Intellinder

Hydraulic Cylinders with Integrated Absolute Position Monitoring

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Parker

ENGINEERING YOUR SUCCESS.

Intellinder. High Force Meets Absolute Position Monitoring.

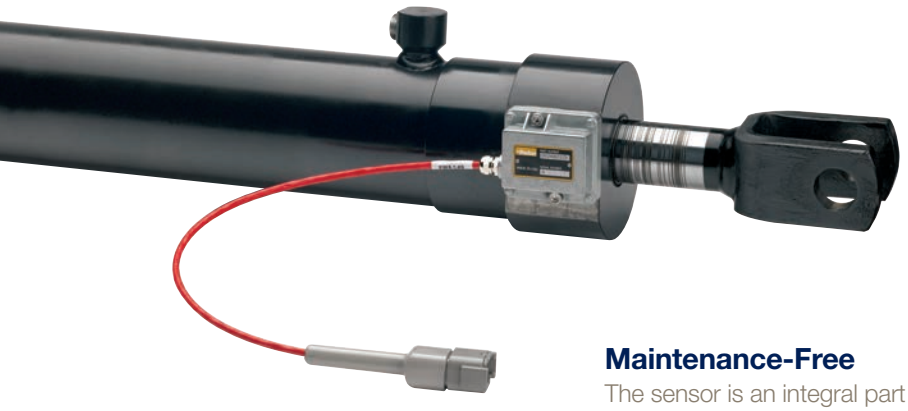
Intellinder combines an innovative absolute position monitoring system with a rugged, heavy duty hydraulic cylinder. Its sophisticated opto-electronic technology avoids the complexity and vulnerability of other position monitoring systems.

The result – enhanced productivity with low installation and maintenance costs.

Monitoring the position of a hydraulic cylinder's piston rod gives a precise, linear indication of the position of components attached to it, permitting accurate control over the position and performance of the associated machine. Combining Intellinder with Parker's IQAN vehicle automation system provides a complete actuation and control system for mobile applications.

Intellinder uses a sensor mounted in the head of the cylinder to read a pattern in the piston rod. Because it is an absolute position monitoring system, the pattern is recognised and the rod position determined without reference to a 'home' point. The signal read from the piston rod is processed by the electronics housed within the sensor unit and output via can-bus to the control system.

Intellinder has been subjected to exhaustive testing and has completed many millions of cycles under laboratory and field conditions.



The rod pattern is highly resistant to the effects of side loading, impact or dust, and rod seal life is identical to that of the standard hydraulic cylinder.

Position Monitoring – Absolute vs. Incremental

Two measurement techniques are commonly used in position sensing – absolute and incremental.

Incremental position monitoring reports an incremental change in position, measured from a reference point on start-up.

Absolute position monitoring reports position directly, without the need for any reference information.

Compared to traditional incremental monitoring systems, Intellinder absolute position monitoring is:

- **Faster** – no calibration step to slow system performance
- **Safer** – unaffected by supply voltage variations or high speed position changes
- **Higher performing** – delivers continuous productivity from start-up

Easy to Install

Intellinder is supplied fully assembled and tested. With the cylinder mounted and connected to the hydraulic system as normal, commissioning requires only an electrical connection to the controller.

Maintenance-Free

The sensor is an integral part of the Intellinder cylinder and does not require regular maintenance. Should attention be required, the sensor can be removed without disturbing the cylinder.

Minimal Additional Build Length

Incorporating a sensor into the hydraulic cylinder results in only a minimal change in overall length. There are no null or dead zones.

Longer Measured Lengths

Intellinder is available for strokes up to 2.4 metres, with longer stroke lengths available on request.

Double Rod Cylinders

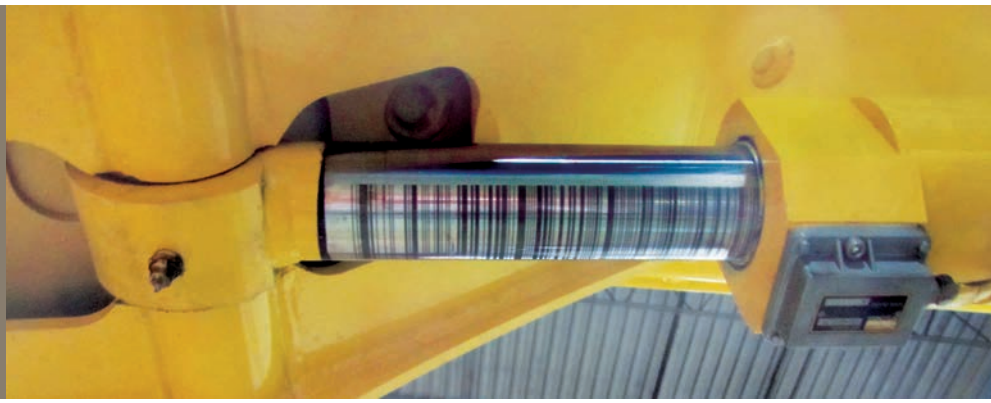
Conventional internal transducers cannot be fitted to a double rod cylinder, while remote sensor solutions are vulnerable to physical damage. Intellinder is available as a double rod cylinder, providing absolute position monitoring in safety-critical applications such as vehicle steering systems.

Multiple Redundancy

For safety-critical applications such as vehicle steering and braking systems, multiple redundancy can be

Simpler Machine Design

Conventional internal feedback transducers use a gun-drilled piston rod. For long stroke cylinders with small diameter piston rods, this can reduce fatigue life – often overcome by using a larger diameter rod, adding cost and weight. Intellinder allows a standard rod diameter to be used, converting machine weight into greater payload and enhanced productivity.



built in by utilising two or more sensors mounted around a piston rod with full radial marking, providing improved redundancy over other linear sensing devices.

One Sensor for All Applications

Downtime and spares inventory is minimised by using a single design of sensor for all Intellinder cylinders.

Health Monitoring

Integrated condition monitoring recognises and compensates for external physical damage to the rod markings, with on-screen alerts to avoid unplanned downtime.

Robust Construction for Real-World Applications

Intellinder can deliver a range of functions in power-dense applications, such as electronic cushioning, load monitoring, auto-level and return to position, improving productivity and reducing downtime. Projecting just 22 mm above the surface of the cylinder and protected by a rugged cast alloy housing, the sensor is designed to withstand the harshest operating conditions.

- **Lifting, extending and handling**
  rough terrain fork lifts
  access systems
  forestry vehicles
  reach stackers
  telehandlers
  gantry cranes
- **Compressing and compacting**
  refuse vehicles
- **Steering and braking**
  truck systems
  skid steer
- **Opening and closing**
  door systems
  grabs and buckets
- **Loading and tipping**
  loader arms and hatches
  tipper bodies
- **Security**
  speed control
  movement detection

Product Specifications

Sensor

Resolution		0.03 mm
Hysteresis		0.10 mm
Repeatability		0.04 mm
Linearity		0.07 mm (<0.003% of FS)
Mechanical	– vibration	12 g, 25 Hz to 2 kHz
	– shock	100 g
Temperature	– operating	-40 °C to +105 °C (SAE J1455)
	– thermal shock	-40 °C to +105 °C (SAE J1455)
Data I/O		J1939 CAN, 250 KBaud, 29-bit ID
Report rate		10 to 1000 ms
Electrical		EMI EN61000-6-2 (radiated susceptibility)
Ingression	– sensor and lead	IP68 (10 metres, 30 minutes)
	– connector	IP67 equivalent

Cylinder

Construction	mobile type, threaded head & welded cap
Bore diameter	no limitation
Rod diameter	25 mm to 127 mm
Working pressure	Available for all standard pressure ratings
Max. stroke length	2.4 m (longer lengths – consult factory)

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Catalogue HY07-1501/UK, POD, 10/2013, ZZ

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