

Weigh Batching Companies Comments on Weigh Batching (ManuFlo's Comments in Red)	Weigh Batching Companies Comments Against Volumetric Batching (ManuFlo's Response in Red)	'ManuFlo Assessment Statement'
<p>100% traceability and compliance with ISO 9000 quality requirements.</p> <p>Meaning contracted test companies must be certified and must use only the appropriate traceable & certified testing equipment which they must maintain hence higher ongoing calibration compliance costs.</p>	<p>Batch records may not tie up with actual dosage as flow meter inaccuracy cannot be recorded.</p> <p>Incorrect - Batch records tie up with actual dosage via reported pulses to batch controller and plant computer. Very high resolution pulses 1000 P/L (1 P/mL) make it extremely accurate and repeatable.</p>	<p>ManuFlo world leading technology delivering cost effective and successful results for many decades in Australasia/NZ/HK/China, and in pilot plants in the USA/Mexico. The ME2008 system is now considered the safest form of admixture batching in the world.</p>
<p>Scales are properly calibrated and traceable to national and international standards and tolerances.</p> <p>Accordingly contracted test companies must be certified and use only the appropriate traceable & certified testing equipment which they must maintain hence higher ongoing calibration compliance costs.</p>	<p>Flow meters are not calibrated in the strict compliance sense supply companies simply do a check and issue a dosage check document.</p> <p>Incorrect - prior to shipping each flowmeter is individually wet tested on a calibration rig against an NMI traceable flowmeter and weigh scale. In situ flow testing is then carried out periodically to ensure the meters are still within accuracy specifications. The ME2008 & plant batch computer holds a record of what has been requested from the flowmeter and there is a very high level of confidence that what is requested is what has been dispensed.</p>	<p>The ME2008 batch interface safety card incorporates world leading watchdog safeties to monitor the flowmeters & batch Computer during and after batch sequences. Constantly LIVE.</p> <p>The weigh batch systems DO NOT have a system in place for monitoring the accuracy of the load cells and critical valve functions whilst measuring. Issues are only detected/noticed after the load has been dispensed.</p>
<p>Calibration is simple, accurate and very stable. Optional scale check allows ongoing calibration after every load.</p> <p>At installation care has to be taken to mechanically isolate the weigh frame from external devices (pumps, conveyors, motors etc) which can interfere with measurement and effect calibration. Calibration is effected by changing in S.G. from one admixture to another. Impurities and residue in the canisters will affect accuracy and can be undetected until its too late.</p>	<p>Calibration is more difficult as each line needs to be checked using a manual assessment of volume. Accuracy can be easily influenced after the dosage checks for example any adjustment to the valves will change the outcome.</p> <p>Misleading - Calibration of flowmeters is simple and effective via the tried and tested volumetric method. Unlike weigh scales systems there is no need to frequently re-calibrate due to incredibly tight and unnecessary tolerances of load cell components. ManuFlo systems are constantly live so any valve issues/changes are detected by the fail safe batching system. When valves fail in weigh batch systems the residue leaking admixture is not detected leading to major issues later</p>	<p>Varying S.G. chemicals can be an issue when calibrating weigh batch systems if the incorrect SG K-factor setting is factored into the system. If a new chemical with different SG is to be introduced into the same weigh hopper then the new SG must be entered otherwise incorrect quantity of chemicals will be dosed. However with MES volumetric flowmeters large varying ranges of SG chemicals (0.9 to 1.4) can be dispensed through the same flowmeter without having to make any changes to calibration K-factors.</p>

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<p>Actual batch quantities are accurate, batch computers only record the actual quantity once the admixture has been batched into the hoppers and the scales have settled. Only then is the admixture batched into the concrete.</p> <p>Volumetric metering allows the admixture to be measured as it is pumped directly into the concrete mix saving time and efficiency.</p>	<p>There is doubt regarding the accuracy of the actual batch quantities as centrifugal pumps have momentum and do not stop dead when power is cut.</p> <p>Incorrect - Any issues with under or over batching are registered immediately in the safety systems (ME2008/ME2000) and can be quickly dealt with as the system is constantly LIVE. The Batching Computer incorporates inflight.</p>	<p>Momentum or inflight. The computer system has inflight (preact) inbuilt and automatically calculates this for each. This allows momentum speed batching of admixtures. ManuFlo equipment where required has the same self-teach facility for momentum (preact/inflight).</p>
<p>Admixtures are pre-weighed then held in the hoppers ensuring rapid discharge with no impact on batch cycle.</p> <p>There is a lag time while operator waits for admix to 'settle out' the mechanical 'analogue' system must reach a stable condition for final accurate measurement, this waiting time is longer with sticky or foaming liquids.</p>	<p>Admixtures are batched directly into concrete mix, which could slow batching cycle.</p> <p>Incorrect and misleading - Dispensing the Admixtures directly into concrete mix is quicker than having to drop it in to a hopper, stabilize the weight reading, then dump and washout to the water line.</p>	<p>Hoselines on Weighbatch systems block due to issues that occur at flushout cycle. This leads to admixture crystalizing with buildup to the point where the hoseline restricts the discharge time. In these cases the canister cannot discharge and the chemical cannot escape, it overfills and spills out over the cannister. The consequences of spillages, inability of the system to operate and downtime is monumental.</p>
<p>Admixtures can be dosed at any stage of batching and in multiple dumps – thereby achieving optimal performance.</p> <p>Simultaneous dispensing of admix by the weigh system is restricted by the amount of tanks e.g. 4 tanks = max. 4 admixtures. So if they are all in use you have to wait until one empties then flush it out before sending the next admix chemical into the tank and for each tank a settling period is required after the chemical has been dumped.</p>	<p>Admixtures are difficult to batch at certain stages of the batching sequence</p> <p>Incorrect & Misleading - The ME2008 can batch all 8 channels at the same time if required and at any stage during the batching sequence with absolutely no issue.</p>	<p>The ME2008 can batch all 8 channels at the same time if required and at any stage during the batching sequence with absolutely no issue.</p>

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<p>Calibration is “hands off” and automated and can be executed after every batch if required.</p> <p>Only an 'automated' internal check of load cell components is possible actual calibration must be carried out externally via test weights and only by authorised certified personnel.</p>	<p>Calibration is cumbersome and messy; the frequency is reduced due to the inconvenience.</p> <p>Calibration of flowmeters is simple and effective via the tried and tested volumetric method. Requires only annual verification testing, greater frequency of calibration is simply not required due to the reliability & repeatability of the simplistic technology.</p>	<p>If the loadcells are fouled there is no way of knowing if they are correctly calibrated or not. Problems are only detected once consequential complaints are reported from the field. This is usually too late!</p>
<p>New Admixtures can be added to the scale simply</p> <p>Simultaneous dispensing of admix by the weigh system is restricted by the amount of tanks e.g. 4 tanks = max. 4 admixtures. So if they are all in use you have to wait until one empties then flush it out before sending the next admix chemical into the tank. If you want to increase the capacity and add another tank this is many times the cost of adding a new flowmeter line.</p>	<p>New Admixtures require a full admixture line, and possibly an extra controller.</p> <p>Not necessarily - There is nothing stopping using one flowmeter for multiple admixtures as long as the line is flushed once when introducing a new chemical. However since a new line is relatively inexpensive it makes more sense to simply add a flowmeter and pump. Since the ME2008 has 8 channels there is often a spare channel for the additional admixture line.</p>	<p>MAGFLOWS..ManuFlo offers magflows - AMM, MM or KMS series, for those large voume high end batch plants. E.g. In some high volume locations in Australia, HK, China & other countries use ManuFlo Mags. With no moving parts, virtually no maintenance, but still incorporating the proven ME2008 batch safety interface systems</p>
<p>Large quantities of admixture (up to 225l) can be dispensed rapidly and accurately into the batch, ensuring optimal dosing and no delays in the batch cycle.</p> <p>Weigh system is restricted by the number of tanks and sizes (usually 4 and limited). This means at times tanks may have to be filled and emptied then flushed out more than once in order to achieve the desired concrete recipe (time consuming and inefficient).</p>	<p>Dispensing large volumes can cause increased inaccuracy, an inability to dispense at optimal time in the batch cycle and delay the batch cycle time.</p> <p>Incorrect - Batch size makes no difference on the overall volumetric accuracy of the batch. Up to 8 admixtures per controller can be batched at any time during the cycle. If there are 2 x ME2008's its possible to dispense up to 16 admixtures at once etc..</p>	<p>ManuFlo ME2008 system has simple backup channels... weigh batch systems do not. As an option for large volumes upsize the MES meters or MAGFLOWS can be used with the ME2008 systems instead of MES flowmeters.</p>

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<p>The batching hoppers are continually emptied and cleaned after each batch.</p> <p>Continuous flushing means you could be left with WASTE WATER to deal with from the chemical residue in the tank (not ideal or environmentally friendly). The flush system has been known to fail, leaving residue chemical in the canisters.</p>	<p>Reliability can be hindered by the efficiency and cleanliness of the pulse meter.</p> <p>Misleading - The same could be said for the weigh system which is far more sensitive and the consequences of a fault or dirt on loadcells is far more serious and expensive! ManuFlo's MES PD flowmeters use unique nutating disc principle which self flushes any small particles past the measurement chamber.</p>	<p>If there are any issues with the flowmeter the ME2008 system detects immediately. Manu AMM MagFlows with no moving parts can be selected to allieviate any extreme concerns.</p>
<p>The weighing of the liquid ensures an accurate dosage, continuous self calibration maintains accuracy.</p> <p>Continuous self calibration is a requirement due to the sensitive nature of the equipment. If admixture S.G. varies from the set recipe accuracy is compromised.</p>	<p>To ensure accuracy a second pulse meter or sight glasses is often needed or requested.</p> <p>Misleading - This is a rarity but in anycase it's not to ensure accuracy but as a redundancy. In the same way total reliance on one weigh scale on your plant could be very costly when something goes wrong!</p>	<p>Misleading:- The ME2008 batch safety software detects any unlikely MES flowmeter malfunctions, but as an added ultimate level of safety sometimes a dual flowmeter system is deployed in China where some batch plants operate 24/7. The alternative to that is sometimes to use MAGFLOWS .</p>
<p>Target weighs tolerance of 0.01% to 0.05% of volume.</p> <p>Dust/Dirt build up will throw the scale out hence why it has to be constantly calibrated unlike volumetric flowmeters.</p> <p>Why have such a tight tolerance when the application does not call for it nor require it?.</p>	<p>AS1397 allows a tolerance of ±5% or less, volumetric batching makes it difficult to detect what has actually gone into the load.</p> <p>Misleading - Actual accuracy of flowmeters is better than +/-1.5% of the full sclae flowrate capacity range with a 0.2% repeatability so are well within tolerances required for the industry and are well proven.</p>	<p>The ME2008 system detects and indicates of any issues.</p>

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<p>Each batch is weighed to easily detect overruns or incorrect dosages.</p> <p>If the valve does not shut off properly it will continuously detect overruns or incorrect dosages this cannot be resolved until the valve is repaired or swapped out. Each time the scale indicates an incorrect batch the chemical must be dumped or pumped back to the holding tank and the process started again. If the valve fails after the weigh cycle is tared then the subsequent leaking admixture is overdosed and never detected till it is too late</p>	<p>Difficult to detect overruns or incorrect dosages.</p> <p>Incorrect & Misleading - Any under or over batched amounts are detected immediately by the safety system (ME2008/ME2000) by monitoring digital pulses received. As the system is always LIVE, before, during and after the batch cycles.</p>	<p>Load cell failures or inaccuracies - 1 load cell down means the whole system goes down until the cell or vessel is cleaned or replaced. Access is difficult as they are mounted above ground in the plant in hazardous areas. Replacement is not easy and is time consuming ..compared to simple flowmeter swap out which can be performed by an untrained person if urgent.</p>
<p>Not effected by temperature or viscosity of admixtures. Is effected by changing S.G. of product.</p>	<p>Influenced by temperature, viscosity and turbulence of admixtures.</p> <p>Misleading - The effect of viscosity and temperature on Admixture when volumetric batching is negligible with MES -PD flowmeters. As for turbulence this is never an issue with Positive Displacement flowmeter technology and the delivery systems used.</p>	<p>With weighbatch certain admixtures airrate and foam when dropping into weigh batch canisters, this leads to an inability for the system to accurately tare and weigh the chemical. or there is a long 'settling' period required.</p>
<p>Flushing after each batch ensures valves operate effectively and minimises any chance of corrosion.</p> <p>Flushing essentially shortens the life of the valve and is not environmentally friendly since you may be left having to deal with waste water.</p>	<p>Corrosion and build up in flow meters can affect accuracy.</p> <p>Not relevant - The wetted parts of each flowmeter are selected for each application to ensure compatibility. There is no 'build up' that occurs in the flowmeters the ideally designed movement is designed to flush small particles through.</p>	<p>Uses mains water to flush the system each time, if mains water is not available the weigh system is incapacitated as no rinsing/flusing can take place. If the system does not rinse a buildup of admixture residue will lead to blockages in the canister discharge port hence choking the delivery lines. THERE IS NEVER ANY NEED to wash out flowmeters so they are ENVIRONMENTALLY BETTER.</p>

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<p>No additional equipment required to ensure accuracy Hence no fail safe system in place or means of reporting any under/over batching issues or undetected valve failures or build up on load cells. Which could lead to greater instances of overdoses and subsequent site issues.</p>	<p>Sight glasses are often installed as a check on flow meters Bottling systems are an old form of volumetric admix measurement and are still used in some Asian & Nth American countries where labour is still cheap to service them and where they are not utilizing the world leading ME2008 batch safety system technology. Bottles were phased out in Australia some 30+ years ago in favour of ManuFlo flowmeters and safety batching systems. Bottles and canisters are pressurized and have been known to explode hence the reason to phase out in Australia/NZ with gerater levels of safety concious practices.</p>	<p>If the valve fails at bottom of weigh hopper chemical leaks into the discharge pipe cavity ultimately leading to overdoses of chemicals. Bottles/canisters are pressurized and can explode, this is also the case with loadcell systems, hence the costly stainless steel cabinets to protect the highly sensitive load cells. The slightest amount of dirt/dust settling on loadcells causes inaccuracies. Weigh systems involve doube handling are more complicated leading to more issues and slower dispensing.</p>
<p>Scale connects directly to scale indicator and batch computer. Hence no fail safe system in place or means of reporting any under/over batching issues or valve failures.</p>	<p>More complex due to the requirement to calibrate the control unit and then interface through batch computer. Misleading - Calibration is simple ME20008 are pre-programmed with interfacing pulse scaling to plant computer built in. There are many technicians country wide versed in ManuFlo batching equipment and any new product developments are covered in our regular training courses and fully supported via the website.</p>	<p>Highly complicated system with flushing and air compression requirements. System requires compressed air, blocked air ports lead to system failure. if air compressor fails this incapacitates the weigh system.</p>

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<p>Very reliable robust equipment with few moving parts, proven low ongoing maintenance requirements.</p> <p>Extremely sensitive where VIBRATION affects the accuracy of the load cell readings, where accuracy and reliability can be affected by small build up on scales such as dust or spillages, where foaming product causes delays while product settles in tank, where failure of valve seals causes undetected admixture leaks. Where product S.G. variances is problematic and where the system has no failsafe system incase of failures. Very high in both cost of ownership and ongoing service and maintenance.</p>	<p>Less reliable and higher ongoing maintenance required. Flow-meters require biannual maintenance and refurbishment. As the flow meters can only be refurbished once and then need to be replaced with new equipment ongoing costs are high.</p> <p>GROSSLY MIS-LEADING STATEMENT: Flowmeters are only refurbished as required and most flowmeters have been in the field measuring admixture in excess of 10 years, others 20 years and even 30 years in some cases. Meters are volumetrically checked every 6 months but the vast majority are still within accuracy specifications and this is merely for peace of mind. When replacement is eventually required costs of flowmeters are extremely low when compared to replacement parts for weigh scales.</p>	<p>Beginning 1995 there are now over 40,000 MES flowmeters in daily operation, this is a testimony to their longevity and low maintenance, lasting for decades without interruption. The simple, reliable and repeatable ManuFlo MES flowmeters and ME2008 batch safety system technology has been a plant standard throughout Australia and many other parts of the world for over 20 years. (and ME-series batch controllers since 1974).</p>