

Double Deflection, Rubber-in-shear Hangers

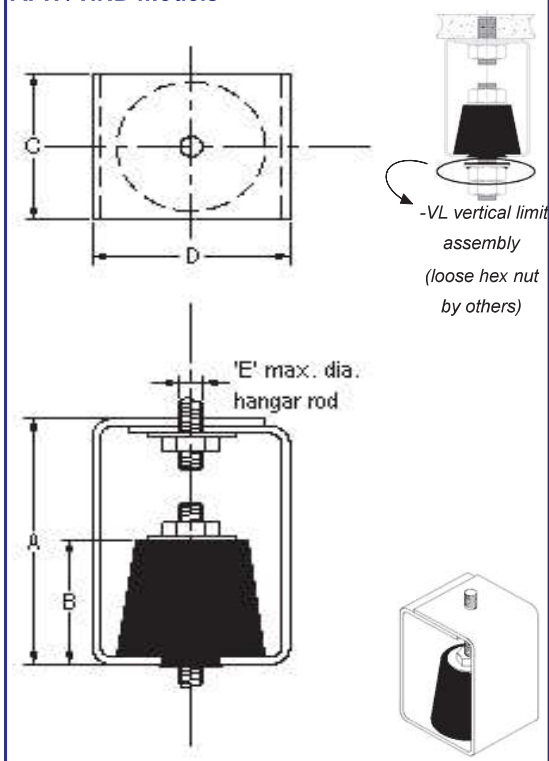


Features + Application Information

1. Powder coated steel bracket (50-70 micron ASTM D4138-07a)
2. Element incorporates projected collar to prevent metal to metal contact between rod and bracket
3. Embedded steel plate(s) for uniform loading
4. Ozone + water resistant elastomer
5. High deflection, low natural frequency
6. Elements color-coded for easy field verification
(Color coding can be by 'dot/stripe' or 'complete element')

Dimensional + Model Selection Data

APH / HND models



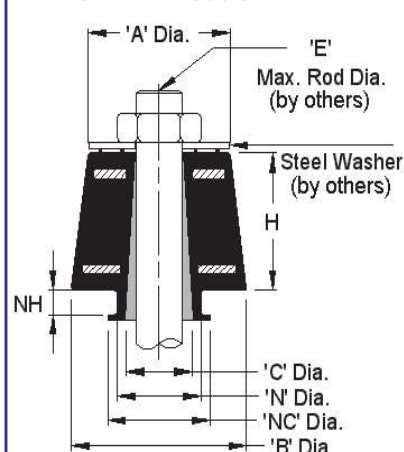
(Refer to page 2 for isolator star rating system)

0.5" deflection series ★★ APH-A, HND-A, APH-B series have nominal 0.4" deflection

Model	Load Range (lbs)	Isolator dimensions (inches)					Color
		A	B	C	D	E	
APH-A-1	1 to 95	2.41	1.29	1.65	1.77	3/8	GREEN
APH-A-2	96 to 120						BLACK
HND-A-1	1 to 30	3	1-3/8	2	2-1/4	1/2	BLUE
HND-A-2	31 to 40						RED
HND-A-3	41 to 70						GREEN
HND-A-4	71 to 120						BLACK
APH-B-1	121 to 175	2.82	1.57	1.77	1.77	1/2	GREEN
APH-B-2	176 to 320						BLACK
HND-B-1	121 to 165	4 1/2	1-7/8	2 1/4	3	5/8	BLUE
HND-B-2	166 to 235						RED
HND-B-3	236 to 375						GREEN
HND-B-4	376 to 572						BLACK
HND-C-3	573 to 745	6	3-1/4	3 1/2	4	5/8	GREEN
HND-C-4	746 to 1307						BLACK
HND-D-2	1308 to 2240	6	3-1/4	4	4-1/2	3/4	RED
HND-D-3	2241 to 3000						GREEN
HND-D-4	3001 to 4200						BLACK

For seismic applications add -VL suffix for vertical limit assembly e.g. HND-A-3-VL3/8"

APHE / HNDE models



* Bottom washer only provided on HNDE series elements

0.5" deflection series ★★ APHE-A, HNDE-A, APHE-B series have nominal 0.4" deflection

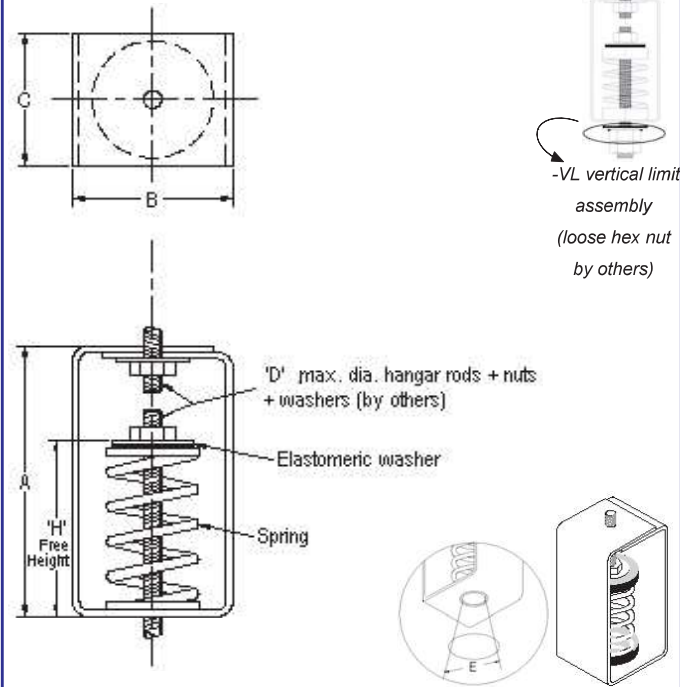
Model	Load Range (lbs)	Isolator dimensions (inches)								Color
		A	B	C	E	H	NH	N	NC	
APHE-A-1	1 to 95	0.81	1.18	0.59	3/8	1.10	0.11	0.71	.84	GREEN
APHE-A-2	96 to 120									BLACK
HNDE-A-1	1 to 30	1-1/4	1-3/4	7/8	1/2	1-1/4	1/4	1-1/8	1.31	BLUE
HNDE-A-2	31 to 40									RED
HNDE-A-3	41 to 70									GREEN
HNDE-A-4	71 to 120									BLACK
APHE-B-1	121 to 175	1.48	1.57	0.76	3/8	1.34	0.11	1.00	1.16	GREEN
APHE-B-2	176 to 320									BLACK
HNDE-B-1	121 to 165	1-7/8	2-1/4	7/8	5/8	1.69	1/4	1-1/8	1.31	BLUE
HNDE-B-2	166 to 235									RED
HNDE-B-3	236 to 375									GREEN
HNDE-B-4	376 to 572									BLACK
HNDE-C-3	573 to 745	2-1/2	3-1/2	7/8	1/2	3-1/8	1-1/8	1-3/8	1.31	GREEN
HNDE-C-4	746 to 1307									BLACK
HNDE-D-2	1308 to 2240	3	4	7/8	3/4	3-1/8	1/4	1-1/8	1.31	RED
HNDE-D-3	2241 to 3000									GREEN
HNDE-D-4	3001 to 4200									BLACK

Features + Application Information

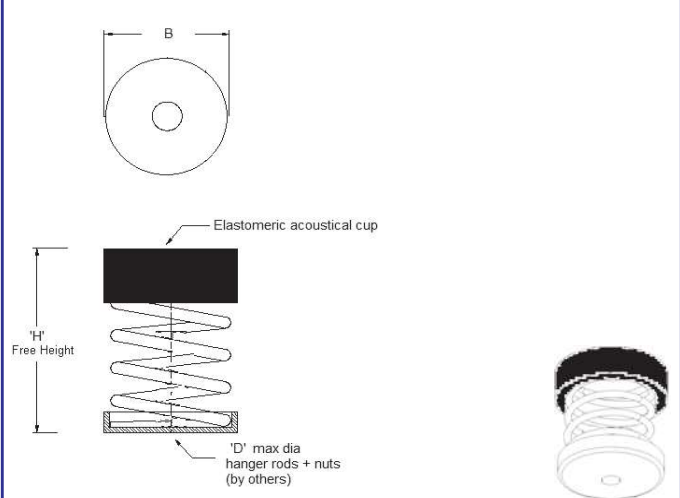
1. Powder coated steel bracket (50-70 micron ASTM D4138-07a)
2. Load distribution steel washer
3. Nuts, washers & rods by others
4. Spring elements color-coded for easy field verification

Dimensional + Model Selection Data

HSA / HSB / HSD / GSE / HSF / HSS models



OHSA / OHSD / OHSF models



Hanger Series	Dimensions			
	A	B	C	D
HSS	2.72"	2.15"	1.5"	1/2"
HSF	3.47"	2.15"	1.5"	1/2"
HSA	4-1/2"	3"	2-1/4"	5/8"
HSB	7-1/2"	3"	2-3/4"	5/8"
HSD	6-3/8"	3-1/2"	2-3/4"	3/4"
HSE	8-3/4"	3-1/2"	2-3/4"	3/4"
OHSF	n/a	1-1/2"	n/a	3/8"
OHSA	n/a	2-3/8"	n/a	5/8"
OHSD	n/a	2-7/8"	n/a	5/8"

5. Consult spring chart on page 23 for isolator performance data

(Refer to page 2 for isolator star rating system)

3/4" deflection series ★★☆☆

Model	Load Range (lbs)	H	E
HSS/OHSF-021	1 to 25	HSS: 1.8" OHSF: 1-13/16"	30°
HSS/OHSF-022	26 to 55		
HSS/OHSF-023	56 to 85		
HSS/OHSF-024	86 to 125		

1" deflection series ★★☆☆

Model	Load Range (lbs)	H	E
HSF/OHSF-041	1 to 15	HSF: 2.3" OHSF: 2-9/16"	23°
HSF/OHSF-042	16 to 35		
HSF/OHSF-043	36 to 65		
HSF/OHSF-044	66 to 90		
HSF/OHSF-045	91 to 185	HSA: 3-1/8" OHSA: 3-3/8"	46°
HSA/OHSA-124	186 to 210		
HSA/OHSA-125	211 to 300		
HSA/OHSA-126	301 to 370		
HSA/OHSA-127	371 to 700	HSB: 4-5/8" OHSA: 4-1/8"	28°
HSB/OHSA-109	701 to 750		
HSB/OHSA-110	751 to 910		
HSB/OHSA-111	911 to 1080		
HSB/OHSA-112	1081 to 1250	HSD: 4-1/8" OHSD: 4-1/8"	34°
HSD/OHSD-158	1251 to 1500		
HSD/OHSD-159	1501 to 2082		
HSD/OHSD-159-161	2083 to 2603		

2" deflection series ★★☆☆

Model	Load Range (lbs)	H	E
HSB/OHSA-081	1 to 40	HSB: 4-5/8" OHSA: 4-1/8"	41°
HSB/OHSA-082	41 to 60		
HSB/OHSA-083	61 to 110		
HSB/OHSA-084	111 to 195		
HSB/OHSA-085	196 to 350		
HSB/OHSA-086	351 to 450		
HSB/OHSA-087	451 to 606		
HSB/OHSA-142-146B	607 to 667	HSB: 5-5/8" OHSA: 5-1/8"	28°
HSB/OHSA-147	668 to 1190		
HSB/OHSA-148A	1191 to 1576		
HSB/OHSA-147-146B	1577 to 1690		
HSB/OHSA-148A-146B	1691 to 2076	n/a	n/a

3" deflection series ★★☆☆

Model	Load Range (lbs)	H	E
HSE/OHSD-181	1 to 100	HSA: 6-1/2" OHSD: 6-1/2"	30°
HSE/OHSD-182	101 to 160		
HSE/OHSD-183	161 to 220		
HSE/OHSD-184	221 to 332		
HSE/OHSD-185	333 to 600		
HSE/OHSD-186	601 to 890		
HSE/OHSD-187	891 to 1157		
HSE/OHSD-186-199	1158 to 1540		
HSE/OHSD-187-199	1541 to 1825	n/a	n/a

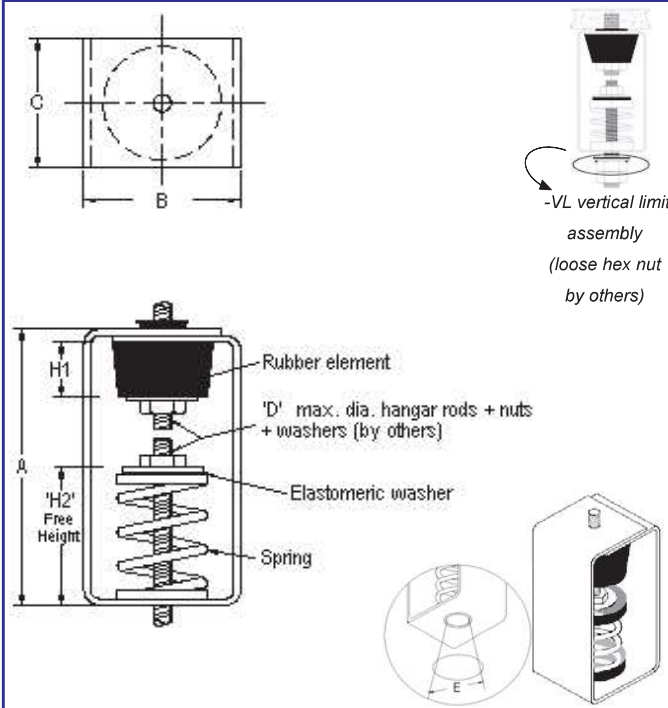
For seismic applications add -VL suffix for vertical limit assembly
e.g. HSA-124-VL1/2"

Features + Application Information

1. Powder coated steel bracket (50-70 micron ASTM D4138-07a)
2. Load distribution steel washer + embedded steel plates
3. High deflection, low natural frequency
4. Spring / rubber elements color-coded for easy field verification

5. Ozone & water resistant elastomer elements with embedded steel plates and incorporating projected collar to prevent metal to metal contact between rod and bracket
6. Consult spring chart on page 23 for isolator performance data

Dimensional + Model Selection Data



Hanger Series	Dimensions			
	A	B	C	D
HNSF-HM	4.85"	2.15"	1.5"	3/8"
HSB-HM	7-1/2"	3"	2-3/4"	3/8"
HNSA-Ax	8"	3"	2-3/4"	1/2"
HNSA-Bx	8"	3"	2-3/4"	5/8"
HNSB-Ax	10-3/16"	4-1/2"	4"	1/2"
HNSB-B/C/Dx	10-3/16"	4-1/2"	4"	5/8"
HNSE-Ax	11-13/16"	4-1/8"	4"	1/2"
HNSE-B/Cx	11-13/16"	4-1/8"	4"	5/8"
HNSE-Dx	11-13/16"	4-1/8"	4"	3/4"

(Refer to page 2 for isolator star rating system)

1" deflection series ★★☆☆

Model	Load Range (lbs)	H 1	H 2	E
HNSF-HM-041	1 to 15	1"	2.3"	23°
HNSF-HM-042	16 to 35			
HNSF-HM-043	36 to 65			
HNSF-HM-044	66 to 90			
HNSF-HM-045	91 to 185			
HSB-HM-124	186 to 210	1"	3-3/8"	46°
HSB-HM-125	211 to 300			
HSB-HM-126	301 to 370			
HSB-HM-127	371 to 700			
HSB-HM-109	701 to 750			
HSB-HM-110	751 to 910	1"	4-5/8"	28°

1.5" deflection series ★★☆☆

Model	Load Range (lbs)	H 1	H 2	E
HNSA-A3-121	1 to 50	1-1/4"	3-3/8"	46°
HNSA-A4-122	51 to 80			
HNSA-B1-123	81 to 130	1-3/4"		
HNSA-B2-124	131 to 210			
HNSA-B3-125	211 to 300			
HNSA-B3-126	301 to 370			
HNSA-B4-127	371 to 582	3-1/8"	4-5/8"	28°
HNSB-C3-108	583 to 620			
HNSB-C4-109	621 to 750			
HNSB-C4-110	751 to 910			
HNSB-C4-111	911 to 1080			
HNSB-C4-112	1081 to 1250			
HNSE-D2-158	1251 to 1500		4-1/8"	34°
HNSE-D2-159	1501 to 2082			
HNSE-D3-159-161	2083 to 2603			

2" deflection series ★★☆☆

Model	Load Range (lbs)	H 1	H 2	E
HSB-HM-081	1 to 40	1"	4-5/8"	41°
HSB-HM-082	41 to 60			
HSB-HM-083	61 to 110			
HSB-HM-084	111 to 195			
HSB-HM-085	196 to 350			
HSB-HM-086	351 to 450			
HSB-HM-087	451 to 606			

2.5" deflection series ★★☆☆

Model	Load Range (lbs)	H 1	H 2	E
HNSA-A2-081	1 to 40	1-1/4"	4-5/8"	41°
HNSA-A3-082	41 to 60			
HNSA-A4-083	61 to 110			
HNSA-B2-084	111 to 195	1-3/4"		
HNSA-B3-085	196 to 350			
HNSA-B4-086	351 to 450			
HNSA-B4-087	451 to 572			
HNSB-C4-142-146B	573 to 667	3-1/8"	5-5/8"	n/a
HNSB-C4-147	668 to 1190			28°
HNSB-D2-148A	1191 to 1576			n/a
HNSB-D2-147-146B	1577 to 1690			
HNSB-D2-148A-146B	1691 to 2076			

3.5" deflection series ★★☆☆

Model	Load Range (lbs)	H 1	H 2	E
HNSE-A4-181	1 to 100	1-1/4"	6-1/2"	30°
HNSE-B1-182	101 to 160	1-3/4"		
HNSE-B2-183	161 to 220			
HNSE-B3-184	221 to 332			
HNSE-C3-185	333 to 600	3-1/8"		
HNSE-C4-186	601 to 890			
HNSE-C4-187	891 to 1157			
HNSE-D2-186-199	1158 to 1540			
HNSE-D2-187-199	1541 to 1825	n/a		

For seismic applications add -VL suffix for vertical limit assembly

e.g. HNSA-A4-122-VL3/8"