



APPLICATION NOTE

No: 0008

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This application note provides an overview of the successful use of valve-less piston plunger pumps in adding priming additives to liquid explosives used in industry.

THE INDUSTRY

A UK manufacturer of explosives and blasting accessories requires reliable pumping and metering of the additives applied to liquid explosives in order to create a suitably stable mixture prior to detonation. Innovation and best practices are used in the development of non-electric, electronic, electric and plain detonators as well as primers and explosives.

THE APPLICATION

Pumps are used to add the priming additives, acetic acid and sodium nitrate, to liquid explosive bases on site at the point of utilization. Pumps are speed controlled to ensure that additives are applied in direct proportion to the base ingredient. Pumps are often operated in poor site conditions, such as quarries, open cast mines and construction sites.

THE PUMP SOLUTION

The pedestal mounted *FMI reciprocating valve-less piston plunger* pump is coupled to a hydraulically operated motor powered by the delivery tanker. The pump draws from chemical carboys and delivers either acetic acid or sodium nitrate additives to a liquid explosive base.

FEATURE	ADVANTAGE	BENEFIT
Valveless piston plunger design	<ul style="list-style-type: none">• Simple reciprocating rotating piston design• No suction and discharge valve	<ul style="list-style-type: none">• Simple repair and maintenance reduces downtime• Increased reliability
Positive displacement pump	<ul style="list-style-type: none">• Accurate, repeatable output independent of viscosity	<ul style="list-style-type: none">• Simple to monitor, adjust and control
Materials of construction	<ul style="list-style-type: none">• PVDF and Ceramic wetted parts give good corrosion resistance	<ul style="list-style-type: none">• Long service interval for wetted parts