

Heater

Past attendees of the Cornell Pump and Hydraulics seminar have requested that a heater “drywell” be designed so that the heater could be changed without taking the pump out of service. In response to this request, Cornell will introduce the drywell as standard equipment beginning approximately March of 1996.

Every Cornell refrigerant pump comes equipped with an 80-watt immersion heater in the seal chamber as standard equipment. The purpose of this heater is to prevent the seal barrier oil from becoming too viscous and thus failing to properly lubricate seal faces. Applications of -40° F and lower are very common, and at such temperature even ISO 15 grade oils have the consistency of taffy unless the heaters is employed.

In continuous use, the typical heater life is about one year, and, unfortunately, changing the heater has always been a major service job. The pump must be shut down and valved off from the system. The refrigerant must be completely drained off, then the oil must be drained from the reservoir, lines and seal chamber before the heater can be safely removed. If the heater burns out, the pump must be taken out of service long enough to perform the replacement. Since this is inconvenient at best, failed heaters are sometimes not replaced until the next scheduled maintenance and this can contribute to premature seal failure.

The drywell employs a heater of narrower cross-section so that no modifications are required to the pump. The heater and well will fit into all existing Cornell refrigerant pumps. The heater can also be used without the drywell, again, without pump modification. Once the drywell is installed in the pump, it will not normally require replacement and so will not have to be purchased again; only the heater will need to be replaced. Those wishing to retrofit existing pumps with the well will need to purchase the heater to go with it since the “old style” heater will not fit into the well.

With the drywell in place, it will be possible to change the heater without valving off the pump or draining the oil from the seal system. Consequently, a heater change should be about a 10-minute job.