

व्यावसायिक परीक्षण रिपोर्ट

संख्या/No. : T-1653/2184/2022

COMMERCIAL TEST REPORT (Initial)

माह/Month : June, 2022

(यह परीक्षण रिपोर्ट 30/06/2025 तक वैध है/THIS TEST REPORT IS VALID UPTO 30/06/2025)



DEUTZ FAHR, AGROMAXX 4050E TRACTOR



सत्यमेव जयते

भारत सरकार

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

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE
(DEPARTMENT OF AGRICULTURE & FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
ट्रैक्टर नगर, बुदनी (म.प्र.) 466 445

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE
TRACTOR NAGAR, BUDNI (M.P.) 466 445

(An ISO 9001 : 2015 Certified Institute)

E-mail: fmti-mp@nic.in,

Web site: <http://www.fmttibudni.gov.in>

Telephone: 07564-299003

Page 1 of 50

T-1653/2184/2022	DEUTZ FAHR, AGROMAXX 4050E TRACTOR -COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

Manufacturer : M/s. SAME DEUTZ-FAHR INDIA (P) LTD.
72/ 72M, SIPCOT, Industrial Complex,
Ranipet – 632 403 , Tamil Nadu

Test requested by (applicant) : The manufacturer
Selected for test by : The testing authority
Place of running-in : At testing institute
Duration of said running-in, (h):
- Engine : Nil
- Transmission : 25.0 (as a tractor)
Method of Selection : The test sample was selected randomly out of five tractors from the production line by the representative of testing authority through online mode.

Details of tractors made available for random selection	
Sr. No.	Chassis serial Number
1	M1TFP32RDHG000559
2	M1TFP32RDHG000572
3	M1TFP32RDHG000573
4	M1TFP32RDHG000574
5	M1TFP32RDHG000580

1. SPECIFICATIONS

1.1 Tractor:
Make : DEUTZ FAHR
Model : AGROMAXX 4050E
Type : Four-wheel driven (4WD), Standard Agricultural Tractor.
Month & year of manufacture : 08/21
Chassis number : M1TFP32RDHG000572
Country of origin : India

1.2 Engine:
Manufacturer's address : M/s. SAME DEUTZ-FAHR INDIA (P) LTD.
72/ 72M, SIPCOT, Industrial Complex,
Ranipet – 632 403 , Tamil Nadu
Make : SAME DEUTZ-FAHR INDIA (P) LTD.
Model : MC3036NA
Type : Four stroke, naturally aspirated, liquid cooled, direct injection, diesel engine
Serial number : 3AD222654H21
Country of origin : India

1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):
- Maximum speed at no load : 2330 to 2430
- Low idle speed : 700 to 900
- Speed at maximum torque : 1150 to 1600
Rated speed, (rpm):
- For PTO use : 2200
- For drawbar use : 2200

1.3 Cylinder & Cylinder Head:
Number : Three
Disposition : Vertical, Inline

T-1653/2184/2022	DEUTZ FAHR, AGROMAXX 4050E TRACTOR -COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

16. ADJUSTMENTS, DEFECTS, BREAKDOWNS AND REPAIR

Sl. No.	Adjustments/Defects/Breakdowns and Repairs	Tractor run hours
1.	<p>During the hydraulic test, lifting capacity at hitch point .was observed as 23.40 kN against the declaration of 18.14 kN which does not meet the evaluative requirement of IS: 12207-2019 with regard to tolerance limit.</p> <p>Upon this the applicant has requested vide letter No. Nil dated 27.10.2021 for the cleaning of control valve assembly and conduct Repeat Test, which was allowed as per the provisions contained in clause 3.2.3 & clause 4.1 of IS: 12207-2019.</p>	43.7
2.	<p>During the drawbar performance test (ballasted condition), leakage of oil was noticed from engine tappet cover.</p> <p>Upon this, the firm has requested vide letter No. AGROMAXX 4E/ICT/024 dated 21.04.2022 to replace "Tappet gasket, Part No. 0.069.1450.0/30, Quantity 1 No." to avoid leakage, which was allowed as per the provisions contained in IS: 12207-2019 and the said defect is categorized as Minor Defect (Mn 07).</p>	90.6

17. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

- 17.1 On the basis of test conducted the performance results have been summarized as evaluative (mandatory) / Non-evaluative (Non-mandatory) parameters applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2019 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: 12207-2019	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
17.1.1	PTO Performance :					
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: $\pm 5\%$ for PTO power and or engine power > 26 kW. $\pm 10\%$ for PTO power and or engine ≤ 26 kW.	32.4 (D)	31.4	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	32.4 (D)	31.4	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% max.	270 (D)	287	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	$\pm 8\%$	190 (D)	188.4	Yes
e)	Back-up torque, percent	Evaluative	12 percent	12 (D) 12 (R)	53.9	Yes

T-1653/2184/2022	DEUTZ FAHR, AGROMAXX 4050E TRACTOR -COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7	
f)	Maximum operating temperature, ($^{\circ}$ C)						
	1)	Engine oil	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.	150 (D)	125	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)	99	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. Power under High ambient conditions.	2.86 Maximum (R)	0.32	Yes	
h)	Smoke level, m^{-1}	Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR).	3.25 Maximum (R)	0.33	Yes	
17.1.2 Drawbar Performance :							
a)	Max. drawbar pull with ballasted corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 70% of static mass of tractor with ballast.	22.54 (D)	28.18	Yes	
				22.65 Minimum (R)			
b)	Max. drawbar pull without ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without ballast or with standard ballast, as the case may be.	14.28 (D)	19.98	Yes	
				14.38 (R) Minimum			
c)	Maximum drawbar power without ballast, (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 \leq 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.	25.95 (D)	27.4	Yes	
				25.1 (R) Minimum			
d)	Maximum transmission oil temperature, ($^{\circ}$ C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	120 (D)	81	Yes	

T-1653/2184/2022	DEUTZ FAHR, AGROMAXX 4050E TRACTOR -COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7
17.1.3	Power lift and hydraulic pump performance:					
a)	Maximum lifting capacity throughout the range of lift, (kN):					
1)	At hitch points	Evaluative	Tolerance of $\pm 10\%$	18.14 (D)	18.29	Yes
2)	With the standard frame	Evaluative	The lift capacity should at least be 24 kg/PTO kW. and it should be 21.5 kg/engine kW where the tractor is not provided with a PTO shaft.	8.0 (D) 7.39 (R) Minimum	13.31	Yes
b)	Maximum drop in the height of the point of application of the force after each 5 minutes interval for a total duration of 30 Minutes, (mm)	Non Evaluative	The observed value should not exceed 50 mm	50 (D) Maximum	15	Yes
17.1.4	Brake performance at 25 kmph:					
a)	Maximum stopping distance at a force, equal to or less than 600 N on brake pedal with road ballast, (m):					
1)	Cold brake	Evaluative	10	10 (R)	8.68	Yes
2)	Hot brake	Evaluative	10	10 (R)	8.98	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² , (N)	Evaluative	600	600 (R) Maximum	257 to 335	Yes
c)	Whether parking brake is effective at a force of 600 N at foot pedal (s) or 400 N at hand lever	Evaluative	Yes / No	Yes	Yes	Yes
17.1.5	Noise measurement :					
a)	Maximum ambient noise emitted by the tractor, dB(A)	Evaluative	As per CMVR	88 (R)	83	Yes
b)	Maximum noise at operator's ear level, dB(A)	Evaluative	As per CMVR	96 (R)	93	Yes
17.1.6	Amplitude of mechanical vibrations at:					
1)	Left foot rest	Non Evaluative	100 microns (max.)	100(R)	147	No
2)	Right foot rest				147	No
3)	Seat (with driver seated)				140	No
4)	Steering wheel				334	No
17.1.7	Air cleaner oil pull over :					
	Maximum air cleaner oil pull over, (%)	Evaluative	0.25 (Max.)	Dry type air cleaner fitted		Not applicable



T-1653/2184/2022	DEUTZ FAHR, AGROMAXX 4050E TRACTOR -COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7
17.1.8	Haulage requirements:					
a)	Gross mass of the trailers, (tones):					
	1) Two wheel	Non Evaluative	As specified by the manufacturer	5.0 (D)	5.0	Yes
	2) Four wheel			6.0 (D)	6.0	Yes
b)	Distance travelled / liter of fuel consumption, (km/l):					
	1) Two wheel	Non Evaluative	As specified by the manufacturer	4.0 to 9.0 (D)	4.60 to 4.78	Yes
	2) Four wheel			4.0 to 9.0 (D)	4.42 to 4.45	Yes
c)	Fuel consumption, (ml/km/tonne):					
	1) Two wheel	Non Evaluative	As specified by the manufacturer	25 to 80 (D)	41.8 to 43.5	Yes
	2) Four wheel			25 to 90 (D)	37.5 to 37.7	Yes
17.1.9	Wetland cultivation :					
	Sealing for the following assemblies:	Evaluative	The identified assemblies should essentially meet the requirement of IS: 11082. No water ingress in the identified assembly given in column-2. If tractor does not meet the requirements of wetland cultivation, it may be recommended for dry land operation only.	There should be no ingress of water and/or mud (R)	No ingress of water and/or mud was observed	Yes
	1) Clutch assembly	-do-				
	2) Brake housings	-do-				
	3) Front axle hubs	-do-				
	4) Engine Oil	-do-				
	5) Transmission Oil	-do-				
17.1.10	Safety features:					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulic pipes (As per IS 12239 (Part2))	Meets the requirement	Yes	
b)	Lighting arrangement	Evaluative	As per CMVR	Meets the requirement	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 requirement	No	
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	Meets the requirement	Yes	
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS: 4468 (Part-I) (As amended from time to time)	Meets the requirement	Yes	
f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time)	Meets the requirement	Yes	
g)	Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time)	Not provided	Not applicable	

T-1653/2184/2022	DEUTZ FAHR, AGROMAXX 4050E TRACTOR -COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7		
h)	1) Maximum travelling speed at rated engine speed in reverse gears, kmph	Evaluative	Should not exceed 20 kmph		11.18 kmph (Meets the requirement)	Yes		
	2) Audible warning signal on tractor	Evaluative	As soon as the travelling speed in reverse gear reaches to 20 kmph, an audible warning signal on tractor shall be activated. The safety aspects about the operation of shuttle technology shall be brought in operation and manufacturer /dealer shall ensure the training on this aspect to operator before the delivery of tractor.		Not fitted	Not applicable		
17.1.11 Labelling of tractors (Provision of labelling plate):								
	1) Make	Evaluative	Should conform to the requirements of CMVR along with maximum PTO Power in kW and year of manufacture in numerical form. <table border="1" style="margin: 0 auto; border-collapse: collapse;"> <tr> <td style="padding: 2px;">MM</td> <td style="padding: 2px;">YY</td> </tr> </table> Digit 01 – 12 in box No.1 for MM will represent the months and next two digits in box No.2 for YY will represent the year of Manufacturing.		MM	YY	DEUTZ-FAHR	Yes
MM	YY							
	2) Model	Evaluative			AGROMAXX 4050 E	Yes		
	3) Month & Year of manufacture	Evaluative			08 /21	Yes		
	4) Engine number	Evaluative			3AD222654H 21	Yes		
	5) Chassis number	Evaluative			M1TFP32RDH G000572	Yes		
	6) Maximum PTO power, (kW)	Evaluative	32.4	Yes				
17.1.12 Discard limit for:								
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer and supported by the printed literature	105.100	104.962 to 105.014	Yes		
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.42	0.118 to 0.129	Yes		
(c)	Piston diameter at skirt, (mm)	Non Evaluative		104.68	104.885 to 94.888	Yes		
(d)	Ring end gap (mm):		To be specified by the manufacturer and supported by the printed literature					
	- Top comp. ring.	Evaluative		1.5	0.50 to 0.55	Yes		
	- 2 nd comp. ring.			1.5	0.50 to 0.60	Yes		
	- Oil ring.		1.5	0.30 to 0.35	Yes			
(e)	Ring groove clearance (mm):		To be specified by the manufacturer and supported by the printed literature					
	- Top comp. ring.	Evaluative		0.25	0.132 to 0.134	Yes		
	- 2 nd comp. ring.			0.25	0.055 to 0.061	Yes		
	- Oil ring.		0.15	0.048 to 0.051	Yes			

T-1653/2184/2022	DEUTZ FAHR, AGROMAXX 4050E TRACTOR -COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7
(f)	Clearance of main bearings (mm):					
-	Diametrical clearance	Evaluative	To be specified by the manufacturer and supported by the printed literature	0.25	0.091 to 0.131	Yes
-	Crankshaft end float	Evaluative		0.50	0.22	Yes
(g)	Clearance of big end bearings, (mm):					
-	Diametrical	Evaluative	-do-	0.40	0.053 to 0.078	Yes
-	Axial	Evaluative	-do-	0.50	0.20 to 0.25	Yes
(h)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	Ball bearings are provided		Not Applicable
(i)	Clearance between centre pin and bush, (mm)	Non Evaluative	-do-	1.00	0.176 to 0.277	Yes
17.1.13	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
17.1.14	Fitment of Roll Over Protective Structures (ROPS):					
	For tractor having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS:1182 or OECD code or equivalent International Standard		Not fitted	Not applicable
17.1.15	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor		Provided	Yes
17.1.16	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR		Not Provided	Not applicable

17.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2019):					
Sl. No.	Category of break-downs	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	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.	Mn (07) (One)	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed five, that is, (2 major + 3 minor) or (1 major + 4 minor) or 5 minor breakdowns.	One	Yes

17.3 Salient Observations:**17.3.1 Laboratory tests:****17.3.1.1 Hydraulic performance test:**

- i) During the hydraulic test, lifting capacity at hitch point was observed as 23.40 kN against the declaration of 18.14 kN which does not meet the evaluative requirement of IS: 12207-2019 with regard to tolerance limit.

Upon this the applicant has requested vide letter No. Nil dated 27.10.2021 for the cleaning of control valve assembly and conduct **Repeat Test**, which was allowed as per the provisions contained in clause 3.2.3 & clause 4.1 of IS: 12207-2019.

- ii) The moment about rear axle at standard frame was calculated as 21.56 kN-m whereas; the moment about front axle was calculated as 16.25 kN-m under unballasted condition. The moment about rear axle is on higher side as compared to the moment about front axle. This should be looked into for necessary corrective action

17.3.1.2 Mechanical Vibration:

The amplitude of mechanical vibration on various assemblies marked as (*) in Chapter - 9 of this test report is on higher side. This calls for dampening down of vibrations especially on foot rests (LHS & RHS), steering control wheel and operator's seat to improve the operational comfort and service life of components.

17.3.1.3 Haulage Test:

The fuel consumption (ml/km/tonne) has been specified as 25 to 80 ml/km/tonne & 25 to 90 ml/km/tonne in case of two wheel & four wheel trailer respectively. The range is too wide to be plausible and therefore conveys little sense. It may be looked into for necessary corrective action

17.3.1.4 Operator's Seat:

- i) Provision for adjustment of driver's mass ranges from 50 to 120 kg against the requirement of 40 to 100 kg.
- ii) Vertical distance from seat index point to the centre of steering control wheel has been measured as 245 mm against the requirement of 265 to 385 mm.
- iii) Lateral distance from seat index point to the centre of outer brake pedal has been measured as 315 mm against the requirement of 300 mm (max).
- Above parameters do not meet the requirement of IS: 12343- 2021. This should be looked into for necessary corrective action at production level.

17.3.1.5 Steered wheel rims:

- i) The sizes of Steered Wheel Rims were found to be "W6 X 18".
- ii) As per Rule 95 A (2) of CMVR, 1989 read in conjunction with IS: 13154- 2015 provides for "The Agricultural Tractor manufacturer shall select ONLY THAT RIM SIZE AS RECOMMENDED BY THE TYRE MANUFACTURER." In this case, the rim size RECOMMENDED by IS: 13154-2015, by ITTAC manual, is "W7". An immediate corrective action is required to be taken even in stand point of view with compliance to CMVR, 1989.


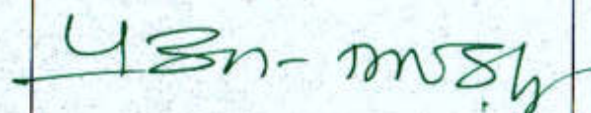
17.3.1.6 Operator's Manual:

- i) Recommended oil grade of the steering system given in technical specification submitted by applicant is SDF UTTO whereas in Page No. 51 of operator's manual same has been given as Servo Gear HP 140. This should be looked into for necessary corrective action.
- ii) Recommended ballast mass for different operations given in technical specification submitted by applicant is not same as given in Page No. 79 to 81 of operator's manual.



- 17.4 Maintenance / Service Problems:**
No noticeable maintenance or service problem was observed during the test.
- 17.5 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 as per the requirement of IS: 12239 (Part-1)-2018.
 - ii) The working clearance between position and draft control lever of hydraulic system was measured as 45 mm against the minimum requirement 70 mm as per IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).
 - iii) Fuel shut-off knob does not remain in "STOP" position as per requirement of IS: 8133-1983 (Re-affirmed in 2019).
- 17.6 Adequacy of Literature supplied with machine:**
- 17.6.1** The following literatures were supplied with the test tractor for reference during the test:-
- a) Operator Manual of Agromaxx 4045 E, Agromaxx 4050 E, Agromaxx 4055 E & Agromaxx 4060 E tractor models.
 - b) Parts catalogue for "Agromaxx 4050 E" tractor model.
 - c) Workshop service manual of Agromaxx 4045 E & Agromaxx 4050 E tractor models.
- 17.6.2** The operator manual may be brought out for the guidance of users and service personnel as per IS:8132-1999 incorporating, inter alia, the following:
- i) Safe hitch height while using trailer.
 - ii) Ballast mass recommended for different operations
 - iii) Specification of recommended matching implements for field operations & trailers for haulage operation.
 - iv) Recommended gross mass of trailers for haulage operation
 - v) Coolant recommended and coolant-water ratio.
- 17.6.3** Delay of one month occurs due to non supply of spare/component parts of tractor by the applicant during hydraulic/drawbar performance test.

TESTING AUTHORITY:

C.V. CHIMOTE TEST ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report is compiled by: C. K. Tijare, Agricultural Engineer.