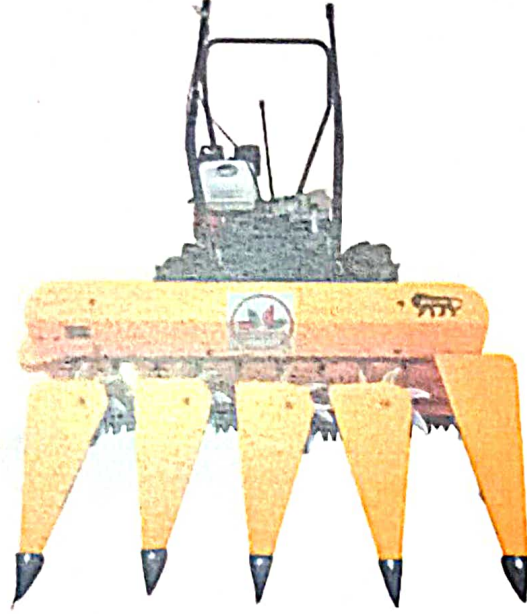




THIS TEST REPORT IS VALID UPTO 28.02.2027



KRSHITEK INDUSTRIES PRIVATE LIMITED  
SELF PROPELLED REAPER, MODEL: REAPTEK KI 120



सत्यमेव जयते

भारत सरकार  
GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE, COOPERATION & 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]

**1. SCOPE OF TEST**

The scope of test was limited to check and assess the following:

- 1.1 Specification and other data furnished by the applicant.
- 1.2 Engine Performance test
- 1.3 Vibration measurement
- 1.4 Noise measurement
- 1.5 Tuning Ability
- 1.6 Wear analysis of critical components (Cutter Bar blade)
- 1.7 Hardness and chemical analysis (Cutter Bar blade)
- 1.8 Field performance
- 1.9 Ease of operation and adjustments
- 1.10 Defects, breakdowns and repair

**2. METHOD OF SELECTION**

The test sample was selected by the testing authority through random selection. The following test samples were presented by the applicant during the random selection at Applicant site.

Sl. No	Serial no of test sample	Remarks
1	0026	Out of 5 samples, S. No. 2 has been randomly selected.
2	0027	
3	0028	
4	0029	
5	0030	

**3. TEST CODE/PROCEDURE**

There is no Indian Standard Test Code available for testing of reaper as such. The guidelines, however, have been taken from the following:

- 1 IS: 11467:1985 ( Reaffirmed 2012) : Test code for cereal harvesting machines.
- 2 IS: 6025:1982 (Reaffirmed 1999) : Specification for knife sections for harvesting machine.
- 3 IS: 10378:1982 (Reaffirmed 2001) : Specification for knife back for harvesting machine.
- 4 IS: 7347:1974 (Reaffirmed 2006) : Specification for Performance of Small Size Spark Ignition Engines.

**4. SPECIFICATIONS****4.1 General:**

- Name and address of the manufacturer : M/s Krishitek Industries Pvt. Ltd. Plot no- 40, Prime Industrial Park, santej, Taluka, Kakol, Dist- Gandhinagar, Gujrat, India, Pin - 382721
- Name & Address of Applicant : M/s Krishitek Industries Pvt. Ltd. Plot no- 40, Prime Industrial Park, santej, Taluka, Kakol, Dist- Gandhinagar, Gujrat, India, Pin - 382721
- Name of machine : Reaper
- Type : Self-Propelled, Walk behind
- Make : Krishitek Industries Pvt. Ltd.

Model : Reaptek KI 120  
 Year of manufacture : 2021  
 Serial Number : 0027  
 Country of origin : India  
 Size of reaper, mm : 1200  
 Name of crop recommended (apa) : Paddy  
 Name of crop in which the test was conducted : Paddy

## 4.2

**Details of Prime Mover Used:**

Name and address of the manufacturer : Honda India Power Product, Plot No -5, Sector-41(Kasna) Greater Noida Industrial Development Area, Dist. Gautam Budh Nagar, Uttar Pradesh 201310

Make : Honda  
 Model : GX160  
 Type : 4 stroke, Single cylinder, Air cooled  
 Year of manufacture : 2021  
 Serial Number : GCAED-1030644\*LKA  
 Country of origin : India  
 Recommended high idle speed (rpm) : 3900 ± 100 (Crank shaft)  
 1950 ± 50 (PTO shaft)  
 Recommended low idle speed (rpm) : 1400 + 200 - 150 (Crank shaft)  
 700 + 100 -75 (PTO shaft)  
 Recommended rated speed (rpm) : 3600 (Crank shaft)  
 1800 (PTO shaft)  
 Recommended speed for field test (rpm) : 3200 (Crank shaft)  
 1600 (at PTO Shaft)  
 Speed at maximum torque, (rpm) : 2500 (Crank shaft)  
 1250 (PTO shaft)  
 Maximum power observed, kW : 3.10

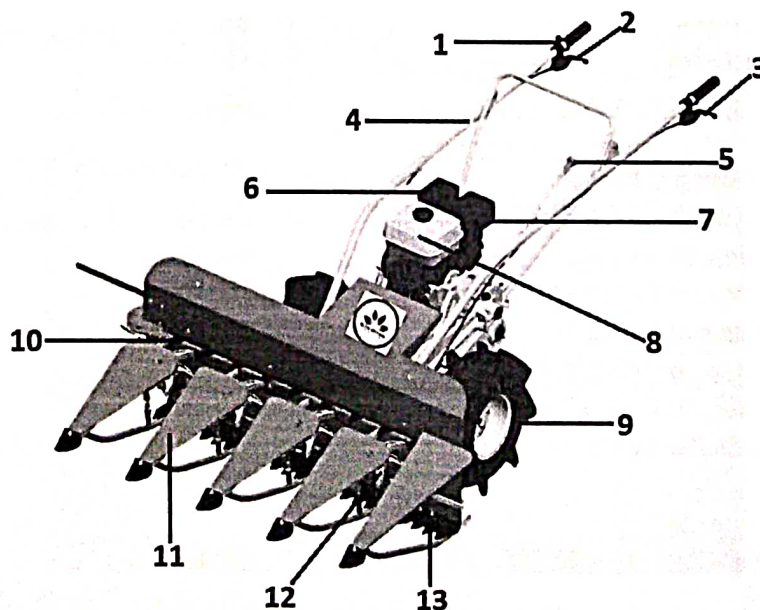


Fig.1: Self-Propelled Reaper



**11.2.1 Chemical composition of Knife Blade (Stationery):**

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

Constituents	As per IS: 6025-1982	CompositionAs observed (% of weight)	Remarks
Carbon ( C )	0.70 -0.95	0.710	Conforms
Silicon (Si)	--	0.233	--
Manganese (Mn)	0.3 – 0.50	0.893	Does not Conform
Sulphur (S)	--	0.006	--
Phosphorous (P)	--	0.017	--

**12. FIELD PERFORMANCE TEST**

The machine was operated for 25.93 hours for harvesting the Paddy crop. During the test of Paddy harvested to assess the performance of machine with regard to quality of work, rate of work, fuel consumption, safety and soundness of construction. The crop parameters conditions and performance field test are given in Annexure-I & II and summarized in table 1 & 2.

**SUMMARY OF CROP PARAMETERS**

Table-1

S. No.	Parameters/operations	Range
1	Variety of crop	Sriram 108
2	Straw moisture content (Wb)(%)	60 to 60.5
3	Grain moisture content (Wb) (%)	34.9 to 39.3
4	Plant height (cm)	86 to 95
5	Length of ear head (mm)	173 to 180
6	Number of grains per ear head	268 to 295
7	Number of hills per square meter	6.4 to 10.8
8	Number of tiller per hill	19 to 27.6
9	Straw-grain ratio	1.89:1 to 2.39:1

**SUMMARY OF FIELD PERFORMANCE**

Table-2

S. No.	Parameters/operations	Range
1	Forward speed(kmph)	2.87 to 2.93
2	Width of cut(cm)	114 to 115
3	Stubble height(mm)	92.3 to 102.3
4	Losses(Percentage of total grain yield)	
	-Pre-harvested loss	Nil to 0.16
	-Post harvest loss(Cutter bar)	0.49 to 0.99
	- Conveyor loss/shattering loss	1.45 to 2.17
5	Area harvested(ha/h)	0.2599 to 0.2786
6	Field efficiency %	77.93 to 85.15
7	Time required for one hectare(h)	3.59 to 3.85
8	Fuel consumption	
	- l/h	0.824 to 0.920
	- l/ha	3.06 to 3.25

**15.1.3 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	0.15
Oil ring	NA	--

**15.1.4 Ring end gap clearance**

Ring No.	Ring End gap (mm)			Max. Permissible wear limit (mm)
	At top	At middle	At bottom	
1st Compression ring	0.30	0.30	0.30	0.351
2nd compression ring	0.45	0.45	0.45	0.501
Oil ring	NA	NA	NA	0.351

**15.1.5 Big end bearing**

Bearing no.	Dia of bearing (mm)	Dia of Crank pin (mm)	Clearance (mm)		Max. Permissible wear limit (mm)	
			Dimentrical	Axial	Dimentrical	Axial
1	30.03	30.0	0.03	0.30	0.15	1.10

Condition of bearing: Normal

**15.1.6 Main bearing: Two Nos. of ball bearing TMB 205 were used**

Bearing No.	Diametrical clearance, (mm)	Crankshaft end float, (mm)	Max. permissible clearance limit,(mm)	
			Diametrical clearance	Crankshaft end float
1.	Ball bearing	0.05	NA	NA
2.	Ball bearing			

**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
5.45	5.43	5.42	5.39	0.03	0.04	Not specified	Not specified

**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 & magneto : Normal

**16. COMMENTS AND RECOMMENDATIONS**

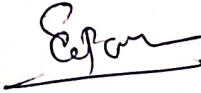
- 16.1** Rated power of the engine has been observed as 3.10 kW as against declaration of 2.90 kW @ 1800 (at PTO Shaft) of that declared by the applicant/manufacturer.
- 16.2** Specific fuel consumption of engine as observed during test 374.41 g/kWh against 370 g/kWh of that declared by the applicant/manufacturer.
- 16.3** 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 the component in view of above this deserves to be given top priority for corrective action.



... at operator's ear level was observed on higher side against warning limit of 85 dB (A) as  
 ...ified by ILO for continuous exposure of 8 hours per day. **This calls for reduction in noise**  
 ... to improve the operator's comfort & safety.

- 16.5 The hardness & Chemical Composition of (Movable & Stationary) knife blades does not conform to the requirement of IS 6025-1982. It should be looked into corrective action.
- 16.6 Specification for knife sections for harvesting machine does not conform to IS 6025:1982 and it should be looked into for corrective action.
- 16.7 Specification for knife section back for harvesting machine dose not conform to IS 10378-1982 and it should be looked into corrective action.
- 16.8 Power (HP) has been mentioned as 4.8 on the labeling plate of the machine. However, during engine rating tests the power (HP) was observed 4.16 This may be looked into for corrective action
- 16.9 SFC has been mentioned as 1.4 l/hr on the labeling plate of the machine. However, during engine rating tests the SFC was observed 374.41 gm/kWh. This may be looked into for corrective action
- 16.10 **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

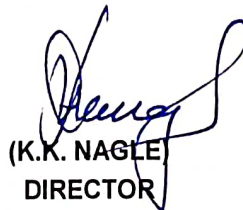
**TESTING AUTHORITY**



(S.G.PAWAR)  
 AGRICULTURAL ENGINEER

on leave

(J.P. MANDAL)  
 SENIOR AGRICULTURAL ENGINEER



(K.K. NAGLE)  
 DIRECTOR

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

**17. APPLICANTS COMMENTS**

Para No	Our Reference	Applicants Comments
17.1	16.3 to 16.7	We will take corrective actions for all our future product.
17.2	16.8 & 16.9	We will take all corrective action for mentioning correct Power (HP) and SFC on labelling plate.
17.3	16.10	We will provide Operator manual, service manual and part catalogue in Hindi as well as other required regional languages.