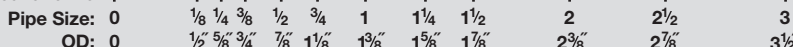




## How to Measure Pipe Size for Unthreaded Pipe and Fittings—Example shows pipe size 3/8.

Pipe size is not an actual measured size, but rather an industry designation. Align your pipe or butt-weld fitting with the "0" line as shown. The line on the opposite edge gives the pipe size. You can also measure the OD, then find the corresponding pipe size in the chart. If your measurement doesn't match an OD listed, round to the nearest 1/8".



To measure larger pipe sizes, go to [mcmaster.com](http://mcmaster.com) and search for **4347KAC**. For information about fittings and pipe, see pages 2-3.

## Thin-Wall Butt-Weld Stainless Steel Unthreaded Pipe Fittings

- Use with air, natural gas, oil, water
- Pipe: Use unthreaded Schedule 10 thin-wall stainless steel (see page 35)

Also known as Schedule 10 fittings, these are thin and lightweight. They have beveled ends that, when flush to pipe, create a trough for a strong weld that permits maximum flow. Fittings meet ANSI/ASME B16.9, ASTM A403/A403M, and MSS SP-43.

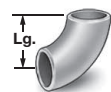
**304 stainless steel** fittings have very good corrosion resistance. **316 stainless steel** fittings have excellent corrosion resistance.

**Stub ends** are used with flanges. Slide a flange onto the stub end and weld the stub end to pipe (not the flange). Since the flange isn't welded to the pipe, it can be disconnected easily, which creates an access point for frequent cleaning and inspecting.

**Inline tees** are also known as branch tees.

**Offset straights** are also known as eccentric reducers; they connect one pipe to another smaller-diameter pipe and have the centers offset so your line can drain.

## Connectors



Pipe Size	Wall Thick.	Long 90° Elbows	Short 90° Elbows	45° Elbows	Tees
<b>304/304L Stainless Steel</b>					
1/2	0.083"	1 1/2" <b>45735K211</b> \$5.33		<b>45735K231</b> \$6.83	<b>45735K251</b> \$18.83
3/4	0.083"	1 1/2" <b>45735K214</b> 5.44		<b>45735K232</b> 6.96	<b>45735K252</b> 19.01
1	0.109"	1 1/2" <b>45735K213</b> 6.09	1" <b>45735K321</b> \$40.04	<b>45735K233</b> 7.68	<b>45735K253</b> 19.20
1 1/4	0.109"	1 7/8" <b>45735K217</b> 9.36	1 1/4" <b>45735K131</b> 41.66	<b>45735K237</b> 12.84	<b>45735K257</b> 29.59
1 1/2	0.109"	2 1/4" <b>45735K215</b> 7.62	1 1/2" <b>45735K323</b> 42.65	<b>45735K235</b> 7.83	<b>45735K255</b> 19.39
2	0.109"	3" <b>45735K216</b> 9.17	2" <b>45735K324</b> 37.43	<b>45735K236</b> 9.36	<b>45735K256</b> 20.89
2 1/2	0.12"	3 3/4" <b>45735K221</b> 16.54	2 1/2" <b>45735K132</b> 64.24	<b>45735K241</b> 14.80	<b>45735K261</b> 54.40
3	0.12"	4 1/2" <b>45735K218</b> 19.58	3" <b>45735K326</b> 58.75	<b>45735K238</b> 16.97	<b>45735K258</b> 38.30
4	0.12"	6" <b>45735K219</b> 32.64	4" <b>45735K327</b> 74.85	<b>45735K239</b> 27.20	<b>45735K259</b> 57.45
6	0.134"	9" <b>45735K222</b> 87.04	6" <b>45735K328</b> 135.06	<b>45735K242</b> 58.75	<b>45735K262</b> 131.31
8	0.148"	12" <b>45735K111</b> 144.16	8" <b>45735K114</b> 197.61	<b>45735K112</b> 104.40	<b>45735K113</b> 268.73
10	0.165"	15" <b>45735K611</b> 358.72	10" <b>45735K613</b> 570.20	<b>45735K615</b> 257.82	<b>45735K617</b> 335.56
12	0.18"	18" <b>45735K612</b> 552.74	12" <b>45735K614</b> 712.84	<b>45735K616</b> 392.98	<b>45735K618</b> 767.76
<b>316/316L Stainless Steel</b>					
1/2	0.083"	1 1/2" <b>43645K311</b> 6.79		<b>43645K331</b> 8.53	<b>43645K351</b> 23.94
3/4	0.083"	1 1/2" <b>43645K312</b> 6.79		<b>43645K332</b> 8.70	<b>43645K352</b> 23.94
1	0.109"	1 1/2" <b>43645K313</b> 7.83	1" <b>43645K124</b> 54.40	<b>43645K333</b> 9.79	<b>43645K353</b> 23.94
1 1/4	0.109"	1 7/8" <b>43645K111</b> 13.28	1 1/4" <b>43645K125</b> 54.88	<b>43645K115</b> 16.98	<b>43645K119</b> 41.34
1 1/2	0.109"	2 1/4" <b>43645K315</b> 9.57	1 1/2" <b>43645K126</b> 56.56	<b>43645K335</b> 9.57	<b>43645K355</b> 26.11
2	0.109"	3" <b>43645K316</b> 11.97	2" <b>43645K127</b> 49.74	<b>43645K336</b> 11.97	<b>43645K356</b> 26.98
2 1/2	0.12"	3 3/4" <b>43645K112</b> 20.88	2 1/2" <b>43645K128</b> 84.96	<b>43645K116</b> 18.72	<b>43645K121</b> 67.44
3	0.12"	4 1/2" <b>43645K318</b> 25.68	3" <b>43645K129</b> 79.20	<b>43645K338</b> 22.63	<b>43645K358</b> 49.74
4	0.12"	6" <b>43645K319</b> 41.34	4" <b>43645K131</b> 92.38	<b>43645K339</b> 34.82	<b>43645K359</b> 73.11
6	0.134"	9" <b>43645K113</b> 104.70	6" <b>43645K132</b> 178.04	<b>43645K117</b> 71.80	<b>43645K122</b> 180.02
8	0.148"	12" <b>43645K114</b> 194.47	8" <b>43645K133</b> 250.12	<b>43645K118</b> 132.23	<b>43645K123</b> 358.30
10	0.165"	15" <b>43645K411</b> 466.78	10" <b>43645K423</b> 680.04	<b>43645K435</b> 319.16	<b>43645K447</b> 767.76
12	0.18"	18" <b>43645K412</b> 700.12	12" <b>43645K424</b> 921.10	<b>43645K436</b> 515.64	<b>43645K448</b> 1,052.68

## Caps and Stub Ends



Caps				Stub Ends			
Pipe Size	Wall Thick.	304/304L Stainless Steel	316/316L Stainless Steel	Pipe Size	Wall Thick.	304/304L Stainless Steel	316/316L Stainless Steel
1/2	0.083"	<b>45735K271</b> \$10.88	<b>43645K371</b> \$15.67	1/2	0.083"	<b>45735K291</b> \$13.67	<b>43645K391</b> \$17.66
3/4	0.083"	<b>45735K272</b> 14.80	<b>43645K372</b> 20.89	3/4	0.083"	<b>45735K292</b> 14.81	<b>43645K392</b> 20.51
1	0.109"	<b>45735K273</b> 16.10	<b>43645K373</b> 22.63	1	0.109"	<b>45735K293</b> 15.95	<b>43645K393</b> 20.51
1 1/4	0.109"	<b>45735K277</b> 40.47	<b>43645K147</b> 56.58	1 1/4	0.109"	<b>45735K297</b> 35.32	<b>43645K152</b> 44.42
1 1/2	0.109"	<b>45735K275</b> 17.41	<b>43645K375</b> 24.81	1 1/2	0.109"	<b>45735K295</b> 15.38	<b>43645K395</b> 19.94
2	0.109"	<b>45735K276</b> 15.23	<b>43645K376</b> 19.58	2	0.109"	<b>45735K296</b> 18.80	<b>43645K396</b> 22.78
2 1/2	0.12"	<b>45735K281</b> 21.76	<b>43645K148</b> 24.80	2 1/2	0.12"	<b>45735K311</b> 39.87	<b>43645K153</b> 48.98
3	0.12"	<b>45735K278</b> 18.71	<b>43645K378</b> 26.11	3	0.12"	<b>45735K298</b> 26.20	<b>43645K398</b> 32.47
4	0.12"	<b>45735K279</b> 23.94	<b>43645K379</b> 31.33	4	0.12"	<b>45735K299</b> 35.32	<b>43645K399</b> 44.43
6	0.134"	<b>45735K282</b> 39.17	<b>43645K149</b> 52.22	6	0.134"	<b>45735K312</b> 71.20	<b>43645K154</b> 87.72
8	0.148"	<b>45735K115</b> 73.78	<b>43645K151</b> 86.74	8	0.148"	<b>45735K116</b> 112.93	<b>43645K155</b> 158.53
10	0.165"	<b>45735K619</b> 94.14	<b>43645K458</b> 122.68	10	0.134"	<b>45735K622</b> 336.06	<b>43645K461</b> 447.26
12	0.18"	<b>45735K621</b> 122.68	<b>43645K459</b> 164.40	12	0.156"	<b>45735K623</b> 427.00	<b>43645K462</b> 561.34

(Continued on following page)