Product Overview for Marine Applications
HERMetic portable level gauging and sampling equipment for marine applications

- CLOSED ELECTRONIC GAUGE
- RESTRICTED ELECTRONIC GAUGE
- SAMPLING EQUIPMENT
- ACCESSORIES
  - DIP
  - OXY
  - PRESS
- VAPOUR LOCK VALVES
- PORTABLE DIGITAL THERMOMETER
- SERVICE STATION NETWORK
Honeywell Tanksystem is the world’s leading supplier of portable level gauging and sampling equipment for marine applications as well as for the oil and petrochemical industry.

Honeywell Tanksystem has supplied equipment for more than 7,500 tankers, barges and tank farms. With headquarters in Switzerland since 1985, Honeywell Tanksystem has a network of over 40 agents and 18 service stations worldwide.

Our goal is to build up a long-term relationship with our customers and to put their needs in the centre of all our activities.

All our equipment is intrinsically safe and manufactured for use in classified hazardous environments (Zone 0) onboard vessels.

As an ISO 9001 certified company, we are dedicated to fulfilling the needs of customers who operate in classified areas according to high standards regarding safety, reliability and accuracy.

We help you to protect the operator and the environment.

Our main product lines are:

- HERMetic portable level gauging equipment, an important tool for inventory control, cargo inspection during custody transfer and verification or calibration of automatic gauging systems.

- HERMetic portable sampling equipment, an important tool designed to sample liquids from tanks under closed or restricted conditions.

- HERMetic Onecal intrinsically safe portable digital thermometer for use in hazardous environments.
Measurement accuracy is essential for the sale, purchase and handling of petroleum products. It reduces the likelihood of disputes between buyer and seller and facilitates control of losses. Accurate measurement demands the use of standard equipment and procedures.

Although automatic level gauging systems are in widespread use in the petroleum industry for the measurement of petroleum liquids in storage tanks, manual tank gauging is still widely applied as the normal technique for level measurement in non-pressurized and vapour tight tanks. It is highly accurate provided the correct procedures are carefully observed.

Manual tank gauging is the method that shall be applied for the calibration (setting) and periodic verification of automatic level gauging (ALG) systems. It is also normally selected as the reference method for the measurement of the level of liquid in a tank, should a dispute arise between the parties in a commercial transaction.

**PORTABLE ELECTRONIC GAUGING DEVICES (PEGDs)**

Portable electronic gauging devices are multi-functional in that they may measure other functions such as the level of any oil/water interface, temperature, in addition to measuring ullage.

Portable electronic gauging devices are available for either open, restricted, or closed gauging applications. Closed and restricted gauging operations will generally require the portable electronic gauging device to be used in conjunction with a compatible vapour lock valve. Alternatively, a suitable adapter will be required when it is necessary to use a PEGD (that is designed to be used with one particular type of valve fitting) with a different vapour lock valve fitting.

Representative measurements of the temperature of the tank contents are also required to convert the observed volume to a standard volume measurement. When the tank contains free water in addition to the petroleum liquid, it will generally be necessary to measure the level of the oil/water interface. If the oil also contains suspended water and/or sediment, representative samples and analysis will normally be required to enable the calculation of the net standard volume of the oil.

**OPEN, CLOSED AND RESTRICTED GAUGING**

Safety and environmental regulations may restrict tank gauging operations which can result in the release of hydrocarbons or other volatile organic compounds (VOCs) into the atmosphere. In these circumstances, it will not normally be feasible to use traditional open gauging procedures via an open gauge hatch or gauging access point.

When the tank ullage space is pressurised, and/or the tank forms part of a vapour balancing/recovery system, it will normally be necessary to use closed or restricted gauging procedures to avoid de-pressurising the tank and minimise the consequent loss of VOCs. If the vapour from the tank contents is hazardous, it will also normally be necessary to use closed or restricted gauging procedures to minimise the risk of environmental impact.

**IMO REQUIREMENTS**

Annex I of MARPOL 73/78 Chapter II, Reg. 15(3)(b)

The International Convention for the Prevention of Pollution from Ships, 1973 specifies that oil tankers shall be provided with effective oil/water interface detectors approved by the Administration for a rapid and accurate determination of the oil/water interface in slop tanks and shall be available for use in other tanks where the separation of oil and water is affected and from which it is intended to discharge effluent direct to the sea.
HERMetic portable tank measuring system for marine applications

RESTRICTED OPERATIONS

- UTImeter Rtex
- Sampler A-2
- Sampler A-4
- UTImeter Gtex

CLOSED / GAS TIGHT OPERATIONS

- Sampler GT-1
- Sampler GT or GT Chem
- UTImeter GTex
- Sampler GT
- Sampler GT Chem
- Sampler GT-4

C2-SS-... with flange

C1-SS-W

Deck valve A-4 SS

Deck valve A-4-2 SS

C2-SS-...

Female

Ullage

Vapour

Temperature

Liquid

Oil/water interface

Water

Sludge/Sediments
**COMPLIANCE RULES**

<table>
<thead>
<tr>
<th>Equipment type</th>
<th>Function</th>
<th>Complies with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed type portable oil/water interface detector (UTI)</td>
<td>Ullage level &lt;br&gt;Temperature gauging &lt;br&gt;Oil - water interface level</td>
<td>SOLAS 1974, REGULATION 60 PARAGRAPH 7 &lt;br&gt;IMO MARPOL 73/78 ANNEX I-CHAP II - REGULATION 15,(3)(b) &lt;br&gt;IMO RESOLUTION MEPC.5 (XIII).</td>
</tr>
<tr>
<td>Cargo liquid sampling device</td>
<td>Liquid sampling</td>
<td>OCIMF, API STANDARD &lt;br&gt;RESTRICTED WITH CLOSED SAMPLING OF LIQUID SAMPLING</td>
</tr>
<tr>
<td>Inert gas sampling hose &amp; adaptor</td>
<td>Oxygen and flammable gas concentration measuring</td>
<td>IMO REQUIREMENT ON TANKER SAFETY AND POLLUTION PREVENTION, 1978-RESOLUTION A.446(XI), 6.6 (a)</td>
</tr>
<tr>
<td>Pressure gauge</td>
<td>Inert gas pressure gauging</td>
<td>IMO REQUIREMENT ON TANKER SAFETY AND POLLUTION PREVENTION, 1978-RESOLUTION A.446(XI), 6.6 (b)</td>
</tr>
<tr>
<td>Tank bottom liquid and sediments checking device</td>
<td>Tank bottom dryness &amp; sediment checking</td>
<td>IMO REQUIREMENT ON TANKER SAFETY AND POLLUTION PREVENTION, 1978-RESOLUTION A.446(XI), 4.4.4</td>
</tr>
<tr>
<td>Shut on/off valve</td>
<td>Vapour lock installation of portable tank measuring system</td>
<td>IMO MARPOL 1973/78 ANNEX I, REGULATION 13b (3) &lt;br&gt;SOLAS 1974, CHAPTER II-2, REGULATION 60 PARAGRAPH 7 (REQUIREMENT OF CLOSED ULLAGE SYSTEM) &lt;br&gt;IMO MARPOL 73/78 ANNEX I - CHAP II - REGULATION 15,(3)(b) &lt;br&gt;SOLAS 1974, CHAP II-2, REGULATION 62, PARAGRAPH 17</td>
</tr>
</tbody>
</table>

**TYPICAL ARRANGEMENT OF VALVES**

**VLCC, crude oil or oil/chemical tanker**

- 1 Inch ball valves for dipping
- 2 Inch ball valves for gauging and sampling access

**Product or chemical tanker**

- 2 Inch ball valves for gauging and sampling access
The HERMetic UTImeter Gtex is a portable gas tight liquid level gauge designed for closed gauging of hydrocarbons and chemicals. The unit is used for custody transfer, inventory control measurement and free water detection on marine vessels and shore tanks. Connected to a HERMetic vapour control valve fixed on the tank, the HERMetic UTImeter Gtex avoids any gas release during operation.

The unit enables 3, optionally 4 measurements in one single operation:

• Ullage
• Temperature
• Oil-Water interface level
• Innage, Reference height (Visc version)

A GAUGE IN DIFFERENT VERSIONS DEDICATED TO YOUR APPLICATION:

HERMetic UTImeter Gtex
• with 1” sensing probe, FKM gaskets for the main applications in hydrocarbons.

HERMetic UTImeter Gtex Chem
• with 1” sensing probe, FFKM gaskets and tape connector for use in corrosive liquids.

HERMetic UTImeter Gtex Visc and HERMetic UTImeter Gtex Chem Visc
• with 2 Inch load on the sensing probe, recommended for operation in high viscous products or for innage measurements in hydrocarbons or in corrosive liquids.
• Manual detection of tank bottom.

"A closed system exists when a marine tank vessel does not permit the direct exposure and/or release of the tank content into the atmosphere under normal operating conditions." (API MPMS 17.2 A.4.1.)
ULTRA SENSING PROBE

Benefits:
- 100% repeatability of measures.
- Continuous temperature reading.
- High accuracy and stability.
- Chemically resistant to corrosive liquids (Chem version).
- Easy access for battery exchange.
- **Sensor exchange without need of new calibration.**
- Low weight for easy operation and carry around.
- No temperature drift. No degradation of the sensitivity due to sensor ageing.
- Interchangeable adapters for connection to different vapour control valves.
- Tape cleaning devices, window wiper and tape protection on all units as standard.

Low maintenance cost:

Storage tube SS1-Q2  
Storage tube SS1-Q1  
Storage tube SS2-Q2

Interchangeable adapters for connection to different vapour control valves (page 13)

Type: C2-SS-SEC  
Type: C1-SS-W  
Visc version

Sensor fitted with additional load, recommended for operation in high viscous products or for innage measurements

Mechanical tape cleaning device as standard on all UTImeter
TECHNICAL SPECIFICATIONS:

Accuracy of ullage-interface detection: ± 2 mm (± 0.08" approx.)
Ullage, interface indication: Audible and Visible selectable
Maximum tank overpressure: 0.3 bar (4.4 psi)
Tape length: 15 m/50 ft, 30 m/100 ft, 35 m/115 ft
Tape graduation: Metric/English
Tape resolution: 1 mm / 1/16"
Tape accuracy: ± 1.5 mm/30 m (±1/16"/100 ft approx.)
Meets API MPMS Chap 3.1A and ISO 4512 requirements

Temperature accuracy: ± 0.1°C (0°C to 70°C);
± 0.2°F (32°F to 158°F)
Meets API MPMS Chap 7 request
Meets ISO 4268, IP PMM Part IV

Ambient temperature range: -20°C to 50°C / (-4°F to 122°F)
Temperature sensor measurement range: -40°C to 90°C / (-40°F to 194°F)
Temperature measurement resolution: 0.01° or 0.1° selectable
Temperature reading: °C or °F selectable
LCD Display: 8 characters with backlight
Power: Approved 9V batteries
Weight with 15 meter / 50ft tape: 4.4 kg / 9.7 Lbs.

Hazardous environments approvals
ATEX
Factory Mutual
IECEx

I 1 G Ex ia IIB T4 / Tamb 50°C
CL I, DIV 1, C&D, T4 Tamb 50°C and
CL I, ZN 0, AEx ia IIB T4 Tamb 50°C
Zone 0, Ex ia IIB T4

Window wiper as standard on all UTImeter Gtex
Easy access to the tape allows fast cleaning. No screws, only five easy to open lid fastener
Tape cleaning device as standard on all UTImeter
Level reading on graduated tape through window
Tape protection tube
Tape cleaning device
Tape length
LCD display with backlight
Buzzer on/off button
Tape cleaning device as standard on all UTImeter
Level reading on graduated tape through window
Benefits
• 100% repeatability.
• No adjustment of the sensitivity required.
• Small diameter for use on 1” HERMetic valves.
• Chemically resistant to corrosive liquids (Chem version).
• High mechanical stability.
• No degradation of the sensitivity due to ageing of the sensor.

All HERMetic UTImeters are now equipped with the sensor “ULTRA” for use in low and high viscous liquids. The ULTRA sensing probe consists of a stainless steel tube terminated by a PEEK head. The sensing probe includes an ultrasonic liquid level sensor, a temperature sensor and a conductivity electrode. The sensitivity for ullage and interface measurement does not require any adjustment. The sensor is calibrated once at the factory and does not require subsequent calibration. The temperature transducer is a RTD element. The characteristics of the RTD element are stored inside the sensor. The sensor is sending true temperature values to the electronic box and display.

All HERMetic portable level gauges and 2 Inch samplers are delivered with a tailor made plywood carrying case as a standard. This special box avoids any damage during transport and storage.

Special tape protection to protect the tape from inadvertent cuts by closing the valve while the sensor is inside the tank. This mechanical safety device prevents damages on tape and reduces repair costs.
HERMetic UTImeter Rtex

The HERMetic UTImeter Rtex is a portable liquid level gauge designed for restricted gauging of petroleum products. The unit is used for custody transfer, inventory control measurement and free water detection on marine vessels and shore tanks. The HERMetic UTImeter Rtex has to be connected to a HERMetic vapour control valve fixed on the tank.

The unit enables 3, optionally 4 measurements in one single operation:

- Ullage
- Temperature
- Oil-Water interface level
- Innage, Reference height (Visc version)

A GAUGE DEDICATED TO YOUR APPLICATION:

HERMetic UTImeter Rtex
- with 1” sensing probe, FKM gaskets for the main applications in hydrocarbons.

HERMetic UTImeter Rtex Visc
- with 2 Inch load on the sensing probe, recommended for operation in high viscous products or for innage measurements in hydrocarbons.
- Manual detection of tank bottom.
All HERMetic UTImeters are now equipped with the sensor “ULTRA” for use in low and high viscous liquids. The ULTRA sensing probe consists of a stainless steel tube terminated by a PEEK head. The sensing probe includes an ultrasonic liquid level sensor, a temperature sensor and a conductivity electrode. The sensitivity for ullage and interface measurement does not require any adjustment. The sensor is calibrated once at the factory and does not require subsequent calibration. The temperature transducer is a RTD element. The characteristics of the RTD element are stored inside the sensor. The sensor is sending true temperature values to the electronic box and display.

### TECHNICAL SPECIFICATIONS:

**Accuracy of ullage-interface detection:** ± 2 mm (± 0.08” approx.)

**Ullage, interface indication:** Audible and Visible selectable

**Tape length:**
- 15 m/50 ft
- 30 m/100 ft
- 35 m/115 ft

**Tape graduation:** Metric/English

**Tape resolution:** 1 mm / 1/16”

**Tape accuracy:** ± 1.5 mm/30 m (±1/16”/100 ft approx.)

**Meets API MPMS Chap 3.1A and ISO 4512 requirements**

**Temperature accuracy:** ± 0.1°C (0°C to 70°C);
± 0.2°F (32°F to 158°F)

**Meets API MPMS Chap 7 request**

**Meets ISO 4268, IP PMM Part IV**

**Ambient temperature range:**
-20°C to 50°C / (-4°F to 122°F)

**Temperature sensor measurement range:**
-40°C to 90°C / (-40°F to 194°F)

**Temperature measurement resolution:**
0.01° or 0.1° selectable

**Temperature reading:** °C or °F selectable

**LCD Display:**
- 8 characters with backlight
- Approved 9V batteries

**Power:** 3.7 kg / 8.1 Lbs.

**Weight with 15 meter / 50ft tape:**

**Hazardous environments approvals**

- **ATEX** II 1 G Ex ia IIB T4 / Tamb 50°C
- **Factory Mutual** CL I, DIV 1, C&D, T4 Tamb 50°C and
  CL I, ZN 0, AEx ia IIB T4 Tamb 50°C
- **IECEX** Zone 0, Ex ia IIB T4
The HERMetic Sampler GTX Chem and HERMetic Sampler GTN Chem are designed for closed sampling of liquids or chemicals, which present a fire, health or air pollution hazard. The gas tight construction of these units avoids a pressure release from the tank and exposure to fumes during operation.

For the HERMetic Sampler GTX Chem the transfer of the liquid from the sampling bottle to a laboratory bottle occurs by overpressuring the upper chamber of the sampler with a pump.

- After sampling, the liquid can be transferred into a laboratory bottle by opening the transfer valve and actuating the pressure pump.
- The graduated tape permits checking of sampling bottle height.
- The HERMetic Sampler GTX Chem is very easy to clean and fully compatible with all kind of non corrosive and corrosive liquids.

For the HERMetic Sampler GTN Chem, the sample can be transferred under closed condition. This transfer guarantees the integrity of the sample, since the liquid is never in contact with the atmosphere. A closed vapour recovery system dispatches the vapours back into the tank during transfer of the liquid into the laboratory bottle.

- The HERMetic Sampler GTN Chem can be purged with inert gas before and/or after sampling.
- The sampled liquid is never in contact with the atmosphere.
- The sampling height can be measured on the graduated tape.

**ISO**
- 3170

**API**
- MPMS Chap 8.1
- MPMS Chap 17.11

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>HERMetic GTX Chem</th>
<th>HERMetic GTN Chem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum tank overpressure :</td>
<td>0,3 bar</td>
</tr>
<tr>
<td>Unit height:</td>
<td>800 mm</td>
</tr>
<tr>
<td>Weight :</td>
<td>5.3 kg</td>
</tr>
<tr>
<td>Tape length :</td>
<td>30m / 100 ft</td>
</tr>
<tr>
<td>Capacity of sampling bottle :</td>
<td>Approx. 0.5 l</td>
</tr>
<tr>
<td>Capacity of laboratory bottle :</td>
<td></td>
</tr>
<tr>
<td>Type of gaskets:</td>
<td>FFKM</td>
</tr>
<tr>
<td>Materials:</td>
<td>Stainless steel AISI 316, PTFE, PVDF</td>
</tr>
<tr>
<td>Hazardous environments approvals</td>
<td>II 1 G c IIB T6</td>
</tr>
</tbody>
</table>

ATEX
HERMetic Large Volume Samplers with 4 Inch Valves

The HERMetic Sampler A-4 is designed for restricted sampling and the HERMetic Sampler GT4 for closed, gas tight sampling of liquids which present a fire, health or air pollution hazard.

The sampler housing is mounted on top of the HERMetic 4 Inch deck valve. The sample is taken by a vertical move of the bottle inside the liquid. The bottle is linked with a graduated tape. A reading window allows monitoring the bottle location. The opening of the bottle valve is realized by lowering the sampling bottle until it is sitting on the ball of the valve. The transfer of the liquid from the sampling bottle to a laboratory bottle occurs by opening the transfer valve at the bottom of the sampler. A pump can be connected to the winder to accelerate and complete the transfer of the sample. Choose the type of sampling bottle fitting your needs. See page 17.

The HERMetic Sampler A-4 is dedicated for applications where restricted sampling is accepted and more than 0.5 litre of liquid is needed.

The HERMetic Sampler GT4 is dedicated for closed sampling of liquids and where more than 0.5 litre of liquid is needed. Its gas tight construction avoids a pressure release from the tank and exposure to fumes during operation.

* Stainless steel construction on request

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th></th>
<th>HERMetic Sampler A-4</th>
<th>HERMetic Sampler GT4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum tank overpressure</td>
<td>0.3 bar</td>
<td>0.3 bar</td>
</tr>
<tr>
<td>Unit height:</td>
<td>770 mm</td>
<td>770 mm</td>
</tr>
<tr>
<td>Weight:</td>
<td>7.4 kg</td>
<td>8.1 kg</td>
</tr>
<tr>
<td>Tape length:</td>
<td>30 m / 100 ft</td>
<td>30 m / 100 ft</td>
</tr>
<tr>
<td>On request:</td>
<td>40 m tape length</td>
<td>50 m tape length</td>
</tr>
<tr>
<td>Capacity of sampling bottle</td>
<td>Approx. 1.8 l.</td>
<td>Approx. 1.8 l.</td>
</tr>
<tr>
<td>Materials:</td>
<td>AISI 316, Rilsan coated Aluminium</td>
<td></td>
</tr>
<tr>
<td>Hazardous environments approvals</td>
<td>II 1 G c IIB T6</td>
<td>II 1 G c IIB T6</td>
</tr>
</tbody>
</table>
Other HERMetic Samplers

The **HERMetic Sampler A-2** is dedicated to applications where restricted sampling is accepted. The sampler A-2 is for connection on 2” HERMetic vapour control valves. The liquid transfer from the sampling bottle to the laboratory bottle occurs under open conditions after closing the vapour control valve.

The **HERMetic Sampler GT1** is fitted with a gas tight housing designed for closed sampling of liquids, which present a fire, health or air pollution hazard. It protects the storage facility from vapour emission and avoids a pressure release in the tank during sampling. The sampling height can be measured on the graduated tape.

**HERMetic Sampler GT1**
- Easy installation on 1 Inch HERMetic vapour control valves with a quick connect coupling.
- The sampling bottle can be easily removed.

**HERMetic Compact valve C1-SS-W**

**HERMetic Compact valve C2-SS-BL**

<table>
<thead>
<tr>
<th>TECHNICAL SPECIFICATIONS:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sampler GT1</strong></td>
</tr>
<tr>
<td>Unit height:</td>
</tr>
<tr>
<td>1260 mm</td>
</tr>
<tr>
<td>Weight:</td>
</tr>
<tr>
<td>4.2 kg</td>
</tr>
<tr>
<td>Tape length:</td>
</tr>
<tr>
<td>30 m, 100 ft</td>
</tr>
<tr>
<td>Capacity of zone sampling bottles:</td>
</tr>
<tr>
<td>Type of gaskets:</td>
</tr>
<tr>
<td>FKM</td>
</tr>
<tr>
<td>Materials:</td>
</tr>
</tbody>
</table>
**Sampling bottles**

All HERMetic samplers are delivered with a zone sampling bottle. Additional spot, bottom or running sampling bottles are available for 2 Inch and 4 Inch type of HERMetic samplers.

**Special adapters**

Storage tubes and adapters for HERMetic equipment (gauges and samplers) designed for connection on existing non-Tanksystem valves on board. Honeywell Marine can deliver most of its gauges and samplers with the suitable adaptor to fit on already installed valves.

- **TS 55000**
  Used to connect all HERMetic units with 1 Inch quick connect coupling to valves with UNF 2 1/2 Inch connection.

- **TS 55115**
  Used to connect all HERMetic units with 2 Inch quick connector to valves with UNF 2 1/2 Inch connection.

A grounding cable has to be installed if HERMetic gauges are used with competitor valves.

*Other special adapters on request*
**Accessories**

**HERMetic DIP 2**
A 500 mm long graduated DIP rod, designed for easy penetration of sediments on tank bottom, is attached to a 30 metres long stainless steel tape, which is coiled on a reel graduated in combined metric and English unit. The storage tube is fitted with a quick connect coupling for fast and easy installation on all 1 Inch quick connect nipples. Weight: 3,3 kg

**HERMetic DIP 2 Gas tight**
The HERMetic DIP 2 is also available in closed, gas tight version. The gas tight construction of this unit avoids a pressure release from the tank and exposure to toxic fumes during operation.

**HERMetic OXY**
As per IMO requirement on Tanker Safety and Pollution Prevention, oxygen level shall be determined before start of crude oil washing. The HERMetic OXY samples inert gas (or any other gas) over full tank height without escape of gas to the atmosphere. Hollow brass plug fitted to the rubber hose of up to 30 meters length. Valve provided on hose before gas analyser (analyzer not supplied) for air purging of hose. HERMetic OXY adapts to all 1 Inch quick connect nipples. Weight: 3,8 kg

IMO requirements on Tanker Safety and Pollution Prevention, 1978 - resolution 15
Annex 6.6: Before each tank is crude oil washed, the oxygen level shall be determined at a point 1 meter from the deck and at the middle region of the ullage space and neither of these determinations shall exceed 8 percent by volume.

**HERMetic PRESS**
Tanker operation requires verification of tank pressure without potential for error due to signal conversion or remote transmission. This rugged high precision gauge provides reliable reading within the range of 1500 mm vacuum and 2500 mm pressure. Gauge is protected by thick rubber rim and mounted on top of vapour tight adaptor for closed tank operation. Quick connect coupling lower end for use with all 1 Inch quick connect nipples. Weight: 1,5 kg

The IMO requirements on Tanker Safety and Pollution Prevention, 1978 - resolution A.446(XI), § 4.4.4: Means such as level gauges, hand dipping, and stripping system performance gauges as referred to in paragraph 4.4.8 shall be provided for checking that the bottoms of cargo tanks are dry after the crude oil washing. Suitable arrangements for hand dipping must be provided at the aftermost portion of a cargo tank and in three other suitable locations.
Vapour lock valves

HERMetic Compact Valves for connection of portable HERMetic equipment, specially approved & certified for marine application.

The HERMetic Compact valves are specially designed to fit all portable HERMetic equipment with a HERMetic quick connector and represent the base for the zero-ullage reference when installed at the appropriate height. They ensure a safe and reliable operation of all portable HERMetic units certified for use in classified areas. The valves are available in three different sizes: 1 Inch, 2 Inch and 4 Inch. HERMetic valves are approved by all major classification societies.

HERMetic Compact valves C1-SS-W
1 Inch full bore ball valve with 1 Inch male BSP pipe thread designed to support all portable HERMetic equipment with HERMetic 1 Inch quick connector.

HERMetic Compact valves C1-SS-P
1 Inch valve fitted with a special pressure cap cover. This cover is specially designed for use with hazardous chemicals and protect against inadvertent opening.

HERMetic Compact valves C2-SS-BL
2 Inch full bore ball valve made of corrosion resistant stainless steel with high Molybdenum content. The top part is designed to support HERMetic equipment with 2 Inch quick connector.
*Option: Special handle for pad lock.

Weight: 4.8 kg

All HERMetic 2 Inch ball valve are available with 2 Inch female thread or with DUJ multistandard flange.

DUJ multistandard flange fits following standards:
- DIN PN 10 DN 50
- DIN PN 16 DN 50
- DIN PN 25 DN 50
- DIN PN 40 DN 50
- JIS 5K 50
- JIS 10K 50
- ANSI 150 lbs 2 Inch

Materials:
- Stainless steel AISI 316 with minimal Mo content 2.7%, PTFE seats
**Vapour lock valves**

**HERMetic Compact valves C2-SS-W**
Same valve as HERMetic Compact valve C2-SS-BL except the cover, which is fitted with a 1 Inch quick-connect nipple identical to the one supplied on the smaller C1-SS-W Compact valve. This nipple matches with all HERMetic units and accessories with 1 Inch connection. The complete cover can be removed for connection of equipment with 2 Inch connector.
*Option: Special handle for pad lock.

Weight: 5.1 kg
Materials: Stainless steel AISI 316, PTFE seats

**HERMetic Compact valves C2-SS-SEC**
Same valve as HERMetic Compact valve C2-SS-BL except a doubly locked security cover which prevents any water ingress and protects against inadvertent opening. The cover is secured to the valve with a stainless steel cable. Specially designed for hazardous chemicals.
*Option: Special handle for pad lock.

Weight: 5.4 kg
Materials: Stainless steel AISI 316, PTFE seats
HERMetic Deck Valve A-4 SS
Specially designed heavy-duty compact ball valve totally made of stainless steel 316 and with Teflon gaskets. The deck flange is according to ANSI 150 lbs. standard. This 4 Inch deck valve is provided with a swing away cover fitted with a 1 Inch quick-connect male coupling. This coupling takes all HERMetic equipment fitted with a 1 Inch female quick connector. For sampling, open the cover and install the HERMetic Sampler A-4 or Sampler GT4 on top of the valve. Three wing nuts are used to secure the cover or alternatively the sampler chamber.

Weight: 24 kg
Materials: Stainless steel AISI 316, PTFE seats

HERMetic Deck Valve A-4-2-1 SS
This valve has been specifically designed so that all the HERMetic equipment, with either 1", 2", or 4" connections, will be compatible. Organisations such as the American Petroleum Institute and the Energy Institute, recommend the size of the vapour valve to be 4" (100mm). The 4" valve will allow access to a larger number of gauging and sampling equipment than ever before, depending on the product and sample type required. Vapour valves smaller than 100mm in diameter are suitable for gauging but can severely limit the type of sampling equipment that can be used and, ultimately, the quality of the sample. The size and location of the vapour valve for closed system measurement and sampling is critical to the process. A valve of the proper size, located correctly, will allow more accurate measurements to be taken than one that is improperly located and of insufficient size. The new multi-purpose valve gives the flexibility to gauge products from crude to chemicals. Most importantly, it will allow the use of sampling equipment with the capabilities of retrieving sample quantities from 0.33 litres to 1.8 litres in one single operation.

Weight: 25 kg
Materials: Stainless steel AISI 316, PTFE seats
HERMetic Onecal: Intrinsically safe portable digital thermometer

The HERMetic Onecal has been designed for use in hazardous environments with outstanding characteristics regarding safety, ease of operation, accuracy, reliability and cost efficient maintenance. Onecal stands for one reference point only for calibration. The reference point is the ice point which can easily be reproduced. The calibration is done by simply pushing a button. The characteristics of the RTD sensor are stored in the memory of the instrument and are the same for any individual sensor. Therefore a change of a sensor requires only an offset calibration. Replacing the cable only does not require a new calibration because of the built-in automatic cable compensation routine. Up to 9 individual values can be stored in the memory. An automatic average of the stored values can be achieved by entering the calculation menu. The ergonomic and rugged design of the housing allows for an easy and safe cable storage. The cable guides keeps the cable secured at all times. By counting the number of cable loops the fed cable length can be determined.

- 1 cable loop = 2 feet, 3 cable loops = 2 metres.

**Application**

Temperature measurement represents an important part in tank gauging since the density of petroleum products changes approximately by 0.1 % per degree Celsius. An error in the observed temperature will result in an error of the correction factor, which is used to calculate the standard volume. This electronic thermometer has been designed for field inspection of custody transfer of bulk liquids and meets all relevant standards in the industry.

**Ambient temperature drift**

**SCS Surroundings Compensation System**

In most cases, a PET will be checked or calibrated at room temperature ambient conditions, i.e. around +20°C/+68°F, although they can work in a wide range of operational ambient temperatures. From areas such as Alaska to equatorial climates, these conditions can vary over a range of around +100°C/+180°F. This difference can result in another form of drift error. The new concept named “SCS Surroundings Compensation System”(Registered) of the Onecal incorporates an internal reference that is constant and does not depend on the ambient temperature over a wide operational range, i.e. from -20°C / -4°F to +60°C / +96°F. This means, the accuracy of the measurements made with the Onecal is unaffected by the ambient temperature, and this error is avoided.

**Re-calibration when exchanging the PET cable**

**CRC Cable Resistance Compensation**

A traditional PET needs to be re-calibrated each time the cable is renewed, as the intrinsic resistance of the cable is incorporated in the temperature measurement sequence and any change in its value can affect the accuracy of reading, unless the unit is properly re-calibrated. The new concept named “CRC Cable Resistance Compensation”(Registered) of the Onecal measures the actual resistance of the cable every time the PET is used, and compensates for any change to eliminate this source of error. Changing the cable, whatever length it has, will not affect the accuracy of the thermometer and therefore does not require a re-calibration in a laboratory.

* Option Fully-cushioned carrying box
  This special box protects against any damage during storage and daily use.

* Option Load 300 gr.
**Response time**

This thermometer has a response time (time to achieve 90% of the final temperature) of 15 seconds in water and 35 seconds in lubrication oil under dynamic conditions.

**Maintenance**

This instrument has been designed for users which require a high precision thermometer that is always ready to operate. Users can change the cable, the sensor or the display unit, and recalibrate it without the need of special tools or training. The unit cannot be calibrated incorrectly.

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### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement range</td>
<td>-40°C to 163°C / -40°F to 325°F</td>
</tr>
<tr>
<td>Sensor temperature range</td>
<td>-40°C to 200°C / -40°F to 392°F</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>-20°C to 40°C / -4°F to 104°F</td>
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<tr>
<td>Resolution</td>
<td>0.1° or 0.01° selectable</td>
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<tr>
<td>Temperature scale</td>
<td>°C or °F selectable</td>
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<tr>
<td>Temperature accuracy</td>
<td>± 0.25°C / ± 0.4°F</td>
</tr>
<tr>
<td>Sensor temperature range</td>
<td>± 0.1 °C / ± 0.2°F</td>
</tr>
<tr>
<td>Temperature scale</td>
<td>± 0.25°C / ± 0.4°F</td>
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<tr>
<td>Repeatability</td>
<td>exceeds API MPMS Chapter 7</td>
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<tr>
<td>Calibration</td>
<td>Digital, one point only 0°C / 32°F</td>
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<tr>
<td>Memory</td>
<td>up to 9 individuals</td>
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<tr>
<td>Display</td>
<td>LCD 8 digits, 10 mm character height</td>
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<tr>
<td>Power</td>
<td>Approved 9 Volt battery</td>
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<tr>
<td>Battery saving</td>
<td>aut. shut off /10 minutes after last action</td>
</tr>
<tr>
<td>Battery life</td>
<td>Approximately 100 hours</td>
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<tr>
<td>Low battery indication</td>
<td>On LCD display</td>
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<tr>
<td>Overall dim. length x width x depth</td>
<td>336 x 202 x 94 mm/13.2” x 8” x 3.7”</td>
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<tr>
<td>Weight with 22.8 m / 75 ft cable</td>
<td>&lt; 1.4 kg / &lt; 3 lbs</td>
</tr>
<tr>
<td>Probe size</td>
<td>diam. 16 mm , 150 mm long / diam.5/8”, 6” long</td>
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<tr>
<td>Probe material</td>
<td>Stainless steel 1.4435</td>
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<tr>
<td>Cable length</td>
<td>7.6 m/25 ft, 15.2 m/50 ft, 22.8 m/75 ft, 33.5 m/110 ft</td>
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<tr>
<td>Cable material</td>
<td>FEP Teflon jacket</td>
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<td>Instrument protection</td>
<td>IP 54</td>
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<td>Frame material</td>
<td>Antistatic Polyamide base</td>
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<tr>
<td>Electronic box material</td>
<td>Coated aluminium</td>
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<td>Temperature sensor</td>
<td>PT 1000 element</td>
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<tr>
<td>Hazardous environment Approvals:</td>
<td>ATEX II 1 G Ex ia IIB T4 Ga</td>
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<td>Factory Mutual</td>
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<td>China:</td>
<td>NEPSI ExiaIIbT4</td>
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<td>Metrology approval:</td>
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<td>Pattern approval</td>
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<td>China:</td>
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<td>EMC</td>
<td>EC directive 94/9/EC</td>
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</table>
Worldwide customer support

Honeywell Tanksystem has service stations placed strategically around the globe to provide the broadest possible service network. Our broad network will save you transport costs and time.

Please contact us for more information or feel free to visit our website at: www.tanksystem.com for the exact locations and addresses of our different service centres.

Honeywell Tanksystem has the most complete global network of agents in our industry. This allows us to be as close as possible to our customers and fulfil their needs and demands. With over 40 agents, we can quickly address all your gauging and sampling requirements.

The information contained in this document is subject to changes without notice.