# Detailed Report on End Lock Cylinder Specifications

## Introduction

End lock cylinders are critical components in various industrial applications, providing precise control and safety in pneumatic systems. This report delves into the specifications of the Series CBA2 End Lock Cylinder, as detailed in the provided document. The report aims to provide a comprehensive understanding of the technical specifications, operational guidelines, and material considerations for these cylinders, which are essential for ensuring optimal performance and safety in their applications.

## Specifications of the Series CBA2 End Lock Cylinder

### General Specifications

The Series CBA2 End Lock Cylinder is designed to maintain the cylinder's original position even if the air supply is interrupted. This feature is crucial in applications where maintaining position is critical, such as in safety mechanisms or precision operations ([Source: cba2.pdf](#)).

* **Fluid**: The cylinder operates using air as the fluid medium.
* **Proof Pressure**: The cylinder can withstand a proof pressure of 1.5 MPa.
* **Maximum Operating Pressure**: The maximum operating pressure is 1.0 MPa.
* **Minimum Operating Pressure**: The minimum operating pressure required is 0.15 MPa, except for locking parts which require 0.05 MPa ([Source: cba2.pdf](#)).

### Temperature and Speed

* **Ambient and Fluid Temperature**:
* Without auto switch: -10 to 70°C
* With auto switch: -10 to 60°C
* **Piston Speed**: The piston speed ranges from 50 to 500 mm/s, accommodating various operational needs ([Source: cba2.pdf](#)).

### Mounting and Stroke

* **Mounting Options**: The cylinder can be mounted in several configurations, including Basic, Axial foot, Front flange, Rear flange, Single clevis, Double clevis, and Center trunnion.
* **Stroke Length Tolerance**:
* Up to 250 mm: +1.0/0 mm
* 251 to 1000 mm: +1.4/0 mm
* 1001 to 1500 mm: +1.8/0 mm ([Source: cba2.pdf](#)).

### Locking Mechanism

The locking mechanism of the Series CBA2 is a standout feature, designed to engage automatically when the pressure on the side with the lock mechanism drops to 0.05 MPa or below. This automatic engagement ensures safety and reliability in maintaining the cylinder's position ([Source: cba2.pdf](#)).

* **Lock Position Options**: Rear end, Front end, and Double end.
* **Holding Force (Max)**: Varies by bore size:
* ø40: 860 N
* ø50: 1340 N
* ø63: 2140 N
* ø80: 3450 N
* ø100: 5390 N ([Source: cba2.pdf](#)).

### Material and Construction

The construction materials for the Series CBA2 End Lock Cylinder are selected to ensure durability and performance under various conditions:

* **Piston Rod and Rod End Nut**: Made of stainless steel, providing resistance to corrosion and wear.
* **Tie-Rod, Cushion Valve, and Tie-Rod Nut**: Also constructed from stainless steel for enhanced durability.
* **Rod Boot Materials**: Available in Nylon tarpaulin and Neoprene cross, with maximum ambient temperatures of 70°C and 110°C, respectively ([Source: cba2.pdf](#)).

### Manual Release Options

The Series CBA2 offers both non-lock and lock type manual release mechanisms:

* **Non-lock Type Manual Release**: Involves inserting a bolt through the rubber cap and pulling to disengage the lock. The bolt size and pulling force are specified for different bore sizes ([Source: cba2.pdf](#)).
* **Lock Type Manual Release**: Utilizes an M/O knob that is pushed and turned to engage or disengage the lock. This mechanism ensures secure locking with a click-stop feature ([Source: cba2.pdf](#)).

## Operational Guidelines

### Pressure and Exhaust Speed

To ensure proper operation, the following guidelines are recommended:

* **Operating Pressure**: A supply air pressure of 0.15 MPa or higher is necessary for disengaging the lock.
* **Exhaust Speed**: The lock engages automatically when the pressure drops to 0.05 MPa or below. It is crucial to ensure that the piping is not too thin or long, and that the speed controller is not too far from the cylinder port, to prevent delays in lock engagement ([Source: cba2.pdf](#)).

### Cushion and Lock Engagement

The cushion valve must be properly adjusted to prevent lock engagement failure. If the cushion valve is fully or almost fully closed, the piston rod may not reach the stroke end, resulting in lock engagement issues ([Source: cba2.pdf](#)).

### Safety Precautions

* **Avoid 3 Position Solenoid Valves**: Using a 3 position solenoid valve, especially the closed center metal seal type, can prevent the lock from engaging due to sealed air pressure in the lock mechanism port ([Source: cba2.pdf](#)).
* **Back Pressure Requirement**: Ensure air is supplied to the side without a lock mechanism to prevent load application on the lock mechanism during disengagement ([Source: cba2.pdf](#)).

## Conclusion

The Series CBA2 End Lock Cylinder is a robust and reliable component designed for precise control in pneumatic systems. Its specifications, including various mounting options, material durability, and advanced locking mechanisms, make it suitable for a wide range of industrial applications. Adhering to the operational guidelines and safety precautions outlined in this report will ensure optimal performance and longevity of the cylinder.

## References

* Source: cba2.pdf

For further information, please refer to the original document, "cba2.pdf," which contains detailed specifications and operational guidelines for the Series CBA2 End Lock Cylinder.