

VIBRATION CONTROL RESTRAINTS

for

PIPELINES and BOTTLES

by

AAA TECHNOLOGY & SPECIALTIES CO.,
INC.

HOUSTON, TEXAS

FEATURES:

- ◆ Latest engineering and design techniques for vibration control.
- ◆ Designs for pipe temperatures from -65°F (-18°C) to 350°F (177°C).
- ◆ Field proven and tested in years of numerous applications worldwide.
- ◆ Special designs to accommodate both Dynamic (vibration) and Thermal flexibility requirements.
- ◆ Designed with Fabreeka® 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.

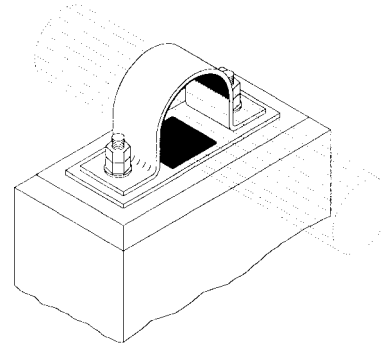
STANDARD DYNAMIC RESTRAINTS

CP-1000 Series Restraint

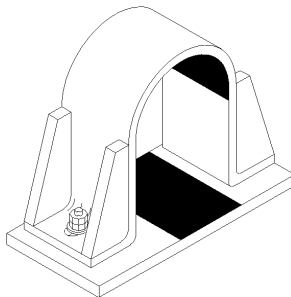
Availability - ½" NPS to 4" NPS

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.



CP-1000



CP-2000

STANDARD DYNAMIC RESTRAINTS

CP-2000 Series Restraint

Availability - 5" 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.

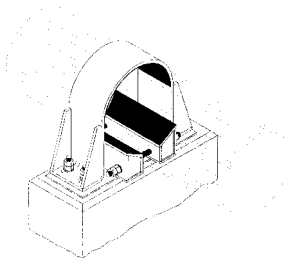
STANDARD DYNAMIC RESTRAINTS

CP-3000 Series Restraint

Availability - 5" 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.



CWP-4000

THERMAL-DYNAMIC RESTRAINT with WEDGEBLOCK / SHIMBLOCK

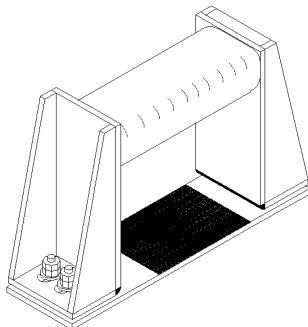
TRW P-2000 Series Wedgeblock

TRB P-2000 Series Shimblock

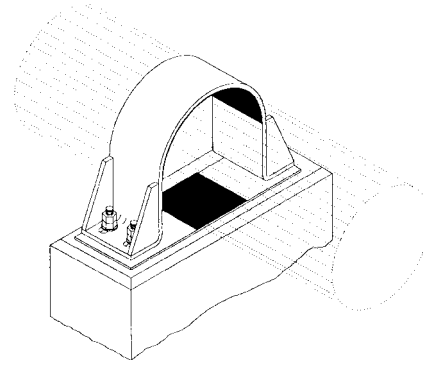
Availability - 6" NPS to 48" NPS

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 interchanged with shimblocks.



BC-2000



CP-3000

DYNAMIC RESTRAINTS with WEDGEBLOCKS / SHIMBLOCKS

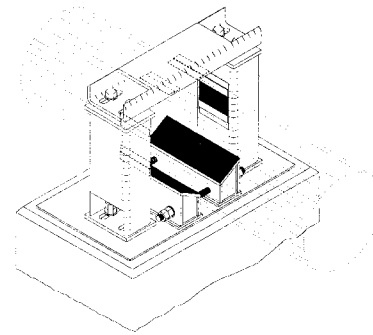
CWP-4000 Series Wedgeblock

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.



TRW P-2000

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**

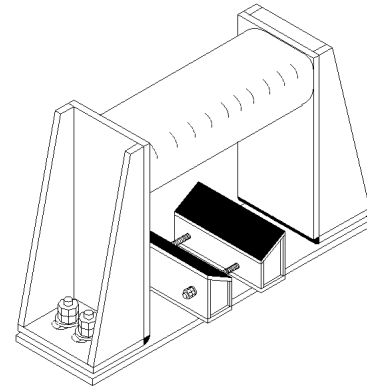
Availability - 6" NPS to 10" NPS

BCSB-2000 SERIES

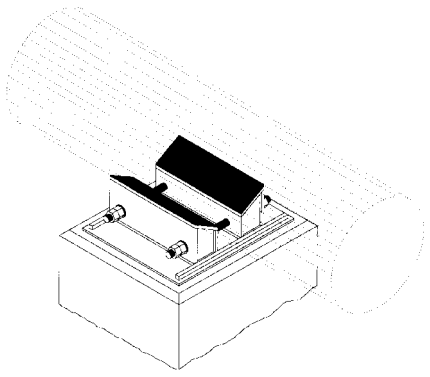
Availability - 12" NPS to 48" NPS

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.



BCSB-2000



WP-2000

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.

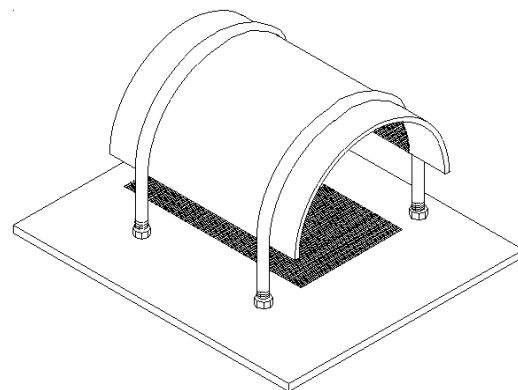
U-BOLT RESTRAINT

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 Teflon Coating.
- ◆ Supplied with 4 Heavy Hex Nuts.



U-2000

STANDARD DESIGN OPTIONS

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

1. Fabreeka® 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.
2. Fabreeka® 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.

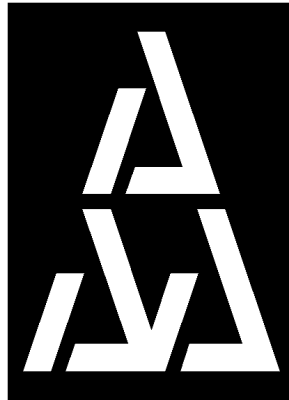
CONSTRUCTION OPTIONS

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: Fabreeka® SA-47, Fabreeka® Preformed Fabric Pad, Fabreeka® 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, Fabreeka Pad Type, Finish, Accessories (i.e. base plate, bolts, etc.) and the Quantity required.

Example: CP-3000 Restraint, 24", with Fabreeka® 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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