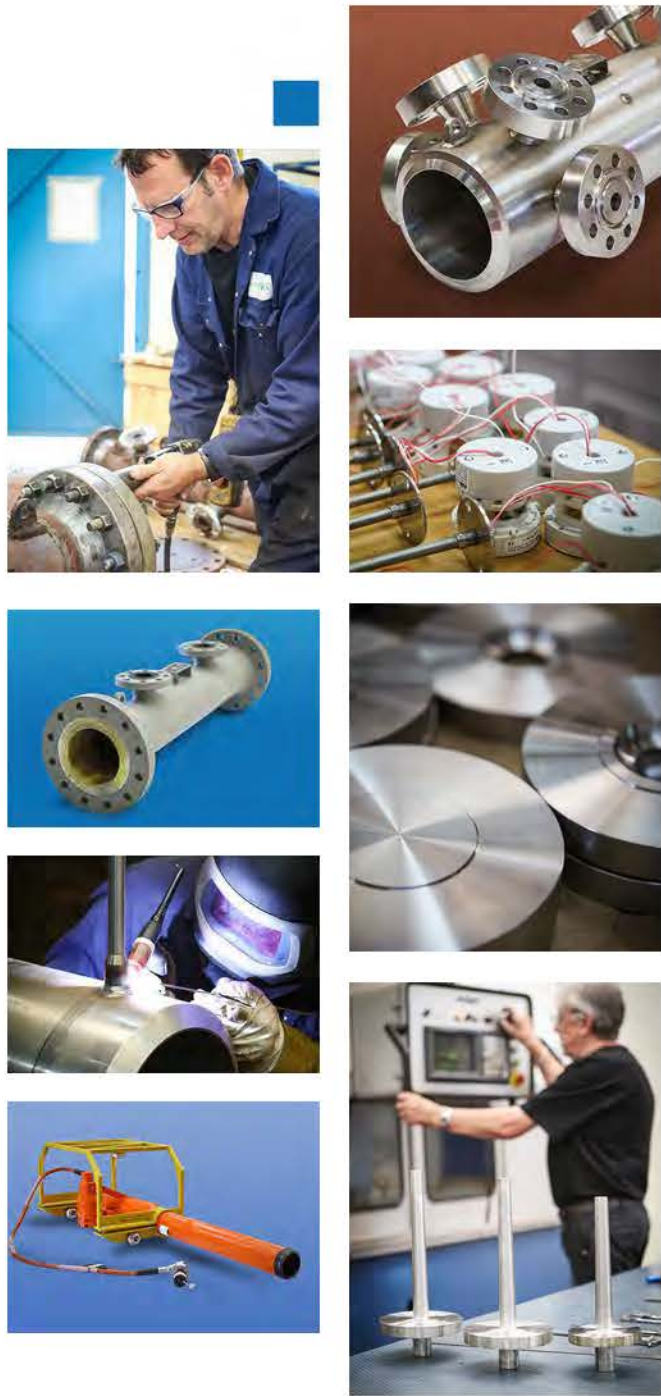


Relentless pursuit
of uncompromising
product quality and
service.



BETTER MEASUREMENTS BETTER OUTCOMES

Wedge Meter
 Nozzles Thermowells Sub-Sea Measurement
 Diagnostic Evaluation Measurement
 Surface Mount Sensors Training Temperature Multipoint Sensors
Venturi
 Orifice Plates Wedge Meters
Orifice Plates
 On-Site Evaluation Wedge Meters
 Ultrasonic Multipoint Sensors
 Temperature Measurement
Venturi
 Wedge Meters
 Refurbishment & Evaluation
 Training Nozzles Cable Sensors
McMenon
 Wedge Meters Cable Sensors Measurement Training Nozzles
 Diagnostic Evaluation
Temperature
Coriolis
Orifice Plates
 On-Site Evaluation Wedge Meters
 Surface Mount Sensors
Nozzles
 Fabricated Measurement Skids Measurement Surveys

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**In relentless pursuit of
uncompromising product quality and
outstanding service**

Anand Puthran
Founder and CEO

Mission

Premier manufacturer of flow and temperature measurement instrumentation and the trusted partner of choice for complete contract engineering and manufacturing services.

Vision

Create organisations that are progressively adaptable to change and innovation by providing a meaningful and rewarding experience for its members.



The **Workington facility** has 70 years of tradition and a track record of designing and manufacturing industry leading highly specialised flow and temperature measurement products and led by employees who are best in the business.

The acquisition of the Workington facility from ABB, is a major milestone for McMenon Engineering Services. Being a 'preferred supplier' to ABB instantly places McMenon Engineering Services amongst the premier global suppliers of flow and temperature measurement instrumentation.



Temperature Measurement Products

In-Pipe sensing elements: designed to be used with a Thermowell or self-sealing coupling, these straight sensors manufactured using high quality thermal cable with a full metal sheath are robust, safe and accurate.



Thermowells

- Protection of the temperature sensor and the ability to remove a sensor without breaking pipeline integrity is vital in continuous flow processes.
- The ultimate in safety and endurance is provided by the solid drilled Thermowell.
- Manufactured from a single bar of metal, drilled to within 6 or 9 mm from the end of the machine finished bar.
- Heavy Duty design
- Threaded, Flanged or weld-in type. Thermowells are used in the most demanding of industries where a breach in pipeline security could mean disaster.



Surface Mount Sensors

- Non-intrusive surface mounting sensor ideal for existing applications or for reducing potential leak paths.
- Surface mounting sensor can be provided to measure the temperature of the outside of the pipeline.
- With reasonable lagging the accuracy of these sensors is virtually identical to a Thermowell system.
- Simple to attach and maintain.



Cable Sensors

- Superior sensors and cables for optimum communication output.
- Terminated as flared ends, connection blocks/heads or transmitters compliant sockets.



Multipoint Sensors

- For process vessels where a single entry port is required for multiple temperature measurements.
- A variety of design styles are available for what tends to be an engineered to requirements product.

Flow Measurement Products

Differential flow products designed, built and documented to exacting standards. Not all process applications are the same therefore McMenon offer different types of meter to meet the needs of the application and environment.



Orifice Plates

Orifice plates are the most common components in any flow measuring system being capable of measuring gas, wet gas and liquid flows in the most demanding of processes.

- Measurement orifice plates to ISO 5167 and AGA 3 for fiscal and allocation applications.
- Restriction orifice plates for pressure or flow reduction applications.
- Restriction spools for staged multi plate pressure drops.
- Concentric, Eccentric, Quadrant and Conical entrance plates available.



Nozzles

- Used for high velocity flow measurement where erosion or cavitation could wear or damage an orifice plate.
- Flow nozzles do not rely on a sharp edge (which can degrade over time) to maintain accuracy and therefore offer excellent long-term accuracy with less wear and reduced possibility of distortion.
- Often used for flow testing on steam-raising plant.
- The flow nozzle is available to 3 standards and in designs for either damping between flanges (within the bolt circle) or for welding into the pipe.



Averaging Pitot Tubes

- Classical Pitot Tube concept of fluid flow measurement. Suitable for gases, liquids and steam.
- Simple, unique, ultra rugged robust design assures reliability.
- Typical applications include water, natural gas, flue gas, nitrogen, combustion gases, ventilation air, sea water, cooling water, crude oil, saturated and superheated steam.
- Meters are available for pipe sizes from 15 mm (½ in.) up to 8 m (26 ft.).
- Suitable for rectangular & square ducts or circular pipe.
- Retractable and hot tap versions.
- High turn-down with low pressure loss.



Variable Area Flow Meter

Fail safe flow measurement for clear liquids and gases. Pressure and flow control are available with the use of regulators and flow control valves.

The Variable Area Flow meter range of instruments provide an economical solution for laboratory and OEM customers.

- Scaled to the customer's requirements.
- A simple, cost effective solution for a multitude of applications.



Wedge Meters

Our World Leading Super Wedgemeter range is strong, highly resistant to wear, bi-directional and virtually indestructible.

- An almost flat relationship between discharge factor and Reynolds number makes the wedge meter the most flexible of all the measurement solutions for Differential Pressure.
- Our products are suitable for various applications including Oil and Gas, Mud Flow, Pipe injection fracking, High Viscous high Temp, Shale gas, Coal Gas liquification, Pulp and Paper, Power (Drax), Molten Sulphur Cracking, Plastics and Polymers
- Option of internal coatings available to reduce wear.



Sub-Sea Measurement

The McMenon DeepSea Venturi is ideal for metering single phase fluids used to aid Sub-Sea production. Whether it be for artificial gas lift, water injection for added reservoir pressure or MEG injection for condensate prevention, our DeepSea Venturi is a robust and dependable solution.

- The DeepSea Venturi is designed to handle high pressure (both externally and internally), low ambient temperatures coupled with higher fluid temperatures and to survive where both the environment and the process fluid are aggressive.
- Various output signal, pressure class and material options available.



Venturi Tubes

The Venturi is the ultimate Differential Flow measurement device, features a low permanent pressure loss and high accuracy flow measurement of virtually any fluid.

- No moving parts and long life of product.
- No need to condition the flow.
- Very low pressure loss.
- Option of internal coatings available to reduce wear.
- Available from 2 to 48" line size in truncated, short and long form.



Meter Runs & Spool Pieces

To accompany any primary element, McMenon are positioned to provide code compliant meter runs for fiscal or allocation purposes.

McMenon can offer;

- A variety of weld procedures for material groups.
- Branch connections for process or take off points.
- A variety of end connection options.
- Over a wide range of line sizes and pressure ratings.



Contract Manufacturing

McMenon Engineering Services with its world class capabilities, knowledge and experience is a confidential partner providing complete contract engineering and manufacturing solutions.



Partnering with **McMenon** and leveraging our core competencies offers many advantages to our clients:

- Smart sourcing manufacturing requirements to **McMenon** allows businesses to grow with the support from industry leading expertise, service and exceptional quality.
- A dedicated team of **McMenon** technical experts covering all areas of design and development, quality assurance and certification work with the client to develop a customised solution in a timely manner.
- Accelerate technology transfers into routine manufacturing keeping capital investment and personnel resource costs low.

OEM Case Study

McMenon Engineering Services have been granted 'preferred supplier' status by **ABB**, a leading global power and automation technology group to manufacture and supply badged products from its portfolio of flow and temperature measurement instrumentation products.



Our Services

McMenon engineers are available for client site visits

Talk to us about sending a team or an individual to your site to perform tasks ranging from but not limited to Installation verification, welding location planning and verification, Dye penetrant and ultrasonic weld testing, Instrumentation advice and fault finding. McMenon engineers have global experience all of which is at your disposal.



On-Site Evaluation

For installations requiring flow or temperature measurement our engineers can recommend the best approach to providing accurate and reliable readings.



Diagnostic Evaluation

For flow and temperature measurement where the results on site are causing concern our Engineers are able to evaluate the existing installation and make recommendations.



Training

Either on-site or in a class room environment training can be provided in DP flow measurement and temperature measurement. Delivering the skills your team will need to successfully specify and install measurement equipment.



Wet Flow Calibration Service

Returning instrumentation to our facility for evaluation and refurbishment after a period of service. Equipment which has seen service can often require the keen eye of an experienced Engineer. We will evaluate the equipment, make recommendations and on receipt of instruction carry out any necessary work.

FLOW MEASUREMENT SELECTION & PRACTICE

Comparison of Flow metering technologies by applications

✔ Suitable
 ⚙️ Possible (special design) or sub-optimal
 ✘ Unsuitable

Liquids	Magnetic flow	Coriolis mass flow	Vortex Flow	Ultrasonic Flow	Variable Area Flow	DP Flow Wedge	DP Flow Venturi Tube	DP Flow Orifice	DP Nozzle	DP Flow Averaging Pitot	Typical application Liquids
Clean conductive	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Drinking Water
Dirty Conductive	✔	✔	⚙️	✔	⚙️	✔	✔	⚙️	✔	⚙️	Waste Water
Viscous Conductive	⚙️	✔	✘	✔	⚙️	✔	⚙️	⚙️	⚙️	⚙️	Food and Beverage product feed
Conductive Slurries	✔	✔	✘	⚙️	✘	✔	⚙️	✘	⚙️	✘	Cement manufacture
Conductive bi-directional Flow	✔	✔	✘	✔	⚙️	⚙️	⚙️	⚙️	✘	⚙️	Loading and unloading
Conductive and Corrosive	⚙️	⚙️	⚙️	✔	⚙️	✔	✔	✔	⚙️	⚙️	Acid Transport
Water Hammer	⚙️	✘	✘	✔	✘	⚙️	⚙️	⚙️	⚙️	⚙️	Steam line start up
Conductive Pulsating Flow	✔	✔	⚙️	⚙️	✘	⚙️	⚙️	⚙️	⚙️	⚙️	Ground water recovery
Clean non-conductive	✘	✔	✔	✔	✔	✔	✔	✔	✔	✔	Gasoline products
Dirty non-conductive	✘	✔	⚙️	✔	⚙️	✔	✔	⚙️	✔	⚙️	Crude Oil production
Viscous non-conductive	✘	✔	✘	✔	⚙️	✔	⚙️	⚙️	⚙️	⚙️	Bitumen
Non-conductive Slurries	✘	✔	✘	⚙️	✘	✔	⚙️	✘	⚙️	✘	Coal to Oil
non-conductive bi-directional Flow	✘	✔	✘	✔	⚙️	⚙️	⚙️	⚙️	✘	⚙️	Loading & Unloading Gasoline products
Non-conductive and Corrosive	✘	⚙️	⚙️	✔	⚙️	✔	✔	✔	⚙️	⚙️	Sour feed stock
non-conductive Pulsating Flow	✘	✔	⚙️	⚙️	✘	⚙️	⚙️	⚙️	⚙️	⚙️	Diapham pump feed
Gasses	Magnetic flow	Coriolis mass flow	Vortex Flow	Ultrasonic Flow	Variable Area Flow	DP Flow Wedge	DP Flow Venturi Tube	DP Flow Orifice	DP Nozzle	DP Flow Averaging Pitot	Typical application Gasses
Steam	✘	⚙️	✔	✘	✔	✔	✔	✔	✔	✔	Power and heating
Clean	✘	✔	✔	✔	✔	✔	✔	✔	✔	✔	Hydrocarbon gas
Wet	✘	⚙️	✘	⚙️	⚙️	✔	✔	✔	✔	✔	Gas feed stock
Particle contaminated	✘	⚙️	⚙️	⚙️	✘	✔	✔	⚙️	✔	⚙️	Sand entrained in Gas
Corrosive	✘	⚙️	⚙️	⚙️	⚙️	✔	✔	✔	✔	✔	Sour Gas stock
Capital Cost	Moderate	Very High	Moderate	Very High	Low	Moderate	Moderate	Low	Moderate	Low	
Maintenance costs (Typical)	Moderate	Very High	High	Very High	Low	Low	Low	Moderate	Low	Low	
Total Cost of Ownership	Moderate	Very High	Moderate	Very High	Low	Low	Low	Low	Low	Low	



Venturi Tubes



Orifice Plates



Thermowells



Cable Sensors



Multipoint Sensors



Wedge Meters