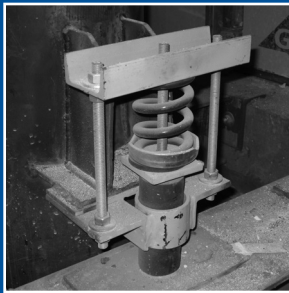




Riser Guide



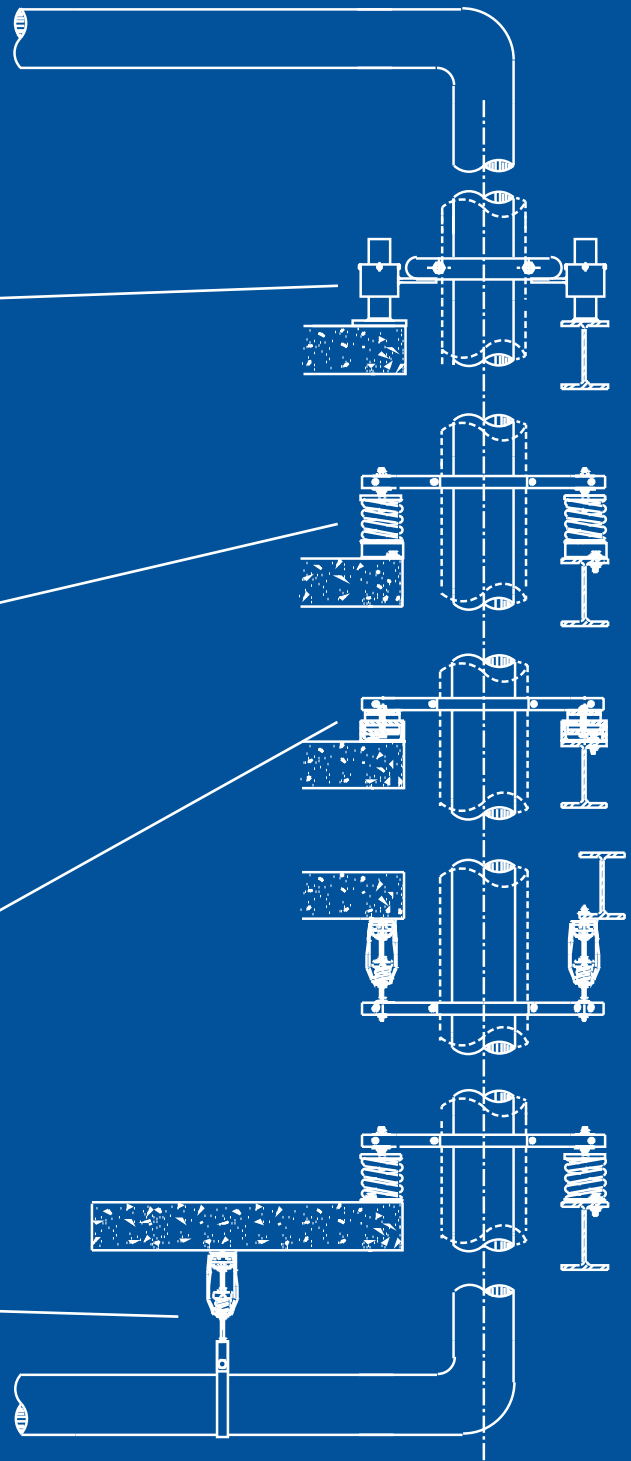
Riser Isolator



Riser Anchor



Riser Hanger

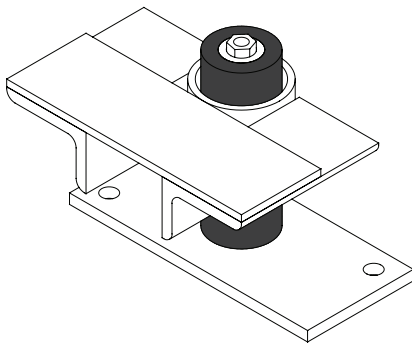


Pipe Riser Anchor, Guide and Isolation Products

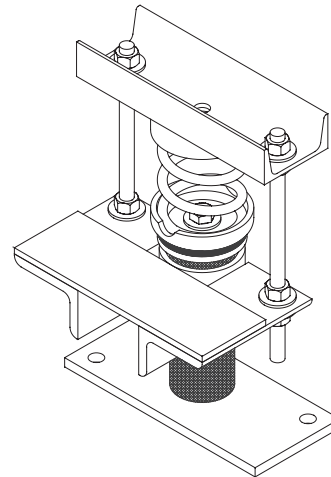
Vertical pipe risers can create a unique set of problems when they are installed in multi-story buildings. The introduction of fluids into the pipe can generate significant forces within the building at the riser support locations if the fluid temperature differs considerably from the ambient temperature in the building at the time of initial installation. Pipe expansion due to hot water and steam will cause the overall length of the riser to grow, and chilled water will result in contraction. These pipe movements transfer substantial forces into the building structure and will result in a serious increase in stress levels within the walls of the pipe.

The use of vibration isolators as pipe riser supports can eliminate the potential for damage to the pipe and to the building. These flexible supports will allow the pipe to expand or contract without a large increase in the stress in the pipe or the building at the support locations. Resilient pipe anchors can serve to fix the pipe at a given location while still providing for vibration isolation between the riser and the building. Pipe guides will limit horizontal pipe motion due to thermal growth in loops and offset loads generated by hydraulic thrusts or seismic events.

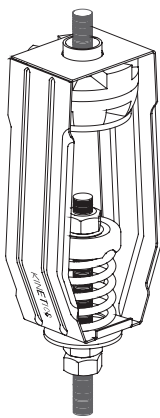
Representative Kinetics Pipe Riser Isolation Support Products



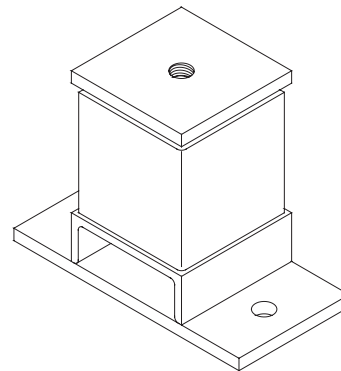
Riser Guides - Model KRG
Capacities from 530 lbs. and up, for vertical and horizontal load applications.



Riser Isolators - Model KRG
Capacities from 35 lbs. to 23,200 lbs.
Available in 1", 2" and 4" deflection




Riser Hangers - Models SH, SRH and SFH
Capacities from 35 lbs. and up.
Available in 1", 2" and 4" deflection



Riser Anchors - Model KPA
Capacities from 2,500 lbs. to 20,000 lbs.

Analysis of Anchored Pipe Segment with Base Support (Concentrated Water Load At Base)

		KINETICS NOISE CONTROL, INC. 6300 IRELAN PLACE DUBLIN, OHIO 43017 614-889-0480														
Project: BASE ANCHORED HARD CONNECTED (TYPE 1) 10/12/04 Riser: TYPICAL RISER																
Note: Supports are assumed to be at floor level, if at ceiling level, identify as being on floor above																
Expansion Coef 7.6E-05 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" Installed Temp 70 + Force loads are Tension, - Force loads are Compression (in pipe) Oper Temp 91 "- " indicates no supports above this point Anchor Elevation 0 (If Anchored System) Anchor Type FX (Fixed-FX or Floating FL) Static Head 0 (Ft at top of pipe) Water Supported Y (Y or N) Is water column weight supported by Riser? Liq or Gas Piping L (L or G) Is the pipe filled with water or gas? (If clearance coupling, use G)																
Floor (Ref)	Support Loc	Support Res	Floor Ht Ft	Floor Elev Ft	Pipe Size in	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	Oper Pipe Stress PSI
				92		0	0			0		0	0	0		
ROOF				92		0	217			0		0	0	0		
10	-		10	82	8	0	0			0	0.13	0	-286	-69	34	8
9	Y		10	72	8	857	0	1000	1.00	1000	0.89	885	429	531	51	63
8			10	62	8	0	0			0		0	144	245	17	29
7	Y		10	52	8	571	0	600	1.00	600	0.92	550	458	510	55	61
6			10	42	8	0	0			0		0	173	225	21	27
5	Y		10	32	8	690	745	600	1.38	828	1.33	797	715	1481	85	176
4			10	22	10	0	0			0		0	310	1076	26	90
3	Y		10	12	10	810	0	1000	0.85	850	0.83	831	755	1502	63	126
2			10	2	10	0	0			0		0	351	1098	29	92
1			2	0	10	81	-3137			-270	0.00	2337	0	217	0	18
0				0		0	0			0		0	0	0		
-1				0		0	0			0		0	0	0		
						3008	-2176				3008	5401				
Critical Buckling Load for piping -23254 lb																
Init Weight 3008 lb / Init Preload 3008 lb																
Riser adjustments are made as follows: Reference attached instructions (SS-20020825) for the adjustment of Riser systems. (Type A) Fully Floated System - (No Preloaded Isolators and No Anchors) (Type B) Semi Floated System - (Preloaded Isolators but No Anchors) (Type C) Anchored Rigid Continuous Piping (Preloaded or not Preloaded Isolators but with Anchor) (Type D) Multiple Anchorage System with Expansion Couplings																
In connection with these calculations, Kinetics Noise Control, Inc. guarantees that we will use that degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession to determine loadings and deflections based on customer supplied input data. No other warranty, expressed or implied, is made or intended. Kinetics Noise Control does not take any responsibility for variations between the assumptions indicated and used herein and changes that may occur during the actual installation.																

Kinetics Noise Control has the ability to model project specific vertical pipe riser systems using our proprietary computer software which was designed specifically for riser analysis. This is a representative output data sheet for a typical base anchored riser. Results include information concerning the installed and operating spring deflections, forces on the building at each support location, and stress levels within the pipe.

We provide this engineering analysis as a sales product service, tailored uniquely to the specific building project and the isolation products used. This enables the project design engineer to know with certainty how the riser pipe and building will interact during both installation and operating conditions.

Kinetics Riser Design Manual

As a service to our customers and design-engineering professionals, Kinetics Noise Control has developed a comprehensive Pipe Riser Engineering Manual, which provides additional design information and details. Copies of this manual are available for free downloading at: kineticsnoise.com/risers/

PIPE RISERS	
Description	Section
Pipe Riser General Description	Guide
General Riser Arrangements & Force Description	
Basic Forces that Occur in Riser Systems	R1.0
Welded or Hard Connected Pipe Systems, Base Restrained	R1.1
Welded or Hard Connected Pipe Systems, Top Restrained	R1.2
Pipe Systems with Clearance Couplings, Base Restrained	R1.3
Welded or Hard Connected Pipe Systems, No Restraint	R1.4
Expansion Loop Design	R1.5
Sample Analysis	
Concentrated Hyd Load	
Base Anchored Hard Connected Pipe System (Type 1)	R2.1
Top Anchored Hard Connected Pipe System (Type 1)	R2.2
Base Anchored Clearance Coupling Segment (Type 1)	R2.3
Distributed Hyd Load	
Base Anchored Hard Connected Pipe System (Type 5)	R2.4
Base Anchored Hard Connected Pipe System (Type 7)	R2.5
Top Anchored Hard Connected Pipe System (Type 2)	R2.6
Full Floating Hard Connected Pipe System (Type 1)	R2.7
Riser Support Components	
Anchors (KPA)	R3.1
Floor Mounted Restrained Spring Isolators (FRS)	R3.3
Non-Restrained Floor Mounted Spring Isolators (FDS)	R3.4
Hanging Restrained Spring Isolators (SRPH)	R3.5
Non-Restrained Hanging Spring Isolators (SRH)	R3.6
Basic Riser System Installation Procedures	
KPA Installation Instructions	R4.1
R4.0	

KINETICS™ Riser Design Manual

RISER DESIGN MANUAL – TABLE OF CONTENTS

PAGE 1 OF 1



Toll Free (USA only): 800-959-1229
 International: 614-889-0480
 Fax: 614-889-0540
 World Wide Web: www.kineticsnoise.com
 Email: sales@kineticsnoise.com



Kinetics Noise Control © 2003



kineticsnoise.com
sales@kineticsnoise.com
 1-800-959-1229