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1 CONFORMITY

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

The manufacturer: Piusi S.p.A.
Via Pacinotti, 16/A - z.i.Rangovino
46029 Suzzara (MN) - Italy
Declares under its own and sole responsibility that the machine:
Type: Flow meter
Model: K150 ATEX
Year of construction: see the year of production indicated on the EC data plate affixed to the product.

Place: Suzzara (MN)
Date 01/08/2019
Otto Varini
Legal representative

1.2 MARKING

Table with 2 columns: Marking and Description. Includes EX, II, 2, G, Ex, h, IIB, T6, Gb markings and their corresponding descriptions.

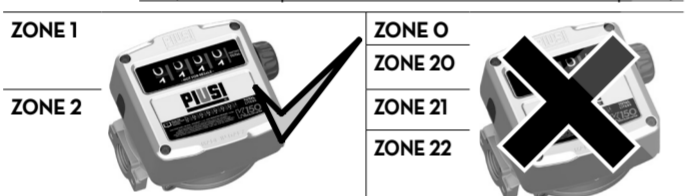
2 MACHINE DESCRIPTION

K150 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").

WARNING 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 installation or use of the meter may cause damage to objects and people.

2.1 DEFINITION OF CLASSIFIED ZONES

FOREWORD ZONE O
ZONE 1
ZONE 2
ZONE 20
ZONE 21
ZONE 22



2.2 INTENDED USE

Table with 2 columns: Intended Use and Description. Includes PERMITTED USE, PROHIBITED USE, and PLANT OPERATION RESTRICTIONS.

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 CAREFULLY PACKED before dispatch. Check the packing when receiving the material and store in a dry place.

3 GENERAL WARNINGS

Important precautions
Symbols used in the manual

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury

NOTICE is used to address practices not related to personal injury

Manual preservation
This manual should be complete and legible throughout. It should remain available to end users and specialist installation and maintenance technicians for consultation at any time.

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BEFORE PROCEEDING WITH THE REFUELLING OF THE AIRCRAFT, ENSURE THAT THE SYSTEM INTENDED FOR SUCH ACTION COMPLIES WITH THE REGULATIONS IN FORCE IN THE COUNTRY OF USE.

USE THE METER ONLY WITH FLUIDS PERMITTED. DO NOT USE WITH FLUIDS NOT PERMITTED TO AVOID DAMAGING THE INSTRUMENT. THE GUARANTEE LAPSES IN CASE OF MISUSE OF THE FLUID.

DO NOT USE THE METER WITH LIQUID FOOD PRODUCTS AND/OR WATER-BASED FLUIDS. Before connection, make sure that the piping and the suction tank are free of dirt and solid residue that could damage the device and its accessories. NEVER COLLECT THE FLUID FROM THE BOTTOM OF THE TANK SINCE IT MAY CONTAIN IMPURITIES

ENVIRONMENTAL TEMPERATURE min. +14 °F / max +140 °F min. -20 °C / max +60 °C

FLUID TEMPERATURE 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.

THE METER CAN BE USED ONLY WITH THE FOLLOWING FLUIDS: - DIESEL; - B7; - B20 - KEROSENE; - PETROL; - PETROL ALCOHOL MIXED MAX 20% (E20) - AVGAS 100/100LL; - JET A / A1; - ASPEN 2 / 4.

IT IS ESSENTIAL TO GET TO KNOW AND UNDERSTAND THE INFORMATION CONTAINED IN THIS MANUAL. IT IS ESSENTIAL TO GET TO KNOW AND OBSERVE THE SAFETY SPECIFICATIONS FOR FLAMMABLE LIQUIDS. BEFORE USING THE METER IT'S IMPORTANT TO TRAIN OPERATORS, INSTALLERS AND MAINTENANCE STAFF TO LET THEM WORK IN A PARTICULAR AREA NO. 1 AS MENTIONED BY DIRECTIVE 99/92/CE.

IN CASE OF CONTACT WITH THE PRODUCT AND FOR GOOD STANDARD OF BEHAVIOUR, wear protective equipment which is: - suited to the operations that need to be performed; - resistant to products used TO DO SO, PLEASE REFER TO THE RELEVANT TECHNICAL DATASHEETS OF THE FLUID USED.

Essential protective equipment characteristics
Personal protection equipment to be worn
Other devices
Instructional manual

Prolonged contact with the treated product may cause skin irritation; always wear protective gloves during dispensing.

TO PREVENT ELECTRIC SHOCK AND DETONATION OF SPARKS, ALL PUMPING SYSTEM MUST HAVE PROPER GROUNDING, INCLUDING TANK AND ANY ACCESSORIES.

FAILURE TO OBSERVE THE ABOVE MENTIONED RULES CAN CAUSE SERIOUS ACCIDENTS

6 TECHNICAL DATA

Table with 2 columns: Technical data and Mod. K150 ATEX. Includes Meter Mechanism, Flow rate, Operating pressure, Burst pressure, Storage temperature, Storage humidity, Operating temperature, Pressure loss, Accuracy after calibration, Repeatability, Batch readout, Totaliser readout, Resolution, Connections, Weight, Package dimensions, and Optional features.

7 OPERATING CONDITIONS

7.1 ENVIRONMENTAL CONDITIONS
7.2 FLUIDS PERMITTED

THE temperature limits shown apply to the device components and must be respected to avoid possible damage or malfunction.

THE METER CAN BE USED ONLY WITH THE FOLLOWING FLUIDS: - DIESEL; - B7; - B20 - KEROSENE; - PETROL; - PETROL ALCOHOL MIXED MAX 20% (E20) - AVGAS 100/100LL; - JET A / A1; - ASPEN 2 / 4.

8 INSTALLATION

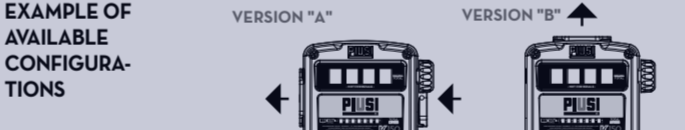
PRELIMINARY CHECKS
FOREWORD

K150 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 a possible fastening.

If solid particles enter the measuring chamber the correct working of the nutating disk may be affected. Always filter the fluid by installing a filter upline from the meter (recommended filter 0.4 mm).



GRAVITY USE
The K150 ATEX meter can also be used in filter 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.

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 flow rate causes the meter to work outside its guaranteed accuracy range.

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

IT IS STRICTLY PROHIBITED TO PUT THE EQUIPMENT INTO SERVICE BEFORE HAVING CONNECTED THE INLET AND OUTLET LINE.

IF VALVES ARE INSTALLED ON THE CIRCUIT, MAKE SURE THEY ARE FITTED WITH PRESSURE RELIEF SYSTEMS. CLEAN THE TANK AND MAKE SURE IT IS ADEQUATELY VENTILATED.

MAKE SURE THE EQUIPMENT IS IN ELECTRICAL 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 ACCIDENTAL IMPACT

9 CALIBRATION

FOREWORD
K150 ATEX Meters are pre-calibrated in factory to be used with PETROL.

As specific operating conditions (such as real flow rate, nature and temperature 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 each time the meter is disassembled for maintenance 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 steady.

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 graduated 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 (indicated 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").

10 EVERY DAY USE

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 these products are not released inside the meter.

Foreign bodies in the suction and delivery circuit of the pump could cause malfunctioning and breakage of the meter components.

While dispensing, do not inhale the pumped product.

IF ANY TREATED FLUID LEAKS OUT DURING DISPENSING, TAKE ALL STEPS NECESSARY TO ENSURE THE LEAKED FLUID IS CLEANED UP AND SAFE AS SPECIFIED ON THE PRODUCT TECHNICAL SHEET.

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 data".

The K150 ATEX meter can also be used in filter 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 flow rate causes the meter to work outside its guaranteed accuracy range.

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

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

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

IT IS STRICTLY PROHIBITED TO PUT THE EQUIPMENT INTO SERVICE BEFORE HAVING CONNECTED THE INLET AND OUTLET LINE.

IF VALVES ARE INSTALLED ON THE CIRCUIT, MAKE SURE THEY ARE FITTED WITH PRESSURE RELIEF SYSTEMS. CLEAN THE TANK AND MAKE SURE IT IS ADEQUATELY VENTILATED.

MAKE SURE THE EQUIPMENT IS IN ELECTRICAL 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 ACCIDENTAL IMPACT



11 MAINTENANCE

CAUTION For safety reasons, to guarantee the protection rating against the danger of explosions and to maintain ATEX certification validity, NEVER OPEN THE CASING OF THE FLOW METER.

No ordinary maintenance is required provided that the K150 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.

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 reduction in performance and a danger for people and/or things, besides voiding the warranty and the ATEX Certification.

BEFORE ANY MAINTENANCE OPERATION, ENSURE TO BE OUT OF POTENTIALLY EXPLOSIVE AREAS.

Piusi guarantees the seal of the flow meter as assembled in the factory. TO MAINTAIN EQUIPMENT SAFETY, IT IS NOT POSSIBLE TO DISASSEMBLE THE COMPONENTS INVOLVED IN THE PASSAGE OF THE METERED FLUID.

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

Measures to be taken
ONCE A MONTH
ONCE A WEEK

Check that the labels and plates found on the dispensing system do not deteriorate or become detached over time. Check that the pipe connections are not loose to prevent any leaks.

12 PROBLEMS, CAUSES AND SOLUTIONS

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

Table with 3 columns: Problem, Possible Cause, and Corrective Action. Includes UNSATISFACTORY ACCURACY, Air in the fluid, and Damaged meter.

13 DEMOLITION AND DISPOSAL

Foreword
In case the system should be demolished, its parts must be given to companies specialised in industrial waste disposal and recycling, in particular:

Packaging consists of biodegradable cardboard that can be given to firms charged with cellulose recovery. The metal components, both painted and in stainless steel, are usually recycled by companies that are specialised in the metal-scraping industry.

These have to be disposed by companies that are specialised in the disposal of electronic components, in accordance with the instructions of 2012/19/UE (see text of Directive below).

European Directive 2012/19/UE requires that all equipment marked with this symbol on the product and/or packaging must be disposed of together with non-differentiated urban waste. The symbol indicates that this product should be disposed of separately from regular 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.

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.

MADE IN ITALY
Installazione uso e manutenzione
IT
EN
Installation, use and maintenance

BULLETIN M0554 ITEM_00



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