

Technical Specification No. M-04-48 B
For
the Supply of monoblock Wheels
for Israel Railway

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1. Scope

This technical specification defined for the wheels, shall be supplied according to BS EN 13262:2020 Standard for monobloc wheels in vacuum degassed steel, forged and rolled, with surface treated rims, which have complied with a technical approval procedure according to BS EN13979-1:2019/20.

Note:

Traffic speed of the rolling stock of Israel Railway is less than 200 km/h, therefore characteristics of the Wheels shall be fitted to the category 2.

2. Product definition

2.1. The types and main characteristics and condition of the wheels shown in the Table 1

Table 1. Types and main characteristics and condition of the wheels, attached in Appendices 1B/P — 13B/P

No# .Appendix	Wheel diameter mm	Drawing No.	Steel grades	Profile	Max . residual imbalance g.m	Brake type	Type of the wheel
2B/P	920	ME428.00.3	ER8	EN 13715 S1002/h28/e32.5/6.7 % EN 13715 S1002/h28/e32.5/15%	50	Axle	DD
3B/P	920	ME437.00.3	ER7		75	Axle	Siemens
4B/P	920	ME399.00.3(B)	ER7		125	Tread	22.5Ton
5B/P	920	ME355.00.3(B)	ER7		125	Tread	20 Ton
6B/P	1016	ME418.00.3(A)	ER9		75	Tread	JT42W
7B/P	1067	ME456.001	ER7		75	Wheel	E4000
8B/P	1016	DG548.00.3C	ER8		75	Tread	JT42C/GM
9B/P	1117	ME459.00.1	ER8		75	Wheel	E3200
10B/P	1250	3EGS675111A0102	ER8	EN 13715 S1002/h28/e31. /6.7%	75	Wheel	TRAXX
11B/P	1250	3EGS675111A2103	ER8	EN 13715 S1002/h28/e31. /6.7%	75	Wheel	TRAXX

2.2 Wheels marking

The monoblock wheels should be with following marks:

- Manufacturer's mark.
- Number of cast (six digits).
- Steel grade.
- Date of manufacture (month and four digits of the year).
- Position of residual imbalance and symbol according to Appendix 14M
- Inspection mark
- Wheel serial number after heat treatment.
- Position of wheel diameter according to Appendix 14M.

Height of the stamping shall be at least 15mm. Depth of stamping shall be max 1mm.

Location of the wheels marking shall be according to Appendix 14M.

3. Tests and number of inspected wheels

Types and number of controls to be carried out are shall be in accordance to BS EN 13262:2020, Annex E, Table E1.

Table 2. Type and number of checks to be carried out

Characteristics to be checked	Number of wheels to be subjected to the checks			Subclause reference BS EN 13262:2020
	Qualification	Supply		
	See D.4.5	(see E.4)		
Maximum size of the butch	≤100	≤250	>250	
Chemical composition	1	1	1	4.1
Hydrogen content	Key	Key	Key	b
Tensile characteristics				
in the rim	1	1	2	4.2.1
in the web	1	1	2	4.2.1
Hardness on rim parts	1	1	2	4.2.2
Hardness on rim (homogeneity)	100%	100%	100%	E.5.2
Impact tests	1	1	2	4.2.3
Toughness ^c	1	1	1	4.2.5
Heat treatment homogeneity	10% ^d	-	-	4.3
Inclusion cleanliness	1	1	2	4.4.1
Internal integrity				
rim	100%	100%	100%	4.4.2
hub	100%	-	-	4.4.2
web	20% ^e	-	-	4.4.2
Residual stress trends	1	1	2	f
State of surface	100%	100%	100%	4.6.1
Surface integrity	100%	100% ^g	100% ^g	4.6.3
Geometry and dimensions	100% ^h	100% ^h	100% ^g	4.7

4. Wheels qualification and quality control

- 4.1 Due to significant changes of the mandatory technical requirements of the new standard (EN13262 -2020), compared to the canceled one (EN 13262 - 2003), and in accordance with the new regulatory requirements of the annexes D and E of the standard, should be provided a certified inspection of the production process in the factory of the manufacturer, by a representative of Israel Railway.

5. Condition supply of the wheels

- 5.1 The wheels must be in finished condition in accordance with BS EN 13262, Annex E, when it has undergone final machining (on all parts except for the bore)
- 5.2 The wheels after final machining must be painted before delivering according to UIC leaflets 842-3, 842-4, and 842-5 and the customer requirements, shown in Appendices 2P– 13P (Technical regulation for coating color and corrosion protection should be agreed with the customer.)
- 5.3 The not painted surfaces of the wheels must be protected from corrosion for transportation by sea and minimum 1/2 year storage at the customer site. (see Appendices 2P – 13P)
- 5.4 All other conditions except defined in this Technical Specification should be according to the Annex E, of the BS EN 13262.

6. Wheel packaging for delivery and storage.

- 6.1 The wheels must be delivered, by packaging on a special wooden pallet, designed and produced by supplier, according to the technical requirements (Appendix 15 D). and approved by the customer.
- 6.2 The package must be satisfy safety transportation, storage and handling operation by forklift on 5 m high metal racks, DRW- Appendix 16R.
- 6.3 The number of the wheels per pallet shall be limited of height, max 1000+50 mm, and a total pallet weight of 1400 kg, for wheels with D= 920 mm, and 2000 kg for wheels D = 1000 - 1250 mm.
- 6.4 The wheels should be placed on the pallet and positioned with inner surface down. Each wheel shall be separated from another by wooden plank of 60 mm thickness as well as from the pallet. Between the wooden planks and the wheels should be placed anti –slip pads to protect moving the wheels during transportation and handling operations. (see Appendix 15D)

- 6.5 For safety transportation and handling operation wooden block should be installed through the inner diameter of the wheels with tightening depend to the inner diameter of each type of the wheels.
- 6.6 The wheels on each pallet shall be with the same outer diameter. Permissible tolerance of the wheels outer diameter on the pallet shall be up to 0.3 mm. The exact outer diameter of each wheel shall be sined on the runing surface of the rim. (see Appendices- 14M/15D)

7. Appendices (Attached)

- 7.1 Appendix 2B — 11B Wheels Drawings.
- 7.1 Appendix 2P — 13P Paintung and protection requirements.
- 7.2 Appendix 14M Marking of the wheels.
- 7.3 Appendix 15D Packaging.
- 7.3 Appendix 16R Storage.