**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 Chemical Injection pump is directly driven using a piston type pneumatic motor. Flow and pressure control is achieved pneumatically using manual controls and indicators on the control panel.

**The unit comprises of:**
- Integral 1M³ stainless steel feed tank
- Pressure safety valve
- Low level shut down (feed tank fluid level)
- Brass non sparking coupling guard
- E' Stop
- Hot dip galvanized base frame with AVM's

Small foot print space saver L2200mm x W990mm x H1400mm

Designed to limit overall weight - dry weight 1000 kg

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

**Performance:**
Calder pump packages are designed to offer continuous pumping of chemicals within a specified duty range.

- Power Supply Range .......... 1 kW to 11 kW, Pneumatic Motor Drive
- Air Requirements .............. 150 L/sec @ 10 bar max
- Variable Speed/Flow.......... Pneumatic Control
- Remote Control Station ........ Optional
- Noise Level ...................... 75 dBa @1M

**Pump type for chemical process:**
- Reciprocating Pump Type ...... Hammelmann HDP 15
- Plunger Range (diameter) ...... 8 mm to 17.5 Plunger (stroke 30mm)
- Piston Material Type .......... Ceramic (Al₂O₃)
- 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

**Transportation**
Calder chemical pump packages are available with fork lift pockets and lifting lugs or optional integrated protection frame with four lifting points.
| Performance Curve |
| Chart illustrates Calder HDP 15 variable speed injection pump performance envelopes. |

| Control Systems: |
| The unit is operated by a control panel which allows the operator to set the maximum discharge pressure via a pilot operated pneumatic pressure regulating valve. Flow rate is also controlled from the control panel via a compensated variable orifice valve. This valve ensures constant discharge flow regardless of changes in discharge pressure. The speed of the motor can then be increased or decreased manually. |

The panel also has a self contained flow/totaliser meter with a digital display. Operation of the E’ Stop button will immediately stop the high pressure pump. Tank fluid level low tank level is indicated on the panel, which if passed, low-low level switch will then stop the process if tank level is depleted. |

| 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. |