

# Application Case Study



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ACS-006

## High Flow Filters Clean up Chilled Water Loop

<b>Application:</b>	Chilled Water Loop for Industrial Engine Manufacturing Plant
<b>Current Product Used:</b>	New application, but also considered depth filters and bags
<b>Graver Product:</b>	Graver Technologies High Flow Series (100, 40 and 20 micron)

### Discussion:

A major industrial engine manufacturer was experiencing contamination from pipe rust and biofilm in a closed loop water systems that was causing abrasive wear, fouling heat exchangers, coating pipe work, and affecting the operation of valves and mechanical pump seals.

It was decided that a 500 GPM side stream filtration loop was needed to gradually remove this contamination from the 500,000 GPM system. The engineer in charge of this project considered use of melt-blown depth filters as well as bag filters, although he preferred the higher efficiency of depth filters. Graver met with the engineer and recommended two 60" HF housings manifolded together with 2-60" High Flow filters. While the 60" HF filter can handle 500GPM, the inlet outlet requirement for the housing was not feasible for the customer, so 4" flanged connections were specified that allowed for 250GPM per housing.



Graver High Flow Housing installed on chilled water loop

### Results:

- The High Flow system was much smaller than the proposed depth or bag filter systems
  - Each High Flow Housing is 12" in diameter and the sloped design fit easily against the wall under pipework, with no hinge or davit arm to contend with.
  - A depth filter cartridge housing would have been approximately 25" in diameter and need to be located away from wall to allow for head removal and filter changeout.
  - Bags were ruled out as the system would have been too large to fit the available space.
- Filter changeout cost was reduced by 30-60% compared to bags or depth filters
  - A single High Flow 20 micron, 60" element has a list price of \$425.
  - 25 40" Absolute rated depth filter would cost \$800-1100 per change out for a 20um.
  - Bag filter changeout was estimated at \$600+ for absolute rated bags.
- Changeout time was significantly reduced with a single High flow element (10-15 minutes) instead of 25 40" depth filters with tube guides and springs.
- Customer achieved system cleanup by stepping down microns over an extended period of time, progressing from 100 micron to 20 micron.
- System cleanup was accomplished with use of a single 60" High Flow run at 250 GPM.