



SIGMA

Weights in Pounds, Less Accessories / Dimensions in inches
Ductile Iron Class 350 per ANSI/AWWA C153/A21.53

C153 Mechanical Joint Compact Fittings

3-48" Ductile Iron Mechanical Joint Fittings Class 350

MATERIAL: Ductile Iron ASTM A536

PRESSURE: 350PSI WATER WORKING PRESSURE (CLASS 350) 3" - 24": & 250 PSI 30" - 48"

TESTING: In accordance with ANSI / AWWA C153 / A21.53 & UL - FM requirements

LAYING LENGTH: Short body design - straight section of body deleted to provide a compact and lighter fitting without reducing strength or flow characteristics, in accordance with ANSI / AWWA C153 / A21.53

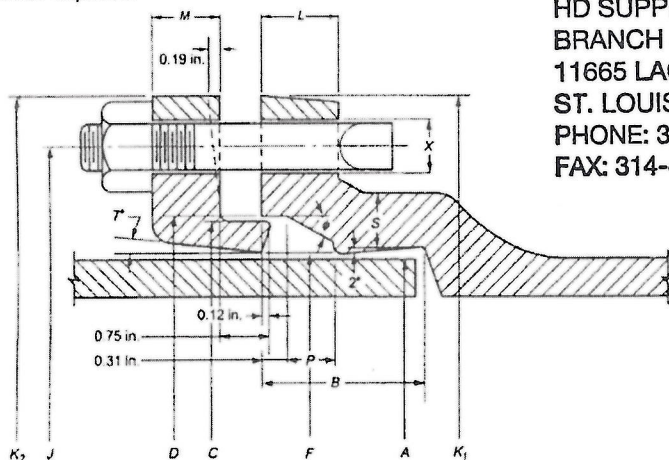
CEMENT LINING: In accordance with ANSI / AWWA C104 / A21.4 **COATING:** Tar coated (bituminous) inside and out in accordance with ANSI / AWWA C104 / A21.4

GASKETS: SBR in accordance with ANSI / AWWA C111 / A21.11

T-BOLTS: Low Alloy corrosion resistant high strength steel in accordance with ANSI / AWWA C111 / A21.11

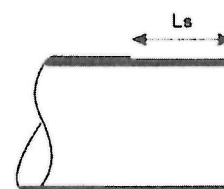
APPROVALS: 3"-16" Underwriters Laboratories listed and Factory Mutual Approved.

STANDARDS: Certified to NSF61 Standard ANSI / AWWA C153 / A21.53 for Compact Ductile Iron Fittings 3"-48" for water and other liquids.



Mechanical Joint Detail

HD SUPPLY WATERWORKS
BRANCH 411
11665 LACKLAND ROAD
ST. LOUIS, MO 63146-0946
PHONE: 314-432-4750
FAX: 314-432-4751



Plain End Detail

Size	A	B	C	D	F	J	K1	K2	L	M	P	S	X	Bolts			
														No	Size	Len	Ls
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	0.58	0.62	0.63	0.39	3/4	4	5/8	3.0	5.5
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	0.60	0.75	0.75	0.39	7/8	4	3/4	3.5	5.5
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	0.63	0.88	0.75	0.43	7/8	6	3/4	3.5	5.5
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	0.66	1.00	0.75	0.45	7/8	6	3/4	3.5	5.5
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	0.70	1.00	0.75	0.47	7/8	8	3/4	3.5	5.5
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	0.73	1.00	0.75	0.49	7/8	8	3/4	3.5	5.5
14	15.30	3.50	16.40	16.54	15.44	18.75	20.25	20.25	0.79	1.25	0.75	0.55	7/8	10	3/4	4.0	8.0
16	17.40	3.50	18.50	18.64	17.54	21.00	22.50	22.50	0.85	1.31	0.75	0.58	7/8	12	3/4	4.0	8.0
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	0.75	0.68	7/8	12	3/4	4.0	8.0
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	0.75	0.69	7/8	14	3/4	4.0	8.0
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	0.75	0.75	7/8	16	3/4	4.5	8.0
30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	1.00	0.82	1 1/8	20	1	5.5	8.0
36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	1.00	1 1/8	24	1	5.5	8.0
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.00	1.25	1 3/8	28	1 1/4	6.0	8.0
48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.00	1.35	1 3/8	32	1 1/4	6.0	8.0

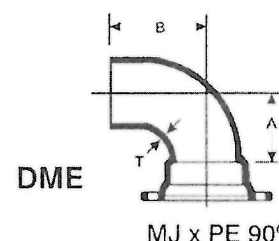
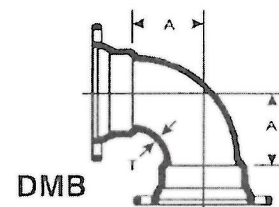
C153 Mechanical Joint Compact Fittings

90 Degree Bends

MJ x MJ

MJ x PE

Size	Item No.	Wt.	A	Item No.	Wt.	A	B	t
2	DMB290	17	3.00	DME390	16	3.25	8.50	0.30
3	DMB390	19	3.50	DME490	22	4.00	9.50	0.33
4	DMB490	25	4.00	DME690	41	5.00	11.50	0.36
6	DMB690	39	5.00	DME890	58	6.50	12.50	0.38
8	DMB890	57	6.50	DME1090	88	7.50	13.00	0.40
10	DMB1090	89	7.50	DME1290	114	9.00	14.50	0.42
12	DMB1290	108	9.00	DME1490	211	11.50	19.50	0.47
14	DMB1490	210	11.50	DME1690	248	12.50	20.50	0.50
16	DMB1690	264	12.50	DME1890	325	14.00	21.00	0.54
18	DMB1890	335	14.00	DME2090	390	15.00	22.50	0.57
20	DMB2090	400	15.00	DME2490	575	17.00	25.00	0.61
24	DMB2490	565	16.75	DME3090	865	21.50	30.50	0.66
30	DMB3090	930	21.50	DME3690	1,355	24.50	33.50	0.74
36	DMB3690	1,450	24.50	DME4290	2,055	29.25	38.25	0.82
42	DMB4290	2,205	29.25	DME4890	2,805	33.25	42.25	0.90
48	DMB4890	2,990	33.25					

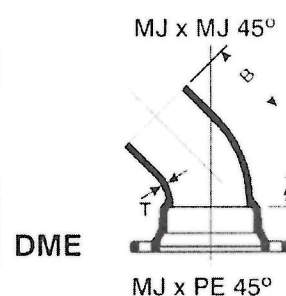
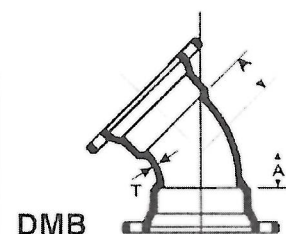


45 Degree Bends

MJ x MJ

MJ x PE

Size	Item No.	Wt.	A	Item No.	Wt.	A	B	T
2	DMB245	10	1.50	DME345	13	1.50	7.00	0.30
3	DMB345	16	1.50	DME445	19	2.00	7.50	0.33
4	DMB445	22	2.00	DME645	34	3.00	8.50	0.36
6	DMB645	32	3.00	DME845	49	3.50	9.00	0.38
8	DMB845	46	3.50	DME1045	70	4.50	10.00	0.40
10	DMB1045	70	4.50	DME1245	93	5.50	11.00	0.42
12	DMB1245	86	5.50	DME1445	146	5.00	13.00	0.47
14	DMB1445	160	5.00	DME1645	212	5.50	13.50	0.50
16	DMB1645	202	5.50	DME1845	235	6.00	13.00	0.54
18	DMB1845	250	6.00	DME2045	290	7.00	14.00	0.57
20	DMB2045	305	7.00	DME2445	390	7.50	14.50	0.61
24	DMB2445	405	7.50	DME3045	715	10.50	19.50	0.66
30	DMB3045	780	10.50	DME3645	1,040	12.00	21.00	0.74
36	DMB3645	1,135	11.50	DME4245	1,460	14.00	23.00	0.82
42	DMB4245	1,610	14.00	DME4845	1,905	15.00	24.00	0.90
48	DMB4845	2,090	15.00					

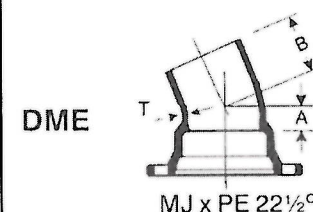
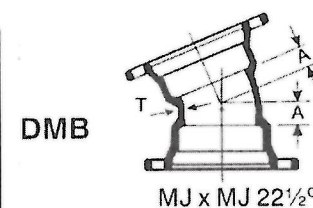


22-1/2 Degree Bends

MJ x MJ

MJ x PE

Size	Item No.	Wt.	A	Item No.	Wt.	A	B	T
3	DMB322	15	1.00	DME322	12	1.00	6.50	0.33
4	DMB422	18	1.50	DME422	18	1.50	7.00	0.34
6	DMB622	31	2.00	DME622	29	2.00	7.50	0.36
8	DMB822	46	2.50	DME822	43	2.50	8.00	0.38
10	DMB1022	64	3.00	DME1022	61	3.00	8.50	0.40
12	DMB1222	80	3.50	DME1222	79	3.50	9.00	0.42
14	DMB1422	136	3.75	DME1422	133	3.75	11.25	0.47
16	DMB1622	172	3.75	DME1622	166	3.75	11.75	0.50
18	DMB1822	255	4.50	DME1822	235	6.00	13.00	0.54
20	DMB2022	310	4.50	DME2022	300	7.00	14.00	0.57
24	DMB2422	412	4.50	DME2422	395	7.50	14.50	0.61
30	DMB3022	665	6.75	DME3022	600	6.75	15.75	0.66
36	DMB3622	960	7.75	DME3622	865	7.75	16.75	0.74
42	DMB4222	1,350	9.00	DME4222	1,200	9.00	18.00	0.82
48	DMB4822	1,760	10.00	DME4822	1,575	10.00	19.00	0.90

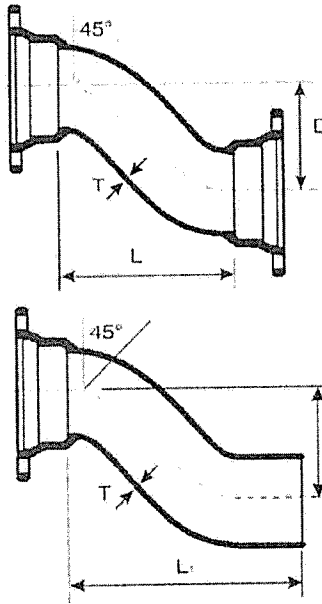




Weights in Pounds, Less Accessories / Dimensions in inches
Ductile Iron Class 350 per ANSI/AWWA C153/A21.53

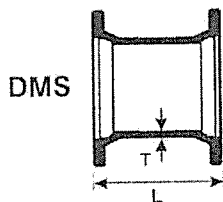
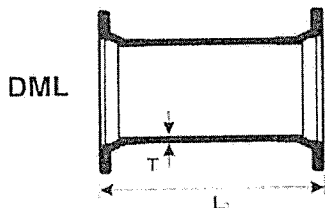
C153 Mechanical Joint Compact Fittings

Offsets

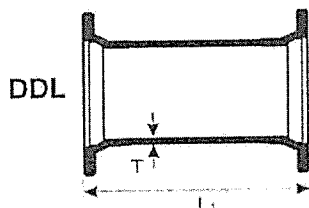


MJ x MJ Size	Item No.	Wt.	D	L	L1	T	MJ x PE Item No.	Wt.
3 x 6	DM036	30	6.00	9.00	14.50	0.33	DMQ36	29
3 x 12	DM0312	40	12.00	15.00	20.50	0.33	DMQ312	39
3 x 18	DM0318	49	18.00	21.00	26.50	0.33	DMQ318	48
3 x 24	DM0324	55	24.00	27.00	32.50	0.33	DMQ324	53
4 x 6	DM046	45	6.00	10.00	15.50	0.34	DMQ46	44
4 x 12	DM0412	55	12.00	16.00	21.50	0.34	DMQ412	54
4 x 18	DM0418	65	18.00	22.00	27.50	0.34	DMQ418	63
4 x 24	DM0424	75	24.00	28.00	33.50	0.34	DMQ424	72
6 x 6	DM066	41	6.00	12.00	17.50	0.36	DMQ66	54
6 x 12	DM0612	65	12.00	18.00	23.50	0.36	DMQ612	64
6 x 18	DM0618	75	18.00	24.00	29.50	0.36	DMQ618	72
6 x 24	DM0624	85	24.00	30.00	35.50	0.36	DMQ624	82
8 x 6	DM086	84	6.00	13.00	18.50	0.38	DMQ86	78
8 x 12	DM0812	90	12.00	19.00	24.50	0.38	DMQ812	88
8 x 18	DM0818	100	18.00	25.00	30.50	0.38	DMQ818	96
10 x 6	DM0106	105	6.00	15.00	20.50	0.40	DMQ106	102
10 x 12	DM01012	135	12.00	21.00	26.50	0.40	DMQ1012	132
10 x 18	DM01018	165	18.00	27.00	32.50	0.40	DMQ1018	160
12 x 6	DM0126	124	6.00	17.00	22.50	0.42	DMQ126	112
12 x 12	DM01212	153	12.00	23.00	28.50	0.42	DMQ1212	146
12 x 18	DM01218	190	18.00	29.00	34.50	0.42	DMQ1218	184
12 x 24	DM01224	202	24.00	35.00	40.50	0.42	DMQ1224	194
12 x 30	DM01230	213	30.00	41.00	46.50	0.42	DMQ1230	205

Sleeves



Size	Item No.	Wt.	L	Item No.	Wt.	L1	T
3	DMS3	13	7.50	DML3	18	12.00	0.33
4	DMS4	17	7.50	DML4	20	12.00	0.34
6	DMS6	28	7.50	DML6	33	12.00	0.36
8	DMS8	38	7.50	DML8	46	12.00	0.38
10	DMS10	49	7.50	DML10	62	12.00	0.40
12	DMS12	56	7.50	DML12	76	12.00	0.42
14	DMS14	111	9.50	DML14	140	15.00	0.47
16	DMS16	123	9.50	DML16	170	15.00	0.50
18	DMS18	160	9.00	DML18	200	15.00	0.54
20	DMS20	195	9.00	DML20	255	15.00	0.57
24	DMS24	255	9.00	DML24	335	15.00	0.61
30	DMS30	500	15.00	DML30	640	24.00	0.66
36				DML36	925	24.00	0.74
42				DML42	1150	24.00	0.82
48				DML48	1435	24.00	0.90



HD SUPPLY WATERWORKS
BRANCH 411
11665 LACKLAND ROAD
ST. LOUIS, MO 63146-0946
PHONE: 314-432-4750
FAX: 314-432-4751

Dual Purpose Sleeves

Item No.	L1	T	Wt.
DDL3	23	12	0.33
DDL4	32	12	0.34
DDL6	50	12	0.36
DDL8	65	12	0.38
DDL10	89	12	0.40
DDL12	104	12	0.42

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: April 3, 2017

Attention: stl-cac@cannondesign.com

Contact Person / WTA Field Inspector:
Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mike Whitworth (WES)

Project No. WT 14127.01
WES 607

☐ UPS ☐ Courier ☒ **Email**

Copies	No.	Description
1 PDF	211119 F02	(Submittal No. 211119-002) Underground Pipe Product Data
		Fire Department Connections

***Remarks: See Submittal Review from Webb Engineering.**

c: **Kelvin Patel**
Kpatel@cannondesign.com

☒ ***Reviewed**

☐ *No Exceptions Taken

☐

☐ *Make Corrections As Noted,
No Resubmittal Required

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.



1400 S. 3rd Street, Suite 201
St. Louis, Missouri 63104
Phone: (314) 588-0600
Fax: (314) 588-0604

Letter of Transmittal

To: **wtashop@wmtao.com**

From: **Mike Whitworth**

Date: **April 03, 2017**

Re: **Webster University ISB**

WES No: **607**

☐ For your Files

☐ For Review

☐ Please Comment

☐ Please Reply

Item No.	Description	No. of Copies	Date
1	Shop Drawing Review – (211119-002) 21 1119 Fire Department Connections	1	04/03/17

•Signature: Mike Whitworth

The review of this submittal is limited to the general conformance with the designated design concept and intent of this project and with the general compliance of the information provided in the contract documents. All comments, remarks and notations made on the submittal(s) as a result of this review do not relieve the contractor from full compliance with requirements of the contract documents. Approval for a specific item shall not include approval of an assembly of which the item is not a component. The contractor is solely responsible for rough-in and installation confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordination of this work with that of other trades on this project; and in a safe and satisfactory manner. All work shall be installed in full compliance with the manufacturer's recommendation, Federal, State and Local rules and regulation and the Authority Having Jurisdiction (AHJ) and applicable adopted codes and standards.

PROJECT NAME: Webster
University ISB
LOCATION: St. Louis Missouri
CLIENT PROJ. NO.: N/A
WES PROJ. NO.: 607
SPECIFICATION SECTION: 211119
Fire Department
Connections
SUBMITTAL ITEM: See Below -

CONTRACTOR: J.F. Ahern Co.
CTR. SUBMITTAL #: 21 1119-002
SUBMITTAL DATE: March 29, 2017
DATE RECEIVED: March 30, 2017
RECEIVED VIA: E-Mail
RECEIVED FROM: WTA
DATE RETURNED: APRIL 03, 2017
RETURNED VIA: E-MAIL
RETRURNED TO: WTASHOP@WMTAO.COM

STATUS KEY:

NO EXCEPTION TAKEN						
MAKE CORRECTIONS NOTED, NO RESUBMITTAL:						
AMEND AND RESUBMIT						
REJECTED, SEE REMARKS:						
REVIEWED ONLY						
NEC	MCN	AAR	REJ	REV	ITEM	REMARKS
X					Ductile Iron Pipe Tyton Joint Pipe Model – Class 52-6 inch	
X					Mechanical Joint Compact Fittings SIGMA Model - C153	
X					Contoured-Lug Restraint SIGMA Model – SIGMA One- Lok	
X					Pipe Wrap AA Thread Seal Tape, Inc Model - 72002	

REVIEWED BY: Michael R. Whitworth DATE: April 03, 2017

THESE COMMENTS ARE TO BE ATTACHED TO ALL COPIES OF THE SHOP DRAWING REFERENCED ABOVE.



77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0541

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 03/29/2017

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

Fax;
314-241-2203

RE: FP Underground Pipe Product Data

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:		SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings		☒ Approval	☐ Approved as Submitted
☐ Letter		☐ Your Use	☐ Approved as Noted
☐ Prints		☐ As Requested	☐ Returned After Loan
☐ Change Order		☐ Review and Comment	☐ Resubmit
☐ Plans			☐ Submit
☐ Samples		SENT VIA:	☐ Returned
☐ Specifications		☐ Attached	☐ Returned for Corrections
☒ Other: Produt Data		☐ Separate Cover Via:	☐ Due Date:

<i>Item</i>	<i>Package</i>	<i>Code</i>	<i>Rev.</i>	<i>Copies</i>	<i>Date</i>	<i>Description</i>	<i>Status</i>
Submittal		211119-002	1		03/29/2017	FP Underground Pipe Product Data	Submitted

NOTES:

CC:

Signed: _____
Devin Gates