

Do it right: Dynamic hydronic balancing

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hydronic
balancing



Hydronic balancing means, the right amount of water at the right time in the right place. Sounds easy! But is it? There are several solutions, but one is definitely the right way to do it.

Hydronic balancing with standard control valves

To create a balanced hydronic system with standard control valves you must first determine design flow rates and calculate the pressure losses across the whole hydronic network. Then you determine a valve type, size and proper flow coefficient. In the next step you need to make sure that the selected valve has sufficient control authority for the job. After that, you also need to calculate and select a manual balancing valve for this consumer. You must repeat this process for all consumers and commission the whole system by manually adjusting the position of all balancing valves.

Now the system is balanced. But it is only statically balanced, which means that as soon as your hydronic distribution network operates at part load, the system is no longer balanced and runs

inefficiently. This leads to high costs and energy consumption that could be avoided. Also, the room's comfort is impaired because pressure fluctuations

have an impact on the room's temperature. **Not an optimal solution although it is still widely used.**



Static hydronic balancing: Uneven energy distribution under part load conditions.

Hydronic balancing with dynamic valves

Using dynamic valves, such as PICV or Intelligent Valves, in your HVAC system the valves do the balancing for you. There is no need for complex pressure loss and control authority calculations. Only the volumetric flow determines which valve must be used. You also don't need any additional flow regulating or balancing valves, which means less installation effort. On-site commissioning is extremely simple thanks to easy max flow presetting and automat-

ic balancing. This is possible because dynamic valves ensure balanced water flow rates under all load conditions, thereby eliminating any impact of fluctuations on the room temperature. This way, dynamic valves allow for energy savings of up to 30 percent with no sacrifice of comfort. With Intelligent Valves you can even save up to 37 percent.

In other words: Dynamic balancing is the right way to do hydronic balancing.



Dynamic hydronic balancing: The hydronic system is always balanced, independent of load conditions and pressure fluctuations.

Benefits of dynamic hydronic balancing

- No need for complex hydronic calculations
- Fast and easy product selection
- Fewer components, less installation effort
- Effortless commissioning
- Automatic dynamic hydronic balancing
- High comfort
- Energy savings of up to 37 percent



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Tel +41 58 724 24 24

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