120

Dry dial single jet water meter

Main Characteristics

DN 15 - 20

Magnetic transmission

Suitable up to 50 °C as a cold water meter

Suitable from 30 °C up to 90 °C as a warm water meter

Insensitive to upstream disruptive elements

355° rotating register

High resistance to water impurities

AMR pre-equipped for pulse or radio interface

Available with non return valve

Application

When you are searching for a compact water meter with a good cost-performance ratio the 120 with its many advantages is the perfect solution.

Not only its outstanding metrology argues for this tamper-proof meter but also its strength and robustness.

Communication

The dial of the meter is equipped as standard with a pointer able to activate the HRI sensor. By detecting the rotation of the pointer and its direction, the electronic circuitry of the HRI converts this into reliable electrical output signals.

There are two main variants of HRI:

1. HRI Pulse Unit (A-version)

This gives a pulse output which can be used for reliable counting of the volume.

2. HRI Data Unit (B-version)

The HRI Data Unit a is a data interface which supplies serial output according M-Bus standard EN13757 which can be connected to M-Bus converters.

The serial interface can also be used to configure a pulse output. This pulse output can be used alternatively to the serial output.

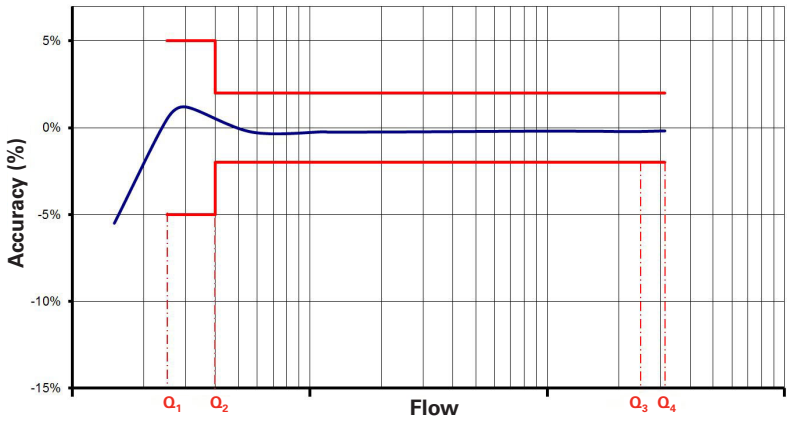
For more information please refer to the HRI datasheet.

Legibility

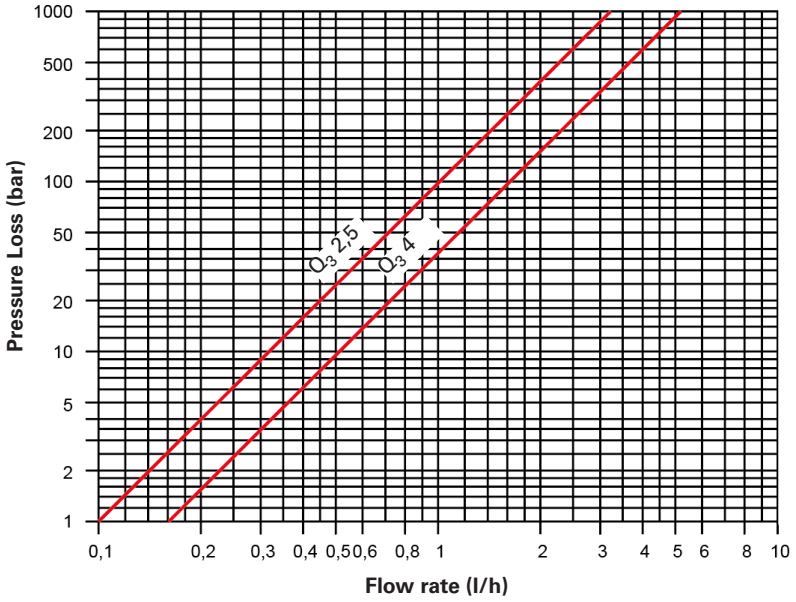
The display on 8 drums (5 for m³, 3 for litres) and 1 pointer ensures perfect readability. The lowest resolution is 0.05 litres. The dial has a central disc whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak.

The 120 water meter operates in horizontal position and its dry dial can rotate up to 355°. The dial can therefore be easily read under all conditions of use.

Typical Accuracy Curve



Typical Head Loss Curve



Approvals

EC type-examination certificate

in conformity with

- 2004/32/EU (MID)
- OIML R49:2013
- EN 14154:2005+A2:2011
- ISO 4064:2014

DE-12-MI001-PTB013 (Q_3 2.5)

DE-16-MI001-PTB008 (Q_3 4)

Technical characteristics

Metrological characteristics

Nominal Size	**2.5 m³/h**				**4 m³/h**			
Temperature Range	0.1 °C to 50 °C		30 °C to 90 °C		0.1 °C to 50 °C		30 °C to 90 °C	
Installation Position	Horizontal [1]	Vertical	Horizontal [1]	Vertical	Horizontal [1]	Vertical	Horizontal [1]	Vertical
Flowrate Range:								
Q_3/Q_1	80 [2]	40	80 [2]	40	80 [2]	40	80 [2]	40
Q_2/Q_1	1.6							
Q_1	0.025 m³/h	0.063 m³/h	0.025 m³/h	0.063 m³/h	0.040 m³/h	0.100 m³/h	0.040 m³/h	0.100 m³/h
Q_2	0.040 m³/h	0.1 m³/h	0.040 m³/h	0.1 m³/h	0.064 m³/h	0.160 m³/h	0.064 m³/h	0.160 m³/h
Q_3	2.5 m³/h				4 m³/h			
Q_4	3.125 m³/h				5 m³/h			
Accuracy Class	± 2% ($Q_2 \leq Q \leq Q_4$) for water temperature ≤ 30 °C ± 3% ($Q_2 \leq Q \leq Q_4$) for water temperatures > 30 °C ± 5% ($Q_1 \leq Q \leq Q_2$)							
Pressure Range	0.3 bar (0.03 MPa) to 16 bar (1.6 MPa)							
Pressure Loss Class ΔP	0.63 bar (at Q_3)							
Stream pofile sensitivity	U0D0							
Environmental Class	O							
Mechanical Environmental Conditions	M2							
Climatic Environmental Conditions	5 °C to 70 °C							
Electromagnetic Conditions	E2							

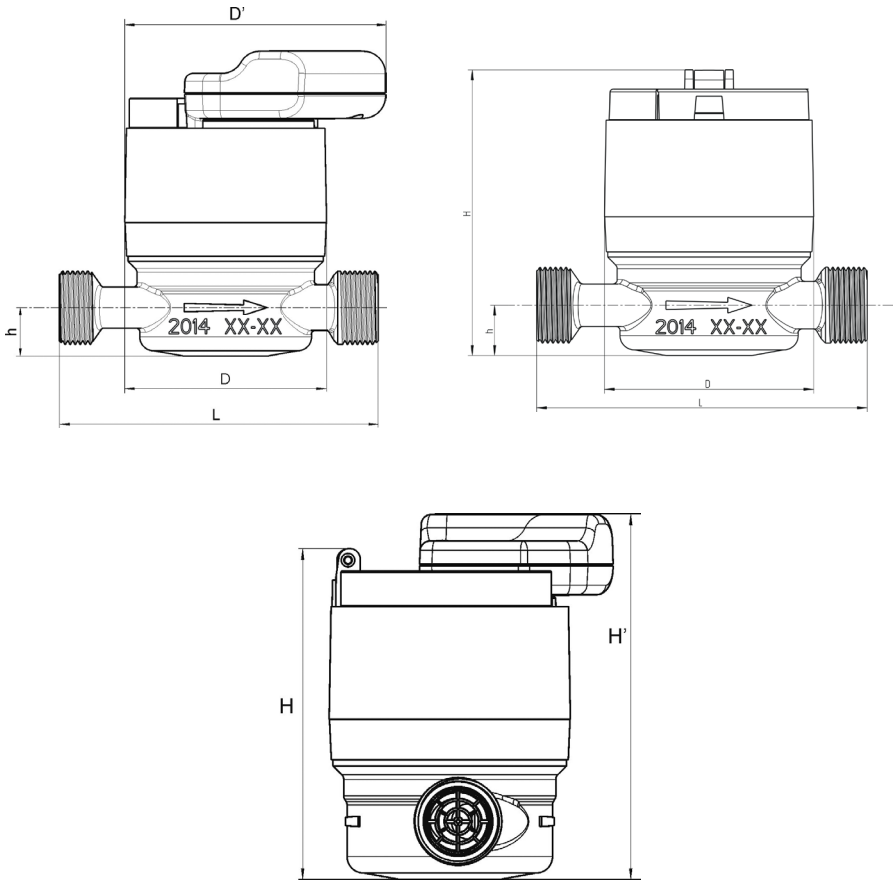
1) no top down installation
2) Also available in other ratios

Sizes and weight

Nominal Size	DN	mm	15		20
Length	L	mm	115 [1]		115 [2]
Width	D	mm	73		73
Width with assembled HRI	D’	mm	94		94
Total height	H	mm	95		95
Total height (with assembled HRI)	H’	mm	110		110
Height to pipe axis	h	mm	23		17.5
Piping dimension		inch	½"		¾"
Tail	Diameter		G¾"B	G7/8" x ¾"	G1"
Piece		mm	26.44		33.25
Thread	Pitch		1.814		1.814
Weight		g	544	509	563

1) Also available in 80 mm, 110 mm and 130 mm
2) Also available in 130 mm

Dimensions



SENSUS a xylem brand

UK & Ireland Enquiries
Sensus UK Systems Ltd, 3 Lindenwood Crockford Lane, Chineham Business Park
Basingstoke RG24 8QY UK
T: +44 (0) 1256 372800 F: +44 (0) 1256 707203 Email: info.gb@xyleminc.com **www.sensus.com**

International Enquiries
Sensus GmbH Ludwigshafen Industriestrasse 16, 67063 Ludwigshafen Germany
T: +49 (0) 621-6904-0 F: +49 (0) 621-6904-1409 Email: info.int@xyleminc.com **www.sensus.com**

420
420PC

Multijet meter
Wet dial / Semi dry – Protected dial
HRI AMR interface

Main characteristics

DN15 to 40 PN 16

Outstanding long life stabil performance due to the wet dial register of 420 meter

Excellent legibility of the register on all networks due to the protected dial of 420PC

AMR compatible with HRI systems providing a pulse weight from 1 litre

Strong protection against tampering

Robust, suited to extended periods of immersion

Optional costumized meter marking (serial number, bar code, customer logo)

Applications

As with all meters in the Sensus portfolio, the wet dial 420 and protected 420PC multijet meter benefits from our long experience in the manufacture of high-performance meters.

The 420/420PC reliability, resistance to bad water quality and quite operation will satisfy both end users and network managers.

The dial is housed in a case filled with lubricant, which means it is protected from the impurities in the network. It can be read perfectly under all conditions and is not affected by fogging or the build up of algae.

The new oversized identification plate legibly shows all the meter characterisitcs and provides the possibility for a customized bar code or logo.

Through its standard HRI interface the 420/420PC can be used in any network where a reliable and versatile AMR system is required. The HRI solution is retrofittable and can be added at any time after the meter has been installed.

Available options

Non return valve

HRI electronic sensor (Data Unit, Pulse Unit)

Connectors

Accuracy

The balanced force and upward movement of the water in the injection box means that the starting flow rate is low.

The direct transmission gives the 420/420PC a good sensitivity, especially at low flow rates.

Reliability

The 420/420PC meter has high protection against corrosion, water hammer, pressure and heat due to the use of high quality copper alloy and thick polycarbonate window.

The internal components, made of high-grade polymers, have been designed to preserve the initial performance of the meter:

- The turbine is supported by sapphire which prevents shaft wear
- The surface finish of the injection box prevents deposits forming. The double filtration provided by the pipe strainer and the seat filter prevents foreign bodies passing through the mechanism.

Register

The 5-drum display has large digits (5mm high) on a white background. This means the meter can be read from a distance of over one meter. Pointers on the dial show sub-multiples of a m^3.

The register wheels for m^3 and the first pointer are immersed in a lubricant, ensuring optimum operation and protection. This technique prevents any condensation and enables perfect legibility of the counter under all conditions, irrespective of the nature of the water.

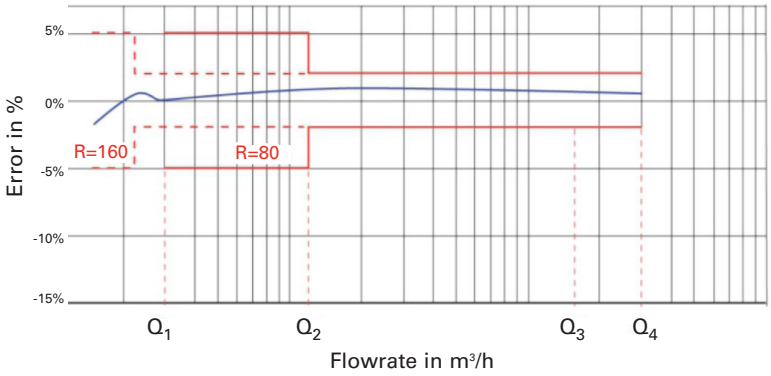
The counter is protected by a very thick polymer glass designed to withstand the pressure and environment changes during all meter life.

Tampering protection

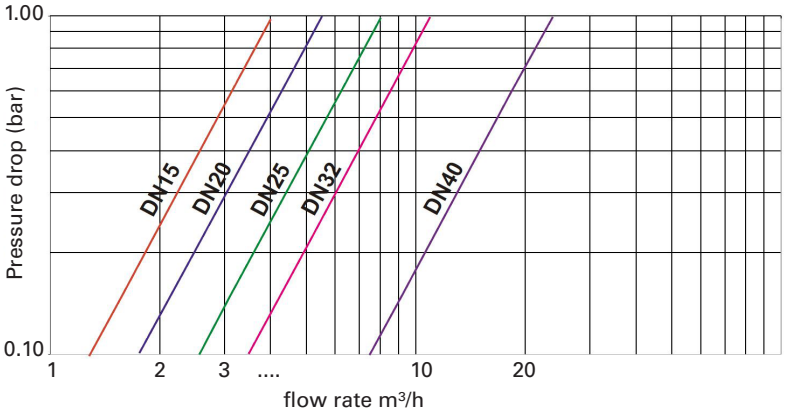
Through its design, the 420/420PC offers extreme high protection against tampering to avoid any misuse of the meter:

- As the meter has no magnetic transmission and a magnet free HRI interface, it is totally unaffected by a magnet placed near the meter
- The use of a robust brass body combined with a thick (8 mm) polycarbonate window prevents any mechanical tampering.

Typical accuracy curve



Typical Head Loss Curve



Compliance

The 420/420PC meter complies with:

- ISO 4064,
- Recommendation n°49 of the OIML,
- PN-ISO 14154

Approvals

The 420/420PC meter is approved to the PN-ISO 14154 pattern approval for installation in horizontal position:

MID DE-18-MI001-PTB004

Q = 2,5; 4; 6,3; 10; 16

On request, the 420PC meter can be delivered stamped in the lower R according to the approval.

Marking

Two arrows on the body show the direction of flow.

The nominal flowrate, the metrological class, the MID pattern approval number, the year of manufacture and the individual meter number are engraved on the identification plate on top of meter.

The manufacturer's name and the type of the meter are printed on the dial.

The meter can be customized on request with specific serial number, bar code or logo.

Installation and maintenance instructions

The 420/420PC meter must be installed in a low point of the pipeline.

The meter must be installed with the arrow cast on the body corresponding to the direction of water flow.

Before fitting the water meter, all pipe work must be flushed out to remove all foreign bodies.

An upstream valve is recommended to allow installation and removal of the meter. When turning on the water supply, the upstream valve must be opened slowly in order to fill the meter with water smoothly.

During tightening, the meter can be maintained in position with a standard tool using to the flats on the pipe.

No special maintenance is required.

Performance Data

Metrological characteristics – ISO 14154

Nominal size	**DN**	mm	15	20	25	32	40
Permanent flow rate	Q_3	m^3/h	2.5	4	6.3	10	16
Value of ratio R	Q_3/Q_1	-	160/80/40				
Overload flow rate	Q_4	m^3/h	3.125	5	7.875	12.5	20
Minimum flow rate	Q_1 (tolerance ±5%)	l/h	16	25	39	63	100
Transitional flow rate	Q_2 (tolerance ±2%)	l/h	25	40	63	100	160
Ratio	Q_2/Q_1	-	1.6	1.6	1.6	1.6	1.6

Technical characteristics – ISO 14154

Nominal flow Q_3	m^3/h	2.5	4	6.3 and 10	16
Nominal size DN	mm	15, 20	15, 20, 25	25, 32	40
Register type	-	wet (420), semidry (420PC)			
Indication range	m^3	10^5			
Calibration value	m^3	0.05			
Maximum admissible pressure /MAP/	bar	16			
Working pressure range / Δp/	bar	0.3 to 16			
Pressure loss	bar	0.63			
Temperature class /MAT/	°C	T 50			
Flow profile sensitivity classes	-	U0, D0			
Position	-	H			
Connection		G ¾ B	G ¾ B	G 1¾ B	G 2 B
Climatic and mechanical environments	-	Closed spaces/from-10 °C until 55 °C/ mech.class M2			
Electromagnetic environments	-	E1			

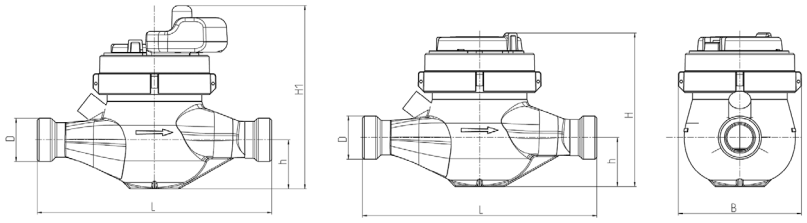
Dimensions and Weights

Dimensional characteristics

Nominal Size	**DN (Qn)**	**mm**	**15**	**20**	**25**	**30**	**40**
Length	L	mm	165(2)	190(1)	260	260	300
Width	D	mm	96	96	103	103	134
Total height	H	mm	120	120	135	135	152
Total height with assembled HRI			150	150	165	165	182
Height to pipe axis	h	mm	34	36.5	45	45	61
Piping dimension		inch	½"	¾"	1"	1¼"	1½"
Tail		inch	¾"(3)	1"	1¼"	1½"	2"
piece	Diameter	mm	26.44	33.25	41.91	47.80	59.61
thread	Pitch	mm	1.814	2.309	2.309	2.309	2.309
Weight		kg	1.4	1.6	2.3	2.5	5.0

(1) also available in length 145 and 170 mm (2) also available in length 165 mm

Dimensional Diagram



HRI Options

The dial of the meter is equipped as standard with a pointer able to activate the HRI sensor. By detecting the rotation of the pointer and its direction, the electronic circuitry of the HRI converts this into reliable electrical output signals.

There are two main variants of HRI:

1. HRI Pulse Unit (A-version)

This gives a pulse output which can be used for reliable counting of the volume.

2. HRI Data Unit (B-version)

The HRI Data Unit a is a data interface which supplies serial output according M-Bus standard EN13757 which can be connected to M-Bus converters.

The serial interface can also be used to configure a pulse output. This pulse output can be used alternatively to the serial output.

For more information please refer to the HRI datasheet.

620

Volumetric Meter
Dry Dial

Main characteristics

DN 15 to 40, PN 16

Unrivalled accuracy and measuring range

Small pressure drop

High resistance to impurities

Quiet operation

Suitable for cold water from 0.1 °C up to 50 °C

Applications

The 620 is a high precision meter.
Due to its unique piston measuring chamber even drops of water are counted.

A clear view is either provided through a register with an integrated wiper or a sealed metal/glass register that does not fog. For a faster and more comfortable readout the 620 is prepared for AMR.
Due to our broad product range of system solutions you can adapt the 620 to all your AMR needs.

Not least by its tamper proof design and its long life span you will be glad you used the 620.

Available options

HRI electronic sensor (Pulse Unit, Data Unit)

Connectors

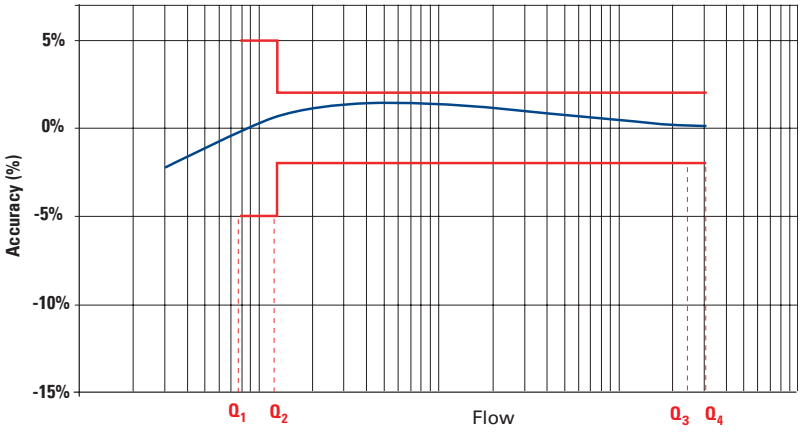
Non-return valve

Plastic and metal/glass register

Typical Marking

Markings can vary according different market or metrological specifications.

Typical Accuracy Curve



Accuracy and reliability

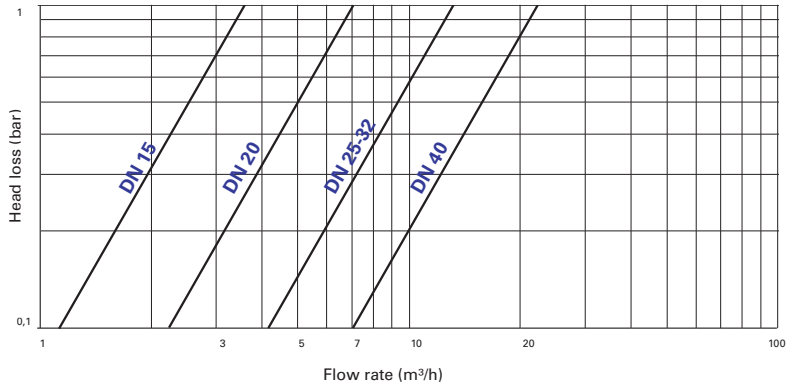
Thanks to the advanced design of its measuring chamber the meter has an extreme low starting flow.

It can be supplied with metrological seal according the MID regulation 2004/22/EC with a ratio R up to 315 (Q_3 2.5 up to R400).

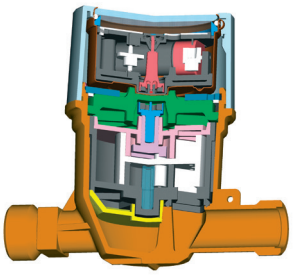
Foreign matter present in the water is filtered out by either the tubular strainer on the inlet or the seat strainer. Particles can go through the meter without damage; the patented elastic pivot enables the particles to pass between the piston and the measuring chamber. All the gears are situated in the dry register, which eliminates any risk of blockage due to suspended particles in the water.

The 620 water meter keeps its metrological accuracy for many years of operation, even in very difficult working conditions.

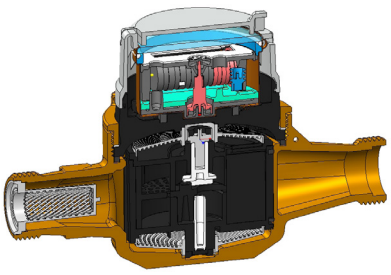
Typical Head Loss Curve



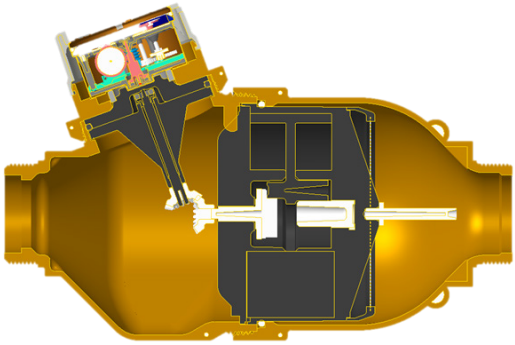
Cross Section



620, DN 15



620, DN 20



620, DN 40

sensus
a xylem brand

Approvals

EC type-examination certificate

in conformity with

- 2014/32/EU (MID)
- OIML R49:2013
- EN 14154:2005+A2:2011
- ISO 4064:2014

Q_3 2,5	DE-07-MI001-PTB002
Q_3 4	DE-07-MI001-PTB004
Q_3 6,3 - 16	DE-15-MI001-PTB019

Certificate of compliance for potable drinking water

KTW/DVGW (D)	ACS (F)
WRAS (UK)	Hydrocheck (B)
KIWA ATA (NL)	

Legibility

The display on 8 drums (5 for m^3, 3 for litres) and 1 pointer ensures perfect readability. The lowest resolution is 0.05 litres. The dial has a central disc whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak.

The plastic dial [1] is equipped with a wiper for optimum legibility under all conditions. The 620 water meter can operate in any position and its dry dial register can be rotated up to 350°. The dial can therefore be easily read under all conditions of use. As an option, the meter can be supplied with a metal/glass register, making it perfectly water-tight (IP 68).

Performance Data

Metrological characteristics in accordance with Measuring Instruments Directive

Nominal Size	DN	mm	15	20	25	32	40
Permanent flowrate	Q_3	m^3/h	2.5	4	6.3	10	16
Ratio "R"	Q_3/Q_1	R	400		315		
Maximum flowrate [1]	Q_4	m^3/h	3.125	5	7.875	12.5	20
Minimum flowrate [1] (tolerance ±5%)	Q_1	l/h	6.25	10.00	20	31.75	50.79
Transitional flowrate [1] (tolerance ±2%)	Q_2	l/h	10.00	16.00	32	50.79	81.27

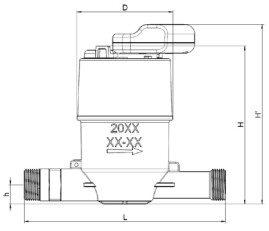
[1] Values for R=400 for DN 15-20 and R=315 for DN 25-32

Dimensions and Weights

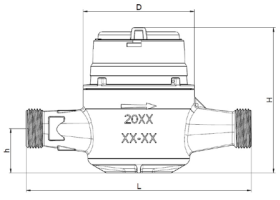
Nominal Size	**DN**	**mm**	**15**	**20**	**25**	**32**	**40**
Length	L	mm	170[1]	190[3]	260[4]	260	300
Width	D	mm	79.7	93.5	135	135	150
Total height	H	mm	132.7	123	186	186	193
Height to pipe axis	h	mm	15.5	37.5	68	68	75
Tail	Diamter	inch	G¾"B[2]	G1"B	G1¼"B	G1½"B	G2"B
Piece		mm	26.44	33.25	41.91	47.80	59.61
Thread	Pitch		1.81	2.31	2.31	2.31	2.31
Weight		kg	1.0	1.6	3.7	3.8	5.0

[1] Also available in length 110, 114, 115, 130, 134 and 165 mm
[2] Also available in length 165 mm with 1" threads
[3] Also available in length 165 mm
[4] Also available in length 198 mm (with Q_3 4)

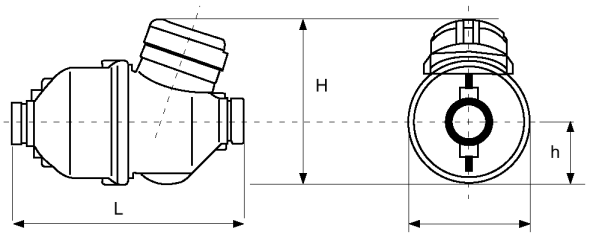
Dimensional Diagram



620, DN 15 with HRI



620, DN 20



620, DN 40

For the installation guidelines please refer to our website and the manual MD 1670.

HRI options

The dial of the meter is equipped as standard with a pointer able to activate the HRI sensor. By detecting the rotation of the pointer and its direction, the electronic circuitry of the HRI converts this into reliable electrical output signals.

There are two main variants of HRI:

1. HRI Pulse Unit (A-version)

This gives a pulse output which can be used for reliable counting of the volume.

2. HRI Data Unit (B-version)

The HRI Data Unit a is a data interface which supplies serial output according M-Bus standard EN13757 which can be connected to M-Bus converters.

The serial interface can also be used to configure a pulse output. This pulse output can be used alternatively to the serial output.

For more information please refer to the HRI datasheet.

qualityaustria
Succeed with Quality
Certified according to ISO 9001
Quality Management System Quality Austria Reg.no. 3496/0

sensus
a xylem brand

UK & Ireland Enquiries
Sensus UK Systems Ltd, 3 Lindenwood Crockford Lane, Chineham Business Park
Basingstoke RG24 8QY UK
T: +44 (0) 1256 372800 F: +44 (0) 1256 707203 Email: info.gb@xyleminc.com **www.sensus.com**

International Enquiries
Sensus GmbH Ludwigshafen, Industriestrasse 16, 67063 Ludwigshafen Germany
T: +49 (0) 621-6904-0 F: +49 (0) 621-6904-1409 Email: info.int@xyleminc.com **www.sensus.com**

01-2018 • 0002 Subject to changes without prior notice.