

## FLANGED WATER METERS INSTALLATION

The installation of Woltmann and tangential (irrigation) meters on the water pipes must be carried out considering the following precautions to guarantee their correct functioning.

Failure to observe these precautions involves, in general, rapid wear of the meter and possibly unreliable metering unreliability.

The installation of Woltmann or tangential meters on the water pipes should follow the following precautions to ensure their proper functioning.

As far as possible place the meter away from frost in a sufficiently lit and easily accessible place so to ease its reading and maintenance.

1 - The counter should be normally placed in an horizontal position. Only Woltmann meters can be installed vertically with ascending flow or tilted without suffering any damage.

NOTE: Never install the water meter in horizontal position with totalizer in upside down orientation.

2 - Before placing the meter in the water supply, the pipe should be well cleaned up, flushing a fair amount through it. It is possible to drain the water using a temporary stub. Generally the worst damages to the meters are due to debris left in the pipe.

3 - Installation of the meters in the vicinity of pumps must be avoided. It is advisable to install the meter as far as possible from them.

4 - Make sure all the water supply outlets, served by the meter, sit higher than the meter itself otherwise its metering precision could be altered. the highest position of the count itself as the recording of the counter may not be reliable. To address these possibilities, simply place the meter after a 'large upward curve that ensures always a pipe completely filled with water (Fig 1). This will prevent air bubbles that could affect the accuracy of measurement ..

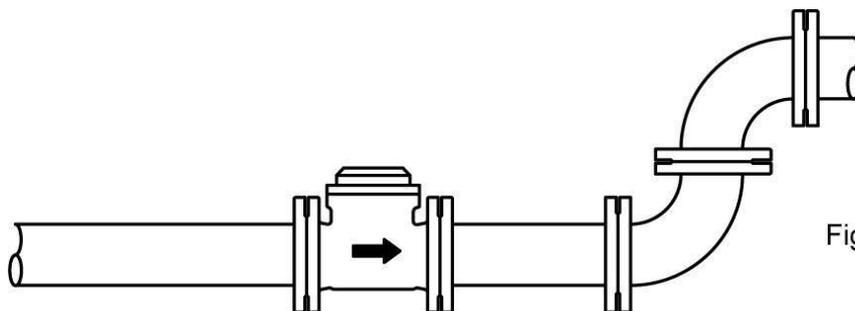
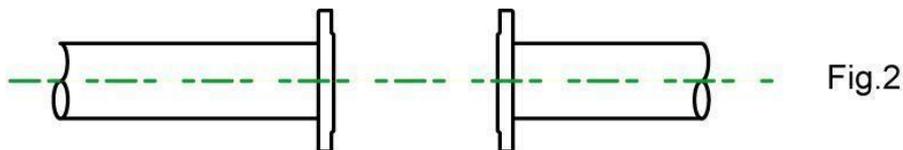
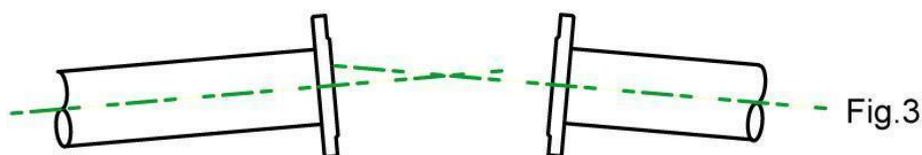


Fig.1

5- When installing, be careful with the arrow indicating the flow of water placed on the body of the meter.

- 6- Before installing the meter, make sure the pipes are perfectly aligned (Fig. 2) and not off-axis (Fig. 3). Installing the pipes off-axis would cause a continuous and significant mechanical stress on the meter itself.

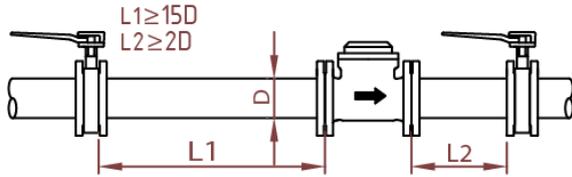
**CORRECT****WRONG**

- 7- Make sure the pipe flanges are perfectly parallel (Fig. 2) and not inclined (Fig. 4); this would cause the same drawbacks listed in the previous point.

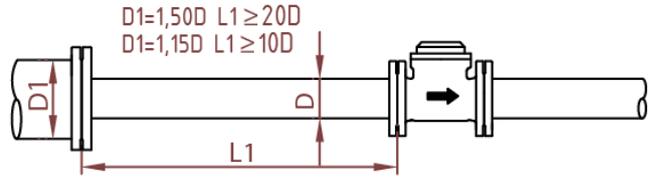
**WRONG**

- 8- We recommend installing a gate valve downstream and one upstream of the meter in order to facilitate a possible maintenance of the meter itself, without having to drain the complete pipeline.
- 9- During the water meter commissioning it is advisable to open first the gate valve placed downstream of the meter (so to flood the mechanical part of the instrument) and then slowly open the gate valve located upstream of the meter. This will prevent possible water hammers or acceleration of the flow that could damage the moving parts of the instrument.
- 10- In the event of devices installed upstream of the water meter (gate valves, curves, elbows, tees, reducers, ...) it is recommended to follow the following points. These devices can generate flow turbulence that in the long run may damage the moving parts of the measuring instrument. The letter D indicates the nominal diameter of the water meter.

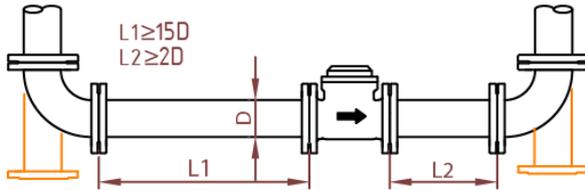
### Gate valves placed upstream and downstream



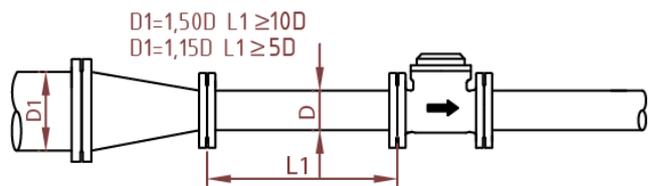
### Upstream bottleneck



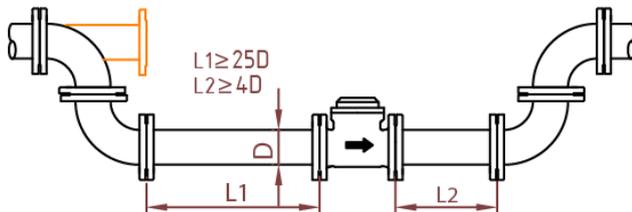
### Curve or T fitting



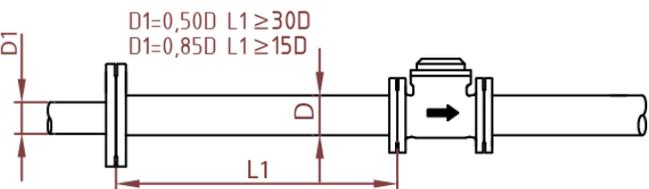
### Upstream bottleneck with conical fitting



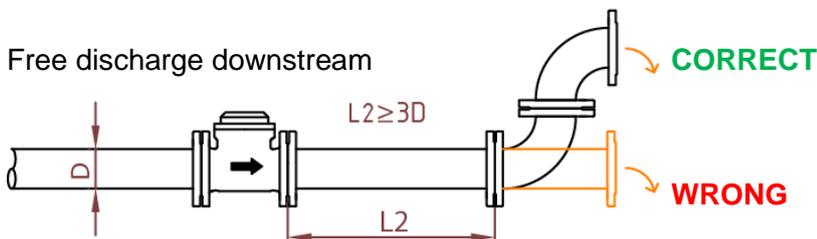
### Two curves or one curve and T fitting



### Upstream increased pipeline



### Free discharge downstream



The L lengths above are considered the minimum necessary. When possible, you should increase them.

You can also use a flow rectifier, which helps make the flow smoother, thus avoiding dangerous turmoil; when using this device all lengths can be reduced to half. In case of downstream installation of devices, you should always leave a length of at least 3D.