

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: Machine- 58/3105/2023

माह/Month: November, 2023

THIS TEST REPORT VALID UP TO : 30th November, 2028



**FALCON, FBC-34N
BRUSH CUTTER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि एवं किसान कल्याण विभाग

Department of Agriculture and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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12. FIELD TEST

Field tests were conducted for 12.83 hours with nylon rope attachment and 13.59 hours with straight blade attachment. Detailed results of field tests are shown in Annexure-I & II and summarized in the ensuing table. Details about the operator are show in Annexure-III.

Sr. No.	Parameters	Seasonal grass cutting	
		For nylon rope	For straight blade
1.	Field condition	Leveled	Leveled
2.	Intensity of grass/bush	High	High
3.	Number of grass/bush in 1 sq. m	375 to 400	398 to 410
4.	Height of grass/bush, cm	9 to 21	101 to 190
5.	Diameter of grass/bush, mm	1.00 to 1.60	10.60 to 14.50
6.	Mass of grass/bush cut		
	(kg/h)	361.10 to 474.40	2747.50 to 2912.40
	(kg/ha)	3968 to 4995	29585 to 31658
7.	Area covered (Rate of work) ha/h	0.091 to 0.099	0.092 to 0.093
8.	Time required for one hectare, h	10.10 to 10.99	10.75 to 10.87
9.	Fuel consumption		
	l/h	0.59 to 0.60	0.58 to 0.59
	l/ha	6.06 to 6.48	6.30 to 6.41

12.1 Cutting using nylon rope assembly**12.1.1 Rate of work**

- Area covered (Rate of work) was observed as 0.091 to 0.099 ha/h.
- Time required for one hectare was observed as 10.10 to 10.99 hours.
- Numbers of perennial weed in one square meter was 375 to 400
- Mass of perennial weed cut was 361.10 to 474.40 kg/h to 3968 to 4995 kg/ha.

12.1.2 Fuel consumption

Fuel consumption was observed as 0.59 to 0.60 l/h and 6.06 to 6.48 l/ha.

12.2 Cutting using straight blade assembly**12.2.1 Rate of work**

- Area covered (Rate of work) was observed as 0.092 to 0.093 ha/h.
- Time required for one hectare was observed as 10.75 to 10.87 h.
- Mass of bush cut was observed as 2747.50 to 2912.40 kg/h to 29585 to 31658 kg/ha.
- No. of bush stem in one m² area was 398 to 410

12.2.2 Fuel consumption

Fuel consumption was observed as 0.58 to 0.59 l/h. and 6.30 to 6.41 l/ha.

12.3 Labor requirement

To ensure the cutting work without interruption, two operators are required to work alternatively. Additionally, one more labour is needed to gather the collected bush/weeds.

12.4 Adequacy of power of prime mover

The power of prime mover was found adequate.



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16. CRITICAL TECHNICAL SPECIFICATION

(Vide Ministry's communication No. 13-9/2019 M&T (I&P)-Part, dated 26.04.2019)

Sr. No.	Parameters	Specification	Observed	Remarks
1.	Type	Self propelled, portable	Self propelled	Conforms
2.	Type of cutting attachment	Circular disc/Straight blade/Nylon rope	Straight blade & nylon rope used	Conforms
Circular blade				
3.	Material of circular/Straight blade	Alloy Steel	Alloy steel	Conforms
4.	No. of teeth on circular disc blade	50-100	Circular blade is not recommended by applicant	--
5.	Root diameter/Overall diameter (mm)	200-270		
6.	Thickness of disc (mm)	1.5 Min		
7.	Teeth thickness (mm)	2.0 Min		
8.	Material of blade	M42		
9.	Hardness of blade, HRC	68-70		
Straight blade				
10.	Diameter of straight blade (mm)	250-350	299	Conforms
11.	Width of ends/at center (mm)	50/70, Min.	50/80	Conforms
12.	Thickness of straight blade (mm)	1.5 Min	1.9	Conforms
Nylon rope				
13.	Length of nylon rope (mm)	2000-4000	Length 2960 mm	Conforms
14.	Diameter of nylon rope (mm)	2.5 to 4.0	Diameter- 3.0 mm	Conforms
15.	Type of engine	Compression ignition/Spark ignition	Spark ignition	Conforms
16.	Starting method	Manual/Recoil/Self-starting	Manual/Recoil start	Conforms
17.	Type of clutch	Cone/Centrifugal	Centrifugal	Conforms
18.	Type of gear drive	Bevel pinion	Bevel pinion	Conforms
19.	Capacity of fuel tank (l)	1.0 (min)	1.0 lit.	Conforms
20.	On off provision in fuel supply system	Must be provided	Provided	Conforms
21.	Provision for easy start of engine	Must be provided	Choke is provided	Conforms
22.	Provision for emergency stop of engine	Must be provided	Provided	Conforms
23.	Provision for shield/cover to prevent flying of mud and stone from rotor	Must be provided	Provided	Conforms
24.	Provision for grass deflector at the rear of the cutting mechanism			
25.	Provision for pad with shoulder bet to dampen the vibration	Must be provided	Provided	Conforms
26.	Provision for cover on exhaust.	Must be provided	Provided	Conforms
27.	Direction of exhaust emission away from operator	Must be provided	Provided	Conforms

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28.	Provision for safety kit (helmet, ear plug, mask, hand gloves, safety glass, Protective cloth, safety shoes)	Must be provided	Provided	Conforms
29.	Marking/labeling of machine	The labeling plate should be riveted on the body of machine having Name and address of manufacturer & Applicant, country of origin Make, Model, year of manufacturer, Serial Number, Engine number, Engine HP, rated rpm & SFC.	Partially meet the requirement	Partially conform
30.	Literature	Operator manual, Service manual and Parts catalogue should be provided.	Provided	Conforms

17. COMMENTS AND RECOMMENDATIONS

17.1 Engine performance

- i) Rated power is observed as 1.0 kW against the declared power of 1.0 kW.
- ii) Specific fuel consumption (SFC) at average rated power in rating test was observed as 304 g/kWh against declared value of 525 g/kWh.

17.2 The amplitude of mechanical vibration marked as (*) on the relevant chapter, are on higher side. It is not just directly concerned with operator's health, safety and comfort, but also adversely affects the useful life of the components. In view of above, this deserved to be given top priority for corrective action.

17.3 The hardness of blade does not conform, to the requirement of IS: 6025-1982. This needs to be looked into for corrective action.

17.4 The chemical composition of blades does not conform, to the requirements of IS: 6025-1982. This needs to be looked into for corrective action.

17.5 A suitable labeling plate (not sticker) needs to be provided with "Inter alia" following information.

- i) Name and address of manufacturer
- ii) Name and address of applicant
- iii) Country of origin
- iv) Make
- v) Model
- vi) Year of manufacturer
- vii) Serial number
- viii) Engine number
- ix) Engine hp
- x) Rated rpm
- xi) SFC





18. TECHNICAL LITERATURE

The following literatures were provided during the testing.

- i) Operator manual
- ii) Service manual
- iii) Parts catalogue

However, the manual needs to be updated as per IS: 8132-1999

TESTING AUTHORITY

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 29.11.2023

The test report is compiled by Sh. Deny Hasnu, Senior Technician

19. APPLICANT'S COMMENTS

We shall take necessary corrective measures for Falcon Brush Cutter, FBC-34N as per comments and recommendations.

