

### Low Pressure Air Compressors for IS Machines in Korea



Traditionally Pneumofore supplies glassworks with centralized vacuum systems. Depending on the size of the furnace, also the air compressors of the A Series can be installed to supply the compressed air required during the moulding process of hollow glass containers.

Pneumofore equipment is frequently seen in hollow glass factories worldwide. In most cases large size vacuum pumps of the UV Series are installed, since our compressors do not always satisfy the huge capacity requirements of compressed air at low pressure. However, some hollow glass factories have 'little' capacity and will not go for the centrifugal compressors, which in those cases might not be the best solution.

Low pressure in the range of 2,5 to 4 bar(g) as requested for IS operation is not as common in industry as the standard pressure of 8 bar(g). Also compressor manufacturers offering such units are rare. Sometimes, 8 bar(g) machines are installed and used with pressure reducers in order to bring the 8 bar(g) down to 3 bar(g); this causes important energy losses as the work to compress from atmospheric pressure to 8 bar(g) is mostly wasted if the required pressure is less than 50%, e.g. 3 bar(g).

Turbo compressors can be designed with two stages only and can set the pressure quite precisely. These machines run at about 50.000 rpm, require cooling water for the interstage and offer the advantage of oil-free compressed air. Motor sizes start at several hundreds kW and transportation, installation, commissioning, control, maintenance, all need competence and involvement of the manufacturer.

Back to our case with 3.000 m<sup>3</sup>/h of compressed air at 3 bar(g): too small for a centrifugal compressor. Also, the customer did not consider to use compressors at 8 bar(g) with pressure reducers. Only few suppliers remain in this case and the user can choose between specially designed, expensive screws or the low temperature, low rpm Pneumofore rotary vane compressors.

In 2012 we succeeded to deliver 4 units of mod. A120.4 that were shipped to North Korea. Each A120.4 has 860 m<sup>3</sup>/h at 50 Hz with an electrical motor of 75 kW. The specific power at 3 bar(g) of these compressors is 4,5 kW min/m<sup>3</sup>, quite a good efficiency compared to any other technology. The confidence of the end user and of our distributor was given by the successful running of numerous Pneumofore rotary vane vacuum pumps and compressors in the Far East area, since decades. With production 24/7 every saved kW contributes to a lower electrical power bill. The 'distance' or difficult access to the installation site, did also require a high degree of OEM independence, which is fully satisfied with the basic version of the A Series compressors, machines with a simple electro-pneumatic control, without electronics for an easy and fast on-site repair in case of any event. The low ownership cost, the reliability and durability of our air ends result finally in a better solution in the long run.

The fact that A series compressors are lubricated can be solved with line filters to purify the compressed air to levels of oil-free machines and better. Lubricated equipment will have a better cooling performance as the oil is adsorbing heat and, by means of an air cooled radiator, keeping the temperature low at about 90°C. Also, the lubricant will ensure the minimal friction among moving parts and guarantees total active sealing, which cannot be found in turbo or screw equipment.

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