

**Check list for Air Spring 180 KN capacity supplied by M/s S.I.Air Springs Pvt. Ltd.- Madurai**

**1. Dimensional and visual check:**

**Drawing No.: FIP- 100902-18, Rev 18E dated 07.08.2020**

**1.1 Visual Inspection**

| S. N.                                   | Particulars             | Specified  | Observation    |  |  |  |  | Remarks |
|---|-------------------------|--|----------------|--|--|--|--|---------|
|   |                         |  | Air spring no. |  |  |  |  |         |
|   |                         |  |                |  |  |  |  |         |
| i)                                      | Finish                  | Smooth   |                |  |  |  |  |         |
| ii)                                     | Cut                     | Nil  |                |  |  |  |  |         |
| iii)                                    | Burrs / Flash           | Nil  |                |  |  |  |  |         |
| iv)                                     | Rust / Corrosion        | Not Allowed  |                |  |  |  |  |         |
| v)                                      | Weld / Paint Marks      | Not Allowed  |                |  |  |  |  |         |
| vi)                                     | Flatness / Parallelism  | OK/ Not OK   |                |  |  |  |  |         |
| vii)                                    | "O" Ring                | OK/ Not OK   |                |  |  |  |  |         |
| viii)                                   | <b>Marking</b>          | <b>As per Para 11 of 'Section-A' of RDSO STR no. RDSO/2020/CG-01</b> |                |  |  |  |  |         |
|   | 1. Top Plate            | OK/ Not OK   |                |  |  |  |  |         |
|   | 2. Bottom Plate         | OK/ Not OK   |                |  |  |  |  |         |
|   | 3. Emergency Spring     | OK/ Not OK   |                |  |  |  |  |         |
|   | 4. Identification plate | OK/ Not OK   |                |  |  |  |  |         |
| ix)                                     | Colour & shade          | Grey (RAL no. 7042)  |                |  |  |  |  |         |
| <b>Status : Accepted / Not Accepted</b> |                         |  |                |  |  |  |  |         |

**1.2 Dimensional Inspection (Dimensions in mm)**

| S N | Particular |                    | Specified                                   | Observation    |  |  |  |  |
|-----|------------|--------------------|---|----------------|--|--|--|--|
|     |            |                    |   | Air spring no. |  |  |  |  |
|     |            |                    |   |                |  |  |  |  |
| 1   | Base Plate | Length             | As per Firm's RDSO Approved Drg. / RDSO STR |                |  |  |  |  |
|     |            | Width              |   |                |  |  |  |  |
|     |            | Thickness          |   |                |  |  |  |  |
|     |            | Mounting hole dia. |   |                |  |  |  |  |

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|   |                     |   |        |  |  |  |  |  |
|---|---------------------|---|--------|--|--|--|--|--|
|   |                     | Centre distance of mounting holes (single / both side)                            |        |  |  |  |  |  |
| 2                                       | Top Plate           | Spigot Dia.   |        |  |  |  |  |  |
|   |                     | Spigot Height   |        |  |  |  |  |  |
|   |                     | Top plate dia.  |        |  |  |  |  |  |
|   |                     | Cross section diameter of "O" ring  |        |  |  |  |  |  |
| 3                                       | Air Bellow diameter | Diameter of air bellow at 6 Kg/cm <sup>2</sup> under design height.               |        |  |  |  |  |  |
| 4                                       | Deflated height     | Min. height of air spring under full load (180 kN) with no air and without spigot | 215 mm |  |  |  |  |  |
| <b>Status : Accepted / Not Accepted</b> |                     |   |        |  |  |  |  |  |

**2. Leak Test of Air Spring:** As per Clause 10.2.2 of section A.

**Parameter:** Inflate and stabilize the Air Spring:  
 (i) at 9 kg/cm<sup>2</sup>, hold for 60 minutes.  
 (ii) at 6kg/cm<sup>2</sup>, hold for 15 minutes.  
 Pressure drop is required to be within 1 % of test pressure.

| SN                                     | Air Springs Number | Pressure after 60 minutes when inflated at 9 Kg/cm <sup>2</sup> | Pressure after 15 minutes when inflated at 6 Kg/cm <sup>2</sup> | Pressure drop with in specified limit (Yes / No.) |
|--|--------------------|---|---|---|
| 1.                                     |                    |   |   |   |
| 2.                                     |                    |   |   |   |
| 3.                                     |                    |   |   |   |
| 4.                                     |                    |   |   |   |
| 5.                                     |                    |   |   |   |
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**3. Pressure v/s Load Test**

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| S.N                                     | Pressure in kg/cm <sup>2</sup> or bar | Specified Vertical Load (kN) |       | Measured Vertical Load (kN) |  |  |  |  |
|---|---------------------------------------|------------------------------|-------|-----------------------------|--|--|--|--|
|   |                                       |                              |       | Air Spring No.              |  |  |  |  |
|   |                                       | Min                          | Max   |                             |  |  |  |  |
| 1.                                      | 1.0                                   | 27                           | 33    |                             |  |  |  |  |
| 2.                                      | 2.0                                   | 56.7                         | 69.3  |                             |  |  |  |  |
| 3.                                      | 3.0                                   | 86.4                         | 105.6 |                             |  |  |  |  |
| 4.                                      | 4.0                                   | 116.1                        | 141.9 |                             |  |  |  |  |
| 5.                                      | 5.0                                   | 147.6                        | 180.4 |                             |  |  |  |  |
| 6.                                      | 6.0                                   | 178.2                        | 217.8 |                             |  |  |  |  |
| <b>Status : Accepted / Not Accepted</b> |                                       |                              |       |                             |  |  |  |  |

**4. Test for Emergency Spring: Vertical load v/s deflection Test:**

| S. No. | Deflection [mm] | Vertical Force (KN) |      | Measured Force (KN)  |  |  |  |  |
|--------|-----------------|---------------------|------|----------------------|--|--|--|--|
|        |                 |                     |      | Emergency Spring No. |  |  |  |  |
|        |                 | Min.                | Max. |                      |  |  |  |  |
| 1      | 0               | 0                   | 0    |                      |  |  |  |  |
| 2      | 44.4            | 2.27                | 2.51 |                      |  |  |  |  |
| 3      | 88.8            | 3.45                | 3.81 |                      |  |  |  |  |
| 4      | 133.2           | 4.7                 | 5.2  |                      |  |  |  |  |
| 5      | 177.6           | 5.84                | 6.46 |                      |  |  |  |  |
| 6      | 222             | 6.83                | 7.55 |                      |  |  |  |  |
| 7      | 266.4           | 7.52                | 8.32 |                      |  |  |  |  |

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