

~Cheet sheet of restrained length of bend, tee and Valve~

【Condition】

Calculation method

DIPRA

Buck fill

Type5

Earth covering

3"~8": More than or equal to 30", 12"~18": More than or equal to 36"

Polyethylene sleeve

Covered

Safety factor

1.5

Unit: ft

DN (inch)	Bend Portions ^{*)}									Tee Portion ^{**)}			Valve and Dead end		
	≤22.5°		≤45°			≤90°			Design Pressure			Design Pressure			
	Design Pressure		Design Pressure			Design Pressure			Design Pressure			Design Pressure			
	~150psi	~250psi	~150psi	~200psi	~250psi	~150psi	~200psi	~250psi	~150psi	~200psi	~250psi	~150psi	~200psi	~250psi	
3"	3 ft	4 ft	10 ft	13 ft	16 ft	24 ft	31 ft	39 ft	26 ft	39 ft	53 ft	41 ft	54 ft	67 ft	
4"	3 ft	5 ft	12 ft	16 ft	20 ft	28 ft	38 ft	47 ft	32 ft	49 ft	65 ft	49 ft	65 ft	81 ft	
6"	4 ft	7 ft	17 ft	22 ft	27 ft	39 ft	52 ft	65 ft	52 ft	74 ft	97 ft	69 ft	92 ft	115 ft	
8"	5 ft	9 ft	21 ft	28 ft	35 ft	50 ft	67 ft	83 ft	71 ft	100 ft	130 ft	89 ft	118 ft	148 ft	
12"	6 ft	10 ft	25 ft	33 ft	41 ft	60 ft	79 ft	99 ft	88 ft	123 ft	159 ft	107 ft	142 ft	178 ft	
16"	8 ft	13 ft	31 ft	42 ft	52 ft	75 ft	100 ft	125 ft	117 ft	163 ft	208 ft	137 ft	182 ft	227 ft	

*) Total length (One side length is half of the length)

**) Restrained length of branch, in case of restrained length of main pipeline is 4ft (one side)

In case of restrained length over 120ft, it is recommended to use thrust block