November 2024

Technical Bulletin

Baffle mechanism with improved air actuation

Advantages

- Reduced vibrations
- Improved mechanical stability
- Improved cushioning effect
- Available in both angular and pantograph kinematics
- Longer stroke option available

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Introduction

As part of the continuous improvement of the forming process, it is important to ensure a high level of product quality while reducing the working time of the mechanisms.

Shorter response times and faster actuations are required to enable rapid working cycles without compromising equipment reliability or the life of the equipment mounted on the machine.

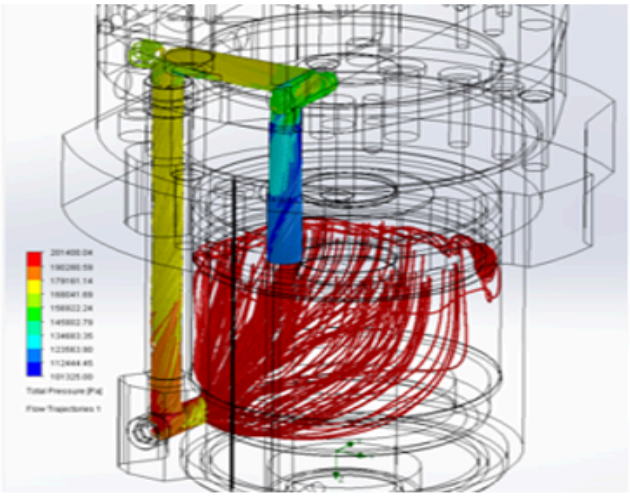
The new latest improvement on the BDF baffle mechanism is designed to improve stability and create a more linear progression of the descent movement towards the blank molds.

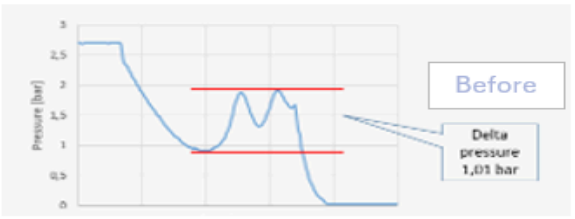
It increases the effect of end-stroke cushioning and improves its control, allowing safe and repetitive short working cycles.

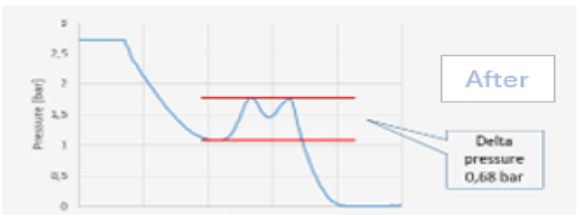
Description

To improve the stability and the smoothness throughout the travel of the baffle mechanism, a precise redesign was carried out to increase the efficiency of the air flow during the discharging phase that regulates the descending stroke.

Internal volume distribution, as well as the geometry and ratio of flow sections, have been optimized through new detailed CFD analysis and comparative pressure measurements at multiple points.







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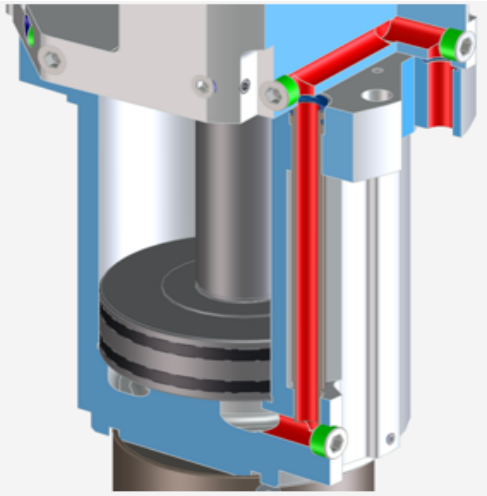
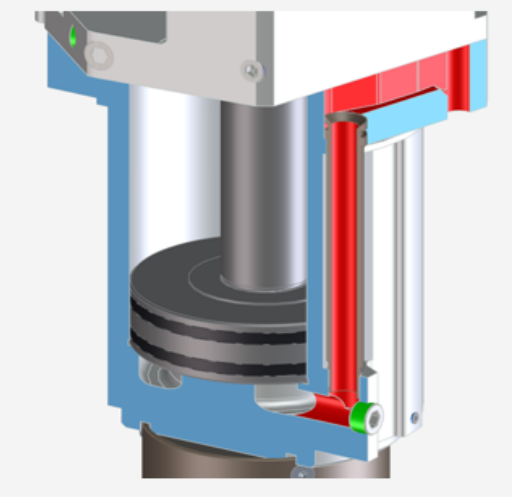
This optimization reduces both rebound effects during release and vibration amplitude throughout the stroke. This improvement also results in an additional reduction of the overall time of descent.

The new mechanism is upgraded with an enlarged lower cylinder chamber and a new ¾” inlet air fitting to enhance airflow from the valve block to the body.

Together with the standard (130.2 mm) stroke version, a long (140.2 mm) stroke version is available, allowing increased stabilization time in the final phase of the descending stroke.





Specifications

The new baffle mechanism is available in both angular and pantograph kinematics, providing standard stroke (130.2 mm) or increased stroke (140.2 mm) cam actuation.

It is also compatible with raised 1”, 2”, 3” and 4” machines. All part numbers will be available on the market starting January 2025.

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Baffle Mechanism	Standard Cam 130,2 mm	Raised Machine 1" Long Stroke Plunger	Raised Machine 65 mm Long Stroke Plunger	Increased Cam 140,2 mm High Piqure	Raised Machine 2" Tall Ware Production	Raised Machine 3" Tall Ware Production	Raised Machine 4" Tall Ware Production
Pantograph	P-515-300PL2A	P-515-300PL2A	P-515-300PL2A	P-515-300PL2MA	P-515-300L2A-R4	P-515-300L2A-R6	P-515-300L2A-R8
Angular	P-515-300L2A	P-515-300L2A	P-515-300L2A	upon request	P-515-300PL2A-R4	P-515-300PL2A-R6	P-515-300PL2A-R8

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Installation

The new baffle mechanism must be installed with a ¾" inlet pipe.

For existing machines, BDF can provide mounting kits, including a flexible hose and fittings, part number P-515-300-KTA for effective replacement.

The compatibility of these kits must be verified with BDF considering the original air inlet pipe's length and routing.

The new baffle with ¾" inlet hose is fully interchangeable with the previous baffle mechanism without requiring additional upgrades or adjustments.

Features	Benefits
• Internal optimized air flow	• Improved mechanical stability • Reduced vibrations throughout stroke • Improved cushioning control and effect
• Different Kinematics and stroke options available	• Mechanism suitable for raised (1" to 4") machine • Mechanism fits long stroke plungers

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Baffle mechanism with improved air actuation

- Full interchangeability
- Quick and easy replacement