

Coupler demolition - TTL

Test report

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Abbreviations & Acronyms

Abbreviation / Acronym	Description
DAC	Digital automatic coupler
DBST	DB Systemtechnik GmbH
DL	Dellner
ERJU	Europe's Rail Joint Undertaking
HBK	Hottinger Brüel & Kjaer GmbH
HVLE	Havelländische Eisenbahn
IFB	Institut für Bahntechnik GmbH
KB	Knorr-Bremse
TTL	Train Test Lab
VT	Voith

1 Description of project and system under test

Aim of the project is the simulation of a coupler demolition. Therefore, the supplier Voith has developed a specialized air valve. The air flow through the valve can be changed with turning a screw.

The test plan was created by Voith. 45 tests were executed with a long train. The opening of the air valve was set to different values.

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2 Infrastructure

2.1 Test location

All tests were executed on track 6 at the HVLE premises in Berlin-Spandau (Schönwalder Allee 51, GER-13587 Berlin).

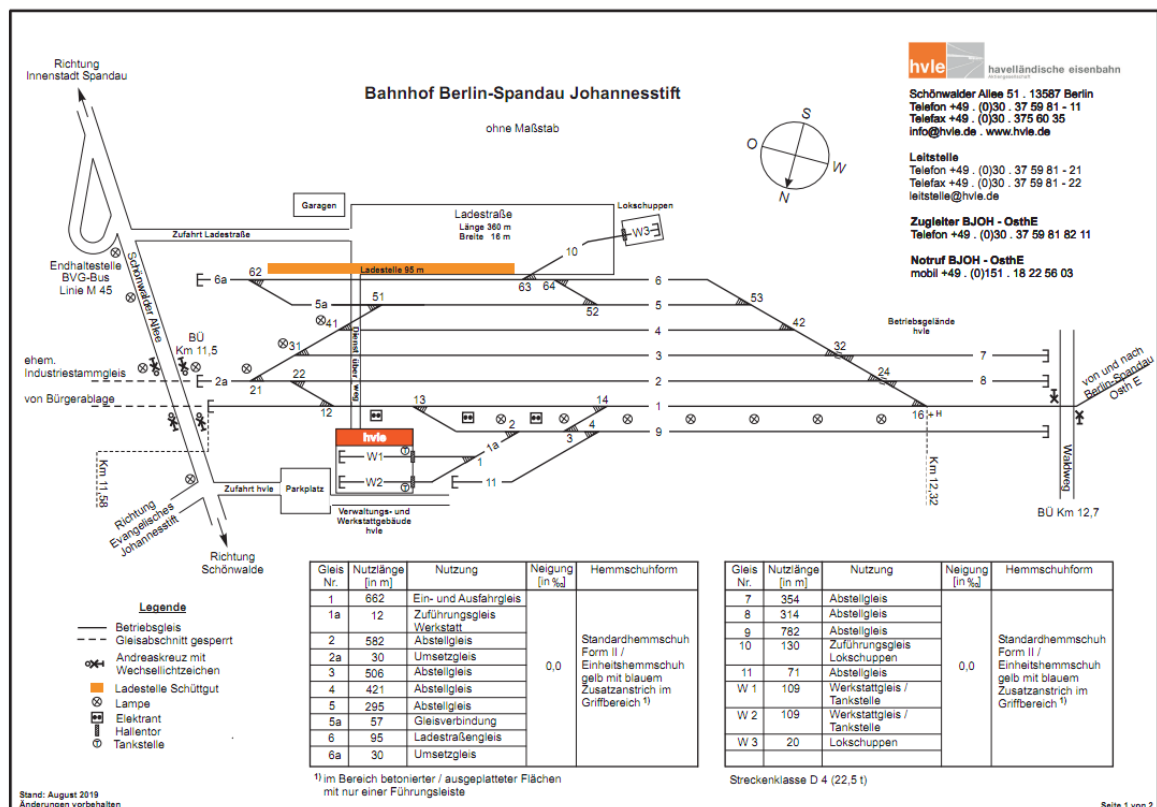


Figure 1: Track layout of the HVLE, location Berlin-Spandau [HVLE_TL].

2.2 Wagons

28 wagons were used for the tests and build up to a long train. Table 1 shows the information of the wagons and the wagon line-up.

Three wagons were equipped with measurement equipment. The train can be splitted up into a DAC part and a screw coupler part.

Table 1: Wagons of the test

No.	Model	Number	Length	Couplers	Locomotive Side	Picture
1	Uas	31 80 9300 054-1	15,22	A: VT B: Screw	A	
2	Uas	31 80 9300 053-3	15,22	A: Screw B: VT	A	
3	Shimmns	31 80 4675 602-5	12,00	A: Screw B: DL	B	
4	Sgnss	33 83 4575 684-9	19,74	A: DL B: DL	A	
5	Habils	31 83 2764 403-1	21,70	A: DL B: DL	B	

6	Hbbillns	21 83 2457 639-4	15,50	A: DL B: DL	B	
7	Samms	31 80 4852 377-9	16,40	A: KB B: VT	B	
8	Samms	31 80 4852 178-1	16,40	A: VT B: KB	B	
9	Shimmns	31 80 4675 938-3	12,04	A: Screw B: KB	A	
10	Hbbillns	21 83 2459 404-1	15,50	A: Screw B: Screw	B	
11	Hbbillns	21 83 2458 749-0	15,50	A: Screw B: Screw	A	
12	Hbbillns	21 83 2458 799-5	15,50	A: Screw B: Screw	B	

13	Hbbilns	21 83 2459 413-2	15,50	A: Screw B: Screw	A	
14	Hbbilns	21 83 2459 277-1	15,50	A: Screw B: Screw	A	
15	Hbbilns	21 83 2457 146-0	15,50	A: Screw B: Screw	A	
16	Hbbilns	21 83 2459 676-4	15,50	A: Screw B: Screw	B	
17	Hbbilns	21 83 2457 800-2	15,50	A: Screw B: Screw	B	
18	Hbbilns	21 83 2457 085-0	15,50	A: Screw B: Screw	A	
19	Hbbilns	21 83 2459 765-5	15,50	A: Screw B: Screw	A	

20	Hbbillns	21 83 2458 292-1	15,50	A: Screw B: Screw	A	
21	Hbbillns	21 83 2457 994-3	15,50	A: Screw B: Screw	A	
22	Hbbillns	21 83 2459 347-2	15,50	A: Screw B: Screw	B	
23	Hbbillns	21 83 2457 323-5	15,50	A: Screw B: Screw	A	
24	Hbbillns	21 83 2459 374-6	15,50	A: Screw B: Screw	B	
25	Hbbillns	21 83 2459 407-4	15,50	A: Screw B: Screw	B	
26	Hbbillns	21 83 2458 616-1	15,50	A: Screw B: Screw	A	

27	Hbbillns	21 83 2457 358-1	15,50	A: Screw B: Screw	A	
28	Tads	31 80 0819 411-6	19,04	A: Screw B: Screw	B	

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2.2.1 Measurement wagon Shimmns_6025

Model: Shimmns-ttu

Type: 722

Description: Coil transport wagon

Number: 31 80 4675 602-5

Config:

Wagon	Config.	Date	Change
Shimmns_6025	#004	15.05.2024	Initial status before tests: Coupler A: Screw coupler Coupler B: D02 Load state: full

Loading:

Load state	Weight	Source / description / remark
full	86.400 kg	Sources: - Wagon-inscription. - Coil-inscriptions (Coil 1: 31 t and Coil 2: 31,8 t) Remarks: - Measurement system not included. - Screw coupler exchanged with DAC.

Photo documentation:



Figure 2: Shimmns_6025 with loading.

2.2.2 Measurement wagon Shimmns_9383

Model: Shimmns-ttu

Type: 722

Description: Coil transport wagon

Number: 31 80 4675 938-3

Config:

Wagon	Config.	Date	Change
Shimmns_9383	#007	12.08.2024	Initial status before tests: Coupler A: Screw coupler Coupler B: K03 Load state: full

Loading:

Load state	Weight	Source / description / remark
full	82.800 kg	Sources: - Wagon-inscription (see above) - Coil-inscriptions (Coil 1: 31,5 t and Coil2: 27,7 t) emarks: - Measurement system not included. - Screw coupler exchanged with DAC.

Photo documentation:



Figure 3: Shimmns_9383 with loading.

2.2.3 Measurement wagon Tads_4116

Model: Tads

Type: 958

Description: Covered bulk goods wagon

Number: 31 80 0819 411-6

Config:

Wagon	Config.	Date	Change
Tads_4116	#001	11.12.2024	Initial status before tests: Coupler A: Screw coupler Coupler B: Screw coupler Load state: empty

Loading:

Load state	Weight	Source / description / remark
empty	25.750 kg	Sources: - Wagon-inscription.

Photo documentation:



Figure 4: Tads_4116.

2.3 Locomotive

One diesel locomotive of type V 160.8 was used for the tests.



Figure 5: Locomotive V160.8.