

Manufacturer:

Columbusmaskiner AB

Machine Model:

Columbusmaskiner WNR-EC2

Test Date:

2024-12-03

Tested by:

Alexander Österström & Jari Palosaari

Test Location:

Workshop Hejargatan 13, 632 29 Eskilstuna

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 with no reflections.

2. Test Procedure

- Type of test:

Test of idle running, nut driving, and nut impact were performed 10 times.

- Test duration:

The test was performed for about 2 minutes of machine operation.

- Referenced ISO standards:

- o EN ISO 3744:2010 – "Acoustics — Determination of sound power levels of noise sources — Engineering methods for an essentially free field over a reflecting plane"

- o 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"

- o EN ISO 11202:2010 – "Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a specified distance from the source"

3. Measurement Results

- Equivalent continuous A-weighted sound pressure level:
 - o Idle running: 55 dB(A)
 - o Working mode: 74 dB(A)
 - o (A) is the average value from 10 measurements of the equivalent sound pressure level.
 - o Each measurement consists of 10 nut drives and 10 impacts over 2 minutes.
- Maximum C-weighted sound pressure level:
115.5 dB was the highest value measured during 10 nut impacts.
- Ambient noise level (background noise) during measurement:
Result: 45 dB(A)
- Test conditions:
Indoors, 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.

4. Compliance with EU Regulations

- Machinery Directive 2006/42/EC:
According to Machinery Directive 2006/42/EC, Annex I, machines must be designed and constructed to avoid risks to the user or others. The Machinery Directive specifies requirements for noise levels to ensure that machines do not cause harmful effects on workers' health, especially with regard to long-term noise exposure.
 - o Article 12 of the Machinery Directive requires that the machine meets the essential health and safety requirements, including noise levels that must not exceed hazardous levels.
 - o Annex I (Section 1.5.4) specifies that noise levels should be considered to protect workers' health, meaning that machines must be tested and documented to ensure that the noise levels do not exceed specified limits.
 - Maximum allowable noise level:
Reference to relevant EU standards:
According to EN ISO 3744:2010, the noise level should not exceed 85 dB(A) at 1 meter distance. This is in line with the requirements set out in Annex I of the Machinery 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.
 - o During the test at 1 meter distance, the noise level measured was 74 dB(A) in working mode, which is below the maximum allowed value of 85 dB(A).
 - o The maximum C-weighted sound pressure level of 115.5 dB is within acceptable limits for instantaneous sound levels, but it is important to ensure that it is not harmful during longer exposures.
-

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 in working mode (74 dB(A)) is below the allowed limit of 85 dB(A).

- Other observations:

No significant noise deviation was observed during the test. The idle running noise level was relatively low (55 dB(A)), and the working mode (74 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.

6. Approval

- Test leader (name, title)

Jari Palosaari, Test Leader

Date: 2024-12-05

- Responsible for the machine's CE marking

Alexander Österström, Technical Manager

Date: 2024-12-05

Columbusmaskiner AB

Hejargatan 13

632 29 Eskilstuna

Sweden

Email: info@columbusmaskiner.se

Phone: +46-724 544 244