

## EC type-examination certificate UK/0126/0059 Revision 2

issued by:

**The National Measurement Office  
Notified Body Number 0126**

In accordance with the requirements of the Measuring Instruments (Cold-water Meters) Regulations 2006 (SI 2006/1268) and the Measuring Instruments (Non-Prescribed Instruments) Regulations 2006 which implement, in the United Kingdom, Council Directive 2004/22/EC, this certificate of EC type-examination has been issued to:

**Arad Ltd.  
Dalia - Ramot Menashe  
POB19239  
Dalia  
Israel**

in respect of a cold-water meter designated Gladiator utilising a volumetric rotary-piston measuring element, and having a rated permanent flowrate Q3 of 1.6m<sup>3</sup>/h (R315).

The necessary data (principal characteristics, alterations, securing, functioning etc) for identification purposes and conditions (when applicable) are set out in the descriptive annex to this certificate.

This Revision replaces previous versions of the certificate.

**Issue Date:** 25 August 2011  
**Valid Until:** 27 October 2020  
**Reference No:** T1132/0026

  
**Signatory:** P R Dixon  
**for** Chief Executive



**BIS**  
**Department for Business  
Innovation & Skills**

# Descriptive Annex

## 1 INTRODUCTION

This pattern of a liquid measuring instrument is for measuring the volume of cold water which has passed through it. It is a concentric, semi-positive displacement cold-water meter having a  $Q_3$  (permanent flowrate) of  $1.6\text{m}^3/\text{h}$  and a  $Q_3/Q_1$  turndown ratio of 315 (R315). It is not designed to measure reverse flow. The meter is shown in Figure 1

## 2 FUNCTIONAL DESCRIPTION

It incorporates a semi-positive displacement rotary piston measuring assembly mounted in a plastic body that is fitted into a thermoplastic injection moulded body for connection to a manifold in any orientation. The rotary piston drives a magnet that couples to a non-resettable totalising display (register) that indicates up to  $99999.99995\text{ m}^3$ . The register is positioned on the top of the measurement chamber and secured between the plastic snap-shut register cover and meter body.

The connection to the manifold is arranged via a British Pipe Thread  $G1\frac{1}{2}"A$  male threaded co-axial inlet/outlet at the base of the meter body. A cross section diagram is shown in Figure 2.

## 3 TECHNICAL DATA

### 3.1 Flow designation

#### 3.1.1 Meter with $Q_3 = 1.6\text{ m}^3/\text{h}$

**Table 1 Related flowrates according to each  $Q_3/Q_1$  designation**

$Q_3/Q_1$ (R)	315	250	200
$Q_2/Q_1$	1.6	1.6	1.6
Q1 Minimum flowrate ( $\text{m}^3/\text{h}$ )	0.005	0.00640	0.00800
Q2 Transitional flowrate ( $\text{m}^3/\text{h}$ )	0.008	0.01024	0.01280
Q3 Permanent flowrate ( $\text{m}^3/\text{h}$ )	1.6	1.6	1.6
Q4 Overload flowrate ( $\text{m}^3/\text{h}$ )	2.0	2.0	2.0

### 3.2 Other designations

Temperature class:	T50 ( $0.1^\circ\text{C} - 50^\circ\text{C}$ )
Orientation requirements:	None
Revs/litre of measuring chamber	26.13
Maximum admissible pressure (MAP)	16 bar
Pressure Loss at $Q_3$	0.63 bar max
Climatic environment:	$-10^\circ\text{C}$ to $55^\circ\text{C}$
Mechanical environment:	M1
Electromagnetic environment:	n/a
Location:	Open/closed, condensing/non-condensing
Reverse Flow:	The meter is not designed to measure reverse flow.

## **4 PERIPHERAL DEVICES AND INTERFACES**

### **4.1 Mechanical register with electronic 3G unit**

The register is similar to the standard mechanical register but contains an electronic 3G communication device for remote reading of the measurement. The transmission of measurement data using this device is not covered by this approval. This device has two variations; one powered by A batteries and the second powered by AA batteries.

## **5 APPROVAL CONDITIONS**

The certificate is issued subject to the following conditions:

### **5.1 Legends and inscriptions**

The instrument bears the following legends:

- 'CE' marking
- Supplementary metrology marking
- Notified body identification number
- Permanent flow rate  $Q_3$
- Flowrate range  $Q_3/Q_1$  (R)
- Serial number
- Manufacturers mark or name
- Certificate number

## **6 LOCATION OF SEALS AND VERIFICATION MARKS**

### **6.1 Securing method**

The measuring assembly is secured by locating the snap fit plastic cover to the meter body. The register is positioned between the plastic cover and the meter body. The plastic cover and meter body have integrally moulded clips and once fitted, unauthorised dismantling is not possible without leaving evidence of tampering.

### **6.2 Location of verification markings**

The verification markings identified in 5.1 are permanently etched on the top surface of the shroud.

## **7 AUTHORISED ALTERNATIVES**

### **7.1 Electronic Register – CZ-4000**

Having an electronic register model CZ-4000 as described in Evaluation Certificate GB-1414

### **7.2 In-line Meter**

As described in the certificate, but configured for in-line connection into the water pipe. The meter is sealed as shown in Figure 4.

## 8 ILLUSTRATIONS

- Figure 1 Gladiator Meter  
Figure 2 Sectional view of Gladiator Meter  
Figure 3 Gladiator Meter dial face and markings  
Figure 4 Gladiator In-line meter

## 9 CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
UK/0126/0059	22 <sup>nd</sup> October 2009	Type examination certificate first issued.
UK/0126/0059 Revision 1	2 <sup>nd</sup> February 2009	Figure 3 Updated to show positioning of Certificate Number
UK/0126/0059 Revision 2	25 August 2011	Section 4.1 edited to allow for 2 types of 3G register. Section 7 Authorised Alternatives added, subsequent sections renumbered Section 7.1 added, Electronic register Section 7.2 added, In line meter



**Figure 1 Gladiator Meter**

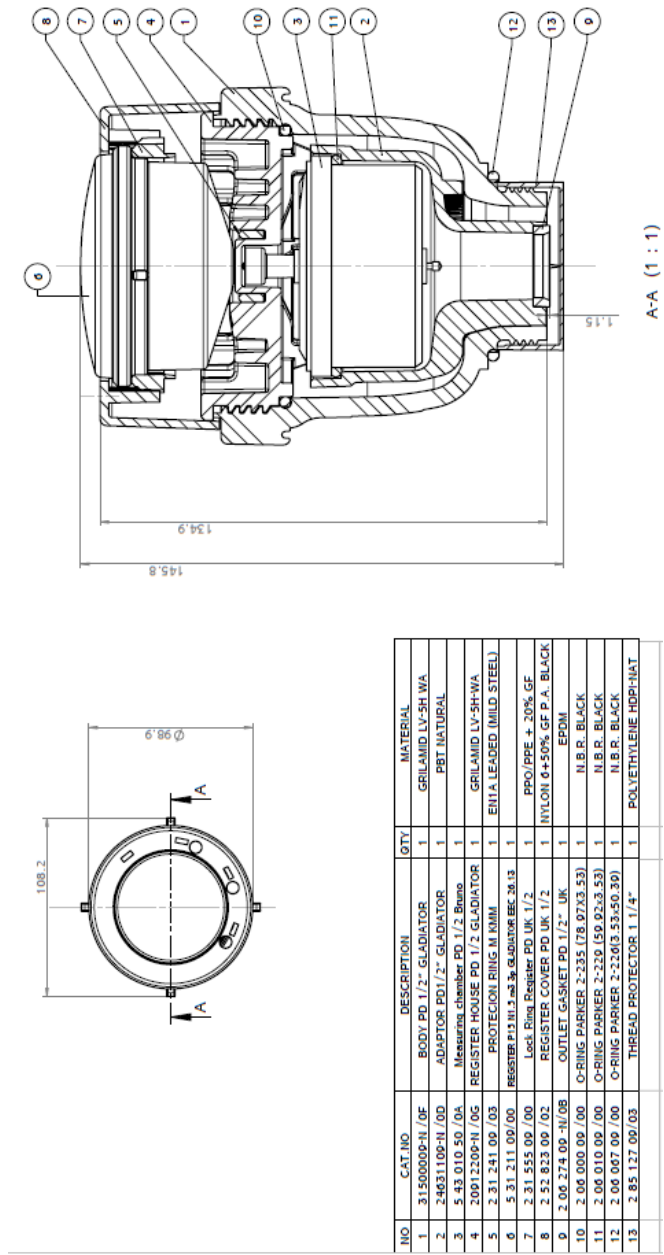


Figure 2 Sectional view of Gladiator Meter

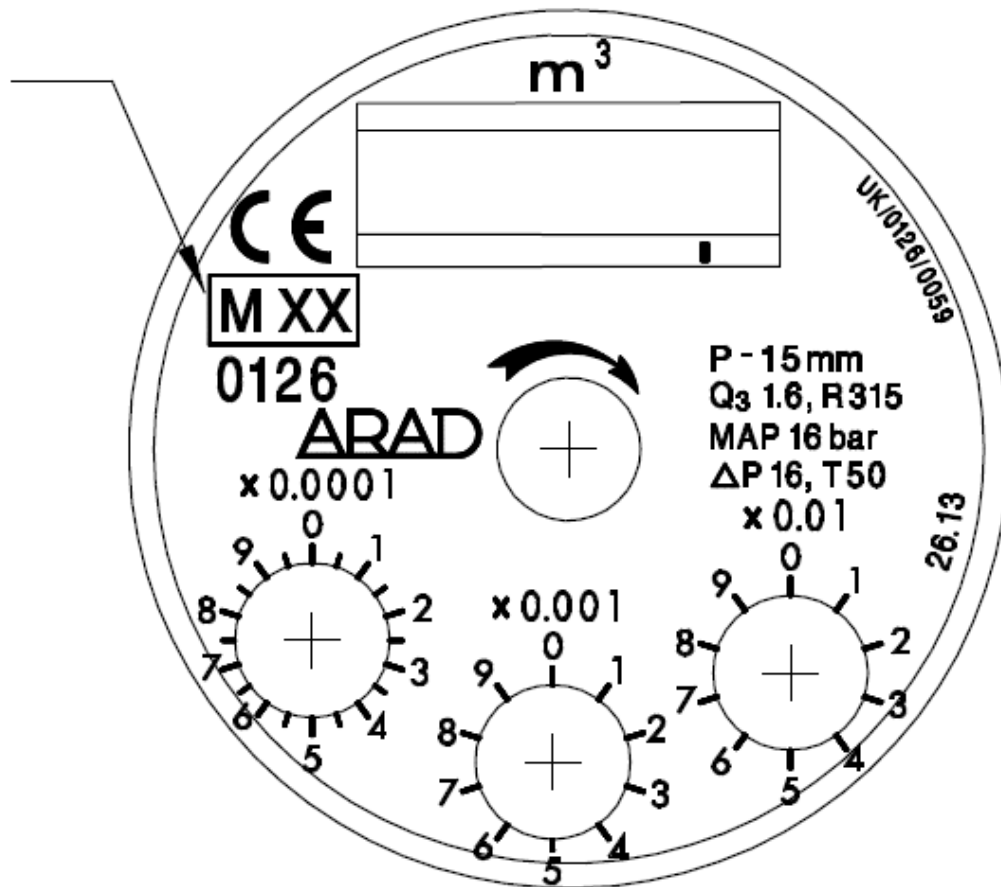


Figure 3 Gladiator Meter dial face and markings

