Bulletin No. CCA/94

KORFUND DYNAMICS

CCA Series Circular Arch Isolators

A New Concept in Shock & Vibration Control

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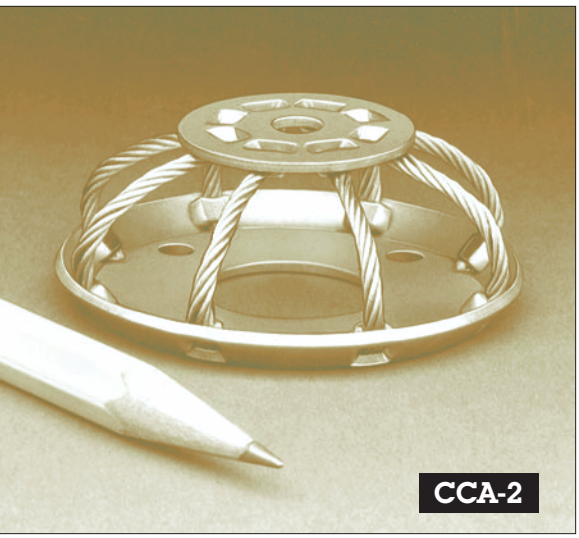

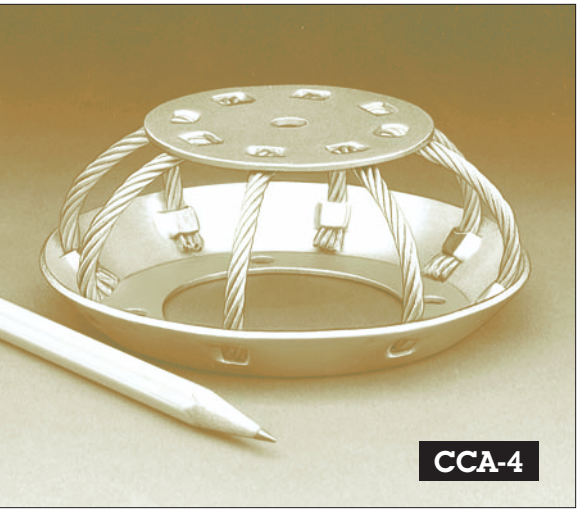

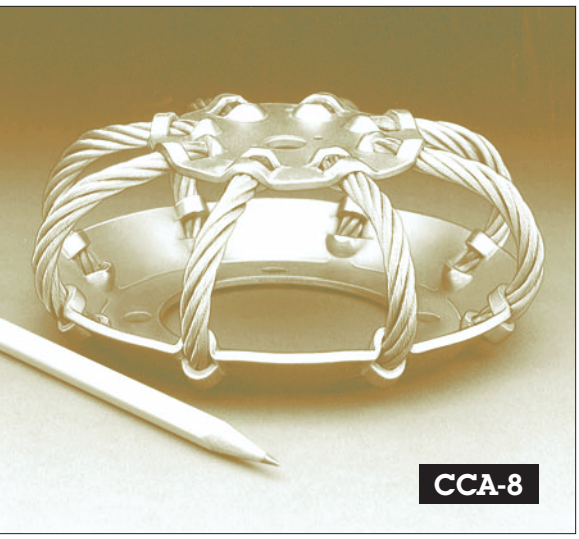

The CCA Series Circular Arch Isolators...

Developed from a unique family of Shock and Vibration Control Isolators

Wire rope isolators have protected sensitive equipment in severe environments for over twenty years.

Now, Korfund Dynamics has developed a revolutionary new type of wire rope cable isolator - The CCA Circular Arch Series.

The CCA Series isolators incorporate captive, flexible, stainless steel wire rope elements with steel attachment housings for easy installation and long life. The fully compliant wire rope elements provide a high degree of damping with predictable shock and vibration isolation performance characteristics over an unusually wide temperature range.

Circular Arch Isolator - Features/Benefits

- Rugged, metal construction
- Low frequency, highly damped vibration isolation
- Excellent shock attenuation
- Wide temperature range, -200°F to +650°F
- Fail-safe construction
- Maintenance-free

Typical Applications

- Airborne avionics and equipment
- Shipboard/Marine equipment and electronics
- Mobile equipment and electronics
- Computer equipment and disc drives
- Blowers and Fans
- Motors and Pumps
- Medical Equipment
- Motor Generators and Compressors
- HVAC Equipment

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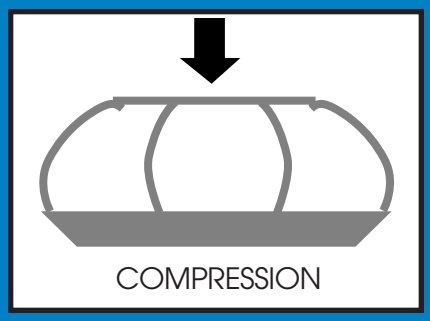
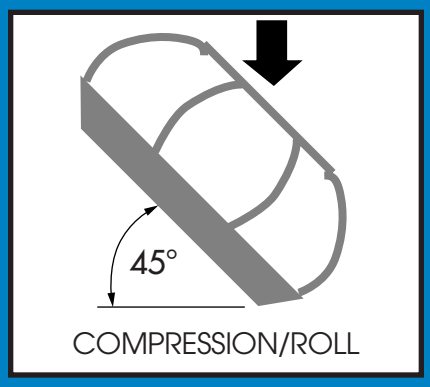
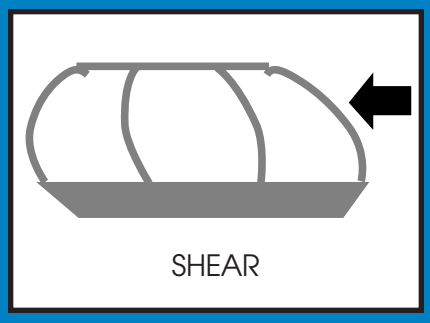
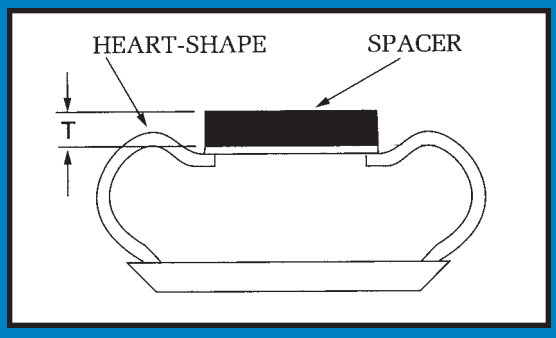
The Series CCA Circular Arch provides all shock and vibration protection and can be loaded in Compression, 45° Compression/Roll, or Shear through its stainless steel cables.





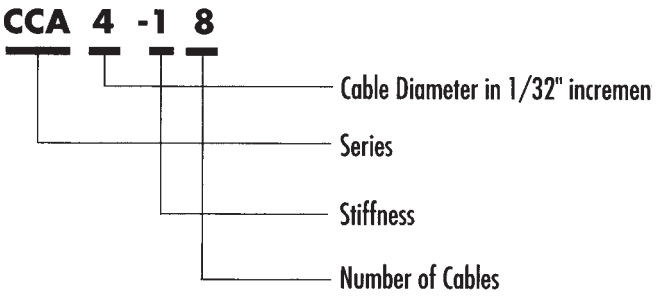


"HEART SHAPING"
Heart-Shaping refers to the Isolator coil moving upward, under load, above the plane of the top mounting disc, as shown below. The spacer will negate



Installation / Designation

Part Numbering Code



Series	Thru Hole Dia. Top Disc	Thru Hole Dia. Bottom Disc
CCA2	.213	.160
CCA4	.281	.218
CCA8	.406	.281

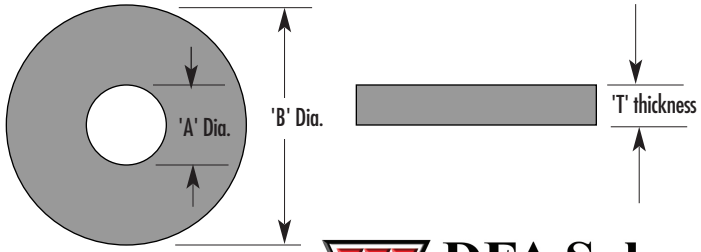
Materials & Finishes

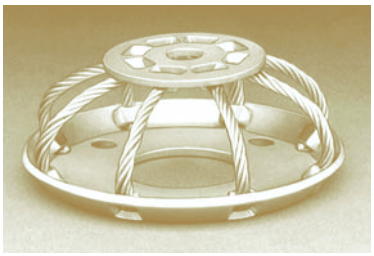
MATERIAL
Cable: Stainless Steel per MIL-W-83420
Discs: Low Carbon Steel per ASTM A-366
FINISH
Cable: Per MIL-W-83420
Discs: Zinc Plate
QUALITY ASSURANCE SPECIFICATIONS
MIL-I-45208

Spacer Washer

Recommended Spacer Sizes

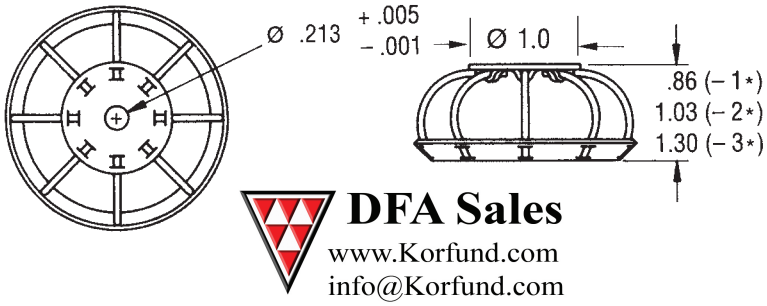
Series	Part No.	'A'	'B'	'T'
CCA2	148099-14	.25	1.00	.13
CCA4	148099-15	.30	2.38	.25
CCA8	148099-16	.45	1.38	.31





CCA2 Series Circular Arch Isolator

1/16" Wire Rope
Technical Data/
Load Deflection Curves



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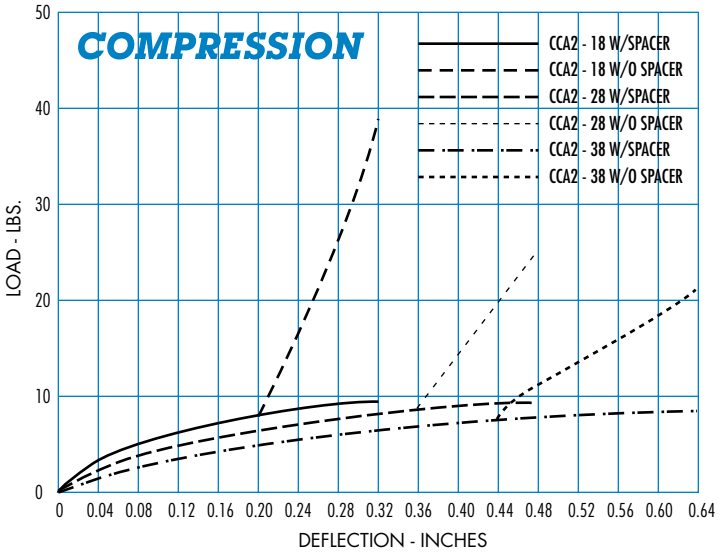
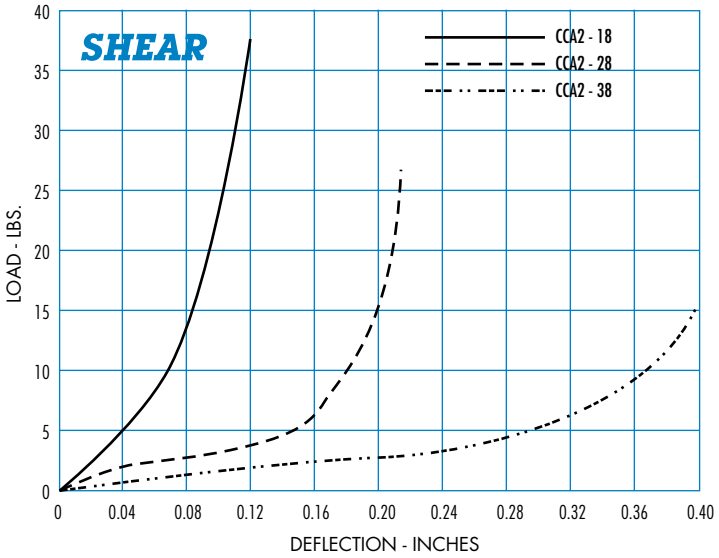
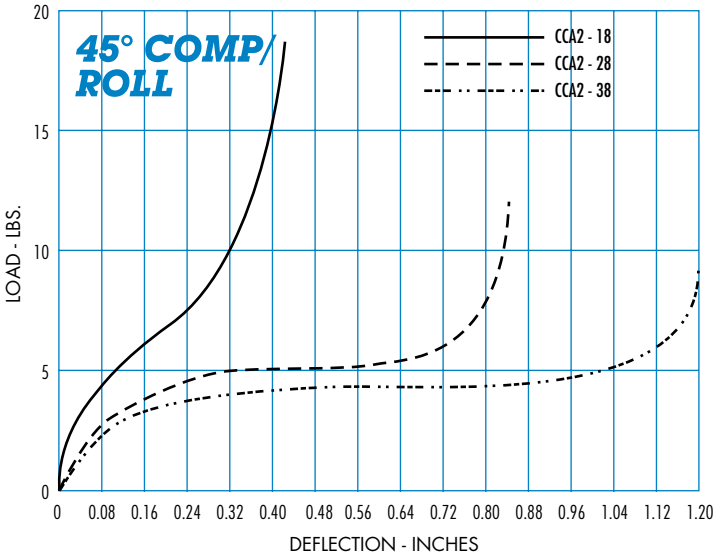


Isolator	Height (in.)		Static KAVG (lb/in.) Stiffness	Max Dynamic Travel (in.)
CCA2 - 1 (*)	0.86	COMP.	90	0.32
		SHEAR	120	0.12
		45° C/R	60	0.42
CCA2 - 2 (* 0	1.03	COMP.	77	0.48
		SHEAR	30	0.22
		45° C/R	45	0.86
CCA2 - 3 (*)	1.30	COMP.	48	0.65
		SHEAR	12	0.45
		45° C/R	36	1.20

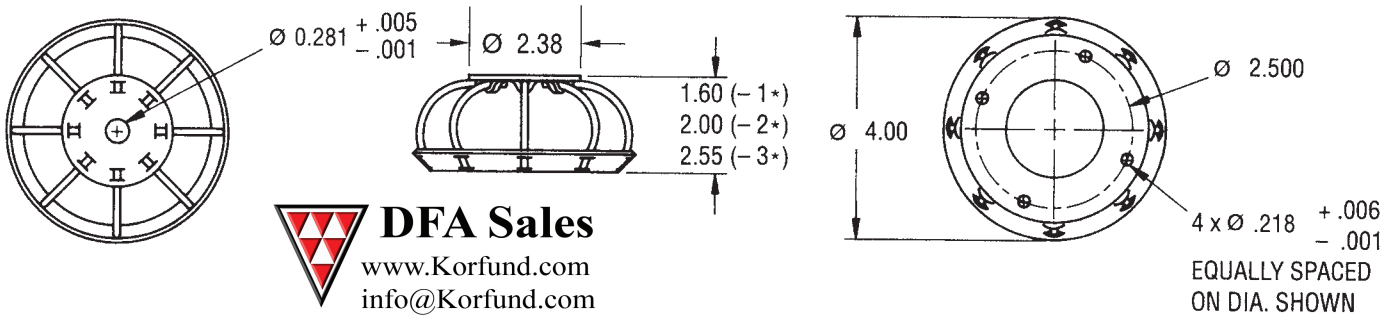
(*) Reflects the number of Coils. The KAVG curves listed are based on an 8 coil configuration.
To find the correct KVAG and loading, multiply by (*)/8





CCA4 Series Circular Arch Isolator

1/8" Wire Rope
Technical Data/
Load Deflection Curves



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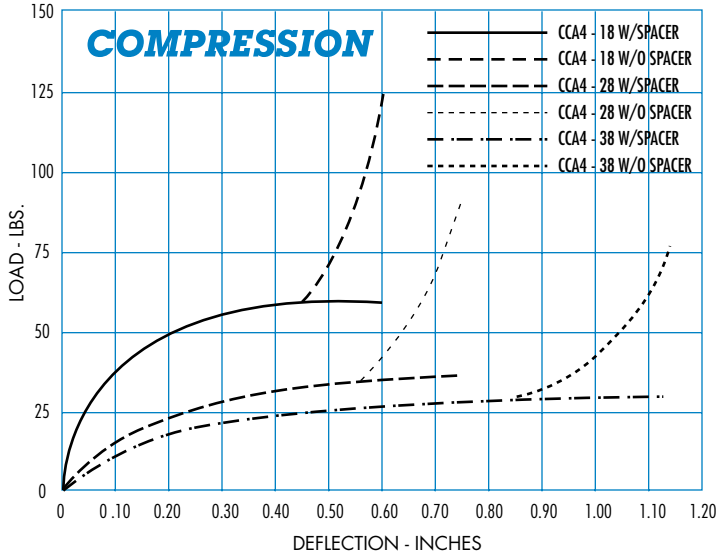
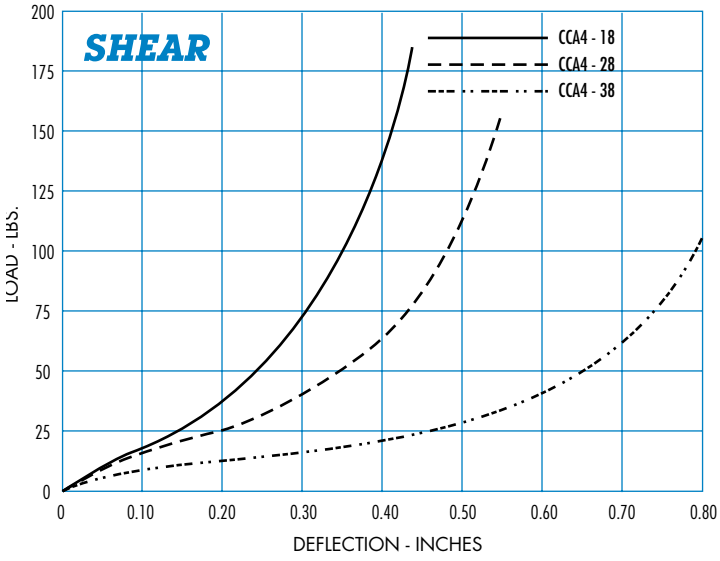
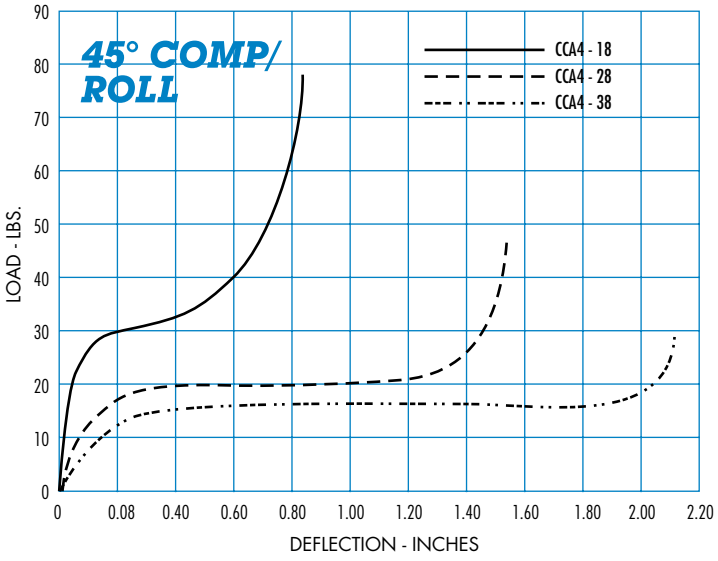


Isolator	Height (in.)		Static KAVG (lb/in.) Stiffness	Max Dynamic Travel (in.)
CCA4 - 1 (*)	1.60	COMP.	540	0.60
		SHEAR	165	0.45
		45° C/R	380	0.85
CCA4 - 2 (* 0	2.00	COMP.	225	0.80
		SHEAR	105	0.55
		45° C/R	180	1.55
CCA4 - 3 (*)	2.55	COMP.	135	1.20
		SHEAR	23	0.80
		45° C/R	75	2.15

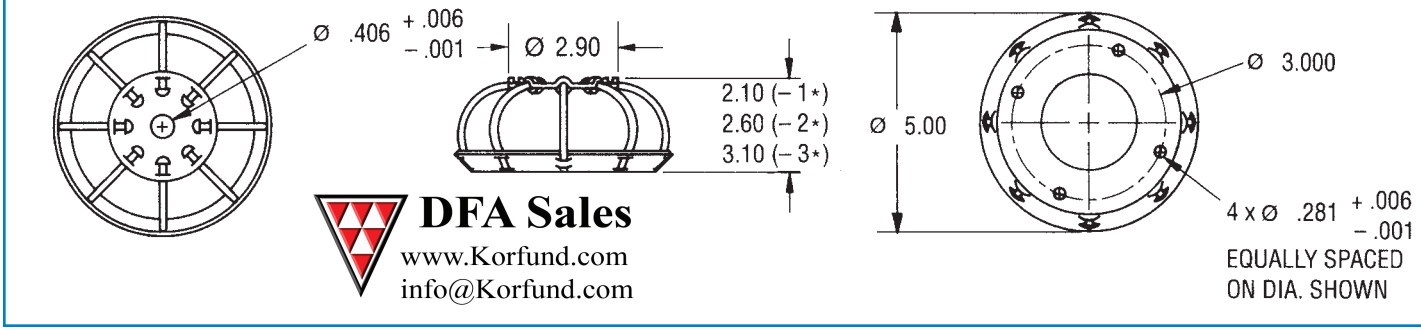
(*) Reflects the number of Coils. The KAVG curves listed are based on an 8 coil configuration.
To find the correct KVAG and loading, multiply by (*)/8





CCA8 Series Circular Arch Isolator

1/4" Wire Rope
Technical Data/
Load Deflection Curves



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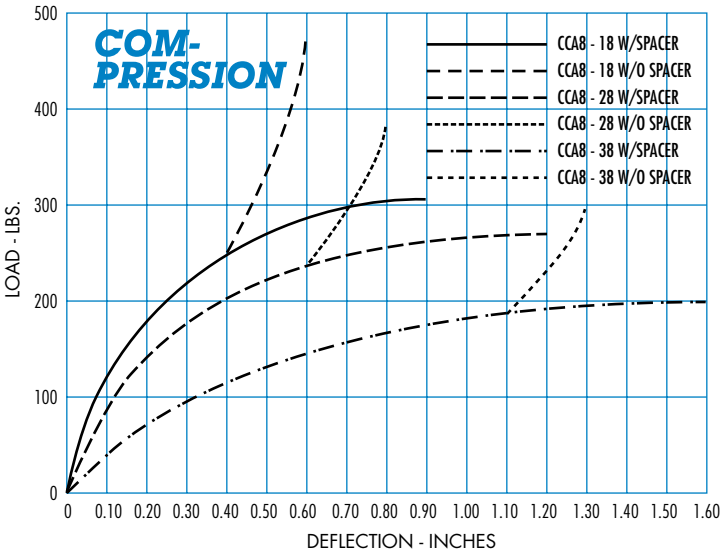
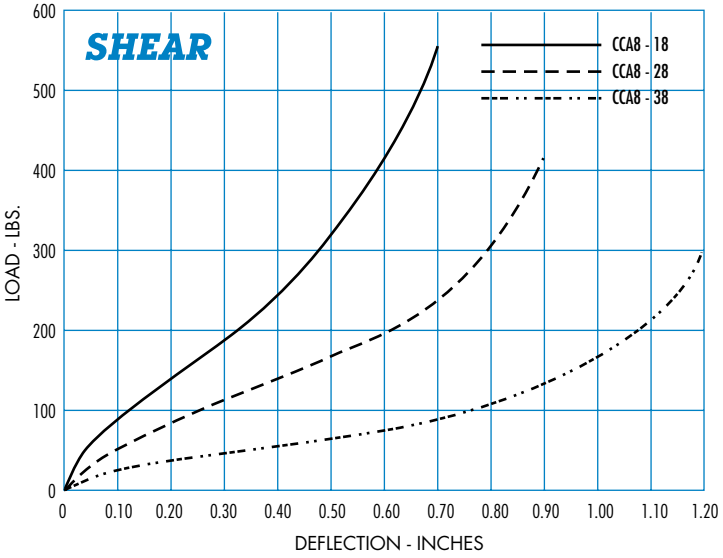
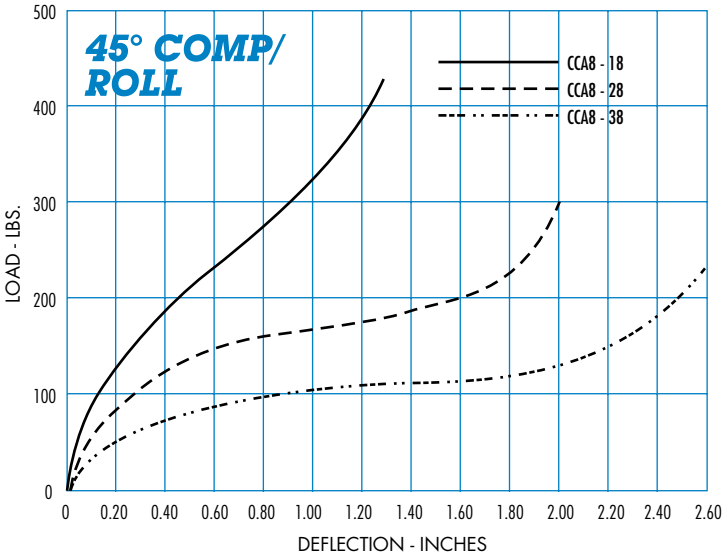


Isolator	Height (in.)		Static KAVG (lb/in.) Stiffness	Max Dynamic Travel (in.)
CCA8 - 1 (*)	2.10	COMP. w/spacer	1300	0.90
		COMP. w/o spacer	1300	0.60
		SHEAR	820	0.70
		45° C/R	1000	1.30
CCA8 - 2 (* 0	2.60	COMP. w/spacer	930	1.20
		COMP. w/o spacer	930	0.80
		SHEAR	420	0.90
		45° C/R	600	2.00
CCA8 - 3 (*)	3.10	COMP. w/spacer	600	1.60
		COMP. w/o spacer	600	1.30
		SHEAR	240	1.20
		45° C/R	420	2.60

(*) Reflects the number of Coils. The KAVG curves listed are based on an 8 coil configuration.
To find the correct KVAG and loading, multiply by (*)/8





CIRCULAR ARCH SELECTION GUIDE

Static Load Applied: **A** = Compression **B** = Shear **C** = 45° Compression/Roll

VEHICULAR / Rough Terrain (Off-Highway) / 20Hz Vertical

LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES	LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES
0.5	CCA2-34 **A** CCA2-24 **B** CCA2-34 **C**	CCA4-38 **B** CCA4-34 **C**	N/A	8 – 10	N/A	CCA4-14 **A** CCA4-18 **C**	CCA8-36 **A** CCA8-26 **B** CCA8-38 **C**
1	CCA2-38 **A** CCA2-28 **B** CCA2-38 **C**	CCA4-24 **B** CCA4-34 **C**	N/A	10 – 12	N/A	CCA4-16 **A**	CCA8-24 **A** CCA8-14 **B** CCA8-26 **C**
2	CCA2-28 **A** CCA2-14 **B**	CCA4-36 **A** CCA4-14 **B** CCA4-24 **C**	N/A	12 – 15	N/A	CCA4-18 **A**	CCA8-38 **A** CCA8-28 **B** CCA8-14 **C**
3	CCA2-18 **A** CCA2-16 **B**	CCA4-28 **A** CCA4-16 **B** CCA4-26 **C**	CCA8-34 **B**	15 – 17	N/A		CCA8-14 **A** CCA8-16 **B** CCA8-28 **C**
4	CCA2-18 **B**	CCA4-38 **A** CCA4-18 **B** CCA4-28 **C**	CCA8-36 **B**	17 – 20	N/A	N/A	CCA8-26 **A** CCA8-16 **B** CCA8-18 **C**
5	N/A	CCA4-26 **A** CCA4-14 **C**	CCA8-24 **B** CCA8-34 **C**	20 – 25	N/A	N/A	CCA8-28 **A** CCA8-18 **C**
6 – 8	N/A	CCA4-24 **A** CCA4-16 **C**	CCA8-34 **A** CCA8-38 **B** CCA8-36 **C**	25 – 30	N/A	N/A	CCA8-16 **A**
				30 – 35	N/A	N/A	CCA8-18 **A**

A = Compression **B** = Shear **C** = 45° Compression/Roll

COMPUTER EQUIPMENT / JET AIRCRAFT /10Hz Vertical

LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES	LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES
0.5	CCA2-36 **B**	N/A	N/A	6	N/A	CCA4-14 **B** CCA4-24 **C**	N/A
1	CCA2-38 **B** CCA2-34 **C**	CCA4-34 **B**	N/A	7 – 8	N/A	CCA4-34 **A** CCA4-28 **B** CCA4-38 **C**	N/A
2	CCA2-34 **A** CCA2-28 **B** CCA2-36 **C**	CCA4-36 **B**	N/A	8 – 10	N/A	CCA4-24 **A** CCA4-16 **B** CCA4-14 **C**	N/A
3	CCA2-36 **A** CCA2-28 **C**	CCA4-38 **B**	N/A	10 – 12	N/A	CCA4-26 **A** CCA4-18 **B** CCA4-28 **C**	N/A
4	CCA2-26 **A** CCA2-16 **C**	CCA4-24 **B** CCA4-34 **C**	N/A	12 – 15	N/A	CCA4-38 **A** CCA4-16 **C**	CCA8-34 **B**
5	CCA2-28 **A** CCA2-18 **C**	CCA4-26 **B** CCA4-36 **C**	N/A				

Computers/Jet Aircraft - *Continued*

LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES
15– 20	N/A	CCA4-28 **A** CCA4-18 **C**	CCA8-36 **B**
20 – 25	N/A	CCA4-14 **A**	CCA8-24 **B** CCA8-34 **C**
25 – 30	N/A	CCA4-16 **A**	CCA8-38 **B** CCA8-24 **C**
30 – 35	N/A	CCA4-18 **A**	CCA8-34 **A** CCA8-26 **B** CCA8-36 **C**
35 – 40	N/A	N/A	CCA8-36 **A** CCA8-14 **B** CCA8-38 **C**
40 – 50	N/A	N/A	CCA8-24 **A** CCA8-28 **B** CCA8-26 **C**
50 – 60	N/A	N/A	CCA8-38 **A** CCA8-16 **B** CCA8-14 **C**
60 –70	N/A	N/A	CCA8-14 **A** CCA8-18 **B** CCA8-28 **C**
70 –80	N/A	N/A	CCA8-26 **A** CCA8-16 **B**
80 – 100	N/A	N/A	CCA8-28 **A** CCA8-18 **C**
100 – 120	N/A	N/A	CCA8-18 **A**

A = Compression **B** = Shear **C** = 45° Compression/Roll

VEHICULAR / *Smooth Highway.* ***AIRCRAFT - propellor / 8-9Hz Vertical***

LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES
0.5	CCA2-34 **B**	N/A	N/A
1	CCA2-38 **B**	N/A	N/A
2	CCA2-38 **A** CCA2-24 **C**	CCA4-34 **B**	N/A
3	CCA2-24 **A** CCA2-14 **C**	CCA4-36 **B**	N/A
4	CCA2-38 **A** CCA2-28 **C**	CCA4-38 **B**	N/A
5	CCA2-26 **A** CCA2-16 **C**	CCA4-38 **B** CCA4-34 **C**	N/A
6	CCA2-28 **C** CCA2-18 **C**	CCA4-24 **B** CCA4-24 **C**	N/A
7 – 8	N/A	CCA4-26 **B** CCA4-36 **C**	N/A
8 – 10	N/A	CCA4-34 **A** CCA4-26 **B** CCA4-38 **C**	N/A
10 – 12	N/A	CCA4-24 **A** CCA4-28 **B** CCA4-26 **C**	N/A
12 – 15	N/A	CCA4-36 **A** CCA4-28 **C**	N/A
15 – 20	N/A	CCA4-38 **A** CCA4-16 **C**	CCA8-34 **B**
20 – 25	N/A	CCA4-28 **A** CCA4-18 **C**	CCA8-36 **B**
25 – 30	N/A	CCA-14 **A**	CCA8-24 **B** CCA8-34 **C**
30 – 35	N/A	CCA4-16 **A**	CCA8-38 **B** CCA8-24 **C**
35 – 40	N/A	CCA4-18 **A**	CCA8-34 **A** CCA8-26 **B** CCA8-36 **C**
40 – 45	N/A	N/A	CCA8-36 **A** CCA8-14 **B** CCA8-26 **C**

Vehicular - smooth highway/Aircraft - propellor - *Continued*

LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES
50 – 60	N/A	N/A	CCA8-24 **A** CCA8-28 **B** CCA8-14 **C**
60 – 70	N/A	N/A	CCA8-38 **A** CCA8-16 **B** CCA8-28 **C**
70 – 80	N/A	N/A	CCA8-26 **A** CCA8-18 **B** CCA8-16 **C**
80 – 100	N/A	N/A	CCA8-28 **A** CCA8-18 **C**
100 – 120	N/A	N/A	CCA8-16 **A**
120 – 140	N/A	N/A	CCA8-18 **A**

A = Compression **B** = Shear **C** = 45° Compression/Roll

ENGINES / *Gen Sets, Marine , Compressors* ***/ 7.5 Hz Vertical***

LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES
1	CCA2-34 **B**	N/A	N/A
2	CCA2-38 **B** CCA2-24 **C**	N/A	N/A
3	CCA2-24 **A** CCA2-26 **C**	CCA4-34 **B**	N/A
4	CCA2-36 **A** CCA2-28 **C**	CCA4-36 **B**	N/A
5	CCA2-38 **A** CCA2-16 **C**	CCA4-38 **B**	N/A
6	CCA2-28 **A** CCA2-18 **C**	CCA4-24 **B** CCA4-34 **C**	N/A
7 – 8	N/A	CCA4-24 **B** CCA4-24 **C**	N/A
8 – 10	N/A	CCA4-26 **B** CCA4-36 **C**	N/A
10 – 12	N/A	CCA4-34 **A** CCA4-26 **B** CCA4-38 **C**	N/A
12 – 15	N/A	CCA4-36 **A** CCA4-28 **B** CCA4-26 **C**	N/A
15 – 20	N/A	CCA4-38 **A** CCA4-28 **C**	CCA8-34 **B**
20 – 25	N/A	CCA4-26 **A** CCA4-16 **C**	CCA8-36 **B**
25 – 30	N/A	CCA4-28 **A** CCA4-18 **C**	CCA8-24 **B**
30 – 35	N/A	CCA4-14 **A**	CCA8-38 **B** CCA8-34 **C**
35 – 40	N/A	CCA4-16 **A**	CCA8-38 **B** CCA8-36 **C**
40 – 50	N/A	CCA4-18 **A**	CCA8-34 **A** CCA8-26 **B** CCA8-24 **C**
50 – 60	N/A	N/A	CCA8-36 **A** CCA8-26 **B** CCA8-38 **C**
60 – 70	N/A	N/A	CCA8-24 **A** CCA8-28 **B** CCA8-26 **C**
70 – 80	N/A	N/A	CCA8-38 **A** CCA8-14 **B** CCA8-14 **C**
80 – 100	N/A	N/A	CCA8-14 **A** CCA8-16 **B** CCA8-28 **C**
100 – 120	N/A	N/A	CCA8-26 **A** CCA8-18 **B** CCA8-16 **C**
120 – 140	N/A	N/A	CCA8-16 **A** CCA8-18 **C**
140 – 160	N/A	N/A	CCA8-28 **A**
160 – 180	N/A	N/A	CCA8-18 **A**

A = Compression **B** = Shear **C** = 45° Compression/Roll

INSTRUMENTS/ *Delicate Instruments, Laboratory Equipment, etc. /* ***5Hz Vertical***

LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES
2	CCA2-34 **C**	N/A	N/A
3	CCA2-36 **C**	N/A	N/A
4	CCA2-34 **A** CCA2-38 **C**	N/A	N/A
5	CCA2-36 **A** CCA2-28 **C**	CCA4-34 **B**	N/A
6-8	CCA2-38 **A**	CCA4-36 **B** CCA4-34 **C**	N/A
8-10	N/A	CCA4-38 **B** CCA4-24 **C**	N/A
10-12	N/A	CCA4-36 **C**	N/A
12-15	N/A	CCA4-34 **A** CCA4-26 **C**	N/A
15-17	N/A	CCA4-32 **A** CCA4-38 **C**	N/A
17-20	N/A	CCA4-36 **A** CCA4-14 **C**	N/A
20-25	N/A	CCA4-38 **A** CCA4-28 **C**	CCA8-34 **B**
25-30	N/A	CCA4-26 **A** CCA4-16 **C**	CCA8-36 **B**
30-35	N/A	CCA4-28 **A** CCA4-18 **C**	CCA8-36 **B**

LBS./MOUNT	CCA2 SERIES	CCA4 SERIES	CCA8 SERIES
35-40	N/A	N/A	CCA8-38 **B**
40-50	N/A	N/A	CCA8-38 **B** CCA8-34 **C**
50-60	N/A	N/A	CCA8-24 **B** CCA8-36 **C**
60-70	N/A	N/A	CCA8-34 **A** CCA8-26 **B** CCA8-24 **C**
70-80	N/A	N/A	CCA8-36 **A** CCA8-28 **B** CCA8-38 **C**
80-100	N/A	N/A	CCA8-24 **A** CCA8-14 **C**
100-120	N/A	N/A	CCA8-38 **A** CCA8-28 **C**
120-140	N/A	N/A	CCA8-14 **A** CCA8-28 **C**
140-160	N/A	N/A	CCA8-26 **A** CCA8-16 **C**
160-180	N/A	N/A	CCA8-16 **A** CCA8-18 **C**
180-200	N/A	N/A	CCA8-28 **A**
200-240	N/A	N/A	CCA8-18 **A**

A = Compression **B** = Shear **C** = 45° Compression/Roll