



Building up district heating in hilly terrain
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Topics

- ▶ Why would we place equipment in cabinets above ground?
- ▶ How we design cabinets for equipment at Norðurorka
- ▶ Pictures of actual cabinets used to correct problems in the system
- ▶ How we manage maintenance routines of the equipment

Advantages

- ▶ The equipment is above ground
- ▶ You dont need a building permit for cabinets
- ▶ It is much cheaper placing equipment in a cabinet then building a house
- ▶ In many cases a single cabinet can solve problems for entire streets/neighbourhoods
 - ▶ Instead of solving them in each house
- ▶ It is relatively easy to fit a cabinet in a fully developed neighbourhood
- ▶ They dont stick out in a crowd

Disadvantages



The design of cabinets

- ▶ Collection of data and identifying the problem
- ▶ Choosing the right equipment
- ▶ Design and drawings
- ▶ Choosing the right cabinet
 - ▶ At times the cabinet is chosen beforehand, so design must take that into consideration

Stekkjartún Centrifugal filter



Snægil booster pump



Hlíðarendi booster pump



Sólberg pumping station



Kjarnagata booster pump and differential pressure controller



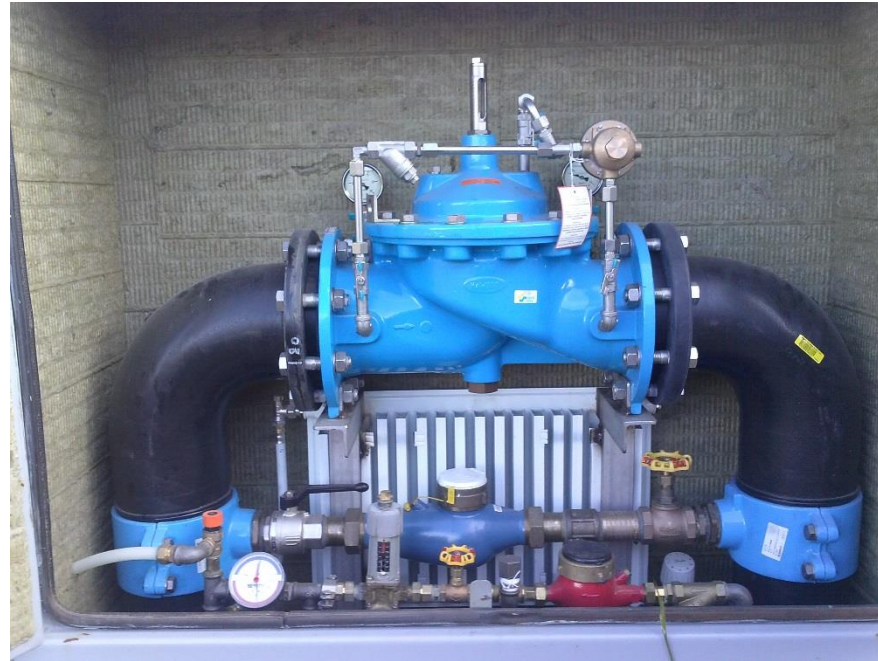
Combination pressure reducer and thermostatic circulation valve



Thermostatic circulation valve



Hawido differential pressure controller



Maintenance management of equipment

- ▶ Norðurorka uses a maintenance management program called DMM
- ▶ Where maintenance routines are sorted by:
 - ▶ By the aspect of the maintenance routine
 - ▶ Equipment area
 - ▶ The necessary tools for the maintenance routine
- ▶ Deviations are logged as flags
 - ▶ Flags can then either be solved on the spot or later in time