# Why all centrifugal chillers need an OAM-Purger

## Typically there are 3 centrifugal chiller operating scenarios:

**Operating Scenario 1…**are chillers that operate seemingly normal at full or near full load capacity most of the time, such as process chillers or air conditioning chillers in year round warmer climates. Yet, occasionally oil must be added to the oil sump. The question is why? Where has the oil gone? The answer is it has migrated into the refrigerant charge in the evaporator. Theoretically a chiller operating at full capacity should have the least problem with oil migration because this is when the oil return system (eductor pump) is operating at maximum efficiency. Nevertheless, even when operating fully loaded most chillers will average from **3%** to **6%** oil concentration in the refrigerant charge. While this may seem inconsequential nothing could be further from the truth. In fact, if you own a scenario 1 chiller operating at just **3%** oil concentration **you are paying $6,000 to $8,000 dollars per chiller per year extra in energy cost.**

**Operating Scenario 2…**this is the most common category and is typical of chillers where they are subject to frequent loading and unloading conditions. For these chillers oil migration to the refrigerant charge can be significant. During periods of low load operation the pressure differential between the low and high side decreases lowering the effectiveness of the oil return system (eductor pump) allowing excess oil to accumulate in the refrigerant charge. Under this scenario oil concentration can range from **6% to 12%**. If you are a scenario 2 chiller owner you are very likely paying an extra **$10,000 to $20,000 dollars per chiller per year in energy cost. Ouch!!!**

**Operating Scenario 3…**is the worst scenario of all. These are chillers that operate most of the time unloaded below **30%** to **40%** capacity. Since the efficiency of the chiller's oil return system (eductor pump) is directly proportional to chiller operating pressure differential this is the worst case scenario for proper oil return. Prolong low load operation quickly leads to severe oil migration into the refrigerant charge, often exceeding **20%** and with devastating effect. If your facility has one or more scenario 3 chillers you are very likely paying in excess of **$25,000 dollars per year per chiller in extra energy to operate!** Multiplied times the number of chillers in your facility and you quickly realize why you need an **OAM Purger** on every chiller!

**Chillers without oil return system…**Many centrifugal chillers do not have an oil return system at all, Chillers without an oil return system invariably fall into the scenario 3 category regardless of load condition. Therefore, if you own or operate such a chiller you simply cannot afford to continue operating without an **OAM Purger**.

The bottom line is this…**<u>There is no chiller</u> that cannot benefit from an OAM-Purger.** In the ***ASHRAE study 601-TRP*** samples were taken from 10 operating chillers and analyzed for oil content. All contained excess oil in varying amounts from 3 percent to 23 percent. ***According to that study the Average Chiller has 12 % oil by weight in its Refrigerant Charge.*** For each **1% of oil** in a chiller's refrigerant charge there is

a **corresponding increase in operating cost of $2000 to $3000 per year.** Therefore installing an **OAM Purger** on a chiller with only **3%** oil concentration will save **$6000 to $8000 per year in energy cost.** You will obtain **100% return on your investment! You will save thousands of dollars, not just the first year, but every year you operate the chiller with an OAM-Purger, forever.**

If you are a scenario 3 chiller owner your savings could exceed **$25,000 dollars** or more per year and that's like receiving a **$25,000 annual dividend per chiller!**

Not only will the **OAM Purger** save you thousands of dollars in energy cost it also **restores lost capacity.** In addition, the **OAM Purger** helps reduce maintenance and prolong chiller life and refrigerant & oil life by removing harmful **moisture** and **acids** from the system. When you consider the **OAM Purgers pay-back** along with other opportunities such as **Utility Rebates, LEED** and **GreenBuildings Points,** installing an **OAM Purger** on every chiller in your facility is no longer an option, now that you know the facts it's a **necessity**.

For more information about the **OAM Purger** please visit our Web Site at **www.RediControls.com.** Review **Case Studies** and **News Articles** to see how the **OAM Purger** is saving more and more chiller owners every day thousands of dollars in energy cost across America and around the world.

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