Lift Irrigation Hydro Power

Aqua & South Asian Hydro Power Stations

- a Symbiotic Relationship

Thanks to our capable R&D, Robust Quality & Sincerity towards developing pumps exclusively for Hydro Electricity applications; Aqua has been awarded the Prestigious

Best Quality Pump Vendor

by

बी एच ई एल
BHEL

(one of the World's Largest Heavy ElectroMechanical manufacturers)

The Best Global technologies go into Aqua's Dry Motor Submerged Pumpsets especially designed for demanding conditions of South East Asian Hydro Power Stations

"Aqua" has specially Designed & Developed this series of pumps keeping in mind the real life situations - i.e. high Silt levels, high Leaching of Calcites, high Delivery & Submergence *(Immersion)* heads *(when flooded)*, etc.

Flood Protection

These heavy duty, high flow x high head pumps are used for controlling water level within the Machine Rooms in case of accidental flooding to avoid catastrophic capital loss.

Dewatering

Dewatering pumps are used for Planned Periodic Maintenance works / Inspection – they have to drain enormous quantities of water from not only the Turbines, but also from its Suction & Discharge Draft Tubes.

Dewatering & Flood Protection pumps have to perform with utmost reliably under arduous conditions as they:

1) they experience long periods of inactivity wherein they are very susceptible to jamming due to silt & calcites.
2) operate against wide water level variations corresponding to wide pump discharge head variation :
   a. this leads to increased vibrations & thrusts
   b. may hamper the ability of motor to start up the pump (as it is buried under silt & has to start up at reduced head condition without valve throttling)

Drainage

Leakage & Seepage from Turbine Shafts, Concrete, etc comes into the machine room galleries which must be drained out continuously & reliably by Drainage pumps- they are designed for 24x7 duties

All the above duties require the pumps typically located at the bottom of sumps to work under Silty & Calcite laden water which :

1) may cause galling/seizure or in worst case burial under silt.
2) severely erodes pumps reducing their discharge pressure to a point where they may shut off against static gravitational head
3) may lead to breakdown of pump bearings (if they are water lubricated)

Cooling Water

Turbine & generator bearings are generally cooled & lubricated by oil which in turn is cooled by water through heat exchanger. Shaft seals, generator windings, brakes, HVAC condensers, etc are also cooled by water. This can be either through open or closed loop cooling system wherein either raw or cleaned water is utilized. Cooling water pumps work round the clock & hence should be of high efficiency & require minimum maintenance.

Fire Fighting

Water is pumped upto an overhead tank from where it gravity feeds the firefighting system. These pumps are left idle for extended periods yet should start up at a moment's notice & hence should be of non-galling/ non seizing type. Aqua's submerged pumps require no special civil superstructure & start up immediately even after extended idle periods.

Feed & Lubricating Water

Clean water can be used to lubricate & cool the turbine shaft seals or pressure feed the labyrinth type shaft seals. ARS HE pumps do the job efficiently & require no routine maintenance.

Reference Installations

(as on March 2021)

Lift Irrigation | Hydro Power

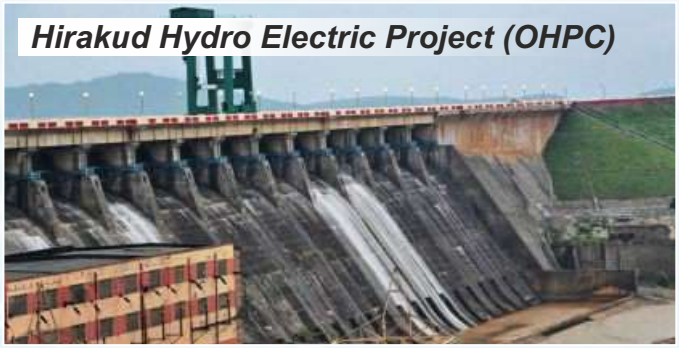
GE *(USA)* acquired Alstom's *(France)* power generation & by 2018 their power plants produced **1/3**rd of the **World's** electricity...!

Project Site	Country	Rating (HP)	Head (m)	Flow (m^3/hr)	Qty. (No)	Year of Supply
Jorethang	India	60	36	204	3	2008
		50	40	110	3	
Thac Mo (1 x 75 MW)	Vietnam	25	34	100	3	2017
Dikchu	India	40	25	175	2	2012
		50	23	265	4	
Lower Solu Hydro Electric Project	Nepal	6	14	35	2	2018
		6	14	35	2	
Chuzachen	India	20	23	80	4	2013
Tehri Pumped Storage Plant (4 x 250 MW)	India	200	73	450	3	2016
		215	77	450	3	
		335	75	760	3	
		5	12	40	2	
		20	41	35	2	
		3	10	10	2	
Tashiding Hydro Electric Project	India	45	36	150	2	2016
		100	38	450	2	
Hirakud Hydro Electric Project	India	140	30	820	2	2016
Baleh	Malaysia	200	55	560	6	-

After trying virtually every make, GE *(Alstom)* have now almost standardized on Aqua's pumpsets for their South Asian HEP's ..!

Tehri Pumped Storage Plant

Hirakud Hydro Electric Project (OHPC)



CHUZACHAN

Tashiding

Jorethang

Dikchu HEP

Reference Installations

(as on March 2021)

Lift Irrigation | Hydro Power

ANDRITZ Hydro

ANDRITZ Hydro is one of the leading global suppliers of electro-mechanical equipment and services for hydropower plants with a total capacity of more than 21,000 MW in India.

Project Site	Country	Rating (HP)	Head (m)	Flow (m^3/hr)	Qty. (No.)	Year of Supply
OPGCL_Middle Bhotekoshi (102 MW)	Nepal	75	25	468	2	2017
		40	25	234	2	
DAK MI-2	Vietnam	25	28	100	2	2017
		22.5	20	150	2	
Nam Theun 1	Laos	50	57	90	5	2019
		450	58	1260	4	2018
		200	50	630	4	
Thuong Kon Tum (2x110 mw)	Vietnam	35	30	150	1	2018
Baglihar-II	India	150	62	360	3	2018
Regional Rusumo Falls	Tanzania	35	32	100	2	2019
		3	10	18	1	
Nam Kong - 3	Laos	100	37	390	2	2020
		12.5	37	30	3	
Shongtong Karchham (3x150 MW)	India	100	50	270	10	2020

Nam Theun 1 (Laos)

Thuong Kon Tum (Vietnam)

DAK MI-2

Reference Installations

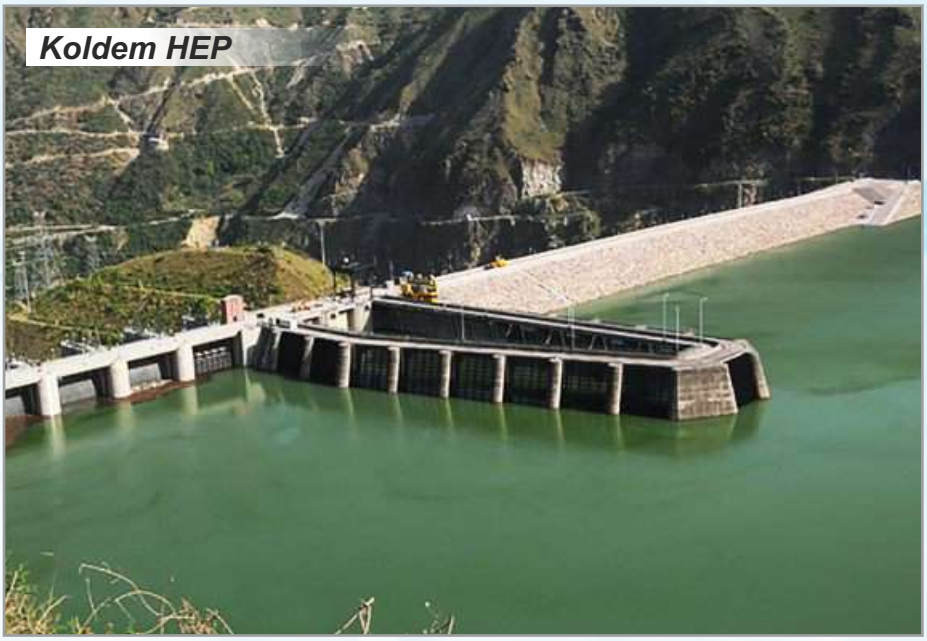
(as on March 2021)

Lift Irrigation | Hydro Power

Gol's Maharatna BHEL has the capability to deliver complete hydro power plants in the range of **5 MW** to **300 MW** unit sizes with various **Turbine** types along with matching **Generators** both of which are designed, engineered, manufactured and tested **at BHEL's own manufacturing plants... !**

BHEL has installed more than 1000 utility sets in thermal, hydro, nuclear & gas based power plants, contributing **53%** to the total installed conventional power generation capacity of India..!

Aqua's & BHEL's collaboration began in 2009 with the challenging pumps for NTPC Koldam HEP *(80m head in Single Stage installed on Auto Coupling System)*.



After 100% successful installations, Aqua has; till date supplied cumulatively **10,650 kW** Submerged Slurry pumpsets to BHEL for it's various Indian as well as Export projects.

Project Site	Country	Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
Grand Katende	**South Africa**	90	33	420	3	2016
		50	30	240	3	
Punatsangchhu - I (6 x 200MW)	**Bhutan**	225	70	360	8	2017
Punatsangchhu - II (6 x 170MW)	**Bhutan**	315	90	360	3	2017
		250	75	372	8	
Alaknanda	**India**	225	41	900	3	2011
		85	41	300	1	
		65	41	225	1	
		30	41	75	2	
Tuirial (2 x 30 MW)	**India**	50	42	150	5	2015
		50	42	150	2	2016
Baira Suil (3 x 60 MW)	**India**	100	45	300	8	2018
		85	40	300	6	
Pranhita Chevella LIS Package – VI (7 x 127.6 MW)	**India**	160	80	270	8	2017
		140	80	210	3	
Pranhita Chevella LIS Package – VIII (7 x 121.5 MW)	**India**	160	80	270	9	2017
		140	80	210	4	
Kameng (4 x 150 MW)	**India**	75	60	150	3	2017
Pranhita Chevella LIS Package – X (4 x 106 MW)	**India**	160	80	270	4	2018
		140	80	210	3	
Pranhita Chevella LIS Package – XI (4 x 96 MW)	**India**	180	90	270	4	2018
		160	90	210	2	

For its NHPC Parbati III, BHEL had to offer **Single Stage x High Head** pumps installed on Auto Coupling system – they chose Aqua to design & develop these **105m** Submerged pumpsets since Aqua was one of very few companies to have strong InHouse R&D capability & a good understanding of Indian HEPs – these are running **satisfactorily since 2013.**


Parbati III

Bharat Heavy Electricals Limited Bhopal
HYDRO PROJECT ENGINEERING DIVISION
Tel. : (0755) 2503359, E-mail : rsingh@bhelbpl.co.in

HPE/PIII /DD/AQUA/01

Date:- 24/07/17

To Whom So Ever It May Concern

This is to certify that for 4 x 130 MW Prabati III HEP, we have supplied **"AQUA" (M/s. Aqua Machineries Pvt. Ltd. Ahmedabad)** make Submersible Slurry Pumps Set (Air Filled, Dry Motor) vide purchase order no 1308136 dated 24/11/2010 and 1308180 dated 14/01/2011 of following ratings:

Head	: 105 mtr	65 mtr
Flow	: 180 m3/hr	300 m3/hr
Motor	: 150 hp/110 kW	150 hp/110 kW
Qty	: 5 no's	10 Nos.
Year of Commissioning	: January 2013	March 2016

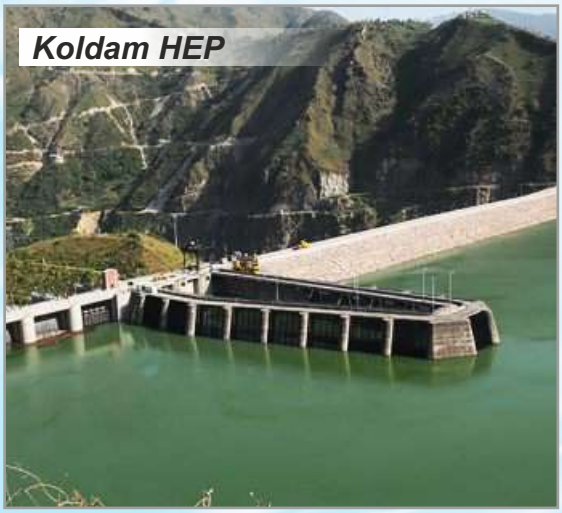
Above pumps are working at site at rated duty parameters and no problem has been reported by end user till date. We recommend the use of "Aqua" make Submersible Slurry Pumpsets for such serious duties of Power House D&D. We have got good technical support from 'AQUA".

(Raghvendra Singh)

NTPC Limited, formerly known as National Thermal Power Corporation Limited, is an Indian government electricity board engaged in the business of generation of electricity and the company contributes to over 25% of total power generation.

AQUA's has supplied pumpsets to it's both HEP's - Koldam & Rammam.

Project Site	Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
Koldam HEP	50	80	60	3	2008
	50	80	60	4	2016
Rammam-III HEP (3 x 40 MW)	90	30	426	6	2019


Koldam HEP


Rammam-III HEP

Reference Installations

(as on March 2021)

Lift Irrigation | Hydro Power

TATA

Aqua's submerged pumps have **Low Life Cycle Costs** & require No Routine Maintenance or Consumables.

At Bhira 150MW Reversible Pump Turbine station, Aqua's Submerged pumps are used to lift **6000 m^3/hr** of water from adjoining Kundalika river into the main Mulshi Reservoir *(which is ultimately used for hydro electric power generation)* **since 2004...!**

TATA

Ref: P/AD-P2/295/167
Date: 19th December 2020

AQUA - Performance Certificate

This is to certify that since June 2004, we are using 6 Nos of Aqua make submerged pump sets at our Bhira Hydro Power Station each of 750 m^3/hr x 60m and equipped with Dry type Submerged (IP 68 enclosure) motor rated for 270hp.

The pump set's performance has been excellent over the years & based on our experience we recommend the use of Aqua make Submerged pump sets.

Ganesh Deshmukh
Head - Bhira

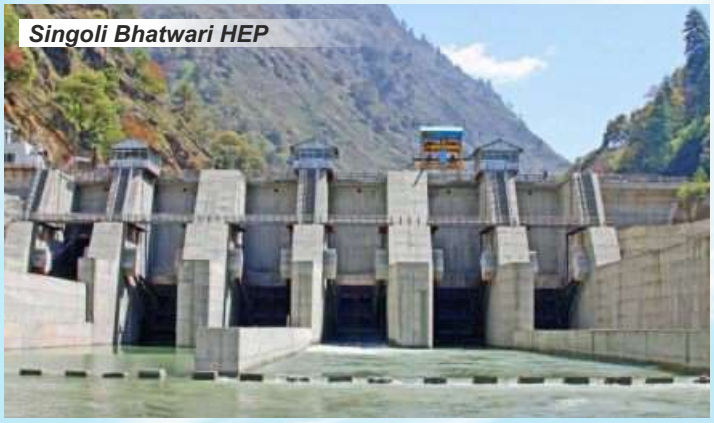
TATA POWER
The Tata Power Company Limited
Generating Station Bhira P O Bhira Taluka Mangaon District Raigad Maharashtra 402 308
Tel (952140) 260004 260005 260006
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001
CIN : L28920MH1919PLC000567 Website : www.tatapower.com Email : tatapower@tatapower.com

---

VOITH
Engineered Reliability

Voith Hydro *(formerly Voith Siemens Hydro Power Generation)* is a joint venture between Voith and Siemens, which is a system supplier for **1/3rd** of the world's hydroelectric power being produced with it's turbines & generators. Voith has chosen our Pumpsets for its various Projects.

Project Site	Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
Sainj	50	35	120	2	2013
Singoli Bhatwari	20	30	45	2	2017
	35	30	175	2	
Bhasmey (2 x 27 MW)	10	26	10	1	2013
	15	25	45	3	
Rongnichu (2 x 48MW)	12.5	15	120	2	-
	6	15	60	2	
	3	15	15	2	


Singoli Bhatwari HEP


Sainj HEP

Reference Installations

(as on March 2021)

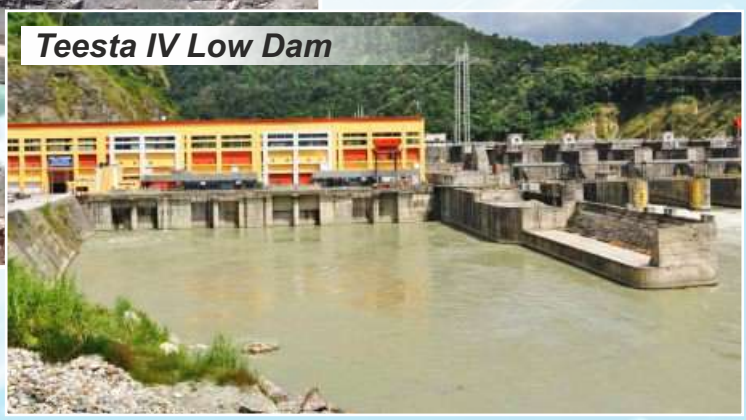
एन एच पी सी
NHPC

As on date, **GoI's** NHPC Limited has become the largest organisation for hydropower development in India - presently it has an installated base of **7000+ MW**.

Aqua's pumpsets are running satisfactorily in various NHPC projects.

Project Site	Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
Teesta V	150	50	420	2	2009
Omkareshwar	80	42	310	1	2009
Parbati III	150	105	180	5	2011
Parbati III	150	65	300	10	2011
Chutak	65	30	300	9	2011
	15	8	300	2	
	10	20	60	5	
	2	6	18	5	
Teesta IV Low Dam	150	54	388	9	2012
	60	35	240	3	
Chamera-1	30	35	102	2	2015
Chutak (4 X 11 MW)	50	30	240	1	2016
Bairasuil	50	360	21	2	2018
Bairasuil (3 X 60 MW)	100	45	300	8	2019
	85	40	300	6	
Rangit	65	27	400	3	2020


Chutak


Teesta IV Low Dam

NHPC is using Aqua's pumpsets at Dulhasti HEP which are running satisfactorily in **wide temperature variation ~3°C** to **+40°C..!**

एनएचपीसी लिमिटेड
(भारत सरकार का उद्यम)
NHPC Limited
(A Govt. of India Enterprise)
(ISO 9001: 2015, ISO 14001: 2015 & OHSAS 45001:2018 Certified)

दुलहस्ती पावर स्टेशन
किश्तवाड जे एण्ड के - 182206
Dulhasti Power Station
Kishtwar (J&K)-182206
Phone-01995-259354,259832
Telefax-01995-260361
E-mail:-dulhasti@rediffmail.com

Ref: NH/DPS/PHEC/DGM/2020/1084 **Date:03/06/2020**

Installation & Performance Certificate

This is to certify that following Supply Orders were placed to M/s Aqua Machineries Pvt. Ltd., Ahmedabad, India for Supply, Installation, Testing and Commissioning of Submersible Slurry Pumps at Power House of Dulhasti Power Station, Kishtwar (J&K).

1. PO No: NH/DPS/PROC/PR-1438/SO-574/2015/2870 Dated: 16.01.2015- Supply of pumps having discharge capacity of 300 m3/Hr. at 65 mtr. Head, 150 H.P, Qty: 01 No.
   Month & Year of Commissioning: June-2015.

2. PO No: NH/DPS/PROC/PR-1431/SO-620/2015/274 Dated: 17.06.2015- Supply of pumps having discharge capacity of 400 m3/Hr. at 65 mtr. Head, 180 H.P, Qty: 01 No.
   Month & Year of Commissioning: March-2016.

All Pumps were installed successfully and performance of the said pumps is found satisfactory.

03/06/20

Dy. General Manager (M)
Dulhasti power Station
Kishtwar (J&K)

Dy. General Manager (PHEC)
NHPC Limited
Dulhasti Power Station
Kishtwar (J&K) 182206

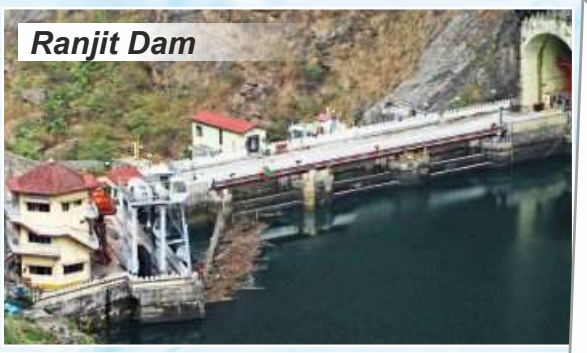
स्वहित एवं राष्ट्रहित में बिजली बचाएं

Project Site : Dulhasti Power Station				
Rating *(HP)*	**Head** *(m)*	**Flow** *(m^3/hr)*	**Qty.** *(No.)*	**Year of Supply**
150	65	300	3	2014
150	65	300	1	2015
180	65	400	1	2016
180	65	400	3	2019

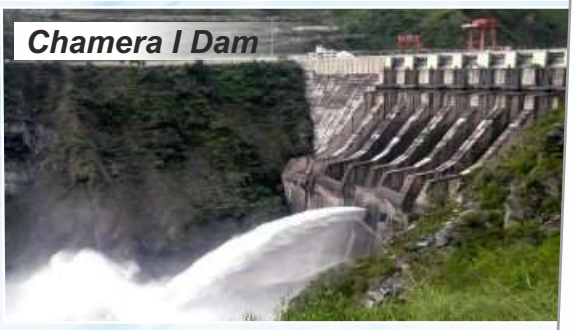

Dulhasti

Reference Installations

(as on March 2021)



Ranjit Dam



Chamera I Dam

Teesta V

NHPC LIMITED
(भारत सरकार का उद्यम)
(A Govt. of India Enterprise)
तीस्ता V पावर स्टेशन
Teesta V Power Station
सिंगटम पूर्वी सिक्किम – 737134
Singtam, East Sikkim - 737134
IMS certified Power Station
दूरभाष/Ph: 03592-247262
फैक्स/Fax: 03592-247227/377

NH/TSV/SM(E)/1687

Date: 25.03.2013

To
M/S Aqua Machineries Pvt. Ltd
Plot No. 3821, GIDC, Phase-IV,
Vatva, Ahmedabad-382445

Sub: Performance of M/S Aqua Machineries Pvt. Ltd. make Submersible Pump
Ref: Your letter No. AQUA/HO/NHPC/SKM/2013/1091 Date: 06.03.13

Sir,

With reference to above, it is to intimate that two numbers of **M/S Aqua Machineries Pvt. Ltd.** make submersible pumps are installed at power house of Teesta-V Power Station as a part of Disaster Management plan during the year 2009-2010. The pumps are not in continuous use. But the testing of the pumps is carried out at regular interval and the performance during testing is found satisfactory. The detail of the pumps are attached in Annexure-I.

This is for your kind information please.

Thanking you,

Yours sincerely,

25/03/13

Dy. Manager (E)
Power House Electrical

Regd.Office:NHPC Office Complex, Sector-33,Faridabad-121003 (Haryana)

OHPC
Odisha Hydro Power Corporation Ltd.

Based on the very satisfactory performance of GE-Alstom's supplied Aqua pumpsets, Odisha Hydro Power Corporation Ltd. have given **Repeat** Specification yet **Direct** order to Aqua.

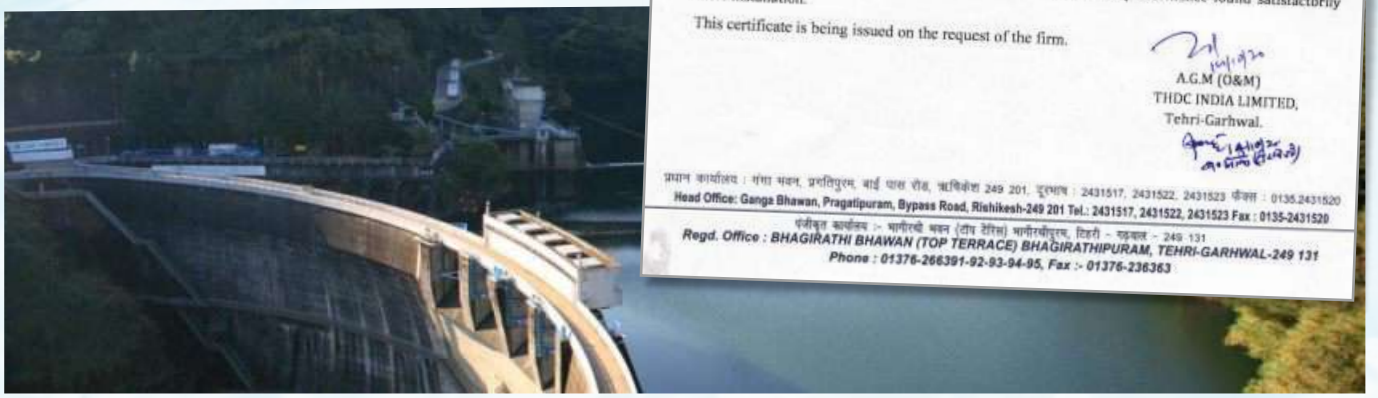
Project Site	Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
Hirakud	140	30	820	1	2017
	140	30	820	1	2020

Hirakud Hydro Electric Project

THDC India Limited

THDC India Limited, is a Public Sector Enterprise under the administrative control of the Ministry of Power *(MoP)*, Government of India *(GoI)* to develop, operate & maintain the **2400**MW Tehri Hydro Power Complex.

Project Site	Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
Tehri HEP	50	68	50	3	2010
Koteshwar	130	70	300	2	2012
HEP	120	48	432	1	2013
Tehri HEP	300	85	432	2	2018



"हिन्दी को राजभाषा बनाना भाषा का प्रश्न नहीं अपितु देशाभिमान का प्रश्न है"

टीएचडीसी इंडिया लिमिटेड
(भारत सरकार एवं उ.प्र. सरकार का संयुक्त उपक्रम)
टिहरी, टिहरी गढ़वाल, उत्तराखण्ड पिन – 249 131

THDC INDIA LIMITED
(A Joint Venture of Govt. of India & Govt. of U.P.)
Tehri, Tehri Garhwal, Uttarakhand Pin - 249 131

Date: 14.10.2020

TO WHOM SO EVER IT MAY CONCERN

This is to certify that M/s. **Aqua Machineries Pvt. Ltd.,** Ahmedabad has Supplied, Erected, Tested & Commissioned of Submersible Dewatering Pump System for the Flood Preservation Scheme for the Tehri Hydro Power Plant (HPP), against agreement No 27/DGM/C&MM/THDC/TEHRI/2016-17 Dt.23.06.2016

The Pump set particulars Supplied against the agreement are as following:

Pumpset Type	:	**Submerged Dewatering / Slurry Pumpset** with Integral Motor
Application	:	Dewatering Pump System for the Flood Preservation Scheme
Qty	:	2 Nos.
Head	:	85 meter
Flow	:	**432 m^3/hr**
Motor Rating	:	**300 HP / 225 kW**
Voltage	:	415 V

The Pump system was commissioned during Dec'2018 and the performance found satisfactorily since installation.

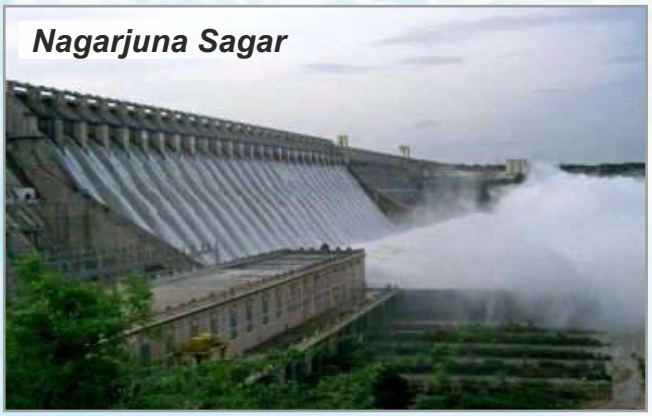
This certificate is being issued on the request of the firm.

A.G.M (O&M)
THDC INDIA LIMITED,
Tehri-Garhwal.

प्रधान कार्यालय : गंगा भवन, प्रगतिपुरम, बाई पास रोड, ऋषिकेश 249 201, दूरभाष : 2431517, 2431522, 2431523 फैक्स : 0135-2431520
Head Office: Ganga Bhawan, Pragatipuram, Bypass Road, Rishikesh-249 201 Tel.: 2431517, 2431522, 2431523 Fax : 0135-2431520
पंजीकृत कार्यालय :- भागीरथी भवन (टॉप टैरेस) भागीरथीपुरम, टिहरी - गढ़वाल - 249 131
Regd. Office : BHAGIRATHI BHAWAN (TOP TERRACE) BHAGIRATHIPURAM, TEHRI-GARHWAL-249 131
Phone : 01376-266391-92-93-94-95, Fax :- 01376-236363

APGENCO

APGenCo are using Aqua pumpsets for their **Nagarjuna Sagar** Tail Pond Dam since **2014 without a single maintenance issue till date..!**



ANDHRA PRADESH POWER GENERATION CORPORATION LIMITED.

APGENCO

SATISFACTORY PERFORMANCE CERTIFICATE

This is to certify that the

i) Work of " *Design, Engineering, testing at works before dispatch, supply,transportation, Delivery of 02 No's Open well submergible pump motor sets (bottom suction type) of capacity 90KW (Discharge 432m3/hr) along with spares for NSTPHES(2x25MW)*" was awarded to M/s Aqua. Machineries Pvt. Ltd, Plot No.3821, Phase IV, Vatva GIDC, Ahmedabad, Gujarat vide APGENCO P.O.No: P.O.No.DM00221CEE(HPC)/SEHD-I/611AISTPD/F.Sub.Pump/D.No.300/12, Dt.17..12.2012.

ii) M/s Aqua. Machineries Pvt. Ltd, Ahmedabad has supplied Heavy Duty Submersible Slurry/Dewatering Pumps of ModelASSHE1542MM120, The pumps were installed for drainage & dewatering duty of NagarjunaSagar Tail Pond Dam HEP on 06.08.2014 and are working **satisfactorily.**

29/01/2020
EXECUTIVE ENGINEER/ELECTRICAL
O&M DIVISION,NSTPHES,
APGENCO, SATRASALA

Project Site	Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
Nagarjuna Sagar Tali Pond Dam, (2X25MW)	120	50	432	2	2013
Srisailam	45	30	180	1	2014

JAIPRAKASH POWER VENTURES LIMITED

Jaypee Ltd. has used our pumpsets for Dewatering during the Dam Construction of its KarchamWangtoo, Baglihar, & Omkareshwar HEPs.

Project Site	Rating (HP)	Head (m)	Flow (m^3/hr)	Qty. (No.)	Year of Supply
Karcham Wangtoo	300	80	432	2	2008
	140	17.5	1520	8	
Baglihar	60	15	600	2	2010
	120	15	1200	2	
	140	17.5	1520	4	
	130	50	360	3	
	20	70	10	3	

Vishnuprayag Hydro Electricity Project is owned by Jaypee Industries & produces 400MW. Aqua's ADS Dredging pumpsets are used for **periodic removal of Silt** from the Cooling Water Sump.

JAIPRAKASH ASSOCIATES LIMITED
KARCHAM-WANGTOO H.E. PROJECT

JAL/KW/ELECT/08/
25th December, 2008

PERFORMANCE CERTIFICATE

TO WHOM IT MAY CONCERN

It is to certify that the NON CLOG ASS Slurry type submersible pumpset of AQUA make S/D starter supplied to Jaiprakash Associates Ltd. for its Karcham Wangtoo H.E.P has performed well in evacuating the silt laden water from Dam foundation.

Pump details are as under :

Model	:	ASS HE 2050 DXL 140
Qty.	:	8 Nos.
Head	:	17 Mtrs.
Rpm	:	1000
Discharge	:	14 Cusecs.
HP	:	140

The pumpset is working satisfactorily.

For Jaiprakash Associates Ltd.

(H.B Ganguly)
Vice President

JAYPEE GROUP

Project Office : Shalu Colony, P.O. Tapri - 172 104, District Kinnaur (H.P.) Ph. : +91 (1786) 261253 - 55, 271605 Fax : +91 (1786) 261258, 242245
Head Office : 'JA House', 63 Basant Lok, Vasant Vihar, New Delhi - 110 057 (India) Ph. : +91 (11) 26141540, 26147411 Fax : +91 (11) 26145389, 26143591
Regd. Office: Sector-128, Noida - 201 304, Uttar Pradesh (India)

VISHNUPRAYAG HYDRO-ELECTRIC PROJECT (400MW)

JAIPRAKASH POWER VENTURES LIMITED

Date: - 18th April, 2008.

Performance Certificate

To Whom It May Concern

It is to certify that the NON CLOG ADS SUBMERSIBLE PUMPSET of AQUA make supplied to Jaiprakash power ventures limited for its Vishnuprayag H.E.P has performed well in evacuating the silt from cooling water sump.

Pump Details are as under:-

Model: - ADS 0633 VM 030
Sr. no.:- 17149
Head: - 30 mtr.
Speed:-1450 rpm.
Discharge: - 60 m³/hr.
KW/HP: - 22.5 / 30.

The Pumpset is working satisfactorily.

For Jaiprakash Power Ventures Ltd.

Ranjit Singh.
Sr. G.M.
V.H.E.P. Joshimath.

JAYPEE GROUP

Vishnuprayag : Vishnuprayag (Mansari Colony), P.O. Joshimath, Distt. Chamoli-246 443 (Uttarakhand) Ph. +91 (1389) 222685, 22256, 22253-24, 222558 Fax : 91 (1389) 222183
Head office : 'JA House', 63, Basant Lok, Vasant Vihar, New Delhi-110 057 (India) Ph. +91 (11) 26141540, 26147411 Fax : +91 (11) 26145389, 26143591
Regd. Office : 113, Rajpur Road, Dehradun - 248 001 (Uttarakhand) Ph. : +91 (135) 2746760, 2748951 Fax +91 (135) 2740960

JKPDC

The HEP's developer, **(ANDRITZ)** had supplied Ritz make **German** *(Non Clog Sewage Submersuible)* pumps *(as a part of its BoP commitment)* to this HEP but these fragile pumps ran into frequent problems *(due to heavy Silt & Calcites)*.

Realizing the need for Robust Engineered pumps, both the Developer & the Client; since then have **replaced the German pumps with Aqua** *(& permanently shifted over to Aqua for newer demand)* & are very satisfied with the same....

Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
150	45	800	2	2013
150	45	800	1	2018

OFFICE OF THE EXECUTIVE ENGINEER GENERATION
DIVISION BAGLIHAR H.E.P-I CHANDERKOTE
Xenegenbhep@gmail.com Tel: 01998288119

Performance Certificate

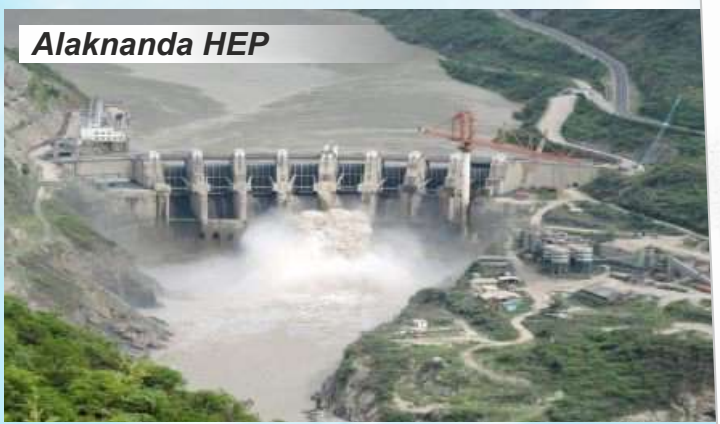
To Whomsoever It May Concern

This is to certify that, the LOA was placed vide no. : GD/PH/BHEP-I/1516-20 dated 31/01/2013 with **M/s. Aqua Machineries Pvt. Ltd. Ahmedabad, India,** for Supply, Installation, Testing & Commissioning of two Nos. 110kW/150 HP Submersible Dewatering Pump sets capacity 700-800 m3/hr x 40-45 mtr head for replacing of original Ritz make Pumps. Supplied pumps were installed in July 2013 for ultra critical Drainage and Dewatering duties of Baglihar -I Power House. The Pumps are in continues operation from 5 years without any breakdown. We are very satisfied with Pump's performance. We recommend using Indian make 'AQUA' Pumps.

No: GD/BHEP-I/2371
Dated:- 30-01-2019

Executive Engineer
Generation Division BHEP-I
Chanderkote

GVK



ALAKNANDA HYDRO POWER COMPANY LIMITED
(Formerly DUNCANS NORTH HYDRO POWER COMPANY LTD)

Date: - 26.06.19

Performance Certificate

To Whomsoever It May Concern

This is to certify that, M/s. Bharat Heavy Electricals Ltd. has supplied following capacity "AQUA" make (M/s. Aqua Machineries Pvt. Ltd. Ahmadabad) Heavy Duty Submersible Pump sets for Alaknanda Hydro Electric Project for Drainage, Dewatering & Flood Dewatering Applications:

Head:	42 mtr
Flow:	900 m3/hr
HP/kW:	285 HP/212 kW
Qty.	3 No.

We are using above supplied pump sets since April 2013. We are very satisfied with Performance of above supplied pump sets for ultra critical Slurry Water Dewatering. We recommended using Indian "AQUA" Make Pump sets for D&D application of Hydro Power Stations.

For Alaknanda Hydro Power Company Ltd.

Authorized Signatory

Koteshwar Colony, Srinagar, Dist. Pauri Garhwal - 246174
Tel.(91-1346) 244338, Tele/Fax.(91-1346) 244336, Email : ahpc.purchase.gvk.com

GSECL
GUJARAT STATE ELECTRICITY LTD.

The Sardar Sarovar Project is one of the largest water resources project of India - the dam's spillway *(discharging capacity 30.7 lakhs cusecs)* would be **3rd highest in the World** & it has an installed capacity of 1200MW (6 x Francis RPT x 200 MW).

They are using Aqua make **400hp** x 70m Head x **1020m³/hr** - effectively the **Largest capacity** Submerged pumpsets used in any Indian HEP.

Form 3(A)

WORK WISE DETALS OF WORK COMPLETED BY THE CONTRACTOR

1. **Name of contractor:-** M/s Aqua Machineries Pvt. Ltd, Ahmedabad.
2. **Name of work :-** Design, supply, Installation & commissioning of High capacity submersible pump and its auxiliaries for Disaster management point of view at SSHEP RBPH K colony.
3. **L.O.I No. :-** GSECL/ SSHEP/ CE(O&M)/F/RBMM/WL-11/18-19/LOI/1073 Dtd. 14/05/2018
3. **Work order no :-** GSECL/SSHEP/CE(O&M)/F/RBMM/WL-11/ WO / 1607 Dtd 21.07.2018
4. **Estimated cost of work put to tender :-** 2,50,00,000.00
5. **Tender amount:-** 2,45,00000.00
6. **Date of starting of work :-** 01.06.2018
7. **Time Limit :-** 06 Months
8. **Time Limit Extension:-** NA
9. **Date of completion of the work :-** 30.11.2018
10. **Actual date of the completion of work:-** 31.01.2019
11. **Amount of work as per final bill :-** 2,45,00,000.00

Signature & Seal of contractor

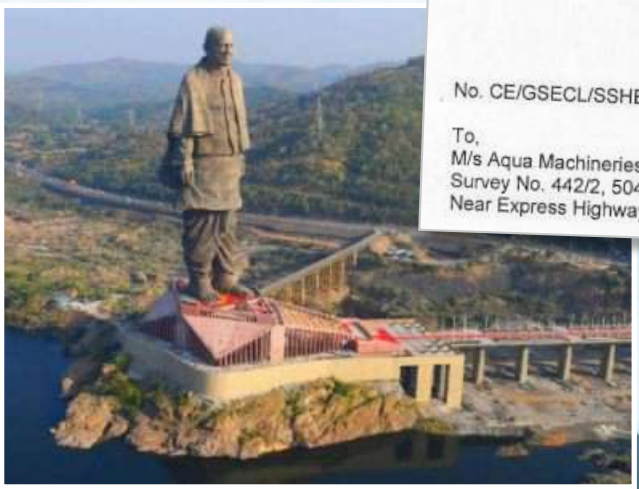
13	State whether the details as above given by the contractor are correct. If not state as to what is the correct information:-	:- The above details are correct as per record
14	State whether the contractor has executed the work satisfactorily as per specification has completed the work satisfactorily as per specification if not give comment position of the work	:- Work completed satisfactory.
15	Any other remarks (Product details)	:- Application : Dewatering of Hydro Power House Head: 70 mtr Flow : 1020 m3/hr HP : 400 HP Qty. : 2 Nos.

Performance of above supplied Pumpsets are satisfactory till date.

Addl. Chief Engineer (O&M),
GSECL, SSHEP, Kevadia Colony.

No. CE/GSECL/SSHEP(O&M)/RBPH E&M/3-A/ 000224 Date : 29 JAN 2021

To,
M/s Aqua Machineries Pvt. Ltd,
Survey No. 442/2, 504/1 & 504/2, Near Haridarshan Estate,
Near Express Highway, Ramol, Ahmedabad-382445



In October **2005**, at India's Largest (1500MW) Hydro Power Station, M/s. Satluj Jal Vidhyut Nigam Ltd. procured an **Imported** "Submersible Sewage" pump *(as a part of contingency measures against accidental flooding)* at it's **Nathpa Jhakri HEP**.

Just 7 days *(after this pump was commisioned),* the power house was accidentally flooded – hence to dewater it's UnderGround Power House; this **Imported "Submersible Sewage"** pump was put on continuous duty **but it failed in just 5 hours..!**

Rating *(HP)*	Head *(m)*	Flow *(m^3/hr)*	Qty. *(No.)*	Year of Supply
300	80	432	10	2007
270	60	432	1	

SJVN Limited/एसजेवीएन लिमिटेड
6X250 मेगावाट नाथपा झाकड़ी जल विद्युत परियोजना
Office/कार्यालय
Power House Mechanical Maintenance Dept./विद्युत गृह यांत्रिक अनुरक्षण
NJHPS, Jhakri, Teh Rampur Br./एन जे एच पी एस झाकड़ी तह रामपुर बुशैहर
Dist. Shimla H.P.-172201/जिला शिमला हिमाचल प्रदेश–172201
Ph. no. 1782–275237, Fax no. 1782–275834 / फोन 1782–275237,फैक्स 1782–275834
www.sjvn.nic.in CIN L40101HP1988GOI008409

No. : SJVN/NJHPS/PHMM./2016-1224-B Dated: 23 September 16

Performance Certificate

Name of Manufacture:	M/s Aqua Machineries Pvt. Ltd. 3821, G.I.D.C. Phase-4, Vatva, Ahmedabad, Gujarat.
Subject:	Submerged Centrifugal Pumps, Capacity – 120 LPS at 80 MT head Motor 300 HP/1500 RPM along with Control Panel and 35mt. Cable.
Qty:	10 Nos.
LOA No.	SJVN/NJHPS/DGM/P&C/Pkg-014 (O&M)/2007/244-50 Dated: - 18/04/2007.

The above installed materials by the manufacturer in year 2008 are working satisfactory till date.

25/09/16
(O. P. Singh)
Sr. Manager, (PH - MM)

Thereafter, m/s SJVNL frantically diverted Aqua pumps from Tata Power Ltd's BHIRA HEP *(on loan basis)* & the Aqua pumps could successfully dewater the power house *(where the Imported pump had failed).*

Now SJVNL is using "Aqua" make Submersible Slurry Pumps of capacity **10nos x 300hp @ 80m** – they are running **since 2008** till date **without any single breakdown** in heavy silt *(often above 5000 ppm)* laden water..!

Lift Irrigation | Hydro Power

Why Aqua...?

Aqua is India's pioneering manufacturer of Hermetically Sealed (Dry Air filled, IP 68.40/ 68.75) Submerged motor pumps & has **successfully substituted** *(& in some case,* ***bettered*** *the performances of)* **many imported pumps**.

The "HE" *(Hydro Electric)* series of submersible & amphibious pumps are specially designed to perform reliably under the arduous conditions prevalent at South Asian Hydro Electric Power Stations *(HEP's)*; they :

- Can **tolerate higher Silt levels**
- Can **Remove settled silt**
- Can **tolerate higher Calcite deposits** *(often encountered in new constructions).*

Calcite Icicles

- Can Tolerate Deep *(upto 40m/75m)* **water submergence** *(encountered during flooded power house).*
- Require No Routine Maintenance
- Can Tolerate Wide Head Range Variation.

Aqua's pumps have :

- Steep Natured Head Flow performance curves,
- it's motors have high inbuilt Reserve Margins;
- Reinforced Shaft, Heavy Duty Greased for Life Bearings &
- Anti Vibration Fastening methods;

enabling them to be started & used with wide head variations.

As the bearings are located deep inside the hermetically sealed motor the pump is essentially non galling / non seizing.

Aqua pumps are ideal for drainage & dewatering applications. They are compact & of great use in narrow spaces - e.g. galleries.

Robust & Reliable

No breakdown even in High **Silt**, Rust & **Calcite** levels.

Zero Aging

Mechanical Shaft Seals are Calcite, Silt & Rust resistant. Bearings are Greased for Life.

User Friendly

The use of Auto Coupling system enables Installation / Removal in matter of minutes *(for cleaning grass, plastics, etc stuck up in suction strainer)*

Ultra Low Maintenance

- **Requires No Consumables or Routine Maintenance** *(like Oil, Grease, Bush, Sleeves, Auto Coupling Rubber Gaskets, etc)*

Aqua Machineries Private Limited

www.aquapumps.com

Registered Office & Manufacturing Plant

Survey No. 504/1-2, 442/2, Near Haridarshan Estate, Near Express Highway, Ramol, Ahmedabad-382 445. Gujarat, India.

marketing@aquapumps.com