



UFR

UNMEASURED FLOW REDUCER PATENTED

Measuring low flow rates in water meters.

All water meters have difficulty measuring low flow rates. Water meters begin measuring at a flow rate of approximately 4-12 liters per hour.

Income loss from low flow rate non-measurements

- Non-measurement of low flow rates is a major cause of water loss in municipalities, and can reach more than 5%.
- Income loss resulting from non-measurement can add up to large sums of money.

Reasons for leaks and low flow rates not measured

- Dripping or improperly closed faucet.
- Leaks in flushing tanks.
- Very slow fill rates at the end of filling flushing tanks and rooftop cisterns.

A.R.I.'s Solution: UFR - Unmeasured Flow Reducer

UFR - Is a smart and simple product, installed on the water main (In-Line), adjacent to the water meter.
UFR - Alters the flow discipline via the water meter so that it measures low flow rates as well.

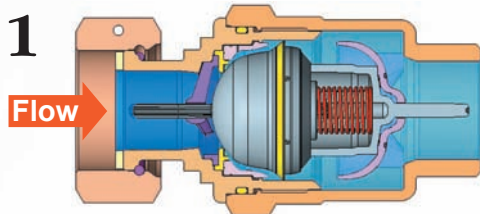
UFR - Operating Principles

The UFR begins working when there are low flow rates at the water meter's measuring threshold.
The UFR regulates the water flow so that there is no water flow at all part of the time, while the rest of the time, the flow is high enough to be measured. Changes in the flow discipline at low rates allows the existing water meter to measure at all water flow rates passing through it.
When the flow rate increases over the water meter's measuring threshold, the UFR remains permanently open, so that it does not interfere with measurements.

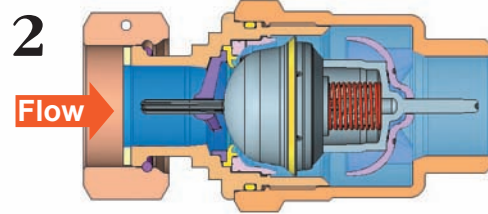
Advantages of the UFR

- Reduces unmeasured flow, cuts down on water depreciation.
- Increases the income of the Water Authority substantially, up to 10%.
- Prevents unfair shares in the billing of individual consumers in a large building.
- Prevent measurement differences between the main meter and private meters.

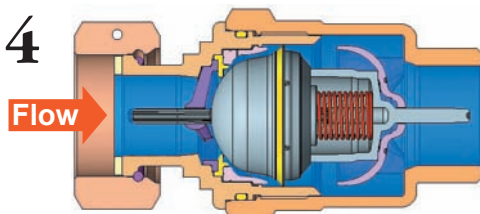
UFR - mode of operation due to leakage or low flow rate



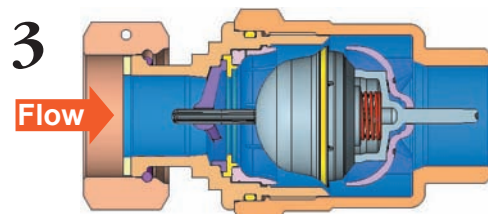
UFR closed: downstream pressure decreases because of leakage.



UFR still closed: increasing pressure drop on the plunger causes it to move.

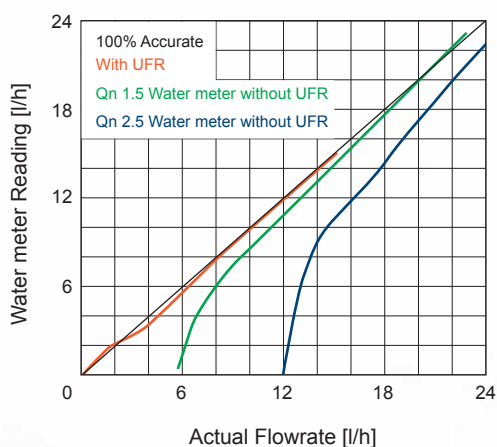


UFR closes again: upstream and downstream pressures are equal.

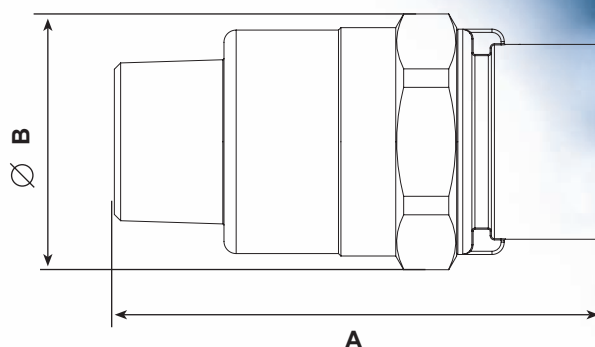


UFR opens: downstream pressure equals that of upstream.

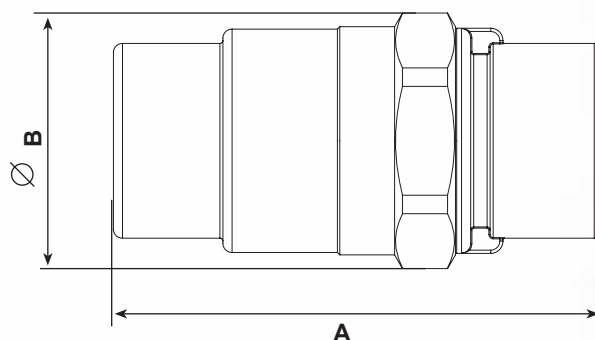
WATER METER ACCURACY WITH & WITHOUT UFR



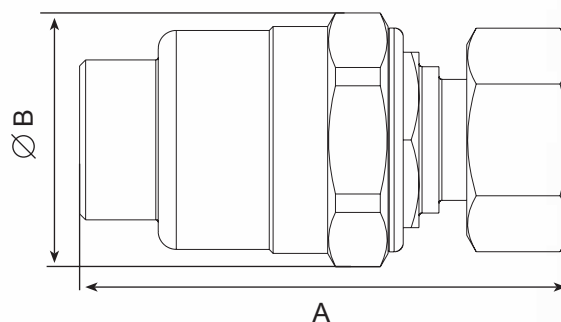
TYPE 1



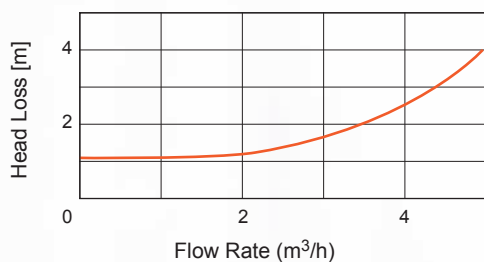
TYPE 2



TYPE 3



HEAD LOSS VS. FLOW RATE



DIMENSIONS AND WEIGHTS

Type	Up Stream Connection	Down Stream Connection	Dim. mm		Weight Gr.
			A	B	
T-1	3/4" BSP female	3/4" BSP female	80.5	42	289
T-1	1" BSP female	1" BSP female	86	42	360
T-2	3/4" BSP female	3/4" BSP male	80	42	272
T-3	3/4" BSP record	3/4" BSP male	86	42	300

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