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SERVICE INFORMATION
No. 05 Eng

DATE: **26-06-2003**

PRODUCT: **UV-lamps**

SUBJECT: **Cooling water for UV-lamps.**

The present service information cancels all previous guidelines for cooling water to UV-lamps.

Extreme care has been taken when choosing the materials for the water system in our UV-lamps, and in order to protect the lamp in the best possible way, please follow the guidelines given below.

1. It is not possible to give an exact PH value for the cooling water running in the lamps. If there is no oxygen in the water, the PH value is high (9,5) but harmless. If the PH value and the amount of oxygen is high, it is very harmful to the pipes in the lamp. In a normal open cooling system the PH value should be as close to neutral as possible, and not exceed 8,5.

2. The water must be clean and free from any particles deriving from fitting pipes and valves.

3. The temperature in input can be as low as 15 degree Cel. and the output temperature can be as high as 40 degree Cel. In order to avoid condensing water as much as possible, we recommend an input temperature at 18-20 degree, which limits the difference between the water temperature and the surroundings.

4. The water flow must be at least 120 l/h for each half lamp. Totally 240 l/h for one lamp. We recommend 150-180 l/h, taking point 4 into consideration.

5. The water pressure may not exceed 1,5 bar.

6. Normally condensing water in the lamps is harmless, but if the content of chlorides in the surrounding air is high, special action must be taken to prevent condensing water. These actions could be limiting the temperature difference between the cooling water and the surrounding air, or/and stopping the water flow in lamps not used. As an alternative to stopping the water flow in lamps not used, all lamps could be turned on, and lamps not used could be set to minimum effect.

7. In certain areas we see a high growth of bacteria in the pipes and hoses. This could stop the water flow. To prevent this, chemicals could be added to the water, taking point 1 into consideration. Frequent changing of the water could be a good idea, as wheel as using demineralised water. In our experience local

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companies specializing in water chillers, has a good experience with the local environment.

8. Cobber, aluminium and chloride together with oxygen are a very bad mixture in the water system, and it will sooner or later create corrosion! Do not use cobber pipes or fittings, use oxygen preventing plastic or rubber pipes and hoses. Use demineralised water to avoid chloride.

9. If chemicals must be used to condition the water, we recommend Havoline Xli. The product is made by Texaco, and the specifications can be found on their homepage on the internet. In general you can say, that this product neutralizes the water and hereby preserves the aluminium pipes.

Best regards
Hans K. Nielsen
Service Manager