AVERY-HARDOLL® RANGE OF METERS AND ACCESSORIES

The Avery-Hardoll range of meters and accessories is manufactured by Liquid Controls in Lake Bluff, Illinois and they offer a wide range of meters and accessories to accommodate most fuelling applications. Aljac has a large stock holding of spare parts and meters in the UK.

BM Positive Displacement Meters.

The BM series bulkmeter has become the industry standard for aircraft refuelling, where accuracy, repeatability and reliability are essential due to the high uplift volumes and critical nature of the application. It is available in a range of sizes from 2.1/2 inch up to 6 inch with flow rates up to 3870 Litres/Minute and with Ductile Iron or fabricated Steel manifolds. The BM Meters are available with mechanical or electronic registers and can be fitted with pulse transmitters to allow for connection to other electronic systems.

DM Positive Displacement Meters.

The DM series bulkmeter is designed specifically for installation on depots. It has an inline design which allows it to be fitted in pipework where space is limited. Due to the application it is only available in Cast Steel with 4 inch flanges. The DM meter is available with mechanical or electronic registers and can be fitted with pulse transmitters to allow for connection to other electronic systems.

Master Meters.

When calibrating working meters it is essential that the process is carried out against a Master Meter where the accuracy and repeatability are of paramount importance. The BM series meter is the ideal solution for a Master Meter and it is the industry standard. Any of the meters in the BM range can be a Master Meter and they are available with either a mechanical or electronic readout. The mechanical Master Meters are supplied fitted with a Vernier Unit Drum which provides a higher level of resolution, and it is one of the features that sets it apart from the competition. The Avery-Hardoll Master Meters are fully suitable for testing to EI HM20.

Mechanical Accessories.

The Avery-Hardoll mechanical meters come complete with a Veeder Root head which can read in Litres, Litres x 10, Decalitres, Cubic Metres, Imperial Gallons or US Gallons. The mechanical meters are available with a wide range of accessories including:

- Rate of Flow Indicator
- Ticket Printer (accumulative or zero start)
- Internal Pulse Transmitter
- Preset Register and Preset Valve

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MASTERLOAD II™.

The *MASTERLOAD II* system is a simple, proven design which has been established in the market for over 40 years. The display comes with either one button (non-preset) or 3 buttons (preset) so it is easy to use in any conditions. There is also the option to choose between 1, 2, 4 or 8 calibration points depending on the customer's requirements. The multiple calibration points allow the customer to correct the error at any flow rate so that they can tailor the calibration curve to best reflect the operating conditions at their facility. The *MASTERLOAD II* is available in either DC (12V or 24V) or AC (110V or 240V) and is fully ATEX approved. The unit is driven by a 3 channel pulse transmitter where the third channel allows the *MASTERLOAD II* to account for flow direction and check the other pulse channels, which gives it an advantage over its competitors.

***MASTERLOAD II™* Accessories.**

Each *MASTERLOAD II* is made up of a display unit, a power supply unit and a pulse transmitter. However, there are a number of accessories that are available as added extras. These include:

- Ticket Printer (accumulative or zero start)
- Preset Register and Preset Valve
- Temperature Compensation
- Repeat Display

MASTERLOAD III™.

The *MASTERLOAD III* is the latest set of electronics to accompany the Avery-Hardoll meters. The design is very different to it's predecessor and has additional features including a back lit screen and alpha numeric keypad for navigating through the menus. The *MASTERLOAD III* has a multi-point calibration and is available with either an ATEX control box that allows for installation outside of the vehicle cab, or a non ATEX control box for mounting inside the vehicle cab. The unit comes with up to 12 programmable inputs, up to 22 programmable outputs, 2 off 4-20mA inputs and *MASTERLOAD III* is driven by using the Liquid Controls Pulse Output Device (POD). It is also possible to drive the *MASTERLOAD III* using a standard twin channel pulse transmitter.

***MASTERLOAD III™* Accessories.**

Each *MASTERLOAD III* is made up of a display unit, control box (ATEX or non ATEX) and pulsed output device (POD). However, there are a number of accessories that are available as added extras. These include:

- Ticket Printer (accumulative or zero start)
- Preset Register and Preset Valve
- Temperature Compensation
- Repeat Display
- Differential Pressure Transducer
- Slipstream Densitometer

For further information or pricing please contact our Sales Department at **sales@aljac.com.**

LIQUID CONTROLS RANGE OF METERS AND ACCESSORIES

M Series Positive Displacement Meters.

The M series Positive Displacement meters are manufactured in Aluminium Alloy and have a unique design which uses three synchronised rotors to accurately measure fuel volume. It is available in a range of sizes from 1.1/2 inch up to 6 inch with flow rates up to 3785 Litres/Minute. The meters are available with mechanical or electronic registers and can be fitted with pulse transmitters to allow for connection to other electronic systems.

MS Series Positive Displacement Meters.

The MS series Positive Displacement meters consist of a spherical Steel case with flanged inlet and outlet connections. The shell houses the standard Aluminium M series meter but it allows the meters to be installed on depots where Steel meters are preferred. It is available in a range of sizes from 2 inch up to 6 inch with flow rates up to 3780 Litres/Minute. The meters are available with mechanical or electronic registers and can be fitted with pulse transmitters to allow for connection to other electronic systems.

Electronics.

Liquid Controls offer two versions of their electronic display. The LCR-II is a simple design where the unit is operated using a dial and two buttons. The LCR 600 is the later model and although it retains the dial it also includes an alpha-numeric keyboard and a much larger display. Both the LCR-II and the LCR 600 have a multi point calibration facility and can either be fitted directly to the meter or remotely mounted. When remotely mounted the units are driven by the POD and when fitted to the meter they are driven by an internal twin channel pulse transmitter.

Mechanical and Electronic Accessories.

The Liquid Controls meters (mechanical or electronic) can be fitted with a range of accessories beyond the standard Veeder Root head or LCR-II/LCR 600. Accessories include:

- Ticket Printer
- Preset Register and Preset Valve
- Electronic Temperature Volume Compensation (ETVC)
- Strainer
- Air Eliminator
- Rate of Flow Indicator

TopTech.

In addition to the normal preset systems, Liquid Controls can also offer a batch control system, the TopTech MultiLoad II. This system has the capability to deliver straight product or multi-product blends to multiple meters, using ratio, sequential, and various hybrid blending methods. The MultiLoad II is a multi-solution batch controller that can handle loading, dispensing, and tracking high value fluids and gases. Each MultiLoad II display can control up to five meters per loading arm. TopTech also provide a MultiLoad II Single Meter Preset (SMP) unit. It offers a similar set of functions to the original MultiLoad II, but it is a more economical version where one display controls a single meter and single product. Both versions are ATEX approved and can be supplied in a range of both Zone 1 and Zone 2 enclosures.

FlightConnect.

Liquid Controls have expanded their range beyond just meters and registers and developed a wireless fuelling automation system called FlightConnect. It is a simple and cost effective system that is designed to send fuelling information to smart registers like *MASTERLOAD III* and LCR600. It allows the despatcher to schedule the fuellings for the day and wirelessly send this information to the refuelling vehicles without them returning to the depot. Completed fuelling information is transmitted back to the office which allows the fuelling company to invoice their customers faster and more efficiently.

For further information or pricing please contact our Sales Department at **sales@aljac.com.**