

Application Reference No. 28/2023-24/25



Make of Agricultural Tractor : **INDO FARM**
Model : **1026**
Manufactured by : **M/s. Indo Farm Equipment Ltd.**
Export Promotion Industrial Park,
Phase-II, Baddi – 173 205,
Distt. Solan, Himachal Pradesh



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)

T-1876/2407/2024

**INDO FARM 1026 TRACTOR
INCOMPLETE- INITIAL COMMERCIAL TEST**

Tractor manufacturer's name and address

: **M/s. Indo Farm Equipment Ltd.**
Export Promotion Industrial Park,
Phase-II, Baddi – 173 205, Distt. Solan
Himachal Pradesh, India

Month: August

Test Report No.: T-1876/2407/2024

Year: 2024



**GOVERNMENT OF INDIA
CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE
TRACTOR NAGAR, BUDNI (MADHYA PRADESH) 466445, INDIA
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Remark: The backup torque was recorded 11.8% against the minimum requirement of 12.0 %, which does not meet the evaluative requirement of IS 12207: 2022. Consequently, the applicant has requested to withdraw tractor from the testing vide their email dated 03.05.2024. The same was approved by the competent authority. Hence, the incomplete test report has been released as such.

| | | | |
|-----|---|---|--|
| [C] | Tractor manufacturer's name and address | : | M/s. Indo Farm Equipment Ltd. Export Promotion Industrial Park, Phase-II, Baddi-173205, District-Solan, Himachal Pradesh, India. |
| [C] | Submitted for test by (Applicant) | : | The Manufacturer |
| [C] | Selected for test by | : | The Ministry vide OM No. 13-17/2021 - M&T (I&P) dated 28.07.2022, has allowed the applicant to submit the test sample directly to the Institute without requiring any random selection for Initial Commercial Testing. Thus, the applicant directly submitted the test sample to the Institute for test. |
| [D] | Place of running-in | : | At manufacturer's works |
| [D] | Duration of running-in, (h): | : | |
| | -Engine | : | 05 |
| | -Transmission | : | 10 |
| [C] | Location of test | : | Government of India, Central Farm Machinery Training and Testing Institute, P.O. - Tractor Nagar, BUDNI - 466445 (M.P.), INDIA |

1. SPECIFICATIONS OF TRACTOR

1.1 Identification:

1.1.1 Denomination

| | | | |
|-----|-----------------------------|---|--|
| [C] | Make of tractor | : | Indo Farm |
| [C] | Model | : | 1026 |
| [C] | Type | : | Four wheel driven, Standard Agricultural Tractor |
| [C] | Month & year of manufacture | : | 01/23 |
| [D] | Country of origin | : | India |

1.1.2 Numbers:

| | | | |
|-----|---|---|---------------|
| [D] | 1 st Serial No. or prototype | : | INT102600001 |
| [C] | Serial No. | : | APR1026000352 |

1.2 Engine:

| | | | |
|-----|------------------------|---|--|
| [D] | Manufacturer's address | : | M/s. Mitsubishi Heavy Industries – VST Diesel Engines Pvt. Ltd, Plot no. 305, Hebbal Industrial Area, Metagalli, Mysore-570016. |
| [C] | Make | : | M/s. Mitsubishi Heavy Industries – VST Diesel Engines Pvt. Ltd. |
| [C] | Model | : | MVS3L2-JC |
| [C] | Type | : | Four stroke, liquid cooled, naturally aspirator, indirect injection, diesel engine |
| [C] | Serial No. | : | A57369 |

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| T-1876/2407/2024 | INDO FARM 1026 TRACTOR INCOMPLETE- INITIAL COMMERCIAL TEST |
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6. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

6.1 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: 12207-2022** for acceptance of the tractor for the purpose of subsidies/NABARD financing are summarized as under:

| S. No. | Characteristic | Category (Evaluative / Non Evaluative) | Requirements as per IS: 12207-2022 | Values declared by the applicant/ (D) Requirement (R) | As observed | Whether meets the requirements (Yes/No) |
|--|---|--|--|---|-------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| MANDATORY TESTS: (As per Ministry's Office Memorandum No. 13-14/2020-M&T (I&P) 82979 dated 28th of August, 2023) | | | | | | |
| 6.1.1 | 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. | 16.0 (D) | 16.1 | Yes |
| b) | Power at rated engine speed, (kW) | Non Evaluative | -do- | 16.0 (D) | 16.1 | Yes |
| c) | Specific fuel consumption corresponding to maximum power, (g/kWh) | Evaluative | + 10% max. | 326 (D) | 329 | Yes |
| d) | Maximum equivalent crankshaft torque, (Nm) | Non Evaluative | $\pm 8\%$ | 65.06 (D) | 63.7 | Yes |
| e) | Back-up torque, percent | Evaluative | 12% min. | 15 (D) 12 (R) | 11.8 | No |
| f) | Maximum operating temperature, ($^{\circ}\text{C}$): | | | | | |
| | 1) Engine oil | Evaluative | The declared value should not exceed the max. value specified by the oil company and the observed value under natural ambient/high ambient condition should not exceed the declaration. | 122 (D) | 117 | Yes |
| | 2) Coolant | Evaluative | Observed value should not exceed the declared value or boiling point of the coolant at radiator cap pressure whichever is lower. The boiling point of the coolant at radiator pressure shall be provided by the applicant. | 118 (D) | 94 | Yes |
| g) | 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 per meter (R) Maximum | 0.27 | Yes |

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| T-1876/2407/2024 | INDO FARM 1026 TRACTOR INCOMPLETE- INITIAL COMMERCIAL TEST |
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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | |
|--------------|--|----------------|--|---|------|----------------|--|-----|
| 6.1.2 | 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) | 3.18 | Yes | | |
| | 2) Hot brake | Evaluative | 10 | 10 (R) | 3.49 | Yes | | |
| b) | 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 | | |
| 6.1.3 | OPTIONAL TESTS: As the applicant has not applied for any optional tests, therefore no optional tests was conducted. | | | | | | | |
| 6.1.4 | Safety features : | | | | | | | |
| a) | Guards against moving and hot parts | Evaluative | Belt drives, pulleys, silencer, hydraulic pipes [As per IS 12239 (Part 2)] | 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) | Not applicable as the rear track width of tractor is less than 1150 mm. | | Not applicable | | |
| d) | Technical requirements for PTO shaft | Non 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: 17231-2019 (As amended from time to time) | Does not meet the requirement | | No | | |
| f) | Specifications of linkage drawbar | Non Evaluative | Should meet the requirements of IS: 12953 (As amended from time to time) | Does not meet the requirement | | No | | |
| g) | Specifications of swinging drawbar (wherever fitted) | Non Evaluative | Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time) | Not provided | | Not applicable | | |
| h) | Audible warning signal on tractor | Evaluative | If tractor travel speed in reverse gear exceeds 20 kmph, an audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. | Not fitted | | Not applicable | | |
| 6.1.5 | Labelling of tractors (Provision of labeling plate): | | | | | | | |
| | 1) Make | Evaluative | Should conform to the requirements of CMVR along with maximum PTO Power in kW, specific fuel consumption (SFC) corresponding to maximum power in g/kWh and year of manufacture in numerical form. <table border="1" style="margin-left: 20px;"><tr><td>MM</td><td>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 | INDOFARM | | Yes |
| MM | YY | | | | | | | |
| | 2) Model | Evaluative | | 1026 | | Yes | | |
| | 3) Month & Year of manufacture | Evaluative | | 01/23 | | Yes | | |
| | 4) Engine number | Evaluative | | A57369 | | Yes | | |
| | 5) Chassis number | Evaluative | | APR1026000352 | | Yes | | |
| | 6) Maximum PTO power, (kW) | Evaluative | | 16.0 | | Yes | | |
| | 7) Specific fuel consumption, g/kWh | Evaluative | 326 | | Yes | | | |

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------------|---|----------------------|--|-------------------|----------------|---|
| 6.1.6 | Literature (Submission to test agency): | | | | | |
| (a) | Operator manual | Evaluative | The printed literature in booklet form should be provided as per IS 8132 and should submit along with the test sample. | Provided | Yes | |
| (b) | Parts Catalogue | Evaluative | | Provided | Yes | |
| (c) | Workshop/ Service manual | Evaluative | | Provided | Yes | |
| 6.1.7 | Fitment of Roll Over Protective Structures (ROPS): | | | | | |
| | For tractor having more than 1150 mm rear track width | Evaluative if fitted | ROPS should meet the requirement of IS:11821 or OECD code or equivalent International Standard | Not fitted | Not applicable | |
| 6.1.8 | Standard Accessories | Evaluative | Trailer hitch, front tow hook, linkage drawbar should be provided with tractor | Provided | Yes | |
| 6.1.9 | Accessories (optional) | Non Evaluative | Ballast weight, if fitted, should meet the requirement of CMVR | Not fitted | Not applicable | |

| 6.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2022): | | | | | |
|--|-------------------------|--|---|-------------|---|
| S. No. | Category of break-downs | Category (Evaluative / Non Evaluative) | Requirements as per IS: 12207-2022 | 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 neither of them should be repetitive in nature. | None | 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. | None | Yes |

6.3 Conformity with following IS:

- i) Guidelines for declaration of power and specific fuel consumption and labeling of agricultural tractors (First revision) [IS:10273 -1987 (Reaffirmed Year 2019)] : Conforms
- ii) Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS:4931-1995 (Reaffirmed Year 2019)] : Conforms
- iii) Agricultural wheeled tractors – Rear mounted three-point linkage: Part 2 Categories 1, 2, 3 & 4 (fourth revision) [IS:17231-2019] : **Does not conform**
- iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed Year 2022)] : **Does not conform**
- v) Agricultural tractors- Operator's seat technical requirement [IS12343 - 2021] : Not applicable as the rear track width of tractor is less than 1150 mm.
- vi) Guide for safety & comfort of operator of agricultural tractors:Part 1 General requirements (first revision):[IS 12239 (Part 1) - 2018] : **Does not conform**

- | | | | |
|-------|--|---|-------------------------|
| vii) | Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) [IS 12239 (Part 2) 1999] (Reaffirmed Year 2019) | : | Does not conform |
| viii) | Guide lines for location and operation of operator controls on agricultural tractors and machinery [IS: 8133 - 2021] | : | Does not conform |
| ix) | Tractors and machinery for agriculture and forestry, powered lawn and garden equipment - Symbols for operator controls and other displays Part2 Symbols for agricultural tractors and machinery [IS: 6283(Part-1) - 2006 (Reaffirmed Year 2019) and IS: 6283 (Part-2) – 2007 (Reaffirmed Year 2019)] | : | Does not conform |
| x) | Agricultural Tractors and Machinery-Lighting device for travel on public roads (IS:14683-1999) (Reaffirmed Year 2019)] | : | Conforms |

6.4 Salient Observations:

6.4.1 PTO Performance Test:

The backup torque was recorded 11.8% against the minimum requirement of 12.0%, which does not meet the evaluative requirement of IS 12207: 2022. Consequently, the applicant has requested to withdraw tractor from the testing vide their email dated 03.05.2024. The same was approved by the competent authority. Hence, the incomplete test report has been released as such.

6.4.2 Operator's work place:

The following parameters does not meet the requirement of IS: 12239 (Part-I) 2018.

- i) Vertical retainer on inner side of clutch pedal was not provided.
- ii) Spark arresting device has not been provided in the exhaust system.
- iii) Anti slip surface for floor area has not been provided.

6.4.3 Three point linkage:

The following parameters does not meet the requirements of IS: 17231 – 2019.

- i) Width of upper hitch point ball has been measured as 31.9 mm against the requirement of 43.5 to 44.0 mm.
- ii) The lateral distance from lower hitch point to center line of tractor has been measured as 258 mm against the requirement of 218 mm.
- iii) The distance from end of power take-off to center of lower hitch point (lower links in horizontal position) has been measured as 435 mm against the requirement of 300 to 375 mm.
- iv) The power range has been measured as 380 mm against the minimum requirement of 610 mm.

6.4.4 Specification of linkage drawbar

The dimension of "A" of linkage drawbar has been measured 480 mm against the non evaluative requirement of 389.5 to 401.5 mm, which does not meet the non evaluative requirement of IS: 12953-1990(Cat-1N) . This should be looked into for necessary corrective action.

6.4.5 PTO master shield:




PTO master shield has not been provided on tractor.

6.5 Maintenance / Service Problems:

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

- 6.6 Recommendation with regard to safety on tractor:**
- i) Identification of control levers by colour has not been provided as per the requirement as laid down in Table - 5 of IS: 8133-2021.
 - ii) The hand accelerator lever, when moved away from the operator (i.e. forward) decreases the engine speed, which does not meet the requirement as laid down in Table - 1 of IS: 8133-2021.
 - iii) Color code on illuminated display has not been provided as per the requirement as laid down in IS: 6283 (Part 2): 2007.
 - iv) Provision of safety against accidental start of engine does not provided.
- 6.7 Adequacy of Literature supplied with machine:**
- 6.7.1** The following literatures were supplied with the test tractor for reference during the test: -
- a) Operator's Manual for "Indo Farm 1026-1 Series" tractor model.
 - b) Parts catalogue for "Indo Farm 1026" tractor model.
 - c) Workshop manual for "1026 DI" tractor model.
- 6.7.2** 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) Engine to PTO speed ratio
 - ii) Brand name of coolant and coolant water ratio

**TEST CARRIED OUT AT C.F.M.T. & T.I., BUDNI (M.P.), INDIA
TESTING AUTHORITY**

| | |
|--|--|
| B. N. DIXIT AGRICULTURAL ENGINEER |  |
| R. P. PANDEY SENIOR INSTRUMENTATION ENGINEER (TESTING HEAD) |  |
| Dr. P. P. RAO DIRECTOR |  |

Draft Test Report compiled by **Poonam Khurasia**, Senior Technical Assistant

7. APPLICANT'S COMMENTS

| Para no. | Our reference | Applicant comments |
|----------|-----------------------------------|---|
| 7.1 | 6.3 (iii, iv, vi, vii, viii & ix) | We are looking into these points for future improvements. |
| 7.2 | 6.4.1 | We are looking into these points for future improvements. |

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| T-1876/2407/2024 | INDO FARM 1026 TRACTOR INCOMPLETE- INITIAL COMMERCIAL TEST |
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ANNEXURE-I

TRACTOR RUN HOURS DURING TEST

| A. | LABORATORY AND TRACK TESTS: | HOURS |
|---------------|---|--|
| 1. | Running-in | The applicant has declared that it has already been conducted on their work place. |
| 2. | PTO performance test | 7.6 |
| 3. | Brake performance test | 1.0 |
| 4. | Nominal speed test | 2.5 |
| B. | Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test. | 0.5 |
| TOTAL: | | 11.6 |