



METERING Unit  
T.O.K.A 1200



For precise metering  
of mineral oil products

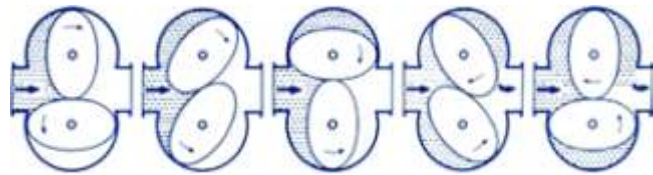
## METERING UNIT

for the handling of mineral oil products  
in custody transfer (stock piling and removal)  
(storage tanks, power plants, truck/rail/ship loading)

## FUNCTIONAL PRINCIPLE

The core item of the volume metering unit is a precise oval wheel meter. The oval wheel meter consists of a measuring chamber with two rotatable bedded teathed oval wheels.

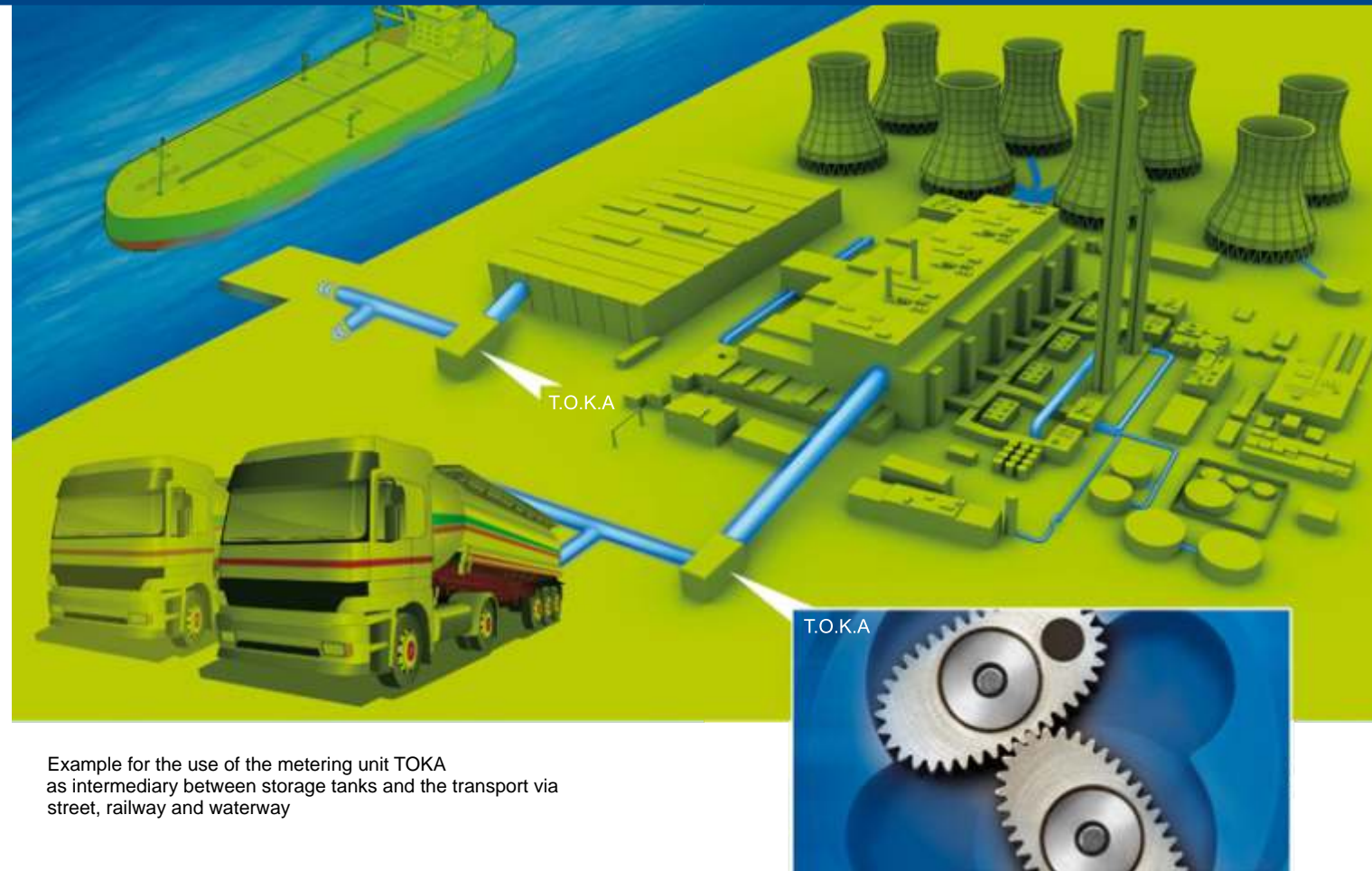
The principle drawing shows the course of movement of a measuring cycle.



The rotation of the wheels will be transferred over a magnetic inductive pulse pick-up to the flow computer.

## TECHNICAL DATA

|                        |  |
|------------------------|--|
| Accuracy:              | ±0,2% o. m. v.                         |
| Repeatability:         | ±0,02% o. m. v.                        |
| Operating temperature: | -30°C up to +60°C                      |
| Ambient temperature:   | -25°C up to +55°C                      |
| Process connection:    | flange DN80 PN10                       |
| Material:              | non-ferrous metal free aluminium alloy |
| O-Ringe:               | NBR / VITON                            |
| Gasket:                | PUR                                    |
| Ball Bearing:          | ball bearing steel                     |
| Sleeve bearing:        | special hard carbon FH42A              |
| Weight:                | approx. 80kg                           |

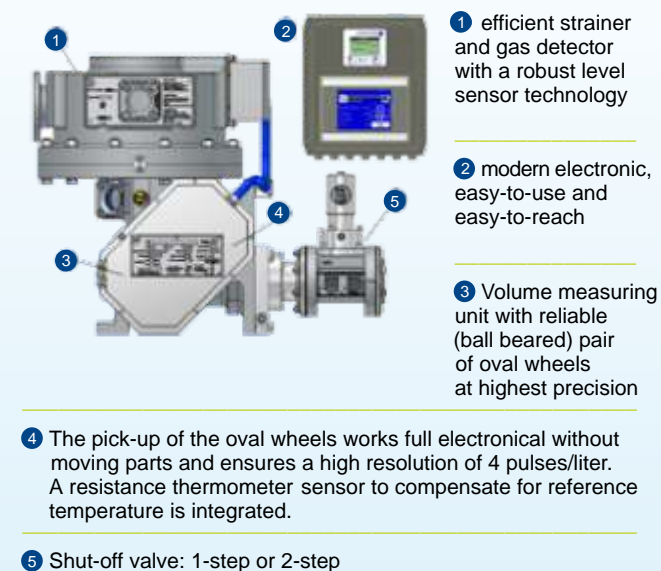


Example for the use of the metering unit TOKA  
as intermediary between storage tanks and the transport via  
street, railway and waterway

## OVERVIEW OF THE MODULAR CONCEPT

The TOKA combines the approved measuring technology with modern electronic equipment to a flexible concept.

- can be combined with several electronic counters
- the local display is legible and in best position for reading and handling
- the modular concept convinces every practitioner of its high flexibility and the appealing design
- easy handling
- not manipulable
- high quality standard
- with a wide range of accessories (valves, printer, etc.)



## MEASURING RANGE

Viscosity range: 0,3-20 mPas  
Flow range: 80-1.200 l/min

especially adapted for: Heating oil, diesel, biodiesel, fuel

## SYSTEM CONFIGURATION

The metering unit TOKA consists of following components:

- Gas detector with float controlled bleed valve and integrated strainer
- Oval wheels meter with pulse pick-up
- Resistance thermometer Pt100
- Valve block pneumatical controlled
- Electronical counter (printer, control unit, etc.)



## ADVANTAGES OF the TOKA 1200

... based on the approved oval wheel meter measuring principle for the volume capture

- highest accuracy
- high operational life time and reliability
- long-term stability and high resilience
- easy assembling and disassembling with standard tools, user friendly handling
- low pressure drop
- with integrated valve block
- with automatic bleed valve
- low installation costs
- designed for rough operating conditions





## Approvals for Custody Transfer

Type-approval certificate under german law 

## Measuring Equipment Directive - MID

**DE-07-MI005-PTB014** EC-type examination certificate for stationary metering unit for volume metering of liquids with the dyn. viscosity of 0,3 mPa·s up to 20 mPa·s

## Electromagnetic Compatibility - EMC

Electromagnetic compatibility according EN 60947-5-2 and EN 60947-5-2

## Pressure Equipment Directive - PED

Pressure equipment directive 97/23/EC  
The metering unit is suitable for liquids of the category 1 (Classification acc. §3Abs.3 „Sound engineering practice“)

## Documentation

- Operating manual BA01652\_21\_001
- Operating Manual BA01652\_21\_011
- Accessories

## Other Approvals

The metering system fulfill the legal requirements of the EC-directives 89/336/EEC and 94/9/EC, as well as the directive 2004/22/EC of the European Parliament and Council dated 31.März 2004 about measuring devices including the til today released modifications or supplements. The Bopp & Reuther Messtechnik GmbH confirm the successful examination of the device with the attaching of the CE sign.

The metering unit fulfill the requirements of the standards EN 1127-1, EN 13463-1, EN 50014:1997 „Generally Terms“ and EN 50020/1994 „Intrinsic Safety i“ according ATEX100a

## EX-Protection

- Pulse pick-up AG55: TÜV 01 ATEX1718 II2GExibIICT6  
Resistance-thermometer Pt100: According VDE 0165/ paragraph 6.1.3.1.3 there is no need to make a type approval.  
The temperature sensor is a passive electronic component.

The operator or installer have to pay attention of the general legal rules and regulations, when he install or connect a device in the explosion-hazardous area.



Metering unit TOKA 1200 in a safety cabinet at the public utility company Wuppertal (Germany) installed by the company Schultes GmbH (Düsseldorf, Germany)

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