

TECHNICAL REPORT

20-TAMO-0241

Base Part: ID4- 20-TAMO-0241

Suffix: 00

Reference Axle

With regard to Directive / Regulation (EC/EU) / Regulation No. **ECE-R13**

Taking into consideration amendment No. **11** supplement **16**

Annex 11, Appendix 2

Hersteller : Mehvar Sazan Chichest Co.
 Manufacturer
 Achskennung : AS2.DR1
 Axle Identifier-ID1
 Prüfgegenstand : ECE R13 REFERENCE AXLE
 Subject

0.	Test Details		
0.1.	Manufacturer's name and address:	Mehvar Sazan Chichest Co. 10th Km Of Mahabad Road, Urmia, Iran	
0.2.	Brief description (Component Specification):	AS2.DR1	
0.3.	Submitted test on:	01.06.2020	
0.4.	Test Location: Test Date:	KONYA 22.06.2020-23.06.2020-24.06.2020	
0.5.	Reason(s) for extension of test report:	Not applicable	
0.6.	Testing Equipment Used		
	Equipment	Equipment Code	Next Calibration Date
	<i>Vbox</i>	<i>28</i>	<i>28.02.2021</i>
	<i>Manometer</i>	<i>127</i>	<i>29.11.2020</i>
	<i>Manometer</i>	<i>128</i>	<i>29.11.2020</i>
	<i>Manometer</i>	<i>129</i>	<i>29.11.2020</i>
	<i>CTU</i>	<i>50</i>	<i>17.02.2022</i>
	<i>Laser Thermometer</i>	<i>96</i>	<i>20.11.2020</i>

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0.7.	Selection of worst case (Selection of versions/variants for testing):
	The axle type ID1-AS2.DR1 with ID2-DR1_420 brake configuration tested according to regulation. There is not any axle/brake variant configuration included to this application. There is also one tyre dimension for testing. For that reason test results only valid for tested axle type.

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1. General

Note: Test report as prescribed in section 3.9 of Appendix 2 to Annex 11.

1.1. Axle manufacturer name and address:

Mehvar Sazan Chichest Co.
10th Km Of Mahabad Road, Urmia, Iran

1.1.1. Make of axle manufacturer:



1.2. Brake manufacturer name and address:

See item 1.1.

1.2.1. Brake identifier ID2-:

DR1_420

1.2.2. Automatic brake adjustment device (~~Integrated~~ or Non-integrated):

Non-integrated

1.3. Manufacturer's information document: FOX-420200-R13

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2. Test Record

The following data form has to be taken Annex 11 – Appendix 3 has to be recorded for each test:

2.1.	Test code:	20-TAMO-0241
2.2.	Test specimen: Test variant:	Axle with drum brake S-cam brake
2.2.1.	Axle code:	See below
2.2.1.1.	Axle identifier:	ID1-AS2.DR1
2.2.1.2.	Identification of tested axle:	AS2
2.2.1.3.	Test axle load (Fe identifier):	11984 daN
2.2.2.	Brake:	
2.2.2.1.	Brake identifier:	ID2-DR1_420
2.2.2.2.	Identification of tested brake:	DR1_420
2.2.2.3.	Maximum stroke capability of the brake : <i>Note: Applies to disc brakes only.</i>	NA (mm)
2.2.2.4.	Effective length of the cam shaft: <i>Note: Applies to drum brakes only.</i>	665 (mm)
2.2.2.5.	Material variation: <i>Note: As per paragraph 3.8 (m) of Appendix 2 to this annex.</i>	NA
2.2.2.6.	Brake (Drum or Disc):	
2.2.2.6.1.	Actual test mass of drum*/ disc *: <i>*Strikethrough, as appropriate.</i>	54 kg
2.2.2.6.2.	Nominal external diameter of disc: <i>Note: Applies to disc brakes only.</i>	NA mm
2.2.2.6.3.	Type of cooling of the disc: (Ventilated or non-ventilated)	NA
2.2.2.6.4.	Integrated hub: (with or without)	NA
2.2.2.6.5.	Disc with integrated drum: (With parking brake function or Without)	NA

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	parking brake function) Note: Applies to disc brakes only.	
2.2.2.6.6.	Geometric relationship between disc friction surfaces and disc mounting: Examples: One piece, casted, connection on action side.	NA
2.2.2.6.7.	Base material:	Grey Cast Iron
2.2.2.7.	Brake (Lining or Pad):	
2.2.2.7.1.	Manufacturer:	EREN BALATACILIK SANAYİ VE TİCARET A.Ş. 13. Sokak No:6 KOSBİ Kemalpaşa / İzmir / Turkey
2.2.2.7.2.	Make:	EREN
2.2.2.7.3.	Type:	4687 M750
2.2.2.7.4.	Method of attachment (Lining or Pad on the brake shoe or Back plate) : *Strikethrough, as appropriate.	
2.2.2.7.5.	Thickness of back plate *: Weight of shoes*: Or other describing information (Manufacturer's information document)*: *Strikethrough, as appropriate.	--- mm* 6 kg* None
2.2.2.7.6.	Base material of Back plate */ Brake shoe*: *Strikethrough, as appropriate.	Steel (S 235)
2.2.3.	Automatic brake adjustment device *Not applicable in the case of integrated automatic brake adjustment device.	
2.2.3.1.	Manufacturer name and address:	GEÇGEL METAL DÖKÜM MAK. OTO. SAN. TİC. LTD. ŞTİ. Konya Org. San. Bölgesi Büyük Kayacık Mah. Yaylacık Cad. Güneştepe Sok. No:5 Selçuklu / Konya / Turkey
2.2.3.2.	Make:	GOS
2.2.3.3.	Type:	S-ABA
2.2.3.4.	Version:	S180701
2.2.4.	Wheel(s) Note: For dimensions, see Figures 1A and 1B in Appendix 5 to this annex.	

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2.2.4.1. Reference tyre rolling radius (R_e) at test axle load (F_e): 522 mm

2.2.4.2. Data of the fitted wheel during testing:

Tyre Size	Rim Size	X_e (mm)	D_e (mm)	E_e (mm)	G_e (mm)
315/80 R22,5	22,5 X 9.00	242	285.75	75.75	+55.5

2.2.5. **Lever length l_e :** 165 mm

2.2.6. **Actuator:**

2.2.6.1. Manufacturer: ARFESAN A.Ş.

2.2.6.2. Make: ARFESAN

2.2.6.3. Type: 30"

2.2.6.4. (Test) identification number: BC 0078.0

2.3. Test results

Note: Corrected to take account of rolling resistance of $0.01 \cdot F_e$.

2.3.1. In the case of vehicles of categories O_2 and O_3 where the O_3 trailer has been subject to the Type I test:

Test Type:	0	I	
Annex 11, Appendix 2, paragraph:	3.5.1.2	3.5.2.2/3	3.5.2.4
Test speed (km/h)	40	40	40
Brake actuator pressure p_e (kPa)	650	100	650
Braking time (mins)	N/A	2.33	N/A
Braking force developed T_e (daN)	6473	839	6086
Brake efficiency T_e/F_e	0.54	0.07	0.51
Actuator stroke s_e (mm)	45	N/A	50
Brake input torque C_e (Nm)	2050	N/A	2050
Brake input threshold torque $C_{0,e}$ (Nm)	83	N/A	83

2.3.2. In the case of vehicles of categories O_3 and O_4 where the O_3 trailer has been subject to the Type III test:

Test Type	0	III	
Annex 11, Appendix 2, paragraph:	3.5.1.2.	3.5.3.1.	3.5.3.2.
Initial test speed (km/h)	60	60	60
Final test speed (km/h)	0	32.13	0
Brake actuator pressure p_e (kPa)	650	N/A	650
Number of brake applications	N/A	20	N/A
Duration of brake cycle	N/A	60	N/A
Braking force developed T_e (daN)	6387	3666	6130
Brake efficiency T_e/F_e	0.53	0.3	0.51

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Actuator stroke s_e (mm)	45	N/A	50
Brake input torque C_e (Nm)	2050	N/A	2050
Brake input threshold torque $C_{0,e}$ (Nm)	83	N/A	83

2.3.3. *This item is to be completed only when the brake has been subject to the test procedure defined in paragraph 4 of Annex 19 to this regulation, to verify the cold performance characteristics of the brake by means of the brake factor (BF).*

2.3.3.1. Brake factor B_F : 9.23

2.3.3.2. Declared threshold torque $C_{0,dec}$: 80 Nm

2.3.4. Performance of the automatic brake adjustment device, if applicable:

2.3.4.1. Free running according to paragraph 3.6.3 of Annex 11, Appendix 2:
 -Yes*
 -~~No~~*
 *Strikethrough, as appropriate.

3 Application Range

3. Application range specifies the axle/brake variants that are covered in this test report, by showing which variables are covered by the individual test codes. NA

4. Test has been carried out and the results reported, in accordance with Appendix 2 to Annex 11 and, where appropriate, paragraph 4 of Annex 19 – Part 1 to Regulation No. 13, as last amended by the ..11..series of amendments. Yes

4. At the end of the test defined in paragraph 3.6 of Annex 11, Appendix 2, the requirements of paragraph 5.2.2.8.1 of Regulation No. 13 are deemed to be fulfilled. Yes

Note: Only to be completed when an automatic brake wear adjustment device is installed.

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4. Annexes

Anlage 1 Informationsdokument (siehe 0.5)
Annex Information documents (acc. to 0.5)

5 Seiten
Pages

5. Final Statement

The information document as mentioned under No. 1.3 and the type described therein are in compliance with the test specification mentioned above. The worst case was selected in accordance with document (QAA-TAA-002_Selection process for worst case).

This report includes pages 1 to 9. The test report may be reproduced and published fully and by the client only.


Wien / Vienna, 06.08.2020

TÜV AUSTRIA AUTOMOTIVE GMBH

Inspector



Zehra Doğan

	TRAILER AXLE & BRAKE INFORMATION DOCUMENT	Date	21.06.2020	
		Document Nr.	FOX-420200-R13	
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1. GENERAL

- Name and address of axle or vehicle manufacturer Mehvar Sazan Chichest Co.
10th Km Of Mahabad Road, Urmia, Iran
- 1.1. Commercial Description FOX.CH
1.2. Category O3&O4

2. AXLE DATA

- 2.1. Manufacturer (name and address) Mehvar Sazan Chichest Co.
10th Km Of Mahabad Road, Urmia, Iran
- 2.1.1. Make of axle manufacturer



- 2.2. Type / variant AS2.DR1
- 2.3. Axle identifier ID1-AS2.DR1
- 2.4. Test axle load (F_e) **11984 daN**
- 2.5. Wheel and brake data according to the following Figures 1A and 1B

Figure 1A

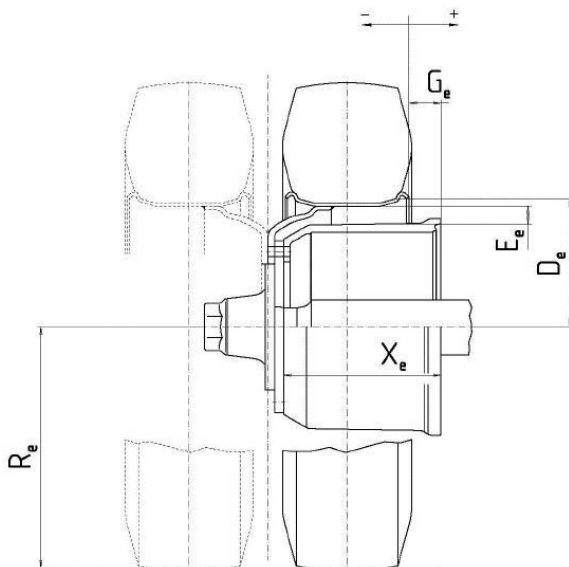
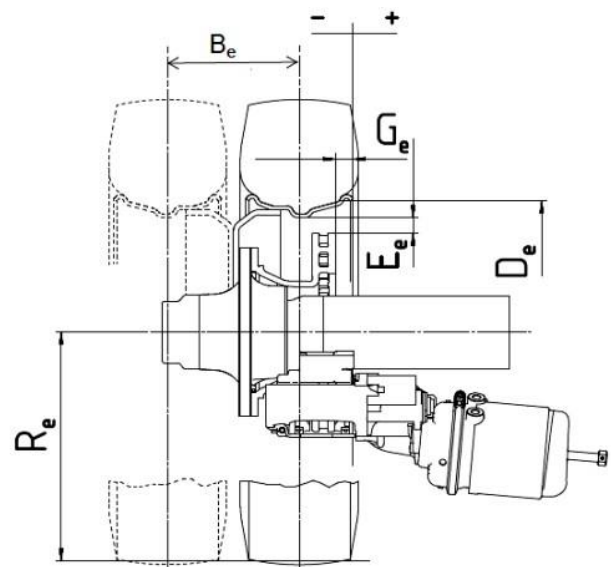


Figure 1B



Tyre	Rim	D_e (mm)	E_e (mm)	G_e (mm)	R_e (mm)	B_e (mm)	X_e (mm)
315/80 R22,5	22,5 X 9,00	285.75	75.75	+55.5	522	315	242



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ANNEX 1

3. BRAKE

3.1. General Information

3.1.1. Name



3.1.2. Manufacturer (Name and address)

See item 1.

3.1.3. Type of brake

Drum Brake

3.1.3.1. Variant

S-Cam brake

3.1.4. Brake identifier

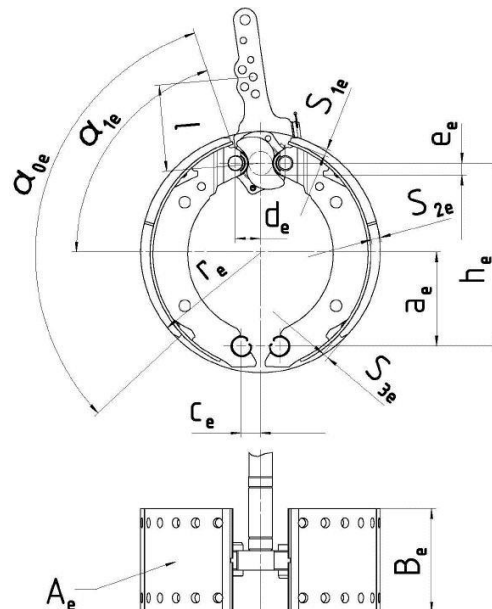
ID2-DR1_420

3.1.5. Brake data according to the following Figures 2A and 2B

3.1.6 Brake Factor (B_f)

9.22

Figure 2A



a_e (mm)	h_e (mm)	c_e (mm)	d_e (mm)	e_e (mm)	α_{0e} (°)	α_{1e} (°)	B_e (mm)	r_e (mm)	A_e (cm ²)	S_{1e} (mm)	S_{2e} (mm)	S_{3e} (mm)
164.7	318.7	33	46	21	121.7	72.89	200	210	2x840	12.4	17	12.5


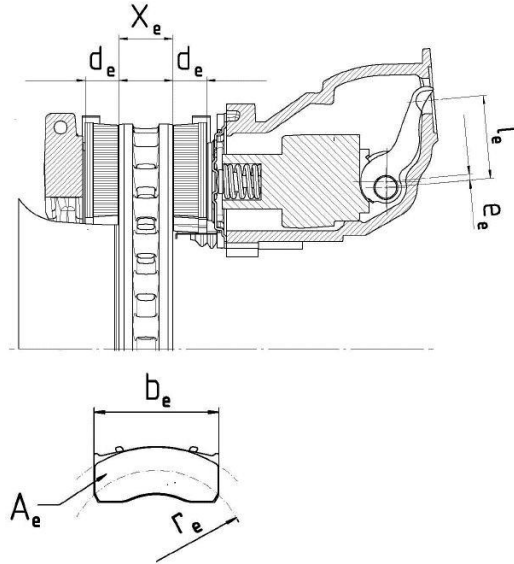
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Figure 2B




X_e (mm)	d_e (mm)	e_e (mm)	l_e (mm)	b_e (mm)	A_e (cm ²)	r_e (mm)
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3.2. Drum brake data

3.2.1.	Brake adjustment device (external/internal)	External
3.2.1.1.	Manufacturer (Name and address)	GEÇGEL METAL DÖKÜM MAK. OTO. SAN. TİC. LTD. ŞTİ. Konya Org. San. Bölgesi Büyük Kayacık Mah. Yaylacık Cad. Güneştepe Sok. No:5 Selçuklu / Konya / Turkey
3.2.1.2.	Make	GOS
3.2.1.3.	Type	S-ABA
3.2.1.4.	Version	S180701
3.2.2.	Declared maximum brake input torque (C_{max})	2800 Nm
3.2.3.	Mechanical efficiency (η)	0,92
3.2.4.	Declared brake input threshold torque ($C_{0,dec}$)	80 Nm
3.2.5.	Efficiency length of the cam shaft	665 mm

3.3. Brake drum

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3.3.1.	Max. diameter of friction surface (wear limit)	420 mm
3.3.2.	Base material	Grey Cast iron
3.3.3.	Declared mass	54kg
3.3.4.	Nominal mass	54 kg
3.3.5.	Permitted range of the brake drum mass	50-54 kg
3.4.	<i>Brake Lining</i>	
3.4.1.	Manufacturer (Name and address)	EREN BALATACILIK SANAYİ VE TİCARET A.Ş. 13. Sokak No:6 KOSBİ Kemalpaşa / İzmir / Turkey
3.4.2.	Make	EREN
3.4.3.	Type	4687 M750
3.4.4.	Identification (type identification on lining)	19094 M750 8075
3.4.5.	Minimum thickness (wear limit)	4 mm
3.4.6.	Method of attaching friction material to brake shoe	Riveted
3.4.6.1.	Worst case of attachment (in the case of more than one)	N/A
3.4.6.2.	Base material of the brake shoe	Steel (S 235)
3.4.6.3.	Range of the weight of the brake shoes (without brake lining)	6,32 kg
3.5.	<i>Disk brake data</i>	
3.5.1.	Connection type to the axle (axial, radial, integrated etc.)	N/A
3.5.2.	Brake adjustment device (external / integrated)	N/A
3.5.3.	Max. actuation stroke	N/A
3.5.4.	Declared maximum input force (Th_{Amax})	N/A
3.5.4.1.	Declared maximum brake input torque (C_{max}) $C_{max} = Th_{Amax} * l_e$	N/A
3.5.5.	Friction radius (r_e)	N/A
3.5.6.	Lever length (l_e)	N/A



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3.5.7.	Input/output ratio (i) (I_e/e_e)	N/A
3.5.8.	Mechanical efficiency (η)	N/A
3.5.9.	Declared brake input threshold force ($Th_{A0,dec}$)	N/A
3.5.9.1.	$C_{0,dec} = Th_{A0,dec} * I_e$	N/A
3.5.10.	Minimum rotor thickness (wear limit)	N/A
3.6.	<i>Brake disc data</i>	
3.6.1.	Disc type description	N/A
3.6.2.	Connection/mounting to the hub	N/A
3.6.3.	Ventilation (yes/no)	N/A
3.6.4.	Declared mass	N/A
3.6.5.	Nominal mass	N/A
3.6.6.	Declared external diameter	N/A
3.6.7.	Minimum external diameter	N/A
3.6.8.	Inner diameter of friction ring	N/A
3.6.9.	Width of ventilation channel (if appl.)	N/A
3.6.10.	Base material	N/A
3.7.	<i>Brake pad data</i>	
3.7.1.	Manufacturer and address	N/A
3.7.2.	Make	N/A
3.7.3.	Type	N/A
3.7.4.	Identification (type identification on pad back plate)	N/A
3.7.5.	Minimum thickness (wear limit)	N/A
3.7.6.	Method of attaching friction material to pad back plate	N/A
3.7.6.1.	Worst case of attachment (in case of more than one)	N/A