



**Digital change...**

In 2020 we realised how important it is & what it can do.



## Dear Reader

2020 has been a crazy year! COVID-19 has had an extreme influence on our daily activities and will certainly continue to affect us into the coming year.

Our industry is also struggling with the consequences of coronavirus. Fortunately, the produce retailers sector remained relatively constant, or at least caught up with the previous year's level. Other commercial refrigeration sectors associated with gastronomy and the hotel industry are suffering from lost revenue. Investment in the industrial sector also slowed down, especially in the first half of the year. We hope that you have coped with the pandemic thus far and that you can look positively into the next year.

What other effects has COVID-19 had on our industry? We have seen a sharp upswing in online communication, which will continue beyond 2021. Virtual exhibitions, growing social media presence and online meetings via Microsoft Teams, Zoom, etc., all represent the latest communication channels. We are happy to have picked up the virtual ball right from the start and are also planning further activities next year. In our new TEKO news portal, you can now read all TEKOPOST content and the latest news digitally.

Nevertheless, nothing can replace being together in real life. Our greatest wish for 2021 is to be able to meet you in person again. We would like to wish you and your families a peaceful end to the year and much strength and success for 2021.

  
Edgar Holzhäuser

  
Andreas Meier

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Always up to date – from wherever you want

# Dottenfelderhof Bad Vilbel

## Sophisticated CO<sub>2</sub> technology ensures optimum organic quality

On the outskirts of Bad Vilbel lies the old cultural monument Dottenfelderhof, just 25 km from our headquarters in Altenstadt. The estate was first mentioned in 976 as a monastery manor and has been managed by the Dottenfelderhof farming community as biodynamic agriculture as per Demeter standards since 1968.

The farm features an extensive operation: varied agriculture, fruit and vegetable growing, livestock farming, an agricultural school, research, marketing and a broad programme of events. In the dairy, milk is processed into cheeses and dairy products, some of which have won national awards. The farm's own grain is refined into various baked goods in the wood-fired bakery in the monastery garden. Together with freshly harvested fruit and vegetables, a wide range of organic produce and products from other Demeter farmers in the region, the farm's own products are sold in the farm shop and at markets in the surrounding area.

The farm shop is an economic mainstay for the Dottenfelderhof. It initially began in 1973 in a converted cellar with the sale of milk and bread, . Garden and field crops were soon added. The range on offer grew steadily and more space was needed. In the 1980s, the farm community converted the former cowshed into a farm shop and moved some of the produce to a separate storage on the farm. As the product range grew, it soon became clear that another move was inevitable.



### Double the space – all under one roof

After years of planning, the development plan was finally completed in early 2019. From there, everything progressed very quickly and the new farm shop opened on 28 May 2020. The new premises feature a sales area that is nearly twice as large at almost 800 square metres and a further 700 square metres for cold stores, storage areas, offices, social rooms and parking spaces for market cars. The building was constructed on a plot of land directly in front of the farm entrance. As a result, customers – around 400 per day – no longer have to drive to the farm along its narrow tracks, where everything used to converge: customers coming on foot, with bicycles, prams, cars, vans and so on can now park easily in the new shop's large car park.





Photo by Bernd Liebermann

*"The situation is now uncongested," as Peter Hollerbach (farm shop manager) puts it. "Separating the farming and sales sides of the business not only benefits the farm's 100 residents, but its 150 employees too. Integrating the warehouse and cold storage rooms is particularly advantageous for operational processes. Thanks to the new building, there is no longer any need for intermediate storage at various points across the farm. Products are delivered directly to stalls, counters and shelves or can be easily loaded into sales vehicles for weekly markets."*



### Ecological through and through

When planning the new building, the aim was not only to better present the goods and create more efficient structures – environmental concerns were also particularly important. The entire building was mainly constructed from wood and was designed to meet the low-energy standard. Lots of glass on the walls and roofs provides plenty of daylight, therefore there is little need for artificial lighting. The electricity is largely supplied by the farm's own combined heat and power plant, and the waste heat from operating the refrigeration plant is used for air conditioning and hot water preparation.

### Implementing refrigeration – holistically solved with CO<sub>2</sub>

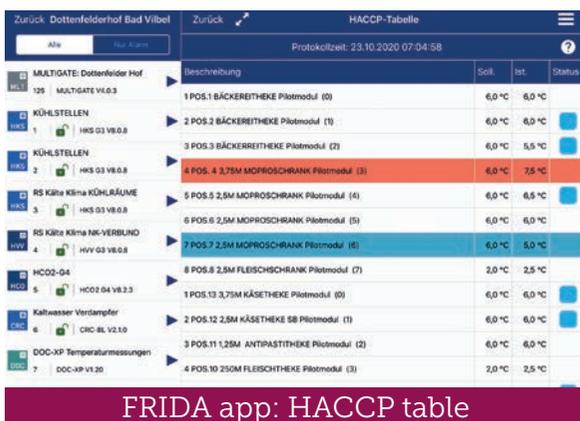
The refrigeration solution has been implemented by RS Kälte-Klima GmbH from Sulzbach/Saar. Frank Redda (RS Managing Director): *"We were delighted to receive the order from Dottenfelderhof! An ecological approach is completely embraced here, which fits perfectly with the current refrigerant situation, of course. The farm is a pioneer in terms of sustainability and efficiency. Right from the beginning, it was clear that only a holistic solution using the natural refrigerant CO<sub>2</sub> could be considered here. We have been working closely with TEKO for a long time, which is why we chose the TEKO series solution ROXSTAsmart integral – an all-in-one system offering cooling, heating and air-conditioning. When developing the ROXSTAsmart integral, TEKO focussed on simple handling yet extensive, sophisticated functions, which our local service staff were able to endorse. Commissioning went smoothly in just one day. Since we already had good experiences with a comparable TEKO unit in another organic shop, we did not expect anything else."*

The old farm shop was cooled by several individual machines that were installed decentrally in different parts of the farm. In contrast, the ROXSTAsmart integral was installed as an indoor installation in a central machine room within the new building, which reduces noise levels considerably. The buffer storage tank and the feed pump for the various cooling/heating circuits are also located here.

## Wurm control electronics

The organic farm's lovingly homemade products necessitate the highest standards of refrigeration and control technology. The quality of the products should in no way be affected by being stored in the refrigeration units.

In this instance, the correct storage temperature, the lowest possible dehumidification of the goods and gentle defrosting cycles for the refrigeration cabinets all play a key role. These requirements are met by the FRIGOLINK solution offered by our partner Wurm Elektronische Systeme from Remscheid. This is yet another reason for equipping even the smallest of cooling points with these benefits. In total, the project has over 22 cooling points, all of which have been fitted with FRIGOLINK. Energy consumption is thus another of the project's focal points.



Zurück Dottenfelderhof Bad Vilbel		Zurück HACCP-Tabelle	
Alle		Protokollzeit: 23.10.2020 07:04:58	
	Beschreibung	Setp.	Ist.
MULTIGATE: Dottenfelder Hof	1 POS.1 BÄCKERREIHEKE Pilotmodul (0)	6,0 °C	6,0 °C
KÜHLSTELLEN	2 POS.2 BÄCKERREIHEKE Pilotmodul (1)	6,0 °C	6,0 °C
KÜHLSTELLEN	3 POS.3 BÄCKERREIHEKE Pilotmodul (2)	6,0 °C	5,5 °C
KÜHLSTELLEN	4 POS. 4 2,75M MOFROSCHRANK Pilotmodul (3)	6,0 °C	2,5 °C
RS Kälte Klima KÜHLRÄUME	5 POS.5 2,5M MOFROSCHRANK Pilotmodul (4)	6,0 °C	6,5 °C
RS Kälte Klima NK-VERBLIND	6 POS.6 2,5M MOFROSCHRANK Pilotmodul (5)	6,0 °C	6,0 °C
HCO2-04	7 POS.7 2,5M MOFROSCHRANK Pilotmodul (6)	6,0 °C	5,0 °C
HCO2-04	8 POS.8 2,5M FLEISCHSCHRANK Pilotmodul (7)	2,0 °C	2,5 °C
Kaltes Wasser Verdampfer	1 POS.13 3,75M KÄSETHEKE Pilotmodul (0)	6,0 °C	6,0 °C
DOC-XP Temperaturmessungen	2 POS.12 2,5M KÄSETHEKE SB Pilotmodul (1)	6,0 °C	6,0 °C
DOC-XP Temperaturmessungen	3 POS.11 1,25M ANTIPISTTHEKE Pilotmodul (2)	6,0 °C	6,0 °C
DOC-XP Temperaturmessungen	4 POS.10 2,50M FLEISCHTHEKE Pilotmodul (3)	2,0 °C	2,5 °C

FRIDA app: HACCP table

In building services engineering, too, all control technology gears merge together since heating, air-conditioning and ventilation technology is also controlled

by the Wurm system. In the case of such interlinked systems, which ensure all project requirements are met, we speak of "integral systems".

"Another important aspect is related to quality assurance requirements. Wurm Systeme offers customised solutions for all areas of interest. At Dottenfelderhof, we have opted for the proven Frigodata XP analysis tool and the FRIDA app. Using the FRIDA app, the service technician can operate the system via their smartphone or tablet. By means of internet-based and VPN-encrypted remote data transmission, appropriately authorised personnel have remote access to the system, enabling direct intervention without having to travel to the site," explains Frank Redda.



WHITELINE gas cooler

## Sustainability from A to Z

The waste heat from the refrigeration plant is used to heat and air condition the retail store, the offices, the recreation room and the warehouse. This corresponds to 90 to 95% of the required heat output. A heat pump is switched on to cover the remaining 5 to 10%. Via an intermediate circuit with pump, the heat/cold reaches a 500-litre storage tank and is distributed from there via ceiling air units to the appropriate points in the retail store. GTM's innovative building services engineering makes this mere child's play. The system organises the hydraulic balancing of the individual heat

## Financing

When it comes to support in the field of energy efficiency, ecogreen Energie is our go-to contact. With over 10 years of experience, the subsidy experts support companies to finance energy efficiency projects. The Dottenfelderhof project was another that was financed and implemented as a result of ecogreen, RS Kälte-Klima and TEKO working together. The project shows which funding possibilities are available for farm shops and how the additional costs associated with more efficient refrigeration technology can be absorbed. In total, around 10% of the Dottenfelderhof investment costs were subsidised. Marcel Riethmüller (Managing Director of ecogreen) says: "Our aim is to provide companies with quick and easy access to funding. We were able to achieve this together with our partner companies thanks to excellent cooperation."



/heat pump evaporator

exchangers completely automatically by means of calculation algorithms, so that the temperature can be controlled exactly and highly efficiently. The building services concept was planned and implemented by Kratschmayer Luft-Wärme-Klima GmbH from Waldenburg.

The WHITELINE gas cooler supplied is designed as a combination unit with heat pump evaporator. In order to use all the waste heat in its entirety, a gas cooler bypass is switched on in winter when outside temperatures are low. The heat pump evaporator is also used if the outside temperature falls further below the set temperature. Thus, we achieve a total heating capacity of 70 kW using this unit. By combining the two units, the footprint is reduced and noise emissions are very low at 30 dB(A) at a distance of 10 m. Moreover, waste heat from the gas cooler is used to defrost the heat pump package efficiently and economically without additional electrical heating.

In summer, the same network of pipes transports cooled water to the ceiling units and air conditions the retail store to a comfortable temperature.

In addition, the refrigeration plant is equipped with the Wurm METEOLINK module, which enables anticipatory control of the heating or cooling mode. This increases operational safety and comfort immensely.

## Description of the system technology

### Facts & figures

- Total area approx. 1,500 m<sup>2</sup>
- A total of 22 cooling points:
  - 8 ref. counters (butchery/bakery)
  - 9 cold stores (dairy/fruit & veg/cheese/meat)
  - 1 fresh meat preparation
  - 4 wall-mounted refrigerated shelves (dairy/meat)

### ROXSTAsmart integral

Integrated system for cooling, heating and air conditioning

- Refrigerant R 744 (CO<sub>2</sub>)
- **Medium temperature cooling**  
3x Frascold compressors (1st compr. with FC)  
47 kW ( $t_0 -5 / t_{GC\ out} 38\ ^\circ C$ )
- **Heating**  
70 kW ( $t_{Water\ in/out} 25/40\ ^\circ C$ )
- **Air conditioning**  
45 kW ( $t_0 2 / t_{GC\ out} 38\ ^\circ C$ )

### Controls

Wurm control electronics FRIGOLINK HCO<sub>2</sub>

### Special features

- Heat recovery C2Hbasic incl. heat pump
- Controlled suction gas heat exchanger for MT, heat pump and air conditioning
- WHITELINE gas cooler/heat pump evaporator combination with 3 EC fans: 310 kW ( $t_{amb} 35\ ^\circ C / t_{GC\ out} 37\ ^\circ C$ )
- 10x WHITELINE CO<sub>2</sub> wedge coolers



# The TEKO team

## Introducing new colleagues ...



**Roman Weingart** already worked for TEKO from 2014 to 2017 when he was part of the development and sales department. In the years that followed, he gained extensive knowledge and experience as a sales manager, particularly in the Scandinavian region.

Since August 2020, he has been strengthening the TEKO team again as **Technical Sales Manager**. In this role, he is responsible for supporting new and existing Scandinavian customers as well as developing business in Scandinavia and Great Britain.

We are very happy to have Roman Weingart back in the team!

Before joining TEKO, **Dirk Born** was responsible for designing, selling and manufacturing metal-worked products – including TEKO base frames and housing.

Based on the close contact he had with TEKO, he decided to seek a career change in August 2020 and took over as **Head of Construction**. Thanks to his comprehensive expertise in metal production, he complements our design team perfectly.

All that's left for us to say is welcome to the other side!



**Lukas Stahl** started his training as a mechatronics technician for refrigeration technology at TEKO in 2014 and subsequently completed his further training as a state-certified technician in July 2020, specialising in refrigeration and air conditioning system technology.

He has now been a permanent TEKO employee since August 2020, working in the **Technical Support** department. Here, he has special responsibility for designing CO<sub>2</sub> projects and also supports the Produce Retailers Key Account Management team in system-related matters. We are delighted to have Lukas Stahl back on board!

## Would you like to know more about our TEKO team?

Get to know our colleagues in an interview!

[www.teko-gmbh.com/news-portal/en/category/teko-team](http://www.teko-gmbh.com/news-portal/en/category/teko-team)



**Markus Stern** has been strengthening our sales team as **Head of Commercial Quotation and Order Management** since August 2020.

His tasks at TEKO include divisional controlling and the process organisation for quotations and orders, the coordination of incoming orders and other administrative activities in this area.

Thanks to many years of experience in the global automotive supply business, Markus Stern is the perfect addition to our team. We are looking forward to working together!

**Thomas Schöffel** started his training as a mechatronics technician for refrigeration technology at TEKO in 2012 and subsequently completed his further training as a state-certified technician in June 2020, specialising in refrigeration and air conditioning system technology.

He has been back at TEKO since August 2020 and working in close cooperation with production management, he will establish a continuous **quality assurance** system at TEKO in future.

We are pleased to welcome Thomas Schöffel back to TEKO and wish him every success as he takes on his new tasks.



**Marco Andres Vasquez** has been supporting our **Technical Support** team since October 2020.

Marco Vasquez has many years of experience in working with natural refrigerants and understands both sides of project management – both administratively and practically at the unit.

In his new position at TEKO, he will be responsible for technical order processing – particularly international projects – and therefore perfectly complements his TEKO colleagues. We're delighted that he's part of our team.

# The TEKO team

## ... Apprentices & students

### TEKO as a vocational training company...

On 1 August 2020, three young people started a new phase in their lives by undertaking vocational training at TEKO.



Sascha Malik began his training as a **specialist in warehouse logistics**, while Stella Buchmann and Frederik Korn are training to be **industrial clerks** (from left to right).

All three of them have already gotten to grips with life at TEKO. As always, we are very happy to welcome the next generation – after all, continuously promoting young talent is very important to us. By providing training, we are actively combating the shortage of skilled workers in the refrigeration and air conditioning industry.

We would like to wish our new TEKO members much success and joy as they embark on their new chapter together with us.

### Are you interested in an apprenticeship or a dual studies course at TEKO?

You can find our extensive range of training courses online:  
[www.teko-gmbh.com/en/careers](http://www.teko-gmbh.com/en/careers)



### ...and partner for dual study programmes

Nowadays, it is more important than ever to choose a future-oriented profession with excellent prospects. The refrigeration industry has a future – seldom have we felt this as certainly as during the current COVID-19 crisis.

For this reason, we offer a **dual study programme leading to a Bachelor of Science in refrigeration systems engineering**, among other things. On 1 November 2020, Maximilian Fischer began his 3-year dual study programme at the European Academy of Refrigeration, Air Conditioning and Ventilation (EsaK).

The three study years are combined with practical phases at TEKO. This enables Maximilian Fischer to gain practical experience right from the start and thus to combine theory and practice in the best possible way.



# TEKO donates a forest

## Protecting the environment & halting climate change

**Drought, storms, fires and bark beetles... these are just some of the problems our forests are facing. We want to do something about it!**

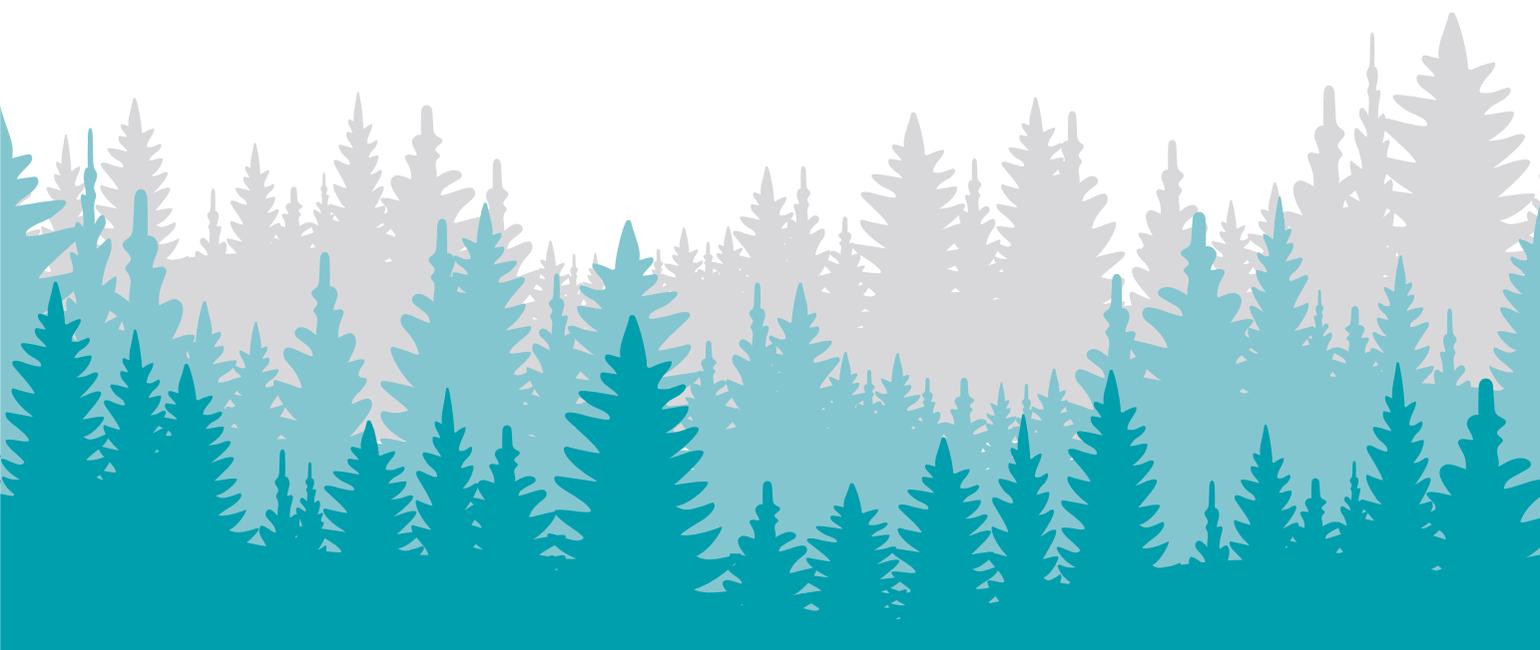
For this reason, we have launched our **"TEKO Forest"** campaign and are supporting the forest in the surrounding Altenstadt campaign with a donation of EUR 10,000.

### **What does this entail?**

Together with the municipality of Altenstadt and the responsible forest ranger, an open area has been chosen on which around **2,000 young deciduous trees** will be planted next spring. To prevent the plants from being damaged by game, the area has been completely fenced in. Maintaining these young saplings has also been factored into the donation and is thus financed for the coming years.

We are delighted to give back a piece of nature with "our forest" and will gladly keep you updated as the planting campaign progresses. Feel free to take a look at our new news portal and stay up to date:

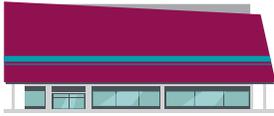
<https://teko-gmbh.com/news-portal/en>



# ROXSTA G6

Great performance. Compact design.

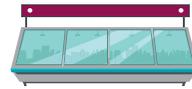
## Application



Hypermarkets /  
Cash&Carry  
up to 10.000 m<sup>2</sup>



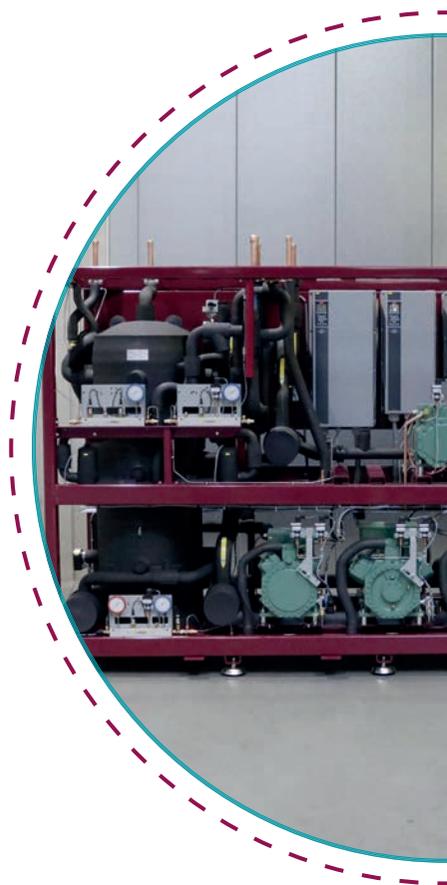
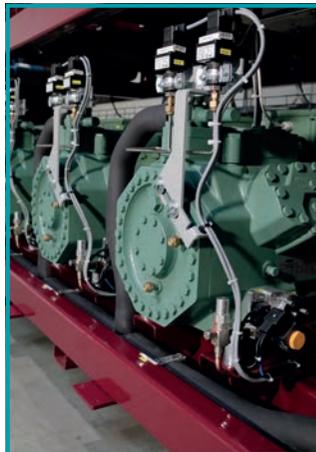
**MT cabinets**  
open: up to 300 m  
closed: up to 600 m



**LT shelf/ island**  
up to 150 m  
**LT cold rooms**



## Quality



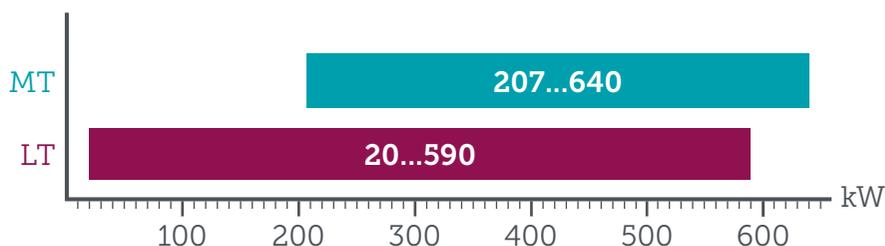
\* Want to learn more about EVALIFT?  
Watch our short product video on YouTube.



The CO<sub>2</sub> series solution ROXSTA G6 was developed for larger supermarkets and hypermarkets. ROXSTA G6 can also meet many requirements in food production and logistics. The combination of powerful 6-cylinder compressors with frequency-controlled 4 or 6-cylinder guide compressors enables an extremely compact design for this system size but does not ignore the optimally coordinated partial load requirements.

CO<sub>2</sub>

## Leistung

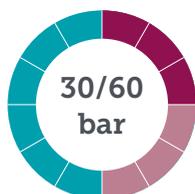


## Details

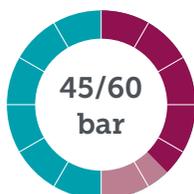
- Trans- & subcritical application
- 3-7 MT / 0-6 LT incl. frequency converter per lead compressor & pressure level
- **6 cylinder compressor**
- Heat recovery
- Efficiency increase: ECO comp. / **EVALIFT\*** / TEKOJET
- Receiver volume 250 / (2x)420 L
- Housing for indoor installation
- Outdoor installation as container solution



## Pressure levels



Suction line  
(LT)



Suction line  
(MT)



Medium  
pressure



High  
pressure

# Virtual exhibitions

## A curse and a blessing in one

Oh, how we would love to be telling you about a successful Chillventa in Nuremberg at this point... have interesting, face-to-face discussions with you, present new products, see well-attended exhibition halls and get that very special feeling that accompanies every exhibition. But everything was different this year...

After EuroShop, which fortunately still took place in Düsseldorf in February, the world was turned upside down shortly afterwards. COVID-19. We don't need to say anything else. We have all felt the effects to different degrees.

But it suddenly became clear that no more exhibitions would take place in 2020. What a shame!

But what happened next? All of a sudden, there was talk of virtual exhibitions, eSpecials, roundtables, etc. Exhibition organisers put their heads together and worked out concepts to offer the refrigeration industry a little exhibition feeling – despite social distancing regulations.

On **1 and 2 September** shecco organised the **VTS Virtual Trade Show**

– the world's first virtual trade fair all about natural refrigerants. The VTS was a global live event that extended over a period of 24 hours, covering all time zones.

Visitors could register free of charge and interact with exhibitors around the clock via chat, audio and video functions. The programme was complemented by exciting webinars focusing on natural refrigerants.

77 companies presented digital information material and videos from their virtual 3D exhibition stands during VTS. As digital representatives of real employees, avatars were available for chats and video calls. Thanks to the way the content was presented, visitors almost felt as though they were participating in a real exhibition.

**Virtual** **TRADE SHOW**  
1-2 September 2020 - GLOBAL

TEKO as special premium sponsor

We were impressed by this innovative concept and presented four virtual exhibition stands in our own **TEKO exhibition hall, focusing on Retail, Light Industrial, Industrial & Control Electronics.**

And not just that! To complement the event, we also set up a **real exhibition stand at our headquarters in Altenstadt, Germany.** This meant we were able to present our CO<sub>2</sub> solutions to visitors live on site during every video call.

And last but not least, our Managing Director **Andreas Meier** held a **live webinar** entitled "360° view on CO<sub>2</sub>. From past to future – from retail, industrial to air conditioning application".

## VTS summary

Of 4,232 registered participants, 2,359 actually took part. Of course, a virtual exhibition is no substitute for an in-person event, but in coronavirus times where this is unfortunately not feasible – particularly not internationally – the Virtual Trade Show was a successful alternative.

**The next VTS will take place on 23 and 24 February 2021.** shecco is using the experience gained from the first event to further improve VTS 2.0. And it goes without saying that we'll be there again. **Why not make a note of the date and come and see for yourself?**

## CHILLVENTA eSPECIAL

Following long deliberations by Chillventa organisers, the decisive news arrived on 3 June: "Chillventa not back in Nuremberg until 2022 – 2020 will be held virtually." Nobody wanted to hear that news, but it was inevitable, of course.

The **Chillventa eSpecial** – and Chillventa Congress – was therefore held from **13 to 15 October 2020**. There were 30 lectures at the Congress, 75 specialist presentations and over 300 roundtable discussions from 207 exhibiting companies. In total, over 6,800 participants from 113 countries took part actively with more than 100,000 chat messages and 1,200 video calls.



While this virtual event could not replace a "real" Chillventa, it did offer the industry a chance to exchange professional information even in coronavirus times.

Nevertheless, we hope that we will not have to make this compromise a second time and that in future, we will again be able to exchange ideas with you personally at our exhibition stand and present our latest products to you live and hands-on. We're already looking forward to it!



youtube.com  
TEKO Kältetechnik

### Did you know?

For the virtual exhibitions, we made time for an exciting video shoot day at our booth in Altenstadt. It resulted in entertaining films in which we interactively present our ROXSTA CO<sub>2</sub> solutions. Take a look at our YouTube channel.

# Pioneering spirit at Penny

## From the first system refrigeration unit to the TEKO series solution

A technically innovative retail store – that’s what Penny has been from the outset and still is today! From the first standardised system chiller on the market to today’s environmentally friendly refrigeration solution using CO<sub>2</sub>. Everything has been developed hand in hand by Penny, TEKO and Wurm.

### Developing the first system refrigeration unit for food refrigeration

**1996:** In Frankfurt’s Unterliederbach district, plans were afoot for a new Penny retail store. At that time, the state of the art was to “serve” normal and deep freezing with separate multi compressor system. Since the discounter decided to use ready-to-plug-in LT islands, the cold room was the only cooling point for low temperature (cooling) in a typical discounter such as Penny.

The use of condensing units was considered to be a technical solution. Yet this represented a technological relapse back to the 1970s, resulting in poor efficiency values and high service risk.

With this in mind, Rolf Schmidt – who was responsible for refrigeration technology at Penny at that time – approached us and asked for a refrigeration system that could do this as part of a closed system. This should be compact, highly efficient and equipped with a modern refrigerant. It should also meet our aspiration to simplify the handling of refrigeration technology for installers. This resulted in an idea to integrate medium temperature (cooling) and the additional cold room as part of a single standardised system.

Planned. Completed. After a while, we released a prototype for our “DISCPACK1”, which used the refrigerant R404A at that

time. Its introduction at the REWE Group was a complete success – the advantages of this technical innovation were utterly convincing across the board. We therefore developed the first system solution and set a milestone in food refrigeration.



Not least because of the small footprint of only 1.5 m<sup>2</sup>, the DISCPACK1 was used in series production at Penny. The unit in Unterliederbach ran almost problem-free for 25 years. This project also fundamentally changed things for TEKO: We started to develop optimised refrigeration systems, tailored to the needs of the food retail trade – something we still

specialise in today.

The advantages of this system refrigeration unit, compared with the former individual units, were rapid assembly time (50% quicker), a much lower amount of estimated refrigerant and greatly improved system hermeticity thanks to approximately  $\frac{3}{4}$  fewer soldered and screwed connections. The resulting positive side effects – such as lower energy consumption and the equally low space requirement given that no machine room is required – made the DISCPACK1 the ideal multi compressor system for a typical discounter store.

The successor “DISCPACK2” was even awarded the 1999 environmental prize thanks to its low TEWI value when using R 134a in conjunction with an LT cascade and Wurm’s advanced FRIGOTAKT process.

### Not without Wurm as our partner

Even then, Wurm was a key, central development partner. The FRIGOTAKT control system was specially developed for the DISCPACK1 to effectively coordinate cooling points. Using the new process, high efficiency could be achieved without making the technology unnecessarily complicated.

The smart system ensured an ideal balance of the cooling point load since FRIGOTAKT coordinated the individual cooling points. For example, up to 25% less energy was consumed by staggered phase shifting of the cooling point load.

As part of today’s further development of the system (FRIGOTAKTplus), modern processors provide computing power that makes many other advantages possible. These include permanent online refrigeration planning, adaptive capacity characteristics and automatic operating point determination using stored compressor characteristics.

FRIGOTAKTplus permanently recalculates the current load case online. The procedure checks whether, for example, the activation of a compressor or the delayed activation of a cooling point makes sense and thus optimises the overall performance of the cooling system.



### 25 years later – new building featuring future-oriented technology

**2019:** As was common practice for a discounter, the original retail store in Unterliederbach was integrated into a residential block. However, 25 years after its opening, the retail store was getting on in years. To be able to guarantee technical innovations, the existing retail store was not converted and instead, a new building was constructed 500 metres away.

A lot has happened since the DISCPACK1 was first installed in 1996. Natural refrigerants are at the top of operators’ wish lists. As a result, the new building features our series solution ROXSTAcube mini with the environmentally friendly refrigerant CO<sub>2</sub> in place of the DISCPACK. From a design point of view, the unit has not changed significantly – even today, it still only takes up as much space as a pallet.

In the original 455 m<sup>2</sup> store, 18.75 m of refrigerated cabinets were cooled using the DISCPACK1. The number of refrigeration cabinets in the new retail store has almost doubled. This is due to the increased demand for fresh, cooled products. Our ROXSTAcube mini supplies cooling for 30 m of refrigerated cabinets – 26.25 m of which are for dairy and 3.75 m for meat. In addition, one MT and two LT rooms for storage and the internal bakery have also been integrated into the new building. By glazing the refrigerated cabinets, energy consumption has been kept almost constant.



DISCPACK1 (1996) and ROXSTAcube mini (2019)

### Did you know?

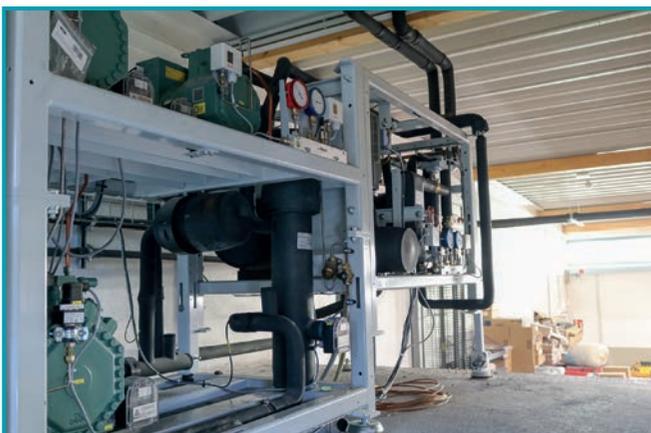
The historic DISCPACK1 from the Penny retail store has been at the TEKO showroom in Altenstadt since April 2019. It is probably one of the last remaining DISCPACK1s.



Heat recovered from the refrigeration system is used to heat the retail store during the colder months of the year, thus allowing the operator to make further significant energy savings.



The new building also offers many advantages in terms of space: In the old building, the refrigeration plant was located in a narrow, poorly accessible cellar in an adjacent residential building. In order to save as much space as possible, the ROXSTAcube mini needed be placed on an intermediate floor in the warehouse, which was made possible thanks to the unit's divisible frame. This meant that both components of the ROXSTAcube mini standing beside one another could be adjusted to 1.80 m, whereas the standard height above each other is 2.10 m.



The in-house bakery, in which dough pieces are baked fresh every day, posed a further challenge. To save space, a combined storage room was developed. This is accessible from both the bakery (with its constantly running ovens) and the supermarket (for stocking goods) and thus has special cooling requirements. The solution to this challenge is a speed-controlled compressor, which has also been used in all comparable Penny retail stores since 2019.

## CO<sub>2</sub> pioneer

From an environmental point of view, the Penny Group is an absolute pioneer, having already equipped its retail stores with seminal technology back in 1996. This was due to the innovative spirit of Penny pioneer Rolf Schmidt, as well as Penny's wise forward planning with regard to the European F-Gas regulation, which nowadays results in market changes and an ever-growing number of environmentally friendly technologies.

Today, using CO<sub>2</sub> as a green refrigerant is considered the perfect solution for achieving both high efficiency and eco-friendliness in food retailing. The Penny Group therefore became Germany's pioneer in CO<sub>2</sub> cooling technologies – demonstrating a pioneering spirit rarely seen elsewhere.

With its output (MT up to 65 KW / LT up to 9 kW), the ROXSTAcube mini is the ideal solution for discounters. Of course, waste heat from the refrigeration system is also used efficiently, such as to heat the store, thereby creating a completely environmentally friendly refrigeration system.

Mr Martin Weydemann (REWE Group Site Manager) sees a bright future for the ROXSTAcube mini in the Unterliederbach Penny: *“Provided there are no further changes to the refrigerant ordinance, we expect a service life of 15-20 years for this unit with a clear conscience.”* Opting for CO<sub>2</sub> as a refrigerant is also a good option in terms of price, Mr Weydemann adds: *“As we all know, the initial investment is the most expensive. If you invest in CO<sub>2</sub> and the units run for 20 years, then you will earn money and make a profit.”*

## Be part of the TEKO network!

On our social media platforms, we regularly provide you with the latest content – both about current events at TEKO, as well as international news and trends relating to refrigeration.

Experience exciting details from behind the TEKO scenes: Get to know our employees, gain exclusive insights into the production of our natural cooling solutions and accompany us around the world when implementing exciting projects.

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# FrigoDoc Xpress

## Temperature documentation 2.0



HACCP\*-compliant temperature monitoring in supermarkets is indispensable to ensure the quality of goods, both in terms of consumer protection and food hygiene. To provide operators and quality managers with a quick and direct overview of the current temperature readings during their day-to-day business, our partner Wurm Systeme has developed a web-based solution: Using FrigoDoc Xpress, the manager of a retail store or branch outlet can see at a glance whether and where there are current temperature deviations in one of their stores.

Many of our customers have been using the established temperature documentation systems from Wurm Systeme for over 15 years. The requirements for such systems are subject to constant change. Quality assurance is becoming increasingly important and offers clear benefits for both consumers and operators alike:

Due to recurring scandals in food retail, end consumers are unsettled and looking for trustworthy suppliers who handle food and its storage responsibly.

Such systems are also beneficial for operators. On the one hand, by using suitable systems, they can gain their customers'

trust and safeguard their status as suppliers. On the other hand, temperature deviations can be detected promptly and appropriate countermeasures can be initiated – even before goods may be lost. This also avoids unnecessarily wasting food resources.

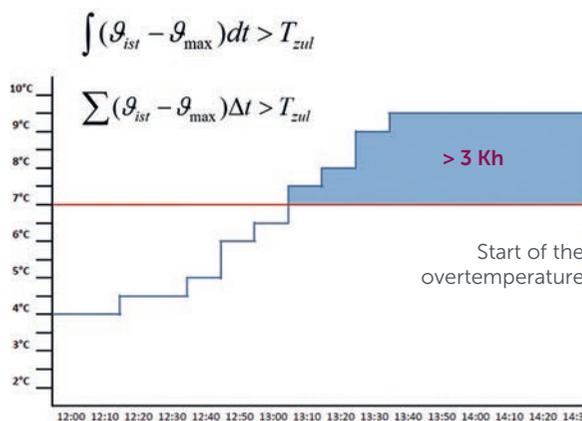
As far as quality assurance (QA) is concerned, operators of multiple branches are usually organised centrally. This ensures the quality across an entire company network and sets the same standards everywhere. Thanks to FrigoDoc Xpress, it is possible to check and evaluate all locations of a branch network at a glance. Using a secure VPN connection, the system retrieves and updates temperature documentation data

every 10 minutes. Current temperatures are stored on two TÜV-certified, redundant Wurm servers and additional security backups are performed daily. This greatly increases data security and speed compared to storage on a local PC.

In addition, when it came to former “single-user solutions”, operators had to take care of data back-ups, functional checks and software and operating system updates on their own. Alongside the digital data, system printouts were often created so there was a back-up in case of IT failures. Thanks to this central, web-based system, the operator hands over this responsibility to Wurm and also takes another step towards running a paperless office.

The web application means the responsible person is independent of time, place and the local PC. Whether in the retail store, online, on the road or from the head office, HACCP temperatures can be read quickly, easily and reliably at any time, regardless of location or platform. The simple graphic interface makes it easy for users to operate the system quickly and intuitively on all end devices.

The status of the retail store is represented using a simple traffic light system. A green traffic light immediately signals that all temperatures are OK. A red traffic light indicates that there are deviations from the specified target values which must be checked and corrected. An underlying algorithm ensures that only relevant temperature deviations result in a warning message.



The determined temperature values are not simply air temperatures, but actually determined representative product temperatures. The Wurm control thus offers different measuring methods.

Furthermore, FrigoDoc Xpress makes it possible to monitor cooling points that are not equipped with Wurm refrigeration controllers (e.g. refrigerators, plug-in refrigeration cabinets etc.). They can be retrofitted with either wired sensors or radio sensors, and thus monitored as a virtual cooling point within the system. For cooling points that do not allow for any of the applications described, measurements can be taken manually and the results digitised in the system.

The simple and clear user interface provides users with a quick overview of their own systems and the responsible QA officers can create and adjust comprehensive product group assignments themselves.

These days, numerous operators already trust the FrigoDoc Xpress solution from Wurm. Over 2,500 branches have already been integrated since the system was introduced in 2015. Thanks to Wurm’s intelligent FrigoData online software solution, data from approximately 14,000 projects are retrieved daily across borders, all of which is compatible with FrigoDoc Xpress. The dial-up connection, which is generally available anyway, makes it possible to connect to FrigoDoc Xpress simply and cost-effectively.

FRIGODATA ONLINE  
Projekt mit der ID: 83406

Kühlstelle / FrigoDoc Xpress  
Daten vom (Systemzeit): 03.12.2020, 08:27:34

Aktuelle Temperaturen    Aktuelle Meldungen    Temperaturdokumente

Alle    Fleisch    Milchprodukte    Tiefkühlung

Temperatur [°C]	Kühlstelle	
+	1,0	8 FLEISCHKÜHLSCHRANK
+	4,0	2 MOPRO-KÜHLRAUM
+	6,5	1 MOPRO-REGAL
+	6,0	2 MOPRO-REGAL
+	6,5	3 MOPRO-REGAL
+	6,0	4 MOPRO-REGAL
+	6,0	5 MOPRO-REGAL
+	6,0	6 MOPRO-REGAL
+	7,0	7 MOPRO-REGAL
+	-20,5	1 TIEFKÜHLRAUM
+	-24,0	C2C (TK-Truhe 1)
+	-23,5	C2C (TK-Truhe 2)
+	-26,5	C2C (TK-Truhe 3)

FRIGODOC XPRESS

●

Aktive Meldungen 0  
Beendete Meldungen 0

Daten von: Aktuell

Traffic light status FrigoDoc Xpress

# Stay up to date!

## ...with our news portal

“Dear reader” – these have been the first words of every single TEKOPOST published over the last 11 years (that’s 23 issues!). And we are still happy to publish them and will continue to do so in future.

But the world is becoming increasingly digital and fast-paced. Without social media, almost nothing functions anymore. We have therefore decided to adopt a new format. We have been working hard in recent weeks and are very pleased to be able to present our new news portal to you today.

[www.teko-gmbh.com/news-portal/en](http://www.teko-gmbh.com/news-portal/en)

In the future, this portal will keep you up to date with all the latest news involving TEKO, our partners and the refrigeration industry. It offers the benefit that we can make the content available to you much faster and with less effort and provide you with appropriate links directly.

As a result, you will always be kept well informed and able to find key information and news on a single platform. If you find an article particularly interesting, you can easily share it with your contacts via a link or on social media.

Just take a look. We hope you enjoy browsing.





10  
Schritt  
Fahrt

Besucher P



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