



FORT COLLINS-LOVELAND WATER DISTRICT

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www.fclwd.com

FCLWD Operations Department

Joint Restraint Requirements

June22, 2015

Pipe Tested at 150 psi

Fitting Type -	4"	6"	8"	10"	12"
11.25-degree	1'	2'	2'	3'	3'
22.50-degree	2'	3'	4'	5'	5'
45-degree	4'	6'	8'	9'	11'
90-degree	10'	14'	18'	21'	25'
Valves, F.H., Dead-end, Tees	32'	45'	60'	72'	85'
Reducers -	6"x 4" = 24' on 6"	8"x 6" = 25' on 8"	10"x 8" = 24' on 10"	12"x 10" = 25' on 12"	
	8"x 4" = 43' on 8"	10"x 6" = 44' on 10"	12"x 8" = 45' on 12"		
	10"x 4" = 58' on 10"	12"x 6" = 62' on 12"			
	12"x 4" = 74' on 12"				

Pipe Tested at 200 psi

Fitting Type -	4"	6"	8"	10"	12"
11.25-degree	2'	2'	3'	3'	4'
22.50-degree	3'	4'	5'	6'	7'
45-degree	6'	8'	10'	12'	14'
90-degree	13'	18'	24'	28'	33'
Valves, F.H., Dead-end, Tees	43'	60'	80'	96'	113'
Reducers -	6"x 4" = 31' on 6"	8"x 6" = 34' on 8"	10"x 8" = 32' on 10"	12"x 10" = 25' on 12"	
	8"x 4" = 57' on 8"	10"x 6" = 59' on 10"	12"x 8" = 60' on 12"		
	10"x 4" = 78' on 10"	12"x 6" = 82' on 12"			
	12"x 4" = 98' on 12"				

Notes:

Joint restraint requirements for vertical deflections will be determined per location at the time of project review and reviewed at the pre-construction meeting.

Joint restraint requirements for pipes in casings will be determined per location at the time of project review and reviewed at the pre-construction meeting.

Joint restraint requirements for fittings larger the 12" diameter will be determined at the time of project review and reviewed at the pre-construction meeting.

All joint restraint distances above are derived from EBAA Iron's, *Joint Restraint Length Calculator* under Tech Support at, www.EBAA.com, using the default category selections; Pipe Material=PVC, Soil Type=ML, Safety Factor=1.5 to 1, Trench Type=5, Depth of Bury=5, PSI=150 or 200.

The FCLWD reserves the right to change or modify the joint restraint length requirements at any time.