Velaro Novo delivers on all targets with its key qualities

- ... make infrastructure intelligent
- ... increase value sustainably over the entire lifecycle
- ... enhance passenger experience
- ... guarantee availability

- Intelligent motion
- Reduced total costs
- Aerodynamic excellence
- Proven technology
- Variable train
Bogie housing
Stream-lined intercar gangway
Housed pantograph
Covered high voltage roof equipment
Aerodynamic drag is one major driver for energy consumption in high-speed trains

Effect on energy consumption

Bogie housing

-15%
Aerodynamic drag is one major driver for energy consumption in high-speed trains

Effect on energy consumption

Streamlined vehicle roof

-10%
Mass
- Advanced car body profile design and friction stir welding
- Auxiliary converter with silicium carbide

Maintenance
High-performance electrical brake with brake resistors

Energy
Permanent magnetic synchronous motor

Reduced total costs
Velaro Novo conserves resources - 30% lower energy consumption

- 30% energy savings compared to Velaro
- This reduces carbon dioxide emissions by 1,375 tons per train and year

Train performance simulation on Cologne – Frankfurt high-speed line
Mass
Bogie with inbound bearings

Energy
Flexible, innovative drive system
New permanent magnet motor (PMM) drive enables pure electrical braking during normal operation

PMM 12-month field testing results in Russia: -5%

- Traction power: +10%
- Braking power: +70%
- Efficiency: +5%
Variable train

Empty tube

New TCN architecture
The empty tube concept offers a perfect balance of flexibility and economic efficiency

- Elimination of technical equipment that adversely influences interior flexibility
- Standardized fixations for interior fittings

Available space +10%

Velaro Turkey

ICE 4

Velaro Novo
Velaro Novo – Maximum interior width facilitates higher capacity without compromising on comfort

Aisle width increased by +11 mm

Higher comfort by increased interior width
Velaro Novo – Interior Flexibility

- from economy…
Velaro Novo – Interior Flexibility

- from economy… to premium…
Velaro Novo – Interior Flexibility

- from economy… to premium… from present to future
Proven technology

#seeitnovo
testcar on track since April 2018

2 billion kilometer experience

Global reference projects
The #seeitnovo testcar takes its first test run
Stringent validation program to mitigate project risks and ensure reliability

- Aerodynamics
- Pantograph
- Acoustics
- roof
- Dynamic car body behavior
- New aluminum Extrusions/FSW welding
- Brake Resistor incl. Flaps
- Lightweight solutions
- Door pressure tightness
- Sanitary system
- Ballast/Snow protection
- Full bogie housing
- Running behavior
- Tread brake
- Bogie diagnosis
- Fire protection gangway
Lead with experience
Recently reached 331km/h in the ICE S
The Velaro platform –
Proven track record with 1 million km experience per day!

Operational experience is the key to innovation: 2 billion km in operation and never stopping
Velaro Novo – Achievements

Note: Compared to Velaro at 320 km/h

Flexible speed
250 - 360 km/h

Invest
-20%

Maintenace
-30%

Energy consumption
-30%

Capacity
+10%

Mass
-15%

Mass
-15%

Note: Compared to Velaro at 320 km/h
Thank you