

HIGH QUALITY MALLEABLE IRON PIPE FITTINGS





GENERAL INFORMATION

1. PRODUCT STANDARD AND APPLICATION RANGE

Galvanized and Black Malleable Iron Pipe Fittings Standard Specification :

STANDARD	
Design	SNI 0139 / JIS B 2301 / BS 143 & 1256 (BS EN 10242)
Material	SNI 0139 / JIS G 5702 / BS EN 1562
Threads	ISO 7-1 / JIS B 0203 / BS 21 ISO 228 - 1/ JIS B 0202 / BS 2779
Zinc Coating	SNI 0139 / JIS B 2301 / BS 143 & 1256
Reinforcement	Banded

Mechanical Properties of Blackheart Malleable Cast Iron :

Tensile Strength (min)	Elongation (min)	Hardness (max)
300 N/mm ²	6 %	150 HB

Hydrostatic Design Test Pressure (Design Strength) :

Size	Pressure
1/8 to 4	100 bar
5 and 6	64 bar

Permissible Working Pressure and Temperature

Service Temperature (°C)	Maximum Permissible Working Pressure (bar)
-20 to 120	25
Between 120 and 300	Interpolated values
> 300	20

Coating :

Galvanized	Hot Dip Zinc Coating (min) 70 µm / 500 gr / m ² .
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MALLEABLE FITTING

Compression test with heat treatment



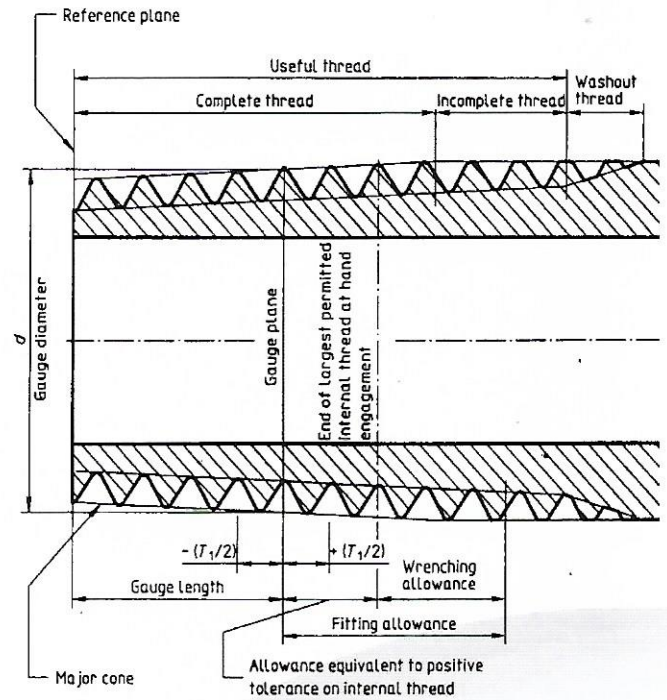
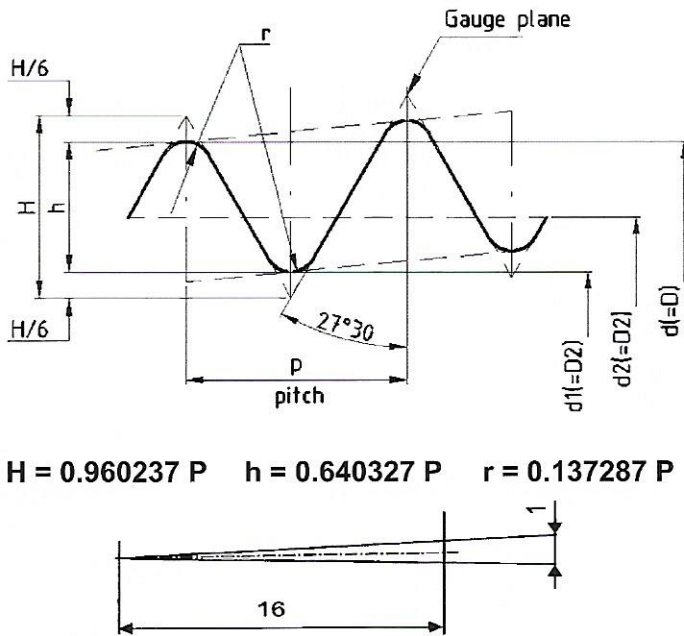
NON-MALLEABLE FITTING

Compression test without heat treatment



2. BASIC DIMENSIONS FOR BRITISH STANDARD THREADS

This information is selected from the ISO 7-1



Taper Thread

Figure 3 — Terms relating to external threads

Designation of threads size		Number of thread in 25.4 mm	Pitch	Height (depth) of thread	Diameters at gauge plane			Length of useful thread			Gauge Length			Tolerance on position of gauge plane	
					Major	Pitch	Minor	Max	Nominal	Min	Max	Nominal	Min	On External thread	On Internal thread
Inch	mm		P	h	d	d2	d1								Turns of thread
1/8	4	28	0.907	0.581	9.728	9.147	8.566	7.4	6.5	5.6	4.9	4	3.1	± 1	± 1 ¼
1/4	8	19	1.337	0.856	13.157	12.301	11.445	11.0	9.7	8.4	7.3	6	4.7	± 1	± 1 ¼
3/8	10	19	1.337	0.856	16.662	15.806	14.950	11.4	10.1	8.8	7.7	6.4	5.1	± 1	± 1 ¼
1/2	15	14	1.814	1.162	20.955	19.793	18.631	15.0	13.2	11.4	10.0	8.2	6.4	± 1	± 1 ¼
3/4	20	14	1.814	1.162	26.441	25.279	24.117	16.3	14.5	12.7	11.3	9.5	7.7	± 1	± 1 ¼
1	25	11	2.309	1.479	33.249	31.770	30.291	19.1	16.8	14.5	12.7	10.4	8.1	± 1	± 1 ¼
1 ¼	32	11	2.309	1.479	41.910	40.431	38.952	21.4	19.1	16.8	15.0	12.7	10.4	± 1	± 1 ¼
1 ½	40	11	2.309	1.479	47.803	46.324	44.845	21.4	19.1	16.8	15.0	12.7	10.4	± 1	± 1 ¼
2	50	11	2.309	1.479	59.614	58.135	56.656	25.7	23.4	21.1	18.2	15.9	13.6	± 1	± 1 ¼
2 ½	65	11	2.309	1.479	75.184	73.705	72.226	30.2	26.7	23.2	21.0	17.5	14.0	± 1 ½	± 1 ½
3	80	11	2.309	1.479	87.884	86.405	84.926	33.3	29.8	26.3	24.1	20.6	17.1	± 1 ½	± 1 ½
4	100	11	2.309	1.479	113.030	111.551	110.072	39.3	35.8	32.3	28.9	25.4	21.9	± 1 ½	± 1 ½
5	125	11	2.309	1.479	138.430	136.951	135.472	43.6	40.1	36.6	32.1	28.6	25.1	± 1 ½	± 1 ½
6	150	11	2.309	1.479	163.830	162.351	160.872	43.6	40.1	36.6	32.1	28.6	25.1	± 1 ½	± 1 ½

Note : Dimensions in mm



MALLEABLE IRON PIPE FITTINGS



FIG NO. 1
(Bends Long MF 90)
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FIG NO. 2
(Bends Long FF 90)
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FIG NO. 3
(Bends Long MM 90)
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FIG NO. 90
(Elbows 90)
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FIG NO. 90R
(Red Elbows 90)
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FIG NO. 92
(Street Elbows 90)
(Page. 8)



FIG NO. 92R
(Red Street Elbows 90)
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FIG NO. 120
(Elbows 45)
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FIG NO. 130
(Tees)
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FIG NO. 130R
(Red Tees)
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FIG NO. 180
(Crosses)
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FIG NO. 240
(Red Sockets)
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FIG NO. 241
(Bushings)
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FIG NO. 245
(Red Nipples)
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FIG NO. 271
(Sockets)
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FIG NO. 280
(Nipples)
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FIG NO. 291
(Plug Square Head)
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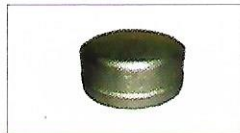


FIG NO. 300
(Round Caps)
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FIG NO. 310
(Locknuts)
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FIG NO. 330
(Union Flat Seat)
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FIG NO. 340
(Union Conical)
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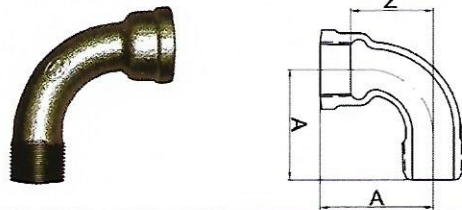


FIG NO. 322
(Round Flanges)
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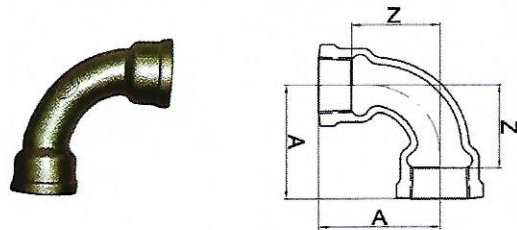
FIG NO. 529A
(Extension Pieces)
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Fig No. 1 - BENDS LONG M&F 90° BANDED (MF 90L)



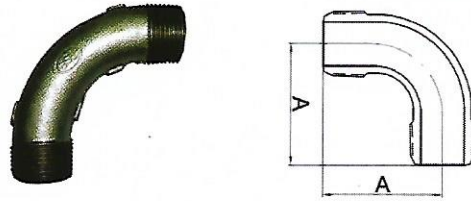
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	A	Z
1/2"	15	270	120	117	52	41
3/4"	20	135	210	205	65	53
1"	25	80	330	322	82	68
1 ¼"	32	43	558	544	100	84
1 ½"	40	30	803	783	115	99
2"	50	25	1370	1336	140	119
2 ½"	65	13	2350	2291	175	152
3"	80	8	3750	3656	205	178
4"	100	4	6820	6650	260	228

Fig No. 2 - BENDS LONG FEMALE 90° BANDED (FF 90L)



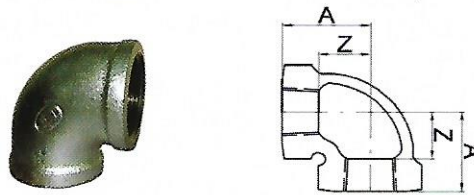
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	A	Z
3/4"	20	90	296	289	65	53
1"	25	65	420	410	82	68
1 ¼"	32	35	720	702	100	84
1 ½"	40	25	1000	975	115	99
2"	50	12	1600	1560	140	119
2 ½"	65	12	2680	2613	175	152
3"	80	7	3850	3754	205	178
4"	100	3	7725	7532	260	228

Fig No. 3 - BENDS LONG MALE 90° (MM 90L)



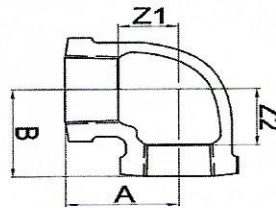
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	A	
1/2"	15	360	99	97	52	
3/4"	20	165	180	176	65	
1"	25	100	304	296	82	
1 1/4"	32	45	550	536	100	
1 1/2"	40	35	660	644	115	
2"	50	16	1250	1219	140	
2 1/2"	65	14	2420	2360	175	
3"	80	9	3084	3007	205	
4"	100	4	5850	5704	260	

Fig No. 90 - ELBOWS 90° BANDED (BL 90)



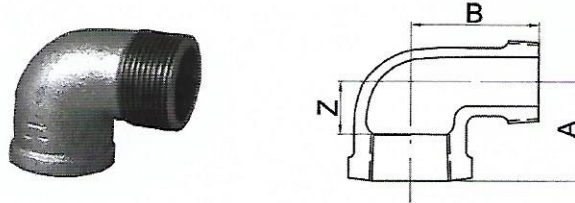
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	A	Z
1/4"	8	750	42	41	19	11
3/8"	10	500	72	70	23	14
1/2"	15	345	100	98	27	16
3/4"	20	195	146	140	32	20
1"	25	105	257	251	38	24
1 1/4"	32	70	398	378	46	30
1 1/2"	40	50	516	502	48	32
2"	50	30	760	740	57	36
2 1/2"	65	30	1245	1214	69	46
3"	80	20	1790	1746	78	51
4"	100	8	3800	3750	97	65
5"	125	5	5480	5343	113	76
6"	150	3	8500	8250	132	95

Fig No. 90R - REDUCING ELBOWS 90° BANDED (BRL)



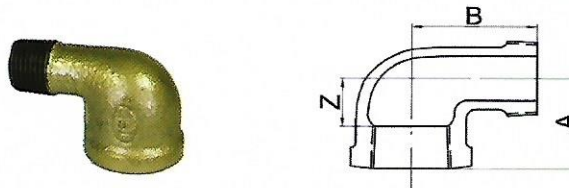
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	A	B	Z1	Z2
1/2 X 3/8"	15 X 10	300	87	85	26	25	15	16
3/4 X 1/2"	20 X 15	240	135	131	29	30	17	19
1 X 1/2"	25 X 15	150	194	190	32	33	18	22
1 X 3/4"	25 X 20	135	216	210	34	35	20	23
1 1/4 X 1/2"	32 X 15	120	260	254	34	38	18	27
1 1/4 X 3/4"	32 X 20	100	270	262	38	40	22	28
1 1/4 X 1"	32 X 25	90	329	320	40	42	24	28
1 1/2 X 1/2"	40 X 15	85	330	312	35	42	19	31
1 1/2 X 3/4"	40 X 20	80	364	353	38	43	22	31
1 1/2 X 1"	40 X 25	80	380	371	41	45	25	31
1 1/2 X 1 1/4"	40 X 32	60	460	456	45	48	29	23
2 X 1/2"	50 X 15	60	470	460	38	48	17	37
2 X 3/4"	50 X 20	55	500	488	41	49	20	37
2 X 1"	50 X 25	55	526	513	44	51	23	37
2 X 1 1/4"	50 X 32	50	642	576	48	54	27	38
2 X 1 1/2"	50 X 40	40	658	654	52	55	31	39
2 1/2 X 1/2"	65 X 15	40	510	497	35	42	19	31
2 1/2 X 3/4"	65 X 20	35	690	673	38	43	22	31
2 1/2 X 1"	65 X 25	35	780	761	48	60	25	46
2 1/2 X 1 1/4"	65 X 32	25	810	790	52	62	29	46
2 1/2 X 1 1/2"	65 X 40	20	880	858	55	62	32	46
2 1/2 X 2"	65 X 50	20	1,031	1,005	60	65	37	44
3 X 1 1/2"	80 X 40	15	1,200	1,170	58	72	31	56
3 X 2"	80 X 50	15	1,400	1,365	62	72	35	51
4 X 3"	100 X 80	12	2,600	2,535	83	91	51	64
6 X 4"	150 X 100	5	5,720	5,577	102	125	65	93

Fig No. 92 - STREET ELBOWS 90° BANDED (BSL 90)



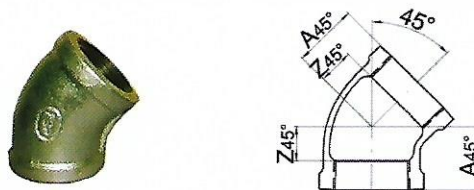
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)		
INCH	METRIC		GALV	BLACK	A	B	Z
3/8"	10	450	68	66	23	35	14
1/2"	15	360	100	98	27	40	16
3/4"	20	195	158	155	32	47	20
1"	25	120	250	244	38	54	24
1 1/4"	32	65	382	372	46	62	30
1 1/2"	40	50	495	483	48	68	32
2"	50	45	786	766	57	79	36
2 1/2"	65	25	1307	1274	69	92	46
3"	80	15	2273	2216	78	104	51

Fig No. 92R - REDUCING STREET ELBOWS 90° BANDED (BRSL)



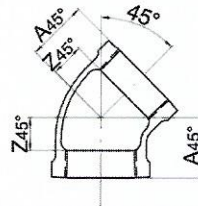
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)		
INCH	METRIC		GALV	BLACK	A	B	Z
3/4 X 1/2"	20 X 15	240	137	134	29	44	17

Fig No. 120 - ELBOWS 45° BANDED (BL 45)



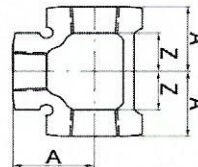
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	A45	Z45
1/2"	15	345	100	90	21	10
3/4"	20	210	145	140	25	13
1"	25	150	240	234	29	15
1 1/4"	32	90	357	348	34	18
1 1/2"	40	55	440	429	37	21

Fig No. 120 - ELBOWS 45° BANDED (BL 45)



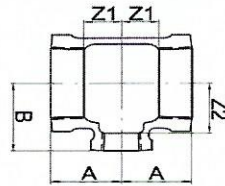
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	A45	Z45
2"	50	35	699	670	42	21
2 ½"	65	35	1080	1062	49	26
3"	80	20	1478	1441	54	27
4"	100	9	2800	2730	65	33
6"	150	3	6520	6357	82	45

Fig No. 130 - TEES BANDED (BT)



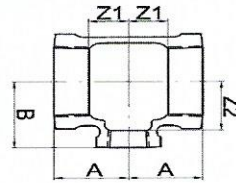
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	A	Z
1/4"	8	600	67	65	19	11
3/8"	10	330	102	98	23	14
1/2"	15	210	136	132	27	16
3/4"	20	120	215	207	32	20
1"	25	70	350	340	38	24
1 ¼"	32	45	523	490	46	30
1 ½"	40	35	630	614	48	32
2"	50	24	990	960	57	36
2 ½"	65	22	1500	1450	69	46
3"	80	14	2133	2052	78	51
4"	100	6	4550	4410	97	65
5"	125	4	6970	6800	113	76
6"	150	3	10200	9945	132	95

Fig No. 130R - REDUCING TEES BANDED (BRT)



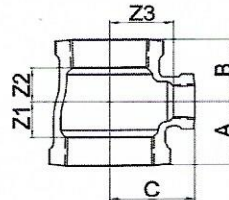
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	A	B	Z1	Z2
3/4 X 3/4 X 1/2"	20 X 20 X 15	160	196	180	29	30	17	19
1 X 1 X 1/2"	25 X 25 X 15	90	275	260	32	33	18	22
1 X 1 X 3/4"	25 X 25 X 20	85	290	280	34	35	20	23
1 1/4 X 1 1/4 X 1/2"	32 X 32 X 15	70	359	350	34	38	18	27
1 1/4 X 1 1/4 X 3/4"	32 X 32 X 20	60	420	410	38	40	22	28
1 1/4 X 1 1/4 X 1"	32 X 32 X 25	55	460	450	40	42	24	28
1 1/2 X 1 1/2 X 1/2"	40 X 40 X 15	55	444	433	35	42	19	31
1 1/2 X 1 1/2 X 3/4"	40 X 40 X 20	45	510	500	38	43	22	31
1 1/2 X 1 1/2 X 1"	40 X 40 X 25	45	580	540	41	45	25	31
1 1/2 X 1 1/2 X 1 1/4"	40 X 40 X 32	40	564	550	45	48	29	32
2 X 2 X 1/2"	50 X 50 X 15	40	615	582	38	48	17	37
2 X 2 X 3/4"	50 X 50 X 20	40	701	700	41	49	20	37
2 X 2 X 1"	50 X 50 X 25	30	728	710	44	51	23	37
2 X 2 X 1 1/4"	50 X 50 X 32	25	836	834	48	54	27	38
2 X 2 X 1 1/2"	50 X 50 X 40	30	886	864	52	55	31	39
2 1/2 X 2 1/2 X 1/2"	65 X 65 X 15	22	1000	975	41	57	18	46
2 1/2 X 2 1/2 X 3/4"	65 X 65 X 20	20	1000	975	44	58	21	46
2 1/2 X 2 1/2 X 1"	65 X 65 X 25	20	1200	1197	48	60	25	46
2 1/2 X 2 1/2 X 1 1/4"	65 X 65 X 32	20	1300	1261	52	62	29	46
2 1/2 X 2 1/2 X 1 1/2"	65 X 65 X 40	18	1323	1300	55	62	32	46
2 1/2 X 2 1/2 X 2"	65 X 65 X 50	25	1450	1410	60	65	37	44
3 X 3 X 1/2"	80 X 80 X 15	28	1340	1307	44	65		
3 X 3 X 3/4"	80 X 80 X 20	24	1370	1336	46	66	19	54
3 X 3 X 1"	80 X 80 X 25	24	1520	1482	50	68	23	54
3 X 3 X 1 1/4"	80 X 80 X 32	24	1635	1594	55	70	28	54
3 X 3 X 1 1/2"	80 X 80 X 40	24	1740	1697	58	72	31	56
3 X 3 X 2"	80 X 80 X 50	20	1840	1794	62	72	35	51
3 X 3 X 2 1/2"	80 X 80 X 65	18	2040	1989	72	75	45	52
4 X 4 X 1"	100 X 100 X 25	16	2500	2438	57	83	25	69
4 X 4 X 1 1/4"	100 X 100 X 32	14	2270	2213	61	86	29	70
4 X 4 X 1 1/2"	100 X 100 X 40	6	2580	2516	63	86	31	70
4 X 4 X 2"	100 X 100 X 50	9	2605	2540	69	87	37	66
4 X 4 X 2 1/2"	100 X 100 X 65	6	3380	3296	78	90	46	67

Fig No. 130R - REDUCING TEES BANDED (BRT)



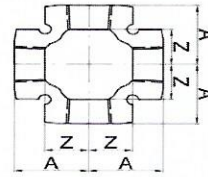
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	A	B	Z1	Z2
4 X 4 X 3"	100 X 100 X 80	6	3500	3413	83	91	51	64
6 X 6 X 2"	150 X 150 X 50	4	5970	5821	75	116	38	95
6 X 6 X 3"	150 X 150 X 80	3	7200	7020	92	120	55	93
6 X 6 X 4"	150 X 150 X 100	3	7780	7586	102	125	65	93

Fig No. 130R - REDUCING TEES BANDED (BRT)



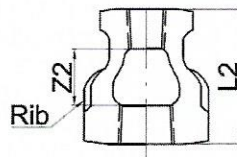
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)					
INCH	METRIC		GALV	BLACK	A	B	C	Z1	Z2	Z3
1 X 1 X 1 ¼"	25 X 25 X 32	50	460	449	42	42	40	28	24	-
1 X 1 X 1 ½"	25 X 25 X 40	45	512	499	45	45	42	31	26	-
1 ¼ X 1 X 1/2"	32 X 25 X 15	85	323	315	34	32	38	18	18	27
1 ¼ X 1 X 1"	32 X 25 X 25	55	440	429	40	38	42	24	24	28
1 ¼ X 1 ¼ X 1 ½"	32 X 32 X 40	50	564	550	48	48	45	32	29	-
1 ¼ X 1 ¼ X 2"	32 X 32 X 50	30	775	756		52	48	36	27	-
1 ½ X 1 ¼ X 1/2"	40 X 32 X 15	70	398	388	35	34	42	19	18	31
1 ½ X 1 ¼ X 3/4"	40 X 32 X 20	60	426	415	38	38	43	22	22	31
1 ½ X 1 ¼ X 1"	40 X 32 X 25	55	487	475	41	40	45	25	24	31
1 ½ X 1 ¼ X 1 ¼"	40 X 32 X 32	50	600	585	45	44	48	29	28	32
1 ½ X 1 ¼ X 2"	40 X 32 X 50	30	710	692	55	54	52	39	38	31
1 ½ X 1 ½ X 2"	40 X 40 X 50	30	860	839	54	54	52	38	31	-
2 X 1 ½ X 1/2"	50 X 40 X 15	45	529	516	38	35	48	-	-	-
2 X 1 ½ X 1"	50 X 40 X 25	40	660	644	45	42	52	24	26	38
2 X 1 ½ X 1 ¼"	50 X 40 X 32	30	737	719	47	45	55	28	30	38
2 X 1 ½ X 2"	50 X 40 X 50	25	905	882	57	55	57	36	39	36
2 X 2 X 2 ½"	50 X 50 X 65	18	1295	1263	65	65	60	44	37	-
2 ½ X 2 X 2"	65 X 50 X 50	18	1295	1263	59	56	65	-	-	-

Fig No. 180 - CROSSES BANDED (BCR)



SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	A	Z
1/2"	15	150	190	185	27	16
3/4"	20	105	260	254	32	20
1"	25	65	410	398	38	24
1 ¼"	32	35	629	613	46	30
1 ½"	40	30	823	800	48	32
2"	50	18	1267	1250	57	36
2 ½"	65	9	2100	2048	69	46
3"	80	5	2819	2749	78	51

Fig No. 240 - REDUCING SOCKETS WITH RIBS BANDED (BRS)

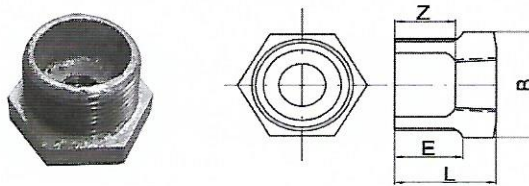


SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	L2	Z2
1/2 X 1/4"	15 X 8	600	62	60	34	15
1/2 X 3/8"	15 X 10	375	75	73	34	14
3/4 X 3/8"	20 X 10	270	95	93	38	17
3/4 X 1/2"	20 X 15	345	108	105	38	15
1 X 1/2"	25 X 15	210	154	150	42	17
1 X 3/4"	25 X 20	195	160	154	42	16
1 ¼ X 1/2"	32 X 15	135	212	210	48	21
1 ¼ X 3/4"	32 X 20	140	220	213	48	20
1 ¼ X 1"	32 X 25	120	260	238	48	18
1 ½ X 1/2"	40 X 15	105	280	270	52	25
1 ½ X 3/4"	40 X 20	105	288	280	52	24
1 ½ X 1"	40 X 25	100	310	300	52	22
1 ½ X 1 ¼"	40 X 32	90	349	340	52	20
2 X 1/2"	50 X 15	75	380	360	58	26
2 X 3/4"	50 X 20	75	400	392	58	25
2 X 1"	50 X 25	55	456	420	58	23
2 X 1 ¼"	50 X 32	60	435	424	58	21

Fig No. 240 - REDUCING SOCKETS WITH RIBS BANDED (BRS)

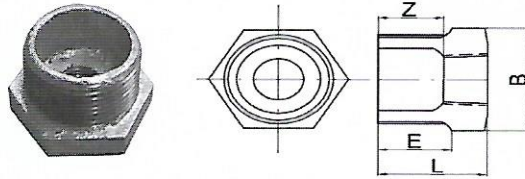
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	L2	Z2
2 X 1 1/2"	50 X 40	60	480	472	58	21
2 1/2 X 1/2"	65 X 15	50	-	-	65	31
2 1/2 X 3/4"	65 X 20	40	576	560	65	30
2 1/2 X 1"	65 X 25	40	700	683	65	28
2 1/2 X 1 1/4"	65 X 32	40	710	700	65	26
2 1/2 X 1 1/2"	65 X 40	40	680	663	65	26
2 1/2 X 2"	65 X 50	40	690	673	65	21
3 X 3/4"	80 X 20	34	770	751	72	33
3 X 1"	80 X 25	35	852	831	72	31
3 X 1 1/4"	80 X 32	35	840	819	72	29
3 X 1 1/2"	80 X 40	34	860	839	72	29
3 X 2"	80 X 50	25	1000	975	72	24
3 X 2 1/2"	80 X 65	35	1081	1054	72	22
4 X 1"	100 X 25	14	1660	1619	85	39
4 X 1 1/4"	100 X 32	14	1580	1540	85	37
4 X 1 1/2"	100 X 40	20	1460	1423	85	37
4 X 2"	100 X 50	25	1660	1619	85	32
4 X 2 1/2"	100 X 65	20	1620	1580	85	30
4 X 3"	100 X 80	25	1550	1511	85	26
6 X 2"	150 X 50	6	3520	3432	105	47
6 X 2 1/2"	150 X 65	12	3350	3266	105	45
6 X 3"	150 X 80	12	3380	3296	105	41
6 X 4"	150 X 100	6	3640	3549	105	36

Fig No. 241 - BUSHINGS (HB)



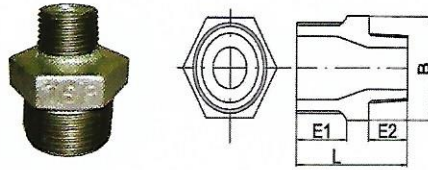
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	L	E	B	Z
3/8 X 1/4"	10 X 8	1500	25	22	18	13	21	10
1/2 X 1/4"	15 X 8	1050	41	40	21	16	26	13
1/2 X 3/8"	15 X 10	1000	34	33	21	16	26	12
3/4 X 3/8"	20 X 10	450	74	72	24	18	32	15
3/4 X 1/2"	20 X 15	525	56	54	24	18	32	13
1 X 3/8"	25 X 10	240	124	121	27	20	38	18
1 X 1/2"	25 X 15	360	116	112	27	20	38	16
1 X 3/4"	25 X 20	360	95	93	27	20	38	15
1 1/4 X 1/2"	32 X 15	210	170	166	30	22	46	19

Fig No. 241 - BUSHINGS (HB)



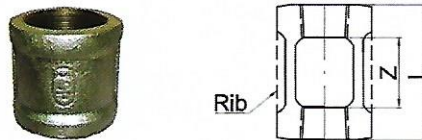
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	L	E	B	Z
1 ¼ X ¾"	32 X 20	210	170	160	30	22	46	18
1 ¼ X 1"	32 X 25	225	130	126	30	22	46	16
1 ½ X 1/2"	40 X 15	135	270	261	32	23	54	21
1 ½ X ¾"	40 X 20	135	242	240	32	23	54	20
1 ½ X 1"	40 X 25	150	221	215	32	23	54	18
1 ½ X 1 ¼"	40 X 32	150	161	160	32	23	54	16
2 X 1/2"	50 X 15	90	400	368	36	25	-	25
2 X ¾"	50 X 20	90	380	370	36	25	-	19
2 X 1"	50 X 25	90	416	410	36	25	-	22
2 X 1 ¼"	50 X 32	90	350	330	36	25	-	20
2 X 1 ½"	50 X 40	90	280	273	36	25	-	20
2 ½ X 1"	65 X 25	60	632	645	39	28	-	25
2 ½ X 1 ¼"	65 X 32	60	677	660	39	28	-	23
2 ½ X 1 ½"	65 X 40	60	630	614	39	28	-	23
2 ½ X 2"	65 X 50	60	480	474	39	28	-	18
3 X 1"	80 X 25	40	940	937	44	32	-	30
3 X 1 ¼"	80 X 32	40	920	870	44	32	-	28
3 X 1 ½"	80 X 40	40	980	970	44	32	-	28
3 X 2"	80 X 50	35	930	854	44	32	-	23
3 X 2 ½"	80 X 65	35	646	630	44	32	-	21
4 X 1 ½"	100 X 40	24	1575	1550	51	37	-	35
4 X 2"	100 X 50	24	1680	1510	51	37	-	30
4 X 2 ½"	100 X 65	24	1610	1570	51	37	-	28
4 X 3"	100 X 80	24	1477	1440	51	37	-	24
6 X 2"	150 X 50	8	3460	3374	64	46	-	24
6 X 2 ½"	150 X 65	8	3500	3413	64	46	-	24
6 X 3"	150 X 80	8	3420	3335	64	46	-	37
6 X 4"	150 X 100	8	3840	3744	64	46	-	32

Fig No. 245 - REDUCING NIPPLES (RN)



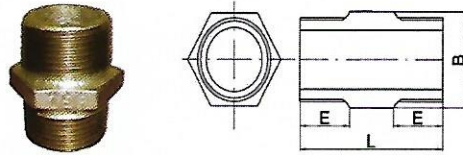
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	L	E1	E2	B
1/2 X 3/8"	15 X 10	480	70	68	39	16	13	26
3/4 X 1/2"	20 X 15	390	107	104	45	18	16	32
1 X 1/2"	25 X 15	255	150	146	48	20	16	38
1 X 3/4"	25 X 20	225	160	156	50	20	18	38
2 X 1 1/4"	50 X 32	60	470	458	63	25	22	-

Fig No. 271 - SOCKETS TAPPER THREADS WITH RIBS BANDED (BS)



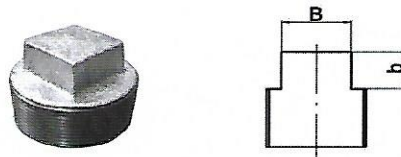
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	L	Z
1/4"	8	975	46	45	25	9
3/8"	10	600	65	63	30	12
1/2"	15	450	81	79	35	13
3/4"	20	270	130	127	40	16
1"	25	160	184	179	45	17
1 1/4"	32	110	266	258	50	18
1 1/2"	40	80	346	326	55	23
2"	50	60	492	480	60	18
2 1/2"	65	32	780	752	70	24
3"	80	22	1121	1180	75	21
4"	100	20	2160	2106	85	21
5"	125	10	2840	2769	95	21
6"	150	7	4290	4183	105	31

Fig No. 280 - NIPPLES (N)



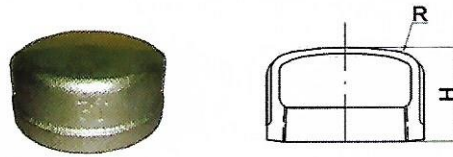
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)		
INCH	METRIC		GALV	BLACK	L	E	B
1/4"	8	1200	28	27	34	12	17
3/8"	10	900	44	43	36	13	21
1/2"	15	600	75	74	42	16	26
3/4"	20	300	100	98	47	18	32
1"	25	180	152	150	52	20	38
1 1/4"	32	120	195	190	56	22	46
1 1/2"	40	85	275	270	60	23	54
2"	50	66	426	415	66	25	-
2 1/2"	65	45	685	648	73	28	-
3"	80	40	873	860	81	32	-
4"	100	22	1350	1316	92	37	-
5"	125	12	2410	2350	104	42	-
6"	150	8	3760	3666	116	46	-

Fig No. 291 - PLUGS SQUARE HEAD (P SQUARE)



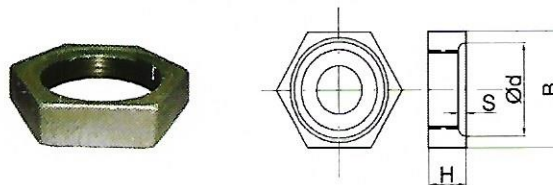
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	B	b
1/4"	8	2100	14	14	9	8
3/8"	10	1500	25	24	12	9
1/2"	15	1350	39	38	14	10
3/4"	20	750	65	64	17	11
1"	25	450	94	91	19	12
1 1/4"	32	270	146	145	23	13
1 1/2"	40	175	210	190	26	14
2"	50	105	254	248	32	15
2 1/2"	65	50	443	440	41	18
3"	80	40	601	600	46	19
4"	100	30	1070	1050	58	22
6"	150	10	2420	2360	77	28

Fig No. 300 - ROUND CAPS BANDED (RC)



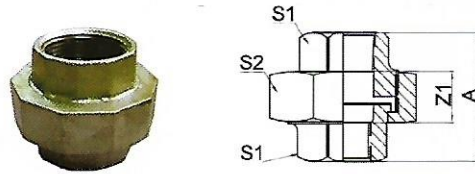
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	H	R
1/2"	15	750	54	50	20	78
3/4"	20	500	81	78	24	95
1"	25	270	138	133	28	125
1 ¼"	32	165	190	185	30	150
1 ½"	40	130	244	238	32	170
2"	50	75	390	380	36	215
2 ½"	65	40	720	702	42	270
3"	80	30	950	926	45	310
4"	100	18	1540	1502	55	405
6"	150	6	3350	3266	65	580

Fig No. 310 - LOCKNUTS (LN)



SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	H	d	S	B
1/2"	15	1050	37	36	9	28	1.2	32
3/4"	20	660	51	50	10	34	1.5	38
1"	25	450	79	77	11	40	1.5	46
1 ¼"	32	300	102	99	12	50	1.5	54
1 ½"	40	150	143	139	13	55	2.5	63
2"	50	120	240	234	15	68	2.5	77
2 ½"	65	75	480	468	17	88	2.5	100
3"	80	50	630	614	18	100	2.5	115
4"	100	25	1,196	1,166	22	125	2.5	145
6"	150	12	2,000	1,950	30	180	2.5	200

Fig No. 330 - UNION FEMALE FLAT SEAT IRON TO IRON SEAT WITH GASKET



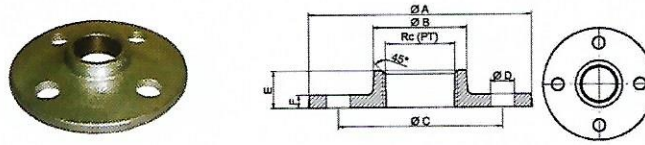
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	A	Z1	S1	S2
1/4"	8	375	95	93	42	22	-	-
3/8"	10	225	155	150	45	25	-	-
1/2"	15	150	180	170	48	22	27.0	45.5
3/4"	20	90	261	242	52	22	32.0	50.0
1"	25	80	397	385	58	24	38.5	55.0
1 1/4"	32	50	556	530	65	27	47.5	69.0
1 1/2"	40	35	738	720	70	32	54.0	75.5
2"	50	30	1100	1073	78	30	67.5	92.0
2 1/2"	65	18	1690	1648	85	31	84.0	111.5
3"	80	10	2330	2272	95	36	97.0	127.0
4"	100	4	3696	3600	118	39	126.5	157.5
6"	150	2	10400	10140	139	48	182.5	219.5

Fig No. 340 - UNION FEMALE CONICAL JOINT IRON TO IRON SEAT



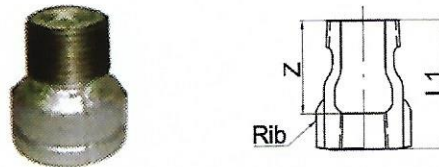
SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)			
INCH	METRIC		GALV	BLACK	A	Z1	S1	S2
1/2"	15	150	240	233	48	22	27.0	45.5
3/4"	20	90	290	285	52	22	32.0	50.0
1"	25	80	384	374	58	24	38.5	55.0
1 1/4"	32	50	625	610	65	27	47.5	69.0
1 1/2"	40	35	790	800	70	32	54.0	75.5
2"	50	24	1,250	1,222	78	30	67.5	92.0
2 1/2"	65	16	1,850	1,800	85	31	84.0	111.5
3"	80	12	2,400	2,340	95	36	97.0	127.0
4"	100	4	4,600	4,500	118	39	126.5	157.5

Fig No. 322 - ROUND FLANGES WITH BOLTS HOLE (RF)



SIZE		CONTENT/ CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)						Number of Holes
INCH	METRIC		GALV	BLACK	A	B	C	D	E	F	
1/2"	15	160	264	257	95.5	27.0	67.0	14.5	12	5.0	4
3/4"	20	125	280	273	101.5	33.0	73.0	14.5	14	5.0	4
1"	25	90	388	378	114.3	41.0	83.0	14.5	16	6.0	4
1 1/4"	32	70	537	524	120.0	50.0	89.0	14.5	19	6.5	4
1 1/2"	40	55	650	634	133.4	56.0	98.4	14.5	19	6.5	4
2"	50	35	932	909	152.0	69.0	114.3	17.5	21	7.5	4
2 1/2"	65	30	1180	1151	165.0	87.0	128.0	17.5	23	8.0	4
3"	80	20	1635	1594	184.0	99.0	146.0	17.5	23	9.5	4
4"	100	18	1930	1882	211.0	126.5	178.0	17.5	24	9.5	8
6"	150	8	4800	4680	281.0	185.0	236.0	22.2	34	13.0	8

Fig No.529A - MALE FEMALE SOCKET / EXTENSION PIECES (B EXT)



SIZE		CONTENT/CTN (pcs)	WEIGHT/PC (gr)		DIMENSION (mm)	
INCH	METRIC		GALV	BLACK	L	Z
1/2"	15	450	90	88	40	29

Permissible Working Pressure and Temperature

Service Temperature (°C)	Maximum Permissible Working Pressure (bar)
-20 to 120	25
Between 120 and 300	Interpolated values
> 300	20

Coating :

Galvanized	Hot Dip Zinc Coating (min) 70 µm / 500 gr / m ² .
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MALLEABLE FITTING

Compression test with heat treatment



NON-MALLEABLE FITTING

Compression test without heat treatment

