Roto pumps since 1968

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ROTO TECH

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Newton Asked : How To Write 4 In Between 5 ?

1. Medicine Students Said : Joke !
2. Science Students Said : Impossible !
3. Management ! Students Said : Not Found On The Internet
4. Engineering Students Said : "F(IV)E"

EDITORIAL

Dear Partner,

A lot is happening at Roto Pumps & we want our valued stakeholders to be regularly updated. To share the latest news & developments, we are excited to launch our inaugural Quarterly Newsletter.

This quarterly newsletter will feature latest corporate news, technical articles, case studies, new product launch, new installations & new product features.

The inaugural newsletter is featuring technical article "How Helical Rotor Pumps can handle Abrasive Slurries", and news of recent developments in Roto Pumps. We will continue to share the latest updates through our quarterly newsletter with all our stakeholders & it will be an immense pleasure to connect with you all regularly.

Sincerely yours,

Arvind Veer Gupta
Dy. Managing Director
Roto Pumps Ltd.

Editorial Team - Mr. Vinay Kumar Dhar | Mr. Manish Dabas

HANDLING OF ABRASIVE LIQUIDS WITH PROGRESSIVE CAVITY PUMPS

The progressive cavity pumps have been well established in the field of abrasive fluid handling. This article shall describe the various design features as well as steps taken in pump selection that lead to a major increase in the life expectancy of progressive cavity pumps in handling of abrasive fluids.

Progressive Cavity Pumping Principle



The progressive cavity pump belongs to the family of rotary positive displacement pumps. Its pumping principle is dependent on a single helical metallic rotor that turns eccentrically in a double threaded helical elastomer stator of twice the pitch. Due to the special profile of the rotor and the stator, a series of sealed cavities are created 180 degrees apart. As the rotor turns inside the stator these cavities progress from suction end to discharge end. As one cavity reduces, the opposite cavity increases at precisely the same rate. This results in an even, constant and near non-pulsating flow between the pumping elements.

The displacement, in addition to being a function of speed, is directly proportional to three design constants; the cross-sectional minor diameter of the rotor (d), its eccentricity (e) and the pitch of the helix (P) (Fig.1).

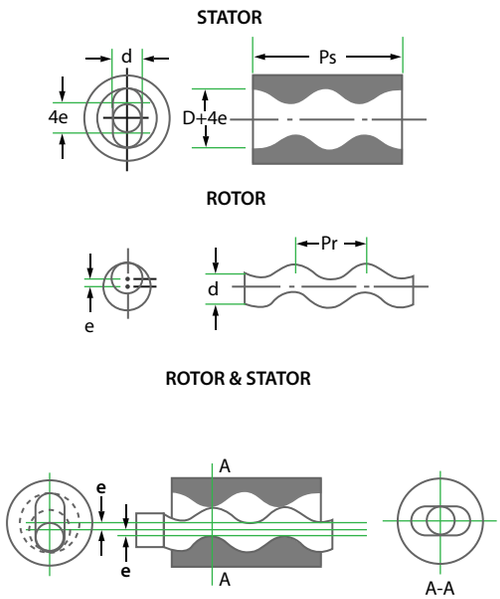

FIG. 1

The pump's pressure capability is a function of the number of times the progressing seal lines are repeated. For example, a single stage element may be capable of pumping efficiently against 6 bar differential pressure and by tripling the length thereby tripling the number of seal lines, the pump shall be capable of operating as a three-stage unit as efficiently at 18 bar pressure. (Fig:2)

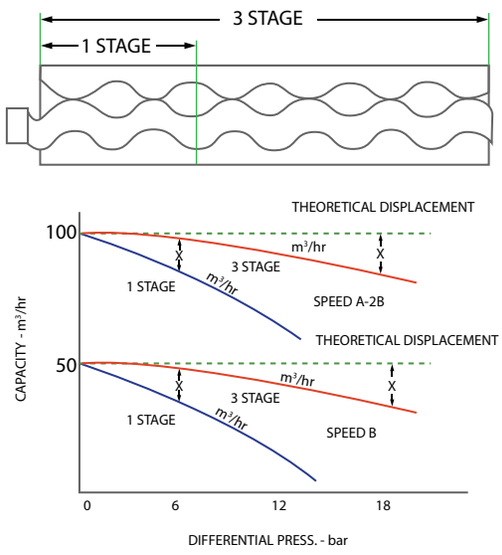

FIG. 2

Numerous advantages result from the low velocity and shear involved while pumping with progressive cavity pumps. For instance, these pumps have excellent capabilities for handling highly viscous & shear sensitive slurries.

Another very important feature that gives this type of pump an advantage for slurry handling is the use of elastomer as stator material. Due to presence of an interference fit between the rotor and the stator, the elastomeric stator provides abrasion resistance beyond that of conventional rotary pumps. The particles in the slurry tend to embed rather than abrade. It also allows deformation to partially accommodate large solids such as rocks, rags, etc.

In addition to basic design, proper material selection, pump selection and system considerations play crucial roles in ensuring pump longevity on an abrasive slurry handling service.

Pump Selection for Abrasive Applications: The Impact of Speed and Stages

Equally significant in overall reduction of maintenance of progressive cavity pumps in an abrasive service has been the improved pump selection-selecting the proper pump, proper speeds, proper number of stages and proper materials of construction. The paramount parameter is the speed. The more abrasive the slurry, the lower the speed, since the amount of wear on an abrasive application is proportional to square of speed.

The adverse effect that speed reduction may have on pump life is best demonstrated by drawing the effect of a fixed amount of wear on the performance curves shown pre; visually (Fig:3) for a speed A and a speed B. It can be seen, that the pump at speed B would have a substantially longer life, particularly when the differential pressure is low. However, under increased pressure, it is obvious that the same amount of wear has a greater effect on the volumetric efficiency at the lower speed than at the higher speed.

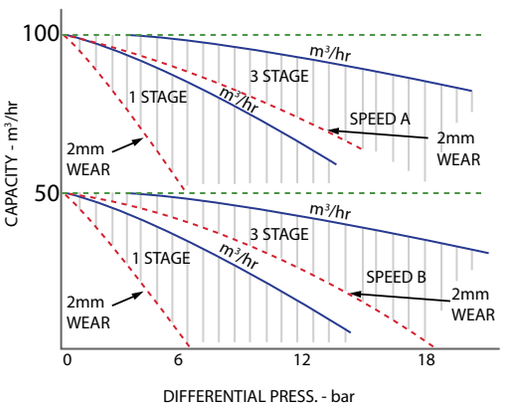

FIG. 3

Viscosity Impact on Abrasive Media Pumping



The viscosity of the liquid carrying the solids plays a role in determining the degree of abrasive wear. If the viscosity is high, an efficient fluid film is maintained between the pump's moving and static components. This cushions the impacts of solid particles, reducing wear. For example, sand in oil is much less abrasive than sand in water.

Differential Pressure Impact on Abrasive Media Pumping

At higher pump speed or greater differential pressure, the impacts between solid particles and pump components are more energetic and damaging. In fact, wear rate is an exponential function of differential pressure. By halving the pressure, wear may be reduced by a factor of four or more.

Materials Selection Impact on Abrasive Media Pumping

Another consideration of paramount importance to pump life on abrasive slurries is the proper selection of materials of pumping element construction. For best abrasion resistance the rotor is made of tool steel, with hardness ranging from 55-58 Rockwell 'C'. Stator compatibility with the fluid being pumped normally dictates its material selection. The most abrasion resistant stator shall be an elastomer. If the elastomer is too soft, the volumetric efficiency under pressure suffers due to the ease of deformation. If it is too hard, it abrades rapidly. Optimum hardness range for maximum life is from 50 to 70 durometer (shore A). By far the most abrasion resistant elastomer compound is a high grade of soft natural rubber. However its lack of oil resistance restricts its use due to its limited compatibility with the fluid being pumped. Second in abrasion resistance and first in over-all compatibility and use is a grade of 65 durometer Buna N (Nitrile).

System Considerations

Progressive cavity pumps should never be run in a dry condition even for a few revolutions or the stator will immediately be damaged. Such an occurrence normally happens, if foot valve is used on a slurry service, which over a period of time tends to get clogged resulting in dry running of the pump. Progressive cavity pumps have high suction lift capability up to 8 MWC and hence the need of a foot valve is completely eliminated. It is also important to ensure that pipe lines are adequately sized in conformity with at least the pump nozzle sizes. Under suction lift conditions, the suction pipe line should be provided with a hump to ensure entrapment of adequate liquid in the pump housing to provide lubrication to pumping elements upon restarting.

Since progressive cavity pump is a positive displacement pump it is advisable to use a pressure relief device on the delivery line of the pump. However, such a pressure relief device for an abrasive slurry application, should never be a conventional spring-loaded pressure relief valve since with usage the valve seat gets abraded away resulting in malfunctioning of the valve thereby jeopardizing the system safety. Wherever the abrasive slurry handled has solidification characteristics, care should be taken to flush the pump before every stoppage to prevent solidification of slurry within the pumping element, which upon restarting may damage the pumping element. Lantern ring connections are normally provided on a pump handling abrasive slurry. It is important to provide a clear flushing liquid at adequate flow rate and pressure. This would ensure that the slurry does not enter the gland area thereby avoiding wear of the shaft under gland and also preventing slurry leakage through gland.

Progressive cavity pump, an equipment recognized and established for its abrasion resistance can almost become maintenance free despite while handling tough abrasive slurries, if proper care and attention is devoted towards its selection of speed, adequate number of stages for good volumetric efficiency, & ideal combination of materials of construction and proper installation.

ROTO NEWS

Roto Pumps UK Appoints Hyxo as Authorized Distributor in Finland

Roto Pumps UK is pleased to announce the appointment of Hyxo Oy as its authorized distributor for Finland. Effective immediately, Hyxo will offer Roto's complete line of progressive cavity pumps, twin screw pumps, and spare parts to customers throughout Finland.

Hyxo is a well-established Finnish company boasts proven track record in diverse industries like water treatment, process industries, and laboratories.

"We are excited to partner with Hyxo to expand our reach into the Finnish market," says Dave Bent, General Manager, Roto Pumps UK. "Hyxo's strong technical expertise and established customer base will be instrumental in introducing our high-quality pump solutions to Finnish companies."

Roto Pumps South Africa Appoints Power Drive as Authorized Distributor in Botswana

Roto Pumps South Africa is pleased to announce the appointment of PowerDrive Botswana as an authorized distributor for its range of progressive cavity pumps. This strategic partnership will strengthen Roto Pumps' presence in the Botswana market, particularly in the wastewater and mining sectors.

PowerDrive Botswana, a well-established player in the electrical industry, has recently expanded its operations into the wastewater and mining sectors. Recognizing Roto Pumps' reputation for quality and reliability, PowerDrive approached Roto Pumps to become a distributor for these industries.

This partnership will provide customers in Botswana with easier access to Roto Pumps' innovative and durable progressive cavity pumps, tailored to meet the specific requirements of wastewater and mining applications.

Roto Pumps North America Appoints Westview Cunningham as New Distributor

Roto Pumps North America (RPNA) is pleased to announce the appointment of Westview Cunningham, a leading industrial pump distributor based in Pittsburgh, PA, as its newest authorized distributor.

"We are thrilled to welcome Westview Cunningham as our new distributor," said Mr. Chris Karasch, President, Roto Pumps North America. "Their strong reputation, technical expertise, and dedication to customer satisfaction align perfectly with our values at Roto Pumps. We are confident that this partnership will be mutually beneficial and allow us to better serve our customers in the region."

Global Launch of Roto Rudra Solar Pumping Systems Website

To tribute our esteemed Co-founder & Former MD. Mr. N. K. Gupta on his 80th birth anniversary. Roto Pumps Ltd. proudly launched the Roto Rudra Solar Pumping website, www.rotoenergy.com on 30th june 2024. Roto Rudra is the brand name of Roto Energy Systems Ltd., a 100% owned subsidiary of Roto Pumps Ltd. To commemorate this special occasion, tree plantation ceremony was organised in his memory, reflecting our commitment to sustainability and innovation.



Roto Energy Systems Limited Changing Mindsets And Helping Farmers Achieve Sustainable Progress.

Normal mindset of the farmer is to install a pump which can deliver maximum water in shortest time. When the farmers are asked why high ratings pumps are desired, the farmers general answer is that Electric Power is not available most of the time and when it is available they want to utilize it to the fullest by installing higher HP pumps. This results in miss use of electric power and more burden on transformers. If more water is pumped in less time, it also results in ground water abuse and it further results in decrease in land productivity as well.

One such farmer Mr Ram Saran Pandey from Village: Anjani, PO: Siroli, Tehsil: Aonla, Dist: Bareilly came in contact with Roto Energy Systems Limited. The farmer was contemplating purchasing 7.5 HP Tubewell Pump. The new connection would have costed him between INR 3 – 3.5 Lakhs. Further as electric supply is erratic in his village, he would have additionally spent Rs 800 (Approx) per day on the diesel for the gensets required to run the 7.5 HP pump set (Not to forget hazel of purchasing, transportation and storing diesel).

Roto Energy Systems Limited provided an alternate optimized Stainless Steel Solar Pump Solution to this farmer installing RSSC 38-J Model with 5 HP Water Filled 10 Pole 3000 RPM PMSM Borewell Motor with 4995 Wp Monoperc Solar Modules. This system is not only fulfilling the water requirement of the farmer, it has also costed him less than half the price which he would have otherwise spend on the tubewell system. Further as no operational cost is required for Solar, the system will be running for free for 25-30 years. Also in case of Solar the land will be irrigated during day time when Sun Power is available, so the farmer need not rush to the field in odd time (Early mornings or late night which earlier he was doing as power supplies were available in odd times). This Solar Pumping System will help the farmer spend quality time with his family as well.

Most of the farmers in this village and in surrounding villages are also now interested in going the solar way with ROTO Energy Systems Limited.



Roto Pumps India Bagged Prestigious Project Order from a Leading Electronics Manufacturer Company

Roto Pumps India is thrilled to announce a prestigious project order from leading Electronics Manufacturing Company. This order includes three RMAK632 model pumps designed for filter press applications at the Micron semiconductor plant in Gujarat. These pumps feature a wear compensation stator with the innovative ROTO KWIK Maintenance in Place Design for quick maintenance. This project order reinforces Roto Pumps India's position as a leading provider of pumps for critical applications in the semiconductor industry.

Application Details

Media: Thickener Sludge

Flow: 7-30 m^3/hr

Discharge Pressure: 7/1 bar

Pump RPM: 84-271

Viscosity: 1-3 cP

Roto Pumps MENA FZE Wins Significant Order for Drain Vertical Sump Pump in a Gas Development Project, UAE

Roto Pumps MENA FZE is proud to announce a significant order from a leading EPC for the Development Project in UAE. The order includes the provision of vertical closed drain oil vessel mounted pump tailored for challenging drain applications. The pumps are designed to handle media with high chloride and H2S content, ensuring robust performance under harsh conditions. This project underscores Roto Pumps' commitment to engineering excellence and its capability to meet the stringent requirements of major energy sector players.

Application Details

Application : Closed Drain

Chloride & H2S content values Chloride : 77330 mg/IL, H2S: 65ppm

Pump Model : VMAB40T

Pump Flow : 2 m^3/hr

Differential Pressure : 55 bar

Mounting : Vertical tank mounted

Pump Standards : Complies with API 676

Seal Type : Double seal according to API 682 with Plan 53B

Roto Pumps India Got Breakthrough Order for Spent Grain Transfer Application

We are excited to announce that Roto Pumps India have secured a breakthrough order for a Screw Pump WMAE692 for the transfer of Spent Grain (malt/barley grain with water content). The order has been given by a leading Beer processing company. This order was won under stiff competition, highlighting our strong technical capabilities. This achievement opens up new opportunities in the spent grain transfer application, reinforcing our ability to deliver innovative pump solutions.

Application Details

Media: Spent Grain

Flow: 15,000 kg/hr

Discharge Pressure: 3.50 kg/cm^2

Pump RPM: 52

Viscosity: 1-150,000 cSt

Roto Pumps Successfully Commissioned Pumps for 5 Biogas Projects from Its Biggest Pump Order

Roto Pumps India is proud to announce the successful execution of 5 out of 12 projects for a major biogas customer, as part of one of our largest orders to date. This project involves supplying more than 350 pumps across multiple sites. Our continued progress highlights Roto Pumps' strong commitment to excellence and leadership in the biogas sector. We are on track to complete the remaining projects, reinforcing our robust capability in delivering tailored solutions for the renewable energy industry.

Application details for Pumps per project

Pump Model	Qty.	Fluid	Flow	Pressure
WLCC711	4	Paddy Straw + Napier slurry	50 - 100 m^3/hr	6.08 bar
WLCC71M	2	Slurry Digestate	63 - 125 m^3/hr	5.2 bar
RLGB76M	4	Digestate Slurry	217 m^3/hr	3.04 Kg/cm^2
RLCB59M	4	Digestate Slurry	9-18 m^3/hr	3.73 bar
RLCC671	2	Cow Dung	32-60 m^3/hr	5.59 bar
RLCB611	3	Liquid Digestate	25 m^3/hr	2.5 bar
RLCC71M	2	Liquid Digestate	110 m^3/hr	4.22 bar
RLGB65M	3	Liquid Digestate	26.5-50 m^3/hr	0.6 Kg/cm^2
RLCB59M	2	Liquid Digestate	10-20 m^3/hr	4.02 bar
WLGA611	3	Napier slurry	13.2-25 m^3/hr	4.61 bar

Roto Pumps Australia Supplies First Roto Flex Mining Pump to Underground Gold Mine in Western Australia

We are proud to announce that Roto Pumps Australia has successfully supplied and commissioned its first Roto Flex Mining Pump at an underground gold mine in the Goldfields region of Western Australia. This marks a significant milestone as we continue to strengthen our presence in the mining sector.

This successful deployment highlights the reliability and performance of Roto Pumps Australia's solutions, further reinforcing our reputation in the mining industry.

Application Details

Pump Model: RFAA088

Media: Hyper Saline Mine Water

Flow: 12 lps

Discharge Pressure: 48 bar

Roto Pumps India Enters Artificial Lift Downhole Pump Market with First Two Orders

Roto Pumps India is excited to announce the acquisition of its first two major orders for Artificial Lift Downhole Pumps, marking a significant milestone in its expansion into the oil & gas sector.
The first order comes from a leading Canadian OEM that specializes in artificial lift systems, demonstrating the trust in our Downhole PC Pumps for their efficiency and durability in demanding environments. The second order is from one of the prominent oil & gas company in India for their Coal Bed Methane wells, where our pumps will enhance extraction under challenging conditions.
These orders highlight Roto Pumps India's successful entry into the downhole pump market and strengthen our position as a key provider of innovative solutions in the oil & gas industry.

Order 1 Application Details

Application : CBM

Number of Pumps : 9

Pump Models : RTS 005-1200, RTS 0015-1200, RTS 025-1200

Pump Flow : 5-25 m^3/d

Designed Pressure : 120 bar

Order 2 Application Details

Application : CBM

Number of Pumps : 6

Pump Models : 008SH-1200, 015SH-1200, 020SH-1200

Pump Flow : 8-25 m^3/d

Designed Pressure : 120 bar

Roto Pumps India – Exhibited at Back to Back Sugar Exhibitions

Roto Pumps India successfully showcased its innovative pumping solutions at two major sugar industry exhibitions: the SISSTA exhibition held in Bangalore from August 19th to 20th, and the DSTA exhibition held in Pune from August 24th to 25th.



At SISSTA, Roto Pumps showcased its advanced aggressive chemical dosing pumps, designed to handle corrosive and aggressive chemicals commonly used in the sugar industry. These pumps offer superior performance, durability, and efficiency.



At DSTA, visitors had the opportunity to witness a live demonstration of a running cut section of a Roto progressive cavity pump. This showcased the pump's internal components, construction, and operating principles.

Both exhibitions were met with enthusiastic interest from sugar industry professionals, who were impressed by Roto Pumps' commitment to providing tailored solutions for their specific needs.

Roto Pumps North America Showcased Pumps for Sludge Dewatering at WEF Residuals and Biosolids Conference

Roto Pumps North America Inc. exhibited at the Water Environment Federation (WEF) Residuals and Biosolids Conference, held in June 18-21, 2024, at the Oklahoma City Convention Centre. We showcased a range of Progressive Cavity Pumps including Cake Pumps & Aggressive Chemical Dosing Pumps and received an overwhelming response from the wastewater industry professionals. We have mostly targeted OEM's of Sludge Dewatering such as PW Tech, BDP, BCR, and Alfa Laval.

Roto Pumps UK Team Conquers the National 3 Peaks Challenge for Men's Mental Health

We are thrilled to share the incredible achievement of our team mate Mr. Martin Gillman, Sales Manager, Roto Pumps UK! In the first week of July 2024 week, our dedicated colleagues embarked on a grueling 27-hour challenge to conquer the National 3 Peaks, scaling Ben Nevis, Scaffel Pike, and Mount Snowdon.



Despite facing unexpected hurdles, including a cancelled flight and minimal sleep, the team persevered and completed the challenge with impressive climbing times. Their extraordinary effort was fueled by a noble cause - raising funds for The BroProject CIC, an organization dedicated to supporting men's mental health.

Thanks to the generous support of Roto Pumps Ltd and countless others, the team surpassed their fundraising goal, raising over £5000. These funds will be used to create vital spaces and activities for men in need, as well as train a new group of Mental Health First Aiders. We are incredibly proud of our team's dedication and compassion. Their achievement is a testament to the power of teamwork and the importance of supporting mental health initiatives.

Launch of New Brochure for Mining & Explosive Industry

We are excited to share that we recently launched our Mining & Explosive Industry Brochure. The brochure introduces the Roto FLEX Series (Flexible Shaft Series Progressive Cavity Pumps), specially designed for efficient and reliable mine dewatering, and our advanced Roto Mining Station, offering high-pressure performance and durability in challenging environments.



Additionally, it features our explosive pump range, specifically engineered for safely handling explosive slurries in critical applications. This newly launched brochure reinforces our commitment to providing high-quality, safe, and reliable products for the mining and explosive industries.

Scan QR Code to Download the Brochure

INTERVIEW OF MR. EVAN COONS

Sales Manager with Mr. Chris Davis, Director, Roto Pumps North America



Mr. Evan Coons
(Sales Manager)

What attracted you to RPNA and why do you like working for the organization?
I really enjoy working closely with a small team of great guys at Roto Pumps North America. They work hard every day to building something special. I'm confident in our team to provide me with any support I might need, and I will do my best and offer 100% as well.

How do you prepare as a Roto Sales Engineer?

I do my absolute best to make strong first impressions and build lasting relationships with partners and customers alike. In my mind, the best professional version of myself is someone that my peers can trust and look forward to doing business with, and that begins with building strong professional foundations as well as being an expert on our Roto product line.

What separates yourself from your competitors in the pump industry?
I'm very much a hands on guy, and I am more than willing to do more than provide equipment. I don't mind getting my hands dirty to provide service and support to our customers directly if necessary on site. While my role is primarily capital sales, I began my career with Roto Pumps providing in house support and assembly of our pumps, so I am more than familiar with how our technology works, and how to service it.

NEW JOININGS

Roto Pumps South Africa



Mr. Meryven Soni Maganlal
(Sales & Marketing)

Introducing Mr. Meryven Soni Maganlal has recently joined the sales team of Roto Pumps South Africa and has made a valuable impact since he's joined us. Coming from a technical background, in telecommunication and then the pump industry for 4 years, Mr Merv has already proven his passion and dedication to servicing our existing and new customers. Always ready to take on new challenges with a positive attitude and applying his full potential to his work. He always strives to ensure our customer satisfaction is always the forefront of our business deliverance.



Mr. Nischal Ramdhani
(Sales & Marketing)

Last but not least, I would like to introduce myself, Mr. Nischal Ramdhani, Marketing. I have started here officially in June and growing exponentially with the help of the Roto Pumps Africa team, my Director Mr Ravin Sewnarain who is very hands on and always willing to teach us all from his extensive knowledge, as well as input from India. I have clipped my wings from the national carrier SAA, after 21 years of being a flight attendant travelling the globe. Being in such a different environment in this particular industry has been exhilarating, always learning something new which i thrive upon. I have always been a vibrant, bubbly and energetic person, and taking on the Marketing role allows my personality to shine when meeting new customers and introducing them to the Roto brand. As a team player, Roto Pumps Africa will stem throughout South Africa, Africa and the world!

Roto Pumps Malaysia

I'm excited to join Roto Pumps (Malaysia) and contribute to its continued success. I look forward to collaborating with the team to deliver innovative fluid engineering solution and drive growth.



Mr. Yong Vann Lai
(Regional Director)



Mr. Brian Ng
(Country Manager)

“I am honoured to be entrusted with the responsibility to lead our talented team in strengthening our commitment to delivering exceptional service to our clients across the region

Advanced Pumping Solutions



Progressive Cavity Pumps

Flow - Upto 500m³/hr (2200 GPM)
Pressure - Upto 48 bar (700 PSI)



Twin Screw Pumps

Flow - Upto 940m³/hr (4140 GPM)
Pressure - Upto 16 bar (230 PSI)



Solar Centrifugal Pumps

Capacity - Upto 1000 LPM
(264 GPM)
Head - Upto 250 M
(812 Ft.)



Solar Helical Rotor Pumps

Capacity - Upto 130 LPM
(34 GPM)
Head - Upto 300 M
(975 Ft.)



Downhole Pumps

Capacity - Upto 4-300 m³/day
(1-55 GPM)
Head - Upto 2400 M
(7500 GPM)



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ROTO PUMPS LTD.

Regd. Off. & Global Headquarters

13, Roto House, Noida Special Economic Zone,
Noida-201305, UP, India
Tel: +91 120 2567902-5, Fax: +91 120 2567911
Email: contact@rotopumps.com
CIN: L28991UP1975PLC004152

Overseas Establishments

Roto Pumps Ltd., UK
Email: sales@rotopumps.co.uk
Web: www.rotopumps.co.uk

Roto Pumps Ltd., Australia
Email: sales@rotopumps.com.au
Web: www.rotopumps.com.au

Roto Pumps North America Inc.
Email: sales@rotopumps.us
Web: www.rotopumpsna.com

Roto Pumps MENA FZE
Email: sales.mena@rotopumps.com
Web: www.rotopumps.com

Roto Pumps Africa (Pty.) Ltd.
Email: sales@rotopumps.co.za
Web: www.rotopumps.co.za

Roto Pumps GmbH
Email: sales.rpg@rotopumps.com
Web: www.rotopump.de

Roto Pumps (Malaysia) Sdn. Bhd.
Email: salesmy@rotopumps.com
Web: www.rotopumps.com.my

www.rotopumps.com