The use of a sound enclosure significantly reduces a dental compressor's sound levels. Depending on model, sound pressure levels of 60, or even 52 dB (A) can be achieved.

A modern dental compressor with integrated desiccant dryer ("Seccomat", right)

Condensate – Even in the distribution piping

Surprising as it may seem, the air stored in the receiver still has a relative humidity of 100 per cent and is therefore still completely saturated. Should this air pass through the air distribution piping to the pneumatically operated instruments and equipment, then additional condensate accumulation is virtually assured. All that's required is a slight reduction in compressed air temperature. This can occur very easily, especially if the compressor is housed somewhere that's warmer than the treatment room. This of course is generally the case, as the temperature in the compressor room can quite easily exceed the 30 degrees mark, whereas the treatment room is usually significantly cooler. The temperature differences are often even greater due to the ever-increasing use of air conditioning systems.

Even without these kinds of differences in room temperature, a slight cooling of the compressed air whilst on its journey to the point of use is quite enough to trigger the accumulation of condensate. This might occur for example if distribution piping passes through cooler basement areas or ventilation shafts. Similarly, this can also be the case if the piping is installed in close proximity to water pipes in a conduit, for example.

Condensate can also accumulate within a treatment unit if insufficient care was taken to adequately shield the compressed air and water lines when the unit was constructed. Even small volumes of condensate can be problematic: Tiny water droplets that start forming as a result of the air cooling down on the inner walls of the piping can slowly coalesce over time until they become larger droplets that are then eventually swept along with the compressed air flow.

Common drying processes

Appropriate compressed air drying is therefore essential to prevent such problems from occurring. In dental applications, drying should take place before the air enters the compressed air receiver. The most common methods include absorption-, desiccant-, membrane- and refrigeration drying. The latter is the most favourable approach for all but the most demanding applications.

Quiet and less maintenance requirement

In addition to preventing costly downtime and premature wear of tools and equipment, appropriate compressed air drying provides a further significant advantage: Maintenance requirement is minimised for practice staff, as condensate no longer needs to be drained from the compressed air receiver. Moreover, some modern drying processes even make condensate collection tanks superfluous. This, together with the use of door-free soundproof enclosures, therefore makes it possible to reduce a dental compressor's sound levels still further. With implementation of this new, optimised technology, compressed air drying in the dental sector will become standard throughout the world, as is already the case in many countries today. **DA**

Reference:
1: Refer to DIN EN ISO 7494-2:2003 (= EN ISO 7494-2:2003; = ISO 7494-2:2003), Point 3.22.
2: Dental Standards Committee within the scope of the German Institute for Standardisation (DIN), registered association (Ed.): Dental Standards Committee (NADENT) Annual Report 2007, pg. 25.