


# ANALYSIS OF BASE ANCHORED HARD CONNECTED PIPE RISER (DISTRIBUTED HYD LOAD CARRIED UP RISER)

SUITABLE FOR EXPANSIVE OR CONTRACTIVE SYSTEMS

		KINETICS NOISE CONTROL, INC. 6300 IRELAN PLACE DUBLIN, OHIO 43017 614-889-0480																
Project: <b>BASE ANCHORED HARD CONNECTED (TYPE 7)</b> Riser: <b>TYPICAL RISER</b>		3/12/2006																
Note: Supports are assumed to be at floor level, if at ceiling level, identify as being on floor above																		
Expansion Coef <b>7.60E-05</b> in/ft/degF Installed Temp <b>70</b> Oper Temp <b>91</b> Anchor Elevation <b>0</b> (If Anchored System) Anchor Type <b>FX</b> (Fixed-FX or Floating FL) Static Head <b>0</b> (Ft at top of pipe) Water Supported <b>Y</b> (Y or N) Is water column weight supported by Riser? Hyd Lift @ Top <b>Y</b> If an Intermediate Riser section with telescoping Coupling at top, Enter "N" otherwise enter "Y" Liq or Gas Piping <b>L</b> (L or G) Is the pipe filled with water or gas? Steam Pressure <b>0</b> (Enter a value only if steam pressure is present (psi))		Indicate Support locations with a "Y" and guide locations with a "G" in the Support Location Column. Restrained Spring isolators such as FRS are indicated with an "R" under "Support/Res" + Force loads are Tension, - Force loads are Compression (in pipe) "-" indicates no supports above this point																
Floor (Ref)	Support Loc	Res	Floor Ht Ft	Floor Elev Ft	Pipe Size in	Local Pipe Wt (lb)	Local Liquid Wt (lb)	Init Support Pt Load From Pipe Wt (Lb)	Hyd Thrust Pipe Lift is + (lb)	Spring Rate Lb/in	Init Defl In	Init Supt Pt Force Lbs	Oper Sprg Defl or Disp + is Down in	Oper Supt Pt Load Lbs	Init Tens Pipe Force Lbs	Oper Tens Pipe Force Lbs	Initial Pipe Stress PSI	Combined Burst + Tens Oper Stress PSI
Roof				82				0	0			0		0	0	0		
10	-			82				0	217			0	-0.13	0	0	0		
9	Y		10.00	72	8			571	0	1000	0.88	880	0.77	765	595	696	71	95
8			10.00	62	8			0	0			0		0	309	411	37	105
7	Y		10.00	52	8			571	0	1000	0.85	850	0.77	767	874	892	104	175
6			10.00	42	8			0	0			0		0	588	607	70	200
5	Y		10.00	32	8			690	621	1000	0.83	830	0.78	779	1133	1721	135	310
4			10.00	22	10			0	0			0		0	728	1316	61	373
3	Y		10.00	12	10			810	0	1500	0.81	1215	0.79	1186	1538	2098	129	452
2			10.00	2	10			0	0			0		0	1133	1693	95	496
1	A		2.00	0	10			81	-2796			-1052	0.00	1184	0	0	0	487
0				0				0	0			0		0	0	0		

Critical Buckling Load for piping -23254 lb

## SAMPLE 8 STORY RISER WITH ANCHOR AT BASE AND NON-VERTICALLY RESTRAINED ISOLATORS

NOTE THAT THERE IS NO LARGE CONCENTRATED FORCE AT THE ANCHOR ELEVATION IN SERVICE, BUT THERE IS A LARGE TENSILE FORCE DURING INSTALLATION. IN SERVICE, HYDRAULIC LOADS ARE CARRIED UP THE RISER TO MULTIPLE ISOLATORS AT THE EXPENSE OF HIGHER TENSILE LOADS AND STRESSES IN THE PIPE ITSELF.

KINETICS™ Riser Design Manual

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