

## ***ER1100MAG NO CHANCE TO LEAK WITH MAGNETIC COUPLING DRIVE***



**ELIVAC's** patented ER1100MAG is a revolutionary vacuum booster. Its magnetic coupling ensures that neither air, process gas or lubricating oil can ever penetrate or leak into the pump.

The traditional vacuum pump seals - lip seals, mechanical seals, etc. - best suited for stationary sealing, are located on the rotating shaft and sealing surfaces. Physically or by means of a thin oil film, the penetration of air and leakage of oil is prevented while the shaft is rotating. However, it is only a matter of time until the liquid from the inside or the air from the outside finally leak through, because the shaft breaks the integrity of the vacuum pump housing.

The magnetic coupling drive, on the other hand, has no penetrating shaft to drive the pump. The pump housing is 100% mechanically and statically sealed. The motor power is magnetically transmitted to the internal pump shaft via a non-magnetic spacer sleeve which insulates between the inside and the outside of the pump housing. Therefore there is no way for air, gas or oil to leak in any direction!

There are many advantages of the magnetic coupling drive for vacuum pumps. Here is a small selection:

- No leakage flow through the vacuum pump housing from inside or outside.
- Without leak the pump vacuum level is higher. This makes these pumps ideal for coating or other processes requiring high-performance Roots blowers.
- No heat is generated between the seal and the shaft because there is no seal. Therefore, less drive energy is consumed.
- No cooling water is required to cool the seal.
- As a result, this drive and sealing set is maintenance-free.
- As there is no mechanical directly linked drive, any sudden lost of speed from over load or other accident of the pump or motor will not impact on each other.

The system below, which achieves about 0.5Pa ultimate vacuum pressure, can be ordered either with an **ELIVAC** ET serial single stage piston pump or with a Japan made MARUYAMA single stage piston pump. Set up with an **ELIVAC** ER 1100MAG and a Solberg OME pump, the ultimate vacuum level reaches 0.01Pa



The basic model of ER1100 (1100 m<sup>3</sup>/h or 300 l/s flow) was originally designed to replace the ZJ300 or MKB1860. As the pumps internal design is better integrated and uses a reduced set of parts and the pump turns with a speed of 2900rpm, the pump is significantly smaller and lighter than the ZJ300/MKB1860. The weight is about 300kg versus 485kg. The size comparison is shown in the picture below left which shows the two pumps side by side. Such advantages like less material costs and less space requirement generates more customer value for the ER1100.



The mission of **ELIVAC** is to provide customers with best fit custom made Roots blowers. To realize this goal, within the ER1100 model series, customers can choose:

- Magnetic drive or regular direct mechanical coupling drive.
- Single mechanical seal, oil seal with oil cup or 4 point lip seals, etc. The picture above right shows: ER1100 with mechanical seal to the left and with oil seal to the right.
- Plain internal surfaces or coated with PTFE, PFA or Ni-P alloy plating;
- Conventional motor connector or integrated front end cover without motor connector (less chance of oil leak even if the the magnetic coupling is not installed).



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