

# HAIMO

An internationally leading provider of high-end oilfield equipment and technical services.

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**Haimo Technologies Group Corp.**

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# Company Profile

## Haimo Technologies Group Corp.

Focusing on equipment innovation and intelligent technology breakthroughs in the oil and gas field, we promote high-quality development of the oil and gas industry through independently developed high-end equipment such as multiphase flow meters and related technical services.



**30** + years  
Experience in the Oil and Gas Industry



**10** +  
Subsidiaries and Branches



**400** +  
Total Employees



**120** +  
Patents

Haimo Technologies Group Corp. is a multinational enterprise dedicated to providing high-end equipment and services for oil and gas field stimulation, production optimization, reservoir management, and digital transformation. Founded in 1994, the company was listed on the ChiNext of the Shenzhen Stock Exchange in May 2010 (Stock Code: 300084).

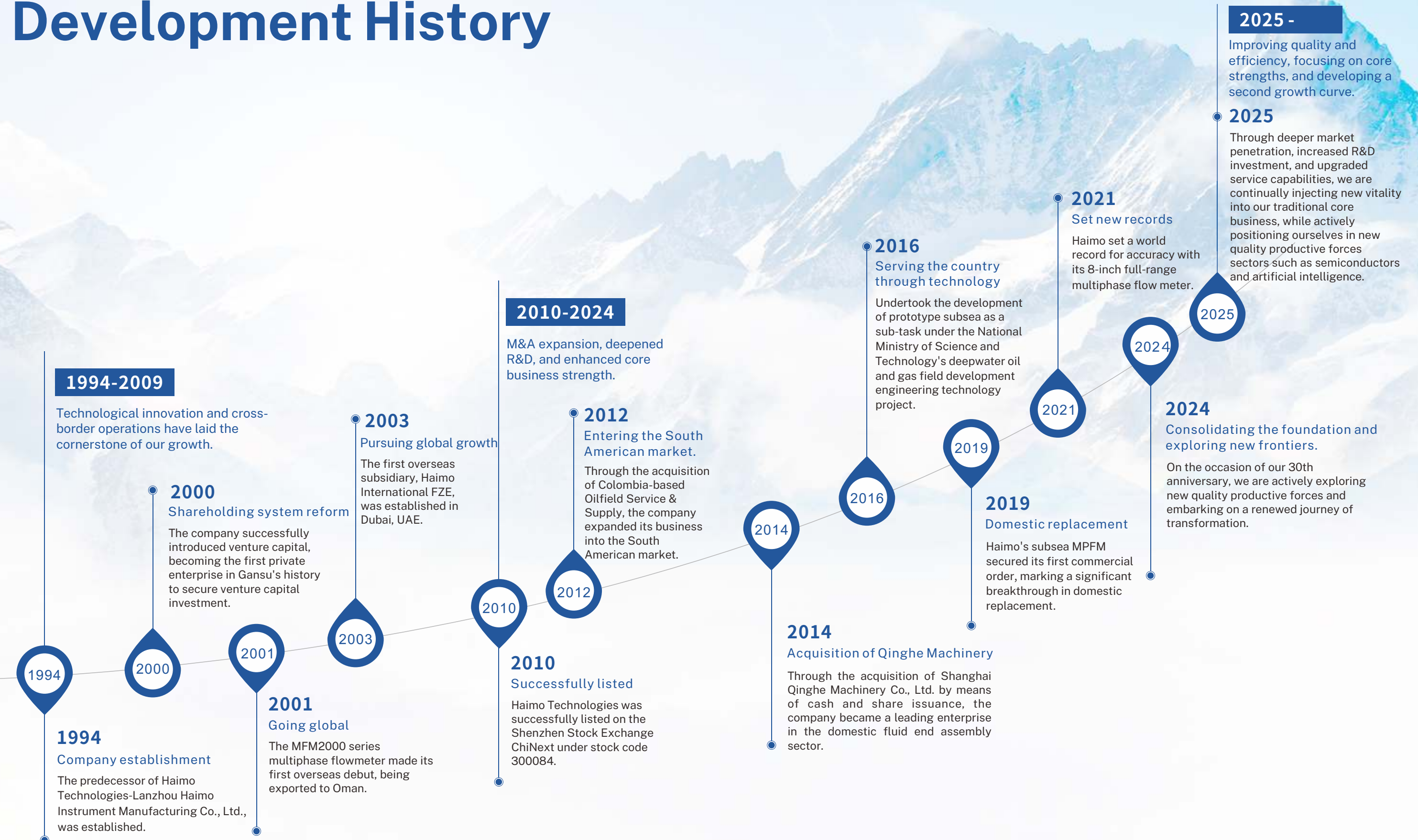
The company has established subsidiaries and branches in core markets such as Oman, United Arab Emirates, the Americas, Saudi Arabia, and China, and has built professional service teams to provide local customers with multiphase metering products, as well as services including MPFM maintenance and lifecycle support, mobile well testing, integrated early production facilities, and digital oilfield product commissioning.

Committed to independent innovation, the company holds over 120 patents and more than 20 software copyrights.

Looking ahead, the company will continue to strengthen its core oil and gas business while expanding into emerging technology driven & high growth sectors, achieving synergistic development of oil and gas alongside emerging industries.



# Development History



# Global Footprint

Haimo was founded in Lanzhou. Over the past 30+ years, it has grown to own more than 10 subsidiaries and branches at home and abroad, with three key manufacturing hubs in Lanzhou, Shanghai, and Sichuan. Its product and service portfolio spans numerous countries in the Middle East, North Africa, Central Asia, South Asia, Southeast Asia, North America, and South America.

**3**  
Production Bases

**10 +**  
Subsidiaries and Branches

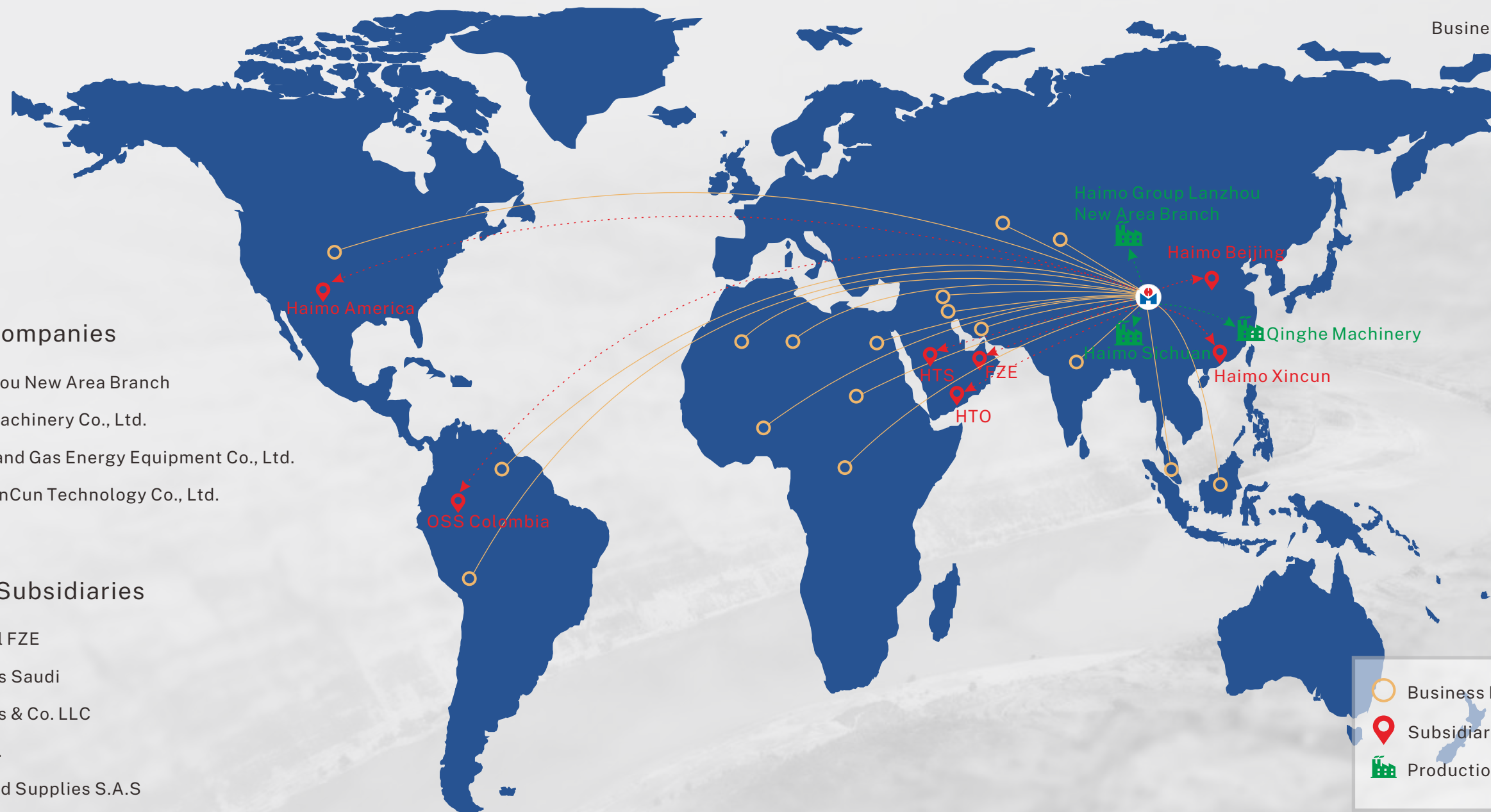
**20 +**  
Business Coverage Countries

## Core Industry Companies

- Haimo Group Lanzhou New Area Branch
- Shanghai Qinghe Machinery Co., Ltd.
- Sichuan Haimo Oil and Gas Energy Equipment Co., Ltd.
- Shenzhen Haimo XinCun Technology Co., Ltd.

## Core Overseas Subsidiaries

- Haimo International FZE
- Haimo Technologies Saudi
- Haimo Technologies & Co. LLC
- Haimo America, Inc.
- Oilfield Services and Supplies S.A.S



# Core Values



Customer Care



Growing People



International Teamwork



Innovation



Profit Care

# Certifications



# Service Capability

## Global Service Network

Haimo has established branches in core markets including China, Oman, Saudi Arabia, United Arab Emirates, and the Americas, and has assembled professional service teams to provide international & local customers with comprehensive multiphase products and services.



## In-Country Value(ICV)

Haimo is firmly committed to advancing localized manufacturing and technology transfer. Through systematic training of local employees, it supports the upskilling and career development of local talent. Notably, Haimo's mobile well testing service teams for Daleel in Oman and OXY have achieved 100% localized operations.



## Recognition from Top Customers

With outstanding product performance and efficient service quality, the company has won high recognition from globally renowned energy companies such as Aramco, ADNOC, and PDO.



Signed the EPF comprehensive service contract for overseas oil fields



Haimo WTMS digitalization project successfully launched in Oman



Won the bid for OXY's ten-million-dollar service contract



Awarded a "Certificate of Appreciation" by Al Dhafra Petroleum.



Recognized as an Excellence ICV Oilfield Service Provider by PDO



Haimo's localization achievements were reported by OPAL



Recognized among BRI Top 100 Best Practice Cases by Chinese listed companies.

# SP-MPFM

## Spool Piece Multiphase Flow Meter

SP (Spool Piece) MPFM is a state-of-the-art technology for inline measurement of multiphase flow. The meter consists of dual energy gamma sensor and Venturi meter that makes it very compact and suitable for direct well head installation. SP meter allows accurate measurement of water , oil and gas flow rate. Depending upon requirement, the meters can either be a spool piece or a skid mounted design.



### Working Principle

- Total Flow Rate (TFR) is measured by Venturi flow meter.
- Multi-Variable Transmitter (MVT) is mounted for measuring the DP (differential pressure) , temperature and pressure of the testing well.
- The Dual Energy Gamma Sensor is used to measure GVF and WLR of multiphase fluids.
- Flow computer / Data Acquisition Unit (DAU) is installed with proprietary software and inline PVT model to deliver reliable data at standard condition.

### Benefits

- Helps lowering field development cost
- Efficient well testing
- Real-time, reliable and accurate measurements
- Exceptional dynamic response to flow rate change
- Custom built and highly cost effective
- Compact size and simple installation

### Performance Specifications

| Gas Volume Fraction                                    | Measurements     | Uncertainty |
|--------------------------------------------------------|------------------|-------------|
| 0~95 % *                                               | Liquid Flow Rate | ±5% rel.    |
|                                                        | Gas Flow Rate    | ±5% rel.    |
|                                                        | Water Cut        | ±2% abs.    |
| * For uncertainty>95% GVF, please consult the factory. |                  |             |

### Operating Range

|                     |         |
|---------------------|---------|
| Water Liquid Ratio  | 0~100%  |
| Gas Volume Fraction | 0~99.9% |

# FR-MPFM (MFM 2000 Series)

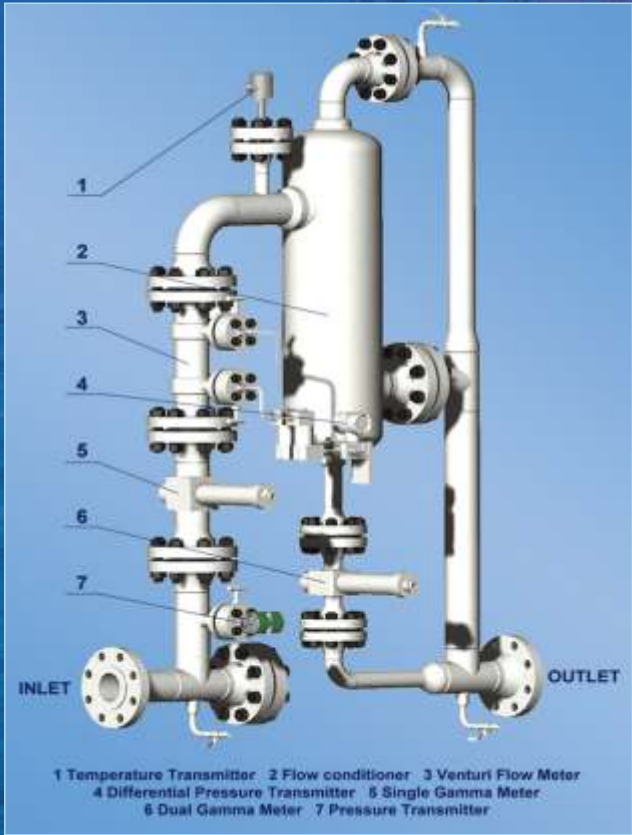
## Full Range Multiphase Flow Meter

Haimo’s skid mounted flow meter is a combination of gas / liquid two phase flow meter and three phase water cut meter.

Measurement of the gas and liquid flow rates are carried out in the gas / liquid two phase meter that consists of a venturi and single energy gamma meter. The Water Liquid Ratio (WLR) is measured in the dual energy gamma meter which is located downstream of inline liquid sampler.

The phase fractions are derived from these two independent measurements and net oil flow rate is finally calculated using the gross liquid flow rate and water cut measurement.

Generally the Water Liquid Ratio (WLR) measurement accuracy suffers with slugging as well as high Gas Volume Fraction (GVF), therefore in order to measure WLR accurately we have introduced an inline liquid sampler upstream of the dual energy gamma water cut meter to condition the multiphase flow by mitigating slugs and reducing the GVF level. This helps achieve the water cut measurement error within ±2% absolute for the full range of stated GVF in the meter’s operating envelope.



### Benefits

- Best in class for water cut measurement - a key factor in resulting net oil accuracy
- Flow regime independent
- Wide operating range with low pressure drop
- Non-intrusive and in-line measurement techniques
- Field oriented design, small footprint and cost effective mobilization
- Compact, robust and easy to install meter - ideal for remote locations
- High frequency data acquisition, provides real time well data at line and standard conditions

### Performance Specifications

| Gas Volume Fraction | Measurements     | Uncertainty |
|---------------------|------------------|-------------|
| 0~95 %              | Liquid Flow Rate | ±5% rel.    |
|                     | Gas Flow Rate    | ±5% rel.    |
|                     | Water Cut        | ±2% abs.    |
| 95~100 %            | Liquid Flow Rate | ±5~10% rel. |
|                     | Gas Flow Rate    | ±2% rel.    |
|                     | Water Cut        | ±2% abs.    |

### Operating Range

|                     |                           |
|---------------------|---------------------------|
| Water Liquid Ratio  | 0~100%                    |
| Gas Volume Fraction | 0~100%                    |
| Turndown Ratio      | 15:1(Extendable to 150:1) |

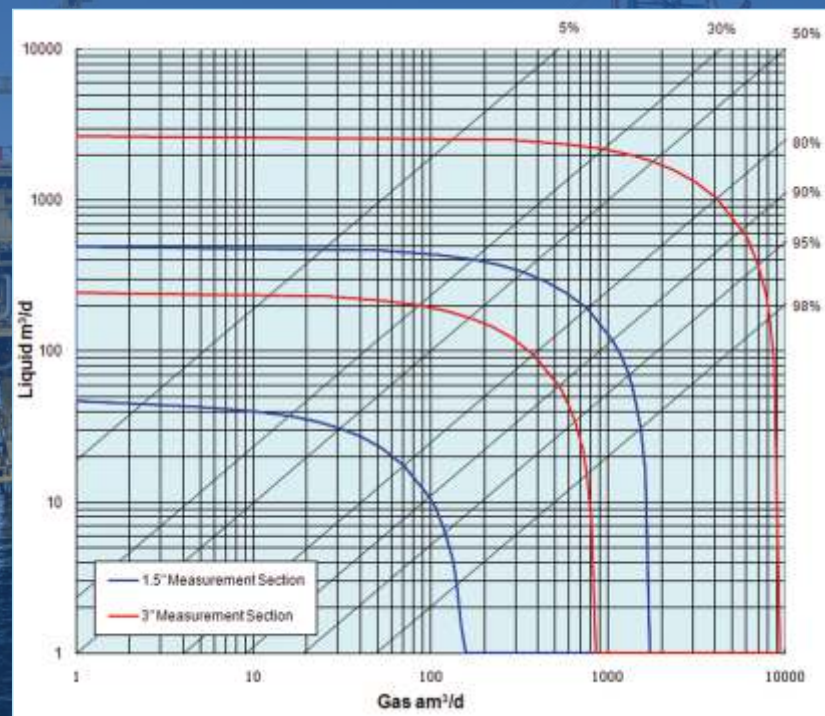
## Custom Built Configurations - The 2 in 1 Meter Concept

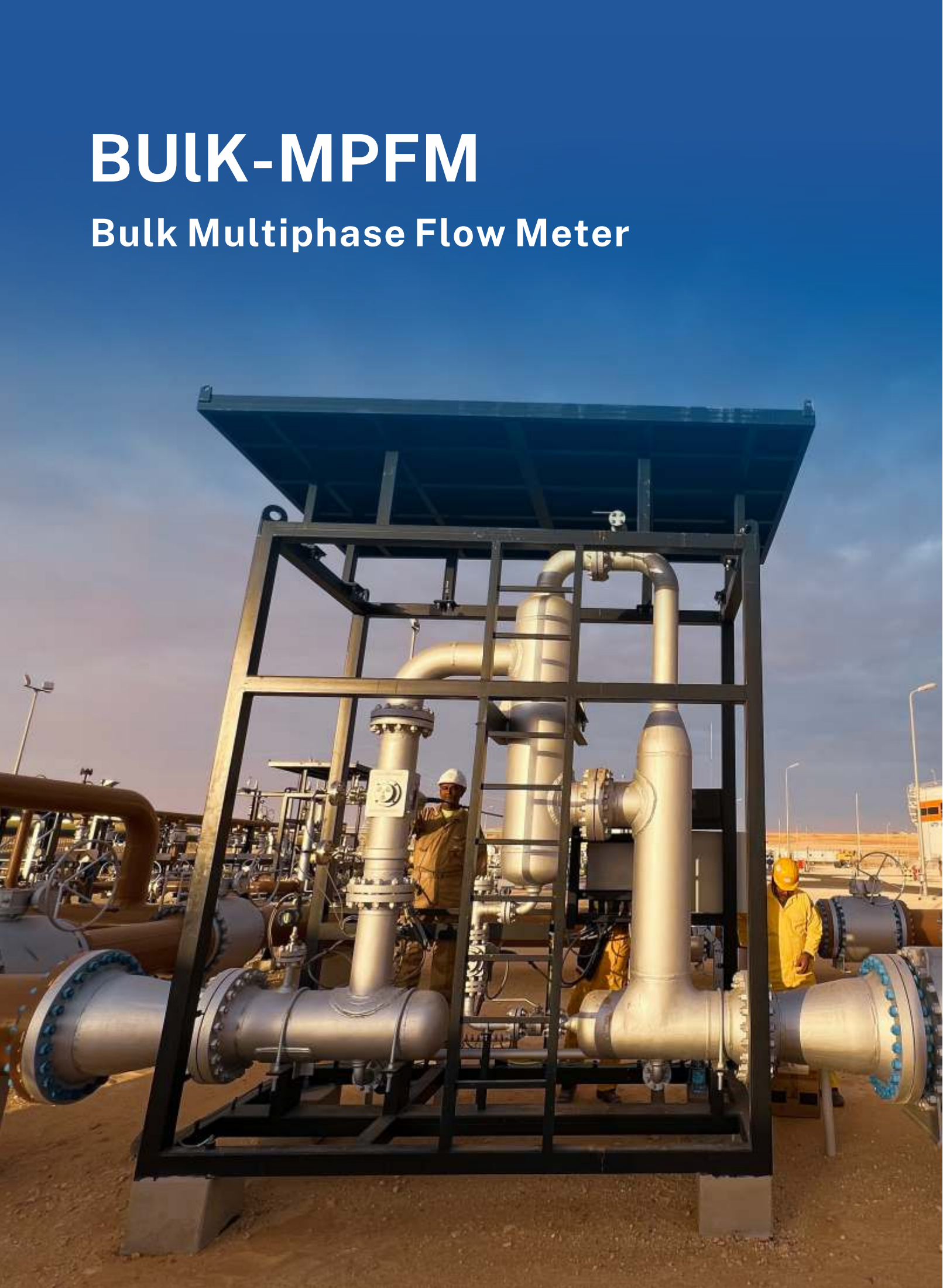
Customers frequently require solutions that would need a wide turndown ratio in measurement. Most meters deploy venturi for total flow rate measurements. The venturi sizing will dictate the turndown achievable for the system. It is often the case that the customer ends up buying two meters of different sizes to cater to their minimum and maximum flow rate requirements. Haimo offers innovative, yet cost effective solutions for these demanding applications.

Built on measurement modules, which carry out the phase flow rate measurements independent of the phase fraction measurements, Haimo offers unique 2 in 1 measurement concepts which incorporate 2 different size venturi in the same meter.

With the help of an automated on / off valve, which is controlled by the flow computer, the flow is routed either through the small or the large venturi depending on the actual flow rates in the pipe section. This diversion of the flow between the venturi is fully automated and does not require any human intervention.

The 2-phase map given below with operating envelope is a typical example of a 2 in 1 meter, which clearly shows the wide turndown that can be achieved from a single meter.





# BULK-MPFM

## Bulk Multiphase Flow Meter



Bulk meters are large size multiphase flow meters with sizes ranging up to 24 Inch with measurement capability of up to 500,000 BPD. Haimo Bulk Meters have been operating successfully since 2003, and our 16 Inch bulk meters are the largest size onshore and offshore installation in the world.

### Working Principle

- Gross Flow Rate is measured using venturi technology and gamma ray attenuation technology is used for phase fraction measurements.
- Flow computer/Data Acquisition Unit( DAU) is installed with proprietary software and inline PVT model to deliver reliable data at standard condition.

### Benefits

- High Flow Rate measurement
- Production Allocation measurement
- Inter Field Transfer measurement

### Performance Specifications

| Gas Volume Fraction | Measurements     | Uncertainty                             |
|---------------------|------------------|-----------------------------------------|
| 0~95 % *            | Liquid Flow Rate | ±5% rel.                                |
|                     | Gas Flow Rate    | ±5% rel.                                |
|                     | Water Cut        | * Consult factory for size specific GVF |

# WGM (MFM 5000 Series)

## Wet Gas Meter

The Wet Gas Metering technology is an extension of Haimo standard Multiphase meter. In the wet-gas meter, we accurately measure flow rates along with phase fraction. Depending upon the client requirement, the meters can either be a spool piece or skid mounted design.



Gamma WGM



Non-Gamma WGM

### Working Principle

- The Two wet gas metering configurations are available to meet different application needs. The Gamma WGM measures Total Flow Rate (TFR) using Venturi technology and phase fraction using gamma-ray attenuation. Alternatively, a non-gamma WGM is also available, in which TFR is measured by Venturi technology while phase fraction is calculated through a dedicated multi-differential pressure fusion algorithm.
- Flow computer / Data Acquisition Unit (DAU) is installed with proprietary software and inline PVT model to deliver reliable data at standard condition.

### Benefits

- Compact Size and Cost Effective
- Custom built
- Enhanced reservoir management
- Real time data
- Production optimization

### Performance Specifications

| Gas Volume Fraction | Measurements          | Uncertainty |
|---------------------|-----------------------|-------------|
| 90~100 %            | Total Mass Flow Rate  | ±3% rel.    |
|                     | Gas Mass Flow Rate    | ±2% rel.    |
|                     | Water Volume Fraction | ±0.5% abs.  |



# WCM (3 PHASE)

## Water Cut Meter

Haimo water cut meter (WCM) uses extremely low gamma energy source, which is exempted by IAEA and determines the Water Cut (WC) in three phase (oil+water+gas) flow up to 90% GVF. The meter is independent of oil/water emulsion effect.



### Working Principle

- WCM is based on the principle that different materials have different absorption capacities to gamma ray. The exempted gamma source is able to emit multiple energy levels gamma ray, and WCM uses two of them, namely high energy and low energy level gamma ray. Based on the absorption of the two gamma rays, two equations could be established and phase fractions could be solved. WCM is a non-intrusive type meter.
- WCM could be used for Water Cut measurement in oil/water two phase flow or for both WC and GVF measurement in oil/water/gas three phase flow.

### Benefits

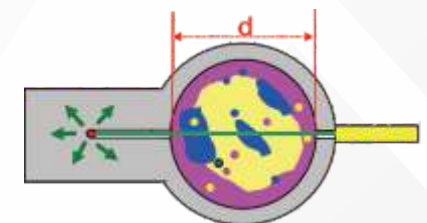
- Accurately measures Water Cut in three phase flow up to 90% GVF
- Independent of oil / water emulsion effect
- Inline meter, non intrusive
- No moving parts – low maintenance
- Small footprint & weight - Simple Installation
- Low power consumption
- Exempted category source, free of regulatory maintenance requirement - safe operation
- Capable of both WC and GVF measurement in oil/water/gas three-phase flow

### Performance Specifications

| GVF     | Measurements | Uncertainty |
|---------|--------------|-------------|
| 0~50 %  | Water Cut    | 1~3% abs.   |
| 50~90 % | Water Cut    | 3~5% abs.   |

### Applications

- Individual well monitoring
- Water breakthrough detection
- Separators



# LPT

## Low Production Tester

Accurate measurement of low flowing and slugging wells is always a challenge in the oil industry. Haimo's Low Production Tester- LPT is developed primarily to address this challenge. LPT is a compact skid mounted meter, which can be used as fixed or mobile unit, to accurately measure low flow wells.



### Working Principle

- The multiphase flow is separated into Gas and liquid in a vertical separator.
- Total liquid flow rate is measured using Coriolis meter while gas is measured with a vortex meter. WC is analyzed by samples from auto grab sampler with high accuracy in Lab..
- The level in the vertical separator is controlled by a combination of level transmitters in the vessel and the liquid control valve installed downstream the vertical separator.
- Data acquisition and computation, liquid level controls etc., are done by Haimo's proprietary Data Acquisition Unit (DAU) / flow computer.

### Benefits

- Accurately measures (oil / water / gas) low flowing wells
- Accurate and repeatable data
- Compact and skid mounted for easy deployment
- Fully automated with unique control strategy
- Real time electronic data acquisition

### Performance Specifications

| Measurements     | Uncertainty |
|------------------|-------------|
| Liquid Flow Rate | ±3% rel.    |
| Gas Flow Rate    | ±5% rel.    |
| Water Cut        | ±1% abs.    |

### Operating Range

|                     |                                                                                          |
|---------------------|------------------------------------------------------------------------------------------|
| Water Liquid Ratio  | 0~100%                                                                                   |
| Gas Volume Fraction | 0~100%                                                                                   |
| Liquid Range        | 0 am <sup>3</sup> /d to 100 am <sup>3</sup> /d (Extendable to 318 am <sup>3</sup> /d)    |
| Gas Range           | 0 am <sup>3</sup> /d to 7200 am <sup>3</sup> /d (Extendable to 12000 am <sup>3</sup> /d) |

# HPT

## High Performance Tester

Haimo’s High Performance Tester (HPT) is an excellent tool for field verification of meters including MPFM. HPT gives client the benefit of in-situ verification of installed meters at actual conditions. The distinctive design with the combination of vertical and horizontal separation along with fully automated controls and electronic data acquisition system / flow computer marks the difference between a standard test separator and HPT.



### Working Principle

- Multiphase flow is separated into Gas phase and liquid phase for measurement.
- Enhanced separation efficiency is achieved with a cyclone separator & a horizontal separator incorporated in the same skid.
- Gas is measured by Vortex meter.
- Total liquid flow rate is measured by Coriolis flow meter and water cut can be calculated by mixed fluid density from Coriolis meter or measured by water cut meter, B&SW will be analyzed by samples from auto grab sampler based on the flow proportional or manual sampling system for verification.
- Data acquisition and computation, liquid level controls etc., are done by Haimo’s proprietary Data Acquisition Unit (DAU) / flow computer.

### Benefits

- Functions similarly to a conventional test separator system, but with a greater focus on the high accuracy required for verification applications
- Eliminates gas and liquid carry-over, a common cause of measurement inaccuracies in conventional systems

### Performance Specifications

| Measurements     | Uncertainty |
|------------------|-------------|
| Liquid Flow Rate | ±3% rel.    |
| Gas Flow Rate    | ±5% rel.    |
| Water Cut        | ±1% abs.    |

### Operating Range

|                     |                                                  |
|---------------------|--------------------------------------------------|
| Water Liquid Ratio  | 0~100%                                           |
| Gas Volume Fraction | 0~100%                                           |
| Liquid Range        | 0 am <sup>3</sup> /d to 2000 am <sup>3</sup> /d  |
| Gas Range           | 0 am <sup>3</sup> /d to 24000 am <sup>3</sup> /d |

# MPFM Maintenance & Lifecycle Support

Our services extend beyond equipment supply and we provide continuous support throughout the operational lifecycle of the Multiphase Flow Meters (MPFM). We provide comprehensive maintenance and lifecycle support for installed meters, ensuring sustained measurement accuracy, reliable operation and maximum equipment availability throughout the life of the field through multiple long-term maintenance contracts.

## Services Include

- Professional Commissioning & Start-up Support
- Preventive Maintenance (PM)
- Performance Guaranteed Service (PGS)
- Corrective Maintenance & Call-out Support
- Technical Troubleshooting & Field Support
- Lifecycle Support for Installed MPFMs



# Mobile Well Testing Services

The mobile well testing services enable real-time measurement of oil and gas well production without phase separation, significantly reducing clients' capital expenditures. These services are suitable for oil and gas fields where multiphase flow meters or test separators are not installed or cannot be installed.

To date, these services have been deployed in multiple countries, including China, Kuwait, Oman, Saudi Arabia, and United Arab Emirates.

## Benefits

- The entire operation is carried out by Haimo's experienced engineers, which reduces operational complexity for users and minimizes the risk of inaccurate measurements due to improper handling, thereby enhancing the validity and reliability of the data.
- Equipment with different measuring ranges can be deployed to cover all well conditions within a given area, making this service particularly suitable for production monitoring in oil and gas well blocks with complex well conditions and widely varying production rates.
- This approach eliminates the need for users to purchase equipment, saves on operation and maintenance costs, effectively improves equipment utilization, reduces the measurement cost per well, and avoids unnecessary capital expenditures.



# Flow-Back & Well Testing Solutions

Our well testing capabilities include:

- Flow-back Services
- Free Water Separation
- Exploration Well Testing
- Early Production Facilities (EPF)
- Lease Automatic Custody Transfer (LACT)

These solutions help operators optimize well performance, evaluate reserves, and streamline production handover.



# IEPF

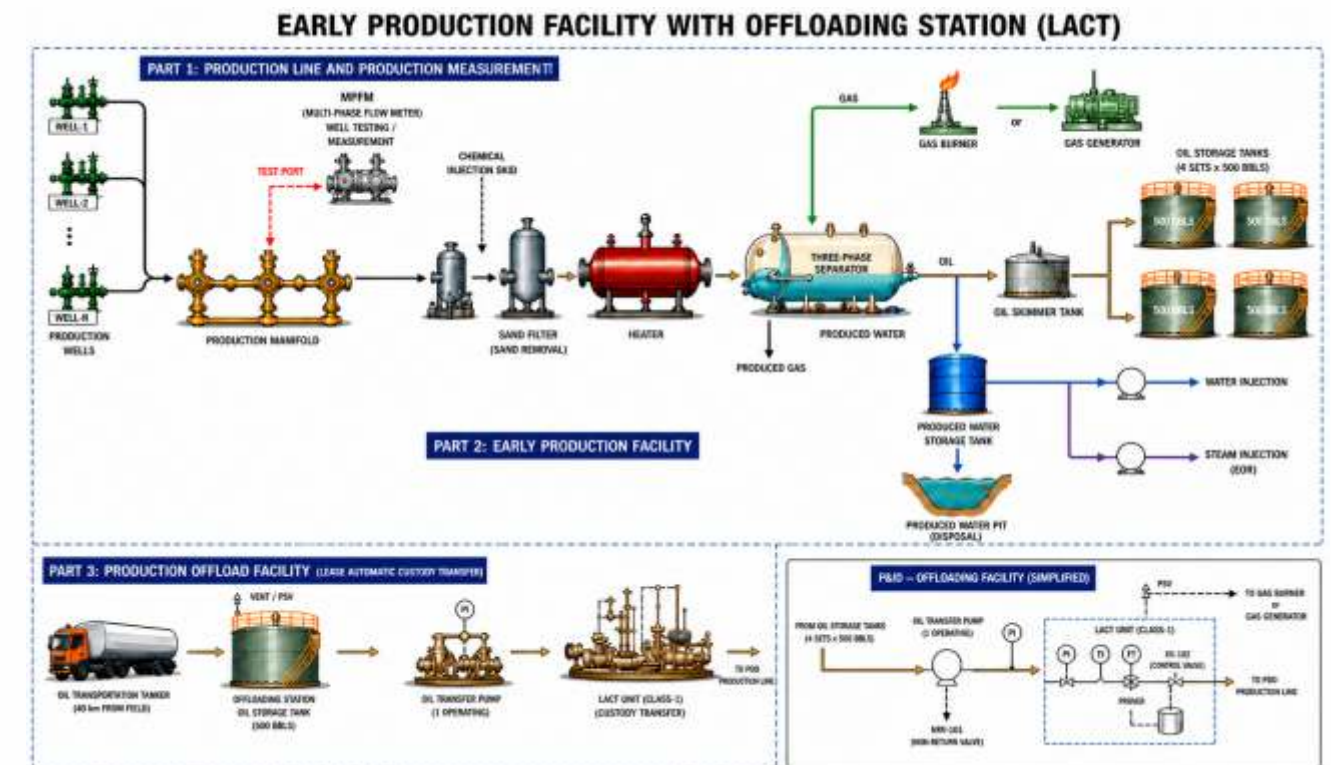
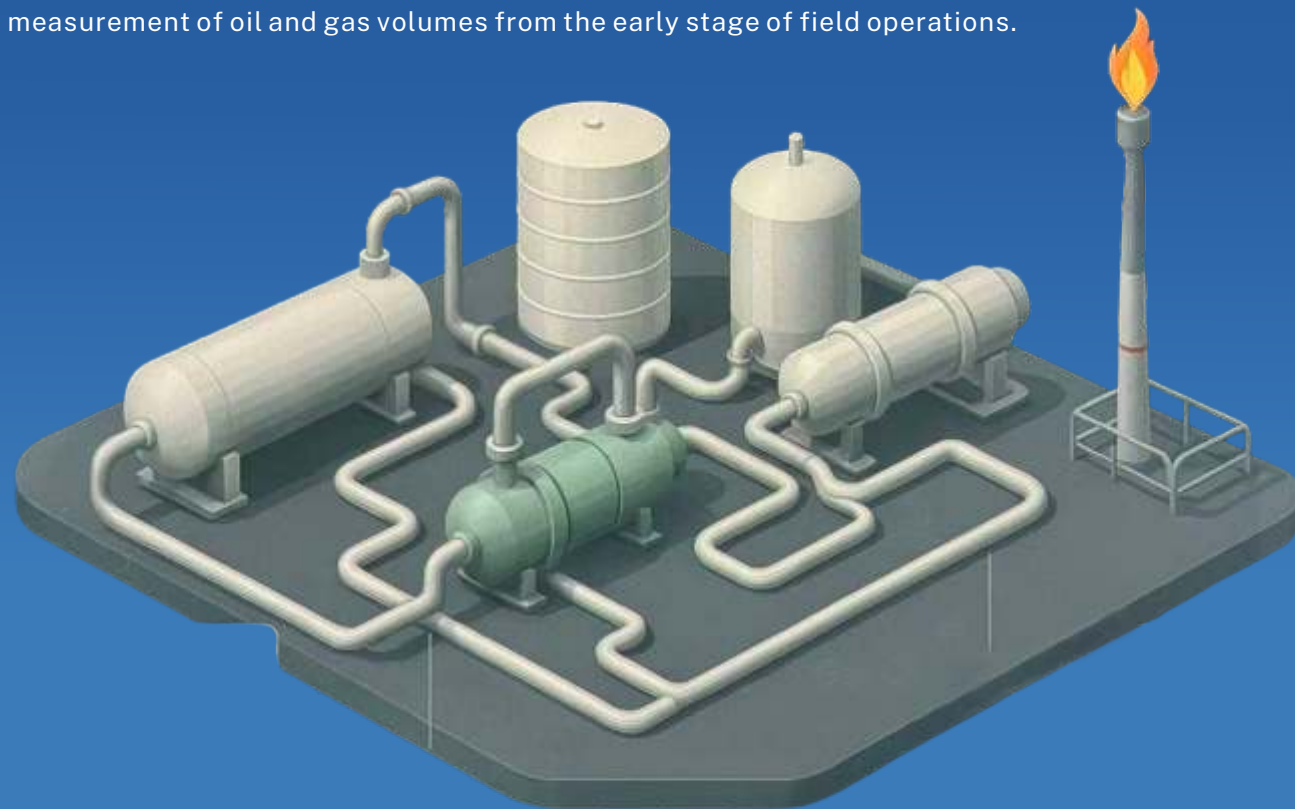
## Integrated Early Production Facility

Haimo IEPF (Integrated Early Production Facility) is a modular and integrated solution designed to support the rapid development and production of oil and gas fields. It combines essential surface production facilities in one integrated package, helping operators bring wells into production safely, efficiently, and quickly.

The Haimo IEPF can include wellhead and gathering systems, separation facilities, oil and gas processing, produced-water handling, storage and transfer systems, utilities, and instrumentation and control systems. The facility can be customized according to field conditions, production capacity, and client requirements.

An important part of the Haimo IEPF is the Custody Transfer Metering Facility, which provides accurate and reliable measurement of oil and gas production for commercial and fiscal purposes. The metering system can include high-accuracy flow meters, sampling systems, flow computers, and data acquisition and monitoring systems.

By integrating early production facilities with custody transfer metering, Haimo IEPF provides a cost-effective and flexible solution for field development, production management, and reliable measurement of oil and gas volumes from the early stage of field operations.



# Digital Oilfield

## Products Commissioning and Services

Haimo supports the digital transformation of oilfield operations with digital oilfield systems and intelligent automation products. From commissioning to ongoing technical support, we help clients improve data visibility, enhance operational control, and unlock real-time decision-making capabilities.

### Cloud-Based Multiphase Flow Meter System



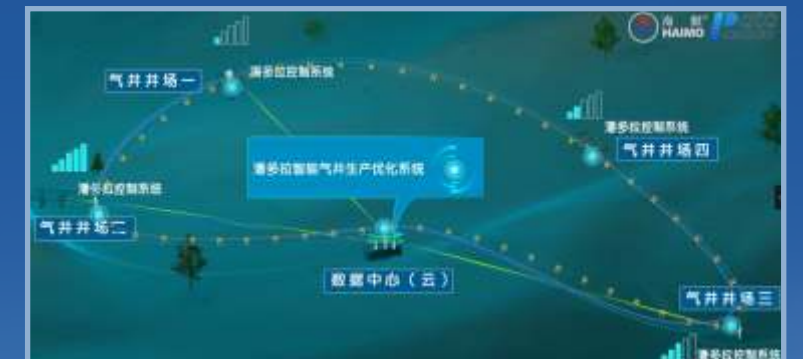
### Well Testing Management System(WTMS)



### Intelligent Oil Well Production Optimization System



### Intelligent Gas Well Production Optimization System



### On-site Operation Intelligent Safety Monitoring System



# Customers



*Exploration never stops  
Innovation never ceases*

