

CERTIFICAT D'EXAMEN CE DE TYPE

EC TYPE EXAMINATION CERTIFICATE

N° LNE - 11123 rév. 7 du 15 décembre 2015

Modifie le certificat 11123-6

Délivré par : Laboratoire national de métrologie et d'essais
Issued by

En application : Décret n°2006-447 du 12 avril 2006, arrêté du 28 avril 2006, transposant en droit français, la
In accordance with directive 2004/22/CE du 31 mars 2004

Decree nr 2006-447 dated 12 April 2006 and order dated 28 April 2006, transposing into French law, the European directive 2004/22/EC of 31 March 2004

Fabricant : SATAM - 47 allée des Impressionnistes Villepinte BP 85012
Manufacturer FRANCE - 95931 - ROISSY CH DE GAULLE CEDEX

Mandataire : - - FRA - -
Authorized representative

Concernant : Ensembles de mesurage SATAM types EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 et ZCE 9-1.
In respect of
Measuring systems for liquids other than water SATAM types EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42, ZCE 9-1.

Caractéristiques : Les caractéristiques sont présentées en annexe du présent certificat.
Characteristics

The metrological characteristics are detailed in the appendix of this certificate.

Valable jusqu'au : 12 mars 2018
Valid until March 12th, 2018

Les principales caractéristiques et conditions d'approbation figurent dans l'annexe ci-jointe qui fait partie intégrante du certificat et comprend 15 page(s). Tous les plans, schémas et notices sont déposés au Laboratoire national de métrologie et d'essais sous la référence de dossier P148675 .

The principal characteristics, approval conditions are set out in the appendix hereto, which forms part of the approval documents and consists of 15 page(s). All the plans, schematic diagrams and documentations are recorded by Laboratoire national de métrologie et d'essais under reference file P148675 .

Etabli le 15 décembre 2015
Issued on December 15th, 2015

Pour le Directeur général
On behalf of the General Director

Thomas LOMMATZSCH
Responsable du Pôle Certification
Measuring Instruments Division Manager

Laboratoire national de métrologie et d'essais

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Summary:

The last revision synthesizes all the precedent ones.

Original wording in French language. In case of (legal) problems refer back to the text in French language. No legal claims or duties can be derived from the translation.

Date	Revision	Modification
12/03/2008	Revision 0	Initial
27/04/2009	Revision 1	Modification of the name of the company (SATAM)
10/07/2009	Revision 2	Modification of the minimum pressure for SATAM measuring systems EMS 12, EMS 24 and EMS 48 equipped with SATAM gas separator EC 27-40
03/12/2010	Revision 3	Remove references to SATAM Equalis L electronic calculator-indicator and to Veeder Root 7887 mechanical indicator device Add data relative to XAD 44, XAD 54 and XAD 39 valves Change tare pressure of the nozzle Change pumps characteristics Change sealing plans Change data plate sealing into a riveted fixation Change identification plate (delete manufacturer address)
19/03/2013	Revision 4	Add applications for mobile installations. Add the possibility to include a BOPP & REUTHER type ZGA DN 100 gas separator between the pump and the meter for the SATAM type EMS 48 measuring systems.
28/05/2015	Revision 5	Add the possibility to connect the measuring systems equipped with a mechanical volume indicating device to a HECTRONIC type HECFLEET NT self-service device including a pulse emitter ELTOMATIC 1-08 or 1-09.
21/07/2015	Révision 6	Add the possibility to connect the measuring systems equipped with a mechanical volume indicating device to a ALX type Europile self-service device including a pulse emitter ELTOMATIC 1-08 or 1-09. Add the possibility to connect the measuring systems equipped with a electronic volume indicating device to a ALX type Europile or Europole self-service device. Review of sealling plans (add seal of measuring system plate).
15/12/2015	Révision 7	Add the possibility to connect the measuring systems equipped with a mechanical volume indicating device to a HECTRONIC type HECONOMY self-service device including a pulse emitter ELTOMATIC 1-08 or 1-09. Add the possibility to connect the measuring systems equipped with a electronic volume indicating device to a HECTRONIC type HECONOMY or TOKHEIM type Dialog self-service device.

1. Designation

SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 for road tankers and for stationary or mobile installations.

2. Description

SATAM measuring systems **EMS 12**, **EMS 24** and **EMS 48** are equipped with:

- a SATAM meter ZC 17 12/12, ZC 17 12/24 or ZC 17 12/25 covered by evaluation certificate **LNE-11052** for the EMS 12 measuring system
- a SATAM meter ZC 17-24/24 covered by evaluation certificate **LNE-11052** for the EMS 24 measuring system
- a SATAM meter ZC 17-24/48 covered by evaluation certificate **LNE-11052** for the EMS 48 measuring system
- a pump whose flowrate corresponds to the maximum flowrate of the measuring system and with an operating pressure of 6 or 8 bar (see table in paragraph 3.1)
- for the EMS 24 measuring system, a SATAM type FS 24 gas separator covered by evaluation certificate **LNE-24629**, or a SATAM type EC 27-40 gas separator,

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- for the EMS 48 measuring system :
 - a SATAM type EC 27-40 gas separator,
 - or a SATAM type FS 24 gas extractor covered by evaluation certificate **LNE-24629**, with possibility to add a BOPP & REUTHER type ZGA DN 100 gas separator covered by evaluation certificate **LNE-18071**,
- a non-return valve, which may be fitted with a pressure relief valve
- if required :
 - either a two stages SATAM valve XAD 54 or XAD 39 (or another type with the same characteristics),
 - or a flow-regulation valve with electric or pneumatic control, whose functioning pressure is compatible with the maximum pressure of the measuring system.

They are also equipped with:

- either a full hose (which may be on a drum), ending in a nozzle with a calibrated valve (0.3 bar) to prevent draining of the hose
- or a SATAM two-way valve XAD 46, XAD 51 or XAD 53 (or another type with the same characteristics), with one outlet connected to a full hose as described above and the other ending in a calibrated valve for connection to an empty hose fitted with a venting valve.

When SATAM measuring systems **EMS 12**, **EMS 24** and **EMS 48** are equipped with a mechanical volume indicating device, they can be connected to a

- ELECTRONIC type HECFLEET NT or HECONOMY self-service device covered by respectively the evaluation certificate **A0445-5301-2010** (or next revisions) or the part certificate **A0445-3546-2015** (or next revisions)
- ALX type EUROPILE self-service device covered by the evaluation certificate **LNE-28279** including a pulse emitter ELTOMATIC 1-08 or 1-09.

When SATAM measuring systems **EMS 12**, **EMS 24** and **EMS 48** are equipped with a SATAM electronic volume indicating device, they can be connected to a

- ELECTRONIC type HECONOMY self-service device covered by the part certificate **A0445-3546-2015** (or next revisions)
- TOKHEIM type Dialog self-service device covered by the part certificate **TC7960**
- ALX type EUROPILE or EUROPOLE self-service device covered by the evaluation certificate **LNE-28279** or **LNE-17492**

SATAM measuring systems **ZCE 18/24** and **ZCE 18/42** are equipped with:

- a SATAM meter ZC 17-24/24 covered by evaluation certificate **LNE-11052** for the ZCE 18/24 measuring system
- a SATAM meter ZC 17-24/48 covered by evaluation certificate **LNE-11052** for the ZCE 18/42 measuring system
- a pump whose flowrate corresponds to the maximum flowrate of the measuring system and with an operating pressure of 6 or 8 bar (see table in paragraph 3.1)
- a SATAM gas separator EC 36-1
- a gas indicator in the case of the ZCE 18/42 measuring system
- a non-return valve, which may be fitted with a pressure relief valve
- if required :
 - either a two stages SATAM valve XAD 54 or XAD 39 (or another type with the same characteristics),
 - or a flow-regulation valve with electric or pneumatic control, whose functioning pressure is compatible with the maximum pressure of the measuring system.

They are also equipped with:

- either a full hose (which may be on a drum), ending in a nozzle with a calibrated valve (0.3 bar) to prevent draining of the hose
- or a SATAM two-way valve XAD 46, XAD 51 or XAD 53 (or another type with the same characteristics), with one outlet connected to a full hose as described above and the other ending in a calibrated valve for connection to an empty hose fitted with a venting valve.

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When SATAM measuring systems **ZCE 18/24** and **ZCE 18/42** are equipped with a mechanical volume indicating device, they can be connected to a

- ELECTRONIC type HECFLEET NT self-service device covered by the evaluation certificate **A0445-5301-2010** (or next revisions)
- ALX type EUROPILE self-service device covered by the evaluation certificate **LNE-28279** including a pulse emitter ELTOMATIC 01-08 or 01-09.

When SATAM measuring systems **ZCE 18/24** and **ZCE 18/42** are equipped with a SATAM electronic volume indicating device, they can be connected to a ALX type EUROPILE or EUROPOLE self-service device covered by the evaluation certificate **LNE-28279** or **LNE-17492**.

SATAM measuring system **ZCE 9-1** is equipped with:

- a SATAM meter **ZC 17-24/24** or **ZC 17-24/48** covered by evaluation certificate **LNE-11052**
- a pump whose flowrate corresponds to the maximum flowrate of the measuring system and with an operating pressure of 6 or 8 bar (see table in paragraph 3.1)
- a SATAM gas separator **EC 34** fitted upstream of the meter, fitted with a SATAM control valve **XAD 45** and a gas indicator downstream of the meter
- if required :
 - either a two stages SATAM valve **XAD 44** (or another type with the same characteristics),
 - or a flow-regulation valve with electric or pneumatic control, whose functioning pressure is compatible with the maximum pressure of the measuring system.

They are also equipped with:

- either a full hose (which may be on a drum), ending in a nozzle with a calibrated valve (0.3 bar) to prevent draining of the hose
- or a full hose with a nozzle combined with a venting valve
- or an empty hose with a weir type sight glass and venting valve upstream
- or a SATAM two-way valve **XAD 46**, **XAD 51** or **XAD 53** (or another type with the same characteristics), with one outlet ending in a calibrated valve for connection to an empty hose fitted with a venting valve, and the other connected to one of the delivery points specified above.

When SATAM measuring systems **ZCE 9-1** are equipped with a mechanical volume indicating device, they can be connected to a

- ELECTRONIC type HECFLEET NT self-service device covered by the evaluation certificate **A0445-5301-2010** (or next revisions)
- ALX type EUROPILE self-service device covered by the evaluation certificate **LNE-28279** including a pulse emitter ELTOMATIC 01-08 or 01-09.

When SATAM measuring systems **ZCE 9-1** are equipped with a SATAM electronic volume indicating device, they can be connected to a ALX type EUROPILE or EUROPOLE self-service device covered by the evaluation certificate **LNE-28279** or **LNE-17492**.

2.1. Metrological functions

SATAM measuring systems **EMS 12**, **EMS 24**, **EMS 48**, **ZCE 18/24**, **ZCE 18/42** and **ZCE 9-1** perform the metrological functions described :

- in the evaluation certificate **LNE-11052** covering SATAM meters **ZC 17 12/12**, **ZC 17 12/24**, **ZC 17 12/25**, **ZC17-24/24** and **ZC 17-24/48**
- if required, in the evaluation certificate covering the relevant electronic calculator-indicator device.

2.2. Non-metrological functions

SATAM measuring systems **EMS 12**, **EMS 24**, **EMS 48**, **ZCE 18/24**, **ZCE 18/42** and **ZCE 9-1** perform the non-metrological functions described :

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- in the evaluation certificate **LNE-11052** covering SATAM meters ZC 17 12/12, ZC 17 12/24, ZC 17 12/25, ZC17-24/24 and ZC 17-24/48
- if required, in the evaluation certificate covering the relevant electronic calculator-indicator device.

2.3. Software

SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 can be fitted with an electronic calculator-indicator device and/or a self-service device; software checksum for the metrological functions is defined in the relevant evaluation certificate.

3. Characteristics

3.1. Metrological characteristics

SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 perform the non-metrological functions described :

- in the evaluation certificate **LNE-11052** covering SATAM meters ZC 17 12/12, ZC 17 12/24, ZC 17 12/25, ZC17-24/24 and ZC 17-24/48
- if required, in the evaluation certificate covering the relevant electronic calculator-indicator device.

Metrological characteristics of SATAM measuring system EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 are as follows :

Type	EMS 12			EMS 24	EMS 48	EMS 12			EMS 24	EMS 48
ZC 17 meter	12/12	12/24	12/25	24/24	24/48	12/12	12/24	12/25	24/24	24/48
Indicator	Mechanical indicator					Electronic calculator-indicator				
Indication scale interval (i)	1 L or 0.1 L			1 L or 0.1 L		1 L, 0.1 L, 0.01 L				
Maximum indication level	99 999 or 99 999.9			99 999 or 99 999.9		999 999				
Printing scale interval	1 L or 0.1 L			1 L or 0.1 L		1 L, 0.1 L, 0.01 L				
Maximum printing level	99 999 ou 99 999.9			99 999 ou 99 999.9		999 999				
Minimum quantity metered	200 L					200 i for a measuring system class 0.5 without being less than 20 L 100 i for a measuring system class 1 without being less than 10 L				
Minimum flowrate (m ³ /h)	1.2	2.4	1.2	2.4	4.8	1.2	2.4	1.2	2.4	4.8
Maximum flowrate (m ³ /h)	12	24	24	24	48	12	24	24	24	48 ⁽¹⁾
Relative minimum pressure (bar)	3 bar (EMS 12, EMS 24 and EMS 48 equipped with gas extractor/separator device FS 24) 0.5 bar (EMS 12, EMS 24 and EMS 48 equipped with gas separator EC 27-40)									
Relative maximum pressure (bar)	8			6 (petrol, oil) 8 (domestic oil, diesel oil, ethanol)		8			6 (petrol, oil) 8 (domestic oil, diesel oil, ethanol)	
Temperature range of metered products	- 10°C to + 90°C					- 10°C to + 80°C				
Products metered	Liquid hydrocarbons with kinematic viscosity under 20 mm ² /s at 20°C; industrial oils and fatty acid methyl esters for diesel engines; ethanol									
Accuracy class	0.5 or 1									
Power supply	NA					24 VDC or 220 VAC				

(1) The maximum flowrate is limited to 40 m³/h when the SATAM type EMS 48 measuring system is fitted with a SATAM type EC 27-40 gas separator. This flowrate must be indicated on the data plate.

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Type	ZCE 18/24	ZCE 18/42	ZCE 18/24	ZCE 18/42
ZC 17 meter	24/24	24/48	24/24	24/48
Indicator	Mechanical indicator		Electronic calculator-indicator	
Indication scale interval (i)	1 L or 0.1 L		1 L, 0.1 L ou 0.01 L	
Maximum indication level	99 999 or 99 999.9		999 999	
Printing scale interval	1 L or 0.1 L		1 L, 0.1 L or 0.01 L	
Maximum printing level	99 999 or 99 999.9		999 999	
Minimum quantity metered	200 L		200 i for a measuring system class 0.5 without being less than 20 L 100 i for a measuring system class 1 without being less than 10 L	
Minimum flowrate (m ³ /h)	2.4	4.8	2.4	4.8
Maximum flowrate (m ³ /h)	24	42	24	42
Relative minimum pressure (bar)	3			
Relative maximum pressure (bar)	6 (petrol, oil) 8 (domestic oil, diesel oil, ethanol)			
Temperature range of metered products	- 10°C to + 90°C		- 10°C to + 80°C	
Products metered	Liquid hydrocarbons with kinematic viscosity under 20 mm ² /s at 20°C; industrial oils and fatty acid methyl esters for diesel engines; ethanol			
Accuracy class	0.5 or 1			
Power supply	NA		24 VDC or 220 VAC	

Type	ZCE 9-1 24 m ³		ZCE 9-1 42 m ³		ZCE 9-1 24 m ³		ZCE 9-1 42 m ³	
ZC 17 meter	24/24		24/48		24/24		24/48	
Indicator	Mechanical indicator				Electronic calculator-indicator			
Indication scale interval (i)	1 L or 0.1 L				1 L, 0.1 L, 0.01 L			
Maximum indication level	99 999 or 99 999.9				999 999			
Printing scale interval	1 L or 0.1 L				1 L, 0.1 L, 0.01 L			
Maximum printing level	99 999 or 99 999.9				999 999			
Minimum quantity metered	200 L				200 i for a measuring system class 0.5 without being less than 20 L 100 i for a measuring system class 1 without being less than 10 L			
Minimum flowrate (m ³ /h)	2.4		4.8		2.4		4.8	
Maximum flowrate (m ³ /h)	24		42		24		42	
Relative minimum pressure (bar)	1.5							
Relative maximum pressure (bar)	6 (petrol, oil) 8 (domestic oil, diesel oil, ethanol)							
Temperature range of metered products	- 10°C to + 90°C				- 10°C to + 80°C			
Products metered	Liquid hydrocarbons with kinematic viscosity under 20 mm ² /s at 20°C; industrial oils and fatty acid methyl esters for diesel engines; ethanol							
Accuracy class	0.5 or 1							
Power supply	NA				24 VDC or 220 VAC			

The minimum delivery of a measuring system can be higher than the value defined in the table above and shall have the form $1 \cdot 10^n$, $2 \cdot 10^n$ or $5 \cdot 10^n$ authorized units of volume, where n is a positive or negative whole number, or zero.

3.2. Environment

SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 have the following environmental characteristics:

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- Mechanical class: **M2**
- Electromagnetic class: **E3**
- Temperature range: **- 25 °C to + 55 °C**

If required, transaction module unit of the calculator must be installed in an environment where the temperature range does not exceed – 10 °C to + 40 °C.

SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 are designed to operate in condensing humidity.

4. Interfaces and compatibility

When SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 are fitted with an electronic calculator-indicator, they perform the functions described :

- in the evaluation certificate **LNE-11052** covering SATAM meters ZC 17 12/12, ZC 17 12/24, ZC 17 12/25, ZC17-24/24 and ZC 17-24/48
- in the evaluation certificate covering the relevant electronic calculator-indicator device.

5. Special installation conditions

SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 are to be fitted to road tankers and fixed or mobile installations.

Installation conditions for the electronic calculator-indicator devices fitting EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 measuring systems are detailed in the evaluation certificate covering the relevant electronic calculator-indicator device.

6. Special conditions of use

Specific conditions of use for the SATAM meters ZC 17 12/12, ZC 17 12/24, ZC 17 12/25, ZC 17 24/24 and ZC 17 24/48 are detailed in evaluation certificate **LNE-11052**.

Specific conditions of use for the electronic calculator-indicator devices fitting EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 measuring systems are detailed in the evaluation certificate covering the relevant electronic calculator-indicator device.

7. Special conditions of verification

SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 are verified to ensure they meet applicable requirements. Verification of conformity comprises:

- if the meter is fitted with an electronic calculator-indicator, tests and examinations described in the evaluation certificate covering the relevant electronic calculator-indicator device.
- tests and examinations performed on site on the complete installed measuring system
 - an examination to check that the instrument meets the requirements of the certified type
 - an accuracy test performed at the minimum and maximum flowrates of the measuring system, as well as at an intermediate flowrate
 - tests to ensure that the gas separator and/or extractor device operates correctly at the maximum flowrate, including a shortage test
 - if required, a presetting test
 - if required, a test of the variations of the internal volume of the hoses in full hose measuring systems
 - if required, a determination of the residual quantities in empty hose measuring systems
 - if required, a test to check the accuracy of the temperature measurement(s) used for conversion (Pt 100 sensor(s))
 - if the measuring system is fitted with a two-way outflow valve downstream of the meter, verification that the delivery path cannot be changed during a measuring operation
 - if required, verification that the hose for removing gas from the gas separator is sealed and that it cannot be clamped (or presents a deformation mark if clamped)

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- verification that flow is interrupted when the measuring system's power supply is cut, even if the pump is already running.

Accuracy tests may be performed on the meter before installation at minimum, maximum and intermediate flowrates. In this case, the on-site test performed at an intermediate flowrate on the complete measuring system is optional.

When connexion with a self-service device, it shall be ensured:

- a. that all aspects of the self-service device are in conformity with the evaluation certificate;
- b. that the data is correctly transmitted and stored during a transaction. The volume and price values shown on the self-service device display must be identical to those shown on the indicator device of the measuring system;
- c. that, if power to the self-service device is cut during a transaction, all data relating to the transaction are recorded and may be displayed accurately and in its entirety. After power has been cut, the transaction takes a few minutes to finish. When power is restored, the nozzle is replaced and the stored data is displayed and checked;
- d. that, if the connection is cut between the indicator device and the self-service device during a transaction, all data relating to the transaction are recorded and may be displayed accurately and in its entirety. After the connection has been cut, the transaction continues until the nozzle is replaced. The connection is then restored and the stored data is displayed and checked;
- e. that the first recording on the storage device hard disks is at least three months old (if the equipment has been in operation for over three months).

In service control on self-service device can be limited to points a, b and e.

8. Securing and sealing

The measuring system is sealed by means of threaded rods with lead seals or sealing devices pressed onto spiral wire.

When the installation of a measuring system SATAM type EMS 48 includes a BOPP & REUTHER type ZGA DN 100 gas separator, this one must be sealed as mentioned in the evaluation certificate **LNE-18071**.

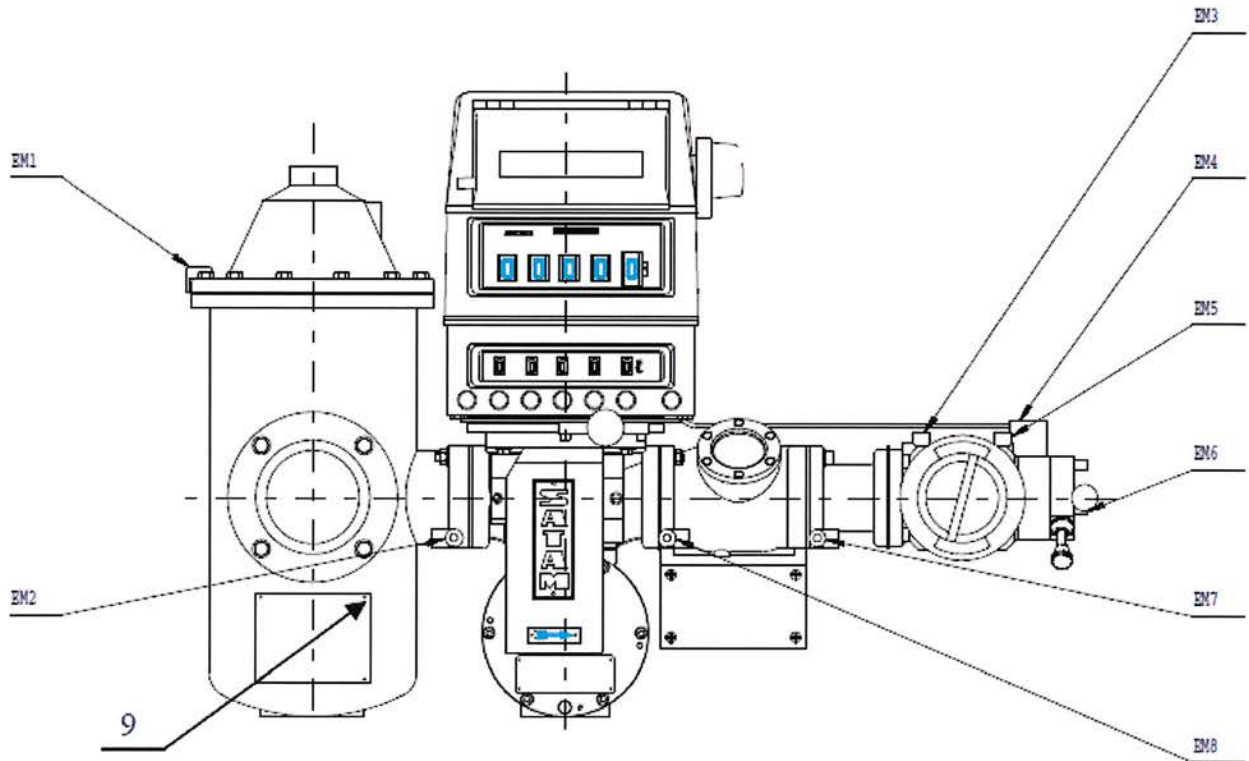
When the installation of a measuring system SATAM type EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 or ZCE 9-1 includes a self-service device HECTRONIC type HECFLEET NT, or ALX type EUROPOLE or EUROPILE, or HECTRONIC type HECONOMY or TOKHEIM type Dialog these one must be sealed as mentioned in the evaluation certificate **A0445-5301-2010** (or next revisions) or **LNE-28279** or **LNE-17492** respectively or in the part certificate **A0445-3546-2015** (or next revisions) or n°**TC7960** respectively .

Following components fitted between the metering unit and transfer point(s) must be protected by a seal:

- piping joint or flanges or coupling (unless coupling can be removed only with a special tool)
- non-return valve
- calibrated valve
- temperature sensor
- sight glass
- valve
- manometer
- pressure tap
- drain nozzle
- hose
- depressurization valve
- flexible coupling
- expansion sleeve
- flow detector

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Sealing plan for SATAM measuring systems EMS 12, EMS 24 or EMS 48
fitted with a mechanical indicating device,
a SATAM FS 24 gas extractor/separator device,
and a mechanical, pneumatic or electrical presetting valve

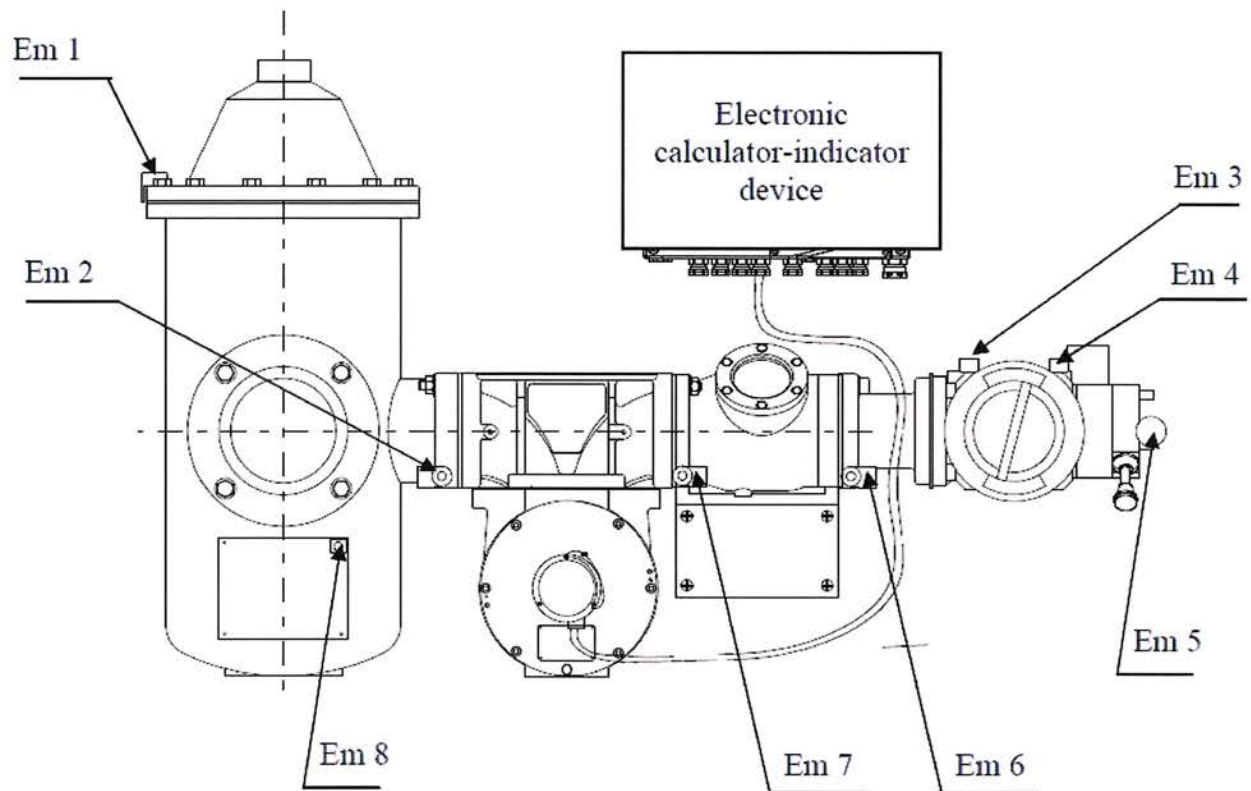


- | | |
|-----------|------------------------------------|
| Em1 | : Protects gas elimination head |
| Em2 | : Protects gas separator |
| Em3 and 5 | : Protect two-way valve |
| Em4 and 6 | : Protect two-way valve control |
| Em7 and 8 | : Protect presetting valve |
| Em9 | : Protect the identification plate |

Sealing plan for the meter is detailed in evaluation certificate n° **LNE-11052**

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Sealing plan for SATAM measuring systems EMS 12, EMS 24 or EMS 48
fitted with an electronic calculator-indicator device,
a SATAM FS 24 gas extractor/separator device,
and a pneumatic or electrical presetting valve

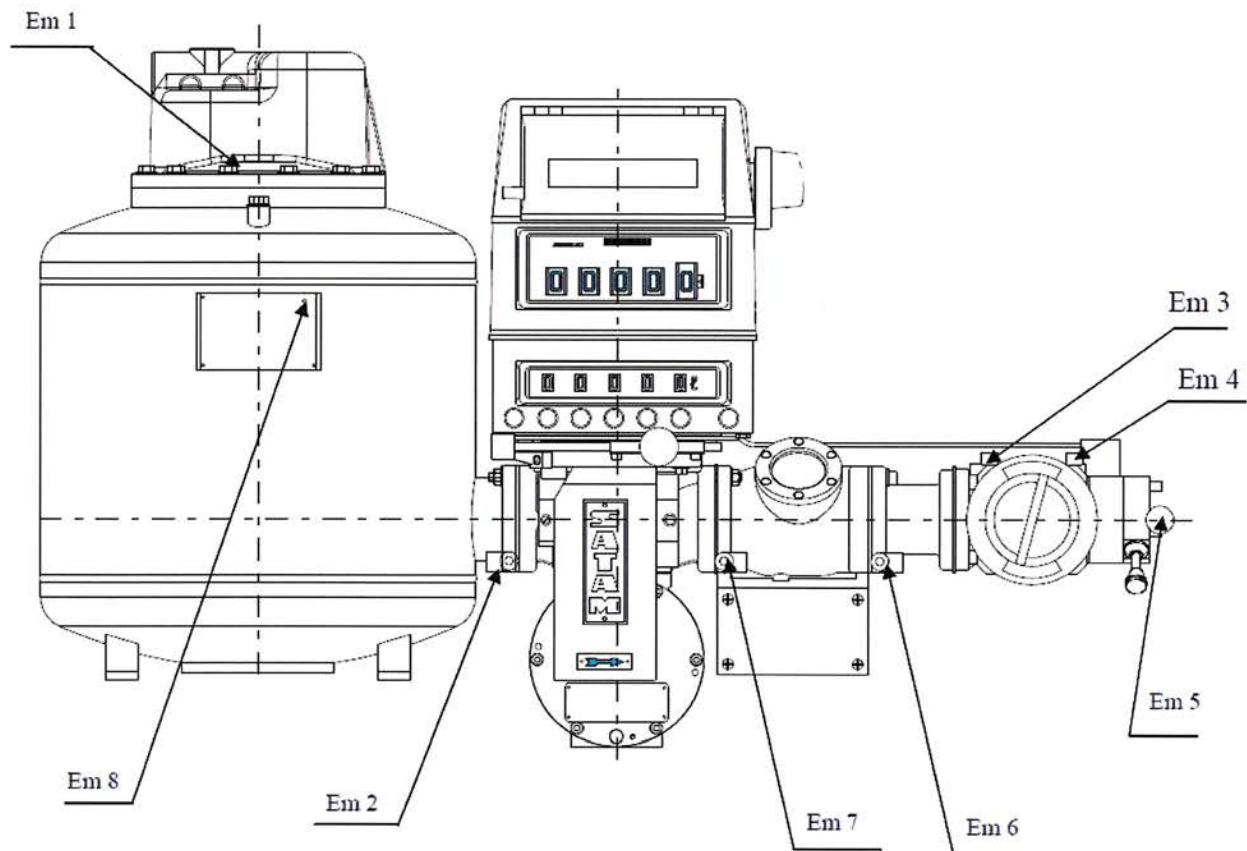


- Em1 : Protects gas elimination head
- Em2 : Protects gas separator
- Em3 and 5 : Protect two-way valve
- Em4 and 6 : Protect two-way valve control
- Em7 and 8 : Protect presetting valve
- Em9 : Protect the identification plate

Sealing plan for the meter is detailed in evaluation certificate n° **LNE-11052**

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Sealing plan for SATAM measuring systems EMS 12, EMS 24 or EMS 48
fitted with a mechanical indicating device,
a SATAM EC 27-40 gas separator,
and a mechanical, pneumatic or electrical presetting valve

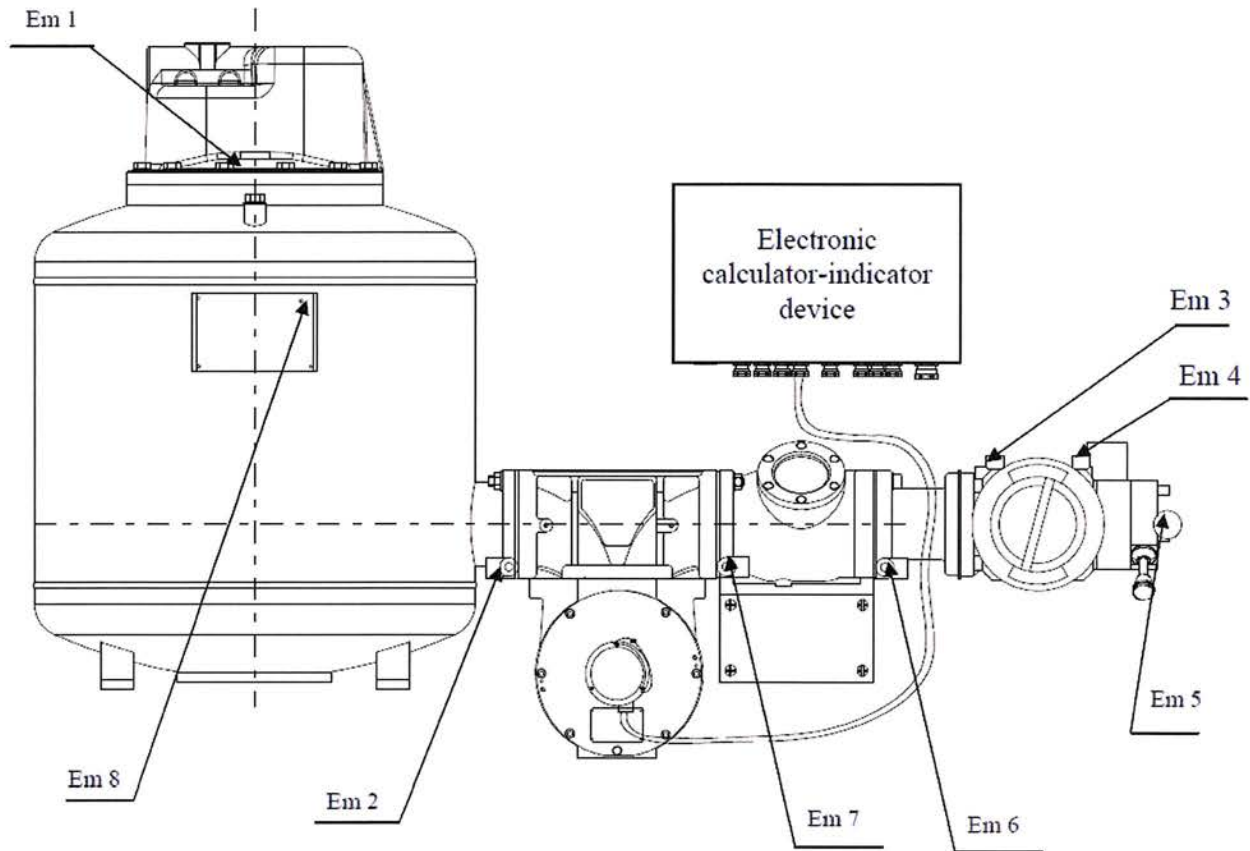


- Em1 : Protects gas elimination head
- Em2 : Protects gas separator
- Em3 and 4 : Protect two-way valve
- Em5 : Protect two-way valve control
- Em6 and 7 : Protect presetting valve
- Em8 : Protect the identification plate

Sealing plan for the meter is detailed in evaluation certificate n° **LNE-11052**

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Sealing plan for SATAM measuring systems EMS 12, EMS 24 or EMS 48
fitted with an electronic calculator-indicator device,
a SATAM EC 27 40 gas separator,
and a pneumatic or electrical presetting valve

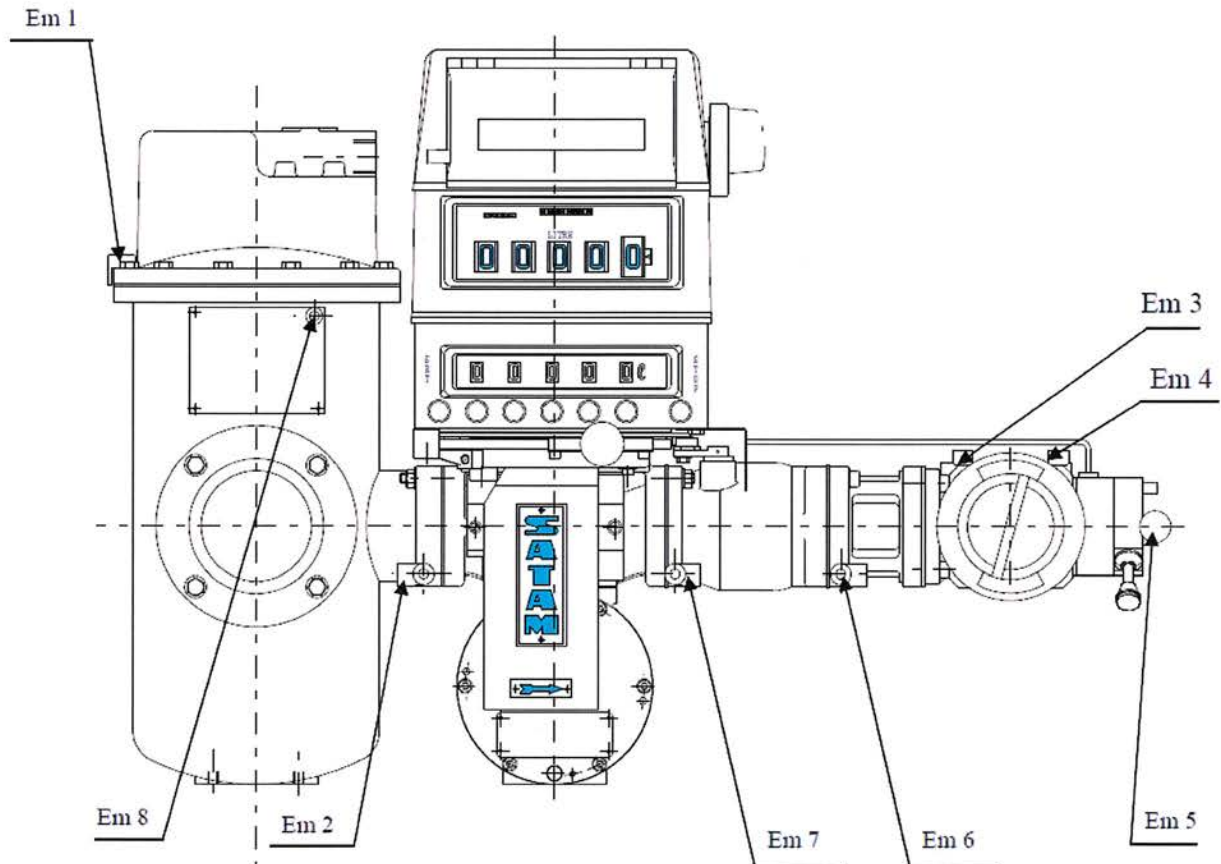


- Em1 : Protects gas elimination head
- Em2 : Protects gas separator
- Em3 and 4 : Protect two-way valve
- Em5 : Protect two-way valve control
- Em6 and 7 : Protect presetting valve
- Em8 : Protect the identification plate

Sealing plan for the meter is detailed in evaluation certificate n° LNE-11052

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Sealing plan for SATAM measuring systems ZCE 18/24 or ZCE 18/42
fitted with a mechanical indicating device,
a SATAM EC 36-1 gas separator,
and a mechanical, pneumatic or electrical presetting valve.

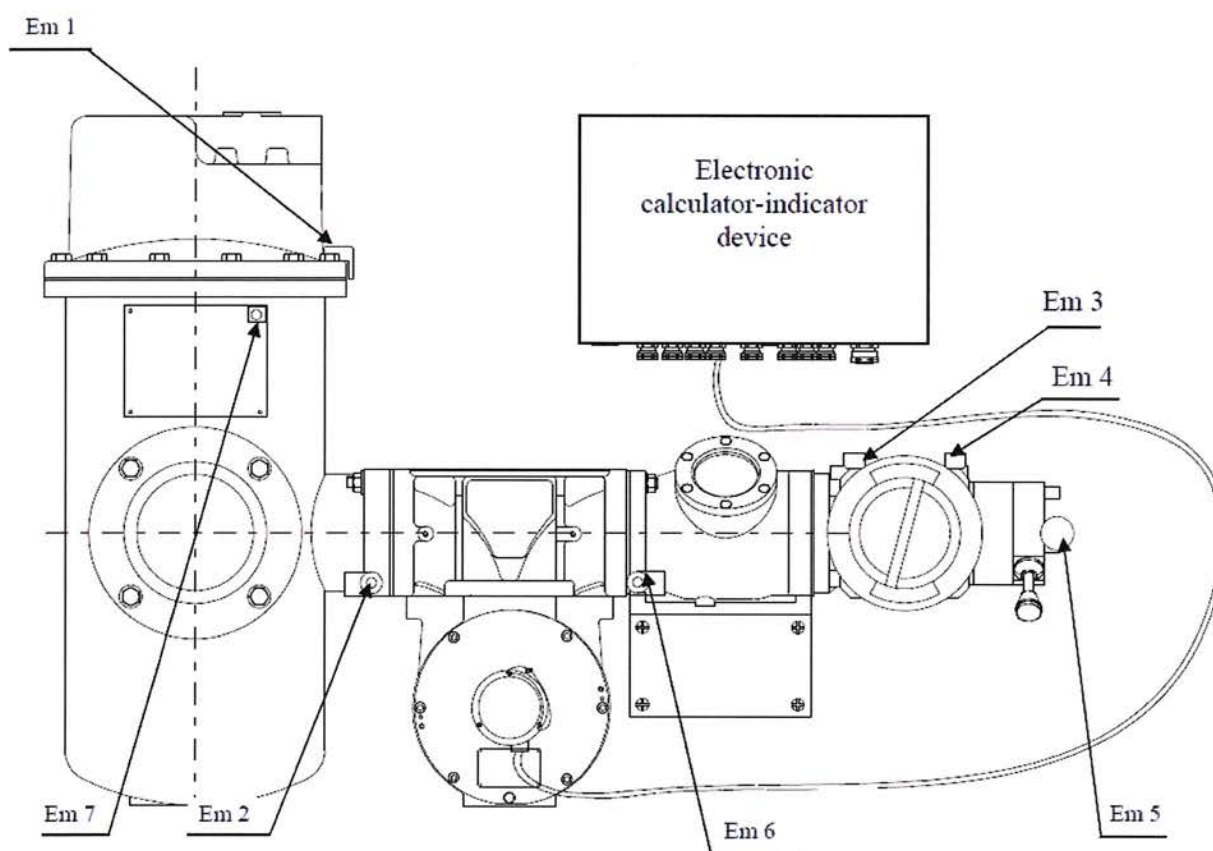


- Em1 : Prevents dismantling of gas elimination head
- Em2 : Protects gas separator
- Em3 et 4 : Protect two-way valve
- Em5 : Protect two-way valve control
- Em6 et 7 : Protect presetting valve
- Em8 : Protect the identification plate

Sealing plan for the meter is detailed in evaluation certificate n° LNE-11052

**Annex to EC type examination certificate
LNE-11123 rev.7**

Sealing plan for SATAM measuring systems ZCE 18/24 or ZCE 18/42
fitted with an electronic calculator-indicator device,
a SATAM EC 36-1 gas separator,
and a pneumatic or electrical presetting valve

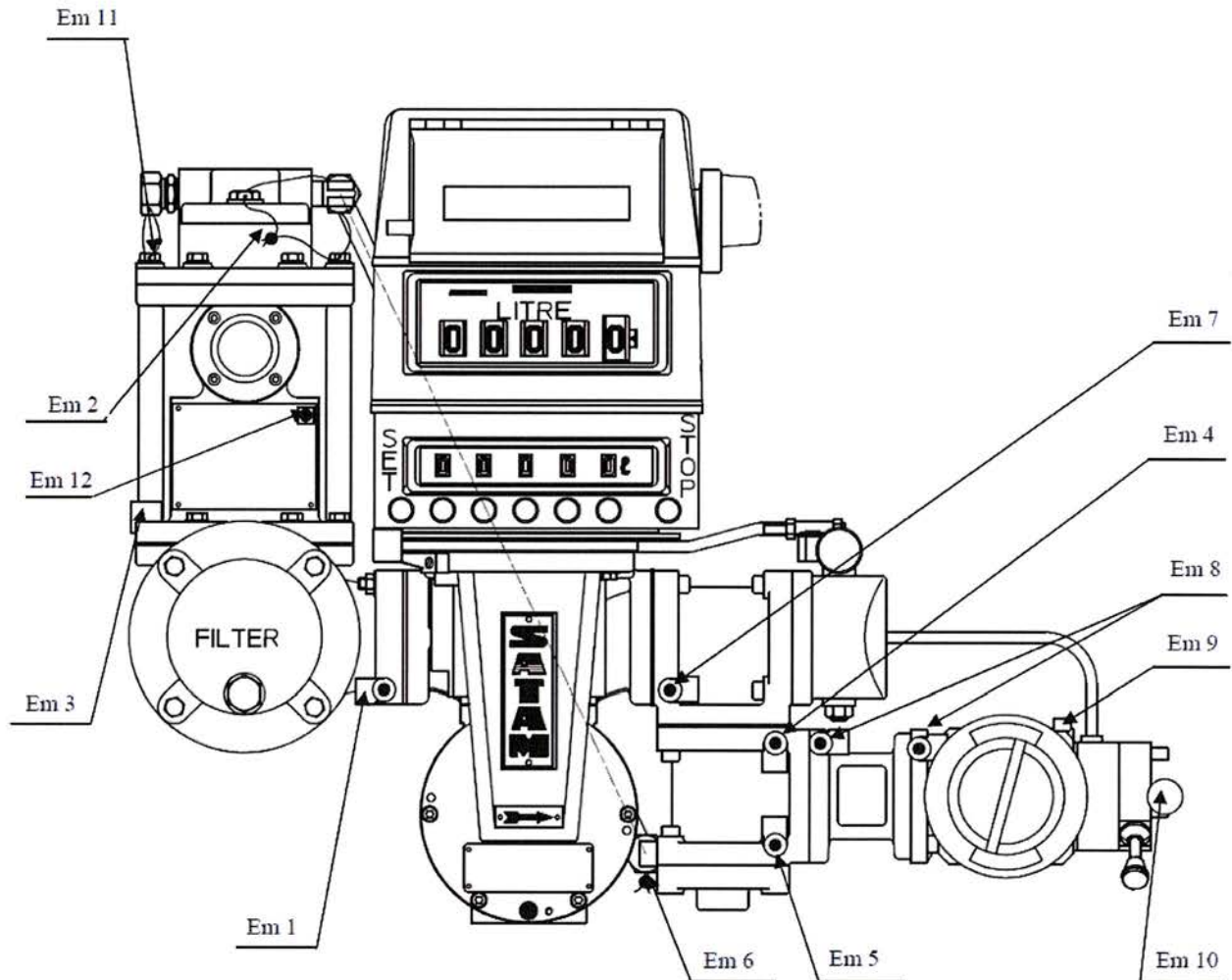


- | | |
|----------|--|
| Em1 | : Protects gas separator |
| Em2 | : Prevents dismantling of gas elimination head |
| Em3 et 4 | : Protect two-way valve |
| Em5 | : Protect two-way valve control |
| Em6 | : Protect presetting valve |
| Em7 | : Protect the identification plate |

Sealing plan for the meter is detailed in evaluation certificate n° LNE-11052

**Annex to EC type examination certificate
LNE-11123 rev.7**

Sealing plan for SATAM measuring systems ZCE 9-1
fitted with a mechanical indicating device,
a SATAM EC 34 gas separator,
and a mechanical, pneumatic or electrical presetting valve.

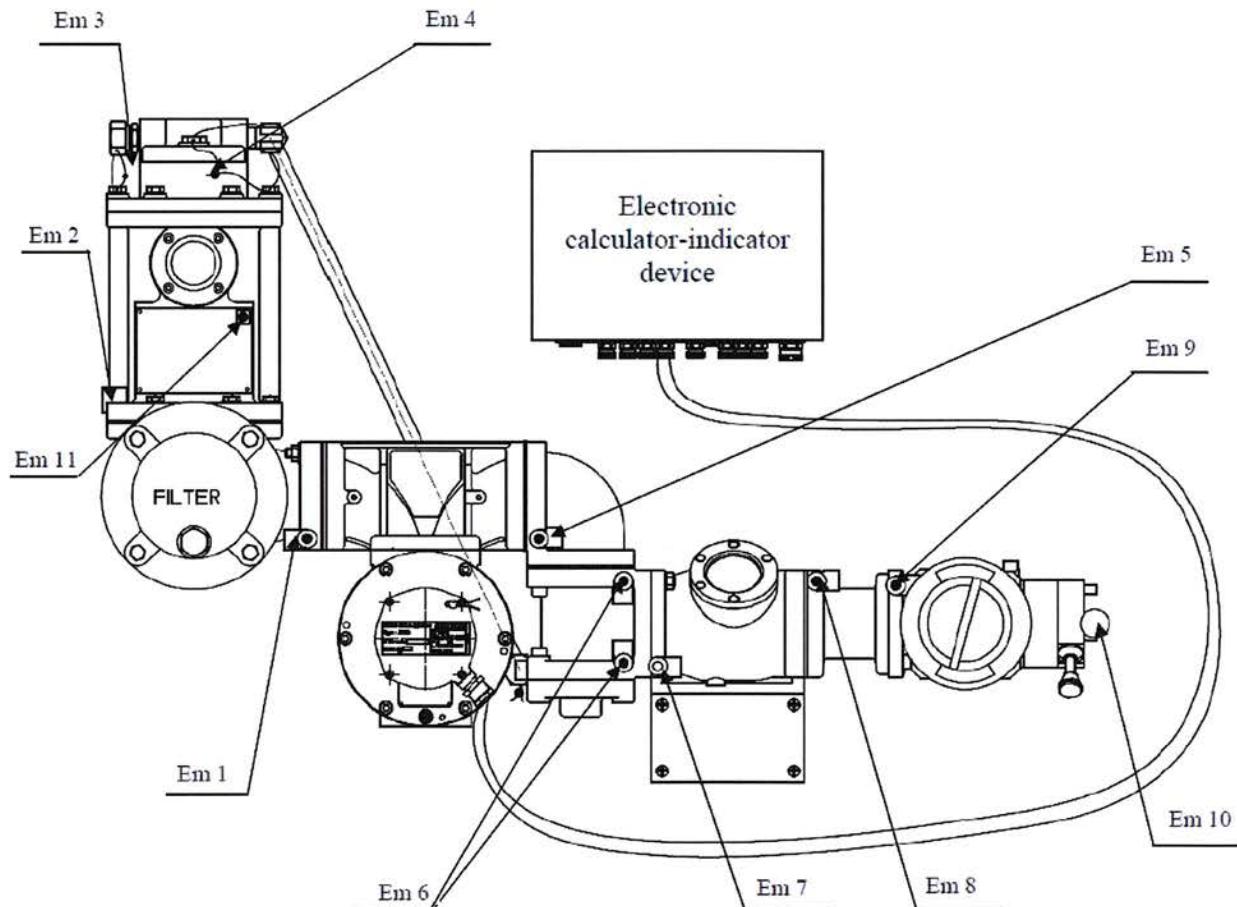


- Em1 : Protects gas separator
- Em2 : Protects gas extractor head and connection to control valve
- Em3 : Protects gas separator
- Em4 : Protects control valve
- Em5 and 6 : Protect connexion between gas separator and control valve
- Em7 : Protects stop valve
- Em8 : Prevents dismantling of gas indicator
- Em9 and 10 : Protect three-way valve and calibrated valve
- Em11 : Protects gas separator venting valve
- Em12 : Protect the identification plate

Sealing plan for the meter is detailed in evaluation certificate n° LNE-11052

**Annex to EC type examination certificate
LNE-11123 rev.7**

Sealing plan for a SATAM measuring systems ZCE 9-1
fitted with an electronic calculator-indicator device,
a SATAM EC 34 gas separator,
and a pneumatic or electrical presetting valve



- Em1 : Protects gas separator
- Em2 : Protects gas separator
- Em3 : Protects gas separator venting valve
- Em4 : Protects gas extractor head and connection to control valve
- Em5 : Protects connection between tubing and control valve
- Em6 : Protects control valve
- Em7 et 8 : Protect presetting valve
- Em9 : Protects three-way valve
- Em10 : Prevents access to calibrated valve
- Em11 : Protect the identification plate

Sealing plan for the meter is detailed in evaluation certificate n° **LNE-11052**

**Annex to EC type examination certificate
LNE-11123 rev.7**

9. Marking and inscriptions

SATAM measuring systems EMS 12, EMS 24, EMS 48, ZCE 18/24, ZCE 18/42 and ZCE 9-1 are fitted with a data plate on which the statutory marking is displayed:

ENSEMBLE DE MESURAGE		SATAM		
METERING UNIT				
EMS-12 <input type="checkbox"/>	ZCE18-24 <input type="checkbox"/>			
Model: EMS-24 <input type="checkbox"/>	ZCE9-1 <input type="checkbox"/>	ZCE18-42 <input type="checkbox"/>		
Model	EMS-48 <input type="checkbox"/>			
N° de serie <input type="text"/>		Année 20 <input type="text"/>		
Serial number		Year		
Certificate LNE - N° 11123				
Certificate number				
(CE)	M <input type="text"/>	<input type="text"/>	II 2 G c T4 <input type="checkbox"/>	
			II 2 G Ex IA T4 Gb <input type="checkbox"/>	
Classe d'exactitude: 0,5 <input type="checkbox"/> 1 <input type="checkbox"/>				
Exactness class				
Classe d'environnement mécanique: M2				
Environmental class mechanical				
Classe d'environnement électromagnétique: E3				
Environmental class electromagnetic				
Debit maxi <input type="text"/> m³/h	Pression maxi <input type="text"/> bar			
max. flow rate	max. working pressure			
Debit mini <input type="text"/> m³/h	Pression Mini <input type="text"/> bar			
min. flow rate	min. working pressure			
Quantité mesurée minimale <input type="text"/> litres				
Minimum delivery				
Liquide mesuré: <input type="text"/>				
Liquid measured				
Marque: <input type="text"/>				
Mark				
FRANCE				

Ref: B16E46

