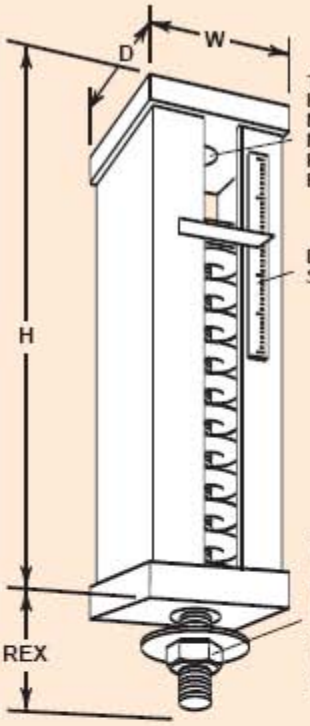
HES PIPE EXPANSION HANGERS (Not suitable for vibration isolation)



HES hangers are designed with A, B or C springs in series.

Ratings & Dimensions for 4"(102mm) Deflection Expansion Hangers (in mm)

Type	Size	Rated Capacity (lbs) (kg)	Rated Defl. (in) (mm)	Spring Constant (lbs/in) (kg/mm)	Spring Color	D	H	W	Rod Extension REX	Required Rod Dia. RRD
HES-	A-45	45 20	6.40 163	7 0.12	Blue					
	A-75	75 34	6.00 152	13 0.22	Orange					
	A-125	125 57	5.32 135	23 0.42	Brown					
	A-200	200 91	4.60 117	43 0.78	Black	3 1/2	15 3/4	4	6	5/8
	A-310	310 141	4.00 102	78 1.38	Yellow	89	400	102	152	16
	A-400	400 181	4.00 102	100 1.77	Green					
	A-510	510 231	4.00 102	128 2.26	Red					
	A-625	625 283	4.00 102	156 2.77	White					
	B-750	750 340	4.50 114	167 2.98	White	4	20 1/2	4 1/2	5 1/2	3/4
	B-1000	1000 454	4.00 102	250 4.45	Blue	102	521	114	140	19
	C-1350	1350 612	4.00 102	338 6.00	Yellow					
	C-1750	1750 794	4.00 102	438 7.78	Black					
	C-2100	2100 953	4.00 102	525 9.34	Yellow*	4	20 1/2	4 1/2	5 1/2	3/4
	C-2385	2385 1082	4.00 102	596 10.61	Yellow**	102	521	114	140	19
	C-2650	2650 1202	4.00 102	663 11.78	Red*					
	C-2935	2935 1331	4.00 102	734 13.05	Red**					

All springs have additional travel to solid equal to 50% of Rated Deflection. Hangers may overtravel rated deflections by 40%. Hangers are preset at factory for specified loads.
*with Red inner spring **with Green inner spring

HES HANGER SELECTION PROCEDURE

HES Hangers are installed at riser suspension points to control load shifts as the riser expands or contracts. If a 120 foot(37m) steel riser goes through a temperature increase of 150°F(66°C), the piping will expand 1.4"(36mm). If the piping had an anchor point in the basement, the piping bracket at the 60'(18m) elevation and the top bracket would rise 0.7"(18mm) and 1.4"(36mm), respectively. This travel would transfer the entire piping weight to the basement as the piping would lift off non-resilient support points. Standard 1"(25mm) deflection hangers would lose 70% of their load at the 60 foot(18m) point and the complete load at the top of the run. Therefore, HES Hangers are needed because of their higher initial deflection and travel capability. If HES Hangers with 4"(102mm) initial deflection were selected, the hanger at the top would lose only 35% of its load and the intermediate hanger only 18%. This would substantially reduce the load shift to the basement anchor.

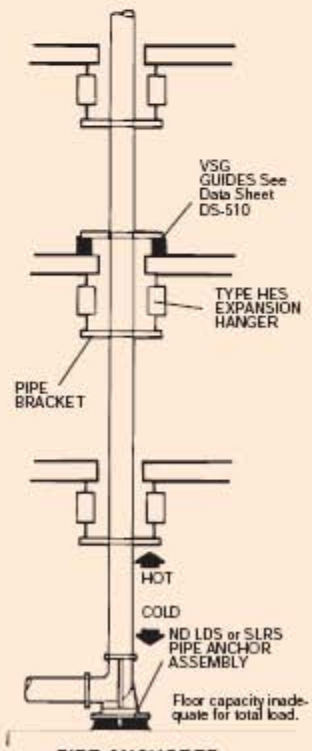
Special larger deflection hangers would be even more effective. In handling this type of problem, it is preferable to anchor the riser at the center of the run. If this had been done in the piping problem described above, each end would have expanded outward only 0.7"(18mm) instead of the 1.4"(36mm). The upper hangers would have lost 18% of their load since the springs would be unloaded the 0.7(18mm) of an inch.

The springs in the hangers on the lower end of the piping would have been compressed 0.7(18mm) of an inch thereby increasing their load by 18%. With this loss and gain situation, the piping always remains balanced at the neutral point.

EXAMPLE-

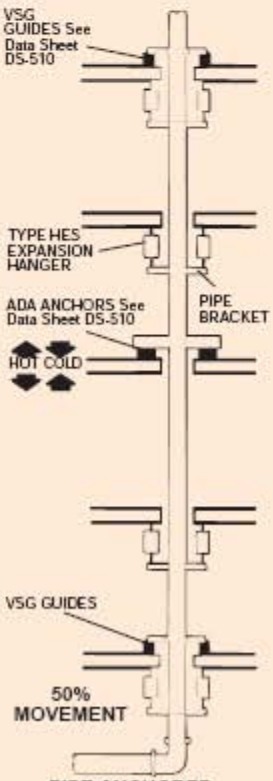
6"(152mm) Schedule 40 piping weighing 36 pound per foot(4.94kg/m) with water. The run of 120 feet(37m) would weight a total of 4320 pounds (1960 kgs). If the piping is anchored at the center we might select support points at the lower end, the 30 foot(9m) and 90 foot(27m) marks and at the top. Therefore, we would have 4 locations or a total of 8 hangers supporting 504 pounds(229kg) each. The preliminary selection would be 8 HESB-750 Hangers. The initial hanger deflection would be 540 pounds(245kg) divided by the spring constant of 167 pound/inch(2.98 kg/mm) which equals 3.23"(82mm). The total spring deflection would be the initial deflection plus the expansion travel or 3.23"(82mm) plus 0.7"(18mm) which equals 3.93"(100mm). The hanger must then be checked to see if this deflection is within the range of the selected hanger. Since the HES Hangers can over travel the rated deflection by 40% the HESB-750 can travel 4.50(114mm) X 1.4(36mm) or 6.30"(160mm). Therefore, the selection is correct. If this number were smaller than the required 3.93(100mm) it would be necessary to use the next larger hanger and check again. (Actually this hanger needed no checking as the 4.50"(114mm) rated deflection already met the conditions).

100% MOVEMENT



PIPE ANCHORED AT ONE END

50% MOVEMENT



PIPE ANCHORED AT MID POINT

Piping installed at ambient temperature, expansion movement is directed away from the anchor at higher steam or water temperatures and toward the anchor when chilled water is circulated.