

Trade waste requirements

Electromagnetic flow (magflow) meters

When are magflow meters to be installed?

Magflow meters should be installed when volume and quality trade waste charges exceed, on average, the following criteria:

- **Volume** greater than 1000kL per annum (approximately 4kL per operational day) and/or
- **Quality:**

Biochemical oxygen demand	> 600mg/L
Suspended solids	> 600mg/L
Total kjeldahl nitrogen	> 50mg/L

Additionally, a magflow meter should also be installed for trade waste discharges that consist of:

- alternative sources of water (i.e. bore water, reticulated recycled water supply, rain water, onsite recycled water etc.), or
- 'imported' liquid inputs (i.e. animal fluids/excrement, brine, dairy whey, liquid/fluid raw materials etc.), or
- highly variable waste characteristics, or
- concentrated waste streams, or
- more than one treatment apparatus fixture located onsite, or
- likely to exhibit seasonal variance etc.

A trade waste customer may be required to install a magflow meter as a condition of their trade waste consent at commencement of discharge or as part of a revision of a current contract.

2. Exemption

A formal request for exemption from installation of an electromagnetic flow meter **must** be approved, at the discretion of the Manager – Trade Waste, South East Water Corporation.

3. Magflow meter installations

- 3.1** Minimum requirement for measurement of Trade Waste discharge is a full bore ('magflow') excluding insertion type units.
- 3.2** No ultrasonic, paddlewheel, displacement, bubbler, weir or other meters that include internal mechanisms, as a means of measurement will be accepted for measurement of trade waste discharges.
- 3.3** Installation is generally immediately downstream of the dedicated trade waste treatment apparatus onsite (Trade Waste Site Plan will indicate nominal position of magflow installation).
- 3.4** A 'tamper proof' electrical connection is required to ensure the flow meter remains 'ON' at all times.
- 3.5** The magflow meter shall have a non-resettable totaliser

- 3.6** The flow meter must have a 4-20Ma output
- 3.7** NB: It is likely that multiple electrical devices including data loggers, telemetry instrumentation and auto sampling units will be connected to the flow meter concurrently on either a permanent or temporary (ad hoc) basis. Hence, multiple connection points should be available.
- 3.8** The totaliser read out shall be configured to display 'kilolitres' (1 kilolitre <kL> = 1,000 litres) and be located in such a manner to enable unrestricted meter reading ability. **The following information is general and should be confirmed in accordance with respective manufacturer's specifications.**
- 3.9** The nominated installer shall familiarise themselves with site conditions and exercise due care and consideration of the respective manufacturer's installation requirements in specifying a magflow meter accordingly.
- 3.10** The internal 'bore' of the flow meter is to be immersed in liquid at all times. This shall be achieved by recessing and/or positioning the flow meter in accordance with manufacturer's specifications.
- 3.11** Installer should consider site conditions including :
- Pipe diameter/construction
 - Minimum and maximum discharge flowrates
 - Method of discharge (i.e: gravity or pumped)
(In some circumstances, magflow meters may be unable to read low flows and as such, the diameter of pipework/meter and method of discharge need to be considered in specifying a suitable unit – refer to manufacturer's recommendation)
 - Orientation of meter (i.e: vertical, horizontal)
 - Where a flowmeter is to be located below ground or is likely to become submerged in 'water', manufacturer's specifications recommend that the electronics/circuitry be 'potted' (waterproofed) to a minimum standard of IP68.
 - Location of valves, inlets, sampling ports etc. both up and downstream of magflow meter potentially creating turbulence and reading inaccuracy
 - Location of electrical devices within proximity of magflow that may cause electrical interference and reading inaccuracy
- 3.12** Access to/around the flow meter is required for removal cleaning and maintenance/ replacement.
- 3.13** To maintain accurate reading and minimise turbulence through the magflow bore, a general rule of allowable clearance of 5x the pipe diameter both upstream and downstream of the unit is required (refer to manufacturer's specifications accordingly)
- 3.14** Appropriate venting of the piping assembly is required to prevent siphoning.
- 3.15** The flow meter shall be adequately braced to prevent vibration to reduce the risk of measurement and recording errors.
- 3.16** As general housekeeping, it is recommended that the magflow unit, especially any instrument (LCD) displays, should be shielded from direct sunlight
- 3.17** The flow meter should be calibrated from the factory and be supplied with 'Calibration Certificate' accordingly.
- 3.18** A **Verification Certification** is required to be undertaken by a suitably qualified instrument technician;
- **upon completion of installation and commissioning** of a magflow to confirm that the unit's magnetic field is operating within factory specifications and tolerance, and

- **ongoing, every three (3) years thereafter** detailing test results and confirmation that the magflow continues to operate within manufacturer's design specifications and tolerance

3.19 An **Installation Report** is required to be undertaken by a suitably qualified instrument technician;

- **Upon completion of installation and commissioning** of a magflow to confirm that the unit has been installed as per manufacturer's specification.

3.20 The Verification Certificate and Installation Report must be forwarded to South East Water, no later than 14 days after the service is undertaken.

Suppliers of electromagnetic flow meters				
<p><i>*Note: the following suppliers are provided as information only. They are not endorsed by South East Water Corporation and are by no means a complete list of potential suppliers. Please refer to yellow pages and/or internet search providers accordingly</i></p>				
Company	Address	Contact	Verification service provider	Website
ABB Australia Pty Ltd	601 Blackburn Road, Notting Hill	(03) 8544 0000	Yes	www.abbaustralia.com.au
Siemens Ltd	885 Mountain Hwy, Bayswater	137 222	Yes	www.siemens.com.au
Yokogawa Australia Pty Ltd	9 Lakeside Drive, Burwood East	(03) 8804 8800	Yes	www.yokogawa.com/au
Endress + Hauser Australia Pty Ltd	Suite 2, Bldg 5 270 Ferntree Gully Road, Notting Hill	(03) 9263 8007	*N/D	www.au.endress.com
Manu Electronics Pty Ltd	41 Carter Road, Brookvale NSW	(02) 9938 1425	*N/D	www.manuelectronics.com.au
B.E.S. Flowmeters		(03) 5956 8685	*N/D	www.flowmeters.com.au
SampleScience	F3 / 27 -29 Peel Street, Eltham	(03) 9431 4338	Yes	enquiries@samplescience.com.au
MJK Automation	Unit8/69 Acacia Rd, Ferntree Gully	(03) 9758 8533	Yes	www.mjkautomation.com
Calibration/verification service providers				
HK Calibration Technologies	Unit 5/296 Bay Road Cheltenham	1300 309 881	Yes	Web: www.hkcalibrations.com.au Email: info@hkcalibrations.com.au
CALtrack Pty Ltd	F14 Cavehill Industrial Gardens, Lilydale	(03) 9735 8888	Yes	www.caltrack.net

*N/D – not determined

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