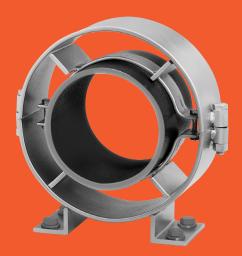
MASON-MERCER

ADJUSTABLE SLIDING GUIDE



Manufactured as per Expansion Joints Association EJMA Standard.



Typical Spider Guide



All of us have gotten accustomed to using Spider Pipe Guides because they have been around forever. In looking for a better way, we found the following areas for improvement:

1) There is no single Spider Guide for any pipe size. The ID is standard, but the length of the guide fins and the ID of the housing all vary with insulation thickness. There can be as many as five selections for the same diameter pipe.

This makes stocking difficult and the contractor cannot buy without knowing the insulation thickness.

2) While they are used in other positions, most Spider Guide have no allowable load ratings as they are single purpose Guides.

Our primary objective was to solve these two problems so we came up with the idea of a simple insulation height adjustment. Just loosen two bolts on each side of the base and move to the higher position when job requirements call for thicker insulation. Not only are they easier to order and dimension, but the price remains the same regardless of insulation thickness. This is not true with the spider design as cost is based on the shell OD. Cost estimates are no longer difficult with our single price per size.

The next problem was addressed by our design team of Professional Engineers. The rating in any guide position is at least the support value required for the maximum unsupported length of piping. According to code, maximum hanger spacing for a 2" pipe is every 10' whereas a 12" line goes out to as much as 23'. In most installations it is just easier to locate all supports at 10' spacing, but our designs allow for the longer criteria as shown in the table on page 3.

In addition to the published support values, you will find that most of the baseplates have a multitude of holes. This is very helpful as you do not always know how they are going to be installed. The large centered hole is for bolting to concrete, the close holes off the center line are for bolting through the flanges of beams. The wider spread is used when there is a steel surface wide enough to take advantage of that spacing.

Travel is another major concern. All of our guides have travel at least equal to standard Spider Guides

Always install in Lower Position when Pipe is not insulated or when Insulation Thickness does not exceed the Lower Position Maximum Insulation Thickness shown in the table below. For Overall Height, add Insulation Thickness to H_L or H_U.

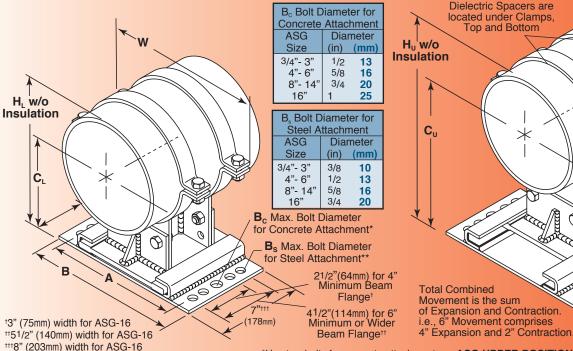
and many considerably more without going to special designs.

Our installation instructions tell the installer how to best position the guide to accommodate maximum or limited travel.

Excessive friction or galling is another major concern. Internal parts in Spider Guides are generally sheared and welded to the inner clamp at 90° intervals. No matter how carefully the installer tries, there are still sharp edges that cut into the outer housing. Rather than just sliding, you may have to overcome gall. They show no concern about rust deterioration as everything is just painted carbon steel.

In our new design, both the sliding foot and the interior of the outside guides are wrapped or lined in Stainless Steel as illustrated. There can be little or no corrosion, and the force needed to move the guide is minimal as compared to sharp edged carbon steel configurations.

In copper or brass water or steam systems, Dielectric Spacers supplied by Mason must be used to prevent leakage from galvanic action. These simple lead strips are installed between our steel clamps and the copper or brass piping, top and bottom.



0 Overhang 6 6 Movement is the sum Combined Movement of Expansion and Contraction. Sizes 3/4"- 21/2" - 4"

ASG LOWER POSITION C. & H. Sizes 3/4" to 16" 21/2" Insulation Max.

Type & Pipe Size (in) (mm)		Ç Pipe Height C _∟ (in) (mm)		Overall Height without Insulation H _L (in) (mm)		Maximum Insulation Thickness Lower Position (in) (mm)	
ASG-3/4	20	33/4	95	41/2	114	2	51
ASG-5/4	25	41/8	105	5	127	2	51
				_		_	
ASG-11/4		43/8	111	53/8	137	2	51
ASG-11/2	40	41/2	114	55/8	143	2	51
ASG-2	50	43/4	121	61/8	156	2	51
ASG-21/2	65	5	127	65/8	168	2	51
ASG-3	80	53/8	137	71/4	184	21/2	65
ASG-4	100	65/8	168	9	229	21/2	65
ASG-5	125	71/8	181	101/16	255	21/2	65
ASG-6	150	75/8	194	111/8	283	21/2	65
ASG-8	200	9	229	131/2	343	21/2	65
ASG-10	250	103/4	273	161/4	413	21/2	65
ASG-12	300	117/8	302	183/4	476	21/2	65
ASG-14	350	125/8	321	20	508	21/2	65
ASG-16	400	137/8	352	221/4	565	21/2	65

*Use two bolts for concrete attachment. **Use four bolts for steel attachment. Use inner holes for narrow steel flange widths or outer holes for wider flanges.

1	4	I	3	W		
(in)	(mm)	(in)	(mm)	(in)	(mm)	
51/2	140	63/4	172	31/4	83	
6	152	71/4	184	35/8	92	
6	152	71/4	184	4	102	
6	152	71/4	184	41/4	108	
6	152	71/4	184	43/4	121	
6	152	71/4	184	51/4	133	
61/2	164	73/4	196	6	152	
71/4	184	81/2	216	71/4	184	
8	204	91/4	235	81/2	216	
83/4	222	10	254	91/2	240	
101/2	267	121/4	311	113/4	298	
111/2	292	131/4	337	145/8	372	
13	330	143/4	375	163/4	426	
16	406	173/4	451	181/8	460	
181/2	470	201/2	521	201/2	521	

ASG UPPER POSITION C., & H., Sizes 1" to 16" for 3" to 4" Insulation Note: 3/4" size cannot be raised

Sizes 3" thru 16" - 6"

Type & Pipe Size (in) (mm)		Q Pipe Height C _υ (in) (mm)		Overall Height without Insulation H (in) (mm)		Max. Insulation Thickness Upper Position (in) (mm)	
ASG-3/4	20	33/4	95	41/2	114	2	51
ASG-1	25	51/8	130	6	152	3	76
ASG-11/4	32	53/8	137	63/8	162	3	76
ASG-11/2	40	51/2	140	65/8	168	3	76
ASG-2	50	53/4	146	71/2	181	3	76
ASG-21/2	65	6	152	75/8	194	3	76
ASG-3	80	63/8	162	81/4	210	3	76
ASG-4	100	81/8	206	101/2	267	4	102
ASG-5	125	85/8	219	119/16	294	4	102
ASG-6	150	91/8	232	125/8	321	4	102
ASG-8	200	101/2	267	15	381	4	102
ASG-10	250	121/4	311	173/4	0	4	102
ASG-12	300	133/8	340	201/4	0	4	102
ASG-14	350	141/8	359	211/2	546	4	102
ASG-16	400	153/8	391	233/4	603	4	102

ASG Guides are most commonly installed with their base plates bolted down. However, they can be used as guides for horizontal runs when bolted to walls or columns or for overhead runs when bolted to ceilings or overhead steel. Check Anchorage Capacity when bolting to ceilings[†].

If support is provided by other means such as rollers, guide spacing would be based on guidance spacing requirements rather than loadings.

Guides as Supports

Most guide manufacturers publish no guide support strength information because their guides are designed for the single purpose of maintaining alignment. When the guides are spaced properly for that single purpose, forces are small and housing strength is seldom an issue.

In many applications there can be a major savings in using the guide as a support rather than just a guide in all horizontal runs. For example, if we were supporting 23 feet of 12" piping weighing 4000 lbs. on ASG Guides only and the Guide ratings show acceptance of the load in that position, there is no need for another support. Dry steel to steel friction is about 70% so 2800 lbs. (0.70 x 4000 lbs.) would have to be added to the appropriate anchor loading. Friction is usually a very small proportion of anchor loading.

4 Clamp Bolts

Insulation

Thickness

Adjustment

4 Insulation

for Insulation

Allowance

ower Sliding Assembly

Stainless Guide

Sheathing Inside

2 Center Bolt Holes for

Concrete Attachment

and Out

when Outer Holes are too Widely Spread

Adjustment Bolts

ASG LOAD RATINGS

ASG Pipe Size (in) (mm)	Rated Base Mounted Pipe Load* (lbs) (kgs)	†Rated Hanging Pipe Load* (lbs) (kgs)	Rated Transverse Pipe Load* (lbs) (kgs)	Normal Guide Spacing if used as only Support (ft) (m)	Normal Guide Load if used as only Support (lbs) (kgs)	Maximum Guide Spacing if used as only Support** (ft) (m)	Maximum Guide Load if used as only Support (lbs) (kgs)	Standard Weight Carbon Steel Pipe with Water and Insulation (lbs/ft) (kg/m)
3/4 20 1 25 11/4 32 11/2 40 2 50 21/2 65	1200 544 1200 544 1200 544 1200 544 1200 544 1200 544	1200 544 1200 544 1200 544 1200 544 1200 544 1200 544	750 340 750 340 750 340 750 340 750 340 750 340	5 1.5 5 1.5 5 1.5 8 2.4 10 3.0 10 3.0	10 4.5 12 5.4 16 7.3 32 14.5 56 25.4 86 39.0	7 2.1 7 2.1 7 2.1 9 2.7 10 3.0 11 3.5	14 6.4 17 7.7 23 10.4 36 16.3 56 25.4 95 43.0	2.0 3.0 2.4 3.6 3.3 4.9 4.0 6.0 5.6 8.3 8.4 12.5
3 80 4 100 5 125 6 150 8 200 10 250 12 300 14 350 16 400	1850 839 1900 862 1925 873 1950 885 3050 1383 5550 2517 5600 2540 7000 3175 8800 3992	1700 771 1800 816 1830 830 1950 885 2775 1259 4350 1973 5600 2540 7000 3175 8800 3992	1000 454 1050 476 1100 499 1300 590 1850 839 2750 1247 3950 1792 5500 2495 7300 3311	10 3.0 10 3.0 10 3.0 10 3.0 10 3.0 10 3.0 10 3.0 10 3.0 10 3.0	114 51.7 169 76.7 251 113.9 330 149.7 530 240.4 774 351.0 1060 480.8 1180 535.3 1450 657.7	12 3.7 14 4.3 16 4.9 17 5.2 19 5.8 22 6.7 23 7.0 25 7.6 27 8.2	137 62.1 237 108.0 402 183.0 561 255.0 1007 457.0 1703 772.0 2438 1105.0 3050 1383.5 4050 1837.0	11.4 17.0 16.9 25.2 25.1 37.4 33.0 49.1 53.0 78.9 77.4 115.2 106.0 157.8 118.0 175.6 145.0 215.8
* All Safety Factors meet or exceed 5. ** Manufacturers Standardization Society (MSS-SP-69) maximum spacing for standard weight carbon steel pipe with water and insulation. **All Safety Factors meet or exceed 5. **All Safety Factors meet or ex								
** Manufacturers Standardization Society (MSS-SP-69) maximum spacing for standard weight carbon steel pipe with water and insulation. ALL MODE ASG INSTALLATION POSITIONS ASG ASSEMBLY Pipe Clamps Archor with the control of the c								

Column, Shaft or Room Walls

Vertical Movement

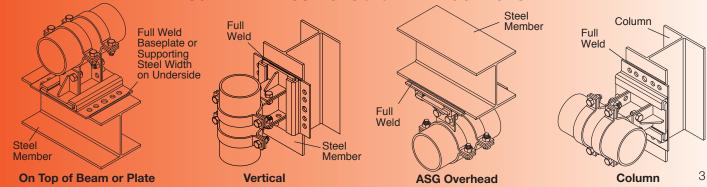
Horizontal Movement

ALL MODE ASG INSTALLATION POSITIONS Sliding Foot is covered and Retaining Channel lined with Stainless Steel to minimize Friction and †Overhead Corrosion. **Horizontal Movement Base Mounted Horizontal Movement** B 6 ്ര Base **Use Outer Bolt** Holes for Steel Attachment when Insulation surrounds width permits Use Inner Bolt Holes for Steel Attachment

ASG WELDED POSITIONS and WELD LOCATIONS

pipe, clamps and

adjustable pedestal

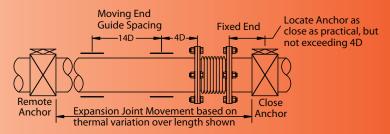


PIPE GUIDES AND GUIDING

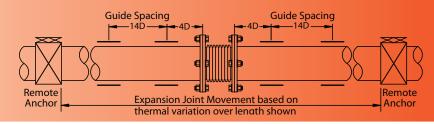
Correct alignment of pipe as provided by guides is vital for the proper performance and life of an Expansion Joint. Pipe expansion joints will apply compressive loads to the pipe line, which may cause pipe to buckle when not properly guided. Buckling can be caused by the spring constant or resistance of the expansion joint, plus the pressure thrust from the expansion joint. Proper pipe guiding near an expansion joint starts with locating the first guide within 4 diameters of the expansion joint, and the second guide within 14 diameters of the first guide. For long runs of pipe, additional guides may be needed to prevent buckling as determined by the Intermediate Guide Spacing Chart shown below. Note that as the pressure increases, the intermediate guide spacing decreases because of the increased buckling force.

GUIDE SPACING - Referencing Pipe Diameter "D"

Guides and Anchors for Joint located near Anchor



Guides and Anchors for Joint located between Remote Anchors



In addition to the locations of the anchors and guides to protect expansion joints and control movements as shown above, there are often long lengths of pipe between anchors or guides that would buckle like overloaded columns.

Checking the Intermediate Guide Spacing Chart will show when additional Guides are needed.

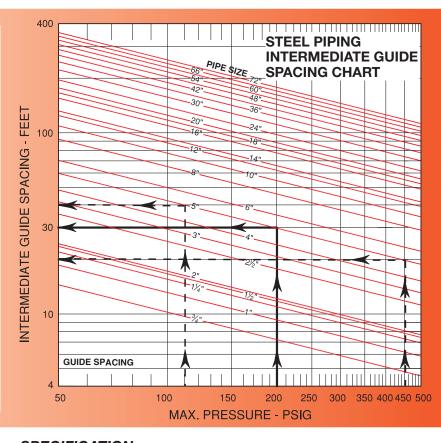
To use the Chart, select the maximum pressure and move up to intersection with the red Pipe Size line. Follow horizontally all the way to the left and read maximum guide spacing.

For Example:

A 5" 200 psi steel line must be guided every 30 feet to prevent buckling when expansion joints are used.

At 110 psi the Guide Spacing would increase to 40 feet.

At 450 psi it would drop to 20 feet.



SPECIFICATION

Pipe guides shall be manufactured with stainless steel wrapping the carbon steel foot where it passes through horizontal U guides similarly lined to prevent corrosion. The baseplate shall have multiple holes for bolting to beam flanges or flat surfaces. Bases may be welded in position in lieu of bolting. Height must be adjustable to

accept different thicknesses of insulation. Guides shall be professionally load rated for bottom, overhead, side mounted or riser positioning to provide both load bearing and guiding capabilities. Submittals shall include load ratings in all modes. Guides shall be type ASG as manufactured by Mason Industries, Inc.



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