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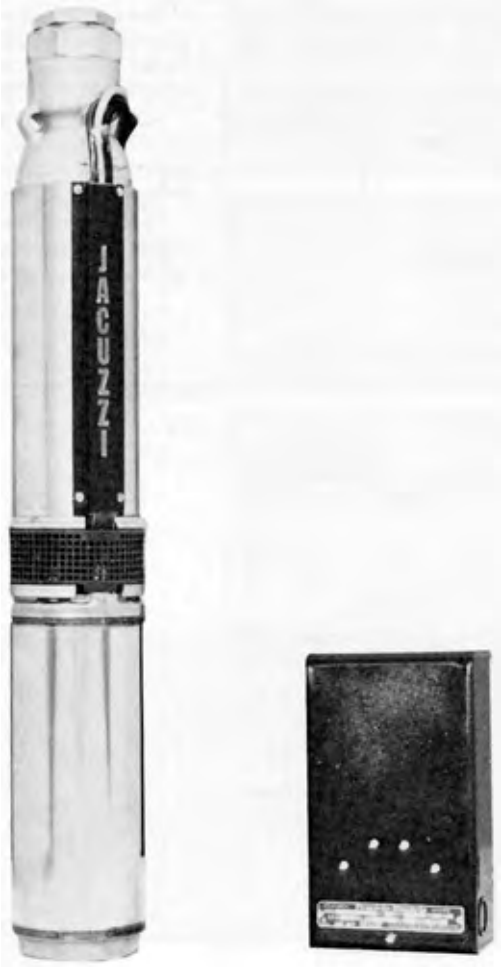
Evaluation Report



Report On

JACUZZI 5S4B-10-S2 SUBMERSIBLE DEEP WELL PUMP - 82

prairie agricultural machinery institute
Humboldt, Saskatchewan · Lethbridge, Alberta · Portage ia Prairie, Manitoba

DIRECTOR ..... J.A. Peck

JACUZZI 5S4B-10-S2 SUBMERSIBLE DEEP WELL PUMP

MANUFACTURER:

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

RETAIL PRICE:

$447.00 (f.o.b. Winnipeg March, 1979)

DISTRIBUTORS:

Jacuzzi Canada Ltd.
85 Keith Road
Winnipeg, Manitoba
R3H 0H7

Jacuzzi Canada Ltd.
3824 - 7th Street S.E.
Calgary, Alberta
T2G 2Y8

SUMMARY AND CONCLUSIONS

Measured capacity of the Jacuzzi 5S4B10S2 submersible pump varied from 55 L/min to 3 L/min over a range of discharge heads from 4 to 70 m. Capacity was 11% lower than manufacturer's published data at peak efficiency.

Peak pump-motor efficiency of 22% occurred at a discharge head of 50.5 m with a flow of 32.5 L/min. The corresponding power output was 0.27 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 5S4B10S2 is a 100 mm diameter, 10 stage, deep well, submersible water pump with a 25 mm (nominal 1 inch NPT) discharge outlet, designed for use in wells up to 55 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 5S4B10S2 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 safety of the pump were assessed.

RESULTS AND DISCUSSION

PERFORMANCE CHARACTERISTICS

Pump performance characteristics, over a range of discharge heads from 4 to 73 m of water are given in FIGURE 1. Maximum flow rate at 4 m discharge head was 55 L/min, while flow ceased at a discharge head of 73 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 efficiency, occurring at a head of 50.5 m was 22%. The corresponding flow rate was 32.5 L/min.

Maximum power output was 0.27 kW, occurring at the peak efficiency point, with a corresponding current draw of 5.3 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

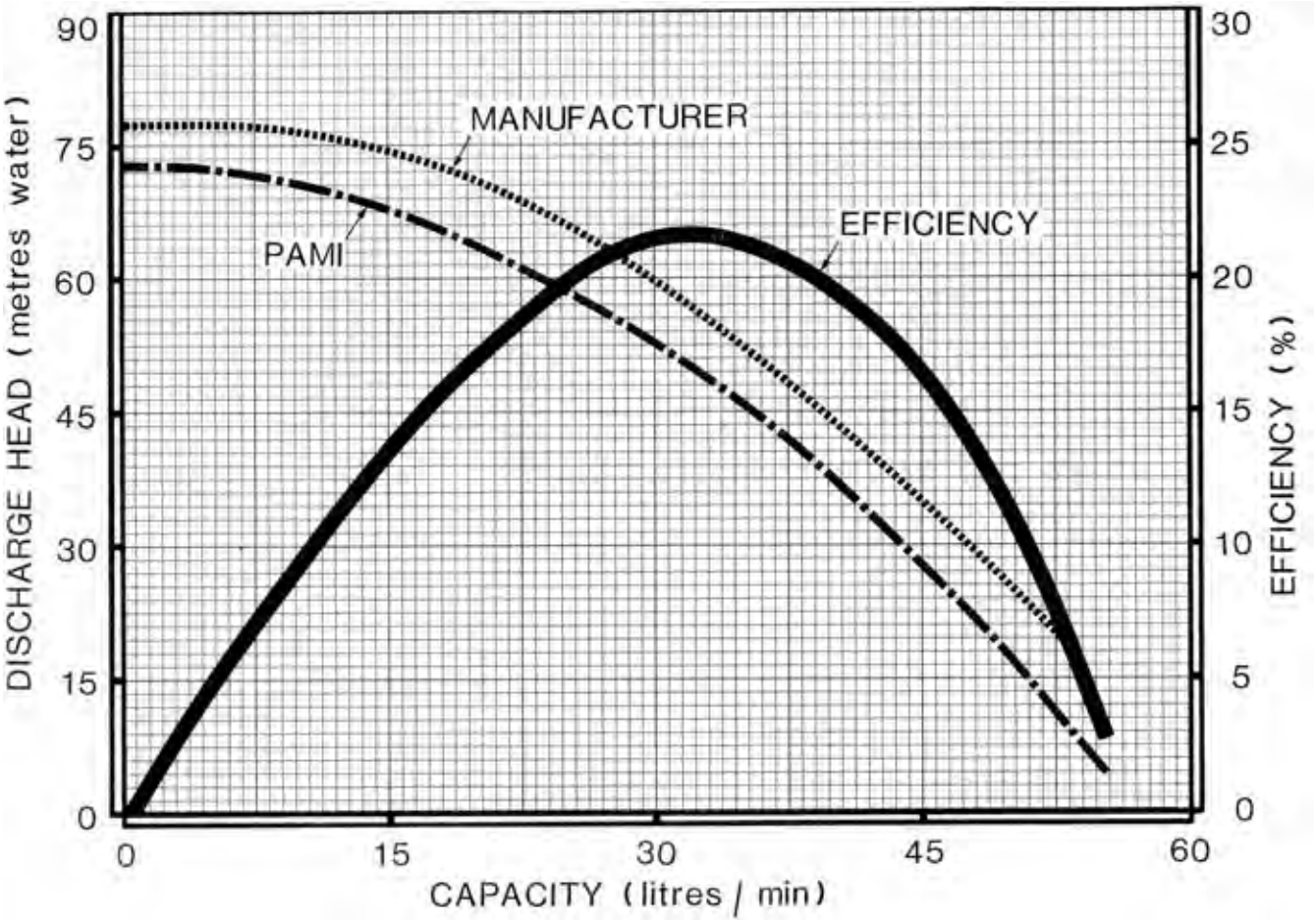


FIGURE 1. Performance Characteristics.

APPENDIX I

SPECIFICATIONS

Pump:	
-- make	Jacuzzi
-- model	5S4B-10-S2
-- number of impellers	10
-- speed	3450 rpm
Motor:	
-- make	Franklin Electric
-- model	2143054116
-- size	0.37 kW
-- voltage	230 V
-- ampere rating	5.9 A
-- service factor	1.6
-- speed	3450 rpm
Overall Dimensions:	
-- motor length	260 mm
-- pump length	390 mm
-- total length	650 mm
-- clearance diameter	100 mm
Total Weight:	13.2 kg
Inlet:	
-- location	280 mm above pump foot
-- screen type	plastic
-- screen mesh	3.0 mm
-- inlet area	8840 mm2
Outlet:	
-- nominal size	25 mm (1 in NPT)
Rope Eyes:	
-- number	1
-- diameter	9 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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