



## DATA SHEET for **Malleable Iron Pipe Fittings**

Note: This data sheet contains data provided by our manufacturing partner.

### 1. Product Overview

Connecting fittings for general pipelines for conveying water, oil, gas, steam, air, etc.

### 2. Types

M/F Bends, Elbows, 45 Degree Elbows, Tees, Reducers, Sweep Tees, Sweep Tees (Reducing), Bushes, Sockets, Hex Nipples, Hollow Plugs, Caps, Unions.

### 3. Key Characteristics

- Size Range: 1/2" (DN15) - 2" (DN50).
- Design Standard: BS EN 10242:1995 (GB/T 3287).
- Material: BS EN 1562:2019.
- Grade: Blackheart 350-10.
- Connecting Standard: ISO 7/1 (GB/T 7306.2).
- Taper thread.
- BSI (Kitemark) and FM approvals.

### 4. Material and Mechanical Properties

Properties of blackheart malleable cast irons grades with specified minimum impact energy, as per BS EN 1562:2019.

### 5. Application Scope

For use in medium and low-pressure pipeline systems for water, oil, air, gas, steam, air etc.

- Operating Pressure: PN16 (16 bar).
- Max Test Pressure (at ambient): 25 bar (2.5MPa).
- Operational temperature range: -20 to 120 °C.

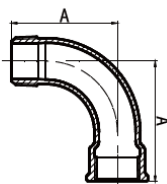
### 6. Surface Treatment/Delivery Conditions

- Self-coloured.

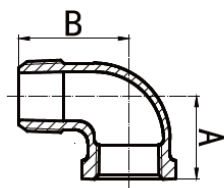
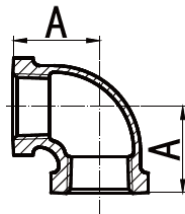
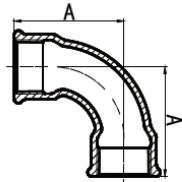
7. OA Product Details

Part No	Product Description
OA140	Black MI Bush
OA144	Black MI Hex Nipple
OA147	Black MI Hollow Plug
OA151	Black MI Elbow
OA152	Black MI M/F Elbow
OA155	Black MI 45 Degree Elbow
OA156	Black MI M/F 45 Degree Elbow
OA161	Black MI Tee
OA161	Black MI Tee (Reducing)
OA176	Black MI Socket
OA179	Black MI Concentric Socket
OA180	Black MI Eccentric Socket
OA185	Black MI Cap
OA192	Black MI M/F Bend
OA193	Black MI Bend
OA197	Black MI Twin Elbow
OA199	Black MI Sweep Tee
OA199	Black MI Sweep Tee (Reducing)
OA256	Black MI Union
OA257	Black MI M/F Union
OA289	Black MI Navy Union

8. Dimensional Details



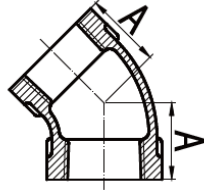
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04200014	20 OA192 BLK MI M/F BEND	3/4	50
		20	
04200015	25 OA192 BLK MI M/F BEND	1	63
		25	
04200016	32 OA192 BLK MI M/F BEND	1 1/4	76
		32	
04200017	40 OA192 BLK MI M/F BEND	1 1/2	85
		40	
04200018	50 OA192 BLK MI M/F BEND	2	102
		50	
04200019	65 OA192 BLK MI M/F BEND	2 1/2	115
		65	



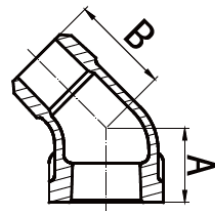
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04200038	15 OA193 BLK MI BEND	1/2	45
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04200039	20 OA193 BLK MI BEND	3/4	50
		20	
04200040	25 OA193 BLK MI BEND	1	63
		25	
04200041	32 OA193 BLK MI BEND	1 1/4	76
		32	
04200042	40 OA193 BLK MI BEND	1 1/2	85
		40	
04200043	50 OA193 BLK MI BEND	2	102
		50	
04200044	65 OA193 BLK MI BEND	2 1/2	115
		65	
04200045	80 OA193 BLK MI BEND	3	138
		80	

Product Code	Product Description	Size	
		Inch	Dim(mm)
		DN	A
04200083	15 OA151 BLK MI ELBOW	1/2	28
		15	
04200084	20 OA151 BLK MI ELBOW	3/4	33
		20	
04200085	25 OA151 BLK MI ELBOW	1	38
		25	
04200086	32 OA151 BLK MI ELBOW	1 1/4	45
		32	
04200087	40 OA151 BLK MI ELBOW	1 1/2	50
		40	
04200088	50 OA151 BLK MI ELBOW	2	58
		50	
04200089	65 OA151 BLK MI ELBOW	2 1/2	69
		65	
04200090	80 OA151 BLK MI ELBOW	3	78
		80	

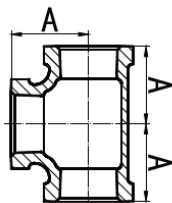
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		Inch	Dim(mm)	
		DN	A	B
04200104	15 OA152 BLK MI M/F ELBOW	1/2	28	37
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04200105	20 OA152 BLK MI M/F ELBOW	3/4	33	43
		20		
04200106	25 OA152 BLK MI M/F ELBOW	1	38	52
		25		
04200107	32 OA152 BLK MI M/F ELBOW	1 1/4	45	60
		32		
04200108	40 OA152 BLK MI M/F ELBOW	1 1/2	50	65
		40		
04200109	50 OA152 BLK MI M/F ELBOW	2	58	74
		50		
04200110	65 OA152 BLK MI M/F ELBOW	2 1/2	69	88
		65		
04200111	80 OA152 BLK MI M/F ELBOW	3	78	98
		80		



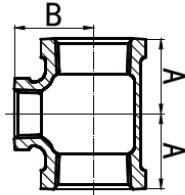
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04200150	15 OA155 BLK MI 45 ELBOW	1/2	22
		15	
04200151	20 OA155 BLK MI 45 ELBOW	3/4	25
		20	
04200152	25 OA155 BLK MI 45 ELBOW	1	28
		25	
04200153	32 OA155 BLK MI 45 ELBOW	1 1/4	33
		32	
04200154	40 OA155 BLK MI 45 ELBOW	1 1/2	50
		40	
04200155	50 OA155 BLK MI 45 ELBOW	2	58
		50	
04200156	65 OA155 BLK MI 45 ELBOW	2 1/2	69
		65	
04200157	80 OA155 BLK MI 45 ELBOW	3	78
		80	



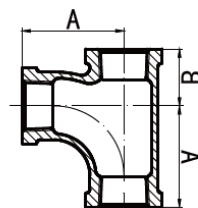
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04200164	15 OA156 BLK MI M/F 45 ELBOW	1/2	22	28
		15		
04200165	20 OA156 BLK MI M/F 45 ELBOW	3/4	25	32
		20		
04200166	25 OA156 BLK MI M/F 45 ELBOW	1	28	37
		25		
04200167	32 OA156 BLK MI M/F 45 ELBOW	1 1/4	33	43
		32		
04200168	40 OA156 BLK MI M/F 45 ELBOW	1 1/2	36	46
		40		
04200169	50 OA156 BLK MI M/F 45 ELBOW	2	43	55
		50		
04200170	65 OA156 BLK MI M/F 45 ELBOW	2 1/2	49.5	65
		65		
04200171	80 OA156 BLK MI M/F 45 ELBOW	3	55	76
		80		



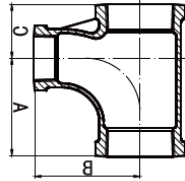
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04200203	15 OA161 BLK MI TEE	1/2	28
		15	
04200204	20 OA161 BLK MI TEE	3/4	33
		20	
04200205	25 OA161 BLK MI TEE	1	38
		25	
04200206	32 OA161 BLK MI TEE	1 1/4	45
		32	
04200207	40 OA161 BLK MI TEE	1 1/2	50
		40	
04200208	50 OA161 BLK MI TEE	2	58
		50	
04200209	65 OA161 BLK MI TEE	2 1/2	69
		65	
04200210	80 OA161 BLK MI TEE	3	78
		80	



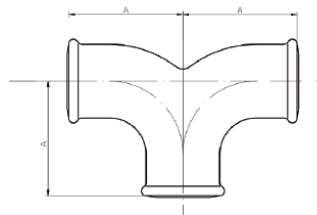
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		Inch	Dim(mm)	
		DN	A	B
04200218	20X15 OA161 BLK MI TEE	3/4X1/2	30	31
		20X15		
04200221	25X15 OA161 BLK MI TEE	1X1/2	32	34
		25X15		
04200222	25X20 OA161 BLK MI TEE	1X3/4	35	36
		25X20		
04200225	32X15 OA161 BLK MI TEE	11/4X1/2	34	38
		32X15		
04200226	32X20 OA161 BLK MI TEE	11/4X3/4	36	41
		32X20		
04200227	32X25 OA161 BLK MI TEE	11/4X1	40	42
		32X25		
04200229	40X15 OA161 BLK MI TEE	11/2X1/2	36	42
		40X15		
04200230	40X20 OA161 BLK MI TEE	11/2X3/4	38	44
		40X20		
04200231	40X25 OA161 BLK MI TEE	11/2X1	42	46
		40X25		
04200232	40X32 OA161 BLK MI TEE	11/2X11/4	46	48
		40X32		
04200234	50X15 OA161 BLK MI TEE	2X1/2	38	48
		50X15		
04200235	50X20 OA161 BLK MI TEE	2X3/4	40	50
		50X20		
04200236	50X25 OA161 BLK MI TEE	2X1	44	52
		50X25		
04200237	50X32 OA161 BLK MI TEE	2X11/4	48	54
		50X32		
04200238	50X40 OA161 BLK MI TEE	2X11/2	52	55
		50X40		
04200240	65X15 OA161 BLK MI TEE	21/2X1/2	40	56
		65X15		
04200241	65X20 OA161 BLK MI TEE	21/2X3/4	43	57
		65X20		
04200242	65X25 OA161 BLK MI TEE	21/2X1	47	60
		65X25		
04200243	65X32 OA161 BLK MI TEE	21/2X11/4	52	62
		65X32		
04200244	65X40 OA161 BLK MI TEE	21/2X11/2	55	63
		65X40		
04200245	65X50 OA161 BLK MI TEE	21/2X2	61	66
		65X50		
04200246	80X25 OA161 BLK MI TEE	3X1	51	67
		80X25		
04200247	80X32 OA161 BLK MI TEE	3X11/4	55	70
		80X32		
04200248	80X40 OA161 BLK MI TEE	3X11/2	58	71
		80X40		
04200249	80X50 OA161 BLK MI TEE	3X2	64	73
		80X50		



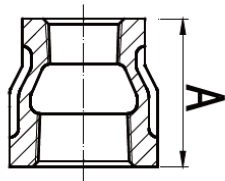
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04200310	15 OA199 BLK MI SWEEP TEE	1/2	45	24
		15		
04200311	20 OA199 BLK MI SWEEP TEE	3/4	50	28
		20		
04200312	25 OA199 BLK MI SWEEP TEE	1	63	33
		25		
04200313	32 OA199 BLK MI SWEEP TEE	11/4	76	40
		32		
04200314	40 OA199 BLK MI SWEEP TEE	11/2	85	43
		40		
04200315	50 OA199 BLK MI SWEEP TEE	2	102	53
		50		
04200316	65 OA199 BLK MI SWEEP TEE	21/2		
		65		
04200317	80 OA199 BLK MI SWEEP TEE	3		
		80		



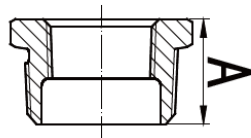
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		Inch DN	Dim(mm)		
			A	B	C
04200319	20X15 OA199 BLK MI SWEEP TEE	3/4X1/2	47	48	25
		20X15			
04200320	25X15 OA199 BLK MI SWEEP TEE	1X1/2	49	51	28
		25X15			
04200321	25X20 OA199 BLK MI SWEEP TEE	1X3/4	53	54	30
		25X20			
04200322	32X15 OA199 BLK MI SWEEP TEE	1 1/4X1/2	51	56	30
		32X15			
04200323	32X20 OA199 BLK MI SWEEP TEE	1 1/4X3/4	55	58	33
		32X20			
04200324	32X25 OA199 BLK MI SWEEP TEE	1 1/4X1	64.5	34.5	66.5
		32X25			
04200325	40X15 OA199 BLK MI SWEEP TEE	1 1/2X1/2	50.5	28.5	56.5
		40X15			
04200326	40X20 OA199 BLK MI SWEEP TEE	1 1/2X3/4	55	61	33
		40X20			
04200327	40X25 OA199 BLK MI SWEEP TEE	1 1/2X1	66	71	36
		40X25			
04200328	40X32 OA199 BLK MI SWEEP TEE	1 1/2X1 1/4	75	40	77
		40X32			
04200329	50X15 OA199 BLK MI SWEEP TEE	2X1/2	52.5	30.5	62.5
		50X15			
04200330	50X20 OA199 BLK MI SWEEP TEE	2X3/4	78	44	83
		50X20			
04200331	50X25 OA199 BLK MI SWEEP TEE	2X1	68.5	38.5	75
		50X25			
04200332	50X32 OA199 BLK MI SWEEP TEE	2X1 1/4	78	44	83
		50X32			
04200333	50X40 OA199 BLK MI SWEEP TEE	2X1 1/2	89	47	92
		50X40			
04200334	65X25 OA199 BLK MI SWEEP TEE	2 1/2X1	69	38.5	82.5
		65X25			
04200335	65X32 OA199 BLK MI SWEEP TEE	2 1/2X1 1/4	80	43	89
		65X32			
04200336	65X40 OA199 BLK MI SWEEP TEE	2 1/2X1 1/2	92	44.5	99
		65X40			
04200337	65X50 OA199 BLK MI SWEEP TEE	2 1/2X2	100.5	52.5	108
		65X50			
04200338	20X15X15 OA199 BLK MI SWEEP TEE	3/4X1 1/2X1/2	45.5	23	46.56
		20X15X15			
04200339	20X15X20 OA199 BLK MI SWEEP TEE	3/4X1 1/2X3/4			
		20X15X20			
04200340	25X20X15 OA199 BLK MI SWEEP TEE	1X3/4X1/2	48	24	49
		25X20X15			
04200341	25X20X20 OA199 BLK MI SWEEP TEE	1X3/4X3/4	53	54	28
		25X20X20			



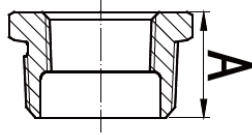
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		15	
04200343	20 OA197 BLK MI TWIN ELBOW	1/2	49
		20	
04200344	25 OA197 BLK MI TWIN ELBOW	1	62
		25	
04200345	32 OA197 BLK MI TWIN ELBOW	1 1/4	75
		32	
04200346	40 OA197 BLK MI TWIN ELBOW	1 1/2	84
		40	
04200347	50 OA197 BLK MI TWIN ELBOW	2	
		50	



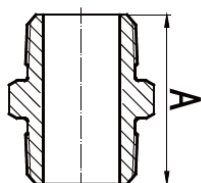
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04200377	25X15 OA179 BLK MI CON SOCKET	1X1/2	45
		25X15	
04200378	25X20 OA179 BLK MI CON SOCKET	1X3/4	45
		25X20	
04200379	32X15 OA179 BLK MI CON SOCKET	11/4X1/2	50
		32X15	
04200380	32X20 OA179 BLK MI CON SOCKET	11/4X3/4	50
		32X20	
04200381	32X25 OA179 BLK MI CON SOCKET	11/4X1	50
		32X25	
04200383	40X20 OA179 BLK MI CON SOCKET	11/2X3/4	55
		40X20	
04200384	40X25 OA179 BLK MI CON SOCKET	11/2X1	55
		40X25	
04200385	40X32 OA179 BLK MI CON SOCKET	11/2X11/4	55
		40X32	
04200386	50X15 OA179 BLK MI CON SOCKET	2X1/2	65
		50X15	
04200388	50X25 OA179 BLK MI CON SOCKET	2X1	65
		50X25	
04200389	50X32 OA179 BLK MI CON SOCKET	2X11/4	65
		50X32	
04200390	50X40 OA179 BLK MI CON SOCKET	2X11/2	74
		50X40	
04200394	65X50 OA179 BLK MI CON SOCKET	21/2X2	74
		65X50	
04200397	80X50 OA179 BLK MI CON SOCKET	3X2	80
		80X50	
04200398	80X65 OA179 BLK MI CON SOCKET	3X21/2	80
		80X65	



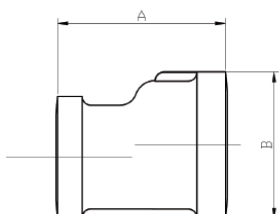
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04200444	80X32 OA140 BLK MI BUSH	3X11/4	59
		80X32	
04200445	80X40 OA140 BLK MI BUSH	3X11/2	48
		80X40	
04200446	80X50 OA140 BLK MI BUSH	3X2	44
		80X50	
04200447	80X65 OA140 BLK MI BUSH	3X21/2	44
		80X65	
04200449	100X50 OA140 BLK MI BUSH	4X2	51
		100X50	
04200450	100X65 OA140 BLK MI BUSH	4X21/2	67.5
		100X65	
04200451	100X80 OA140 BLK MI BUSH	4X3	51
		100X80	



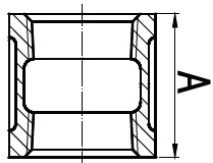
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		DN	A
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		8X6	
04200412	10X8 OA140 BLK MI BUSH	3/8X1/4	20
		10X8	
04200413	15X6 OA140 BLK MI BUSH	1/2X1/8	24
		15X6	
04200414	15X8 OA140 BLK MI BUSH	1/2X1/4	24
		15X8	
04200415	15X10 OA140 BLK MI BUSH	1/2X3/8	24
		15X10	
04200416	20X10 OA140 BLK MI BUSH	3/4X3/8	26
		20X10	
04200417	25X8 OA140 BLK MI BUSH	1X1/4	29
		25X8	
04200418	25X10 OA140 BLK MI BUSH	1X3/8	29
		25X10	
04200419	20X15 OA140 BLK MI BUSH	3/4X1/2	26
		20X15	
04200422	25X15 OA140 BLK MI BUSH	1X1/2	29
		25X15	
04200423	25X20 OA140 BLK MI BUSH	1X3/4	29
		25X20	
04200425	32X15 OA140 BLK MI BUSH	11/4X1/2	31
		32X15	
04200426	32X20 OA140 BLK MI BUSH	11/4X3/4	31
		32X20	
04200427	32X25 OA140 BLK MI BUSH	11/4X1	31
		32X25	
04200429	40X15 OA140 BLK MI BUSH	11/2X1/2	31
		40X15	
04200431	40X25 OA140 BLK MI BUSH	11/2X1	31
		40X25	
04200432	40X32 OA140 BLK MI BUSH	11/2X11/4	31
		40X32	
04200433	50X15 OA140 BLK MI BUSH	2X1/2	37.5
		50X15	
04200435	50X25 OA140 BLK MI BUSH	2X1	35
		50X25	
04200436	50X32 OA140 BLK MI BUSH	2X11/4	35
		50X32	
04200437	50X40 OA140 BLK MI BUSH	2X11/2	35
		50X40	
04200439	65X25 OA140 BLK MI BUSH	21/2X1	54
		65X25	
04200440	65X32 OA140 BLK MI BUSH	21/2X11/4	52.5
		65X32	
04200441	65X40 OA140 BLK MI BUSH	21/2X11/2	40
		65X40	
04200442	65X50 OA140 BLK MI BUSH	21/2X2	40
		65X50	



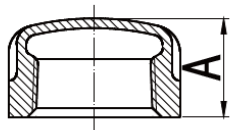
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		Inch	Dim(mm)
		DN	A
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		15	
04200534	20 OA144 BLK MI HEX NIPPLE	3/4	47
		20	
04200535	25 OA144 BLK MI HEX NIPPLE	1	53
		25	
04200536	32 OA144 BLK MI HEX NIPPLE	1 1/4	57
		32	
04200537	40 OA144 BLK MI HEX NIPPLE	1 1/2	59
		40	
04200538	50 OA144 BLK MI HEX NIPPLE	2	68
		50	
04200539	65 OA144 BLK MI HEX NIPPLE	2 1/2	75
		65	
04200540	80 OA144 BLK MI HEX NIPPLE	3	83
		80	
04200558	20 OA147 BLK MI HLW PLUG	3/4	45.5
		20	
04200559	25 OA147 BLK MI HLW PLUG	1	50
		25	
04200560	32 OA147 BLK MI HLW PLUG	1 1/4	55
		32	
04200561	40 OA147 BLK MI HLW PLUG	1 1/4	57
		32	
04200562	50 OA147 BLK MI HLW PLUG	2	66.5
		50	
04200563	65 OA147 BLK MI HLW PLUG	2 1/2	73
		65	
04200564	80 OA147 BLK MI HLW PLUG	3	82
		80	
04200565	100 OA147 BLK MI HLW PLUG	4	95
		100	
04200576	15 OA147 BLACK MI HLW PLUG	1/2	42.5
		15	



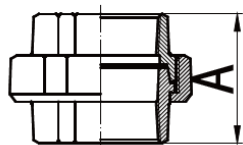
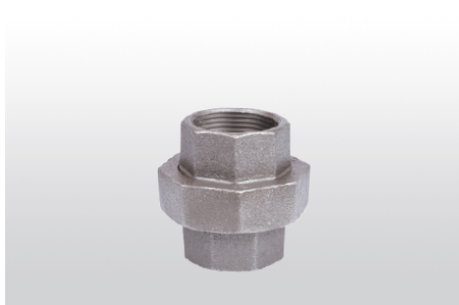
Product Code	Product Description	Size		
		Inch	Dim(mm)	
		DN	A	B
04200500	20X15 OA180 BLK MI ECC SOCKET	3/4X1/2	41	35.8
		20X15		
04200501	25X15 OA180 BLK MI ECC SOCKET	1X1/2	45	43
		25X15		
04200502	25X20 OA180 BLK MI ECC SOCKET	1X3/4	45	43
		25X20		
04200503	32X15 OA180 BLK MI ECC SOCKET	1 1/4X1/2	50	52.5
		32X15		
04200504	32X20 OA180 BLK MI ECC SOCKET	1 1/4X3/4	50	52.5
		32X20		
04200505	32X25 OA180 BLK MI ECC SOCKET	1 1/4X1	50	52.5
		32X25		
04200507	40X20 OA180 BLK MI ECC SOCKET	1 1/2X3/4	53	59
		40X20		
04200508	40X25 OA180 BLK MI ECC SOCKET	1 1/2X1	53	59
		40X25		
04200509	40X32 OA180 BLK MI ECC SOCKET	1 1/2X1 1/4	56	60.5
		40X32		
04200510	50X15 OA180 BLK MI ECC SOCKET	2X1/2	65	72.5
		50X15		
04200512	50X25 OA180 BLK MI ECC SOCKET	2X1	65	72.5
		50X25		
04200513	50X32 OA180 BLK MI ECC SOCKET	2X1 1/4	65	72.5
		50X32		
04200514	50X40 OA180 BLK MI ECC SOCKET	2X1 1/2	65	72.5
		50X40		
04200517	65X50 OA180 BLK MI ECC SOCKET	2 1/2X2	73.5	89
		65X50		



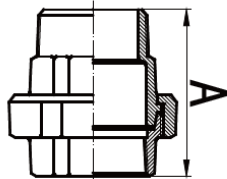
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		Inch	Dim(mm)
		DN	A
04200521	15 OA176 BLK MI SOCKET	1/2	36
		15	
04200522	20 OA176 BLK MI SOCKET	3/4	39
		20	
04200523	25 OA176 BLK MI SOCKET	1	45
		25	
04200524	32 OA176 BLK MI SOCKET	1 1/4	50
		32	
04200525	40 OA176 BLK MI SOCKET	1 1/2	55
		40	
04200526	50 OA176 BLK MI SOCKET	2	65
		50	
04200527	65 OA176 BLK MI SOCKET	2 1/2	74
		65	
04200528	80 OA176 BLK MI SOCKET	3	80
		80	



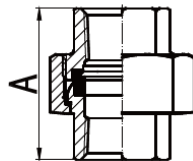
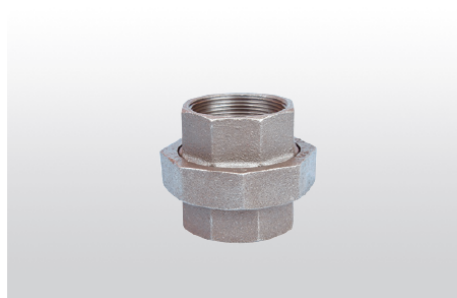
Product Code	Product Description	Size	
		Inch	Dim(mm)
		DN	A
04200582	15 OA185 BLK MI CAP	1/2	19
		15	
04200583	20 OA185 BLK MI CAP	3/4	22
		20	
04200584	25 OA185 BLK MI CAP	1	24
		25	
04200585	32 OA185 BLK MI CAP	1 1/4	27
		32	
04200586	40 OA185 BLK MI CAP	1 1/2	27
		40	
04200587	50 OA185 BLK MI CAP	2	32
		50	
04200588	65 OA185 BLK MI CAP	2 1/2	35
		65	
04200589	80 OA185 BLK MI CAP	3	38
		80	



Product Code	Product Description	Size	
		Inch	Dim(mm)
		DN	A
04200638	15 OA256 BLK MI UNION	1/2	48
		15	
04200639	20 OA256 BLK MI UNION	3/4	52
		20	
04200640	25 OA256 BLK MI UNION	1	58
		25	
04200641	32 OA256 BLK MI UNION	1 1/4	65
		32	
04200642	40 OA256 BLK MI UNION	1 1/2	70
		40	
04200643	50 OA256 BLK MI UNION	2	78
		50	
04200644	65 OA256 BLK MI UNION	2 1/2	85
		65	
04200645	80 OA256 BLK MI UNION	3	95
		80	



Product Code	Product Description	Size	
		Inch	Dim(mm)
		DN	A
04200649	15 OA257 BLK MI M/F UNION	1/2	66
		15	
04200650	20 OA257 BLK MI M/F UNION	3/4	72
		20	
04200651	25 OA257 BLK MI M/F UNION	1	80
		25	
04200652	32 OA257 BLK MI M/F UNION	1 1/4	90
		32	
04200653	40 OA257 BLK MI M/F UNION	1 1/2	95
		40	
04200654	50 OA257 BLK MI M/F UNION	2	106
		50	



Product Code	Product Description	Size	
		Inch	Dim(mm)
		DN	A
04200664	15 OA289 BLK MI NAVY UNION	1/2	48
		15	
04200665	20 OA289 BLK MI NAVY UNION	3/4	52
		20	
04200666	25 OA289 BLK MI NAVY UNION	1	58
		25	
04200667	32 OA289 BLK MI NAVY UNION	1 1/4	65
		32	
04200668	40 OA289 BLK MI NAVY UNION	1 1/2	70
		40	
04200669	50 OA289 BLK MI NAVY UNION	2	78
		50	

## 9. Environmental Product Information

Data supplied is a summary in accordance with ISO14025:2006 and EN15804:2012+A2:2019/AC:2021 for Malleable Iron Fittings. EPD data based on multiple products, based on average results of the included products as supplied by our supplier partner.

- Programme operator: EPD International AB
- Third-party verification: Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
  - EPD verification by accredited certification body
- Third-party verification: Pin Tian, Bureau Veritas Certification Sweden AB is an approved certification body accountable for the third-party verification
- The certification body is accredited by: Bureau Veritas Certification Sweden AB, accredited by SWEDEC with accreditation number 1236.

- **Product Information**

- Product name: Malleable Iron Fittings
- Product identification: Malleable Iron Fittings
- Product description: Malleable Iron Fittings are a type of pipe made of steel. The production process includes casting cast iron into white cast iron and then subjecting it to malleable annealing treatment to decompose the cementite into clustered graphite, thereby obtaining malleable cast iron.
- UN CPC code: 412
- Geographical scope: Global

- **LCA (Life Cycle Assessment) Information**

- Functional unit / declared unit: 1 kg of Malleable Iron Fittings
- Reference service life: Not applicable
- Time representativeness: Data input was collected in January 2024 - December 2024.
- Database(s) and LCA software used: Ecoinvent v3.11, SimaPro 10.2.0.0
- Description of system boundaries: Cradle to gate, with options (A1-A3, A4, A5, C1-C4, D).

- **Content Information**

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Iron	9.06E-01	31%	0
Ferrosilicon	5.04E-03	0	0
Ferromanganese	1.07E-03	0	0
Carbon Raiser	9.97E-03	0	0
Zinc	7.79E-02	0	0
TOTAL	1		
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Pallet	7.44E-02	7.4%	0
Plastic	1.69E-03	0.2%	0
Corrugated box	8.87E-02	8.9%	0
TOTAL	1.65E-01		

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
NA	NA	NA	NA

- Mandatory Impact Category Indicators According to EN 15804**

(Functional unit / declared unit: 1 kg of Malleable Iron Fittings)

Results per functional or declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	4.19E+00	1.76E-01	0.00E+00	0.00E+00	7.75E-03	5.36E-02	2.67E-03	-1.83E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	-1.99E-03	8.51E-05	0.00E+00	0.00E+00	2.59E-05	5.48E-06	1.30E-06	-8.18E-04
GWP-luluc	kg CO <sub>2</sub> eq.	-1.60E-01	5.06E-05	0.00E+00	0.00E+00	1.35E-05	1.08E-05	3.41E-06	-2.66E-03
GWP-total	kg CO <sub>2</sub> eq.	4.03E+00	1.76E-01	0.00E+00	0.00E+00	7.79E-03	5.36E-02	2.68E-03	-1.84E+00
ODP	kg CFC 11 eq.	2.44E-08	2.46E-09	0.00E+00	0.00E+00	1.24E-10	7.96E-10	5.59E-11	-9.79E-09
AP	mol H <sup>+</sup> eq.	2.19E-02	1.33E-03	0.00E+00	0.00E+00	3.57E-05	4.79E-04	1.50E-05	-7.49E-03
EP-freshwater	kg N eq.	8.77E-04	1.71E-05	0.00E+00	0.00E+00	8.31E-07	1.73E-06	1.96E-06	-1.26E-03
EP-marine	kg P eq.	4.47E-03	3.27E-04	0.00E+00	0.00E+00	1.34E-05	2.23E-04	5.73E-06	-1.66E-03
EP-terrestrial	mol N eq.	4.78E-02	3.60E-03	0.00E+00	0.00E+00	1.44E-04	2.44E-03	6.26E-05	-1.78E-02
POCP	kg NMVOC eq.	1.35E-02	1.22E-03	0.00E+00	0.00E+00	4.99E-05	7.30E-04	2.15E-05	-5.96E-03
ADP-minerals&metals*	kg Sb eq.	7.72E-06	4.99E-07	0.00E+00	0.00E+00	2.50E-08	1.91E-08	7.51E-09	-1.67E-05
ADP-fossil*	MJ	4.36E+01	2.43E+00	0.00E+00	0.00E+00	1.10E-01	6.97E-01	4.39E-02	-1.92E+01
WDP*	m <sup>3</sup>	3.07E-01	1.09E-02	0.00E+00	0.00E+00	5.46E-04	1.51E-03	1.17E-03	-4.57E-01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

- Additional Mandatory and Voluntary Impact Category Indicators**

Results per functional or declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	4.19E+00	1.76E-01	0.00E+00	0.00E+00	7.78E-03	5.36E-02	2.68E-03	-1.84E+00

<sup>1</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

• Resource Use Indicators

Results per functional or declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERM	MJ	9.90E+00	3.24E-02	0.00E+00	0.00E+00	1.67E-03	4.39E-03	8.80E-04	-2.15E+00
PERT	MJ	9.90E+00	3.24E-02	0.00E+00	0.00E+00	1.67E-03	4.39E-03	8.80E-04	-2.15E+00
PENRE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRM	MJ	4.66E+01	2.59E+00	0.00E+00	0.00E+00	1.17E-01	7.42E-01	4.68E-02	-2.04E+01
PENRT	MJ	4.66E+01	2.59E+00	0.00E+00	0.00E+00	1.17E-01	7.42E-01	4.68E-02	-2.04E+01
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m <sup>3</sup>	3.76E-01	1.08E-02	0.00E+00	0.00E+00	5.43E-04	1.49E-03	1.17E-03	-4.15E-01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

• Waste Indicators

Results per functional or declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.80E-04	1.57E-05	0.00E+00	0.00E+00	7.37E-07	4.86E-06	3.19E-07	-1.67E-04
Non-hazardous waste disposed	kg	1.34E-01	1.22E-01	0.00E+00	0.00E+00	6.98E-03	4.72E-04	1.01E-01	-1.32E-01
Radioactive waste disposed	kg	1.39E-05	4.64E-07	0.00E+00	0.00E+00	2.40E-08	7.30E-08	1.27E-08	-1.64E-05

• **Output Flow Indicators**

Results per functional or declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	1.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.50E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

OA-DS-01 Rev 4 – 23/03/26	Datasheet: Malleable Iron Fittings	Issued by: Dr C. Owen - Technical Director
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**Ashworth, Mill Hill Street, Bolton, Greater Manchester, BL2 2AB,  
Tel: 0161 967 0400**

**[Enquiries@Ashworth.uk.com](mailto:Enquiries@Ashworth.uk.com)**

**[Technical.services@Ashworth.uk.com](mailto:Technical.services@Ashworth.uk.com)**