

## HIGHLY ENGINEERED SOLUTIONS FOR SOLENOID VALVES ON VOLUMETRIC FILLERS

MAC Valves, Inc. has developed 100% drop-in solutions to replace OEM supplied solenoid valves installed on volumetric fillers.



### 30 DAYS TO BRAU BEVIALE 2015

## BrauBeviale2015

Raw Materials | Technologies | Logistics | Marketing

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

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Wixom, MI, USA – Liège, Belgium - Taoyuan, Taiwan – Penrose, Auckland, New Zealand • Date : Liège, October 12<sup>th</sup> 2015



### REQUIREMENT FROM THE FIELD

MAC Valves, Inc. has taken the specific needs of users into consideration to develop highly engineered 1:1 replacement solutions integrating all MAC Valves features and technology.

The main challenges met by users around the world are:

- ***Unreliable original solenoid valves generating downtimes***
- ***Non repeatable response times from cycle to cycle leading to different filling levels***
- ***Inconsistent response times of the valves creating irregular filling levels and/or possible speed reduction of the filling carousel***



*OEM supplied solenoid valve manifold*



*MAC BV214  
16 positions manifold*

MAC Valves, Inc. has carefully analyzed the requests of users and understood their needs for developing a range of drop-in solutions to upgrade existing machinery.

MAC Valves' main concern is to put on the market innovative products that provide:

- ***Reduced overfilling thanks to highly repeatable response times***
- ***Lower quantities of bottles scrapped because of underfilling***
- ***Increased production thanks to faster and more consistent response times from one valve to another and less downtimes***

*In this Beverage Gazette, we focus on why **MAC valves** have better response times, and what the benefit is in terms of savings for companies operating bottling lines.*

### MAC VALVES FEATURES

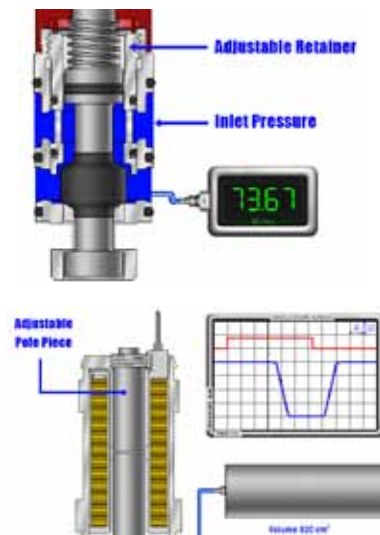
The patented Bullet Valve® that integrates the very latest MAC technology has a specific design that guarantees very accurate response times and flow.

The flow on the Bullet Valve® can be adjusted once the valve is built by adjusting the poppet stroke - a MAC patented technology.

The stroke adjustment between magnets in the coils also provides more consistent response times from one valve to another.

*These two crucial MAC features are checked on each valve at the end of our production line (no sampling), and so we are able to produce valves with identical response times and flows.*

In addition, MAC valves incorporate technological features such as: reduced frictions, increased shifting forces, and pressure balanced design not affected by pressure variations. All these benefits are a guarantee for repeatable response times.



### MAC BENEFITS

*These unique MAC features provide benefits to users of volumetric fillers*

#### ■ Reduction of overfilling

Solenoids with better response times provide better results in terms of filling accuracy. A more consistent filling process enables users to determine a filling target that is closer to what is really needed, thus saving a few milliliters of product per bottle, which corresponds to a lot of money by the end of the year. This is illustrated in the simulation included at the end of this bulletin (CPR®).



#### ■ Lower quantities of bottles scrapped because of underfilling

Another consequence of a better accuracy in the filling process is that less bottles are rejected because of underfilling.

It constitutes a major cost reduction that is also illustrated in the CPR® included in this document.

#### ■ Production improvement

Inconsistent response times of solenoid valves throughout the life time may result in a decrease in the hourly production rate. A complete installation integrating solenoid valves with fast and highly repeatable response times allows using the filler at its optimum hourly capacity, and consequently brings your machine performance to the maximum.

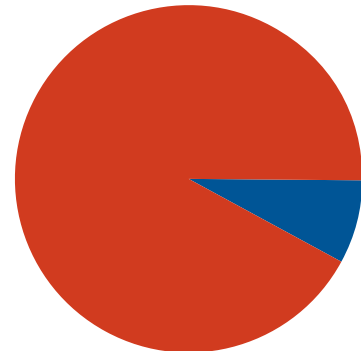
### MAC CUSTOMER PROFIT REINFORCEMENT (CPR®)



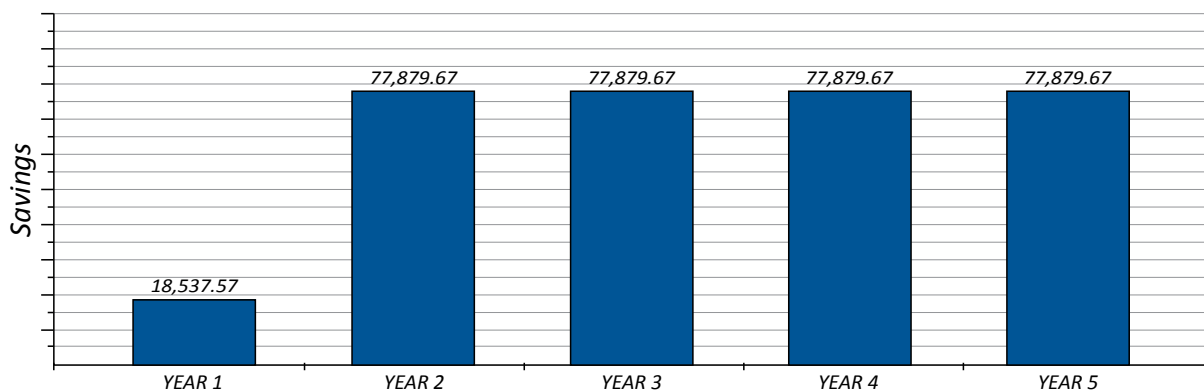
*CPR® is a proprietary ROI process utilized by MAC and the MDN (MAC Distributor Network) to maximize customer profitability. The CPR® process has been utilized with hundreds of customers to propose over \$150 million in real bottom line savings (implementing \$105 million) since 2010.*

All MDN members are able to support you by calculating and providing you with a document detailing the financial benefits of using MAC Valves on your filler, with your own figures. Hereafter are the real results of a CPR® case performed in relation with the refurbishment of a filling carousel made by a well-known OEM for a customer producing various types of soft drinks.

Type of Savings		TOTALS
Assemblies / Components	€	(59,348.10)
Assemblies / Components Labor	€	0.00
Lowest Cost of Ownership (LCO)	€	6,720.00
Process Improvement	€	71,159.67
Additional Savings / Income	€	0.00
<hr/>		
ROI (years)	€	0.83
(Investment)	€	(59,348.10)
One Time Savings	€	0.00
Reoccurring Profit Impact	€	77,879.67



#### ■ Yearly Profit Impact





### ■ MAC Bullet Filling Valves

#### Hourly Production Value Savings

**TOTAL PROCESS IMPROVEMENT SAVINGS: € 71.159,67**

DESCRIPTION	DOWNTIME EVENTS	DOWNTIME LENGTH	PRODUCTION VALUE	ONE TIME	TOTAL
Downtime saved due to failing OEM filling valves	50.00	1.00	€ 402.00	No	€ 22,100.00

#### Miscellaneous Savings

DESCRIPTION	AMOUNT SAVED	OCCURRENCES	ONE TIME	TOTAL
<b>Saved syrup and beverage water from reducing overflow:</b> <i>Final results from trials</i> Difference in Standard Deviation is 1.62 ml/bottle Bottles/yr = 142819421 Product Cost: € 0.15/ltr Product saved: 142819421 x 0.00162 = 231367.46 ltr/yr Amount saved: 231367.46 x 0.15 = € 34705.12	€ 34,705.12	1.00	No	€ 34,705.12
<b>Reduction of Scrap due to Overflow:</b> Lost Bottles/yr (2009-2010) = 595637 (0.41%) estimate 20 % then = 119127 bottles x 0.49 ltr = 58372.23 ltrs x cost of € 0.15 = 8755.58 + cost of pre made bottle @ € 0.047 = 119127 x 0.047 = € 5598.97 Total saved = € 14354.55	€ 14,354.55	1.00	No	€ 14,354.55

**FOR 10 YEARS NOW, MAC VALVES AND ITS EXPERIENCED MDN DISTRIBUTORS HAVE SUCCESSFULLY UPGRADED FILLING CARROUSELS FROM MAJOR MANUFACTURERS IN:**

*Austria, Australia, Brazil, the Czech Republic, Finland, Germany, the Netherlands, New Zealand, Poland, PR of China, Russia, Slovakia, Turkey, Taiwan, the United Kingdom, the USA.*

Customers who made the decision to equip their fillers with in our solenoid valve technology, and utilize our network's skills and expertise in the industry are involved in the production of: mineral water, dairy products, edible oils, beer, alcohols, soft and energy drinks.

We would like to thank them for their trust in **MAC Valves** highly engineered solutions and in our valuable **MDN Distributors**.

**10**  
years  
of Experience in  
Upgrading Fillers