**TECHNICAL SPECIFICATIONS FOR ROTAVATOR**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.1** | **General:** |  |  |
| Name and address of manufacturer | **:** |  |
| Name and address of applicant | **:** |  |
| Name of the machine | **:** |  |
| Type | **:** |  |
| Make | **:** |  |
| Model | **:** |  |
| Year of manufacture | **:** |  |
| Serial No. | **:** |  |
| Recommended tractor horse power, kW | **:** |  |
| Type of blade | **:** |  |
| Size (working width x Dia. of rotor), mm | **:** |  |
| **1.2** | **Details of prime mover used (as per labeling plate):** | | |
| Tractor Make & Model | **:** |  |
| Chassis No. & Engine Sr. No. | **:** |  |
| Max. PTO Power, kW | **:** |  |
| Month & Year of manufacture | **:** |  |
| Specific fuel consumption, g/kWh | **:** |  |
| **1.3** | **Main frame/Chassis:** | **:** |  |
| Type | **:** |  |
| Material & size, mm | **:** |  |
| Dimensions, mm | **:** |  |
| Size of supporting flat, mm | **:** |  |
| Type of mounting of box section | **:** |  |
| **1.3.1** | **Side Support:** | **:** |  |
| Type | **:** |  |
| Material & size, mm | **:** |  |
| Method of fixing | **:** |  |
| Size of bolt (mm) | **:** |  |
| **1.3.2** | **Shield (Cover):** |  |  |
| Type | **:** |  |
| Material & size, mm | **:** |  |
| Dimensions of shield (L × W × T), mm | **:** |  |
| Method of mounting | **:** |  |

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| **1.4** | **Trailing Board:** | | |
| Type | **:** |  |
| Material & size, mm | **:** |  |
| Dimensions of board (L × W), mm | **:** |  |
| Locking system | **:** |  |
| Method of mounting plate sector | **:** |  |
| Type of hinge | **:** |  |
| No. of hinges | **:** |  |
| No. of hinge rod | **:** |  |
| Size of hinge rod (L × Dia.) | **:** |  |
| No. of bush | **:** |  |
| Material of bush | **:** |  |
| Size of bush (OD/ID × L) | **:** |  |
| Method of fixing | **:** |  |
| **1.5** | **Rotor:** |  |  |
| **1.5.1** | **Rotor Shaft/axle:** |  |  |
| Material | **:** |  |
| Type of rotor axle | **:** |  |
| Size of shaft (L × W), mm | **:** |  |
| No. of flanges | **:** |  |
| Type of flange | **:** |  |
| Dia. of flange, mm | **:** |  |
| Thickness of flange, mm | **:** |  |
| No. of blades on each flange | **:** |  |
| Method of mounting blades on flanges | **:** |  |
| Distance between two flanges, mm | **:** |  |
| Total no. of blades | **:** |  |
| Dia of rotor with blades, mm | **:** |  |
| Method of fixing shaft/axle | **:** |  |
| **1.5.2** | **Rotor Blade:** |  |  |
| Number | **:** |  |
| Type | **:** |  |
| Material | **:** |  |
| Overall thickness, mm | **:** |  |
| Thickness at the beveled edge, mm | **:** |  |
| Width of the beveled edge, mm | **:** |  |
| Curved length of the beveled edge, mm | **:** |  |
| Speed of rotor shaft corresponding to 540/1000 rpm of PTO shaft, rpm | **:** |  |
| Peripheral speed of rotor blades, m/min | **:** |  |
| **1.6** | **Depth control mechanism:** | | |
| **1.6.1** | **Skid:** |  |  |
| Type & Material | **:** |  |
| Size (L × W × T), mm | **:** |  |
| No. of skids | **:** |  |
| Method of fixing | **:** |  |

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| **1.6.2** | **Adjusting Rack:** | | |
| Type | **:** |  |
| Size, mm | **:** |  |
| Range of depth adjustment, mm | **:** |  |
| Method of fixing | **:** |  |
| **1.7** | **Hitch pyramid:** |  |  |
| Constructional details | **:** |  |

**1.7.1 Dimensions of hitch of implement as per IS 17231:2019 (Table 4) (Ref. Fig. 4):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dimensions** | **Specifications** | **Dimensions in mm** | | **Remarks** |
| **As per IS 17231:2019**  **(Cat-I/Cat-2)** | **As measured** |
| **Upper hitch point** | | | | |
| D1 | Dia. of hitch pin | 25.37 -25.50 |  |  |
| b1 | Width between inner faces of yoke | 52 (Min.) |  |  |
| **Lower hitch attachments** | | | | |
| D2 | Dia. of hitch pin | 27.8 - 28.0/  27.8 - 28.0 |  |  |
| b3 | Linch pin hole distance | 49 (Min.) |  |  |
| b5 | Clevis width hole | 65 - 67 |  |  |
| l | Lower hitch point span | 683±1.5/  825 ± 1.5 |  |  |
| **Other Dimensions** | | | | |
| d | Diameter for linch pin hole | | | |
| For Upper hitch pin | 12 (Min.) |  |  |
| For Lower hitch pin | 12 (Min.) |  |  |
| h | Mast height | 460±1.5/  610 ± 1.5 |  |  |

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| --- | --- | --- | --- | --- |
| **1.7.2** | **Mast:** | |  |  |
| Type | | **:** |  |
| Material & size, mm | | **:** |  |
| Shape | | **:** |  |
| **1.8** | **Power transmission system:** | |  |  |
|  | Method of transmission | | **:** |  |
| **1.8.2** | **Primary reduction:** | | | |
| Type | | **:** |  |
| No. of teeth on pinion | | **:** |  |
| No. of teeth on bevel gear | | **:** |  |
| Reduction ratio at gear box | | **:** |  |
| Oil capacity, l | | **:** |  |
| Oil change period, h | | **:** |  |
| Recommended grade of oil | | **:** |  |
| Length of power transmission shaft, mm from gear box to secondary reduction unit | | **:** |  |
| Dia. of shaft, mm | | **:** |  |
| Provision of breather | | **:** |  |
| Provision for checking oil level | | **:** |  |
| No. & type of bearings | | **:** |  |
| **1.8.3** | **Secondary reduction:** | | | |
| Type | | **:** |  |
| No. of teeth on drive gear sprocket | | **:** |  |
| Details of idler gear/sprocket | | **:** |  |
| No. of teeth on driven gear/sprocket | | **:** |  |
| Length of chain (if applicable) | | **:** |  |
| Reduction ratio (540/1000 PTO rpm) | | **:** |  |
| Oil capacity, l | | **:** |  |
| Recommended grade of oil | | **:** |  |
| Oil change period, h | | **:** |  |
| Provision for filling & checking of oil level | | **:** |  |
| Provision of breather | | **:** |  |
| **1.8.4** | **Propeller shaft:** | |  |  |
| Type | | **:** |  |
| **Length of shaft, mm:** | |  |  |
| -Minimum | | **:** |  |
| -Maximum | | **:** |  |
| Mass of shaft, kg. | | **:** |  |
| Provision against overload | | **:** |  |
| Provision of guard | | **:** |  |
| Provision for locking | | **:** |  |
| **1.8.5** | **Details of safety clutch/device** | | **:** |  |
| **1.9** | **Details of rotavator Stand** | | **:** |  |
| **1.10** | **Details of furrow wheel** | | **:** |  |
| **1.11** | **Overall Dimensions, mm:** | | | |
| -Length | **:** | |  |
| -Width | **:** | |  |
| -Height | **:** | |  |
| **1.12** | **Mass, kg.** | **:** | |  |
| **1.13** | **Colour** | **:** | |  |
| **1.14** | **Details of Labeling plate:** |  | |  |
|  | | | |

**SELECTED PERFORMANCE AND OTHER CHARACTERISTICS AS PER IS 17045 - 2018**

**(TO BE DECLARED BY THE APPLICANT)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No** | | **Characteristics** | | **Category (Evaluative/Non evaluative)** | | | | **Requirement** | | **Tolerance** | | **Declarati-on by applicant** | | **Remarks** | |
| **1** | | **2** | | **3** | | | | **4** | | **5** | | **6** | | **7** | |
| **1. Field performance:** | | | | | | | | | | | | | | | |
|  | **i)** | | Suitability for Wet land  operation | | | | Evaluative | | Should be suitable for Wet Land operation | | Nil | | (Yes/No) | |  | |
| **ii)** | | Depth of cut in dry land  operation, (cm) | | | | Evaluative | | Minimum 10 cm. | | Nil | |  | |  | |
| **iii)** | | Depth of puddle in wet land  operation, (cm) | | | | Evaluative | | Minimum 12 cm. | | Nil | |  | |  | |
| **iv)** | | Field efficiency, (percent) | | | | Evaluative | | Minimum 75 percent | | Nil | |  | |  | |
| **v)** | | Puddling index, (percent) | | | | Evaluative | | Minimum 65 percent | | Nil | |  | |  | |
| **2. Safety requirements:** | | | | | | | | | | | | | | | |
|  | **i)** | | Safety considerations | | Evaluative | | | Should meet the requirement  of IS 10740 and IS 10318 | | Nil | | (Yes/No) | |  | |
| **ii)** | | Safety clutch/ device (Shear  bolt) in PTO drive shaft | | Evaluative | | | Should be provided | | - | | (Yes/No) | |  | |
| **iii)** | | Rotavator stand | | Evaluative | | | Should be provided | | - | | (Yes/No) | |  | |
| **iv)** | | Rotavator shield to prevent  flying of mud & stone | | Evaluative | | | Should be provided | | - | | (Yes/No) | |  | |
| **v)** | | Guard over propeller shaft | | Evaluative | | | Should be provided | | - | | (Yes/No) | |  | |
| **3. Effectiveness of sealing (presence of ingress of dust and water/mud in various sub assembles):** | | | | | | | | | | | | | | | |
|  | **i)** | | Primary reduction gear/box | | | Evaluative | | | No ingress of mud and water | Nil | | (Yes/No) | |  | |
| **ii)** | | Secondary reduction gear/box | | | Evaluative | | | No ingress of mud and water | Nil | | (Yes/No) | |  | |
| **iii)** | | Rotary axle bearing cap | | | Evaluative | | | No ingress of mud and water | Nil | | (Yes/No) | |  | |
| **4. Material of construction:** | | | | | | | | | | | | | | | |
|  | **i)** | | Hardness of blade | | | Evaluative | | | High carbon steel, boron  steel | Nil | |  | |  | |
| **ii)** | | Chemical composition of  rotor blade | | | Evaluative | | | As per IS 6690 | Nil | |  | |  | |
| **5. Dimensional requirements:** | | | | | | | | | | | | | | | |
|  | **i)** | | Dimensions of three point  linkage | | | Non-Evaluative | | | Should meet IS 4468 (Part 1) | -- | | (Yes/No) | |  | |
| **ii)** | | Dimensions of power  input connection (PIC) of  Implement | | | Non-Evaluative | | | Should meet IS 4931 | -- | | (Yes/No) | |  | |
| **iii)** | | Dimensions of power input  connection (PIC) Yoke bore | | | Non-Evaluative | | | Should meet IS 4931 | -- | | (Yes/No) | |  | |
| **6. Literature (Submission to Test Agency):** | | | | | | | | | | | | | | | |
|  | **i)** | | Operator cum service manual  and parts catalogue  — | | | Evaluative | | | Should be provided as per  IS 8132 | -- | | (Yes/No) | |  | |
| **7. Labeling of Rotavator (Provision of Labeling Plate) as Per Above and Should be Welded on Rotary Tiller (Rotavator):** | | | | | | | | | | | | | | | |
|  | **i)** | | Name and address of  manufacturer | | | Evaluative | | | Should be provided on Rotary Tiller (Rotavator) | -- | |  | |  | |
| **ii)** | | Make | | | Evaluative | | | --do-- | -- | |  | |  | |
| **iii)** | | Model | | | Evaluative | | | --do-- | -- | |  | |  | |
| **iv)** | | Size (m) [Dia of rotor × width of cut] | | | Evaluative | | | --do-- | -- | |  | |  | |
| **v)** | | Country of origin | | | Evaluative | | | --do-- | -- | |  | |  | |
| **vi)** | | Year of manufacturer  [DD/MM/YYYY] | | | Evaluative | | | --do-- | -- | |  | |  | |
| **vii)** | | Chassis Serial Number | | | Evaluative | | | --do-- | -- | |  | |  | |
| **viii)** | | Recommended PTO speed  of prime-mover, (rpm) | | | Evaluative | | | --do-- | -- | |  | |  | |
| **ix)** | | Maximum PTO Power  required, kW | | | Evaluative | | | --do-- | -- | |  | |  | |
| **8. Category of Breakdowns/Defects (see 15.1):** | | | | | | | | | | | | | | | |
|  | **i)** | | Critical breakdown | | | Evaluative | | | No critical breakdown | -- | | (Yes/No) | |  | |
|  | **ii)** | | Major breakdowns | | | Evaluative | | | Not more than one and neither of them should  be repetitive in nature | -- | | (Yes/No) | |  | |
|  | **iii)** | | Minor breakdowns | | | Evaluative | | | Not more than three and frequency of each should not be more than two. | -- | | (Yes/No) | |  | |
|  | **iv)** | | Total breakdowns | | | Evaluative | | | In no case, the total number of breakdowns  should exceed four, that is, (1 major + 3 minor) or 4 minor breakdowns | -- | | (Yes/No) | |  | |

**Date: -------**

**Place: --------**  Signature:

Name of signatory:

Designation:

Name & address of firm: