

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



संख्या/No.: Machine 120/491
माह / Month: March 2024

THIS TEST REPORT IS VALID UPTO 31.03.2031



VI POWER GOLD ST 8010 POWER WEEDER



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

विश्वनाथ चारिआलि, जिला-विश्वनाथ (असम)

BISWANATH CHARIALI: BISWANATH: ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

Ph. No. 03715-222094

Website: <https://nerfmtti.nic.in>

E-Mail: fmti-ner@nic.in

Machine 120/491	VI POWER GOLD ST 8010 POWER WEEDER	COMMERCIAL (INITIAL)
-----------------	---------------------------------------	-------------------------

4. SPECIFICATIONS

4.1 General:

Name of machine	: Power weeder
Type of machine	: Self propelled, walk behind
Make	: VI POWER GOLD
Model	: ST 8010
Name and address of manufacturer	: Zhejian Altogarten Industry Trade Co., Ltd., Huyan Village Quanxi Town, Wuyi County, Jinhua city, Zhejiang Province, China.
Name and address of applicant	: VNM Industries Pvt., Ltd., 3 rd floor, Shri Hari Mansion, Building no.19, Navjevan wadi, Dhobi Talao, Mumbai-400002, Maharashtra
Working size of machine (mm)	: 1015
Year of manufacture	: 2023
Serial no. of machine	: GX230303134

4.2 Details of prime mover:

Make	: VI POWER GOLD
Model	: FC 170-1
Type	: 4 stroke, Single cylinder, Air cooled, Spark Ignition
Year of manufacture	: 2023
Serial Number	: 230403C10064
Country of origin (apa)	: CHINA
Recommended high idle speed (rpm)	: 3800 ± 50
Recommended low idle speed (rpm)	: 1800 ± 150
Recommended rated speed (rpm)	: 3600
Rated power observed (kW)	: 3.67
Rated power declared (apa) (kW)	: 3.20



Machine 120/491	VI POWER GOLD ST 8010 POWER WEEDER	COMMERCIAL (INITIAL)
-----------------	---------------------------------------	-------------------------

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	0.665	Does not conform
Silicon (Si)	0.10 -0.40	1.50-2.00	0.716	Does not conform
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.846	Conforms
Sulphur (S)	0.05(max)	0.05(max)	0.010	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.018	Conforms

12. FIELD PERFORMANCE TEST

The field tests were conducted for 25.41 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 (%)	: 10.7 to 11.2	
3	Bulk density of soil (g/cc)	: 1.51 to 1.54	
4	Forward Speed of operation (kmph)	: 0.95 to 1.00	
5	Depth of cut (cm)	: 6.8 to 7.5	
6	Width of cut (m)	: 1.06 to 1.08	
7	Area covered (ha/h)	: 0.088 to 0.096	
8	Time required for one ha (h)	: 10.42 to 11.36	
9	Field efficiency (%)	: 84.62 to 90.57	
10	Weeding efficiency (%)	: 84.15 to 88.21	
11	Fuel consumption		
		l/h :	0.91 to 0.94
		l/ha :	9.69 to 10.34

12.1 Rate of work

- Rate of work was recorded as 0.088 to 0.096 ha/h and the forward speed of operation varied from 0.95 to 1.00 kmph.
- Time required to cover one hectare was recorded as 10.42 to 11.36 h.

12.2 Quality of work:

- Depth of cut was recorded as 6.8 to 7.5 cm.
- Working width was observed as 1.06 to 1.08 m.
- Field efficiency was found as 84.62 to 90.57 %.
- Weeding efficiency was found as 84.15 to 88.21 %.





Machine 120/491	VI POWER GOLD ST 8010 POWER WEEDER	COMMERCIAL (INITIAL)
-----------------	---	---------------------------------

15.1.7 Valve guide clearance

Valve guide diameter (mm)		Valve stem diameter (mm)		Valve guide clearance (mm)		Max. Permissible wear limit (mm)	
Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust
5.50	5.51	5.45	5.44	0.05	0.07	Not specified	Not specified

Valve, guide and timing gear:-

Any marked sign of overheating of valves	: None
Pitting of seat/faces of valves	: None
Any visual damage of teeth of timing gears	: None
Condition of ignition coil & magneto	: Normal

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 specific fuel consumption (SFC) corresponding to rated power of engine was observed as 320.4 g/kWh against declared value of 300 g/kWh by the applicant/manufacture which exceeded by more than 5 percent of that declared by the manufacturer and hence does not fulfill the requirement of IS 7347-1974 (Amended 2011). 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**

Machine 120/491	VI POWER GOLD ST 8010 POWER WEEDER	COMMERCIAL (INITIAL)
-----------------	---------------------------------------	-------------------------

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 **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



17. APPLICANT'S COMMENTS

Para No	Our Reference	Applicant's Comments
17.1	16.1 to 16.8	We will take necessary action as per comments and recommendations in the test report for improvement in future production.