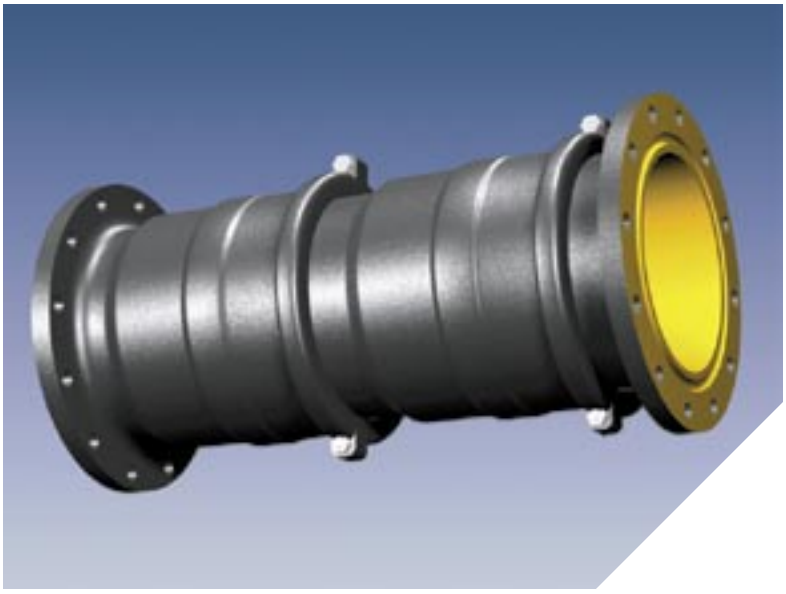
Your Connection to the Future

EX-TEND 200®

Expansion Joint for Water and Wastewater Pipelines



EX-TEND 212 w/ 1 additional sleeves, for 12"

EX-TEND 212, for 12" MJ fittings or pipe.

EX-TEND 212 w/ 2 additional sleeves, for 12" MJ fittings or pipe.

Features and Application:

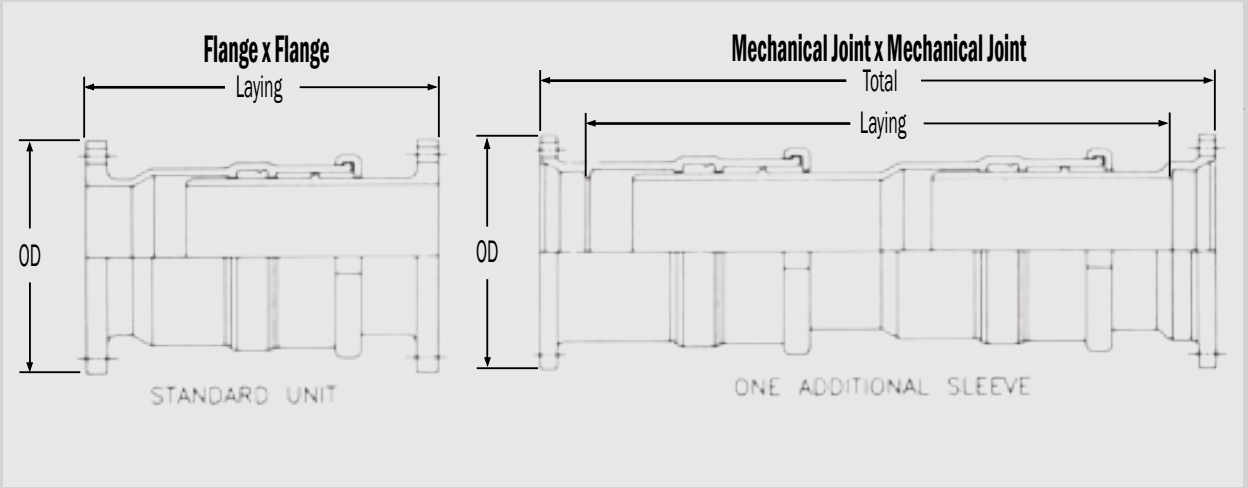
- Sizes 3" through 24"
- Hydrostatically tested prior to shipment.
- Rated 350 PSI working water pressure.
- Constructed of ASTM A536, 65-45-12 Ductile Iron.
- 15 mils of fusion bonded epoxy coating of all "wetted" parts.
- Coal Tar Epoxy coating of exterior parts.
- Self Restrained at full expansion **with out** the use of external tie bars.
- Seals conform to the applicable requirements of ANSI/AWWA C111/A21.11.
- Insertion of additional sleeves for increased expansion capacity can be done at the factory or in the field as the need occurs.
- For use on water or wastewater pipelines subject to hydrostatic pressure and tested in accordance with either AWWA C600 or ASTM D2774.

Sample Specification

Expansion joints shall be installed in the locations indicated on the drawings and shall be manufactured of ductile iron conforming to the material properties of ANSI/AWWA C153/A21.53. All expansion joints shall be capable of expanding or contracting to the amounts shown on the drawings or indicated in the specifications, but in no case shall be less than 4" total axial movement. Separation beyond the maximum extension of the expansion joint shall be prevented without the use of external tie rods. Each expansion joint shall be pressure tested against its own restraint to a minimum of 350 psi. MEGALUG joint restraint shall be provided with each mechanical joint connection. All pressure containing parts shall be lined with a minimum of 15 mils of fusion bonded epoxy, conforming to the applicable requirements of ANSI/AWWA C213 and shall be tested with a 1500 volt spark test conforming to said specification. All expansion joints shall be EX-TEND 200 as manufactured by EBAA Iron, Inc. or approved equal.

EX-TEND 200® Submittal Reference Drawing

EBAA IRON



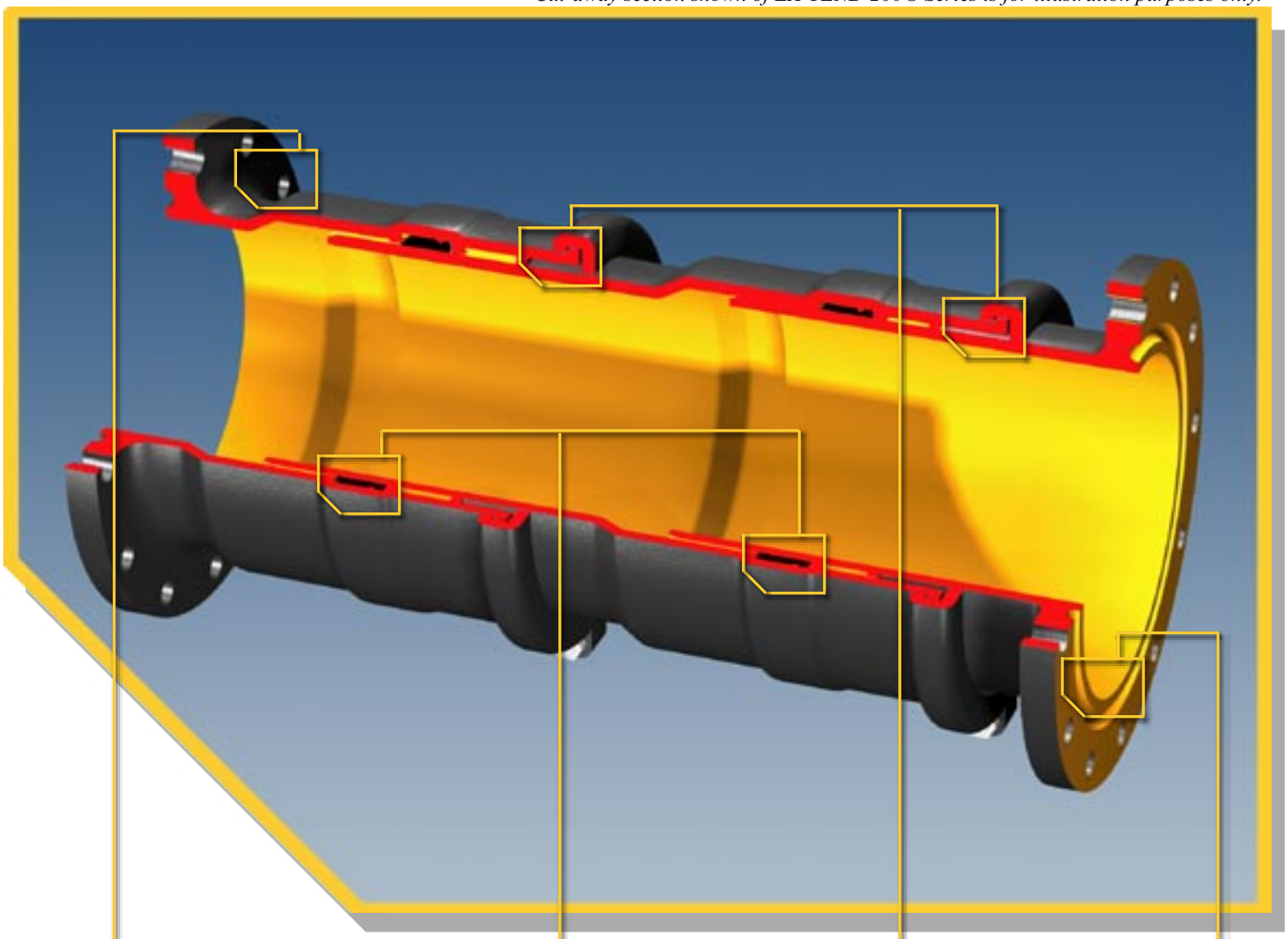
Made in USA

Nominal Pipe Size	Expansion (linear)	Flange by Flange EX-TEND 200 Series Number	O.D.	Laying*	Shipping Weight (Approx.)	Mechanical Joint by Mechanical Joint EX-TEND 200 Series Number	O.D.	Laying*	Total*	Shipping Weight (Approx.)
4	4	204F0	9	18.2	69	204M0	9.1	15.6	20.6	74
	8	204F1		33.5	113	204M1		30.9	35.9	118
	12	204F2		48.8	157	204M2		46.2	51.2	162
6	4	206F0	11.0	19.5	95	206M0	11.1	15.4	20.4	96
	8	206F1		33.8	160	206M1		29.7	34.7	161
	12	206F2		48.1	225	206M2		44.0	49.0	226
8	4	208F0	13.5	20.7	143	208M0	13.3	16.4	21.4	139
	8	208F1		37.8	235	208M1		33.5	38.5	231
	12	208F2		54.9	327	208M2		50.6	55.6	323
10	4	210F0	16.0	21.0	196	210 M0	15.7	16.5	21.5	192
	8	210F1		36.8	333	210M1		30.5	35.5	329
	12	210F2		52.6	470	210M2		44.5	49.5	466
12	4	212F0	19.0	21.5	245	212M0	17.9	19.2	24.2	244
	8	212F1		37.5	396	212M1		35.2	40.2	395
	12	212F2		53.5	547	212M2		51.2	56.2	546
14	8	214F0	21.0	32.4	389	214M0	20.3	27.0	34.0	432
	16	214F1		58.8	677	214M1		53.3	60.0	677
	24	214F2		85.3	922	214M2		79.6	87.0	921
16	8	216F0	23.5	33.9	621	216M0	22.6	31.3	38.8	621
	16	216F1		61.8	959	216M1		59.2	66.2	959
	24	216F2		89.7	1297	216M2		87.1	94.1	1297
18	8	218F0				218M0				
	16	218F1				218M1				
	24	218F2				218M2				
20	8	220F0	27.5	32.7	701	220M0	27.1	27.5	34.5	683
	16	220F1		60.0	1123	220M1		54.8	61.8	1105
	24	220F2		87.3	1545	220M2		82.1	89.1	1527
24	8	224F0	32	33.5	908	224M0	31.6	29.0	36.0	882
	16	224F1		60.8	1610	224M1		56.3	63.3	1584
	24	221F2		88.1	2312	224M2		83.6	90.6	2286
30	10	230F0								
36	10	236F0	46.0	46.7	2347					

* Laying Lengths and Total Lengths reflect unit set at midpoint of expansion capacity

Note: Dimensions are in inches and are subject to change without notice. Call for dimensions and availability of larger sizes. For applications, end combinations, or pressures other than shown, please contact EBAA.

Cut-away section shown of EX-TEND 200® Series is for illustration purposes only.



Coal Tar Epoxy is applied to the exterior parts to form a tough and rugged barrier against corrosion. The catalyzed coal tar epoxy conforms to the material requirements of AWWA C210.

Seals conform to the applicable requirements of ANSI/AWWA C111/A21.11. Seals are factory lubricated, and are not subject to routine maintenance such as repacking or tightening to maintain seal.

Self Restrained at full expansion without the use of external tie rods. Each unit, unless specified differently, comes factory preset with 50% compression, 50% expansion.

Fusion Bonded Epoxy is used to give a long term corrosion protection, and is applied to all "wetted" parts. The coating is applied to a minimum of 15 mils and is Holiday tested with a 1500 Volt spark test in accordance to ANSI/AWWA C213.

Expansion Coefficients

Material	Coefficient in./in./degree F
Ductile Iron	0.0000062
PVC	0.000030
Cast Iron	0.0000058
Steel	0.0000065
HDPE	0.000080
Concrete	0.0000055

The change in length (Δ L) due to thermal contraction/expansion is given by:

$$L = L\ (\Delta T)\ (C)$$

Where: L = length of pipe (inches)
Δ T = change in temperature (degrees F)
C = coefficient of thermal expansion

Example:

1. Determine the expansions needed.

   1000 Foot Bridge ... 6 in ductile iron pipe ... 120°F Total Temperature Change

   (1000Ft)(12 in/Ft)(120°F)(0.0000062 in/in/°F) = 8.93 in (Nearly 9 in)

2. Select the proper unit.

   Referring to the chart on the opposite page we will require a **206M2 EX-TEND** because of its ability to accommodate the nine inches of expansion needed, with its 12 inches of maximum expansion.

3. Determine the installation preset.

   Factory preset for the EX-TEND 200 is at a 50% Contraction 50% Expansion setting, but the preset can be changed in the field to accommodate the present installation temperature.

"Ask for EBAA"

Installation Instructions for EX-TEND 200®

1. Remove Protective end covers.
2. Remove polyethylene sleeve and others materials.
3. Check interior, remove dirt and foreign material from interior and end connections.
4. For buried applications install polyethylene sleeve per ANSI/AWWA C105/A21.5 recommendations.
5. Assembly of flange joint:
   a. Place flange o-ring in groove.
   b. Place EX-TEND 200 flange against adjoining flange, installing and hand tighten bolts.
   c. Check o-ring for proper position.
   d. Tighten flange bolts.
6. Install mechanical joint EX-TEND 200 end connections using the EBAA Iron MEGALUG joint restraint suitable for adjacent pipe material. MEGALUG 1100 should be used on ductile iron pipe. MEGALUG 2000PV is to be used on PVC pipe. Assembly instructions for each of these products are included with the restraint device.
7. Assembly of restrained plain end:
   a. Lubricate and install EBAA Seal gasket provided over plain end per ANSI/AWWA C600.
   b. Insert plain end into adjacent mechanical joint bell.
   c . Install and hand tighten T-bolts.
   d. Tighten T-bolts per AWWA recommendations.
8. Remove shipping skid.
9. Touch up exterior coating as necessary. Use coal tar epoxy following manufacturer's instructions.

Important Notes

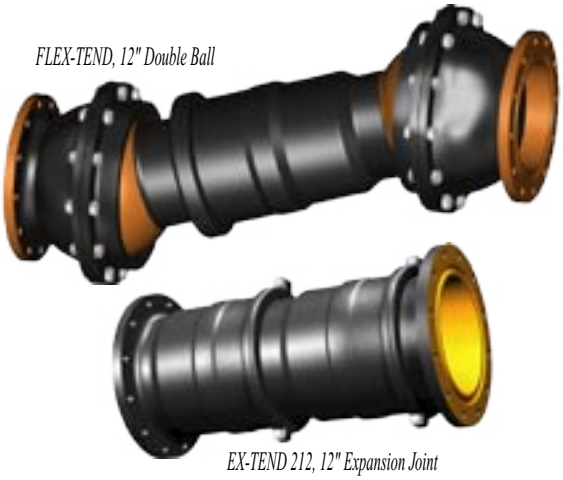
Due to hydrostatic forces that cause the EX-TEND 200 to expand, some applications may require blocking to isolate the areas of anticipated movement and to prevent this expansion from affecting adjacent piping.

The flanged outlets are dimensioned according to ANSI/AWWA C110/A21.10 with addition of the O-ring. An O-ring is provided with each flange to provide a proven water tight seal to a minimum of 350 psi pressure.

Mechanical joint connections conform to the dimensional requirements of either ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53 depending on the size.

FLEX-TEND® Family

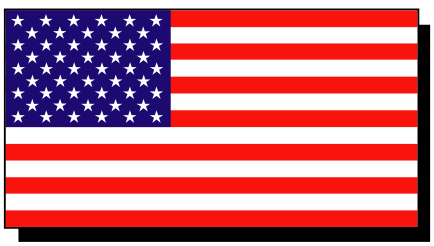
FLEX-TEND, 12" Double Ball



EX-TEND 212, 12" Expansion Joint

FLEX-912, 12" Ball Joint

FLEX-TEND Family	Protection From Shear	Bending Moments w/Expansion	Bending Moments No Expansion	Expansion (linear)
FLEX-TEND Double Ball	Yes	Yes	Yes	Yes
FLEX-TEND Single Ball	No	Yes	Yes	Yes
FLEX-900 (Ball Joint)	No	No	Yes	No
EX-TEND 200	No	No	No	Yes



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AMERICAN FOUNDRY SOCIETY

EBAA IRON Sales, Inc.
P.O. Box 857, Eastland, TX 76448
Tel: (254) 629-1737
Fax: (254) 629-8931
(800) 433-1716 within US and Canada
ebaa@ebaa.com
www.ebaa.com