International high-speed and overnight rail services to promote climate change mitigation

Secretariat of the Federal Government Commissioner for Rail Transport

www.bmvi.de
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Societal change in travel behaviour – wider clientele

Changes in travel choices due to effects such as
- greater awareness of climate change (“flying shame”)
- shorter journey times thanks to growing high-speed networks
- direct links to and from smaller towns and cities located along the routes of the mainlines

Opportunity for new message from railways – new TEE network
High-speed trains over long distances (passing through 4, but at least 3 countries)
The TransEuropExpress 2.0, or TEE 2.0 for short, is thus a symbol of cohesion and further European integration.

Opportunity presented by the German clock-face timetable
TEE 2.0 and attractive overnight services can be integrated in the German clock-face timetable and will not use any paths at the expense of freight trains.
Clock-face timetabling such as the “Deutschlandtakt” to form the basis of new TEE network

• “More frequent – faster – everywhere”: clock-face timetable will establish a new, transparent principle of upgrading and capacity management.

• For all types of traffic, reserved capacity will be available that ensures good connections in passenger traffic and reliable paths in goods traffic. The basis will be a clock-face system with trains running hourly or half-hourly.

• Infrastructure schemes derived from the timetable will significantly enhance the capacity of the overall network and appreciably increase the nationwide system speed.

• Numerous neighbouring countries are using such planning methods or already have a network of highly frequent long-distance trains.

• TEE 2.0 will interlink the individual optimized systems to form a range of European services designed to reduce international journey times
Analysis of the situation and blueprint for the *TEE 2.0* network in Europe

- Identify origin-destination pairs that have inadequate rail services today (existing lines are not called into question)

- Develop international lines that reflect the European blueprint and have the following objectives:
  - Interlink national high-speed lines to form international lines that stimulate great demand while using as few additional paths on the domestic networks as possible.
  - Identify opportunities and risks plus the need for action
  - Reduce journey times significantly and lift transfer restrictions

- Identify the technical and timetable-based challenges posed by the lines identified

- Derive infrastructure schemes and identify possible rolling stock blueprints for the lines identified

Source: http://www.spiekermann-wegener.com/mod/time/time.htm
Supplementary steps for the blueprint of a Europe overnight train network

Objectives for the blueprint of a Europe overnight train network
- Identify possible rolling stock and production blueprints for the lines identified
- Identify the necessary planning steps for the way forward

Planning bases for overnight train lines
- Maximum speed 160 – 230 km/h (Talgo: 250 km/h)
- Existing overnight trains operating satisfactorily (Austria/Switzerland – Germany) will not be re-addressed. Rather, it will be assumed that they will be evolved and continue to operate

The development of additional overnight trains is to be welcomed, but their economic challenge is not to be underestimated: sleeping berths can only be sold once per journey, whereas on TEE 2.0 trains, it will be possible to market one seat several times for shorter journeys. In addition, the space required per passenger is significantly greater.
Challenges facing internationally connected lines

• Different traction current and train protection systems
• Railway administrations still have a very national focus
• Uniform marketing and pricing poses a challenge because passengers' rights have to be taken into account
• Different requirements regarding compulsory reservations and a guaranteed seat
• Different rules governing concessions, transport contracts and subsidies
• Different languages and operating rules in neighbouring countries
• Different technical subtleties and quality levels
  • Expectations of stopping patterns
  • Profit expectation vs public service
  • Different forms of operator
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The TEE network will be implemented in two phases

**Short-term implementation**

TEE 1 / TEE 2
Paris – Brussels – Cologne – Berlin – Warsaw

TEE 3 / TEE 4
Amsterdam – Cologne – Basel – Milan – Rome

TEE 5 / TEE 6
Berlin – Frankfurt – Lyon – Montpellier – Barcelona

TEE 7 / TEE 8
Amsterdam – Brussels – Paris – Lyon – Barcelona

TEE 9 / TEE 10
Berlin – Munich – Innsbruck – Bologna – Rome

TEE 11 / TEE 12
Paris – Strasbourg – Stuttgart – Munich – Vienna – Budapest

TEE 13 / TEE 14
Paris – Brussels – Hamburg – Copenhagen – Stockholm

TEE 15 / TEE 16
Stockholm – Copenhagen – Berlin – Munich
The second phase of the TEE network will use major infrastructure upgrades under construction

Links to and from Scandinavia
Once the fixed Fehmarn Belt Fixed Link between Germany (Puttgarden) and Denmark (Rødbyhavn) has been commissioned, it will be possible to reduce journey times on this route.

East-West corridor via Southern Germany
Services between Paris and Budapest will benefit from Stuttgart 21 and the new Stuttgart – Ulm high-speed line because (a) trains will no longer have to reverse and (b) it will be possible to reduce journey times.

Base tunnel on the Brenner artery
The Brenner Base Tunnel will likewise make it possible to operate trains between Berlin, Munich and Rome at high speeds on most sections, thereby enhancing attractiveness.
Key long-term infrastructure projects of the “Deutschlandtakt” to accelerate the TEE in Germany

The lines that can be constructed in the short term will be significantly accelerated by the following infrastructure projects:

- Hanover – Bielefeld – Hamm
- Karlsruhe – Basel (Rhine Valley Line)
- Mannheim – Erfurt (incl. mainline tunnel in Frankfurt)
The *TEE 2.0* trains will take you right to the heart of European capitals

<table>
<thead>
<tr>
<th>Route</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short-term implementation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TEE 1/2:</strong></td>
<td>Paris – Brussels – Cologne – Berlin – Warsaw</td>
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<tr>
<td><strong>TEE 3/4:</strong></td>
<td>Amsterdam – Cologne – Basel – Milan – Rome</td>
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<td><strong>TEE 5/6:</strong></td>
<td>Berlin – Frankfurt – Lyon – Barcelona</td>
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<tr>
<td><strong>TEE 7/8:</strong></td>
<td>Amsterdam – Brussels – Paris – Lyon – Barcelona</td>
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<td><strong>Implementation with commissioning of major infrastructure</strong></td>
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<tr>
<td><strong>TEE 9/10:</strong></td>
<td>Berlin – Munich – Innsbruck – Bologna – Rome</td>
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<td><strong>TEE 11/12:</strong></td>
<td>Paris – Stuttgart – Munich – Vienna – Budapest</td>
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<td><strong>TEE 13/14:</strong></td>
<td>Paris – Brussels – Hamburg – Stockholm</td>
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<tr>
<td><strong>TEE 15/16:</strong></td>
<td>Stockholm – Copenhagen – Berlin – Munich</td>
</tr>
</tbody>
</table>
There is already rolling stock today that can operate in many countries of Europe

### Minimum requirement 300 km/h
Many European high-speed networks are designed for a speed of around 300 km/h. For this reason, rolling stock designs that do not achieve this threshold are not included in the adjacent table.

### High-speed in Eastern Europe
In the Czech Republic and Poland, Pendolino trains are in operation today that can run at a maximum speed of 230 km/h and 250 km/h respectively.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Manufacturer</th>
<th>Certified in</th>
<th>Maximum speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGV Euroduplex and similar</td>
<td>Alstom</td>
<td>FR (various classes)</td>
<td>320 km/h</td>
</tr>
<tr>
<td>Velaro and similar</td>
<td>Siemens</td>
<td>DE (various classes)</td>
<td>350 km/h (Velaro ESP)</td>
</tr>
<tr>
<td>Zefiro 380 and similar</td>
<td>Bombardier / Hitachi Rail</td>
<td>BE (various classes, Thalys)</td>
<td>360 km/h</td>
</tr>
<tr>
<td>Smile / Giruno</td>
<td>Stadler</td>
<td>NL (Thalys, single-decker!)</td>
<td>250 km/h (poss. 300)</td>
</tr>
</tbody>
</table>

### Designation
- Designation: TGV Euroduplex and similar
- Manufacturer: Alstom
- Certified in: FR (various classes)
- Maximum speed: 320 km/h

### Designation
- Designation: Velaro and similar
- Manufacturer: Siemens
- Certified in: DE (various classes)
- Maximum speed: 350 km/h (Velaro ESP)

### Designation
- Designation: Zefiro 380 and similar
- Manufacturer: Bombardier / Hitachi Rail
- Certified in: BE (various classes, Thalys)
- Maximum speed: 360 km/h

### Designation
- Designation: Smile / Giruno
- Manufacturer: Stadler
- Certified in: NL (Thalys, single-decker!)
- Maximum speed: 250 km/h (poss. 300)
Operator: establishment of a company to operate the new TEE network

Proposal
Establishment of a company, for instance by SNCF and DB, in which other interested and ambitious railways (e.g. NS, ÖBB, SBB) could take a holding. This company would be approved as an independent railway undertaking and purchase services from the parent companies for production.

Opportunities presented by this proposal
• Use national expertise of the individual partners
• No need for staff of its own to operate the services
• Experience specific to countries and rolling stock can inform rolling stock certification
• Use of existing rolling stock for short-term launch of the TEE network
• Symbol of European cooperation
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Modern rolling stock for overnight train services is available on the market.

New overnight trainsets procured by ÖBB

Source: https://www.nightjet.com/de/komfortkategorien/nightjetzukunft
Manufacturer: Siemens

Sleeping cars for Azerbaijan

Source: www.bahnonline.ch
Manufacturer: Stadler
EuroNight overnight network comprising 8 lines of which 2 with medium-term extension option

Short-term implementation

- 21 / 22: Paris – Brussels – Cologne – Berlin
- 23 / 24: Brussels – Cologne – Berlin – Prague/Warsaw
- 25 / 26: Amsterdam – Cologne – Basel – Milan – Venice/Genoa
- 29 / 30: Berlin – Munich – Innsbruck – Bologna – Rome/Nice
- 33 / 34: Paris – Brussels/Amsterdam – Hamburg – Copenhagen – Stockholm*
- 35 / 36: Stockholm* – Copenhagen – Berlin – Prague – Vienna/Budapest

*If no Fehmarnbelt link, only to Copenhagen (see subdivision into A and B)

Adaptation with commissioning of major infrastructure

www.bmvi.de | 7 February 2020
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Conclusion and next steps

• An attractive range of services could be created using present-day infrastructure and timetables.

• For business and leisure travellers, these services could very soon represent a climate-friendly alternative to air travel.

• Since implementation requires “merely” coordination between railway undertakings with regard to timetables, certification issues, through trains and fares, implementation in the near future would appear conceivable.

• Facilitation by the EU Member States as owners of the railway undertakings and/or regulatory authorities would appear helpful with regard to speedy implementation.

• Implementation of the infrastructure projects envisaged for the “Deutschlandtakt” target timetable will make it possible to deliver significant journey time reductions and improved services at the heart of the European network, which will have a direct and positive impact on the new TEE 2.0 blueprint.
Detailed descriptions of the lines
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 1/2 is based on present-day infrastructure.
Links to and from France and Belgium

- **Paris Gare du Nord**, 9:00 hrs
- **Brussels**, 10:30 hrs
- **Liège**, 11:15 hrs
- **Aachen**, 11:40 hrs
- **Köln**, 12:15 hrs
- **London**, dep. 07:16 hrs (arr. 10:12 hrs)
- **Rotterdam**, dep. 08:58 hrs (arr. 10:08 hrs)
- **Bruges**, dep. 09:10 hrs (arr. 10:07 hrs)
- **Gent**, dep. 09:39 hrs (arr. 10:07 hrs)
- **Toulouse**, dep. 22:20 hrs (arr. 06:52 hrs)
- **Briançon**, dep. 20:03 hrs (arr. 06:55 hrs)
  (Change stations in Paris)
- **10:18 hrs** (arr. 11:09 hrs)

Connection from/to overnight train
Links to and from Poland and Germany

Hamburg, arr. 16:30 hrs

Dresden, arr. 19:07 hrs
Prague, arr. 21:36 hrs

Berlin, 16:45 hrs
Frankfurt (Oder), 17:45 hrs

Warsaw, 22:15 hrs

Hannover, 15:00 hrs

Poznań, 19:30 hrs

Wrocław, arr. 22:10 hrs
Gdańsk, arr. 22:56 hrs

Kraków, arr. 00:50 hrs
Zakopane, arr. 05:50 hrs

Connection from/to overnight train
Further improvement in links to and from France and Belgium in the Deutschlandtakt

Paris Gare du Nord, 9:00 hrs
Brussels, 10:30 hrs
Liège, 11:15 hrs
Aachen, 11:40 hrs
Köln, 12:15 hrs

Toulouse, dep: 22:20 hrs
Briançon, dep. 20:03 hrs
Bordeaux, dep. 05:45 hrs
(Change stations in Paris)

Bordeaux, dep. 07:16 hrs
Rotterdam, dep. 08:58 hrs
Bruges, dep. 09:25 hrs
Gent, dep. 09:55 hrs

Namur, 10:18 hrs

Connection from/to overnight train
Further improvement in links to and from Germany and Poland in the Deutschlandtakt

Hamburg, arr. 15:45 hrs
Magdeburg, arr. 15:55 hrs
Leipzig, arr. 17:15 hrs

Dresden, arr. 17:30 hrs
Szczecin, arr. 17:30 hrs
Prague, arr. 19:00 hrs

Wrocław, arr. 22:10 hrs
Gdańsk, arr. 22:56 hrs

Kraków, arr. 00:50 hrs
Zakopane, arr. 05:50 hrs

Hannover, 14:30 hrs
Berlin, 16:15 hrs
Frankfurt (Oder), 17:15 hrs
Poznań, 19:00 hrs
Warsaw, 21:45 hrs

Connection from/to overnight train
A through service from Paris – Warsaw with a journey time of 13h and 15 min will be possible in the short term

**Today**
- Journey time: 15h31
- No of changes: 2
  - Change in Cologne
  - Change in Berlin

**TEE network**
- Journey time: 13h15
- Through service

**TEE network (target timetable)**
- Journey time: 12h45
- Through service
  - Hamm – Hanover and Hanover – Berlin HSL 300 km/h
Amsterdam – Cologne – Basel – Milan – Rome

Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 3/4 is based on the infrastructure as at the end of 2020 (commissioning of the Ceneri Base Tunnel)

Prospects in Deutschlandtakt target timetable
New Frankfurt – Mannheim HSL
Seamless high-speed line between Karlsruhe and Basel

Line speed
- 300 km/h
- 250 km/h
- Up to 200 km/h

Not all intermediate stops shown

The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 3/4 is based on the infrastructure as at the end of 2020 (commissioning of the Ceneri Base Tunnel)
Links to and from the Netherlands and Germany

Amsterdam, 08:15 hrs

Köln Messe/Deutz, 10:45 hrs

Frankfurt Flughafen, 11:45 hrs

Karlsruhe, 13:00 hrs

Basel Bad Bf, 15:00 hrs

Zandvoort, dep. 07:34 hrs (arr. 08:05 hrs)

The Hague, dep. 07:03 hrs (arr. 07:55 hrs)

Bruxelles-Midi, dep. 08:23 hrs (arr. 10:15 hrs)

Emden, dep. 06:34 hrs (arr. 10:15 hrs)

(Change stations in Cologne)

Nuremberg, dep. 09:42 hrs (arr. 12:53 hrs)
Links to and from Switzerland and Italy

Rome, 22:00 hrs
Lugano, 17:30 hrs

Zürich, arr. 16:00 hrs
Zürich, dep. 15:40 hrs
Lucerne, dep. 15:40 hrs

Locarno, arr. 17:42 hrs

Turin, arr. 20:38 hrs
Venice, arr. 21:55 hrs
(Change stations in Milan)

Naples, arr. 23:15 hrs
Siracusa, arr. 11:30 hrs
Palermo, arr. 12:00 hrs

Rome, 22:00 hrs

Arth-Goldau, 16:15 hrs

Bellinzona, 17:15 hrs
Lugano, 17:30 hrs

Milan Lambrate, 18:45 hrs
Bologna, 19:45 hrs

Florence Campo di Marte, 20:30 hrs

Connection from/to overnight train

Blueprint TEE 2.0 | 27.01.2020 | SMA
Further improvement in links to and from the Netherlands and Germany in the Deutschlandtakt
Further improvement in links to and from Switzerland and Italy in the Deutschlandtakt

Rome, 21:30 hrs
Lugano, 17:00 hrs

Zürich, arr. 15:50 hrs
Zürich, dep. 15:10 hrs
Lucerne, dep. 15:18 hrs

Locarno, arr. 17:12 hrs

Turin, arr. 20:38 hrs
Venice, arr. 21:55 hrs
(Change stations in Milan)

Rimini, arr. 21:12 hrs

Napoli, arr. 23:03 hrs
Siracusa, arr. 11:30 hrs
Palermo, arr. 12:00 hrs

Aarau, 15:00 hrs
Arth-Goldau, 15:45 hrs
Bellinzona, 16:45 hrs
Lugano, 17:00 hrs

Milan Lambrate, 18:15 hrs
Bologna, 19:15 hrs
Florence Campo di Marte, 20:00 hrs

Rome, 21:30 hrs
Connection from/to overnight train

Blueprint TEE 2.0 | 27.01.2020 | SMA
A through service from Amsterdam – Rome with a journey time of 13h and 45min will be possible in the short term.

Today
- Journey time: 16h02
- No of changes: 4

TEE network
- Journey time: 13h45
- Through service

TEE network (target timetable)
- Journey time: 13h00
- Through service
- New Frankfurt – Mannheim HSL
- Seamless Karlsruhe – Basel HSL
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 5/6 is based on present-day infrastructure.
Starting in Berlin and picking up travellers from Germany and Switzerland

- Berlin Hbf, 06.00
- Erfurt, 07:45 hrs
- Frankfurt Süd, 10.00 hrs
- Mannheim, 10:30 hrs
- Karlsruhe, 11.00 hrs
- Strasbourg/Krimmeri-Meinau, 11:30 hrs
- Mulhouse, 12:15 hrs
- Dresden, dep. 05:10 hrs (arr. 07:28 hrs)
- Leipzig, dep. 06:48 hrs (arr. 07:28 hrs)
- Hamburg, dep. 06:07 hrs (arr. 09:28 hrs)
  (Change stations in Frankfurt)
- Cologne, dep. 08:55 hrs (arr. 10:23 hrs)
- Stuttgart, dep. 09:58 hrs (arr. 10:53 hrs)
  Munich, dep. 07:28 hrs (Change in Stuttgart)
- Luxembourg, dep. 09:24 hrs (additional regular interval train)
  (Change stations in Strasbourg)
- Basel, dep. 11:30 hrs (arr. 12:09 hrs)
- Zürich, dep. 10:30 hrs
- Bern, dep. 10:30 hrs (Change in Basel)
Distributing travellers in France and Spain

- Barcelona, 19:15 hrs
- Montpellier, 16:15 hrs
- Lyon St-Exupéry, 14:45 hrs
- Mulhouse, 12:15 hrs
- Toulouse, 19:30 hrs
- Marseille, 16:30 hrs
- Paris, arr. 15:30 hrs
- Marseille, arr. 16:30 hrs
- Toulouse, arr. 19:30 hrs
- Valencia, arr. 23:30 hrs
- Madrid, arr. 22:00 hrs

Other ferry services to Ibiza and North Africa not yet analysed.
Further improvements between Berlin and Barcelona in the Deutschlandtakt

Berlin Hbf, 06.15 hrs
Erfurt, 08:00 hrs
Frankfurt Hbf (low-level), 9:45 hrs
Mannheim, 10:15 hrs
Karlsruhe, 10:45 hrs
Strasbourg/Krimmeri-Meinau, 11:15 hrs
Mulhouse, 12:00 hrs

Dresden, dep. 05:34 hrs
Leipzig, dep. 07:13 hrs
Hamburg, dep. 06:04 hrs
Cologne, dep. 08:33 hrs
Stuttgart, dep. 09:25 hrs
Munich, dep. 07:41 hrs (Change in Stuttgart)
Luxembourg, dep. 09:24 hrs (additional regular interval train)
(Change stations in Strasbourg)
Basel, dep. 11:30 hrs
Zürich, dep. 10:30 hrs
Bern, dep. 10:30 hrs (Change in Basel)
Further improvements between Berlin and Barcelona in the Deutschlandtakt

- Valencia, arr. 23:30 hrs
- Madrid, arr. 22:00 hrs
- Marseille, arr. 16:30 hrs
- Toulouse, arr. 19:12 hrs
- Lyon St-Exupéry, 14:30 hrs
- Montpellier, 16:00 hrs
- Mulhouse, 12:00 hrs
- Barcelona, 19:00 hrs
- Paris, arr. 15:30 hrs

Other ferry services to Ibiza and North Africa not yet analysed.
A through service from Berlin – Barcelona with a journey time of 13h and 15min will be possible in the short term.

**Today**
- Journey time: 15h45
- No of changes 4

**TEE network**
- Journey time: 13h15
- Through service

**TEE network (target timetable)**
- Journey time: 12h45
- Through service
- Fulda – Mannheim HSL – Frankfurt Low-Level Station

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### TEE 5/6

<table>
<thead>
<tr>
<th>Bahnhof/Haltestelle</th>
<th>Zeit</th>
<th>Gla</th>
<th>Produkte</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berlin Hbf (tiefl)</td>
<td>ab 06:01</td>
<td>1</td>
<td>ICE 938</td>
</tr>
<tr>
<td>Frankfurt(Main)Hbf</td>
<td>an 09:56</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Karlsruhe Hbf</td>
<td>an 11:09</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Umsteigzeit 10 Min.</td>
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<tr>
<td>Frankfurt(Main)Hbf</td>
<td>ab 10:06</td>
<td>6</td>
<td>ICE 71</td>
</tr>
<tr>
<td>Karlsruhe Hbf</td>
<td>an 11:32</td>
<td>6</td>
<td>ICE 9574</td>
</tr>
<tr>
<td>Umsteigzeit 23 Min.</td>
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<tr>
<td>Karlsruhe Hbf</td>
<td>ab 11:32</td>
<td>6</td>
<td>ICE 9574</td>
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<tr>
<td>Paris Est</td>
<td>an 14:05</td>
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<td>Oberebene 30 Min.</td>
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<td>Weg 800 m</td>
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<tr>
<td>Paris Nord RER</td>
<td>ab 14:36</td>
<td>RER5852</td>
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<tr>
<td>Paris Lyon Barihue</td>
<td>an 14:45</td>
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<tr>
<td>Fußweg 15 Min.</td>
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<td></td>
</tr>
<tr>
<td>Paris Gare de Lyon</td>
<td>ab 15:08</td>
<td>TGV 9715</td>
<td></td>
</tr>
</tbody>
</table>
Amsterdam – Brussels – Paris – Lyon – Barcelona

Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 7/8 is based on present-day infrastructure.
Picking up travellers from the Netherlands and Belgium

Amsterdam, 08:15 hrs

Rotterdam, dep. 9:30 hrs

Antwerp, 10.00 hrs

Brussels, 10:45 hrs

Paris Charles de Gaulle Airport, 12.00 hrs

Zandvoort, dep. 07:34 hrs (arr. 08:05 hrs)

The Hague, dep. 07:03 hrs (arr. 07:55 hrs)

Eindhoven, dep. 08:13 hrs

London, dep. 07:16 hrs

Cologne, dep. 08:43 hrs

Bruges, dep. 09:31 hrs

Gent, dep. 10:00 hrs
Distributing travellers in France and Spain

- Barcelona, 18:30 hrs
- Montpellier, 15:30 hrs
- Lyon St-Exupéry, 14:00 hrs
- Montpellier, 15:30 hrs
- Barcelona, 18:30 hrs
- Marseille, arr. 15:30 hrs
- Toulouse, arr. 18:30 hrs
- Madrid, arr. 21:00 hrs
- Valencia, arr. 22:30 hrs

Other ferry services to Ibiza and North Africa not yet analysed.
A through service between Amsterdam – Barcelona with a journey time of 10h and 15m will be possible

Today
- Journey time: 11h18
- No of changes: 2
  (Brussels und Lyon)

TEE network (blueprint and target timetable)
- Journey time: 10h15
- Through service

Prospects for line TEE 7/8
Potential for upgrade on Montpellier – Perpignan section
Implementation not foreseeable
Only one direction considered

The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains

The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis

The blueprint for trains TEE 9/10 is based on the infrastructure as at the end of the 2020s (commissioning of the Brenner Base Tunnel)

Prospects in Deutschlandtakt target timetable

- Completion of upgrade on Erfurt – Munich corridor
- Completion of Brenner northern feeder line in Germany

Line speed
- 300 km/h
- Up to 250 km/h
- Up to 200 km/h
Links to and from Germany

Berlin, 07:45 hrs

Halle, 09:00 hrs

Erfurt, 09:30 hrs

Nürnberg, 10:45 hrs

München Ost, 12:00 hrs

Hamburg, dep. 05:27 hrs (arr. 07:23 hrs)

Rostock, dep. 04:34 hrs (arr. 07:16 hrs)

Leipzig, dep. 08:23 hrs (arr. 08:50 hrs)

Dresden, dep. 06:14 hrs (arr. 08:41 hrs)

Kassel, dep. 07:05 hrs (arr. 09:21 hrs)

Frankfurt, dep. 08:22 hrs (arr. 10:27 hrs)

Stuttgart, dep. 09:14 hrs (arr. 11:44 hrs)
(Change stations in Munich)
Links to and from Austria and Italy

Rome, 19:00 hrs

Bolzano, 14:15 hrs
Bologna, 16:45 hrs
Florence Campo di Marte, 17:30 hrs

Innsbruck, around 13:30 hrs

Merano, arr. 15:45 hrs

Landeck, arr. 14:31 hrs

Milan, arr. 18:12 hrs
Ancona, arr. 18:47 hrs

Naples, arr. 20:48 hrs
Siracusa, arr. 09:36 hrs
Palermo, arr. 10:08 hrs

Connection from/to overnight train
Prospects: through service between Berlin and Rome with a journey time of 10 hours and 15 minutes

**Today**
- Journey time: 14h40
- No of changes: 2 (Munich and Verona)

**TEE network**
- Journey time: 10h15
- Through service
- With Brenner Base Tunnel

**Prospects for line TEE 9/10**
- Reduction in journey time through completion of Brenner northern feeder line in Germany
- Following completion of the upgrade on the Erfurt – Munich line, the journey time will be reduced by 15 minutes
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 11/12 is based on the infrastructure including Stuttgart 21 and the new Stuttgart—Ulm high-speed line.

France
- Paris Est
- LGV Est européenne
- Strasbourg

Germany
- Karlsruhe Hbf
- Bruchsal – Stuttgart HSL
- Stuttgart Hbf
- New Stuttgart-Ulm HSL
- Ulm Hbf
- München Ost
- Salzburg Hbf

Austria
- Linz Hbf
- Westbahn
- Wien Hbf

Hungary
- Budapest Keleti

Prospects in Deutschlandtakt target timetable
- Ulm – Augsburg HSL
- Upgraded Munich – Mühldorf – Salzburg line

Line speed
- 300 km/h
- 250 km/h
- Up to 200 km/h

Not all intermediate stops shown
Links to and from France and Germany

Paris Est, 08:30 hrs

Strasbourg, 10:15 hrs

Karlsruhe, 11:00 hrs

Stuttgart, 11:30 hrs

Ulm, 12:15 hrs

München-Pasing, 13:15 hrs

Toulouse, dep. 22:20 hrs (arr. 06:52 hrs)

Briançon, dep. 20:03 hrs (arr. 06:55 hrs)

Nancy, dep. 08:14 hrs (arr. 9:41 hrs)

Mulhouse, dep. 09:16 hrs (arr. 10:09 hrs)

Basel SBB, dep. 09:06 hrs (arr. 10:49 hrs)

Zürich, dep. 11:28 hrs (arr. 8:35 hrs)

Friedrichshafen, dep. 10:51 hrs (arr. 11:53 hrs)

*Paris Austerlitz
Links to and From Austria and Hungary

München-Ost, 13:30 hrs
Salzburg, 15:00 hrs
Linz, 16:15 hrs
St. Pölten, 17:00 hrs
Wien Hbf, 17:30 hrs
Budapest, 19:15 hrs
Zell am See, arr. 16:45 hrs
Bratislava-P., arr. 18:45 hrs
Kyiv, arr. 17:21 hrs
Pecs, arr. 22:30 hrs
Connection from/to overnight train

TEE 11/12
Blueprint TEE 2.0 | 27.01.2020 | SMA
Prospects: through service from Paris – Budapest with a journey time of 10h and 55 min

Today
- Journey time: 12h39
- No of changes: 3

TEE network
- Journey time: 10h55
- Through service

Prospects for line TEE 11/12
- Acceleration in D-Takt with Ulm – Augsburg HSL by 10 minutes
- Acceleration through upgraded Munich – Mühldorf – Salzburg line by 15 minutes
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 13/14 is based on the infrastructure as at the end of the 2020s (commissioning of the Fehmarn Belt Fixed Link).

Stockholm – Copenhagen – Hamburg – Brussels – Paris

Line speed
- 300 km/h
- Up to 250 km/h
- Up to 200 km/h

Prospects in Deutschlandtakt target timetable
- Hamm – Hanover HSL
- Hanover – Hamburg HSL

Blueprint TEE 2.0 | 27.01.2020 | SMA
Links to and from Sweden, Denmark and Germany

Stockholm, 06:00 hrs

Linköping, 08:30 hrs

Malmö, 10:30 hrs

Copenhagen Airport, dep. 10:45 hrs

Uppsala, dep. 04:26 hrs (arr. 5:37 hrs)

Gothenburg, dep. 06:40 hrs (arr. 9:51 hrs)

Copenhagen Central, dep. 10:27 hrs (arr. 10:40 hrs)

Kiel, dep. 11:27 hrs (arr. 12:55 hrs)
(Change stations in Hamburg)

Westerland, dep. 09:26 hrs (arr. 12:55 hrs)
Prospects: through service between Stockholm – Paris with a journey time of 14h and 25 min

Today
- Journey time: 23h
- No of changes: 4

TEE network
- Journey time: 14h25
- Through service

Prospects for line TEE 11/12
- Operation in the D-Takt via Hanover rather than Bremen is around 40 minutes faster
  - Acceleration with Hamm – Hanover HSL
  - Acceleration with Hamburg – Hanover HSL
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 15/16 is based on the infrastructure as at the end of the 2020s (commissioning of the Fehmarn Belt Fixed Link and electrification between Lübeck and Bad Kleinen incl. “Bad Kleinen” curve).

Prospects in Deutschlandtakt target timetable
Completion of upgrade on Erfurt – Munich corridor

<table>
<thead>
<tr>
<th>Line speed</th>
<th>Color</th>
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</thead>
<tbody>
<tr>
<td>300 km/h</td>
<td>Green</td>
</tr>
<tr>
<td>Up to 250 km/h</td>
<td>Blue</td>
</tr>
<tr>
<td>Up to 200 km/h</td>
<td>Brown</td>
</tr>
</tbody>
</table>
Links to and from Sweden, Denmark and Germany

Stockholm, 08:30 hrs

Linköping, 11:00 hrs

Malmö, 13:00 hrs

Copenhagen Airport, 13:15 hrs

Luleå, dep. 16:59 hrs (arr. 06:45 hrs)

Oslo, dep. 06:01 hrs (arr. 12:54 hrs)

Copenhagen Central, dep. 12:56 hrs (arr. 13:09 hrs)

Kiel, dep. 13:43 hrs (arr. 14:52 hrs)

Lübeck Hbf, 15:15 hrs

Connection from/to overnight train
Links to and from Germany

- München Hbf, 22:00 hrs
- Berlin Hbf, 17:45 hrs
- Schwerin, 16:15 hrs
- Rostock, arr. 17:50 hrs
- Dresden, arr. 20:41 hrs
- Leipzig, arr. 19:38 hrs
- Frankfurt, arr. 21:44 hrs
- Erfurt Hbf, 19:30 hrs
- Halle Hbf, 19:00 hrs
- Nürnberg Hbf, 20:45 hrs
- München Hbf, 22:00 hrs
- Regensburg, arr. 22:38 hrs
- Salzburg, arr. 01:42 hrs
- Budapest, arr. 09:19 hrs
- Venice, arr. 8:34 hrs

Connection from/to overnight train
Prospects: through service between Stockholm – Munich with a journey time of 13h and 30 min

**Today**
- Journey time: 17h17h
- No of changes: 3

**TEE network**
- Journey time: 13h30
- Through service

### TEE network

<table>
<thead>
<tr>
<th>Station</th>
<th>Time</th>
<th>Class</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stockholm Centr</td>
<td>ab 08:30</td>
<td>TEE 15</td>
<td></td>
</tr>
<tr>
<td>München Hbf</td>
<td>arr. 22:00</td>
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</tbody>
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**Prospects for line TEE 15/16**

Following completion of the upgrade on the Erfurt – Munich line, the journey time will be reduced by 15 minutes.
**Certification of rolling stock for deployment on the TEE network**

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<td>ESP</td>
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</table>

**Proposed rolling stock blueprint**

- **TEE 1/2 (Paris – Warsaw)**: 
  - TGV-TEE with certification for Poland

- **TEE 3/4 (Amsterdam – Rome)**: 
  - Velaro-TEE certification for Switzerland and Italy

- **TEE 5/6 (Berlin – Barcelona)**: 
  - Velaro-TEE

- **TEE 7/8 (Amsterdam – Barcelona)**: 
  - Velaro-TEE

**Legend**

- **X**: National certification already exists in some cases
- **X**: National certification not yet available for the proposed rolling stock blueprint
### Certification of rolling stock for deployment on the TEE network

<table>
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</tbody>
</table>

**Proposed rolling stock blueprint**

- **Velaro-TEE** certification for Switzerland and Italy
- **TGV-TEE with certification for Austria and Hungary**
- **TGV-TEE with certification for Scandinavia**
- **Velaro-TEE with certification for Scandinavia**

**Legend**

- **X** National certification already exists in some cases
- **X** National certification not yet available for the proposed rolling stock blueprint

* = Brenner Base Tunnel is electrified at 25 kV AC
In Western Europe, there are currently only a few operators of overnight train services

<table>
<thead>
<tr>
<th>Designation</th>
<th>UIC standard cars (wide range of different cars and country combinations)</th>
<th>Trenhotel, Talgo RZD, InterCityNight (no longer in operation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Various</td>
<td>Talgo</td>
</tr>
<tr>
<td>Licensed in</td>
<td>FR X</td>
<td>X (Trenhotel)</td>
</tr>
<tr>
<td></td>
<td>DE X</td>
<td>X (InterCityNight, Talgo RZD)</td>
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<td></td>
<td>BE X</td>
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<td>NL X</td>
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<td></td>
<td>ESP X</td>
<td>X (Trenhotel)</td>
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<tr>
<td></td>
<td>CH X</td>
<td>X (Trenhotel)</td>
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<td>IT X</td>
<td>X (Trenhotel)</td>
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<td>PO X</td>
<td>X (Talgo RZD)</td>
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<td>HU X</td>
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<td>DK X</td>
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<td></td>
<td>SWE X</td>
<td></td>
</tr>
<tr>
<td>Maximum speed</td>
<td>up to 200 km/h</td>
<td>140-250 km/h</td>
</tr>
</tbody>
</table>
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEEN 21/22 is based on present-day infrastructure.
Paris – Brussels – Cologne – Berlin

Paris Gare du Nord, 21:30 hrs

Bruxelles-Midi, 23:30 hrs

Liège, 00:30 hrs

Aachen, 01:15 hrs

Köln Hbf, 02:15 hrs

Berlin Hbf, 07:45

Journey time Paris – Berlin 10 h15 min

* Paris Montparnasse
** Paris Bercy

Blueprint TEE 2.0 | 27.01.2020 | SMA
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEEN 23/24 is based on present-day infrastructure.
Brussels – Cologne – Berlin – Prague/Warsaw

Journey time Brussels – Warsaw: 14 h 45 min
Journey time Brussels – Prague: 14h

Bruxelles-Midi, 19:30 hrs
Liège, 20:30 hrs
Aachen, 21:15 hrs
Köln Hbf, 22:15 hrs
Brno, arr. 11:19 hrs
Prague, 08:30 hrs
Dresden Hbf, 06:00 hrs
Warsaw Hbf, 09:15 hrs
Moscow, arr. 08:50 hrs (+1)

Warsaw Hbf, 09:15 hrs
Brno, arr. 11:19 hrs
Bratislava, arr. 13:45 hrs
Gdańsk, arr. 10:37 hrs
Poznań, 06:30 hrs
Prague, 08:30 hrs
Olsztyn, arr. 10:15 hrs
Dresden Hbf, 06:00 hrs
Frankfurt Flugh., dep. 21:09 hrs
Namur, dep. 19:18 hrs
Bruges, dep. 18:10 hrs
Warsaw Hbf, 09:15 hrs
Kraków, arr. 12:02 hrs
Brest, arr. 19:10 hrs
Brussels – Cologn – Berlin – Prague/Warsaw

Journey time Brussels – Warsaw: 14 h 45 min
Journey time Brussels – Prague: 14h

Blueprint TEE 2.0 | 27.01.2020 | SMA
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 25/26 is based on the infrastructure as at the end of 2020 (commissioning of the Ceneri Base Tunnel)
Amsterdam – Cologne – Basel – Milan – Venice/Genoa

Amsterdam, 20:00 hrs
Köln, 22:45 hrs
Basel Bad Bf, 03:30 hrs
Lugano, 06:00 hrs
Milan, 07:30 hrs
Venice, 10:30 hrs

Journey time Amsterdam – Venice: 14 h 30 min
Journey time Amsterdam – Genoa: 13 h
Frankfurt/Zürich – Lyon – Montpellier – Barcelona

Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEEN 27/28 is based on present-day infrastructure.

Frankfurt Hbf
Mannheim
Karlsruhe
Strasbourg
Mulhouse
Lyon
Montpellier
Narbonne
Perpignan
Figueras
Barcelona

Frankfurt Hbf
Mannheim
Karlsruhe
Strasbourg
Mulhouse
Lyon
Montpellier
Narbonne
Perpignan
Figueras
Barcelona

Germany
France
Spain
Switzerland
Frankfurt/Zürich – Lyon – Montpellier – Barcelona

Journey time Frankfurt – Barcelona: 14 h 45 min
Journey time Zürich – Barcelona: 11 h 45 min
Berlin – Munich – Innsbruck – Bologna – Rome/Genoa – Nice

Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEEN 29/30 is based on present-day infrastructure.

Not all intermediate stops shown

Germany
- Berlin Hbf
  Existing line
- Halle Hbf
  Halle – Erfurt HSL ($v_{\text{max}}: 200 \text{ km/h}$)
- Erfurt Hbf
  Erfurt – Nuremberg HSL ($v_{\text{max}}: 200 \text{ km/h}$)
- Nürnberg Hbf
  Nuremberg – Ingolstadt HSL ($v_{\text{max}}: 200 \text{ km/h}$)
  Existing line
- München Hbf
  Existing line

Austria
- Radfeld – Innsbruck HSL ($v_{\text{max}}: 200 \text{ km/h}$)
- Innsbruck Hbf
  Existing line
- Bolzano
  Existing line

Italy
- Verona
- Milano – Roma HSL ($v_{\text{max}}: 200 \text{ km/h}$)
- Bologna
- Milano – Roma HSL ($v_{\text{max}}: 200 \text{ km/h}$)
- Roma Termini
  Existing line
- Verona
  Verona – Milano HSL ($v_{\text{max}}: 200 \text{ km/h}$)
- Milan
  Existing line
- Nice

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.
Berlin – Munich – Innsbruck – Bologna – Rome/Genoa – Nice

Berlin, 18:40 hrs

Nürnberg, 22:15 hrs

München Hbf, 23:45 hrs

Innsbruck Hbf, 01:15 hrs

Verona PN 04:30 hrs

Genoa PP, 08:30 hrs

Rome 08:30 hrs

Nice, 11:30 hrs

Journey time Berlin – Nice: 16 h 50 min

Journey time Berlin – Rome: 13 h 50 min
Paris – Stuttgart – Munich – Vienna – Budapest/ Zagreb

Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 31/32 is based on present-day infrastructure.

France
- Paris Est
  LGV Paris – Strasbourg ($v_{\text{max}}: 200 \text{ km/h}$)
- Strasbourg
  Existing line

Germany
- Karlsruhe Hbf
  Existing line
- Milano – Roma HSL ($v_{\text{max}}: 200 \text{ km/h}$)
- Stuttgart Hbf
  Existing line
- Ulm Hbf
  Existing line
- München Ost
  Existing line

Austria
- Salzburg Hbf
  Existing line
- Linz Hbf
  Linz – Vienna HSL ($v_{\text{max}}: 200 \text{ km/h}$)
- Wien Hbf
  Existing line

Hungary
- Budapest Keleti
  Existing line

Slovenia
- Ljubljana
  Existing line

Croatia
- Zagreb
  Existing line

Not all intermediate stops shown

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEE 31/32 is based on present-day infrastructure.
Paris – Stuttgart – Munich – Vienna – Budapest/ Zagreb

Paris Est 20:00 hrs
Strasbourg, 22:30 hrs
Stuttgart, 00:00 hrs
München Hbf, 02:30 hrs
Salzburg Hbf, 04:00 hrs

Paris – Budapest: 13 h 10 min
Paris – Zagreb: 14 h 50 min

Bordeaux, dep. 17:04 hrs
Marseille, dep. 16:02 hrs
Frankfurt Hbf, dep. 21:51 hrs

Klagenfurt, arr. 7:20 hrs
Ljubljana, 08:15 hrs
Villach Hbf, 06:30 hrs
Wien Hbf, 06:30 hrs

Bratislava-P., arr. 7:45 hrs
Koper, arr. 11:15 hrs

Pecs, arr. 12:30 hrs
Belgrade, arr. 17:30 hrs
Zagreb, 10:50 hrs
Budapest Keleti 09:20 hrs

* Paris Montparnasse
Copenhagen – Hamburg – Brussels – Paris/Amsterdam

Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEEN 33A/34A is based on present-day infrastructure.
Copenhagen – Hamburg – Brussels – Paris/Amsterdam

Journey time Copenhagen – Amsterdam 12 h 45 min
Journey time Copenhagen – Paris 14 h 45 min

* Departure from Paris Montparnasse
Stockholm – Copenhagen – Hamburg – Brussels – Paris

Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction. The train crosses the train travelling in the opposite direction at 14:00 hrs.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEEN 33B/34B is based on the infrastructure as at the end of the 2020s (commissioning of the Fehmarn Belt Fixed Link)
Stockholm – Copenhagen – Hamburg – Brussels – Paris

Stockholm, 16:30 hrs

Copenhagen Airport, 21:15 hrs

Hamburg Hbf, 00:15 hrs

Hannover Hbf, 02:00 hrs

Köln Hbf, 05:30 hrs

Utrecht, 07:45 hrs

Amsterdam, 08:15 hrs

The Hague, arr. 09:12 hrs

Gent, arr. 08:56 hrs

Bruges, arr. 09:30 hrs

Paris, 10:15 hrs

Bordeaux, arr. 12:56 hrs*

* Departure from Paris Montparnasse

Uppsala, dep. 15:35 hrs

Stockholm, 16:30 hrs

Copenhagen Airport 21:15 hrs

Hamburg Hbf, 00:15 hrs

Hannover Hbf, 02:00 hrs

Köln Hbf, 05:30 hrs

Utrecht, 07:45 hrs

Amsterdam, 08:15 hrs

The Hague, arr. 09:12 hrs

Gent, arr. 08:56 hrs

Bruges, arr. 09:30 hrs

Paris, 10:15 hrs

Bordeaux, arr. 12:56 hrs*

* Departure from Paris Montparnasse

Uppsala, dep. 15:35 hrs

Stockholm, 16:30 hrs

Copenhagen Airport 21:15 hrs

Hamburg Hbf, 00:15 hrs

Hannover Hbf, 02:00 hrs

Köln Hbf, 05:30 hrs

Utrecht, 07:45 hrs

Amsterdam, 08:15 hrs

The Hague, arr. 09:12 hrs

Gent, arr. 08:56 hrs

Bruges, arr. 09:30 hrs

Paris, 10:15 hrs

Bordeaux, arr. 12:56 hrs*

* Departure from Paris Montparnasse

Uppsala, dep. 15:35 hrs

Stockholm, 16:30 hrs

Copenhagen Airport 21:15 hrs

Hamburg Hbf, 00:15 hrs

Hannover Hbf, 02:00 hrs

Köln Hbf, 05:30 hrs

Utrecht, 07:45 hrs

Amsterdam, 08:15 hrs

The Hague, arr. 09:12 hrs

Gent, arr. 08:56 hrs

Bruges, arr. 09:30 hrs

Paris, 10:15 hrs

Bordeaux, arr. 12:56 hrs*

* Departure from Paris Montparnasse
Only one direction considered
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

Basis: 1 daily pair of trains
The basis of the considerations is the assumption of a daily pair of trains for each line.

Infrastructure basis
The blueprint for trains TEEN 35A/36A is based on present-day infrastructure.
Journey time Copenhagen – Budapest: 17 h 10 min
Journey time Copenhagen – Vienna: 14 h 45 min
**Only one direction considered**
The following slides describe the blueprint based on a train travelling in one direction. The information also applies to the opposite direction.

**Basis: 1 daily pair of trains**
The basis of the considerations is the assumption of a daily pair of trains for each line.

**Infrastructure basis**
The blueprint for trains TEE 35B/36B is based on the infrastructure as at the end of the 2020s (commissioning of the Fehmarn Belt Fixed Link).
Stockholm – Copenhagen – Berlin – Prague – Vienna/Budapest

Stockholm, 14:30 hrs,  
Copenhagen Airport, 19:15 hrs  
Lübeck Hbf, 21:30 hrs  
Berlin Hbf, 00:00 hrs  
Prague, 04:15 hrs,  
Breclav, 07:15 hrs,  
Bratislava, 08:05 hrs  
Budapest Keleti, 10:40 hrs  

Journey time Stockholm – Budapest: 20 h 10 min  
Journey time Copenhagen – Vienna: 17 h 45 min