

NOMINAL PIPE DIAMETER (INCHES)	PIPE LENGTH (IN FEET) TO BE RESTRAINED IN EACH DIRECTION FROM FITTING												TEE (BRANCH)	DEAD END & VALVE
	HORZ. 90° BEND	HORZ. 60° BEND	HORZ. 45° BEND	HORZ. 30° BEND	HORZ. 22.5° BEND	HORZ. 11.25° BEND	VERT. 90° BEND	VERT. 60° BEND	VERT. 45° BEND	VERT. 30° BEND	VERT. 22.5° BEND	VERT. 11.25° BEND		
4	31	18	13	8	6	3	65	37	27	17	13	6	32	65
6	43	25	18	12	9	4	92	53	38	25	18	9	58	92
8	56	32	23	15	11	5	118	68	49	32	23	12	84	118
10	67	39	28	18	13	7	142	82	59	38	28	14	108	142
12	78	45	32	21	16	8	167	96	69	45	33	16	132	167
14	88	51	37	24	18	9	190	109	79	51	38	19	155	190
16	98	57	41	26	20	10	212	123	88	57	42	21	177	212
18	108	62	45	29	22	11	234	135	97	63	47	23	199	234
20	118	68	49	32	23	12	256	148	106	69	51	25	221	256
24	136	78	56	36	27	13	297	171	123	80	59	29	261	297
30	160	92	66	43	32	16	354	205	147	95	70	35	318	354
36	182	105	75	49	36	18	407	235	169	109	81	40	370	407
42	202	116	84	54	40	20	455	263	188	122	90	45	417	455
48	220	127	91	59	44	22	500	289	207	134	99	49	462	500
54	237	137	98	64	47	23	542	313	224	145	108	53	503	542
60	247	143	102	66	49	24	570	329	236	153	113	56	530	570
64	256	148	106	69	51	25	594	343	246	159	118	59	554	594

1. NO THRUST BLOCKS ALLOWED!
2. CHART EXTRACTED FROM DIPRA MANUAL, "THRUST RESTRAINT DESIGN FOR D.I.P.", 3RD EDITION,

USING THE FOLLOWING DESIGN CRITERIA:  
 TRENCH TYPE 2      DESIGN PRESSURE = 150 PSI  
 SOIL TYPE = SAND / SILT      MINIMUM COVER REQUIRED = 3 FEET  
 POLYWRAP REQUIRED = NO (MULTIPLY BY 1.50 FOR POLYWRAPPED PIPE)

3. TEE CALCULATIONS ARE BASED ON FULL OPENING TEE. CALCULATIONS MUST BE ADJUSTED IF RUN DIAMETER EXCEEDS TWICE THE BRANCH DIAMETER.
4. MINIMUM NUMBER OF JOINTS TO BE RESTRAINED SHALL BE MINIMUM LENGTH AS LISTED ABOVE PLUS ONE FULL LENGTH.
5. VALVES SHALL BE RESTRAINED AT EACH SIDE USING DEAD-END CRITERIA LISTED IN TABLE ABOVE.

REVISED:  
SEPT-2009

PRESSURE PIPE - DESIGN TABLE FOR THRUST RESTRAINT

STANDARD  
DETAIL

ISSUED:  
SEPT - 2009

CITY OF WEST PALM BEACH ENGINEERING SERVICES DEPT.

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