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## CONFORMITY

#### DECLARATION OF CONFORMITY 1.1 (2014/34/UE, ANN. VII)

## The manufacturer: Piusi S.p.A.

Via Pacinotti, 16/A - z.i.Rangavino 46029 Suzzara (MN) - Italy Declares under its own and sole responsibility that the machine:

### Flow meter Model: K150 ATEX

Year of construction: see the year of production indicated on the EC data

plate affixed to the product. Certifies that:

It complies with the relative prescriptions set out in the following EU Directives:

### 2014/34/UE

and the following harmonized standards, applied standards and/or technical specifications: UNI EN 1127-1:2011; UNI EN 80079-36:2016; UNI EN 80079-37:2016

Technical File deposited with receipt no. ATEX B901432OR This equipment is classified as follows: Group II, category 2G Ex h IIB T6 Gb

Molarin

Read the Use and Maintenance manual before using the device

Place: Suzzara (MN) Date 01/08/2019

### Otto Varini Legal representative 1.2 MARKING

#### EACH DEVICE COMPLIES WITH THE FOLLOWING ATEX MARKING Apparatus constructed and tested for use in an explosive atmosphere, in accordance with Annex II of Directive 2014/34/EU. GROUP II Equipment intended for use in places with presence of explosive atmosphere, other than underground sites, mines, tunnels, etc.., identified according to the criteria of the Directive 2014/34/EU (ATEX) 2 CATEGORY Equipment designed to be capable of functioning in conformity with the operated parameters established by the manufacturer and ensuring a high level of protection G TYPE OF Equipment intended for use in the presence of gas. EXPLOSIVE Equipment suitable for installation in Zone 1. ATMOS- PHERE **Ex** PERMANENT Equipment designed and realized in accordance PREFIX with standards IEC 60079 and IEC 80079 and harmonized standards EN 60079 and EN 80079 series (for presumption of conformity to 2014/34/ EU), which provides a level of protection against explosive atmospheres ignition suitable for the installation in the declared Zones h PROTEC-Non-Electrical apparatus not able to ignites a po-TION tentially explosive atmosphere because compliant METHOD with the requirements ISO 80079-36 ISO 80079-37 and EN ISO 80079-35 & EN ISO 80079-37 (Type 'c') **IIB** GAS CLASS Group II. Equipment intended for use in places with presence of explosive gas atmosphere other than mines susceptible to firedamps. Group IIA: reference gas ethylene T6 TEMPERATURE Temperature class T6 = Maximum surface tempe- CLASS rature 85°C Gb EQUIPMENT Level of protection "b" - EPL "Gb": the equipment PROTECTION is not a source of ignition in normal operations and LEVEL expected malfunction. It Is suitable for the installa-

#### MACHINE DESCRIPTION 2

tion in Zone 1.

K15O ATEX flow meters are mechanical nutating disc type meters designed to guarantee accurate metering of petrol or other liquids compatible with the construction materials. The nutating disc in the measuring chamber (see diagram 1, assembly "7"), moved by the liquid, activates the gear train housed in the cover of the meter body (assembly "7") which transmits motion to the meter (assembly "6"). The meter is equipped with a non-resettable litre totaliser and a batch register which can be reset using the knob (pos. "2") whose unit digit is provided with marks for the readout of the enths of a litre.



To ensure a proper and safe use of the meter it is necessary to read and follow the instructions and warnings contained in this manual. An improper in callation or use of the meter may cause damage to pjects and people.



ENGLISH (Translated from Italian)

ZONE O

ZONE 1

ZONE 2

ZONE 20

**ZONE 21** 

**ZONE 22** 

ZONE 1

ZONE 2

USE

- **4** To integrate other systems and/or equipment not considered by the manufacturer in the executive
- To use the commercial devices for purposes other than those indicated by the manufacturer.
- 7 Use in presence of lightnings

### 2.3 HANDLING AND TRANSPORT

Due to the limited weight and dimensions of the METERS, special lifting equipment is not required to handle them. THE APPLIANCES ARE CARE FULLY PACKED before dispatch. Check the packing when receiving the material and store in a dry place.

#### **GENERAL WARNINGS** 3

- To ensure operator safety and to protect instru-Important precaution ment from potential damage, workers must be fully acquainted with this instruction manual before performing any operation. In order to signal particularly important instructions Symbols used in the manual
  - or warnings, the following symbols are used:

WARNING indicates a hazardous situation which, if



ervation

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> consultation at any time. All copyrights are reserved by Piusi S.p.A. The text cannot be used in other printed documents unless expressly authorised in written form by Piusi S.p.A. © Piusi S.p.A.

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ENGLISH (Translated from Italian)



WARNING

## ENGLISH (Translated from Italian)

TECHNICAL DATA			
al data		Mod. K150 ATEX	
1echanism		Nutating disk	
e	(range)	25 - 150 litres/min	
ng pressure	(max)	3.5 bar	
ressure	(min)	28 bar	
	(range)	-20 + 60 °C	
ature			
	(max)	95 % RH	
у			
ng temperature	(range)	-20 +60 °C	
e loss	Flow rate (l/min)	150	
sel oil	Pressure loss (bar)	0.6	
y after calibration		+/- 1%	
ability	(typical)	+/- 0.3%	
eadout		4 digits height 18 mm	
r readout		8 digits height 6mm	
ion	(of the readout)	O.1 liters	
tions	(inlet/outlet)	1" G	
	(approx.)	2.2 Kg	
e dimensions		185x185x170 mm	
al features		Registration in US gallons	
		female threaded inlet/outlet 1"NPT	

## **OPERATING CONDITIONS**

7.1 ENVIRONMENTAL CONDITIONS min. +14 °F / max +140 °F

min. -20 °C / max +60 °C

min. +14 °F / max +140 °F min. -20 °C / max +60 °C max. 90%

The temperature limits shown apply to the device components and must be respected to avoid possible damage or malfunction. 7.2 FLUIDS PERMITTED

> THE METER CAN BE USED ONLY WITH THE FOLLOWING FLUIDS: DIESEL; - B7; - B20 - KEROSENE: - PETROL; - PETROL ALCOHOL MIXED MAX 20% - AVGAS 100/100LL; - JET A / A1;

## INSTALLATION

ASPEN 2/4.

**PRELIMINARY** - Verify that all components are present. Request any missing parts from the manufacturer. Check that the meter has not suffered any damage

> during transport or storage. K15O ATEX meters can be installed in any position, on rigid pipelines or flexible hoses, directly on pumps or tanks.

The flow meter has a prefixed direction of flow, indicated by the arrow, selectable from the options indicated below and is supplied in the selected configuration.

The reset knob can be installed either on the right side or on the left side of the meter. The meter body is equipped with 4 blind holes

(see diagram 2) which can be threaded (M5) for



from the meter (recommended filter 0.4 mm). VERSION "B" VERSION "A





It is advisable to always purchase the version with the correct direction of flow for the point of instal

BEFORE ANY OPERATION, ENSURE TO BE OU OF POTENTIALLY EXPLOSIVE AREAS

IT IS STRICTLY PROHIBITED TO PUT THE EQUIP-MENT INTO SERVICE BEFORE HAVING CON-NECTED THE INLET AND OUTLET LINE. IF VALVES ARE INSTALLED ON THE CIRCUIT,

MAKE SURE THEY ARE FITTED WITH PRES-SURE RELIEF SYSTEMS. CLEAN THE TANK AND MAKE SURE IT IS ADE-

QUATELY VENTILATED. MAKE SURE THE EQUIPMENT IS IN ELECTRI CAL CONTINUITY WITH THE REST OF THE SYSTEM AND THAT THE SYSTEM IS ALWAYS EARTHED

NEVER EXPOSE THE EQUIPMENT TO DIRECT SUNLIGHT. ENSURE ADEQUATE PROTECTION

MAKE SURE THE EQUIPMENT IS INSTALLED WITH ADEQUATE PROTECTION AGAINST AC-CIDENTAL IMPACT

## ENGLISH (Translated from Italian)

## CALIBRATION

9

FOREWORD

HOW TO CALI- 1

2

BRATE

K150 ATEX Meters are pre-calibrated in factory to be used with PETROL. As specific operating conditions (suchas real flow rate, nature andtemperature of the measured fluid) may affect the meter accuracy, a re-calibration should be carried out after the installation has been completed.

A new calibration is necessary eachtime the meter is disassembled formaintenance operations or when it is used to measure fluids that differ from petrol.

Unscrew the plug (see diagram 1, pos. "9") Purge the system (pump, pipelines, meter) of air by dispensing until the flow stream is full and

- Stop the flow by shutting off the nozzle, but let the pump running
- Reset the batch register by means of the reset

knob (see diagram 1, pos. "2"). Dispense at the flow rate which the best accuracy is required at, by using a calibration container having a capacity not lower than 20 litres Do not reduce the flow in order to reach the grad-

### ated zone of the calibration container The right method is to start and stop the full flow repeatedly until the required filling is obtained.

- Compare the indication of the calibration container (real value) with the one of the meter (in-
- dicated value). - If the indicated value is higher than the real value, loosen the screw (see diagram 1, pos. "8");
- If the indicated value is lower than the real value, tighten the screw (see diagram 1, pos. "8");
- Repeat the operations 4 to 6 until accuracy is satisfactory Tighten the plug again (see diagram 1, pos."9").
- The O ring which the calibration screw is provided with, has the function to avoid accidental loosening of the adjustment screw but does not have any sealing function.
- Therefore it is always necessary to properly fix the plug with the sealing gasket (pos. "9").

## EVERY DAY USE

WARNING

ARNING

GRAVITY USE

10

THE WORKING OPERATIONS MUST ALWAYS BE GUARDED BY THE OPERATOR. should any sealant be used on the suction and delivery circuit of the pump, make sure that the products are not released inside the meter. Foreign bodies in the suction and delivery circuit of the pump could cause malfunctioning and breakge of the meter components. Vhile dispensing, do not inhale the pumped prod

F ANY TREATED FLUID LEAKS OUT DURING



After installation and calibration K150 ATEX is ready to work. Turn the Reset knob (see diagram 1, pos. "2") (clockwise if it is mounted on the left of the meter and anticlockwise if it is mounted on the right) until the batch register is completely reset. The totaliser cannot be reset in any way.

Make sure that during use pressure does not exceed the value indicated in section "Technical

The K15O ATEX meter can also be used in fuel units which are not equipped with pumps and where the flow is generated by the difference in fluid level between the tank and the nozzle outlet. As a reference, a system composed of a tank off the ground, with the meter installed right at the bottom of the tank,a 3-m long 1" flexible pipe and a manual nozzle type Self 2000, guarantees a flow rate of approximately 40 litres/min, if the difference in level is higher than 2 metres.

Longer pipes or nozzles producing higher pressure losses reduce the flow in respect to the existing difference in level.

Use by gravity is not recommended with differences in level lower than 1.5 metres, as the consequent reduced flowrate causes the meter to work outside its guaranteed accuracy range.

On field calibration is always advisable in case of gravity installations.

ENGLISH (Translated from Italian)

## MAINTENANCE For safety reasons, to guarantee the protection



Safety warn-

Personne

uthorised

procedures

WARNING

Disposal of

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Comunity

to perform

K15O ATEX meter is properly installed and used. An incorrect filtering on the meter inlet may block or wear out the measuring chamber, thus affecting the meter accuracy.

OPEN THE CASING OF THE FLOW METER.

During maintenance procedures, using personal protection equipment (PPE) is mandatory. Always consider the following recommendations to use the

device correctly. Maintenance procedures must be performed exclusively by qualified personnel. Any tampering may lead to a re-

duction in performance and a danger for people and/or maintenance things, besides voiding the warranty and the ATEX Certificatio

BEFORE ANY MAINTENANCE OPERATION, EN-SURE TO BE OUT OF POTENTIALLY EXPLOSIVE AREAS. Piusi guarantees the seal of the flow meter a

assembled in the factory. TO MAINTAIN EQUIPMENT SAFETY, IT IS NOT POSSIBLE TO DISASSEMBLE THE COMPO-NENTS INVOLVED IN THE PASSAGE OF THE ME-TERED FLUID.

For safety purposes, you must use only genuir spare parts.

ONCE A Check that the labels and plates found on the dispensing

MONTH system do not deteriorate or become detached over time. ONCE A WEEK - Check that the pipe connections are not loose to prevent any leaks

#### PROBLEMS, CAUSES AND SOLUTIONS 12

For any problems it is advisable to contact the nearest authorized service centre.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
UNSATISFACTORY	Wrong calibration	Repeat calibration fol-
ACCURACY		lowing the instructions in
		section "Calibration".
	Air in the fluid	Locate and eliminate leaks
		in inlet lines.
	Damaged meter	Replace the meter
	¥	

#### DEMOLITION AND DISPOSAL 13

In case the system should be demolished, its parts must be given to companies specialised in industrial waste disposal and recycling; in particular: Disposal of Pack- Packaging consists of biodegradable cardboard that can be given to firms charged with cellulose recovery. Metal parts The metal components, both painted and in stainless steel, are usually recycled by companies that are spedisposal

cialised in the metal-scrapping industry. These have to be disposed by companies that are spe cialised in the disposal of electronic components, in ac

electronic compo- cordance with the instructions of 2012/19/UE (see text of Directive below). Environ-European Directive 2012/19/UE requires that all equip-

ment marked with this symbol on the product and/or packaging not be disposed of together with non-differentiated urban waste. The symbol indicates that this product should be disposed of separately from regular customers in the household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment

via designated collection facilities appointed by the government or local authorities. Disposing of RAEE equipment as household wastes is strictly forbidden. Such wastes must be disposed of separately.

Any hazardous substances in the electrical and electronic appliances and/or the misuse of such appliances can have potentially serious consequences for the environment and human health. In case of the unlawful disposal of said wastes, fines will

be applicable as defined by the laws in force. Disposal of Other The disposal of other parts such as pipes, rubber seals plastic components and cables should be entrusted to companies specialized in the disposal of industrial wastes.



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BULLETIN MO555A ITEN\_OO



PIUS Fluid Handling









