein must be supplemented with qualified professional judgment.

LEGAL DISCLAIMER

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Toll free: 866.666.7453 | +1 512.243.1228 | info@sheet-pile.com | sheet-pile.com

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