



MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S)

	TYPE	PVC AND DUCTILE IRON PIPE SIZE (IN)													
		4	6	8	12	16	20	24	30	36	42	48	54	60	64
HORIZONTAL	90° BEND														
	45° BEND														
	22-1/2° BEND														
	11-1/4° BEND														
	5 5/8° BEND OR MJ SLEEVE														
	PLUG OR BRANCH OF TEE OR DEAD END														
	VALVE OR LINE STOP														
	HDPE CONNECTION														

**NOTES:**

1. FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
3. WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
4. ALL INLINE VALVES SHALL BE RESTRAINED.
5. LENGTHS SHOWN IN THE TABLE SHALL BE CALCULATED IN ACCORDANCE WITH GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW:  
 WORKING PRESSURE: 150 PSI  
 SOIL DESIGNATION: TBD BY ENGINEER OF RECORD  
 LAYING CONDITIONS: TBD BY ENGINEER OF RECORD  
 DEPTH OF COVER: 3-FT (min)  
 SAFETY FACTOR: 1.5  
 THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC PARAMETERS, SUCH AS SOIL DESIGNATIONS AND LAYING CONDITIONS.
6. 90° BENDS ON VERTICAL PIPE ARE SUBJECT TO REVIEW AND APPROVAL OF UTILITIES.
7. IF 4-IN THRU 20-IN PIPE IS POLYETHYLENE ENCASED, USE 1.25 MULTIPLIER ON RESTRAINT LENGTH.
8. RESTRAINING REQUIREMENTS APPLY TO BOTH EXISTING AND PROPOSED MAINS.

## RESTRAINED HORIZONTAL PIPE

N.T.S.

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