

व्यावसायिक परीक्षण रिपोर्ट (प्रथम बैच)  
COMMERCIAL TEST REPORT (1<sup>st</sup> Batch)  
(ONLINE TESTING)

संख्या/No.: PT-169/1582  
माह/Month: January, 2024

**THIS TEST REPORT IS VALID UPTO 31.12.2032**



## SHRACHI VIRAT 13 HP POWER TILLER



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि एवं किसान कल्याण विभाग

Department of Agriculture and Farmers Welfare

दक्षिणी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

Southern Region Farm Machinery Training and Testing Institute

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Tractor Nagar, Garladinne- 515 731, District: Anantapur (A.P.)

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PT-169/1582	<b>SHRACHI VIRAT 13 HP POWER TILLER</b> <b>COMMERCIAL TEST (1<sup>st</sup> BATCH TEST)</b>
	<b>THIS TEST REPORT IS VALID UPTO 31.12.2032</b>

Manufacturer : M/s. V.S.T. Tillers Tractors Ltd.,  
Plot No. 222-224 & 229-232, 3<sup>rd</sup> Phase,  
KIADB Industrial Area,  
Malur, Kolar District-563130,  
Karnataka., **India.**

Applicant : M/s. BTL EPC LTD.,  
2 Jessore Road, Dumdum,  
Kolkata- 700 028, West Bengal, India.

Indigenous/ Imported : **Indigenous**

**SHRACHI VIRAT 13 HP POWER TILLER**

Report No.: PT-169/1582

Month: **January**

Year: **2024**



सत्यमेव जयते

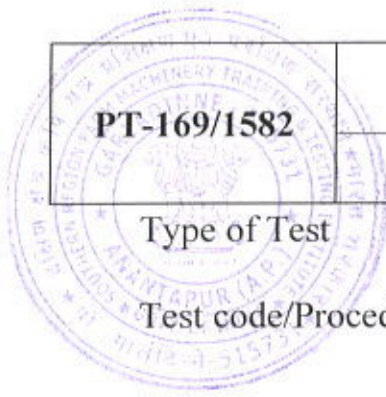
**Government of India**  
**Ministry of Agriculture and Farmers Welfare**  
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**SHRACHI VIRAT 13 HP POWER TILLER  
COMMERCIAL TEST (1<sup>st</sup> BATCH TEST)**

**THIS TEST REPORT IS VALID UPTO 31.12.2032**

Type of Test : COMMERCIAL (1<sup>st</sup> Batch Test)

Test code/Procedure : IS 9935 : 2002 (Reaffirmed 2012)  
IS 9980 :1988 (Reaffirmed 2004)  
IS 13539:2018 (Second Revision)

Period of Test 01.11.2023 to 30.01.2024

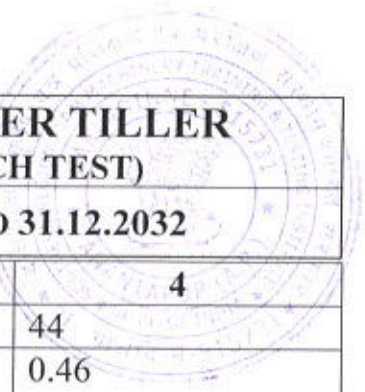
Test Report No. **PT-169/1582**

Month/Year of release January, 2024

- i) The results reported in this report are observed values and no corrections have been applied for atmospheric and site conditions.
- ii) The data given in this report pertain to the particular machine selected randomly from production line by the representative of testing authority for tests.
- iii) The results presented in this report do not in any way attribute to the durability of the machine.
- iv) This report should not be reproduced in part or full without prior permission of the Director, Southern Region Farm Machinery Training and Testing Institute, Tractor Nagar, Garladinne, Anantapur (A.P.).
- v) This is the first batch test report and therefore, should be read in conjunction with the test report of base model i.e “**SHRACHI, VIRAT 13 HP POWER TILLER**” which was tested under Initial commercial testing vide test report no. PT-144/1254 released in February 2021. **This report is valid up to 31.12.2032 Vide Ministry's O.M. No. 13-22/2020-M&T (I&P) dated 12.12.2023.**

**SELECTED CONVERSIONS**

S. No	Units	Conversion Factor
1	<b>Force</b>	
	1 kgf	9.80665 N
		2.20462 lbf
2	<b>Power</b>	
	1 hp	1.01387 metric hp (Ps) 745.7 W
	1 Ps	735.5 W
	1 kW	1.35962 Ps
3	<b>Pressure</b>	
	1 psi	6.895 kPa
	1 kgf/cm <sup>2</sup>	98.067 kPa = 735.56 mm of Hg
	1 bar	100 kPa = 10 N/cm <sup>2</sup>
	1 mm of Hg	1.3332 m-bar



<b>PT-169/1582</b>	<b>SHRACHI VIRAT 13 HP POWER TILLER COMMERCIAL TEST (1<sup>st</sup> BATCH TEST)</b>
<b>THIS TEST REPORT IS VALID UPTO 31.12.2032</b>	

1	2		3	4
	Air intake	:	45	44
	Lube oil consumption,(g/kWh)	:	0.28	0.46
<b>19.2.2</b>	<b>Rotary shaft performance:</b>			
	Maximum power, (kW)	:	7.5	7.5
	Specific fuel consumption corresponding to maximum power at rated engine speed, (g/kWh)	:	311	324
	Maximum rotary shaft torque, (Nm)	:	323	308
	Maximum operating temperature of rotary transmission oil, (°C)	:	58	62
<b>19.2.3</b>	<b>Drawbar performance:</b>			
	Maximum drawbar power, (kW)	:	4.3	4.3
	Maximum drawbar pull, (kN)	:	3.04	3.12
	Maximum transmission oil temperature, (°C)	:	51	52
<b>19.2.4</b>	<b>Parking Brake:</b>			
	Maximum braking device control force, (N)	:	565	451
	Efficacy of parking brake	:	Effective	Effective
<b>19.2.5</b>	<b>Noise measurement:</b>			
	Maximum noise at by-standard's position, dB(A)	:	84	82
	Maximum noise at operator's ear level, dB(A)	:	96	97
<b>19.2.6</b>	<b>Air cleaner oil-pull-over test:</b>			
	Maximum oil pull over (%)		0.17	0.18
<b>19.2.7</b>	<b>Mechanical vibration:</b>			
	Maximum amplitude of vibration at, (micron):			
	Gear shifting lever	:	332	287



PT-169/1582		<b>SHRACHI VIRAT 13 HP POWER TILLER COMMERCIAL TEST (1<sup>ST</sup> BATCH TEST)</b>	
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1	2	3	4
	Steering handle grip	: 292	240
	Rotary shaft speed change lever	: 370	272
	Steering clutch lever	: 330	269
	Accelerator lever	: 232	251
<b>19.2.8</b>	<b>Haulage test:</b>		
	Gross mass of trailer, (tonne)	: 1.5	1.5
	Av. traveled speed, (kmph)	: 15.70 to 15.95	16.20
	Distance traveled per liter of fuel consumption, (km)	: 13.09 to 13.43	13.26
	Av. fuel consumption, (cc/km/tonne)	: 49.64 to 50.93	50.28
<b>19.3</b>	<b>Maintenance/service problems:</b>	: None of the problems was observed in the previous sample.	None of the problems was observed in the present sample.
<b>19.4</b>	<b>Adequacy of literature:</b>	: Service Log book, operator's manual and parts list of power tiller in English and operator manual & parts list of engine in English	Service manual, operator's manual and parts list of power tiller in English and operator manual & parts list of engine in English

### 20. Applicant comments

We would take all corrective action/ measures as mentioned by you in report of Shrachi Virat 13Hp Power Tiller 1st Batch test report in Salient observations.

PT-169/1582	<b>SHRACHI VIRAT 13 HP POWER TILLER COMMERCIAL TEST (1<sup>st</sup> BATCH TEST)</b>
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**19. COMPARISON WITH SPECIFICATION AND PERFORMANCE  
CHARACTERISTICS OF PREVIOUS SAMPLE (Test Report No. PT-144/1254,  
February, 2021 of SRFMTTI, Garladinne) and PRESENT SAMPLE**

I. No.	Parameter	Previous Sample	Present Sample
1	2	3	4
<b>19.1</b>	<b>Specification:</b>		
<b>19.1.1</b>	<b>Power tiller:</b>		
	Make	: Shrachi	Shrachi
	Model	: ShrachiVirat 13 HP PowerTiller	ShrachiVirat 13 HP PowerTiller
<b>19.1.2</b>	<b>Engine:</b>		
	Make	: VST SHAKTI	VST SHAKTI
	Model	: VST 130 DI	VST 130 DI
	Bore/stroke, (mm)	: 95/95	95/95
	Specified cubic capacity, (cc)	: 673.4	673.4
	Rated engine speed, (rpm)	: 2400	2400
<b>19.1.3</b>	<b>Fuel system:</b>		
	Make & model of fuel filters	: BOSCH	BOSCH
	Make & model of fuel injection pump	: BOSCH, India F002 F20 044	BOSCH, India F002 F20 044
	Make & model of fuel injectors	: BOSCH,	BOSCH, DSL A150P5557
	Manufacturer's production settings, (kg/cm <sup>2</sup> )	: 250±8	250 ± 8
	Injection timing	: 12±1degree BTDC	12±1degree BTDC
	Make & model of governor	: VST Tillers Tractors Ltd	VST Tillers Tractors Ltd
<b>19.1.4</b>	<b>Cooling system:</b>		
	Total coolant capacity, (l)	: 3.4	3.4
<b>19.1.5</b>	<b>Lubrication system:</b>		
	Oil sump capacity, (l)	: 2.4	2.4
<b>19.1.6</b>	<b>Transmission:</b>		
<b>19.1.6.1</b>	<b>Clutch:</b>		
	Type of clutch plate	: Dry, Multi Friction Plate	Dry, Multi Friction Plate



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## SHRACHI VIRAT 13 HP POWER TILLER COMMERCIAL TEST (1<sup>st</sup> BATCH TEST)

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1	2	3	4
	Size, (mm)	: 144	144
<b>19.1.6.2</b>	<b>Gear box:</b>		
	<b>No. of speeds:</b>	:	
	Forward	: 06	06
	Reverse	: 02	02
	<b>Range of speeds, (kmph):</b>		
	-Forward	: 1.75 to 15.06	1.77 to 14.63
	-Reverse	: 1.52 to 5.69	1.55 to 5.50
<b>19.1.7</b>	<b>Brake:</b>		
	Make	: VST SHAKTI	VST SHAKTI
	Type	: Internal expanding metallic shoe	Internal expanding metallic shoe
	Area of liner, (cm <sup>2</sup> )	: 21.46	21.48
<b>19.1.8</b>	<b>Wheel equipments:</b>		
	Size of tyres	: 6.00 x 12, 4PR	6.00 x 12, 4PR
	Standard track width, (mm)	: 710 (std),590	710 (std), 590
<b>19.1.9</b>	<b>Overall dimensions, (mm):</b>		
	Length	: 2360	2360
	Width	: 880	880
	Height	: 1340	1345
	Ground clearance	: 180	180
<b>19.1.10</b>	<b>Mass, (kg):</b>		
	With rotary tiller	: 429	430
	Without rotary tiller	: 343	345
<b>19.2</b>	<b>Performance characteristics:</b>		
<b>19.2.1</b>	<b>Engine performance:</b>		
	Maximum power, (kW)	: 9.0	9.0
	Specific fuel consumption corresponding to maximum power, (g/kWh)	: 322	299
	Maximum equivalent crankshaft torque, (Nm)	: 37.97	37.97
	Back-up torque, (%)	: 5.88	5.88
	<b>Maximum temperature, (°C)</b>	:	
	Engine oil	: 82	98
	Coolant (water)	: 112	110
	Exhaust gas	: 496	470