

Schedule No.: 13

Diesel Engine Driven Monoset Pumps for Agricultural Purposes

1. Scope

- 1.1 This schedule specifies the Fuel Consumption norms leading to Star Labeling Programme for “Diesel Engine Driven Monoset Pumps for Agricultural purposes” being manufactured, imported, or sold in India.
- 1.2 The scope covers Diesel Engine Driven Monoset Pumps for clear, cold, fresh water for agricultural purposes within the range of 2 HP to 10 HP for which the Schedule is applicable.
- 1.3 This Star labeling programme is on voluntary basis till further orders.

2. Normative Reference

- 2.1 This Schedule shall be read in conjunction with applicable IS codes for equipment ratings under the energy Star labeling scheme given hereunder:

S. No.	Product Details	Range HP	Applicable IS
1.	Diesel Engine Driven Monoset Pumps for Agricultural purposes	2HP - 10 HP	(a) IS 11501:1986 (b) IS 11170 :1985 (c) IS 11346 : 2002

3. Terms and Definitions

Diesel Engine Driven Monoset Pumps for Agricultural purposes consisting of single suction centrifugal pump with driving diesel engine designed and built as complete unit on one shaft.

4. Eligibility Criteria:

- 4.1 Manufacturers of equipment / importers/ persons-in-trade can participate in the scheme by registering with the Bureau.
- 4.2 The equipment is usable with clear, cold, fresh water for agricultural purposes and not with any other liquid.
- 4.3 BIS 11501 license mark certification for the product is mandatory.

The eligibility criteria for participation in the Standard & Labeling program for **Diesel Engine Driven Monoset Pumps for Agricultural Purposes** (Range 2 to 10 HP) shall be as follows:-

Following categories are eligible to qualify for participation:

- (i) Manufacturers of equipment
- (ii) Importers
- (iii) Persons-in-trade

5. Testing Guidelines

5.1 The testing code and procedure for “Diesel Engine Driven Monoset Pumps for Agricultural purposes” would be as per IS 11501:1986 with all amendments.

5.2 Parameters to be tested :

A. Fuel Consumption

The Fuel Consumption of Diesel Engine Driven Monoset Pumps for Agricultural purposes shall be determined as per test procedure specified in “Clause 11 of IS 11501 :1986” with all amendments.

B. Parameters for initial verification and check testing are certified performance of measurement of nominal volume rate of flow, nominal head, fuel consumption in g/hr of the pump set at the nominal duty point and as per IS11501:1986.

5.3 Manufacturers are required to submit the test report from BIS / BIS Approved / NABL Certified / CSIR laboratory only.

5.4 Test Report:

- a) The test reports shall be reported as per the format given in Annex - A of IS 11501:1986
- b) Supporting document declaring Specific Fuel Consumption w.r.t. BIS chart to be submitted along with test reports.
- c) Fuel Consumption Norms:
 - i. Under the check/challenge testing process the Diesel Engine Driven Monoset Pumps for Agricultural Purposes shall be tested for Specific Fuel Consumption only.
 - ii. **Tolerance:** The tolerance shall be as specified in IS 11501:1986. However, there shall be no tolerance for Specific Fuel Consumption value for Star

Rating band; the average products tested must be at par or better than the Star label threshold.

6. Energy Efficiency Criteria

6.1 **Star Rating Plan** : The Star Rating levels for Diesel Engine Driven Monoset Pumps for Agricultural purposes will be as given below :

Star Rating	Specific Fuel Consumption (SFC) in g/h/m/l/s of pump at duty point w.r.t. SFC_{max}^{**} (given in IS 11501:latest)
1 Star	> 0.90 SFC_{max} to \leq 1.00 SFC_{max}
2 Star	> 0.80 SFC_{max} to \leq 0.90 SFC_{max}
3 Star	> 0.70 SFC_{max} to \leq 0.80 SFC_{max}
4 Star	> 0.60 SFC_{max} to \leq 0.70 SFC_{max}
5 Star	\leq 0.60 SFC_{max}

**** SFC_{max}** (Maximum Specific fuel consumption) of Diesel Engine Driven Monoset pump at duty point is derived from chart given IS 11501:latest

6.2 **Permissible Fuel Consumption (cc/hour) is calculated as follows :**

$$\text{Permissible Fuel Consumption (cc / hour)} = \frac{\{SFC (g/h/m/l/s) \times \text{Head(m)} \times \text{Discharge(l/s)}\}}{(\text{Density of Fuel}) \text{ in g/cc}}$$

Note:- This Fuel Consumption and SFC of pump (at duty point) will be displayed on Star label.

7. Manner of Display:-

The Star label design and manner of display will be as per details given below:




7.1 Family of Models: „Family of Models“ is the range of models of one particular brand, to which a single set of test reports is applicable and where each of the models has the same material of “Diesel Engine Driven Monoset Pumps” having same Fuel Consumption and performance characteristics. The term „model“ is synonymous with „family of models“.

7.2 Placement & Manner of Display: All “Diesel Engine Driven Monoset Pumps for Agricultural purposes” must display the Fuel Consumption Star label at the point of manufacturing. The Star label shall be transfixed & aluminum anodized label, on the front of the unit or display front. The Star label may also be printed on the exterior of the packaging of the equipment.

7.3 Star Label Design: The Star label shall be cut to outlines shown in Figures 1.1 as

applicable.

STAR LABEL - DIESEL ENGINE DRIVEN MONOSET PUMPS FOR AGRICULTURAL PURPOSES (Fig 1.1)

	Specific Fuel Consumption of monoset pump: _____ g/h/l/l/s Diesel Engine Driven Monoset Pumps for Agricultural Purpose		Manufacturers Logo if available	IS - 11501 
Pump Type _____	Pump Sl. No. _____	Model No./Year _____	kW/ hp _____	
Suction (size) _____ mm	Delivery(size) _____ mm	Impeller Dia _____ mm		
Full Load Speed _____ rpm	Capacity (Range) _____ (litre/s)			
Duty Point: Head: _____ m	Discharge: _____ l/s			
Fuel Consumption (at Duty Point) _____ cc/hr (at Fuel Density _____ g/cc)				
* Specific Fuel Consumption (SFC) at Duty Point _____ g/h/l/l/s				
Name of the manufacturer with complete address				
Label Period : 1st Jan 2016 - 31st Dec 2018 In Association with PCRA				
*Under test conditions when tested in accordance with relevant standards the Actual Fuel Consumption will depend on how the equipment is being used				

***Aspect ratio of label shall remain same while printing**

(a) Colour Scheme for Logo

BLUE -

Hue (H)-239° Saturation(S):64% Brightness (B):59%

Luminance or lightness (L):28, chromatic components -a: 24 b: 54

Red(R):54 Green (G):55 Blue (B):151

Cyan(C):97% Magenta (M):95% Yellow(Y):6% Black (K):1%

Web color code - #363797

GREEN -

Hue (H)-150° Saturation(S):10% Brightness (B):67%

Luminance or lightness (L):61, chromatic components -a: 53 b: 32

Red(R):0 Green (G):170 Blue (B):87

Cyan(C):81% Magenta (M):10% Yellow(Y):90% Black (K):1%

Web color code - #00AA56

(b) Material, Shape and placement

The label shall be aluminum anodized label and shall be designed as set out in the Figure.

8. Fees

The user of label with respect to each equipment shall deposit a sum of Rs 1 lakh for large scale and Rs.25000/- for small scale along with the application for seeking authority to use label, as a security deposit. The amount of labeling fee due in a financial year shall be paid by the user of the label to the Bureau of Energy Efficiency within one month of the close of each financial year. In case of default in payment of the due amount of labeling fee the security shall be forfeited. Further, participation by the defaulters in the scheme shall be subject to payment of full amount of labeling fee due with 10% interest thereon and with the approval of the National Standard & Labeling Implementation Committee.

- a. Registration fee is payable on application for assignment of authority to affix Star label is Rs.2000/- (Rupees One Thousand only).
- b. Registration fee is payable on application for renewal of authority to affix Star label is Rs.500/- (Rupees Five Hundred only).
- c. Labeling fee for affixation of Star label on each piece of Diesel Engine Driven Monoset Pump is Rs.5/- (Rupees Five only).

9. Others

- (i) **Tolerance limits:** There is **no tolerance** for the Star Rating. All tested products shall meet the minimum threshold for each Star Rating Band.
- (ii) **Validity of Label:** Label to be valid until the next proposed change in the star rating band for Diesel Engine Driven Monoset Pumps.
- (iii) **Future Specification Revisions:** BEE reserves the right to revise this schedule, should technological and/or market changes affect its usefulness to consumers or industry or its impact on the environment. In keeping with current BEE policy, whenever there is any changes in the schedule particularly with regard to changes in the test procedure or the and/or the energy efficiency norms/values, the manufacturers/user of the label shall ensure that their product meets the requirements of the revised schedule for which they should submit fresh application for fresh registration. To qualify as Star labeled product, a product model shall meet the BEE's revised schedule in respect of the products and models dispatched or shipped from the manufacturers premises immediately after the effective date of implementation of the revised schedule.
- (iv) **Label Design and Manner of Display:** All Diesel Engine Driven Monoset Pumps must display the label at the point of sale. The label shall be so fixed that it is clearly visible. The manufacturers shall ensure that the star level approved to be displayed on the label of Diesel Engine Driven Monoset Pumps shall be maintained during the validity period of label.

APPENDIX A

(Clause 11.3.2)

PUMP TEST RECORD SHEET

IS : 11501 - 1986

Sheet No. _____
Refer Graph No. _____

Pump Type _____ Pump No. _____ Engine Make _____ kW _____ Engine Frame _____
Suction _____ mm Delivery _____ mm
Impeller Dia _____ mm. Material _____
Capacity measured by 90° V-notch/volumetric tank (litres) Full Load rpm _____

Suction lift measured by : Hg manometer/Vaccum gauge

Delivery head measured by : Hg manometer/Pressure gauge.

Sl No.	Speed of Pump rev/min	Suction Gauge Reading m	Delivery Gauge Reading m	Gauge Distance m	Velocity Head Correction m	Total Head Over Notch m	Discharge in l/s	Time for 50 cc Fuel Consumption	Fuel Consumption g/h	Performance Converted at Specified Speed		
										H m	O l/s	Fuel consumption g/h

Pump certified for a) Total head in m _____ Date _____ Tested by _____
b) Discharge in l/s _____ rev/min _____ Set started at _____ Set stopped at _____
c) Fuel consumption in g/h _____ Remarks _____

General requirements — Satisfactory/unsatisfactory _____

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FORMAT FOR SUBMISSION OF QUARTERLY DETAILS OF "DIESEL ENGINE DRIVEN MONOSET PUMPS FOR AGRICULTURAL PURPOSES" PRODUCED / SOLD

To be printed on company Letter Head / Chartered Accountant Letter Head

To,

The Director General,
Bureau of Energy Efficiency,
4th Floor, SewaBhawan
R.K.Puram, New Delhi.

Company Name :

Agency Id:

Equipment Name:.....

Production data Detail of the Star Rated Model

Production detail for the Financial Year: Quarter:

Detail of the Production data:

S. No.	Model Name	Application id	Production
Total Production			

The above figures have been verified from the book of accounts and relevant records produce before us.

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Verified By: Chartered Accountant

Name & Signature of Chartered Accountant with Seal
CA Membership No/Registration No.: