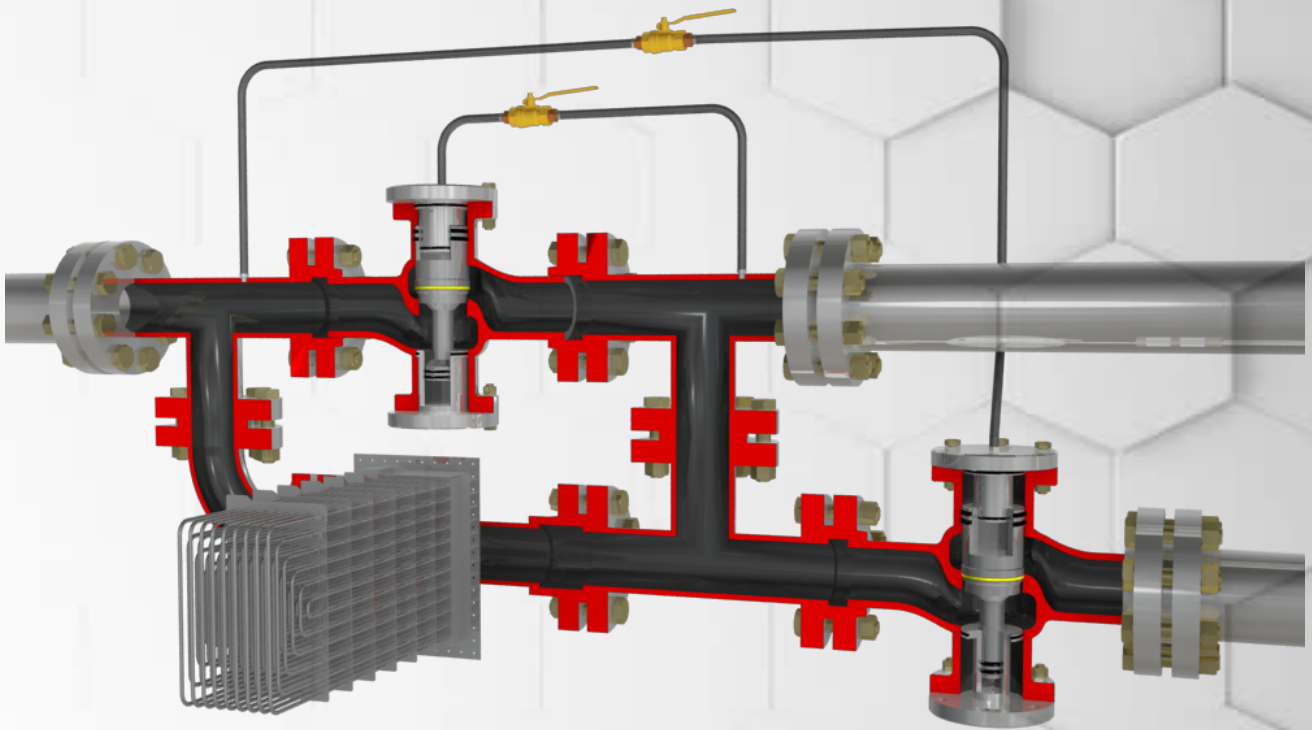


Hydrocore Limited Presents

Hydrocore™ Flow Control Station



Hydrocore™ Flow Control Station Stope Arrangement



PRINCIPLE OF OPERATION

The cooling coil control system maintains a constant differential pressure 'dP' across the coil, irrespective of the plant's upstream pressure 'Pu' or the downstream water demand Q1.

'Q1 > Qc' results in a higher differential pressure 'dP' across the coil, and a lower 'Pd' at the coil discharge, causing the closing of the bleed control valve, while the flow control valve takes over the flow control function.

The flow control valve maintains a constant differential pressure 'dP' across the coil

'Q1 < Qc' results in a smaller differential pressure 'dP' across the coil, and a higher 'Pd' at the coil discharge, causing the bleed control valve to take over the flow control function, while the flow control valve is closed.

The bleed control valve maintains a constant differential pressure 'dP' across the coil

NO ACTUATOR, PILOTS, INSTRUMENTS

The line-fluid pressure powers the valve with no need for external actuators, pilots, instruments or external power source.

AREAS OF APPLICATION

The cooling coil control system maintains a constant flow through an underground cooling coil by: -
Maintaining a constant flow through the coil when the downstream demand is higher than the required flow.
Discharging the excess flow when the downstream demand is lower than the required flow.

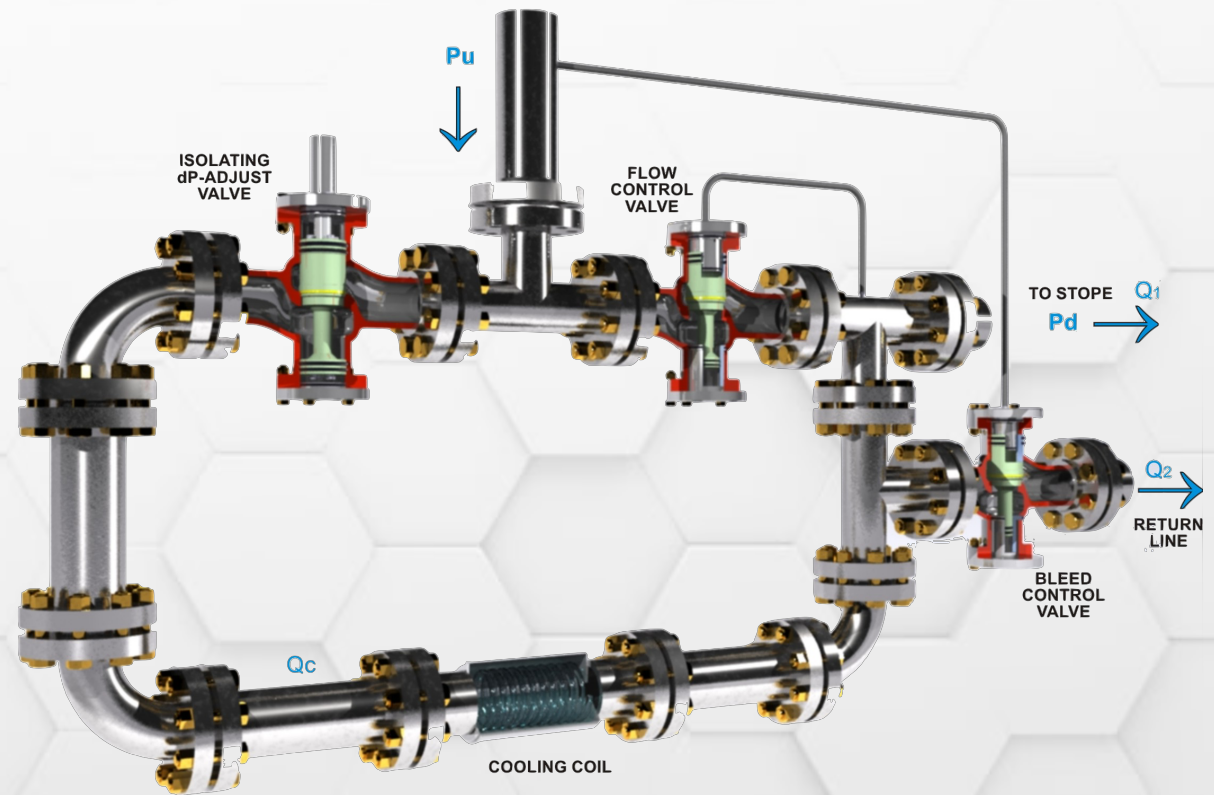
CHANGING THE FLOW SET-POINT

The coil's flow rate can be adjusted by changing the pressure drop across the valve 'V1'. Closing the 'V1' valve causes a lower 'Pd' at the coil's discharge, resulting in a lower flow through the coil and vice versa.

Note: A tamper-proof manual isolating valve is recommended as the 'dP' adjustment device.

THE AREA-RATIO CONTROL VALVES

The Hydrocore area-ratio control valves are suitable for applications where the fluctuation of the upstream pressure 'Pu' does not exceed 20%. The variation in the controlled flow 'Q' is proportional to the square root of the variation of the upstream pressure 'Pu'.



Hydrocore™ Flow Control Station Parallel Arrangement



AREAS OF APPLICATION

The Hydrocore™ area-ratio flow control valve is used for flow control applications where the plant is in parallel arrangement with the control valve, and mainly for:

- Industrial Water Systems
- Municipal Water Supply Systems
- Pump Stations
- Mine Water Reticulation
- Petrochemical Plants

PRINCIPLE OF OPERATION

The Hydrocore™ area-ratio flow control valve controls the plant's flow by maintaining a constant differential pressure across the plant, irrespective of the plant's upstream pressure. The valve's piston is in equilibrium state when the opening forces equal the closing forces, which happens when the predetermined differential pressure exists.

THE AREA-RATIO FLOW CONTROL VALVE

The Hydrocore™ area-ratio flow control valve is suitable for applications where the fluctuation of the upstream pressure does not exceed 20%. The variation in the controlled flow is proportional to the square root of the variation of the upstream pressure.

DIFFERENTIAL PRESSURE ADJUSTMENT

The differential pressure can be adjusted by:

- Controlled bleeding of fluid from the valve's closing compartment.
- Controlled injecting of fluid from the upstream side into the valve's closing compartment.

The sensed downstream pressure is artificially changed, resulting in a new flow set-point.

NO ACTUATORS, PILOTS OR INSTRUMENTS

The line-fluid pressure powers the valve with no need for external actuators, pilots, instruments or external power source.

