

SECTION II

VIBRATION DAMPING PADS AND SHEETS

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SIZES AND PRODUCT CODES

RED- LINE ANCHOR PADS - WOOL FELT

3'x5' SHEET	PRODUCT CODE
H-1/4	400010
HB-1/4	400110
H-1/2	400040
HB-1/2	400140
E-1/2	402040
EB-1/2	402140
E-1	402060
EB-1	402160
D-1/2	403040
DB1/2	403140
D-1	403060
DB-1	403363

RED- LINE ANCHOR PADS - NON WOOL FELT

3'X6' SHEET	PRODUCT CODE
S-1/2	406020
SB-1/2	406021
S-1	406030
SB-1	406031
F-1/2	406060
FB-1/2	406061
F-1	406070
FB-1	406071

SIZES AND PRODUCT CODES

NEOPRENE PAD (60 DUROMETER)

18" X 18"	PRODUCT CODE
NEOPRENE PAD	500200

TITAN SHOCK PADS

THICKNESS	PRODUCT CODE
1/8"	434421
15/16"	434451
11/32"	432171
1/2"	434401
5/8"	434481
3/4"	434491
1"	434321

VIBRATION ISOLATION ANCHORING PADS

VIBRATION DAMPENING QUALITIES OF ENGINEERED FELT

For thousands of years, man has used felted fiber to absorb shock and vibration. Even with advances in technology in polymer and elastomer chemistry, no other substance to this day equals felt in its ability to isolate against transmitted shock and vibration. UNISORB® RED-LINE™ PADS are also highly resistant or impervious to most industrial chemicals, oils and moisture. Life expectancy, in most cases, will exceed that of the machinery with which they are installed.

UNISORB® MOUNTS AND PADS SATISFY OSHA REQUIREMENTS

UNISORB leveling mounts, pads and anchor bolts satisfy OSHA requirements for machinery installation. Proper use of these products will:

- Improve the efficiency of production equipment.
- Provide safer, more desirable environment for workers.
- Reduce down time and extend the operating life of your machinery.
- Prevent floor damage.

Harmful effects of vibration and noise may cause serious impairment to the efficiency of your workers and the overall effectiveness of your production machinery.

RED-LINE™ ANCHOR PADS



BONDED PAD ILLUSTRATED

Reduced vibration contributes to more efficient operation and longer life of costly machinery. UNISORB's job-engineered RED-LINE™ ANCHOR PADS substantially reduce vibration transmission and keep light and medium-duty machines from "creeping" or "walking" without the use of anchor bolts and will materially reduce transmitted noise. Installations are fast, easy and inexpensive.

HOW TO SPECIFY UNISORB® ISOLATING & ANCHORING PADS

UNISORB® RED-LINE™ ANCHOR PADS Type H, HB, E, EB, D and DB have long been the standard for achieving superior results in the toughest shock/vibration applications. These pads are 100% wool fiber and are suitable for normal industrial environments being unaffected by exposure to oils, cutting fluids and coolants.

UNISORB® RED-LINE™ and RED-LINE™ ANCHOR PADS Type S, SB, F and FB are manufactured from 100% man-made fibers offering excellent performance at a lower cost. Types S, SB, F and FB pads are recommended for use in wet or "exposed to weather" applications or where strong concentrations of acids or bases will be encountered.

Both families of pad materials may be expected to outlive the machinery on which they are installed.

Use this formula to determine the proper pad materials from the chart below:

$$\frac{\text{Weight (pounds per foot)}}{\text{Foot length (inches) X Width (inches)}} = \text{Pounds per square inch}$$

PAD TYPE SELECTION

Load Range (in PSI)	0-50	50-100	100-250	Over 250
Extra Light	Neoprene H-1/4, S-1/2	Neoprene E-1/2, S-1/2	D-1/2, F-1/2	Titan-1/2
Normal	H-1/2, S-1/2	E-1/2, F-1/2	D-1/2, F-1/2	Titan-1/2
Walking Normal	HB-1/2, SB-1/2	EB-1/2, FB-1/2	DB-1/2, FB-1/2	Titan-1/2
Normal Heavy Impact	E-1, S-1	E-1, F-1	D-1, F-1	Titan-1
Walking Heavy Impact	EB-1, SB-1	EB-1, FB-1	DB-1, FB-1	Titan-1
Severe Horizontal	S-1/2, H-1/2 + Adhesive	F-1/2, E-1/2 + Adhesive	F-1/2, D-1/2 + Adhesive	Titan-1/2 + Adhesive

VIBRATION ISOLATION ANCHOR PADS

RED-LINE™ ANCHOR PADS TYPE HB, EB, DB, SB & FB

The nylon-bonded surface of RED-LINE™ ANCHOR PADS provides a high coefficient of friction to effectively prevent machinery from "creeping" and "walking". These pads are not affected by most oils and solutions found in manufacturing plants. Available in standard sheets

WOOL FELT SHEETS - (HB, EB, DB) STD SIZE 3' X 5'
NON - WOOL FELT SHEETS - (SB, FB) STD SIZE 3' X 6'
ALL AVAILABLE IN " CUT-TO SIZE " PIECES

RED-LINE™ PADS TYPE H, E, D, S & F

Available in a variety of densities and thicknesses to fit machine load requirements, RED-LINE™ PADS provide effective, low cost vibration control for machinery. Used with UNISORB® ADHESIVE, RED-LINE™ PADS effectively anchor "hard-to-hold" machinery in place without lagging or bolting. Available in standard sheets

WOOL FELT SHEETS - (H, E, D) STD SIZE 3' X 5'
NON - WOOL FELT SHEETS - (S, F) STD SIZE 3' X 6'
ALL AVAILABLE IN " CUT-TO SIZE " PIECES

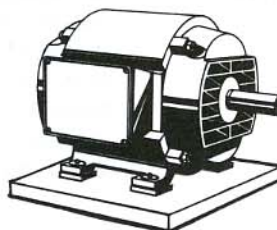
UNISORB® ADHESIVE 90 PSI HOLDING POWER



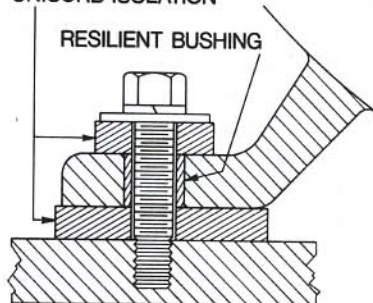
For permanent bonding of RED-LINE™ PADS, UNISORB® ADHESIVE creates a permanent bond to steel, iron, concrete, wood and other floor materials when properly applied. Available in gallon or quart containers. One gallon covers approximately 2,000 square inches of pad on both sides. Will achieve a full cure in as little as four hours. UNISORB® ADHESIVE is freeze/thaw stable and develops sufficient initial tack to permit its use in holding foundation isolation materials in place on vertical foundation surfaces during construction.

PRODUCT APPLICATIONS

BOLT-THROUGH ISOLATION



UNISORB ISOLATION



This basic approach has been applied satisfactorily to equipment from ¼ horsepower electric motors to 2,000 ton capacity stamping presses. The machine foot is completely isolated from contact with either the mounting structure or anchor bolt by isolation material. Neoprene tubing (of the appropriate size) is used for the resilient bushing around the anchor bolt.

RED-LINE PADS

UNISORB was contacted by a company planning to relocate 41 assorted cold headers, bolt makers and nut forming machines from one plant to another. We recommended the use of Type D½ RED-LINE™ PADS and UNISORB® ADHESIVE for proper machine installation but our proposal was initially rejected by the customer as being too expensive. They selected a competitive non-felt material which was lower in cost.

Almost as soon as the machines were installed and operating the company began to experience failure in the installations. A significant number of machines had "walked" off their pads, and in some cases, were stopped only by the walls of the factory.

We were again contacted and our recommendation was to reinstall at least some of the machines on RED-LINE™ PADS. Once our installation was completed and the results observed the company requested that all of the pads in the plant be replaced. Our approach to the correct application of pads is now the approved standard method with the company.

UNISORB ADHESIVE APPLICATION DATA

UNISORB ADHESIVE

DESCRIPTION: A water based, high strength adhesive for anchoring Unisorb Red-Line vibration isolation pads to wood, concrete, steel, aluminum, stone and other surfaces in the installation of industrial machinery and application of foundation isolation materials. Available in quart and gallon containers, a gallon covers approximately 2000 sq. in. of pad on both sides.

Application Instructions

When applying Unisorb Red-Line pads to equipment bases and the floor, it is necessary that the bonding area be completely clean. Apply Unisorb adhesive evenly with a spatula to both sides of the pad, about 1/32" thick. Unisorb Adhesive will achieve full bond in 4-12 hours depending on temperature, humidity and the surface area involved. Equipment may be operated after a full cure is achieved. One gallon of Unisorb Adhesive will cover both sides of a standard 3' x 5' sheet.

Unisorb Adhesive is ideal for bonding inertia block isolation pads to concrete foundations. Apply by using a notched trowel or caulk gun. The adhesive will bond in 30 secs. to 12 mins. depending on temperature, humidity and surface conditions. Unisorb Adhesive may be applied at the rate of 60-75 sq. ft. per gallon.

After use cover the can tightly to prevent evaporation. Prior to cure Unisorb Adhesive can be cleaned up with soap and water. To remove Unisorb Adhesive after cure, soak approximately 30 minutes with Trichlorethylene or MEK.

Physical Properties

Base	Synthetic Elastomer
Carrier	Water
Color	Black
Solids Content	69%
Flash Point	None (COC)
Consistency	Buttery Mastic

Storage and Handling

Store above 40°F, optimum storage between 60°F and 80°F. If stored at lower temperatures, allow material to warm to room temperature before using. Unisorb Adhesive is freeze/thaw stable for a few cycles at 0°F.

Avoid eye contact. Immediately flush with plenty of water for 15 minutes and seek medical attention.

SHIPPING CLASSIFICATION: Adhesive Cements, NOI

D.O.T. HAZARD CLASSIFICATION: None

CHEMICAL RESISTANCE OF RED LINE PADS - TYPE S & F

CHEMICAL RESISTANCE OF UNISORB RED-LINE PADS TYPE S AND F

CHEMICAL	RATING
Water	E
Detergent/Water	E
Acetone	G
Methyl Ethyl Ketone	N/R
Methyl Alcohol	E
10% Sulfuric Acid	F
10% Sodium Hydroxide	F
5% Hydrochloric Acid	N/R
6% Ammonium Hydroxide	F
Gasoline	G
Trichlorethylene	E
Glycerin	E
Mineral Oil	E
Motor Oil	E
Lubricating Oil	E
Hydraulic Oil	E

E = Excellent, OK for immersion or repeated exposure.
G = Good, OK for occasional exposure.
F = Fair, OK for infrequent exposure.
N/R = Not Recommended

Please contact ACORN for chemical resistance for chemicals not listed. Because each application varies by the exact combination of chemicals exposure and temperature, we recommend product performance be verified by a test prior to the installation.

APPLICATION GUIDELINES - COLD HEADERS

APPLICATION GUIDELINES FOR THE INSTALLATION OF NATIONAL COLD HEADING AND BOLT MAKING EQUIPMENT PADS AND ADHESIVE METHOD

The following guidelines have been developed over the past several years and reflect knowledge gained through hundreds of successful applications involving National Cold Headers and Bolt Makers. Adherence to the guidelines presented herein will insure cost-effective and long-life installations.

PAD MATERIAL RECOMMENDATIONS:

In all cases, it is recommended that UNISORB Red-Line Type D $\frac{1}{2}$ " Pad Material be employed. In this application, the Red-Line Type D $\frac{1}{2}$ " Pad Material should be loaded to between 40 and 60 psi (static).

ADHESIVE:

In all applications, standard UNISORB Adhesive is recommended.

DESIGN CONSIDERATIONS:

These applications are well-served by installing one pad under each corner of the machine. The size of the pads must be adjusted so that the psi loadings of the individual pads are equal. On the later type machines, which typically employ a flat base plate, this is simply done by varying the pad dimensions. On the earlier and smaller machines, which typically have four individual support feet, it is usually necessary to use an additional steel plate, bolted securely to the machine foot. A single, large plate encompassing all four mounting points is usually used for this service. If desired, however, individual plates may be fabricated for each machine support point which corresponds with the calculated pad area. It is recommended that plate thicknesses of 1" for machines up to 50,000 lbs. be employed with 1 $\frac{1}{2}$ " plates used on larger units.

Experience has shown that weight distribution between the four mounting areas is relatively representative of the entire line. Figure 1 presents the approximate weight distribution to be used in calculating pad areas.

As previously stated, it is necessary to insure that the isolation pads are sized so that the psi loadings seen by each are very nearly equal. Knowing the weight distribution and the static weight of a given machine, it is possible to calculate simply the required area of pad material for each corner. Figure 2 presents a sample calculation for 5/16 bolt maker. Calculations for other units should follow this example.

For machines with static weights in excess of 70,000 lbs , it is recommended that ACORN be contacted for a review of the application.

INSTALLATION PROCEDURE - COLD HEADERS

INSTALLATION PROCEDURE:

The basic procedure to be followed consists of preparing the floor area where the machine is going to be installed, locating the proper UNISORB Pads, applying the UNISORB Adhesive to the upper and lower surfaces of the pads, and lowering the machine into position. It is important that the concrete floor in the area where the pads are to be applied is in good condition and free from grease, oils or other contaminants. Trichlorethylene or mineral spirits are excellent solvents for use in preparing existing concrete floors. It is recommended that once the machine has been placed, a minimum curing time of 48 hours be observed prior to operating the unit.

NATIONAL HEADER INSTALLATION GUIDELINES

Figure 1 Typical Weight Distribution

C 16%		Flywheel A 40%
D 16%		B 28%

Figure 2 Sample Pad Calculation (National 5/16 Bolt Maker)

Machine Weight: 16,300 lbs.

- (1) Load at A $16,800 \times 40\% = 6,720\#$
Load at B $16,800 \times 28\% = 4,704\#$
Load at C & D $16,800 \times 16\% = 2,688\#$

Desired Pad Loading: 50 psi ($D\frac{1}{2}$)

- (2) Area of Pad Required at A $6,720\# \div 50 = 134.4$ sq. in.*
Area of Pad Required at B $4,704\# \div 50 = 94.1$ sq. in.
Area of Pad Required at B & C $2,688\# \div 50 = 53.8$ sq. in.
- (3) At A Use 7" x 20" Pad**
At B Use 7" x 14" Pad
At C & D Use 7" x 8" Pad

* 80 sq. in. minimum allowable under flywheel

** Flywheel overall length should be 3 times it width minimum.

NEOPRENE PADS

NEOPRENE PADS FOR MACHINES WITH FLOOR LOADING 5 TO 100 PSI



The smooth edge design of the low cost oil-resistant UNISORB® NEOPRENE PAD prevents oil, grease, and dirt from accumulating beneath the load-bearing surface of the pad. Available in 24" x 24" x 5/16".

Applications involved include:

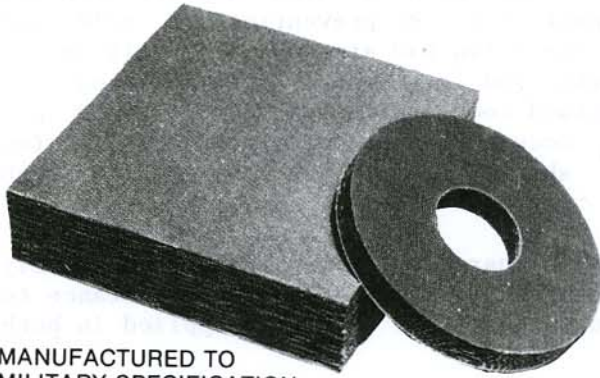
Heat Pumps
Roof-Top Air-Conditioners (gas/electric type and
evaporative type)
Exhaust Fans
Furnace Bases
Refrigeration Equipment

In general the Unisorb isolation pads are employed to prevent the transmission of undesired sound and vibration to building structures.

For these applications it is important to note the following advantages of the Formula I Neoprene pad:

The material is easily cut to size with scissors.
The cross-patch pattern on the pad itself effectively pre-measures (by square inches) the pad.
The loading of 5 - 50 PSI is adequate for all applications.
The standard 2' x 2' sheet is conveniently handled and easily stored.
No need to duplicate inventory with additional sizes and types as Formula I does all.
Unisorb Neoprenes are resistant to oil, grease, acid, etc.
Once in place, the pad is self-sealing regardless of how it is cut or shaped.
The 5/16" thickness does not add substantially to the height of the installed unit.

TITAN™ SHOCK PADS FOR EXTREME LOADINGS AND HEAVIEST IMPACTS



MANUFACTURED TO MILITARY SPECIFICATION MIL-C-882 D

TYPICAL APPLICATIONS

- Ball mills
- Compressors
- Forging hammers
- Heavy presses
- Impact generating machine shop equipment
- Presses
- Pumps
- Structural bearings
- Central air conditioning
- Foundry equipment (jolters, shakeouts, etc.)
- Generators
- Hydraulic hammers
- Motors
- Printing presses
- Refrigeration equipment
- Textile machinery

Impact shock and vibration can do costly damage to machines, mounting devices and floors and noise may reduce efficiency of operating personnel. TITAN™ SHOCK PADS offer an easy economical way to solve these problems.

Made of a tough textile base laminated with a specially formulated oil-resistant neoprene compound, these multiply pads provide protection and vibration isolation needed for machines and equipment, ranging in size from presses to forging hammers. TITAN™ SHOCK PADS protect floors and machine mountings against damaging impact shock while absorbing vibration and dampening structure-borne noise.

TITAN SHOCK PAD SPECIFICATIONS

CONSTRUCTION —	Laminated plies of oil-resistant neoprene-frictioned fabric. All plies laid straight with a continuous ply of frictioned duck on each cover side. 64 plies of frictioned duck per one-inch thickness.
MAXIMUM SIZE —	Mill run sheet sizes 1/8" through 3/8" thick; 48" wide. 1/2" thick and over: 48" x 14 1/2'
THICKNESS TOLERANCE —	± 5%
TENSILE STRENGTH —	4,000 psi, minimum
HEAT RESISTANCE —	No visible change after 72 hours at 160° F
COMPRESSION STRENGTH—	Up to 18,000 psi perpendicular to the plane of laminations
DENSITY —	0.0487 lbs. per cubic inch
DUROMETER —	Shore A 90 ± 5

TYPICAL DEFLECTION

Load in Lbs. per Sq. In.	14 Ply 15/64" Thick	21 Ply 11/32" Thick	31 Ply 1/2" Thick	39 Ply 5/8" Thick	48 Ply 3/4" Thick	64 Ply 1" Thick
50	.003"	.005"	.006"	.008"	.010"	.012"
100	.005	.007	.010	.013	.015	.021
200	.008	.012	.017	.021	.025	.034
500	.014	.021	.031	.038	.046	.061
1,000	.022	.032	.047	.058	.070	.093
2,000	.033	.048	.070	.088	.105	.140

Thicknesses other than standard are available.