Water for Profit

MEASURING FLOW IN MICRO-IRRIGATION

WATERFORPROFIT

Water metering is a useful way to monitor irrigation performance.

Introduction

Metering irrigation water application is a necessary part of benchmarking irrigation performance but may also assist in:

- determining irrigation system performance
- confirming crop water use and irrigation scheduling requirements
- ensuring that fertigation and chemigation are applied accurately.

In drip and micro-sprinkler irrigation systems, it is common for the water flow in a single lateral (e.g. line) to be measured using a meter. If a lateral is selected with an average length for the field, then the water applied to the field may be calculated by multiplying the measured lateral flow volume by the number of laterals in the field.

Choosing the right size meter

The choice of water meter should depend on the flow rates (litres/sec) which are expected to be measured. Each meter has a minimum starting flow velocity (metres/sec) below which the meter will not measure accurately. Similarly, each meter size has a maximum flow constraint. Hence, it is important to ensure that the meter selected is capable of reading accurately within the range of flow rates which are encountered within the lateral. Ensure that the choice of flow meter does not create a significant pressure loss within the flow path.

If the water meter is too small, then the resistance to flow across the meter will result in substantially less water moving through the metered lateral than the unmetered laterals. This could lead to incorrect estimates of water application at the field scale.

Example meter selection

Table 1 and Figure 1 provide a guide to the selection of the appropriate size water meter from the ABB Kent KSS/KMM range.

Check that the flow rate in the measured lateral is between the minimum and maximum flow rates for the selected meter (Table 1).

Table 1: range of acceptable flow rates for ABB Kent KSS/KMM meters

Diameter (mm)	Min. Flow (±5%) (L/hr)	Max. Flow (±2%) (L/hr)
15	25	1500
20	50	2520
25	72	3600
40	204	10080

You should also identify your system's operating pressure and ensure that the flow rate does not exceed the maximum at that pressure for the selected meter.

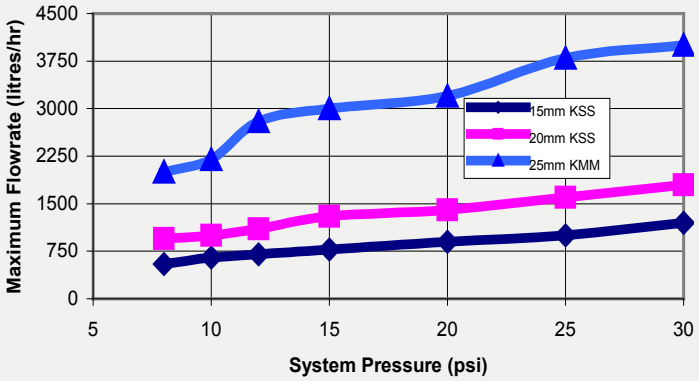

Figure 1: maximum acceptable flow rate through KSS/KMM water meters (5 per cent pressure loss)

The graphed information was obtained using the head loss characteristic charts for the KMM meters supplied by ABB Metering Pty Ltd and is gratefully acknowledged.

For more details contact Growcom on 07 3620 3844.

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