M190
Hot water meter

Sizes ½", ¾", 1", 1 ½", 2"

Size			½"	¾"	1"	1 ½"	2"
Qmin	Min. flow (gpm)	±5%	0.26	0.44	0.62	0.88	1.32
Qt	Low flow (gpm)	±3%	3.3	5.5	7.7	22	33
Qn	Cont. flow (gpm)	±1%	6.6	11	15	44	66
Qmax	Peak flow (gpm)	±1%	13.2	22	30	88	110
Operating pressure (psi)			230				
Operating temperature (°F)			266				

Register reading smallest quantity - no sweep hand	½"	¾"	1"	1 ½"	2"
US gallons	0.01	0.01	0.01	0.1	0.1

Capacity of register	½"	¾"	1"	1 ½"	2"
US gallons (millions)	10	10	10	100	100

Pulse output IPG reed pulse (optional register variant)	½"	¾"	1"	1 ½"	2"
US gallons	1 contact = 1 USG			1 contact = 10 USG	

Connection

Meter spud	½" - 1 ½": NPSM	2": BSP (G 2⅜" B)
Connector tailpiece	½" - 1 ½": NPT	2": NPSM*

*1 ½" NPT connector available also

Materials

Main case	Brass
Top plate	Brass
O-ring	EPDM
Impeller	PPS
Magnet	Ferrite
Strainer	PVDF
Register cap	PSU
Gearing wheels	PEI

Operation
The M190 (MTH) is a multijet (inferential) impeller meter. The impeller and magnet are the only moving parts in the measuring chamber. The impeller movement is transferred by a magnetic coupling to the hermetically sealed register, which can be turned to any position for easy reading.

Installation
The meter must be installed in a clean pipeline, free from any foreign materials. The meter shall be installed with the direction of flow as indicated by the arrow cast in the meter case. The meter may be installed in horizontal or inclined lines up to 45° with the register facing upward.

Application
The meter is for use with hot water not intended for human consumption, up to 266°F (130°C), and working pressure up to 230 psi (16 bar). Both pressure loss and accuracy tests are made before shipment. No adjustments need to be made before installation.

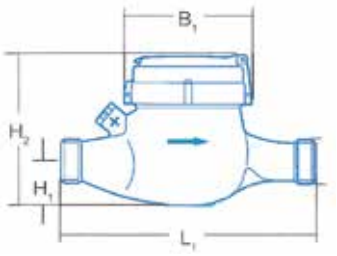
Construction
The meter consists of a main case, a strainer, a measuring chamber, an impeller, a removable top plate and O-ring with a magnetically driven register or register pulser assembly and securing ring.

The case has a throated inlet. The measuring element assembly consists of the rotor, straightening vanes, accuracy regulator, spindless and gears. The measuring element is attached to the underside of the cover with three stainless steel screws and washers.

The main case is cast bronze with raised characters showing direction of flow. The securing ring secures the internal mechanism and top plate. The unit is sealed by the O-ring gasket. The measuring chamber is designed so the impeller/magnet transfers the flow to the register. The register is secured to the main case by the securing ring.

Dimensions and net weights

Meter size (inches)	½"	¾"	1"	1 ½"	2"
L1	6.5	7.48	10.25	11.82	11.82
H2	4.5	4.5	5.1	6	6
H1	1.2	1.2	1.7	1.8	1.8
B1	3.9	3.9	3.9	3.9	3.9
Weight (lbs)	3.3	3.52	5.15	8.15	9.92



Temperature/pressure rating

Temperature (°F)	32-150	200	230	250	266
Min PSIG*	-	6	25	45	62

*This is the minimum pressure required to prevent steam flashing. Flashing can damage the meter permanently

Register

The register is a dust and waterproof hermetically sealed unit (no condensation is caused by variation of temperature). The register can be turned to any position for easy reading.

Pulser

The IPG14 pulser consists of a molded insert with a clear housing to read the totalizing register. The pulse element is a dry contact reed switch rated at 4 Watts, maximum voltage: 42V DC/AC, 18 Ohm resistance. The unit requires power from an external source and normally is wired in series with no regard to polarity, approximately 5 feet of 2-wire unshielded cable exists in a sealed fitting.

Connections

The meter casing spuds have external straight threads conforming to NPSM. Bronze coupling nuts and tailpieces (NPT) are available. 2" M190 includes BSP spuds and NPSM threaded connector tail pieces. Users may purchase 1½" NPT connectors additionally.

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