

SECTION 1

Standard Malleable Pipe Fittings Class 150



Pressure / Temperature Ratings

Temp F°	PSI
-20 TO 150	300
200	265
250	225
300	185
350	150
366	150

Ward Class 150 Malleable Iron Fittings are made with the most sophisticated metallurgical and processing controls available. Iron samples are continuously analyzed using spectroscopy to conform the material quality. This sophisticated chemical analysis is complemented by rigorous quality control of incoming raw materials and iron processing. The final casting produced by this detailed attention to quality is a close-grained, high strength, non-porous iron.

Quality iron is the starting point for Ward fittings. From this iron, accurate threads are machined that comply with the precise standards developed by the American Society of Mechanical Engineers (ASME) and published as an American National Standard. The threads have an accurate form, thread length and straightness to allow them to easily engage threaded pipe. In addition, Ward fittings have a chamfered opening to allow faster and easier pipe engagement. This feature also protects the fitting threads from damage during handling.

All Ward black & galvanized Class 150 Malleable Iron Fittings having outlets ranging from 1/2" through 4" are air tested at 80 psig. This test is part of a constant program to maintain the highest quality fittings available.

General Dimensions / In Inches

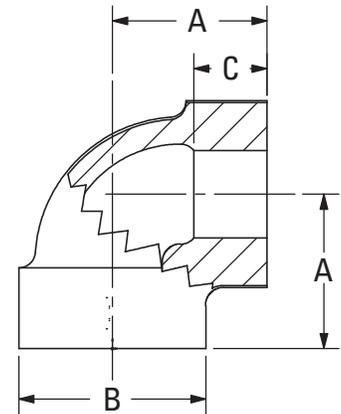
These dimensions apply to all standard malleable banded fittings, both straight and reducing. Length of thread also applies to plain fittings. For center-to-face dimensions, see fittings tables.

NPS	O.D. of Band (min)	Thread Length (min)
1/8	0.69	0.25
1/4	0.84	0.32
3/8	1.01	0.36
1/2	1.20	0.43
3/4	1.46	0.50
1	1.77	0.58
1 1/4	2.15	0.67
1 1/2	2.43	0.70
2	2.96	0.75
2 1/2	3.59	0.92
3	4.28	0.98
3 1/2	4.84	1.03
4	5.40	1.08

Material:	ASTM A197
Dimensions:	ASME B16.3 ANSI/ASME B1.20.1
Pressure Ratings:	ASME B16.3
Coatings:	ASTM A153 ASTM B633
Additional Specifications:	UL, ULC, FM, NSF 61 and NSF 61 Annex G where applicable

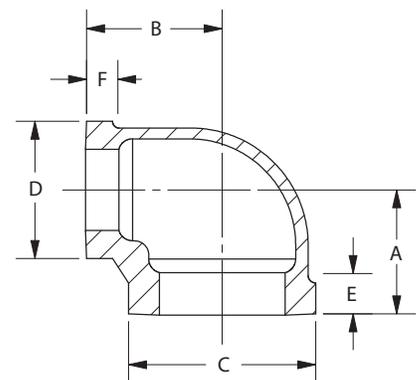
MALLEABLE IRON 90° STRAIGHT ELL CLASS 150

NPS	Center to End A	Outside Dia. of Band B (min)	Length of Threads C (min)	Take Out
1/8	0.69	0.69	0.25	0.42
1/4	0.81	0.84	0.32	0.40
3/8	0.95	1.01	0.36	0.54
1/2	1.12	1.20	0.43	0.58
3/4	1.31	1.46	0.50	0.76
1	1.50	1.77	0.58	0.81
1 1/4	1.75	2.15	0.67	1.04
1 1/2	1.94	2.43	0.70	1.21
2	2.25	2.96	0.75	1.49
2 1/2	2.70	3.59	0.92	1.56
3	3.08	4.28	0.98	1.88
3 1/2	—	—	—	—
4	3.79	5.40	1.08	2.49
5	—	—	—	—
6	5.13	7.77	1.28	3.61



MALLEABLE IRON REDUCING 90° ELL CLASS 150

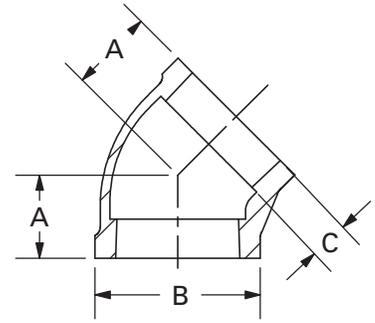
NPS	Center to End A	Center to End B	Outside Dia. of Band C (min)	Outside Dia. of Band D (min)	Length of Threads E (min)	Length of Threads F (min)	Take Out	Take Out
1/4 x 1/8	0.74	0.76	0.84	0.69	0.32	0.25	0.33	0.49
3/8 x 1/4	0.88	0.90	1.01	0.84	0.36	0.32	0.47	0.49
3/8 x 1/8	—	—	—	—	—	—	—	—
1/2 x 3/8	1.04	1.03	1.20	1.01	0.43	0.36	0.50	0.62
1/2 x 1/4	0.97	0.98	1.20	0.84	0.43	0.32	0.43	0.57
3/4 x 1/2	1.20	1.22	1.46	1.20	0.50	0.43	0.65	0.68
3/4 x 3/8	1.12	1.13	1.46	1.01	0.50	0.36	0.57	0.72
3/4 x 1/4	—	—	—	—	—	—	—	—
1 x 3/4	1.37	1.45	1.77	1.46	0.58	0.50	0.68	0.90
1 x 1/2	1.26	1.36	1.77	1.20	0.58	0.43	0.57	0.82
1 x 3/8	1.18	1.27	1.77	1.01	0.58	0.36	0.49	0.86
1 1/4 x 1	1.58	1.67	2.15	1.77	0.67	0.58	0.87	0.98
1 1/4 x 3/4	1.45	1.62	2.15	1.46	0.67	0.50	0.74	1.07
1 1/4 x 1/2	1.34	1.53	2.15	1.20	0.67	0.43	0.63	0.99
1 1/2 x 1 1/4	1.82	1.88	2.43	2.15	0.70	0.67	1.09	1.47
1 1/2 x 1	1.65	1.80	2.43	1.77	0.70	0.58	0.92	1.11
1 1/2 x 3/4	1.52	1.75	2.43	1.46	0.70	0.50	0.79	1.20
*1 1/2 x 1/2	1.41	1.66	2.43	1.20	0.70	0.43	0.68	1.12
2 x 1 1/2	2.02	2.16	2.96	2.43	0.75	0.70	1.26	1.626
2 x 1 1/4	1.90	2.10	2.96	2.15	0.75	0.67	1.14	1.69
2 x 1	1.73	2.02	2.96	1.77	0.75	0.58	0.97	1.33
2 x 3/4	1.60	1.97	2.96	1.46	0.75	0.50	0.84	1.42
*2 x 1/2	1.49	1.88	2.96	1.20	0.75	0.43	0.73	1.34
2 1/2 x 2	2.39	2.60	3.59	2.96	0.92	0.75	1.25	1.84
2 1/2 x 1 1/2	2.16	2.51	3.59	2.43	0.92	0.70	1.02	1.78
3 x 2 1/2	—	—	—	—	—	—	—	—
3 x 2	2.52	2.89	4.28	2.96	0.98	0.75	1.32	2.13
4 x 3	3.30	3.60	5.40	4.28	1.08	0.98	2.00	2.40



* Manufactured to WARD specifications

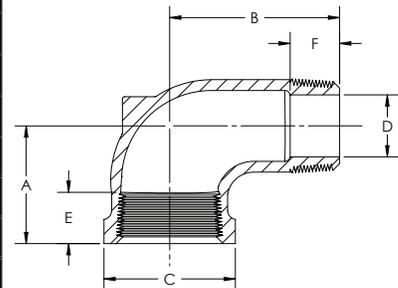
MALLEABLE IRON 45° ELL CLASS 150

NPS	Center to End A	Outside Dia. of Band B	Length of Threads C (min)	Take Out
1/8	0.73	0.69	0.25	0.46
1/4	0.73	0.84	0.32	0.32
3/8	0.80	1.01	0.36	0.39
1/2	0.88	1.20	0.43	0.34
3/4	0.98	1.46	0.50	0.43
1	1.12	1.77	0.58	0.43
1 1/4	1.29	2.15	0.67	0.58
1 1/2	1.43	2.43	0.70	0.70
2	1.68	2.96	0.75	0.92
2 1/2	1.95	3.59	0.92	0.81
3	2.17	4.28	0.98	0.97
4	2.61	5.40	1.08	1.31
5	—	—	—	—
6	—	—	—	—



MALLEABLE IRON 90° STREET ELL CLASS 150

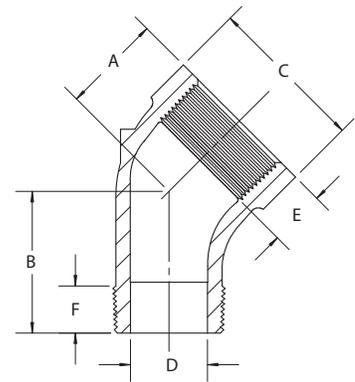
NPS	Center to End A	Center to Male B	Outside Dia. of Band C (min)	Port Dia. Male End D (max)	Length of Internal Threads E (min)	Length of External Threads F (min)	Take Out Male End	Take-Out Female End
1/8	0.69	1.00	0.69	0.20	0.25	0.26	0.73	0.42
1/4	0.81	1.19	0.84	0.26	0.32	0.40	0.78	0.40
3/8	0.95	1.44	1.01	0.37	0.36	0.41	1.03	0.54
1/2	1.12	1.63	1.20	0.51	0.43	0.53	1.09	0.58
1/2 x 3/8	—	—	—	—	—	—	—	—
3/4	1.31	1.89	1.46	0.69	0.50	0.55	1.34	0.76
*3/4 x 1/2	1.31	1.76	1.46	0.51	0.50	0.53	1.21	0.77
1	1.50	2.14	1.77	0.91	0.58	0.68	1.45	0.81
1 x 3/4	—	—	—	—	—	—	—	—
1 1/4	1.75	2.45	2.15	1.19	0.67	0.71	1.74	1.04
*1 1/4 x 1	1.75	2.29	2.15	0.91	0.67	0.68	1.58	1.06
1 1/4 x 3/4	—	—	—	—	—	—	—	0.54
1 1/2	1.94	2.69	2.43	1.39	0.70	0.72	1.96	1.21
*1 1/2 x 1 1/4	1.81	2.62	2.43	1.19	0.70	0.72	1.90	1.10
*1 1/2 x 1	1.94	2.54	2.43	0.91	0.70	0.68	1.81	1.25
2	2.25	3.26	2.96	1.79	0.75	0.76	2.50	1.49
2 x 1 1/2	—	—	—	—	—	—	—	—
2 1/2	2.70	3.86	3.59	2.20	0.92	1.14	2.72	1.56
3	3.08	4.51	4.28	2.78	0.98	1.20	3.31	1.88
4	—	—	—	—	—	—	—	—



* Manufactured to WARD specifications

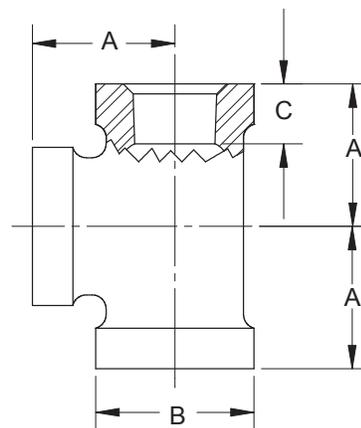
MALLEABLE IRON STREET 45° ELL CLASS 150

NPS	Center to End A	Center to Male B	Outside Dia. of Band C (min)	Port Dia. Male End D (max)	Length of Internal Threads E (min)	Length of External Threads F (min)	Take Out Male End	Take Out Female End
1/8	0.69	0.94	0.69	0.20	0.25	0.26	0.67	0.42
1/4	0.73	0.94	0.84	0.26	0.32	0.40	0.53	0.32
3/8	0.80	1.03	1.01	0.37	0.36	0.41	0.62	0.39
1/2	0.88	1.15	1.20	0.51	0.43	0.53	0.61	0.34
3/4	0.98	1.29	1.46	0.69	0.50	0.55	0.74	0.43
1	1.12	1.47	1.77	0.91	0.58	0.68	0.78	0.43
1 1/4	1.29	1.71	2.15	1.19	0.67	0.71	1.00	0.58
1 1/2	1.43	1.88	2.43	1.39	0.70	0.72	1.15	0.70
2	1.68	2.22	2.96	1.79	0.75	0.76	1.46	0.92



MALLEABLE IRON STRAIGHT TEES CLASS 150

NPS	Center to End A	Outside Dia. of Band B (min)	Length of Threads C (min)	Take Out
1/8	0.69	0.69	0.25	0.42
1/4	0.81	0.84	0.32	0.40
3/8	0.95	1.01	0.36	0.54
1/2	1.12	1.20	0.43	0.58
3/4	1.31	1.46	0.50	0.76
1	1.50	1.77	0.58	0.81
1 1/4	1.75	2.15	0.67	1.04
1 1/2	1.94	2.43	0.70	1.21
2	2.25	2.96	0.75	1.49
2 1/2	2.70	3.59	0.92	1.56
3	3.08	4.28	0.98	1.88
3 1/2	—	—	—	—
4	3.79	5.40	1.08	2.49
6	—	—	—	—



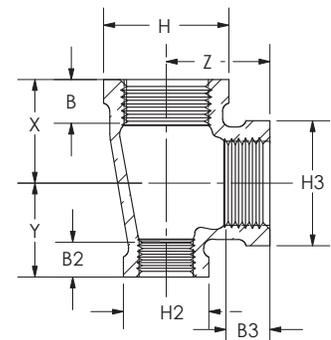
MALLEABLE IRON REDUCING TEES CLASS 150

NPS	Center to End X	Center to End Y	Center to End Z	Outside Dia. H (min)	Outside Dia. H2 (min)	Outside Dia. H3 (min)	Thread Length B (min)	Thread Length B2 (min)	Thread Length B3 (min)	Take Out	Take Out	Take Out
1/4 x 1/4 x 1/8	—	—	—	—	—	—	—	—	—	—	—	—
1/8 x 1/8 x 1/4	—	—	—	—	—	—	—	—	—	—	—	—
3/8 x 3/8 x 1/4	—	—	—	—	—	—	—	—	—	—	—	—
3/8 x 1/4 x 3/8	—	—	—	—	—	—	—	—	—	—	—	—
3/8 x 1/4 x 1/4	—	—	—	—	—	—	—	—	—	—	—	—
1/4 x 1/4 x 3/8	—	—	—	—	—	—	—	—	—	—	—	—
1/2 x 1/2 x 3/8	1.04	1.04	1.03	0.43	0.43	0.36	1.20	1.20	1.01	0.50	0.50	0.62
1/2 x 1/2 x 1/4	0.97	0.97	0.98	0.43	0.43	0.32	1.20	1.20	0.84	0.43	0.43	0.57
1/2 x 3/8 x 1/2	1.12	1.03	1.12	0.43	0.36	0.43	1.20	1.01	1.20	0.58	0.62	0.58
1/2 x 3/8 x 3/8	1.04	0.950	1.03	0.43	0.36	0.36	1.20	1.01	1.01	0.50	0.54	0.62
1/2 x 1/4 x 1/2	1.12	0.98	1.12	0.43	0.32	0.43	1.20	0.84	1.20	0.58	0.60	0.58
3/8 x 3/8 x 1/2	1.03	1.03	1.04	0.36	0.36	0.43	1.01	1.01	1.20	0.62	0.62	0.50
3/4 x 3/4 x 1/2	1.20	1.20	1.22	0.50	0.50	0.43	1.46	1.46	1.20	0.65	0.65	0.68
3/4 x 3/4 x 3/8	1.12	1.12	1.13	0.50	0.50	0.36	1.46	1.46	1.01	0.57	0.57	0.72
3/4 x 3/4 x 1/4	1.05	1.05	1.08	0.50	0.50	0.32	1.46	1.46	0.84	0.50	0.50	0.67
3/4 x 1/2 x 3/4	1.31	1.22	1.31	0.50	0.43	0.50	1.46	1.20	1.46	0.76	0.68	0.76
3/4 x 1/2 x 1/2	1.20	1.12	1.22	0.50	0.43	0.43	1.46	1.20	1.20	0.65	0.58	0.68
3/4 x 3/8 x 3/4	1.31	1.13	1.13	0.50	0.36	0.50	1.46	1.01	1.46	0.76	0.72	0.58
3/4 x 3/8 x 3/8	—	—	—	—	—	—	—	—	—	—	—	—
3/4 x 1/4 x 3/4	1.31	1.08	1.31	0.50	0.32	0.50	1.46	0.84	1.46	0.76	0.67	0.76
1/2 x 1/2 x 3/4	1.22	1.22	1.20	0.43	0.43	0.50	1.20	1.20	1.46	0.68	0.68	0.65
1 x 1 x 3/4	1.37	1.37	1.45	0.58	0.58	0.50	1.77	1.77	1.46	0.68	0.68	0.90
1 x 1 x 1/2	1.26	1.26	1.36	0.58	0.58	0.43	1.77	1.77	1.20	0.57	0.57	0.82
1 x 1 x 3/8	1.18	1.18	1.27	0.58	0.58	0.36	1.77	1.77	1.01	0.49	0.49	0.86
1 X 1 X 1/4	1.11	1.11	1.22	0.58	0.58	0.32	1.77	1.77	0.84	0.42	0.42	0.81
1 x 3/4 x 1	1.50	1.45	1.50	0.58	0.50	0.58	1.77	1.46	1.77	0.81	0.90	0.81
1 x 3/4 x 3/4	1.37	1.31	1.45	0.58	0.50	0.50	1.77	1.46	1.46	0.68	0.76	0.90
1 x 3/4 x 1/2	1.26	1.20	1.36	0.58	0.50	0.43	1.77	1.46	1.20	0.57	0.65	0.82
1 x 1/2 x 1	1.50	1.36	1.50	0.58	0.43	0.58	1.77	1.20	1.77	0.81	0.82	0.81
1 x 1/2 x 3/4	1.37	1.22	1.45	0.58	0.43	0.50	1.77	1.20	1.46	0.68	0.68	0.90
1 x 1/2 x 1/2	1.26	1.12	1.36	0.58	0.43	0.43	1.77	1.20	1.20	0.57	0.58	0.82
1 x 3/8 x 1	—	—	—	—	—	—	—	—	—	—	—	—
*1 x 1/4 x 1	1.50	1.20	1.50	0.58	0.32	0.58	1.77	0.84	1.77	0.81	0.79	0.81
1 x 1/8 x 1	—	—	—	—	—	—	—	—	—	—	—	—
3/4 x 3/4 x 1	1.45	1.45	1.37	0.50	0.50	0.58	1.46	1.46	1.77	0.90	0.90	0.68
1/2 x 1/2 x 1	—	—	—	—	—	—	—	—	—	—	—	—
1 1/4 x 1 1/4 x 1	1.58	1.58	1.67	0.67	0.67	0.58	2.15	2.15	1.77	0.87	0.87	0.98
1 1/4 x 1 1/4 x 3/4	1.45	1.45	1.62	0.67	0.67	0.50	2.15	2.15	1.46	0.74	0.74	1.07
1 1/4 x 1 1/4 x 1/2	1.34	1.34	1.53	0.67	0.67	0.43	2.15	2.15	1.20	0.63	0.63	0.99
1 1/4 x 1 1/4 x 3/8	—	—	—	—	—	—	—	—	—	—	—	—
1 1/4 x 1 x 1 1/4	1.75	1.67	1.75	0.67	0.58	0.67	2.15	1.77	2.15	1.04	0.98	1.04
1 1/4 x 1 x 1	1.58	1.50	1.67	0.67	0.58	0.58	2.15	1.77	1.77	0.87	0.81	0.98
1 1/4 x 1 x 3/4	1.45	1.37	1.62	0.67	0.58	0.50	2.15	1.77	1.46	0.74	0.68	1.07
1 1/4 x 1 x 1/2	1.34	1.26	1.53	0.67	0.58	0.43	2.15	1.77	1.20	0.63	0.57	0.99
1 1/4 x 3/4 x 1 1/4	1.75	1.62	1.75	0.67	0.50	0.67	2.15	1.46	2.15	1.04	1.07	1.04
1 1/4 x 3/4 x 1	1.58	1.45	1.67	0.67	0.50	0.58	2.15	1.46	1.77	0.87	0.90	0.98
1 1/4 x 3/4 x 3/4	1.45	1.31	1.62	0.67	0.50	0.50	2.15	1.46	1.46	0.74	0.76	1.07
1 1/4 x 1/2 x 1 1/4	1.75	1.53	1.75	0.67	0.43	0.67	2.15	1.20	2.15	1.04	0.99	1.04
1 1/4 x 1/2 x 1	—	—	—	—	—	—	—	—	—	—	—	—
1 x 1 x 1 1/4	1.67	1.67	1.58	0.58	0.58	0.67	1.77	1.77	2.15	0.98	0.96	0.87
3/4 x 3/4 x 1 1/4	—	—	—	—	—	—	—	—	—	—	—	—
1 1/2 x 1 1/2 x 1 1/4	1.82	1.82	1.88	0.70	0.70	0.67	2.43	2.43	2.15	1.09	1.09	1.17
1 1/2 x 1 1/2 x 1	1.65	1.65	1.80	0.70	0.70	0.58	2.43	2.43	1.77	0.92	0.92	1.11
1 1/2 x 1 1/2 x 3/4	1.52	1.52	1.75	0.70	0.70	0.50	2.43	2.43	1.46	0.79	0.79	1.20
1 1/2 x 1 1/2 x 1/2	1.41	1.41	1.66	0.70	0.70	0.43	2.43	2.43	1.20	0.68	0.68	1.12
1 1/2 x 1 1/4 x 1 1/2	1.94	1.88	1.94	0.70	0.67	0.70	2.43	2.15	2.43	1.21	1.17	1.21
1 1/2 x 1 1/4 x 1 1/4	1.82	1.75	1.88	0.70	0.67	0.67	2.43	2.15	2.15	1.09	1.04	1.17
1 1/2 x 1 1/4 x 1	1.65	1.58	1.80	0.70	0.67	0.58	2.43	2.15	1.77	0.92	0.87	1.11
1 1/2 x 1 1/4 x 3/4	1.52	1.45	1.75	0.70	0.67	0.50	2.43	2.15	1.46	0.79	0.74	1.20
1 1/2 x 1 1/4 x 1/2	1.41	1.34	1.66	0.70	0.67	0.43	2.43	2.15	1.20	0.68	0.63	1.12

* Manufactured to WARD specifications

NPS	Center to End X	Center to End Y	Center to End Z	Outside Dia. H (min)	Outside Dia. H2 (min)	Outside Dia. H3 (min)	Thread Length B (min)	Thread Length B2 (min)	Thread Length B3 (min)	Take Out	Take Out	Take Out
1 1/2 x 1 x 1 1/2	1.94	1.80	1.94	0.70	0.58	0.70	2.43	1.77	2.43	1.21	1.11	1.21
1 1/2 x 1 x 1 1/4	—	—	—	—	—	—	—	—	—	—	—	—
1 1/2 x 1 x 1	1.65	1.50	1.80	0.70	0.58	0.58	2.43	1.77	1.77	0.92	0.81	1.11
1 1/2 x 3/4 x 1 1/2	1.94	1.75	1.94	0.70	0.50	0.70	2.43	1.46	2.43	1.21	1.20	1.21
*1 1/2 x 3/4 x 3/4	1.55	1.35	1.77	0.70	0.50	0.50	2.43	1.46	1.46	0.82	0.80	1.22
1 1/2 x 1/2 x 1 1/2	1.94	1.66	1.94	0.70	0.43	0.70	2.43	1.20	2.43	1.21	1.12	1.21
1 1/4 x 1 1/4 x 1 1/2	1.88	1.88	1.82	0.67	0.67	0.70	2.15	2.15	2.43	1.17	1.17	1.09
1 x 1 x 1 1/2	1.80	1.80	1.65	0.58	0.58	0.70	1.77	1.77	2.43	1.11	1.11	0.92
2 x 2 x 1 1/2	2.02	2.02	2.16	0.75	0.75	0.70	2.96	2.96	2.43	1.26	1.26	1.43
2 x 2 x 1 1/4	1.90	1.90	2.10	0.75	0.75	0.67	2.96	2.96	2.15	1.14	1.14	1.39
2 x 2 x 1	1.73	1.73	2.02	0.75	0.75	0.58	2.96	2.96	1.77	0.97	0.97	1.33
2 x 2 x 3/4	1.60	1.60	1.97	0.75	0.75	0.50	2.96	2.96	1.46	0.84	0.84	1.42
2 x 2 x 1/2	1.49	1.49	1.88	0.75	0.75	0.43	2.96	2.96	1.20	0.73	0.73	1.34
2 x 1 1/2 x 2	2.25	2.16	2.25	0.75	0.70	0.75	2.96	2.43	2.96	1.49	1.43	1.49
2 x 1 1/2 x 1 1/2	2.02	1.94	2.16	0.75	0.70	0.70	2.96	2.43	2.43	1.26	1.21	1.43
2 x 1 1/2 x 1 1/4	1.90	1.82	2.10	0.75	0.70	0.67	2.96	2.43	2.15	1.14	1.09	1.39
2 x 1 1/2 x 1	1.73	1.65	2.02	0.75	0.70	0.58	2.96	2.43	1.77	0.97	0.92	1.33
2 x 1 1/4 x 2	2.25	2.10	2.25	0.75	0.67	0.75	2.96	2.15	2.96	1.49	1.39	1.49
2 X 1 1/4 X 1 1/2	—	—	—	—	—	—	—	—	—	—	—	—
2 x 1 1/4 x 1 1/4	1.90	1.75	2.10	0.75	0.67	0.67	2.96	2.15	2.15	1.14	1.04	1.39
2 x 1 x 2	2.25	2.02	2.25	0.75	0.58	0.75	2.96	1.77	2.96	1.49	1.33	1.49
*2 x 1 x 1	1.78	1.68	2.08	0.75	0.58	0.58	2.96	1.77	1.77	1.02	0.99	1.39
2 x 3/4 x 2	2.25	1.97	2.25	0.75	0.50	0.75	2.96	1.46	2.96	1.49	1.42	1.49
2 x 1/2 x 2	2.25	1.88	2.25	0.75	0.43	0.75	2.96	1.20	2.96	1.49	1.34	1.49
1 1/2 x 1 1/2 x 2	—	—	—	—	—	—	—	—	—	—	—	—
1 1/4 x 1 1/4 x 2	—	—	—	—	—	—	—	—	—	—	—	—
1 x 1 x 2	—	—	—	—	—	—	—	—	—	—	—	—
2 1/2 x 2 1/2 x 2	2.39	2.39	2.60	0.92	0.92	0.75	3.59	3.59	2.96	1.25	1.25	1.84
2 1/2 x 2 1/2 x 1 1/2	2.16	2.16	2.51	0.92	0.92	0.70	3.59	3.59	2.43	1.02	1.02	1.78
2 1/2 x 2 1/2 x 1 1/4	2.04	2.04	2.45	0.92	0.92	0.67	3.59	3.59	2.15	0.90	0.90	1.74
2 1/2 x 2 1/2 x 1	1.87	1.87	2.37	0.92	0.92	0.58	3.59	3.59	1.77	0.73	0.73	1.68
2 1/2 x 2 1/2 x 3/4	1.74	1.74	2.32	0.92	0.92	0.50	3.59	3.59	1.46	0.60	0.60	1.77
2 1/2 x 2 x 2 1/2	—	—	—	—	—	—	—	—	—	—	—	—
2 1/2 x 2 x 2	—	—	—	—	—	—	—	—	—	—	—	—
2 1/2 x 1 1/2 x 2 1/2	—	—	—	—	—	—	—	—	—	—	—	—
2 1/2 x 1 1/2 x 2	—	—	—	—	—	—	—	—	—	—	—	—
2 x 2 x 2 1/2	—	—	—	—	—	—	—	—	—	—	—	—
3 x 3 x 2 1/2	2.83	2.83	2.99	0.98	0.98	0.92	4.28	4.28	3.59	1.63	1.63	1.85
3 x 3 x 2	2.52	2.52	2.89	0.98	0.98	0.75	4.28	4.28	2.96	1.32	1.32	2.13
3 x 3 x 1 1/2	2.29	2.29	2.80	0.98	0.98	0.70	4.28	4.28	2.43	1.09	1.09	2.07
3 x 3 x 1 1/4	2.17	2.17	2.74	0.98	0.98	0.67	4.28	4.28	2.15	0.97	0.97	2.03
3 x 3 x 1	2.00	2.00	2.66	0.98	0.98	0.58	4.28	4.28	1.77	0.80	0.80	1.97
3 x 3 x 3/4	1.87	1.87	2.61	0.98	0.98	0.50	4.28	4.28	1.46	0.67	0.67	2.06
3 x 2 1/2 x 2 1/2	—	—	—	—	—	—	—	—	—	—	—	—
3 x 2 1/2 x 2	—	—	—	—	—	—	—	—	—	—	—	—
3 x 2 x 3	—	—	—	—	—	—	—	—	—	—	—	—
3 x 2 x 2	2.52	2.25	2.89	0.98	0.75	0.75	4.28	2.96	2.96	1.32	1.49	2.13
2 1/2 x 2 1/2 x 3	—	—	—	—	—	—	—	—	—	—	—	—
4 x 4 x 3	—	—	—	—	—	—	—	—	—	—	—	—
4 x 4 x 2 1/2	—	—	—	—	—	—	—	—	—	—	—	—
4 x 4 x 2	2.74	2.74	3.41	1.08	1.08	0.75	5.40	5.40	2.96	1.44	1.44	2.65
4 x 4 x 1 1/2	—	—	—	—	—	—	—	—	—	—	—	—
4 x 3 x 4	—	—	—	—	—	—	—	—	—	—	—	—

* Manufactured to WARD specifications

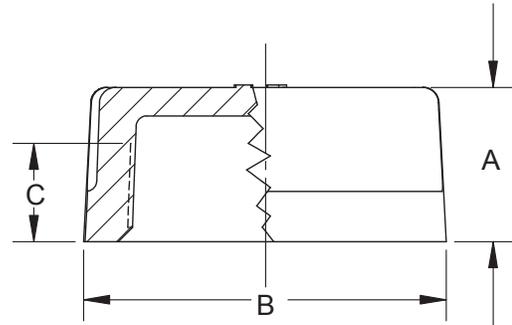


MALLEABLE IRON PIPE CAPS CLASS 150

NPS	Overall Height A (min)	Outside Dia. of Band B (min)	Length of Threads C (min)
*1/8	0.53	0.56	0.25
+1/4	0.63	0.84	0.32
+3/8	0.74	1.01	0.36
+1/2	0.87	1.20	0.43
+3/4	0.97	1.46	0.50
1	1.16	1.770	0.58
1 1/4	1.28	2.15	0.67
1 1/2	1.33	2.43	0.70
2	1.45	3.00	0.75
2 1/2	1.70	3.59	0.92
3	1.80	4.28	0.98
3 1/2	—	—	—
4	2.08	5.40	1.08
5	—	—	—
6	—	—	—
8	—	—	—

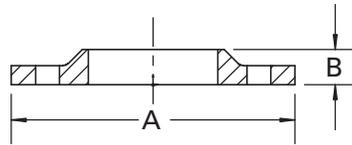
+ Made in Malleable Iron and Steel

* Made in Steel



MALLEABLE IRON WASTE NUTS CLASS 150

NPS	End to End A	Height B
*1/2	2.42	0.34
*3/4	2.65	0.32
*1	2.99	0.37

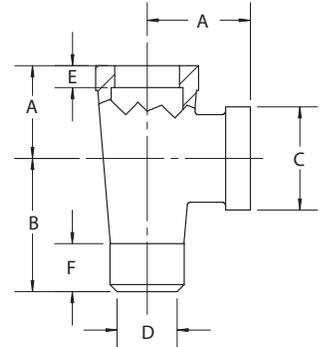


* Manufactured to WARD specifications

MALLEABLE IRON STREET TEES CLASS 150

NPS	Center to End A	Center to Male B	Outside Dia. of Band C (min)	Port Dia. Male End D (max)	Length of Internal Thread E (min)	Length of External Thread F (min)	Take Out Male End	Take Out Female End
1/4	—	—	—	—	—	—	—	—
3/8	—	—	—	—	—	—	—	—
1/2	—	—	—	—	—	—	—	—
3/4	1.31	1.89	1.46	0.69	0.50	0.55	1.34	0.76
1	1.50	2.14	1.77	0.91	0.58	0.68	1.45	0.81
1 1/4	1.75	2.45	2.15	1.19	0.67	0.71	1.74	1.04
1 1/2	1.94	2.69	2.43	1.39	0.70	0.72	1.96	1.21
2	2.25	3.26	2.96	1.79	0.75	0.76	2.50	1.49
*1 1/4 x 1 x 1 1/4	1.75	2.45	2.15	0.91	0.67	0.68	1.76	1.04

* Manufactured to WARD specifications



MALLEABLE IRON COUPLING, CLASS 150

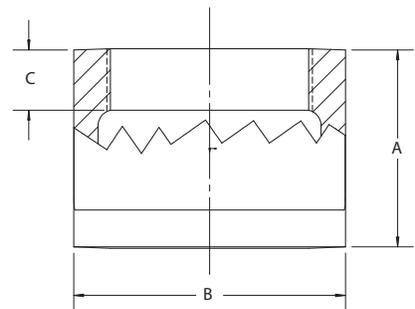
STRAIGHT COUPLING

NPS	Length of Coupling A	Outside Dia. of Band B (min)	Length of Threads C (min)	Take Out
+1/8	0.96	0.69	0.25	0.13
1/4	1.06	0.84	0.32	0.17
3/8	1.16	1.01	0.36	0.14
1/2	1.34	1.20	0.43	0.21
3/4	1.52	1.46	0.50	0.15
1	1.67	1.77	0.58	0.26
1 1/4	1.93	2.15	0.67	0.35
1 1/2	2.15	2.43	0.70	0.51
2	2.53	2.96	0.75	0.30
2 1/2	2.88	3.59	0.92	0.39
3	3.18	4.28	0.98	0.55
4	3.69	5.40	1.08	2.39

+ Steel

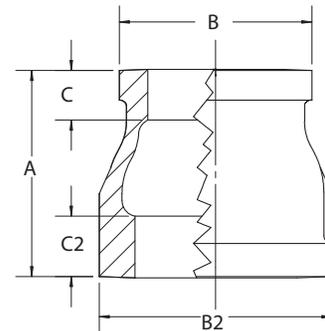
RIGHT & LEFT THREAD COUPLING

NPS	Length of Coupling A	Outside Dia. of Band B (min)	Length of Threads C (min)	Take Out
1/2	1.34	1.20	0.43	0.14
3/4	1.52	1.46	0.50	0.21
1	1.67	1.77	0.58	0.15
1 1/4	1.93	2.15	0.67	0.26
1 1/2	2.15	2.43	0.70	0.35
2	2.53	2.96	0.75	0.51



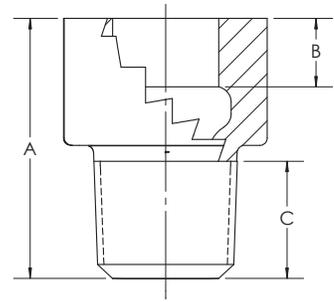
MALLEABLE IRON REDUCING COUPLING CLASS 150

NPS	Length of Coupling A	Outside Dia. Small Band B (min)	Outside Dia. Large Band B2 (min)	Length of Threads Small End C (min)	Length of Threads Large End C2 (min)	Take Out	Take Out
1/4 x 1/8	1.00	0.69	0.84	0.25	0.32	0.10	0.24
3/8 x 1/4	1.13	0.84	1.01	0.32	0.36	0.16	0.16
3/8 x 1/8	1.13	0.69	1.01	0.25	0.36	0.16	0.30
1/2 x 3/8	1.25	1.01	1.20	0.36	0.43	0.09	0.22
1/2 x 1/4	1.25	0.84	1.20	0.32	0.43	0.09	0.22
1/2 x 1/8	1.25	0.69	1.20	0.25	0.43	0.09	0.36
3/4 x 1/2	1.44	1.20	1.46	0.43	0.50	0.17	0.19
3/4 x 3/8	1.44	1.01	1.46	0.36	0.50	0.17	0.31
3/4 x 1/4	1.44	0.84	1.46	0.32	0.50	0.17	0.32
3/4 x 1/8	1.44	0.69	1.46	0.25	0.50	0.894	0.17
1 x 3/4	1.69	1.46	1.77	0.50	0.58	0.16	0.30
1 x 1/2	1.69	1.20	1.77	0.43	0.58	0.16	0.31
1 x 3/8	1.69	1.01	1.77	0.36	0.58	0.16	0.44
1 x 1/4	1.69	0.84	1.77	0.32	0.58	0.16	0.44
1 x 1/8	—	—	—	—	—	—	—
1 1/4 x 1	2.06	1.77	2.15	0.58	0.67	0.32	0.35
1 1/4 x 3/4	2.06	1.46	2.15	0.50	0.67	0.32	0.48
1 1/4 x 1/2	2.06	1.20	2.15	0.43	0.67	0.32	0.50
1 1/2 x 1 1/4	2.31	2.15	2.43	0.67	0.70	0.43	0.45
1 1/2 x 1	2.31	1.77	2.43	0.58	0.70	0.43	0.47
1 1/2 x 3/4	2.31	1.46	2.43	0.50	0.70	0.43	0.61
1 1/2 x 1/2	2.31	1.20	2.43	0.43	0.70	0.43	0.62
2 x 1 1/2	2.81	2.43	2.96	0.70	0.75	0.65	0.68
2 x 1 1/4	2.81	2.15	2.96	0.67	0.75	0.65	0.70
2 x 1	2.81	1.77	2.96	0.58	0.75	0.65	0.72
2 x 3/4	2.81	1.46	2.96	0.50	0.75	0.65	0.86
2 x 1/2	2.81	1.20	2.96	0.43	0.75	0.65	0.87
2 1/2 x 2	3.25	2.96	3.59	0.75	0.92	0.49	0.87
2 1/2 x 1 1/2	3.25	2.43	3.59	0.70	0.92	0.49	0.90
2 1/2 x 1 1/4	3.25	2.43	3.59	0.67	0.92	0.49	0.92
2 1/2 x 1	3.25	1.77	3.59	0.58	0.92	0.49	0.94
3 x 2 1/2	3.69	3.59	4.28	0.92	0.98	0.65	0.71
3 x 2	3.69	2.96	4.28	0.75	0.98	0.65	1.09
3 x 1 1/2	3.69	2.43	4.28	0.70	0.98	0.65	1.12
3 x 1 1/4	3.69	2.15	4.28	0.67	0.98	0.65	1.14
3 x 1	3.69	1.77	4.28	0.58	0.98	0.65	1.16
3 1/2 x 3	—	—	—	—	—	—	—
3 1/2 x 2	—	—	—	—	—	—	—
4 x 3 1/2	—	—	—	—	—	—	—
4 x 3	4.38	4.28	5.40	0.98	1.08	0.89	0.99
4 x 2 1/2	4.38	3.59	5.40	0.92	1.08	0.89	1.05
4 x 2	4.38	2.96	5.40	0.75	1.08	0.89	1.43
4 x 1 1/2	—	—	—	—	—	—	—
5 x 4	—	—	—	—	—	—	—
6 x 4	—	—	—	—	—	—	—



MALLEABLE IRON EXTENSION PIECES CLASS 150

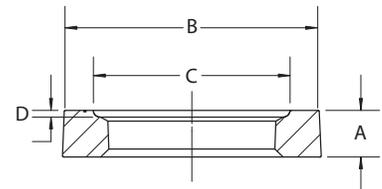
NPS	Overall Length A	Length of Internal Threads B (min)	Length of External Threads C (min)	Take Out Female End	Take Out Male End
*3/8	1.50	0.36	0.40	1.09	1.09
*1/2	1.95	0.43	0.53	1.41	1.41
*3/4	2.06	0.50	0.54	1.51	1.51
*1	2.23	0.58	0.68	1.54	1.54
*1 1/4	2.56	0.67	0.63	1.85	1.85
*2	—	—	—	—	—



* Manufactured to WARD specifications

MALLEABLE IRON LOCKNUTS CLASS 150

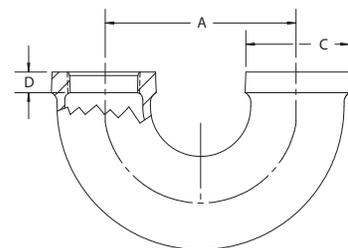
NPS	Overall Height A	Length-Across Flat B (min)	Packing Groove Width C	Packing Groove Depth D
+1/8	0.19	0.69	0.50	0.04
+1/4	0.25	0.84	0.66	0.06
3/8	0.28	1.00	0.77	0.06
1/2	0.31	1.18	0.97	0.06
3/4	0.34	1.43	1.23	0.06
1	0.38	1.75	1.50	0.06
1 1/4	0.42	2.10	1.86	0.06
1 1/2	0.47	2.35	2.12	0.06
2	0.53	2.88	2.63	0.09



+STEEL
Made to ASME B16.14

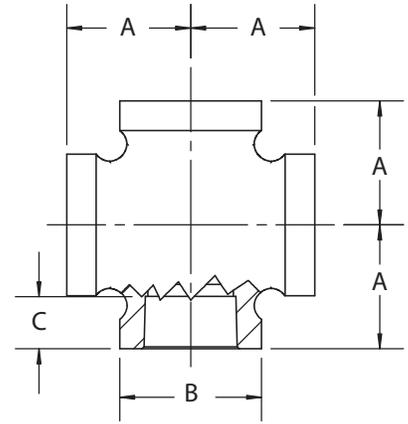
MALLEABLE IRON RETURN BEND OPEN CLASS 150

NPS	Center to Center A	Outside Dia. of Band C (min)	Length of Threads D (min)
1/2	1.50	1.20	0.43
3/4	2.00	1.46	0.50
1	3.00	1.77	0.58



MALLEABLE IRON CROSS CLASS 150

NPS	Center to End A	Outside Dia. of Band B (min)	Length of Threads C (min)	Take Out
1/8	—	—	—	—
1/4	0.81	0.84	0.32	0.40
3/8	0.95	1.01	0.36	0.54
1/2	1.12	1.20	0.43	0.58
3/4	1.31	1.46	0.50	0.76
1	1.50	1.77	0.58	0.81
1 1/4	1.75	2.15	0.67	1.04
1 1/2	1.94	2.43	0.70	1.21
2	2.25	2.96	0.75	1.49
2 1/2	—	—	—	—
3	—	—	—	—
4	—	—	—	—



MALLEABLE IRON 45° Y CLASS 150

NPS	Center to End Inlet A	Center to End Outlet B	End to End C	Outside Dia. of Band D (min)	Length of Threads E (min)	Take Out	Take Out
3/8	—	—	—	—	—	—	—
1/2	—	—	—	—	—	—	—
3/4	—	—	—	—	—	—	—
1	—	—	—	—	—	—	—
1 1/4	1.02	2.92	3.94	2.15	0.67	0.67	2.21
1 1/2	—	—	—	—	—	—	—
2	—	—	—	—	—	—	—
2 1/2	—	—	—	—	—	—	—
3	—	—	—	—	—	—	—
4	—	—	—	—	—	—	—

