

Section 1: General Information

0. Identification of the type

0.1 0.2 0.4 Type ID: 73-030-0002-5-001-001
0.3 Date of record: 2021-09-27

1. General Information

1.1 Type name: Wagon Racleur Caténaire
1.2 Alternative type name: K25 WRC

1.3 Manufacturer:

1.3.1 Manufacturer identification data:

1.3.1.1 Name of organisation: SNCF Réseau (EIV QUERCY-CORREZE)
1.3.1.2 Registered business number:
1.3.1.3 Organisation code:

1.3.2 Manufacturer contact data:

1.3.2.1 Address of organisation, street and number: Avenue Jean-Charles RIVET
1.3.2.2 Town: BRIVE
1.3.2.3 Country code: 87
1.3.2.4 Post code: 19100
1.3.2.5 E-mail address: florian.zouin@reseau.sncf.fr

Registration Method: New Type

Registered Vehicle Type:

1.4 Category: Special Vehicles
1.5 Subcategory: Hauled special vehicle
1.6 Platform: K25

Section 2: Conformity with TSI

2.1 Conformity with TSI and Sections not complied with:

1435mm / None (for hauled passenger vehicles and special vehicles)

Not conform to any TSI

2.3 Applicable specific cases (specific cases conformity with which has been assessed)

2.2 Reference of 'EC type examination certificates'

Reference of 'EC type examination certificates' - if module SB applied - and/or 'design verification certificate' - if module SH1 applied -

Section 3: Authorisations

France

3.0 Area Of Use:	FR(France)
3.1.1 Member state of authorisation:	France(FR)
3.1.2.1 Status:	Valid
3.1.2.2 Validity of Authorisation (until):	
3.1.2.3 Coded conditions for use and other restrictions:	1435mm / None (for hauled passenger vehicles and special vehicles) 1 Technical restriction related to construction 1.1 Minimum curve radius in meters: 125 1.2 Track circuit restrictions: True 1.3 Speed restrictions in Km/h: 100 2 Geographical restriction 2.1 Kinematic gauge (coding WAG TSI): G1 2.2 Wheelset gauge: 2.2.4 Gauge 1435 2.7 Noise category: 2.7.7 Can't be used in quieter routes 3 Environmental restrictions 3.1 Climatic zone: 3.1.1 T1 4 Restrictions on use 4.1 Time based: True 4.2 Condition based (distance travelled, wear, etc.): True
3.1.2.4 Non-coded conditions for use and other restrictions:	
3.1.3.1.1 Date of the original authorisation:	2021-09-24
3.1.3.2.2 Date of the last modification:	2021-11-26
3.1.3.2.3 Authorisation holder:	
3.1.3.2.3.1 Authorisation holder identification data:	
3.1.3.2.3.1.1 Name of organisation:	SNCF Réseau (EIV QUERCY-CORREZE)
3.1.3.2.3.1.2 Registered business number:	73412280737
3.1.3.2.3.1.3 Organisation code:	
3.1.3.2.3.2 Authorisation holder contact data:	
3.1.3.2.3.2.1 Address of organisation, street and number:	Avenue Jean-Charles RIVET
3.1.3.2.3.2.2 Town:	BRIVE
3.1.3.2.3.2.3 Country code:	87

3.1.3.2.3.2.4 Post code:	19100
3.1.3.2.3.2.5 E-mail address:	florian.zouin@reseau.sncf.fr
3.1.3.2.4 Authorisation document reference:	FR8020210168
3.1.3.2.5 Certificate of verification : Reference of type examination or design examination type:	CV-DEBO-OT1229/2021 version 1 du 22 juillet 2021
3.1.3.2.6 Parameters for which conformity to applicable national rules has been assessed:	<p>1435mm / None (for hauled passenger vehicles and special vehicles)</p> <p>1 Documentation</p> <p>1.1 General documentation</p> <p>1.2.1 Maintenance instructions</p> <p>1.3 Instructions and documentation for operation</p> <p>1.3.1 Instructions for operation in normal and degraded modes of the vehicle</p> <p>2 Structure and mechanical parts</p> <p>2.1.1 Strength and integrity</p> <p>2.1.2 Load capability</p> <p>2.1.2.1 Load conditions and weighed mass</p> <p>2.1.2.2 Axle load and wheel load</p> <p>2.1.3 Joining technology</p> <p>2.1.4 Lifting and jacking</p> <p>2.1.5 Fixing of devices to car body structure</p> <p>2.2.3 Conventional screw coupling and other non-automatic coupling systems</p> <p>2.2.4 Buffing</p> <p>3 Track interaction and gauging</p> <p>3.1 Vehicle gauge</p> <p>3.2.1 Running safety and dynamics</p> <p>3.2.3 Wheel profile and limits</p> <p>3.2.4 Track loading compatibility parameters</p> <p>3.2.5 Minimum horizontal curve radius, vertical concave curve radius, convex curve radius</p> <p>3.3.2 Wheelset (complete)</p> <p>3.3.3 Wheel</p> <p>3.3.8 Axle bearing condition monitoring</p> <p>4 Braking</p>

- 4.1 Functional requirements for braking at train level
 - 4.2.1 Reliability of main brake system functionality
 - 4.2.3 Reliability of stopping distance
 - 4.2.4 Reliability of parking brake
 - 4.3 Brake system - Recognised architecture and associated standards
 - 4.4.5 Parking braking command
 - 4.5.2 Service braking performance
 - 4.5.3 Calculations related to thermal capacity
 - 4.5.4 Parking brake performance
 - 4.5.5 Brake performance calculation
 - 4.6.1 Limit of wheel rail adhesion profile
 - 4.7.1.1 Brake blocks
 - 4.7.5 Parking brake
 - 4.8 Brake state and fault indication
 - 4.9 Brake requirements for rescue purposes
- 6 Environmental conditions and aerodynamic effects
 - 6.1.1 Environmental conditions impacting on the vehicle
 - 6.1.1.1 Altitude
 - 6.1.1.2 Temperature
 - 6.1.1.3 Humidity
 - 6.1.1.4 Rain
 - 6.1.1.5 Snow, ice and hail
 - 6.1.1.6 Solar radiation
 - 6.1.1.7 Resistance to pollution
 - 6.2.2.3 Pass-by noise impact
- 7 External warning, signalling, marking functions and software integrity requirements
 - 7.2.1 Vehicle marking
 - 7.2.2.3 End-of-train signal
- 8 On-board power supply and control systems
 - 8.2.2.2 Pantograph head geometry
 - 8.2.2.3 Pantograph contact force (including static contact force, dynamic behaviour and aerodynamic effects)
 - 8.2.2.4 Working range of pantographs
 - 8.2.2.6 Arrangement of pantographs
 - 8.2.2.7 Insulation of pantograph from the vehicle

- 8.2.2.8 Pantograph lowering
- 8.2.3.1 Contact strip geometry
- 8.2.3.2 Contact strip material
- 8.2.3.3 Contact strip assessment
- 8.3.4 Earthing
- 8.4 Electromagnetic Compatibility ("EMC")
 - 8.4.1 EMC within the vehicle
 - 8.4.2 EMC between the vehicle and the railway system
 - 8.4.2.1 Maximum currents
 - 8.4.2.1.1 Rail return current
 - 8.4.2.1.2 Heating cable interference current
 - 8.4.2.1.3 Interference current under the vehicle
 - 8.4.2.1.4 Harmonic characteristics and related overvoltages on the overhead contact line
 - 8.4.2.1.5 Effects of DC content in AC supply
 - 8.4.2.2 Maximum electro-magnetic fields/Induced voltages
 - 8.4.2.2.1 Electro-magnetic fields/Induced voltages in the track/under the vehicle
 - 8.4.2.2.2 Electro-magnetic fields/Induced voltages outside the track
 - 8.4.2.3 Vehicle entrance impedance
 - 8.4.2.4 Psophometric current
 - 8.4.2.5 Transverse voltage limits for compatibility voice/data circuits
 - 8.4.3 EMC between the vehicle and the environment
 - 8.4.3.1 Maximum electro-magnetic fields
 - 8.4.3.2 Induced interference current/voltage
 - 8.4.3.3 Psophometric current
- 8.5 Protection against electrical hazards
- 8.7.2 Pressure vessel systems/pressure equipment
- 9 Staff facilities, interfaces and environment
 - 9.1.2.1 Access, egress and doors
 - 9.5.1.1 Staff access for coupling/uncoupling
 - 9.5.1.2 External steps and handrails for shunting staff
 - 9.5.2 Staff and freight access doors
 - 9.5.3 On-board tools and portable equipment
- 10 Fire safety and evacuation

- 10.1 Fire protection concept and protection measures
- 10.2.2 Rescue services' information, equipment and access
- 12 On-board control command and signalling
 - 12.2.4.1 Minimum axle distance
 - 12.2.4.2 Minimum wheel diameter
 - 12.2.4.3 Metal and inductive components-free space between wheels
 - 12.2.4.5 Compatibility with fixed installations of CCS
- 13 Specific operational requirements
 - 13.1 Specific items to place on-board
 - 13.2 Ferry transport

3.1.3.2.7 Comments:

3.1.3.2.8 Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) 402/2013:

RIS-2020-0004 du 09/10/2020

3.1.3.1 Initial Registration

3.1.2.3 Coded conditions for use and other restrictions:

1435mm / None (for hauled passenger vehicles and special vehicles)

- 1 Technical restriction related to construction
 - 1.1 Minimum curve radius in meters: 125
 - 1.2 Track circuit restrictions: True
 - 1.3 Speed restrictions in Km/h: 100
- 2 Geographical restriction
 - 2.1 Kinematic gauge (coding WAG TSI): G1
 - 2.2 Wheelset gauge: 2.2.4 Gauge 1435
 - 2.7 Noise category: 2.7.7 Can't be used in quieter routes
- 3 Environmental restrictions
 - 3.1 Climatic zone: 3.1.1 T1
- 4 Restrictions on use
 - 4.1 Time based: True
 - 4.2 Condition based (distance travelled, wear, etc.): True

3.1.2.4 Non-coded conditions for use and other restrictions:

3.1.3.1.1 Date of the original authorisation:

2021-09-24

3.1.3.1.2 Authorisation holder:

3.1.3.1.2.1 Authorisation holder identification data:

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3.1.3.1.3 Authorisation document reference: FR8020210168

3.1.3.1.4 Certificate of verification : Reference of type examination or design examination type:

CV-DEBO-OT1229/2021 version 1 du 22 juillet 2021

3.1.3.1.5 Parameters for which conformity to applicable national rules has been assessed:

1435mm / None (for hauled passenger vehicles and special vehicles)

1 Documentation

1.1 General documentation

1.2.1 Maintenance instructions

1.3 Instructions and documentation for operation

1.3.1 Instructions for operation in normal and degraded modes of the vehicle

2 Structure and mechanical parts

2.1.1 Strength and integrity

2.1.2 Load capability

2.1.2.1 Load conditions and weighed mass

2.1.2.2 Axle load and wheel load

2.1.3 Joining technology

2.1.4 Lifting and jacking

2.1.5 Fixing of devices to car body structure

2.2.3 Conventional screw coupling and other non-automatic coupling systems

2.2.4 Buffing

3 Track interaction and gauging

3.1 Vehicle gauge

3.2.1 Running safety and dynamics

3.2.3 Wheel profile and limits

3.2.4 Track loading compatibility parameters

3.2.5 Minimum horizontal curve radius, vertical concave curve radius, convex curve radius

3.3.2 Wheelset (complete)

3.3.3 Wheel

3.3.8 Axle bearing condition monitoring

4 Braking

4.1 Functional requirements for braking at train level

4.2.1 Reliability of main brake system functionality

4.2.3 Reliability of stopping distance

4.2.4 Reliability of parking brake

4.3 Brake system - Recognised architecture and associated standards

4.4.5 Parking braking command

4.5.2 Service braking performance

4.5.3 Calculations related to thermal capacity

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6.1.1.6 Solar radiation

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7 External warning, signalling, marking functions and software integrity requirements

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RIS-2020-0004 du 09/10/2020

3.1.3.1.7 Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) 402/2013:

3.1.3.2 Modification

3.1.3.2.2 Date of the last modification: 2021-11-26

3.1.3.2.6 Parameters for which conformity to applicable national rules has been assessed:

Section 4: Technical Characteristics

4.1.3 Wheel set gauge RC	1435	mm
4.1.12 Number of vehicles composing the fixed formation (for fixed formation only)	1	

4.10.1 Energy supply system (voltage and frequency) RC		None (for hauled passenger vehicles and special vehicles)	
4.1.2 Speed			
4.1.2.1 Maximum design speed	1435mm / None (for hauled passenger vehicles and special vehicles)	100	km/h
4.2.1 Reference profile RC		G1	
4.3.1 Temperature range		T1 (-25 to +40)	
4.3.3 Snow, ice and hail conditions		Nominal	
4.4.1 Fire safety category RC		OTM	
4.5.2 Design mass			
4.5.2.1 Design mass in working order		15000	kg
4.5.2.2 Design mass under normal payload		15000	kg
4.5.2.3 Design mass under exceptional payload RC		17000	kg
4.5.3 Static axle load			
4.5.3.1 Static axle load in working order		7500	kg
4.5.3.2 Static axle load under normal payload		7500	kg
4.5.3.3 Static axle load under exceptional payload RC		8500	kg
4.5.3.4 Position of the axles along the unit (axle spacing) : a: Distance between axles b: Distance from end axle to the end of the nearest coupling plane c: distance between two inside axles	1435mm / None (for hauled passenger vehicles and special vehicles)	a: 0008,00 m b: 0002,93 m c: 0000,00 m	Explanations: Position of the axles along the unit (axle spacing) are defined in the UIC700
4.5.5 Total vehicle mass (for each vehicle of the unit)	1435mm / None (for hauled passenger vehicles and special vehicles)	15000	kg

4.5.6 Mass per wheel	1435mm / None (for hauled passenger vehicles and special vehicles)	3750	kg		
4.6.4 Combination of maximum speed and maximum cant deficiency for which the vehicle was assessed RC	1435mm / None (for hauled passenger vehicles and special vehicles)	0100,00	km/h	0130,00	mm
4.6.5 Rail inclination RC	1435mm / None (for hauled passenger vehicles and special vehicles)	1/20			
4.7.1 Maximum average deceleration		0.68	m/s ²		
4.7.2.1 Brake performance on steep gradients with normal payload					
4.7.2.1.1 Reference case of TSI		Reference case of (80 km/h, 21‰ (mm/m), 46 km)			
4.7.2.1.6 Maximum brake thermal energy capacity	1435mm / None (for hauled passenger vehicles and special vehicles)	0			kJ
4.7.3 Parking brake					
4.7.3.3 Maximum gradient on which the unit is kept immobilized by the parking brake alone (if the vehicle is fitted with it)		40			‰ (mm/m)
4.7.4.1 Eddy current brake					
4.7.4.1.1 Eddy current track brake fitted RC		False			
4.7.4.2 Magnetic brake					
4.7.4.2.1 Magnetic track brake fitted RC		False			
4.7.4.3 Regenerative brake (only for vehicles with electrical traction)					
4.7.4.3.1 Regenerative brake fitted RC		False			

4.7.5 Emergency brake : Stopping distance and deceleration profile for each load condition per design maximum speed	1435mm / None (for hailed passenger vehicles and special vehicles)	a: 0623,00	m	0000,68	m/s ²
a: Load condition: working order		b: 0623,00	m	0000,68	m/s ²
b: Load condition: normal payload		c: 0000,00	m	0000,00	m/s ²
c: Load condition: exceptional payload					
4.7.6 For general operation : Brake weight percentage (lambda) or Braked mass	1435mm / None (for hailed passenger vehicles and special vehicles)	000,00	(%) or	00013,00	tonnes
4.7.7 Service brake: At maximum service brake: Stopping distance, Maximum deceleration, for the load condition 'design mass under normal payload' at the design maximum speed.	1435mm / None (for hailed passenger vehicles and special vehicles)	0623,00	m	0000,68	m/s ²
4.7.8 Wheel slide protection system	1435mm / None (for hailed passenger vehicles and special vehicles)	False			
4.8.1 Vehicle length		13.86	m		
4.8.2 Minimum in- service wheel diameter RC		920	mm		
4.8.4 Minimum horizontal curve radius capability RC		125	m		
4.8.5 Minimum vertical convex curve radius capability		300	m		
4.8.6 Minimum vertical concave curve radius capability		300	m		
4.9.1 Type of end coupling	Manual				
	Tensile force	0850.0000	kN		
	Compressive force	1200.0000	kN		
4.9.2 Axle bearing condition monitoring (hot axles box detection) RC					Detectable by line side

4.14.1 Type of train detection systems for which the vehicle has been designed and assessed RC

Track circuits

Axle counters