

Flow Measurement Solutions

# Go beyond with Endress+Hauser's flow metering system

Reliable measurements  
in Oil & Gas industry

## Introduction

# Get the most accurate Flow Metering System for your application

In Oil and Gas industry every single drop of fuel counts. Crude oil production, transport operations, terminal reconciliation tasks and, in general, custody transfer operations are all fully dependent on the reliability of a complex engineering solution: solution as the flow metering skids.

Flow metering skids are the preferred solution for dynamic quantity determination applications, based on their low uncertainty to quantify oil movements.

On the other hand, Coriolis mass technology has proved its capability to maintain a consistent performance according to international regulations and laws worldwide accepted for dynamic custody transfer measurements.

Endress+Hauser offers the most complete and diverse portfolio of flow metering skids, from small truck delivery to huge import/export crude oil marine facilities. We also offer a single-source supplier, which provides from engineering to commissioning in order to fulfill the most stringent customer requirements in a very demanding market.



### Interactive image

Please roll over the mouse on the pieces with the white dot.



Reference image. The configuration and equipment can change according to the application.



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## Ship loading/unloading

# Is your fuel reception accurate?

Dynamic quantity determination of hydrocarbon products in marine facilities represents a strategic measurement point where the state-of-the-art solutions are always required.

Low uncertainty, high reliability and a compact design are some of the main features required to implement these flow measurement points. These features are plenty justified for measurement systems where hundreds of thousands of barrels per day are transferred from one part to another, under rigorous international procedures.

Endress+Hauser has developed an extended family of metering skids, fulfilling the most stringent requirements for flow measurement stations in ship loading and unloading applications.

These solutions comprise the Promass X, which is the largest and most precise Coriolis flowmeter ever built, it includes a complete set of accessories to accomplish API MPMS 5.6 and 6.5 recommendations as well as local and international regulations.



Reference image. The configuration and equipment can change according to the application.



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## Truck loading/unloading

# High accuracy + Custody Transfer certificates = Right billing

When considering truck or railcar loading custody transfer certified metering skids are often the best option. Endress+Hauser has the experience of hundreds of truck loading applications around the world based on our world-renowned Promass mass flow meter.

In comparison to mechanical PD meters our Promass offers a direct mass output. Furthermore due to simultaneous density and temperature output we are able to give a volume output at the same time. This means the solution is open for the future as the trend clearly will go from volume to mass billing for light hydrocarbons (e.g. as already in place for LPG).

Endress+Hauser has designed standardized Loading Metering Skids (LMS) for truck and railcar loading applications including batch controller, start/stop valves and grounding system. You have the choice for horizontal or vertical installation (incl. loading arm) and the use of optional air eliminator. The solution will come automatically with the European MID approval (no on-site verification required). The open and standardized interfaces allows smooth integration to the Terminal Management System.



Reference image. The configuration and equipment can change according to the application.



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Truck loading/unloading

## High accuracy + Custody Transfer certificates = Right billing

### Products

#### Light and medium products

- Gasoline
- Methanol
- Ethanol (available with special materials)
- Jet A1
- Standard/LS/ULS Diesel
- Biodiesel
- Light crude oil

#### Heavy products

- Heavy Fuel Oil
- Bunker and Marine Gas Oil (different grades)
- Heavy/Extra Heavy crude oil

#### Other products

- Liquefied Petroleum Gas, Butane/Propane (LPG)
- Liquefied Natural Gas (LNG)
- Natural Gas Liquid or Condensates (NGL)



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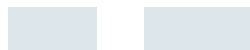
Truck loading/unloading

# High accuracy + Custody Transfer certificates = Right billing

## Specifications

How do you **drive**  
your **business**?

 Click on your selection



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Truck loading/unloading

## High accuracy + Custody Transfer certificates = Right billing

### Additional options and accessories for all basic models

- System Validation by Third Parties or Notified Body

This options will entail additional costs.



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## Pipeline measuring application

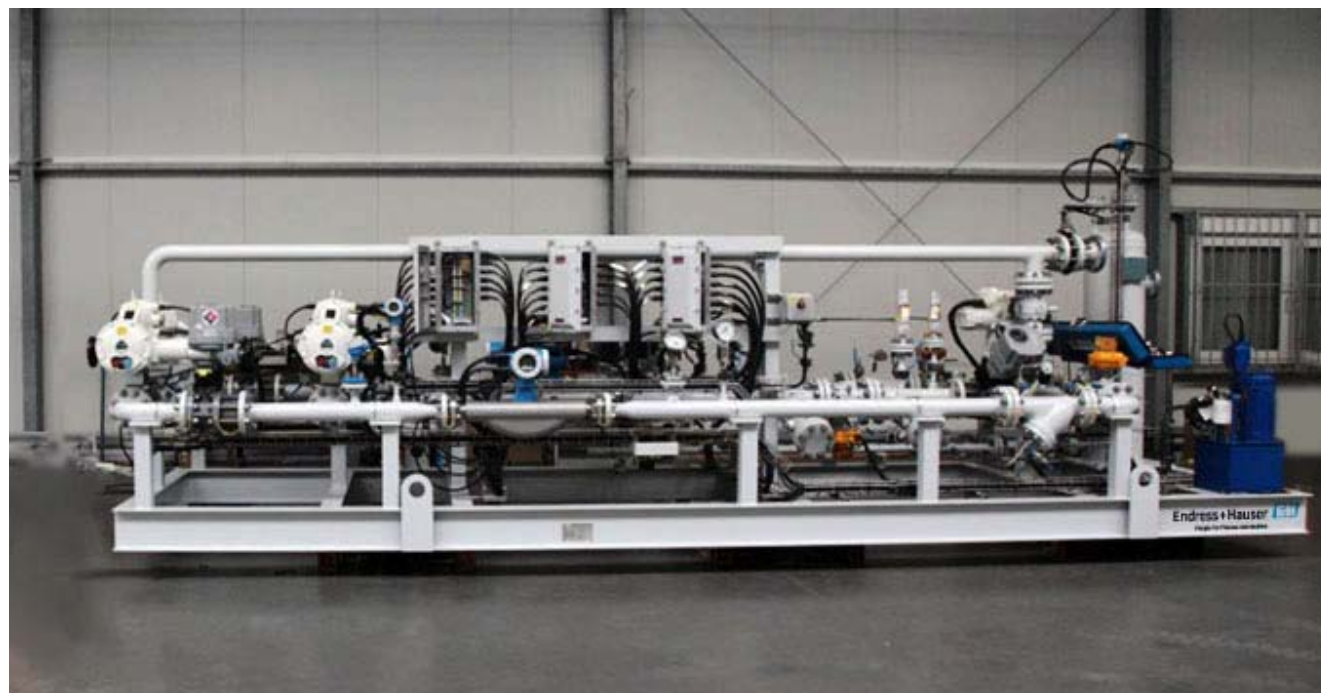
# Accurate measurement for transport applications

Pipeline keeps being one of the most effective methods to transport huge amounts of hydrocarbon from production centers to storage processing or trading facilities as well as to the final customers.

Flow meters based on Coriolis principle are by far the most consistent technology of flow measurement that suits the diverse requirements found in pipeline applications.

However, the particular features of Endress+Hauser's solutions, make these flowmeters the preferred choice when it comes to liquid products which need to be dynamically quantified.

Low pressure drop, outstanding turn down ratio, mass flow / density low uncertainty, compact design and long term stability makes Promass flowmeter the most trustable option for transport application.



Reference image. The configuration and equipment can change according to the application.



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LPG applications / Road truck metering dispenser

## Upgrading your truck metering system for LPG application

LPG for domestic and industrial consumption has experienced a permanent increasing trend during the last years.

Particularly domestic consumption of LPG keeps increasing the number of customers to be reached by trucks. Substantial amounts of fuel are delivered day by day by trucks using traditional PD meters. Gear wear, high maintenance costs and short calibration periods are some of the main drawbacks associated to this flow measurement technology.

Endress+Hauser has been using models of Promass Coriolis flowmeter family for truck metering solutions which are specifically designed for this kind of applications. These meters with no moving parts, provide some additional benefits such as, robust design, virtually immune to vibrations, low pressure drop, approval for Custody Transfer applications according OIML R117.

Those features combined with high quality, reliable set of batch controller, set-stop and control valve shape our proven in use solution for truck dispatch.



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