

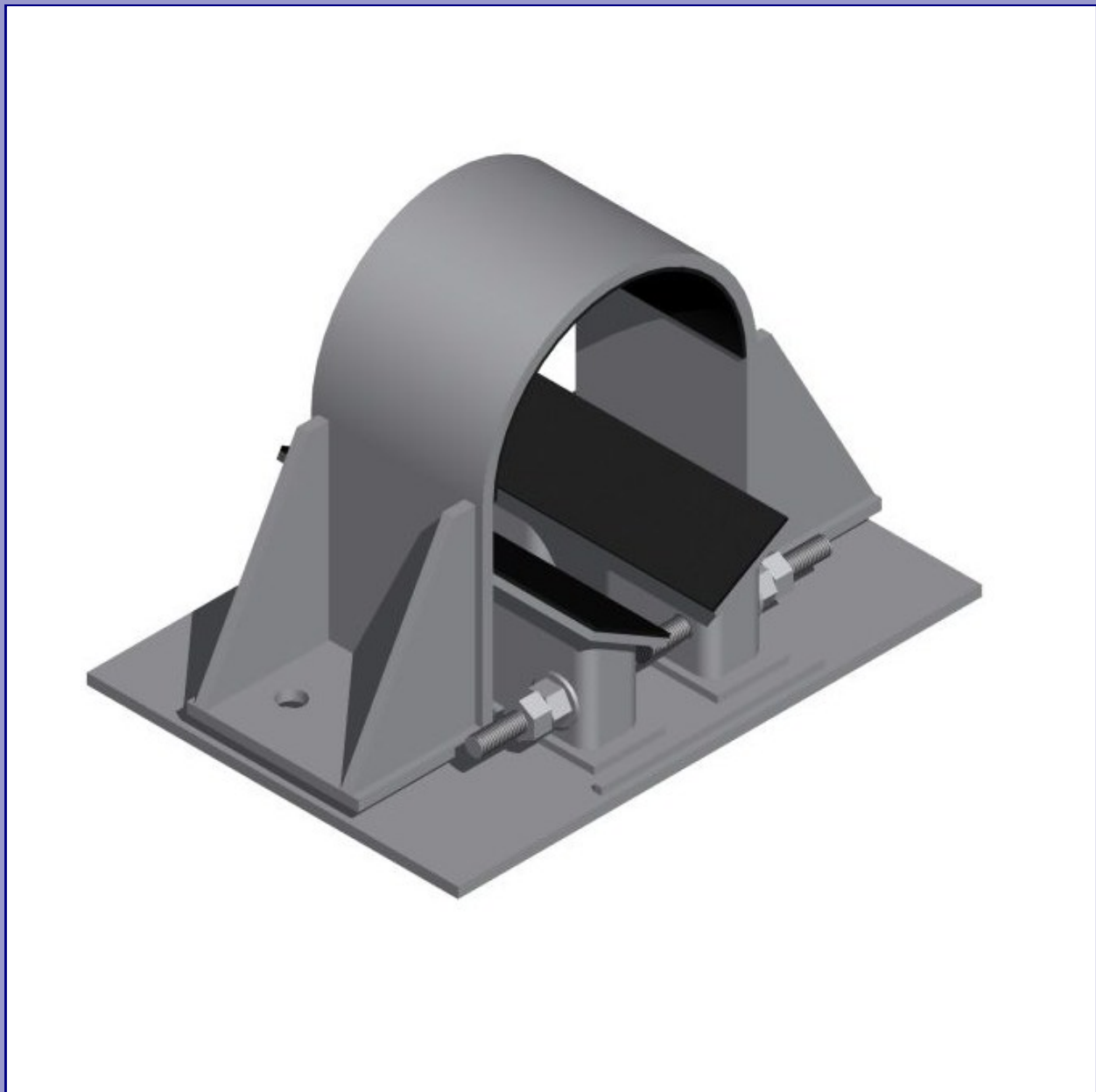
# **AAA TECHNOLOGY**

**& SPECIALTIES CO., INC.**

**VIBRATION CONTROL &  
DYNAMIC RESTRAINTS**

**TOTAL SOLUTION SERVICE**

For the Industrial Piping Marketplace





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### FEATURES:

- Latest engineering and design techniques for vibration control.
- Designs for pipe temperatures from -65EF (-18EC) to 350EF (177EC).
- Field proven and tested in years of numerous applications worldwide.
- Special designs to accommodate both Dynamic (vibration) and Thermal flexibility requirements.
- Designed with TRI-PAD™ Elastomeric Bearing Pads to reduce structural borne vibration and noise levels, to distribute loading on the surface of the pipe and thereby minimize localized stress concentrations, and to facilitate pipe movement resulting from thermal expansion and contraction.
- Mechanical clamp stiffnesses and bolt torque recommendations are available for each design to aid in engineering design and installation.
- Complete assembly of components to point of connection can be supplied including base plates, anchor bolts, nuts, washers, springs, etc.
- Installation dimensions and instructions are available to facilitate accurate, trouble-free installation.
- Customized engineering and design service available to facilitate any application.
- High Quality Restraints provided at Competitive Prices in Reasonable Delivery Times.

A variety of different styles engineered and designed by Mechanical Restraints International, Inc. are available from AAA Technology and Specialties Co., Inc. to fit your specific need. The examples shown in this flier illustrate the range of mechanical restraints currently available. Custom designs can be provided should your specific application require unique solutions.



## VIBRATION CONTROL HOLD DOWN CLAMPS

**FIG. CP-1000**  
**HOLD DOWN CLAMP**

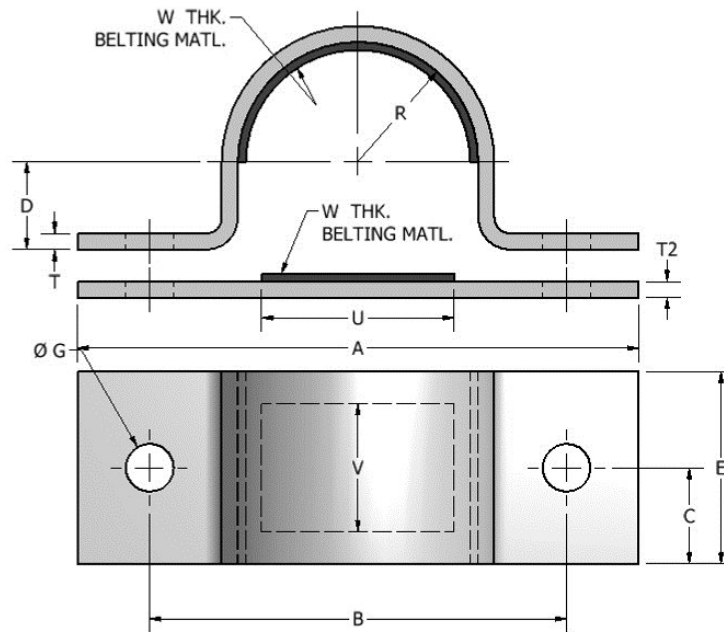
### STANDARD DYNAMIC RESTRAINTS

#### CP-1000 Series Restraint

Availability - 1/2" NPS to 6" NPS

Application -

- To control piping vibration primarily perpendicular to the pipe axis.
- To provide both axial dynamic restraint while allowing for axial thermal expansion and contraction. Bolt torque and clamp stiffness define the Resistance.



PIPE SIZE	A (in)	B (in)	C (in)	D (in)	E (in)	G (in)	V (in)	U (in)	R (in)	T (in)	T2 (in)	W (in)	ANCHOR BOLT
1/2"	4 1/8	2 3/4	5/8	1/4	1 1/4	3/8	1	7/8	9/16	1/16	1/8	1/16	5/16"
3/4"	4 5/16	2 7/8	5/8	3/8	1 1/4	3/8	1	7/8	21/32	3/32	1/8	3/32	5/16"
1"	5 1/16	3 1/4	3/4	1/2	1 1/2	3/8	1	1	25/32	3/32	1/8	3/32	3/8"
1-1/4"	5 7/16	3 5/8	3/4	11/16	1 1/2	7/16	1	1 1/2	31/32	1/8	1/8	1/8	3/8"
1-1/2"	5 11/16	3 7/8	3/4	13/16	1 1/2	7/16	1	1 1/2	1 3/32	1/8	1/8	1/8	3/8"
2"	6 1/8	4 3/8	1	1 1/16	2	1/2	1	2	1 11/32	1/8	1/8	1/8	7/16"
2-1/2"	7 1/8	5 1/8	1 1/4	1 5/16	2 1/2	9/16	2	2 1/2	1 19/32	3/16	3/16	1/8	1/2"
3"	8 3/4	6 1/2	1 1/2	1 5/8	3	3/4	2	3	1 29/32	1/4	1/4	1/8	5/8"
3-1/2"	9 1/4	7	1 1/2	1 7/8	3	3/4	2	3	2 5/32	1/4	1/4	1/8	5/8"
4"	9 3/4	7 1/2	1 1/2	2 1/8	3	3/4	2	3	2 13/32	1/4	1/4	1/8	5/8"



## VIBRATION CONTROL HOLD DOWN CLAMPS

**FIG. CP-2000**

**HOLD DOWN CLAMP**

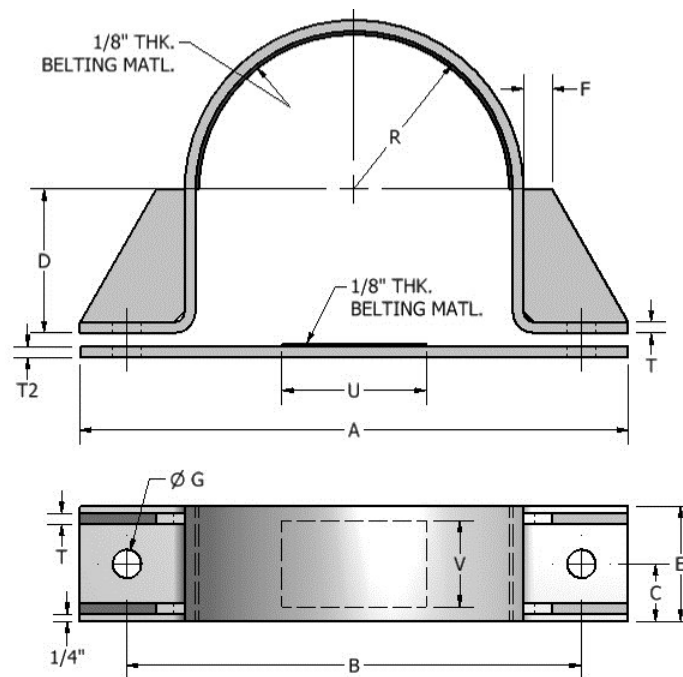
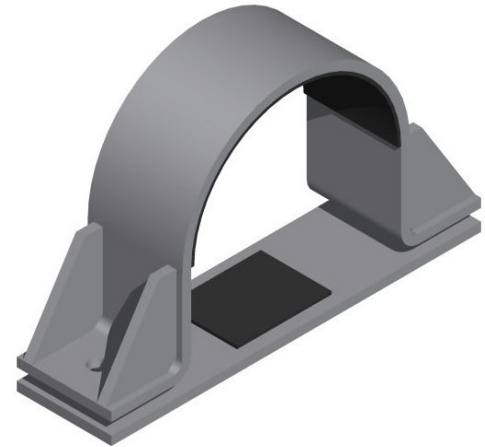
**STANDARD DYNAMIC RESTRAINTS**

**CP-2000 Series Restraint**

Availability - 4" NPS to 18" NPS

Application -

- To control piping vibration primarily perpendicular to the pipe axis.
- To provide both axial dynamic restraint while allowing for axial thermal expansion and contraction. Bolt torque and clamp stiffness define the Resistance.
- Gussets provide increased horizontal stiffness.
- Slotted hole in each restraint flange provides for added installation tolerance.



PIPE SIZE	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	R (in)	T (in)	T2 (in)	U (in)	V (in)	ANCHOR BOLT (in)
4"	9 3/4	7 3/4	1 1/2	1 7/8	3 1/2	5/8	3/4	2 7/16	1/4	1/4	3	2	5/8
5"	11 5/8	9 1/8	2	2 13/32	4	3/4	3/4	3	3/8	3/8	4	3	5/8
6"	13 5/8	10 3/4	2	2 15/16	4	3/4	3/4	3 1/2	3/8	3/8	4	3	5/8
8"	15 5/8	12 3/4	2	3 15/16	4	3/4	3/4	4 1/2	3/8	3/8	4	3	5/8
10"	19	15 3/4	2	5	4	1	7/8	5 9/16	3/8	3/8	5	3	3/4
12"	21	17 3/4	2	6	4	1	7/8	6 9/16	3/8	3/8	6	3	3/4
14"	22 1/4	19	2 1/2	6 5/8	5	1	7/8	7 3/16	3/8	3/8	6	4	3/4
16"	24 1/4	21	2 1/2	7 5/8	5	1	7/8	8 3/16	3/8	3/8	7	4	3/4
18"	26 1/4	23	2 1/2	8 5/8	5	1	7/8	9 3/16	3/8	3/8	8	4	3/4



## VIBRATION CONTROL HOLD DOWN CLAMPS

**FIG. CP-2500**  
**HOLD DOWN CLAMP**

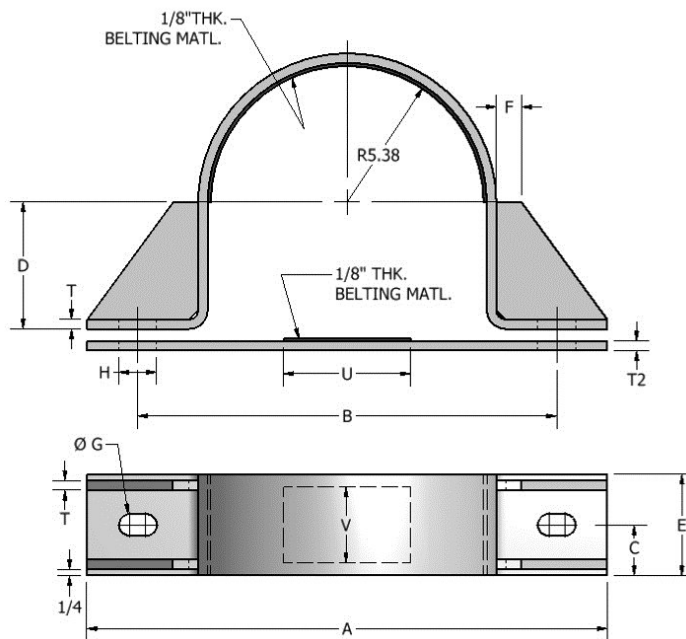
**STANDARD DYNAMIC RESTRAINTS**

**CP-2000 Series Restraint**

Availability - 4" NPS to 10" NPS

Application -

- To control piping vibration primarily perpendicular to the pipe axis.
- To provide both axial dynamic restraint while allowing for axial thermal expansion and contraction. Bolt torque and clamp stiffness define the Resistance.
- Gussets provide increased horizontal stiffness.
- Slotted hole in each restraint flange provides for added installation tolerance.



PIPE SIZE	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	R (in)	T (in)	T2 (in)	U (in)	V (in)	ANCHOR BOLT (in)
4"	10 3/4	8 1/4	1 1/2	1 7/8	3 1/2	5/8	3/4	1 1/4	2 7/16	1/4	1/4	3	2	5/8
5"	12 7/8	9 3/4	2	2 13/32	4	3/4	3/4	1 3/8	3	3/8	3/8	4	3	5/8
6"	14 7/8	11 3/8	2	2 15/16	4	3/4	3/4	1 3/8	3 1/2	3/8	3/8	4	3	5/8
8"	16 7/8	13 3/8	2	3 15/16	4	3/4	3/4	1 3/8	4 1/2	3/8	3/8	4	3	5/8
10"	20 1/2	16 1/2	2	5	4	1	7/8	1 1/2	5 9/16	3/8	3/8	5	3	3/4
12"	22 1/2	18 1/2	2	6	4	1	7/8	1 1/2	6 9/16	3/8	3/8	6	3	3/4
14"	23 3/4	19 3/4	2 1/2	6 5/8	5	1	7/8	1 1/2	7 3/16	3/8	3/8	6	4	3/4
16"	25 3/4	21 3/4	2 1/2	7 5/8	5	1	7/8	1 1/2	8 3/16	3/8	3/8	7	4	3/4
18"	27 3/4	23 3/4	2 1/2	8 5/8	5	1	7/8	1 1/2	9 3/16	3/8	3/8	8	4	3/4



## VIBRATION CONTROL HOLD DOWN CLAMPS

**FIG. CP-3000  
HOLD DOWN CLAMP**



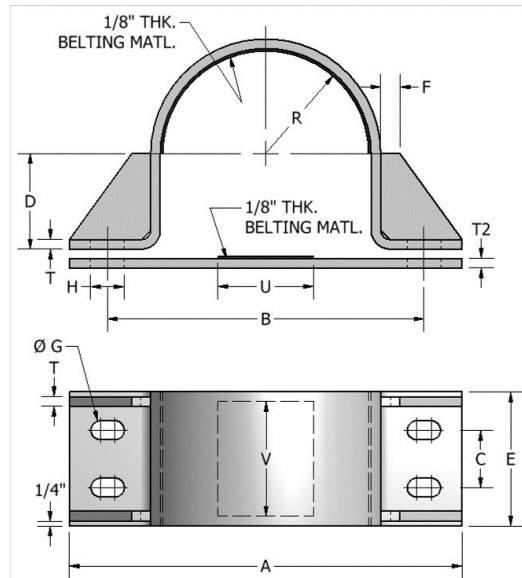
**STANDARD DYNAMIC RESTRAINTS**

**CP-3000 Series Restraint**

Availability - 4" NPS to 48" NPS

Application -

- To control piping vibration primarily perpendicular to the pipe axis.
- To provide both axial dynamic restraint while allowing for axial thermal expansion and contraction. Bolt torque and clamp stiffness define the Resistance.
- Gussets provide increased horizontal stiffness.
- Four (4) bolt design provides increased dynamic axial stiffness.
- Slotted holes in each restraint flange provide for added installation tolerance.



PIPE SIZE	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	R (in)	T (in)	T2 (in)	U (in)	V (in)	ANCHOR BOLT (in)
4"	10 3/4	8 3/4	3	1 7/8	6	5/8	5/8	1 1/8	2 7/16	1/4	1/4	3	5	1/2
5"	12 7/8	10	3	2 13/32	6	3/4	7/8	1 1/2	3	3/8	3/8	4	5	3/4
6"	14 7/8	11 3/8	3	2 15/16	6	3/4	7/8	1 1/2	3 1/2	3/8	3/8	4	5	3/4
8"	16 7/8	13 3/8	3	3 15/16	6	1	7/8	1 1/2	4 1/2	3/8	3/8	4	5	3/4
10"	20 1/2	16 1/2	3 1/2	5	7	1	1	1 3/4	5 9/16	1/2	1/2	5	6	7/8
12"	22 1/2	18 1/4	3 1/2	6	7	1	1	1 3/4	6 9/16	1/2	1/2	6	6	7/8
14"	23 3/4	19 1/2	3 1/2	6 5/8	7	1	1	1 3/4	7 3/16	1/2	1/2	6	6	7/8
16"	25 3/4	21 1/2	3 1/2	7 5/8	7	1	1	1 3/4	8 3/16	1/2	1/2	6	6	7/8
18"	27 3/4	23 1/2	3 1/2	8 5/8	7	1	1	1 3/4	9 3/16	1/2	1/2	6	6	7/8
20"	32	27 1/2	4	9 5/8	8	1 1/4	1 1/8	2	10 3/16	5/8	5/8	7	7	1
24"	36	31 1/2	4	11 5/8	8	1 1/4	1 1/8	2	12 3/16	5/8	5/8	7	7	1
26"	38	33 1/2	4	12 5/8	8	1 1/4	1 1/8	2	13 3/16	5/8	5/8	7	7	1
28"	40	35 1/2	4	13 5/8	8	1 1/4	1 1/8	2	14 3/16	5/8	5/8	7	7	1
30"	43 3/4	38 3/4	5	14 5/8	10	1 1/4	1 1/8	2 1/4	15 3/16	3/4	3/4	9	9	1
32"	45 3/4	39 3/4	5	15 5/8	10	1 1/2	1 1/4	2 1/4	16 3/16	3/4	3/4	9	9	1
36"	49 3/4	43 3/4	5	17 5/8	10	1 1/2	1 1/4	2 1/4	18 3/16	3/4	3/4	9	9	1
40"	55 1/2	49 1/2	5	19 5/8	10	1 1/2	1 1/4	2 1/4	20 3/16	7/8	7/8	9	9	1
42"	58 1/4	51 1/4	6	20 5/8	12	1 1/2	1 1/2	2 1/2	21 3/16	7/8	7/8	11	11	1 1/4
48"	65 1/4	57 1/4	6	23 5/8	12	1 1/2	1 1/2	2 1/2	24 3/16	1	1	11	11	1 1/4

## VIBRATION CONTROL HOLD DOWN CLAMPS

**FIG. CP-3500**

### HEAVY HOLD DOWN CLAMP

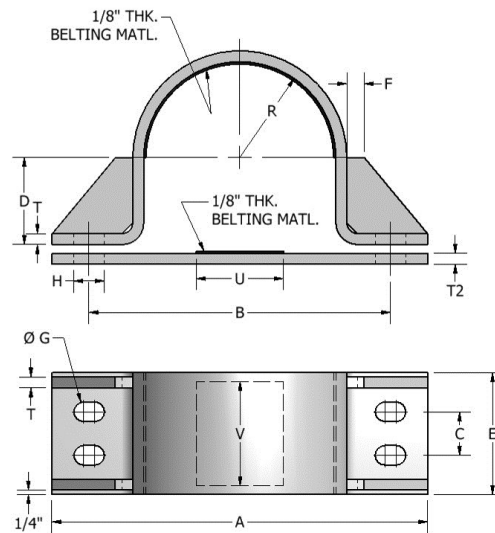
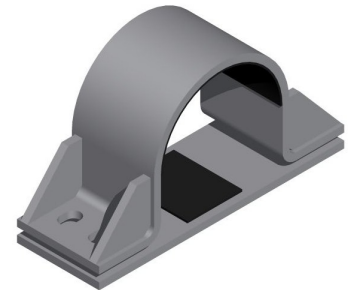
#### STANDARD DYNAMIC RESTRAINTS

##### CP-3000 Series Restraint

Availability - 4" NPS to 48" NPS

Application -

- To control piping vibration primarily perpendicular to the pipe axis.
- To provide both axial dynamic restraint while allowing for axial thermal expansion and contraction. Bolt torque and clamp stiffness define the Resistance.
- Gussets provide increased horizontal stiffness.
- Four (4) bolt design provides increased dynamic axial stiffness.
- Slotted holes in each restraint flange provide for added installation tolerance.

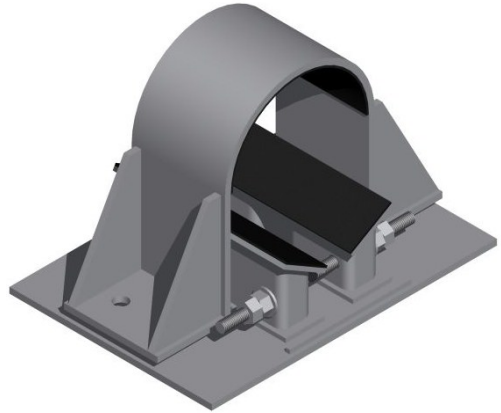


PIPE SIZE	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	R (in)	T (in)	T2 (in)	U (in)	V (in)	ANCHOR BOLT (in)
4"	11 3/4	8 3/4	3	1 7/8	6	5/8	7/8	1 1/2	2 7/16	3/8	3/8	3	5	3/4
5"	13 7/8	10 1/2	3	2 13/32	6	3/4	1	1 1/2	3	1/2	1/2	4	5	7/8
6"	15 7/8	12	3	2 15/16	6	3/4	1	1 1/2	3 1/2	1/2	1/2	4	5	7/8
8"	17 7/8	13 7/8	3	3 15/16	6	1	1	1 1/2	4 1/2	1/2	1/2	4	5	7/8
10"	21 1/2	17 1/4	3 1/2	5	7	1	1 1/8	1 3/4	5 9/16	5/8	5/8	5	6	1
12"	23 1/2	19 1/4	3 1/2	6	7	1	1 1/8	1 3/4	6 9/16	5/8	5/8	6	6	1
14"	24 3/4	20 1/2	3 1/2	6 5/8	7	1	1 1/8	1 3/4	7 3/16	5/8	5/8	6	6	1
16"	26 3/4	22 1/2	3 1/2	7 5/8	7	1	1 1/8	1 3/4	8 3/16	5/8	5/8	6	6	1
18"	28 3/4	24 1/2	3 1/2	8 5/8	7	1	1 1/8	1 3/4	9 3/16	5/8	5/8	6	6	1
20"	33	28 1/2	4	9 5/8	8	1 1/4	1 1/4	2 1/4	10 3/16	3/4	3/4	7	7	1 1/8
24"	37	32 1/2	4	11 5/8	8	1 1/4	1 1/4	2 1/4	12 3/16	3/4	3/4	7	7	1 1/8
26"	39	34 1/2	4	12 5/8	8	1 1/4	1 1/4	2 1/4	13 3/16	3/4	3/4	7	7	1 1/8
28"	41	36 1/2	4	13 5/8	8	1 1/4	1 1/4	2 1/4	14 3/16	3/4	3/4	7	7	1 1/8
30"	44 3/4	39 3/4	5	14 5/8	10	1 1/4	1 1/2	2 1/2	15 3/16	7/8	7/8	9	9	1 1/4
32"	46 3/4	40 3/4	5	15 5/8	10	1 1/2	1 1/2	2 1/2	16 3/16	7/8	7/8	9	9	1 1/4
36"	50 3/4	44 3/4	5	17 5/8	10	1 1/2	1 1/2	2 1/2	18 3/16	7/8	7/8	9	9	1 1/4
40"	56 1/2	50 1/2	5	19 5/8	10	1 1/2	1 1/2	2 1/2	20 3/16	1	1	9	9	1 1/4
42"	59 1/4	52 1/4	6	20 5/8	12	1 1/2	1 3/4	3 1/2	21 3/16	1	1	11	11	1 1/2
48"	66 1/4	58 1/4	6	23 5/8	12	1 1/2	1 3/4	3 1/2	24 3/16	1 1/4	1 1/4	11	11	1 1/2



## VIBRATION CONTROL HOLD DOWN CLAMPS

**FIG. CWP-4000  
HOLD DOWN CLAMP**

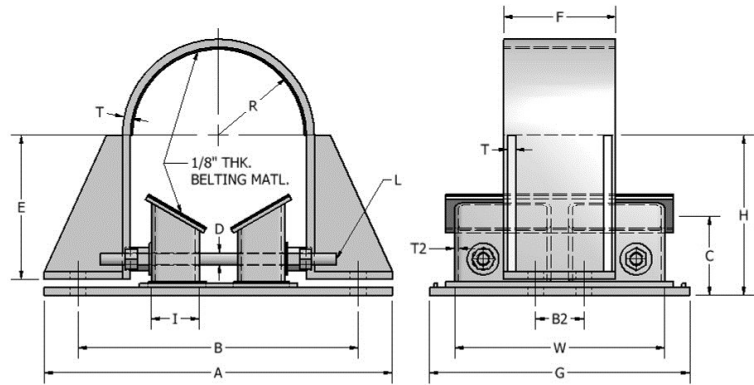


**DYNAMIC RESTRAINTS with  
WEDGEBLOCKS / SHIMBLOCKS  
CWP-4000 Series Wedgeblock  
CBP-4000 Series Shimblock**

Availability - 6" NPS to 48" NPS

Application -

- To control vibrations primarily in pulsation bottles and large diameter piping.
- To provide for load distribution in larger diameter piping or bottles.
- To provide for easy access for pipe maintenance and inspection.
- To allow for added horizontal flexibility to compensate for thermal movement, wedgeblocks can be interchanged with shimblocks.



PIPE SIZE	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	B2 (in)	L (in)	R (in)	T (in)	T2 (in)	W (in)
6	16	12 1/2	3 1/8	5/8	6	6	13	6 7/16	2 1/2	3	15 3/4	3 7/16	3/8	1/4	11
8	18	14 1/2	3 1/8	5/8	7	6	13	7 7/16	2 1/2	3	16 3/4	4 7/16	3/8	1/4	11
10	21 3/4	17 1/2	4 1/8	3/4	9	7	14 1/4	9 1/2	3 1/2	3	20 1/2	5 1/2	1/2	1/4	14 1/4
12	23 3/4	20	4 1/8	3/4	10	7	14 1/4	10 1/2	3 1/2	3 1/2	21 1/2	6 1/2	1/2	1/4	14 1/4
14	25	21 1/4	4 1/8	3/4	10 5/8	7	14 1/4	11 1/8	3 1/2	3 1/2	22 1/2	7 1/8	1/2	3/8	14 1/4
16	27	23 1/4	4 1/8	3/4	11 5/8	7	14 1/4	12 1/8	3 1/2	3 1/2	23 1/2	8 1/8	1/2	3/8	14 1/4
18	29	25 1/4	4 1/8	3/4	12 5/8	7	14 1/4	13 1/8	3 1/2	3 1/2	24 1/2	9 1/8	1/2	3/8	14 1/4
20	33 1/4	29 1/8	4 1/8	7/8	13 5/8	8	16 1/2	14 1/8	6	4	31 1/4	10 1/8	5/8	3/8	16 1/2
22	35 1/4	31 1/8	4 1/8	7/8	14 5/8	8	16 1/2	15 1/8	6	4	32 1/4	11 1/8	5/8	3/8	16 1/2
24	37 1/4	33 1/8	4 1/8	7/8	15 5/8	8	16 1/2	16 1/8	6	4	33 1/4	12 1/8	5/8	1/2	16 1/2
26	39 1/4	35 1/8	4 1/8	7/8	16 5/8	8	16 1/2	17 1/8	6	4	34 1/4	13 1/8	5/8	1/2	16 1/2
28	41 1/4	37 1/8	4 1/8	7/8	17 5/8	8	16 1/2	18 1/8	6	4	35 1/4	14 1/8	5/8	1/2	16 1/2
30	44 1/2	40	5 1/8	1	19 5/8	10	19	20 1/8	8 1/2	5	42	15 1/8	3/4	1/2	19
32	46 1/2	42	5 1/8	1	20 5/8	10	19	21 1/8	8 1/2	5	43	16 1/8	3/4	1/2	19
34	48 1/2	44	5 1/8	1	21 5/8	10	19	22 1/8	8 1/2	5	44	17 1/8	3/4	1/2	19
36	50 1/2	46	5 1/8	1	22 5/8	10	19	23 1/8	8 1/2	5	45	18 1/8	3/4	1/2	19
38	52 1/2	48	5 1/8	1	23 5/8	10	19	24 1/8	8 1/2	5	46	19 1/8	3/4	1/2	19
40	55 3/4	50 7/8	5 1/8	1 1/8	24 5/8	12	22	25 1/8	11	6	52 3/4	20 1/8	7/8	1/2	22
42	57 3/4	52 7/8	5 1/8	1 1/8	25 5/8	12	22	26 1/8	11	6	53 3/4	21 1/8	7/8	1/2	22
44	59 3/4	54 7/8	5 1/8	1 1/8	26 5/8	12	22	27 1/8	11	6	54 3/4	22 1/8	7/8	1/2	22
46	61 3/4	56 7/8	5 1/8	1 1/8	27 5/8	12	22	28 1/8	11	6	55 3/4	23 1/8	7/8	1/2	22
48	63 3/4	58 7/8	5 1/8	1 3/8	28 5/8	12	22	29 1/8	11	6	58 1/4	24 1/8	7/8	1/2	22



## VIBRATION CONTROL WEDGE BLOCKS

**FIG. WP-2000  
WEDGE BLOCKS**

**WEDGEBLOCK**

**WP-1000 Series One thru Bolt**

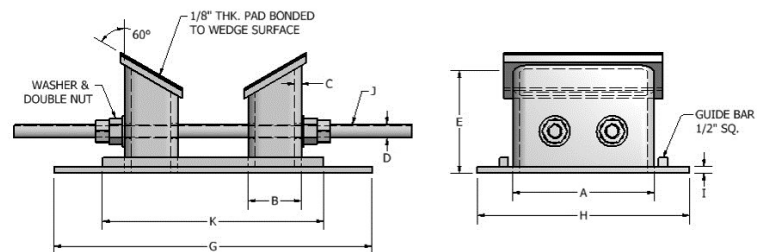
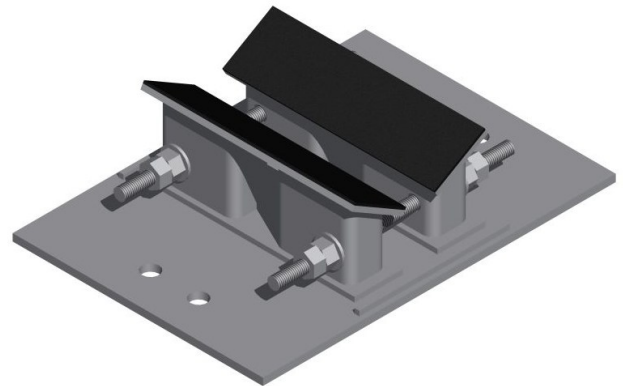
**WP-2000 Series Two thru Bolts**

**WP-3000 Series\* Two thru Bolts**

Availability - 6" NPS to 48" NPS

Application -

- To increase the horizontal mechanical stiffness of the restraint, Wedgeblocks may be used.
- Primarily used to restrain pulsation bottles.
- To allow for upward movement resulting from thermal expansion or contraction.
- To provide easy access for pipe maintenance and inspection.
- To allow for horizontal or downward movement resulting from thermal expansion or contraction, spring coils can be added the thru bolts.
- To be used in conjunction with Restraint Types CWP-4000, TRW-2000, BCW-1000 and BCW-2000.



PIPE SIZE	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	J (in)	K (in)
6	8	2 1/2	1/4	5/8	3 1/8	6 7/16	12	10	3/8	15 3/4	11
8	8	2 1/2	1/4	5/8	3 1/8	7 7/16	13	10	3/8	16 3/4	12
10	9	3 1/2	1/4	3/4	4 1/8	9 1/2	16	12	3/8	20 1/2	15
12	9	3 1/2	1/4	3/4	4 1/8	10 1/2	17	12	3/8	21 1/2	16
14	9	3 1/2	3/8	3/4	4 1/8	11 1/2	18	12	3/8	22 1/2	17
16	9	3 1/2	3/8	3/4	4 1/8	12 1/8	19	12	3/8	23 1/2	18
18	9	3 1/2	3/8	3/4	4 1/8	13 1/8	20	12	3/8	24 1/2	19
20	10	6	3/8	7/8	4 1/8	14 1/8	26	12	1/2	31 1/4	25
22	10	6	3/8	7/8	4 1/8	15 1/8	27	12	1/2	32 1/4	26
24	10	6	1/2	7/8	4 1/8	16 1/8	28	12	1/2	33 1/4	27
26	10	6	1/2	7/8	4 1/8	17 1/8	29	12	1/2	34 1/4	28
28	10	6	1/2	7/8	4 1/8	18 1/8	30	12	1/2	35 1/4	29
30	12	8 1/2	1/2	1	5 1/8	20 1/8	36	14	1/2	42	35
32	12	8 1/2	1/2	1	5 1/8	21 1/8	37	14	1/2	43	36
34	12	8 1/2	1/2	1	5 1/8	22 1/8	38	14	1/2	44	37
36	12	8 1/2	1/2	1	5 1/8	23 1/8	39	14	1/2	45	38
38	12	8 1/2	1/2	1	5 1/8	24 1/8	40	14	1/2	46	39
40	14	11	1/2	1 1/8	5 1/8	25 1/8	46	16	1/2	52 3/4	45
42	14	11	1/2	1 1/8	5 1/8	26 1/8	47	16	1/2	53 3/4	46
44	14	11	1/2	1 1/8	5 1/8	27 1/8	48	16	1/2	54 3/4	47
46	14	11	1/2	1 1/8	5 1/8	28 1/8	49	16	1/2	55 3/4	48
48	14	11	1/2	1 3/8	5 1/8	29 1/8	50	16	1/2	58 1/4	49



## DYNAMIC RESTRAINTS

### THERMAL-DYNAMIC RESTRAINT

#### with WEGDEBLOCK / SHIMBLOCK

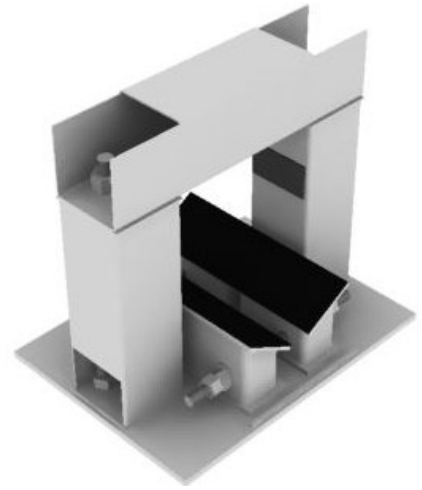
##### TRW P-2000 Series Wedgeblock

##### TRB P-2000 Series Shimblock

Availability - 6" NPS to 48" NPS

Application -

- To enable complete adjustability in any direction which provides for optimization of thermal and dynamic requirements for these restraints.
- To control vibrations primarily in pulsation bottles and large diameter piping which exhibit high pulsation energy and thermal movement.
- To provide for load distribution in larger diameter piping or bottles.
- To provide for easy access for pipe maintenance and inspection.
- To provide for increased horizontal stiffness. To allow for added horizontal flexibility to compensate for thermal movement, wedgeblocks can be inter-



### THERMAL GUIDE BOX CLAMP

#### BC-1000 SERIES

Availability - 6" NPS to 10" NPS

#### BC-2000 SERIES

Availability - 12" NPS to 48" NPS

Application -

- To control vibrations primarily in piping which is subject to substantial movements from significant changes in temperature.
- To allow for horizontal movement while providing vertical dynamic stiffness.



### THERMAL GUIDE BOX CLAMP

#### with SHIMBLOCK

##### BCSB-1000 SERIES

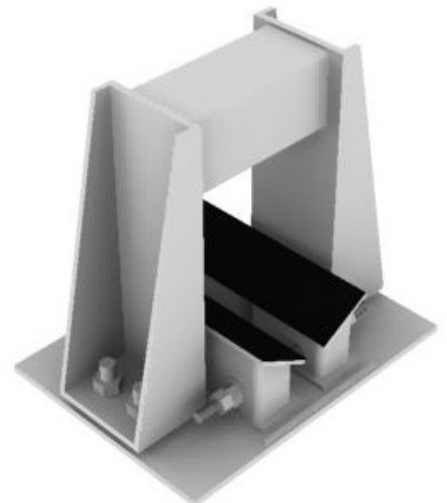
Availability - 6" NPS to 10" NPS

##### BCSB-2000 SERIES

Availability - 12" NPS to 48" NPS

Application -

- To control vibrations primarily in piping which is subject to substantial movements from significant changes in temperature.
- To allow for horizontal movement while providing vertical dynamic stiffness.
- To provide easy access for pipe maintenance and inspection, Shimblocks are incorporated.
- To allow for added horizontal stiffness, the Shimblock SB-1000 can be replaced by a Wedgeblock WB-3000.





## DYNAMIC RESTRAINTS

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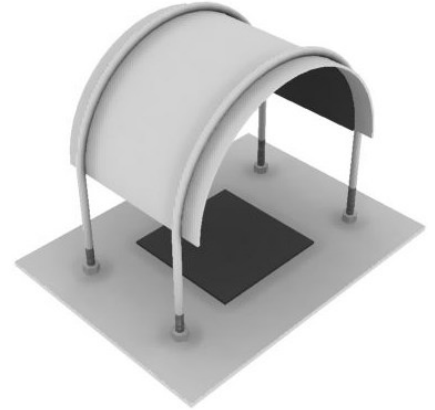
### U-BOLT RESTRAINT

#### U-2000 SERIES

Availability - ½" NPS to 12" NPS

Application -

- Primarily to be used for small diameter piping which exerts low pulsation energy.
- Provides more contact to piping than a round U-bolt when the Wide Flange Design is used.
- To be used where surrounding clearances limit the use of other types of mechanical restraints.
- Can be installed as only one strap, however is most effective when installed in pairs.
- Can be supplied with a Hot Dip Galvanized finish or PTFE Coating.
- Supplied with 4 Heavy Hex Nuts.



### STANDARD DESIGN OPTIONS

The Vibration Control Restraints described in this bulletin incorporate one of the following two Elastomeric Bearing Pads:

- TRI-PAD™ Elastomeric Preformed Fabric Bearing Pads are bonded to all pipe contact bearing surfaces of the Clamps and Wedgeblocks to reduce structural borne noise, to distribute restraint loadings on the surface of the pipe and reduce localized stress concentrations.
- Elastomeric PTFE Slide Bearing Pads are bonded to all pipe contact bearing surfaces of the Clamps and Wedgeblocks to facilitate pipe movement due to thermal expansion and contraction and to reduce frictional resistance to this movement.

### CONSTRUCTION OPTIONS

Material: Carbon Steel A-36

Finish: Hot Dip Galvanized, Black, Red Oxide Primer, CZ-11 or in accordance with Customer's Paint Specification

Bearing Pad: TRI-PAD™ Elastomeric Preformed Fabric Pad, TRI-PAD™ Elastomeric PTFE Slide Bearing Pad

Mounting: Anchor Bolts, Base Plate, Assembly Bolts, Nuts and Washers

### HOW TO ORDER

Specify Restraint Type, Nominal Pipe Size or Outside Diameter, Elastomeric Pad Type, Finish, Accessories (i.e. base plate, bolts, etc.) and the Quantity required.

Example: CP-3000 Restraint, 24", with TRI-PAD™ Elastomeric PTFE Slide Bearing Pads, Hot Dip Galvanized finish, steel base plate for concrete pier installation, anchor bolts, assembly bolts, heavy hex nuts and washers.

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