

# ALTAIR V4 HOT WATER

User guide



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# 1 PRODUCT DESCRIPTION

## 1.1 GENERAL PRINCIPLE

ALTAIR V4 HOT WATER is a volumetric hot water meter approved in accordance with EN 14154, ISO 4064 and OIML R49 standards. It has a MID certification and complies with the sanitary standards applying to material in contact with water. It is a precision measuring device approved for invoicing and must be handled with care.

ALTAIR V4 HOT WATER is made of a brass body (1) containing the hydraulic parts, a register (2) and a red ring (3) that seals the register onto the body. This ring rotates freely (one full rotation max.) making it readable from all angles. The arrows (4) indicate which way the water is flowing. The holes (5) enable on-site sealing of the meter.

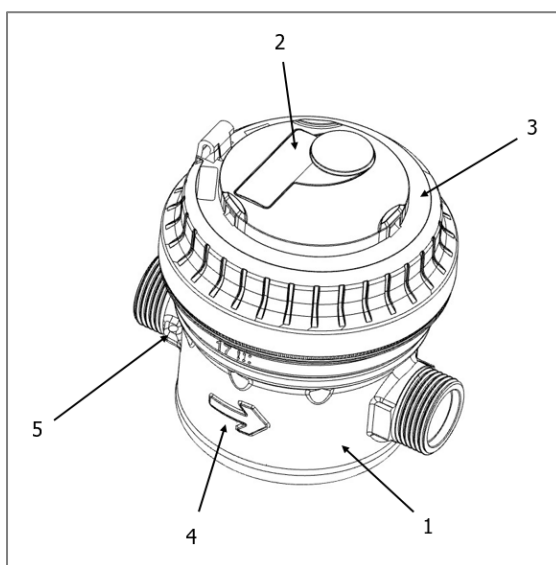


fig.1

## 1.2 METROLOGICAL FEATURES

### 1.2.1 CALIBRATION CURVE

The meter has been manufactured with care in order to ensure high level of precision and reduced standard deviation (see metrological curve -> chapter 5). It is MID approved up to R=400.

Nominal diameter	DN	mm	15	15
Length	L	mm	110	110
Nominal flow rate	$Q_3$	$m^3/h$	1.6	2.5
R standard*	$Q_3/Q_1$		100	160
Starting flow rate		l/h	1	1
Minimum flow rate	$Q_1$	l/h	16	15.62
Transition flow rate	$Q_2$	l/h	25.6	25
Maximum flow rate	$Q_4$	$m^3/h$	2	3.125
Head loss at $Q_3$		bar	0.22	0.54
Head loss at $Q_4$		bar	0.34	0.85
kvs ( $\Delta P = Q^2/Kvs^2$ )			3.38	3.38

\* Other values on request

### 1.2.2 PRESSURE LOSS

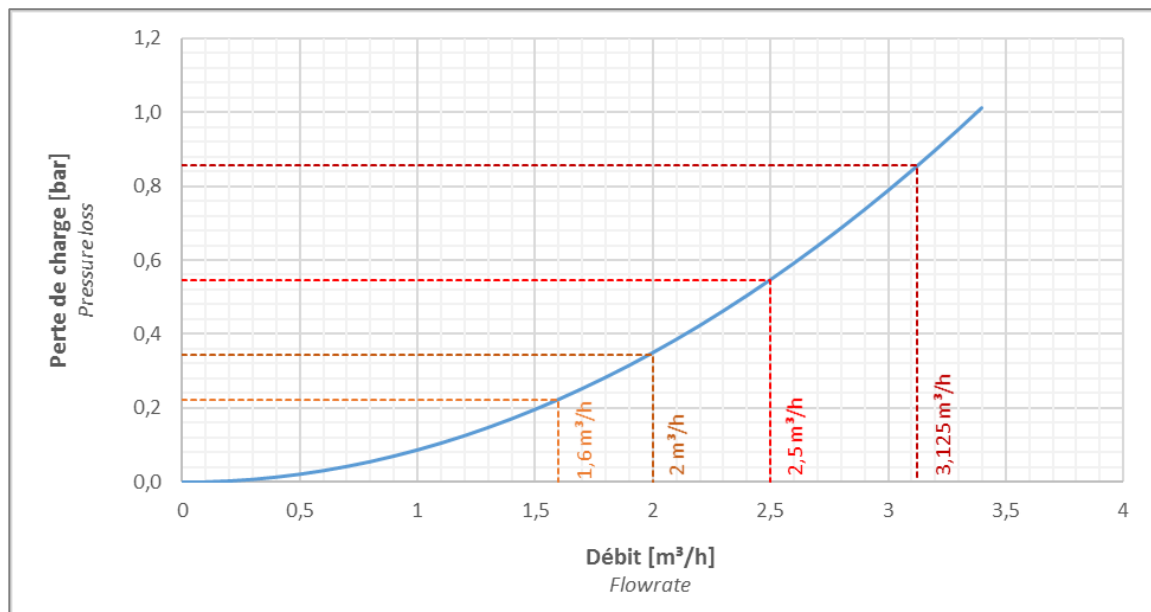


fig.2

### 1.3 TECHNICAL FEATURES

<b>Body</b>	Brass
<b>Ring</b>	Red → hot water
<b>Register</b>	Plastic in standard → withstands mist Waterproof → The register withstands prolonged immersion.
<b>Modularity</b>	Modular meter. As mentioned on the register, the meter is pre-equipped to be fitted (even on-site) with clip-on module of the IZAR range: <ul style="list-style-type: none"> <li>• IZAR RC i radio module</li> <li>• Pulse emitter IZAR PULSE i</li> <li>• M-Bus emitter IZAR MBUS COMPACT i</li> <li>• Electronic register with reset IZAR DOSING</li> <li>•</li> </ul>
<b>Temperatures</b>	Water temperature: + 30...+90°C (T30 / T90). Ambient operating temperature: +1 ... +55°C max. Storage temperature: -10 ... +55°C max.
<b>Frost protection</b>	Protect the meter from frost by completely draining all the water it contains. Shut the valve upstream the meter and purge the circuit. <b>Caution:</b> When the meter is not drained, the pressure plate may break.

<b>Filtration</b>	<p>Clog-proof plastic filter located under the measuring chamber.</p> <p>The filter is tear resistant and can withstand the pressure of the network (max. 16 bars).</p> <p><b>Caution:</b> to preserve the metrological qualities of the meter, the maximum sand concentration must not exceed 0.1 gram/litre.</p> <p>A stainless steel filter (mesh) available in option can also be installed in the inlet pipe of the meter.</p>
<b>Clogging</b>	Patented fluid collector enabling solid particles to go through the measuring chamber without damaging its walls.
<b>Static pressure</b>	<p>Nominal pressure: 16 bars max.</p> <p>Test pressure: 32 bars (in accordance with EN14154 / ISO4064 / OIML R49).</p> <p>Breaking pressure: greater than 60 bars.</p>
<b>Resistance to pressure changes</b>	Withstands up to 110,000 cycles of 0.6 second from 3 to 32 bars with a water at 90°C.
<b>Sudden influx of water</b>	<b>Caution:</b> While working on the pipes, carefully bleed the pipes in order to prevent the formation of air bubbles, which could damage the meter when the water is turned back on.
<b>Endurance</b>	<p>Compliant with the MID regulatory tests.</p> <p>Resistance: 100,000 cycles at Q<sub>3</sub> / 100 hours at Q<sub>4</sub>.</p>
<b>Overflow</b>	Resistance to a flowrate of 2 x Q <sub>4</sub> for 2 hours without damage to the parts.
<b>Fraud resistance</b>	<p>Fraud attempt with a clamp:</p> <p>→ The orange pin indicator of the plastic register will disappear or the glass/metal register will break.</p> <p>Fraud attempt by opening the sealed ring:</p> <p>→ Visible deterioration of the sealing ring.</p>

## 1.4 DIMENSIONS

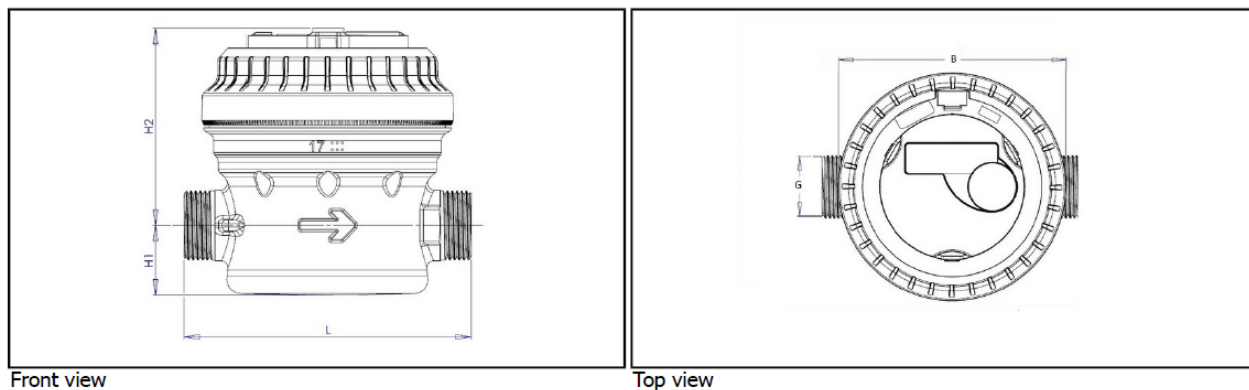


fig.3

Nominal diameter	DN	mm	15	15
Length	L	mm	110	110
Nominal flow rate	Q <sub>3</sub>	m <sup>3</sup> /h	1.6	2.5
Width	B	mm	96.2	96.2
Height	H2	mm	75.4	75.4
Height	H1	mm	26.7	26.7
Thread connections	G	inch	3/4"	3/4"
Body			brass	brass
Weight		kg	0.82	0.82

## 2 INSTALLATION

### 2.1 INSTALLATION PRECAUTIONS

To be carried out in accordance with EN ISO 4064-5:2017 and EN 14154-2:2005 + A2:2011.

#### 2.1.1 CLEANING THE PIPE

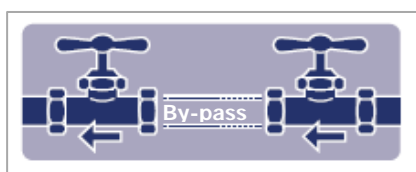


fig.4

ALTAIR V4 HOT WATER meter must be installed on a clean pipe free from solid particles on the inside.  
If in doubt, replace the meter by a by-pass sleeve and clean out the pipe with high-flowrate water flushing.

#### 2.1.2 PIPE ALIGNMENT

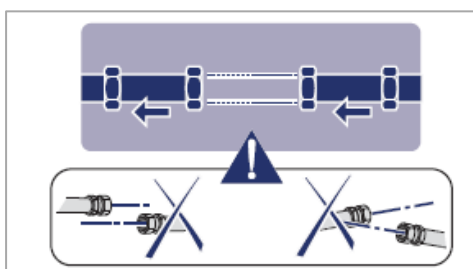


fig.5

The pipes must be perfectly aligned in order to minimise mechanical stresses on the body of the meter.

Use a drilled nut (or a plastic seal) to seal the meter on the inlet side.

## 2.2 INSTALLATION PRINCIPLE

### 2.2.1 INSTALLATION POSITION

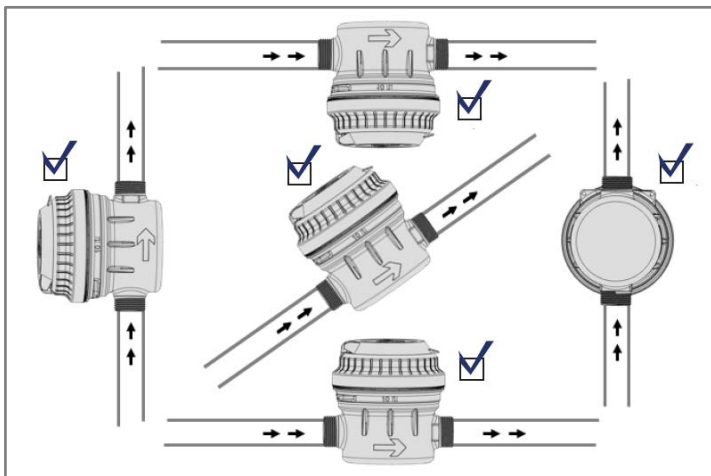


fig.6

ALTAIR V4 HOT WATER retains its metrological properties regardless of its installation position - horizontal or vertical.

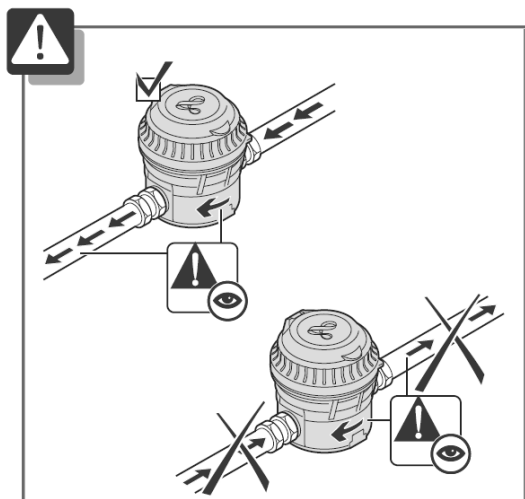


fig.7

**Caution:** Check that the direction of the water flow matches the direction of the arrows located on the meter's body.

### 2.2.2 PLACE OF INSTALLATION

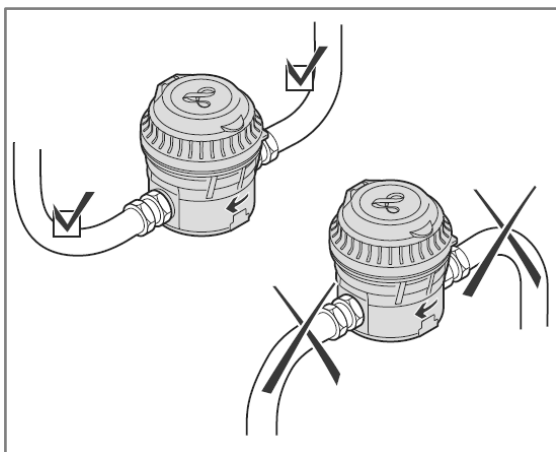


fig.8

The metered water must be free from gas.

Install ALTAIR V4 HOT WATER at a low point of a pipe to prevent the formation of air pockets.

No straight length required either before or after the meter (U0 / D0).

### 2.2.3 INSTALLATION RECOMMENDATIONS

The body of the meter incorporates 2 nozzles, each with a standard connection thread. The gaskets that form the seal between the meter and the connectors are not included.



**Caution:** do not use any Teflon tape or threadlocker.

In order to make it easier for the fitter to tighten the fitting nuts, flat retaining areas have been provided on the outlet nozzles. The use of a second spanner will keep the meter from rotating when it is being tightened, thereby preventing any damage to the gasket (max. torque: 30 Nm).

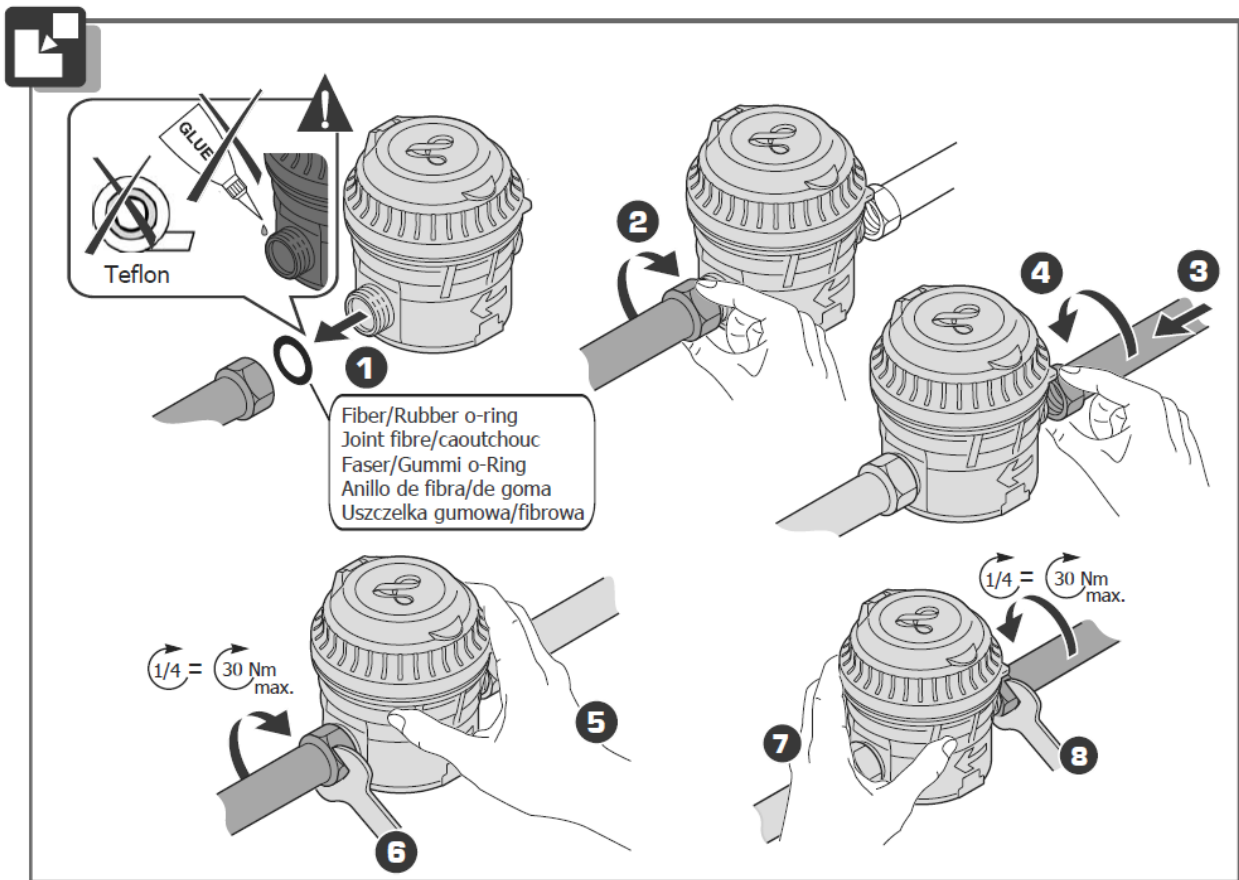


fig.9

### 2.2.4 LIABILITY



If the installation is not carried out in accordance with good workmanship practices, and if the above-mentioned procedures are not followed, the warranty shall be null and void.



**If there are additives or additional substances in the water or any process of the installation, the installer or the operator has to make sure that the characteristics of the drinking water and the materials of the installation - meter included - are not altered.**



### 3 PRECAUTIONS OF USE

<b>Storage</b>	Do not store the meters for more than 3 months. Do not stack the pallets. Do not place loads heavier than 80 kg on the meter.
<b>Cleaning</b>	Use only soapy or slightly acidified water to clean the meter. The use of solvents or abrasive cleaners is prohibited.
<b>Stepping</b>	ALTAIR V4 HOT WATER should not be used as a step. However with its cover closed, it can withstand the load of a person weighing less than 80 kg.
<b>Drop test</b>	Designed to withstand a 1 m fall onto a hard floor. In case of a fall, or if the meter shows traces of impact, we recommend testing it prior to installation.

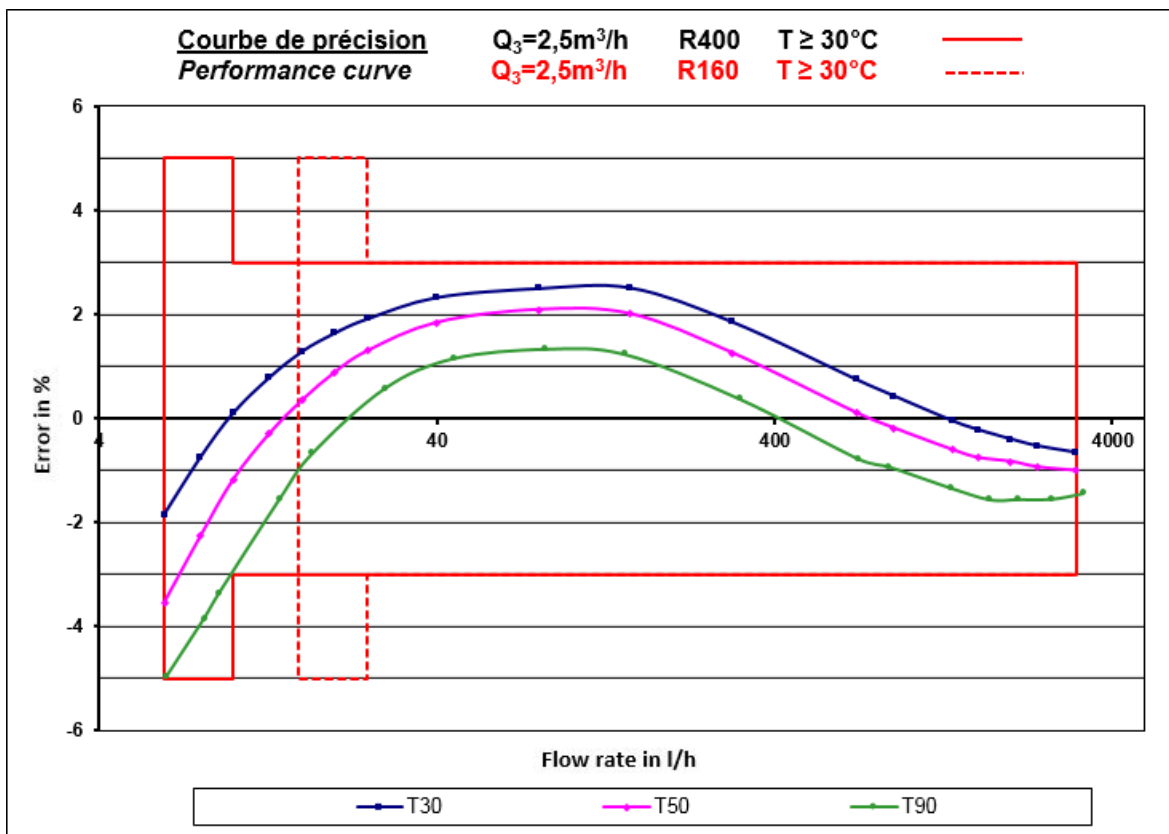
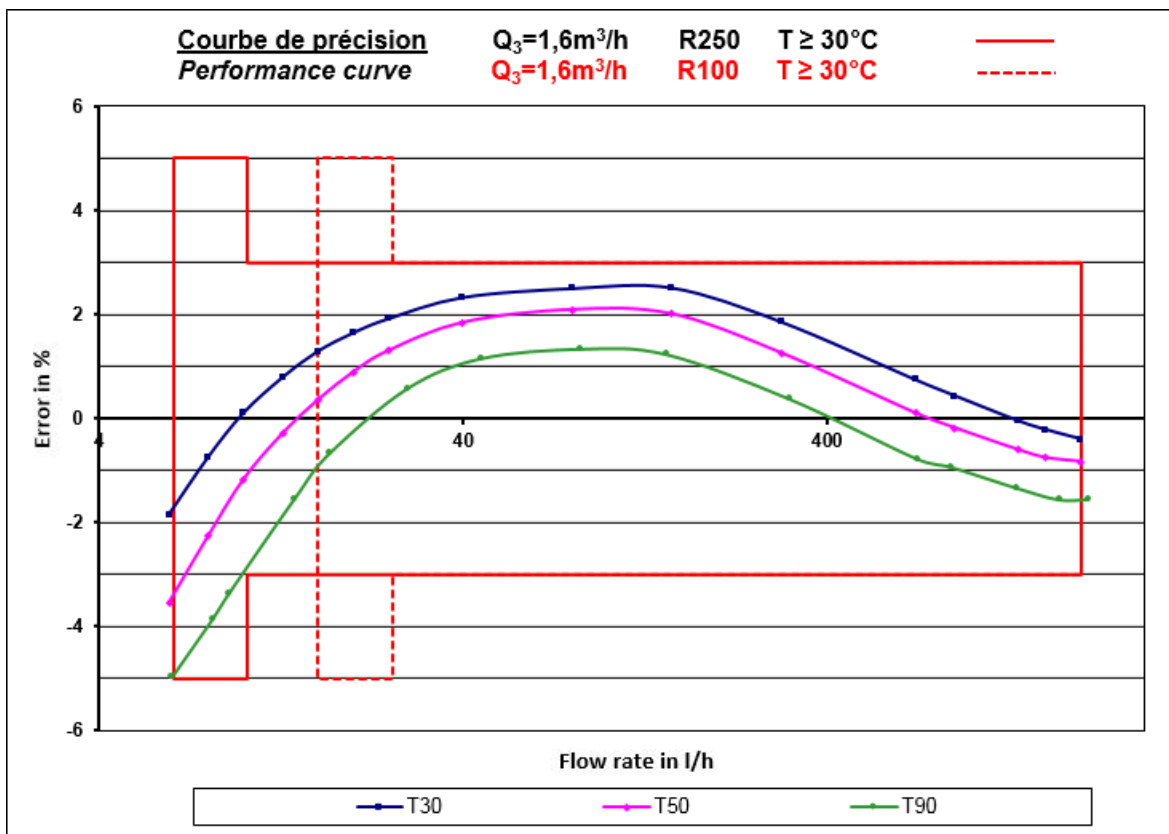
### 4 REGULATIONS

ALTAIR V4 HOT WATER meter complies with the European directives as indicated on the EU declaration of conformity delivered with the product and available at:

<https://www.diehl.com/metering/en/diehl-metering/support-center/downloads>

It also meets the food-grade requirements relating to materials in contact with water.

### 5 METROLOGICAL CURVES



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