RELIABLE SOLUTIONS
FOR VIBRATION ISOLATION AND IMPACT SHOCK CONTROL

FABREEKA®
A STABILUS COMPANY

FABREEKA
THE COMPANY

In October of 2018, Fabreeka celebrates 100 years of competence and experience in vibration isolation and shock control. Headquartered in Stoughton, MA, and operating globally, Fabreeka is a leading supplier of high-quality products coupled with exceptional engineering knowledge and first-class service thanks to its many years of experience and great strength for innovative solutions.

"Many companies offer products for vibration isolation and shock control, Fabreeka demonstrably delivers sophisticated technical solutions. Understanding customer-specific requirements and pairing the necessary solutions with proven products has been one of our strengths for 100 years."

General Manager David Meyer

Isolation of buildings and constructions; solutions for aerospace and automotive test equipment; eliminating vibrations and shocks in refineries and mining, as well as in various other industrial environments; the applications of Fabreeka are almost as numerous as their products are varied. The foundation of this market position is the Fabreeka pad. Made of fabric-reinforced elastomer, this component was ahead of its time in terms of vibration and shock absorption properties. Proof of this is that Fabreeka pads are still being used globally, more than 80 years after their market launch and continually optimized, where absorption of impact shock and isolation of transmitted vibration is desired.

This benchmark product was the result of a close collaboration in the early days with engineers from the Massachusetts Institute of Technology (MIT) and Goodyear. The cooperation with MIT continues to this day.

Other innovations along the way include, the Fabcel pad, developed in 1962 and equipped with properties to provide low frequency vibration isolation and reduction of impact shock. Slide bearings were introduced in 1969 incorporating the Fabreeka pad to take up adverse rotation.

Since the early 1990's, Fabreeka has provided more cutting edge solutions by actively reducing vibrations pneumatic isolation systems. They are optimally suited for conditions in which height control and low-frequency vibration control must be present at the same time, even using clean-room compatible materials if required.

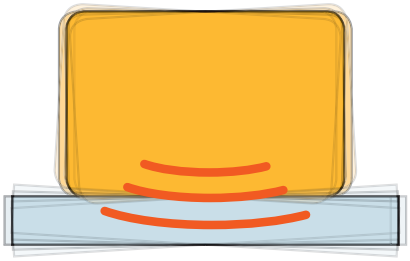
As an answer to growing requirements worldwide for structural thermal breaks to reduce energy loss within commercial and residential building envelopes, Fabreeka has perfected Thermal Insulation Material (TIM). Today, green Fabreeka-TIM® is a trade-mark recognized the world over for its more energy-efficient buildings.

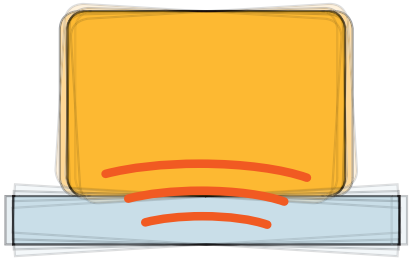
Thanks to these offerings and a continued look to the future, the company is well - prepared to further expand its position over the next 100 years.

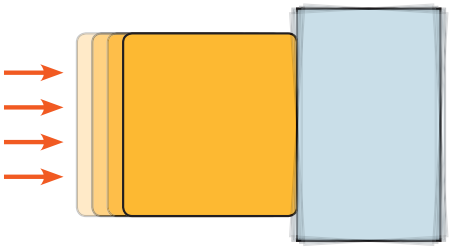
Fabreeka under a strong roof with STABILUS

Fabreeka has been a member of the STABILUS group since 2016. STABILUS is the world market leader for gas springs and dampers, headquartered in Koblenz, Germany, with a worldwide network of production facilities and subsidiaries, including Fabreeka. Within the STABILUS family, Fabreeka has all the support and opportunities to continue to innovate and grow sustainably.

VIBRATION PROBLEMS?
ASK US FOR AN IDEAL SOLUTION





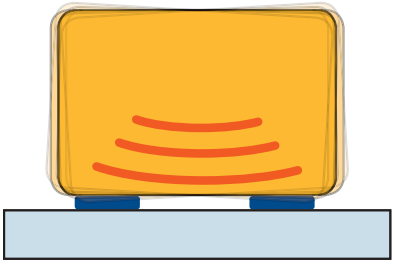


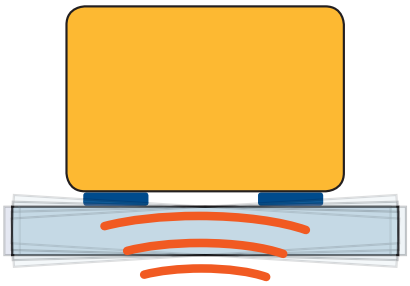
A new challenge every day from vibration afflicted processes and shock loads?

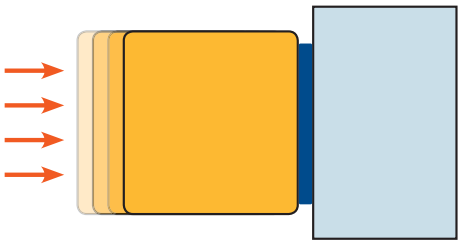
- By design or by accident, some machines generate unwanted vibrations that are transmitted to the environment; this causes a burden on surrounding components in production, or on your employees or local residents.
- Your production involves high-precision processes and measurements that are adversely affected by environmental factors.
- Shocks at high or low impact velocity affect the quality of your products or damage surrounding components.

We'll find the best-suited product from our decades of experience.

- We supply solutions for any load or size range.
- We can cover almost any relevant frequency range by product and material selection best-suited to your application.
- Our solutions successfully filter out vibration while reducing amplitudes up to 98%.
- Our pad materials developed in-house absorb almost a hundred percent of incoming impact energy.
- We provide protection for your employees, your equipment, and your investment.







APPLICATION EXAMPLES BY INDUSTRY
WE PROVIDE MORE THAN ISOLATORS.

We at Fabreeka International have lead the market in vibration and shock isolation since 1936. Since then, we've gone beyond manufacturing isolators to providing a broad range of expert services to industry, with recommendations based on our in-depth knowhow in engineering from measurement and consulting to design and construction to installation, implementation and acceptance testing.

Industrial Machinery
- Compressors
- Pumps
- Fans
- Grinding equipment
- Injection moulding machines

Automotive Testing
- Actuators
- Shakers
- Shaker tables
- Climate and vacuum chambers
- Drop towers
- Dynamometers

Laboratory Equipment
- Microscopes
- Coordinate Measuring Machines
- Hardness and roughness measuring devices
- Medical equipment (CT, MRI)
- AOI machines

Metal Forming
- Forging Hammers
- Presses

Industrial Machinery: Pads, mounts and foundation isolation products reduce vibration on machinery

Automotive Testing: Low frequency isolation systems for rolling roads, engine test rigs, dynamometers, and other test equipment

Metal Forming: Fabreeka pads used to greatly diminish impact shock from forging hammers and presses

Laboratory Equipment: CMM isolated on low frequency PAL isolators

Mining: Fabreeka ring cushion reduces maintenance and downtime on dragline/shovel

Aircraft Testing: Fabreeka Soft Support System used to float aircraft for ground vibration testing

Oil & Gas: Reduce vibration from rotating equipment, as well as thermal expansion on a pipeline

Power Generation: Noise and vibration are reduced on transformers and substation equipment

Steel making: Impact shock is reduced when hot coils drop during the steel making process

Transportation: Reduce vibration in rail cars and improve track maintenance with pads under rails

Aircraft Testing
- Soft Support Systems

Mining
- Crushers
- Screening equipment
- Vibratory conveyors
- Mills
- Dragline

Oil & Gas
- Pipe supports
- Piston compressors
- Oil rigs
- Offshore oil platforms

Power Generation
- Generator installation
- Transformers
- Turbines
- Emergency generators

Steel Making
- Coil racks
- Roller tables
- Stop beads
- Funnels

Transportation
- Railway tracks
- Rail vehicles
- Vehicle construction
- Railroad bridge bearings

Building & Construction
- Bridges
- Buildings
- Elevators/Lifts
- Industrial flues
- Facades/Building envelope
- Stack damping rings

Cranes
- Crane Rail Pad

Pulp & Paper
- Debarkers
- Chipping Machines
- Hogs
- Vibrating Screens
- Pulp Presses
- Pumps
- Piping

Building & Construction: Reduce structure-borne noise, vibration and thermal bridging in buildings

Cranes: Reduce vibration, relieve girder stress, improve load distribution and eliminate mechanical wear

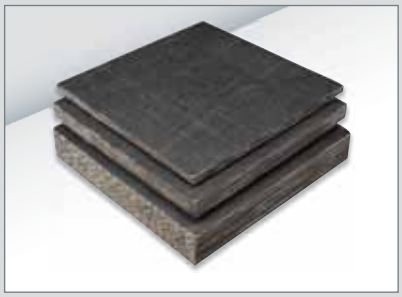
Pulp & Paper: Minimize impact shock and vibration throughout the pulp and paper process

PRODUCTS

FABREEKA OFFERS A RANGE OF PRODUCTS FOR BEST RESULTS.

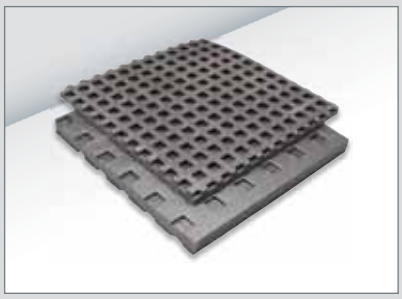
Please refer to pages 12-13 for a guide to product selection including loads and frequency ranges.

Fabreeka is a market leader in vibration and shock control which has been providing customized engineering services and products to various markets for over 100 years. We manufacture quality American made products for a variety of markets, including building and construction, industrial equipment and heavy industry. Sound engineering principles and tested performance support all of our recommendations. Fabreeka is more than a manufacturer of isolators. We engineer solutions for vibration and shock problems.



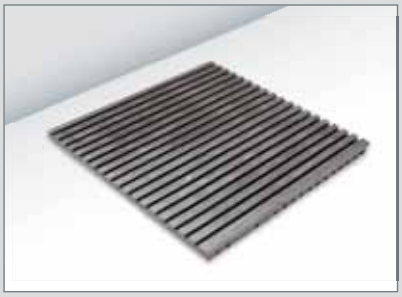
Fabreeka® Pad

Fabreeka® pad is the original fabric reinforced, elastomeric pad which is exceptionally suited for the reduction of impact shock and used for mounting heavy machinery where absorption of impact shock and isolation of transmitted vibration is desired. Fabreeka pad has a relatively high damping rate of 14% of critical, and twice the value of damping for natural rubber and unreinforced elastomers. It has a natural frequency as low as 12 Hz, is impervious to most oils and solvents and is resistant to the effects of steam, water, mildew and brine.



Fabcel® Pad

Fabcel® vibration isolation pad is manufactured using the same nitrile compound that was developed in 1962. Designed to provide low frequency vibration isolation and reduction of impact shock, it can have a vertical natural frequency as low as 5.0 Hz and a horizontal natural frequency as low as 3.0 Hz. Fabcel pad has been used for mounting machinery and sensitive equipment where absorption of impact shock or isolation of transmitted vibration is desired. Fabcel® has a high energy storage rate per unit volume which makes it ideal for certain shock isolation applications.



DIMFAB 280

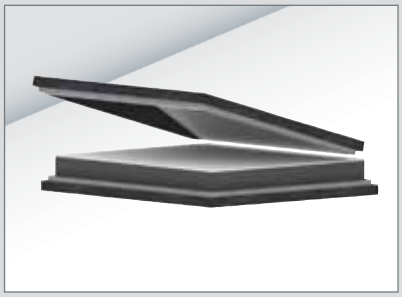
DIMFAB pads are a proven solution where structure-borne noise, vibration and shock isolation is required on surface ships and in submarines. DIMFAB exhibits good drift resistance and can withstand hostile environments. It is easy to install, cut with scissors or a sharp knife, and is easily stacked for greater thicknesses. Typical isolated equipment on vessels includes propulsion systems, communications equipment, electrical and hydraulic equipment and reciprocating machinery.

Isolation Washers and Bushings

Fabreeka® isolation washers and bushings are used to eliminate metal-to-metal contact and break the vibration or shock transmission path. Washers & bushings are typically used in conjunction with Fabreeka pads or Fabcel pads where the reduction of impact shock or isolation of transmitted vibration is required. Bushings are manufactured with the same properties as Fabreeka pad, and therefore offer years of service under the most severe operating conditions.

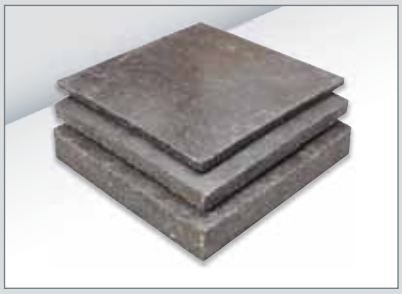
Fabreeka® Structural Expansion / Slide Bearings

Fabreeka offers many types of slide / expansion bearings, depending on your application. All Fabreeka slide bearings are supplied with an upper and lower unit. Incorporating our Fabreeka® pad to take up adverse rotation, Fabreeka SBX structural expansion bearings are the most resilient and used when construction tolerances, high load and rotation are prominent with beam spans being excessive. Fabreeka STX expansion bearings are comprised of stainless steel upper unit and PTFE lower unit. The STX bearing has an extremely low coefficient of friction, which is exceptional for use where expansion is large. Fabreeka TTX expansion bearings are comprised of PTFE upper and lower units. The TTX bearing has a higher coefficient of friction than the STX Bearing and is used where expansion criterion is limited.



SA-47® Pad

SA-47® bearing pad provides compensation for surface irregularities and non-parallel load bearing surfaces in precast concrete, building and construction applications. The reinforced elastomeric bearing pads can also be provided with a Teflon® surface for use in expansion bearings and pipe slides. SA-47 pads are impervious to most oils and resistant to the effects of steam, water, mildew and brine.

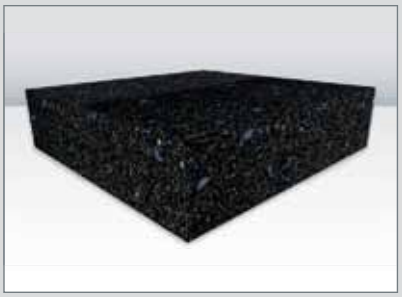


Fabreeka-TIM® Structural Thermal Break

Fabreeka-TIM®, thermal break or thermal insulation material, is manufactured from a fiberglass-reinforced laminate composite. The properties of this material provide a thermally efficient, energy-saving product that prevents thermal bridging in structural connections. Fabreeka-TIM is a load bearing thermal break used between flanged steel connections. The primary benefit is that it maintains structural integrity, while reducing energy loss.

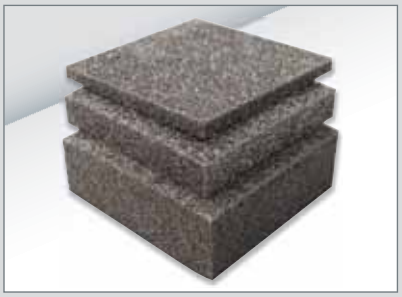
FAB-EPM HP®

FAB-EPM HP® material is a mixed cell polyurethane foam specifically designed to provide low frequency vibration isolation for building and machine foundation isolation. The natural frequency of FAB-EPM HP is dependent on load and type of material and ranges from 6 Hz to 40 Hz. FAB-EPM HP material is manufactured in many densities, which allows for optimal isolation performance.



FAB-EFP®

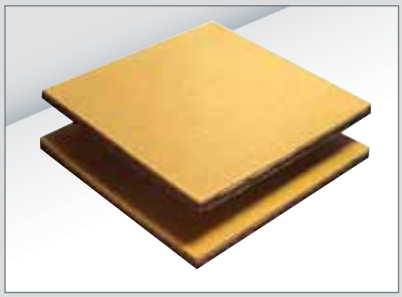
FAB-EFP® is a cost-effective, enviromentally friendly isolation material created from recycled products. The material comes in large sheets for easy installation, with a wide load range, producing consistent performance. There are several different densities available for an extensive range of applications from isolating inertia masses and buildings, to industrial equipment.



Fabsorb®

Fabsorb® material absorbs machine-induced energy, limits the transmission of higher frequency disturbances and provides isolation from steady-state and induced shock and vibration in machinery support foundations.

The natural frequency of Fabsorb is dependent on load and type of material, and ranges from 12 Hz to 50 Hz.

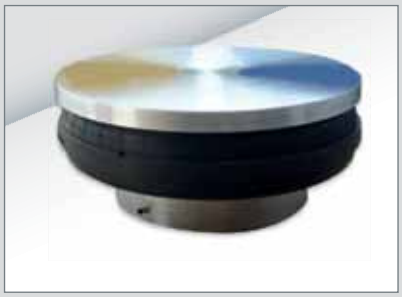


Fabreeka® Crane Rail Pad

Fabreeka®-LTP crane rail pads are available for use in light to heavy/severe service duty. Type CR2-3 is manufactured using a fabric reinforced, oil resistant elastomer. Type CR17-5 is manufactured using Fabreeka pad, which is composed of multiple layers of fabric reinforcement providing enhanced compressive strength, stiffness and reduction of bulging under high compressive loads. Both types of rail pad have an LTP (laminated thermoplastic) surface, which is integrally molded to the pad material under heat and pressure. Fabreeka rail pads have been used since 1962 and have been shown to provide up to a 40% reduction in runway/rail stresses while also providing a reduction in noise and vibration.

Fabreeka Precision-Aire™ Rolling Lobe Air Mount (RLA)

Air bag type pneumatic isolators provide low frequency isolation in the vertical and horizontal directions. The natural frequency depends on the floatation height and style of air bag (single, double or rolling convolution). The horizontal spring rate (stiffness) and air bag stability are also a function of the flotation height. Accordingly, each type of air bag has an optimal flotation height. Lower vertical natural frequencies can be obtained by adding additional air volume, such as an auxiliary tank. One of the features of an air bag type isolator is that they provide a large stroke when inflated. Therefore, air bag isolators are able to be designed into applications where large dynamic displacements are a factor.

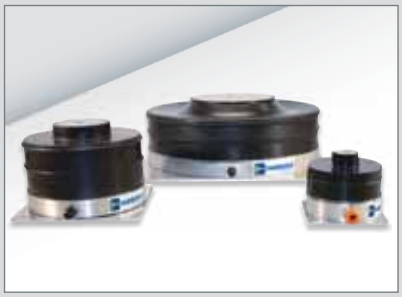


Precision-Aire™ Leveling Isolators (PAL)

Fabreeka PAL pneumatic isolators provide superior low frequency vibration isolation. These isolators are ideally suited for conditions where height control and low frequency vibration control must co-exist. PAL isolators react quickly to changes in the supported load and to center of gravity shifts by automatically re-leveling to a preset position.

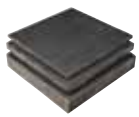
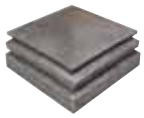
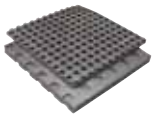
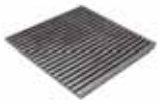
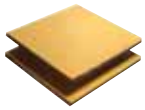
Precision-Aire™ Pneumatic leveling Isolators (PLM)

The Fabreeka® PLM series pneumatic isolation mounts are low frequency vibration and shock isolators which provide both attenuation of disturbing vibration and equipment leveling. For vibration control applications, the pneumatic portion of these mounts provide significant reduction of vibration occurring at frequencies above 5.0 Hz. For shock or impact applications, the outer elastomeric wall construction provides a high deflection shock mount.



Please refer to pages 12-13 for a guide to product selection including loads and frequency ranges.

GUIDE TO PRODUCT SELECTION

Fabreeka Product	Fabreeka® pads	SA-47 Pads	Slide Bearings (Type SBX)**	Fabcel® Pads	DIMFAB Pads	Crane Rail Pads
Shock Impact	Yes	Yes	No	Yes	Yes	No
Vibration Isolation	Yes	Yes	Yes	Yes	Yes	Yes
						
Vibration Isolation Frequency Range (Hz)	12 - 60	15 - 25	12 - 60	6 - 40	6 - 40	
Max Operating Load	10,000 psi* 68.95 N/mm²	7,000 psi* 48.3 N/mm²	1,500 psi 10.4 N/mm²	5 - 300 psi 0.03 - 2.1 N/mm²	5 - 50 psi 0.034 - 0.345 N/mm²	up to 12,000 psi up to 83 N/mm²
Typical Applications	Bridges Buildings Bump Stop Crushers Drill Rigs Draglines / Shovels Engines / Generators Fans / Blowers Forging Hammers Grizzlies Lamp Post Pads Piping Presses Pumps / Motors Railcars Rail Tie Pad Stacks Steel Coil Drops Wind Turbines	Bridges Lamp Post Pads Masonry Pads Precast Concrete Structures Railcars Rail Tie Pads	Bridges Complex Structures	Compressors Coordinate Measuring Machines Drill Rig Elevators Engines / Generators Fans / Blowers Heliports Industrial Machinery Presses Pumps / Motors Transformers	Submarines Vessels	Bridge Crane Gantry Crane Ore Crane

* Compressive load. Permanent Static load of Fabreeka pad is 2,000 psi (13.8 N/mm²), and SA-47 is 1,500 psi (10.4 N/mm²). Contact Fabreeka Engineers to discuss your application.
** Other types of slide bearings are available. Contact Fabreeka Engineers to discuss your application.
*** Light load thermal break is available for non-moment connections. Contact Fabreeka Engineers to discuss your application.

Fabreeka-TIM® Thermal Break***	FABSORB	FAB-EPM HP®	FAB-EFP®	PLM Air Spring Elements	PAL Air Spring Elements	RLA Air Spring Element
No	No	No	No	No	No	No
No	Yes	Yes	Yes	Yes	Yes	Yes
						0.6 - 1.5
					0.5 - 4	
				3 - 10		
		6 - 25				
	11 - 50		11 - 20			
38,900 psi 268 N/mm²	2 - 10 psi 0.014 - 0.069 N/mm²	0.9 - 15.9 psi 0.006 - 0.11 N/mm2	1.4 - 290 psi 0.0097 - 2 N/mm²	50 - 9,600 lbs 22.7 - 4,354 Kg	120 - 100,000 lbs 55 - 45,360 Kg	7,700 - 69,300 lbs 3,500 - 31,500 Kg
Structural Steel Connections incl: Balconies Canopies Cold Storage Facilities Curtain Walls Rooftop	Foundation Isolation	Buildings Foundation Isolation Industrial Machinery Rail Signals	Buildings Foundation Isolation Industrial Machinery	Automotive Test Equipment Industrial Machinery Shakers Testing Equipment	Aircraft Soft Support Systems Automotive Test Equipment Coordinate Measuring Machines Foundation Isolation MRI NMR Vacuum Chambers Shakers	Automotive Test Benches Earthquake Simulators Wind Energy Test Benches Railway Test Benches Aircraft Component Text Benches Emergency Power Generators Industrial Shredder Machinery Shakers

0 1 2 3 4 5 6 7 8 9 10 20 30 40 50 60

SERVICES
COMPLETE VIBRATION CONTROL SOLUTIONS.

Providing solutions for unwanted vibration and shock can sometimes involve more than providing the correct isolator. For many applications, our customers ask for turnkey program management to fulfill project requirements.

Vibration Site Survey and Analysis Services

Low frequency vibrations and large shock inputs can affect the accuracy, repeatability and throughput of precision machines and equipment. Most precision machine tool and measuring machine manufacturers have established allowable vibration specifications for their machines. Fabreeka utilizes highly accurate instrumentation to quantify the amplitude and frequency of vibration to make proper vibration control recommendations.

Fabreeka® Finite Element (FEA) Analysis Services

Examining mode shapes in a vibrating structure is a valuable step in adjusting vibration amplitudes by varying the stiffness, mass or damping. A finite element analysis will define and model the mode shapes and response frequencies of a structure, as well as the response of the isolation system to machine-induced inputs and/or environmental inputs.

Fabreeka Online Sizing / Calculation Tool

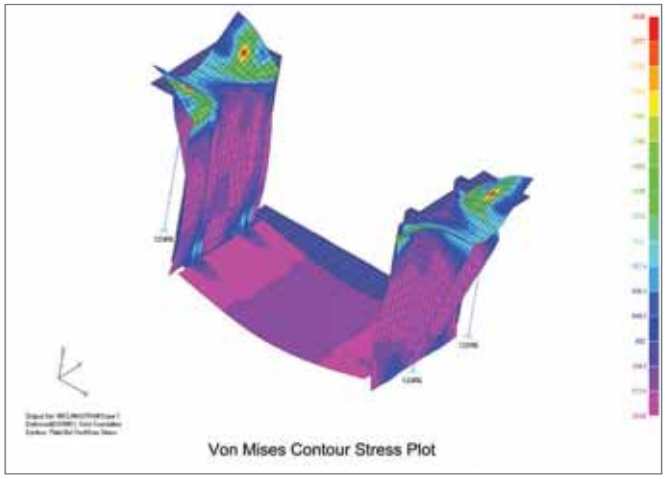
Fabreeka has launched an online sizing tool for machine foundation isolation. Designers of foundations or inertia masses for industrial machinery achieve quick results when inputting their information about the foundation they want to design, along with the specifications of the machine they want to install. The easy-to-use software is available on our website 24/7, while printable PDF files and unique ID numbers for each new entry make less back and forth, e. g. during the bidding phase and ordering process. Moreover, the new tool visualizes the customers' applications in 3D by always indicating the machine position and its suggested foundation, and it lets users choose from up to four options in vibration isolation, covering all price ranges for best selection according to budget. Fabreeka and its employees are of course always available for communication and consultation by phone, email and in person on location.

Fabreeka® has been committed to providing the utmost in quality and service to our customers since our incorporation in 1918.

The experience of our technical staff in addressing vibration isolation concerns will prove invaluable on your project.

Fabreeka® Turnkey Project Management Services

In addition to our individual services, Fabreeka offers turnkey program management to complete your project from design through construction, including a complete vibration isolation solution. Fabreeka® has an organized program structure to maximize the responsiveness and communication among all parties. Relationships we have developed on similar projects in the past will help to maintain the quality and schedule of your project.



Stress analysis of a steel support frame for an electron microscope. The frame will also be analyzed dynamically for structural modes (resonances).

Fabreeka turnkey project management services include:

VIBRATION SITE SURVEY AND ANALYSIS

- Evaluate existing environment
- Baseline vibration measurement
- Compare existing vibration to OEM vibration criteria
- Make a vibration isolation recommendation (pads vs. pneumatic, pad thickness, custom vs. standard solution)

FINITE ELEMENT ANALYSIS

- Von Mises analysis
- Loading and anchors
- Rigid and bending mode shapes
- Frequency responses
- Static and dynamic deflections
- Recommendation on structural reinforcement

CONSTRUCTION DRAWINGS

- Foundation design based on location soil analysis
- Detailed drawings including material specifications and locations, anchoring, utilities and other interfaces
- PE stamped if required
- Can provide the construction drawing so you can get your own general contractor if preferred

CONSTRUCTION MANAGEMENT

- Fully insured
- Concrete work (foundation pit and inertia mass)
- Supply bedplate and installation
- Equipment anchoring
- Utilities (electric, plumbing and air)
- Work with equipment OEMs
- Regular design reviews to ensure what is needed is what you get
- Regular project updates to ensure the project is on time and on budget

Examples of machinery installations from previous projects include: dynamometers, vibratory shakers, four post shakers, electron microscopes, forging hammers, presses.

Please contact Fabreeka to discuss your project and the services we offer.

Want to learn more about us, or have a specific isolation issue?

Ask us about it – we'll get together to find a solution.

If you have any questions regarding how Fabreeka's products comply with various regulations, please refer to our website at www.fabreeka.com/product-compliance

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