

STEAMWISE

A bi-annual publication by IDEKO, THE INDUSTRIAL ENGINEERING COMPANY s.a.r.l.

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FULL STEAM AHEAD!

EDITORIAL

This SteamWise issue is long overdue! It comes after a period during which IDEKO was taking decisions and making plans for the future. We firmly believe that in order to survive in the present harsh economic context and keep up to our patrons expectations, our action has to be based on three keywords: diversification, industry and service. In these times of empires rising and falling, of giants collapsing, and of rapid changes in geopolitical context, we believe that our activities should include well-distributed, and independent scopes of offerings. This is why we have chosen to add, alongside of our "traditional" lines of York-Shipley Steam and Hot Water Boilers, Fireye Flame Controls, Webster Burners, ... a new line of Industrial Control products, by Moore Industries. (See elsewhere). This addition falls also within the second keyword mentioned above, Industry. We believe local Industry needs to be backed up by good quality products, to help the various Industrial sectors become more efficient and competitive. In a country where electricity and fuel oil are very expensive, energy saving products like our Fireye NEXUS, and Penn Flash Recovery Systems have a perfect application. Finally, we dedicate ourselves to prove that a good product is also a product that is well supported. Our technical team is fully trained to startup, commission, configure, program, troubleshoot, maintain and repair our various offerings. Times are no more those of "off-the-shelf" retail sales. Times are those of words like "turnkey", "full solution" and "system integration". This is what the future is about.

Eid Eid (Eng.)
President

OUR CHOSEN SUPPLIER: PENN SEPARATOR CORP.

As usual, each issue of SteamWise features one of our suppliers on the first page, for a general overview of its product Line. For this issue, we have selected "Penn Separator Corp.", out of Brookville, PA [USA], to be our chosen Supplier.

Penn Separator are the Number ONE Supplier of Flash and Blowdown Vessels, Separators, and Silencers in the U.S. In fact, they manufacture blowdown vessels, separators for all the U.S. major Boiler Manufacturers.

The PENN Product Line can be overviewed as follows :

- The BlowDown vessels, separators and accessories. This starts from the very basic boiler blow off tank, and includes BlowDown Separators with automatic aftercoolers and regulating valves, Automatic BlowDown Systems, etc... all constructed per ASME Code.

- The Flash Separators and Economizers are a key product in an efficient and well designed condensate management system. A number of satisfied users in Lebanon have had the chance to benefit from the significant savings resulting from flash steam recovery, in their steam plants.

- Inline Separators, used to properly drain Steam Mains, and achieve

best steam dryness and quality are also produced by PENN Separator, per requirements of the ASME Code.

- PENN offers also a full line of Exhaust Heads and Silencers, useful in achieving clean and quiet relief of steam outside boiler Rooms.

- Finally, the "Sampler", a best-seller by PENN, is a compact, efficient, and cost-effective Sample Cooler. When a Sample of Water from a running boiler is desired, the Sampler can be used to obtain this sample and avoid undesired "flashing" of boiler water, which leads to incorrect results of boiler water tests.

IDEKO takes pride in offering PENN Separator equipment in Lebanon !



Inside this issue

Editorial	p.1
Our Chosen Supplier	p.1
Technically Speaking	p.2
Stock Info.	p.3
Our references Announcement	p.4



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COMBUSTION ANALYSIS

This article deals with the various combustion Analysis parameters that appear in a combustion Analysis report, explains their impact on combustion quality, efficiency, and discusses as well some environmental considerations.

Spot Smoke Level : This is a visual assessment of the color of smoke. It is based on the comparison of the colour of the spot that the boiler smoke leaves on a filter paper, to a scale of 0-9 indicating Smoke Level. A clean light oil combustion is usually below #2 on this scale.

Carbon Monoxide : Measurement of CO in ppm at Boiler exhaust indicates presence of incomplete combustion, usually coupled with "air-poor" combustion. Carbon Monoxide is toxic and should be kept at its lowest possible level. Usually light oil burners can be operated with a CO level close to 0 ppm.

Excess Air : This is the amount of air in excess of the ideal stoichiometric ratio given by the equation of the chemical reaction between fuel and oxygen. If used in practice, this ideal ratio leads to incomplete and smoky combustion because of the imperfect fuel atomisation. In real life, combustion air must be in excess of the stoichiometric ratio and is measured by Excess Air in percent. However, excess air should be kept at its lowest possible value, since it has direct impact on reducing the overall boiler efficiency.

Carbon Dioxide Level: Measured in percent, this level is at its maximum when combustion is the most efficient. A good tuning of the burner aims at a maximum CO2 value.

Oxygen Level : This is also measured in percent, and is directly related to CO2 content. Modern Combustion analysers measure Oxygen, and calculate corresponding CO2 level based on type of fuel used. Oxygen level should be kept minimum. However, if too low, it will lead to smoky and incomplete combustion. Oxygen level is in direct relationship with Excess Air level.

Nitrogen Oxides (NOx) : This results from the combination, at high temperature, of the Nitrogen present in the air, sometimes in the fuel, with oxygen. The gases emitted NO, and NO2 are considered pollutants as in the presence of humidity, tend to form nitric acid [acid rains]. Modern regulations in the US, and Europe are being enforced for using burners with Low-Nox design, for environmental reasons.

Sulphur Dioxide (SO2) : Sulphur is present in most fossil fuels, especially Fuel #6. It will burn in Oxygen to form Sulphur Dioxide, also a pollutant. The amount of SO2 emitted depends only on the sulphur content of the fuel itself. Design of the Burner cannot be used to minimize these emissions.

Overall Boiler efficiency can be calculated using two measurements; Oxygen level, which will determine combustion efficiency, and stack temperature, which will assess stack losses, i.e losses of energy in the temperature of the exhaust. To maintain clean and efficient combustion, the following guidelines should be observed : O2 level to be kept at minimum between 4 and 7%, CO2 level to be kept at maximum, exceeding 10%, CO to be kept at minimum and not to exceed 50 ppm, and finally Spot Smoke level to be lower than 2.

THE NET CONCENTRATOR SYSTEM

Lately introduced by Moore Industries, the NCS comes at the right time to fill a gap in the more and more demanding industrial control domain. This Distributed I/O system is meant to clean up "the real mess" resulting from years of evolving control systems, and proprietary control schemes. The NCS system will "concentrate" just a few, or thousands of control signals, onto a single, simple Ethernet or Modbus cable. It is the interface between the industrial plant, and the highly popular Ethernet network, and even the Internet !

NCS is modular, and expandable to continuously evolve with the application.

NCS is versatile. Its Input and Output modules can deal with any type of the commonly used signals in the Industry.

NCS is flexible. It can be programmed with any of Five programming languages, among which ladder logic, structured text and function blocks.

NCS is also a "Data Logger". It can store up to 32,000 points, with date and time stamps, and logging intervals as short as 1 second.

NCS offers transmitter-like performance. Its high resolution [20 bit input, 18 bit output] make it superior to comparable competition.

NCS is simple. It is easily accessed using a LAN cable, and a common Web Browser.

If you feel NCS can have an application in your plant, please feel free to give us a call, and our engineer will have the pleasure to call on you, and present to you this innovative System.

NCS
PLANT ← → DESK
NET Concentrator® System



HANDHELD COMBUSTION MONITORING EQUIPMENT

Available now in our stocks is the new Kane 250 Portable Combustion Analyser by Kane [UK]. The Kane 250 will give readings for O₂ content, CO₂ content, and CO content of boiler exhaust. It will further measure Stack temperature, and compute combustion Efficiency, Excess Air and Stack Loss. Very attractively priced, this multimeter-style instrument will soon become a "must" for everyone involved in servicing or operating light oil burners.

Also available from Kane, is the more advanced Kane 900, which, in addition to the above, supports heavy Oil burners, and measures Nox, and SO₂.

Both the Kane 250 and Kane 900 have an infrared port, which can be used with our optional InfraRed printer to print combustion analysis reports.

Burner users are becoming more

and more concerned about combustion efficiency, oil consumption, and emissions. The Kane Combustion Analysers are already best sellers!



SMALL OIL METERS BY AQUAMETRO

Also available now in our stocks, are the small VZO-4 Contoil Meters by Aquametro (Switzerland). Very easily installed, the VZO-4 is ideal for oil consumption measurement of small burners or generators, from 1 liter/hour up to a flow of 80 liter/hour. This large range of operation makes the VZO-4 suitable for very small domestic burners (0.25 GPH Firing Rate), as well as considerably higher capacity (20 GPH, more than 60 HP).



CALL US NOW FOR A QUOTE !

OUR NEWEST SUPPLIER, MOORE INDUSTRIES

IDEKO s.a.r.l. is pleased to announce that Moore Industries (USA) has joined our family of suppliers. This comes as part of IDEKO's strategy of diversification and intent to provide industry-oriented products, while in line with our firm commitment as suppliers of top-quality products, and top-notch aftersales service.

Moore Industries are "The Interface Solution Experts!". They specialize in products that interface industrial processes with each other, and with central control systems, such as DCS and SCADA systems. All Moore Products are designed to operate in the harsh industrial environment. Metal housings, Rugged design, "Transmitter-Like" performance and impressive ambient temperature ranges [-40degC to 85degC !!] make them a reliable part of the industrial plant. Temperature Transmitters, Signal Isolators, Signal Converters and Splitters, Alarm trips, I/P and P/I Converters are but a few of the hundreds of Moore products. Their newest product line, the Net Concentrator System [NCS], is covered elsewhere in this issue.

IDEKO's staff, in cooperation with Moore's regional Office, located in Bahrain, will have the pleasure in responding to your enquiries, and suggesting full solutions to your interface problems. Whether the need is for interfacing a new industrial process with the rest of the plant, or making an old "Legacy" control system "talk", Moore Industries certainly will have a product to suggest.



MAJOR RECENT PROJECTS IN THE M-E

Lebanon

The M-E INSTITUTE OF HEALTH (Bsalim) was equipped with a Complete Steam Plantroom and Network, including a 40 HP Steam Boiler, by York-Shipley.

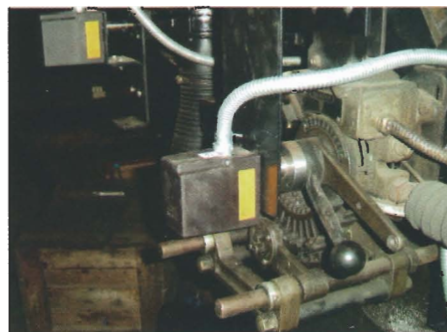
Also, a York-Shipley Steam Boiler of 800 HP, 300 PSI, has been supplied early this year to UNIPAK-TOSSUE MILL DIVISION (Halate), along with Auxiliary Equipment.

Following the Phoenicia Intercontinental satisfied experience and testimony, GEMAYEL FRERES S.A.L. (Bickfaya) have also decided to cut-off on their Fuel Charges by installing One Fireye Nexus System on their Heavy Oil York-Shipley Boiler. This system has been running smoothly for nearly one year now.

UNIPAK-TOSSUE MILL DIVISION (Halate) have opted for a Factory built-in Nexus System on their new Steam Boiler.



View of a Nexus Control Panel



Detail of Nexus Servo retrofitting at Solicar

Also, SOLICAR (Wadi Chahrour) and SICOMO (Kab Elias) have recently joined the family of the Nexus users in Lebanon.

Saudi Arabia

As the authorized NEXUS Installer in the Middle-East, Ideko has recently commissioned two Nexus Systems, for The KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS.

Syria

Three York-Shipley Hot Water Boilers of 250 HP each and Two Steam Boilers of 125 HP each have been supplied for The FOUR SEASONS HOTEL (Damascus), (Contractor : ETCCO) along with various Steam Equipment.

Oman

OMANI PACKAGING FACTORY, an old York-Shipley satisfied Customer, has recently purchased a new York-Shipley 250 HP Steam Boiler and Auxiliary Equipment, to add to his Plantroom, including an older similar Boiler from year 1994 vintage.

Iraq

Finally, Contractor LA COMMERCIALE has recently ordered for a Milk Plant in Iraq, a York-Shipley boiler of 650 HP.

ANNOUNCEMENT

IDEKO sarl is pleased to announce the renewal of its appointment as Middle-East Regional Representative office (MERRO) for York-Shipley Global, division of Aesys Technologies. As regional office, IDEKO coordinates sales, and service for York-Shipley products in the major part of the Middle-East countries. Moreover, our sizeable inventory of Spare parts gives us the ability for same-day shipping of replacement spare parts, throughout the Middle-East.



LAST MINUTE

York-Shipley Global is proud to announce the introduction of a new line of Wetback Boilers, to complement the "Classic" York-Shipley Dry Back line.

More on this, in future issues of Steamwise.

...FOR WE BELIEVE THAT
CUSTOMER'S SATISFACTION
IS A PRIORITY...

WE HAVE LAUNCHED OUR
COMBINED RESOURCES

FULL STEAM AHEAD!

