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Ministry of Agriculture and Farmers Welfare
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उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान,
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SPECIFICATIONS OF SELF PROPELLED REAPER

1.1	General		
	Manufacturer	:	
	Name of machine	:	
	Make	:	
	Model	:	
	Type	:	
	Serial number	:	
	Year of manufacture	:	
	Country of origin	:	
	Size of Reaper (mm)	:	
	Name of crops recommended	:	
	Constructional details(Fig 1)		

1.2	Prime mover/ Engine(as per applicant)		
1.2.1	Manufacturer	:	
1.2.2	Make	:	
1.2.3	Model	:	
1.2.4	Type	:	
1.2.5	Year of manufacture	:	
1.2.6	Sl. No.	:	
1.2.7	Country of origin	:	
1.2.8	Recommended high idle speed, (rpm)	:	
1.2.9	Recommended low idle speed, (rpm)	:	
1.2.10	Recommended rated speed, (rpm)	:	
1.2.11	Recommended rated speed for field test, (rpm)		
1.2.12	Speed at maximum torque, (rpm)	:	
1.2.13	Maximum power	:kW @..... rpm
1.2.14	Torque corresponding to Maximum power, (Nm)	:	
1.2.15	Specific fuel consumption corresponding to Maximum Power, (g/kWh)	:	
1.2.16	Rated power	:kW @..... rpm
1.2.17	Torque corresponding to rated power, (Nm)	:	
1.2.18	Specific fuel consumption at rated power, (g/kWh)	:	
1.2.19	Maximum torque	:Nm@.....rpm
1.2.20	Lubricating oil consumptions,(g/kwh)	:	
1.2.21	Maximum permissible engine oil temperature, (° C)	:	

1.2.22			
Sl.No.	Parts/component	Initial value (When in new condition),(mm)	Discard limit (mm)
i)	Cylinder bore diameter		
ii)	Clearance between cylinder liner and piston (at top)		
iii)	Piston ring end gap - Top ring - 2nd ring - Oil ring		
iv)	Piston ring groove clearance - Top ring - 2nd ring - Oil ring		
v)	Clearance of big end bearing - Diametrical - Axial		
vi)	Clearance of main bearing - Diametrical - Crane shaft end float		

1.3	Cylinder		
	Number	:	
	Disposition	:	
	Bore/stroke (mm)	:	
	Capacity as specified by the applicant (cc)	:	
	Compression ratio	:	
	Type of cylinder liner	:	
	Arrangement of valves	:	
	Valve clearance,(mm)	:	
	- Inlet valve	:	
	- Exhaust valve	:	
	No. of compression rings	:	
	No. of oil ring	:	
1.4	Fuel supply system:		
	Type of fuel feed system	:	
	Type of fuel filter	:	
	Capacity of fuel tank (l)	:	
	Location of fuel tank	:	
	Provision of draining of Sediments/water	:	
		:	
1.4.1	Fuel Injection Pump		
	Type	:	
	Make	:	
	Model	:	
	Method of drive	:	
1..4.2	Injector nozzle	:	
	Type	:	
	Make	:	
	Model	:	

	Injection pressure,(kg/sq.cm)	:	
	Injection timing, (deg. Before TDC)	:	
1.4.3	Governor	:	
	Make	:	
	Type	:	
	Range of speed governed (rpm)	:	
	Rated Speed (rpm)	:	
1.5	Air Intake System	:	
1.5.1	Pre cleaner	:	
1.5.2	Air Cleaner	:	
	Make	:	
	Type	:	
	Location	:	
	Suction Pressure, kPa	:	
	Recommended service schedule	:	
1.6	Exhaust:		
	Type	:	
	Location	:	
	Pressure, kPa	:	
1.7	Lubrication system:		
	Type	:	
	Oil capacity (l)	:	
	Oil change period (h)	:	
1.8	Cooling system:		
	Type	:	
	Details of blower	:	

	Size (OD/ID x W), (mm)	:	
	Size of fin (mm)		
	Height/Width	:	
	Number of fins	:	
1.9	Starting system:	:	
	Type	:	
1.10	Electrical System:		
	Ignition timing	:	
1.11	Transmission system		
	Mode of power transmission from Engine to transmission box	:	
	Reduction ratio	:	
	Size of drive pulley, (mm)	:	
	Size of driven pulley, (mm)	:	
	No. size and type of belts	:	
1.12	Main transmission box :		
	Make	:	
	Model	:	
	Type	:	
	Batch Number	:	
	Mode of power transmission:	:	
	Reduction ratio	:	
	No. of speeds		

	- Forward	:	
	- Reverse	:	
	Nominal speed		
	Direction of motion	Nominal speed (Kmph)	
		At rated engine speed (-----rpm)	At field engine speed (---- rpm)
	Forward		
	Reverse		

	Lub. Oil Capacity, (l)	:	
	Method of lubrication	:	
1.13	Final drive		
	Type	:	
	Mode of power transmission	:	
	Details of Sprockets		
	No. of teeth on drive sprocket	:	
	No. of teeth on driven sprocket	:	
	Reduction ratio	:	
	Details of chain		
	Type	:	
	Length (mm)	:	
	- No. & Size of links, (mm)	:	
	- Size of roller, (mm)	:	
1.14	Wheel equipment		
	Type of tyre	:	
	Make	:	
	Model	:	

	No. of tyres	:	
	Size	:	
	Inflation pressure, (kpa)	:	
	Rolling radius, (mm)	:	
	Track width ,(mm)	:	
1.15	Steering		
	Type	:	
	Constructional details :	:	
	Method of operation	:	
	Spacing of handle grips, (mm)	:	
	Material of handle grip	:	
	Size of grip, (mm)	:	
	Height of handle grip from GL, (mm)	:	
	Height adjustment of steering	:	
	Method of fixing:	:	
1.16	Steering clutches:		
	Numbers	:	
	Type	:	
	Make	:	
	Location	:	
	Method of operation	:	

1.17	Reaper Transmission:		
1.17.1	Reaper Clutch:		
	Location	:	
	Type	:	
	Mode of power transmission	:	
	Method of operation	:	
1.17.2	Reaping bevel box:		
	Type	:	
	No. of gears	:	
	Reduction ratio	:	
	Mode of power transmission:	:	
1.18	Reaper frame:		
	Constructional details :	:	
1.19	Cutter bar assembly:		
	Working width ,(mm)	:	
	Effective width, (mm)	:	
	No. & spacing of knife guards,(mm)		
	No. & spacing of knife blades,(mm)	:	
	Knife stroke, (mm)	:	
	Stroke per min	:	

	Knife speed corresponding to engine speed for field test, (m/s)	:	
	Details of knife drive	:	
	Height of cutter bar from G.L. in horizontal position, (mm)	:	
	Method of adjustment	:	
1.20	Crop divider		
	Type	:	
	Numbers	:	
	Distance between adjustable shoes, (mm)		
	- Maximum	:	
	- Minimum	:	
	Details of shoe:		
	Constructional details	:	
	- Length (mm)	:	
	- Width at rear (mm)	:	
1.21	Crop guide (star) wheel		
	No. of wheels	:	
	Material	:	
	No. of projections on each wheel	:	
	Dia. Of wheel (mm)	:	
	No & type of bearing ,if any	:	
	Method of mounting & its drive:	:	

1.22	Divider guide		
	Number & type	:	
1.23	Knife		
	Type	:	
	Total Number		

Specification of knife section as per IS:6025-1982 (Refer fig 3A)

S. No.	Designation	Dimension as per IS (mm)	Tolerances (mm)	As observed (mm)	Conformity to IS
1	A	76.2	-.2 to - 0.4		
2	B	50.8;51.5;52.5	± 0.1		
3	C	11.8;12.7	± 0.1		
4	D	5.5	+1.2		
5	E	9.5 min.	-		
6	F	9.0 min.	-		
7	G	0.8 min.	-		
8	H	11.0	± 0.5		

9	J	12.5	-		
10	K	30.6;31.8	± 0.25		
11	L	65.0	± 0.5		
12	T	2.0 min	-		
13	α	19°	$\pm 1^\circ$		

Specification of knife back as per IS:10378-1982

s. No.	Designation	Dimension as per IS (mm)	Tolerances (mm)	As observed (mm)	Conformity to IS
1	A	20 min	-		
2	B	4.5 min	-		
3	C	50.8;51.5;52.5	± 0.1		
4	D	12.0 min.	-		
5	E	25.4	+0.1		
6	F	5.5	± 0.2		
7	α	75° or 90°	$\pm 1^\circ$		

1.24	Knife clip:		
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	Material	:	
	Size, (mm)	:	
	No. of clips	:	
	No. type & size of bolts fixing knife clips, (mm)	:	
	Spacing of knife clips, (mm)	:	
	Provision for adjusting the clearance between clip and cutter bar	:	
	Method of fixing:-	:	
1.25	Ledger plate Assembly:		
	Constructional details:	:	
	Size of ledger plate assembly	:	
	Ledger plate:		
	No of plates	:	
	Type	:	
	Shape	:	
	Length (mm)	:	
	Width at base, (mm)	:	
	Width at top, (mm)	:	
	Thickness, (mm)	:	
1.26	Knife Head		
	Number	:	
	Material & size, (mm)	:	
	Height of head from cutter bar, (mm)	:	
	Size of slot for the movement of crank	:	

	pin, (mm)			
	Method of fixing	:		
1.27	Reaping Crank Assembly:	:		
	Size of crank, (mm)	:		
	Size of roller pin, (mm)	:		
	Drive safety arrangement	:		
1.28	Crop Conveyor:			
	Number of Conveyor:			
	Type	:		
	Vertical distance between two Conveyors, (mm)	:		
	Speed of Conveyor chain corresponding to engine speed for field test, (m/s)	:		
	Provision for tensioning	:		
	Drive safety arrangement	:		
	Details of Conveyor Chain:			
S.No	Parameters	Upper Chain	Lower Chain	Drive Chain
1	2	3	4	5
1	No. of chains			
2	Length of chain, (mm)			
3	Size of link, (mm)			
	- Big			
	- Small			
4	No. of links			

	- Big			
	- Small			
5	Size of roller, (mm)			
	- Big			
	- Small			
6	Pitch, (mm)			
	- Big			
	- Small			
7	No. of lugs on chain			
8	Details of lugs-			
	- Height of lug (mm)			
	- Thickness of lug (mm)			
9	Lug distance (horizontal),(mm)			
10	No. of sprockets on each Conveyor chain			
11	No of teeth on driven sprocket			
12	No. of teeth on drive sprocket			
13	No. of teeth of idler sprocket			

1.29	Details of controls:		
	<ol style="list-style-type: none"> 1. Steering handle with side clutches 2. Throttle lever on RHS handle 3. Reaper operating clutch on LHS of reaper frame 4. Main gear shifting lever at center 		
1.30	Overall dimension (mm)	:	
	Length	:	
	Width	:	
	Height	:	
1.31	Ground Clearance (mm)	:	
1.32	Mass with all reservoirs filled to their capacities, (kg)	:	
	Color of machine :		
	- Sheet metal	:	
	- Chasses & other	:	
	- Handle bar	:	
	- Engine	:	