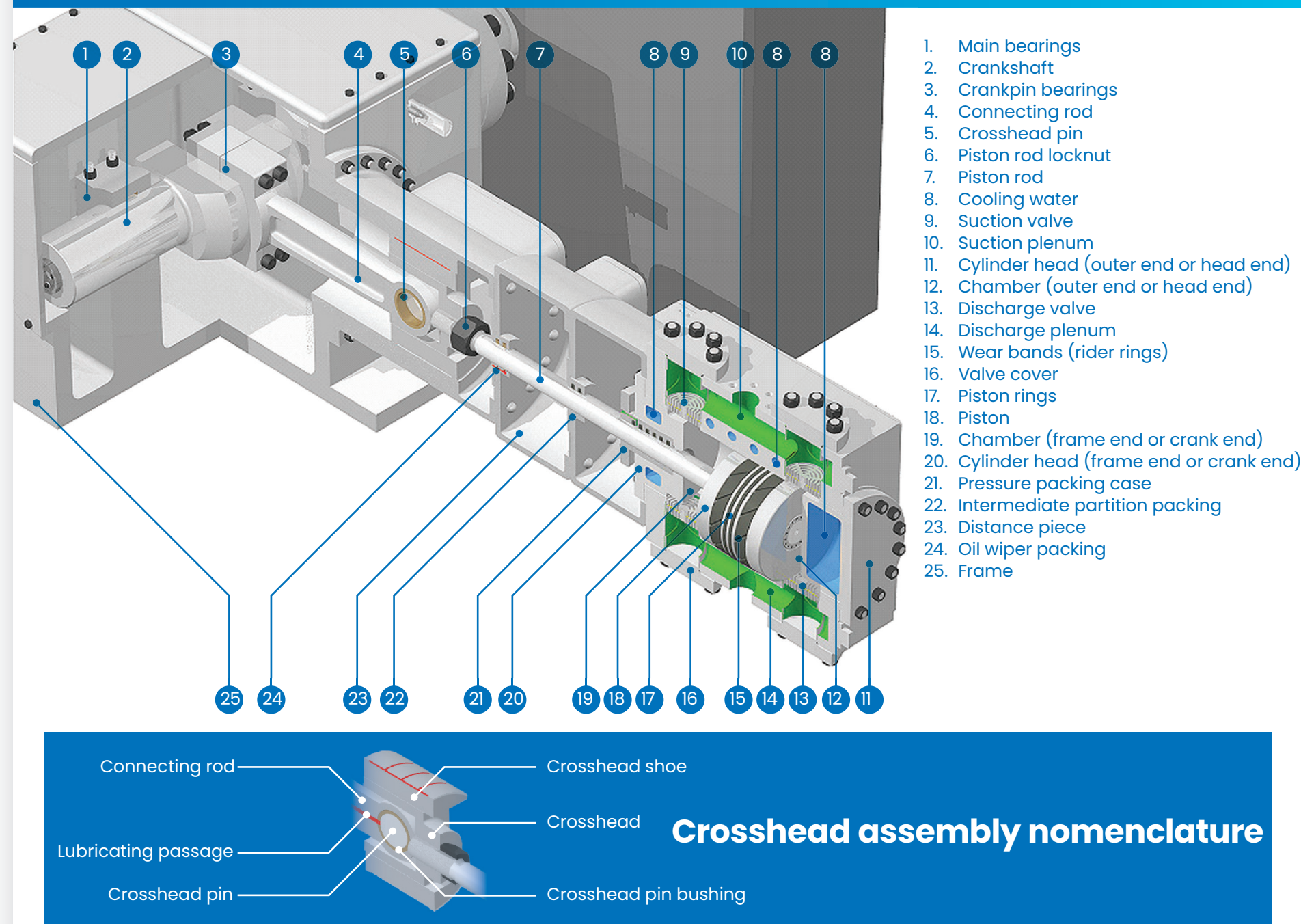
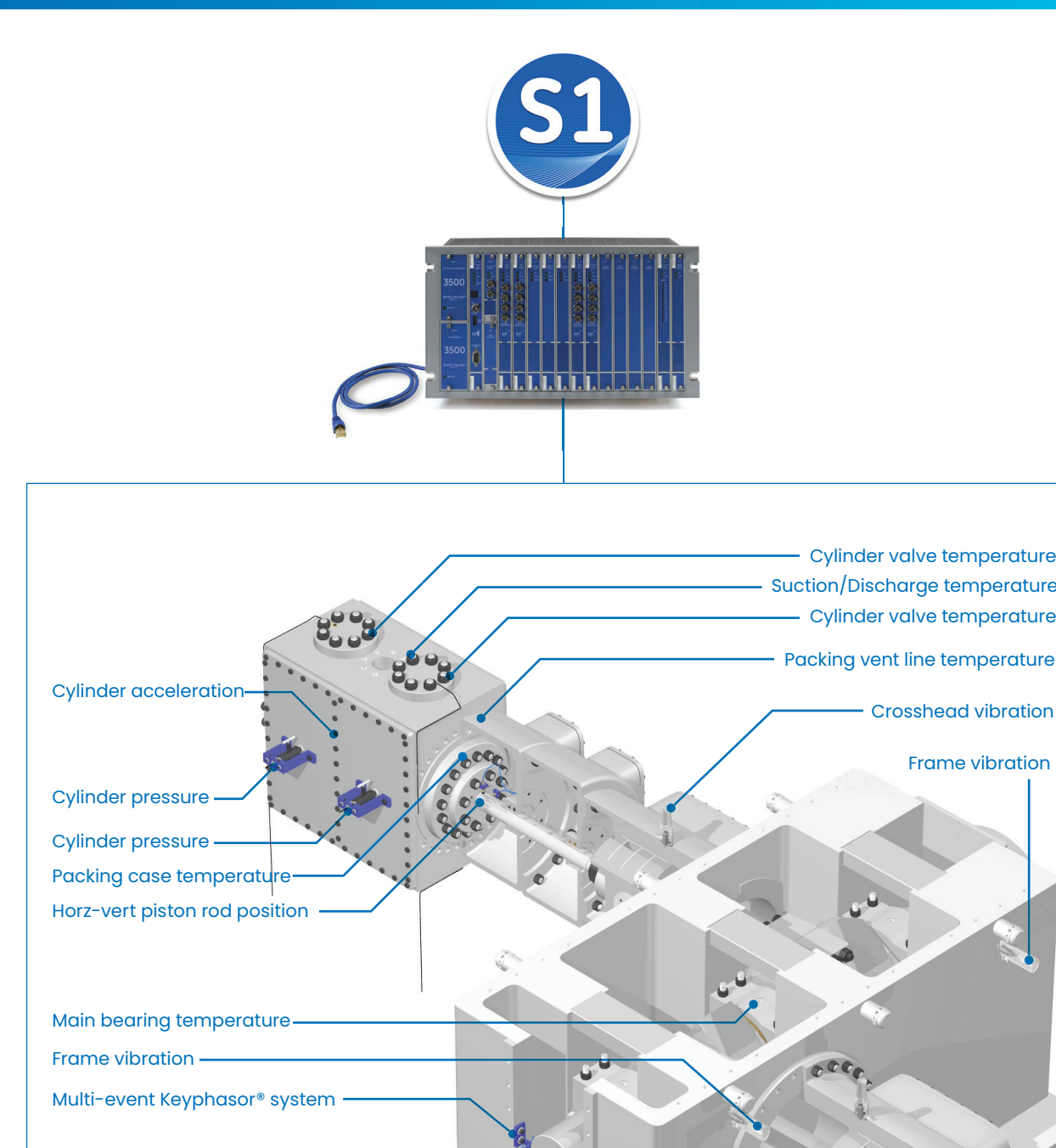


# Reciprocating Compressor Instrumentation and Condition Monitoring

## COMPONENTS AND NOMENCLATURE

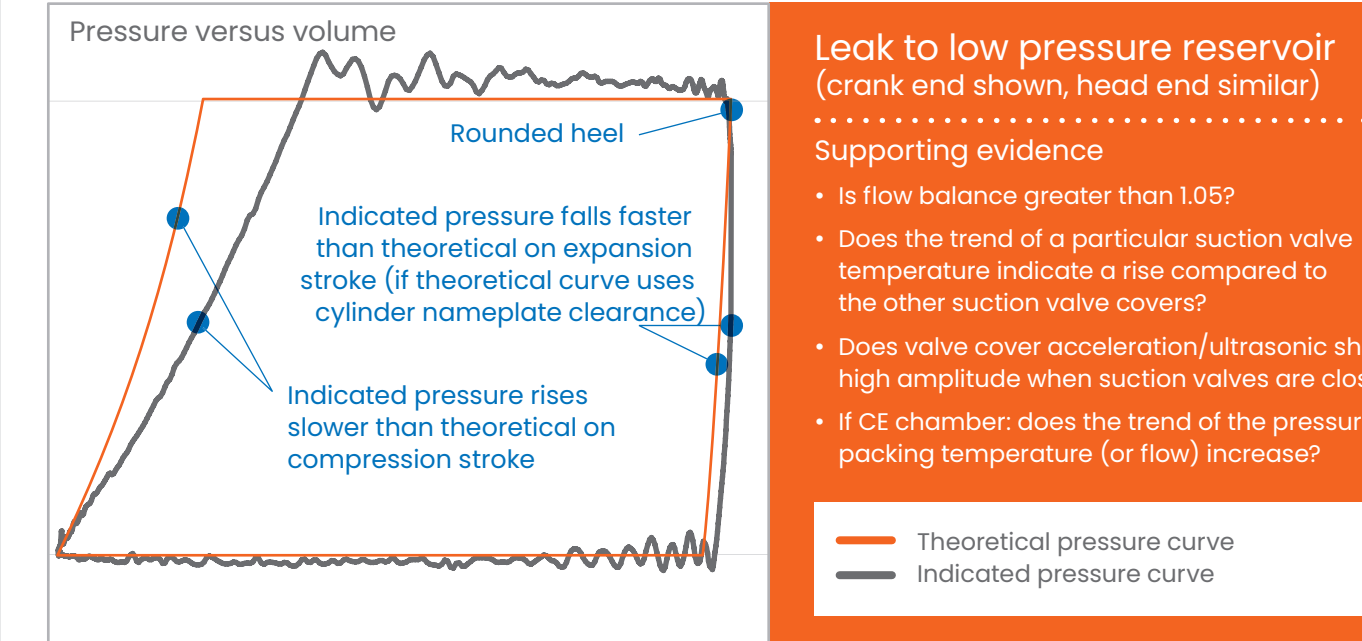


## INSTRUMENTATION LAYOUT

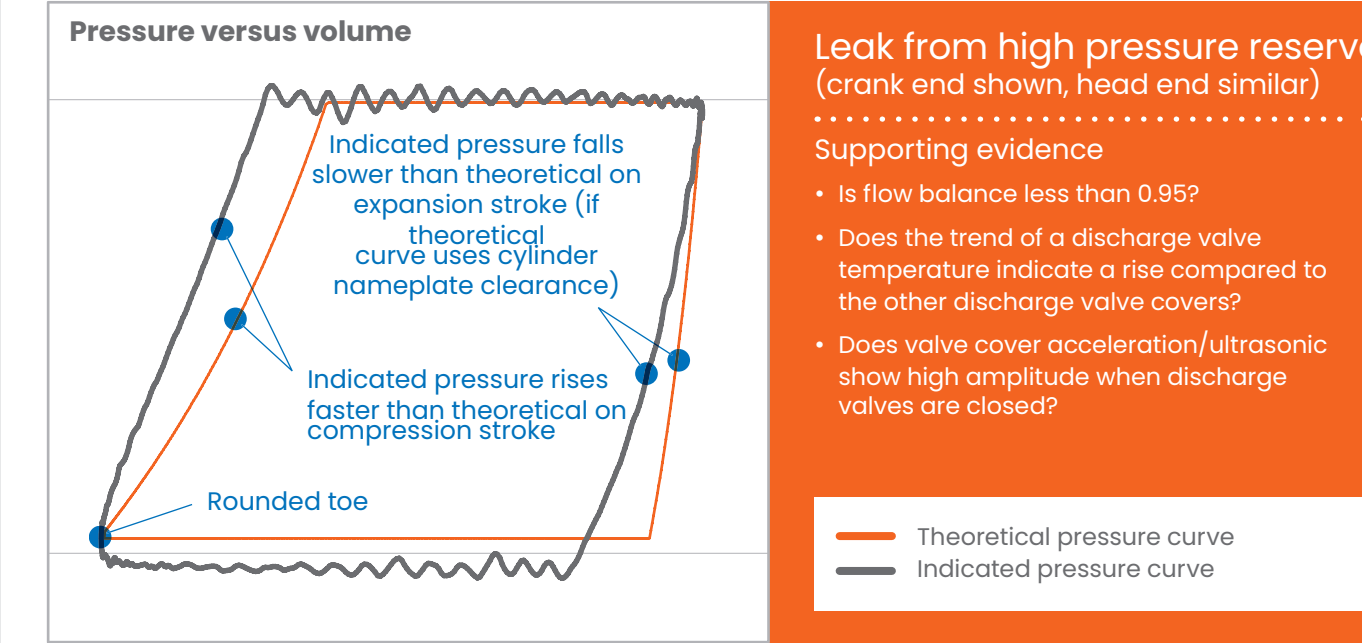


## LEAK

### Leak to low pressure side (suction valves or pressure packing leak, if CE chamber)



### Leak to high pressure side (discharge valves)



## CYLINDER PRESSURE INSTALLATION DETAILS

**Cylinder pressure transducer**

**Design features:**

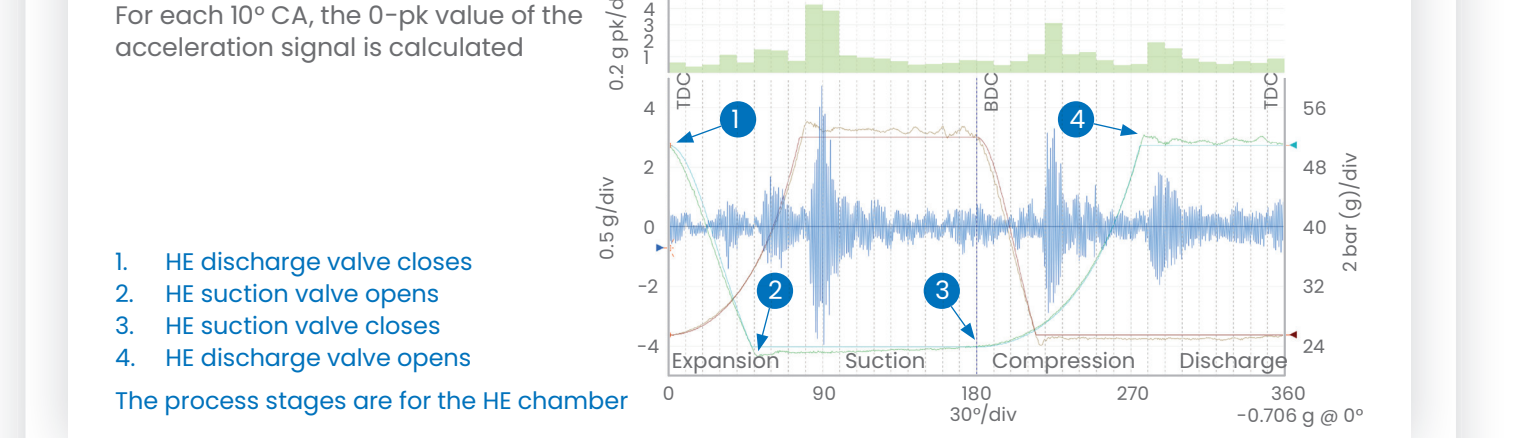
- Tested to over 2 billion cycles
- Evacuated transducer for absolute pressure reference
- Gold-plated diaphragm for corrosion resistance
- Separate electronics module for high temperature resistance

**Installation details:** Isolation valve (should not induce channel resonance reference GER-4273), Mechanical bracing to protect cylinder pressure transducer, Cylinder pressure transducer (+ 0.5% accuracy for > 1 billion cycles)

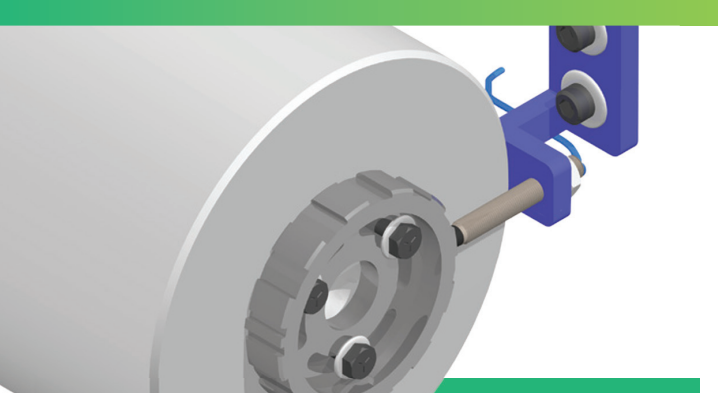
**Typical pressure versus displaced volume:** A typical indicated cylinder pressure curve will show some pressure fluctuation when the suction and discharge valves are opened. The areas labeled "A" and indicated by braces show these pressure fluctuations. When the valves are closed, the pressure shows a smooth line.

**Channel resonance on pressure versus displaced volume curve:** A pressure transducer installation suffering from channel resonance will show pressure fluctuations when the suction and discharge valves are closed as well as when the valves are opened. The frequency of this resonance remains nominally constant throughout the cycle.

## CYLINDER ACCELERATION OVERLAID WITH DYNAMIC PRESSURES



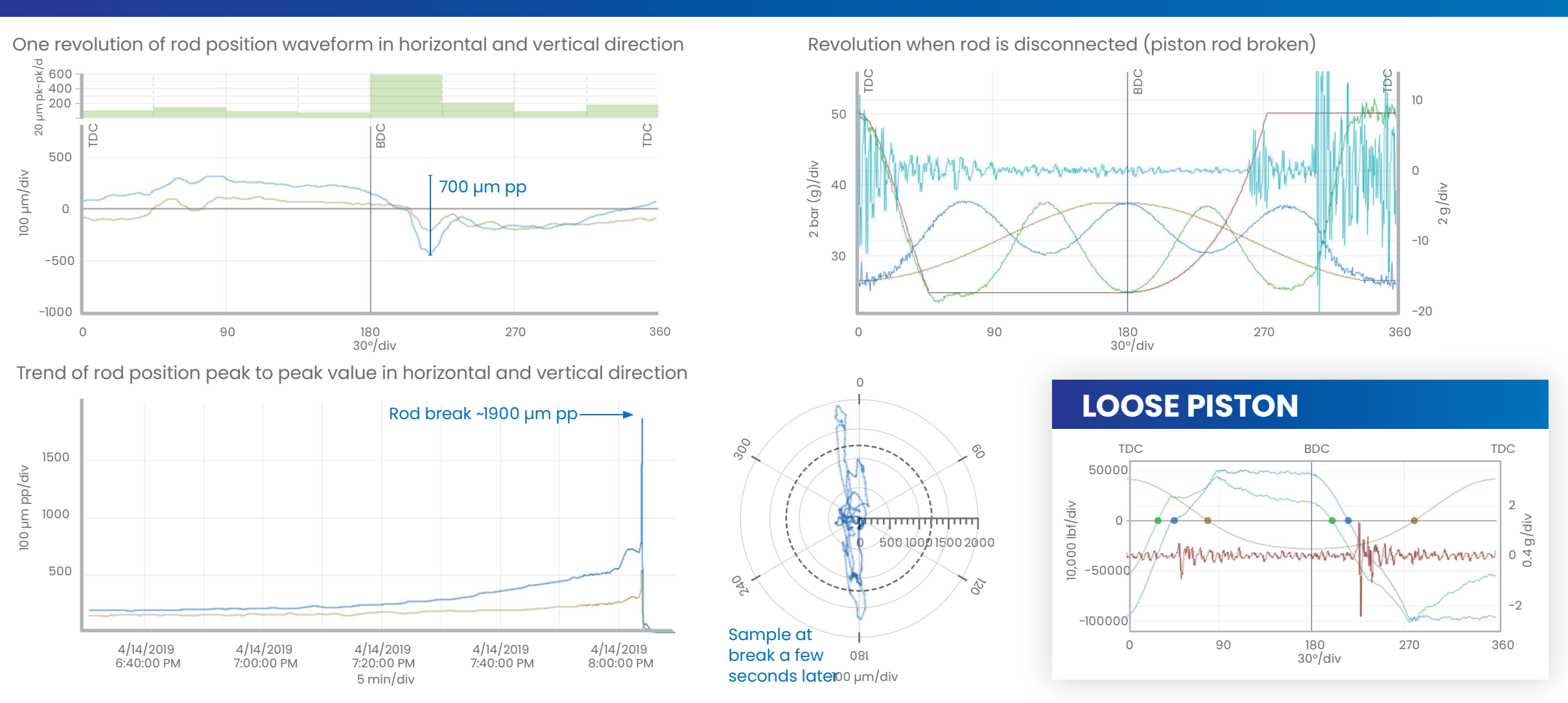
## MULTI-EVENT WHEEL



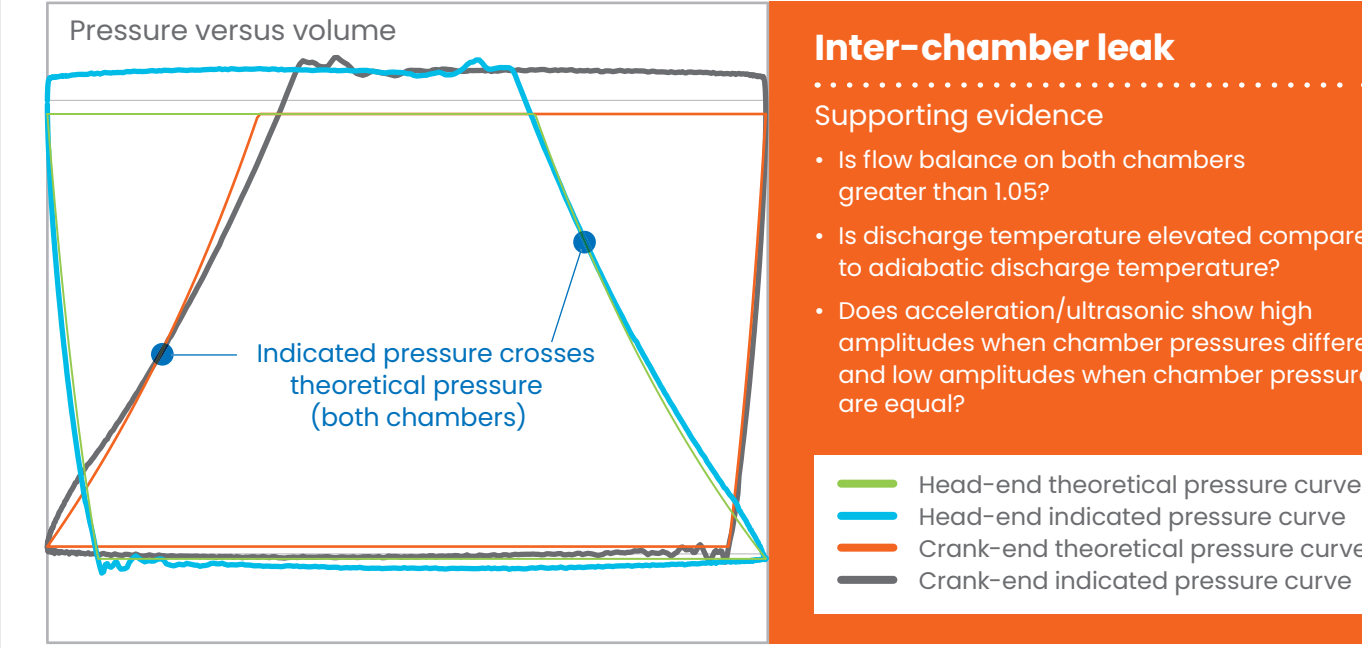
**Benefit:** The torsional vibration of the crankshaft changes from revolution to revolution for each load step on the machine. Having multiple events per revolution improves the ability of the system to capture data with respect to crank position, regardless of the shape or change in shape of the torsional vibration. Sensing multiple events per revolution is the technique used with the Bently Recip Multi-Event Wheel.

Recip Multi-Event wheel kit (Part No. 146973-01)  
Custom Recip Multi-Event band (Part No. 105M5964-xx)

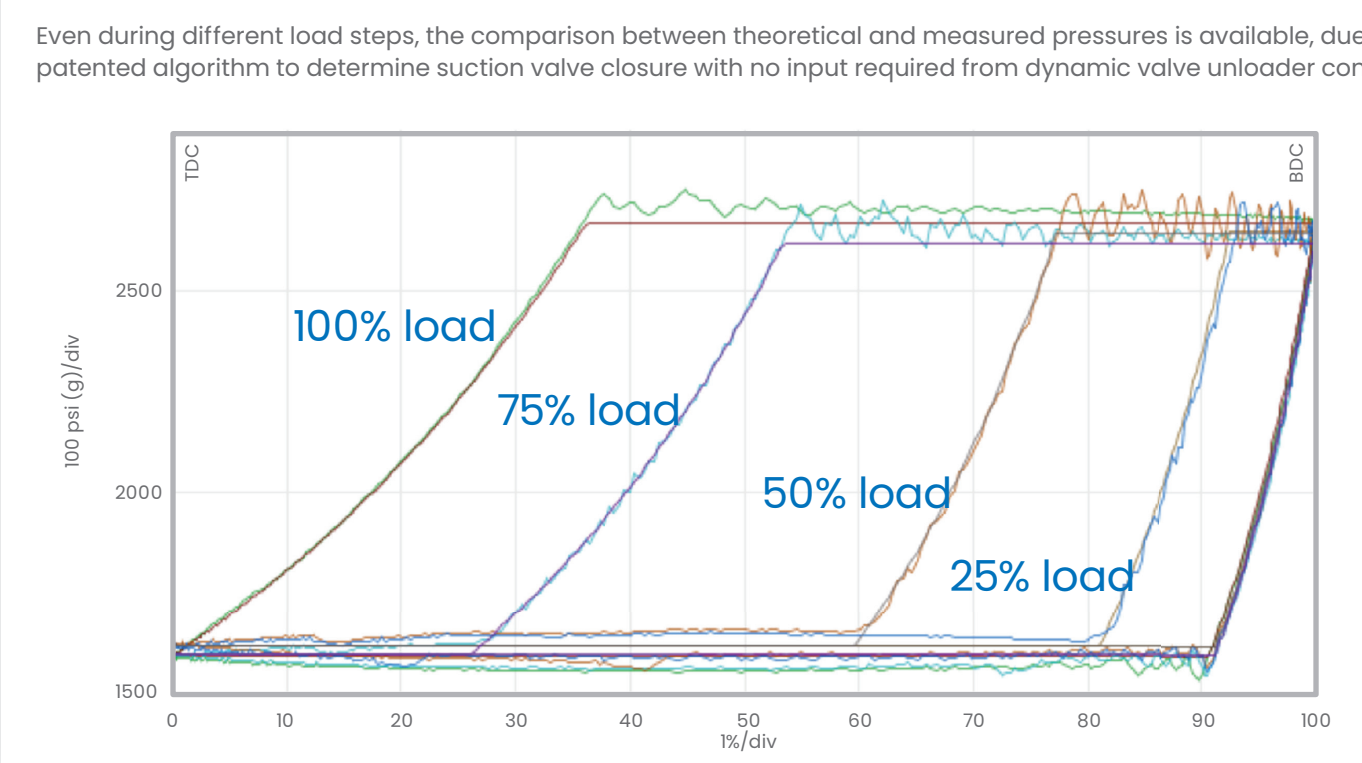
## PISTON ROD BREAK



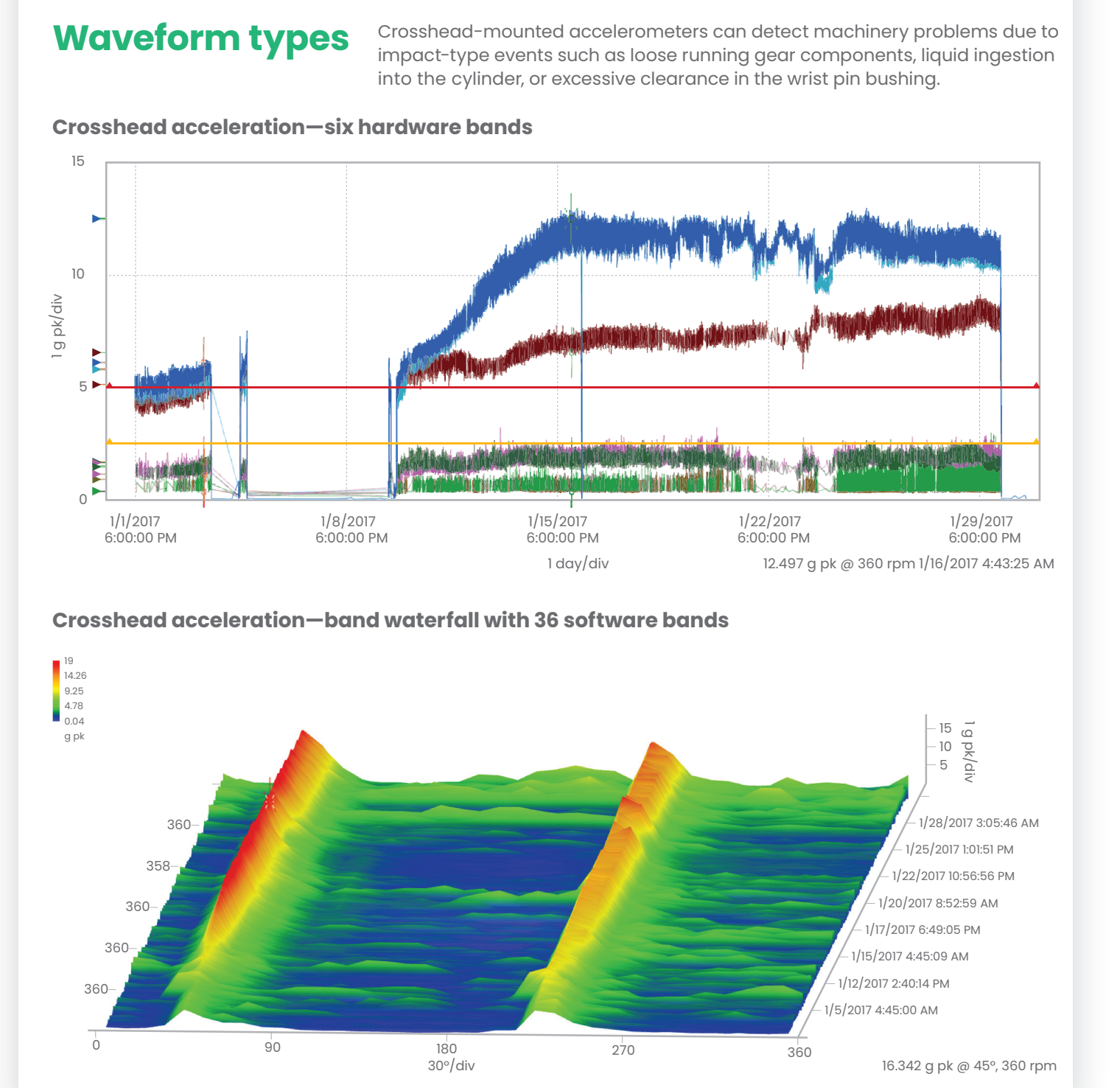
## Inter-chamber leak (usually piston rings)



## CAPACITY CONTROL STEPLESS UNLOADER



## CONDITION MONITORING



For more information visit [bntechsupport.com](http://bntechsupport.com) or call +1 775 215 1818

Our machinery diagnostic engineers help you reach your safety and efficiency goals, increasing uptime, while reducing operation and maintenance costs.

## ROD LOAD MONITORING

