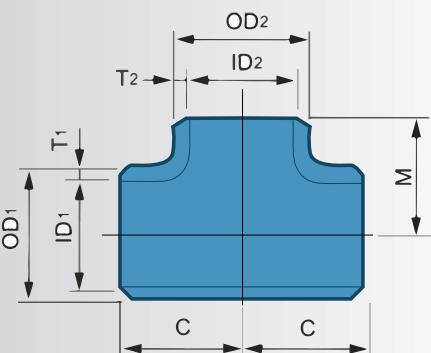
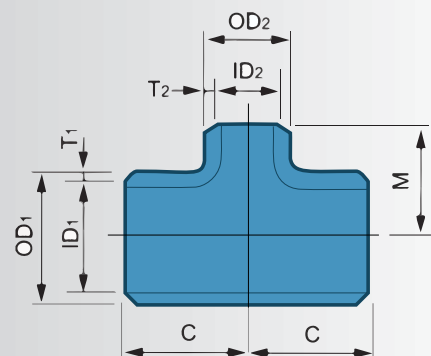


TEE Straight and Reducing Outlet Tees

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STRAIGHT

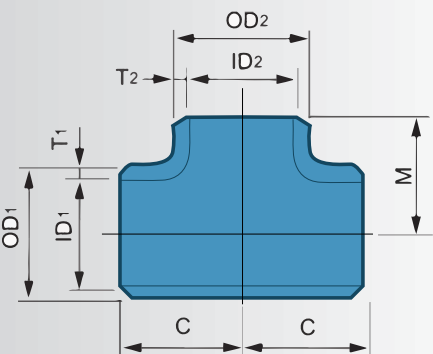


REDUCING

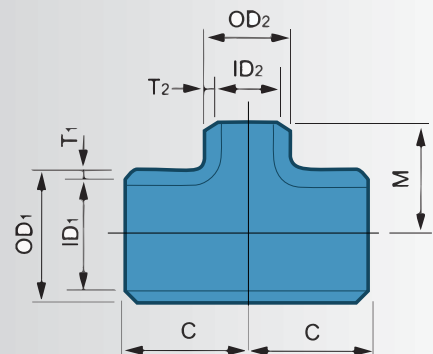
NOMINAL PIPE SIZE	DIMENSIONS				WALL THICKNESS									
	Outside Diameter at Bevel: D1/D2		Center to End		Sch. 20		Sch. 30		Std		Sch. 40		Sch. 60	
inch	OD1 in	OD2 in	C in	M in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
1/2" x 1/2"	0.840"	0.840"	1.000"	1.000"	-	-	-	-	0.109"	0.109"	0.109"	0.109"	-	-
3/4" x 3/4"	1.050"	1.050"	1.122"	1.122"	-	-	-	-	0.113"	0.113"	0.113"	0.113"	-	-
3/4" x 1/2"	1.050"	0.840"	1.122"	1.122"	-	-	-	-	0.113"	0.109"	0.113"	0.109"	-	-
1" x 1"	1.315"	1.315"	1.500"	1.500"	-	-	-	-	0.133"	0.133"	0.133"	0.133"	-	-
1" x 3/4"	1.315"	1.050"	1.500"	1.500"	-	-	-	-	0.133"	0.113"	0.133"	0.113"	-	-
1" x 1/2"	1.315"	0.840"	1.500"	1.500"	-	-	-	-	0.133"	0.109"	0.133"	0.109"	-	-
1 1/4" x 1 1/4"	1.660"	1.660"	1.882"	1.882"	-	-	-	-	0.140"	0.140"	0.140"	0.140"	-	-
1 1/4" x 1"	1.660"	1.315"	1.882"	1.882"	-	-	-	-	0.140"	0.133"	0.140"	0.133"	-	-
1 1/4" x 3/4"	1.660"	1.050"	1.882"	1.882"	-	-	-	-	0.140"	0.113"	0.140"	0.113"	-	-
1 1/2" x 1 1/2"	1.900"	1.900"	2.252"	2.252"	-	-	-	-	0.145"	0.145"	0.145"	0.145"	-	-
1 1/2" x 1 1/4"	1.900"	1.660"	2.252"	2.252"	-	-	-	-	0.145"	0.140"	0.145"	0.140"	-	-
1 1/2" x 3/4"	1.900"	1.315"	2.252"	2.252"	-	-	-	-	0.145"	0.133"	0.145"	0.133"	-	-
1 1/2" x 1"	1.900"	1.050"	2.252"	2.252"	-	-	-	-	0.145"	0.113"	0.145"	0.113"	-	-
1 1/2" x 1/2"	1.900"	0.840"	2.252"	2.252"	-	-	-	-	0.145"	0.109"	0.145"	0.109"	-	-
2" x 2"	2.375"	2.375"	2.500"	2.500"	-	-	-	-	0.154"	0.154"	0.154"	0.154"	-	-
2" x 1 1/2"	2.375"	1.900"	2.500"	2.382"	-	-	-	-	0.154"	0.145"	0.154"	0.145"	-	-
2" x 1 1/4"	2.375"	1.660"	2.500"	2.252"	-	-	-	-	0.154"	0.140"	0.154"	0.140"	-	-
2" x 1"	2.375"	1.315"	2.500"	2.000"	-	-	-	-	0.154"	0.133"	0.154"	0.133"	-	-
2" x 3/4"	2.375"	1.050"	2.500"	1.752"	-	-	-	-	0.154"	0.113"	0.154"	0.113"	-	-
2 1/2" x 2 1/2"	2.875"	2.875"	3.000"	3.000"	-	-	-	-	0.203"	0.203"	0.203"	0.203"	-	-
2 1/2" x 2"	2.875"	2.375"	3.000"	2.752"	-	-	-	-	0.203"	0.154"	0.203"	0.154"	-	-
2 1/2" x 1 1/2"	2.875"	1.900"	3.000"	2.622"	-	-	-	-	0.203"	0.145"	0.203"	0.145"	-	-
2 1/2" x 1 1/4"	2.875"	1.660"	3.000"	2.500"	-	-	-	-	0.203"	0.140"	0.203"	0.140"	-	-
2 1/2" x 1"	2.875"	1.315"	3.000"	2.252"	-	-	-	-	0.203"	0.133"	0.203"	0.133"	-	-
3" x 3"	3.500"	3.500"	3.374"	3.374"	-	-	-	-	0.216"	0.216"	0.216"	0.216"	-	-
3" x 2 1/2"	3.500"	2.875"	3.374"	3.252"	-	-	-	-	0.216"	0.203"	0.216"	0.203"	-	-
3" x 2"	3.500"	2.375"	3.374"	3.000"	-	-	-	-	0.216"	0.154"	0.216"	0.154"	-	-
3" x 1 1/2"	3.500"	1.900"	3.374"	2.882"	-	-	-	-	0.216"	0.145"	0.216"	0.145"	-	-
3" x 1 1/4"	3.500"	1.660"	3.374"	2.752"	-	-	-	-	0.216"	0.140"	0.216"	0.140"	-	-
4" x 4"	4.500"	4.500"	4.122"	4.122"	-	-	-	-	0.237"	0.237"	0.237"	0.237"	-	-
4" x 3"	4.500"	3.500"	4.122"	3.882"	-	-	-	-	0.237"	0.216"	0.237"	0.216"	-	-
4" x 2 1/2"	4.500"	2.875"	4.122"	3.752"	-	-	-	-	0.237"	0.203"	0.237"	0.203"	-	-
4" x 2"	4.500"	2.375"	4.122"	3.500"	-	-	-	-	0.237"	0.154"	0.237"	0.154"	-	-
4" x 1 1/2"	4.500"	1.900"	4.122"	3.382"	-	-	-	-	0.237"	0.145"	0.237"	0.145"	-	-

TEE Straight and Reducing Outlet Tees

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STRAIGHT

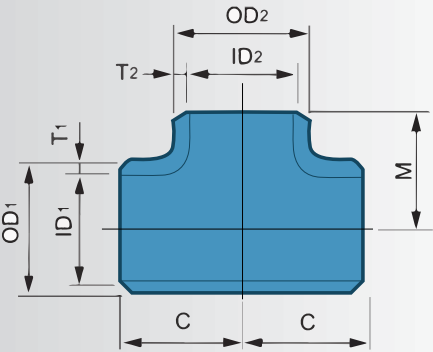


REDUCING

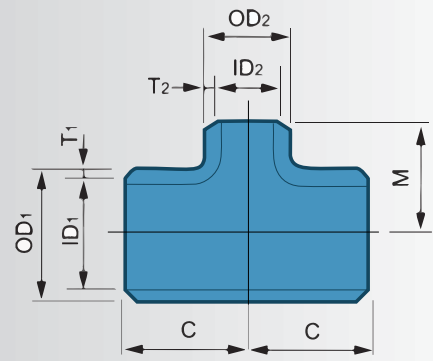
NOMINAL PIPE SIZE	WALL THICKNESS													
	XS		Sch. 80		Sch. 100		Sch. 120		Sch. 140		Sch. 160		XXS	
inch	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
1/2" x 1/2"	0.147"	0.147"	0.147"	0.147"	-	-	-	-	-	-	0.188"	0.188"	0.294"	0.294"
3/4" x 3/4"	0.154"	0.154"	0.154"	0.154"	-	-	-	-	-	-	0.219"	0.219"	0.308"	0.308"
3/4" x 1/2"	0.154"	0.147"	0.154"	0.147"	-	-	-	-	-	-	0.219"	0.188"	0.308"	0.294"
1" x 1"	0.179"	0.179"	0.179"	0.179"	-	-	-	-	-	-	0.250"	0.250"	0.358"	0.358"
1" x 3/4"	0.179"	0.154"	0.179"	0.154"	-	-	-	-	-	-	0.250"	0.219"	0.358"	0.308"
1" x 1/2"	0.179"	0.147"	0.179"	0.147"	-	-	-	-	-	-	0.250"	0.188"	0.358"	0.294"
1 1/4" x 1 1/4"	0.191"	0.191"	0.191"	0.191"	-	-	-	-	-	-	0.250"	0.250"	0.382"	0.382"
1 1/4" x 1"	0.191"	0.179"	0.191"	0.179"	-	-	-	-	-	-	0.250"	0.250"	0.382"	0.358"
1 1/4" x 3/4"	0.191"	0.154"	0.191"	0.154"	-	-	-	-	-	-	0.250"	0.219"	0.382"	0.308"
1 1/2" x 1 1/2"	0.200"	0.200"	0.200"	0.200"	-	-	-	-	-	-	0.281"	0.281"	0.400"	0.400"
1 1/2" x 1 1/4"	0.200"	0.191"	0.200"	0.191"	-	-	-	-	-	-	0.281"	0.250"	0.400"	0.382"
1 1/2" x 3/4"	0.200"	0.179"	0.200"	0.179"	-	-	-	-	-	-	0.281"	0.250"	0.400"	0.358"
1 1/2" x 1"	0.200"	0.154"	0.200"	0.154"	-	-	-	-	-	-	0.281"	0.219"	0.400"	0.308"
1 1/2" x 1/2"	0.200"	0.147"	0.200"	0.147"	-	-	-	-	-	-	0.281"	0.188"	0.400"	0.294"
2" x 2"	0.218"	0.218"	0.218"	0.218"	-	-	-	-	-	-	0.344"	0.344"	0.436"	0.436"
2" x 1 1/2"	0.218"	0.200"	0.218"	0.200"	-	-	-	-	-	-	0.344"	0.281"	0.436"	0.400"
2" x 1 1/4"	0.218"	0.191"	0.218"	0.191"	-	-	-	-	-	-	0.344"	0.250"	0.436"	0.382"
2" x 1"	0.218"	0.179"	0.218"	0.179"	-	-	-	-	-	-	0.344"	0.250"	0.436"	0.358"
2" x 3/4"	0.218"	0.154"	0.218"	0.154"	-	-	-	-	-	-	0.344"	0.219"	0.436"	0.308"
2 1/2" x 2 1/2"	0.276"	0.276"	0.276"	0.276"	-	-	-	-	-	-	0.375"	0.375"	0.552"	0.552"
2 1/2" x 2"	0.276"	0.218"	0.276"	0.218"	-	-	-	-	-	-	0.375"	0.344"	0.552"	0.436"
2 1/2" x 1 1/2"	0.276"	0.200"	0.276"	0.200"	-	-	-	-	-	-	0.375"	0.281"	0.552"	0.400"
2 1/2" x 1 1/4"	0.276"	0.191"	0.276"	0.191"	-	-	-	-	-	-	0.375"	0.250"	0.552"	0.382"
2 1/2" x 1"	0.276"	0.179"	0.276"	0.179"	-	-	-	-	-	-	0.375"	0.250"	0.552"	0.358"
3" x 3"	0.300"	0.300"	0.300"	0.300"	-	-	-	-	-	-	0.438"	0.438"	0.600"	0.600"
3" x 2 1/2"	0.300"	0.276"	0.300"	0.276"	-	-	-	-	-	-	0.438"	0.375"	0.600"	0.552"
3" x 2"	0.300"	0.218"	0.300"	0.218"	-	-	-	-	-	-	0.438"	0.344"	0.600"	0.436"
3" x 1 1/2"	0.300"	0.200"	0.300"	0.200"	-	-	-	-	-	-	0.438"	0.281"	0.600"	0.400"
3" x 1 1/4"	0.300"	0.191"	0.300"	0.191"	-	-	-	-	-	-	0.531"	0.250"	0.600"	0.382"
4" x 4"	0.337"	0.337"	0.337"	0.337"	-	-	0.438"	0.438"	-	-	0.531"	0.531"	0.674"	0.674"
4" x 3"	0.337"	0.300"	0.337"	0.300"	-	-	-	-	-	-	0.531"	0.438"	0.674"	0.600"
4" x 2 1/2"	0.337"	0.276"	0.337"	0.276"	-	-	-	-	-	-	0.531"	0.375"	0.674"	0.552"
4" x 2"	0.337"	0.218"	0.337"	0.218"	-	-	-	-	-	-	0.531"	0.344"	0.674"	0.436"
4" x 1 1/2"	0.337"	0.200"	0.337"	0.200"	-	-	-	-	-	-	0.531"	0.281"	0.674"	0.400"

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STRAIGHT

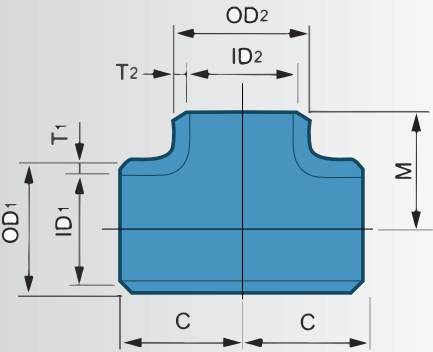


REDUCING

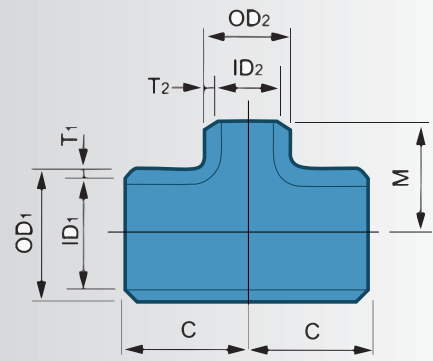
NOMINAL PIPE SIZE	DIMENSIONS				WALL THICKNESS									
	Outside Diameter at Bevel: D1/D2		Center to End		Sch. 20		Sch. 30		Std		Sch. 40		Sch. 60	
inch	OD1 in	OD2 in	C in	M in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
5" x 5"	5.563"	5.563"	4.882"	4.882"	-	-	-	-	0.258"	0.258"	0.258"	0.258"	-	-
5" x 4"	5.563"	4.500"	4.882"	4.618"	-	-	-	-	0.258"	0.237"	0.258"	0.237"	-	-
5" x 3"	5.563"	3.500"	4.882"	4.382"	-	-	-	-	0.258"	0.216"	0.258"	0.216"	-	-
5" x 2 1/2"	5.563"	2.875"	4.882"	4.252"	-	-	-	-	0.258"	0.203"	0.258"	0.203"	-	-
5" x 2"	5.563"	2.375"	4.882"	4.118"	-	-	-	-	0.258"	0.154"	0.258"	0.154"	-	-
6" x 6"	6.626"	6.626"	5.622"	5.622"	-	-	-	-	0.280"	0.280"	0.280"	0.280"	-	-
6" x 5"	6.626"	5.563"	5.622"	5.382"	-	-	-	-	0.280"	0.258"	0.280"	0.258"	-	-
6" x 4"	6.626"	4.500"	5.622"	5.118"	-	-	-	-	0.280"	0.237"	0.280"	0.237"	-	-
6" x 3"	6.626"	3.500"	5.622"	4.882"	-	-	-	-	0.280"	0.216"	0.280"	0.216"	-	-
6" x 2 1/2"	6.626"	2.875"	5.622"	4.752"	-	-	-	-	0.280"	0.203"	0.280"	0.203"	-	-
8" x 8"	8.625"	8.625"	7.000"	7.000"	0.250"	0.250"	0.277"	0.277"	0.322"	0.322"	0.322"	0.322"	0.406"	0.406"
8" x 6"	8.625"	6.626"	7.000"	6.618"	-	-	-	-	0.322"	0.280"	0.322"	0.280"	-	-
8" x 5"	8.625"	5.563"	7.000"	6.382"	-	-	-	-	0.322"	0.258"	0.322"	0.258"	-	-
8" x 4"	8.625"	4.500"	7.000"	6.118"	-	-	-	-	0.322"	0.237"	0.322"	0.237"	-	-
10" x 10"	10.750"	10.750"	8.500"	8.500"	0.250"	0.250"	0.307"	0.307"	0.365"	0.365"	0.365"	0.365"	0.500"	0.500"
10" x 8"	10.750"	8.625"	8.500"	8.000"	0.250"	0.250"	0.307"	0.277"	0.365"	0.322"	0.365"	0.322"	0.500"	0.406"
10" x 6"	10.750"	6.626"	8.500"	7.618"	-	-	-	-	0.365"	0.280"	0.365"	0.280"	-	-
10" x 5"	10.750"	5.563"	8.500"	7.500"	-	-	-	-	0.365"	0.258"	0.365"	0.258"	-	-
10" x 4"	10.750"	4.500"	8.500"	7.252"	-	-	-	-	0.365"	0.237"	0.365"	0.237"	-	-
12" x 12"	12.748"	12.748"	10.000"	10.000"	0.250"	0.250"	0.330"	0.330"	0.375"	0.375"	0.406"	0.406"	0.562"	0.562"
12" x 10"	12.748"	10.750"	10.000"	9.500"	0.250"	0.250"	0.330"	0.307"	0.375"	0.365"	0.406"	0.365"	0.562"	0.500"
12" x 8"	12.748"	8.625"	10.000"	9.000"	0.250"	0.250"	0.330"	0.277"	0.375"	0.322"	0.406"	0.322"	0.562"	0.406"
12" x 6"	12.748"	6.626"	10.000"	8.618"	-	-	-	-	0.375"	0.280"	0.406"	0.280"	-	-
12" x 5"	12.748"	5.563"	10.000"	8.500"	-	-	-	-	0.375"	0.258"	0.406"	0.258"	-	-
14" x 14"	14.000"	14.000"	11.000"	11.000"	0.312"	0.312"	0.375"	0.375"	0.375"	0.375"	0.438"	0.438"	0.594"	0.594"
14" x 12"	14.000"	12.752"	11.000"	10.618"	0.312"	0.250"	0.375"	0.330"	0.375"	0.375"	0.438"	0.406"	0.594"	0.562"
14" x 10"	14.000"	10.750"	11.000"	10.118"	0.312"	0.250"	0.375"	0.307"	0.375"	0.365"	0.438"	0.365"	0.594"	0.500"
14" x 8"	14.000"	8.625"	11.000"	9.752"	0.312"	0.250"	0.375"	0.277"	0.375"	0.322"	0.438"	0.322"	0.594"	0.406"
14" x 6"	14.000"	6.626"	11.000"	9.382"	-	-	-	-	0.375"	0.280"	0.438"	0.280"	-	-
16" x 16"	16.000"	16.000"	12.000"	12.000"	0.312"	0.312"	0.375"	0.375"	0.375"	0.375"	0.500"	0.500"	0.656"	0.656"
16" x 14"	16.000"	14.000"	12.000"	12.000"	0.312"	0.312"	0.375"	0.375"	0.375"	0.375"	0.500"	0.438"	0.656"	0.594"
16" x 12"	16.000"	12.748"	12.000"	11.618"	0.312"	0.250"	0.375"	0.330"	0.375"	0.375"	0.500"	0.406"	0.656"	0.562"
16" x 10"	16.000"	10.750"	12.000"	11.118"	0.312"	0.250"	0.375"	0.307"	0.375"	0.365"	0.500"	0.365"	0.656"	0.500"
16" x 8"	16.000"	8.625"	12.000"	10.752"	0.312"	0.250"	0.375"	0.277"	0.375"	0.322"	0.500"	0.322"	0.656"	0.406"
16" x 6"	16.000"	6.626"	12.000"	10.382"	-	-	-	-	0.375"	0.280"	0.500"	0.280"	-	-

TEE Straight and Reducing Outlet Tees

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STRAIGHT

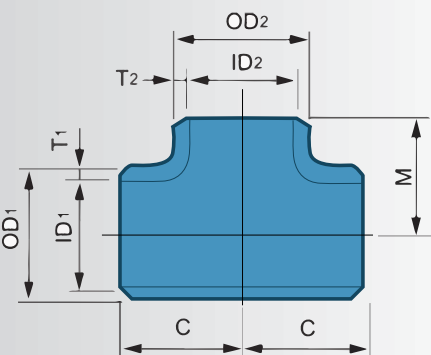


REDUCING

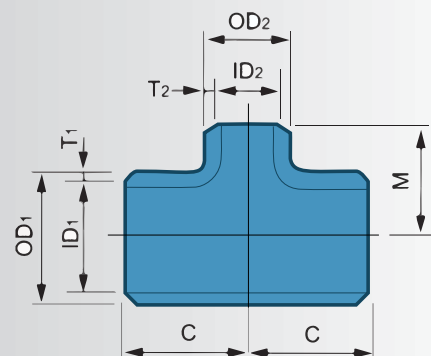
NOMINAL PIPE SIZE	WALL THICKNESS													
	XS		Sch. 80		Sch. 100		Sch. 120		Sch. 140		Sch. 160		XXS	
inch	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
5" x 5"	0.375"	0.375"	0.375"	0.375"	-	-	0.500"	0.500"	-	-	0.625"	0.625"	0.750"	0.750"
5" x 4"	0.375"	0.337"	0.375"	0.337"	-	-	0.500"	0.438"	-	-	0.625"	0.531"	0.750"	0.674"
5" x 3"	0.375"	0.300"	0.375"	0.300"	-	-	-	-	-	-	0.625"	0.438"	0.750"	0.600"
5" x 2 1/2"	0.375"	0.276"	0.375"	0.276"	-	-	-	-	-	-	0.625"	0.375"	0.750"	0.552"
5" x 2"	0.375"	0.218"	0.375"	0.218"	-	-	-	-	-	-	0.625"	0.344"	0.750"	0.436"
6" x 6"	0.432"	0.432"	0.432"	0.432"	-	-	0.562"	0.562"	-	-	0.719"	0.719"	0.864"	0.864"
6" x 5"	0.432"	0.375"	0.432"	0.375"	-	-	0.562"	0.500"	-	-	0.719"	0.625"	0.864"	0.750"
6" x 4"	0.432"	0.337"	0.432"	0.337"	-	-	0.562"	0.438"	-	-	0.719"	0.531"	0.864"	0.674"
6" x 3"	0.432"	0.300"	0.432"	0.300"	-	-	-	-	-	-	0.719"	0.438"	0.864"	0.600"
6" x 2 1/2"	0.432"	0.276"	0.432"	0.276"	-	-	-	-	-	-	0.719"	0.375"	0.864"	0.552"
8" x 8"	0.500"	0.500"	0.500"	0.500"	0.594"	0.594"	0.719"	0.719"	0.812"	0.812"	0.906"	0.906"	0.875"	0.875"
8" x 6"	0.500"	0.432"	0.500"	0.432"	-	-	0.719"	0.562"	-	-	0.906"	0.719"	0.875"	0.864"
8" x 5"	0.500"	0.375"	0.500"	0.375"	-	-	0.719"	0.500"	-	-	0.906"	0.625"	0.875"	0.750"
8" x 4"	0.500"	0.337"	0.500"	0.337"	-	-	0.719"	0.438"	-	-	0.906"	0.531"	0.875"	0.674"
10" x 10"	0.500"	0.500"	0.594"	0.594"	0.719"	0.719"	0.844"	0.844"	1.000"	1.000"	1.125"	1.125"	1.000"	1.000"
10" x 8"	0.500"	0.500"	0.594"	0.500"	0.719"	0.594"	0.844"	0.719"	1.000"	0.812"	1.125"	0.906"	1.000"	0.875"
10" x 6"	0.500"	0.432"	0.594"	0.432"	-	-	0.844"	0.562"	-	-	1.125"	0.719"	1.000"	0.864"
10" x 5"	0.500"	0.375"	0.594"	0.375"	-	-	0.844"	0.500"	-	-	1.125"	0.625"	1.000"	0.750"
10" x 4"	0.500"	0.337"	0.594"	0.337"	-	-	0.844"	0.438"	-	-	1.125"	0.531"	1.000"	0.674"
12" x 12"	0.500"	0.500"	0.688"	0.688"	0.844"	0.844"	1.000"	1.000"	1.125"	1.125"	1.312"	1.312"	1.000"	1.000"
12" x 10"	0.500"	0.500"	0.688"	0.594"	0.844"	0.719"	1.000"	0.844"	1.125"	1.000"	1.312"	1.125"	1.000"	1.000"
12" x 8"	0.500"	0.500"	0.688"	0.500"	0.844"	0.594"	1.000"	0.719"	1.125"	0.812"	1.312"	0.906"	1.000"	0.875"
12" x 6"	0.500"	0.432"	0.688"	0.432"	-	-	1.000"	0.562"	-	-	1.312"	0.719"	1.000"	0.864"
12" x 5"	0.500"	0.375"	0.688"	0.375"	-	-	1.000"	0.500"	-	-	1.312"	0.625"	1.000"	0.750"
14" x 14"	0.500"	0.500"	0.750"	0.750"	0.938"	0.938"	1.094"	1.094"	1.250"	1.250"	1.406"	1.406"	-	-
14" x 12"	0.500"	0.500"	0.750"	0.688"	0.938"	0.844"	1.094"	1.000"	1.250"	1.125"	1.406"	1.312"	-	-
14" x 10"	0.500"	0.500"	0.750"	0.594"	0.938"	0.719"	1.094"	0.844"	1.250"	1.000"	1.406"	1.125"	-	-
14" x 8"	0.500"	0.500"	0.750"	0.500"	0.938"	0.594"	1.094"	0.719"	1.250"	0.812"	1.406"	0.906"	-	-
14" x 6"	0.500"	0.432"	0.750"	0.432"	-	-	1.094"	0.562"	-	-	1.406"	0.719"	-	-
16" x 16"	0.500"	0.500"	0.844"	0.844"	1.031"	1.031"	1.219"	1.219"	1.438"	1.438"	1.594"	1.594"	-	-
16" x 14"	0.500"	0.500"	0.844"	0.750"	1.031"	0.938"	1.219"	1.094"	1.438"	1.250"	1.594"	1.406"	-	-
16" x 12"	0.500"	0.500"	0.844"	0.688"	1.031"	0.844"	1.219"	1.000"	1.438"	1.125"	1.594"	1.312"	-	-
16" x 10"	0.500"	0.500"	0.844"	0.594"	1.031"	0.719"	1.219"	0.844"	1.438"	1.000"	1.594"	1.125"	-	-
16" x 8"	0.500"	0.500"	0.844"	0.500"	1.031"	0.594"	1.219"	0.719"	1.438"	0.812"	1.594"	0.906"	-	-
16" x 6"	0.500"	0.432"	0.844"	0.432"	-	-	1.219"	0.562"	-	-	1.594"	0.719"	-	-

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STRAIGHT

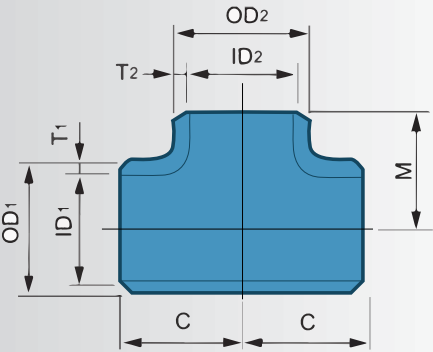


REDUCING

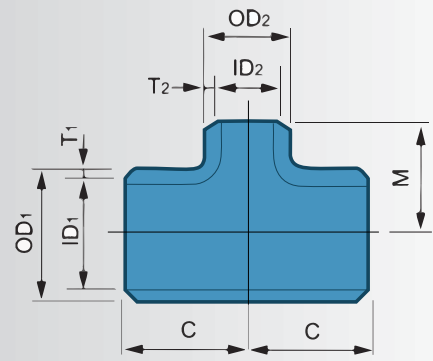
NOMINAL PIPE SIZE	DIMENSIONS				WALL THICKNESS									
	Outside Diameter at Bevel: D1/D2		Center to End		Sch. 20		Sch. 30		Std		Sch. 40		Sch. 60	
inch	OD1 in	OD2 in	C in	M in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
18" x 18"	18.000"	18.000"	13.500"	13.500"	0.312"	0.312"	0.438"	0.438"	0.375"	0.375"	0.562"	0.562"	0.750"	0.750"
18" x 16"	18.000"	16.000"	13.500"	13.000"	0.312"	0.312"	0.438"	0.375"	0.375"	0.375"	0.562"	0.500"	0.750"	0.656"
18" x 14"	18.000"	14.000"	13.500"	13.000"	0.312"	0.312"	0.438"	0.375"	0.375"	0.375"	0.562"	0.438"	0.750"	0.594"
18" x 12"	18.000"	12.748"	13.500"	12.622"	0.312"	0.250"	0.438"	0.375"	0.375"	0.375"	0.562"	0.406"	0.750"	0.562"
20" x 20"	20.000"	20.000"	15.000"	15.000"	0.375"	0.375"	0.500"	0.500"	0.375"	0.375"	0.594"	0.594"	0.812"	0.812"
20" x 18"	20.000"	18.000"	15.000"	14.500"	0.375"	0.312"	0.500"	0.438"	0.375"	0.375"	0.594"	0.562"	0.812"	0.750"
20" x 16"	20.000"	16.000"	15.000"	14.000"	0.375"	0.312"	0.500"	0.375"	0.375"	0.375"	0.594"	0.500"	0.812"	0.656"
20" x 14"	20.000"	14.000"	15.000"	14.000"	0.375"	0.312"	0.500"	0.375"	0.375"	0.375"	0.594"	0.438"	0.812"	0.594"
22" x 22"	22.000"	22.000"	16.500"	16.500"	0.375"	0.375"	0.500"	0.500"	0.375"	0.375"	-	-	0.875"	0.875"
22" x 20"	22.000"	20.000"	16.500"	16.000"	0.375"	0.375"	0.500"	0.500"	0.375"	0.375"	-	-	0.875"	0.812"
22" x 18"	22.000"	18.000"	16.500"	15.500"	0.375"	0.312"	0.500"	0.438"	0.375"	0.375"	-	-	0.875"	0.750"
22" x 16"	22.000"	16.000"	16.500"	15.000"	0.375"	0.312"	0.500"	0.375"	0.375"	0.375"	-	-	0.875"	0.656"
24" x 24"	24.000"	24.000"	17.000"	17.000"	0.375"	0.375"	0.562"	0.562"	0.375"	0.375"	0.688"	0.688"	0.969"	0.969"
24" x 22"	24.000"	22.000"	17.000"	17.000"	0.375"	0.375"	0.562"	0.500"	0.375"	0.375"	-	-	0.969"	0.875"
24" x 20"	24.000"	20.000"	17.000"	17.000"	0.375"	0.375"	0.562"	0.500"	0.375"	0.375"	0.688"	0.594"	0.969"	0.812"
24" x 18"	24.000"	18.000"	17.000"	16.500"	0.375"	0.312"	0.562"	0.438"	0.375"	0.375"	0.688"	0.562"	0.969"	0.750"
26" x 26"	26.000"	26.000"	19.500"	19.500"	-	-	-	-	0.375"	0.375"	-	-	-	-
26" x 22"	26.000"	22.000"	19.500"	18.500"	-	-	-	-	0.375"	0.375"	-	-	-	-
26" x 18"	26.000"	18.000"	19.500"	17.500"	-	-	-	-	0.375"	0.375"	-	-	-	-
26" x 16"	26.000"	16.000"	19.500"	17.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
28" x 28"	28.000"	28.000"	20.500"	20.500"	-	-	0.625"	0.625"	0.375"	0.375"	-	-	-	-
28" x 24"	28.000"	24.000"	20.500"	20.000"	-	-	0.625"	0.562"	0.375"	0.375"	-	-	-	-
28" x 20"	28.000"	20.000"	20.500"	19.000"	-	-	0.625"	0.500"	0.375"	0.375"	-	-	-	-
28" x 18"	28.000"	18.000"	20.500"	18.500"	-	-	0.625"	0.438"	0.375"	0.375"	-	-	-	-
30" x 30"	30.000"	30.000"	22.000"	22.000"	-	-	0.625"	0.625"	0.375"	0.375"	-	-	-	-
30" x 26"	30.000"	26.000"	22.000"	21.500"	-	-	0.625"	-	0.375"	0.375"	-	-	-	-
30" x 22"	30.000"	22.000"	22.000"	20.500"	-	-	0.625"	0.500"	0.375"	0.375"	-	-	-	-
30" x 20"	30.000"	20.000"	22.000"	20.000"	-	-	0.625"	0.500"	0.375"	0.375"	-	-	-	-
32" x 32"	32.000"	32.000"	23.500"	23.500"	-	-	0.625"	0.625"	0.375"	0.375"	0.688"	0.688"	-	-
32" x 28"	32.000"	28.000"	23.500"	22.500"	-	-	0.625"	0.625"	0.375"	0.375"	-	-	-	-
32" x 24"	32.000"	24.000"	23.500"	22.000"	-	-	0.625"	0.562"	0.375"	0.375"	-	-	-	-
32" x 22"	32.000"	22.000"	23.500"	21.500"	-	-	0.625"	0.500"	0.375"	0.375"	-	-	-	-

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STRAIGHT

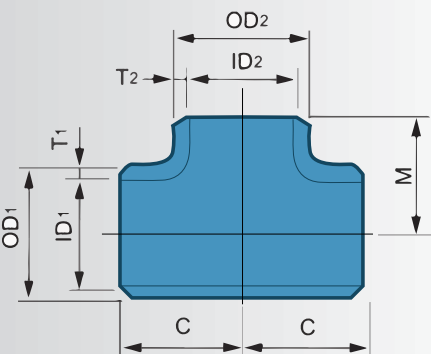


REDUCING

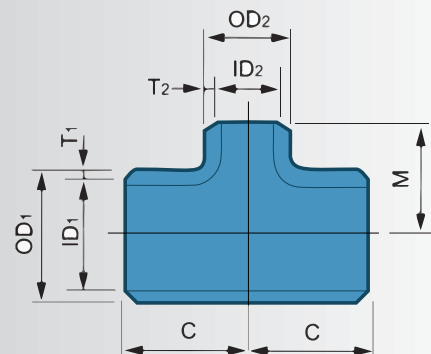
NOMINAL PIPE SIZE	WALL THICKNESS													
	XS		Sch. 80		Sch. 100		Sch. 120		Sch. 140		Sch. 160		XXS	
inch	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
18" x 18"	0.500"	0.500"	0.938"	0.938"	1.156"	1.156"	1.375"	1.375"	1.562"	1.562"	1.781"	1.781"	-	-
18" x 16"	0.500"	0.500"	0.938"	0.844"	1.156"	1.031"	1.375"	1.219"	1.562"	1.438"	1.781"	1.594"	-	-
18" x 14"	0.500"	0.500"	0.938"	0.750"	1.156"	0.938"	1.375"	1.094"	1.562"	1.250"	1.781"	1.406"	-	-
18" x 12"	0.500"	0.500"	0.938"	0.688"	1.156"	0.844"	1.375"	1.000"	1.562"	1.125"	1.781"	1.312"	-	-
20" x 20"	0.500"	0.500"	1.031"	1.031"	1.281"	1.281"	1.500"	1.500"	1.750"	1.750"	1.969"	1.969"	-	-
20" x 18"	0.500"	0.500"	1.031"	0.938"	1.281"	1.156"	1.500"	1.375"	1.750"	1.562"	1.969"	1.781"	-	-
20" x 16"	0.500"	0.500"	1.031"	0.844"	1.281"	1.031"	1.500"	1.219"	1.750"	1.438"	1.969"	1.594"	-	-
20" x 14"	0.500"	0.500"	1.031"	0.750"	1.281"	0.938"	1.500"	1.094"	1.750"	1.250"	1.969"	1.406"	-	-
22" x 22"	0.500"	0.500"	1.125"	1.125"	1.375"	1.375"	1.625"	1.625"	1.875"	1.875"	2.125"	2.125"	-	-
22" x 20"	0.500"	0.500"	1.125"	1.031"	1.375"	1.281"	1.625"	1.500"	1.875"	1.750"	2.125"	1.969"	-	-
22" x 18"	0.500"	0.500"	1.125"	0.938"	1.375"	1.156"	1.625"	1.375"	1.875"	1.562"	2.125"	1.781"	-	-
22" x 16"	0.500"	0.500"	1.125"	0.844"	1.375"	1.031"	1.625"	1.219"	1.875"	1.438"	2.125"	1.594"	-	-
24" x 24"	0.500"	0.500"	1.219"	1.219"	1.531"	1.531"	1.812"	1.812"	2.062"	2.062"	2.344"	2.344"	-	-
24" x 22"	0.500"	0.500"	1.219"	1.125"	1.531"	1.375"	1.812"	1.625"	2.062"	1.875"	2.344"	2.125"	-	-
24" x 20"	0.500"	0.500"	1.219"	1.031"	1.531"	1.281"	1.812"	1.500"	2.062"	1.750"	2.344"	1.969"	-	-
24" x 18"	0.500"	0.500"	1.219"	0.938"	1.531"	1.156"	1.812"	1.375"	2.062"	1.562"	2.344"	1.781"	-	-
26" x 26"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
26" x 22"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
26" x 18"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
26" x 16"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
28" x 28"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
28" x 24"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
28" x 20"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
28" x 18"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
30" x 30"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
30" x 26"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
30" x 22"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
30" x 20"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
32" x 32"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
32" x 28"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
32" x 24"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
32" x 22"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-

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STRAIGHT



REDUCING

NOMINAL PIPE SIZE	DIMENSIONS				WALL THICKNESS									
	Outside Diameter at Bevel: D1/D2		Center to End		Sch. 20		Sch. 30		Std		Sch. 40		Sch. 60	
inch	OD1 in	OD2 in	C in	M in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
34" x 34"	34.000"	34.000"	25.000"	25.000"	-	-	0.625"	0.625"	0.375"	0.375"	0.688"	0.688"	-	-
34" x 32"	34.000"	32.000"	25.000"	-	-	-	0.625"	0.625"	0.375"	0.375"	0.688"	0.688"	-	-
34" x 30"	34.000"	30.000"	25.000"	24.000"	-	-	0.625"	0.625"	0.375"	0.375"	-	-	-	-
34" x 28"	34.000"	28.000"	25.000"	-	-	-	0.625"	0.625"	0.375"	0.375"	-	-	-	-
36" x 36"	36.000"	36.000"	26.500"	26.500"	-	-	0.625"	0.625"	0.375"	0.375"	0.750"	0.750"	-	-
36" x 34"	36.000"	34.000"	26.500"	-	-	-	0.625"	0.625"	0.375"	0.375"	0.750"	0.686"	-	-
36" x 32"	36.000"	32.000"	26.500"	25.500"	-	-	0.625"	0.625"	0.375"	0.375"	0.750"	0.686"	-	-
36" x 30"	36.000"	30.000"	26.500"	-	-	-	0.625"	0.625"	0.375"	0.375"	-	-	-	-
38" x 38"	38.000"	38.000"	28.000"	28.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
38" x 36"	38.000"	36.000"	28.000"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
38" x 34"	38.000"	34.000"	28.000"	27.500"	-	-	-	-	0.375"	0.375"	-	-	-	-
38" x 32"	38.000"	32.000"	28.000"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
40" x 40"	40.000"	40.000"	29.500"	29.500"	-	-	-	-	0.375"	0.375"	-	-	-	-
40" x 38"	40.000"	38.000"	29.500"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
40" x 36"	40.000"	36.000"	29.500"	29.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
40" x 34"	40.000"	34.000"	29.500"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
42" x 42"	42.000"	42.000"	30.000"	30.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
42" x 40"	42.000"	40.000"	30.000"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
42" x 38"	42.000"	38.000"	30.000"	28.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
42" x 36"	42.000"	36.000"	30.000"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
44" x 44"	44.000"	44.000"	32.000"	32.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
44" x 42"	44.000"	42.000"	32.000"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
44" x 40"	44.000"	40.000"	32.000"	29.500"	-	-	-	-	0.375"	0.375"	-	-	-	-
44" x 38"	44.000"	38.000"	32.000"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
46" x 46"	46.000"	46.000"	33.500"	33.500"	-	-	-	-	0.375"	0.375"	-	-	-	-
46" x 44"	46.000"	44.000"	33.500"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
46" x 42"	46.000"	42.000"	33.500"	31.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
46" x 40"	46.000"	40.000"	33.500"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
48" x 48"	48.000"	48.000"	35.000"	35.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
48" x 46"	48.000"	46.000"	35.000"	-	-	-	-	-	0.375"	0.375"	-	-	-	-
48" x 44"	48.000"	44.000"	35.000"	33.000"	-	-	-	-	0.375"	0.375"	-	-	-	-
48" x 42"	48.000"	42.000"	35.000"	-	-	-	-	-	0.375"	0.375"	-	-	-	-

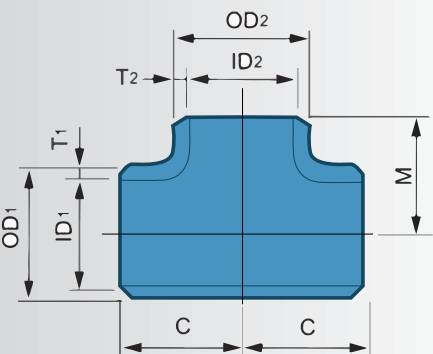
TEE

Straight and Reducing Outlet Tees

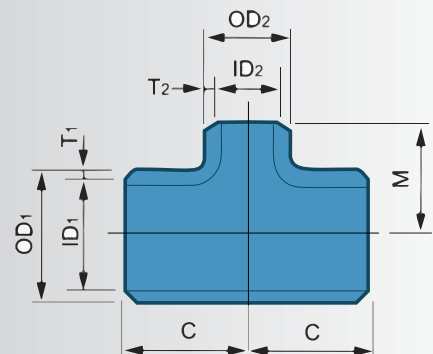
ASTM/ASME A234

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MSS SP-43



STRAIGHT

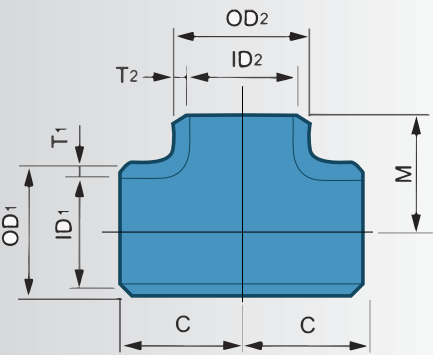


REDUCING

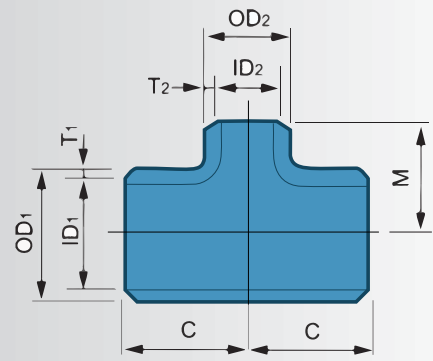
NOMINAL PIPE SIZE	WALL THICKNESS													
	XS		Sch. 80		Sch. 100		Sch. 120		Sch. 140		Sch. 160		XXS	
inch	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
34" x 34"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
34" x 32"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
34" x 30"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
34" x 28"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
36" x 36"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
36" x 34"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
36" x 32"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
36" x 30"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
38" x 38"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
38" x 36"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
38" x 34"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
38" x 32"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
40" x 40"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
40" x 38"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
40" x 36"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
40" x 34"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
42" x 42"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
42" x 40"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
42" x 38"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
42" x 36"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
44" x 44"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
44" x 42"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
44" x 40"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
44" x 38"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
46" x 46"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
46" x 44"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
46" x 42"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
46" x 40"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
48" x 48"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
48" x 46"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
48" x 44"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-
48" x 42"	0.500"	0.500"	-	-	-	-	-	-	-	-	-	-	-	-

TEE Straight and Reducing Outlet Tees

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STRAIGHT

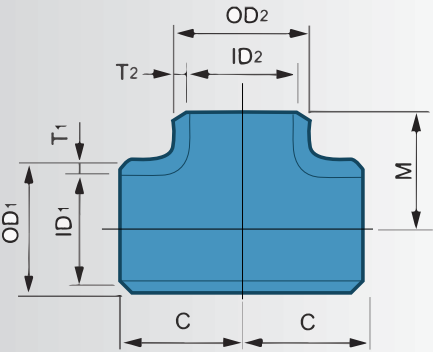


REDUCING

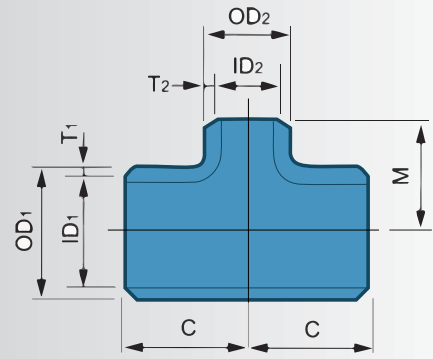
NOMINAL PIPE SIZE	DIMENSIONS				WALL THICKNESS							
	Outside Diameter at Bevel: D1/D2		Center to End		5s		10s		40s		80s	
inch	OD1 in	OD2 in	C in	M in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
1/2" x 1/2"	0.840"	0.840"	1.000"	1.000"	0.065"	0.065"	0.083"	0.083"	0.109"	0.109"	0.147"	0.147"
3/4" x 3/4"	1.050"	1.050"	1.122"	1.122"	0.065"	0.065"	0.083"	0.083"	0.113"	0.113"	0.154"	0.154"
3/4" x 1/2"	1.050"	0.840"	1.122"	1.122"	0.065"	0.065"	0.083"	0.083"	0.113"	0.109"	0.154"	0.147"
1" x 1"	1.315"	1.315"	1.500"	1.500"	0.065"	0.065"	0.109"	0.109"	0.133"	0.133"	0.179"	0.179"
1" x 3/4"	1.315"	1.050"	1.500"	1.500"	0.065"	0.065"	0.109"	0.083"	0.113"	0.113"	0.179"	0.154"
1" x 1/2"	1.315"	0.840"	1.500"	1.500"	0.065"	0.065"	0.109"	0.083"	0.113"	0.109"	0.179"	0.147"
1 1/4" x 1 1/4"	1.660"	1.660"	1.882"	1.882"	0.065"	0.065"	0.109"	0.109"	0.140"	0.140"	0.191"	0.191"
1 1/4" x 1"	1.660"	1.315"	1.882"	1.882"	0.065"	0.065"	0.109"	0.109"	0.140"	0.113"	0.191"	0.179"
1 1/4" x 3/4"	1.660"	1.050"	1.882"	1.882"	0.065"	0.065"	0.109"	0.083"	0.140"	0.109"	0.191"	0.154"
1 1/2" x 1 1/2"	1.900"	1.900"	2.252"	2.252"	0.065"	0.065"	0.109"	0.109"	0.145"	0.145"	0.228"	0.200"
1 1/2" x 1 1/4"	1.900"	1.660"	2.252"	2.252"	0.065"	0.065"	0.109"	0.109"	0.145"	0.140"	0.228"	0.191"
1 1/2" x 3/4"	1.900"	1.315"	2.252"	2.252"	0.065"	0.065"	0.109"	0.109"	0.145"	0.113"	0.228"	0.179"
1 1/2" x 1/2"	1.900"	1.050"	2.252"	2.252"	0.065"	0.065"	0.109"	0.083"	0.145"	0.109"	0.228"	0.154"
2" x 2"	2.375"	2.375"	2.500"	2.500"	0.065"	0.065"	0.109"	0.109"	0.154"	0.154"	0.218"	0.218"
2" x 1 1/2"	2.375"	1.900"	2.500"	2.382"	0.065"	0.065"	0.109"	0.109"	0.154"	0.145"	0.218"	0.200"
2" x 1 1/4"	2.375"	1.660"	2.500"	2.252"	0.065"	0.065"	0.109"	0.109"	0.154"	0.140"	0.218"	0.191"
2" x 1"	2.375"	1.315"	2.500"	2.000"	0.065"	0.065"	0.109"	0.109"	0.154"	0.133"	0.218"	0.179"
2 1/2" x 2 1/2"	2.875"	2.875"	3.000"	3.000"	0.083"	0.065"	0.120"	0.120"	0.203"	0.203"	0.276"	0.276"
2 1/2" x 2"	2.875"	2.375"	3.000"	2.752"	0.083"	0.065"	0.120"	0.109"	0.203"	0.154"	0.276"	0.218"
2 1/2" x 1 1/2"	2.875"	1.900"	3.000"	2.622"	0.083"	0.083"	0.120"	0.109"	0.203"	0.145"	0.276"	0.200"
2 1/2" x 1 1/4"	2.875"	1.660"	3.000"	2.500"	0.083"	0.065"	0.120"	0.109"	0.203"	0.140"	0.276"	0.191"
3" x 3"	3.500"	3.500"	3.374"	3.374"	0.083"	0.083"	0.120"	0.120"	0.216"	0.216"	0.300"	0.300"
3" x 2 1/2"	3.500"	2.875"	3.374"	3.252"	0.083"	0.083"	0.120"	0.120"	0.216"	0.203"	0.300"	0.276"
3" x 2"	3.500"	2.375"	3.374"	3.000"	0.083"	0.065"	0.120"	0.109"	0.216"	0.154"	0.300"	0.218"
3" x 1 1/2"	3.500"	1.900"	3.374"	2.882"	0.083"	0.065"	0.120"	0.109"	0.216"	0.145"	0.300"	0.200"
3 1/2" x 3 1/2"	4.000"	4.000"	3.752"	3.752"	0.083"	0.083"	0.120"	0.120"	0.226"	0.226"	0.318"	0.318"
3 1/2" x 3"	4.000"	3.500"	3.752"	3.622"	0.083"	0.083"	0.120"	0.120"	0.226"	0.216"	0.318"	0.300"
3 1/2" x 2 1/2"	4.000"	2.875"	3.752"	3.500"	0.083"	0.083"	0.120"	0.120"	0.226"	0.203"	0.318"	0.276"
3 1/2" x 2"	4.000"	2.375"	3.752"	3.252"	0.083"	0.065"	0.120"	0.109"	0.226"	0.154"	0.318"	0.218"
3 1/2" x 1 1/2"	4.000"	1.900"	3.752"	3.122"	0.083"	0.065"	0.120"	0.109"	0.226"	0.145"	0.318"	0.200"
4" x 4"	4.500"	4.500"	4.122"	4.122"	0.083"	0.083"	0.120"	0.120"	0.237"	0.237"	0.337"	0.337"
4" x 3 1/2"	4.500"	4.000"	4.122"	4.000"	0.083"	0.083"	0.120"	0.120"	0.237"	0.226"	0.337"	0.318"
4" x 3"	4.500"	3.500"	4.122"	3.882"	0.083"	0.083"	0.120"	0.120"	0.237"	0.216"	0.337"	0.300"
4" x 2 1/2"	4.500"	2.875"	4.122"	3.752"	0.083"	0.083"	0.120"	0.120"	0.237"	0.203"	0.337"	0.276"
4" x 2"	4.500"	2.375"	4.122"	3.500"	0.083"	0.065"	0.120"	0.109"	0.237"	0.154"	0.337"	0.218"

TEE Straight and Reducing Outlet Tees

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STRAIGHT



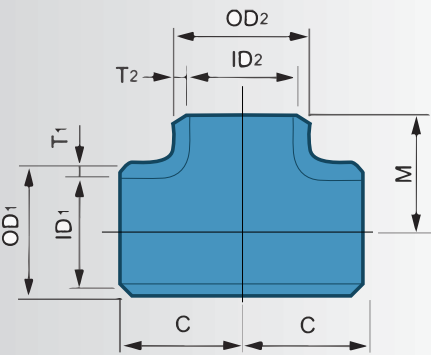
REDUCING

NOMINAL PIPE SIZE	DIMENSIONS				WALL THICKNESS											
	Outside Diameter at Bevel: D1/D2		Center to End		5s		10s		40s/STD		40		80s/XH		80	
inch	OD1 in	OD2 in	C in	M in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
5" x 5"	5.563"	5.563"	4.882"	4.882"	0.109"	0.109"	0.134"	0.134"	0.258"	0.258"	0.258"	0.258"	0.375"	0.375"	0.375"	0.375"
5" x 4"	5.563"	4.500"	4.882"	4.618"	0.109"	0.083"	0.134"	0.120"	0.258"	0.237"	0.258"	0.237"	0.375"	0.337"	0.375"	0.337"
5 x 3 1/2"	5.563"	4.000"	4.882"	4.500"	0.109"	0.083"	0.134"	0.120"	0.258"	0.226"	0.258"	0.226"	0.375"	0.318"	0.375"	0.318"
5" x 3"	5.563"	3.500"	4.882"	4.382"	0.109"	0.083"	0.134"	0.120"	0.258"	0.216"	0.258"	0.216"	0.375"	0.300"	0.375"	0.300"
5" x 2 1/2"	5.563"	2.875"	4.882"	4.252"	0.109"	0.083"	0.134"	0.120"	0.258"	0.203"	0.258"	0.203"	0.375"	0.276"	0.375"	0.276"
6" x 6"	6.626"	6.626"	5.622"	5.622"	0.109"	0.109"	0.134"	0.134"	0.280"	0.280"	0.280"	0.280"	0.432"	0.432"	0.432"	0.432"
6" x 5"	6.626"	5.563"	5.622"	5.382"	0.109"	0.109"	0.134"	0.134"	0.280"	0.258"	0.280"	0.258"	0.432"	0.375"	0.432"	0.375"
6" x 4"	6.626"	4.500"	5.622"	5.118"	0.109"	0.083"	0.120"	0.120"	0.280"	0.237"	0.280"	0.237"	0.432"	0.337"	0.432"	0.337"
6" x 3 1/2"	6.626"	4.000"	5.622"	5.000"	0.109"	0.083"	0.120"	0.120"	0.280"	0.226"	0.280"	0.226"	0.432"	0.318"	0.432"	0.318"
6" x 3"	6.626"	3.500"	5.622"	4.882"	0.109"	0.083"	0.120"	0.120"	0.280"	0.216"	0.280"	0.216"	0.432"	0.300"	0.432"	0.300"
8" x 8"	8.625"	8.625"	7.000"	7.000"	0.109"	0.109"	0.148"	0.148"	0.322"	0.322"	0.322"	0.322"	0.500"	0.500"	0.500"	0.500"
8" x 6"	8.625"	6.626"	7.000"	6.618"	0.109"	0.109"	0.148"	0.134"	0.322"	0.280"	0.322"	0.280"	0.500"	0.432"	0.500"	0.432"
8" x 5"	8.625"	5.563"	7.000"	6.382"	0.109"	0.109"	0.148"	0.134"	0.322"	0.258"	0.322"	0.258"	0.500"	0.375"	0.500"	0.375"
8" x 4"	8.625"	4.500"	7.000"	6.122"	0.109"	0.083"	0.148"	0.120"	0.322"	0.237"	0.322"	0.237"	0.500"	0.337"	0.500"	0.337"
10" x 10"	10.750"	10.750"	8.500"	8.500"	0.134"	0.134"	0.165"	0.165"	0.365"	0.365"	0.365"	0.365"	0.500"	0.500"	0.594"	0.594"
10" x 8"	10.750"	8.625"	8.500"	8.000"	0.134"	0.109"	0.165"	0.148"	0.365"	0.322"	0.365"	0.322"	0.500"	0.500"	0.594"	0.500"
10" x 6"	10.750"	6.626"	8.500"	7.618"	0.134"	0.109"	0.165"	0.134"	0.365"	0.280"	0.365"	0.280"	0.500"	0.432"	0.594"	0.432"
10" x 5"	10.750"	5.563"	8.500"	7.500"	0.134"	0.109"	0.165"	0.134"	0.365"	0.258"	0.365"	0.258"	0.500"	0.375"	0.594"	0.375"
12" x 12"	12.748"	12.748"	10.000"	10.000"	0.156"	0.156"	0.180"	0.180"	0.375"	0.375"	0.406"	0.406"	0.500"	0.500"	0.688"	0.688"
12" x 10"	12.748"	10.750"	10.000"	9.500"	0.156"	0.134"	0.180"	0.165"	0.375"	0.365"	0.406"	0.365"	0.500"	0.500"	0.688"	0.567"
12" x 8"	12.748"	8.625"	10.000"	9.000"	0.156"	0.109"	0.180"	0.148"	0.375"	0.322"	0.406"	0.322"	0.500"	0.500"	0.688"	0.500"
12" x 6"	12.748"	6.626"	10.000"	8.622"	0.156"	0.109"	0.180"	0.134"	0.375"	0.280"	0.406"	0.280"	0.500"	0.432"	0.688"	0.432"
14" x 14"	14.000"	14.000"	11.000"	11.000"	0.156"	0.156"	0.188"	0.188"	0.375"	0.375"	0.438"	0.438"	0.500"	0.500"	0.750"	0.750"
14" x 12"	14.000"	12.748"	11.000"	10.618"	0.156"	0.156"	0.188"	0.180"	0.375"	0.375"	0.438"	0.406"	0.500"	0.500"	0.750"	0.688"
14" x 10"	14.000"	10.750"	11.000"	10.118"	0.156"	0.134"	0.188"	0.165"	0.375"	0.365"	0.438"	0.365"	0.500"	0.500"	0.750"	0.594"
14" x 8"	14.000"	8.625"	11.000"	9.752"	0.156"	0.109"	0.188"	0.148"	0.375"	0.322"	0.438"	0.322"	0.500"	0.500"	0.750"	0.500"
16" x 16"	16.000"	16.000"	12.000"	12.000"	0.165"	0.165"	0.188"	0.188"	0.375"	0.375"	0.500"	0.500"	0.500"	0.500"	0.844"	0.844"
16" x 14"	16.000"	14.000"	12.000"	12.000"	0.165"	0.156"	0.188"	0.188"	0.375"	0.375"	0.500"	0.438"	0.500"	0.500"	0.844"	0.750"
16" x 12"	16.000"	12.748"	12.000"	11.618"	0.165"	0.156"	0.188"	0.180"	0.375"	0.375"	0.500"	0.406"	0.500"	0.500"	0.844"	0.688"
16" x 10"	16.000"	10.750"	12.000"	11.118"	0.165"	0.134"	0.188"	0.165"	0.375"	0.365"	0.500"	0.365"	0.500"	0.500"	0.844"	0.594"
18" x 18"	18.000"	18.000"	13.500"	13.500"	0.165"	0.165"	0.188"	0.188"	0.375"	0.375"	0.562"	0.562"	0.500"	0.500"	0.938"	0.938"
18" x 16"	18.000"	16.000"	13.500"	13.000"	0.165"	0.165"	0.188"	0.188"	0.375"	0.375"	0.562"	0.500"	0.500"	0.500"	0.938"	0.844"
18" x 14"	18.000"	14.000"	13.500"	13.000"	0.165"	0.156"	0.188"	0.188"	0.375"	0.375"	0.562"	0.438"	0.500"	0.500"	0.938"	0.750"
18" x 12"	18.000"	12.748"	13.500"	12.622"	0.165"	0.156"	0.188"	0.180"	0.375"	0.375"	0.562"	0.406"	0.500"	0.500"	0.938"	0.688"
20" x 20"	20.000"	20.000"	15.000"	15.000"	0.188"	0.188"	0.218"	0.218"	0.375"	0.375"	0.594"	0.594"	0.500"	0.500"	1.031"	1.031"
20" x 18"	20.000"	18.000"	15.000"	14.500"	0.188"	0.165"	0.218"	0.188"	0.375"	0.375"	0.594"	0.562"	0.500"	0.500"	1.031"	0.938"
20" x 16"	20.000"	16.000"	15.000"	14.000"	0.188"	0.165"	0.218"	0.188"	0.375"	0.375"	0.594"	0.500"	0.500"	0.500"	1.031"	0.844"
20" x 14"	20.000"	14.000"	15.000"	14.000"	0.188"	0.156"	0.218"	0.188"	0.375"	0.375"	0.594"	0.438"	0.500"	0.500"	1.031"	0.750"

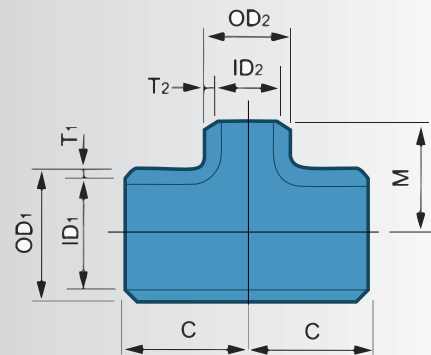
TEE Straight and Reducing Outlet Tees

ASTM/ASME A234
ANSI B 16.9 / B 16.28
MSS SP-43

NOMINAL PIPE SIZE	DIMENSIONS				WALL THICKNESS							
	Outside Diameter at Bevel: D1/D2		Center to End		5s		10s		40s		80s	
inch	OD1 in	OD2 in	C in	M in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in	t1 in	t2 in
22" x 22"	22.000"	22.000"	16.500"	16.500"	0.188"	0.188"	0.218"	0.218"	0.375"	0.375"	0.500"	0.500"
22" x 20"	22.000"	20.000"	16.500"	16.000"	0.188"	0.188"	0.218"	0.218"	0.375"	0.375"	0.500"	0.500"
22" x 18"	22.000"	18.000"	16.500"	15.500"	0.188"	0.165"	0.218"	0.188"	0.375"	0.375"	0.500"	0.500"
22" x 16"	22.000"	16.000"	16.500"	15.000"	0.188"	0.165"	0.218"	0.188"	0.375"	0.375"	0.500"	0.500"
24" x 24"	24.000"	24.000"	17.000"	17.000"	0.218"	0.218"	0.250"	0.250"	0.375"	0.375"	0.500"	0.500"
24" x 22"	24.000"	22.000"	17.000"	17.000"	0.218"	0.188"	0.250"	0.218"	0.375"	0.375"	0.500"	0.500"
24" x 20"	24.000"	20.000"	17.000"	17.000"	0.218"	0.188"	0.250"	0.218"	0.375"	0.375"	0.500"	0.500"
24" x 18"	24.000"	18.000"	17.000"	16.500"	0.218"	0.165"	0.250"	0.188"	0.375"	0.375"	0.500"	0.500"
30" x 30"	30.000"	30.000"	22.000"	22.000"	0.250"	0.250"	0.312"	0.312"	0.375"	0.375"	0.500"	0.500"
30" x 24"	30.000"	24.000"	22.000"	21.000"	0.250"	0.218"	0.312"	0.250"	0.375"	0.375"	0.500"	0.500"
30" x 22"	30.000"	22.000"	22.000"	20.500"	0.250"	0.188"	0.312"	0.218"	0.375"	0.375"	0.500"	0.500"
30" x 20"	30.000"	20.000"	22.000"	20.000"	0.250"	0.188"	0.312"	0.218"	0.375"	0.375"	0.500"	0.500"



STRAIGHT



REDUCING