



DEUTZ-FAHR, AGROLUX 55 E (12 + 3) 2WD TRACTOR



सत्यमेव जयते

भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय
(कृषि, सहकारिता एवं किसान कल्याण विभाग)

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(DEPARTMENT OF AGRICULTURE, CO-OPERATION AND FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

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DEUTZ-FAHR, AGROLUX 55 E (12+3) 2WD TRACTOR - Commercial Variant (Batch)

Subsequent to the examination of the case in the light of Indian Standard IS: 12207 -2014, the following tests were considered to be carried out:

- Specification checking in full
- Nominal speed test
- 2 hrs maximum PTO power performance test under natural ambient condition
- Drawbar Performance Test under unballasted condition
- Location of Centre of Gravity
- Turning Ability
- Operator's Field of Vision

2. FUEL AND LUBRICANTS

2.1 Fuel : The High-speed diesel oil supplied by M/s Indian Oil Corporation Limited having density of 0.836 g/cc at 15°C was used.

2.2 Lubricants:

S. No.	Particulars	As recommended by the manufacturer	As used during the test
1	2	3	4
1.	Engine	Deutz – Fahr super	As recommended
2.	Gearbox, differential, rear axle & rear final drive, brake, hydraulic and steering system oil	Deutz – Fahr Utto	Oil originally filled in the tractor was not changed
3.	Grease	Servo gem, EP-1	MP Grease

3. ESSENTIAL TESTS

3.1 SPECIFICATIONS

- 3.1.1 Tractor:**
- Make : DEUTZ-FAHR
 - Model : AGROLUX 55 E (12+3) 2WD
 - Brand name : None
 - Type : Four wheeled, two wheels driven, general purpose, Agricultural Tractor.
 - Year of manufacture : 2017
 - Chassis number : M1TAF52RDBC000349
 - Country of origin : INDIA
- 3.1.2 Engine:**
- Make : SAME DEUTZ-FAHR, INDIA (P), LTD.
 - Model : 1000.3W-50CV (apa)
 - Type : Four strokes, liquid cooled, naturally aspirated, direct injection, diesel engine.
 - Serial number : 3A41852B17
 - Year of manufacture : 2016
 - Country of origin : India
- 3.1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):**
- Maximum speed at no load : 2470 to 2570
 - Low idle speed : 600 to 900
 - Speed at maximum torque : 1150 to 1400



7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

7.1 Evaluative (mandatory) / Non-evaluative (Non-mandatory) parameters applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2014 for acceptance of the tractor for the purpose of subsidies/NABARD financing are summarized as under:

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2014	Values declared by the applicant / (D) Requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
7.1.1 PTO Performance :						
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: -5 / +10% for PTO power >26 kW. -7.5/+10% for PTO power ≤ 26 kW or -5 / +10% for Engine power >26 kW. -7.5/+10% for Engine power ≤ 26 kW	33.6 (D)	33.8	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	33.6 (D)	33.8	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	+ 5%	265 (D)	280	No
d)	Maximum operating temperature under 2hr max. power test, (°C)					
1)	Engine oil	Non Evaluative	The declared value should not exceed the max. value specified by the oil company and the observed value under high ambient condition should not exceed the declaration.	155 (D)	124	Yes
2)	Coolant	Evaluative	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.	110 (D)	78	Yes
7.1.2 Drawbar performance :						
a)	Max. drawbar pull with unballasted corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 65% of static mass of tractor without ballast or with standard ballast, as the case may be	15.21 (D) 12.78 (R) Minimum	17.79	Yes
b)	Maximum drawbar power with unballasted, (kW).	Evaluative	Minimum 80 % of PTO power as referred in SI No. i) a) of PTO performance in case of tractors having total static mass > 1500 kg Minimum 75 % of PTO power as referred in SI No. i) a) of PTO performance in case of light weight tractors having 1500 kg total static mass of tractor Minimum 75 % of the engine power as referred in SI No. i) a) of engine performance in case of tractors which do not have a PTO shaft.	26.9 (D) 27.0 (R) Minimum	30.1	Yes
d)	Maximum transmission oil temperature (°C)	Non Evaluative	The declared value should not exceed the maximum value specified by oil company	120 (D)	75	Yes



1	2	3	4	5	6	7
7.1.3	Safety features :					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulic pipes (As per IS 12239 (Part2))	--	Provided	Yes
b)	Lighting arrangement	Evaluative	As per CMVR	--	Provided	Yes
c)	Seating requirements (Tractors having more than 1150 mm rear track width)	Non Evaluative	Should meet the requirements of IS: 12343 (As amended from time to time)	--	Does not meet the requirements	No
d)	Technical requirements for PTO shaft	Non Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	--	Does not meet the requirements	No
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS: 4468 (Part-I) (As amended from time to time)	--	Does not meet the requirements	No
f)	Specifications of linkage drawbar	Non Evaluative	Should meet the requirements of IS 12953 and IS 12362 (Part 3) (As amended from time to time)	--	Meets the requirements	Yes
	Swinging drawbar			--	Not Provided	--

1	2	3	4	5	6	7
7.1.4	Labelling of tractors (Provision of labelling plate):					
1)	Make	Evaluative	Should conform to the requirements of CMVR	--	DEUTZ-FAHR	Yes
2)	Model	Evaluative		--	AGROLUX 55 E (12+3) 2WD	Yes
3)	Engine number	Evaluative		--	3A41852B17	Yes
4)	Chassis number	Evaluative		--	M1TAF52RDB C000349	Yes
5)	Declaration of PTO power, (kW)	Evaluative		--	33.6	Yes

7.1.5 Literature (Submission to test agency)						
(a)	Operator manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes
(b)	Parts Catalogue	Evaluative	Provided / Not Provided	Provided	Provided	Yes
(c)	Workshop/ Service manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes



7.1.6 CATEGORY OF BREAKDOWNS / DEFECTS :					
Sl. No.	Category of breakdowns	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2014	As observed	Whether meets the Requirements (Yes/No.)
1.	Critical	Evaluative	No critical breakdown	None	Yes
2.	Major	Evaluative	Not more than two and neither of them should be repetitive in nature	None	Yes
3.	Minor	Evaluative	Not more than five and frequency of each should not be more than two.	None	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed five, that is, (2 major + 3 minor) or 5 minor breakdowns.	None	Yes

7.2 Optional requirements as per Clause-4 (Table-2) of IS:12207-2014:				
S.No.	Characteristic	Requirements as per IS: 12207-2014	As observed	Remarks
1.	Fitment of ROPS	With a provision for fitment of ROPS.	Provided	Yes
		If ROPS fitted it should meet the requirement of IS: 11821 (As amended from time to time) or equivalent International Standards	ROPS not provided	Not applicable
2.	Accessories	Trailer hitch, front tow hook, may be provided.	Provided	Yes

7.3 Salient Observations:

7.3.1 Laboratory tests:

7.3.1.1 PTO Performance:

- i) The maximum PTO power was recorded as **33.8 kW** against the declaration of **33.6 kW**. which meets the requirement of IS: 12207-2014 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power was recorded as **280 g/kWh** against the declaration of **265 g/kWh**. Which does not meet the requirement of IS: 12207-2014 with regard to tolerance limit. This should be looked into for necessary corrective action.

7.3.1.2 Drawbar Performance:

- i) The maximum drawbar pull without ballast corresponding to 15 % wheel slip was recorded as **17.79kN** against the declaration of **15.21 kN** which meets the requirement of IS: 12207-2014 with regard to tolerance limit.
- ii) The maximum drawbar power with unballasted condition was recorded as **30.1 kW** against the declaration of **26.9 kW**, which is within the tolerance limit of IS: 12207-2014.

**7.3.1.3 Operator's seat:**

The angle of inclination of seat towards rear direction (degree) and dimension of longitudinal distance from seat index point to centre of differential lock pedal is does not meet the requirement of the IS: 12343 -1998. This should be looked into for necessary corrective action.

7.4 Maintenance / Service Problems:

No noticeable maintenance or service problem was observed during the test.

7.5 Recommendation with regard to safety on tractor:

The following requirements, inter alia, may be considered for incorporation on the tractor:

- i) Spark arrester should be provided in the exhaust system.
- ii) There should be provision to stop fuel shut-off knob in stop position to avoid against the accidental start
- iii) The working clearance around the range selection lever is less than the minimum requirement.
- iv) Width of foot step should meet the requirement of relevant standard.
- v) There should be provision to attach trailer brake valve

7.6 Adequacy of Literature:**7.6.1** Following literature of following tractor models were supplied with the test sample for reference during the test.

- a) Operator's manual of AGROLUX-45e, 50e, 55e, 60e & 70e tractor model.
- b) Parts catalogue of AGROLUX 45e, 50e, 55e, 60e, 70e & AGROMAXX 40, 45, 50, 55, 60 tractor model.
- c) Workshop service manual of AGROLUX- 45e, 50e, 50e 2WD, 55e, 55e 2WD, 55e (12+3) 2WD, 60e, 60e 2WD, 70e & 70e 2WD tractor model

7.6.2 The supplied literature was found adequate; except the following

- a) Engine oil and transmission oil time schedule given in operator's manual does not match with specifications submitted by applicant.
- b) Coolant brand recommended in operator's & service manual for cooling system does not match with specifications submitted by applicant.
- c) Scheduled servicing & routine maintenance chart is not provided in service manual.

7.6.3 The literature should be brought out in national as well as other regional languages of India for guidance of users.



8. CITIZEN CHARTER

Duration of Test	Test duration under citizen charter	Whether the report released within time frame given in the citizen charter	Remark
02 Months (December, 2017 to January, 2018)	10 Months	Yes	---

TESTING AUTHORITY:

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9. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
9.1	7.3.1.1 (ii)	Would be reviewed for tolerance control
9.2	7.3.1.3	Would be reviewed
9.3	7.5 (ii), (iii)	Would be reviewed
9.4	7.6.2	Will be taken up for necessary action