Novel Application of Metering Pump on Diesel Aftertreatment

P-7
Yi Liu, Ph.D
Enabler for Airless SCR

Urea Doser

- 5 kg/hour at 10 bar counter pressure
- Durability ~ 1.8 billion cycles, ~ 25,000 hours
- Frequency 0 - 40 Hz, accuracy 1% - 3%
- Self-protection again freezing, self-thawing, self-priming
- 12 /24 V, single electric contact, PWM control
- Optional integration with heating component, temp and pressure sensors, and control unit

TM metering-pump
12 V or 24 V
Engine control unit

Pressure line up to 10 bar

passive nozzle

TM valve

SCR-Cat

Sensor

AdBlue

Cooling and flow control valve

Signal chart of one pump stroke
pump frequency: 25 Hz; switching on-time: 12ms

Voltage [V]  Flow rate [mm/min]  Current [A]  Pressure [bar]