ALTAIR V4 CONCENTRIC

CONTENTS

1 PRODUCT DESCRIPTION

1.1 GENERAL PRINCIPLE

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

ALTAIR V4 CONCENTRIC is made of a brass or composite body (1) containing the hydraulic parts, a register (2) and a grey ring (3) that locks the register onto the body. The 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.

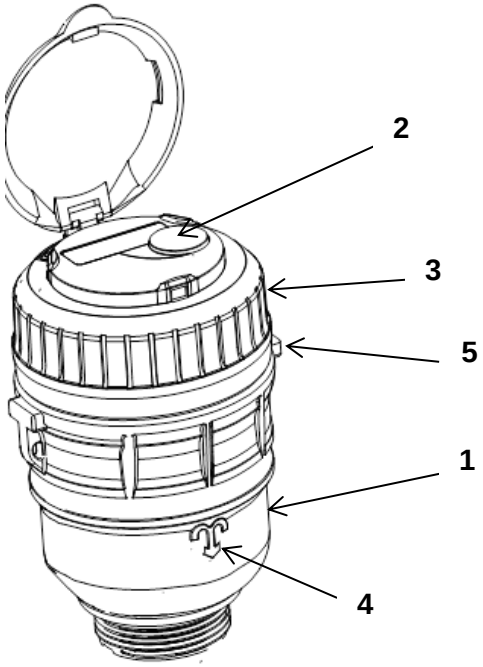


fig.1

1.2 METROLOGICAL FEATURES

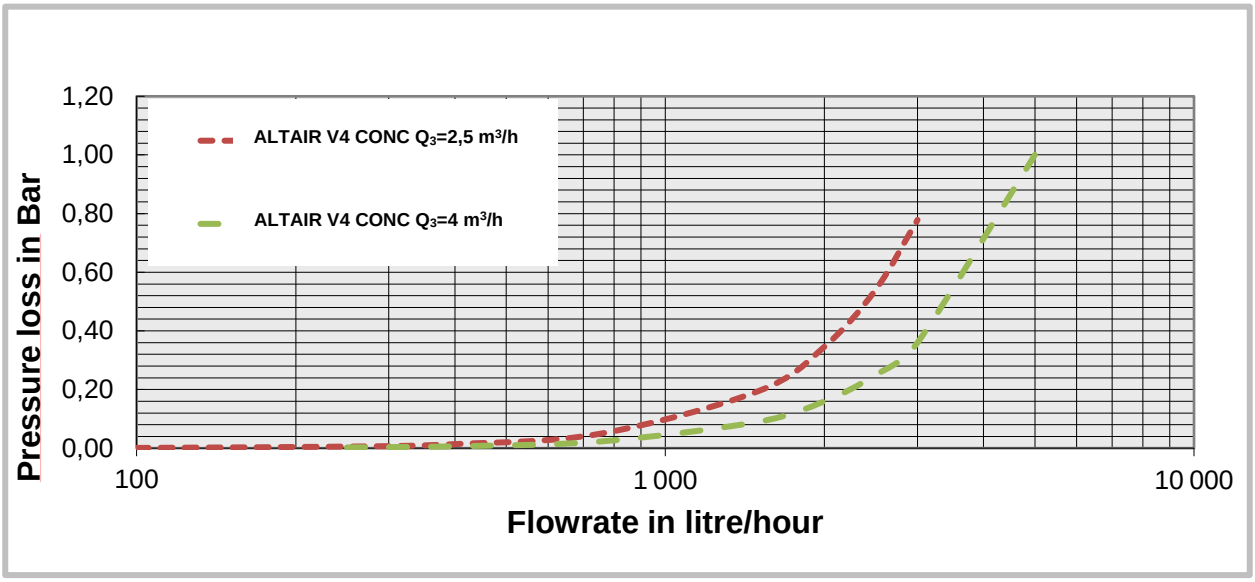
1.2.1 CALIBRATION CURVE

The meter has been manufactured with care to ensure high precision and reduced standard deviation (see metrological curves chapter 5). ALTAIR V4 CONCENTRIC is MID approved up to R=630.

Nominal flowrate	Q_3	m³/h	2.5	4
R standard*	Q_3/Q_1		160	160
Starting flow rate		l/h	0.4	0.7
Minimum flow rate	Q_1	l/h	15.62	25
Transition flow rate	Q_2	l/h	25	40
Maximum flow rate	Q_4	m³/h	3.125	5
Head loss at Q_3		bar	0.59	0.55
Head loss at Q_4		bar	0.92	0.85
Kvs (deltaP=Q^2/Kvs^2)			3.25	5.41

* Other values on request

1.2.2 PRESSURE LOSS



1.3 TECHNICAL FEATURES

Body	Brass or composite
Ring	Grey ➔ cold water: 0.1°C … +50°C
Register	Glass-metal ➔ better resistance to moisture in extreme environments (e.g. a manhole that is flooded on a regular basis). Plastic register in option. Waterproof ➔ The register withstands prolonged immersion.
Modularity	Meters are pre-equipped to be fitted (even on-site) with clip-on modules of the IZAR range: • Radio modules IZAR RC i • Pulse emitters IZAR PULSE i • M-Bus emitters IZAR MBUS COMPACT i • Electronic register with reset IZAR DOSING
Temperatures	Water temperatures: 0.1 … +50°C Ambient operating temperatures: +5 … +50°C max. Storage temperature: -10 …+55°C max.
Frost protection	Protect the meter from frost by completely draining all the water it contains (valve before the meter shut and valve after the meter opened). **Caution**: When the meter is not drained, the pressure plate may break.

Filtration	Clog-proof plastic filter located under the measuring chamber. The filter cannot be removed but is tear resistant and can withstand the pressure of the network (max. 16 bars). **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.
Clogging	Patented fluid collector allowing solid particles to go through the measuring chamber thus limiting the deterioration of the parts.
Static pressure	Nominal pressure: 16 bars max. Test pressure: 32 bars (in accordance with ISO4064 / EN14154 / OIML R49). Breaking pressure : greater than 55 bars.
Resistance to pressure changes	100,000 rapid rises in pressure from 0 to 16 bars in 0.2 sec.
Sudden influx of water	**Caution:** 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.
Overflow	Resistance to a flowrate of 2 x Q4 during 2 hours without any damage to the parts.
Endurance	Compliant with the MID regulatory tests. Resistance: 100,000 cycles at Q_3 and 100 hours at Q_4.
Non-return valve	Adding of a non-return valve in the base is not possible.
Fraud resistance	Fraud attempt with a clamp: ➔ The glass/metal register will crush or the orange pin indicator of the plastic register will disappear. Fraud attempt by opening the sealed ring:➔ Presence of a collar limiting the fraud and visible deterioration of the sealing ring.

1.4 DIMENSIONS

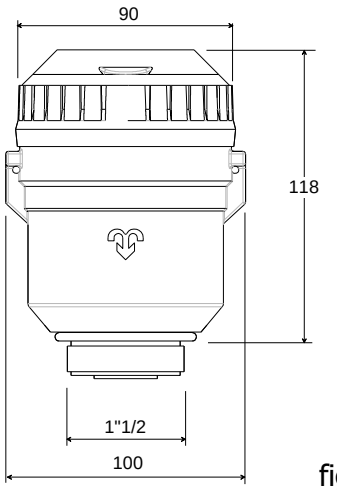


fig.2

			ALTAIR CONCENTRIC
Height	H	mm	118
Width	B	mm	100
Thread connections	G	inch	1"1/2
Weight (brass version)		kg	1.11
Weight (composite version)		kg	0.55

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

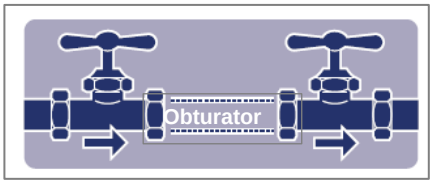


fig.3

ALTAIR V4 CONCENTRIC meter must be installed on a collar that is clean on the inside and free of solid impurities.

If in doubt, clean out the collar by flushing it under high pressure, taking care to replace the meter with an obturator.

2.1.2 PIPE ALIGNMENT

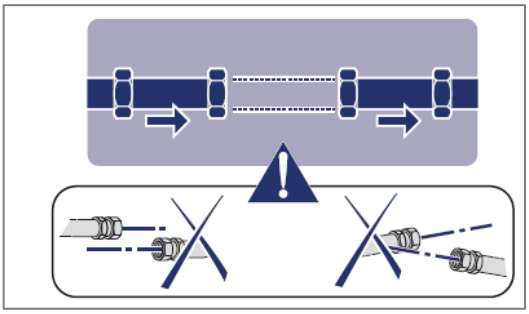


fig.4

To minimize mechanical stress on the baseplate of the meter, the pipes must be perfectly aligned.

2.2 INSTALLATION PRINCIPLE

2.2.1 INSTALLATION POSITION

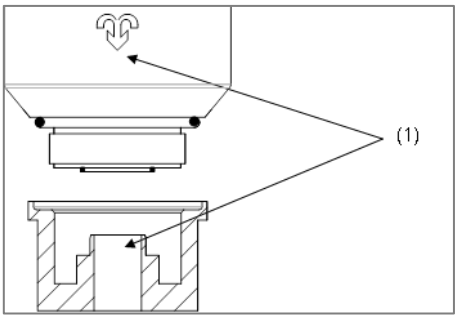


fig.5

Horizontal or vertical installation position.

Caution: make sure that the direction of the water flow is as shown by the arrows (1) on the body of the meter (in through the peripheral opening and out through the central hole.

2.2.2 PLACE OF INSTALLATION

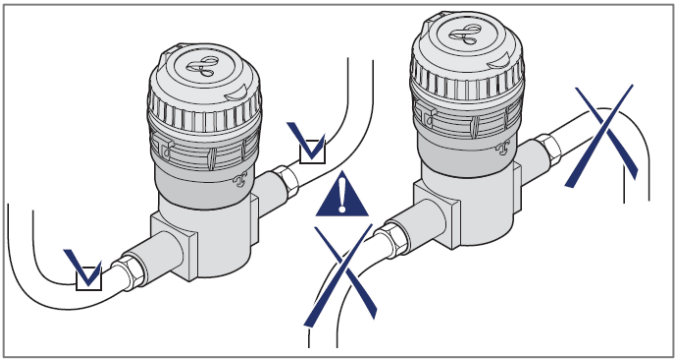


fig.6

The metered water flow must be free of gas.

ALTAIR V4 CONCENTRIC must be placed at a low point of a pipe in order to avoid formation of air pockets.

2.2.3 INSTALLATION TOOLS

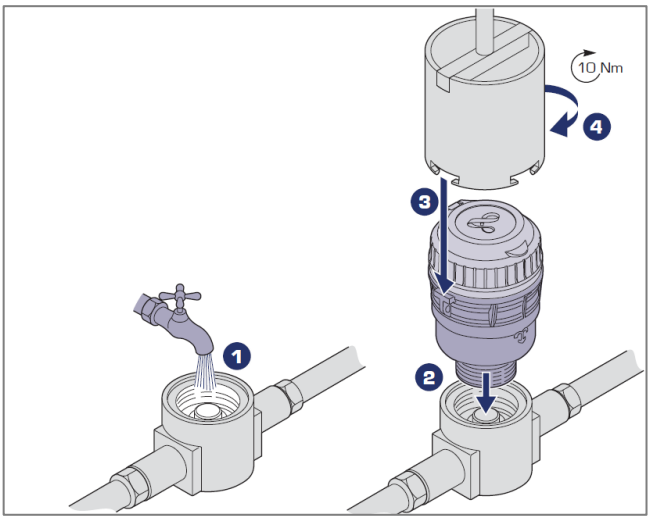


fig.7

The meter is merely screwed onto the base.

The seals are effective even if the tightening torque is low (max. 10 Nm) - internal sealing is achieved before external sealing.

Use the Diehl Metering installation and removal tool. It has two openings for retaining the meter.

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

Storage	Do not store the meters for more than 3 months. Do not stack the pallets. Do not place loads of more than 80 kg on the meter.
Cleaning	The brass or composite body and the glass/metal register can safely be cleaned with slightly acidic water (vinegar or de-scaling agent) in order to remove any scale deposit. The register is made of plastic. The use of solvents is prohibited for its care and maintenance. Only use soapy water. Solvent fumes may damage the mechanical resistance.
Stepping	ALTAIR V4 CONCENTRIC must not be stepped upon. However, with its cover closed, it can withstand the load of a person weighing 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

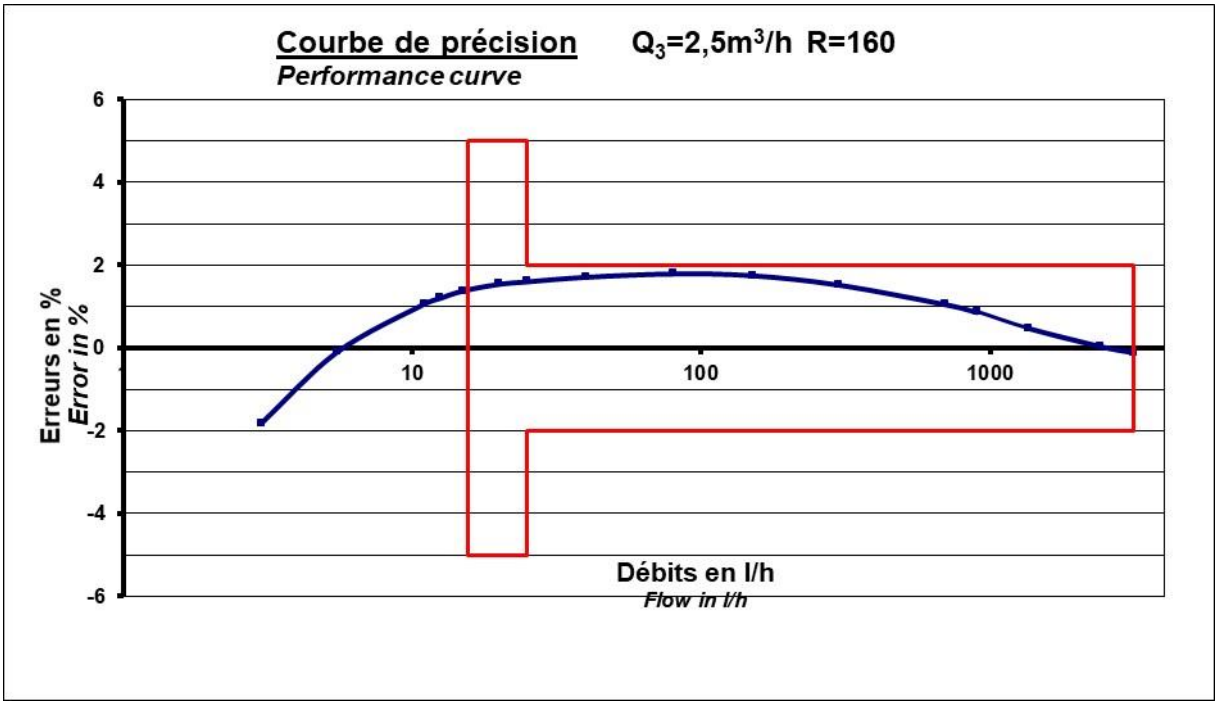
ALTAIR V4 CONCENTRIC meter complies with the European and UK directives as indicated on the Declarations of conformity delivered with the product and available on Diehl Metering website:

https://www.diehl.com/metering/customer-portal/en/download-center/

It also meets the food-grade requirements pertaining to materials in contact with water. For more information, contact your local Diehl Metering agency.

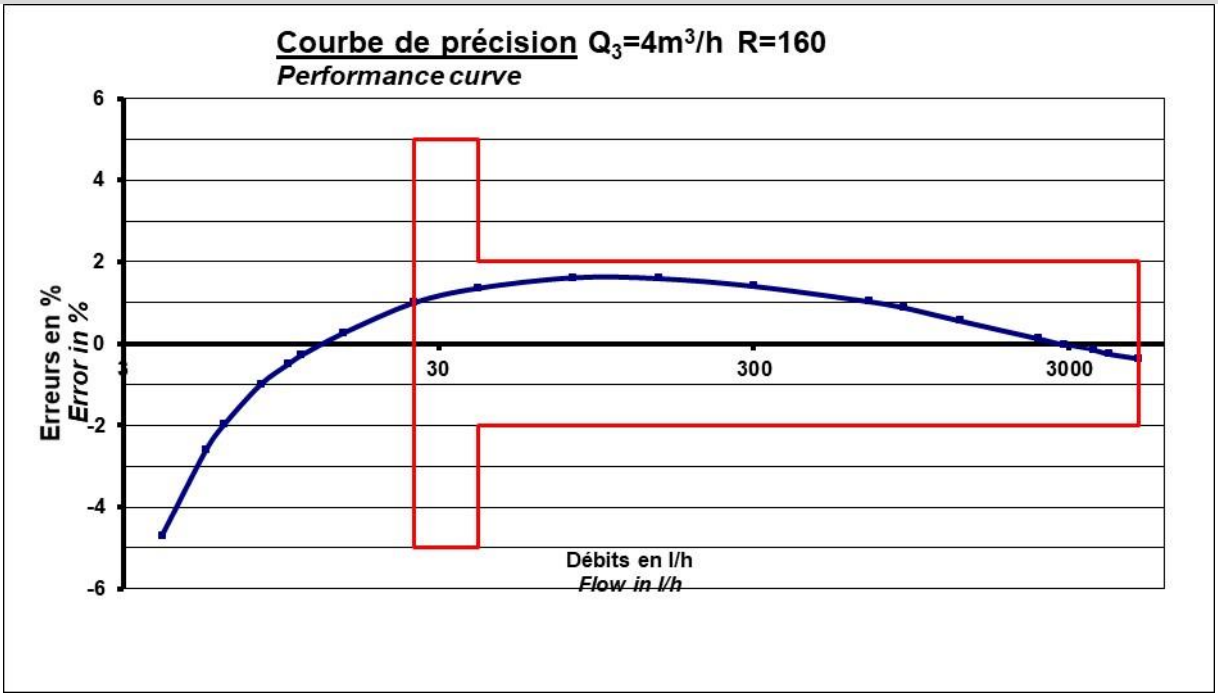
5 METROLOGICAL CURVES

ALTAIR V4 CONCENTRIC Q_3= 2,5 R160



****

ALTAIR V4 CONCENTRIC Q_3=4 R160


Courbe de précision Q_3=4m³/h R=160
Performance curve
6
4
2
0
-2
-4
-6
Erreurs en %
Error in %
3
30
300
3000
Débits en l/h
Flow in l/h