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German Magazine for Z Gauge



The RAm TEE from NoBa-Modelle

Things to know about Adhesive Technology
Collection Z-Gauge in Test Use

50
Years
of Z Gauge

Introduction

Dear Readers,

In this edition, we take a leap back to the late 1950s: around ten years after the Second World War, European states, including Germany as a founding member of the European Communities, were moving closer together.

The consensual view that only the overcoming of nationalism and close economic cooperation with the dismantling of borders could guarantee lasting peace was a milestone in the history of the Occident. In this context, against the backdrop of the war in Ukraine, which is entering its third month, the current edition also has a symbolic character.

European consolidation was also evident on the railways. In 1954, the state railways of Belgium (NMBS/SNCB), the Netherlands (NS), Germany (DB), France (SNCF), Italy (FS), Luxembourg (CFL) and Switzerland (SBB/CFF/FFS) founded the Trans-Europ-Express Commission based in The Hague.

After almost three years of preparation, they started cross-border TEE traffic between the major metropolises on 2 June 1957. The two matching articles in this edition are also symbolic of peaceful and international cooperation.

Our Japanese reader Yuji Kuwabara shows us today his impressive self-built models of the Italian TEE contribution in the form of the railcar ALn 442/448 and the Dutch-Swiss contribution DE IV / RAm TEE. The older of the two projects dates back to 2007, but has lost none of its fascination.

If you like it and now feel the desire to build your own models, you will find what you are looking for with regard to the SBB diesel multiple unit at NoBa-Modelle. The four-part unit is particularly inspiring as a DCC digital sound model, which was presented to us for a test and at the same time commemorates 175 years of railways in Switzerland.

We took the many functions as an opportunity to produce a video about it and to open our own Youtube channel in order to be able to convey to you what photos alone cannot do. We hope that you will also like this channel. Like the magazine, it should remain non-commercial and independent, but for that very reason it should appeal to as many people as possible and inspire them for Z gauge.

The book recommendations in this edition also fit the chosen overall theme and let us look back into the past up to seventy years, to a time when the world still seemed to be in good shape. But let's remain confident and create our own little world.

To ensure that this succeeds without any problems, we have prepared interesting facts about almost all types of adhesives for you. After all, there is no way around it in model making. The first of two planned parts deals with their history, composition and application. We hope you enjoy this issue!

Sin-Z-erely,

Holger Späing



Holger Späing
Editor-in-chief

Persönlich...

...sind wir auch ohne Messe für Sie da!



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Digital RAm TEE from NoBa-Modelle

Diesel Multiple Unit for Two Nations

Only the Netherlands and Switzerland followed the common idea of the founding fathers and jointly developed a diesel multiple unit for international TEE traffic. In 1957 it went into service as the DE IV of the NS and RAm TEE of the SBB. It was also to become a classic as a miniature, which, thanks to NoBa models, has now also found its way to Z gauge. We have tested the 3D printed construction as a digitised finished model.

Only the Nederlandse Spoorwegen (NS) and the Swiss Federal Railways (SBB) followed the idea of jointly developing and procuring a diesel multiple unit for TEE traffic. All the other railway administrations involved went their own ways, each in a highly different way.

The joint project of NS and SBB resulted in five diesel multiple units, three of which went to the Netherlands and were classified there as DE IV with the fleet numbers 1001 to 1003. The two units destined for the SBB were designated RAm TEE, later TEE I, and were given the fleet numbers 501 and 502. However, all five were based in Zurich.



In July 1973, the last year of operation for the Dutch-Swiss diesel multiple units is already progressing as one of the four remaining trains presents itself for a photo in Mulhouse (France) as TEE Edelweiss (Amsterdam - Luxembourg - Strasbourg - Zurich) apparently entering the station. Photo: Joachim Lutz (CC-BY-SA-4.0)

Each train consisted of four parts: a six-axle power car, two four-axle centre cars and a control (driving) trailer with four axles. One of the two middle cars was designed as a half dining car and also had a large passenger compartment.

The Dutch company Werkspoor in Utrecht was responsible for the power cars. They were given a characteristic head shape based on designs by Elsebeth van Blerkom. This is the reason why they did not want to fit into the usual image of Swiss rail vehicles.

Two diesel engines RUHB 1616 from Werkspoor (1,000 hp each), as they were also installed in the three-car diesel multiple units Plan U of the NS, provided the necessary power. They powered a DC generator that supplied the four electric drive motors.

The on-board power supply (with air-conditioning and kitchen) as well as the auxiliary operations of the train (including the braking system) were supplied by a V8 auxiliary diesel engine, which powered a three-phase generator. The design of the auxiliary diesel engine corresponded to a half-sized main engine.



On 14 June 1966, a set of RAm / DE IV as TEE "Arbalette" (Zurich - Paris) with driving trailer ahead at Culmont-Chalindrey (France). Photo: Brian Stephenson (PD Switzerland)

Since the diesel-electric drive resulted in a high mass, two carrying axles were required to be able to keep the axle load below 20 tonnes (result: 19 t). This carrying axle sat centrally in each of the three-axle bogies, which is why the axle formula of the machine car is (A1A)' (A1A)'. The maximum permissible speed was set at 140 km/h for all TEE multiple units.

The intermediate and driving trailers were built in Switzerland, SIG was the executing company here. Their low construction was based on the contemporary EW I and EW II unit coaches of the SBB, and, therefore, had a very typical Swiss appearance. This continued up to the aluminium double revolving doors, which those also had of similar design.

For the driving trailers, however, the head shape of the power cars was adopted in order to give the entire train a uniform appearance. For this reason, the power car and the coaches were of the same height so as not to jeopardise the unified appearance of the train.

The electrical equipment of the vehicles came from Brown, Boveri & Cie. Automatic Scharfenberg couplings at the ends of the trains also made it possible to run in double traction, although this was hardly ever used. The vehicle parts were connected to each other with a special Dutch-type coupling.

The interior

The TEE Commission also agreed on the equipment features and comfort of the trains to be used. NS and SBB also adhered to this. A workplace for the on-board mechanic, the luggage compartment, and the customs and train driver's compartments were located in the power car head, as was a staff lavatory.

In the adjoining compartment car, up to 54 passengers were accommodated in nine compartments with six seats each. The dining car with the lettering "TRANS EUROP EXPRESS" on the long sides above the windows offered seating for 32 guests at eight tables, a large area for 18 passengers followed.



After the stop, the set shown on page 5 also allows a view of the driving trailer, which in addition to a large compartment also housed a recreation room for the on-board mechanic. Photo: Joachim Lutz (CC-BY-SA-4.0)

The driving trailer was designed entirely as a large-capacity coach. The 2+1 seating arrangement with seats aligned in groups could accommodate 42 passengers. Between the large capacity area and the driver's cab there was also a small rest area for the on-board mechanic.

A special feature of the trains were the off-centre transitions between the carriages. A blind could be raised and lowered between the double panes of the compartment windows by means of a hand crank. Also remembered by many people are the small white windows next to the boarding doors, which formed an illuminated train destination sign.

continues on page 9



View of the entrance of a coach in November 1969: You can see the illuminated train destination sign housed in a window, the off-centre passage to the neighbouring coach and also that the opposite entrance door used to be offset. Photo: Nederlandse Spoorwegen / Het Utrechts Archief; catalogue no. 153476 (CC0 1.0)

The colour design of the multiple units had been agreed in the TEE Commission and was binding. Nevertheless, the rules offered some design leeway. For example, NS and SBB did not use metal trim. The operator's abbreviation and fleet number were only found as small inscriptions on the sides of the power cars.

The red belly band was pulled up at an angle at the ends and enclosed the entire forehead as a coloured area. While the red corresponded to the TEE colour RAL 3004 purple, the beige of the window bands did not follow this colour scheme. This also explains why it looks lighter in many photographs than the colour RAL 1001 Beige chosen by the Bundesbahn.

Operational use and the final days

The five DE IV and RAm trains ran from 1957 to 1964 in a four-day rotation as TEE “Edelweiss”, “Etoile du Nord”, and “Oiseau Bleu” between Zurich, Amsterdam, Paris, and Brussels. In 1964, the “Arbalète” was added, which was in the train schedule until 27 September 1969.

One day later, this was replaced by “Bavaria”, which ran the diesel multiple units from Zurich to Munich Hbf. But, this came to an abrupt end after SBB's RAm Tee 501 derailed on the Allgäubahn near Altrang on the evening of 9 February 1971, causing a serious accident.

The engine driver of an oncoming rail bus realised the danger too late in the dark and collided with it. As a result, 28 people lost their lives and 42 others were injured, some seriously. This accident was to go down in the history books as the most serious train accident of the TEE operating era.



In September 1979, Ontario Northern 1982 is still in its original configuration, photographed in Toronto with the “Spadina Yard” marshalling yard and holding sidings in the background. A short time later, the failure-prone powerhead was to be replaced by an EMD F7P diesel locomotive. Photo: Marty Bernard (Collection Roger Puta)

The four remaining multiple units resumed service a week later, but no longer on DB tracks. They were now only allowed to operate the "Edelweiss" link. But they were finally taken out of service on 25 May 1974.

While the German VT 11⁵ found other uses in Intercity and regular service, the star of the Dutch-Swiss representative seemed to have finally sunk after less than 30 years of service.

But finally, the Canadian railway company Ontario Northland Railways (ONR) acquired the four trains and had them shipped across the Atlantic. From 1977 to 1992, they were in service in Canada as "Northlanders" from Toronto to Timmins. Their service ended exactly 21 years to the day after the Aitrang disaster on 9 February 1992.

The failure-prone power cars had already been replaced by locomotives (EMD FP7) in 1979 and scrapped. However, the remaining coaches had also passed their heyday in the meantime, but, nevertheless, remained in service for a good ten years.

In 1996, the TEE Classics association acquired eight remaining coaches for a symbolic Canadian dollar and, with sponsorship, brought five of them back to Europe. In 2004, they were taken over by the Stichting TEE Nederland and the exterior was partially restored and rebuilt to bring them closer to their original condition.

After years of storage and severe vandalism, they were handed over to the Nederlands Transport Museum in 2021. The remaining four vehicles are now being restored there (not operational) to their original condition.



As TEE "Bavaria", RAm TEE and DE IV also ran on German tracks for a few years. This is shown here in 1:220 scale with the train from NoBa-Modelle.

Converted into scale 1:220

For Märklin friends, the NS and SBB communal multiple unit train is a classic. Although friends of the brand had to wait a whole eight years after the start of TEE traffic, in 1965 the market-leading manufacturer surprised them with a truly innovative model. It was the first to receive a plastic housing and a heavy chassis made of zinc die-cast from the company in Göppingen.

Even the wiper switching and the interior lighting were innovative solutions for the time. However, this also led to a noticeably expensive price, which greatly limited the number of customers. Sales may also have been hampered by the fact that this TEE multiple unit did not run to Germany when it was launched and was therefore not very familiar to customers.



The four-part small series model is shown here in the style of a Märklin product illustration and conveys a largely cohesive train image despite excessively large car spacing.

Nevertheless, it remained in the product range for five years and in the meantime also reached the Bavarian capital of Munich. In 1971 Märklin sent a technically and visually simplified successor on the market, which finally made this multiple unit a classic as a model and was able to hold its own in the programme until 1989.

Data and dimensions of the RAm TEE of the SBB:

	<u>Vorbild</u>	<u>1:220</u>	<u>Model</u>
Length over couplers (LüK)	98.060 mm	445,7 mm	463,4 mm*
Length main drive unit	23.900 mm	108,6 mm	108,8 mm
Largest width	2.840 mm	12,9 mm	14,4 mm
Height above railhead	4.210 mm	15.875 mm	72,3 mm
Wagen	71,8 mm	83,2 mm	85,5 mm
Distance between drive axle	18.300 mm	20,5 mm	19,8 mm
Rotation points on control car	4.500 mm	12,3 mm	9,5 mm
Wagons	2.700 mm	4,7 mm	3,9 mm
Diameter driving/running wheels	940 mm	4,3 mm	3,9 mm
on control car	1.040 mm	---	97 g
Wagons	940 mm	---	---
Empty weight	228,8 t	---	---
Design	(A1A)' (A1A)' + 2' 2' + 2' 2' + 2' 2'	---	---
Maximum speed	140 km/h	---	---
Power	1.472 kW / 2.000 PS	---	---
Years built	1956/57	---	---
Number produced (DB)	5	---	---
Date of retirement	1977	---	---

* Dimensional deviation due to the distances between the wagon connections (per 6,7 mm)

This history has also made the four-part single unit, which in H0 gauge was always listed as a three-part plus extension car, a desired model for many Zetties.

However, since the diesel multiple unit did not immediately take off, even in 1:87 scale, and first had to develop into a classic, a Märklin adaptation for Z scale seems very unlikely to us.

Traditionally, multiple units are less flexible for the model railroader than locomotive-hauled trains and are therefore more difficult to sell, especially since a high purchase price has to be paid all at once.

For the manufacturer, the RAm TEE also means a high economic risk: different moulds are already required for the superstructures, and different window inserts and bogies have to be added.

The costs incurred for this are unlikely to be amortised with a model that only rudimentarily touches on the core market of Germany with regard to the original.

Thus, the template proved to be suitable for implementation by a small-series manufacturer. But here, too, the costs are not to be neglected if the production volume is not to be limited to five units.

NoBa-Modelle found a suitable approach to combine an attractive appearance with affordable technology in 2021. In the meantime, a finished model is also available, as we were allowed to test. It can also be easily digitised with D+H products thanks to suitable files for operating sounds, which in this case was done by Z-Doktor Modellbau.



Whereas, Märklin had once still shortened its H0 gauge model and supplied it in a three-part basic pack, the small series delivery for the 1:220 scale includes all four vehicle parts in scale length of motor and intermediate/end coaches.

Thus, it is worthwhile to shed light on the strengths and weaknesses of the miniature and to work out the pioneering achievement that has ensured an exceptionally good response on the market in this case. We are confident and convinced that there are many more people interested in this multiple unit who have so far hesitated due to a lack of their own experience. Our test report is primarily intended for these readers.

Design and scale

At NoBa-Modelle, the housings of Z gauge models are always designed in a CAD programme and then produced using 3D printing. For about two years now, the housings of locomotive and rail car models with their many details have (almost) only been output using the material resin.

This has resulted in an enormous gain in quality in the reproduction of fine features and also leads to much smoother surfaces, which can also positively influence the chosen print template. This development and newly added printers of even better output quality have led to great and joyful surprises in the five years of existence.

NoBa-Modelle has long since become a small-series manufacturer that is indispensable in the field of locomotive and train models. The duo from Aichtal has found a gap in the market in building on low-priced shorty bogies from Rokuhan and thus keeping the purchase price affordable.

The desire of many customers not to buy a kit, but a ready-to-run gem, has finally led to the creation of a suitable range of ready-to-run models. Therefore, products with the addition “RF” to the article number usually follow the new shaped blanks: The “R” indicates the material resin, the “F” a finished model.

Norbert and Barbara Heller can therefore make a suitable offer to price-conscious model railway fans, as well as perfectionists without their own passion for handicrafts, which has led to a rapid growth and great popularity.

The next stage of evolution, with which we now arrive at the train available for testing, is an own chassis made of PLA, which is cheaper to produce than with resin. In order to be able to power it, shorty undercarriages are used as before, but in this case they are disassembled into individual components and installed.



The head shape, which cannot be described as typical for Switzerland, has been convincingly realised by NoBa models. The same applies to the structures of the side walls and the top with fan and exhaust openings.

They are given sufficient weight by screwed brass weights in the form of thicker metal sheets. Threaded bushings are pressed into the resin housings so that they can be connected to the self-designed bogies. This technique guarantees that the trains, even in four parts, are within an acceptable price range and do not demand too many compromises.

Our dimensional table shows how well all those prototype specifications that can be influenced by the designer have been adhered to. Measurable deviations that cannot be attributed to the usual measuring tolerances only concern the dimensions that are determined by the Rokuhan parts. These are, apart from the bogies of the intermediate and driving trailer, mainly width and height.

The diesel multiple unit (art. no. 5214RF) has not lost its proportions and its harmonious overall appearance because only the calliper revealed the facts. The compromise that was made and intended can therefore be considered a success.

Only the overall length, which is almost 2 centimetres too long, cannot be ignored. This is due to the necessary space between the individual carriages for cornering, which NoBa-Modelle has tried to hide well with tapered transition replicas. We measured the distance between the carriages at 6.7 mm each, which, multiplied three times, explains the aforementioned deviation.



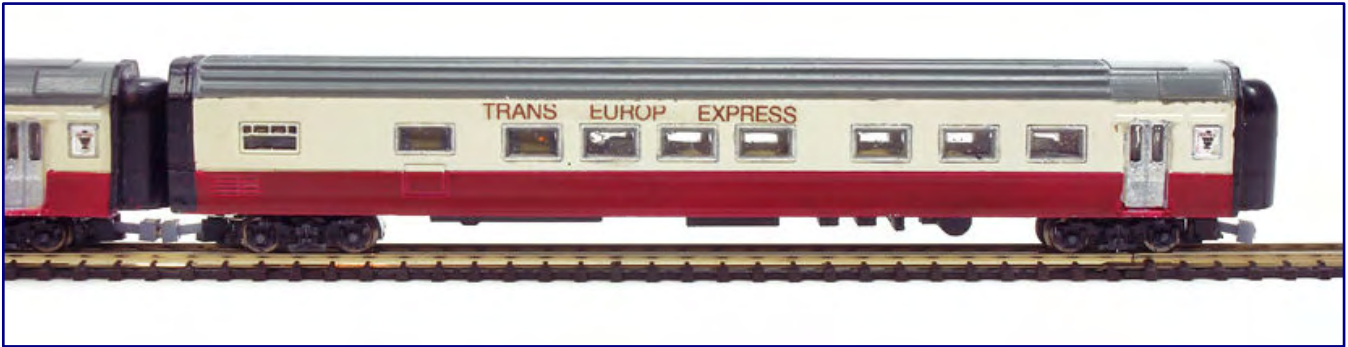
The comparison of the two sides of the control (driving) trailer shows that NoBa-Modelle has correctly taken into account the offset of the entrance doors opposite each other at the same end. If you are considering building your own car on the basis of the non-powered Atlas model, assemble this car from the compartment and motor car and accept a prototype error at this point.

We consider a narrower coupling distance possible and worth testing. With verifiable operational safety, if necessary, with restriction to a minimum radius to be defined, a product modification would certainly be possible. The mechanical connection of the coaches is done by magnetic couplings in a self-designed guide with a shaft that can potentially be shortened.

Electrically, two units are always permanently coupled in the digital model we have. The decoder is located in the motor coach without drive; the drive is in the compartment coach. In the second half of the train, the dining car (drive) and the control car (control) work together in the same way.

We were particularly attracted by the clean painting in the correct colour tones, which is especially evident in the lighter beige of the window bands. As the moulds have been perfectly realised and also take into account special features such as the noticeable passenger boarding doors, side window frames or the train destination displays in windows (illuminated in the prototype), all this has also been highlighted and attractively set off with a brush or drawing pen.

The window panes have been reproduced with Micro Kristal Klear and also leave a pleasing impression. The sparse inscriptions of the original have not been forgotten. The test model is labelled as RAm 502 of the SBB and was used in the train of the TEE Edelweiss. For this purpose, decals were used, that were applied wet and sealed with clear varnish.



The dining car with the TEE lettering also matches its prototype very well. The train destination indicator next to the entrance door, which is not illuminated in the model, is also correctly produced.

A look at the technology used

The power car has bogie covers constructed by NoBa-Modelle according to the prototype, which have current pickup plates inside. Parts from Shorty bogies were used for this solution, including the axles with the wheels.

The two middle cars each received a driven Shorty part and on the opposite side the drive-less Rokuhan-Shorty bogie with current pickup plates from the axle tips. The driving trailer received two of these bogies.

In order to realise prototypical lighting with top and tail lights, the train received a small circuit board at each end with two two-colour LEDs (warm white / red) of the SMD type 0605 as well as an SMD light diode 0402 warm white for the upper top light. The interior lighting was realised with carriage lights from the existing stock, whereby their manufacturer could no longer be determined.



The motor coach received self-designed bogies with current pickup, which also make use of parts from Rokuhan Shorty bogies in their interior.

Z-Doktor Modellbau made sure that the intended decoders from Doehler + Haass (D+H) were installed and control the light circuit boards. Since then, a sound decoder SD-10A with loudspeaker has been working in the motor coach, while a DH-05C controls the second half of the train with separate drive in the driving trailer. Both are set to address 43 and adhere to the internationally used DCC protocol.

We controlled it with 128 speed steps via the control centre. 12 functions were set up on our specimen and gave the tester great pleasure during the test and measurement runs:

<u>Function number</u>	<u>Description</u>
F0	Direction-dependent peak and end signal on/off
F1	Engine and driving noise on/off
F2	Interior lighting on/off
F4	Shunting mode (half speed / full control range)
F9	Short whistle
F10	Bell (important for the variant as “Northlander”)
F11	Long whistle
F12	Door closing sound
F13	Brake squeak (arbitrarily triggered)
F14	Curve squeak on/off
F15	Coupling and uncoupling noise (in the event of use as a double set)
F16	Conductor's whistle

In order to demonstrate digital operation with this model and its light and sound functions to our readers, we have created a video of just under eight minutes, which is available on our **Trainini TV** channel.

Even if the Rokuhan Shorty bogies are not known as “driving miracles,” with the right control they can be given impressive characteristics.

Even when selecting speed level 1, the four-part train slowly starts to move. Converted to the large prototype, we determine a starting speed of 0.7 km/h!

At speed level 4, the train is also safe enough to travel on turnout sections, with a converted walking speed of 6.1 km/h.

The train reaches the top speed of the prototype. The top speed of the prototype is reached between speed step 79 (139.4 km/h) and 80 (144.1 km/h).

In the highest speed step, the RAM TEE even surpasses modern high-speed traffic with the equivalent of 392.6 km/h. This would be a good starting point. Here an approach would be to adjust the factory CV settings optionally and to limit the maximum speed in the decoder to a value close to the prototype.



In order to be able to test the model with all functions, we first have to create it on the control centre and store them all there. The function F3 is not assigned in this model and must still be deleted from the basic configuration offered.



One of the two drives is in the compartment car, the other, by the way, in the dining car. So, it kept the driven and unaltered chassis of a Rokuhan shorty on the left side. On the right, a non-powered bogie of this donor chassis is installed. The dining car and driving trailer were equipped in the same way.

Considering the current consumption to be expected for the decoder controls and two working motors, the model is surprisingly economical. At speed level 80, i.e., the prototype speed, just 20 mA current flow, at full speed 32 mA. Light and sound functions were also activated for both measurements.

Final overall assessment

To formulate our final conclusion in a single sentence, we can only state that the Dutch-Swiss TEE diesel multiple unit has made a lasting impression on us! It offers the viewer an appealing and coherent image and, at least as a digital model, has very cultivated driving characteristics.



On a model railway layout, the RAM TEE is definitely an enhancement. And it also fits well on lines based exclusively on German models.

All four housings have been correctly reproduced, including their important details, and also printed. The painting was done cleanly in correct colours, also the inscriptions are on a usual small series level. Due to their reproduction technique, they only lose out to Märklin's high skill.

From our point of view, the manufacturer NoBa-Modelle has assessed the market correctly when they looked for a way to realise the often-mentioned desired model in such a way that the purchase price is limited to such an extent that a considerable part of the interested customers would not already be excluded from it.

Based on the analogue scope of delivery of the finished model (5214RF), the result was an offer that could remain noticeably below the price that would be expected for a large-scale production. Only this makes it possible to exploit the existing market potential, as fully as possible. Incidentally, the train is also available in an adapted form as a "Northlander" under item number 5215RF.



With the driving trailer in front, the diesel multiple unit train travels along the branch from the main line, which is equipped with overhead lines, to its non-electrified route, which it will take on the rest of the journey.

In view of this implementation, which is balanced in every respect and which we see confirmed in the noticeable market response, we nominate the RAm TEE 502 (5214RF) diesel multiple unit from NoBa-Modelle for the new releases of 2022 in the locomotive category.

Manufacturer of the basic model:

<https://www.noba-modelle.de>

Decoder supplier

<https://doehler-haass.de>

Digital conversion for customers:

<https://www.z-doktor.de>

Video of the digital functions:

<https://youtu.be/tuzYSVwUDmU>

TEE trains of the FS and NS / SBB **Two Classics in Self-Build**

Z gauge model railways are an international hobby. And so today we look from their home market of Germany some 10,000 km to the East: there our reader Yuji Kuwabara has tinkered with small models that he is converting into 1:220 scale using his own construction methods. Today, he introduces us to two TEE multiple units that he liked immediately when he looked at Europe.

By Yuji Kuwabara. Around 2007, an old Märklin H0 gauge car set caught my eye on an auction site. It had a very interesting shape, and later I learned that it was an SBB RAm (NS DE IV) for TEE multiple units.



The diesel railcars ALn 442.203 and ALn 448.203, are Yuji Kuwabara's own construction, and were photographed in 1957 in Milano Certosa. Photo: Sammlung Fondazione FS (PD Italy)

I had heard the name "TEE" (Trans-Europ-Express) in a Kraftwerk song, but didn't know much about it. At that time it was the 50th anniversary of the TEE and many European model manufacturers were releasing products related to these famous prototypes. When I saw the advertisements and did some research, I decided to build a Z gauge model of the railcars based on models from the Italian company Breda.

Series ALn 442 and 448 of the FS

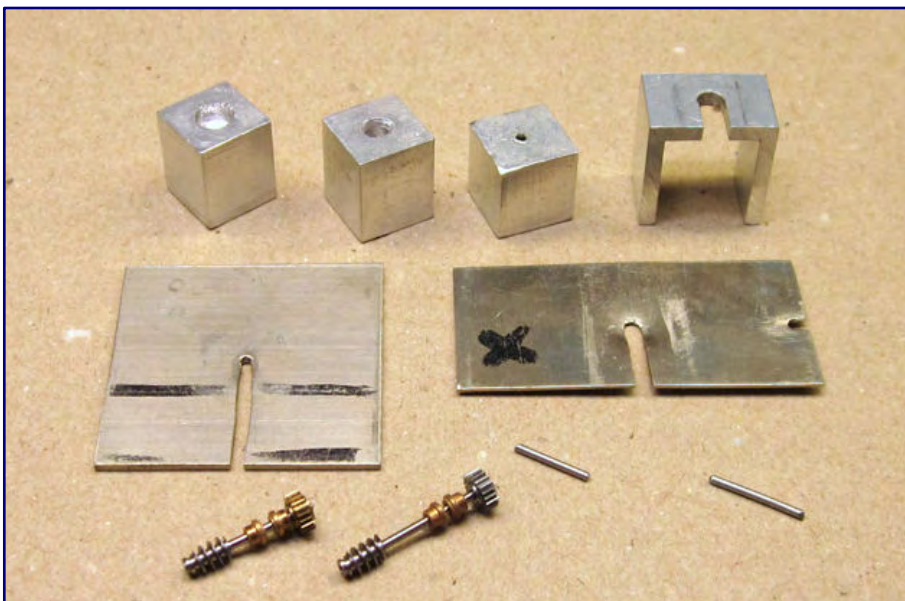
I mainly used the book "Il TEE Breda" (published by A.C.M.E. in 2005) as a reference. I can't read the text because I don't know Italian. But, that should certainly not be a reason for my own construction project to fail.



The model of the ALn 442 / 448 was already created in 2008, after interest was awakened the year before with the 50th anniversary of the TEE.

I had used cast resin in some of my previous model building projects, but I decided to forgo it this time because I saw some changes over time. All the bodies were made from polystyrene plastic (Evergreen Scale Models) instead. To avoid ad-hoc adjustments, I started with 2D CAD drawings (MacDraft program).

For the drive I used parts of an easily available four-axle electric locomotive from Märklin. I sold the leftover housing as a repair part at an electronic auction. Motor and bogies were used as they were.



These components are evidence of the Märklin donor vehicle, as well as the necessary self-made parts for the chassis frame.

and the collector of nickel silver sheet, one pole is soldered to the current frame, the other pole is glued with epoxy resin and provided with insulators.

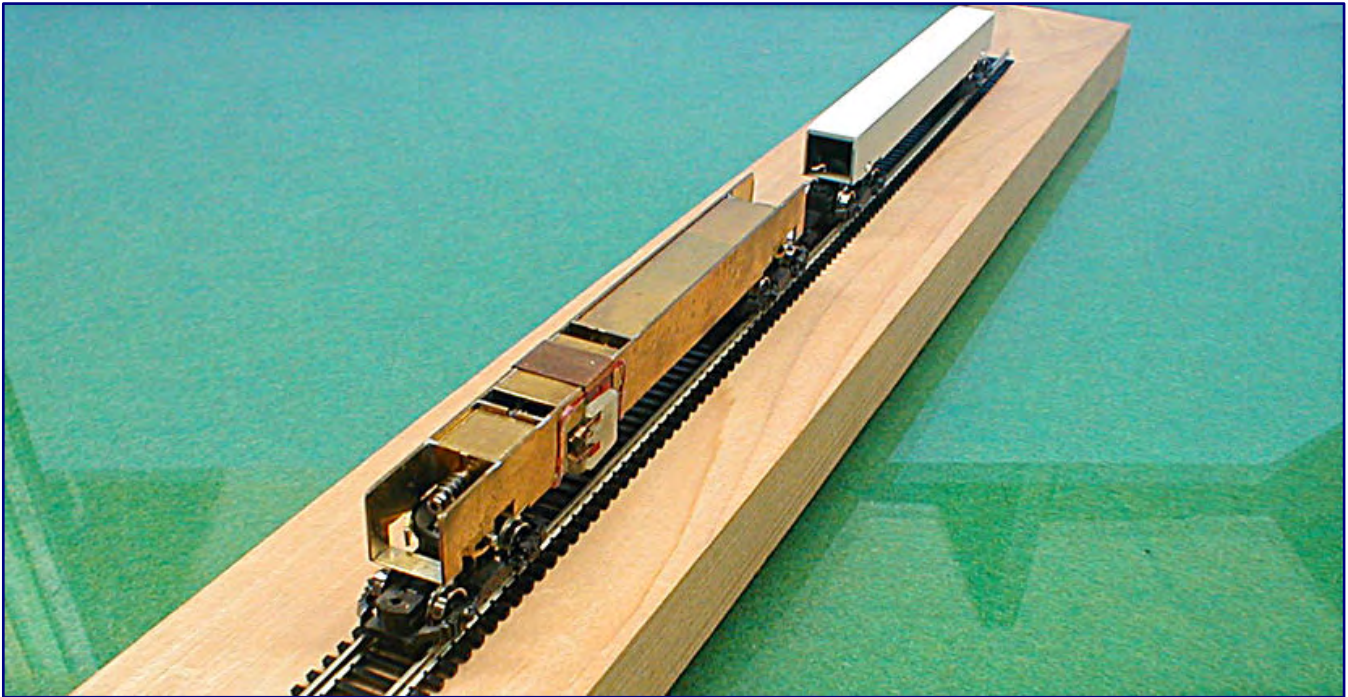
Phosphor bronze wire is used for contact with the electrodes of the motor. The motor simply touches the power frame and is held in position by the spring force of a small piece of phosphor bronze sheet.

The motor is pre-tensioned towards the front, so that one of the drive shafts is kept short with worm gears anyway.

To extend the other one, the worm wheel and the spur gear have to be removed from the shaft.

For this work I have prepared a simple extraction tool made of aluminium square steel, new silver sheet, piano wire and a hammer.

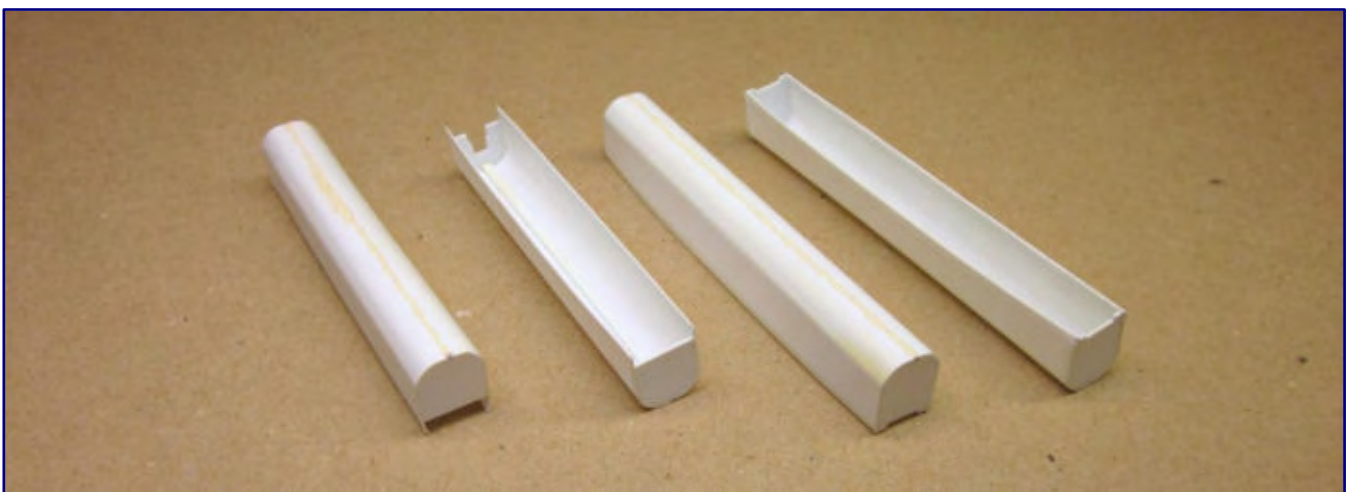
I had to be careful not to hurt myself and crush the gears, so this work and the equipment need improvement. The current frame is made of brass sheet



In the driven part of the vehicle (front), brass provides sufficient mass to ensure good traction. The other half, which is without a drive, uses polystyrene parts glued together to form a square profile as a support for the housing.

The drive shaft of the worm gear is inserted into the drive frame via a bearing. The retaining bracket, which also serves as a weight, is lowered from above to prevent the bearing from moving back and forth. The retaining bracket is simply attached to the drive frame with adhesive tape.

The structure of the attached control car is the same as that of the power car, but the part corresponding to the power car frame is made of polystyrene plates. The same base is used for its bogies, but the gears are removed and a small piece of metal is used to press the spring plate sliders into the inner frame of the bogie, so that they do not come into contact with the wheels, thus reducing rolling resistance.



The housings, but without the head moulds, were made of polystyrene and were shaped with auxiliary tools, as described in the text.

It would have been easier to cut them out, but I left them in place, in case they could be reused. The simple coupling has a slot on one side and a pin on the other.

To create the curved surface on the side of the body, I decided to hot bend a 0.4 mm thick polystyrene sheet. I decided to divide the body into left and a right sections, and it would be good if I could make the complex shape correctly and identically on each section.



The fronts of the two halves of the railcar are sanded from polystyrene blocks consisting of plates glued together. In order to create the complex shape correctly and identically for both ends, the templates shown were needed for measuring.

For this purpose I made a mould for the inside, subtracting the thickness of the polystyrene board by filing a wooden strip. I clamped the polystyrene sheet between this mould and the aluminium channel material and fastened it with C-clamps.

The whole thing is then heated in a domestic toaster. I used a thermostat, but it was difficult to adjust the heat, so I only got a good result after a few failed attempts.

For the front of each railcar, I decided to recreate the curved surface shape by filing down a block of polystyrene. The block consists of thick sheets glued together. Before the actual filing, I practised on a soft foam and compared it with photos taken from different directions.

In particular, the middle part was filed carefully, following the template of the outline. The lights, buffers, windscreen wipers and the whistle I added later, as separate parts cut from polystyrene rods and strips.



The view from diagonally above allows a look at the subsequently added details of the roof as well as the buffers and lanterns at the front.

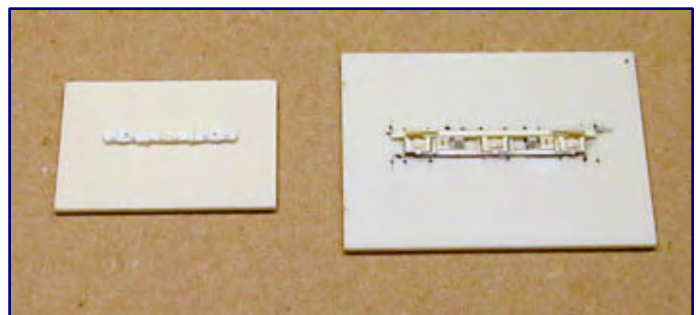
The colour was tinted to match the photos. When I later saw the Kato RAe model in a shop, it was much darker and more subdued than I had expected, so perhaps my model turned out too light and more toy-like than the prototype was.

I used wet slide decals to represent the windows, doors, vents, etc. They were drawn in Photoshop and printed with an ALPS printer.

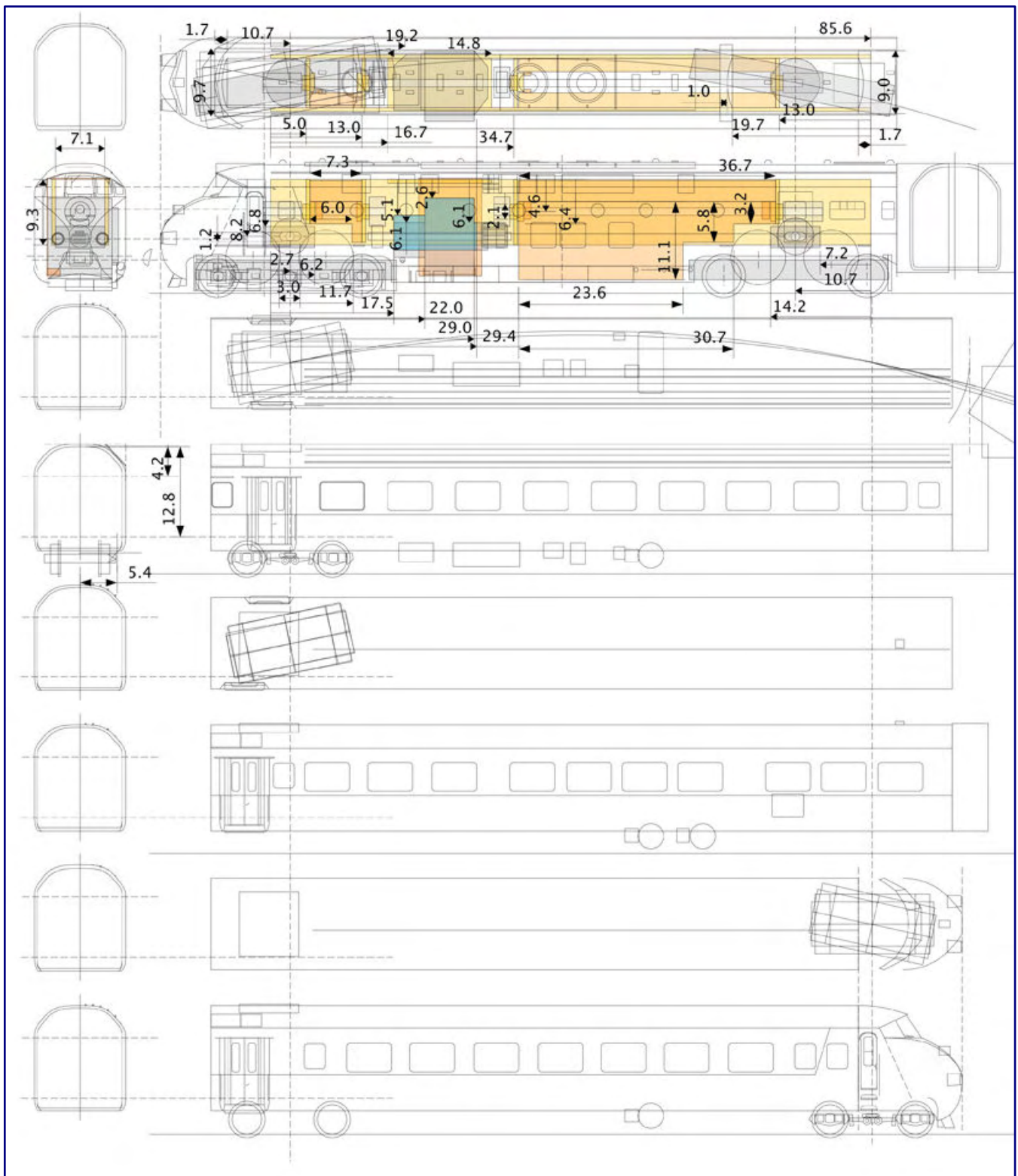
RAm TEE 501-502 (NS DE IV 1001-1003)

Next, I built the Dutch-Swiss diesel multiple unit that had entered service as series RAm with road numbers 501 and 502 with the SBB and as DE IV 1001 to 1003 of the NS. It had aroused my interest in the international TEE trains.

As a source I mainly used the book “De Nederlands-Zwitserse TEE” by Martin van Oostrom (1997). Again, I cannot read the text at all. By and large, I subsequently used the same method for the replica of the train as for the ALn Breda of the FS.



The bogie frames for motor and intermediate cars were intricately assembled from many polystyrene parts.



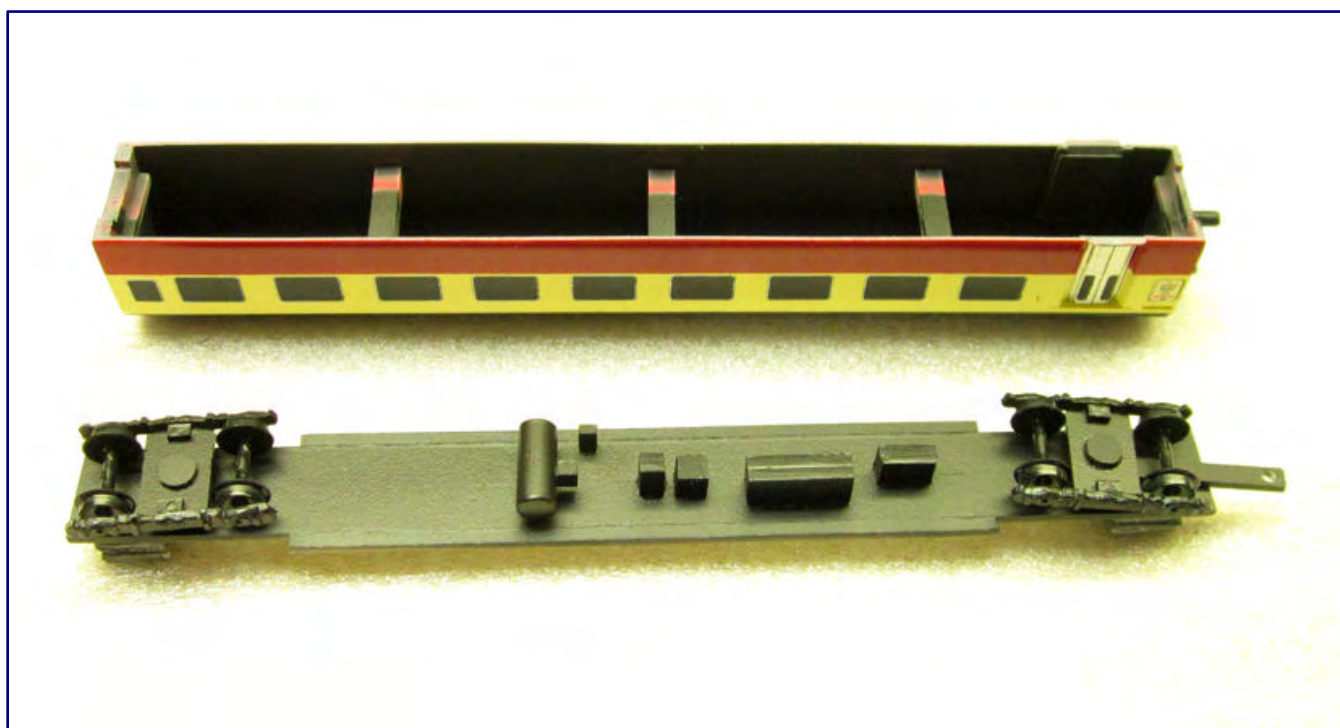
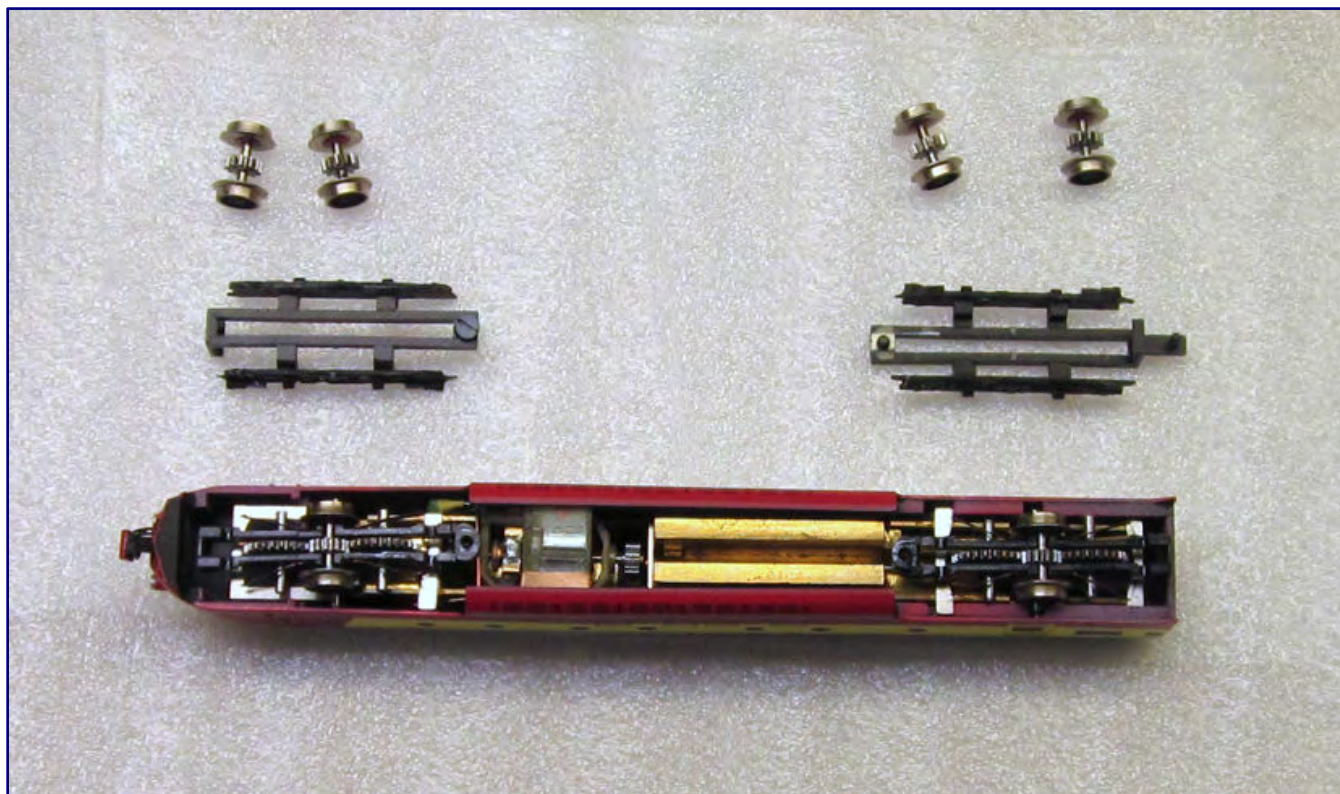
Drive, curve running possibilities and scale feasibility were planned and determined in detail with the help of a CAD programme.

The power unit came from a six-axle electric locomotive. The bottom of the bogie consists of polystyrene strips onto which the bogie frame can be glued. The outer frames of the power cars and the intermediate cars were made with polyester putty from Tamiya, using an instant mould for a small quantity.

continues on page 27



Chassis construction and power supply of the Märklin three-pole motor can be seen here from two different perspectives. The basic construction follows the previously built ALn 442 / 448 of the FS.



Both the many parts that make up the power car and the precision with which the running gear had to be created before it could be placed under the body are illustrated in this photograph (top photo). But also, the intermediate and driving trailer required a lot of work (photo below) to build bogies and aggregates on the vehicle floor, and also to be able to correctly reproduce the typical shape of the cars with the recessed doors.



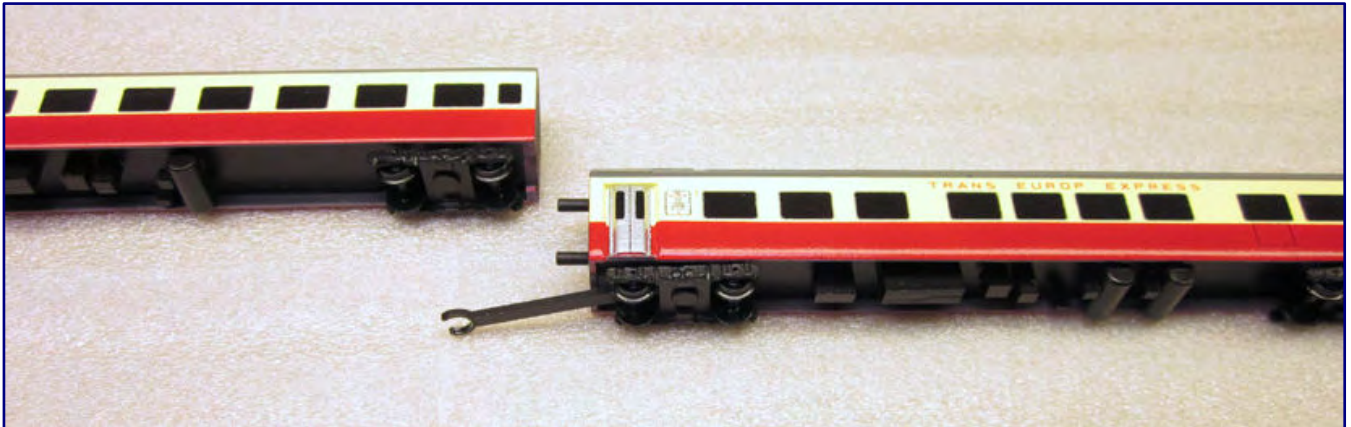
The four-part diesel multiple unit makes an attractive overall impression. Its builder also thought of the different positioning of the passenger doors on the dining car and driving trailer, which are not exactly opposite each other but offset.

As they are very fragile, metal and plastic particles were embedded before hardening. The bogies of the non-driven wagon are made of polystyrene plates; the wheels are from Micro Trains. They are connected with a simple drawbar.

The beading on the roof was made thinner by scraping off styrofoam plastic strips after gluing them on. The passenger door was cut out of the train's body shape and attached as a separate part to make it look three-dimensional.



The frontal shape of the driving trailer is also well detailed, and has been cut to size with the same tools as those used for the Italian TEE railcar.



The intermediate wagons are connected to each other with a long drawbar that engages in the pivots of the bogies. The bill for the flexible bellows did not add up, which is why the train will have to manage without them for the time being and reveal large distances between the wagons.

This part is not painted, but has a silver decal. I still think it has a good texture. I was planning on placing diaphragms between the carriages, so I added pins for attaching them.



Final photo in all its glory: This successful Swiss RAm TEE diesel multiple unit will probably remain a one-off, not only in Japan!

I tried a thin rubber sheet as a transitional replica, but it wasn't soft enough. Curves could not be negotiated with it. So that part of the model is on hold for now.

All photos not marked by: Yuji Kuwabara

Manufacturer of the base model:

<http://www.maerklin.de>

Sources for required materials:

<https://www.faller.de> (Evergreen profiles)

<https://www.tamiya.de> (polyester putty)

Grenzenloser Modellbahnspaß in 1:220

**8. Internationales
Spur-Z-Weekend**



ALTENBEKEN

Neuer Termin: 14. und 15. Mai 2022

Samstag: 10.00 - 18.00 Uhr

Sonntag: 11.00 - 17.00 Uhr

Eggelandhalle, Gardeweg 8

33184 Altenbeken

**50 Jahre
Spurweite Z**



**Z-Freunde International e.V., Brandenburg 6, 56856 Zell/Mosel
www.z-freunde-international.de**

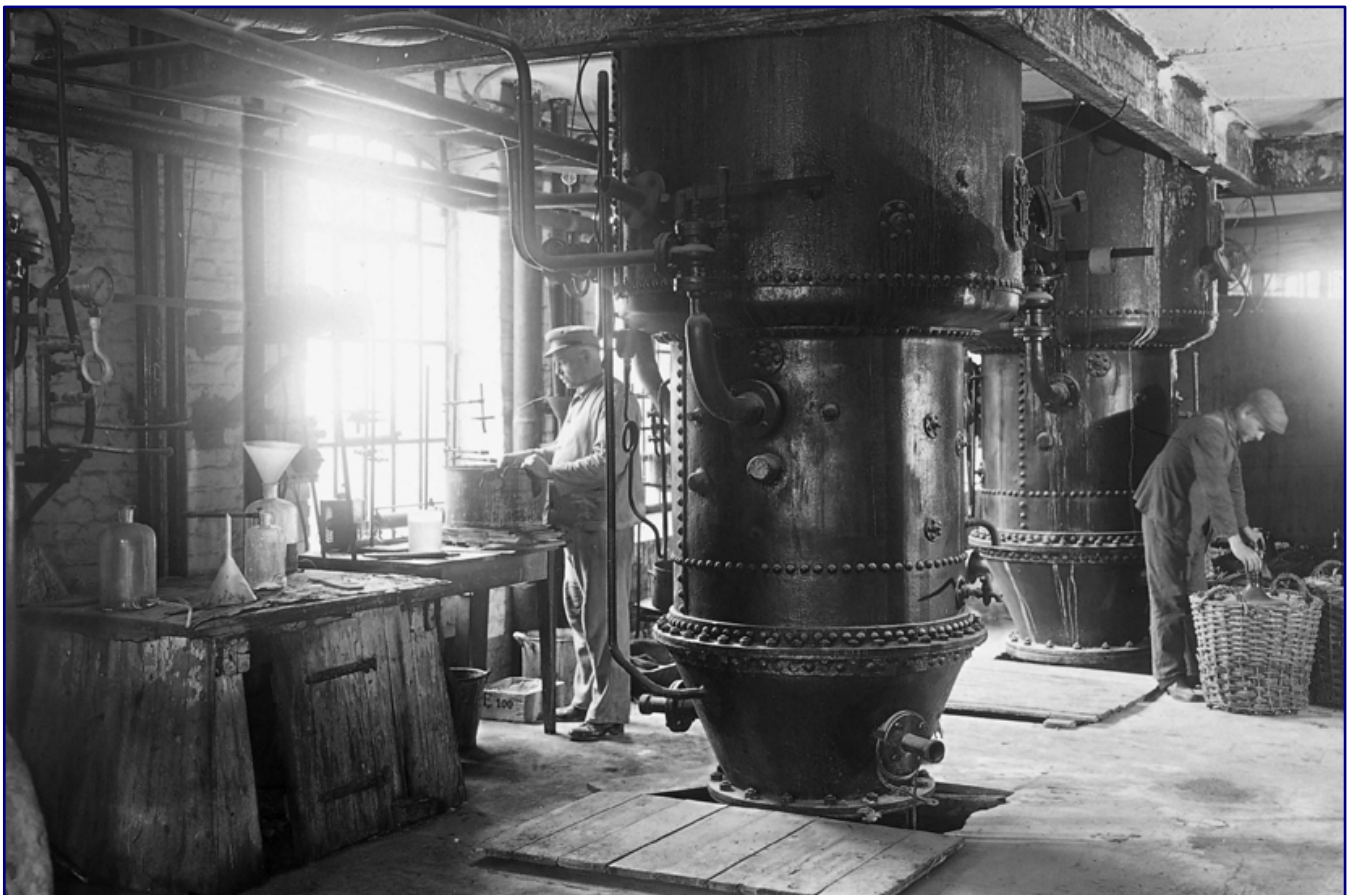
A small guide to adhesives (Part 1)

Glue, Cement and more

Humans have known how to bond materials for 200,000 years. But modern adhesives have nothing in common with the early Stone Age birch pitch. In this article, we take a look at the history of adhesives and their basic functions, categorise them according to different types and explain basic terminology.

Something always needs to be attached when doing model railway modelling. Whether it is assembling a house kit, placing figures, designing landscapes or even building rolling stock ourselves, it all involves connecting two or more pieces with each other.

The bonding challenge for every model railway enthusiast already starts with building a layout baseboard and assembling the necessary frames and struts. Wherever screws or nails do not help, glues come into play. That is why we are dedicating this first part of a series of articles to the technology of adhesives.



This image of adhesives production at Henkel in Düsseldorf-Holthausen in 1927 shows the beginnings of industrial production, which was to grow rapidly and focus on a wide range of plastics. Photo: Konzernarchiv Henkel AG & Co. KGaA

First, we would like to clarify some basics and important terms. We will also take a look at the market and its various suppliers. As soon as we have a sufficient overview of the very broad subject area, we will also deal with different types of adhesives and selected products in a second part of this series.



Henkel glue in a barrel (1925). Photo: Konzernarchiv Henkel AG & Co. KGaA

What all adhesives have in common is that they can be used to join different, sometimes very specific materials without changing their properties and structure. Many complex components, not only from the field of model railways, can only be built with the help of gluing techniques.

This can refer to pure surface connections, as well as to necessary lightweight construction techniques where weight has to be saved: Just think of a transportable layout for exhibition use.

The chosen adhesive often takes on several tasks at once: It compensates for fitting tolerances and fills remaining gaps.

Even sealing, for example, between the edge of a layout and a pane of glass in the case of casting resin for modelling water, or also the insulation of glued joints on electrical contacts are quite typical uses.

Often unnoticed by the layman, adhesives also compensate for different expansion coefficients of the selected and joined materials. Here, we refer to the example of track made of plastic sleepers with metal

rails, which is glued to a wooden panel and should not become detached due to temperature differentials in summer or winter.

Adhesives with a long history

But gluing is not actually as modern as many may believe. Henkel reports on its website about the Egyptians, who were already working with tree resins, protein and animal glues in ancient times. The oldest references, however, date back more than 200,000 years to the palaeolithic age!

Early on, people learned to produce birch pitch and used it to seal boats or to glue things together. Incidentally, it is also the first type of plastic that humans ever produced.

Some readers are perhaps wondering at this point what our recent ancestors used for gluing before the invention of “all-purpose glues” for household use? Skin and bone glues, so-called gluten glues, fulfilled such tasks, while flour paste was used for many everyday purposes.

The latter was prepared by first mixing flour with water, adding more and very hot water just below boiling point, and stirring the mixture again until the paste became transparent. The thing to be avoided was the mixture to boil as otherwise the drying paste would tend to flake off. The adhesive property of these paste glues comes from the starch contained in the wheat, rice or maize flour.

What is glue?

Glue refers to an aqueous solution of adhesives (dispersion). According to the definition of the DIN 16921 standard, this can be a solution of animal, vegetable or synthetic raw materials in water.

In the past, the term exclusively referred to adhesives based on organic substances, such as antler, hide or bone glue as well as casein glues produced from milk protein, i.e. exclusively animal proteins. It was not until the modern definition that it was extended to include vegetable (paste) and synthetic adhesives (modern white or wood glue).

Glues are mostly used to join absorbent materials such as wood or paper. They are in contrast with adhesives that are contained in a solvent, often acetone, which evaporates after application and thus leads to drying.



Pharmacist August Fischer, the inventor of the all-purpose adhesive, researches new glue solutions in his laboratory in the Postgasse (Bühl / Baden). Photo: UHU GmbH & Co KG

Adhesive paste is still probably the most sustainable and environmentally friendly adhesive, as it consists of 80 to 98 % water, with the rest made from renewable raw materials (cellulose and starch). Because of these components, they are usually also non-toxic for the user.

Synthetic adhesives as we know them today, on the other hand, have only been around since 1870. The rapid development of the chemical industry, which produced more and more new synthetic materials, especially after WWII, often required suitable adhesives, which were first used in industry, but then also found their way into household uses.

The invention the all purpose adhesive

Why the pharmacist August Fischer bought the small Ludwig Hoerth chemical factory (founded in 1884) in Bühl in 1905 can unfortunately no longer be fathomed. The company he took over produced inks, stamp pads, paints and adhesives.

From 1924 onwards, he developed new adhesives to find alternatives to the bone glue that was common at the time. But he could not have foreseen that an invention would make him one of the best-known adhesive manufacturers.

In 1932, he made a breakthrough: the world's first ready-to-use and crystal-clear synthetic resin adhesive reliably bonded all materials known at the time.

Following the contemporary customs of the paper, office supplies and stationery industry, August Fischer chooses the name of a bird for it.

"Uhu der Alleskleber," which in addition to the plastic polyvinyl acetate also contains the solvents methyl acetate and methanol as well as nitrocellulose for curing, is launched on the market and writes a success story that continues to this day.



Foto: UHU GmbH & Co KG

The first conclusion to be drawn is that we are writing about a constantly ongoing process of development that is far from being completed.

Even in the recent past, producers have been able to present completely new solutions and the same can be expected for the next few years.

Caution: Health hazards

Much of what is chemically possible is already in use in the industrial sector. Even though we may rarely hear about the type of adhesives used there, we experience the results through many everyday products. Even at trade fairs, stands of small adhesive suppliers like to advertise “industrial adhesives” or those in “industrial quality.”

But in view of the wide range of tasks and, at least in the area of the European Union, strict occupational health and safety regulations, this term often conceals very special substances that require special protective measures, in order not to endanger the health and life of the user.

A typical example is the solvent toluene, an aromatic hydrocarbon that has been banned in the EU since 2007 in spray paint cans and adhesives for private use. It causes nerve and kidney damage, but is also associated with liver damage. Presumably, it also has a damaging effect on fruit.



Even though the majority of adhesives approved for private users contain at best small amounts of harmful substances, every user should be aware of the effects of toxins and protect themselves, for example by good ventilation. Warnings in text form and with internationally standardised pictograms can be found on the adhesive tube or can as well as on the outer packaging, if required.

Since it has also been abused as a narcotic and has an addictive effect, a ban, outside of commercial use under strong safety precautions, was obvious. Previously, it was used, for example, in special adhesives for joining parts made of ABS (acrylonitrile butadiene styrene), which have always presented users with special challenges.

Another very dangerous poison that has been banned from the private sector is formaldehyde from the aldehyde group of substances. It is classified as carcinogenic and is known to the author of this article as a component of many highly effective disinfectants used in the medical sector.



In the commercial sector, it is used in wood glues, often especially in those with the highest water resistance level D4. Because of its health hazards, however, it is not used in the products offered in specialist shops and DIY shops for home use.

Acetone, which is still used in many adhesives today, also should not be underestimated. Its detrimental health effects are well known. Therefore, warnings about good ventilation of the working environment should always be taken seriously and adhesives should not be stored in rooms with a permanent presence of people.



With regard to hazardous substances, which some adhesives cannot do without, the distinction between those for commercial and private use is understandable. Whereas in the industrial sector we often find very special applications with highly specialised and extremely durable adhesives, in the private sector, such as model making, there is usually a demand for more broadly applicable and less hazardous adhesives.

For our magazine, this means presenting and using only those adhesives that can be considered harmless and are freely available to everyone. Nobody would benefit if we used products or chemical pre-treatments of materials that most readers are not allowed to use.

The new hazard pictograms contain easily understandable symbols. However, every user who finds these health warnings on their materials should familiarise themselves with their meaning and observe the safety instructions (see also the three additional symbols on the image on page 33).

Probably the classic example of the broadest possible application in the domestic sphere is the well-known all-purpose glue. For decades, all major adhesive manufacturers have been offering suitable tubes and bottles under various product names – for many years now, some have even dispensed with harmful solvents.

Today's common name perfectly expresses what is aimed at with this universal household adhesive: the widest possible field of application, which, due to the lack of orientation to a single material, inevitably entails a rather low specific bonding

force. Traditionally, these are wet adhesives, in contrast to the also widely used glue sticks.

All-purpose adhesives are a common language term for a group of solvent-based wet adhesives that are suitable for a large number of different materials and are therefore aimed at the target group of household and hobby users.

In contrast to industrial, but also many special adhesives in the private sector, all-purpose adhesives do not offer superior adhesion to any material. They often make up for this by the fact that their solvent content, usually acetone, enables a good surface spread on almost all types of materials. Exceptions are silicones and a few other plastics.

Their limited durability, which is opposed to the usual requirement in the industrial sector, regularly restricts their area of application to interior spaces and common household materials such as paper, cardboard, leather, textiles or wood.

The main limiting factor of all-purpose adhesives is their low chemical resistance to organic solvents, in some cases also to water and, since they belong to the family of thermoplastics, also by a rather low softening temperature of about 40°C.

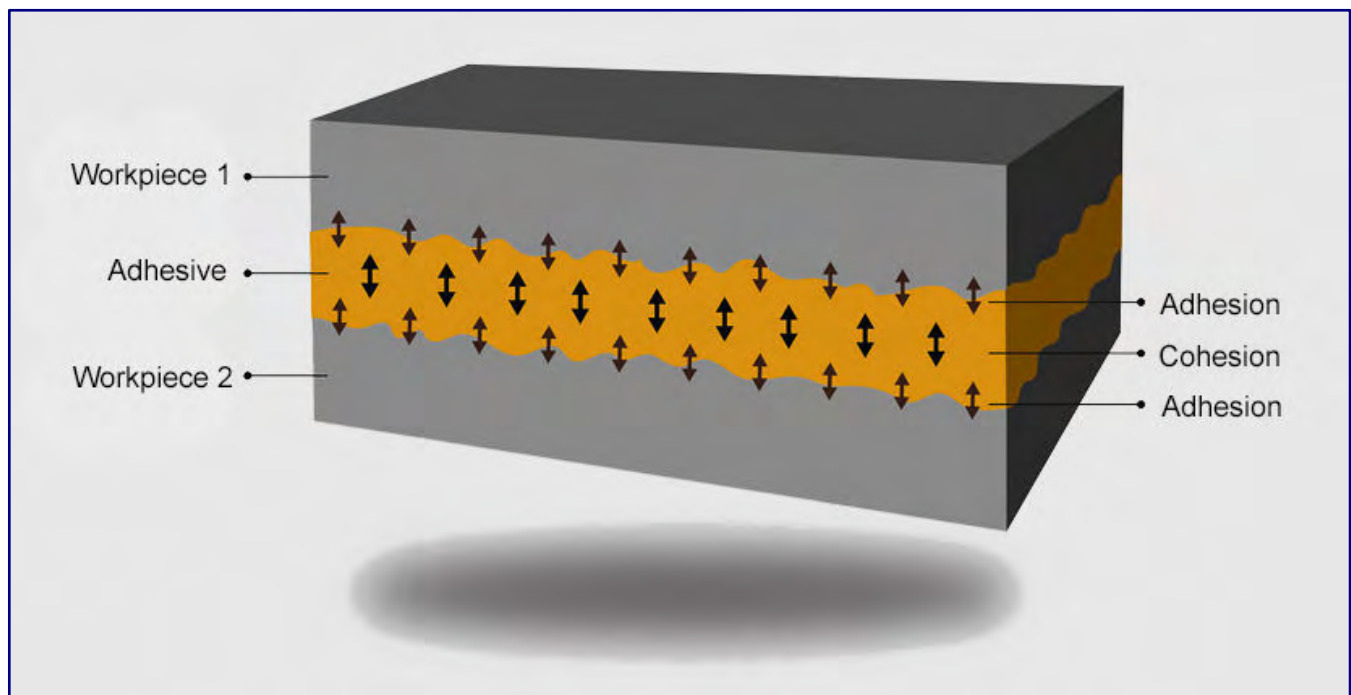
This, therefore, excludes applications where the workpiece is exposed to permanent or strong sunlight and in areas where heat can accumulate. Here we think of the well-known example of a car's interior which can heat up to temperatures of well over 60° C in midsummer.

Adhesion and cohesion

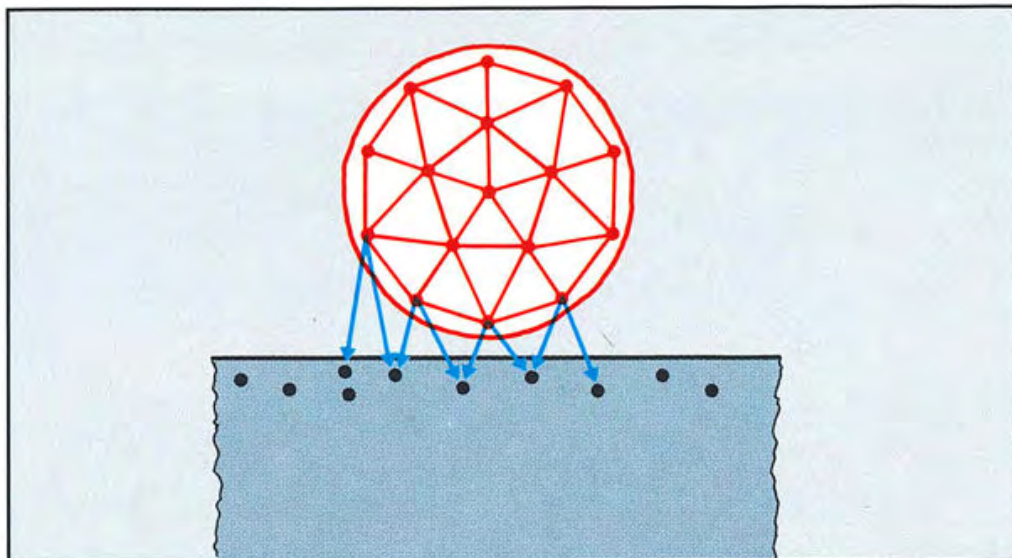
Be it paste, glue or solvent adhesives, their basic working principle is always comparable: Their individual effectiveness builds on the two factors of adhesion and cohesion, physical forces whose interaction and relationship to each other is decisive for the subsequent adhesive success.

The term adhesion refers to the force that makes one substance adhere to another. This so-called adhesion force is generated by the chosen adhesive itself. It should be clear that it must be sufficiently large on both sides to be able to hold the bonded area securely together.

continues on page 37



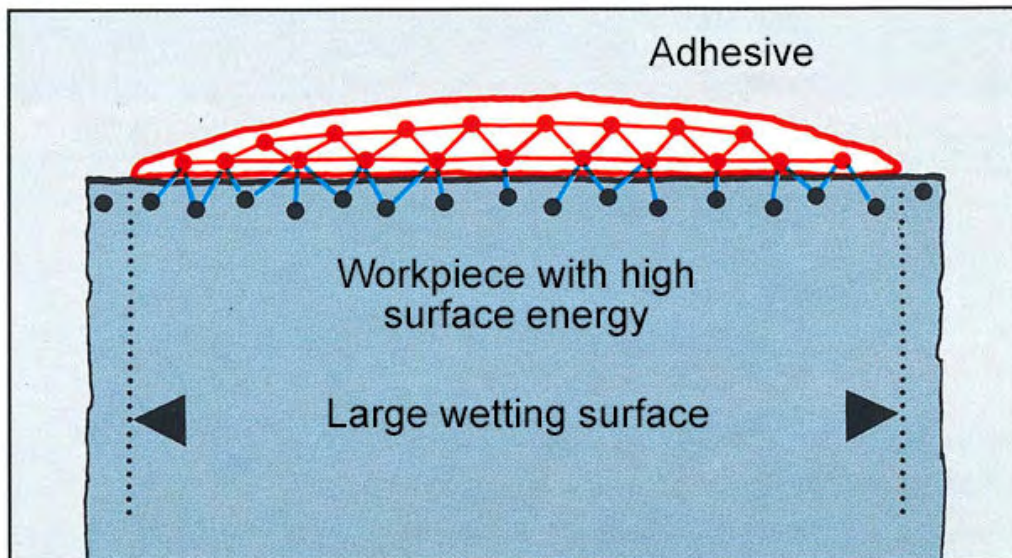
Cohesion denotes the “inner force” with which a substance holds together. The example of a drop of water shows how this force also strives to keep its surface area as small as possible (surface tension). Adhesion refers to the force of adhesion, which is one of the decisive factors in how well the adhesive clings to the workpiece and how stable the bonded joint is. Illustration: Henkel AG & Co. KGaA (translated into English by Trainini®)



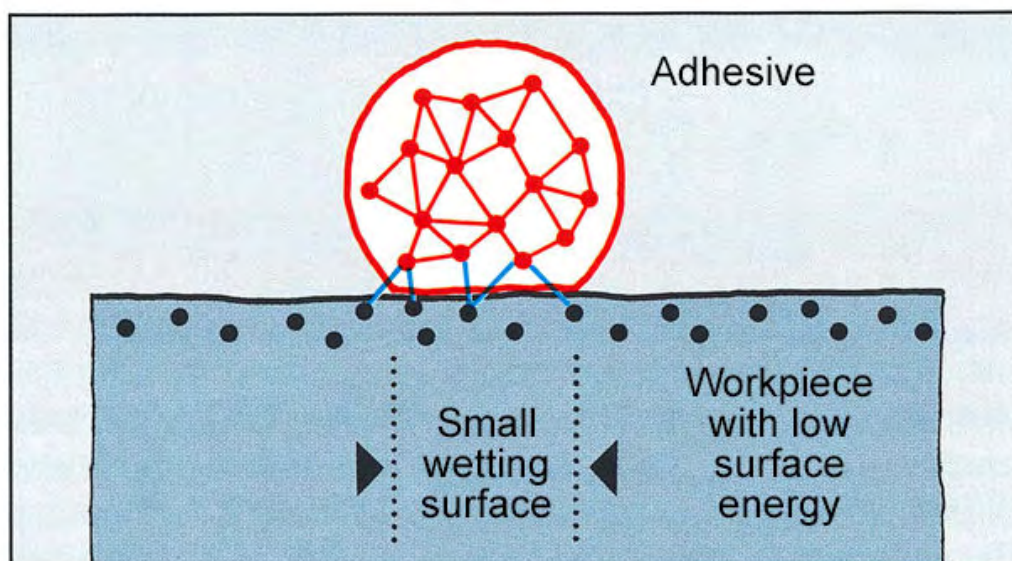
Rule of thumb:
A material with high surface energy is well suited for bonding. A material with low surface energy is less suitable.

This is to be illustrated with the sequence of pictures on this page:

If a drop of adhesive is placed on a substrate (top image), then its molecules are attracted by those of the workpiece.

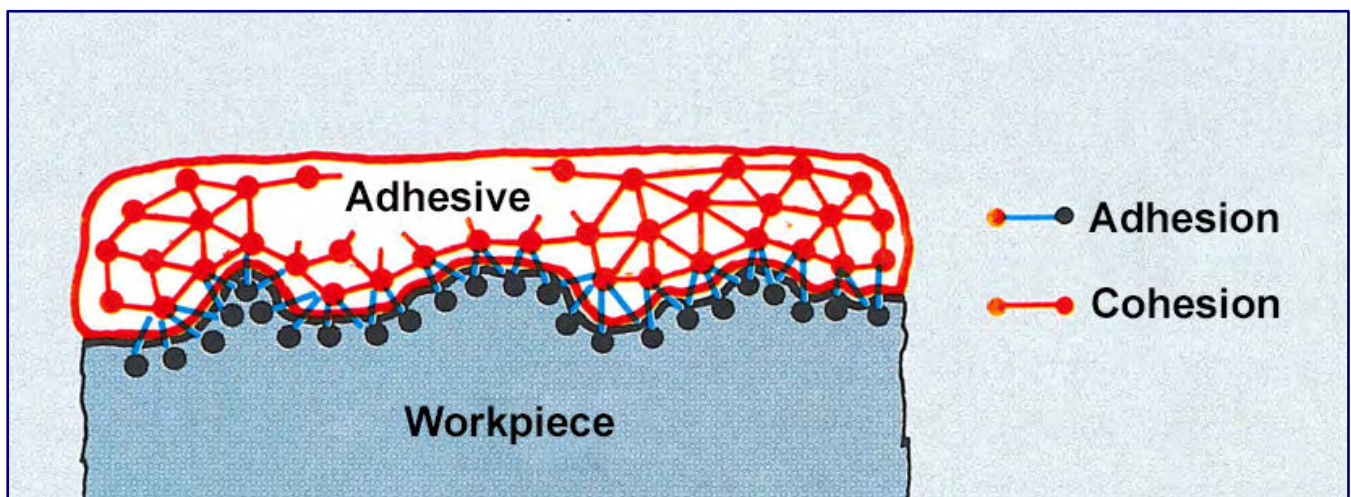
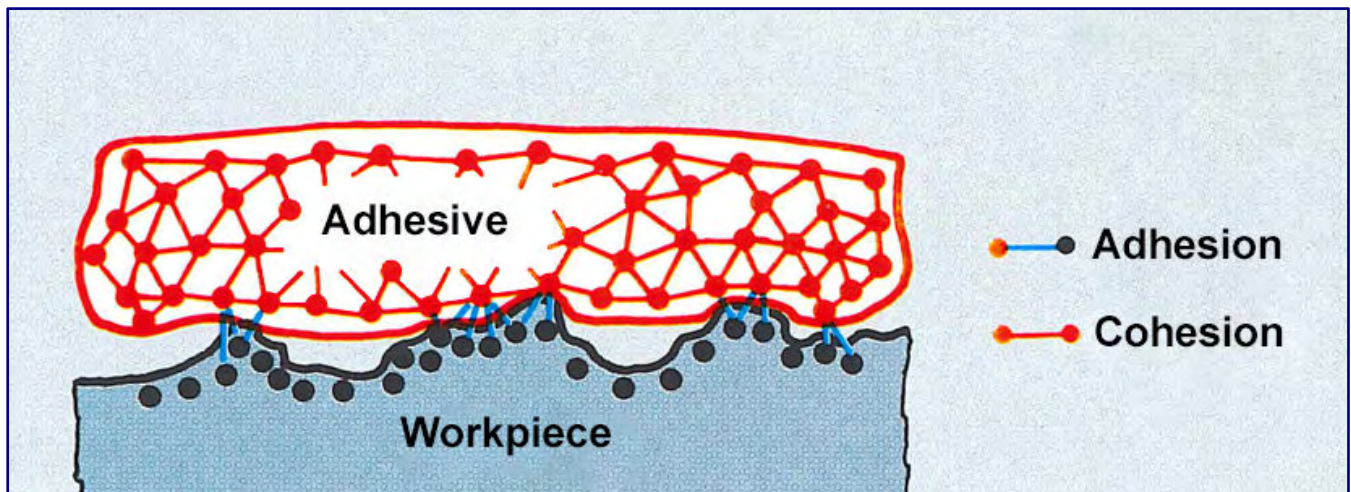


If this force of attraction is stronger than the internal cohesion of the drop of adhesive in terms of its surface tension, it flows and covers the surface well (centre image).



If, on the other hand, the adhesive force of the substrate it is too low, the drop will retain its shape (bottom image) and will not sufficiently across the surface of the substrate.

Photo credits (3):
Einführung in die Klebetechnik, Munich 1989 (Loctite Deutschland GmbH; Corporate Archives Henkel AG & Co. KGaA); translated into English by Trainini®



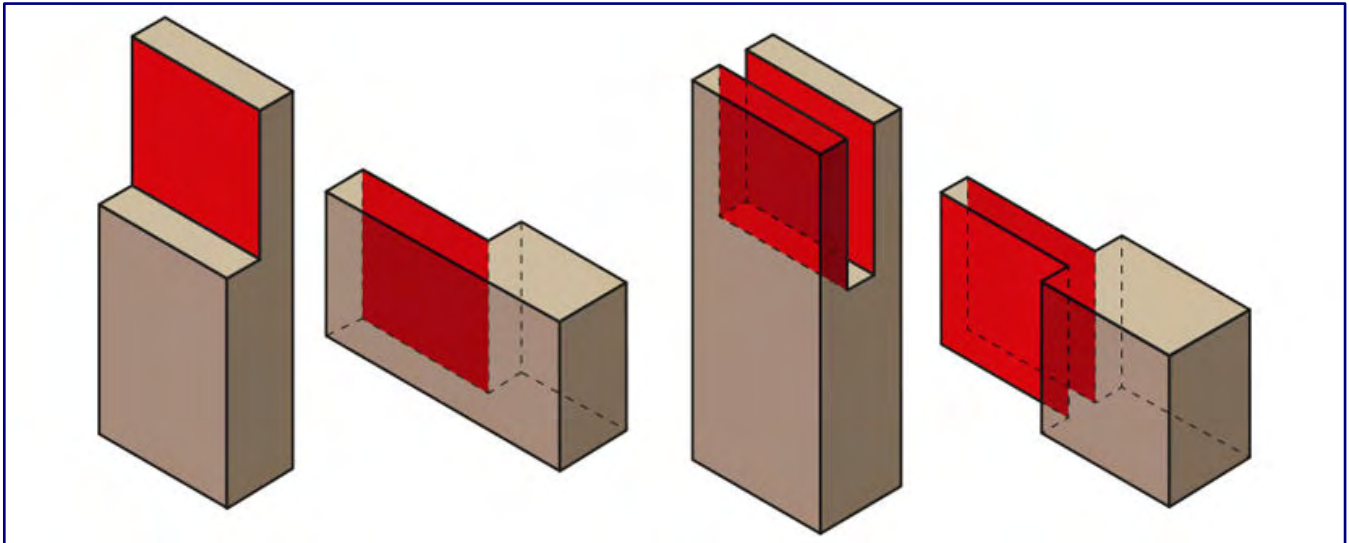
In situations of poor surface spread (top), only a few bridges will form between the adhesive and the surface of the workpiece. The adhesion of such a joint is only low and the bond will break open again.

If, on the other hand, the adhesive spreads well across the workpiece's surface (bottom), many bridges form, and the adhesive adheres well to the joined part. Often the surface is roughened to create the largest possible bonding surface and to allow the adhesive to penetrate deeply. Picture credits (both): Einführung in die Klebetechnik, Munich 1989 (Loctite Deutschland GmbH; Konzernarchiv Henkel AG & Co. KGaA); translated into English by Trainini®

Especially the smooth surface of many modern plastics, for example, the polyoxymethylene (POM) used for Märklin couplings, takes most adhesives to or beyond their limits. The adhesive either does not cling to the surface at all, or it easily separates.

The second force is cohesion. It is also called "internal strength" and is what holds the materials together. To stay with the example of the coupling: it ensures that the adhesive loosens when overstressed and that the material of the coupling does not tear elsewhere.

This effect, which of course must not occur too early, otherwise the glued joint cannot be exposed to any load, and is often desired because a glued joint can be repaired more easily than the rest of the surface of the model in case of a new break. In this case, the cohesion of the adhesive is lower than that of the workpiece.



Larger bonding areas for increased adhesive force can be achieved through mitre cuts or tenoning jigs (left) or through the use of tongue and groove joints (right). Illustration: © Dictum GmbH

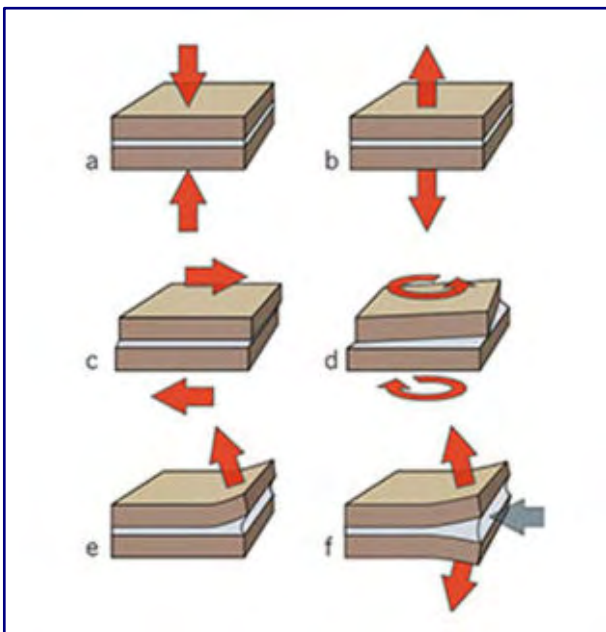


Illustration of different forces that can act on a bonded workpiece: a) compressive forces, b) tensile forces, c) shear forces, d) torsional forces, e) peeling and f) splitting. Illustration: © Dictum GmbH

As a general rule, bonded joints usually withstand compressive and tensile forces, as well as shear and torsional loads well, whereas they quickly reach their load limits during peeling or splitting tests. Every bonded joint can only fulfil its task, as long as it is not stressed beyond its maximum adhesive force.

With some special adhesives, producers therefore provide useful information on the packaging about when and how the bonded area may be put under stress and what forces it can withstand.

Important terms around adhesives

Some terms we will encounter again and again when working with different adhesives. We find them in guidebooks, packaging instructions and sometimes also on promotional material for new products.

Every private user should understand these in order to be able to derive the appropriate action from them in terms of processing and suitable materials. Otherwise,

success will be jeopardised or the result will at least look different than planned. First of all, we would like to distinguish between some types of adhesives according to the way they work.

Evaporative adhesives use the purely physical process that a volatile substance in which the adhesive particles are dissolved simply dries away or evaporates. This solvent, which helps with application, can be water (dispersion adhesives, glues) or also a solvent as in the classic all-purpose adhesive or contact adhesives.

Reaction adhesives, on the other hand, use chemical reactions with other substances to cure. The well-known two-component adhesives belong to this category. Stored in two separate containers or tubes,

they have a long shelf life. When they are mixed, a reaction begins that often leads to rapid curing, with the release of heat.

The widely used superglues also belong to these adhesives. The cyanoacrylate contained in them requires heat and above all humidity. While the ambient heat has a decisive effect on the reaction rate, it is water (vapour) that is used to supply the required reactant.

Adhesives				
Natural adhesives		Synthetic adhesives		
Protein based adhesives	Natural resins	Duroplastic adhesives	Thermoplastic adhesives	Elastomeric adhesives
Hide glue, bone glue, fish glue, gluten, casein	Tree resins, birch pitch	Urea resins	Polyvinyl acetate (white glue)	Silane polymers (e.g. Flextec®)
		Melamin resins	EVA hot melt adhesives	
		Phenol resins	Contact adhesives (Chlorobutadiene)	
		Resorcinals	Acrylic dispersion adhesives	
		Polyurethane adhesives (PUR)		
		Cyanoacrylates (super glue)		

Classification of historical and modern adhesives according to different origins and substance groups. Illustration: Henkel AG & Co. KGaA (translated into English by Trainini®)

This also explains why fingers can be bonded particularly quickly and well with superglues and why they pose a danger here if used incorrectly. Superglues have a long shelf life if they are stored in the refrigerator.

Modern combination adhesives make use of both methods described above in order to exploit the advantages of different components for optimum bonding power. In model making, for example, we find adhesives in which all-purpose glue and cyanoacrylate (CA) are mixed or a UV-reactive substance is combined with CA.

Hot-melt adhesives, often referred to as hot glue, are also widely used. These are solvent-free adhesives that are offered for private application purposes in the form of glue sticks. They are heated and melted in a hot glue gun applied to the materials with a nozzle.



Today, the model builder or model railway enthusiast can choose from many different types of adhesives from a wide range of manufacturers. The ideal type of adhesive depends on the individual bonding task at hand.

As they cool down quickly after coming out of the nozzle, they solidify again immediately and provide resilient adhesive joints after just one or two minutes. Since they have an insulating effect and can be removed again at any time if access is required, many model railroaders also use them to fix cable connections underneath their layouts.

Concerning the use of pastes, glues and adhesives, it is useful to distinguish between different terms of time, in order to be able to achieve the optimal result. The term maturing time is perhaps familiar from classic wallpaper paste.

Whatever has to be stirred and mixed needs more or less a waiting time until the components are homogeneous and can be applied or until they can unfold their effect through swelling (of the starch).

While homogeneity is important for the result at the bonding point, the pot life must not be forgotten. In the case of two-component adhesives, this is the time window in which the adhesive can be used after mixing. Only as long as it has not expired does the adhesive remain spreadable and suitable. At the end, it becomes increasingly tough and finally solid.

The setting time is the time in which an adhesive reaches the so-called hand strength. What is meant by this is that the bonded joint holds without stress after it has set and does not break open again. If two workpieces, such as glued boards, have to be pressed together, the setting time is at least equal to the required pressing time.

In contact bonding, the flash-off time plays an important role. It indicates the minimum waiting phase that must be observed after application on both sides of the adhesive before the parts to be joined are brought into contact and pressed together firmly.



Knowledge of the pot life is indispensable in order to be able to work successfully with two-component adhesives and to only mix quantities that can also be processed within this amount of time.

At the end of this time window, the adhesive already looks dry on the surface, its solvent has escaped – in the later glued joint it could not escape to the required extent. On the other hand, there is the open assembly time, which indicates the maximum period between the application of the adhesive and the joining of the parts. If it is exceeded, the adhesive has set and no longer adheres to the substrate.

After the initial strength directly after joining the adhesive parts and the manual strength at the end of the adhesive's setting time, the final strength of the adhesive bond finally follows at the end of the ongoing process. It is often specified by the adhesive manufacturer and is the maximum load after complete curing.

Conclusion

We very much hope to have provided some useful knowledge and help in order for you to be able to meet as many challenges as possible in model railway building in the future. Gluing technology has always been a topic of major importance in our hobby.

Certainly, however, its importance has increased with the variety of plastic materials commonly used today and this development is likely to continue. Nothing can be more annoying than having chosen the wrong adhesive, or not being able to use it correctly.



Some may not know this, but silicones are also considered to be adhesives, including those with extremely high elasticity, such as Fixogum by Marabu, which is often used for only temporary bonding purposes, for example to attach figures.

When it comes to the adhesives we use in our projects, we are guided not only by the broadest possible availability on the market, but also by their ease of use. Depending on the specific task, our selection is based on the broadest possible application or a perfect result with regard to a special, desired property.

Individual manufacturers usually offer guidance in finding the right adhesive on their own websites, but in some cases they also provide users with dedicated advice on adhesives.

We like to use the guidance from the Uhu brand (Bolton Group). Pattex (Henkel) also has a similar site, but at the time of going to press it was being redesigned and could not be reached.

Range of adhesive manufacturers:

<https://www.bindulin.de>
<https://www.fischer.de/de-de/produkte/ganz-ohne-werkzeug>
<https://www.marabu-creative.com>

<https://www.pattex.de>
<https://www.ponal.de>

<https://www.tesa.com>
<https://www.uhu.de>
<https://www.ottozeus.com>

Model railway suppliers with their own adhesives:

<https://www.busch-model.info>
<https://www.faller.de>
<https://www.noch.de>
<https://viessmann-modell.com>

Reference page with help on the topic of "Bonding":

<https://www.dictum.com/de/blog/tipps-tricks/leime-und-klebstoffe-verstehen-und-richtig-einsetzen>

2019 Collection Märklin Z Gauge from Modellplan

Field Report from the Customer's Point of View

Since the first edition of Modellplan's collectors' database also for Z gauge, Thomas Zeeb has been responsible for the content and photos. We understand that the database will continue to be updated after he passed away, and that an annual version will follow in 2022. Peter Grundmann is using the penultimate annual version so far, 2019, and has thought about what it is still missing from the customer's point of view.

By Peter Grundmann. Some people have acquired a few models over the years and have thus amassed a more or less large collection. Those who keep the models in the original box definitely know the item number, and further details can then be found on the internet. However, if things are different, it can quickly become complicated. This is where the "Collection Märklin Spur Z" from Modellplan can help.



The Collection from Modellplan has also been available for Z scale for over 15 years: Our reader Peter Grundmann wanted to know what practical use it is for a collector and trade fair exhibitor.

I've had a Märklin railway since I was a child and became one of its followers quite soon after the appearance of the Z scale. Over the years, my collection has grown bigger and bigger. I never attached importance to the original packaging, for me the models themselves were always in the foreground. My model railway, which has grown to more than 9 metres in length, serves as a "stage" for the various trains. This has also pleased many visitors to larger exhibitions.

After the end of my professional career, I wanted to revive these exhibition activities. However, if you want to be an exhibitor, you also have to draw up lists of the models you use in order to determine the insurance value.



Abbildung Hülle und CD: © Modellplan

This became increasingly difficult with my collection, because even the exact item number was hard to determine in many cases.

Many old catalogues were only of limited help, some models were apparently only sold in the years when my library was incomplete.

So, I looked for a remedy and came across the company Modellplan with its “Collection Spur Z.”

If you take a look at the offer, you might think that the price for this programme is quite high, because EUR 69.00 to EUR 109.00 is a lot of money. In addition, the annual updates always cost a considerable amount.

Nevertheless, I decided to buy it and was amazed to see several thousand articles listed with photos and lots of data. So, it should be possible to find each of my models!

Intuitive in four categories

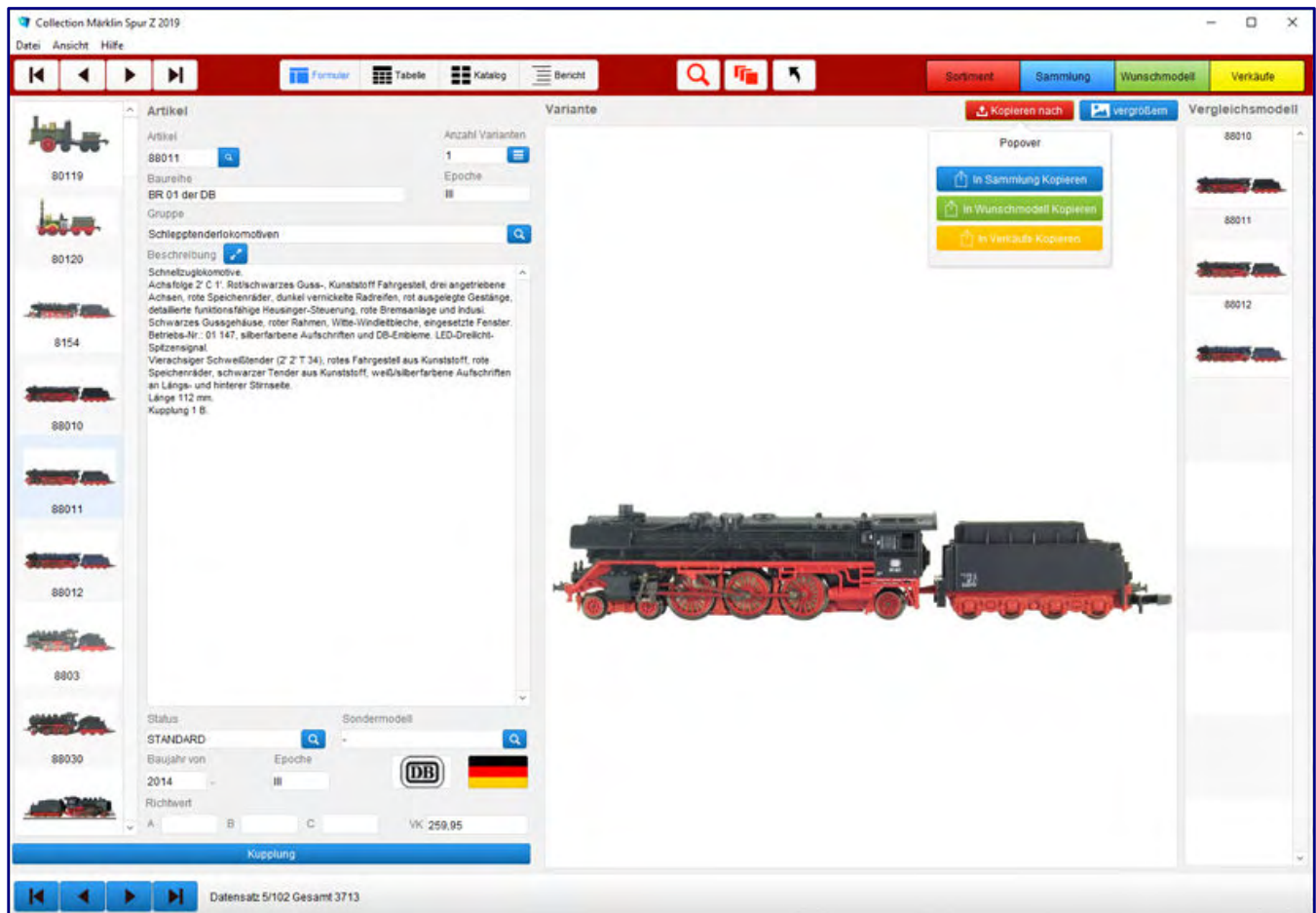
Of course, a manual is also included in the form of a PDF file, but it is based on the H0 gauge version and does not exactly match the Z gauge version in some aspects, such as the technical data on the models.

Like probably many others, I did not read the manual completely. Nowadays, customers tend to expect that programmes can be operated intuitively with basic knowledge. This also works here to a certain extent. I quickly realised that, in principle, there are four categories of data collection:

- Assortment: all models from the Märklin delivery programme (annual version 2019: 3,713 items).
- Collection: Listing of the already existing models
- Desired model: which items could still expand the collection?
- Sales: What has already been sold from the collection?



In figure 1, various buttons are visible in a coloured bar at the top, the colour of which changes depending on which category is currently selected. Once I have identified the model in the assortment that I already own, I can copy it into my own collection.



Of course, an item can be transferred to the collection several times, if it is found more frequently in the inventory. These then become different specimens, which can also have different data, such as the purchase price paid.

If, however, there are more than 200 models whose item numbers are only known in a few cases, the search can be quite time-consuming. In this case, a different display format, such as a table or catalogue, can be selected. A search function (magnifying glass button at the top) can also help.

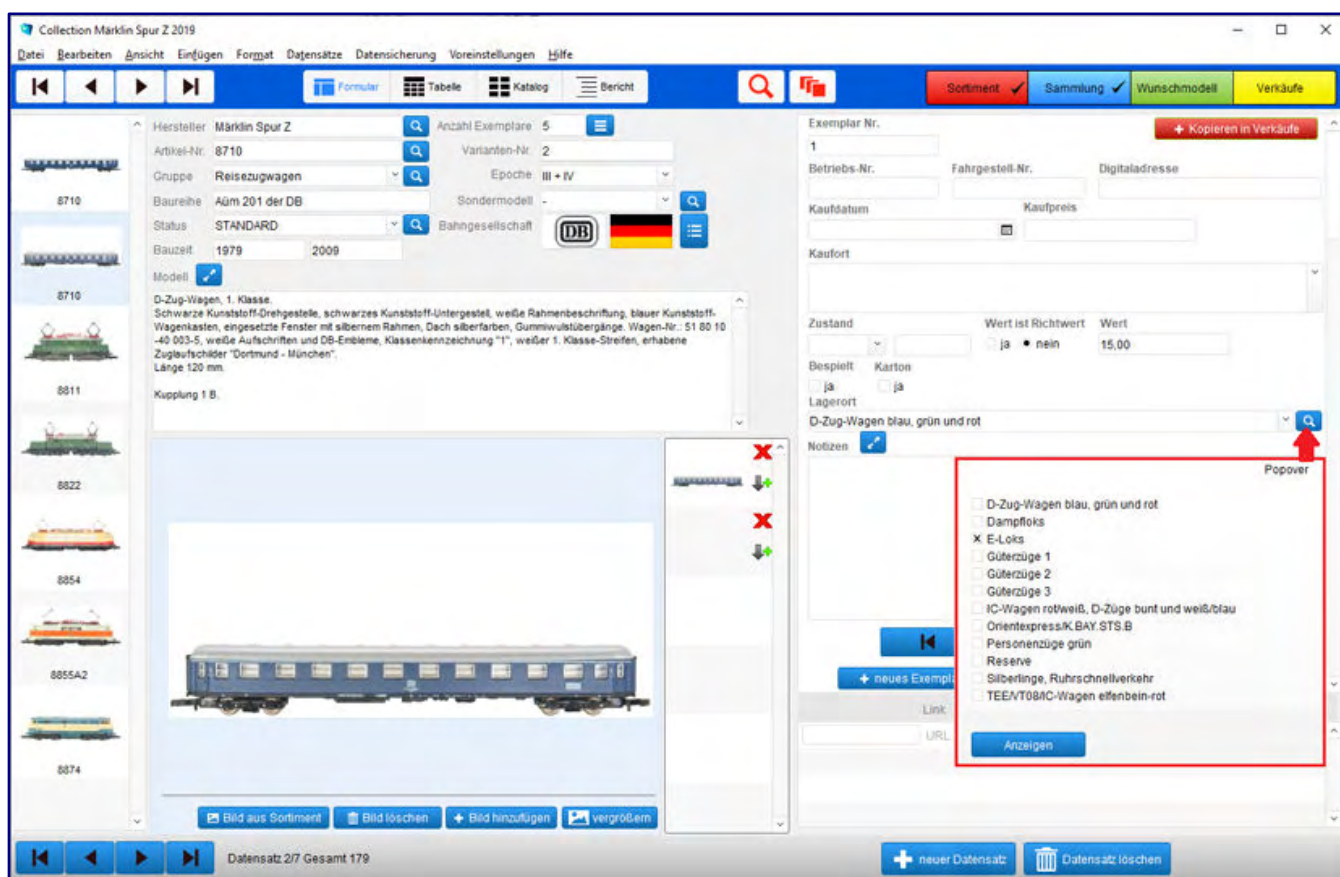
The programme also takes into account that the appearance or details (wagon number or plastic/metal wheels) of an item may have changed over the years. The deviating versions, which all have the same item number, are shown separately as variants, each with its own photo.

Pushed to the limits

However, the results of the search function can also be confusing and incomplete. For example, the term "Esso" in the description field of an article only leads to a four-axle tank car. If, on the other hand, it is entered in the field for "variant," only two-axle wagons are displayed.

By the way: If the data records are restricted by a search, the magnifying glass and its neighbouring buttons are displayed in red, whereas they are normally black.

If you have the ambition to record every model, in the programme sense of “specimen,” i.e., with the correct variant number for a wagon, you can expect a lot of work. The differences between the variants are sometimes difficult to recognise, and this also applies to the database!



The storage location offers a variety of input options. However, if the same model exists several times and is stored at different storage locations, the programme reaches its limits.

I then also had to contend with various advertising cars. It is amazing how many photos of the most diverse designs are included in the range. For example, there are more than 500 items based on the common refrigerated wagon; about the same number applies to the container wagon.

Nevertheless, I did not manage to find all my exotics. So here I had to create and add individual data records. However, at first, I obviously did not understand the data model and how the programme works. I added the white model of such a refrigerator car (art. no. 8600) and then created seven variants, which I wanted to provide with different texts and photos.

I did not succeed; all my variants seem to have only one photo and one description text. It would probably have been correct to create completely new data sets, but this would also have meant having to enter all possible data myself.

In the end, I “converted” some special models of the refrigerator car, which I will probably never own, into my individual copies. In the process, I realised quite quickly how much effort had already gone into the photographs! It was less beautiful, but quick, to put the models on the scanner, and thus, create a “photo”.

As already mentioned, I only have a few models with original boxes. If I had to take ten to fifteen trains out of the boxes at exhibitions, it would be very inconvenient. Therefore, I have a self-made storage system with some kind of drawers in lightweight construction.

If possible, complete train sets, i.e., wagons plus traction unit, are stored in them. The eleven storage boxes I currently use should therefore also appear in the collection as a sorting criterion, in order to make it easier to understand the completeness.

The storage location can be used for this purpose. Here, you can enter any terms and then limit the search in a search window to one or more storage locations, then a list is shown with the models located there.

Hersteller	Artikel	Varianten_Nr	Exemplar_Nr	sammlung::Baureihe	Lagerort	::Bild
Märklin Spur Z	8811	0	1	BR 144 der DB	E-Loks	
Märklin Spur Z	8822	0	1	BR 194 der DB	E-Loks	
Märklin Spur Z	8874	1	1	BR 216 der DB	E-Loks	
Märklin Spur Z	8854	1	1	BR 103 der DB	E-Loks	
Märklin Spur Z	8855A2	0	1	BR 111 der DB	E-Loks	
Märklin Spur Z	8710	1	1	Aüm 201 der DB	E-Loks	
Märklin Spur Z	8710	2	5	Aüm 201 der DB	E-Loks	

In the form view "Collection," an item is not shown separately according to different storage locations, but the position of the first model is always taken over for all, as shown here using the example of wagon 8710.

However, I soon came up against the software's limits here. If different copies of the same item are placed in different storage locations, the form view does not scroll to the corresponding number, but always displays the first one. This applies regardless of where it is to be found. So, it can easily occur that entries are made in the wrong place.

Export function with gaps

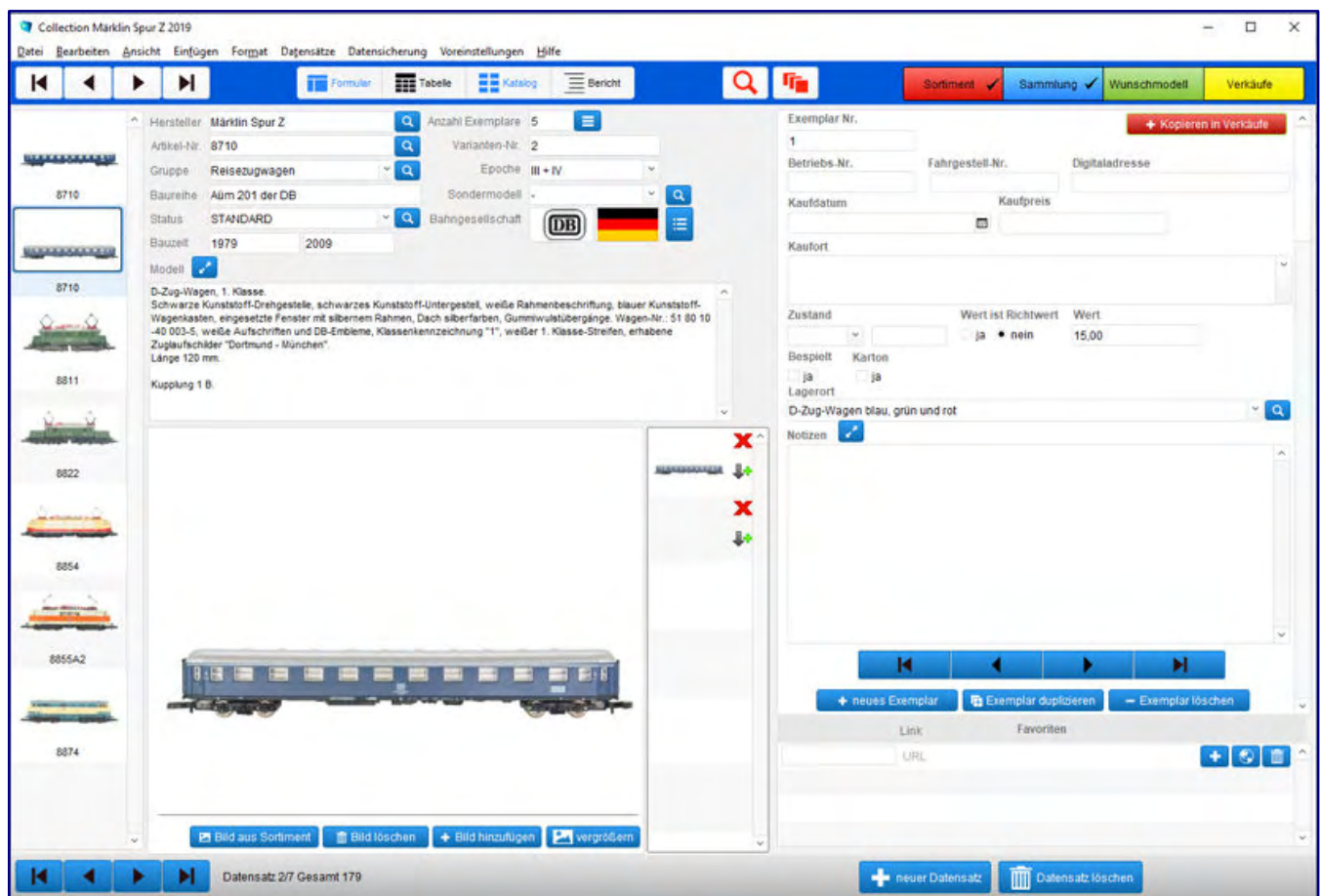
For the purpose of creating insurance lists for documentation purposes, value information is of course also required. The field for recording the purchase price, even if I could fill it, would be of limited use.

The sales price visible in the "Assortment" view is also of little use; according to the help text, the field should be empty. In fact, it could be filled with the recommended retail price on the date of publication. There is no currency indication, after all DM prices seem to be converted to Euro, if applicable.

Of course, I have to admit that a current sales price could at best be given for items that are currently still available. For items that are no longer available, the last price would no longer be realistic; I cannot think of a solution to this either.

Since I could now determine an item number for practically every one of my models with the help of the programme, a search on the usual second-hand platforms was easily possible. The prices I estimated in this way could be entered in the "Value" field.

After many hours of data entry, I then had a comprehensible database of the models in my collection. However, this only helps those who have the programme, it is not suitable for further distribution.



Realistic market prices were determined for all models and entered in the "Value" field of the collection view. However, this is not suitable for distribution; here for an insurance value list. Only those who own the programme can access it.

However, the function "Export Collection" is available for this purpose. This creates an Excel table with the existing vehicles and also opens it immediately in this Office programme. I have Microsoft Excel installed, and therefore cannot judge what happens when an alternative programme is used.

Exported table contains all the fields for the items and the supplementary data for my specimens. Depending on the purpose of the list, some fields are superfluous, this is especially true for the mostly empty columns on the models; in my case, there were even more empty columns than filled ones.

I find it very annoying that when there are several copies of an article, the data columns are only completed on the first row. Sorting the list therefore makes it unusable. It is also not possible to apply a filter, which is a popular tool of limiting the data records displayed. I would therefore like to see an improvement in the export function that facilitates further processing and makes the fields to be output selectable.

My conclusion on the 2019 annual version is largely positive, despite the weaknesses cited. Upon my request, Modellplan informed that 2022 version will feature some improvements. The search function was also explicitly mentioned.

The amount of information and photos compiled here is considerable and cannot be taken from a complete collection of all Märklin catalogues. Above all, the work that has gone into the illustrations and descriptions is to be appreciated here.

To provide several thousand photographs of almost all models ever produced in the same quality testifies to extensive detailed work by a connoisseur of the subject. Unfortunately, I also learned that Thomas Zeeb, who was responsible for the data and photos, has passed away in the meantime. It remains to be hoped that a worthy successor will be found.

The decision to buy such a database software certainly depends to a large extent on the size of a collection. The usefulness, however, rather stands and falls with the interests of a collector, a generally valid assessment would therefore be doubtful.

All screen images: Peter Grundmann

Supplier for direct purchase:
<https://modellplan.de>

Note for English readers: The literature section that follows is not translated into English because the original texts of the books involved are in the German language. The original German is left here for information purposes only.

Dreibändige Lok-Archiv-Fortsetzung **Lückenschluss beim Klassiker**

In Trainini 5/2021 hatten wir die vier Bände des Deutschen Lok-Archivs vorgestellt, mit denen Transpress seinen Kunden wieder den Zugang zu einem Klassiker der Dampflokomotiv-Fachliteratur eröffnen will. Überraschend folgten im Frühjahr 2022 nun drei weitere Bände, die von uns bemängelte Lücken schließen und zusätzlich noch einige weitere Themenfelder erschließen.

Manfred Weisbrod
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Im Mai 2021, also vor fast exakt einem Jahr, haben wir an dieser Stelle die Bände Dampflokomotiven I bis IV aus der Reihe Deutsches Lok-Archiv vorgestellt. Im ersten Quartal 2022 sind nun drei weitere Fortsetzungen erschienen, die ebenso eine Würdigung verdienen.

Wohl der einzige Kritikpunkt unserer vorausgegangenen Rezension war die mit den Überarbeitungen und Umstrukturierungen (scheinbar) verlorengegangene Baureihe 60, jene Stromlinien-Tenderdampflok, die von der Lübeck-Büchener Eisenbahn zur Deutschen Reichsbahn gelangt war.

Diese Lücke sehen wir nun wieder geschlossen und den Käufer der vorliegenden Folgebände erwarten darüber hinaus auch noch viele weitere, die zuvor gar nicht als solche empfunden wurden. Das liegt einfach daran, dass bislang die Staatsbahnkonstruktionen behandelt wurden und der gesamte, einst private Eisenbahnsektor vernachlässigt wurde.

Aber auch vor 1945 und im Osten Deutschlands ganz besonders, wegen der dort vorgegebenen Staatsform, auch danach, sind einige Privatbahnen verstaatlicht worden und ihre Dampflokomotiven in der Folge in das Nummernschema der DRG aufgenommen worden. So leuchtet eigentlich ein, dass es mit der Baureihe 60 allein nicht getan war und weitere Konstruktionen auf ein systematisches Abarbeiten gewartet haben.

Das muss auch Manfred Weisbrod als Autor – beim Band VI gemeinsam mit Hans Wiegard – eingeleuchtet haben, denn die vorliegenden Bücher sind so neu gar nicht; sie waren uns schlicht nur noch nicht bekannt.

Es handelt sich um unveränderte Nachdrucke von Erstauflagen aus den Jahren 1991 (Band V und „Tender“) sowie 1998 (Band VI), die also direkt unter Regie der Paul-Pietsch-Verlage und nicht schon beim früheren VEB erschienen waren. Da die Bände I bis IV im heutigen Transpress-Verlag zwischen 1993 und 1995 aufgelegt wurden, hätten wir den Lückenschluss auch nicht zeitlich davor vermutet.

Wie dem auch sei, nun wächst (wieder) zusammen, was zusammengehört und eine Enzyklopädie wird vollkommen. Erst so entfaltet sie ihren vollen Nutzen für die Reihe der Erwerber und darüber freuen wir uns. Vielleicht folgen ja auch noch Werke zu elektrischen und dieselgetriebenen Lokomotiven und Triebzügen sowie den Waggonbeständen? Da gäbe es eh einiges an Fortschreibungsbedarf.

Doch zurück zum Besprechen der drei vor uns liegenden Bände, diese folgen in Gestaltung, Umfang und Informationstiefe den bekannten Büchern und vermeiden daher auch einen Bruch. Sie sind schon auf den ersten Blick als zusammenhängend erkennbar, inhaltlich aber klar voneinander abzugrenzen.

Die drei jüngsten Fortsetzungen dieses Klassikers der Dampflokomotiv-Literatur befassen sich mit sehr verschiedenen Themen gegenüber den ersten vier Büchern: Band V fasst die Privatbahnmaschinen

zusammen, die vor 1945 in den Bestand der Deutschen Reichsbahn-Gesellschaft oder Deutschen Reichsbahn (ab 1937) gelangten.

Lückenlos schließt Band VI für die Zeit die nach dem Zweiten Weltkrieg an, also die DR im Gebiet der späteren DDR. Im Umfang ist dies das größte der drei neuen Bücher, was auch beim Preis deutlich wird. Explizit nicht aufgenommen wurden hier aber, wie die beiden Autoren im Vorwort schon erläutern, „Neuerwerb“ der Bundesbahn, weil diese nach Anzahl und Betriebsbedeutung keine Rolle mehr gespielt haben können.

Erfreulich finden wir, dass durch diese thematischen Erweiterungen – oder auch Lückenschlüsse, je nach Blickwinkel – auch beliebte Maschinen Eingang fanden, von denen stets ein besonderer Reiz für die Modellbahn ausging. Wir denken an die typischen ELNA-Konstruktionen für private Gesellschaften, die einerseits vertraut, aber dennoch ungewohnt auf ihre Betrachter wirkten.

Auch auf besondere Probleme bei den Recherchen weisen die Autoren dort hin. Sie stießen auf bedeutende Lücken in der DV 939 Tr der DR für die Jahre 1962/63, obwohl die im Buch behandelten Konstruktionen unverändert im Dienst standen und an anderen Stellen auf widersprüchliche Angaben.

Wo immer möglich wurden deshalb auch Firmenkataloge oder -informationen hinzugezogen. Das führt uns zu einer für Historiker und Wissenschaftler nicht unwichtigen Lücke, die neben Band VI auch für die Bände I bis IV gilt: Die Autoren liefern keine Quellenangaben und Literaturverzeichnisse. Eigene Abgleiche werden dadurch erschwert.

Wenden wir uns nun dem Band VII zu, der diese Fortzählung nicht trägt, sondern schlicht „Tender“ heißt. Er ist eine wahre Fundgrube, aber gewiss nicht vollständig. Berücksichtigt sind zwar alle Konstruktionen von den Länder- bis zu den Nachkriegsstaatsbahnen, aber auch nur, sofern sie mit einer Dampflok aus deren Nummernschema gekuppelt waren.

An dieser Stelle folgt das Buch konsequent der Reihe und schert nicht aus deren definiertem Themenrahmen aus. Der Umfang, mit dem die einzelnen Tender behandelt werden – gemeint sind die in ausführlicherer Textform mitgelieferten Sachinformationen – variiert je nach Alter und Betriebsbedeutung ab.

Auch das ist nicht als Kritikpunkt zu verstehen, denn an den für Eigen(um)bauten erforderlichen Zeichnungen und Grundinformationen mangelt es schließlich nicht. Das Buch leistet also den erhofften Dienst in vollem Umfang und auch unter Einbeziehen des Preises erfolgt dies in durchaus moderater Weise.

Bei den beiden Dampflokbanden vermeiden die Autoren übrigens nur die Seitenzahl und damit auch den Preis aufblähende Redundanzen, das heißt, bereits in anderen Bänden beschriebene Konstruktionen preußischen Ursprungs werden zwar statistisch erfasst, aber nicht ein zweites Mal explizit beschrieben.

Ergänzt durch Tabellen mit technischen Daten, viele gut reproduzierte Fotos (mit einigen nachvollziehbaren Lücken) und Skizzen runden die mannigfaltigen Beschreibungen zur Entwicklungsgeschichte, Betriebsbewahrung und konstruktiven Merkmale ab.

Unsere Empfehlung aus dem Mai 2021 können wir daher an dieser Stelle nur auf diese drei Fortsetzungen erweitern: Wir sehen diese Enzyklopädie als ein Standardwerk. Übersichtszeichnungen mit Maßangaben sind für Umbauwillige wie auch viele vorbildinteressierte Modellbahner einfach ein Muss, das sie nicht in ihrem Regal missen möchten.

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Staatsunternehmen im Bildportrait **Faszination Bundesbahn**

Noch immer ist die große Zeit der Bundesbahn des Modellbauers liebstes Thema. Deshalb finden auch Bildbände abseits von Lok- und Zugportraits stets großen Anklang. Und so zeigt das vorliegende Buch die junge DB aus Sicht ihres Presssprechers in zahlreichen Facetten. Dabei präsentiert sich die Staatsbahn nicht nur in ihrem Selbstverständnis, sondern auch im scheinbar schnöden, aber dennoch spannenden Alltag.

Udo Kandler
Faszinierende frühe Bundesbahn
Aus dem Fotoarchiv von Reinhold Palm

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Der Fotonachlass von Reinhold Palm ist sicher in vielerlei Hinsicht einmalig. Ihn zu heben und in einer spannenden, angemessenen wie auch für die Entstehungszeit repräsentativen Weise aufzuarbeiten, ist ohne Zweifel eine Herkulesaufgabe.



Der richtige Autor für diese Aufgabe war und ist Udo Kandler, der spätestens mit dem nun vorliegenden Buch als Nachlassexperte gelten darf. Der 1958 in Düsseldorf geborene Eisenbahnfreund befasst sich bereits seit seinem 14. Lebensjahr mit der Eisenbahn- und später auch Eisenbahnfotografie.

Kenner der Materie ist er nicht nur aus eigenem Erleben, sondern auch wegen des ausgewiesenen Interesses an der Geschichte und Entwicklung speziell der Deutschen Bundesbahn. Das hat er bereits mehrfach durch Fachbücher, u. a. „Alle reden vom Wetter! – Winter bei der Bundesbahn“, unter Beweis gestellt.

Er versteht es wieder einmal, das Dokumentierte geschichtlich und in seiner Bedeutung einzuordnen. Dazu gehört es hier auch, eine sinnvolle Struktur und Gliederung für diese jüngste Veröffentlichung zu finden.

Ganze 25 Kapitel sind es geworden, die sich nach Art wie auch Umfang deutlich voneinander unterscheiden: Von einigen nur vier bis in einem Fall hin zu 38 Seiten Umfang erstrecken sich die vorgenommenen Einteilungen, die der Autor mit viel Sachstand gewählt hat.

Herausgekommen ist eine erstaunliche Vielfalt des fotografischen Schaffens von Reinhold Palm, das überraschende Einblicke in den Betrieb der Bundesbahn gibt. Verwendet wurden zeitgeschichtlich wertvolle Bilddokumente, die zwischen den fünfziger und siebziger Jahren entstanden sind – der Urheber der Fotografien trat im Jahre 1978 in den Ruhestand.

Besonders in den Fünzigern und Sechzigern nahm er seine Lichtbilder an Orten auf, zu denen meist nur ausgewählte DB-Mitarbeiter Zutritt erhielten. Nachdem er ursprünglich Lokführer werden wollte, trat er in anderer Funktion in die Dienste der Eisenbahn. Sie führten ihn bei der Deutschen Bundesbahn bis in die Rolle des Pressesprechers.

Dies erklärt den exklusiven Zugang, den er genoss und zu nutzen wusste. Gleichwohl verstand er es aber auch, seine Kamera kreativ einzusetzen. War er als Fotograf ein Autodidakt, so bewies er eben auch das künstlerische Händchen für packende Motive. Die vielen Preise, die er mit seinen Fotos im In- und Ausland errang, sprechen hier eine allzu deutliche Sprache.

Von gewöhnlichen Eisenbahnfreunden und auch den Direktionsfotografen hob ihn dabei einiges ab: Sein Alltag war nicht die Dokumentation von Bahneigentum und deren Zustand oder das Ablichten von Lokomotiven und Zügen, sondern das Füllen der vielen Publikationen und Veröffentlichungen der DB.

Hier ging es darum, die Staatsbahn als kundenfreundliches, sympathisches wie auch fortschrittliches Unternehmen zu präsentieren. Und dazu bedurfte es auch Personen und Ereignisse, nicht selten auch gekonnt inszenierte oder eher zufällig eingefangene Alltagsszenen. Züge spielen nicht selten nur eine (scheinbare) Nebenrolle oder waren auch mal ganz entbehrlich.

Der Bundesbahnverkehr auf der Straße mit Bussen, Lkw sowie im Von-Haus-zu-Haus-Dienst nimmt deshalb einen großen Umfang ein. Fortschritt und Tradition dokumentierte er mit zahlreichen Aufnahmen im direkten Um- und Vorfeld des Hauptbahnhofs von Frankfurt (Main) oder der Teilnahme der DB an der 37. Internationalen Automobil-Ausstellung des Jahres 1955, quasi in Sichtweite der Bundesbahn-Hauptverwaltung.

Bemerkenswerte Kontraste zu diesem öffentlich gewollten Bild bieten Szenen des Alltags wie der Viehverladung in der Mainmetropole, dem Installieren von Fahrleitungen mit Hilfe von Turmtriebwagen oder von der idyllischen, kurz vor der Betriebseinstellung stehenden Königsseebahn, die er im Urlaub aufnahm.

Nicht fehlen dürfen Kapitel, mit denen unterstrichen wird, wie wichtig die Bahn damals noch öffentlich wahrgenommen wurde: Seien es Reisen verstorbener Schaugrößen wie Heinz Schenk oder Udo Jürgens oder auch die legendäre Rückfahrt der Weltmeister 1954 von Bern nach München – Reinhold Palm war überall in erster Reihe dabei.

Im Umfang ebenfalls bedeutend sind Darstellungen vom Reisen im Zug mit dem Auto im Gepäck. „Reisen mit Stil“ erinnert an den einstigen Komfort, den eine Bahnreise im zu Auto und Flugzeug zu bieten wusste. Damals wurde im Speisewagen unter beengten Verhältnissen noch richtig gekocht, statt überteuerter „Büchsenfraß“ aufgewärmt.

Dieses Buch wäre aber nicht ohne großen Aufwand für Bildbearbeitung und Reproduktion möglich gewesen. Nur knapp wurde das Bildarchiv von der Eisenbahnstiftung vor dem Müll gerettet. Das Originalmaterial wies durch schlechte Lagerung gravierende Farbstiche und Stockflecken auf. Im einleitenden Kapitel gibt der Autor einen guten Eindruck vom Umfang der Bildrettung.

Gelohnt hat sich dies allemal, denn angesichts von nahezu der Hälfte an Fotografien in Farbe, damals noch eine wahre Seltenheit, zeigt sich schließlich eine weitere Besonderheit der auch technisch so anspruchsvollen Aufnahmen.

Wie kaum ein anderes Buch eignet es sich für den Modellbahnfreund, Authentizität für die Epochen III und IV einzufangen, um die eigene Anlage in jeder Hinsicht historisch korrekt zu gestalten. Deshalb nominieren wir dieses Buch für die Neuerscheinungen des Jahres 2022 in der Kategorie Literatur.

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Der sauerländische Bahnhof 'Westheim' wurde maßstabsgetreu und hoch detailliert seinem Vorbild entsprechend umgesetzt. Der dreiteilige Baukörper gliedert sich in einen giebelständigen repräsentativen Mittelteil, ein Restaurant und auf der Gegenseite den Bereich der Güterabfertigung.

Auch spätere Um- und Anbauten, wie das Büro der Fahrdienstleitung wurde berücksichtigt, was dem Bahnhof eine besonders authentische Wirkung verleiht.

Der Bausatz ist mit aufwendig produzierten, vollflächig gravierten Schieferfassadenteilen, Echtholz- und Fachwerk-Elementen ausgestattet. Die drei Gebäudeteile können auch einzeln aufgebaut werden.

Bausatz aus hochwertigem, durchgefärbtem Hartkarton.
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Märklin 88804 - Baureihe 280 DB



Märklin 88206 - Baureihe 220



Märklin 88792 - Baureihe 218

Bestellen Sie die Märklin Neuheiten 2022 gerne bei uns vor. Beim www.1zu220-shop.de bestellen Sie ohne Risiko, denn sie zahlen erst bei Abnahme der Ware und stellen mit einer Vorbestellung sicher, auch Ihr Wunschmodell zu erhalten bevor dieses ausverkauft ist.

Nutzen Sie auch den Service unserer Sammelbox, um Waren zu sammeln bis der richtige Versandzeitpunkt für Sie gekommen ist. So können Sie z.B. sammeln, bis genug für einen frachtfreien Versand zusammengekommen ist.

Und sollte doch einmal etwas nicht passen oder dazwischen kommen, ist eine Stornierung kein Problem.

Auch das Insider-Club-Modell der Baureihe V 320 können Sie über unseren Shop erwerben und erhalten kostenlos zwei exklusive LKW Modelle dazu. Den kostenlosen Jahreswagen oder Katalog können Sie ebenfalls in unserem Shop bestellen und über die Sammelbox frachtfrei mit anderer Ware zusammen liefern lassen.

Freuen Sie sich auf weitere Neuheiten, welche wir nach Plan zur Ausstellung in Altenbeken im Mai 2022 vorstellen wollen.

***Alle Preise verstehen sich inklusive der Mehrwertsteuer, zuzüglich der Versandkosten**

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Readers' letters and messages

Zetties and Trainini in Dialogue

Thank you for each letter to the editor and all the feedback that reaches us. Write us (contact details are in imprint) - Trainini® lives from dialogue with you! Of course, this also applies to all suppliers in Z gauge, who would like to introduce innovations here. A representative sample is our goal. Likewise, here we note any events or meetings with significance to Z gauge reference, if we are informed in time.

The editors and translators were very pleased with the extremely positive response to the last issue. Since it was also the current number 200, which has been published monthly without interruption since August 2005, we received many congratulations and expressions of praise outside the medium of a letter to the editor.

This encourages us to continue with joy and ambition in order to develop further and to make an important contribution to the popularity of our gauge. We are looking forward to the weekend of 14 and 15 May 2022, where we hope to meet many Zetties at the Z gauge weekend in Altenbeken and to exchange ideas with them (during our photo shoot).

Do not hesitate to approach the present members of the editorial staff and translators and seek personal contact. Z gauge thrives on exchange!

The letters we receive are not always intended for publication. We understand this too, because they often contain very specific and personal questions or comments. However, the following letter to the editor is representative of the positive feedback we received last month.

Congratulations from the creator of the animated logo:

It's very nice that the logo (meaning the manufacturer-neutral anniversary logo; editor's note) is so well received. (...) Congratulations on the 200th issue of **Trainini®** and many thanks to you for your commitment to our Z gauge!

Ralf Junius, by E-Mail

The event of the year:

It is probably no exaggeration to say that this is the event of the year 2022 for our Z gauge. On 14 and 15 May, the Z-Freunde International e.V. once again invites you to Altenbeken for the 8th Z gauge weekend.

After it had to be cancelled two years ago due to the covid pandemic, the international Z gauge community is looking forward all the more to the eighth edition. Against the background of this year's 50th anniversary of Z scale, it promises to be a special event.





Founder Märklin has therefore also ordered a significantly larger stand area and would also like to celebrate the round birthday of its youngest gauge appropriately with the visitors. **Trainini®** has also signed up as an exhibitor to make up for the public premiere of its “Himmelreich” Höllentalbahn diorama.

The stand space will be run jointly with Oleksiy Mark, who is currently adding further strength to the translators of our magazine, and also assisting the editorial team with advice and support. His wish, however, is to show the latest developments that we presented in the February issue and to give an insight into further projects by Zmodell, which have been brought to an abrupt end, for the time being, by the Russian invasion of Ukraine.

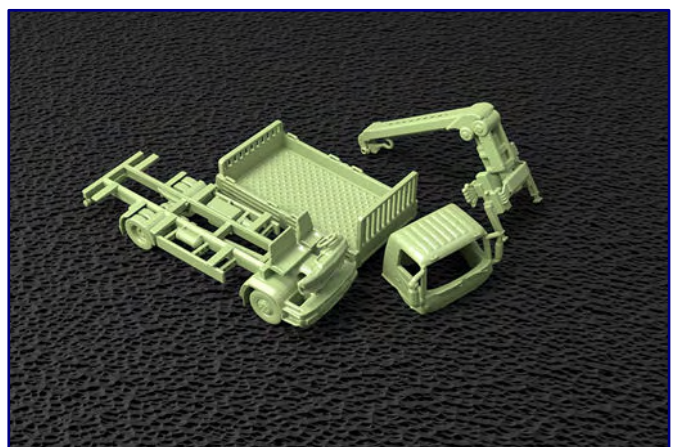
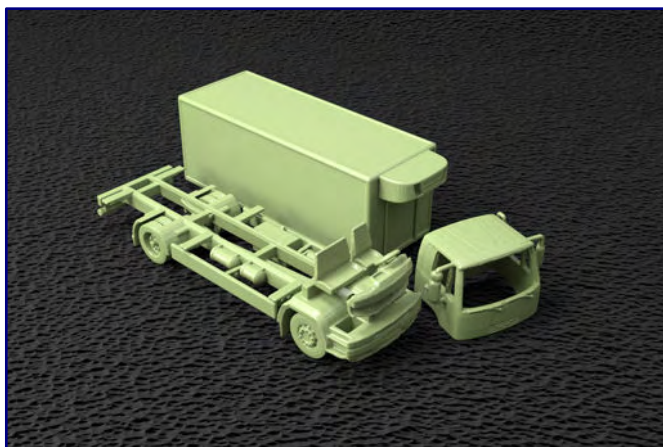
The exhibition venue is, as usual, the Eggelandhalle in 33184 Altenbeken, Gardeweg 8. There is limited parking space in the area of the hall, but it can also be reached on foot in 10 to 15 minutes from the railway station.

It is open on Saturday from 10:00 to 18:00 and on Sunday from 11:00 to 17:00. Visitors should be aware that due to official regulations, the sale of new and used Spur Z items is only permitted from 12:00 on Sunday.

Four new products from EtchIT-Modellbau:

A new trailer with three axles for tractor units (item no. XD041_Z) with fine details is used for transporting shipping containers inland in Z gauge. Either two 20-foot containers or one long 40-foot container can be loaded on the model, which is 3D-printed in high resolution and can be painted by the customer.

Three other new products also feature the same print quality. One is the two-axle semi-trailer for animal transport (XD185_Z), which also complies with the standard length of 40 feet.



EtchIT-Modellbau offers a modern truck with refrigerated box and freezer unit (item no. XD186_Z; photo left), as well as flatbed and loading crane in an idle position (XD187_Z; photo right) for Z gauge. Photos: EtchIT-Modellbau

A modern truck for local delivery traffic comes in two versions. Both versions have two axles, whereby the first is equipped with a refrigeration device and a freezer unit (XD186_Z) and can bring frozen food to markets.

On the other hand, with a flatbed and loading crane (XD187_Z), whereby the crane is included with the kit in the idle position (stored for transport), it can deliver building materials. The fine kits are available directly from the manufacturer at <http://etchit.de>.

Exhibition cancellation in Belgium:

For our readers in the Benelux countries, it is certainly important to know that this year's Euromodelbouw exhibition in Genk (Belgium) has been cancelled. The next edition will therefore not take place until 2023 and will be held in the autumn. Information on this will be available at <https://www.euromodelbouw.be>.

MTL has a lot to offer:

The list of new models to be delivered for April 2022 by Micro-Trains (<https://www.micro-trains.com>) from Oregon is unusually long. Car number 2 of the new Railroad Magazine series (item no. 502 00 641) opens the round, which is dedicated to April 1941 with the motif "Vanderbilt Road."



The yellow painted and loaded cattle car of the Missouri, Kansas & Texas (item no. 520 00 264) looks appealing. Photo: Micro-Trains

The 35-foot cattle car for the Pennsylvania (520 00 183 / 184), Baltimore & Ohio (520 00 203 / 204) and Missouri, Kansas & Texas (520 00 263 / 264) comes in three colours: oxide red, reddish brown and yellow. The models, whose sliding doors can be opened, are loaded with different animal figures.

Red container wagons also appear with two different service numbers each for Burlington Northern (540 00 023 / 024), Southern Pacific (540 00 043 / 044) and BNSF (540 00 061 / 062).

The highlight for this month is Union Pacific's five-unit "MOW (Maintenance of Way) Weathered Tie-Loader" (994 02 271) wagon set, which comes from the factory with operating tracks.

The flat wagons are loaded with concrete sleeper stacks that can be picked up and set down by a crane that can be moved over all units in the prototype.

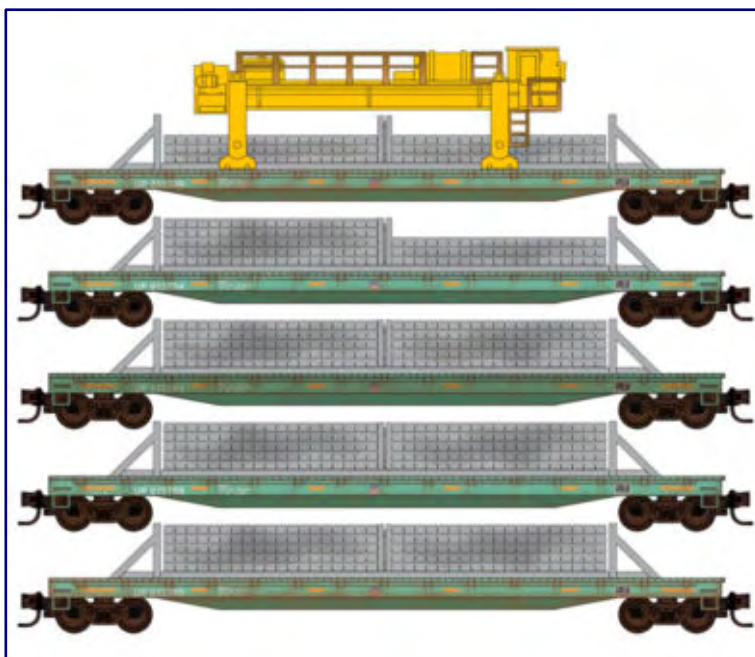


Photo right: Still in animation form, MTL shows Union Pacific's "MOW (Maintenance of Way) Weathered Tie-Loader" (994 02 271) wagon pack, which is yet to be delivered, and which has factory applied weathering. Photo: Micro-Trains

Four Märklin models new in specialist shops:

Friends of Era VI had to wait a long time for the multi-system locomotive Siemens Vectron as class 193 of the Deutsche Bahn AG (88231), which was delivered in April in a first tranche. We will test this model in detail and present it in May.

The “Diesel-TRAXX” class 285 (88378) in the blue livery of the Pressnitztalbahn is also part of the current deliveries. With warm white LEDs for the head lights, changing with red tail lights depending on the direction of travel, and bell-shaped armature motor drive, this model is also up to date.



The first models of the Siemens Vectron as class 193 of the Deutsche Bahn AG (item no. 88231) arrived at the dealers in April.

In service for a long time in the Tübingen area was the class 796 rail bus converted for one-man operation with class 996 driving trailer (88168), which Märklin has reproduced with Deutsche Bahn AG addresses around 1997 (Era V).

The class 64 tank steam locomotive (88744), which does not yet have a DB biscuit and only has a two-light headlight signal that is illuminated with warm white LEDs depending on the direction of travel, is in early Era III.

War consequences for the publishing industry:

As the Börsenblatt reported on 28 March 2022 and we also heard directly from the publishing industry, it is generally expected that the shortage of paper will continue to increase. One reason cited for this is that FSC has banned trade in FSC-certified material or controlled wood from Russia or Belarus from 8 April 2022.

This is justified by both countries' involvement in the war of aggression against Ukraine and the fact that all forests in the two countries are state-owned. Russia has been the world's largest timber supplier, but, also, the most controversial one.

Revenues from the timber trade are expected to generate income for the two states, which is directly linked to the violent and armed conflict that threatens national and regional security and is associated with military control.

Faller town house now on sale:

The Faller model of the town house with bakery (art. no. 282792) has now been delivered to the specialist trade. The architectural hardboard kit consisting of 79 solid-coloured parts in five colours continues a series of buildings that has been available for some time.



This is how the front (left) and back (right) of the new town house with bakery (art. no. 282792) look, which is now available. Photos: Faller

This is a small townhouse with lower storey heights common after the Second World War. Curtain mask and window film are also included in the kit.

Two Altenbeken special wagons at the same time:

The 1zu220 shop and Velmo have jointly had an SdGkms 707 piggyback wagon from DB Cargo produced and upgraded with individual overlays to different special wagons on the occasion of the Z Gauge weekend in Altenbeken.

Each of the two models will only be offered to visitors on site in a one-off edition of 150 copies each. They will only be sold electronically if there are any remaining stocks after the end of the meeting, which we do not expect to happen.

At present, both clients are considering limiting the levy to two models per visitor, so as not to turn them into speculative objects that might later be overpriced to Zetties who have run out of money.



Especially when used together, the new special wagons for Velmo (item no. 98191; photo above) and the 1to220 shop (98192; photo below) enhance modern combined transport (KLV) goods trains in Era VI.

The special wagon (art. no. 98191) intended for the digital supplier was loaded with a white semi-trailer bearing the Velmo brand name on an orange stripe. The counterpart of the 1to220 shop, on the other hand, shows local colour and advertises the beer brand "Westheimer" (98192) at its own location on the loaded semi-trailer.

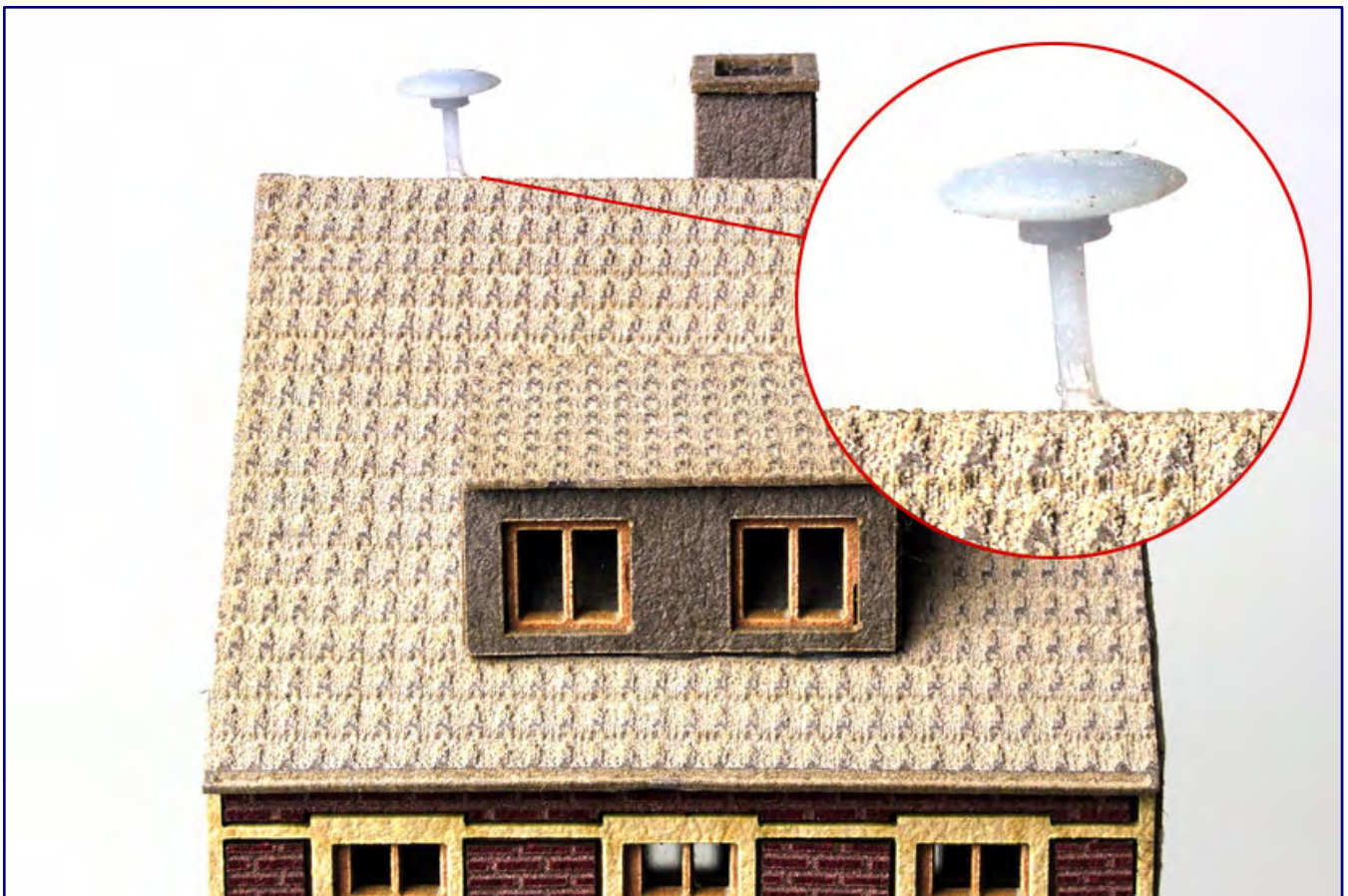
However, both models are attractive and together they prove to be successful extensions for modern trains of modal transport, as they can also be found in the tow of the Vectron from Siemens.

PDF catalogue from Kastenbahner:

Andreas Herzog was pleased to let us know that the new Kastenbahner product catalogue is finally available as a PDF on their website (<https://www.kastenbahner.com>). It offers a nice overview of all products and creations, not only in Z gauge. It offers a nice overview of all products and creations, not only in Z gauge. On Instagram, this supplier now also shows many model railway videos.

Useful accessories from Schrax:

For years Schrax (<https://www.schrax.com>) has been looking again and again for the typical details that make up everyday life not only on the model railway and are just missing. One such accessory is the new siren (art. no. 39220016), which was to be found on roofs in every municipality in the epochs III and IV depicted.



At least on the roofs of epochs III and IV the siren (art. no. 39220016) must not be missing. In the present, it is experiencing a renaissance that justifies its use as a model.

Who still remembers the practice alarm, all-clear tone and air-raid drills from their school days? After all this was still part of the annual duties during the Cold War, it later fell into oblivion and the warning sirens on the roofs were dismantled.

A few years ago, volunteer fire brigades rediscovered them because their helpers can often be called to action faster with them than with modern alerting aids. Their classic warning function has also been increasingly appreciated again for some time. Schrax now makes it possible to model this on the model railway layout, as well.

Delivery list from AZL for April:

New variants of the ALCO PA1 will first be delivered by AZL. For the Erie, these are two operating numbers of the A-unit (64405-1 / -2), while the New York Central can offer both A- and B-units. Two single A-units (64408-1 / -2) and one combination of A- and B-locomotive (64408-1_SET / -2_SET) are available.



The ALCO PA1 A in the colours of the Erie (art. no. 64405-1) is colourful and appealing. Photo: AZL / Ztrack

Matching for the "20th Century Limited" are sleeping cars (73057-1 to -6), dining cars (73557-1 / -2), pulpit cars (73857-1 / -2) as well as mail cars (73957-1 / -2). The 8,000 gallon tank car posted under SPHX is only available as a single car (915011-1) for the Pirrone tenant.



The EMD SW1500 also show detail differences for the BNSF (62708-1; pictured left) and the Cotton Belt (62717-1; pictured right). Photo: AZL / Ztrack

The EMD SW1500 shunting locomotives are rolling out in April for the BNSF (62708-1 / -2) and the Cotton Belt (62717-1 / -2). In their respective details, these models are always adapted to the respective railway company.

Manufacturer photos of the current deliveries can be found at <https://www.americanzline.com>.

New products by Andreas Nothaft:

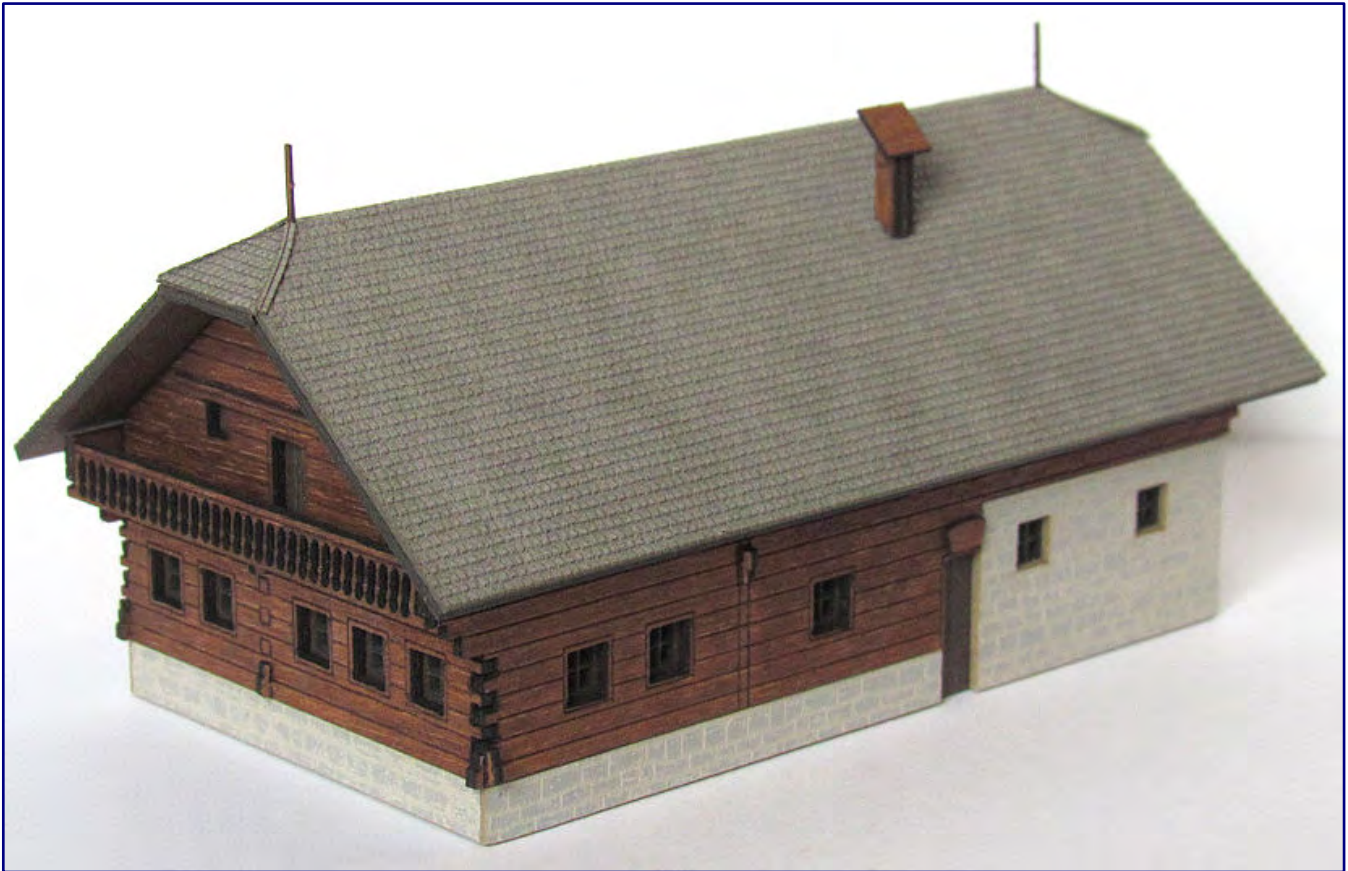
Under item numbers 465 to 468 Modellbahndecals Andreas Nothaft (<https://www.modellbahndecals.de>) offers various warning signs and hazardous goods labels for Era III.

In view of the tiny reproduction on a scale of 1:220, these will certainly be less interesting for those who want to build their own and rebuild than the exchange labels for the Talbot self-unloading wagon (Märklin 8624 and models of the same shape) of the DRG in Era II (6633).

The current design of the once first locomotive for the S-Bahn-Verkehr Rhein-Ruhr (Rhine-Ruhr suburban railway service) can be followed with another set of lettering. It is now adorned with the advertising slogan "Rent or buy me - DB-Gebrauchzug.de" (6101), just like the model when it was rewritten. Further variants of the used train advertisements are planned for the near future.

Modellbau Laffont goes one better:

Four more new products are now available from Modellbau Laffont (<https://www.modellbau-laffont.de>), one of which even came as a complete surprise. Already announced, but not yet provided with a product image, was the mountain farm (art. no. Z5001).



The new mountain farm (art. no. Z5001) is based on the Kluppeneggerhof in Austria, the birthplace of Peter Rosegger. Photo: Modellbau Laffont

This is based on the Kluppeneggerhof in Austria, the birthplace of Peter Rosegger. The model from the hard cardboard architectural kit shows finest roof tile engravings and dark stained wood.

The Waldangeloch goods shed (Z4701) in the Baden architectural style with half-timbering and fine brick and roof tile engravings (see photo in **Trainini®** 2/2022 on page 75) complements the Waldangeloch station, which was published several years ago and is still available. Together, they form a great ensemble for dreamy branch lines on which, for example, Märklin's Kittel steam railcar could run.

Also announced in February were the checker plates (Z3801), which with their fine engravings are intended for laying in depot and workshop areas of the railway. However, they can certainly also take on tasks in the track area of level crossings, where road traffic needs a safe base.

The pack contains three checker plates measuring 150 x 4.2 mm and three shims 150 x 3.5 mm. The hardboard used has a thickness / height of 0.5 mm each. As with all Laffont kits, the material is coloured through.

As a surprise, a wagon load of three agricultural trailers (Z4901) was added to the three deliveries. The three single-axle trailers in the colours grey, brown and dark green can be used to load Märklin's low side wagon 8610 according to Stefan Laffont's ideas, for which a suitable loading frame is included for securing.



For the loading of wagons from three agricultural trailers (Z4901), preparations are underway in dialogue with our editorial team to also be able to offer a loading frame for the Märklin models of the Rmms 33 / Klm 441 as well as possibly also their R 10. Foto: Modellbau Laffont

With the beautiful models, we rather think of providing them with an equally successful wagon model from more recent production. Märklin has long had this in its programme in several versions based on the Rmms 33 / Klm 441. The older, but also successful R 10 would also be a grateful “buyer”.

Unavoidable price increases at Märklin:

On 28 March 2022 Märklin published a new list of delivery dates, which in the meantime takes into account foreseeable delays from component deliveries, and, against this background, also includes a postponement of dates across the whole programme.

Furthermore, the traditional manufacturer from Göppingen can no longer absorb the increased costs for transport, energy and purchasing and sees itself forced to pass these on to the trade and customers.

In addition to transport and energy, the increased costs affect electronic components, in particular, but also raw materials such as steel, zinc and brass, as well as cardboard boxes and packaging. Märklin puts the cost increases, about half of which will now be passed on, at around 12%.

With this increase, which is still moderate in the overall environment, Märklin says it wants to take account of the pleasing development in recent years, which has brought many new and returning customers to our beautiful hobby.

News from Azar Models:

Azar Models has produced a video report on its new SNCF diesel locomotive BB 67400, announced in the February issue, which is intended to get interested parties in the right mood for this model: https://youtu.be/h_p4D91isH0.

In this three-minute report, you can experience the excellent driving characteristics of the DCC-digitised model and its appealing tractive power. According to current plans, the series models will be delivered in summer 2022.

By means of a 3D representation from the construction programme, the Shimms sliding tarpaulin wagon from the SNCF Fret stock is also presented. Connoisseurs will certainly be aware of the special features that distinguish the different designs of these four-axle wagons from each other and set them apart from the Märklin model. This model is planned for the end of summer 2022.



Diligent and creative is what Azar Models is showing with the announcement of this Shimms sliding tarpaulin car from the SNCF Fret stock. Illustration: Azar Models

Samples should be on display in Altenbeken, if possible. At press time, it was not yet clear whether this would be at the company's own stand or at the stand of its sales partner 1zu220-Shop.

Interesting designs from NoBa-Modelle:

The newly developed rail bus running gear of the small series manufacturer based on Rokuhan Shorty parts offers perspectives for some models. Correctly running on two axles, it can be used to drive the tower railcar class 701 / TVT 55 (item no. 5223R & 5223RF), as well as its variant without pantographs (5213R). The latter is intended to be equipped with a Märklin pantograph.

Another candidate for this drive is the three-part rail bus of the Hersfelder Kreisbahn (5224R / 5224RF), whose carriages were connected with bellows. Incidentally, the Uerdingen rail bus was also in this form in Spain for the RENFE.



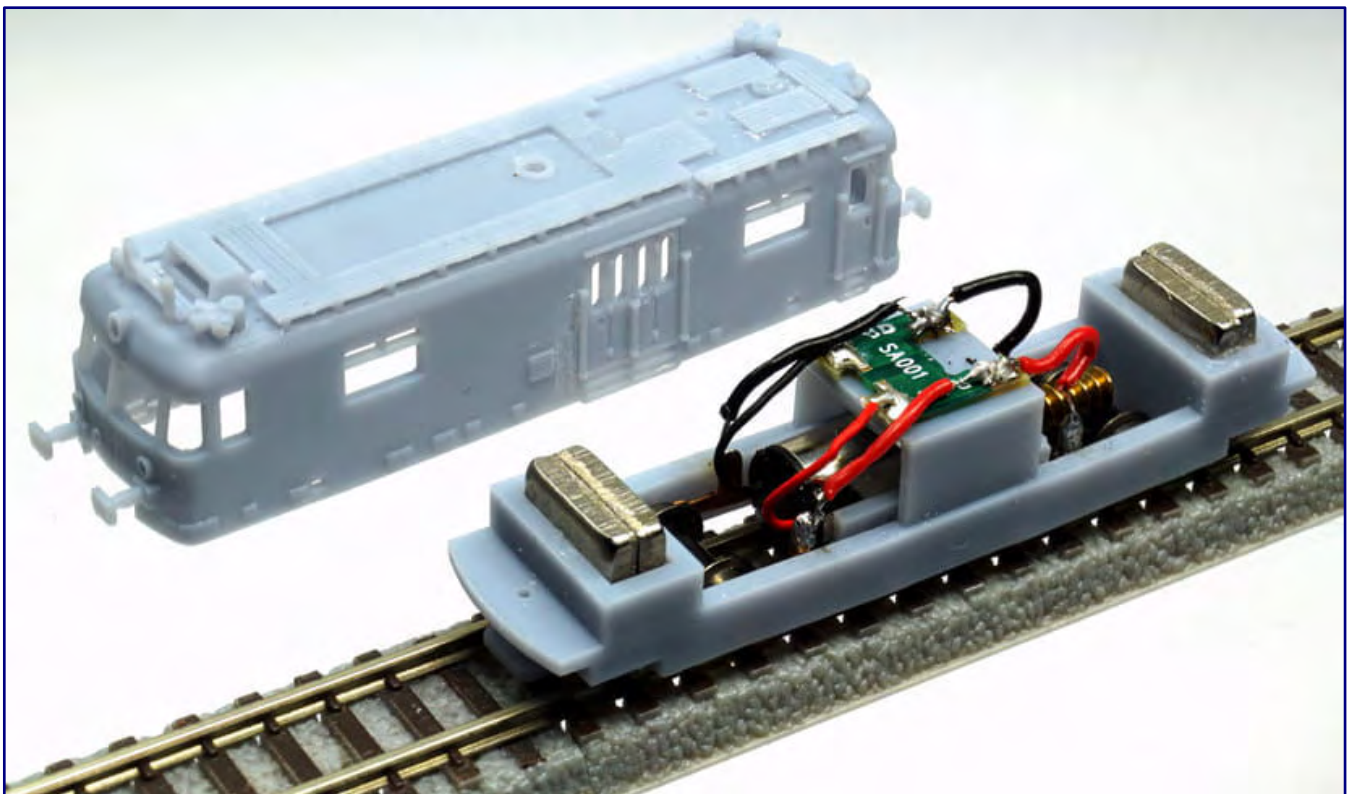
A special feature was the rail bus of the Hersfelder Kreisbahn with bellows transitions (item no. 5224RF), which is now driven by the new NoBa two-axle running gear. Photo: NoBa-Modelle

The DR's "piglet taxi" or "blood bladder" also proves how versatile the new development of the two-axle drive is. NoBa models have realised it with (5226R) as well as without panorama window (5225R / 5225RF). The last April new product in rolling stock is the modern Swiss multiple unit RABe 521 (5222R).



The rail buses of the Deutsche Reichsbahn were disparagingly called “blood blisters” or “piglet taxis.” Here, the vehicle can already be seen with Deutsche Bahn AG inscriptions (5225RF). Photo: NoBa-Modelle

The VW Transporter T1, the legendary “Bulli”, can now also be ordered individually as a finished model (6238RF), as can the Zeppelin ZK 32 skid steer loader with forks (6511RF). In addition, there are five oil barrels (10614R) and a beach chair (10262R) to get you in the mood for your summer holiday, which could also be moved to your own garden).



The class 701 / TVT 55 tower railcar (item no. 5213R) is shown here in the revised form without pantograph, which can then be added as a Märklin spare part. Like the two models shown before, it also benefits from the new running gear based on Shorty parts from Rokuhan, whose driving characteristics pleasantly surprised us.

The remaining three new products of this month enhance the station environment: Here platforms benefit from the station clock (11020R), and the surrounding track apron from signal gantries with working platforms in 32 (5508R) and 42 mm (5509) lengths.

In the upcoming warm months, things will be quieter again at NoBa-Modelle (<https://www.noba-modelle.de>), this manufacturer announces, because the couple is moving into the great outdoors. They are taking momentum for new ideas with them, and the results are likely to be seen soon.

Collector's pack from WDW:

WDW Full Throttle (<http://www.wdwfullthrottle.com>) has combined one black painted bulk freight wagon with coal inserts from each of the earlier FT-2042 and FT-2043 packs into the new collector pack "Ferry Hoppers of the Great Lakes" (Item No. FT-COL59).

OL.D Modèles from France introduces itself:

On 2 January 2021, OL.D Modèles (<https://old-modeles.mozello.com>), a new brand for 3D printed models in the 0, H0, N, Z and T model railway gauges, was acquired. The new supplier is the result of a merger between Olivier Delaplace (Old Modeles) and Olivier Dargaisse (Darg3d).

The common idea is to offer car bodies for rail vehicles using the 3D printing process. A large range of products will preferably focus on the SNCF and in this way offer customers models in the scales already mentioned, which are not implemented by large manufacturers.



The two-part French TEE diesel multiple unit RGP 825 is also on OL.D Modèles' schedule for realisation in 1:220 scale. Photo: OL.D Modèles

The buyer's task remains the painting, assembly and motorisation of the housings. As the two are aware that they are only serving a very small niche of the model railway market with this, they are also considering offering ready-to-run models in the near future.

The existing catalogue range already includes the following selected models:

- Deutschen Reichsbahn express steam locomotive 18 201 (for easy mounting on a Märklin class 003 running gear, also available ready-painted in four of the desired colours: green, red, blue or black),
- the legendary Re 4/4¹ of the SBB,



Already available is the express steam locomotive 18 201 of the Deutsche Reichsbahn. In addition to the green and red liveries it actually wore, it will also be painted blue on request, which visibly suits it well. Photo: OL.D Modèles

- Swiss railcar BDe 540,
- EW II standard wagon, and
- Belgian models of the series 15, 16, 18, 25, 26, as well as 21 to 27.

Herpa new products for May and June:

From the Herpa Wings programme in 1:200 scale, we have again selected those new products that do not exceed the usual layout frame due to their size. We have chosen 30 cm as the maximum length for aircraft and have also limited our selection to those versions that operate or operated in Europe:

Air France – Aviation Postale Transall C-160 (572057),
Embraer E195-E2 “Profit Hunter – Golden Eagle” (572064),
BEA Vickers Viscount 800 “Speedjack livery” (572095),
Royal Jordanian Boeing 727-200 (572101), and
Königlich Niederländische Luftwaffe Lockheed Martin F-16A (571678).



The Embraer E195-E2 in the “Profit Hunter - Golden Eagle” livery (Item No. 572064) is a demonstration aircraft from the Brazilian manufacturer. Photo: Herpa

We have still left out the model of a Russian fighter plane, which is currently bringing suffering and misery to the population of Ukraine for these aggressors, and, in our opinion, therefore, has no place on model railway layouts of our community, which is oriented towards international friendship and networking.

It is complemented by the model of the TUfly Boeing 737-800 "Cewe-Fotobuch" (613538) in flight as a Snapfit model. The Goldhofer AST-2 aircraft tractor (572088), which has been announced as a new mould, is also to go on sale.

Central Station 3 now probably also usable for Z gauge:

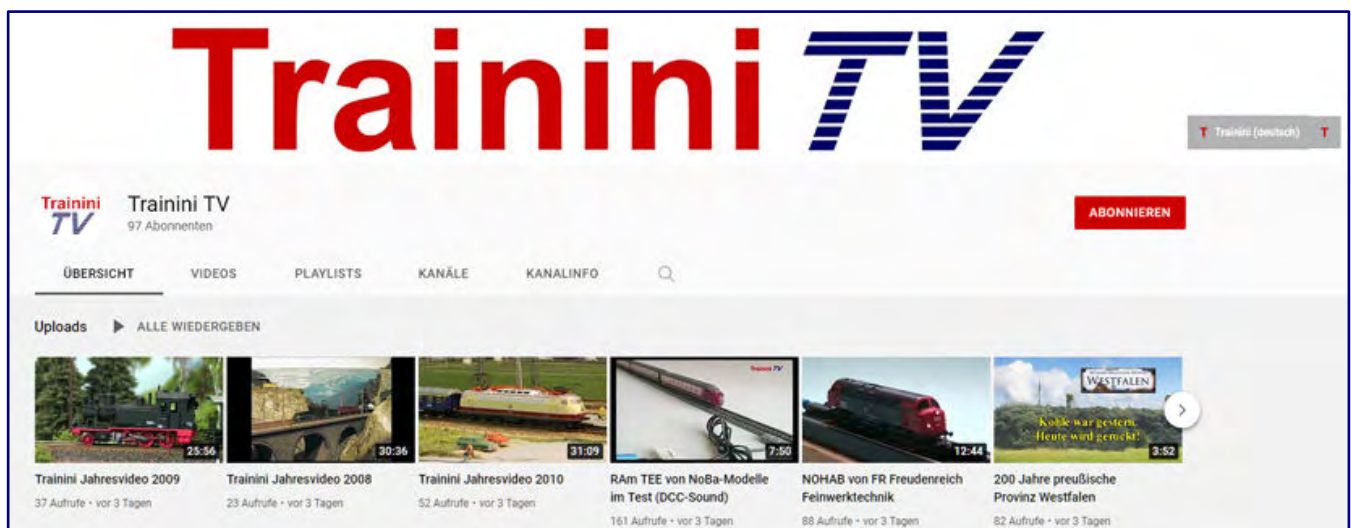
Märklin has released an update to its Central Station 3 control program, which will allow it to work with lower voltage power supplies (so far only 18 V) and also lower the voltage applied to the track.

Diode paths and voltage regulators for lowering the track voltage could thus be a thing of the past. If the 12-volt plug-in power supply is used by the Märklin driving controllers for Z gauge, there is still about 10.5 volts at the track.

Even if this corresponds to the expectations of the NEM, this can be difficult in operation with sound decoders, because these often require 12 to 14 volts. But even these values should be able to be safely displayed when using suitable plug-in power supplies with an output voltage between 12 and 18 volts.

Youtube channel **Trainini TV**:

Our YouTube channel **Trainini TV** was launched on 23 April 2022. At irregular intervals, film contributions will be published on it to complement and enhance our ongoing reporting in the magazine.



Exactly three subscribers are still missing five days after going public to be allowed to change the URL (unique page address) of our channel to a "speaking" address after 30 days of existence.

In the "first edition" we uploaded older film sequences in chronological order, with which we summarised individual years in their entirety up to 2011 and documented individual events in the further course of time.

The current reason for this step was the further expansion of our offer after the launch of our new website a year ago and the wish to make the digital functions of the diesel multiple unit tested in this issue more descriptive.

You can find our channel at <https://www.youtube.com/channel/UCLxfRVEwB8OxvJ3OHNYe1oA> (planned to change to a “speaking” and easy-to-remember address if there are enough subscribers). We would be very pleased if you would subscribe to it (free of charge on the platform, of course) and also distribute the information widely. By the way, our new service, like the magazine, is without commercials.

We do not generate advertising revenue from it and do not plan to do so in the future. Likewise, we do not allow companies and firms that support us in producing reports to influence our editorial work. This code of honour is accepted by all market participants in order to be able to safely exclude manipulation.

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