



**BLADDER TYPE PULSATION DAMPENER**



RUDRA

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## BLADDER TYPE PULSATION DAMPENER

### ABOUT US

Rudraksha Engineering is an accomplished manufacturer of various dosing systems- Bladder type Pulsation Dampener , Volumetric Dampener , Manual Polymer Dosing System, Semi-Automatic Polymer Dosing System, Automatic Polymer Dosing System, established in the year 2019.

We, experts in water and wastewater treatment, have a team of experts dedicated to bring about change in how various industries look at water processing and its utilization. With more than 16 years of deep thinking in this industry, we are recognized as one of the pioneers offering various solutions in this field. To Facilitate our clients with the best, we have in-house facilities and a state-of-the-art manufacturing unit that helps us to deliver exceptional quality products that are recognized all around the globe.

#### OUR VISION

Emerging as a most potent and reliable company of integrated water & wastewater solutions. Our vision of “creating a vivid, optimistic future, together” is a message to our employees, clients & all industries that we are more than a premise, collection of projects & contracts.

#### OUR MISSION

Along with aiming for high revenues and portfolio expansion, we are continuously aiming at providing cost effective solutions to our customers. We intend to this by putting in practice ecofriendly methods whilst using advanced techniques that maximize overall system effectiveness.

#### CORE COMPETENCIES

**Driven by Innovation:** As a brand we believe in the power of knowledge. That is why we invest resources to make sure we develop groundbreaking solutions for our clients.

**Radical Outlook:** Our unique approach and design methodologies help us produce outstanding results whilst maintaining cost effectiveness and superior built.

**Brilliant Team:** We believe in the power of teamwork.

**Exceptional Products & Services:** We provides remarkable machines & equipment and also round-the-clock service and assistance for a hassle-free engagement and experience.

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## BLADDER TYPE PULSATION DAMPENER

### Product Overview of Bladder-Type Pulsation Dampener

Rudraksha Engineering's bladder-type pulsation dampeners are engineered to provide exceptional performance in industrial fluid systems. These devices are essential for mitigating pressure fluctuations, reducing noise and vibration, and ensuring the smooth operation of pumps and compressors. By integrating cutting-edge materials and design, our pulsation dampeners deliver reliable and long-lasting solutions for a wide range of applications.

#### Core Functionality

The primary function of a bladder-type pulsation dampener is to absorb and neutralize pressure pulsations generated by reciprocating pumps or compressors. These pulsations can cause significant issues such as noise, vibration, and potential damage to system components. Our dampeners utilize a flexible bladder filled with pre-charged gas to cushion and smooth out these pressure spikes, ensuring a consistent and stable fluid flow.

#### Design and Components

1. **Housing:** The outer casing, available in stainless steel or carbon steel, provides robust protection and durability, suitable for various industrial environments.
2. **Bladder:** Made from high-quality elastomeric materials like Nitrile, EPDM, or Viton, the bladder flexes to absorb pressure changes effectively.
3. **Pre-Charged Gas:** Typically, nitrogen, the gas inside the bladder acts as a cushion, compressing and expanding to dampen pressure fluctuations.
4. **Fluid Inlet/Outlet:** Connection points where the fluid enters and exits the dampener, designed for easy integration with existing systems.

#### Operational Mechanism

1. **Pre-Charge State:** The bladder is pre-charged with nitrogen gas to a specific pressure before the system begins operation.
2. **Fluid Entry:** As the pump or compressor operates, fluid enters the dampener and exerts pressure on the bladder.
3. **Bladder Compression:** The bladder compresses the gas as it expands, absorbing the pressure pulses.
4. **Pressure Stabilization:** The dampener continuously adjusts to pressure changes, maintaining a stable fluid flow.
5. **Equilibrium:** When system pressure normalizes, the bladder returns to its original state, ready for the next set of pulses.

#### Advantages

1. **Smooth Fluid Flow:** Ensures consistent and stable fluid flow by absorbing pressure fluctuations.

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## BLADDER TYPE PULSATION DAMPENER

2. **Noise and Vibration Reduction:** Minimizes operational noise and vibration, leading to a quieter and more stable system.
3. **Extended Equipment Life:** Protects system components from pressure-induced wear and tear, reducing maintenance costs and extending lifespan.

### Applications

Rudraksha Engineering's bladder-type pulsation dampeners are versatile and suitable for various industries:

1. **Oil & Gas:** Stabilizing flow in pipelines and protecting sensitive instruments.
2. **Chemical Processing:** Ensuring precise chemical handling and protecting equipment.
3. **Water Treatment:** Maintaining consistent pressure in water supply systems.
4. **Hydraulic Systems:** Smoothing out pressure spikes from hydraulic pumps.
5. **Pharmaceuticals:** Protecting sensitive equipment and maintaining strict quality control standards.

### Customization and Options

We offer a range of customization options to meet specific application needs:

- **Custom Bladder Materials:** Including Butyl, Teflon, and others for compatibility with different fluids.
- **Special Coatings:** For enhanced resistance to corrosive environments.
- **Varied Connection Types:** To match your existing system configurations.

Rudraksha Engineering's bladder-type pulsation dampeners are designed to deliver reliable performance and durability, making them an essential component for any fluid system requiring pressure stabilization. Our commitment to quality and innovation ensures that our dampeners meet the highest standards, providing you with a dependable solution for your industrial needs.

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## BLADDER TYPE PULSATION DAMPENER

### Key Features of Bladder-Type Pulsation Dampener

#### 1. Effective Pulsation Dampening

- A. **Absorption of Pressure Pulsations:** Designed to absorb and neutralize pressure pulsations caused by reciprocating pumps and compressors, ensuring smoother and more stable fluid flow.

#### 2. Flexible Bladder Design

- A. **High-Quality Elastomeric Bladder:** The internal bladder is made from durable elastomeric materials such as Nitrile, EPDM, or Viton, offering excellent flexibility and resilience to pressure changes.
- B. **Gas Cushion:** Pre-charged with nitrogen gas, the bladder provides an effective cushioning mechanism that compresses and expands in response to pressure fluctuations.

#### 3. Noise and Vibration Reduction

- A. **Quieter Operation:** Reduces the noise and vibration associated with pressure pulsations, leading to a quieter working environment.
- B. **Enhanced Stability:** Minimizes vibrations that could cause wear and damage to system components.

#### 4. Component Protection

- A. **Extended Equipment Lifespan:** Protects pipes, valves, gauges, and other system components from stress and potential damage caused by pressure spikes, extending their operational life.
- B. **Reduced Maintenance Costs:** By minimizing wear and tear on components, the need for frequent maintenance and replacements is significantly reduced.

#### 5. Improved Measurement Accuracy

- A. **Stable Pressure Environment:** Provides a consistent and stable pressure environment, which enhances the accuracy and reliability of pressure measurements and system controls.

#### 6. Enhanced System Efficiency

- A. **Consistent Fluid Flow:** Maintains a uniform flow of fluid, improving the overall efficiency and performance of pumps and compressors.
- B. **Operational Optimization:** Ensures that the system operates at optimal levels, reducing energy consumption and improving productivity.

#### 7. Durable Construction

- A. **Robust Housing:** The outer casing, available in materials such as stainless steel and carbon steel, is designed to withstand harsh industrial environments, providing long-lasting durability.
- B. **Corrosion Resistance:** Special coatings and materials offer resistance to corrosion, making the dampeners suitable for a wide range of industrial applications.

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## BLADDER TYPE PULSATION DAMPENERS

### 8. Versatility and Customization

- A. **Wide Range of Applications:** Suitable for use in oil and gas, chemical processing, water treatment, hydraulic systems, and pharmaceuticals.
- B. **Customization Options:** Tailored solutions available, including custom bladder materials, special coatings, and varied connection types to meet specific application requirements.

### 9. Easy Installation and Maintenance

- A. **Simple Integration:** Designed for straightforward installation, allowing for easy integration into existing fluid systems without significant modifications.
- B. **Maintenance-Friendly:** Features accessible components and replaceable bladders, simplifying routine maintenance and ensuring optimal performance over time.

### 10. Safety and Reliability

- A. **Enhanced Safety:** Reduces the risk of pressure-related accidents and system failures, contributing to a safer working environment.
- B. **Dependable Performance:** Engineered to deliver consistent and reliable performance, even in demanding industrial conditions.

Rudraksha Engineering's bladder-type pulsation dampeners are a vital addition to any fluid system, providing essential benefits that enhance performance, efficiency, and safety. These key features make our dampeners a trusted choice for industrial applications that require effective pressure stabilization and noise reduction.

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## BLADDER TYPE PULSATION DAMPENER

### Technical Specifications of Bladder-Type Pulsation Dampener

#### Model Variants up to 35 liters

Model	Volume (liters)	Max Pressure (bar)	Body Material	Connection Size
RE-BPD-010	0.1	250	Stainless Steel 316	1/2" BSP/NPT
RE-BPD-025	0.25	250	Stainless Steel 316	1.5" BSP/NPT
RE-BPD-050	0.5	200	Stainless Steel 316	2" BSP/NPT
RE-BPD-0100	1.0	200	Stainless Steel 316	2.5" BSP/NPT
RE-BPD-0200	2.0	220	Stainless Steel 316	DEPEND ON CONNECTION
RE-BPD-0300	3.0	180	Stainless Steel 316	DEPEND ON CONNECTION
RE-BPD-0400	4.0	145	Stainless Steel 316	DEPEND ON CONNECTION
RE-BPD-0500	5.0	120	Stainless Steel 316	DEPEND ON CONNECTION

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## BLADDER TYPE PULSATION DAMPENER

### Detailed Specifications of Bladder Type Pulsation Dampener

1. **Volume Capacity**
  - Ranges from .01 liters to 35 liters, catering to different system sizes and requirements.
2. **Maximum Pressure**
  - Capable of handling pressures up to 250 bar, suitable for high-pressure applications.
3. **Bladder Materials**
  - **Nitrile:** Excellent oil resistance, suitable for a wide range of hydraulic fluids.
  - **EPDM:** Superior resistance to heat, water, and steam, ideal for water-based applications.
  - **Viton:** High chemical resistance, suitable for aggressive chemicals and high-temperature applications.
4. **Body Materials**
  - **Stainless Steel:** Offers excellent corrosion resistance and durability in harsh environments.
  - **Carbon Steel:** Provides a cost-effective option with good mechanical properties.
5. **Connection Sizes**
  - Available in 1", 1.5", 2", and 2.5" BSP/NPT connections, ensuring compatibility with various piping
6. **Temperature Range**
  - Operates effectively in a wide temperature range, from -20°C to 120°C
7. **Pre-Charge Pressure**
  - Adjustable pre-charge pressure, typically set using nitrogen gas, to match system requirements.
8. **Dimensions and Weight**
  - Dimensions and weight vary by model; detailed schematics and specifications are available upon request.

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## BLADDER TYPE PULSATION DAMPENER

### Benefits of Bladder-Type Pulsation Dampener

#### 1. Smooth Fluid Flow

- A. **Absorption of Pulsations:** Effectively absorbs pressure pulsations from reciprocating pumps and compressors, ensuring a steady and smooth fluid flow.
- B. **Flow Consistency:** Maintains consistent fluid flow, which is crucial for the efficient operation of various industrial processes.

#### 2. Noise and Vibration Reduction

- A. **Quieter Operation:** Significantly reduces noise generated by pressure pulsations, leading to a quieter working environment.
- B. **Vibration Minimization:** Reduces vibration, protecting sensitive equipment and minimizing wear and tear on system components.

#### 3. Protection of System Components

- A. **Extended Equipment Lifespan:** By reducing stress on pipes, valves, gauges, and other components, it prolongs the lifespan of the entire system.
- B. **Reduced Maintenance:** Minimizes the need for frequent repairs and replacements, lowering maintenance costs and downtime.

#### 4. Improved Measurement Accuracy

- A. **Stable Pressure Environment:** Provides a stable pressure environment, enhancing the accuracy and reliability of pressure measurements and system controls.
- B. **Reliable Data:** Ensures that measurement instruments provide consistent and reliable data, crucial for process control and quality assurance.

#### 5. Enhanced System Efficiency

- A. **Operational Optimization:** Maintains uniform fluid flow, improving the overall efficiency of pumps and compressors.
- B. **Energy Savings:** Optimizes system performance, potentially reducing energy consumption and operational costs.

#### 6. Increased Safety

- A. **Reduced Risk of Accidents:** Mitigates the risk of pressure-related accidents by stabilizing pressure fluctuations.
- B. **Safe Working Environment:** Contributes to a safer working environment by minimizing the likelihood of pressure spikes and subsequent system failures.

#### 7. Versatility and Adaptability

- A. **Wide Range of Applications:** Suitable for various industries, including oil and gas, chemical processing, water treatment, hydraulics, and pharmaceuticals.

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- B. **Customization Options:** Available with a variety of customization options, including different bladder materials and connection types, to meet specific application needs.

### 8. Durability and Reliability

- A. **Robust Construction:** Built with high-quality materials such as stainless steel and carbon steel, ensuring durability and long-term reliability.
- B. **Corrosion Resistance:** Special coatings and materials provide excellent resistance to corrosion, making it suitable for harsh industrial environments.

### 9. Easy Installation and Maintenance

- A. **Simple Integration:** Designed for easy installation and integration into existing fluid systems without the need for significant modifications.
- B. **Maintenance-Friendly:** Features such as accessible components and replaceable bladders simplify routine maintenance and ensure optimal performance.

### 10. Cost-Effective Solution

- A. **Lower Operational Costs:** Reduces the costs associated with maintenance, repairs, and energy consumption.
- B. **Investment Protection:** Protects your investment in pumps and other system components by enhancing their longevity and performance.

### 11. Enhanced Process Control

- A. **Improved System Stability:** Stabilizes system pressure, leading to better control of industrial processes and improved product quality.
- B. **Efficient Process Management:** Facilitates efficient management of fluid handling processes, contributing to overall operational excellence.

## Conclusion

Rudraksha Engineering's bladder-type pulsation dampeners offer a comprehensive solution to the challenges of pressure pulsations in industrial fluid systems. By providing smooth fluid flow, reducing noise and vibration, and protecting system components, our dampeners enhance the efficiency, safety, and reliability of your operations. With versatile applications and customizable options, they are an essential component for any industry requiring precise and stable fluid handling.

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## BLADDER TYPE PULSATION DAMPENER



### Ordering Information

For pricing, availability, and custom orders, please contact our dedicated sales team:

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