

# FOCUS

2023

The customer magazine of Schmid AG, energy Solutions

INSIDE | MARKET | TECHNOLOGY | NEWS | SOCIAL MEDIA

## Revolution adaptive

Alternating fuels – constant heat generation  
without manual intervention



# New silo for the Eschlikon heating network and the Technology Center from Schmid

**FOCUS – the magazine of the Schmid Group provides annual reports about the market, company news and interesting plant projects.**

The Schmid Group is a Swiss family business that has specialized in wood energy since 1936 and is one of the world's leading manufacturers. Schmid combustion systems enable environmentally friendly heating and are in use around the globe.

The wide range of products includes wood-fired systems for single-family homes up to large-scale industrial plants with an output of 8 MW. In addition to home and property owners, our customers include the agricultural and forestry sectors, the wood industry, real estate companies, energy service providers, commercial and industrial companies, and cities and municipalities. In the Swiss home market, heat pumps have also been offered as a supplement since 2019.

## Environmentally friendly energy solutions and sustainable services inspire and create trust



**As an innovative technology leader, we offer exciting energy solutions for an environmentally friendly and sustainable future.**

The Revolution adaptive issue is all about the new control system that detects changing fuels and automatically tracks the target output of the wood-fired boiler. It is another milestone in harnessing the maximum value from renewable resources.

With the Revolution adaptive innovation, we are far from tired, are moving forward full of energy and will continue to cause a stir in the industry as a technology leader.

Philipp Lüscher  
CEO Schmid AG, energy solutions

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**The new wood chip silo on the Schmid company premises was commissioned in June 2023. With a volume of 500 m<sup>3</sup>, it strengthens the local heating network and is another element for the Schmid Technology Center, which is currently under construction.**

Thanks to the high heat consumption of the Eschlikon heating network and the new generation of firing systems, new developments such as the Revolution adaptive\* control system can be quickly and easily subjected to a practical test.

### Sustainability in focus

*«We inspire through environmentally friendly energy solutions and sustainable services.»*

Philipp Lüscher, CEO Schmid AG, energy solutions

With the Technology Center, Schmid intends to remain an innovative technology provider and offer exciting energy solutions for an environmentally friendly future.

**Schmid Wärmeproduktions GmbH, a subsidiary of the Schmid Group, operates the heating centre and supplies the thermal energy to the grid operator Energie Münchwilen AG**

Through the cooperation with Energie Münchwilen AG, additional important experience can be gained, which helps to put the customer benefit in the centre and to develop services.

### Silo information

The wood chip silo was equipped with a drivable push floor with loosening rollers. The wood is discharged via a scraper chain conveyor with integrated overlength separator (disc separator) and magnetic metal separator. In this way, even «difficult fuel» can be stored and transported. Furthermore, a large wood chipper for discarded pallets and packaging materials was also integrated into the silo concept.

*\*Revolution adaptive – the new control system, more on page 24*



Project team after successful commissioning. From left: Christian Huber / CFO, Philipp Lüscher / CEO, Ernst Haldemann / Project Manager, Beat Müller / Technical Support, Björn Gubler / Service Technician, Moritz Ganzoni / Project Manager



Commissioning silo



# Hans-Jürg Schmid

28.7.1943 – 22.10.2022

Footprints of a visionary, doer  
and family man -  
his work will be continued in honour.



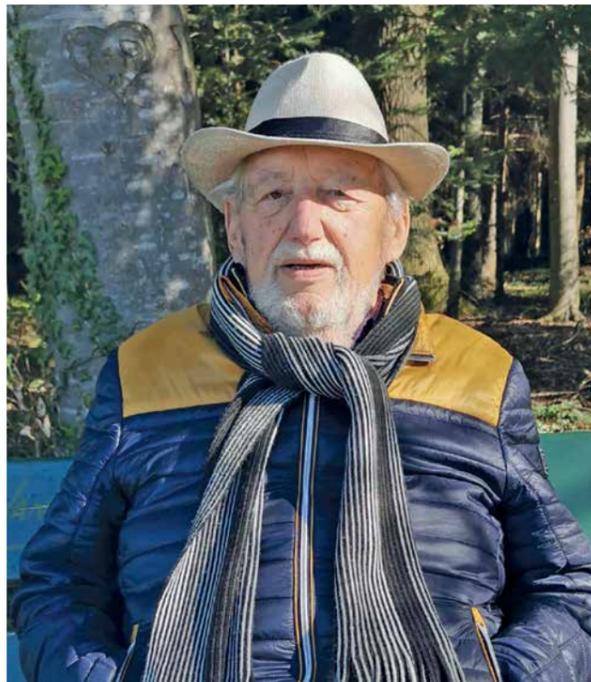
A visionary and doer from the very beginning – Hans-Jürg Schmid gets down to business.



Young Hans-Jürg Schmid feels at home among the employees and is proud to be a Schmid family and company member.



A well-oiled team – Margrith and Hans-Jürg Schmid.



Connected with nature – Hans-Jürg Schmid in the forest, his place of power.



He loved working in the forest, here with a visit from his grandchildren.

**Hans-Jürg Schmid worked for Schmid AG for over 60 years and left a lasting mark on the company as owner and patron. He developed Schmid AG from a locksmith's store into an international plant engineering company. His passion and heart for Schmid products was contagious. Entrepreneurial development was as close to his heart as the employees.**

**This has influenced the corporate culture and can still be felt today. Many beautiful connections were made, which have remained in the memory of the employees to this day. After his retirement, he remained loyal to wood and the forest. He devoted himself with pleasure to forest maintenance and work and, of course, also provided wood chips for his son Roland's own needs. Meanwhile, he has never lost his connection to Schmid AG. For example, he regularly inspected the progress of the silo construction, see page 3, on site and took part in company celebrations.**

#### Curriculum vitae written by Hans-Jürg Schmid in May 2022

I was born on July 28, 1943 in Grüningen in the Zurich Oberland, the second son of my parents Lydia and Albert Schmid-Walter. At the age of 4 we moved to Eschlikon to Bahnhofstrasse, where my father ran a locksmith's shop. Here I was allowed to experience a beautiful youth, this with a very dear mother, who fell ill early with MS and a father, who was fairly strict but also lovable. After school, I learned the trade as a construction fitter, as was still common at that time in my father's company. After the apprenticeship, I wanted to train as a master locksmith and learn languages during a stay abroad. However, my mother died very early and I had to support my father in the business. Further education was only possible through evening and weekend courses.

I met my wife Margrith very early and we got married at the age of 21. We have never regretted taking this step at an early age and we have had three wonderful children – Roland, Diana and, our youngest, who arrived some 10 years later, Natalie. As I was very busy at work, most of the children's upbringing was in the hands of my wife. Despite the professional challenges, I always tried to enjoy the family. We soon built our own home on Kirchstrasse and later on Rebenstrasse, where we lived for many years and where our children grew up.

I first worked as a foreman in my father's company. When I was about 30 years old, my father had major health problems and I also had to take responsibility for sales and new developments. Later, I took over 100 % of Schmid AG and Schmid Ventilatoren AG, which had been converted into a joint stock company. In a long business life there are always good times, but also very difficult times. In addition to fans, drying chambers, chip extraction systems and heating installations, we concentrated more and more on the wood energy sector. Here I was able to give additional impetus to the industry with good ideas.

Thus, I was the first to develop the wood storage heater for log firing, which was then required by law several years later as a condition for log firing. A major impulse for automatic wood chip firing systems came with the construction of a mobile wood chip machine, with which wood up to a diameter of 40 cm could be processed into chips in the forest. This was the first machine of its kind in Europe. At the same time, automatic wood firing systems were developed and Schmid AG was able to set another milestone with the first moving grate firing system for wood chips.

I had a lot of joy when my son Roland joined the company after his studies and massively improved the controls of these furnaces. Later Diana supported me in the finance area and Natalie in sales and marketing.

With the great support of very good and loyal employees, I was able to further expand the company and in 2012 I was able to hand over the management of a successful company with around 250 employees to my descendants.

I would like to thank my three children Roland, Diana and Natalie as well as my son-in-law and managing director Philipp, the management and the board of directors for the successful continuation of my life's work.

During my business years, I was also active in many clubs and associations. I was a co-founder of SFIH (today Holzfeuerungen Schweiz), an association of all manufacturers of wood energy systems, serving on the board for 30 years. During the same period, I was a member of the board of Holzenergie Schweiz, and for many years on the board of Metallunion Thurgau, the employers' association and the Thurgau Chamber of Industry and Commerce.

I was also active in politics. When I was 22 years old, I was elected to the municipal council of Eschlikon, where I served for 10 years. Later I was elected to the cantonal council, where I also served for 10 years. During this phase, I also founded the Wirtschaftsraum Hinterthurgau together with a colleague. An organization that had the particular aim of networking entrepreneurs and politicians.

I discovered travelling with good friends. Together we were able to see most of the world. I happily visited every world championship in artistic cycling to see my oldest grandchildren compete, going as far as Malaysia.

After my resignation as CEO of Schmid AG, I shifted my work to the forest. I took great satisfaction in caring for the forest and spent many days in the forest with my tractor and the necessary equipment. I enjoyed having a long game of jass (a swiss card game) with colleagues and enjoyed visiting our vacation home in Ticino with Margrith. I take even more pleasure in spending time with my grandchildren - of which I now have 9. I am proud of the education and professional careers of the older ones and am happy to note that the younger ones are certainly making their way as well. In the last two and a half years, despite my illness, I have still spent many happy hours. I have felt very accompanied and well supported.

I thank my wife, children and grandchildren for the good times I was able to spend with them. I look back with gratitude on a fulfilled life.

Hans-Jürg Schmid

# Unusual stories from the life of an unusual entrepreneur

**Stefan Neff is Team Leader After Sales in the field and has been part of the Schmid team for over 40 years. He knew Hans-Jürg Schmid – «HJ» for short, as he was known in the company – very well as a boss and colleague and knows many great and funny stories to tell. He is happy to share one or two anecdotes with our readers. They show their commitment to the employees and the company.**

**After-work beer with midnight snack at the boss' house**  
Socializing and getting together in private was always important to HJ. As a young mechanic, we liked to end the week on Friday evening with an after-work beer. HJ also often joined us, not infrequently inviting us to his home after the police hour and cooking for us. He was very good at that! I remember it clearly: Schnitzel with fried potatoes. It would not have been any better in a restaurant.

**He knew that I like to sleep in**  
More than 30 years ago, my phone rang on a Saturday morning around 11 o'clock. It was the boss! «Steff, do you know how to turn off the motor of the tire loader?» Yeah sure I knew and asked him why it was running. «I had no more wood chips in the silo and filled it up this morning at seven with the tire loader». I asked HJ, puzzled, if the tire loader has been running since then and why he didn't call earlier. HJ replied «Yes, it has been running since then and I know you like to sleep in».

**On the road in the snow flurry**  
Many years ago I drove together with HJ from Ellwangen «Heimwärts» (home). At that time there was no highway on this route and also no navigation devices. It was snowing heavily and the way home was long. The boss said: «Well, I'll drive and you read the road map». It was snowing harder and harder and the direction signs were no longer visible. HJ said: «Steff, which way is it?» I countered that you can no longer read the direction signs and he said: «That was the deal – I drive, you take care of the way home. So for better or worse, you'll have to clear the signs of snow».

With such long trips home, there was also time and space for personal conversations. I had just become a father for the first time and HJ asked: «Tell me Steff, I heard that you want to build a house. If you have any problems with the financing, then you come to me. We will find a solution». I was very happy to have a boss who was also interested in my personal situation.

**Sporty heavyweight: there's a lot more to it than meets the eye!**  
A customer once told me that HJ and he had not yet agreed on the price during the contract negotiations. 10,000 euros discount more or not? HJ knew the customer owned a private tennis court and suggested: «Alright, let's play a match for it». The customer was sure to win this deal – after all, HJ didn't have an overly athletic figure and actually he had a extra few kilos on his ribs. Well, he thought wrong. HJ shined with his special serve, just stood in the middle of the court on the T-line, distributed the balls and made his opponent «run for it». He brought home the 10,000 Euro less discount for Schmid AG.

**On the road with the car from the boss**  
A long-time production employee was expecting his future wife and wanted to pick her up at the airport. HJ said: «Why don't you take my Mercedes, then you can make a bit of an impression». The employee just said: «Boss, I can't drive your car at all». So HJ took his time and practised with him, which was actually a bit rougher and took longer than he thought.

**Learning from problems**  
As it happens – during commissioning, you also stumble across planning errors. Once when I was on a plant in Germany and we were faced with new challenges, I talked to HJ on the phone and spoke plainly. «Boss, if you don't understand what you are selling, then you need to look at it on site at the plant». The phone call was ended and I was amazed when the next morning HJ showed up at the site in Berlin and inspected the plant with me. He did that several more times. I appreciated that very much.

**Feelings are also allowed**  
Many years ago, the then head of customer service took his own life completely unexpectedly. He was an important part of the company, very popular with everyone and a great boss for me. HJ called me at that time and told me the unbelievable news. I answered him: «I can't continue working and I am going to visit his wife. When I was in HJ's office that same evening, he said: «Steff! Kudos to you for going to his wife. I would not have been able to withstand that emotionally. I wrote her a letter in the meantime. Can you read it...?»



Cool and fearless – almost like Bud Spencer.



For Hans-Jürg Schmid, politics meant working for the common good.



Wherever Hans-Jürg Schmid was, his heart was always in the right place.

**Hard outer core, soft shell**  
HJ did not reach out to people openly, but those who knew him more deeply were allowed to get to know another side of him. If I were to summarize in one sentence how HJ affected me, it would be like this: «HJ was an impressive, strong man and a boss with a big heart.»  
Stefan Neff, Team Leader After Sales Field Service

**HJ was a doer and sealed many deals with a handshake. With few but apt words, he was an experience for customers and us employees. Moritz Ganzoni, project manager for plant engineering, was hired on a handshake at the end of 1999 at a freeway service station and has been working for Schmid AG since January 1, 2000. Moritz remembers his time with HJ with enthusiasm.**

**Sale of nailing machine to Hans Nussbaumer AG in Alosen**  
Around 2003, HJ and I went to Nussbaumer AG in Alosen for the final negotiation for a new nailing machine. I was quite nervous because we (Schmid Huttwil) had previously delivered the size press with a delivery delay of one year. I thought that this would certainly have an influence on the price negotiation.

The price was negotiated without many words in Nussbaumer's kitchen with a small discount as well as the payment agreement of 100% before delivery. The deal was sealed with a handshake and a schnapps. The next day or two, the money was already in our account, before we had even invoiced. The bottom line: our customers were sure that HJ's handshake counted 100 %.

**Visit to Montorotondo in May 2006**  
With the words «Come back to us now, you'll just get bored anyway», HJ convinced me to end my sabbatical in Tuscany and come back to Schmid AG. HJ often got to the heart of what he was saying with just a few apt and easily understandable words. Of course, I was also flattered that he made the «Mother's Day trip», as he called it, to visit me together with Margrith.

**Sale of container heating in Les Gras, France to Garnache Freres**  
On a beautiful autumn day, after visiting Schmid France in Pulversheim, HJ and I drove to les Gras in the French Jura with the aim of making a deal. The beautiful fall colours and a winding road through the Jura valleys delighted us. By the time we arrived at the sawmill, it was late afternoon and the brothers of the sawmill were waiting for us. The deal was quickly consummated. HJ opened his briefcase, which was empty except for a pen, and told me, «Give me a piece of paper.» He wrote the selling price on the paper and slid it to the brothers. They nodded and the deal was done. When I went to pull out the quote and make notes, HJ said to me, «That's not necessary.» The bottom line: For the customers, HJ was an experience, he did not let himself be upset by the empty suitcase, could negotiate without speaking French and knew what was offered even without having papers in front of him (offer).  
Moritz Ganzoni, Project Manager Plant Engineering



Joy and passion were also Hans-Jürg Schmid's recipe for success in cooking.



Hans-Jürg Schmid was often ready to help, even in a snowstorm.



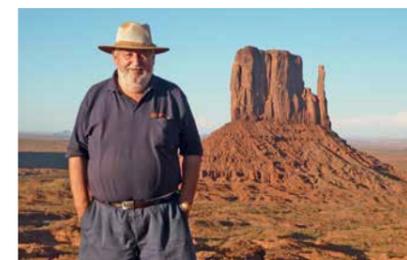
After a sporting deal, the well-deserved rest.



Full of energy for Schmid AG.



Proud of 50 years of Schmid – with a focus on successfully implementing further plans in the future.



Life as a voyage of discovery – Hans-Jürg Schmid looked forward to many adventures.

# Hans-Jürg Schmid's family continues a life's work full of gratitude and passion



From left to right: Margrith, Diana, Roland and Natalie

We look back on a wonderful time with our husband and father. Even though HJ worked a lot, he was always present in the family and enjoyed spending hours with his loved ones. As the head of the family, he was always there to help and advise us and his grandchildren. He leaves a big gap behind. However, through the many beautiful memories we remain connected.

We are grateful that he leaves us such a wonderful company, which he shaped over many years. During the time of his farewell, we have grown even closer together as a family and will cherish his values and carry them forward.

Margrith, Diana, Roland & Natalie



From left to right: Hans-Jürg Schmid with Philipp Lüscher, CEO Schmid AG, energy solutions

HJ was a great role model for me as a patron and entrepreneur of the «old school». He wasn't one to say a lot of words. He preferred to lead by example and let actions speak for themselves. Under his leadership, I was able to get to know the business from the ground up and he introduced me to the task as CEO of Schmid AG with a great deal of foresight and trust. I am proud that we can carry on his legacy.  
Philipp



Enjoying family time with son Roland and his grandchildren.



Two kindred spirits – bound by a strong bond.



The Schmid family has been an anchor and harbour in Hans-Jürg Schmid's life – tradition and values are respected and lived.



As with golf, Hans-Jürg Schmid focused on the essential - keeping the goal in mind.



His Zora was a faithful companion on many business trips.



Margrith and Hans-Jürg Schmid – a great love.



Relaxing in their free time with the family in the forest.



The family is there for each other – here with daughter Diana in his beloved forest.

# Schmid Polska – an imposing site

In 2011, Schmid started up manufacturing in Poland. At that time, there were five employees who supported the headquarters in Eschlikon as an extended workbench in order to bring the added value back to the Group.

Contrary to what had been planned, five years later the strong Swiss franc was still causing problems and forced the family to take action. The decision to move production entirely to Poland to secure the business was emotional and a difficult step.

«Even as a child, I often went to the Eschlikon production halls and looked over the shoulders of our employees. I loved the smell of production. Later, I guided many visitors through our headquarters and proudly showed the various production steps such as folding, lasering, welding, painting, dimensioning, assembly and logistics. The relocation of production touched me personally and gave me sleepless nights».

Natalie Schmid, family member and marketing manager.

## Using change as an opportunity

What once led to sleepless nights is now a success story that has created attractive jobs worldwide. In the meantime, Schmid Polska has become one of the largest employers in the pretty town of Elblag. It is impressive how Schmid Polska has developed, how the team has mastered the rapid growth and the enthusiasm shown by everyone in pulling together.



Information on Schmid Polska

[schmid-energy.ch/polska](http://schmid-energy.ch/polska)

## Employee development – jobs

### Occupational groups in Poland

- Manufacturing staff
- Mechanical engineers
- Sales representatives
- Project managers
- Service staff



Growth of staff	Employees 2016	Employees 2023	Growth in %
Schmid Polska	47	165	+252 %
Schmid Total	288	444	+ 54 %
Schmid Schweiz	185	238	+ 29 %
Schmid Eschlikon	164	182	+ 11 %

## Production area in Poland

Total area of 7,500 m<sup>2</sup>



### State-of-the-art production facilities – With the latest technology

- Laser beam systems
- Bending machines
- Computer controlled welding equipment

## Sales increase 2017 - 2022

Total: 311 %

### Sales development Poland in TPLN (thousand zloty)



«Despite the physical distance and language barrier, Schmid Polska is an integral part of the Schmid family and has fully embraced the values and principles. Working together as equals is fun and the intensive exchange in everyday work is very enriching.»

Klaus Faber, Production Manager and Member of the Management Board SchmidAG, energy solutions



Philipp Lüscher, Klaus Faber, Natalie Schmid, Szymon Boguś

«Our employees are our greatest asset, a part of the success and development of Schmid Polska. Our task is to provide a sense of stability and security in any situation.»

Magdalena Ciesielska, Szymon Boguś Management Schmid Polska



«I started as a welder 13 years ago and today I am a production manager. Working at Schmid Polska gives me the opportunity to develop my passion and build a great as well as dedicated team.»

Sebastian Sobotowski, Production Manager

«I was there when Schmid Polska started production. I have been with the company since the very beginning and I am very happy about it. I am proud to be a part of the Schmid team and I wish everyone to meet such an enterprise on their way through life. I'd like to send my regards to my colleagues who work with me. It is nice that we are allowed to be a team and are appreciated for it.»

Stanislaw Bednarek, welder and fitter



# Schmid on Fire – running for a good cause despite visual impairment



Five employees from the Schmid team ran through St.Gallen for a good cause on June 5, 2023. Vivien was part of the team; she has been working as an IT supporter at Schmid since November 2021 and has been visually impaired since birth due to a malformation of the optic nerve. For her, this is not an obstacle to trying out new things, either at work or in her free time. Since her training, she finds her balance in jogging. Until a few months ago, she was still jogging without a guide and conquered, for example, the Women's Run and Grand Prix Bern.

Vivien has been running with a running guide since April 2023. «I noticed I was seeing less, then tripped a few times and said to myself, this is getting dangerous.» So she joined Blind Jogging, the umbrella organization of visually impaired and blind runners.

## A strong team

When the announcement came for participation in the B2Run, Vivien considered taking part and said: «I like to run for a good cause and it's more fun in a team anyway. When Martin offered to guide me, I said yes straight away.» Martin is Vivien's work colleague and a trained guide for the blind.

At the B2Run, the two ran together for the first time and mastered the course of a good five kilometres through the middle of the city of St.Gallen in a good 31 minutes.

Vivien is thrilled «Martin perfectly guided me through the many turns, over the somewhat tedious water gullies and past other participants.»

For the whole team it was a new and great experience. The atmosphere and organization on the OLMA grounds were great and it is clear that we will be back next year.

## The great enthusiasm led to «Blind – Jogging».

Martin is an avid runner and has participated in dozens of marathons. At the Zurich Marathon in 2017, Martin observed a blind participant with his guide and for him it was clear, «that would be a new challenge I could imagine» and started training as a blind running guide.

Martin has been organizing the B2Run for his teammates for several years. For the Schmid team, however, it was the first time. «It's always nice to get to know your teammates in a different way in a different situation. A team that consists of different departments and fights together for something that has nothing to do with day-to-day business. That inspires team spirit in the company.»

## Guide from the team

Visually impaired people are guided by a tape that indicates the direction. Through direct communication, the guide draws attention to hurdles such as slightly raised manhole covers, bridge impacts, changes in ground conditions, and situations that could frighten the blind runner. For this, the guide needs the highest concentration, he must run in counter-step so that the arm movement is in the same swing with the partner and the guide must be able to run at least one minute faster.

«There was no question in my mind to guide Vivien. After all, she also guides me through the IT jungle every day,» Martin grins and concludes our exciting conversation.

More on Blindenjogging: [blind-jogging.ch](http://blind-jogging.ch)



Vivien and Martin at the start and finish.



Since 2020, the Schmid site has been built up by former KÖB\*\* employees. Safeguarding operations and customer care with the well-known good services are important to the well-coordinated team. Thanks to their many years of expertise and passion for the products, the team of 6 has accomplished quite a bit. In the meantime, all partners worldwide are supplied with parts for KÖB\*\* plants as well as IPN articles\* from the large spare parts warehouse. In a further step, Schmid spare parts will also be added.

## Wolfurt branch successfully established

### Successful «retrofit» with modern control system

The existing services such as repairs, spare and wear part deliveries, fireclay refurbishments as well as regular maintenance work were supplemented with the «Retrofit» service. With the «retrofit kit», existing wood combustion systems are equipped with a new Schmid control system and are then up to the latest technological standard with little effort. The Schmid control system offers reliable operation of the systems and the operators can call up the current parameters at any time via the new remote access. Matthias Spinotti, the branch manager, says: *«The new control system has been very well received. Especially because of the simple and appealing user interface and the online access to the control.»*

### Motivation for further expansion

«Very many customers are simply glad that there is someone who takes their concerns seriously and is there for them. That is why we have further expanded the Wolfurt branch so that we can serve more KÖB\*\* customers with our services», continues Matthias Spinotti.

### A strong team has arrived in the Schmid family

«We have known each other for many years through the KÖB\*\* past. This has made learning the new processes and setting up the new spare parts hub easier. The existing Schmid team has given us a warm welcome. The support throughout the Schmid Group is great,» Matthias Spinotti concludes the interview with satisfaction.

\*\* Pyrot and Pyrotec as well as KÖB are registered trademarks of MAWERA Holzfeuerungsanlagen GmbH.

### \*IPN article

IPN Betrieb GmbH has specialized in controls for wood combustion systems for more than 30 years and supplied, among other things, components for systems marketed under the name Sommerauer & Lindner.

In 2020, the company was taken over by Schmid in the course of succession planning. All services, products and spare parts deliveries are carried out by the Wolfurt branch.



The Köb services can be found here:



[schmid-energy.ch/koeb-service](https://schmid-energy.ch/koeb-service)

Schmid energy solutions GmbH  
Holzriedstrasse 29 | 6960 Wolfurt  
[schmid-energy.at](https://schmid-energy.at)

**KÖB Service-Hotline**  
**+43 (0)5574 93089 0**



# Renewable energies as a concept for a CO<sub>2</sub>-neutral Company

Many companies are now pursuing the long-term goal of climate-neutral operation. In this context, it is essential to have a well thought-out and financially viable solution that is implemented in a structured and step-by-step manner. After optimizing and improving energy efficiency in operational processes and reducing energy demand, it is important to implement the right concept for renewable energy sources.

If we look at the life cycle costs of energy sources, it is quite clear that the future belongs to renewable energies. They are usually ahead of fossil fuels when it comes to evaluating investment options on the basis of life cycle costs. In addition, renewable energies offer greater financial planning security and are not dependent on the highly volatile international energy market.

## Security of supply with system

In many companies, fossil-fuelled reserve and peak boilers, which serve as back-up for security of supply, are being replaced by renewable energy solutions. To achieve maximum utilization of the replacement plants, additional plants and controls can be planned as a thermal energy concept.

## Modern wood burners

The trend is toward boilers that run on biomass. In addition to the CO<sub>2</sub> balance, the focus here is also on maximum efficiency. For example, wood combustion heating plants are supplemented with flue gas condensation and, where possible, with the new Revolution adaptive control system from Schmid. This combination reduces fuel consumption and keeps emissions permanently low.

## Flue gas condensation plant

The economic efficiency of heating systems with flue gas condensation depends significantly on the fuel price and the fuel moisture. Flue gas condensation is particularly advantageous when moist fuels such as forest woodchips are to be burned. The most important operational parameters are combustion at low excess air number, low return temperature of the heating network and high full load operating hours of the condensing unit.

Low return temperatures from the heating network to the heating system enable high efficiencies with simple plant technology. If the return temperature is low and the fuel is expensive, the additional expenditure can be amortized even for dry fuel. If the return temperature is only slightly below the dew point, the installation of an absorption heat pump can be considered to make better use of the energy of the combustion gas. Compared to compression heat pumps, this heat pump technology has the advantage of requiring almost no electricity. This is important because electricity is usually expensive compared to wood, making it more difficult to recoup the investment for a compression heat pump because of the higher operating costs.



«Green energy relies on many supports to make the system work sustainably.»

Philipp Lüscher, CEO Schmid AG, energy solutions

## Modern combustion plants with flue gas condensation can use moist fuels efficiently and with low emissions

The efficiency gain of combustion plants with flue gas condensation is up to 20 % when burning moist wood compared to plants which are only equipped with an additional heat exchanger.

## Heating and process steam with maximal efficiency

The two companies Biotta AG, producer of vegetable and fruit juices, and Rathgeb Bio, operator of greenhouses, have been working together in partnership for years. Since 2019, they have been jointly operating a modern condensing steam heating centre. The heating centre, including steam generation for process heat, was planned by energy experts. A direct IS SaveEnergy flue gas condensation system was also installed to go with the highly efficient Schmid UTSR-2400.42 boiler. The plant supplies 3.4 tonnes of steam per hour and an additional 600kW of heat from the condensation plant.

## Revolution adaptive – less fuel consumption, maximum energy production

The Knonau district heating network uses the new Revolution adaptive control system from Schmid. The new control was developed for the detection of different fuels. Thanks to the integrated measurement of the fuel moisture, the setpoint output of the plant is automatically tracked without manual intervention. This means that a constantly low residual oxygen content can be maintained over the entire output range, which has a positive effect on fuel consumption. In order to make maximum use of the energy and reduce fuel consumption even further, a flue gas condensation system has also been installed. Thanks to the additional heat recovery of approx. 15 %, 400 m<sup>3</sup> of chips could already be saved in the winter of 2023.

More information and the advantages of the new control system can be found on page 24.

## Innovative concept - wood and solar energy combined

«We are looking forward to implementing an innovative concept in Schluchsee and to supplying the village in the future to a large extent from wood and solar energy,» was the statement of solarcomplex CEO Bene Müller at the start of operations in January 2020.

More than 150 buildings, including all municipal facilities and many large consumers such as hotels and restaurants in the region, have decided to connect to the regenerative «Schluchsee heating network».

The large solar thermal system with around 3.000 m<sup>2</sup> collector area is sufficient to fully supply the village in summer. A buffer storage volume of 300 m<sup>3</sup> litres ensures efficient load management. In the transitional period and in winter, two Schmid boilers powered by biomass feed the grid.



## Thermal solar energy / solar thermal

Solar heating systems can be easily combined with renewable heating technologies for times when the sun is low. Since the supply of solar energy and the demand for heat rarely coincide in time, the solar heat is stored.

Instead of the conventional boiler, a larger solar storage tank equipped with the necessary connections is used.

## How solar thermal energy works

Solar thermal energy (or solar heat) provides heat for backup heating or hot water production. The principle is not complicated. Solar collectors, so-called «absorbers», absorb the energy of sunlight and convert it into heat.

Solar thermal energy offers clear advantages: A solar thermal system on a single-family home produces on average 60 % of the hot water demand and 30% of the heating demand.

## Solar thermal systems are also used for the following applications:

- ☀️ Regeneration of geothermal probes (fields) for residential buildings with heat pumps.
- ☀️ Solar thermal support for local and district biomass heating networks
- ☀️ Solar thermal support of low-temperature process heat generation
- ☀️ Use of solar thermal energy in the service sector (swimming pools, laundries, car washes, etc.).



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Sources

# Wood chip combustion with integrated e-clean particle separator - well equipped for the future

Cahenzli AG Holz / Trin GR



**The carpentry and joinery company Cahenzli was founded in 1936. It is a family business from Trin-Mulin, which has been able to pass on its craft through three generations. Thus, the company has grown from a one-man operation to 30 employees. The company owners have always been eager to provide the latest technologies for their employees to guarantee the best quality and variability. Wood as a material is omnipresent and forms the centre of activity.**

This company history has a surprising number of parallels with the history of Schmid. We are extremely pleased about this and the cooperation between the two companies is obvious.

Stefan Cahenzli (owner) produces stairs, balconies, façades, flooring, furniture, kitchens, doors and bathrooms in his new building in Trin-Mulin. The Chur site specializes in windows. As a wood processor, the work generates chips and wood residues, which are transported directly to the wood silo via the suction system. What is too large is chopped up. In this way, the production process does not produce waste, but valuable fuel. The UTSD 140/65 wood chip combustion system with integrated e-clean particle separator was installed in the new building.

## Optimum combustion – data control via remote maintenance

The UTSD wood chip combustion system uses sensors to measure combustion and regulates the supply of fuel and air with pinpoint accuracy, thus ensuring optimum combustion. Thus, even moist fuels up to M 40 can be fed to the combustion. The automatic ash removal system makes the boiler low-maintenance. All relevant information can be retrieved and the boiler monitored via the 7 inch touch screen. If necessary, data can also be retrieved via remote maintenance, making service exceptionally efficient. The e-clean particle separator is integrated directly above the boiler heat exchanger, which excludes condensate development and thus causes neither high-voltage losses nor corrosion damage. A permanent filter availability >90% can be guaranteed by this system. With the automatic boiler cleaning system, the filtered out particles end up in the ash container. The filter system can of course also be retrofitted. With the e-clean you are well prepared for the future.



## BRIEF INFO

<b>Product type</b>	UTSD-140
<b>Fuel</b>	Residual wood from wood processing
<b>Operating medium</b>	Water
<b>Power</b>	65 kW
<b>Application area</b>	Heat for factory buildings, workshop and office
<b>Silo round</b>	Discharge horizontal screw conveyor
<b>Silo</b>	Modular silo
<b>Flue gas dedusting</b>	e-clean 140
<b>In operation since</b>	December 2021
<b>Owner</b>	Cahenzli AG Holz
<b>Installation site</b>	CH-7014 Trin GR
<b>Project planning</b>	Peter Giacomelli Bauleitungen AG CH-7016 Trin-Mulin GR
<b>Installation</b>	G. Brunner Haustechnik AG CH-7013 Domat/Ems GR



## Focus Interview with Stefan Cahenzli Managing director and owner of Cahenzli AG Holz

**Mr. Cahenzli, it is obvious that you use a wood-fired heating system. Why did you award the contract to the Schmid company?**

**Stefan Cahenzli:** «We already had a wood combustion system from Schmid at the previous processing site. It did the job for years and never let us down. This and the shared company values never left me in doubt about which manufacturer to consider.»

**What problems did you have to overcome?**

**Stefan Cahenzli:** «From experience, we knew that conveying and chopping the fuel can lead to problems. That's why we had paid special attention to this issue.»

**Where was the Schmid company able to help you in particular?**

**Stefan Cahenzli:** «Thanks to its knowledge and experience, the Schmid company provided important inputs for dimensioning the plant and the general implementation. They provide competent, needs-oriented advice and practical solution proposals. Despite initial difficulties, the plant has now been put into operation to our complete satisfaction thanks to the excellent service.»

**What advice can you give to your colleagues in the industry?**

**Stefan Cahenzli:** «At the beginning, I thought I could just get the individual component manufacturers around the table, present the project and then things would work out. Here, I underestimated the coordination a bit. Today, I would hire a planner right from the start who would look at the project as a whole, make the necessary calculations for dimensioning and take over the coordination.»

Since we currently produce too much fuel in the summer, we cannot utilize it ourselves. We also have to solve this issue downstream. Currently, surplus fuel is burned expensively in the waste incineration plant, which is very annoying from my point of view.»

# Vital energy – loud, quiet or silent

Goba AG / Bühler AR

Goba AG, Mineralquelle und Manufaktur stands where its mineral spring flows – on the edge of the Gontner Hochmoor. As one of the smallest mineral water producers in Switzerland, it bottles Appenzell Mineral (loud, quiet, still), lemonades and of course Flauder.

## Application area

The system ensures the room temperature of the building with year-round thermal energy. For operational safety, 2 UTSD boilers were connected in cascade, creating a redundant system.

## Boiler room

The existing premises have been extended to meet plant-specific requirements and have been converted to comply with fire regulations. The oil tank room was converted into a W-floor pellet store with a capacity of approximately 35 m<sup>3</sup>. The pellets reach the boilers via the suction system by means of a screw conveyor. The special storage tank was adapted to the space conditions.



## BRIEF INFO

<b>Product type</b>	2 x UTSD-140 switched in cascade
<b>Fuel</b>	Pellets
<b>Power</b>	2 x 140 kW
<b>Application area</b>	All year round heat energy
<b>In operation since</b>	July 2021
<b>Owner</b>	Goba AG
<b>Installation site</b>	CH-9055 Bühler AR

# Farmhouse and Stöckli constructions heated with lump wood

Heinrich Studer / Schüpbach BE



The Novatronic XV 80/60 log boiler supplies Heinrich Studer's farmhouse and Stöckli construction with thermal energy for heating and domestic hot water. With this boiler replacement, the existing boiler room could be taken over without any structural adjustments. The existing energy storage tank with a volume of 7000 litres also remained. The Novatronic XV 80/60 has the advantage of flexibly arranged boiler connections as well as modularly expandable regulation. In this way, local conditions could be taken into account and structural interventions reduced or even avoided.



The changeover from a 0.5 m lump wood boiler to a 1 m chopped wood furnace has paid off for the operator. The powerful boiler and the large energy storage allow a very comfortable operation of the plant. Decisive factors for this are the simplified effort in wood preparation, the lower charging frequency and the high efficiency of the firing system. According to Heinrich Studer, the decision in favour of the Novatronic XV 80/60 was exactly the right one.



## BRIEF INFO

<b>Product type</b>	Novatronic XV 80/60
<b>Fuel</b>	Piece wood – 1 m chopped wood, mixed wood
<b>Power</b>	60 kW
<b>Application area</b>	Heat and hot water for farmhouse and Stöckli constructions
<b>In operation since</b>	August 2022
<b>Owner</b>	Heinrich Studer
<b>Installation site</b>	CH-3535 Schüpbach BE
<b>Boiler room</b>	(LxW) 4.20 m x 2.10 m
<b>Project planning and Installation</b>	GLB Emmental, 3545 Emmenmatt BE





# Oasis of well-being in Zuzwil with environmentally friendly heat pump

Ed. Vetter AG / Lommis TG



«Zuzwil, lively and attractive». In the Räggrueb neighborhood, Zuzwil SG, in a central location, the construction company Ed. Vetter AG has created an oasis of well-being with 64 apartments distributed over eight buildings. Attractive cultural activities and various shopping facilities are located in the immediate vicinity. An experienced landscape architect has harmoniously surrounded the buildings in the car-free settlement with generous green spaces. They invite you to enjoy and linger. The modern buildings offer every comfort for a high quality of life and ideal conditions for living and working.

The NIBE F1355 is a performance-controlled, low-maintenance brine/water heat pump. Its performance and combination options make it a perfect match for the modern development. Each building has been tapped using a borehole heat exchanger, and the heat pump supplies the residential units with the ideal room temperature. The necessary electricity is generated by the building's own photovoltaic system. The entire system can be monitored remotely using the NIBE Uplink program. Environmentally friendly heating has never been easier!

## BRIEF INFO

<b>Product type</b>	NIBE F1355 2-stage regulated Brine/water heat pump for high performance
<b>Power</b>	28 kW
<b>Power (electr.)</b>	5.8 kW
<b>Application area</b>	Heat, hot water
<b>In operation since</b>	July 2021
<b>Owner</b>	Ed. Vetter AG, Lommis TG
<b>Installation site</b>	CH-9245 Zuzwil SG



# Renewable energies optimally combined and used

Christian Roth / Halden TG

The Roth family lives in a quiet residential area in the remote village of Halden near Bischofszell. A short time ago, the old oil boiler and tank were taken out of service. As a replacement, Christian Roth insisted on getting the latest and most environmentally friendly product installed. So he opted for the NIBE S2125 outdoor installation. With the extra space created in the garage, there is now more room for hobbies. To create the perfect symbiosis, the next step is to install a photovoltaic system on the roof of the house. In combination with a storage battery, the renewable energies are optimally coordinated and used.

The NIBE S2125 is an intelligent, inverter-controlled air/water heat pump. Because it automatically adjusts to the power demand throughout the year, the NIBE S2125 runs very efficiently and is extremely environmentally friendly thanks to the use of the natural refrigerant R290. The operating range allows a supply temperature of up to 75 °C. At outside temperatures as low as – 25 °C, it still delivers up to 65 °C, while the noise level remains extremely low.

The heat pump is reversible as standard and can therefore also be used for cooling. Especially in summer temperatures, this is a pleasant comfort gain. The smart technology regulates the indoor climate automatically, while you have full control of your heat pump via your smartphone or tablet.

## BRIEF INFO

<b>Product type</b>	NIBE S2125 air/water heat pump with natural refrigerant R290
<b>Power</b>	8.34 kW
<b>Efficiency class</b>	A+++
<b>Sound power level</b>	49 db(A) according to ERP (EN 12102)
<b>Application area</b>	Heat, hot water, cooling in summer
<b>In operation since</b>	November 2022
<b>Owner</b>	Christian Roth, Halden TG
<b>Installation site</b>	CH-9223 Halden TG



# Revolution adaptive

The new control from Schmid



Heating plants are always caught between economic efficiency, ensuring security of supply and compliance with legal requirements. As a manufacturer of efficient wood boilers, Schmid AG, energy solutions strives to develop sustainable energy solutions to operate heating plants as economically as possible.

Over the past three years, a project team from Schmid has developed the new Revolution adaptive control system. It enables the automated operation of boilers with different fuels. After the successful test phase at the district heating plant in Eschlikon, the first customer plants with Revolution adaptive could be put into operation in November 2021. After these «endurance tests», the new firing control system is now ready for our customers. It can be ordered as an option or retrofit on UTSR boilers with a rated output from 700 kW to 8000 kW.

### Changing fuels influence combustion and efficiency

Heating networks are often confronted with variable fuel qualities. The time of year, the current weather and the availability of biomass affect the water content and the calorific value of the fuel. Changing from industrial wood to forest wood can account for an increase in water content from 10 % to 60 %. This affects the combustion temperature, fire performance, and burning behaviour on the grate. In order to continue to achieve complete burnout after a fuel change, the combustion settings must be readjusted.

### Automatic tracking of the firing settings

The new Revolution adaptive control recognizes the fuel quality used and regulates the target output automatically, without manual intervention. This is done by measuring the fuel water content, the heat output generated, the combustion temperature, and the current grate occupancy. A permanently low residual oxygen content in the flue gas is maintained and the target output is always achieved. Flue gas recirculation and air distribution are automatically adjusted and the glow bed is kept constant. This has a positive effect on efficiency, fuel consumption, emissions and wear.

### Less effort for operators

Incorrect combustion settings lead to reduced performance, increased emissions and reduced efficiency, resulting in faster wear of the grate and combustion chamber. Since the times for boiler readjustments cannot usually be planned precisely due to the dependencies of the fuels, the boilers must be monitored regularly by the plant maintenance staff, even at night. Until now, this was the only way to avoid incorrect settings. Revolution adaptive takes over this task. For the operator and the plant maintenance, this creates new possibilities to ensure economic efficiency. The procurement of biomass, the operation of the heating system and the planning of working hours become easier.

### Advantages at a glance

- ✓ **Less effort for operators**
  - Automatic regulation of the set outputs in case of changing fuel quality
  - No manual intervention for readjustment of grate of grate movement, air distribution and flue gas recirculation in the event of fuel changes
- ✓ **Optimized combustion process**
  - Constantly low residual oxygen values and therefore higher efficiency and lower fuel consumption
  - Reduced flue gas volume at the chimney
  - Better part-load behaviour due to higher combustion temperature
  - Optimum combustion conditions and a quiet fuel bed and thus low emissions
- ✓ **Gentle / low-wear plant operation**
  - Optimized exhaust gas recirculation
  - Optimally adapted to fuel quality-based combustion air addition
  - Optimal grate occupancy and grate advance



The values show the fuel change from dry waste wood M10 to moist forest residue wood M35. The Revolution adaptive control system regulates the fuel quality change during operation without manual intervention.

### Results of a fuel change at district heating network Eschlikon – UTSR-1600.42 moving grate furnace (see figure above)

- 1 Desired target output is always achieved and the output is automatically adjusted.
- 2 Fluctuations in fuel moisture due to fuel change from waste wood M 10 to forest residues approx. M 35.
- 3 Residual oxygen is controlled and maintained at 6 %.

### Retrofitting with Revolution adaptive

The Revolution adaptive combustion control is available for UTSR hot water boilers with an output of 700 kW and above. It is used in combination with the plant control system of the latest version «PersonalTouch visio».

### Necessary equipment

- «PersonalTouch Revolution adaptive» control upgrade
- Measuring system for determining the current fuel moisture content
- Detection system of the grate occupancy (ember bed height and length) by means of light barriers
- Heat meter for power measurement
- Fire room camera
- Remote access via the Schmid portal



To the video

[schmid-energy.ch/revolution-adaptive](https://schmid-energy.ch/revolution-adaptive)

# A faithful and reliable companion - Schmid heaters

Unholz Wärme AG / Greifensee ZH

The Unholz family has always used a wood-burning stove for heating and even cooking in the past. As early as 1944, central heating was installed in the family's home. This was progressive for that time and because the price of residual wood from their own sawmill was low, also very favourable.

«I always wanted the latest thing. That was the case with the technology in the sawmill, the PC in the office and, of course, the heating system», says Jakob Unholz

The first heating centre was installed as early as 1985 – a Schmid boiler with 500 kW and a wood chip storage hall right next door. With this central station, the long-distance pipeline south was created, which supplied three apartment buildings, a commercial building and 1500 m<sup>3</sup> of old properties with heat. In the following years, various renovations and expansions of the boiler capacities were added. In 1994, the feeding was automated and also the long-distance pipeline west was realized. In 2014, a 90,000-litre storage tank was added, and a year later, the second UTSR-2400 boiler with Denox system and IS SaveEnergy electrostatic precipitator was installed. The long-distance pipeline network has also grown during this time. In the meantime, over 2.6 kilometres of pipeline have been laid, so that various school buildings as well as the «Städtli Greifensee» are heated with district heating from Unholz.

## Always one step ahead of technology – Revolution adaptive

The friendly cooperation as well as the peculiarity to always have the latest, Beat Unholz has probably inherited from his father. It was therefore crystal clear to him that the new UTSR-2400 visio boiler, which replaces a UTSR-1200 and is installed next to the UTSR-3200 built in 1999, must be state-of-the-art. Whether the brand new and innovative Revolution adaptive control system would be installed was therefore not a question.

«If we're going to renew and modernize, we're going to do it to the very latest standards», said Beat Unholz.

In November 2021, for example, the Revolution adaptive was installed for the first time on a customer system of the size UTSR-2400 visio.

## In the middle of the high season - a technical gamble?

In response to this question, Beat Unholz said: «It was a risk, yes, but a small one. We have full confidence in the Schmid team and knew that if something went wrong, we would get competent help.»

## Changing humidity of the fuel – automatic combustion control

Unholz's fuel consists of moist care and forest wood as well as dry residual wood from sawmills. With the previous PersonalTouch visio control system, the plant has to be retraced manually again and again in order to achieve the highest possible efficiency. When the fuel change takes place is not always easy for the plant maintenance staff to estimate and therefore involves a lot of monitoring effort.

The new Revolution adaptive control generation detects the fuel quality used. This is done on the basis of the fuel water content, the heat output generated, the combustion temperature, and the current grate occupancy. Based on these values, the set output of the system is automatically adjusted without manual intervention.

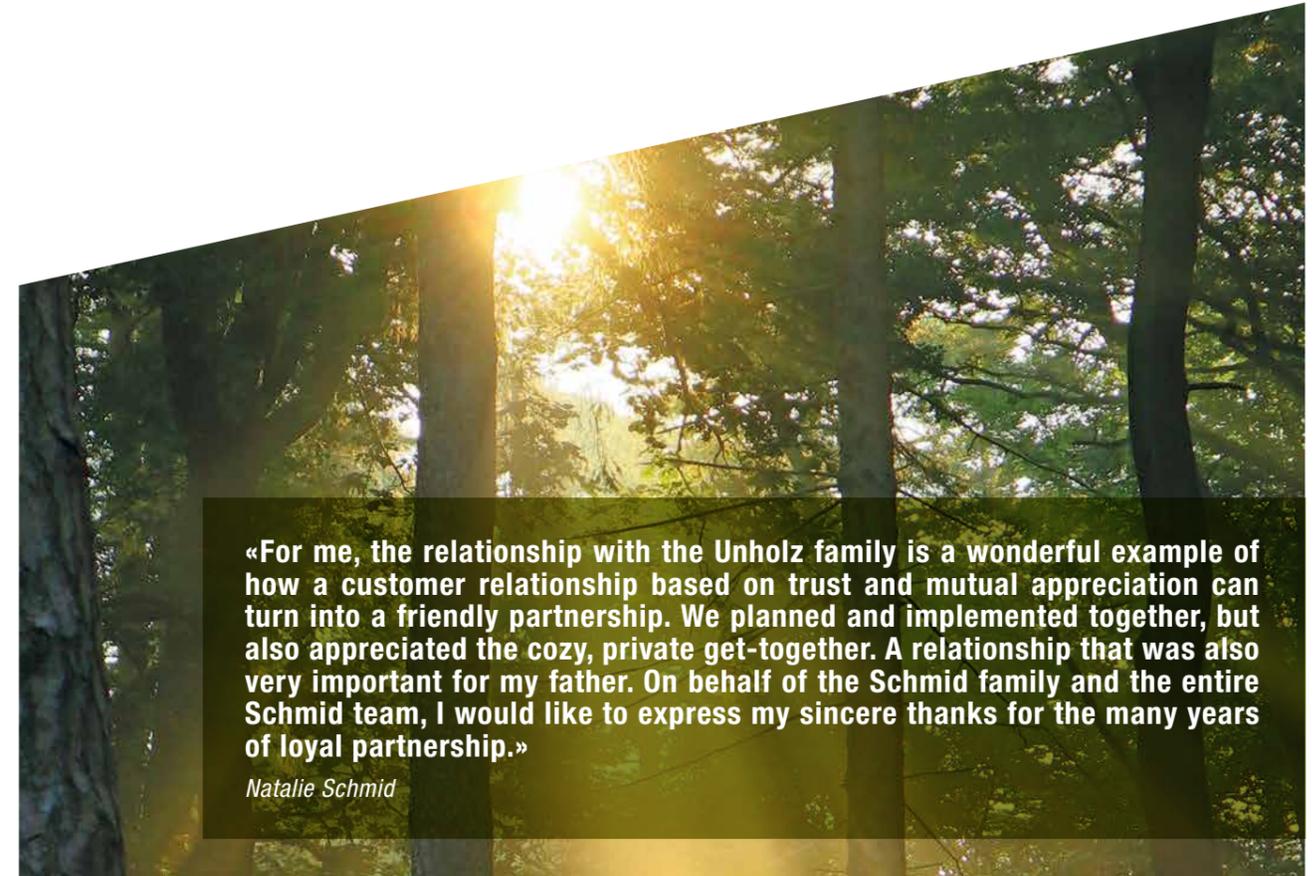
Beat Unholz explains, «This makes my day-to-day work easier, and in the time that the firing control is automatically tracking, I can devote myself to planning the new heating centre, which will be built in about five years.»

## Trusted for over 30 years

«Even back then – when we had no idea of a heating system except using lots of «worthless» wood, Hans-Jürg Schmid advised us well. Until today we have great confidence in the technology and in the team of Schmid and can count on a competent and friendly customer relationship for more than 30 years. We are proud to operate two Schmid boilers with the latest heating technology.» Unholz Family, Unholz Wärme AG.



Family Unholz



«For me, the relationship with the Unholz family is a wonderful example of how a customer relationship based on trust and mutual appreciation can turn into a friendly partnership. We planned and implemented together, but also appreciated the cozy, private get-together. A relationship that was also very important for my father. On behalf of the Schmid family and the entire Schmid team, I would like to express my sincere thanks for the many years of loyal partnership.»

Natalie Schmid

## BRIEF INFO

<b>Product type</b>	Moving grate combustion system UTSR-2400.42-1 visio
<b>Control</b>	Revolution adaptive
<b>Fuel</b>	Wood chips
<b>Capacity</b>	Nominal capacity M 50 % 2400 kW / Partial load M 30 % 720 kW Together with the existing boiler 1 Total power 4900 kW
<b>Application area</b>	District heating
<b>Discharge</b>	Moving floor existing on site
<b>Flue gas dedusting system</b>	Multicyclone / electrostatic precipitator SaveEnergy existing
<b>In operation since</b>	Boiler: September 2021 Revolution adaptive: November 2021
<b>Owner</b>	Unholz Wärme AG
<b>Installation site</b>	CH-8606 Greifensee ZH



Family Unholz with family Schmid

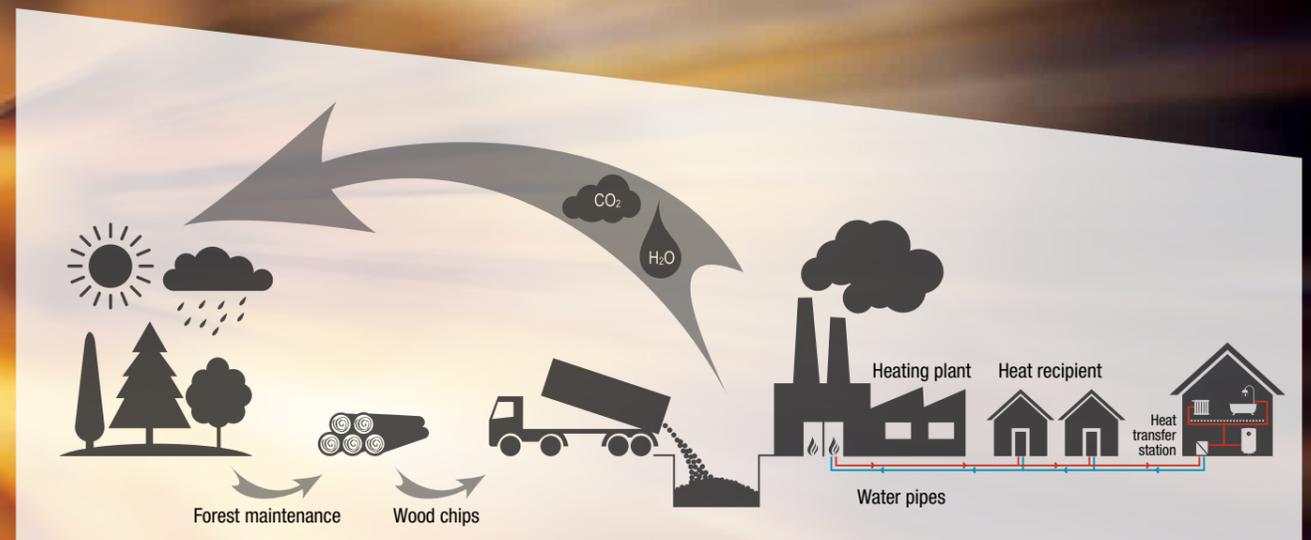


Hans-Jürg Schmid and Jakob Unholz



# New control system in use – maximum efficiency and less fuel consumption

Heating cooperative Knonau / Knonau ZH



## Reliable district heating with history

In 1996, the Knonau district heating network (HGK) commissioned a woodchip combustion central heating plant with a district heating network to supply heat energy to private properties and public buildings. What was a courageous project at the time has proven itself today. Demand and the cooperative have grown in the meantime. Thus, the expansion of the heating network could be realized in 2022 with a new building and the doubling of the boiler output.

The security of supply, environmental protection and the regional added value of wood from maintenance as well as the sustainable investment for purchasers of thermal energy are decisive factors. In addition, the HGK is a non-profit organization that is managed by the board of directors. Half of the board members are heat consumers, wood suppliers and representatives of the local council. This creates trust and is a «win-win situation» for everyone.

## The quality of the boiler but also the whole service chain must be right

In the implementation of their new district heating centre, HGK appreciated the know-how of the Schmid team, the serious project planning and the clean installation as well as commissioning of the plant. But they are also still enthusiastic about the unique service structures. It is precisely this competence and mutual trust that makes this business relationship work.

## Less fuel consumption, maximum energy recovery even with moist, irregular fuel

The new Revolution adaptive control system from Schmid has been designed to recognize different fuels and developed in such a way that it switches the plant to the appropriate fuel without manual intervention while the plant is running. Thanks to the integrated measurement of fuel moisture, a constantly low residual oxygen content can be maintained over the entire output range, which has a positive effect on fuel consumption. In Knonau, only fresh forest chips with high moisture content are used. The new Revolution adaptive control system from Schmid energy solutions is ideal for such conditions. HGK was aware of this development and did not hesitate to purchase Revolution adaptive. They did so in the full knowledge that their plant was one of the first to be equipped with the new control system.

In order to make maximum use of the energy and reduce fuel consumption even more, a flue gas condensation system from the company oeCON was also installed. Thanks to the additional heat recovery of approx. 15 %, 400 m<sup>3</sup> of chips could already be saved this winter.

The new heating system with the new control system runs quietly, the fire pattern is regular and the values are balanced. This makes the operation low-maintenance for the cooperative, sustainable and the supply of thermal energy users reliable.



Schmid moving grate combustion system  
Boiler 1: UTSR-1600.32-1 visio / Boiler 2: UTSR-550.32-1 visio



Testing of the values by means of the latest technology.



Lukas Frei inspects the plant - he is a board member of the Knonau district heating network

## BRIEF INFO

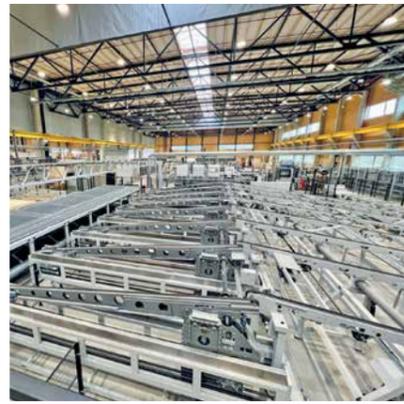
<b>Product type</b>	Moving grate combustion system Boiler 1: UTSR-1600.32-1 visio Boiler 2: UTSR-550.32-1 visio
<b>Control</b>	Revolution adaptive
<b>Fuel</b>	Chips – 100 % wood chips
<b>Fuel requirement</b>	5.000 – 6.000 m <sup>2</sup>
<b>Power</b>	Boiler 1: 1600 kW / Boiler 2: 550 kW
<b>Application area</b>	District heating
<b>Discharge</b>	Moving floor
<b>Flue gas dedusting</b>	Master filter
<b>In operation since</b>	October 2022
<b>Owner</b>	Heizgenossenschaft Knonau (HGK)
<b>Installation site</b>	CH-8934 Knonau ZH
<b>Project planning</b>	Allotherm AG

# Fuel-independent heating plant

LOC Holz GmbH / Arbing AT

## Autonomous boiler

In addition to the boiler, Schmid energy Solutions also planned, installed, and commissioned the fuel supply system, the exhaust gas line, and the entire system control and wiring for the heating plant. The UTSR visio feed combustion system can burn both untreated fuels, such as pellets, bark, wood chips and sawdust, and treated ones, such as chipboard and MDF, industrial wood chips and wood from the furniture industry. Different moisture contents of the fuels can also be used and, thanks to the Revolution adaptive automatic control system, they can be burned even more efficiently. The operating media are either hot or warm water and steam.



## Combustion plant for dry and moist residual wood

Due to the friendly cooperation as well as the very good experience in their own sawmills, the managing partners of LOC Holz decided in favour of a heating plant from Schmid energy solutions. The 3.8 MW biomass boiler supplies thermal energy to both the BPS (cross-laminated timber panels) production hall and lumber drying kilns, and wood fuels of different origins and moisture content can be used.

The BSP production of LOC Holz in Arbing has been running since October 2022. 25.000 m<sup>3</sup> cross laminated timber are produced in the 16.000 m<sup>2</sup> large factory hall with underfloor heating. A doubling of the BSP capacity is already being planned. Fresh sawn timber is supplied from the sawmills of the two LOC Holz shareholders, Rudolf Ortner and Josef Lauss, and dried on site.

Three Mühlböck drying kilns with a capacity of 160 m each<sup>3</sup> are already on the site. Two more are to be added by the end of the year. «As a company, we focus on regionality, quality and sustainability in our products. This is also important to us in the case of the machinery and equipment used», says LOC timber operations manager Dietmar Ruml.

## The best concept

The energy supply consists of a biomass boiler of the type UTSR-3800 visio from Schmid energy solutions, Lieboch. A photovoltaic system on the roof of the plant building, with an output of 1.8 MW, supplies the entire production plant with electricity and thus ensures the self-sufficient energy supply of the site.

«We took a closer look at three boiler manufacturers. Schmid had the best offer for us in terms of technology, scheduling, and overall design. The positive experience at Ortner Holz' sawmill strengthened our decision in favour of the Swiss machine and plant manufacturer», explained Ruml.

Construction of the heating plant started at the beginning of May 2022 and commissioning already took place in late summer. «Josef Strohmeier and his team supported us in submitting applications for subsidies as well as in technical questions regarding trade applications», Ruml tells us, and Strohmeier adds: «After installation, during commissioning and afterwards, there are often technical challenges that need to be resolved. That's where we're very happy to help with our expertise.» Maintenance is carried out once a year and, if necessary, round-the-clock remote maintenance.

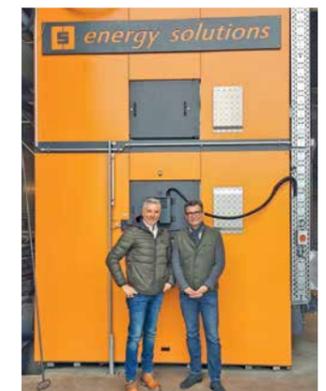
«Our service hotline is available 365 days a year and is free of charge for our customers», Strohmeier reports.

«With the new Revolution adaptive control, the boiler is able to detect the fuel moisture itself and regulate all parameters such as outside air, combustion ventilation, recirculation air as well as fuel supply, independently. The customer no longer has to intervene manually when the fuel changes and the oxygen value remains constantly low», emphasizes Josef Strohmeier, Managing Director of Schmid energy solutions GmbH Lieboch AT.

## Flexible residual wood insert

LOC Holz currently uses wood chips and bark from the sawmills. The fuel is fed to the boiler via a 600 m<sup>3</sup> moving floor with hydraulic material scraper chain conveyor and a short, directly meterable feeder. The raw material is fed either directly by truck or by wheel loader from a day bunker. «Optionally, we can also use our dry chip silo and would then only have to place a compression unit, for example a briquette or pellet press, between the silo and the boiler», says Ruml. For this, either residual wood from the sawmills or the BSP production at the site is used.

«We need the majority of our heat for lumber drying, which will comprise ten drying kilns in the final expansion,» clarifies the LOC wood plant manager. «The UTSR visio moving grate combustion system is already designed for the expansion and will then be really challenged in the final expansion and can show its full potential», adds Strohmeier.



## BRIEF INFO

<b>Product type</b>	Moving grate combustion system UTSR-3800.32-1 visio
<b>Control</b>	Revolution adaptive
<b>Fuel</b>	Wood chips
<b>Power</b>	3800 kW
<b>Application area</b>	Process heat (drying chambers)
<b>Discharge</b>	moving floor
<b>Flue gas dedusting</b>	Multicyclone
<b>In operation since</b>	July 2022
<b>Owner</b>	LOC Holz GmbH
<b>Installation site</b>	AT-4341 Arbing

# Traditional company relies on district heating

Bösch AG joinery / Amriswil TG

Bösch AG is a traditional company from Thurgau that has been manufacturing windows from local woods for over 100 years. Detailed fabrications as well as various carpentry work are part of the diverse competences of Bösch AG. Its capacity to take on large orders, such as complete interior fittings and high-quality window construction, sets Bösch AG apart. In order to meet these requirements, the company was newly set up on Sommerstrasse in Amriswil and adapted to the needs of the clientèle.

## District heating system replaces nearly 30-year-old combustion system

Thus, the heating system from 1993 was also replaced with a Schmid UTSK visio wood boiler and put into operation as a district heating system in October 2020. The decision to use a wood combustion system again was obvious. The dry untreated wood waste, which is produced in the company's own joinery and to a large extent in the neighbouring joinery hall of the company Krattiger Holzbau AG, is thus used optimally and sustainably.

## Potential for neighbouring properties available

With a view to the surrounding properties, which could be supplied with district heating, the heating plant was designed large with a nominal output of 450 kW. Last year, 550 MWh were produced, which means a rather low load of the plant. At present, the carpentry shop and the company's own beach hall as well as three other neighbouring industrially used properties with integrated apartments and offices are heated.

Andreas Bösch, managing director of Bösch AG says: *«The potential to supply further properties with sustainable energy is given, but the lines for this would still have to be built.»*

The choice to use a Schmid boiler was made because of the proven boiler technology and the close and competent cooperation.

**«Thanks to the existing experience and the competent cooperation between Schmid and my planner, Luigi Renda, Office 3, I didn't have much to do with the project. For my everyday work, this was very helpful.»**

Andreas Bösch, Managing Director Bösch AG



## BRIEF INFO

<b>Product type</b>	Underfeed combustion system UTSK-450.23-1 visio
<b>Fuel</b>	Industrial waste wood
<b>Power</b>	450 kW
<b>Application area</b>	District heating for own and surrounding Properties
<b>Discharge</b>	centre discharge from existing silo
<b>Flue gas dedusting</b>	Meister Filter (Typ 6R250)
<b>In operation since</b>	September 2020
<b>Owner</b>	Bösch AG Schreinerei
<b>Installation site</b>	CH-8580 Amriswil TG
<b>Project planning</b>	Luigi Renda; BÜRO 3 L. Renda GmbH, 8580 Amriswil TG
<b>Installation</b>	Albin Gisler, 8580 Amriswil TG



Beach hall, rented from Bösch AG and operated by the volleyball club Amriswil.

# Islikon heating network In the region, for the region

Cooperative heating system / Gachnang TG

In Islikon, a wood-combustion heating plant central heating system was realized that supplies the school building and neighbouring properties with district heating. The heat network is operated by a cooperative. During the implementation, attention was paid to a high regional added value.

## From the idea to implementation

The idea for a district heating network arose during the planning of the new school building in Islikon. The school community of Gachnang had already decided in favour of a woodchip heating system, and in the course of clarifications, a heating network was also examined and found to be a good idea. The plant is operated by a cooperative. In addition to the energy users, the citizens' municipality (wood supplier and land parcel in building rights) and the political municipality are also members of the cooperative. The plant consumes around 1,200m<sup>3</sup> of forest chips per year. This corresponds to the surplus amount of energy wood of the forest of the civil community. Thus, a maximum of added value remains in the community.

## In the region, for the region

A high level of regional value creation was also a major concern in the implementation of the project. Wherever possible, entrepreneurs and craftsmen from the community or the surrounding area were taken into account. Thus, the heart of the energy heating centre, the boiler, also comes from the region. The Eschlikon-based company Schmid AG, energy solutions supplied a UTSR-450 visio moving grate combustion system with an output of 450 kW and commissioned it in February 2020. The visio generation corresponds to the latest boiler technology.

Urs Peter, Managing Director of isoplus (Schweiz) AG, is very satisfied with the project execution. The plant has been running trouble-free since commissioning. *«By using the Schmid moving grate combustion system, even challenging material can be thermally utilized without any problems. Despite the high moisture content of the forest chips, a high degree of efficiency is achieved with optimum filter availability. The storage management meets the requirements of constant load operation.»*

Around 90 percent of the annual energy requirement is covered by the woodchip heating system. As an additional backup for the winter, when a peak in heat is drawn, an additional gas heating system is installed. Flexible isoplus district heating pipes were used for economical heat transport. With the double pipes installed, heat losses are minimized. All district heating transfer stations as well as the process control system are also from isoplus.

## Expansion potential available

The school purchases around one third of the heat produced. Sven Bürgi, president of the school in Gachnang, is therefore also president of the cooperative as the representative of the largest consumer. The remaining heat is distributed to the Landi buildings, the Ochsen restaurant and butcher's shop, and three private households in the immediate vicinity.



## BRIEF INFO

<b>Product type</b>	Moving grate combustion system UTSR-450.32 visio
<b>Fuel</b>	Wood chips
<b>Power</b>	450 kW
<b>Application area</b>	Heat / heat network
<b>Discharge</b>	Moving floor discharge
<b>Flue gas dedusting</b>	Multicyclone / Electrostatic precipitator
<b>In operation since</b>	April 2020
<b>Owner</b>	Genossenschaft Wärmeverbund
<b>Installation site</b>	CH-8547 Gachnang TG
<b>Project planning</b>	Isoplus (Schweiz) AG, 8546 Islikon TG

An expansion potential to 800 kW capacity is possible, so that other properties in the catchment area can be connected at a later date.

Sven Bürgi is convinced: *«It is an all-round successful solution for everyone. I can recommend a wood combustion heating network to any community. A project for the environment; in the region and for the region.»*

# Modern Energy centre in the new rescue service of the hospital Uster

Energie Uster AG, Uster ZH

Energie Uster AG moves and vitalizes the city of Uster reliably and safely with electricity, gas, water and heat. The products are continuously adapted to the market and customer needs as well as to national, cantonal and municipal energy targets. Energie Uster is meeting this challenge with new heating solutions, among other things.

In 2020, the go-ahead was given for the construction of the Uster Nord district heating network – one of the largest district heating networks in the Zurich Oberland.

Energie Uster AG has implemented a modern energy centre with two Schmid boilers, a UTSR-2000 visio and a UTSR-900 visio, in the new ambulance service building of the Uster hospital. The two boilers are operated with wood chips from Uster and supply not only the hospital but also other properties in the Uster North area. The plant was equipped with a flue gas condenser, a wet electrostatic precipitator and a dehumidification system from IS SaveEnergy. Thus, the energy centre of Energie Uster AG is on a high level regarding ecology and efficiency.

## The challenge of installation

The energy centre is located underground in the same building as the entire emergency service, including a parking garage for ambulances, offices and the emergency organization's sleeping quarters. The insertion of the equipment, which weighs a total of 51 tons, required precision work, as it had to be transported to the basement via a silo cover as part of the construction phase.

## Project planning and implementation

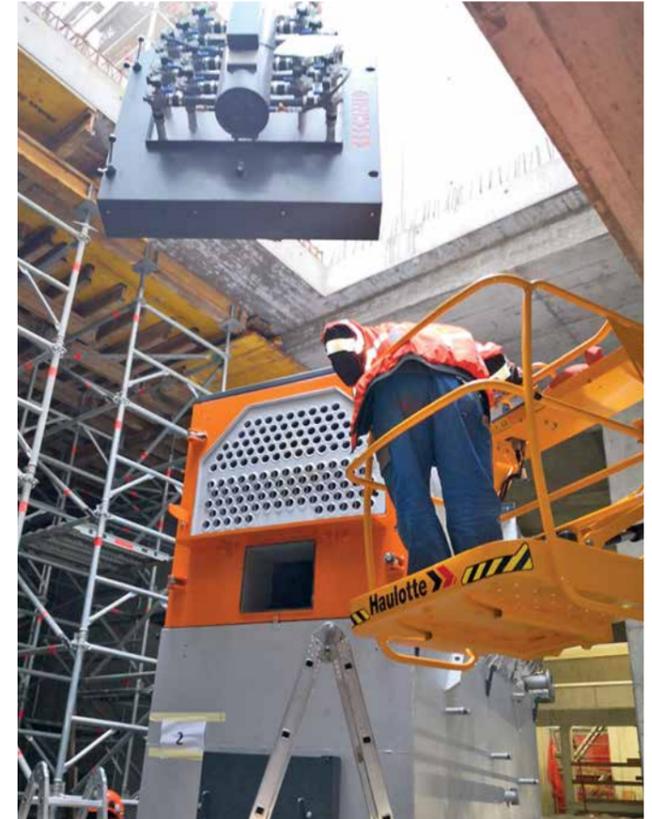
The entire heat generation systems for the Uster Nord heating network were awarded in a tender in accordance with cantonal submission law. The bid submitted by Hälg & Co. AG, St. Gallen, together with Schmid AG, energy solutions as subcontractor, proved to be the most economically advantageous bid, taking into account the award criteria specified in the tender documents.

The entire project was planned and implemented by Hälg & Co. AG, St. Gallen. Thus, Hälg & Co. AG was also the contact during the installation and commissioning of the Schmid boilers, which were executed on schedule and in good quality.



«Since the start-up of the Uster Nord heating network, the two woodchip combustion systems have shown very good operational availability. Thus, to date, over 92 % of the heat generated has been produced from CO<sub>2</sub> neutral energy. The contractual requirement of our heating customers for the renewable quality of the heat supply of at least 80 % has thus already been significantly exceeded in the first year of operation.»

Romeo Comino, Head of Networks and member of the Executive Board, Energie Uster AG



## BRIEF INFO

<b>Product type</b>	Moving grate combustion system UTSR-2000.42-1 visio and UTSR-900.42-1 visio
<b>Fuel</b>	Wood chips and landscape wood
<b>Fuel requirement</b>	approx. 14.000 ster per year at full capacity
<b>Power</b>	2000kW and 900kW
<b>Application area</b>	Heat network
<b>Discharge</b>	Moving floor
<b>Flue gas dedusting</b>	Wet electrostatic precipitator
<b>Silo</b>	470 m <sup>3</sup> (Net volume)
<b>CO<sub>2</sub>-Substitution</b>	Approx. 2.682 tons of CO <sub>2</sub> per year
<b>Savings in heating oil</b>	Approx. 900.000 litres of heating oil per year
<b>In operation since 2022</b>	Gradually from July Woodchip boiler 1 from September Woodchip 2
<b>Owner</b>	Energie Uster AG
<b>Installation site</b>	CH-8606 8610 Uster ZH
<b>Project planning</b>	Anex Ingenieure AG
<b>Installation</b>	Hälg & Co. AG

# Aerodromo militare Locarno: Heating system annual savings of 200 Tons of CO<sub>2</sub>

Aerodromo militare / Locarno TI

Locarno Air Base has played an important role for the Swiss Air Force since 1941. Military pilots, parascouts and special forces are trained at the base. In addition, the airfield serves as an air transport base south of the Swiss Alps and is a centre of excellence for the Pilatus PC-6 and Pilatus PC-7 training and transport aircraft.

With these tasks and with the missions for the benefit of the civilian population in case of environmental disasters and forest fires as well as with peace-building missions abroad, approximately 10.000 flight movements are carried out annually at the Locarno military airbase and about 17.500 overnight stays are taken up.

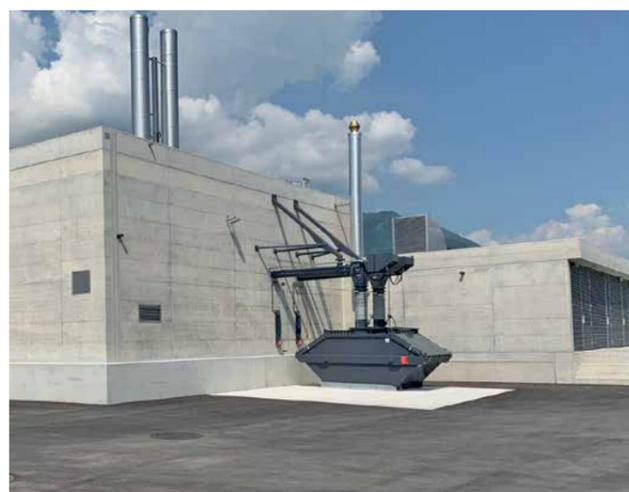
## Another step towards the climate goal with the wood heating plant

The federal government's climate package aims to reduce greenhouse gas emissions at the Federal Department of Defense, Civil Protection and Sport (DDPS) by at least 40 percent by the end of 2030 compared to 2001. With the commissioning of the two environmentally friendly Schmid UTSR-240 visio moving grate combustion systems, Armasuisse Immobilien, the real estate competence centre of the DDPS, has taken a further step towards achieving the target. With an optimized energy concept, renewed district heating pipes and the new wood heating system, 75.000 litres of heating oil and around 200 tons of CO<sub>2</sub> can be saved per year. The boilers, which run on forest chips, have been heating the barracks and the associated depots of the military airfield since December 2022.



## BRIEF INFO

<b>Product type</b>	Moving grate combustion system 2 x UTSR-240 visio
<b>Fuel</b>	Forest chips
<b>Fuel requirement</b>	1.200 m <sup>3</sup> / y
<b>Operating medium</b>	Water
<b>Power</b>	2 x 240 kW
<b>Application area</b>	Heating of barracks and depots
<b>Discharge</b>	Moving floor
<b>Silo</b>	Net volume 200 m <sup>3</sup>
<b>Flue gas dedusting</b>	MF electrostatic precipitator
<b>CO<sub>2</sub> Substitution</b>	Approx. 200t / y
<b>Savings in heating oil</b>	Approx. 75.000 l / y
<b>In operation since</b>	December 2022
<b>Owner</b>	armasuisse Immobilien Gestione delle costruzioni Svizzera centrale
<b>Installation site</b>	CH-Aerodromo militare Locarno TI
<b>Project planning</b>	VRT SA, CH-6616 Losone TI
<b>Installation</b>	Schmid AG, energy solutions



# Pasta producer relies on sustainability

Altmühltaler Teigwaren GmbH / Thalmässing DE

**Altmühltaler Teigwaren GmbH attaches great importance to regionality and sustainability in the production of its wide range of pasta. This is out of conviction and not only because the factory is located in the idyllic Altmühltal Nature Park. Since fall 2022, a new wood chip boiler from Schmid has been providing sustainable process heat.**

## Regional food with tested quality

The product range of the medium-sized company, which is run by Christian and Caroline Schnell, includes over 20 different pasta products. The products are marketed both regionally and in food retail.

Only fresh eggs, the best durum wheat semolina and spelt flour are used for the pasta and it is also produced in accordance with the state quality and origin assurance program «Geprüfte Qualität – Bayern». This makes the Schnell family's farm a pioneer in cross-stage quality assurance for regional foods. In addition, GQ-Bavaria prescribes the requirements for product quality as well as clear conditions for production and processing. Compliance with these is monitored by approved, private-sector certification bodies and under state supervision.

## Sustainability for process heat as well

«Our production facility had reached its limits due to increased demand», Christian Schnell told us.

The acquisition of another pasta plant was inevitable. The drying of the pasta on the old plant was already realized via a wood chip combustion system. However, its capacity and flow temperature were limited, prompting the operators to look into a new heat supply. «At that time, of course, we could not foresee the explosive nature of the issue of energy costs today», Christian Schnell continues.

## UTSR visio boiler for wide fuel range

A Schmid UTSR-1200 moving grate combustion system with hot water boiler was used. It supplies a feed temperature of 150 °C at a maximum operating pressure of 13 bar, which is necessary for the efficient drying process of the pasta and meets the requirements of the new production plant.

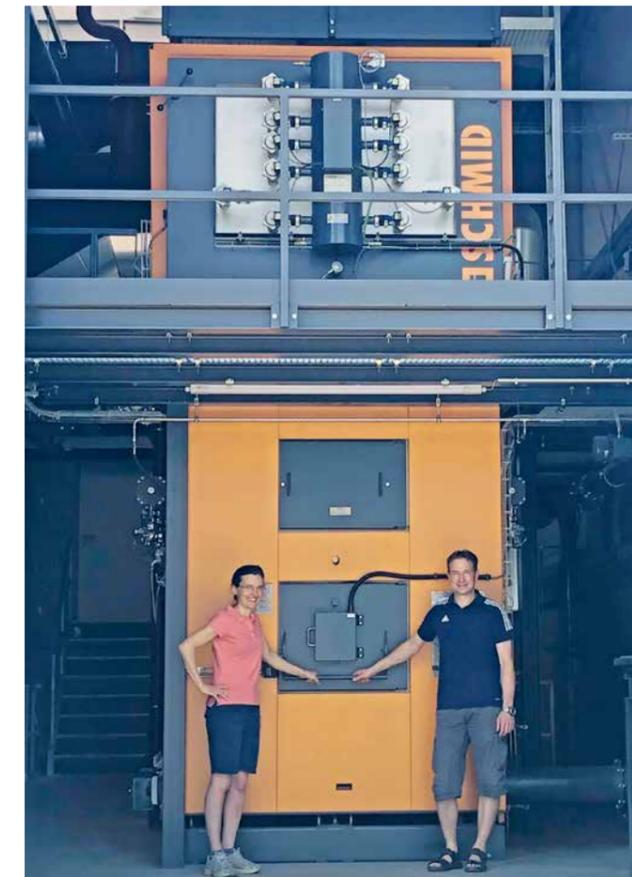
The wood chips come from the region and are unloaded into an underground fuel store with a hydraulic moving floor. Two silo distribution screws ensure optimum utilization of the silo volume. It was important for the customer to be able to process the widest possible range of fuels with a robust conveyor system. This was taken into account with a double chain conveyor and a double stoker slide-in conveyor system. The furnace volume of the plant allows the use of forest-fresh wood chips without any loss of performance. An flue gas heat exchanger integrated in the electrostatic precipitator increases the plant efficiency. The buffer heat storage tank with 40 m<sup>3</sup> is capable of balancing the load fluctuations in the heat demand and avoiding long partial load or annealing phases of the firing system. Intelligent management of the storage tank specifies the desired boiler output.

## Showcase balance sheet for costs and climate protection

«We now generate the energy for drying our pasta in a CO<sub>2</sub>-neutral way, because conserving resources and using renewable raw materials is a matter of course for us», says Christian Schnell, confirming the company's philosophy. Independence from the gas market and the advantage of lower fuel costs are welcome additional effects.

*«With the Schmid company, we have chosen a competent partner. The expert advice on the plant concept has been very helpful to us.»*

Christian Schnell, Owner, Altmühltaler Teigwaren GmbH



## BRIEF INFO

<b>Product type</b>	Moving grate combustion system UTSR-1200.32-1 visio HDHW
<b>Fuel</b>	Fresh natural forest chips (P63/M50)
<b>Power</b>	850 kW
<b>Application area</b>	Process heat pasta production
<b>Discharge</b>	Moving Floor Discharge chain conveyor and double stoker
<b>Waste gas dedusting</b>	Electrostatic precipitator with integrated waste gas heat exchanger
<b>In operation since</b>	2022
<b>Owner</b>	Altmühltaler Teigwaren GmbH
<b>Installation site</b>	DE-91177 Thalmässing



# Green energy for Slovakia – Remeselné služby s.r.o.

Remeselné služby s.r.o. / Trenčín SK

**Remeselné služby (RS)** is a regional energy supplier based in Trenčín in and Bratislava. In addition to the operation of heating plants, RS also specializes in the design and construction of environmentally friendly energy solutions. The aim is to replace fossil heating systems with renewable energy systems and to equip new buildings with photovoltaic systems in combination with heat pumps or wood boilers from Schmid.

## Energy from own wood for over 3000 residential units

In recent years, the Remeselné služby team has gained a lot of experience with Schmid UTSD boilers and is very familiar with the planning of such plants as well as with efficient energy generation from wood chips. In the coming years, gas-fired heating plants will be converted to CO<sub>2</sub>-neutral wood combustion heating plants. The «Trenčín Východná» heating plant is the first of three large-scale plants. It was equipped with two Schmid UTSD-5000 visio and commissioned in February 2023. With an output of 4900kW each and forest chips from own production, 3066 residential units, the housing estate Trenčín Sidlisko Juh, are supplied with heat. In order to strengthen the «Green Standard» and to keep the emissions at the lowest possible level, the plant was equipped with a flue gas condensation unit and a wet electrostatic precipitator from IS SaveEnergy AG. The wet electrostatic precipitator has the advantage that it remains effective even at partial load during the transition period.

*«We are very enthusiastic about the sustainable high-end technology and the highly competent Schmid team. That's why it's fun to realize further projects together with Schmid.»*

Eng. Jozef Greňo PhD, Managing Director Remeselné služby s.r.o.

## BRIEF INFO

<b>Product type</b>	Moving grate combustion system 2 x UTSD-5000 visio
<b>Fuel</b>	Forest chips from own production
<b>Fuel requirement</b>	~16SRM/h
<b>Fuel medium</b>	Warm water (75 °C)
<b>CO<sub>2</sub> Substitution</b>	Approx. 6440 t/y
<b>Saving of natural gas approx.</b>	28G Wh/y
<b>Power</b>	2 x 4900 kW
<b>Application area</b>	District heating
<b>Discharge</b>	Moving Floor / Collecting Screw / Metering screw / Double stoker screw
<b>Flue gas dedusting</b>	Flue gas condensation plant IS SaveEnergy AG with wet electrostatic precipitator
<b>Silo</b>	L = 14 m / W = 6,5 m / H = 5 m (total volume ~ 455 SRM)
<b>In operation since</b>	February 2023
<b>Owner</b>	Remeselné služby s.r.o.
<b>Installation site</b>	SK-Trenčín
<b>Project planning</b>	Remeselné služby s.r.o. SK
<b>Installation</b>	Remeselné služby s.r.o. SK



From left: Eng. Juraj Kónya (Sales Schmid), Eng. Jozef Greňo PhD. (Managing Director RS) Ing. Stanislav Kundrat (Project Manager RS), Bernd Hörzer (Sales Schmid), Pavol Ciger (Project Manager RS), Tomasz Kapusta (Project Manager Schmid)



# Climate-neutral production line for sustainable furniture textiles made of natural fibres

Solør Norsk Bioenergi AS / Innvik NO

Innvik is one of Scandinavia's leading manufacturers of high-quality furniture textiles. In collaboration with interior designers and furniture designers, special designs are created and the fabrics are produced accordingly. Sustainability plays a major role in this process. That is why Innvik uses products made from renewable raw materials such as wool and linen.

## Long and proud tradition with Norwegian wool

Wool was already a frequently used, but also popular raw material in 1890, when Innvik was founded. Farmers delivered wool to the mill and Innvik delivered yarn back to the farmers.

Norwegian wool fibre is known for its strength, lustre and resilience. It is 100% renewable and produced by sheep farmers on small family farms, most of which have fewer than 100 adult animals. For this reason, wool is still an important raw material for Innvik today.

## Leading role in sustainable textile production

Innvik is located in the middle of Norwegian nature and has long had the vision of a climate-neutral production line.

*«As a textile manufacturer, we can make a difference.»*

Innvik, [www.innvik.no](http://www.innvik.no)

To achieve this goal, Innvik relies on bioenergy in addition to short transport routes and durable quality. In the fall of 2022, the new bioenergy power plant from Solør Norsk Bioenergi AS was commissioned and has been supplying Innvik with heat and steam ever since. The plant was equipped with a UTSR-2000 visio wood combustion boiler from Schmid and is operated with wood chips from the region. This means that the steam and heat energy used in the Innvik production line is CO<sub>2</sub> neutral. The local school and the nursing home are also supplied with heat via a long-distance pipeline.

## Heating with biomass

The use of forest resources, which would otherwise rot in nature, is a CO<sub>2</sub>-neutral energy source. The UTSR-2000 visio wood boiler replaces oil heating and saves 1.072 tons of CO<sub>2</sub> per year.

## Solør Norsk Bioenergie

Solør Norsk Bioenergi AS was founded in 2007 and has established itself nationwide with extensive expertise in water heating, alternative energy and construction. It owns, installs and operates bioenergy plants and supplies water heat as well as finished steam at prices competitive with electricity, oil and gas.



## BRIEF INFO

<b>Product type</b>	Moving grate combustion system UTSR-2000.32-1 visio
<b>Fuel</b>	Wood chips from whole trees and forestry residual wood
<b>Power</b>	2600 kg/h saturated steam
<b>Application area</b>	Process steam for bursting and yarn dyeing
<b>Discharge</b>	Moving floor
<b>Flue gas dedusting</b>	Multicyclone
<b>In operation since</b>	August 2022
<b>Owner</b>	Solør Norsk Bioenergi AS
<b>Installation site</b>	NO-Innvik
<b>Project planning and Installation</b>	Nils Jørn Slotfeld, Tangen Automasjon AS NO



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