

### Herz CPD Seminar – CIBSE Approved

#### Energy Efficient Balancing in Variable Volume Systems

- First principles of Flowrate and pressure
- Resistance in systems and pump sizing
- Valve authority and the effects on control valves
- Constant volume systems basic principles including control valve and balancing valve methods, applications and issues
- Variable volume systems basic principles including control valve and balancing valve methods, applications and issues
- Variable volume system bypasses
- Differential pressure effects in variable volume systems
- Balancing techniques in variable volume systems
- The application and benefits of Differential Pressure Control Valves in variable volume systems
- The application and benefits of Pressure Independent Balancing Control Valves in variable volume systems
- The use of commissioning centres (valve modules)
- Key points from the BSRIA Guide to Energy Efficient Pumping Systems BG 12/2011