Leak Testing of Engine Blocks – Standard and Custom Solutions

TQC have produced a number of leak test systems for a variety of automotive parts, this includes equipment for the testing of engine cylinder block castings. The machines supplied to date include manual and automated loading / unloading, multi cavity leak testing functions and system diagnostics.

TQC incorporates standard concepts and customised the equipment to suit the components and the test parameters. Examples of components tested include the Vauxhall V6 engine, Rover K Series, Jaguar, Scania etc.

Features, Tests & Functions

- Ferrous and non ferrous castings
- Machined and ‘As Cast’ conditions
- Main cavity, High Pressure Oil and Water Cavity leak tests
- Interstream leak testing
- Integrated water submersal for leak area location
- Integrated flow and blockage testing
- Automatic core and ball plugging
- Multi-channel leak test unit allows up to 5 cavities to be tested simultaneously
- Manual loading and unloading
- Conveyor transfer
- Integrated robot cells
- Secondary machining operations
- Data logging of results with serial number pass marking for traceability

Typical Leak Rates and Test Pressures for no-fluid leakage

- Oil Circuits 50mm³/sec @ 0.3 bar (3cc/min)
- Water Circuits 200mm³/sec @ 1 bar (12cc/min)
- Interstream 140mm³/sec @ 0.7 bar differential (8.4cc/min)
Cast Iron - ‘As Cast’
3 cylinder engine block
Fully automatic transfer

Aluminium fully machined
6 cylinder engine block with water dunk
Manual load / unload with gripper ‘lift assist’

Aluminium - ‘As Cast’
4 cylinder engine block with rotary water dunk
Manual load / unload