

VEGA VACUUM DEGASSER

AIRLESS OPERATION, SUPERIOR EFFICIENCY!



VACUUM DEGASSER



What is a Tanpera Vacuum Degasser

The Tanpera Vacuum Degasser is a compact technological device designed for use in heating, cooling, and industrial process piping systems. It removes dissolved gases that could damage the system by utilizing the vacuum gas separation principle.

In piping systems, air diffused in water can cause corrosion in pipes and fittings, significantly reducing energy efficiency and the overall health of the system. Additionally, it can lead to malfunctions in various moving components.

With the Tanpera Vacuum Degasser, water from the heating or cooling system is transferred into a specially designed tube. Inside the tube, the Centrifugal Pump reduces the pressure to negative levels. Under vacuum conditions, gases are separated from the water and collected at the top of the tube. These separated gases are then discharged into the atmosphere using a special-type air vent at the top of the tube. This separation process is repeated at regular intervals.

By removing dissolved air from the water, the system prevents corrosion, ensuring maximum efficiency and longevity for the piping system.

Advantages

- **Corrosion Prevention**
Dissolved air within the system is separated from the water, preventing corrosion formation. This ensures the system's health and efficiency are maintained at the highest level.
- **Energy Saving**
Facilitates heat transfer within the system. Pumps operate at lower flow rates and discharge heads, increasing system efficiency and saving energy.
- **Prevention of Air-Related Issues**
Prevents problems caused by air trapped in the system, ensuring healthy system operation.
- **Automation Capability**
Enables error notifications and instant pinpointing of issues through the LCD screen, allowing for quick intervention. System efficiency is reliably communicated at the highest level.

Areas of Application

It used in heating and cooling system for balancing the volume of water that changes due to temperature changes in all building and industrial applications.



Life Centers

Balances water pressure in residential and mixed-use buildings in major cities. It particularly helps in delivering water at equal pressure to all floors in high-rise buildings.



Social Amenities and Facilities

Ensures the continuous and balanced flow of water in municipal, public housing, and public facilities, protecting infrastructure and enhancing energy efficiency.

Factories and Industrial Facilities
Maintains pressure stability of water used in production processes, ensuring more efficient and safe operation of systems. It also contributes to the protection of steam and hot water systems.



Tourism and Hospitality Facilities

Optimizes hot water use in hotels and resorts, enhancing guest comfort and ensuring efficient system operation.



Shopping Malls

In large shopping centers, it balances the installation pressure for high-capacity heating-cooling systems, providing a comfortable environment and preventing system failures.



Residential Sites and Apartments

In housing projects with central water systems, it ensures uninterrupted and correct pressure distribution, optimizing pump use and providing energy savings.

Dormitories and Boarding Schools
Balances pressure in hot water and heating systems suitable for use by many people, offering a comfortable living space.



Hospital

In hospitals, where hygiene is critical, it provides pressure control in hot water and sterilization systems, ensuring uninterrupted service.



Control Unit

The control unit is a component where many important equipment on the Tanpera Vacuum Degasser are gathered on a single platform. The control unit includes a solenoid valve, pump, safety valve, flow meter, check valve, shut-off valves, sensors, integrated circuits for automation, and a user interface. The control unit is protected against moisture and vibration. The exterior of the control unit is covered with materials suitable for environmental conditions and is safeguarded against mechanical impacts.

In the piping system, the solenoid valve opens to direct a portion of the water into a special type of tank. A vacuum is created inside the tube using a pump, allowing the dissolved air in the system water to separate. The amount of water transferred is measured using a flow meter selected according to the flow rate. Over a period of time, the amount of water lost from the system due to various reasons is recorded in memory. If the amount of lost water exceeds the value stored in memory, a water leak is detected, and this data is transmitted to the automation cards. This way, the user is informed about the leak in the system, enabling them to take necessary precautions. Cooling system applications must be specified by the user. Appropriate insulation should be applied to the cooling system to prevent potential condensation issues.

Modes of Operations

Manual Mode

It allows the individual equipment (solenoid valve, motorized valve and pump) to be opened one by one, depending on the user's wishes.

Auto Mode

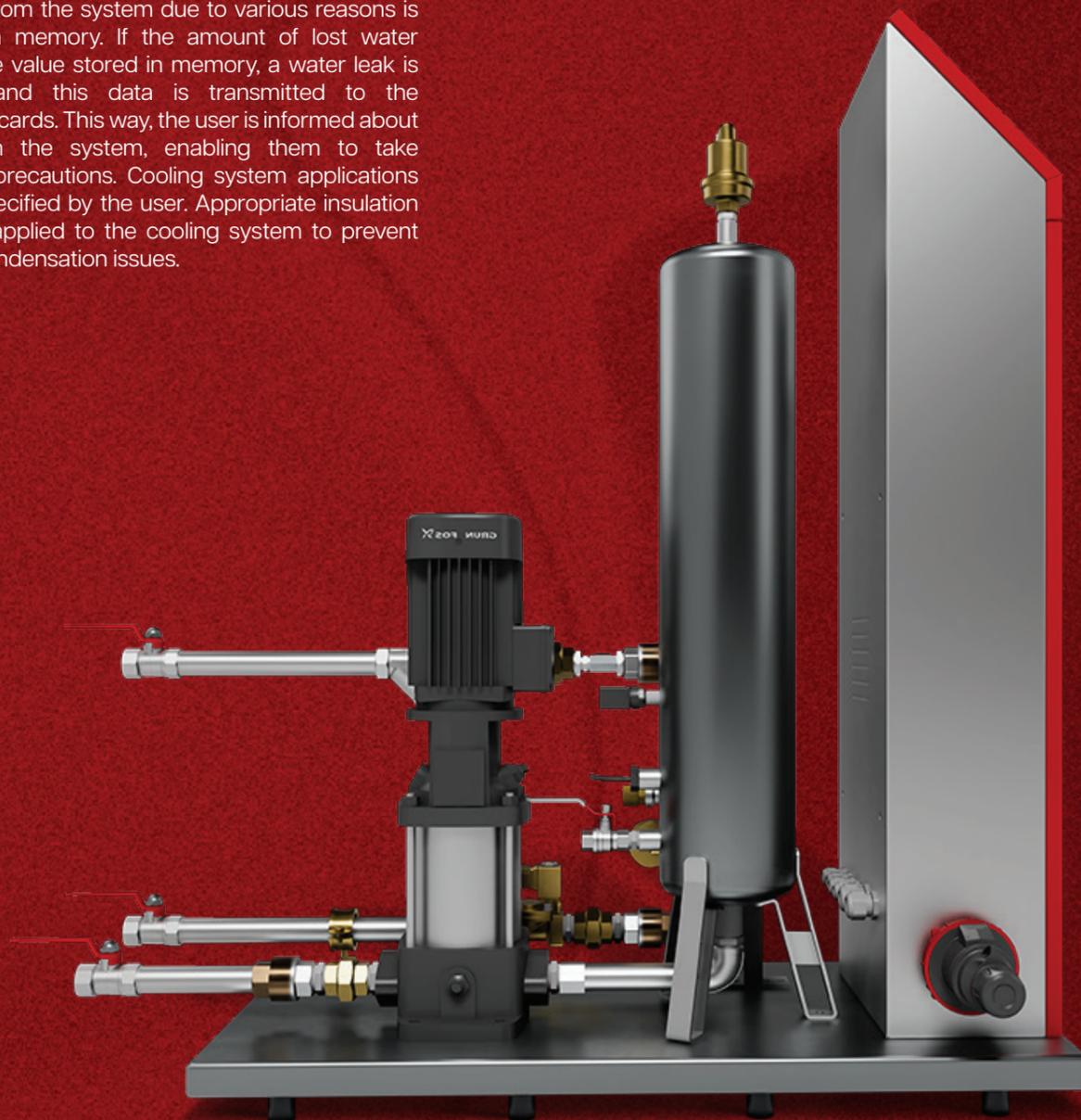
The device operates at programmed daily or weekly intervals to perform air separation.

Working Interval Mode

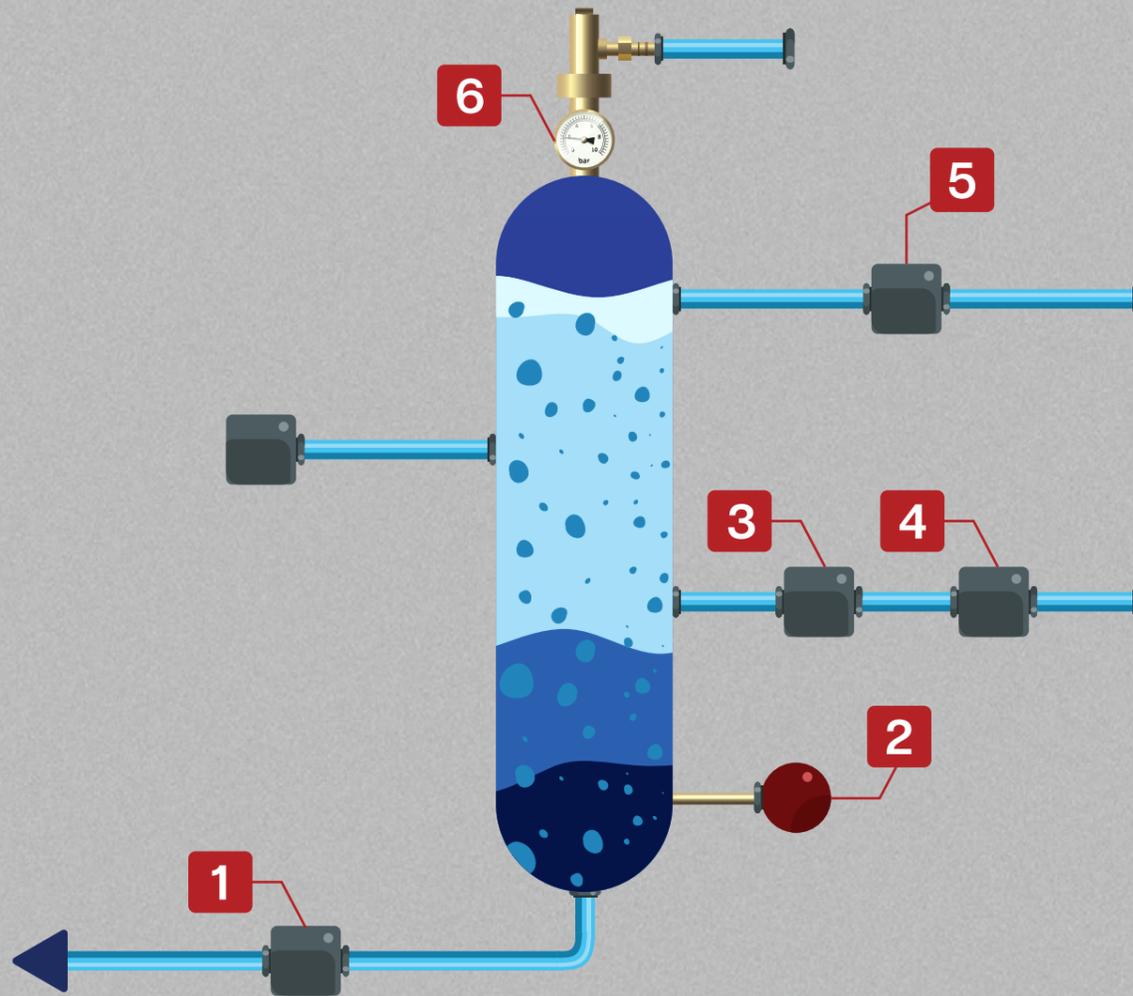
The device operates at programmed daily or weekly intervals to perform air separation.

Stop Mode

Safely shuts down all equipment on the device and places it in standby mode.

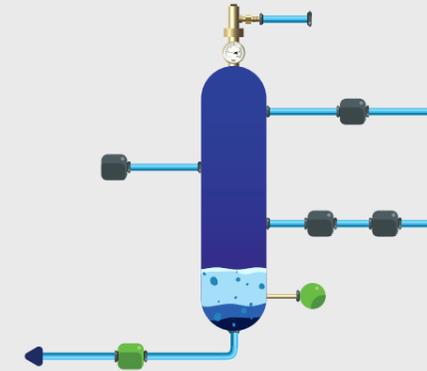


Operating Principle

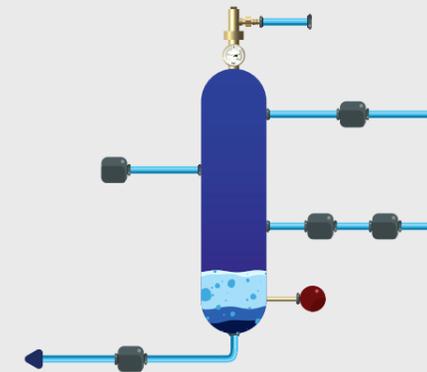


- 1** Pump
- 2** Magnetic Level Switch
- 3** Flowmeter
- 4** Automatic Filling Valve
- 5** Tank Filling Valve
- 6** Flowmeter Indicating the Amount of Air Discharged

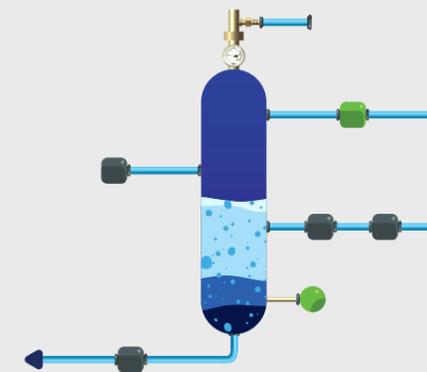
The tank is in standby mode, full and under positive pressure.



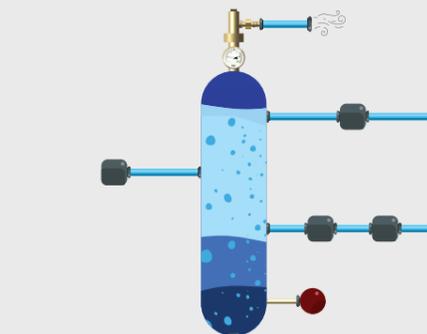
State 2
The pump creates suction, reducing the pressure inside the tube to negative, thereby creating a vacuum. The air dissolved in the water begins to separate under vacuum. The pump continues to operate until a signal is received from the level sensor.



State 3
The pump stops, and the water remains under vacuum for 15 seconds to allow the dissolved air to separate. During this time, the dissolved air separates and accumulates towards the upper part of the tube.



State 4
The solenoid valve opens, allowing water to fill the tube under vacuum. As the water level inside the tube rises, the vacuum decreases, leading to the formation of positive pressure.



State 5
Once positive pressure is achieved, the dissolved air inside the tube is discharged through the purge valve.

Automation

It has automation capabilities designed according to high technological conditions.

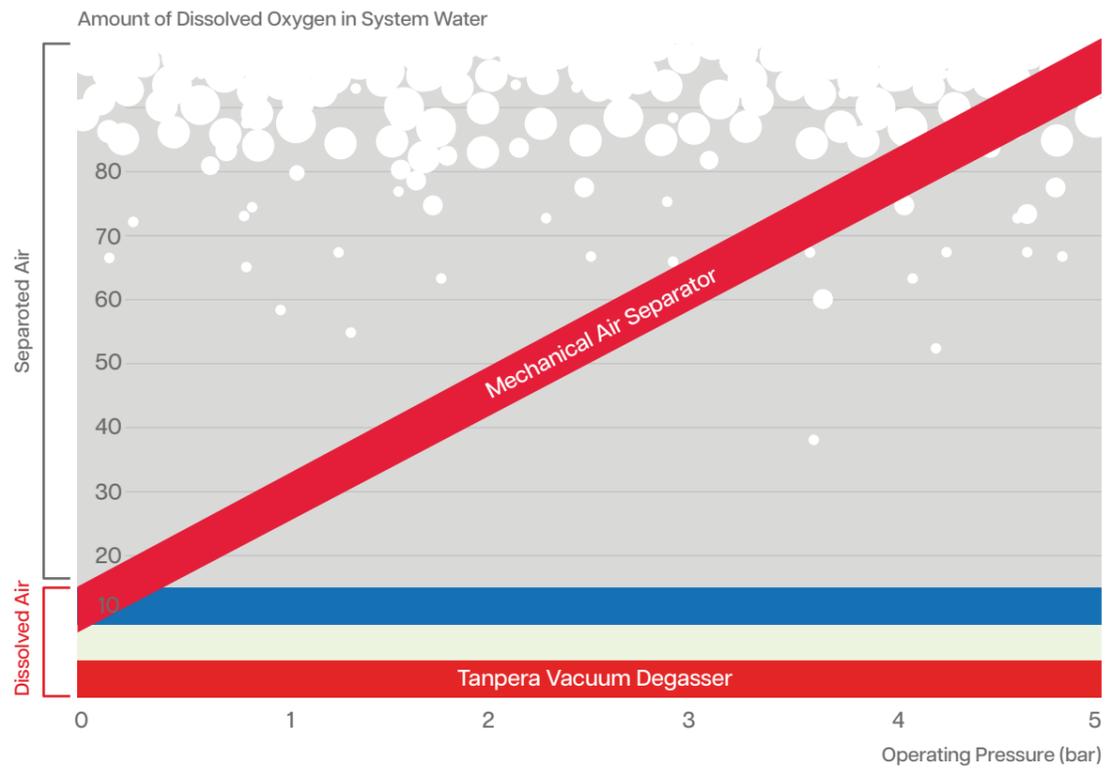
- It provides operational signals and fault information through two different types of dry contacts.
- With MODBUS RS-485 compatibility, it sends six different types of information signals to the building automation center.
- Its software, supported by MQTT infrastructure, enables data transmission and screen mirroring to the building automation center via Wi-Fi or Ethernet connection when internet access is available.
- Devices connected to the internet are monitored 24/7 by the TANPERA Service Management Center, ensuring immediate user notification and intervention in case of errors.
- It offers connection and control capabilities with all Android-operated devices through a mobile application.
- The system can be programmed according to desired automation conditions.

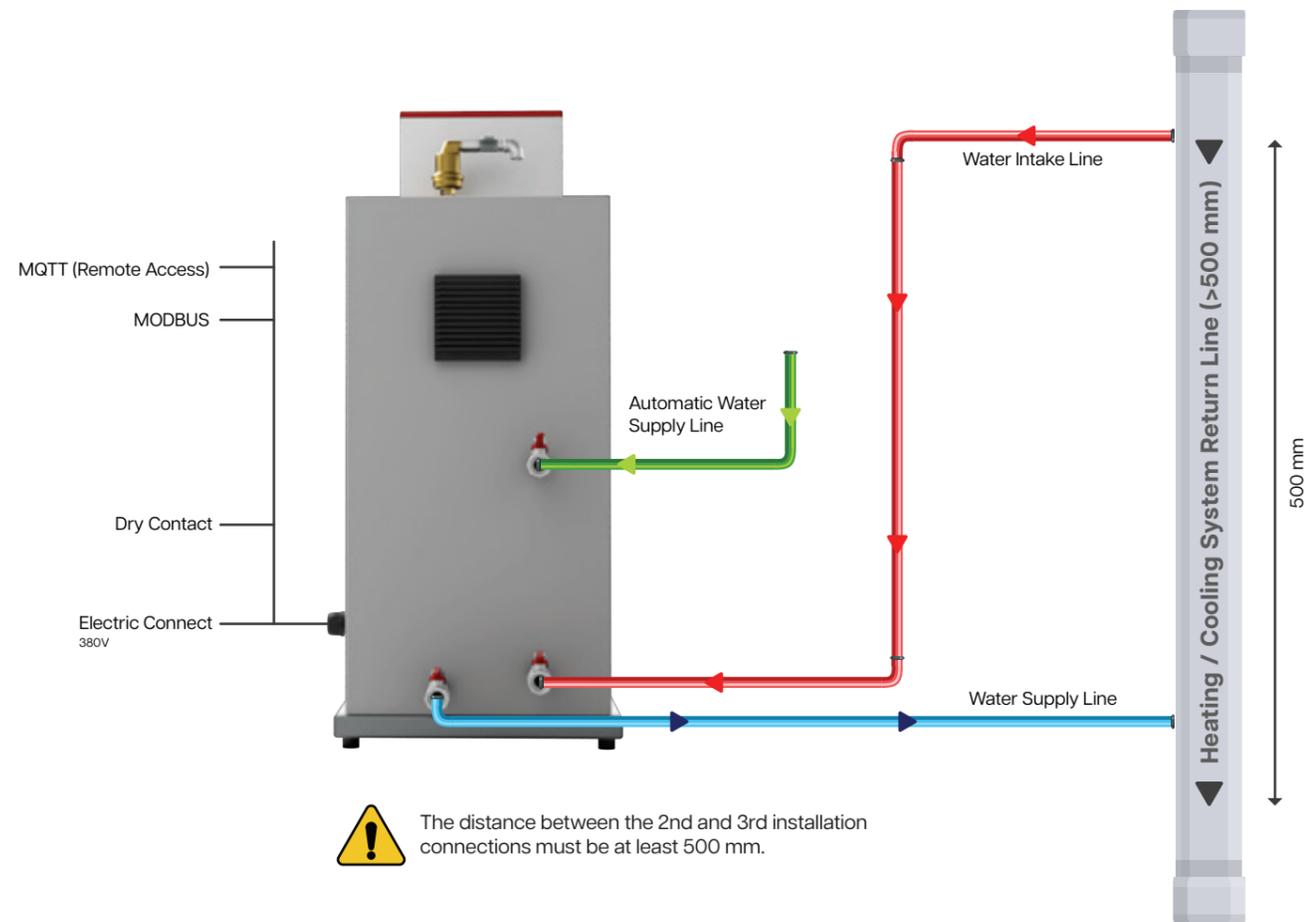


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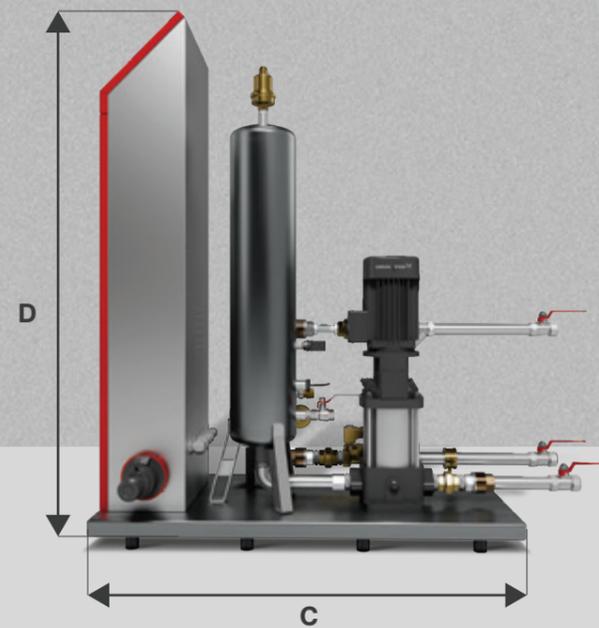
COMPARISON OF AIR SEPARATOR SYSTEM AND VACUUM DEGASSER

	Air Separators	Vacum Degasser
Air Venting Capability	Yes	Yes
Air Separation Capacity (Pressure - Based)	Low	High
Air Separation Capacity (Temperature-Based)	Low	High
Reactive Gas Separation Capability	No	Yes
Liquid Gas Separation Capability	No	Yes
Usability at Any Point in the System	No	Yes
Potential Corrosion Issues Due to Air Entry	No	Yes
Impact on Energy Efficiency	No	Yes
System Control Unit	No	Yes
Balancing of System Inlet Pressure	No	Yes
Water Supply to the System	No	Yes
Pre-Treatment of Supplied Water	No	Yes





Dimension
A (mm): 420
B (mm): 1200



Dimension
C (mm): 750
D (P1-P2-P3) (mm): 722 / 889 / 1098



By effective heat transfer between the blood coming from its heart at 40°C and the blood returning from its feet at 1°C, it can stay in cold water for a long time without freezing. Using these natural principles, we design our engineering marvel heat exchangers.

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