

Liquid ring package units
and systems



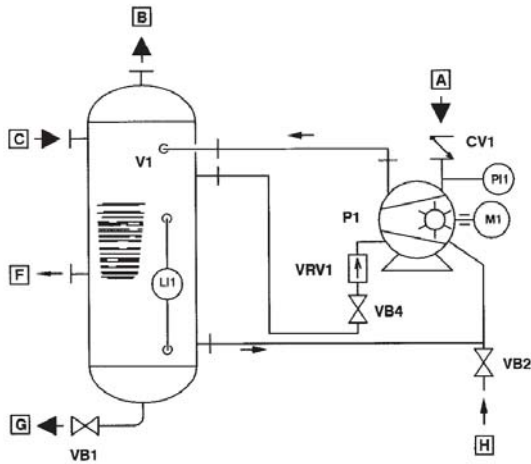
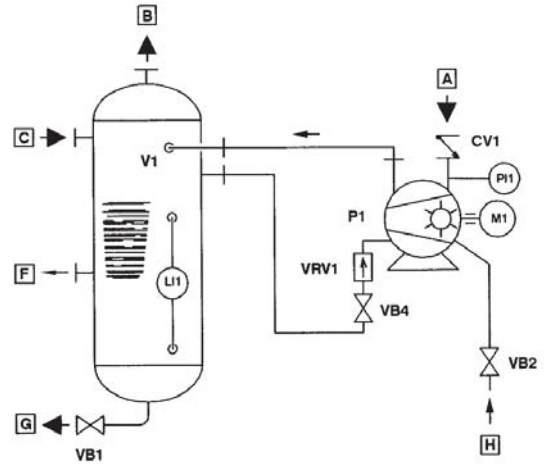
SERVICE LIQUID SUPPLY ARRANGEMENTS

Once through

Standard arrangement for installation where there is enough fresh service liquid available and there are no handling problems downstream as both the liquid and the gas are not considered as polluted or polluting.

The gas mixed together with the service liquid can be sent directly into the discharge system or, if gas-liquid separation is required, to a separator tank; by gravity, the gas will flow out from the top and the liquid from the bottom.

It is recommended to make sure that the service liquid supply pressure is 0.5 bar above the pump discharge pressure.



Partial recirculation

This configuration is particularly indicated when the fresh liquid consumption must be low, the pump can operate with a service liquid having a higher temperature compared to the fresh liquid and when there are no handling problems downstream as both the liquid and the gas are not considered as polluted or polluting.

The service liquid flow consists partly of fresh liquid (normally approx. 50%) and the remaining quantity by liquid at higher temperature recovered from the separator tank.

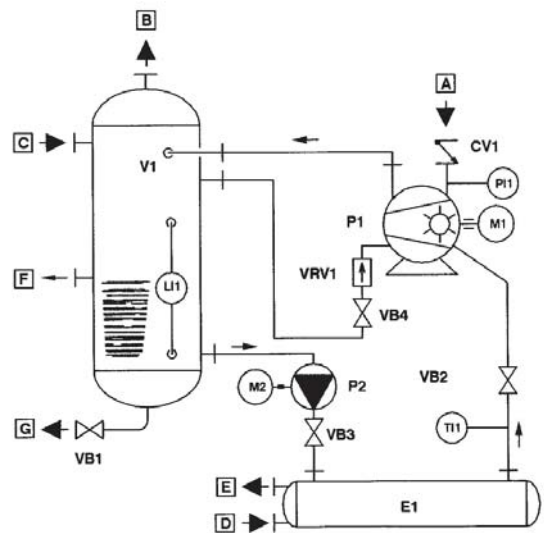
Also in this case it is recommended to make sure that the service liquid supply pressure is 0.5 bar above the pump discharge pressure.

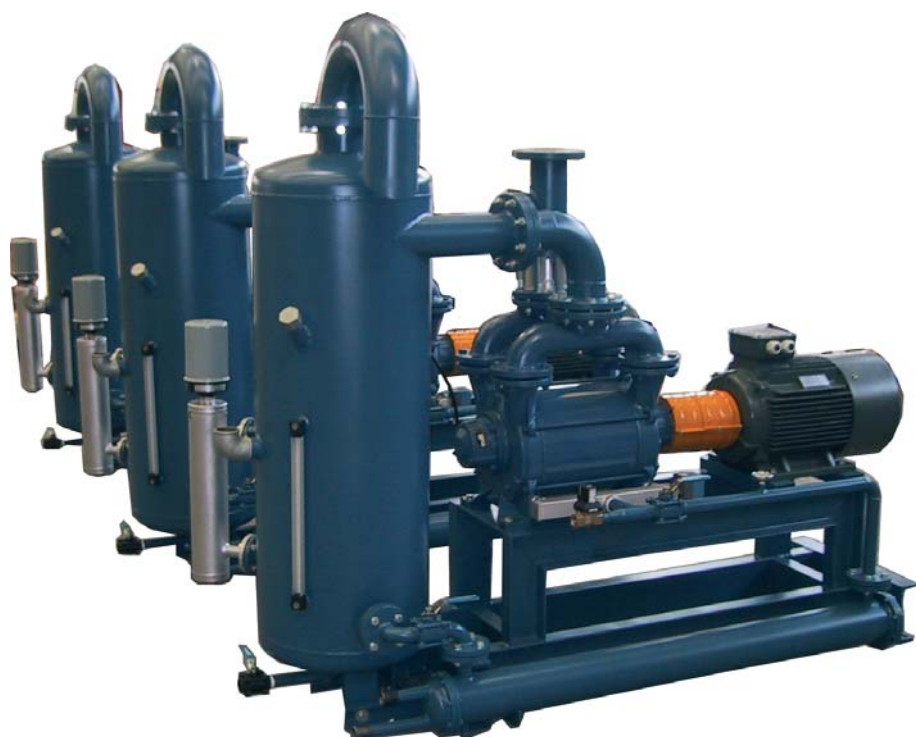
Recirculated service liquid arrangement

This arrangement has to be followed any time there is an application which requires to avoid any process gas leakage or when there are involved fluids which for their chemical composition or pollution caused by the process gas cannot leave the plant for environmental or process reasons.

The service liquid flows from the pump into a separator tank, recirculated back through a heat exchanger where it is cooled down at a specified temperature and then back to the pump.

In case the heat exchanger generates a high pressure drop thus altering the conditions for a good service liquid supply, it is necessary to install a recirculation pump to restore the pressure required in the system.





FinderR Pompe liquid ring pump series are available with a combination of standard accessories designed for a correct and proper operation of the equipment.

Bareshaft pumps can be provided with a simple baseplate where to accommodate the pump and the relevant electric motor.

Depending on the service liquid supply arrangement, extra accessories can be offered as follows:

-) for once through operation, it is available a range of valves and instruments for liquid supply flow adjustment and control as well as different types of top mounted or side discharge separators.

-) for partial recirculation operation, when just a reduced amount of fresh service liquid is available, it can be provided a preselected configuration which involves the top mounted separator plus service liquid piping to mix the portion (approx 50%) of fresh liquid together with the portion (approx 50%) of recirculated liquid.

-) for full service liquid recirculation, recommended any time there is lack of fresh liquid or when, for process reasons, the gas stream can not be discharged into open atmosphere or the service liquid must be recovered due to pollution/contamination problems. The service liquid is recirculated and cooled through a heat exchanger in order to restore the liquid initial conditions. A set of basic instruments is included.

Standard painting and internal testing included.

FinderR Pompe can also offer a range of inlet ball check valves designed specifically for the good operation of the liquid ring pumps.

A dedicated line of gas ejectors to implement the pump inlet pressure performance can be provided either in standard material or completely in stainless steel construction.



MAXIMUM EFFICIENCY

The separator is designed to guarantee clean air emission, with no oil residuals, thus contributing to a cleaner environment.

MAXIMUM PRODUCTIVITY

Suitable for heavy-duty applications, they can continuously operate and can tolerate accidental carry-over of liquids or dust.

MAXIMUM NOISE REDUCTION

ECOSEAL system is extremely quiet.

**MAXIMUM PAYBACK**

Reduction of operating costs thanks to the elimination of water to feed the liquid ring and its cooling.

MAXIMUM FLEXIBILITY

ECOSEAL system can operate at various vacuum levels with no over-heating

MAXIMUM SAVINGS

Low maintenance costs; they can operate for 10.000 hours without any oil replacement.

ECOSEAL are complete oil recirculated vacuum units, the result of years of research and experience in the design, operation and application of this type of systems, with thousands of successful installations worldwide.

Thanks to the use of oil as a service liquid, any problem associated with oxydation/corrosion of the mechanical parts as well as scale build up due to the operation with water are completely eliminated.

The pump and the accessories of the unit are regularly in contact with the service liquid and therefore are constantly lubricated by the oil, thus preventing any wearing problem while extending pump life and reliability.

The use of ECOOL, a low vapour pressure oil specifically formulated to achieve the highest efficiency of the ECOSEAL vacuum units at any suction pressure, allows to operate the ECOSEAL unit independently without relying on any external supply of fresh cooling water to cool down the service liquid temperature.

Furthermore, the features of ECOOL are such that it is possible to continuously operate the system up to 10000 hours without an oil change.



In addition to the standard units which are pre-engineered systems, FINDER Pompe is in the position to develop engineered units according to customer requirements. The company is structured to review the project specifications and work out a tailor made proposal based on all customer requirements in terms of package layout, instrumentation & controls, single item design features, vendor lists testing and inspections. The supply of such systems is the result of a team work coordinated by the FINDER Pompe Contract Department who involves all company functions in order to provide the requested support, at the proper time, to achieve the correct development of the project. To complete the attention to our customers, FINDER Pompe has a dedicated team for site supervision related to erection and hook up of the packages, start up and scheduled maintenance.





In case the specified operating conditions go beyond the potential performance provided by the liquid ring pump alone, Finder Pompe can offer hybrid units based on multistage vacuum system solutions.

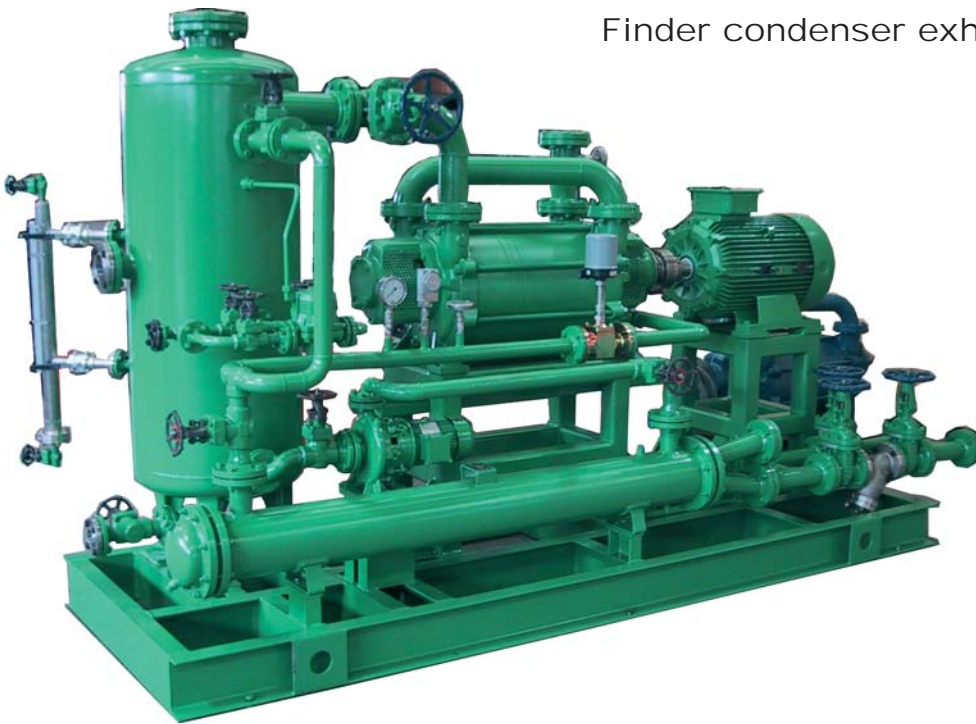
Most frequently, the hybrid systems involve the combination of mechanical booster pumps or steam ejectors with our liquid ring pumps. Both boosters and/or ejectors can be combined in more stages in series but also in parallel to extend the compression ratio when a deeper vacuum is required.

Those systems can be provided skid mounted complete with accessories for proper and safe operation including instrumentation and controls.

Do not hesitate to contact FindeR for your best fit.



Finder condenser exhauster



Finder Pompe has a strong experience in the power generation developed along the years with extended cooperations in this business area with both engineering contractors and end users.

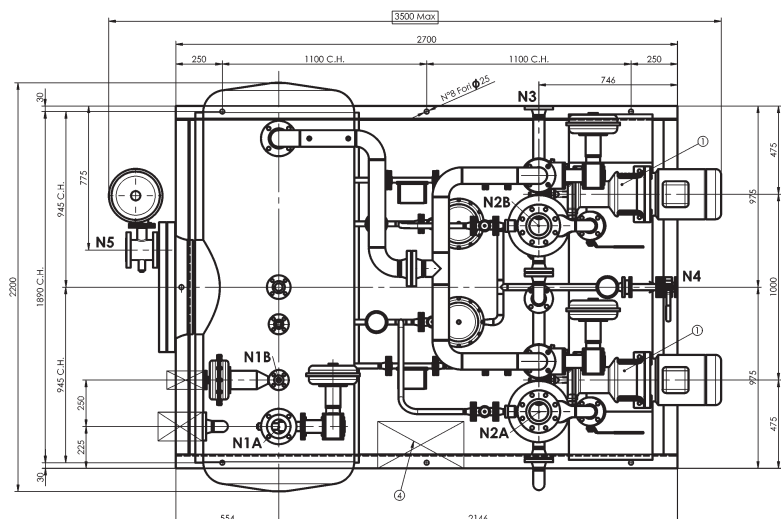
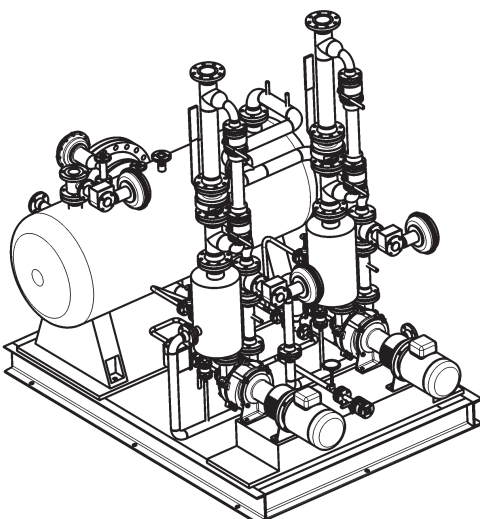
Liquid ring vacuum pumps are normally used for air extraction from the main condenser, for condenser water box priming and, if the plant FGD plant is present, for vacuum filtration. The liquid ring pump condenser exhauster packages dedicated to the air extraction can perform both the hogging and holding duty of conventional surface condensers and/or of air cooled condensers.

Finder Pompe units are very simple to operate and reliable.

Hybrid systems are often a good option when the cooling medium temperature will not match the performance requested to the pump.

In terms of company synergy to mention, Finder Pompe can provide HC centrifugal pumps for boiler feed, condensate extraction and BLW's blower units for fly ash conveying.

Finder water box priming package





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