TURBONEWS

Polarmatic Newsletter – 01/2009

TURBOMATIC: For a cleaner environment

TURBOMATIC COMBATS CLIMATE CHANGE

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.

In addition to being fast, reliable and efficient as well as environmentally friendly, the TURBOMATIC also provides superior energy economics due the fact that almost 100% of the produced thermal energy is utilised for process, heating and/or utility purposes. Noteable is also that all the thermal energy needed the concrete mixing plant and associated concrete element factory is generated in one single unit.

This efficient utilization of heat results in a very low oil (or natural gas) consumption when producing concrete: depending on the ambient conditions (temperature) between 0.6-1.2 liters of oil is needed to produce 1m^3 of concrete during the heating season – savings can be as high as 80% compared to traditional steam or air based heating systems which typical consume 3.5-4 liters/m^3 concrete.

Due the superior energy efficiency the TURBOMATIC is also inherently environmentally friendly as the low fuel consumption also results in low emissions. With the TURBOMATIC the absolute CO_2-emissions are typically between 60-80% lower when compared to traditoinal air or steam based heatring systems. In order to further reduce the environmental impact Polarmatic has developed a two-stage combustion system to lower the NO_x emissions. The aim has been to meet the most stringent environmental regulations in Central Europe.

NO_x-emissions

During the combustion process of fossile fuels the formation of nitrogen oxides occurs mainly through three mechanisms: formation of fuel NO_x, thermal NO_x and prompt NO_x. The fuel NO_x is formed through the oxidation of the nitrogen (N) in the fuel. The main parameters effecting the formation of fuel NOx are the fuel nitrogen content and the oxygen concentration of the combustion gas. Thermal and prompt NOx are formed from the molecular nitrogen in the combustion air. Thermal NOx is highly temperature dependent. Formation of prompt NOx is typically relatively low.

New combustion technology: low-NOx TURBOburner

One common method to reduce the formation of NOx during the combustion process is to stage the introduction of the combustion air into the burning chamber ie. introducing the combustion air multiple (minimum two) locations. This creates a zone of low oxygen content in the front part of the flame which effects the formation of fuel based NOx. At the same time the temperature of flame is lower and thus also the formation of thermal NOx is reduced.

The TURBOMATIC thermal energy unit has traditionally been equipped with a single-stage air system which meets the environmental regulations in most countries. In order to also meet the most stringent Central European NOx-regulations Polarmatic has developed a new two-stage low-NOx burner for the TURBOMATIC thermal energy unit.

Results

The new low-NOx TURBOburner was installed at a concrete mixing plant in Zürich, Switzerland. Measurements show the following results compared to the Swiss and Austrian regulations:

Conclusions

Test results show that with the low-NOx TURBOburner developed by Polarmatic it is possible to meet even the most stringent Central European NOx-regulations. The low-NOx TURBOburner can be installed in new TURBOMATIC thermal energy units or an existing TURBOMATIC can be retrofitted with the new burner.

NO_x content	Measurements		Emission regulations	
Fuel: Light fuel oil	1-stage	2-stage	Austria	Switzerland
NO_x-content (mg/m^{3}n as NO_2@ O_2 dry gas	184	109	150	150

POLISH COMEBACK

Polish Bosta Beton has ordered a record thirteen (13) TURBOMATIC thermal energy units for both new and existing concrete mixing plants. Bosta Beton, a former Polarmatic customer, had not placed any orders for TURBOMATIC thermal energy units since 2004. After having invested in traditional (air/steam based) heating systems for some years, Bosta Beton has now decided to use the more advanced, fast, efficient, energy efficient and environmentally friendly TURBOMATIC thermal energy unit.

BULGARIA IS A FIRST

Polarmatic has delivered the first TURBOMATIC thermal energy unit in Bulgaria to Sofia based "OOD Hidrobeton". The Turbomatic thermal unit will be used at new concrete mixing plant delivered by German Liebherr Mischtechnik AG. Hidrobeton requires an efficient heating system which is powerful enough under all circumstances. According to Mr. Rossen Nikolov of Hidrobeton "We have tried other heating without success. Based on the track record, we trust that the TURBOMATIC is the system which delivers what it promises. With the TURBOMATIC we will be able to produce hot concrete even when the weather gets cold. Our customers want the concrete irrespective of the outside temperature. Now we will be able to deliver, Mr. Nikolov continues."

SIGNIFICANT SAVINGS WITH TURBOMATIC

Based on recent studies it is evident that significant cost savings can be realised with the TURBOMATIC. In for instance Nordic (Finland, Sweden, Norway), Western Russian, Alpine (Austria, Switzerland, Germany/Bavaria) ambient (temperature) conditions typical average fuel consumption figures are as follows:

- TURBOMATIC:
  1 litre/m³ of produced concrete
- Steam/air based heating system:
  4 litres/m³ of produced conrete

The exact fuel consumption depends on several varying factors (ambient temperature, heating options, type of concrete mixing plant, number of silos, operational philosophy etc), but the study clearly shows that the energy efficiency of the TURBOMATIC is superior under all circumstances and conditions. In order to get some idea of the actual monetary savings involved:

In addition to direct fuel cost savings the TURBOMATIC also ensures the concrete production and thus the sales of concrete under all (winter) conditions. With the TURBOMATIC it is thus possible to produce more concrete during the year than with traditional air or steam based systems. The increased income (in the sales of concrete) depends on several different factors, but the order of magnitude can be even significantly greater than the fuel savings further justifying investing in a TURBOMATIC thermal energy unit.

Finland (example)	
Oil price	0,887 EUR/litre
Annual concrete production	80,000 m³/year
=> Annual savings with TURBOMATIC	**213,000 EUR/year**
Russia (example)	
Oil price	23 Rubles/litre
Annual concrete production	80,000 m³/year
=> Annual savings with TURBOMATIC	**5,500,000 Rubles/year**

MOSCOW REPRESENTATIVE OFFICE

Polarmatic's representative office in Moscow, Russia can be found at the following location:

127254 Moscow, Rustaveli Street, t. 14, Building. 9, Office 23
Phone / fax (495) 637 65 89
Mobile phone (495) 921 80 50

According to the Director of Polarmatic's Moscow Representative Office, Irina Hrekova: "by establishing our own office in Moscow we want to give a clear signal to our customers that we are committed to the Russian market. With the Polarmatic invented and developed, original TURBOMATIC thermal energy unit we have the best possible heating system for the Russian (winter) conditions. The patented TURBOMATIC has clearly proven itself to be the heating system which really works even during the coldest Siberian winter conditions. Now our intention is to continuously improve our services in Russia."

APPOINTMENTS

Polarmatic strives to continuously develop its products and services and has therefore strengthened its organisation with the following appointments:

Mia Kauhanen has been appointed Director, Operations. Mia has the overall responsibility for Polarmatic's project and production activities. Mia will also coordinate all after sales and service activities.

Ari Peltonen has been appointed Director, Technology. Ari is responsible for engineering, technology and product development.

Robert Kelkka has been appointed Sales Manager for Russia, Ukraine, Kazakhstan and Belarus.

Juha Hämekoski has been appointed Sales Manager for Finland, Sweden, Norway and Denmark.

NEW PARTNERS FOR IMPROVED CUSTOMER CARE

In order to continuously improve its service to Russian customers, Polarmatic has signed a cooperation agreement with St. Petersburg based Neva Service for the sale of TURBOMATIC thermal energy units. Neva Service will handle for instances cases in which customers wish to have the TURBOMATIC delivered to its final destination including custom clearance and freight.

For more information, please contact:
OOO "Neva-Service"
194064, Russia
St. Petersburg, Polustrovskij pr.74
tel./fax +7 (812) 327-77-11 (switchboard)
tel. +7 (812) 952 12 00
fax +7 (812) 968 21 32
fax +7 (812) 321 62 76
e-mail: nevaservice@yandex.ru
e-mail: 3277711@mail.ru
www.nevaservice.ru

Polarmatic has also increased its Bulgarian activities by signing a cooperation agreement with Sofia based HPS Consult OOD.

For more information, please contact:
HPS CONSULT OOD
1532 Kazichene-Sofia
Momin kladenec str. 22, Bulgaria
mobile +359 88 8498568
mobile +359 88 7210974
tel./fax +35 2 9995 342

PREVENTIVE MAINTENANCE ENSURES TROUBLE-FREE OPERATION

Polarmatic offers annual maintenance and spare parts services to all its customers. The service is done either by Polarmatic's own personnel or trained and certified partners. For service in your area please contact:

Nordic Countries, Baltics, Eastern Europe
Polarmatic Oy, Tampere
Mia Kauhanen
mobile +358 500 454 535

Russia
Polarmatic Oy, Tampere
Satu Ceder
mobile +358 400 627 362

Austria, Switzerland, Germany
Burger, Trade handels- u. Produktions Ges.m.b.H.
Salzburger Str. 57,
A-5500 Bischofshofen, Austria
Mr. Peter Fercher
mobile +43 664 111 00 60
Mr. Michael Teleky
mobile +43 664 45 15 864
(Emergency Assistance)

polarmatic

Polarmatic Oy
Ahertajankatu 9
FI-33720 Tampere
Finland

Tel. +358-(0)10-397 9100
Fax +358-(0)10-397 9101
polarmatic@polarmatic.fi
www.polarmatic.fi