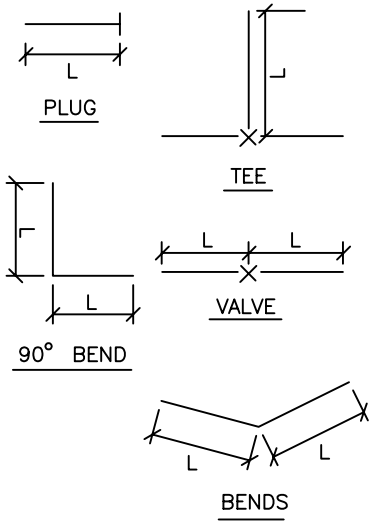


ROD DIAMETER, GRADE & LENGTH OF RESTRAINED PIPE

PIPE SIZE	4"			6"			8"			12"			16"			20"			24"		
	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G
90° BEND TEE, PLUG	3/4"	30'	M.S.	3/4"	45'	M.S.	3/4"	60'	M.S.	3/4"	86'	H.S.	1"	108'	H.S.	1 1/4"	132'	H.S.	—	155'	—
VALVE	3/4"	30'	M.S.	3/4"	45'	M.S.	3/4"	60'	M.S.	3/4"	86'	H.S.	1"	108'	H.S.	1 1/4"	132'	H.S.	—	155'	—
45° BEND	3/4"	9'	M.S.	3/4"	13'	M.S.	3/4"	18'	M.S.	3/4"	25'	M.S.	1"	32'	M.S.	3/4"	39'	H.S.	—	45'	—
22 1/2° BEND	3/4"	1'	M.S.	3/4"	4'	M.S.	3/4"	5'	M.S.	3/4"	7'	M.S.	3/4"	8'	M.S.	3/4"	10'	M.S.	—	12'	—
11 1/4° BEND	3/4"	1'	M.S.	3/4"	1'	M.S.	3/4"	1'	M.S.	3/4"	2'	M.S.	3/4"	2'	M.S.	3/4"	3'	M.S.	—	3'	—

NOTES:



- 1.) LENGTH OF RESTRAINED PIPE MEASURED EACH WAY FROM VALVES AND BENDS.
- 2.) CLAMPS, RODS & MEGALUGS NOT ALLOWED FOR 24" & LARGER PIPES.
- 3.) D=DIAMETER, L=LENGTH, G=GRADE
M.S.=MILD STEEL, H.S.=HIGH STRENGTH.
- 4.) MINIMUM 4.5' GROUND COVER REQUIRED.
- 5.) BASED ON 150 PSI INTERNAL PRESSURE
- 6.) M.S. = MILD STEEL ROD ASTM A36.
- 7.) H.S. = HIGH STRENGTH ROD ASTM A193 GRADE B7.
- 8.) NUTS SHALL BE ASTM A307 GRADE A OR B HEXAGON HEAVY SERIES.
HIGH STRENGTH NUTS SHALL BE ASTM A 194, GRADE 2H.
- 9.) SEE TIE ROD DETAIL DRAWING. ALSO, TIE ROD COUPLING DETAILS,
CLAMP DETAILS AND SET CLAMP DETAILS.
- 10.) LENGTH REFERS TO THE AMOUNT OF PIPE WHICH MUST BE RESTRAINED
TOGETHER AND IS NOT NECESSARILY THE LENGTH OF THE RODS.
- 11.) LENGTH OF RESTRAINED PIPE CHART IS ALSO FOR THE LENGTH OF JOINT
RESTRAINT FOR EBAA IRON MEGALUGS OR UNIFLANGE PIPE RESTRAINT DEVICES.
- 12.) CROSSES MUST BE RESTRAINED IN ALL APPLICABLE DIRECTIONS.
- 13.) 12" AND SMALLER IN LINE VALVES AND TEES SHALL HAVE A MECHANICAL JOINT RESTRAINT DEVICE
ON EACH SIDE OF THE FITTING OR VALVE. MECHANICAL JOINT RESTRAINT DEVICE SHALL BE: DIP -
EBAA 1100 SERIES, UNI-FLANGE SERIES 1400, OR EQUIVALENT; PVC - EBAA MEGALUG 2000 PV SERIES,
UNI-FLANGE SERIES 1500, OR EQUIVALENT.
- 14.) A SECOND VALVE WILL BE REQUIRED TO BE CLOSED WHEN EXCAVATING NEXT TO AN EXISTING VALVE.



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LENGTH OF RESTRAINED PIPE

REVISION DATE:
9/7/2005
FIGURE NO.
W-24
SHEET NO.
1 of 1