

DIEHL
Metering

ALTAIR V4 DN25/32/40

User guide



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1 PRODUCT DESCRIPTION

1.1 GENERAL PRINCIPLE

ALTAIR V4 is a volumetric water meter designed in accordance with EN 14154, ISO 4064 and OIML R49 standards. It has a MID certification and complies with the sanitary standards applicable to materials in contact with water. It is a measuring device approved for invoicing that must be handled with care.

ALTAIR V4 is made of a brass body (1) containing the hydraulic parts, a register (2) and a grey ring (3) that seals the register to the body. This ring rotates freely (limited to 1 revolution) ensuring optimal legibility of the data. The 2 arrows (4) indicate which way the water is flowing. The hole (5) enables on-site sealing of the meter.

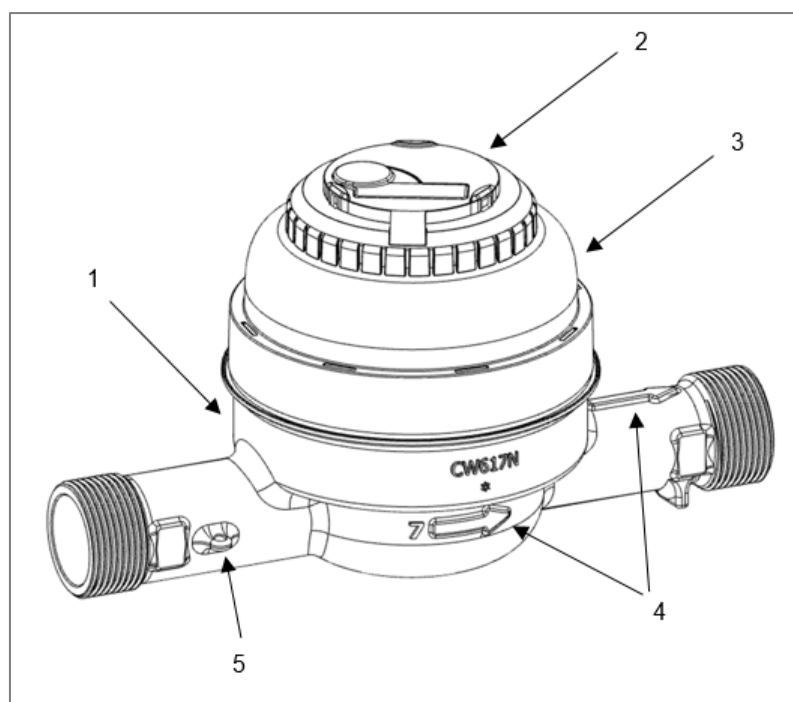


fig.1

1.2 METROLOGICAL FEATURES

1.2.1 CALIBRATION CURVE

ALTAIR V4 has been manufactured with care to ensure high precision and reduced standard deviation (see chapter 5: metrological curves). It is MID approved up to R=800 (Q₃=6.3 m³/h DN25/32), R=500 (Q₃=10 m³/h DN25/32) and up to R=1,000 (Q₃=16 m³/h DN40).

Nominal diameter	DN	mm	25	25	32	32	40
Length*	L	mm	260	260	260	260	300
Nominal flow rate	Q ₃	m ³ /h	6.3	10	6.3	10	16
R standard*	Q ₃ /Q ₁		160	160	160	160	160
Starting flow rate		l/h	1	2.9	1	2.9	4
Minimum flow rate*	Q ₁	l/h	39.375	62.5	39.375	62.5	100
Transition flow rate*	Q ₂	l/h	63	100	63	100	160
Maximum flow rate	Q ₄	m ³ /h	7.875	12.5	7.875	12.5	20
Head loss at Q ₃		bar	0.616	0.496	0.611	0.484	0.630
Head loss at Q ₄		bar	0.962	0.776	0.955	0.785	0.984
Kvs (deltaP=Q ² /Kvs ²)			8.0	14.2	8.0	14.2	20.1

* Other values on request.

1.2.2 PRESSURE LOSS

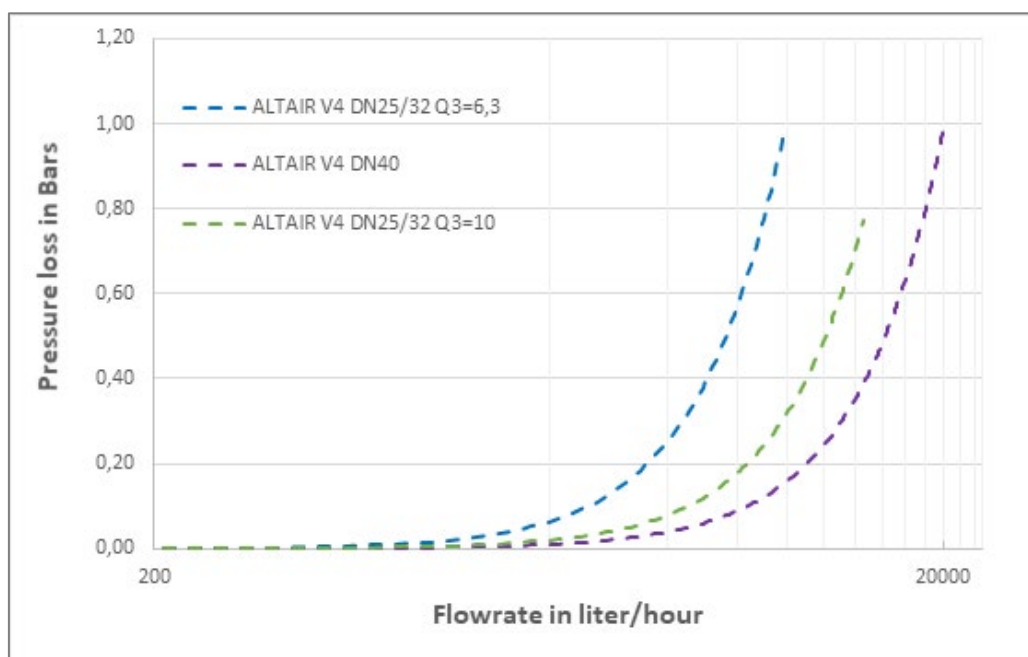


fig.2

1.3 TECHNICAL FEATURES

Features	Description
Body	Brass
Ring	Grey → cold water
Register	Glass-metal → good resistance to moisture in extreme environments (e.g. manhole flooded on a regular basis).
Modularity	Pre-equipped to be fitted (even on-site) with clip-on modules of the IZAR range: <ul style="list-style-type: none"> ▪ IZAR RC i - radio module ▪ IZAR PULSE i - pulse emitter ▪ IZAR MBUS COMPACT i - M-Bus emitter ▪ IZAR DOSING - electronic register with reset
Temperatures	Water temperature: +0.1 ... +50°C (T50) Ambient operating temperature: +1 ... +55°C max. Storage temperature: -10 ... +55°C max.
Filtration	Clog-proof plastic filter located under the measuring chamber. The filter is tear resistant and can withstand the pressure of the network (16 bars maximum). Caution: during normal operation, water going through the meter must not contain any suspended solid particles larger than 0.1 mm for a concentration of 0.1 gram/litre. A stainless steel gasket filter available in option can also be installed in the inlet pipe of the meter.
Clogging	Patented measuring hydraulic allowing solid particles to pass through without damaging it.
Static pressure	Nominal pressure: 16 bars max. Test pressure: 32 bars (in accordance with EN14154 / ISO4064 / OIML R49). Breaking pressure greater than 55 bars.
Resistance to pressure changes	Withstands at least 100,000 rapid rises in pressure from 3 to 32 bars in 0.3 seconds.
Sudden influx of water	Caution: while working on the pipes, carefully bleed the pipes in order to prevent the formation of air bubbles that could damage the meter when the meter is turned back on.
Endurance	Compliant with the MID regulatory tests. Resistance: 300 hours at Q ₄ .
Overflow	Resistance to a flowrate of 2 x Q ₄ (DN25/32) on a limited period without any damage to the parts.

Features	Description
Non-return valve	Possibility to add a non-return valve in the outlet nozzle.
Fraud resistance	<p>Fraud attempt with a clamp: → Tamperproof until the crush of the glass of the register.</p> <p>Fraud attempt by opening the sealed ring: → Presence of a collar limiting the fraud + visible deterioration of the sealing ring.</p>

1.4 DIMENSIONS

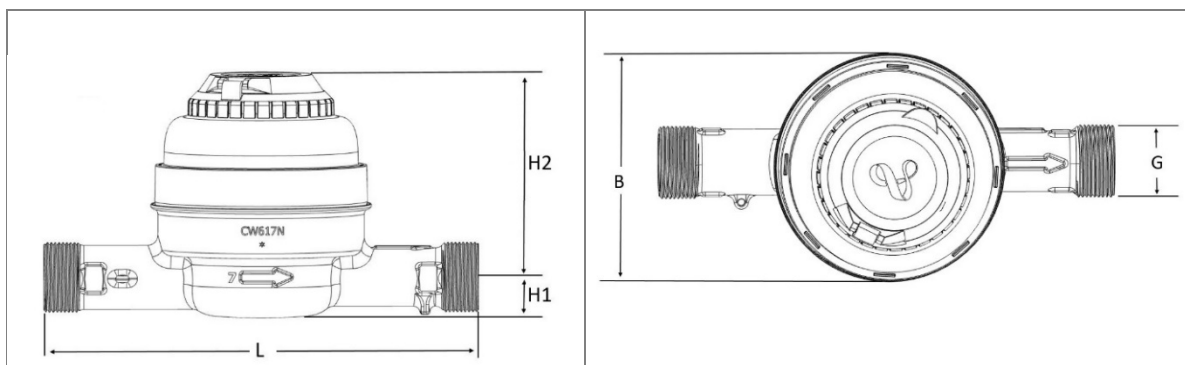


fig.3

Nominal diameter	DN	mm	25	25	32	32	40
Length*	L	mm	260	260	260	260	300
Width	B	mm	132	179	132	179	179
Height	H1	mm	24.3	25.3	24.3	25.3	30.5
Height	H2	mm	120.3	153.5	120.3	153.5	153.5
Thread connections	G	inch	1"¼	1"¼	1"½	1"½	2"
Body			Brass	Brass	Brass	Brass	Brass
Weight		kg	2.71	4.25	2.78	4.57	5.44

* Other lengths on request

2 INSTALLATION

2.1 INSTALLATION PRECAUTIONS

To be carried out in accordance with EN ISO 4064-5:2017 and EN14154-2:2005 +A2:2011.

2.1.1 CLEANING THE PIPES

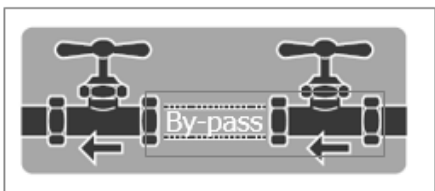


fig.4

ALTAIR V4 meter must be installed on a clean pipe, free from solid particles on the inside.

If in doubt, replace the meter by a bypass sleeve and clean out the pipe with high-flowrate water flushing.

2.1.2 PIPES ALIGNMENT

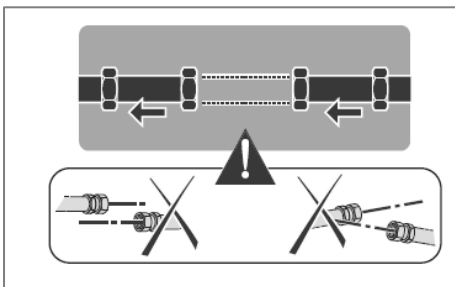


fig.5

The pipes must be perfectly aligned in order to minimize 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

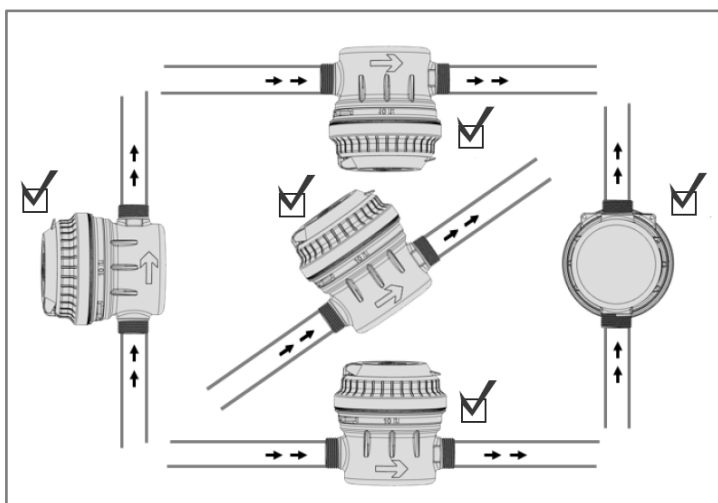


fig.6

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

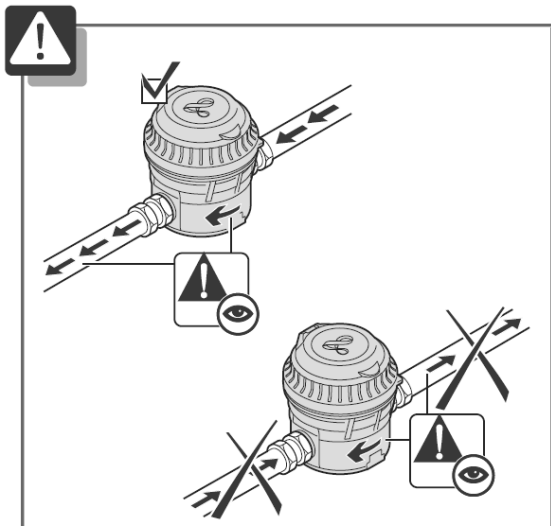


fig.7

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

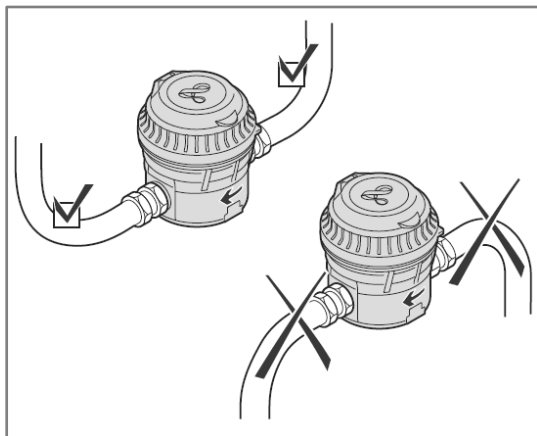


fig.8

The metered water must be free from gas.

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

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

2.2.3 INSTALLATION RECOMMENDATIONS

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

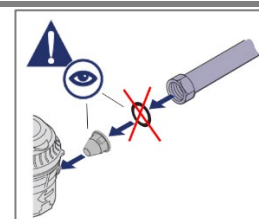


Caution: do not use any Teflon tape or threadlocker.



Caution: if a gasket filter is already installed in the inlet pipe, do not install an additional gasket.

Note: a gasket (fibre, rubber or filter gasket) is for single use only.



To facilitate the tightening of the fitting nuts, flat retaining areas have been provided on the outlet and inlet 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).

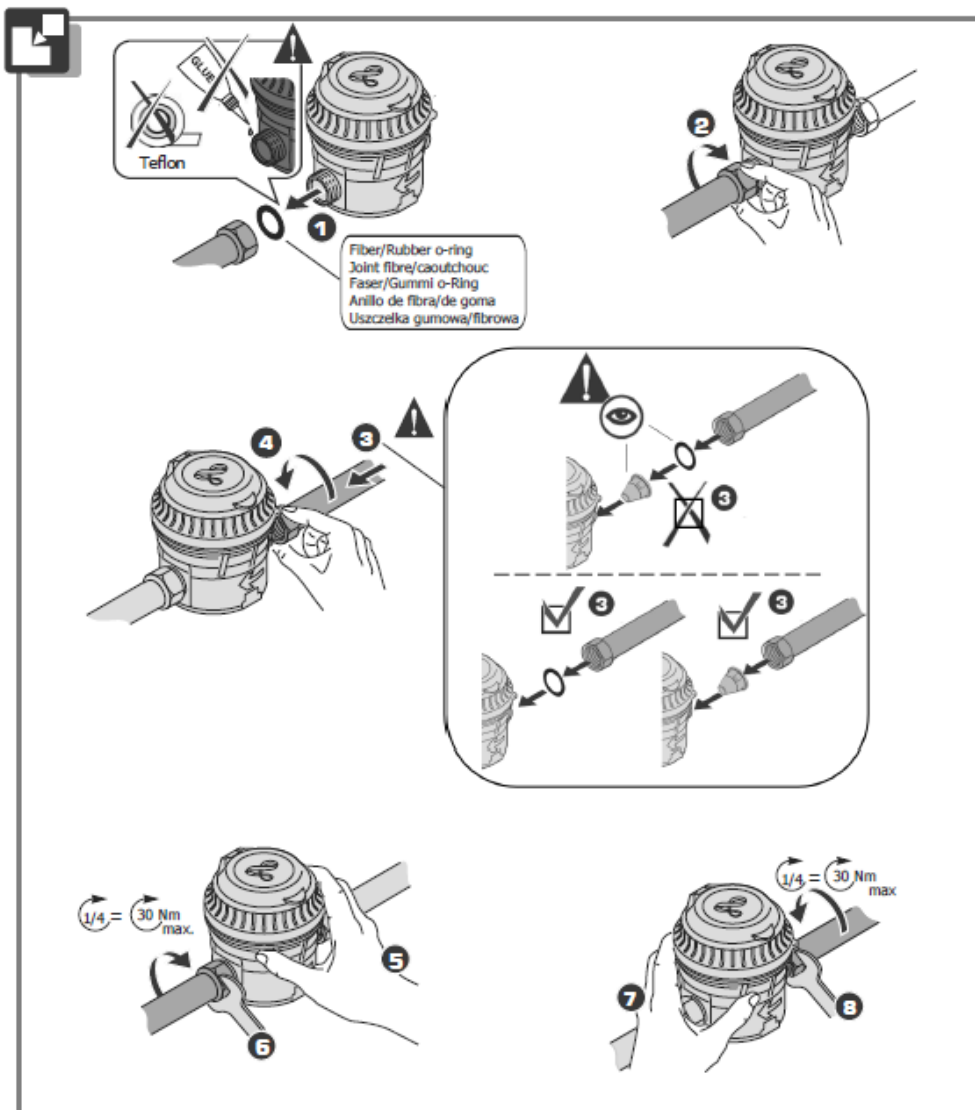


fig.9

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.



In case of any treatment or additional substances in the water (additives), 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

Storage	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.
Frost protection	Protect the meter from frost by completely draining all the water it contains. Shut the upstream valve of the meter and open the downstream valve to purge the circuit – remove the non-return valve if needed. Caution: The pressure plate may break if the meter is not drained.
Cleaning	Use only soapy water or slightly acidified water to clean the meter. The use of solvents or abrasive cleaners is prohibited.
Stepping	ALTAIR V4 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.
Drop test	Designed to withstand a fall of 1 m onto a hard floor. In the event of a fall, or if the meter shows traces of impact, we recommend testing it prior to installation.

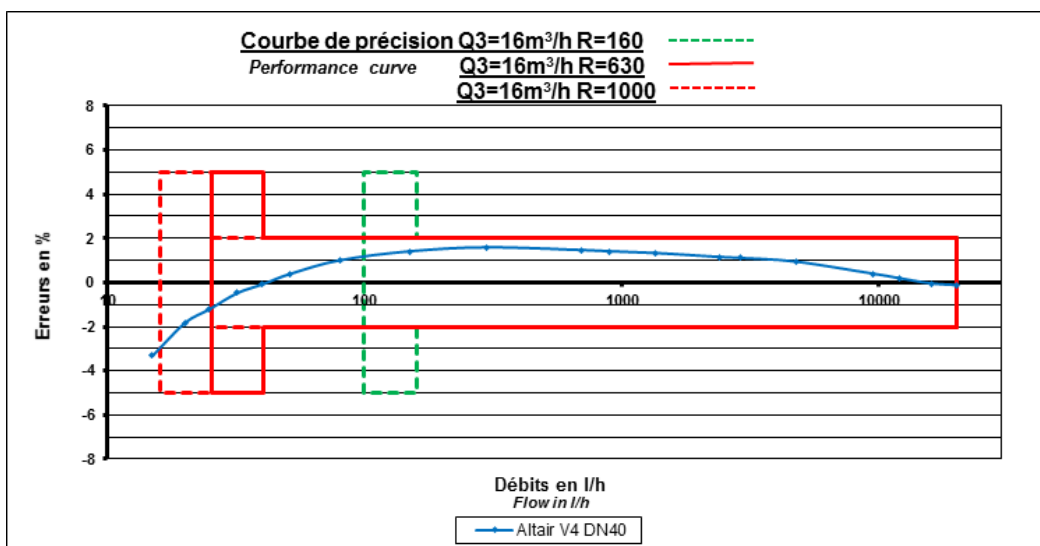
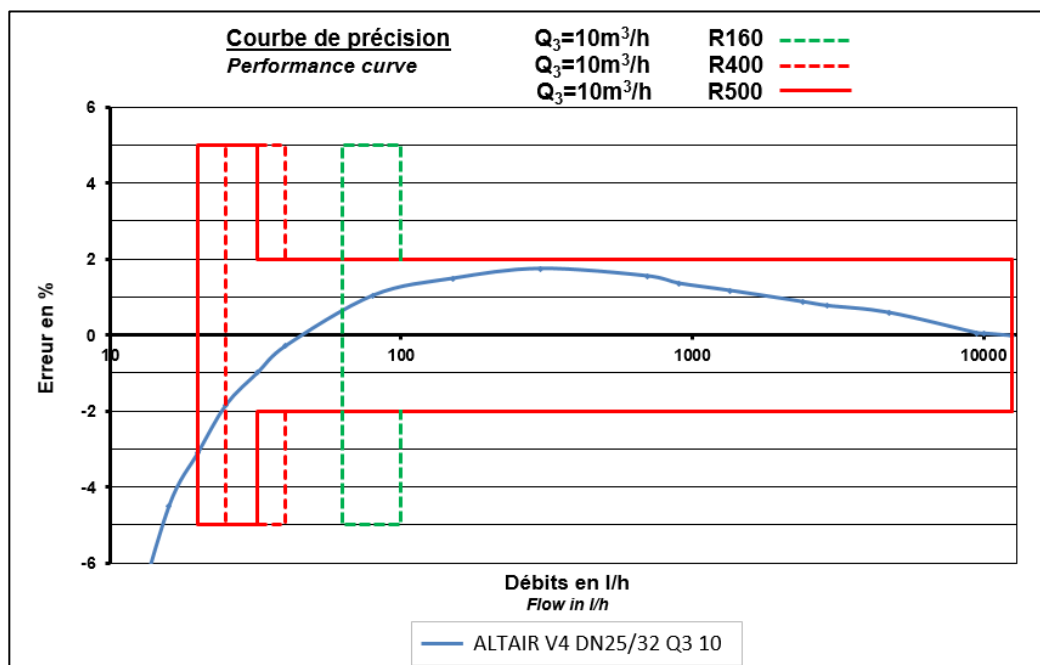
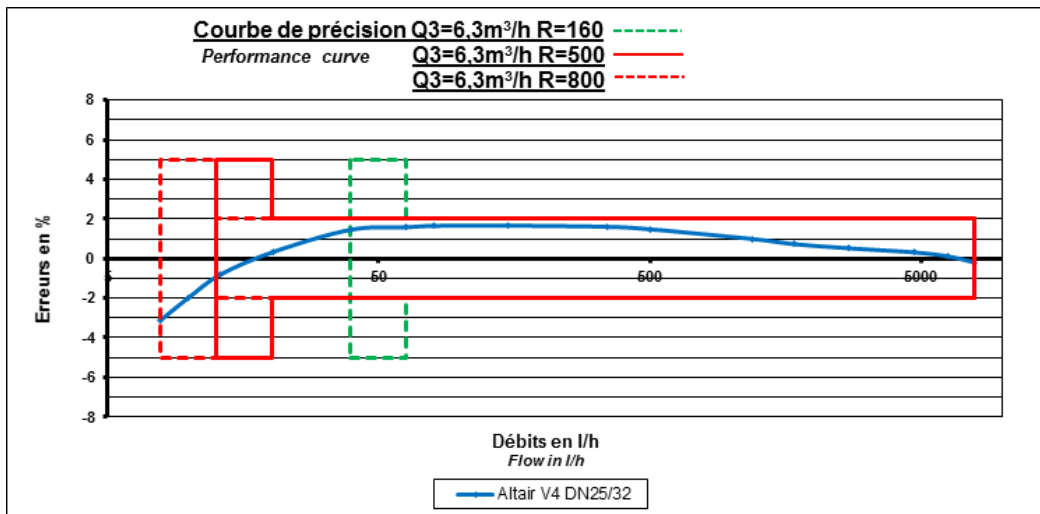
4 REGULATIONS

ALTAIR V4 DN25/32/40 meters comply 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 CURVE



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