

# Mechanical installation

First select the right installation point. The installation point is crucial for the right measurements. Sources of error can be: installation effects, unknown flow profiles, swirls, pressure and temperature effects, humidity effects or oscillations in the flow. To ensure the highest possible accuracy of flow measurement, the installation and piping instructions must be followed. Therefore read this paragraph carefully.

Take into account:

- Choose a site which is accessible, which allows ease of wiring and maintenance, and which allows you to still read and access the display when needed.
- Meet the specifications of the In-line Meter. If the specifications are not met, for instance the pressure or temperature level is too high; this will cause inaccurate flow measurement and can even damage your flow meter.

Avoid:

- Excessive heat, check the temperature range of your In-line Meter.
- Potential water damage on the outside. Avoid areas of high humidity and avoid dripping. Be aware that the In-line Meter is not watertight, it is only IP65 (when mated with the USB protection cap).
- Corrosive atmosphere where possible.
- Electrical problems (high voltage/ high power).
- Mechanical vibration and danger (walking bridges, fork lift trucks).



Stop: These devices are only for use with Air, Nitrogen and other non hazardous and non combustible gases. The maximum working pressure is 16 bar (250 psi)

Arrêt: Ces dispositifs sont uniquement destinés à être utilisés avec de l'air, de l'azote et d'autres gaz non dangereux et non combustibles. La pression opérationnelle maximale est de 16 bar (250 psi)

## 1. Piping table

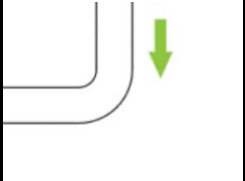

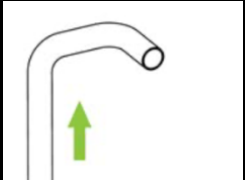
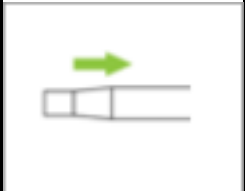
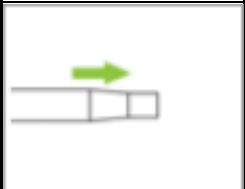
Check the piping table below and match it for your application. The table shows the amount of upstream and downstream length depending on the installation. If applicable in front of the meter, use given upstream length. If applicable in behind the meter, use given downstream length. Gas flow in pipes follows certain rules, which must be observed for optimal measurement results. In some cases the upstream length needs to be longer, in other cases it can be shorter.

### Piping table

The following table provides a guideline for proper distances between upstream or downstream objects and the In-line Meter. The upstream length is the length between the last non- straight object and the In-line Meter. If the upstream length is straight, and the distortion is downstream of the In-line Meter, you can use the column "downstream length" as a guideline. In very complex situations, with multiple up- and downstream objects, you should consider another location. This table is a practical guideline and is not exact science. Practical situations can have multiple sources of distortion, therefore Sensorfact does not take any responsibility for the correctness.



If possible choose a longer upstream length, as these are minimum values. The up- and downstream lengths are used industry wide as guidelines, but will never be a guarantee for obtaining the “true value”. So always be careful and try to build up your own experience from practical measurements

Picture	Description	Upstream length <sup>2</sup>	Downstream length <sup>2</sup>	Effect
	Single elbow	30 * D1	10 * D1	Distorted flow profile
	Complex feed-in situation (header)	40 * D1	10 * D1	Flow profile will be distorted
	Double elbow, multiple elbows following each other	40 * D1	10 * D1	Distorted profile + swirl
	Diameter change from small to large (gradual or instant)	40 * D1	5 * D1	Jet shaped flow
	Diameter change from large to small (gradual change, between 7 and 15 degrees)	10 * D1	5 * D1	Flattened flow profile

1 = inner diameter; 2 = minimum length

## 2. Installation without tubing kit

When you order your In-line Meter as a base model only, it is delivered without up- and downstream piping. You can install it directly between two threaded pipe ends. Please be aware that the connection between the pipe and the In-line Meter is very important. Any diameter mismatch will result in higher inaccuracy. For example the inner diameter of the pipe may affect the reading. Depending on the pipe wall thickness, the inner diameter can be smaller, which results in a higher measurement value. If you want to be sure of the connection, ask us to supply you with the piping kit.

The connection is BSP inner straight thread; 0.5", 1" or 2" depending on the In-line Meter model. For NPT thread, chase the BSP thread of the pipe ends with a die.

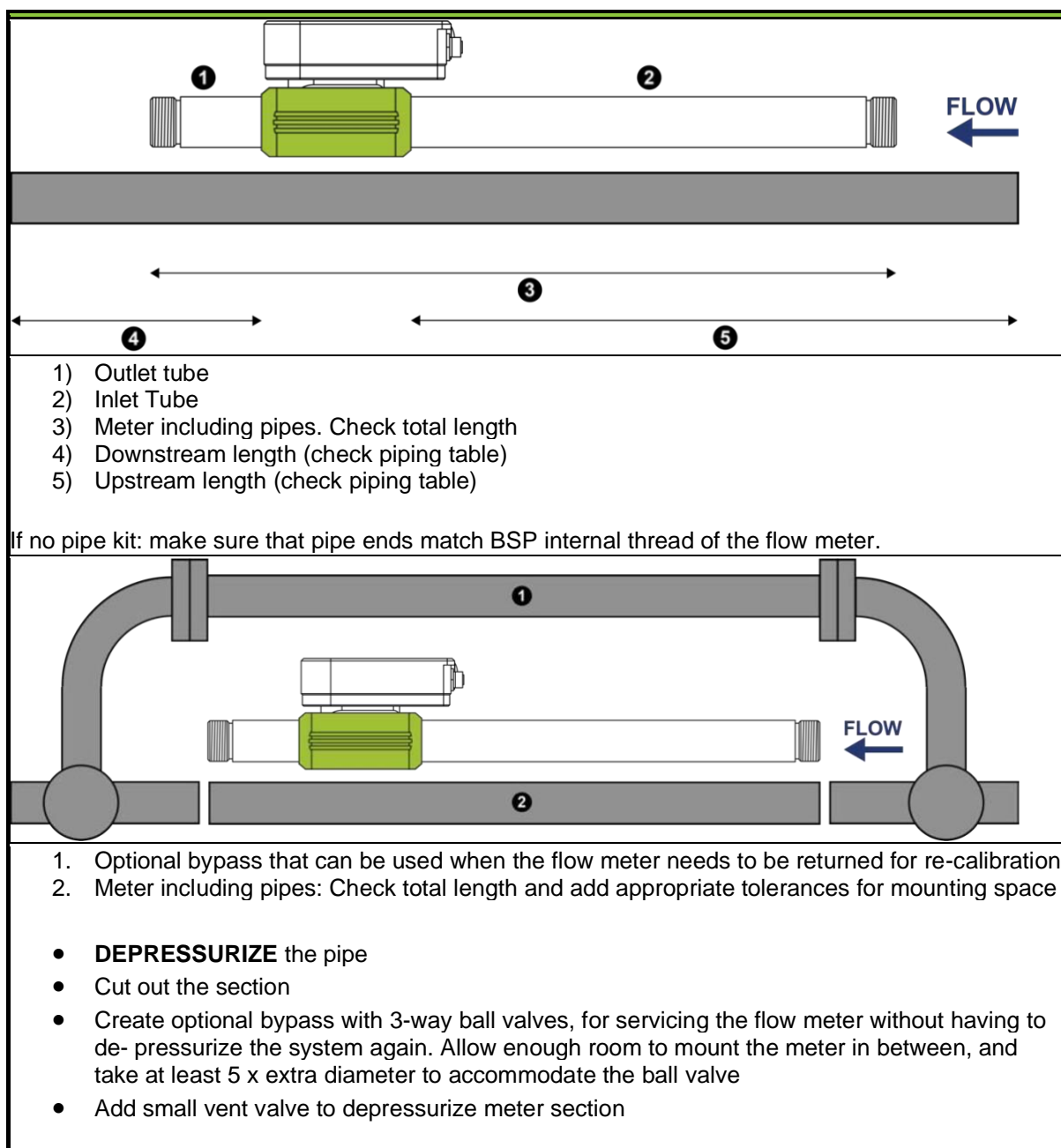
### 3. Installation with tubing kit

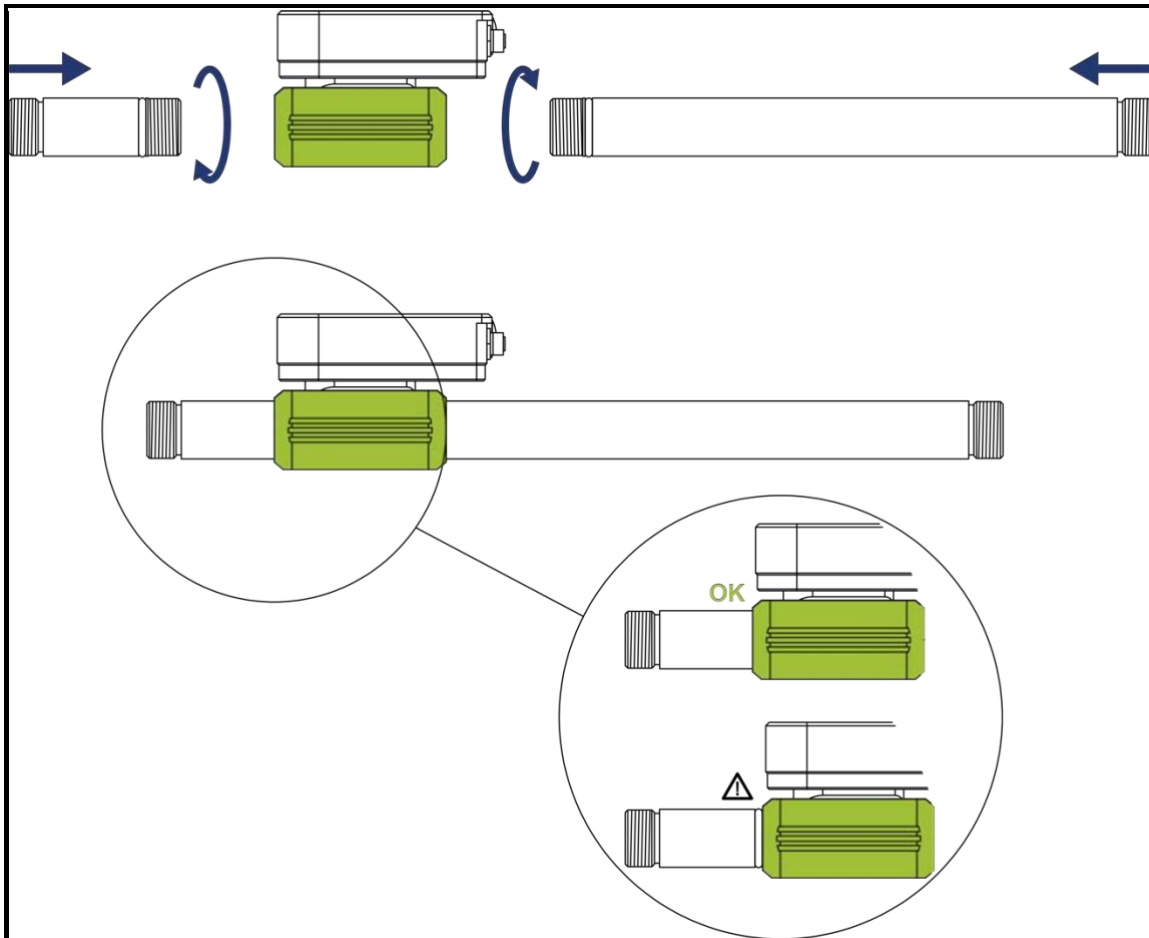
If you ordered the tubing kit or a full start kit, the In-line Meter is delivered with an optimized up and downstream piping kit, to ensure the best possible connection to the In-line Meter. For economical reasons, the inlet tubes provide a limited upstream length. For optimum results, see the piping table and create additional upstream pipe length.

Check the pipework and the O-rings, which are pre-mounted on the pipes. Apply a little O-ring grease to ease the mounting process. Screw both pipes into the In-line Meter. Gently screw the pipes into the flow meter inlet. Turn it all the way in, until the end of the pipe reaches the bottom of the inlet hole.

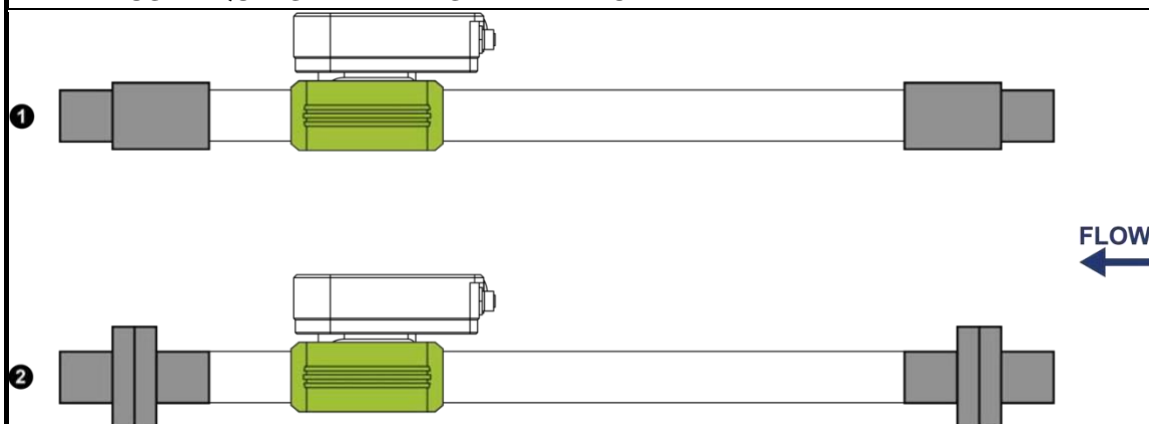
You can install the In-line Meter directly between two threaded pipe ends. The connection is BSP outer straight thread or NPT Taper; 0.5", 1" or 2" depending on the In-line Meter model.

### 4. Installation instructions





- Do not use tape
- Make sure pipe is completely inserted
- **NEVER USE LIQUID SEALANT INSIDE THE FLOW METER**



1. Fitted mounting with female-female socket (not included)
2. Flanged mounting with threaded flange (not included)