

## **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 disjoining 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 disjoining forces such as found on steep slopes, sharp curves, or under poor foundation conditions.

### **SPECIFIC REQUIREMENTS**

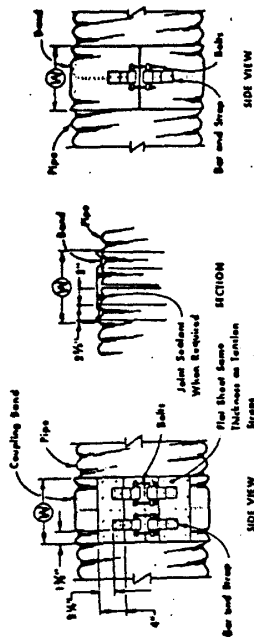
Approved coupling devices shall be in accordance with attached drawings and shall meet the requirements given in the attached tables for the joint type specified. In addition, the devices shall meet the following requirements:

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.

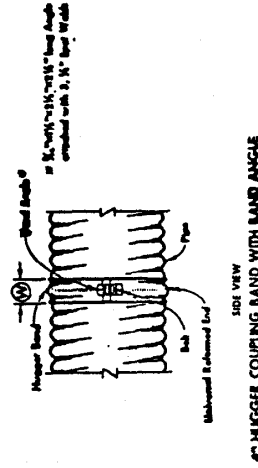
TABLE 1 - STANDARD JOINTS FOR C.S.P.

COUPLING DEVICE	PIPE DIMENSIONS				BAND DIMENSIONS				BAND CONNECTING METHOD						
	CORR. SIZE In.	NOMINAL L.D. In.	WALL THICKNESS In.	MINIMUM THICKNESS In.	MINIMUM WIDTH (W or A) In.	BAR AND STRAP			BAND ANGLE				LUG WELDED IN CORR.		
						STRAP THICKNESS In.	BOLTS NO. & SIZE	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	LUG SIZE In.	BOLTS NO. & SIZE
ANNULAR BAND	2-2/3x1/2	4 thru 18	0.064 - 0.109	0.052	7				2x2-3/16	7	2-3/8"	3-3/8"	3-1/2"	1-1/4x2x3	2-3/8"
		21 thru 36	0.064 - 0.138	0.052	7				2x2-3/16	7	2-1/2"	3-3/8"	3-1/2"	1-1/4x2x3	2-1/2"
		42 thru 60	0.064 - 0.168	0.052	12				2x2-3/16	12	3-1/2"	3-3/8"	5-1/2"		
		66 thru 84	0.109 - 0.168	0.052	24				2x2-3/16	24	4-1/2"	5-3/8"	7-1/2"		
HELICAL BAND	3x1	4 thru 18	0.064 - 0.168	0.052	14				2x2-3/16	14	3-1/2"	3-3/8"	5-1/2"		
		21 thru 36	0.064 - 0.168	0.052	25				2x2-3/16	24	4-1/2"	5-3/8"	7-1/2"		
		42 thru 60	0.064 - 0.168	0.052	7				2x2-3/16	7	2-3/8"	3-3/8"	3-1/2"		
		66 thru 84	0.109 - 0.168	0.052	12				2x2-3/16	12	3-1/2"	3-3/8"	5-1/2"		
UNIVERSAL BAND (DIMPLED)	2-2/3x1/2	4 thru 18	0.064 - 0.168	0.052	14				2x2-3/16	14	3-1/2"	3-3/8"	5-1/2"		
		21 thru 36	0.064 - 0.168	0.052	25				2x2-3/16	24	4-1/2"	5-3/8"	7-1/2"		
		42 thru 60	0.064 - 0.138	0.052	12				2x2-3/16	12	3-1/2"	3-3/8"	3-1/2"		
		66 thru 84	0.064 - 0.168	0.052	24				2x2-3/16	24	4-1/2"	5-3/8"	5-1/2"		
WING CHANNEL BAND	3x1	4 thru 18	0.064 - 0.168	0.052	16-1/4				7/8	2-1/2"	4-1/2"	5-3/8"	7-1/2"		
		21 thru 36	0.064 - 0.168	0.052	25				7/8	4-1/2"	4-1/2"	5-3/8"	7-1/2"		
		42 thru 60	0.064 - 0.168	0.052	25				7/8	4-1/2"	4-1/2"	5-3/8"	7-1/2"		
		66 thru 84	0.079 - 0.168	0.052	12				7/8	2-1/2"	2-1/2"	3-3/8"	5-1/2"		
CHANNEL BAND	2-2/3x1/2	4 thru 18	0.064 - 0.168	0.052	3/4				7/8	2-1/2"	2-1/2"	3-3/8"	5-1/2"		
		21 thru 36	0.064 - 0.168	0.052	3/4				7/8	2-1/2"	2-1/2"	3-3/8"	5-1/2"		
		42 thru 60	0.064 - 0.138	0.052	1				7/8	2-1/2"	2-1/2"	3-3/8"	5-1/2"		
		66 thru 84	0.079 - 0.168	0.052	1				7/8	2-1/2"	2-1/2"	3-3/8"	5-1/2"		
HUGGER BAND	2-2/3x1/2	4 thru 18	0.064 - 0.138	0.052	4				1-1/2x3-1/2x3/16	2-1/4	1-1/2"	1-1/2"	3-3/8"		
		21 thru 36	0.064 - 0.109	0.052	4				1-1/2x3-1/2x3/16	2-1/4	1-1/2"	1-1/2"	3-3/8"		
		42 thru 60	0.064 - 0.079	0.052	4				1-1/2x3-1/2x3/16	2-1/4	1-1/2"	1-1/2"	3-3/8"		
		66 thru 84	0.138 - 0.168	0.052	10-1/2				1-1/2x3-1/2x3/16	2-1/4	1-1/2"	1-1/2"	3-3/8"		
2-PIECE INTEGRAL FLANGE	1-1/2x1/4	4 thru 10	0.064 - 0.109	0.052	7						2-3/8"				
		8 thru 10	0.064 - 0.109	0.052	7						2-3/8"				
SMOOTH SLEEVE	1-1/2x1/4	4 thru 10	0.064 - 0.079	0.052	6										
		8 thru 10	0.064 - 0.079	0.052	6										

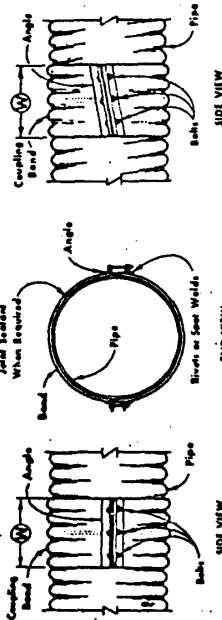




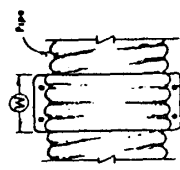
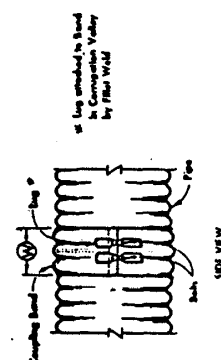
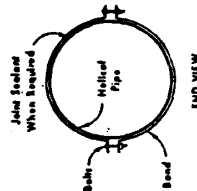
HUGGER COUPLING BAND FOR REFORMED BMD H.C.S.P. OR ANNULAR C.S.P.



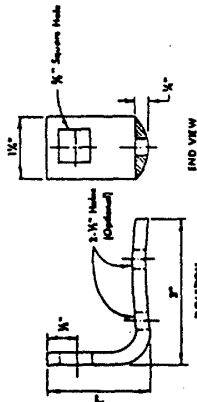
4" HUGGER COUPLING BAND WITH BAND ANGLE



HELICAL COUPLING BAND.  
Angle may be altered to suit pipe, but no other adjustments to helix angle.

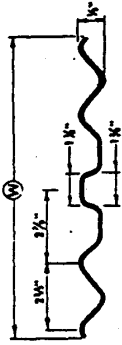
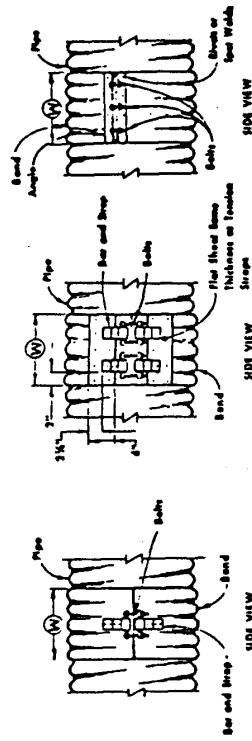


TWO-PIECE INTEGRAL FLANGE DIE FORMED BAND FOR H.C.S.P.



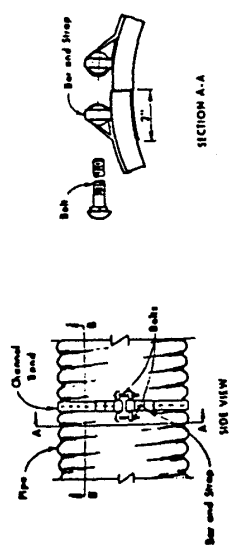
WELDED LUG COUPLING BAND

C.S.P. COUPLING DEVICE  
DETAILS  
STANDARD AND POSITIVE JOINTS

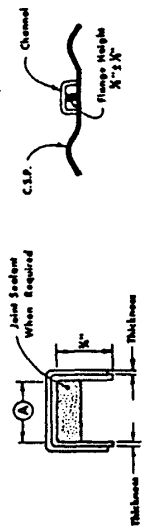


SECTION

WING CHANNEL COUPLING BAND FOR REFORMED END M.C.S.P.

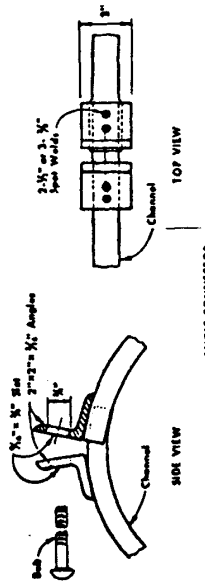


SECTION A-A



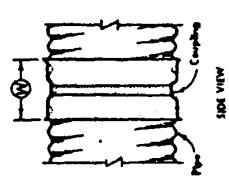
SECTION B-B

BAR AND STRAP CONNECTOR



ANGLE CONNECTOR

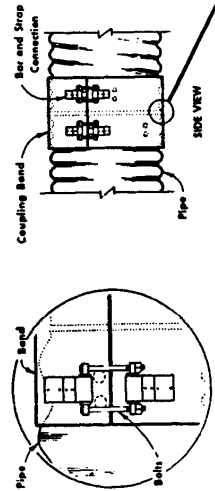
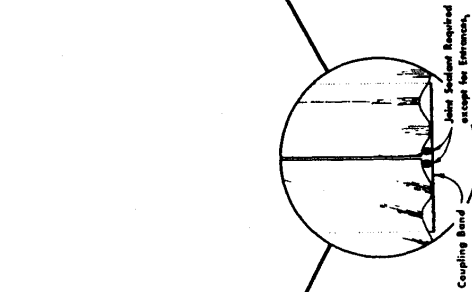
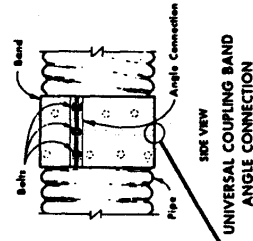
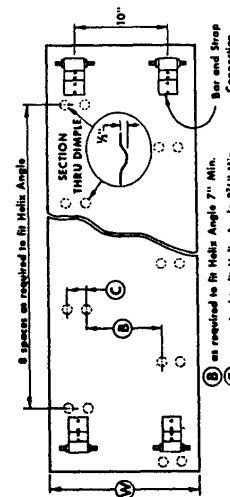
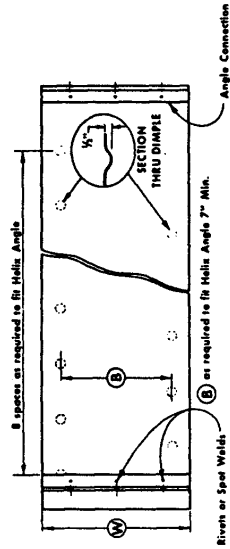
CHANNEL COUPLING BAND FOR USE ON FLANGED END C.S.P.



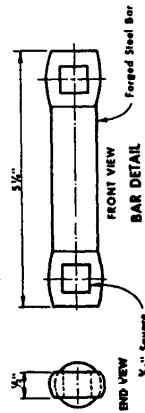
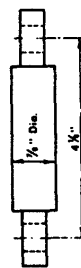
SMOOTH SLEEVE COUPLER

C.S.P. COUPLING DEVICE  
DETAILS

STANDARD AND POSITIVE JOINTS



**STRAP DETAIL**  
 Note:  
 Min. of two Spot Welds per connection.



**UNIVERSAL COUPLING BAND  
 BAR AND STRAP CONNECTION**

**C.S.P. COUPLING DEVICE  
 DETAILS  
 STANDARD JOINTS**