kamstrup

Installation guide

flowIQ® 3200 & 4200

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1 In general

Please read this guide carefully before installing Kamstrup water meters.

flowIQ® 3200/4200 meters are used for measuring potable water and all variants are built for submerged conditions.

All meters have an arrow on the side of the meter body, indicating the right flow direction through the meter.

Restrictions:

- Ensure that the meter is mounted in the correct flow direction
- Ensure correct operating pressure
- Avoid placing the meter in direct sunlight. For meters subjected to any kind of mechanical impact, it is recommended to install a lid on the meter

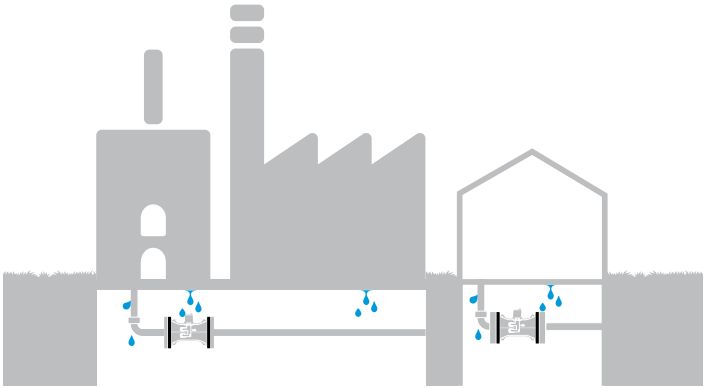
Disclaimer: In case of reasonably foreseeable misuse or incorrect mounting, Kamstrup´s warranty obligations no longer apply.

1.1 Intended use and installation scenarios

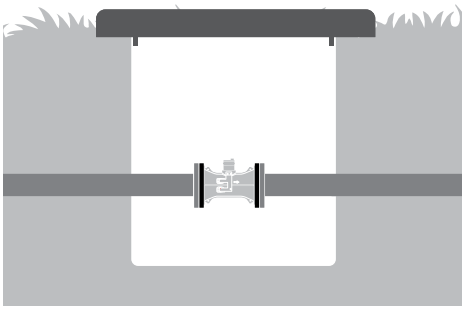
flowIQ® 3200 and 4200 meters are intended for the measurement of cold water consumption in industrial environments such as distribution networks and commercial buildings.

Installation scenarios can be in submerged conditions as well.

Ambient temperature range: 5-55 °C



flowIQ® 3200 and 4200 are suitable for mounting in well applications.



2 Lids

For meters subjected to any kind of mechanical impact, it is recommended to install a lid on the meter.

It protects the meter display from direct sunlight and/or the glass from moderate mechanical impact.

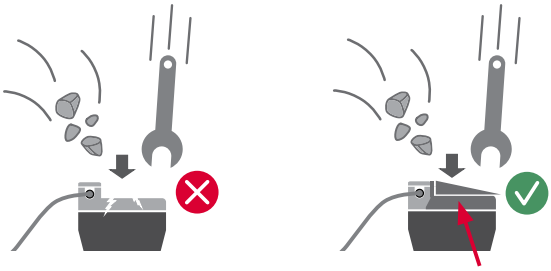
For both flowIQ® 3200 and flowIQ® 4200 meters, it is possible to install a lid.

There is one lid for meters without wired interface and one for meters with wired interface that fits all meter sizes. Both lids can be ordered as separate accessories and will not be attached or mounted on the meter from factory.

- Lid for meters w/o wired interface, type no.: 66-99-644
- Lid for meters w/wired interface, type no.: 66-99-645

Kamstrup requires the installation of a lid if the meter – installed in the intended application – is:

- Installed in public places where unauthorized persons may have access to the meter
- Installed where it may be subject to some kind of mechanical impact
- Installed in direct sunlight (installation of lid is recommended)



3 Installation requirements

3.1 In general

When installing the meter, it can be mounted in any angle. However, it must be installed correctly in relation to the flow direction:

- The flow direction is indicated by an arrow on the side of the meter
- The meter should be orientated in such a way that the display is easy to read

3.2 Installation precautions

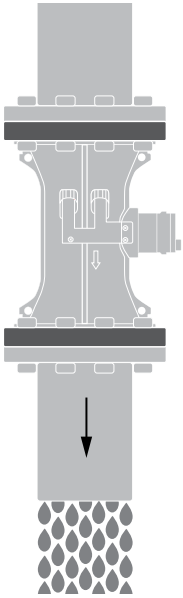
- The sealing surface of the flanged connection must be clean and level
- Replace gaskets when installing a new water meter
- ALWAYS use new gaskets
- Gaskets in original quality is of crucial importance

3.3 Operating pressure

In order to avoid entrapped air or cavitation in the meter – and to ensure correct measurement under all circumstances – the operating pressure in the pipe installation must always be minimum:

- **0.14 MPa (1.4 bar)** – flange meters – flowIQ® 3200
- **0.14 MPa (1.4 bar)** – split flange meters – flowIQ® 4200

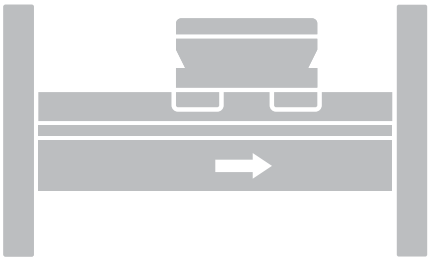
Note: Avoid installation where there is no option for back pressure



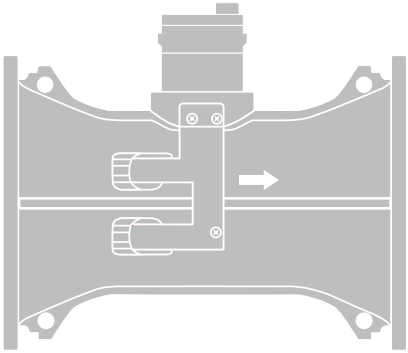
3.4 Flow direction

The meter has an arrow on the side of the meter, indicating the right flow direction through the meter. Only this direction is legal. If flow is registered in the wrong direction, the info code 'REVERSE' is visible in the display, which means that the meter detects reverse flow. The meter calculates the volume in a separate register not verified for billing. Reverse volume is NOT displayed on the meter.

flowIQ® 3200



flowIQ® 4200

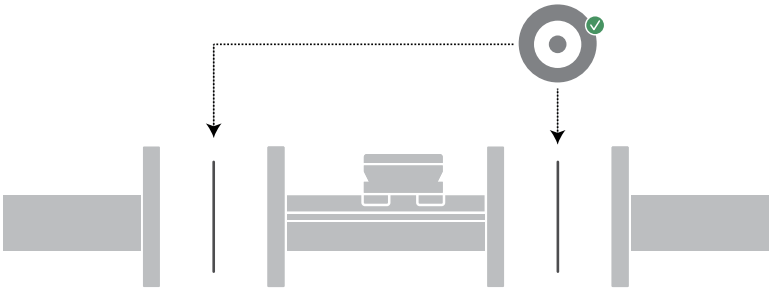


3.5 flowIQ® 3200 installation

flowIQ® 3200 is delivered as a cast stainless steel one-part flow body.

Use only the original fiber gaskets from Kamstrup. Flanges and gaskets can be ordered together or separately.

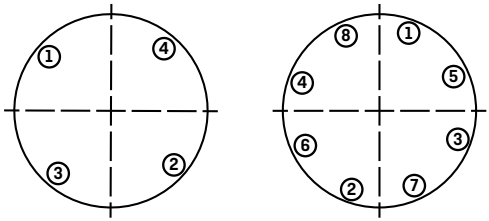
Installation sketch:



3.5.1 Criss-cross pattern

Tighten all flange bolts in a criss-cross pattern according to the correct tightening torque. See the torque table below.

Criss-cross pattern:

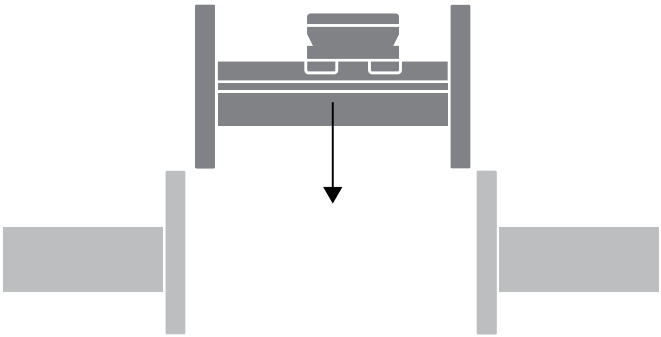


4-bolt 8-bolt

Meter flange DN	Bolt size mm	Tightening torque PN16
50	16	125 Nm
65	16	125 Nm
80	16	125 Nm
100	16	125 Nm

3.5.2 Installation

- Lift the meter into place



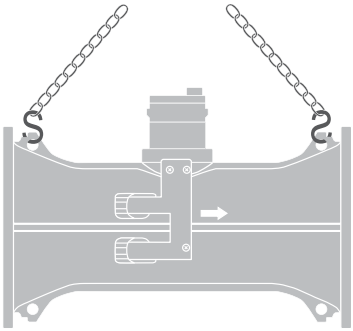
- Insert the two lowest bolts and nuts on each of the two flanges into the pipeline flanges
- Place the new gasket between the meter flanges and the pipeline flanges
- Pre-tighten the remaining bolts and nuts
- Tighten the bolts according to the described criss-cross pattern and with the correct tightening torque mentioned in the table
- Repeat the sequence to ensure that all bolts are tightened with the correct torque

3.6 flowIQ® 4200 installation

The flowIQ® 4200 meter is delivered with separate coated split flanges in cast iron.

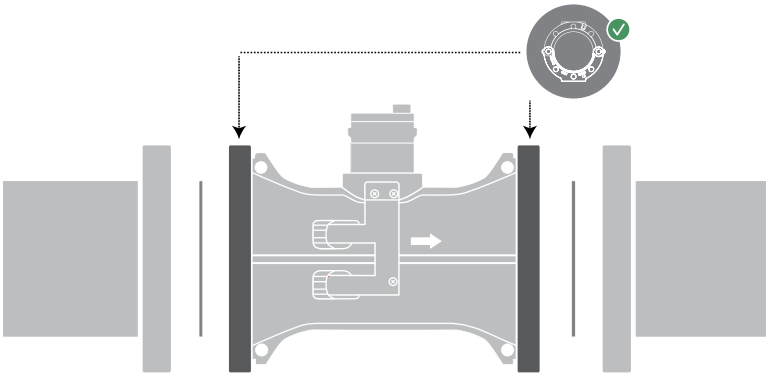
Use only the original split flanges from Kamstrup combined with original fiber gaskets. Flanges and gaskets can be ordered separately.

Warning! Only lift the meter by using the lifting lugs.



3.6.1 Split flange installation

Installation sketch:



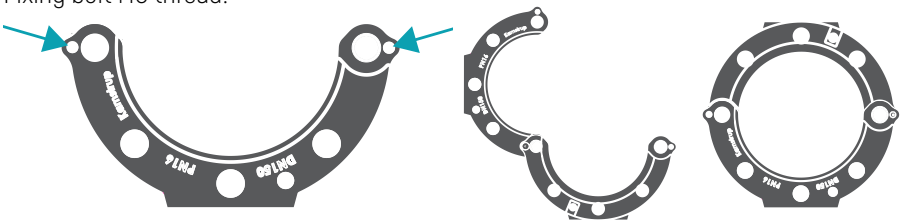
Installing a meter with split flanges gives the option to install the flanges on the pipeline systems first or on the meter itself. Best practice depends on the installation scenarios and the space conditions.
Both options are described below and both installation options require the same procedure for tightening the flange bolts in the described criss-cross pattern.

Tighten all flange bolts in a criss-cross pattern with the appropriate tightening torque. Repeat this procedure three times in total to ensure correct meter installation.

Note! Criss-cross pattern to be repeated three times.

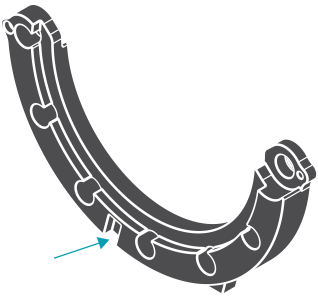
3.6.2 General flange features and specifications

Fixing bolt M6 thread:



The fixing bolt thread is useful for connecting the two split flange parts during installation.

Pushing nut milling:

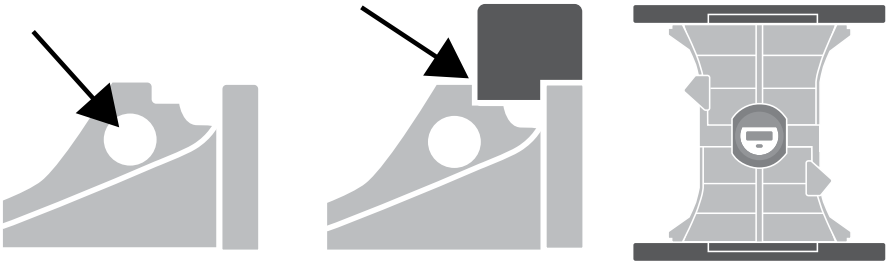


If extra space for the gasket is needed, insert an M10 nut in the pushing nut milling and insert an M10 bolt from the opposite side to press and enlarge the gap between the flanges, thus creating space for the gasket.

Lifting lugs

The lifting lugs have two purposes:

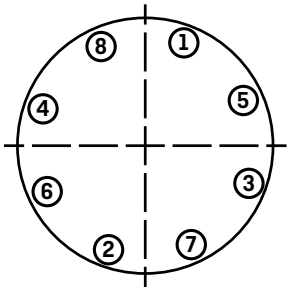
- Supporting safe conduct regarding meter installation when lifting
- Fixating the split flanges on the meter



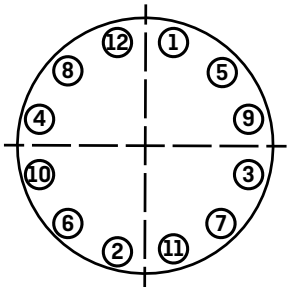
3.6.3 Criss-cross pattern

Tighten all flange bolts in a criss-cross pattern according to the correct tightening torque. Repeat this procedure three times according to the torque table below.

Follow the tightening pattern as shown in the figures below:



8-bolt

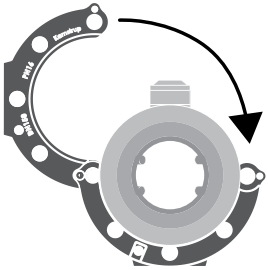


12-bolt

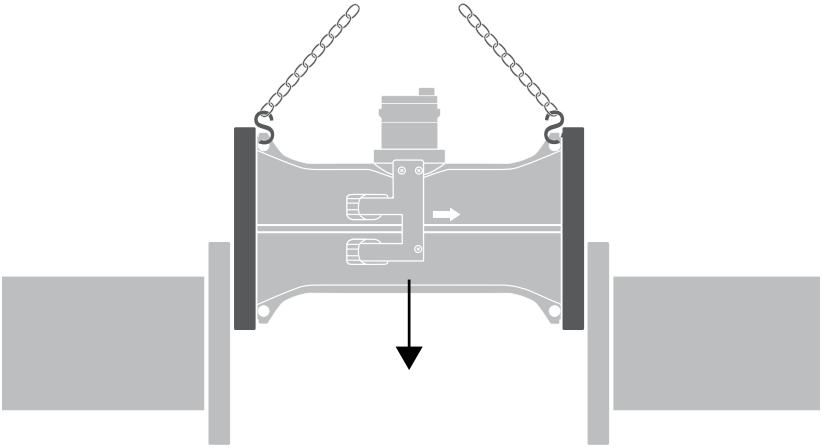
Meter flange DN	Bolt size mm	Tightening torque PN16
125	16	125 Nm
150	20	240 Nm
200	20	240 Nm
250	24	340 Nm
300	24	340 Nm

Installing the split flanges on the meter first:

- Place the meter vertically on one end
- Fixate the two split flanges together by using an M6 bolt
- Place the flange around the meter and close the flange by fixing a second M6 bolt in the opposite side
- Turn the meter upside down and install the other split flange



- Lift the meter via the two lifting lugs and lower the meter into place



- Insert the two lowest bolts and nuts on each of the two flanges into the pipeline flanges
- Place the new gasket between the meter flanges and the pipeline flanges

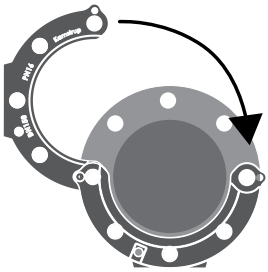
Note! To enlarge the gasket gap, utilize the pushing nut milling with a bolt and a nut.

- Pre-tighten the remaining bolts and nuts
- Tighten the bolts in the described criss-cross pattern and with the correct tightening torque mentioned in the table
- Repeat the sequence three times to ensure that all bolts are tightened with the correct

torque

3.6.4 Installing the flange on the pipeline first

- Fixate the two split flanges by using an M6 bolt
- Place the below part of the split flange on the below part of the pipeline flange by fixating the two lowest bolts first as shown in the figure below
- Insert the gasket between the flange and the pipeline flange



- Repeat this procedure on the opposite pipeline flange
- Lift the meter via the two lifting lugs and lower the meter into place
- Pre-tighten the remaining bolts and nuts
- Tighten the bolts in the described criss-cross pattern and with the correct tightening torque mentioned in the table
- Repeat the sequence three times to ensure that all bolts are tightened with the correct torque

Note! To enlarge the gasket gap, utilize the pushing nut milling with a bolt and a nut.

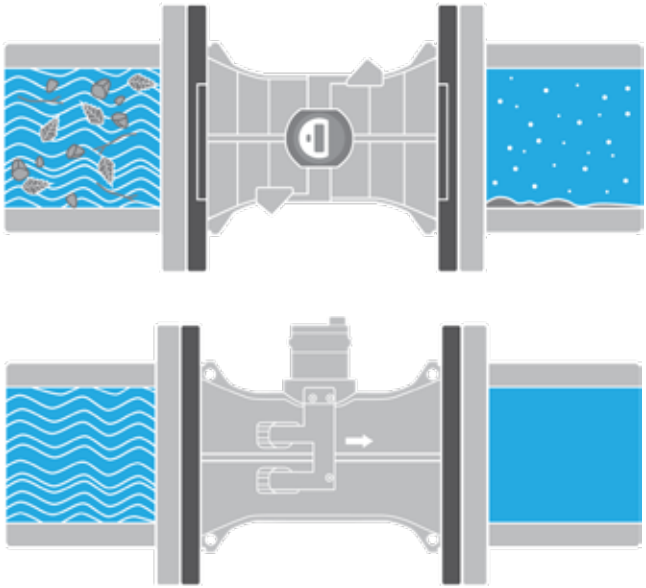
3.7 Installation angle

For all flowIQ® 3200 and flowIQ® 4200 flange meters, it applies that the meters can be mounted at all angles and in all positions.

However, it is recommended to mount the display in such a way that it is easy to read.

3.8 Sediments in the water

If the water contains sediments Kamstrup suggests to install the meter with the cup facing upwards.



3.9 Straight inlet

Normally, the meter requires neither straight inlet nor straight outlet to achieve accurate measurement. However, for installation environments with heavy flow disruptions, several lengths of straight inlets are advisable. This applies to all flowIQ® 3200 and flowIQ® 4200 flange meters.

Note! Cavitation affects the measurement accuracy and may physically damage the meter.

3.10 Flow disturbance and flow cavitation

The components mentioned below can generate heavy flow disruptions or pressure drops:

- Butterfly valve
- Pressure- and flow-regulated components
- Partially closed ball valve
- Pumps in front of the meter
- Pumps after the meter
- Double conjugation in several directions

3.10.1 Service connection

When the meter has been mounted in the system, neither welding nor freezing is allowed. The meter must be dismounted from the system before starting such work.

If the electrical service in the building has been grounded via the plumbing, it must be ensured that adequate electrical ground is maintained both during and after installation.

In order to facilitate replacement of the meter, closing valves should be mounted on both sides of the meter. Under normal operating conditions, a strainer is not required in front of the meter.