

## DATA SHEET

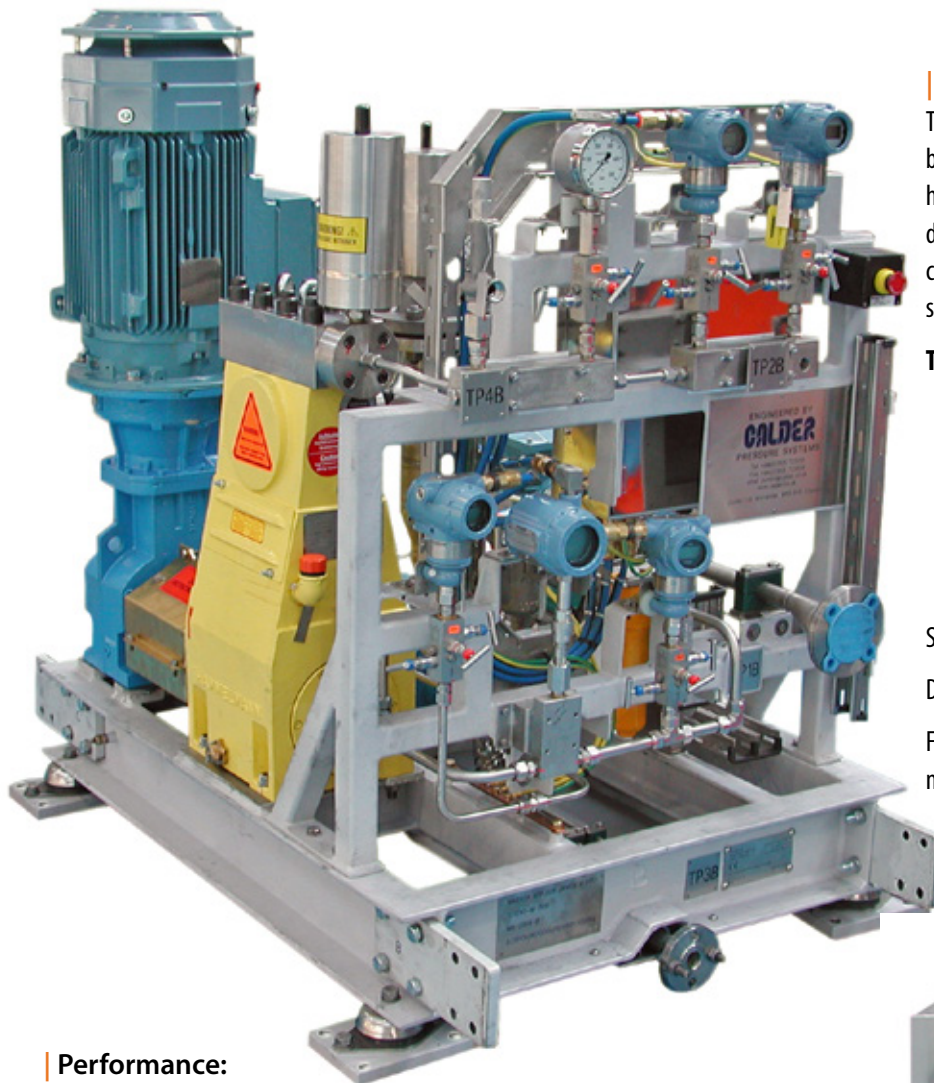
# Methanol Injection Pump Packages

## Model 1kW to 11kW

# CALDER

A PG FLOW SOLUTIONS COMPANY

■ 94/9/EC ATEX - 97/23/EC PED - 2006/42/EC Machinery Directive - CE Marked



### Design criteria:

The self contained chemical injection high pressure unit has been designed to ATEX requirements for use in a Zone I or II hazardous area. The triplex methanol pump is electric motor driven via a vertically mounted reduction gearbox. Flow control is achieved using a variable frequency drive & touch screen HMI.

### The unit comprises of:

- Integral suction & discharge dampers
- Pressure safety valve
- Electronic temperature & pressure transmitter
- Brass non sparking coupling guard
- E stop
- Hot dip galvanized base frame with AVM's

Small foot print space saver 1140mm x 1130mm x 1480mm

Designed to limit overall weight - dry weight 1600 kg

Fully flexible control of the methanol injection system to meet well-head requirements.



### Transportation

Calder methanol pump packages are available with an integrated protection frame with four lifting points for transportation .

### Performance:

Calder pump packages are designed to offer continuous pumping of methanol within a specified duty range.

- Power supply range..... 1 kW to 11 kW, EExd, 4 pole, 380v - 690v, 3 phase, 50/60Hz
- Variable speed drive ..... Variable frequency drive
- Remote control station ..... Optional
- Noise Level ..... 75 dbA @1M

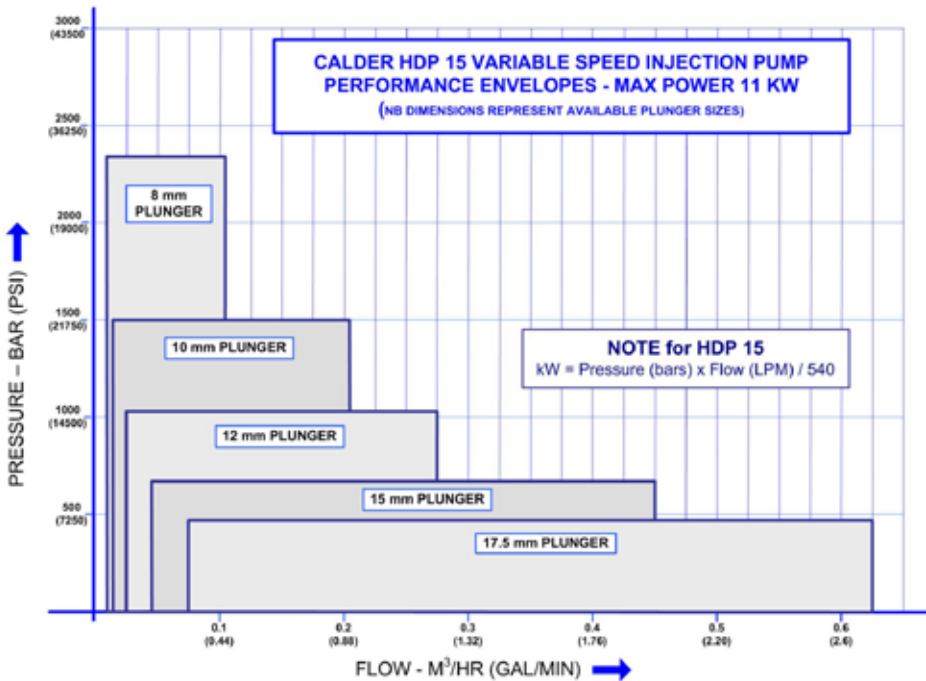
### Pump type for methanol process :

- Reciprocating Pump Type ..... Hammelmann HDP 15
- Plunger Range (diameter) ..... 8 mm to 17.5 Plunger (stroke 30mm)
- Piston Material Type ..... Ceramic ( $Al_2O_3$ )
- Valve Housing ..... Duplex stainless steel (super duplex option)
- HP Sealing ..... Labyrinth
- LP Sealing ..... Double Lip Seal c/w Lantern Rings
- Lubrication ..... Splash <8kW or Pressurized >8kW
- Suction Flange ..... 2" 150lb ANSI Raised Face
- Design Temperature ..... 20°C to 50°C
- Bellows Hermetically Sealed ... Preventing Leakage to Atmosphere (Zero Emissions)
- API 674 ..... Compliant with exceptions

# Methanol Injection Pump Packages

INNOVATION THROUGH EXPERIENCE

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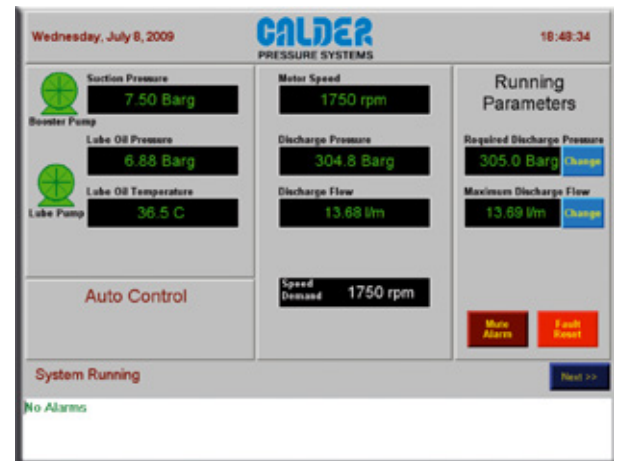
## Performance Curve

Chart illustrates Calder HDP 15 variable speed injection pump performance envelopes.

## Control Systems:

The control system is operated through a touch-screen HMI. Manual or automatic modes can be chosen. In manual mode, the lube oil pump and process boost pumps are started first. When the correct lube oil and boost pump pressures are achieved the main drive to the high pressure pump may be started. The speed of the motor can then be increased or decreased manually.

In automatic mode, the required pressure and flow rate are entered from the screen. Once the "system start" is operated, the control system starts the whole unit and increases the flow and pressure at a predetermined ramp rate until the lower of the selected limits is reached.



During operation manual or automatic, the system is protected by instruments monitoring the suction pressure, the discharge pressure, the lube oil pressure and the lube oil temperature. If the first alarm level is reached for any of these, an alarm appears on the screen and a klaxon sounds; if the second alarm level is reached, the system will shut down. The control system also monitors its own internal communications. If any of these are lost, the whole system is shut down immediately. An external communication port is available for remote operation and monitoring.

## Standards & Specifications:

Calder pump packages can comply with most international standards and specifications including:

**ATEX | IEC | GOST | EN | DNV | API | ANSI | PED | AS/NZ | NORSOK | NACE | CE | PED**

ISO 9001 Quality standard has been practised by Calder since 1987 with award of certification in 1999. Our rigorous application of this highly respected International Quality Standard has ensured that we consistently meet and exceed our customers' most demanding expectations for both quality and reliability.

ISO 14001 Environmental Standard has been held by Calder since 1999. Careful and judicious management of our working environment with the application of sound and well informed design applications utilising the latest and most efficient technologies helps us to produce equipment which minimises the environmental footprint of our production facility and the operating equipment in the field.

OHSAS 18001 We at Calder pride ourselves on our safety record. As members of the British Safety Council we practise the strictest safety procedures within our factory and working environments, applying rigorous risk assessments to all activities and equipment which we design and build.



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