

Title (en)

ARTICULATED TRAIN-TYPE RAIL VEHICLE

Title (de)

SCHIENENFAHRZEUG IN GLIEDERZUGAUSFÜHRUNG

Title (fr)

VÉHICULE FERROVIAIRE RÉALISÉ SOUS LA FORME D'UNE RAME ARTICULÉE

Publication

EP 3164313 B1 20200115 (DE)

Application

EP 15756900 A 20150828

Priority

- DE 102014217430 A 20140901
- EP 2015069713 W 20150828

Abstract (en)

[origin: WO2016034502A1] The invention relates to a rail vehicle for transporting people, designed as a motorized articulated train and comprising at least two car bodies (1, 2); adjoining car bodies (1, 2) are supported on a common central running gear (4, 9), and terminal car bodies (1) are additionally supported on terminal running gears (3, 8); for all of the running gears (3, 4, 8, 9), the distance between the centers of the bogies of two adjoining running gears (3, 4, 8, 9) is 18 to 21 m, and the terminal car bodies (1) have a length of 24 to 27 m.

IPC 8 full level

B61D 1/00 (2006.01); **B61F 3/12** (2006.01)

CPC (source: EP RU US)

B61D 1/00 (2013.01 - EP RU US); **B61F 3/12** (2013.01 - EP RU US); **B61F 3/125** (2013.01 - US)

Citation (examination)

MARIANESCHI M ET AL: "The new IC-4 DMU for Danish State Railways technology and experience from the approval process", 1 June 2010, ZEVRAIL - GLASERS ANNALEN, GEORG SIEMENS VERLAG, BERLIN, DE, PAGE(S) 70 - 81, ISSN: 1618-8330, XP001555216

Citation (opposition)

Opponent : Alstom Transport Technologies

- DE 102013002096 A1 20140807 - STALTMEIR JOSEF [DE]
- DE 102012002611 A1 20130814 - SIEMENS AG [DE]
- WO 9824675 A1 19980611 - SIEMENS SGP VERKEHRSTECH GMBH [AT], et al
- EP 1741610 B1 20190605 - VUKV AS [CZ], et al
- EP 2179905 A1 20100428 - ALSTOM TRANSPORT SA [FR]
- DE 4322760 A1 19950112 - DUEWAG AG [DE]
- WO 2009010417 A2 20090122 - SIEMENS AG [DE], et al
- GB 863913 A 19610329 - GEN STEEL CASTINGS CORP
- EP 1721803 A1 20061115 - ALSTOM TRANSPORT SA [FR]
- EP 2663793 A1 20131120 - AIR LIQUIDE [FR]
- DE 649522 C 19370826 - FRANZ KRUCKENBERG DIPL ING, et al
- US 2161687 A 19390606 - SCHOEPEL THEODORE H, et al
- MARIANESCHI M ET AL: "The new IC-4 DMU for Danish State Railways technology and experience from the approval process", THE NEW IC-DMU FOR DANISH STATE RAILWAY, 1 June 2010 (2010-06-01), XP001555216
- TOSHIO NUMANO: "DEVELOPMENT OF HIGH-SPEED TRAINS FOR SHINKANSEN IN JAPAN", INTERNATIONAL RAILWAY CONGRESS ASSOCIATION, 1 April 1994 (1994-04-01), XP000439104
- MULLER R: "DER FUNFTAUSENDSTE DOPPELSTOCKWAGEN AUS GORLITZ", ZEITSCHRIFT FUR EISENBAHNWESEN UND VERKEHRSTECHNIK, vol. 119, no. 6, 1 June 1995 (1995-06-01), XP000514170
- KOPP M ET AL: "PLATTFORM DESIRO ML FÜR HOHE FAHP-ZEUGFLEXIBILITAET IM REGIONALVERKEHR", ELEKTRISCHE BAHNEN,, vol. 105, no. 10, 1 October 2007 (2007-10-01), XP001508232
- WOLFGANG STOFFELS: "Triebwagen und Triebzuge mit Gasturbinenartrieb", TURBOTRAINS INTERNATIONAL, 1963, pages 31 - 32, XP055505193
- HARRY HONDIUS: "DB DOMINATES RAILCAR DEVELOPMENT", RAILWAY GAZETTE INTERNATIONAL, XP000731560
- "INTEGRAL TILT TRAINS TO LINK EASTERN CAPITALS", RAILWAY GAZETTE INTERNATIONAL, December 0526 (0526-12-01), pages 261 - 262, XP000584293
- "HIGH- SPEED RAIL COMES TO THE NORTHEAST CORRIDOR", RAILWAY GAZETTE INTERNATIONAL, December 1126 (1126-12-01), XP000629548
- "München-Nürnberg-Express", WIKIPEDIA, - 201400709, XP055740189
- "Stadler Flirt", WIKIPEDIA, 23 August 2014 (2014-08-23), XP055740206
- "Electrical low-floor multiple-unit FLIRT", BROCHURE OF STADLER
- DEUTSCHE TRIEBWAGEN, pages 40 - 45, XP055740214
- "ECO Flexx Bogies the future is already available", BOMBARDIER ECO FLEXX BOGIES DEFYING CONVENTION, 2007, XP055740243
- "FLEXX Eco: The leading lightweight passenger bogie Design", GLOBAL RAILWAY REVIEW, 21 March 2014 (2014-03-21), XP055740232
- E. J. SEARANCKE: "B5000 bogie development", IMECE, 2000, XP055740247
- KEITH FENDER: "Siemens presents new lightweight bogie", ROLLINGSTOCK, 16 March 2012 (2012-03-16), XP055740250
- "British Rail Class 700", WIKIPEDIA, 20 August 2014 (2014-08-20), XP055740254
- "Advanced Train Technology and New Development for Global Markets", HITACHI REVIEW, vol. 61, XP055740294
- "Pioneer III (railcar)", ENGLISH WIKIPEDIA, 29 August 2014 (2014-08-29), XP055740299
- ALFRED B. GOTTWALDT, SCHIENENZEPPELIN, 1972, XP055740314
- ZSCHECH: TRIEBWAGEN DEUTSCHE R EISENBAHNEN, vol. 2, ISBN: 3 -87094-062-X
- "Achsfolge", TRIEBWAGENARCHIV, 1966, XP055740321
- DIE DIMENSIONEN UNTERSCHÄTZT, April 2007 (2007-04-01), pages 26 - 36, 62, ISSN: 1611-6283
- Opponent : CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A.
- DE 102013002096 A1 20140807 - STALTMEIR JOSEF [DE]
- DE 102012002611 A1 20130814 - SIEMENS AG [DE]
- EP 0941191 B1 20000726 - SIEMENS SGP VERKEHRSTECH GMBH [AT]
- US 4454821 A 19840619 - DICKHART III WILLIAM W [US]

- US 3650219 A 19720321 - SEELY ROBERT M
- US 2003033955 A1 20030220 - MARTIN TEICHMANN [AT]
- TOSHIO NUMANO: "DEVELOPMENT OF HIGH-SPEED TRAINS FOR SHINKANSEN IN JAPAN", RAIL INTERNATIONAL, INTERNATIONAL RAILWAY CONGRESS ASSOCIATION, vol. 25, no. 4, 1 April 1994 (1994-04-01), BRUXELLES, BE, pages 19 - 27, XP000439104, ISSN: 0020-8442
- MULLER R: "DER FUNFTAUSENDSTE DOPPELSTOCKWAGEN AUS GORLITZ", ZEITSCHRIFT FÜR EISENBAHNWESEN UND VERKEHRSTECHNIK. DIE EISENBAHNTHEKNIK + GLASERS ANNALEN, GEORG SIEMENS VERLAGSBUCHHANDLUNG, vol. 119, no. 6, 1 June 1995 (1995-06-01), BERLIN, DE, pages 203 - 209, XP000514170, ISSN: 0941-0589
- KOPP M ET AL.: "PLATTFORM DESIRO ML FUER HOHE FAHR- ZEUGFLEXIBILITAET IM REGIONALVERKEHR", ELEKTRISCHE BAHNEN, OLDENBOURG INDUSTRIEVERLAG, vol. 105, no. 10, 1 October 2007 (2007-10-01), MUNCHEN, DE, pages 503 - 512, XP001508232, ISSN: 0013-5437
- HONDIUS H: "DOMINATES RAILCAR DEVELOPMENT", RAILWAY GAZETTE INTERNATIONAL, vol. 153, no. 12, 1 December 1997 (1997-12-01), LONDON, GB, pages 869 , 871 - 873, XP000731560, ISSN: 0373-5346
- "INTEGRAL TILT TRAINS TO LINK EASTERN CAPITALS", RAILWAY GAETTE INTERNATIONAL, vol. 152, no. 5, 1 May 1996 (1996-05-01), LONDON, GB, pages 261 - 262, XP000584293, ISSN: 0373-5346
- STANGL P E: "HIGH-SPEED RAIL COMES TO THE NORTHEAST CORRIDOR", RAILWAY GAZETTE INTERNATIONAL, vol. 152, no. 11, 1 November 1996 (1996-11-01), LONDON, GB, pages 726 - 728, XP000629548, ISSN: 0373-5346
- MASSIMO MARIANESCHI ET AL.: "The new IC-4 DMU for Danish State Railways. Technology and experience from the approval process", ZEVRAIL, vol. 134, 2010, pages 70 - 81, XP001555216
- WOLFGANG STOFFELS: "TURBOTRAINS INTERNATIONAL", 1983, ISBN: 978-3-7643-1172-8, pages: 31, XP055505193
- THE NATIONAL AUDIT OFFICE OF DENMARK, REPORT ON THE ACQUISITION OF IC4-TRAINS, 18 July 2013 (2013-07-18), XP055745323, Retrieved from the Internet <URL:<https://zoek.officielebekendmakingen.nl/blg-239796>
- HARRY HONDIUS: "Zwei Hochflur-Stadtbahnwagen von Bombardier aus Bautzen", STADTVERKEHR, vol. 53, June 2008 (2008-06-01), pages 6 - 11, XP055745329
- BOOZ ALLEN HAMILTON: "North American Light Rail Vehicles 2008", 2008, XP055745332
- JURGEN JAKOB ET AL..: "Innovative Fahrwerke TR 400 - Entwicklung und Erprobung der künftigen Hochgeschwindigkeitsfahrwerke", ZEVRAIL GLASERS ANNALEN, vol. 128, 8 August 2004 (2004-08-08), pages 330 - 336, XP055745338
- "M-Size Bogies TR 400 For High-Speed Coaches", BOMBARDIER BROCHURE, 2004, XP055745342
- "M-Size Bogies B5000 For Coach and EMU Applications", BOMBARDIER BROCHURE, 2004, XP055745344
- CHRISTIAN KUTER, DESIGN TO VALUE - DIE ENTWICKLUNG DES DREHGESTELLS SF 7000, 12 November 2012 (2012-11-12), XP055745349
- "Design Data on Suspension Systems of Selected Rail Passenger Cars", FINAL REPORT, July 1996 (1996-07-01), XP055745354
- MITSUO IWASAKI ET AL.: "Advanced Train Technology and New Developments for Global Markets", HITACHI REVIEW, vol. 61, no. 7, 2012, XP055740294
- GUNTHER DIETZ ET AL.: "Deutsche Schnelltriebwagen Vom "Fliegenden Hamburger" zum ET 403 der DB", 2003, pages: 166, XP055745623
- "Moving Britain ahead", ROLLING STOCK PERSPECTIVE, 4TH ED., October 2018 (2018-10-01), XP055745631
- "Regional rail", WIKIPEDIA, 15 August 2020 (2020-08-15), XP055745633, Retrieved from the Internet <URL:https://en.wikipedia.org/w/index.php?title=Regional_rail&oldid=973094676

Opponent : Stadler Rail AG

- US 3528374 A 19700915 - WICKENS ALAN HERBERT
- FR 2538334 A1 19840629 - FIAT FERROVIARIA SAVIGLIANO [IT]
- GB 825510 A 19591216 - RHEINSTAHL SIEGENER EISENBAHNB
- WO 9610508 A1 19960411 - ABB HENSCHELL AG [DE], et al
- DE 1292157 B 19690410 - MASCHF AUGSBURG NUERNBERG AG
- EP 0941191 A1 19990915 - SIEMENS SGP VERKEHRSTECH GMBH [AT]
- "Deutsche Schnelltriebwagen Vom "Fliegenden Hamburger" zum ET 403 der DB", EISENBAHNKURIER, 2003, XP055744971
- KUNO SCHMID: "Flirt-Triebzug Sm5 im Betriebseinsatz auf der S-Bahn helsinki", EISENBAHNREVUE, January 2011 (2011-01-01), pages 13 - 15, XP055744975
- MARIANESCHI M ET AL: "The new IC-4 DMU for Danish State Railways technology and experience from the approval process""", ZEVRAIL, vol. 134, 2010, XP001555216
- "Regionalzug", WIKIPEDIA, 10 June 2013 (2013-06-10), XP055744976, Retrieved from the Internet <URL:de.wikipedia.org/w/index.php?title=Regionalzug&oldid=119425403
- "Regionalbahn", WIKIPEDIA, 24 June 2014 (2014-06-24), XP055744977, Retrieved from the Internet <URL:de.wikipedia.org/w/index.php?title=Regionalbahn&oldid=131571497
- "SBB RAe TEE II", WIKIPEDIA, 7 December 2013 (2013-12-07), XP055744978

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

DE 102014217430 A1 20160303; CN 207670405 U 20180731; DK 3164313 T3 20200406; EP 3164313 A1 20170510; EP 3164313 B1 20200115; ES 2780905 T3 20200827; PL 3164313 T3 20200629; PT 3164313 T 20200327; RU 177252 U1 20180214; US 2017297590 A1 20171019; WO 2016034502 A1 20160310

DOCDB simple family (application)

DE 102014217430 A 20140901; CN 201590000924 U 20150828; DK 15756900 T 20150828; EP 15756900 A 20150828; EP 2015069713 W 20150828; ES 15756900 T 20150828; PL 15756900 T 20150828; PT 15756900 T 20150828; RU 2017110487 U 20150828; US 201515507829 A 20150828