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भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय,

Ministry of Agriculture and Farmers Welfare

(कृषि, सहकारिता एवं किसान कल्याण विभाग)

(Department of Agriculture, Cooperation and Farmers Welfare)

दक्षिणी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

Southern Region Farm Machinery Training and Testing Institute

ट्रैक्टर नगर, गार्लदिन्ने - 515 731, जिला: अनंतपुर (आं. प्र.)

Tractor Nagar, Garladinne- 515 731, District: Anantapur (A.P.)

**[ISO 9001:2008 COMPLIANT INSTITUTION]**

## **SPECIFICATION OF SQUARE BALER**

**[To be submitted in Triplicate duly typed]**

### **1.1 General :**

Manufacturer :

Applicant :

Name of machine :

Type :

Make :

Model :

Serial number :

Year of manufacture :

Country of origin :

Recommended power source :

Recommended forward travelling

speed of machine, kmph

PTO speed for operation, rpm :

Working width of machine, mm :

Average weight of bale, kg :

Crop recommended :

### **1.2 Baler :**

#### **1.2.1 Drive shaft :**

Type :

No. of pieces :

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- No. of splines :
- Length of the shaft, (mm) :
  - Closed :
  - Extended :
- Size of inner shaft, mm :
- Size of outer shaft, mm :
- 1.2.2 Transport wheels :**
- Type :
- Make :
- No. and size :
- Track width, mm :
- Recommended tyre pressure, kPa (psi) :
- Method of mounting :
- 1.2.3 Ground wheel :**
- Type :
- Material :
- Size of tyre :
- 1.2.4 Auxiliary drive shaft :**
- Type :
- Length of shaft, mm :
  - Minimum :
  - Maximum :
- Inserted solid shaft size, mm :
- Hollow shaft size, mm :
- Bearing & its location :
- Method of fixing of drive and auxiliary shaft to each other :
- Safety device :
- 1.2.5 Independent shaft (lay shaft) :**
- Type :
- Size, mm :
  - Length :
  - Dia. :
- Method of fixing :
- 1.2.6 Flywheel :**
- Type :
- Size, mm :
  - Dia. :
  - Thickness :
- Method of fixing :

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- Safety device, if any :
- 1.2.7 Gera box :**
- Type :
- No. of teeth on drive gear :
- No. of teeth on driven gear :
- Reduction ratio :
- Size of drive pinion shaft, mm
  - Dia :
  - Length :
- Size of driven (bevel) gear shaft, mm
  - Dia :
  - Length :
- No. of splines on a bevel shaft :
- Oil capacity, l :
- Grade of oil :
- Recommended service schedule :
- Method of drive :
- Arrangement and location :
- No. of bearing & location :
  - At a pinion shaft :
  - At a crown shaft :

**1.2.8 Feeding mechanism :**

**1.2.8.1 Pickup tyne assembly :**

- Type :
- No. of tine bars :
- Size of bars, mm
  - Length :
  - Width :
  - Thickness :
- Type of tyne bars :
- Size of reel, mm
  - Dia. :
  - Width :
- Speed corresponding to the PTO speeds of 540 rpm :
- No. of tines on each bar :
- Tine spacing, mm :
- Maximum vertical distance below the feeding unit floor to the outer bar of reel, mm :

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Minimum distance of tine from the :  
ground level for field condition,  
mm  
Arrangement for raising and :  
lowering of reel assembly  
Provision to adjust height from :  
ground level  
Maximum height from ground  
level, mm  
- Field condition :  
- Transport condition :  
Method to vary the load of pickup :  
assembly on pickup wheel  
Method of fixing of tines with tine :  
bar  
Arrangement for forward and :  
backward movement of the reel  
Safety device :

**1.2.8.2 Drive details of pickup unit** :  
No. and type of bearing :  
Type of reel drive :  
Dia of pulley :  
- Drive :  
- Driven :  
- Reduction ratio :  
No. of teeth on drive sprocket :  
No. of teeth on driven sprocket :  
Speed reduction ratio :  
Size of chain, mm

- Length :  
- Dia. :  
- Pitch :  
- No. of rollers :

**1.2.8.3 Pickup wind guard :**  
Tension control :  
Type :

Size of wind guard bar  
- Dia :  
- Length :

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Size of finger, mm  
 - Dia :  
 - Length :  
 - Number :

Clearance between wind guard :  
 finger end to pickup guard, mm  
 Provision for upward and :  
 downward movement of wind  
 guard  
 Range of arc movement, mm :

**1.2.8.4 Pickup guard :**  
 Type :  
 Method of fixing :  
 No. of plates :  
 Size of plate, mm  
 - Length :  
 - Height :  
 - Width :

Height of tine above the plate, mm :  
**1.2.8.5 Pickup floatation :**  
 Type :  
 Method of fixing :  
 Method of operation :

Range of spring tension :  
**1.2.8.6 Side panel :**  
 Type :  
 Thickness of sheet, mm :

**1.2.9 Feeding unit :**

**1.2.9.1 Side conveyor unit :**  
 Type :  
 No. of feeder unit & it's location :  
 Stroke length of feeder unit, mm :  
 - Packer fork :  
 - Feeder fork :  
 No. of rotation of feeder and :  
 packer shaft corresponding 540  
 PTO rpm, stroke/minute  
 - Packer shaft :  
 - Feeder shaft :

No. and arrangement of feeder :

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finger at a feeder unit  
 Size of fingers, (mm) :  
     - Packer fingers :  
     - Inner feeder fingers :  
     - Outer feeder fingers :  
 Spacing between feeder fingers, mm :  
     - Packer fork finger :  
     - Inner feeder finger :  
     - Outer feeder finger :  
 Minimum vertical clearance from :  
 the platform of feeding unit, mm  
     - Packer fork finger :  
     - Inner feeder finger :  
     - Outer feeder finger :  
 Adjustment for vertical clearance :  
 of feeder finger from platform of  
 feeding unit  
 Method of mounting of feeder :  
 finger

**1.2.9.2 Feeder unit chamber :**

Type :  
 Size of feeder unit chamber, (mm) :  
     - Length :  
     - Width (upper side) :  
     - Width (Bottom side) :  
     - Height :  
 Capacity of feeder unit, m<sup>3</sup> :  
 Any safety mechanism :

Shear bolt size, mm :

**1.2.9.3 Power transmission for feeder unit :**

Details of drive :  
  
 Method of drive at independent :  
 shaft and auxiliary shaft  
 No. of teeth on drive sprocket :  
 No. of teeth on driven sprocket :  
 Reduction ratio :

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Size of chain, mm  
 - Length :  
 - Pitch :  
 - Dia. :  
 - No. of roller :

Method of drive at auxiliary shaft :  
 to packer fork linkage

No. of teeth on drive sprocket :  
 No. of teeth on driven sprocket :  
 Reduction ratio :

Size of chain, mm  
 - Length :  
 - Pitch :  
 - Dia. :  
 - No. of roller :

Method of drive at packer fork to :  
 feeder fork

A-for inner fork :  
 No. of teeth on drive sprocket :  
 No. of teeth on driven sprocket :  
 Reduction ratio :  
 Size of chain, mm  
 - Length :  
 - Pitch :  
 - Dia. :  
 - No. of roller :

B-for outer fork :  
 No. of teeth on drive sprocket :  
 No. of teeth on driven sprocket :  
 Reduction ratio :  
 Size of chain, mm  
 - Length :  
 - Pitch :  
 - Dia. :  
 - No. of roller :

**1.2.10 Bale chamber unit :**

**1.2.10.1 Bale chamber :**

Type :  
 Size, (mm) :  
 - Length (Upper side) :  
 - Width :  
 - Height :

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- 1.2.10.2 Plunger unit :**  
 Size of plunger, mm :  
     - Length :  
     - Width :  
     - Height :  
 Length of stroke, mm :  
 No. of stroke/minute of the plunger :  
 corresponding to the PTO 540 rpm :  
 Method of drive to plunger :  
 Type of knife :  
 Size of knife, mm :  
 Method of fixing :
- 1.2.10.3 Re-expansion guard :**
- 1.2.10.3.1 Side pressure plate :**  
 Type :  
 Size, mm :  
     - Length :  
     - Width :  
     - Thickness :  
 No. of side pressure plate :
- 1.2.10.3.2 Wedge block :**  
 Type :  
 Thickness of wedge block, mm :  
 Height of wedge block on the surface :  
 of bale chamber, mm :
- 1.2.10.4 Provision for density control :**  
 Type :  
 Method of fixing :  
 MS rod size, mm :  
     - Length :  
     - Dia :  
     - Pitch :  
 Method for adjustment of bale density :
- 1.2.10.4.1 Hydraulic controlling system:**  
**Hydraulic pump :**  
 Type :  
 Make :  
 Method of drive :  
 No. of teeth on drive sprocket :  
 No. of teeth on driven sprocket :

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Overall speed ratio corresponding to :  
 540 PTO rpm  
 Method of mounting :

**Hydraulic valve :**

Type :  
 Working pressure during a field test, :  
 kg/cm<sup>2</sup>

**Hydraulic cylinder :**

Make :  
 Type :  
 Number :  
 Method of mounting :

**Hydraulic reservoir :**

Type :  
 Capacity, l :  
 Recommended grade of oil :  
 Adjustment for bale length :  
 Any safety mechanism for bale :  
 chamber unit

**1.2.11**

**Twine box :**

Type :  
 Size of twine box, mm  
     - Top length :  
     - Width :  
     - Height :

No. of twine bundles in a twine box at :  
 a time

**Twine :**

Make :  
 Material :  
 Length, m/kg :  
 Dia, mm :  
 Knot strength, N

- Natural fiber :  
 - Plastic :

Size of twine bundle, mm  
     - Length :  
     - Dia :  
     - Weight, kg :

**Twine path**

**1.2.12**

**Tying mechanism :**

Type :  
 Method of drive :

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- Dimension of needle, mm
  - Length :
  - Width :
  - Thickness :
- Spacing between two needle :
- Method of tying :
- No. of finger :
- Location of twine finger :
- 1.2.13 Knotting mechanism :**
  - Type :
  - Method of drive :
  - No. of teeth on a gear
    - Drive :
    - Driven :
  - Reduction ratio :
  - No. of revolution of knotter shaft when it get engaged on 540 PTO rpm, rpm :
  - Type of star wheel :
  - Stroke length of needle actuating arm, mm :
  - Details of knotter :**
    - Type :
    - Pinion :
    - No. of teeth :
      - Gear for knotter disc :
      - Gear for ball hook :
  - Method of knotting :
  - Safety mechanism, if any :
- 1.2.14 Bale counter unit :**
  - Make :
  - Type :
  - Method of operation :
- 1.2.15 Hydraulic control unit :**
  - Type :
  - Make :
  - No. of hydraulic cylinder and their location :
- 1.2.16 Details of hitch and hook :**
  - Type of hitch :
  - Method of fixing :
  - Method of operation :

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- 1.2.17 Accessories :**
- 1.2.17.1 Stand :**
  - Method of stand for machine :
  - Stand for adjusting height of auxiliary shaft :
- 1.2.17.2 PTO pedestal :**
  - Type :
  - Range of height adjustment, mm :
- 1.2.18 Safety devices :**
  
- 1.2.19 Total no. of lubricating point :**
  - Greasing point :
  - Oiling point :
- 1.2.20 Overall dimensions, mm**
  - Length :
  - Width :
  - Height :
- 1.2.21 Mass, kg :**
- 1.2.22 Any other specification :**

Place:

Date:

Signature\_\_\_\_\_

Name of the signatory\_\_\_\_\_

Designation\_\_\_\_\_

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