

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



संख्या/No.: H&TH/NERFMTTI, B. Chariali/
04/04/561
माह / Month: February 2026

THIS TEST REPORT IS VALID UPTO 28.02.2033



VINGLOB GREENTECH (I) PVT. LTD., VGT-01PR(D), SELF-PROPELLED REAPER



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

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

बिश्वनाथ चारिआलि, जिला - बिश्वनाथ(असम)

BISWANATH CHARIALI, DIST- BISWANATH, ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

Ph. No. 03715-222094

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

E-mail: fmti-ner@nic.in

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

4. SPECIFICATIONS

4.1 General:

Name and address of the manufacturer : VINGLOB GREENTECH (I) PVT LTD,
A/2 Bharat Small Industrial Estate, B/H
Gujarat Off Set, Vatva, G.I.D.C,
Ahmedabad, Gujarat- 382 445

Name and address of the applicant : VINGLOB GREENTECH (I) PVT LTD,
B/H Gujarat Offset, A 2, Bharat Small
Industrial Estate, Vandarvat Talav, Vatva,
Ahmedabad, Gujarat, 382 445

Name of machine : Self-propelled reaper/ Vertical conveyer
reaper

Type : Self-propelled, Walk Behind

Make : Vinglob Greentech (I) Pvt Ltd

Model : VGT-01PR(D)

Year of manufacture : 2025

Serial Number : 102

Country of origin : INDIA

Size of reaper, mm : 1300

Name of crop recommended (apa) : Paddy, Wheat, Soybean and different types
of fodders.

Name of crop in which the test was conducted : Paddy

4.2 Details of prime mover used:

Name and address of the manufacturer (apa) : Greaves Cotton Ltd, Plot no. J2. M.I.D.C
Chikalthana, Aurangabad (Maharashtra)

Make : Greaves Cotton Limited

Model : GREAVES COTTON 5520

Type : Single cylinder, 4-Stroke, Air cooled, diesel
engine

Year of manufacture : 2025

Serial Number : A5K1939746

Country of origin : INDIA

Recommended high idle speed (rpm) : 3800 ± 100

Recommended low idle speed (rpm) : 1400

Recommended rated speed (rpm) : 3600

Recommended rated speed for field test (rpm) : 3600

Maximum power observed, kW : 4.65

Maximum power declared, kW : 3.68

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

12.4 Chemical composition of knife section (stationery):

The material of reaper knife section (stationery) was got analyzed for chemical composition. The results of chemical analysis test are as under: -

Constituents	As per IS:6025-2024	Composition as observed (% of weight)	Remarks
Carbon (C)	0.70 -0.95	0.774	Conforms
Manganese (Mn)	0.30 – 0.50	0.726	Does not conform

13. FIELD PERFORMANCE TEST

The machine was tested for total of 25.15 hours for harvesting of paddy crop. The performance of the machine was assessed with regard to quality of work, rate of work, fuel consumption, safety and soundness of construction. The detailed test results have been given in Annexure-I & II and summarized in Table 1 & 2 below.

SUMMARY OF CROP PARAMETERS

Table-1

Sr. No.	Parameters	Range
1	Variety of crop	Paddy (Ranjit)
2	Straw moisture content (%)	30.1 to 34.1
3	Grain moisture content (%)	13.2 to 14.5
4	Plant height (mm)	1028 to 1292
5	Length of ear head (mm)	178.0 to 258.2
6	Number of grains per ear head	112 to 246
7	Number of hills per m ²	19 to 29
8	Number of tillers per hill	9 to 12
9	Straw-grain ratio	1.61:1 to 2.63:1

SUMMARY OF FIELD PERFORMANCE TEST

Table-2

Sr. No.	Parameters	Range
1	Forward speed (kmph)	3.38 to 3.63
2	Width of cut (m)	1.14 to 1.18
3	Stubble height (mm)	111.4 to 196.6
4	Losses (Percentage of total grain yield)	
	-Pre-harvest loss	0.04 to 0.08
	-Post harvest loss (Cutter bar)	0.05 to 0.31
	-Conveyor loss/shattering loss	0.72 to 1.72
5	Area harvested (ha/h)	0.31 to 0.35
6	Field efficiency (%)	77.5 to 85.4

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

7	Time required for one hectare (h)	2.86 to 3.23
8	Fuel consumption	
	- l/h	0.82 to 0.86
	- l/ha	2.41 to 2.65

13.1 Rate of work

- The forward speed of operation ranged between 3.38 to 3.63 kmph.
- The area harvested by the machine was recorded as 0.31 to 0.35 ha/h.

13.2 Quality of work

- Field efficiency was observed as 77.5 to 85.4 %.
- The post-harvest (cutter bar) loss was observed as 0.05 to 0.31 %.
- The conveyor loss/shattering loss was observed as 0.72 to 1.72 %.
- The stubble height was recorded as 111.4 to 196.6 mm.
- Machine leaves the harvested crop in windrows.

13.3 Labour requirement

- Two unskilled labours are required for cutting the crop manually at corner and side of each field.
- Two skilled labours are required for operating the machine continuously.

13.4 Operator's comfort, safety and ease of operation

- All the controls were within the easy reach of the operator.
- The machine was provided with the transmission clutch for the smooth changing of travel speed.
- The machine was provided with main clutch for stopping forward motion of the machine and cutter bar operation at same time.
- There is no safety provision in case of overloading of cutter bar.

14. EASE OF OPERATION AND ADJUSTMENT

No noticeable difficulties were observed in operation and adjustment during the field test.

15. DEFECTS, BREAKDOWNS AND REPAIRS

It was observed that, V-belt transferring power from engine to main gear box was broken during field performance test and it was replaced with the new one.

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

16. COMPONENTS / ASSEMBLY INSPECTION AND ASSESSMENT OF WEAR

16.1 Engine:

The engine and other assemblies were dismantled after 37.64 hours of operation.

16.1.1 Cylinder:

Cylinder	Cylinder bore dia (mm)						Max. permissible wear limit (mm)
	Top position		Middle position		Bottom position		
	Thrust side	Non Thrust side	Thrust side	Non Thrust side	Thrust side	Non Thrust side	
1	78.05	78.03	78.05	78.03	78.05	78.03	78.15

16.1.2 Piston:

Piston dia., mm				Max. permissible wear limit at skirt (mm)	Clearance between piston & cylinder liner at the skirt of the piston, mm	
Top (above top compression ring)		At skirt			As observed	Max. permissible limit (mm)
Thrust side	Non-thrust side	Thrust side	Non-thrust side			
77.50	77.52	77.90	*	77.10	0.15	0.25

16.1.3 Ring side clearance

Piston Rings	Ring side clearance (mm)	Max. permissible wear limit (mm)
1st compression ring	0.07	0.15
2nd compression ring	0.05	
3rd compression ring	0.05	
Oil ring	0.05	

16.1.4 Ring end gap clearance

Ring no.	Ring end gap (mm)			Max. permissible wear limit (mm)
	At top	At middle	At bottom	
1st Compression ring	0.25	0.25	0.25	0.30
2nd compression ring	0.30	0.30	0.30	
3rd compression ring	0.30	0.30	0.30	
Oil ring	0.25	0.25	0.25	0.40

16.1.5 Big end bearing

Bearing no.	Dia of bearing (mm)	Dia of crank pin (mm)	Clearance (mm)		Max. permissible wear limit (mm)	
			Dimetricral	Axial	Dimetricral	Axial
1	40.10	39.97	0.13	0.35	0.20	0.60

Condition of bearing: Normal

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

16.1.6 Main bearing

Bearing No.	Diametrical clearance (mm)	Crankshaft end float (mm)	Max. permissible clearance limit (mm)	
			Diametrical clearance	Crankshaft end float
Bush Bearing	0.09	0.10	0.10	0.50

16.1.7 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
7.01	7.00	6.96	6.96	0.05	0.04	0.02	0.02

16.2 Valve, guide and timing gear

Any marked sign of overheating of valves : None
 pitting of seat/faces of valves : Normal
 Any visual damage of teeth of timing gears : None
 condition of ignition coil and magneto : Normal

17. CRITICAL TECHNICAL SPECIFICATIONS

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

Sr. No.	Parameters	Specifications	Observation	Remarks
1.	Type of machine	Walk-behind type	Walk-behind type	Conforms
2.	Effective width of cutter bar (mm)	1100 (Min.)	1220	Conforms
3.	Number of crop dividers	5 (Min.)	5	Conforms
4.	Type of knife section	Serrated	Serrated	Conforms
5.	Number of knife sections on cutter bar	24 (Min.)	17	Does not conform
6.	Type of crop conveyor	Chain/Belt	Belt	Conforms
7.	Numbers and type of wheel equipment	Two/Pneumatic or Iron	Two pneumatic	Conforms
8.	Type of prime mover	Diesel/Petrol/Kerosene/Petrol start kerosene run IC engines.	Diesel	Conforms
9.	Minimum power of prime mover (kW)	2.0 to 4.5	4.66	Conforms
10.	Material of knife section	High Carbon steel EN42J or above	MS (apa)	Does not conform
11.	Material of knife back	High Carbon steel EN42J or above	MS (apa)	Does not conform

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

12.	Material of ledger plate	High Carbon steel EN44 above	MS (apa)	Does not conform
13.	Hardness of knife section, HRC	38 (Min)	97 HRBW	Does not conform
14.	Hardness of ledger plate, HRC	45 (Min.)	61	Conforms
15.	Provision for adjusting the height of cutter bar	Must be provided	Not provided	Does not conform
16.	Guards against all moving parts/drives and hot parts	Must be provided	Provided	Conforms
17.	Spark arrester in engine exhaust	Must be provided	Not provided	Does not conform
18.	Location and direction of exhaust emission to be away from the operator and machine for satisfactory operation	Must be provided	Provided	Conforms
19.	Slip clutch/safety pins at cutter bar drive	Must be provided	Not provided	Does not conform
20.	Slip clutch/safety pins at conveyor drive	Must be provided	Not provided	Does not conform
21.	Provision of row marker/crop guide	Must be provided	Not provided	Does not conform
22.	Marking/labeling of machine	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacture, Serial number, Type, size, Size of prime mover (kW)	Name and address of manufacturer, Country of origin, size and type was not provided.	Does not conform
23.	Literature	Operator manual, Service manual and Parts catalogue should be provided.	Provided	Conforms

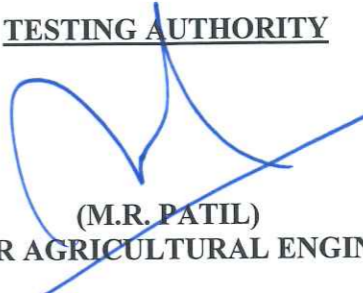
H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

18. COMMENTS AND RECOMMENDATIONS

- 18.1 During field performance test it was observed that V-belt transferring power from engine to main gear box was broken. This should be looked into for improvement in quality.
- 18.2 Specification of knife sections of the cutter bar does not conform to IS 6025:2024 and it should be looked into for corrective action.
- 18.3 Specification of knife section back does not conform to IS: 10378-2024 and it should be looked into for corrective action.
- 18.4 The hardness of knife section (both movable and stationary) and chemical composition of knife section (both movable and stationary) do not conform to the requirement of IS 6025-2024. It should be looked into for improvement.
- 18.5 During air cleaner oil pull over test, percentage of oil pull-over was observed on higher side. It should be looked into for corrective action.
- 18.6 Parameters such as number of knife sections on cutter bar, material of knife section, knife back and ledger plate, spark arrester in engine exhaust, slip clutch/safety pins at cutter bar drive, slip clutch/safety pins at conveyor drive and provision of row marker/crop guide, provision for adjusting height of cutter bar and marking/labeling of machine did not conform to critical technical specifications vide Ministry's letter No. 13-9/2019-(M&T) (I&P)-Part dated 26.04.2019. This should be looked into for corrective action.
- 18.7 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 affecting the useful life of the component in view of above this deserves to be given top priority for corrective action.
- 18.8 Noise at operator's ear level was observed on higher side against danger limit of 90 dB (A) as specified by International Labor Organization (ILO) for continuous exposure of 8 hours per day. This calls for reduction in noise level to improve the operator's comfort & safety.
- 18.9 Name and address of manufacturer, country of origin, size and type were not provided on the labeling plate of the machine. This should be looked into for corrective action.
- 18.10 **Technical literature:**
Operator cum Service Manual & Parts Catalogue was provided along with the machine during the course of testing. It is further recommended to bring out these manuals in Hindi and other vernacular languages as per IS: 8132-1999.

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

TESTING AUTHORITY



(M.R. PATIL)
SENIOR AGRICULTURAL ENGINEER



(P. KAMALABAI)
DIRECTOR

Draft test report compiled by - Shri D. Deori, Technical Assistant

19. APPLICANT'S COMMENTS

We have gone through the comments and recommendations as stated in the draft test report and we will take care as per comments and recommendations in our future products.

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

ANNEXURE-I

CROP PARAMETERS

- Places of test:** 1. Village - Bagmari, Dist.- Biswanath
2. Village - Gelapukhuri, Dist.- Biswanath
3. Village - Monabari, Dist.- Biswanath
4. Village - FMTTI, Dist.- Biswanath

Name of the crop in which field test conducted: Paddy

Sr. No.	Parameters	I	II	III	IV	V
1	Date of test	03.12.2025	04.12.2025	05.12.2025	06.12.2025	08.12.2025
2	Av. moisture content (%)					
	- Grain	13.7	14.1	13.2	14.3	14.5
	- Straw	30.5	32.5	30.1	34.1	32.8
3	Variety of crop	Paddy (<i>Ranjit</i>)				
4	Av. plant height (mm)	1028	1124	1172	1292	1088
5	Av. length of ear head (mm)	178.0	258.2	234.8	232.0	256.8
6	Av. no. of grains per ear head	181	238	133	112	246
7	No. of tillers per m ²	11	11	10	9	12
8	Straw- grain ratio	2.14:1	1.93:1	2.63:1	2.38:1	1.61:1
9	Atmospheric conditions					
	- Temperature (°C)	31.3	29.0	30.1	29.5	30.0
	- Humidity (%)	57.0	62.0	63.7	59.0	60.2
	- Pressure (kPa)	99.5	99.9	100.3	99.2	99.5

H&TH/NERFMTTI, B.Chariali/ 04/04/561	VINGLOB GREENTECH(I) PVT LTD VGT-01PR(D) SELF-PROPELLED REAPER	COMMERCIAL (INITIAL)
---	--	-------------------------

ANNEXURE-II

FIELD PERFORMANCE RESULTS

- Places of test.** 1. Village - Bagmari, Dist.- Biswanath
2. Village - Gelapukhuri, Dist.- Biswanath
3. Village - Monabari, Dist.- Biswanath
4. Village - FMTTI, Dist.- Biswanath

Name of the crop in which field test conducted: Paddy

Sr. No.	Parameters	I	II	III	IV	V
1	Date of test	03.12.2025	04.12.2025	05.12.2025	06.12.2025	08.12.2025
2	Net test duration (h)	6.50	3.25	5.50	5.15	4.75
3	Forward speed (kmph)	3.38	3.53	3.52	3.54	3.63
4	Av. width of cut (m)	1.18	1.16	1.15	1.15	1.14
5	Av. stubble height (mm)	135.0	127.0	126.2	111.4	196.6
6	Losses (% of total grain yield)					
	- Pre-harvest loss	0.04	0.05	0.06	0.08	0.05
	- Post harvest loss (cutter bar + Uncut)	0.05	0.06	0.11	0.31	0.06
	- Conveyor loss/shattering loss	0.72	0.93	1.57	1.72	1.09
7	Av. mass of crop per m ² (g)	1189.6	1157.4	1163.2	1055.8	1028.8
8	Area harvested (ha/h)	0.31	0.33	0.34	0.34	0.35
9	Field efficiency (%)	77.50	80.49	85.00	82.93	85.37
10	Time required for one ha (h)	3.23	3.03	2.94	2.94	2.86
11	Fuel consumption					
	- l/h	0.82	0.83	0.84	0.82	0.86
	- l/ha	2.65	2.51	2.47	2.41	2.46