



# Trainsimming Modern German railways

*Part Two Jan 2003*



BR 423 S-Bahn EMU at Düsseldorf Unterrath.

In the background you can see a Düsseldorf Stadtbahn (Light Rail) Model: David Dolbrother

## *In Part Two:*

- **Passenger branding**
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## Welcome to Part Two Trainsimming Modern German railways

Thanks for the positive feedback from Part One of Trainsimming Modern German Railways.

I've actual read that many Germans Train enthusiasts enthusiasm starts with the engine and ends with the engine: because to understand what is behind is too complicated.

In Part Two we attempt to unravel this, with a description of the types of Passenger services that DB has run since the 60's, the color schemes used, the carriage classification system, and pictures of the carriages in use.

Most German regional trains were push-pull: since privatization in 1994 there has

been tremendous investment in EMUs and DMUs

for regional and S Bahn work, as well as the ICE 3 for High Speed trains.

We describe the EMU's and DMU's in use.

## German passenger Services

Post the privatization of DB AG, the long distant and the regional Trains in Germany are operated by separate subsidiaries, now named **DB Reise & Touristik** and **DB Regio**.

In addition, since 1996 the State Governments have been made financially responsible for operating Regional Railways, paying DB Regio or a an Open Access Operator to run the services on its behalf. In many cases DB continues to run the service, and stock has been considerably modernized, particularly with the use of EMUs, DMUs and Doubledecker push-pull stock. In other cases an Open Access Operator now runs the service.

These are examples of passenger train services from the on-line timetable for Cologne (Köln) Hbf ([www.bahn.de](http://www.bahn.de)), or Stuttgart Hbf

### Long distance.

**ICE (InterCity Express)** – ICE 604 Basel to Dortmund via Frankfurt and NMS

- The flagship of the German Rail system. Provides high-speed connections between the principal metropolitan areas at 250 K/mph or more, using the ICE EMU's, partly on high-speed lines (Neubaustrecke NBS). The new NBS between Köln and Frankfurt has just started service cutting one hour off the travel time. Trains run every hour or more frequently.

**IC (InterCity)** IC2500 Karlsruhe to Westerland (Sylt) via Mannheim, Köln, Bremen

- Express trains connecting the larger domestic destinations. Trains run every hour.

**EC (Eurocity)**. EC 29 "Joseph Haydn" Hamburg – Köln – Wien Westbahnhof

- Similar to IC but across borders

**IR (InterRegio, "Inter-Regional")** – No longer timetabled since Dec 2002

- Express service connecting domestic and international medium-sized towns to major rail centers. Trains generally run every two hours or more often. This service has been phased out and almost eliminated from the 2003 timetable, with the remaining routes turned into IC or IRE.

**IRE (Inter Regional Express)** – partial replacement for IR

**THA Thalys** THA 9420 Köln Deutz to Paris Nord via Aachen and Brussels

- French high-speed trains.

**MET Metropolitan** MET 1031 Köln – Düsseldorf – Essen -Hamburg

Luxury Business Class train with special stock – only Köln – Hamburg

**UEx Urlaubsexpress** UEx 1128 Bolzano – Dortmund

- Holiday trains from North Germany to Austria or Italy
- **CIS Cisalpino** CIS 155 Stuttgart Zurich Milan Italian high-speed tilting trains *Pendolino* that can, contrary to the ICE, run on more conventional tracks, since it leans into curves.

Many ICE, IC and C  
 have names but  
 since 2002  
 disappeared. For a  
 list of names see  
<http://www.bahnseite.de/purespace/zugnamen.html>

### Regional Transport Nahverkehr

**S-Bahn (Schnellbahn, "Fast Train")** S6 Essen Hbf to Köln via Düsseldorf

- Commuter rail service in and around major metropolitan areas.

**RB (RegionalBahn, "Regional Train")** RB 225 Münchengladbach to Koblenz (via Right bank of Rhine)

- Local trains stop in virtually every town along the way.

**RE (RegionalExpress)/ IRE (inter Regional Express)** RE 10006 Hamm Aachen RE-Line 1 is know as the 'NRW-Express –Nordrhein Westfalen'

- A significantly faster service than the RB and SE. Stops at medium and larger-sized towns.

**SE (StadtExpress, "City Express")** – no longer used – replaced by RB or RE

**CityBahn (CB)** – a type of SE - the term was used in Köln and Hamburg – no longer used

### Long distance Night Trains

**NachtZug** NZ 1100 Firenze – Dortmund

- Night trains

**EN EuroNight** EN325 Brussels – Wien Westbahnhof

- International night trains

**CityNightLine (CNL) CNL 41917 Norddeich Mole - Zurich**

- Private DACH GmbH luxury night trains, special trainsets, special prices.

**D-Zug** (Durchgangszug, "Through Train") D248 Warsaw Köln

- A term now only used for night trains.

**ICN InterCityNight**; No longer used -a high quality night train.

Make up of IC 2275 Hannover  
- Konstanz replacing IR 2475

Avm	1 <sup>st</sup> class Air conditioned compartment
Arkimb	IR-BistroCafe
Bvmz	2 <sup>nd</sup> class compartment, air conditioned, own power generator
Bpm	2 <sup>nd</sup> Class, open, air-conditioned
Bpmb	2 <sup>nd</sup> Class, open, air-conditioned, wheel chair access
Bpm	2 <sup>nd</sup> Class, open, air-conditioned
Bpm	2 <sup>nd</sup> Class, open, air-conditioned
Bpmbzbf	2 <sup>nd</sup> Class, open, air-conditioned driving cab

### Series number

1nn	Intercity
13n	Restaurant cars
2nn	Schnellzug
26n	InterRegio
4nn	Regional
5nn	DR Schnellzug
7nn	Commuter including Double-decker
8nn	Salon and Meeting room cars
88n	Talgo (sleeping cars)
9nn	Luggage and Auto transporters

## DB Carriage classification system

The classification system for German carriages consists of:

One or more Class letters, in capitals describing the type of carriage, e.g. A first class, B second class.

One or more Identification letter in small letters describing features of the car, for example v air-conditioning

A series number describing a series of carriages, written in superscript.

For example **WRmz**<sup>137</sup> is a dining car.

The principle characteristics of the cars are noted in the table below.

The sidebar shows the composition of the new service IC 2275 that has replace the IR 2475 in the new timetable.

Each Passenger car has a twelve number serial number, which would take pages to describe. Those who are interested should go to [www.reisezug-wagen.de](http://www.reisezug-wagen.de) and use the Google translation facility.

A good pocket book guide (in German) is Andreas Braun DB-Fahrzeuge Band 2.

For the composition of trains in the current timetable see:

[www.fernbahn.de](http://www.fernbahn.de)

A WRmz 137 restaurant car in Traffic red IC livery – this one has had the pantograph removed:

Model: Jamar Repaint: Stefan/ Wiesner Gerhard



## Carriage Classification system

Letter	Meaning
A	1st. Class Car
AR	1st Class with Dinning car and Kitchen
AB	St and Second class car
B	2nd. Class car
Bc	2 <sup>nd</sup> Class couchette
BD	2nd Class luggage compartment
BR	2nd. Class with Dinner and Kitchen
BS	Seat car 2. Class with special mechanisms
D	Luggage wagon
D....	Double Decker (the normal class letters placed in front e.g. DAB)
DD	Double deck car transporter
K....	Narrow track car (the normal class letters placed in front e.g. KAB)
MD	Auxiliary luggage car
Post	Post office car
WG	Society car (Open car for groups/meetings etc)
WL	Sleeping car
WR	Restaurant car

m	Long-distance traffic compartment car longer than 24,5m with 10 A or 12 B and/or 5 A with AB or 6 B with BD compartments	Bm
p	Air-conditioned, open, center aisle	Bpmz
v	Air-conditioned, with less than 10 A and/or 12 B - compartments	Avmz
o	Long-distance traffic car does not air-conditioned,	Bomz
i	InterRegio Car (used with m)	Aim
n	Regional Traffic longer than 24,5m, 2 midway entrances, region with center aisle (1st class side aisle), 36 wire Push-pull control system	Abn
y	Regional Traffic longer than 24,5m, 2 midway entrances, region with center aisle, Push-pull control system	Byu
c	Compartment coach with seats, which can be converted into couchettes	Bcm
w	Light 4 axel passenger train cars, length over 18,7m	Bghw
x	S-Bahn (Commuter), 2 midway entrances, central power supply, high speed brake	Bxf
b	Car with equipment for wheel chair access.	Bpmbz
d	Car for bicycle transport and/or with general-purpose area	Bimdzf
k	Car with Bistro (Café) or self-service machine	Bnrkz
h	Car with self-power supply + central power supply	Bocmh
r	Car with high speed brake	Bnrz
s	Side passage in Luggage car	BDomsb
u	Passenger train car with 34 pole pus-pull control line	AByu
uu	Passenger train car with 36 pole push-pull control line	Byuu
z	Passenger train car with central power supply from the main heating line	Apmz
q	Driving cab with 34 pole control line (not used since 1991)	
f	Driving Cab with 36 pole control line	Bnrzf



A Bimdzf 269 Driving cab built in 1995 from ex fast train stock. They have a cab controls based on a BR 111.

This is shown in the latest IC livery in Dresden station. DB has about 110 Driving cabs in IC and IR liveries

Model: Protrain 2.



## IC Intercity

### Caught on a Train

For business journeys high speed trains are great, but for travel a long journey on a moderately paced long intercity journey allows you to time to reflect. Every time I go on one of these journeys I am reminded of Stephen Poliakopf's BBC film "Caught on a Train" showing Michael Kitchen's journey from Ostende to Aachen, in a compartment coach. Those days are gone forever.

Intercity were originally introduced in 1971, although there were TEE trains, and forerunners before this. They were originally First class only. In 1979 the concept IC 79 was introduced with regular hourly connecting journeys on the Intercity network, with both first and second-class.

Originally they used rebuilt pre-war stock, then as customer demands, the need for faster trains and hence brakes, integral toilets and air conditioning new stock was built.

The color schemes are:

- 1965 –1975 InterCity First class: TEE colors of Beige with Red apron
- 1974 – 1986 Intercity: Beige with Ocean blue apron
- From 1986: White with Orient red window band with a pastel red strip underneath. Roof white until 1990 then gray.
- From 1996: Traffic red window band with no strip underneath
- From 2001: White with broad traffic red (the ICE scheme)

From 1995 push-pull driving cabs were introduced to make better utilization of the trains, and to reduce problems at the terminal stations (Germany has major terminal (Head) stations at Dresden, Frankfurt (Main), Leipzig, Munich, and Stuttgart).

A Bvmz 237 second-class coach in the 1984- 96 Orient Red window band with pastel under-stripe scheme.

This series was built in 1998, are air conditioned and built for 250 Km/hr

Model Jamar  
Repaint Stefan



The picture above shows IC stock in the Orient red with pastel red under-stripe, which was used until 1996. The roofs were white until 1990, then gray.

The picture below shows the Traffic red scheme used from then until 2001, when it was replaced with a smaller Red band IC schemes shown on the Driving cab above.

It is common to see consists with coaches with different schemes, or even IC trains with IR carriages, as the one below, or vice versa.

A BR 101 pulling an Intercity with a 2<sup>nd</sup> class IC Coach in the Traffic Red livery: the second coach was in IR livery, and the remainder in the same Traffic red scheme. 10 May 2001



IC Carriage  
Protrain 1 Repaint  
Wiesner Gerhard

## EC (Eurocity) trains

EC Trains, are cross border IC trains, and obviously provide an interceding change of color, with EC Trains in ÖBB (Austrian) Colors SBB (Swiss) SNCF Corail (French) CD (Czech), Polish, Hungarian, Danish, SNCB (Belgium) and NS (Dutch) schemes.

When the EC trains were set up they had their own Light Orange scheme, but not all the participants painted their carriages in this scheme (possibly only the Belgians and the Austrians)

BR 101 pulling EC 23  
 "Johann Strauss" on the  
 Rhine left Bank 15 May  
 2000.

ÖBB carriages: Model  
 Andreas Them



The European rail server has pictures of the sleeping cars passing through or lodged on Platform 6 at Dresden showing they have carriages in Ex-Ten Blue, in Mitropa Bordeaux red and in Traffic red white on the same train.

## Night Trains.

Prior to WWII Sleeping trains and Restaurant cars with run by **Mitropa**. After WWII Mitropa continued to exist in East Germany, and the Western part became **Deutsche Schlafwagen- und Speisewagen-Gesellschaft (DSG)**, part of DB. Both DSG and Mitropa had Bordeaux red schemes for both the Sleeping cars and the restaurant cars. They were remerged in 1994

The international Sleeping cars were given in 1973 to the TEN-pool (Trans Europ Night), and were painted Midnight Blue. When the ten –pool was dissolved in 1992, the carriages continued to be Midnight blue, with the TEN sign removed, and were painted in the IC traffic red and white scheme.

DB also runs Night trains using Talgo sets, and Doubledecker stock. The Latter are in the Traffic red window/ white scheme or in a Midnight Blue City Night line scheme.

Night Train. You can just see the TEN livery on the Left hand side

Model Ralf (Graph15)





## ICE High Speed Trains

Germany has four high-speed lines, with the first two Hannover - Würzbur; Mannheim-Stuttgart completed in 1991, Berlin- Hannover in 1998 and Köln – Frankfurt is in service this year 2002.

The first two lines can also carry high speed freight, but because of cost the next two are passenger only, and the Köln-Frankfurt line, because of its steep (4%) gradients cannot be used at high speed by the ICE 1 and 2, which have separate locomotives, but by the ICE3 which has power axels throughout the car

The ICE livery was originally an Orient red stripe, with a pastel red under-stripe: it is now one Traffic red stripe.

401 ICE1

Built: 1991 - 1983

Number build:

**60**

Speed:

**280 Km/h**



The ICE 1 have two locos and up to 13 cars, for example Power car, 7 402 2nd class cars, one 803 service car, one 804 restaurant car, three 801 first class cars, and the end power car.

This was the composition of the ICE 1 that crashed at Eschede on 3<sup>rd</sup> June 1998. The cause of the crash was a change from monobloc to one with a separate tire, which cracked.

Color - Many have been repainted with traffic- red stripes – the original stripes were in orient red with a pastel red underneath.

An ICE 1 with one of the locos. You can see the bulbous restaurant that distinguishes the ICE 1. Model Stefan Pufler und Ing. Markus Schaufler

## 402 ICE2

Built: 1996 - 1987

Number build:

46

Speed: 280 Km/h



The second generation ICE 2 shares the same body shape as the ICE 1. Technically updated its main difference is that it is designed to work in seven car half trains, which have an engine and a separate driving cab.

As a result the bulbous dining car that distinguishes the ICE 1 has been replaced by a restaurant car in each half train.

As they have not had major overhauls they still have the original Orient red strip with pastel under stripe

The Driving cab end of the first set of an ICE 2. You can just see the Restaurant car by the signal. Model Stefan Pufler und Ing. Markus Schaufler

## 403 and 406 ICE3

Built: 1998 - 2001

Number build:

403: 37

406: 17 (4 belong to NS)

Speed: 300 Km/h



In contrast to the ICE 1 and 2 that have engines, in the ICE 3 the motorized axels are spread through the train, with four powered cars and four unpowered cars. (The easier maintenance of AC motors has made this possible)

It is built in particular for the gradients on the Frankfort – Köln High speed line. 17 Dual system versions (BR 406) were built for the Köln – Amsterdam route: 4 of these are owned by NS Nederlandse Spoorwegen (Dutch railways). These have additional pantographs on the two middle cars

Composition is:

403.0 End motor car 1<sup>st</sup> class, 403.1, Trailer with transformer (Trafowagen) 1<sup>st</sup> Class, 403.2 Motor car (Stomrichterwagen) 1<sup>st</sup> class, 403.3 Middle Restaurant car, 403.8 Middle car 2<sup>nd</sup> class, 403.7 Motor car, (Stormrichterwagen) 2<sup>nd</sup> class, 403.6 Trailer with transformer (Trafowagen) 2<sup>nd</sup> Class, 403.5 End car 2<sup>nd</sup> class

ICE 3 pulling out of Düsseldorf at Dusk

Model: Protrain 1

## Other ICE Trains.

There are other ICE Trains:

	No Built	No	Use
<b>411 ICE –T</b>	15	1999 - 2000	A Pendulum version of the ICE 3 used between Stuttgart and Zurich. The 411 has 7 cars, the 415 15. It shares the same overall body as the ICE 3 but there are differences (where doors are, pantographs etc)
<b>415 ICE T</b>	11		
<b>605 Diesel ICE TD</b>	20	1999 -2002	A Diesel electric pendulum version, again of same family as ICE 3 used on the Nürnberg – Hoof – Dresden and Munich – Zurich routes

### Thalys PBKA

Built:  
1996

DB  
Financed  
Two of the  
17 sets

Speed 300  
Km/h



A version of the Thalys PBA (Paris Brussels Amsterdam) with Köln added, but which can run on the German Electrical system. DB financed two, which are run by Belgium railways on the Köln – Brussels – Paris route since 1999.

Thalys pulling out of Köln Hbf. Model: Edouard Staniczek Carriages Clem Tillier (Payware). The loco has been repainted by Myself but cannot be distributed for Copyright reasons.

## Pendolino

The Italian High speed train runs from Stuttgart to Milan.

## InterRegios IR

BR 101 in Starlight  
express livery  
pulling IR 2478  
May 1998.

BR 101 Model:  
MadMike Repaint  
Stefan

IR Carriage:  
Model Julio  
Castillo Repaint  
Mathias Müller



**InterRegios** entered the timetable in 1988 with the first two lines from Koblenz to Kassel and from Fulda to Hamburg, which are significant stretches.

They were offered between the Inter-city trains and the D Zug, with refurbished Schnellzuwagen stock, included a BistroCafe, and on some trains a bike area and a children play area.

They were a marketing success with one some lines 30% more passengers than the predecessor D Zugs. At its peak in 1975 there were 424 trains on 24 lines, including into former East Germany, and carried 62 million passenger, the same as the IC/EC and ICE trains together.

However, the new DB management does not like them, possible because it was splitting their ICE/EC and ICE offer, and began reducing the service, so that in the December 2003 timetable they have almost been completely eliminated, replaced by IC Trains on some sections and IRE trains on shorter sections.

The Two-tone blue and white livery for the InterRegios (with white roofs until 1990, then gray) is for me, the most attractive of the DB carriage schemes. IR were pulled by a variety of electric and other locos, including BR 111, BR 103, particularly out of Berlin, BR 112 (new), BR 120 and BR 101.



### Regional Transport Color schemes

The scheme prior to 1986 was the unpainted metal carriages called Silverfish (Silberlinge), because of the scale effect on the carriage sides. These often have a mid blue skirt and a blue and beige painted driving cab.

In 1985 DB introduced the Köln-Gummersbach Citybahn, which were painted grey with an Orange stripe, including the BR 218 Diesel locomotives. This line now since 1999 uses BE 644 Talent DMU's.

In 1986 the Mint green scheme was introduced with light grey carriages with Mint Green Windows with a pastel green stripe.

Since 1996, the scheme has been Traffic red with light grey and a mid Gray skirt.

## Nahverkehr - Regional Transport

The provision of Regional Rail transport in Germany has undergone a dramatic change, partly due to the privatization of BD in 1994, but more because in 1996 the responsibility of financing Regional rail fell to the State Governments, as part of the responsibility for Public transport.

As a result the State Governments finance Regional transport on a "User pays" basis, and can use "Open access" operators to provide the service rather than DB Regio.

This in turn has meant:

- In some area there has been a massive investment in new Doubledecker rolling stock and new electric locomotives (BR 146 and BR 145), and investment in new electric EMUS of the ET 423 –426 family
- For non electrified lines an investment in new DMU's and smaller Rail buses of the LINT family
- In other areas (for example Vogtland) Open access operators now run the service, many using DMU's and rail buses similar to DB.
- There has also been significant investment in new S Bahn EMUs for the Berlin and Hamburg S Bahn systems.

We will be looking at:

- Push-pull Regional stock
- Push-pull Regional Doubledecker stock
- Regional DMUs and railbuses
- S Bahn push-pull and EMUs



The one and only Turquoise BR 234 pulling an Ex-Silberlinge consist of 3 Mint-green coaches and a Traffic red driving cab, Dresden 14 Aug 2000  
 Model: BR 234 Mad Mike repaint Stefan, carriages various.

Many Ex-Silberlinge consists have coaches of mixed livery.

## Silberlinge (Silverfish) WendeZug - Push-Pull

With over 4000 carriages the Silberlinge wagons built, this represents the largest proportion of DB stock.

The prototype was built in the Karlsruhe DB wagon facility in 1959, and series production continued until 1966, with variations. The top speed in 140 Km/h.

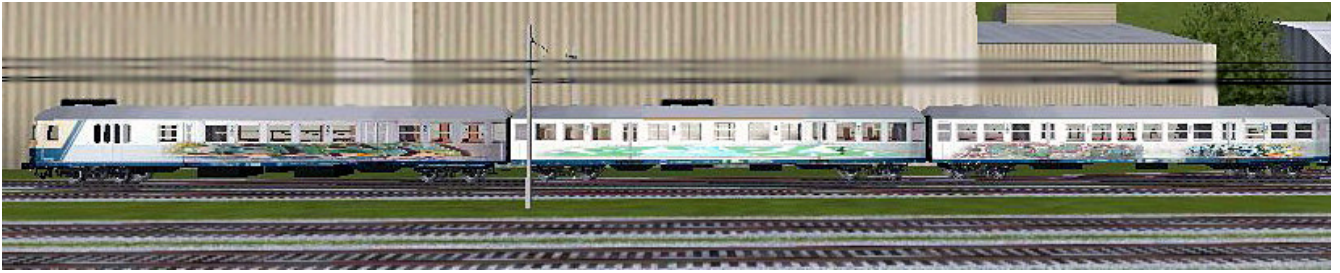
They were rebuilt from, when the new color schemes appeared: orange and beige for the Köln city-line and from 1987 the new Mint green color scheme.

There are a variety of Driving cabs, the most common type having a high roof know as the **Karlsruhe**, built from 1977, from the Wagon works where it was originally made; those with a slanted front are know as **Wittenberg** style. Some have bicycle components at the front, and the latest Wittenberg has dot-matrix terminus indicators.

There are still wagons in the original unpainted condition in use (in Giessen notably), although they are being replaced by Doubledecker stock.

There are still some Silberlinge in their original stainless steel condition, for example in Hannover in August 2002, with a Karlsruhe driving cab.  
 Model: MadMike





Graffiti is endemic on German suburban trains: Model MadMike

A **Wittenberg Driving cab** at Leipzig station. The extra halogen lamps can distinguish this particular variation Bybdzf 482. 165 were rebuilt from Silberlinge carriages; most are in former East Germany, although some are in Frankfurt (Main). Model Tappi



Ticket Machine. The can be found at stations, Tram stops and larger Bus stops and in large conurbations there is a Tariff agreement allowing the ticket to be used for connections



## Double Decker Push Pull stock

Prior to reunification DB had no Doubledecker stock. In contrast DR (East Germany) made extensive use of Doubledecker trains for Regional traffic. Following an experiment with DR stock in the West, DB, and now DB AG, in conjunction with certain States (particular Rhineland Pfalz and Nordrhein Westfalen) in the West have invested in rebuilt ex DR stock, or new stock.

In rebuilt stock there have been waves, with stock being semi-modernized before being fully modernized.

Refurbished ex DR Doubledecker stock with a BR 141 in S Bahn livery Koblenz Feb1998 Carriage Bernhard Daenzer Repaint Rainer Bluhm





Newly Built  
 Doubledecker stock –  
 here in Rhein Phlax  
 pushed by a new BR  
 146. The 160 Km/h  
 DBpzf 763/794 Driving  
 cabs were built in 1997.  
 There are two types one  
 with a first class section,  
 and one without (this  
 being in another  
 carriage). The carriages  
 have air conditioning.

Model: Protrain 2



## Powered Doubledeckers BR 445

There is one prototype Doubledecker EMU, BR 445, built in 1998, but still on trial the Dresden S Bahn. For a picture see.

<http://mercurio.iet.unipi.it/pix/de/electric/emu/445/pix.html>

## Regional DMUs

Although one could easily get the impression that all German railway lines are electrified, this is far from the case, as the rail map, from <http://www.bueker.net/trainspotting/maps.php> shows, North of Germany, East Germany and Bavaria have many non-electrified lines, and even in the Rhine-Ruhr there are non-electrified lines.

The Müngstener Bridge line in Wupper Express 6.0 (Solingen – Remscheid – Wuppertal) is in reality non-electrified.

### BR 610

Built: 1992 -1993

Speed: 160 km/hr

Number Built: 20

Colors: **Mint green/light gray,**  
**Traffic Red**



A two-car set tilting train using the Fiat mechanical tilting mechanism, designed for un-rebuilt track.

Based in Nürnberg

Model: Andreas Müller



<b>BR 611</b>
Built <b>1996 -1997</b>
Number built: <b>50</b>
Speed: <b>160 Km/h</b>
Color: <b>Mint-green/light gray, traffic red</b>

No Model available – Visually similar to 610

Based on the success of the 610 DB order 50 611, but in contrast to the 610 it uses an electric tilting mechanism (originally designed for the Leopard tank) and is a Diesel Hydraulic rather than Diesel electric. As a result of insufficient testing the 611 have been plagued with breakdowns.

Based in Ulm, some in Kaiserlautern

<b>BR 612</b>
Built: <b>1998 -</b>
Number Built: <b>112</b>
Speed: <b>160 Km/h</b>
Color: <b>Traffic Red</b>



A tilting train, actually based on the 611, but visually different because of the stream-lined driving cab

Based throughout Germany in Dortmund, Erfurt, Hof, Kaiserlautern, Kempton and Leipzig

Model: Andreas Müller

<b>BR 614</b>
Built: <b>1971 - 1977</b>
Number built: <b>42</b>
Speed: <b>140 Km/hr</b>
Color: <b>Mint green/light Grey, Slate gray/orange, Ocean blue/beige Traffic red</b>

No Model available

A three car set, a development of the 642

Based in Braunschweig and Nürnberg

## BR 618

A very futuristic 3 part set, capable of 160 km/h. One prototype built in 2000

**BR 624/ BR 634**

Built: 1961-1966  
1969-1978

Number Built: 624  
58

634 25

Speed: 120 Km/h  
140 for 634

Color: Mint-  
green/light gray,  
Traffic red



A Three car set, which have been rebuilt to modern passenger comfort standards. Based in Osnabrück, Kassel, Cottbus, Braunschweig (624 and 634)

Model: Andreas Müller

**BR 627.0 BR 627.1** 13 One car railbuses built between 1974 and 1981. Used in Schwarzwald and Kempton (South Bavaria)

**BR 628 and 628.1** 15 Two-car DMUs built 1974 and 1981. Based in Kempton (South Bavaria)

**BR 628.2 628.4**

Built 1989 –1989; 1992 -1996

Number Built: 150 + 297

Speed: 120 Km/hr

Colors: Mint Green/Light  
gray, Traffic red



A successful Two-part set, with diesel hydraulic transmission. The 628.4 can be distinguished by a double door at the coupling end

Used throughout Germany. Two are owned by The Luxemburg railways for cross border traffic

Model: Andreas Müller

**BR 640 (LINT 27)**

Built: 1991 - 2001

Number Built: 30 (for DB)

Speed: 120 km/h

Color Traffic Red plus Open Access users



Since 1996 and the Regional Rail traffic reforms, more economic trial buses and EMUs have been developed. This is the LINT series (Leichter Innovativer Nahverkehrs Triebzug – Lighter innovative Suburban DMU), developed by Alstrom-LHB. 106 LINTS of both types (the other is the BR 648) are in use by DB and Open-access users.

All the BR 640 are based in Dortmund.

Model: Uwe Franke

**BR 641**

Built: 2000

Number built 7

Speed 120 Km/hr

Color: Traffic Red

No Model available

A very futuristic One car rail car developed with SNCF (TER X 73500), ho have ordered 300 And The Luxembourg railways (CFL)

Based in Erfurt

**BR 642 RegioSpinter Desiro**

Built: 2000 -

Number: 142

Speed: 120 Km/h

Color: Traffic Red – Some used on the Dresden airport link had pictograms



Siemens' response to the demand for more economic and faster vehicles is the Desiro family. The 642 is the two-car version, and with 150 units it is based in Erfurt, Nürnberg, Leipzig and Rostok.

A BR 642 at Dresden Neustadt, in May 2001 on the Airport shuttle before the line was electrified. Some but not all the shuttles had pictograms. (Very nice regional airport by the way).

Model: Burkhardt Schmidt.

## 643 / 644 TALENT

Built 1998 - 2000

Number Built:

**634: 75**

**644: 63**

**Speed 120 km/hr**

No Model available

A modern three-part set designed for S-Bahn type services (644) or Regional traffic. The 634 has a hydraulic drive and the 644 is a diesel electric.

The 643 is based in Düsseldorf, Osnabrück and Tier – the 644 is mainly used on the Köln – Gummersbach route.

## BR 646

Built: 1999 -2001

**Number Built: 32**

**Speed: 120 Km/hr**

**Color: traffic red**

No Model available

A three-part DMU with a very short middle carriage holding the engine.

Based in Cottbus and used in the Berlin area, on the island of Usedom

## BR 648 LINT 41

**Built: 1999 –2000**

Number: **6 (DB)**

Speed: **120 KM/h**

Color: **Traffic red**



The two-car set of the BR 640. Both cars are powered. Used on the Flensburg-Kiel route

Model: Uwe Franke



## BR 650 RegioShuttle

Number Built: **50 (DB)**

Speed: **120 Km/h**

Color: **Traffic Red**



A one-car railbus built by Adtranz and used successfully by Open Access operators. DB bought 50 for used in South Germany, based in Ulm and Tübingen

Model: Burkhardt Schmidt

## 15kV/16.7Hz S Bahn lines

In December 1930 the **Deutsch Reichsbahn Gesellschaft (DRG)** decided to 'brand' the Berlin Stadt- Ring and Vorortbahnen (commuter railway) as the **S Bahn** with the White S on the Green circle. The S stands for Schnell (Fast). The characteristics of the S Bahn were fast, frequent and regular trains, with short stops and with limited interference from other rail traffic. The Berlin S Bahn was electrified with third rail DC between 1923 –and 1929, and the Hamburg S Bahn converted to their rail between 1938 and 1954.

The Berlin and Hamburg S-Bahn systems are unique because they are electrified on a third rail system (although not on the same basis Berlin is 800 V DC and Hamburg 1200 V DC), and have unique stock to their own lines.

The Berlin S Bahn has a particularly interesting postwar history in a divided Berlin, but unfortunately we have no space here to do it justice.

There were no further S-Bahns until 1967, although there were pre war plans for one in **Munich**, and post war plans for running suburban trains through newly built tunnels in those cities that had **terminal stations** (Frankfurt, Stuttgart and Munich).

The first post war S Bahn on a 15kV/16.7Hz overhead system was in September 1967 in **Düsseldorf (Rhein Ruhr)**, running Push-pull Silverfish stock, but the major impetus was the 1972 Olympic games in Munich, for which the through tunnel under Munich was built and a S Bahn network completed. The **Rhine-Sieg (Köln) S Bahn** net started in 1978 and in 1979 the **S Bahn Rhein-Main** started in Frankfurt with a 2.6Km tunnel under the main station. The **Stuttgart S Bahn** also opened in 1978. The **Nürnberg S Bahn** opened in 1987 with push-pull trains as well as the **Hanover** network, although on cost grounds and because of heavy goods traffic the platforms in Hanover are lower. There is also

an S Bahn in Mannheim (Rhein-Neckar).

Other towns have Networks using the S Bahn brand, although they do not meet the original DRG criteria for S Bahn: Karlsruhe, Offenburg, Freiburg; and in former East Germany, Dresden; Leipzig Halle; Rostok and Magdeburg, the latter using Doubledecker push-pull trains.

In the Overhead wire S -Bahn net there have been three types of stock:

- Special push pull stock (X stock) pulled by a BR 111, BR 141 or latterly a BR 143. This was used in Rhine Ruhr; Rhein Sieg and in Nürnberg
- The EMU BR 420/421, which was first used in Munich in 1972 and built up to 1967, and replaced many push-pull trains.

The ET 423 –426 EMU, which is replacing the former stock.



The S Bahn sign: a white S on a Green background.

**Bxf796 Driving Cab, Abx791 1st/2<sup>nd</sup> Class Wagon and BX794 2<sup>nd</sup> class wagon**

**Built: 1979 with 4 series up to 1995**

Number build:

**Abx 791: 111**

**Bx 794: 191**

**Bxf 796 113**



**Color:** Light gray, with Orange window strip, with a thin yellow strip underneath;

Since 1996 Traffic Red, with white doors

Built for the Rhine-Ruhr S Bahn network, as it would give more flexibility to train lengths, and also provided toilet facilities, which were are not available on the ET 420. Also used in Nürnberg.

Composition is a driving cab, one AB carriage and one B carriage, although two others can be added.

Model: Felix Banaszak

**ET 420/421**

**Built: 1979 - 1997**

Number build: **480**

In service: **254**

Speed: **120 Km/h**

No Model available

**Color:** Flint gray/ Orange (Rhine-Ruhr), Flint-gray –green-blue (Munich), Flint-gray – magenta-red (Frankfurt and Stuttgart) then light-gray with orange/yellow strip, light-blue for Munich Airport line

Since 1996 Traffic Red, with white doors

Designed for the new Munich S-Bahn system, and used in the Frankfurt; Stuttgart; Nürnberg and Rhein-Ruhr systems, these units are being replaced by the ET 423.

Run in three-car sets 420 +421 +420.

**ET 423 – 426 series**

Built: Since 1998

Number build:

**ET 423: 190**

**ET 424: 40**

**ET 425: 102**

**ET 426: 43**



**Color:** Traffic Red, with white doors

The ET 423 is a replacement for the ET 420, and is a four-car set with 8 powered axels. It is used in Düsseldorf, Stuttgart and Munich.

The ET 424 is a version for Hanover to take account of the lower platforms. It has only two doors per carriage.

The ET 425 is a variation for Regional Traffic with two doors per carriage rather than three, and a higher speed (160 km/h vs. 140 Km/Hr). To be found in Essen; Kassel; Köln. Magdeburg; Saarbrücken; Plochingen (Stuttgart) and Trier

The ET 426 is a two car set version of the 426; found in Essen; Kassel; Plochingen (Stuttgart) and Trier

Model: David Dolbrother

## Resources

The two major Rail magazines (in German) are Eisenbahn Journal and Eisenbahn Kurrier, each of which has an extensive website showing details of their specialist and videos.

[www.merker-verlag.de](http://www.merker-verlag.de) (for Eisenbahn Journal)

[www.eisenbahn-kurier.de](http://www.eisenbahn-kurier.de)

The majority of specialist books can be obtained from the German Amazon site, <http://www.amazon.de/>.

I used *DB - Fahrzeuge Band 1 and 2 (Lokomotive und Triebwagen der DB and Reisezugwagen der Deutschen Bahn)* as base references.

There are a large number of fan sites. I recommend [www.db-loks.de](http://www.db-loks.de) as it has a brief description and details of the locos plus pictures including cabviews.

The European railserver at <http://mercurio.iet.unipi.it> has excellent pictures with English descriptions.

<http://www.werbeloks.de> has pictures of engines in Advertising liveries (Werbeloks)

You can translate sites into English if you load the Google Toolbar – this adds an option to the mouse right click to translate a web site. Otherwise do a search on Google for sites. The map came from [www.bueker.net](http://www.bueker.net)

## Train-sim

There are an increasing number of German trainsim sites. The EMUs DMUs and carriages came from a variety of sites. The three I use most often are:

[www.thetrain.de](http://www.thetrain.de) (with English): My favorite site and the one I check regularly.

[www.tssf.de](http://www.tssf.de) Sebastian Frey's site [www.trainsimworld.de](http://www.trainsimworld.de) Good site for Blackman's cabviews (Superb!)

A new portal with details by Engine type is [www.koroka.de](http://www.koroka.de)

You can get the Commercial add-ons from the German Amazon site [www.amazon.de](http://www.amazon.de)

You can change consists in activities; the composition of consists and loose consists easily with the freeware Route Riter ([www.train-sim.com](http://www.train-sim.com)) (Conbuilder cannot change consists or loose consists).

In Part Three:

- Diesels
- Freight wagons

The Photos were taken with Irfanview (Freeware). This has the advantage that it freezes MSTs to show you the picture in its browser (if you want, or you can set it to take pictures automatically).

Pictures were cropped in Adobe Photoshop Elements and automatically corrected