# Instrument General Catalogue

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www.adakvision.com info@adakvision.com



Instrument General Catalogue

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# 1. About Us

Adak is a privately owned stock and one of the leading EPC companies in the nation, active in engineering services, supply, and provision of extensive selection of industrial valve, automation, control and instrumentation equipment and supplementary accessories. Adak vision relies on its experience in presenting several projects including technical engineering services, designing, manufacturing, installation, testing and commissioning projects in the field of oil, gas and petrochemical industries, steel making plants, power plants, water and wastewater treatment, railway industries, cement industries etc.



### 1.1. Our Mission, Vision, and Value

Adak's Mission is to provide solutions for various industries mentioned before and provide extensive engineering services, procurement, construction installation and commissioning for its clients, relying on more than 2 decades experience of its management and engineering team. The company has taken efficient steps in development of national economy and industry through the experience of its experts and applying the state-of-the-art technology. This is what we call our Vision! To become one of the main references in mentioned fields in the region as a knowledge-based company. Last but not least our Value is the precious human resource which is made of most expert individuals and also the trust of our clients which have shaped through these years that we won't exchange it with anything in this world.



# 2. Pressure Measurement Solutions





### 2.1. Pressure Transmitters:

Pressure transmitters are engineered to provide highly accurate and reliable pressure measurements in various process environments. They are suitable for use in multiple industries, including oil and gas, chemical, power generation, and water treatment.

#### Our pressure transmitter range includes:

- Absolute pressure transmitters: Measure absolute pressure relative to a perfect vacuum.
- Gauge pressure transmitters: Determine pressure relative to atmospheric pressure.
- Differential pressure transmitters: Measure the difference between two pressure points in a process.
- Multivariable pressure transmitters: Provide simultaneous measurement of differential pressure,

static pressure, and process temperature.

## Key features and benefits of our pressure transmitters include:

- High accuracy and stability
- Robust construction for harsh environments
- Easy installation and maintenance
- Multiple output options for seamless integration







### 2.2. Pressure Gauges:

Pressure gauges are designed to offer accurate and reliable local pressure indication for various industrial applications.

# We provide a wide range of pressure gauges, including:

- Bourdon tube pressure gauges: Use a curved tube to measure pressure and display it on a dial.
- Diaphragm pressure gauges: Utilize a diaphragm to measure pressure and provide accurate readings.

• Capsule pressure gauges: Use a capsule element to measure low pressures.

• Differential pressure gauges: Measure the difference between two pressure points.

### Our pressure gauges offer the following features and benefits:

- High accuracy and readability
- Rugged design for harsh conditions
- Variety of materials and connection options
- Easy installation and maintenance

### 2.3. Pressure Switches:

Pressure switches are engineered to provide dependable pressure-based control and alarm functions for various process applications. These switches activate electrical circuits or alarms based on preset pressure levels.



### Our pressure switch portfolio includes:

• Diaphragm pressure switches: Use a diaphragm to sense pressure changes and activate the switch.

Piston pressure switches: Utilize a piston to

detect pressure changes and trigger the switch.Snap-action pressure switches: Offer quick and reliable switching action.

• Differential pressure switches: Respond to the difference between two pressure points.

# Key features and benefits of our pressure switches include:

- High accuracy and repeatability
- Durable construction for demanding environments
- Adjustable setpoints for various applications
- Easy installation and maintenance







# 2.4. Differential Pressure Transmitters:

Differential pressure transmitters are designed to measure the difference between two pressure points in various industrial processes. They are ideal for monitoring flow, level, and density in multiple applications.

### Our differential pressure transmitter offerings include:

- Standard differential pressure transmitters:
  Suitable for general industrial applications.
  High-performance differential pressure transmitters: Offer enhanced accuracy and stability for demanding applications.
- Multivariable differential pressure transmitters: Provide simultaneous measurement of differential pressure, static pressure, and process temperature.

### Features and benefits of our differential pressure transmitters include:

- High accuracy and stability
- Robust design for harsh environments
- Versatile communication options
- Advanced diagnostics for predictive maintenance

# **3. Temperature Measurement Solutions**





### 3.1 RTD Sensors:

Resistance Temperature Detector (RTD) sensors provide accurate and stable temperature measurement for various industrial processes. They are constructed using high-quality materials and designed to offer reliable performance in harsh environments.

### Our RTD sensor offerings include:

- Pt100 RTD sensors: Offer a wide temperature range and excellent linearity for various applications.
- Pt1000 RTD sensors: Provide higher resistance values for more precise temperature measurement.
- Thin-film RTD sensors: Designed for fast response times and improved sensitivity.
- Wire-wound RTD sensors: Offer increased stability and accuracy for demanding applications.

### Features and benefits of our RTD sensors:

- High accuracy and stability
- Wide temperature measurement range
- Robust design for harsh environments
- Variety of mounting options





### 3.2. Thermocouple Sensors:

Thermocouple sensors are designed for accurate temperature measurement in high-temperature and harsh environments. These sensors use the Setback effect to generate a voltage proportional to the temperature difference between the measurement and reference junctions.

### Our thermocouple offerings include:

- Type K thermocouples: Offer a wide temperature range and fast response times.
- Type J thermocouples: Provide good oxidation resistance and high-temperature capabilities.
- Type T thermocouples: Designed for low-temperature applications and improved stability.
- Type E thermocouples: Ideal for cryogenic and high-temperature measurements.

# Features and benefits of our thermocouple sensors:

- Wide temperature measurement range
- Suitable for harsh environments
- Fast response times
- Various mounting options



### **3.3. Temperature Transmitters:**

Temperature transmitters convert temperature sensor signals into standardized output signals for monitoring and control purposes. These devices offer high accuracy and versatility for various industrial applications.

### Our temperature transmitter portfolio includes:

- RTD temperature transmitters: Compatible with various RTD sensors for accurate temperature measurement.
- Thermocouple temperature transmitters: Designed to work with different thermocouple types for high-temperature applications.
- Multivariable temperature transmitters: Offer simultaneous measurement of temperature and other process variables, such as pressure or flow.

• Head-mounted temperature transmitters: Provide compact and cost-effective solutions for local temperature monitoring.

# Features and benefits of our temperature transmitters:

- High accuracy and stability
- Wide temperature measurement range
- Robust design for harsh environments
- Easy installation and configuration



### **3.4. Infrared** Thermometers:

Our infrared thermometers offer non-contact temperature measurement for various industrial processes. These devices use infrared technology to determine the temperature of a surface without direct contact, making them ideal for measuring hot, moving, or hard-toreach objects.

### Our infrared thermometer offerings include:

- Handheld infrared thermometers: Provide portable and easy-to-use temperature measurement solutions.
- Fixed-mount infrared thermometers: Designed for continuous temperature monitoring in fixed locations.
- Thermal imaging cameras: Offer temperature measurement and visualization for advanced process monitoring and troubleshooting.

### Features and benefits of our infrared thermometers:

- Non-contact temperature measurement
- Fast response times
- Suitable for a wide range of temperatures
- User-friendly design and operation



# 4. Flow Measurement Solutions



### 4.1. Magnetic Flowmeters:

Our magnetic flowmeters offer accurate and reliable measurement of conductive liquids in various industrial processes. They operate based on Faraday's Law of Electromagnetic Induction, with no moving parts for minimal maintenance requirements.

### Our magnetic flowmeter offerings include:

• Inline magnetic flowmeters: Designed for direct installation in pipelines for accurate flow measurement.

• Insertion magnetic flowmeters: Ideal for large-diameter pipes or applications where inline meters are not feasible.

• Sanitary magnetic flowmeters: Offer hygienic designs for food, beverage, and pharmaceutical applications.

#### Features and benefits of our magnetic flowmeters:

- High accuracy and stability
- No moving parts for low maintenance
- Suitable for various conductive liquids
- Wide range of liner materials for chemical compatibility









### 4.2. Coriolis Flowmeters:

Our Coriolis flowmeters provide direct mass flow, density, and temperature measurement for liquids and gases in various industries. These devices utilize the Coriolis effect to determine mass flow, offering accurate and reliable performance.

### Our Coriolis flowmeter offerings include:

• Single-tube Coriolis flowmeters: Designed for general-purpose flow measurement in various applications.

• Twin-tube Coriolis flowmeters: Offer increased accuracy and stability for demanding applications.

• Compact Coriolis flowmeters: Provide a cost-effective solution for low-flow and space-constrained applications.

### Features and benefits of our Coriolis flowmeters:

- Direct mass flow measurement
- High accuracy and stability
- Wide turndown ratio for optimal rangeability
- Rugged designs for harsh environments

# 4.3. Ultrasonic Flowmeters:

Ultrasonic flowmeters offer non-invasive flow measurement for liquids and gases in various industrial processes. These devices use sound waves to determine flow velocity, providing accurate and reliable performance without contact with the process fluid.

#### Our ultrasonic flowmeter offerings include:

• Clamp-on ultrasonic flowmeters: Designed for easy installation without process interruption.

 Inline ultrasonic flowmeters: Ideal for high accuracy and long-term stability in various applications.

• Portable ultrasonic flowmeters: Provide flexible and versatile flow measurement solutions for various locations.

# Features and benefits of our ultrasonic flowmeters:

- Non-invasive flow measurement
- No moving parts for low maintenance
- Suitable for various liquids and gases
- Easy installation and setup





### 4.4. Vortex Flowmeters:

Vortex flowmeters utilize the Von Kármán effect to measure volumetric flow in steam, gas, and liquid applications. These devices offer reliable and stable performance for a wide range of process conditions.

### Our vortex flowmeter offerings include:

• Inline vortex flowmeters: Designed for direct installation in pipelines for accurate flow measurement.

• Insertion vortex flowmeters: Ideal for large-diameter pipes or applications where inline meters are not feasible.

• Sanitary vortex flowmeters: Offer hygienic designs for food, beverage, and pharmaceutical applications.

## Features and benefits of our vortex flowmeters:

- High accuracy and stability
- Wide turndown ratio for optimal rangeability
- Suitable for steam, gas, and liquid applications
- Various materials for chemical compatibility







### 4.5. Thermal Mass Flowmeters:

Thermal mass flowmeters provide accurate and reliable gas flow measurement in low-pressure and low-flow applications. These devices utilize the thermal dispersion principle to determine gas mass flow, offering stable performance with minimal pressure drop.

### Our thermal mass flowmeter offerings include:

• Inline thermal mass flowmeters: Designed for direct installation in pipelines for accurate flow measurement.

• Insertion thermal mass flowmeters: Ideal for large-diameter pipes or applications where inline meters are not feasible.

• Multi-variable thermal mass flowmeters: Offer simultaneous measurement of mass flow, temperature, and pressure.

### Features and benefits of our thermal mass flowmeters:

- High accuracy and repeatability
- Low-pressure drop for energy savings
- Suitable for various gas applications
- Wide turndown ratio for optimal rangeability



### 4.6. Variable Area Flowmeters:



Variable Area Flow Meters, also known as Rotameters, are widely used for measuring the flow rate of liquids, gases, and steam in various industrial processes. They operate on the principle that the area of an opening varies with the flow rate, allowing for a visual indication of the flow rate through the meter.

### Key components of a Variable Area Flow Meter include:

• Tapered Tube: This is the main body of the flow meter, with a scale that corresponds to the flow rate. The tube is typically made of glass, metal, or plastic.

• Float: A float, often made of metal or glass, moves up and down the tapered tube in response to the flow rate.

• Flow Indicator: A pointer or indicator attached to the float indicates the current flow rate on the scale of the tapered tube.

### **Advantages of Variable Area Flow Meters:**

- Simple design and easy to read scale.
- No external power required.
- Low maintenance and reliable operation.
- Wide range of materials available for compatibility with various fluids.

#### **Disadvantages of Variable Area Flow Meters:**

- Limited accuracy compared to other flow meter types.
- Fragility of glass tube models.
- Sensitivity to changes in fluid viscosity and density.

Variable Area Flow Meters are commonly used in applications where a visual indication of flow rate is required or where the fluid properties are relatively constant. They can be found in industries such as chemical processing, water treatment, food and beverage production, and pharmaceutical manufacturing.

# **5. Level Measurement Solutions**



# 5.1. Ultrasonic Level Transmitters:

Our ultrasonic level transmitters utilize non-contact ultrasonic technology to measure liquid and solid levels in various industrial processes. These devices provide accurate and reliable level measurement without contact with the process material.

# Our ultrasonic level transmitter offerings include:

• Compact ultrasonic level transmitters: Designed for general-purpose level measurement in various applications.

• Advanced ultrasonic level transmitters: Offer enhanced accuracy and stability for demanding applications.

• Self-contained ultrasonic level transmitters: Provide an all-in-one solution for easy installation and setup.

# Features and benefits of our ultrasonic level transmitters:

- Non-contact level measurement
- Suitable for liquids and solids
- Easy installation and configuration
- Robust design for harsh environments

### 5.2. Radar Level Transmitters:

Our radar level transmitters use radar technology to measure liquid and solid levels in various industrial processes. These devices provide accurate and reliable level measurement with minimal maintenance requirements.



### Our radar level transmitter offerings include:

- Pulse radar level transmitters: Designed for continuous level measurement in various applications.
- Frequency-modulated continuous wave (FMCW) radar level transmitters: Offer increased accuracy and stability for demanding applications.
- Guided wave radar level transmitters: Provide reliable level measurement in challenging process conditions.

### Features and benefits of our radar level transmitters:

- High accuracy and stability
- Suitable for a wide range of liquids and solids
- Low maintenance requirements
- Robust design for harsh environments

### 5.3. Guided Wave Radar Transmitters:

Our guided wave radar transmitters utilize guided wave radar technology for accurate and reliable level measurement in liquids, solids, and interface applications. These devices offer stable performance in various process conditions.

#### Our guided wave radar transmitter offerings include:

- Coaxial probe guided wave radar transmitters: Designed for level measurement in liquids and solids.
- Single-lead probe guided wave radar transmitters: Ideal for level measurement in liquids with low dielectric constants.
- Twin-lead probe guided wave radar transmitters: Suitable for interface level measurement in liquids.

#### Features and benefits of our guided wave radar transmitters:

- High accuracy and stability
- Suitable for various liquids, solids, and interface applications
- Robust design for harsh environments
- Easy installation and calibration



### 5.4. Float Switches:

Float switches offer reliable and cost-effective level detection for various industrial applications. These devices use a float mechanism to activate a switch when the level reaches a predetermined point.

#### Our float switch offerings include:

- Vertical float switches: Designed for level detection in tanks and vessels.
- Horizontal float switches: Ideal for level detection in sumps and reservoirs.

• Magnetic float switches: Offer a non-contact level detection solution for various liquids.

### Features and benefits of our float switches:

- Simple and reliable operation
- Cost-effective level detection
- Wide range of materials for chemical compatibility
- Easy installation and maintenance



# 5.5. Magnetic Level Gauges:

Magnetic level gauges provide continuous level indication for various liquids in industrial processes. These devices use magnetic float technology to display level readings on an external scale.

### Our magnetic level gauge offerings include:

- Standard magnetic level gauges: Designed for general-purpose level indication in various applications.
- High-temperature magnetic level gauges: Offer reliable level indication in high-temperature environments.
- High-pressure magnetic level gauges: Suitable for level indication in high-pressure applications.

# Features and benefits of our magnetic level gauges:

- Continuous level indication
- Easy-to-read external scale
- Suitable for various liquids
- Wide range of materials for chemical compatibility
## 5.6. Tank Gauging Systems:

Tank gauging systems are essential for accurately measuring the level, temperature, and pressure of liquids and gases stored in tanks and vessels. These systems provide real-time inventory data, enabling efficient storage management, loss prevention, and regulatory compliance.

Key components of tank gauging systems include:

### 5.6.1. Level Gauges:

Measure the liquid or bulk solid level in tanks, using technologies like float and tape gauges, radar level transmitters, ultrasonic level transmitters, and guided wave radar.

### 5.6.2. Temperature Sensors:

Monitor the temperature of stored products, which can affect volume, density, and product quality. Common sensors include resistance temperature detectors (RTDs), thermocouples, and thermistors.







#### 5.6.3. Pressure Transmitters:

Measure the pressure of liquids and gases inside tanks, enabling accurate calculations of inventory levels and detecting potential leaks.

#### 5.6.4. Density Measurement:

Determine the density of stored products, which is essential for accurate mass calculations and product identification.

Technologies include density transmitters, densitometers, and nuclear density gauges.

#### 5.6.5. Vapor Space Monitoring:

Measure the pressure and temperature of the vapor space above the liquid level in tanks, ensuring safe storage conditions and preventing overpressure scenarios.

### 5.6.6. Water Interface Detection:

Identify the presence of water in stored liquids, which can affect product quality and lead to corrosion issues. Examples include capacitance probes, float switches, and ultrasonic sensors.

# 5.6.7. Inventory Management Software:

Collect and process data from gauging instruments, providing real-time inventory levels, historical trends, and alarms.

This software also enables automatic reconciliation and loss control.

Tank gauging systems play a crucial role in the efficient and safe operation of storage terminals, refineries, petrochemical plants, and other industrial facilities. Proper selection, installation, and maintenance of gauging instruments are essential for accurate and reliable measurements.





# 6. Analytical Measurement Solutions



## 6.1. pH/ORP Sensors:

pH/ORP (Oxidation-Reduction Potential) sensors provide accurate and reliable measurements for various water treatment and industrial applications. These sensors are designed for easy calibration and maintenance, ensuring optimal performance and extended sensor life.

#### Our pH/ORP sensor offerings include:

- Glass-body pH sensors: Offer a versatile solution for pH measurement in various process conditions.
- Plastic-body pH sensors: Provide a cost-effective option for less demanding applications.
- Gel-filled pH sensors: Ideal for low-maintenance and long-lasting pH measurement.

• ORP sensors: Designed to measure oxidation-reduction potential for water treatment and other applications.

#### Features and benefits of our pH/ORP sensors:

- High accuracy and stability
- Easy calibration and maintenance
- Wide range of materials for chemical compatibility
- Suitable for various process conditions



## 6.2. Conductivity Sensors:

Conductivity sensors offer precise and reliable conductivity measurements for quality control and monitoring purposes in various industrial processes. These sensors feature robust designs and advanced technology for optimal performance and accuracy.

#### Our conductivity sensor offerings include:

• 2-electrode conductivity sensors: Designed for general-purpose conductivity measurement in various applications.

- 4-electrode conductivity sensors: Provide increased accuracy and stability for demanding applications.
- Toroidal conductivity sensors: Ideal for conductivity measurement in high-purity water applications.

• Inductive conductivity sensors: Suitable for conductivity measurement in harsh and corrosive environments.

#### Features and benefits of our conductivity sensors:

- High accuracy and stability
- Suitable for various process conditions and applications
- Robust designs for harsh environments
- Easy installation and calibration





# 6.3. Dissolved Oxygen Sensors:

Dissolved oxygen sensors accurately measure the concentration of dissolved oxygen in liquids for environmental monitoring, water treatment, and various industrial processes. These sensors offer reliable performance and low maintenance requirements.

#### Our dissolved oxygen sensor offerings include:

• Galvanic dissolved oxygen sensors: Provide a cost-effective solution for general-purpose applications.

 Polarographic dissolved oxygen sensors: Designed for accurate and stable measurements in various applications.

 Optical dissolved oxygen sensors: Offer low maintenance and long-lasting performance for demanding applications.

## Features and benefits of our dissolved oxygen sensors:

- High accuracy and stability
- Low maintenance requirements
- Suitable for various liquids and applications
- Easy calibration and installation









## 6.4. Turbidity Meters:

Turbidity meters provide accurate and reliable measurements of turbidity in liquids for water quality monitoring and control. These devices feature advanced technology and user-friendly designs for optimal performance and ease of use.

#### Our turbidity meter offerings include:

• Portable turbidity meters: Designed for on-site turbidity measurements in various locations.

- Benchtop turbidity meters: Ideal for laboratory and research applications.
- Online turbidity meters: Offer continuous turbidity measurement for process monitoring and control.

#### Features and benefits of our turbidity meters:

- High accuracy and stability
- Wide measurement range
- Suitable for various liquids and applications
- User-friendly designs and operation

## 6.5. Gas Detectors:

Gas detectors provide reliable and accurate detection of various gases for safety and environmental monitoring purposes. These devices feature advanced sensor technology and robust designs for harsh and hazardous environments.

#### Our gas detector offerings include:

- Portable gas detectors: Designed for personal monitoring and leak detection in various applications.
- Fixed gas detectors: Ideal for continuous gas monitoring in specific locations.

• Multi-gas detectors: Offer simultaneous detection of multiple gases for enhanced safety and efficiency.

#### Features and benefits of our gas detectors:

- High sensitivity and accuracy
- Fast response times
- Robust designs for harsh environments
- Easy calibration and maintenance







# 7. Metering Systems

Metering systems are designed to accurately measure and monitor the flow of liquids, gases, and steam in various industrial processes. These systems play a critical role in ensuring efficient process control, product quality, and safety. There are several types of metering systems available, each with its unique working principle and applications. In this catalog, we will explore the most important metering systems, including positive displacement, Coriolis, ultrasonic, electromagnetic, thermal mass, smart, and custody transfer systems.





# 7.1. Positive Displacement Metering Systems - Nutating Disc Flowmeters:



Nutating disc flowmeters are a type of positive displacement flowmeter that accurately measures the volume of liquids and gases. These flowmeters operate by trapping a precise volume of fluid between the nutating disc and the meter body. As the fluid passes through the meter, the disc nutates, and the number of disc revolutions is proportional to the volume of fluid. Nutating disc flowmeters offer high accuracy, repeatability, and reliability in various applications, including chemical processing, pharmaceuticals, and food & beverage.





## 7.2. Coriolis Metering Systems:

Coriolis flowmeters measure mass flow, density, and temperature directly using the Coriolis effect. These devices operate by inducing a vibration in the flow tube, which causes a phase shift proportional to the mass flow rate. Coriolis flowmeters provide accurate measurement in liquids, gases, and multiphase flows, making them suitable for various industries such as oil & gas, chemical, and food & beverage.



# 7.3. Ultrasonic Metering Systems:

Ultrasonic flowmeters use sound waves to determine the velocity of fluids in a pipe. There are two primary types: transit-time and Doppler. Transit-time flowmeters measure the time it takes for an ultrasonic signal to travel upstream and downstream, while Doppler flowmeters detect the frequency shift in the reflected ultrasonic signal. Ultrasonic flowmeters offer non-invasive measurement, high accuracy, and low maintenance in applications such as water treatment, HVAC, and process control.





# 7.4. Electromagnetic Metering Systems:

Electromagnetic flowmeters measure the flow of conductive liquids based on Faraday's Law of Electromagnetic Induction. These devices induce a magnetic field in the flow tube, generating a voltage proportional to the flow velocity. Electromagnetic flowmeters provide accurate and reliable measurement in various applications, including wastewater treatment, chemical processing, and pulp & paper.





## 7.5. Thermal Mass Metering Systems:

Thermal mass flowmeters measure the mass flow of gases using the thermal dispersion principle. These devices heat the gas and detect the temperature difference between two sensors, which is proportional to the mass flow rate. Thermal mass flowmeters offer accurate measurement in low-pressure and low-flow gas applications, such as air separation, combustion control, and gas distribution.



## 7.6. Smart Metering Systems:

Smart metering systems integrate advanced communication and data processing technologies to optimize process efficiency and reduce costs. These systems often include intelligent flowmeters, automated meter reading (AMR), and advanced metering infrastructure (AMI) solutions. Smart metering systems are increasingly used in industries such as water & wastewater, energy, and industrial automation.





# 7.7. Custody Transfer Metering Systems:

Custody transfer metering systems are designed for accurate and reliable measurement during the transfer of ownership of liquids or gases. These systems often require high accuracy, traceability, and compliance with industry standards. Custody transfer metering systems are widely used in the oil & gas, petrochemical, and chemical industries for applications such as pipeline transmission, storage terminals, and marine loading/unloading.



## 7.8. Standards of Metering Systems:

Metering systems are subject to various standards and regulations to ensure accuracy, reliability, and safety in their applications. These standards can vary depending on the region and industry in which they are being used.

#### Some common standards related to metering systems include:

#### International Organization for Standardization (ISO) standards: ISO has several standards for metering systems, including:

- ISO 4064: Water meters for cold potable water and hot water.

- ISO 9551: Measurement of gas flow in closed conduits.

- ISO 5167: Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full.

#### American Society of Mechanical Engineers (ASME) standards: ASME provides guidelines for various aspects of metering systems, such as:

- ASME MFC-3M: Measurement of Fluid Flow Using Small Bore Precision Orifice Meters.

- ASME MFC-14M: Measurement of Fluid Flow Using Small Bore Precision Venturi Meters.

## American Petroleum Institute (API) standards: API has several standards specific to the oil and gas industry, including:

- API MPMS Chapter 5: Metering of Liquid Hydrocarbons by Turbine Meters.

- API MPMS Chapter 6: Metering of Natural Gas and Other Related Hydrocarbon Fluids by Turbine Meters.

- API MPMS Chapter 22: Testing Protocols for Flowmeters in Gas Measurement.

# International Electrotechnical Commission (IEC) standards: IEC has standards related to electrical aspects of metering systems, such as:

- IEC 60044-1: Instrument transformers – Part 1: Current transformers.

- IEC 61557: Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC.

# National Institute of Standards and Technology (NIST) standards: NIST provides guidelines and recommendations for flow measurement, such as:

- NIST Special Publication 250-67: Handbook for the Calibration of Flowmeters.

- NIST Special Publication 848: Gas Flowmeter Calibration Facilities at the National Institute of Standards and Technology.

These standards, along with regional regulations and industry-specific requirements, ensure that metering systems provide accurate and reliable measurements while adhering to safety and performance guidelines.

# 8. Our Main Projects



Instrument General Catalogue



## Pasargad Qeshm Heavy Oil Refinery







## Bandar Abbas Sulfuric Acid Containers

# Persian Gulf Sadaf Petrochemical Co.



Adak Vision Kish Co.



## Farasakou Asaluyeh Containers







# Nouri Petrochemical Company

## **Tehran Oil Refinery**



## Sarvak Azar Oil Field





Phase 17, 18 of Parse-e-Jonoubi

NGL 3100



Adak Vision Kish Co.



Gas Pressure Regulating Stations of Bijar and Hamedan

## Persian Gulf Water Transfer Pipeline





## Isfahan Oil Refinery

# 9. Partners, Clients, AVL



### 9.1. Our Main Partners









# 

















# 9.2. Our Major Clients



































# 9.3. Member of Approved Vendor List for:
































## adak vision

Head Office: No. 5, Royal Building, A1Zone, Jask St, Kish Island, Iran

Tehran Branch: Unit 11, No. 61, Omrani St, East Arash Blvd, Africa Blvd, Tehran, Iran

+98 21 26412007-9

www.adakvision.com info@adakvision.com