

### FEATURES

- Measures Admixtures (Specific Gravity  $\leq 1.4$ )
- Nutating disc measuring chamber.
- Small impurities can pass chamber without jamming.
- Low hydraulic thrust minimises wear.
- Exclusive 1 pulse per 1 millilitre output.
- $\pm 1.5\%$  accuracy curve.
- $\pm 0.2\%$  repeatability of rate.
- Conforms to AS3565-1988, Designed to meet AS3901.



MES20 Transistor pulse

MES20-R Contact Closure pulse

The MES20 magnetically-coupled positive displacement pulse output flowmeter, with its nutating disc measurement principle flow chamber, provides a high resolution pulseout, making it suitable for an extensive range of precision batching and flowrate monitoring applications, operating over a wide flow range.

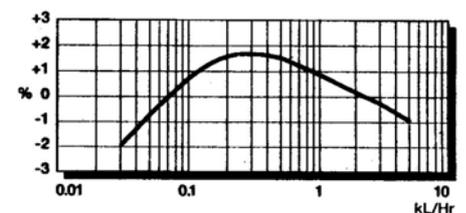
The MES20 was introduced in 1995, and is now used throughout the world. It is the primary choice for most construction chemicals suppliers throughout Australasia and other parts of the world for measuring and dispensing liquid admixture chemicals.

The nutating (wobble) disc measurement flow chamber employed in the MES20, makes the meter operate with only minimal headlosses and can pass small impurities without jamming. Measurement with a wide range of varying viscosity and specific gravity liquid water based admixtures is possible with negligible calibration variations. The optimum operating flow rate is at nominal (Nom) flow, expect at least 15 years operating life of the chamber with standard admixture liquids.

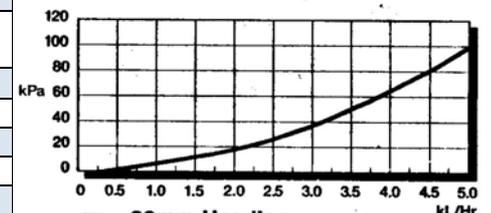
The pulsehead (electronic) is fully self contained unit, which attaches to the main meter body with a bayonet turn and lock fitting mechanism. Although the MES20 was designed primarily for economical measurement of concrete admixtures, it is also used for a wide range of other water based liquid measurement applications.

### TECHNICAL SPECIFICATIONS

Size	:	20mm
Pulse output rate: Transistor	:	1 pulse per 1 millilitre (1000 pulses / Litre), Transistor output.
Contact Closure	:	60.6 pulses per Litre, contact closure. 0-24VDC, 2-wire connection, square junction box. Fitted with internal 470Ω current limiting resistor.
Voltage supply	:	+5 to 25 VDC
Supply current - Transistor version	:	5mA to 25mA proportional to supply voltage
- Contact Closure	:	switching upto 100mA.
Accuracy (min - max range)	:	$\pm 1.5\%$ (repeatability $\pm 0.2\%$ )
Start flow @ 5%	:	0.6 Litres per minute
Minimum (Min) flow	:	1.5 Litres per minute
Nominal (Nom) flow	:	45 Litres per minute
Maximum (Max) flow	:	54 Litres per minute (Admix s.g. 1.4) 68 Litres per minute (Admix s.g. 1.1) 75 Litres per minute (Water s.g. 1.0)
Maximum working pressure	:	1160 kPa
Headloss at nominal flow	:	25 kPa
Maximum fluid temperature	:	50 °C
Weight	:	1.5 kg



20mm Accuracy Curve



20mm Headloss curve

**MATERIAL SPECIFICATIONS:**

1. Meter body end threads are male 20mm 3/4" BSP. **Arrow on meter body indicates direction of flow.**
2. Install meter undercover, as the pulsehead is splashproof only (rated IP54). NOTE: use only shielded cable for all wiring
3. Consider an accessible area for any future service. Flowmeters may generally be installed in any plane without affecting accuracy (but not upside down if particles are present, as mag-drive assembly may be eventually obstructed).
4. Meter may emit stray pulses in high vibration areas, so avoid high vibration areas, or install rubber dampeners, or use the MES20R Contact Closure version which is immune to vibration (has lower resolution pulse).
5. Flush out pipes thoroughly before connecting flowmeter. Ensure arrow on meter body coincides with forward direction of flow.
6. Although meter passes small impurities, a filter box or strainer (800 micron cartridge filter recommended) may be fitted prior to flowmeter, especially if fluid contains granules or many impurities.
7. Any flow restriction or regulation valve should be fitted preferably before the flowmeter. Quick-closing valves should be fitted before the meter if used for higher-end flowrates (thus avoiding sudden pressures on the flowmeter chamber) provided that the plumbing configuration allows the pipe to remain full where the flowmeter is located.
8. Once installed, flowmeter must be full of liquid at all times.
9. **IMPORTANT: AS LAST STEP OF INSTALLATION, A CALIBRATION CHECK OF FLOWMETER MUST BE PERFORMED.**

**MATERIAL SPECIFICATIONS:**

- |                        |   |
|------------------------|---|
| 1. Pulsehead           | - Polyacetal with PVC.                  |
| 2. Meter body          | - Gun metal AS1565 C83810.              |
| 3. Strainer            | - Polyolefin.                           |
| 4. (not used)          |   |
| 5. Measuring chamber   | - Nepton                                |
| 6. Chamber O ring      | - NBR rubber                            |
| 7. Base sealer ring    | - NBR rubber                            |
| 8. Base plate          | - PVC or Synthetic Polymer or Cast Iron |
| 9. Base body hex screw | - Stainless steel 316                   |

**NOTE: A full complement of spare parts is available.**

arrow on meter body indicates direction of flow



NOTE: From 1<sup>st</sup> July 2016 with Ceramic-Barium shrouded magnet.

**PULSE OUTPUT SPECIFICATIONS**

**1) Standard NPN/PNP transistor 1 ml/1pulse 5-25VDC**

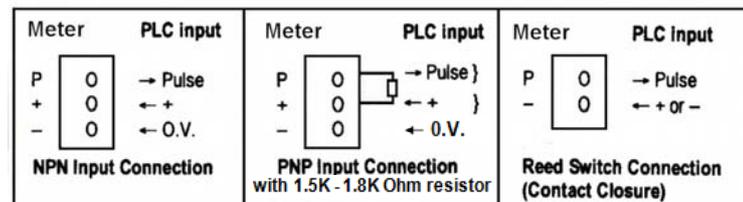
The internal transistor will drive upto 250mA.  
 For PNP input (12-24VDC) fit a 1.5 to 1.8K resistor (see below).  
 (Value depends on input impedance).  
 Fixed pulse output options via PCB card insert available as:  
 10 and 100 mls./pulse (Voltage supply limited +5 to 15VDC).

Re-transmission distance upto 1000 metres.  
**USE SHIELDED CABLE ONLY.**

**2) Contact closure 60.6 pulses/ Litre**

Switching current upto 100mA. Current limiting resistor & debounce capacitor fitted.

FOR 24 to 240 VAC PULSE OUTPUT SWITCHING USE **UIC/A2** Or UIC/D for 5-24VDC FULLY SCALABLE DIVIDED PULSE INTERFACE CARD (see its datasheet).



**FLOWMETER ORDER CODE:**

<b>MES20</b>	<b>Transistor pulse 1000 pulses/Litre</b>
<b>MES20R</b>	<b>Contact closure 60.6 pulses/Litre</b>
<b>-CSM</b>	<b>Ceramic magnet with Black drive shaft</b>
<b>-T</b>	<b>Teflon coated body</b>

**MAINTENANCE**

If flow becomes excessively restricted, or meter is out of calibration, or pulsehead stops pulsing, then:

1. Where fitted, push in the locking pin. Hold the pulsehead, turn it anticlockwise, pull up and remove. **CAUTION: Do not press on, or impact, the copper base of the pulsehead.** Shake pulsehead in left-right motion - this should generate some pulses. If not, check wiring cable connector. If still no pulses, replace the pulsehead. If pulsehead does pulse, then problem may be in flow chamber, so proceed to step 2.
2. To access the measuring chamber, first rotate or remove meter body to access the base screws. Unscrew the 4 x hex bolts in the base, remove base plate and base seal ring. Using long nose pliers, pry and pull out white strainer screen thus unlocking measuring chamber assembly. Remove chamber and inspect.
3. If required, clean chamber parts in warm water or dilute acid (4:1 Water:Hydrochloric-acid). Make sure internal chamber wobble disc roller pin is in place and shutter plate is refitted. Re-assemble meter by reinserting measuring chamber; secure in position with strainer. Refit other components and test meter.
4. After use with chemicals, if MES20 is removed from pipeline, be sure to flush out working chamber with water.
5. To avoid moisture ingress to electronics, always make sure all cable entry glands are secure, cables are looped downwards and the meter is under cover. **IMPORTANT: AFTER ANY SERVICE, A CALIBRATION CHECK OF THE FLOWMETER MUST BE PERFORMED.**

*Due to continuous product improvement, specifications may change without notice.*