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“KISANKRAFT, KK-FMC-1200” CHAFF CUTTER (Power Operated)



सत्यमेव जयते

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कृषि एवं किसान कल्याण मन्त्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

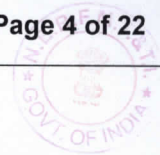
DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

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



1. SCOPE OF TEST

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

1.1 LABORATORY TEST

1.1.1 Checking of specification

1.1.2 Conformity to requirements against the relevant Indian Standards

1.2 FIELD TEST

Performance test to find out:

- (a) Quantity of work
- (b) Quality of work
- (c) Power consumption
- (d) Labour requirement
- (e) Ease of operation, adjustment & safety provisions
- (f) Wear of critical components

2. METHOD OF SELECTION

The machine was directly submitted by the applicant for test at this institute. Hence, method of selection was not known.

3. TEST CODE AND PROCEDURE

The following codes were referred for testing of Power Operated Chaff Cutter

- i) IS:11459-1985 : Specification for Power operated chaff cutter
(Reaffirmed Feb., 2012)
- ii) IS:7897-1975 : Test Code for Chaff-Cutter
(Reaffirmed Feb., 2012)
- iii) IS: 15542:2005 : Power Operated Chaff- Cutter- Safety
(Reaffirmed Feb., 2012) Requirements

4. SPECIFICATIONS

4.1 General:

- Name and address of the manufacturer : **M/s. Dashing Global Trading Ltd.**
Suit-13 first floor, Oliaji Trade Center, Francis Rachel Street, Victoria, Mahe Republic of Seychelles China
- Name & Address of Applicant/Importer : **M/s. Kisankraft Machine Tools Pvt Ltd.**
Sri Huchhanna Tower #4 1st Main, 7-A Cross Maruthi Layout, Dasarahall, HAF Post Hebbal, Bangalore-560 024, Karnataka, India
- Indian Make : Kisankraft
- Indian Model : KK-FMC-1200



Serial no.	: N.A.
Type	: Cylinder, chute fed, throw away type
Year of manufacture	: N.A.
Country of origin	: Republic of China
Suitability	: Straw cutting (apa)

4.2 Constructional details :

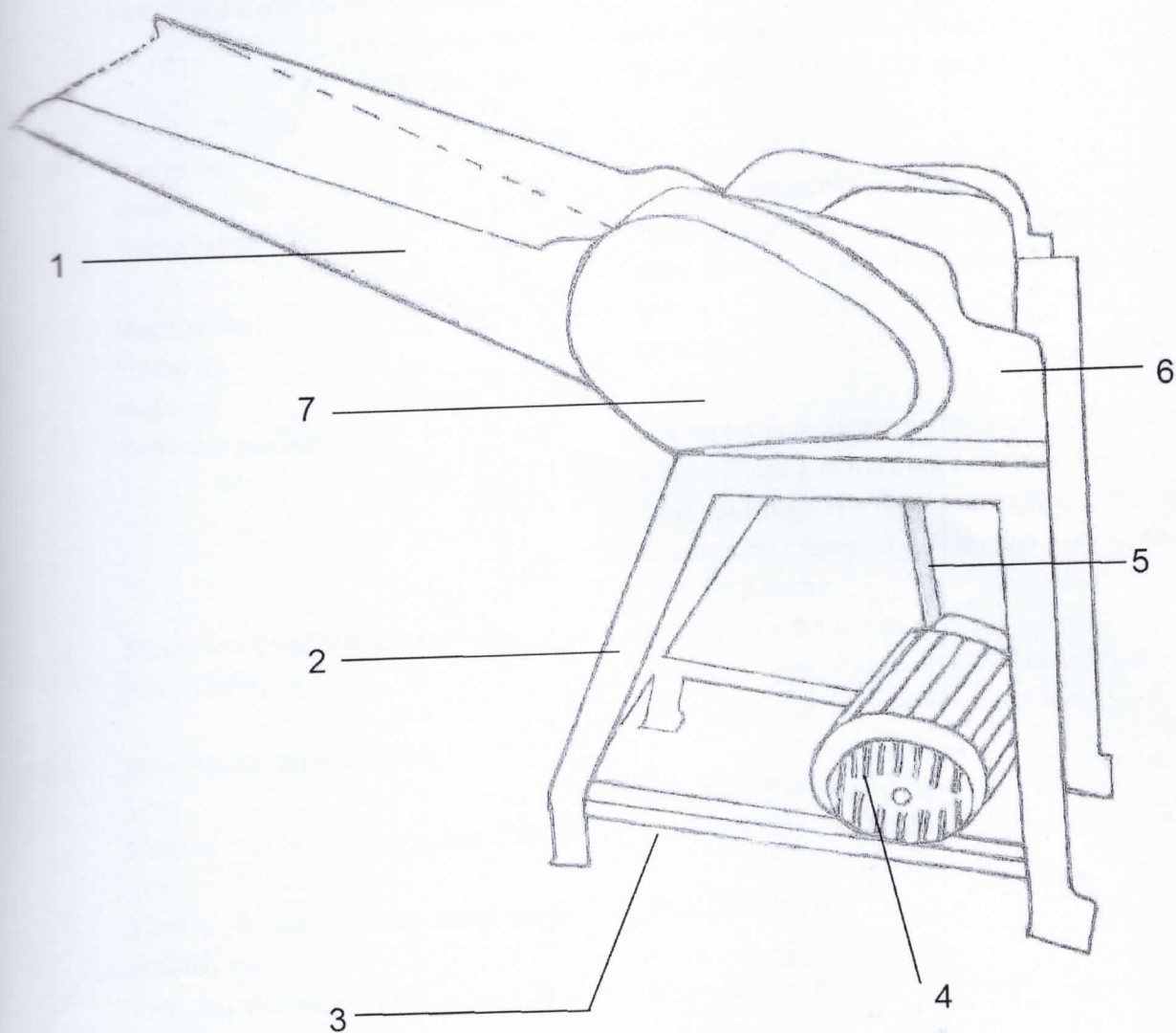


Fig. 1 : Kisankraft KK-FMC-1200 Chaff Cutter

Keys:

- | | |
|-------------------|------------------------|
| 1. Feeding trough | 5. Transmission V-belt |
| 2. Stand | 6. Side Cover |
| 3. Leg-support | 7. Gear cover |
| 4. Prime mover | |



8. WEAR OF CRITICAL COMPONENTS

Wear of chaff cutter blade on mass basis:

S.No.	Blade	Initial wt. (g)	Wt. After 29.5 h of test (g)	Difference (g)	Wear (%)	
					After 29.5 h	Per h
1	1	478.0	473.5	4.5	0.94	0.03
2	2	475.5	472.0	3.5	0.74	0.02
3	3	478.5	475.0	3.5	0.73	0.02

Remark: The hourly percentage wear of rotary blades on mass basis was recorded as 0.02 to 0.03.

Wear of chaff cutter blade on dimensional basis (Refer Fig. 3) :

S.No.	Blade	Parameters	Initial dimension (mm)	Dimension after 29.5 h (mm)	% wear	Wear rate (%)
1	1	p	11.76	11.10	5.61	0.19
		q	12.40	11.95	3.63	0.12
		r	11.45	11.00	3.93	0.13
2	2	p	11.50	11.20	2.61	0.09
		q	12.08	11.80	2.32	0.08
		r	12.19	11.80	3.20	0.11
3	3	p	12.17	11.80	3.04	0.10
		q	11.71	11.20	4.36	0.15
		r	11.93	11.20	6.12	0.21

Remark: The hourly percentage wear of rotary blades on dimension basis was recorded as 0.08 to 0.21.

9. SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

9.1 Performance of the chaff cutter:

9.1.1 Quantity of Cut:

- The feed rate was observed as 822 to 894 kg/h.
- The quantity of cut fodder received was measured as 782 to 863 kg/h
- The corrected quantity of cut was recorded as 94 to 113 kg/h
- The quantity of cut per unit energy consumed was recorded as 832 to 1233 kg/kWh.
- The corrected quantity of cut per unit energy consumed was recorded as 106 to 138 kg/kWh.

9.1.2 Quality of cut:

- The quality of cut was determined from the deviation of measured length of cut from the theoretical length of cut of plastic pieces. The quality of cut ranged from -19.6 to -7.9.
- The variation in length of cut of chaff cutter was recorded as -69.5 to -33.7 %.

**9.1.3 Power requirement:**

The power consumed by the chaff cutter was calculated after deducting the no-load power consumption of chaff cutter from the power consumption on load and it was measured as 0.68 to 1.00 kWh. The power requirement of chaff cutter was recorded as 1.05 to 1.37 kWh.

9.1.4 Performance Index:

The overall performance of the chaff cutter was determined by its performance index and it was calculated as -19905 to -10033.

9.2 Labour Requirement :

At least two labours were required for continuous operation of the chaff cutter. One labour is required for feeding the fodder crop and the other for output handling.

9.3 Wear of critical components :

The wear rate of chaff cutter blade on mass and dimensional basis was measured to be 0.02 to 0.03% & 0.08 to 0.21% respectively. The wear is considered normal.

9.4 Hardness and chemical composition of chaff cutter blade:

9.4.1 The chemical composition of rotary blades conform to Carbon Steel, whereas, Hardness of Chaff blades does not conform to the requirement of relevant Indian standard. This should be looked into for corrective action.

9.5 Safety Requirements:

9.5.1 Dimension of chute does not meet the requirements of IS: 15542-2005. This should be looked into.

9.5.2 Transmission guards should be provided on the flywheel pulley, motor pulley and the transmission belts mounted over those pulleys.

9.5.3 The machine should be provided with minimum cautionary notices as per clause 9.1 of IS 15542-2005, written in vernacular languages legibly and prominently on a label preferably fixed on the main body of the chaff cutter. Moreover, a plate having 'Danger Signal' shall be rigidly fixed near the blades of the chaff cutter.

9.6 Provision for adjustments:

Provision should be made for changing the angle of placement of trough as per IS: 11459-1985. A support may also be provided at the rear side of the trough.

9.7 It was observed that the feeding mechanism was unable to convey the fodder automatically towards the cutter head, rather the fodder was required to be pushed forcefully towards the cutter head through the feed rolls, due to improper design of its feeding trough. This calls for modification in its feeding trough.

9.8 Continuous dropping of cut fodder was observed through the gaps in between the lower feed roll and the feeding trough. Hence, the feeding chute should be designed in such a way so that the gap can be minimized to prevent dropping of cut fodder.

**9.9 Marking :**

Neither the blade, nor the chaff cutter was marked/labeled in English/Hindi/Regional Languages. The chaff cutter should be marked with the particulars like Manufacturer's name and/or recognized trade mark, Model Number, Batch, code or serial number, Power rating, Rated input capacity, Recommended RPM of flywheel, etc. as per the requirement of IS: 15542-2005, whereas the blade should also be marked with the particulars like Manufacturer's name and/or recognized trade mark, Size code, Thickness and Batch or Code No. etc.

9.10 Adequacy of Literature :

No printed literature was provided with the machine during the course of testing. It is therefore recommended to bring out Operator's Manual, Service and Repair Manual and Parts Catalogue in English/Hindi or in other Vernacular Languages. In the Operator's Manual, all the safety aspects are to be highlighted along with the precautions to be taken for safe operation of chaff cutter.

TESTING AUTHORITY

S. G. PAWAR
AGRICULTURAL ENGINEER

K. K. NAGLE
DIRECTOR

Test conducted and report compiled by -

Sh. P. Lodh, Technical Assistant

10. APPLICANT'S COMMENTS

We will make the changes in the machine as per your recommendations.