

# Hot water meter handling and installation

Please observe the following precautions to ensure safe and correct use of the product

The information in this instruction manual must be followed for safety in handling.

	<b>Warning</b>	Indicates a potentially hazardous situation which, if ignored and mishandled, could result in death or serious injury.
	<b>Caution</b>	This symbol indicates a potentially hazardous situation which, if ignored and mishandled, could result in minor injury to persons or damage to property only.

**About Pictorial Display**  
In this manual and on the product, various pictorial symbols are used to ensure safe and correct use of the product and to prevent injury to you or others or damage to property. The following is a list of the indications and their meanings.

**Example of pictorial display**

	This symbol announces that there is content that warrants attention (including danger and warning).		This symbol tells you that the action is prohibited. Specific prohibited contents are depicted in the diagram.		This symbol tells you what you are forcing or directing an action to do.
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## Safety Precautions

- Warning**
- Please be careful when carrying and installing the meter. The weight load may cause physical injury, or drop the meter and cause injury.
  - When carrying heavy objects, be careful not to hit them against the human body or other equipment.
- Doing so may not only damage the product but also cause injury.
- Do not disassemble the meter.
- All meters are subject to the disassembly prohibition. Disassembling a meter that has electronic components inside may result in ignition or burns.
- Caution**
- Do not touch the screws or edges directly.
- Use gloves when handling the product to avoid the risk of injury.
- Use appropriate tools such as wrenches for piping work.
- Failure to do so may cause malfunctions or accidents.
- Be careful not to catch your body or clothes on the screws or edges.
- Failure to do so may result in injury.
- Do not use this product for any purpose other than warm water. Doing so may cause the unit to malfunction.

## Handling Precautions

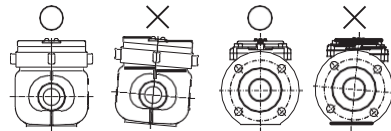
- Caution**
- Do not subject the meter to strong shocks during storage. Dropping or striking the meter may damage the impeller bearing, damage parts inside the transmitter, or cause solder to come off, making weighing impossible.
  - Do not subject the meter to strong vibration during storage. If the meter is subjected to strong or prolonged vibration, the impeller bearing may be damaged, parts in the transmitter may be damaged, solder may come off, etc., and the meter may become unweighable.
  - Do not store meter at high or low temperatures. The storage temperature range for meters is -20° C to +40° C. Storage outside of this temperature range may result in a deterioration of the functions of parts and other components in the transmitter, making weighing impossible.

- Do not allow air to pass through the meter while it is in storage. If air passes through the meter, the impeller may rotate, causing the measuring value to advance (or return). Attach a protective cap or similar item to the meter inlet/outlet while storing the meter.
  - Do not allow foreign objects to enter the meter during meter storage.
- If foreign matter gets inside the meter, it may interfere with the rotation of the impeller, making weighing impossible. Install a protective cap or similar device on the meter inlet/outlet while the meter is in storage.
- Do not use with hot water higher than 90° C.
- Do not use the meter for hot water over 90° C, as hot water flow over 90° C may damage parts inside the meter.

## Note on installation location

The meter should be installed in a location that satisfies the following requirements

- Warning**
- Do not install in a place filled with flammable gas.
- Failure to do so may cause fire, electric shock, or injury.
- Caution**
- Install on a flat surface.
- Install the meter horizontally, following the arrow indicated on the meter, with the indicating part up and not facing the opposite direction.



- Install the meter in a location where it is easy to install and remove. The meter needs to be replaced every certification maturity (8 years). Select a location with good workability for this purpose.
  - Install the meter in a location where it is easy to read the meter. Meters must be read periodically. For this reason, choose a location that is not affected by humidity or rainwater, and a location that is easy to read.
  - Do not install in locations where there is a risk of freezing. During winter, the meter may be damaged due to freezing expansion of water. Take measures to prevent freezing, such as installing below the freezing depth and installing heat insulation.
  - Do not install the meter in a location where air remains in the meter.
- Keep the meter full of water at all times.

- Install the meter in a location where fluctuations in water pressure are minimal. Fluctuations in water pressure may amplify the rotation of the impeller, resulting in inaccurate weighing. The maximum operating pressure is 1 MPa.
- Do not install in a location subject to vibration. Vibration may amplify the rotation of the impeller, resulting in inaccurate weighing.
- Do not install in a location subject to electrical noise. Near a high-voltage power supply, motor, etc., electronic parts, etc., may not work properly due to electrical noise, and accurate measuring may not be possible.
- Do not install in a location where it will be affected by magnetism. Magnetic influences may prevent electronic components, etc. from functioning properly, resulting in inaccurate measuring. The meter should be installed in a space with a magnetic field of 0.2 Tesla (2000 Gauss) or less.
- Do not install in a location where it will be constantly submerged in water.
- Do not install the meter in an area filled with flammable gas. Doing so may cause fire, electric shock, or injury.
- Do not install the meter where it is exposed to oil (kerosene, fuel oil, etc.) or corrosive gases. Doing so may adversely affect the meter and cause it to malfunction or fail to operate.
- Do not install in direct sunlight or near any heating elements. When using the product outdoors, cover it with a roof or similar covering to prevent direct sunlight.

## Precautions for installation

When installing the meter, be sure to observe the following items to ensure proper measuring accuracy.

- Caution**
- The meter mounting dimensions should be the same as the overall length of the meter and the thickness of the packing. If the installation dimensions are too short, the meter cannot be installed in the piping.
  - Be sure to remove the meter when welding piping. The high temperature during welding may damage the meter.
  - Use packing of the specified size for meter connection. Wrong dimensions may cause water leakage from the connection.
  - Provide a straight pipe upstream and downstream of the meter, respectively.
- Accurate measuring may not be possible due to bent pipes or valves.

Straight pipe section of impeller type meter

Meter Type	upstream	downstream
Small Bore Meters (Threaded)	Bore x 3 times	Bore x 1 time
Large Bore Meters (Flange Type)	Bore x 5 times	Bore x 3 times

- Before installing the meter, be sure to run water through the pipe to clean it.
- Foreign matter such as dust in the water supply pipe may damage the measuring section or inhibit the rotation of the impeller, resulting in inaccurate measuring.
- When starting the water supply, open the stopcock or valve slowly. Sudden opening may cause water hammer and damage the meter.
- Do not apply force to the output cable. The cable may break (. pulse-type hot water meter)

- Do not use the meter as a scaffold or place heavy objects on the meter. Doing so may cause damage to the unit.
- Do not use the upper flange of the unit for slinging. Doing so may cause damage to the unit.
- Tighten the union nut within the tightening torque range shown below.

Tightening torque for union nut (approximate)

Bore (mm)	Tightening torque
15	6~10N · m
20	14~22N · m
25	17~27N · m
32	25~35N · m
40	40~50N · m

- When installing a flange connection type hot water meter, tighten all nuts evenly.

Unevenly tightened nuts may cause leakage.

Number of bolt holes

Bore (mm)	bolt hole	
	n	φ d
50	4	19
65	4	19
80	8	19
100	8	19

## Precautions for use

- Caution**
- Select a meter within the proper flow range and within the maximum monthly usage.
- | Bore                                       | 15      | 20       | 25      | 32      | 40      |
|--|---------|----------|---------|---------|---------|
| Appropriate flow range (m <sup>3</sup> /h) | 0.1~0.8 | 0.15~1.2 | 0.2~1.6 | 0.4~3.2 | 0.5~4.0 |
| Maximum monthly usage                      | 85      | 125      | 170     | 340     | 420     |
- | Bore                                       | 50     | 65     | 80     | 100    |
|--|--------|--------|--------|--------|
| Appropriate flow range (m <sup>3</sup> /h) | 1.5~12 | 2.0~16 | 3.0~24 | 5.0~40 |
| Maximum monthly usage                      | 2,100  | 3,300  | 4,200  | 6,700  |
- This meter is a hot water meter (15-40 mm), which is a specified measuring instrument specified by the Measurement Law, and its expiration date is specified by the Measurement Law. The meter cannot be used for trading purposes after the expiration date of the verification test, so please stop using this meter. Expiration date

The expiration date is marked on the meter.

## Disposal Precautions

- Caution**
- When disposing of the product, dispose of it as industrial waste.

## Warranty Period

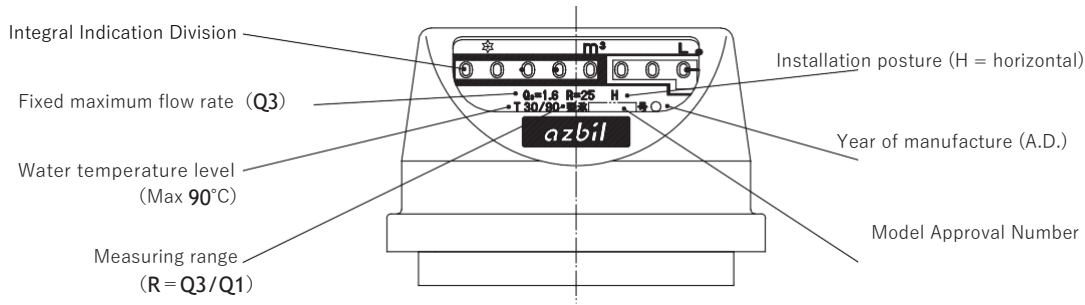
- The warranty period is one year from the date of delivery from the Company.

## Disclaimer

- Failure due to force majeure such as disasters
- Failure due to improper handling by the user
- Failure caused by modification or repair by someone other than the Company
- Secondary induced failures and failures caused by the failure of the delivered product
- Failure due to causes other than the delivered product

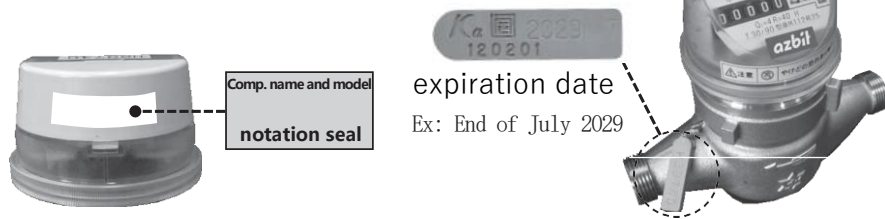
Hot water meters with a bore of 40 mm or less are considered specified measuring instruments under the Measurement Law. The validity period of the certification is 8 years. For meters larger than 50 mm, replacement is recommended every 5 years to maintain performance.

## How to read the display



## Standard conformity seal and certification expiration date

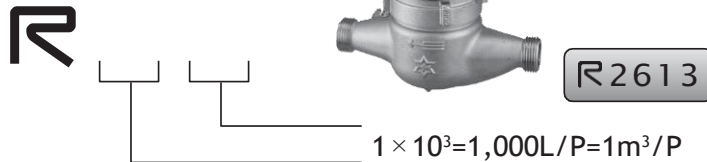
- A company name and model notation sticker is affixed to the back of the totalization display.
- The standard conformity stamp and the certification expiration date are stamped on the plate.



## About Pulse Transmitting Hot Water Meters

### Systematized measuring instrument symbol

※Pulse output rate (1m3/P)  
2613



Pulse signal method

If the unit has a pulse output function, a specific number is indicated after the "R" mark. The leading "26" indicates the signal form of the pulse, which may vary depending on the manufacturer.

The second half "13" indicates the pulse rate.

## How to rotate the display



Our hot water meters can be rotated (360°) to a position that is easy to read.  
→ Loosen the screw on the back of the display, rotate it to a position where it is easier to see, and retighten the screw.



## About Pulse Output

### Signal line: 2 wires (black and white), no polarity

### Pulse output setting (specified when ordering product)

Meter type	Bore	transmitted pulse unit
GKHA · GKHL	15 ~ 40	Select from 10L/P, 100L/P, 1m3/P
GBHT	50 ~ 100	Select from 100L/P, 1m3/P

### Regarding the outgoing pulse ON time

Type and bore	Q4 (m <sup>3</sup> /h)	Pulse rate	ON time	Type and bore	Flow (m <sup>3</sup> /h)	Pulse rate	ON time
GKHA(L)15	2.0	10L/P	3sec	GBHT50	25	100L/P	2sec
GKHA20	5.0	10L/P	1sec	GBHT65	35	100L/P	2sec
GKHL25	5.0	10L/P	1sec	GBHT80	50	100L/P	1sec
GKHA32	12.5	10L/P	0.5sec	GBHT100	75	100L/P	0.9sec
GKHA40	12.5	10L/P	0.5sec				

Pulse width (ON time) at maximum flow rate

- Since the reed switch is operated by a magnet, the ON time of the pulse varies depending on the flow rate.
- At maximum flow rate, the pulse ON time is the shortest, as shown in the table above.
- Under normal conditions of use, the ON time will be longer than this.
- For 15 to 40 mm, the calculation is based on 10 L/P, which has the shortest ON time.

### [Glossary]

- Type approval number: Number approved for transaction certification
- Designated manufacturer's mark: Notification mark of the manufacturer
- Registered trademark: Azbil Kimmon
- (Measuring range: value of Q3 (maximum flowrate)/Q1 (minimum flowrate) = proportional) R100 = Q1:Q3 = 1:100
- Mounting position: H=horizontal installation only
- Pilot: flow of water = rotation of impeller
- Standard conformity seal: Seal of certification that the product has passed the certification test
- Validity date of certification: Japanese calendar. Usable expiration date for trade certification