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**Manufacturer:**

Columbusmaskiner AB

**Machine Model:**

Columbusmaskiner SP70-PC Wheel Spinner

**Test Date:**

2024-12-03

**Tested by:**

Alexander Österström & Jari Palosaari

**Test Location:**

Workshop Hejargatan 13, 632 29 Eskilstuna

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## 1. Test Equipment

**• Sound Level Meter:**

UNI-T 48880

**• Test Distance from the Machine:**

1 meter from the machine

**• Test Position:**

The microphone was placed at a height of approximately 1.6 meters from the machine's sound emission in an open environment without reflections.

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## 2. Test Procedure

**• Type of Test:**

Test of idling operation, wheel spinning was performed 10 times.

**• Test Duration:**

The test was conducted for approximately 2 minutes of the machine's operation.

**• Referenced ISO Standards:**

- EN ISO 3744:2010 – "Acoustics — Determination of sound power levels of noise sources — Engineering methods for an essentially free field over a reflecting plane"
- EN ISO 11201:2010 – "Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions"
- EN ISO 11202:2010 – "Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a specified distance from the source"

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### 3. Measurement Results

- **Equivalent Continuous A-weighted Sound Pressure Level:**

- Idling: 68 dB(A)
- Wheel Spinning: 82 dB(A)
- (A) is the average of 10 measurements of the equivalent sound pressure level.
- Each measurement consists of 10 wheel spin operations over 2 minutes.

- **Maximum C-weighted Sound Pressure Value:**

- 82 dB was the highest value measured during 10 wheel spin operations.

- **Ambient Noise Level (Background Noise):**

- Result: 45 dB(A)

- **Test Conditions:**

Indoor, Temperature: 19°C

Measurement Uncertainty: The estimated measurement uncertainty for the measured sound levels is  $\pm 1.5$  dB(A) according to ISO 3744 and ISO 11201.

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### 4. Compliance with EU Regulations

- **Machine Directive 2006/42/EC:**

According to Machine Directive 2006/42/EC, Annex I, machines must be designed and constructed to prevent risks to the user or others. The directive specifies sound level requirements to ensure machines do not cause harmful effects on workers' health, especially regarding prolonged noise exposure.

- Article 12 of the Machine Directive requires that the machine meets the basic health and safety requirements, which includes noise levels that must not exceed dangerous levels.

- Annex I (point 1.5.4) specifies that sound levels should be considered to protect workers' health, meaning machines must be tested and documented to ensure sound levels do not exceed specified limits.

- **Maximum Allowed Sound Level:**

Reference to relevant EU standards:

According to EN ISO 3744:2010, the sound level must not exceed 85 dB(A) at 1-meter distance. This is in line with the requirements set forth in Annex I of the Machine Directive to protect workers' health.

- **Result:**

The machine does not exceed the maximum sound levels according to the standards or specifications for this type of machine.

- At the 1-meter test distance, the sound level was measured at 82 dB(A) during wheel spinning, which is below the maximum allowed value of 85 dB(A).

- The maximum C-weighted sound pressure value of 82 dB is within the acceptable limits for peak sound levels, but it is important to ensure it is not harmful during prolonged exposures.
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## 5. Summary and Conclusions

- **The machine meets the sound level requirements:**

Yes, the machine meets the sound level requirements according to EN ISO 3744 and EN ISO 11201. The sound level during wheel spinning (82 dB(A)) is below the allowable limit of 85 dB(A).

- **Other Observations:**

No significant sound deviations were observed during the test. The idling sound level was relatively low (68 dB(A)), and the wheel spinning sound level (82 dB(A)) is acceptable.

- **Recommendations:**

No further action is required. The test results are within acceptable limits, and the machine meets the noise requirements for CE marking.

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## 6. Approval

- **Test Leader (Name, Title):**

Jari Palosaari, Test Leader

Date: 2024-12-05

- **Responsible for Machine's CE Marking:**

Alexander Österström, Technical Manager

Date: 2024-12-05

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