

**b) Desiccant dryer with heat regeneration**

Desiccant dryers with two chambers and heat regeneration are more efficient. In this system the purge air is heated to increase the volume of moisture it can absorb. This in turn enables an effective regeneration of the desiccant to be carried out using less purge air. For the typically lower capacity of dental compressors however, this arrangement with two chambers and an additional heat source may be considered overly complex. Furthermore, as with heatless regeneration, maintenance requirements are higher due to the presence of condensate which has to be drained and collected.

**c) Desiccant dryer with Permanent Power System (PPS)**

Kaeser Kompressoren has developed its Permanent Power System (PPS) as an efficient desiccant drying solution. The Coburg-based company uses the PPS drying process, which avoids the disadvantages of more conventional methods. At the heart of the PPS is a desiccant dryer with just a single chamber and heat regeneration (Fig. 3).

With this system, the desiccant is regenerated using air drawn in from the ambient surroundings, which is then warmed using heat from the compression process. The PPS drying system ensures all of the compressed air generated by the compressor remains available for use.

Subsequent cooling of the compressed air is also simple yet highly effective. The compressor's large cooling fan and a ring cooler are used for this task. For Kaeser's new dental compressors, the ratio of time spent compressing/drying to time spent regenerating the desiccant is 4:1 or 6:1. By comparison, the ratio for conventional compressors may sometimes be just 1:1. Furthermore, conventional compressors must also compress purged air for the desiccant regeneration process, which is an unnecessary consumption of energy. By way of contrast the new models operate at idle load during the regeneration phase and as a result, achieve considerable energy savings. Regeneration of the desiccant takes place at regular intervals and without complete shutdown of the compressor. The regeneration process does not impact the user, however, and a supply of the appropriate quality compressed air is available at all times. As compressed



Dental compressors are indispensable equipment in dental surgeries and laboratories. They should fulfil the highest demands for reliability and economy.

air is drawn from the receiver during the regeneration phase it takes longer to reach the shut off pressure level than with a comparable conventional compressor. This consequently minimises machine switching frequency.

Moreover, using heat from the compression process for regeneration has some highly welcome "side effects". This heat extraction leads to enhanced cooling of the compressor thereby enabling continuous operation if required. In addition, the compressor room environment remains much cooler as a result of significantly reduced heating.

Furthermore, the new PPS system prevents condensate accumulation. This in turn reduces compressor maintenance to simple regular replacement of the air inlet filter.

Refrigeration drying – Suitable for demanding applications

As the name suggests, the refrigeration drying principle is based on

