APPROVED COUPLING DEVICES

GENERAL

Coupling devices for field joints shall meet the requirements of AASHTO M36. The devices described herein shall meet the performance criteria of Division 2, Section 23 of the AASHTO Standard Specifications for Highways and Bridges.

JOINT TYPE DEFINITIONS

Standard Joints: - Joints for pipe not subjected to large soil movements or disjointing forces suitable for ordinary installations where simple slip type joints are typically used.

Positive Joints: - Joints for pipe, which must withstand soil movements or resist disjointing forces such as found on steep slopes, sharp curves, or under poor foundation conditions.

SPECIFIC REQUIREMENTS

Approved coupling devices shall be in accordance with attached drawings and shall meet the requirements given in the attached tables for the joint type specified. In addition, the devices shall meet the following requirements:

- 1. Hardware shall be galvanized in accordance with ASTM A153/A153M.
- 2. The same minimum bandwidth shall be used for pipe arches, as that required for round pipe of equal periphery.
- 3. The coupling band shall not be less than 3 nominal sheet thickness lighter than the thickness of the pipe. Band thickness given in the Tables are minimum for each range of pipe thickness shown.
- 4. The minimum yield strength of the bar used in the bar and strap connection shall be 32,000 psi for a 0.079-inch strap thickness and 45,000 psi for a 0.109-inch strap.
- 5. Tension straps may be connected to the band with either spot welds or fillet welds that develop the minimum strength of the strap.
- 6. Lugs used to connect annular bands shall be connected to the band with a fillet weld that develops a strength equivalent to the bending yield strength of the lug as used. Two pairs of lugs shall be used on a 7-inch band.
- 7. The universal band (dimpled) maybe used only when the grade is 2% or less and shall require a joint sealer, except when the pipe is used for entrances. The universal band is not allowed when a positive joint is specified.

		PIPE DIMENSIONS	SNC	BAND DIMERSIONS		TABLE 1 - STANDARD JOINTS FOR C.S.P.	ANDARD.	JOINTS		AAND COMMECTING METHOD	ow define				
						BAR	BAR AND STRAP				BAND ANGLE			TING WELD	LUG WELDED IN CORR.
COUPLING	CORR. SIZE In.	NOMINAL LD. In.	WALL THICKNESS In.	MINIMUM THICKNESS In.	WIDTH (W or A).	STRAP THICKNESS In.	BOLTS NO. & BIZE	BAR DIAM. In.	ANGLE SIZE In.	ANGLE LENGTH In.	BOLTS NO. & SIZE	RIVETS ANGLE TO BAND NO. A SIZE	SPOT WELDS ANGLE TO BAND NO. & SIZE	LUG SIZE In.	BOLTS NO. & SIZE
ANNULAB	2-2/3×1/2	4 thru 18 21 thru 36 42 thru 60 86 thru 84 36 thru 60 86 thru 120	0.064 - 0.108 0.064 - 0.138 0.064 - 0.168 0.108 - 0.168 0.064 - 0.168	0.052 0.052 0.052 0.052 0.052	7 7 2 2 2 2 2 2 3 2				24243/16 24243/16 24243/16 24243/16 24243/16 24243/16	7 22 22 25	2 - 3/8" 2 - 1/2" 3 - 1/2" 4 - 1/2" 4 - 1/2"	50.00000000000000000000000000000000000	3 - 1/2" 3 - 1/2" 5 - 1/2" 7 - 1/2"	1-1/4×2×3 1-1/4×2×3	2 - 3/8"
HELICAL	1-1/2×1/4 2-2/3×1/2 3x1	4 thru 18 thru 36 42 thru 60 66 thru 84 36 thru 60 66 thru 120	0.064 - 0.079 0.064 - 0.168 0.064 - 0.168 0.109 - 0.168 0.064 - 0.168	0.052 0.052 0.052 0.052 0.052	7 2 4 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4				2x2x3/16 2x2x3/16 2x2x3/16 2x2x3/16 2x2x3/16 2x2x3/16	~ # # # # # # # # # # # # # # # # # # #	2 - 3/6" 3 - 1/2" 4 - 1/2" 4 - 1/2" 4 - 1/2"	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	3 - 1/2" 3 - 1/2" 5 - 1/2" 5 - 1/2"		
UNIVERSAL BAND (DIMPLED)	2-2/3x1/2 3x1	Bru 36 42 thru 80 66 thru 84 thru 72 78 thru 84 36 thru 120 36 thru 120 90 thru 120	0.064 - 0.188 0.064 - 0.188 0.064 - 0.188 0.064 - 0.188 0.064 - 0.168 0.064 - 0.168	0.062 0.062 0.062 0.012 0.013 0.062 0.052	12 24 24 16-1/4 25 25 25	0.079 0.05 6.0079 0.05 6.0079	2 - 1/2" 4 - 1/2" 4 - 1/2"	7/8	2x2x3/16 2x2x3/16 2x2x3/16 2x2x3/16	222 2	3 - 1/2" 3 - 1/2" 4 - 1/2"	5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5	3 - 1/2" 5 - 1/2" 7 - 1/2" 7 - 1/2"		
WING CHANNEL BAND	2-2/3x1/2 3x1	thru 84 thru 72 78 thru 84 38 thru 84 90 thru 120	0.064 - 0.168 0.064 - 0.168 0.166 0.094 - 0.138	0.052 0.052 0.079 0.052 0.052	22222	0.079 0.109 0.079 0.009	2 · 1/2* 2 · 1/2* 2 · 1/2* 2 · 1/2*	8/7 8/7 8/7	2x2x3/16 2x2x3/16 2x2x5/16	5 22	3-1/2"	3 - 3/8"	5-1/2"		*
CHANNEL	2-2/3x1/2	thru 54 thru 54 60 thru 66 60 thru 84	0.054 - 0.109 0.054 - 0.138 0.054 - 0.109 0.138 - 0.168	0.079 0.079 0.079 0.109	3/4	0.079 0.079 0.079	2 - 1/2"	7/8 7/8 7/8	2×2×3/16	7	1 - 1/2"	8-9	2-1/2"		
HUGGER	2-2/3x1/2 3x1	12 thru 30 36 thru 42 48 thru 54 thru 72 78 thru 64 38 thru 64 90 thru 120	0.064 - 0.138 0.064 - 0.109 0.064 - 0.079 0.064 - 0.168 0.138 - 0.168 0.064 - 0.138	0.064 0.064 0.064 0.063 0.062 0.052	4 10-1/2 10-1/2 10-1/2	0.079 0.109 0.079 0.109	2.1/2.	7/8 7/8 7/8 7/8	1-1/2x2-1/2x3/16 1-1/2x2-1/2x3/16 1-1/2x2-1/2x3/16	2-1/4 2-1/4 2-1/4	1-1/2"		. 6. 6. 18/6 6.		
2-PIECE INTEGRAL FLANGE	1-1/2x1/4 2-2/3x1/2	4 thru 10 8 thru 10	0.064 - 0.109	0.052							2.3/8"				
SMOOTH	1-1/2x1/4 2-2/3x1/2	4 thru 10 8 thru 10	0.064 - 0.079	0.052	40 40										

						TABLE 2 -	TABLE 2 - POSITIVE JOINTS FOR C.S.P.	JOINTS	OR C.S.P.				
		PIPE DIMENSIONS	v	BAND DIMENSIONS	SNOISN				BAND CONNECTING METHOD	ING METHOD			
						BAR	BAR AND STRAP			ÝÐ	BAND ANGLE		
COUPLING	CORR. SIZE In.	NOMINAL I.D. In.	WALL THICKNESS In.	MINIMUM THICKNESS In.	MINIMUM WIDTH (W or A) In.	STRAP THICKNESS In.	BOLTS NO. & 812E	BAR DIAM. In.	ANGLE SIZE In.	ANGLE LENGTH In.	BOLTS NO. & SIZE	RIVETS ANGLE TO BAND NO. & SIZE	SPOT WELDS ANGLE TO BAND NO. & SIZE
ANNULAR or HELICAL BAND	2-2/3×1/2 3×1	ihru 36 42 ihru 60 42 ihru 60 66 ihru 84 36 ihru 60 36 ihru 60	0.064 - 0.138 0.064 - 0.079 0.064 - 0.168 0.109 - 0.168 0.064 - 0.079 0.109 0.064 - 0.138	0.064 0.064 0.064 0.064 0.064	2 2 2 2 4 4 5 8				2x2x3/16 2x2x3/16 2x2x5/16 2x2x5/16 2x2x3/16 2x2x3/16 2x2x5/16	22 23 24 14 4 25 25 25 25 25 25 25 25 25 25 25 25 25	3 - 1/2" 3 - 1/2" 5 - 1/2" 3 - 1/2" 5 - 1/2"	3 - 3/8" 5 - 3/8" 7 - 3/8" 3 - 3/8" 5 - 3/8"	5 - 1/2" 5 - 1/2" 5 - 1/2"
WING CHANNEL BAND	2-2/3×1/2 3×1	thru 60 thru 48 42 thru 48 54 thru 68 66 thru 84 36 thru 78 84 thru 96 102 thru 120	0.064 - 0.166 0.064 - 0.109 0.138 - 0.168 0.109 - 0.168 0.109 - 0.168 0.109 0.109	0.064 0.064 0.064 0.064 0.064 0.064 0.079	12 12 12 12 12 12	0.079 0.109 Dbie 0.079 Dbie 0.079 Dbie 0.079 Dbie 0.079	2 - 1/2" 2 - 1/2" 4 - 1/2" 4 - 1/2" 4 - 1/2"	7/8 7/8 7/8 7/8 7/8 7/8	2x2x5/16	12	3 - 1/2"	5 - 3/6"	
CHANNEL BAND	2-2/3x1/2	thru 24 . thru 42 thru 42 48 thru 54	0.064 - 0.079 0.064 - 0.079 0.109 0.064 - 0.079	0.079 0.079 0.109 0.109	3/4 3/4	0.079 0.079 0.079	2 - 1/2" 2 - 1/2" 2 - 1/2"	7/8 7/8 7/8	2x2x5/16	2	1 - 1/2"		3 - 1/2"
HUGGER BAND	2-2/3x1/2 3x1	thru 36 42 thru 48 54 thru 48 54 thru 66 66 thru 84 36 thru 66 72 thru 84	0.064 · 0.138 0.064 · 0.109 0.138 · 0.168 0.079 · 0.168 0.0109 · 0.168 0.064 · 0.109 0.109	0.064 0.064 0.064 0.064 0.109 0.079 0.109	10-1/2 10-1/2 10-1/2 10-1/2 10-1/2 10-1/2	0.079 0.079 0.109 D'bie 0.079 D'bie 0.079 D'bie 0.079 D'bie 0.079	2 - 1/2 2 - 1/2 4 - 1/2 4 - 1/2 4 - 1/2 4 - 1/2	7/8 7/8 7/8 7/8 7/8 7/8 7/8					
2-PIECE INTEGRAL FLANGE	1-1/2×1/4 2-2/3×1/2	4 thru 10 8 thru 10	0.064 - 0.079 0.064 - 0.079	0.064	7 7						2 - 3/8"		





