

व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (Initial)



संख्या/No.: Machine 105/476
माह / Month: December 2023

THIS TEST REPORT IS VALID UPTO 31.12.2030



SECHANAM AIW-09 POWER WEEDER



सत्यमेव जयते

भारत सरकार
GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

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4. SPECIFICATIONS

4.1 General:

Make : SECHANAM
 Model : AIW-09
 Name and address of manufacturer : **Chongqing Senci Wugu Agriculture Machinery Import & Export Company Limited, Longfei Road, Dongchen Street, Tongliang District, Chongqing, China-402560**

Name and address of applicant : **Aquatix India, Madan Mohan Lane,1646/B, Near Binayak Steel, Gosala Road, Cuttack-753004, Odisha**

Name of machine : Power weeder
 Type of machine : Self propelled, Walk behind
 Working size of machine (mm) : 1160
 Year of manufacture : 2023
 Serial no. of machine : F75-C0247



4.2 Details of prime mover:

Make : Not Specified
 Model : NR170F
 Type : 4 stroke, Single cylinder, Air cooled, Spark Ignition
 Year of manufacture : 2023
 Serial Number : 2302280124
 Country of origin (apa) : **CHINA**
 Recommended high idle speed (rpm) : 3800 ± 100
 Recommended low idle speed (rpm) : 1900 ± 50
 Recommended rated speed (rpm) : 3600
 Rated power observed (kW) : **3.42**
 Rated power declared (apa) (kW) : 6.80

11.2 Chemical composition of rotor blades :

Constituents	As per IS 6690:1981 (Reaffirmed 2012)		Composition as observed (% by weight)	Remarks
	Carbon Steel (%)	Silicon Manganese Steel (%)		
Carbon (C)	0.70 -0.85	0.50-0.60	0.542	Conforms
Silicon (Si)	0.10 -0.40	1.50-2.00	0.719	Does not conform
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.776	Conforms
Sulphur (S)	0.05(max)	0.05(max)	0.012	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.021	Conforms

12. FIELD PERFORMANCE TEST

The field tests were conducted for 27.0 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated speed of 3600 rpm. The detailed test results are represented in the Annexure and summarized in the ensuing table:

Sl.No.	Parameters	Observations	
1	Type of soil	: Light	
2	Soil moisture (%)	: 8.83 to 10.33	
3	Bulk density of soil (g/cc)	: 1.47 to 1.51	
4	Forward Speed of operation (kmph)	: 1.06 to 1.13	
5	Depth of cut (cm)	: 5.53 to 5.73	
6	Width of cut (m)	: 1.12 to 1.16	
7	Area covered (ha/h)	: 0.088 to 0.101	
8	Time required for one ha (h)	: 9.90 to 11.36	
9	Field efficiency (%)	: 71.65 to 79.20	
10	Weeding efficiency (%)	: 69.66 to 75.73	
11	Fuel consumption		
		l/h	: 0.875 to 1.19
		l/ha	: 8.84 to 13.29

12.1 Rate of work

- Rate of work was recorded as 0.088 to 0.101ha/h and the forward speed of operation varied from 1.06 to 1.13 kmph.
- Time required to cover one hectare was recorded as 9.90 to 11.36 h.

12.2 Quality of work:

- Depth of cut was recorded as 5.53 to 5.73 cm.
- Working width was observed as 1.12 to 1.16 m.
- Field efficiency was found as 71.65 to 79.20 %.
- Weeding efficiency was found as 69.66 to 75.73 %.





Machine 105/476	SECHANAM AIW-09 POWER WEEDER	COMMERCIAL (INITIAL)
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- 15.2 **Clutch:** No noticeable defects observed
15.3 **Transmission gears:** No noticeable defects observed
15.4 **Rotary drive unit:**
The rotary drive unit was dismantled and all the components were found in normal condition.

16. COMMENTS & RECOMMENDATIONS

- 16.1 The average rated power in rating test of engine was observed as 3.42 kW against declared value of 6.80 kW by the manufacturer. This should be looked into for corrective action.
- 16.2 The engine was not marked with Manufacturer name or trade-mark, Rated power, Rated speed and type of fuel used which does not fulfill the requirement of IS 7347-1974 (Amended 2011). This may be looked into.
- 16.3 It was observed that during engine performance test, at full Load, engine speed was not stable at rated speed. This shall be looked into for corrective action.
- 16.4 The hardness and chemical composition of rotary blades does not conform to the requirement of IS 6690:1981 (Reaffirmed 2012). This may be looked into for corrective action.
- 16.5 Machine maneuverability while taking turns during field operation was not comfortable. It shall be looked into for ease of operation for the operator.
- 16.6 Noise at operator's ear level was observed on higher side against warning limit of 85 dB (A) as specified by International labour Organization (ILO) for continuous exposure of 8 hours per day. **This calls for reduction in noise level to improve the operator's comfort & safety.**
- 16.7 The amplitude of mechanical vibration marked as (*) is on drastically higher side and is directly concerned with operator's health, safety and comfort. Besides, it is also adversely affect the useful life of machine components. In view of above, this deserves to be given top priority for corrective action.
- 16.8 Working width of the machine and type of engine (Petrol/Diesel) should be provided on the labeling plate of the machine. This should be looked into for corrective action.
- 16.9 The mentioned value of rated power 6.80 kW of engine on the labeling plate of the machine was not matching with the observed value of 3.42 kW during engine test. This should be looked into for corrective action.

Machine 105/476	SECHANAM AIW-09 POWER WEEDER	COMMERCIAL (INITIAL)
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16.10 On labeling plate, manufacturer's address has been mentioned wrongly. This should be looked into for corrective action.

16.11 Adequacy of Literature

The following literature in English language was provided for reference during testing:

- Operator's/ Service manual
- Parts catalogue

It is recommended to bring out the manual in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY



(M.R. PATIL)
AGRICULTURAL ENGINEER



(Dr. P.P. RAO)
DIRECTOR

Draft test report compiled by - **Shri Khagendra Bora**
Sr. Technical Assistant

17. APPLICANT'S COMMENTS

Para No	Our Reference	Applicant's Comments
17.1	16.1 to 16.11	As per comments necessary precautionary measures will be taken during future products.

