

|                                                                                   |                             |                                                                 |
|-----------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------|
|  | Test report n.              | 860-QL23-R01 ver.0                                              |
|                                                                                   | Applicant/<br>Antragsteller | Fondmetal Spa<br>Via Bergamo, 4<br>24050 - Palosco (BG) - Italy |
|                                                                                   | EUT/Type                    | 84001785                                                        |

## GUTACHTEN über die Dauerfestigkeit von Rädern Strength Certificate for Wheels

**Nr. 860-QL23-R01 ver.0**

|                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                      |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Adressen<br>Addresses                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                      |
| Antragsteller<br>Applicant                                                             | Fondmetal Spa - Via Bergamo, 4 - 24050 - Palosco (BG) - Italy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                      |
| Hersteller<br>Manufacturer                                                             | siehe Antragsteller / same as Applicant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                      |
| Prüflabor<br>Test laboratory                                                           | Qualilab Srl - Via Trento, 87 - 25020 - Capriano del Colle (BS) - Italy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                      |
| Daten und Berechtigungen<br>Dates and authorization                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                      |
| Datum Bericht und Test<br>Report and test date                                         | Siehe Punkt VI / See point VI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                      |
| Unterschriften<br>Authorization                                                        | Giuliano Pizzamiglio<br>Test responsible                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |
|                                                                                        | Ing. Carsten Seyring<br>Reviewer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| Prüfgegenstand (Herstellerangaben)<br>Equipment under test (declared by the applicant) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                      |
| Prüfgegenstand<br>Description equipment under test                                     | PKW-Rad / Wheel for Passenger Cars                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                      |
| Typ<br>Type                                                                            | 84001785                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                      |
| Modell<br>Model                                                                        | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                      |
| Radgröße<br>Wheel dimension                                                            | 8,5Jx17 H2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                      |
| Anzuwendende Normen<br>Applicable standards                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                      |
|                                                                                        | <p>Die Dauerfestigkeit, der hier beschriebenen Räder, wurde gemäss der “Richtlinien für die Prüfung von Sonderrädern für Kfz und ihren Anh. BMV/StV 13/36.25.07-20.01, VklBl S 1377“ vom 25.11.1998 und ECE-R 124 Änd. 00 Erg. 03 geprüft.</p> <p>The strength resistance of the wheels described in this report were tested in accordance with the “guidelines for the testing and inspection of special wheels for motor vehicles and their trailers BMV/StV 13/36.25.07-20.01, VklBl S 1377” from 25<sup>th</sup> of November 1998 and Regulation ECE 124 - Supplement 3 to the original version of the Regulation</p> |                                                                                      |

The test results and observations indicated in this test report refer exclusively to the samples tested. It is not permitted to transfer the results to other systems or configurations. The publication or duplication of this test report with enclosures, or Part of this test report or enclosures, without a written consent of the test laboratory is not permitted. The test laboratory not assumes any liability to any party for any loss, expense or damage occasioned by the use of this report. Any use of the laboratories name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by the test laboratory. In case of a multilingual test report, the English version is the only official version.

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|                                                                                   | EUT/Type                    | 84001785                                                        |

## 0. Zentrierart / Centering type

### Mittenzentrierung

Centering on Hub Flange

## I. Übersicht / Overview

| Ausführung<br>Version | Kennzeichnung Rad/Zentrierring<br>Wheel identification/ Centering rings | Lochzahl/<br>Lochkreis/<br>Mittenloch-Ø<br>[mm]<br>Number of holes/<br>PCD/ centre hole Ø | ET<br>[mm]<br>Offset | Radlast<br>[kg]<br>Wheel load | Abrollumfang<br>[mm]<br>Rolling circumference | Gültig ab<br>Hersteldatum<br>Valid from<br>production date |
|-----------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------|-------------------------------|-----------------------------------------------|------------------------------------------------------------|
| 30 5108R              | 84001785 ET30 L.K.108R/ ohne Ring                                       | 5/108/63,4                                                                                | 30                   | 1250                          | 2700                                          | 08/2023                                                    |
| 39 5120P              | 84001785 ET39 L.K.120P/ ohne Ring                                       | 5/120/65,1                                                                                | 39                   | 1250                          | 2700                                          | 08/2023                                                    |
| 45 5120P              | 84001785 ET45 L.K.120P/ ohne Ring                                       | 5/120/65,1                                                                                | 45                   | 1250                          | 2700                                          | 08/2023                                                    |
| 37 5127I              | 84001785 ET37 L.K.127I/ ohne Ring                                       | 5/127/71,6                                                                                | 37                   | 1250                          | 2700                                          | 08/2023                                                    |
| 32 6114               | 84001785 ET32 L.K.114/ ohne Ring                                        | 6/114,3/66,1                                                                              | 32                   | 1250                          | 2700                                          | 08/2023                                                    |
| 40 6130F              | 84001785 ET40 L.K.130F/ ohne Ring                                       | 6/130/84,1                                                                                | 40                   | 1250                          | 2700                                          | 08/2023                                                    |
| 34 6135A              | 84001785 ET34 L.K.135A/ ohne Ring                                       | 6/135/87,1                                                                                | 34                   | 1250                          | 2700                                          | 08/2023                                                    |
| 25 6139S              | 84001785 ET25 L.K.139S/ ohne Ring                                       | 6/139,7/93,0                                                                              | 25                   | 1250                          | 2700                                          | 08/2023                                                    |
| 25 6139V              | 84001785 ET25 L.K.139V/ ohne Ring                                       | 6/139,7/106,1                                                                             | 25                   | 1250                          | 2700                                          | 08/2023                                                    |
| 27 6139I              | 84001785 ET27 L.K.139I/ ohne Ring                                       | 6/139,7/100,2                                                                             | 27                   | 1250                          | 2700                                          | 08/2023                                                    |
| 35 6139Q              | 84001785 ET35 L.K.139Q/ ohne Ring                                       | 6/139,7/67,1                                                                              | 35                   | 1250                          | 2700                                          | 08/2023                                                    |
| 50 6139S              | 84001785 ET50 L.K.139S/ ohne Ring                                       | 6/139,7/93,0                                                                              | 50                   | 1250                          | 2700                                          | 08/2023                                                    |

## I.1. Beschreibung der Räder / Description of Wheels

|                                          |                                                                                     |
|------------------------------------------|-------------------------------------------------------------------------------------|
| Handelsmarke<br>Trade mark               | FONDMETAL                                                                           |
| Art der Räder<br>Type of wheels          | Einteiliges Leichtmetall Rad<br>Aluminum One piece wheels                           |
| Korrosionsschutz<br>Corrosion protection | Mehrschicht Einbrennlackierung<br>Multilayer Coating , Baked Paint                  |
| Masse des Rades<br>Weight of wheel       | 15,40 kg * ohne Lackierung / Unpainted<br>* Weigh referes to wheel version 50 6139S |

## I.2. Radanschluss und Befestigungselemente / Wheel attachment and fastening elements

Siehe Punkt I. Übersicht und Anhaenge

See point I. overview and enclosures

|                                                                                   |                             |                                                                 |
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|                                                                                   | Applicant/<br>Antragsteller | Fondmetal Spa<br>Via Bergamo, 4<br>24050 - Palosco (BG) - Italy |
|                                                                                   | EUT/Type                    | 84001785                                                        |

### I.3. Kennzeichnung der Räder / Wheel identification

An den Rädern wird folgende Kennzeichnung an der Außen- bzw. Innenseite eingegossen bzw. eingepreßt.  
The following identification will be casted or impressed on the inner and/or outer side of the wheel.

|                                                 | Außenseite / Outer side | Innenseite / Inner side    |
|-------------------------------------------------|-------------------------|----------------------------|
| Herstellerzeichen / Manufacturer sign           | -                       | FONDMETAL                  |
| Radtyp / Wheel type                             | -                       | 84001785                   |
| Radausführung / Version                         | -                       | -                          |
| Radgröße / Wheel dimension                      | -                       | 17x8,5J H2                 |
| Einpreßtiefe / Offset                           | -                       | s.p. I Übersicht /overview |
| Herstellungsdatum / Date of manufacturing       | -                       | 08/2023 ( Month/Year )     |
| Herkunftsmerkmal / Origin                       | -                       | Made in Italy              |
| Gießerei-kennzeichnung / Casting identification | -                       | -                          |
| KBA Nummer / KBA number                         | KBA 55022               | -                          |
| ECE Nummer / ECE number                         | -                       | -                          |

Zusätzlich können auf der Radinnenseite bzw.-außenseite verschiedene Kontrollzeichen angebracht sein.  
Additionally, other control labels could be affixed on the outer- or inner side of the wheel.

### I.4. Verwendungsbereich / Application field

Die Räder sind fuer Personenkraftwagen vorgesehen.  
The wheels are designated to be mounted on passenger cars.

### II. Radprüfung / Wheel testing

Die Dauerfestigkeit, der hier beschriebenen Räder , wurde gemäss der “Richtlinien für die Prüfung von Sonderrädern für Kfz und ihren Anh. BMV/StV 13/36.25.07-20.01, VklB S 1377“ vom 25.11.1998 und ECE-R 124 Änd. 00 Erg. 03 geprüft.

The strength resistance of the wheels described in this report were tested in accordance with the “guidelines for the testing and inspection of special wheels for motor vehicles and their trailers BMV/StV 13/36.25.07-20.01, VklB S 1377” from 25<sup>th</sup> of November 1998 and Regulation ECE 124 - Supplement 3 to the original version of the Regulation.

#### II.1. Felge / Rim

Die Maße und Tolleranzen der Felgenkontour entsprechen der E.T.R.T.O. Norm.  
Dimensions and tollerances of the rim-contour are in accordance with the E.T.R.T.O.

#### II.2. Werkstoffe der Räder / Materials of wheels

Zusammensetzung, Festigkeitswerte und Korrosionsverhalten des Werkstoffes sind in der Beschreibung des Herstellers aufgefuehrt; diese Angaben wurden durch uns nicht ueberprueft.

Composition, strength values and corrosion behaviour of the materials are listed in the technical description of the manufacturer, these data are not verified by us.

|                                                                                   |                             |                                                                 |
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|                                                                                   | EUT/Type                    | 84001785                                                        |

### II.3. Festigkeitsprüfung / Strength test

#### II.3.1. Dauerfestigkeitsprüfung / Endurance strength test

Prüfinstrument / Measurement instrument: Bending fatigue test machine QL-IN-069 and QL-IN-089

| Ausführung/<br>Version | Lochzahl/Loch-<br>kreis [mm]/<br>Number of holes/ PCD | ET<br>[mm]<br>Offset | Radlast<br>[kg]<br>Wheel load | Abroll-<br>umfang<br>[mm]<br>Rolling<br>circumference | Prüfmoment<br>$M_{b_{max}}$ bei<br>100 %<br>[Nm]<br>Bending moment | Anzahl<br>Kurz-<br>zeittest<br>Short time<br>test qty | Anzahl<br>Lang-<br>zeittest<br>Long time<br>test qty |
|------------------------|-------------------------------------------------------|----------------------|-------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------|
| 30 5108R               | 5/108                                                 | 30                   | 1250                          | 2700                                                  | 10221                                                              | 1                                                     | 1                                                    |
| 39 5120P               | 5/120                                                 | 39                   | 1250                          | 2700                                                  | 10441                                                              | 1                                                     | 1                                                    |
| 45 5120P               | 5/120                                                 | 45                   | 1250                          | 2700                                                  | 10589                                                              | 1                                                     | 1                                                    |
| 37 5127I               | 5/127                                                 | 37                   | 1250                          | 2700                                                  | 10392                                                              | 1                                                     | 1                                                    |
| 32 6114                | 6/114                                                 | 32                   | 1250                          | 2700                                                  | 10270                                                              | 1                                                     | 1                                                    |
| 40 6130F               | 6/130                                                 | 40                   | 1250                          | 2700                                                  | 10466                                                              | 1                                                     | 1                                                    |
| 34 6135A               | 6/135                                                 | 34                   | 1250                          | 2700                                                  | 10319                                                              | 1                                                     | 1                                                    |
| 25 6139S               | 6/139,7                                               | 25                   | 1250                          | 2700                                                  | 10098                                                              | -                                                     | -                                                    |
| 25 6139V               | 6/139,7                                               | 25                   | 1250                          | 2700                                                  | 10098                                                              | 1                                                     | 1                                                    |
| 27 6139I               | 6/139,7                                               | 27                   | 1250                          | 2700                                                  | 10147                                                              | -                                                     | -                                                    |
| 35 6139Q               | 6/139,7                                               | 35                   | 1250                          | 2700                                                  | 10343                                                              | 1                                                     | 1                                                    |
| 50 6139S               | 6/139,7                                               | 50                   | 1250                          | 2700                                                  | 10711                                                              | 1                                                     | 1                                                    |

Die Prüfung wurde mit positivem Ergebnis abgeschlossen (Anrisskontrolle mittels Farbeindringverfahren)

The test was performed with positive result (crack assessment and evaluation: dye penetration method).

#### II.3.2. Abrollprüfung / Rim rolling test

Prüfinstrument / Measurement instrument: Rim rolling machine QL-IN-068

| Ausführung/<br>Version | Lochzahl/Loch-<br>kreis-[mm]/<br>Number of holes/<br>PCD | ET<br>[mm]<br>Offset | Radlast<br>[kg]<br>Wheel<br>load | Prüf-<br>last<br>[N]<br>Test<br>Load | Reifengröße<br>Tire dimension | Reifenfüll-<br>druck [bar]<br>Tire pressure | Prüf-<br>distanz<br>[km]<br>Test<br>distance | Anzahl<br>Abroll-<br>test<br>Rolling-<br>Test qty |
|------------------------|----------------------------------------------------------|----------------------|----------------------------------|--------------------------------------|-------------------------------|---------------------------------------------|----------------------------------------------|---------------------------------------------------|
| 30 5108R               | 5/108                                                    | 30                   | 1250                             | 30660                                | 285/70 R17                    | 4,5                                         | 2000                                         | 1                                                 |
| 45 5120P               | 5/120                                                    | 45                   | 1250                             | 30660                                | 285/70 R17                    | 4,5                                         | 2000                                         | 1                                                 |
| 32 6114                | 6/114                                                    | 32                   | 1250                             | 30660                                | 285/70 R17                    | 4,5                                         | 2000                                         | 1                                                 |
| 50 6139S               | 6/139,7                                                  | 50                   | 1250                             | 30660                                | 285/70 R17                    | 4,5                                         | 2000                                         | 1                                                 |

Die Prüfung wurde mit positivem Ergebnis abgeschlossen. (Anrisskontrolle mittels Farbeindringverfahren).

Alle anderen Versionen sind abgeleitet.

The test was performed with positive result (crack assessment and evaluation: dye penetration method). All other versions are derived.

|                                                                                   |                             |                                                                 |
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|                                                                                   | EUT/Type                    | 84001785                                                        |

### II.3.3. Impact Prüfung / Impact test

Prüfinstrument / Measurement instrument: Impact tester QL-IN-153

| Ausführung/<br>Version | Lochzahl/Loch-<br>kreis [mm]/<br>Number of holes/ PCD | ET<br>[mm]<br>Offset | Radlast<br>[kg]<br>Wheel load | Fallmasse<br>[kg]<br>Impact<br>weight | Reifengröße<br>Tire dimension | Reifenfüll-<br>druck [bar]<br>Tire pressure | Anzahl<br>Impact-<br>test*<br>Impact-Test<br>qty * |
|------------------------|-------------------------------------------------------|----------------------|-------------------------------|---------------------------------------|-------------------------------|---------------------------------------------|----------------------------------------------------|
| 30 5108R               | 5/108                                                 | 30                   | 1250                          | 930                                   | 225/40 R17                    | 2,0                                         | 1                                                  |
| 39 5120P               | 5/120                                                 | 39                   | 1250                          | -                                     | -                             | -                                           | -                                                  |
| 45 5120P               | 5/120                                                 | 45                   | 1250                          | 930                                   | 225/40 R17                    | 2,0                                         | 1                                                  |
| 37 5127I               | 5/127                                                 | 37                   | 1250                          | 930                                   | 225/40 R17                    | 2,0                                         | 1                                                  |
| 32 6114                | 6/114                                                 | 32                   | 1250                          | 930                                   | 225/40 R17                    | 2,0                                         | 1                                                  |
| 40 6130F               | 6/130                                                 | 40                   | 1250                          | 930                                   | 225/40 R17                    | 2,0                                         | 1                                                  |
| 34 6135A               | 6/135                                                 | 34                   | 1250                          | 930                                   | 225/40 R17                    | 2,0                                         | 1                                                  |
| 25 6139S               | 6/139,7                                               | 25                   | 1250                          | -                                     | -                             | -                                           | -                                                  |
| 25 6139V               | 6/139,7                                               | 25                   | 1250                          | 930                                   | 225/40 R17                    | 2,0                                         | 1                                                  |
| 27 6139I               | 6/139,7                                               | 27                   | 1250                          | -                                     | -                             | -                                           | -                                                  |
| 35 6139Q               | 6/139,7                                               | 35                   | 1250                          | -                                     | -                             | -                                           | -                                                  |
| 50 6139S               | 6/139,7                                               | 50                   | 1250                          | 930                                   | 225/40 R17                    | 2,0                                         | 1                                                  |

\* je Schlagposition / per impact position

Die Prüfung wurde mit positivem Ergebnis abgeschlossen.

The test was performed with positive result.

### III. Prüfergebnis / Test result

Aufgrund der durchgeführten Prüfungen bestehen keine technischen Bedenken o.g. Räder an den in Verwendungsbereichsgutachten genannten Fahrzeugen und den dort aufgeführten Bedingungen zu verwenden.

Based on the performed tests there are no technical objections to apply the wheels described above to the vehicles listed in the application certificate under fulfillment of the mounting conditions.

### IV. Hinweis / Note

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|                                                                                   |                             |                                                                 |
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| V. Anlagen / Enclosures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Beschreibung / Technical description :<br>Radzeichnung / Drawing n° : 8400J1785305<br>Radzeichnung / Drawing n° : 8400J1785375<br>Radzeichnung / Drawing n° : 8400J1785395<br>Radzeichnung / Drawing n° : 8400J1785455<br>Radzeichnung / Drawing n° : 8400J1785256<br>Radzeichnung / Drawing n° : 8400J1785276<br>Radzeichnung / Drawing n° : 8400J1785326<br>Radzeichnung / Drawing n° : 8400J1785346<br>Radzeichnung / Drawing n° : 8400J1785356<br>Radzeichnung / Drawing n° : 8400J1785406<br>Radzeichnung / Drawing n° : 8400J1785506 | Date 31/08/2023<br>rev.0 date 17/03/2023<br>rev.0 date 17/03/2023<br>rev.0 date 23/03/2023<br>rev.0 date 30/06/2023<br>rev.2 date 09/10/2023<br>rev.0 date 17/03/2023<br>rev.0 date 17/03/2023<br>rev.0 date 17/03/2023<br>rev.0 date 17/03/2023<br>rev.0 date 20/03/2023<br>rev.0 date 27/03/2023 |
| VI. Datum Bericht und Test / Report and test date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                    |
| Ver. 0: 13/10/2023 Test Date: From 10/07/2023 to 10/10/2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                    |