



**MIAL<sup>®</sup>**  
**INSTRUMENTS PVT. LTD.**  
*Measuring & Beyond*

## **MTF 500/600**

INLINE / INSERTION THERMAL MASS  
FLOW METER



| Measuring & Beyond

**CE**

[www.mialinstruments.com](http://www.mialinstruments.com)

# MTF 500/600



## Mial Inline / Insertion Thermal Mass Flow meter

### DESCRIPTION

#### Flow Meter:

Introducing the Mial MTF 500/600 Inline/Insertion Thermal Mass Flow Meters provide accurate mass flow measurement of natural gas, compressed air and other industrial gases. Its compact design ensures easy installation, making it a versatile solution for various industrial applications.

### APPLICATIONS

#### Industrial Gas Measurement:

The MTF 500/600 Thermal mass flow meters accurately measure natural gas, compressed air, oxygen, and nitrogen, ensuring efficient distribution and consumption while facilitating billing and regulatory compliance.

#### Environmental Monitoring:

In stack emissions monitoring systems, MTF 500/600 thermal mass flow meters ensure adherence to environmental regulations by precisely measuring emissions. They also play a crucial role in biogas production, optimizing process control and efficiency.

#### Pharmaceutical and Biotechnology:

MTF 500/600 meters maintain optimal conditions in fermentation processes by precisely controlling the flow of gases like oxygen and carbon dioxide. In clean room environments, they ensure purity by monitoring and controlling gas flow.

#### Energy Sector:

MTF 500/600 Thermal mass flow meters measure fuel gas flow in power plants, ensuring efficient combustion and energy production. They also optimize gas flow in renewable energy applications, contributing to sustainable energy production

#### Water and Wastewater Treatment:

Crucial for aeration control in wastewater treatment plants, MTF 500/600 meters ensure efficient treatment processes by accurately measuring and controlling gas flow. Additionally, they monitor gas flow during anaerobic digestion, optimizing process efficiency.

#### Food and Beverage Industry:

MTF 500/600 Thermal mass flow meters precisely measure CO2 flow in carbonation processes, ensuring the desired level of carbonation in beverages. They also control gas flow during packaging, extending shelf life by displacing oxygen with inert gases.

#### Aerospace and Aviation:

In aerospace and automotive industries, the MTF 500/600 can be employed for testing and validating gas flow in engines, propulsion systems, and aerodynamic research. Its rugged construction and precise measurement capabilities make it suitable for demanding testing environments.



MTF 500 / 600 Thermal Mass Flow Meter

## FEATURES

### **Measuring the Mass Flow or Volume Flow of Gas:**

The Mial MTF 500/600 Flow Meters accurately measure both mass flow and volume flow of gases, providing essential data for process control and monitoring performance and consistent results.

### **Wide Range:**

With a broad measurement range of 0.1 Nm/s to 100 Nm/s for gas, these meters can handle varying flow rates encountered in industrial processes, ensuring versatility and adaptability.

### **Gas Leak Detection:**

These meters are equipped with features to detect gas leaks within pipes, enhancing safety protocols and enabling prompt action to mitigate potential hazards.

### **Good Vibration Resistance and Long Service Life:**

Designed with robust construction, the Mial MTF 500/600 meters offer excellent resistance to vibrations, ensuring reliable performance even in harsh industrial environments. This durability translates to a long service life, reducing maintenance costs and downtime.

### **No Moving Parts or Pressure Sensor in Transducer:**

The absence of moving parts and pressure sensors in the transducer enhances the reliability and longevity of the meters, minimizing the risk of mechanical failure and ensuring consistent performance over time.

### **Compact Structure, Easy Installation, and Maintenance:**

The compact design of the Mial MTF 500/600 meters facilitates easy installation in various industrial setups. Additionally, their simple structure simplifies maintenance procedures, reducing downtime and operational disruptions.

### **Digital Design, High Accuracy, and Stability:**

Incorporating digital technology, these meters ensure high accuracy and stability in flow measurement. Configurable with RS485 interfaces they enable seamless integration into existing industrial control systems, facilitating real-time monitoring and data analysis.

## BENEFITS OF FLOW METER

- Ensures precise data for process control and monitoring.
- Enhances safety by identifying leaks promptly.
- Durable design reduces maintenance costs and operational downtime.
- Minimizes the risk of mechanical failure and increases meter longevity.
- Facilitates easy installation in diverse industrial settings.
- Streamlined structure makes upkeep straightforward and minimizes disruptions.
- Digital design ensures reliable measurements and system integration.

## MTF 500/600 specifications\*

### Operation and performance

#### Flow measurement

Thermal dispersion

#### Fluid types

Various gases (Except the acetylene)

#### Fluid properties

Thermal Conductive Fluid

#### Pipe sizes

Inline : DN 15mm –DN 300mm

Insertion : DN 32mm – DN 4000mm

#### Pipe materials

Standard: Carbon steel

Optional : Stainless steel,Plastic, etc

#### Flow accuracy

Inline :  $\pm 1.0\%$

Insertion :  $\pm 1.5\%$

#### Velocity

0.1~100 Nm/s

#### Flow rate turndown

100:1

#### Measurement parameters

Mass flow rate, Nominal flow rate, Flow totalizer, Velocity,

#### Certification

Calibration certification

### Electronics

#### Transmitter Type

Standard: Integral

Optional :Remort

(Wall mounted enclosure with 10m cable)

#### Enclosures Transmitter Type

Aluminium

#### Enclosure IP rating

IP65

#### Power supply

24 VDC,2A

Use SMPS when employing AC power

#### Ambient temperature

32°F to 140°F (0°C to 60°C)

#### Standard output

Analog output 4-20mA

Pulse output

#### Alarm Output

1–2 way Relay, Normally Open state 5A/30V/DC

#### Network Connection

Modbus RS 485

#### Response Time

1s

### Flow Tube

#### Operating Temperature range

–40 °F to 428 °F (–40 °C to 200 °C)

#### Nominal Pressure

Insertion: 1.6 Mpa

Inline : 1.6 Mpa

Optional : 2.5Mpa, 4.0 Mpa (Inline)

#### Process connections

ANSI class 150 Flanges

Hot-tapped Insertion

DN 15mm – 25mm = M12

DN 32mm– 100mm =M16

*Note : 3/4" NPT dry tap  
installation kit*

#### Materials

Stainless Steel 316

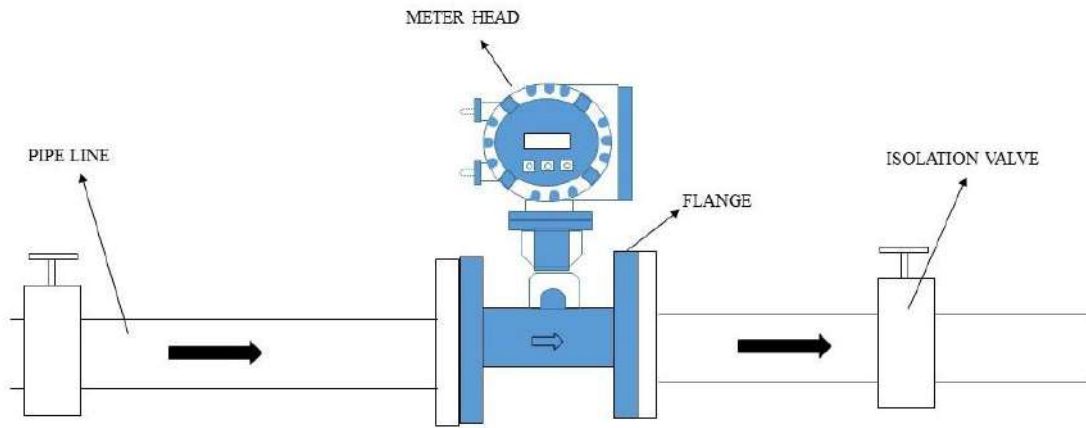
#### IP rating

IP65

\*Specifications are subject to change without prior notice.

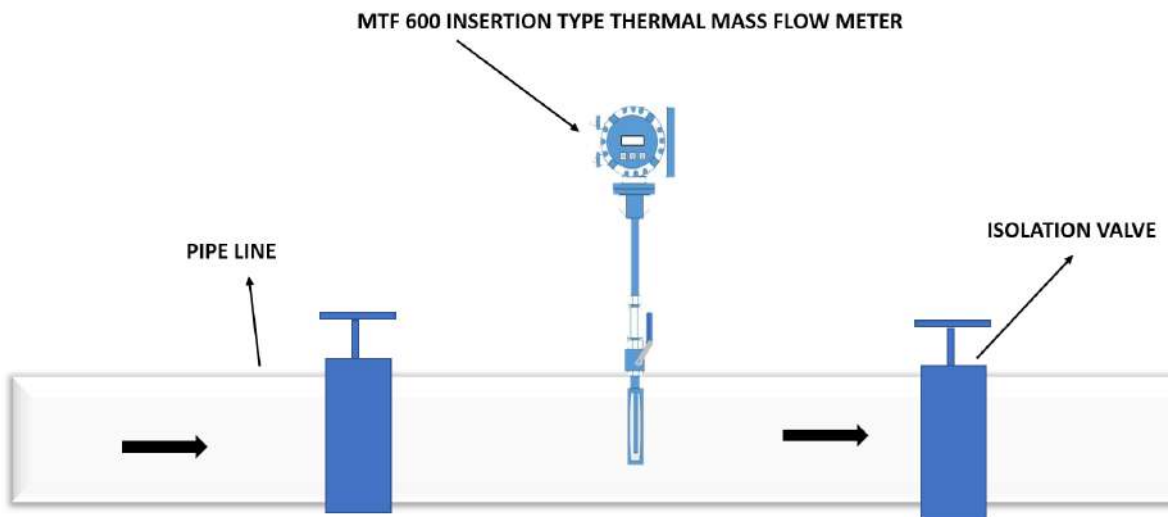
# INSTALLATION DIAGRAM

MTF 500



Mial Inline Thermal Mass Flow Meter

MTF 600



Mial Insertion Thermal Mass Flow Meter

## ORDERING CODE

### Meter Model Number Coding = MTF 500/MTF 600-BB-CDE-FGHI

**MTF 500 = Mial Inline Thermal Mass Flow Meter**

**MTF 600 = Mial Insertion Thermal Mass Flow Meter**

**BB= Meter Size**

MTF 500 : 12=0.5"	03 = 3"
34= 0.75"	04 = 4"
01 = 1"	05 = 5"
24 = 1.25"	06 = 6"
15 = 1.5"	08 = 8"
02 = 2"	10 = 10"
25 = 2.5"	nn = meter size, 12" – 48"

MTF 600: 24 = 1.25"	04 = 4"
15 = 1.5"	05 = 5"
02 = 2"	06 = 6"
25 = 2.5"	08 = 8"
03 = 3"	10 = 10"
	nn = meter size, 12" – 48"

**C = Output Signals**

2 = Loop powered 4–20 mA and scaled pulse

**D = Shell Material**

1 = Carbon steel  
2 = stainless steel

**E = Process Connection**

1 = 3/4" NPT dry tap installation kit  
2 = ANSI Class 150 flange connection

**F = Input Power**

1 = Low Power, 24 VDC

**G = Electronics Enclosure Mounting Configuration**

1 = Integral enclosure  
2 = Remote

**H = Digital Output**

1 = RS 485 Modbus RTU

**I = Nominal Pressure**

1 = 1.6 Mpa  
2 = 2.5 Mpa  
3 = 4.0 Mpa

**GAS TYPE**

NG = Natural Gas	AR = Argon Gas
HE = Helium Gas	AI = Air
ME = Methane Gas	CD = Carbon Dioxide
NI = Nitrogen Gas	O2 = Oxygen Gas
PG = Propane Gas	BU = Butane
HY = Hydrogen	

All future orders will adhere to the standard specifications outlined in the order code, ensuring consistency and quality across items



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