"Practical experience is very important from the beginning"

Dipl.-Ing. **Horst Linn** sen. is founder and president of the Linn High Therm GmbH group. In this interview with heat processing* he talks about the future of the energy industry and technological challenges, revealing his own personal energy-saving achievement.

The energy mix of the future: Are you prepared to risk a prediction?

Linn: My personal opinion is – based on past predictions – renewable raw materials, sun (more thermal than photovoltaics), wind, geothermal energy, nuclear energy possibly will merge in the middle of the century. However, energy saving is most important of course.

Germany in 2020: How will people's everyday life has changed as a result of changes in the energy industry? What fuel will they use in their cars? How will they heat their homes? How will they generate light? Risk a scenario!

Linn: Cars have to be smaller and considerably lighter: 50 % electricity and 50 % fuel. Houses have to be insulated much better (vacuum insulation panels in mass production are affordable), light-LEDs can be recycled better and are not as toxic as energy saving lamps and household appliances save at least 50 % due to customer generation.

Sun, wind, water, geothermal etc.: Which renewable energy source do you consider to have the greatest future?

Linn: Sun + wind + geothermal

Which of the technologies currently emerging would you invest in today on that basis?

Linn: Insulation technology and small wind power plants from 1 to 5 kW, mini CHPs, superconductivity and battery manufacturers, carbon fibre/basalt fibre, UV-LEDs.

How do you assess the future ranking of fossil fuels such as oil, coal and gas?

Linn: From 2025 on, it will be difficult and expensive. And we will continue having problems with CO_2.

And nuclear energy? How will, for example, Germany declare its position to this topic in future?

Linn: Unfortunately bad – I prefer German nuclear power plants compared to the ones of many other countries. They are safer. However, we should think more intensely about final repository and quantity reduction of nuclear waste! Above all, however, Germany, as the country of mechanical engineers, should not miss to keep-up with technology and know-how and qualify young people. Decommissioning as well as final repository need specialists. It is a huge challenge, politically and economically seen, which is highly underestimated – more acceptance from all of us in Europe is needed!

The energy transition: What changes will be necessary at the political (including the global political), the social and the ecological level to enable us to talk realistically of a "transition"?

Linn: Politics should deal more sensitively with topics like taxes, e.g. by supporting photovoltaics! This should rather include support of economization (insulation) and alternative concepts than of generation. Low-temperature waste heat utilization in case of minor waste heat generation in industry and the private sector should not be ignored. I would be happy if the acceptance of reservoirs, energy transport lines and final repositories would be wider.

And your wishes from the federal government in this context?

Linn: Not only power but also money for the "big ones". In addition to that, small, innovative ideas should be supported faster and especially unbureaucratically. As well as more equity between big and small companies.

There are at least two problems with renewable energy sources: the lack of infrastructure and the continuing and persistent concentration of the established channels on conventional forms of energy. Will this change in the foreseeable future?

Linn: I think that it will not change before 2025 to 2030. Infrastructure will stay uncritical in case of reasonable isolated operation solutions at wide technology basis and mass application.

* Interview conducted by Stephan Schalm and Sabrina Finke

Irrespective of the form of energy and the technology used, many consider the term "energy efficiency" to be the key to the energy questions of the future. How do you view this subject? What do you consider to be the most important development in this field in the thermoprocessing technology industry?

Linn: It was a clever mentor role of the VDMA! This subject needs top priority if you e.g. consider the consumption of thermal processes in German industry. Neither insulation, low-temperature waste heat utilization nor optimal fuel burning technologies are unsolvable approaches. Fiscal aspects at the percentage energy saving would be motivating.

What benefits do electrical process-heat routes offer in your opinion?

Linn: Less exhaust gases, best optimization by control technology and sensors, no particle emission of refractory materials etc.

How do you view developments for enhancement of energy efficiency?

Linn: Too slow! Government and federal states support the wrong areas. It will take again ten years until all operators of thermoprocess technology really start off. The reason: People shy away from the costs.

In your opinion, how will energy consumption in industry, commerce and domestic households change?

Linn: Well, I think there will be a decrease of 2 to 3 % per year in the next decade!

What role does your company currently play on the energy market?

Linn: An unimportant role, as we manufacture electrical furnaces (resistance-, inductive- and microwave-heated furnaces). We were the first ones in Germany who, for example, insulated high temperature furnaces with ceramic wool to save energy. For six or eight years, however, we have been working on new processes, furnaces, which will now be launched on the market.

What role will your company be playing on the energy market in twenty year's time?

Linn: A more significant role! One of our start-up associate companies will massively launch new products by new efficiency technologies in the following years (va-Q-tec).

What will be your company's most important innovation or project?

Linn: We have invested a lot of time and money in microwave drying for nuclear waste. This will be an important subject in the next ten years. Furthermore, due to lightweight design, we are dealing with the subject carbon fibre/basalt fibre and, of course, also with the subject rare earths. We are well-known for our small precision casting units and have done a lot for the materials Titanium and Titanium Aluminides which are considerably penetrating the market and are just about to finish the development phase (Turbine wheels/ Turbocharger wheels).

What challenges do you see approaching you (economic, technological, social, etc.)?

Linn: From an economic point of view, we are too small

"The acceptance of reservoirs, energy transport lines and final repositories should be wider."

RESUME

Dipl.-Ing. Horst Linn sen.

Date of birth: 26th of July 1944

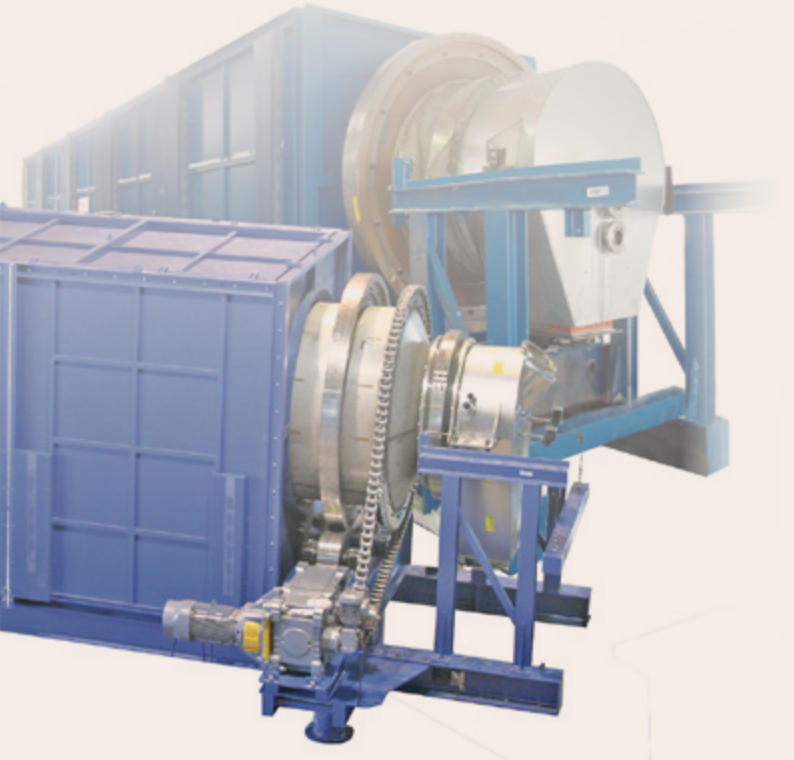
Current job: Managing director of Linn High Therm GmbH

Studies:
Studied electrical engineering in Frankfurt a. M. and Munich

Career:
- Independent entrepreneur since 1969
- Shareholder Induktio d.o.o., Ljubljana (Slovenia)
- Member of the board of directors of VDMA/TPT
- CEO of Ostbayrisches Technologie Transfer Institut (OTTI)
- Member of the committee AiF – Arbeitsgemeinschaft industrieller Forschungsvereinigungen „Otto von Guericke" e.V.
- Supervisory board member „S-ReFIT AG (risk capital fund)", Regensburg
- Owner of more than 90 patents

Languages: English, French
Hobbies: motor sports, cooking

married, two children



to realize quickly all our ideas: Simply, we do not have enough money as in the past, we were very restrained regarding subsidies. Technologically seen, I am not afraid – on the contrary! Socially seen, we have done what was expected from us respectively me. But: too many competitors work hard to pull know-how from us!

How do the expansion of the EU and globalization affect your company and its business?
Linn: Partly positively, partly negatively. Chances and risks are still equal – in five to ten years it will become worse.

How important is a trade name or a brand for the success of products in the industrial sector?
Linn: Very important. Our policy is: We (often) receive what our competitors are not able to do or what they do not want to do for risk.

Have you been unable to pursue developments or able to pursue them only after a delay or at reduced speed due to the lack of qualified personnel?
Linn: Yes, there are two reasons: 1. Engineers are attracted by big companies due to salaries and additional contributions. A "small" company often cannot compete with that. 2. There is a lack of education for niche industries at universities of applied sciences and universities.

Does a management team need greater media capabilities in order to convince investors?
Linn: Of course! To hide your light under a bushel is no longer acceptable. Unfortunately, it is still easier to acquire € 20 mio. than € 2 mio. The New Market still continues to have an effect, especially in case of banks and planners of subsidiary programs (politics).

What would you like to change in your company?
Linn: Less talking but more responsible acting on a wide base. Less evaporation of know-how.

How important is expansion abroad for your company?
Linn: Only sales and service in countries which make sense to us.

Is your company receptive to renewable energy?
Linn: Yes. When we built the company 30 years ago, we already insulated better than regulations required.

Does your company already use renewable energy?
Linn: Yes, solar thermal energy, waste heat and a CHP.

How receptive is your company to new technologies?
Linn: Very receptive, because: That is what we live from and with!

How much does your company spend on investments each year?
Linn: Too much. During the economic crisis, this really caused us worry and deteriorated our rating. Unfortunately, top ideas are still undervalued in mechanical engineering.

What has been/is your greatest energy-saving as a private person?
Linn: A smaller car, a good insulation of the house, energy-efficient household appliances etc.

How would you assess your dealings with employees?
Linn: Uncompromisingly clear and sometimes harsh but honest in all respects! In case of private problems, I am friend and helper.

What do you think the people around you particularly appreciate about you?
Linn: Honesty, working commitment, inspirational motor, helper in emergencies and my disproportionately good network.

What moral values are of particular topicality for you?
Linn: Important to me are justice, honesty, assumption of responsibility and, especially in case of problems, not to deny them!

How do you manage to be sure of some time for yourself, and not always to be dealing with internal and external challenges?
Linn: This is my biggest problem. I have too less holidays and time for my hobbies. As I am too good-natured, I can plan for myself the least. I am bad at saying no if someone else needs help or in accepting jobs.

Do you, or did you, have any people whom you regard as examples to you?
Linn: No.

How were you brought up and educated?
Linn: In a convent school.

What is your motto for life?
Linn: According to Don Bosco: "Be merry and let the sparrows sing." But I am not always successful.

In your opinion, what was the most important invention of the 20th century?
Linn: Semiconductor materials!

What personal characteristics are most important to you?
Linn: Openness. A look into the eyes helps. They are the mirror of the soul.

"Top ideas are still undervalued in mechanical engineering."

When do you not think about your work?
Linn: When I am sleeping or when I drive full throttle in a rallye car in order to reach the times of Walter Röhrl or Michael Stoschek.

What is your own personal tip for upcoming generations?
Linn: To learn more (basic knowledge) and not only to think of a good life, social networks and to think of retirement already when starting the career! Moreover, I think that practical experience is very important from the beginning. Furthermore, next generations should also overcome to get rid of disciplinary limits and application domains.

What has shaped you in particular?
Linn: Convent school, motor sports, the obligation to earn money already as a student and to save money.

What can you absolutely not do without?
Linn: Work, rallye car, family, good food.

What do you wish for the world?
Linn: More justice, less dishonest/incapable politicians, respect between the religions!

Thank you for this interview!