

Back Pressure Regulator

Technical Reference Manual



Why Choose Our Back Pressure Regulator?

Machnium Back Pressure Regulators are engineered to provide precise pressure control, reliable performance, and long-term durability in demanding high-pressure applications. Designed for stable upstream pressure regulation, they combine robust stainless-steel construction with dependable sealing and responsive control. Their serviceable design simplifies maintenance and helps extend operating life, while flexible loading options and configuration choices allow the regulators to be tailored to specific system requirements. Built for demanding environments, Machnium regulators deliver consistent pressure control, enhanced system safety, and reduced maintenance needs.

Recognizing that every system has unique operational demands, we offer fully customized solutions tailored to your specific application requirements. Whether you need specialized materials, custom thread configurations, or unique pressure ratings, our engineering team works directly with you to build the exact component you need.



Key Features

Solid Bar Stock Construction

Pressure-containing components are manufactured from solid bar stock materials, providing consistent wall thickness and reliable structural integrity compared with cast construction.

High-Pressure Piston & Poppet Design

For extreme-pressure applications, hardened stainless steel options are available for enhanced durability and wear resistance.

Reliable Pressure Control

Designed to provide dependable back-pressure regulation and stable system performance in demanding operating environments.

Flexible Material Selection

Multiple body, internal component, and sealing-material options allow the regulator to be configured according to pressure, temperature, media, and application requirements.

Right-Angle Port Configuration

The standard piping arrangement features a bottom inlet and side outlet, providing a practical configuration for system integration and installation.

Built for Demanding Applications

Robust construction and carefully selected materials make Machnium Back Pressure Regulators suitable for high-pressure systems where reliability, durability, and consistent performance are critical.



Technical Specifications

Parameter	Specification
Connection	NPT, SEA
Size Range	1/4" to 3"
Pressure Range	0 to 10,000 psig (689 bar)
Max. Pressure Rating	Up to 10,000 psig (689 bar) @ 100°F (37°C)
Temperature Range	–65°F to 850°F (–53°C to 454°C) (<i>material/seat dependent</i>)
Operation	Spring-Loaded Piston
Body Material	Stainless Steel; Brass & Special Alloys Available
Poppet Material	Stainless Steel
Seat / Seal	Viton, Buna, EPDM, PTFE/Teflon
Flow Direction	Bottom Inlet / Side Outlet
Seat Leakage	ANSI/FCI Class IV
Applications	Pump Bypass, Pressure Control & Overpressure Protection
Installation	Any Orientation
Options	Soft Seat, NACE MR0175, Special Materials

All components are available in Stainless Steel, Steel, Aluminum, Brass and exotic alloys. Rated to 10,000 psig (689 bar) at –65 to 100°F (–53 to 37°C), with maximum temperature limits ranging from 450°F/232°C (Steel) to 850°F/454°C per specified material.



Customization Options

We offer tailored solutions based on:

Specific pressure and flow requirements

Unique size preferences

Material selection for corrosive environments

At Machnium, we provide end-to-end, tailor-made solutions designed to meet the unique challenges of various industries. From initial concept to final manufacturing, we work closely with our clients to design, develop, and implement custom-engineered solutions that address their specific requirements. We handle everything from design, prototyping, and rigorous testing to full-scale production and ongoing support, ensuring that each solution meets the highest industry standards. Our expertise ensures seamless integration with existing systems while optimizing performance, durability, and serviceability.

Whether it's enhancing safety, improving efficiency, or meeting strict operational demands, our comprehensive approach delivers innovative, high-performance solutions built for the most demanding applications.

For detailed technical data and customization options, please contact us.

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