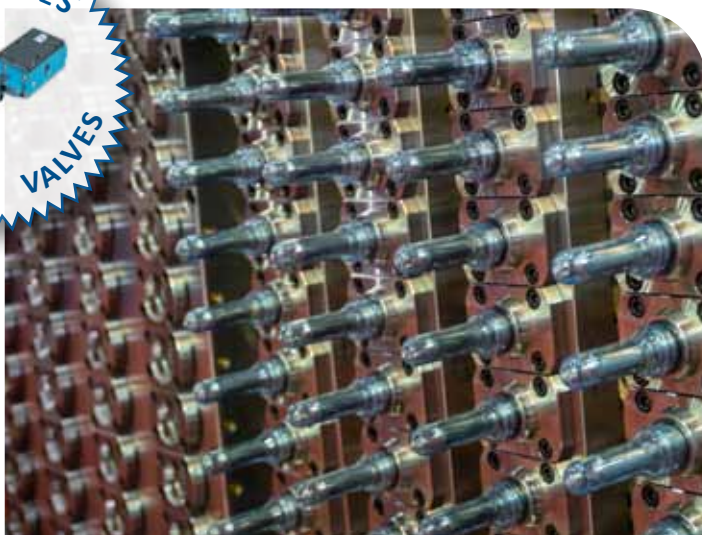


100% DROP-IN SOLUTIONS **FOR SOLENOID VALVES** **ON PET PREFORM INJECTION PRESSES**

MAC Valves, Inc. is pleased to bring to your attention the 100% drop-in replacement solutions for OEM supplied solenoid valves on injection moulding equipment.



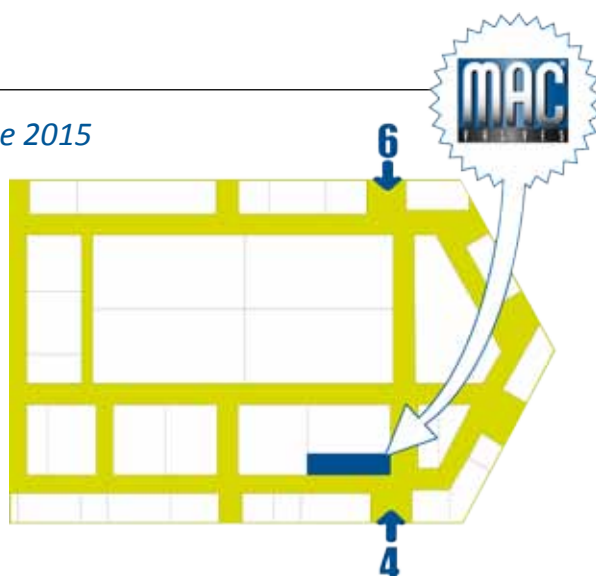
7 DAYS TO BRAUBEVIALE.

We will be pleased to welcome you during *Brau Beviale 2015* in *Nurnberg* from *Nov 10th to 12th 2015*.

BrauBeviale2015

Raw Materials | Technologies | Logistics | Marketing

Hall 5 – Stand 448



REQUIREMENT FROM THE FIELD

MAC Valves, Inc. has carefully taken into consideration the request of the injection moulding equipment users and understood their needs to develop solutions that offer the possibility to modernize existing machinery, improve its reliability, and reduce references in inventory.



The main focus of MAC Valves is to offer an innovative product developed according to users' experience and that provides:

- *An increase in production due to less downtime*
- *An increase in the quality of the preform thanks to fast and repeatable response times and higher flow*
- *A user-friendlier solution for maintenance, thanks to manifold mounting design instead of stacking system*

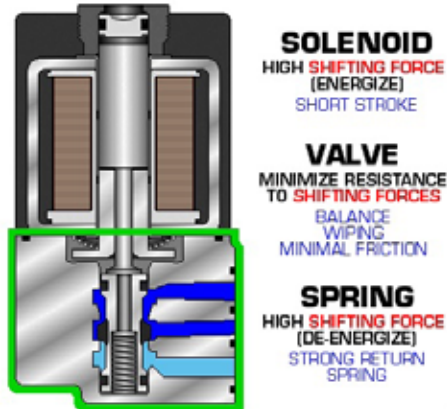
The most frequent complaints from users from all over the world are the following:

- *Slow shut-down of the machine due to sticking valves*
- *Extremely time consuming repair/maintenance process*
- *Metal/metal spool sensitive to contamination and creating sticking effect*
- *Lack of flow for some functions such as gate valve*
- *High leakage rate due to the lapped spool*



TECHNICAL BULLETIN

Liège, November 2nd, 2015



Every user is looking for **reliability**.

Reliability means valve has to shift each time it is asked.

The valve may **never stick**.

The specific design of each MAC valve is a guarantee that it will never stick, even under the worst conditions of use and during the complete lifetime of the valve.

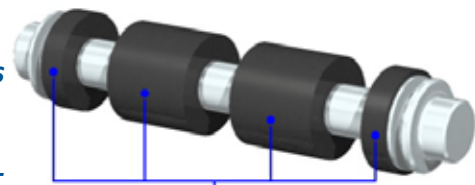
How to get a reliable valve?

It is all about increasing shifting forces and energization/ de-energization forces and minimizing all influences affecting the shifting forces such as friction, pressure and contamination.

BENEFITS

A. General benefits related to the MAC Valves Technology

- The rubber compounds integrated in all MAC valves are engineered and produced in-house
- Precision ground bonded spool controls compression - wipes contaminants away with minimum friction
- Chemically hardened seals eliminate creep, reduce friction and increase life
- Lubricant in rubber reduces friction – enhances non lube service
- Two seals each controlling a single orifice provide a short stroke, less wear, minimum friction and high flow in a small package
- Patented centering seals ensure spool alignment for minimum wear
- Bore is machined, roller burnished and polished for hard smooth surface and glasslike finish – minimum friction, minimum wear and long life
- Lightweight aluminum spool allows for fast response
- One piece spool – simple construction and easy maintenance

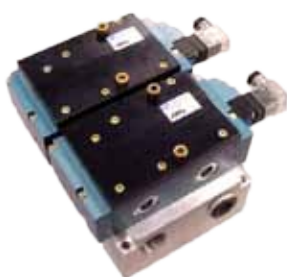


MAC Proprietary Rubber Compound Molded to the Aluminum Spool Metal

B. Specific benefits of MAC solutions on the injection molding equipment

On this application, MAC is using its well-known large 3/2Way valve providing following benefits to injection molding equipment users

- *Manifold mounting solutions – no need to disassemble the manifold from the machine to replace a solenoid valve*



- *High flow characteristics – suitable for vacuum applications (up to 20.000 NI/m – 20.0 Cv)*
- *Accurate and fast switching with extremely repeatable response times*
- *High resistance to contamination and pressure variation*
- *Food grade grease available*
- *The same valve is compatible with different functions on the press - reduced inventory*
- *Superior reliability compared to OEM supplied valves – less downtimes*

	Valve Series	Flow* (NI/min)	ERT (ms)**	DRT (ms)**
<i>Gate Valve Solution 1</i>	67	20 000	29	21
<i>Gate Valve Solution 2</i>	57	NO: 13 700 NC: 12 700	23 (with 8.5 W coil)	13 (with 8.5 W coil)
<i>Mechanical Eject</i>	92	1 200	8	7
<i>Air Assist / Vacuum & Blow</i>	67 Iso 3	20 000 6 100	29 16.2	21 13.6

* *Manufacturers published flows*

** *Response times for 67 series, Iso3 and 92 series with 24 V/5.4 W coil (unless otherwise specified).*

MAC Valves solutions: 1-to-1 replacement

As a general philosophy, MAC Valves provides customized solutions for which the installation doesn't require any change on the machine. That provides huge advantages to the end-user, such as no additional costs or troubles.



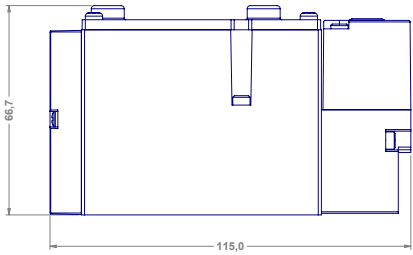


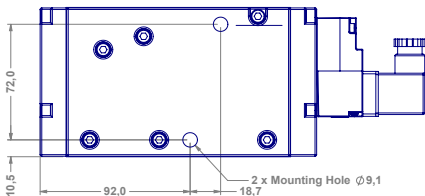
You can see in the table hereafter all the OEM supplied solenoid valves with the corresponding MAC solutions.





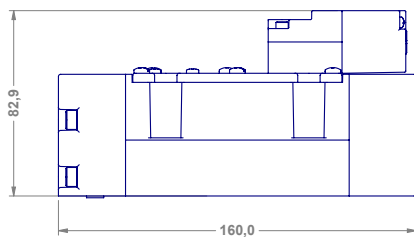


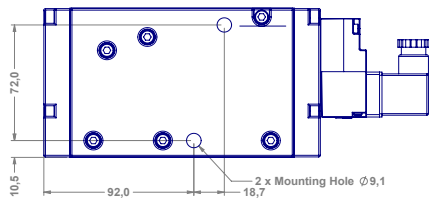
Gate Valve

COMPETITION	MAC VALVES MAC	DIMENSIONS (MM) & FOOTPRINT
OEM Supplied Gate Valve Solution	MAC 67 Series	
HOW TO ORDER : SMA 1800 (MAC 67 Series Assembly - Manifold)		
OEM Supplied Gate Valve	MAC 57 Series	
HOW TO ORDER: 1. NC Valve: 57D-15-611JA Mod 0449 2. NO Valve: 57D-65-611JA Mod 0449		

Preform Injection

COMPETITION	MAC VALVES MAC VALVES	DIMENSIONS (MM) & FOOTPRINT
OEM Supplied Solution for Mechanical Eject	MAC 92 Series	
		
HOW TO ORDER: 92B-AAB-000-DM-DDAP-1DM 1. M-92008-01 for Numatics Mark 15 2. M-92007-01 for Numatics Mark 8		
OEM Supplied Solution for Air Assist	MAC 67 Series	
		
HOW TO ORDER: 300T Presses: Inline valve solution: 1 x 67A-G1-AAB-DM-DDAJ-1JD/2632 Manifold solution: 1 x valve 67A-G1-GAB-DM-DDAJ-1JD/2632 1 x base: U0249/EB25 600T Presses: Inline Valve solution 2 x 67A-G1-AAB-DM-DDAJ-1JD/2632 Manifold solution: 2 x valves 67A-G1-GAB-DM-DDAJ-1JD/2632 2 x bases: U0249/EB25		

Preform Injection

COMPETITION	MAC VALVES MAC VALVES	DIMENSIONS (MM) & FOOTPRINT
OEM Supplied Solution for Vacuum & Blow	MAC ISO 3	
		
<p>HOW TO ORDER: 300T Presses: Blow Valve 1 x MV-P3A-AJDB-DM-DDAP-1DM Mod. 7241 Vacuum valves: 3 x MV-P3A-AJDC-DM-DDAP-1DM Adapter plate / Blow valve: 1 x M-P3002-02 Adapter plate / Vacuum valve: 3 x M-P3002-01</p> <p>600T Presses: Blow Valve 1 x MV-P3A-AJDB-DM-DDAP-1DM Mod. 7241 Vacuum valves: 6 x MV-P3A-AJDC-DM-DDAP-1DM Adapter plate / Blow valve: 1 x M-P3002-02 Adapter plate / Vacuum valve: 6 x M-P3002-01</p>		
OEM Supplied Solution for Vacuum & Blow	MAC 67 Series	
		
<p>HOW TO ORDER: 300T Presses: SMA2221 with: 4x 67A-G1-GAB-DM-DDAJ-1JD / 2632 1x EBM67A-10017-04</p> <p>600T Presses: SMA2220 with: 7x 67A-G1-GAB-DM-DDAJ-1JD / 2632 1x EBM67A-10016-07</p>		