**SPECIFICATION FOR TRACK TYPE COMBINE HARVESTER**

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| **1. SPECIFICATION****1.1 General** |
|  | Name & address of manufacturer | **:**  |  |
|  | Make | **:** |  |
|  | Model | **:** |  |
|  | Brand name (if any) | **:** |  |
|  | Type | **:** |  |
|  | Year of manufacture | **:** |  |
|  | Country of origin | **:** |  |
| **1.2** | **Prime mover**  |  |  |
|  | Make | **:** |  |
|  | Model | **:** |  |
|  | Type | **:** |  |
|  | **Engine speed (rpm) (Manufacturer’s recommended setting )** |
|  | Maximum speed at no load, rpm | **:** |  |
|  | Rated speed, rpm | **:** |  |
|  | No load engine speed recommended for field operation, rpm | **:** |  |
|  | Low idle speed, rpm | **:** |  |
|  | Country of origin | **:** |  |
|  | Detail of emission certificate if any | **:** |  |
| **1.2.1** | **Cylinder and cylinder head** |  |  |
|  | Number | **:** |  |
|  | Disposition | **:** |  |
|  | Bore/Stroke, mm | **:** |  |
|  | Capacity, cm3  | **:** |  |
|  | Compression ratio | **:** |  |
|  | Arrangement of valves | **:** |  |
|  | Type of cylinder liners | **:** |  |
|  | Type of head | **:** |  |
|  | Type of combustion chamber | **:** |  |
|  | Valve clearance in cold, mm |  |  |
|  |  Inlet valve | **:** |  |
|  | Exhaust valve | **:** |  |
| **1.2.2 3.2.2** | **Fuel system** |  |  |
|  | Type of fuel system | **:** |  |
| **1.2.2.1**  | **Fuel tank** |  |  |
|  | Material | **:** |  |
|  | Size, mm | **:** |  |
|  | capacity, l |  **:** |  |
| **1.2.2.2** | **Fuel feed pump** |  |  |
|  | Make  | **:** |  |
|  | Type | **:** |  |
|  | Model/Group combination number | **:** |  |
| **1.2.2.3** | **Fuel filters** |  |  |
|  | Make | **:** |  |
|  | Model/Group combination No. | **:** |  |
|  | Number(s) | **:** |  |
|  | Type of element | **:** |  |
|  | Capacity of final stage filter, l | **:** |  |
|  | **Water separator ( provided/Not provided)** |  |  |
| **1.2.2.4** | **Fuel injection pump** |  |  |
|  | Make | **:** |  |
|  | Model/Group combination No. | **:** |  |
|  | Type | **:** |  |
|  | Method of drive | **:** |  |
| **1.2.2.5** | **Fuel injectors** |  |  |
|  | Make  | **:** |  |
|  | Type | **:** |  |
|  | Model/Group combination No. | **:** |  |
|  | Injection opening pressure, (kgf/cm2)  | : |  |
|  | Injection timing  | **:** |  |
|  | Firing order  | **:** |  |
| **1.2.3** | **Governor** |  |  |
|  | Make  | **:** |  |
|  | Type | **:** |  |
|  | Designation | **:** |  |
|  | Governed range of engine speed, rpm | **:** |  |
| **1.2.4** | **Air Intake System** |  |  |
|  | Type | **:** |  |
| **1.2.4.1** | **Pre-cleaner** |  |  |
|  | Make  | **:** |  |
|  | Type | **:** |  |
|  | Number(s) | **:** |  |
|  | Location | **:** |  |
| **1.2.4.2** | **Air cleaner** |  |  |
|  | Make | **:** |  |
|  | Type | **:** |  |
|  | Number | **:** |  |
|  | Location | **:** |  |
|  | Type of element | **:** |  |
|  | Service indicator | **:** |  |
|  | Dust unloading valve | **:** |  |
|  | Recommended service Schedule | **:** |  |
|  | Suction pressure at max. power, kPa  | **:** |  |
| **1.2.5** | **Exhaust** |  |  |
|  | Make  | **:** |  |
|  | Type | **:** |  |
|  | Pressure at max. power, kPa  | **:** |  |
|  | Provision of spark arresting device/any other device | **:** |  |
| **1.2.5.1** | **Details of turbocharger**  |  |  |
|  | Make | **:** |  |
|  | Part No | **:** |  |
|  | Number of fan/wheels | **:** |  |
|  | Number of blades |  |  |
|  |  Turbine wheel | **:** |  |
|  |  Compressor fan | **:** |  |
|  | Means of lubrication | **:** |  |
| **1.2.5.2** | **Charged air cooler (CAC) unit**  |  |  |
|  | Type | **:** |  |
|  | Make | **:** |  |
|  | Size (L XWXH), mm | **:** |  |
|  | No of tubes | **:** |  |
| **1.2.6** | **Lubrication system** |  |  |
|  | Type | **:** |  |
|  | Type of oil pump | **:** |  |
|  | Method of drive | **:** |  |
|  | Lub. oil pump rpm corresponding to rated rpm of engine, rpm | **:** |  |
|  | Oil sump capacity, l | **:** |  |
| **1.2.6.1** | **Filters** |  |  |
|  | Type of oil filters  | **:** |  |
|  | Relief valve pressure setting, kgf/cm2,  | **:** |  |
|  | Minimum permissible pressure, kgf/cm2,  | **:** |  |
| **1.2.6.2** | **Details of hydraulic oil cooler** |  |  |
|  | Type | **:** |  |
|  | Make& Model | **:** |  |
| **1.2.7** | **Cooling system** |  |  |
|  | Type | **:** |  |
| **1.2.7.1** | **Water pump** |  |  |
|  | Make | **:** |  |
|  | Type | **:** |  |
|  | Size of impeller, mmDiameterNo. of vanes | **:****:** |  |
| **1.2.7.2** | **Details of fan** |  |  |
|  | Material & type | **:** |  |
|  | No. of blade | **:** |  |
|  | Size, mm | **:** |  |
| **1.2.7.3** | **Radiator** |  |  |
|  | Make | **:** |  |
|  | Type and Radiator cap pressure, kg/cm2  | **:** |  |
|  | Means of temperature control | **:** |  |
|  | Bare radiator capacity, l | **:** |  |
|  | Total coolant capacity, l | **:** |  |
|  | Means of grill cleaning | **:** |  |
| **1.2.8** |  **Details of Air Compressor if any**  | **:** |  |
| **1.2.9** | **Starting system** |  |  |
|  | Type  | **:** |  |
|  | Any aid for cold starting | **:** |  |
| **1.2.10** | **Electrical system** |  |  |
| **1.2.10.1** | **Starter motor** |  |  |
|  | Make  | **:** |  |
|  | Type | **:** |  |
|  | Model/ Group combination No.  | **:** |  |
|  | Power,kW  | **:** |  |
| **1.2.10.2** | **Alternator** |  |  |
|  | Make  | **:** |  |
|  | Model/Group combination No. | **:** |  |
|  | Output rating  | **:** |  |
| **1.2.10.3** | **Voltage regulator** | **:** |  |
| **1.2.10.4** | **Battery** |  |  |
|  | Make | **:** |  |
|  | Model/Type No. | **:** |  |
|  | Type | **:** |  |
|  | 20h rating | **:** |  |
| **1.2.10.6** | **Horn** |  |  |
|  | Make | **:** |  |
|  | Type | **:** |  |
|  | Detail of approved type of horn | **:** |  |
| **1.3** | **Combine** |  |  |
| **1.3.1** | **Track laying equipments** |  |  |
| **1.3.1.1** | **Track** |  |  |
|  | Make | **:** |  |
|  | Type | **:** |  |
|  | Number | **:** |  |
|  | Track distance/spacing, mm | **:** |  |
|  | Width of track, mm | **:** |  |
|  | Grouser height, mm | **:** |  |
|  | Number of grouser | **:** |  |
|  | Grouser pitch, mm | **:** |  |
|  | Length of track on ground, mm | **:** |  |
|  | Method of track tensioning | **:** |  |
| **1.3.1.2** | **Driving sprocket** |  |  |
|  | Diameter, mm | **:** |  |
|  | No. of teeth, mm | **:** |  |
|  | Pitch of teeth, mm | **:** |  |
| **1.3.1.3** | **Type of suspension** | **:** |  |

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| **1.3.1.4** | **Guide roller/Idler**  |  |  |
|  | Number | **:** |  |
|  | Diameter, mm | **:** |  |
|  | Face width, mm | **:** |  |
|  | Method of mounting  | **:** |  |
| **1.3.1.5** | **Carrier rollers** |  |  |
|  | Number | **:** |  |
|  | Diameter, mm | **:** |  |
|  | Face width, mm  | **:** |  |
|  | Lubricants | **:** |  |
|  | Method of mounting | **:** |  |
| **1.3.1.6** | **Track roller** |  |  |
|  | Number | **:** |  |
|  | Diameter, mm | **:** |  |
|  | Face width, mm | **:** |  |
|  | Lubricant | **:** |  |
|  | Distance between front track roller to rear, mm | **:** |  |
|  | Distance between centre of drive sprocket & idler roller, mm | **:** |  |
| **1.3.1.7** | **Support roller** |  |  |
|  | Number | **:** |  |
|  | Diameter, mm | **:** |  |
|  | Face width, mm | **:** |  |
| **1.3.2** | **Transmission system** |  |  |
|  | Type | **:** |  |
|  **2.3.2.1** | **Ground speed (kmph)** (at full throttle engine speed )  | **:** |  |
| **1.3.2.2** | **Final reduction unit** |  |  |
|  | Type | **:** |  |
|  | Make | **:** |  |
|  | Overall speed reduction ratio | **:** |  |
|  | Lubricant capacity, l | **:** |  |
| **1.3.3** | **Brakes** |  |  |
| **1.3.3.1** | **Service brake** (Make , Model, Type) | **:** |  |
| **1.3.3.2** | **Parking brake** (Make , Model, Type) | **:** |
| **1.3.4** | **Steering** |  |  |
|  | Type | **:** |  |
|  | Method of operation | **:** |  |
| **1.3.5 3.7** | **Hydraulic system** |  |  |
| **1.3.5.1** | **Hydraulic pump** |  |  |
|  | Type | **:** |  |
|  | Make  | **:** |  |
|  | Model  | **:** |  |
|  | Number(s) | **:** |  |
| **1.3.5.2** | **Hydraulic Motor** |  |  |
|  | Type | **:** |  |
|  | Make | **:** |  |
|  | Model  | **:** |  |
|  | Number(s) | **:** |  |

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| **1.3.5.3** | No. of hydraulic cylinders | **:** |  |
| **1.3.5.4** | **Hydraulic tank** |  |  |
|  | Type | **:** |  |
|  | Capacity of hydraulic tank, l  | **:** |  |
|  | No. & type of oil filters | **:** |  |
| **1.3.5.5** | **Hydraulic oil coolers** |  |  |
|  | Number(s) | **:** |  |
|  | Make & Model | **:** |  |
|  | Type | **:** |  |
| **1.3.6** | **Reel assembly** |  |  |
|  | Type | **:** |  |
|  | Type & Number of tine bars | **:** |  |
|  | Size of tine bars, mm |  |  |
|  | Diameter | **:** |  |
|  | Length | **:** |  |
|  | Diameter & working width of reel, mm | **:** |  |
|  | Range of speed corresponding to recommended no load speed of engine, rpm  |  **:** |  |
|  | Number of tines on each bar and their spacing, mm | **:** |  |
|  | Arrangement for raising and lowering the reel assembly | **:** |  |
|  | Safety device in reel drive | **:** |  |
| **1.3.7** | **Cutter bar assembly** |  |  |
|  | Working width, cm | **:** |  |
|  | Effective cutter bar width, cm | **:** |  |
| **1.3.7.1** | **Knife blades** |  |  |
|  | No. & type of knife blades | **:** |  |
|  | Knife drive safety arrangement | **:** |  |
|  | Knife stroke, mm | **:** |  |
|  | Knife frequency per minute | **:** |  |
|  |  Knife speed corresponding to recommended no load speed of engine, rpm | **:** |  |
|  | Type of crop dividers | **:** |  |
|  | Arrangement for lifting lodged crop | **:** |  |
| **1.3.7.3** | **Knife guard** |  |  |
|  | No & type of knife guard  | **:** |  |
|  | Type  | **:** |  |
| **1.3.7.4** | **Knife back** |  |  |
|  | Type  | **:** |  |
|  | Dimensions, mm | **:** |  |
| **1.3.8** | **Cutting platform auger** |  |  |
|  | Type of crop conveyor | **:** |  |
|  | Size of auger, mm |  |  |
|  | Speed of the auger corresponding to recommended no load speed of engine, rpm | **:** |  |
|  | Arrangement for adjusting the clearance of crop auger | **:** |  |
|  | Auger drive safety arrangement | **:** |  |

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| **1.3.9** | **Details of retractable fingers** |  |  |
|  | Number (s) | **:** |  |
|  | Range of throw out, mm | **:** |  |
|  | Axial spacing between the fingers, mm | **:** |  |
|  | Peripheral distance between the fingers, mm | **:**  |  |
|  | Arrangement for adjustment of fingers length | **:** |  |
| **1.3.10** | **Undershot conveyor** |  |  |
|  | Type of feeder conveyor | **:** |  |
|  | No. size and spacing of comb bar | **:** |  |
|  | Conveyor drive safety arrangement | **:** |  |
|  | Arrangement for adjusting clearance between comb and platform and tensioning the chain | **:** |  |
|  | Speed of conveyor corresponding to recommended no load speed of engine, rpm | **:** |  |
| **1.3.11** | **Threshing drum** |  |  |
|  | Type | **:** |  |
|  |  Diameter and Width, mm | **:** |  |
|  | Range of speed corresponding to recommended no load speed of engine, rpm: | **:** |  |
|  | No. of bars | **:** |  |
|  | No. of pegs and their spacing on each bar | **:** |  |
|  | No. of hub plate | **:** |  |
|  | Length of peg bar, mm | **:** |  |
|  | Height of pegs, mm | **:** |  |
|  | Arrangement of bars | **:** |  |
|   | Method of speed variation if any and range | **:** |  |
|  | Provision of stone trap | **:** |  |
|  | Safety device | **:** |  |
| **1.3.12** | **Concave** |  |  |
|  | Overall width of concave, mm | **:** |  |
|  | Effective width, mm | **:** |  |
|  | Type of concave | **:** |  |
|  | No. of bars | **:** |  |
|  | No. of pegs per bar & height spacing of pegs | **:** |  |
|  | Peripheral length, mm | **:** |  |
|  | Peripheral effective length, mm | **:** |  |
|  | Effective area, sq. cm. | **:** |  |
|  | Details of extension | **:** |  |
|  | **Range of clearance, mm** |  |  |
|  | Front | **:** |  |
|  | Rear | **:** |  |
|  | Method of adjusting the clearance between drum and concave | **:** |  |
| **1.3.13** | **Rear beater** |  |  |
|  | Type |  **:** |  |
|  | Size of beater, m ( Length and width)  | **:** |  |
|  | Type of drive | **:** |  |
|  | Speed corresponding to recommended no load speed of engine, rpm | **:** |  |
| **1.3.14** | **Baffle plate (Deflector)** |  |  |
|  | Type | **:** |  |
|  | No. of flap | **:** |  |
|  | Size of baffle plate, mm | **:** |  |
|  | Method of flap adjustment if any | **:** |  |
| **1.3.15** | **Separating mechanism** |  |  |
| **1.3.15.1** | **Straw walkers (if provided)** |  |  |
|  | Number | **:** |  |
|  | Type | **:** |  |
|  | Size of each straw walker, mm |  |  |
|  | Length | **:** |  |
|  | Width | **:** |  |
|  | Oscillation per minutes corresponding to recommended no load speed of engine | **:** |  |
|  | Method of varying oscillations of straw walkar |  |  |
| **1.3.15.2** | **Stepped grain pan**  |  |  |
|  | Type | **:** |  |
|  | Size, mm | **:** |  |
|  | Inclination and method of adjustment if any (degree) | **:** |  |
| **1.3.15.3** | **Cleaning sieves** |  |  |
| **1.3.15.3.1** | **Top sieve** |  |  |
|  | No. of sieve |  **:** |  |
|  | Type  | **:** |  |
|  | Overall size of sieve (LXW), mm |  | Front | Rear |
|  | Oscillation per minute corresponding to recommended no load speed of engine | **:** |  |
|  | Lift/throw, mm | **:** |  |
|  | Arrangement for varying the opening of the sieve | **:** |  |
|  | Method of varying oscillation | **:** |  |
| **1.3.15.3.2** | **Bottom sieve**  |  |  |
|  | No. of sieve |  **:** |  |
|  | Type | **:** |  |
|  | Overall size of sieve (L XW), mm |  |  |
|  | Oscillation per minute corresponding to recommended no load speed of engine | **:** |  |
|  | Arrangement for varying the opening of the sieve | **:** |  |
| **1.3.15.4** | **Blower** |  |  |
|  | Dia. mm  | **:** |  |
|  | Effective width, mm | **:** |  |
|  | No. & type of blade | **:** |  |
|  | Method of varying the blower speed | **:** |  |
|  | Range of speed corresponding to recommended no load speed of engine, rpm   | **:** |  |
|  | Method of controlling the air blast | **:** |  |
| **1.3.15.5** | **Grain pan** |  |  |
|  | Type | **:** |  |
|  | Size, mm | **:** |  |
|  | Inclination (degree) and method of adjustment if any | **:** |  |
| **1.3.15.6** | **Tailing pan**  |  |  |
|  | Type | **:** |  |
|  | Size, mm | **:** |  |
|  | Inclination (degree) and method of adjustment if any  | **:** |  |
| **1.3.16** | **Grain conveying mechanism** |  |  |
| **1.3.16.1** | **Bottom grain conveyor** |  |  |
|  | Type |  **:** |  |
|  | Size of conveyor(Length, Dai. And pitch) mm |  |  |
|  | Speed corresponding to recommended no load speed of engine, rpm  | **:** |  |
| **1.3.16.2** | **Grain elevator** |  |  |
|  | Type | **:** |  |
|  | Length of elevator, mm | **:** |  |
|  | Speed corresponding to recommended no load speed of engine, rpm | **:** |  |
|  | Elevator drive safety arrangement | **:** |  |
|  | Method of tensioning the chain | **:** |  |
| **1.3.16.3** | **Upper grain auger** |  |  |
|  | Type | **:** |  |
|  | Size of auger (Length, Dia and Pitch), mm | **:** |  |
|  | Speed corresponding to recommended nom load speed of engine, rpm | **:** |  |
|  | Drive safety arrangement | **:** |  |
| **1.3.17** | **Tailing conveying mechanism** |  |  |
| **1.3.17.1** | **Bottom tailing auger** |  |  |
|  | Type | **:** |  |
|  | Size of auger (Length, Dia and Pitch), mm  | **:** |  |
|  | Speed corresponding to recommended no load speed of engine, rpm |  **:** |  |
|  | Drive safety | **:** |  |
| **1.3.17.2** | **Tailing elevator** |  |  |
|  | Type | **:** |  |
|  | Length of elevator, mm | **:** |  |
|  | Speed corresponding to recommended no load speed of engine, rpm |  |  |
|  | Method of tensioning the chain | **:** |  |
|  | Elevator drive safety arrangement | **:** |  |
| **1.3.17.3** | **Upper tailing auger** |  |  |
|  | Type | **:** |  |
|  | Size of auger (Length, Dia and Pitch), mm | **:** |  |
|  | Speed corresponding to recommended no load speed of engine, rpm | **:** |  |
|  | Drive safety | **:** |  |

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| **1.3.18** | **Grain tank** |  |  |
|  | Location | **:** |  |
|  | **Capacity**  |  |  |
|  | Volume basis, m3 | **:** |  |
|  | Provision of grain tank cover | **:** |  |
|  | Provision for indication of grain tank filling | **:** |  |
| **1.3.18.1** | **Grain conveying auger (Bottom of grain tank)** |
|  | Type | **:** |  |
|  | Size of auger (Length, Dia and Pitch), mm | **:** |  |
|  | Speed corresponding to recommended no load speed of engine, rpm | : |  |
|  | Safety device | **:** |  |
| **1.3.18.2** | **Grain unloading auger** |  |  |
|  | Type | **:** |  |
|  | Size of auger (Length, Dia and Pitch), mm | **:** |  |
|  | Horizontal reach, cm | **:** |  |
|  | Discharge height above ground level, cm | **:** |  |
|  | Clearance height, cm | **:** |  |
|  | Speed corresponding to recommended no load speed of engine, rpm | **:** |  |
|  | Safety device | **:** |  |
| **1.4** | **Safety devices provided on the machine** |
| i)ii)iii)iv)v) |  |
| **1.5** |  **Details of Operating controls, gauges and instruments** |
| **1.6** | **Seat** |  |  |
|  | Make  | **:** |  |
|  | Type | **:** |  |
|  | Type of suspension | **:** |  |
|  | Type of dampening | **:** |  |
|  | Horizontal adjustment, mm | **:** |  |
|  | Adjustment of back rest, mm | **:** |  |
| **1.7** | **Canopy** |  |  |
|  | Type | **:** |  |
|  | Canopy size, mm  | **:** |  |
|  | Height from operator’s platform, mm | **:** |  |
| **1.8** | **Overall dimensions of combine harvester, cm** |  | **Working****position** | **Transport Position** |
|  | Length | **:** |  |  |
|  | Width | **:** |  |  |
|  | Height | **:** |  |  |
| **1.9** | **Mass** |  |  |
|  | Mass of combine harvester with coolant, fuel, lubricants & grain tank full and 75 kg mass on the operator's seat, kg |  |  |
|  | Total | **:** |  |
|  | Front | **:** |  |
|  | Rear | **:** |  |
| **1.10** | **Ground clearance, mm** | **:** |  |
| **1.11** | **Total number of lubricating points:**  |
|  | Grease Nipples/grease holes  | **:** |  |
|  | Oiling | **:** |  |

 **1.12 Details of labelling plate:**

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|  |

2 .**STRAW CHOPPER CUM SPREADER (SMS) (IF FITTED)**

|  |  |  |  |
| --- | --- | --- | --- |
| **2.1** | **General** |  |  |
|  | Make of SMS | **:** |  |
|  | Model of SMS | **:** |  |
|  | Type of SMS | **:** |  |
|  | Name and complete Address of themanufacturer of SMS includingPIN/Mob./email etc. | **:** |  |
| **2.2** | **Rotor** |  |  |
|  | Rotor Diameter, mm | **:** |  |
|  | No of lugs on Rotor in a row | **:** |  |
|  | No of rows in a periphery | **:** |  |
|  | Width of flail, mm | **:** |  |
|  | Thickness of flail | **:** |  |
|  | No. of flail in one set | **:** |  |
|  | Spacing between flail of one set, mm | **:** |  |
|  | Distance between adjacent flail unit,mm | **:** |  |
|  | Rotor dia with blade, mm |  |  |
|  | No of Rows/bar of serrated blade | **:** |  |
|  | No of serrated blade in a row | **:** |  |
|  | Spacing between serrated blades, mm | **:** |  |
|  | Clearance between pivotal blade andconcave | **:** |  |
|  | Overlapping of pivotal blade on serrated blade, mm | **:** |  |
|  | Rotor rpm | **:** |  |
| **2.3** | **Transmission** | **:** |  |
|  | Diameter of Drive Pulley | **:** |  |
|  | Diameter of Driven pulley | **:** |  |
| **2.4** | **Spreader** |  |  |
|  | Total no of flap, mm | **:** |  |
|  | Length of flap, mm | **:** |  |
|  | Distance between flaps, in (left to right) | **:** |  |
|  | Spreader angle with horizontal, Degree | **:** |  |
|  | Spreader angle with line of travel ,degree | **:** |  |
|  | Spreader sheet thickness, mm | **:** |  |
|  | SMS sheet thickness , mm | **:** |  |
| **2.5** | **Overall dimensions (mm)** |  |  |
|  | Length | **:** |  |
|  | Width | **:** |  |
|  | Height | **:** |  |
| **2.6** | **Overall Mass (kg)** | **:** |  |
| **2.7** | **SAFETY REQUIREMENT FOR SMS****(evaluative)** |  |  |
|  | Guards over all moving parts | : |  |
|  | RPM indicator of rotor | : |  |
|  | Overlapping of flail and fixed serratedblade (The clearance should beadjustable) | : |  |

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| **2.8** | **Labeling plate on SMS (details)** |  |  |

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| **3** | **Lubricants:** |  |  |
| **Sl. No.** | **Particulars** | **As recommended by the applicant** | **Oil change period** |
| 1. | Engine oil  |  |  |
| 2. | Hydraulic oil  |  |  |
| 3. | Transmission and final drive housing oil |  |  |
| 4. | Hydrostatic steering oil |  |  |
| 5. | Grease |  |  |

 **SELECTED PERFORMANCE AND OTHER CHARACTERISTICS AS PER IS 15806-2018**

**TO BE DECLARED BY APPLICANT**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S. No** | **Characteristics** | **Category (Evaluative/Non evaluative)** | **Requirement**  | **Tolerance**  | **Declarati-on by applicant** | **Remarks** |
| **1.** | **Prime mover performance** |
|  | **a)** | Max. Power (absolute) Average max. power observed during 2 hrs. max. power test in natural ambient condition, kW | Evaluative | To be declared by manufacturer | Declared value to be achieved with a tolerance of ±5% |  |  |
| **b)** | Max. power observed during test after adjusting the no load engine speed as per recommendation of the manufacturer for field work, kW | Evaluative | To be declared by manufacturer | -do- |  |  |
| **c)** | Power at rated engine speed, kW (under natural ambient condition) | Non-Evaluative | To be declared by manufacturer | -do- |  |  |
| **d)** | Specific fuel consumption corresponding to average maximum power under 2h maximum power test, g/kWh. | Evaluative | -do- | +5%(Max.)  |  |  |
| **e)** | Max. smoke density at 80% load between the speed at max. power & 55% of speed at max. or 1000 rpm whichever is higher | Evaluative | As pre CMV rules. | Nil | - |  |
| **f)** | Max. crank shaft torque, (Nm) observed during the test after no load engine speed is adjusted as per manufacture’s recommendation for field work | Evaluative | To be declared by manufacturer | ±8%  |  |  |
| **g)** | Back up torque, % | Evaluative | 7 percent, (Min.) | Nil | - |  |
| **h)** | Max. Operating temperature, 0Ci) Engine oil  | Evaluative |  To be declared by manufacturer | Nil |  | The observed value under the high ambient condition should not exceed maximum safe value specified by the oil company which will be provided by the applicant |
|  | ii) coolant | Evaluative | To be declared by manufacturer | Nil |  | The declared value should not exceed the boiling temperature of coolant under the pressurized or otherwise and the observed value under high ambient condition should not exceed the declaration  |
| **i)** | Lubrication oil consumption, g/kWh  | Evaluative | Not exceeding 1 % of specific fuel consumption at maximum power under high ambient condition | Nil |  | The value should be based on the test conducted under high ambient condition |
| **2.Brake performance at 24km/h or Maximum Speed whichever is less** |
|  | **a)** | Max. Stopping distance at a force equal to or less than 600 N on brake pedal (m) – (cold brake and hot brake) | Evaluative | As pre CMV rules. | Nil |  |  |
|  | **b)** | Max. Force exerted on brake pedal to achieve a deceleration of 2.5 m/sec2 | Evaluative | ≤ 600 N | Nil |  |  |
|  | **c)** | Effectiveness of parking brake at a force of 600 N at foot pedal or 400 N at Hand lever | Evaluative | As pre CMV rules. | Nil  |  | Based on the test conducted, Yes/No as the case may be should be indicated |
| **3.Mechanical vibration** |
|  | **i)** | Operator’s platform | Non evaluative | 120 μm max. | Nil |  |  |
|  | **ii)** | Steering wheel | Non evaluative | 150 μm max. | Nil |  |
|  | **iii)** | Seat with driver seated | Non evaluative | 120 μm max. | Nil |  |
| **4.Air cleaner oil pull over** |
|  | **i)** | Max. oil pull over in percentage when tested in accordance with IS: 8122. (Part-2)-2000 | Evaluative | 0.20% max. | Nil |  |  |
| **5.Noise measurement** |
|  | **i)** | Max. ambient noise emitted by combine at by standards position dB (A) | Evaluative | as per CMVR | Nil |  | As per road transport condition |
|  | **ii)** | Max. noise at operator’s ear level dB (A) | Evaluative | as per CMVR | Nil |  | In actual field condition |
| **6. Header Lifting Test** |
|  |  | Satisfactory completion of header lifting test | Evaluative |  | Nil |  | The observed Hydraulic oil temp should not exceed maximum safe value specified by the oil company which will be provided by the applicant.  |
| **7.Discard limit** |
|  | **a)** | Cylinder bore diameter, mm | Evaluative | Should not exceed the values declared by the manufacture | Nil |  |  |
|  | **b)** | Piston diameter, mm | Evaluative | -do- | Nil  |  |  |
|  | **c)** | Piston to cylinder liner clearance at skirt  | Evaluative | -do- | Nil  |  |  |
|  | **d)** | Ring end gap, mm | Evaluative | -do- | Nil  |  |  |
|  | **e)** | Ring groove clearance, mm  | Evaluative | -do- | Nil  |  |  |
|  | **f)** | Diametrical clearance of big end bearing, mm | Evaluative | -do- | Nil  |  |  |
|  | **g)** | Axial clearance of big end bearing, mm  | Evaluative | -do- | Nil  |  |  |
|  | **h)** | Diametrical clearance of main bearings, mm | Evaluative | -do- | Nil  |  |  |
|  | **i)** | Axial clearance of main bearings, mm | Evaluative | -do- | Nil  |  |  |
|  | **j)** | Thickness of brake lining | Evaluative | -do- | Nil |  |  |
|  | **k)** | Thickness of clutch plate | Evaluative | -do- | Nil |  |  |
|  | **l)** | Spring stiffness(N/mm) | - | -do- | Nil |  |  |
|  | **m)** | Clearance between valve and valve guide(mm) | - | -do- | Nil |  |  |
| **8.Field performance** |
|  | **a)** | Suitability for crops | Evaluative | Wheat & paddy (Wheel type) Paddy (Track type) | Nil |  |  |
|  | **b)** | Processing losses (%) | Evaluative | Wheat  Barley Rice SorghumMaize Oil seed, rape Soya-beans  | :::::: | Max 3%Max 4%Max 4%Max 3%Max 4%Max 4%Max 5% | Nil |  |  |
|  | **c)** | Threshing efficiency | Evaluative | - | : | ≥ 98 % for wheat and paddy | Nil |  |  |
|  | **d)** | Cleaning efficiency | Evaluative | - | : | ≥ 96 % for wheat and paddy | Nil |  |  |
|  | **e)** | Grain breakage in main grain tank | Evaluative | - | : | ≤ 2.5 %  | Nil |  |  |
|  | **f)** | Non collectable losses | Evaluative | - | : | ≤ 2.5 % for wheat, paddy and gram≤ 4.0 % for soyabean | Nil |  |  |
| **9. Field performance for Straw Management System (If fitted)** |
|  | **a)** | Uniformity of straw spread ,CV (Percent) | Evaluative | - | : | 20, Max. | - |  |  |
|  | **b)** | Weighted mean size of chopped straw, cm | Evaluative | - | : | 20,Max. | - |  |  |
| **10. Safety requirements** |
|  | **a)** | Guards against all moving parts/drives and hot part | Evaluative | Belt and chain drives, pulleys hydraulic pipes(Around operators workplace)  | -- |  | As per IS 12239 (Part 1)  |
|  | **b)** | Lighting arrangement  | Evaluative | essential as per CMVR | - |  | -- |
|  | **c)** | Grain tank cover | Evaluative | Essential | - |  |  |
|  | **d)** | Spark arrester in engine’s exhaust in case naturally aspirated engine | Evaluative | Essential | **-** |  |  |
|  | **e)**  | Stone trap before concave | Evaluative | Essential | **-** |  |  |
|  | **f)**  | Rear view mirror | Evaluative | Essential | **-** |  |  |
|  | **g)** | Fire extinguisher | Evaluative | Essential | **-** |  |  |
|  | **h)** | Slip clutch at following drives –i) Cutting platform augerii) Undershot conveyor driveiii) Grain & tailing elevator | EvaluativeNon evaluativeNon evaluative | EssentialOptionalOptional | - |  |  |
|  | **i)** | Anti slip surfaces at operator platform & ladder & proper gripping for the control levers. | Evaluative | Essential |  | -- | As per IS 12239 (Part 1)  |
|  | **j)** | Working clearance around the controls | Evaluative | Essential 70mm, min | - |  | As per IS 12239 (Part 1)  |
|  | **k)** | Labelling of control and gauges and operating controls | Evaluative | Essential | **-** |  | As per IS 6283(Part 1) |
| **11. Material of construction :** |
|  | Guards, knife blades and knife back | Non evaluative | Conforming to IS 6024, IS 6025 and IS 10378 respectively | **-** | **-** | **-** |
| **12.** | Material of blades for Straw Management System (SMS) | Non-Evaluative | The flail and fixed blades shall be manufactured from steel having the following chemical composition or such other composition as shall be agreed between the supplier and the purchaser:a)Carbon : 0.70 to 0.1 %b)Manganese : 0.6 to 0.97 %c)Chrome : 0.1 %d)Nickle : 0.1 % |  |  |
| **13.** | Bushes for flail blades | Non-Evaluative | Mild steel |  |  |
| **14.** | Hardness of flail blades for Straw Management System (SMS) | Evaluative | Bush section : 20 to 35 HRCEdge section(Hardened zone) : 48 to 48 HRCRemainder zone: 20 to 35 HRC |  |  |
| **15.** | Hardness of serrated blades for Straw Management System (SMS) | Evaluative | Bush section : 20 to 35 HRCEdge section(Hardened zone) : 48 to 58 HRCRemainder zone: 20 to 35 HRC |  |  |

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| --- | --- |
| **16.** | **Safety Requirements for Straw Management System(if Fitted)** |
|  | **a)** | Guards against all moving parts/drives and hot parts | Evaluative | Essential |  |  |
|  | **b)** | RPM indicator for rotor | Evaluative | Desirable |  |  |
|  | **c)** | Overlapping of flail and fixed serrated blades | Evaluative | Essential |  | The clearance of the flail and fixed serrated blades should be adjustable |

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

Date: Name of the applicant---------------------------

 Designation---------------------------------------

 Address-------------------------------------------

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