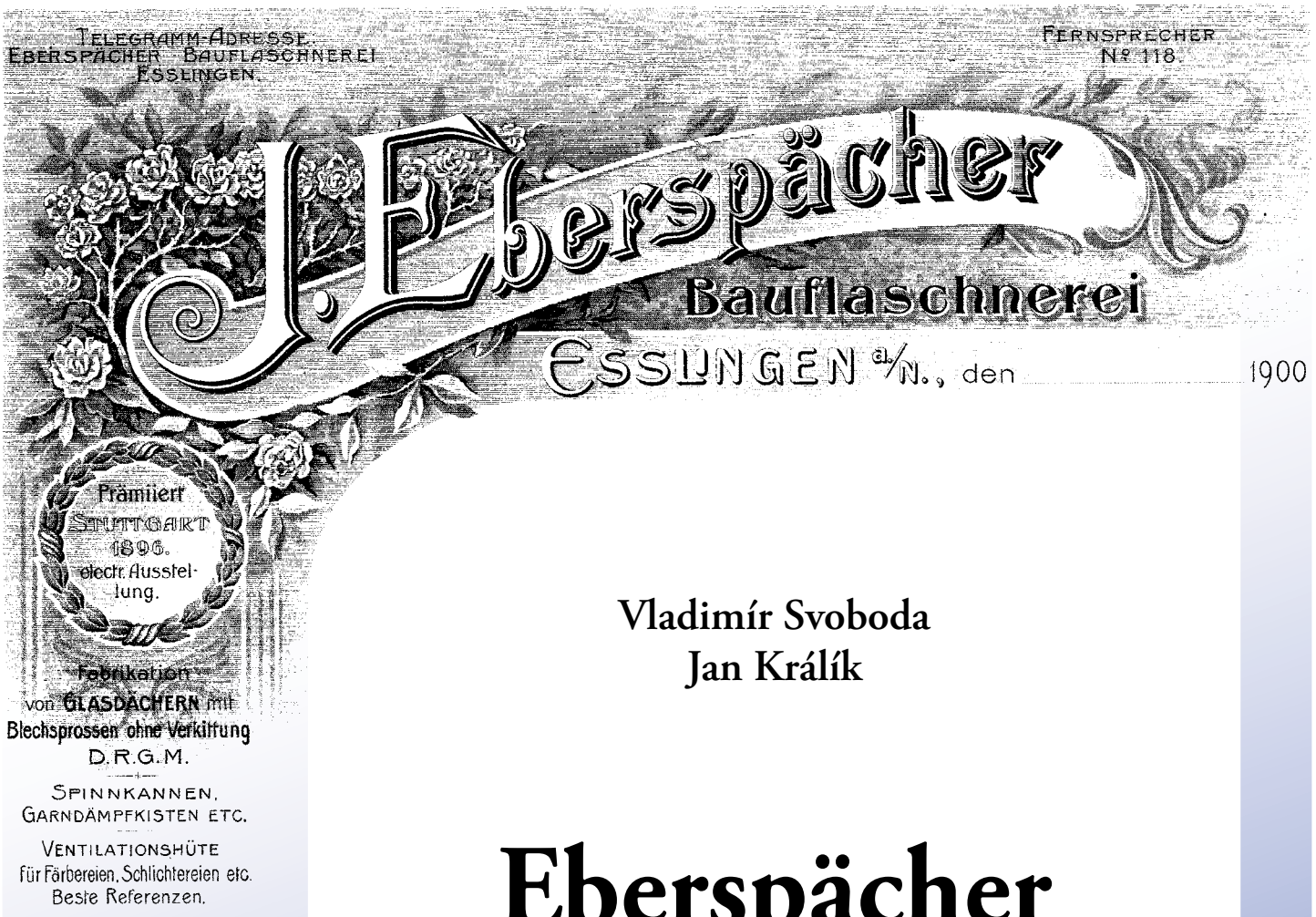

Vladimír Svoboda
Jan Králík

Eberspächer in the Czech Lands

Eberspächer

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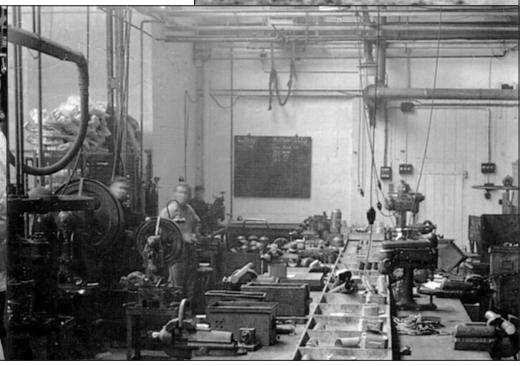


Spring, summer, autumn, warmth

I even remember that in winter we used to take hot bricks with us when travelling to Prague by our first car which did not have any heater. We would give the convent kitchen the number of people that were going beforehand and they were obliged to heat the given number of bricks. Each of us then obtained one to take along. The hot brick was enveloped into a linen bag and placed by the feet, although the heat soon vanished and the brick was just of a hindrance then. Today you just press a lever and it is warm. Bohumil Vít Tajovský, the Abbot of Želiv

The book of memories „The man must burn", Torst 2001

Heater from a tailor

When the Mladá Boleslav L&K Voiturette car made its appearance at the Prague Motor Show in April 1906, each serious potential customer must have been wondering what would the journey be like in such open car, when it gets cold. Obviously, it would be far from pleasant. In order to make it at least endurable, a little further there was a booth of „the renowned factory for leather goods, E. Engelmüller (Prague) offering the sporty leather suits of not only practical but also smart design„. Tailor´s shops were not the only ones who vied offering gear for drivers and passengers. Also motor works started offering different kinds of windscreens, collapsible tops and leather side curtains. Even storm aprons appeared covering the whole car interior. They had openings through which drivers and passengers pulled their heads, in order to remain safe from the rain, dust and cold. The advertisement of Laurin & Klement motor works is interesting nowadays particularly by presenting „us all„ in an outfit suitable for travelling by car. Everybody in the picture has a cap or hat, glasses and fur coat, or at least a coat with a fur collar. Travelling in an open car of that time meant simply to get ready for the hellish cold.

The famous idiom „to place the car on wooden blocks„ relates also to the warmth in the car, although nobody places his car on the blocks today, at that time practically everybody used to do so. When the autumn arrived, owners would place their Laurins, Pragas and Walters in the garage supporting their axles by wooden blocks, so that the car did not stand on the tyres and they would wait until May, when it gets warmer.

It was not before the mid-1920s that the situation started changing, when closed-body automobiles started prevailing over the open ones.

Stoke a briquette!

It is surprising how long it took for designers to come up with a device that would make the journey in cold and particularly in freezing weather at least a little bit more agreeable for drivers and passengers. The abbot Tajovský mentioned a primitive source of heat in the introduction. His reminiscence from the end of the 1930s proves that no heater practically existed at that time. First, flat tin boxes appeared into which glowing briquettes were introduced. These tins with vents would lie on the floor and the passengers would warm their feet by them. Paying attention of course not to destroy their soles. The device was unreliable, dangerous and not very efficient. The improved version from the mid-1920s was based on the same principle. It had a shape of a narrow high box into which a tailor-made coal block was be introduced which suited not only to heating up the car interior. Placed under the engine or right under the bonnet of a parked car it prevented the cooling water from freezing. No special antifreezes existed at that time and so

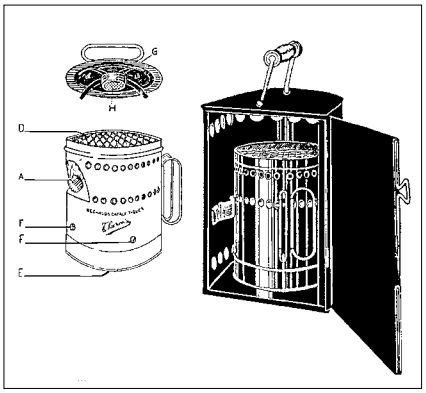
Engelmuller´s advertisement in Sport a hry magazine from March 25, 1908. The company attended all domestic motor shows, including the first modest exhibition in Žofín in February 1904. Chilling cold was a good business for the tailor´s shop.

The text in the Mladá Boleslav motor works advertisement should have rather admitted that „we all and also many others would chill to the bone in the car„

glycerin, spirit, salt or calcium chloride were added to the cooling water. Although the freezing point of water came down, none of these additives were perfect. The overwhelming majority of motorists thus poured warm water into the radiator before the departure and when reaching the destination they let it out. It was not too practical, and besides, the water for the next filling did not have to be always at hand. Thus it was common that upon each stop the bonnet would be covered with blankets and the driver covered the radiator with his fur coat.

Catalytic heater

In January 1927 a full-page article appeared in Motor Revue magazine about the car heater Therm X which was available in Elka, automobile gear shop in Prague II at the Havlíčkovo Square. The company, by the way, was established as a subsidiary of the Mladá Boleslav L&K motor works, therefrom the name Elka. Therm X consisted of the 0.5-litre cylindrical petrol receptacle connected to a dish covered with a platinum-asbestic grill. The principle of the heater was that the spirit poured on the grill was ignited and once the grill warmed up to the operating temperature, the flames were smothered by the lid. The petrol (necessarily the light one with a specific weight up to 720) started rising through capillary attraction from the receptacle. On the top of the hot grill it reacted with the air while generating heat with the aid of catalytic material of the grill. It was a heater without fire, and besides, with a minimum consumption of allegedly 0.5 l/ 12 hours. The heater was said to be so safe that the petrol receptacle could be refilled during the operation. The heater was be put out by covering the grill where the catalytic reaction was running with the lid, which prevented the air from letting in. The reaction stopped and the grill cooled down. The advantage of catalytic reaction consists in the fact that the catalyst does not get exhausted, it only accelerates the reaction. The drawback of the simple device was that it could not be controlled.



The Therm X heater. Left, there is the device comprised of the petrol receptacle with the filling opening A, catalytic material C, covered with the lid G. Right, the device in the tin box

After commencing production, Therm X was introduced into the tin equipped with the handle for an easy carriage. When the car stood still, it was slipped under the engine and during driving it was used to heat the car interior. To what extent we can judge from directions for use. They said that the heater was to be placed on the floor under the feet and the passengers were to cover themselves with a blanket. They were then supposed to be comfortable as the heat would remain under the blanket. All this without a danger of ignition; in the worst case, allegedly, the cloth could get scorched. The manufacturer recommended this heater also for side-cars.

Autowarm heater

Just to choose

The catalytic heater was an advance, but its output was not sufficient yet to make the car interior warm and comfortable during travel. It was produced by several companies, different types were available. Jiří Beran from Český Dub obtained a low Autowarm catalytic heater years ago which was to be introduced into a flat tin in the shape of an inclined footrest. It was intended primarily for drivers who would heat their feet by the tin.

Sestavená kamínka. Nádržka a nahoře topné těleso Kryt kamínek.

ABSOLUTNĚ BEZPEČNÉ KATALYTICKÉ TOPNÉ TĚLESO

umožní Vám míti svůj vůz stále připraven k odjezdu a odstraní nutnost vypouštěti vodu neb obávati se nebezpečí zamrznutí. Zpříjemní Vám jízdu v zimě a umožní Vám užívání Vašeho vozu bez ohledu na nepřízeň počasí. Jejich cena je tak nízká, že se Vám vyplatí již během jediné zimní sezony.

Provozní výlohy jsou nepatrné. Napište si firmě Eduard Hais, (Praha II., Karlovo nám. 32., tel. 213-97) o nabídku, neb si je přijďte nezávazně prohlédnouti, ochotně Vám budou předvedena. Na venek je na přání zašleme na dobírku, při čemž máte právo vrátiti je do tří dnů, nebudou-li Vám vyhovovati.

S půl litrem benzinu vydávají teplo 30—35 hodin. Benzin se zde nespaluje plamenem, nýbrž pouze chemicky se slučuje, za pomoci ohřáté katalysační hmoty; vůbec odpadá nebezpečí ohně neb výbuchu, nevyvinují se plyny (jako při spalování) ani nezapáchají. Poskytují plnou 100% bezpečnost. Jejich obsluha je ideálně jednoduchá: naplní se asi ze tří čtvrtin benzinem a do žlábku kolem katalysátoru nalije se líh neb benzin a zapálí se. Katalysátor se zahřeje, načež nastane — po uhasnutí plamene — chemická reakce za vývinu tepla. Pak již stačí pouze doplňovati benzin (bez nebezpečí výbuchu); zhasnou se pokličkou, kterou se zamezí přístup vzduchu. Kamínka postavíte pod kapotu, chladič a kryt motoru přikryjete pokrývkou a nemusíte se báti, že by chladič zamrzl neb že ztuhne olej. Celý motor zůstane stejnoměrně teplý, snadno startuje a ihned po nastartování možno s ním odjeti, bez ohřívání. Kamínka můžete míti při jízdě ve voze, kde celý prostor vyhřívají, neb si je dáte pod přikrývku k nohám, takže i v otevřeném voze je Vám po celou jízdu příjemné teplo; spálení neb poškození šatů absolutně vyloučeno. Vhodné i do sidecaru. Přijďte si tato kamínka prohlédnouti, rádi Vám je předvedeme, bez závaznosti ke koupi; přesvědčíte se osobně, že tato kamínka zvýší Vaši spokojenost s vozem, zmenší nebezpečí nachlazení a umožní Vám úplnou nezávislost na počasí.

KATALYTICKÁ KAMÍNKA PRO VAŠE POHODLÍ A ZDRAVÍ!

Another heater comes from the collection of Emil Příhoda. The principle is identical, except for a larger surface of the grill, perhaps to increase the heat output. This „absolutely safe catalytic heater„ was advertised in the January 1930 issue of Motor Revue magazine by the company Eduard Hais located in Prague, Karlovo square 32. Half a litre of petrol allegedly sufficed for 30–35 hours of operation, which seems to be much exaggerated a value.

The Katalyt heater offered by „the house of motorists„ the company Machek&spol. in their stores in Prague Vinohrady, Římská street 20, in Brno, Mlýnská street 6, in Liberec, Na rybníčku street 6 and in Moravská Ostrava, Mlýnská street 4 were of only a slightly different shape. Three types were available differing from each other only by the petrol receptacle volume. The 0,5-litre heater cost 176 crowns, the 1-litre one 320 crowns and the 3-litre one 680 crowns. It must be added that in the early 1930s it was a fair bit of money, as a solid monthly wage equalled 1 000 crowns.

Auto Heater was a similar product with an oval-shaped receptacle. Still another type of catalytic heater was offered by the company Vilém Běloch in Prague II, Jindřišská street 10, the first floor in winter 1932. Its shape was designed for heating the radiator and it had a 0.75-litre receptacle for the spirit-petrol mixture (prescribed national fuel at that time consisting of petrol and 20–25 % of spirit). It gave heat allegedly for 30 hours and cost 260 crowns.

In December 1934 Hais offered Therm X for only 80 crowns. That time the specifications said that half a litre of petrol would give you 24 hours of heat. The data are a sign that the catalytic heater was not just a business gimmick for one season, but obviously a virtue made of necessity which was in demand. The idea of heating the limousine to a comfortable temperature was out of question, but used with a blanket over your knees or slipped straight below the radiator the heater could get you out of the worst of it.

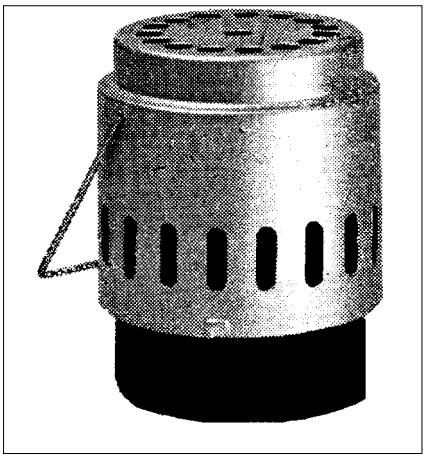
Auto Heater

The catalytic heater types 51a, 54VL, 35L, 42L and 54L were produced in the 1930s by the company Pomocný průmysl letecký bratří Štejnarové – Ing. Železný in Velešín. After the war the production continued in already nationalized enterprise. The heater was intended for the army, not for the civilians. In the collection of Emil Příhoda you can also find a small electric Philips heater which was to be connected to the accumulator. Its output was low, and besides, switched on overnight (particularly in winter) the heater would definitely „kill" the accumulator. Although this would chafe the driver in the morning, it´s apparently not what they meant in Philips.

Philips electric heater

A long life of the catalytic heater

Although much had changed during those almost forty years since the catalytic heater was first mentioned and efficient hot-water heater became commonplace, including in the domestic Škodas, the small catalytic heaters were not quite outdated yet. Still in 1965 two domestic companies were demonstrably engaged in their production. Kovodělný podnik hl.m. Prahy was offering Katalor, a 210 mm high heater of 160 mm in diameter weighing about 1 kg without fuel. The receptacle contained 1 litre of petrol, its consumption was 0.9 litre/24 h at an output of 300 kcal/h. Katalor cost 150 Kčs (Czechoslovak crowns).



Katalor heater from Kovodělný podnik enterprise

The cooperative society Mechanika produced the type M-63 whose diameter was 230 mm and height 310 mm. The receptacle contained 2 litres, the consumption was 1,8–2 litres/24 h at an output of 425 kcal/ h. The price was established at 170 Kčs (Czechoslovak crowns). The only fuel to be used was light petrol which was sold as cleaner at the chemist´s. The authors did not succeed in finding out how long this heater was produced.

A pity of the heat which will come to nought

About two thirds of energy released from the fuel in the cylinder will transform into heat, which, however, only causes problems – it must be dissipated in order to avoid the engine overheating. Yet the coolant system and exhaust manifold suggest themselves as suitable for heating the cab.

The simplest system delivered the heated air from behind the radiator into the cab. Another primitive heater made use of the exhaust manifold. A part of it was provided with a sheet metal jacketing where the cold air comes in through one end. Having circulated through a labyrinth around the exhaust manifold the air heated and through the other end of the pipe it was blown into the car. This heater was available in the USA already in 1907! In 1929 a more sophisticated version of this exchanger was offered for the Ford Model A. But still a more elaborate and efficient type was introduced by Ford in 1933. Under the right running board there was a large silencer in which the hot exhaust gases circulated through 24 tubes. Their surface totalled 3 226 cm^2. Around them there was a jacket through which the outside air passed. Thanks to the large overall surface of the tubes it was quickly heated and distributed around the cab, including to the rear seat passengers.

Another system used water as a medium. Heated by exhaust gases it converted to vapour which was passed to the exchanger in the cab. The cab heating was supported by an electric fan. Such heater was first introduced by the American company Delto in the mid-1930s. Due to a high vapour temperature and problems with the system sealing, the heater did not take hold.

The use of hot water in the engine coolant system was considerably less painful. Today it seems incomprehensible why this kind of heater had not seen a light of the day a long time before then. The problem was that no quality antifreeze had existed for long. It would not be practically possible in winter to drain the water from the complicated heating labyrinth whenever the car came to a standstill, if only for a few hours. It was necessary to provide the system with a thermostat and water pump in order to make it functional. Therefore, it first appeared only in 1929, in the USA again. The water was passed through the branch pipe by the radiator to the exchanger in the cab and returned back to the coolant system. Such additionally installed device soon became widespread, after the war also in our country. In 1946 it was offered for example by the company Prošvic, factory for tools and machines in Prague, Kandertové street 109. Autotherm, as the heater was called, was fitted with an electric fan, the output could be regulated and the air stream controlled by adjustable flaps.

First independent heater

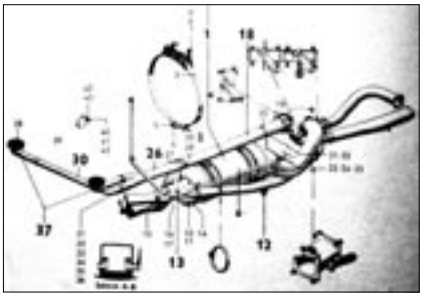
Whatever all mentioned heaters were like, they were never perfect. Whether it was the catalytic heater or auxiliary hot-water heater, there was always something missing – they were dependent on the engine operation. The only solution to the problem was a heater independent of the engine. According to available sources, the American company Stewart-Warner was probably the first to have come up with a practically usable petrol-burning independent heater. The model 781 appeared sometimes in 1937 and it was additionally mounted on the passenger side of the firewall between the engine bay and cab. The device was connected to the intake

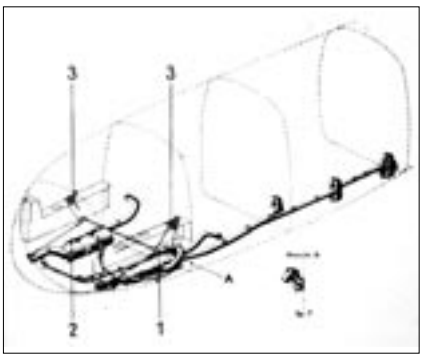
Practically the same additionally installed heater offered by Bosch in 1950–1960

manifold of the engine in order to use its vacuum to draw the fuel into the combustion chamber. The mixture of air and petrol was ignited by a glow plug. It is worth mentioning that the heater exhaust was drawn into the engine where unburned petrol emissions were combusted. The heat exchanger was fitted with a fan circulating the air through it from the passenger compartment, not the fresh air from the outside. The output of 84kJ/min. was sufficient for this system. It was obviously an efficient device, which was proved by 3.5 million of units sold. The first independent heater to appear in our country was not intended for the automobile but for the aircraft. And what´s more, by no means was it intended for making the passengers warm. German aircrafts Siebel Si 204 version D1 were built in Aero and ČKD from 1942. They were fitted with two independent petrol heaters from which the warm air was delivered by tubes to wing leading edges to prevent their icing. By coincidence, this two-engine aircraft is being currently restored in the Aviation Museum in Kbely including one preserved independent petrol hot-air heater. On its name plate there is a military code of a German manufacturer. It has not been established yet which company used this code. However, one thing is for sure – it was not Eberspächer. The name plate includes production number 17 063, Gerät No 8-7019 A, Bord-heizgerät BLO 30 T1. These aircrafts were still produced after the war for training purposes. The heater was installed by Letecké opravny Kbely (LOK, Aircraft Repair Shop Kbely). According to the last survivor, former employee Mr. Jan Jareš, this heater was supplied by so far not identified domestic military supplier. The LOK chronicle from 1959 says that „within the patronage the company showed 30 students of the 4th class of the Secondary Engineering School in Prague-Smíchov around the enterprise providing the school also with some direct material support including some devices, e.g. air-heating set, petrol engine with gearbox, part of used profiles from aircraft metals." Unfortunately, the director of the Smíchov engineering school informed us they did not have the air-heater set in their inventory any more.

It started with Tatra 500 HB

The heater in the Karosa T500 HB mountain bus was of quite another kind. The first prototype badged Tatra 500 HB originated from the turn of the year 1949/1950, but it was introduced into production only in 1954. It was a three-axis bus with an air-cooled V-eight engine, its body was produced in Karosa Vysoké Mýto. The manufacturer decided to fit the stock buses with quite non-traditional electric heater designed in PAL Magneton in Kroměříž. However, it was not an independent heater, as it functioned only when the engine was running. Moreover, it required such input that once the driver switched it on, the engine output would drop significantly. It was obvious that the only solution was a diesel heater independent of engine operation. In 1954–1957, 256 mountain buses were produced and purchasing heaters from abroad for them was unacceptable. Therefore, its development was entrusted to Autobrzdy Jablonec. In order to obtain a frame of reference concerning the situation in Europe, the North Bohemia company had to study foreign products. Sooner or later (but assumedly very soon) it must have resulted in first contacts with the company Eberspächer, or its products.





Independent heater for Siebel Si 204 aircrafts

The Tatra 500 HB mountain bus for which a domestic independent heater had to be developed

The Eberspächer family, the warmth under one roof

If you asked Karel Loprais how many competition Tatras he drove in on all his desert adventures in Africa and Asia over those almost 20 years, he would count long. If you asked him what they had in common, he would have to reply of the cuff that it was the „Eberspächer" sign over the cab windscreen. This German company has been linked with the Czech automobile industry for over half a century and this alliance is remarkable in many respects. The history of the company established 140 years ago is still more remarkable. The company is unique also by the fact that in the world of globalization, multinational companies and not clearly arranged property relations, the company Eberspächer is still held by the family.

The founder, Jakob Eberspächer

Jakob Eberspächer was born on April 23, 1840 in Esslingen, Würtenberg region in the South of Germany, where the family had lived since the 16th century. The name Eberspächer occurs practically only in there and in the vicinity; you would not probably find an Eberspächer in other parts of Germany. Jakob learnt plumbing for four years as was common at the time, then he worked as a journeyman at different places in Switzerland from where he returned. In 1865 he opened his own workshop in Esslingen and married Friederika Scharpf, who became equally indispensable to the company in the following years until the turn of the century. He started producing watering cans, hot-water bottles for the night, sewage pipes and roof gutters that his wife was charged to sell. It soon appeared she had a good sense of business. The young entrepreneur was a tall and thin fellow. With his 195 centimetres he did not fit into the standard military size and so he was not conscripted. Who knows, how he would have otherwise ended up, as in 1866 the Austro-Prussian war broke out, in which also the states of the German confederation stood up to Prussia, that is to say also the Württemberg recruits. Jakob Eberspächer could thus further pursue his trade and develop the workshop. In his notepad, which was preserved, he wrote a motto he stuck to: knowledge, diligence, thriftiness, godliness.

In 1865, the Wurttemberg Parliament decided to generously enlarge the country´s railway network, which favourably impacted on the trade and industry. In the Wurttemberg region workshops started multiplying as well as the factories of emerging light industry, the textile one in particular. Local architects adopted the English industrial architecture, and thus also the system of roof glazing which has preserved at many a place up to the present. Inclined windows of these glazed roofs, their construction and sealing are considerably more exposed to the rain and snow than common vertical windows. At the same time, good sealing of these roof windows is essential, as the machinery equipment in production shops is very expensive. The usual putty is not enough in this case – apart from being prone to the elements, it can be applied only in the dry conditions, because it will not stick to wet surfaces. Therefore a new method of attaching the glass panels to the frames was developed by means of sheet-metal cover rails. It was fast, effective, windows fitted tightly and the glazing work could be performed all over the year. This obviously meant further opportunities for tinsmiths who manufactured metal constructions for these glazed roofs. Also Jakob Eberspächer seized a chance. He was one of the first in this business and the production of glazed roofs for industrial constructions became the main programme for further long decades. Although individual construction elements kept changing and improving, the principle remained the same. Thanks to the quality and serious approach Jakob Eberspächer gradually worked his way up to a leading position among suppliers in the southern Germany.

The family of Jakob Eberspächer

Second generation

Jakob Eberspächer had ten children overall, four of which died in infancy. In 1869 the family moved to their own house in Webergasse, where a workshop and warehouse were also located. The first son Paul was born in 1876, Adolf in 1877. In 1890 Eberspächer employed ten journeymen, or skilled workers, and several apprentices. It was still a workshop where handwork prevailed. Jakob Eberspächer built his good reputation for years, it was not a steep career, but a gradual growth based on the quality and serious approach.

Son Adolf inclined more towards the craft. One day he was supposed to take his father´s place, who was supporting him in that respect and took care of his growth. But everything in moderation. When his twenty-two-year-old son served military service, he wrote a letter to his mother asking her for 15 marks, so that he could buy a bicycle. At that time, in 1899 the bicycle was already quite common and there were hundred thousands of them riding around. In Germany, there were 250 companies producing bicycles and their price started rapidly declining. However, the letter fell into his father´s hands and he did not hesitate to answer. He wrote that the young man would have other things to do than riding a bicycle, even if he wanted to use it to call on customers. If he needs some money for further education, books, no price would be too high for his father to invest to Adolf´s education. In Esslingen no craftsman rode a bicycle and his father would not send him a pfennig for such purpose.

But his mother had another opinion. The letter was addressed to her, the junior obviously knew why. She took 15 marks and she sent them to her son on the quiet.

The humorous story occurred in July. Soon, October 24, 1899, father Jakob Eberspächer died. Mrs Friederike, who demonstrated decisiveness and good feeling for the company management, became the owner of the workshop and the actual head. Being trained in the craft, Adolf first became responsible mainly for production. And he was doing well, the company prospered and grew. Older brother Paul was not very much into the plumbing production. He was doing well in his studies and after completing the arts studies at the grammar school he signed up for electrical engineering at the Technical University in Stuttgart and in 1902 he entered a job in the company Siemens-Halske in Berlin. In 1905 Friederike Eberspächer passed the company´s management on to Adolf, but she still continued keeping the accounting. In 1906 Paul joined the company upon request of both Adolf and mother. The reason was partly that they wanted to extend the company´s activities outside Esslingen and Paul´s knowledge and contacts could help significantly, and partly because Adolf was ill for a longer time and he could not devote himself sufficiently to his work. Upon Paul´s joining the company started to expand markedly and grow. As a high voltage engineer he must have perceived his employment in the family business as a backward step, but he introduced a new spirit into the factory operation. From 1900 the former metalworker shop had a character of a large-scale production. At that time Adolf built a new production shop of 1 000 m^2 where 80 workers were employed, his engineering department employed three designers. The company had to introduce double-entry accounting.

The company´s growth

The purchase of the WEMA patent for the production of hot-drawn steel profiles. This supporting structure element serves as a basis of rooflight constructions. Eberspächer obtained the patent in 1912 from his competitor who decided to discontinue rooflights. The purchase of the licence was a correct step – the production of steel sections continued for many further decades. In addition, the company engaged Gottlob Offtermatt, a renowned expert who soon took charge of the engineering department management. At that time the company already worked on projects in Switzerland and Austro-Hungary consisting mainly of glazing the train station halls. Thanks to friendly relations with their business partners, which brothers Eberspächer were very particular about, they closely cooperated with Pilsen-based Škoda. In the summer of 1914 they even won two important governmental contracts from Russia. Nevertheless, having assassinated František Ferdinand d´Este, the successor to the Austrian throne, Gavrilo Princip turned them into a shred of paper. The outbreak of World War I was a matter of days. At the time, namely from April 1914 250 employees worked in a new factory of 3 500 m^2. In 1915 Friederike Eberspächer died, who was engaged in the company for more than half a century and who, after the death of her husband, managed not only to maintain the company but also to develop it.

Adolf Eberspächer (in the middle) with workers from his workshop in 1899

New orders came with the war. New military buildings, hangars for airships, docks for military ships – it´s where the new glazed roofs found their application. By 1916 the company J. Eberspächer had already employed 320 people, doubled its premises and acquired the factory Metallfensterfabrik GmbH in Leipzig.

New tasks, new technologies

After the war the factory focused on a new problem which appeared in foundries, chemical factories, steam engine sheds and train station halls. Aggressive chemical vapours damaged supporting constructions of roof windows reducing thus considerably their life. The company J.Eberspächer developed a new system of structure element coating with enamel. It was effective but complicated, particularly for long structure elements. Lead-coating of constructions by a newly developed technology which combined electroplating and plasma spraying.

A need thus obviously arose for specialists, who started coming to the company from the mid-1920s. One of them was Adolf Hettich who had been employed in the Daimler car works before and who later became the technical manager in Eberspächer. After the German economic depression in the mid-1920s the company continued growing. Orders were coming from all over Germany where the company had a total of 12 trade agents. In Sweden it had practically no competition and it closely co-operated with a similar company in Hungary.

The relationship of brothers Eberspächer, the sole owners, certainly contributed towards the company´s development. They shared one office until their death (Adolf died in 1951 and Paul in 1960). Although it had its seamy side too, for example somewhat archaic model of the company management. Rooflights remained the major programme and in addition to it, grates for power plants, bridge constructions, cranes and staircases were produced based on a permit by the American military government within whose jurisdiction this part of Germany fell.

A radical turn

Due to the world economic depression in the early 1930s some 14 000 smaller and larger German companies went bankrupt. Eberspächer had to reduce the number of employees to one third – in 1931 they employed 136 people. As construction activities practically ceased, the company changed

From 1900 through to 1914 the company had its registered office in Zwerchstrasse

Shortly before the World War I the company moved into a new premises, where one of its plants has been until today

Looking into the plumbing workshop of 1920

A great order from Italy: Roofing of Milan railway station, 1929

Eberspächer production line in the early 1930s

their focus to other production activities, for example letter boxes and tube constructions for cinema seats.

In 1931 a Daimler-Benz car works enquiry for exhaust silencers made a milestone. The company obviously accepted the challenge, although first it was a small order. The depression subsided and every job was welcome. The more so because the production of exhaust silencers was season dependent as roof glazing. As it was not certain, whether there would be any next orders of that kind, the company purchased a cheap, used equipment on which the first silencers were produced. With Hitler seizing power in 1933 and resulting start of massive armament and overall support of industry, exhaust silencers became a new promising programme for Eberspächer.

Adolf took charge of the existing rooflight and construction productions, Paul started developing the new production line. It was not only a question of technology but also that of research and development. Although considering the character of its production the metal-sheet silencer fit within the sphere in which Eberspächer excelled, the requirements the product had to comply with were quite new. As a graduate engineer, Paul perceived this task as a challenge. He surrounded himself with experts and solved this issue with such success that by 1935 the company had been supplying almost all German car works. Let´s point out that in 1932, 42 000 cars were produced in Germany (for comparison – in Czechoslovakia 13 580), in 1935 this number was five as much. In 1933 the construction of motorways was started in Germany and by 1938 their network had counted already 3000 km at length. The automobile was given the green light.

Third generation

The aircraft production for the Luftwaffe developed as well and along with it a need for different kinds of sheet-metal components and parts. Also in this area the company Eberspächer and its development department asserted themselves. Besides practically simple products produced until recently, very complicated parts were introduced from aluminium, alloyed materials and sheet plates resistant to high temperatures. A production started of aircraft engine housings, exhaust fume collectors, pre-heaters and jets whose production involved until now unprecedented tasks. For example the construction of devices which would cover combustion gas flames emitted from aircraft engines to make the night location of military aircrafts more difficult. The governmental contracts for the Luftwaffe were so large that a new factory was built in Leipzig in 1936 which employed 800 people in 1939 and in 1944 even 2000 people. Such a giant needed a professional management. This was taken charge by Erich Miller who was appointed the business manager in 1938 and remained in the function until the 1960s.

Electric-controlled blackout of glazed roofs was another novelty. The blackout was obligatory during the war and so the orders were not difficult to get. Quite understandably, this meant another production programme and earnings of course.

The third generation of the Eberspächers was entering the company´s management over time. In 1935 Dr. jur.Richard Eberspächer, son of Adolf, joined the company. After obtaining professional experience in Krupp, he was employed in the sales department. His cousin, Ing. Helmut Eberspächer, son of Paul, finished his studies in 1939 at the Technical University in Stuttgart, but he joined the company only in 1945, as he was enlisted with the Luftwaffe after the studies. Not only factory workers but also managers entered the forces and so a seventy-hour working week had to be introduced. The factory belonged to the most important ones and operated at full speed until the last day of the war. All effort was worth better goals than the then ones which not only failed to be fulfilled but even ended up in a total collapse of the Third Reich.

It is surprising that the factory itself in Esslingen and practically the whole town were saved from the Allied bombarding and in this respect no losses were incurred.

Split of the company

Shortly after the war the re-establishment of J.Eberspächer operation was only a question of time. It could not take too long for the orders to come for the reconstruction of buildings damaged by the war. The production of rooflights was rounded off by the assembly of economical cookers, toys, orthopaedic prostheses, metal-sheet boxes and light metal-sheet travelling cases, shortly products which were supposed to help in times right after the war. The automobile and aircraft industries were not on the agenda, that is to say neither were the silencer and parts for aircraft engines. The situation was not easy of course, as all orders depended on material which was desperately missing in the first months after the war. In addition to it, both brothers were suspended from the management of their company which was managed by the administrator installed by the American military government. This situation lasted until the end of 1947 when both brothers returned to their positions.

Dr.Richard Eberspächer

Helmut Eberspächer joined the firm in 1945 and was its president from 1950 to 1988. Today he chairs the firm's executive committee

Being in their seventies, they ceded their positions, responsibilities and tiring journeys to their sons. And it was just during one such journey that only forty-five-year-old Dr.jur. Richard Eberspächer was killed in an accident in 1950. His brother, Ing. Walter Eberspächer, took over business matters after him. Father Adolf survived his son Richard only a short time. He died in 1951 and his brother Paul became the leading personality of the company. In the early 1950s the situation in Germany started changing for the better. It was necessary to well analyse the market, establish the production programme and goals which the company wanted to achieve in order ensure the company´s prosperity under the new conditions.

At the time, the parent company in Esslingen spread over an area of 25 000 m^2. This area almost tripled in 15 years, other subsidiaries covered an area of 162 000 m^2. The family enterprise J.Eberspächer took the right direction. In 1951 the company succeeded in acquiring the company Schoppmann in Westphalian Hagen which was also involved in the production of rooflights. Eberspächer thus acquired trading premises in the north of Germany including 80 skilled employees. In 1960 the company Menesa in Neukirchen by Saarbrucken was purchased from the Federal Land of Saar, where the production of exhaust silencers was introduced. It became the key establishment of the currently largest enterprise in Europe with 2000 employees. It seemed as if the situation from the early 1930s repeated: two divisions formed again in J. Eberspächer and the company thus set itself – metaphorically speaking – on two feet. The first one was „Building" (Bau), which continued the traditional production. Besides roof glazing, it specialized in air extraction systems and noise reduction and it was among the first companies to start offering double glazing by thermal glass. The glass started to find its application not only on roofs but also on the facades of public buildings and as large outer walls of industrial buildings, from factories to power plants. The second was the division „Instruments" (Gerate) which was engaged in other activities, particularly in enlarging the production assortment. This segmentation of the company was a logical result of the situation in the country. The automobile industry grew stronger and picked up together with the increasing purchasing power of the society. It is a well-known fact that the growth of car works is followed by a development of auxiliary industry which supplies the manufacturers with different parts and components. Their research and development would be beyond even the largest motor work. The ignition, accumulator, shock-absorbers, radiators, headlights and other parts including silencers are a domain of subcontractors. J. Eberspächer ranked among the leaders in three groups of products – silencers, car heaters and turbochargers.

Car heaters

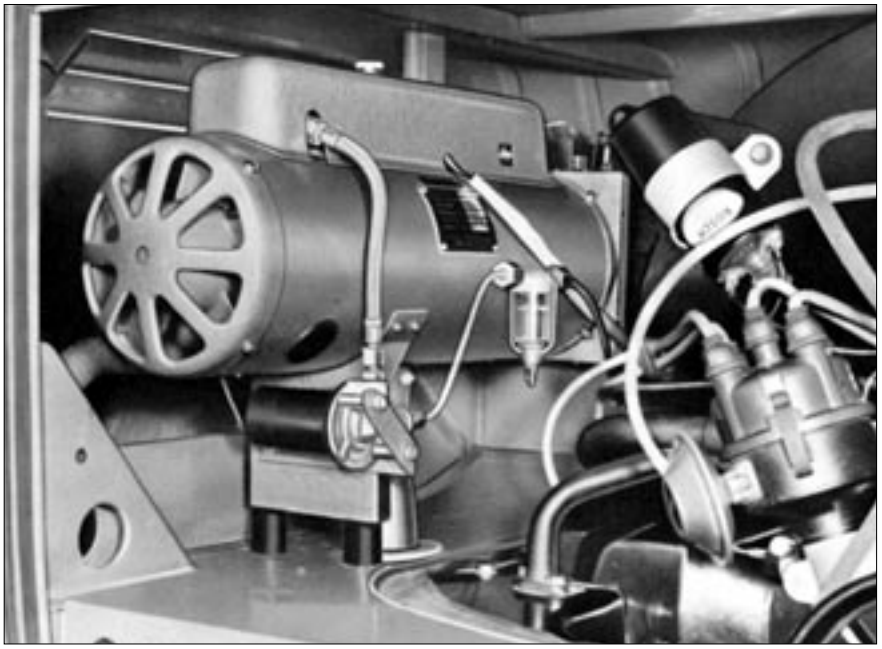
The company J. Eberspächer was engaged in car heaters already in the 1930s. At that time no car heaters practically existed, except for the catalytic heater. Both cheap and expensive models of passenger cars changed into mobile refrigerators in winter. The problem could be solved using the exhaust heat from the engine. Directing the air circulating through the radiator to the passenger compartment the first installations of that kind were very simple. Another device consisted of an additional jacketing around the exhaust manifold which heated the air flowing through the chamber between the outer surface of the manifold and the jacketing. >From there the air was passed through a tube into the cab. Such heaters appeared in more expensive cars around 1934.

As soon as in the fall of the 1930s the company Eberspächer designed and produced an attachment device in which the exhaust fumes heated the water which became a heat-transfer medium. The exchanger was in the car interior and served as a heater. The system was tested in ambulances, and even in the Czechoslovak motor works Tatra and Praga. Yet, the principle did not prove its worth.

Another attempt on this path was not an independent heater yet, but an auxiliary

An aerial view of the Eberspächer factory in Esslingen from the 1960s. On the right there is the company´s headquarters, development departments and exhaust production. On the left, the production of rooflights is located

heater which was subsequently attached to the engine coolant system. On November 22, 1949 Stuttgart newspapers informed that this novelty from Esslingen was just coming to the market. It had an exchanger through which hot water passed. When passing around the exchanger the incoming air was heated. Additionally, its flow could be boosted by an independently propelled fan. Auxiliary heater for vehicles with combustion engine was an attractive project in the early 1950s, that means not only for passenger vehicles (which were very few at the time) and trucks, but also for buses, railcars and boats. The efficiency of combustion engines is higher than that of spark-ignition engines and their exhaust heat is thus lower. When the exhaust heat passes through the radiator, the water heater may not be efficient enough to heat up the cab. The idea of heater working independently of the engine operation was still more interesting. Such a heater could be attractive in Germany after the war with respect to mass production of Volkswagen cars. They motorized the country and later they became iconic cars both in Europe and in America, although there was one thing which could not be refuted even by their greatest admirers, it was real cold in them. It was simply impossible to make the rear air-cooled engine sufficiently heat up the car interior in cold weather. And it was right here that Eberspächer, or the division „Devices" found their application. The hot-air petrol heater for the VW Beatle enabled the start of a real serial production of this aggregate.



Eberspächer independent petrol heater in the VW Transporter from the 1960s

Hot-water car heating systems connected to the coolant circle have one thing in common: they are dependent on the engine operation and the engine (and coolant) must be heated to the operating temperature in order for the heater to function. During shorter drives and when taxiing in the city traffic the performance of standard heater is not sufficient.

And what if the driver is spending the night in a parked camion. He had to let the engine run all through the night in order to avoid freezing to death in winter.

In the early 1950s Eberspächer started developing an independent heater which would be capable of heating up the cab without the engine being in operation. The principle Eberspächer came up with has not changed since then. The spark plug or glow plug regularly ignites the mixture of fuel and air, while the resulting heat warms up the medium in the exchanger. The first Eberspächer independent heaters were air heaters. Later, hot-water heater appeared where the coolant worked as a medium. These hot-water devices not only heat up the car interior but they are also connected to the engine coolant system. Not in order to remove the heat from it, but conversely to warm up the coolant and thus the engine. It facilitates the engine start up in winter and reduces its wear.

The preparation of fuel-air mixture, ignition of the mixture and generation of carbon deposits were the key problems. Two concepts of preparing the mixture in independent heaters are used, rotary atomizing and vaporizing principle. Further development dealt with ignition characteristics and effort was devoted to minimizing the carbonization.

The first diesel devices X3, X7, X10 and X12 featured the rotary atomizing. The type X10 was the first of them introduced in 1951 under drawing no. 8450. The delivery of fuel was by means of gear pump and external tube introduced into the atomizer cone. Next version of X10 under number 8535, introduced in 1951 was also fitted with the gear pump, but the fuel feed into the atomizer was via the central bore of the shaft of the electric motor. This concept was applied in the following devices of the X series: X3, X7 and X12, except for X2 (no. 251200 from 1969).

The evaporation principle, on the other hand, found its application in B2 petrol heaters known to be used in the VW Beatle and further B3 used in the first VW troop carriers. The type B2 was introduced in 1952 under no.8456 and the type B3 a year later under no. 8460 or 8478. The ignition was by means of glow plug. In 1960 a revolutionary innovation took place. The new devices the BN2 and the BN4 which was the most common in Czechoslovakia, already had a special adaptation of combustion air swirl, metering pump and spark-ignition plug. Through these adjustments, direct mixing of fuel and air was achieved, power draw at the start-up was reduced and ignition regulation became more efficient.

In order to function, independent heaters need an auxiliary power supply from the electric accumulator of the car, and in cold temperatures this energy is never in excess. In cooperation with Dr.Ing. Ludwig Huber, a pioneer in pulsating combustion, Eberspächer partly solved the problem in the early 1950s. After the initial electric ignition, this process continues without further power supply. A device was developed by a complete reconstruction from the former propulsion system for the infamous winged V1 missiles which passed the heat energy through variable exchangers to heat-carrying water or air media. Due to construction purposes and higher noisiness, however, these pulsating burners, so called Schwingfeuergerate, found their application only in the army. Attempts to use diesel instead of petrol which is indispensable for the functioning of pulsating burning came to naught due to its tendency to form carbon deposits in the fuel-air mixture suction manifold. As no adequate solution was found, the company ceased further development.

Eberspächer supercharger for combustion engines

Superchargers, exhausts

The traditional production of exhausts continuously extended. In 1954 one-millionth exhaust was produced in Esslingen.

This sector belongs to the most important ones for the company and further develops, its newest establishment being in the Czech town of Rakovník. Superchargers for engines propelled by exhaust gases were another sector Eberspächer entered. Superchargers were already used in the naval and aviation industries, but by that time they had not been used in the automobile engine yet. A small group of BMW designers in the company WMF in Geislingen started addressing the problem shortly after the war. In May 1948 the company Eberspächer, where the whole BMW team also moved, acquired the rights for the further development. So another sector started developing for which there were the best conditions in the company. Experience from orders for aviation engines and of course the solution of noise reduction and hot exhaust gas conveyance issues were a plus too. The supercharging of automobile engines started gradually gaining ground and also the company Bosch with whom Eberspächer cooperated from 1961 contributed to its practical use. The first company´s own supercharger EB 0 started in Esslingen in the autumn of 1963. The development and production had continued until 1972, when the company had to decide between two alternatives. Either to invest to the development of superchargers or develop the production of exhausts. It was a hard decision leading to the sale of supercharger license and relating know-how to the company KKK.

Oberesslingen plant produced independent heaters, superchargers and grates. The picture comes from the mid-1960s

Serial production of independent heaters

Eberspächer had produced about half a million of independent heaters until 1965. The assortment included petrol heaters for passenger cars and minibuses, diesel heaters for trucks and buses in several performance classes: petrol devices B2 with 2000 kcal/hour, B3 with 3000 kcal/hour and BN4 with 1000/4000 W/hour (this device could be already controlled), further diesel heater X3 with 3000 kcal/hour and also controllable heaters X7 with 4000/7000 kcal/hour, X10 with 6000/10 000 and X12 with 7000/12 000 kcal/hour. The possibility to heat up the cab to a comfortable temperature during longer standstills, before departure as well as during short drives and at low speeds is convenient and contributes to the safety of operation.

Later, a new legislation was passed requiring the camions for the long-distance transport which are on the way longer than eight hours to be obligatorily equipped with an independent heater. The device is of a cylindrical shape with two separate air flows.

The first one conveys the outside air in mixing it with the fuel and forcing into the combustion chamber. When burnt, the combustion gases are discharged. In the hot-air heater the resulting heat warms up the walls of the exchanger and the air in it. The air circulates through the exchanger and heats up the car interior.

As we already mentioned, the heater is connected the engine coolant system liquid is the heat transfer medium in the water heater.

As was already said, the heat in the hot-water heater is transferred by the coolant circulating in the engine coolant system to which the heater is connected.

Already the first Eberspächer heaters had a petrol consumption of only 0.25 l. It is a good news for customers but a great task for the manufacturer. Regular injection of such minimum amounts of fuel requires almost clockwork precision and production. And the operating temperatures of the heater are extreme. The safety and reliability requirements are equally high. Once the independent heater breaks in the car with no other heating source in winter, that is to say with an air-cooled engine, the car is unusable in an instant. When travelling in minus twenty, one´s life is at stake.

The complex device needs a qualified installation, network of trained service workshops and spare part supply. These were new tasks. In 1965, when the company Eberspächer celebrated its centenary, only in the Federal Republic of Germany there were some 200 service shops which installed and repaired its independent heaters. Daily production at that time was around 600 different types and versions. Just for imagination – the heater BN4 used in VW minibuses consisted of 544 components.

The assembling of independent heaters in 1965

Hans Eberspächer and Dr. Günter Baumann

Fourth generation

In 1965 a member of the fourth generation of the family entered into the management – Hans Eberspächer, son of Dr. Richard Eberspächer. At the time, the company with 2800 employees consisted of the parent factory in Esslingen, turbocharger production plant also in Esslingen, subsidiaries in Vienna, the company Schoppmann in Hagen and Mesa in Neunkirchen. 25 years later, that is to say in 1990, Eberspächer had its subsidiaries also in Canada, USA, France, Great Britain, Belgium, Switzerland and Sweden. Almost 4000 employees worked in production plants. In 1974, son-in-law of Helmut Eberspächer, Dr. Gunter Baumann, joined the company and became the managing director of the company. Three years later Walter Eberspächer retired. The introduction to all other activities of the company would be enough for the whole book and therefore we will follow only the sector of independent heaters in which the Eberspächer marque represents the world elite giving the lead. The Eberspächer independent heaters are interesting for us also because they have been linked with the domestic automobile industry and production.

Path towards perfection

Although the principle of independent car heater has not changed until now, the device itself is quite different compared to its predecessor from the 1960s. The heater body considerably reduced in size, which made the installation easier, both fuel consumption and noise level were reduced and the safety increased. The operation comfort was markedly influenced by the application of electronics, so nowadays the remote control and operation programming functions are a matter of course. The selection of products extended substantially too. The heaters are available in both petrol and diesel versions, there are both hot-air and hot-water systems and different output categories from 1,8 to 30 kW/hour. In 1975 the B1L hot-air petrol heater made a development milestone. It was the first of its kind which could be installed into the car interior without restrictions laid upon by authorizing bodies. This fact itself is the best certificate of its functioning safety. The novelty was an exchanger from pressure-cast aluminium with a plastic casing which considerably contributed to the passive safety of the device

At the same time this type resembled a common thermobottle by its size, and so it could be easily installed in the car without reducing the interior space or comfort of passengers. In the same year of 1975 a remote control for independent heaters first appeared. Then in 1980 the company presented a special independent heater for motor-homes.

The company´s turnover continued increasing all over the 1980s. By 1990, when the company commemorated 125 years of its existence, four millions of independent heater units had been sold. It celebrated its anniversary by opening a research and development centre. In 1992 the turnover equalled DM 1,019 billion, 4510 employees worked for the company.

Successful types – B1L in petrol version and D1L in diesel version started a new successful epoch of Eberspächer independent heaters

In the subsequent year they first recorded a drop (by 9%) after quarter of a century, which was due to a Europe-wide car sales stagnation (i.e. it was almost by 30% in France and Italy).

In 1994 the situation consolidated again, which was proved by the results improving year from year. In the mid-1990s Eberspächer had its general agencies in 22

Construction of a research and development centre started at Esslingen in 1988

countries, exported more than a half of its production. They opened a factory for the production of catalytic converters also in South Africa.

The company believed in the great future of 3 and 5 kW auxiliary heater. They are simple devices which differ from the independent heater by the absence of water pump and control unit, they turn on automatically without driver´s action depending of the temperature of the coolant. They came to the German original equipment market in the winter of 1995/1996 and they fully proved their worth. They are designed primarily for cars with the most recent diesel engines with optimised consumption. These engines are extremely economical, which means, however, a lower amount of exhaust heat and thus a lower output of the car heater itself. The auxiliary heater eliminates this handicap. It is symbolical that it was in Volkswagen cars again, this time in the large-sized Sharans, that these auxiliary heaters were first used.

By applying the auxiliary heaters for the original equipment the number of produced units rose, which enabled a more productive technology to be used.

The new generation of hot-water independent heaters of 4 and later 5 kW, first diesel and shortly after also petrol versions, was already designed to be fitted with auxiliary heaters.

This heater „family" was given the Hydronic trade mark. Their compact dimensions, low weight and improved functioning became their great advantage. New elements appeared in control units, including a new remote control.

Modernization is obviously a key to success. Therefore 250 employees in the corporate development centre worked in the automobile section, that is to say on the development of new exhausts and independent heaters. The company became a scheme supplier of exhausts and catalytic converters mainly to Daimler-Benz, BMW, Audi and Volkswagen. In 1997 the serial fitting started of auxiliary heaters to passenger cars of other marques.

The sales of the Hydronic heaters, auxiliary heaters and hot-air heaters of 1 and 3 kW accounted for the largest proportion in the total heater sales. Eberspächer is ranked among the world elite in this sector offering products for passenger cars, trucks and utility vehicles, for boats as well as rail cars.

In 1997 two new versions were introduced into the market, a 5 kW hot-water heater for cars with an engine capacity exceeding 1,9-litre and large limousines, and 5 kW auxiliary heaters for large-sized vehicles. Also revamped were 24 and 30 kW heaters for buses, later also 16 and 35 kW types, which were also given the trade names Hydronic.

In 1998 Eberspächer built a new line for the production of fuel pumps for its heaters. This complex product, extremely demanding in terms of precision, makes the heart of the whole device. It substantially influences its output, reliability and consumption. Fuel metering during testing is measured with a precision of 0.0001 g. In 1998 Eberspächer produced 0.5-millionth auxiliary heater presented only four years before then.

At the instigation of Dr. Leonhard Vilser Eberspächer acquired 50% share of the company catem GmbH & Co. KG engaged in the development and production of electrical heating devices. His partner in this joint-venture is David & Baader.

The prosperity of motor works impacts on the prosperity of the companies which supply both directly them and the aftermarket. In 1999 Eberspächer´s turnover first exceeded DM 2 billion, that is to say it was 18% higher than in the previous year. The division of exhausts and independent heaters accounted for DM 1,917 million, the rest was generated by the construction division. Also the export reached a record-breaking level accounting for DM 800 million from the total turnover. The company had 4700 employees in 11 countries around the world.

At the same time the development was finished of the new generation of the Airtronic hot-air independent heaters with an output of 2 and 4 kW. The interest of car manufacturers in electric auxiliary heaters was far beyond expectations. Their abbreviation PTC (Positive Temperature Coefficient) aptly describes their use: it is a small heating unit supplied from the source after the engine start up – that is to say it is not an independent heater. It is installed into the ventilation system which blows the air through it into the car interior. The unit soon reaches the required temperature and its effect (an output of up to 2 kW) in the cab is practically immediate. PTC heaters are used also for preheating the coolant, in some cases they even replaced fuel pre-heaters.

Entering the new century

The company celebrated the year 2001 and the entry into the new century by a record-breaking turnover again, which was not expressed in DM but for the first time in EUR.

While in 2000 its amount converted to EUR reached 1,344 billion, in 2001 it was already EUR 1,644 billion, which is an increase of 22 %. Exhaust systems and heaters accounted for EUR 1,577 billion from this result. A direct sale increased to motor works where they install Eberspächer products as a part of original equipment. 80% from 0.5 million produced independent heaters was supplied directly to car manufacturers. The company employed 5206 employees.

Novelties of that year included an independent heater remote control with a keyring sized control switch.

The system enables the heater to be programmed for the following 24 hours. It is interactive – the manual control display informs about the current state and function of the heater and about the temperature in the car. The Calltronic module is available for those who want to control their heater via mobile or standard telephone.

After many years of continuous growth, in 2002 the turnover dropped by 14% to EUR 1,413 billion. The production for automobile industry contributed the most to this result – its tumble reached 13.7 % and copied the situation in the automobile industry. Yet, also positive results were achieved. Eberspächer became the exclusive supplier of independent heaters to some manufacturers (MAN, Neoplan), in other manufacturers it was listed as „preferred" supplier.

The production of PTC electric heaters rose to one million per year and has been still increasing. Thirty versions of them are available and one hundred models. Their production started in a new production plant of 8000 m^2. Also in 2003 the automobile industry in both Europe and USA faced a lower demand, which impacted similarly on all sectors linked to automobile industry. A change came in the first half of 2004, when the turnover of Eberspächer rose. This favourable change was partly due to the introduction of new car models in Europe and partly as a result of the start of exhaust system serial production in the USA. Number of orders grew by 17 %.

Currently Eberspächer has 25 firms in thirteen countries around the world and it employs 5200 workers.

The exhaust system and independent heater divisions have their own production plants or cooperation plants in the USA and China, where they are gaining ground and are promising for further development already in the upcoming two years.

Eberspächer in the Czech Lands

The company Eberspächer had close contacts with the Pilsen-based Škoda, the then industrial giant of Austro-Hungary, already before World War I. At the time of the first Czechoslovak republic, that is to say in between 1918 and 1938, the contacts developed in a standard way, as was common at the time between advanced neighbouring European countries.

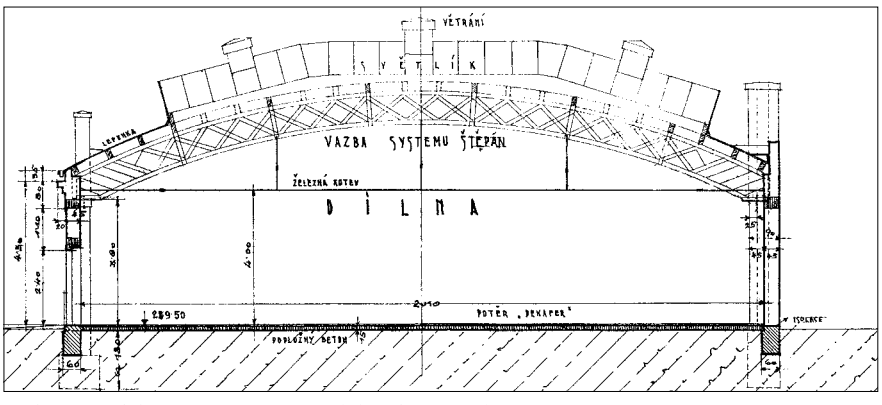
During the war as well as after the communist putsch in Czechoslovakia in 1948 the normality was gone. And so it is astonishing, that even at that time the cooperation extended, particularly in the 1970s and 1980s. There were logical reasons behind it, as we will see further. And what´s more, even a joint production was established. In the socialism period, the cooperation with a company from the West, and what is even worse - from the Federal Republic of Germany, and even the production of components for its products was something inconceivable. Such cases throughout the whole communism era can be counted on the fingers of one hand. The joint production with Eberspächer was one of them. There are a number of reasons for us to look into that matter closely.

The company WEMA in Prague - the 1930s

Three drawings have been preserved in the corporate archive Historeum Eberspächer which document that on the turn of the 1920s/1930s the company had its own subsidiary and workshops in Prague. In the drawing from April 25, 1930 it says: „WEMA, workshops specialized in non-puttyed glass roofs Eberspächer&company, Prague". It was a design of the foundation and ground-floor of a medium-sized workshop (designs no. 560a and 561a).

Further design comes from September 1936 (without designation). It is a design of a building for the company WEMA Ing Dub and company in Prague XIII, Staré Strašnice 1056. This ground building served as administration and projection office.

Reconstructed WEMA buildings still exist in Prague. The rooflights and supporting roof construction have not changed even after three quarters of a century



A drawing of the Prague WEMA workshop from April 1930

Eberspächer in Praga and Tatra motor works – the 1940s

The first Eberspächer car heater appeared in our country in 1942. According to the preserved book of drawing numbers, it was tested on the Praga RN chassis with a wheelbase of 3900 mm for the version LLG – Leichtes Loschgruppenfahrzeug – light fire truck for the crew, drawing no. 8243 from June 24, 1942. It was logical that the heater was tested right on this version. Soaked firemen as well as injured soldiers, after all, for whose transport this Praga RN was suitable, deserved this well-heated cab. It was a hot-water system, water was heated in the exchanger attached to the exhaust tubes – that is to say it was a heater dependent on the engine

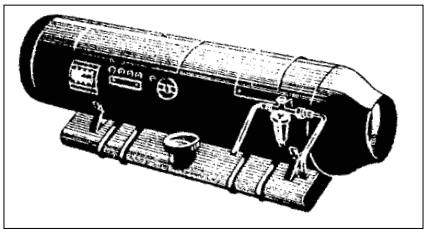
operation. No documents concerning the test result were found, in the Automuseum Praga of Mr. Emil Příhoda either, neither is it known that such device would took hold in Praga cars. Unfortunately, except for the registration number, not even the mentioned drawing preserved in Esslingen, which would introduce us into the system.

A heater of similar concept (drawing no. 8218 from September 7, 1942) was constructed for the Tatra 27 b, which was produced either as a platform car or bus. For this version a heater was very probably constructed. Neither in the archives of Tatra was found a document about its testing and the test result. However, it is known that appropriately modified Eberspächer hot-water heater was used by other motor works, such as for example Daimler-Benz, KDH, Steyr and Magirus.

Eberspächer heater for the Tatra 603 – the 1950s

In Czech Technical quarterly Motoristická současnost, issue 2 (10)/1957 a short description of a hot-air independent diesel heater was published which was offered by the French company Shneebeli-Chabaud. It was manufactured in two versions, X7 and X10. It was designed for ambulances (the weaker type) and for buses (the stronger one). The company with the registered office in Paris was purchased by Eberspächer S.A.S.

This means nothing more than that the independent heater was well known in our country and that there was obviously a need for it and its manufacture was under consideration already at the time. It was logical, as after the war all vehicles of the Tatra motor works without exception were fitted with air-cooled engines. Besides a number of advantages applicable to some categories of vehicles at that time, this solution had also one drawback – the air heated by the engine exhaust heat is not suitable for heating up the interior. As was said already earlier, the same experience was made with VW vehicles in the Federal Republic of Germany. Their air-cooled engines caused an unparalleled boom of the production of small Eberspächer independent heaters. In the USA, after all, they faced the same problem, when the Chevrolet Corvair with the air-cooled rear engine was introduced in the market in 1960.



A picture of Schneebeli-Chabaud independent heater in Motoristická současnost magazine no. 2/1957

In the same year the company Stewart-Warner in cooperation with Harrison Radiator developed an independent hot-air petrol heater. It featured stainless steel heat exchanger, a nozzle type burner, spark ignition of the mixture and separate combustion air and fresh air blowers.

The system control was automatic by a thermostat which switched the device off and on by turns. The heater obviously did not prove its worth as already in the following year it was replaced by a heat exchanger installed on the exhaust manifold.

From there, the heated air was delivered through channels into the cab. Although this heater was dependent on the engine operation. The first mention of the necessity to produce an independent heater locally or import it appears in the „Technical Report on the Construction of the large Tatra passenger car" from February 4, 1954, produced by Ing. Julius Mackerle, which says, besides other: „The car heater will be improved and the hot air circulating via engine which is not always perfectly clean will not be used. The heating units will be heated by hot oil or a heater absolutely independent on the engine operation will be used." Obviously, he spoke about the prospective Tatra 603 with air-cooled V-eight rear engine.

The question of heater was not a key one of course in designing this car, although it definitely gave designers some hard time. In winter, Tatra would be practically useless without efficiently heated interior. Oil heater was obviously not very feasible and so an independent hot-air petrol heater came on.

Following various documents from the motor works archive, its development was entrusted to Vojenské Opravny Trenčín. They started working on this task sometimes in September 1955, but according to a note in the factory correspondence from March 22, 1956, they achieved no practical result throughout half a year: „the current state of the heater development is at such point that we cannot use it".

As it was unthinkable that high state and party officials (for whom the car was meant without exception) travel in the luxury eight-cylinder in gloves and fur caps, the independent heater was considered as absolutely necessary. And not only for their sake, but also because of drivers. The journey passed by, the comrade got off and the driver waited till different meetings, sessions and negotiations finish. He would die of cold in winter.

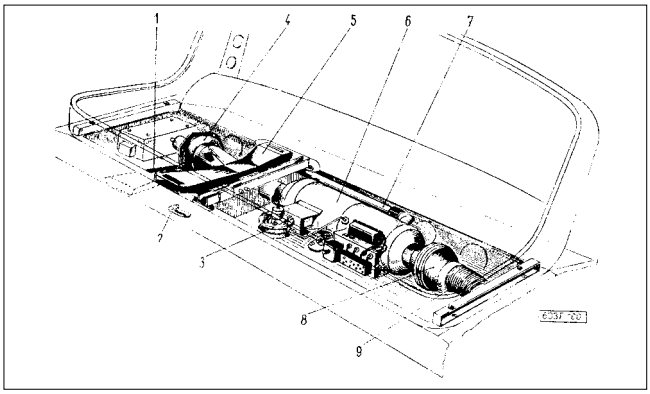
The first Tatra 603 was produced in 1955, in 1956 another nine cars appeared, in 1957 there were 354 of them and in the subsequent year 576.

The greatest expert for Tatra marque history, Mr. Karel Rozenkranz confirmed that already the fifth produced Tatra 603 assigned to the Central Council of Trade Unions was equipped with an Eberspächer independent heater.

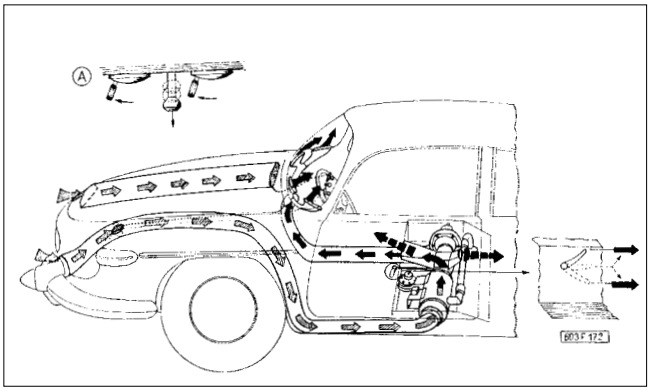
It seems thus that the 603s were equipped with it from the very beginning.

According to the book of drawings of the company Eberspächer, an independent hot-air heater marked with no. 8630 was designed for the prestige limousine produced in Koprivnice. It must have been some development leap, as the record bears the date of October 21, 1958. It was a modification of the B3 basic type which suited by its output practically all passenger cars. This is an evidence that there were a number of modifications and changes to the independent heater, its positioning and control. They are mentioned, besides other, in Technical reports of the Tatra, n.p, issue no. 13 from March 1959. They contained a section from the workshop repair manual for Tatra 603 which was being prepared. The name of the article is „Eberspächer independent petrol heater B2 for the Tatra 603 cars" and it was intended for automobiles of production numbers from 00681–01600. It can be assumed that the 603 with production number 00681 was produced the most probably in the autumn of 1958. One of these changes thus must have occurred right at that time. It would correspond also to the quoted record from October 21, 1958 in the Eberspächer archive.

It was not at all an easy task to select the heater marque. Admittedly, Eberspächer produced accessible and quality heater, but the company was registered in the Federal Republic of Germany, i.e. the country of one of the sworn ideological enemies. The problem was solved in a dialectical way. The foreign trade agency Motokov, the only then entity authorized to contact and deal with foreign partners, contacted the company IFE in Vienna, a representative of Eberspächer in neutral Austria. That was already acceptable.



The Eberspächer heater in the Tatra 603 occupied the entire space under the front seat.



A scheme of air delivery to the heater (shaded arrows) and heated air distribution around the cab (black arrows).

It was thus this way that the first Eberspächer independent petrol heaters from the Austrian representative got to Czechoslovakia.

The domestic independent heater from Opravny Trenčín which was being developed in the cooperation with the Tatra n.p.was not finished yet and the question is whether it has ever come into existence.

In the Tatra 603 the Eberspächer heater (and later also domestic types) was installed on the floor under the front bench (at that time the seats were not separate yet). The device took the entire space there. The supply of fresh air into the heater was through a rubber tube with a large diameter connected to an inlet in the left front mudguard. The inlet was located above the holder of the left front rubber holder. In the supply channel there was a flap operated by a lever on the dashboard. The principle of the slot link of the flap control device was that once the supply of the fresh air was shut, the heater switch was locked. When driving in summer, the fresh air could be let in through a channel in the baggage compartment lid with the inlet behind a decorative grill. It opened up by another lever on a supplementary board under the dashboard. The heater switch was located in the middle. When pulled up to the first position, the forced-air circulation fan and the fan distributing the air through channels around the car interior were set in motion. In the second position it actually switched on and heated the circulating air. The first imported German heaters for Tatra 603 were the B2 ones. Although, according to the book of drawings of the company Eberspächer, beside number 8629 there is a note that this heater was based on the more efficient B3 type (drawing number 8519). The question remains, why the manufacturer´s recommendation differs from the actually imported device. Perhaps the lower price of B2 as against B3 was a decisive factor, perhaps there was something else. The installation of independent heater to motor vehicles necessitated in new safety regulations which were not a domestic speciality though.

They required practically the same that applied in the countries where the independent heaters were common. According to the order of the Ministry of Interior, General Fire Protection Inspection Authority in Prague no. PO-668/63 from April 24, 1963 „ The vehicles heated by liquid fuel-powered heaters are not allowed to pump fuel with the heater turned on. The device must be switched off and may not be switched on within a radius of 20 meters from the petrol station". A similar regulation is still in force.

Zeichnungs-Nr. J. E.	eingesandt	Benennung	Verwendung Type	Angefertigt am	von	Bemerkungen
8621	6 Volt	mit Klixon-Pumpe Benzinheizung	~1500 kcal/h	4.7.58	Hrr.	Entwurf
8622	6 Volt	mit Tank Benzinheizung	1200-1500 kcal/h	10.7.58	Hrr.	Entwurf
8623	6 Volt	Eberspächer-Warmheizung f. VW-Transporter mit geteiltem Frontsitz		24.7.58	Hrr.	82/6L) 8529
8624		Verkaufstisch, vollst.	für VW-PKW 8542	12.8.58	Hrr.	
8625		VW-Zusatzheizung		13.9.58	Hölle	
8626	12 Volt	Heizgerät		17.10.58	Hrr.	
8627	6 Volt	Heizgerät		17.10.58	Hrr.	8529
8628	12 Volt	Warmluftheizung	Ratgeber	20.10.58	d'A	X7 links
8629	12 Volt	Warmluftheizung	Ratgeber	20.10.58	d'A	X7 rechts
8630	12 Volt	Heiz- u. Lüftungsgerät	Tatra 603	21.10.58	Hrr.	
8631	6 Volt	Warmluftheizung	4000-7000 Kcal/h	12.11.58	d'A	X7
8632	12 Volt	Heizgerät	Porsche Carrera	21.11.58	Hölle	8533/12 B3(6L

The record in the company´s list of drawings says that Eberspächer designed the 12 V heating and ventilation device for the Tatra 603 (drawing no. 8630 from 21/10/1958) which is based on the B3 type (drawing no. 8519). It was not established so far, why the B2 heater was actually fitted to the car

The oldest Eberspächer heater in our country

Our most famous explorers, Jiří Hanzelka and Miroslav Zikmund made a journey to Africa and South America in 1947–1950 by the Tatra 87. When they returned, they started preparing another expedition to Asia, Australia and Oceania. This time they decided for two Tatra 805 light military trucks with the Karosa K 0,5 trailer. It is necessary to remind that at that time the 805s were assembled in the Mladá Boleslav AZNP motor works where their production was moved in order to free production capacities in the Tatra n.p. for the production of the military Tatras 128.

Technical preparation of the journey started in 1954 and it took five years. The expedition set off for the Asia journey from the Old Town square in Prague on April 22, 1959.

The Tatras 805 of the explorers Hanzelka and Zikmund in Jericho in the picture from 1961. Both trucks were fitted with Eberspächer independent heaters.

Nowadays, we cannot imagine any more, how much effort, energy, time and nerves it took in Czechoslovakia of that time to organize such event. The correspondence concerning the independent heaters for both trucks can serve only as a little example to demonstrate the course of preparations.

Based on their experience, the explorers demanded their trucks to be equipped with different accessories including independent hot-air petrol heaters. According to preserved sources in the Tatra n.p. archive, the first mention of this device is present in the record „Special T 805 vehicles for Ing. Hanzelka and Ing. Zikmund" from May 17, 1955.

At that moment, no particular heater marque was specified.

Following another document from February 7, 1956, the Tatra n.p. entrusted with the preparation of the vehicles demanded two American heaters South Wind.

The Ministry of the Automobile Industry passed the request on to the Motokov foreign trade agency, who responded by return that the n.p. Letecké opravny Kbely (LOK) manufactured an independent petrol heater and that Tatra was supposed to contact them and purchase the heater there.

Tatra sent an enquiry to this military enterprise, however, it turned out that the LOK did not produce the heater , but only installed it to aircrafts. And besides that, these Aero C-3 aircrafts, originally the German Siebel Si 204 types had been built only until 1949.

In its letter from March 22, 1956, the Tatra national enterprise informed the ministry that the LOK referred them to Vojenské Opravny Trenčín, with whom, as was already mentioned, the Kopřivnice motor works cooperated on the development of independent heater for Tatra 603.

However, without any success up to then: „As far as the vehicles for Ing Hanzelka and Ing. Zikmund are concerned, we have to insist on the delivery of the foreign heater South Wind."

By April 1956, a suggestion had been made to import another independent heater marque, „a newly developed type, not yet known in Czechoslovakia, which works absolutely independent of the decompression in the engine suction manifold". The most probably it was an Eberspächer heater which was to be installed also to the 603s.

In May 1956 Tatra n.p. provided Motokov with specifications the new heater was supposed to comply with:

a) heat up the driver´s cabin of 2.8 m^3 to 20 °C during driving in the outside temperature of –10 °C.
b) heat up the driver´s cabin of 2.8 m^3 and the interior of the truck itself of 5 m^3 during standstill in the outside temperature of –10 °C.

In June 1956 Motokov confirmed it would ensure the heater import and charged its sales agency to inquire about the appropriate heater .

Then, there is an undated document (allegedly from 1957) which says: „The list of imported components for vehicles of H + Z". The first line reads: „2 pieces of Eberspächer petrol heater (Federal Republic of Germany)."

So much the story about the Eberspächer independent heater for Hanzelka and Zikmund.

With respect to all preparations it was so marginal that despite his enviable memory Miroslav Zikmund cannot recall it today.

One of the above mentioned heaters has preserved. It was installed in the 805 of Jiří Hanzelka. When the expedition returned to Czechoslovakia, the Zikmunds car ended up in the company´s museum. Hanzelkas car was assigned to the engineering department in order for it to be converted to a mobile workshop, they furnished the car body with

The Eberspächer independent heater from the Tatra 805 of Hanzelka. The production year 1958/59 is marked on the product plate. It is drawing no. 8516, production number 2006 or 2000 (the last numeral is not clear)

drawers, workbench and vice. When the 805 came to an end of its service life, it was passed onto the civil defence department. When it had been written off there too, it was transferred to fire-fighters in the village Prlov. In the end, it was good for nothing. Then a cottager purchased it from the fire-fighters in order to use it as a storage for the cement and tools during the reconstruction of his cottage somewhere in the mountains. When the 805 was discovered in 1988 by the famous Dakar Rally driver Karel Loprais, the cottage was repaired and behind it there was a wreckage of the vehicle, where they stored lime. Loprais exchanged it with the cottager for the engine from Avia and took the wreckage home with him. He worked on it nine years at his leisure time with his sons and friends, the company of his brother Milan financed the reconstruction.

Believe it or not, the Eberspächer heater survived the expedition, all owners as well as devastating adaptations practically without any harm.

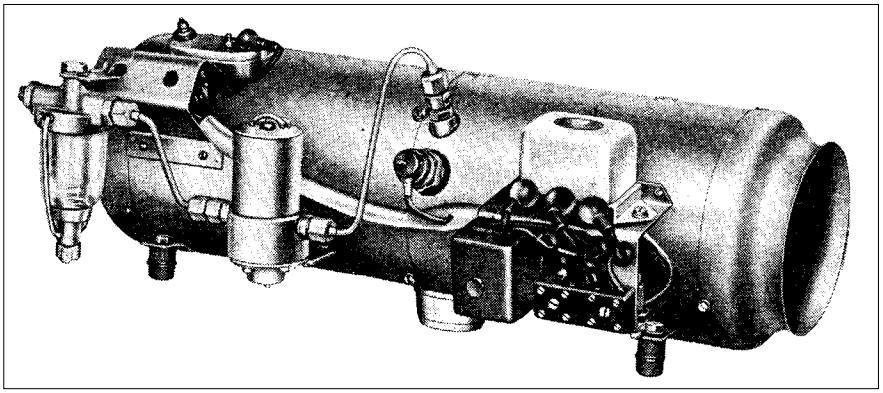
As is evident, not only people have eventful past.

The PAL heater for the Tatra 603 – the 1960s

Between 1955–1975, a total of 20 422 Tatras 603 were produced. Obviously, the import of heaters from so called „capitalist foreign countries" in such amount was not acceptable at the time. Therefore a Czechoslovak independent hot-air petrol heater came on. There were two ways of solving the problem with its production. Either the purchase of the license or one´s own design. As the former would be acceptable only as a last resort, the already mentioned Opravny Trenčín got down to designing. No closer information about the result has been found as yet.

Then the development was entrusted to the PAL Autobrzdy n.p. later renamed to Autobrzdy Jablonec, n.p.. The abbreviation PAL stood for „Příslušenství automobilů a letadel" (Equipment for automobiles and aircrafts), which was short and witty, simple graphic conception marque was a success too. The „Autobrzdy" patchwork was inspired by the Soviet „creation" of neologisms (can you recall yet the neon „Mašpriborintorg" sign in the Wenceslas Square in Prague?) and corresponded to the Soviet term „avtotarmozy".

In the years 1961–1962 the independent heater 3 COB 1 of 3 kW was thus developed in Jablonec nad Nisou, primarily designed for the Tatra 603 cars. When designing it, the engineers successfully avoided the patented design of the company Eberspächer, but it was obviously derived from the similar German B3 heater resembling it considerably. Based on this it can be assumed that until the production of the Czechoslovak 3 COB 1 petrol heater was started the Tatras 603 had been fitted with the Eberspächer B2 independent heaters.



The first domestic independent heater for passenger cars, the 3COB 1 from Autobrzdy Jablonec

When the domestic product appeared in 1962, they started to install it to all Tatras 603. Its drawback was that it could not be regulated. Either it heated or it did not, nothing in between. By that time Eberspächer already had the type BN 4 with a two-level regulation enabled by a two-speed air blower which meant a higher comfort. In our country too they were aware of advantages of the German type BN 4.

In this respect, an official letter from April 21, 1967 signed by RKZ 2503/R/Hru is remarkable.

It was addressed to the then head designer Milan Galio and it read: „I would like to draw your attention to the fact that at least 30 units of Eberspächer BN4 adjustable heaters were obtained from various sources designated for the T 603s of important and governmental officials. As the life of some components is limited and the functioning of these heaters will be surely claimed by all means, I suggest that the import of the following necessary quantities and assortment of spare parts of approx. 7 500 worth in Czech crowns be ensured. O.P." The list of 13 items follows.

Simply domestic heaters were not good enough for 30 top communist representatives of the working class.

PAL heaters for Karosa buses and Tatra trucks

Yet before then, PAL was involved in the development of independent hot-air diesel heater for buses. It saw the light of the day in 1958, it was marked 12 AKN 5 and had an output of 12 kW and was the first of that kind in Czechoslovakia. Its development was obviously initiated by the experience with the electric heater in Tatra 500 HB and by the need to increase the comfort of passengers.

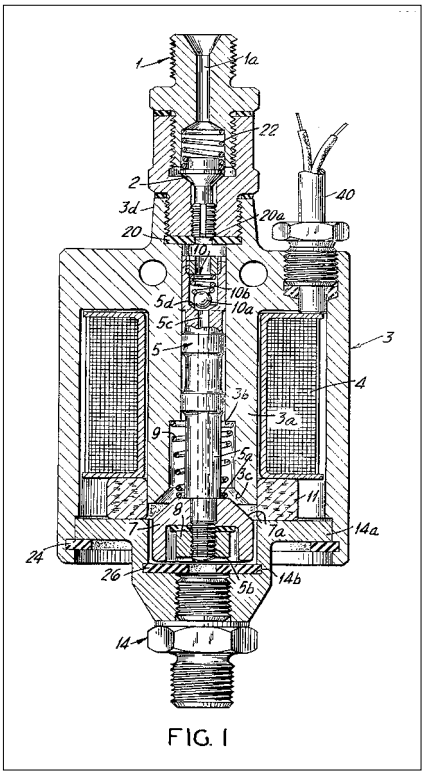
Heaters were fitted to RTO Škoda buses, they appeared in different modifications also in rail cars, special vehicles and at fixed workplaces. They were produced tens of years in practically unchanged version. The next in sequence was the accomplished 6 BON 3 heater in 1960, a diesel heater of 6 kW designed for heating the van bodies, box bodies and bodies of special vehicles.

In 1964 the production started of heaters for motor vehicles in the Autobrzdy branch, plant 03 in Rakovník, where it was moved from Jablonec nad Nisou. The local former factory Stadion was known for its bicycles and later also for popular mopeds of the same marque. Then, for a short time, the factory was changed to Chirana by a rigorous administrative decision (sanitary furniture, sterilizers etc.) and on January 1, 1964 it was integrated into Autobrzdy n.p. by an administrative decision again. Since then, heaters have been produced here for motor vehicles of all kinds.

When Karosa Vysoké Mýto started manufacturing Škoda ŠM 11 buses, Autobrzdy n.p. developed the 15 AON 7 diesel heater for them in the years 1967–1969, whose heating capacity achieved a respectable value of 17 kW with a delivery of 700 cubic meters of heated air per hour.

The then vehicles for the army, which for some incomprehensible reason have been called special instead of military ones up to the present day, had to be heated too. So heaters were developed also for them. In the years 1962–1964 these included the hot-water 35 CON V heater designed to heat up

Cover page of the instruction manual for the most common domestic independent heater



Basic invention of dr. Kofinek, registered on March 15, 1965 was successfully patented worldwide, as is documented by the picture from the US patent file no. 3 202 582

the engine coolant before the tactical vehicle engine start-up. At the same time it heated the interior space for the crew, it was even fitted with a droll device for warming a tin. Its primary function was to pre-heat the engine of course.

Still another heater to have been designed for heating the „special" Tatra vehicles was 12 BON 3, this time a hot-air one, which preheated an air-cooled engine for a smoother start.

The heater designing in Autobrzdy was headed by Jaroslav Leimer from the beginning, who was until his retirement in 1997 employed in different functions in PAL and later in Autobrzdy, finally, after the 1989 revolution, in the position of the technical director. One of his predecessors in this position and co-authors of some technical solutions was Bohuš Pelikán.

The Eberspächer license – the 1970s

In 1970, the license for Eberspächer air heaters types X3, X7 and X12 was purchased. The numerals behind the letter designated the heating capacity in kW. The negotiations started already in 1966, but the license was purchased only after four years. Administrative obstacles, the then obligation to plan in five-year cycles and to account for everything (particularly when it came to foreign currency) meant difficulties one can hardly imagine these days. Autobrzdy were successful, the appropriate authorities approved the license under the condition that the company will not demand further foreign currency for the purchase of parts or another license. It seemed logical, but it was not. The company Eberspächer itself purchased different parts from other manufacturers, such as microswitches and thermostats. What they did not cope with in Esslingen and obtained through subcontractors, Autobrzdy had to cope with by themselves. The license types X were fitted with two electric motors. One ensured the forced circulation of heated air, the other propelled the pump and combustion air blower. By the time of delayed start of license production Eberspacher already had prepared a more modern solution involving one electric motor, which necessitated the use of an electromagnetic fuel metering pump however. Unlike the type with two electric motors, this new heater was lighter, its reliability increased, consumption dropped and new possibilities opened up for the control.

Instead of X7 it bore the name D7L. In those years it was only being introduced, and thus it was not yet the time for the sale of the license for its production. Autobrzdy understandably showed interest in this new model with one electric motor. Its strengths were obvious, although at the price of a sophisticated production technology for the electromagnetic metering pump. It was not an easy task in Czechoslovakia to acquire it. The purchase of precision and quality intensive production equipment requested long preparations and so the assembly of the new X7-1M heater in PAL started only in 1975. It was fitted with one electromotor and pulsating pump produced on the company´s own machines, also under subsequent Eberspächer patent license.

The pumps were not manufactured in Rakovník but in another affiliation of Autobrzdy – Hodkovice nad Mohelkou, where Tenneco Monroe is located nowadays. It needs to be objectively stated that their quality was of an outstanding level. It was achieved thanks to new Swiss machining tools which worked with a micron accuracy.

Provided the hourly heater consumption measured in decilitres and a high frequency of fuel injections, there was no other alternative.

The pumps started to be fitted to all domestic heater types. From the mid-1970s their annual production destined for utility vehicles numbered in thousands. Just the number of Tatra 805 trucks produced annually, both for the civilian market and the military, amounted to some 15 000, and all of them were equipped with the X7-1M heater which was produced under license and fitted with a license fuel pump.

The joint production of Autobrzdy with Eberspächer – the 1980s

The fact that the company Eberspächer itself started purchasing pulsating pumps for its heaters from Autobrzdy proves that their production reached an outstanding level. It addition to it, they purchased from Autobrzdy finished aluminium castings for their D4W water heaters of the first generation. Thus a then unprecedented cooperation developed between the Czechoslovak national enterprise and West German family firm. Foreign trading of Czechoslovak entities could be carried out only through a foreign trade organization (PZO), in case of machinery products of that kind it was PZO Motokov, further it was PZO Polytechna which handled all licenses and concluded contracts. On behalf of the German party the trade was handled by the company´s own Austrian subsidiary Eberspächer Ges.m.b.H. already established by then with the registered office in Vienna.

It was above all the Czechoslovak party that was interested in the cooperation. It was obviously for economic reasons. Regulations took effect in the West European international truck transport according to which the trucks that are on the way longer than 8 hours had to be equipped with a heater. It was one of the steps towards the improvement of the environment. Until then, it was common from the autumn to the spring that when the truck driver stopped for the night, he let the engine running at idle so that the water heater connected to the coolant circle protected him from the cold.

At that time, Czechoslovakia had a developed international truck transport organized by ČESMAD (Czechoslovak Association of Road Transport Operators). This organization consisted of ČSAD regional national enterprises (Czechoslovak national road transport) with offices in each district. Each regional ČSAD had at least one district branch specialized in the international transport, either haulage or bus service.

If ČESMAD wanted to achieve the compliance with the regulation on the compulsory equipment of trucks with heaters, in the 1980s it would have to spend some DEM 1,8 million, i.e. some CZK 32 million . Nowadays it would correspond to a tenfold this amount. Without planning such large foreign currency investment at least five years ahead, the import would be impossible. But our trucks could not cross the border without the heater. Therefore, the cooperation with the West European heater manufacturer was given the green light, although accompanied by unbelievable difficulties at its start, as we will see further. It was an exceptional relationship and the cooperation contract Autobrzdy – Motokov – Polytechna - Eberspächer was almost a miracle in the then Czechoslovak economical and political decay.

The company Eberspächer insisted on establishing a separate account for the whole project under the condition that the financial means obtained by the Czechoslovak party will be destined exclusively for the development of this trade. Without such clause in the contract the foreign currency would be „withdrawn" – as they used to say at that time – and transferred to the state budget. Thus if a machine had to be purchased or material for the joint production, the company would have to request foreign currency from the state again. Considering the then five-year planning system, the project would be scuppered.

Besides this case, the cooperation on this principle was allowed only for the assembly of Kuka dust carts.

Yet another domestic partner joined the cooperation as the supplier of glow plugs – the then company Jiskra Tábor n.p., today known as BRISK a.s. In Tábor, the project was supported and pushed ahead with enthusiasm by the then young sales manager, Karel Helma, who became the director of the company Champion for the Czech Republic after the November 1989. Jiskra obtained the necessary know-how from Eberspächer within the cooperation, the German company helped procure the production equipment and special presses for ceramics in exchange for glow plugs. Eberspächer purchased the Tábor products practically until very recently, when the classical glow plugs started to be replaced by ceramic ones.

Eberspächer heaters for the Tatra 613/700 – until the last breath

In 1968 the new Tatra 613 first appeared. The car with the body designed by Vignale had typical Kopřivnice-designed air-cooled V-eight rear engine of 3495 cm3. The 613 was intended again as a prestige car, which reflected in its design and equipment. Comfortable atmosphere in the car also in winter was taken care of again by Eberspächer heaters. The plural is in order here – as each Tatra passenger car was fitted with two heaters. They were the BN4 types, hot-air petrol heaters from the domestic production under the Eberspächer license.

In 1980 the Tatra 613-S made its appearance with wheel-base prolonged by 150 mm.

Larger interior space was provided for rear-seat passengers, who had thus more space for their legs. It goes without saying that the special long 613 were destined exclusively for the highest officials of the party and state (which was very much the same thing). And as sometimes happens in closely watched cases, an annoying effect occurred. When the second heater was switched on, its exhaust gases penetrated into the car interior. The defect tracking was supervised by a couple of the State Security representatives, as it had a spice of sabotage. In the end it showed up that the exhaust from the heater combustion chamber was to blame as its outlet had to be installed right under the deck due to a lack of space. The defect was removed simply by diagonally cutting the exhaust end piece, which definitively solved the problem.

The Tatras 613 were produced until 1996 and a total of 11 009 cars in different versions were manufactured. From 1993 they were fitted with two original Eberspächer B3L-C heaters, one series was fitted even with only one B5L heater, which did not prove its worth though.

The Tatra T 700 cars whose number produced until 1998 reached hardly 100 became the swan song for Kopřivnice passenger cars in 1996. It was a Tatra 613 face-lift made by the British designer Geoff Wardl. Two Eberspächer B5W petrol water heaters were indeed a revolutionary novelty in the whole car. Once and for all the coolant appeared in a post-war Tatra passenger car, although only in the heating system. The reason being partly the fact that the air heater cannot be precisely adjusted and partly due to the requirement of air-conditioning, which is practically unfeasible in a car with an air-cooled engine. Therefore they had to fit the T 700 with car water heater where the water was heated by an engine-independent heater.

This system was developed and manufactured in cooperation with the Slovak company Molpir of Jozef Hostin which supplied a heater originally destined for BMWs and the Diavia air-conditioning.

Finally, the task was successfully accomplished, also thanks to the enthusiasm of the Tatra employees – Josef Jakubec and Pavel Macho.

The system proved successful and functioned perfectly, although it did not suffice

by itself obviously to save the production of Tatra passenger cars.

The production of special, custom-made Eberspächer heaters for Tatra passenger cars has thus come to an end.

The Velvet Revolution – shortly after

The November 1989 revolution saw Eberspächer still alongside Autobrzdy, its cooperation partner. One thing was sure right away – what applied at the time of the communist totality will not necessarily apply under the new conditions.

By that time Autobrzdy had prepared their own hot-air diesel heater of 4 kW – type 4 CON 1, whose development was ordered still before the revolution by the Tatra motor works for the revamped cab of the T815, with respect to the incorporation of oil exchanger, because the existing X7 1M heater was too large.

The new device was developed based on the Autobrzdy´s own know-how without using the Eberspächer license. It was an aggregate based on the burner from the D4W hot-water heater of the first generation and heat exchanger from the petrol BN4. When designing the pump, the valid patent of the company Eberspächer was successfully avoided, and in addition to it Autobrzdy had their pump patented. Here we cannot but to mention the guru of the improved construction of the pump, the designer Stanislav Kučera. Czechoslovakia soon became a fully open market where any manufacturer with the best products could enter. In such situation it turned out that the 4 CON 1 heater is not competitive. And what´s more, the Czech crown soon became convertible and so it was not necessary any more to generate the foreign currency through cooperation. In the former country of absurdities the principles of the market economy slowly but surely started applying. The competition for the customer was stripped off its ideological context and the law of demand and supply started to play a decisive role.

Autobrzdy did not want to give up their development of the 4 CON 1 heater. Besides, they contacted Eberspächer offering the exclusive representation in the Czechoslovak market and sale of its products as a more expensive alternative to their own heaters.

These were the main reasons why the paths of the hitherto cooperating partners, Autobrzdy and Eberspächer, split. Autobrzdy remained the partner for the assembly of the first hot-water heaters for buses, although the sales were controlled by Eberspächer, and continued producing the components for them.

These were founder years of great changes. Having occupied the first position in its sector again Eberspächer was unrivalled, but it was very cautious stepping onto unknown ground. It is true that the fully opened marked had to be speedily entered with brand new products in order to cover the largest possible share. However, the independent heater is not a product which sells over the counters of dealers whose number ran to thousands on the new market. Independent heaters are sold exclusively via trained service network of mechanics or directly to car manufacturers. Thus a quality local partner is a must when introducing an independent heater into the market.

Schwabia, where Eberspächer resides, is known for its prudent approach, which proved its worth already dozens of times in the past.

Like in the case of cooperation, neither in this case did Eberspächer rush into anything. When considering the establishment of a Czechoslovak branch, it weighted pros and cons. The 1990 situation was characterized by faltering authorities, slowly commencing banking and incipient economic criminality. The decision was clear – give the business in Czechoslovakia all support but someone else should put his skin at stake for the meantime. Therefore the company established a sales agency whose management was entrusted with the company V.Svoboda spol. s r.o., registered on March 5, 1992 and having two partners, Vladimír Svoboda and Helmut Leinfellner, one of Eberspächer´s managers. It was not by coincidence that the Austrian became the partner in the company. Independent heater trade in Czechoslovakia was managed by the Viennese branch who was also a supplier of components for the local assembling. The new company soon got established on the market and got another coworker from PZO Motokov, František Lego, who was familiar with trading aspects of joint production. Having rented a storage in already nonexistent building in Argentinská street in Prague-Holešovice the company started its trading-technical activities on September 16, 1991. First, it was necessary to train and to conclude contracts with some 40 service and assembly centres in Czech Lands and Slovakia and to reinforce the position as a supplier to important car manufacturers. Fitting their trucks with independent heaters at that time forwarding agencies were the main customers. Major car manufacturers followed, still including Liaz (2000 trucks annually) and particularly Tatra which won several lucrative contracts and whose production reached several thousand vehicles. Buses were a separate issue. In post-communist countries, in neighbouring Hungary in particular, there was a great production tradition and potential. The local company Ikarus produced 12000 buses per year, Czechoslovak Karosa 3500. The bus market represented a great challenge. It also represented great costs associated with training and conversion of mechanics in almost every service garage on Eberspächer heaters and involved a close cooperation with the manufacturer. Harald Sailer was one of the first from the parent German company to introduce bus heaters to the Czech market, the first training was conducted by the gentlemen Wolfgang Rich and Harry Piel, also from the Esslingen headquerters. In the aftermarket, per contra, that is to say spare parts and additional assembly, the Prague company made use of Vienna colleague experience. The first trade steps on the thin ice of the emerging market were made by the late Hermann Fabian, then followed the gentlemen Viktor Schaumann and Kurt Blechinger.

The cooperation with the company Bosch Wien represented a considerable help in acquiring and training new service partners. The work must not be forgotten of Herbert Wesely, who drove domestic service trainees round Bosch and Eberspächer service centres all over Austria not hesitating to point out their drawbacks and to advise how not to do it in our country.

Also Autobrzdy, being still the state enterprise, undergone great changes. The company was privatized and on May 1, 1992 the National Property Fund established a new joint-stock company under the new name of Ateso a.s. The company stripped off some plants which were sold either directly or through the Fund to incoming companies. The Ateso Rakovník plant retained the existing production of independent and car heaters. Although no direct interconnection with Eberspächer occurred, the production cooperation and assembly made to Eberspächer´s order continued.

The other division of Eberspächer, exhaust systems, showed another attitude towards Rakovník establishing its own company Eberspächer CS, spol. s r.o. registered on

November 11, 1992. In the hired sheet-metal production building of Ateso it quietly started the production of silencers as so called extended workbench of the largest exhaust system Eberspächer production plant located in the Saar city of Neunkirchen. Eduard Filip was invited to head the production and the workshop soon started impressing German colleagues with its efficiency. At the end of 1992 thirteen employees began to work on machines imported from the plant in Neunkirchen. The production was based exclusively on manual welding and it turned out over time that the saying „golden Czech hands" did not come into being just by itself. The quality of production as well as the ability to adhere to deadlines surpassed all expectations. They confirmed that the decision to start one´s own production here was correct. Its volume grew as well as the number of employees which more than doubled in the following two years.

Further returns – the second half of the 1990s

The majority of domestic car manufacturers and their components became part of international automobile concerns. The Škoda motor works was acquired by Volkswagen, French Renault with its bus division R.V.I. entered Karosa and specialized in urban and intercity buses. The requirements of aftermarket changed too. Eberspächer responded to this situation by transferring the sale of independent heaters from the company Svoboda to its own changed company. Its name was modified by removing the abbreviation CS and the registered office changed too. It was moved from Prague – Dejvice and Holešovice warehouse to newly reconstructed assembling plant in Prague – Stodůlky, in the premises of the then IPS. The ceremonial opening took place on October 12, 1994, at the presence of the majority of business partners.

In relation to primary car manufacturers, the company is linked directly to the headquarters in Germany, as far as other activities are concerned it continued making use of experience and well-established logistics of the Eberspächer Vienna branch. To name at least two people for all, the engineer Richar Leitgeb and Herbert Zimmer responsible for the logistics stood at the birth of the new company. Other Czech employees joined the company, including the engineers Richard Bolehovský and later also Jaromír Žáček and others, who assumed the necessary responsibility. Eberspächer Praha grew to the leading position in the independent heater market in Czech Republic.

The production of exhausts experienced a dynamic development too. The German management decided to build the company´s own production plant. In summer 1995 a piece of land of 11 000 m^2 not far from the hired building in Rakovník was purchased from the company Ateso and on December 6, 1995 the foundation stone was laid of the future production premises. The project work was entrusted with Architekturbüro Jaschek from Stuttgart. A modern production building of 4000 m^2 was built in the cooperation with the local engineering company headed by Václav Pelc and in cooperation with the architect Jan Krauskopf. This building was equipped with machines moved from the hired Ateso premises and further production was transferred here from the parent company in Neunkirchen. At the end of 1998 there were 140 employees.

Based on the effectiveness and quality of performed work the Eberspächer management decided to enlarge the production capacity. Therefore another neighbouring piece of land of 9000 m^2 was purchased in 1998. The former cooperation partner Autobrzdy, currently the company Ateso, replaced its not very successful type of heater 4CON 1 with modern aggregates of 2 and 4 kW which they developed by themselves and started offering under trade names Breeze and Wind. It is where the paths of the former partners split – they became competitors in the sector of independent heaters. Nevertheless, Ateso is still successful company.

It has not befallen the fate of numerous Czech privatized companies which are vacant today, their buildings belong to non-existent banks and the wind is blowing through the broken windows. Ateso was taken over by the modern and progressive group Brano a.s. of Pavel Juříček which has built a good position on the European market of automobile components, door mechanisms in particular. The production of independent heaters was moved from Rakovník to another place in order to free production capacities for other products.

An aerial photo of the factory in Rakovník where exhausts are produced

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Eberspächer in Czech Lands

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