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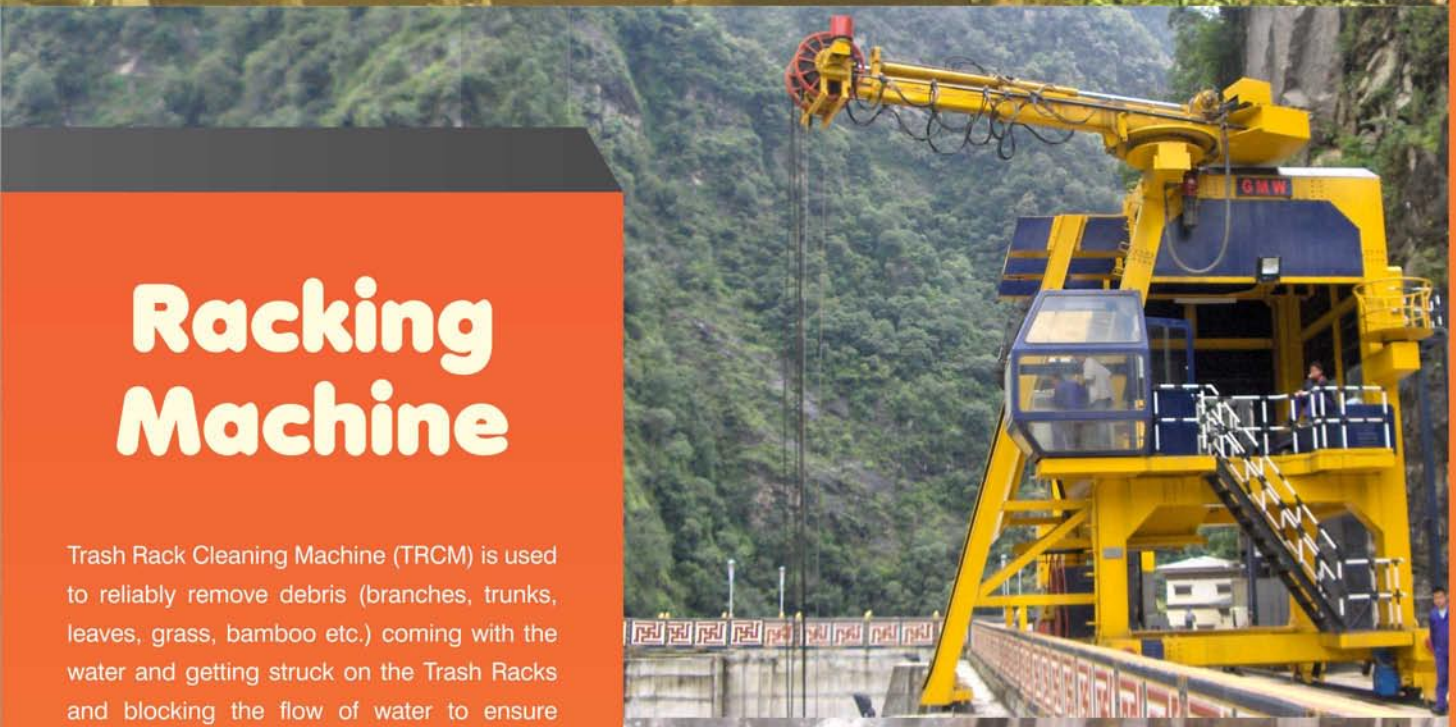
RAKING MECHANISM

GENERAL MECHANICAL WORKS PVT. LTD.

An ISO 9001 : 2008 Certified Company

TRCM with Revolving Apron Plate



TRCM with Hydraulic Boom Crane

TRCM with Hydraulic Grab

Racking Machine

Trash Rack Cleaning Machine (TRCM) is used to reliably remove debris (branches, trunks, leaves, grass, bamboo etc.) coming with the water and getting struck on the Trash Racks and blocking the flow of water to ensure unobstructed flow of water to the turbines. Removal of debris can be done without shutting the plant.

Depending on the density of blockage, trash rack cleaning machines can cause large improvement in generation capacity of the Hydro Power Stations. Particularly, in the flood seasons, when the leaves from trees or in the winter when ice covers some parts, cleaning machines can guarantee an increase in capacity of upto 20-30 %.

Whatever the blockage is like grass, leaves, branches, trees or plastics – GMW has developed various trash cleaning mechanisms for removal and disposal of such debris.

Most of our systems can be equipped with additional crane and grappler for handling of logs, heavy debris, etc.

Hydraulic TRCM

TRCM with Additional Gate/Trash Rack Lifting Mechanism

TRCM with Hydraulic Telescoping Boom

Hydraulic Trash Rack Cleaning Machine

Available in semi automatic and fully automatic variants. Operation for raking is completely hydraulic.

Positive raking force to pierce thick layer of debris for effective penetration, raking and cleaning hydraulically.

The cleaning length of a hydraulic jib trashrack cleaner has been limited to 15 or 20 meters for techno-economical and architectural (height) reasons.

The rake head is provided with replaceable scraper bar(s) and utilizes hydraulic controls to apply pressure against the trash rack during the cleaning process.

Inclined or vertical trash rack can also be cleaned without any requirement of additional guides.

The Rake, when operated in manual mode can pick up floating debris in front of the intake.

All equipment are custom designed for site requirements and can be retrofitted to existing sites.

DESIGN, RESEARCH AND DEVELOPMENT

Each of the machine that is designed by our expert team has one common principle:

EFFECTIVENESS WITH EASE OF OPERATION with focus on functionality, we provide robust design to last the testing conditions at site.

Use of latest Softwares & Techniques, along with inputs from our experienced team of designers about previous large number of our installed equipments along with feedback of site conditions, gives reliable and lasting solution for varied customer requirements.

Use of different materials like zinc plated, stainless steel, duplex stainless steel, latest plastics, biodegradable hydraulic oil, structure of machine with suitable paint coating provides the machine longer and reliable trouble free operational life span.

We also provide retro-fitting solutions for intakes to enhance generation of existing units with minimum of modification and investment.

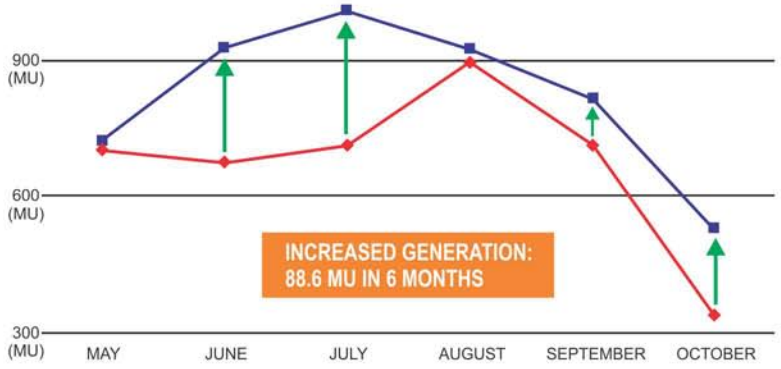
Multi Purpose Hydraulic TRCM with Hydraulic Grappler / Gantry Crane

Features of the Machine

- Hydraulic and electric controls are all accommodated inside weather proof control cabin.
- Rake can be operated automatically (automatic startup can be with pushbutton, and/or differential level controls) and manually to clean all the trashrack bays with one raking unit.
- Requires no conveyors. Can dump the raked debris directly into a truck.
- Flexible - Curved Track as an option.
- The machine can be supplied with several optional attachments. (i.e. hydraulic gripper, log gripper, cleaning rake etc.)
- The rake can be used to remove other equipment such as the trashracks or stoplogs for servicing with an optional attachment.
- Available in Rope Operated and Hydraulic Variants.
- Low maintenance, with no operating parts permanently submerged.

Types of Grappler's & Accessories

Generation Data (in Million Units) for 126 MW Hydro Electric Project in Himachal Pradesh, India Before vs After Installation of GMW TRCM (Actual Data)



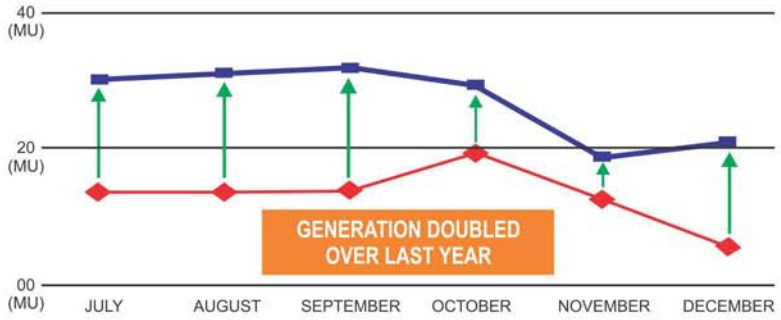
Actual Generation '07

Actual Generation '08

TOTAL GENERATION FOR 6 MONTHS OF '07: 404.24 MU

TOTAL GENERATION FOR 6 MONTHS OF '08 : 492.836 MU

Generation Data (in Million Units) for Chiplima Hydro Electric (3 x 24MW) Orissa Hydro Electric Power Corporation Ltd. India, Before vs After Installation of GMW TRCM (Actual Data)



Generation '09

Generation '10

TOTAL GENERATION FOR YEAR '10: 120 MU

TOTAL GENERATION FOR YEAR '11 : 255 MU

TOTAL GENERATION FOR YEAR '12(upto 20.02) : 316 MU

DATA SOURCE http://powerbase.in/chiplima-hep-gains-trash-rack-cleaning-machine/ & http://www.ohpcltd.com/index.asp?type=generation

SOME OF THE MACHINES INSTALLED

Sr. No.	Name of Customer	Brief Description of Work and Name of Project	Consultant
1.	AMR Power (P) Ltd., Hyderabad	Wire Rope operated Trash Rack Cleaning Machine at AMR Power Plant, Bantwal, Manglore (Under Execution)	
2.	Kurichhu Hydropower Plant, DGPC, Mongar, Bhutan.	Hydraulic Trash Rack Cleaning Machine (TRCM) with Stoplog lifting mechanism configuration of Kurichhu Dam Intakes.	DGPCL
3.	West Bengal State Electricity Distribution Company Ltd., Kolkatta	Trash Rack Cleaning Machine (TRCM), Trash Rack Additional Support system, required for TRCM and all related civil construction work on / near existing bridge of Power house-I of TCFHP.	WBSEDCL
4.	Orissa Hydro Power Corporation Ltd. Bhubaneswar	1 No. PLC Based fully Hydraulic Mobile Trash Rack Cleaning Machine including Trash Racks, differential level measurement systems for 3x24MW Chiplima Power House intake.	OHPC
5.	Druk Green Power Corpn. Ltd., Chhukha, Bhutan.	2 Nos. Hydraulically Operated Trash Rack Cleaning Machines for Chhukha Dam Intakes.	--
6.	Himachal Pradesh State Elec. Board. Mandi, H.P.	1 No. Hydraulic Trash Rack Cleaning Machine with Grappler Device at Power Intake for Larji Hydro Electric Project (126 MW), Dist. Mandi.	--
7.	Tamil Nadu Electricity Board Erode.	1 No. PLC Based Automatic Trash Rack Cleaning Machine (TRCM) for Bhavani Kattalai Barrage - I [BKB-1 HEP (2 x 15 MW)].	--
8.	AD Hydro Power Ltd., Noida.	2 Nos. Trash Rack Cleaning Machines, Trash Racks for 2 x 96 MW Allain Duhangan Hydro Electric Project.	ICCS
9.	Tala Hydroelectric Project Authority Gedu - Bhutan	Trash Rack Cleaning Machine along with Hydraulic Grappler Device. at Tala Hydroelectric Project (1020 MW).	WAPCOS
10.	Irrigation Dept., Govt. of Uttranchal, Uttarkashi	Mobile Trash Rack Cleaning Machine with Revolving Apron Plate for Power Intake at Maneri Bhali Stage - II.	--
11.	Satluj Jal Vidyut Nigam Ltd. Jhakri, Dist. Shimla (H.P.)	Trash Rack Cleaning Machine with Hydraulic Grappler Crane for Dam Intake of 1500 MW HEP.	--
12.	Navyuga Engineering Co. Ltd. Visakhapatnam	2 Nos. Trash Racks, 2 Nos. Automatic Trash Cleaning Device, 08 Nos. Gates, 2 Nos. Travelling Water Screens for Simhadri TPP Stage-I (2x500 MW) of NTPC.	NTPC Fichtner

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