Honeywell

Operation and Service Manual for HERMetic UTImeter Gtex

for use in non corrosive liquids

Portable Gas Tight Electronic Gauging Device
Ullage - Temperature - Interface detector

MED-D
DNV
Certified
Company

ISO 9001
CERTIFICATION
Intertek

Note 1: to identify the unit refer to section 2
Note 2: before using the instrument please read this book.
Note 3: this document is subject to changes without notice.
Check updates on www.tanksystem.com or contact us at tanksystem@honeywell.com

1. Table of contents

2. Identification of your equipment

2.1 Serial number

Each HERMetic instrument is individually identified with a 6 digits serial number starting with the letter G, example G10058. This serial number is printed on the identification plate that is located on top of the handle. See Figure 2-1.

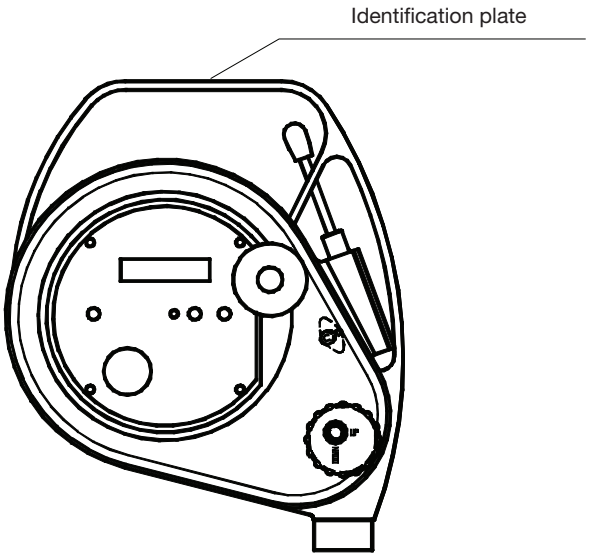


Figure 2-1

2.2 Abbreviations

Some abbreviations are used to define the equipment. Refer to following table and to Figure 2-2.

Abbreviation	Meaning
ETCE	Special PTFE used for extruding
FFKM	Perfluoro rubber, special for chemical applications
FKM (Viton®)	Fluoro rubber for crude oil and some products applications
Gtex	Gas tight mechanical housing for non corrosive liquids, i.e. with FKM gaskets and PA 11 coating (blue)
Gtex Chem	Gas tight mechanical housing for corrosive liquids, i.e. with FFKM gaskets and PA 11 coating (blue)
NBR	Acrylonitrile-butadiene rubber (nitrile rubber)
PA 11 (Rilsan®)	Polyamid coating (blue, black, grey or yellow) used for protecting aluminium against liquids
PE	Polyethylene
PEHD	Polyethylene High Density
PFA	Perfluoro alkoxyl alkane
PTFE	Polytetrafluoroethylene
Q1	Connector 1”
Q2	Connector 2”
SS1	Stainless steel Storage tube 1”
SS2	Stainless steel Storage tube 2”
TEFZEL®	ETFE coating of the tape
ULTRA	Ultrasonic sensing probe, second generation, covering a wide range of liquids from crude oil to light products, chemicals and heavy/viscous liquids
UTI	Stands for: U (ullage), T (temperature), I (oil/water interface)
Visc	Additional load on the sensing probe for innage measurement or gauging viscous liquids

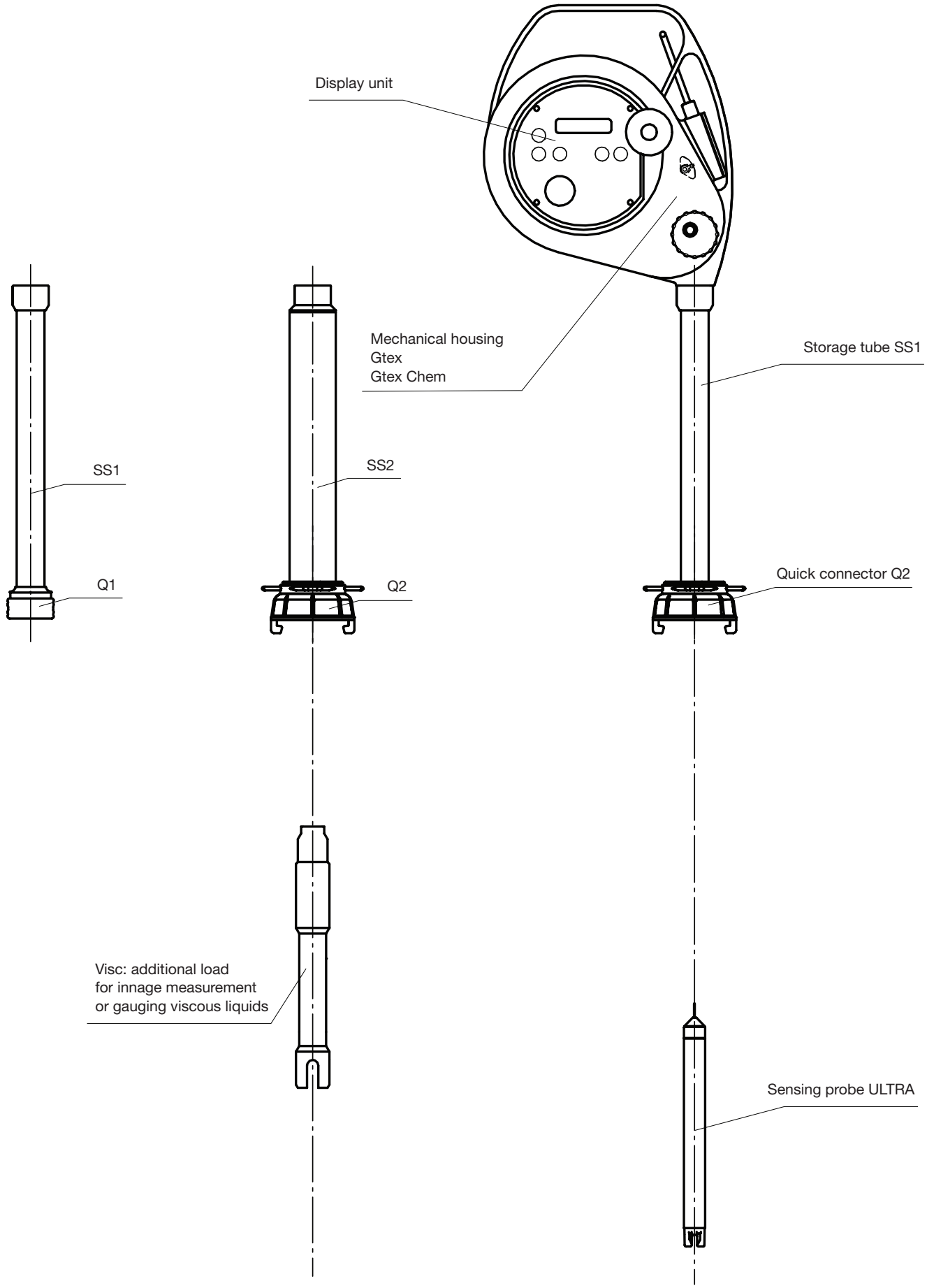

Display unit
Mechanical housing
Gtex
Gtex Chem
Storage tube SS1
SS1
SS2
Q1
Q2
Quick connector Q2
Visc: additional load
for innage measurement
or gauging viscous liquids
Sensing probe ULTRA

Figure 2-2

3. General information

3.1 Shipment note

The following parts should be included in the shipment:

- 1 instrument fitted out with one battery in the display;
- 1 set of 1 insertion tool for connector on Ultra Sensor and 4 Allen keys: 1.5, 2, 2.5 and 3 mm;
- 1 Operation and Service Manual.

3.2 Initial inspection

Check the contents of the shipment for completeness and note whether any damage has occurred during transport. Carry out the “Initial test before installing the instrument” to verify the good functioning. If the contents are incomplete, or if there is a damage, do not use the device, a claim should be filled with the carrier immediately, and Enraf Tanksystem SA Sales or Service organization should be notified in order to facilitate the repair or replacement of the instrument.

3.3 Documentation discrepancies

The design of the instrument is subject to continuous development and improvement. Consequently, the instrument may incorporate minor changes in detail from the information contained in the manual.

3.4 Warranty

Thirty six (36) months after delivery ex works except batteries.

The Vendor undertakes to remedy any defect resulting from faulty design materials or workmanship. The Vendor’s obligation is limited to the repair or replacement of such defective parts by his own plant or one of his authorized service stations. The Purchaser shall bear the cost and risk of transportation of defective parts and repaired parts supplied in replacement of such defective parts.

When returned to Enraf Tanksystem SA or any of its agreed Service Stations equipment must be contamination-free. If it is determined that the Purchasers equipment is contaminated, it will be returned to the Purchaser at the Purchasers expense. Contaminated equipment will not be repaired, replaced, or covered under any warranty until such time that the said equipment is decontaminated by the Purchaser.

The Purchaser shall notify by fax, telex or in writing of any defect immediately upon discovery, specifying the nature of the defect and/or the extend of the damage caused thereby.

Where no other conditions have been negotiated between the Vendor and the Purchaser “General Conditions 188” of United Nations shall apply.

This instrument has been certified as Intrinsically Safe Instrumentation for only those classes or categories of hazardous areas stated on the instrument label, bearing the mark of the applicable approval authority. No other usage is authorized.

Unauthorized repair or component replacement by the Purchaser will void this guarantee and may impair the intrinsic safety of the instrument. In particular it is not allowed to repair electronic circuits.

In no event shall Enraf Tanksystem SA be liable for indirect, incidental or consequential loss or damage or failure of any kind connected with the use if its products or failure of its products to function or operate properly.

Enraf Tanksystem SA do not assume the indemnification for any accident or damage caused by the operation of its product and the warranty is limited to the replacement of parts or complete goods.

3.5 Certification

Enraf Tanksystem SA is an ISO 9001 certified company by Intertek and MED-D by Det Norske Veritas Certification GmbH.

The equipment has been approved for the electrical intrinsic safety by the following authorities :

IECEx
Ex ia IIB T4 Ga / -20°C < Ta < +50°C
/ -40°C ≤ Tp ≤ +90°C
Standards used:
IEC 60079¬0:2011,
IEC 60079¬11:2011
IEC 60079¬26:2006

ATEX
II 1 G Ex ia IIB T4 Ga / -20°C ≤ Ta ≤ +50°C
/ -40°C ≤ Tp ≤ +90°C
Standards used:
EN60079-0:2012
EN60079-11:2012
EN60079-26:2007

Regarding product compliance against standards updates or new standards, please refer to the Declaration of conformity.

FM Approvals
CL I, DIV 1, GP C&D, T4 Tamb. 50 °C and
CL I, ZN 0, AEx ia IIB T4 Tamb. 50 °C
Maximum process Temperature +90°C

The equipment has been approved as oil/water interface detector according to MARPOL Resolution MEPC.5(XIII) of 13 June 1980 by National Maritime Authorities and/or Classification Societies.

If you need a copy of any of these certificates please contact:

Enraf Tanksystem SA
Rue de l'industrie 2
1630 Bulle, SWITZERLAND

Telephone : +41-26-91 91 500
Telefax : +41-26-91 91 505
Web site : www.tanksystem.com
E-mail : tanksystem@honeywell.com

3.6 Spare parts

When ordering spares identify the spare part by TS number and description. Refer to section "Drawings".

Some spares might be repairable; in this case send the part(s) to any authorised service center or to the factory.

In case of urgency, complete replacement units can be made available. Contact the factory or nearest Service Station for details.

3.7 Service and Repair

The customer is responsible for any freight and customs clearance charges. If units are sent on a "freight collect" the charges will be invoiced to the customer.

When returning units or parts for repair to the factory please fill out a service request form (see next page). The serial number (letter "G" followed by 5 digits) is printed on the identification plate as shown on the Figure 2-1.

When returned to Enraf Tanksystem SA equipment must be contamination-free. If it is determined that the customers equipment is contaminated, it will be returned to the customer at the customers expense. Contaminated equipment will not be repaired until such time that the customer decontaminates the said equipment.

Service Request

Customer's address: .....

.....

.....

.....

.....

Telephone: .....

E-mail: .....

Fax: .....

Type of unit or part: .....

.....

Serial number: .....

Short description of trouble: .....

.....

.....

.....

Do you want a quotation before repair is started: . ..... yes / no .....

Repaired unit has to be returned to the following address:

.....

.....

.....

.....

.....

4. Worldwide Service Stations network

The updated list can be found on our website www.tanksystem.com

COUNTRY	ADDRESS	TELEPHONE/FAX/E-MAIL
SWITZERLAND	ENRAF TANKSYSTEM SA 2, rue de l'Industrie CH-1630 BULLE	Tel : +41-26-91 91 500 Fax : +41-26-91 91 505 Tanksystem@honeywell.com
BRAZIL	TRIDENTE BRASIL Rua Jeronimo de Mendonça, 186 Guaxindiba - São Gonçalo – RJ - 24722-040	Tel : +55 21 2233 1489 services@tridente.com.br
CANADA	PYLON ATLANTIC A Div. Of Pylon Electronics Inc. 31 Trider Crescent., DARTMOUTH, N.S. B3B 1V6	Tel : +1-902-4683344 Fax : +1-902-4681203 halifax_csr@pylonelectronics.com
CHINA	HUA HAI EQUIPMENT & ENGINEERING CO LTD Factory 7, Lane 1365, East Kang Qiao Road Kang Qiao Industrial Zone, Pu Dong SHANGHAI, P.C. 201315	Tel : +86-21-6863 9018 Fax : +86-21-6863 9019 huahaish@huahaiee.com
GERMANY	CHRISTIAN BINDEMANN GROUP OF COMPANIES GmbH & Co KG Gärtnerstrasse 81G D-25469 HALSTENBEK BEI HAMBURG	Tel : +49-40-57148252 Mob : +49-1724513678 Fax : +49-40-57148271 service@mkecb.com
GREECE	SPANMARIN 86, Filonos Street, 2nd Floor GR-185 36 PIRAEUS	Tel : +30-210-4294498 Fax : +30-210-4294495 spanmarin@ath.forthnet.gr
JAPAN	DAIWA HANBAI CORPORATION LTD 2-10-31, Mitejima, Nishiyodogawa-ku OSAKA 555-0012	Tel : +81-6-64714701 Fax : +81-6-64729008 daiwa471@silver.ocn.ne.jp
KOREA	World Ocean CO., LTD Room 1403 (Busan Trade Center B/D) 11, Chungjang-daero, Jung-gu, BUSAN, 48939 KOREA	Tel : +82-51-462-2554 Fax : +82-51-462-0468 info@worldocean.co.kr
MEXICO	URBAN DEL GOLFO SA DE CV Julian Carrillo No. 709 Nte. COL. LOS MANGOS 89440 Cd. MADERO, Tamps, MEXICO	Tel : +52-833-2170190 Fax : +52-833-2170190 urbansa@prodigy.net.mx
NETHERLANDS & BELGIUM	B.V. TECHNISCH BUREAU UITTENBOGAART Nikkelstraat 7 NL-2984 AM RIDDERKERK	Tel : +31-88-368 00 00 Fax : +31-88-368 00 01 info@tbu.nl
PORTUGAL	OCEANCONTROLS – MARINE INSTRUMENTATION & ENGINEERING, Lda. Rua Conceição Sameiro Antunes, 26-E Cova da Piedade 2805-122 – Almada	Tel : +351-21-2740606 Fax : +351-21-2740897 info@oceancontrols.pt

The updated list can be found on our website www.tanksystem.com

COUNTRY	ADDRESS	TELEPHONE/FAX/E-MAIL
RUSSIA	NPP "GERDA" Vilisa Latsisa str. 17 Building 1 125480 MOSCOW	Tel : +7-495-7558845 Fax : +7-495-7558846 info@gerda.ru
SINGAPORE	HUBBELL INT'L (1976) PTE LTD 322 Thomson Road SINGAPORE 307665	Tel : +65-6-2557281 Tel : +65-6-2550464 Fax : +65-6-2532098 hubbell@mbox2.singnet.com.sg
SPAIN	E.N.I. Electronica y Neumatica Industrial, S.A. C/Jon Arrospide, 20 (Int.) 48014 BILBAO	Tel : +34-94-4746263 Fax : +34-94-4745868 tecnica@eni.es
SWEDEN	INSTRUMENTKONTROLL Lars Petersson AB Varholmsgatan 1 414 74 GÖTEBORG	Tel : +46-31-240510 Tel : +46-31-240525 Fax : +46-31-243710 Info@instrumentkontroll.se
TURKEY	YEDI DENIZ MALZEME VE GUVENLIK Setustu, Izzetpasa Yok.1 TR 34427 Kabatas ISTANBUL	Tel : +90.212.251 64 10 / 3 lines Fax : +90.212.251 05 75 servicestation@yedideniz.net dmgistanbul@yahoo.com
UNITED ARAB EMIRATES	MARITRONICS TRADING L.L.C. P.O. Box 6488 Shed # 72, Jadaf Ship Docking Yard DUBAI	Tel : +971-4-3247500 Fax :+971-4-3242500 marineservice.dubai@centena.com
	MARITRONICS TRADING L.L.C. Al Sharia - 1, B -36, Ground Floor, P.O. Box 9476 FUJAIRAH	Tel : +971 9 2234909 Fax: +971 9 2234898 Mob : +971 50 5570854 marineservice.dubai@centena.com
UNITED KINGDOM	ENERGY MARINE (INTERNATIONAL) LTD. 12 Clipstone Brook Industrial Estate Cherrycourt Way LEIGHTON BUZZARD, BEDS, LU7 4TX	Tel : +44-1525-851234 Fax :+44-1525-852345 info@engmar.com
U.S.A / TEXAS	HONEYWELL HERMETIC 4522 Center Street DEER PARK, TX 77536	Tel : +1-281-930 1777 Fax : +1-281-930 1222 Toll free call in the USA: 1-800-900 1778 hermetic@honeywell.com

5. Recommendation for safe use

According to TSB_7030_E, Issue 1 of November 18, 2014

1. This Operation and Service Manual is a guide in order to help the user to operate the device safely and correctly.
2. Nevertheless the maker disclaims all responsibility and liability for damage resulting from the use of the equipment regardless of the cause of the damage.
3. Before using the device, ensure the device fits with the gauging conditions (tank pressure, product, temperature…). Refer to device specifications.
4. This device is certified to penetrate into a “Zone 0” (explosible area) when connected to a valve. The opening of the valve may generate risk of flammable gas release or flame entrance. Ensure safety conditions are met before use.
5. Attention is drawn to the possible hazard due to electrostatic charges which may be present in the tank. This may happen in particular with static accumulator liquids, i.e. liquids which have low conductivity of 50 picoSiemens/metre (pS/m) or less.
6. It is very important that the instrument is grounded to the tank before the probe is introduced into the tank and remains grounded until after complete withdrawal from the tank.
    - 6.1. If the instrument is installed with the quick connect coupler, grounding is effected through the quick connect coupler and the mating nipple of the valve provided that these parts are kept clean and free from corrosion in order to guarantee electrical conductivity. If a grease is used for this purpose, it must be one which contains graphite.
    - 6.2. If the instrument is not connected to the mating deck valve, the instrument has to be also earthed by means of the grounding cable and clamp.
7. It is anticipated that the user will have specific operating methods laid down to ensure safety when using this type of apparatus. In this case the user’s instructions shall be strictly observed.
8. In the absence of such instructions the following should be noted:
    - 8.1. If a metal sounding pipe is fitted beneath the deck valve or tank is inerted, then ullaging, etc. is permissible at any time with no restriction.
    - 8.2. If there is no sounding tube or tank is not inerted, the following precautions shall be taken:
        - 8.2.1. If the cargo is not a static accumulator liquid, i.e. its conductivity is more than 50 pS/m, then ullaging is permitted provided that the instrument is properly grounded and earthed before the probe is inserted into the tank and remains earthed until the probe has been removed from the tank.
        - 8.2.2. If the cargo is a static accumulator liquid, i.e. its conductivity is less than 50 pS/m, then ullaging is permitted provided that:
            - 8.2.2.1. The instrument is properly grounded and earthed before the probe is inserted into the tank and remains earthed until the probe has been removed from the tank.
            - 8.2.2.2. The apparatus is not introduced into a tank until at least 30 minutes have elapsed after completion of any loading operation or stopping the injection of inert gas.
    - 8.3. For further guidance refer to the latest edition of International Safety Guide for Oil Tankers and Terminals (ISGOTT), or consult the appropriate Legislative Authority for the installation.
9. Warning:
    - 9.1 Substitution of components may impair the intrinsic safety. Only use the device for the intended purpose as described in this manual. For maintenance, use genuine spare-parts exclusively. Non genuine spare-parts may impair the intrinsic safety of the device.
    - 9.2 Change of battery must be carried out in safe area only (non flammable atmosphere); Use only an approved battery.
    - 9.3 To prevent ignition hazard, avoid impact or friction of the device aluminum parts.
10. This product and his use is / may be related to international, national, local or company regulations or standards. It is the customer / user responsibility to ensure that the way to use the device complies with such applicable regulations or standards.
11. This device is a portable product. It must not be permanently installed on the tank and must be disconnected after use and stored clean in a safe and dry area.

6. Functions - Key Features

This HERMetic instrument is a gas-tight portable multiple functions gauging system that is designed to perform under completely closed conditions in a single operation 3 measurements:

a) Ullage (outage). Optionally innage is available[1].

b) Oil/water Interface Level.

Tape resolution: 1 mm (*1/16"*)
Tape accuracy: ±1.5 mm for 30 m
(±*1/16*" approx. for 100 feet)
Ullage/interface detection accuracy:
±2 mm (±*0.08*" approx.)
Minimum detectable tank bottom interface or liquid level:
4 mm (0.16" approx.).

c) Temperature by continuous reading at any level.

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

Sensor measurement range:-40°C to 90°C
(-40°F to 194°F)

Resolution: 0.01° or 0.1°, selectable

Accuracy over calibration range: ±0.1°C (0°C to 70°C);
±0.2°F (32°F to 158 °F)

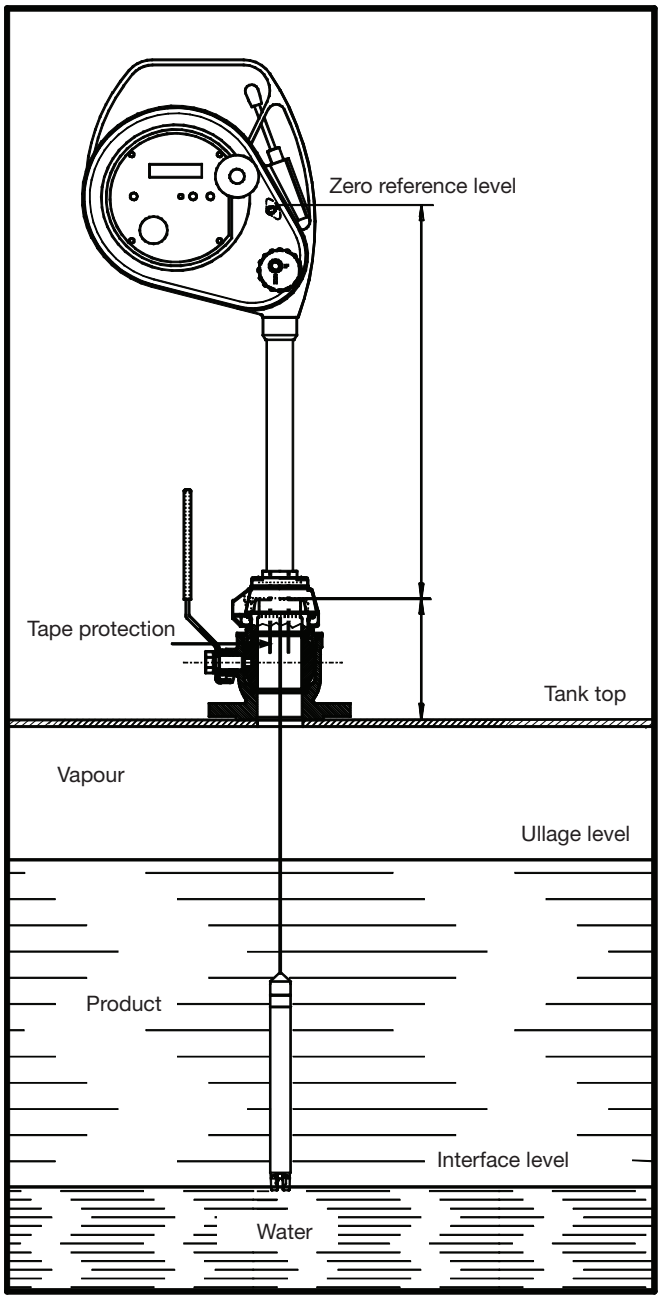
Temperature reading: °C or °F, selectable.

This HERMetic device meets the requirements of API MPMS Chapter 7 2001, table 3, ISO 4268 and IP PMM Part IV.

Thanks to the small diameter of the sensing probe this instrument can be used with valves of diameters down to 25 mm (1") only.

A tape protection tube prevents closing the valve on the tape through inadvertence.

Gauging is done under completely gas tight conditions therefore maintaining over- or underpressure in the tank. The device is designed to withstand tank pressure up to 0.3 bar (4.4 psi).



[1] An additional device, usable with 2" valves only, can be provided that allows Reference Height and Innage measurement. Available on "Visc" models.

7. Description

7.1 General

Each HERMetic instrument is individually identified with a 6 digits serial number starting with the letter G, example G10058. This serial number is printed on the identification plate as shown on Figure 7-1.

The HERMetic instrument is fitted with an ULTRA sensing probe.

The unit emits control beep, continuous beep and intermittent beep.

When the sensing probe is surrounded by air, a control beep occurs every 2 sec.

When the sensing probe is in contact with any petroleum product, the beep is continuous.

When the sensing probe is in contact with water the beep is intermittent.

Control beep	• •
Continuous beep	• • • • • • • • • •
Intermittent beep	• • • • • •

A light signal (LED) can also be activated that blinks at the same frequency as the buzzer tones. This can be useful in noisy environments or at night.

A backlight can be used at night to light up the display.

The HERMetic instrument is powered by a 9 Volt battery stored in the electronic terminal named instrument unit. Current consumption is very low, ensuring long operation without battery replacement. A continuous tone means that the battery needs replacement. If the battery power is too low, it is no more possible to read the temperature.

Maintenance is easy because design is modular and allows quick exchange of parts.

See also Figure 7-2 to get to know the equipment.

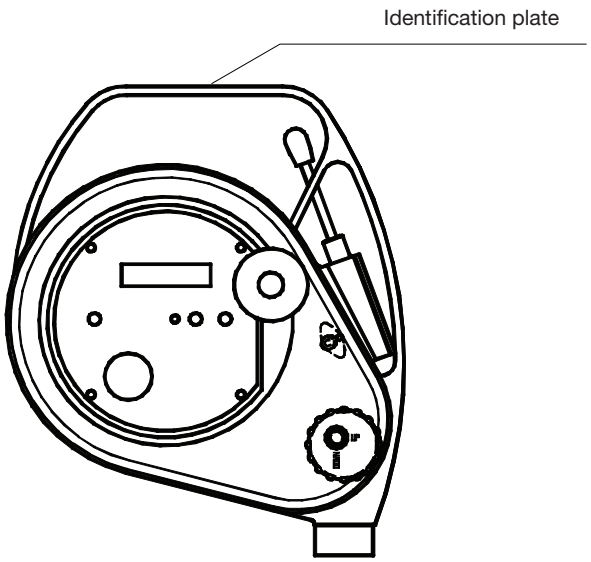


Figure 7-1

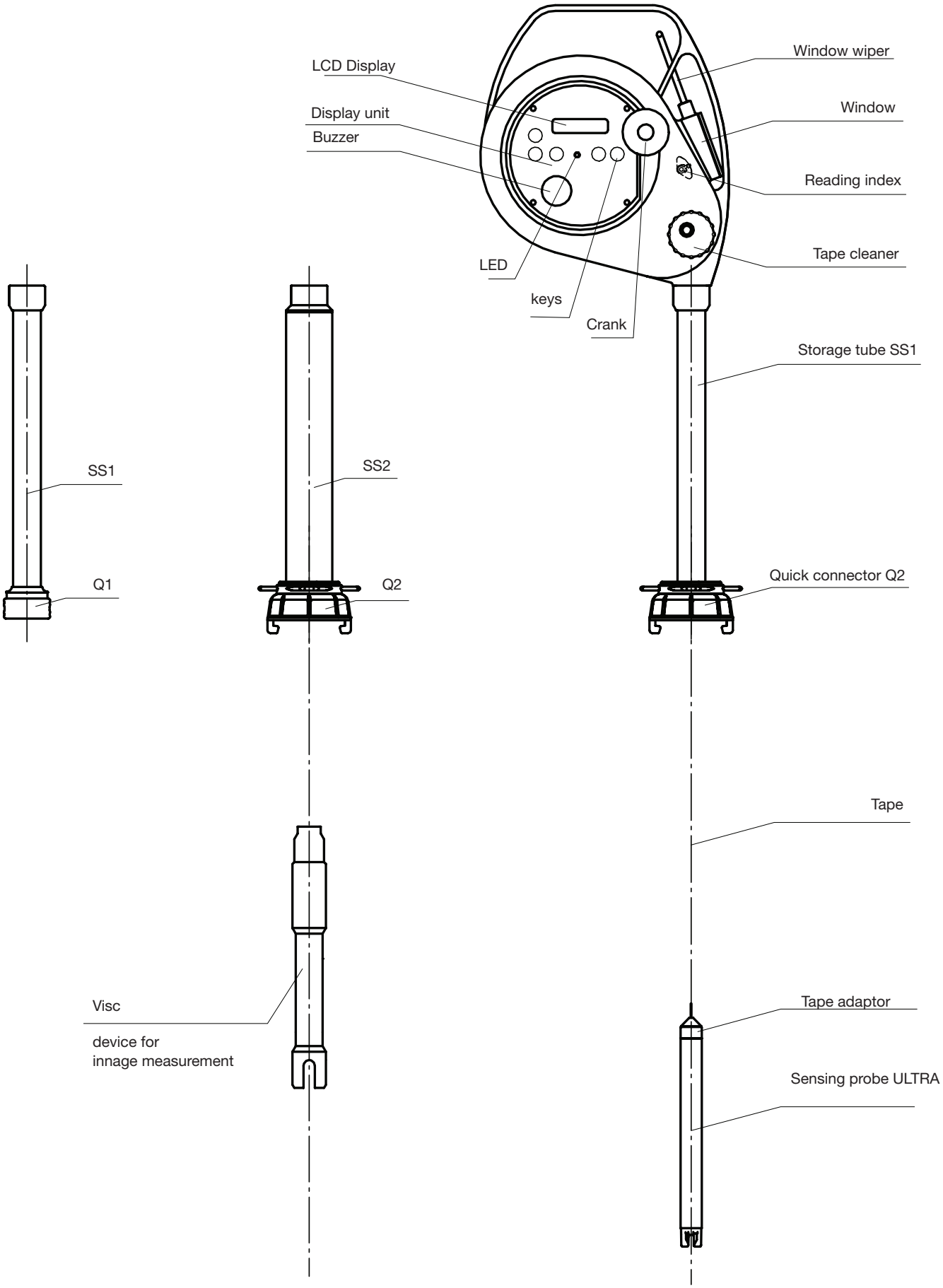

LCD Display
Display unit
Buzzer
LED
keys
Crank
Window wiper
Window
Reading index
Tape cleaner
Storage tube SS1
SS1
Q1
SS2
Q2
Quick connector Q2
Tape
Visc
device for
innage measurement
Tape adaptor
Sensing probe ULTRA

Figure 7-2

7.2 ULTRA sensing probe

7.2.1 Introduction

The ULTRA sensing probe consists of a stainless steel tube terminated by a high-tech plastic head which cannot be removed from the tube. The sensing probe includes an ultrasonic liquid level sensor, a temperature sensor and a conductivity electrode. The sensitivity for ullage and interface measurement is not adjustable. The temperature measurement is calibrated at the factory and does not require subsequent adjustment.

7.2.2 Ullage detection

The ullage detector consists of two piezoceramic plates and electronic circuits. When the sensor head is immersed in a non-conductive liquid (oil or petroleum), the emitted ultrasonic signal is detected by the receiver, coded and sent to the instrument unit which activates the buzzer with the continuous beep.

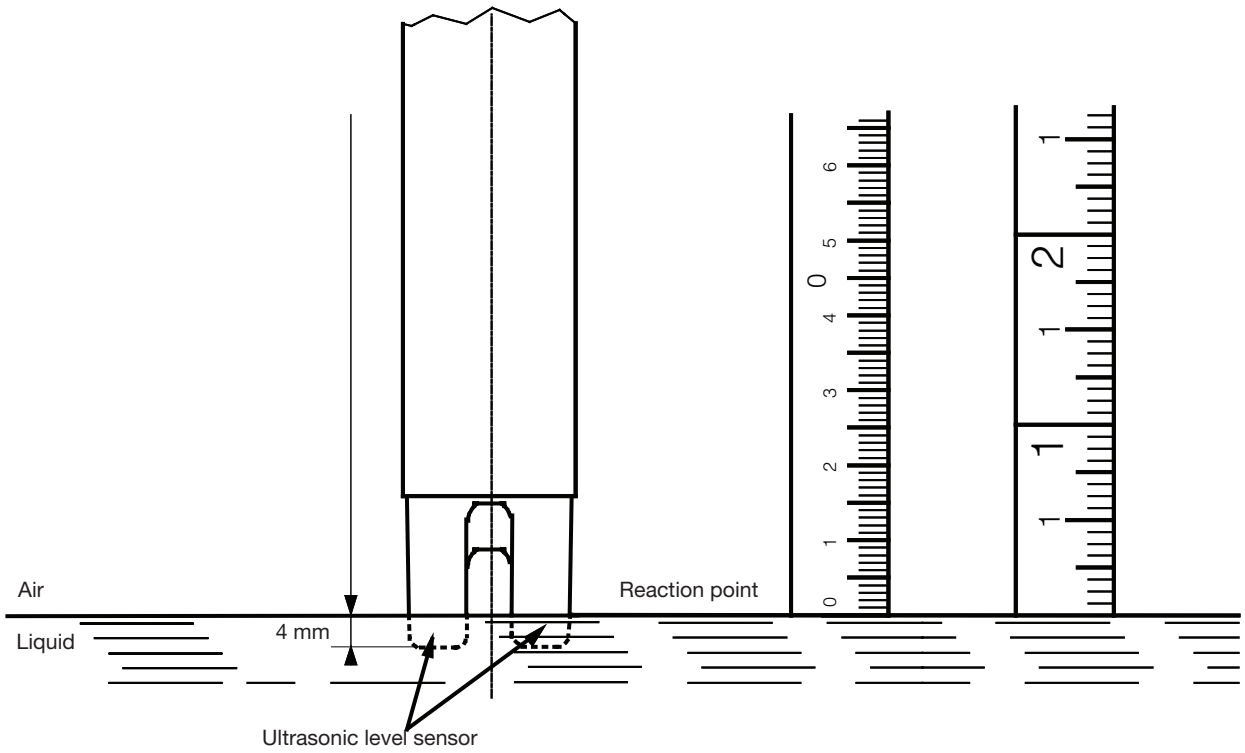


Figure 7-3

The reaction point is located 4 mm (5/32”) from the sensor bottom and identical with the zero-point of the tape graduation.

7.2.3 Interface detection

The principle consists of a conductivity measurement between an active electrode and a grounded electrode. When the liquid is conductive (as water), the ullage sensor detects the presence of the liquid as well and the conductivity electrodes and associated electronic circuits modulate the coded signal to generate the intermittent beep.

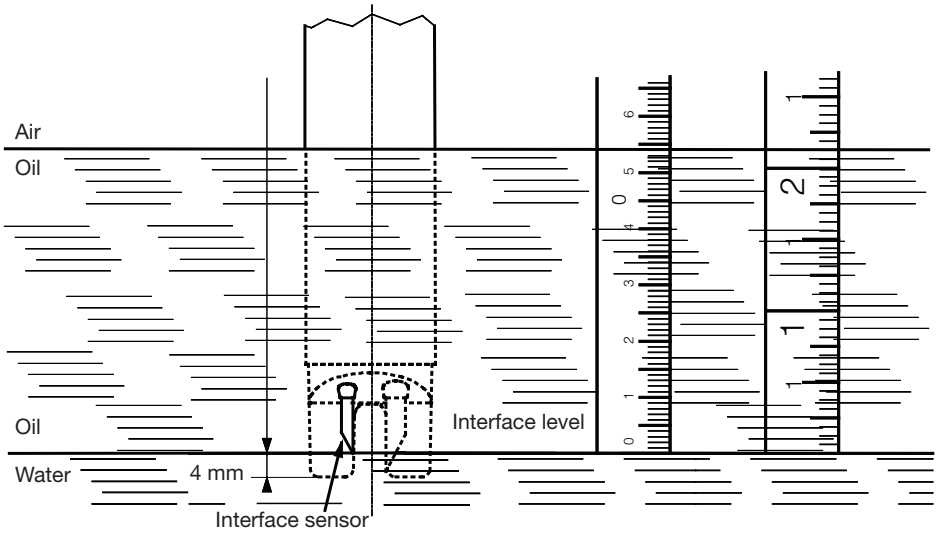


Figure 7-4

The reaction point is located 4 mm (5/32”) from the sensor bottom and identical with the zero-point of the tape graduation.

7.2.4 Temperature measurement

The sensing element is a Platinum Resistance Temperature Detector (RTD) element. The element is located in the temperature electrode, which is filled in with a heat transfer compound paste to reduce the response time.

The RTD element signal is digitized, and then all errors (offset, non-linearity and drift) are corrected and compensated by the micro-controller located in the sensor probe. The RTD element characteristics are stored in the sensor memory and are dedicated to one sensor. For this reason, changing a sensor does not require a new calibration.

All data are serialised and sent by the micro-controller to the Display Unit.

Temperature settings (resolution, scale) are easy to select by pressing the 5-key control panel.

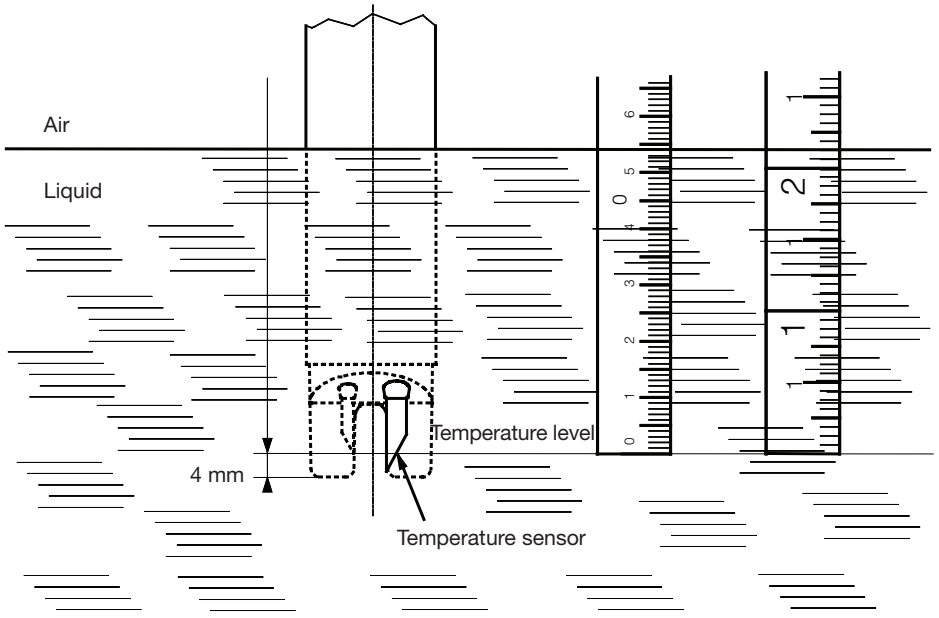


Figure 7-5

The reaction point is located 4 mm (5/32”) from the sensor bottom and identical with the zero-point of the tape graduation.

7.3 Tape

The ETFE (TEFZEL) coated tape provides 3 main functions :

- It holds the sensing probe.
- It is graduated and therefore makes it possible to determine the distance between the reaction point and the reading index. If the reading index is set up at the zero ullage level, the reading of the tape is identical to the ullage.
- It contains 2 wires for transmitting the signal and the power between the display unit and the probe. The steel tape itself is used as a grounding wire between the sensing probe tube and the display unit.

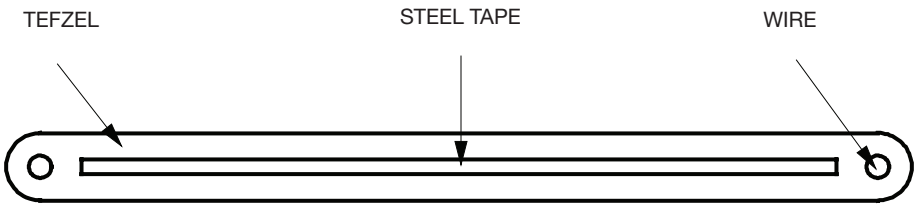


Figure 7-6

The standard graduation is a double side type that shows the metric graduation on one side and the inch one on the other side. The tape is mounted on the equipment according to the need.

inch side metric side

Figure 7-7

7.4 Tape protection

The tape protection tube is a mechanical safety device which prevents the valve from being closed as long as the sensing probe is inside the tank. When the sensing probe is lowered the protection tube will follow the sensing probe by gravity until the tube is retained by a ring located inside the coupler.

In that position the protection tube prevents closing the valve. When the tape is wound up the protection tube will stay in position until it is pushed up by the sensing probe. Before instrument is used check that the protection tube is moving freely. For cleaning purposes the protection tube is slotted.

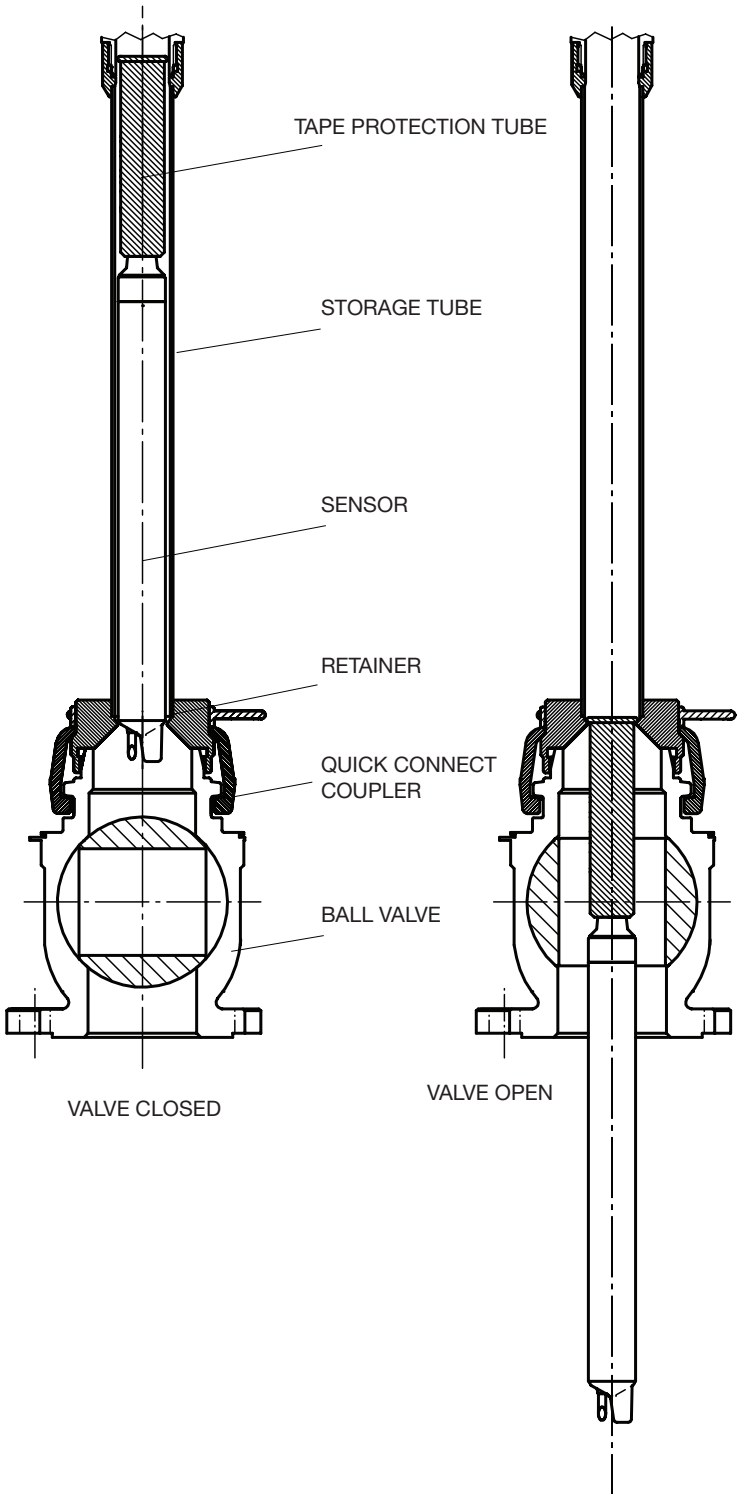


Figure 7-8

7.5 Reading index

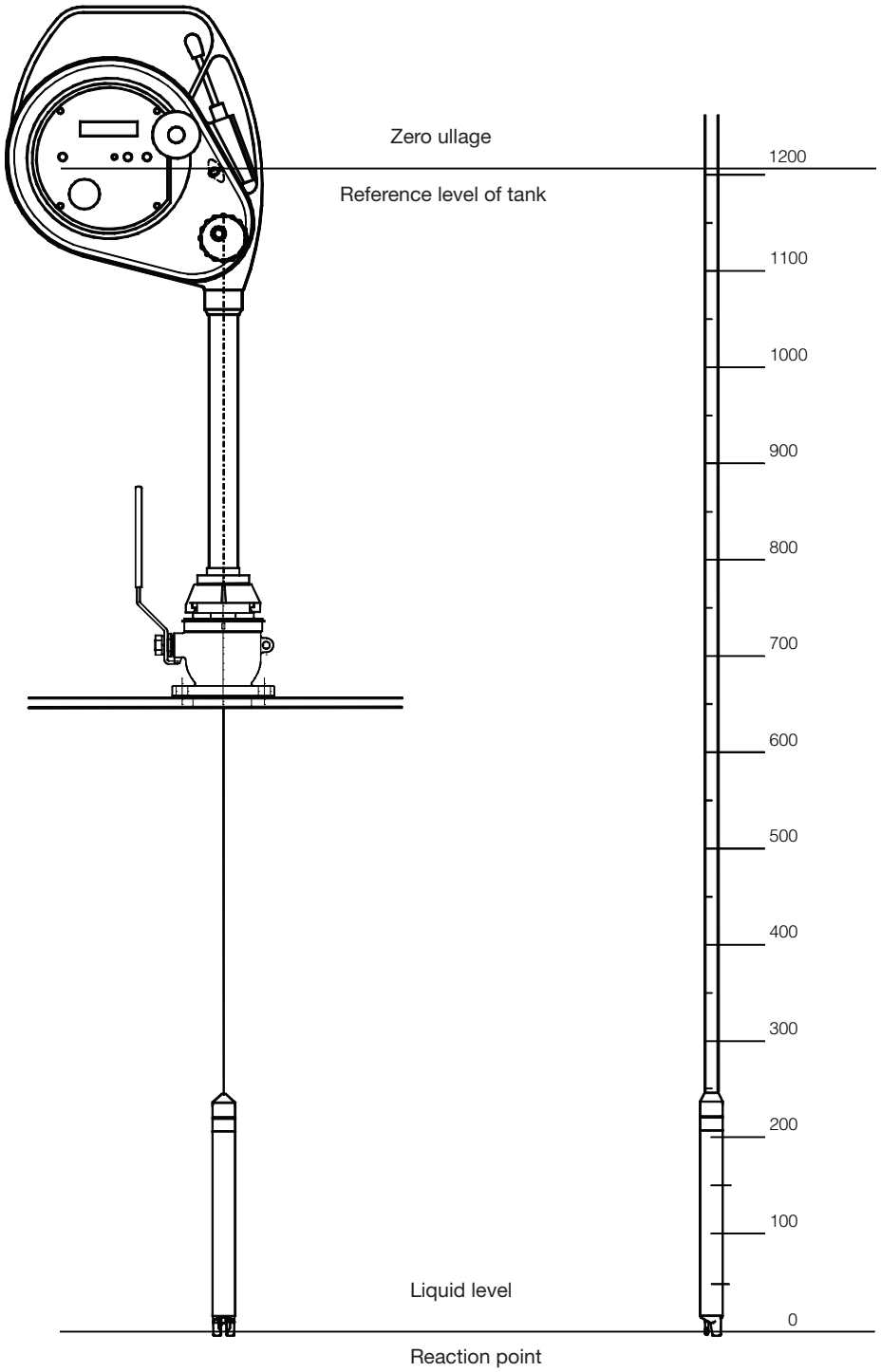


Figure 7-9

The tape reading at the height of the reading index of the instrument is indicating the distance between the reaction point and the reading index. If the instrument is installed in such a way that the reading index is at the same level as the zero-ullage reference level the reading of the tape corresponds to the ullage providing the reaction point of the sensing probe is positioned at the liquid level.

If the reading index is positioned below or above the reference level a positive or negative correction of the tape reading is necessary.

See also chapter 8 “Examples of installation of the gauging system”.

7.6 Tape cleaner

This HERMetic equipment is fitted with a tape cleaner that helps draining the liquid back to the tank when rewinding the tape. It is very easy to operate:

- position “DOWN”: the wipers are not working, the tape is free;
- position “UP”: the wipers are cleaning the tape.

Refer to Figure 7-10.

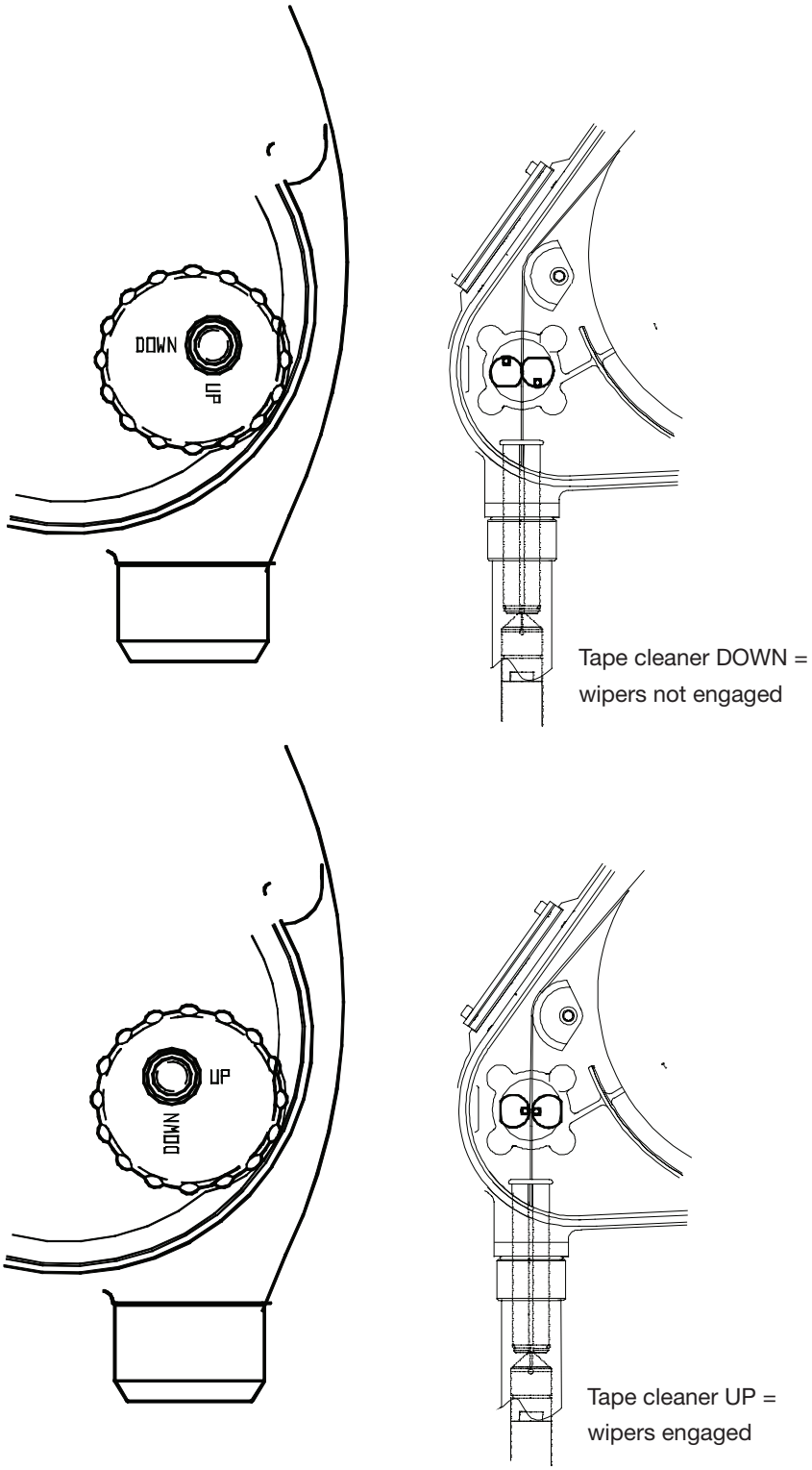


Figure 7-10

7.7 Gas tightness

All parts are assembled together with either gaskets or O-rings, that makes the device completely tight.

The sealing of the axle holding the tape with the mechanical housing is ensured by a special V-shape gasket.

7.8 Gaskets

Gaskets are made in FKM (Viton) for models UTImeter Gtex.

On UTImeter Gtex Chem models, gaskets which are in contact with the liquid are made in FFKM.

7.9 Additional Load (option)

An additional load (see Figure 7-2) on the sensing probe can be provided for one of the following reasons. This option is available on UTImeter Gtex Visc or UTImeter Gtex Chem Visc equipped with the storage tube Q2 (2") and needs valves of at least 2" size.

7.9.1 Viscous liquids (> 800 Cst)
For gauging viscous liquids the load can help the sensing probe in penetrating the liquid and in keeping the tape straight.

7.9.2 Reference height and innage
For measuring the reference height of a tank and innages the load allows the sensing probe to touch the dip/datum plate.

7.10 Housing and lid

These parts are made in aluminium coated with polyamid PA 11 (RILSAN).

7.11 Others

The tape is coiled on the axle which holds also the electronic box and the display unit.

The axle is assembled to the electronic box and can be locked at discrete positions by means of a stopping mechanism in the crank. Pull the crank to free the stopping mechanism.

The storage tube is threaded to the frame.

The storage tube is equipped with a quick-connector which fits on the HERMetic valves.

8. Examples of installation of the gauging system

8.1 General

The gauging system consists of the HERMetic instrument and the associated HERMetic valve. Two types of connector can be provided as shown on Figure 8-1.

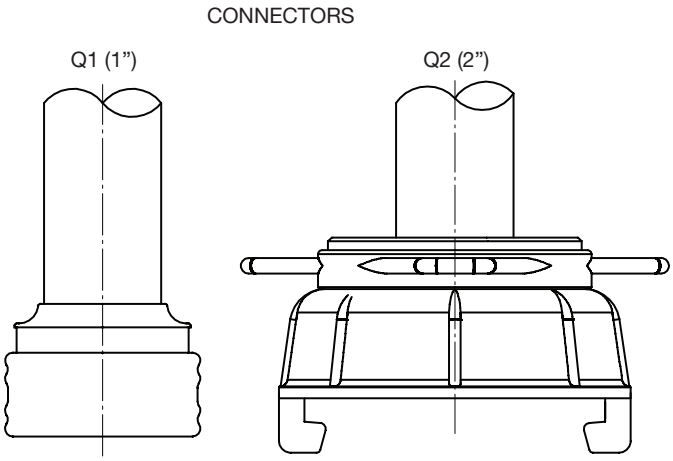


Figure 8-1

The following sections, respectively 8.2, 8.3 for connector Q2 and 8.4, 8.5 for connector Q1, describe 2 examples for installing the valves and adjusting the height of the gauging system.

The valves should be installed in such a way that the zero-ullage level coincides with the reading index level, so that no correction would be necessary. For achieving this it may be necessary to install an adjusting pipe between the deck and the valve.

If the valves are installed directly on deck or if for any reason the level of the reading index is below or above the zero-ullage level, then a correction table should be used.

There should be no internal tank structure between the valve outlet and the tank bottom such that will impede the path of the equipment into the tank.

All valves shall be installed at the same level.

Small systematic level error can be corrected by adjusting the reading index accordingly.

When designing the gauging port and to avoid damaging the tape during rewinding it is advised to chamfer or to grind all sharp edges (on pipes, flanges, etc.) that could damage the tape when operating the gauge.

8.2 Example of installation on a pipe, connector Q2

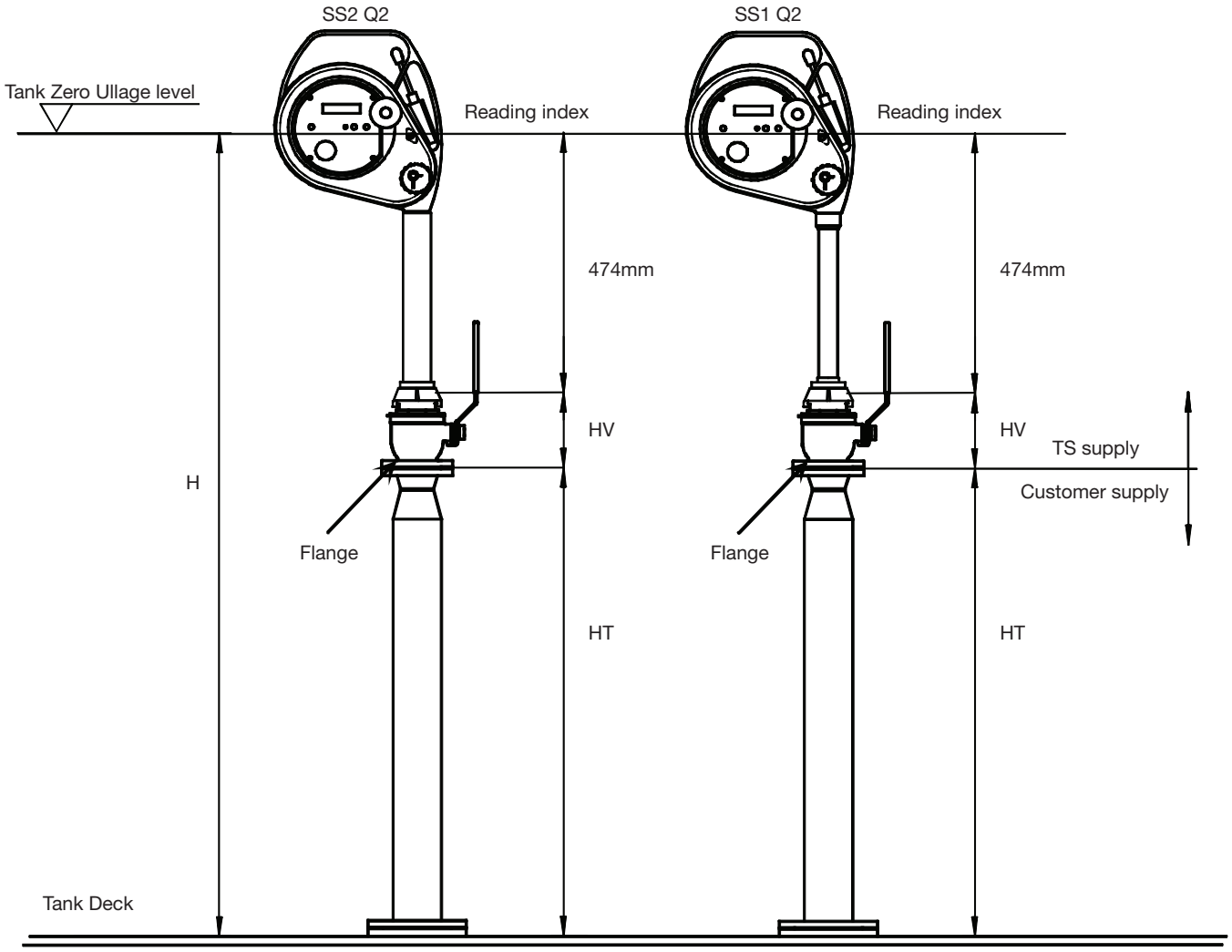


Figure 8-2

Valve designation	C.2-SS; C.2-SS-W; C.2-SS-BL; C.2-SS-SEC	A.2-SS	A.4-2-1-SS
Boring	2”	2”	2”
Bottom connection	thread or flange	flange JIS 5K80	flange JIS10k100
*) HV (mm)	141	155	139
*) HT (mm)	H-615	H-629	H-655 / H-659

*) Dimension HV is without gasket. If gaskets are used dimension HT is reduced by thickness of gasket.

8.3 Example of installation on the deck, connector Q2

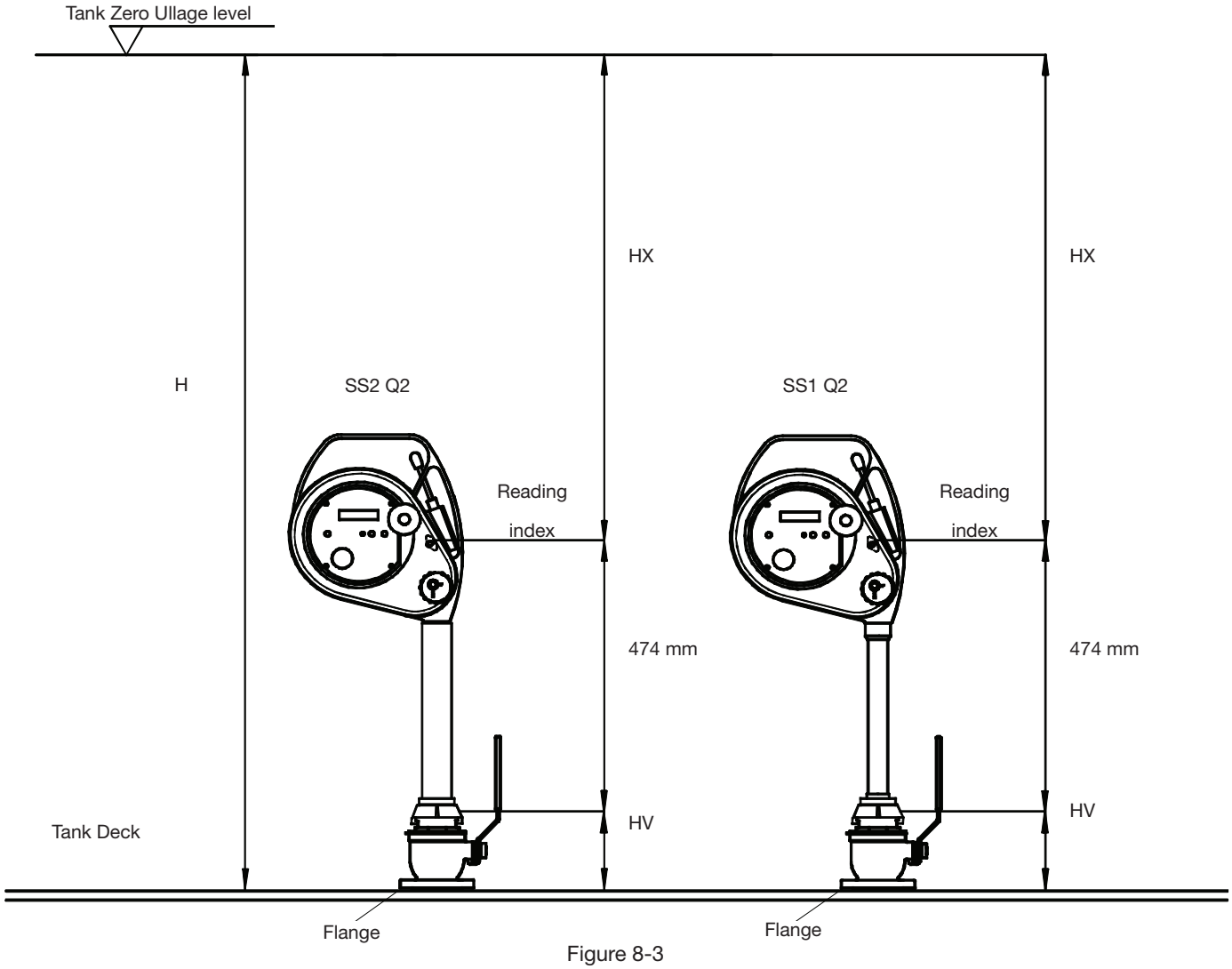


Figure 8-3

Valve designation	C.2-SS; C.2-SS-W; C.2-SS-BL; C.2-SS-SEC	A.2-SS	A.4-2-1-SS
Boring	2”	2”	2”
Bottom connection	thread or flange	flange JIS 5K80	flange JIS10k100
*) HV (mm)	141	155	139
*) HX (mm)	H-615	H-629	H-655 / H-659

*) Dimension HV is without gasket. If gaskets are used dimension HX is reduced by thickness of gasket.

8.4 Example of installation on a pipe, connector Q1

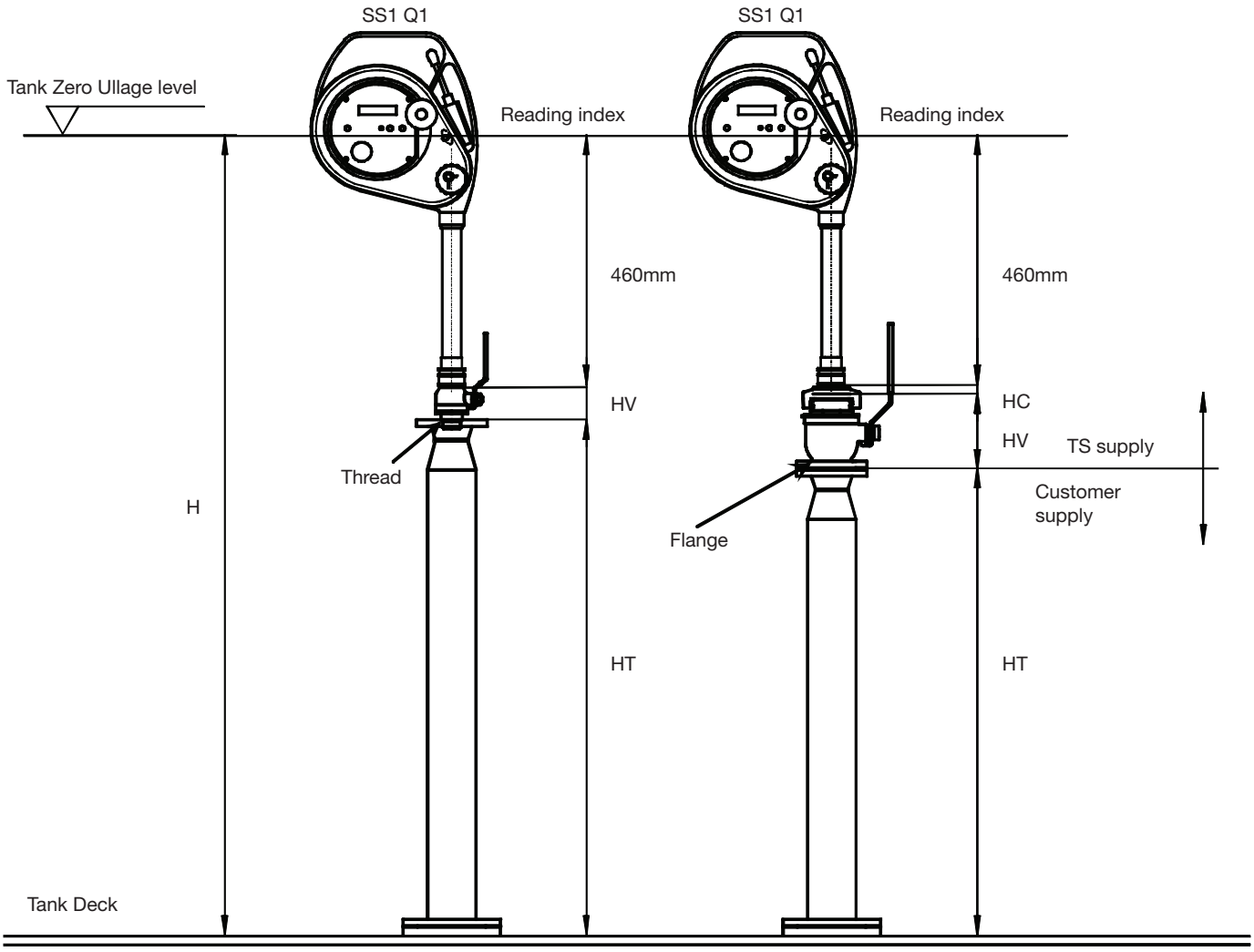


Figure 8-4

Valve designation	C.1-SS	C.1-SS	C.1-SS	C.2-SS C.2-SS-W	C.2-SS C.2-SS-W	A.2-SS	A.4-SS	A.4-2-1-SS
Boring	1”	1”	1”	2”	2”	2”	4”	4”
Bottom connection	thread	flange JIS 5K25	flange JIS 5K50	thread	flange	flange JIS 5K80	flange	flange JIS10k100
*) HV (mm)	65	79	79	141	141	155	139	139
HC (mm)	na	na	na	14	14	14	59	56 / 70
*) HT (mm)	H-525	H-539	H-539	H-615	H-615	H-629	H-657	H-655 / H-659

*) Dimension HV is without gasket. If gaskets are used dimension HT is reduced by thickness of gasket.

8.5 Example of installation on the deck, connector Q1

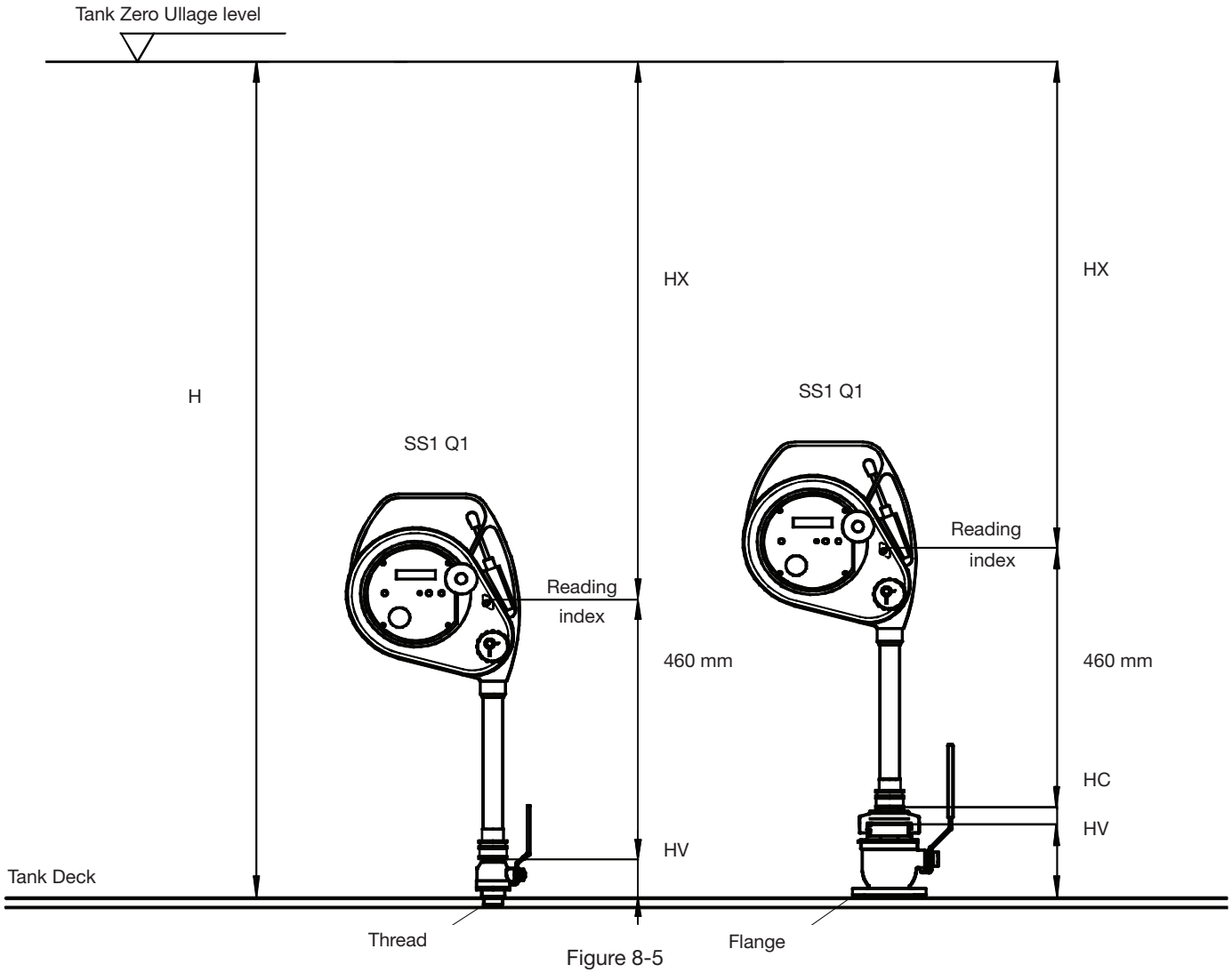


Figure 8-5

Valve designation	C.1-SS	C.1-SS	C.1-SS	C.2-SS C.2-SS-W	C.2-SS C.2-SS-W	A.2-SS	A.4-SS	A.4-2-1-SS
Boring	1”	1”	1”	2”	2”	2”	4”	4”
Bottom connection	thread	flange JIS 5K25	flange JIS 5K50	thread	flange	flange	flange	flange JIS10k100
*) HV (mm)	65	79	79	141	141	172	139	139
HC (mm)	na	na	na	14	14	41	59	56 / 70
*) HX (mm)	H-525	H-539	H-539	H-615	H-615	H-673	H-657	H-655 / H-65

*) Dimension HV is without gasket. If gaskets are used dimension HX is reduced by thickness of gasket.

9. Operation

9.1 Basic rules concerning the 5-key control pad

Apart from the “ON” / “OFF” keys that are self-explanatory, there are 3 other keys that help in customizing the unit:

- pressing “+” allows to scroll down the menus, a pointer show the actual menu you have selected,
- pressing “-” allows to exit a menu,
- pressing “enter” (later on named “E”) allows to enter a specific menu.

The small pointer displayed on the left is showing the active setting.

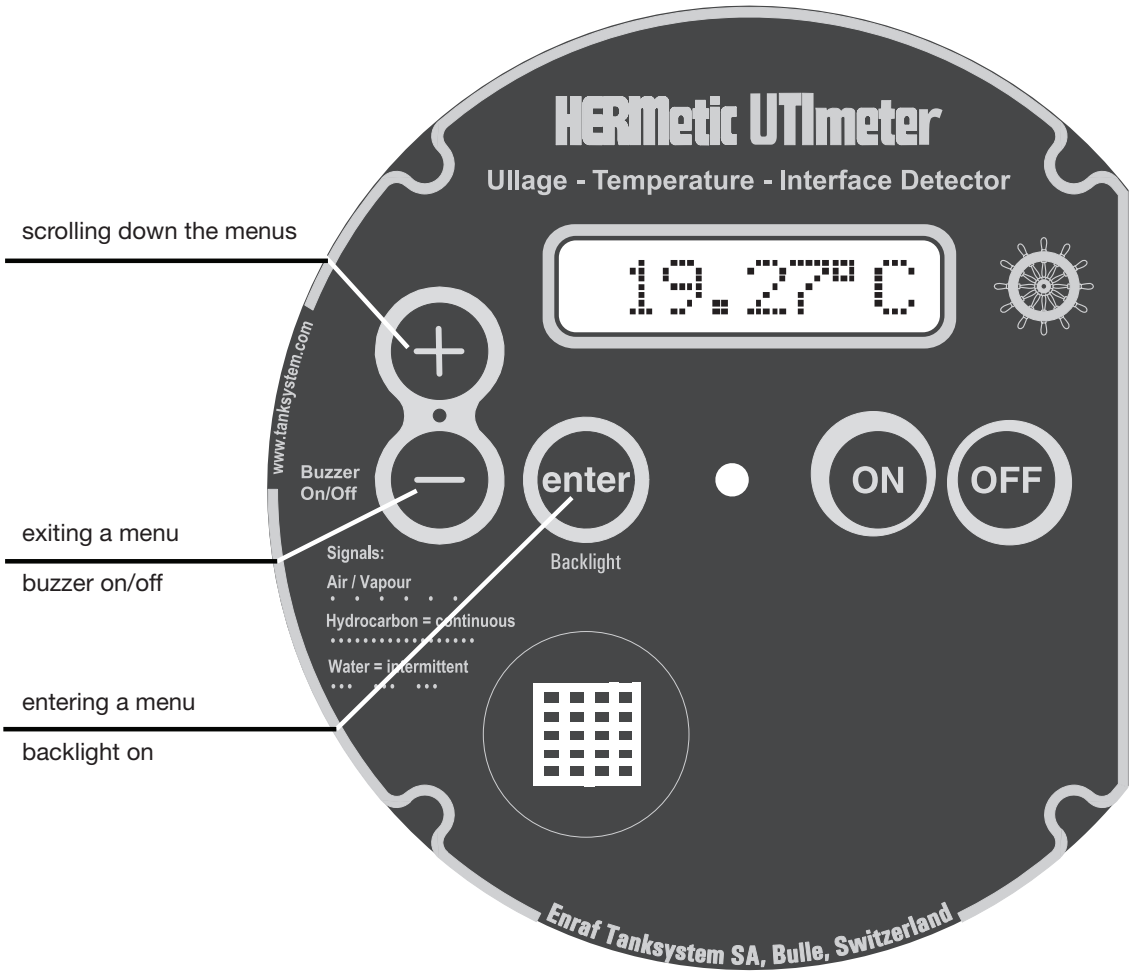


Figure 9-1

9.2 Selecting the language

English, German or French languages can be selected by following the sequences described in Figure 9-2.

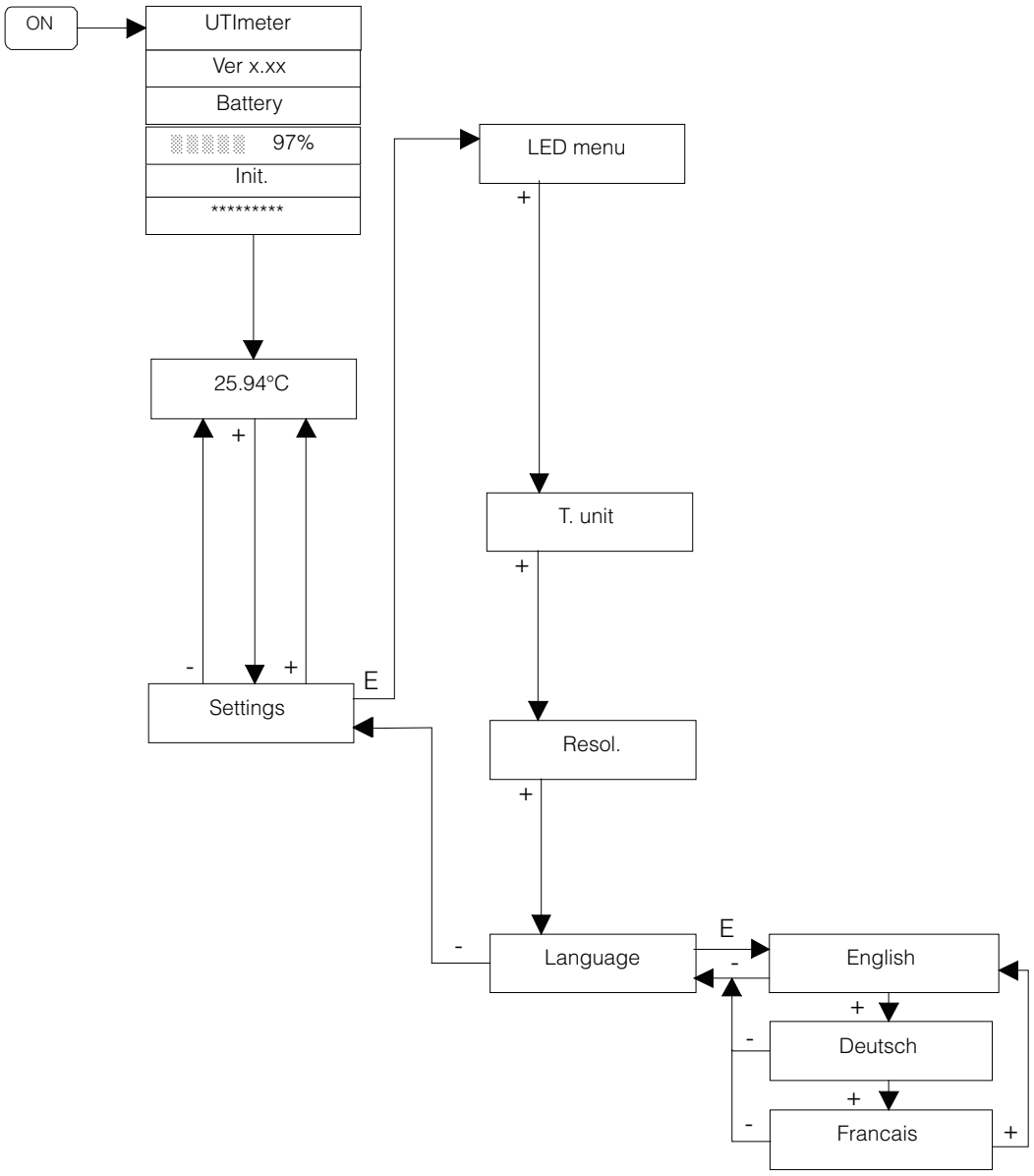


Figure 9-2

- Switch on the equipment,
- Wait until the temperature is displayed,
- Press on “+” to enter the settings menu,
- Press on “enter”, “LED menu” is displayed,
- Press on “+”; “T. unit” is displayed,
- Press on “+”, “Resol.” is displayed,
- Press on “+”, “Language.” is displayed,
- Press on “enter”,
- Select the language by pressing on “+” one or more times, the display shows the language selected,
- Press “-” two times to come back in measurement mode.

The new setting is stored in the permanent memory.

9.2.1 Translation of messages

English	German	French
Language	Sprache	Langues
No Msg	KeineMel	LigneHS
Error	Fehler	Erreur
English	Deutch	Francais
Invalid	Ungültig	Invalide
Unknow	Unbekan.	Inconnu

9.3 Selecting the temperature scale

The temperature can be displayed either in Celsius or Farenheit degrees. Refer to Figure 9-3.

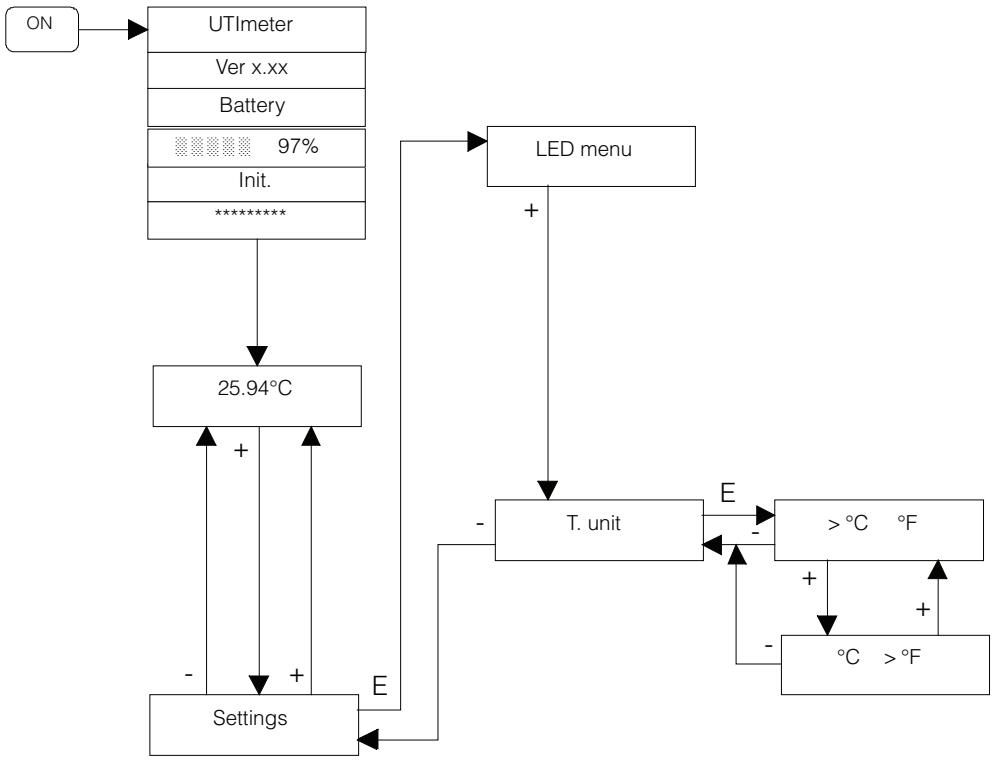


Figure 9-3

- Switch on the equipment,
- Wait until the temperature is displayed,
- Press on “+” to enter the settings menu,
- Press on “enter”, “LED menu” is displayed,
- Press on “+”; “T. unit” is displayed,
- Press on “enter”,
- Select the scale by pressing on “+” one or more times, the pointer shows the scale selected,
- Press “-” two times to come back in measurement mode.

The new setting is stored in the permanent memory.

9.4 Selecting the temperature resolution

The temperature reading can be given with 1 or 2 digits after the dot. Select the appropriate resolution as shown on Figure 9-4.

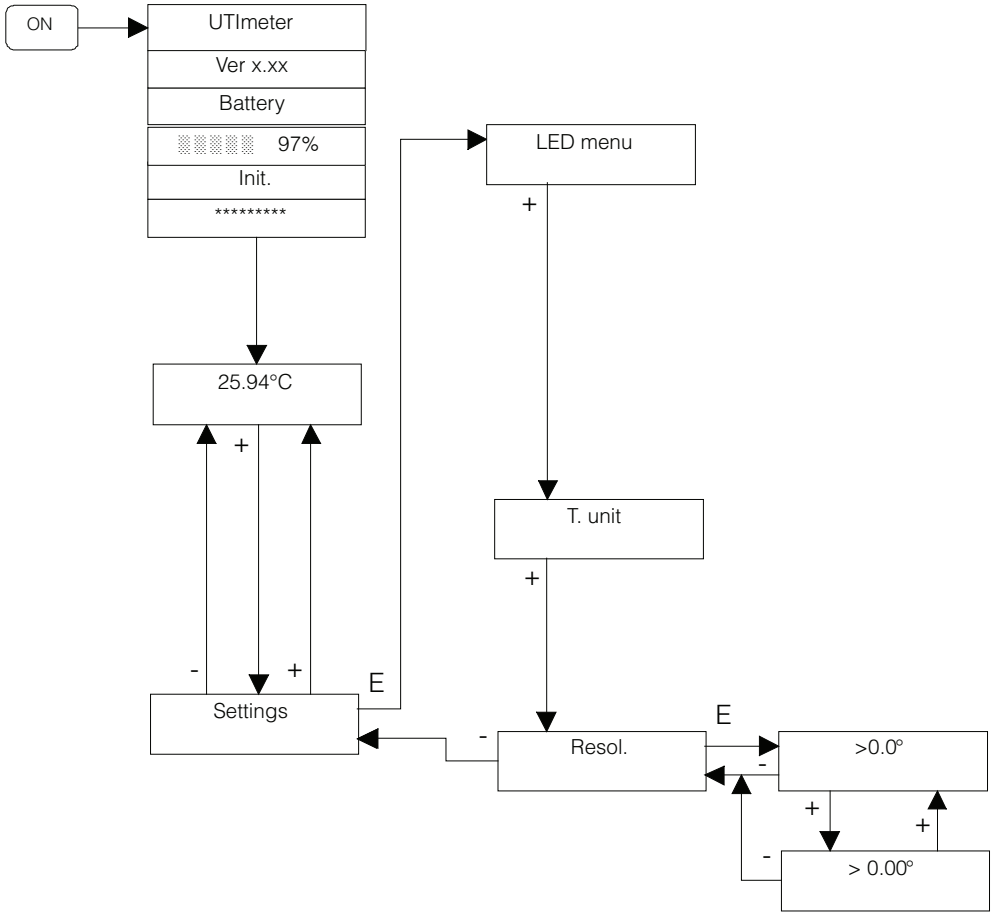


Figure 9-4

- Switch on the equipment,
- Wait until the temperature is displayed,
- Press on “+” to enter the settings menu,
- Press on “enter”, “LED menu” is displayed,
- Press on “+”; “T. unit” is displayed,
- Press on “+”, “Resol.” is displayed,
- Press on “enter”,
- Select the resolution by pressing on “+” one or more times, the pointer shows the resolution selected,
- Press “-” two times to come back in measurement mode.

The new setting is stored in the permanent memory.

9.5 Activating the LED

Refer to Figure 9-5.

The LED can be activated on 2 modes:

- one is temporary, it is automatically erased when the unit is switched off, in order to save the battery life;
- the other is permanent, it will stay even is the unit is switched off.

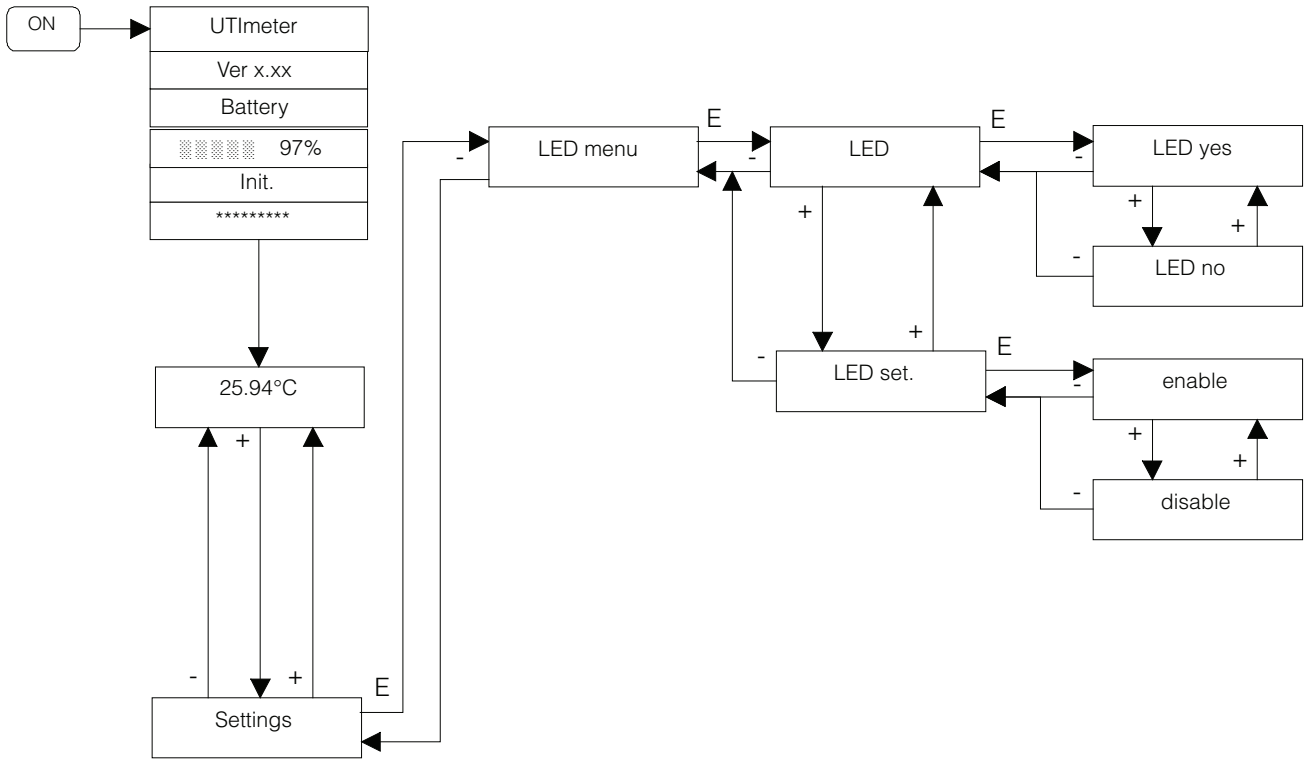


Figure 9-5

9.5.1 Temporary setting of the LED

- Switch on the equipment,
- Wait until the temperature is displayed,
- Press on “+” to enter the settings menu,
- Press on “enter”; “LED menu” is displayed,
- Press on “enter”; “LED” is displayed,
- Press on “enter”, then select by pressing “+” the mode: “LED yes” or “LED no”.
- Press “-” two times to come back in measurement mode.

It is always possible to change the status of the LED during gauging, by using the same menu again. If not done before, switching off the unit will automatically light off the LED.

9.5.2 Permanent setting of the LED

- Switch on the equipment,
- Wait until the temperature is displayed,
- Press on “+” to enter the settings menu,
- Press on “enter”; “LED menu” is displayed,
- Press on “enter”; “LED “ is displayed,
- Press on “+”, “LED Set.” is displayed,
- Press on “enter”,
- “Enable” or “disable” the LED by pressing on “+” one or more times,
- Press “-” two times to come back in measurement mode.

The new setting is stored in the permanent memory.

Remember that the LED needs an extra power and reduces the battery life accordingly.

9.6 Muting the buzzer

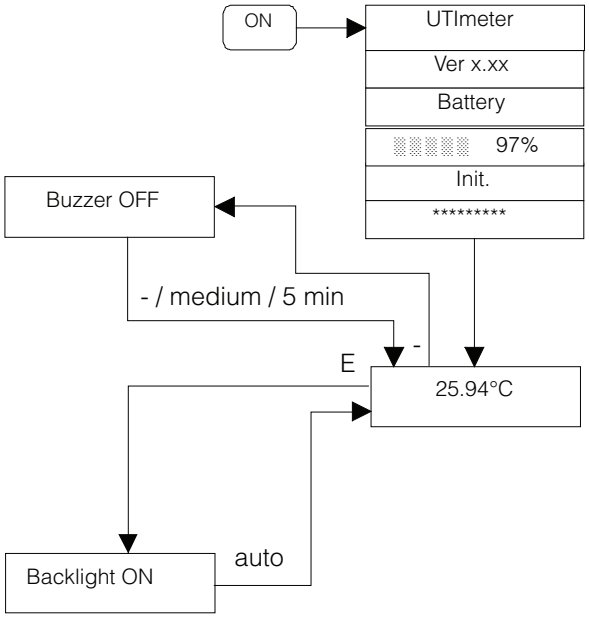


Figure 9-6

When in measurement mode it is possible to mute the buzzer.

- Press on “-”,
- Press on “-” again to reset the buzzer.

IMPORTANT NOTE: in order to prevent any misuse of the equipment, there is an automatic reactivation of the buzzer each time the medium changes (air to liquid, liquid to water, etc.) or after 5 minutes muting. To keep the buzzer muting, press again on “-”.

9.7 Backlight

Refer to Figure 9-6.

When in measurement mode press “enter”: this switches on the backlight. After around 10 seconds, the light switches off automatically to save the battery life.

9.8 Checking the functions before using the instrument

Before installing the HERMetic instrument as described in section 9.9, the following tests are recommended to ensure that the instrument is ready to work.

9.8.1 Battery

Refer to section 10.2 “Checking the battery”.

9.8.2 Temperature

Switch on the unit.

The buzzer shall beep every 2 sec.

When the temperature is displayed, check that it shows the surrounding temperature.

9.8.3 Ullage

Switch on the unit.

The buzzer shall beep every 2 sec.

Check the ullage in a glass of water.

Check the ullage by immersing the ultrasonic gap sensor but not the electrodes (position A); The buzzer shall beep continuously.

9.8.4 Interface

Switch on the unit.

The buzzer shall beep every 2 sec.

Check the interface in a glass of water.

Check the interface by immersing the interface electrodes also (position B). The buzzer shall beep intermittently.

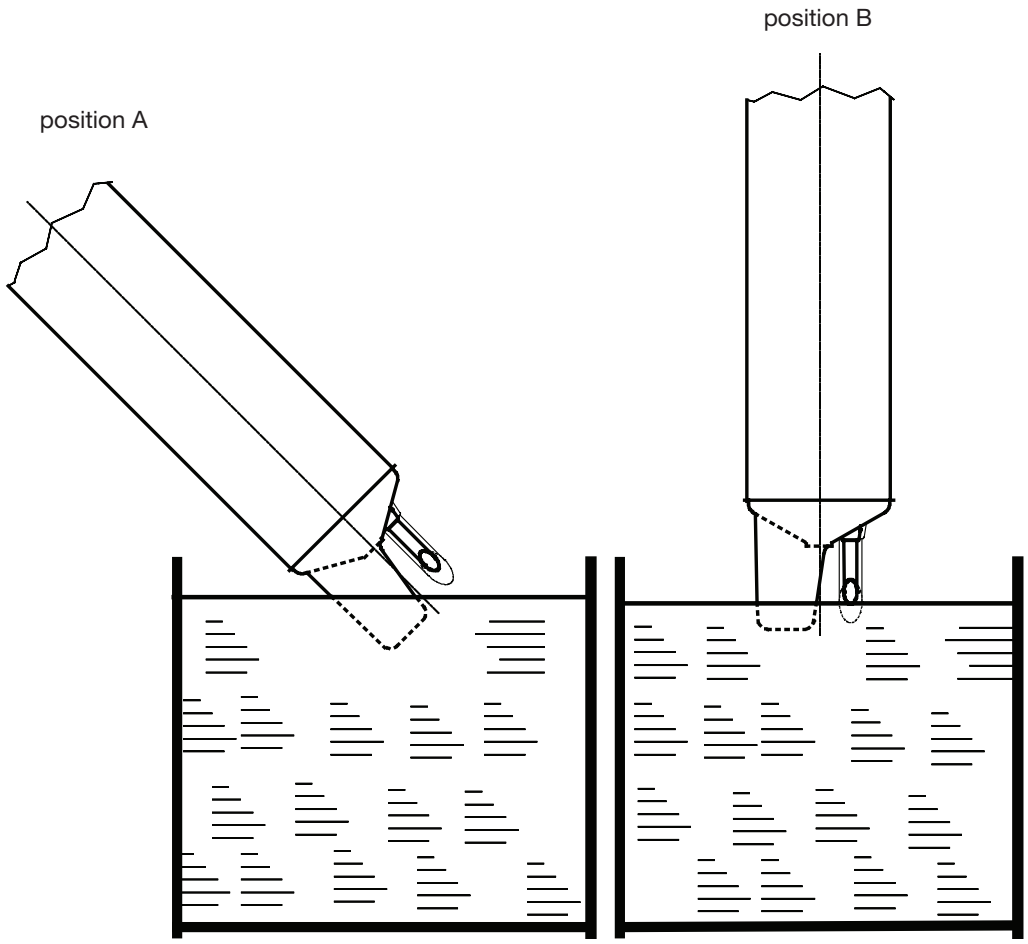


Figure 9-7

9.9 Installation of the instrument

- This HERMetic equipment must be coupled to a certified HERMetic valve.
- Before starting please read carefully the chapter "Recommendation for safe use" and follow your company's safety instructions.
- Check that the HERMetic valve is closed.
- Remove the end cap (weather cap / blind cover / security cover) of the HERMetic valve.
- Clean the seal surfaces of the nipple of the valve and of the coupler of the instrument from dust or grease.

Note: Cleaning of the mating surfaces is very important for earth grounding purpose and for good accuracy on zero reference level.

- Check whether the tape protection tube is moving freely.
- Install the HERMetic instrument on top of the valve by means of the quick coupler. Ensure that the equipment is properly earthed. If not, ground it with the (optional) grounding cable before operating.

9.10 Purging the equipment

This HERMetic equipment can be fitted with a plug to purge it. This is an option, please contact Tanksystem.

9.11 Ullage / interface measurement

- Install the HERMetic equipment as per 9.9 "Installation of the instrument".
- Open the valve by turning the handle.
- Switch on the equipment: a control beep is audible every 2 seconds.
- Put the tape cleaner on the "DOWN" position. Disengage the knob of the crank handle and lower the sensing probe into
  the tank by turning the reel. Make sure that the tape does not rub on any sharp edge when lowering as its insulation could be damaged.
- As soon as the sensor comes in contact with the petroleum product the control beep will change for a continuous beep. Raise the sensing probe again until the continuous beep stops and lower the sensing probe again slowly until the continuous beep is heard again. Now the ullage level can be read against the ullage reference. If the zero-ullage reference does not correspond to the reading index of the instrument, a correction has to be made accordingly.
- Lower the sensing probe further until the sensor touches the oil-water interface. As soon as the sensor comes in contact with water the continuous beep will change for an intermittent beep. The difference between the ullage reading and the interface reading represents the thickness of the product layer.
- When the measurements are completed, switch off the unit, turn the tape cleaner on "UP" position and wind up the tape until the sensing probe is in the storage tube. The reading on the tape shall be less than 420 mm or 1 ft 5 inch.
- Close the valve and disconnect the instrument from the nipple.
- Put the end cap back on the valve.

Important note:

Do not use any tool to activate the crank handle. In case of abnormal effort required, identify its cause and solve the problem. See section 11.8

Do not activate the crank handle too fast, specifically during the rewinding operation. This may generate a rocking of the sensor and some damage (sensor / tape) in case of chocs onto the tank structure.

When activating the crank handle, always control through the window that the tape is really moving. If the tape does not move when the handle is activated, stop winding and identify its cause. Make sure the tape cleaner is in "DOWN" position. If the tape is still not moving despite correct position of the tape cleaner, please check if the sensor is stuck somewhere.

9.12 Reference height / innage measurement

If the unit is fitted with the additional load (see Figure 9-8) then reference height / innage measurement are possible.

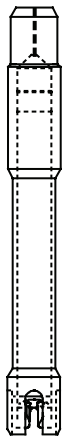


Figure 9-8

- Install the HERMetic equipment as per 9.9 “Installation of the instrument”.
- Open the valve by turning the handle.
- Put the tape cleaner on the “DOWN” position. Disengage the knob of the crank handle and lower the sensing probe into the tank by turning the reel. Make sure that the tape does not rub on any sharp edge when lowering as its insulation could be damaged.
- When the sensing probe comes in contact with the dip/datum plate record the distance shown on the reading index. See Figure 9-9. The exact distance from the plate to the reading index is (reading + 4 mm) or (reading + 5/32”) which is the reference height providing the reading index level has been adjusted to the zero ullage level of the tank. If the tank zero ullage is levelled above or below the reading index, an additional correction shall apply. For more details refer to section “Installation of the gauging system”.
- Turn the tape cleaner on “UP” position.
- Switch on the unit and raise up the sensing probe until checking the oil/water interface if any (see details in section 9.11 ”Ullage / interface measurement”). To get a better accuracy of the interface level, release the tape cleaner on the “DOWN” position during the final checking. Calculate the free water height by subtracting the index reading to the reference height.
- Reengage the tape cleaner on the “UP” position and raise up the sensing probe until checking the ullage (see details in section 9.11 “Ullage / interface measurement”). Release the tape cleaner for final checking of the ullage. Calculate the innage by subtracting the index reading and the free water height to the reference height determined before.
- When the measurements are completed, switch off the unit, engage the tape cleaner on the “UP” position and wind up the tape until the sensing probe is in the storage tube. The reading on the tape shall be less than 420 mm or 1 ft 5 inch.
- Close the valve and disconnect the instrument from the nipple.
- Put the end cap back on the valve.

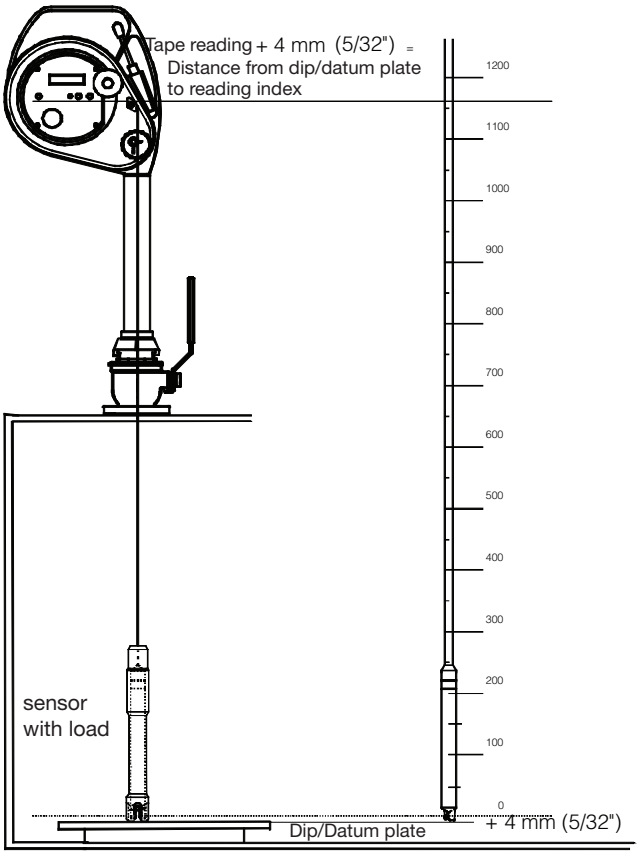


Figure 9-9

9.13 Temperature measurement

- Install the HERMetic equipment as per 9.9 “Installation of the instrument”.
- Open the valve by turning the handle.
- Switch on the unit: a control beep is audible every 2 seconds.
- Put the tape cleaner on the “DOWN” position. Disengage the knob of the crank handle and lower the sensing probe to the deepest reading desired. Make sure that the tape does not rub on any sharp edge when lowering; its insulation might be damaged.
- The position of temperature sensor coincides with zero of tape, so the tape index reading shows directly level at which temperature is measured
- When the desired temperature ullage level is reached, joggle the sensing probe approximately 300 mm (1 foot) above and below the desired measurement level until the displayed temperature reading settles. For heavy crude oils which have a low thermal conductivity and a viscous nature, the joggling procedure is a necessity to assure an accurate temperature reading in a minimum amount of time.
- When temperature has settled, record it.
- Engage the tape cleaner on “UP” position. Raise the probe to the next ullage level to be measured and repeat the procedure a.m. To joggle the sensing probe the tape cleaner must be on the “DOWN” position.
- When the measurements are completed, switch off the unit, engage the tape cleaner on “UP” position and wind up the tape until the sensing probe is in the storage tube. The reading on the tape shall be less than 420 mm or 1 ft 5 inch.
- Close the valve and disconnect the instrument from the nipple.
- Put the end cap back on the valve.

IMPORTANT NOTE
As mentioned in 9.6 “Muting the buzzer” it is easy to mute the buzzer during the temperature measurement by pressing on “-”.

Recall that after 5 minutes have elapsed or each time the probe detects a change of the medium (air, liquid, water), the buzzer will reactivate automatically. To keep it muting, press on “-” again.

10. Care and Maintenance

10.1 General Care & Considerations

Clean the instrument of any excess of liquid after use. Remove the housing lid and clean the tape housing. This cleaning must be done very properly, in particular when corrosive liquids are gauged, such as strong acids or caustic soda for instance.

Make sure that the sensing probe is completely stored in the storage tube after use (reading index shall indicate less than 420 mm or 1 ft 5”).

Check the tightness of the reading index screws and if necessary adjust the level, refer to section 7.5 “Reading index”.

Store the instrument in a safe, dry and dust free location with an ambient temperature between +5°C to +45°Cin a dry location, refer to section 10.12.

Check periodically (at least every 6 months) the continuity of grounding by measuring the electrical resistance between the tape adaptor (or the sensing probe tube) and the quick connect coupler. Resistance should not exceed 10 Ω.

Periodically clean carefully the sensor probe, the tape housing and the mechanical parts, as storage tube, tape, with an appropriate solvent.

Note: always reassemble the storage tube to the housing in the vertical position to allow the O-ring to seat properly in the tube.

Check periodically the condition of the tape cleaner.

With such conductive liquids which form salts when drying, wash the sensing probe with water or alcohol and brush it very gently with a soft brush to prevent a water detection error due
to a short-circuit between the electrode and the tube.

For transportation of the unit without its box, always carry the unit with the button handle directed to the body.

Equipment does not contain any dangerous materials inside which can harm the environment and people health during normal use or disposal. However the utilization and recycling of the equipment after the end of its life must be implemented by an authorized organization in accordance to local legislation.

Do not throw in rubbish but recycle wastes in accordance to environmental / local rules.

10.2 Checking the battery

Please note that in case you have to change the battery, it must be done only in a safe area. Refer to section 10.3 “Battery replacement”.

10.2.1 Before starting gauging

Switch on the unit. The buzzer tones every 2 seconds if the battery is not too low.

The following sequences are displayed as per Figure 10-1, the 4th sequence shows the remaining power of the battery in percentage and as a bar-graph.

If the power left is less than 50% we recommend to have a spare battery ready for exchange. See also 10.3 “Battery replacement”.

If the power left is less than 20% the message is blinking to advise that the power may not be enough to carry out all the work.

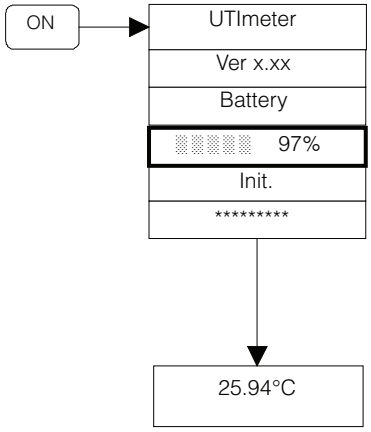


Figure 10-1

If the battery is too low, the unit will stop on the message “battery” as shown on Figure 10-2 and the buzzer tones continuously. Change the battery as per 10.3 “Battery replacement”.

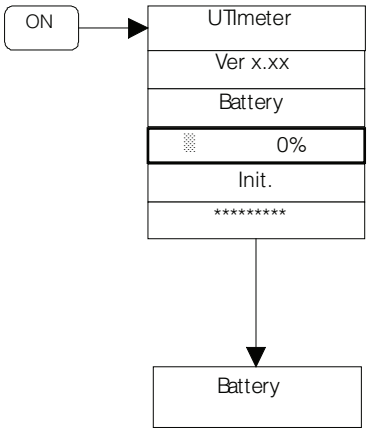


Figure 10-2

If it is not possible to switch on the unit, the battery is out or work. Change the battery first, as per 10.3 “Battery replacement”.

10.2.2 During gauging

When the unit is already switched on and working, it is always possible to see what power is left with the battery by entering the settings menu:

- Press on “+” to enter the settings menu,
- Press on “enter”, “LED menu” is displayed,
- Press on “+”; “T. unit” is displayed,
- Press on “+”, “Resol.” is displayed,
- Press on “+”, “Language” is displayed,
- Press on “+”, “Battery” is displayed,
- Press on “enter”,
- The remaining battery power is displayed in percentage and as a bar-graph; pressing “+” again allows to see the tension of the battery (B); the last information (A) is internal.
- Press “-” two times to come back in measurement mode.

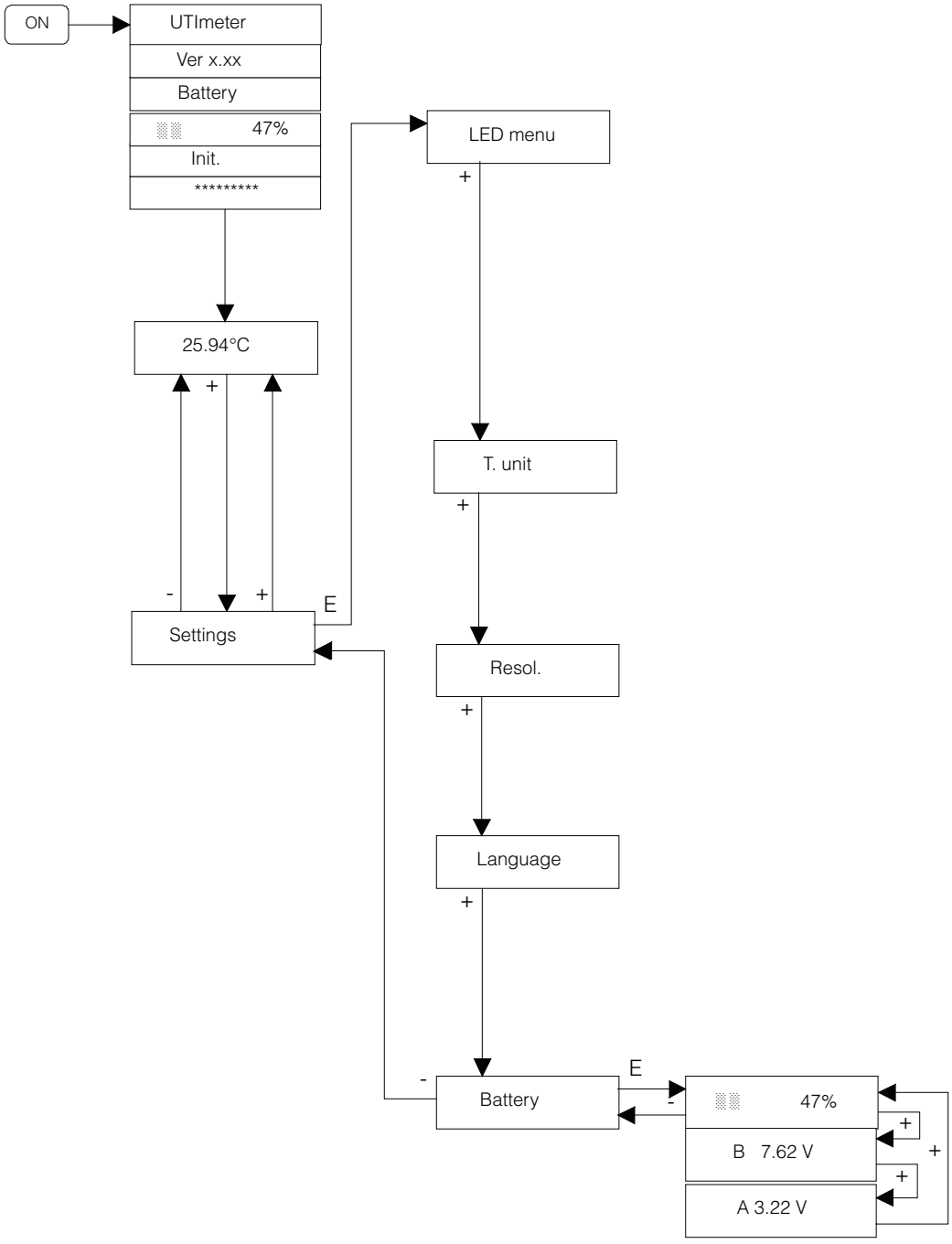


Figure 10-3

10.3 Battery replacement

Warning : change the battery only in a non hazardous area.

- Unscrew the 2 screws of the battery holder using the 2,5 mm
  Hex Allen key which is located on the carrying case. See Figure 10-4.
- Pull it gently out.
- Change the battery (one-way only device). See Figure 10-4.
- Push the battery holder back in its housing (one-way only).
- Tighten the 2 screws. Nota: to prevent gripping risks, we recommend adding lubricating paste on screws.

Only following batteries are approved:

Duracell / Procell MN1604
Duracell 9V Industrial (6LF22)
Energizer Max (6LR61)

Disposing of general purpose & Alkaline batteries

Disposal should be in accordance with national and local regulations. Do not incinerate for disposal except in a controlled incinerator.

Due to concerns about mercury in the municipal solid waste stream, Duracell / Procell alkaline batteries used are composed primarily of common metals—steel, zinc, and manganese—and do not pose a health or environmental risk during normal use or disposal.

Caution: Do not throw batteries in rubbish;
deposit them in a recycling bin.

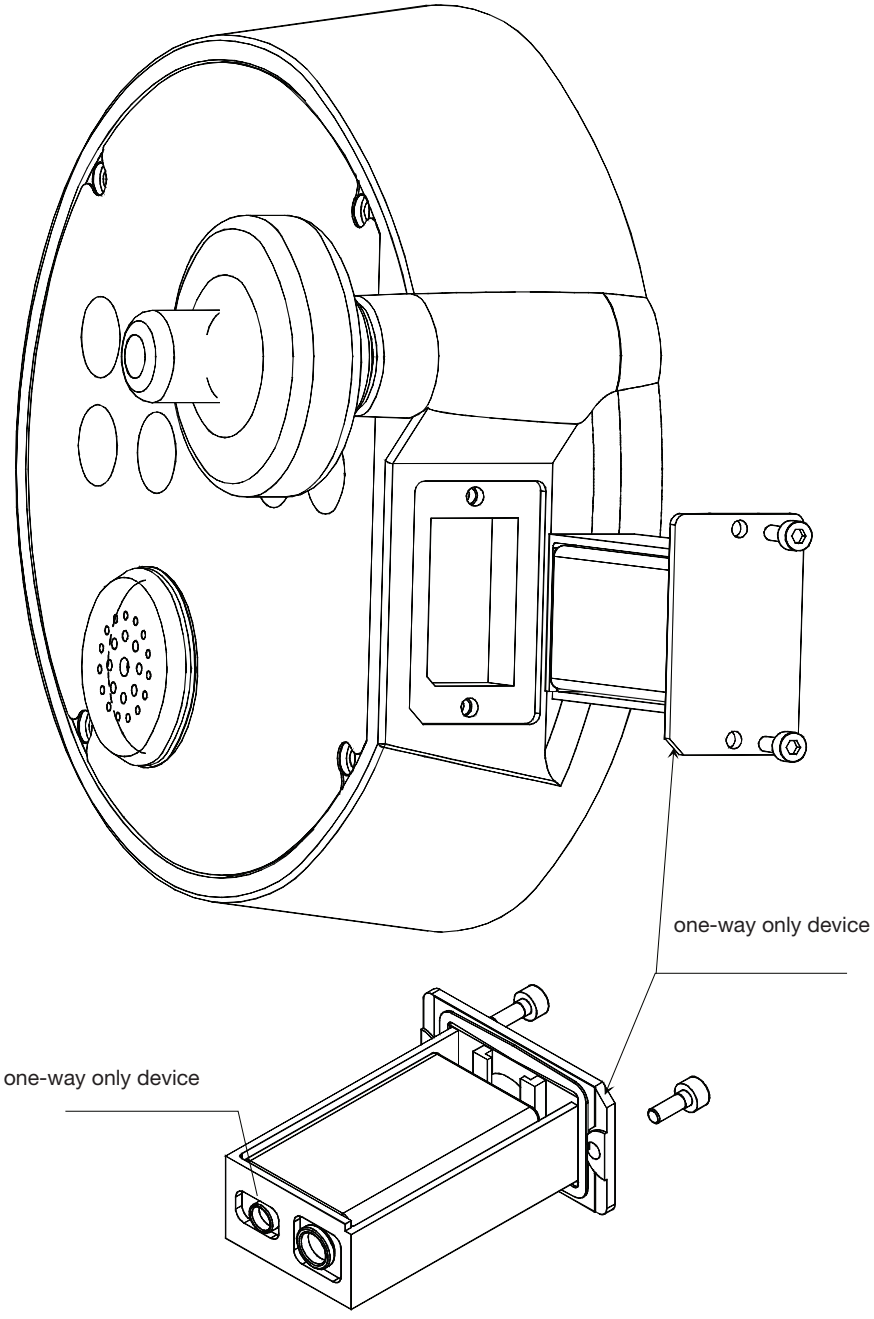


Figure 10-4

10.4 Tape replacement

THE REPLACEMENT OF THE TAPE DOES NOT REQUIRE TO RE-CALIBRATE THE TEMPERATURE.

Follow the different sequences as described below. The Figure 13-1: general assembly, list of the main spare parts can also help.

10.4.1 Disconnecting the tape from the sensor
Follow the instructions of section 10.5 “Sensing probe replacement”.

10.4.2 Disconnecting the tape from the electronic box

- Unscrew with the 2.5 Allen key the 2 screws (A) of the battery holder and pull it out as shown on Figure 10-5.
- Unscrew with the 2.5 Allen key the 4 screws (B) of the display unit and pull it gently out as shown on Figure 10-5.

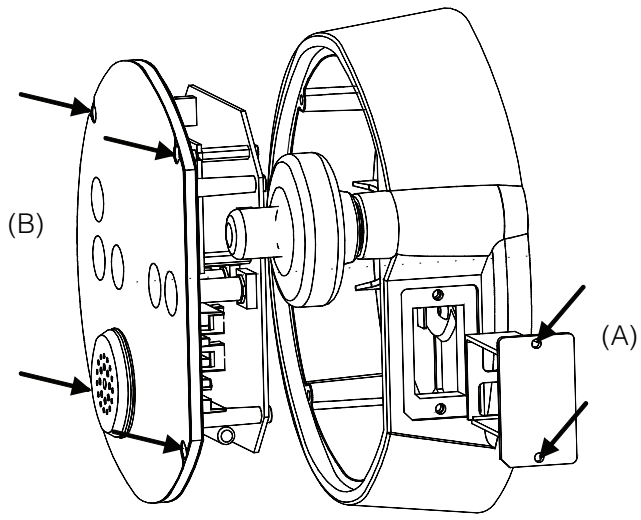


Figure 10-5

- Disconnect the connecting plug (C) as shown on Figure 10-6 and remove the display unit.
- Unscrew with the 2.5 Allen key the tape holder (G) by removing the 2 screws (F) and the grounding cable (D) as shown on Figure 10-6. Do not loose the 2 remaining screws that secure the reel axle.

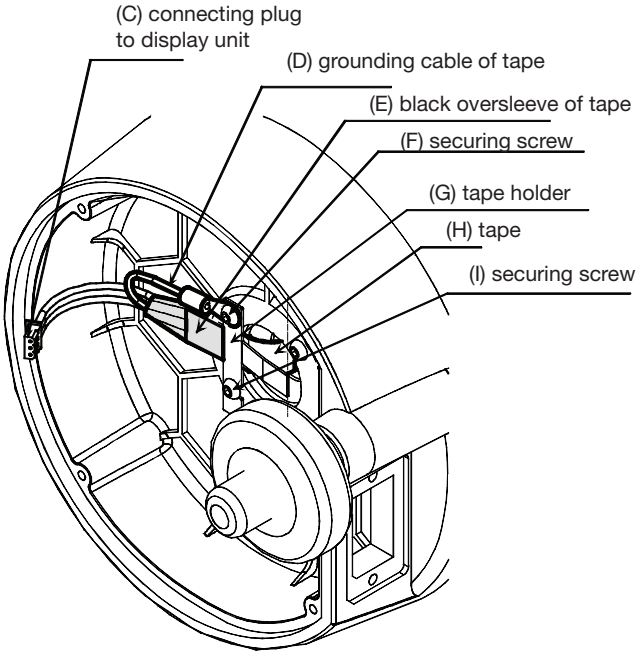


Figure 10-6

10.4.3 Disconnecting the tape from the reel axle

- Unlock the housing lid and remove it.
- Remove the axle cover (3 screws to unscrew with the 2.5 Allen key).
- Unscrew with the 2.5 Allen key the 4 screws (K) of the washer holder, as shown on Figure 10-7.
- Remove the tape from the reel axle.

10.4.4 Removing the tape from the housing

- Remove the tape protection tube from the tape.
- Turn the tape cleaner in position “DOWN” to free the tape.
- Pull the tape gently out of the tape cleaner.
- Pull the tape adaptor end out of the housing, through the storage tube.
- Unscrew the reading index and remove it (Figure 10-8).
- Slacken the tape a few turns from the reel axle.
- Remove the tape from the housing.

10.4.5 Mounting the new tape

- Install the new tape on the reel axle.
- Leave approximately 20 cm of tape free at the core.
- Make a loop (M) and a S-shape (L) with the tape as shown on Figure 10-7.
- Pass the tape end through the axle core.
- Secure the gaskets and the washers mounted on the tape in the axle core with the washer holder and its 4 screws (K) as shown on Figure 10-7.
- On the electronic box side, adjust the black oversleeve just to the edge of the tape holder (pull the tape gently from the other side) and tighten the tape end as shown on Figure 10-6 with.
- Follow in the reverse order the instructions of sub-section 10.4.2 to re-install the electronic box.
- If necessary, readjust the loop (M) and the S-shape (L) of the tape at the core of the reel axle.
- Follow the instructions of sub-section 10.4.4 in the reverse order to pass the tape through the tape cleaner, the storage tube and to mount the tape protection tube on.
- Reinstall the reading index (Figure 10-8).
- Adjust the reading index as described in section 10.9 .
- Put back the axle cover and its 3 securing screws.
- Follow the instructions of section 10.5 “Sensing probe replacement” to re-install the sensor on the tape.
- Carry out the functional tests as per 9.8 “Checking the functions before using the instrument”.
- If there is any problem, refer to section 11 “Trouble shooting”.

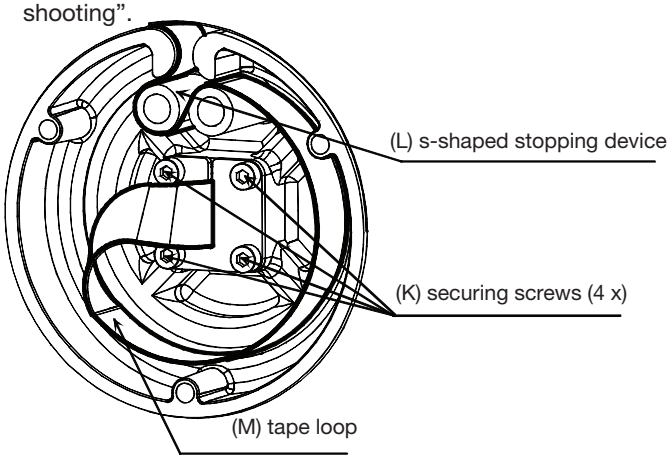


Figure 10-7

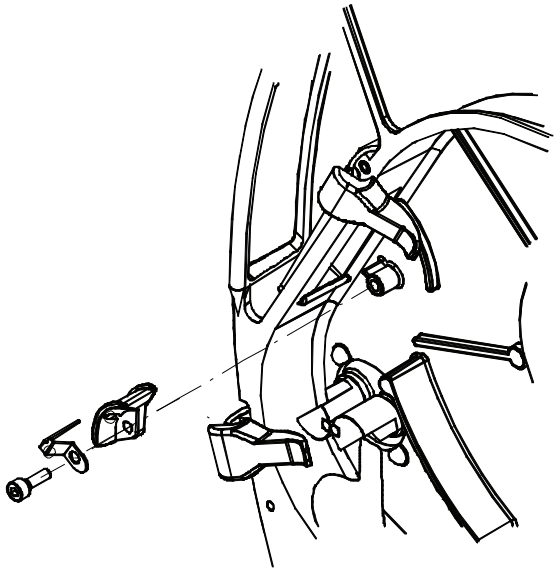


Figure 10-8

10.5 Sensing probe replacement

THE REPLACEMENT OF THE SENSING PROBE DOES NOT REQUIRE TO RE-CALIBRATE THE TEMPERATURE NOR THE ULLAGE / INTERFACE.

10.5.1 Disconnecting the old sensing probe

- Unscrew the securing screw with the 1.5 mm Hex Allen key.
- Pull carefully the adaptor out of the sensing probe tube by turning it slightly left and right. Make sure that the O-ring is not damaged when it passes the hole of the sensing probe tube.
- Disconnect the plug by pulling it gently out of the tube.

10.5.2 Connecting the new sensing probe

- Refer to Figure 10-9.
- Insert the Insertion tool gently in the free hole in the free external holes of the tape plug.
- With one hand keep the sensing probe and the tape adaptor as shown on Figure 10-9.
- With the other hand drive the plug into the new sensor tube with the Insertion tool to connect it to the sensing probe socket. Note this is a one way only plug. The wires shall be on the opposite side of the electronic circuit print as shown on Figure 10-9.
- Pull out gently the Insertion tool from the plug while keeping the plug in place with another non sharp tool, for instance the 4 mm Allen key. Check that the plug is fully inserted.
- Switch on the unit and wait a few seconds. If all is OK, the temperature is displayed and the buzzer beeps every 2 seconds. If there is any problem, refer to the section 11 “Trouble shooting”.
- Put some light grease on the O-ring.
- Push gently the adaptor into the sensing probe tube. Mind not to damage the O-ring when it passes the screw hole.
- Screw the securing screw back with the 1.5 mm Hex Allen key.

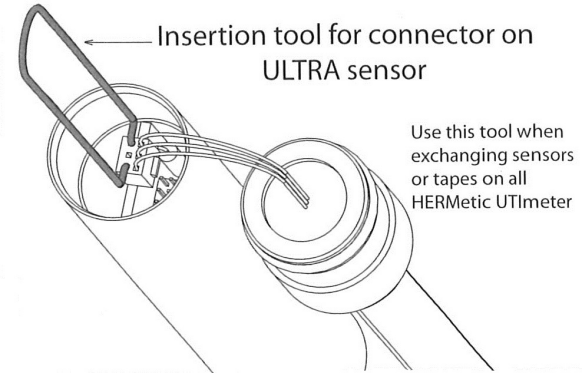
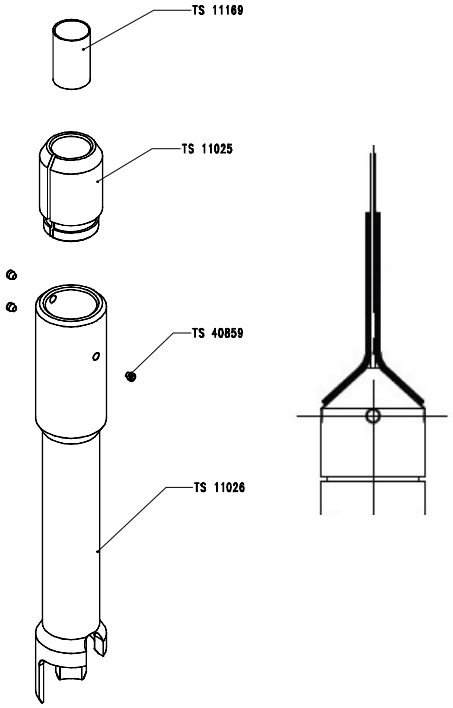


Figure 10-9

10.6 Visc Option - Load Assembly

- To protect the tape, mount the Heat shrink tube 24/8 x 80, TS 11169, onto the tape.
- The tube must be placed at the extremity of the tape adaptor, covering its black plastic plug.
- With a heat gun, shrink the tube. Temperature to be set about 80-100°C. Caution to not damage the coating of the tape and consider all safety aspect before proceeding to this operation.
- Once the tube cold, pass the tape through the slot the Nut for load 700gr, TS 11025.
- Pass the sensor through the load and screw the load with the Nut for load 700gr, TS 11025. Fix parts with screw M4x4, TS 40859.
- Place the load subassembly onto the tape adaptor. The fork of the load must be aligned and behind the plastic fork of the sensor. Fix it with both screw M4x4, TS 40859. For a better tightening, tighten the screws at the same time, with 2 wrenches.



10.7 Tape wipers replacement

The 2 tape wipers can be easily replaced:

- Check that the tape cleaner is on “DOWN” position.
- Unlock and remove the housing lid.
- The tape wipers are inserted in holders grooves. Remove the old ones and insert the new ones.
- Put back and lock the housing lid
- Check that the tape cleaner is working properly.

Note: we recommend to change always both wipers.

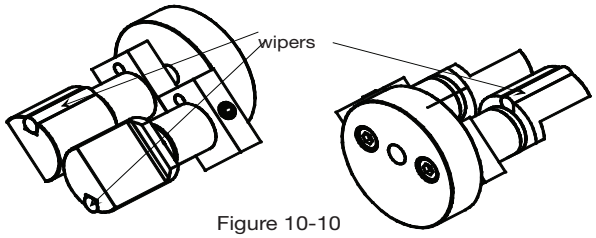


Figure 10-10

10.8 Display unit replacement

THE REPLACEMENT OF THE DISPLAY UNIT DOES NOT REQUIRE TO RE-CALIBRATE THE TEMPERATURE.

10.8.1 Disconnecting the old display unit

- Unscrew with the 2.5 Allen key the 2 screws (A) of the battery holder and pull it out as shown on Figure 10-11.
- Unscrew with the 2.5 Allen key the 4 screws (B) of the display unit and pull it gently out of the electronic box, as shown on Figure 10-11.
- Disconnect the tape plug, item (C) shown on Figure 10-6.

10.8.2 Connecting the new display unit

- Connect the tape plug to the new display unit.
- Put back the new display unit in the electronic box; tighten the 4 screws (B) of Figure 10-11.
- Reinstall the battery holder with the 2 screws (A) of Figure 10-11. Refer to Figure 10-4 page 40.
- Check that the unit is working properly, as described in 9.8.

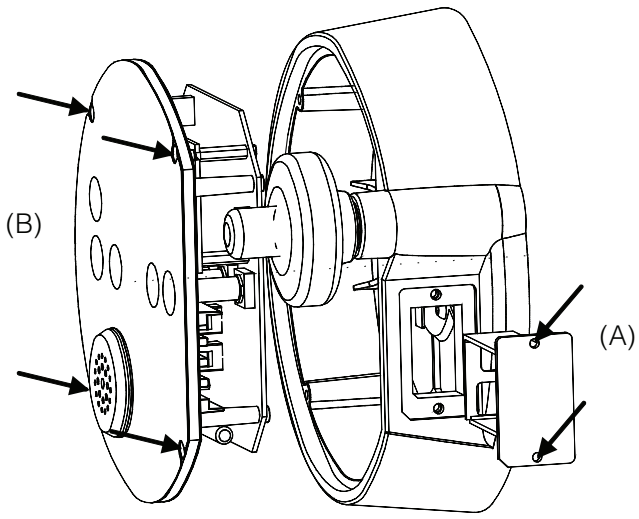


Figure 10-11

10.9 Button handle replacement

CAUTION: THE BUTTON HANDLE IS A SAFETY PART. IT MUST BE REPLACED BY A GENUINE SPARE-PART ONLY. An incorrect replacement may impair the safety of the device.

Refer to Figure 13-4: electronic box assembly TS 10190 at the end of the manual to identify components.

- Disconnect the tape from the electronic box as specified in section 10.4.2.
- Unscrew the 2 remaining screws that secure the reel axle.
- Remove the old button handle subassembly.
- Assemble the button handle its spring and the finger for handle subassembly
- Pass it through the electronic box
- Assemble the knob for handle onto the button handle and align their holes.
- Place the dowel pin and secure it by mounting the external part of knob.
- Follow in the reverse order the instructions of sub-section 10.4.2 to re-install the electronic box.

10.10 Storage tube replacement

Always reassemble the storage tube to the housing in the vertical position to allow the O-ring to seat properly in the tube.

10.11 Verification and certification of tapes

The tape has to be periodically inspected for breaks, kinks, wear and illegible numbers.

As the tape is a cable it might be necessary to check its electrical conformity. Refer to section 11.9. It is necessary also to check it for accuracy regularly according to current National or International Standards, as API “Manual of Petroleum - Measurement Standards - Chapter 3 - Tank Gauging - Section 1A - Standard practice for the manual gauging of petroleum products in stationary tanks” or IP “Petroleum Measurement Manual - Part III - Manual Tank Gauging - Section 1 - Non-Electrical Methods” or relevant ISO standards.

In such a case it is important to remember that the bottom of the sensing probe is 4 mm lower than the zero of the tape, thus to assure that the electrical zero coincide with the tape zero.

It is also important to remember that the nominal tension at which the tape was produced is marked on each beginning of tape and is normally 6 N (1,3 lb). If tensioned at 44,5 N (10 lb) as per API this will result in a additional elongation up to 3.7 mm over 30 meters.

This periodical verification can be done at the factory or in a Service Station.

10.12 Verification and adjustment of the reading index

To verify or to adjust the reading index, in particular after having renewed a tape, apply the following instruction:

- if the equipment is fitted with a 2” connector (Q2) remove the clip and the collar as shown on Figure 10-12;
- unlock and remove the lid of the tape housing;
- put the tape cleaner on “DOWN” position;
- keep the equipment standing vertically on a flat surface;
- gently lower the tape until the sensor touches the surface (Figure 10-12);
- adjust the index to the value corresponding to the connector Q1 or Q2, as shown on Figure 10-12;
- in case of a 2” connector (Q2) put back the clip and the collar.
- put the housing lid back and lock it.

IMPORTANT NOTE: these adjusting values for the reading index are different from the heights shown in the section 8 “Examples of installation of the gauging system”. They take into account the recessment of the reaction point from the sensor tip end and other mechanical parameters.

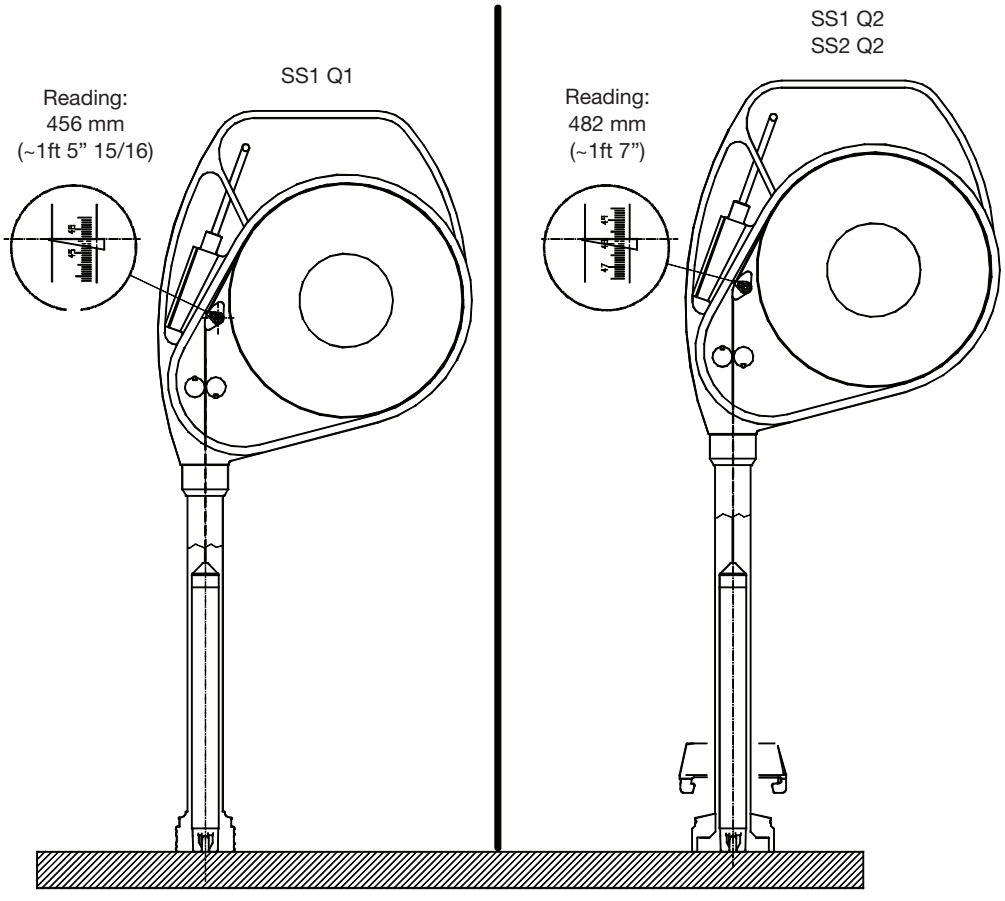


Figure 10-12

10.13 Temperature verification

The temperature calibration curve is stored in the sensor memory and cannot be modified. The calibration is set once at the factory and do not require subsequent adjustment.

Nevertheless it is recommended to check the temperature accuracy once a year. A one point check is enough to qualify the sensor.

10.13.1 Equipment required

- A Dewar flask or any vacuum flask, approximately 8 cm in diameter and 36 cm deep.
- Ice, preferably made from distilled water.
- Water, preferably distilled and precooled.

10.13.2 Preparing the Ice Point bath

(1) Shave or crush the ice into small pieces, avoiding direct contact with the hands or any unclean object. The pieces shall be no more then 5 mm.

(2) Fill the Dewar flask with the crushed ice and add sufficient water to form a slush, just filling the voids between ice particles but not enough to float the ice.

(3) Insert the sensor, packing the ice gently about it.

(4) Let it stand for half an hour to permit the sensor temperature, the ice particles and the water to equilibrate.

(5) As the ice melts it will be necessary to drain off some water and add more crushed ice. Gently stir the ice with the sensor periodically to assist equilibration.

IMPORTANT NOTE: Attention to detail during the preparation of the Ice Point bath is critical to the accuracy and quality of the offset verification.

10.13.3 Checking the UTImeter

(6) After 30 minutes have elapsed, gently stir the bath with the sensor again to ensure complete equilibration of temperature.

(7) Switch on the UTImeter.

(8) Observe the reading. It should be ±0.10 °C (±0.20 °F) The temperature must be stable, i.e. within ±0.04 °C (±0.07 °F).

(9) If it is not OK, refer to section 11 “Trouble shooting”.

10.14 Ullage/Interface verification

The sensitivity of the instrument in ullage / interface cannot be adjusted. Both ullage and interface levels are set at the factory.

Checking ullage and interface level detection

The test liquid should be the one to be gauged. Fill in a container with appropriate liquid.

Switch on the unit. The buzzer shall beep every 2 sec.

If the liquid is conductive (alcohol, water, ...)

- Check the ullage by immersing the ultrasonic gap sensor but not the electrodes (position A); The buzzer shall beep continuously.
- Check the interface by immersing the interface electrodes (position B). The buzzer shall beep intermittently.

If the liquid is non conductive (gasoline, oil, ...)

- Check the ullage by immersing the sensor (position B); The buzzer shall beep continuously.
- Check the interface by immersing the sensor (position B) in water. The buzzer shall beep intermittently.

10.15 Storage of HERMetic devices

For a proper storage of HERMetic products (UTImeter, Sampler, Thermometer and related spare-parts…), we recommend:

- Clean the devices after use,
- Remove batteries for prolonged storage,
- Store batteries in a dry and cold location,
- Store the goods in a safe, dry and dust free location with an ambient temperature between +5°C to +45°C.

10.16 Transportation of HERMetic devices

For transportation of the device, always stretch out the tape to avoid any move of the the sensor inside its storage tube.

For transportation of the device by its handle, always carry the unit with the button handle directed to the body (carrier).

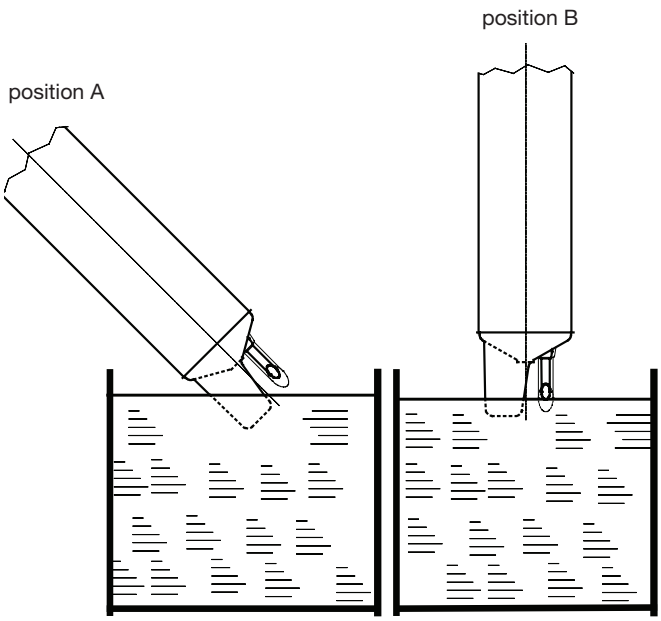


Figure 10-13

10.17 Recycling of HERMetic devices

At delivery, equipment does not contain any dangerous materials inside which can harm the environment and people health during normal use or disposal. However the utilization and recycling of the equipment after the end of its life must be implemented by an authorized organization in accordance to local legislation.

Do not throw in rubbish but recycle wastes in accordance to environmental / local rules.

10.18 Installation&General Care of HERMetic Valve

Refer to Recommendation for safe use, paragraphe 6.1:

> ...grounding is effected through the quick connect coupler and the mating nipple of the **valve** provided that these parts are **kept clean and free from corrosion in order to guarantee electrical conductivity. If a grease is used for this purpose, it must be one which contains graphite.**

For a proper installation, please refer to the chosen sealing component manufacturer installation guide. In any case, tightening torque of valve fixing screws must not overtake 160Nm (120 lbf.ft).

Inspect valves in regards to damage / marks / pollution preventing a proper connection and gastigtness when connected with the HERMetic devices.

Ensure no damage impact the PTFE sealing of the ball valve.

Where appropriate, complete a leak test with leak detector spray to confirm the valve tightness.

11. Trouble shooting

11.1 Safety warning

As this equipment is designed and approved for use in an explosive area (intrinsic safe equipment), only authorized service stations and the factory are allowed to repair electronic circuits.

However the customer can exchange parts and modules if the following points are observed :

1. Never open the instrument nor carry out any repair or trouble shooting in an hazardous area.
2. Use only original spare parts.
3. Work shall be done only by maintenance personnel who has an experience with intrinsically safe equipment.

The design of the equipment is modular, i.e. in case of breakdown the customer can find out which modules have to be replaced. The instrument consists of the following modules:

- Mechanical parts
- Sensing probe
- Tape assembly
- Display unit / electronic box
- Tape cleaner

The following sections should allow to identify the defective module and to replace it.

11.2 Power supply troubles

Symptom	Origin	Action	Section
The unit does not switch on	Battery too low	Change the battery	10.3
	Corrosion of terminals (battery side)	Clean the battery terminals	---
	Corrosion of terminals (display unit side)	Clean the display unit terminals	---
	Switch defective	Change the display unit	10.7
The unit switches on but stops on the message “battery”; the buzzer tones continuously	Battery too low	Change the battery	10.3

11.3 Transmission troubles

Symptom	Origin	Action	Section
“No Msg “ is displayed	Sensor out of work or	Renew the sensor	10.5
	Tape out of work	Renew the tape	10.4
“Invalid” is displayed	Sensor out of work	Renew the sensor	10.5
“Unknown” is displayed	Sensor out of work	Renew the sensor	10.5

11.4 Ullage and/or Interface troubles

Symptom	Origin	Action	Section
The buzzer does not beep when the unit is switched on	Buzzer switched off or	Press on “-” to reactivate it	9.6
	Key-pad defective or	Pressing on “+” has no action Change the display unit	10.7
	Buzzer defective	Press on “+”: “Settings” is displayed Change the display unit	10.7
The buzzer tones continuously when the sensing probe is in air or liquid or water	Battery too low	Change the battery	10.3
The buzzer gives the water signal whatever liquid is gauged	Sensing head contaminated by conductive residues	Wash, clean and brush (soft brush) the sensing head or change the sensor	--- 10.5
The buzzer gives the oil signal in water	Sensing head contaminated by non conductive residues	Wash, clean and brush (soft brush) the sensing head or change the sensor	--- 10.5

11.5 Temperature troubles

Symptom	Origin	Action	Section
“> 90°C” or “> 194°F” is displayed	Temperature to high	The temperature range shall be < 90°C / 194 °F	---
“< -40°C” or “< -40°F” is displayed	Temperature too low	The temperature range shall be > -40 °C/F	---
Temperature does not stabilise	Heated viscous liquid (such as heavy crude oils)	Check the stability in cold and hot water; if it is OK the problem is with the gauged liquid and not with the probe	---
	Contaminated sensing probe	Clean the temperature electrode; remove any residues or sludge; check the stability in cold and hot water	---

11.6 Visual inspection for damaged or missing parts

General condition: missing parts

Display unit: 5-key control pad, buzzer, front face, LED, screen

Sensing probe: sensors broken, smashed or damaged

Tape: check at least the first 3 m; wires still insulated, no breaks, no kinks, ...

Mechanical parts: check housing, lid, axle, storage tube, wipers of tape cleaner, window wiper

11.7 Coated aluminium parts

PA 11: Rilsan = blue, grey or yellow colour

The coating should be subject to regular and careful inspection. The continued used of the apparatus should not be permitted if inspection reveals that the protective material has become damaged to the extend that the underlying protected metal is visible, until such damage has been satisfactorily repaired.

11.8 Winding action becoming stiff

If after repeated use the winding action is becoming slightly stiff apply the following simple process:

- engage the tape cleaner (position “UP”), with the sensor retained in the storage tube,
- slacken the tape a few turns, typically 10,
- gently shake the instrument to free up the tape within the tape housing,
- wind the tape again and disengage the tape cleaner (position “DOWN”).

11.9 Electrical checking of the tape assembly

☯ Test for grounding

- Remove the battery holder as described in section 10.3.

☯ Measure the resistance between the ground (-) terminal (as shown on Figure 11-1) of the electronic circuit and the tube of the sensing probe; the resistance should be less than 10 Ω. If it is higher, the steel tape might be broken or the connection between the sensing probe circuit and the sensing probe tube might be interrupted.

☯ Test for short-circuit

- Disconnect the tape at both ends: display unit side and sensing probe side (see sections 10.4.1 and 10.4.2).
- Measure the resistance between each conductor red-white, red-black, white-black. This resistance should be infinite as
  an open circuit. If not, the tape might be defective.

☯ Test for open-circuit (continuity)

- Disconnect the tape at the sensing probe side (see 10.4.1).
- Measure the resistance of each conductor of the tape (between red and red, white and white, etc.).
- The resistance should be less than 15 Ω. If not, the tape might be broken. To replace the tape see section 10.4.

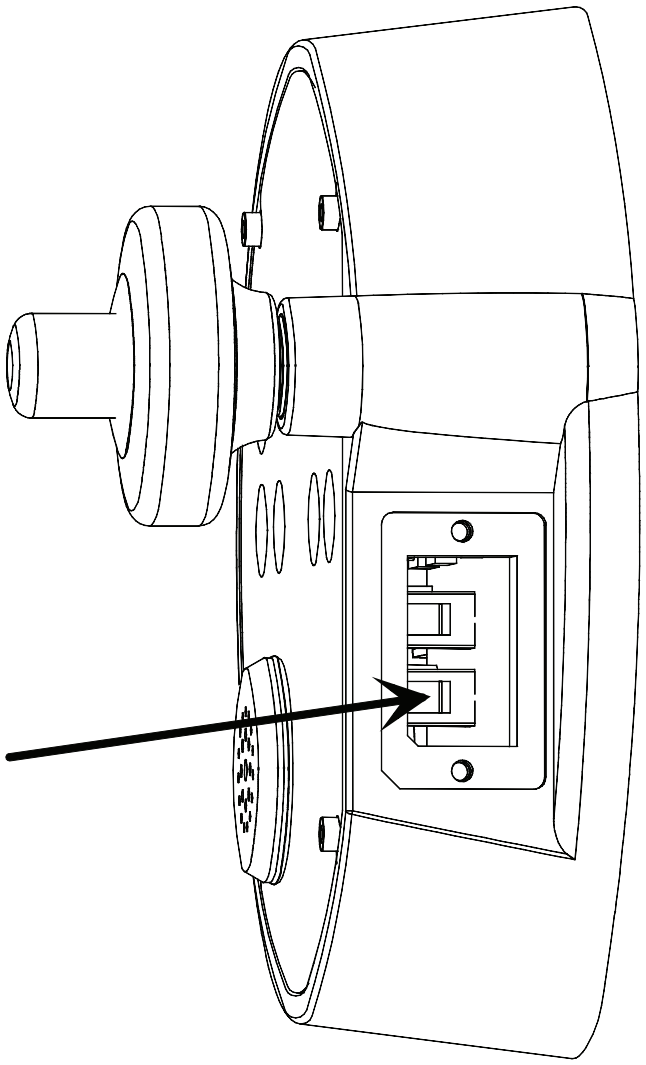


Figure 11-1

12. Specifications

General Specifications	
Accuracy of ullage-interface detection	±2 mm (± 0.08” approx.)
Ullage, interface indication	Audible or visible
Tape length	15 m/50 ft, 25 m/75 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 ISO 4512 and API MPMS Chap 3.1A requirements	
Diameter of probe (without load)	23 mm (29/32” approx.)
Minimum detectable tank bottom liquid level	4 mm (5/32” approx.)
Maximum tank pressure	0,3 bar (4,4 psi)
Accuracy	±0.1°C (0°C to 70°C); ±0.2°F (32°F to 158°F)
Meets ISO 4268, API MPMS Chap 7 and IP PMM Part IV requirements	
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 to 194°F)
Temperature measurement resolution	0.01° or 0.1°, selectable
Temperature reading	°C or °F, selectable
LCD Display	8 characters
Mechanical coupling	Q2 (2”) or Q1 (1”)
Ingress Protection Rating	IP54
Weight with 15 meter / 50ft tape, 1” storage tube and quick coupling	4.4 kg / 9.7 Lbs.
Hazardous environments approvals	
IECEx	Ex ia IIB T4 Ga / -20°C < Ta < +50°C / -40°C ≤ Tp ≤ +90°C
ATEX	II 1 G Ex ia IIB T4 Ga / -20°C ≤ Ta ≤ +50°C / -40°C ≤ Tp ≤ +90°C
FM Approvals	CL I, DIV 1, GP C&D, T4 Tamb 50°C and CL I, ZN 0, AEx ia IIB T4 Tamb 50°C Maximum Process Temp +90°C
Multifunctions-Sensor	
Ullage detection	ultrasonic
Interface detection	conductivity
Temperature	Platinium RTD Pt 1000
Innage / Reference height	additional load (option)
Tape cleaning device	UP / DOWN tape cleaner
Tape protection tube	on all units equipped with TS storage tubes
Maintenance	modular design / easy exchange of parts

Specifications subject to change without notice.

13. Spare parts

13.1 How to proceed

Each spare part is identified by the letters TS followed by a 5 digits number, as for instance TS 10207 for the sensor or TS 10192 for the 30 meters tape.

Proceed as follows to identify the part you need to order:

1) Find the adequate drawing on the next pages;
2) Note the item TS number, ex. TS 10207;
3) With the assistance of the below table, identify its description, ex. “Sensor Ultra”.

For each order, please note the item number, its description and the required quantity.

Example: TS 10207 “Sensor Ultra”, 3 x.

13.2 List of parts descriptions

TS number	Description	Notes
10182	Storage tube S2-Q2 with load	
10183	Storage tube S1-Q2	
10184	Storage tube 1” S1-Q1	
10189	Battery holder assy	does not include TS 40300 & 37020
10190	Electronic box assy	does not include TS 11210 & TS 40765
10191	Tape 15m stand. double assy	kit (tape + 1 x TS 11603 + 1 x TS 40853)
10229	Tape 25m stand. double assy	kit (tape + 1 x TS 11603 + 1 x TS 40853)
10193	Tape 35m stand. double assy	kit (tape + 1 x TS 11603 + 1 x TS 40853)
10205	Tape cleaner Viton assy	
10207	Sensor Ultra	
10210	Display unit assy	
11025	Nut for load 700gr	
11026	Load 700gr	
11082	Security tube assy	
11129	Ball Inox Ø5.556 (7/32”)10x	
11130	Compression spring	
11131	Clip	
11132	O-Ring Ø29.7x3.5	
11169	Heat shrink tube 24/8 x 80	
11189	Quick coupler lock	
11207	Axle bearing	
11208	Bearing for tape cleaner	
11210	Tape holder	
11211	Electronic box	
11213	Button handle	
11214	Connecting lever	
11216	Spacer	
11217	Gasket for electronic unit	
11218	Finger for handle	
11221	Index	
11222	Collar for connector 2”	
11223	Knob	
11226	Index block	

11227	Washer holder	
11228	Screw cup	
11233	Storage tube 1''-2''	
11235	Plate for battery holder	
11240	Wiper holder	
11246	Spring for battery holder	
11247	Reel axle	
11248	Gasket for battery holder	
11249	Battery holder	
11251	Axle cover	
11252	O-Ring Ø26.7 x 1.78	
11254	Storage tube 1” - Q1	without gaskets
11255	Storage tube 1” - Q2	without gaskets
11259	External part of knob	
11260	Knob for handle	
11263	Front face assy	without gasket
11264	Knob black	
11272	Carter Gtex base	
11600	O-Ring Ø31x2	
11603	O-Ring Ø15x3	
12047	Lever	
12083	Axle of wiper	
12084	Bearing for window holder	
12086	Gasket for electronic box	
12087	Lock holder	
12089	Tape wiper holding flange	
12093	Gasket of window	
12094	Glass	
12095	Window holder	
12096	Frame of window	
12097	Wiper	
12099	Axle gasket	
12101	O-Ring Ø234 x 3	
12107	Wiper Viton	
12108	Lock assy	
12109	Cover Gtex	
12504	O-Ring Ø9x1.5	
14093	Spring	
20513	O-Ring Ø6.07x1.78	
20541	O-Ring Ø56.74x3.53	
20549	Clip	
20618	Collar	
20620	Lock ring	
35069	LCD 1x8 alphanum assy	
37004	Buzzer SC 235 B	
37020	Bat 9v alka mang Procell MN 1604	
37314	Push Button Distancer	
37340	PCB Display UTImeter Tested Assy	
37354	Hard Paper Washer 2.2mm	
40220	Dowel pin 3x35	

40300	Socket head cap screw M3x8	
40303	Socket head cap screw M4x12	
40306	Socket head cap screw M3x10	
40316	Socket head cap screw M3x6	
40319	Socket head cap screw M3x30	
40326	Socket head cap screw M3x20	
40327	Socket head cap screw M3x25	
40555	Spacer M-M M3x6/M3x8	
40621	Flat head socket screw M5x12	
40776	Socket button head cap screw M4x12	
40811	Slotted cheese head mach. screw M2x4	
40853	Socket set screw M3x3	
40857	Socket set screw M4x6	
40859	Socket set screw M4x4	
40905	Circlip Ø1.9	
40906	Crescent ring Ø17 Benzing	
50305	Hexagon key 1.5mm	
50346	Hexagon key 2mm	
50300	Hexagon key 2.5mm	
50345	Hexagon key 3mm	
50462	Insertion tool for connector	

13.3 Spare parts drawings

The next pages show the following drawings:

- Figure 13-1 : general assembly, list of the main spare parts
- Figure 13-2: display unit assembly TS 10210, details
- Figure 13-3: battery holder assembly TS 10189, details
- Figure 13-4: electronic box assembly TS 10190, details
- Figure 13-5: storage tube SS1-Q1 TS 10184, details
- Figure 13-6: storage tube SS1-Q2 TS 10183, details
- Figure 13-7: storage tube SS2-Q2 with load TS 10182, details
- Figure 13-8: tape cleaner assembly TS 10205, details

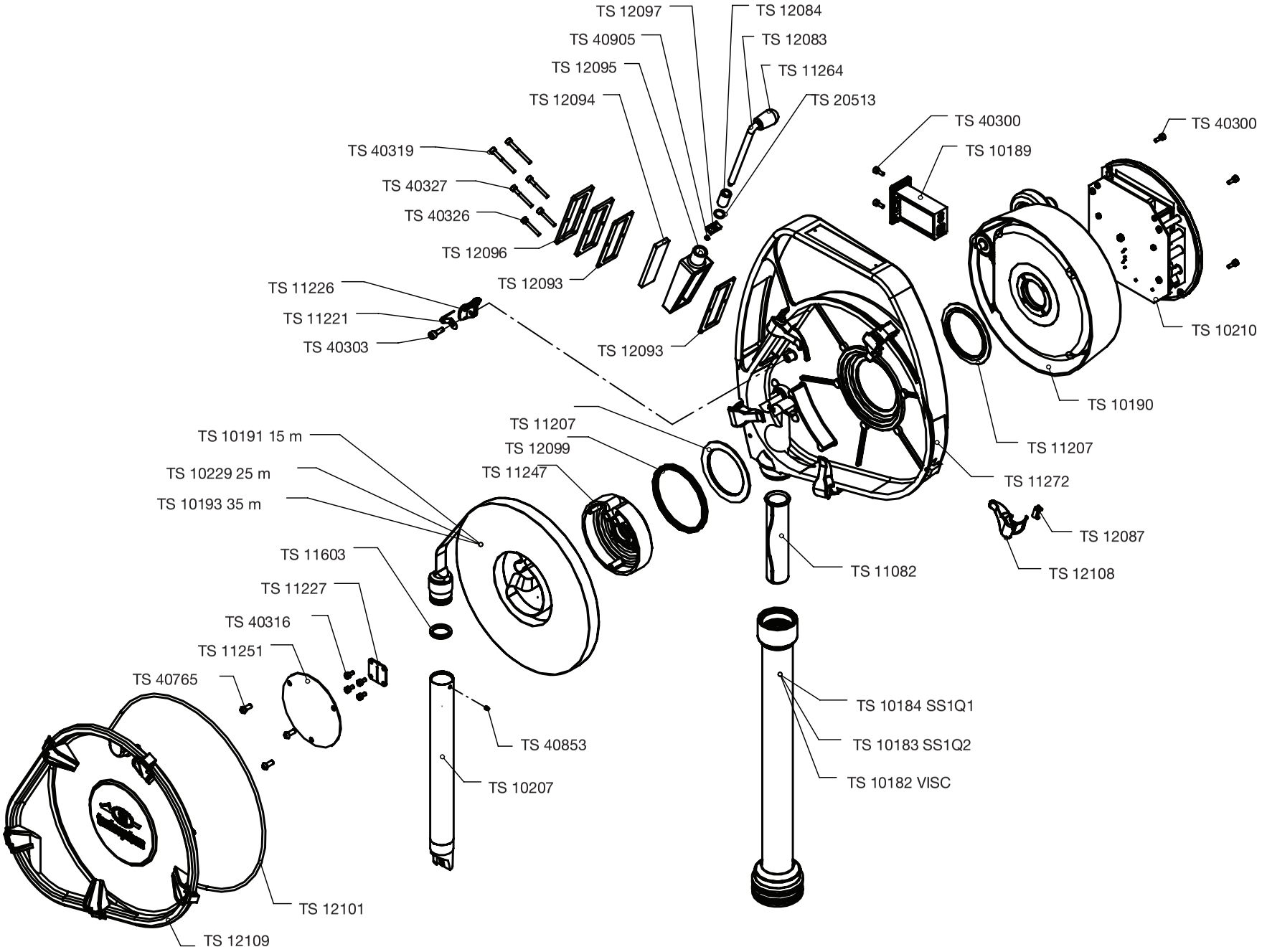


Figure 13-1: general assembly, list of the main spare parts

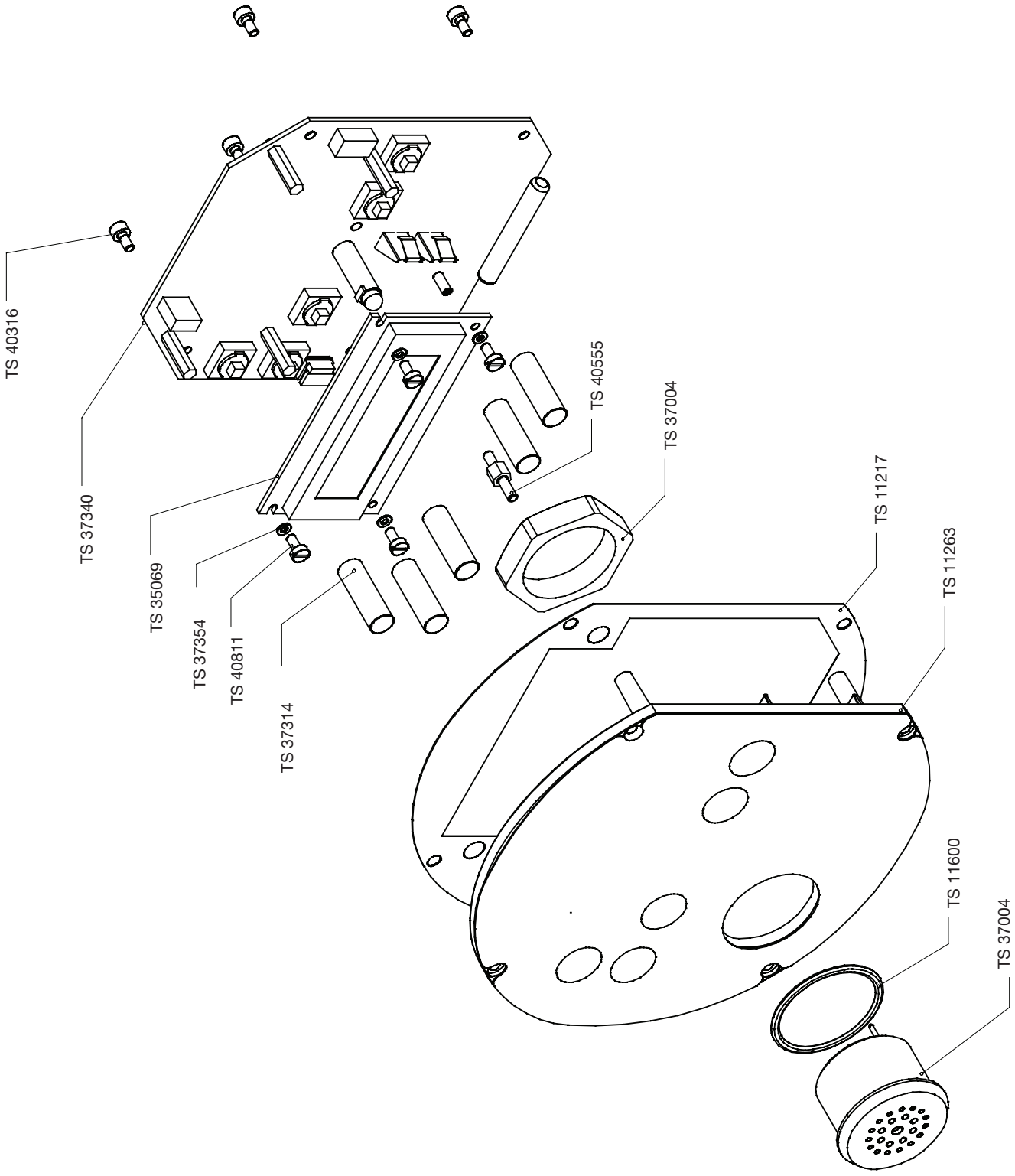


Figure 13-2: display unit assembly TS 10210, details

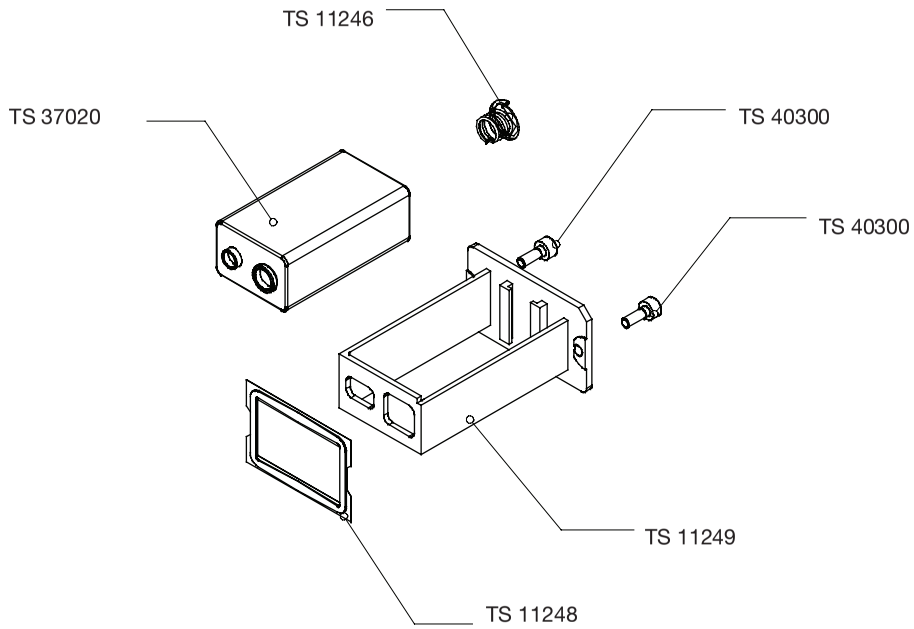


Figure 13-3: battery holder assembly TS 10189, details
(the screws TS 40300 and the battery TS 37020 are not included in the TS 10189 assembly;
these parts shall be ordered separately)

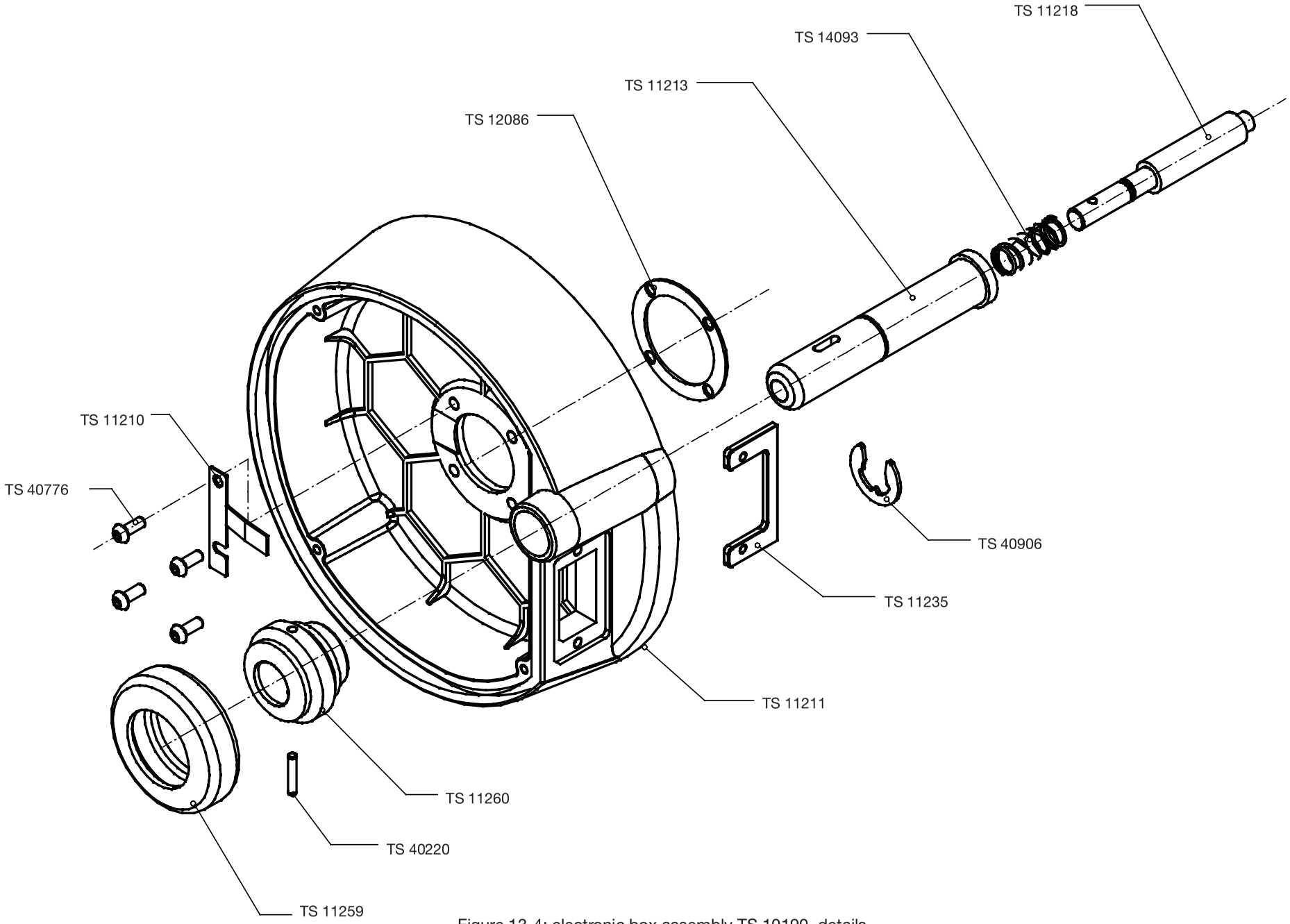


Figure 13-4: electronic box assembly TS 10190, details

(the screws TS 40776 and the plate TS 11210 are not included in the TS 10190 assembly; they shall be ordered separately)

Honeywell

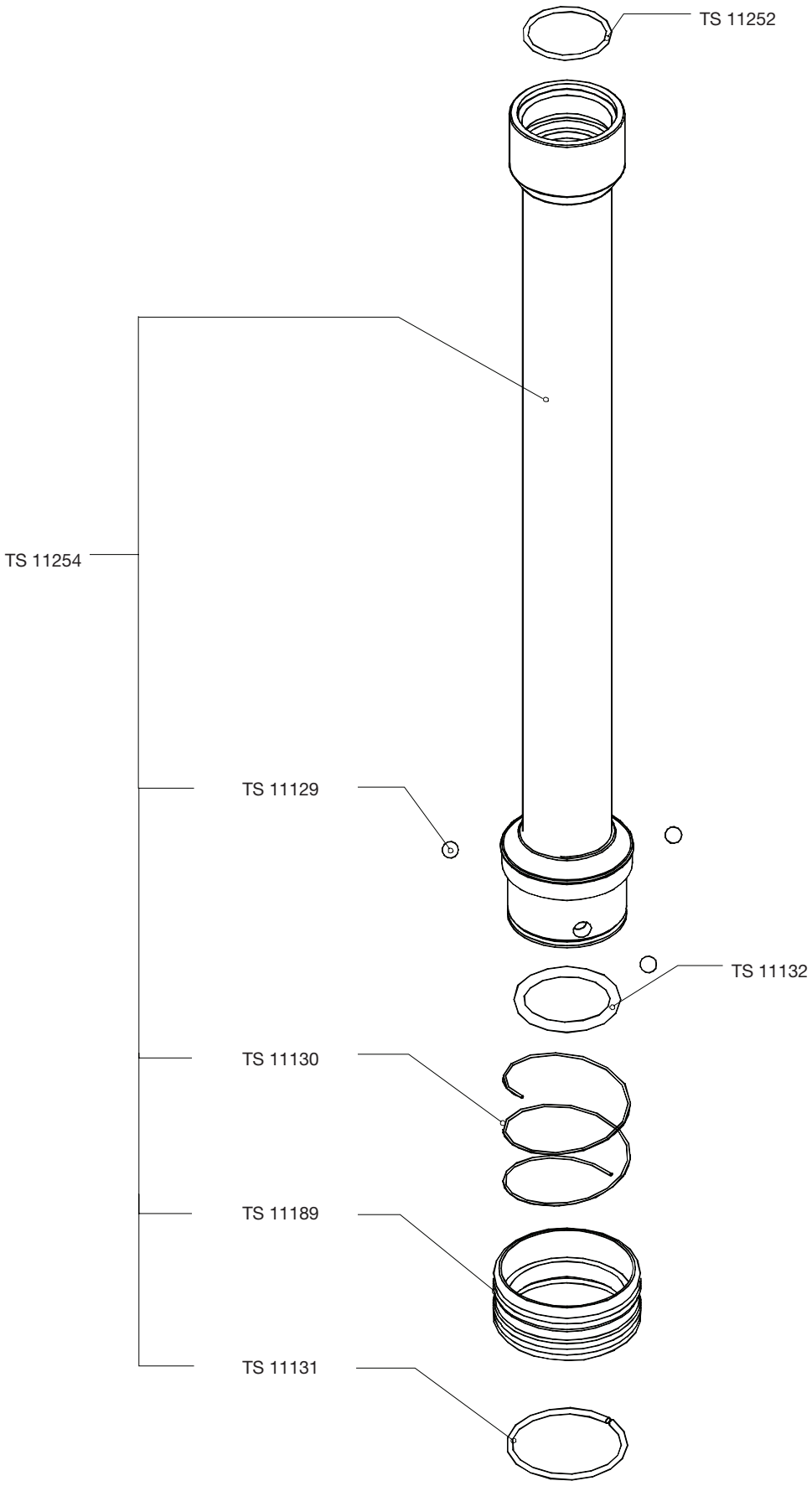


Figure 13-5: storage tube SS1-Q1 TS 10184, details

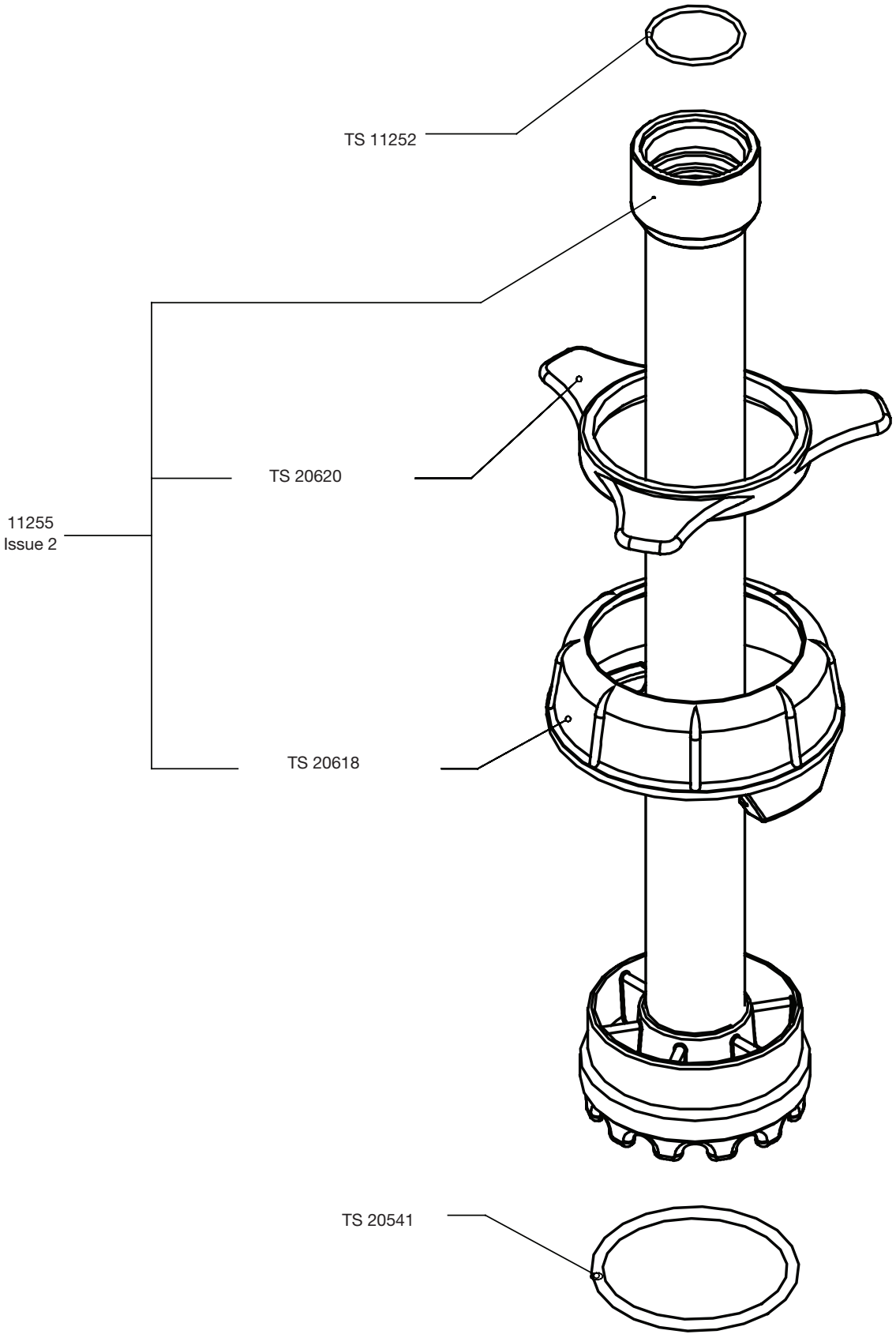


Figure 13-6: storage tube SS1-Q2 TS 10183, details

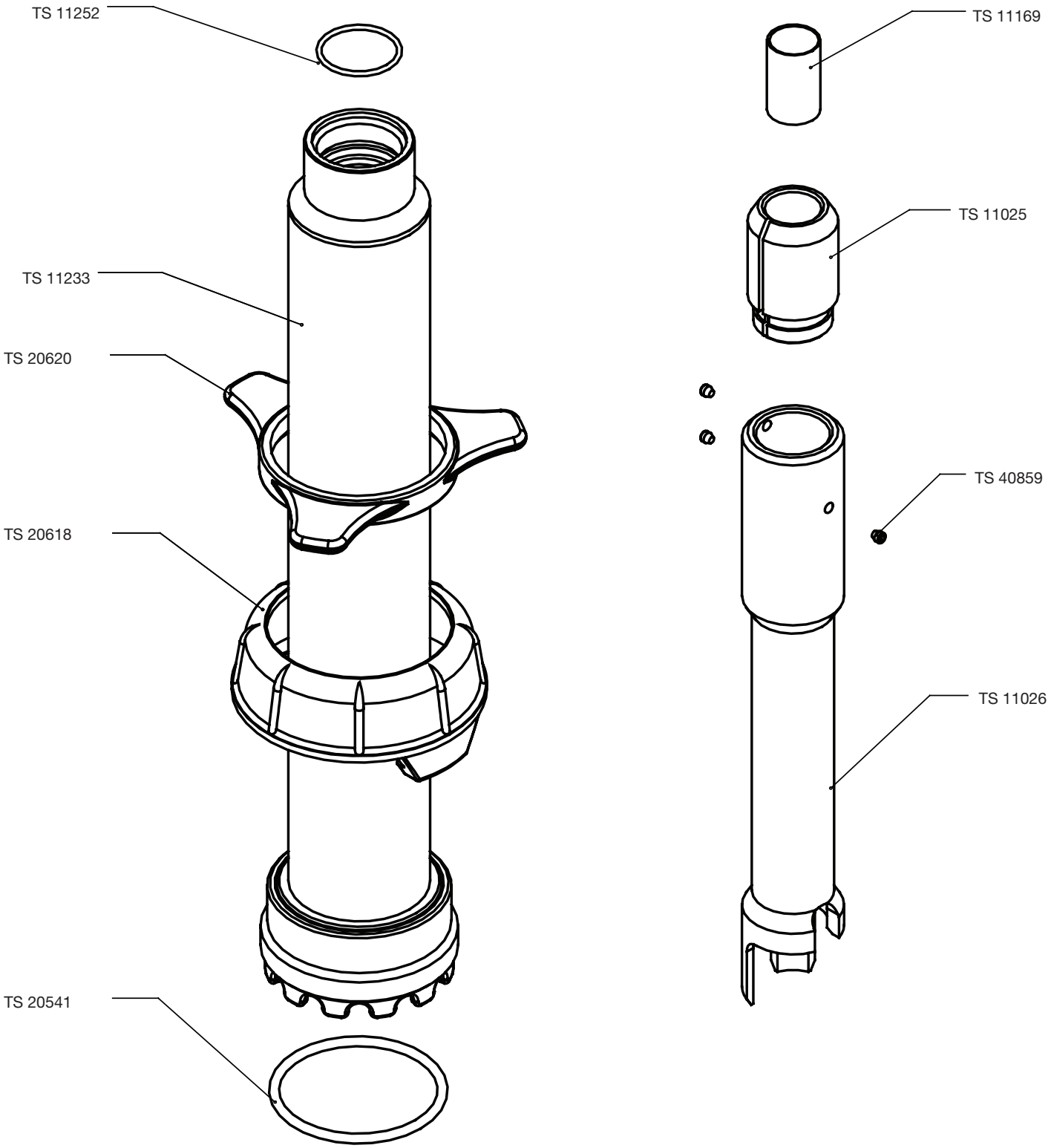


Figure 13-7: storage tube SS2-Q2 with load TS 10182, details

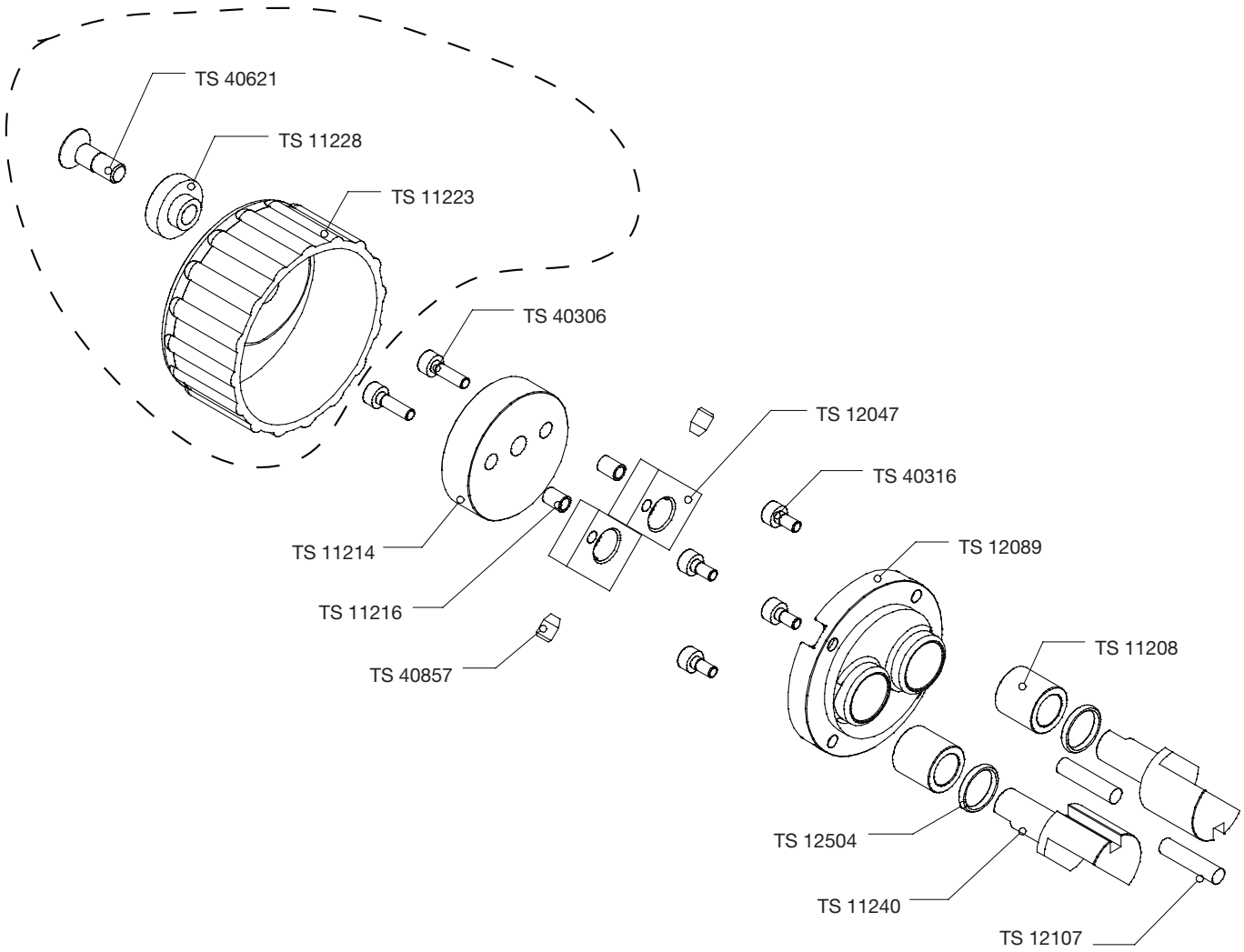


Figure 13-8: tape cleaner assembly TS 10205, details
(the items TS 40621, TS 11228, TS 11223 are not included in the TS 10205 assembly; they shall be ordered separately)

14. Valves drawings

14.1 Valves drawings list

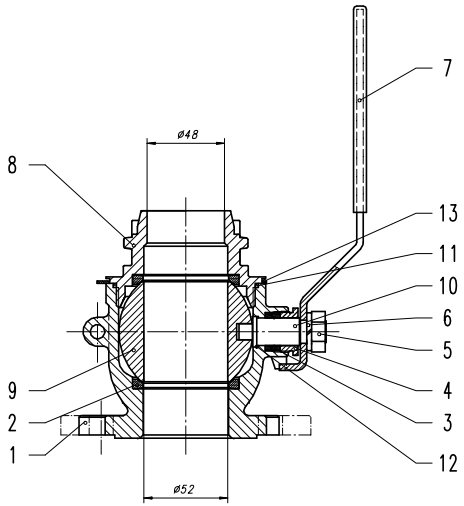
Refer to the table and find the drawing in next section.

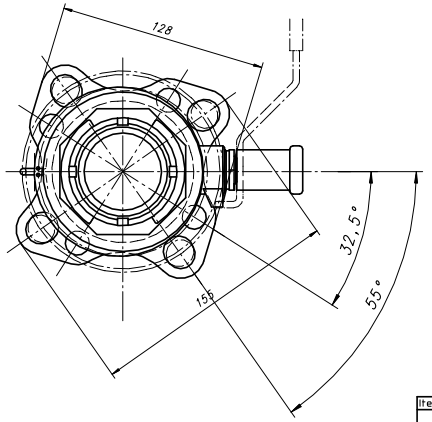
Description	ND	TS
Valve C2-SS-W, 2” flange DUJ, weather cap	20291	10083
Valve C2-SS-SEC, 2” flange DUJ, security cover	20287	10082
Valve C2-SS-BL, 2” flange DUJ, blind cover	20288	10081
Valve C2-SS-BL, 2” female, blind cover	30596	10085
Valve C2-SS-W, 2” female, weather cap	30391	10076
Valve C2-SS-SEC, 2” female, security cover	30374	10078
Valve C1-SS-W, 1” thread male, weather cap	30230	10055
Deck valve A-4” SS-W, 4” flange, weather cap	20252	10053
Deck valve A-4-2-1 SS-W, 4” flange, weather cap	30812	98172
Security cover with lock	40495	10408
Cover with weather cap	41040	10415
Weather cap assy	40543	22609
Blind cover	41034	10414
Valve C1-SS-W, with flange JIS 5K50	30457	98077
Valve C1-SS-W, flange JIS 5K25	41036	98090
Valve C2-SS-W, 2” flange JIS 5K50	20341	98117
Valve C2-SS-W, 2” female with flange JIS 5K80	41129	98121

14.2 Drawings

See next pages.

TS 10413
ND 20283

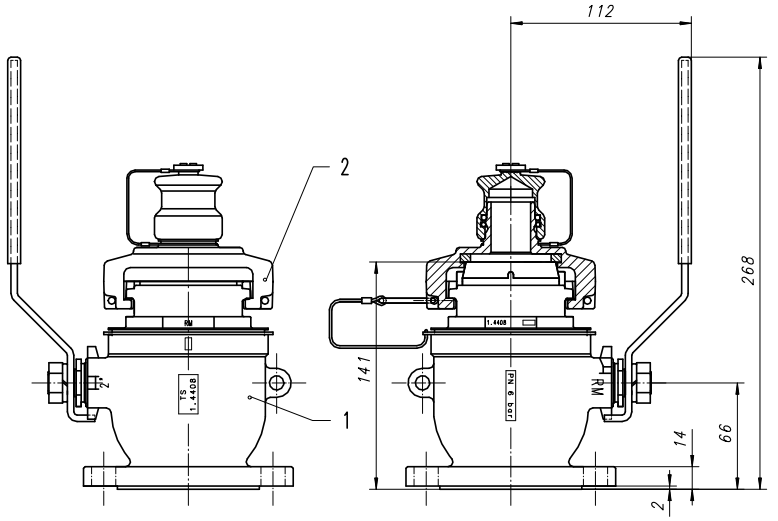




Valve fits on flange:

DIN PN10 DN50
DIN PN16 DN50
DIN PN25 DN50
DIN PN40 DN50
JIS 5K 50
JIS 10K 50
ANSI 150lbs 2"

Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body DUJ	1.4408	22649	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball DIN	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	4480	Compact valve C2 DUJ	-	10413	20283
2	1	590	Cover with weather cap	-	10415	41040

TOLERANCES UNLESS OTHERWISE SPECIFIED

Nom.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 5070 Th. 0 Eff.

1:2

ISSUE 2 : 16.2.1999

MPSA 3110

Drawn: UPR 27.11.1996 | Control: CPI 06.01.1997

Replacement for: ND | Replaced by: ND

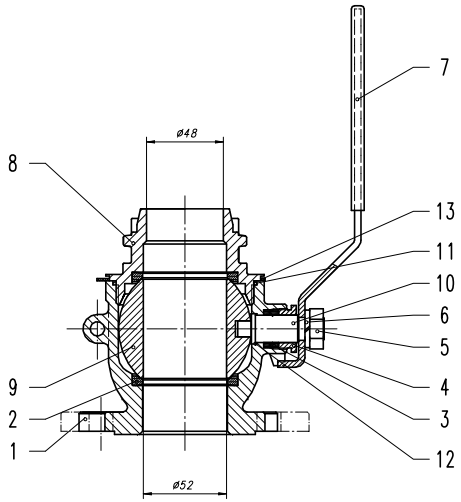
Modification | Visa | Date | Is

Valves
HERMetic Compact Valve C2-SS-W
2" flange DUJ

TS 10083
ND 20291
REF ND

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

TS 10413
ND 20283



Valve fits on flange:

DIN PN10 DN50

DIN PN16 DN50

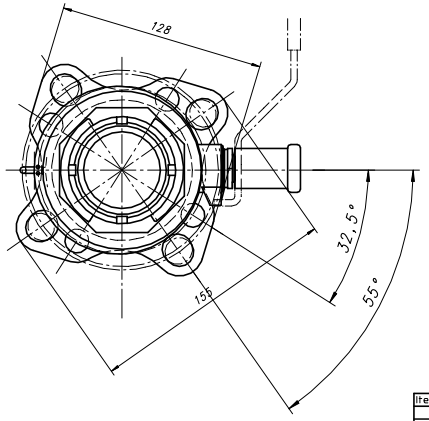
DIN PN25 DN50

DIN PN40 DN50

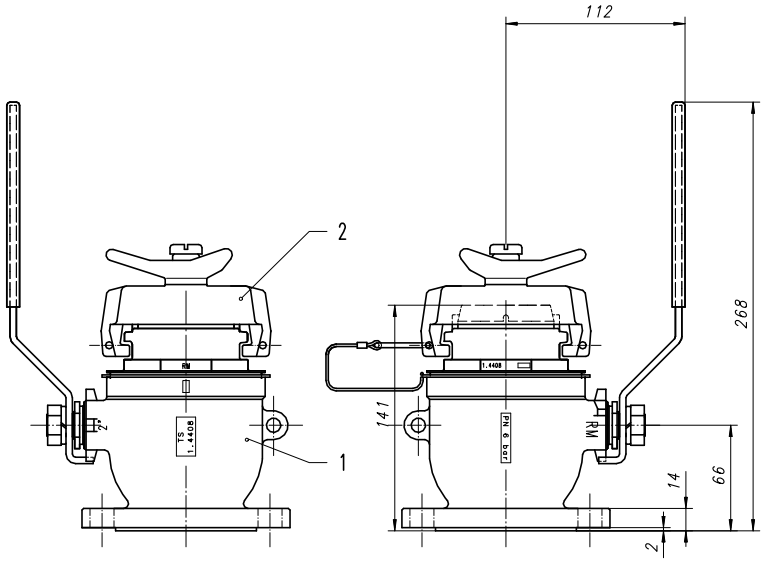
JIS 5K 50

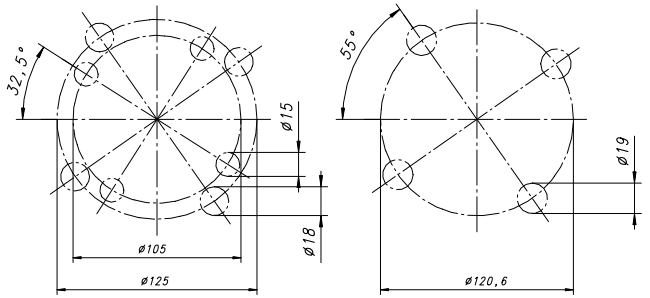
JIS 10K 50

ANSI 150lbs 2"



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body DUJ	1.4408	22649	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball DIN	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996





Item	Qt	Weight	Description	Material	TS #	ND #
1	1	4480	Compact valve C2 DUJ	-	10413	20283
2	1	957	Security cover w/lock	-	10408	40495

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 5437 Th. 0 Eff.

1:2

ISSUE 2 : 16.2.1999

MPSA 3110

Drawn: UPR 27.11.1996 | Control: CPI 06.01.1997

Replacement for: ND | Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-SEC 2" flange DUJ

TS 10082

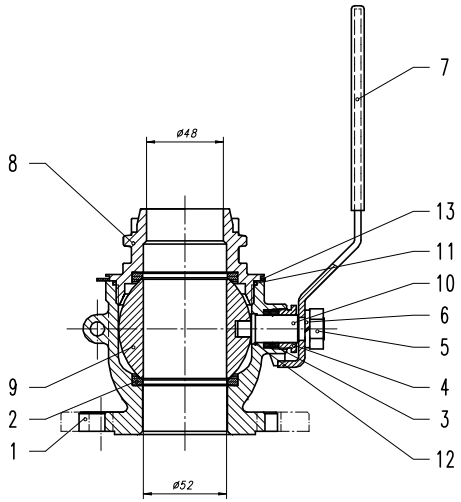
ND 20287

REF ND

Modification | Wise | Date | Is

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

TS 10413
ND 20283



Valve fits on flange:

DIN PN10 DN50

DIN PN16 DN50

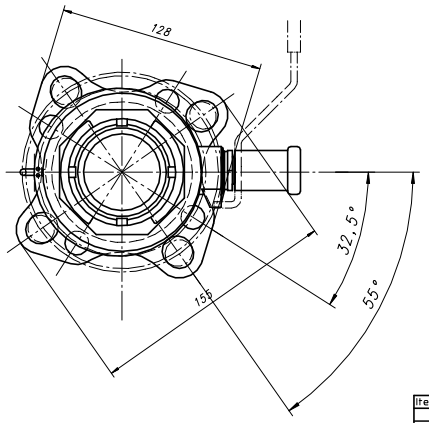
DIN PN25 DN50

DIN PN40 DN50

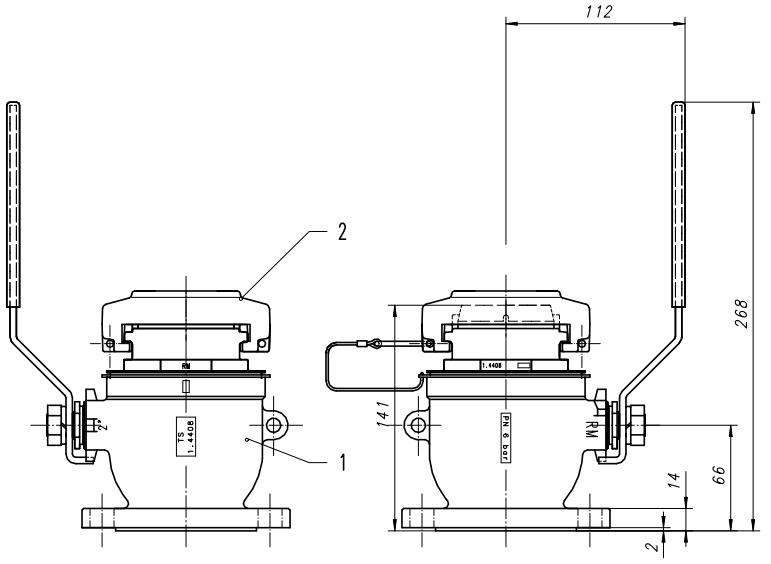
JIS 5K 50

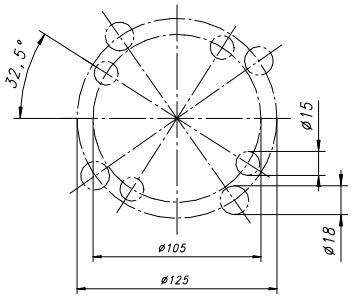
JIS 10K 50

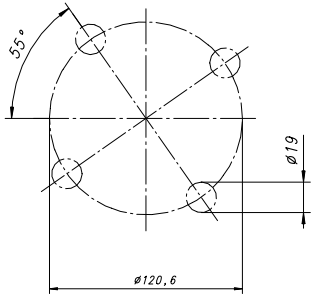
ANSI 150lbs 2"



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body DUJ	1.4408	22649	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball DIN	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996







Item	Qt	Weight	Description	Material	TS #	ND #
1	1	4480	Compact valve C2 DUJ	-	10413	20283
2	1	370	Blind cover assy	-	10414	41034

TOLERANCES UNLESS OTHERWISE SPECIFIED

Nom.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 4850 Th. 0 Eff.

1:2

ISSUE 2 : 16.2.1999

MPSA 3110

Drawn: UPR 27.11.1996 | Control: CPI 06.01.1997

Replacement for: ND | Replaced by: ND

Modification | Visa | Date | Is

Valves

HERMetic Compact Valve C2-SS-BL 2" flange DUJ

TS 10081

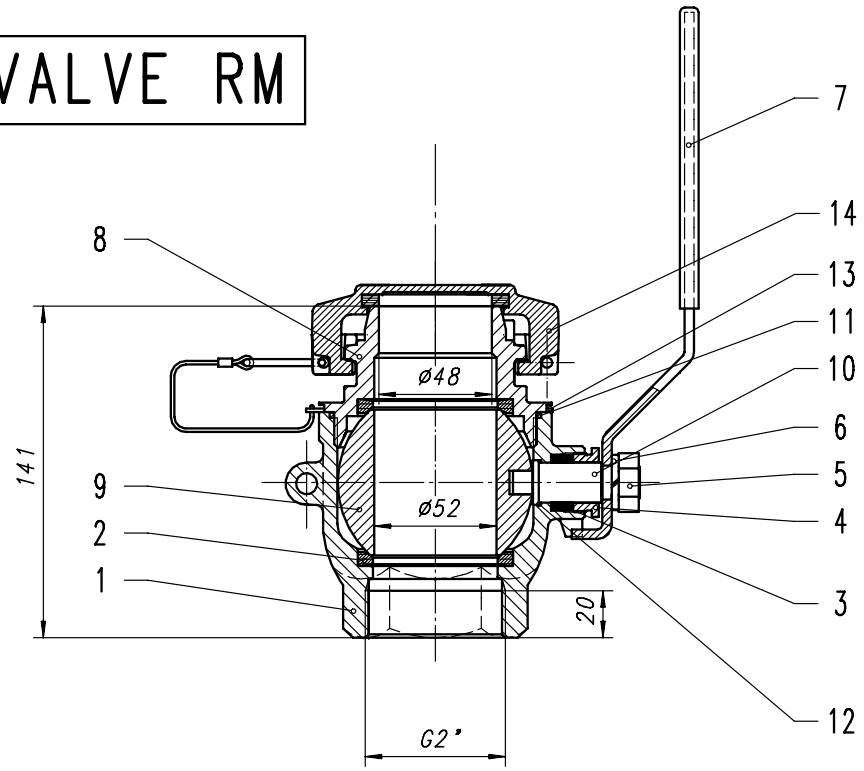
ND 20288

REF ND

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

Honeywell

VALVE RM



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball 2"	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996

Item	Qt	Weight	Description	Material	TS #	ND #
14	1	370	Blind cover assy	-	10414	41034

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: Th. 4300 Eff.

1 : 2

Drawn: UPR 21.04.1994

Control:

Modification | Visa | Date | Is

ISSUE 2 : 25.6.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-BL 2" Female

TS 10085

ND 30596

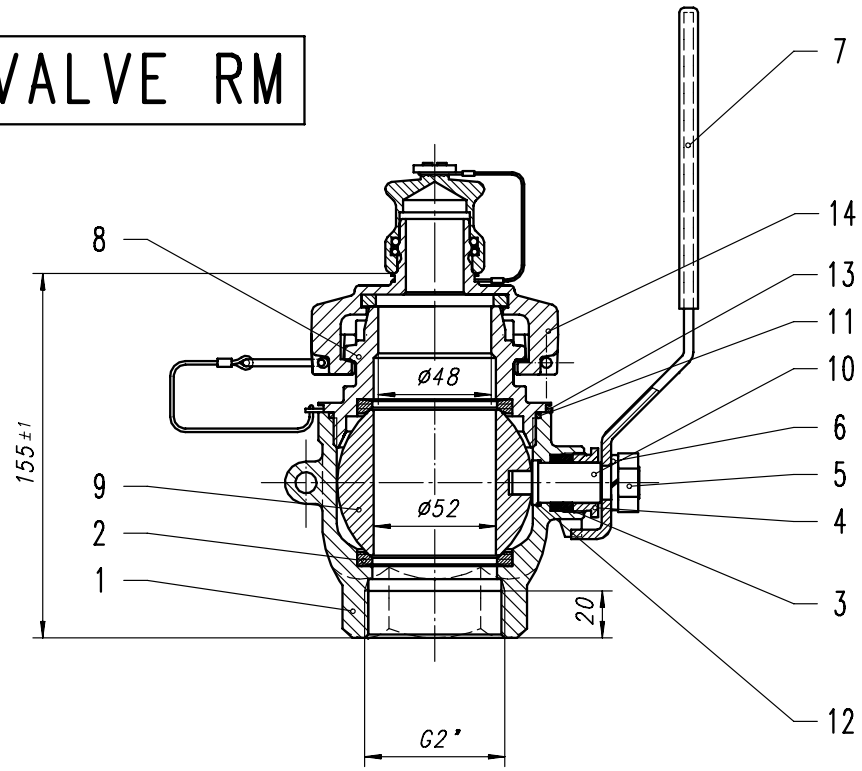
REF ND

Enraf Tanksystem SA

RUE DE L'INDUSTRIE 2 CH-1630 BULLE

Tel. +41 26 91 91 500 – Fax +41 26 91 91 505

VALVE RM



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball 2"	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996

+ Pos.	Modification	Visa	Date
13		upr	12.2.96
-2		ls	

Item	Qt	Weight	Description	Material	TS #	ND #
14	1	590	Cover with weather cap	-	10415	41040

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 4390 Eff.

Drawn: UPR 21.04.1994 Control:

1:2

ISSUE 3 : 25.6.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2SS 2" Female

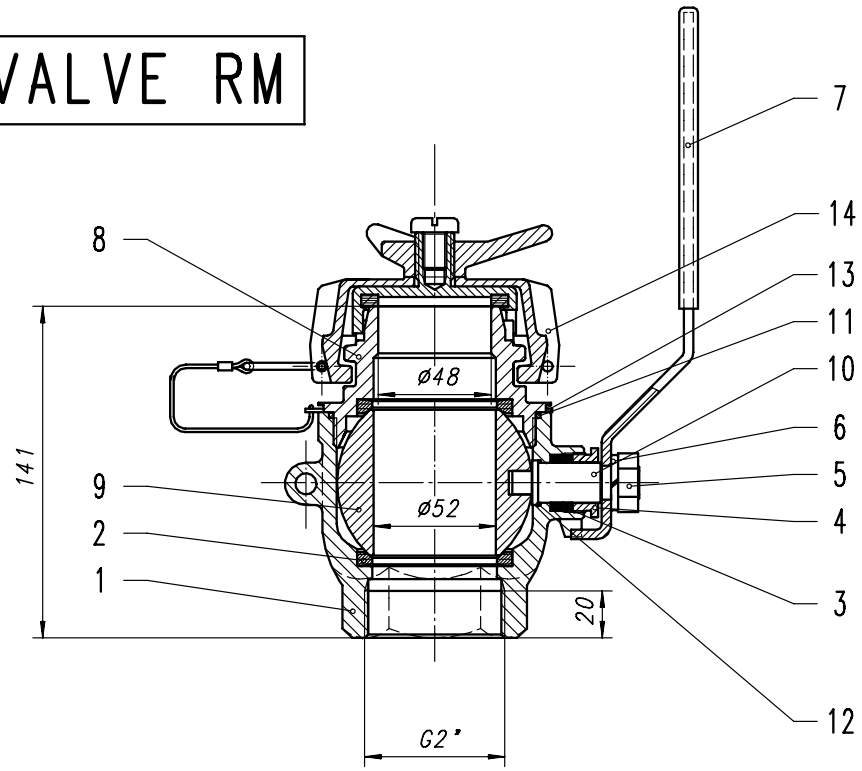
TS 10076

ND 30391

REF ND

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

VALVE RM



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball 2"	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/17 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996

Item	Qt	Weight	Description	Material	TS #	ND #
14	1	957	Security cover w/lock	-	10408	40495

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 4746 Eff.

1 : 2

Drawn: UPR 21.04.1994

Control:

ISSUE 3 : 25.6.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-SEC 2" Female

TS 10078

ND 30374

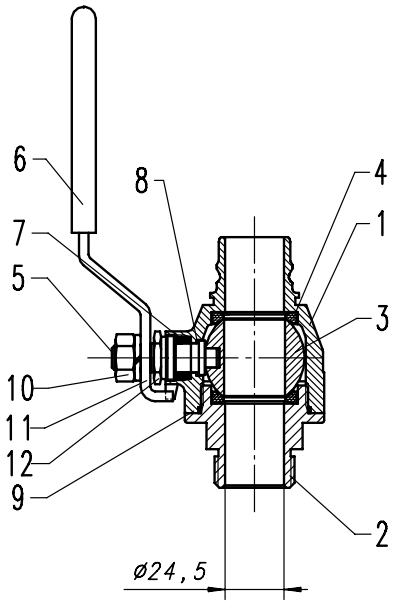
REF ND

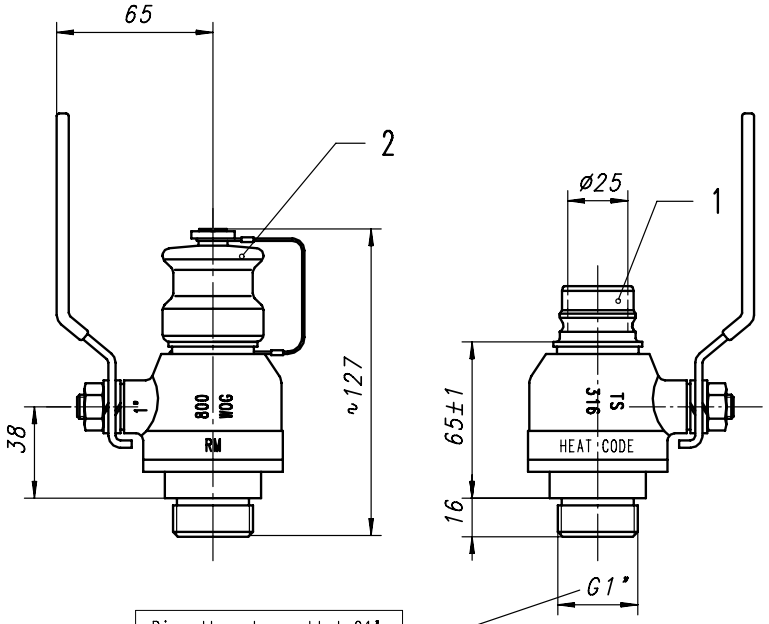
Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

Is	Date	Visa	Modification	+ Pos. 13
-2	12.2.96	upr		

VALVE RM

TS 10405
ND 30373





Pipe thread parallel G1"
Conforming to standard
ISO 228 (B.S. 2779 : 1973)

Please check production code when ordering parts :
RM letters use top parts list
No letters or RH contact TS Tanksystem for parts list

Item	Qt	Weight	Description	Material	TS #	ND #
1	1	860	Valve Compact 1"	-	10405	30373
2	1	166	Weather cap assy	-	22609	40543

Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body	CF8M	22617	30552
2	1	0	End cap	CF8M	22618	30553
3	1	0	Ball	CF8M	22619	40756
4	2	0	Seat ø 25.6/36 x 5	PTFE	22620	40757
5	1	0	Stem	AISI 316	22621	40758
6	1	0	Plastic coated handle	AISI304/PE	22622	40832
7	1	0	Stem packing ø 12/17.5 x 7.5 (2pces)	PTFE	22623	40759
8	1	0	Steam seal ø 12/14,2 x 1	PTFE	22624	40760
9	1	0	Gasket ø 44.5/46.8 x 2.5	PTFE	22625	40761
10	1	0	Nut	AISI 304	22626	-
11	1	0	Spring washer	AISI 304	22627	-
12	1	0	Gland	AISI 304	22628	40762

TOLERANCES UNLESS OTHERWISE SPECIFIED										
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: mas 14.07.1992 Control:

Weight: 1026 Th. 1050 Eff.

1:2

ISSUE 2 : 25.10.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

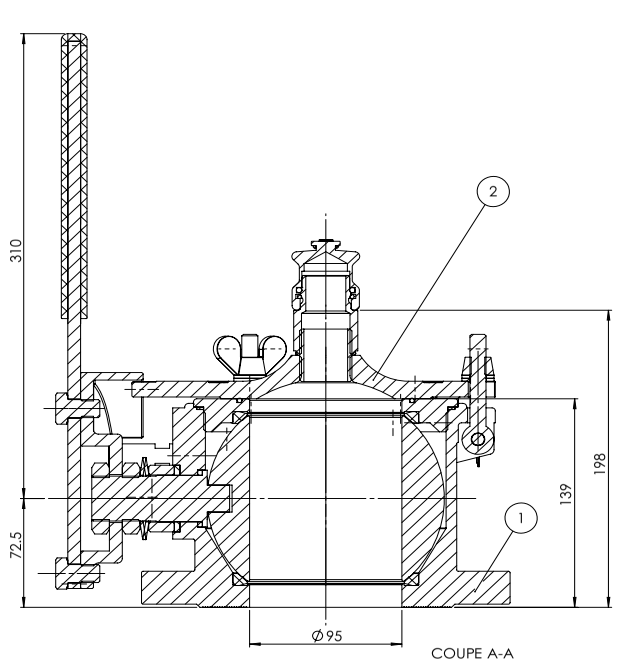
Valves
Hermetic Compact Valve C1SS

TS 10055
ND 30230
REF ND

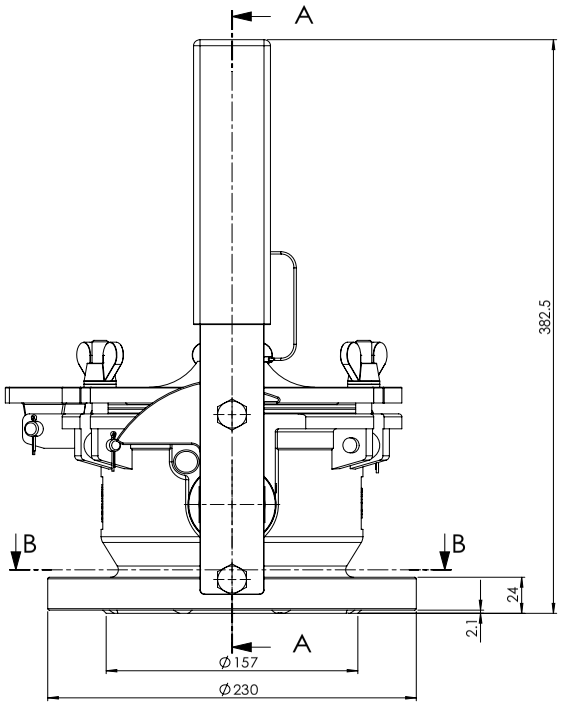
Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

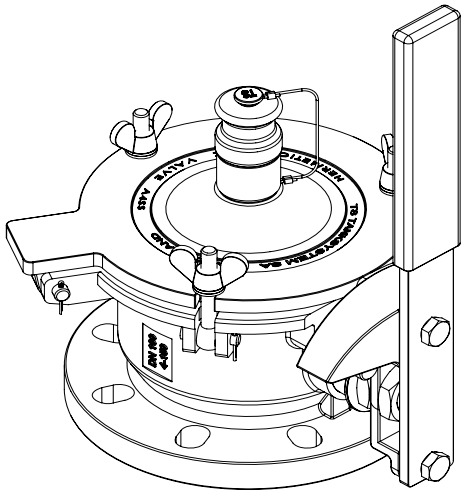
Modification | Visa | Date | Is

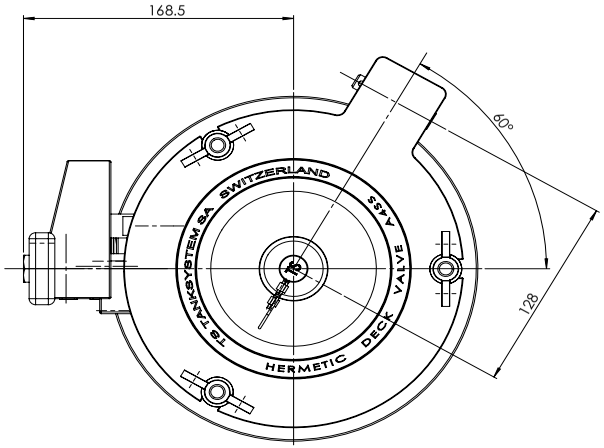
Honeywell

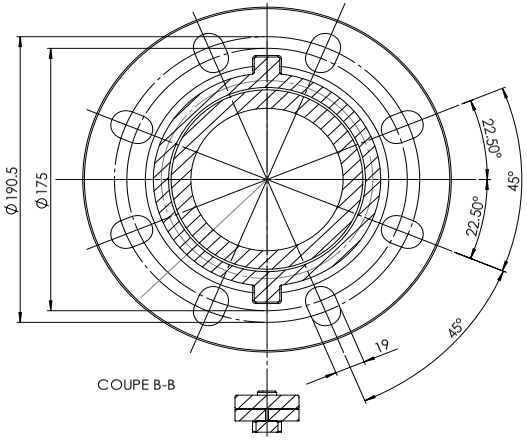


COUPE A-A









COUPE B-B

Fit flange
ANSI 150 lbs 4" (100mm.)
JIS 10K 100 mm.
DIN PN 16 DN 100

Item	Qty	Weight	Description	Material	TS	ND
1	1	19889.0	Valve 4" without cover		10420	20365
2	1	3657.0	Cover 4" assembly		10419	41212

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0.05	0.1	0.15	0.2	0.3	0.5	0.1°

Weight: 23546.0 Eff.

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 07.01.2009 Control:

1:2

ISSUE 2 : 7.1.2009

MPSA YYYN

Replacement for: ND Replaced by: ND

Valves

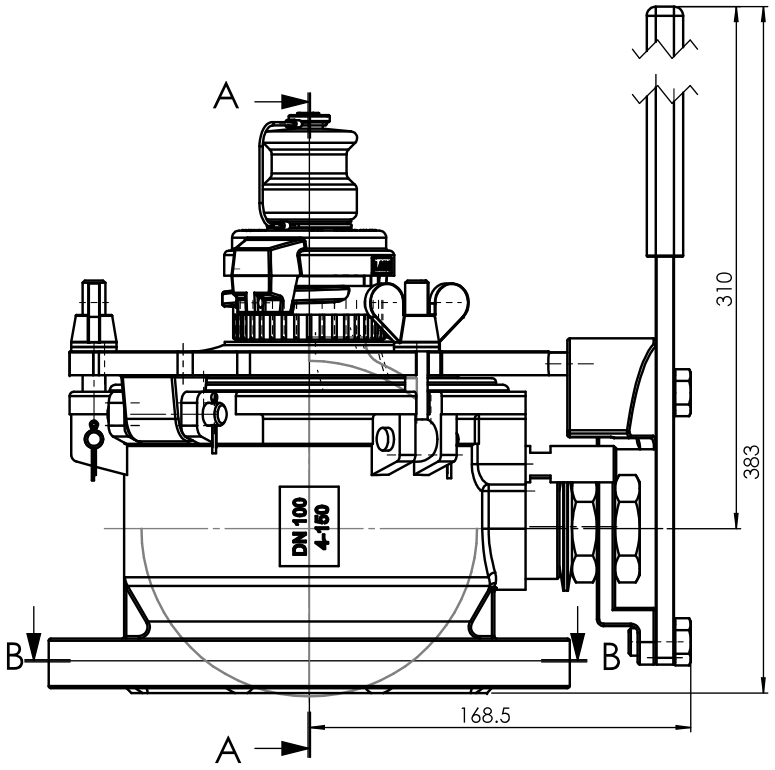
HERMetic Deck Valve A-4" SS

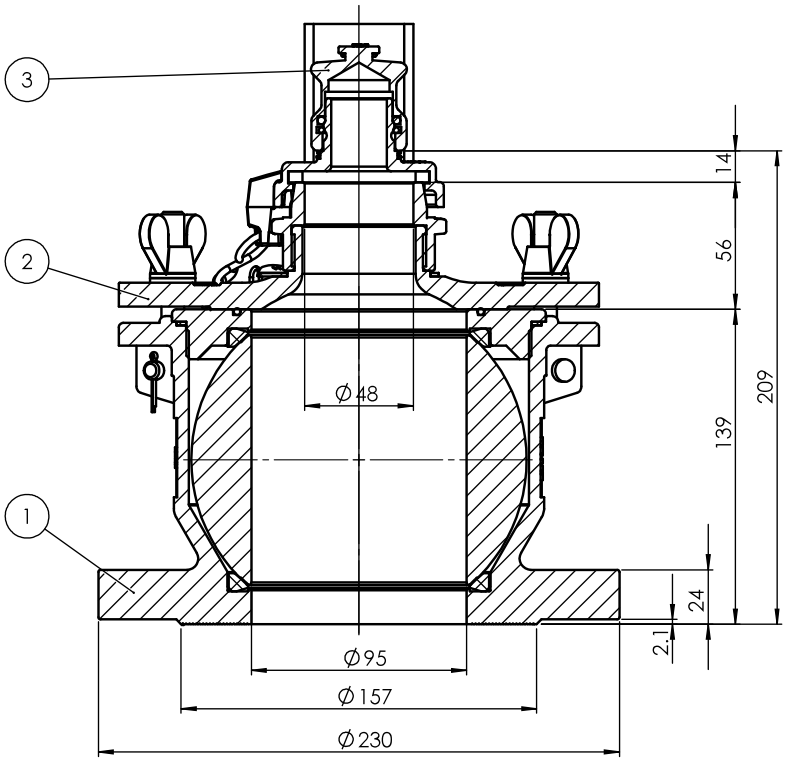
TS 10053

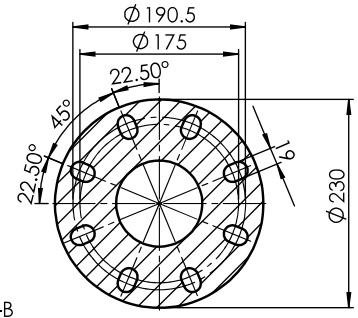
ND 20252

REF ND

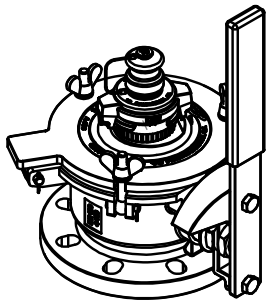
Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505







COUPE B-B
ECHELLE 1 : 5



Flange: ANSI 150 lbs 4" (100mm)
JIS 10K 100mm
DIN PN16 DN100

Item	Qty	Weight	Description	Material	TS	ND
1	1	19888.8	Valve 4" without cover		10420	20365
2	1	3497.0	Cover assy		98172A	30811
3	1	586.7	Cover with weather cap		10415	41040

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

Weight: 23972.5 Eff.

REMOVE ALL BURRS AND SHARP EDGES

1:2

ISSUE 1 : 18.01.2011

MPSA
YYYN

Drawn: CPI 18.01.2011

Control

Replacement for: ND

Replaced by: ND

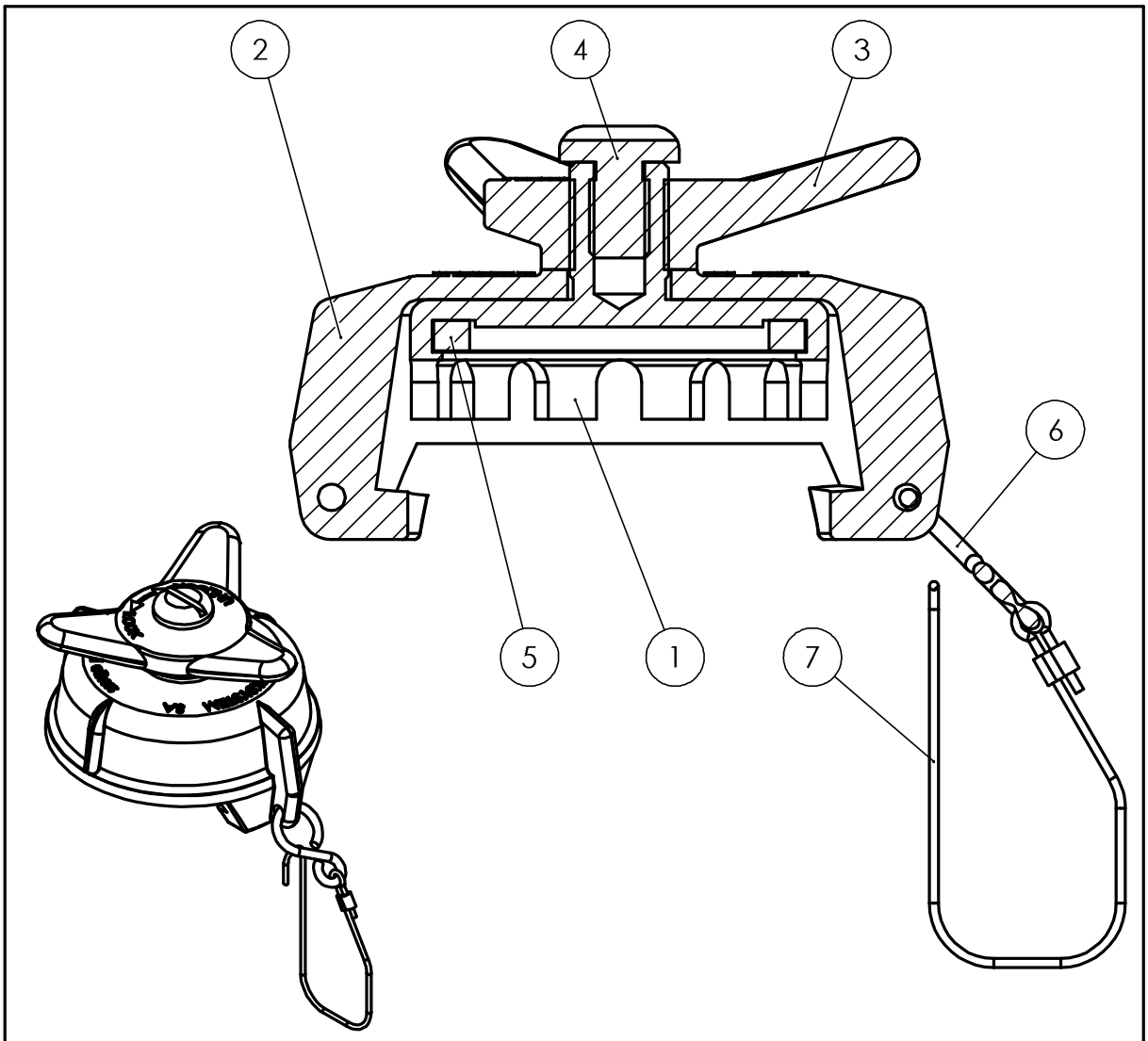
Speciality
HERMetic Deck Valve A-4"/2"/1"

TS 98172

ND 30812

REF ND

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505



Item	Qty	Weight	Description	Material	TS	ND
1	1	222.4	Gasket holder	CF8M	22714	40492
2	1	443.1	Cover	CF8M	22715	30360
3	1	208.3	Lock G3/8""	CF8M	22716	40521
4	1	21.9	Slotted pan head screw	A4	40708	41004
5	1	5.3	Gasket	FKM 70° shore	22713	41177
6	1	4.4	" S " Holder	1.4301	11902	40537
7	1	0.8	Short cable assy	1.4435	55135	40999

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 03.08.2011

Control:

Weight: 906.1 Eff.

1:1

ISSUE 3 : 03.08.2011

MPSA YYYN

Replacement for: ND

Replaced by: ND

Valves

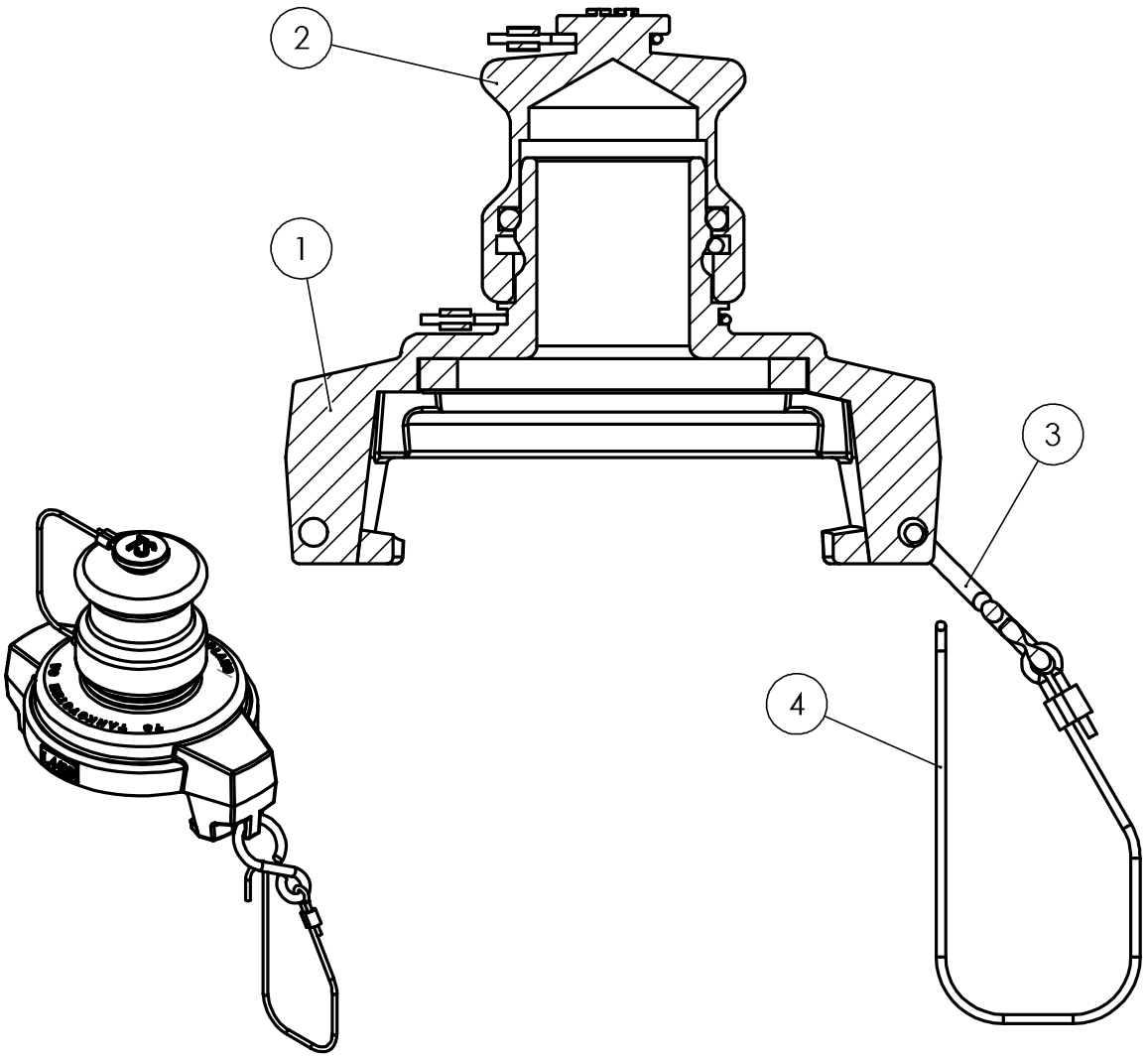
Security cover assembly

TS 10408

ND 40495

REF ND

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505



Item	Qty	Weight	Description	Material	TS	ND
1	1	414.7	Connector 1" - 2"	-	22563	41032
2	1	166.8	Weather cap assy	-	22609	40543
3	1	4.4	" S " Holder	1.4301	11902	40537
4	1	0.8	Short cable assy	1.4435	55135	40999

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 03.08.2011

Control:

Weight: 586.7 Eff.

1:1

ISSUE 1 : 03.08.2011

MPSA
YYYN

Replacement for: ND

Replaced by: ND

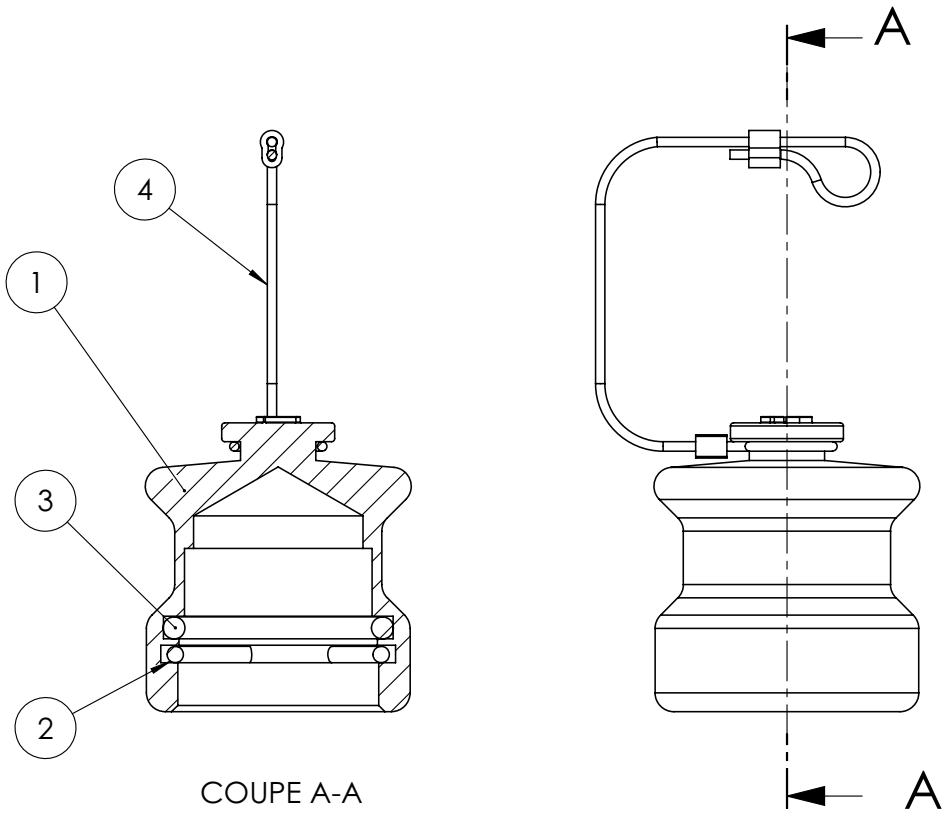
HERMetic Deck Valves C2SS
Cover with weather cap

TS 10415

ND 41040

REF ND 30391/20291

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505



COUPE A-A

Item	Qty	Weight	Description	Material	TS	ND
1	1	160.5	Cap for nippel	CF8M	22608	30396
2	1	3.8	Clip	AISI 301 - 1.4310	40762	40542
3	1	1.0	O-Ring ø 29,7 x 3,5	FKM	11132	
4	1	1.3	Cable assy		55112	40525

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 19.05.2009

Control:

Weight: 166.6 Eff.

1:1

ISSUE 1 : 19.05.2009

MPSA YYYN

Replacement for: ND

Replaced by: ND

Valves

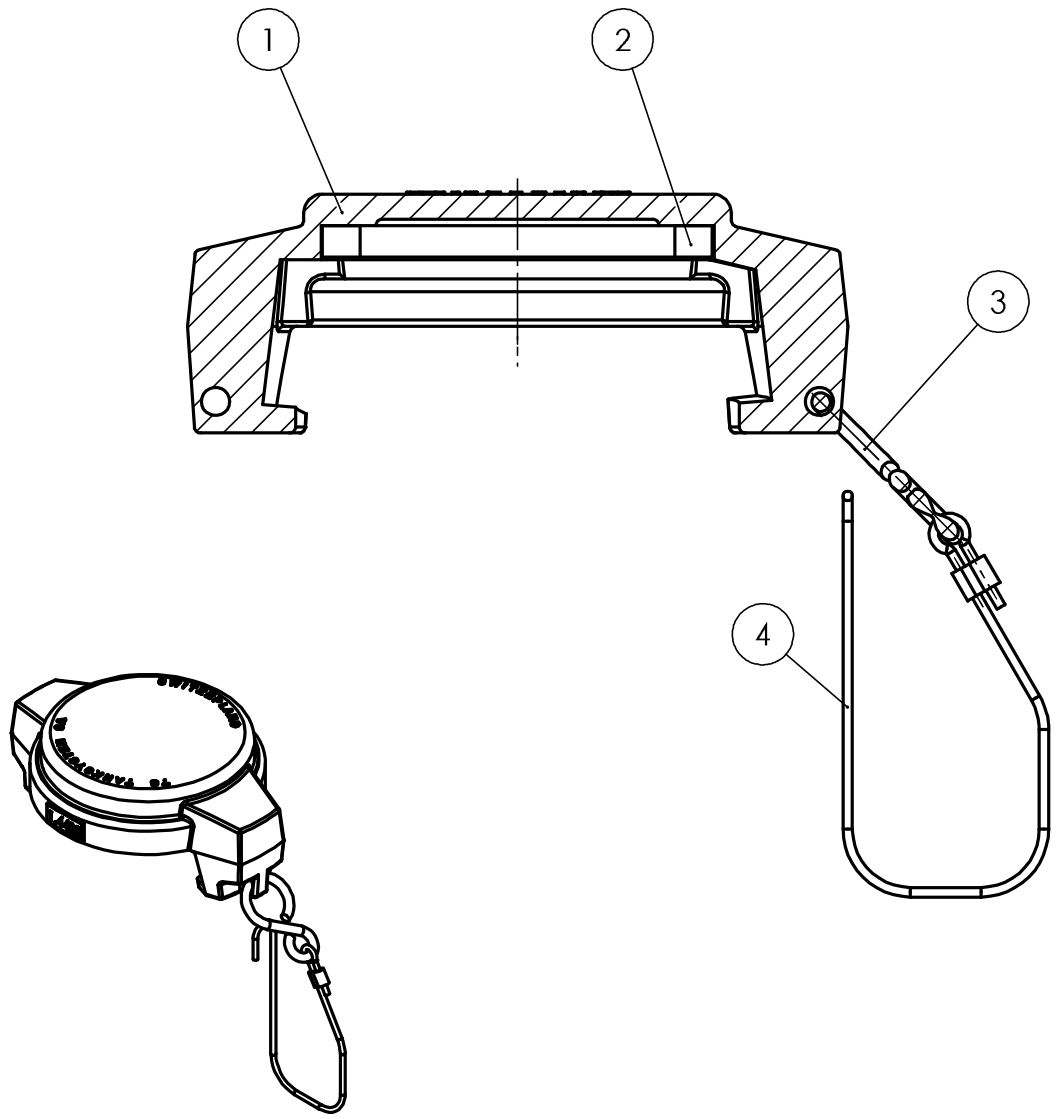
Weather cap assy

TS 22609

ND 40543

REF ND

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505



Item	Qty	Weight	Description	Material	TS	ND
1	1	376.2	Blind cover	CF8M	22651	41024
2	1	5.3	Gasket	FKM 70° shore	22713	41177
3	1	4.4	" S " Holder	1.4301	11902	40537
4	1	0.8	Short cable assy	1.4435	55135	40999

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 03.08.2011

Control:

Weight: 386.7 Eff.

1:1

ISSUE 1 : 03.08.2011

MPSA
YYYN

Replacement for: ND

Replaced by: ND

Valves

Blind cover assy

TS 10414

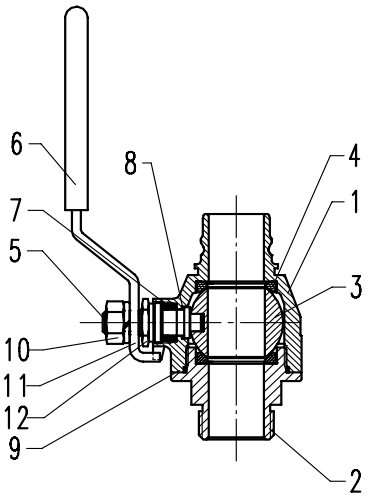
ND 41034

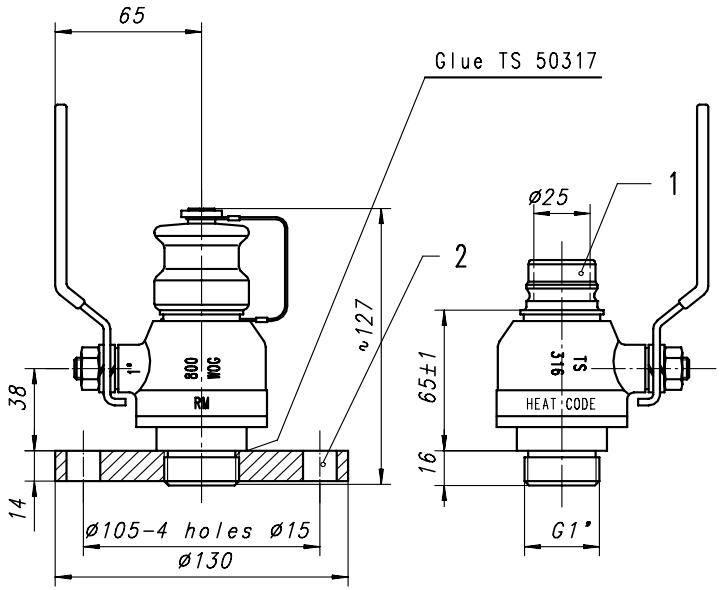
REF ND 20288/30596

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

VALVE RM

TS 10405
ND 30373





Please check production code when ordering parts :
RM letters use top parts list
No letters or RH contact TS Tanksystem for parts list

Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body	CF8M	22617	30552
2	1	0	End cap	CF8M	22618	30553
3	1	0	Ball	CF8M	22619	40756
4	2	0	Seat ø 25.6/36 x 5	PTFE	22620	40757
5	1	0	Stem	AISI 316	22621	40758
6	1	0	Plastic coated handle	AISI304/PE	22622	40832
7	1	0	Stem packing ø 12/17.5 x 7.5 (2pces)	PTFE	22623	40759
8	1	0	Steam seal ø 12/14,2 x 1	PTFE	22624	40760
9	1	0	Gasket ø 44.5/46.8 x 2.5	PTFE	22625	40761
10	1	0	Nut	AISI 304	22626	-
11	2	0	Spring washer	AISI 304	22627	-
12	1	0	Gland	AISI 304	22628	40762

Item	Qt	Weight	Description	Material	TS #	ND #
1	1	1050	HERMetic Compact Valve C1-SS-W 1" thread male	-	10055	30230
2	1	1213	Flange JIS 2" G1"	AISI 316L	12065	40517

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: UPR 14.07.1992 Control:

Weight: 2263 Th. 2250 Eff.

1:2

ISSUE 2 : 25.10.1999

MPSA 3110

Replacement for: ND Replaced by: ND

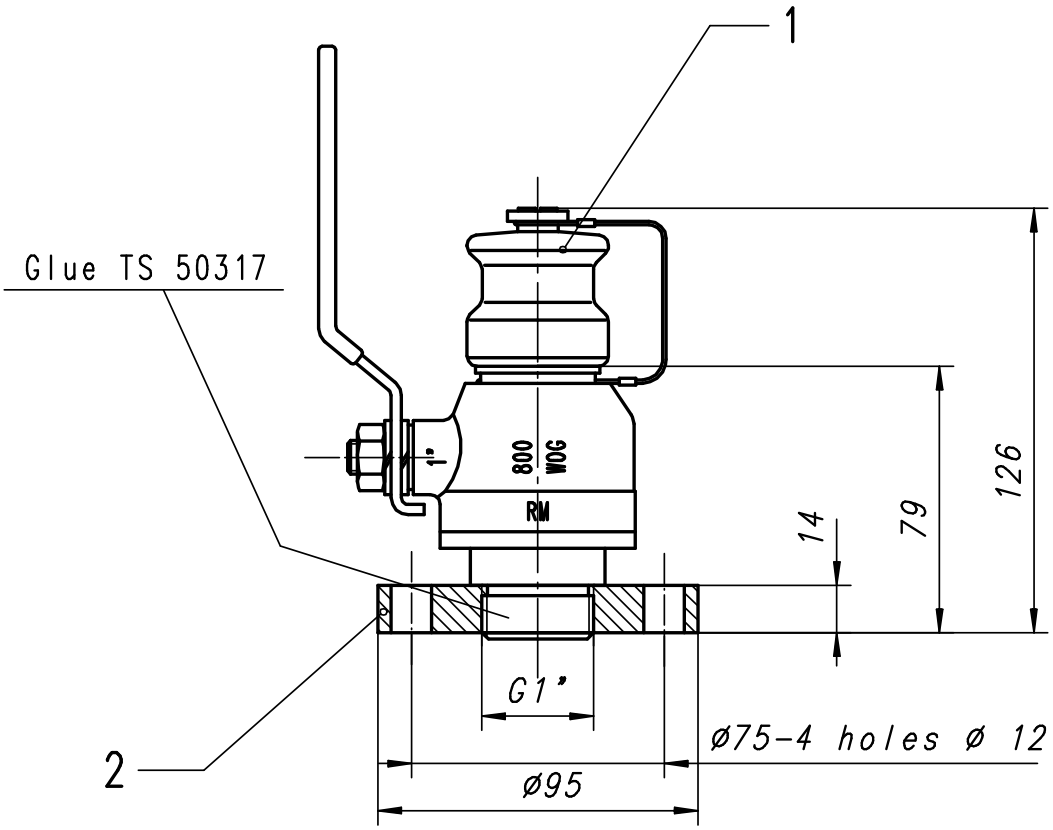
Modification | Visa | Date | Is

Valves
Hermetic Compact Valve C1SS
with flange JIS 5K50

TS 98077
ND 30457
REF ND

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

0 Th.



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	1050	Hermetic Compact Valve C1SS	-	10055	30230
2	1	630	Flange JIS 5 K 25	AISI 316L	98090A	41056

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 19.11.1996

Control:

Weight: 1680 Th. 1680 Eff.

1 : 2

ISSUE 1 : 21.12.2006

MPSA 3110

Replacement for: ND

Replaced by: ND

Speciality
Flange JIS 5K/25 with C1SS

TS 98090

ND 41036

REF ND

Is	Date	Visa	Modification
1	21.12.06	cpi	Made by casting norm JIS 5K25
1	2.4.98	cpi	made from flange DN25/PN6
1	27.1.97	cpi	Add. of detail 1:10

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
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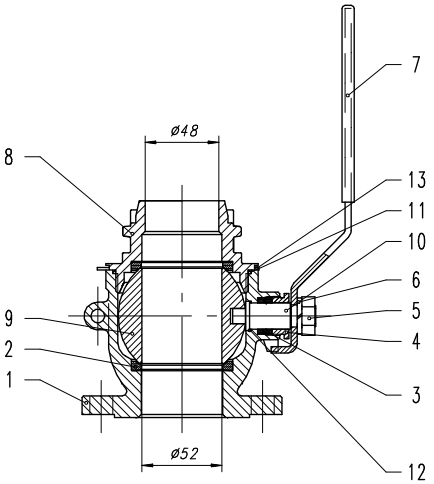
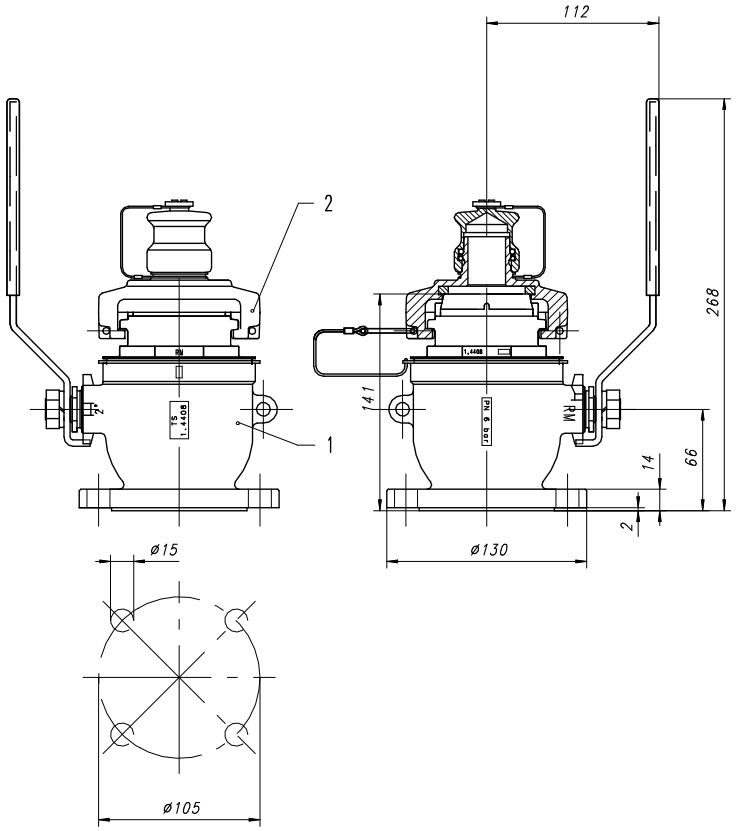
VALVE RM TS 10406
ND 20182



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body JIS	1.4408	22629	
2	2	0	Seat ¢53/66x6	TFE	22630	40772
3	1	0	Stem packing ¢17/23.9x8.5(2pces)	TFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball DIN	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ¢86/90x2.5	TFE	22640	40778
12	1	0	Gasket ¢17/17x1	TFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996



JIS 5K x 50

Item	Qt	Weight	Description	Material	TS #	ND #
1	1	4570	Compact Valve C2 JIS 5K	-	10406	20182
2	1	581	Cover with weather cap	-	10415	41040

TOLERANCES UNLESS OTHERWISE SPECIFIED

Nom.Size	Over	0	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 5151 Th. 0 Eff.

1:2

ISSUE 1 : 7.9.1999

WPSA 4110

Drawn: UPR 22.04.1994

Control:

Replacement for: ND

Replaced by: ND

Modification | Visa | Date | Is

Valves

HERMetic Compact Valve C2-SS-W flange JIS

TS 98117

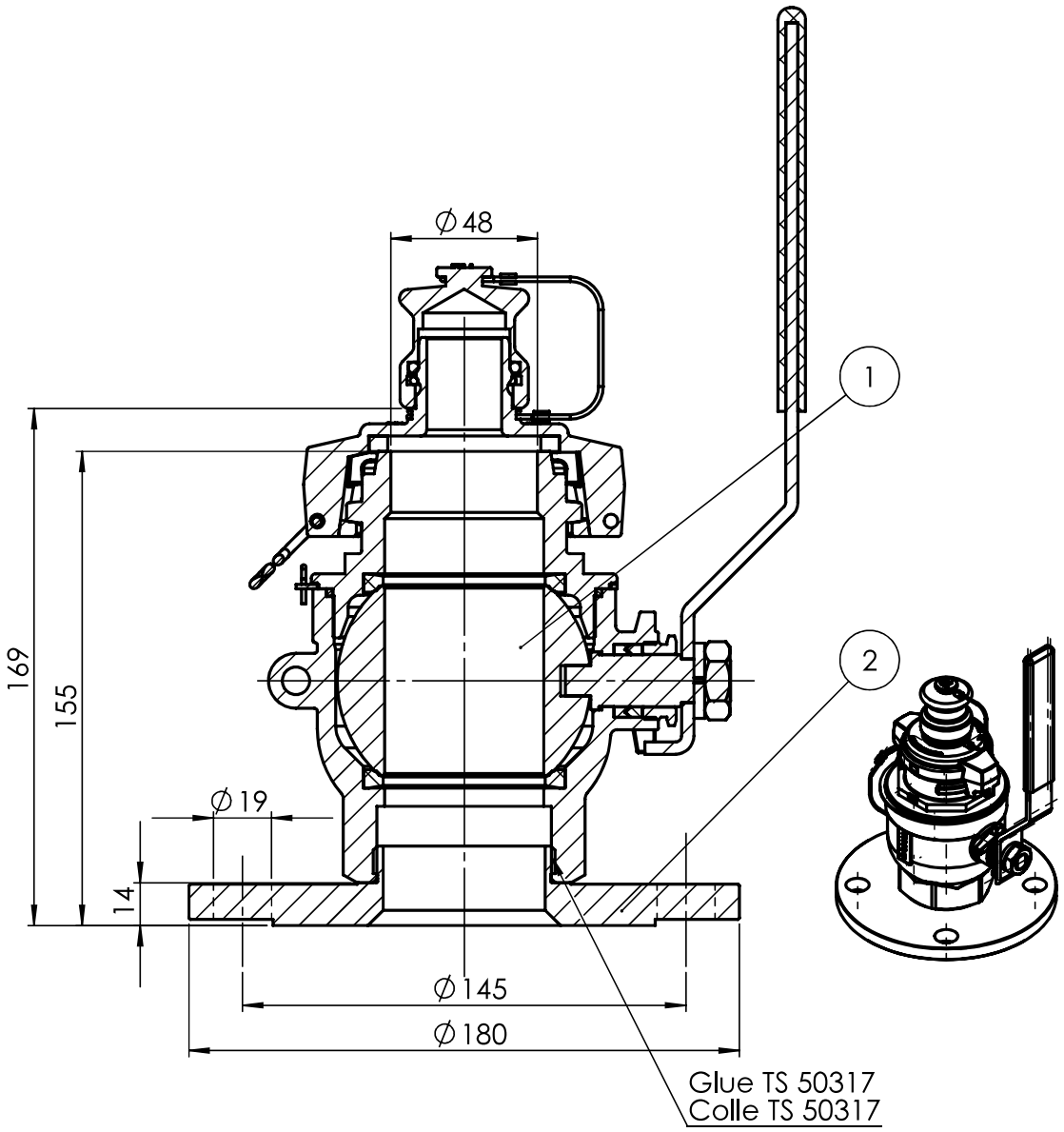
ND 20341

REF ND

Enraf Tanksystem SA

RUE DE L'INDUSTRIE 2 CH-1630 BULLE

Tel. +41 26 91 91 500 - Fax +41 26 91 91 505



Item	Qty	Weight	Description	Material	TS	ND
1	1	4345.7	HERMetic Compact Valve C2-SS-W 2" Female		10076	30391
2	1	2146.0	Flange JIS 5 K 80 with male thread G2"	CF8M	98121C	30819

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 21.07.2010

Control:

Weight: 6495.2 Eff.

1:2

ISSUE 1 : 21.07.2010

MPSA YYYN

Replacement for: ND

Replaced by: ND

Speciality

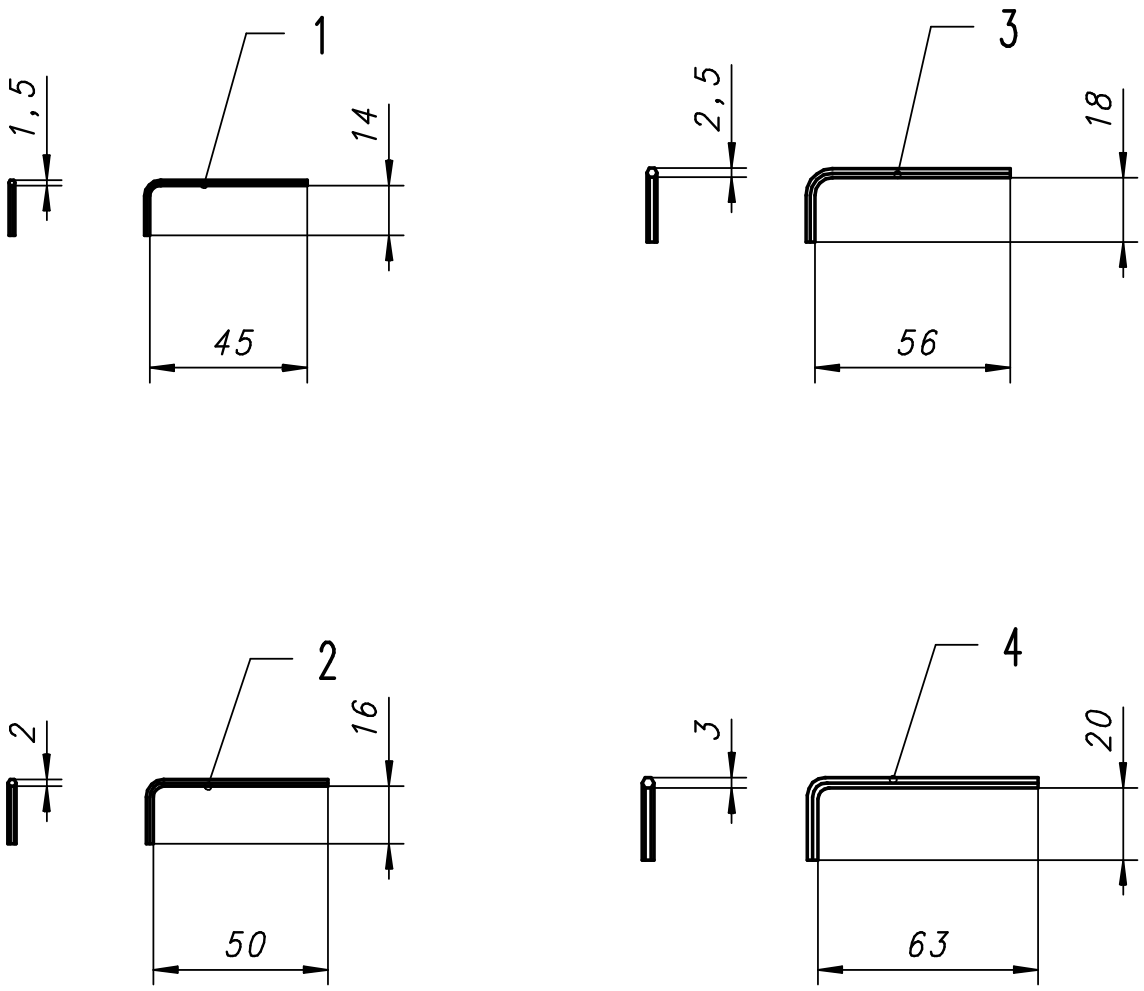
Compact valve C2-SS-W 2" female with flange 5K80

TS 98121

ND 41129

REF ND

Enraf Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	1	Hexagon key 1.5mm	Steel	50305	ISO 2936
2	1	2	Hexagon key 2mm	Steel	50346	ISO 2936
3	1	3	Hexagon key 2.5mm	Steel	50300	ISO 2936
4	1	5	Hexagon key 3mm	Steel	50345	ISO 2936
5	1	6	Sachet PEBD 90x75	-	50335	-

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 19.09.1994

Control:

Weight: 17 Th. 12 Eff.

1:2

ISSUE 1 : 19.9.1994

MPSA

Replacement for: ND

Replaced by: ND

UTI GT

Tool for UTI GT

TS 50347

ND 40854

REF ND 20170

5

Modification | Visa | Date | Is

TS Tanksystem SA
RUE DE L'INDUSTRIE 2 CH-1630 BULLE
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15. Declaration of conformity

Honeywell

Honeywell Enraf Tanksystem SA Author: QD	Declaration of Conformity CE / IECEx	Issue: 14 TSB_7013_E.docx April 23, 2018 1 of 3

EU DECLARATION OF CONFORMITY

EU-KONFORMITÄTSERKLÄRUNG / DÉCLARATION UE DE CONFORMITÉ

1	Product: *Produkt:* *Produit:*	**HERMetic UTImeter Gtex / Rtex / Otex**
2	Object of the declaration: *Gegenstand der Erklärung:* *Objet de la déclaration :*	
3	Name and address of the manufacturer: *Name und Anschrift des Herstellers:* *Nom et adresse du fabricant:*	**ENRAF TANKSYSTEM SA** **Rue de l'Industrie 2** **CH-1630 BULLE** **Switzerland**
4	The object of the declaration described above is in conformity with the relevant Union harmonisation legislation: *Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:* *L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable:*	**2014/34/EU (ATEX, ≥ 2016-04-20)** **2014/90/EU (MED, ≥ 2016-04-20)** **2014/30/EU (EMC, ≥ 2016-04-20)**
5	References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared: *Angabe der einschlägigen harmonisierten Normen oder der anderen technischen Spezifikationen, die der Konformitätserklärung zugrunde gelegt wurden:* *Références des normes harmonisées pertinentes appliquées ou des autres spécifications techniques par rapport auxquelles la conformité est déclarée:*	**ATEX: EN 60079-0: 2012 + A11: 2013** **EN 60079-11: 2012** **IECEx: IEC 60079-0: 2011** **IEC 60079-11: 2011** **MED: IMO-Resolution MEPC.5(XIII)** **EMC: EN 61326-1:2013**
6	Notified body that performed EU Type Examination and issued the certificate (name, number): *Diese notifizierte Stelle hat die EU-Baumusterprüfung gemacht und folgende Bescheinigung ausgestellt (Name, Nummer):* *L'organisme notifié qui a effectué l'examen UE de type et a établi l'attestation (nom, numéro):*	**ATEX: DEKRA Certification B.V., 0344** **MED : DNV GL AS, 0575**
7	Certificate(s): *Bescheinigung(en):* *Certificat(s):*	**ATEX: KEMA 02ATEX1097X** **IECEx: IECEx KEM 06.0047X**

	Vertalingen	Traducciones
1	*Product*	*Producto*
2	*Voorwerp van de verklaring*	*Objeto de la declaración*
3	*Naam en adres van de fabrikant*	*Nombre y dirección del fabricante*
4	*Het hierboven beschreven voorwerp is in overeenstemming de desbetreffende harmonisatiewetgeving van de Unie*	*El objeto de la declaración descrita anteriormente es conforme con la legislación de armonización pertinente de la Unión*
5	*Vermelding van de toegepaste relevante geharmoniseerde normen of van de overige technische specificaties waarop de conformiteitsverklaring betrekking heeft*	*Referencias a las normas armonizadas pertinentes utilizadas, o referencias a las otras especificaciones técnicas respecto a las cuales se declara la conformidad*
6	*De aangemelde instantie die de EU Type Examination uitgevoerd en het certificaat verstrekt heeft (naam, nummer)*	*Organismo notificado que realiza examen de tipo UE y expide el certificado (nombre, número)*
7	*Certificaten*	*Certificados*
	μετάφραση	Traduzioni
1	*προϊόν*	*Prodotto*
2	*Στόχος της δήλωσης*	*Oggetto della dichiarazione*
3	*Όνομα και διεύθυνση του κατασκευαστή*	*Nome e indirizzo del fabbricante*
4	*Ο στόχος της δήλωσης που περιγράφεται παραπάνω είναι σύμφωνος με τη σχετική ενωσιακή νομοθεσία εναρμόνισης*	*L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione*
5	*Παραπομπές στα σχετικά εναρμονισμένα πρότυπα που χρησιμοποιήθηκαν ή παραπομπές στις λοιπές τεχνικές προδιαγραφές σε σχέση με τις οποίες δηλώνεται η συμμόρφωση*	*Riferimento alle pertinenti norme armonizzate utilizzate o riferimenti alle altre specifiche tecniche in relazione alle quali è dichiarata la conformità*
6	*Κοινοποιημένο οργανισμό που πραγματοποιήθηκε ΕΕ Εξέταση τύπου και εξέδωσε το πιστοποιητικό (όνομα, αριθμός):*	*Organismo notificato che eseguito tipo UE Esame e rilasciato il certificato (nome, numero)*
7	*πιστοποιητικών*	*Certificati*
	Tłumaczenia	Tradu□□es
1	*Produkt*	*Produto*
2	*Przedmiot deklaracji*	*Objeto da declaração*
3	*Nazwa i adres producenta*	*Nome e endereço do fabricante*
4	*Wymieniony powyżej przedmiot niniejszej deklaracji jest zgodny z odnośnymi wymaganiami unijnego prawodawstwa harmonizacyjnego*	*O objeto da declaração acima descrito está em conformidade com a legislação aplicável de harmonização da União*
5	*Odniesienia do odnośnych norm zharmonizowanych, które zastosowano, lub do innych specyfikacji technicznych, w stosunku do których deklarowana jest zgodność*	*Referências às normas harmonizadas aplicáveis utilizadas ou às outras especificações técnicas em relação às quais é declarada a conformidade*
6	*Notyfikowana, że wykonywane badania typu UE i wydała certyfikat (nazwa, numer)*	*Organismo notificado que realizou Exame de tipo da UE e emitiu o certificado (nome, número)*
7	*Certyfikaty*	*Certificados*

This declaration of conformity is issued under the sole responsibility of the manufacturer.
Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.
Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant.
La presente declaración de conformidad se expide bajo la exclusiva responsabilidad del fabricante.
Η παρούσα δήλωση συμμόρφωσης εκδίδεται με αποκλειστική ευθύνη του κατασκευαστή.
La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.
Niniejsza deklaracja zgodności wydana zostaje na wyłączną odpowiedzialność producenta.
A presente declaração de conformidade é emitida sob a exclusiva responsabilidade do fabricante:

The Technical Construction File required by these Directives is maintained at: *Die von den Richtlinien erforderten technischen Dokumentation wird archieviert in:* *Le dossier technique de construction nécessaire pour ces directives est maintenue à:* *Het technisch constructie dossier vereist door deze richtlijnen wordt bewaard in:* *El expediente técnico de construcción requerido por dichas Directivas se mantiene a:* *Φάκελο τεχνικής κατασκευής που απαιτούνται από τις οδηγίες αυτές διατηρείται σε:* *Fascicolo tecnico previsto dalle suddette direttive è mantenuta a:* *Plik Budowa techniczne wymagane przez tych dyrektyw jest utrzymywana na:* *O dossier técnico de construção exigido por estas directivas é mantida em:*	**ENRAF TANKSYSTEM SA** **Rue de l'Industrie 2** **CH-1630 BULLE** **Switzerland**
Signed for and on behalf of: *Unterzeichnet für und im Namen von:* *Υπογραφή για λογαριασμό και εξ ονόματος:* *Signé par et au nom de:* *Firmato a nome e per conto di:* *Ondertekend voor en namens:* *Podpisano w imieniu:* *Firmado en nombre de:* *Assinado por e em nome de:*	**ENRAF TANKSYSTEM SA** **Rue de l'Industrie 2** **CH-1630 BULLE** **Switzerland**

Place and date of issue: *Ort und Datum der Ausstellung:* *τόπος και ημερομηνία έκδοσης:* *Date et lieu d'établissement:* *Luogo e data del rilascio:* *Plaats en datum van afgifte:* *Miejsce i data wydania:* *Lugar y fecha de expedición:* *Local e data de emissão:*	**Delft, 2018-04-23**
Name: *Name:* *όνομα:* *Nom:* *Nome:* *Naam:* *Imię:* *Nombre:* *Nome:*	**Jan Bok**
Function: *Funktion:* *θέση:* *Fonction:* *Funzione:* *Functie:* *i nazwisko:* *Cargo:* *Cargo:*	**Approval Engineer**
Signature: *Unterschrift:* *υπογραφή:* *Signature:* *Firma:* *Handtekening:* *Stanowisko:* *Firma:* *Assinatura:*	

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July 2018

Honeywell