

Plumbing systems

Drinking (potable) water supply – господарсько-питне водопостачання

Cold plumbing - Холодний водопровід

Hot plumbing - Гарячий водопровід

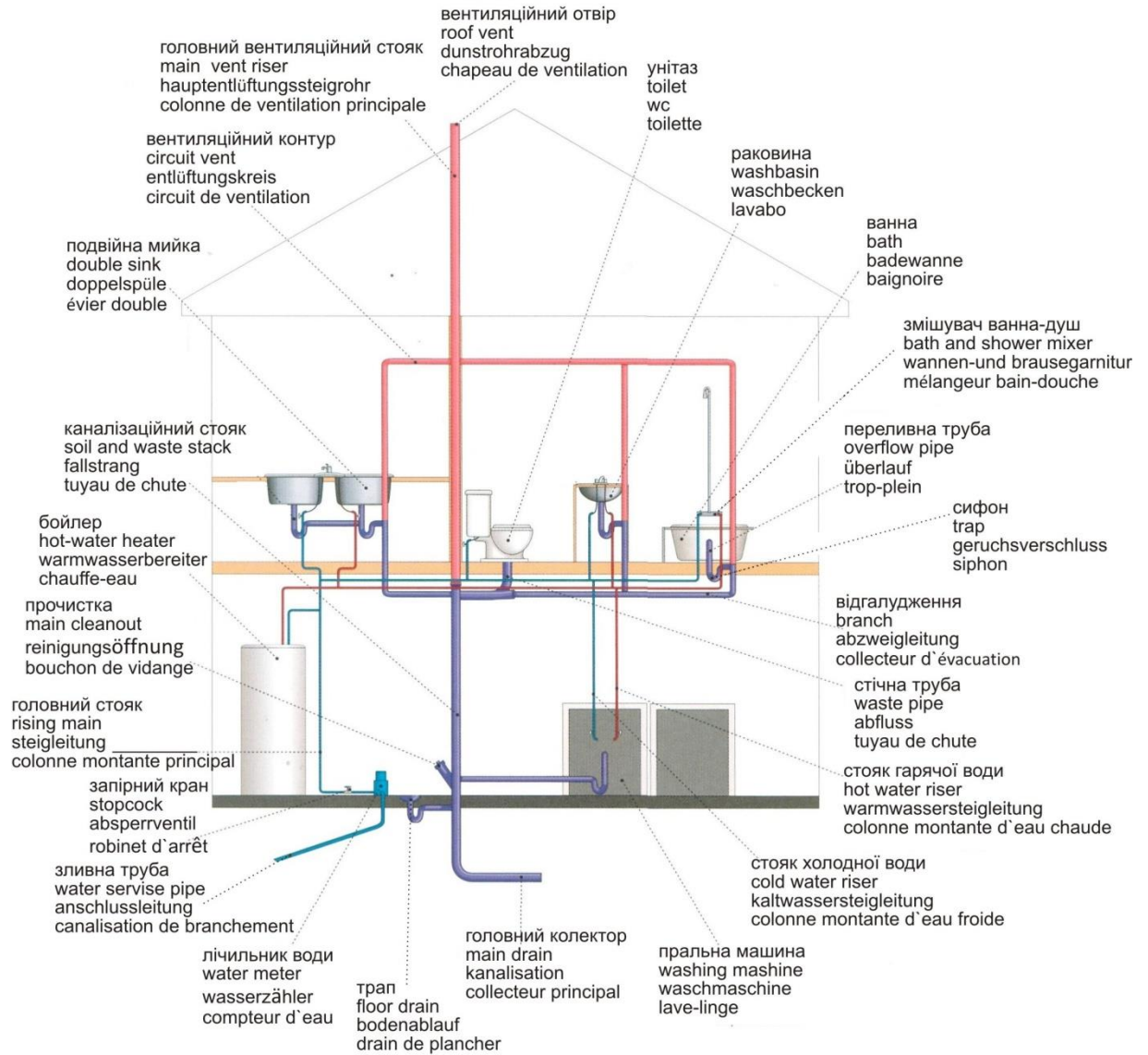
Waste drain – внутрішня каналізація

Stormwater drain – дощова каналізація

Industrial water supply - Промислове водопостачання

Fire fighting system - Система пожежогасіння

Санітарно-технічна система / Plumbing system / Sanitärinstallationssystem Circuit de plomberie



Gaskets (прокладки) are used for sealing of flange joints. In general, gaskets should not be reused. Various types of gaskets are available depending upon their construction, materials, and features. The following are the type of gaskets commonly used:



Gender of fittings (папа/мама)

Piping or tubing are usually (but not always) inserted *into* fittings to make connections. To avoid confusion, connections are conventionally assigned a **gender** of male or female, respectively abbreviated as "M" or "F". An example of this is a "3/4 inch female adapter NPT," which would have a corresponding male connection of the same size and thread standard (in this case, **NPT**).

Elbow - коліно

An elbow is a pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, usually a 90° or 45° **angle**, though 22.5° elbows are also made. The ends may be machined for **butt welding**, **threaded** (usually **female**), or **socketed**, etc. When the two ends differ in size, the fitting is called a **reducing elbow** or **reducer elbow**.

Elbows are categorized based on various design features as below:

- Long Radius (LR) Elbows – radius is 1.5 times the pipe diameter
- Short Radius (SR) Elbows – radius is 1.0 times the pipe diameter
- 90 Degree Elbow – where change in direction required is 90°
- 60 Degree Elbow – where change in direction required is 60°
- 45 Degree Elbow – where change in direction required is 45°

Coupling - муфта

A **coupling** connects two pipes to each other. If the size of the pipe is not the same, the fitting may be called a **reducing coupling** or **reducer**, or an **adapter**.



Reducer – переходи



Тее - трійники



Pipe tee (copper sweat)

A tee is the most common pipe fitting. It is available with all female thread sockets, all solvent weld sockets, or with opposed solvent weld sockets and a side outlet with female threads.

Cross - крестовина

Cross fittings are also called 4-way fittings. If a branch line passes completely through a tee, the fitting becomes a cross.

Cap - заглушка



Pipe cap (copper sweat)

A type of pipe fitting, usually liquid or gas tight, which covers the end of a pipe. A cap is used like plug, except that the pipe cap screws or attaches on the male thread of a pipe.

Plug

A plug closes off the end of a pipe. It is similar to a cap but it fits inside the fitting it is mated to. In a threaded iron pipe plumbing system, plugs have male threads.



Nipple

A short stub of pipe, usually threaded **steel**, brass, chlorinated polyvinyl chloride (CPVC) or copper; occasionally just bare copper. A nipple is defined as being a short stub of pipe which has external male pipe threads at each end, for connecting two other fittings. Nipples are commonly used for plumbing and hoses, and second as valves for funnels and pipes.



Barb – наконечник для шланга

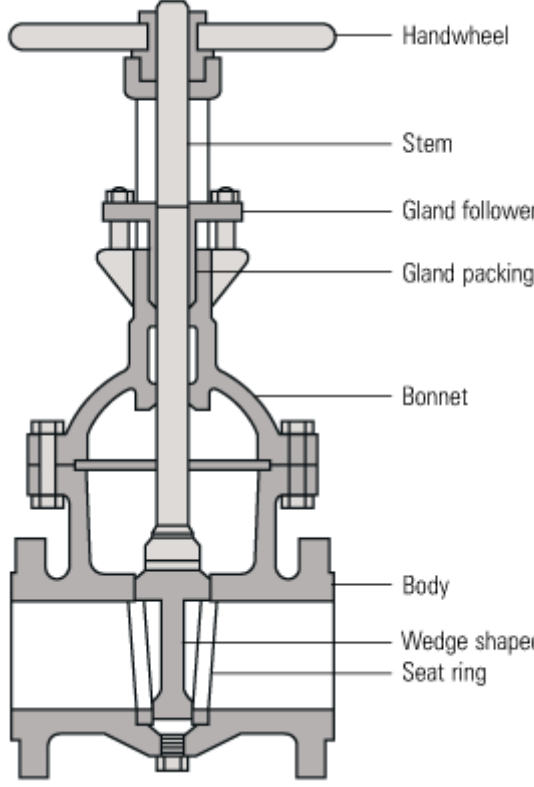
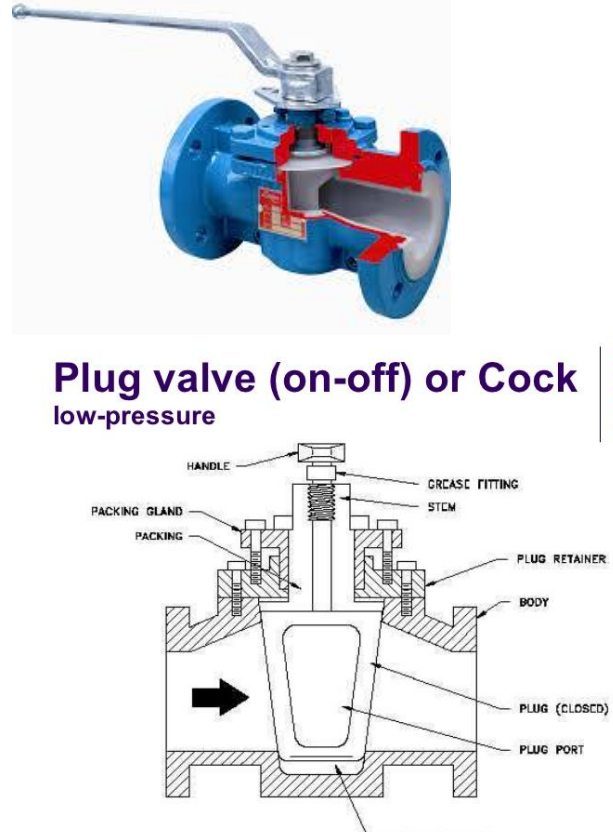


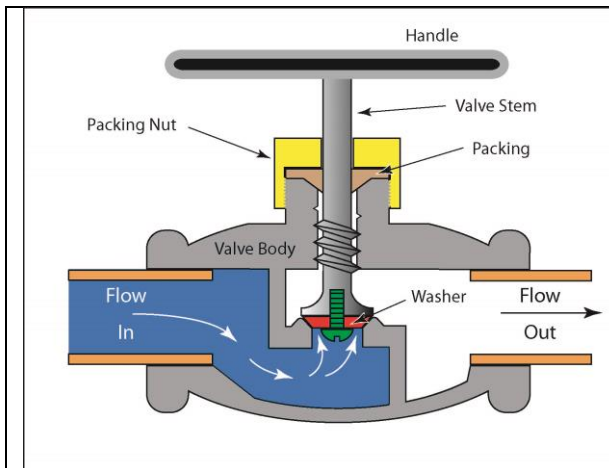
Hose barb fittings made of brass

A "barb" or "hose barb" fitting is used to connect flexible hose or tubing to pipes. A barb fitting typically has a male-threaded end used to mate with female threads. The other end of the fitting has either a single- or multiple-barbed tube having a tapered stub with ridges, which is inserted into a flexible hose to secure it.

Valves

Valves are equipment designed to stop or regulate flow of any fluid (liquid, gas, condensate, steam, slurry, etc.) in its path. Valves are categorized depending on their applications like isolation, throttling, and non-return. Various type of valves are available depending upon the type of construction as follows:

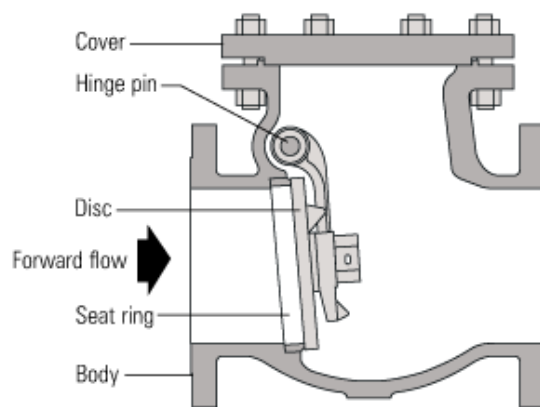
 <p>Handwheel</p> <p>Stem</p> <p>Gland follower</p> <p>Gland packing</p> <p>Bonnet</p> <p>Body</p> <p>Wedge shaped gate</p> <p>Seat ring</p>	 <p>Plug valve (on-off) or Cock low-pressure</p> <p>HANDLE</p> <p>GRASCO FITTING</p> <p>STEM</p> <p>PACKING GLAND</p> <p>PACKING</p> <p>PLUG RETAINER</p> <p>BODY</p> <p>PLUG (CLOSED)</p> <p>PLUG PORT</p> <p>GRASCO GROOVES</p>
<p>Gate valve - used for isolation</p>	<p>Plug valve - used for isolation only</p>



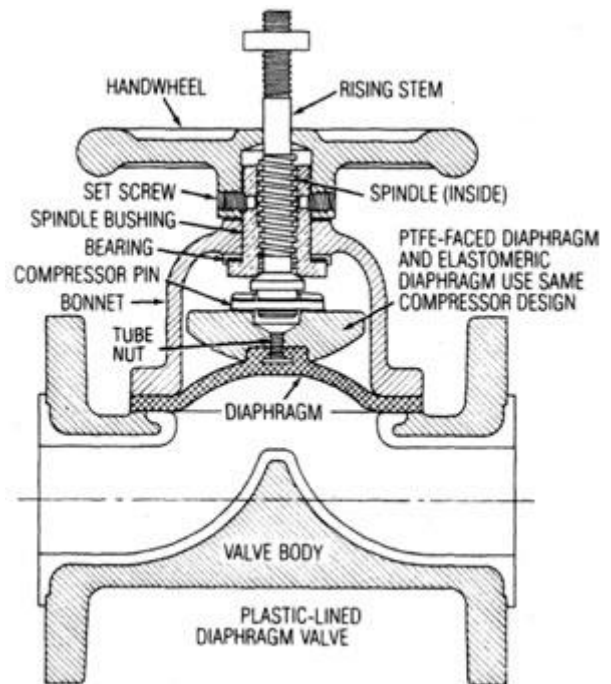
Globe valve - used for throttling



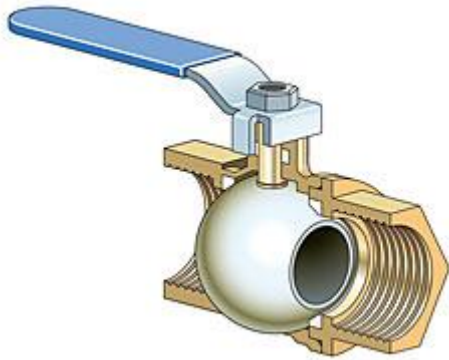
Butterfly valve - used for isolation as well as throttling



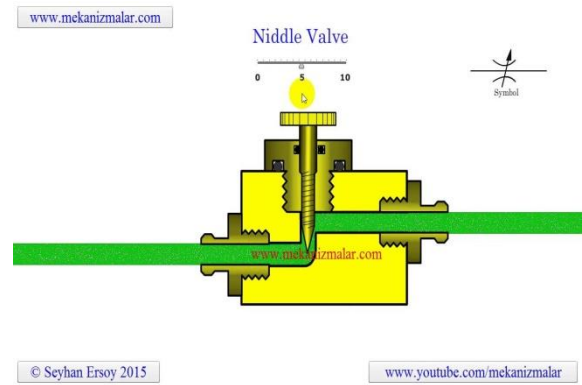
Check valve - used for preventing reverse flow (non-return)



Diaphragm valve - used for isolation as well as throttling



Ball valve - used for isolation only



Needle Valve - used to control flow rate to a desired amount

Fastener

Threaded pipe - резьба

Solvent welding – сварка розчиненням

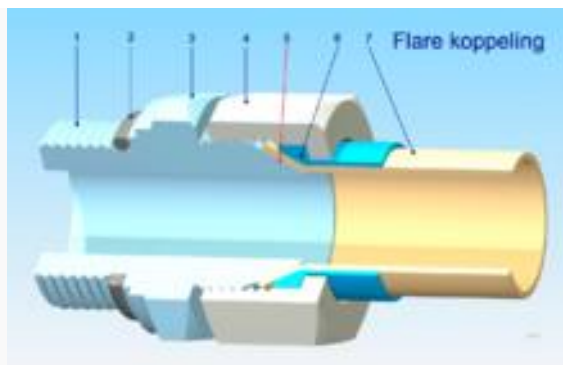
A solvent is applied to PVC, CPVC, ABS, or other plastic piping, to partially dissolve and fuse the adjacent surfaces of piping and fitting.

Welding - зварювання

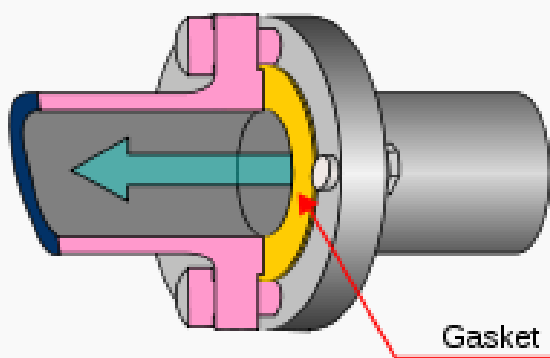
Compression fittings



Flare fittings- развальцовка

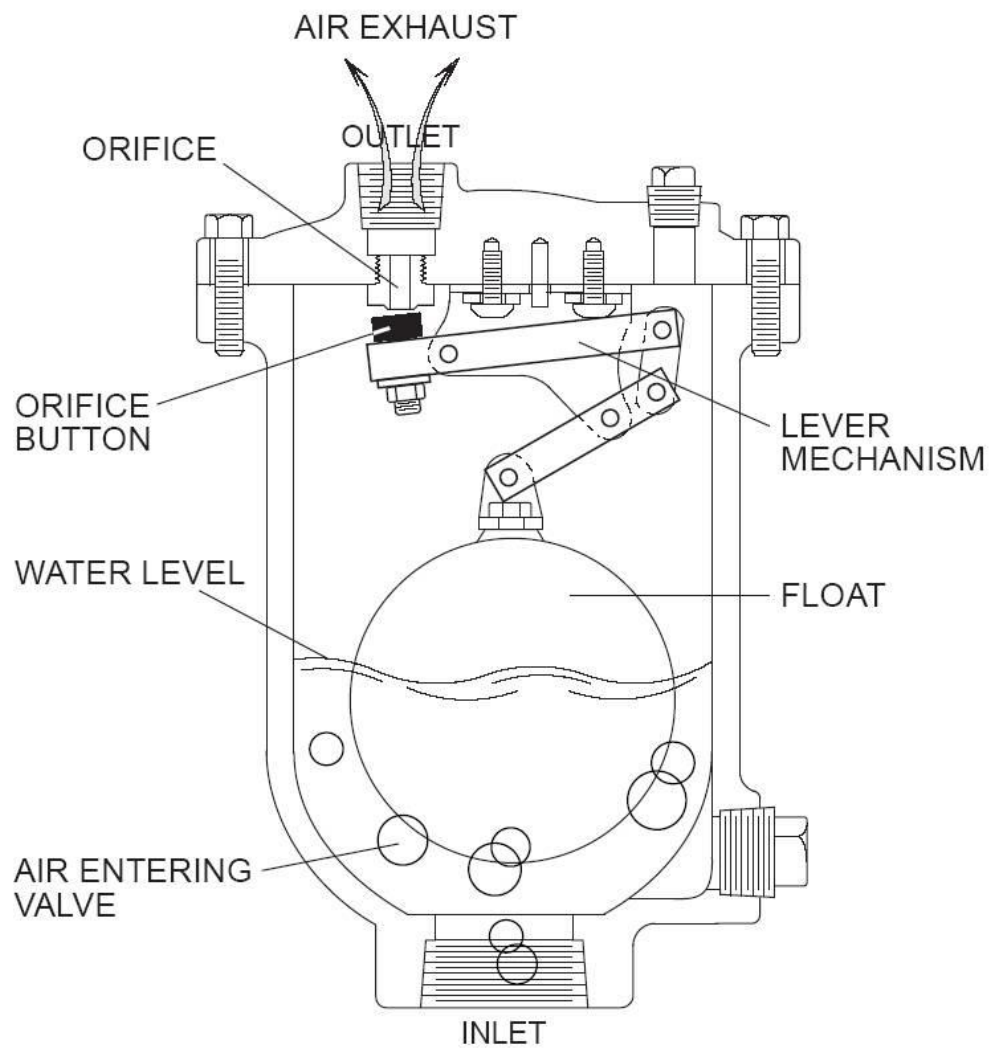


Flange fittings

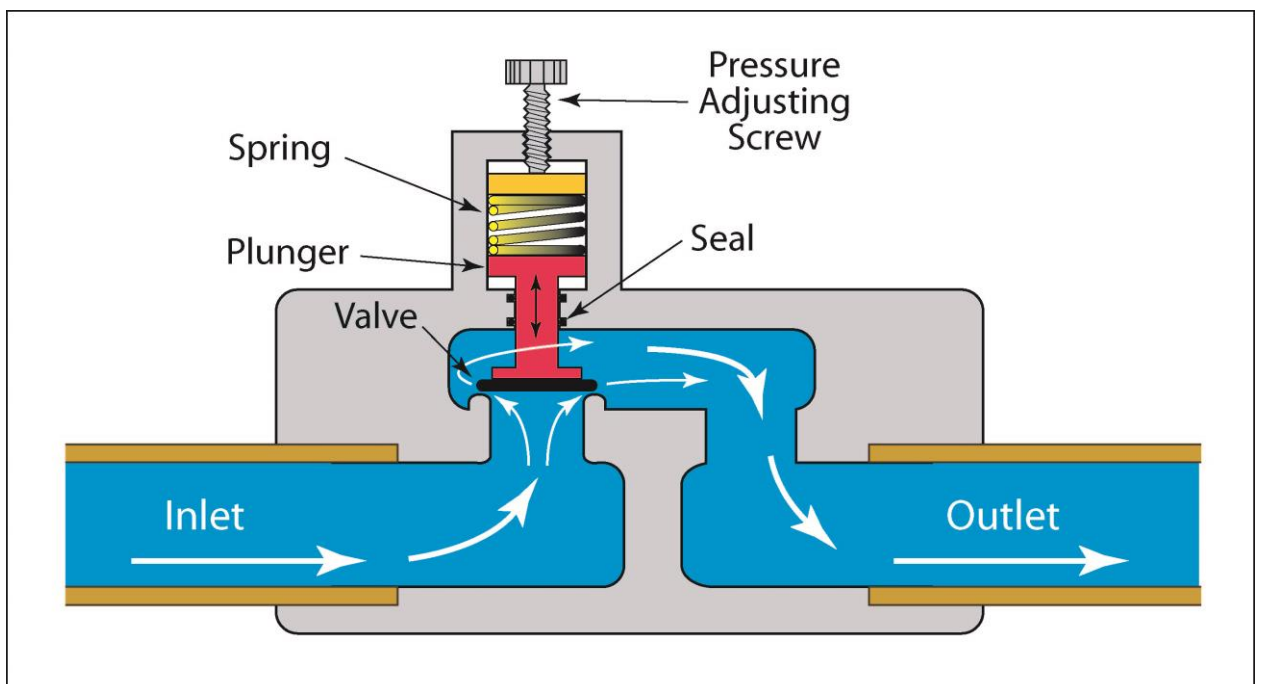


Flange connection, using a gasket

Air valve – вантуз



The **Relief valve** (регулятор тиску) (RV) is a type of [valve](#) used to control or limit the [pressure](#) in a system.

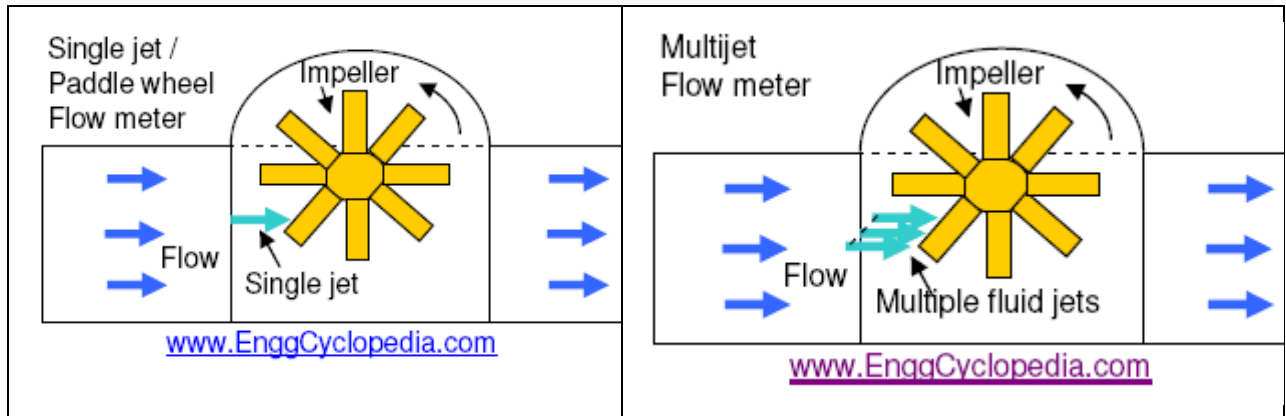


Water meter – лічильник води

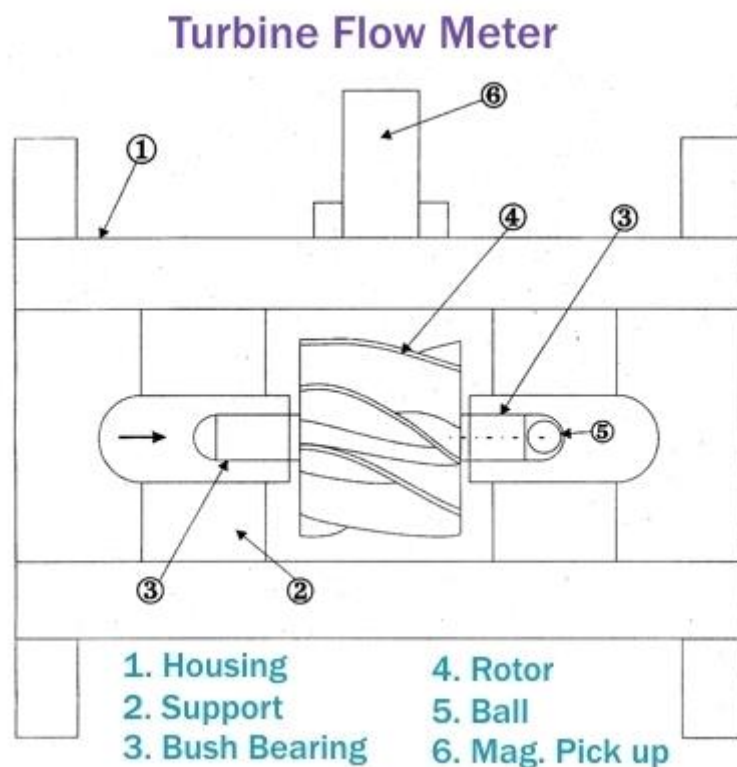
Velocity Water meter

A velocity-type meter measures the velocity of flow through a meter of a known internal capacity. The speed of the flow can then be converted into volume of flow to determine the usage.

impeller water meter



Turbine meters.



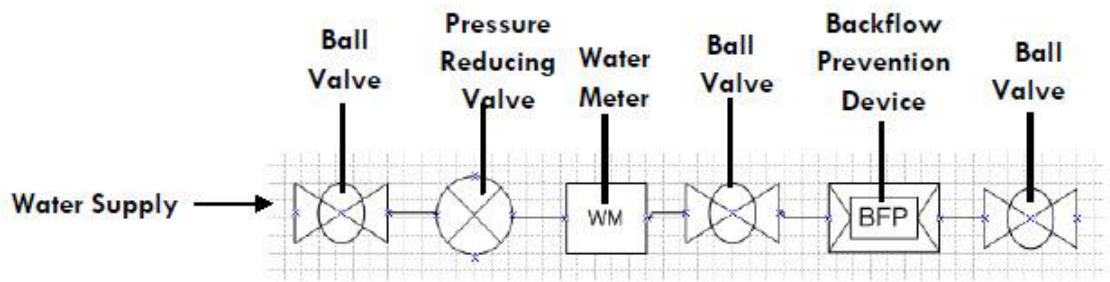
Advantages

- not require a power supply
- small size
- low cost

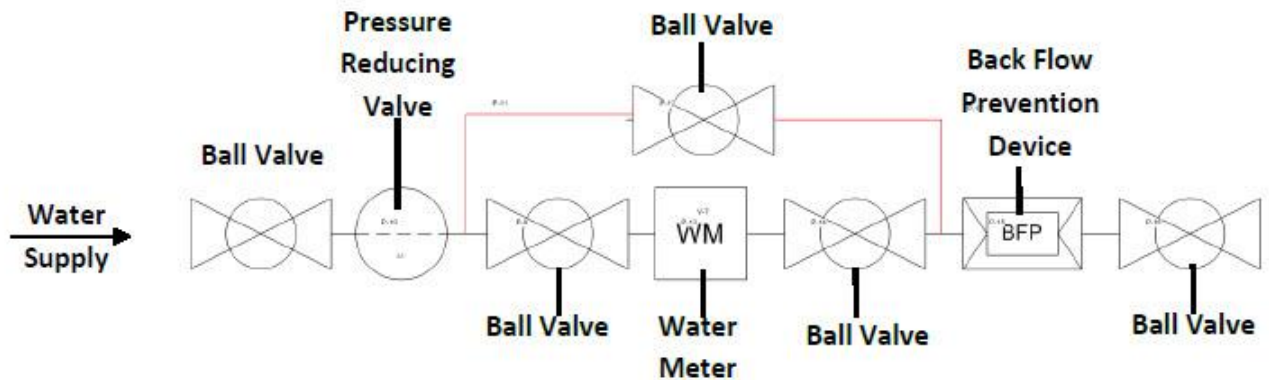
Disadvantages

- react to a magnetic field
- short service life
- not considered at low flow rate

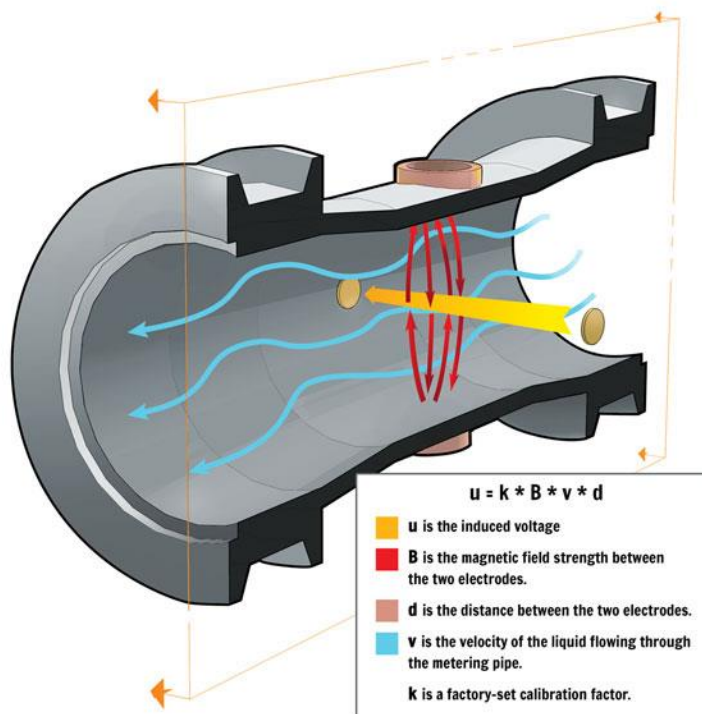
Approved Meter Assembly Diagram



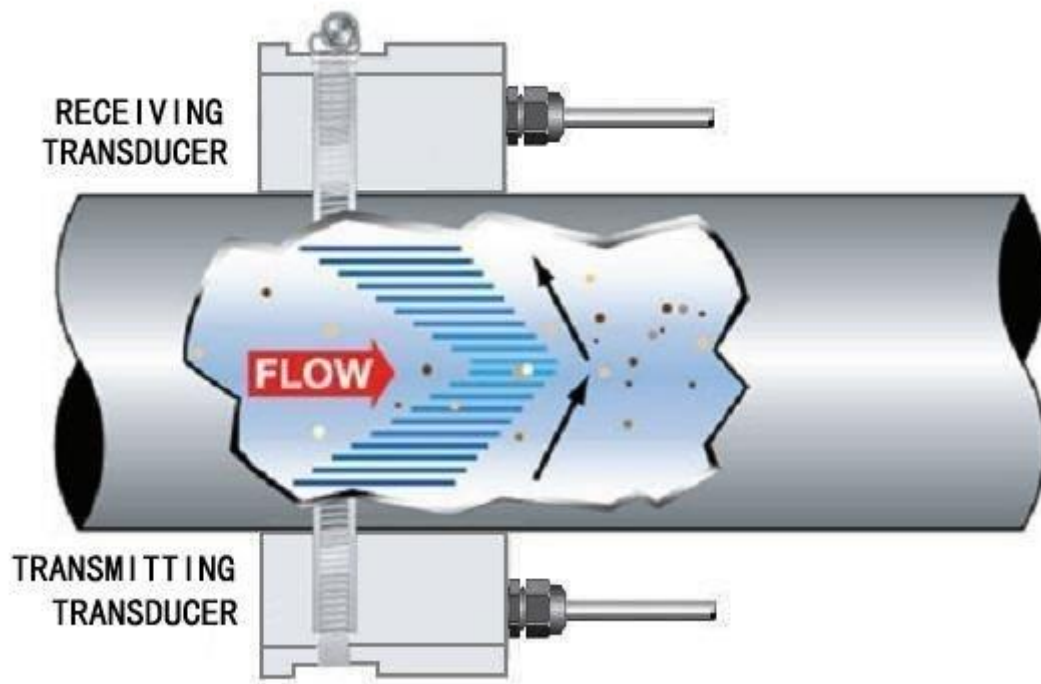
Approved Meter Bypass Assembly Diagram



Non-mechanical designs **electromagnetic meters**

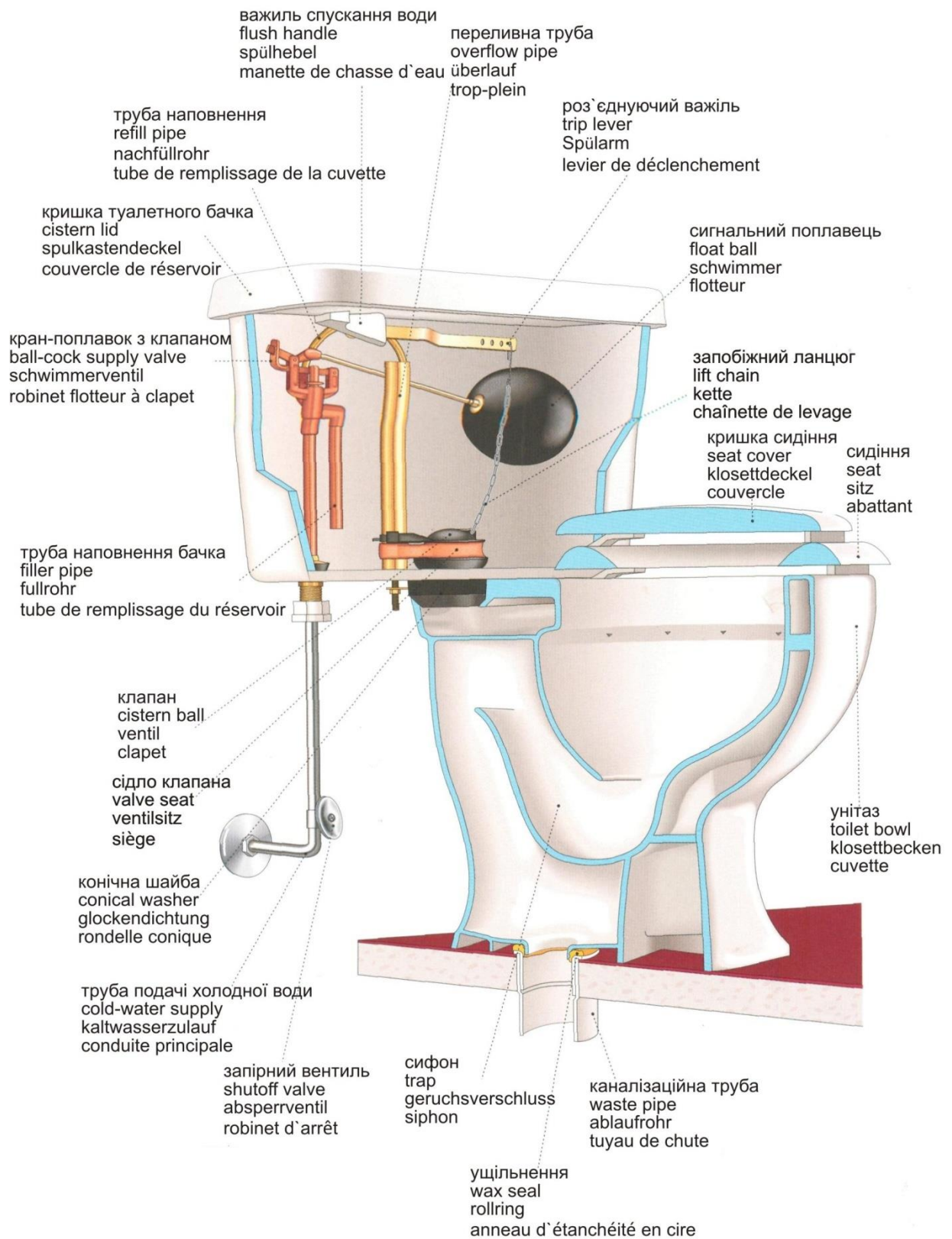


Ultrasonic meters

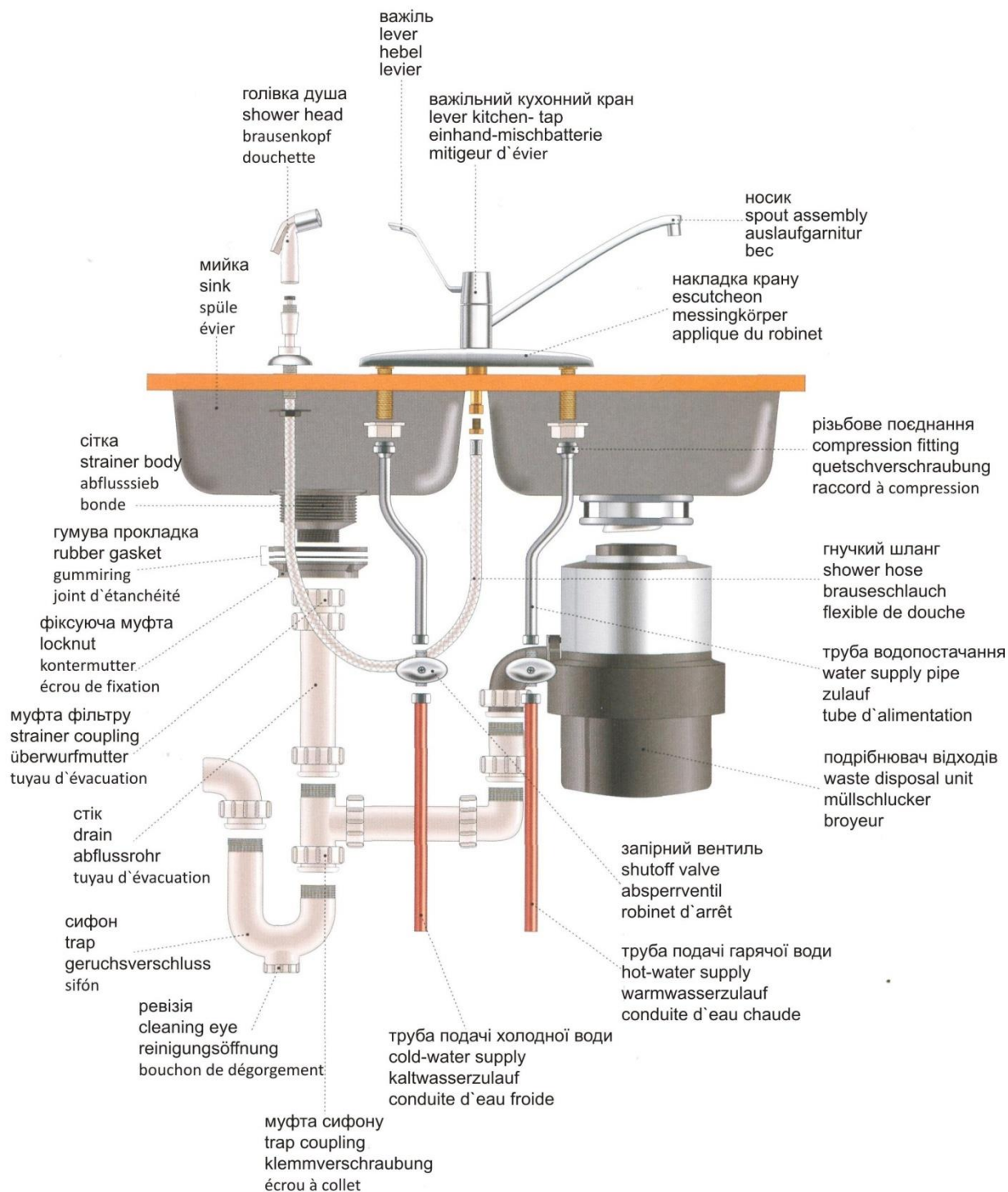


Advantages	Disadvantages
<ul style="list-style-type: none">- high accuracy- dispatching service- not flow resistance- long service life	<ul style="list-style-type: none">- require a power supply- Air bulbs reduce measurement accuracy.

Туалет / toilet / w.-c. / toilette



Мийка з подрібнювачем відходів / sink with waste disposal unit / Spüle mit Müllschlucker / Évier-broyeur



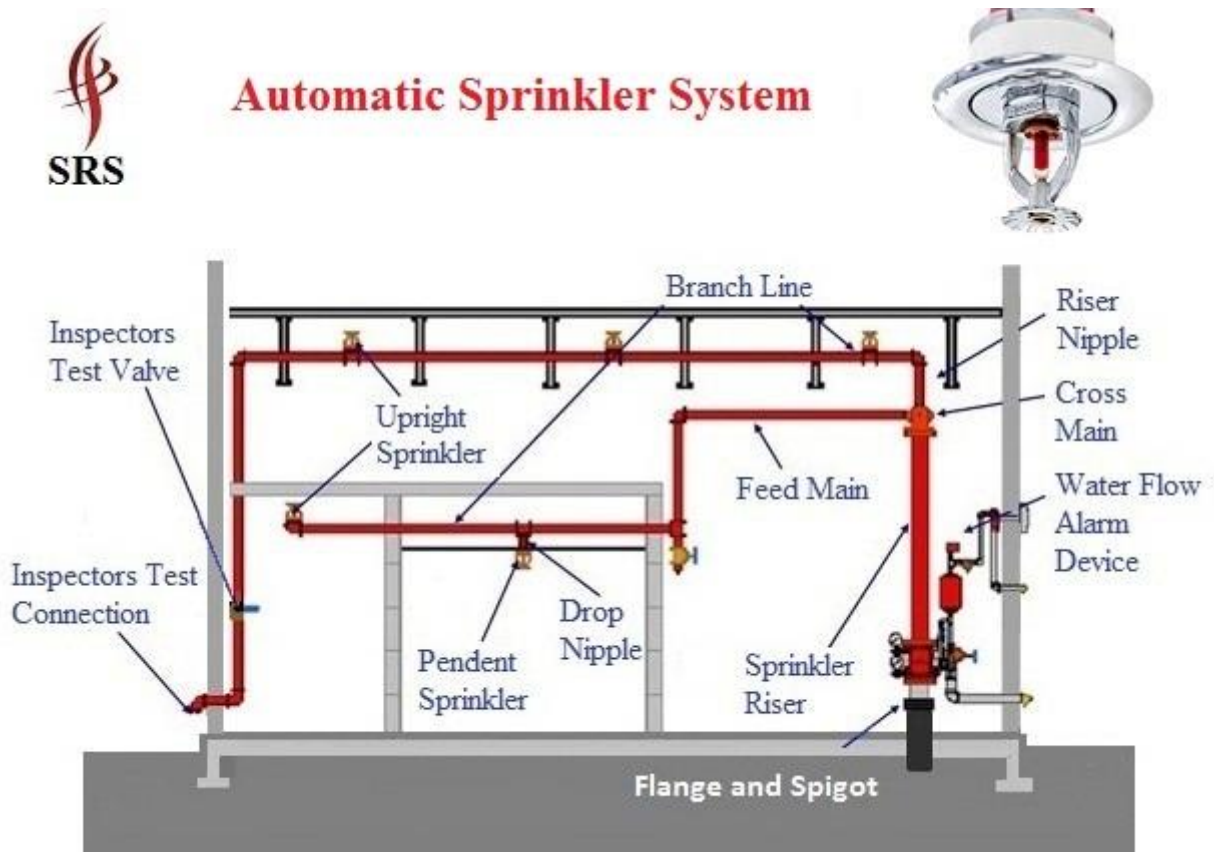
Fire fighting system – пожежна система

Wet pipe systems – мокрі системи

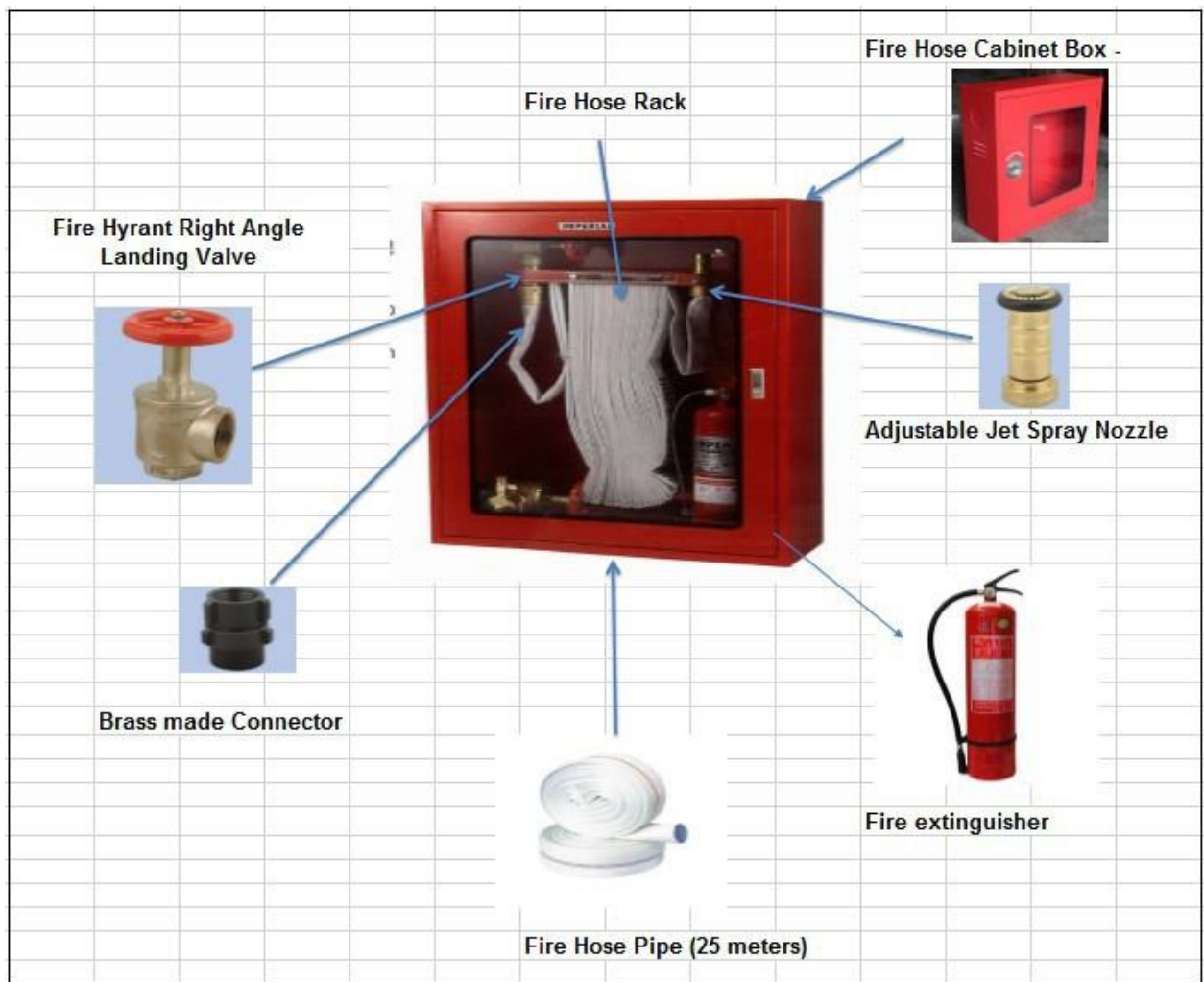
Dry pipe systems- сухі системи

Dry pipe systems are the second most common sprinkler system type. Dry pipe systems are installed in spaces in which the ambient temperature may be cold enough to freeze the water in a wet pipe system, rendering the system inoperable.

sprinkler fire fighting system

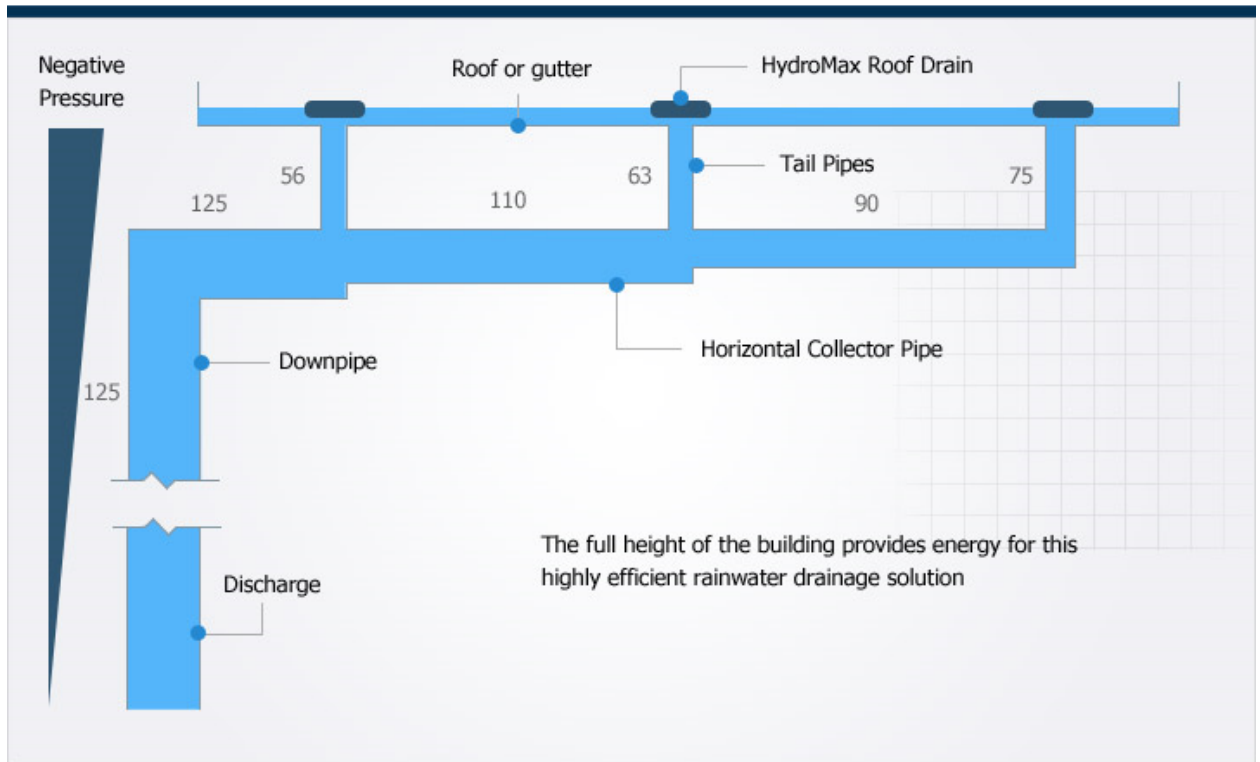


Fire cabinet – пожарный кран



Stormwater drainage system – Дощова каналізація

FULLY PRIMED HYDROMAX SYSTEM



Flat roof drainage systems

