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Evaluation Report No. E1777J
Printed: March 1979
Tested at: Portage la Prairie
December, 1978
ISSN 0383-3445

**Evaluation
Report**



Report On
JACUZZI 5S4C-8-S2 SUBMERSIBLE DEEP WELL PUMP - 83

prairie agricultural machinery institute

Humboldt, Saskatchewan · Lethbridge, Alberta · Portage la Prairie, Manitoba

DIRECTOR J.A. Peck

JACUZZI 5S4C-8-S2 SUBMERSIBLE DEEP WELL PUMP

MANUFACTURER:

Jacuzzi Canada Ltd.
330 Humberline Drive
Rexdale, Ontario
M9W 1R5

RETAIL PRICE:

\$439.00 (f.o.b. Winnipeg March, 1979)

SUMMARY AND CONCLUSIONS

Measured capacity of the Jacuzzi 5S4C8S2 submersible pump varied from 95 L/min to 25 L/min over a range of discharge heads from 12 to 43 m. Capacity was 11% lower than manufacturer's published data at peak efficiency.

Peak pump-motor efficiency of 27% occurred at a discharge head of 32 m with a flow of 65 L/min. The corresponding power output was 0.34 kW.

The operator's manual was clearly written, containing comprehensive installation, servicing and operating instructions. An electrical wiring kit was provided with the pump.

RECOMMENDATIONS:

No need for recommendations was apparent.

Chief Engineer -- E.O. Nyborg

Senior Engineer -- J. C. Thauberger

Project Engineer -- G.R. Pool

THE MANUFACTURER STATES

The pump-motor efficiency referred to in this report includes the combination of electrical and hydraulic losses of the pump-motor system.

The pump-motor efficiency must not be confused with the pump efficiency, a higher value that is used by manufacturers to evaluate the pump only, regardless of how it is driven.

The power demand of this pump is less than the maximum output of the motor, thereby increasing the motor life expectancy.

GENERAL DESCRIPTION

The Jacuzzi 5S4C8S2 is a 100 mm diameter, 8 stage, deep well, submersible water pump with a 38 mm (nominal 1-1/2 inch NPT) discharge outlet, designed for use in wells up to 24 m deep. It is powered by a 230 V, 0.37 kW Franklin electric motor.

Detailed specifications are given in APPENDIX I.

SCOPE OF TEST

The performance characteristics of the Jacuzzi 5S4C8S2 were determined with water, over a full range of discharge heads, using a standard pump testing procedure.¹ In addition, the suitability of the operator's manual and the safety of the pump were assessed.

RESULTS AND DISCUSSION

PERFORMANCE CHARACTERISTICS

Pump performance characteristics, over a range of discharge heads from 12 to 46.5 m of water are given in FIGURE 1. Maximum flow rate at 12 m discharge head was 95 L/min, while flow ceased at a discharge head of 46.5 m. The manufacturer's published performance data indicated higher pumping rates than those obtained, over the full range of discharge heads. At the point of peak pump-motor efficiency, the PAMI test data were 11% lower than the manufacturer's published capacity data. The peak effi-

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ciency, occurring at a head of 32 m was 27%. The corresponding flow rate was 65 L/min.

Maximum power output was 0.34 kW, occurring at the peak efficiency point, with a corresponding current draw of 5.60 A.

OPERATOR'S MANUAL AND SAFETY ASSESSMENT

The operator's manual was clearly written and contained comprehensive installation, servicing and operating instructions. Detailed drawings and explanations were provided for various equipment installations.

A power cable selection chart and suggested fuse sizes were provided. A method for splicing the cable to the motor drop cable was clearly explained. If the instructions were followed closely, this method provided a safe electrical connection.

The operator's manual recommended that a suitable pressure relief valve be installed if the pump could generate more than 60 m pressure at the well head.

1. PAMI 77821, *Detailed Test Procedure for Domestic Water Pumps*

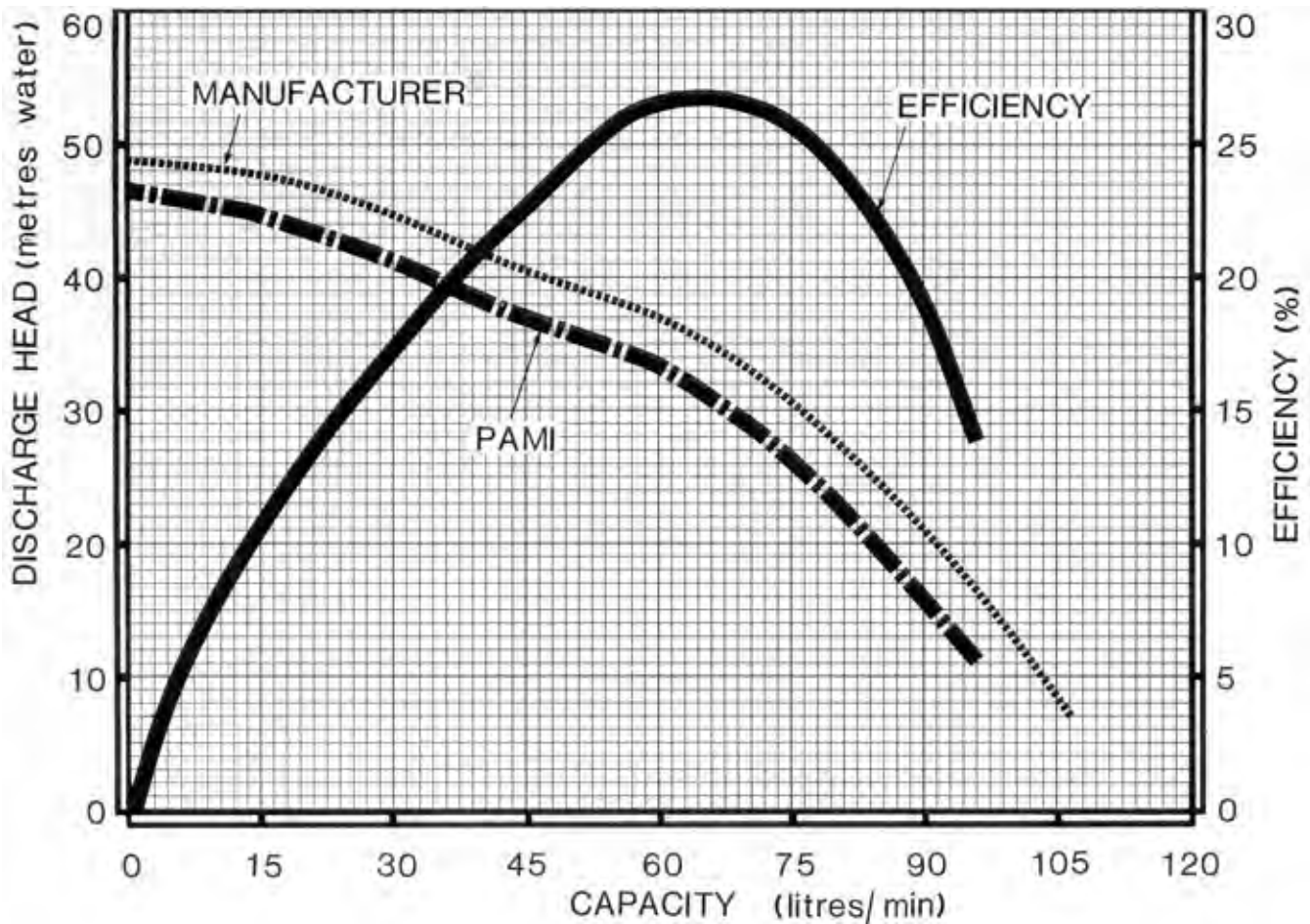


FIGURE 1. Performance Characteristics.

APPENDIX I	
SPECIFICATIONS	
<i>Pump:</i>	
-- make	Jacuzzi
-- model	5S4C-8-S2
-- number of impellers	8
-- speed	3450 rpm
<i>Motor:</i>	
-- make	Franklin Electric
-- model	2143054116
-- size	0.37 kW
-- voltage	230 V
-- ampere rating	5.9 A
-- service factor	1.6
-- speed	3450 rpm
<i>Overall Dimensions:</i>	
-- motor length	255 mm
-- pump length	480 mm
-- total length	735 mm
-- clearance diameter	100 mm
<i>Total Weight:</i>	14.5 kg
<i>Inlet:</i>	
-- location	300 mm above pump foot

-- screen type	metal
-- screen mesh	20 mm ²
-- inlet area	15240 mm ²
<i>Outlet:</i>	
-- nominal size	38 mm (1 1/2 in NPT)
<i>Rope Eyes:</i>	
-- number	1
-- diameter	9 mm x 25 mm

APPENDIX II	
METRIC UNITS	
In keeping with the Canadian metric conversion program, this report has been prepared in SI units. For comparative purposes, the following conversions may be used.	
1 litre/min (L/min)	= 0.22 Imperial gallon/min (gal/min)
1 kilowatt (kW)	= 1.34 horsepower (hp)
1 metre water (m)	= 1.42 pounds/square inch (psi)
1 metre water (m)	= 3.28 feet water (ft)



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