Operation and Service Manual

for HERMetic Sampler A.2 ≈ 0.5 liter

Portable Restricted Sampling Device

Note: before using the instrument please read this book.

MED-D DNV Certified Company

Certified System ISO 9001 QMI-SAI Global

This document is subject to changes without notice.

1. Table of contents

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 protable 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

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
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

COUNTRY	ADDRESS	TELEPHONE/FAX/E-MAIL

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.

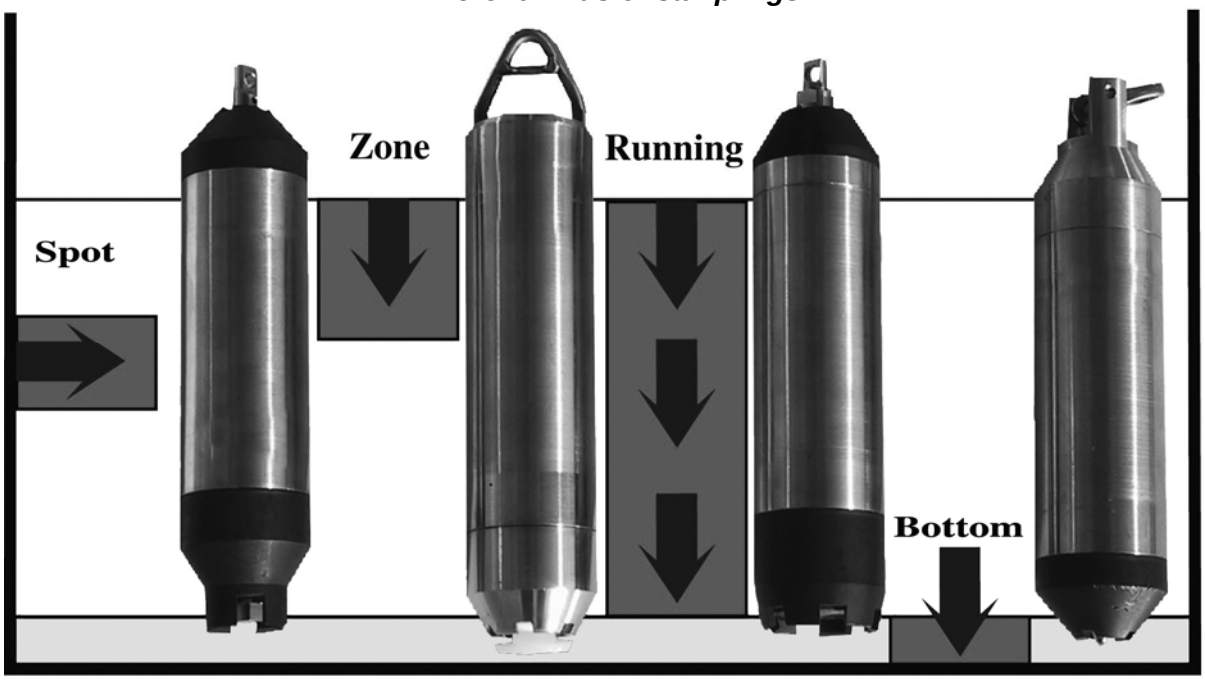
The Spot bottle allows sampling at a determinate height.

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”.

Different kinds of samplings



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.

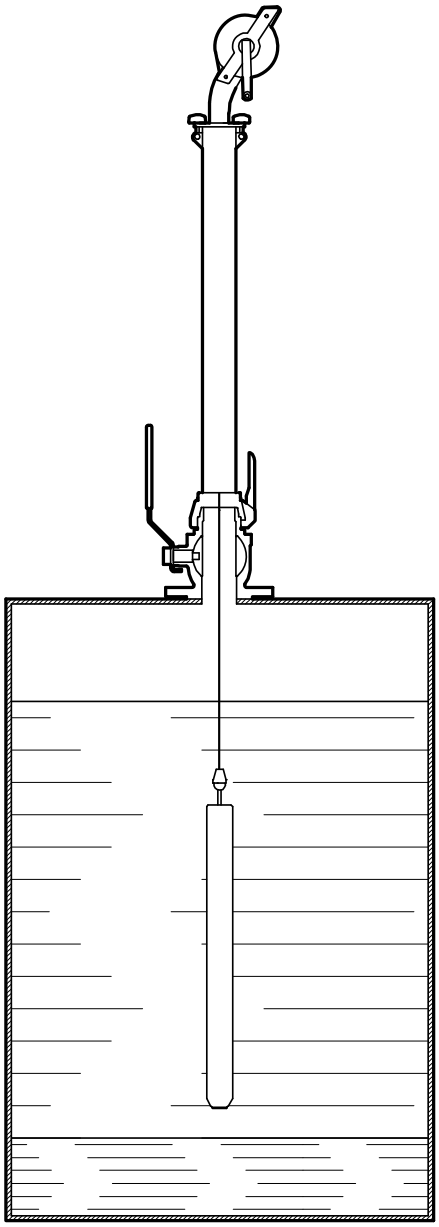
5.3 Sampling principle

5.3.1 Connection and grounding system

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

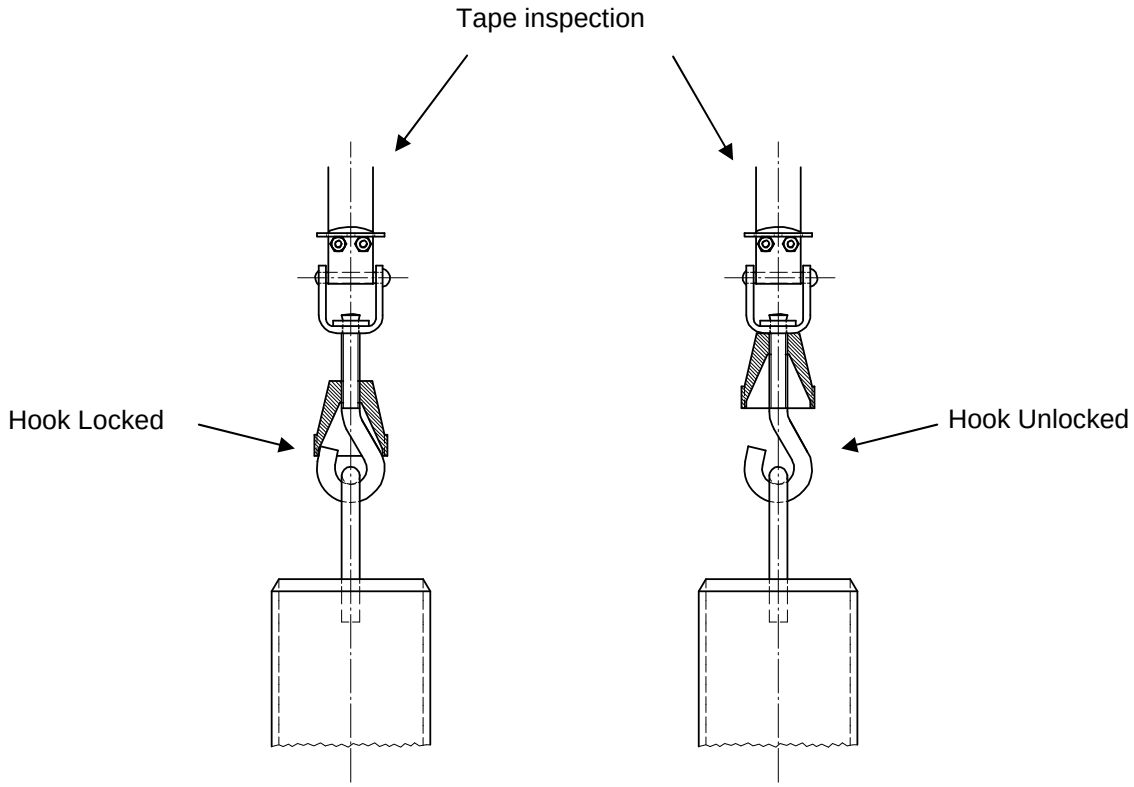


Fig. 1

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 Ω.

7.3 Sampler cleaning

To clean HERMetic 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/dm³
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

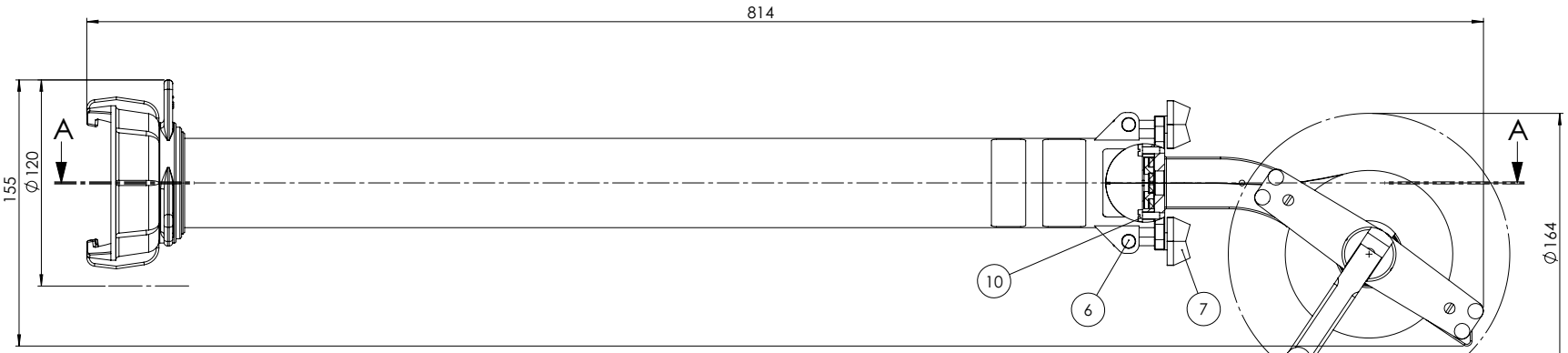
O = Option, according to specific order.

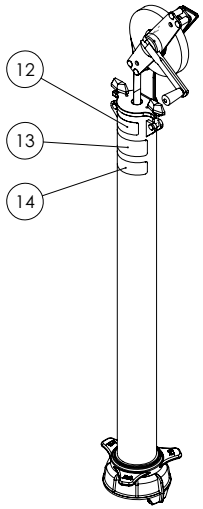
	ND	TS	DESCRIPTION
	20319	10042	Hermetic Sampler A2-0,5 l. 30 m
	30386	10302	Winder tape 30 m metric/inch
	40796	10369	Tape assy w/o winder 30 m
	20320	98039	Hermetic Sampler A2-0,5 l. 40 m
	30454	10308	Winder tape 40 m metric/inch
	41162	10392	Tape assy w/o winder 40 m
	30329	10380	Zone Bottle 0,43 l. 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

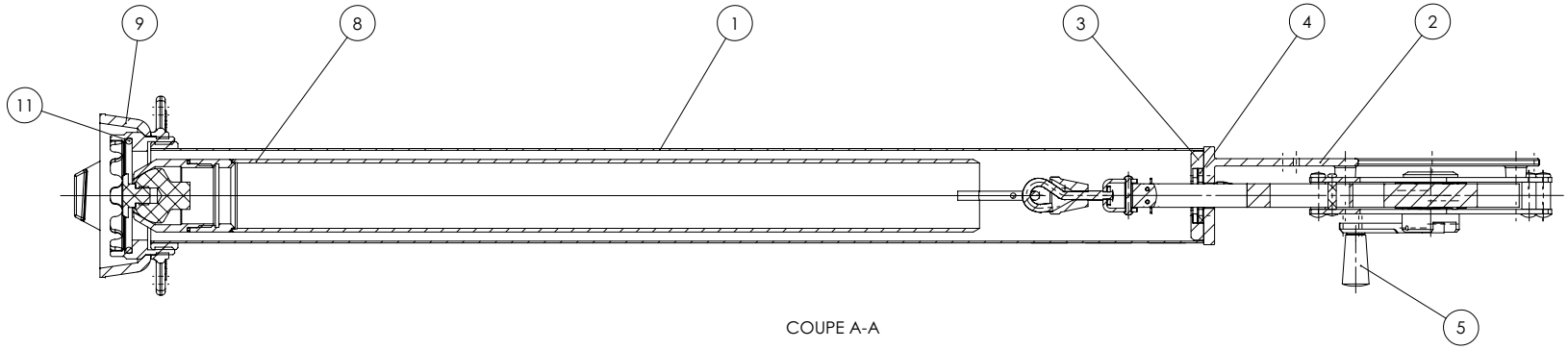
9.2 Valves

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	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: 3831.9 Eff.

1:2

ISSUE 1 : 12.12.2008

MPSA YYYN

Drawn: CPI 12.12.2008

Control:

Replacement for: ND

Replaced by: ND

Sampler 2"

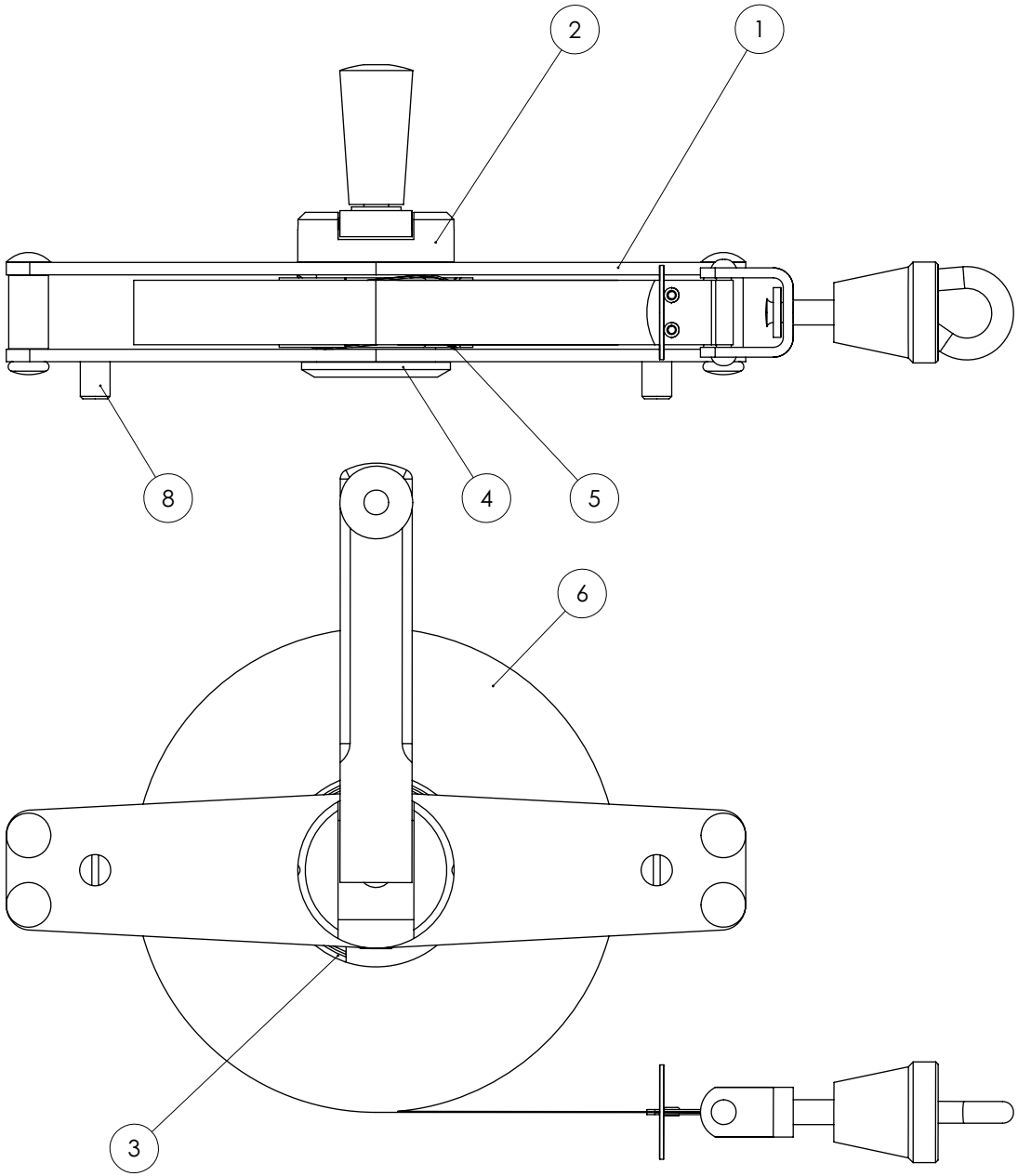
Sampler A2" 0,5 l.

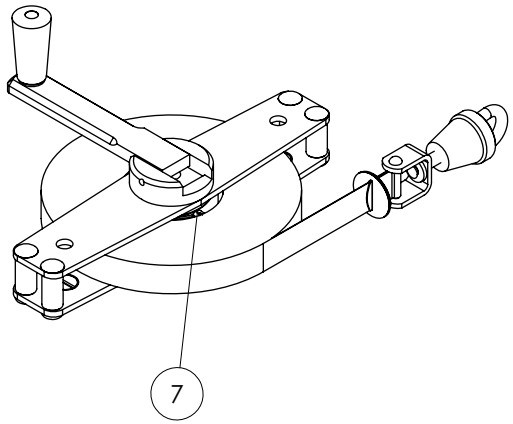
TS 10042

ND 20319

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	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

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: 973.5 Eff.

ISSUE 2 : 23.06.2008

REMOVE ALL BURRS AND SHARP EDGES

1:1

MPSA 1000

Drawn: CPI 24.06.2008

Control:

Replacement for: ND

Replaced by: ND

Sampler

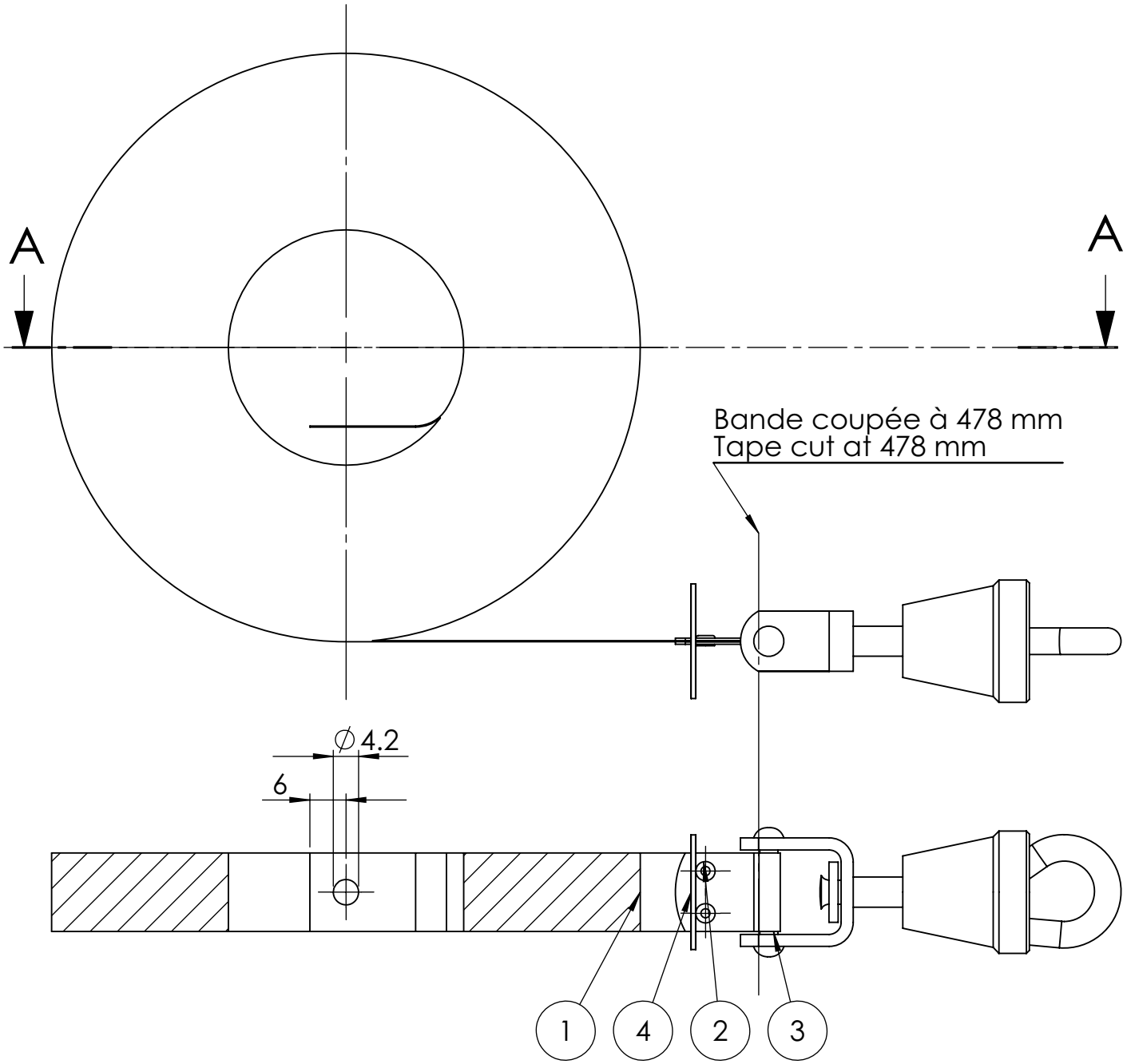
Winder tape 30m metric/inch

TS 10302

ND 30386

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	643.3	Tape 30 m Metric/inch	1.4021	19503	
2	2	0.0	Rivet ø 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	±	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

Sampler

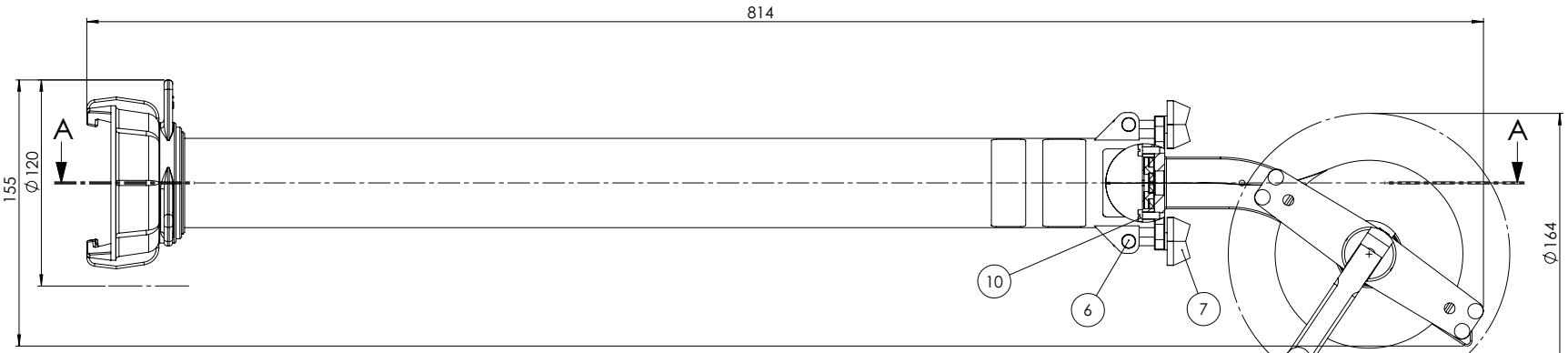
Tape assy w/o winder 30m

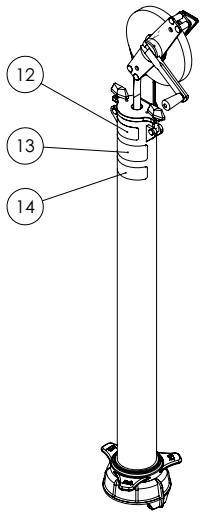
TS 10369

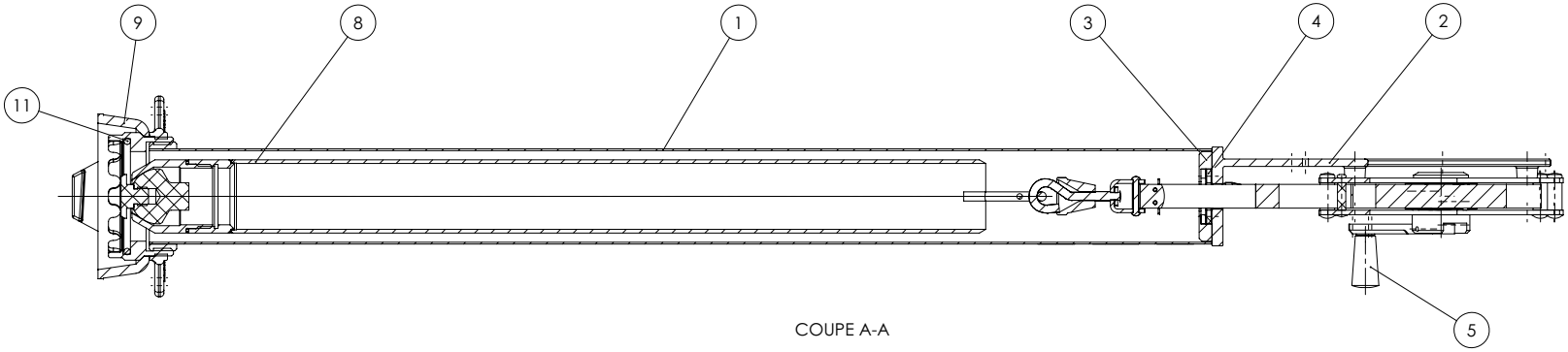
ND 40796

REF ND 30225/20319/20332

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	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	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: 4027.5 Eff.

1:2

ISSUE 1 : 15.1.2009

MPSA YYYN

Drawn: CPI 15.01.2009

Control:

Replacement for: ND

Replaced by: ND

Speciality

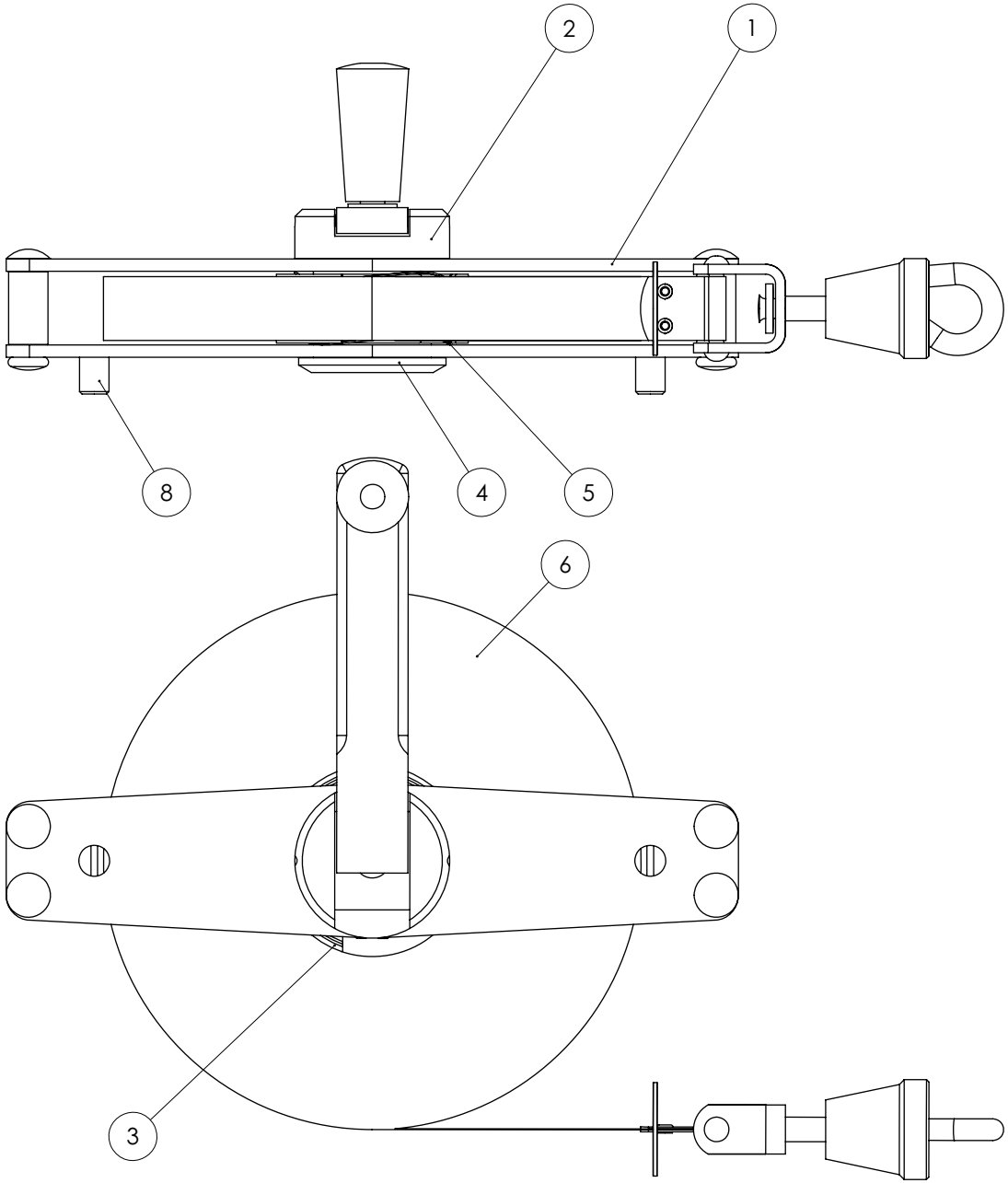
Sampler A2" 0,5 l. 40m.

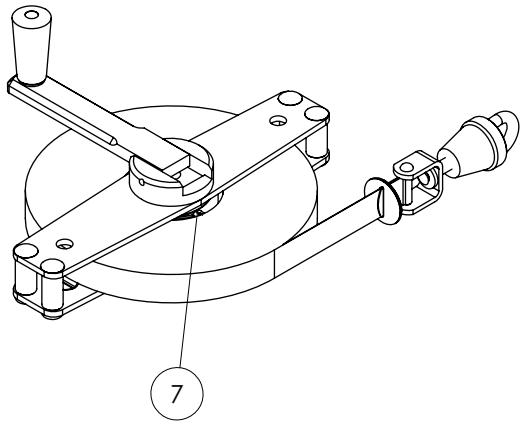
TS 98039

ND 20320

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	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

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: 1169.2 Eff.

ISSUE 2 : 23.06.2008

REMOVE ALL BURRS AND SHARP EDGES

1:1

MPSA 1000

Drawn: CPI 24.06.2008

Control:

Replacement for: ND

Replaced by: ND

Sampler

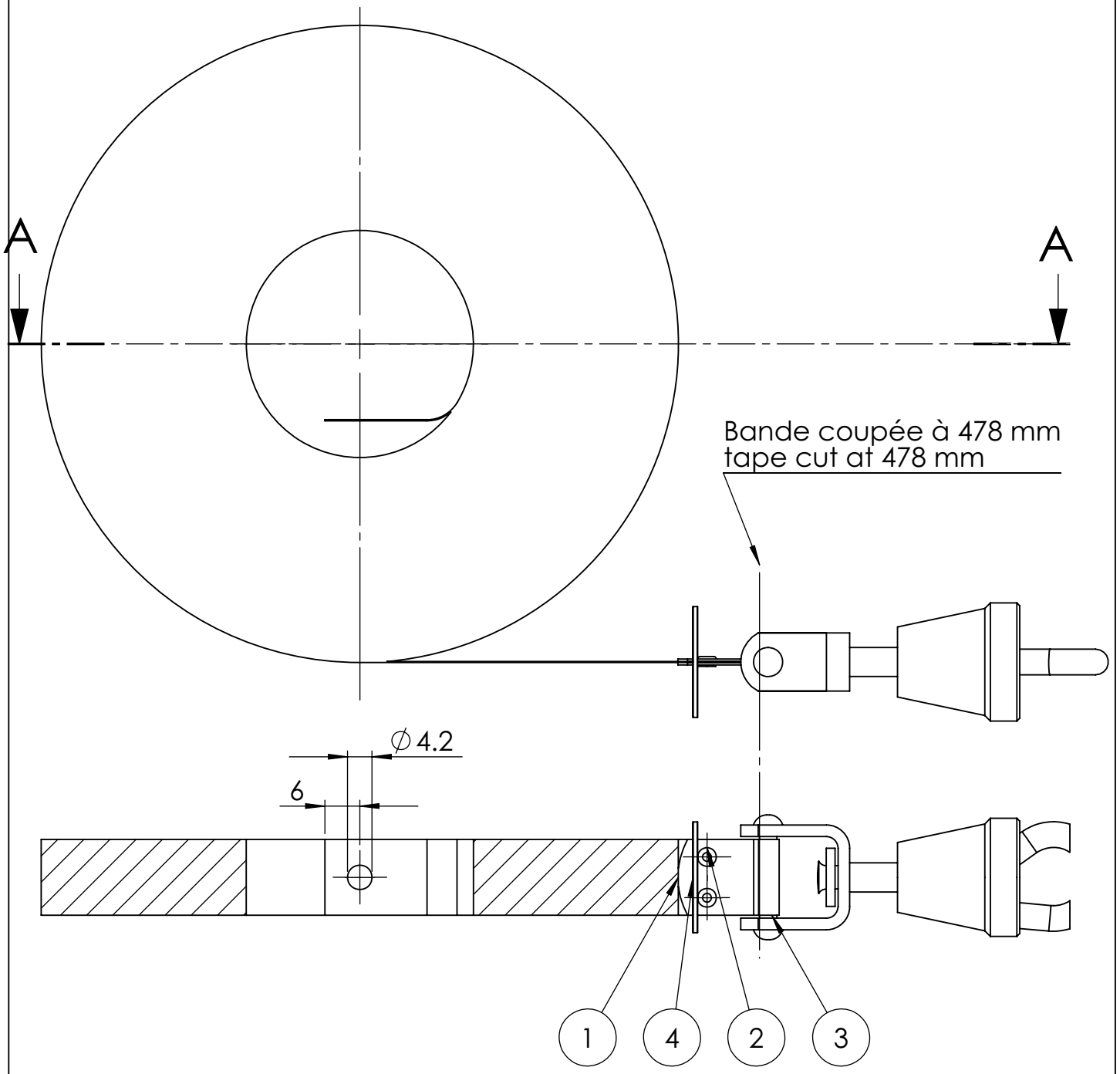
Winder tape 40m metric/inch

TS 10308

ND 30454

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	839.1	Tape 40m Metric/inch	1.4021	19505	
2	2	0.0	Rivet ø 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

Sampler

Tape assy w/o winder 40m

TS 10392

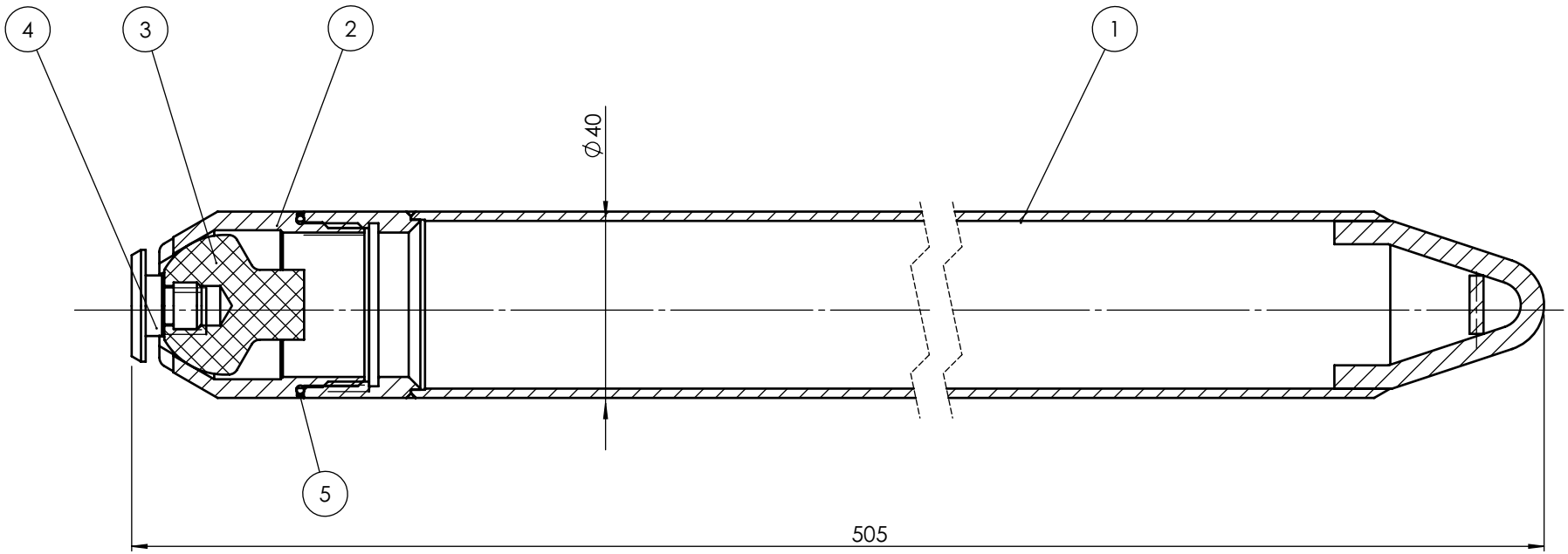
ND 41162

REF ND 30564/20320

Enraf Tanksystem SA
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

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: 983.4 Eff.

1:1

ISSUE 2 : 13.8.2008

MPSA YYYN

Drawn: UPR 13.08.2008

Control:

Replacement for: ND

Replaced by: ND

Sampler 2" GT

Zone bottle 0.43l. Viton assy

TS 10380

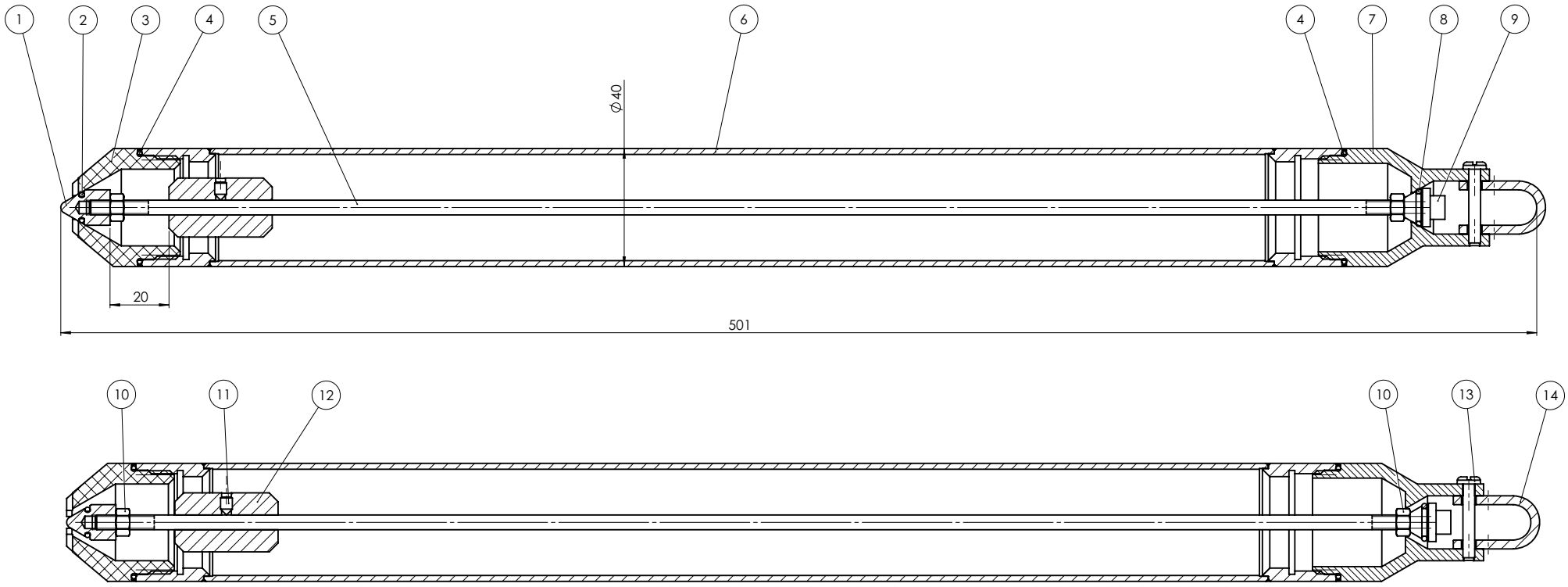
ND 30329

REF ND 20159

Enraf Tanksystem SA
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	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

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: 1170.8 Eff.

1:1

ISSUE 1 : 05.09.2008

MPSA YYYN

Drawn: UPR 05.09.2008

Control:

Replacement for: ND

Replaced by: ND

Sampler 2" GTN Chem

Bottom bottle 0.40l FKM assy

TS 20124

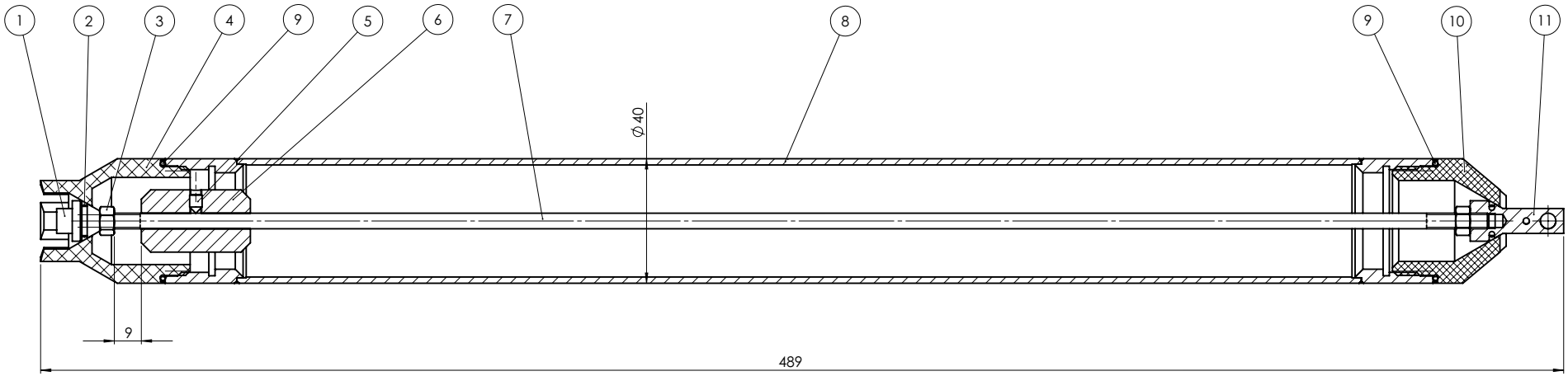
ND 20246

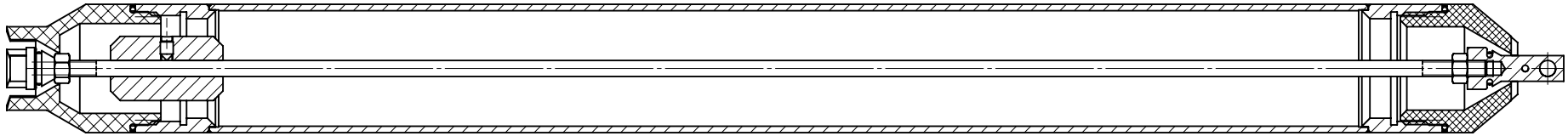
REF ND

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

ATEX Certified Product

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





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									
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: 1060.2 Eff.

1:1

ISSUE 1 : 05.09.2008

MPSA YYYN

Drawn: UPR 05.09.2008

Control:

Replacement for: ND

Replaced by: ND

Sampler 2" GTN Chem

Spot bottle 0.40 l. FKM

TS 20137

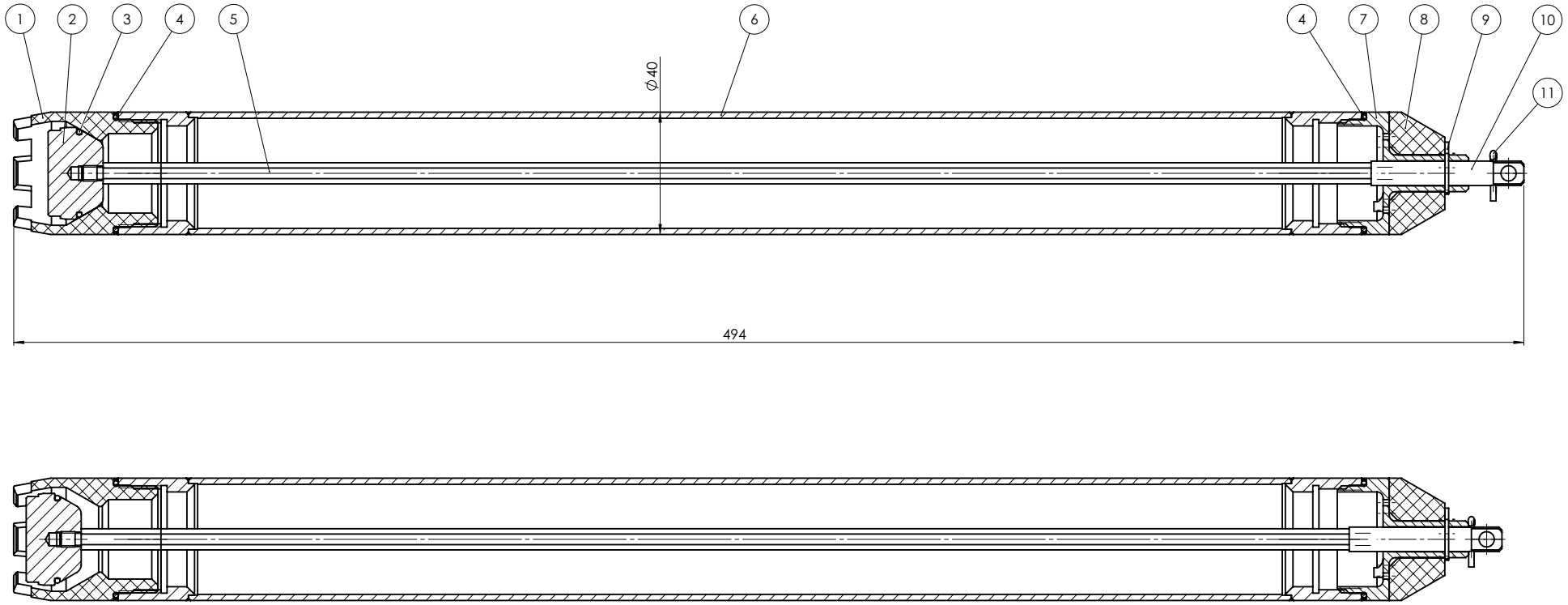
ND 20255

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

ATEX Certified Product

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



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	40909	DIN6799
10	1	16.5	Coupling stem	1.4401	20119	40898
11	1	0.0	Cotter pin 2x10	A2	40218	DIN 94

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: 1146.3 Eff.

1:1

ISSUE 2 : 04.09.2008

MPSA YYYN

Drawn: UPR 04.09.2008

Control:

Replacement for: ND

Replaced by: ND

Sampler 2" GTN Chem

Running bottle 0.40 l. FKM

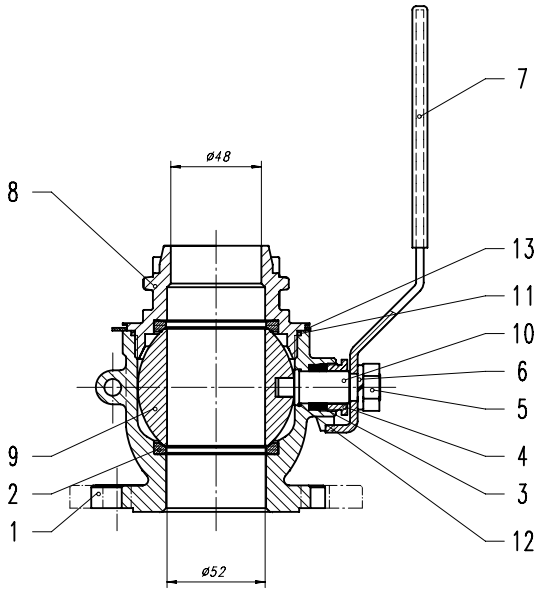
TS 20138

ND 20254

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

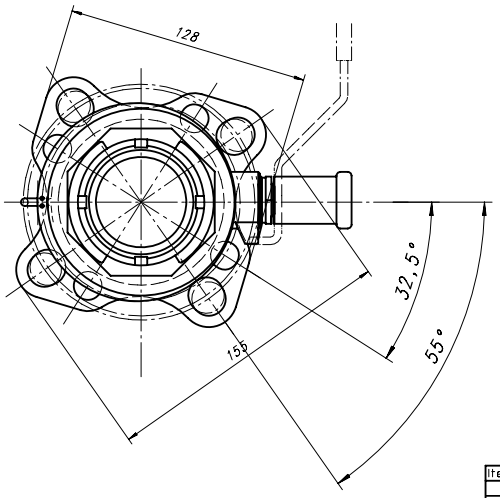
DIN PN25 DN50

DIN PN40 DN50

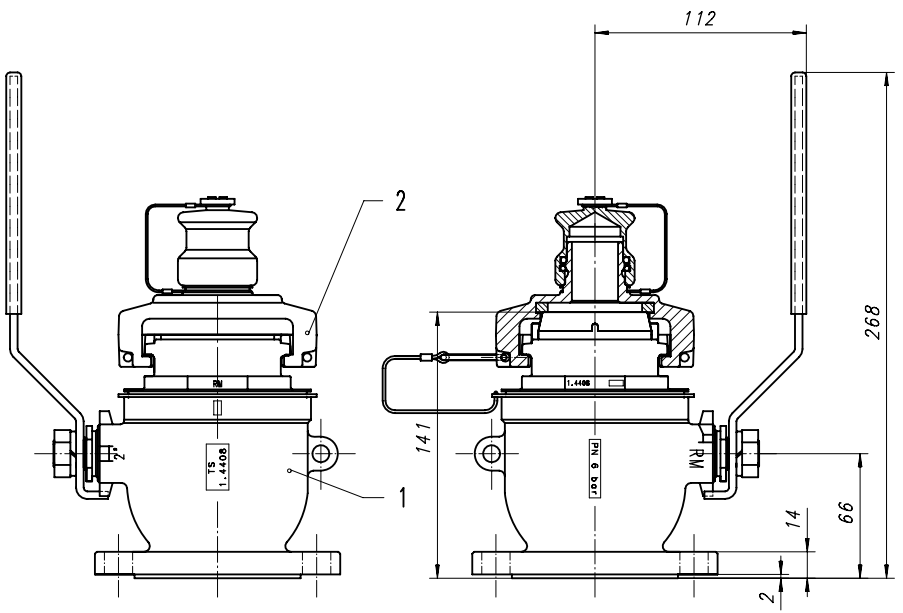
JIS 5K 50

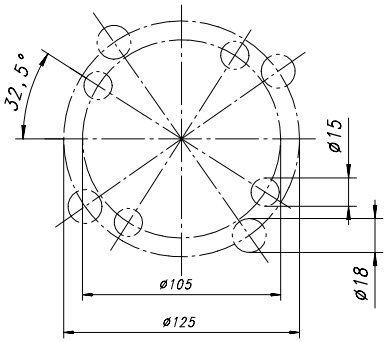
JIS 10K 50

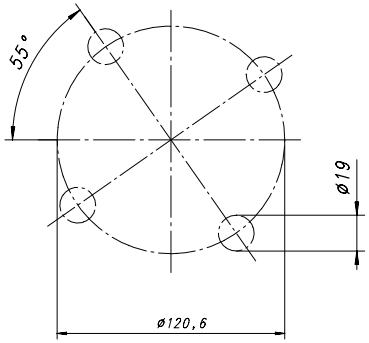
ANSI 150lbs 2"



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	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: 5070 Th. 0 Eff.

1:2

Drawn: UPR 27.11.1996

Control: CPI 06.01.1997

ISSUE 2 : 16.2.1999

MPSA 3110

Replacement for: ND

Replaced by: ND

Valves

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

TS 10083

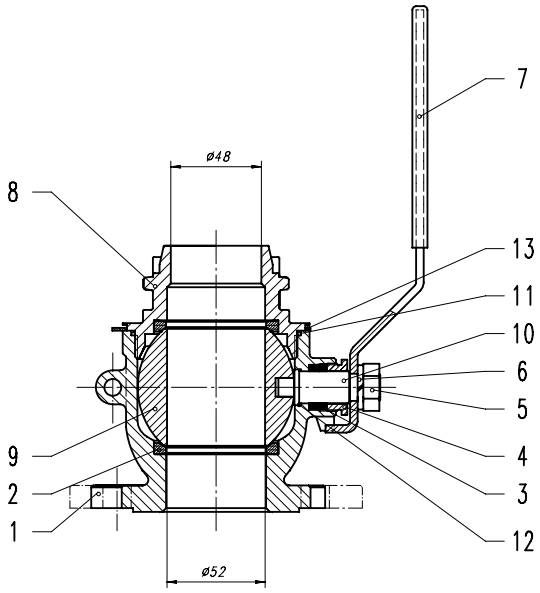
ND 20291

REF ND

Modification | Visa | 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

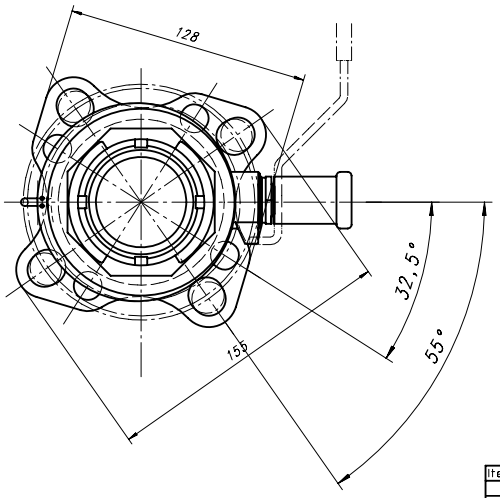
DIN PN25 DN50

DIN PN40 DN50

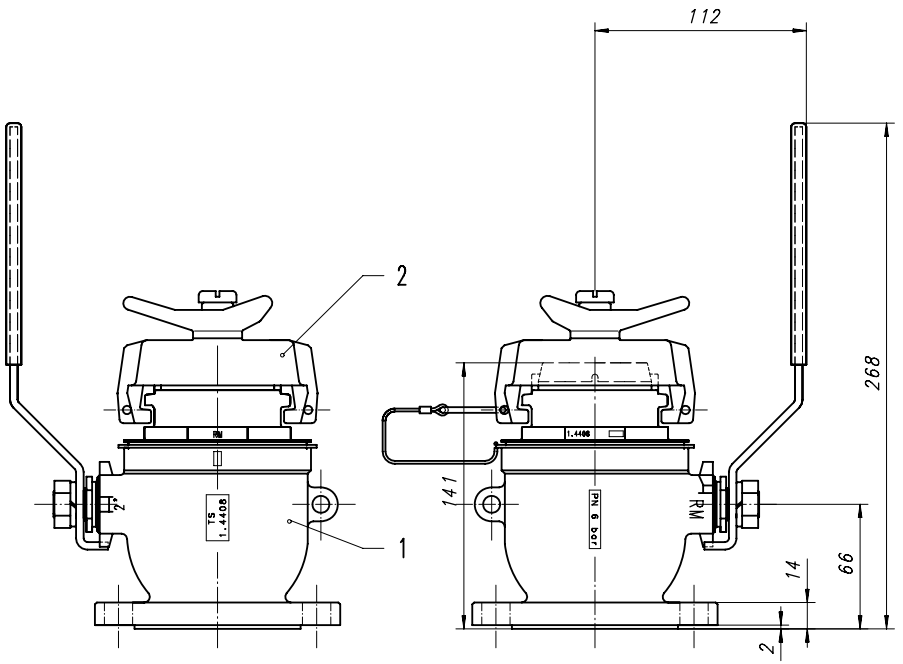
JIS 5K 50

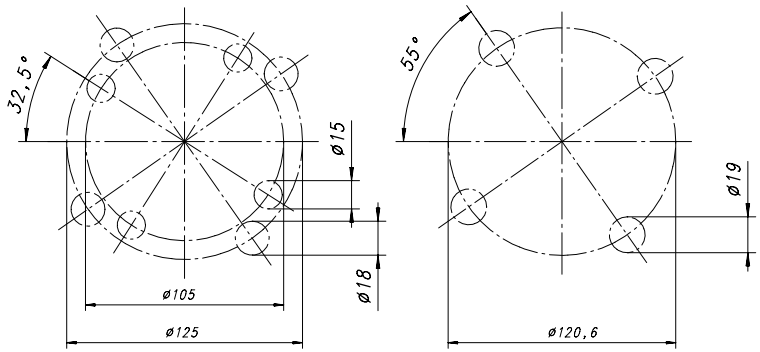
JIS 10K 50

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	957	Security cover w/lock	-	10408	40495

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.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: 5437 Th. 0 Eff.

1:2

Drawn: UPR 27.11.1996 | Control: CPI 06.01.1997

ISSUE 2 : 16.2.1999

MPSA 3110

Replacement for: ND | Replaced by: ND

Valves

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

TS 10082

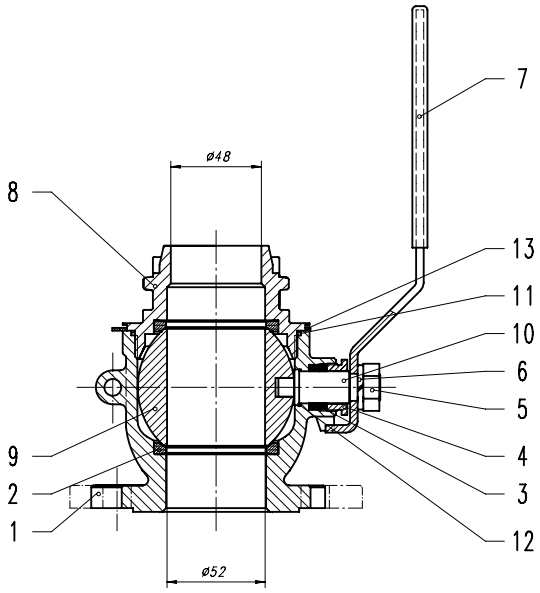
ND 20287

REF ND

Modification | Visa | 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

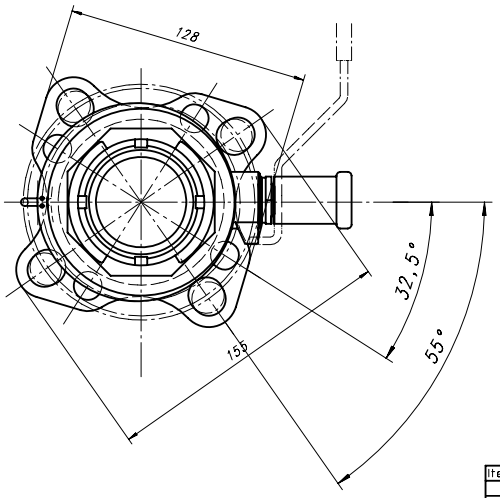
DIN PN25 DN50

DIN PN40 DN50

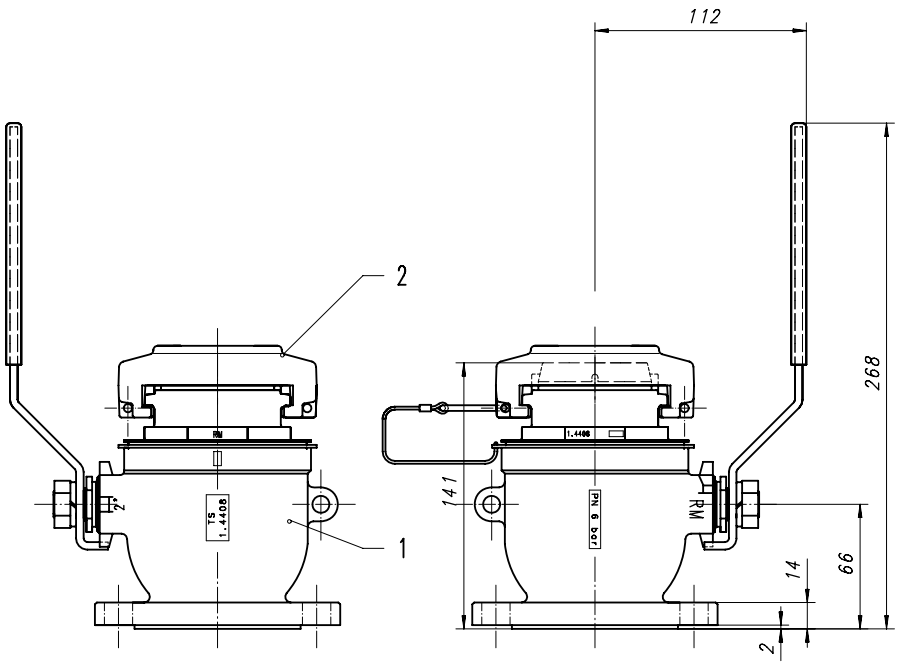
JIS 5K 50

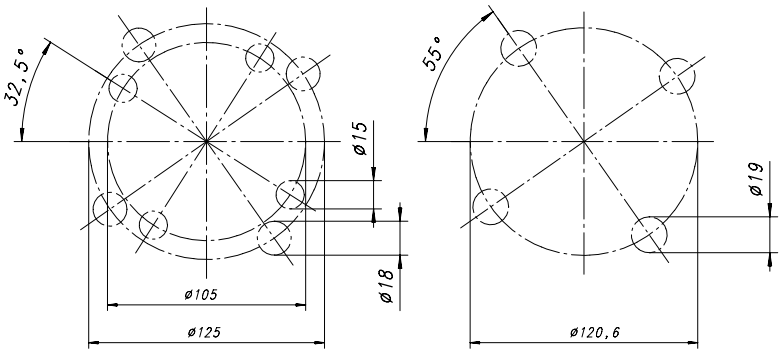
JIS 10K 50

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

Norm.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: 4850 Th. 0 Eff.

1:2

Drawn: UPR 27.11.1996 | Control: CPI 06.01.1997

ISSUE 2 : 16.2.1999

MPSA 3110

Replacement for: ND | Replaced by: ND

Valves

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

TS 10081

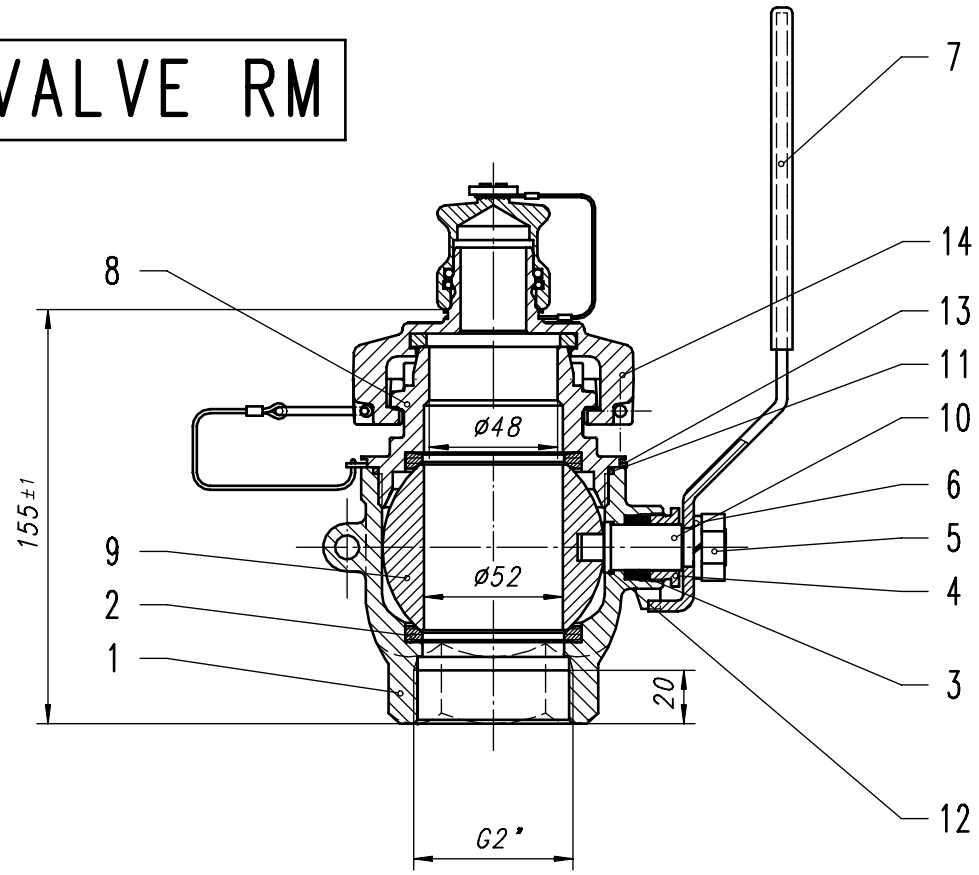
ND 20288

REF ND

Modification | Visa | 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

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

+ Pos. 13	upr	12.2.96	ls
Modification	Visa	Date	

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 21.04.1994

Control:

Weight: 4390 Eff.

1:2

ISSUE 3 : 25.6.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2SS 2" Female

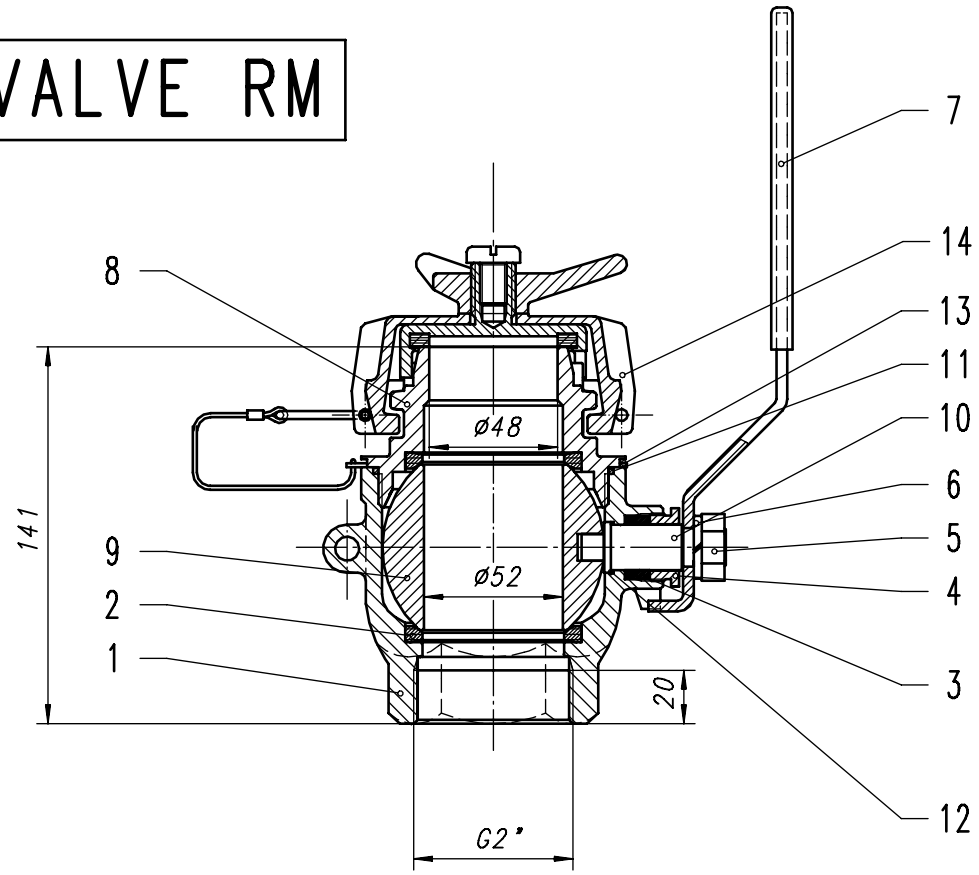
TS 10076

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

+ Pos. 13	upr	12.2.96	2
Modification	Visa	Date	Is

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 21.04.1994

Control:

Weight: 4746 Eff.

1:2

ISSUE 3 : 25.6.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-SEC
2" Female

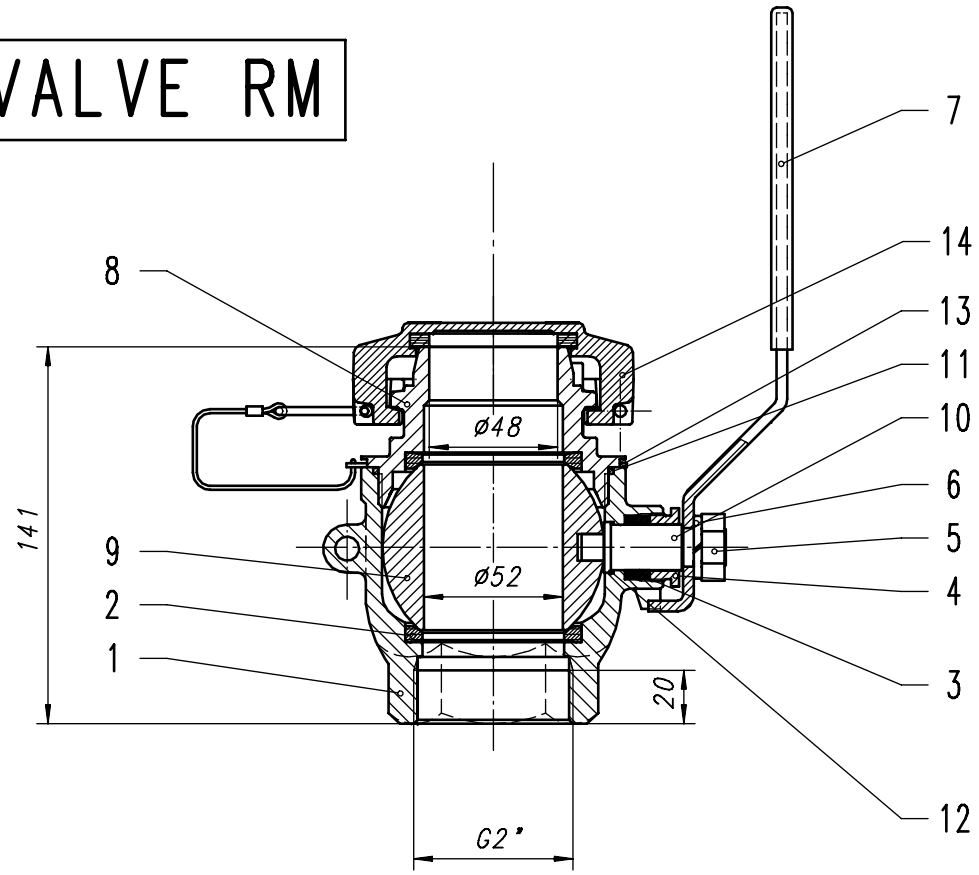
TS 10078

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

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

Modification | Visa | Date | Is

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

Drawn: UPR 21.04.1994

Control:

Weight: Th. 4300 Eff.

1:2

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