

Steam Sealing Condensers

Benefits

- Increased production
- Higher efficiency
- Compliance with environmental regulations
- Availability and Reliability
- Life extension

The Gland and Vacuum Seal System is able to:

- Eliminate steam vapors in the vicinity of the machine which are usually toxic due to additives found in the machine
- Reduce humidity in the vicinity of the machine resulting in safer and more reliable operation of all electric devices installed in the area
- Eliminate lube oil contamination from the migration of water condensate into the seal oil thereby extending the period between oil changes

Steam Turbine running without Gland Condenser

Figure 1 shows how steam escaping from seals can migrate and condense in the bearing lube oil system causing degradation of the lube oil properties. Pollution from the release of toxic vapors containing additives from the machine is also evident.

Steam Turbine running with Gland Seal System

Figure 2 shows a configuration which employs gland sealing system (use of a steam ejector or an electric motor fan). The figures show how water migration to the lube oil system is eliminated and contamination of the lube oil by steam leakage is avoided.

Figure 1



Figure 2



What it is

A gland sealing and leak-off system is currently required by API 612 (American Petroleum Institute) 5th edition April 2003 on all new steam turbines in order to increase the quality of installations. GE is able to provide a complete preassembled kit to update steam

turbines designed in accordance with the previous API version and not equipped with this system. The kit can be used on all back pressure and condensing steam turbines, including those of other manufacturers and can be installed near the turbine skid.

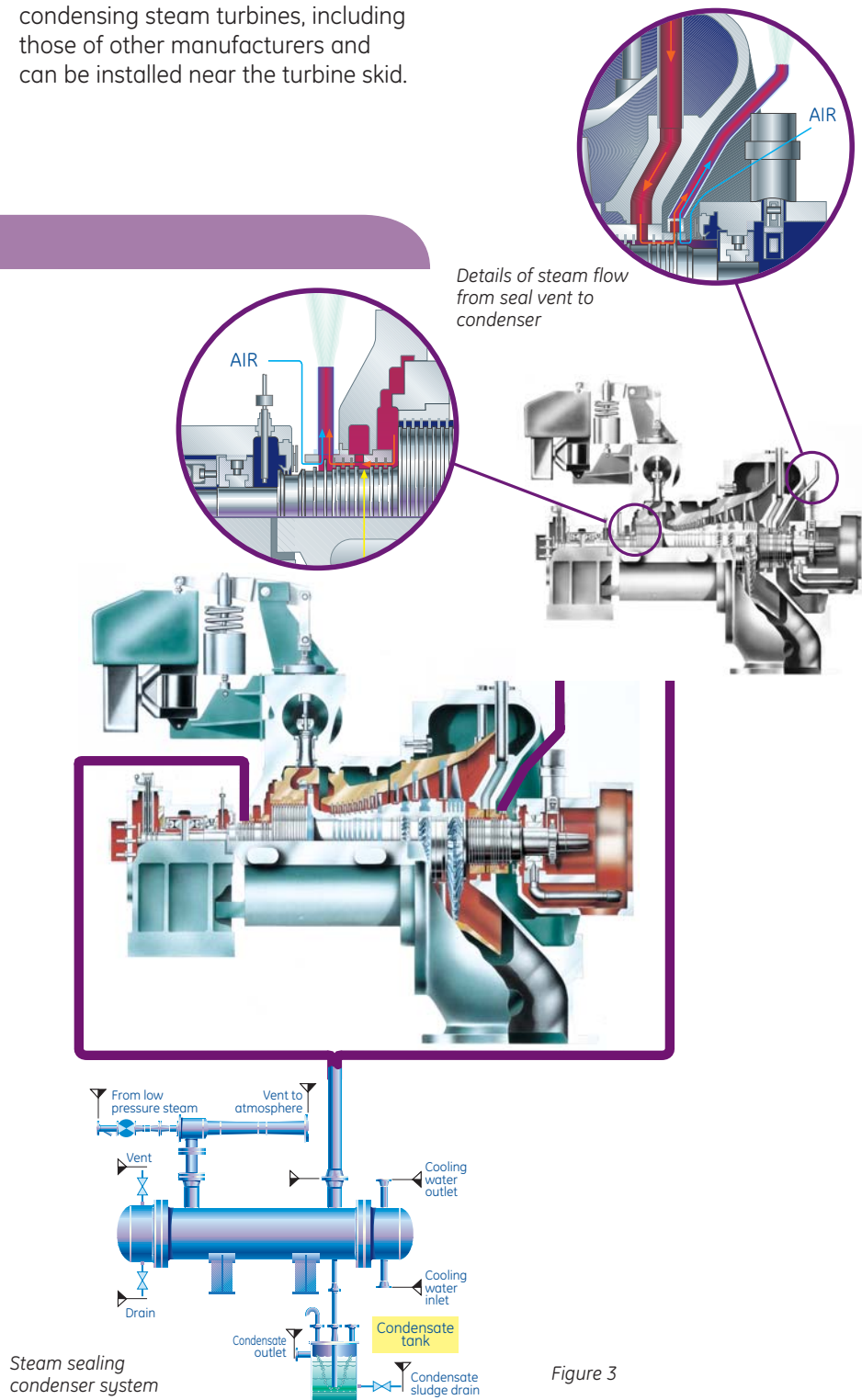
How it works

The preassembled kit uses a vacuum generated by a Venturi tube fed by medium or low pressure steam usually, available as surplus from other auxiliaries system. It is also possible to use a vacuum pump powered by an electric motor to obtain the required vacuum, if preferred. The steam from the steam turbine extremity seals is diverted into a vacuum heat exchanger sized in accordance with ASME VIII-1 or to meet any special requirements of the final installation country on customer request. Condensing steam is collected in a suitable tank instead of being exhausted from the machine as contaminated steam. The skid includes manometers, an inlet steam Y filter, and a steam regulating valve before the ejector. A pressure switch is also provided for customer control room interconnection to detect of loss of vacuum.

Scope of Supply

Complete preassembled skid (Figure 3) consisting of:

- Steam ejector or electric fan
- Gland condenser exchanger
- Gland condenser supports
- Condensate tank
- Live steam regulating valve
- Live steam manometer



GE imagination at work