

प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट  
INITIAL COMMERCIAL TEST REPORT

संख्या/No. CSIR/CMERI/FMTTC/2023/015

माह/Month: August, 2023

THIS TEST REPORT VALID UP TO : 31<sup>st</sup> AUGUST, 2030



**PSD MS  
POWER MAIZE SELLER**



कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र  
**Farm Machinery Training and Testing Centre**  
सीएसआईआर- केन्द्रीय यांत्रिक अभियांत्रिकी अनुसंधान संस्थान  
**CSIR - Central Mechanical Engineering Research Institute**  
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Test Conducted at

: Farm Machinery Training and Testing Centre  
CSIR- Central Mechanical Engineering Research  
Institute, M G Avenue, Durgapur, Pin – 713209,  
West Bengal.

THIS TEST REPORT VALID UP TO: 31/08/2030

[vide DAC&amp;FW OM No. 13-24/2018 – M&amp;T (I&amp;P) dated 19.09.2018]



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CSIR - Central Mechanical Engineering Research Institute,  
Durgapur - 713209  
(W.B.), INDIA

**Table –5 Data Sheet for TEST at LOAD**

Item	1	2	3
Source of Power	Electric Motor		
Power rating (kw)	0.9	0.9	0.9
Type of Drive	Belt and Pulley		
Variety of Maze	Parjenta 7744		
Grain to cub ratio	87.41	89.41	87.98
Moisture content	13.72	12.52	13.51
Concave clearance (mm)	27.11 to 40	27.11 to 40	27.11 to 40
Atmospheric Temp (°C)	32	31	36
Humidity (%)	86	98	69
Atmospheric pressure (mm of Hg)	74.26	68.26	51.75

**Table – 6 Data Sheet for LOSSES, EFFICIENCY AND CAPACITY**

Sl. No.	Items	Calculation	Test number		
			1	2	3
a	Shelling unit speed (RPM)	Direct Measurement	1632.00	1639.00	1580.00
b	Feed rate (kg/h)	Direct Measurement	624.00	640.80	610.80
c	Grain content in cub	Manual shelling of sample	0.87	0.89	0.88
d	Total grain output in feed (kg)	b x c	545.43	572.95	537.41
e	Total grain output at grain outlet (kg/h)	Direct Measurement	531.96	547.20	526.08
f	Total unshelled grain (Kg)	Sample analysis	0.15	0.10	0.21
g	Percent of unshelled grain (%)	100 x f/d	0.03	0.02	0.04
h	Blown grain in husk outlet (Kg)	Sample analysis	NA	NA	NA
i	Blown grain in husk outlet (%)	100 x h/d	NA	NA	NA
j	Total cracked and broken grain (kg)	Sample analysis	0.34	0.26	0.21
k	Percent of cracked and broken grain (%)	100 x j/e	0.06	0.05	0.04
l	Shelling efficiency (%)	100 – g	99.97	99.98	99.96
m	Total loss (%)	g + i + k	0.09	0.07	0.08





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n	Power rating (Kw)	Direct Measurement	0.90	0.90	0.90
o	Output Performance (Kg/Kwh)	e/n	591.07	608.00	584.53

**Table – 7 Corrected Output Capacity**

a	Feed rate (Kg/h)		624.00	640.80	610.80
b	Output Capacity (Kg/h)		531.96	547.20	526.08
c	Observed moisture content (%)		13.72	12.52	13.51
d	Observed grain ratio (%)		87.41	89.41	87.98
e	Corrected Output Capacity (Kg/h)	$b - ((b(c - 12)/88)40)/d$	238.68	243.35	235.06
f	COC % with feed rate		38.25	37.98	38.48

**Table – 8 Corrected Output Capacity**

Sl. No.	Clause 8.2 of IS 7052 : 1973 (reaffirmed 2012)	As observed
1	Total running time, h	28
2	Continuous running time, h	3
3	Breakdowns in shelling unit	No
4	Breakdown in cleaning unit	NA
5	Breakdowns in elevating unit	NA
6	Breakdown in body	No
7	Any major repair conducted	No

## 7 Defects, Breakdown and repair

No defects and breakdowns of the machine were observed during the period of test.

### Observations:

Sl. No.	Observations as per IS 7052:1973 (reaffirmed 2012) clause 8.1.4.5 and 8.1.4.6	As observed
4.1	Presence of any marked oscillation during operation	No
4.2	Presence of undue knocking or rattling sound	No
4.3	Frequent slippage of belts	No
4.4	Smooth running of shafts in their respective bearings	Yes
4.5	Frequent clogging of shelling units	No
4.6	Frequent clogging of sieve aperture	No
4.7	Smooth flowing of material through different components	No
4.8	Vibration free running of fan	NA
4.9	Frequent clogging of grain in elevator unit	No
4.10	Any marked rise in bearing temperature	No

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**11 TECHNICAL LITERATURE**

The operator, maintenance & parts manual of maize sheller was provided during the test which was found adequate, however, the manual should be updated as per IS: 8132:1999, with the inclusion of safety instructions regarding handling of machine.

**TESTING AUTHORITY**

Report Prepared by	Sr. Technical Officer, CSIR-CMERI Farm Machinery Testing Centre	<i>[Signature]</i> 10/08/2023
Report Verified by	Scientist, CSIR-CMERI Farm Machinery Testing Centre	<i>[Signature]</i> 10/08/2023
Report Approved by	In-Charge, CSIR-CMERI Farm Machinery Testing Centre	<i>[Signature]</i> 10/8/2023
Report Approved for release by	Head, Business Innovation and Skill Group, CSIR-CMERI, Durgapur	<i>[Signature]</i> 10/8/23

**12 APPLICANT'S COMMENTS**

Para No.	Our Reference	Applicant's Comments
12	10.1 – 10.5	Noted and will be rectify as per your recommendation

