

# Operation and Service Manual for HERMetric Sampler A.2 ≈ 0.5 liter

Portable Restricted Sampling Device



**Note:** before using the instrument please read this book.



This document is subject to changes without notice.

**1. Table of contents**

<b>1.</b>	<b>TABLE OF CONTENTS</b>	<b>2</b>
<b>2.</b>	<b>RECOMMENDATION FOR SAFE USE</b>	<b>3</b>
<b>3.</b>	<b>GENERAL INFORMATION</b>	<b>4</b>
3.1	SHIPMENT NOTE	4
3.2	INITIAL INSPECTION	4
3.3	DOCUMENTATION DISCREPANCIES	4
3.4	WARRANTY	4
3.5	CERTIFICATION	5
3.6	SPARE PARTS	5
3.7	SERVICE AND REPAIR	5
<b>4.</b>	<b>WORLDWIDE SERVICE STATIONS NETWORK</b>	<b>7</b>
<b>5.</b>	<b>DESCRIPTION</b>	<b>9</b>
5.1	GENERAL	9
5.2	SAMPLING TYPES	9
5.3	SAMPLING PRINCIPLE	10
5.3.1	CONNECTION AND GROUNDING SYSTEM	10
5.3.2	SAMPLING METHOD	11
5.3.3	LIQUID TRANSFER	11
<b>6.</b>	<b>OPERATION</b>	<b>12</b>
6.1	CHECKING BEFORE USE	12
6.2	OPERATING THE ZONE SAMPLING BOTTLE	13
6.3	OPERATING THE BOTTOM SAMPLING BOTTLE	14
6.4	OPERATING THE SPOT SAMPLING BOTTLE	15
6.5	OPERATING THE RUNNING SAMPLING BOTTLE	16
<b>7.</b>	<b>CARE &amp; MAINTENANCE</b>	<b>17</b>
7.1	SAFETY WARNING	17
7.2	CARE	17
7.3	SAMPLER CLEANING	17
7.4	TAPE CLEANING	18
7.5	TAPE WIPER REPLACEMENT	18
7.6	TAPE REPLACEMENT	18
<b>8.</b>	<b>SPECIFICATIONS</b>	<b>19</b>
<b>9.</b>	<b>DRAWINGS</b>	<b>20</b>
9.1	SAMPLER	20
9.2	VALVES	20

## 2. Recommendation for safe use

1. This Operation and Service Manual is a guide in order to help the user to operate the instrument to our best knowledge.
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. **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.
4. **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.**
  - 4.1. 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.
  - 4.2. 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.
5. **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.**
6. **In the absence of such instructions the following should be noted:**
  - 6.1. 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.
  - 6.2. If there is no sounding tube or tank is not inerted, the following precautions shall be taken:
    - 6.2.1. 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.
    - 6.2.2. If the cargo is a static accumulator liquid, i.e. its conductivity is less than 50 pS/m, then ullaging is permitted provided that:
      - 6.2.2.1. 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.
      - 6.2.2.2. 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.
  - 6.3. For further guidance refer to International Safety Guide for Oil Tankers and Terminals (ISGOTT), ISBN 1-85609-291-7, Fifth Edition 2006, or consult the appropriate Legislative Authority for the installation.
7. **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.**
8. **This device is a portable product. It must not be permanently installed on the tank and must be disconnected after use and stored in a safe and dry area.**

### 3. General information

#### 3.1 Shipment note

The following parts should be included in the shipment:

- 1 instrument;
- One or more bottles as ordered;
- 1 Allen key 5mm
- 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 damage, 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

12 months after installation but max. 18 months after delivery ex works.

**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 equipment has been certified as non-electrical equipment for potentially explosive atmospheres 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 non original spare parts by the Purchaser will void this guarantee and may impair the good functioning of the instrument.

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 QMI and MED-D by Det Norske Veritas Certification GmbH.



### **3.6 Spare parts**

**Substitution of components may impact safety. Use only original 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 part to any authorized service center or to the factory.

In case of urgency replacement units can be available while stocks last.

### **3.7 Service and Repair**

The customer should take care of the freight and customs clearance charges. If units are sent on "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).

**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: .....

Telex: .....

Fax: .....

Type of unit or part: .....  
.....

Serial number: .....

Short description of defective unit or part: .....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

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](http://www.tanksystem.com)*

<b>COUNTRY</b>	<b>ADDRESS</b>	<b>TELEPHONE/FAX/E-MAIL</b>
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
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 : +86-21-68183183 Fax : +86-21-68183115 huahaish@huahaiee.com
GREECE	SPANMARIN 86, Filonos Street 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 Rm1001, Hae-deok Bldg., 1212-11 Choryang-dong Dong-Gu BUSAN	Tel : +82-51-462-2554/5 Fax : +82-51-462-0468 marine@worldocean.co.kr
MEXICO	URBAN DEL GOLFO S.A. DE C.V. Ave. Ejército Mexicano 1902 Col. Loma del Gallo 89460 CD. MADERO, TAMPS. MEXICO	Tel : +52-833-2170190 Fax : +52-833-2170190 urbansa@prodigy.net.mx
NETHERLANDS	B.V. TECHNISCH BUREAU UITTENBOGAART Brugwachter 13 NL-3034 KD ROTTERDAM	Tel : +31-10-4114614 Fax : +31-10-4141004 info@tbu.nl

The updated list can be found on our website [www.tanksystem.com](http://www.tanksystem.com)

<b>COUNTRY</b>	<b>ADDRESS</b>	<b>TELEPHONE/FAX/E-MAIL</b>
PORTUGAL	CONTROLIS Soc. Com. Equipamentos de Controlo, Lda. Rua Conceição Sameiro Antunes, 26E 2800-379 COVA DA PIEDADE	Tel : +351-21-2740606 Fax : +351-21-2740897 controlis@netc.pt
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 eni.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 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
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 service@maritronics.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. Description

### 5.1 General

The **HERMetic Samplers** are designed for sampling of liquids or chemicals, which present a Fire-, Health- or Air pollution Hazard.

The equipment is designed for use in potentially explosive atmospheres area.

### 5.2 Sampling types

Several kinds of samples can be realised with this sampler. To get different samples, 4 bottles are available: Zone bottle, Spot bottle, Running bottle and Bottom bottle.

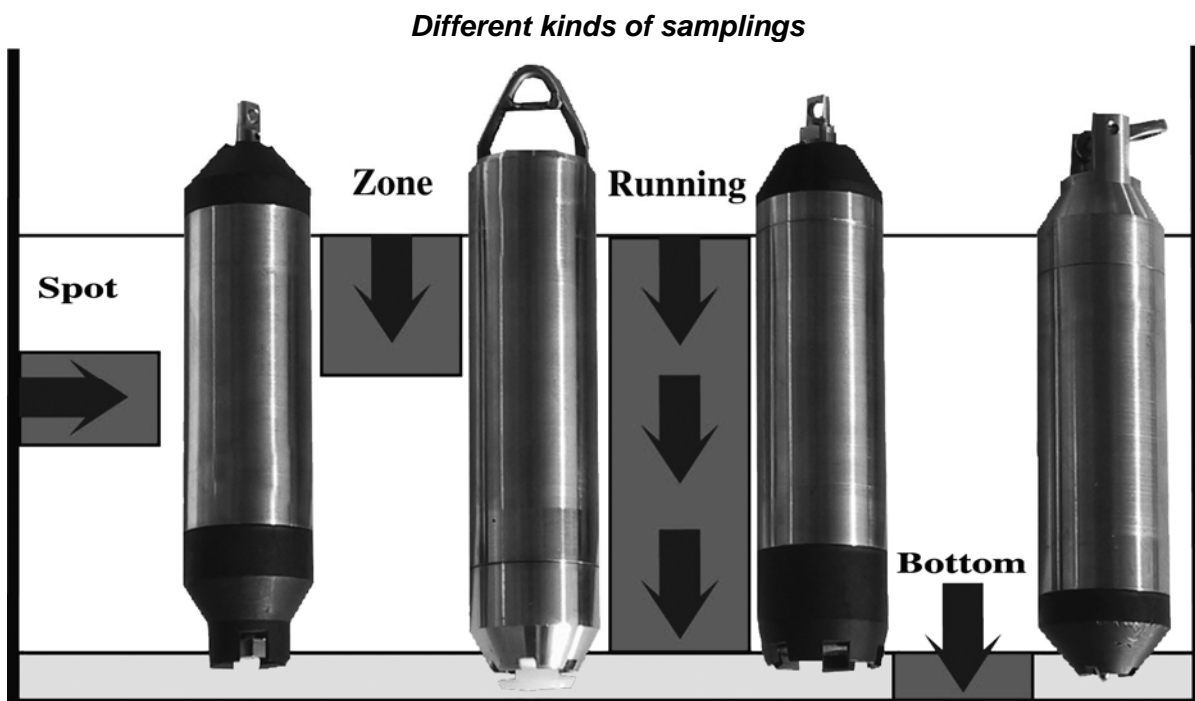
The Zone bottle allows sampling of the upper level inside the tank.

The Spot bottle allows sampling at a determinate height.

The running bottle allows sampling all along the displacement of the bottle inside the tank.

The Bottom bottle allows sampling of the tank bottom.

As far as the kinds of sampling are concerned, please refer to ISO 3170 "Petroleum liquids – Manual sampling".



All these bottle are interchangeable, please refer to § 6.1.

For specific application, other bottles exist. For further information, please contact.

The sampler is delivered as standard with zone sampling bottle. All other sampling bottles are available as option.

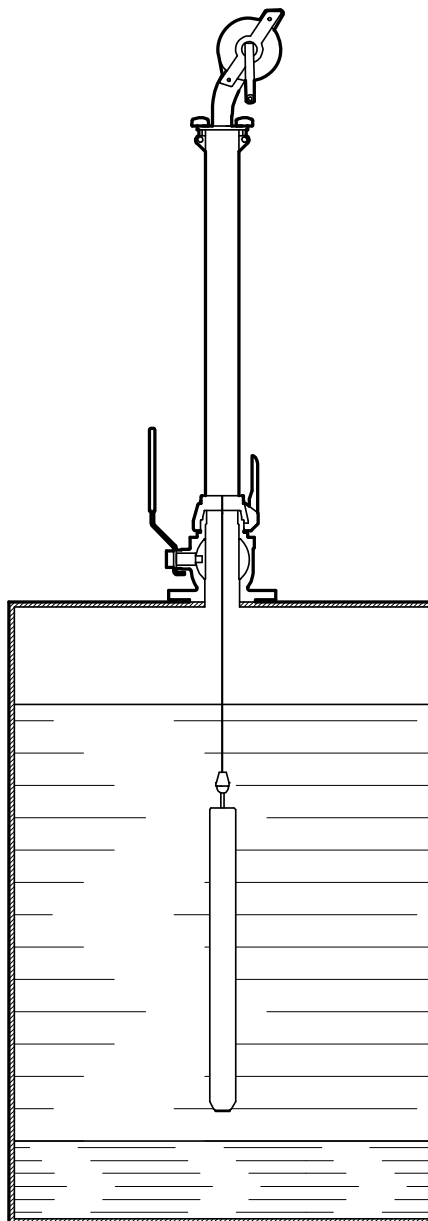
### 5.3 Sampling principle

#### 5.3.1 Connection and grounding system

All HERMetric products are easy to connect. Indeed, all HERMetric devices are equipped with a quick coupler for connection on a HERMetric ball valve.

Place the unit on the appropriate valve and activate the locking system. Depending on the locking system, either rotate the collar and actuate the lever or pull on the sleeve.

If the instrument is connected to genuine HERMetric valve, grounding is effected through the quick connect coupler and the mating nipple of the valve. No additional grounding strap is necessary. For further information, please refer to §2 "Recommendation for safe use".



### **5.3.2 Sampling method**

The sample is taken by a vertical move of the bottle inside the fluid.

The bottle is linked with a graduated tape to monitor the bottle location.

For complete explanation of sampling procedures, please refer to §6 "Operation".

Important note: to avoid contamination of the sample taken by the sampler itself, check and clean the unit and the bottle prior to use. Clean the unit with an appropriate cleaner without impacting the unit or contamination risk of the next sample.

### **5.3.3 Liquid transfer**

To transfer the fluid, no additional equipment is necessary. Just remove the sampling bottle through bottom of Sampler and pour its content into an appropriated laboratory bottle.

## 6. Operation

### 6.1 Checking before use

Before using the sampler:

- Check the good state of the device.
- Check the cleanliness of the unit (sampler and bottle) to prevent any contamination of the sample.
- Inspect the bottle tape end for breaks, kinks and wear. If there is some damage, replace the tape before use.
- Check of the attachment of the hook locking device on the tape.
- Check the closure of the hook locking device according to Fig. 1. The swivel hook has to be locked in use.

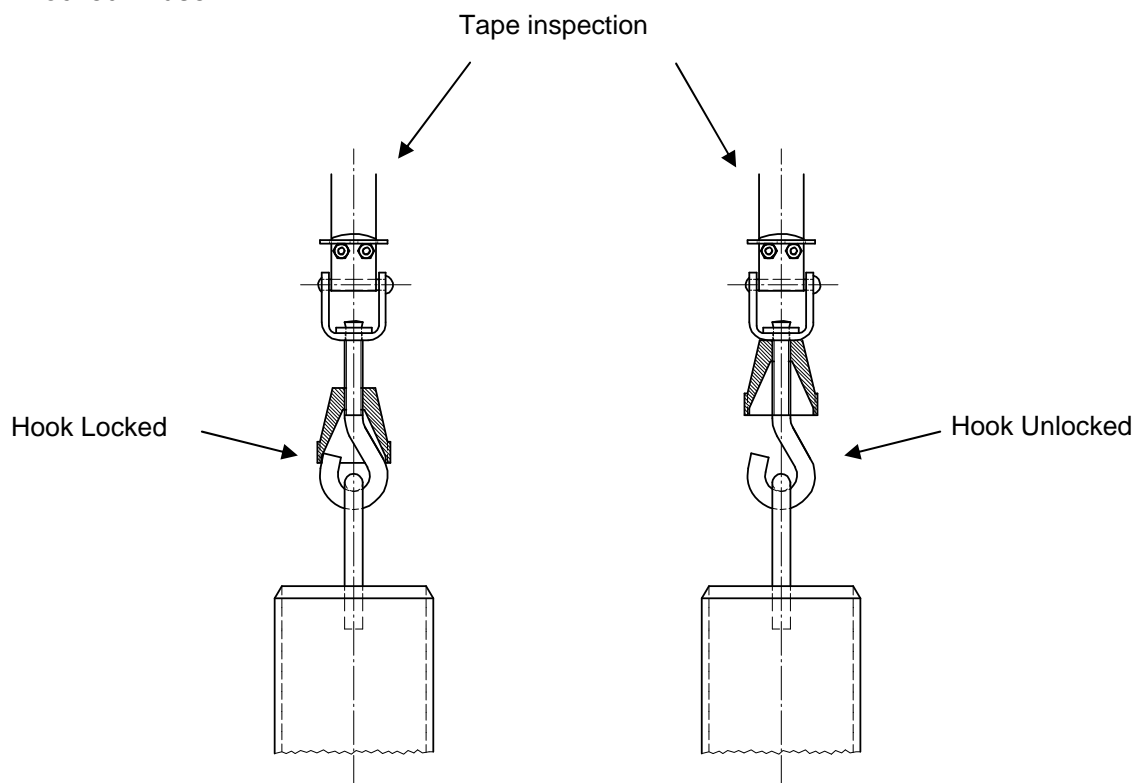


Fig. 1

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

Store the instrument in a dry location.

**6.2 Operating the ZONE SAMPLING BOTTLE**

	ND	TS	DESCRIPTION
	30329	10380	Zone Bottle 0,43 l. Viton assy

1. Remove the 2" cover from the valve.
2. Install the sampler on top of the valve.
3. Open the valve.
4. Lower the bottle at a minimum speed of 0,5 m/sec.  
If the lowering speed is too low the liquid will not flow through the bottle. The resistance of the ball to flowing has to be higher than its weight to keep open the bottom valve of the bottle.
5. Stop the lowering at the level where the sample is to be taken.
6. Lift the bottle back into the sampler housing.
7. Close the valve.
8. Remove the cover of the sampler together with the bottle and pour its content into a laboratory bottle with a minimum 2" neck diameter.
9. Reassemble the bottle and cover to the sampler.
10. Remove the sampler from the valve.
11. Reinstall the 2" cover on top of the valve.
12. Clean the equipment after use and check it for proper functioning.

**6.3 Operating the BOTTOM SAMPLING BOTTLE**

(O = OPTION)

	ND	TS	DESCRIPTION
O	20246	20124	Bottom bottle 0.40 l FKM assy

1. Remove the 2" cover from the valve.
2. Install the sampler on top of the valve.
3. Open the valve.
4. Lower the bottom bottle until reaching the bottom of the tank.
5. When the bottom valve of the bottle hits the tank bottom the bottle fills up automatically.
6. Lift the bottle back into the sampler.
7. Close the valve.
8. Remove the cover of the sampler together with the bottom bottle. Mind not to open the bottom valve inadvertently.
9. Put the bottom bottle vertically into a laboratory bottle with a minimum 2" neck diameter.
10. When the bottle bottom valve hits the bottom of the laboratory bottle the liquid is transferred.
11. Reassemble the bottom bottle and the cover to the sampler.
12. Remove the sampler from the valve.
13. Reinstall the 2" cover on top of the valve.
14. Clean the equipment after use and check it for proper functioning.

**6.4 Operating the SPOT SAMPLING BOTTLE**

(O = OPTION)

	ND	TS	DESCRIPTION
O	20255	20137	Spot bottle 0.40 l. FKM

1. Remove the 2" cover from the valve.
2. Install the sampler on top of the valve.
3. Open the valve.
4. Lower the spot bottle to the level where the sample is to be taken.
5. Stop the bottle at this level and shake it rapidly up and down about 10 times on a 200 mm stroke.  
This movement has a pumping effect as the ball opens and closes the bottom of bottle.
6. Lift the bottle back into the sampler.
7. Close the valve.
8. Remove the cover of the sampler together with the spot bottle. Mind not to open the bottom valve inadvertently.
9. Put the spot bottle vertically into a laboratory bottle with a minimum 2" neck diameter.
10. When the bottle spot cover hits the bottom of the laboratory bottle the liquid is transferred.
11. Reassemble the spot bottle and the cover to the sampler.
12. Remove the sampler from the valve.
13. Reinstall the 2" cover on top of the valve.
14. Clean the equipment after use and check it for proper functioning.

## 6.5 Operating the RUNNING SAMPLING BOTTLE

(O = OPTION)

	ND	TS	DESCRIPTION
O	20254	20138	Running bottle 0.40 l. FKM

0. The calibration plug on top of the running bottle has to be adjusted according to the liquid to be sampled. The plug is properly set up when the transferred quantity of liquid falls between 70 and 85% of the capacity of the sampling bottle, i.e. between 0.3 and 0.35 l (API MPMS Chapter 8.1, § 8.3.3.3).
1. Remove the 2" cover from the valve.
2. Install the sampler on top of the valve.
3. Open the valve.
4. Lower the running bottle regularly to the appropriate depth but do not hit the tank bottom to keep the bottom plug closed all the time.
5. When the appropriate depth has been reached lift the running bottle back into the sampler at the same regular speed.
6. Close the valve.
7. Remove the cover of sampler together with the running bottle. Mind not to open the bottom valve inadvertently.
8. Put the running bottle vertically into a laboratory bottle that shall have a 2" minimum neck diameter.
9. Open the bottom valve by hitting the bottom of the laboratory bottle. Transfer the liquid.
10. When the transfer is completed, check that the transferred liquid falls between the two marks 0.3 and 0.35 l in order to comply with API MPMS Chapter 8.1 requirements.
11. Reassemble the running bottle and the cover to the sampler.
12. Remove the sampler from the valve.
13. Reinstall the 2" cover on top of the valve.
14. Clean the equipment after use and check it for proper functioning.



## 7. Care & Maintenance

### 7.1 Safety warning

As this equipment has been designed as non-electrical equipment for potentially explosive atmospheres. Specific precautions have to be taken regarding maintenance of the device. The user can exchange parts and modules if following points are observed:

1. Never carry out any repair or trouble shooting in a hazardous area.
2. Substitution of components may impact safety. Use only original spare parts.
3. Work shall be done only by maintenance personnel who has experience with equipment certified for use in potentially explosive atmosphere.

The design of the equipment is modular, i.e. in case of damage, check which modules or spare parts have to be replaced. Order new parts according to enclosed drawings and specific item number TS -----. The instrument consists of the following modules:

- Mechanical parts
- Tape assembly
- Tape cleaner

### 7.2 Care

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

Store the instrument in a dry location.

Check periodically whether the general state of the device is still OK.

Check periodically whether all sealings are still OK.

Check the tape wiper for wear.

Clean periodically the sampling bottle. Check the valves of sampling bottles for liquid leakage.

Check periodically tape for kinks.

Check periodically (at least every 6 months) the continuity of grounding by measuring the electrical resistance between the hook lock (or the sampling bottle) and the quick connect coupler.

Resistance should not exceed 100  $\Omega$ .

### 7.3 Sampler cleaning

To clean HERMetric Sampler A2, winder holder can be easily removed and sampling bottle detached from tape.

It is required to fit the cleanliness level with the sample goals. Where appropriate, dismantle the winder holder and clean the parts with an appropriate cleaner to prevent any contamination of the sample by the sampler itself.

#### **7.4 Tape cleaning**

If tape requires cleaning it has to be unwound. Clean it during its winding-up operation on the winder.

#### **7.5 Tape wiper replacement**

- Unscrew the 4 screws position 7 on the drawing ND 20319 (30m) or ND 40796 (40m)
- Remove the old tape wiper.
- Put the new one.
- Tighten the 4 screws again.

#### **7.6 Tape replacement**

- Remove the winder holder from the sampler (2 screws);
- Remove the tape wiper;
- Unwind totally the old tape;
- Remove it and unscrew the screw tightening to the core;
- Put the new tape;
- Fasten the tape to the core with the screw;
- Wind the new tape;
- Put back the tape wiper.
- Put back the winder holder and tighten the 2 screws.

## 8. Specifications

### General Specifications

Tape length	up to 40 m/130 ft approx.
Tape graduation	Metric/English
Tape resolution	1 mm / 1/16"
Tape accuracy	±6.3mm/40 m (±1/4"/130 ft approx.)
Liquid density	up to 8kg/dm <sup>3</sup>
Ambient temperature range	-20°C to 80 °C (-4°F to 176°F)
Maximum liquid temperature	80°C (176°F)
Mechanical coupling	Q2 (2")
Weight	6.2 kg approx.
Dimensions	830 x 170 x 140 mm approx
Meets ISO 3170 "Petroleum liquids – Manual sampling"	

**Tape cleaning device** Adjustable tape cleaner

**Available bottles** Zone, bottom, spot, running sampling bottles

**Maintenance** modular design / easy exchange of parts

Specifications subject to change without notice.

**9. Drawings**

*These documents are enclosed in following pages.*

**9.1 Sampler**

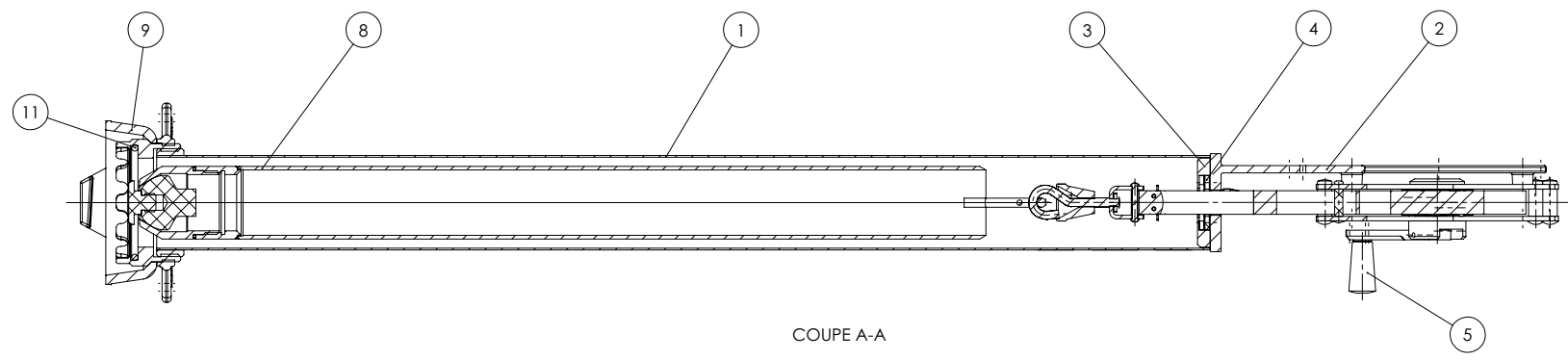
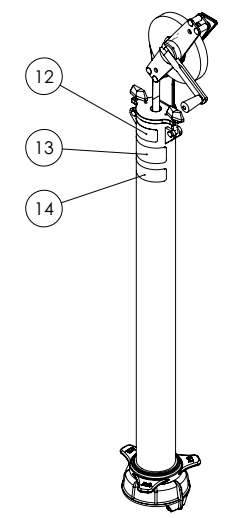
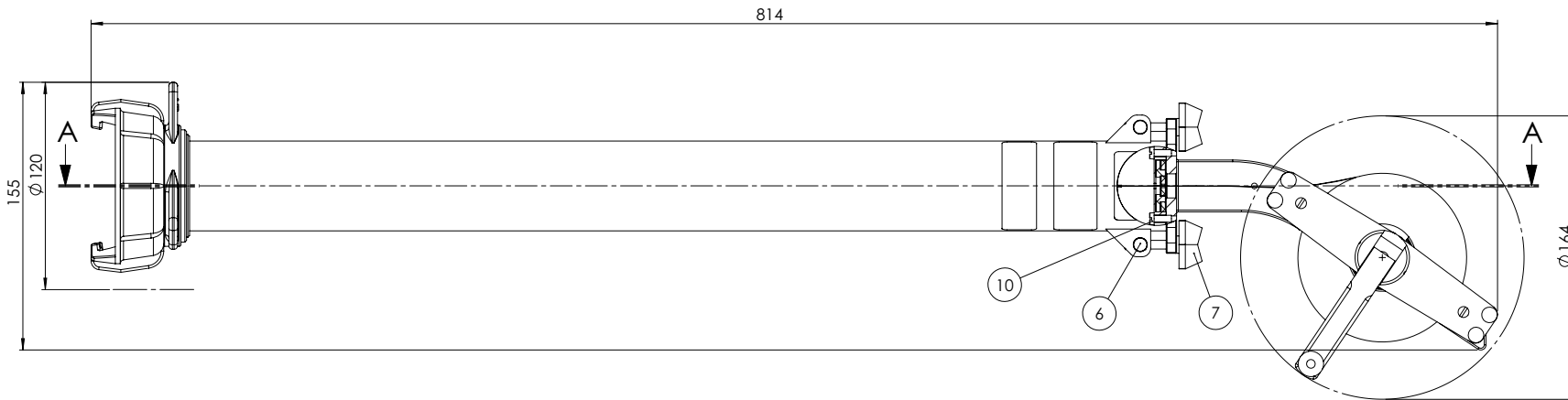
**O = Option, according to specific order.**

	ND	TS	DESCRIPTION
	20319	10042	Hermetic Sampler A2-0,5 l. 30 m
	30386	10302	Winder tape 30 m metric/inch
	40796	10369	Tape assy w/o winder 30 m
	20320	98039	Hermetic Sampler A2-0,5 l. 40 m
	30454	10308	Winder tape 40 m metric/inch
	41162	10392	Tape assy w/o winder 40 m
	30329	10380	Zone Bottle 0,43 l. Viton assy
O	20246	20124	Bottom bottle 0.40 l FKM assy
O	20255	20137	Spot bottle 0.40 l. FKM
O	20254	20138	Running bottle 0.40 l. FKM

**9.2 Valves**

**Important:** Valves are supplied separately from Samplers. There are not included in Sampler scope of supply.

	ND	TS	DESCRIPTION
	20291	10083	Valve C2-SS-W, 2" flange DUJ, weather cap
	20287	10082	Valve C2-SS-SEC, 2" flange DUJ, security cover
	20288	10081	Valve C2-SS-BL, 2" flange DUJ, blind cover
	30391	10076	Valve C2-SS-W, 2" female, weather cap
	30374	10078	Valve C2-SS-SEC, 2" female, security cover
	30596	10085	Valve C2-SS-BL G2" Female, blind cover



COUPE A-A

Item	Qty	Weight	Description	Material	TS	ND
1	1	848.1	Tube	1.4404	20143	30603
2	1	282.1	Winder holder	CF8M	20144	30604
3	1	68.4	Wiper holder	1.4301	20145	41070
4	1	3.2	Tape wiper assy	-	10506	30153
5	1	975.2	Winder tape 30m metric/inch	-	10302	30386
6	2	5.5	Pivot	A1	20605	41013
7	2	8.4	Wing screw	-	20609	41019
8	1	983.4	Zone bottle 0.43l. Viton assy	-	10380	30329
9	1	640.9	Female quick coupler	-	20537	30303
10	2	3.0	Slotted cheese head mach. screw M4x10	A2	40807	ISO1207
11	1	1.9	O-Ring ø 56.74 x 3.53	Viton	20541	
12	1	0.1	Label "Sampler"	-	50005	40344
13	1	0.2	Label "Enraf Tanksystem"	-	50006	40343
14	1	0.1	Sticker "Earth strap"	-	50072	41143

TOLERANCES UNLESS OTHERWISE SPECIFIED

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

Weight: 3831.9 Eff.

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 12.12.2008 Control: ND

Scale: 1:2

MPSA YYYN

Replaced by: ND

Replaced by: ND

Sampl 2" TS 10042

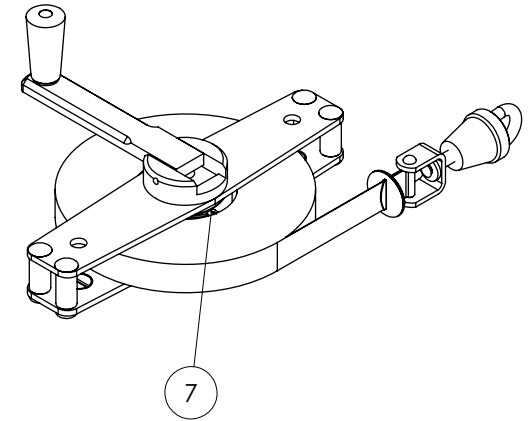
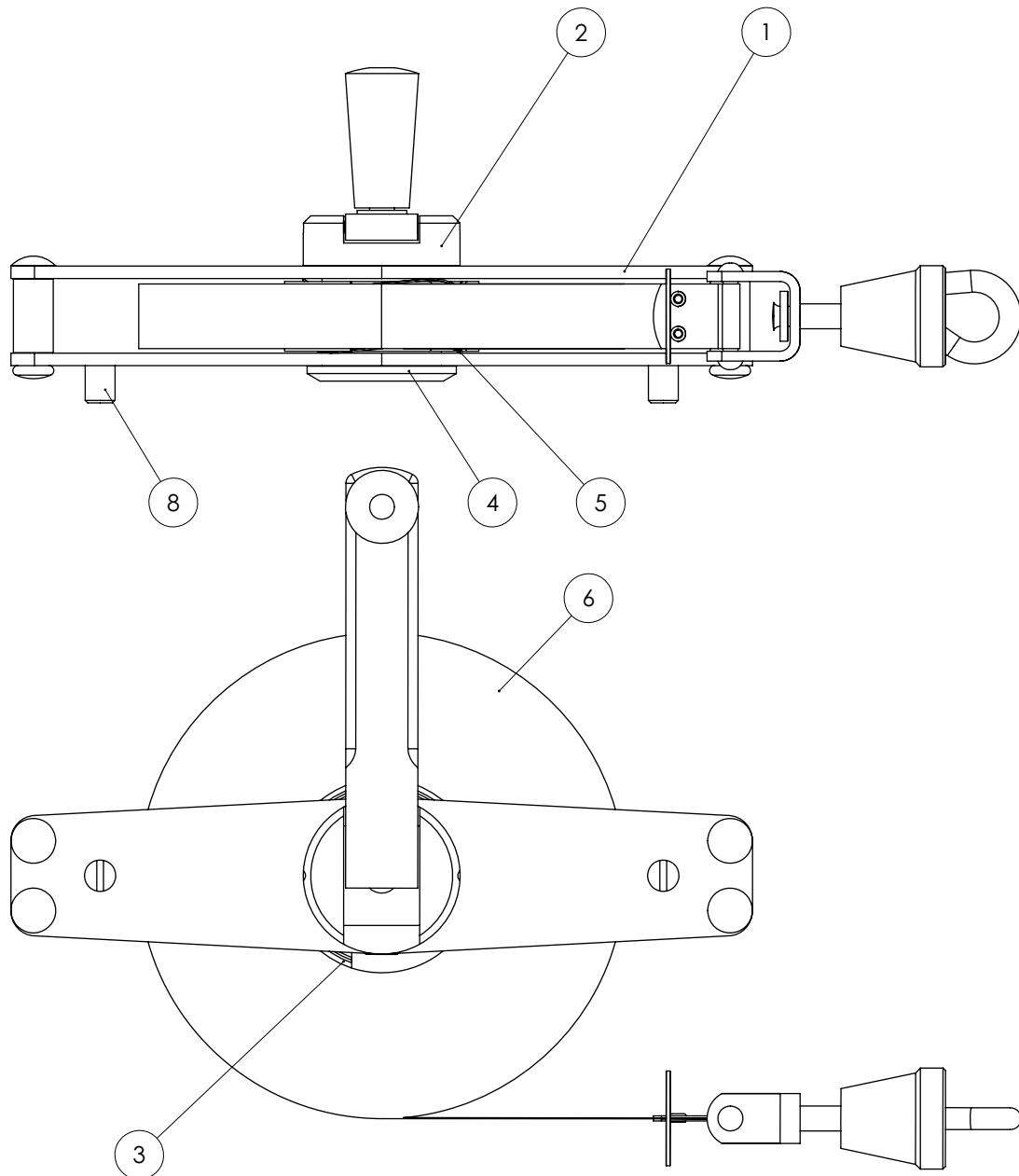
Sampl A2" 0,5 l. ND 20319

REF ND

This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.

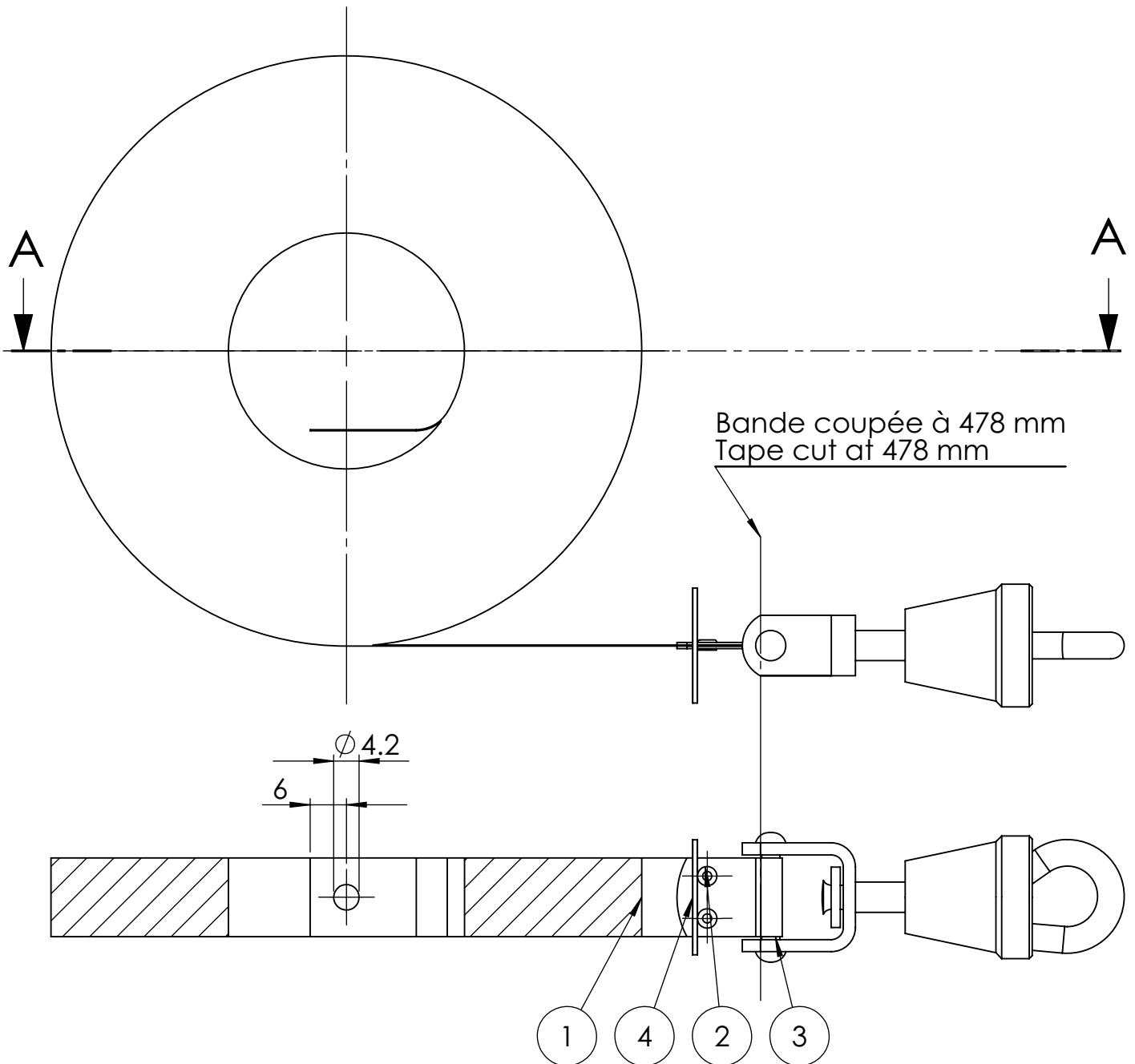
Enraf Tanksystem SA  
RUE DE L'INDUSTRIE 2 CH-1630 BULLE  
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505

ISSUE 1 : 12.12.2008



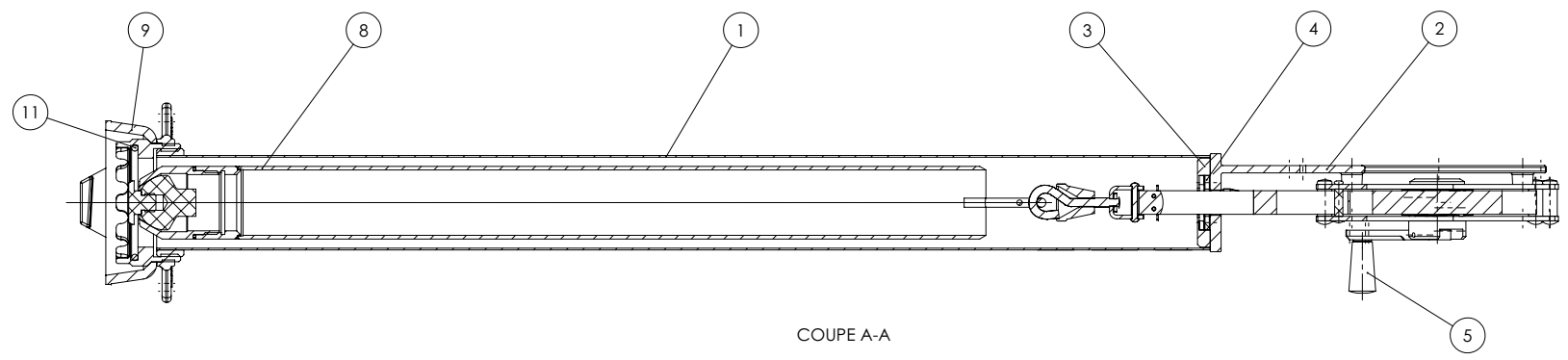
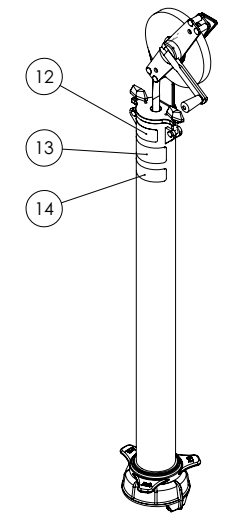
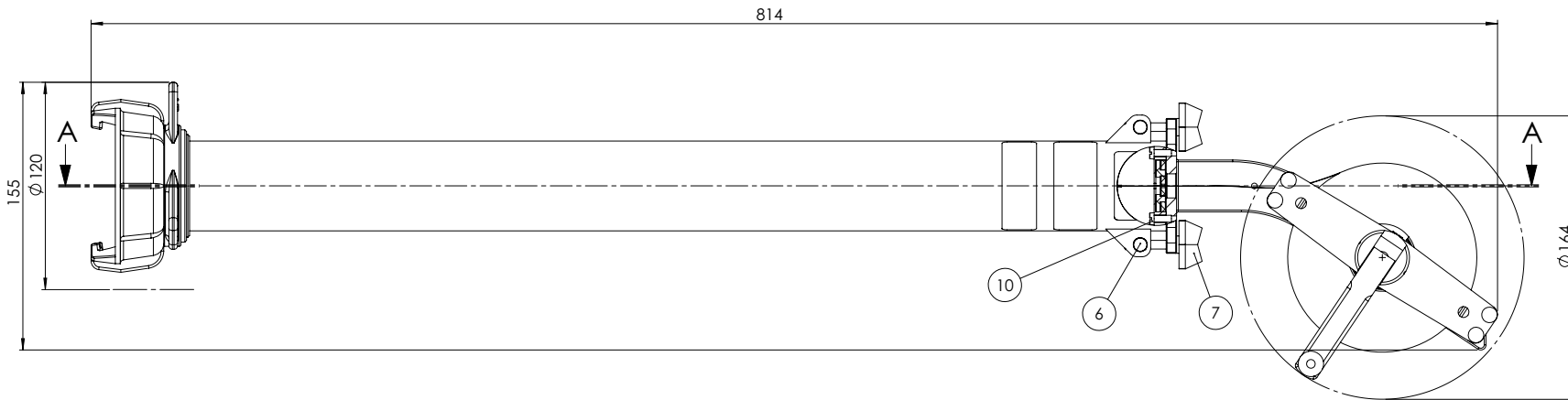
Item	Qty	Weight	Description	Material	TS	ND
1	1	147.8	Frame assy empty	-	19018	30864
2	1	40.0	Crank assy	-	19015	
3	1	86.8	Tape holder	CF8	19014	30865
4	1	4.4	Axle	PA6	19016	
5	2	0.9	Washer grounding	1.4310	19017	
6	1	687.2	Tape assy w/o winder 30m	-	10369	40796
7	1	2.0	Slotted cheese head head M4x6	A2	40802	
8	2	2.6	Flat small head socket screw M 6x10	A2	40629	VSM13328

TOLERANCES UNLESS OTHERWISE SPECIFIED							Weight:	ISSUE 2 : 23.06.2008	
Norm. Size	Over	6	30	100	300	1000	973.5 Eff.		
Fit	To	6	30	100	300	1000			Angles
Fine	±	0,05	0,1	0,15	0,2	0,3			0,5
REMOVE ALL BURRS AND SHARP EDGES								1:1	
Drawn:	CPI 24.06.2008			Control:					
Sampler Winder tape 30m metric/inch							TS 10302 ND 30386 REF ND		
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.							<b>Enraf Tanksystem SA</b> 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	643.3	Tape 30 m Metric/inch	1.4021	19503	
2	2	0.0	Rivet $\varnothing$ 2 x 2.1	A2	-	41367
3	1	42.1	Swivel hook with clasp		20502	40793
4	1	1.7	Washer for tape connector	1.4301	11238	41200

TOLERANCES UNLESS OTHERWISE SPECIFIED								Weight:	ISSUE 1 : 23.06.2008
Norm.Size	Over	6	30	100	300	1000	Angles	687.2 Eff.	
Fit	To	6	30	100	300	1000	2000		
Fine	$\pm$	0,05	0,1	0,15	0,2	0,3	0,5		0,1°
REMOVE ALL BURRS AND SHARP EDGES								1:1	MPSA 1000
Drawn: CPI 24.06.2008		Control:		Replacement for: ND		Replaced by: ND			
<b>Sampler</b> <b>Tape assy w/o winder 30m</b>								TS 10369	
								ND 40796	
								REF ND 30225/20319/20332	
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.								<b>Enraf Tanksystem SA</b> 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	848.1	Tube	1.4404	20143	30603
2	1	282.1	Winder holder	CF8M	20144	30604
3	1	68.4	Wiper holder	1.4301	20145	41070
4	1		3.2 Tape wiper assy	-	10506	30153
5	1	1170.8	Winder tape 40m metric/inch	-	10308	30454
6	2	5.5	Pivot	A1	20605	41013
7	2	8.4	Wing screw	-	20609	41019
8	1	983.4	Zone bottle 0.43l. Viton assy	-	10380	30329
9	1	640.9	Female quick coupler	-	20537	30303
10	2	3.0	Slotted cheese head mach. screw M4x10	A2	40807	ISO1207
11	1	1.9	O-Ring ø 56.74 x 3.53	Viton	20541	
12	1	0.1	Label "Sampler"	-	50005	40344
13	1	0.2	Label "Enraf Tanksystem"	-	50006	40343
14	1	0.1	Sticker "Earth strap"	-	50072	41143

TOLERANCES UNLESS OTHERWISE SPECIFIED

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

Weight: 4027.5 Eff.

ISSUE 1 : 15.1.2009

Drawn: CPI 15.01.2009 Control: ND

REPLACE ALL BURRS AND SHARP EDGES

1:2

MPSA YYYN

Replaced by: ND

Speciality: Sampler A2" 0,5 l. 40m.

TS 98039

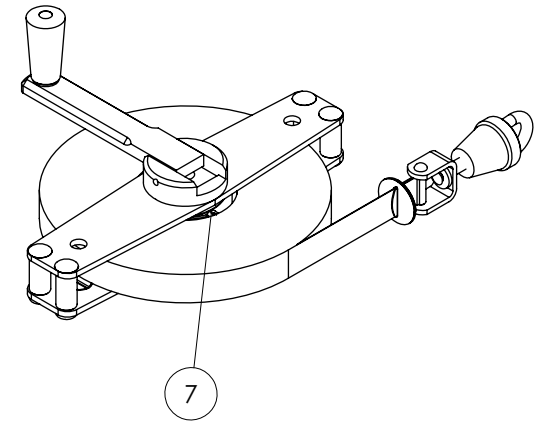
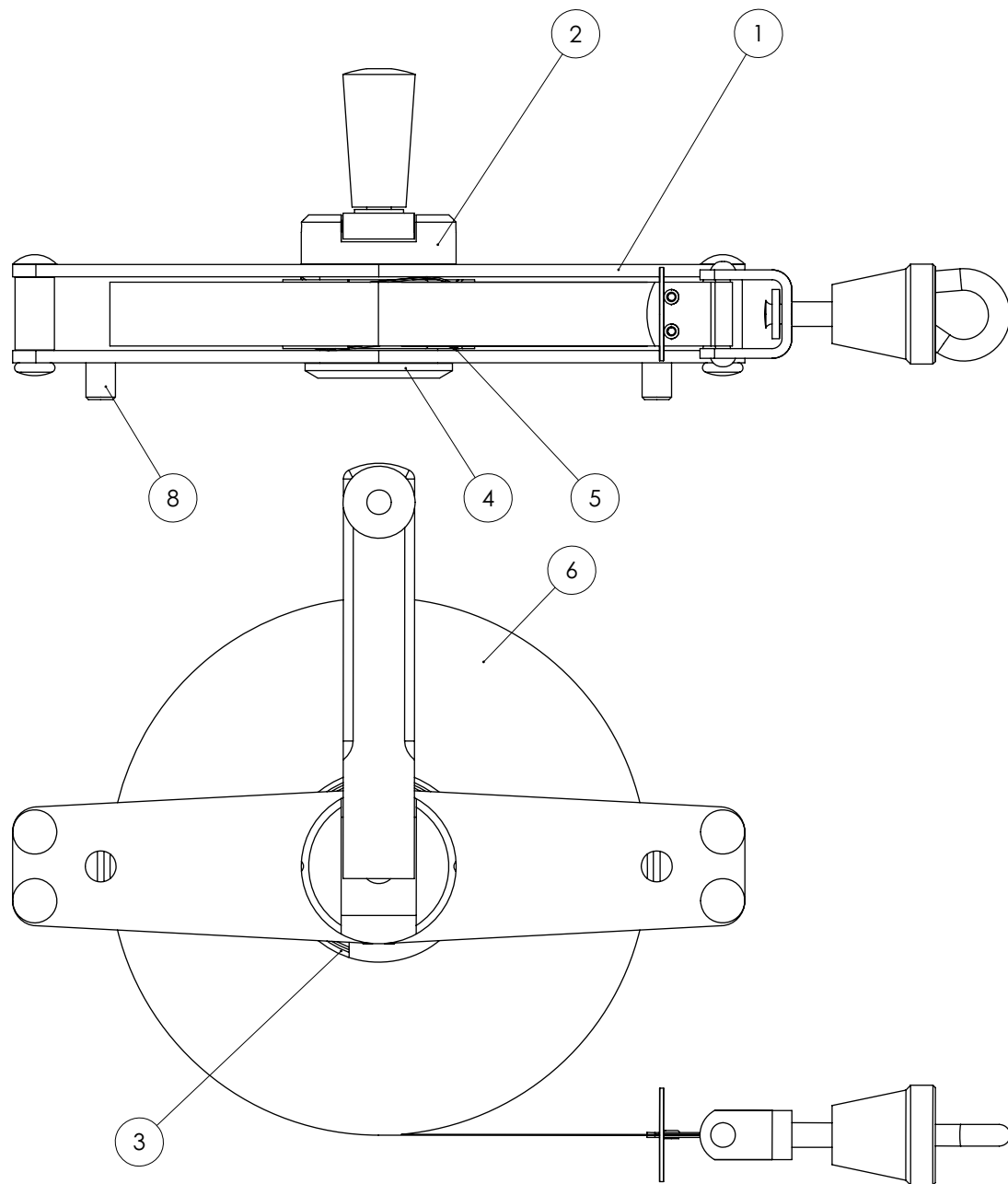
ND 20320

REF ND


This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.

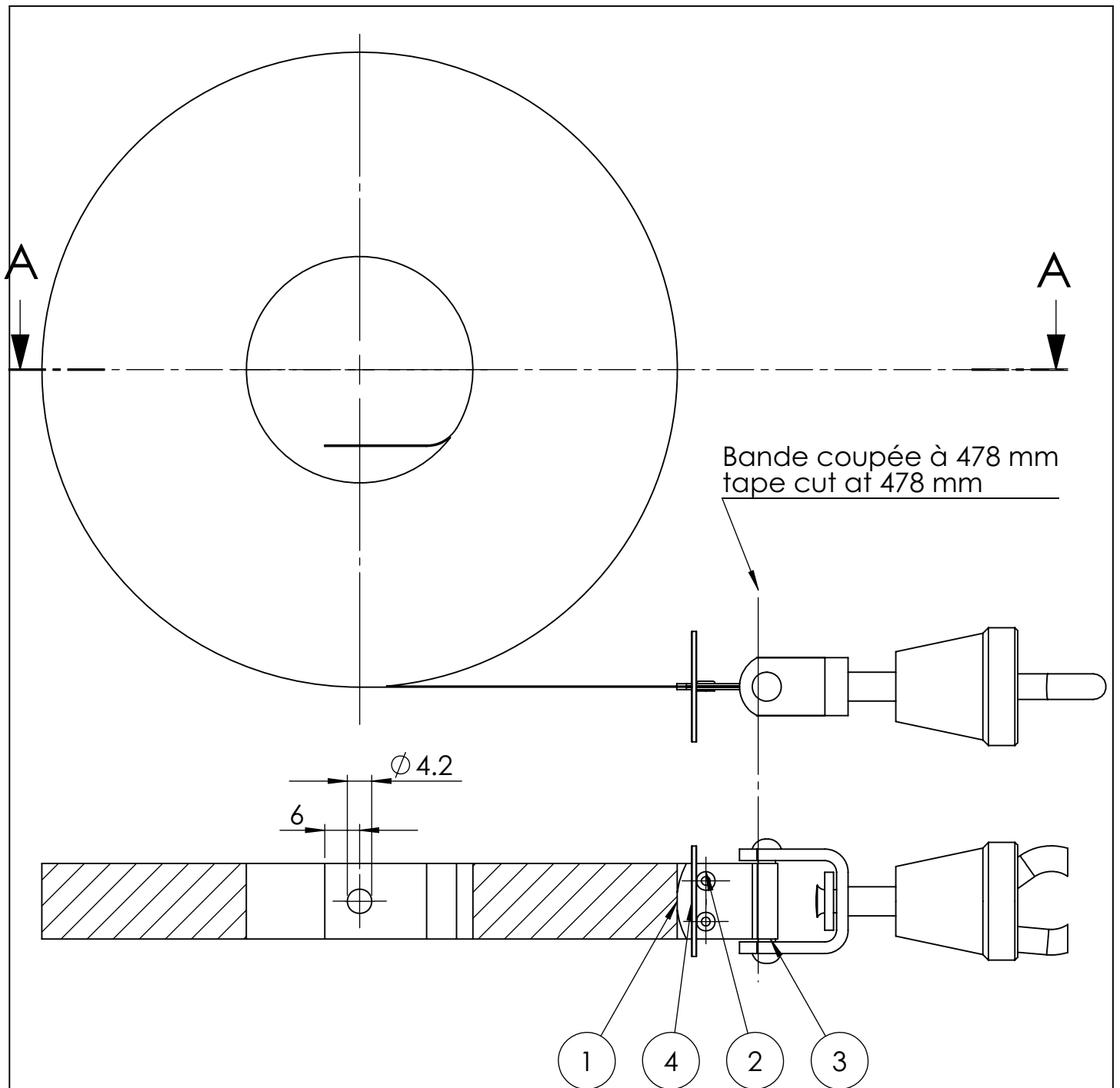
Enraf Tanksystem SA  
RUE DE L'INDUSTRIE 2 CH-1630 BULLE  
Tel. +41 26 91 91 500 - Fax +41 26 91 91 505





Item	Qty	Weight	Description	Material	TS	ND
1	1	147.8	Frame assy empty	-	19018	30864
2	1	40.0	Crank assy	-	19015	
3	1	86.8	Tape holder	CF8	19014	30865
4	1	4.4	Axle	PA6	19016	
5	2	0.9	Washer grounding	1.4310	19017	
6	1	883.0	Tape assy w/o winder 40m		10392	41162
7	1	2.0	Slotted cheese head head M4x6	A2	40802	
8	2	2.6	Flat small head socket screw M 6x10	A2	40629	VSM13328

TOLERANCES UNLESS OTHERWISE SPECIFIED							Weight:	ISSUE 2 : 23.06.2008	
Norm. Size	Over	6	30	100	300	1000	1169.2 Eff.		
Fit	To	6	30	100	300	1000			Angles
Fine	±	0.05	0.1	0.15	0.2	0.3		0.5	0.1°
REMOVE ALL BURRS AND SHARP EDGES								1:1	
Drawn:	CPI 24.06.2008			Control:					
<b>Sampler</b> <b>Winder tape 40m metric/inch</b>							TS 10308 ND 30454 REF ND		
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.							<b>Enraf Tanksystem SA</b> RUE DE L'INDUSTRIE 2 CH-1630 BULLE Tel. +41 26 91 91 500 - Fax +41 26 91 91 505		

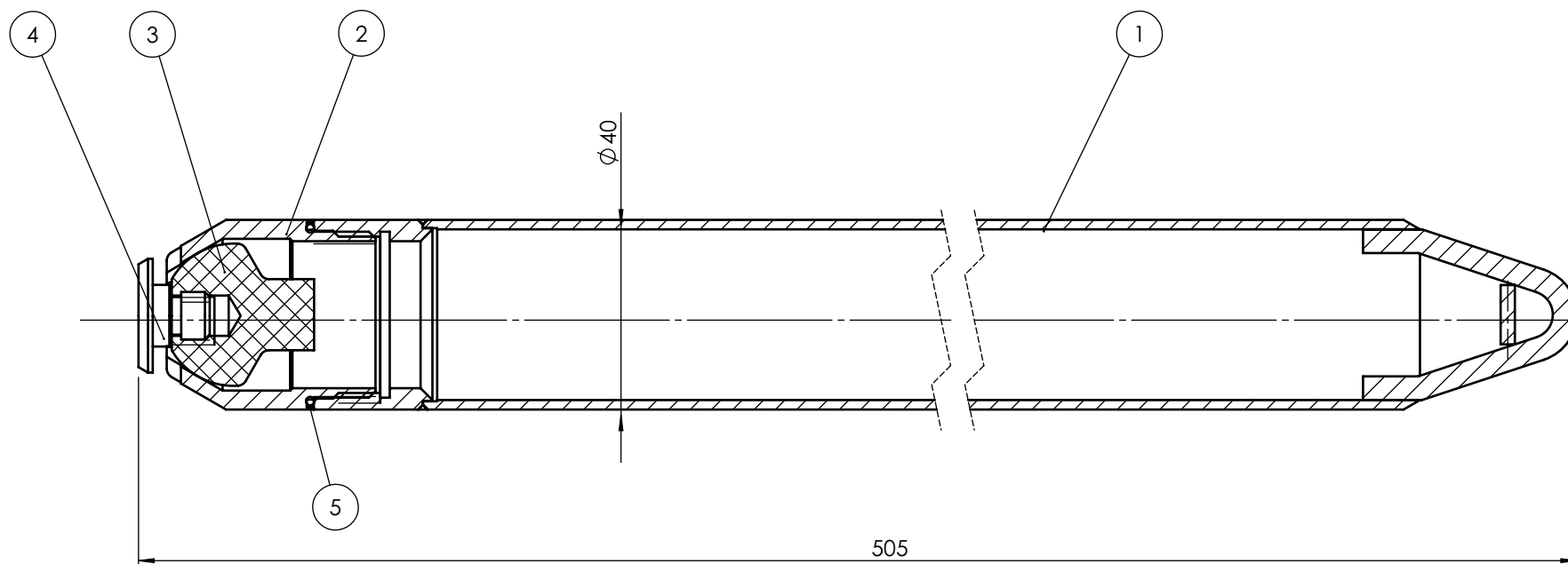


Item	Qty	Weight	Description	Material	TS	ND
1	1	839.1	Tape 40m Metric/inch	1.4021	19505	
2	2	0.0	Rivet $\varnothing$ 2 x 2.1	A2	-	41367
3	1	42.1	Swivel hook with clasp		20502	40793
4	1	1.7	Washer for tape connector	1.4301	11238	41200

TOLERANCES UNLESS OTHERWISE SPECIFIED								Weight:	ISSUE 1 : 23.06.2008
Norm.Size	Over	6	30	100	300	1000	Angles	883.0 Eff.	
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								1:1	MPSA 1000
Drawn: CPI 24.06.2008		Control:				Replacement for: ND			Replaced by: ND
<b>Sampler</b> <b>Tape assy w/o winder 40m</b>								TS 10392	
								ND 41162	
								REF ND 30564/20320	
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.								<b>Enraf Tanksystem SA</b> RUE DE L'INDUSTRIE 2 CH-1630 BULLE Tel. +41 26 91 91 500 - Fax +41 26 91 91 505	

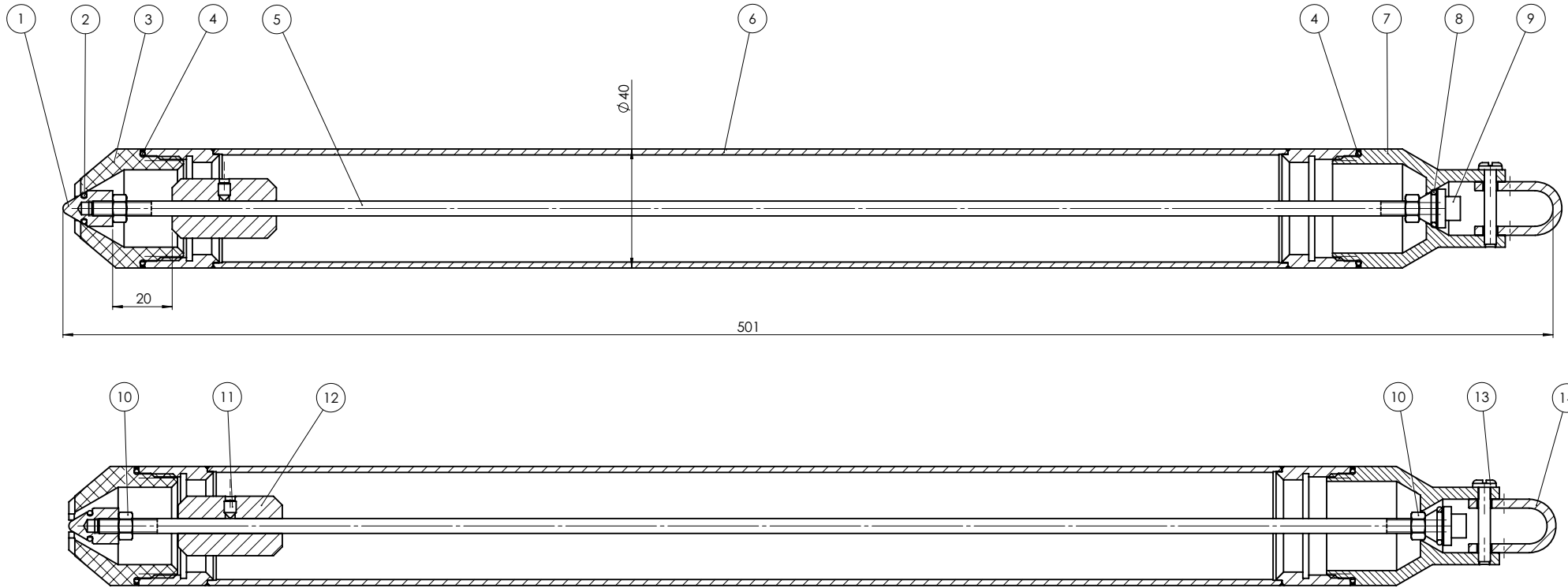
**ATEX Certified Product**

No modifications permitted without the approval of the "authorised person"

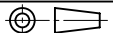


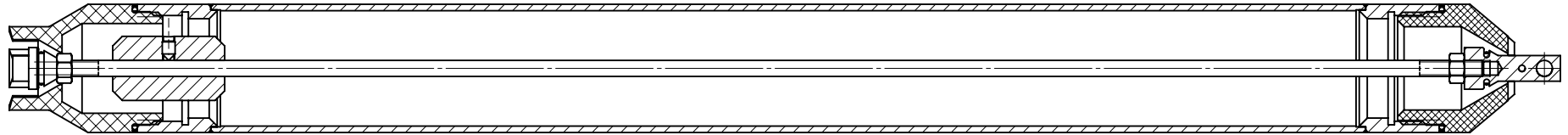
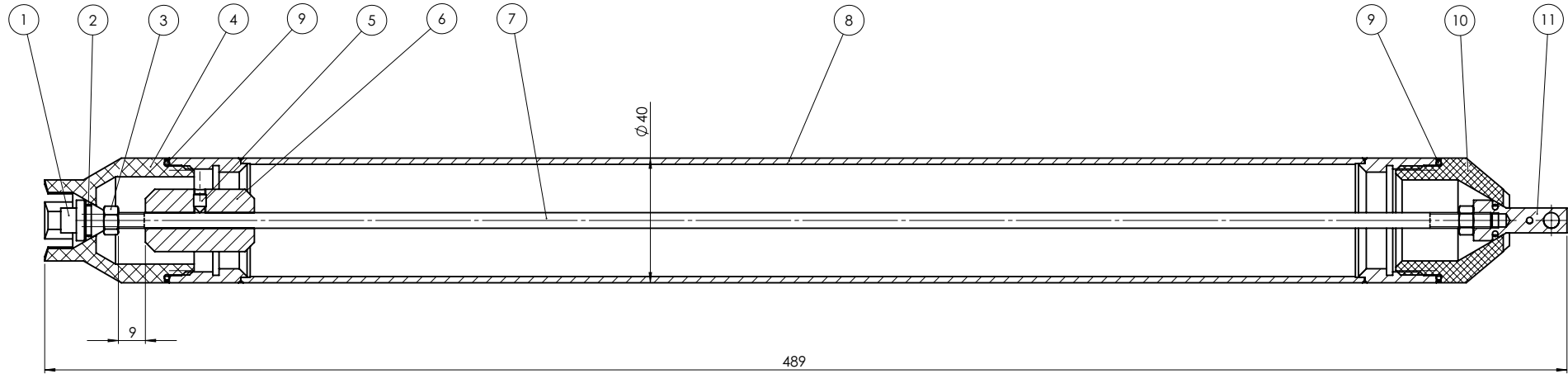
Item	Qty	Weight	Description	Material	TS	ND
1	1	841.1	Bottle 0,43 l.	1.4435	20048	30294
2	1	113.1	Seat	1.4435	20049	40592
3	1	24.7	Bottom valve	PTFE	20050	41062
4	1	4.2	Valve screw	PVDF	20051	40593
5	1	0.3	O-Ring ø34.65x1.78	Viton	20539	

TOLERANCES UNLESS OTHERWISE SPECIFIED							Weight:		ISSUE 2 : 13.8.2008					
Norm. Size	Over	6	30	100	300	1000	983.4 Eff.		<table border="1"> <tr> <td>MPSA YYYY</td> <td></td> </tr> <tr> <td>Replacement for: ND</td> <td>Replaced by: ND</td> </tr> </table>		MPSA YYYY		Replacement for: ND	Replaced by: ND
MPSA YYYY														
Replacement for: ND	Replaced by: ND													
Fit	To	6	30	100	300	1000	Angles							
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°						
REMOVE ALL BURRS AND SHARP EDGES														
Drawn: UPR 13.08.2008				Control:			1:1							
<p style="text-align: center;"><b>Sampler 2" GT</b> <b>Zone bottle 0.43l. Viton assy</b></p>									TS 10380					
							ND 30329		REF ND 20159					
<p>This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.</p>							<p><b>Enraf Tanksystem SA</b> RUE DE L'INDUSTRIE 2 CH-1630 BULLE Tel. +41 26 91 91 500 - Fax +41 26 91 91 505</p>							

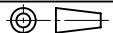


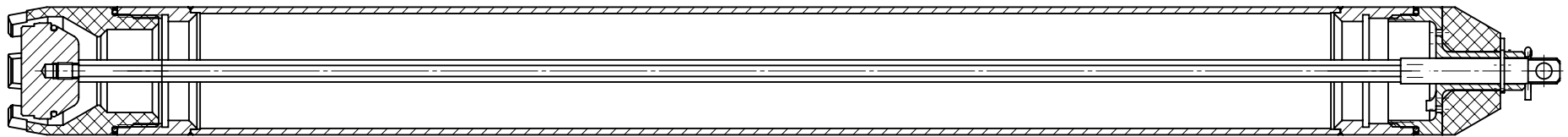
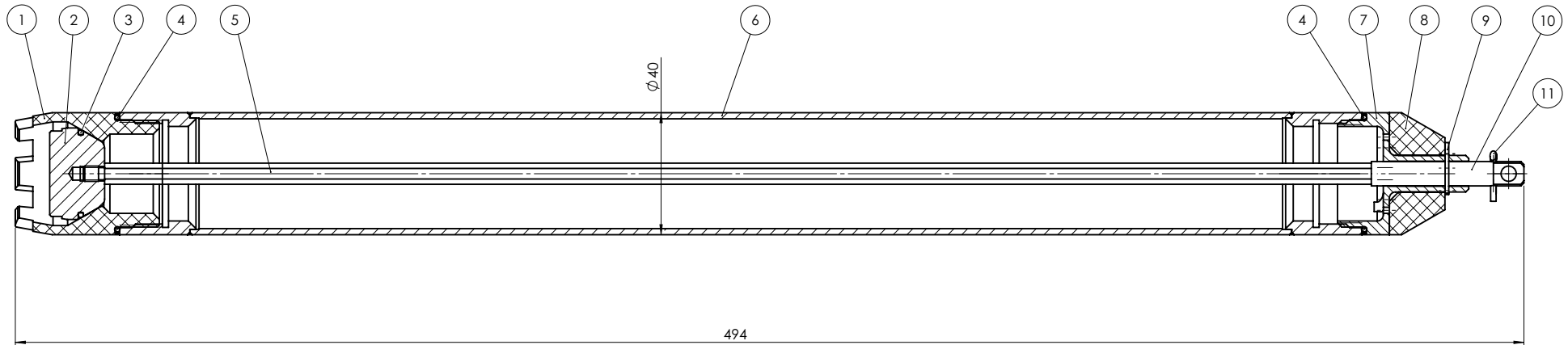
Item	Qty	Weight	Description	Material	TS	ND
1	1	8.8	Bottom valve	1.4401	20125	40962
2	1	0.1	O-Ring ø6.75x1.78	Viton	13508	
3	1	39.2	Seat	PTFE 25% car	20131	30495
4	2	0.3	O-Ring ø34.65x1.78	Viton	20539	
5	1	71.1	Rod	1.4401	20126	40963
6	1	806.7	Bottle 0,40 l.	1.4432	20112	30462
7	1	149.5	Top cover	1.4401	20128	30494
8	1	0.1	O-Ring ø9.25x1.78	Viton	13505	
9	1	7.5	Upper valve	1.4401	20130	40961
10	2	2.0	Hex nut M5	A2	40005	ISO4032
11	1	2.0	Socket set screw M4x6	A2	40862	DIN 914
12	1	77.9	Load	1.4401	20127	40964
13	1	3.0	Slotted pan head mach. screw M4x25	A2	40703	ISO1580
14	1	8.5	Clip	1.4301	20129	40965

TOLERANCES UNLESS OTHERWISE SPECIFIED		Weight:		1170.8 Eff.		ISSUE 1 : 05.09.2008	
Norm. Size	Over	6	30	100	300	1000	Angles
Fit	To	± 0.05	± 0.1	± 0.15	± 0.2	± 0.3	± 0.5
Fine	±	± 0.05	± 0.1	± 0.15	± 0.2	± 0.3	± 0.5
REMOVE ALL BURRS AND SHARP EDGES							
Drawn:	UPR	05.09.2008	Control:	1:1		 MPSA YYYN	
Replaced for:	ND	Replaced by:	ND				
Sampler 2" GTN Chem Bottom bottle 0.40l FKM assy				TS 20124 ND 20246 REF ND			
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.						<b>Enraf Tanksystem SA</b> 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	7.5	Upper valve	1.4401	20130	40961
2	2	0.1	O-Ring ø6.75x1.78	Viton	13508	
3	2	2.0	Hex nut M5	A2	40005	ISO4032
4	1	43.5	Spot cover	PTFE 25% car	20135	30509
5	1	2.0	Socket set screw M4x6	A2	40862	DIN 914
6	1	77.9	Load	1.4401	20127	40964
7	1	71.1	Rod	1.4401	20126	40963
8	1	806.7	Bottle 0.40 l.	1.4432	20112	30462
9	2	0.3	O-Ring ø34.65x1.78	Viton	20539	
10	1	39.2	Seat	PTFE 25% car	20131	30495
11	1	13.2	Spot upper valve	1.4401	20136	40976

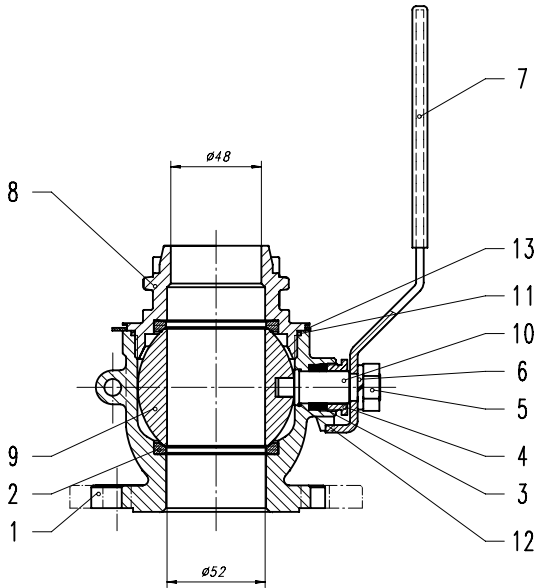
TOLERANCES UNLESS OTHERWISE SPECIFIED				Weight:		1060.2 Eff.		ISSUE 1 : 05.09.2008	
Norm. Size	Over	6	30	100	300	1000	Angles		
Fit	To	±	0.05	0.1	0.15	0.2	0.3	0.5	0.1°
Fine	±								
REMOVE ALL BURRS AND SHARP EDGES								1:1	
Drawn: UPR 05.09.2008				Control:		MPSA YYYN			
Replacement for: ND				Replaced by: ND		TS 20137			
Sampler 2" GTN Chem Spot bottle 0.40 l. FKM						ND 20255 REF ND			
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.								<b>Enraf Tanksystem SA</b> 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	46.0	Seat	PTFE 25% car	20114	30472
2	1	80.7	Bottom plug	1.4401	20115	40896
3	1	0.2	O-Ring ø25.12x1.78	Viton	13504	
4	2	0.3	O-Ring ø34.65x1.78	Viton	20539	
5	1	105.5	Stem	1.4401	20116	40897
6	1	806.7	Bottle 0,40 l.	1.4432	20112	30462
7	1	67.0	Calibration plug	1.4401	20118	30473
8	1	22.9	Cap	PTFE 25% car	20113	30463
9	1	3.0	Circlip ø10	AISI 431	40809	DIN6799
10	1	16.5	Coupling stem	1.4401	20119	40898
11	1	0.0	Cotter pin 2x10	AZ	40218	DIN 94

TOLERANCES UNLESS OTHERWISE SPECIFIED						Weight: 1146.3 Eff.		ISSUE 2 : 04.09.2008	
Norm. Size	Over	6	30	100	300	1000	Angles		
Fit	To	±	0.05	0.1	0.15	0.2	0.3	0.5	0.1°
Fine	±	0.05	0.1	0.15	0.2	0.3	0.5	0.1°	
REMOVE ALL BURRS AND SHARP EDGES									
Drawn:	UPR 04.09.2008			Control:					
1:1						MPSA YYYN			
						Replacement for:	ND	Replaced by:	ND
Sampler 2" GTN Chem Running bottle 0.40 l. FKM						TS 20138 ND 20254 REF ND			
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.						<b>Enraf Tanksystem SA</b> 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

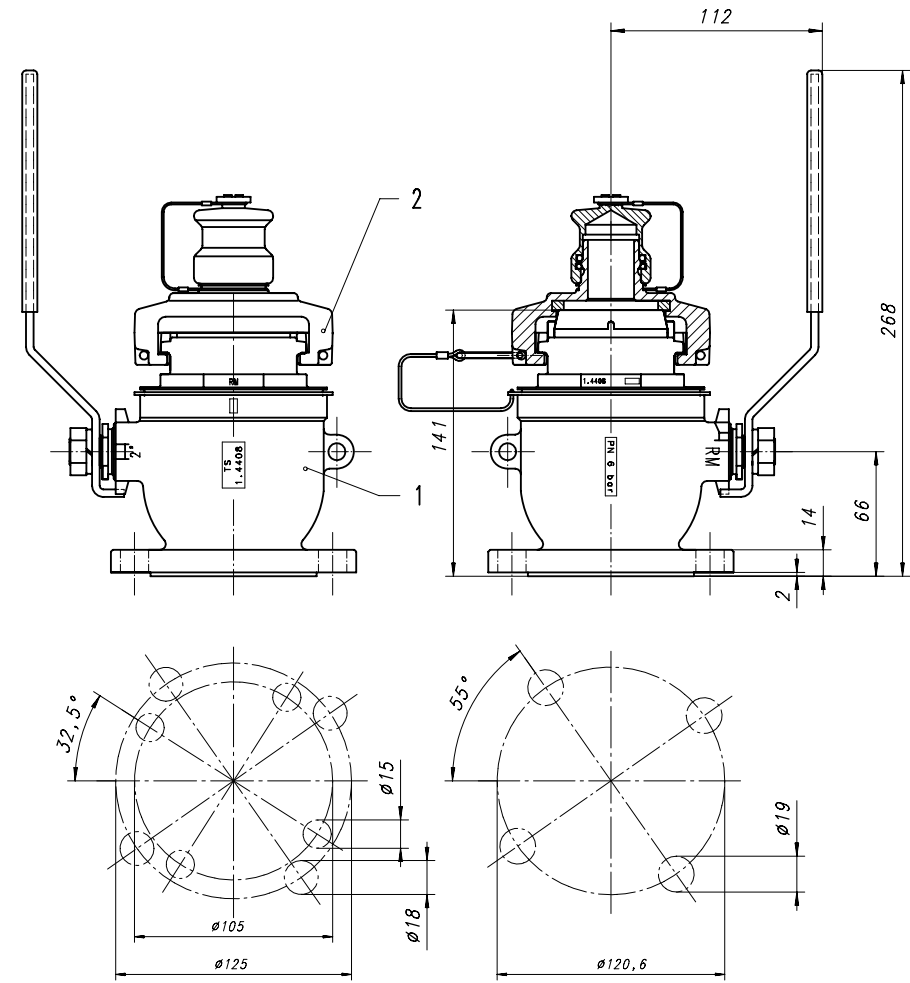
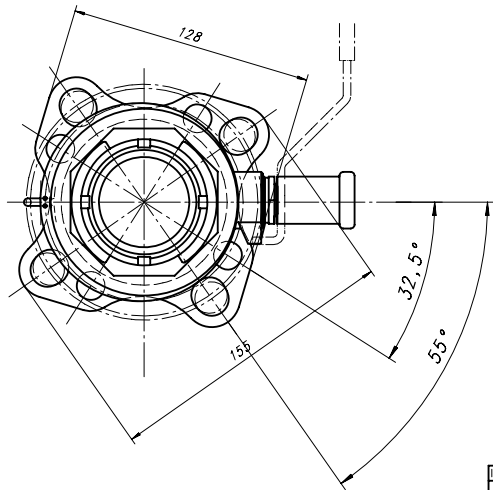
DIN PN25 DN50

DIN PN40 DN50

JIS 5K 50

JIS 10K 50

ANSI 150lbs 2"



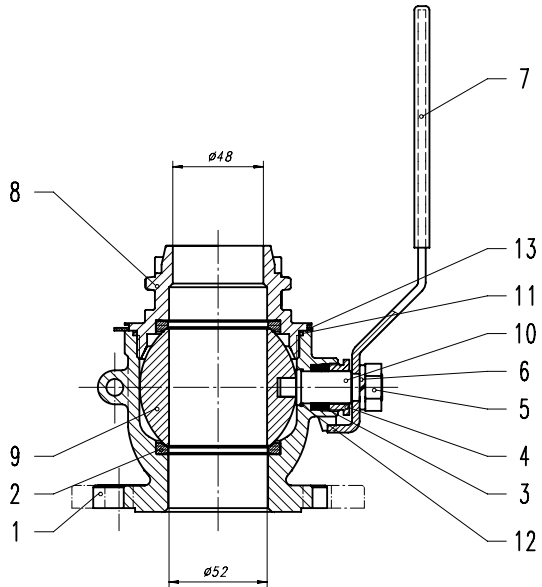
Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body DUJ	1.4408	22649	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pieces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	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				Weight: 5070 Th. 0 Eff.		ISSUE 2 : 16.2.1999	
Norm. Size	Over	1	6	30	100	300	1000
Fit	±	0.05	0.1	0.15	0.2	0.3	0.5
Angle		0,1°					
Finish		0,1°					
REMOVE ALL BURRS AND SHARP EDGES							
Drawn:	UPR 27.11.1996	Control:	CPI 06.01.1997	1:2		MPGA 3110	Replacement for: ND
Valves				TS 10083		Replaced by: ND	
HERMeTic Compact Valve C2-SS-W				ND 20291		REF ND	
2" flange DUJ				Enraf Tanksystem SA			
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.				RUE DE L'INDUSTRIE 2 CH-1630 BULLE Tel. +41 26 91 91 300 - Fax +41 26 91 91 505			

# TS 10413 ND 20283



Valve fits on flange:

DIN PN10 DN50

DIN PN16 DN50

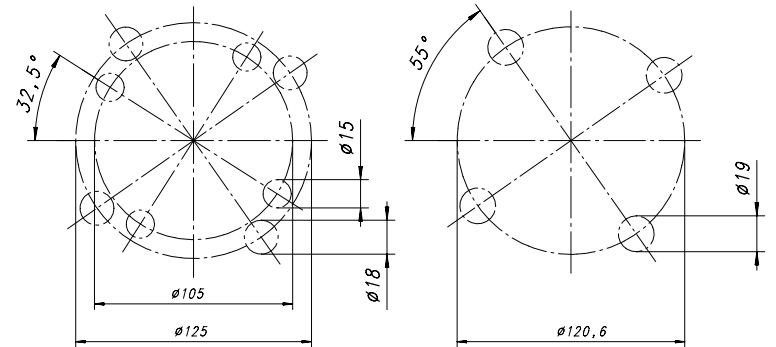
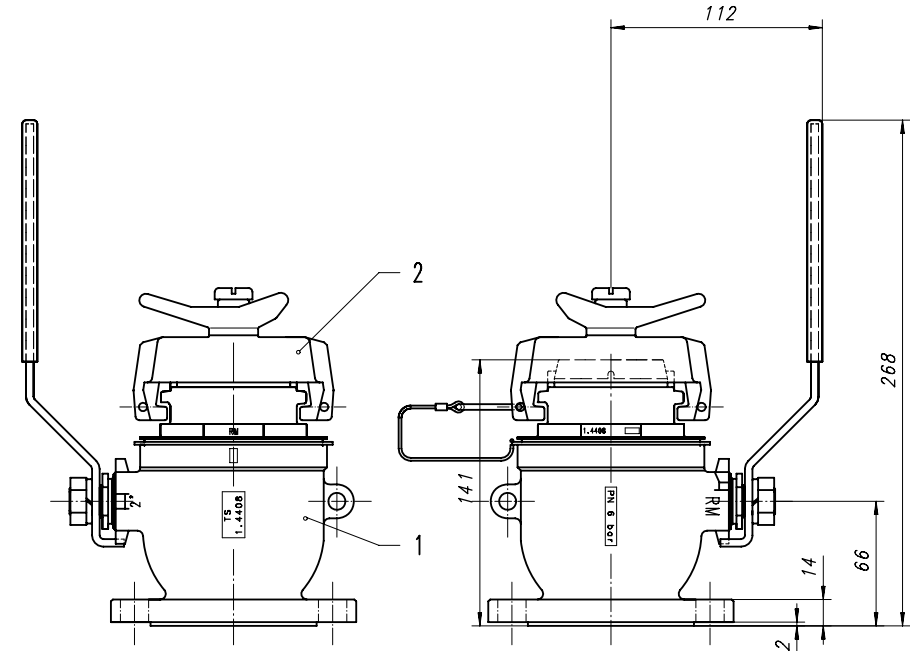
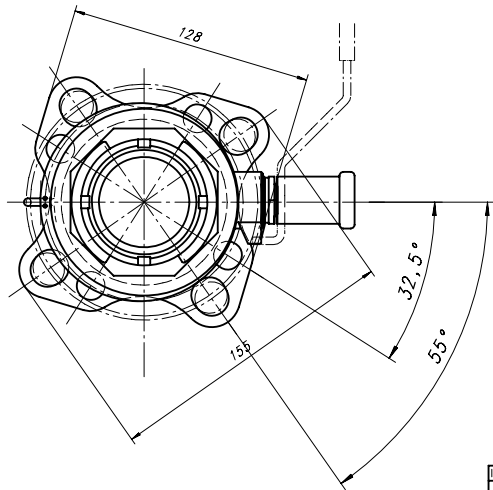
DIN PN25 DN50

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				Weight:	
Nom. Size	Over	Fit	Angles	5437 Th.	0 Eff.
6	30	100	300	1000	2000
±	0.05	0.1	0.15	0.2	0.3
				0.5	0.1"

REMOVE ALL BURRS AND SHARP EDGES

Drawn: UPR 27.11.1996 Control: CPI 06.01.1997

Valves  
**HERMETIC Compact Valve C2-SS-SEC  
2" flange DUJ**

1:2

ISSUE 2 : 16.2.1999

MPSA 3110

Replacement for: ND

Replaced by: ND

TS 10082

ND 20287

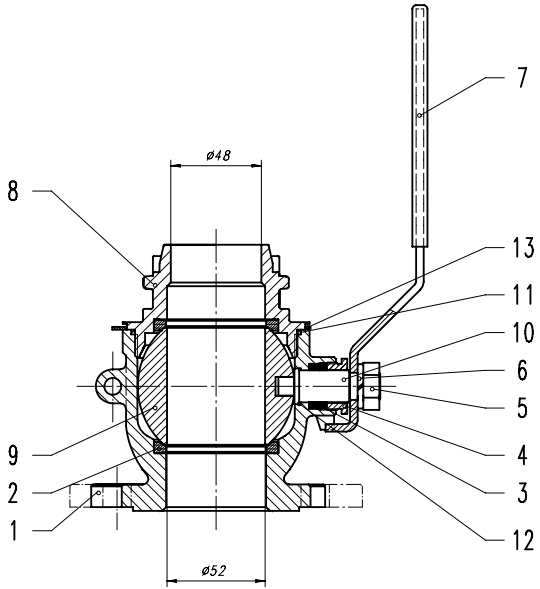
REF ND

This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.

**Enraf Tanksystem SA**  
RUE DE L'INDUSTRIE 2 CH-1630 BULLE  
Tel. +41 26 91 91 300 - Fax +41 26 91 91 505



TS 10413  
ND 20283



Valve fits on flange:

DIN PN10 DN50

DIN PN16 DN50

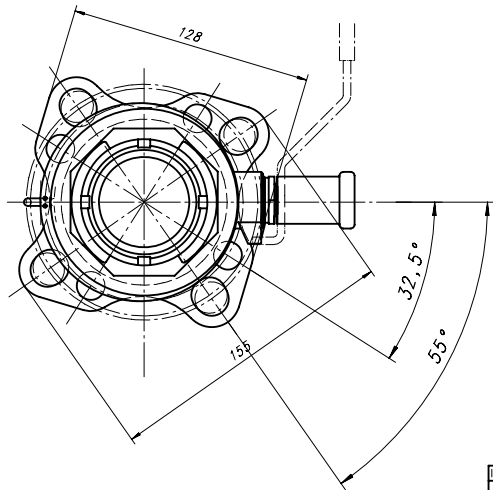
DIN PN25 DN50

DIN PN40 DN50

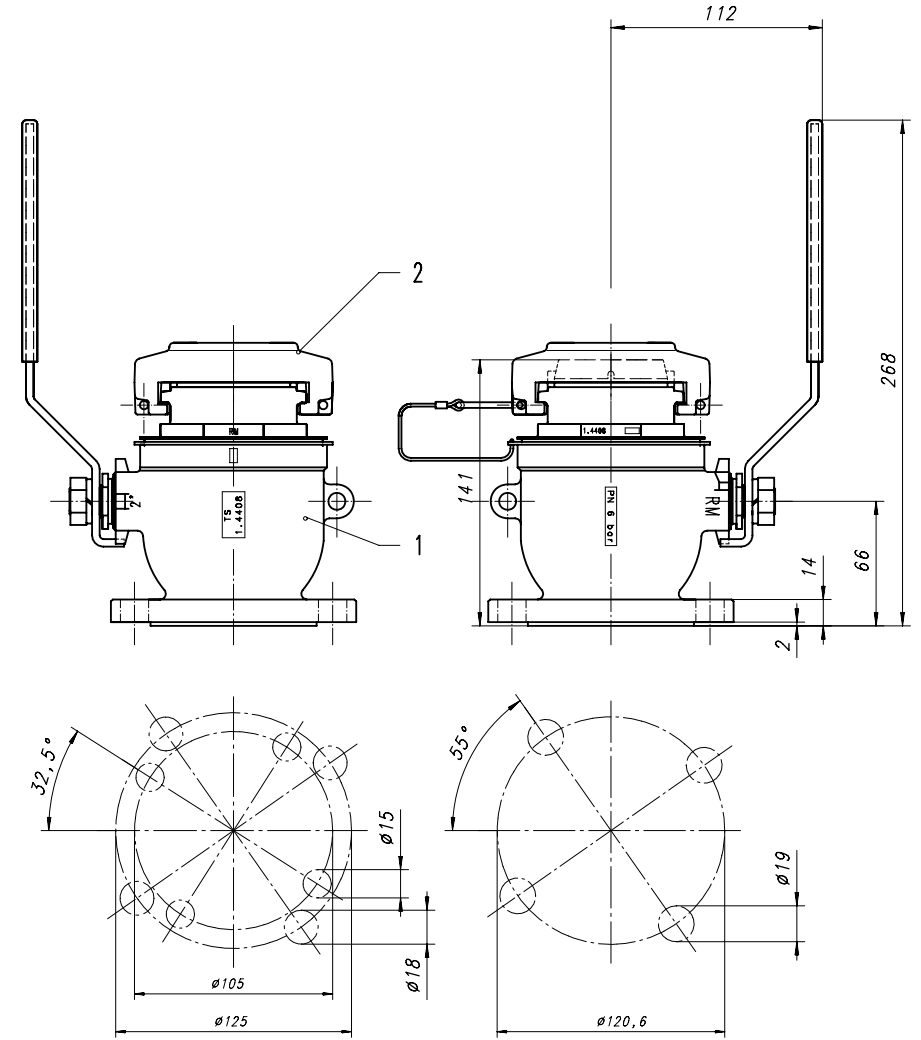
JIS 5K 50

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 $\varnothing$ 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing $\varnothing$ 17/23.9 x 8.5 (2pcs)	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 $\varnothing$ 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket $\varnothing$ 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996

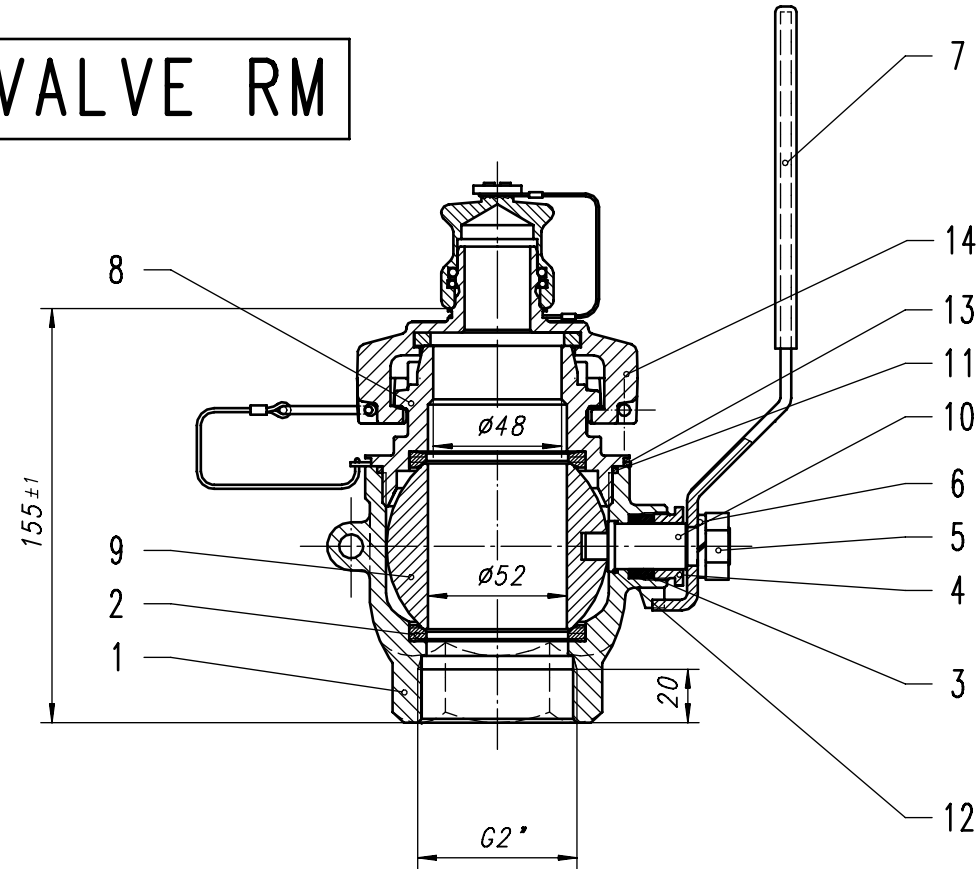


Item	Qt	Weight	Description	Material	TS #	ND #
1	1	4480	Compact valve C2 DUJ	-	10413	20283
2	1	370	Blind cover assy	-	10414	41034

TOLERANCES UNLESS OTHERWISE SPECIFIED			Weight:	4850 Th.	ISSUE 2 : 16.2.1999		
Norm. Size	Over	Fit	±	0 Eff.			
6	30	100	300	1000		2000	
±	0,05	0,1	0,15	0,2	0,3	0,5	0,1"
REMOVE ALL BURRS AND SHARP EDGES							
Drawn:	UPR 27.11.1996	Control:	CPI 06.01.1997	1:2	MPSA 3110		
Valves				Replacement for:	ND	Replaced by:	
HERMETIC Compact Valve C2-SS-BL				TS 10081			
2" flange DUJ				ND 20288			
				REF ND			
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.				Enraf Tanksystem SA			
				RUE DE L'INDUSTRIE 2 CH-1630 BULLE Tel. +41 26 91 91 300 - Fax +41 26 91 91 305			

# VALVE RM

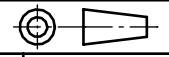


Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	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

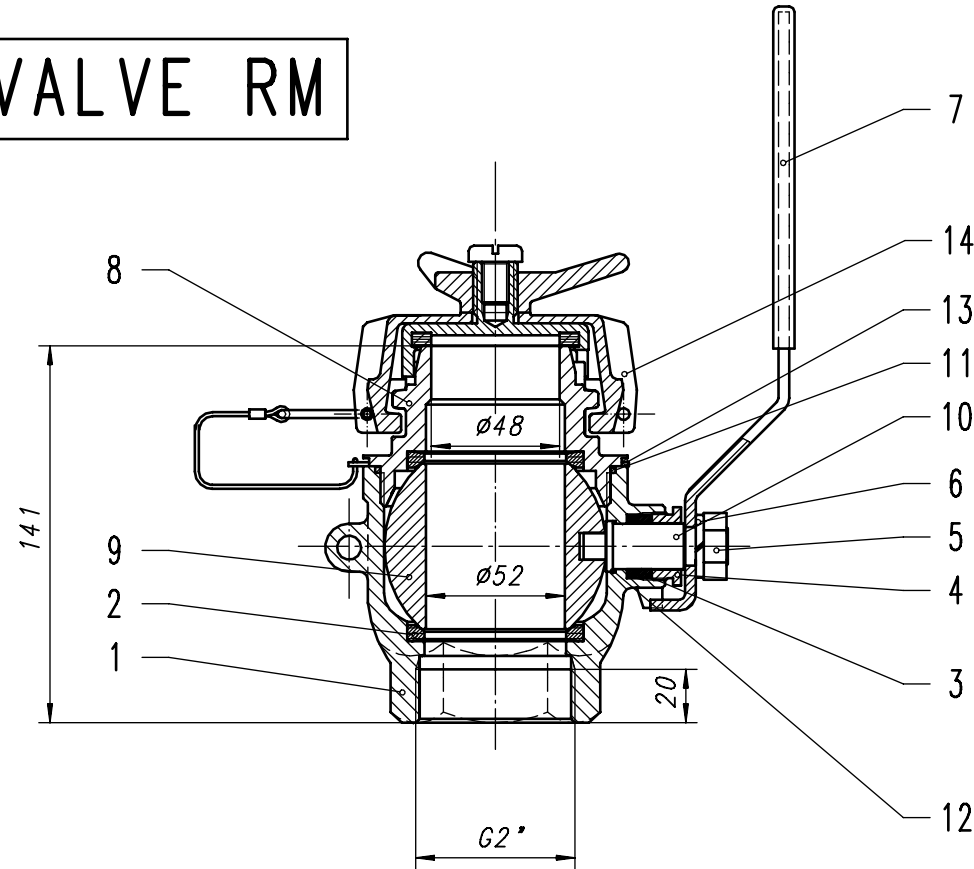
Item	Qt	Weight	Description	Material	TS #	ND #
14	1	590	Cover with weather cap	-	10415	41040
			TOLERANCES UNLESS OTHERWISE SPECIFIED		Weight: 4390 Eff.	
Norm. Size	Over	6	30	100	300	1000
Fit	To	6	30	100	300	1000
Fine	±	0,05	0,1	0,15	0,2	0,3
					0,5	0,1*
			REMOVE ALL BURRS AND SHARP EDGES		MPSA 4110	
Drawn:	UPR 21.04.1994		Control:		1:2	
			Valves		Replacement for: ND	
			HERMetic Compact Valve C2SS		Replaced by: ND	
			2" Female		TS 10076	
					ND 30391	
					REF ND	
			This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.		Enraf Tanksystem SA	
					RUE DE L'INDUSTRIE 2 CH-1630 BULLE Tel. +41 26 91 91 500 - Fax +41 26 91 91 505	

2 12.2.96 UPR + Pos. 13  
Ts Date Visa Modification

ISSUE 3 : 25.6.1999



# VALVE RM



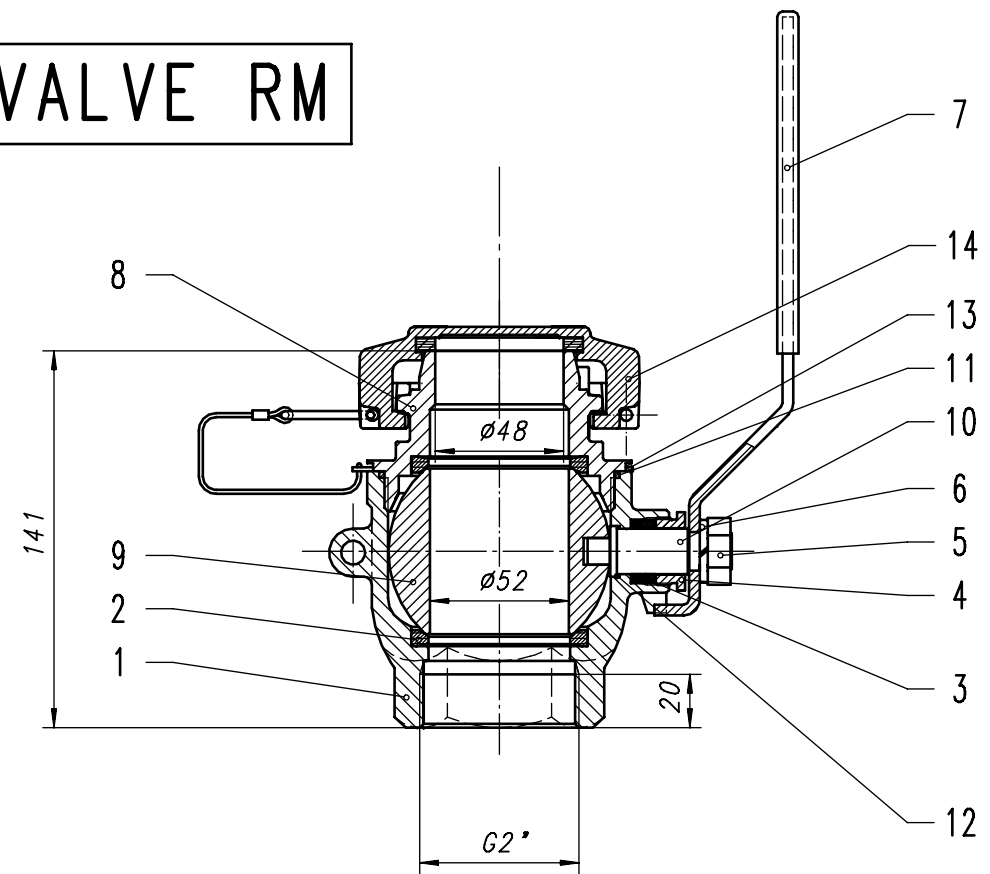
Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	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		Weight: 4746 Eff.	ISSUE 3 : 25.6.1999							
Norm. Size	Over				6	30	100	300	1000	Angles 0,1°
Fit	To				6	30	100	300	1000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5			
REMOVE ALL BURRS AND SHARP EDGES					1:2	MPSA 4110				
Drawn:	UPR 21.04.1994		Control:			Replacement for: ND	Replaced by: ND			
Valves HERMetic Compact Valve C2-SS-SEC 2" Female					TS 10078	ND 30374				
This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.					Enraf Tanksystem SA RUE DE L'INDUSTRIE 2 CH-1630 BULLE Tel. +41 26 91 91 500 - Fax +41 26 91 91 505					

2 12.2.96 upr + Pos. 13  
 Ts Date Visa Modification

# VALVE RM

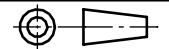


Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat $\varnothing$ 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing $\varnothing$ 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
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 $\varnothing$ 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket $\varnothing$ 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable pn valve	AISI 304	22648	40996

Item	Qt	Weight	Description	Material	TS #	ND #
14	1	370	Blind cover assy	-	10414	41034
			TOLERANCES UNLESS OTHERWISE SPECIFIED		Weight: 4300 Eff.	
Norm. Size	Over	6	30	100	300	1000
Fit	To	6	30	100	300	1000
Fine	$\pm$	0,05	0,1	0,15	0,2	0,3
						0,5
						0,1*
			REMOVE ALL BURRS AND SHARP EDGES		MPSA 4110	
Drawn:	UPR 21.04.1994		Control:	1:2		
			Valves HERMetric Compact Valve C2-SS-BL 2" Female		TS 10085	
					ND 30596	
					REF ND	
			This drawing is our property and must not without our permission be copied or made available to others. The receiver is responsible for every misuse.		Enraf Tanksystem SA	
					RUE DE L'INDUSTRIE 2 CH-1630 BULLE Tel. +41 26 91 91 500 - Fax +41 26 91 91 505	

Date Visa Modification

ISSUE 2 : 25.6.1999



Replacement for: ND  
Replaced by: ND