Manufacturer:
Columbusmaskiner AB

Machine Model:
Columbusmaskiner SP85-HD 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 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:**
  Idle running test, wheel spinning 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:**
  - Idle running: 52 dB(A)
  - Wheel spinning: 75 dB(A)
  - (A) is the average of 10 measurements of the equivalent sound pressure level.
  - Each measurement consists of 10 wheel spins over 2 minutes.
- **Maximum C-weighted Sound Pressure Level:**
  - 75 dB was the highest value during 10 wheel spin measurements.
- **Background Noise Level:**
  - Result: 45 dB(A)
- **Test Conditions:**
  - Indoor, Temperature: 19°C

Measurement Uncertainty:
The estimated measurement uncertainty for the measured sound levels is ±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 avoid risks to the user or others. The directive specifies requirements for noise levels to ensure that machines do not cause harmful effects on workers' health, particularly regarding long-term noise exposure.
- **Article 12 of the Machine Directive** requires that the machine complies with the basic health and safety requirements, which includes noise levels that must not exceed hazardous levels.
- **Annex I (Section 1.5.4)** specifies that noise levels must be considered to protect workers' health, meaning that machines must be tested and documented to ensure that noise levels do not exceed specified limits.
- **Maximum Permissible Noise Level:**
  Reference to relevant EU standards:
  According to EN ISO 3744:2010, the noise level must not exceed 85 dB(A) at a distance of 1 meter. This is in line with the requirements of Annex I of the Machine Directive to protect workers' health.
- **Results:**
  The machine does not exceed the maximum noise levels according to the standards or specifications for this type of machine.
  In the test at 1 meter distance, the noise level measured was 75 dB(A) during wheel spinning, which is below the maximum allowed value of 85 dB(A).
  The maximum C-weighted sound pressure level of 75 dB is within acceptable limits for instantaneous noise 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 noise level requirements:**
  Yes, the machine meets the noise level requirements according to EN ISO 3744 and EN ISO 11201. The noise level during wheel spinning (75 dB(A)) is below the permissible limit of 85 dB(A).
- **Other Observations:**
  No significant noise deviation was observed during the test. The idle noise level was relatively low (52 dB(A)), and the wheel spinning noise level (75 dB(A)) is acceptable.
- **Recommendations:**
  No further action is required. The test results fall within the approved limits, and the machine meets the noise requirements for CE marking.

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6. Approval

- **Test Leader:**
  Jari Palosaari,
  Date: 2024-12-17
- **Responsible for the Machine's CE Marking:**
  Alexander Österström, Technical Manager
  Date: 2024-12-17

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