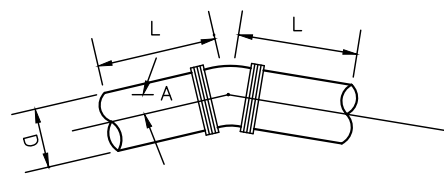
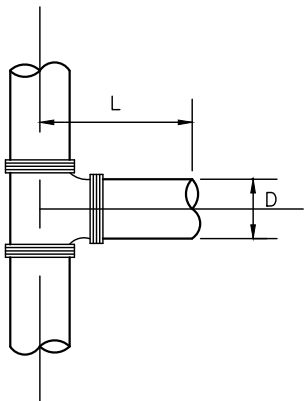
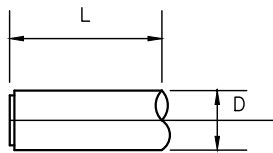


**TAPPING SLEEVE AND VALVE DETAIL**

ALL JOINTS TO BE RESTRAINED.  
MECHANICAL RESTRAINT DEVICES SHALL BE AWWA ACCEPTED.

**NOTES**

- A. BELL JOINT RESTRAINTS – USE FIELD LOCK BY U.S. PIPE OR APPROVED EQUIVALENT.
- B. MECHANICAL JOINT RESTRAINTS – EBAA IRON MEGALUG RETAINER GLAND OR EQUIVALENT.
- C. CONTRACTOR TO USE RESTRAINED JOINTS UNLESS THRUST BLOCKING IS PREAPPROVED FOR SPECIAL CONDITIONS BY THE CITY PRIOR TO THE BEGINNING OF CONSTRUCTION.



SEE TABLE FOR L,  
REQUIRED LENGTH OF RESTRAINED JOINTS

		REQUIRED LENGTH OF RESTRAINED JOINTS IN FEET							
		D-DIAMETER OF PIPE							
		4"	6"	8"	10"	12"	16"	20"	24"
A ~ DEGREE OF DEFLECTION	11 1/4°	*	*	*	*	*	2	3	3
	22 1/2°	*	2	3	3	4	5	6	6
	45°	3	4	5	6	8	10	12	13
	90°	18	25	33	40	47	60	72	85
	TEE	18	25	33	40	47	60	72	85
	END	18	25	33	40	47	60	72	85

**DESIGN PARAMETERS**

LAYING CONDITIONS – TYPE 5  
SOIL DESIGNATION – SILT  
DEPTH OF COVER – 4'  
DESIGN PRESSURE – 80 PSI  
SAFETY FACTOR – 1.50  
BARE PIPE  
THIS CHART AND PARAMETERS  
WILL BE UTILIZED UNLESS  
APPROVED BY THE UTILITY  
DIRECTOR.

**REQUIRED LENGTH OF RESTRAINED JOINTS FOR WATER MAINS**

\* REQUIRED RESTRAINED JOINT



**RESTRAINING JOINTS AND TAPPING SLEEVE FOR WATER MAINS**

REVISIONS:	DATE APPROVED: 06/03/2020
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