

STEAMWISE

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FULL STEAM AHEAD!

EDITORIAL

We owe our readers an apology for the delay in issuing the present Newsletter.

This was due out late 2001, but for reasons beyond our control has been postponed on a couple of occasions.

Meanwhile, we have been asked by several readers about the forthcoming issue and here it is.

We have retained the 4-pages standard form in this issue and we introduce a new series of articles on "Boiler Efficiency". Our regular features, Chosen Supplier, Announcements, Major Projects, remain and retain their relative importance.

We shall stress in this and in future issues on Combustion Emissions. The topic is hot. Standards are being drawn and implemented in the U.S. and Europe. This applies to Boilers, Power Plants, Incinerators, etc., in short, all applications including Combustion of fossilized Fuel or Organic waste. In this respect, IDEKO is offering a new range of services, in the field of Efficiency Monitoring, oxygen trimming and flue gas analysis.

We hope the topics to be of interest to our readers and we will be happy to answer all their queries.

*Elie Eid (Eng.)
President*

OUR CHOSEN SUPPLIER: TLV® Co., LTD.

Ideko's association with TLV Co., and its European headquarters TLV-Euro, is in line with our aim to provide customers with top quality, cost-effective products, to complement our main product lines.

Any good steam system relies on good steam trapping. And good trapping means trouble-free operation, reduced maintenance traps, and minimal downtime. This is why TLV offers the free Float Steam traps. With no internal moving parts, except the float itself, these traps basically do not fail. What could go wrong with a simple, round ball? And should it go wrong, many models of the free floats are "in-line" repairable.

TLV also offers the very popular, simple and reliable "thermodynamic" traps, detailed elsewhere in this issue.

TLV line includes many other interesting products, such as the integrated two-in-one steam Separator and Steam Trap

Combination, and the three-in-one Pressure reducing valve, Steam Separator and Steam Trap, the COSPECT. TLV also offers various Air and Gas traps, Steam Trap management and checking systems, Steam meters, specialised software, etc.

No review of TLV product line would be complete without mention of the unique T8N Sight glass, the only sight glass with internal ball, to determine at a glance correct or faulty operation of any Steam Trap.

TLV Products are "best-sellers" in our inventory !

There must be a reason to this ...

TLV® CO., LTD.

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BOILER EFFICIENCY :

A simple elementary approach applied to Firetube Boilers

Concern for Energy and fuel conservation has brought about a corresponding concern for Efficiency. This applies particularly to Boilers. The terminology used in the industry is often confusing. We hope to clarify some of the currently used terms as follows :

1) Boiler Efficiency : This is a general term which cannot be precisely defined. It can be misleading if it is not clarified when used. Usually, it is intended to mean either the "Thermal Efficiency" or the "Fuel-to-Steam Efficiency" (See below).

2) Thermal Efficiency (*ThE*) : This is a measure of the effectiveness of the Heat Transfer in a heat exchanger (such as a Boiler shell). This is expressed in percentage.

3) Combustion Efficiency (*CmbE*) : This relates to the effectiveness of a Burner only, and is a measure of how well the burner extracts Heat from the fuel. With proper adjustments, a good burner should have a combustion efficiency in excess of 95%.

4) Fuel-to-Steam Efficiency (*FTSE*) : This is simply the ratio of the Heat Output of the Boiler at the steam outlet in Btu's to the Heat Input of the Burner in Btu's. It is called also "True Boiler Efficiency", "Overall Efficiency", "Overall Transfer Efficiency", or simply "Transfer Efficiency". It is also expressed in percentage.

Relationship of the above terms

To adequately understand Efficiency, it is necessary to understand the relationship of the above terms as well as other terms related to them, such as Stack Loss, etc...

When considering fuel costs and this is the most important consideration when applied to Efficiency, then the Fuel-to-Steam Efficiency should be used, primarily because it takes into account factors such as "Radiation Loss" (*RI*) : Heat lost in radiation from all the hot parts of the boiler, "Convection Loss" (*CI*) : heat picked up by the surrounding moving air, "Unaccounted for Loss" (*Unacl*) :

losses due to inaccuracy of testing and measuring instruments and variations in the heating value of the fuel, and finally, the "Stack Loss" (*SI*) which is substantially larger than all the others combined.

The above three types of losses: (*RI*), (*CI*), (*Unacl*) average approximately 1 to 3% of the total boiler output depending on the boiler size and remain relatively constant regardless of the burner firing rate, and whether the burner is "On" or "Off". Since these losses relate primarily to the boiler and instrumentation, they relate to the Thermal Efficiency, but are not taken into account in the normal definition of the term. We convene to call "Other Losses" (*Othrl*) = (*RI*) + (*CI*) + (*Unacl*), the sum of these losses.

The most obvious indications of fuel economy and optimum Fuel-to-Steam Efficiency are the stack temperature and flue gas analysis as related to O_2 and CO_2 . These determine the "Stack Loss".

Theoretically, the boiler should remove as much heat as possible from the products of combustion before they leave the boiler, so that as little as possible heat is wasted up the chimney. Flue gas analysis indicating a proper (relatively high and constant) CO_2 content, with a slight O_2 and no CO would indicate good burner operation. These factors along with the losses described above, are the factors that must be considered in determining fuel cost, operating economy and real Efficiency.

The long accepted industry standard of "Min. or better than 80% Efficiency" is a "Fuel-To-Steam Efficiency" (*FTSE*). This is what York-Shipley uses and does not limit the Efficiency to 80%. In many cases, York-Shipley Boilers produce Efficiencies considerably more than the 80% industry standard.

In future issues, we shall deal with other aspects of Efficiency and topics related to the computation of Efficiency using the higher or the lower calorific value of the Fuel (gross or net calorific values).

A Solution to Inadequate Domestic Hot Water Storage Capacities Using Main tempering Valves

Problems are frequent in domestic hot water systems with insufficient storage capacities. If the heating stops, adequate hot water from the tank can only be obtained for a limited period.

One solution -rather expensive- is the addition of tanks to the existing ones, or the replacement of same with larger tanks. This involves major pipe changes and labour.

A good and low-cost solution is using "high" storage water temperature. A master tempering valve, at the outlet of the tank, mixes the stored hot water with make-up cold water to deliver tempered water to the users. This involves the addition of a 3-way valve at the outlet of the tanks, with minor pipe changes.

The mixing process is a way of "artificially" increasing the amount of available hot water. For every liter of water used by the system, only a fraction of a liter actually comes from the tank, the remaining coming from the cold water network. For example, for every liter of $50^\circ C$ water used in the system, only 0.63 liter of $70^\circ C$ water actually comes from the hot water tank.

On the other hand, storing water at higher temperatures has been proved to be more hygienic, whereas some bacteria as the legionella cannot survive in higher temperatures than $70^\circ C$. The tempered water, even though it is cooled down to lower than $70^\circ C$ is however free of such bacteria.

IDEKO's Range of products covers all equipment needed for this application, especially for fail safe, self actuated, self contained master tempering valves.



A VARIETY OF OIL NOZZLES TO SUIT EVERY APPLICATION, BY DELAVAN INC.

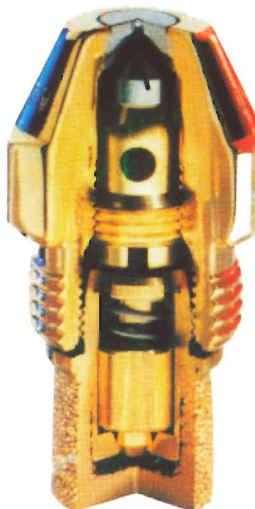
Ideko has recently added to its Stock inventory, a large selection of Oil Nozzles, supplied by Messrs. DELAVAN Inc. (U.S.A.).

The selection reflects Boiler users' most commonly required Nozzles, both in Capacity and Type (Spray Angle and Pattern).

Capacities available range from 1.75 GPH to 28 GPH for the Delavan "B" Type (PLP Type), and from 3.5 to 24 GPH for the Delavan "Variflo" Type (By-pass Type).

However, other Capacities and types, covering different requirements, can also be ordered from Delavan's exhaustive Nozzle Range.

Our Customers are most welcome to try the unique inside anti-plug construction of DELAVAN Nozzles.



DELAVAN

THERMODYNAMIC STEAM TRAPS BY TLV® Co., LTD.

Thermodynamic Traps, (sometimes called Thermodyne) are general multi-purpose, medium capacity, with non-air binding device Steam Traps.

They are of the intermittent type, and supplied with an air insulated cover, a non air binding device and an integral mesh Strainer.

TLV A3N traps are compact, easily installed units, and applications range from drying of Steam mains to general Steam using equipment Trapping.

- * The body material is cast iron.
- * A special, bi-metal ring (The non air binding device, reacting at

about 100 Deg.C) provides an air venting function at Start-Up

- * Sizes range is from 1/2" to 2".
- * Working Pressure is 4 - 200 PSI.
- * Capacity is up to 5,500 Lbs/hr.



These units are trouble free, and require no field adjustment.

Maintenance is limited to Strainer cleaning.

From our own experience some of these units have worked continuously without any

breakdowns, for over 20 years.

For any general purpose application, within the working parameters, the TLV-A3N is your best bet.

COMBUSTION EMISSIONS TESTING

Throughout the world, Combustion Emissions from Boilers, generators or furnaces are a great concern to Industries, since more and more stringent legislations are being implemented. In Lebanon presently, although to a lesser extent, environmental legislation is being enforced, but industries will have to meet strict regulations concerning the emissions of their equipment, in the future.

With this in mind, IDEKO has equipped itself with a powerful portable Gas Analyser, suitable for performing on-site combustion emission testing of the most common emission components, such as Nitrogen Oxides (NOx), Sulphur Oxides (SOx), Carbon Monoxide and Dioxyde, Oxygen, Combustion Temperature and Efficiency, etc...

Our Technical team will perform this test, and will also issue a report on the Equipment Combustion efficiency and means to improve on same.

CONCERNED ABOUT WHAT EXACTLY IS GOING OUT OF YOUR CHIMNEY ?

CONTACT US !



MAJOR PROJECTS

BEIRUT MOVENPICK HOTEL is up and running! Hot Water and Steam are reliably generated by Five York-Shipley Boilers, with Webster Burners, and Fireye E-110 Controllers, all supplied by IDEKO.

Also, up and running is the SHERATON CORAL BEACH HOTEL, where two 100 HP Steam Boilers by York-Shipley are generating Steam for the Laundry, Kitchens and Hot Water Heaters.

BEIRUT CROWN PLAZA HOTEL, in Hamra, relies fully on the Two 60 HP York-Shipley Steam Boilers as a primary heat source for the Hotel. All Domestic Hot Water is generated through Steam-Water Heat Exchangers.

The Movenpick, Sheraton Coral Beach and Crown Plaza have joined hence the long list of Hotels in Lebanon, equipped with Boilers supplied by IDEKO.

Finally, the Laundries of COUVENT NOTRE-DAME (Hadath), GRAND HILLS HOTEL (Broummana) and CLINIQUE DU LEVANT (Sin El-Fil) are also equipped with Steam Generators supplied by IDEKO.

ACQUISITION

As you may have heard, AESYS Technologies LLC has acquired the business and operation of DONLEE Technologies Inc. in February 2001, and has maintained headquarters, research facilities and principal manufacturing operations at the same location in York, PA. Phone and fax numbers as well as mailing address remain unchanged. Also, as a consequence, all manufactured Boilers, Pressure Vessels and Ancillary Boiler Room Equipment will bear the name "York-Shipley Global". The name has slightly changed but the quality has not.



FIRST IN THE MIDDLE-EAST !!

FIREYE and IDEKO are very proud to announce the successful startup of the First Fireye NEXUS Unit in the Middle-East, at the Phoenicia Intercontinental Hotel in Beirut.

The management of the Phoenicia InterContinental are always striving to maintain state-of-the-art equipment in their hotel, and they sure made a winning bet by reverting to FIREYE and IDEKO for the innovative upgrade of their Burner Control System to the Fireye NEXUS System.

First in the Middle-East, the Phoenicia Steam Boiler #A is now controlled by NEXUS for Parallel positioning of Air Damper and Fuel Valve. This allows optimum combustion efficiency throughout the Burner Modulation Range, and translates into significant dollar-figures savings, making the system pay-back in less than a year !

First in the Middle-East, the Phoenicia Steam Boiler #A has continuous monitoring and display of Combustion Efficiency through the innovative Zirconium Probe by Fireye. The Nexus System also trims the Burner to maintain the preset efficiency levels even when

operating conditions vary. This adds considerable energy savings to the above.

First in the Middle-East, an 18.5 kw Vacon NX Variable Speed Drive supplied by Messrs METACS Sarl, and controlled by the Nexus was added to the system, improving considerably on electric consumption, and noise level for Boiler#A.

Results are obvious. Boilers B and C at Phoenicia upgrading process is on the way !

IF YOU ARE CONCERNED BY FUEL SAVINGS ON YOUR BOILER, HAVE IT "NEXUSED" BY IDEKO !!!

NEW EMAIL

Please note our new email address, effective immediately: ideko@ideko-lb.com

Specifically, if you need to mail the :

-Pres. & CEO: elie@ideko-lb.com

-Eng. Dept: eideid@ideko-lb.com

-Parts Dept: hala@ideko-lb.com

-Acc.Dept: accounts@ideko-lb.com

Our former address: ideko@inco.com.lb remains also operational for the time being.



A souvenir photo for the Fireye, Metacs and Ideko teams after completion of the NEXUS installation at the Phoenicia Hotel

...FOR WE BELIEVE THAT
CUSTOMER'S SATISFACTION

IS A PRIORITY...

WE HAVE LAUNCHED OUR

COMBINED RESOURCES

FULL STEAM AHEAD!

