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*भारतीय मानक मसौदा*

**बल्क हैंडलिंग उपकरण — रिंगक ट्रैक्टर — डाटा शीट**  
**भाग 2 विनिर्माता/आपूर्तिकर्ता द्वारा आपूर्ति की जाने वाली जानकारी**

[ आई एस 11738 (भाग 2) का दूसरा पुनरीक्षण ]

**DRAFT *Indian Standard***

**BULK HANDLING EQUIPMENT —  
CRAWLER TRACTORS — DATA SHEET**  
**PART 2 INFORMATION TO BE SUPPLIED BY MANUFACTURER/SUPPLIER**

[ *Second Revision* of IS 11738 (Part 2) ]

ICS 53.040.30

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**Earth Moving Equipment and Material**  
**Handling Sectional Committee, MED 07**

**Last date for receipt of comments**  
**is 12 Jan 2023**

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**FOREWORD**

*(Formal clause to be added later)*

This standard was first published in 1986. The standard was earlier covering the information to be provided by both, the purchaser and the manufacturer/supplier. In first revision has been undertaken to segregate the information required to be furnished by the purchaser and the manufacturer/supplier. Accordingly, this standard is being published in two parts. In this revision, the following major changes have been made:

- a) A reference clause **2** has been added mentioning the latest version of the referred standards;  
and

b) Editorial changes have been done.

This standard (Part 2) lays down the information required to be furnished by the manufacturer/supplier at the time of a tender enquiry or at the time of supply of the equipment. Equipment offered by the manufacturer/supplier shall be suitable to perform the duty as specified by the purchaser in accordance with Part 1 of this standard.

IS 11738 (Part 1) : 1993 ‘Bulk handling equipment — Crawler tractors — Data sheet: Part 1 information to be provided by purchaser’ lays down the information to be provided by the purchaser at the time of enquiry or order. He may also provide the additional information such as sieve analysis etc. suitably, which may help the manufacturer in selecting the best suited equipment for the duty required to be performed by the equipment.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## **1 SCOPE**

This Indian Standard covers the data that shall be provided by the manufacturer/supplier at the time of enquiry or order.

## **2 REFERENCES**

The standards listed below contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. In case the standards are to be referred in this clause, they are to be listed as follows:

<i>IS/ISO No.</i>	<i>Title</i>
IS 10463 (Part 6) : 1983	Glossary of terms for bulk handling equipment: Part 6 Cyclic loose bulk handling equipment (non-stationary)
IS 11738 (Part 1) : 1993	Bulk handling equipment — Crawler tractors — Data sheet: Part 1 Information to be provided by purchaser ( <i>first revision</i> )
IS 13116 : 2006	Earth moving machinery – Engine test code — Net power ( <i>second revision</i> )

## **3 TERMINOLOGY**

For the purpose of this standard terms and definitions given in IS 10463 (Part 6) shall apply.

#### 4 DATA SHEET

The details as required by this standard shall be provided by the manufacturer/supplier while quoting/supplying the most appropriate machine against the specific requirement of the purchaser as specified by the purchaser in IS 11738 (Part 1).

##### 4.1 Base Machine

- a) Model \_\_\_\_\_
- b) Power \_\_\_\_\_ kWh

##### 4.2 Capacities (Based on Average Conditions)

The capacities shall be provided for different types of blades and different depth of cuts.

<i>Capacity</i>	<i>Volume</i> (In Loose Condition m <sup>3</sup> )	<i>Mass</i> Tonne
Per hour		
Per day		
Per month		
Per year		

##### 4.3 Engine (See also IS 13116)

- a) Make and model \_\_\_\_\_
- b) Type \_\_\_\_\_ In line/V-type : Two stroke/ Four Stroke \_\_\_\_\_
- c) Cooling system \_\_\_\_\_ Air cooled/ Water cooled
- d) Gross power \_\_\_\_\_ kW at \_\_\_\_\_ rev/min
- e) Flywheel power \_\_\_\_\_ kW at \_\_\_\_\_ rev/min
- f) Maximum torque \_\_\_\_\_ Nm at \_\_\_\_\_ rev/min
- g) Specific fuel consumption (SFC) (SFC cure to be provided) at rated load and speed \_\_\_\_\_  
\_\_\_\_\_ g/kWh
- h) Nature of aspiration \_\_\_\_\_ Natural/Super charged/Turbo charged/any other
- j) Number of cylinders \_\_\_\_\_; Cylinder linear type \_\_\_\_\_ Dry/Wet
- k) Bore (mm) × stroke (mm) \_\_\_\_\_
- m) Displacement \_\_\_\_\_
- n) Type of fuel used \_\_\_\_\_

- p) Type of fuel pump \_\_\_\_\_
- q) Air cleaner type \_\_\_\_\_
- r) Net mass (dry) \_\_\_\_\_ kg
- s) Cold starting \_\_\_\_\_
- t) Filtration system : Type \_\_\_\_\_ Dry/Wet
- u) Service indicator \_\_\_\_\_ provided/Not provided
- v) Derating factor \_\_\_\_\_
- w) Position of engine \_\_\_\_\_ Front/Rear
- y) Lubrication oil specification \_\_\_\_\_
- z) Type of governor \_\_\_\_\_
- aa) Details of lubrication system \_\_\_\_\_
- bb) Details of starting system \_\_\_\_\_
- cc) Engine idle speed
  - 1) Low idle \_\_\_\_\_ rev/min
  - 2) High idle \_\_\_\_\_ rev/min
  - 3) Stall \_\_\_\_\_ rev/min

NOTE — In case of super-charge and turbo-change, derating factor shall be specified by the manufacture.

**4.4 Transmission**

- a) Make and model \_\_\_\_\_
- b) Type \_\_\_\_\_ Mechanical/Hydrostatic/Hydrodynamic/Electric
- c) Clutch (Dry/Wet) torque convertor (Stage, element, etc.)/Hydraulic pump and motor/Electric drive \_\_\_\_\_
- d) Stall ratio (In case of hydrodynamic transmission) \_\_\_\_\_
- e) Type of drive \_\_\_\_\_ Two wheel/ Four wheel
- f) Travel speed in km/h \_\_\_\_\_

<i>Direction of Motion or Movement</i>	<i>Speed Range</i>				
	First Gear	Second Gear	Third Gear	Fourth Gear	Fifth Gear
Forward					

Reverse					

- g) Neutral start \_\_\_\_\_ Provided/Not provided
- h) Controls \_\_\_\_\_ Single/Multi-levers
- j) Hydraulic system (in case of hydrostatic and hydrodynamic transmission, details of system shall be specified) : \_\_\_\_\_
- k) Gradeability<sup>1</sup> : Laden \_\_\_\_\_ Unladen \_\_\_\_\_
- m) Gradeability<sup>1</sup> in upward direction without load \_\_\_\_\_
- n) Reverse switch \_\_\_\_\_ Provided/Not provided

1) A diagram of draw bar pull versus speed shall be provided.

#### **4.5 Draw Bar Pull**

- a) Maximum draw bar pull at stall \_\_\_\_\_
- b) Height of draw bar pull from ground level \_\_\_\_\_

#### **4.6 Steering and Braking**

- a) Type \_\_\_\_\_ Drum/Disc; Dry/Wet
- b) Actuating system \_\_\_\_\_ Hydraulic/Mechanical
- c) Operation \_\_\_\_\_ Hand operated/Foot operated
- d) Number of levers/Pedals \_\_\_\_\_

#### **4.7 Final Drive**

- a) First reduction type/Second reduction type \_\_\_\_\_

#### **4.8 Electrical System**

- a) Starting; Type \_\_\_\_\_; Voltage \_\_\_\_\_ V
- b) Lighting \_\_\_\_\_; Voltage \_\_\_\_\_ V; Intensity \_\_\_\_\_ lux
- c) Grounding \_\_\_\_\_ Positive/Negative
- d) Charging : Type \_\_\_\_\_ Alternator/Dynamo; Capacity \_\_\_\_\_ Ah
- e) Battery : Type \_\_\_\_\_; Capacity \_\_\_\_\_ Ah

#### **4.9 Undercarriage**

- a) Type of track adjustment \_\_\_\_\_
- b) Number of track rollers (each side) \_\_\_\_\_
- c) Number of track shoes (each side) \_\_\_\_\_
- d) Width of standard track shoe \_\_\_\_\_ mm
- e) Width of optional track shoe \_\_\_\_\_
- f) Height of grouser \_\_\_\_\_
- g) Length of track on ground \_\_\_\_\_
- h) Number of carrier roller (each side) \_\_\_\_\_
- j) Track gauge \_\_\_\_\_ mm
- k) Link pitch \_\_\_\_\_ mm
- m) Type of rollers \_\_\_\_\_
- n) Type of idler \_\_\_\_\_
- p) Ground pressure: Without attachment \_\_\_\_\_ MPa; With attachment \_\_\_\_\_ MPa
- q) Sprocket type \_\_\_\_\_ Segmented/Single unit
- r) Material of sprocket \_\_\_\_\_
- s) Type of suspension \_\_\_\_\_

#### **4.10 Hydraulic System**

- a) Maximum operating pressure \_\_\_\_\_ MPa
- b) System relief pressure \_\_\_\_\_ MPa
- c) Dozer Cylinder
  - 1) Type \_\_\_\_\_
  - 2) Number of cylinders and stages \_\_\_\_\_
  - 3) Size: Bore (mm) × stroke (mm) \_\_\_\_\_ × \_\_\_\_\_
  - 4) Type of mounting \_\_\_\_\_ Outside frame/Inside frame/Inverted
- d) Pump
  - 1) Type \_\_\_\_\_
  - 2) Capacity \_\_\_\_\_ litres per minute at \_\_\_\_\_ rev/min
  - 3) Location \_\_\_\_\_

- e) Control Valve
- 1) Make and model \_\_\_\_\_
  - 2) Type \_\_\_\_\_
  - 3) Position \_\_\_\_\_ raised/hold/lowered/floating
- f) Filters
- 1) Type \_\_\_\_\_ Suction/Inline pressure
  - 2) Construction \_\_\_\_\_ Throwaway/Washable element
  - 3) Flow capacity \_\_\_\_\_ litres per minutes
  - 4) Micron rating \_\_\_\_\_
  - 5) Filter clogging indicator \_\_\_\_\_ Provided/Not provided

#### **4.11 Service Refill Capacities**

- a) Cooling system: \_\_\_\_\_ litres \_\_\_\_\_ grade
- b) Engine crank case \_\_\_\_\_ litres \_\_\_\_\_ grade
- c) Transmission: Clutch/Torque convertor \_\_\_\_\_ litres \_\_\_\_\_ grade
- d) Differential and final driver : Front \_\_\_\_\_ litres \_\_\_\_\_ grade  
Rear \_\_\_\_\_ litres \_\_\_\_\_ grade
- e) Hydraulic tank \_\_\_\_\_
- 1) Type \_\_\_\_\_
  - 2) Location \_\_\_\_\_
  - 3) Capacity \_\_\_\_\_ litres
  - 4) Grade \_\_\_\_\_
  - 5) Filter type \_\_\_\_\_
- f) Fuel tank \_\_\_\_\_ litres \_\_\_\_\_ grade
- g) Brake system \_\_\_\_\_ litres \_\_\_\_\_ grade
- h) Steering tank oil \_\_\_\_\_ litres \_\_\_\_\_ grade

#### **4.12 Dimensions in mm**

- |                   | With attachment(s) | Without attachment(s) |
|-------------------|--------------------|-----------------------|
| a) Overall length | _____              | _____                 |
| b) Overall width  | _____              | _____                 |

- c) Overall height to exhaust pipe \_\_\_\_\_
- d) Overall height to the highest point pipe pre-cleaner and control lever knob \_\_\_\_\_
- e) Minimum ground clearance \_\_\_\_\_
- f) Ground contact area \_\_\_\_\_
- g) Turning radius \_\_\_\_\_

**4.13 Mass**

- a) Base machine \_\_\_\_\_
- b) Attachment (each) \_\_\_\_\_
- c) Operating mass \_\_\_\_\_

**4.14 Attachments**

**4.14.1 Blades**

- a) Straight dozer blade and push beam assembly with
  - 1) Mechanical tilt strut \_\_\_\_\_
  - 2) Hydraulic tilt strut \_\_\_\_\_
  - 3) Cylinder size and type [Bore (mm) x stroke (mm)] \_\_\_\_\_
- b) Angle dozer blade and C-frame assembly \_\_\_\_\_ Provided/Not provided
- c) U-coal blade assembly \_\_\_\_\_ Provided/Not provided
- d) Depth of cut \_\_\_\_\_ mm
- e) Blade capacity
  - 1) Straight dozer blade \_\_\_\_\_ m<sup>3</sup>
  - 2) Angle dozer blade \_\_\_\_\_ m<sup>3</sup>
  - 3) U-coal blade \_\_\_\_\_ m<sup>3</sup>
- f) Blade angle (degrees) \_\_\_\_\_
- g) Maximum blade tilt (degrees)
  - 1) Straight dozer blade \_\_\_\_\_
  - 2) Angle dozer blade \_\_\_\_\_
  - 3) U-coal blade \_\_\_\_\_



- h) Maximum blade pitch (mm) :
- 1) Straight dozer blade \_\_\_\_\_
  - 2) Angle dozer blade \_\_\_\_\_
  - 3) U-coal blade \_\_\_\_\_
- j) Maximum blade swivel (either direction) (angle dozer blade) \_\_\_\_\_
- k) Blade dimension (straight, angle and U-coal blades)
- 1) Width \_\_\_\_\_ mm
  - 2) Height \_\_\_\_\_ mm
- m) Cutting blades
- 1) Number of cutting edges \_\_\_\_\_
  - 2) Number of segments \_\_\_\_\_
  - 3) Cutting depth \_\_\_\_\_ mm
  - 4) Material specification/Special properties/Features \_\_\_\_\_
  - 5) Number of bolts required \_\_\_\_\_
  - 6) Reversible/Not reversible \_\_\_\_\_

**4.14.2 Rippers**

- a) Parallelogram ripper/radial ripper assembly \_\_\_\_\_
- b) Number of shanks \_\_\_\_\_
- c) Shank swivel each way \_\_\_\_\_ degrees
- d) Penetration \_\_\_\_\_ mm
- e) Shank mass \_\_\_\_\_ kg
- f) Earth conditions for dozing \_\_\_\_\_

**4.14.3 Optional Attachments/Equipment** \_\_\_\_\_

**4.14.4 Other Attachment/Equipment** \_\_\_\_\_

**4.15 Standard Equipment** \_\_\_\_\_

**4.16 Gauges and Indicators**

- a) Engine water temp (°C) \_\_\_\_\_

b) Engine oil pressure (kPa) \_\_\_\_\_

c) Transmission oil temp (°C) \_\_\_\_\_

d) Transmission oil pressure (kPa) \_\_\_\_\_

e) Ammeter reading \_\_\_\_\_

**4.17 Safety Systems** \_\_\_\_\_

**4.18 Noise Levels** \_\_\_\_\_

**4.19 Emission Levels** \_\_\_\_\_