

Section 1: General Information

0. Identification of the type

0.1 0.2 0.4 Type ID: 71-007-0002-5-001-001
0.3 Date of record: 2021-12-01

1. General Information

1.1 Type name: Excavadora bimodal Liebherr A900 C ZW rail
1.2 Alternative type name: Liebherr A900 C ZW rail

1.3 Manufacturer:

1.3.1 Manufacturer identification data:

1.3.1.1 Name of organisation: Siderurgica Requena
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: C/ Eduardo Barreiros, 116
1.3.2.2 Town: Madrid
1.3.2.3 Country code:
1.3.2.4 Post code: 28041
1.3.2.5 E-mail address: comercial@siderurgicarequena.com

Registration Method: New Type

Registered Vehicle Type:

1.4 Category: Special Vehicles
1.5 Subcategory: Self-propelled special vehicle
1.6 Platform: LIEBHERR A 900 C ZW Litronic

Section 2: Conformity with TSI

2.1 Conformity with TSI and Sections not complied with:

1435mm / Autonomous / None **Not conform to any TSI**

1668mm / Autonomous / None **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 042/2021/V01

Section 3: Authorisations

Spain

3.0 Area Of Use: ES(Spain)

3.1.1 Member state of authorisation: Spain(ES)

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 / Autonomous / None

1 Technical restriction related to construction

1.1 Minimum curve radius in meters: 150

1.2 Track circuit restrictions: True

1.3 Speed restrictions in Km/h: 10

2 Geographical restriction

2.1 Kinematic gauge (coding WAG TSI): G1 (partes altas) / GI1 (partes bajas)

2.2 Wheelset gauge: 2.2.4 Gauge 1435

2.3 No CCS on board: True

3 Environmental restrictions

3.1 Climatic zone: 3.1.3 T3

1668mm / Autonomous / None

1 Technical restriction related to construction

1.1 Minimum curve radius in meters: 150

1.2 Track circuit restrictions: True

1.3 Speed restrictions in Km/h: 10

2 Geographical restriction

2.1 Kinematic gauge (coding WAG TSI): G1 (partes altas) / GI1 (partes bajas)

2.2 Wheelset gauge: 2.2.8 Gauge 1668

2.3 No CCS on board: True

3 Environmental restrictions

3.1 Climatic zone: 3.1.3 T3

3.1.2.4 Non-coded conditions for use and other restrictions:

1435mm / Autonomous / None

El vehículo deberá circular al amparo de una entrega de vía bloqueada (EVB).

El paso por aparatos de vía y tramos metálicos deberá realizarse a velocidad reducida (≤ 5 km/h)

El vehículo no podrá remolcar a ningún otro cuando se emplee como vehículo ferroviario.

En trayectos con pendiente superior al 40‰, la aplicación del freno de estacionamiento será complementada con calces.

El vehículo no es incorporable a un tren.

En caso de rescate, debe disponer de útiles de acoplamiento como dotación para el socorro en vía.

Para los trabajos en vía, la dotación del vehículo deberá incluir, como mínimo, dos dispositivos de comunicación de radio de largo alcance tipo "walkie-talkie" o teléfono móvil. En cualquier caso, se deberá disponer de cargador para dichos dispositivos.

1668mm / Autonomous / None

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3.1.3.1.1 Date of the original authorisation: 2021-11-30

3.1.3.1.2 Authorisation holder:

3.1.3.1.2.1 Authorisation holder identification data:

3.1.3.1.2.1.1 Name of organisation: Intervención Ferroviaria y Construcciones S.L.

3.1.3.1.2.1.2 Registered business number: B64495187

3.1.3.1.2.1.3 Organisation code:

3.1.3.1.2.2 Authorisation holder contact data:

3.1.3.1.2.2.1 Address of organisation, street and number: Can Tapiola, Naves 7 y 8

3.1.3.1.2.2.2 Town: Montcada i Reixac (BARCELONA)

3.1.3.1.2.2.3 Country code: ES

3.1.3.1.2.2.4 Post code: 08110

3.1.3.1.2.2.5 E-mail address: info@infeco.es

3.1.3.1.3 Authorisation document reference: ES8020210223

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

ES/000000644
95187/2021/0
00001

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

1435mm / Autonomous / None
2015/2299/EU

1.2.1 Maintenance instructions

2 Structure and mechanical parts

2.1.2.1 Load conditions and weighed mass

2.1.5 Fixing of devices to car body structure

2.2.2 Characteristics of rescue coupling

3 Track interaction and gauging

3.1 Vehicle gauge

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

3.3.2 Wheelset (complete)

3.3.3 Wheel

3.3.4 Wheel/rail interaction influencing systems

3.3.6 Bearings on the wheelset

3.3.8 Axle bearing condition monitoring

3.4 Limit of maximum longitudinal positive and negative acceleration

4.1 Functional requirements for braking at train level

4.4.1 Emergency braking command

4.4.2 Service braking command

4.4.3 Direct braking command

4.4.5 Parking braking command

4.5 Brake performance

4.5.1 Emergency braking performance

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

4.7.5 Parking brake

6 Environmental conditions and aerodynamic effects

7.2.1 Vehicle marking

7.2.2 External lights

7.2.2.1 Headlights

7.2.2.2 Marker lights

7.2.2.3 End-of-train signal

7.2.2.4 Lamp controls

7.2.3 Audible signal systems

12.2.5.4 Safety requirements

13 Specific operational requirements

1668mm / Autonomous / None

2015/2299/EU

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4.5.2 Service braking performance

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7.2.2.1 Headlights
7.2.2.2 Marker lights
7.2.2.3 End-of-train signal
7.2.2.4 Lamp controls
7.2.3 Audible signal systems
12.2.5.4 Safety requirements
13 Specific operational requirements

Área de uso España RFIG Ancho de vía 1435 mm / 1668 mm

04.13 Declaracion Articulo 16_A900C_20210624.pdf y fecha 24/06/2021

3.1.3.1.6 Comments:

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

3.1.3.1 Initial Registration

3.1.2.3 Coded conditions for use and other restrictions:

1435mm / Autonomous / None

1 Technical restriction related to construction

1.1 Minimum curve radius in meters: 150

1.2 Track circuit restrictions: True

1.3 Speed restrictions in Km/h: 10

2 Geographical restriction

2.1 Kinematic gauge (coding WAG TSI): G1 (partes altas) / GI1 (partes bajas)

2.2 Wheelset gauge: 2.2.4 Gauge 1435

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3.1 Climatic zone: 3.1.3 T3

1668mm / Autonomous / None

1 Technical restriction related to construction

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2 Geographical restriction

2.1 Kinematic gauge (coding WAG TSI): G1 (partes altas) / GI1 (partes bajas)

2.2 Wheelset gauge: 2.2.8 Gauge 1668

2.3 No CCS on board: True

3 Environmental restrictions

3.1 Climatic zone: 3.1.3 T3

3.1.2.4 Non-coded conditions for use and other restrictions:

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El vehículo deberá circular al amparo de una entrega de vía bloqueada (EVB).

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1668mm / Autonomous / None

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3.1.3.1.1 Date of the original authorisation:

2021-11-30

3.1.3.1.2 Authorisation holder:

3.1.3.1.2.1 Authorisation holder identification data:

3.1.3.1.2.1.1 Name of organisation: Intervención Ferroviaria y Construcciones S.L.
3.1.3.1.2.1.2 Registered business number: B64495187
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3.1.3.1.3 Authorisation document reference: ES8020210223

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

ES/000000644
95187/2021/0
00001

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

1435mm / Autonomous / None
1.2.1 Maintenance instructions
2 Structure and mechanical parts
2.1.2.1 Load conditions and weighed mass
2.1.5 Fixing of devices to car body structure
2.2.2 Characteristics of rescue coupling
3 Track interaction and gauging
3.1 Vehicle gauge
3.2.5 Minimum horizontal curve radius, vertical concave curve radius, convex curve radius
3.3.2 Wheelset (complete)
3.3.3 Wheel
3.3.4 Wheel/rail interaction influencing systems
3.3.6 Bearings on the wheelset
3.3.8 Axle bearing condition monitoring
3.4 Limit of maximum longitudinal positive and negative acceleration

4.1 Functional requirements for braking at train level

4.4.1 Emergency braking command

4.4.2 Service braking command

4.4.3 Direct braking command

4.4.5 Parking braking command

4.5 Brake performance

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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

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7.2.2.2 Marker lights

7.2.2.3 End-of-train signal

7.2.2.4 Lamp controls

7.2.3 Audible signal systems

12.2.5.4 Safety requirements

13 Specific operational requirements

1668mm / Autonomous / None

1.2.1 Maintenance instructions

2 Structure and mechanical parts

2.1.2.1 Load conditions and weighed mass

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7.2.2.4 Lamp controls

7.2.3 Audible signal systems

12.2.5.4 Safety requirements

13 Specific operational requirements

Área de uso España RFIG Ancho de vía 1435 mm / 1668 mm

3.1.3.1.6 Comments:

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

04.13 Declaracion Articulo 16_A900C_20210624.pdf y fecha 24/06/2021

Section 4: Technical Characteristics

4.1.3 Wheel set gauge	1435	mm
RC	1668	mm

4.13.1 Signalling

4.13.1.1 ETCS equipment on-board and the set of specifications from CCS TSI Annex A	None
RC	

4.13.1.5 Class B or other train protection control and warning systems installed (system and if applicable version) RC	None
4.13.1.8 ETCS System Compatibility	Not applicable

4.13.2 Radio

4.13.2.1 GSM-R Radio voice on board and its Baseline RC	None
4.13.2.3 Class B or other radio systems installed (system and if applicable version) RC	None
4.13.2.5 Radio Voice System Compatibility	Not applicable
4.13.2.7 GSM-R Radio Data communication on board and its Baseline RC	None
4.13.2.8 Radio Data System Compatibility	Not applicable
4.10.1 Energy supply system (voltage and frequency) RC	Autonomous

4.1.2 Speed

4.1.2.1 Maximum design speed	1435mm / Autonomous / None	10	km/h
	1668mm / Autonomous / None	10	km/h

4.2.1 Reference profile RC	G1 GI1 (Specific case Spain – lower parts)
4.3.1 Temperature range	T3 (-25 to +45)
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	19390	kg
4.5.2.2 Design mass under normal payload	20500	kg

4.5.2.3 Design mass under exceptional payload RC	20500	kg
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4.5.3 Static axle load

4.5.3.1 Static axle load in working order	11500	kg
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4.5.3.2 Static axle load under normal payload	11500	kg
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4.5.3.3 Static axle load under exceptional payload RC	11500	kg
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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 / Autonomous / None	a: 0005,63 m b: _____,____ m c: 0005,63 m	Explanations: Vehículo de 2 ejes.
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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	1668mm / Autonomous / None	a: 0005,63 m b: _____,____ m c: 0005,63 m	Explanations: Vehículo de 2 ejes.
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4.5.5 Total vehicle mass (for each vehicle of the unit)	1435mm / Autonomous / None	19390	kg
	1668mm / Autonomous / None	19390	kg

4.7.2.1 Brake performance on steep gradients with normal payload

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)
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4.7.4.1 Eddy current brake

4.7.4.1.1 Eddy current track brake fitted RC	False
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4.7.4.2 Magnetic brake

4.7.4.2.1 Magnetic track brake fitted RC	False
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4.7.4.3 Regenerative brake (only for vehicles with electrical traction)

4.7.4.3.1 Regenerative brake fitted RC	False
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4.7.8 Wheel slide protection system	1435mm / Autonomous / None	False	
	1668mm / Autonomous / None	False	

4.8.1 Vehicle length		7.43	m
4.9.1 Type of end coupling	None Tensile force	undefined	kN
4.14.1 Type of train detection systems for which the vehicle has been designed and assessed RC		None	