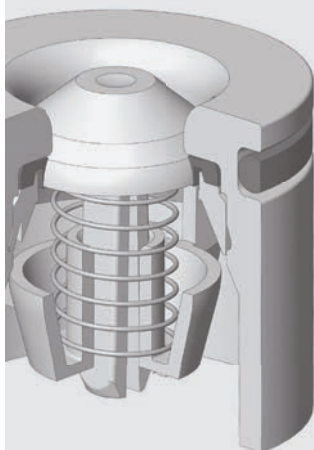


# Non-return insert check-valves





- Silent due to a unique guidance system, patented WATTS Ocean®
- Minimum head loss
- Do not generate hammering
- Springs rated to different opening forces
- Specific materials suitable with high temperatures, high pressure and chemicals.
- Various designs for various applications
- Wide range: from DN 8 to DN 50
- Compliant with European approvals and regulation
- Robust



## Technical description

The non-return valve is a safety device that allows the water to pass in one direction and prevents backflows in the opposite direction. In some applications, polluted water could contaminate the supply network of drinking water.

In permanent contact with the health authorities and official testing laboratories, the WATTS Group designs so-called "inserts" check valves for our OEM customers. Complying with the requirements of the NF mark and European approvals, they are designed to be in contact with drinking water.

These EB type inserts check valves have established themselves in residential, commercial and industrial installations. **The performance and reliability of the WATTS check valves are appreciated by our integrator customers** but also by water companies who supply EA type protection or water meters equipped with a non-return system. They can therefore check the efficiency of the protection at each contractual maintenance of water meter.

The wide variety designs of check valves portfolio has also proven in many other fields of application :

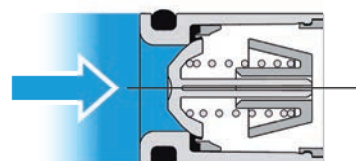
- To prevent contamination risks of drinking water and sensitive equipment caused by backflows of fluids, by siphoning or overpressure  
Ex: water meter, pumps, filters, head of shower, kitchen spray...
- To prevent risky crossover of fluids between systems with different lines pressures  
Ex : hot and cold water supplies in thermostatic valves.
- To hold water in a system or pipe to prevent it from running dry or to facilitate a restart  
Ex : pump systems
- To minimize the risk of backflow or leakage in case of a valve failure  
Ex : solenoid valve on the upstream side of an application
- To ensure water flows in one direction to safeguard correct functioning in complex systems  
Ex : heating systems with multiple heating zones, booster pumps
- To prevent dysfunctions due to system pressure variations in pressure-sensitive installations (unwanted discharge of water)  
Ex : a backflow preventer with aerated intermediate pressure chamber

They are used in a multitude of applications, requiring a protection system regulated by the European Standard EN 1717.

## Operating principle

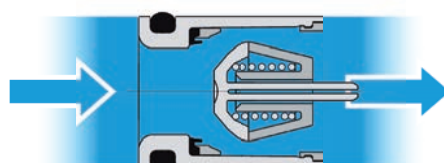
### Step 1 : No flow

The spring press and maintains the stem in closed position and prevents the water to pass.



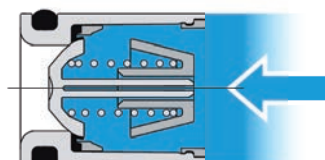
### Step 2 : Normal functioning

When the water pressure is higher than the spring pressure, the stem slide to its seat and allow the water to pass



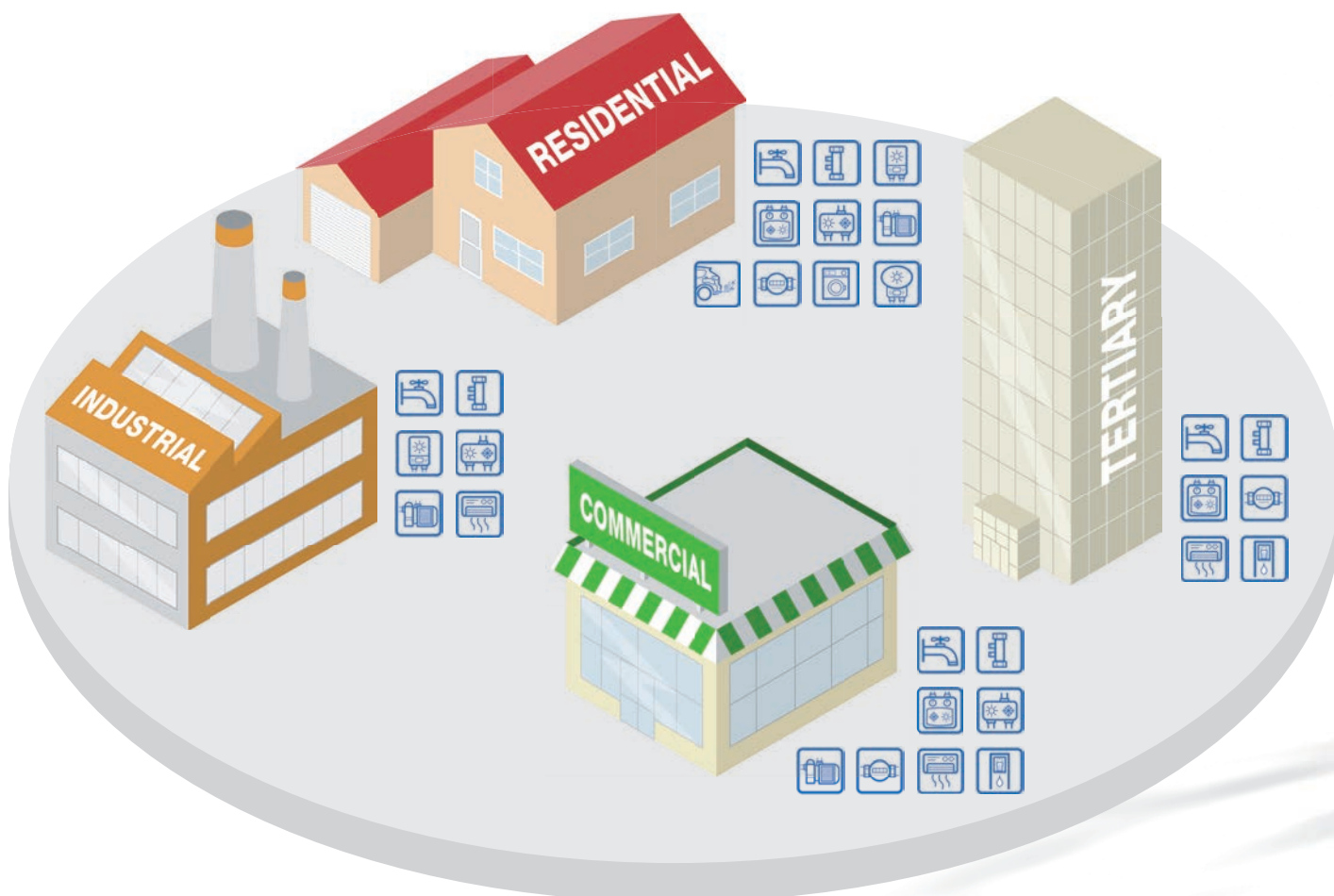
### Step 3 : Backflow or backsiphonage

In case of backflow (increase of pressure downstream of the valve) or backsiphonage (reduction in pressure upstream of the valve) the direction of flow can change. The flow comes from the downstream side, bring back the stem to its initial position and stop the water to pass



**Non-return valves can be incorporated into the applications of our customers who manufacture devices requiring an antipollution protection.**

To ensure an optimum safety of the network, the choice of the protection system must correspond to the level of risk of the fluid and must comply with health and safety requirements.



Sanitary taps



Antipollution device



Water heater, boiler



Hydraulic module



Thermostatic mixing valve, solar applications



Pump



Water meter



Washer



Air conditioning



Vending machine



Hot water tank, buffer



Chemical fluid injection in exhaust duct

**Others applications :** high pressure cleaner, heat plate exchanger, filters, beverage dispensers, coffee machine, soft water station, water container ...



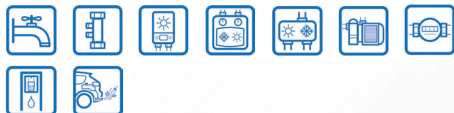




## IO

**DN 15, 20, 25, 32, 40, 50**

The O'ring is already mounted on the check valve and keep fixed, which creates an easy to fit check valve.



## IN

**DN 15, 20, 25, 32, 40, 50**

The O'ring can be mounted first and secondly the check valve itself. In this way the O'ring will not be damaged by sharp edges of the side-connection.



## CO

**DN 10, 13, 14, 15, 20**

Absolute sealing at high or low back pressure ensured by an especially designed lip-seal.



## WM

**DN 15, 20, 25, 40**

Specifically designed to be incorporated in water meter bodies.



## WI

**DN 20**

This check valves is distinguished by its unique construction.



## FI

**DN 10, 15**

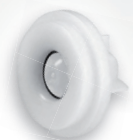
This particular design offers new possibilities of applications.



## FO

**DN 15**

The particular design with collar allows it to be integrated into specific applications.



## FW

**DN 10**

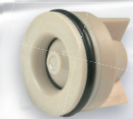
This particular design offers new possibilities of applications.



## IW

**DN 20**

This check valves is distinguished by its unique construction.



## TO

**DN 15**

It stands a maximum half hour of heavy treatment with saturated steam up to 180°C. The lip-seal is mounted in such a way that it will survive the passage of high temperature steam.



## CS

**DN 10**

Made with specific materials CS check valve is resistant to chemicals fluids. Same contours in open and closed position (stem of valve doesn't protrude).





## Approvals

Please consult us to know the specifics approvals for each product :



**Kiwa**

**UK-REG 4**

**WRAS**

**ACS**



## Mounting tool



In order to avoid any damage of the check valves and O'rings it is very important that check valves are mounted in the correct way. That is why, to support positioning and mounting, Watts produced a mounting tool for IO and IN check valves, on request.

## Norms / Regulations

Incorporated check valves are built according to the EN 1717 regulation. Incorporated in a device, it guarantees a drinking water protection from a fluid of category 2.

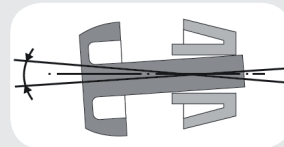
EN 1717 : Protection of drinking water against the pollution in indoor distribution systems and general requirements for protective devices against pollution by return.

## Customer references

- Chaffoteaux
- Diehl
- Greiner
- Hydroko
- Itron
- Maddalena
- Radiant
- Sensus
- Vortex
- Wagner Sola
- Wilo

## Patent

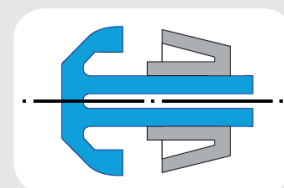
### Classic obturator guidance



Some vibrations can occur at low flow rates. These vibrations are generated by possible lateral movements, of the valve.

Until now it was not possible to avoid this defect without affecting the hydraulic characteristics.

### WATTS obturator guidance



Thanks to the unique guide system by slotted stem that eliminates the possibility of movement and optimal hydraulic profile, vibrations are eliminated.

Providing this guidance without the possibility of movement avoids calcareous deposits and vibration, ensuring a flawless and quiet operation for years.

**To consult the product data sheets, please visit**  
[www.watts.eu](http://www.watts.eu)





[www.watts.eu](http://www.watts.eu)

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The descriptions and photographs contained in this product specification sheet are supplied by way of information only and are not binding.  
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