

LXH-15E₃~20E₃ Volumetric Rotary Piston Water Meter



LXH-15E₃(DN15)

LXH-20E₃(DN20)

Application

- ◆ Measuring the volume of cold potable water passing through the pipeline.

Working Conditions

- ◆ Water temperature: $\leq 40^{\circ}\text{C}$.
- ◆ Water pressure: $\leq 1.6\text{MPa}$.

Construction

- ◆ The meter consists of a body, a measuring unit, a register unit, a retaining ring and others. The retaining ring secures the internal parts.

Working Principle

- ◆ The working principle is based on a calibrated chamber of known capacity and a rotary piston activated by the energy of the flow passing through.
- ◆ The piston rotates while the chamber fills up and empties with a constant volume of water. By counting these cycles, the register indicates the total volume that has been register.

Indication

- ◆ Cubic meter(m^3) for selecting.

Features

- ◆ Ensures high sensitivity and accurate registration throughout a wide flow range.
- ◆ Low starting flow rate and excellent metrological performance.
- ◆ Magnetic drive, lower transmission resistance.
- ◆ Magnetic shield use for external magnetic field protection.
- ◆ Evacuated and sealed dry dial register ensures clear reading.
- ◆ Internal strainer.
- ◆ Inlet strainer for selecting.
- ◆ Outlet non return valve for selecting.
- ◆ Can be equipped with reed switch option.

Compliance with Standard

- ◆ Technical data conforms to ISO 4064 Class C Standard.

Attachment

- ◆ With every water meter, there will be with two couplings, two nuts, two coupling gaskets and two meter spud thread protectors.

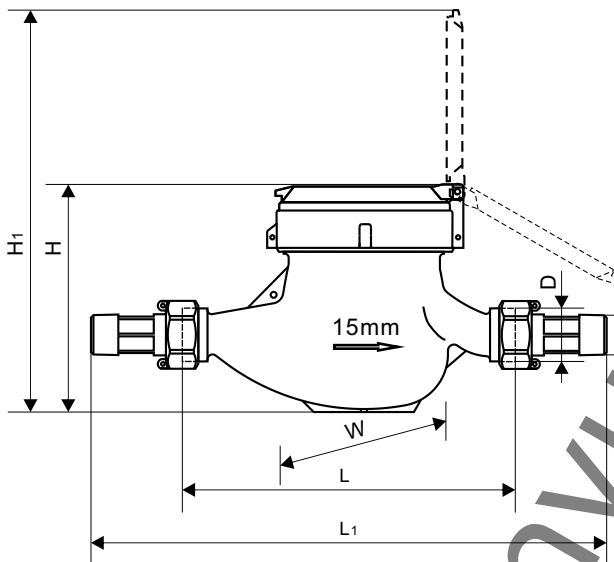
Note: To protect the meter spud threads, store the meter with thread protectors in place.

Dimensions and Weights

Nominal diameter	DN	15	20
Body thread	D	G3/4B	G1B
Connector thread	d	R1/2	R3/4
Body length	mm	L	165/170/190
Overall length	mm	L ₁	259/264/284
Width	mm	W	95
Meter height	mm	H	115
Working height	mm	H ₁	198
Weight without connectors	Kg		1.45(L=165)
Weight with connectors	Kg		1.63(L=165)
			1.8
			2.08

◆ "L₁" is the total length when coupling gaskets without compression.

Dimension Picture



Description of the Register

Nominal diameter	DN15/20
Number of black numbered roller	5
Number of red pointer	4
Maximum reading	m ³ 99999.9999
Minimum reading	m ³ 0.0001
Minimum graduation	L 0.05

- ◆ Nominal diameter and arrow are indicated on the side of the body, which we can see from dimension picture.
- ◆ Arrow are indicated on the other side.
- ◆ The lid can open more than 180°.

Main Technical Data

Nominal diameter	DN	15	20
Maximum flow rate	m ³ /h Q _{max}	3.0	5.0
Nominal flow rate	m ³ /h Q _n	1.5	2.5
Transition flow rate	l/h Q _t	22.5	37.5
Minimum flow rate	l/h Q _{min}	15	25

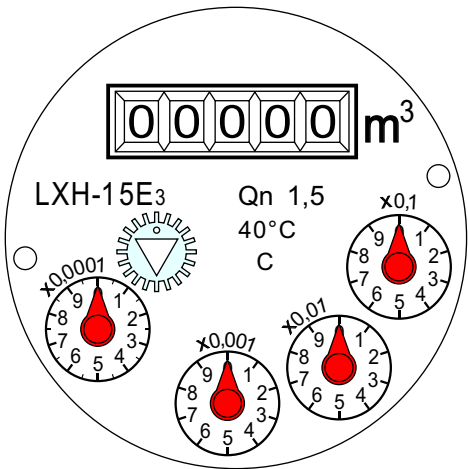
◆ Maximum Permissible Error:

In the lower zone from Q_{min} inclusive up to but excluding Q_t is ±5%.

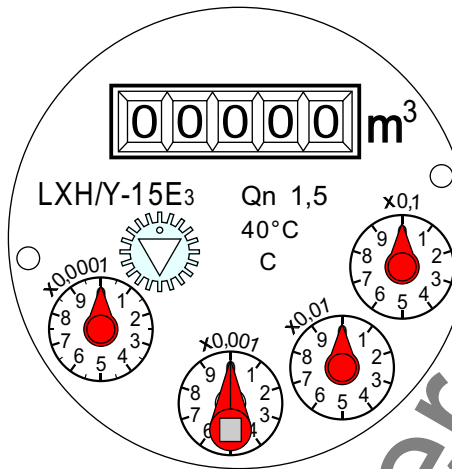
In the upper zone from Q_t inclusive up to and including Q_{max} is ±2%.

Dial

◆ LXH-15E₃~20E₃:

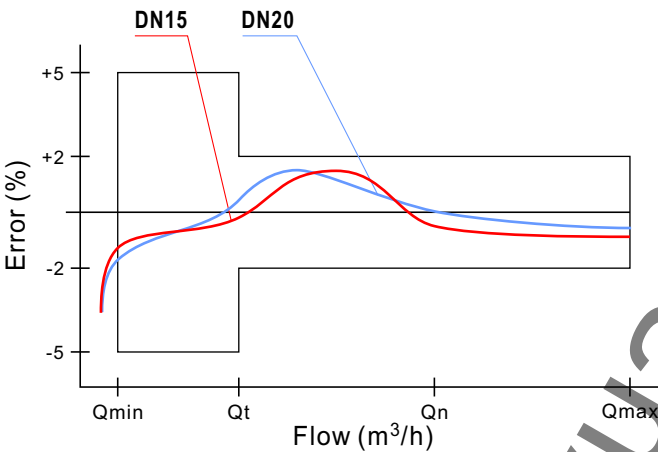


◆ LXH/Y-15E₃~20E₃:

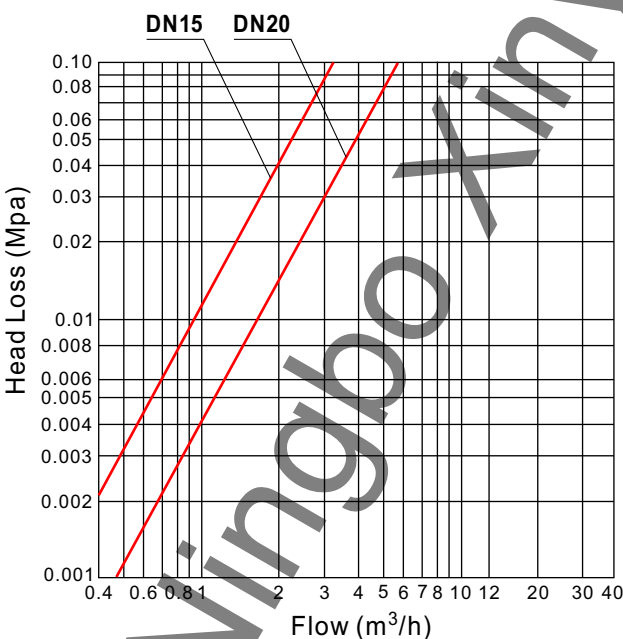


- ◆ LXH-15E₃: meter type.
- ◆ LXH/Y-15E₃: meter type of the meter with reed switch option.
- ◆ Qn 1,5: nominal flow rate.
- ◆ 40°C: maximum water temperature.
- ◆ C: technical data conforms to the requirements of ISO 4064 Class C standard.
- ◆ Scale 1:1

Accuracy Curve

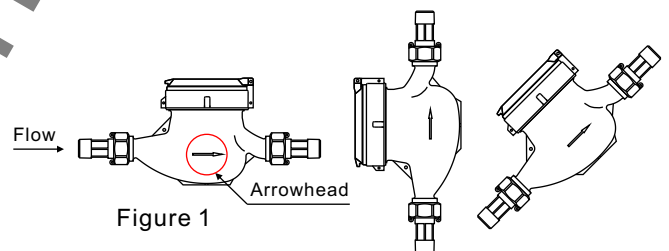


Head Loss Curve



Installation

- ◆ Attention should be paid that the cold water meter must not be used for hot water and caustic liquid.
- ◆ The nominal diameter of water meter should be selected according to the volume of water passing through the pipeline.
- ◆ The meter can be installed in any position:



- ◆ The meter must be installed with the direction of the flow as indicated by the arrow cast in the meter body (see figure 1).
- ◆ A horizontal position with the register face upwards is recommended.
- ◆ In order to keep the water meter in good working, the pipeline should be clear up before install the meter.
- ◆ The valves must be installed in the front and the back of the water meter.
- ◆ The water meter should not be installed under the surface of water.

With Reed Switch Option



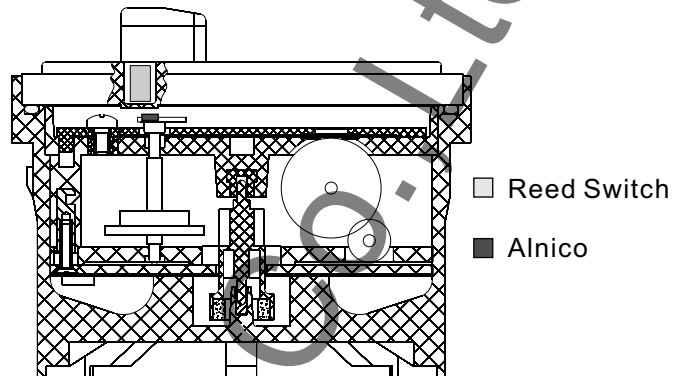
Features

- ◆ The special version LXH-15E₃~20E₃ Water Meter is equipped with a reed switch assembly which can be connected to remote reading systems, and several parts are different from the common LXH-15E₃~20E₃ meter.
- ◆ A pointer is combined with an alnico. Positions of the special pointer in register indicate different water quantity. The reed switch pulser sends out electric signals per a preset water quantity requiring power from an external source.
- ◆ The reed switch assembly can be taken off without breaking the meter seal.
- ◆ If the special version meter isn't equipped with the reed switch assembly, it is a meter with pre-equipped output, and the transparent cover will be equipped with a cover to prevent dust water and garbage.
- ◆ The special meter has all advantages of the common LXH-15E₃~20E₃ water meter.
- ◆ Technical data are the same as the common LXH-15E₃~20E₃ water meter.

Working Conditions

- ◆ Water temperature: $\leq 40^{\circ}\text{C}$.
- ◆ Water pressure: $\leq 1.6\text{MPa}$.
- ◆ Distance between the meter and a data collector: $\leq 100\text{m}$.

Schematic Figure

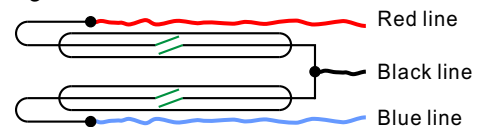


Reed Switch Assembly

- ◆ The reed switch pulser consists of a plastic housing with dual reed switches to read the total consumption of water.
- ◆ Pulser wiring: cable.
 - ① 3 core (red, blue, black), 1.5m long, 3.5mm diameter.
 - ② Red-black: pulse team, blue-black: pulse team. Black: public end.
- ◆ Reed switch: two.
- ◆ Electric data:

$V_{\text{max}}: 24\text{VA/DC}$,
 $I_{\text{max}}: 0.01\text{A}$.

◆ Drawing:

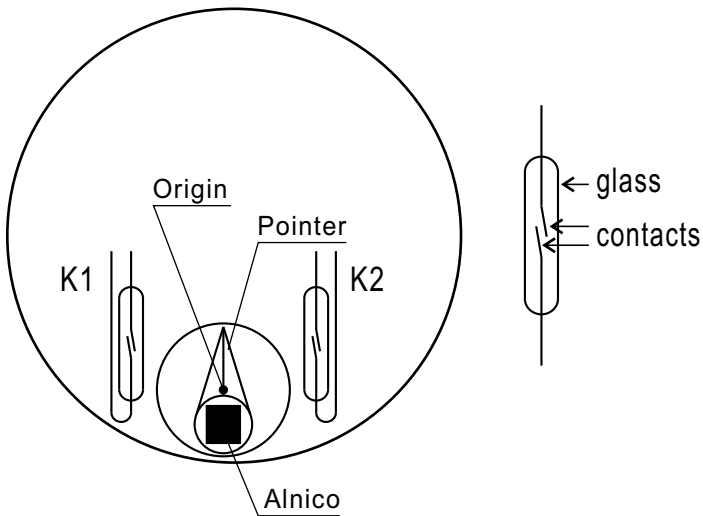


Data Output Options

- ◆ The special meter comes in several model variations, which indicate different pulse rates. To choose the best suitable variation for your need, please consult the table below.
- ◆ DN: nominal diameter.

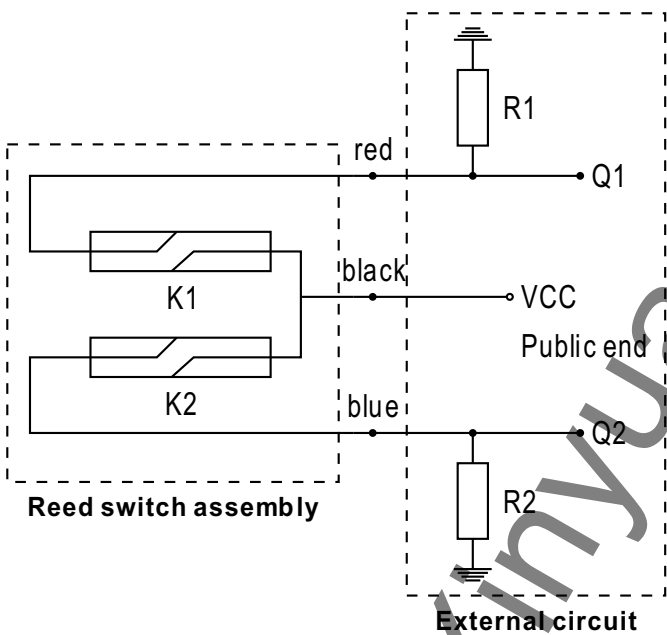
Positions of special pointer	X0,0001	X0,001	X0,01	X0,1
Water quantity for each circle	1 Liter	10 Liters	100 Liters	1000 Liters
DN15/20	◇	◇	◇	◇

Signal sampling principle



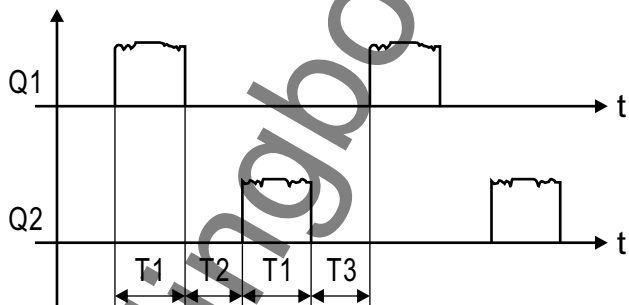
- ◆ A reed switch consists of two magnetic contacts in a glass tube filled with protective gas.
- ◆ Two reed switches are placed symmetrically at both sides of pointer which combined with alnico.
- ◆ When the alnico comes close to the reed switch K1, two contacts of K1 become magnetized and attracted each other allowing an electrical current to pass through. When the alnico spins away from reed switch K1, the contacts demagnetize, separate and move to their original position.
- ◆ So does the reed switch K2.
- ◆ The two reed switches set pulse on turn.

External circuit (against theft, recommend)



- ◆ When two contacts of K1 attract each other allowing an electrical current to pass through, Q1 pin outputs high level signal. When two contacts separate, Q1 pin outputs low level signal. So does K2.
- ◆ Information about water consumption can be available through microcomputer sampling signals from Q1 and Q2 pin.
- ◆ When Q1 pin outputs high level signal, Q1 will be recorded only once, and then Q2 pin is supervised, if Q2 pin outputs high level signal also, it means that the special pointer goes one circle and corresponding water quantity has been registered.
- ◆ A group signals is that Q1 pin outputs high level signal, and then Q2 pin outputs high level signal too.

◆ Q1&Q2 pin output waveform as shown in figure below:



Reed switch pluse	A group signals for each			
Water quantity for each circle	1 Liter	10 Liters	100 Liters	1000 Liters
DN15/20	◇	◇	◇	◇

- ◆ In a normal situation, it is impossible that Q1 and Q2 pin output high level signal at the same time.
- ◆ If microcomputer sampling high level signals from Q1 and Q2 pin at the same time, it means there exists external magnetic disturbance.