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Evaluation Report



Report On
JACUZZI 7S4A-26-S2 SUBMERSIBLE DEEP WELL PUMP - 84

prairie agricultural machinery institute

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

DIRECTOR

..... J.A. Peck

JACUZZI 7S4A-26-S2 SUBMERSIBLE DEEP WELL PUMP

MANUFACTURER:

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

RETAIL PRICE:

\$571.00 (f.o.b. Winnipeg March, 1979)

SUMMARY AND CONCLUSIONS

Measured capacity of the Jacuzzi 7S4A26S2 submersible pump varied from 39 L/min to 11 L/min over a range of discharge heads from 7 to 127m. Capacity was 12% lower than the manufacturer's published data at peak efficiency.

Peak pump-motor efficiency of 20% occurred at a discharge head of 95 m with a flow of 21.5 L/min. The corresponding power output was 0.33 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 7S4A26S2 is a 100 mm diameter, 26 stage, deep well submersible water pump with a 25 mm (nominal 1 inch NPT) discharge outlet, designed for use in wells up to 135 m deep. It is powered by a 230 V, 0.56 kW Franklin electric motor.

Detailed specifications are given in APPENDIX I.

SCOPE OF TEST

The performance characteristics of the Jacuzzi 7S4A26S2 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 2 to 141 m of water are given in FIGURE 1. Maximum flow rate at 2 m discharge head was 40 L/min while flow ceased at a discharge head of 141 m. The manufacturer's published performance data indicated higher pumping rates than those obtained, over nearly the full range of discharge heads. At the point of peak pump-motor efficiency, the PAMI test data were 12%

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lower than the manufacturer's published capacity data. The corresponding flow rate was 21.5 L/min.

Maximum power output was 0.33 kW, occurring at the peak efficiency point, with a corresponding current draw of 7.41 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 T7821, *Detailed Test Procedure for Domestic Water Pumps*

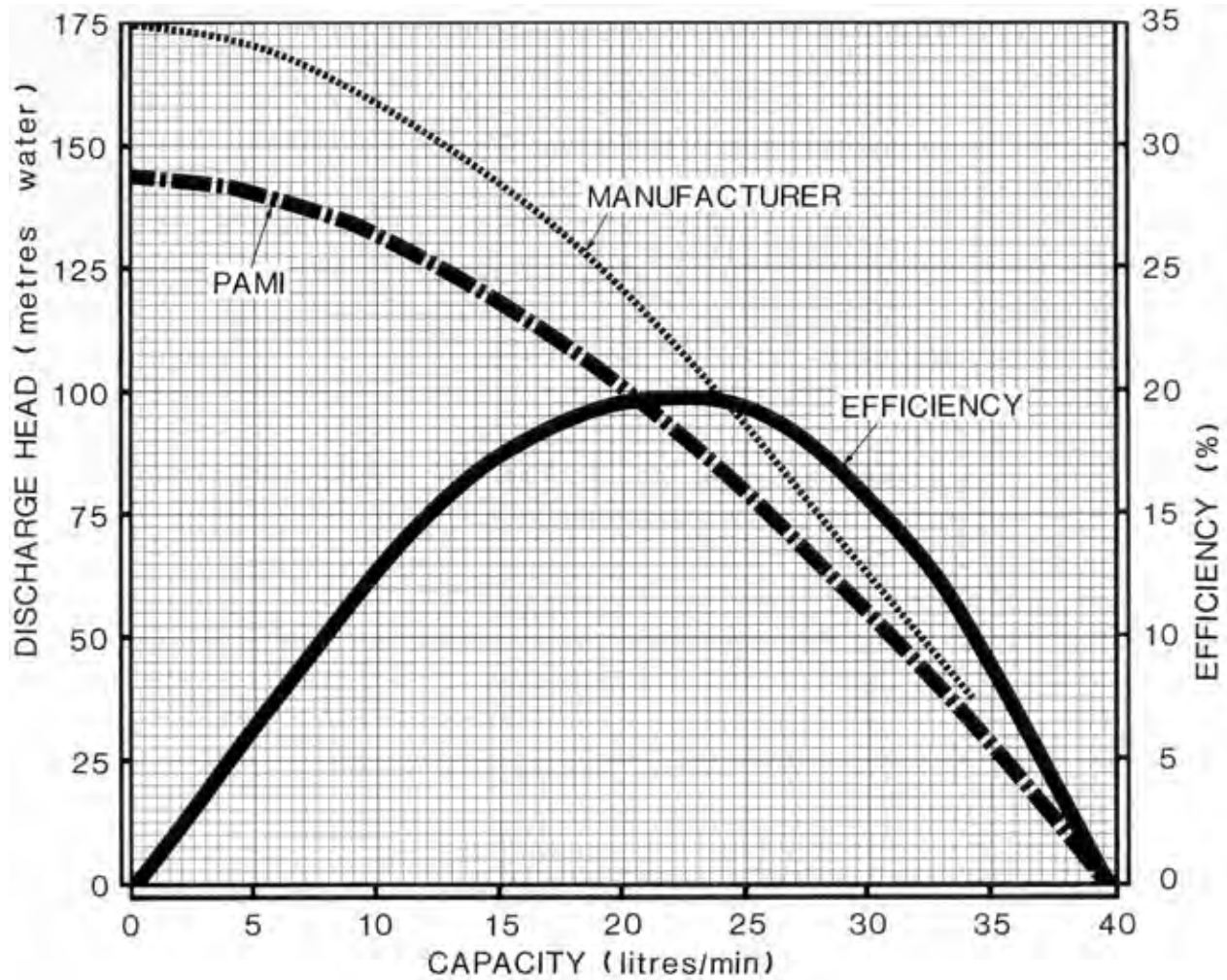


FIGURE 1. Performance Characteristics

APPENDIX I	
SPECIFICATIONS	
<i>Pump:</i>	
-- make	Jacuzzi
-- model	7S4A-26-S2
-- number of impellers	26
-- speed	3450 rpm
<i>Motor:</i>	
-- make	Franklin Electric
-- model	2143074116
-- size	0,56 kW
-- voltage	230 V
ampere rating	8.0 A
-- service factor	1.5
-- speed	3450 rpm
<i>Overall Dimensions:</i>	
-- motor length	280 mm
-- pump length	710 mm
-- total length	990 mm
-- clearance diameter	100 mm
<i>Total Weight:</i>	17.7 kg
<i>Inlet:</i>	
-- location	305 mm above pump foot

-- screen type	plastic
-- screen mesh	3,0 mm
-- inlet area	8870 mm ²
<i>Outlet:</i>	
-- nominal size	25 mm (1 in NPT)
<i>Rope Eyes:</i>	
-- number	1
-- diameter	9 mm

APPENDIX II	
METRIC UNITS	
In keeping with the <i>Canadian</i> 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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