

spirax/sarco®

M640 Steam Mass Flow Transmitter

DESCRIPTION

The M640 measures the mass flowrate of saturated steam at pressures up to 1088 psig.

The M640 transmitter assembly consists of two items:

- A high accuracy (0.1%) steam mass flow transmitter.
- A 3 way carbon steel isolation manifold.

These are supplied already assembled.

FUNCTION

The M640 measures differential pressure and static pressure from the Gilflo or orifice plate via impulse lines. It uses this information to calculate the corrected mass flowrate of saturated steam. The result is transmitted via a single loop powered 4 - 20 mA output.

CONFIGURATION

It is normally supplied fully configured for a specific flow application using either a meter from the Spirax Sarco Gilflo family or a Spirax Sarco M410 orifice plate.

The M640 can be configured using a 'HART' communicator which is programmed with the correct protocol.

PIPE CONNECTIONS

The process ports on the 3 way manifold are threaded 1/2" NPT at 2-1/8" centers.

ELECTRICAL CONNECTIONS

M20 x 1.5 (Non approved and BASEEFA / CENELEC units)
1/2" NPT (FM / CSA units)

INSTALLATION

Full installation details are given in the installation manual that accompanies the M640.

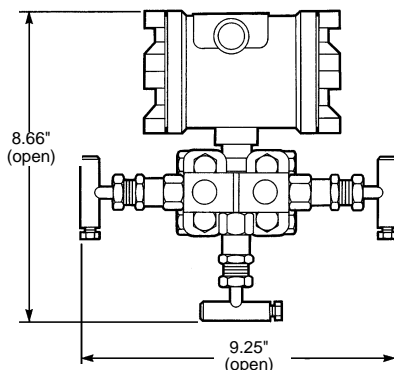
HOW TO SPECIFY

Spirax Sarco M640 steam mass flow transmitter configured for use with 3" Gilflo flowing 5000 lb/hr of saturated steam 100 psig.

ASSOCIATED EQUIPMENT

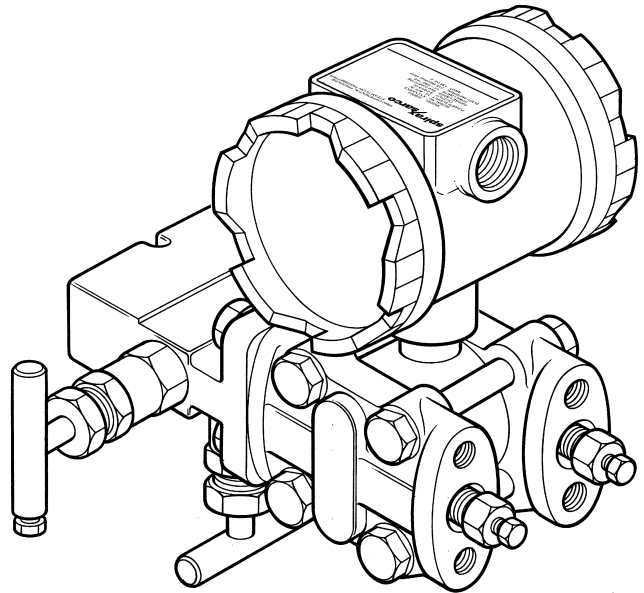
- M410 orifice plate flowmeters
- M700 flow indicators
- Optional local display
- Gilflo flowmeters

DIMENSIONS (approximate) in inches



WEIGHTS (approximate) in lbs.

DP transmitter	3 way manifold	M640 assembly
14.5	2.5	17



M640 TECHNICAL DATA

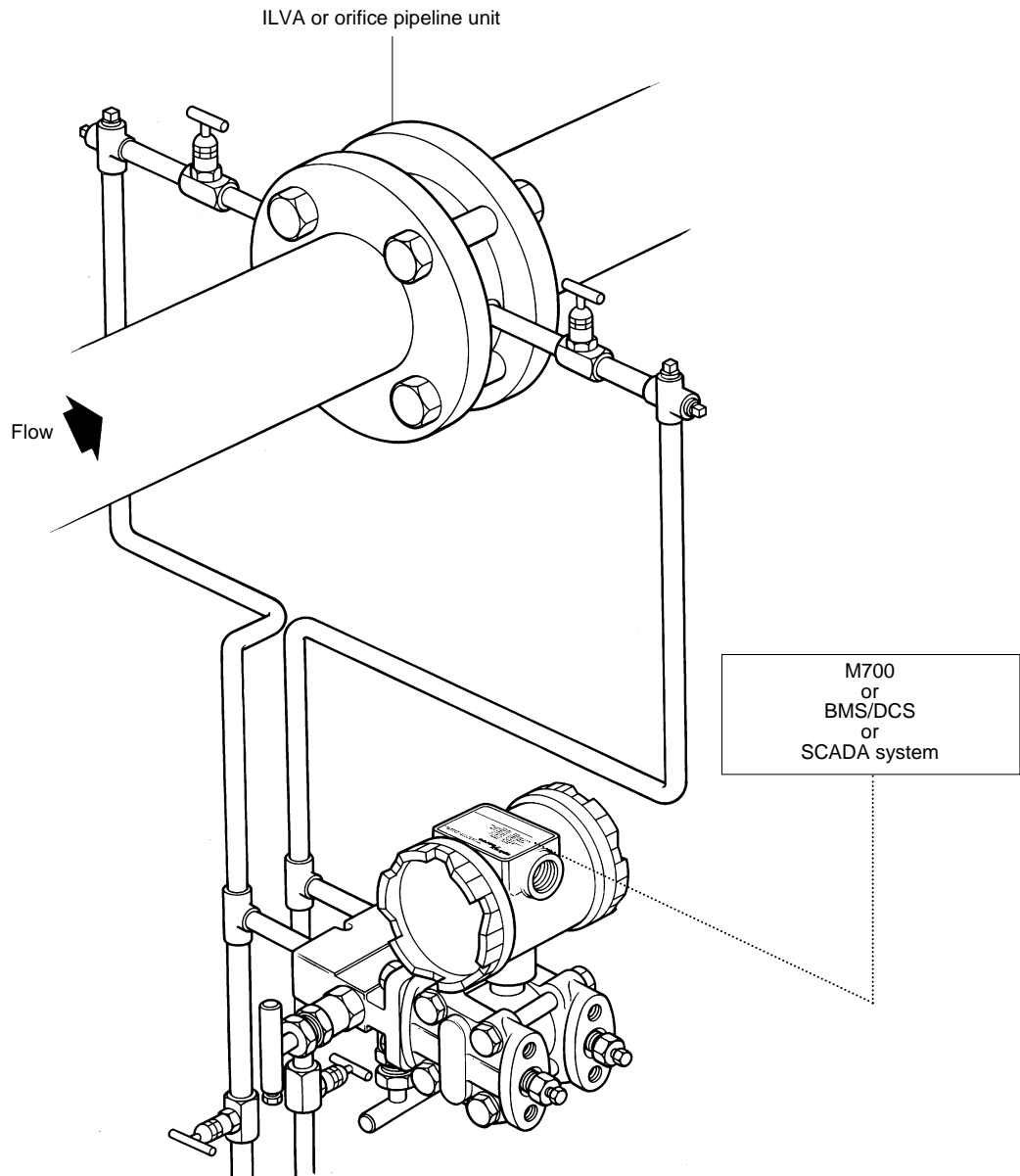
Range	Minimum 0 - 10 inches H ₂ O (24.9 mbar)
	Maximum 0 - 450 inches H ₂ O (1122 mbar)
Output	4 - 20 mA dc (2 wire)
	Maximum loop impedance 600 W with 24 Vdc supply
Power supply	10 V to 42 Vdc
Pressure limits	0 to 1088 psig (saturated steam)
Temperature limits	-40°F to +185°F (electronics)
	32°F to +257°F (diaphragm)
Accuracy	± 0.1% of calibrated span to include the effects of linearity, hysteresis and repeatability
	E Ex ia IIc T4 / T5
Approvals	DIV I CLASS I Groups A, B, C and D
	CSA and FM DIV I CLASS II Groups E, F and G
	DIV I CLASS III
Enclosure rating	IEC IP65
	NEMA 13

MATERIALS

Enclosure	Aluminum
Body	316 Stainless steel
Diaphragm	Hastelloy C
3 way manifold	Carbon steel (zinc plated)
Fluid fill	Silicone oil

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INSTALLATION



The following information will allow us to uniquely configure the M640 for each application prior to dispatch.

Parameter	Range of values	Customer Requirements	Notes
Flowmeter type	Gilflo or orifice plate		Specify meter type
Gilflo serial number	-		Required for existing meters only
Analogue output units	kg/h, lb/h, Btu or kJ/h		Specify required units
Analogue output scaling (4 mA)	kg/h, lb/h, Btu or kJ/h		Normally zero
Analogue output scaling (20 mA)	kg/h, lb/h, Btu or kJ/h		Normally maximum required flowrate
Maximum meter Δp	10" to 450" H ₂ O (24.9 to 1122 mbar)		From Gilflo or orifice plate sizing sheet
Steam quality (dryness fraction)	0.7 to 1.0		Set at 1 unless otherwise specified

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