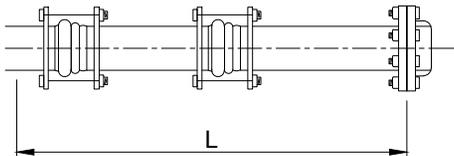


PIPE SIZE (RUN)		4	6	8	12	16	18	20	24
PIPE SIZE (BRANCH)	4	●	●	●	●	●	●	●	●
	6		●	●	●	●	●	●	●
	8			24	●	●	●	●	●
	12				68	36	19	1	●
	16					112	99	87	59
	18						133	122	98
	20							155	133
	24								195

RESTRAINED LENGTHS "L" IN FEET

● FOR THIS CONDITION NEED ONLY RESTRAIN THE BRANCH OUTLET OF THE TEE.

DEAD END/EACH SIDE OF VALVE



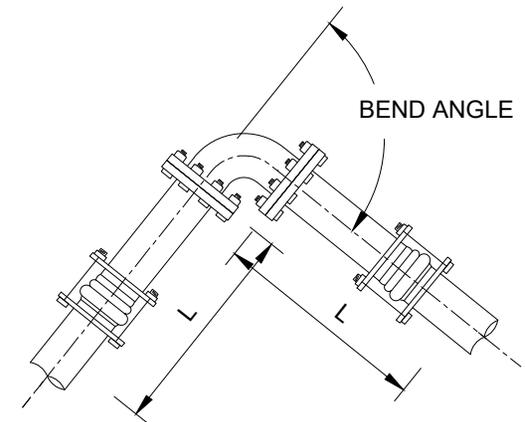
PIPE SIZE							
4	6	8	12	16	18	20	24
59	84	110	156	202	223	245	287

RESTRAINED LENGTHS "L" IN FEET

RESTRAINT JOINT LENGTHS USAGE GENERAL NOTES:

1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED.
2. FOR TEE RESTRAIN BOTH RUN-SIDE JOINTS AND FULL LENGTH OF PIPE ON EACH SIDE OF BRANCH.
3. THIRTY-SIX (36) INCHES MINIMUM DEPTH OF COVER.
4. A SAFETY FACTOR OF 1.5.
5. PIPE BEDDING PER WMWD STANDARD DRAWING W-1030.
6. TEST PRESSURE 1.5 TIMES THE PRESSURE RATING OF PIPE PER WMWD SPECIFICATIONS.
7. IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, THE RESTRAINED LENGTH SHALL BE DETERMINED BY THE DESIGN ENGINEER AND APPROVED BY WMWD.

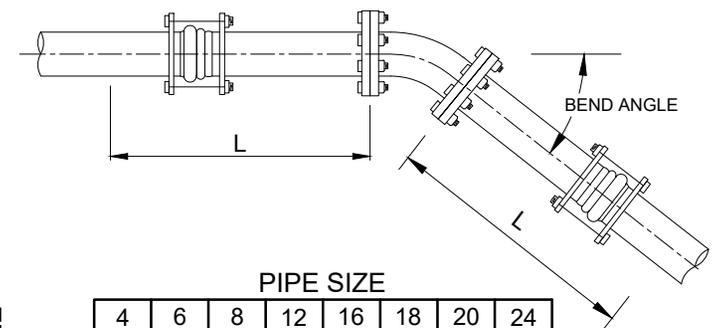
HORIZONTAL BEND



		PIPE SIZE							
BEND ANGLE	11.25°	4	6	8	12	16	18	20	24
	22.5°	2	3	4	6	8	9	10	12
	45°	5	7	9	13	16	18	19	12
	90°	10	14	19	26	34	37	40	12
		25	34	45	63	81	89	98	12

RESTRAINED LENGTHS "L" IN FEET

VERTICAL BEND



		PIPE SIZE							
BEND ANGLE	11.25°	4	6	8	12	16	18	20	24
	22.5°	6	8	11	15	20	22	24	28
	45°	12	17	22	31	40	44	49	57
		25	35	46	65	84	92	102	119

RESTRAINED LENGTHS "L" IN FEET