CASE STUDY: STEEL PRODUCER

APPLICATION: BAGHOUSE FAN CIRC OIL SYSTEM

A Baghouse (a.k.a. baghouse filter, bag filter, fabric filter) is an air pollution control device used in manufacturing and other industrial operations, which removes dust and solid particulates or gas from the air and keeps them from being released to the atmosphere. Large vent fans are used to draw dust-laden gas or air through hoppers and into the baghouse compartment to be filtered. Proper maintenance and lubrication of the fan bearings is critical. When this steel producer was setting up a new baghouse for a ladle metallurgy furnace, they approached FLO for an Oil Recirculating System to protect the fan bearings.

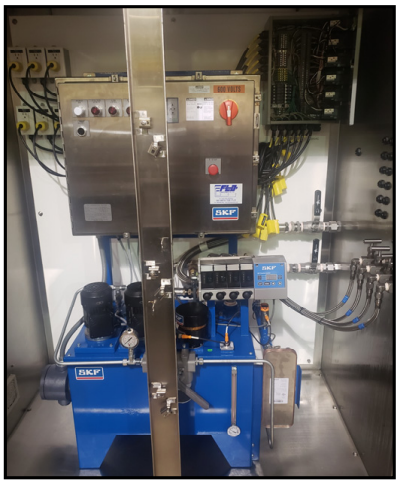
THE FLO SOLUTION

FLO supplied an SKF Oil Recirculating System with dual pumps, duplex filter, water cooled heat exchanger and onboard controls, assembled in a SS enclosure. Oil in the reservoir is continuously distributed out through the metering devices to lubricate and cool the bearings. The actual feed rates can be controlled visually or electronically. Once it's passed through the bearings, oil containing particles, air and water is fed back through a return line into the oil reservoir where it is reconditioned and reused.

The three main benefits are:

1. Continuous clean filtered oil supplied to the bearings (multi pass oil filtration ensures oil cleanliness of returned oil).
2. Heat transfer from oil flow provides lower bearing temperatures, increasing life.
3. Increased oil volume, reduces temperature which provides higher kappa values (the ratio of the operating viscosity to the actual viscosity required to maintain an adequate lubrication film), which comes with lower operating temperatures.

System Features:



- 100-liter carbon steel reservoir, with internal baffles and mounting for a drain valve, visual sight glass, immersion heater, low oil level switch with low warning and critical low level set points, breather and oil return connections.
- Duplex oil filter assembly with electric clogging indication. The 10 micron filter elements provide fluid cleanliness level for a gear pump (ISO 19/17/14), and can be replaced with unit running.
- Dual ZM series gear pump assembly for critical operations. One pump running, one pump on standby.
- SKF Flowline Monitor for controlling and measuring flow to the lube points, with an adjustable range from 0.05 to 15 L per minute to each point. The monitor has easy to read digital indication of flowrates and temperatures on the front of the flowmeter. The flowmeter is automatically calibrated to the oil temperature based on the oil viscosity. Each flowmeter tube has an easy to read visual indication of the correct flow to each lube point.
- A SS flat plate copper brazed water/oil heat exchanger ensures the oil temperature is maintained within +/- 10°C from the desired bearing temperature. The coolers lower the oil temperature to 15°F (9°C).
- Integrated turnkey system controls package for quick installation with the least amount of additional equipment.

FLO RESULTS

The CircOil system provided numerous benefits, including: increased machine reliability and reduced downtime; reduced oil purchasing, handling and disposal costs; energy and oil savings; increased efficiency; decreased risk of damaging lubrication points; improved environmental safety; better oil conditioning and extended bearing life.

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FLO Components Ltd., 50 Admiral Blvd., Mississauga, ON, L5T 2W1
1.800.668.5458 • sales@flocomponents.com • www.flocomponents.com