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NSIC

ISO 9001 : 2008

NSIC TECHNICAL SERVICES CENTRE

NATIONAL SMALL INDUSTRIES CORPORATION LTD.

(A Govt. Of India Enterprise)

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NABL
T - 2176

**Motor &
Submersible
Pump Testing
Laboratory**



**Submersible Pumpset
Test Report as per IS 8034 - 2002**

Report No. : NSIC-TSC/SPTL/BIS/10005

Date: 01/04/2016

Testing Date of Commencement : 23/03/2016

Testing Date of Completion : 23/03/2016

NSIC TECHNICAL SERVICES CENTRE
 The National Small Industries Corporation Limited
 (A Government of India Enterprise)
 Submersible Pump Testing Laboratory

TELEGRAM : SMALCORP

TELEPHONE(s) : 2387397, 2387613

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AJI INDUSTRIAL ESTATE
 BHAVNAGAR ROAD
 RAJKOT- 360 003.

TEST REPORT AS PER IS:8034-2002 WITH FOUR AMENDMENT

REPORT No.:NSIC-TSC/SPTL/BIS/10005

DATED : 01/04/2016

PART A : PARTICULARS OF SAMPLE SUBMITTED

- a) Nature of sample : SUBMERSIBLE PUMPSET
- b) Grade/variety/type/class/size : 100 * 32 mm
- c) Brand name, if any : --
- d) Declared values, if any :
- | Head(m) | Dis.(lps) | OA.Effi.(%) | Speed(rpm) | Rating (kW) | Current(A) | Lkg. mA |
|---------|-----------|-------------|------------|-------------|------------|---------|
| 40.00 | 1.00 | 25.50 | 2790 | 0.75 | 7.00 | 50 |
- e) Code No. : --
- f) Heat/Cast/Lot/Batch No. and Date of Manufacture : --
- g) Quantity : One set
- h) Mode of packing : Corugated Box
- i) Date of Sample Receipt in Cell/Condition : 22/03/2016 / Good
- j) BIS Seal : --
- k) IO's Signature : --
- l) Any other Information : --

- The report in full or part shall not be published, advertised or used for any legal action, unless prior permission has been secured from The Dy. General Manager of NSIC-Technical Services Center, Rajkot. This report is intended for "BIS CERTIFICATION MARKS PURPOSE ONLY".
- This test report is ONLY FOR THE SAMPLE TESTED.

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PART B : SUPPLEMENTARY INFORMATIONS

M/s Prakash Gold
Industries,
A-41, Ground Floor,
Sector-7, Noida,
Gautam Budh
Nagar - 201301. UP.

- a) Reference to sampling procedure
whenever applicable : Sample Sent by Party -
- b) supporting document for the
measurements taken and results
derived like graphs, tables, sketches
and / or photographs, as appropriate
to test report, if any (To be attached) : Test Result Table and Graph
attached
- c) Deviation from the test methods as
prescribed in relevant ISS,
Work Instructions, if any : -----

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PART C : TEST RESULTS

SL No.	TESTS / CL REF.	SPECIFIED REQUIREMENTS	RESULTS
1	MARKING (CL.16, IS:8034-2002)		
a)	Manufacturer's Name or Trade Mark (if any)	:	M/s Prakash Gold Industries.
b)	Model	:	PGIO5 410
c)	Serial No.	:	1
d)	No. of Stages	:	10
e)	Bore Size, Minimum	:	100 mm
f)	Head, at Specified Duty Point	:	40.00 m
g)	Discharge, at Specified Duty Point	:	1.00 lps
h)	Overall Efficiency	:	25.50 %
i)	Motor Rating	:	0.75 kW
j)	Nominal Speed	:	2790 rpm
k)	Maximum Rated Current	:	7.00 A
l)	Rated Voltage	:	220 V
m)	Rated Frequency	:	(+6% & -15%) 50, +/-3% Hz
n)	No. of Phase	:	Single
o)	Type of motor	:	CSR
p)	Type of Duty (whether continuous or not)	:	S1
q)	Category Of Motor	:	"B"
r)	Delivery Size	:	32 mm
s)	Operating Head Range	:	30.00 to 44.00 m
t)	Leckage Current	:	50 mA
u)	Type of cooling	:	Oil filled (Wet)
v)	Min. Starting Torque	:	30 % of F.L
w)	Nominal Motor effi.	:	50.00 %
x)	Min Submerge	:	0.50 m
y)	No. of Pole	:	2
z)	Capacitor Rating	:	36 mfd

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PART C : TEST RESULTS

SL No.	TESTS / CL REF.	SPECIFIED REQUIREMENTS	
2	General Construction (CL.5.2.3, IS:9283-2013)		
i)	Bearing housing and base	Grey cast iron (IS:210 Gr.FG-200)	: Satisfactory
ii)	Motor shaft	Wrought steel or Chromium steel	: Satisfactory
iii)	Bearing bush	Leaded tin bronze or Resin bonded carbon metal-clad or Rubber or Rubber-lined	: Satisfactory
iv)	Rotor		: Satisfactory
	a) Laminations	Electrical Sheet Steel	
	b) Conductor Core	Electro Grade Copper Die Cast Aluminium	
v)	Stator		: Satisfactory
	a) Laminations	Electrical Sheet Steel	
	b) Winding Wire	Electro Grade Copper	
	1) Conductor		
	2) Insulation		
	i) For Water Filled Motor	PVC or Polywarp Copper Conductor	: -
	ii) For dry or encapsulated - or oil filled or resinfilled motor	Super Enamelled	: Satisfactory
vi)	Breather diaphragm	Nitrile rubber	: Satisfactory
vii)	Thrust bearing	Vulcanised Fibre v/s Chrom Steel or Graphite v/s Graphite or Vulcanised Fibre v/s Bronze	: Not Applicable
viii)	Cable gland	Nitrile rubber	: Satisfactory
ix)	Cable		
	a) Conductor Core	Electro Grade Copper	: Satisfactory
	b) Insulation	PVC or with polymer and / or sheathing	: Satisfactory
x)	Stator Casing	Gray Cast Iron or Carbon Steel (Sheet or Pipe) or Stainless Steel Sheet	: Satisfactory
3	Cable Size (CL.5.1.1 IS 9283-2013)	The cable shall be insulated and sheathed with suitable polymer. It shall be flexible 3-core or 4- core flat type (or) with insulated leads.	: 3 Core Flat : 2.50 sq.mm
4	Cable Length (CL.8 IS 8034-2002)	The motor shall be supplied with a cable length of minimum 2 m.	: 3 m Long
5	Foreign Matter (CL.5.3 IS:9283-2013)	The motor shall be protected by means of cable glands, rubber seals etc. from ingress	: Satisfactory
6	Earthing (CL.5.2 IS:9283-2013)	Motor shall have suitable provision for earthing	: Satisfactory
7	Finish of Bearings (CL.5.5 IS:9283-2013)	Surface roughness of rotor shaft shall be 0.75 µm Ra Maximum	: Not Applicable
8	Balancing of Rotor (CL.5.6 IS:9283-2013)	The rotor shall be dynamically balanced as per grade 6.3 of IS :11723 (Part-1):1992.	: Satisfactory
9	Tolerances (CL.7.2 IS 9283-2013)		
	a) Shaft extension runout	125 µm Maximum	: 27.00
	b) Concentricity of mounting Rabbat & Shaft	100 µm Maximum	: 66.00
	c) Perpendicularity of Mounting Face of Flange to Shaft	125 µm Maximum	: 72.00

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PART C : TEST RESULTS

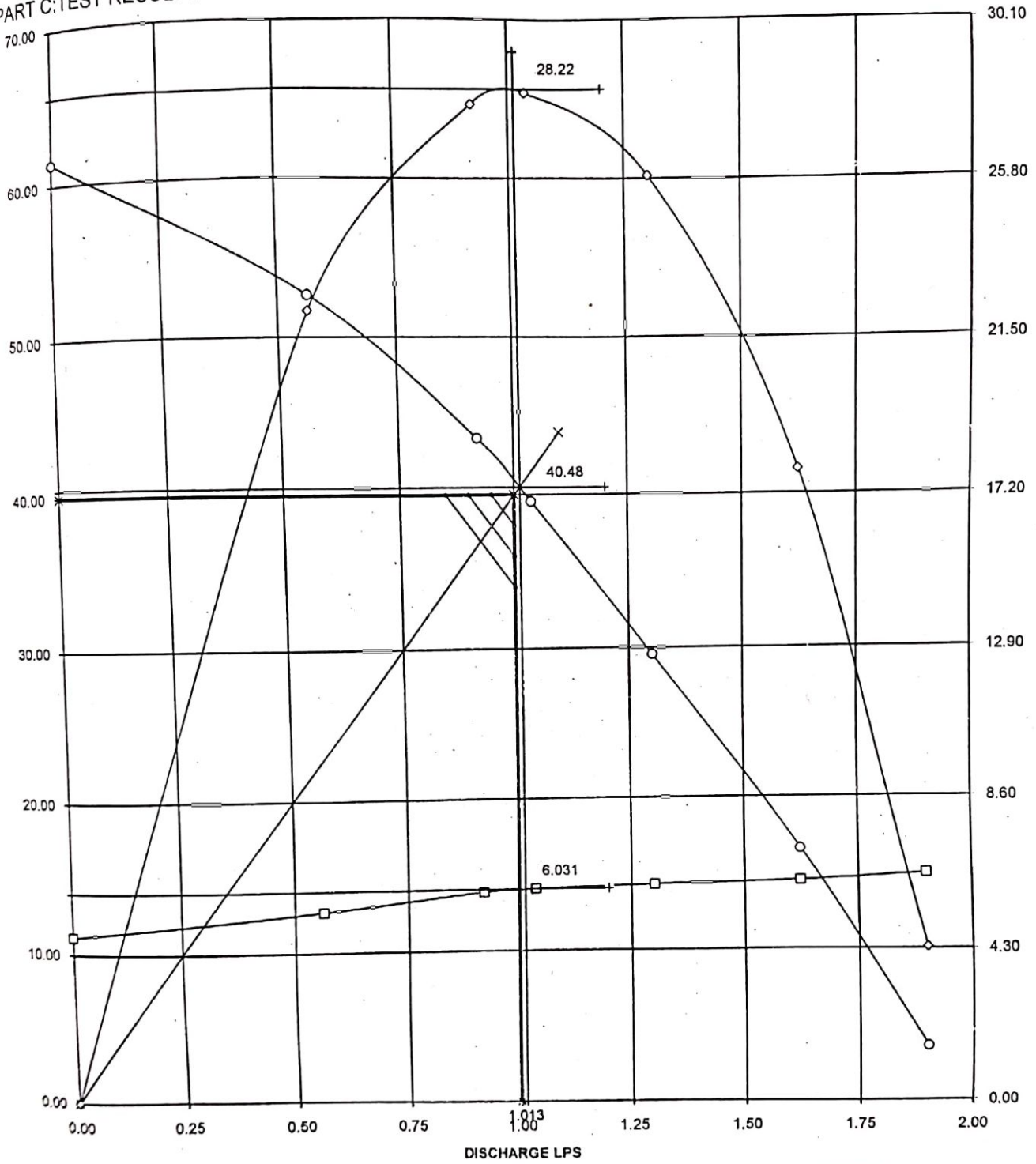
SL No.	TESTS / CL REF.	SPECIFIED REQUIREMENTS	
<u>MOTOR ELECTRICAL PERFORMANCE</u>			
10	Insulation resistance test (CL.21 IS 9283-2013)	Before & After HV test.	More than 5 MegaOhm
11	High Voltage Test (CL.20 IS 9283-2013)	Motor should able to withstand 1.5 KV for 30 sec.	Withstood
12	Measurement of Stator Resistance (CL.16.1.c IS 9283-2013)	Stator resistance at Running Winding in ohm 34.0 degree celcius Starting Winding in ohm	5.30 8.90
13	No load running of motor at rated voltage (CL.16.1d IS 9283-2013)	Voltage Current Power Speed Frequency	V : 220 A : 3.053 Watts : 603.0 rpm : 2987 Hz : 50.05
14	No load running of motor at reduce voltage (75% of rated voltage (CL.16.1.e,IS 9283-2013)	Voltage Speed At Frequency	V : 165 RPM : 2965 Hz : 50.09
15	Locked rotor reading (CL.16.1f IS 9283-2013)	Voltage Current Power input Starting Torque in % of Full Load Torque	V : 213.11 A : 27.938 Watts : 5611 30 : 162.81
16	Temperature rise Test at rated voltage (CL.7.1.1, IS:8034-2002)	Current Temp. Rise 35°centigrade Max. Cooling water temp. 45° centigrade Max.	A : 6.131 : 12.71 : 35.50
17	Temperature rise Test at 85 % of rated voltage (CL.7.1.2, IS:8034-2002)	Current Temp. Rise 45°centigrade Max. Cooling water temp. 45° centigrade Max.	A : 6.756 : 15.75 : 35.00
18	Leakage Current Test at Rated Voltage (CL.23 IS 9283-2013)	Declared by manufacturer mA Max.	50 : 4.10
19	Suitable Coating on rotor (CL.5.2.4 IS 9283-2013)	The Rotor of the wet type submersible motor shall be provided with suitable coating to protect it from corrosion under water	: Not Applicable
20	Breathing attachment (CL.5.2.5 IS 9283-2013)	Motor shall be provided with a breathing attachment like bellows diaphragm , etc	: Satisfactory

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PART C: TEST RESULTS



—x— Intersection — Head — Hedging

	Head (m)	Dis. (lps)	O.A. Eff. (%)	I Max. (A)
DECLARED	40.00	1.000	25.50	7.00
ACHIEVED	40.48	1.013	28.22	6.031
Min. O.A. Eff. In % Requ. In BIS			21.00	

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PART C :TEST RESULTS

PUMP PERFORMANCE TEST REPORT

SAMPLE CODE : --

DUTY POINT

Testing Date : 23/03/2016
Bore Size : 100 mm
Delivery size : 32 mm
Rated Speed : 2790 rev/min
CT ratio : 1

Sr. No. : 1
Model : FGIO5 410
Stage : 10
Type : CSR
Volt : 220

Head(Hg) : 40.00 m
Discharge(Qg) : 1.00 Ips
Overall Effi.(%) : 25.50 %
Head Range : 30.00 to 44.00 m
Motor Rating : 0.75 kW
Current Max. : 7.00 A
Leakge Current : 50 mA
Type : Oil filled (Wet)

Performance Curve at Rated Frequency 50 Hz

Sl No	Speed of Pump, rev/min	Dawn draw, m	Delivery Gauge Reading, m	Velocity Head Correction, m	Total Head, m	Time Taken for 300 Lts. Dis, Sec.	Discharge in, l/s	Watt meter reading W1, watts	Pumpset input, kW	Frequency, Hz	Current, A	Pumpset output, kW	Discharge, l/s	Head, m	Pumpset Input (BP), kW	Overall Efficiency, %	Slip, %
1	2848	1.325	2.0	0.284	3.61	158.0	1.90	1548	1.548	49.96	6.415	0.07	1.900	3.61	1.55	4.34	4.99
2	2852	1.325	15.0	0.207	16.53	185.0	1.62	1469	1.469	49.95	6.230	0.26	1.623	16.57	1.47	17.89	4.84
3	2863	1.325	28.0	0.133	29.46	231.0	1.30	1449	1.449	49.92	6.131	0.38	1.301	29.55	1.46	25.88	4.41
4	2875	1.325	38.0	0.084	39.41	290.0	1.03	1421	1.421	49.90	6.038	0.40	1.037	39.57	1.43	28.13	3.97
5	2888	1.325	42.0	0.066	43.39	327.0	0.92	1403	1.403	49.85	5.958	0.39	0.920	43.65	1.42	27.82	3.44
6	2894	1.325	51.0	0.025	52.35	534.0	0.56	1298	1.298	49.86	5.450	0.29	0.563	52.64	1.31	22.21	3.26
7	2902	1.270	60.0	0.000	61.27	0.0	0.0	1144	1.144	49.94	4.800	0.00	0.000	61.42	1.15	0.00	3.15

PART D : REMARKS

The testing of above sample has been carried out according to IS : 8034 -2002 & IS:9283-2013 and observed value has been mentioned in this report.

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