



Industrial design

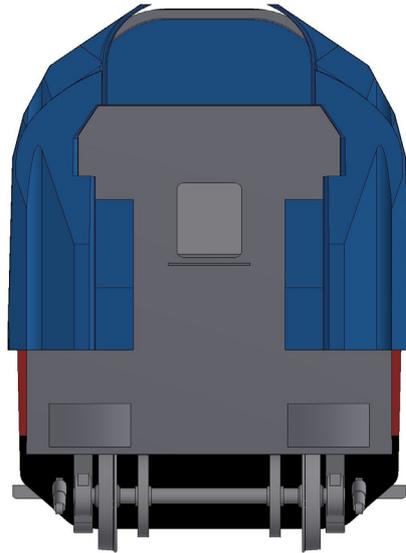


Mechanical engineering



Modernisation

Definition of Installation Space for an aerodynamical optimisation of the SBB IC 2000 AD-Coaches



End wall with available installation space (blue)

Project specification

The end wall of SBB's IC 2000 AD-coach is not particularly aerodynamic. In regular operation, this side of the coach is coupled to a RE 460 locomotive. Due to the aerodynamically designed front of the locomotive and its lower overall height, there is a relatively large space between the AD-coach and the locomotive, which leads to corresponding energy-draining turbulences and thus increased energy consumption. SBB would therefore like to aerodynamically optimise the end wall of the AD-coach and commissioned PROSE to define the available geometric space, considering normative specifications, the SBB rules and regulations and various operating scenarios (coupling with different coaches).

Our approach

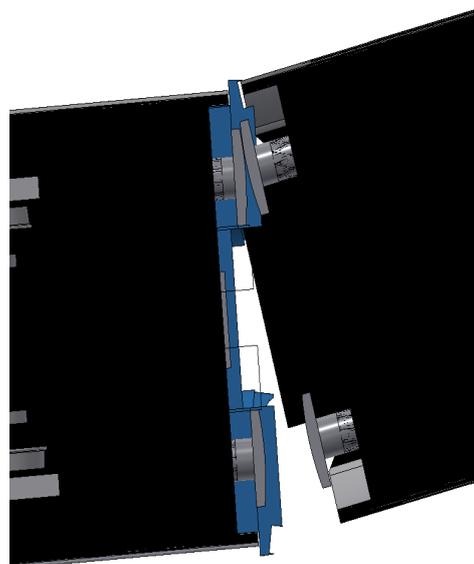
In a first step, the experts from PROSE analysed the boundary conditions from the technical standards and authorization requirements as well as the SBB regulations. In a second step, these generally valid specifications were supplemented with specific customer and operational requirements:

- Track conditions like for example horizontal and vertical curves
- Different coupling partners. Beside the locomotive RE 460, which represents the normal operation, other combinations (IC 2000 B-coach, Bpm61-coach, DPZ+-coach) have been taken into account.

Subsequently, a 3D model of the effective space at the end wall was determined, taking into account the corresponding reference line and by coupling and moving the coupling partners in accordance with the predefined positions in the track.

Customer benefit

SBB had access to the experience and expertise of PROSE's experts for a limited period. With the restriction calculation and the 3D model the customer has the necessary documents for further studies and feasibility investigations for aerodynamic optimisation of the IC2000 AD-coaches at his disposal.



Position of two coaches in horizontal curve, available installation space (blue)

Customer: SBB AG, Switzerland

Project tasks:

- PROSE shall define the possible installation space for aerodynamic optimisation measures at the IC2000 AD end-coach with the methods of restriction calculation.

Contact:

Roger Zimmerli
Tel.: +41 76 575 25 11
Roger.Zimmerli@prose.one

PROSE AG

Zürcherstrasse 41
8400 Winterthur
Switzerland
Tel.: +41 52 262 74 00
www.prose.one