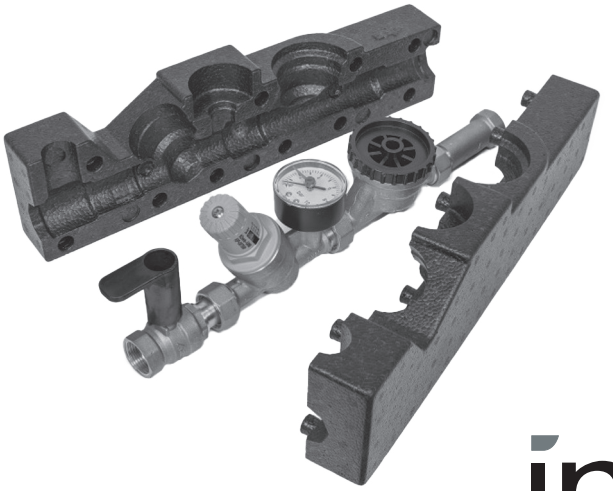
inta TENANT HUB

Tenant Hub Water Meter Assembly

WTA34

Installation and Maintenance Instructions



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Introduction

The Inta Tenant Hub water meter assembly combines several functions into one unit for use in multi-unit buildings.

The Inta tenant hub water meter assembly consists of a ball isolating valve, pressure reducing valve, pressure gauge, water meter carrier, double check valve and two female threaded connections.

Supplied with a bespoke moulded insulation shell to minimise heat loss or on cold water applications heat gains.

These instructions cover the installation, operation and maintenance. Please read the enclosed instructions before commencing the installation of this product, please note;

We recommend that the installation of any Inta product is carried out by an approved installer.

It is recommended, especially in hard water areas, that a water softener such as the ActivFlo or ActivFlo lite be fitted to reduce the risk of calcium deposits forming.

Products

Tenant Hub - ¾" female threaded tenant water meter assembly suitable for a Class D water meter	WTA34

Technical Specification

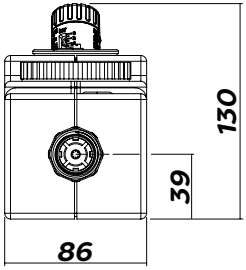
Assembled Unit

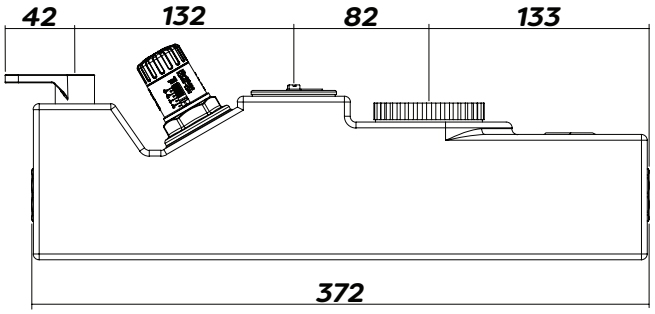
Max. inlet pressure - static:	16 bar
Max. inlet temperature:	65˚C
Pressure adjustment range:	1 to 6 bar
Pressure reducing valve pre-set pressure:	4 bar
Threaded connections:	BS EN ISO 228

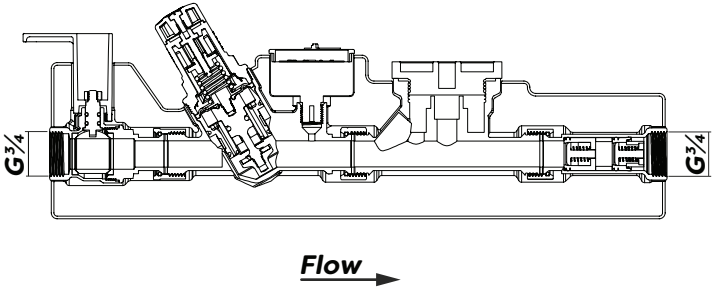
Insulation

Material	EPP
Density	40 kg/m³
Working temperature range	-5 to 80˚C
Thermal conductivity - BS EN 12667	0.037 W/(m-K) at 10˚C
Reaction to fire (DIN 4102)	class B2

Dimensions







Preparation for installation

Flush the water supply pipes thoroughly prior to installation. Do not allow debris, PTFE tape or any metal particles to enter the system.

Important: All plumbing is to be installed in accordance with applicable codes and regulations.

Important: Check the body markings and flow direction arrow to ensure that the valve is in the correct orientation. The assembly will only function correctly when the flow through it is in the same direction as the direction arrows on the individual components.

Important: Check the thread length on the two mating pipes is correct to avoid excessive penetration of pipe into the valve which may cause damage.

Important: The pipes connected to the assembly must be adequately supported.

Installation

Important - The cap on the water meter carrier is intended as a protective dust cap only. It is not intended to be in contact with water or used under pressure.

The tenant hub water meter assembly is supplied assembled with the insulation shell.

Remove the insulation shell to expose the hexagonal ends containing the female pipe threads.

If multiple assemblies are to be fitted adjacent to each other allow a distance of 175mm between inlet centres.

Allow a clearance of 90mm from the lowest part of the hexagonal ends to the wall or mounting surface to allow for the insulation shell to be fitted.

The tenant water meter assembly is normally installed vertically with the flow coming from below but can be used horizontally.

Cut the pipes to length, making sure that the cut is square, remove any burrs from the cut ends.

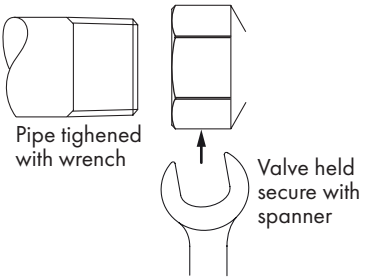
Thread sealing compounds appropriate for the application or PTFE tape may be used but excessive use should be avoided. Coarse fibrous sealing materials should be avoided if possible because with excessive use, they pack the threads and induce high stresses in female connections.

Ensure the threads are properly engaged and proceed to tighten the assembly onto the pipe, 'Stilson' type wrenches should not be used.

An appropriately sized or adjustable spanner must be located on the hexagonal end of the assembly into which the pipe is being fitted as shown.

Hand tighten onto the assembly, then as a guide tighten by a further 1.5 turns using the wrench.

Excessive tightening force should not be used since this could overstress the valve and cause permanent damage.



Setting the Pressure Reducing Valve

The pressure reducing valve is supplied pre-set at 4 bar to match the pressure gauge.

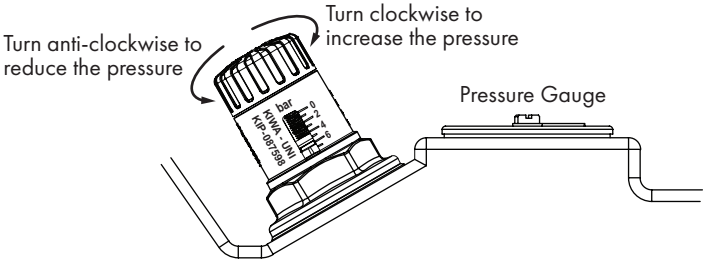
Setting the pressure reducing valve must be conducted when the hydraulic circuit is completely full and all the outlets are closed except one.

With one outlet open it allows the downstream pressure to be measured and the valve can be adjusted to the required outlet pressure.

If no outlets are open it will only show the pressure coming into the valve, the upstream pressure.

The pressure reducing valve has an indicator and is set by turning the plastic knob clockwise to increase the pressure and turning it anticlockwise to decrease the pressure.

The pressure gauge should be used to confirm the downstream pressure before the water meter.



Water Meter

The Inta tenant hub water meter assembly is supplied with a carrier suitable for a class D water meter - not supplied as part of the assembly.

The water meter should only be fitted with the system empty or with the tenant water meter assembly isolated and drained.

To fit the water meter unscrew the plastic cover and screw the water meter into the carrier.

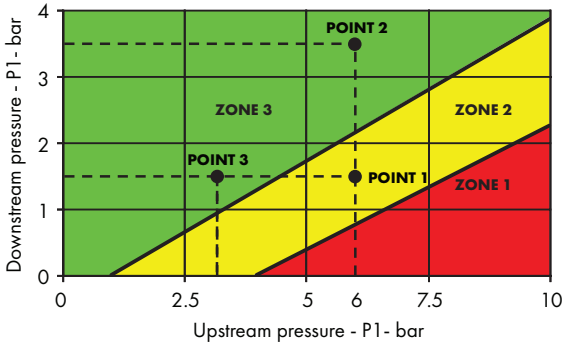
A class D water meter for hot and cold water applications offers a dependable and accurate reading of water consumption and is ideally suited for use in domestic premises and small commercial buildings.

Cavitation Diagram

In order to prevent cavitation, which can cause excessive noise, vibration and damage to the valve and downstream pipe, in certain pressure situations with high inlet pressures and low outlet pressures (high pressure loss) then a number of pressure reducing valves may be required.

The cavitation diagram shows three areas of operation depending upon the upstream and downstream (outlet) pressures.

Cavitation Diagram*



- **ZONE 1: Damage and Noise** - The characteristics of cavitation are clearly audible and visible inside the pressure reducing valve and pipework. The valve should not be used under these conditions.
- **ZONE 2: Critical Zone** - Highlights the possibility of cavitation of occurring inside the pressure reducing valve or pipework. Using the valve under these conditions should be avoided and is not recommended.
- **ZONE 3: Operating Zone** - The pressure reducing valve works under its optimum conditions. The valve can safely be used under these conditions.

In order to avoid cavitation, we recommend making the pressure reducing valve operate inside **ZONE 3**, and also, to prevent the ratio between the maximum inlet pressure and the regulated outlet pressure of the pressure reducing valve from exceeding the value.

Possible Solution

Pressure reducing valve A [POINT 2]

- Inlet pressure P: PMA = 6.0 bar
- Outlet pressure: PVA = 3.5 bar

  Pressure ratio: 6.0/3.5 = 1.7 < 2.5

N.B.: The valve inlet pressure must never be higher than the maximum operating temperature of the components downstream from the pressure reducing valve, so as to avoid damaging them or malfunctioning.

Pressure reducing valve A [POINT 2] Continued

Selection

If the pressure reducing valve is intended to work between the following pressure values:

- Inlet P: PM = 6.0 bar
- Outlet P: PV = 1.5 bar

As we can see in the diagram, (POINT 1) the pressure reducing valve runs into certain cavitation phenomena at these work pressures.

In order to avoid these phenomena and considering that the ratio between the maximum inlet pressure and the outlet regulation pressure must not exceed the value of 2.5, we could introducing a second pressure reducing valve in series, so as to obtain the same pressure differential, via two distinct pressure differentials.

The suggested solution is therefore to use two pressure reducing valves in series which must both work in ZONE 3 of the diagram, to divide the pressure difference and where the pressure ratio does not exceed 2.5.

Pressure reducing valve B [POINT 3]

- Inlet pressure P: PMB = 3.0 bar
- Outlet pressure: PVB = 1.5 bar

  Pressure ratio: 3.0/1.5 = 2.0 < 2.5

Apart from acting on the pressure differential, the cavitation phenomena of the pressure reducing valve can also be controlled by choosing an optimum velocity value of the fluid passing through it.

We therefore recommend choosing the diameter of the pressure reducing valve so that the velocity of the fluid passing through it is between the following values:

Per water: V = 0.7 ÷ 1.5 m/s (residential use)

V = 1 ÷ 3.5 m/s (industrial use)

N.B: The cavitation diagram is only intended to supply technicians with a rapid guide reference for associating the chosen component with a given size of system. The values shown in the table are not binding and do not therefore represent the performance limits of the components.

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