



▶ Giving you our knowledge and expertise

## TICS

### Training, Installation, Commissioning and Service

- Full range of training topics
- Trainers with long hands-on experience
- Fully adaptable to your training needs
- At any location: classroom, your facilities, onsite

# In-depth training ... ... with hands-on experience

TICS is the abbreviation for:

## Training

We can offer complete off-site, in-house and on-site training for all aspects of installation, commissioning, and service, as well as basic training in the fundamentals of liquid and gas metering, shore tank management and leak detection systems.

## Installation

Besides training your people, we can actually help them prior to the installation, on-site during the installation and after installation to ensure trouble-free and on-time execution of your project.

## Commissioning

All KROHNE Oil & Gas Systems are pre-commissioned before they leave our factories. Once on site, we have teams of internationally experienced engineers to get your new system up and running with the least possible delay.

## Service

In addition to accompanying your engineers during the installation and commissioning of the system, we offer a highly flexible service level agreement package that you can tailor to your needs

“ KROHNE Oil & Gas teach by example, presenting the theory and putting it into perspective through their extensive experience onsite throughout the world. ”

Chief executive of major Oil Company

## Choose the location for your training.



Training in one of the 9 KROHNE factory training centres.



Onsite training during installation or commissioning is tailored to your system.



Service calls are also an ideal opportunity for you to have onsite training by the engineers with the most experience in your system.

# Comprehensive modules permit customer-specific training

## 1. Liquid Measurement modules

### 1.1 Statistics & international standards

### 1.2 Flow measurement

Correction factors (VCF) / temperature & pressure measurement / PD meters / turbine meters / Coriolis meters / ultrasonic flowmeters

### 1.3 Metering skid design considerations

mechanical / electrical (P&ID) / supervisory systems / communications

### 1.4 Proving

Traceability / prover tanks / ball provers / small volume provers / prover calibration (waterdraw) calculations

### 1.5 Quality measurement

In line sampling / density measurement / water in oil

### 1.6 Test instrumentation

Fluke / simulator / dead weight tester / decade bank

### 1.7 Pipe monitoring, leak detection

Principles / systems / selection guide / interoperability

## 2 Gas measurement

### 2.1 Introduction & programm

Statistics & international standards

### 2.2 Flow measurement

Introduction / correction factors (VCF) / temperature & pressure measurement / PD meters / turbine meters / Coriolis meters / ultrasonic flowmeters

### 2.3 Metering skid design considerations

mechanical / electrical (P&ID) / supervisory systems / communications

### 2.4 Proving

Traceability / proving procedures

### 2.5 Quality measurement

Gas properties / In line sampling / density measurement / GC

### 2.6 Test instrumentation

Fluke / simulator / dead weight tester / decade bank

### 2.7 Pipe monitoring, leak detection

Principles / systems / selection guide / interoperability

## 3 Shore tank measurement

### 3.1 Statistics & international standards

### 3.2 Tank measurement

Introduction / correction factors (VCF) / temperature measurement / type of shore tanks / measuring tape / automatic gauging

### 3.3 Top systems

Supervisory systems / communications

### 3.4 Calibration

Calibration procedures / sampling / uncertainties / traceability

### 3.5 Pipe monitoring, leak detection

Principles / systems / selection guide / interoperability

## First-hand knowledge – from the technology leader



The KROHNE TICS Division lets you directly access expertise and experience from the leader in measurement technology.

Whether you're seeking answers about gas, liquid, LPG measurement or flow computing, tank measurement or leak detection, we have specialists that in many cases were on the development team of many technologies. They have experience in research and in the field.

You benefit from over 80 years of in-depth expertise in measurement engineering, from competent trainers, who pass on their knowledge to you in seminars in ways that are easy to understand and solution-oriented.



#### Why pre-commissioning?

Continuous monitoring saves time and costs. TICS, the KROHNE Training, Installation, Commissioning & Service Division, has distributed a new course to project management and instrumentation. It gives during the pre-commissioning step in the start-up process, numerous benefits. Companies have been able to identify errors in the time and costs needed for installation, have reduced the commissioning period for extension and have had much fewer starting troubles during start-up.

Increase your staff efficiency. Overall, valuable time is gained at the later end of the project helping to clear up or resolve issues, getting the project moving efficiently and meeting deadlines more consistently than ever before.

Meet your deadline. Did pre-commissioning or an early site check, it is based upon experienced professionals that we will teach you and help you to implement.

Use for:

- Project managers
- Installation managers
- Safety engineers
- Instrument engineers
- Operations managers
- Safety managers
- Process engineers
- Instrument operators
- Technicians
- Consultants
- Service engineers
- Commissioning and many more

Whether you're in Houston, Doha, Rotterdam or São Paulo, there's a TICS seminar near you.

Check the program for all courses - this program gives details.

For further information, please email: [training@krohne.com](mailto:training@krohne.com)

KROHNE Öl & Gas  
TICS Division  
Houston, TX  
12100 Spring  
Tel: +1 281 271 1270  
Fax: +1 281 271 1284  
[www.krohne.com/tics](http://www.krohne.com/tics)

## KROHNE Oil & Gas Overview

- Liquid flowmetering systems
- Gas flowmetering systems
- Supervisory systems
- Flow computers
- Tank Management Systems
- Loading & Offloading systems
- Leak Detection Systems



From the well head, through massive pipelines, onto tankers and into the terminals and refineries; the flow of oil and gas products needs to be measured accurately and reliably. That is the world of KROHNE Oil & Gas.

In 2001, the leader in flow metering KROHNE in Duisburg, grouped together all its experts and established a specialist company at their main manufacturing site in the Netherlands. The company has grown continuously since then. The need for more space while retaining access to a qualified workforce brought KROHNE Oil & Gas to custom-designed premises in Breda.

The dynamic growth continues with the workforce having grown to over 160 persons solely dedicated to the oil and gas industry.

Through acquisitions and expansions KROHNE Oil & Gas now has 8 manufacturing facilities in the Netherlands, UK, India, Malaysia, USA, Brazil, South Africa headquarters in Breda servicing the world's oil industry through offices of the KROHNE group, in more than 60 countries worldwide.

The scope of KROHNE Oil and Gas starts with custody transfer flowmetering for oil, gas and liquefied gas and continues through tank management, loading and offloading and leak detection and localisation systems.

### KROHNE Oil & Gas

Minervum 7441  
7801 LH Breda  
The Netherlands

Tel.: +31-76.71.2000  
Fax.: +31-76.71.2001  
info@krohne-oilandgas.com

### KROHNE Companies

Australia  
Austria  
Belgium  
Brazil  
China  
CIS  
Czech Republic  
France  
Great Britain  
India  
Iran  
Italy  
Korea  
Malaysia  
Netherlands  
Nigeria  
Norway  
Poland  
Singapore  
South Africa  
Switzerland  
Spain  
Turkey  
Ukraine  
United Arab Emirates  
USA

### Representatives

Algeria  
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Chile  
Colombia  
Croatia  
Denmark  
Ecuador  
Egypt  
Finland  
Gabon  
Ghana  
Greece  
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Iran  
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