

TURBOCASES

Superior energy efficiency and savings with TURBOMATIC

TURBOMATIC

The TURBOMATIC thermal energy unit is developed to solve all heating and heat treatment needs in concrete mixing plants and associated concrete element factories, including:

- **quick melting of aggregates**
- **pre-heating/heating of aggregates and**
- **production of all hot water needed for process, heating and utility purposes.**

The TURBOMATIC is the optimum heating solution for concrete mixing plants due to several reasons:

- **Production of high quality concrete at the desired temperature.** The TURBOsteam utilized for heating the aggregates maintains the moisture balance (cement-to-water ratio) of the concrete at its optimum thus ensuring the production of high quality concrete. Air heating tends to dry the aggregates too much whereas steam provides too much moisture – both leading to problems with the cement-to-water ratio and thus the quality of the concrete. Steam heating also leads to more icing problems in cold weather conditions as the condensed water freezes when the heating is stopped. With the TURBOMATIC it is also possible to produce concrete at precisely the desired temperature under all outdoor temperature conditions.

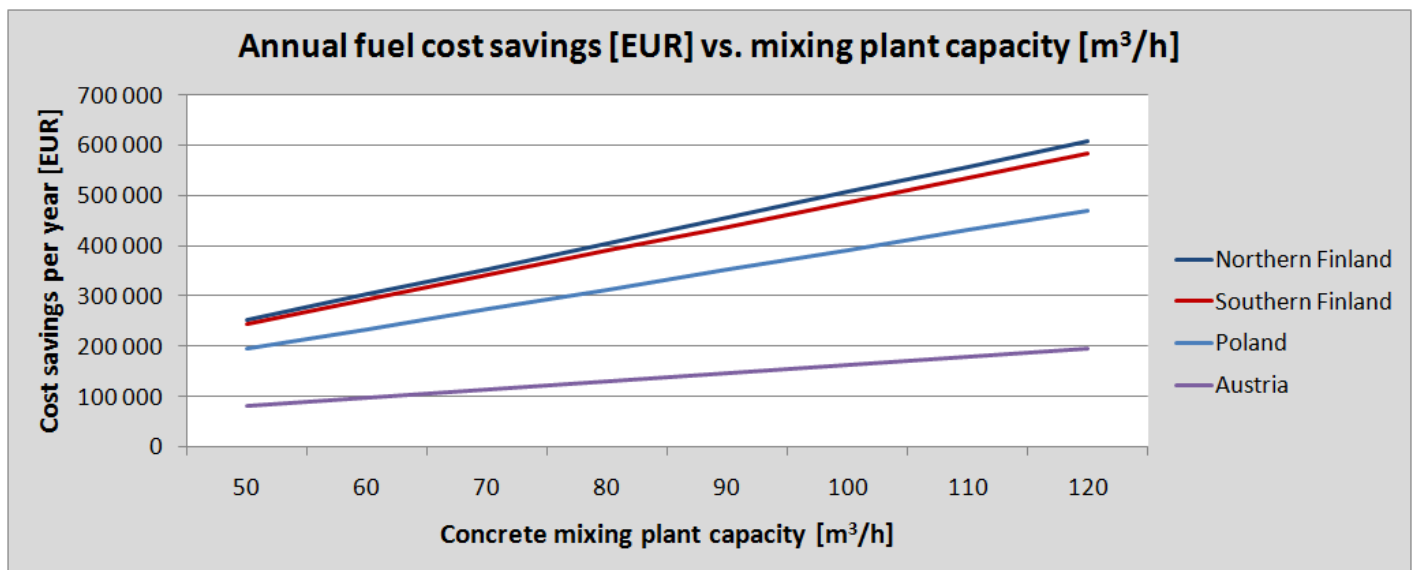


- **Increased annual concrete production.** The TURBOMATIC is also clearly the most effective way of melting and/or heating aggregates. With the TURBOMATIC virtually all the input fuel energy can be converted to heat energy and then utilized to melt and/or heat the aggregates. The effectiveness is a combination of the actual amount of heat energy and the medium (TURBOsteam) utilized to the heat of the aggregates. With traditional steam or air based heating systems it is simply not possible to put the same amount of heat energy to aggregate melting/heating. This effectiveness results in the fact that it is possible to operate the concrete mixing plant and produce concrete under even the coldest of winters.
- **Superior energy efficiency and lowest possible fuel consumption.** The TURBOMATIC provides superior energy economics due the fact that almost 100% of the produced thermal (heat) energy is utilized for process, heating and/or utility purposes. Notable is also that all the thermal energy needed in the concrete mixing plant and associated concrete element factory is generated in one single unit which also minimizes any energy losses. The efficient utilization of thermal energy results in a very low oil (or natural gas) consumption when producing concrete: depending on the conditions (e.g. temperature, duration of winter/heating season etc) between 0.6-1.2 liters of oil is needed to produce 1m³ of concrete – **savings as high as 80%** compared to traditional steam or air based heating systems which typical consume 3.5-4.2 liters/m³ concrete or more.
- **Environmentally friendly.** In addition to being fast, reliable and efficient, the TURBOMATIC is also environmentally friendly as less fuel consumption means less emissions to the environment. Also NO_x-emissions are low due to the advanced low-NO_x technology utilized in the TURBOMATIC.

Significant monetary benefits

With the TURBOMATIC it is possible to increase the annual concrete production and thus increase the sales of concrete. The quality of the concrete (hot concrete) is also better when using the TURBOMATIC based heating system and this results in the possibility to sell concrete at a higher price. The increased income depends strongly on the local conditions but can be quite significant.

With continuously increasing oil and natural gas prices the fuel cost savings with the TURBOMATIC are significant when comparing to air/steam based heating systems. The savings depend upon several different factors including the type and capacity of the concrete mixing plant in question, the ambient (temperature) conditions, the length of the heating season, the different heating systems connected to the TURBOMATIC etc. Although the range of the savings is large, the savings are always significant enough to justify investing in a TURBOMATIC thermal energy – either in a new concrete mixing plant or as a replacement of an existing heating system. The following chart provides an indication of the savings (in EUR) achieved by current TURBOMATIC customers at various concrete mixing plants.



Conclusions

The TURBOMATIC is the optimum heating solution for concrete mixing plants. The TRBOMATIC is suitable for both new plants as well as for existing plants where the TURBOMATIC can provide significant fuel cost savings – as high as 500,000-600,000 EUR per year. The savings are obviously highly dependent on the oil price, overall oil consumption, factory and ambient conditions, etc. The increased income achieved from the increased concrete production and the better concrete quality can in some cases be even higher.